

KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	
DRAWING REGISTER	
DESCRIPTION	DWG No
LOCALITY PLAN	2299-T-001
EXISTING SERVICES LAYOUT	2299-T-002
PROJECT NAMEBOARD	2299-T-003
PROPOSED SEWER INFRASTRUCTURE UPGRADES	2299-T-100
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GEELHOUT TO KWANOMZAMO WWTW SEWER RISING MAIN (SHEET 2 OF 3)	2299-T-201
GEELHOUT TO KWANOMZAMO WWTW SEWER RISING MAIN (SHEET 3 OF 3)	2299-T-202
AIR VALVE CHAMBER DETAILS	2299-T-300
AIR VALVE & NON RETURN VALVE CHAMBER DETAILS	2299-T-301
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SURFACE BED LAYOUT	2299-T-402
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ELECTRICAL - KWANOMZAMO PUMP STATION - LIGHTING LAYOUT	2299-T-407
ELECTRICAL - KWANOMZAMO PUMP STATION - SLEEVES & DATA LAYOUT	2299-T-408
ELECTRICAL - KWANOMZAMO PUMP STATION - MCC A SCHEMATIC SHEET 1	2299-T-409
ELECTRICAL - KWANOMZAMO PUMP STATION - MCC A SCHEMATIC SHEET 2	2299-T-410
SECTION S1	2299-T-411
SECTION S2	2299-T-412
SECTION S3	2299-T-413
ROOF LAYOUT	2299-T-414
GENERAL NOTES	2299-T-415

DRAWING SUBMISSIONS				
REV	DATE	SUBMITTED TO	STATUS	DESCRIPTION
00	APR 2026	KOUGA LOCAL MUNICIPALITY	FOR TENDER	FIRST ISSUE

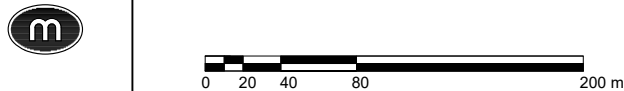
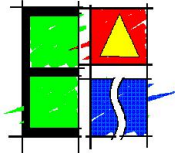


KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN

PROJECT STATUS					
REV	DRAWINGS AMENDED	DATE	DRAWN BY	AMENDED BY	CHECKED BY

FOR TENDER	AMENDMENTS				SCALE	SCALE ON REDUCED DRAWING	DESIGN	CH	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	APPROVED		PROJECT	CONTRACT NO. 106/2026
	NO.	DATE	DESCRIPTION	APPROVED			DRAWN	EAR			ENGINEER	CLIENT		KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	
							APPROVED	CH						DWG DESCRIPTION	
							DATE	APR 2026						COVER PAGE	



FOR TENDER		AMENDMENTS			SCALE  1 : 4000	SCALE ON REDUCED DRAWING	DESIGN	CH	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421 	APPROVED	APPROVED		PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO. 106/2026
		NO.	DATE	DESCRIPTION			DRAWN	EAR		ENGINEER	CLIENT		DWG DESCRIPTION		
							APPROVED	PJ					LOCALITY PLAN - SUPPLY FROM PROPOSED GEELOUT PUMP STATION TO EXISTING KWANOMZAMO WWTW		
							DATE	APR 2026							



FOR TENDER		AMENDMENTS			SCALE 1 : 2000	SCALE ON REDUCED DRAWING 0 10 20 40 100 m	DESIGN	CH	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13667 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	APPROVED		PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO. 106/2026
		NO.	DATE	DESCRIPTION			DRAWN	EAR			ENGINEER	CLIENT		DWG DESCRIPTION		
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							DATE	APR 2026								

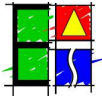
NOTES:

1. BLUE BACKGROUND WITH WHITE BLOCKS FOR NAMES OF CONSULTANTS AND CONTRACTORS.
2. NAME OF CLIENT AND PROJECT DESCRIPTION IN WHITE LETTERING ON BLUE BACKGROUND. IF REQUIRED, THE CLIENT'S LOGO CAN BE PLACED ON A WHITE BACKGROUND IN THE POSITION AS INDICATED. IF NOT REQUIRED, BACKGROUND IS BLUE.
3. THE HEIGHT OF THE BOARD CAN BE INCREASED IN 550mm INCREMENTS TO ALLOW FOR NAMES OF ADDITIONAL CONSULTANTS AND/OR CONTRACTORS EG. ELECTRICAL ETC.
4. TYPE-FACE TO BE USED SHALL BE NEO SANS OR ARIAL. IT IS RECOMMENDED THAT LETRASIGN, SELF-ADHESIVE PVC SIGN LETTERING BE USED.
5. THE BOARD MATERIAL TO BE 1mm THICK RUST RESISTANT CHROMADEK METAL OR 5mm THICK TEMPERED HARDBOARD WITH SMOOTH SURFACE.
6. THE NOTICE BOARD MUST BE MOUNTED ON A STRONG SUPPORTING WOODEN OR STEEL STRUCTURE, APPROVED BY THE ENGINEER AND MUST BE PROPERLY MAINTAINED DURING THE CONSTRUCTION PERIOD. THE BOARD MUST BE REMOVED AFTER THE RETENTION HAS BEEN PAID.
7. THE EPWP LOGO MUST ONLY BE USED IF THE PROJECT IS EPWP REGISTERED.
8. THE LOGO FOR THE CLIENT MUST BE OBTAINED ELECTRONICALLY AND PRINTED IN COLOUR ON THE NAME BOARD.
9. THE LOGO FOR THE ENGINEER MUST BE OBTAINED ELECTRONICALLY AND PRINTED IN COLOUR ON THE NAME BOARD.
10. CONTRACTOR TO PROVIDE CONTRACTORS LOGO & HAVE IT PLACED IN CORRECT LOCATION AS INDICATED.

	3575	
	3525	
550		550
200		200
650		150
150		100
150		150
150		150
175		175
550		100
25		125
		150
		100
		75
		100
		125
		150
		100
		25

**KOUGA LOCAL MUNICIPALITY**

CONTRACT NO. 106/2026 FOR THE
KWANOMZAMO BULK SANITATION:
NEW SEWER PUMP STATION
AND RISING MAIN

CONSULTING CIVIL ENGINEERS
ENGINEERING ADVICE AND SERVICES (PTY) LTD

CONTRACTOR

FOR TENDER	AMENDMENTS				SCALE N/A	SCALE ON REDUCED DRAWING 	DESIGN	CH		APPROVED	APPROVED		PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.
	NO	DATE	DESCRIPTION	APPROVED			DRAWN	EAR		ENGINEER	CLIENT		DWG DESCRIPTION		DWG NO.
							DATE	APR 2026	73 Hough Road, Walmer P.O. Box 13807 Harcourtwood Port Elizabeth 6013 tel: (041) 581 2421	DATE				2298-T-005	ISSUE

LEGEND

CADASTRAL

2.5m CONTOURS

PROPOSED 250mm Ø SEWER RISING MAIN

DRAINAGE PATHS

KWANOMZAMO EAST + KWANOMZAMO WEST + SHUKUSHUKUMA + UPPER GOLF COURSE KWANOMZAMO 400 (POLAR PARK 553) + DIEP RIVIER

LOWER GOLF COURSE 153(POLAR PARK 553) + GEELHOUT EAST +GEELHOUT WEST + BUNGALOWS + POLAR PARK 257

1 IN 100 YEAR FLOODLINE

SEWER ZONES UNITS	
LOCATION	TOTAL UNITS
POLAR PARK 257	257
BUNGALOWS	103
LOWER GOLF COURSE 153 (POLAR PARK 533 SOUTH)	153
GEELHOUT WEST	625
GEELHOUT EAST	625



PROPOSED GEELHOUT SEWER PUMP STATION TO SERVICE GEELHOUT WEST,GEELHOUT EAST & LOWER GOLF COURSE 153 (POLAR PARK 553) AND THE OVERFLOW FROM BUNGALOWS AND POLAR PARK 257

EXISTING KWANOMZAMO SEWER PUMP STATION

EXISTING OLD KWANOMZAMO SEWER PUMP STATION

EXISTING KWANOMZAMO WWTW INLET WORKS

PROPOSED BULK SEWER RISING MAIN

KWANOMZAMO EAST

BUNGALOWS

POLAR PARK 257

SHUKUSHUKUMA

KWANOMZAMO WEST

UPPER GOLF COURSE
KWANOMZAMO 400
(POLAR PARK 553)

LOWER GOLF COURSE
153(POLAR PARK 553)

GEELHOUT WEST

GEELHOUT EAST

DIEPRIVIER

PARK STREET

R330

R102

AS BUILT - NOTES

FOR TENDER

AMENDMENTS				SCALE	SCALE ON REDUCED DRAWING	DESIGN	CH	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	APPROVED		PROJECT	CONTRACT NO.
NO.	DATE	DESCRIPTION	APPROVED			DRAWN	EAR			ENGINEER	CLIENT		KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	106/2026
						APPROVED	PJ			DATE	DATE		DWG DESCRIPTION	DWG NO.
						DATE	APR 2026						PROPOSED KWANOMZAMO SEWER INFRASTRUCTURE UPGRADES & WATERSHEDS	2299-T-100

1 : 4500



0 22.5 45 90 225 m



LEGEND

CADASTRAL

PROPOSED 250mm Ø SEWER RISING MAIN



PROPOSED GEELHOUT
SEWER PUMPSTATION

2299-T-200 (SHEET 1 OF 3)

2299-T-200 (SHEET 1 OF 3)

KWANOMZAMO

TO THORNHAM

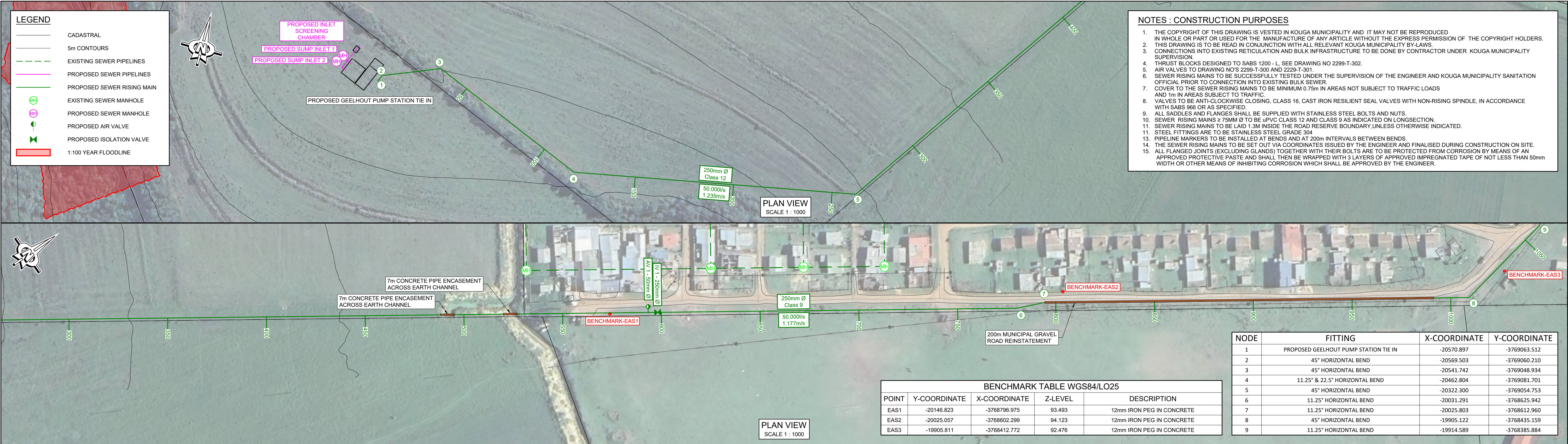
EXISTING KWANOMZAMO WWTW

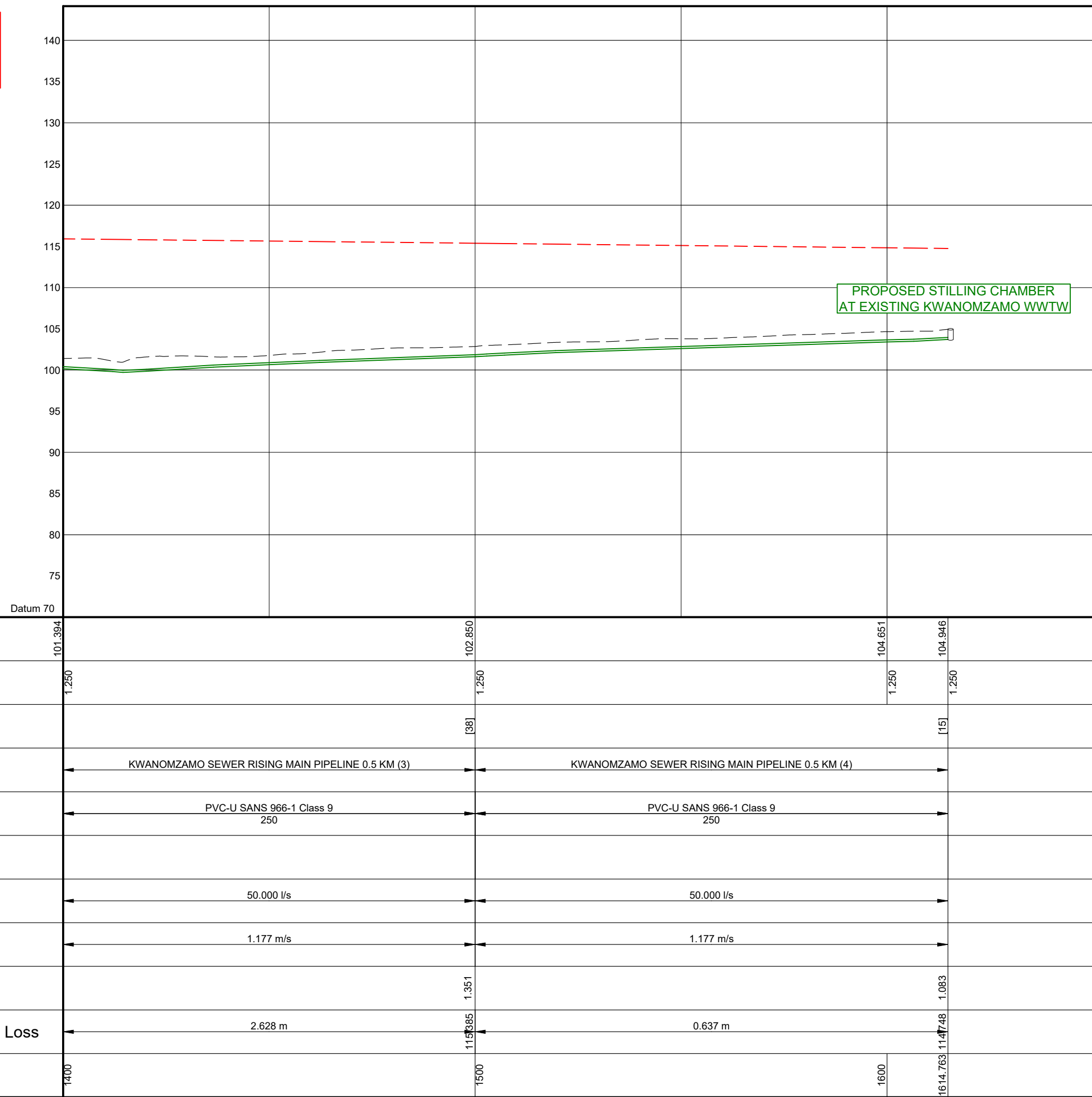
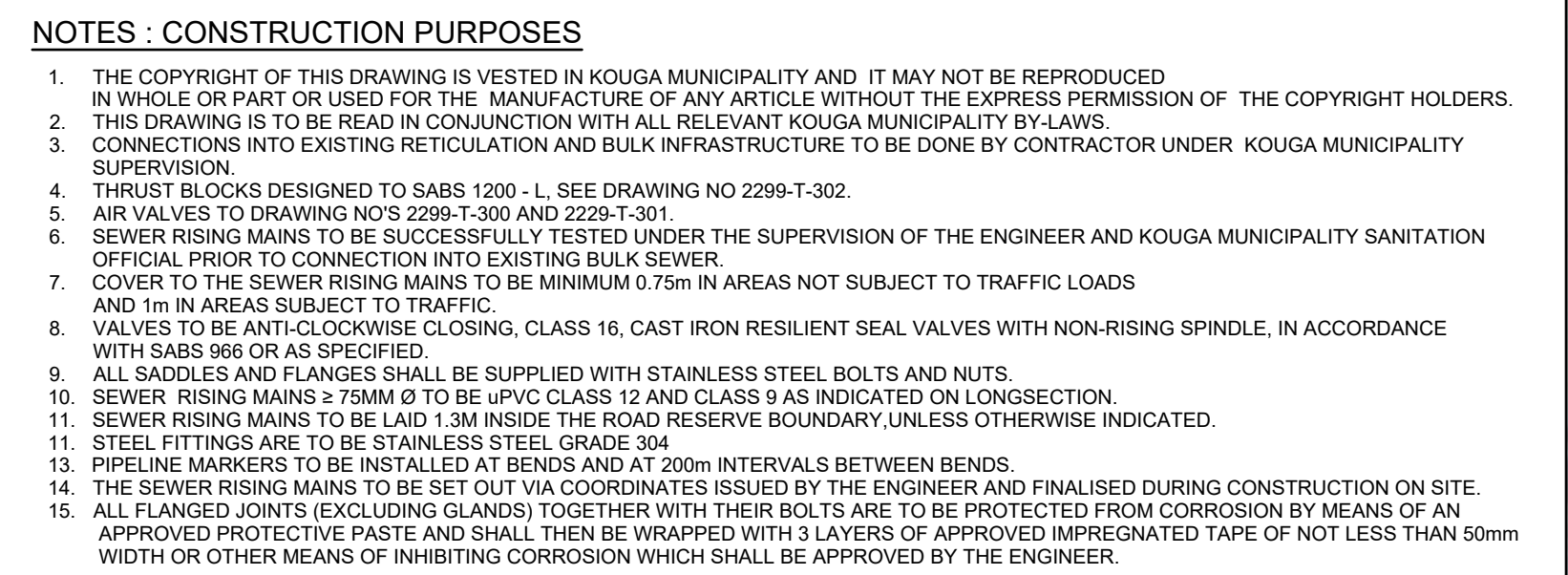
2299-T-202 (SHEET 3 OF 3)

2299-T-201 (SHEET 2 OF 3)

TO ST FRANCIS BAY

FOR TENDER		AMENDMENTS		SCALE 1:2500	SCALE ON REDUCED DRAWING	DESIGN	CH	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421	APPROVED	APPROVED	 KOUGA local municipality Good Governance Through Service Excellence	PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO. 106/2026
		NO.	DATE	DESCRIPTION	APPROVED	DRAWN	EAR	ENGINEER	CLIENT			DWG DESCRIPTION		
						APPROVED	PJ					SUPPLY FROM PROPOSED GEELHOUT PUMP STATION TO EXISTING KWANOMZAMO WWTW - KEY PLAN		
						DATE	APR 2026							





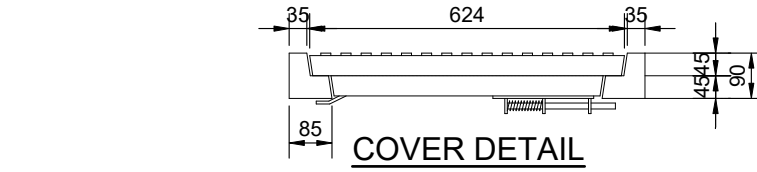
FOR TENDER	"AS BUILT" - NOTES		AMENDMENTS		SCALE	SCALE ON REDUCED DRAWING	DESIGN	CH	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Houghton Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	APPROVED		PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.
	NO.	DATE	DESCRIPTION	APPROVED	 (HOR) 1:1000 (VER) 1:500	 50 m  25 m	DRAWN	EAR			ENGINEER	CLIENT		DWG DESCRIPTION		DWG NO.
							APPROVED	PJ								
							DATE	APR 2026								
											DATE	DATE				ISSUE

- ALL DIMENSIONS IN MILLIMETERS.
- ALL LEVELS IN M.S.L.
- 15mm SPIX 120 (OR SIMILAR APPROVED) CLOSED CELL FOAM TO BE WRAPPED AROUND THE PERIMETER OF ALL PIPEWORK PASSING THROUGH BRICKWORK OR CONCRETE.
- ALL FLANGED JOINTS (EXCLUDING GLANDS) SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1232NP/1600/3.
- ALL FLANGES SHALL BE T16 AND TO BE SUPPLIED COMPLETE WITH SUITABLE FULL-FACE GASKETS.
- ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316L.
- ALL VALVES TO HAVE VALVE MARKERS AND BE ANTI-CLOCKWISE CLOSING CLASS 16, WITH HANDWHEEL IF IN CHAMBER, OTHERWISE WITH CAP TOP.
- ALL LEVELS AND DIMENSIONS SHALL BE CHECKED AND AGREED WITH THE ENGINEER BEFORE ANY WORK MAY COMMENCE.
- ALL STEEL PIPES AND SPECIALS TO BE MILD STEEL GALVANISED 720 SIGMA COATED.
- ALL EXCAVATIONS SHALL BE INSPECTED BY THE ENGINEER BEFORE ANY WORK COMMENCES ON CONCRETE.
- ALL FLANGED JOINTS (EXCLUDING GLANDS) TOGETHER WITH THEIR BOLTS ARE TO BE PROTECTED FROM CORROSION BY MEANS OF AN ANTI-CORROSION COATING. ALL JOINTS SHALL BE PROTECTED WITH 3 LAYERS OF APPROVED IMPREGNATED TAPE OF NOT LESS THAN 50mm WIDTH OR OTHER MEANS OF INHIBITING CORROSION WHICH SHALL BE APPROVED BY THE ENGINEER.
- ALL PVC/PIPS SHALL COMPLY WITH THE REQUIREMENTS OF SABS 966-1.
- REFER TO THE SCOPE OF WORK FOR CORROSION PROTECTION OF ALL SPECIALS, SPECIALS AND FITTINGS AS WELL AS CI PIPES, SPECIALS FITTINGS AND VALVES.

- FOR BRICK CHAMBERS:**
 1. CONCRETE SHALL BE 30 MPa.
 2. ALL VISIBLE CONCRETE CORNERS AND EDGES SHALL BE
 3. CHAMFERED (25.4mm) TO ALL ANGLES.
 4. ALL BRICKS SHALL BE LAID IN STRETCHER BOND AND SHALL BE NFX
 5. ENGINEERING BRICK (28MPa) UNITS COMPLYING WITH THE
 6. REQUIREMENTS OF SABS 227. BRICKFORCE EVERY SECOND LAYER.
 7. TWO LAYERS OF MALTHOID SHALL BE PROVIDED BETWEEN ROOF SLAB
 8. AND BRICKWORK TO ACCOMMODATE MOVEMENT.
 9. 10mm COVER TO BE PROVIDED TO ALL STEEL REINFORCING.
 10. CALCATIME STEP - IRONS TO BE INSTALLED 150mm MANHOLE COVER AT
 11. 300mm VERTICAL CENTRES, STARTING AT 300mm ABOVE THE FLOOR
 12. LEVEL AND STAGGERED AT 300mm CENTRES HORIZONTALLY.
 13. CALCATIME STEP IRON (ONLY REQUIRED IF CHAMBER DEPTH >2m)

1. "FITTING PIPE Ø90 mm LONG BARREL VJ FLANGE ADAPTOR.
2. "UPVC Ø90 mm" MILD STEEL GALVANIZED 720 SIGMA COATED SPOOL PIECE
3. "UPVC Ø90 mm" BOTH SIDES FLANGE COATED SPOOL CENTRALLY PLACED
4. "FITTING Ø" AS PER TABLE 1 mm x "ACCUMULATION CHAMBER Ø" mm MILD STEEL GALVANIZED 720 SIGMA COATED REDUCING TEE. FLANGE TO FLANGE LENGTH = AS PER DIMENSION D.
5. "ACCUMULATION CHAMBER Ø" mm BLANK FLANGE LENGTH = AS PER DIMENSION F mm IN TABLE 1. "AIR VALVE Ø" mm MILD STEEL GALVANIZED 720 SIGMA COATED SPOOL PIECE.
6. "AIRVALVE Ø" mm GATE VALVE LHC, FLANGED WITH HAND WHEEL.
7. "AIR VALVE Ø" mm VENTOMETER-ROCK AIR VALVE PN 16 OR SIMILAR APPROVED.
8. "FITTING Ø" mm LONG BARREL VJ FLANGE ADAPTOR.
9. "FITTING Ø" mm MILD STEEL GALVANIZED 720 SIGMA COATED SPOOL PIECE FLANGED ON BOTH SIDES, WITH TOTAL LENGTH = 820mm AND PUDDLE FLANGED CENTRALLY PLACED.
10. CONCRETE PEDESTAL.

1. EXACT POSITION OF CHAMBER TO BE DETERMINED ON SITE WITH ENGINEER AND KOUGA MUNICIPALITY REPRESENTATIVE.
2. ALL EXISTING SERVICES TO BE EXPOSED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.



U-PC PIPE Ø (mm)	AIR VALVE SIZE (mm Ø)	PRESSURE CLASS	FITTING Ø (mm)	REDUCED FITTING Ø (mm)	A - mm	B - mm	C - mm	D - mm	E - mm	F - mm	G - mm	H - mm	DESCRIPTION
250	50	PN16	250	150	820	300	300	650	300	150	1250	1500	TYPE 1

[illegible]

GENERAL NOTES APPLICABLE TO ALL MANHOLES,
CHAMBERS AND STEEL PIPEWORK:

- ALL DIMENSIONS IN MILLIMETERS.
- ALL LEVELS IN M.S.L.
- 15mm SPX 120 (OR SIMILAR APPROVED) CLOSED CELL FOAM TO BE WRAPPED AROUND THE PERIMETER OF ALL PIPEWORK PASSING THROUGH BRICKWORK OR CONCRETE.
- ALL FLANGES FOR PIPES AND FITTINGS SHALL COMPLY WITH THE REQUIREMENTS OF SABS 1123NP1600/3.
- ALL FLANGES SHALL BE T16 AND TO BE SUPPLIED COMPLETE WITH SUITABLE FULL-FACE GASKETS.
- ALL BOLTS, NUTS AND WASHERS SHALL BE STAINLESS STEEL GRADE 316L.
- ALL VALVES TO HAVE VALVE MARKERS AND BE ANTI-CLOCKWISE CLOSING CLASS 16, WITH HANDWHEEL IF IN CHAMBER, OTHERWISE WITH CAP TOP.
- ALL LEVELS AND DIMENSIONS SHALL BE CHECKED AND AGREED WITH THE ENGINEER BEFORE ANY WORK MAY COMMENCE.
- ALL STEEL PIPES AND SPECIALS TO BE MILD STEEL GALVANISED 720 SIGMA COATED.
- ALL EXCAVATIONS SHALL BE INSPECTED BY THE ENGINEER BEFORE THE PLACEMENT OF ANY CONCRETE.
- ALL FLANGED JOINTS (EXCLUDING GLANDS) TOGETHER WITH THEIR BOLTS ARE TO BE PROTECTED FROM CORROSION BY MEANS OF AN APPROVED PROTECTIVE PASTE AND SHALL THEN BE WRAPPED WITH 3 LAYERS OF APPROVED IMPREGNATED TAPE OF NOT LESS THAN 50mm WIDTH OR OTHER MEANS OF INHIBITING CORROSION WHICH SHALL BE APPROVED BY THE ENGINEER.
- ALL PVCu PIPES SHALL COMPLY WITH THE REQUIREMENTS OF SANS 966-1.
- REFER TO THE SCOPE OF WORK FOR CORROSION PROTECTION OF STEEL PIPES, SPECIALS AND FITTINGS AS WELL AS CI PIPES, SPECIALS, FITTINGS AND VALVES.

FOR BRICK CHAMBERS:

- CONCRETE SHALL BE 30 MPa
- ALL VISIBLE CONCRETE CORNERS AND EDGES SHALL BE CHAMFERED (25 x 25mm).
- ALL BRICKS SHALL BE LAID IN STRETCHER BOND AND SHALL BE NFx ENGINEERING BRICK (28MPa) UNITS COMPLYING WITH THE REQUIREMENTS OF SABS 227. BRICKFORCE EVERY SECOND LAYER. TWO LAYERS OF MALTHOID SHALL BE PROVIDED BETWEEN ROOF SLAB AND BRICKWORK TO ACCOMMODATE MOVEMENT.
- 50mm COVER TO BE APPLIED TO ALL STEEL REINFORCING.
- CALCAMITE STEP - IRONS TO BE INSTALLED BELOW MANHOLE COVER AT 300mm VERTICAL CENTRES, STARTING AT 300mm ABOVE THE FLOOR LEVEL AND STAGGERED AT 300mm CENTRES HORIZONTALLY.
- CALCAMITE STEP IRON (ONLY REQUIRED IF CHAMBER DEPTH >2m)

ITEM LIST:

- *uPVC PIPE Ø7mm LONG BARREL VJ FLANGE ADAPTOR.
- *FITTING Ø7mm MILD STEEL GALVANIZED 720 SIGMA COATED SPOOL PIECE FLANGED ON BOTH SIDES, WITH TOTAL LENGTH = 820mm CENTRALLY PLACED.
- *FITTING Ø7mm AS PER TABLE 1 mm x *ACCUMULATION CHAMBER Ø7mm MILD STEEL GALVANIZED 720 SIGMA COATED REDUCING TEE, FLANGE TO FLANGE LENGTH = AS PER DIMENSION D.
- *ACCUMULATION CHAMBER Ø7mm BLANK FLANGE LENTH = AS PER DIMENSION F mm IN TABLE 1 *AIR VALVE Ø7mm MILD STEEL GALVANIZED 720 SIGMA COATED SPOOL PIECE.
- *AIRVALVE Ø7mm GATE VALVE LHC, FLANGED WITH HAND WHEEL.
- *AIR VALVE Ø7mm VENTO-MAT-RGX AIR VALVE PN 16 OR SIMILAR APPROVED.
- *FITTING Ø7mm LONG BARREL VJ FLANGE ADAPTOR.
- *FITTING Ø7mm MILD STEEL GALVANISED 720 SIGMA COATED SPOOL PIECE FLANGED ON BOTH SIDES, WITH TOTAL LENGTH = 820mm AND PUDDLE FLANGED CENTRALLY PLACED.
- 250mm Ø NON RETURN VALVE (COUNTER WEIGHT)
- 250mm Ø WEDGE GATE VALVE FLANGED, LHC CAP TOP
- CONCRETE PEDESTAL.

NOTES:

- EXACT POSITION OF CHAMBER TO BE DETERMINED ON SITE WITH ENGINEER AND KOUGA MUNICIPALITY REPRESENTATIVE.
- ALL EXISTING SERVICES TO BE EXPOSED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION.

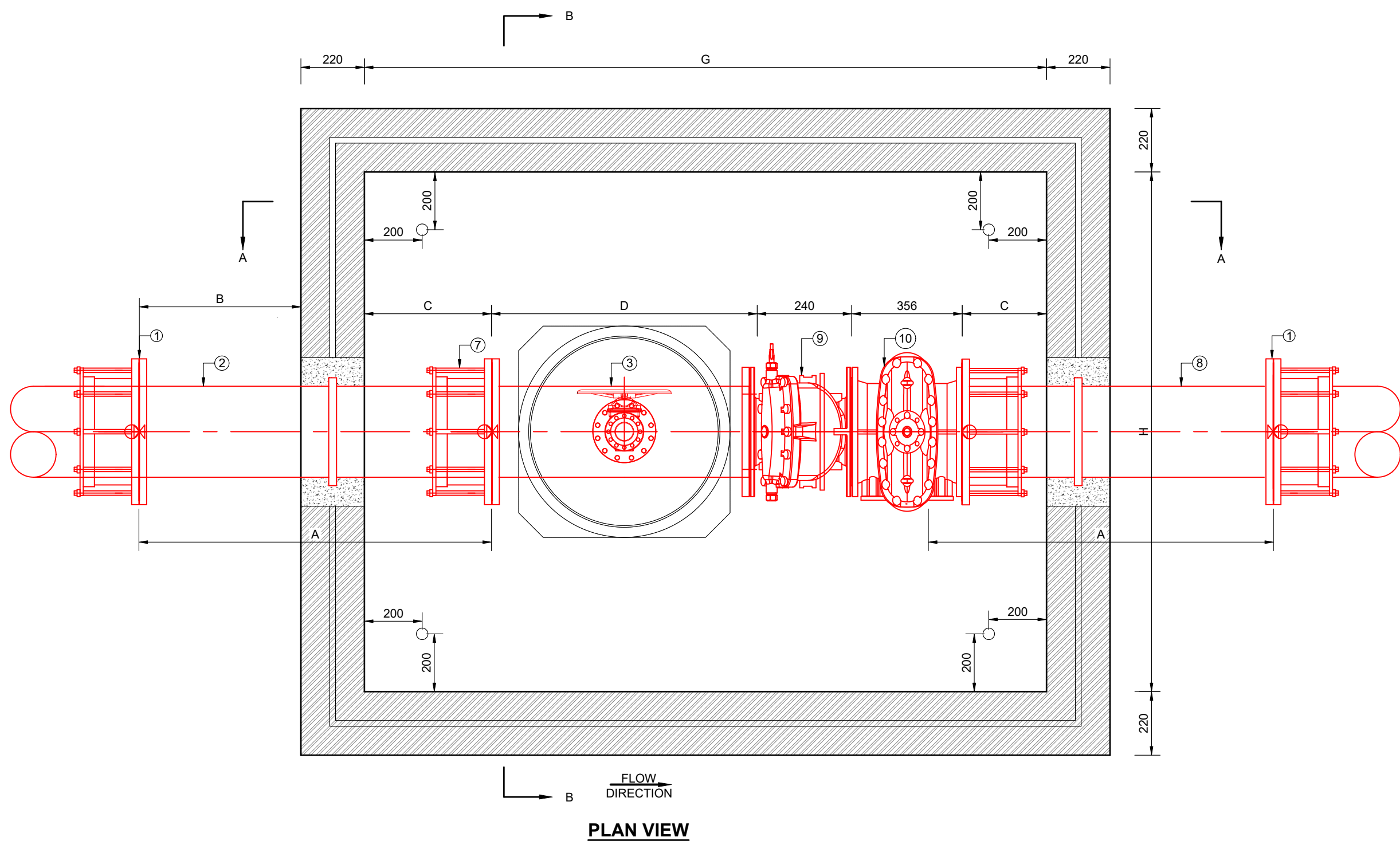
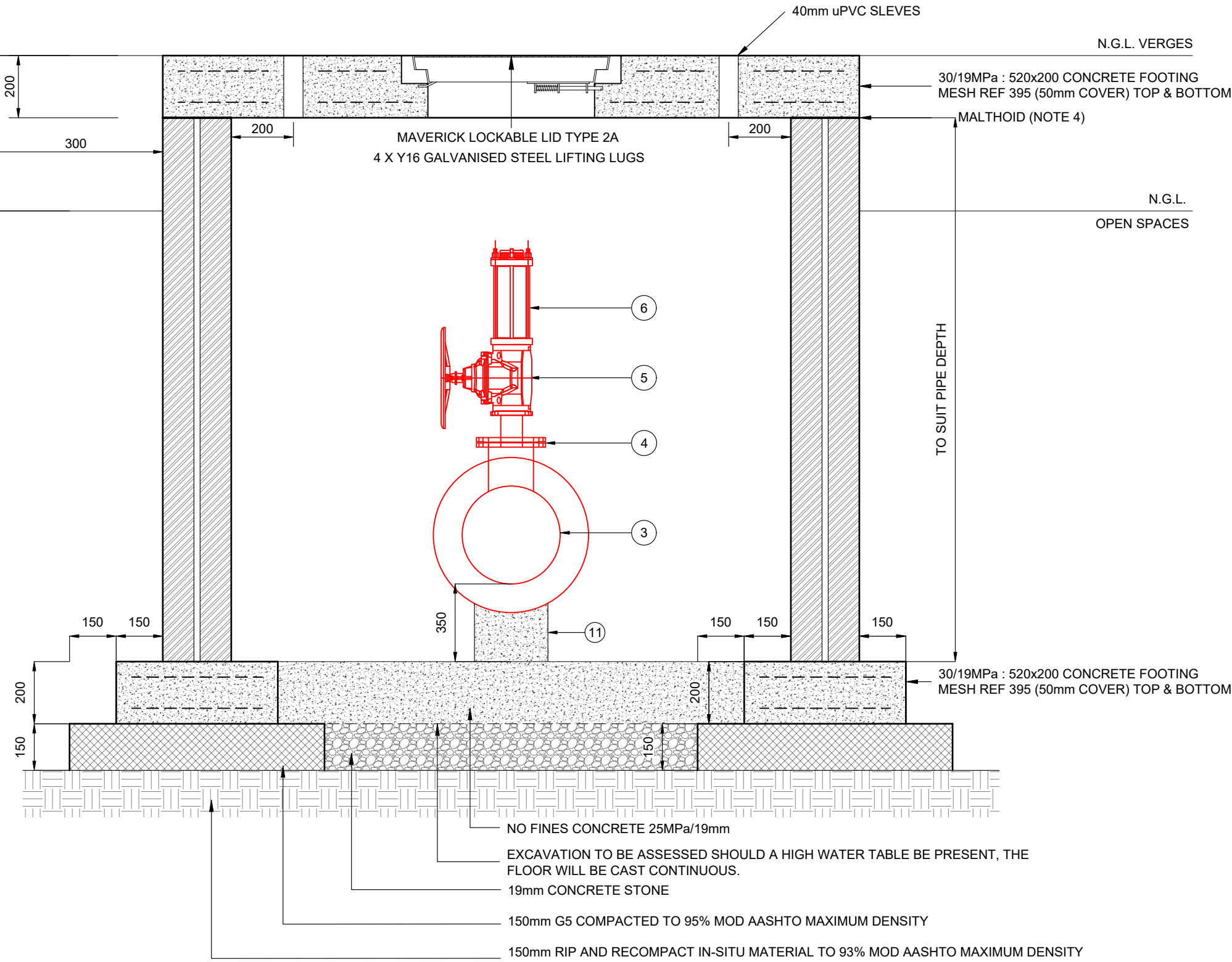
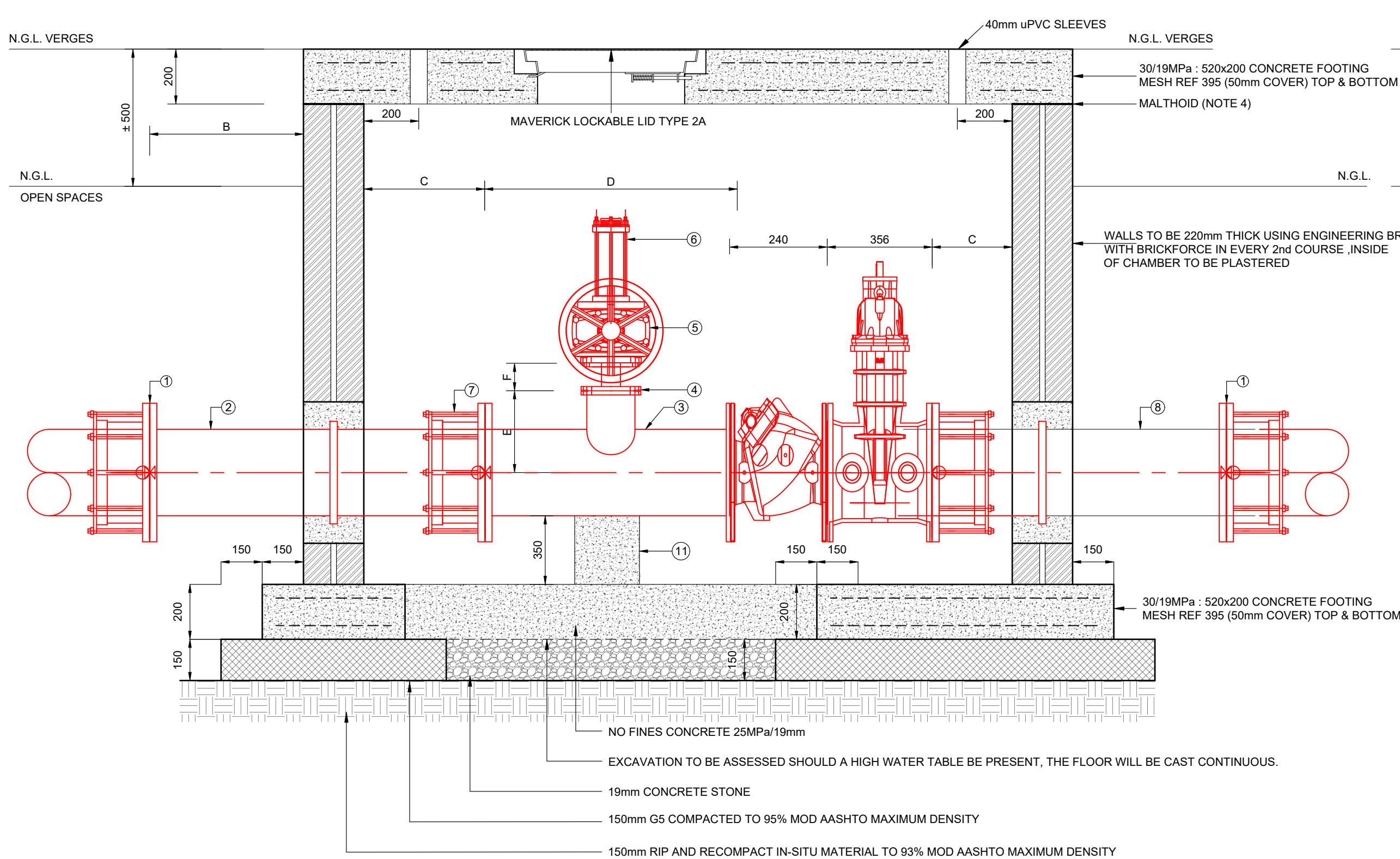
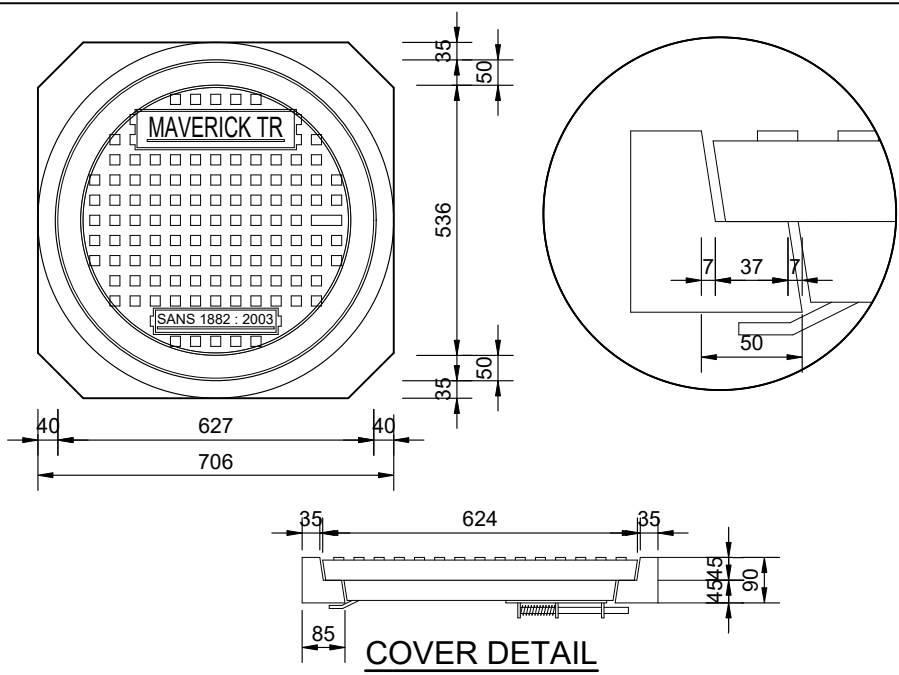


TABLE 1 : AIR VALVE CHAMBER DIMENSIONS

u-PVC PIPE Ø (mm)	AIR VALVE SIZE (mm Ø)	PRESSURE CLASS	FITTING Ø (mm)	REDUCED FITTING Ø (mm)	A - mm	B - mm	C - mm	D - mm	E - mm	F - mm	G - mm	H - mm	DESCRIPTION
250	50	PN16	250	150	820	300	300	650	300	150	1490	1500	TYPE 1

FOR TENDER

*AS BUILT - NOTES

AMENDMENTS

NO.	DATE	DESCRIPTION	APPROVED

SCALE



1 : 15

SCALE ON REDUCED DRAWING



DESIGN

DRAWN

APPROVED

DATE

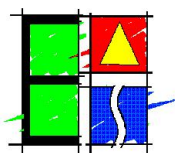
CH

EAR

PJ

APR 2026

ENGINEERING ADVICE
AND SERVICES
associated with ULWAZI
73 Heugh Road, Walmer
P.O. Box 13867
Hunnewood
Port Elizabeth
6013
tel/fax: (041) 581 2421



APPROVED

ENGINEER

DATE

APPROVED

CLIENT

DATE



PROJECT

KWANOMZAMO BULK SANITATION:
NEW SEWER PUMP STATION AND RISING MAIN

DWG DESCRIPTION

AIRVALVE & NON RETURN VALVE CHAMBER DETAIL

CONTRACT NO.

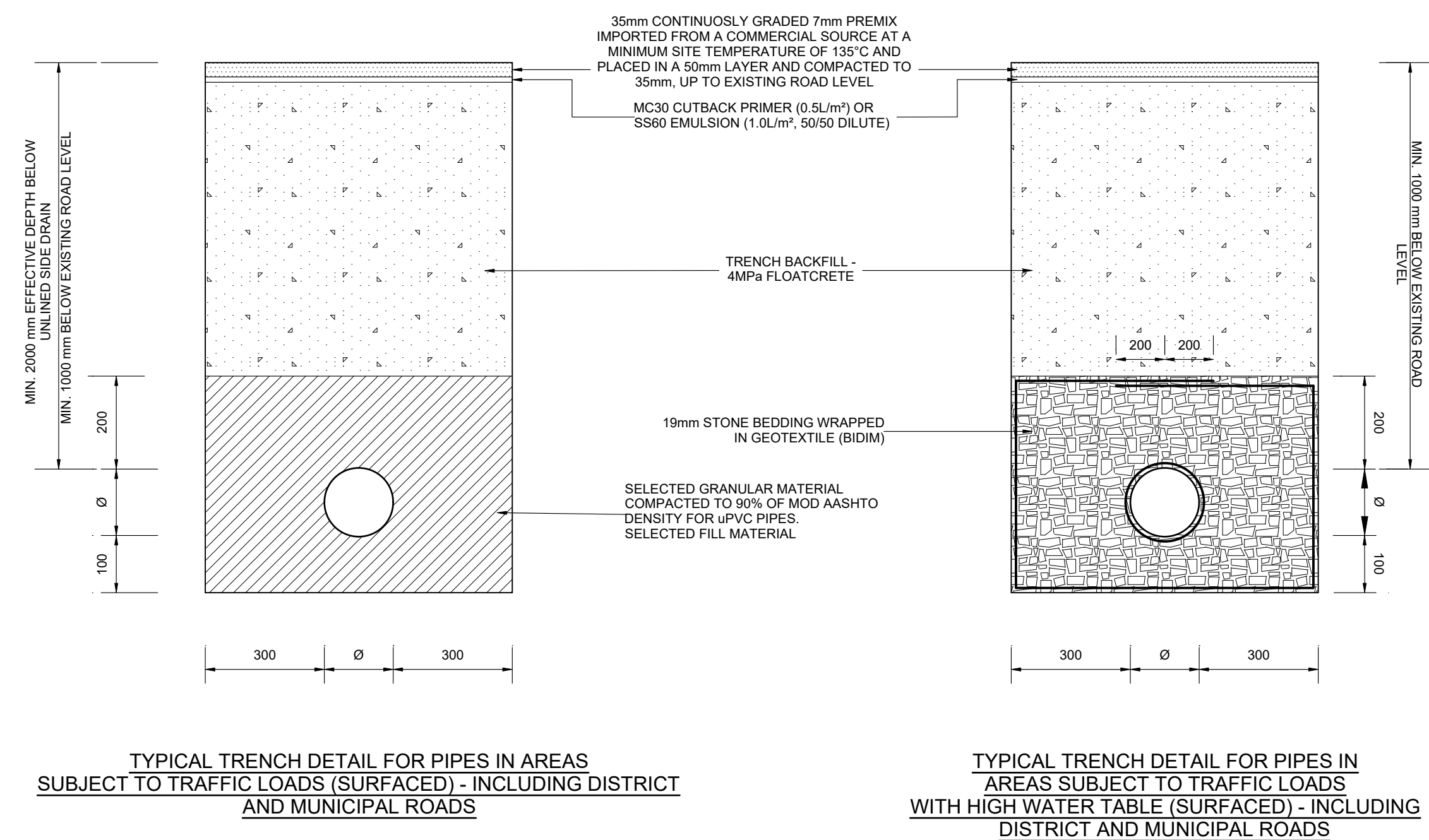
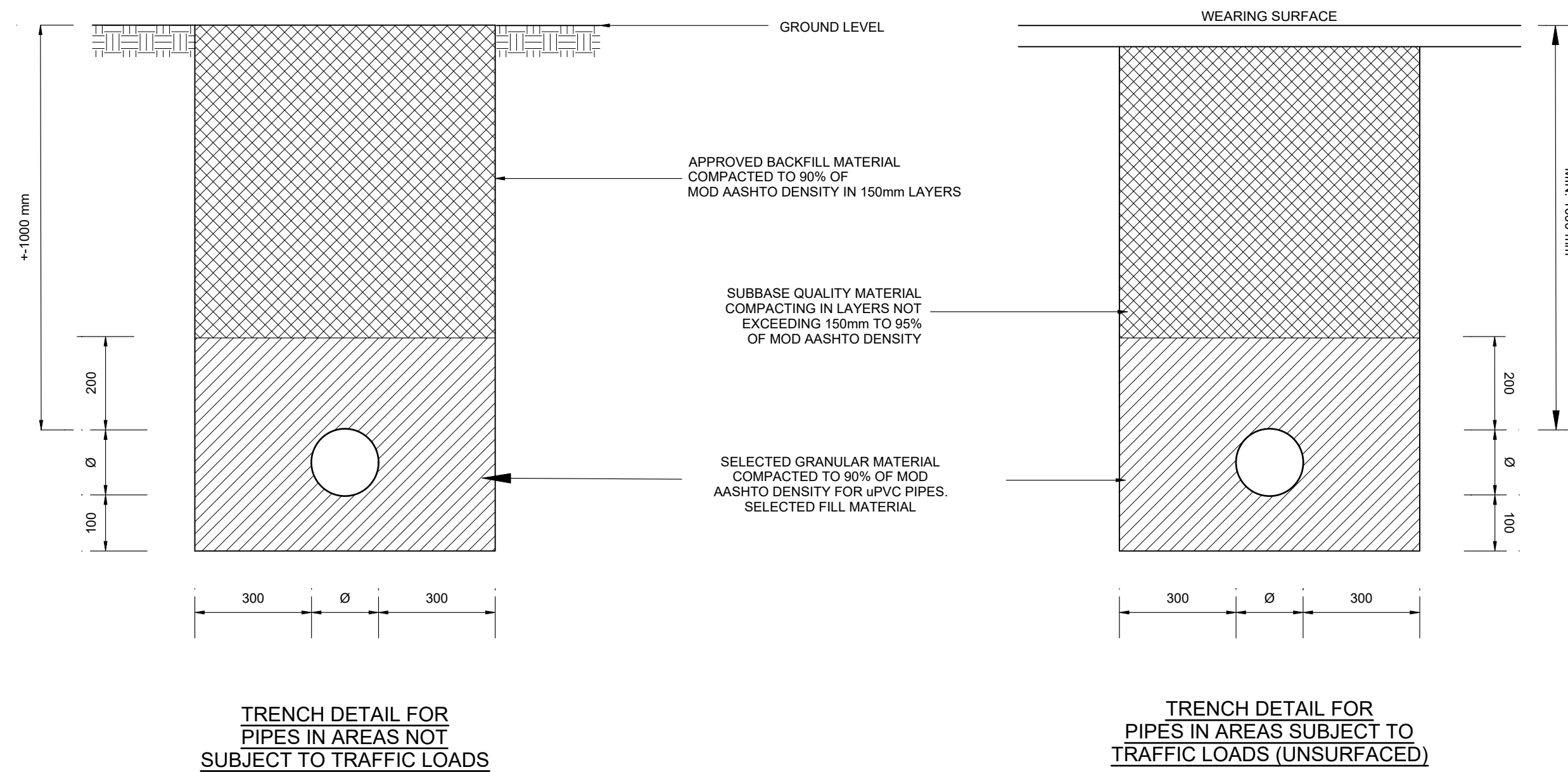
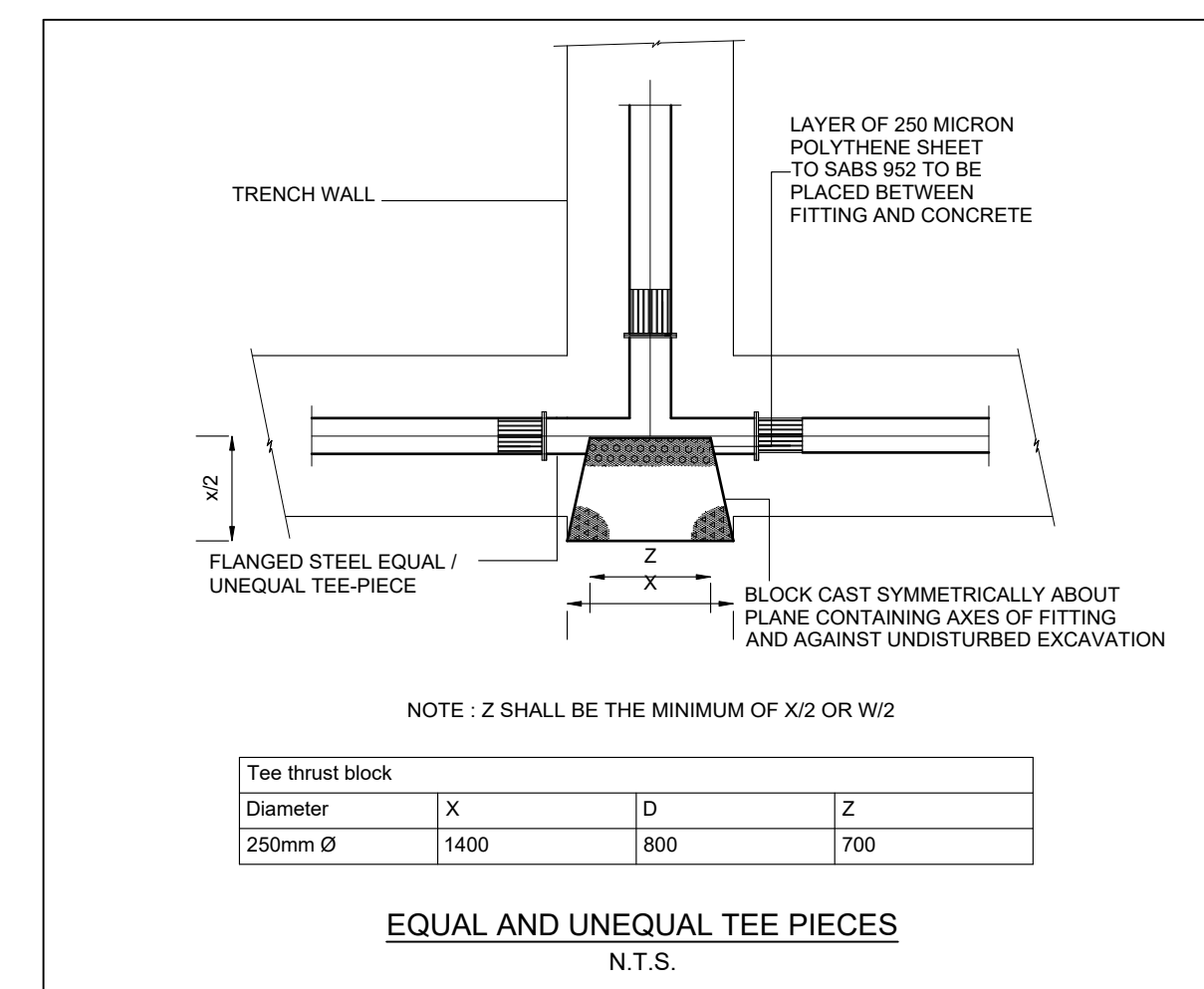
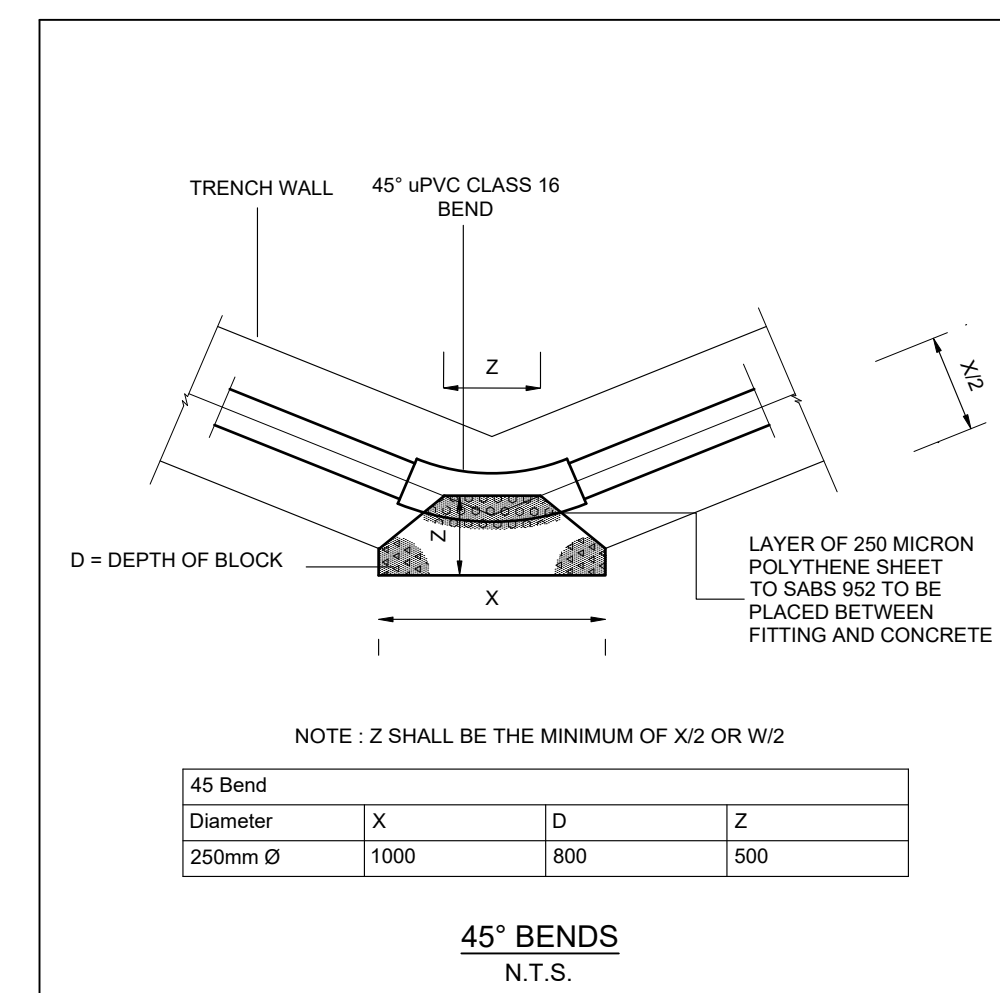
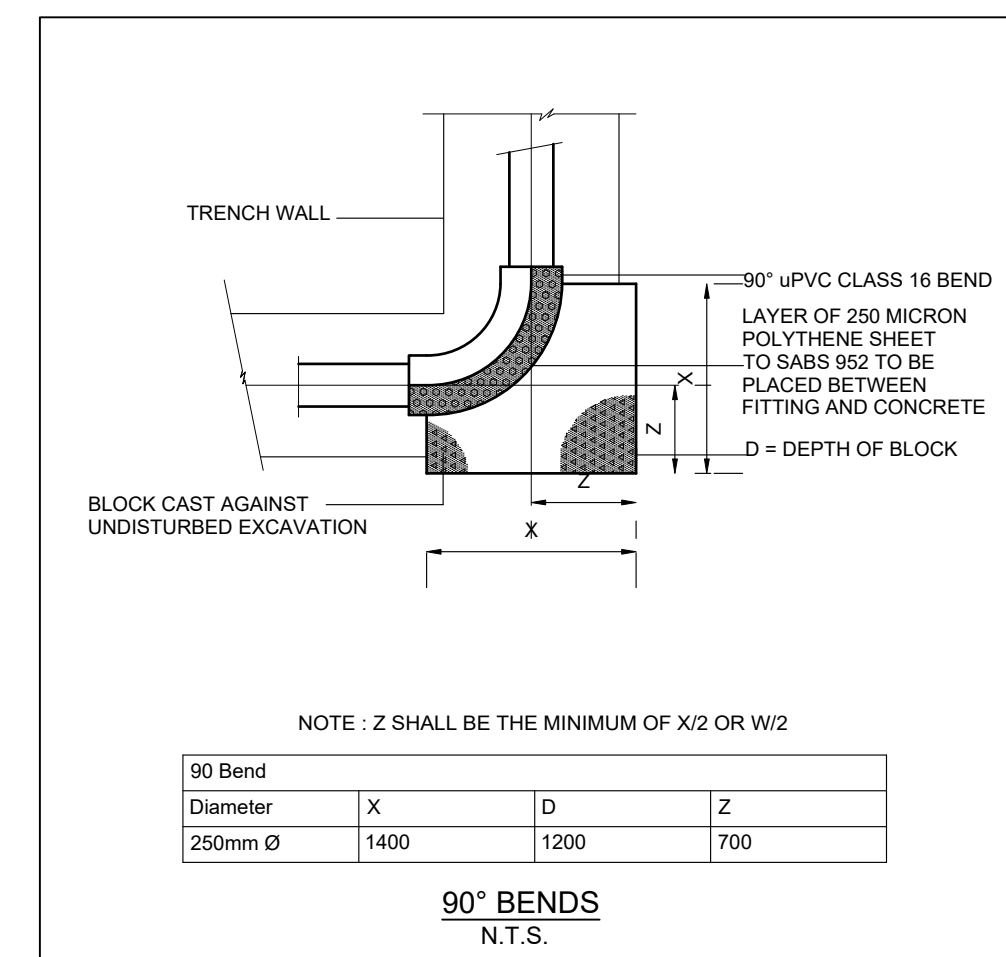
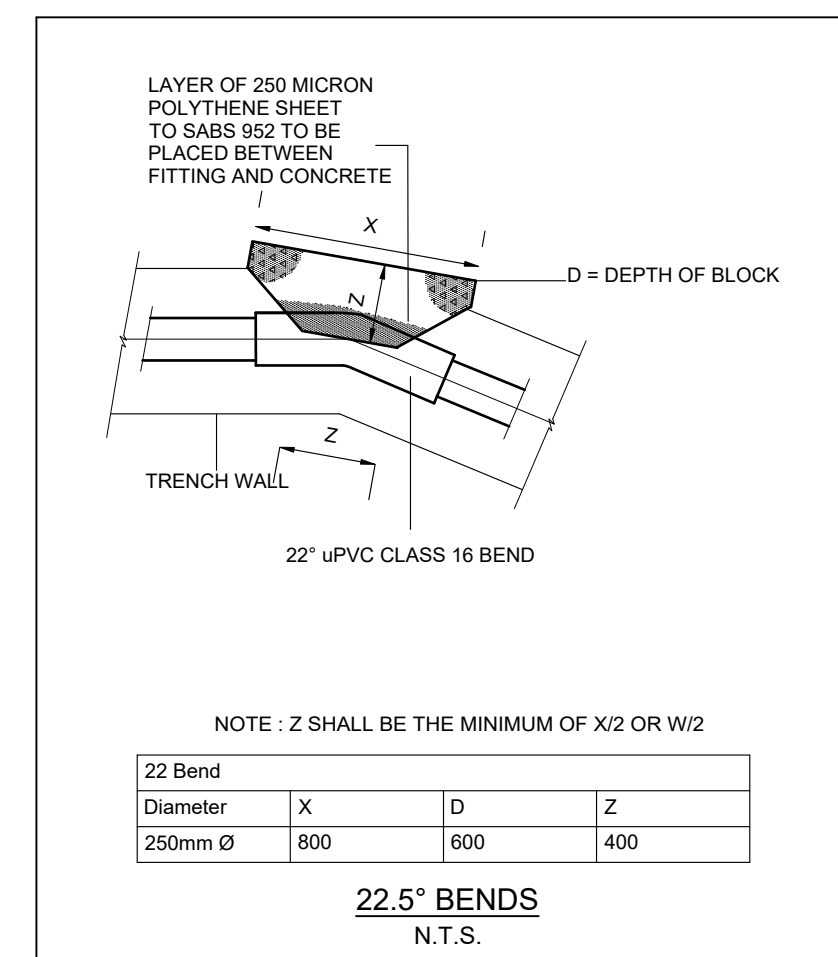
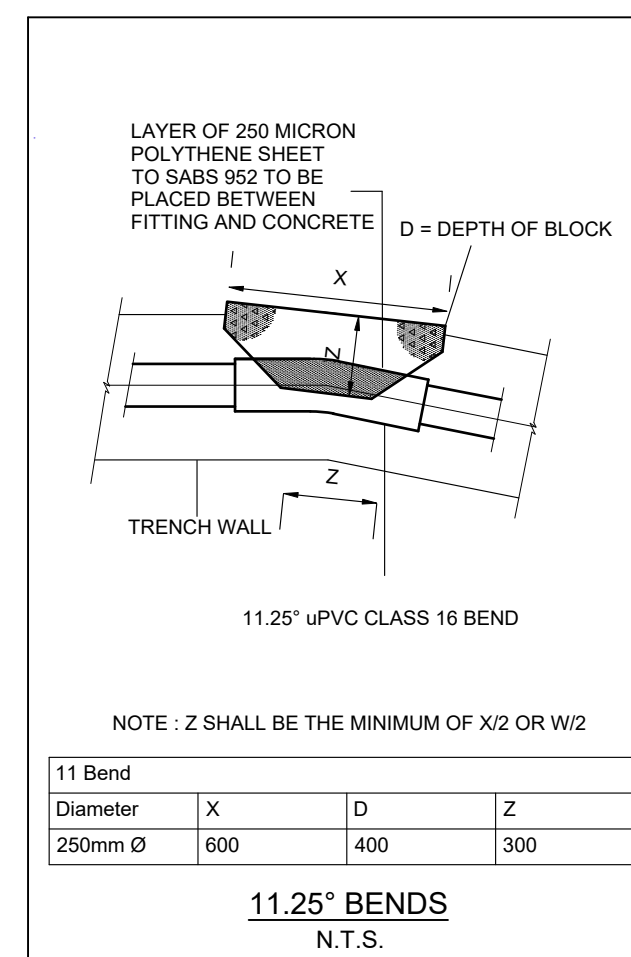
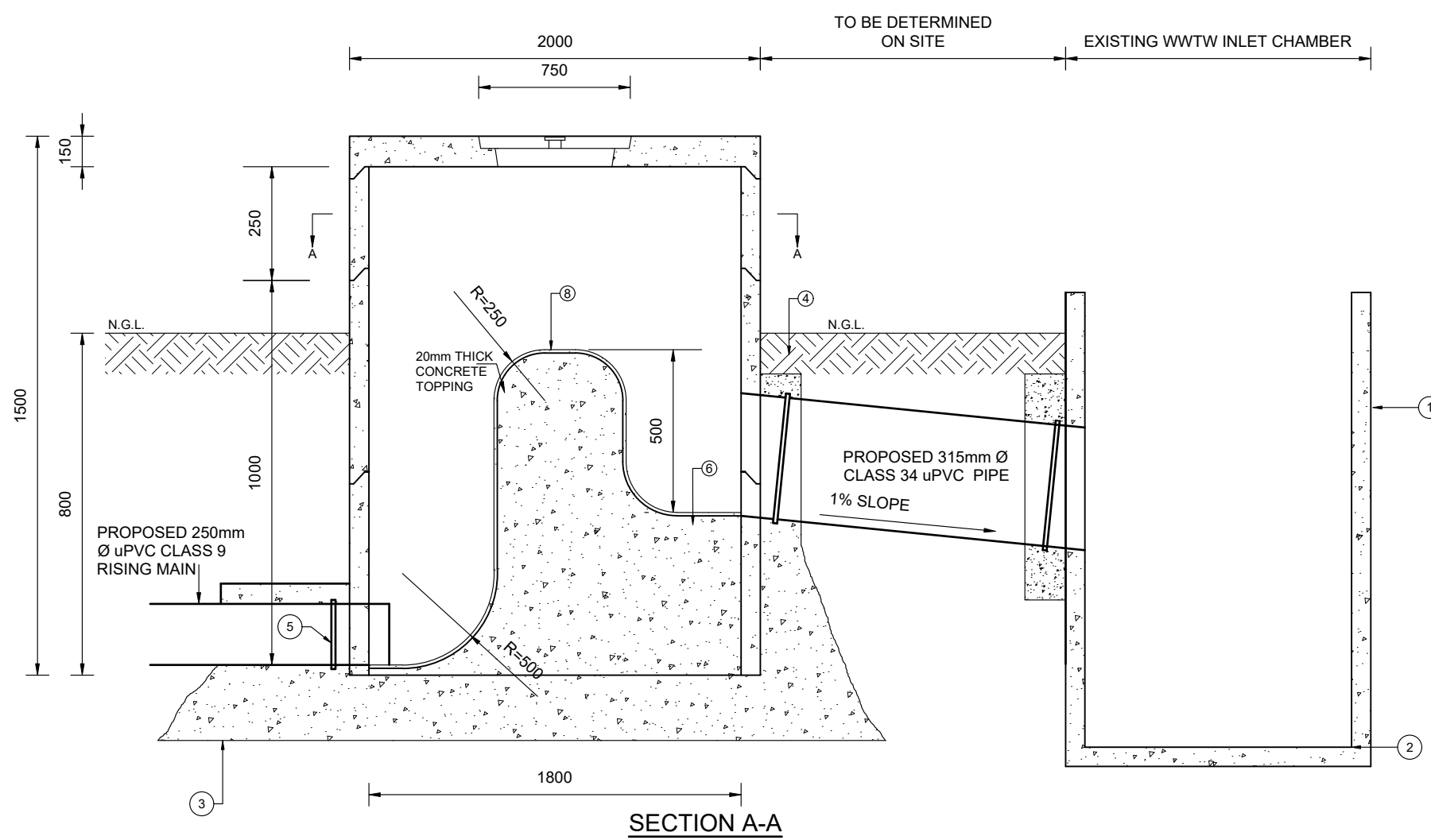
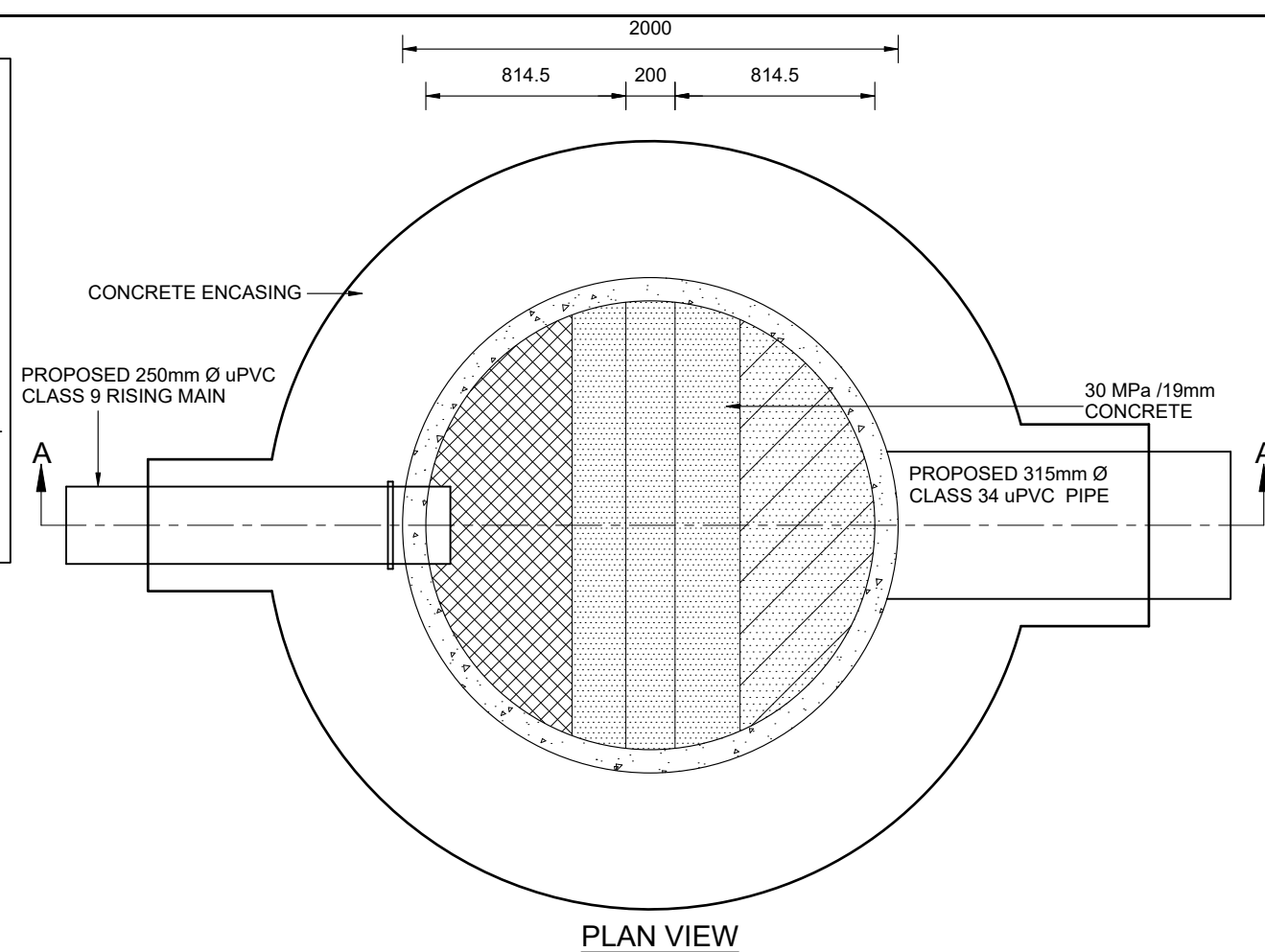
106/2026

DWG NO.

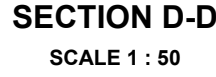
2299-T-301

ISSUE

1. *EXISTING KWANOMAZO WWTV INLET CHAMBER.
2. *BENCHING TO BE MODIFIED TO SUIT NEW INCOMING PIPE.
3. *FINAL FORM OF OVERTLOW TO BE SHAPED USING 30MPa CONCRETE.
4. *20 MPa CONCRETE TO BE POURED IN A SINGLE POUR (ENCASING PUDDLE FLANGES).
5. *PUDDLE FLANGE.
6. JOINTS SEALED WITH APPROVED BITUMASTIC FILLED BETWEEN JOINTS AND DENSOTAPE (OR SIMILAR) APPLIED TO PRIMED OUTSIDE SURFACE TO 75mm.
7. ALL FLANGED JOINTS (EXISTING AND NEW) TOGETHER WITH THEIR BOLTS ARE TO BE PROTECTED FROM CORROSION BY GLANDS OF AN APPROVED PROTECTIVE PASTE AND SHALL THEN BE WRAPPED WITH 3 LAYERS OF APPROVED IMPREGNATED TAPE OF NOT LESS THAN 50mm width OR OTHER MEANS OF INHIBITING CORROSION WHICH SHALL BE APPROVED BY THE ENGINEER.
8. *CONCRETE TOPPING FOR 100mm THICK LAYER TO THE BENCHING SHALL CONSIST OF 1:2.3 PARTS OF CEMENT, SAND, 7mm CEMENT STONE, BY MASS



FOR TENDER	AMENDMENTS				SCALE	SCALE ON REDUCED DRAWING	DESIGN	CH	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	APPROVED		PROJECT		CONTRACT NO.
	NO.	DATE	DESCRIPTION	APPROVED										KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN		106/2026
														DWG DESCRIPTION		DWG NO.
														STILLING CHAMBER , THRUSTBLOCK ANDTRENCH DETAILS		2299-T-302
														ISSUE		



- | | |
|---------------|---|
| NOTES: | |
| ① | 300mm Ø STAINLESS STEEL GRADE 304 FLANGED PUDDLE PIPE |
| ② | 300mm Ø FLANGED WEDGE GATE VALVE |
| ③ | 250x300mm Ø BELLMOUTH ASSEMBLY |
| ④ | 250mm Ø STAINLESS STEEL GRADE 304 SUCTION PIPE ASSEMBLY |
| ⑤ | 250mm Ø 90° STAINLESS STEEL GRADE 304 ELBOW ASSEMBLY (SHORT RADIUS) |
| ⑥ | 250mm Ø STAINLESS STEEL GRADE 304 SUCTION PIPE ASSEMBLY |
| ⑦ | GORMAN RUPP V56 PUMP WITH 55KW MOTOR |
| ⑧ | 200mm Ø 90° STAINLESS STEEL GRADE 304 ELBOW ASSEMBLY |
| ⑨ | 200mm Ø NON RETURN VALVE WITHOUT COUNTER LEVER |
| ⑩ | 200mm x 200mm Ø STAINLESS STEEL GRADE 304 SPOOL WITH BARREL NIPPLE ASSEMBLY |
| ⑪ | 200mm Ø NON RETURN VALVE WITH COUNTER LEVER |
| ⑫ | 200mm Ø FLANGED GATE VALVE WITH HANDWHEEL |
| ⑬ | 200mm Ø STAINLESS STEEL GRADE 304 SPOOL ASSEMBLY |
| ⑭ | 200mm Ø STAINLESS STEEL GRADE 304 PUDDLE SPOOL PIPE |
| ⑮ | 50mm Ø VENT-O-MAT R2X RXR AL VALVE |
| ⑯ | 200mm Ø SWEEP TEE |
| ⑰ | 200mm Ø STAINLESS STEEL GRADE 304 SPOOL PIECE ASSEMBLY |
| ⑱ | 200mm Ø 90° STAINLESS STEEL GRADE 304 ELBOW ASSEMBLY (MEDIUM RADIUS) |
| ⑲ | 200mm Ø STAINLESS STEEL GRADE 304 SPOOL PIECE |
| ⑳ | 200mm Ø 90° STAINLESS STEEL GRADE 304 BEND (LONG RADIUS) |
| ㉑ | 250mm x 200mm Ø STAINLESS STEEL GRADE 304 REDUCER |
| ㉒ | 250mm Ø SWEEP TEE |
| ㉓ | 250mm Ø STAINLESS STEEL GRADE 304 SPOOL PIECE |
| ㉔ | 50mm Ø GATE VALVE LHC FLANGED WITH GATE WHEEL |
| ㉕ | 200mm Ø BLANK FLANGE WITH 50mm Ø STAINLESS STEEL GRADE 304 SPOOL PIECE TO SUITE 50mm GATE VALVE |

- NOTE:**
- ALL FLANGED JOINTS (EXCLUDING GLANDS) TOGETHER WITH THEIR BOLTS ARE TO BE PROTECTED FROM CORROSION BY MEANS OF AN APPROVED PROTECTIVE PASTE AND SHALL THEN BE WRAPPED WITH 3 LAYERS OF APPROVED IMPREGNATED TAPE OF NOT LESS THAN 50mm WIDTH OR OTHER MEANS OF INHIBITING CORROSION WHICH SHALL BE APPROVED BY THE ENGINEER
 - NEOPRENE OR SIMILAR APPROVED TO BE INSTALLED BETWEEN WALLS AND PIPEWORK.

AMENDMENTS

SCALE

--	--

ENG

ENGINE

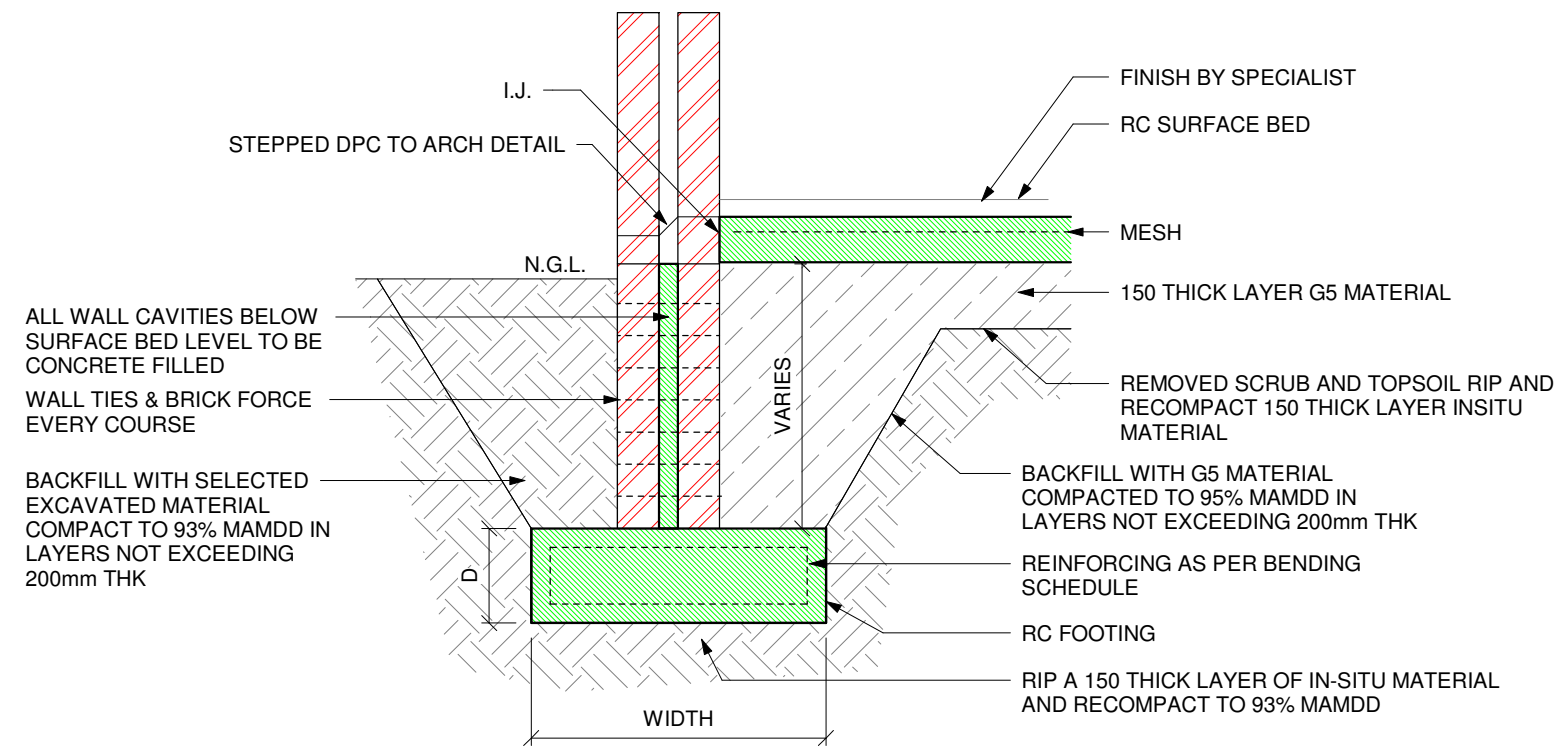
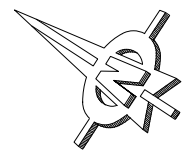
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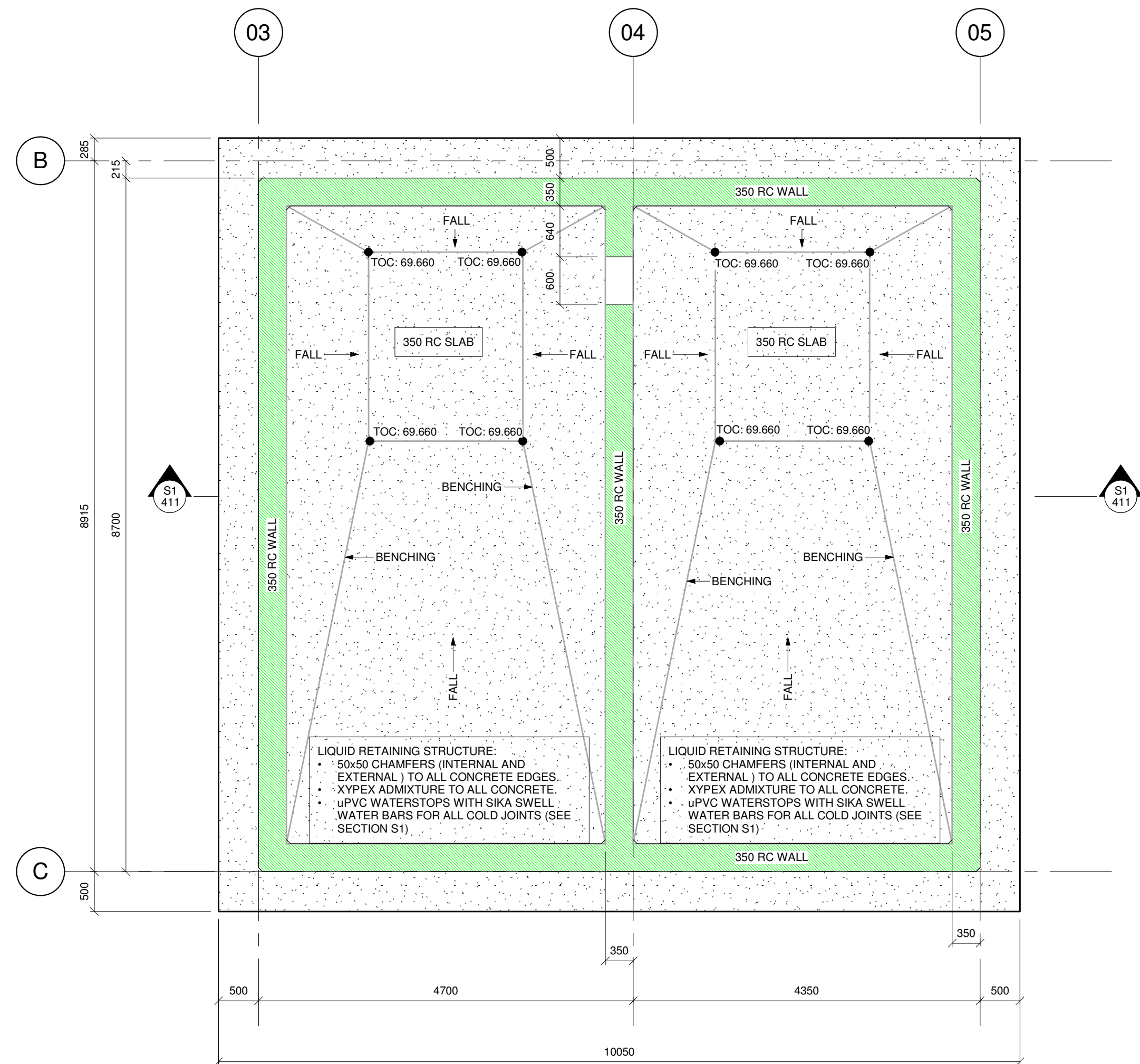
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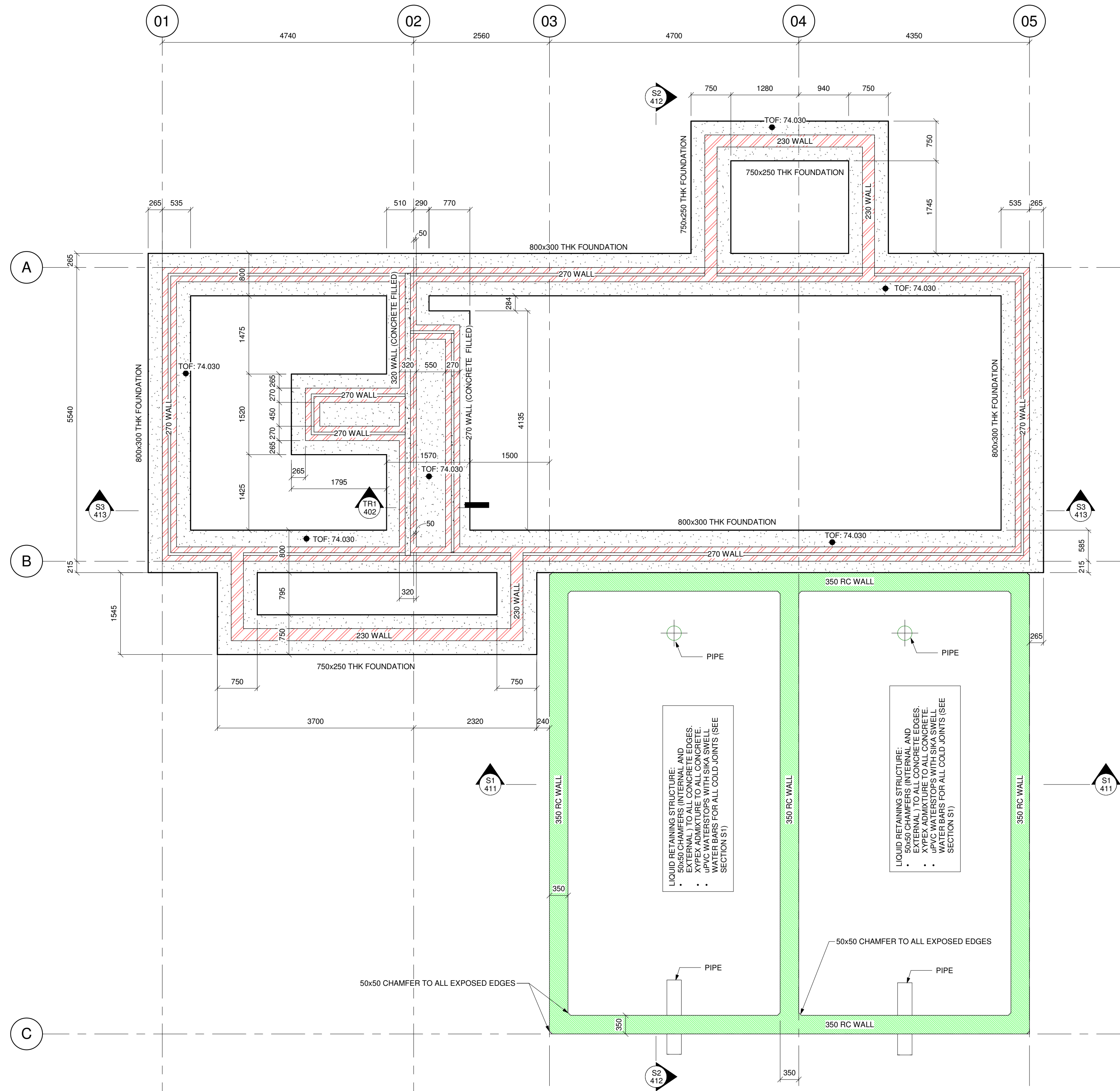
FOR TENDER



TYPICAL FOUNDATION PLINTH WALL DETAIL
SCALE 1 : 20



TOC TANK FLOOR
SCALE 1 : 50



TOC WALL FOUNDATIONS
SCALE 1 : 50

FOR TENDER

NO. 0

DATE 2024-02-10

DESCRIPTION FOR TENDER

APPROVED J. BURDEN

AMENDMENTS

NO.	DATE	DESCRIPTION	APPROVED
0	2024-02-10	FOR TENDER	J. BURDEN

SCALE



As indicated

SCALE ON REDUCED DRAWING

DESIGN

A. STUCKI
Pr. Tech. Eng
2024 3018 32

DRAWN

A. STUCKI
Pr. Tech. Eng
2024 3018 32

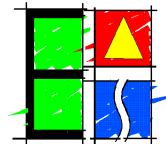
APPROVED

JJ. BURDEN
Pr. Eng. 950572

DATE

NOV 2024

ENGINEERING ADVICE
AND SERVICES
associated with ULWAZI
73 Hough Road, Walmer
P.O. Box 13867
Humeed
Port Elizabeth
6013
tel/fax: (041) 581 2421



APPROVED

JJ. BURDEN Pr. Eng. 950572

ENGINEER

DATE

APPROVED

CLIENT

DATE



PROJECT

KWANOMZAMO BULK SANITATION:
NEW SEWER PUMP STATION AND RISING MAIN

DWG DESCRIPTION

FOUNDATION LAYOUT

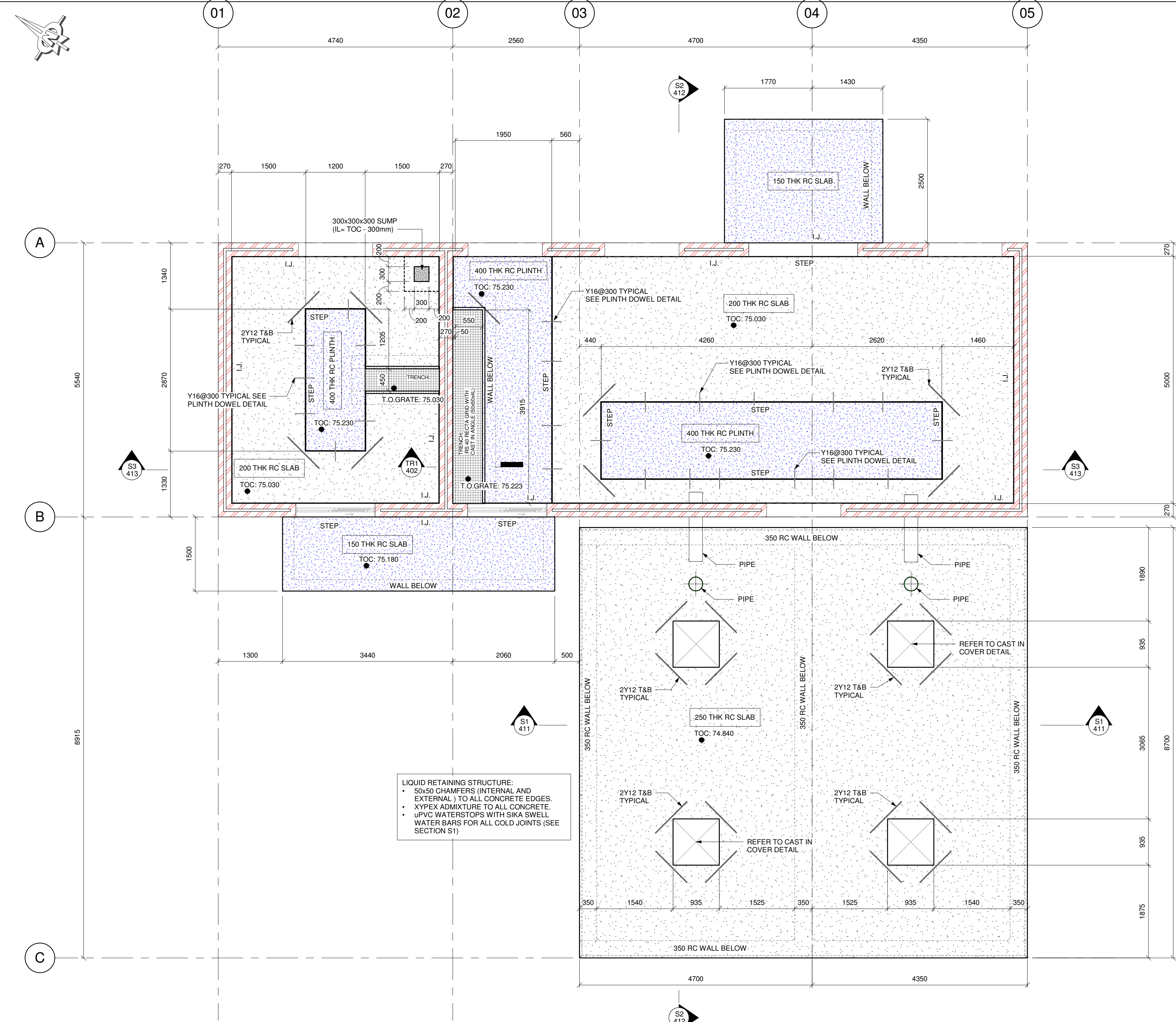
CONTRACT NO.

106/2026

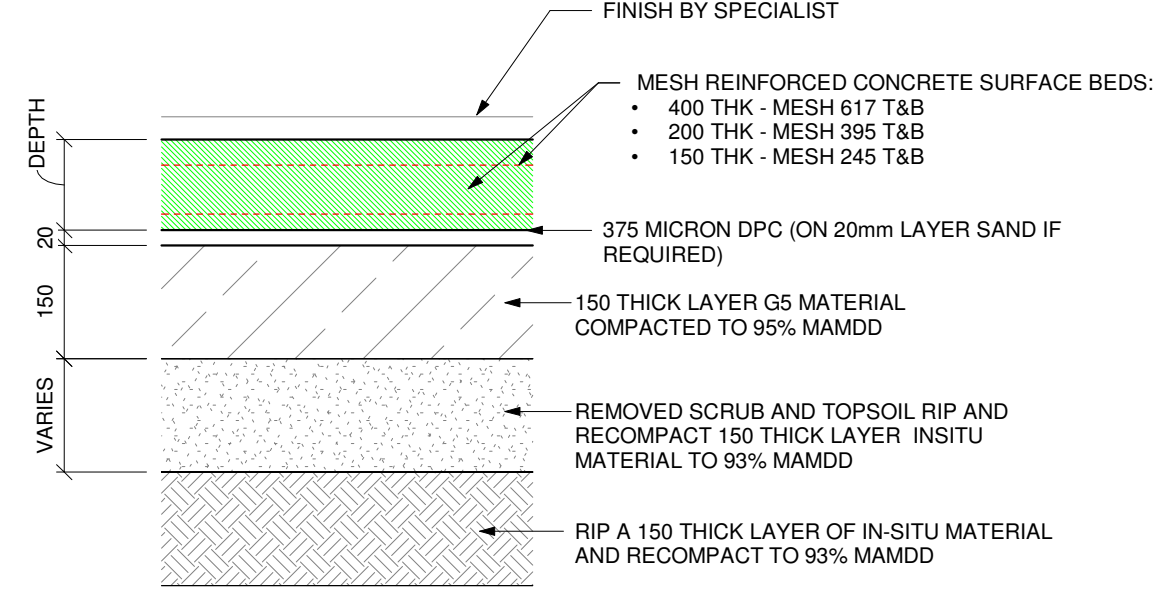
DWG NO.

2299-T- 401

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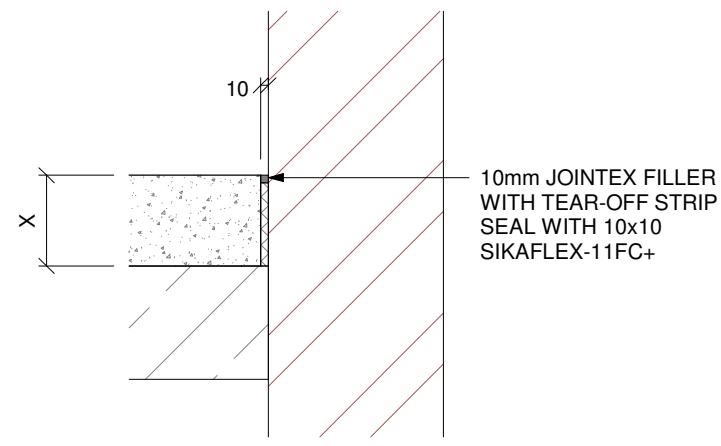


SURFACE BED LEVEL
SCALE 1 : 50

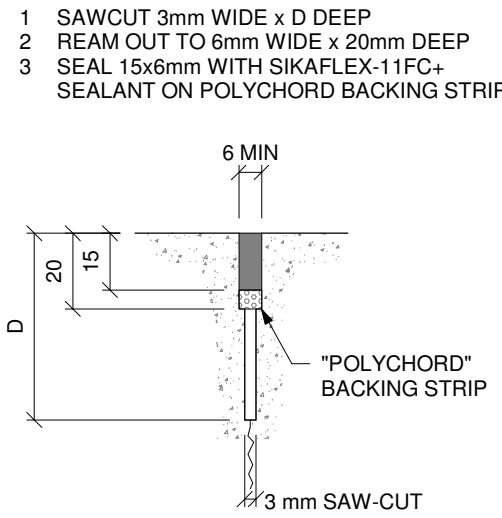


TYPICAL SURFACE BED LAYERWORKS DETAIL
SCALE 1 : 10

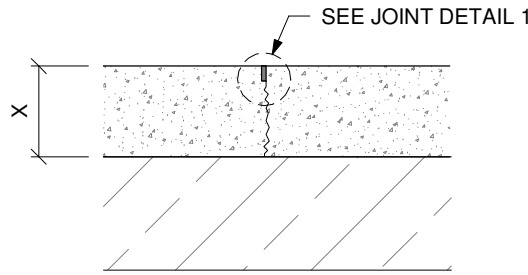
FLOOR JOINT DIMENSIONS(mm)			
CONCRETE THICKNESS	TOGGLE		SAW-CUT DEPTH
X	Y	Z	D
200	40	30	65



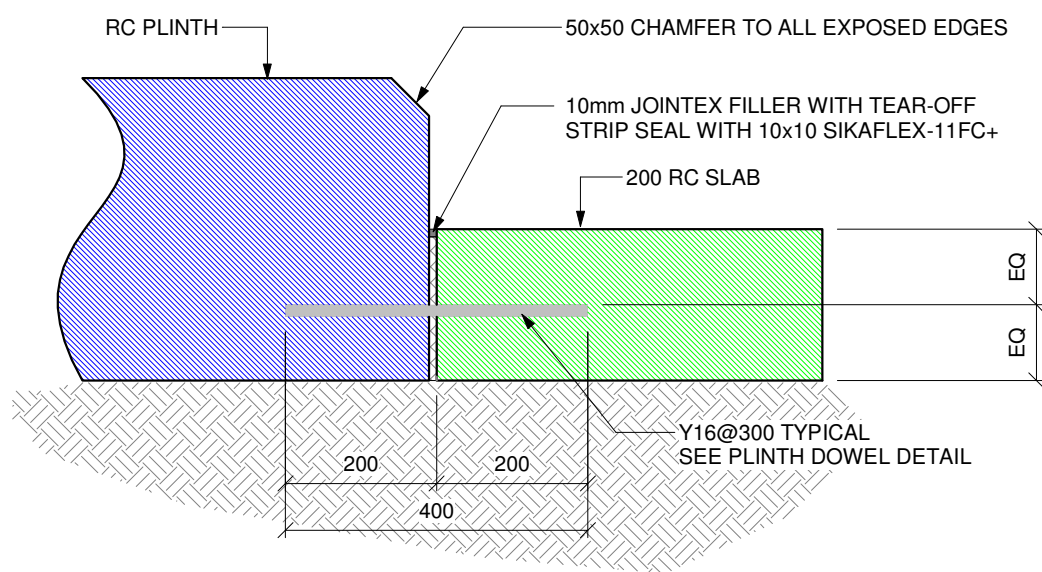
(I.J.) ISOLATION JOINT
SCALE 1 : 10



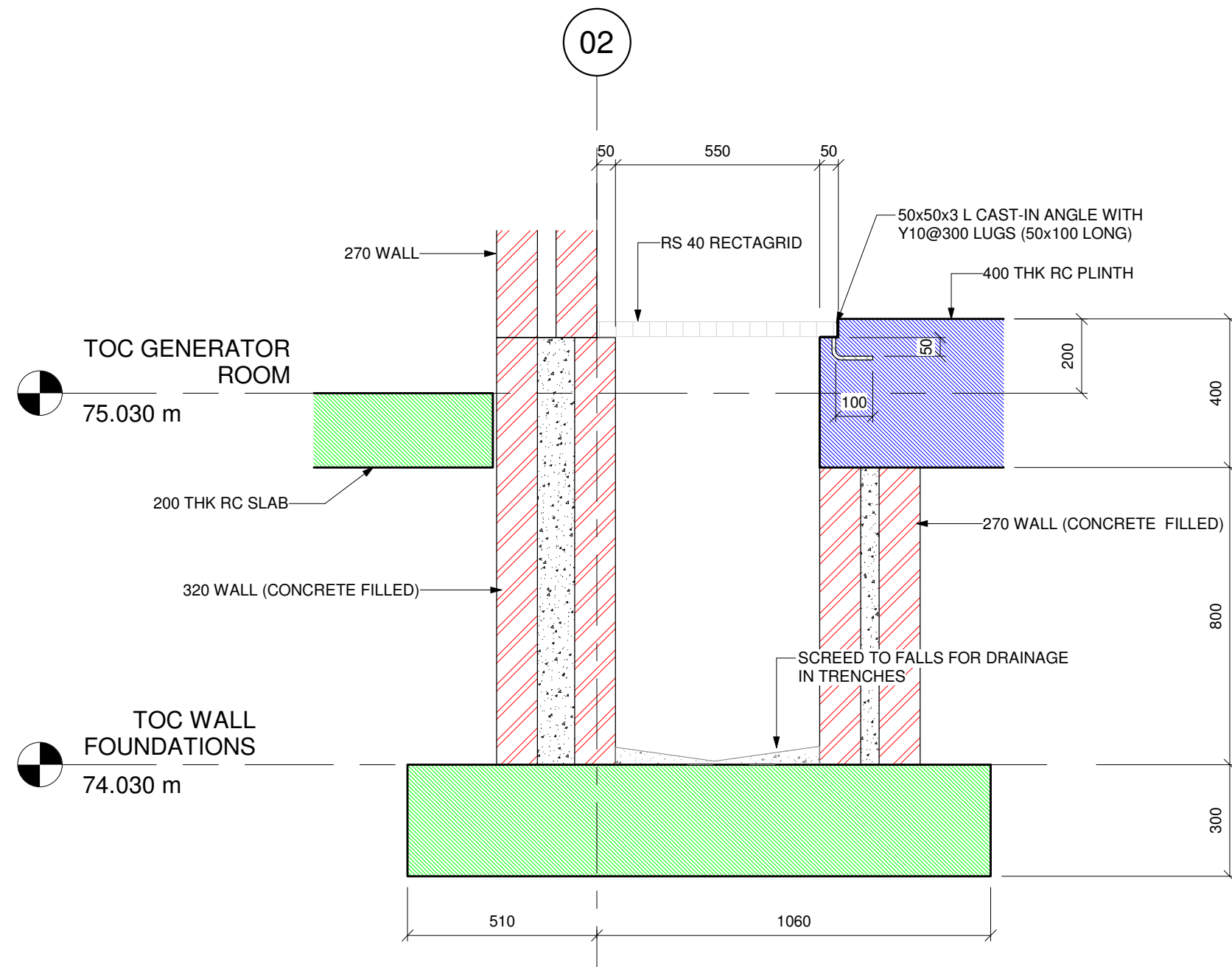
JOINT DETAIL 1
SCALE 1 : 2



(S.J.) SAWCUT JOINT
SCALE 1 : 10

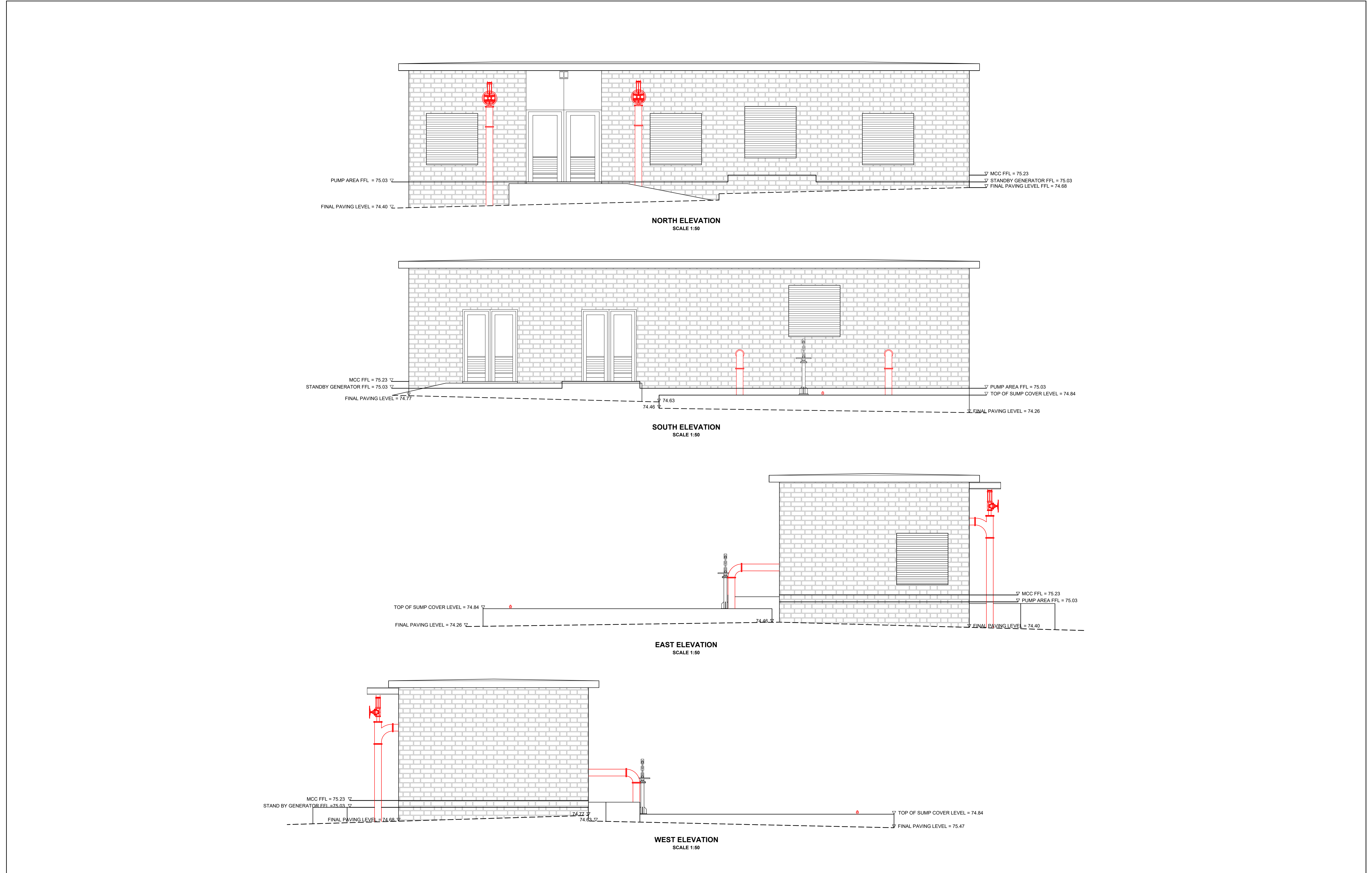


PLINTH DOWEL JOINT
SCALE 1 : 10



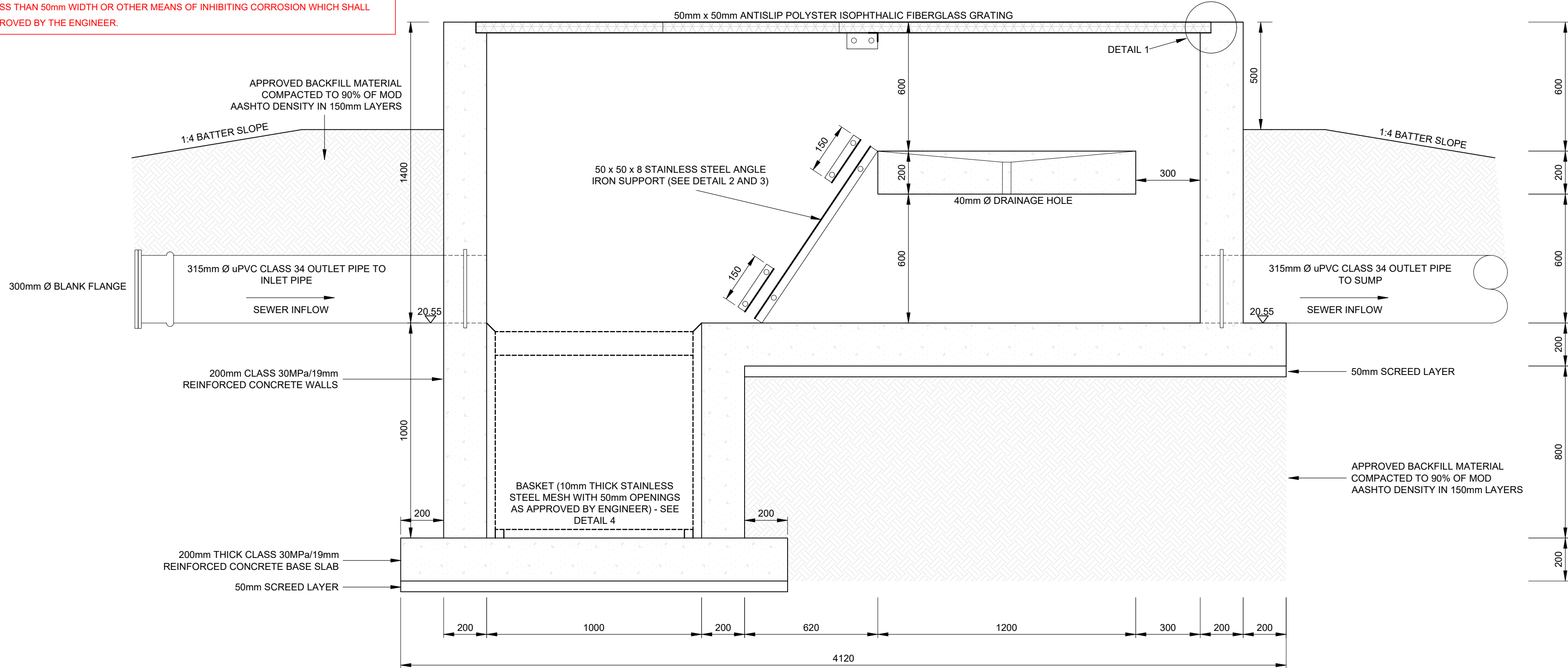
TRENCH - TYPICAL SECTION TR1
SCALE 1 : 15

FOR TENDER	AMENDMENTS				SCALE	SCALE ON REDUCED DRAWING	DESIGN	A. STUCKI Pr. Tech. Eng. 2024 3018 32	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Hough Road, Walmer P.O. Box 13867 Humeed Port Elizabeth 6013 tel/fax: (041) 561 2421	APPROVED JJ. BURDEN PR. Eng. 950572 ENGINEER DATE	APPROVED CLIENT DATE	PROJECT KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN DWG DESCRIPTION SURFACE BED LAYOUT	CONTRACT NO. 106/2026 DWG NO. 2299-T- 402
	NO.	DATE	DESCRIPTION	APPROVED			DRAWN	A. STUCKI Pr. Tech. Eng. 2024 3018 32					
	0	2024-02-10	FOR TENDER	J. BURDEN			APPROVED	JJ. BURDEN Pr. Eng. 950572					
							DATE	NOV 2024					

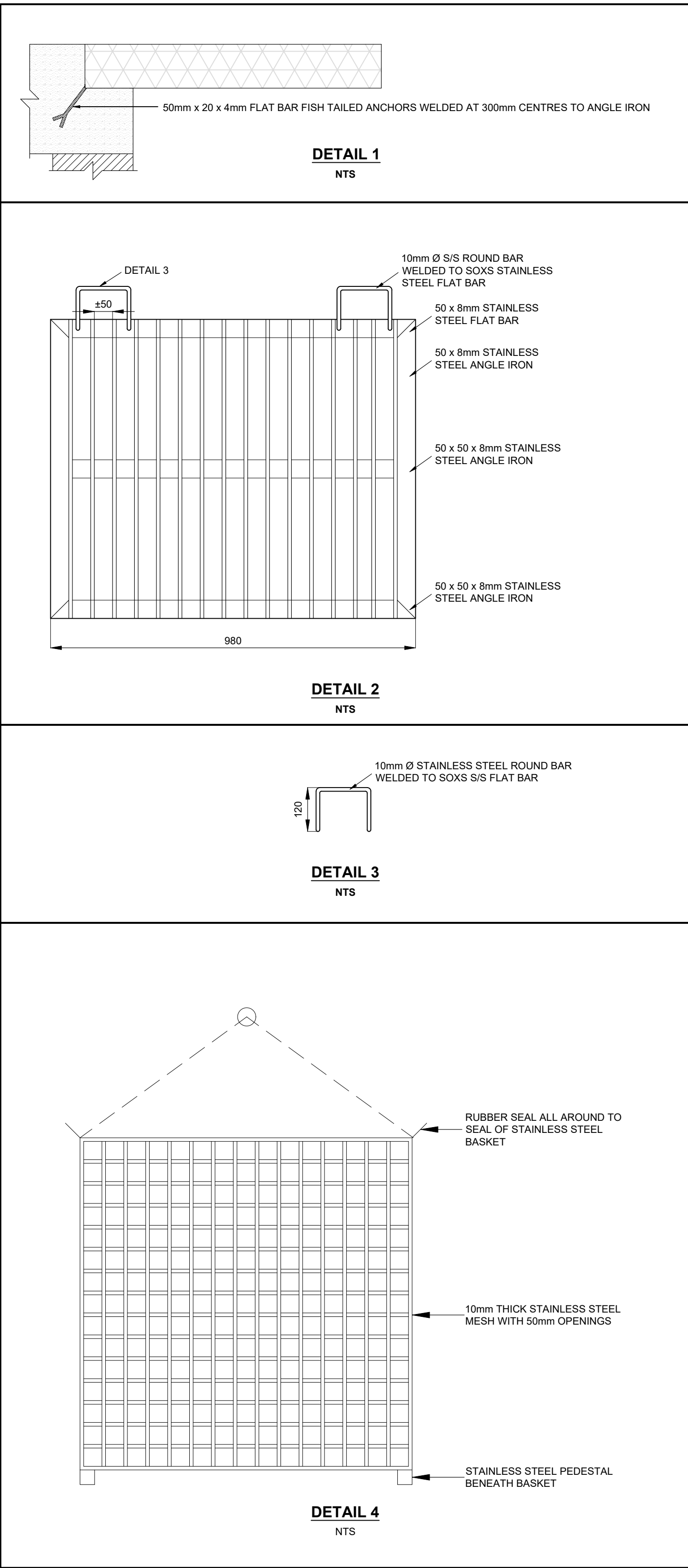
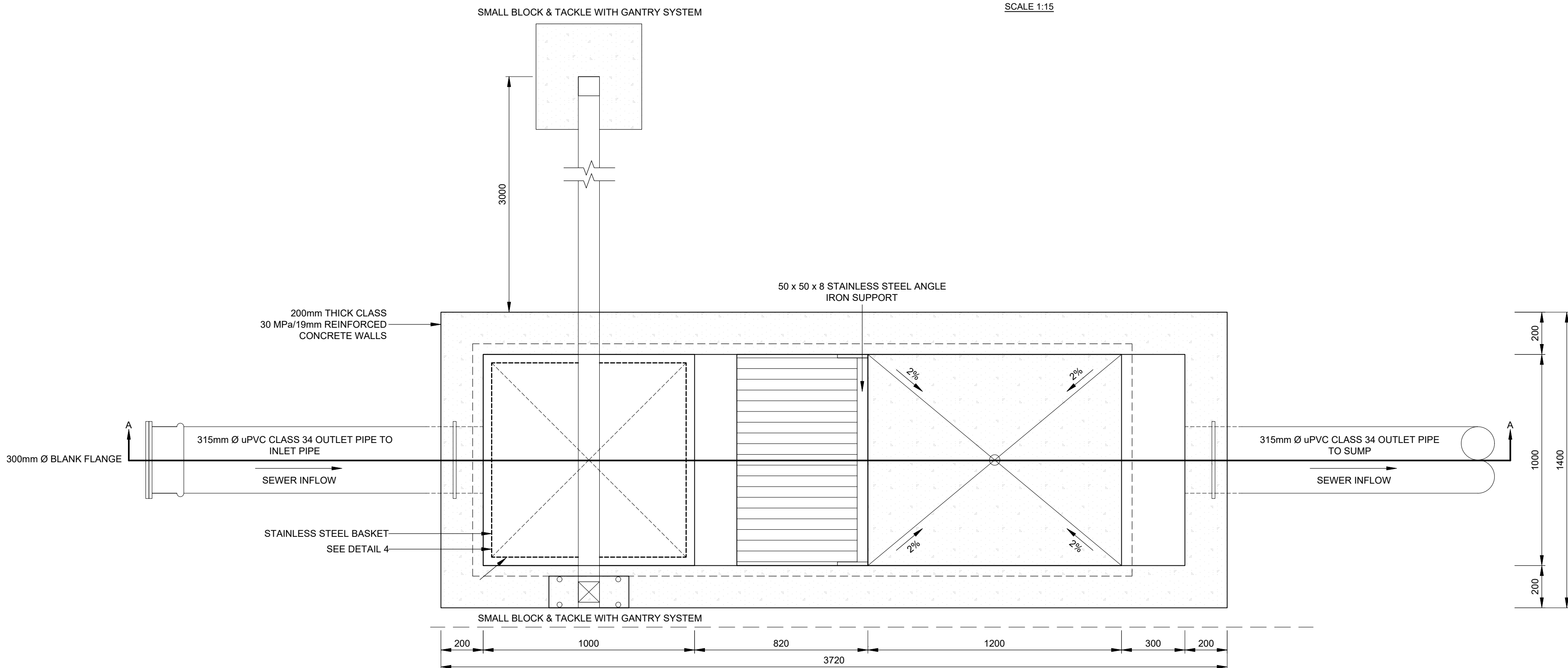


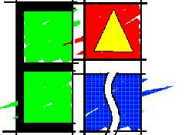
FOR TENDER	"AS BUILT" - NOTES		AMENDMENTS				SCALE	SCALE ON REDUCED DRAWING	DESIGN	CH	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	APPROVED		PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.
	NO.	DATE	DESCRIPTION	APPROVED	DRAWN	EAR			ENGINEER	CLIENT			DWG DESCRIPTION	DWG NO.				
						PJ							PUMP STATION ELEVATION DETAILS	2299-T-403				

NOTE:
1 DIMENSIONS OF PROPOSED WORK TO SUIT CONDITIONS ON SITE.
2 ALL FLANGED JOINTS (EXCLUDING GLANDS) TOGETHER WITH THEIR BOLTS ARE TO BE PROTECTED FROM CORROSION BY MEANS OF AN APPROVED PROTECTIVE PASTE AND SHALL THEN BE WRAPPED WITH 3 LAYERS OF APPROVED IMPREGNATED TAPE OF NOT LESS THAN 50mm WIDTH OR OTHER MEANS OF INHIBITING CORROSION WHICH SHALL BE APPROVED BY THE ENGINEER.

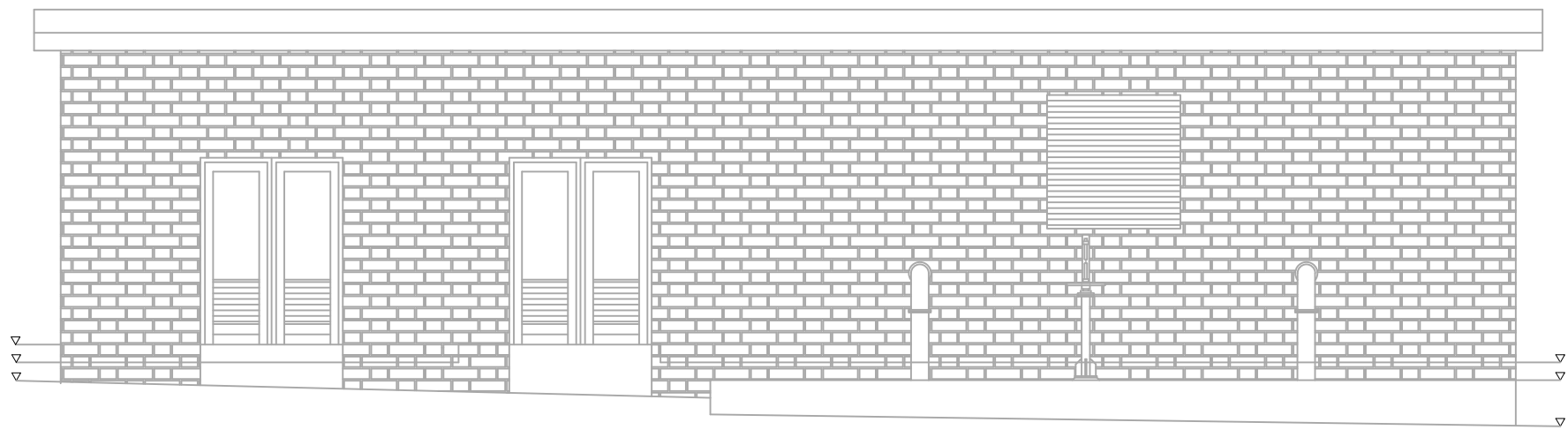
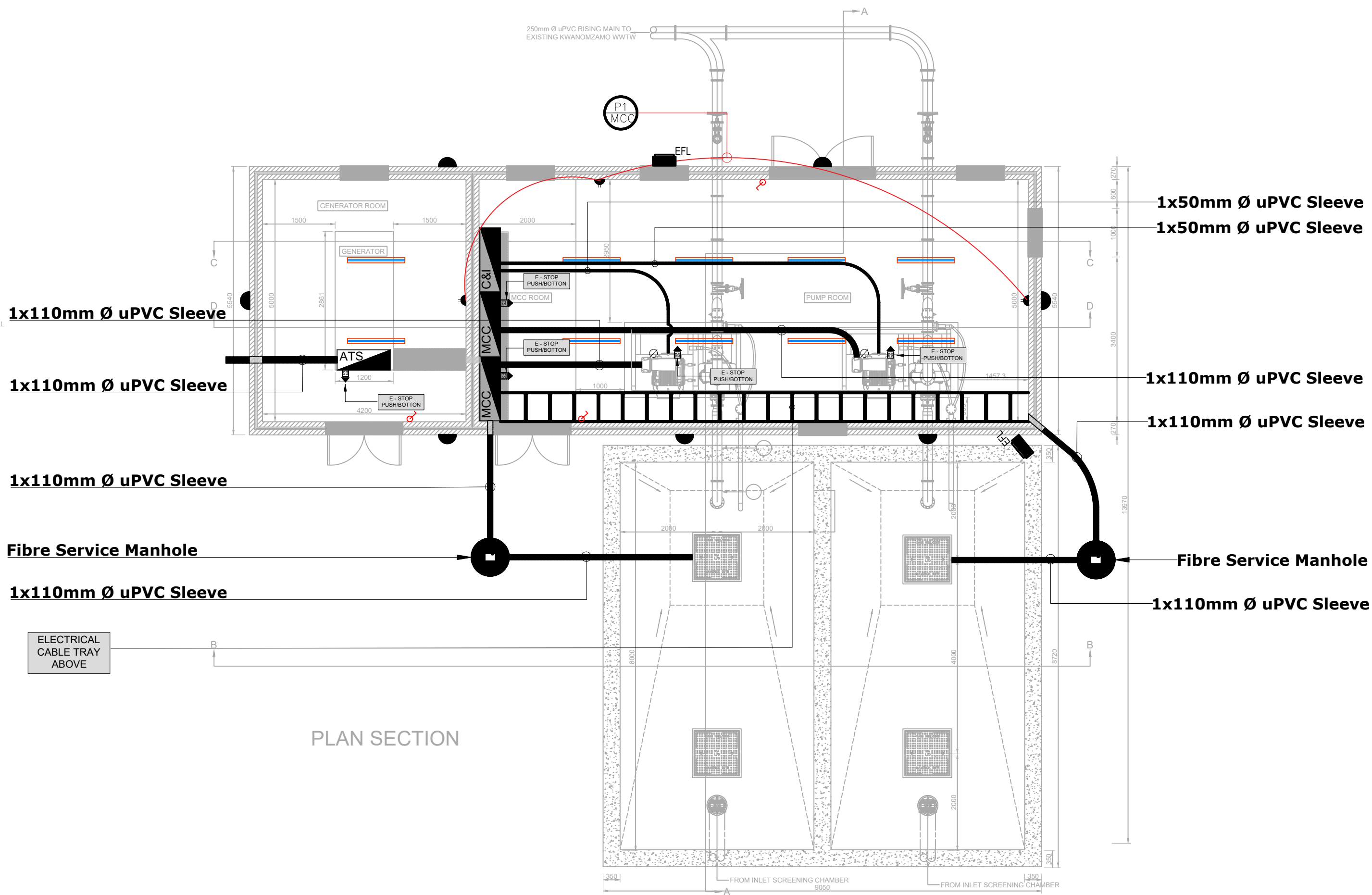
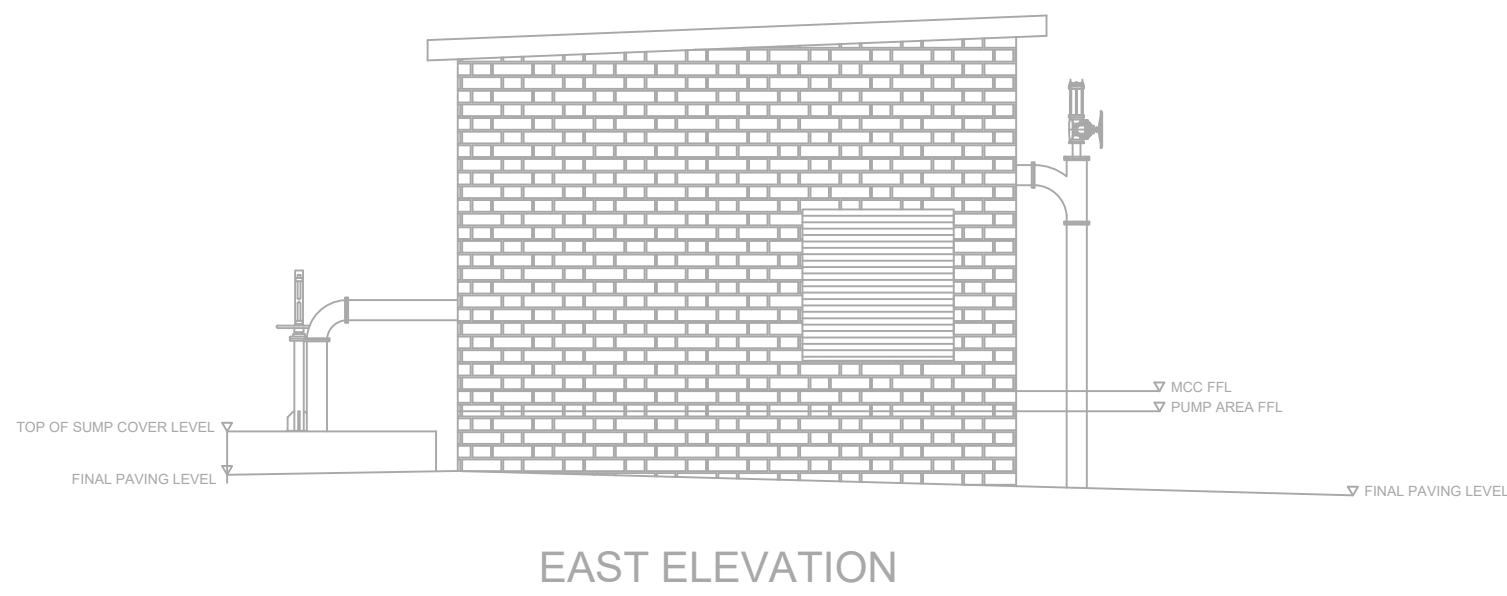
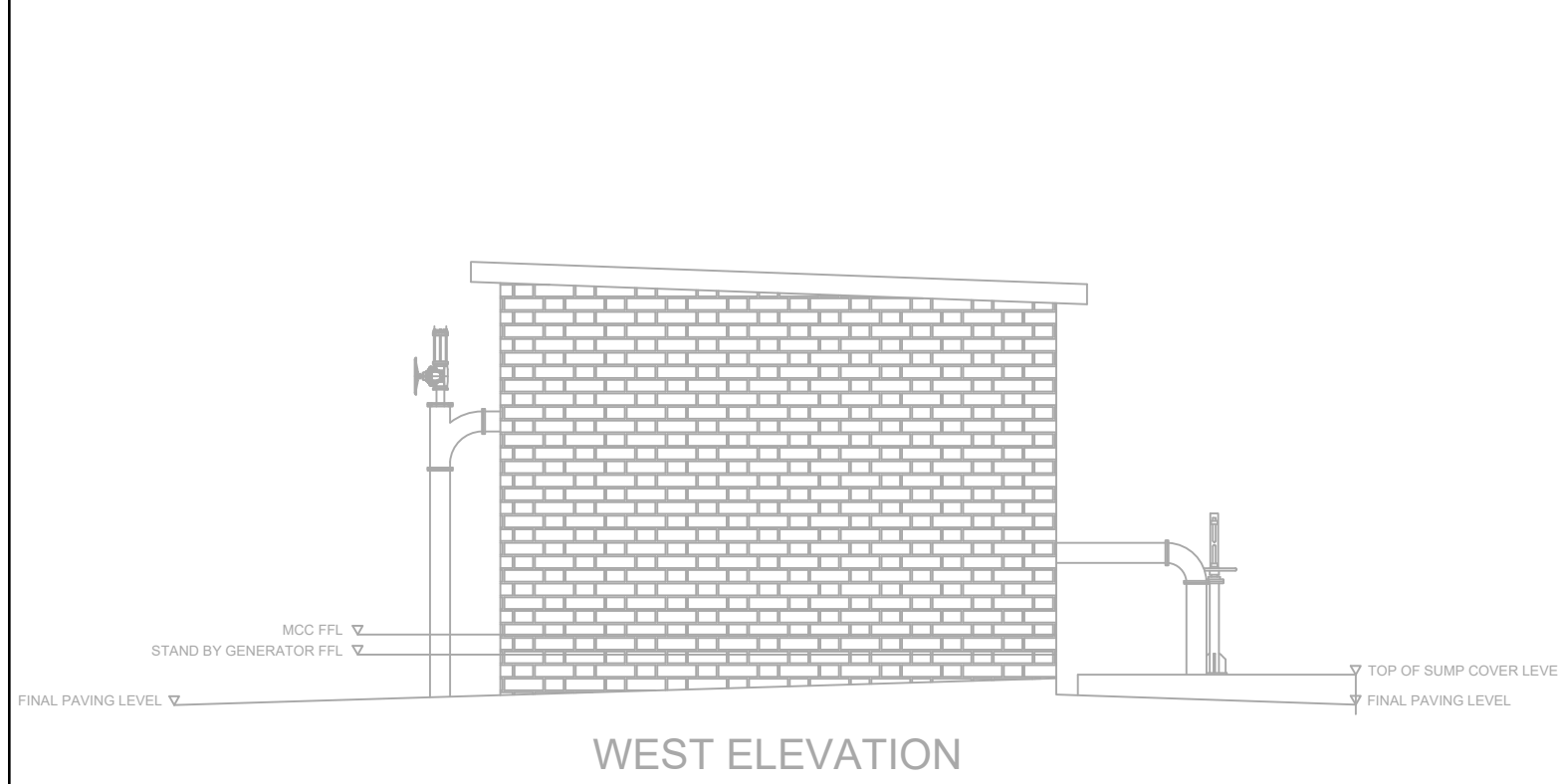
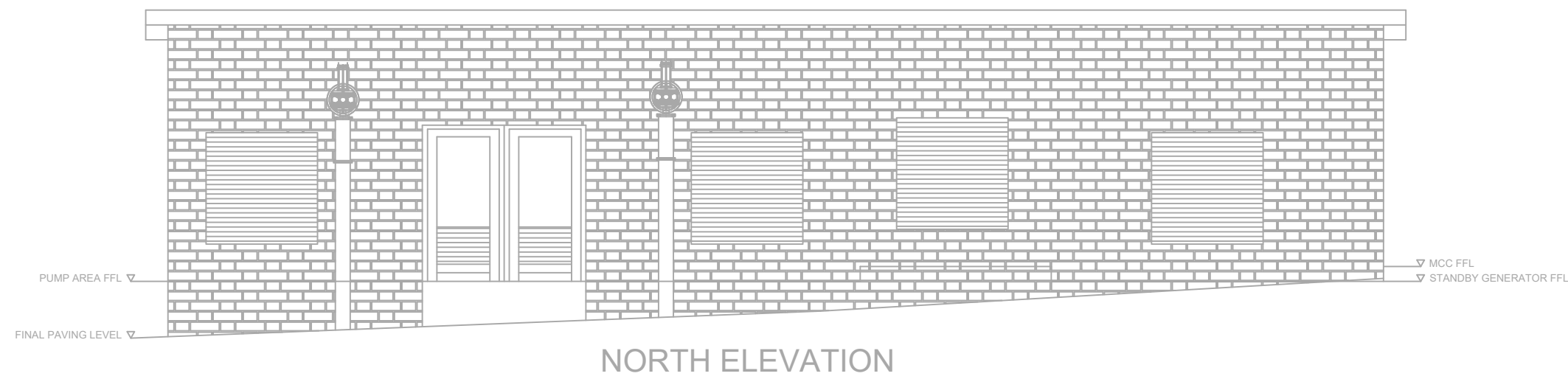


SECTION A-A
SCALE 1:15



FOR TENDER	AMENDMENTS				SCALE  AS SHOWN	SCALE ON REDUCED DRAWING 	PLAN LAYOUT SCALE 1:15				ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED ENGINEER DATE	APPROVED CLIENT DATE		PROJECT KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN		CONTRACT NO. 106/2026	
	NO.	DATE	DESCRIPTION	APPROVED			DRAWN	EAR								DWG DESCRIPTION INLET SCREENING CHAMBER DETAILS		DWG NO. 2299-T-404	
							APPROVED	PJ											
							DATE	APR 2026											
																		ISSUE	

TYPE	POWER LEGEND SPECIFICATIONS	MOUNTING TYPE / HEIGHT
	DISTRIBUTION BOARD	SURFACE
	MOTOR CONTROL CENTER AND POWER DISTRIBUTION BOARD	SURFACE
	CAT ELECTRICAL BOARD	SURFACE
	ATS ELECTRICAL BOARD	-
	POWER CIRCUIT CABLE	-
	SINGLE PHASE ISOLATOR	-
	HA ESSENTIAL DOUBLE SOCKET OUTLET	WALL MOUNTED
	110mm Ø SERVICE CABLE SLEEVE	-
	150mm Ø SERVICE CABLE SLEEVE	-
	FIBRE SERVICE PROVIDER MANHOLE	-
	ELECTRICAL CABLE TRAY	-
	E-STOP PUSH BUTTON DEVICE	-



FOR TENDER	AMENDMENTS				SCALE 1:75	SCALE ON REDUCED DRAWING 0 375 750 1500 3750 mm	DESIGN	US	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	APPROVED		PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO. 106/2026
	NO.	DATE	DESCRIPTION	APPROVED			DRAWN	SQ			ENGINEER	CLIENT		DWG DESCRIPTION		
							APPROVED	US			DATE	DATE		ELECTRICAL - KWANOMZAMO PUMP STATION - POWER LAYOUT		
							DATE	APR 2026								

LEGEND

TYPE	LIGHTING LEGEND SPECIFICATIONS	MOUNTING TYPE HEIGHT
●	BULKHEAD LIGHTING	-
○	BULKHEAD LIGHTING (ELEVATION)	-
■	FLOODLIGHT	-
■	FLOODLIGHT (ELEVATION)	-
—	LINEAR LIGHTS - 40W LED 1800X VAPOR PROOF FITTING PRE RATED	-
—	LIGHTING CIRCUIT	-
1	1 LEVER 1 WAY 16A LIGHT SWITCH	1200mm AFFL 1500mm AFFL
2	2 LEVER 2 WAY 16A LIGHT SWITCH	1200mm AFFL 1500mm AFFL

PLAN SECTION

GENERATOR ROOM
MCC ROOM
PUMP ROOM
ATS
C&I
MCC
FROM INLET SCREENING CHAMBER 9000

NORTH ELEVATION

WEST ELEVATION

EAST ELEVATION

SOUTH ELEVATION

[illegible]

LEGEND

TYPE	SLEEVING & DATA LEGEND SPECIFICATIONS	MOUNTING TYPE / HEIGHT
1x110mm Ø uPVC Sleeve	1x110mm Ø uPVC Sleeve	-
1x50mm Ø uPVC Sleeve	1x50mm Ø uPVC Sleeve	-
1x110mm Ø uPVC Sleeve	1x110mm Ø uPVC Sleeve	-
1x110mm Ø uPVC Sleeve	1x110mm Ø uPVC Sleeve	-
1x110mm Ø uPVC Sleeve	1x110mm Ø uPVC Sleeve	-

ELEVATIONS

- NORTH ELEVATION:** Shows the front facade with a central entrance and several windows. Levels include PUMP AREA FFL, FINAL PAVING LEVEL, MCC FFL, and STANDBY GENERATOR FFL.
- WEST ELEVATION:** Shows the side facade with a window and a door. Levels include MCC FFL, STAND BY GENERATOR FFL, TOP OF BUMP COVER LEVEL, and FINAL PAVING LEVEL.
- EAST ELEVATION:** Shows the side facade with a window and a door. Levels include MCC FFL, PUMP AREA FFL, TOP OF BUMP COVER LEVEL, and FINAL PAVING LEVEL.
- SOUTH ELEVATION:** Shows the rear facade with a central entrance and several windows.

PLAN SECTION

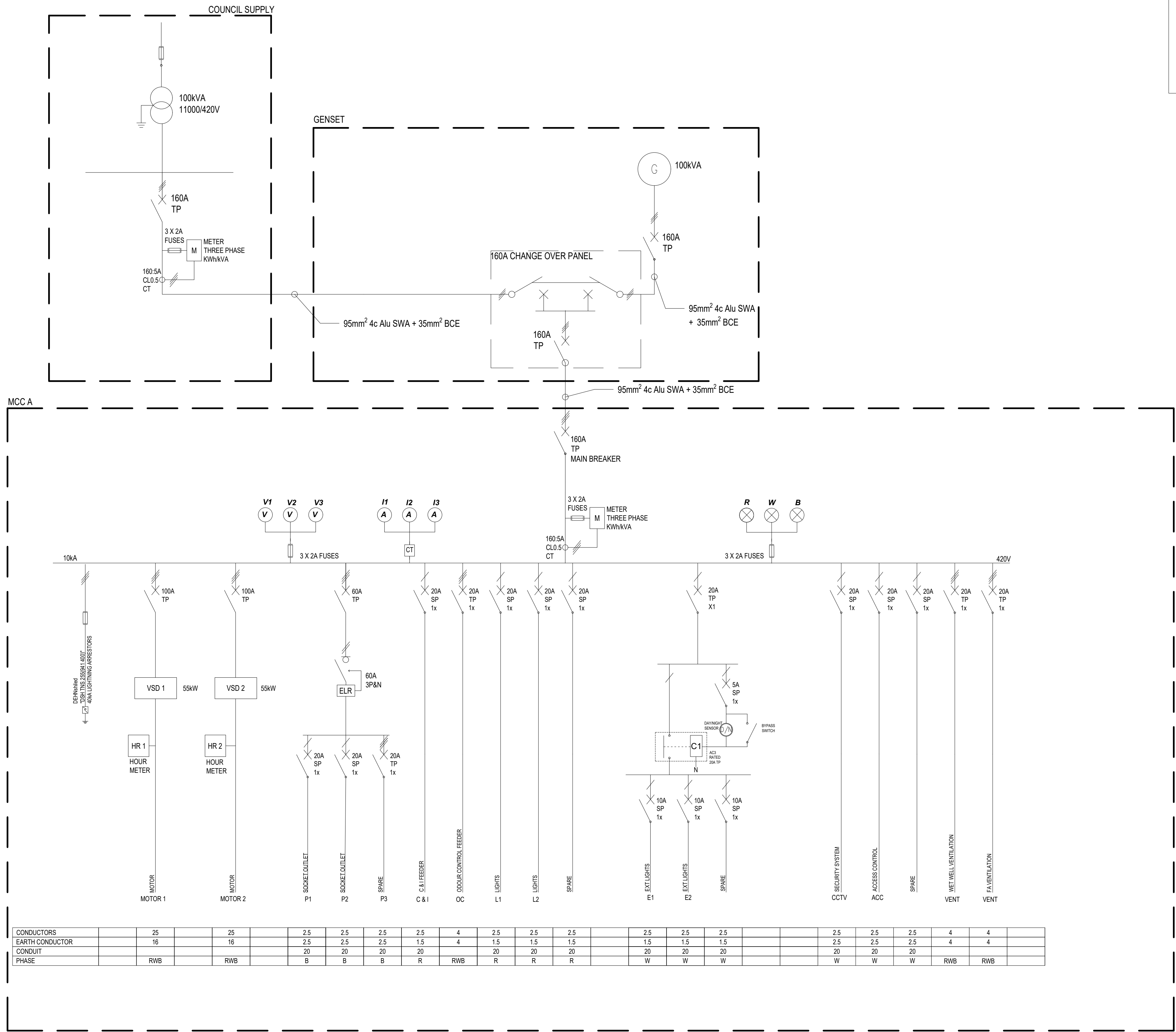
The Plan Section shows the internal layout of the building, including the Generator Room, MCC Room, and Pump Room. It details the placement of cable trays, sleeves, and manholes. Key components include:

- Generator Room:** Contains a generator and an ATS (Automatic Transfer Switch).
- MCC Room:** Contains a Main Control Center.
- Pump Room:** Contains pumps and associated piping.
- Cable Trays:** Labeled C&I, MCC, and PUMP.
- Sleeves:** 1x110mm Ø uPVC Sleeve and 1x50mm Ø uPVC Sleeve.
- Manholes:** Fibre Service Manhole.
- Levels:** EFL (Existing Finished Level), FFL (Finished Level), and various other levels for equipment and paving.

FOR TENDER	*AS BUILT" - NOTES AMENDMENTS				SCALE	SCALE ON REDUCED DRAWING	DESIGN	US	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Hough Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tellfax: (041) 581 2421 APPROVED	APPROVED	KOUGA LOCAL MUNICIPALITY Good Governance Through Service Excellence	PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.		
	NO.	DATE	DESCRIPTION	APPROVED		DRAWN	SQ	ENGINEER CLIENT		DATE DATE		DWG NO.				
															ELECTRICAL - KWANOMZAMO PUMP STATION - SLEEVES & DATA LAYOUT	2299-T-408

X1 OFF

- NOTES:
1. 3CR12 PANEL
 2. IP42 RATED
 3. COLOUR: ORANGE
 4. INNER PANEL COLOUR: RED
 5. FLOOR STANDING
 6. BOTTOM AND TOP ENTRY
 7. TINNED-S6 COPPER BUS BARS TO BE USED



CONDUCTORS		25		25		2.5	2.5	2.5	2.5	4	2.5	2.5	2.5		2.5	2.5	2.5	4	4	
EARTH CONDUCTOR		16		16		2.5	2.5	2.5	1.5	4	1.5	1.5	1.5		2.5	2.5	2.5	4	4	
CONDUIT						20	20	20	20	RWB	20	20	20		20	20	20			
PHASE	RWB		RWB		B	B	B	R	RWB	R	R	R		W	W	W		RWB	RWB	

AS BUILT - NOTES

FOR TENDER

AMENDMENTS			
NO.	DATE	DESCRIPTION	APPROVED



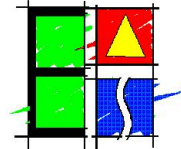
NTS

.....



DESIGN	US
DRAWN	SQ
APPROVED	US
DATE	APR 2026

**ENGINEERING ADVICE
AND SERVICES**
associated with ULWAZI
73 Heugh Road, Walmer
P.O. Box 13867
Humewood
Port Elizabeth
6013
tel/fax: (041) 581 2421



APPROVED	APPROVED
_____ ENGINEER	_____ CLIENT
_____ DATE	_____ DATE

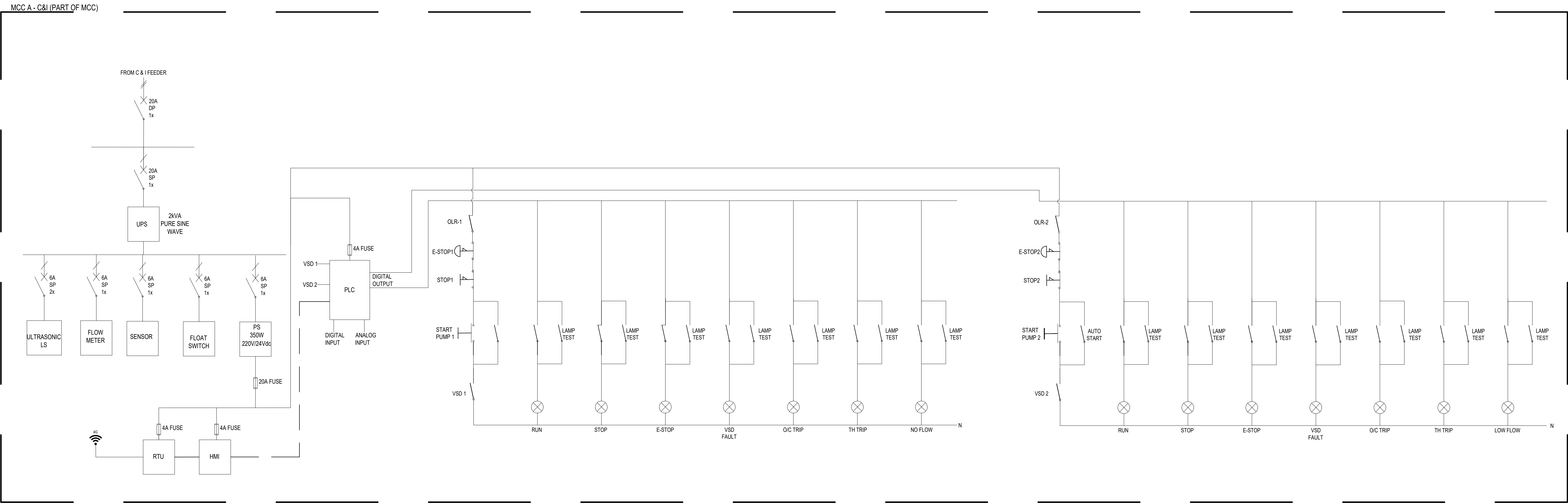


PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.	106/2026		
DWG DESCRIPTION	ELECTRICAL - KWANOMZAMO PUMP STATION - MCC A SCHEMATIC SHEET 1	DWG.NO.	2299-T-409		
		ISSUE			

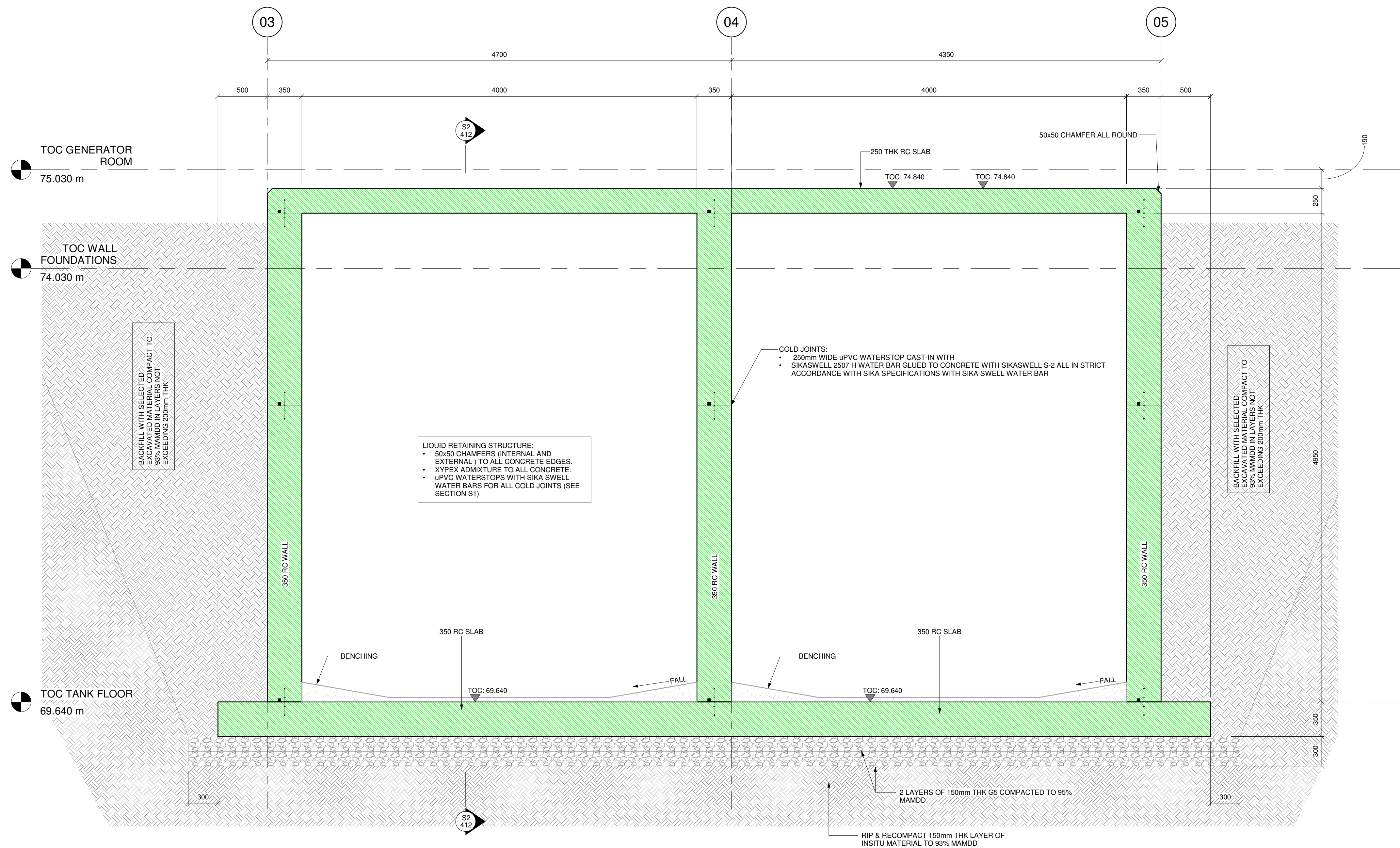
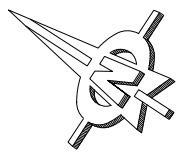
MCC A

(COLOUR OF INNER PANEL TO BE RED)
X1 OFF

- NOTES:
- 1. 3CR12 PANEL
 - 2. COLOUR: ORANGE
 - 3. INNER PANEL COLOUR: RED
 - 4. FLOOR STANDING
 - 5. BOTTOM AND TOP ENTRY
 - 6. TINNED-S6 COPPER BUS BARS TO BE USED



FOR TENDER	AMENDMENTS				SCALE	SCALE ON REDUCED DRAWING	DESIGN	US	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13667 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	APPROVED		PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO. 106/2026
	NO.	DATE	DESCRIPTION	APPROVED			DRAWN	SQ			ENGINEER	CLIENT		DWG DESCRIPTION		
							APPROVED	US						ELECTRICAL - KWANOMZAMO PUMP STATION - MCC A		
							DATE	APR 2026						SCHEMATIC SHEET 2		



SECTION S1
SCALE 1 : 25

“AS BUILT” NOTES

FOR TENDER

AMENDMENTS			
NO.	DATE	DESCRIPTION	APPROVED
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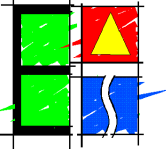
SCALE



SCALE ON REDUCED DRAWING

DESIGN	A. STUCKI Pr. Tech. Eng 2024 3018 32
DRAWN	A. STUCKI Pr. Tech. Eng 2024 3018 32
APPROVED	JJ. BURDEN Pr. Eng. 950572
DATE	NOV 2024

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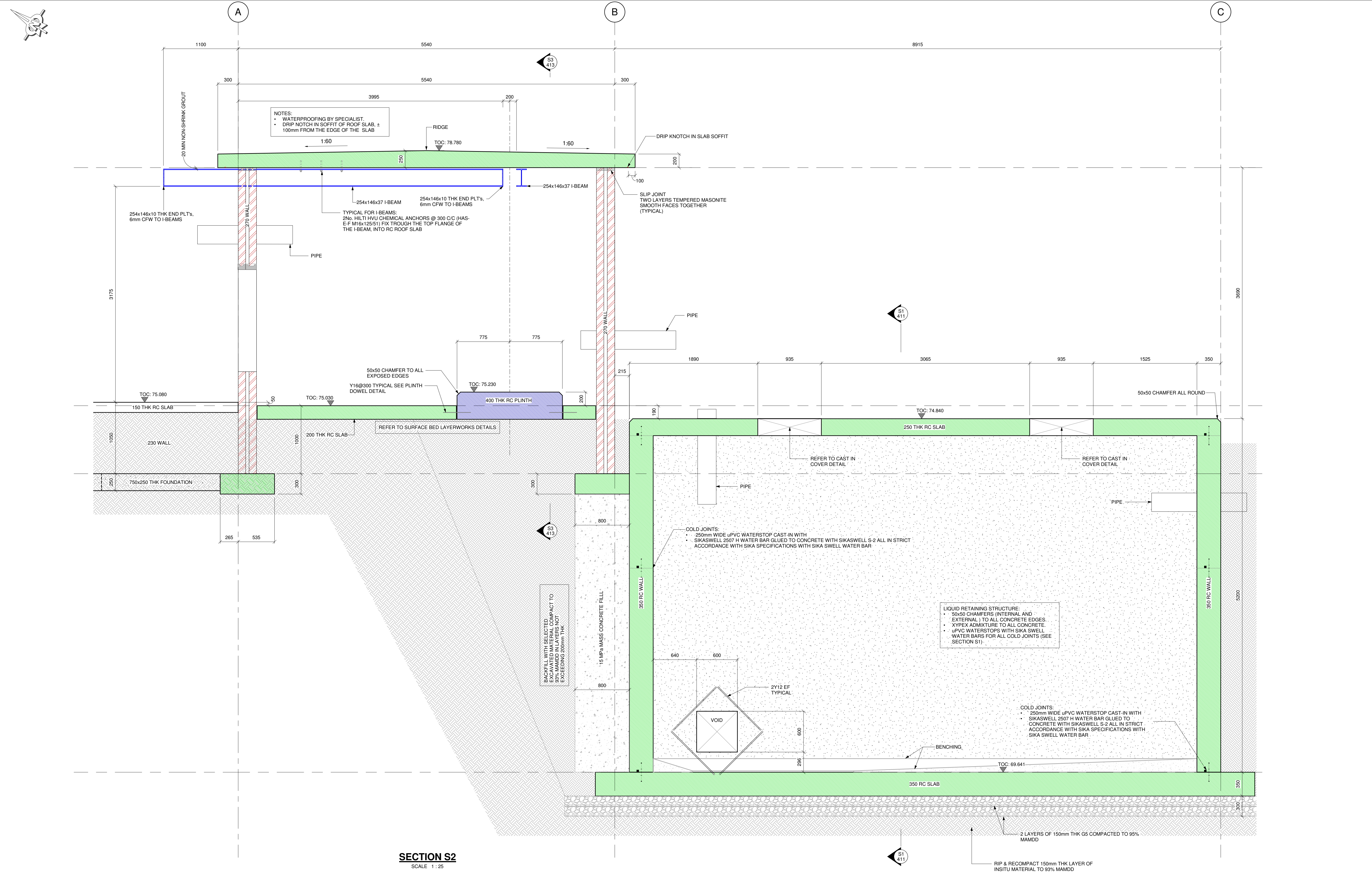


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PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.	106/2026
DWG DESCRIPTION	SECTION S1	DWG NO.	2299-T- 411



SECTION S2
SCALE 1 : 25

145 RELEVANT NOTES

FOR TENDER

AMENDMENTS			
NO.	DATE	DESCRIPTION	APPROVED
0	2024-02-10	FOR TENDER	J. BURDEN

SCALE



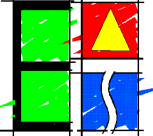
1 : 25

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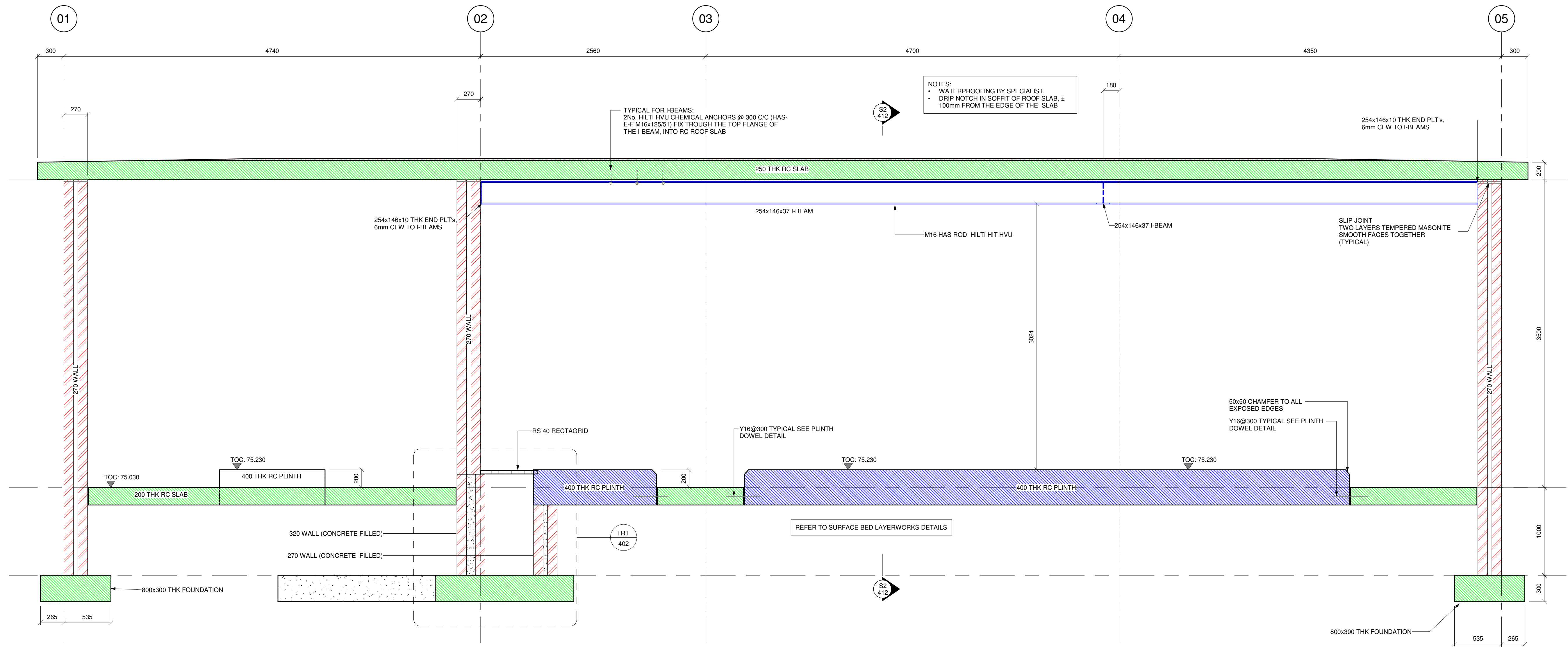
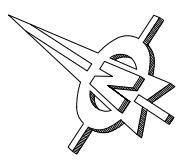


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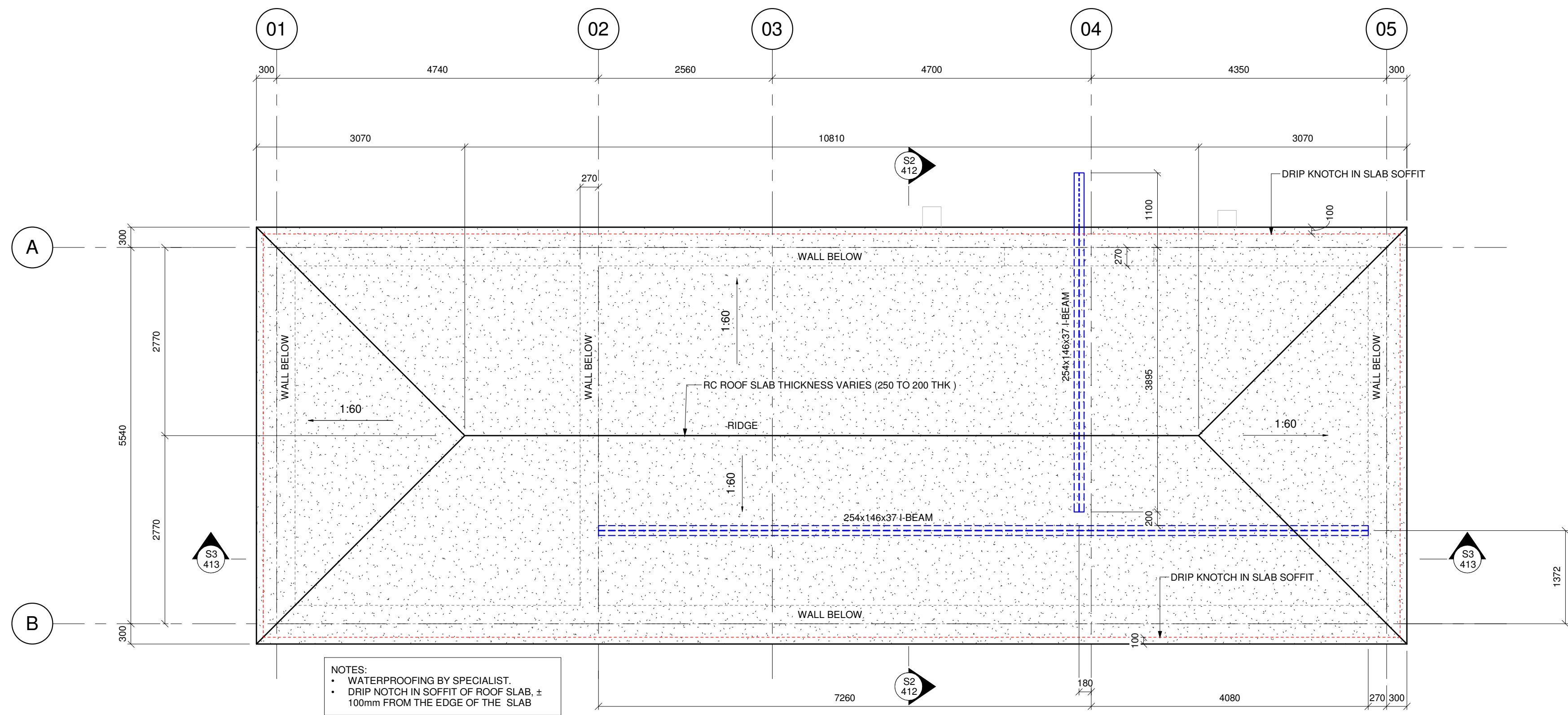
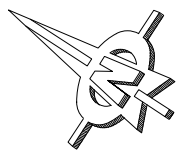


PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.	106/2026
DWG DESCRIPTION	SECTION S2	DWG NO.	2299-T- 412



SECTION S3
SCALE 1 : 25

FOR TENDER	AMENDMENTS				SCALE  1 : 25	SCALE ON REDUCED DRAWING 	DESIGN	A. STUCKI Pr. Tech. Eng 2024 3018 32	ENGINEERING ADVICE AND SERVICES associated with ULWAZI 73 Heugh Road, Walmer P.O. Box 13867 Humewood Port Elizabeth 6013 tel/fax: (041) 581 2421		APPROVED	JJ. BURDEN PR. Eng 950572	APPROVED		PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.	106/2026
	NO.	DATE	DESCRIPTION	APPROVED			DRAWN	A. STUCKI Pr. Tech. Eng 2024 3018 32			ENGINEER	CLIENT	DWG DESCRIPTION		DWG.NO.			
	0	2024-02-10	FOR TENDER	J. BURDEN							JJ. BURDEN Pr. Eng. 950572					2299-T- 413		
							DATE	NOV 2024			DATE			SECTION S3				



U/S RC ROOF SLAB
SCALE 1 : 50

NO. DATE DESCRIPTION APPROVED

AMENDMENTS			
NO.	DATE	DESCRIPTION	APPROVED
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SCALE

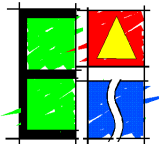


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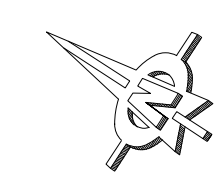


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PROJECT	KWANOMZAMO BULK SANITATION: NEW SEWER PUMP STATION AND RISING MAIN	CONTRACT NO.	106/2026
DWG DESCRIPTION	ROOF LAYOUT	DWG NO.	2299-T- 414
DATE	0		



GENERAL

1. THE CONTRACTOR SHALL KEEP A FULL SET OF UP TO DATE DRAWINGS ON SITE.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE CORRECT SETTING OUT OF BUILDINGS ON SITE WITH PARTICULAR REFERENCE TO ERF BOUNDARIES, BUILDING LINES AND GIVEN CO-ORDINATES.
3. THE CONTRACTOR SHALL VERIFY ALL LEVELS AND DIMENSIONS ON SITE.
4. ANY ERRORS OR DISCREPANCIES MUST BE REPORTED IMMEDIATELY FOR CORRECTION (BEFORE WORK IS UNDERTAKEN).
5. ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE RELEVANT DRAWINGS OF THE REST OF THE PROFESSIONAL TEAM.
6. DO NOT SCALE OFF THE DRAWINGS, USE FIGURED DIMENSIONS ONLY.
7. LARGE SCALE DETAILS MUST BE USED WHERE AVAILABLE.
8. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CONTRACT SPECIFICATION AND RELEVANT SABS SPECIFICATIONS AS FOLLOWS:
0164 - THE STRUCTURAL USE OF MASONRY
0400 - NATIONAL BUILDING REGULATIONS
1200 A - GENERAL
1200 C - SITE CLEARANCE
1200 D - EARTHWORKS
1200 DB - EARTHWORKS (PIPE TRENCHES)
1200 DM - EARTHWORKS (ROADS, SUBGRADE)
1200 G - CONCRETE (STRUCTURAL)
1200 GE - PRECAST CONCRETE (STRUCTURAL)
1200 H - STRUCTURAL STEELWORK
1200 HB - CLADDING & SHEETING
1200 HC - CORROSION PROTECTION
1200 L - MEDIUM-PRESSURE PIPE LINES
1200 LB - BEDDING PIPES
1200 LC - CABLE DUCTS
1200 LD - SEWERS
1200LE - STORMWATER DRAINAGE
1200 M - ROADS (GENERAL)
1200 ME - SUBBASE
1200 MF - BASE
1200 MG - BITUMINOUS SURFACE TREATMENT
1200 MH - ASPHALT BASE AND SURFACING
1200 MK - KERBING AND CHANNELLING
1200 MM - ANCILLARY WORKS
9. THE CONTRACTOR SHALL IDENTIFY AND EXPOSE, WHERE RELEVANT, ALL UNDERGROUND SERVICES ON SITE.
10. SHOULD THE ENGINEER BE REQUIRED ON SITE, 24 HRS NOTICE IS REQUESTED.
11. LOADS LL=1,5KN/m²

EARTHWORKS

1. ALL FOUNDATIONS ARE DESIGNED FOR AN ALLOWABLE BEARING CAPACITY OF 150kPa.
2. NO FOUNDATION SHALL BE FOUNDED ON BACKFILLED MATERIAL.
3. ALL FOUNDATION EXCAVATIONS MUST BE INSPECTED BY THE ENGINEER BEFORE ANY CONCRETE IS CAST.
4. FOUNDATION LEVELS INDICATED ARE APPROXIMATE. THE FINAL FOUNDING LEVEL MUST BE CONFIRMED BY THE ENGINEER ON SITE.
5. THE BOTTOM OF ALL FOUNDATIONS SHALL BE LEVEL. IF REQUIRED, STEPS MAY BE FORMED IN ACCORDANCE WITH SABS 0400.
6. THE DIFFERENCE BETWEEN FINAL FOUNDING LEVEL AND BOTTOM OF FOUNDATION SHOWN MUST BE MADE UP WITH MASS CONCRETE UNO.
7. ALL OTHER REINFORCED FOUNDATIONS MUST HAVE A MINIMUM OF 50mm CONCRETE BLINDING LAYER.
8. ALL EXCAVATIONS SHALL BE KEPT FREE OF WATER UNTIL CONCRETE HAS BEEN CAST.
9. BACKFILLING OF BASE EXCAVATIONS SHALL BE DONE WITH SELECTED EXCAVATED MATERIAL FROM SITE OR GA MATERIAL AS INDICATED ON THE DRAWINGS IN ACCORDANCE WITH THE FOLLOWING:
A. MAXIMUM LAYER THICKNESS : 200mm
B. MINIMUM COMPACTION : 93% MAMDD
C. TESTING FREQUENCY : 2 TESTS PER LAYER PER SECTION COMPLETED PER DAY, IE
IF 2 TRENCHES ARE COMPLETED PER DAY THAN 1 TEST PER TRENCH, PER LAYER.
IF 5 BASES ARE DONE PER DAY THAN 1 TEST IN ANY 2 OF THE 5 BASES PER LAYER.
10. FORMATION LEVEL PREPARATION (FOR LAYERWORKS)
A. RIP INSITU MATERIAL 150mm DEEP MINIMUM
B. MAKE UP SHORTFALLS IN MATERIAL WITH SELECTED EXCAVATED MATERIAL FROM SITE
C. MINIMUM COMPACTION 93% MAMDD
D. TESTING FREQUENCY : 2 TESTS PER 1000m² OR 2 TESTS PER AREA COMPLETED PER DAY.

CONCRETE WORK

FORMWORK

1. ROUGH FORMWORK TO SIDES OF BASES (IF REQUIRED).
2. SMOOTH FORMWORK TO ALL EXPOSED CONCRETE SURFACES UNO.
3. FORMWORK RELEASE OILS TO COLUMNS AND SLABS TO RECEIVE PLASTER SHALL BE WATER BASED VEGETABLE OILS.
4. 20x20 CHAMFERS TO ALL EXPOSED CONCRETE CORNERS
5. STRIPPING TIMES:
A. FORMWORK:
a. CEM1 MIXES AS PER SABS 1200 G FOR COLD & WARM WEATHER.
b. CEM1 & FA MIXES, COLD WEATHER:
c. COLUMN AND BEAM SIDES : 2 DAYS
SLABS (PROPS LEFT IN PLACE) : 9 DAYS
BEAM SOFFITS : 14 DAYS
d. CEM1 & FA MIXES, WARM WEATHER:
AS PER CODE ALLOWANCE FOR COOL WEATHER
(INTERPOLATED BETWEEN COLD AND WARM)
e. PROPS (NOT CONSIDERING BACK PROPPING REQUIREMENTS FOR SUPPORTING ADDITIONAL FLOOR LOADS)
f. PARTIAL REMOVAL, ALL MIXES, ALL SEASONS:
SLABS AND BEAMS : 14 DAYS
g. COMPLETE REMOVAL, ALL MIXES (SUPPORTING CONCRETE SELF-WEIGHT ONLY):
COLD WEATHER : SLABS AND BEAMS : 28 DAYS
WARM WEATHER : SLABS AND BEAMS : 21 DAYS
B. ALL OF THE ABOVE PROP REMOVAL ALLOWANCES ARE SUBJECT TO THE REVIEW OF THE 7 DAY CONCRETE CUBE RESULTS.
6. NO BRICKWORK MAY BE BUILT ON SUSPENDED SLABS UNTIL ALL THE PROPS HAVE BEEN REMOVED.

REINFORCEMENT

1. ALL REINFORCEMENT SHALL COMPLY WITH SABS 920.
2. NO RE-BENDING, CUTTING OR WELDING OF REINFORCEMENT ON SITE WITHOUT PRIOR APPROVAL OF THE ENGINEER.
3. THE CONTRACTOR SHALL INSPECT ALL REINFORCEMENT PRIOR TO REQUESTING THE ENGINEER TO INSPECT THE REINFORCEMENT.
4. MINIMUM COVER REQUIREMENTS (NOTE: MEASURED TO STIRRUPS IN COLUMNS) SEE REINFORCEMENT DRAWINGS FOR COVER TO INDIVIDUAL ELEMENTS:
5. BASES, FOUNDATIONS, PITS : 50mm
6. COLUMNS : 40mm
7. RETAINING WALLS : 40mm

CONCRETE

1. CONCRETE STRENGTHS:
A. MASS CONCRETE AND BLINDING : 10MPa/19mm
B. BASES : 25MPa/19m
C. WALL FOOTINGS : 20MPa/19mm
D. RETAINING WALL FOOTINGS : 25MPa/19mm
E. RETAINING WALLS : 30MPa/19mm, 70:30 CEM1:FA BLEND
F. COLUMNS & PEDESTALS : 30MPa/19mm
G. ROOF SLAB : 25MPa/19mm, 70:30 CEM1:FA BLEND
H. SURFACE BEDS : 35MPa/19mm INCL. WASHED CONCRETE SAND, W/C RATIO = 0.55
I. BRICKWORK CAVITY INFILL: 25MPa/13mm
J. GROUND BEAMS : 25MPa/19mm
2. CURING
A. ALL CONCRETE WET CURED FOR 7 DAYS FROM DATE OF CASTING.
3. UNFORMED SURFACES
A. SURFACE BEDS: STEEL POWER FLOAT TO DEGREE ACCURACY SPECIFIED
B. ROOF SLABS: STRIKE OFF FOR SCREEDS
C. TOP OF PEDESTALS & BEAMS: STEEL TROWEL
D. EFFLUENT PIT FLOOR & TOP OF WALLS: STEEL TROWEL

STRUCTURAL STEEL WORK

1. ALL STRUCTURAL STEELWORK TO BE FABRICATED AND ERECTED IN ACCORDANCE WITH SANS 1921-3, SANS 10162-1: 2005 AND THE PROJECT SPECIFICATION.
2. A COMPLETE SET OF SHOP DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE FABRICATION COMMENCES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL VERIFICATION OF ALL STEELWORK DIMENSIONS BEFORE MANUFACTURING ANY COMPONENT ON OR OFF SITE.
4. ALL STRUCTURAL STEELWORK SHALL BE GRADE S355JR OR GRADE S355W IN ACCORDANCE WITH SABS 1431 EXCEPT FOR COLD-ROLLED PURLINS AND GIRTS WHERE COMMERCIAL QUALITY STEEL MAY BE USED.
5. BOLTS
A. ALL STRUCTURAL BOLTS SHALL BE CLASS 8.8 (UNO) A MINIMUM OF TWO BOLTS PER CONNECTION WILL BE USED (UNO)
B. HSFG BOLTS ARE TO BE TIGHTENED BY THE "TURN OF NUT" METHOD AS PER SANS 10162-1: 2005.
ALL FRICTION SURFACES ARE TO BE BLAST CLEANED AND UNPAINTED AND MUST BE PROTECTED AGAINST CORROSION UNTIL THE CONNECTION IS MADE. THE CONTRACTOR MUST SUPPLY A METHOD OF STATEMENT TO THE ENGINEER FOR APPROVAL.
C. PUNCHING OF HOLES BY CNC MACHINEWILL BE PERMITTED WITH WRITTEN PERMISSION FROM THE ENGINEER.
D. NO FLAME CUTTING OF HOLES WILL BE PERMITTED.
6. WELDING
A. WELDING SHALL CONFORM TO AWS D1.1-90 SPECIFICATIONS.
B. GROOVE WELDS SHALL DEVELOP THE FULL STRENGTH OF THE ELEMENTS JOINED AND SHALL BE TESTED BY AN APPROVED LABORATORY.
C. ALL WELDING TO BE 6mm CONTINUOUS FILLET WELDS UNO.
D. WELDING ELECTRODE TO BE E70XX UNO.
E. WELDING SHALL BE DONE BY OR UNDER THE SUPERVISION OF CODED WELDERS
7. IF SPLICES IN STEEL MEMBERS ARE REQUIRED FOR TRANSPORT OR MANUFACTURE PURPOSES, PROPOSALS FOR THIS WILL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
8. WHERE TEMPORARY PROPPING IS NECESSARY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN, MAINTENANCE AND REMOVAL OF SUCH SUPPORTS.
9. BASE PLATES SHALL BE GROUTED WITH A CEMENTITIOUS NON-SHRINK GROUT WITH A MINIMUM CRUSHING STRENGTH OF 40MPa. GROUTING MUST TAKE PLACE BEFORE THE PRIMARY LOADS ARE APPLIED TO THE STRUCTURE.

CORROSION PROTECTION

1. ALL INTERNAL STEELWORK, EXCLUDING COLD-FORMED LIPPED CHANNELS SHALL BE COATED AS FOLLOWS, AFTER MANUFACTURE:
SURFACE PREPERATION:
THE SURFACE SHALL BE THOROUGHLY WASHED AND CLEANED TO REMOVE ALL CONTAMINANTS.
MECHANICAL POWER TOOL CLEAN THE STEEL TO ISO 8501-1 ST3
PRIMERS (SHOP APPLICATION):
SIGMACOVER 630
DFT 150 MICRON MIN
RAL COLOUR - CREAM
FINISHING COAT (SITE APPLICATION):
SIGMADUR 550, DFT 50 MICRON MIN
RAL COLOUR - 9003
2. ALL EXTERNAL STRUCTURAL STEELWORK SHALL BE HOT DIPPED GALVANISED TO SANS 121:2011 (ISO1461:2009) AFTER MANUFACTURE AND COATED AS FOLLOWS (EXCLUDING PURLINS):
SURFACE PREPERATION:
THE SURFACE SHALL BE THOROUGHLY WASHED AND CLEANED WITH SCOTCH-BRIGHT PADS AND A GALVANIZED IRON CLEANER UNTIL A "WATER BREAK FREE" SURFACE IS ACHIEVED.
ENSURE THAT ALL ZINC SALTS, OIL, GREASES AND GENERAL CONTAMINATION IS REMOVED.
IF NECESSARY, THE PROCESS SHALL BE REPEATED UNTIL A "WATER BREAK FREE" SURFACE IS OBTAINED.
ALLOW THE SURFACE TO DRY PRIOR TO THE APPLICATION OF ANY COATING. AVOID SKIN CONTACT WITH CLEANING AND DEGREASING AGENT BY USING PROPER PROTECTIVE WEAR
PRIMERS (SHOP APPLICATION):
SIGMAPRIME 200, DFT 75 MICRON MIN
INTERMEDIATE COAT (SHOP APPLICATION):
SIGMACOVER 456, DFT 75 MICRON MIN
RAL COLOUR - CREAM
FINISHING COAT (SITE APPLICATION):
SIGMADUR 550, DFT 50 MICRON MIN
RAL COLOUR - 9003
3. ALL COLD-FORMED LIPPED CHANNELS SHALL BE HOT DIPPED GALVANISED TO SANS 121:2011 (ISO1461:2009) AFTER MANUFACTURE

BRICKWORK

1. ALL MASONRY MATERIALS, COMPONENTS, WORKMANSHIP AND TESTING SHALL COMPLY WITH SABS 0164 AND SABS 0400.
2. THE MINIMUM CRUSHING STRENGTH OF ALL LOAD BEARING BRICKWORK SHALL BE 14MPa AND THE MAXIMUM WATER ABSORPTION 12%.
3. THE MINIMUM CRUSHING STRENGTH OF MORTAR SHALL BE AS FOR CLASS II MORTAR.
4. ALL BRICKFORCE, WALL TIES AND HOOP IRON STRAPS SHALL BE HOT DIPPED GALVANISED.
5. BRICKFORCE SHALL BE PROVIDED AS FOLLOWS:
A. 75mm WIDE HD GALVANISED BRICKFORCE TO ALL BRICKWORK, 270mm WIDE OR MORE.
B. 150mm WIDE HD GALVANISED BRICKFORCE TO ALL 230mm BRICKWORK.
C. EVERY COURSE BELOW FLOOR IN FOUNDATIONS.
D. EVERY 4TH COURSE TO ALL WALLS UNO.
E. BRICKFORCE EVERY COURSE CONTINUOUS OVER ALL OPENINGS.
6. WALL TIES IN CAVITY WALLS AND BRICK RETAINING WALLS SHALL BE OF THE VERTICAL TWISTED TYPE, PLACED EVERY FOURTH LAYER VERTICALLY AND AT 500mm c/c HORIZONTALLY (5 NO/m² MIN)
7. BRICK WALLS SHALL BE TIED TO CONCRETE COLUMNS WITH 30mm x 1.6mm x 400mm LONG HOOP IRON STRAPS EVERY 4TH COURSE, FIXED TO THE COLUMN WITH HD GALVANISED HILTI HPS-1 6/0x25 HAMMER SCREW.
8. CAVITY WALLS SHALL HAVE STEPPED DPC IN ACCORDANCE WITH ARCHITECT'S DETAILS.
9. LOADBEARING BRICKWORK SHALL HAVE A SLIPJOINT CONSISTING OF 2 LAYERS TEMPERED MASONITE, SMOOTH FACES TOGETHER.
10. NON-LOAD BEARING BRICKWORK MAY NOT BE BUILT CLOSER THAN 20mm TO THE SOFFITS OF BEAMS AND SLABS UNO.
11. 10mm SOFTBOARD OR JOINTEX SHALL BE PLACED WHERE A WALL ABUTS A COLUMN.
12. FULL DEPTH V-JOINTS SHALL BE MADE IN PLASTER WORK WHERE BRICKWORK AND CONCRETE JOIN UNLESS THE PLASTER IS REINFORCED. V-JOINTS SHALL BE IN ACCORDANCE WITH ARCHITECT'S DETAILS.
13. CONTROL JOINTS IN BRICKWORK SHALL BE PROVIDED AT POSITIONS SHOWN ON THE DRAWINGS.
14. WALL JOINTS MUST BE REPEATED IN ALL FINISHES. ALL EXTERNAL JOINTS MUST BE SEALED WITH AN APPROVED POLYURETHANE JOINT SEALER IN ACCORDANCE WITH ARCHITECT'S DETAILS.
15. CLAY BRICKS MUST BE 'WETTED' BEFORE USE.
16. LINTOLS OVER OPENINGS SHALL HAVE A MINIMUM OF 230mm BEARING EACH END.
17. NO VERTICAL OR HORIZONTAL CHASING IS PERMITTED WITHOUT THE APPROVAL OF THE ENGINEER.
18. EXTERNAL: FACEBRICK: CATHCART TRAVETINE LIGHT FBS (LANGKLOOF BRICKS) OR SIMILAR APPROVED.
19. INTERNAL: SOLID PLASTER BRICK ROK, PLASTERED SMOOTH TO HEIGHT AS INDICATED ON DRAWING ABOVE FINAL FLOOR LEVEL (WITH 10mm OPENING TO ROOF SOFFIT) FOR EXPANSION OR CONTRACTION.

TIMBER

1. ALL TIMBER GRADE 5 SA PINE UNO
A. ALL TIMBER PLANED ALL ROUND (PAR)
B. ALL PURLINS SECURED TO RAFTERS WITH 2 HURRICANE CLIPS PER RAFTER MIN
C. ALL RAFTERS FIXED TO WALL WITH HEAVY DUTY TRUSS HANGERS UNO
D. ALL LAMINATED TIMBER TO BE SALIGNA
2. TIMBER TRUSSES SHALL BE TIED DOWN WITH 30x1.6mm THK H.D. GALVANISED STEEL STRAPS OR 2NO. 4mmØ H.D. GALVANISED STEEL WIRE IN ACCORDANCE WITH NBR, TIED TO REINFORCEMENT IN BOTTOM OF BEAM

145 RELEVANT NOTES

FOR TENDER

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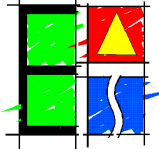
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DWG DESCRIPTION

GENERAL NOTES

CONTRACT NO.

106/2026

DWG NO.

2299-T- 415

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