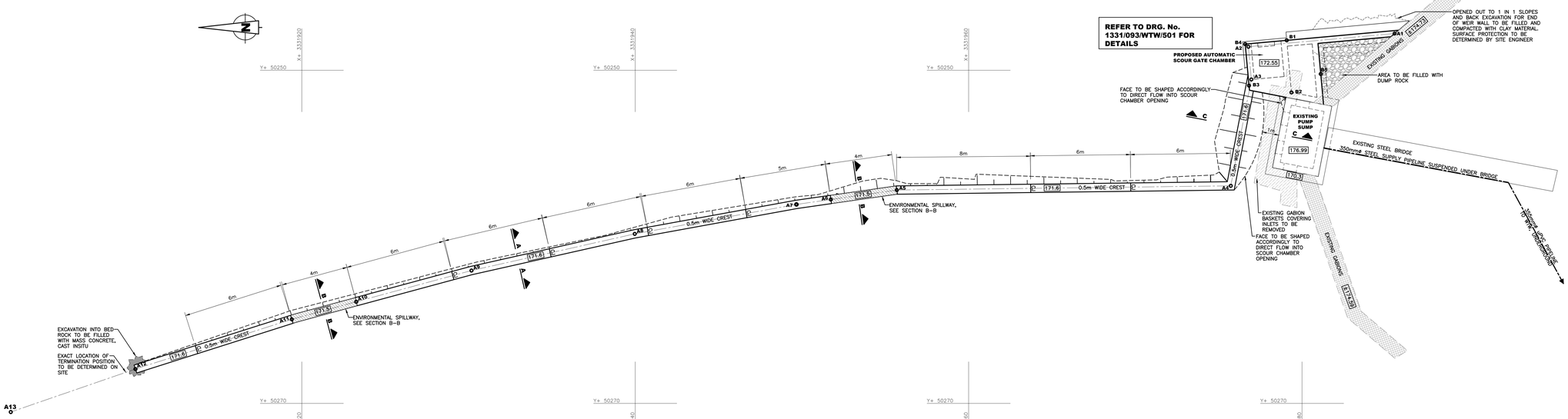


PLAN LAYOUT
SCALE 1:100

SETTING OUT DATA

POINT	CO–ORDINATES WGS Lo 31°		CREST LEVEL
	Y+ 50000.00	X+3331000.00	
A1	247.794	985.553	172.55
A2	248.589	976.781	172.55
A3	250.553	976.959	172.55
A4	256.939	975.723	171.60
A5	257.192	955.693	171.60
A6	257.760	951.733	171.60
A7	258.055	949.670	171.60
A8	259.823	939.973	171.60
A9	262.026	930.177	171.60
A10	263.895	923.267	171.60
A11	264.954	919.400	171.60
A12	267.938	910.021	171.60
A13	270.518	902.542	171.60
B1	248.205	979.081	172.55
B2	251.332	979.364	172.55
B3	250.920	976.817	172.55
B4	248.430	976.591	172.55
B5	250.223	981.121	172.55

GENERAL NOTES

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.

2 CONCRETE SHALL HAVE A MINIMUM 28 DAY CUBE CRUSHING STRENGTH (150mm CUBE) AS INDICATED BELOW FOR THE VARIOUS ELEMENTS:
a) BLINDING AND MASS FILLING = 10MPa
b) ALL CONCRETE = 35MPa (19mm STONE)

3 ALL CONCRETE IS TO BE MOIST CURED FOR 7 DAYS OR HAVE AN APPROVED CURING COMPOUND APPLIED.

4 ALL EXPOSED CONCRETE EDGES TO HAVE 25x25mm CHAMFER.

5 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF THE CONTRACTOR IS IN DOUBT HE SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.

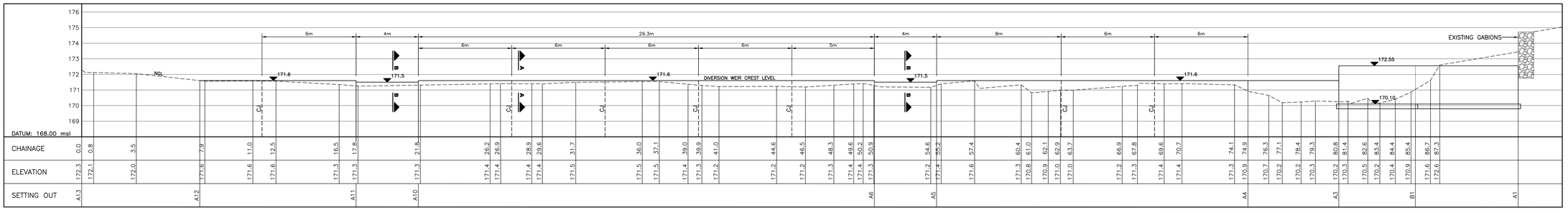
6 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

7 ALL REINFORCEMENT TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING ANY CONCRETE.

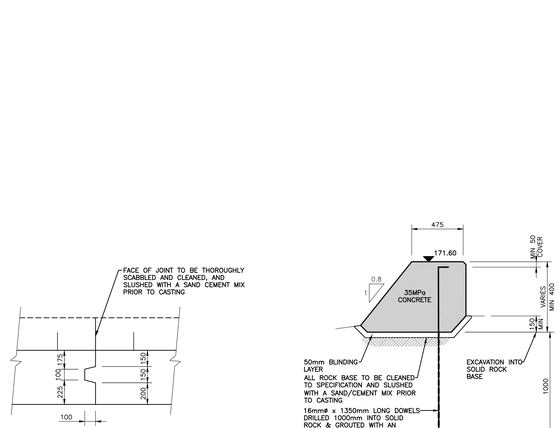
8 CONCRETE COVER TO REINFORCEMENT SHALL BE MAINTAINED BY USE OF CEMENT MORTAR COVER BLOCKS.

9 WEIR STRUCTURE TO BE CAST IN ALTERNATING PANELS OF 6m IN LENGTH, ALLOWING FOR SHRINKAGE TO OCCUR PRIOR TO CASTING THE INFILL PANEL.

10 STOP ENDS OF EACH WEIR PANEL ARE TO BE THOROUGHLY SCABBLE AND WASHED CLEAN, SLUSHED WITH A SAND CEMENT MIX PRIOR TO CASTING INFILL PANEL.

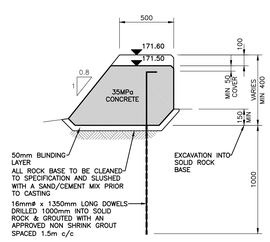


LONGITUDINAL SECTION THROUGH PROPOSED DIVERSION WEIR
SCALES HORIZ 1:100
VERT 1:100

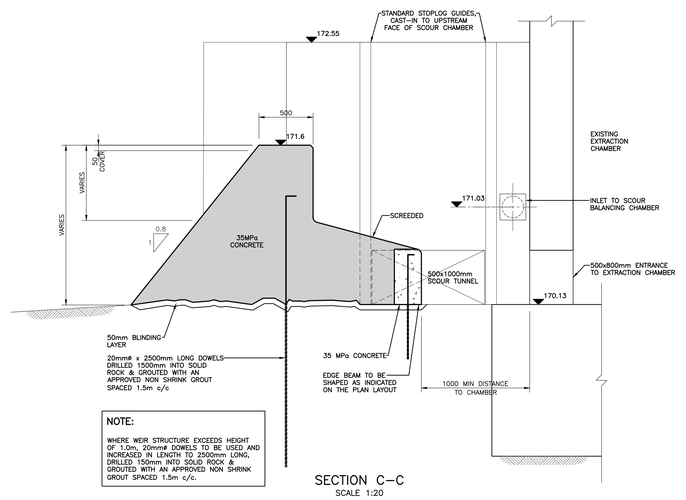


TYPICAL DETAIL OF CONSTRUCTION JOINT
SCALE 1:20

SECTION A–A
THROUGH DIVERSION WEIR
SCALE 1:20



SECTION B–B
THROUGH SPILLWAY
SCALE 1:20



NOTE:
WHERE WEIR STRUCTURE EXCEEDS HEIGHT OF 1.0m, 20mmø DOWELS TO BE USED AND INCREASED IN LENGTH TO 2500mm LONG, DRILLED 150mm INTO SOLID ROCK & GROUTED WITH AN APPROVED NON SHRINK GROUT SPACED 1.5m c/c.

SECTION C–C
SCALE 1:20

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2002
T1	ALR	TENDER DRAWING	23/06/2021
1331-093-WTW-502		EXTRACTION WEIR CHAMBER AMENDMENT DETAILS	
1331-093-WTW-501		AUTOMATIC SCOUR CHAMBER	
DRG. No.		REFERENCE DRAWING	

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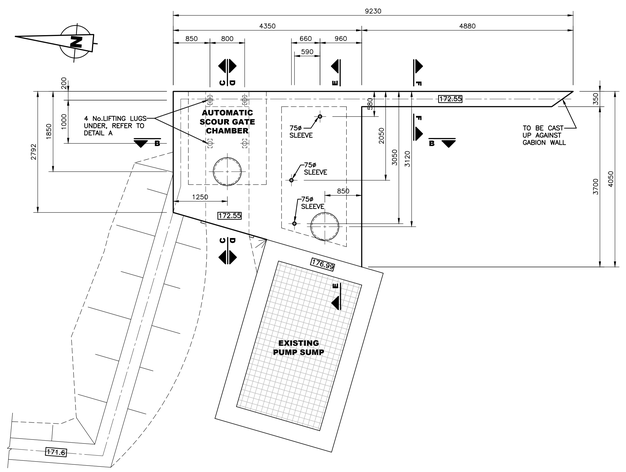
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	H.WILSON		
CIVIL ENGINEER	A.KNOX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.MAWDA DIVISIONAL MANAGER	

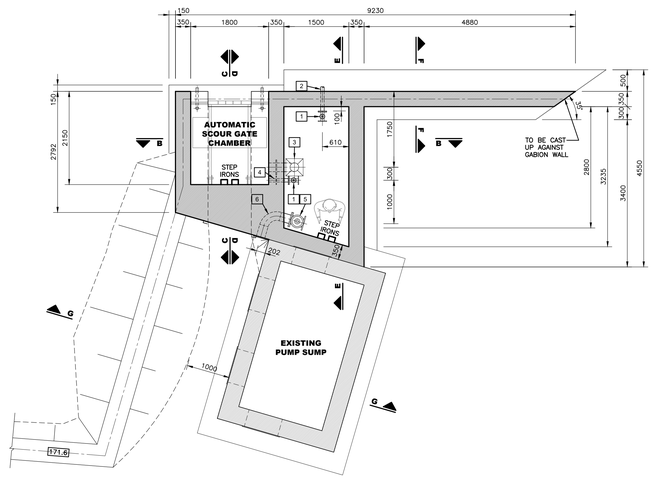
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PROPOSED WEIR DIVERSION
PLAN & LONGITUDINAL SECTION OF WEIR

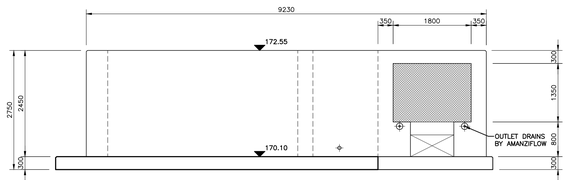
SCALE	AS SHOWN	DATE	AUG. 2015
DRAWING NUMBER	1331-093-WTW-500	A0	REVISION A



ROOF PLAN
SCALE 1:50



SECTION A–A
SCALE 1:50



EAST ELEVATION
SCALE 1:50

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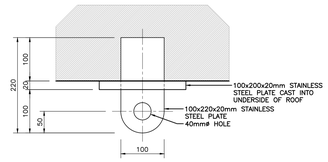
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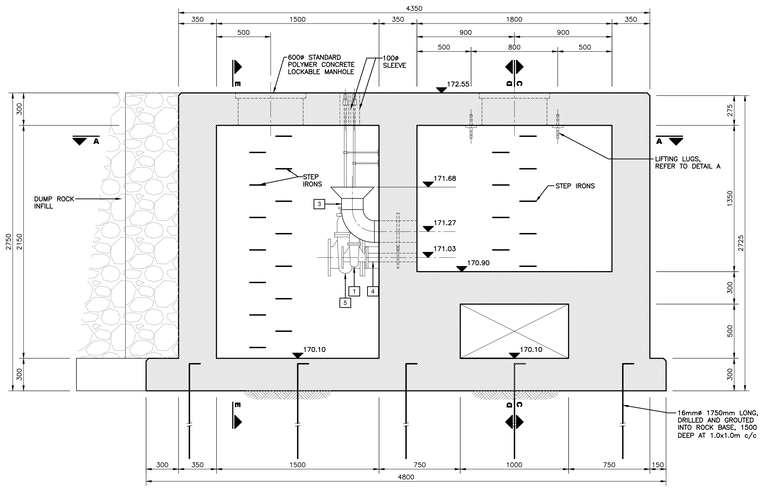
8 CONCRETE COVER TO REINFORCEMENT SHALL BE MAINTAINED BY USE OF CEMENT MORTAR COVER BLOCKS.

PIPEWORK SCHEDULE

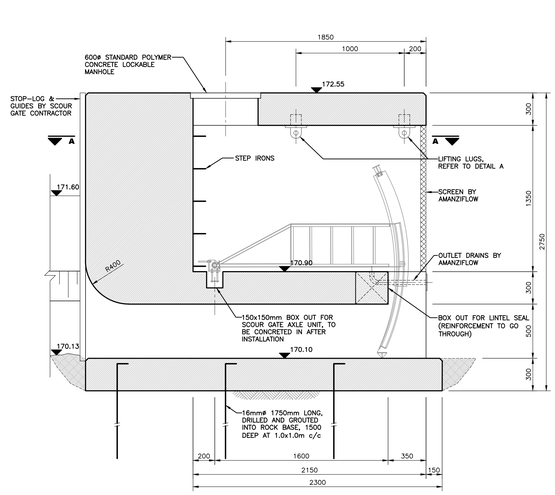
ITEM	DESCRIPTION	NUMBER
1	80mmø FLANGED GATE VALVE	2
2	80mmø STEEL PIPE, LENGTH TO SUIT, F.O.E.	1
3	400x200mmø STEEL BELL MOUTH WELDED TO 200mmø STEEL PIPE, 100mm LONG, P.E. WELDED TO 200mmø 90° STEEL SHORT RADIUS STEEL BEND, WELDED TO 200mmø STEEL PIPE, 400mm LONG, P.E.	1
4	80mmø STEEL PIPE, 450mm LONG, F.O.E.	1
5	200mmø FLANGED GATE VALVE	1
6	200mmø 90° STEEL SHORT RADIUS STEEL BEND, WELDED TO 200mmø STEEL PIPE, 275mm LONG, P.E. AND WELDED TO OTHER END OF BEND 200mmø STEEL PIPE, 250mm LONG, P.E.	1



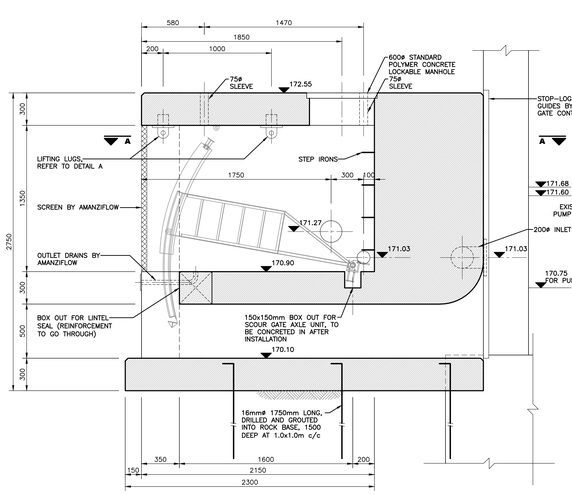
DETAIL A
LIFTING LUGS 4 No.
SCALE 1:5



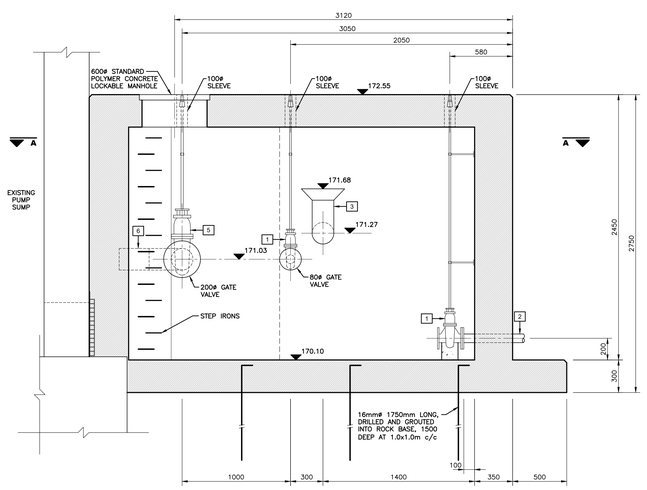
SECTION B–B
SCALE 1:20



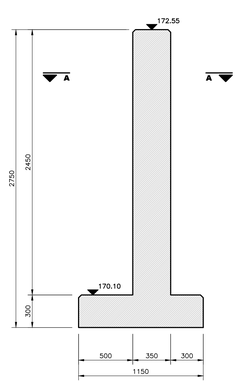
SECTION C–C
SCALE 1:20



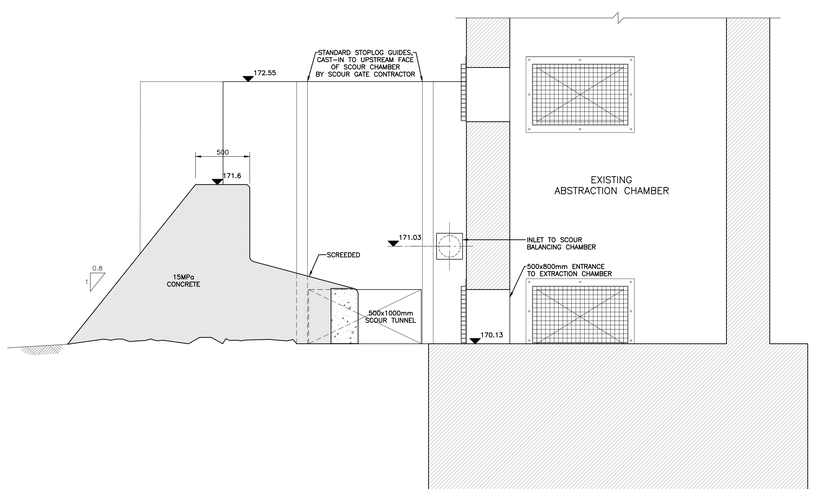
SECTION D–D
SCALE 1:20



SECTION E–E
SCALE 1:20



SECTION F–F
SCALE 1:20



SECTION G–G
SCALE 1:20

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	23/06/2021

1331-093-WTW-500 PROPOSED WEIR DIVERSION PLAN & LONGITUDINAL SECTION OF WEIR

DRG. No. REFERENCE DRAWING

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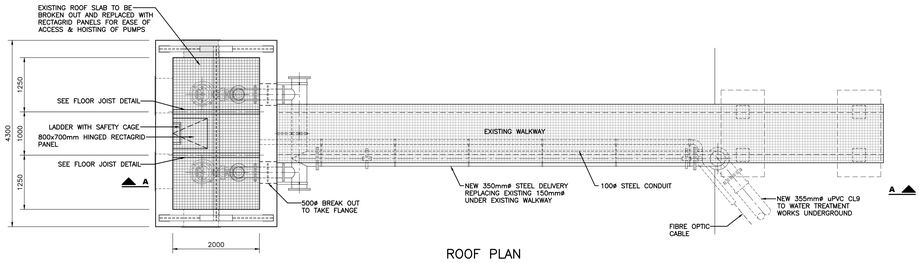
BOSCH PROJECTS
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SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2008 CERTIFICATION

DRAWN	H.WILSON		
CIVIL ENGINEER	A.KNOX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M. VAWDA DIVISIONAL MANAGER	

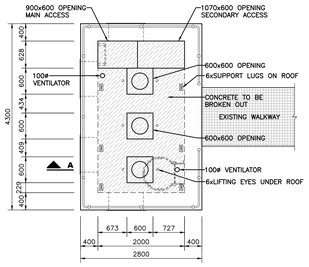
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PROPOSED WEIR DIVERSION
AUTOMATIC SCOUR GATE CHAMBER

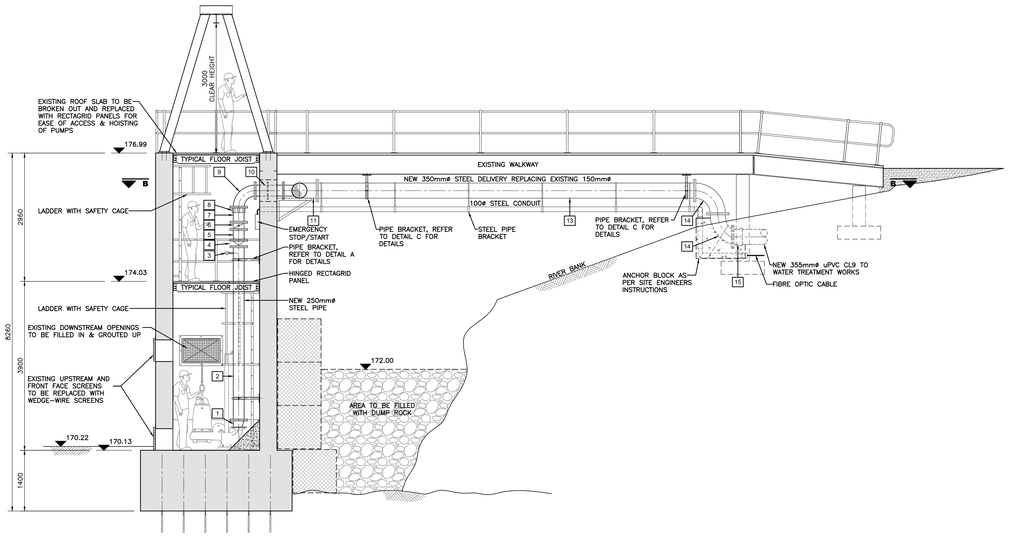
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DRAWING NUMBER	1331-093-WTW-501	A0	REVISION A



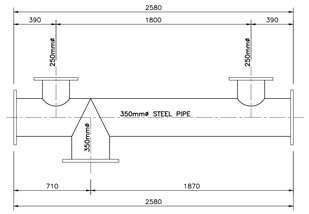
ROOF PLAN
SCALE 1:50



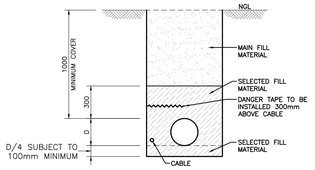
EXISTING ROOF PLAN
SCALE 1:50



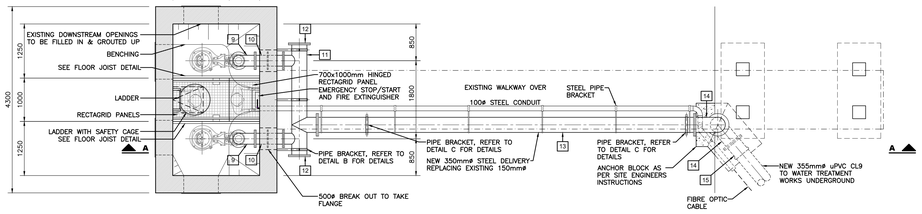
SECTION A–A
SCALE 1:50



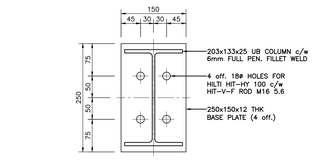
ITEM 11
SCALE 1:20



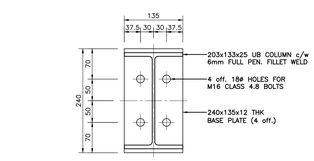
uPVC PIPE TRENCH DETAIL
SCALE 1:20



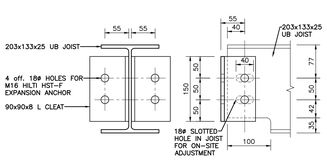
SECTION B–B
SCALE 1:50



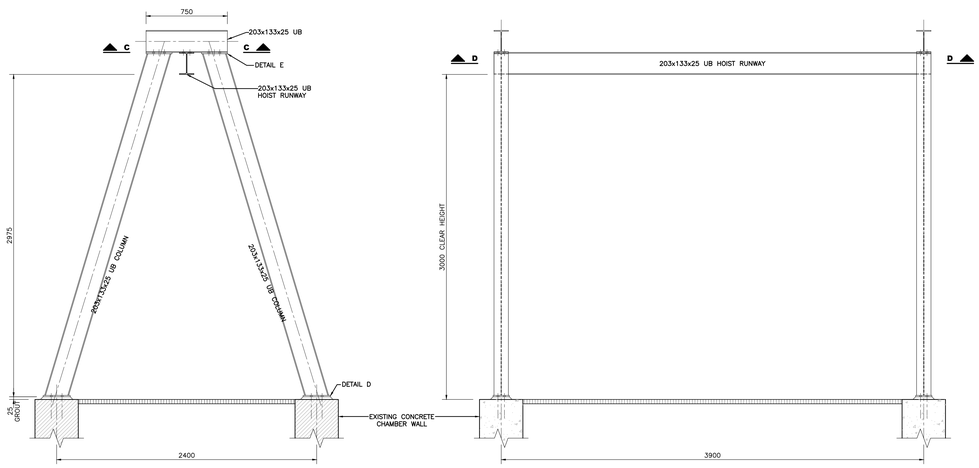
DETAIL D
SCALE 1:5



DETAIL E
SCALE 1:5

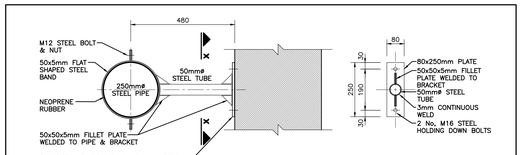


DETAIL F
SCALE 1:5



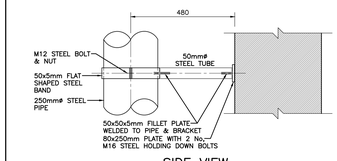
HOIST SUPPORT STRUCTURE
SCALE 1:20

HOIST SUPPORT ELEVATION
SCALE 1:20



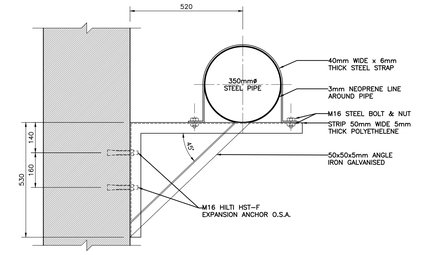
TOP VIEW
SCALE 1:10

SECTION X–X
SCALE 1:10

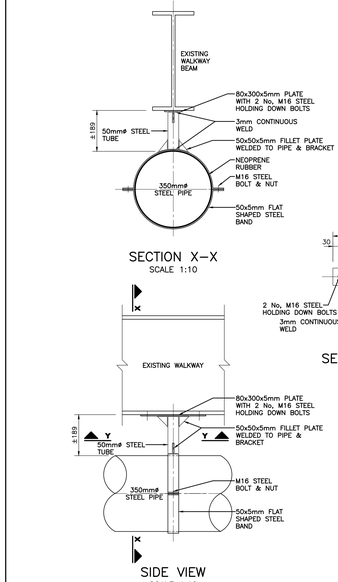


SIDE VIEW
SCALE 1:10

DETAIL A
BRACKET FOR 250mmø PIPE



DETAIL B
BRACKET FOR 350mmø PIPE

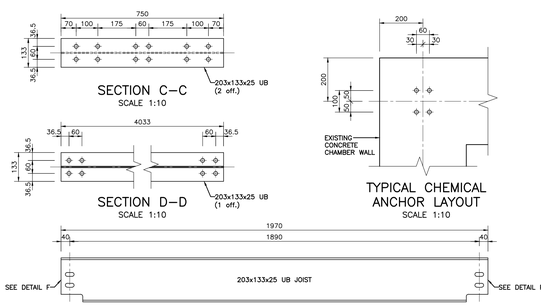


SECTION X–X
SCALE 1:10

SECTION Y–Y
SCALE 1:10

SIDE VIEW
SCALE 1:10

DETAIL C
BRACKET FOR 350mmø PIPE



SECTION C–C
SCALE 1:10

SECTION D–D
SCALE 1:10

TYPICAL CHEMICAL ANCHOR LAYOUT
SCALE 1:10

TYPICAL FLOOR JOIST
SCALE 1:10

NOTES

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CONCRETE

1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm
CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB		50mm TOP & BOTTOM
WALLS – EARTH FACE		40mm
	WATER FACE	50mm
ROOF SLAB – SOFFIT		50mm
	– TOP	40mm
COLUMNS		50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

STEEL PIPEWORK:

1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).

2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH " PLAS COAT PPA571 AQUA OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.50m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE INSTALLED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3 ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING & AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S', (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

F.A.E. – FLANGED ALL ENDS
F.B.E. – FLANGED BOTH ENDS
F.O.E. – FLANGED ONE END
P.E. – PLAIN END

PIPEWORK SCHEDULE

ITEM	DESCRIPTION	NUMBER
1	250x200mmø STEEL ECCENTRIC REDUCER, F.B.E.	2
2	250mmø STEEL PIPE, 4000mm LONG, F.B.E.	2
3	PRESSURE GAUGE	2
4	250mmø FLANGED BALL TYPE NON-RETURN VALVE	2
5	250mmø STEEL PIPE, 250mm LONG, F.B.E.	2
6	250mmø FLANGED RESILIENT SEAL WEDGE TYPE GATE VALVE	2
7	250mmø STEEL PIPE, 325mm LONG, F.O.E.	2
8	250mmø V.J. COUPLING	2
9	250mmø 90° LONG RADIUS STEEL BEND, F.B.E.	2
10	250mmø STEEL PIPE, 650mm LONG, WITH PUDDLE FLANGE LOCATED 360mm FROM FLANGE, F.B.E.	2
11	REFER TO DETAIL OF ITEM 11	1
12	350mmø BLANK FLANGE WELDED TO END	2
13	350mmø STEEL PIPE, 8710mm LONG, F.B.E.	1
14	350mmø 90° LONG RADIUS STEEL BEND, F.B.E.	2
15	350mmø uPVC FLANGE ADAPTOR	1

NOTE : ALL FITTINGS FOR INLET PIPEWORK TO BE PN16 RATED.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/4/2022
T1	ALR	TENDER DRAWING	24/06/2021

133-093-WTW-500 PROPOSED WEIR DIVERSION PLAN & LONGITUDINAL SECTION OF WEIR

ORG. No. | REFERENCE DRAWING

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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	H.WILSON	CHECKED	
CIVIL ENGINEER	A.KNOX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	N/A

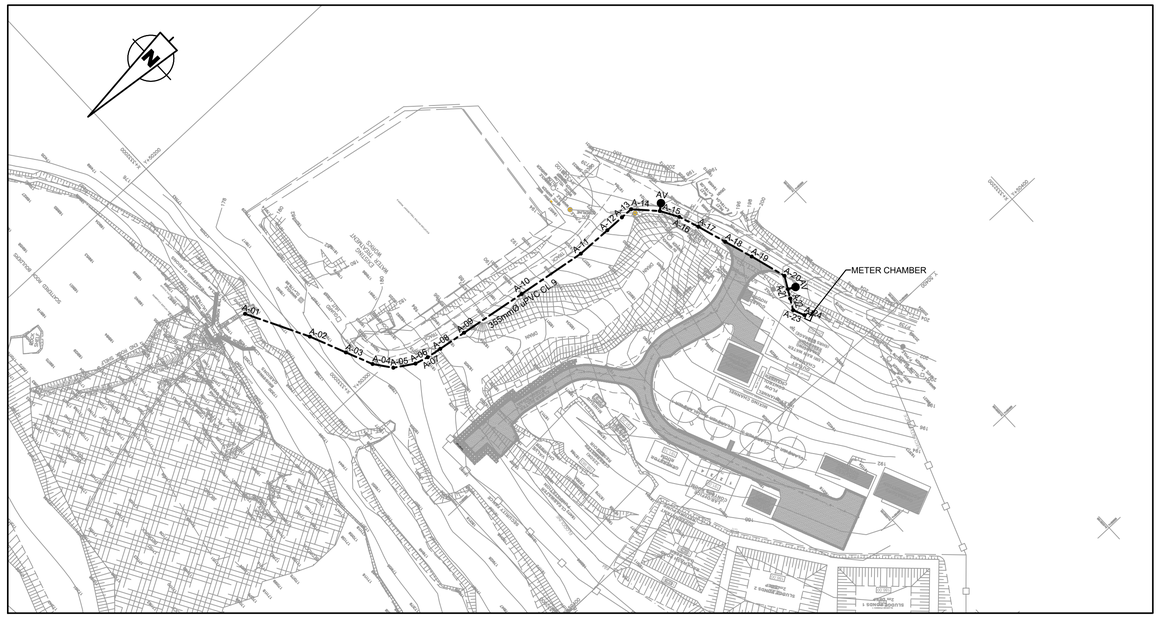
APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

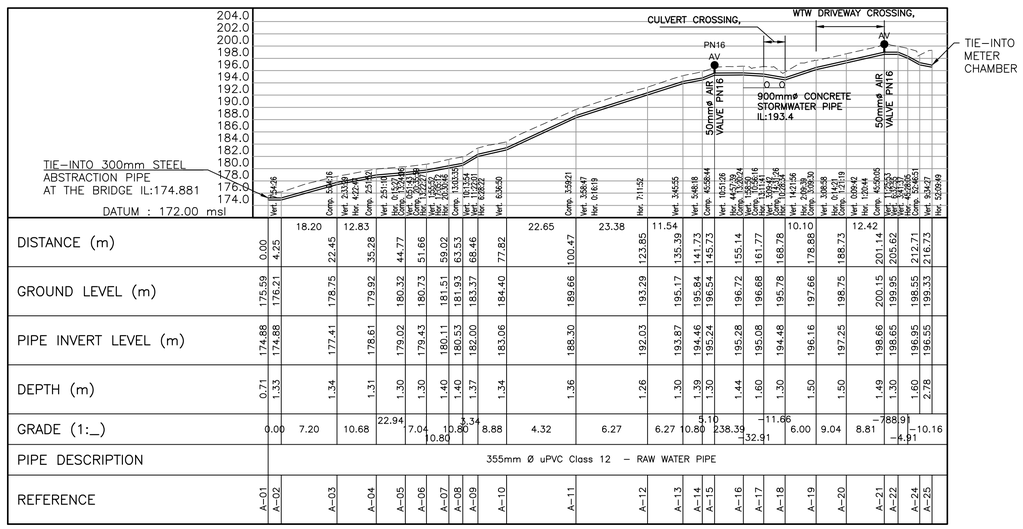
PROPOSED WEIR DIVERSION
EXISTING WEIR ABSTRACTION CHAMBER MODIFICATION DETAILS

FOR CONSTRUCTION

SCALE	AS SHOWN	DATE	AUG. 2015
DRAWING NUMBER	133-093-WTW-502	A0	REVISION A



PLAN
SCALE 1:1000



LONGITUDINAL SECTION
SCALE HORIZ 1:1000
VERT 1:500

GENERAL NOTES

1 ALL AIR VALVES TO BE POSITIONED AT A SUITABLE HIGH POINT ON THE PIPELINE IN THE VICINITY OF THE POSITION SHOWN ON THE LAYOUT PLAN, AS VERIFIED BY THE ENGINEER.

2 ALL SCOUR VALVES TO BE POSITIONED AT A SUITABLE LOW POINT ON THE PIPELINE IN THE VICINITY OF THE POSITION SHOWN ON THE LAYOUT PLAN, AS VERIFIED BY THE ENGINEER.

3 THE TYPICAL MINIMUM OFF–SETS OF THE PIPELINE ARE AS FOLLOWS:
(i) FOR ALL MAIN ("A") ROADS :16m ON EITHER SIDE OF THE CENTRE LINE
(ii) FOR ALL SECONDARY ("D" & "L") ROADS :11m ON EITHER SIDE OF THE CENTRE LINE

4 THE DEPTH OF COVER TO PIPELINES SHALL BE AS FOLLOWS:
ROAD CROSSINGS: CROSSINGS 1.2m
ROAD RESERVE 1.0m
AGRICULTURAL LAND: 1.0m DEPTH OF COVER
ELSEWHERE: 0.8m

5 DETAILS ON THE FOLLOWING MAY BE FOUND ON THE RELEVANT DRAWINGS LISTED:

5.1 AIR VALVES
50mmø AIR VALVES & CHAMBER DETAILS FOR BULK PIPELINES
1331–093–GSD–16&17

5.2 SCOUR VALVES
SCOUR VALVE & CHAMBER DETAILS FOR PIPES UP TO 450mmø
1331–093–GSD–15&18

5.3 ISOLATING VALVES
ISOLATING VALVE & CHAMBER DETAILS FOR PIPELINES UP TO 450mmø: 1331–093–GSD–19&21

5.4 ROAD CROSSINGS
TYPICAL ROAD CROSSING DETAILS
1331–093–GSD–05

5.5 RIVER / STREAM CROSSINGS
PIPELINE RIVER / STREAM CROSSING IN SILT & ROCK BED
1331–093–GSD–06

5.6 BEDDING
PIPELINE BEDDING DETAILS
1331–093–GSD–10

5.7 THRUST BLOCKS
TYPICAL WATER MAIN THRUST BLOCKS
1331–093–GSD–12

5.8 DETAIL OF PRECAST CONCRETE PIPELINE & VALVE MARKER POST
1331–093–GSD–02 & 07

5.9 STEEP SLOPE ANCHORAGE AND CROSS FALL DETAILS
1331–093–GSD–21

5.10 STEEP SLOPE EROSION PROTECTION
1331–093–GSD–13

6 PIPE BENDS ON PVC PIPELINES: USE STANDARD 11¼, 22½, 45 & 90° BENDS AS APPROPRIATE WITH ANY OTHER SMALLER OR INTERMEDIATE DEFLECTIONS TAKEN UP AT LYNG JOINTS & IN THE PIPE WHERE NECESSARY. MAXIMUM ALLOWABLE DEFLECTION AT EACH LYNG JOINT = 0.5°. MAXIMUM ALLOWABLE LONGITUDINAL BENDING OF A 6m LENGTH OF uPVC PIPE :
i) 315mm - 1.0°
ii) 200mm - 2.0°
iii) 200mm - 2.5°
iv) 160mm - 3.0°
v)110mm - 4.0°

PIPE DESIGN DATA

REFERENCE	Y	X	I.L.	DEPTH
A–01	50256.580	3331991.349	174.881	0.711
A–02	50260.345	3331993.322	174.881	1.328
A–03	50276.467	3332001.769	177.409	1.337
A–04	50288.250	3332006.837	178.610	1.313
A–05	50296.956	3332010.628	179.024	1.300
A–06	50302.461	3332014.762	179.428	1.301
A–07	50306.424	3332020.963	180.109	1.405
A–08	50307.630	3332025.313	180.527	1.400
A–09	50308.403	3332030.181	182.002	1.366
A–10	50309.870	3332039.425	183.056	1.342
A–11	50313.421	3332061.793	188.301	1.357
A–12	50316.976	3332084.901	192.029	1.263
A–13	50317.289	3332096.441	193.869	1.305
A–14	50317.460	3332102.775	194.456	1.386
A–15	50317.568	3332106.778	195.241	1.300
A–16	50324.397	3332113.255	195.281	1.435
A–17	50330.117	3332116.597	195.079	1.600
A–18	50336.716	3332118.975	194.478	1.300
A–19	50346.339	3332122.038	196.161	1.500
A–20	50355.708	3332125.064	197.251	1.500
A–21	50367.609	3332128.601	198.660	1.489
A–22	50371.531	3332126.434	198.654	1.300
A–23	50374.306	3332124.901	198.009	1.600
A–24	50377.731	3332123.009	196.946	1.600
A–25	50381.428	3332124.597	196.550	2.782

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	RC	APPROVED FOR CONSTRUCTION	09/12/2022

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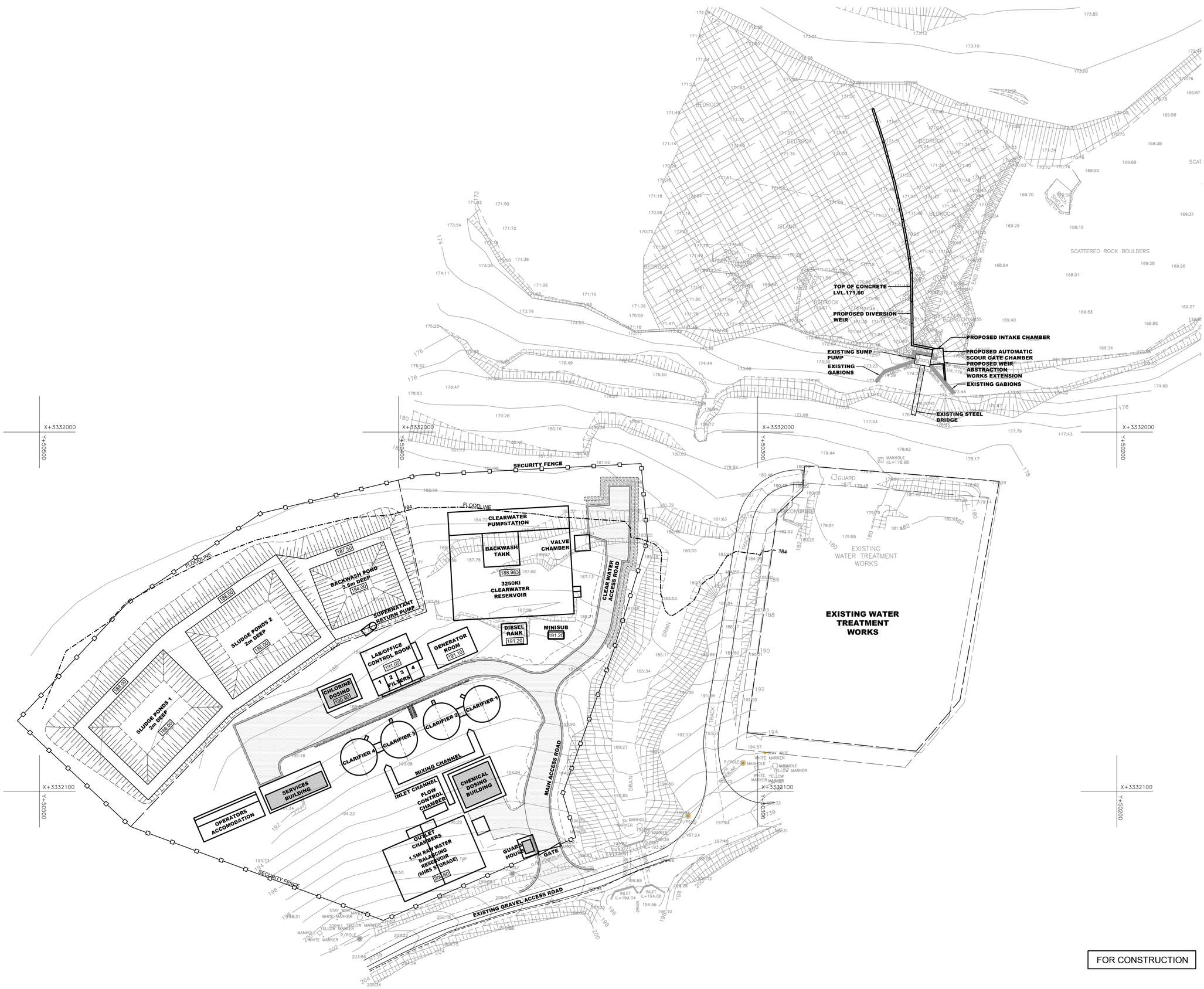
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M. VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE BULK WATER SUPPLY SCHEME
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

RAW WATER RISING MAIN
LAYOUT AND LONG SECTION

SCALE	AS SHOWN	DATE	DEC. 2022
DRAWING NUMBER	1331-093-WTW-503	A1	REVISION A



FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :	
WATER IMPLEMENTATION AGENCY MANAGER :	
WATER SERVICE AUTHORITY MANAGER :	

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	29/09/2021

DRG. No. | REFERENCE DRAWING

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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
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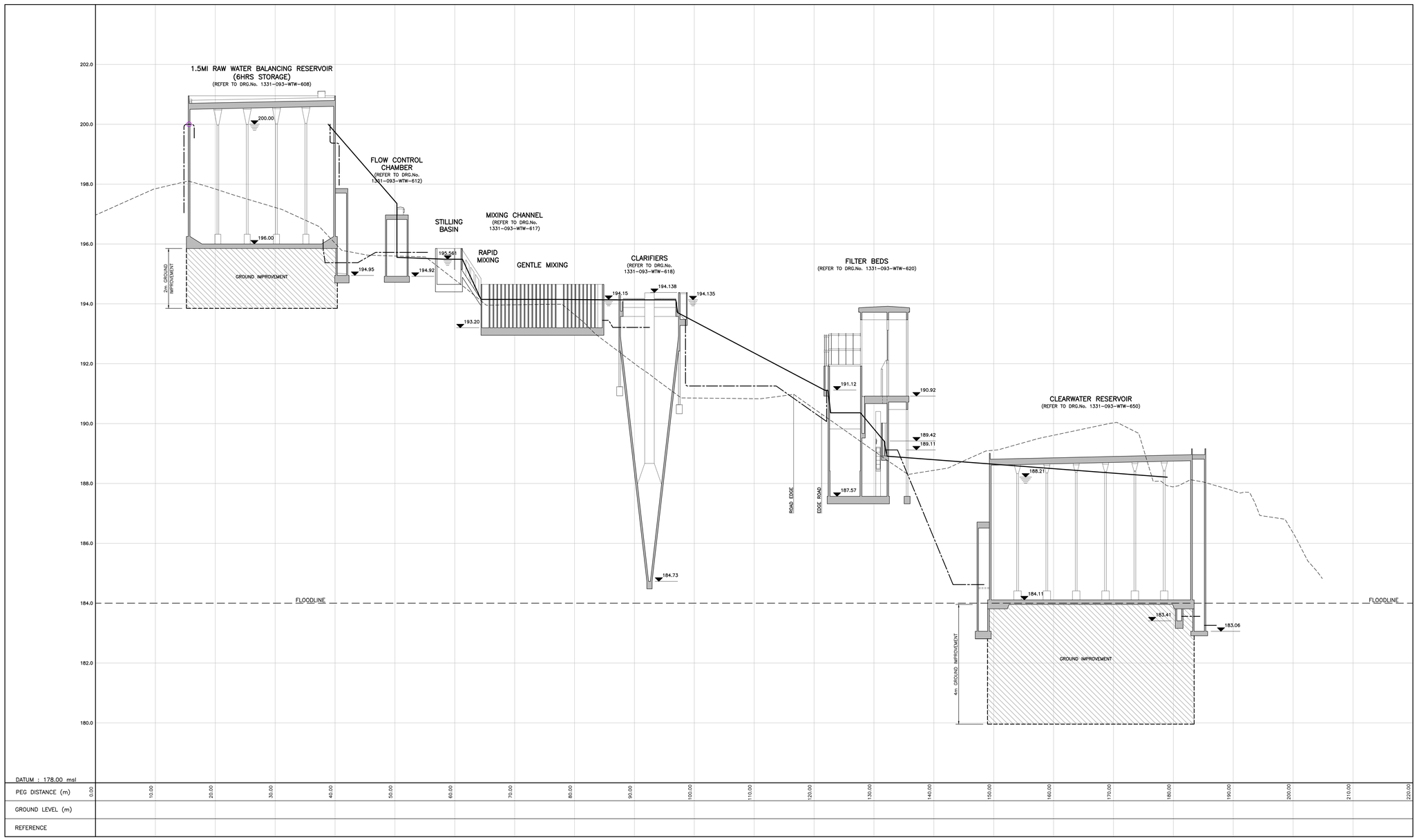
DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M. VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

OVERALL LAYOUT PLAN

SCALE	1:500	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-602	A1	REVISION A



HYDRAULIC GRADE LINE
SCALE : HORIZ 1:250
VERT 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	27/09/2021

1331-093-WTW-605 HYDRAULIC GRADE LINE, SHEET 2 OF 2

DRG. No. REFERENCE DRAWING

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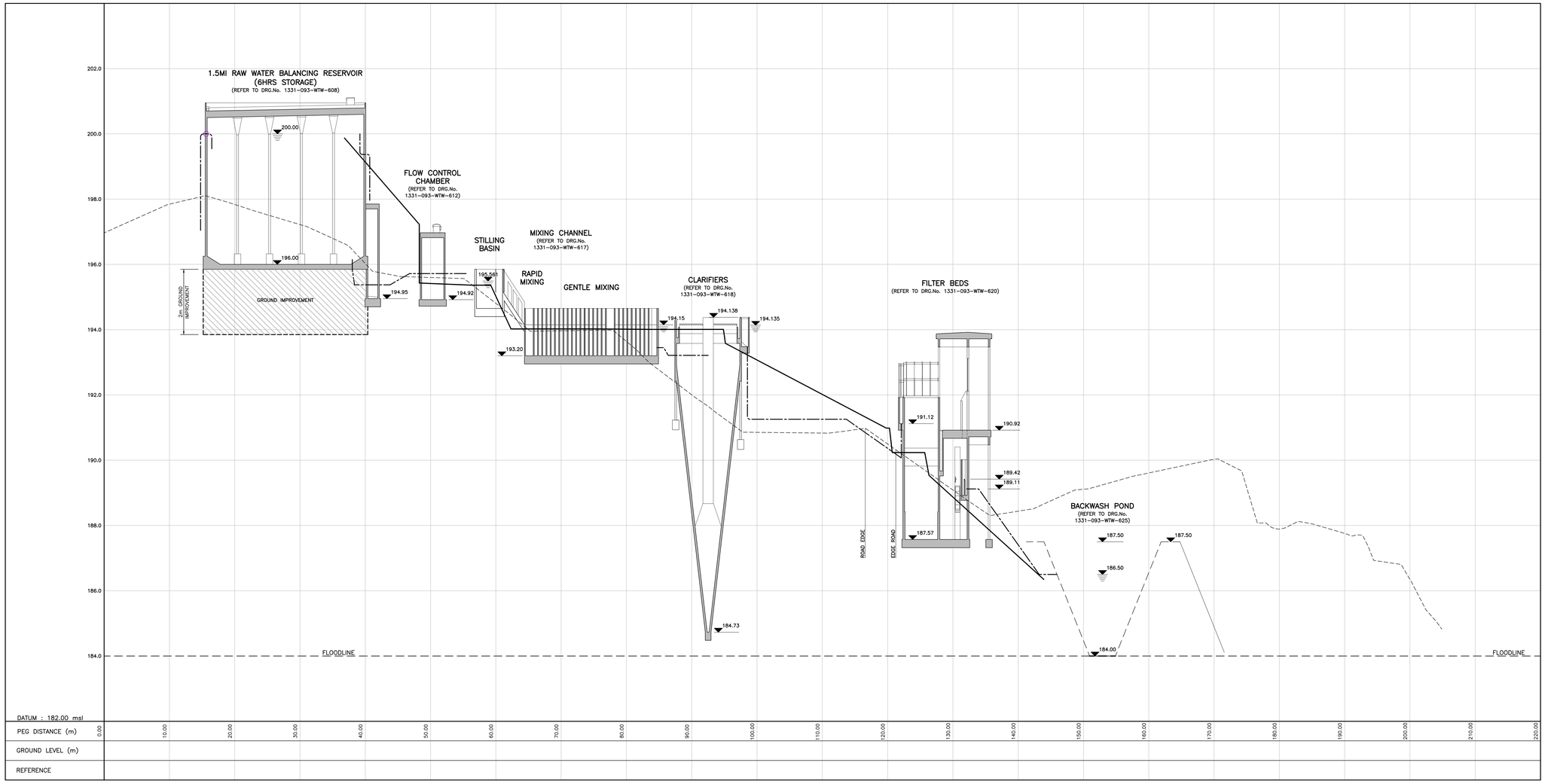
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MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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DRAWN	S.M.H.WILSON		
CIVIL ENGINEER	A LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M. VAVDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

HYDRAULIC GRADE LINE
SHEET 1 of 2

SCALE 1:250		DATE	DEC. 2014
DRAWING NUMBER 1331-093-WTW-604	A0	REVISION	1



HYDRAULIC GRADE LINE
SCALE : HORIZ 1:250
VERT 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	27/09/2021

1331-093-WTW-604 HYDRAULIC GRADE LINE, SHEET 1 OF 2
DRG. No. REFERENCE DRAWING

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MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
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DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAVDA DIVISIONAL MANAGER	

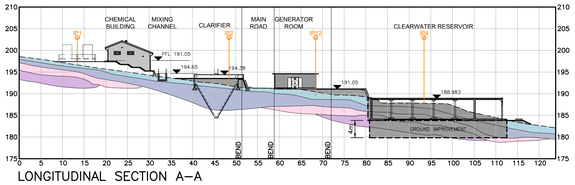
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

HYDRAULIC GRADE LINE
SHEET 2 of 2

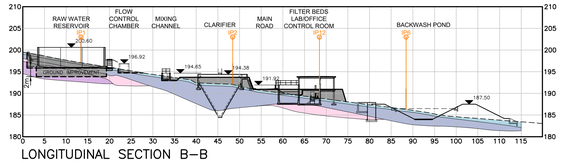
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DRAWING NUMBER 1331-093-WTW-605	A0	REVISION A	



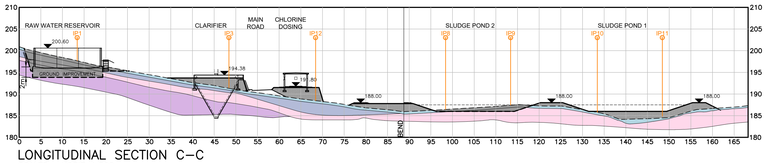
LAYOUT PLAN
SCALE 1:250



LONGITUDINAL SECTION A–A
SCALES : HORIZ 1:500
VERT 1:500



LONGITUDINAL SECTION B–B
SCALES : HORIZ 1:500
VERT 1:500



LONGITUDINAL SECTION C–C
SCALES : HORIZ 1:500
VERT 1:500

KEY
- COLLUVIUM
- RESIDUAL CLAYS
- W5 GRANITE
- W3 GRANITE

LABORATORY, OFFICE AND CONTROL ROOM PLATFORM SETTING OUT DATA			
POINT	Y	X	Z
b1	50 394.140	3 332 058.694	191.000
b2	50 390.838	3 332 067.762	191.000
b3	50 408.361	3 332 075.419	191.000
b4	50 412.527	3 332 065.259	191.000
b5	50 414.054	3 332 061.228	191.000
b6	50 397.590	3 332 054.386	191.000

CLARIFIER AND MIXING CHANNEL PLATFORM SETTING OUT DATA			
POINT	Y	X	Z
f1	50 410.919	3 332 105.250	193.158
f2	50 419.437	3 332 086.366	192.753
f3	50 376.608	3 332 069.350	193.200
f3a	50 373.657	3 332 069.767	193.200
f4	50 375.176	3 332 089.967	193.343

CHLORINE DOSING PLATFORM SETTING OUT DATA			
POINT	Y	X	Z
c1	50 412.713	3 332 065.330	190.900
c2	50 408.546	3 332 075.495	190.900
c3	50 421.215	3 332 080.689	190.900
c4	50 425.441	3 332 070.203	190.900

GENERATOR ROOM PLATFORM SETTING OUT DATA			
POINT	Y	X	Z
g1	50 377.372	3 332 053.395	191.100
g2	50 372.108	3 332 059.952	191.100
g3	50 390.653	3 332 067.686	191.100
g4	50 393.952	3 332 058.625	191.100
g5	50 387.360	3 332 054.235	191.100

DIESEL TANK AND MINI SUB PLATFORM SETTING OUT DATA			
POINT	Y	X	Z
d1	50 377.160	3 332 053.339	191.200
d2	50 351.391	3 332 052.700	191.200
d3	50 350.128	3 332 054.759	191.200
d4	50 353.983	3 332 058.202	191.200
d5	50 359.447	3 332 061.318	191.200
d6	50 365.002	3 332 060.315	191.200
d7	50 371.778	3 332 060.184	191.200
d8	50 348.676	3 332 051.458	191.200

RAW WATER RESERVOIR PLATFORM SETTING OUT DATA			
POINT	Y	X	Z
rw1	50 398.990	3 332 132.470	-3.655
rw2	50 374.939	3 332 122.189	-1.176
rw3	50 382.512	3 332 104.943	1.491
rw4	50 406.407	3 332 115.217	0.380

LAYERWORKS AND BULK EARTHWORKS SPECIFICATIONS

1. NEW EMBANKMENTS REQUIRE BENCHING INTO INSITU MATERIAL WHERE THE NATURAL GROUND SLOPE IS ≥1:6
2. G5 NATURAL GRAVEL SUBBASE MINIMUM CBR=45% @ 95% Mod. AASHTO; MAXIMUM SIZE 63mm OR ⅔ OF LAYER THICKNESS; PI<10; MAXIMUM SWELL 0.5% @ 100% Mod. AASHTO.
3. G7 GRAVEL (SOIL) SUBGRADE MINIMUM CBR=15% @ 93% Mod. AASHTO; MAXIMUM SIZE ⅔ OF LAYER THICKNESS; PI<12 OR 3GM + 10; MAXIMUM SWELL 1.5% @ 100% Mod. AASHTO.
4. G9 GRAVEL (SOIL) SUBGRADE MINIMUM CBR=7% @ 93% Mod. AASHTO; MAXIMUM SIZE ⅔ OF LAYER THICKNESS; PI<12 OR 3GM + 10; MAXIMUM SWELL 1.5% @ 100% Mod. AASHTO.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	04/10/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-631	ROAD LAYOUT
1331-093-WTW-630	SEWER LAYOUT
1331-093-WTW-626	PIPELINE LAYOUT
1331-093-WTW-625	POND LAYOUT
1331-093-WTW-602	LAYOUT PLAN

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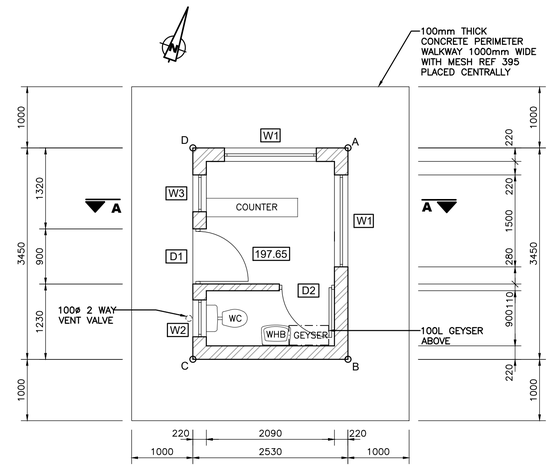
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TEL: +27 (0)31 536 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M. VAWDA DIVISIONAL MANAGER	

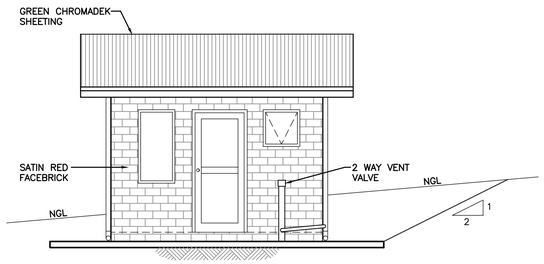
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

BULK EARTHWORKS

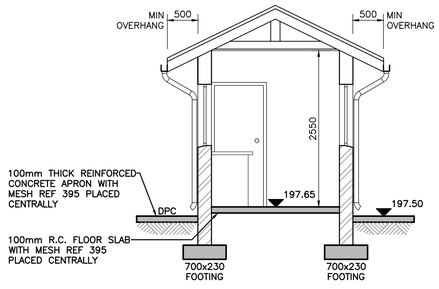
SCALE	AS SHOWN	DATE	SEPT. 2021
DRAWING NUMBER	1331-093-WTW-606	A0	REVISION A



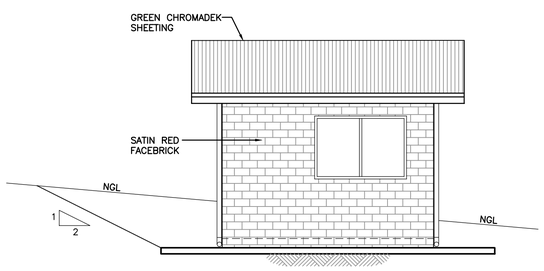
PLAN
SCALE 1:50



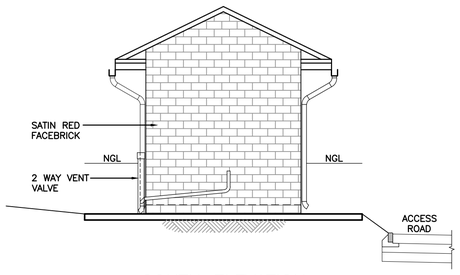
WEST ELEVATION
SCALE 1:50



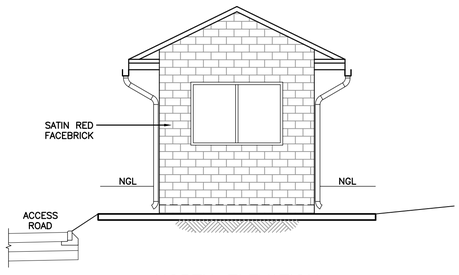
SECTION A–A
SCALE 1:50



EAST ELEVATION
SCALE 1:50



SOUTH ELEVATION
SCALE 1:50



NORTH ELEVATION
SCALE 1:50

NOTES

GENERAL
1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

FOUNDATION
1 700 x 230 DEEP CONCRETE FOOTING, WITH Y10 REBAR AT 300 CENTRES BOTH WAYS, IN 600 DEEP TRENCH U.O.N.

CONCRETE
1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.
2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS – EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB – SOFFIT	50mm
– TOP	40mm
COLUMNS	50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB.
5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK
1 ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
2 ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
3 OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
4 BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
5 N.B! 4 COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
6 DPC AT FLOOR AND WINDOW CILL LEVELS.
7 MORTAR CLASS 2 ENGLISH BOND BRICKWORK.

FLOOR & PERIMETER APRON
1 100 THICK CONCRETE FLOOR SLAB WITH BRC MESH ON 250 MICRON PVC UNDERLAY ON WELL RAMMED AND POISONED SOIL.

PLASTER
1 CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

ROOF
1 ROOF SHEETING ON 250 MICRON UNDERLAY ON TIMBER BATTENS & TRUSSES TO SPECIALISTS DETAIL.
2 GREEN CHROMADEK SHEETING.
3 FIBRE CEMENT FASCIAS PAINTED ACRYLIC PVA WHITE.
4 125mm PVC H.R. GUTTER AND 75° RWDP FIXED ACCORDING TO MANUFACTURES SPECIFICATION. RWDP TO HAVE SHOE FOR SURFACE DISCHARGE.

CEILING
1 6.4mm THICK RHINO BOARD CEILING WITH COVER STRIPS AND CORNICE PAINTED ACRYLIC PVA WHITE. CEILING NAILED TO 38x38 TIMBER BATTENS. TRAP DOOR TO BE PROVIDED.

WINDOWS
SLIDING WINDOWS TO BE 570 SERIES HORIZONTAL SLIDING NATURAL ANODISED ALUMINIUM WINDOWS TYPE HS 1512 SIMILAR TO THE 'WISPECO' RANGE. WINDOW TO HAVE 4mm THICK CLEAR GLASS. (2 No. REQUIRED)
TOILET WINDOW TO BE 340 SERIES NATURAL ANODIZED ALUMINIUM PROJECT OUT WINDOW TYPE PT66, SIMILAR TO THE 'WISPECO' RANGE. WINDOW TO HAVE 4mm THICK OBSCURE GLASS. (1 No. REQUIRED)
W1 FIXED PANE WINDOW (FPW) TO BE 690 WIDE x 1200 HIGH NATURAL ANODIZED ALUMINUM WINDOW WITH 4mm THICK CLEAR GLASS. (1 No. REQUIRED)
W2 WINDOW CILL TO BE BRICK ON EDGE.

DOORS
ENTRANCE : GLAZED ALUMINIUM DOOR SIMILAR TO THE 'WISPECO' OLYMPIA RANGE WITH STANDARD MORTICE LOCKSET AND HINGES. DOOR TO BE GLAZED WITH TOUGHENED SAFETY GLASS. WEATHERPROOF STRIP AT BOTTOM. (1 No. REQUIRED)
W3 TOILET : HOLLOW CORE LEAF WITH MASONITE FACING ON 75 x 75 HW. FRAME. DOOR TO HAVE MILD STEEL HINGES AND TWO LEVEL LOCKSET. LEAF AND FRAME TO BE PAINTED GLOSS ENAMEL WHITE. (1 No. REQUIRED)

CERAMIC TILES
1 GRANITO RANGE BY 'JOHNSON TILES' – MID GREY MP 572 OR APPROVED EQUAL TO TOILET AND GUARD HOUSE.
D1 2 SKIRTING : 75 mm HIGH CUT CERAMIC TILE ALL AROUND.

SANITARY FITTINGS
1 WC : 'MAGNIA' BY ARMITAGE SHANKS OR APPROVED EQUAL.
2 WHB : 'KELSO' RANGE BY ARMITAGE SHANKS OR APPROVED EQUAL WITH 450 HIGH JOHNSON WHITE TILE SPLASH PANEL.
3 TAPS : STOPCOCK AND BIBTAP.
N.B! STOPCOCK TO SHUT OFF SUPPLY TO BOTH CISTERN AND WHB. WATER PIPE ABOVE GROUND SHALL BE 15mmø COPPER PIPING AND FITTINGS.
4 TOILET ROLL HOLDER.

COUNTER TOP
1 500mm WIDE x 20mm THICK x 730 HIGH CHIP BOARD WITH OAK FINISH MELAMINE. COUNTER EDGE TO BE ROUNDED, ALL TO SHOP FITTERS DETAIL.

PAINTING
1 PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES.
2 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
3 CLEAN WITH SPIRITS OF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING.
4 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS.
5 ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
6 PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
7 PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES.

FOR CONSTRUCTION

NOTES

GROUND IMPROVEMENT
THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED:
STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A DEPTH CORRESPONDING TO 2.0m BELOW FLOOR LEVEL.
STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
STAGE 3: FOLLOWING THE COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MODIFIED A.A.S.H.T.O.
STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

SETTING OUT DATA

POINT	CO-ORDINATES WGS 31°	
	Y+ 50000.00	X+3332000.00
A	363.345	113.345
B	362.191	116.596
C	364.575	117.442
D	365.729	114.191

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	22/07/2021

1331-093-EED-717 GUARD HOUSE BUILDING, SMALL POWER AND LIGHTING LAYOUT
1331-093-WTW-602 LAYOUT PLAN
DRG. No. REFERENCE DRAWING

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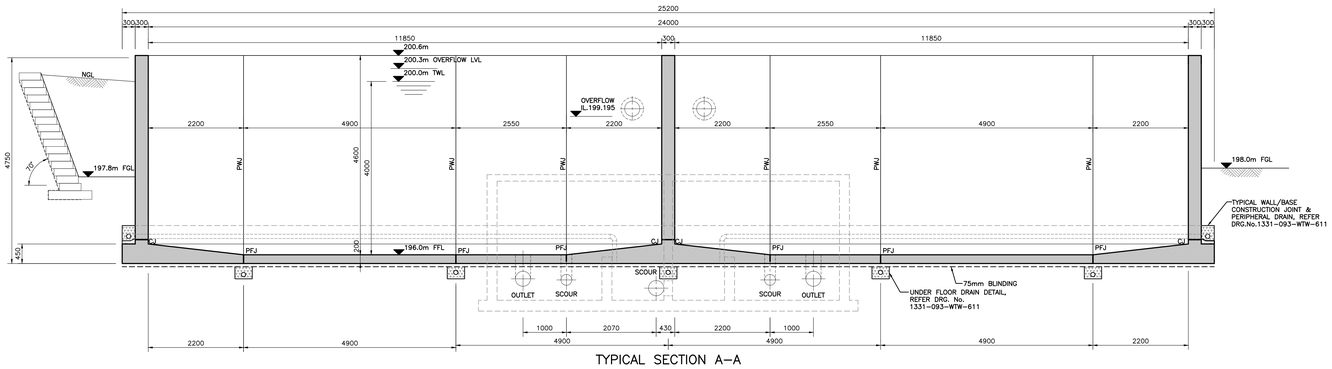
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M. VAWDA DIVISIONAL MANAGER

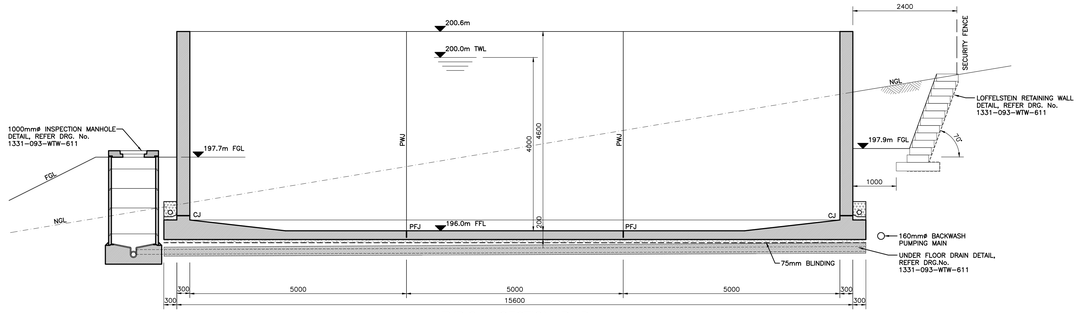
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

GUARD HOUSE LAYOUT & DETAILS

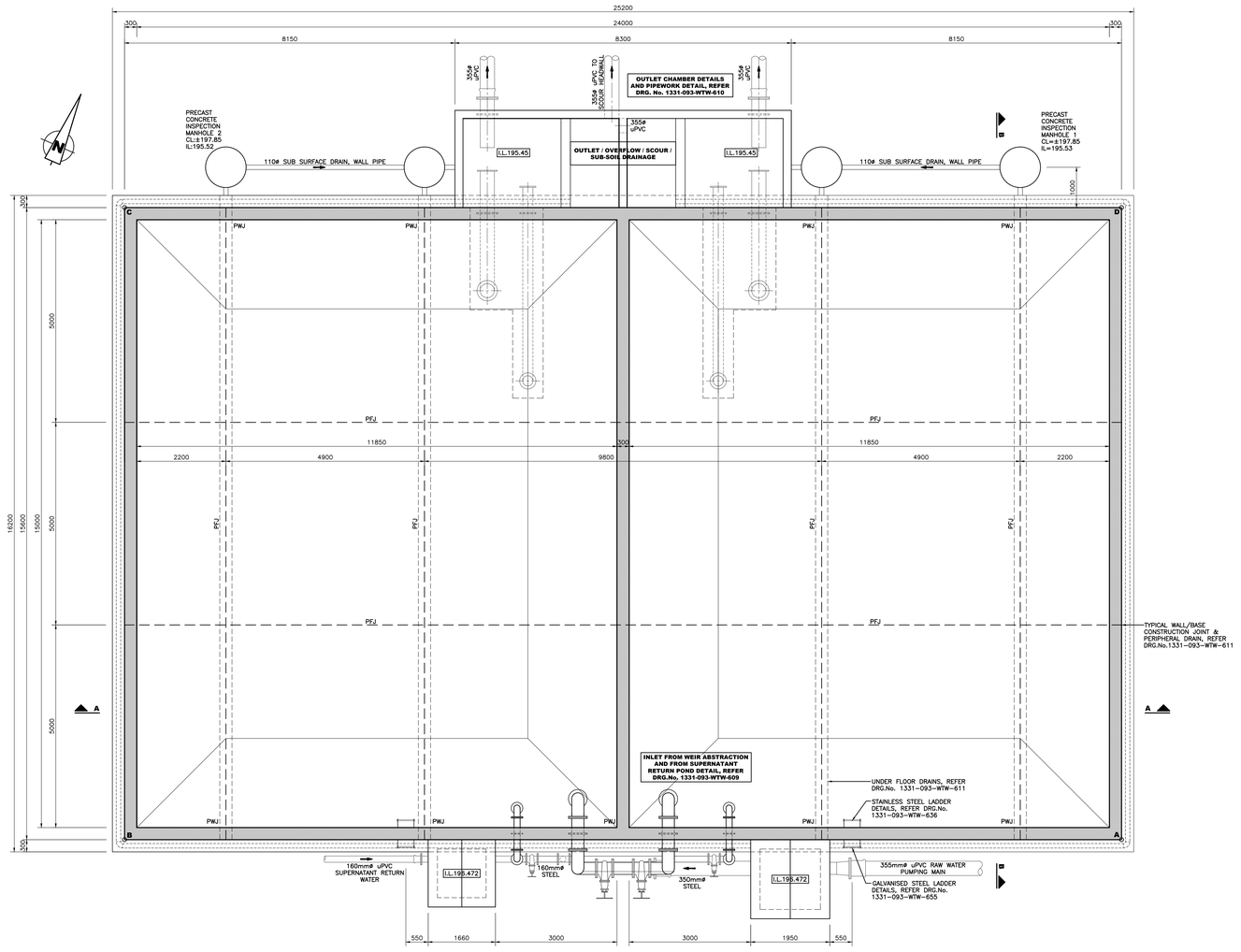
SCALE	AS SHOWN	DATE	MAY 2015
DRAWING NUMBER	1331-093-WTW-607	A1	REVISION A



TYPICAL SECTION A–A
SCALE 1:50



TYPICAL SECTION B–B
SCALE 1:50



PLAN ON FLOOR SLAB
SCALE 1:50

NOTES

CONCRETE MIXES

1 STRENGTH

BLINDING	– 10MPa/20
MASS CONCRETE	– 10MPa/20
FLOOR	– 35MPa/20
WALL FOOTING	– 35MPa/20
WALL	– 35MPa/20
COLUMNS	– 35MPa/20
ROOF	– 35MPa/20

2 C/W RATIO 1.89 MIN.

3 COVER

FOOTING	– 50mm
FLOOR	– 40mm
COLUMNS	– 40mm
WALLS	– 40mm
ROOF	– 40mm

REINFORCEMENT

1 LAP : 60 x BAR DIAMETER.

GENERAL NOTES

1. ALL STEEL COMPONENTS HOT DIPPED GALVANIZED.
2. LEVEL SENSING EQUIPMENT ADJUSTED ON INSTRUCTION BY THE ENGINEER.

SETTING OUT DATA

POINT	CO–ORDINATES WGS 31°	
	Y+ 50000.00	X+3330000.00
A	375.699	2121.035
B	398.299	2130.753
C	404.459	2116.426
D	381.862	2106.704

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
T1	ALR	TENDER DRAWING	23/08/2021

1331-093-WTW-611 TYPICAL DETAILS
1331-093-WTW-610 1.5Ml RAW WATER RESERVOIR, OUTLET PIPEWORK DETAILS
1331-093-WTW-605 1.5Ml RAW WATER RESERVOIR, INLET PIPEWORK DETAILS
1331-093-WTW-602 LAYOUT PLAN

DRG. No. REFERENCE DRAWING

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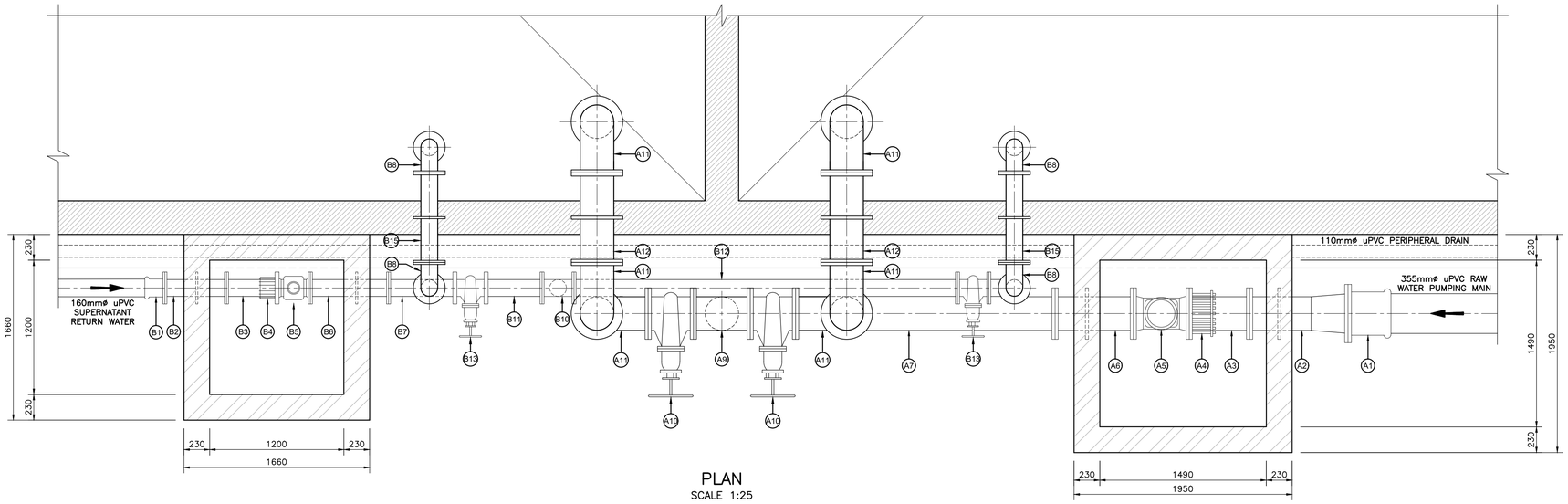
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GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2008 CERTIFIED

DRAWN	F.M./S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

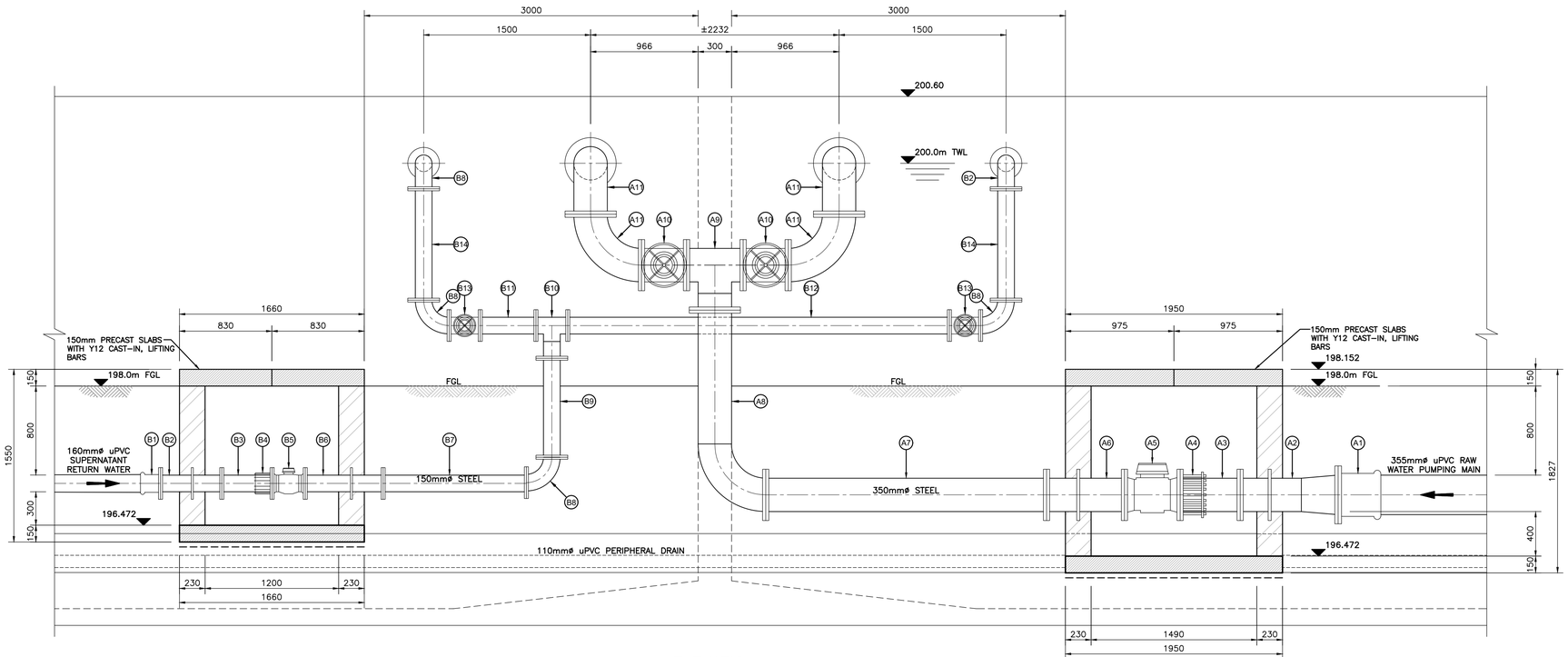
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

1.5ML RAW WATER RESERVOIR GENERAL LAYOUT

SCALE	AS SHOWN	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-608	A0	REVISION T1



PLAN
SCALE 1:25



ELEVATION
SCALE 1:25

INLET PIPEWORK SCHEDULE

ITEM	DESCRIPTION	No.
A1	350mmø S.G FLANGE ADAPTOR FOR uPVC PIPE	1
A2	300mmø STEEL PUDDLE PIPE, 550mm LONG,F.O.E., PUDDLE FLANGE LOCATED CENTRALLY, WELDED TO P.E. 350x300mmø STEEL REDUCER, 350mmø END FLANGED	1
A3	300mmø STEEL PIPE, ±510mm LONG, F.O.E.	1
A4	300mmø FLEXIBLE FLANGE ADAPTOR	1
A5	300mmø FLANGED ULTRASONIC WATER METER IP68 PN10	1
A6	300mmø STEEL PUDDLE PIPE, 700mm LONG,F.B.E., PUDDLE FLANGE LOCATED 285mm FROM OUTSIDE FLANGE	1
A7	300mmø STEEL PIPE, ±2520mm LONG, F.B.E.	1
A8	300mmø 90° LONG RADIUS STEEL BEND, F.O.E. WELDED TO 300mmø STEEL PIPE ±1200mm LONG, F.O.E.	1
A9	300mmø STEEL EQUAL TEE, WELDED TO BRANCH END 300mmø STEEL PIPE, 150mm LONG, F.A.E.	1
A10	300mmø FLANGED GATE VALVE PN10	2
A11	300mmø 90° STEEL LONG RADIUS BEND, F.B.E.	6
A12	300mmø STEEL PUDDLE PIPE 800mm LONG F.B.E., PUDDLE FLANGE LOCATED CENTRALLY	2

SUPERNATANT PIPEWORK SCHEDULE

ITEM	DESCRIPTION	No.
B1	150mmø S.G FLANGE ADAPTOR FOR uPVC PIPE	1
B2	150mmø STEEL PUDDLE PIPE, 550mm LONG,F.B.E., PUDDLE FLANGE LOCATED CENTRALLY	1
B3	150mmø STEEL PIPE, ±435mm LONG, F.O.E.	1
B4	150mmø FLEXIBLE FLANGE ADAPTOR	1
B5	150mmø FLANGED ULTRASONIC WATER METER IP68 PN10	1
B6	150mmø STEEL PUDDLE PIPE, 700mm LONG, F.B.E., PUDDLE FLANGE LOCATED 285mm FROM OUTSIDE FLANGE	1
B7	150mmø STEEL PIPE, ±1285mm LONG, F.B.E.	1
B8	150mmø 90° STEEL LONG RADIUS BEND, F.B.E.	7
B9	150mmø STEEL PIPE ±890mm LONG, F.B.E.	1
B10	150mmø STEEL EQUAL TEE, WELDED TO BRANCH END 150mmø STEEL PIPE, 150mm LONG, F.A.E.	1
B11	150mmø STEEL PIPE 500mm LONG, F.B.E.	1
B12	150mmø STEEL PIPE 3430mm LONG, F.B.E.	1
B13	150mmø FLANGED GATE VALVE PN10	2
B14	150mmø STEEL PIPE 1000mm LONG, F.B.E.	2
B15	150mmø STEEL PUDDLE PIPE 800mm LONG F.B.E., PUDDLE FLANGE LOCATED CENTRALLY	2

F.A.E. – FLANGED ALL ENDS
F.B.E. – FLANGED BOTH ENDS
F.O.E. – FLANGED ONE END
P.E. – PLAIN END

NOTES

1 THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFIRMING ALL PIPEWORK FITTINGS ON SITE PRIOR TO FABRICATION.

2 ALL FLANGES DRILLED TO SABS 1123 TABLE 10.

3 ALL STEEL PIPE SPECIALS LINED INTERNALLY & EXTERNALLY WITH FUSION BONDED EPOXY.

3 ALL JOINTS SEAM WELDED.

STEEL PIPEWORK:

1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).

2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH"PLASCOAT PPA571 AQUA" OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.5m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH "COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3 ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PREMIER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S', (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	08/12/2022
T1	ALR	TENDER DRAWING	03/09/2021
1	ALR	INTERNAL REVIEW	4/06/2021

DRG. No.	REFERENCE DRAWING
1331-93-WTW-611	TYPICAL DETAILS
1331-93-WTW-610	1.5Ml RAW WATER RESERVOIR, OUTLET PIPEWORK DETAILS
1331-93-WTW-608	1.5Ml RAW WATER RESERVOIR, GENERAL ALYOUT
1331-93-WTW-602	LAYOUT PLAN

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

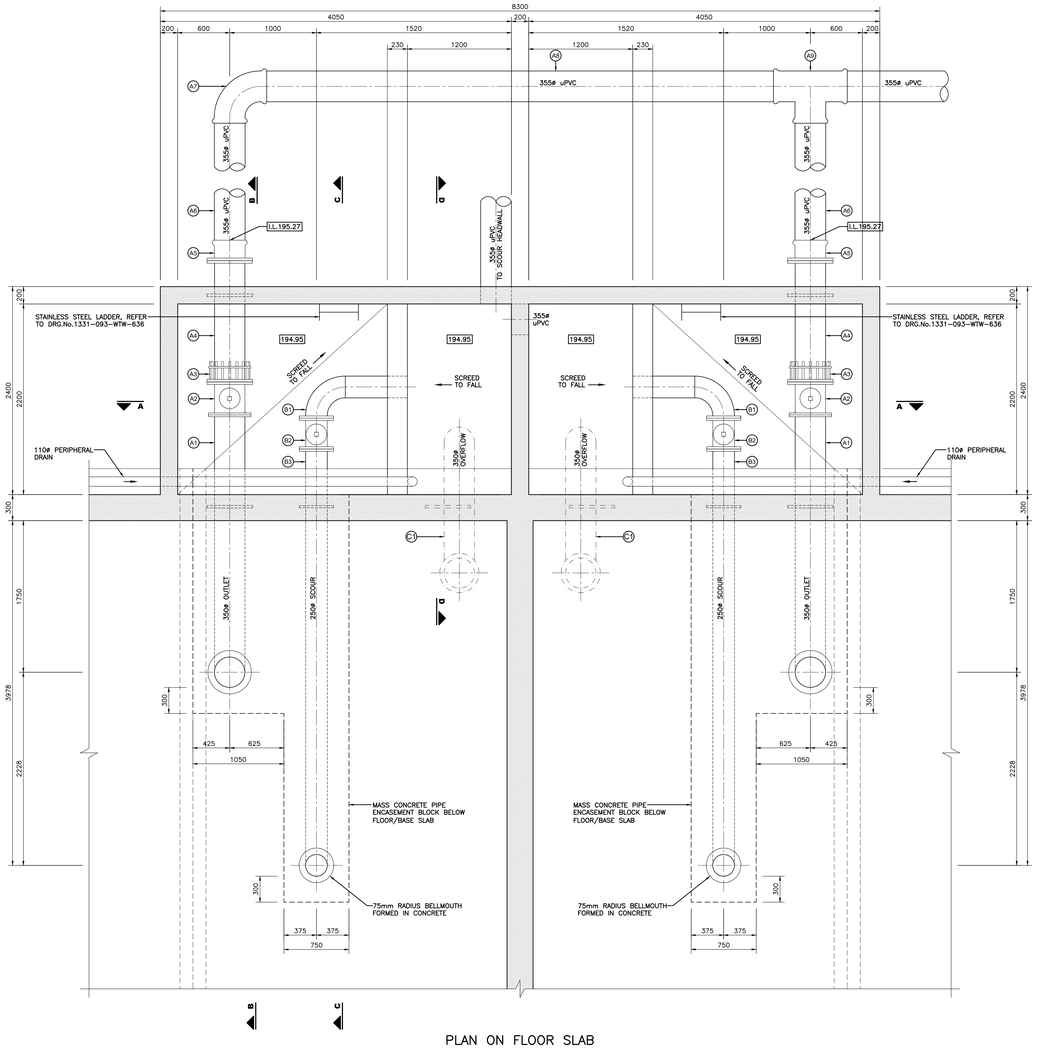
DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

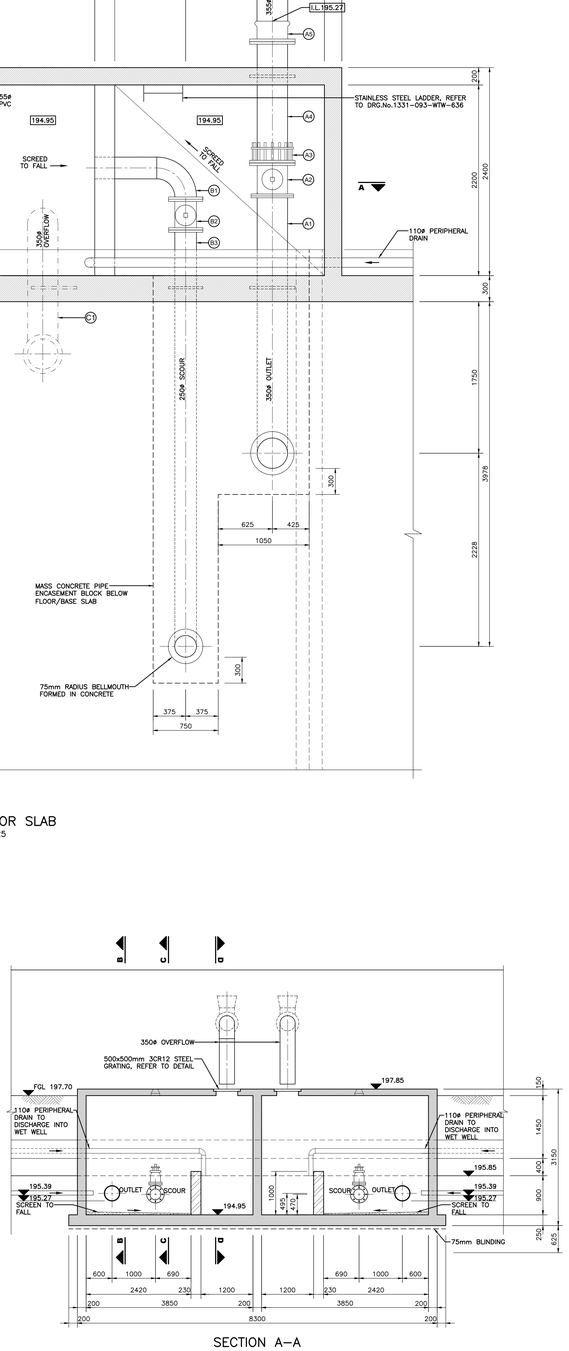
1.5ML RAW WATER RESERVOIR INLET PIPEWORK DETAILS

SCALE	AS SHOWN	DATE	MAY 2021
DRAWING NUMBER	1331/93/WTW/609	A1	REVISION A

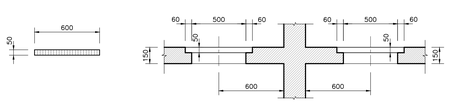


PLAN ON FLOOR SLAB
SCALE 1:25

ROOF PLAN
SCALE 1:50



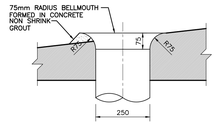
SECTION A–A
SCALE 1:50



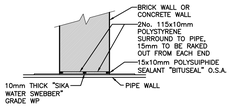
SECTION OF GRATING
SCALE 1:20

SECTION OF OPENING IN ROOF
SCALE 1:20

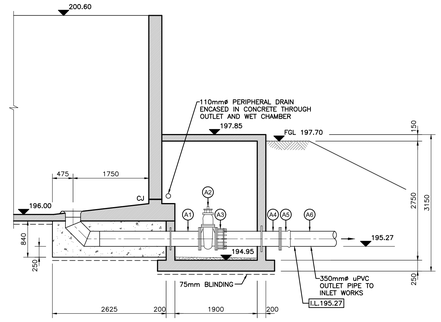
500x500mm 3CR12 STEEL GRATING



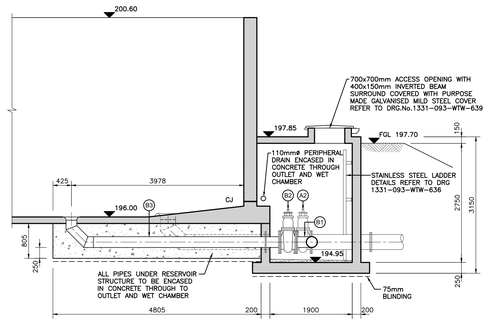
BELLMOUTH FORMED IN CONCRETE DETAIL
SCALE 1:10



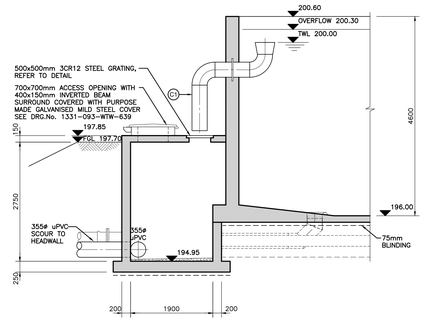
JOINT BETWEEN PIPE AND WALL DETAIL
SCALE 1:10



SECTION B–B
OUTLET PIPEWORK
SCALE 1:50



SECTION C–C
SCOUR PIPEWORK
SCALE 1:50



SECTION D–D
OVERFLOW/SCOUR PIPEWORK
SCALE 1:50

GENERAL NOTES:

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.

2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.

3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

STEEL PIPEWORK:

1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).

2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH"PLASCOAT PPA571 AQUA" OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.5m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3 ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWORK SCHEDULE OR BOQ

5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH "DENSO ULTRAFLEX" WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF "SIKA SWELL S", (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

OUTLET PIPEWORK

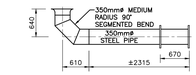
ITEM	DESCRIPTION	No.
A1	REFER TO DETAIL – ITEM A1	2
A2	350mmø R.S.V GATE VALVE PN16	2
A3	350mmø S.G FLANGE ADAPTOR	2
A4	350mmø STEEL PUDDLE PIPE ±1445mm LONG F.O.E., PUDDLE FLANGE LOCATED 415mm FROM FLANGE	2
A5	350mmø FLANGED V.J. ADAPTOR	2
A6	355mmø uPVC PIPE, LENGTH ALLOW FOR 6m	2
A7	355mmø 90° uPVC BEND	1
A8	355mmø uPVC PIPE, ±5920mm LONG	1
A9	355mmø CAST IRON TEE	1

SCOUR PIPEWORK

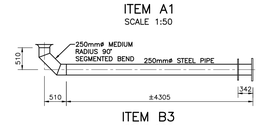
ITEM	DESCRIPTION	No.
B1	250mmø STEEL ANSI MEDIUM RADIUS BEND F.O.E., WITH ±715mm LONG SPOOL PIECE WELDED TO THE OTHER END	2
B2	250mmø R.S.V GATE VALVE PN16	2
B3	REFER TO DETAIL – ITEM B3	2

OVERFLOW PIPEWORK

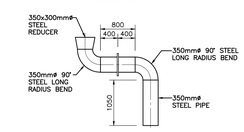
ITEM	DESCRIPTION	No.
C1	REFER TO DETAIL – ITEM C1	2



ITEM A1
SCALE 1:50



ITEM B3
SCALE 1:50



ITEM C1
SCALE 1:50

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	08/12/2022
T1	ALR	TENDER DRAWING	26/08/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-636	STAINLESS STEEL LADDER DETAILS
1331-093-WTW-611	1.5 ML RAW WATER RESERVOIR TYPICAL DETAILS
1331-093-WTW-608	1.5ML RAW WATER RESERVOIR GENERAL LAYOUT
1331-093-WTW-602	OVERALL LAYOUT PLAN

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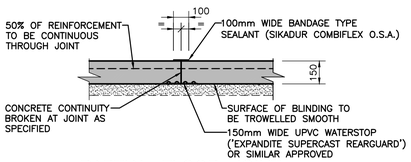
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAVIDA DIVISIONAL MANAGER

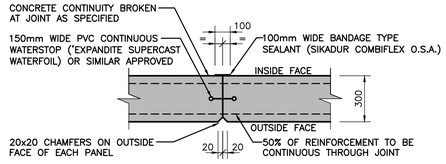
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

1.5ML RAW WATER RESERVOIR OUTLET PIPEWORK AND CHAMBER DETAILS

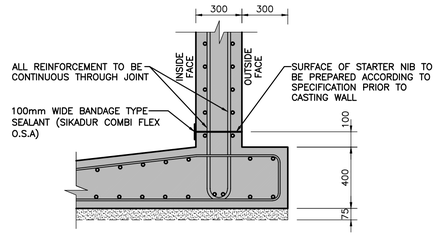
SCALE	AS SHOWN	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-610	A0	REVISION A



PARTIAL FLOOR JOINT
(PFJ)
SCALE 1:20

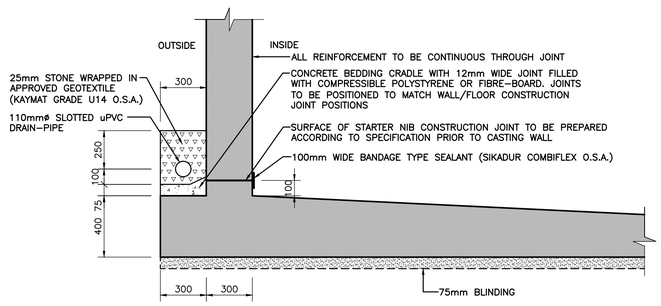


PARTIAL WALL JOINT (VERTICAL)
(PWJ)
SCALE 1:20

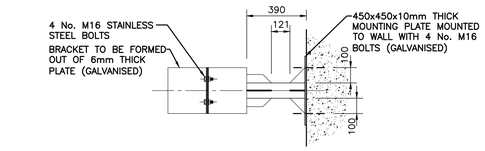


CONSTRUCTION JOINT
(CJ)
SCALE 1:20

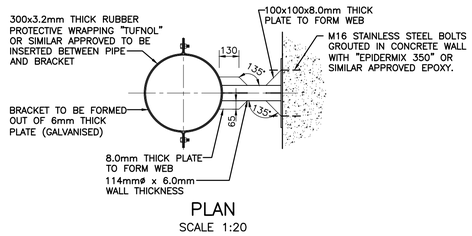
FLOOR & WALL JOINT DETAILS



TYPICAL BASE/WALL CONSTRUCTION JOINT & PERIPHERAL DRAIN
SCALE 1:20



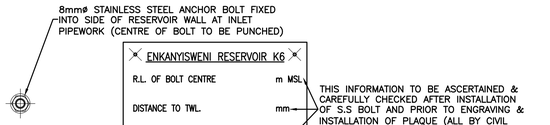
ELEVATION
SCALE 1:20



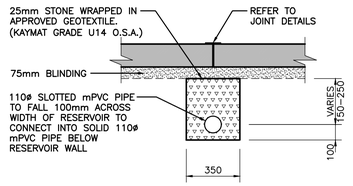
PLAN
SCALE 1:20

INLET/OVERFLOW PIPE SUPPORT BRACKETS

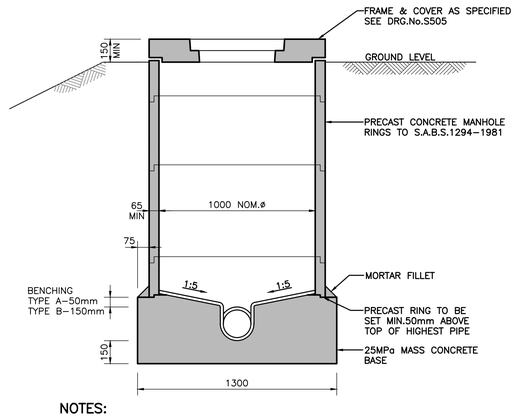
LOFFELSTEIN RETAINING WALL DETAIL
SCALE 1:20



BENCH MARK
SCALE 1:2



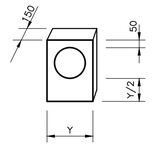
TYPICAL DETAIL OF UNDER FLOOR
SCALE 1:20



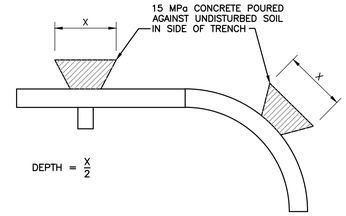
NOTES:

1 TYPE A BENCHING TO BE USED UNLESS TYPE B BENCHING IS REQUIRED.
2 TYPE B BENCHING TO BE USED WHERE UPSTREAM GRADIENT EXCEEDS 1:15.
3 CHANNELS TO BE OF HALF-ROUND SECTIONS BONDED TO BENCHING UNLESS HAND-FORMING IS APPROVED DUE TO UNUSUAL GEOMETRY.
4 BENCHING TO BE FINISHED WITH 1:2 H.A.C. CEMENT MORTAR RENDERING, STEEL-TROWELLED SMOOTH AND UNIFORM.
5 USE 1.5mø PRECAST CONCRETE MANHOLE RING WHERE THE DEPTH EXCEEDS 3m

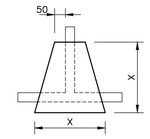
UNDER FLOOR DRAIN INSPECTION CHAMBER DETAIL
SCALE 1:20



REDUCERS



TYPICAL WATER MAIN THRUST BLOCKS



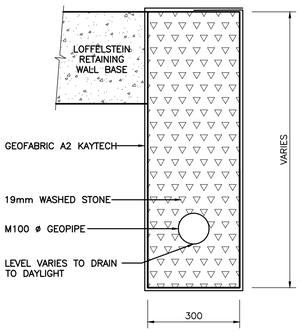
RISER ELBOW & TEES

NOTE:
1) SHOULD POOR SOIL CONDITIONS BE ENCOUNTERED, THE CONTRACTOR IS TO OBTAIN CONFIRMATION OF THRUST BLOCK SIZE FROM ENGINEER.
2) BLOCK SIZES BASED UPON SOIL WITH BEARING CAPACITY NOT LESS THAN 150 kPa.
3) FOR TYPE 1 (CLASS 9 OR CLASS C PIPE) >150mm IN DIAMETER BLOCK SIZES BASED UPON MAXIMUM TEST HEAD OF 135m (1.5 x 90m).
4) FOR TYPE 2 (CLASS 12/16 OR CLASS D/E/F PIPE) BLOCK SIZES BASED UPON MAXIMUM TEST HEAD OF 240m (1.5 x 160m).

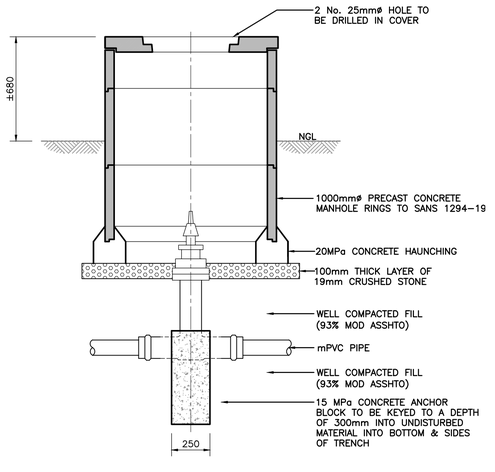
TEES (BRANCH SIZE), END CAPS, 90° BENDS	X TYPE1	X TYPE2
50 & 63	380	380
75	450	450
90, 100, 110	600	600
150,160	900	900
200	900	1200
250	1130	1500
300,315	1350	1800
350	1600	2100
450	2050	2700
LESSER BENDS, RISER ELBOWS & RISER TEES	TYPE1	TYPE2
50 & 63	280	280
75	330	330
90, 100, 110	450	450
150, 160	700	700
200	680	900
250	850	1100
300,315	1050	1400
350	1200	1550
450	1500	2000

REDUCERS	Y TYPE1	Y TYPE2
75 – 50	210	210
100 – 75	240	240
100 – 50	340	340
150 – 100	430	430
150 – 75	520	520
150 – 50	580	580
200 – 150	360	500
200 – 100	510	700
200 – 75	560	770
250 – 200	400	550
250 – 150	580	800
300 – 250	440	600
300 – 200	640	880
300 – 150	780	1080
350 – 300	470	650
350 – 250	700	960
450 – 350	780	1080
450 – 300	970	1340

TYPICAL WATER MAIN THRUST BLOCKS
N.T.S.



LOFFELSTEIN UNDERDRAIN DETAIL
SCALE 1:10



TYPICAL ISOLATING VALVE CHAMBER
SCALE 1:20

NOTES

CONCRETE MIXES
1 STRENGTH
BLINDING – 10MPa/20
MASS CONCRETE – 10MPa/20
FLOOR – 35MPa/20
WALL FOOTING – 35MPa/20
WALL – 35MPa/20
COLUMNS – 35MPa/20
ROOF – 35MPa/20
2 C/M RATIO 1.89 MIN.
3 COVER
FOOTING – 50mm
FLOOR – 40mm
COLUMNS – 40mm
WALLS – 40mm
ROOF – 40mm

REINFORCEMENT
1 LAP : 60 x BAR DIAMETER.

GENERAL NOTES
1. ALL STEEL COMPONENTS HOT DIPPED GALVANIZED.
2. LEVEL SENSING EQUIPMENT ADJUSTED ON INSTRUCTION BY THE ENGINEER.

SETTING OUT DATA

POINT	CO-ORDINATES WGS 31°	
	Y+ 50000.00	X+3330000.00
A	375.699	2121.035
B	398.299	2130.753
C	404.459	2116.428
D	381.862	2106.704

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	08/12/2022
T1	ALR	TENDER DRAWING	27/07/2021

1331-093-WTW-608 1.5Ml RAW WATER RESERVOIR, GENERAL LAYOUT

DRG. No. REFERENCE DRAWING

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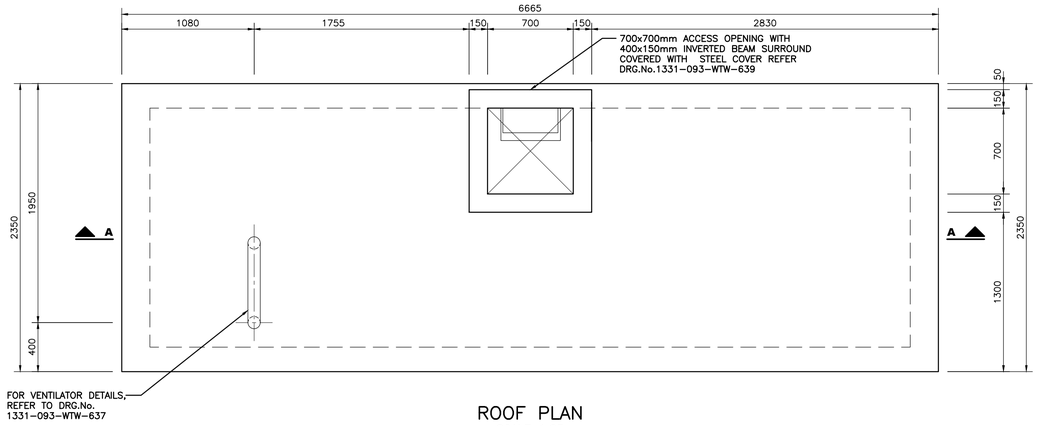
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

1.5ML RAW WATER RESERVOIR
TYPICAL DETAILS

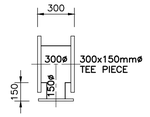
SCALE	AS SHOWN	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-611	A1	REVISION A



ROOF PLAN
SCALE 1:25

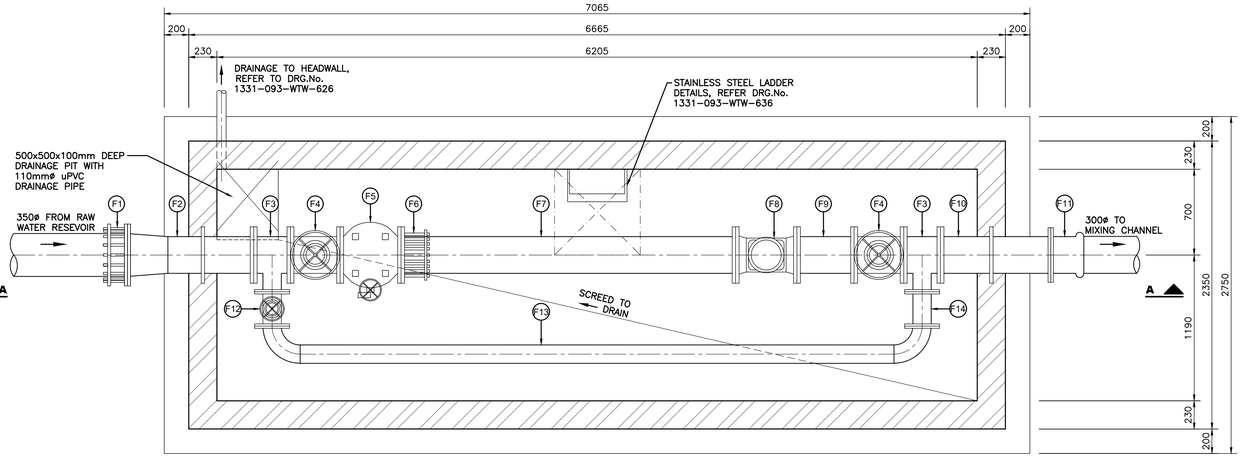
F: FLOW CONTROL CHAMBER PIPEWORK

ITEM	DESCRIPTION	NUMBER
F1	350mmø FLEXIBLE FLANGE COUPLING	1
F2	350x300mmø STEEL REDUCER, F.O.E WELDED TO 300mmø STEEL PIPE 700mm LONG, F.O.E.. PUDDLE FLANGE 285mm FROM P.E.	1
F3	300x150mmø FLANGED STEEL REDUCING TEE, REFER TO ITEM F3 DETAIL	2
F4	300mmø FLANGED GATE VALVE IP68 PN10	2
F5	300mmø FLANGED ACTUATED NEEDLE VALVE IP68 PN10	1
F6	300mmø FLEXIBLE FLANGE ADAPTOR	1
F7	300mmø STEEL PIPE, 2700mm LONG, F.O.E.	1
F8	300mmø FLANGED ULTRASONIC WATER METER IP68 PN10	1
F9	300mmø STEEL PIPE, ±465mm LONG, F.B.E.	1
F10	300mmø STEEL PIPE, 900mm LONG, F.B.E., PUDDLE FLANGE 485mm FROM OUTSIDE FLANGED END	1
F11	300mmø STEEL TO uPVC FLANGE ADAPTOR	1
F12	150mmø FLANGED GATE VALVE IP68 PN10	1
F13	150mmø STEEL PIPE, ±2850mm LONG, P.E., WELDED TO EACH END OF PIPE A 150mmø 90° STEEL BEND, F.O.E.	1
F14	150mmø STEEL PIPE, ±280mm LONG, F.B.E.	1



ITEM F3
SCALE 1:25

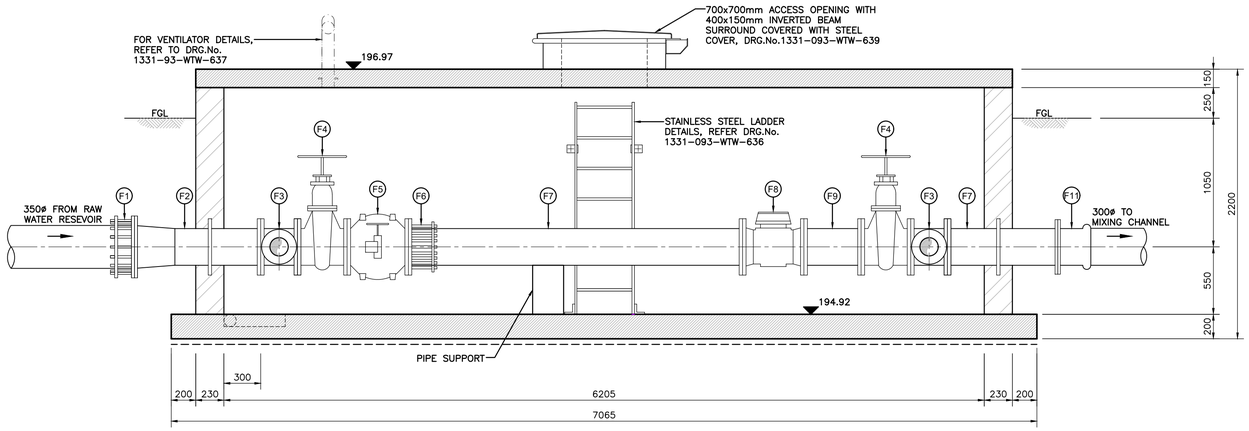
F.A.E. – FLANGED ALL ENDS
F.B.E. – FLANGED BOTH ENDS
F.O.E. – FLANGED ONE END
P.E. – PLAIN END



PLAN
SCALE 1:25

NOTE:
REINFORCING FOR EXTENDED CHAMBER TO BE CUT & BENT TO SUIT ON SITE.

NOTE:
50mm SLEEVE TO BE PROVIDED IN CHAMBER FOR ELECTRICAL CONNECTION TO ULTRASONIC METER. EXACT POSITION OF SLEEVE TO BE CONFIRMED WITH SITE ENGINEER.



SECTION A–A
SCALE 1:25

NOTES
GENERAL
1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.

2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.

3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE
1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.
2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm,
ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm
CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB		50mm TOP & BOTTOM
WALLS – EARTH FACE		40mm
	WATER FACE	50mm
ROOF SLAB – SOFFIT		50mm
	– TOP	40mm
COLUMNS		50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB
5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK
1 BRICKWORK:
- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
- N.B! 4 COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
- DPC AT FLOOR AND WINDOW CILL LEVELS.
- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2 PLASTER
CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

3 PAINTING
- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
- CLEAN WITH SPIRITS AF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS
- ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
- PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES
- PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES TIMBERS

GROUND IMPROVEMENT
1 THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:
STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

STEEL PIPEWORK:
1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).

2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH"PLASCOAT PPA571 AQUA" OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.5m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3 ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMIER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S', (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	3/09/2021

1331-093-WTW-635	LOCKABLE MANHOLE COVER & FRAME 700x700mm
1331-093-WTW-637	TYPICAL DETAILS
1331-093-WTW-636	STAINLESS STEEL LADDER DETAILS
1331-093-WTW-626	BACKWASH & SLUDGE PONDS, DETAILS
1331-093-WTW-602	OVERALL LAYOUT PLAN
DRG. No.	REFERENCE DRAWING

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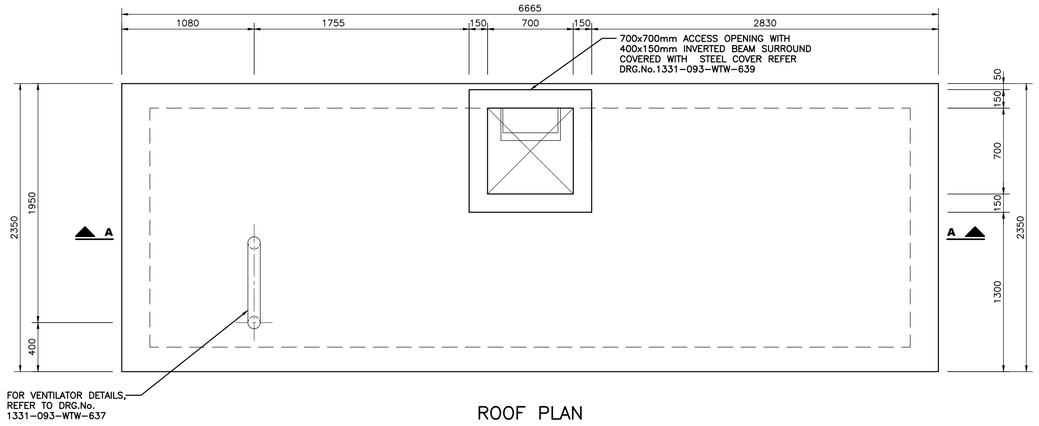
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

1.5ML RAW WATER RESERVOIR FLOW CONTROL CHAMBER

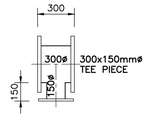
SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-612	A1	REVISION A



ROOF PLAN
SCALE 1:25

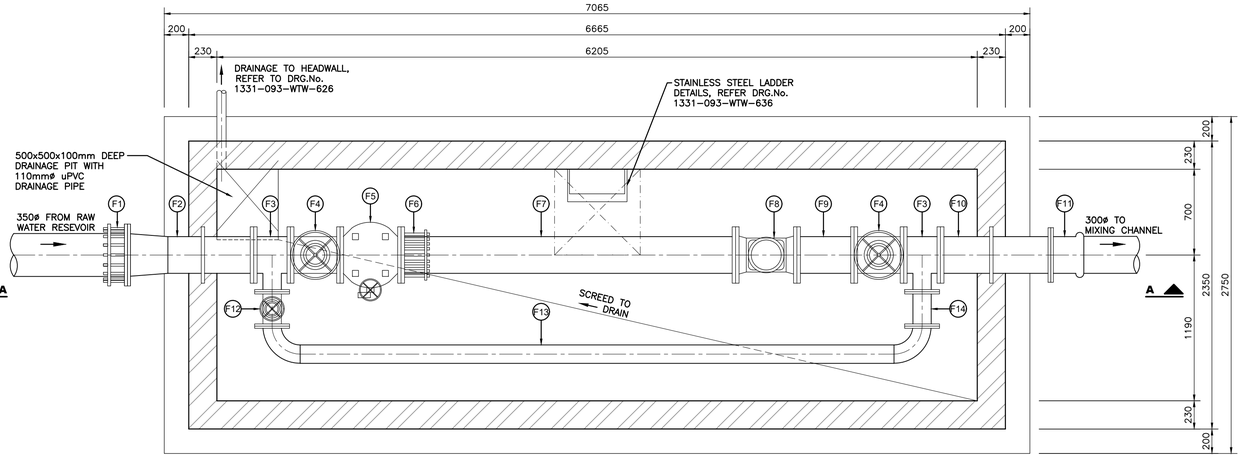
F: FLOW CONTROL CHAMBER PIPEWORK

ITEM	DESCRIPTION	NUMBER
F1	350mmø FLEXIBLE FLANGE COUPLING	1
F2	350x300mmø STEEL REDUCER, F.O.E WELDED TO 300mmø STEEL PIPE 700mm LONG, F.O.E.. PUDDLE FLANGE 285mm FROM P.E.	1
F3	300x150mmø FLANGED STEEL REDUCING TEE, REFER TO ITEM F3 DETAIL	2
F4	300mmø FLANGED GATE VALVE IP68 PN10	2
F5	300mmø FLANGED ACTUATED NEEDLE VALVE IP68 PN10	1
F6	300mmø FLEXIBLE FLANGE ADAPTOR	1
F7	300mmø STEEL PIPE, 2700mm LONG, F.O.E.	1
F8	300mmø FLANGED ULTRASONIC WATER METER IP68 PN10	1
F9	300mmø STEEL PIPE, ±465mm LONG, F.B.E.	1
F10	300mmø STEEL PIPE, 900mm LONG, F.B.E., PUDDLE FLANGE 485mm FROM OUTSIDE FLANGED END	1
F11	300mmø STEEL TO uPVC FLANGE ADAPTOR	1
F12	150mmø FLANGED GATE VALVE IP68 PN10	1
F13	150mmø STEEL PIPE, ±2850mm LONG, P.E., WELDED TO EACH END OF PIPE A 150mmø 90° STEEL BEND, F.O.E.	1
F14	150mmø STEEL PIPE, ±280mm LONG, F.B.E.	1



ITEM F3
SCALE 1:25

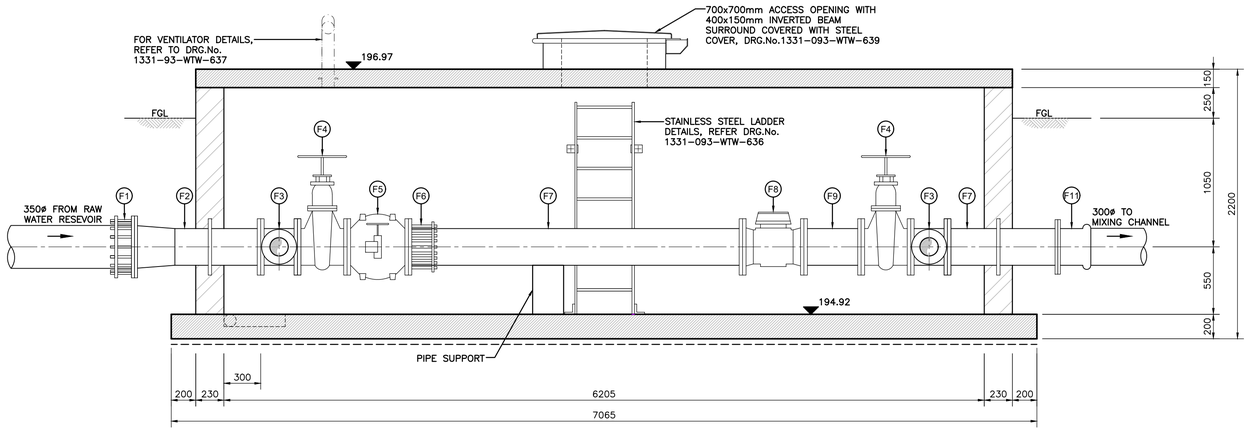
F.A.E. – FLANGED ALL ENDS
F.B.E. – FLANGED BOTH ENDS
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P.E. – PLAIN END



PLAN
SCALE 1:25

NOTE:
REINFORCING FOR EXTENDED CHAMBER TO BE CUT & BENT TO SUIT ON SITE.

NOTE:
50mm SLEEVE TO BE PROVIDED IN CHAMBER FOR ELECTRICAL CONNECTION TO ULTRASONIC METER. EXACT POSITION OF SLEEVE TO BE CONFIRMED WITH SITE ENGINEER.



SECTION A–A
SCALE 1:25

NOTES
GENERAL
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CONCRETE
1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.
2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm,
ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm
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	WATER FACE	50mm
ROOF SLAB – SOFFIT		50mm
	– TOP	40mm
COLUMNS		50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB
5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK
1 BRICKWORK:
- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
- N.B! 4 COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
- DPC AT FLOOR AND WINDOW CILL LEVELS.
- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2 PLASTER
CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

3 PAINTING
- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
- CLEAN WITH SPIRITS AF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING
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- PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES
- PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES TIMBERS

GROUND IMPROVEMENT
1 THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:
STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

STEEL PIPEWORK:
1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).

2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH"PLASCOAT PPA571 AQUA" OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.5m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

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4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMIER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S', (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	3/09/2021

1331-093-WTW-635	LOCKABLE MANHOLE COVER & FRAME 700x700mm
1331-093-WTW-637	TYPICAL DETAILS
1331-093-WTW-636	STAINLESS STEEL LADDER DETAILS
1331-093-WTW-626	BACKWASH & SLUDGE PONDS, DETAILS
1331-093-WTW-602	OVERALL LAYOUT PLAN
DRG. No.	REFERENCE DRAWING

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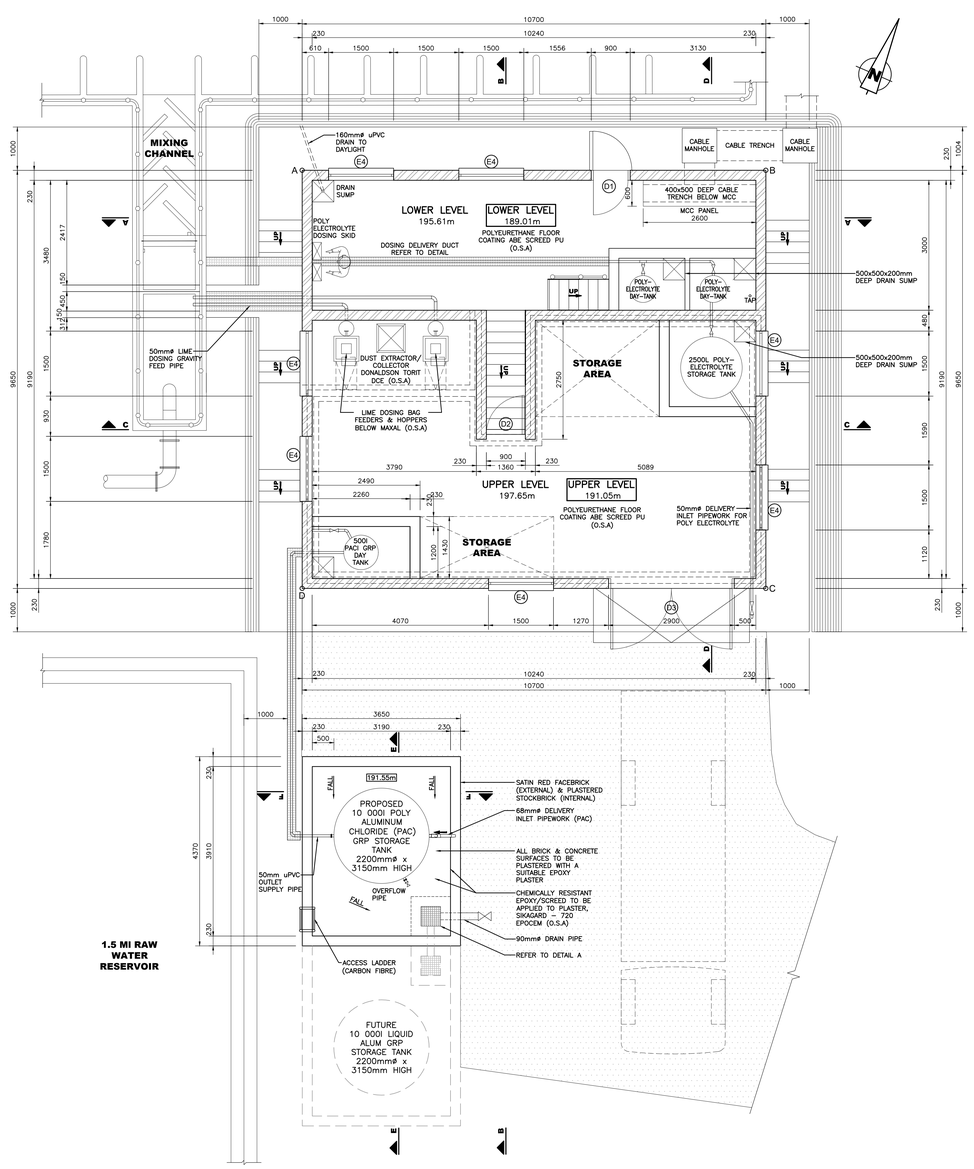
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

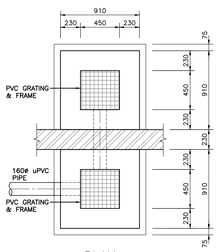
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

1.5ML RAW WATER RESERVOIR FLOW CONTROL CHAMBER

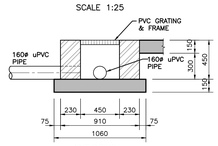
SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-612	A1	REVISION A



PLAN
SCALE 1:50

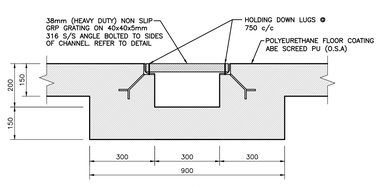


PLAN
SCALE 1:25

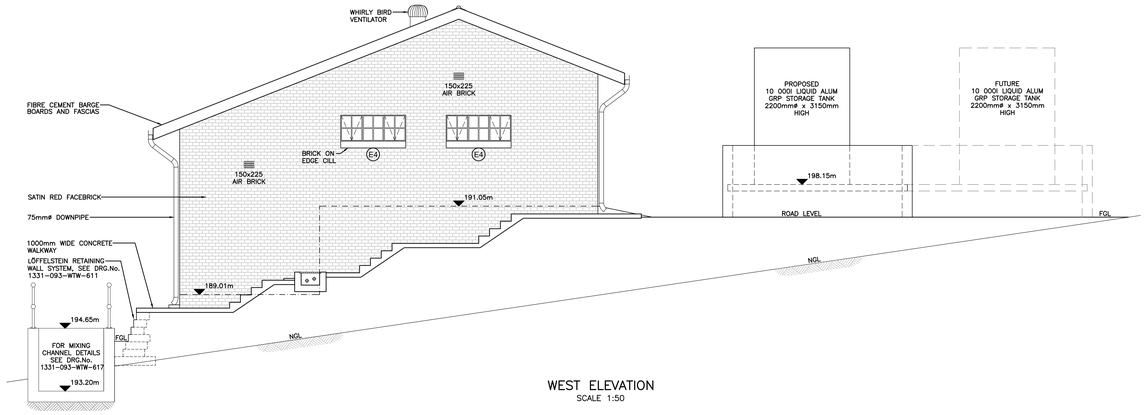


SECTION
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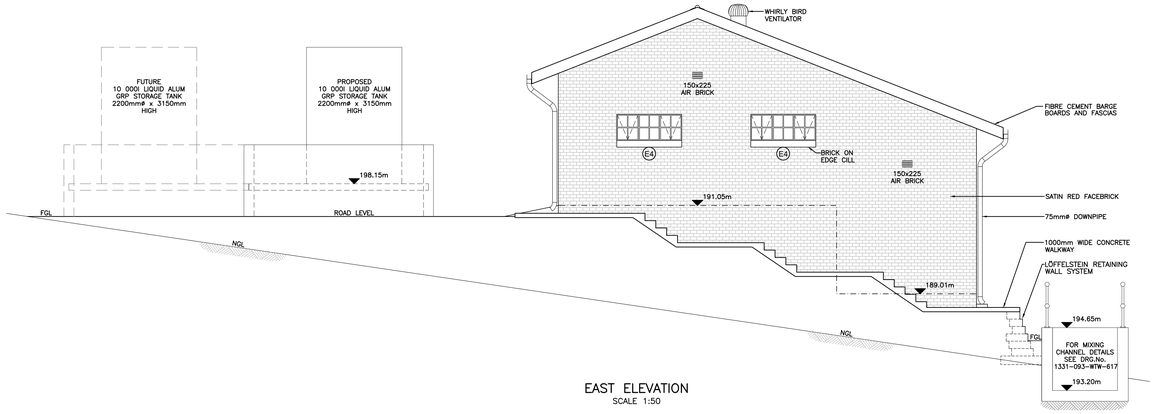
DETAIL A
OVERFLOW CATCHPIT



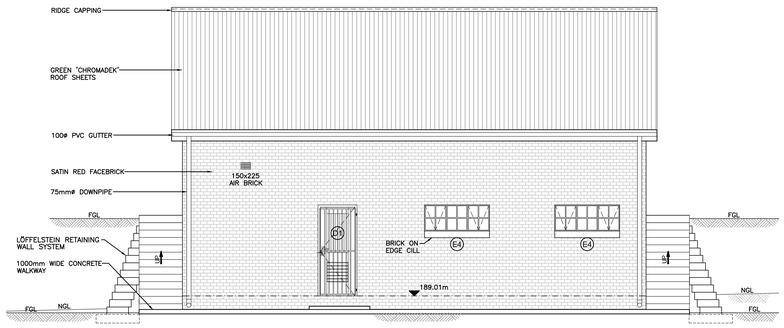
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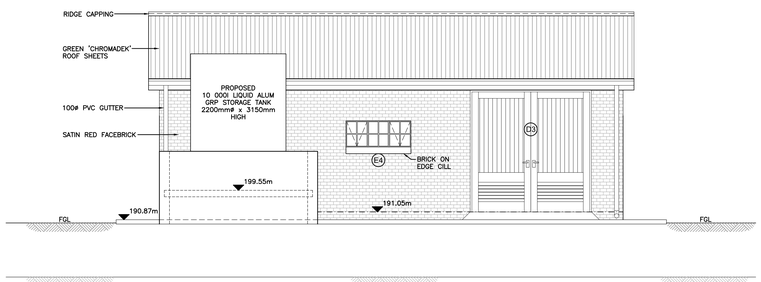
WEST ELEVATION
SCALE 1:50



EAST ELEVATION
SCALE 1:50



NORTH ELEVATION
SCALE 1:50



SOUTH ELEVATION
SCALE 1:50

NOTES

FOUNDATION
1 700 x 230 DEEP CONCRETE FOOTING, WITH Y10 REBAR AT 300 CENTRES BOTH WAYS, IN 600 DEEP TRENCH U.O.N.

CONCRETE
1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.
2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm	TOP & BOTTOM
WALLS – EARTH FACE	40mm	
WATER FACE	50mm	
ROOF SLAB – SOFFIT	50mm	
– TOP	40mm	
COLUMNS	50mm	

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB.
5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK
1 ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
2 ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
3 OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
4 BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
5 N.B! 4 COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
6 DPC AT FLOOR AND WINDOW CILL LEVELS.
7 MORTAR CLASS 2 ENGLISH BOND BRICKWORK.

FLOOR & PERIMETER APRON
1 100 THICK CONCRETE FLOOR SLAB WITH BRC MESH ON 250 MICRON PVC UNDERLAY ON WELL RAMMED AND POISONED SOIL.

PLASTER
1 CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

VENTILATION
1 LEAVE OR FORM 225x150mm FLUE THOUGH ONE BRICK WALL AND RENDER AROUND IN CEMENT MORTAR AND INSTALL 150x225mm VERMIN PROOF AIR BRICK IN OUTER BRICK WALL.

ROOF
1 ROOF SHEETING ON 250 MICRON UNDERLAY ON TIMBER BATTENS & TRUSSES TO SPECIALISTS DETAIL.
2 21.7° PITCH "GREEN CHROMADEK" SHEETING ON 76x50mm TIMBER PURLINS AT NOM. 1.2m CENTRES ON 420 SISALATION ON PVC. ON 114x38mm TIMBER TRUSSES @ 1.2m MAX. CENTRES. ON 114x38mm WALL PLATE.
3 WALKWAY ROOF @ 5° "GREEN CHROMADEK" SHEETING ON 76x50mm TIMBER PURLINS AT NOM. 1.2m CENTRES ON 420 SISALATION ON PVC. ON 114x38mm RAFTERS @ 1.2m MAX. CENTRES.
4 FIBRE CEMENT FASCIAS PAINTED ACRYLIC PVA WHITE.
5 125mm PVC H.R. GUTTER AND 75° RWDP FIXED ACCORDING TO MANUFACTURES SPECIFICATION. RWDP TO HAVE SHOE FOR SURFACE DISCHARGE.

CEILING
1 6.4mm THICK RHINO BOARD CEILING WITH COVER STRIPS AND CORNICE PAINTED ACRYLIC PVA WHITE. CEILING NAILED TO 38x38 TIMBER BATTENS. TRAP DOOR TO BE PROVIDED.

WINDOWS
1 WINDOW CILL TO BE BRICK ON EDGE
E4 1511 x 654mm SMALL PANE (COTTAGE) WINDOWS, HOT DIPPED GALVANISED STEEL, TO HAVE BURGLAR PROOFING (7 No. REQUIRED)

DOORS
1 WROT HARDWOOD FRAME, LEDGE, BRACED AND BATTENED DOORS OF 44x150mm STYLES, TOP RAIL, MIDDLE RAIL AND BRACES, 44x225mm BOTTOM RAIL, FILLED IN ON FACE WITH 22x 00mm TONGUED GROOVED AND V–JOINTED BATTENS AND FLUSH ON INSIDE WITH 5mm PLYWOOD PANELS.
2 ALL DOORS TO HAVE KEEPS.
D1 44x900x2100mm DOOR AND FRAME WITH SECURITY GATE FITTED WITH LOCK INCLUDING WEATHER BOARD AND IRONMONGERY. FIT KNOB/CYLINDER MORTICE LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL (1 No. REQUIRED)
D2 44x900x2100mm DOOR AND FRAME INCLUDING WEATHER BOARD AND IRONMONGERY. FIT KNOB/CYLINDER MORTICE LATCH /LOCK & LOCK FURNITURE TO CLIENTS APPROVAL (1 No. REQUIRED)
D3 44x3000x2800mm DOUBLE DOOR AND FRAME WITH SECURITY GATE INCLUDING WEATHER BOARD AND IRONMONGERY AS PER SCHEDULE. DOORS TO HAVE DEAD BOLTS FITTED TO TOP AND BOTTOM. DOORS TO INCLUDE WEATHER BOARD AND IRONMONGERY. FIT KNOB/CYLINDER MORTICE LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL. (1 No. REQUIRED)

WATER PIPES
1 ALL WATER PIPES ABOVE GROUND LEVEL TO BE COPPER.
2 ALL WATER PIPES BELOW GROUND LEVEL TO BE POLYCOP OR HDPE.
3 ALL PLUMBING TO INCLUDE PIPEWORK & DRAINAGE TO T.P. (TERMINAL POINT).

PAINTING
1 PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES.
2 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
3 CLEAN WITH SPIRITS OF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH TH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING.
4 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS.
5 ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
6 PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
7 PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES.

NOTES

GENERAL
1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

GROUND IMPROVEMENT
THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED:
STAGE 1: OVER–EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A DEPTH CORRESPONDING TO 2.0m BELOW FLOOR LEVEL.
STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
STAGE 3: FOLLOWING THE COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MODIFIED A.A.S.H.T.O.
STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

SETTING OUT DATA

POINT	CO–ORDINATES WGS 31°	
	Y+ 50000.00	X+3332000.00
A	384.991	095.883
B	375.167	091.642
C	371.343	100.502
D	381.167	104.743

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	27/07/2021

1331-093-EED-715	CHEMICAL DOSING BUILDING, SMALL POWER AND LIGHTING LAYOUT
1331-093-WTW-646	SECURITY GATE DETAIL
1331-093-WTW-614	CHEMICAL DOSING BUILDING, SECTIONS & DETAILS
1331-093-WTW-602	LAYOUT PLAN
DRG. No.	REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

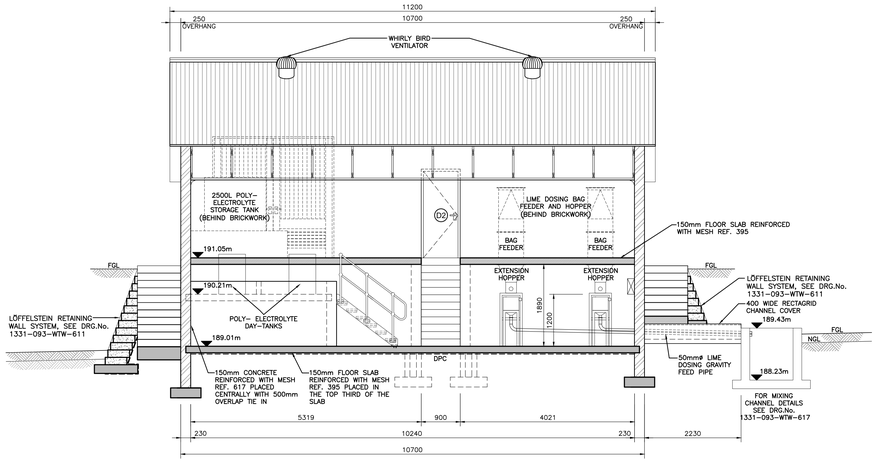
DRAWN	T.S/S M.H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED
S.MDAKA — PROJECT MANAGER
M.VAWDA — DIVISIONAL MANAGER

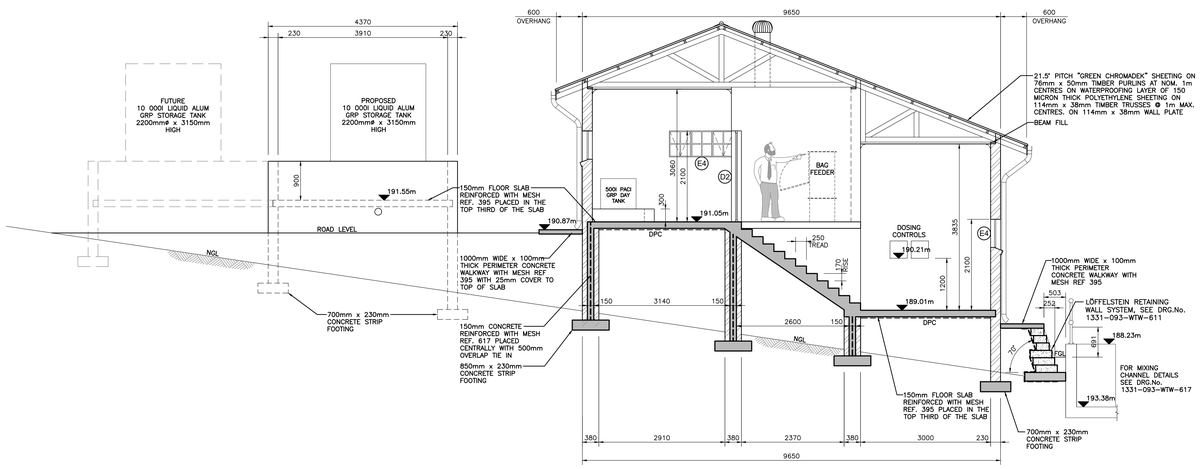
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 Ml/DAY)

CHEMICAL DOSING BUILDING
SECTIONS & DETAILS

SCALE	AS SHOWN	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-613	A0	REVISION A



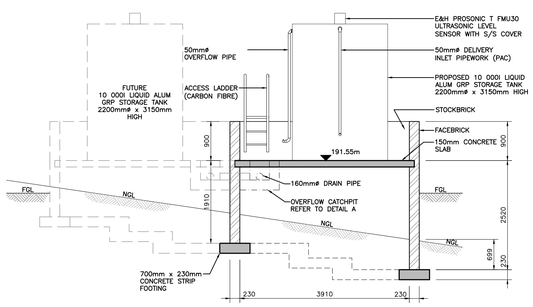
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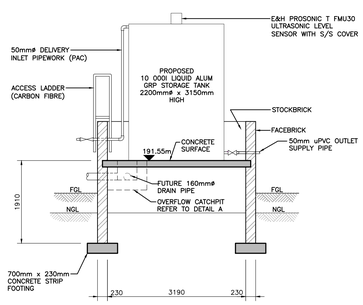
SECTION B–B
SCALE 1:50

SECTION C–C
SCALE 1:50

SECTION D–D
SCALE 1:50



SECTION E–E
SCALE 1:50



SECTION F–F
SCALE 1:50

NOTES

FOUNDATION
1 700 x 230 DEEP CONCRETE FOOTING, WITH Y10 REBAR AT 300 CENTRES BOTH WAYS, IN 600 DEEP TRENCH U.O.N.

CONCRETE
1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.
2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS – EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB – SOFFIT	50mm
– TOP	40mm
COLUMNS	50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB.
5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK
1 ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
2 ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
3 OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
4 BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
5 N.B! A COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
6 DPC AT FLOOR AND WINDOW CILL LEVELS.
7 MORTAR CLASS 2 ENGLISH BOND BRICKWORK.

FLOOR & PERIMETER APRON
1 100 THICK CONCRETE FLOOR SLAB WITH BRC MESH ON 250 MICRON PVC UNDERLAY ON WELL RAMMED AND POISONED SOIL.

PLASTER
1 CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

VENTILATION
1 LEAVE OR FORM 225x150mm FLUE THOUGH ONE BRICK WALL AND RENDER AROUND IN CEMENT MORTAR AND INSTALL 150x225mm VERMIN PROOF AIR BRICK IN OUTER BRICK WALL.

ROOF
1 ROOF SHEETING ON 250 MICRON UNDERLAY ON TIMBER BATTENS & TRUSSES TO SPECIALISTS DETAIL.
2 21.5° PITCH "GREEN CHROMADEK" SHEETING ON 76x50mm TIMBER PURLINS AT NOM. 1.2m CENTRES ON 420 SISALATION ON PVC. ON 114x38mm TIMBER TRUSSES @ 1.2m MAX. CENTRES. ON 114x38mm WALL PLATE.
3 WALKWAY ROOF @ 5° "GREEN CHROMADEK" SHEETING ON 76x50mm TIMBER PURLINS AT NOM. 1.2m CENTRES ON 420 SISALATION ON PVC. ON 114x38mm RAFTERS @ 1.2m MAX. CENTRES.
4 FIBRE CEMENT FASCIAS PAINTED ACRYLIC PVA WHITE.
5 125mm PVC H.R. GUTTER AND 75° PWD FIXED ACCORDING TO MANUFACTURES SPECIFICATION. #WDP TO HAVE SHOE FOR SURFACE DISCHARGE.

CEILING
1 6.4mm THICK RHINO BOARD CEILING WITH COVER STRIPS AND CORNICE PAINTED ACRYLIC PVA WHITE. CEILING NAILED TO 38x38 TIMBER BATTENS. TRAP DOOR TO BE PROVIDED.

WINDOWS
1 WINDOW CILL TO BE BRICK ON EDGE.
E4 1511 x 654mm SMALL PANE (COTTAGE) WINDOWS, HOT DIPPED GALVANISED STEEL, TO HAVE BURGLAR PROOFING (7 No. REQUIRED)

DOORS
1 WROT HARDWOOD FRAME, LEDGE, BRACED AND BATTENED DOORS OF 44x150mm STYLES, TOP RAIL, MIDDLE RAIL AND BRACES, 44x225mm BOTTOM RAIL, FILLED IN ON FACE WITH 22x 00mm TONGUED GROOVED AND V-JOINTED BATTENS AND FLUSH ON INSIDE WITH 5mm PLYWOOD PANELS.
2 ALL DOORS TO HAVE KEEPS.
D1 44x900x2100mm DOOR AND FRAME WITH SECURITY GATE FITTED WITH LOCK INCLUDING WEATHER BOARD AND IRONMONGERY. FIT KNOB/CYLINDER MORTICE LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL (1 No. REQUIRED)
D2 44x900x2100mm DOOR AND FRAME INCLUDING WEATHER BOARD AND IRONMONGERY. FIT KNOB/CYLINDER MORTICE LATCH /LOCK & LOCK FURNITURE TO CLIENTS APPROVAL (1 No. REQUIRED)
D3 44x3000x2800mm DOUBLE DOOR AND FRAME WITH SECURITY GATE INCLUDING WEATHER BOARD AND IRONMONGERY AS PER SCHEDULE. DOORS TO HAVE DEAD BOLTS FITTED TO TOP AND BOTTOM. DOORS TO INCLUDE WEATHER BOARD AND IRONMONGERY; FIT KNOB/CYLINDER MORTICE LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL. (1 No. REQUIRED)

WATER PIPES
1 ALL WATER PIPES ABOVE GROUND LEVEL TO BE COPPER.
2 ALL WATER PIPES BELOW GROUND LEVEL TO BE POLYCOP OR HDPE.
3 ALL PLUMBING TO INCLUDE PIPEWORK & DRAINAGE TO T.P. (TERMINAL POINT).

PAINTING
1 PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES.
2 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
3 CLEAN WITH SPIRITS OF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING.
4 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CEILS.
5 ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
6 PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
7 PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES.

NOTES

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GROUND IMPROVEMENT
THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED:
STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A DEPTH CORRESPONDING TO 2.0m BELOW FLOOR LEVEL.
STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
STAGE 3: FOLLOWING THE COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MODIFIED A.A.S.H.T.O.
STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

SETTING OUT DATA

POINT	CO-ORDINATES WGS 31°	
	Y+ 50000.00	X+3332000.00
A	384.991	095.883
B	375.167	091.642
C	371.343	100.502
D	381.167	104.743

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	27/07/2021

1331-093-EED-715	CHEMICAL DOSING BUILDING, SMALL POWER AND LIGHTING LAYOUT
1331-093-WTW-646	SECURITY GATE DETAIL
1331-093-WTW-613	CHEMICAL DOSING BUILDING, SECTIONS & DETAILS
1331-093-WTW-602	LAYOUT PLAN
DRG. No.	REFERENCE DRAWING

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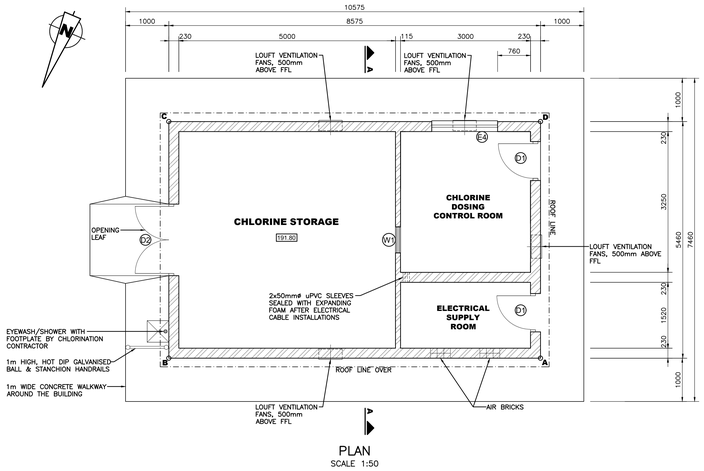
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	T.S/S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	V.VAWDA DIVISIONAL MANAGER	

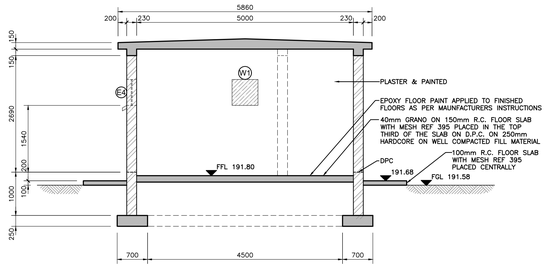
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CHEMICAL DOSING BUILDING
SECTIONS & DETAILS

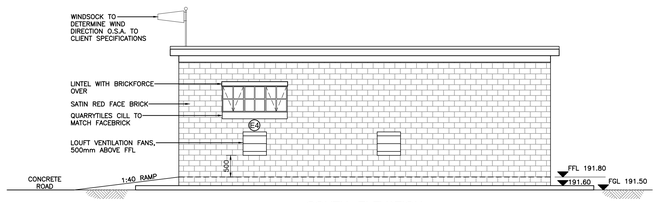
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DRAWING NUMBER	1331-093-WTW-614	A0	REVISION T1



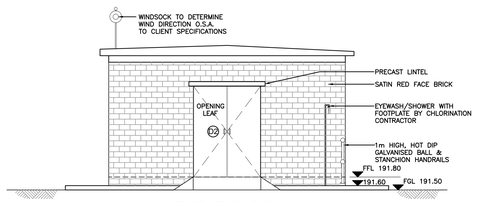
PLAN
SCALE 1:50



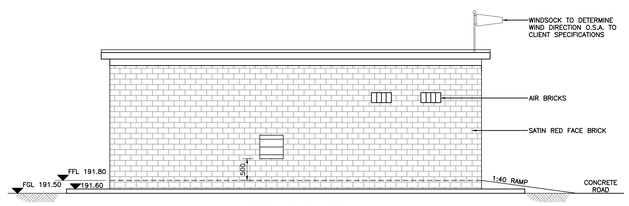
SECTION A–A
SCALE 1:50



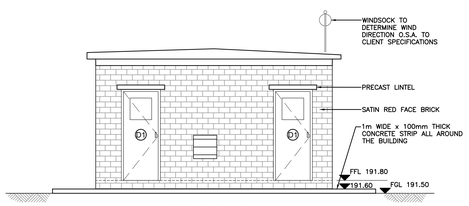
SOUTH ELEVATION
SCALE 1:50



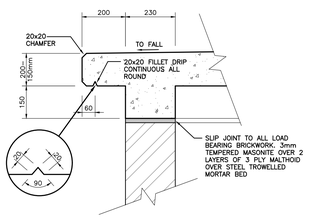
EAST ELEVATION
SCALE 1:50



NORTH ELEVATION
SCALE 1:50



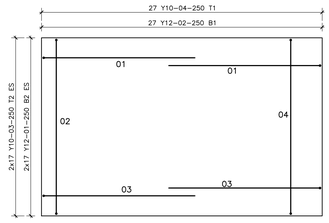
WEST ELEVATION
SCALE 1:50



DETAIL A
SCALE 1:10

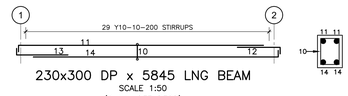
POINT	CO-ORDINATES WGS 31°	
	Y+ 50000.00	X+3332000.00
A	421.443	071.913
B	413.549	068.563
C	411.416	073.589
D	419.309	076.939

REINFORCING FIXING DETAILS

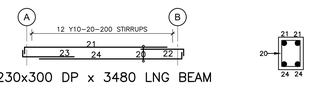


ROOF SLAB
SCALE 1:50

COVER = 30mm



230x300 DP x 5845 LNG BEAM
SCALE 1:50
(2 No. OFF REQD)



230x300 DP x 3480 LNG BEAM
SCALE 1:50
(2 No. OFF REQD)

UNIT		REINFORCEMENT					BENDING DIMENSIONS TO SHAPE CODES SANS 282					
MARK	No	BAR MK	TYPE & DIA.	No. IN EACH	TOTAL No.	LENGTH	SH. CODE	A	B	C	D	E, OR r
ROOF SLAB	1	01	Y12		34	3600	37	100				
		02	Y12		27	4200	38	100	4060			
		03	Y10		34	3600	37	100				
		04	Y10		27	4200	38	100	4060			
5845 LNG BM	2	10	Y10	29	58	1000	60	170	240			
		11	Y12	2	4	5800	37	150				
		12	Y12	2	4	1100	37	150				
		13	Y16	2	4	1250	37	150				
		14	Y16	2	4	5750	37	150				
3480 LNG BM	2	20	Y10	12	24	1000	60	170	240			
		21	Y12	2	4	3400	37	150				
		22	Y12	2	4	1100	37	150				
		23	Y16	2	4	1250	37	150				
		24	Y16	2	4	3400	37	150				

NOTES

GENERAL
1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE
1 ALL CONCRETE WORK – 25MPa/19mm UNLESS OTHERWISE STATED.
2 BLINDING – 10MPa.
3 PRECAST LINTELS TO BE INSTALLED ABOVE ALL DOORS & WINDOWS.
4 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.
5 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm
CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
6 MINIMUM COVER TO REINFORCING:
FLOOR/BASE SLAB 50mm TOP & BOTTOM
WALLS – EARTH FACE 40mm
WATER FACE 50mm
ROOF SLAB – SOFFIT 50mm
– TOP 40mm
COLUMNS 50mm
7 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB.
8 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
9 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK
1 ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
2 ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
3 OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
4 BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
5 NB! 4 COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
6 DPC AT FLOOR AND WINDOW CILL LEVELS.
7 MORTAR CLASS 3.
8 2 ENGLISH BOND BRICKWORK.

FLOOR & PERIMETER APRON
1 100 THICK CONCRETE FLOOR SLAB WITH BRC MESH ON 250 MICRON PVC UNDERLAY ON WELL RAMMED AND POISONED SOIL.

PLASTER
1 CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

ROOF
1 ROOF SHEETING ON 250 MICRON UNDERLAY ON TIMBER BATTENS & TRUSSES TO SPECIALISTS DETAIL.
2 GREEN CHROMADEK SHEETING.
3 FIBRE CEMENT FASCIAS PAINTED ACRYLIC PVA WHITE.
4 125mm PVC H.R. GUTTER AND 75° RWDP FIXED ACCORDING TO MANUFACTURES SPECIFICATION. RWDP TO HAVE SHOE FOR SURFACE DISCHARGE.

CEILING
1 6.4mm THICK RHINO BOARD CEILING WITH COVER STRIPS AND CORNICE PAINTED ACRYLIC PVA WHITE. CEILING NAILED TO 38x38 TIMBER BATTENS. TRAP DOOR TO BE PROVIDED.

WINDOWS
1 WINDOW CILL TO BE BRICK ON EDGE.
2 ALL WINDOWS TO HAVE BURGLAR PROOFING.
E4 STEEL WINDOWS TYPE E4 (1 No. REQUIRED)
W1 600x600mm GLASS PANEL (1 No. REQUIRED)

DOORS
1 WROT HARDWOOD FRAME, LEDGE, BRACED AND BATTENED DOORS OF 44x150mm STYLES, TOP RAIL, MIDDLE RAIL AND BRACES, 44x225mm. BOTTOM RAIL, FILLED IN ON FACE WITH 22x100mm TONGUED GROOVED AND V –JOINTED BATTENS AND FLUSH ON INSIDE WITH 5mm PLYWOOD PANELS.
D1 44x813x1850mm DOOR AND FRAME INCLUDING WEATHER BOARD AND IRONMONGERY. FIT KNOB/CYLINDER MORTICE LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL WROT HARDWOOD FRAMED AND LEDGED DOORS OF 50x150mm STYLES, TOP RAIL, MIDDLE RAIL, 50x228mm BOTTOM RAIL, FILLED IN ON FACE. 500x500 SAFETY GLASS VIEWING PANEL TO TOP OF DOOR. BURGLAR GATE FITTED WITH LOCK INCLUDING WEATHER BOARD.(2 No. REQUIRED)
D2 50x1500x2100mm DOUBLE DOOR AND FRAME INCLUDING WEATHER BOARD AND IRONMONGERY. FIT KNOB/CYLINDER MORTICE LATCH / LOCK & LOCK FURNITURE TO CLIENTS APPROVAL. DOOR TO HAVE SUITABLE AIRTIGHT SEAL. BURGLAR GATE FITTED WITH LOCK INCLUDING WEATHER BOARD.(1 No. REQUIRED)

PAINTING
1 PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES.
2 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
3 CLEAN WITH SPIRITS OF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING.
4 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS.
5 ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
6 PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
7 PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES.
8 PREPARE AND APPLY FLOOR PAINT TO GRANO AS PER MANUFACTURERS INSTRUCTIONS.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	26/07/2021

1331-093-WTW-646	SECURITY GATE DETAILS
1331-093-WTW-616	CHLORINE DOSING BUILDING, MECHANICAL
1331-093-WTW-602	LAYOUT PLAN

DRG. No. | REFERENCE DRAWING

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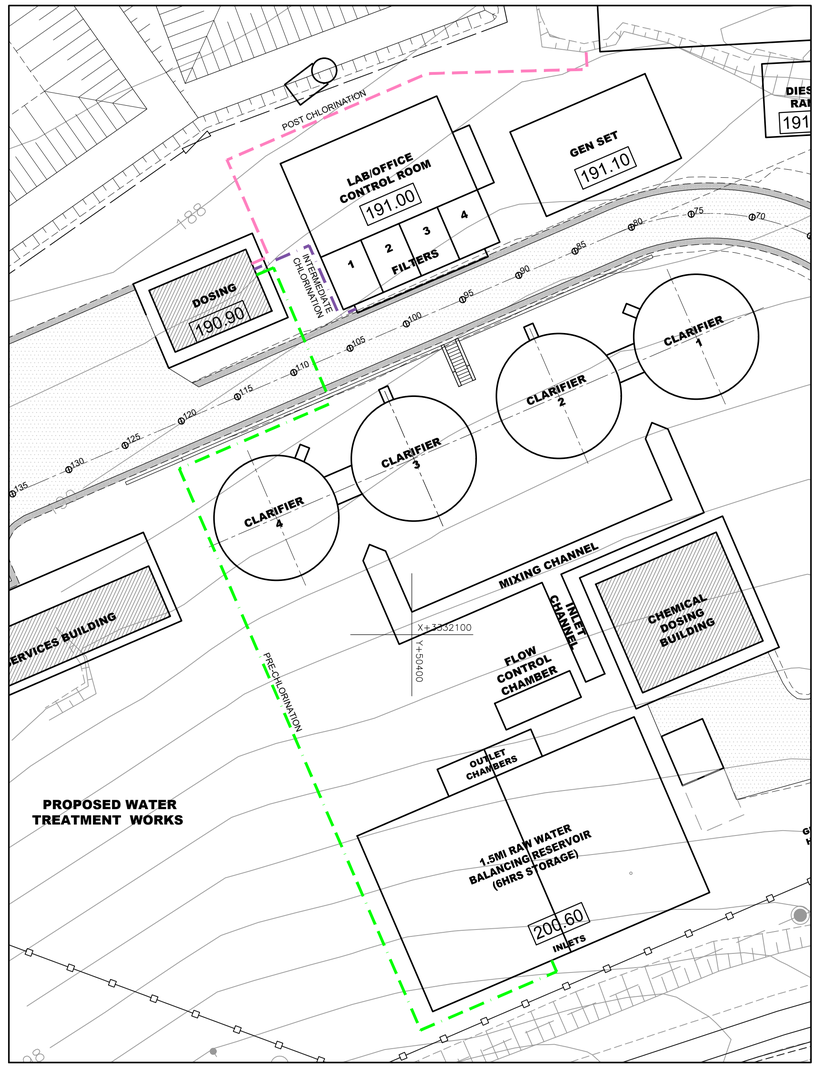
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL +27 (0)31 535 6000
FAX +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MAKA PROJECT MANAGER	M. VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

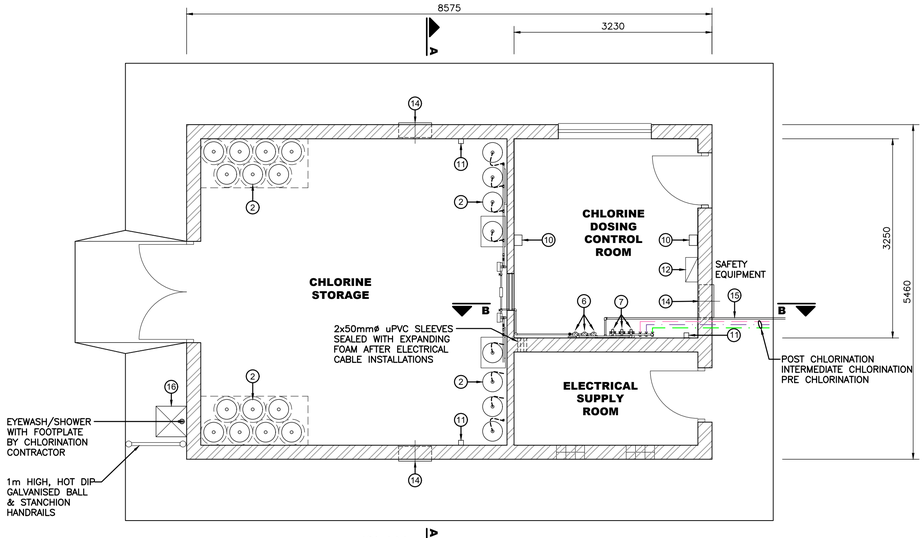
CHLORINE DOSING BUILDING

SCALE	AS SHOWN	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-615	A0	REVISION A

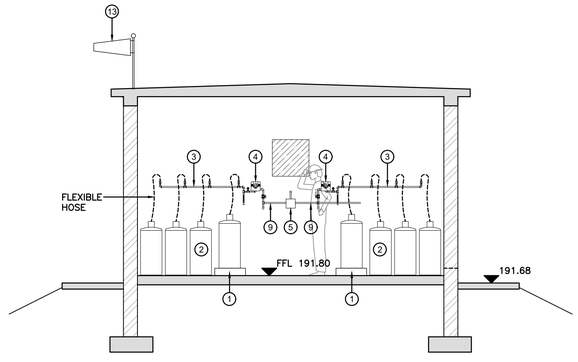


LAYOUT PLAN
SCALE 1:250

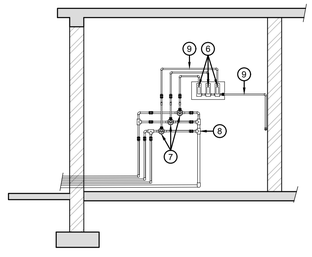
ITEM	DESCRIPTION	QTY.
1	130 Kg CHLORINE GAS SCALE	2
2	70kg CHLORINE GAS BOTTLES O.S.A.	8
3	4 CYLINDER CHLORINE MANIFOLD	2
4	GRUNDFOS CHLORINE VACUUM REGULATOR	2
5	GRUNDFOS AUTOMATIC VACUUM CHANGEOVER	1
6	GRUNDFOS DOSING REGULATOR	3
7	GRUNDFOS PVC INJECTOR	3
8	25mmø PVC PIPING AND VALVES	1
9	20mmø PVC GAS VACUUM PIPING AND VALVES	1
10	GRUNDFOS CHLORINE GAS LEAK DETECTION UNIT	2
11	CHLORINE GAS LEAK DETECTION SENSOR	3
12	SAFETY EQUIPMENT	1
13	WIND DIRECTION INDICATOR	1
14	LUFT EXTRACTION VENTILATION FAN AND SHUTTERS	3
15	32mmø HDPE DOSING LINES	300
16	STAINLESS STEEL SAFETY SHOWER AND EYEWASH BOWL	1



PLAN
SCALE 1:50



SECTION A–A
SCALE 1:50



SECTION B–B
DOSING REGULATORS AND INJECTORS

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	3/09/2021

1331-093-WTW-615 CHLORINE DOSING BUILDING, PLAN & SECTIONS
1331-093-WTW-602 LAYOUT PLAN

DRG. No. | REFERENCE DRAWING

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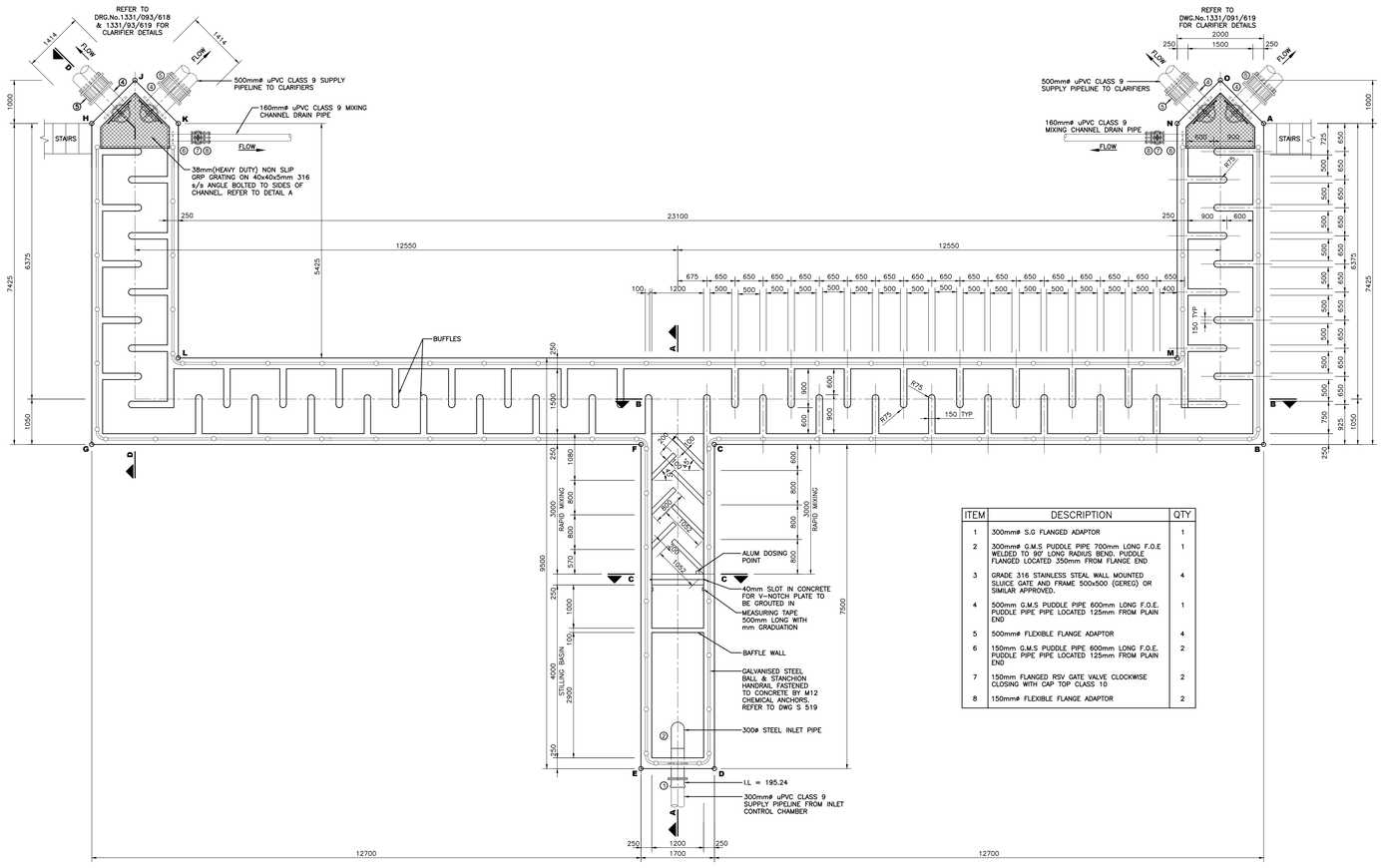
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e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	T.S./S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M. VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

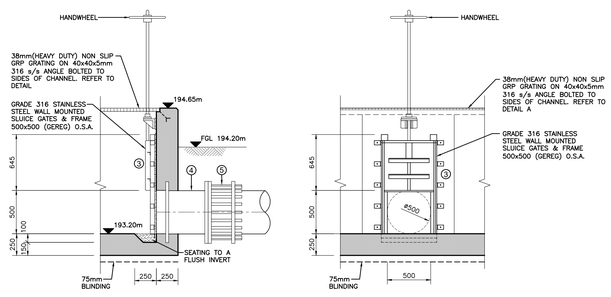
CHLORINE DOSING EQUIPMENT LAYOUT AND DETAILS

SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-616	A1	REVISION A



PLAN
SCALE 1:50

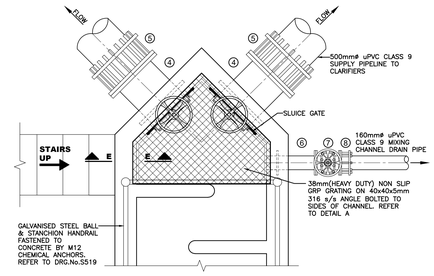
ITEM	DESCRIPTION	QTY
1	300mmø S.G FLANGED ADAPTOR	1
2	300mmø G.M.S PUDDLE PIPE 700mm LONG F.O.E WELDED TO 90° LONG RADIUS BEND. PUDDLE FLANGED LOCATED 350mm FROM FLANGE END	1
3	GRADE 316 STAINLESS STEAL WALL MOUNTED SLUICE GATE AND FRAME 500x500 (GEREG) OR SIMILAR APPROVED.	4
4	500mm G.M.S PUDDLE PIPE 600mm LONG F.O.E. PUDDLE PIPE PIPE LOCATED 125mm FROM PLAIN END	1
5	500mmø FLEXIBLE FLANGE ADAPTOR	4
6	150mm G.M.S PUDDLE PIPE 600mm LONG F.O.E. PUDDLE PIPE PIPE LOCATED 125mm FROM PLAIN END	2
7	150mm FLANGED RSV GATE VALVE CLOCKWISE CLOSING WITH CAP TOP CLASS 10	2
8	150mmø FLEXIBLE FLANGE ADAPTOR	2



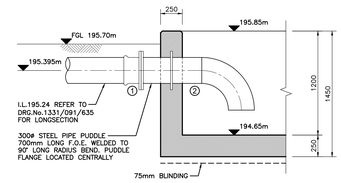
SECTION
SCALE 1:25

ELEVATION
SCALE 1:25

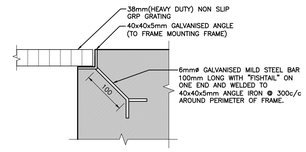
MIXING CHANNEL OUTLET SLUICE GATE DETAIL



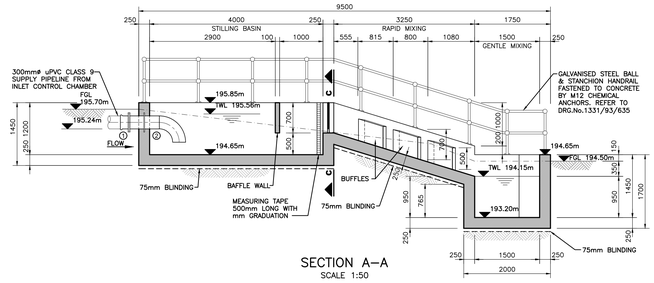
MIXING CHANNEL OUTLET DETAIL
SCALE 1:25



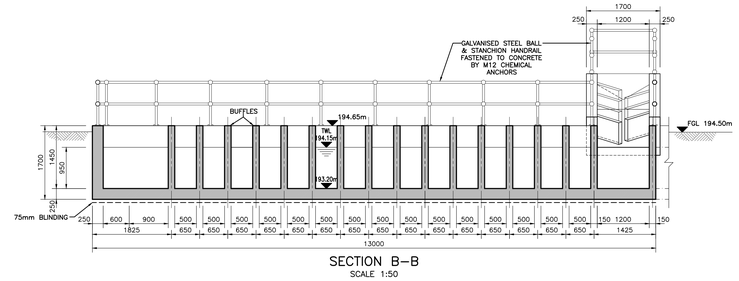
MIXING CHANNEL INLET DETAIL
SCALE 1:25



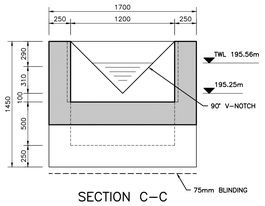
DETAIL A
MOUNTING FRAME DETAIL
SCALE 1:5



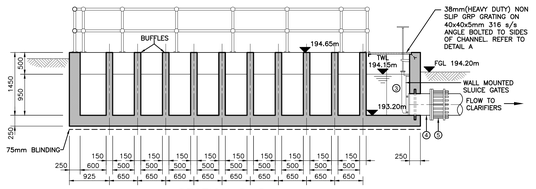
SECTION A–A
SCALE 1:50



SECTION B–B
SCALE 1:50



SECTION C–C
SCALE 1:25



SECTION D–D
SCALE 1:50

NOTES

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
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3. DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.
4. ENGINEERING FILL TO EGINEERS SPECIFICATION.
5. ALL EXPOSED CONCRETE EDGE TO HAVE 20x20mm CHAMFER UNLESS OTHERWISE NOTED.
6. CONCRETE MIXES :
   6.1 STRENGTH
   - BLINDING – 15MPa/20
   - MASS CONCRETE – 15MPa/20
   - FLOOR – 35MPa/20
   - WALL FOOTING – 35MPa/20
   - WALL – 35MPa/20
   - COLUMNS – 35MPa/20
   - ROOF – 35MPa/20

   6.2 C/W RATIO 1.89 MIN.
   6.3 COVER
   - FOOTING – 50mm
   - FLOOR – 40mm
   - COLUMNS – 40mm
   - WALLS – 40mm
   - ROOF – 40mm
7. REINFORCEMENT :
   7.1 LAP : 60 x BAR DIAMETER.
8. ALL STEEL COMPONENTS HOT DIPPED GALVANIZED.

SETTING OUT DATA

POINT	CO-ORDINATES WGS 31°	
	Y+ 50000.00	X+3330000.00
A	379.098	2083.222
B	376.156	2090.039
C	387.816	2095.072
D	384.843	2101.958
E	386.404	2102.632
F	389.376	2095.746
G	401.036	2100.779
H	403.979	2093.962
J	403.457	2092.648
K	402.143	2093.169
L	399.993	2098.150
M	378.784	2088.995
N	380.935	2084.015
O	380.413	2082.700

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	16/03/2022

1331-093-WTW-602 LAYOUT PLAN

DRG. No. REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
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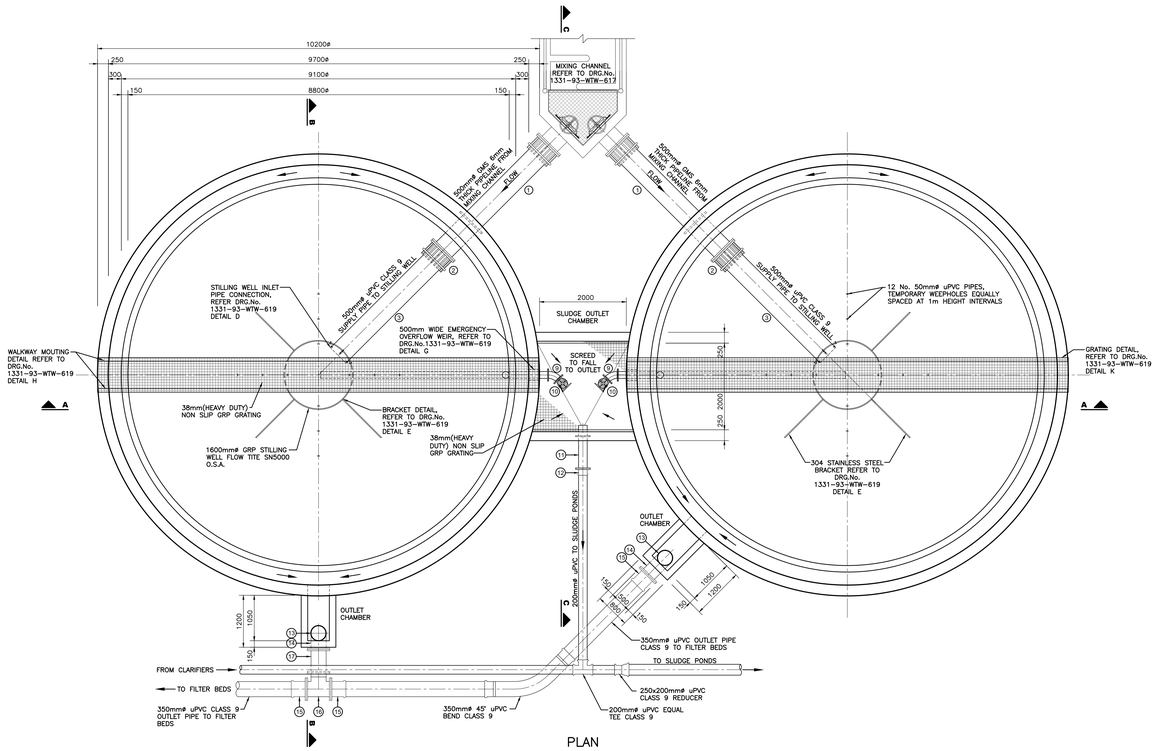
DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

FOR CONSTRUCTION

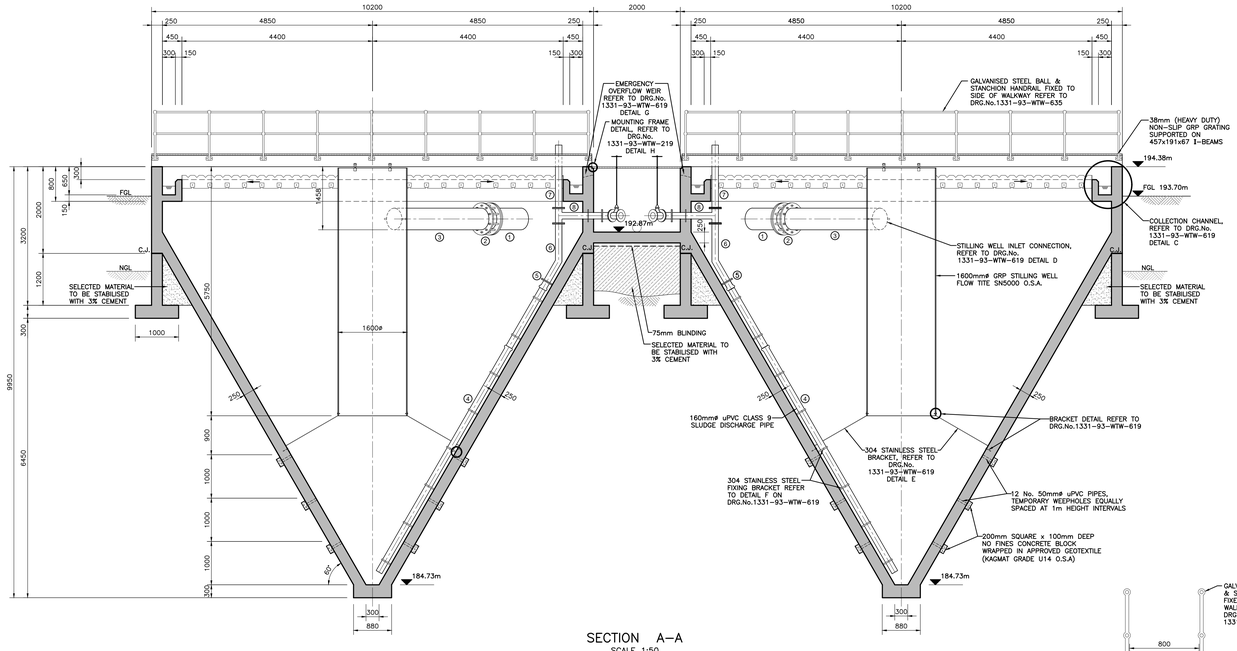
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

MIXING CHANNEL OUTLET SLUICE GATE DETAIL

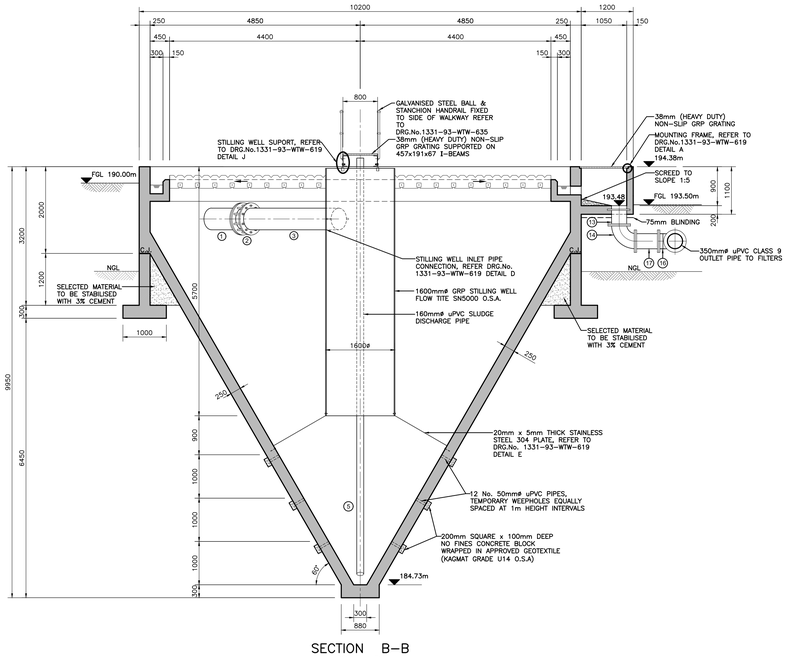
SCALE	DATE	
AS SHOWN	JAN. 2015	
DRAWING NUMBER		REVISION
1331-093-WTW-617	A0	A



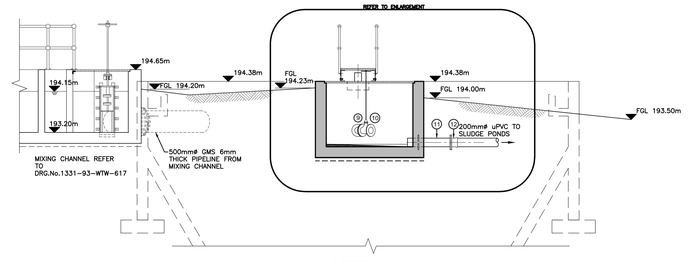
PLAN
SCALE 1:50



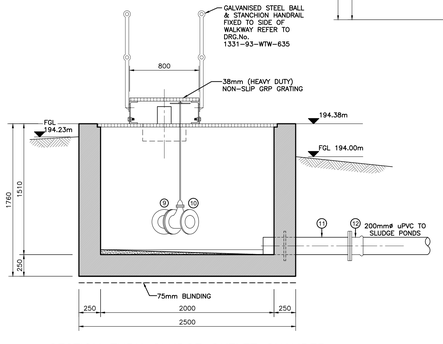
SECTION A–A
SCALE 1:50



SECTION B–B
SCALE 1:50



SECTION C–C
SCALE 1:50



SECTION THRU SLUDGE OUTLET CHAMBER
SCALE 1:25

PIPE SCHEDULE

ITEM	DESCRIPTION	QTY
1	500mm ø GMS PIPE F.O.E, 3300mm LONG WITH A PUDDLE COLLAR 885mm FROM FLANGED END	4
2	500mm ø FLANGED VJ COUPLING OR SIMILAR APPROVED	4
3	500mm ø GMS PIPE, ±3400mm LONG, P.E.	4
4	160mm ø uPVC CLASS 9, 7600mm LONG	4
5	160mm ø FLANGE ADAPTOR FOR uPVC PIPE	4
6	150mm ø STEEL 67° BEND F.O.E. WITH ADDITIONAL SPOOL PIECE WELDED TO BEND, 910mm LONG	4
7	150mm ø STEEL PIPE F.O.E., 1450mm LONG	4
8	150mm ø STEEL EQUAL TEE F.B.E., WITH SPOOL PIECE TO BE WELDED TO BRANCH END F.O.E. WITH PUDDLE COLLAR 315mm FROM BRANCHED END	4
9	150mm ø STEEL 22.5° BEND F.B.E.	4
10	150mm ø CLASS 10 RSV FLANGED GATE VALVE TO SABS 664 WITH HANDWHEEL, WITH A 1200mm LONG EXTENDED NRS	4
11	200mm ø GMS PIPE, 1000mm LONG, F.O.E. WITH PUDDLE FLANGE LOCATED 250mm FROM PLAIN END	4
12	200mm ø FLANGE ADAPTOR FOR uPVC PIPE	4
13	350mm ø STEEL PIPE, 445mm LONG, F.O.E., WITH PUDDLE FLANGE 94mm P.E.	4
14	350mm ø STEEL 22½° BEND F.B.E.	2
15	350mm ø uPVC FLANGE ADAPTOR	3
16	350mm ø STEEL EQUAL TEE, WITH 350mm ø STEEL PIPE, 100mm LONG WELDED TO BRANCH END,F.A.E.,	2
17	350mm ø STEEL PIPE, ±535mm LONG, F.B.E.	2

SETTING OUT DATA

POINT	CO–ORDINATES WGS 31°	
	Y+ 81000.00	X+3360000.00
A	540.869	7966.382
B	528.462	7969.321
C	531.689	7982.944
D	544.096	7980.005
E	538.744	7971.510
F	532.662	7972.950
G	534.103	7979.032
H	540.184	7977.591

GENERAL NOTES

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.

2 CONCRETE SHALL HAVE A MINIMUM 28 DAY CUBE CRUSHING STRENGTH (150mm CUBE) AS INDICATED BELOW FOR THE VARIOUS ELEMENTS:
a) BLINDING AND MASS FILLING = 10MPa
b) ALL CONCRETE = 35MPa (19mm STONE)

3 ALL CONCRETE IS TO BE MOIST CURED FOR 7 DAYS OR HAVE AN APPROVED CURING COMPOUND APPLIED.

4 ALL EXPOSED CONCRETE EDGES TO HAVE 20x20mm CHAMFER UNLESS OTHERWISE NOTED.

5 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF THE CONTRACTOR IS IN DOUBT HE SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.

6 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

7 ALL REINFORCEMENT TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING ANY CONCRETE.

8 CONCRETE COVER TO REINFORCEMENT SHALL BE 50mm & BE MAINTAINED BY USE OF CEMENT MORTAR COVER BLOCKS.

CONCRETE :

1 SIDES TO BE WELL PLASTERED WITH A BLINDING LAYER.

2 AVOID OVER EXCAVATION.

3 CAST LOWEST SECTION USING PURPOSE MADE SHUTTER.

4 LEAVE EIGHT NO FINES POCKETS BEHIND CONCRETE OF LOWEST SECTION WITH 50mm DRAINS INTO CONE TO CONTROL GROUND WATER. WATER COLLECTING IN TANK CAN BE PUMPED OUT. WEEP HOLES TO BE GROUTED UP ON COMPLETION OF CLARIFIER AND FINISHED OFF FLUSH WITH CONE.

5 CONSTRUCT TANK BY PLACING LOW SLUMP CONCRETE AND VIBRATING INTO POSITION.

*NB 6 A SMOOTH (STEEL FLOAT) SURFACE FINISH IS REQUIRED.

7 IF WATER TABLE IS HIGH, KEEP DANGER OF FLOATING IN MIND.

STEEL PIPEWORK :

1 ALL STEEL FLANGES TO SABS 1123/77 TABLE 1000/3 UNLESS OTHERWISE INDICATED.

2 ALL STEEL PIPE SPECIALS TO BE 'RILSAN' LINED AND COATED TO SPECIFICATIONS.

3 ALL BURIED STEEL PIPEWORK AND BOLTED CONNECTIONS TO BE 'DENSO' WRAPPED TO SPECIFICATIONS.

4 ALL PUDDLE PIPES TO BE TAPE WRAPPED TO SPECIFICATIONS.

5 ALL BOLTS AND NUTS TO BE HOT DIP GALVANISED UNLESS OTHERWISE INDICATED.

6 SETTING OUT AND FINAL POSITIONING OF ALL STEEL PIPEWORK INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY THE CONTRACTOR ON SITE, PRIOR TO FABRICATION AND INSTALLATION.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
1	SM	INTERNAL REVIEW	29/11/2212
T1	ALR	TENDER DRAWING	9/07/2021

1331-093-WTW-618 CLARIFIERS, DETAILS

DRG. No. REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

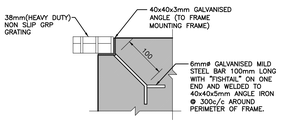
DRAWN	T.S./S.M./H.WILSON		
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INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED
S.MDAKA — PROJECT MANAGER
M.VAVDA — DIVISIONAL MANAGER

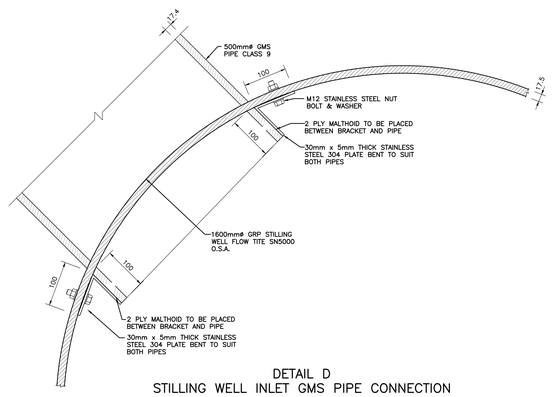
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CLARIFIERS LAYOUT & SECTIONS

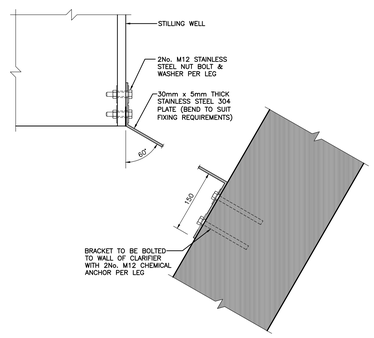
SCALE	AS SHOWN	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-618	A0	REVISION T1



DETAIL A
MOUNTING FRAME DETAIL
SCALE 1:25



DETAIL D
STILLING WELL INLET GMS PIPE CONNECTION
SCALE 1:5



DETAIL E
BRACKET DETAIL
SCALE 1:5

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STEEL PIPEWORK :

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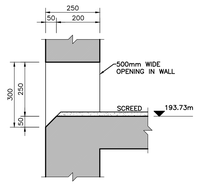
2 ALL STEEL PIPE SPECIALS TO BE 'RILSAN' LINED AND COATED TO SPECIFICATIONS.

3 ALL BURIED STEEL PIPEWORK AND BOLTED CONNECTIONS TO BE 'DENSO' WRAPPED TO SPECIFICATIONS.

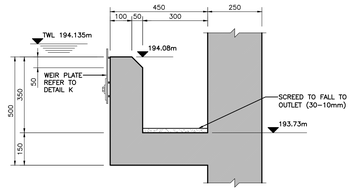
4 ALL PUDDLE PIPES TO BE TAPE WRAPPED TO SPECIFICATIONS.

5 ALL BOLTS AND NUTS TO BE HOT DIP GALVANISED UNLESS OTHERWISE INDICATED.

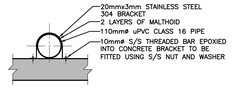
6 SETTING OUT AND FINAL POSITIONING OF ALL STEEL PIPEWORK INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY THE CONTRACTOR ON SITE, PRIOR TO FABRICATION AND INSTALLATION.



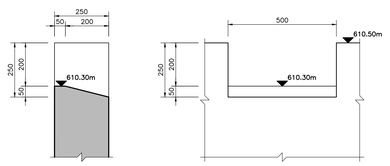
DETAIL B
COLLECTION CHANNEL OUTLET
SCALE 1:10



DETAIL C
COLLECTION CHANNEL
SCALE 1:10



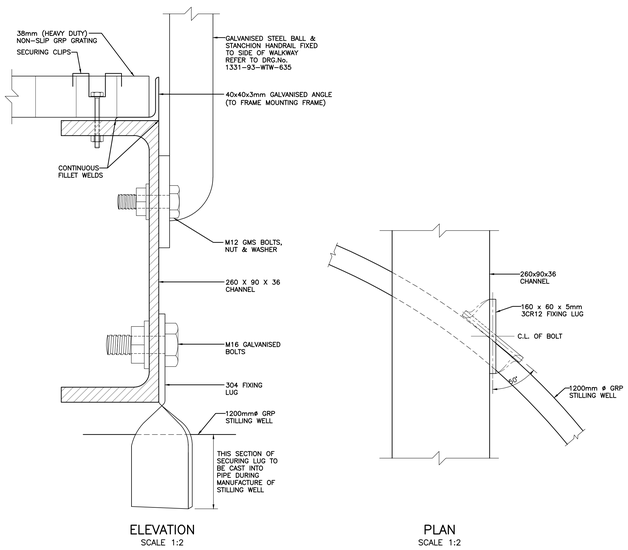
DETAIL F
DETAIL OF STAINLESS STEEL BRACKET
ON MAIN SLUDGE DRAW-OFF PIPE
SCALE 1:10



SECTION
SCALE 1:10

FRONT ELEVATION
SCALE 1:10

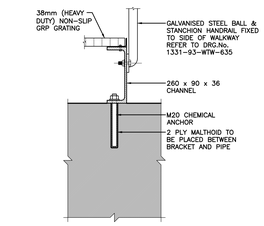
DETAIL G
EMERGENCY OVERFLOW WEIR



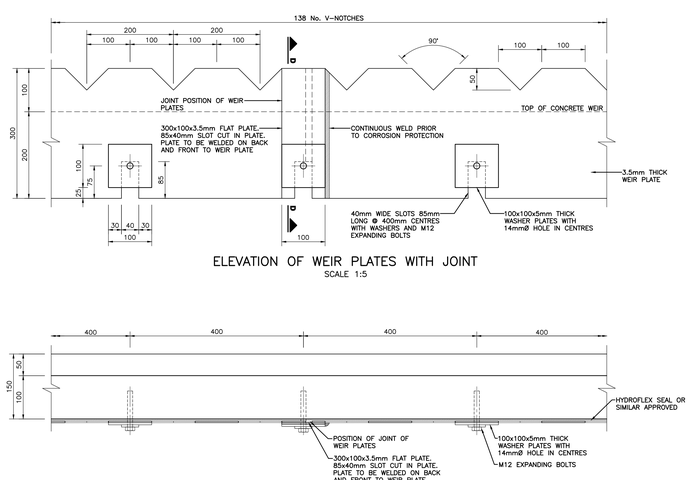
ELEVATION
SCALE 1:2

PLAN
SCALE 1:2

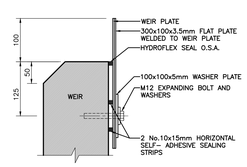
DETAIL J
DETAIL OF STILLING WELL SUPPORT FROM WALKWAY



DETAIL H
WALKWAY MOUNTING DETAIL
SCALE 1:10



ELEVATION OF WEIR PLATES WITH JOINT
SCALE 1:5

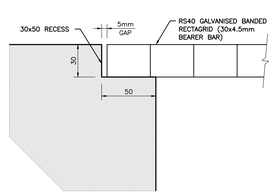


SECTION D-D
SCALE 1:5

NOTES
1. WEIR PLATE LENGTHS AS SPECIFIED.
1. VEE - NOTCH VALLEY SPACINGS AS SPECIFIED.
2. MATERIAL OF FABRICATION :
STAINLESS STEEL 304 PLATE
BOLTS NUTS AND WASHERS ST. STEEL 304
4. LAZER CUTTING OF V-NOTCH.
5. SEDIMENTATION TANK V-NOTCH WEIRS TO BE LEVELLED TO THE NEAREST 1mm.

PLAN OF WEIR PLATE JOINT
SCALE 1:5

DETAIL K
WEIR PLATE DETAILS



DETAIL K
GRATING DETAIL
SCALE 1:2

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
1	SM	INTERNAL REVIEW	29/11/2021
T1	ALR	TENDER DRAWING	09/06/2021

1331-093-WTW-618 CLARIFIERS, PLAN & SECTIONS

DRG. No. REFERENCE DRAWING

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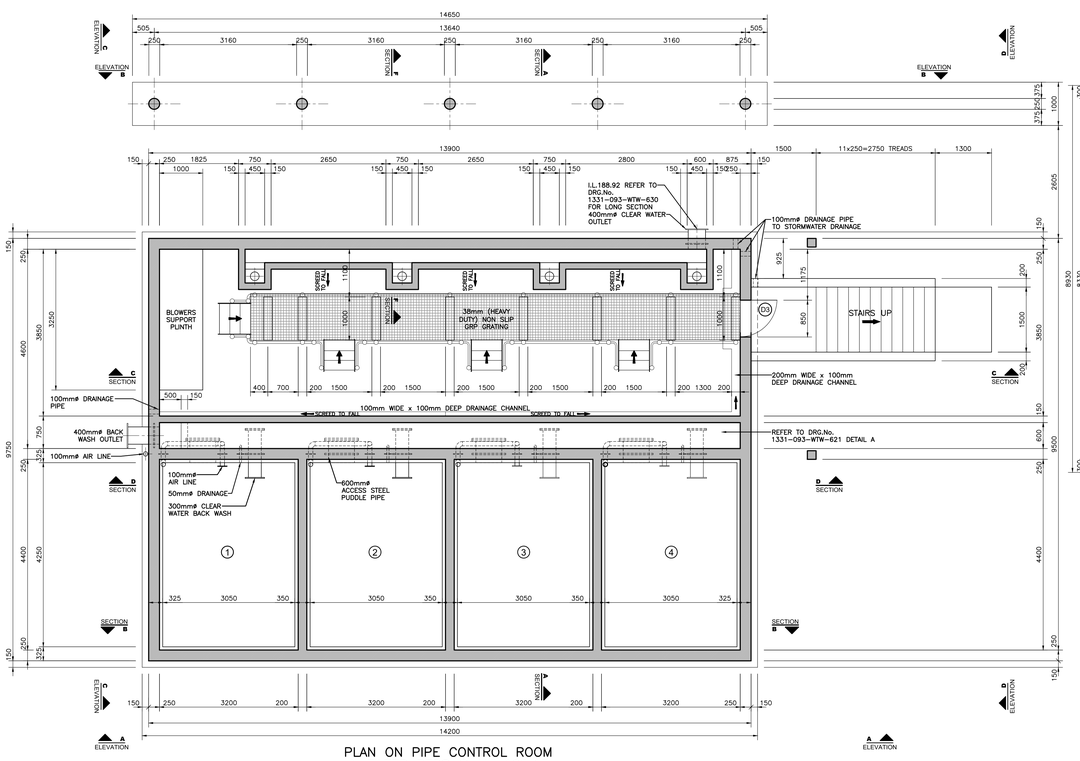
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFICATE

DRAWN	T.S./S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

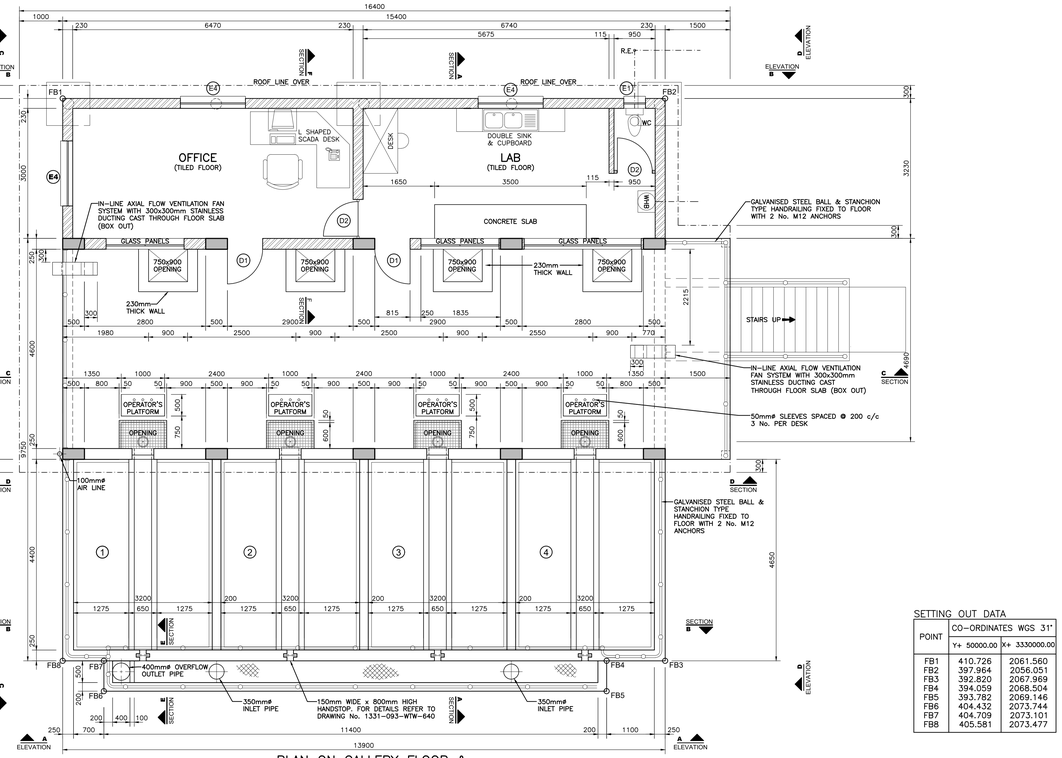
CLARIFIERS
DETAILS

SCALE	AS SHOWN	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-619	A0	REVISION A



PLAN ON PIPE CONTROL ROOM & FILTER BEDS @ LVL.190.15

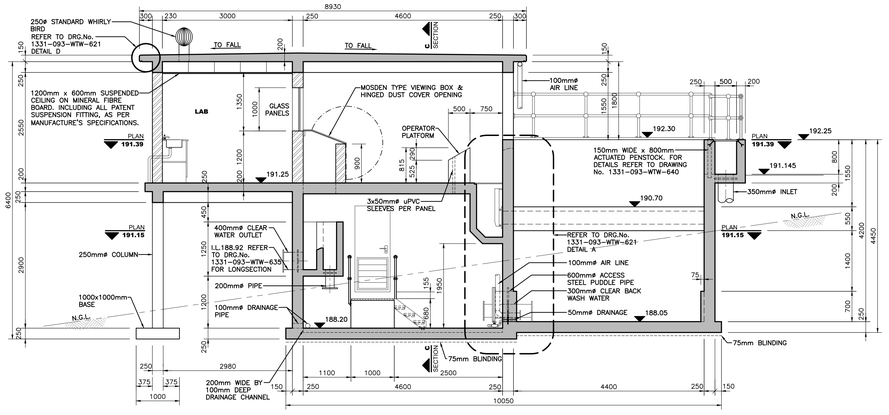
SCALE 1:50



PLAN ON GALLERY FLOOR & FILTER BEDS @ LVL.191.39

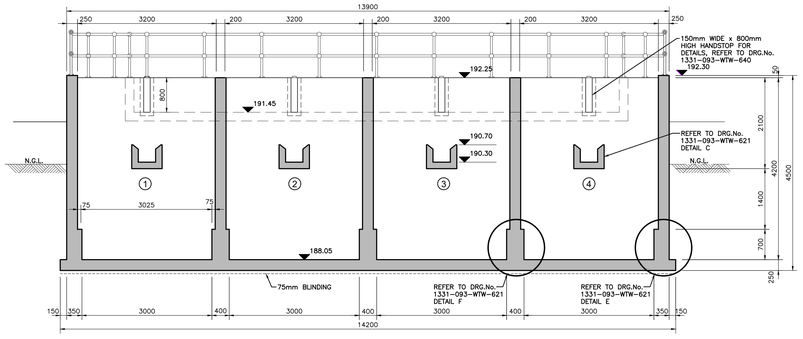
SCALE 1:50

SETTING OUT DATA			
POINT	CO-ORDINATES WGS 31°		
	Y+ 5000.00	X+ 3330000.00	
FB1	410.726	2061.560	
FB2	397.964	2056.051	
FB3	392.820	2067.969	
FB4	394.059	2068.504	
FB5	393.782	2069.146	
FB6	404.432	2073.744	
FB7	404.709	2073.101	
FB8	405.581	2073.477	



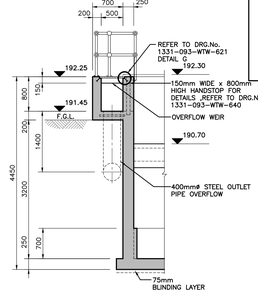
SECTION A–A

SCALE 1:50



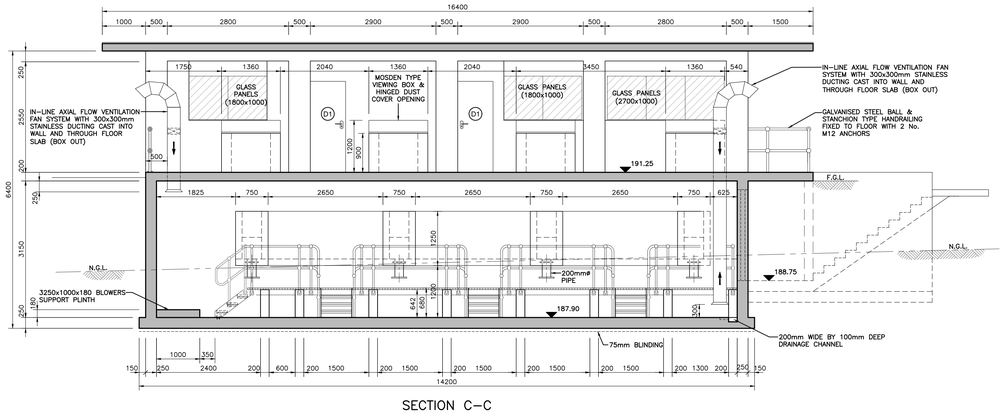
SECTION B–B

SCALE 1:50



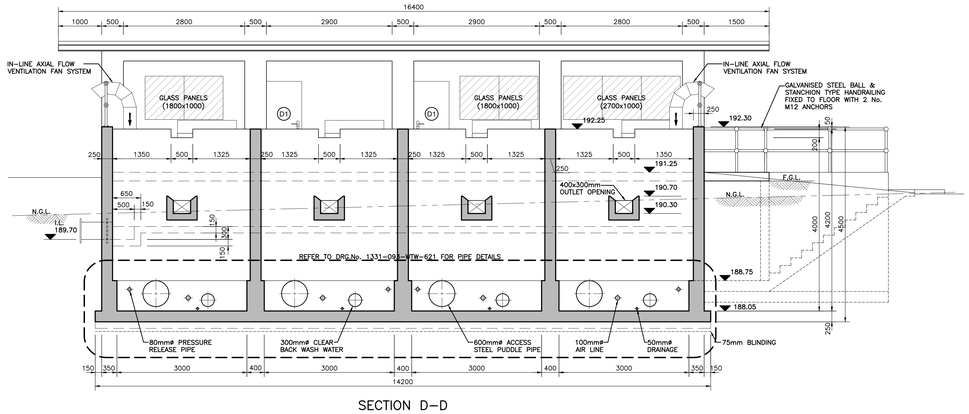
SECTION E–E

SCALE 1:50



SECTION C–C

SCALE 1:50



SECTION D–D

SCALE 1:50

NOTES

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GROUND IMPROVEMENT

THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED:
STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A DEPTH CORRESPONDING TO 2.0m BELOW FLOOR LEVEL.
STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
STAGE 3: FOLLOWING THE COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MODIFIED A.A.S.H.T.O.
STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

CONCRETE

1 CONCRETE TO BE STRUCTURAL CONCRETE – 30MPa/20mm.
2 75mm THICK BLINDING LAYER – 15MPa/20mm.
3 PRECAST LINTELS TO BE INSTALLED ABOVE ALL DOORS & WINDOWS.
4 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.
5 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm. CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
6 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS – EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB – SOFFIT	50mm
– TOP	40mm
COLUMNS	50mm

7 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB.
8 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
9 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

1 ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
2 ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
3 OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
4 BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
5 NBL 4 COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
6 DPC AT FLOOR AND WINDOW CILL LEVELS.
7 MORTAR CLASS
8 2 ENGLISH BOND BRICKWORK.

PLASTER

1 CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

WINDOWS

1 WINDOW CILL TO BE BRICK ON EDGE.
2 ALL WINDOWS TO HAVE BURGLAR PROOFING.

E1 533x654mm HOT DIPPED GALVANISED STEEL SMALL PAYNE (COTTAGE) TYPE WINDOWS TYPE E1 (1 No. REQUIRED)
E4 1511x654mm HOT DIPPED GALVANISED STEEL SMALL PAYNE (COTTAGE) TYPE TYPE E4 (3 No. REQUIRED)

DOORS

D1 EXTERNAL 813x2032mm MERANTI DOOR HUNG ON PARLIAMENT HINGES OF 100mm BRASS NARROW BUTTS. FIT KNOB/CYLINDER MORTICE, LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL. SECURITY GATE FITTED WITH LOCK INCLUDING WEATHER BOARD. (1 No. REQUIRED)
D2 INTERNAL 44x813x2032mm VENEER DOOR HUNG ON PARLIAMENT HINGES OF 100mm BRASS NARROW BUTTS. FIT KNOB/CYLINDER MORTICE, LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL. (3 No. REQUIRED)
D3 813x2032mm STEEL LOUVRED TROX DOOR TYPE DOOR COMPLETE WITH FRAME AND LOCK. SECURITY GATE FITTED WITH LOCK. (1 No. REQUIRED)

WATER PIPES

1 ALL WATER PIPES ABOVE GROUND LEVEL TO BE COPPER.
2 ALL WATER PIPES BELOW GROUND LEVEL TO BE POLYCOP OR HDPE.

PAINTING

1 PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES.
2 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
3 CLEAN WITH SPIRITS OF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING.
4 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS.
5 ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
6 PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
7 PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES.
8 PREPARE AND APPLY FLOOR PAINT TO GRANO AS PER MANUFACTURERS INSTRUCTIONS.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	10/08/2021

1331-093-EED-710	FILTER BEDS, LAB AND OFFICE, SMALL POWER & LIGHTING LAYOUT
1331-093-WTW-623	FILTER BEDS, PIPEWORK
1331-093-WTW-622	FILTER BEDS, ELEVATIONS
1331-093-WTW-621	FILTER BEDS, PLAN & SECTIONS
1331-093-WTW-602	LAYOUT PLAN
DRG. No.	REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

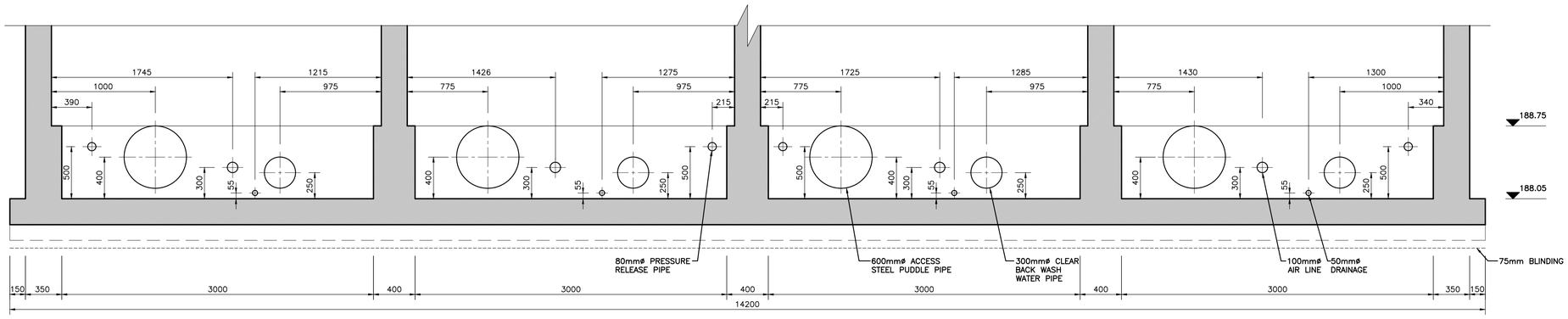
DRAWN	S.M.H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

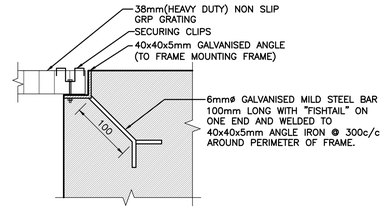
FILTER BEDS
PLAN & SECTIONS

FOR CONSTRUCTION

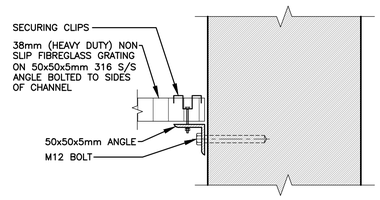
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DRAWING NUMBER	1331-093-WTW-620	A0	REVISION A



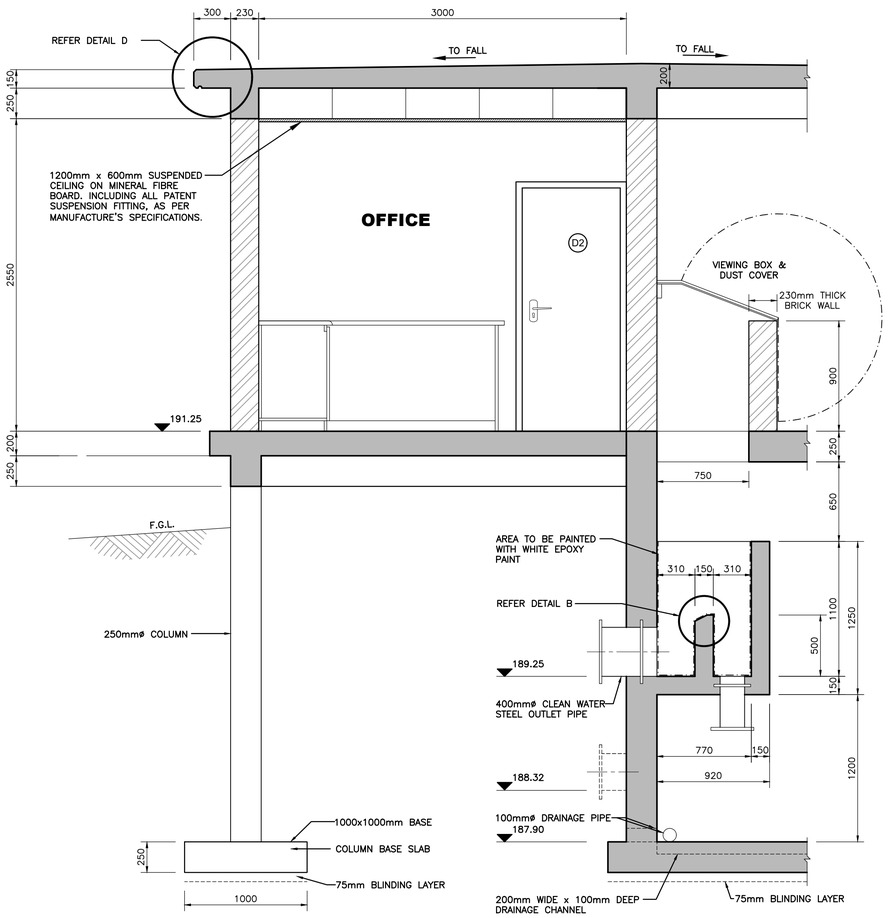
DETAIL OF PIPES SHOWN IN SECTION D–D
SCALE 1:25



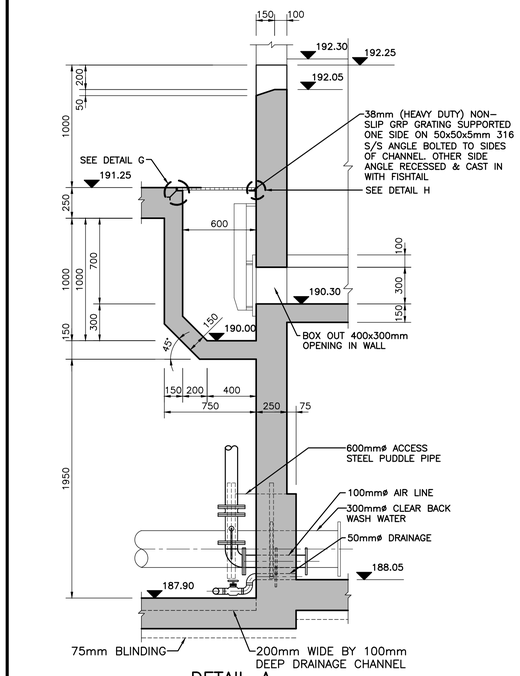
DETAIL G
MOUNTING FRAME DETAIL
SCALE 1:5



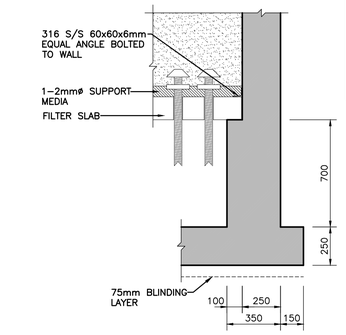
DETAIL H
MOUNTING FRAME DETAIL
SCALE 1:5



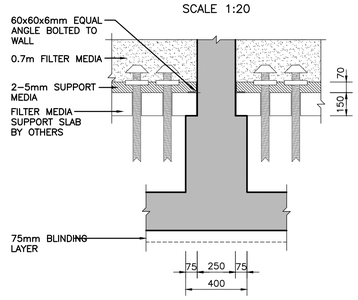
SECTION F–F
SCALE 1:25



DETAIL A
BACKWASH OUTLET CHANNEL
SCALE 1:25



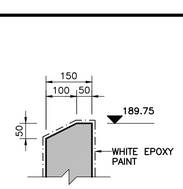
DETAIL E
SCALE 1:20



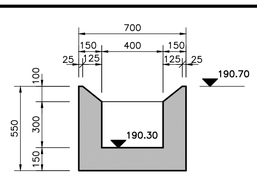
DETAIL F
SCALE 1:20

NOTE

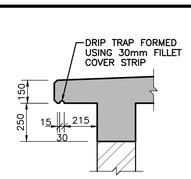
FILTER SLAB & NOZZLES TO BE DONE BY SPECIALIST FILTER MEDIA EQUIPMENT SUPPLIER



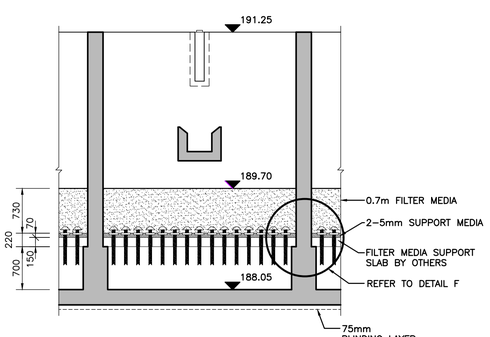
DETAIL B
SCALE 1:10



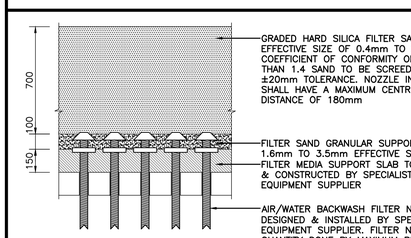
DETAIL C
FILTER BED CHANNEL
SCALE 1:20



DETAIL D
SCALE 1:20



FILTER MEDIA DETAILS
SCALE 1:50



FILTER NOZZLE DETAIL
SCALE 1:20

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	10/08/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-623	FILTER BEDS, PIPEWORK
1331-093-WTW-622	FILTER BEDS, ELEVATIONS
1331-093-WTW-620	FILTER BEDS, PLAN & SECTIONS
1331-093-WTW-602	LAYOUT PLAN

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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
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e-mail: mail@boschprojects.co.za
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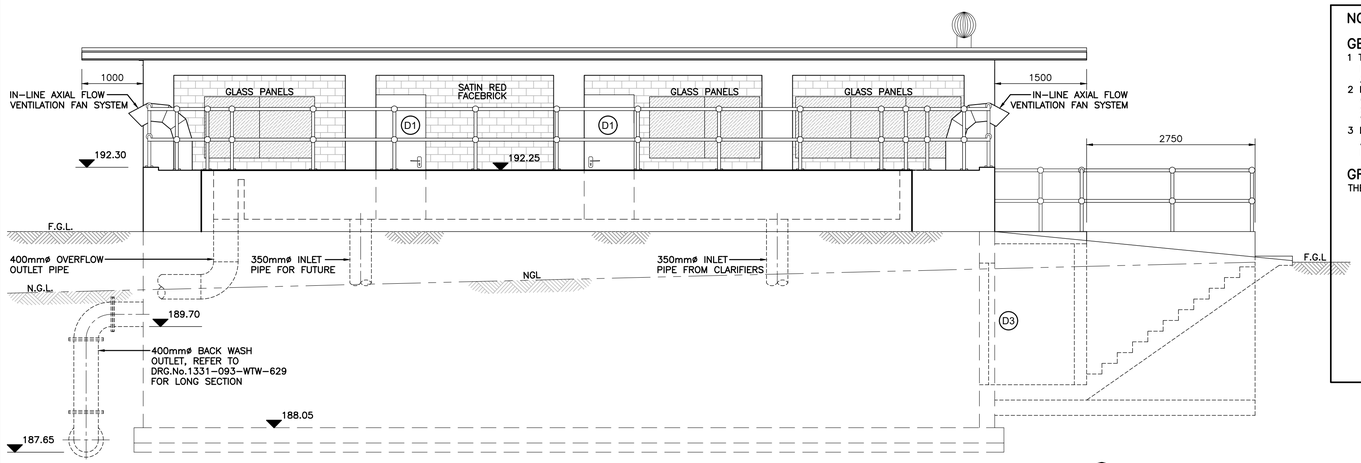
DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — N.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

FILTER BED
SECTION & DETAILS

SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-621	A1	REVISION T1



ELEVATION A–A
SCALE 1:50

NOTES

GENERAL
1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

GROUND IMPROVEMENT
THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED:
STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A DEPTH CORRESPONDING TO 2.0m BELOW FLOOR LEVEL.
STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
STAGE 3: FOLLOWING THE COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MODIFIED A.A.S.H.T.O.
STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

BRICKWORK
1 ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
2 ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
3 OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
4 BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
5 N.B! 4 COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
6 DPC AT FLOOR AND WINDOW CILL LEVELS.
7 MORTAR CLASS
8 2 ENGLISH BOND BRICKWORK.

PLASTER
1 CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

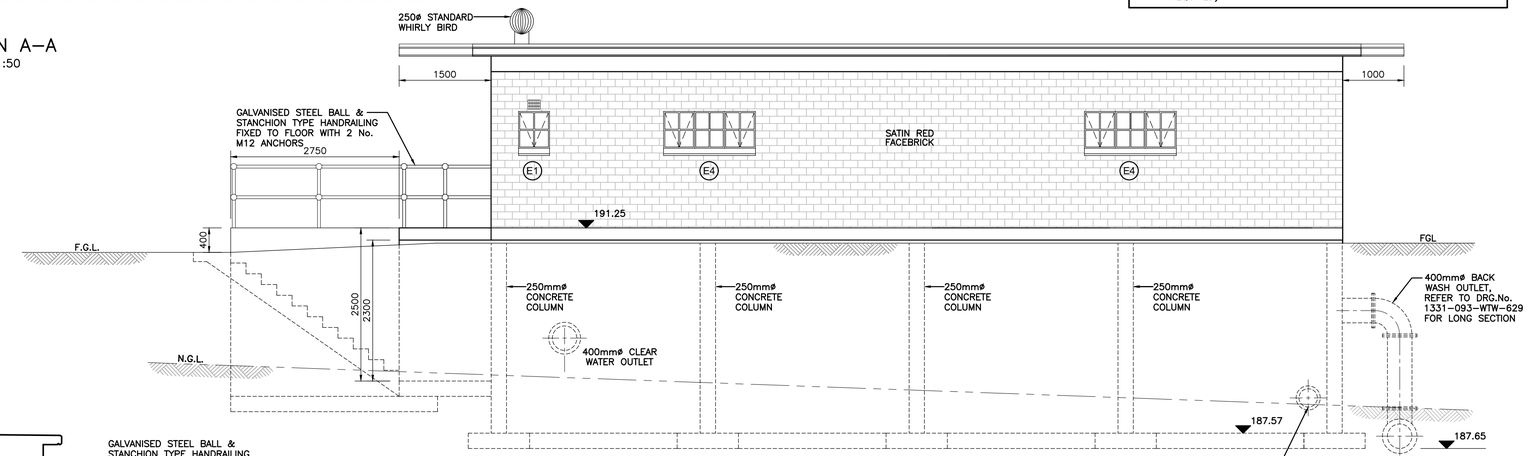
WINDOWS
1 WINDOW CILL TO BE BRICK ON EDGE.
2 ALL WINDOWS TO HAVE BURGLAR PROOFING.

E1 533x654mm HOT DIPPED GALVANISED STEEL SMALL PAYNE (COTTAGE) TYPE WINDOWS TYPE E1 (1 No. REQUIRED)
E4 1511x654mm HOT DIPPED GALVANISED STEEL SMALL PAYNE (COTTAGE) TYPE TYPE E4 (3 No. REQUIRED)

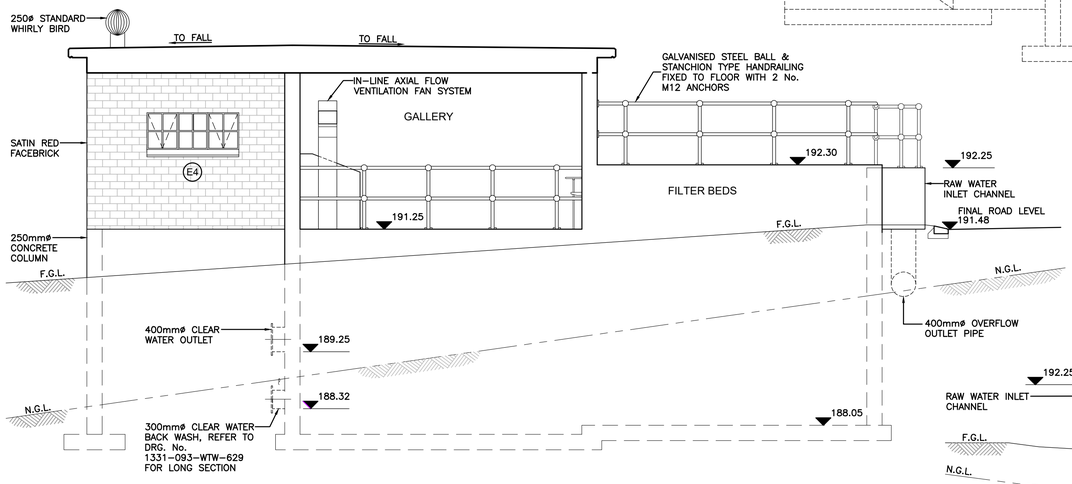
DOORS
D1 EXTERNAL 813x2032mm MERANTI DOOR HUNG ON PARLIAMENT HINGES OF 100mm BRASS NARROW BUTTS. FIT KNOB/CYLINDER MORTICE, LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL. SECURITY GATE FITTED WITH LOCK INCLUDING WEATHER BOARD. (1 No. REQUIRED)
D2 INTERNAL 44x813x2032mm VENEER DOOR HUNG ON PARLIAMENT HINGES OF 100mm BRASS NARROW BUTTS. FIT KNOB/CYLINDER MORTICE, LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL. (3 No. REQUIRED)
D3 813x2032mm STEEL LOUVRED TROX DOOR TYPE DOOR COMPLETE WITH FRAME AND LOCK. SECURITY GATE FITTED WITH LOCK. (1 No. REQUIRED)

WATER PIPES
1 ALL WATER PIPES ABOVE GROUND LEVEL TO BE COPPER.
2 ALL WATER PIPES BELOW GROUND LEVEL TO BE POLYCOP OR HDPE.

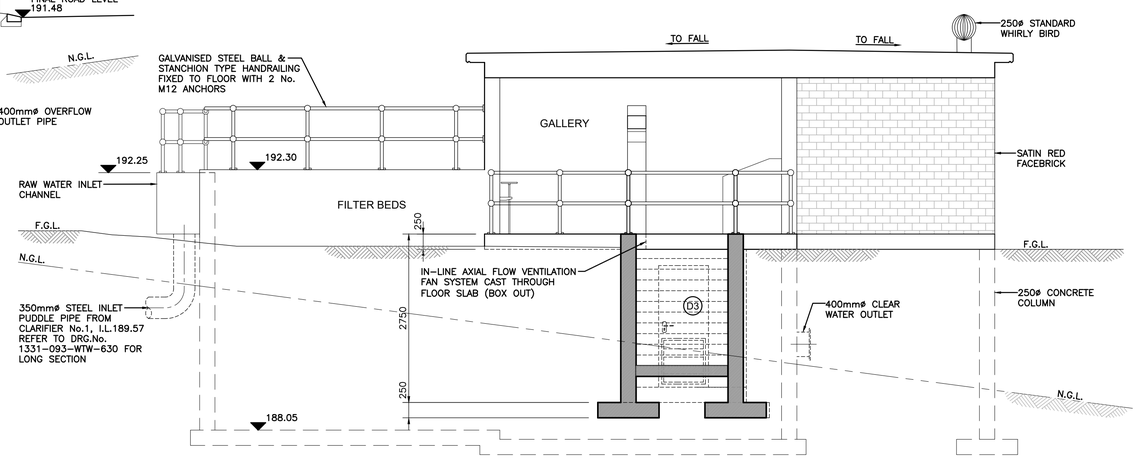
PAINTING
1 PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES.
2 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
3 CLEAN WITH SPIRITS OF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING.
4 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS.
5 ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
6 PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
7 PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES.
8 PREPARE AND APPLY FLOOR PAINT TO GRANO AS PER MANUFACTURERS INSTRUCTIONS.



ELEVATION B–B
SCALE 1:50



ELEVATION C–C
SCALE 1:50



ELEVATION D–D
SCALE 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	10/08/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-623	FILTER BEDS, PIPEWORK
1331-093-WTW-621	FILTER BEDS, SECTIONS & DETAILS
1331-093-WTW-620	FILTER BEDS, PLAN & SECTIONS
1331-093-WTW-602	LAYOUT PLAN

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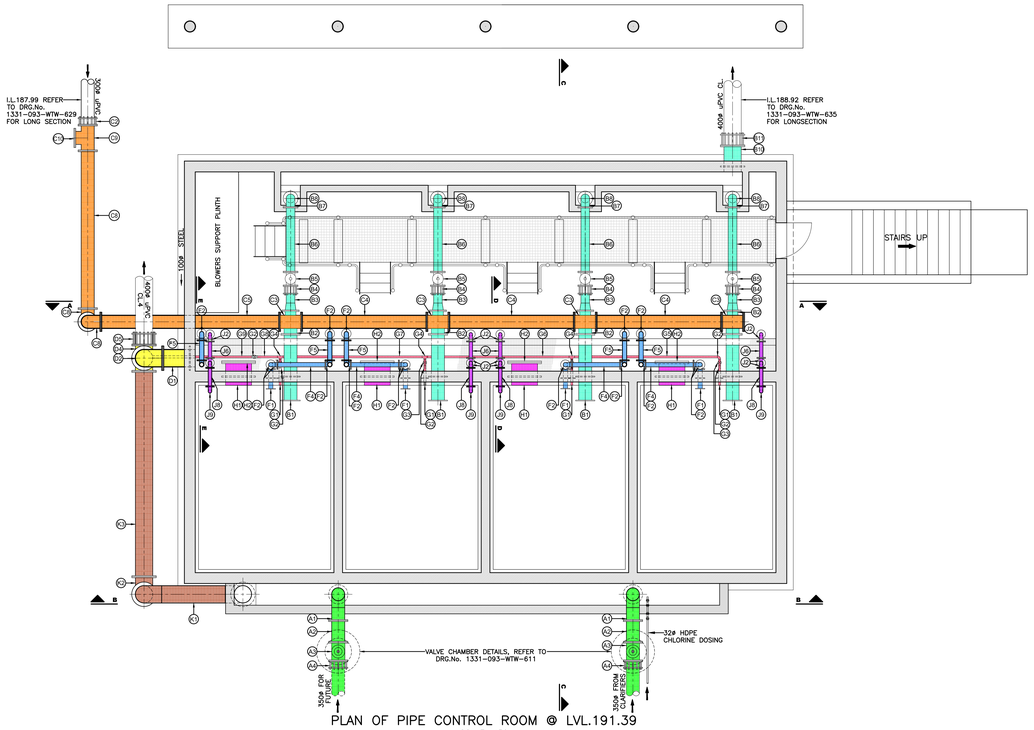
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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
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DURBAN
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TEL: +27 (0)31 535 6000
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ISO 9001:2015 CERTIFIED

DRAWN	F.M./S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

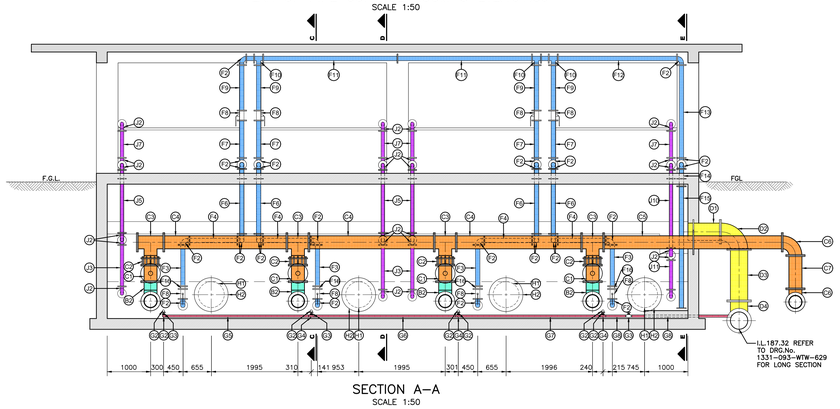
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

FILTER BED ELEVATIONS

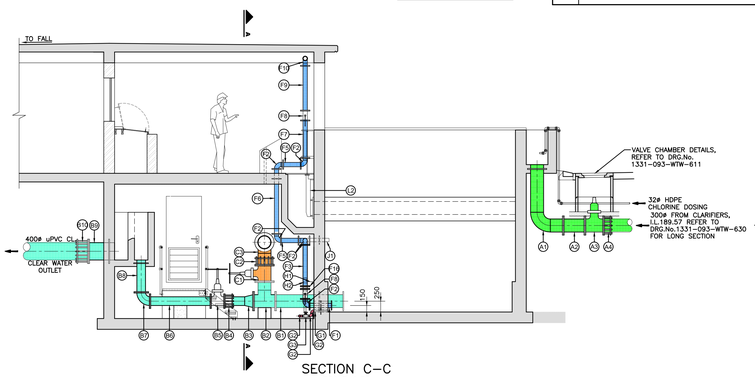
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DRAWING NUMBER	1331-093-WTW-622 A1	REVISION	A



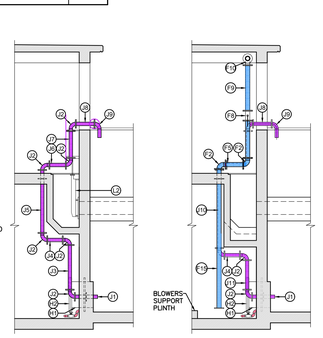
PLAN OF PIPE CONTROL ROOM @ LVL.191.39
SCALE 1:50



SECTION A–A
SCALE 1:50

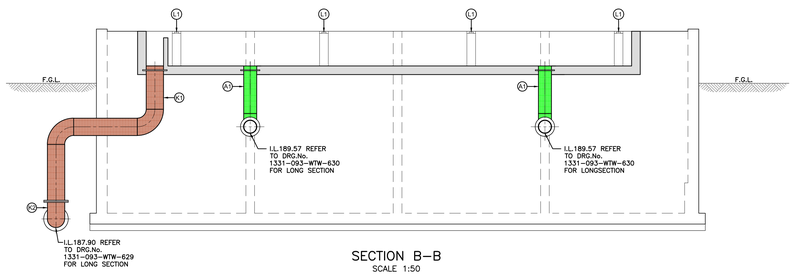


SECTION C–C
SCALE 1:50

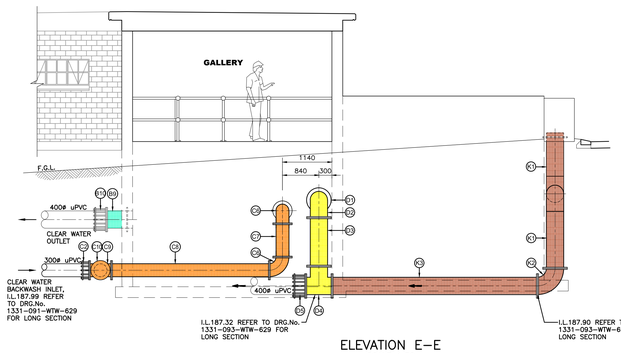


SECTION D–D
SCALE 1:50

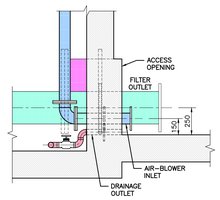
SECTION E–E
SCALE 1:50



SECTION B–B
SCALE 1:50



ELEVATION E–E
SCALE 1:50



SECTION OF PIPES THROUGH WALL
SCALE 1:20

FILTER INLET PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
A1	350mm# STEEL PUDDLE PIPE 1100mm LONG, PUDDLE FLANGE LOCATED 100mm FROM PLAIN END. WELDED TO 350mm# 90° STEEL SHORT RADIUS BEND WITH 300mm LONG SPOOL PIECE WELDED TO OTHER END OF BEND. F.O.E.	2
A2	350mm# STEEL PIPE 500mm LONG, F.B.E.	2
A3	350mm# RSV GATE VALVE CL.10 CAP TOP OPERATION	2
A4	350mm# FLANGED "MAXIFIT" V.J. COUPLING O.S.A.	2

FILTER OUTLET PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
B1	300mm# STEEL PUDDLE PIPE, 1150mm LONG, F.B.E. PUDDLE FLANGE LOCATED 565mm FROM ONE END	4
B2	300mm# EQUAL STEEL TEE WITH 100mm LONG PIECE WELDED TO BRANCH END, F.A.E.	4
B3	300mm×200mm# STEEL REDUCER, WITH 200mm# STEEL PIPE, ±400mm LONG, F.O.E. WELDED TO 200mm# END	4
B4	200mm# FLANGED VJ COUPLING OR SIMILAR APPROVED	4
B5	200mm# FLANGED RSV ACTUATED GATE VALVE CLOCKWISE CLOSING, CLASS 10	4
B6	200mm# STEEL PIPE, 1400mm LONG, F.B.E.	4
B7	200mm# 90° STEEL SHORT RADIUS BEND, F.B.E.	4
B8	200mm# STEEL PUDDLE PIPE, 745mm LONG, F.O.E. PUDDLE FLANGE LOCATED 75mm FROM PLAIN END	4
B9	400mm# STEEL PUDDLE PIPE, 600mm LONG, F.O.E. PUDDLE FLANGE LOCATED 125mm FROM PLAIN END	1
B10	400mm# FLANGED VJ COUPLING OR SIMILAR APPROVED	1

FILTER BACKWASH PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
C1	300mm# FLANGED RSV ACTUATED GATE VALVE CLOCKWISE CLOSING, CLASS 10	4
C2	300mm# FLANGED VJ COUPLING OR SIMILAR APPROVED	5
C3	300mm# EQUAL STEEL TEE FLANGED WITH 1" B.S.P. TAPING POINT, WITH 300mm# STEEL PIPE, 255mm LONG, WELDED TO BRANCH END, P.E. MAIN ENDS FLANGED	4
C4	300mm# STEEL PIPE, 2890mm LONG, F.B.E.	3
C5	300mm# STEEL PIPE, 4120mm LONG, F.B.E.	1
C6	300mm# 90° STEEL SHORT RADIUS BEND, F.B.E.	4
C7	300mm# STEEL PIPE, 765mm LONG, F.B.E.	1
C8	300mm# STEEL PIPE, 3640mm LONG, F.O.E.	1
C9	300mm# EQUAL STEEL TEE, F.A.E.	1
C10	300mm# BLANK FLANGE	2

F.A.E. – FLANGED ALL ENDS
F.B.E. – FLANGED BOTH ENDS
F.O.E. – FLANGED ONE END
P.E. – PLAIN END

SCOUR PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
D1	400mm# STEEL PUDDLE PIPE, 750mm LONG, F.O.E. PUDDLE FLANGE LOCATED 125mm FROM PLAIN END	1
D2	400mm# 90° STEEL SHORT RADIUS BEND, F.B.E.	1
D3	400mm# STEEL PIPE, 1190mm LONG, F.B.E. WITH 50# STEEL PIPE THREADED (BSP MALE) WELDED ONTO OPENING 175mm FROM FLANGE ON ONE END.	1
D4	400mm# EQUAL STEEL TEE WITH 400mm# STEEL PIPE, 150mm WELDED TO BRANCH END, F.A.E.	1
D5	400mm# FLANGED VJ COUPLING "MAXIFIT" O.S.A.	1

AIR–BLOWER GALVANISED PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
F1	100mm# STEEL PUDDLE PIPE, 515mm LONG, WITH PUDDLE FLANGE LOCATED 245mm FROM THE FILTER BED END, F.B.E.	4
F2	100mm# 90° STEEL SHORT RADIUS BEND WELDED TO 100mm# STEEL PIPE 50mm LONG, F.B.E.	28
F3	100mm# STEEL PIPE 955mm LONG, F.B.E.	4
F4	100mm# STEEL PIPE 1105mm LONG, F.B.E.	4
F5	100mm# STEEL PIPE 405mm LONG, F.B.E.	8
F6	100mm# STEEL PUDDLE PIPE, 1460mm LONG, WITH PUDDLE FLANGE LOCATED 225mm FROM END, F.O.E	4
F7	100mm# STEEL PIPE 865mm LONG, F.O.E.	4
F8	100mm# FLANGED STEEL BALL VALVE, CLASS 10 FITTED WITH ELECTRICAL ACTUATOR	8
F9	100mm# STEEL PIPE 1125mm LONG, F.B.E.	4
F10	100mm# STEEL EQUAL TEE WELDED TO BRANCH END 100mm# STEEL PIPE 50mm LONG, F.A.E.	3
F11	100mm# STEEL PIPE 3100mm LONG, F.B.E.	2
F12	100mm# STEEL PIPE 2750mm LONG, F.B.E	1
F13	100mm# STEEL PIPE 2145mm LONG, F.B.E.	1
F14	100mm# STEEL PUDDLE PIPE, 400mm LONG, WITH PUDDLE FLANGE LOCATED 225mm FROM FLOOR END OF PIPE, F.B.E.	1
F15	100mm# STEEL PIPE 2820mm LONG, F.B.E.	1
F16	100mm# FLANGED NON-RETURN VALVE, CLASS 10	4

DRAINAGE GALVANISED PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
G1	50mm# STEEL PIPE, 330mm LONG, MALE THREADED ONE END, WITH PUDDLE FLANGE CENTRALLY LOCATED	4
G2	50mm# 90° STEEL PIPE MALE TO FEMALE ELBOW, THREADED	9
G3	50mm# S/S BALL–O–STOP CLASS 10, FEMALE THREADED	5
G4	50mm# EQUAL STEEL TEE, THREADED	3
G5	50mm# STEEL PIPE, 3295mm LONG, THREADED	1
G6	50mm# STEEL PIPE, 3265mm LONG, THREADED	1
G7	50mm# STEEL PIPE, 3215mm LONG, THREADED	1
G8	50mm# STEEL PIPE, 640mm LONG, THREADED	1
G9	50mm# STEEL PIPE, ±2220mm LONG, THREADED	1

ACCESS PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
H1	600mm# STEEL PUDDLE PIPE, 530mm LONG, F.O.E. PUDDLE FLANGE LOCATED 200mm FROM PLAIN END.	4
H2	600mm# STEEL BLANK FLANGE	4

PRESSURE RELEASE PIPEWORK ITEMS

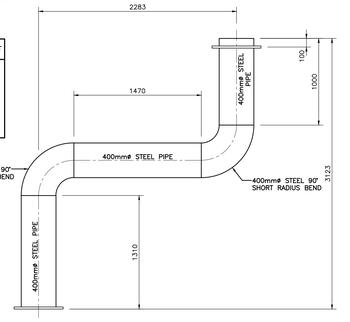
ITEM	DESCRIPTION	No. OFF
J1	80mm# STEEL PUDDLE PIPE, 525mm LONG, F.O.E. WITH PUDDLE FLANGE LOCATED CENTRALLY	4
J2	80mm# 90° STEEL SHORT RADIUS BEND WELDED TO 80mm# STEEL PIPE, 50mm LONG, F.B.E.	24
J3	80mm# STEEL PIPE, 1030mm LONG, F.B.E.	3
J4	80mm# STEEL PIPE, 360mm LONG, F.B.E.	4
J5	80mm# STEEL PUDDLE PIPE, 1455mm LONG, F.B.E. WITH PUDDLE FLANGE LOCATED 200mm FROM ONE END	3
J6	80mm# STEEL PIPE, 380mm LONG, F.B.E.	4
J7	80mm# STEEL PIPE, 620mm LONG, F.B.E.	4
J8	80mm# STEEL PIPE, 430mm LONG, F.B.E.	4
J9	80mm# 90° STEEL SHORT RADIUS BEND WELDED TO 80mm# STEEL PIPE, 200mm LONG, F.O.E.	4
J10	80mm# STEEL PUDDLE PIPE, 1805mm LONG, F.B.E. WITH PUDDLE FLANGE LOCATED 200mm FROM ONE END	1
J11	80mm# STEEL PIPE, 680mm LONG, F.B.E.	1

INLET OVERFLOW PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
K1	REFER TO ITEM K1 DETAIL FOR INFORMATION – 400mm# STEEL PUDDLE PIPE x 1 400mm# STEEL PIPE x 2 400mm# STEEL 90° SHORT RADIUS BEND x 2	1
K2	400mm# STEEL 90° SHORT RADIUS BEND F.B.E.	1
K3	400mm# STEEL PIPE 4740mm LONG F.B.E.	1

HANDSTOPS AND SLUICE VALVE

ITEM	DESCRIPTION	No. OFF
L1	SUPPLY AND INSTALL ELECTRICALLY ACTUATED 316 STAINLESS STEEL WALL MOUNTED GERED SLUICE GATE AND FRAME. 150mm WIDE x 800mm HIGH TO INLET CHANNEL, REFER TO DRG.No. 1331-093-WTW-640 OR SIMILAR APPROVED	4
L2	SUPPLY AND INSTALL ELECTRICALLY ACTUATED 316 STAINLESS STEEL WALL MOUNTED SLUICE GATE AND FRAME 300x400mm (GERED) OR SIMILAR APPROVED. REFER TO DRG.No. 1331-093-WTW-640	4



ITEM K1 DETAILS
SCALE 1:25

STEEL PIPEWORK:

1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).

2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH"PLASCOAT PPA571 AQUA" OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.5m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3 ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH "DENSO ULTRAFLEX" WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF "SIKA SWELL S", (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL PRIOR TO CASTING CONCRETE.

9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	03/09/2021

DRG. No.	REFERENCE DRAWING
1331-093-EED-716	FILTER BEDS, LAB AND OFFICE, SMALL POWER & LIGHTING LAYOUT
1331-093-WTW-622	FILTER BEDS, ELEVATIONS
1331-093-WTW-621	FILTER BEDS, PLAN & SECTIONS
1331-093-WTW-620	FILTER BEDS, PLAN & SECTIONS
1331-093-WTW-602	LAYOUT PLAN

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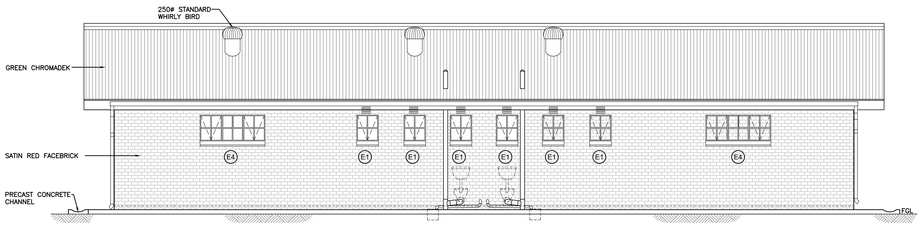
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (031 535 6000
FAX: +27 (031 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFICATE

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

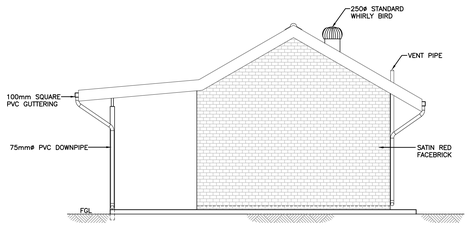
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

FILTER BEDS
PIPEWORK DETAILS

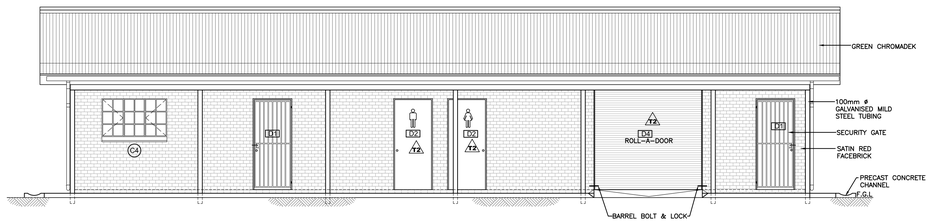
SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-623	A0	REVISION A



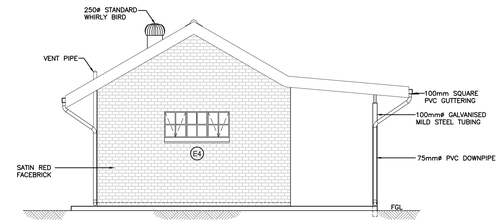
SOUTH ELEVATION
SCALE 1:50



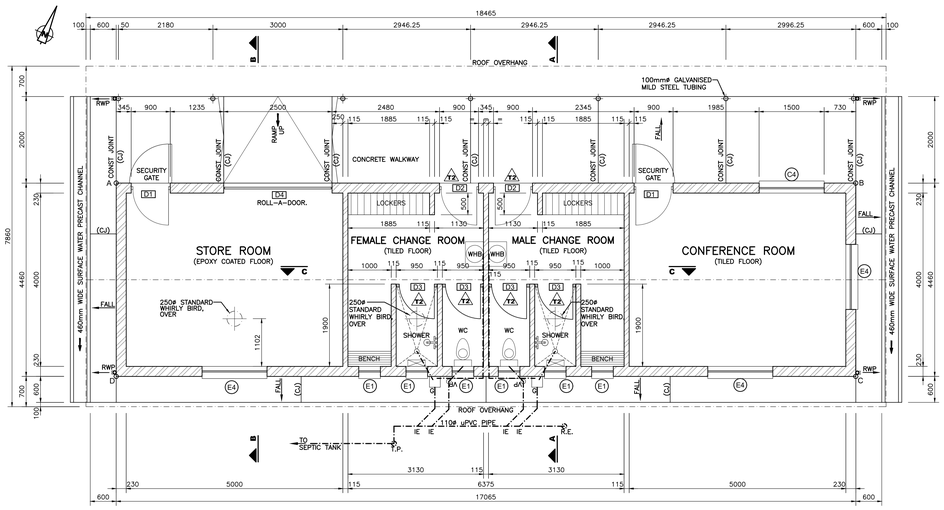
WEST ELEVATION
SCALE 1:50



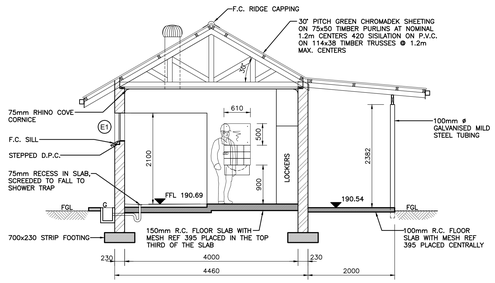
NORTH ELEVATION
SCALE 1:50



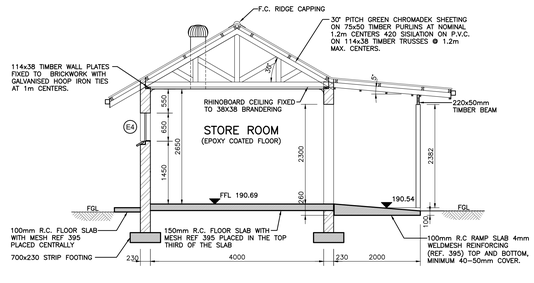
EAST ELEVATION
SCALE 1:50



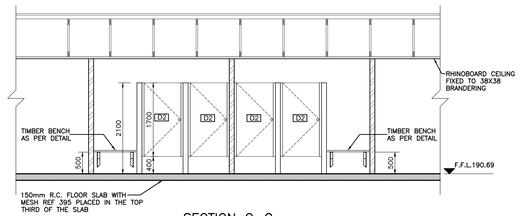
FLOOR PLAN
SCALE 1:50



SECTION A–A
SCALE 1:50



SECTION B–B
SCALE 1:50



SECTION C–C
SCALE 1:50

NOTES

GENERAL
1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
2 IN GENERAL, ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

FOUNDATION
1 700 x 230 DEEP CONCRETE FOOTING, WITH Y10 REBAR AT 300 CENTRES BOTH WAYS, IN 600 DEEP TRENCH U.O.N.

CONCRETE
1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.
2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
3 MINIMUM COVER TO REINFORCING:
FLOOR/BASE SLAB 50mm TOP & BOTTOM
WALLS – EARTH FACE 40mm
WATER FACE 50mm
ROOF SLAB – SOFFIT 50mm
– TOP 40mm
COLUMNS 50mm
4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB.
5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK
1 ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
2 ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
3 OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
4 BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
5 NB! 4 COARSES BRICKFORCE ABOVE WINDOWS AND DOORS.
6 DPC AT FLOOR AND WINDOW CILL LEVELS.
7 MORTAR CLASS 2 ENGLISH BOND BRICKWORK.

FLOOR & PERIMETER APRON
1 100 THICK CONCRETE FLOOR SLAB WITH BRC MESH ON 250 MICRON PVC UNDERLAY ON WELL RAMMED AND POISONED SOIL.

PLASTER
1 CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

ROOF
1 ROOF SHEETING ON 250 MICRON UNDERLAY ON TIMBER BATTENS & TRUSSES TO SPECIALISTS DETAL.
2 30° PITCH "GREEN CHROMADEK" SHEETING ON 76x50mm TIMBER PURLINS AT NOM. 1.2m CENTRES ON 420 SISALATION ON PVC. ON 114x38mm TIMBER TRUSSES @ 1.2m MAX. CENTRES. ON 114x38mm WALL PLATE.
3 WALKWAY ROOF @ 5° "GREEN CHROMADEK" SHEETING ON 76x50mm TIMBER PURLINS AT NOM. 1.2m CENTRES ON 420 SISALATION ON PVC. ON 114x38mm RAFTERS @ 1.2m MAX. CENTRES.
4 FIBRE CEMENT FASCIAS PAINTED ACRYLIC PVA WHITE.
5 125mm PVC H.R. GUTTER AND 75° RWDP FIXED ACCORDING TO MANUFACTURES SPECIFICATION. RWDP TO HAVE SHOE FOR SURFACE DISCHARGE.

CEILING
1 6.4mm THICK RHINO BOARD CEILING WITH COVER STRIPS AND CORNICE PAINTED ACRYLIC PVA WHITE. CEILING NAILED TO 38x38 TIMBER BATTENS. TRAP DOOR TO BE PROVIDED.

WINDOWS
1 WINDOW CILL TO BE BRICK ON EDGE.
E1 533 x 654mm SMALL PANE (COTTAGE) WINDOWS, HOT DIPPED GALVANISED STEEL, TO HAVE BURGLAR PROOFING (6 No. REQUIRED)
E4 1511 x 654mm SMALL PANE (COTTAGE) WINDOWS, HOT DIPPED GALVANISED STEEL, TO HAVE BURGLAR PROOFING (3 No. REQUIRED)
C4 1511 x 949mm SMALL PANE (COTTAGE) WINDOWS, HOT DIPPED GALVANISED STEEL, TO HAVE BURGLAR PROOFING (1 No. REQUIRED)

DOORS
1 50x76 REBATED FRAME.
2 ALL IN MERANTI DOORS HUNG ON PR. OF 100mm BRASS NARROW BUTTS AND FIT KNOB/CYLINDER MORTICE LATCH/LOCK & LOCK FURNITURE TO CLIENTS APPROVAL.
D1 813x2032mm FRAMED AND BATTEN DOOR WITH SECURITY GATE FITTED WITH LOCK INCLUDING WEATHER BOARD (2 No.REQUIRED)
D2 813x2032mm FRAMED AND BATTEN DOOR (2 No. REQUIRED)
D3 813x1700mm FRAMED AND BATTEN DOOR, 400mm AFFL, TO BE FITTED WITH DOOR LOCK & SMALL BRASS HANDLE (HAND OPERATED) (4 No. REQUIRED)
D4 ROLLER SHUTTER DOOR WITH 2 OFF BARREL BOLTS & LOCKS (1 No. REQUIRED)

WATER PIPES
1 ALL WATER PIPES ABOVE GROUND LEVEL TO BE COPPER.
2 ALL WATER PIPES BELOW GROUND LEVEL TO BE POLYCOP OR HDPE.
3 ALL PLUMBING TO INCLUDE PIPEWORK & DRAINAGE TO T.P. (TERMINAL POINT).

TILING
1 SKIRTING : 75mm HIGH COVE GRANO.
2 150x150mm WHITE GLAZED WALL TILES & FLOOR IN CHANGE ROOM
3 CHANGE ROOM SPLASH BACK TO SINK UNIT TO FOUR TILES WIDE BY THREE TILES HIGH.
4 TILING TO ALL WALLS IN SHOWER TO TOP OF WALL.
5 150x150mm WHITE FLOOR IN CHANGE ROOM.
6 500x500mm TILE FLOOR IN CONFERENCE ROOM.

SANITARY FITTINGS
1 WC : "MAGNIA" BY ARMITAGE SHANKS OR APPROVED EQUAL.
2 WHB : "KELSO" RANGE BY ARMITAGE SHANKS OR APPROVED EQUAL WITH 450 HIGH JOHNSON WHITE TILE SPLASH PANEL.
3 TAPS : STOPCOCK AND BIBTAP.
NB! STOPCOCK TO SHUT OFF SUPPLY TO BOTH CISTERN AND WHB. WATER PIPE ABOVE GROUND SHALL BE 15mmø COPPER PIPING AND FITTINGS.
4 TOILET ROLL HOLDER
5 C.P. TOWEL RAIL
6 WALL MIRROR ABOVE WASH HAND BASIN
7 6 x C.P. COAT HOOKS

PAINTING
1 PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES.
2 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
3 CLEAN WITH SPIRITS OF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING.
4 PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS.
5 ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
6 PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
7 PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES.

NOTES

GROUND IMPROVEMENT
THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED:
STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A DEPTH CORRESPONDING TO 2.0m BELOW FLOOR LEVEL.
STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
STAGE 3: FOLLOWING THE COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MODIFIED A.A.S.H.T.O.
STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MODIFIED A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

SETTING OUT DATA

POINT	CO-ORDINATES WGS 31°	
	Y+ 50000.00	X+3332000.00
A	437.150	101.166
B	421.482	094.403
C	419.715	098.498
D	435.383	105.261

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T2	S.M	AMENDED REFRENCE FOR DOORS	10/11/2021
T1	ALR	TENDER DRAWING	26/07/2021

1331-093-EED-713 SERVICE BUILDING, SMALL POWER AND LIGHTING LAYOUT
1331-093-WTW-602 LAYOUT PLAN
DRG. No. REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
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SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
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e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2008 CERTIFIED

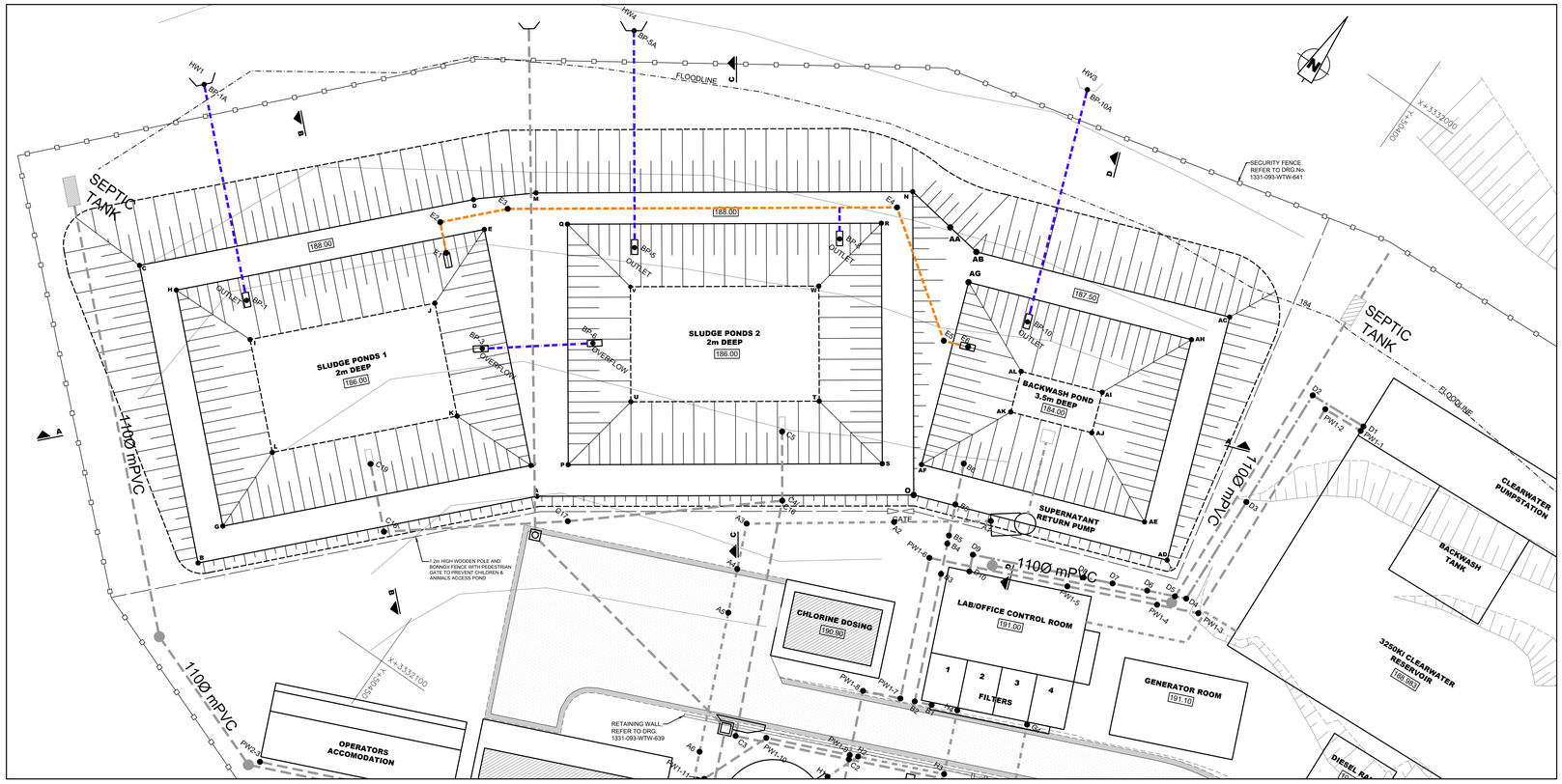
DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M. VAWDA DIVISIONAL MANAGER	

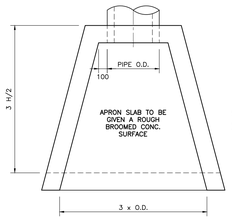
FOR CONSTRUCTION

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

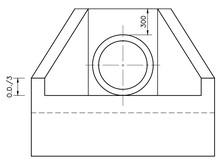
SERVICES BUILDING

SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-624	A0	REVISION A

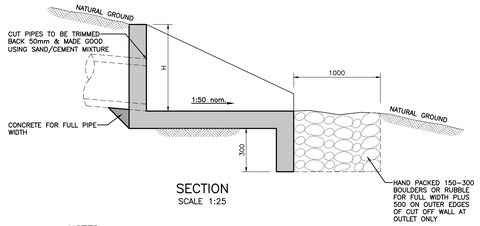

SEPTIC TANK
SLUDGE PONDS 1
2m DEEP
186.00
SLUDGE PONDS 2
2m DEEP
186.00
BACKWASH POND
3.0m DEEP
184.00
SUPERNATANT RETURN PUMP
CHLORINE DOSING
190.90
LAB/OFFICE CONTROL ROOM
191.00
FILTERS
1
2
3
4
GENERATOR ROOM
191.10
CLEARWATER PUMPSTATION
BACKWASH TANK
3250KL CLEARWATER RESERVOIR
188.95
OPERATORS ACCOMODATION
SEPTIC TANK
SECURITY FENCE REFER TO DRG No. 1331-093-WTW-641
FLOODLINE
1100 mPVC
1100 mPVC
1100 mPVC



PLAN
SCALE 1:25



FRONT ELEVATION
SCALE 1:25

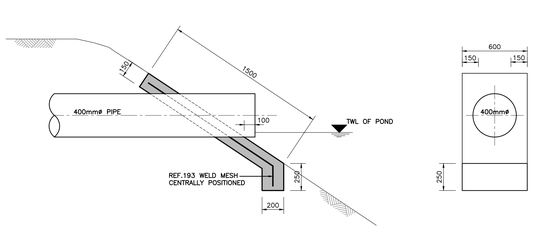


SECTION
SCALE 1:25

NOTES

1 ALL WALLS, APRON SLAB AND CUT OF WALLS TO BE 200mm THICK 25MPa CONCRETE.
2 ALL WALLS TO HAVE RUBBED FINISH.
3 ALL EXPOSED CORNERS TO HAVE 20mm 45° FILLETS.
4 ALL CONCRETE TO BE CENTRALLY REINFORCED WITH 12mm M.S BARS @ 250mm CENTRES.
5 MINIMUM LAP LENGTH TO STARTER BARS TO BE 500mm.
6 CUT OFF WALLS REQUIRED FOR BOTH INLET AND OUTLET STRUCTURES.
7 FOR PIPE SIZES 900mm AND LESS, CONCRETE WALLS ABOVE APRON SLAB MAY BE SUBSTITUTED WITH 230 COMMON BRICK WALL.

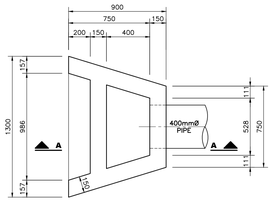
HEADWALL DETAILS



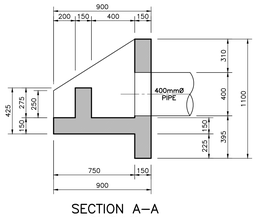
TYPICAL SECTION
SCALE 1:20

TYPICAL ELEVATION
SCALE 1:20

SLUDGE POND INLET HEADWALL

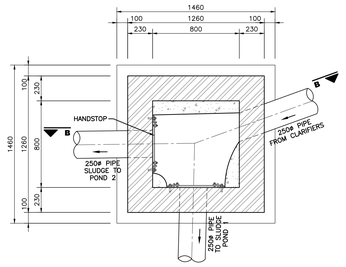


HEADWALL DETAILS
SCALE 1:20

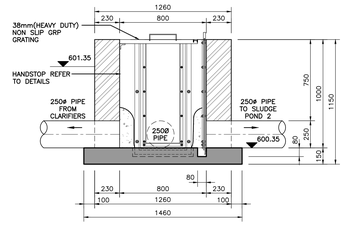


SECTION A–A
SCALE 1:20

SLUDGE POND OUTLET STRUCTURE

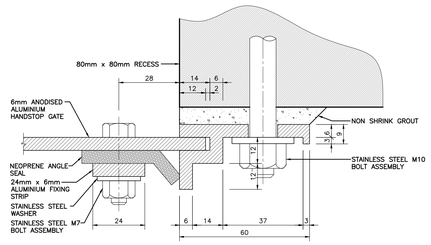


PLAN SECTION
SCALE 1:20

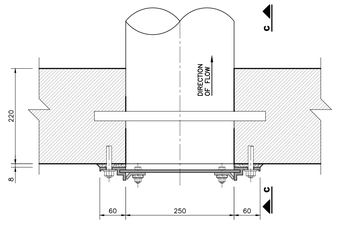


SECTION B–B
SCALE 1:20

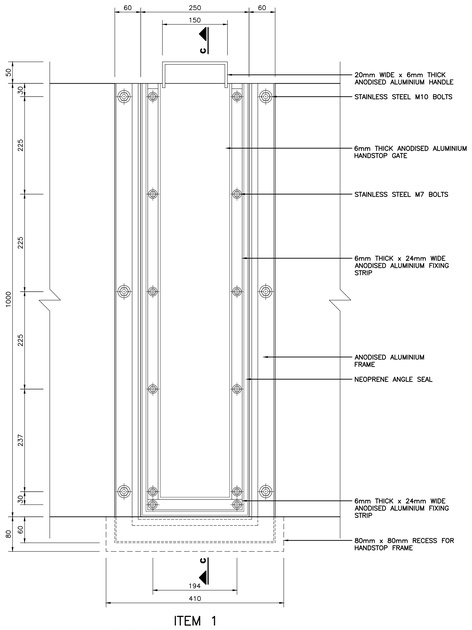
SPLITTER BOX



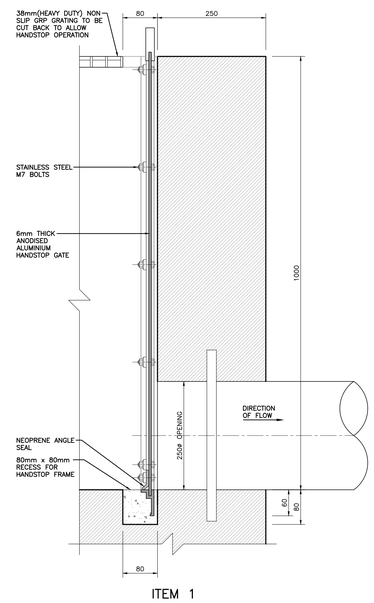
DETAIL 1
SCALE 1:1



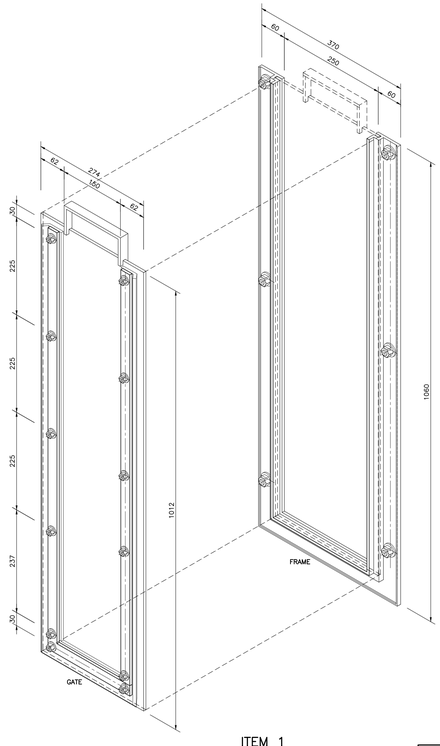
ITEM 1
PLAN OF HANDSTOP
SCALE 1:5



ITEM 1
ELEVATION OF HANDSTOP
SCALE 1:5



ITEM 1
SECTION C–C
SCALE 1:5



ITEM 1
ISOMETRIC VIEW HANDSTOP
SCALE 1:5

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	07/06/2022

1331-093-WTW-625 BACKWASH & SLUDGE PONDS

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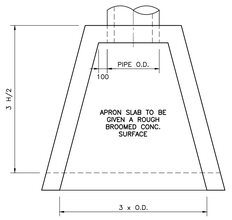
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CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
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APPROVED	S.MDAKA PROJECT MANAGER	M.VAVDA DIVISIONAL MANAGER	

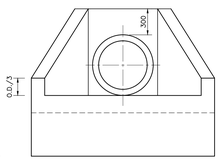
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

BACKWASH & SLUDGE PONDS DETAILS

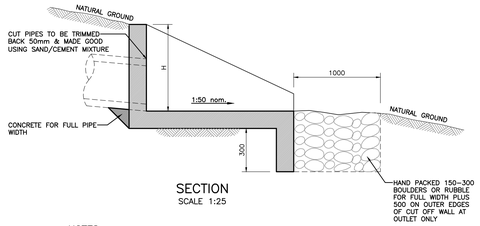
SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-626	A0	REVISION A



PLAN
SCALE 1:25



FRONT ELEVATION
SCALE 1:25

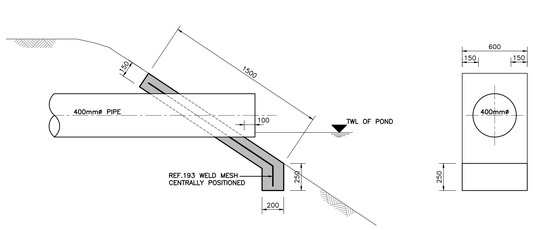


SECTION
SCALE 1:25

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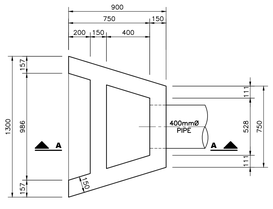
HEADWALL DETAILS



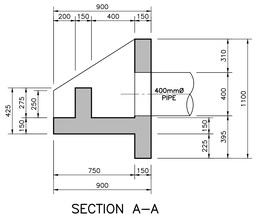
TYPICAL SECTION
SCALE 1:20

TYPICAL ELEVATION
SCALE 1:20

SLUDGE POND INLET HEADWALL

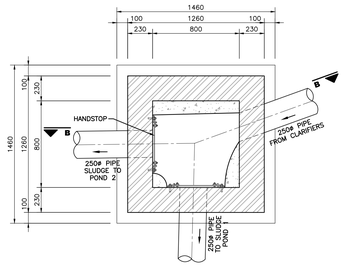


HEADWALL DETAILS
SCALE 1:20

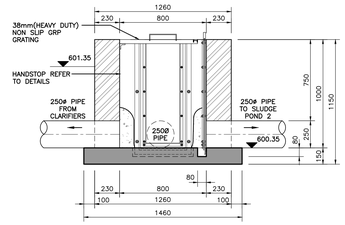


SECTION A–A
SCALE 1:20

SLUDGE POND OUTLET STRUCTURE

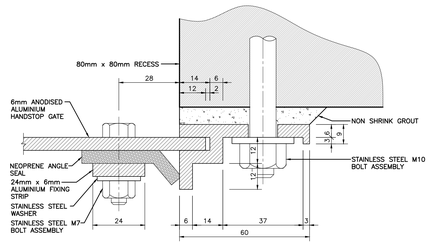


PLAN SECTION
SCALE 1:20

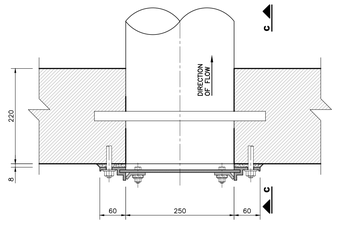


SECTION B–B
SCALE 1:20

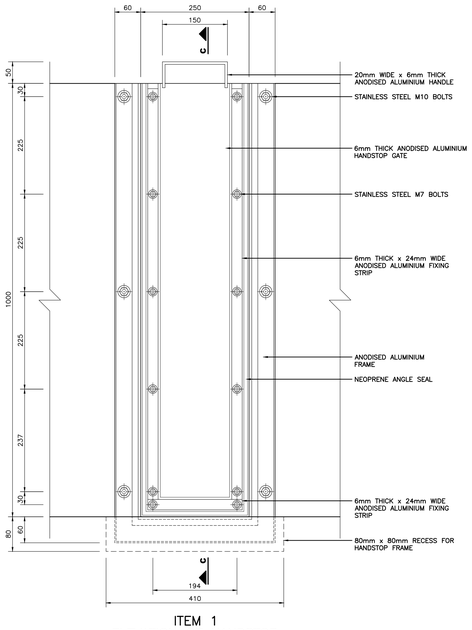
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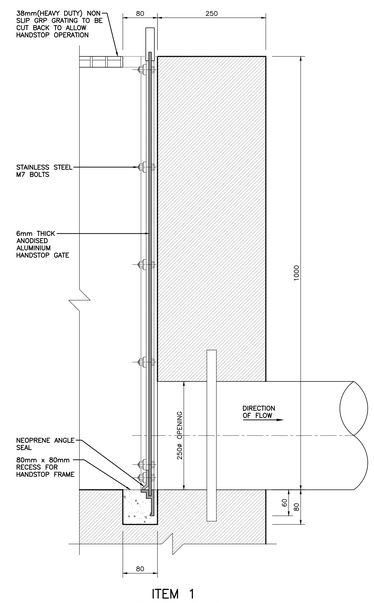
DETAIL 1
SCALE 1:1



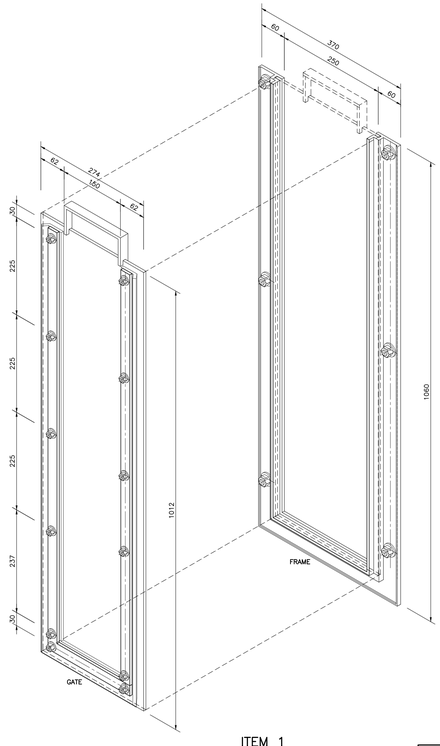
ITEM 1
PLAN OF HANDSTOP
SCALE 1:5



ITEM 1
ELEVATION OF HANDSTOP
SCALE 1:5



ITEM 1
SECTION C–C
SCALE 1:5



ITEM 1
ISOMETRIC VIEW HANDSTOP
SCALE 1:5

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	07/06/2022

1331-093-WTW-625 BACKWASH & SLUDGE PONDS

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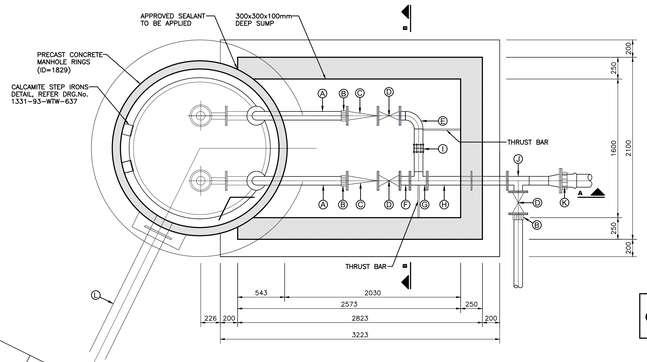
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APPROVED	S.MDAKA PROJECT MANAGER	M.VAVDA DIVISIONAL MANAGER	

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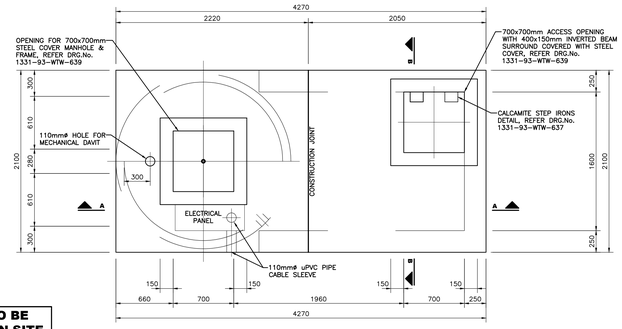
BACKWASH & SLUDGE PONDS DETAILS

SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-626	A0	REVISION A

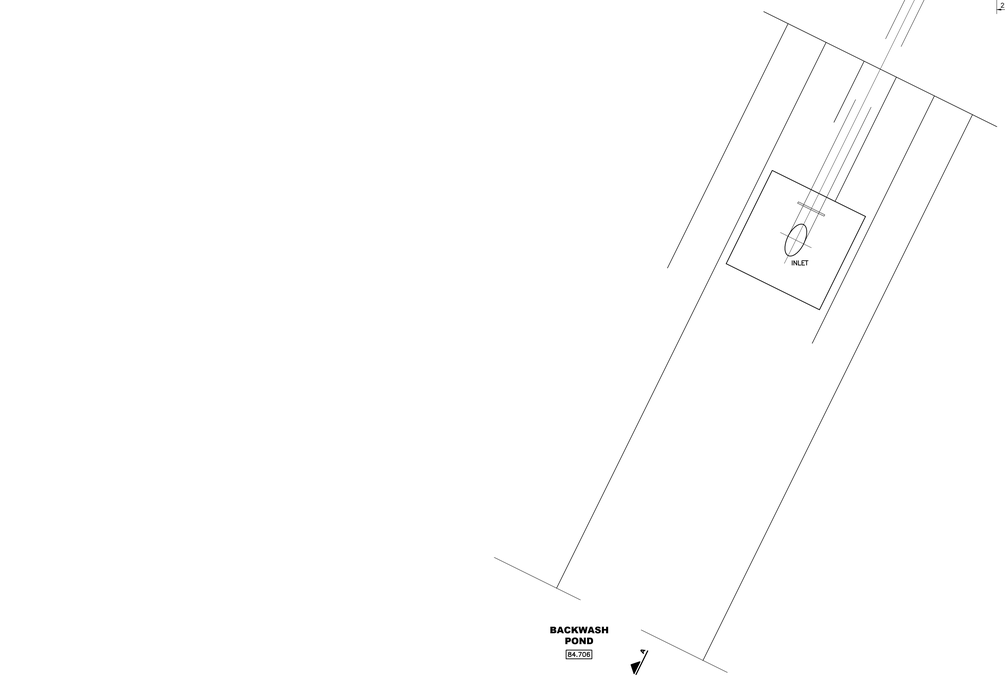


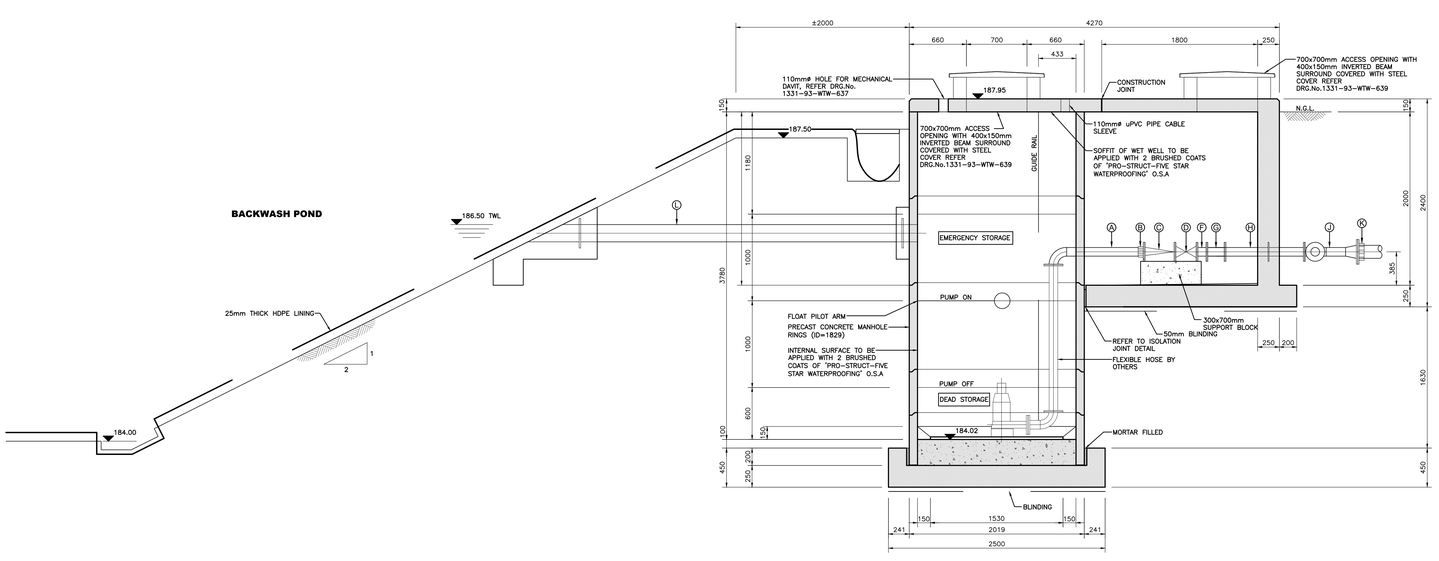
PLAN
SCALE 1:25

POSITION TO BE CONFIRMED ON SITE BY ENGINEER

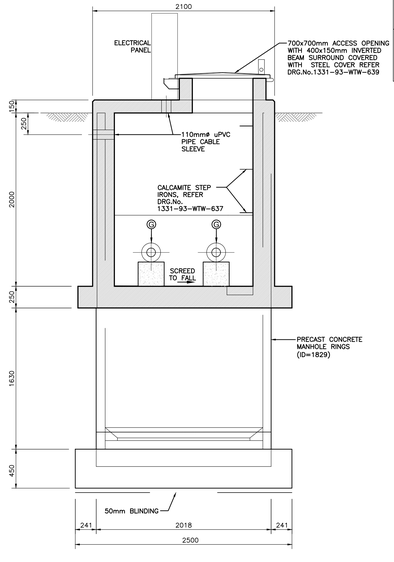


ROOF PLAN
SCALE 1:25





SECTION A–A
SCALE 1:25



SECTION B–B
SCALE 1:25

PIPEWORK SCHEDULE – BY CIVIL CONTRACTOR

ITEM NO.	SKETCH OF FITTING	DESCRIPTION	NO. OFF
A	152, 825	100mm NB.STEEL PIPE F.O.E WELDED TO 90° LONG RADIUS ELBOW F.O.E.	2
B		100mmø VIKING JOHNSON FLANGE ADAPTOR	2
C	355	100mmø NON RETURN VALVE TO SABS 664	2
D	254	100mmø CLASS 10 RSV FLANGED GATE VALVE TO SABS 664 WITH HANDWHEEL NRS	2
E	250, 114	100mm NB 90° STEEL LONG RADIUS ELBOW F.O.E. WELDED TO PIPE PLAIN ENDED	1
F	115	115mm LONG 100mmø SPOOL PIECE F.O.E.	1
G	270, 105, 200	100mm NB STEEL EQUAL TEE F.B.E. WELDED TO PIPE PLAIN ENDED	1
H	924, 511, 413	100mmø STEEL PUDDLE PIPE F.B.E.,1100mm IN LENGTH. PUDDLE FLANGE 500mm FROM FLANGED END	1
I		100mmø VIKING JOHNSON COUPLING	1
J	616	100mm ø STEEL EQUAL TEE F.O.E. OTHER END WELDED TO STEEL PIPE, 150 X 100mm ø REDUCER F.O.E. OTHER END WELDED TO 100mm ø PIPE, 616mm IN LENGTH	
K		150mmø VIKING JOHNSON FLANGE ADAPTOR	1
L	200, 4495, 170	200mm NB, STEEL PUDDLE PIPE 4495mm LONG WITH PUDDLE FLANGES 170mm & 200mm FROM EACH END, P.E.	1

NOTES

1 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO IMPLEMENTATION OF ANY WORK.
2 ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE LATEST ISSUE OF SANS 1200 UNLESS OTHERWISE NOTED.

GENERAL

1 CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
MINIMUM COVER TO REINFORCING
FLOOR/BASE SLAB – 50mm TOP AND BOTTOM
WALLS – EARTH FACE 40mm
– WATER FACE 50mm
ROOF SLAB – SOFFIT 50mm
– TOP 40mm
2 CONCRETE STRENGTHS:
a) BLINDING 15MPa
b) WEAK MIX 15MPa
c) CHAMBERS 30MPa
3 CHAMBERS TO BE FOUNDED ON REWORKED MATERIAL COMPACTED TO 95% MOD. A.A.S.H.T.O.
4 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.
5 20x20 CHAMFERS ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.
6 ALL BOLTS AND NUTS TO COMPLY WITH SABS 135. TWO WASHERS ARE TO BE PROVIDED WITH EACH NUT/BOLT. PROJECTION OF BOLTS BEYOND THE HEIGHTS OF THE NUTS AFTER TIGHTENING IS TO BE AT LEAST 3mm AND NOT MORE THAN 10mm.
7 ALL BOLTS, NUTS AND WASHERS (INCLUDING ANCHOR BOLTS) ARE TO BE HOT–DIP GALVANISED IN ACCORDANCE WITH SANS ISO 1461.
8 FIELD WELDS TO BE DETERMINED BY CONTRACTOR.
9 PUMP HOLDING BOLTS & GROUTING BY OTHERS.
10 PUMP, BASE FRAME, AND H.D. BOLTS TO BE CONFIRMED BY PUMP SUPPLIER.

STEEL PIPEWORK:

1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).
2 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, 1000/3 UNLESS OTHERWISE STATED.
3 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO DRILL NEW CONNECTING FLANGES TO SUIT EXISTING.
4 ALL STEEL PIPEWORK TO BE HOT DIP GALVANISED TO SANS 1461 (1999) AFTER FABRICATION.
5 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.
6 EXPOSED GALVANISED STEEL PIPEWORK AND FITTINGS INSIDE CHAMBERS ETC. TO BE PAINTED WITH 2 COATS OF APPROVED ENAMEL PAINT AFTER INSTALLATION.
7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.
8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF "SIKA SWELL S", (0.5.A.), APPLIED 20mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.
9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

HYDRAULIC INFORMATION

TOTAL HEAD = 30m
STATIC HEAD = 26.0m
HEAD LOSS = 1.5m
Q(pumped) = 16 l/s
Velocity = 0.92m/s
(160ø uPVC CL.9)

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	24/06/2021

1331-093-WTW-637 TYPICAL DETAILS
DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFICATE NO.

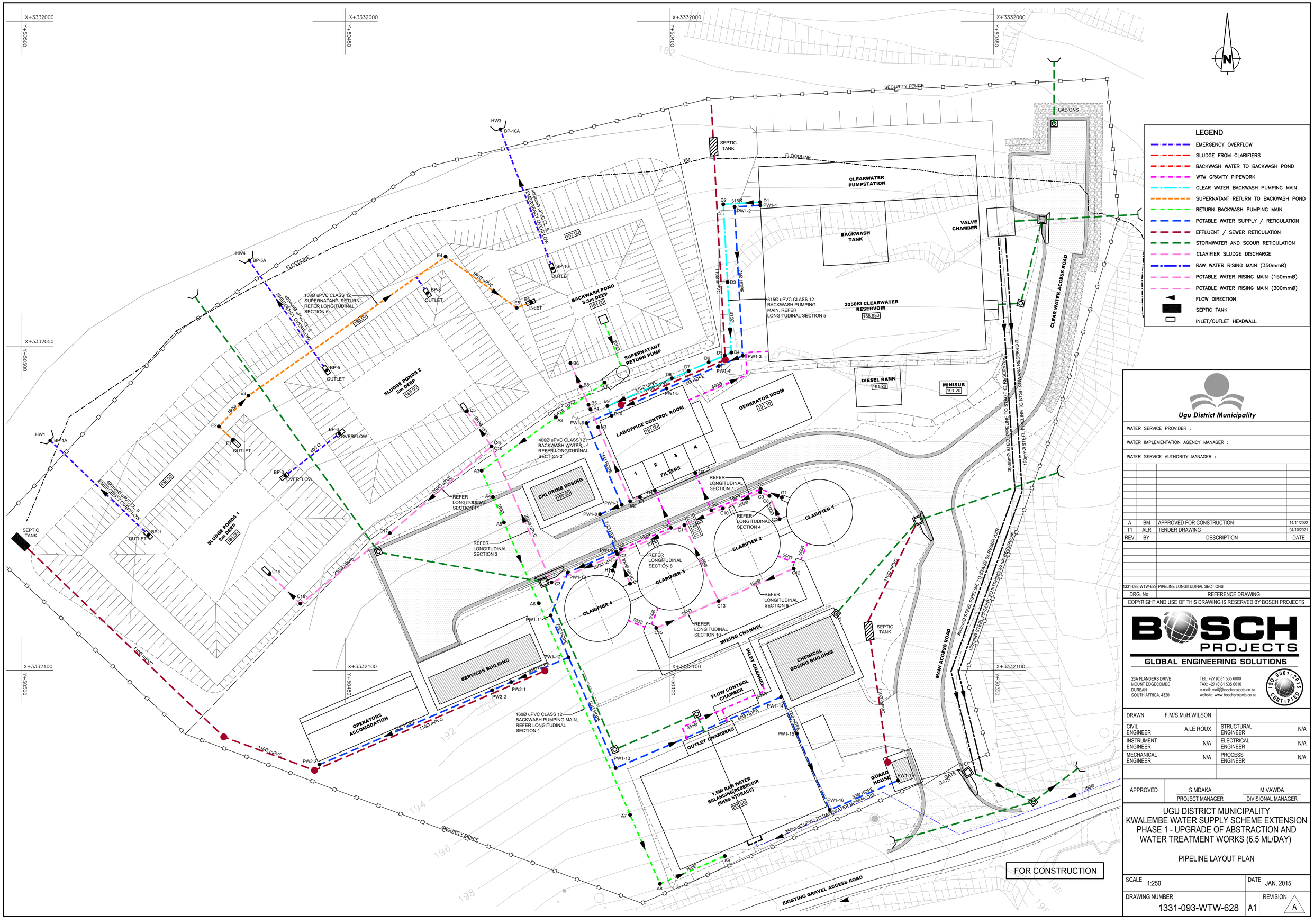
DRAWN	S.M.H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED: S.MDAKA, PROJECT MANAGER; L.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

SUPERNATANT RETURN PUMP AND CHAMBER DETAILS

SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-627	A0	REVISION A



LEGEND

- EMERGENCY OVERFLOW
- SLUDGE FROM CLARIFIERS
- BACKWASH WATER TO BACKWASH POND
- WTW GRAVITY PIPEWORK
- CLEAR WATER BACKWASH PUMPING MAIN
- SUPERNATANT RETURN TO BACKWASH POND
- RETURN BACKWASH PUMPING MAIN
- POTABLE WATER SUPPLY / RETICULATION
- EFFLUENT / SEWER RETICULATION
- STORMWATER AND SCOUR RETICULATION
- CLARIFIER SLUDGE DISCHARGE
- RAW WATER RISING MAIN (350mmØ)
- POTABLE WATER RISING MAIN (150mmØ)
- POTABLE WATER RISING MAIN (300mmØ)
- FLOW DIRECTION
- SEPTIC TANK
- INLET/OUTLET HEADWALL

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	04/10/2021

1331-093-WTW-629 PIPELINE LONGITUDINAL SECTIONS

DRG. No. | REFERENCE DRAWING

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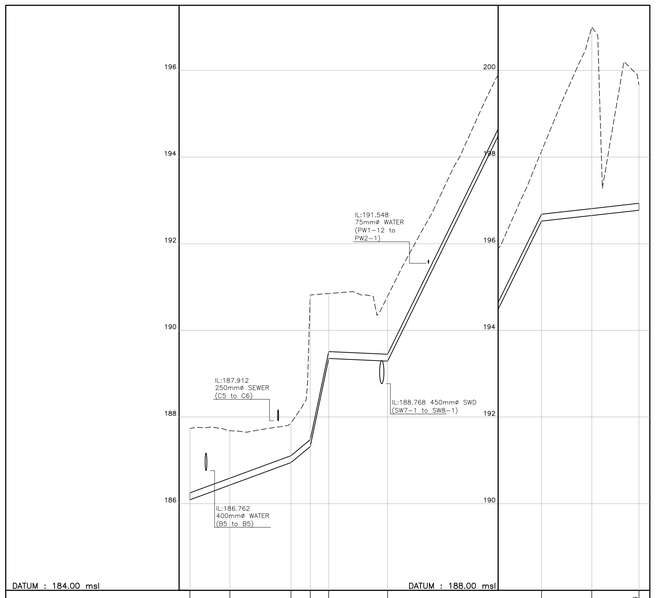
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
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DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	F.M/S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PIPELINE LAYOUT PLAN

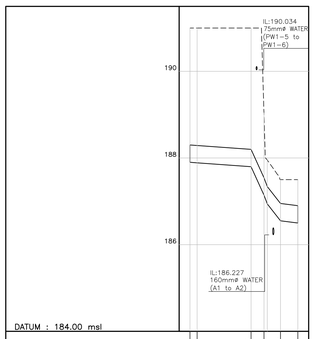
SCALE	1:250	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-628	A1	REVISION A



DISTANCE (m)	0.00		9.24	9.24	14.10		23.34	27.77	32.04	13.57	45.61	35.52				81.13	11.61	92.74	10.89	103.63
GROUND LEVEL (m)	187.73		187.68				187.86	187.82	190.85	190.79						198.13		201.00		199.88
PIPE INVERT LEVEL (m)	186.09		186.43				186.95	187.32	189.35	189.29						196.52		196.65		196.77
DEPTH (m)	1.64		1.25				0.91	3.50	1.50	1.50						1.61		4.35		2.89
GRADE (1:_)			27.21		27.21		11.97	2.10	−220.30		4.91					89.58		89.57		
PIPE DESIGN FLOW (l/s)			137.330																	
VELOCITY (m/s)			8.70																	
PIPE DESCRIPTION			160mmø WATER PIPE CLASS 12																	
REFERENCE	A1		A2			A3	A4	A5	A6						A7		A8		A9	

LONGITUDINAL SECTION 1
BACKWASH PUMPING MAIN (A1–A9)
SCALES : HORIZ 1:500
VERT 1:50

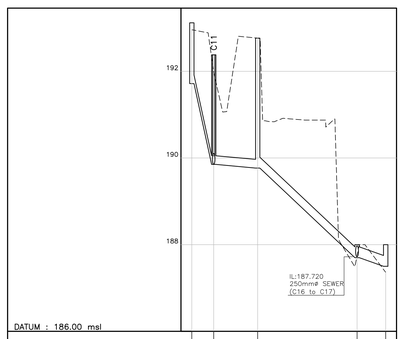
PIPE DESIGN DATA				
REF	Y	X	IL	DEPTH
A1	50409.965	3332055.642	186.090	1.643
A2	50417.477	3332061.020	186.430	1.253
A3	50428.941	3332069.227	186.948	0.914
A4	50427.185	3332073.296	187.318	3.500
A5	50425.492	3332077.217	189.350	1.500
A6	50420.112	3332089.680	189.289	1.497
A7	50406.037	3332122.287	196.521	1.613
A8	50401.435	3332132.947	196.650	4.351
A9	50391.431	3332128.650	196.772	2.892



DISTANCE (m)	0.00		1.65		12.45							44.10		17.86		20.88		24.87		
GROUND LEVEL (m)	191.00		191.00									191.00		189.64		187.50		187.50		
PIPE INVERT LEVEL (m)	187.90		187.89									187.90		187.14		186.55		186.50		
DEPTH (m)	3.10		3.11									3.20		1.95		0.95		1.00		
GRADE (1:_)			−16.68		−140.98							−4.52				−79.94				
PIPE DESIGN FLOW (l/s)			0.000																	
VELOCITY (m/s)			0.00																	
PIPE DESCRIPTION			400mmø WATER PIPE CLASS 12																	
REFERENCE	B1	B2				B3		B4		B5		B6								

LONGITUDINAL SECTION 2
FILTERS TO BACK WASH POND (B1–B6)
SCALES : HORIZ 1:500
VERT 1:50

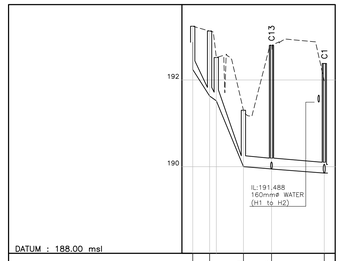
PIPE DESIGN DATA						
REF	Y	X	IL	DEPTH		
B1	50404.518	3332073.291	187.900	3.100		
B2	50406.035	3332073.946	187.888	3.112		
B3	50410.968	3332062.519	187.800	3.200		
B4	50412.143	3332059.797	187.144	1.900		
B5	50412.451	3332059.082	186.940	1.011		
B5	50413.654	3332056.297	186.550	0.950		
B6	50415.238	3332052.627	186.500	1.000		



DISTANCE (m)	0.00		5.06		10.13				15.20			22.94				38.14		6.60		44.74
GROUND LEVEL (m)	193.86		193.88						192.77							187.76		187.36		
PIPE INVERT LEVEL (m)	192.87		191.72		189.85				189.77							187.70		187.50		
DEPTH (m)	0.09		1.24		2.12				3.00							0.06		−0.14		
GRADE (1:_)			2.71		120.65				42.20			6.44			10.40	25.29				
PIPE DESIGN FLOW (l/s)									0.000											
VELOCITY (m/s)			7.51		1.13				2.21			5.66			4.46	2.86				
PIPE DESCRIPTION			200mmø uPVC HEAVY DUTY CLASS 34						250mmø uPVC HEAVY DUTY CLASS 34											
REFERENCE	C1		C2		C3							C4			C5					

LONGITUDINAL SECTION 3
CLARIFIER SLUDGE PIPE FROM CLARIFIER No. 3 & 4 TO SLUDGE POND 1 (C1–C6A)
SCALES : HORIZ 1:500
VERT 1:50

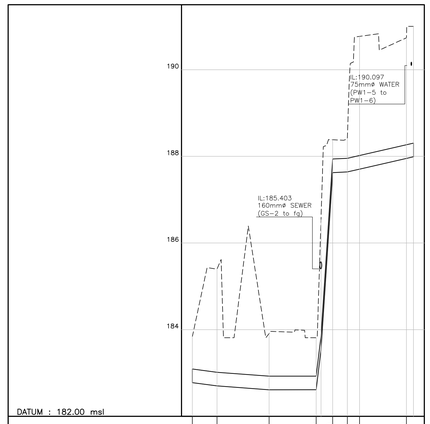
PIPE DESIGN DATA							
REF	Y	X	IL-IN	IL-OUT	DEPTH-IN	DEPTH-OUT	MH TYPE
C1	50406.041	3332086.661	192.870	191.717	0.090	1.243	1
C2	50408.855	3332082.453	189.852	189.852	2.123	2.123	1
C3	50418.160	3332086.469	189.768	189.768	3.000	3.000	1
C4	50427.412	3332065.476	187.700	187.700	0.060	0.060	1
C5	50431.216	3332060.082	187.500	187.500	−0.139	−0.139	1



DISTANCE (m)	0.00		3.80		11.71				6.48	16.78		12.19				30.37				
GROUND LEVEL (m)	193.24		193.13						191.30	192.80						193.98				
PIPE INVERT LEVEL (m)	192.87		191.24		190.00				189.95	189.95						189.85				
DEPTH (m)	0.37		1.50		1.30				2.85	2.85						2.12				
GRADE (1:_)			6.38	4.53	119.36				129.63											
PIPE DESIGN FLOW (l/s)									0.000											
VELOCITY (m/s)			4.90	2.53	1.32				1.26											
PIPE DESCRIPTION			250mmø uPVC HEAVY DUTY CLASS 34						250mmø uPVC HEAVY DUTY CLASS 34											
REFERENCE	C7		C8						C10			C11				C2				

LONGITUDINAL SECTION 4
CLARIFIER SLUDGE PIPE FROM CLARIFIER NO 1 & 2 TO MH C3 (C7–C2)
SCALES : HORIZ 1:500
VERT 1:50

PIPE DESIGN DATA							
REF	Y	X	IL-IN	IL-OUT	DEPTH-IN	DEPTH-OUT	MH TYPE
C7	50382.996	3332076.714	192.870	192.241	0.371	1.000	1
C8	50384.540	3332073.135	191.630	191.630	1.500	1.500	1
C9	50385.974	3332072.563	191.520	191.520	1.000	1.000	1
C10	50391.725	3332075.049	190.001	190.001	1.300	1.300	1
C11	50397.670	3332077.618	189.946	189.946	2.851	2.852	1
C2	50408.855	3332082.453	189.852	189.852	2.123	2.123	1

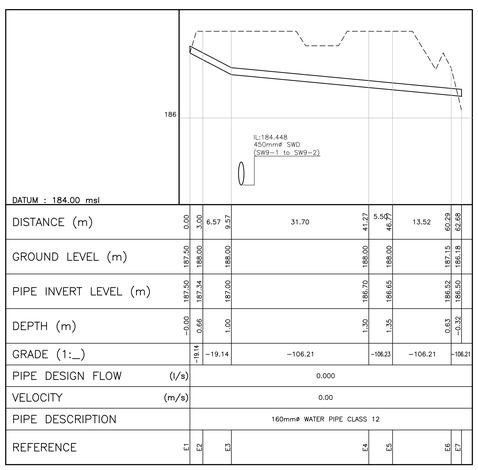


DISTANCE (m)	0.00		5.69		12.01				17.70			10.87				28.58		32.39		35.76
GROUND LEVEL (m)	183.84		183.40						183.91							183.81		188.40		190.77
PIPE INVERT LEVEL (m)	182.78		182.70						182.61							182.61		187.62		187.70
DEPTH (m)	1.06		2.70						1.30							1.20		0.76		0.76
GRADE (1:_)			−75.27		−133.54				8618.05			210.56	1.13	43.65		43.65				
PIPE DESIGN FLOW (l/s)									0.000											
VELOCITY (m/s)									0.00											
PIPE DESCRIPTION									315mmø WATER PIPE CLASS 12											
REFERENCE	D1		D2		D3				D4			D6		D7		D8		D9		

LONGITUDINAL SECTION 5
BACKWASH PUMPING MAIN FROM BACKWASH TANK TO FILTERS (D1–D9)
SCALES : HORIZ 1:500
VERT 1:50

PIPE DESIGN DATA				
REF	Y	X	IL	DEPTH
D1	50385.990	3332027.812	182.777	1.064
D2	50391.670	3332028.159	182.702	2.700
D3	50391.015	3332040.154	182.612	1.300
D4	50390.422	3332051.012	182.613	1.200
D5	50391.439	3332051.451	183.540	3.000
D6	50393.919	3332052.522	187.624	0.760
D7	50397.013	3332053.857	187.640	0.760
D8	50399.609	3332054.978	187.705	3.064
D9	50409.535	3332059.263	187.952	2.783
D10	50408.886	3332060.766	187.990	3.010

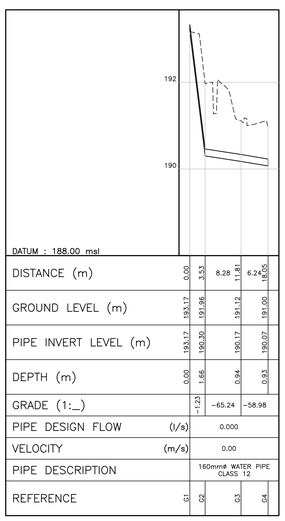
PIPE DESIGN DATA				
REF	Y	X	IL	DEPTH
E1	50467.297	3332064.489	187.500	−0.000
E2	50469.460	3332062.410	187.343	0.657
E3	50464.907	3332057.671	187.000	1.000
E4	50439.007	3332039.393	186.702	1.298
E5	50434.513	3332036.221	186.650	1.350
E6	50423.537	3332044.108	186.523	0.632
E7	50421.304	3332043.254	186.500	−0.316



DISTANCE (m)	0.00		3.00	6.57	3.97	31.70		41.27	5.52	46.79	13.52		60.29	62.68
GROUND LEVEL (m)	187.50		188.00		188.00			188.00		188.00			187.15	186.18
PIPE INVERT LEVEL (m)	187.50		187.34		187.00			186.70		186.65			186.52	186.50
DEPTH (m)	0.00		0.66		1.00			1.30		1.35			0.63	−0.32
GRADE (1:_)			−19.14		−19.14	−106.21			−106.23		−106.21		−106.21	
PIPE DESIGN FLOW (l/s)			0.000											
VELOCITY (m/s)			0.00											
PIPE DESCRIPTION			160mmø WATER PIPE CLASS 12											
REFERENCE	E1		E2		E3			E4		E5			E6	E7

LONGITUDINAL SECTION 6
CLEARWATER RES TO BACKWATER TANK (E1–E7)
SCALES : HORIZ 1:500
VERT 1:50

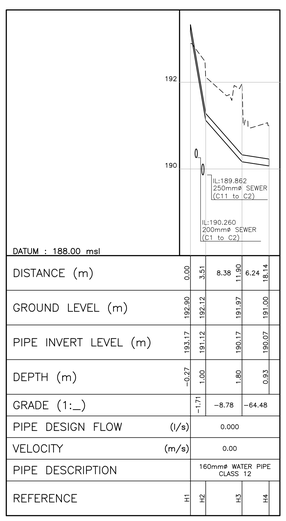
PIPE DESIGN DATA				
REF	Y	X	IL	DEPTH
G1	50382.631	3332073.359	193.170	0.002
G2	50385.911	3332072.050	190.302	1.661
G3	50393.507	3332075.333	190.175	0.942
G4	50395.980	3332069.605	190.069	0.931



DISTANCE (m)	0.00		3.53		8.28		6.24	1.85		
GROUND LEVEL (m)	193.17		191.86		191.12		191.00	191.00		
PIPE INVERT LEVEL (m)	193.17		190.30		190.17		190.07	190.07		
DEPTH (m)	0.00		1.65		0.84		0.83	0.83		
GRADE (1:_)		−1.23		−65.24		−58.98				
PIPE DESIGN FLOW (l/s)			0.000							
VELOCITY (m/s)			0.00							
PIPE DESCRIPTION			160mmø WATER PIPE CLASS 12							
REFERENCE	G1		G2		G3		G4			

LONGITUDINAL SECTION 7
CLARIFIER No.1 TO FILTER BEDS No.3&4 (G1–G4)
SCALES : HORIZ 1:500
VERT 1:50

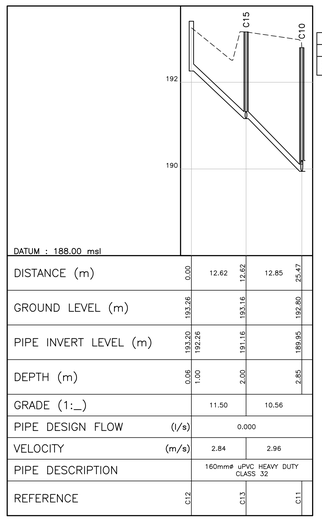
PIPE DESIGN DATA				
REF	Y	X	IL	DEPTH
H1	50408.734	3332084.625	193.170	−0.275
H2	50407.444	3332081.358	191.121	1.000
H3	50399.749	3332078.031	190.166	1.800
H4	50402.223	3332072.300	190.069	0.931



DISTANCE (m)	0.00		3.51		8.38		6.21	4.14		
GROUND LEVEL (m)	192.80		192.12		191.97		191.00	191.00		
PIPE INVERT LEVEL (m)	193.17		191.12		190.17		190.07	190.07		
DEPTH (m)	−0.27		1.00		1.80		0.93	0.93		
GRADE (1:_)		−1.71		−8.78		−64.48				
PIPE DESIGN FLOW (l/s)			0.000							
VELOCITY (m/s)			0.00							
PIPE DESCRIPTION			160mmø WATER PIPE CLASS 12							
REFERENCE	H1		H2		H3		H4			

LONGITUDINAL SECTION 8
CLARIFIER No.4 TO FILTER BEDS No.1&2 (H1–H4)
SCALES : HORIZ 1:500
VERT 1:50

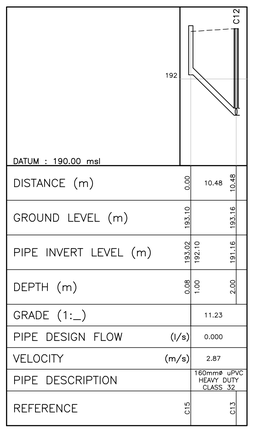
PIPE DESIGN DATA							
REF	Y	X	IL	IL-OUT	DEPTH-IN	DEPTH-OUT	MH TYPE
C12	50380.798	3332084.330	193.200	192.261	0.061	1.000	1
C13	50392.388	3332089.333	191.163	191.163	2.000	2.000	1
C11	50397.670	3332077.618	189.946	189.946	2.852	2.852	1



DISTANCE (m)	0.00		12.62		12.85		25.47			
GROUND LEVEL (m)	193.26		193.16		192.80					
PIPE INVERT LEVEL (m)	193.20	192.26	191.16		189.95					
DEPTH (m)	0.06	1.00	2.00		2.85					
GRADE (1:_)		11.50		10.56						
PIPE DESIGN FLOW (l/s)			0.000							
VELOCITY (m/s)		2.84		2.96						
PIPE DESCRIPTION		160mmø uPVC HEAVY DUTY CLASS 32								
REFERENCE	C12		C13		C11					

LONGITUDINAL SECTION 9
MIXING CHANNEL TO SLUDGE POND CONNECTION (C12–C11)
SCALES : HORIZ 1:500
VERT 1:50

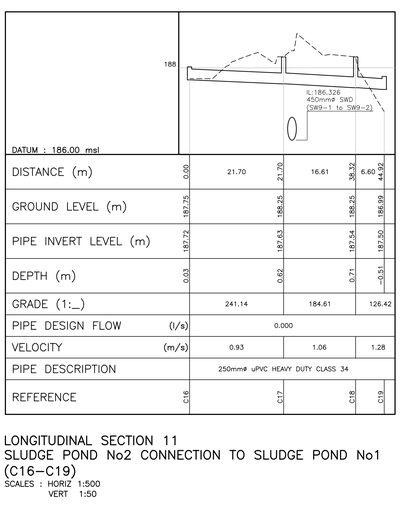
PIPE DESIGN DATA							
REF	Y	X	IL-IN	IL-OUT	DEPTH-IN	DEPTH-OUT	MH TYPE
C15	50402.007	3332093.485	193.020	192.096	0.076	1.000	1
C13	50392.388	3332089.333	191.163	191.163	2.000	2.000	1



DISTANCE (m)	0.00		10.48							
GROUND LEVEL (m)	193.10		193.16							
PIPE INVERT LEVEL (m)	193.02		192.10							
DEPTH (m)	0.08	0.00	2.00							
GRADE (1:_)			11.23							
PIPE DESIGN FLOW (l/s)			0.000							
VELOCITY (m/s)			2.87							
PIPE DESCRIPTION			160mmø uPVC HEAVY DUTY CLASS 32							
REFERENCE	C15		C13							

LONGITUDINAL SECTION 10
MIXING CHANNEL TO SLUDGE POND CONNECTION (C15–C13)
SCALES : HORIZ 1:500
VERT 1:50

PIPE DESIGN DATA							
REF	Y	X	IL-IN	IL-OUT	DEPTH-IN	DEPTH-OUT	MH TYPE
C16	50427.412	3332065.476	187.720	187.720	0.029	0.029	1
C17	50445.145	3332077.988	187.630	187.630	0.623	0.623	1
C18	50456.889	3332089.741	187.540	187.540	0.711	0.711	1
C19	50461.649	3332085.169	187.500	187.500	−0.512	−0.512	1



DISTANCE (m)	0.00		21.70		21.70		16.61		38.32	6.60	44.92
GROUND LEVEL (m)	187.75		188.25				188.25		186.99		
PIPE INVERT LEVEL (m)	187.72		187.63				187.54		187.50		
DEPTH (m)	0.03		0.62				0.71		−0.51		
GRADE (1:_)			241.14				184.61			126.42	
PIPE DESIGN FLOW (l/s)					0.000						
VELOCITY (m/s)			0.93				1.06			1.28	
PIPE DESCRIPTION			250mmø uPVC HEAVY DUTY CLASS 34								
REFERENCE	C16				C17				C18		C19

LONGITUDINAL SECTION 11
SLUDGE POND No2 CONNECTION TO SLUDGE POND No1 (C16–C19)
SCALES : HORIZ 1:500
VERT 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	29/09/2021

1331-093-WTW-628 PIPELINE LAYOUT

DRG. No. REFERENCE DRAWING

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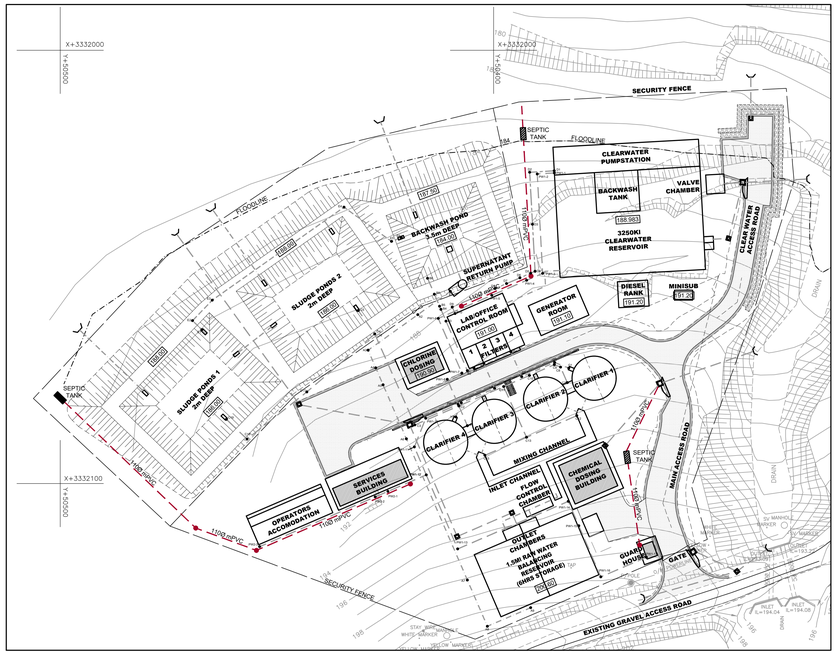
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MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M. VAWDA DIVISIONAL MANAGER	

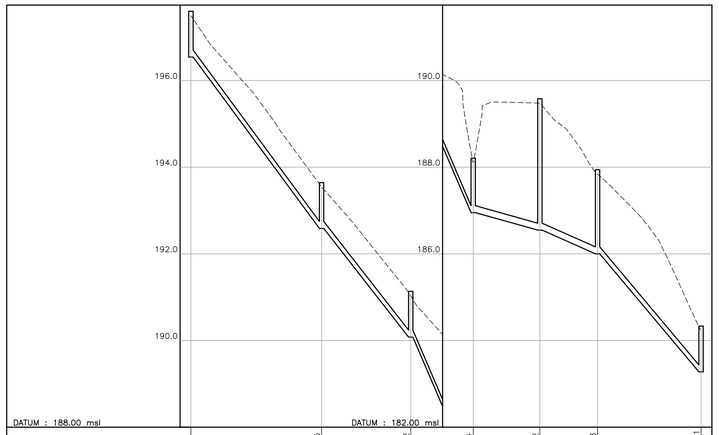
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PIPE LONGITUDINAL SECTIONS

SCALE	AS SHOWN	DATE	SEPT. 2021
DRAWING NUMBER	1331-093-WTW-629	A0	REVISION A



LAYOUT PLAN
SCALE 1:500



PEG DISTANCE (m)	0.00	30.15	50.72	65.14	80.52	93.83	117.71	
GROUND LEVEL (m)	197.50	193.54	191.03	188.21	189.48	187.84	184.23	
INVERT LEVEL (m)	196.54	192.59	190.08	186.95	186.55	186.00	183.28	
DEPTH (m)	0.96	0.96	0.96	1.26	2.93	1.84	0.96	
GRADE (1:_)		7.62	8.20	4.61	38.20	24.32	8.76	
PIPE DESCRIPTION		160mmø Class4 SEWER PIPE						
REFERENCE	MH 1	MH 2	MH 3	MH 4	MH 5	MH 6	SEPTIC TANK	

LONGITUDINAL SECTION OF SEWER LINE (MH1–SEPTIC TANK)
SCALES : HORIZ 1:500
VERT 1:50

PIPE DESIGN DATA						
REF	Y	X	IL IN / OUT		DEPTH IN / OUT	MHTYPE
MH 1	50363.261	3332114.047	196.542	196.542	0.957 0.957	1
MH 2	50373.405	3332085.656	192.586	192.586	0.957 0.957	1
MH 3	50367.770	3332065.870	190.078	190.078	0.957 0.957	1
MH 4	50373.556	3332052.662	186.950	186.950	1.157 1.157	1
MH 5	50387.674	3332058.757	186.548	186.548	2.931 2.931	1
MH 6	50392.951	3332046.531	186.000	186.000	1.841 1.841	1
ST	50395.597	3332022.799	183.275	183.275	0.957 0.957	1

PIPE LENGTHS (m)		
REFERENCE	HORIZ.	SLOPE
MH 1 – MH 2	30.149	30.407
MH 2 – MH 3	20.573	20.725
MH 3 – MH 4	14.420	14.755
MH 4 – MH 5	15.377	15.383
MH 5 – MH 6	13.316	13.327
MH 6 – SEPTIC TANK	23.879	24.034

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	29/09/2021

1331-093-WTW-626 PIPELINE LAYOUT
1331-093-WTW-602 LAYOUT PLAN

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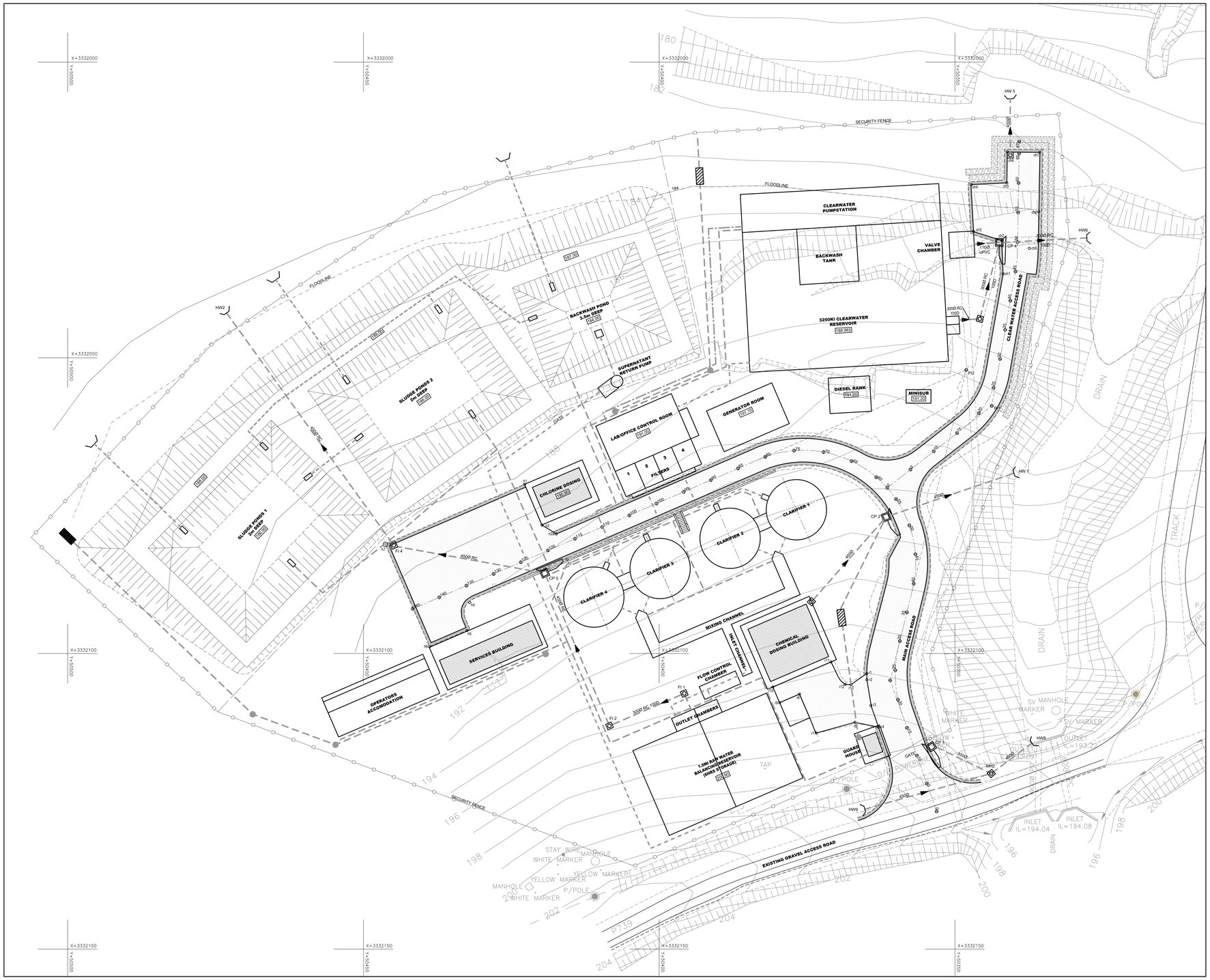
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FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAVDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

SEWER LAYOUT & LONGITUDINAL SECTION

SCALE	AS SHOWN	DATE	SEPT. 2021
DRAWING NUMBER	1331-093-WTW-630	A0	REVISION A



LAYOUT PLAN
SCALE 1:250

CLEAR WATER ACCESS ROAD SETTING OUT DATA				
NAME	CH	Y	X	DETAILS
START	0.000	50 361.450	3 332 071.978	L 16.721m
BCC1 PI1 ECC1	16.721 27.695	50 348.287 50 343.765 50 342.766	3 332 061.665 3 332 058.122 3 332 052.465	R 15.000m DA 41°54'50" TL 5.745m AL 10.973m
END	67.000	50 339.113	3 332 013.444	L 18.291m

MAIN ACCESS ROAD SETTING OUT DATA				
NAME	CH	Y	X	DETAILS
START	0.000	50 353.088	3 332 126.700	L 17.534m
BCC1 PI1 ECC1	17.534 29.149	50 358.944 50 360.940 50 359.518	3 332 110.172 3 332 104.539 3 332 098.734	R 20.000m DA 33°16'20" TL 5.976m AL 11.615m
BCC2 PI2 ECC2	39.018 81.169	50 357.171 50 348.084 50 383.155	3 332 089.149 3 332 052.046 3 332 067.185	R 19.000m DA 127°06'30" TL 38.199m AL 42.151m
END	144.909	50 441.677	3 332 092.446	L 63.741m

CLEARWATER RESERVOIR ROAD HAMMERHEAD SETTING OUT DATA			
POINT	Y	X	Z
ch1	50 341.855	3 332 035.768	186.475
ch2	50 342.076	3 332 030.171	185.496
ch3	50 346.857	3 332 028.615	185.030
ch4	50 347.215	3 332 020.707	183.939
ch5	50 341.231	3 332 020.409	184.348
ch6	50 341.142	3 332 015.185	183.921
ch7	50 335.641	3 332 015.168	184.236
ch8	50 335.813	3 332 025.301	185.130
ch9	50 337.418	3 332 031.483	185.883

MAIN ROAD HAMMERHEAD SETTING OUT DATA			
POINT	Y	X	Z
h1	50 422.754	3 332 071.383	190.910
h2	50 419.794	3 332 078.306	190.910
h2a	50 417.410	3 332 079.793	190.943
h3	50 415.566	3 332 084.062	190.783
h4	50 432.023	3 332 091.374	190.565
h5	50 432.473	3 332 096.097	190.654
h6	50 438.811	3 332 098.833	190.838
h7	50 446.276	3 332 081.537	190.250

ACCESS RAMP TO CHEMICAL DOSING AND PLATFORM SETTING OUT DATA			
POINT	Y	X	Z
r1	50 364.906	3 332 103.390	196.494
r2	50 364.882	3 332 104.440	196.597
r3	50 364.214	3 332 108.810	197.008
r4	50 362.908	3 332 112.470	197.364
r6	50 366.900	3 332 111.633	197.500
r7	50 373.440	3 332 113.441	197.500
r8	50 376.280	3 332 106.860	197.500
r9	50 379.631	3 332 108.306	197.500
r10	50 380.775	3 332 105.663	197.500
r11	50 370.951	3 332 101.423	197.500
r12	50 368.552	3 332 105.215	197.500
r13	50 367.554	3 332 105.246	197.262

CONCRETE ROAD, RAMP AND PARKING SPECIFICATIONS

1 CONSTRUCTION JOINTS ARE SHOWN IN THE PLAN VIEW.
2 SAW CUT JOINTS ARE REQUIRED EVERY 4m.
3 EXPANSION JOINTS ARE REQUIRED EVERY 20m MEASURED ALONG THE LENGTH OF THE ROAD AND IS TO INCLUDE ADJACENT HARDENED AREAS.

ROAD LEGEND

- KERB FIG.6 EDGE
- GRAVEL EDGE
- 2m WIDE GABION WALL
- BANK BOTTOM
- CHAINAGE

STORMWATER LEGEND

- STORMWATER AND SCOUR RETICULATION
- CATCHPIT
- MANHOLE
- HEADWALL

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	04/10/2021

1331-093-WTW-633 ROAD DETAILS
1331-093-WTW-632 ROAD LONGITUDINAL SECTIONS
1331-093-WTW-602 LAYOUT PLAN

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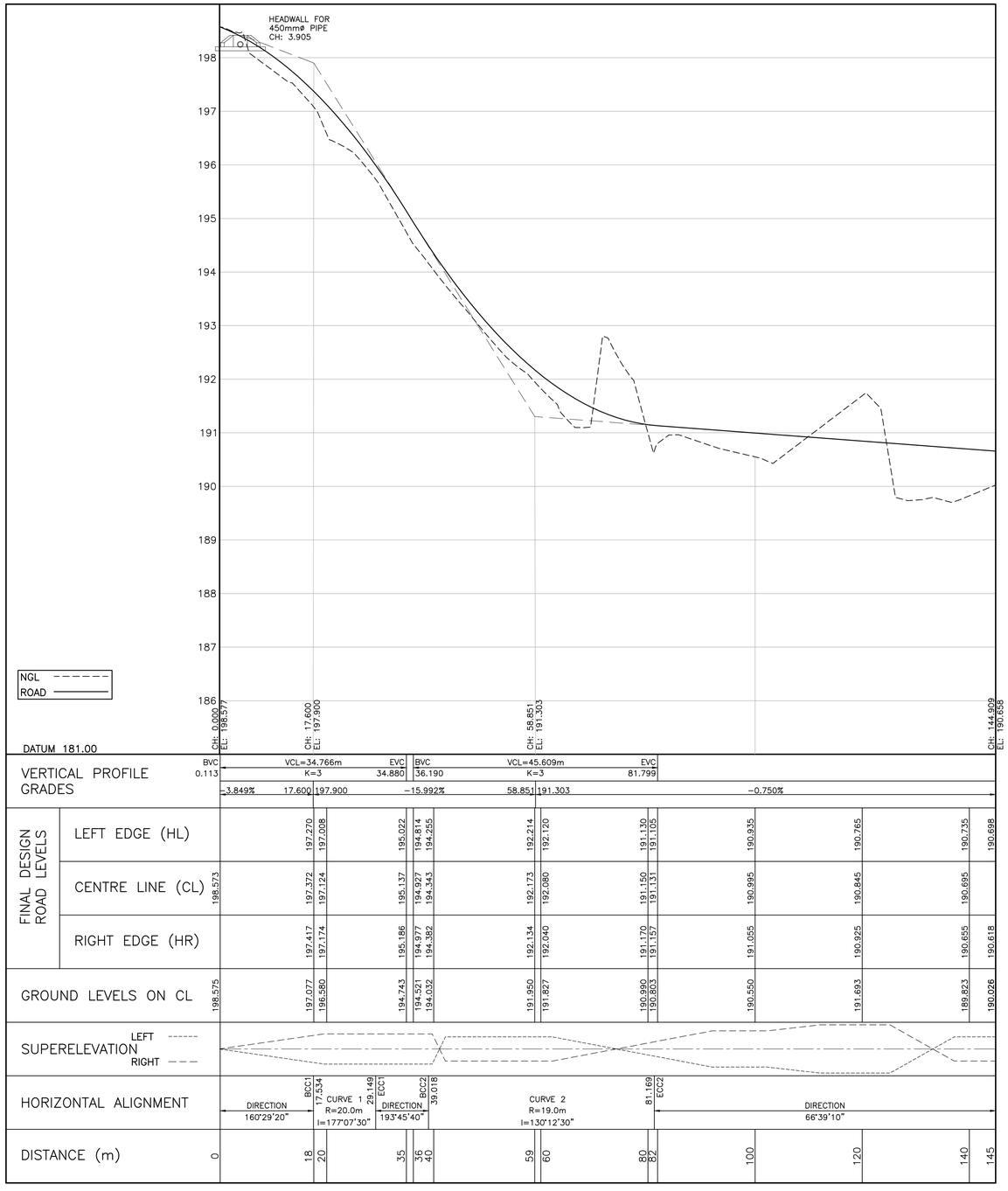
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MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

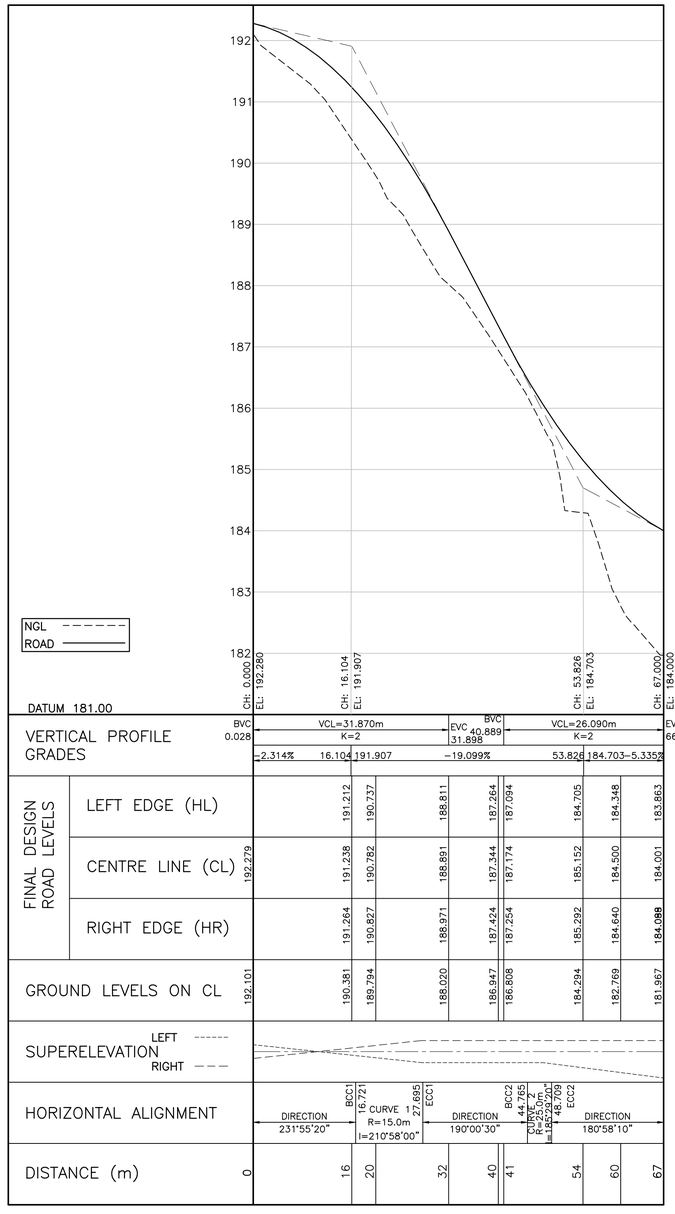
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

ROAD AND STORMWATER PLAN

SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-631	A0	REVISION A



LONGITUDINAL SECTION
MAIN ACCESS ROAD FROM 0.000 TO 144.909
SCALES : HORIZ 1:500
VERT 1:50



LONGITUDINAL SECTION
CLEAR WATER ACCESS ROAD FROM 0.000 TO 67.000
SCALES : HORIZ 1:500
VERT 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	04/10/2021

1331-093-WTW-633 ROAD DETAILS
1331-093-WTW-631 ROAD PLAN
1331-093-WTW-602 LAYOUT PLAN

DRG. No. REFERENCE DRAWING

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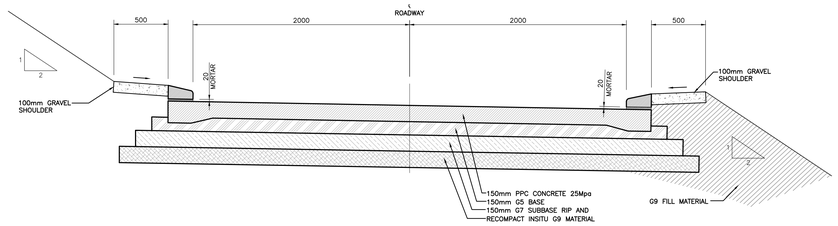
DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED S.MDAKA PROJECT MANAGER M. VAWDA DIVISIONAL MANAGER

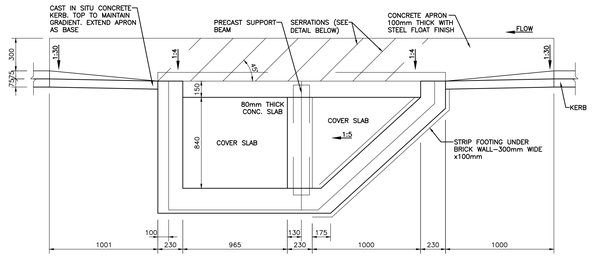
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

ROAD LONGITUDINAL SECTIONS

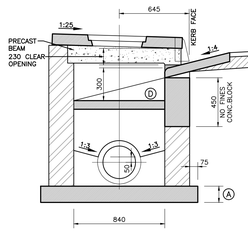
SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-632	A1	REVISION T1



TYPICAL ROAD CROSS SECTION
SCALE 1:20



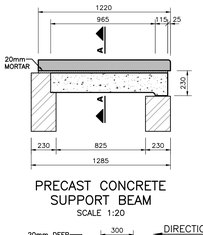
PLAN IMMEDIATELY BELOW COVER SLABS
(FOR DOUBLE SPLAY INLET USE MIRROR IMAGE OF THE SINGLE SPLAYS
FOR CATCHPIT ON TURNING CIRCLES USE CENTRE CHAMBER ONLY – TYPE K1)
SCALE 1:20



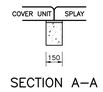
SECTION FOR PIPES SIZES
UP TO 525mm
SCALE 1:20

NOTES:

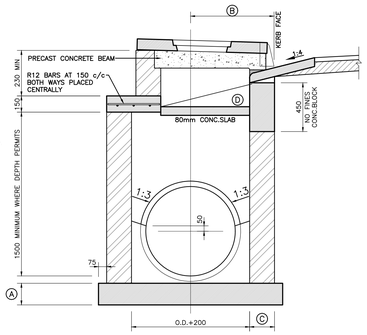
1 CONCRETE TO BE 25 MPa.
2 FOR COVER SLAB DETAILS SEE S205.
3 80mm THICK CONCRETE SLAB (D), TRIANGULAR IN SHAPE SLOPES IN DIRECTION OF ARROW ONLY. LAID ON WELL COMPACTED FILL.
4 FOR BRICKWALL THICKNESS (C) AND SLAB THICKNESS (A) SEE S208.
5 APRON IN FRONT OF CATCHPIT OPENING ONLY TO BE SERRATED.
6 CUT PIPES TO BE TRIMMED BACK 50 mm FROM FRONT FACE OF WALL & MADE GOOD USING SAND/CEMENT MIXTURE.



PRECAST CONCRETE
SUPPORT BEAM
SCALE 1:20



SECTION A–A
SCALE 1:20



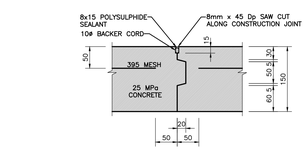
SECTION FOR PIPES SIZES
LARGER THAN 525mm
(APRON SPLAY DETAILS ETC.,
AS FOR SMALLER PIPES)
SCALE 1:20



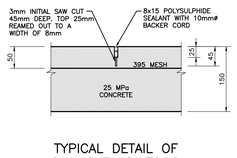
CHANNEL SERRATIONS
SCALE 1:20

LOCATION OF PIPE C.L. FROM FACE OF KERB			
PIPE ø	B	PIPE ø	B
600	677	1050	925
675	715	1200	1011
750	757	1350	1093
825	798	1500	1173
900	839	1800	1338

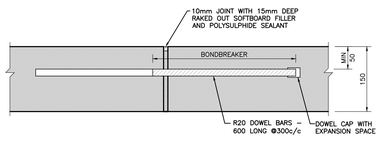
TYPICAL BRICK CATCHPIT
(TYPE K2)



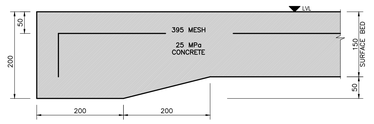
TYPICAL DETAIL OF
CONSTRUCTION JOINTS (CJ)
SCALE 1:5



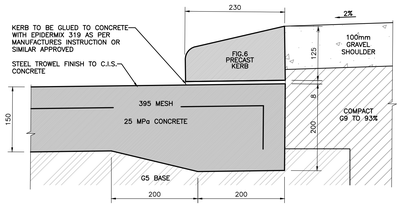
TYPICAL DETAIL OF
SAW CUT JOINTS @
4m INTERVALS (SC)
SCALE 1:5



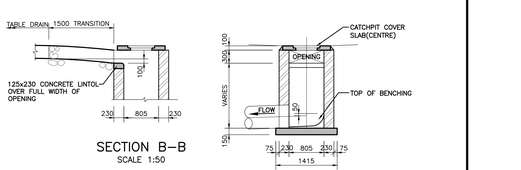
TYPICAL DETAIL OF EXPANSION JOINT
@ 20m INTERVALS (EJ)
SCALE 1:5



CONCRETE THICKENED EDGE
(ALL ROAD EDGES)
SCALE 1:5



TYPICAL MOUNTABLE KERB DETAIL
SCALE 1:5

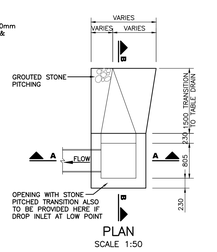


SECTION B–B
SCALE 1:50

SECTION A–A
SCALE 1:50

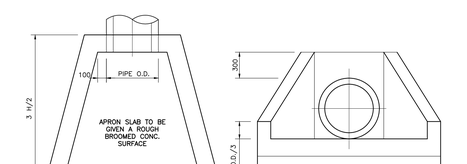
NOTES

1 CONCRETE TO BE CLASS 25/19
2 CUT PIPES TO BE TRIMMED BACK 50mm FROM FRONT FACE OF INLET WALL & MADE GOOD USING SAND/CEMENT MIXTURE.



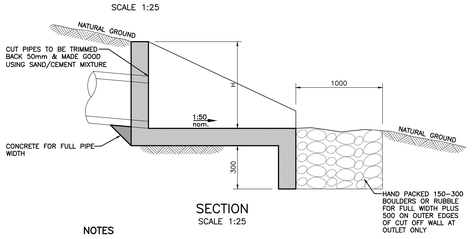
PLAN
SCALE 1:50

OPEN DRAIN CATCHPIT FOR
STORMWATER DRAINS UP TO 600mmø



PLAN
SCALE 1:25

FRONT ELEVATION
SCALE 1:25

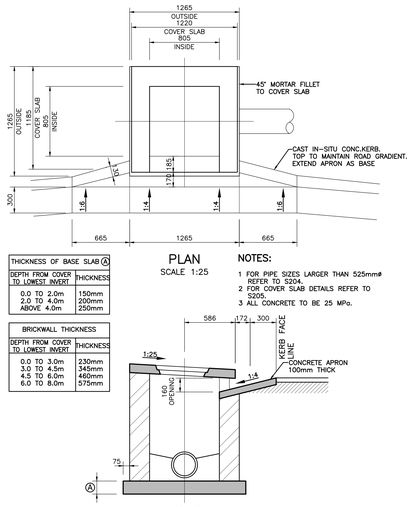


SECTION
SCALE 1:25

NOTES

1 ALL WALLS, APRON SLAB AND CUT OF WALLS TO BE 200mm THICK 25MPa CONCRETE.
2 ALL WALLS TO HAVE RUBBED FINISH.
3 ALL EXPOSED CORNERS TO HAVE 20mm 45° FILLETS.
4 ALL CONCRETE TO BE CENTRALLY REINFORCED WITH 12mm M.S BARS @ 250mm CENTRES.
5 MINIMUM LAP LENGTH TO STARTER BARS TO BE 500mm.
6 CUT OFF WALLS REQUIRED FOR BOTH INLET AND OUTLET STRUCTURES.
7 FOR PIPE SIZES 900mm AND LESS, CONCRETE WALLS ABOVE APRON SLAB MAY BE SUBSTITUTED WITH 230 COMMON BRICK WALL.

HEADWALL DETAILS



PLAN
SCALE 1:25

THICKNESS OF BASE SLAB (A)	
DEPTH FROM COVER TO LOWEST INVERT	THICKNESS
0.0 TO 2.0m	150mm
2.0 TO 4.0m	200mm
ABOVE 4.0m	250mm

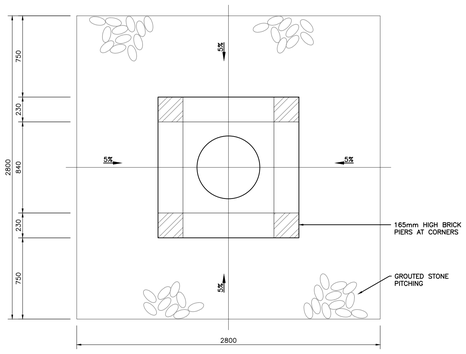
BRICKWALL THICKNESS	
DEPTH FROM COVER TO LOWEST INVERT	THICKNESS
0.0 TO 3.0m	230mm
3.0 TO 4.5m	345mm
4.5 TO 6.0m	460mm
6.0 TO 8.0m	575mm

NOTES:

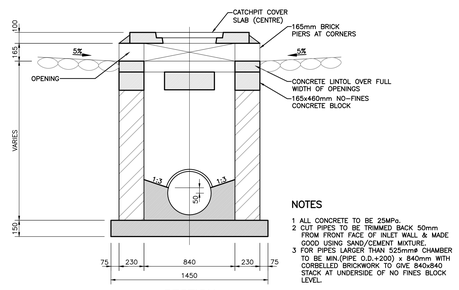
1 FOR PIPE SIZES LARGER THAN 525mmø REFER TO S204.
2 FOR COVER SLAB DETAILS REFER TO S205.
3 ALL CONCRETE TO BE 25 MPa.

SECTION
SCALE 1:25

TYPICAL DETAIL OF SINGLE INLET CATCHPIT
ON TURNING CIRCLES WITH 170mm OFFSET



PLAN
SCALE 1:20



SECTION
(FOR PIPE SIZES UP TO 525mm)
SCALE 1:20

NOTES

1 ALL CONCRETE TO BE 25MPa.
2 CUT PIPES TO BE TRIMMED BACK 50mm FROM FRONT FACE OF INLET WALL & MADE GOOD USING SAND/CEMENT MIXTURE.
3 FOR PIPES LARGER THAN 525mmø CHAMBER TO BE MIN.(PIPE O.D.+200) x 840mm WITH CORBELLED BRICKWORK TO GIVE 840x840 STACK AT UNDERSIDE OF NO FINES BLOCK LEVEL.

FIELD INLET DETAIL

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	06/10/2021

1331-093-WTW-633	ROAD & STORMWATER DETAILS
1331-093-WTW-632	ROAD LONGITDINAL SECTIONS & DETAILS
1331-093-WTW-631	ROAD & STORMWATER PLAN
DRG. No.	REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFICATE

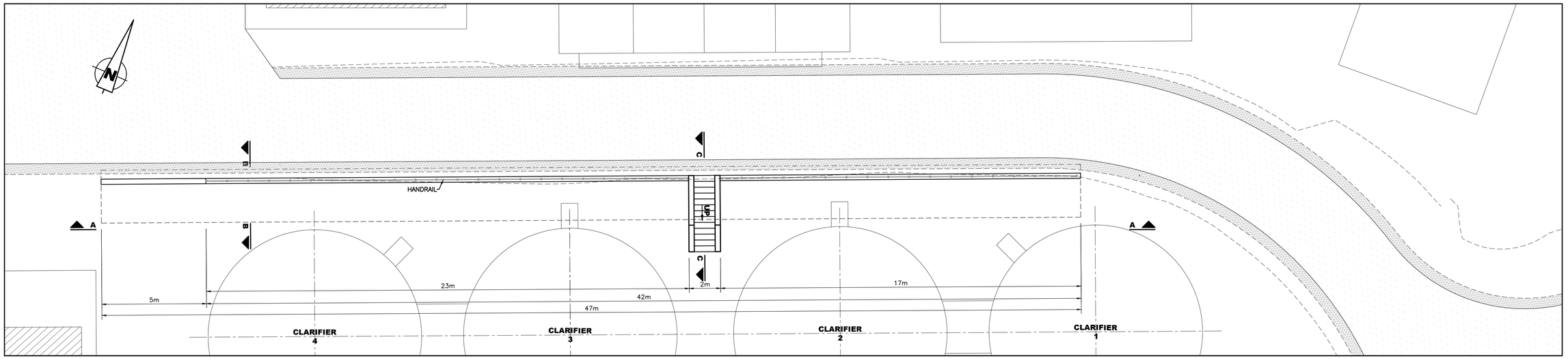
DRAWN	S.M.H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED
S.MDAKA
PROJECT MANAGER
M.VAWDA
DIVISIONAL MANAGER

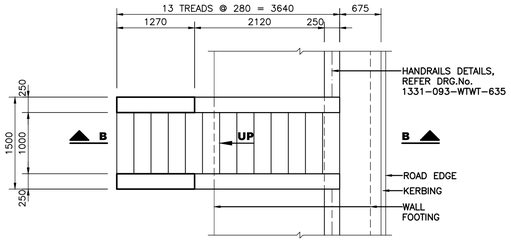
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND
WATER TREATMENT WORKS (6.5 ML/DAY)

ROADS & STORMWATER DETAILS

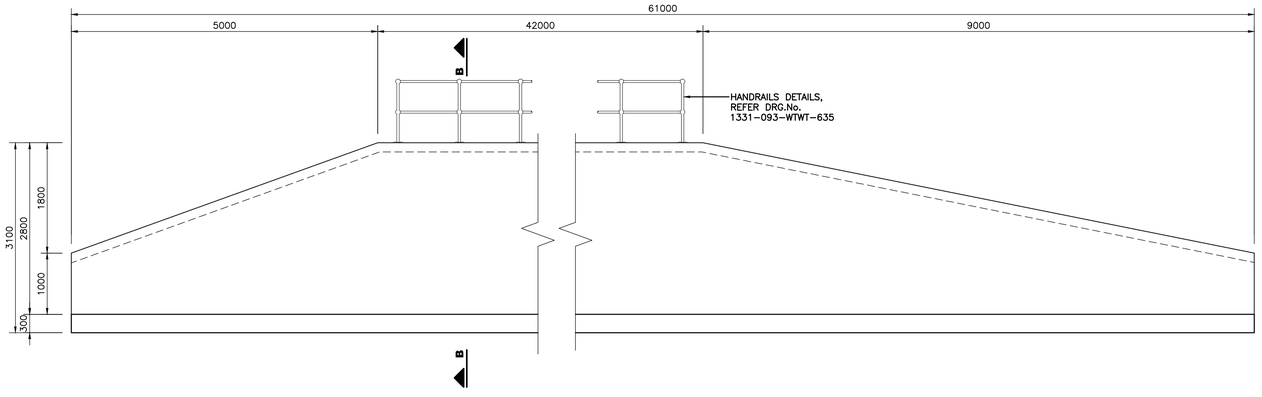
SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-633	A0	REVISION A



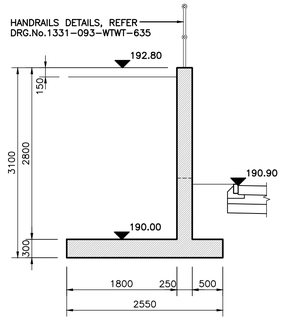
LAYOUT PLAN
SCALE 1:100



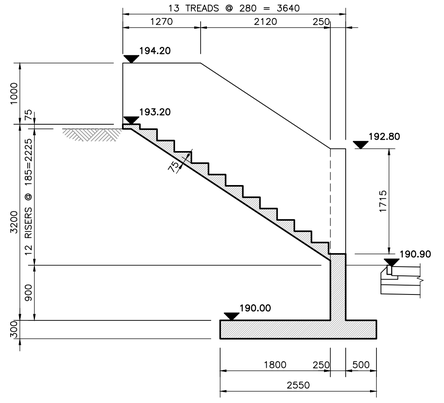
PLAN
SCALE 1:50



ELEVATION A–A
SCALE 1:50



SECTION B–B
SCALE 1:50



SECTION C–C
SCALE 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	05/10/2021

1331-093-WTW-602 GENERAL LAYOUT

DRG. No. REFERENCE DRAWING

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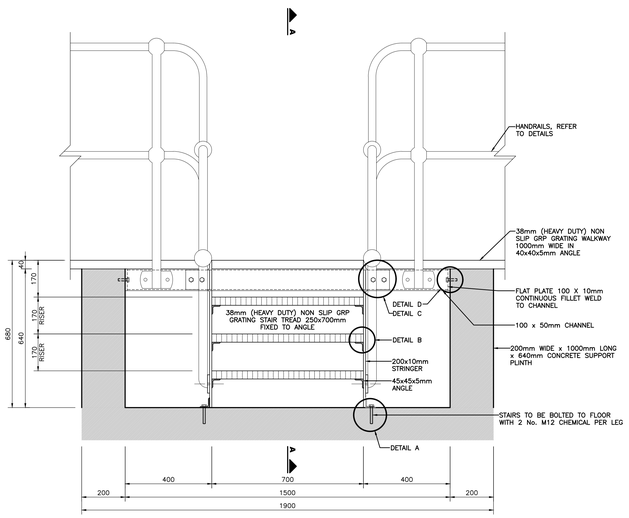
BOSCH PROJECTS
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23A FLANDERS DRIVE
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SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
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website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

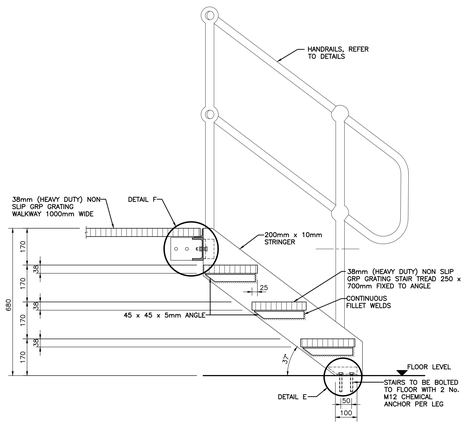
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

WALL ALONG ROAD LAYOUT & DETAILS

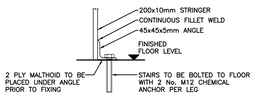
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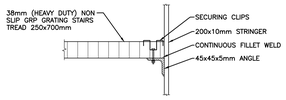
FRONT ELEVATION OF STEPS
SCALE 1:10



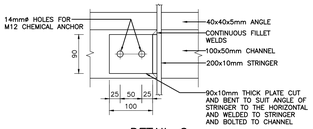
SECTION A–A
SCALE 1:10



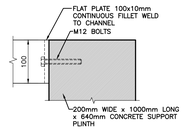
DETAIL A
FIXING DETAIL TO FLOOR
SCALE 1:5



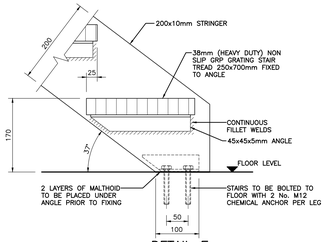
DETAIL B
FIXING OF GRATING TO ANGLE AND STRINGER
SCALE 1:5



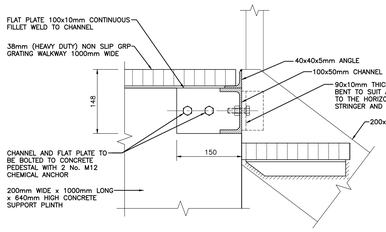
DETAIL C
FIXING DETAIL OF STRINGER TO CHANNEL
SCALE 1:5



DETAIL D
FIXING DETAIL OF STRINGER TO CHANNEL
SCALE 1:5



DETAIL E
FIXING DETAIL TO FLOOR
SCALE 1:5



DETAIL F
FIXING DETAIL TO CONCRETE PLINTH
SCALE 1:5

TYPE "A"
SCALE 1:10

TYPE "B"
SCALE 1:10

TYPE "C"
SCALE 1:10

TYPE "D"
SCALE 1:10

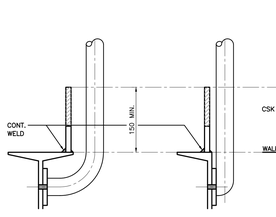
TYPE "E"
SCALE 1:10

TYPE "F"
SCALE 1:10

TYPE "G"
SCALE 1:10

TYPE "H"
SCALE 1:10

TYPICAL SECTION
SCALE 1:10

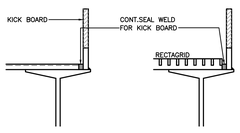


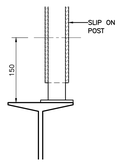
TYPE "D"
SCALE 1:5

TYPE "C"
SCALE 1:5

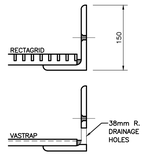
TYPE "C"
SCALE 1:5

TYPE "A"
SCALE 1:5

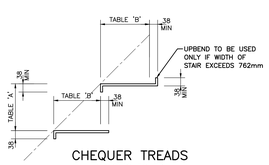




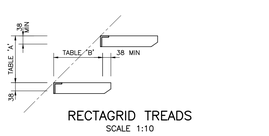
PEG TO STEEL
SCALE 1:5



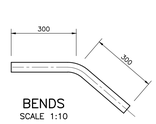
USING ANGLE STRINGERS
SCALE 1:5



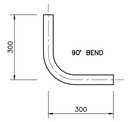
CHEQUER TREADS
MIN.8"/CHEQUER
SCALE 1:10



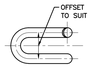
RECTAGRID TREADS
SCALE 1:10

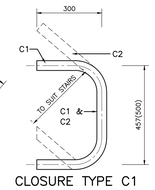


BENDS
SCALE 1:10

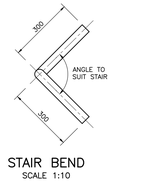


BEND
SCALE 1:10

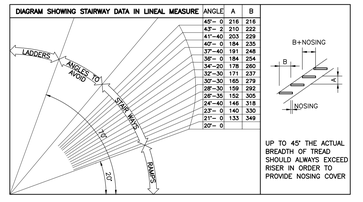




CLOSURE TYPE C1
TYPE C2
SCALE 1:10



STAIR BEND
SCALE 1:10



GENERAL NOTES

1 DIAMETER OF HANDRAILING – 34mmø
2 DIAMETER OF KNEERAILS – 27mmø
3 DIAMETER OF H.R.POSTS – 42.5mmø TO 44mmø
4 DIMENSIONS NOT SHOWN ARE TO SUIT MANUFACTURERS CATALOGUE.
5 ALL HANDRAIL JOINTS ARE TO BE GROUND SMOOTH.
6 KICKBOARDS TO BE PROVIDED AROUND ALL WALKWAYS LANDINGS & PLATFORMS.
7 NO BOLT HEADS OR BOLTS TO PROJECT INTO WALKING AREAS.
8 HEADROOM CLEARANCE ON STAIRS TO BE MIN. 2,1m. WHERE LESS THAN THIS A "DANGER NOTICE" MUST BE INDICATED.
9 U.S.O. RECTAGRID FLOORING MUST BE FIXED WITH THE CORRECT CLAMPING CLIPS.
10 U.S.O. ALL HANDRAIL POSTS AND RAILINGS MUST BE GALVANISED.
11 SPECIAL NOTE MUST BE TAKEN OF H.R. POSTS FOR STAIRWAYS.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	07/06/2021

DRG. No. REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFICATE NO.

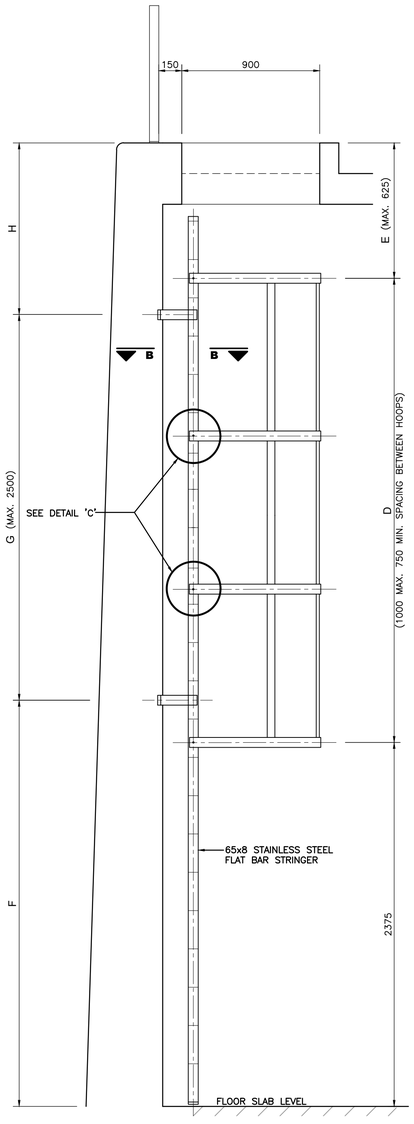
DRAWN	N.D./S.M./H.WILSON	CHECKED	
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

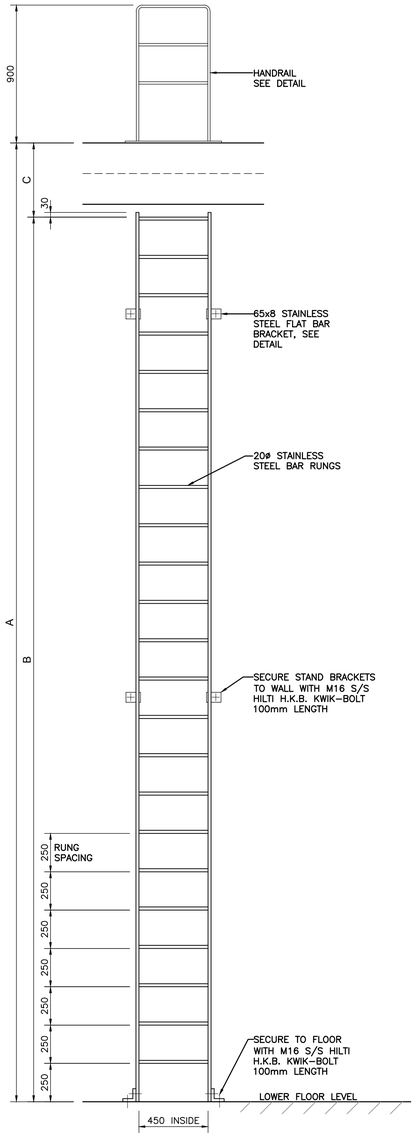
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

GENERAL STAIRS AND HANDRAIL DETAILS

SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-635	A0	REVISION A

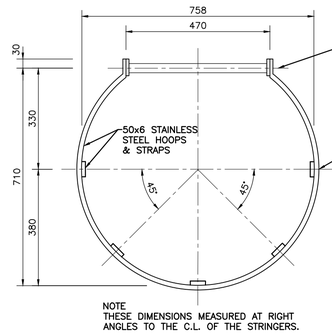


SIDE ELEVATION
SCALE 1:20

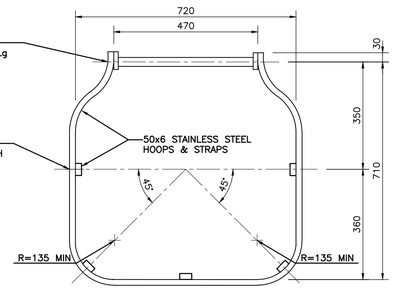


FRONT ELEVATION
(HOOPS & STRAPS OMITTED FOR CLARITY)
SCALE 1:20

STAINLESS STEEL LADDER FOR PERMANENT INTERNAL ACCESS

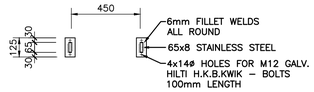


CIRCULAR HOOP
SCALE 1:10



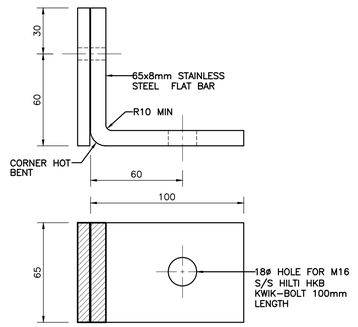
RECTANGULAR HOOP
SCALE 1:10

HOOP DIMENSIONS

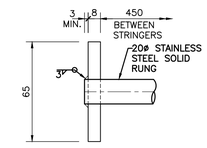


SECTION A–A
SCALE 1:20

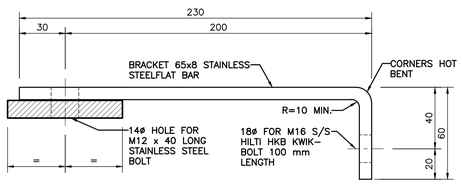
DETAIL OF HANDRAIL
SCALE 1:20



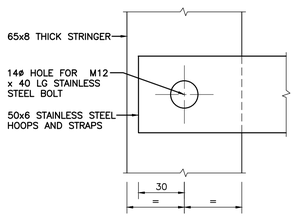
TYPICAL DETAIL OF
LADDER FOOT
SCALE 1:2



SECTION B–B
TYPICAL DETAIL OF WELDED
ATTACHMENT OF RUNG TO
STRINGER
SCALE 1:2



TYPICAL DETAIL OF WALL BRACKET
SCALE 1:2



DETAIL C
SCALE 1:2

LOCATIONS	DIMENSIONS								REFERENCE DRAWING
	A	B	C	D	E	F	G	H	
RAW WATER RESERVOIR	4420	4120	300	2250	625	1690	1800	930	1331/93/608
RAW WATER RESERVOIR OUTLET	2850	2550	300	–	–	1400	850	600	1331/93/610
FLOW CONTROL CHAMBER	2000	1700	300	–	–	500	850	650	1331/93/612
CLEAR WATER RESERVOIR INLET	4850	4550	300	–	–	1750	2000	1100	1331/93/652
CLEAR WATER INLET CHAMBER	2800	2500	300	–	–	1000	850	950	1331/93/652
CLEAR WATER RESERVOIR OUTLET	4700	4350	350	–	–	1600	2000	1100	1331/93/653
CLEAR WATER OUTLET CHAMBER	3650	3300	350	–	–	1200	1500	950	1331/93/653

FOR CONSTRUCTION

NOTES
1. ALL STEELWORK SHALL BE IN ACCORDANCE WITH SABS 0160. 'THE STRUCTURAL USE OF STEEL'
2. THIS DRAWING COMPLIES WITH THE MACHINERY AND OCCUPATIONAL SAFETY ACT No 6 OF 1983.
3. ALL STEELWORK AND BOLTS TO BE STAINLESS STEEL GRADE 304.
4. EXPOSED BOLTS ON HANDRAIL TO BE SPOT WELDED AFTER INSTALLATION.

STRINGERS
1. STRINGERS TO BE FABRICATED FROM 65 X 8 THICK S/S FLAT BAR IN CONTINUOUS LENGTHS. IF JOINED FISH PLATES ARE TO BE USED ON INSIDE OF STRINGERS.
2. JOINTS TO BE BOLTED, RIVETED OR WELDED. BOLTS OR RIVETS TO BE NOT LESS THAN 2 x M12 ON EACH SIDE OF JOINT.

RUNGS
1. RUNGS TO BE FABRICATED FROM 20ø SOLID S/S ROUND BARS.
2. RUNGS TO BE FITTED INTO HOLES DRILLED IN STRINGERS AND WELDED. HOLES DRILLED TO ALLOW 0.8mm CLEARANCE.

SAFETY HOOPS
1. HOOPS AND STRAPS TO BE FABRICATED FROM 50 X 6mm THICK STAINLESS STEEL FLATS.
2. ANY LADDER RISING MORE THAN 2.4m REQUIRES SAFETY HOOPS.
3. LOWER MOST HOOP AT 2,375m.
4. HOOPS AND STRAPS MUST BE BOLTED.

HOLES
1. ALL BOLT HOLES TO BE DRILLED.

BOLTS
1. ALL BOLTS TO BE STAINLESS STEEL.

FINISH
ALL BURRS, WELD–FLASH AND SHARP EDGES TO BE REMOVED AND MADE SMOOTH BY THE FINISHING TREATMENT.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	17/03/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

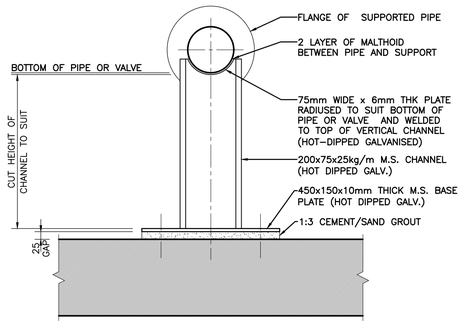
APPROVED | S.MDAKA PROJECT MANAGER | M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

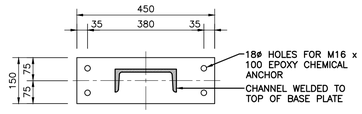
STAINLESS STEEL LADDER DETAILS

SCALE AS SHOWN | DATE DEC. 2014

DRAWING NUMBER 1331-093-WTW-636 | A1 | REVISION A

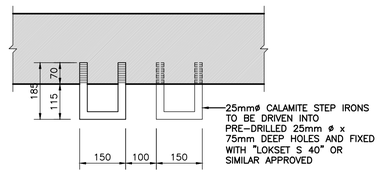


SECTION OF BASE PLATE
SCALE 1:10

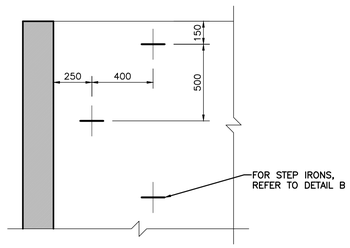


PLAN OF BASE PLATE
SCALE 1:10

TYPICAL DETAIL OF PIPE SUPPORT



TYPICAL DETAIL OF CALCAMITE STEP IRONS
SCALE 1:10



TYPICAL DETAIL OF SETTING OUT FOR CALCAMITE STEP IRONS
SCALE 1:20

GENERAL :

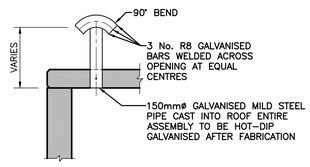
1. STRUCTURE TO BE FOUNDED ON IN-SITU MATERIAL OR ON RE-WORKED MATERIAL COMPACTED TO 95% MOD. AASHTO.
2. BACKFILL MATERIAL TO BE COMPACTED TO 93% MOD. AASHTO IN MAX. 150mm LAYER.
3. ALL BOLTS, NUTS AND WASHERS TO BE HOT-DIPPED GALVANISED IN ACCORDANCE WITH SABS ISO 1461.
4. ALL BOLTS AND NUTS TO COMPLY WITH SABS 135. TWO WASHERS ARE TO BE PROVIDED WITH EACH BOLT/NUTS. PROJECTION OF BOLTS BEYOND THE HEADS OF THE NUTS AFTER TIGHTENING IS TO BE LEAST 3mm AND NOT MORE THAN 10mm.
5. MINIMUM OF 150mm MUST BE MAINTAINED BETWEEN CROSSING SERVICES.
6. PIPES TO HAVE MINIMUM 800mm COVER AND 1000mm UNDER ROADS.
7. REFER TO THE PROJECT SPECIFICATIONS FOR DETAILS ON PIPE FITTINGS. CORROSSION PROTECTION, ETC.
8. CONNECTION TO EXISTING WATER MAINS TO BE CARRIED OUT BY MAKANA MUNICIPALITY AND CONTRACTOR.
9. THRUST BLOCK DESIGN TO SABS.1200-L, INCLUDING VALVES.
10. WATER LINES TO BE TESTED UNDER ENGINEER'S SUPERVISION AND WITNESSED BY WATER SUB-SILO PRIOR TO CONNECTION TO EXISTING WATER MAIN.
11. COVER TO ALL WATER MAINS.
    a) IN SERVITUDE; Min.0.8m.
    b) IN ROADWAY; Min 1.00m.
12. ALL VALVES TO BE ANTI-CLOCKWISE CLOSING, CLASS 16, 25 AND 40 C.I. WEDGE TYPE GATE VALVES WITH NON-RISING SPINDLE.

CONCRETE :

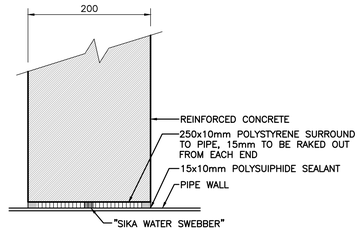
1. ALL EXPOSED EDGES TO BE CHAMFERED 20 X 20 UNLESS OTHERWISE NOTED.
2. MINIMUM COVER TO ALL REINFORCING TO BE 40mm UNLESS OTHERWISE NOTED.
3. CONCRETE GRADE:-
   BLINDING - 15/26 MPa
   CONCRETE - 25/19 MPa
   SCREED - 1:3 (CEMENT / SAND)
4. ALL JOINTS TO BE PRECAST MANHOLE RINGS AND SLABS TO BE COMPLETELY FILLED WITH BITUJOINT PUTTY OR SIMILAR APPROVED.

PIPEWORK :

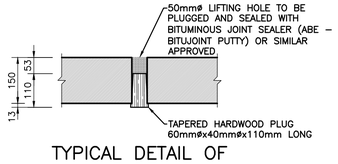
1. ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SABS 62 (FOR PIPES UP TO 150mm NOM.ø) AND SABS 719 (FOR PIPES GREATER THAN 150mm NOM.ø)AND API-5L FOR PIPES GREATER THAN 150mm.
2. ALL FLANGES SHALL BE RATED AND DRILLED TO SABS 1123, 1600/3 (16 BAR PRESSURE RATED) OR 2500/3 (25 BAR PRESSURE RATED 4000/3 (40 BAR PRESSURE RATED) 6400/3 (60 BAR PRESSURE RATED) AND ASA 600. HOLES TO BE DRILLED OFFSET FROM VERTICAL AND HORIZONTAL CENTRE LINE.
3. ALL PIPE FITTINGS TO BE CHECKED PRIOR TO ORDERING / MANUFACTURE, ANY DISCREPANCIES TO BE REPORTED TO THE ENGINEER.DO NOT SCALE OFF DRAWING, USE FIGURED DIMENSIONS ONLY.
4. MILD STEEL FITTINGS TO BE MANUFACTURED AND WELDED IN ACCORDANCE WITH BS4360.
5. INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF SIKA SWELL S', (OR SIMILAR APPROVED), APPLIED 30mm APART AT CENTRE OF WALL PRIOR TO CASTING CONCRETE. (DRG. 8010/001/029).
6. ALL BURIED BOLTED CONNECTIONS TO BE DENSO WRAPPED.
7. MILD STEEL COATING AND LINING : SURFACE PREPARATION - GRIT BLAST TO S15 05590, GRADE SQ. 2.5
   a) INTERNAL LINING - 250 MICRON RILSAN OR SIMILAR APPROVED.
   b) EXTERNAL COATING - 350 MICRON RILSAN OR SIMILAR APPROVED.
8. DAMAGE COATINGS TO BE REINSTATED BY APPLYING WITH COPON HI-COTE 151.
9. DAMAGE COATINGS TO BE REINSTATED AS PER MANUFACTURE INSTRUCTION AND SPECIFICATION.
10. CROTCH PLATES AND COLLAR DESIGN TOGETHER WITH ANY OTHER PIPE SPECIAL REINFORCEMENT ARE TO BE DESIGNED BY THE PIPE MANUFACTURE FOR THE VARIOUS PRESSURE REQUIREMENTS. DETAILS AND DESIGN TO BE SUBMITTED TO THE ENGINEER FOR APPROVAL.



TYPICAL DETAIL OF SHORT AIR VENT
SCALE 1:25



TYPICAL DETAIL OF JOINT BETWEEN PIPE AND WALL
SCALE 1:5



TYPICAL DETAIL OF PLUGGING & SEALING LIFTING LUGS
SCALE 1:10

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :	
WATER IMPLEMENTATION AGENCY MANAGER :	
WATER SERVICE AUTHORITY MANAGER :	

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	24/06/2021

DRG. No.	REFERENCE DRAWING

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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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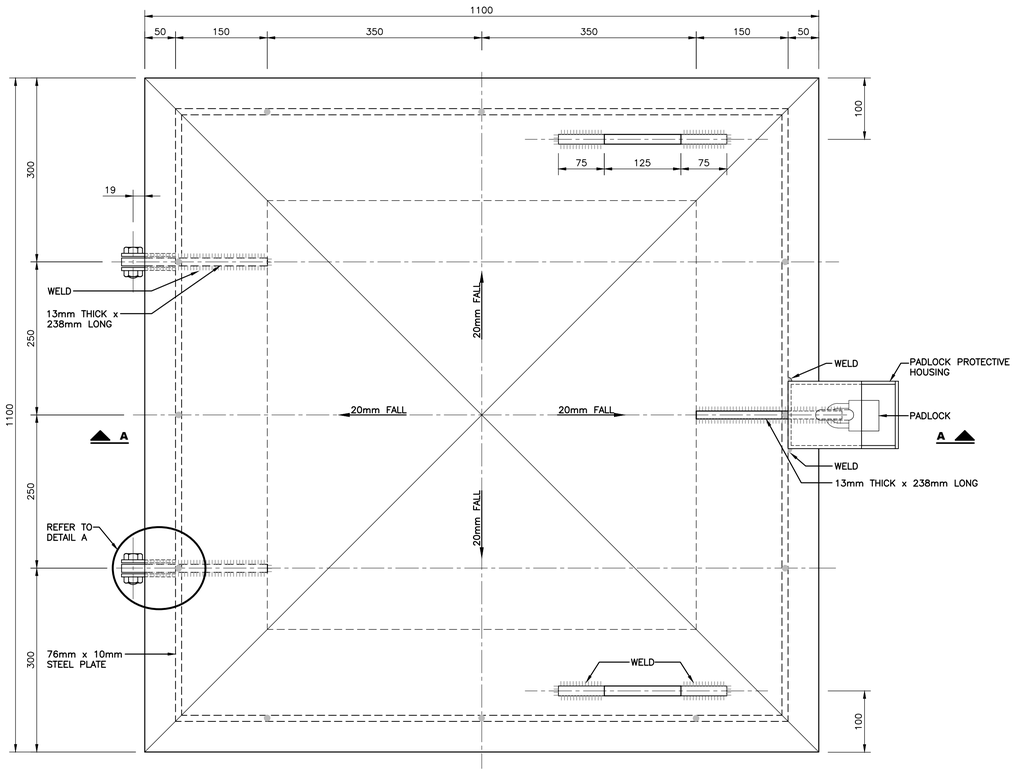
DRAWN	S.M./H.WILSON	CHECKED	
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED	S.MDAKA	M. VAWDA
	PROJECT MANAGER	DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

TYPICAL GENERAL DETAILS

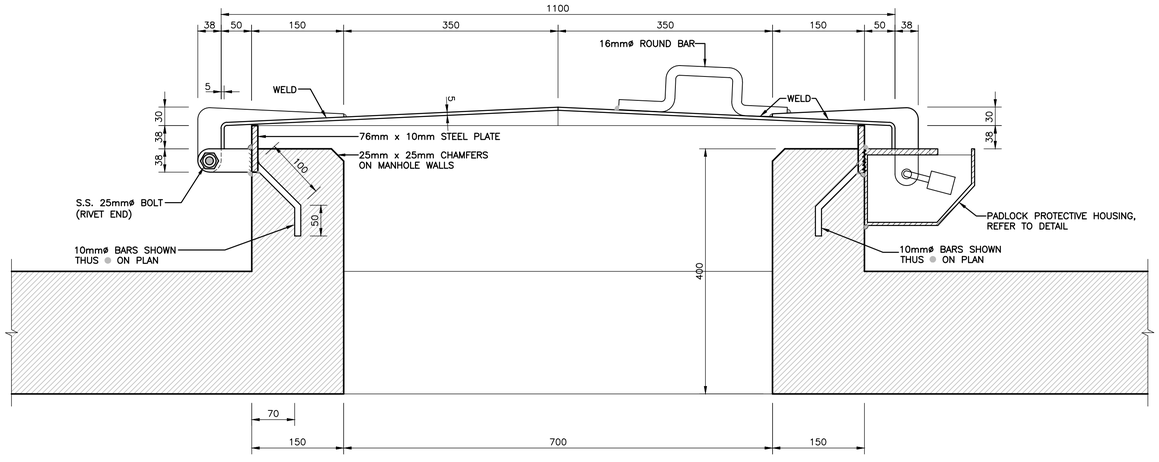
SCALE	AS SHOWN	DATE	DEC. 2014
DRAWING NUMBER	1331-093-WTW-637	A1	REVISION A



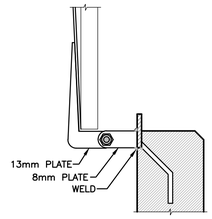
PLAN
SCALE 1:5

NOTE:

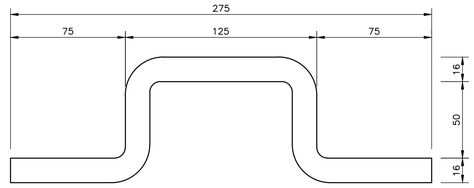
1 FRAME AND COVER TO BE MANUFACTURED FROM GALVANISED MILD STEEL.
2 ALL WELDS 6mm FILLET.



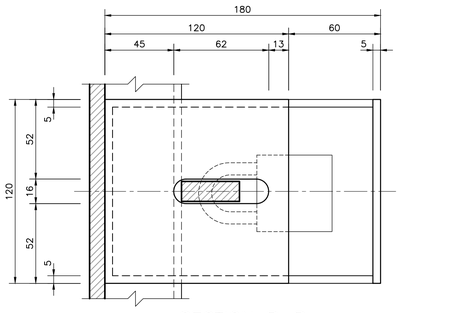
SECTION A–A
SCALE 1:5



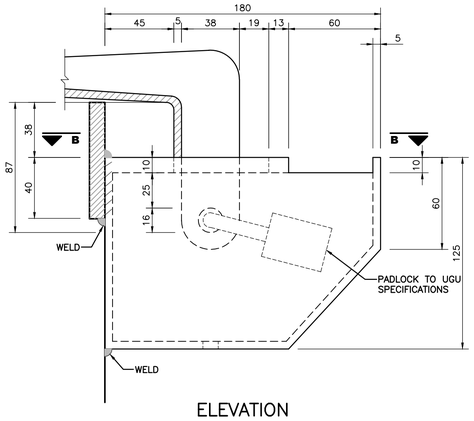
DETAIL A
SCALE 1:10



DETAIL OF HANDLE (2 OFF)
SCALE 1:2



SECTION B–B
SCALE 1:2



ELEVATION
SCALE 1:2

DETAIL OF PADLOCK PROTECTIVE HOUSING

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	08/06/2021

DRG. No. | REFERENCE DRAWING

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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
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DRAWN	A.R.		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

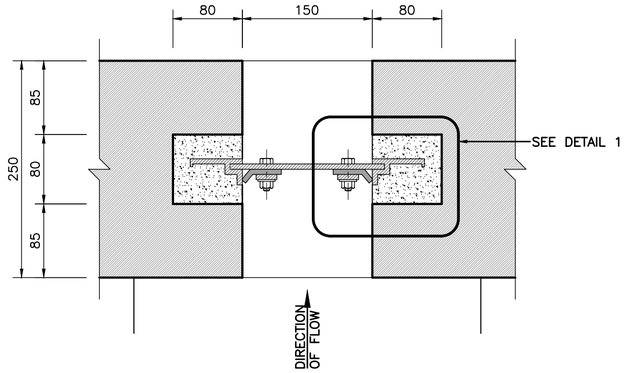
APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

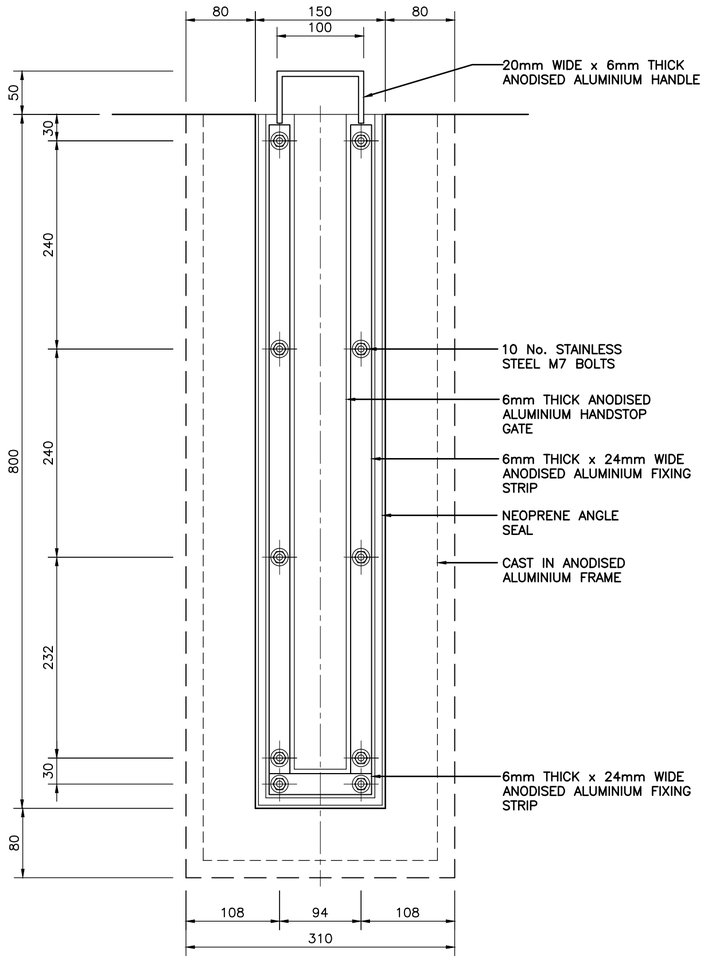
LOCKABLE MANHOLE COVER AND FRAME 700x700mm

SCALE: AS SHOWN | DATE: JAN. 2015

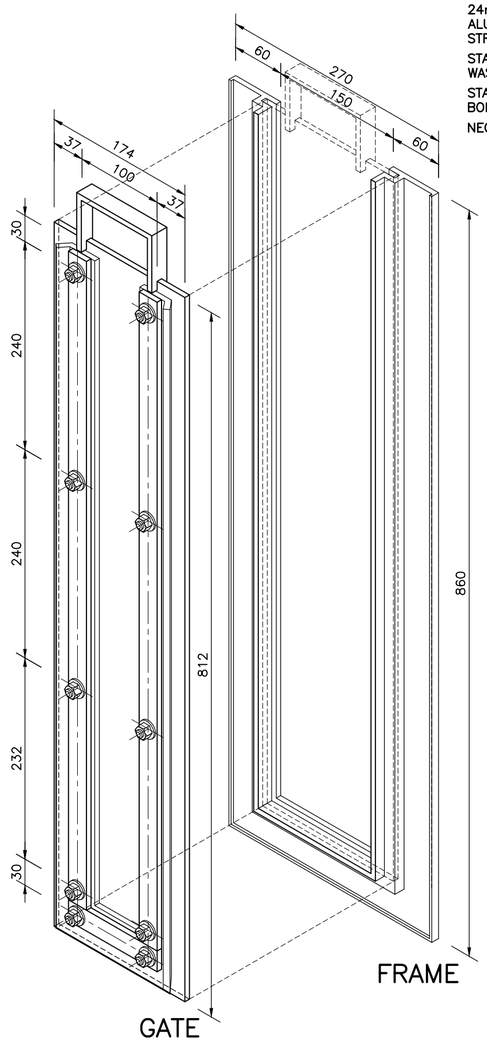
DRAWING NUMBER: 1331-093-WTW-639 | A1 | REVISION: A



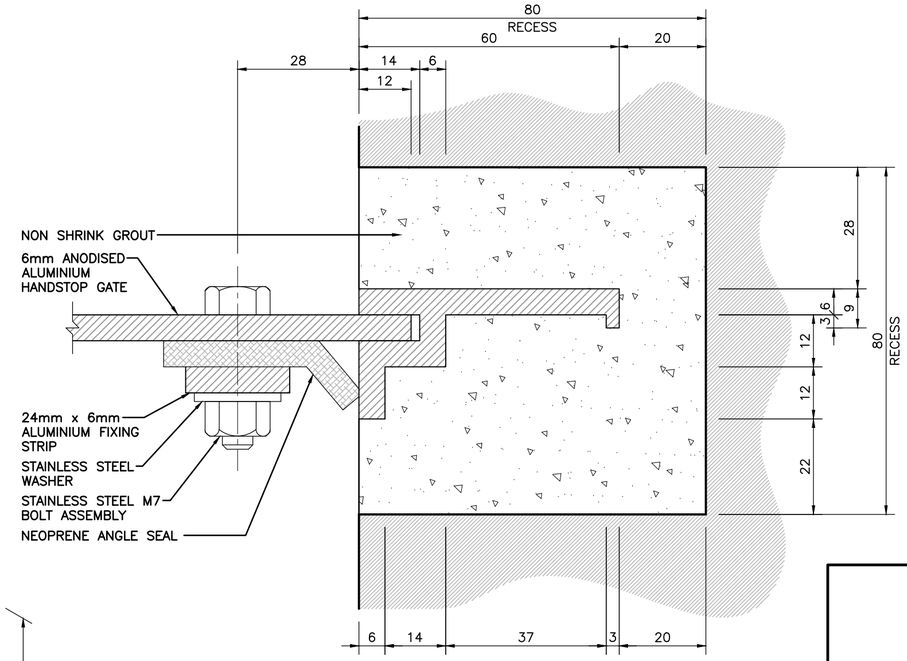
PLAN
SCALE 1:5



ELEVATION
SCALE 1:5



ISOMETRIC VIEW
SCALE 1:5



DETAIL 1
SCALE 1:1

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	17/03/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-621	FILTER BEDS, SECTION & TAILS
1331-093-WTW-620	FILTER BEDS, PLAN & SECTIONS

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
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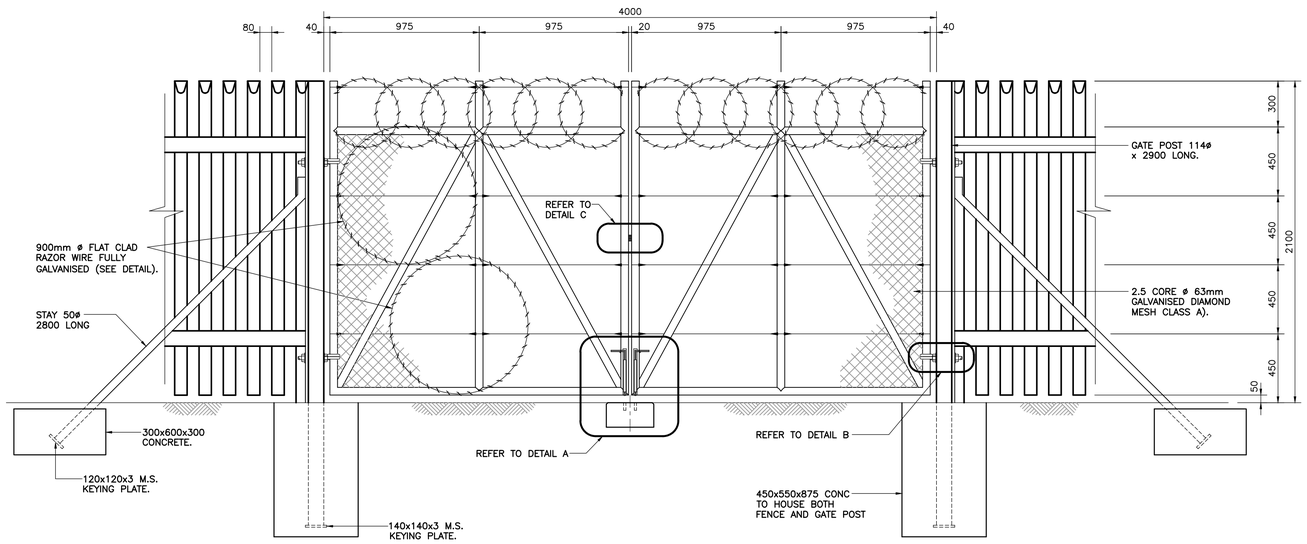
DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

FILTER BEDS HANDSTOP DETAILS

SCALE	DATE
AS SHOWN	JAN. 2015

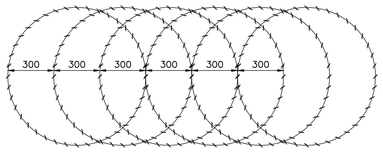
DRAWING NUMBER: 1331-093-WTW-640 | A2 | REVISION: A



VEHICULAR GATE DETAIL

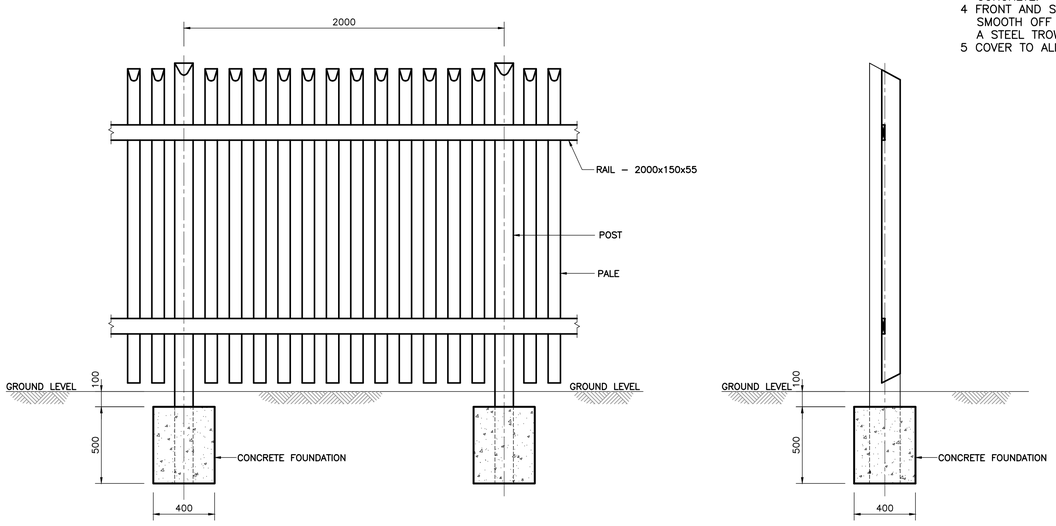
GATE FRAMES TO BE HOT–DIP GALVANISED AFTER FABRICATION

SCALE 1:20



DETAIL SHOWING 900mmø FLAT CLAD RAZOR WIRE

SCALE 1:20



ELEVATION

SIDE ELEVATION

PRECAST CONCRETE PALISADE FENCE

SCALE 1:20

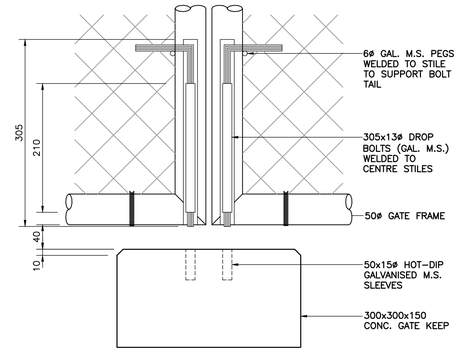
NOTE:

PALISADE FENCE 2.4m HIGH " COBRO CONCRETE" PALISADE PRECAST FENCING (HEAVY DUTY) – TYPE 1:10 PALES PER SECTION OR SIMILAR APPROVED.

ALL MATERIALS TO BE HOT–DIP GALVANISED (CLASS A – HEAVY DUTY) AFTER FABRICATION PRIOR TO INSTALLATION.

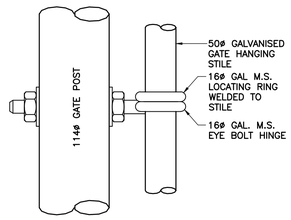
NOTES

1 PALE SPACING TO BE EITHER AT 145 CTS (13 PALINGS PER 2000) OR AT 175 CTS (10 PALINGS PER 2000).
2 ALL PRECAST UNITS TO CONSIST OF GRADE 30/13 CONCRETE.
3 FOUNDATION CONCRETE TO CONSIST OF GRADE 20/26 CONCRETE.
4 FRONT AND SIDES OF ALL PRECAST UNITS TO HAVE SMOOTH OFF THE FORM FINISH. BACK FACES TO HAVE A STEEL TROWEL FINISH.
5 COVER TO ALL REINFORCING 20mm.



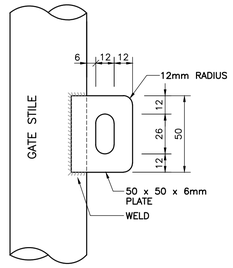
DETAIL A

SCALE 1:5



DETAIL B

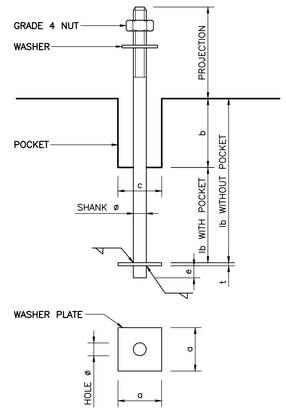
SCALE 1:5



DETAIL C

SCALE 1:2

HOLDING DOWN BOLTS WITH ANCHOR PLATES DETAIL



BOLT AND WASHER PLATE MATERIAL: GRADE 43; WELDS E70XX.
BOLTS SHOULD BE POSITIONED BY MEANS OF TEMPLATE.
ROUND WASHER TO BE USED UNDER NUT AND TO BE OF SUFFICIENT SIZE TO PROVIDE ADEQUATE BEARING AROUND CLEARANCE HOLE IN COLUMN BASE PLATE.
BOLT SHANKS TO BE DEGREASED BEFORE EMBED – DING IN CONCRETE.
TABULATED DIMENSIONS IN mm.
TO BE ELECTRO GALVANISED AFTER FABRICATION.

BOLT				ANCHOR PLATE					POCKET	
SHANK ø	NUT SIZE	BOND LENGTH	PRO–TRUSION	SIZE	THICK–NESS	HOLE ø	WELD SIZE		DEPTH	ø
lb	lb	lb	e	a	t	SIZE	UNDER SIDE	TOP SIDE	b	c
12	M12	200	10	50	8	14	5	5	150	75
16	M16	260	10	60	10	17.5	6	6	200	75
20	M20	320	10	70	12	21.5	6	6	250	100
24	M24	384	12	80	14	25.5	6	6	300	100
30	M30	480	12	110	14	32	6	6		
40	M36	640	12	120	16	42	6	6		
45	M42	720	16	140	20	47	6	6		

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	17/03/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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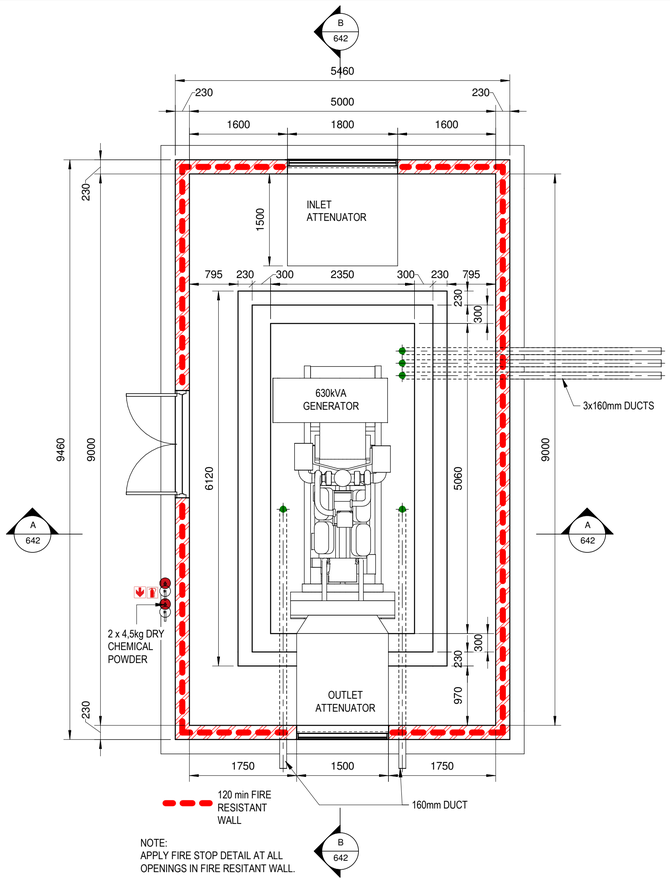
DRAWN	S.M./H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PALISADE FENCE AND GATE DETAILS

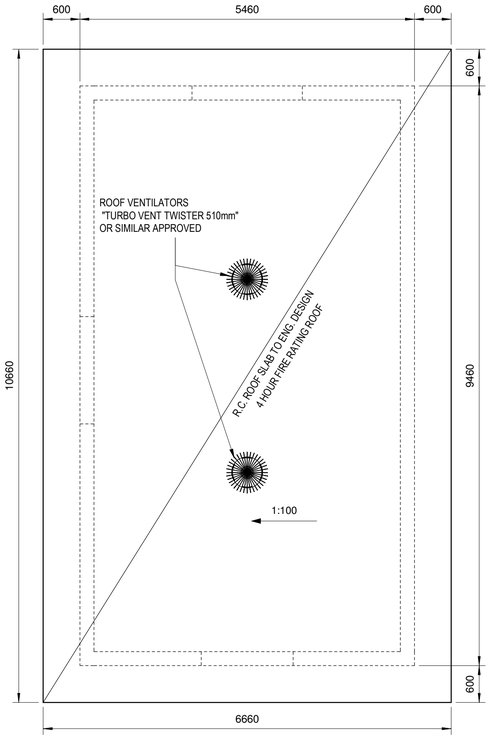
SCALE	AS SHOWN	DATE	JAN. 2015
DRAWING NUMBER	1331-093-WTW-641	A1	REVISION A



NOTE:
APPLY FIRE STOP DETAIL AT ALL
OPENINGS IN FIRE RESITANT WALL.

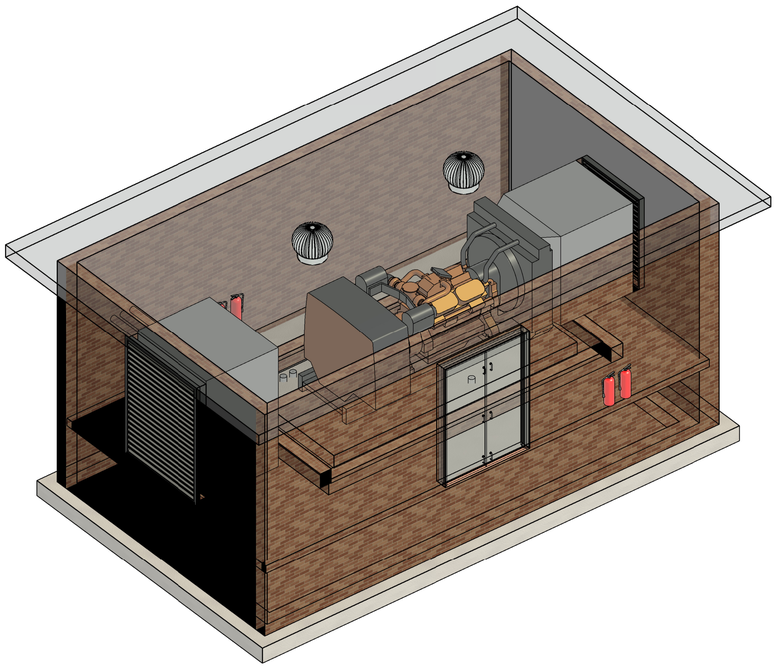
PLAN VIEW F.F.L.

1 : 50

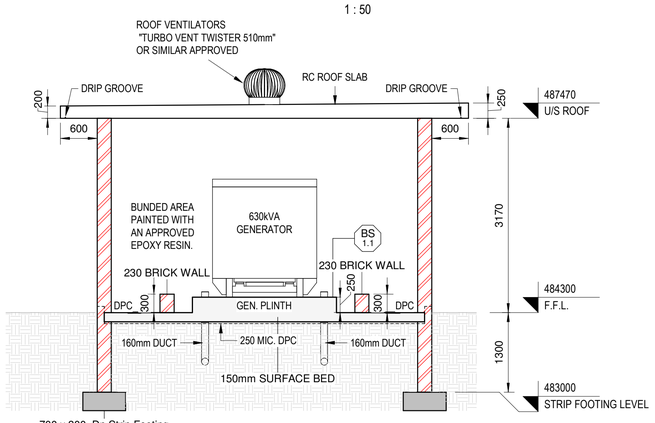


PLAN VIEW ROOF

1 : 50

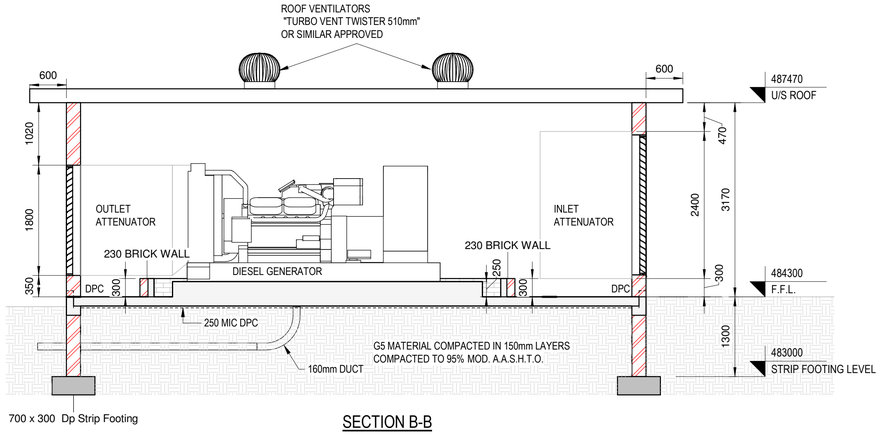


ISO VIEW



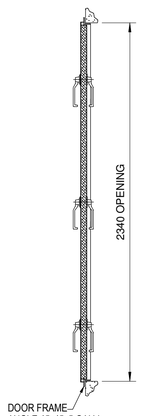
SECTION A-A

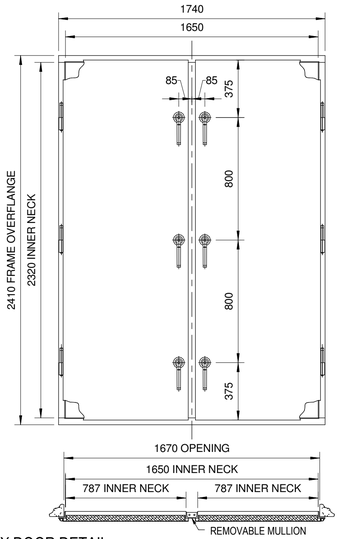
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SECTION B-B

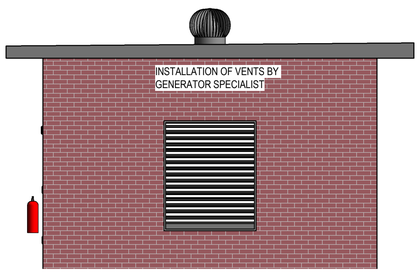
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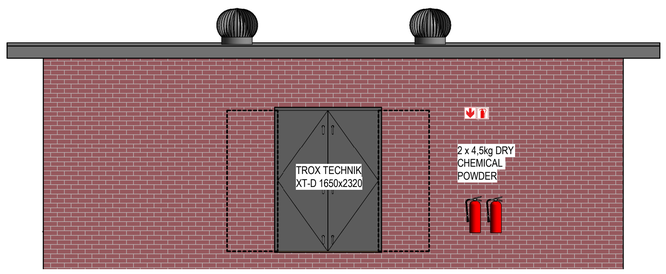
TROX DOOR DETAIL

1 : 20



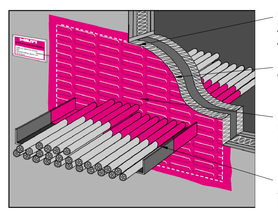
SOUTH VIEW

1 : 50



WEST VIEW

1 : 50



FIRE STOP DETAIL

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPR'D
A	R.C.	APPROVED FOR CONSTRUCTION	21/11/2022	
T2	ALR	RING BEAM REMOVED, BUND WALL AMENDED	17/08/2022	
T1	ALR	TENDER DRAWING	25/06/2021	

1331-093-WTW-643 | DIESEL STORAGE PLINTH & BUND AREA - PLAN AND SECTIONS

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	R. COETZEE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VADWA, DIVISIONAL MANAGER

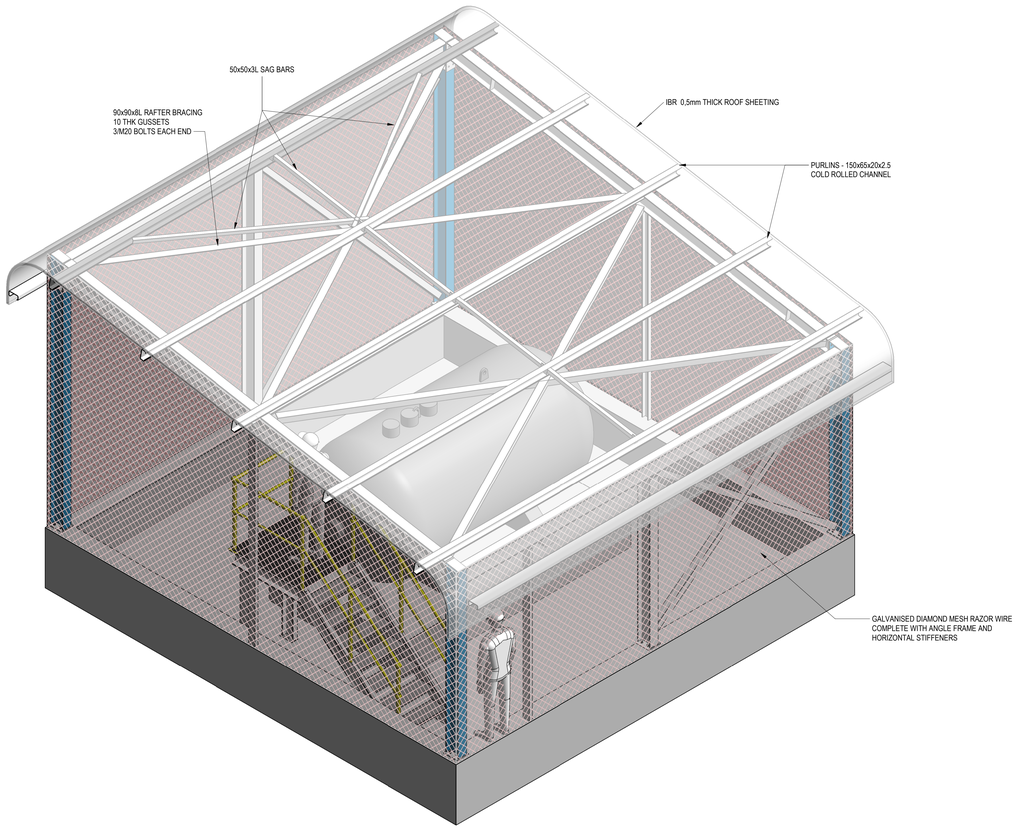
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND
WATER TREATMENT WORKS (6.5 ML/DAY)

ABSTRACTION AND WATER TREATMENT WORKS

-

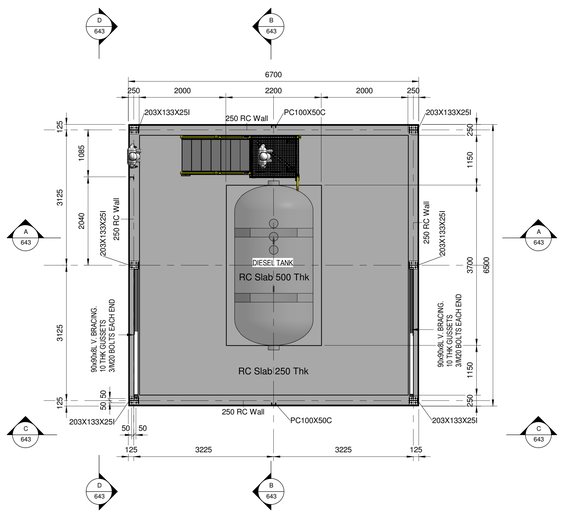
GENERATOR BUILDING LAYOUT

SCALE	AS SHOWN	DATE	21/11/2022
DRAWING NUMBER	1331-093-WTW- 642	A1	REVISION A



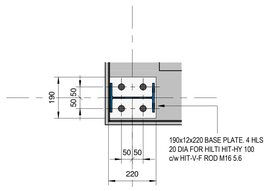
STRUCTURAL STEELWORK NOTES

1. ALL STRUCTURAL STEEL TO EN10025-2-S355JR
2. ALL STRUCTURAL STEEL SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH SANS 10162-1 AND SANS 1200H.
3. ALL COLD FORMED STEEL TO BE FABRICATED AND ERECTED IN ACCORDANCE WITH SANS 10162-2 AND HAVE A MINIMUM YIELD STRESS OF 200MPa.
4. ALL BURRS AND SHARP EDGES TO BE GROUND SMOOTH
5. ALL HOLES TO BE 22 DIA FOR M20 CLASS 8.8 BOLTS U.O.N.
6. ALL WELDS SHALL BE 6mm CONT. FILLET WELDS U.O.N ALL WELDS SHALL CONFORM TO SANS 10044
7. CORROSION PROTECTION AND PAINTING TO BE IN ACCORDANCE WITH THE PROJECT SPECIFICATION.
8. ALL ITEMS TO BE CLEARLY HARD MARKED WITH RESPECTIVE MARK NUMBERS
9. ALL SHOP DRAWINGS TO BE APPROVED IN PRINCIPLE BY THE ENGINEER IN WRITING BEFORE COMMENCING FABRICATION.
10. ALL DIMENSIONS TO BE CHECKED ON SITE BEFORE COMMENCING WITH FABRICATION AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY.
11. THE CONTRACTOR SHALL SUBMIT A SAFE ERECTION METHOD STATEMENT TO THE CLIENT / ENGINEER PRIOR TO ERECTING ANY STEELWORK .
12. HANDRAILING
    - ALL HANDRAILING TO BE BALL TYPE WITH 1000 HIGH STANCHIONS AT MAXIMUM 1500 CENTERS.
    - HAND AND KNEERAIL TUBING TO BE 34 DIA x MIN 2.5 WALL THICKNESS
    - STANCHIONS TO BE 43 DIA x MIN 3 HK TUBING.
    - ALL HANDRAILING AND STANCHIONS TO BE HOT DIP GALVANISED TO SANS SPECIFICATIONS
13. GRATING
    - OPEN GRID TYPE WITH 40 X 4,5 BEARER BARS AND 10 x 5 TRANSVERSALS BOTH AT 40mm CRS.
    - ALL GRATING TO BE BANDED
    - SPAN OF BEARER BARS INDICATED THUS
    - FIXINGS TO BE CLIPS WITH FIXING BOLTS
    - 4 x CLIPS PER PANEL SUPPLIED BY MANUFACTURER
    - GRATING TO BE HOT DIP GALVANISED TO SANS SPECS.
    - GRATING TO HAVE NON SLIP NOSING AT ALL LEADING EDGES
    - ALL STAIR TREAD TO BE OPEN GRID TYPE UON.
    - STAIR TREADS TO BE STANDARD 245 WIDE
    - 130 x 8 KICK PLATES REQUIRED AROUND ALL EDGES AND OPENINGS.



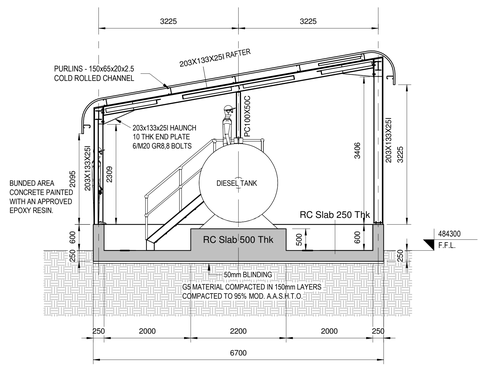
PLAN VIEW F.F.L.

1 : 50



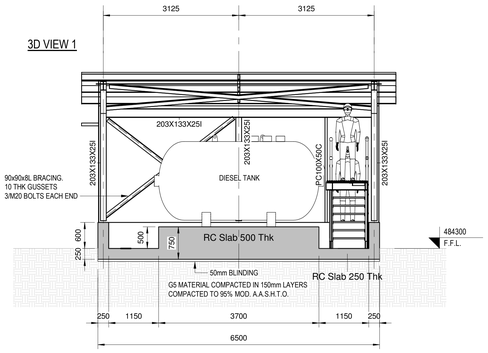
MAIN COLUMN BASE PLATE DETAIL

1 : 10



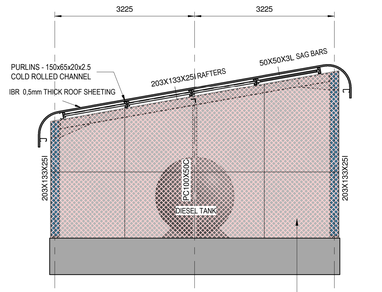
SECTION A-A

1 : 50



SECTION B-B

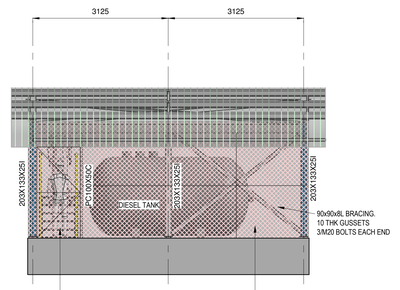
1 : 50



GALVANISED DIAMOND MESH RAZOR WIRE FENCE TO BE WELDED TO 60x60x8L FRAMES. FRAMES TO BE BOLTED TO TOP OF BUND WALL, TO THE EAVES BEAM ABOVE, TO THE COLUMNS & TO EACH OTHER WITH M16 GR 8,8 BOLTS WITH LOCK NUTS.

SECTION C-C

1 : 50



1000w X 2100h GALVANISED DIAMOND MESH RAZOR WIRE GATE COMPLETE WITH HINGES AND LOCKING MECHANISM. MESH TO BE WELDED TO 60x60x8L FRAME & STIFFENERS. HINGE GATE OFF COLUMN FLANGE.

GALVANISED DIAMOND MESH RAZOR WIRE FENCE TO BE WELDED TO 60x60x8L FRAMES. FRAMES TO BE BOLTED TO TOP OF BUND WALL, TO THE EAVES BEAM ABOVE, TO THE COLUMNS & TO EACH OTHER WITH M16 GR 8,8 BOLTS WITH LOCK NUTS.

SECTION D-D

1 : 50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD.
A	R.C.	APPROVED FOR CONSTRUCTION	21/11/2022	
T1	R.C.	TENDER DRAWING	25/06/21	

1331-093-WTW-642 GENERATOR BUILDING LAYOUT

DRG. No. REFERENCE DRAWING

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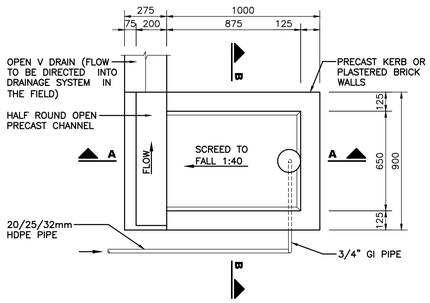
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1 HALWOOD PARK
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LA LUCIA RIDGE OFFICE ESTATE
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TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
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DRAWN	R. COETZEE		
CIVIL ENGINEER	A LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VADWA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

DIESEL TANK
LAYOUT AND DETAILS

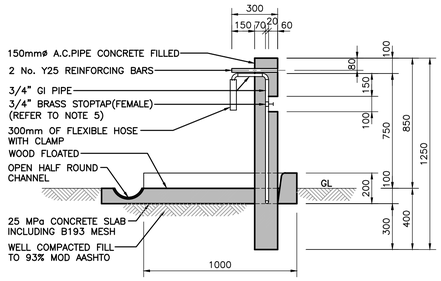
SCALE	AS SHOWN	DATE	21/11/2022
DRAWING NUMBER	1331-093-WTW- 643	A0	REVISION A



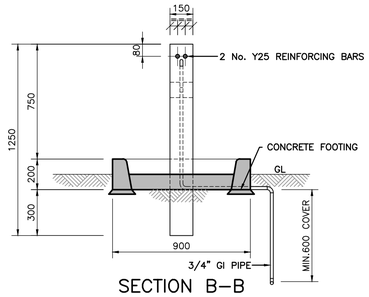
PLAN
SCALE 1:20

NOTES:

1 DRAINAGE DETAILS & SITING OF STANDPIPE TO BE DETERMINED ON SITE.
2 ALL BRASS FITTINGS TO BE DEZINCIFICATION RESISTANT.
5 STOPTAPS TO HAVE A REMOVEABLE 3/4" BSP (MALE) BRASS CRUTCHED HEADPART INCLUDING BRASS JUMPER WITH WASHER.

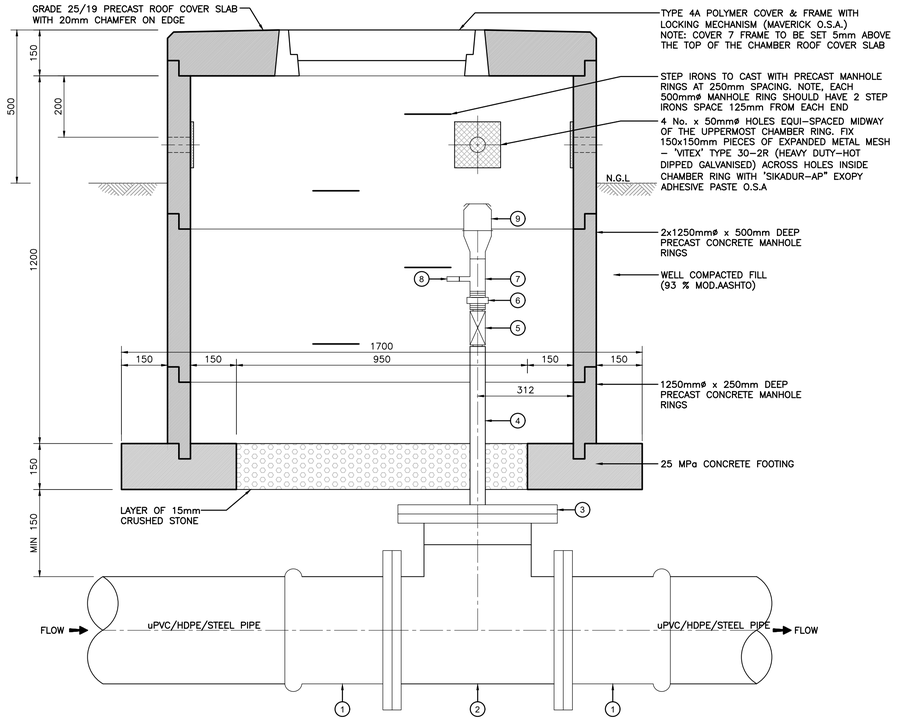


SECTION A–A
SCALE 1:20



SECTION B–B
SCALE 1:20

TYPICAL SINGLE STANDPIPE DETAIL

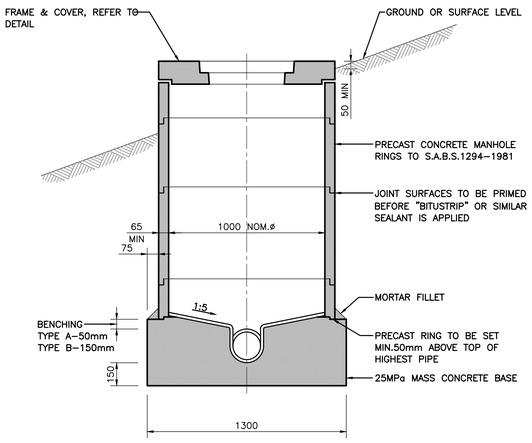


TYPICAL AIR VALVE CHAMBER DETAIL
SCALE 1:10

NOTES

1 ALL BOLTS TO BE ELECTRO GALVANISED AND YELLOW PASSIVATED.
2 ALL BURIED BOLTED CONNECTION TO BE DENSO WRAPPED TO STANDARD SPECIFICATION.
3 ALL STEEL PIPEWORK TO BE HOT DIP GALVANISED.
4 ALL FLANGES TO SANS 1123/77, TABLE TO SUIT AIR VALVE PRESSURE RATING.

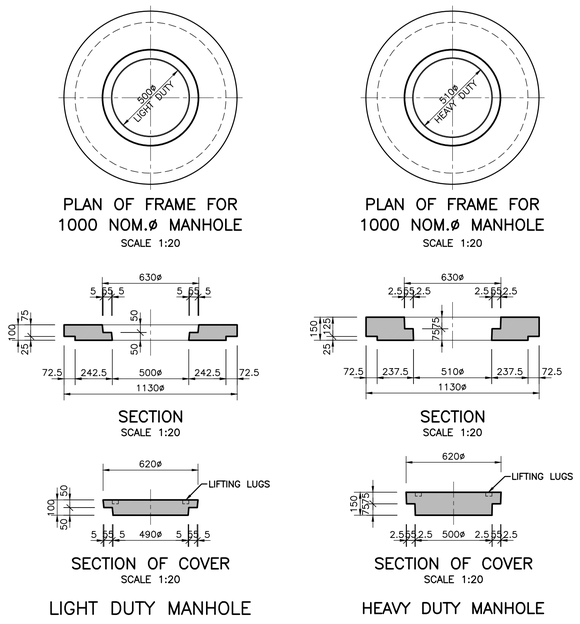
ITEM	DESCRIPTION	No
1	FLANGE ADAPTOR FOR uPVC PIPE (THOMAS ENERSEAL OR SIMILAR APPROVED) OR STEEL TO HDPE CONNECTION (STUB FLANGE AND BACKING RING) FOR HDPE PIPES	2
2	STEEL EQUAL TEE WITH BRANCH STEEL PIPE, 100mm LONG, WELEDED TO BRANCH END, F.A.E., FLANGES TO SANS 1123/77 TABLE 1600/3	1
3	STEEL BLANK FLANGE WITH 50mmø CENTRAL OPENING	1
4	50mmø STEEL PIPE (ASTM AI06) LENGTH TO SUIT, ONE END WELDED TO BLANK FLANGE & OTHER END BSP MALE THREADED	1
5	50mmø BALL VALVE (BSP FEMALE BOTH ENDS), PRESSURE RATING TO SUIT PIPE CLASS AS PER LAYOUT DRAWINGS	1
6	50mmØ HEX NIPPLE	1
7	50x15mmø REDUCING TEE	1
8	15mmø SOLID PLUG	1
9	50MMØ AIR VALVE (BERMAD C30–AC WITH 4MM SECONDARY ORIFICE) OSA.PRESSURE RATING TO SUIT PIPE CLASS AS PER LAYOUT DRAWINGS	1



NOTES:

1 TYPE A BENCHING TO BE USED UNLESS TYPE B BENCHING IS REQUIRED.
2 TYPE B BENCHING TO BE USED WHERE UPSTREAM GRADIENT EXCEEDS 1:15.
3 CHANNELS TO BE OF HALF–ROUND SECTIONS BONDED TO BENCHING UNLESS HAND–FORMING IS APPROVED DUE TO UNUSUAL GEOMETRY.
4 BENCHING TO BE FINISHED WITH 1:2 H.A.C. CEMENT MORTAR RENDERING, STEEL–TOWELED SMOOTH AND UNIFORM.

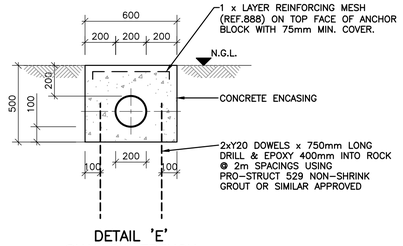
STANDARD PRECAST SEWER MANHOLE
SCALE 1:20



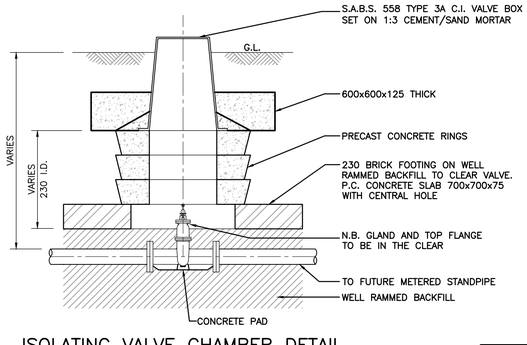
LIGHT DUTY MANHOLE

HEAVY DUTY MANHOLE

CIRCULAR PRECAST CONCRETE MANHOLE COVERS AND FRAMES



DETAIL 'E'
SHALLOW TRENCH
PIPE CONCRETE ENCASEMENT DETAIL
SCALE 1:20



ISOLATING VALVE CHAMBER DETAIL
SCALE 1:10

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	28/07/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-631	SEWER LAYOUT & LONGITUDINAL SECTION
1331-093-WTW-628	PIPELINE LAYOUT PLAN
1331-093-WTW-602	LAYOUT PLAN

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BOSCH PROJECTS
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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

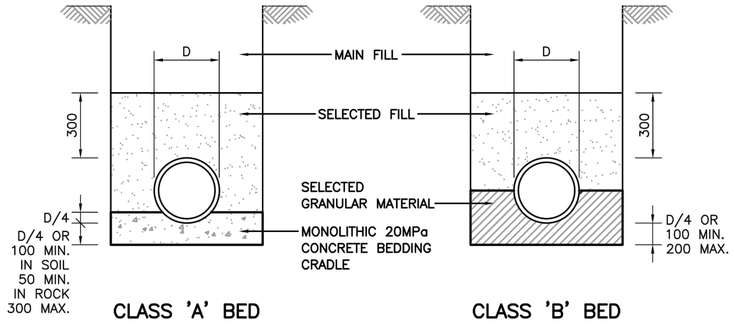
DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED	S.MDAKA	M.VAWDA
	PROJECT MANAGER	DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

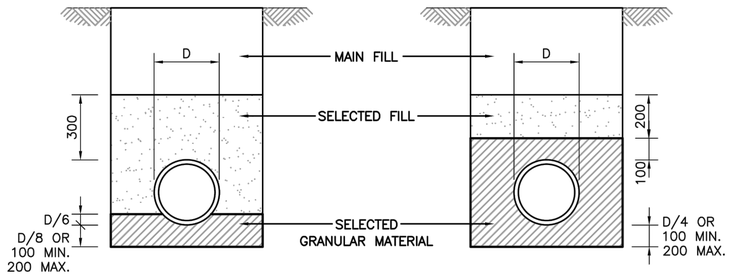
TYPICAL WATER AND SEWER DETAILS

SCALE	AS SHOWN	DATE	JUNE 2021
DRAWING NUMBER	1331-093-WTW-644	A1	REVISION A



CLASS 'A' BED

CLASS 'B' BED



CLASS 'C' BED

FLEXIBLE PIPE BED

NOTES:

1. UNLESS OTHERWISE STATED TRENCH WIDTH TO CONFORM TO STANDARDIZED SPECIFICATION– SANS 1200 DB: EARTHWORKS (PIPE TRENCHES).
2. SELECTED GRANULAR MATERIAL TO BE COMPACTED TO 95% MAASHTO DENSITY IN MAXIMUM 150mm LAYERS.
3. SELECTED FILL MATERIAL TO BE COMPACTED TO 93% MAASHTO DENSITY IN MAXIMUM 150mm LAYERS.
4. MAIN FILL TO BE COMPACTED TO 90% MAASHTO DENSITY IN MAXIMUM 300mm LAYERS, UNLESS OTHERWISE SPECIFIED. 5. WHERE THE TRENCH WIDTH IS WIDER THAN THAT SPECIFIED THE CONTRACTOR MAY ELECT TO POUR CONCRETE BEDDING CRADLE TO SIDES OF TRENCH. PAYMENT WILL HOWEVER BE BASED ON THE TRENCH WIDTH SPECIFIED.
6. A JOINT SHALL BE PROVIDED IN THE CLASS 'A' BED AT EACH PIPE JOINT USING MINIMUM THICKNESS 12mm COMPRESSIBLE POLYSTYRENE OR FIBRE–BOARD.

FOR CONSTRUCTION

REV	BY	DESCRIPTION	DATE	APPR'D
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022	
T1	ALR	TENDER DRAWING	1/07/2021	

REV	BY	DESCRIPTION	DATE	APPR'D

DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED S.MDAKA PROJECT MANAGER

M.VAWDA DIVISIONAL MANAGER

SCALE 1:20

DATE JULY 2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
BEDDING DETAILS

DRAWING NUMBER 1331-093-WTW-645 | A4 | REVISION A

Ugu District Municipality

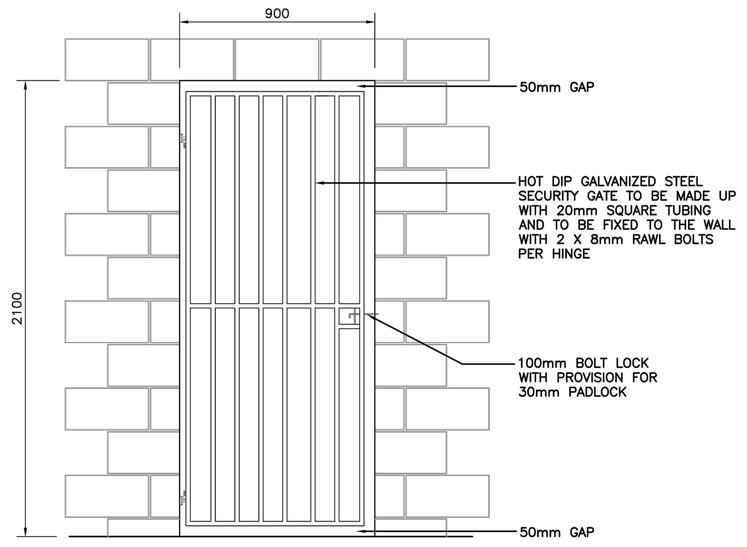
STATUTORY NOTE:
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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

25A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320

TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



FOR CONSTRUCTION

REV	BY	DESCRIPTION	DATE	APPR'D
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022	
1	ALR	TENDER DRAWING	16/07/2021	

REV	BY	DESCRIPTION	DATE	APPR'D

DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED S.MDAKA PROJECT MANAGER

M.VAWDA DIVISIONAL MANAGER

SCALE 1:25

DATE JULY 2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
SECURITY GATE DETAILS

DRAWING NUMBER 1331-093-WTW-646 | A4 | REVISION A

Ugu District Municipality

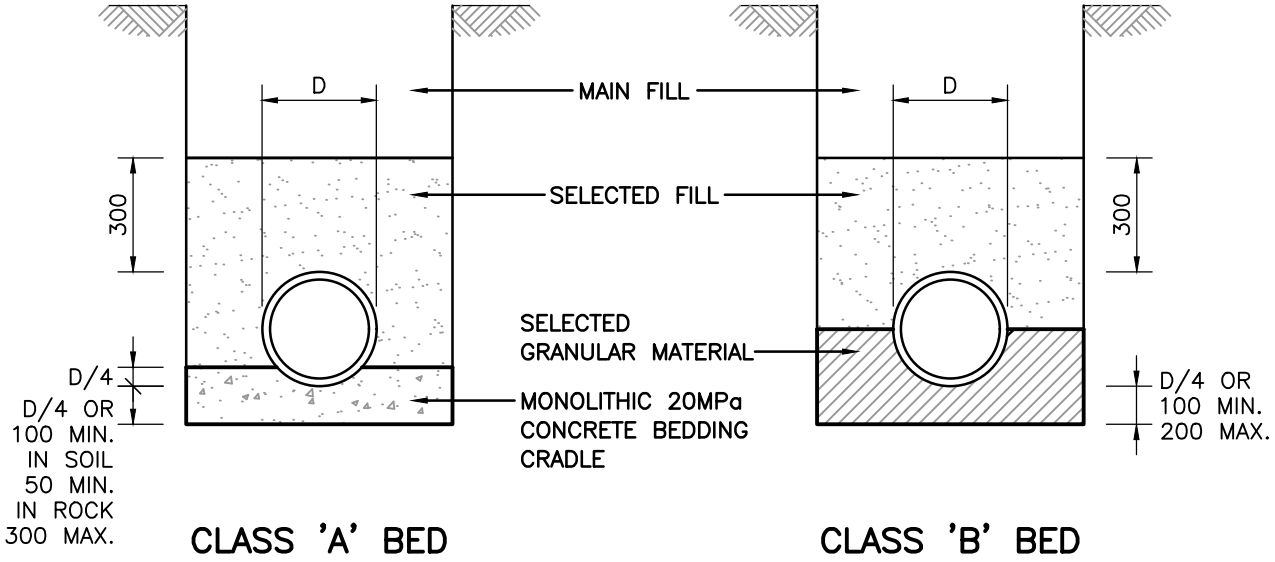
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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

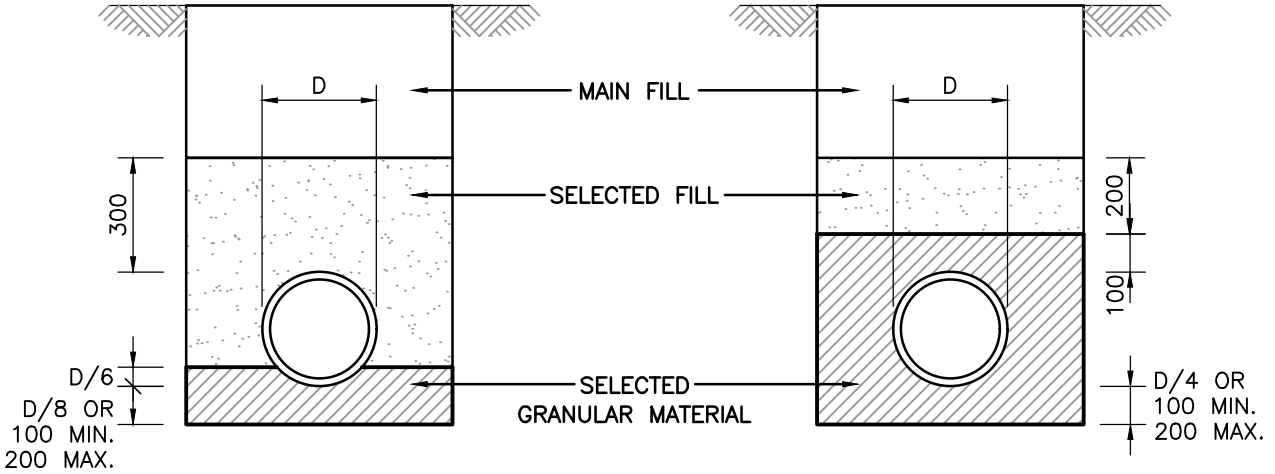
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CLASS 'A' BED

CLASS 'B' BED



CLASS 'C' BED

FLEXIBLE PIPE BED

NOTES:

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FOR CONSTRUCTION

Ugu District Municipality

REV	BY	DESCRIPTION	DATE	APPR'D	REV	BY	DESCRIPTION	DATE	APPR'D
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022						
T1	ALR	TENDER DRAWING	1/07/2021						

STATUTORY NOTE:
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THIS DRAWING WAS PREPARED USING A CERTIFIED QUALITY MANAGEMENT SYSTEM TO ISO 9001:2008

DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED
S.MDAKA
PROJECT MANAGER
M.VAWDA
DIVISIONAL MANAGER

SCALE 1:20

DATE JULY 2021

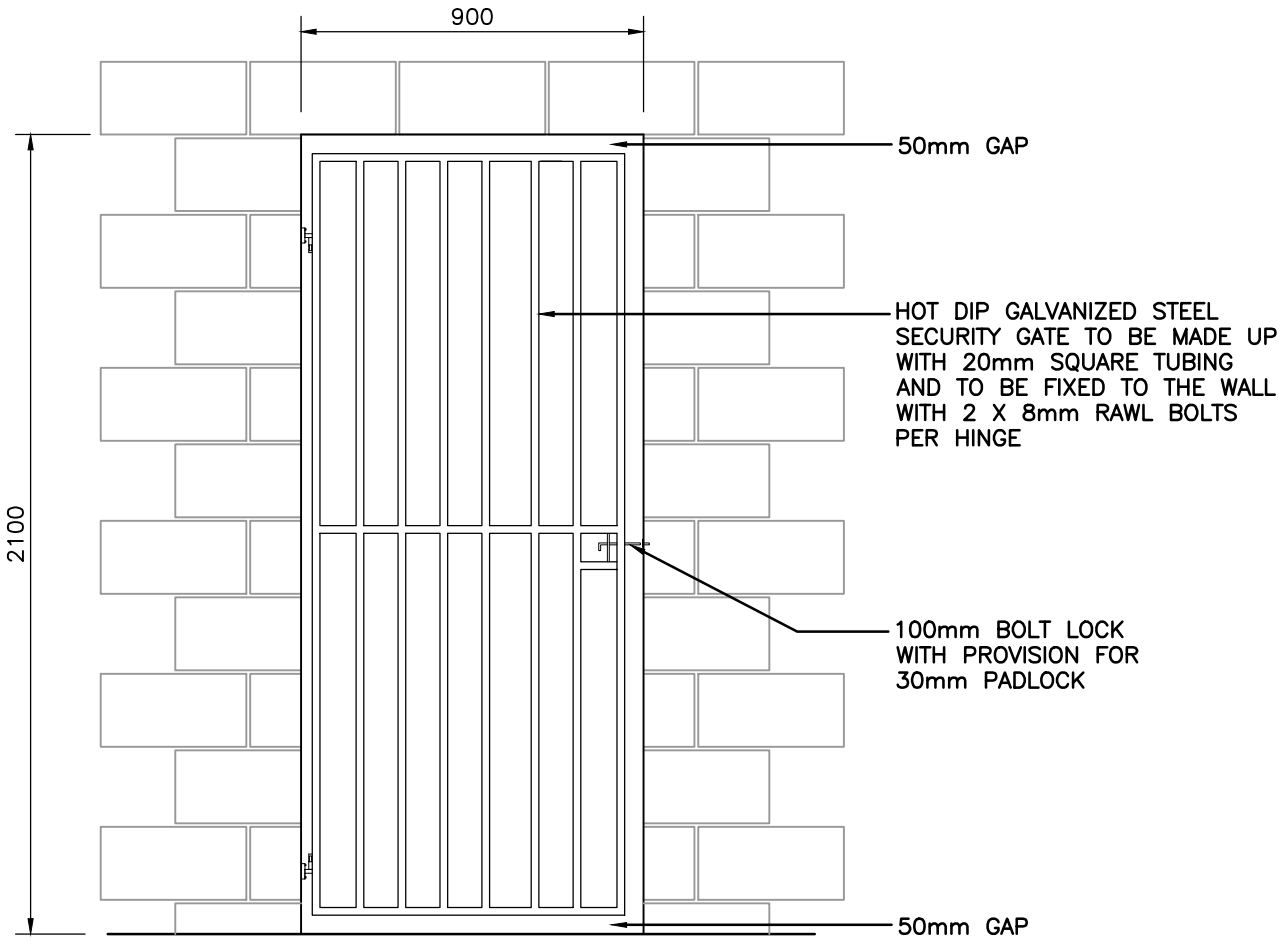
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
BEDDING DETAILS

DRAWING NUMBER 1331-093-WTW-645 | A4 | REVISION A

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

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DURBAN
SOUTH AFRICA, 4320

TEL: +27 (0)31 535 6000
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e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



FOR CONSTRUCTION

Ugu District Municipality

REV	BY	DESCRIPTION	DATE	APPR'D	REV	BY	DESCRIPTION	DATE	APPR'D
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022						
1	ALR	TENDER DRAWING	16/07/2021						

STATUTORY NOTE:
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DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED
S.MDAKA
PROJECT MANAGER
M.VAWDA
DIVISIONAL MANAGER

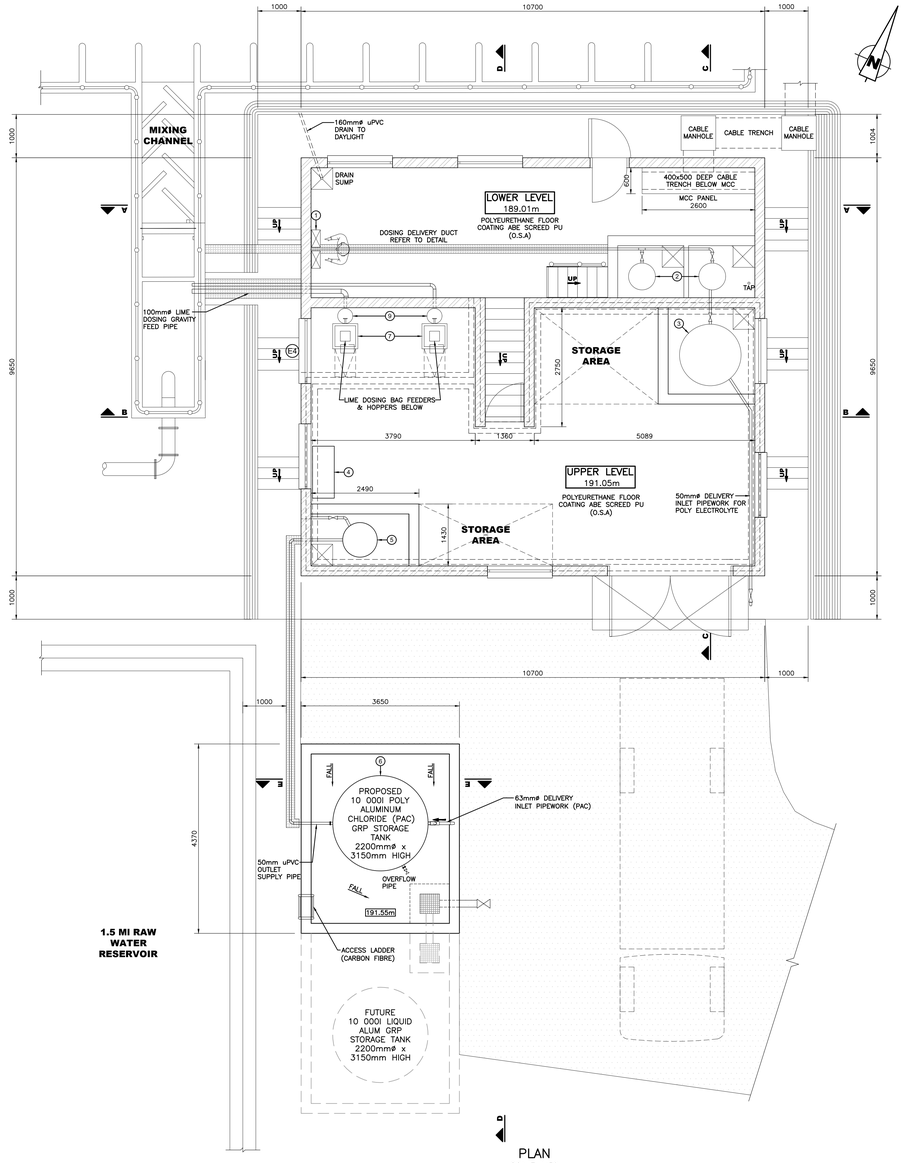
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DATE JULY 2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
SECURITY GATE DETAILS

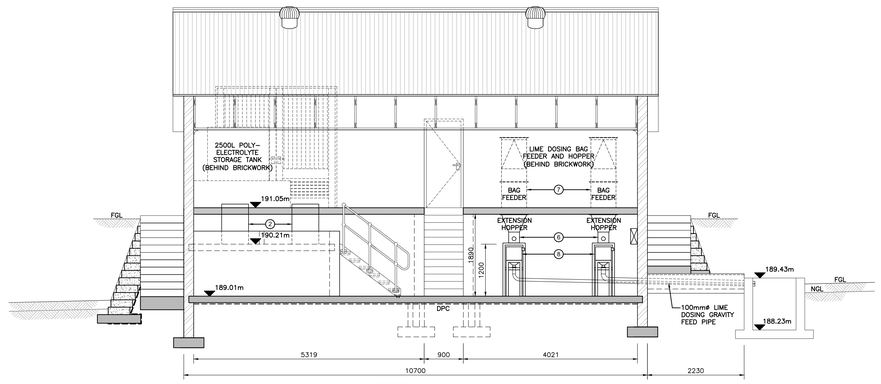
DRAWING NUMBER 1331-093-WTW-646 | A4 | REVISION A

BOSCH PROJECTS
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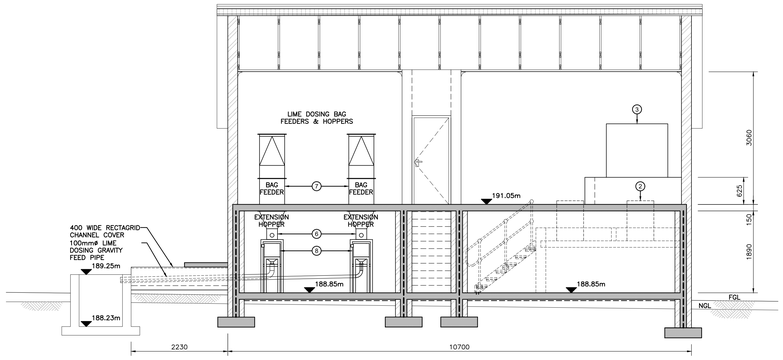


PLAN
SCALE 1:50

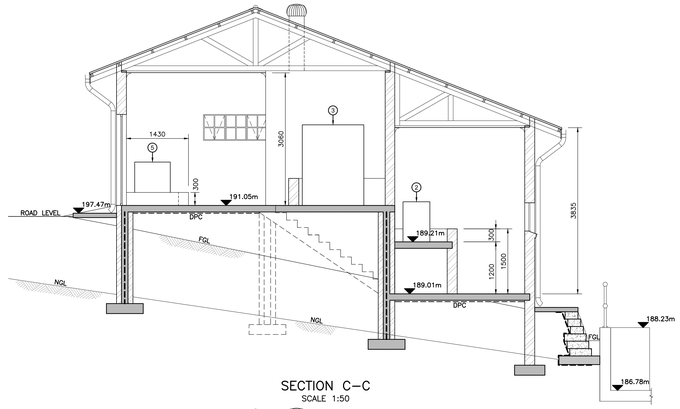
SECTION E–E
SCALE 1:50



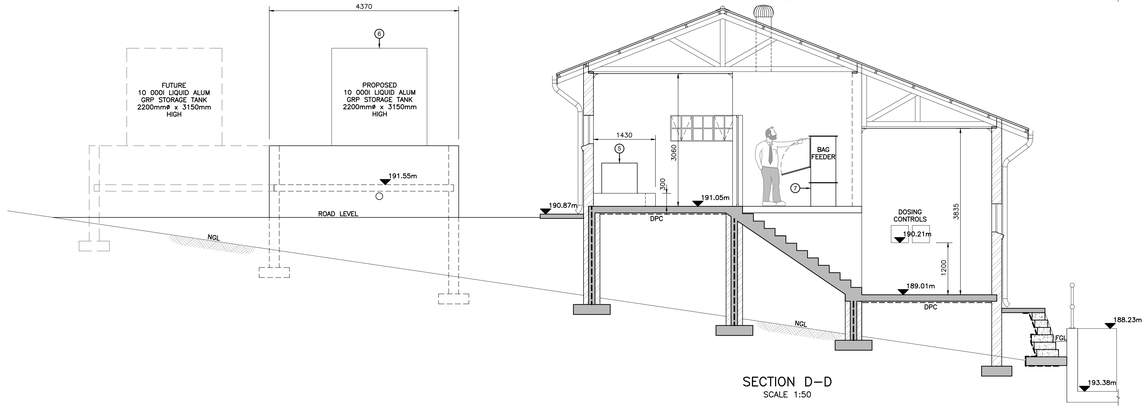
SECTION A–A
SCALE 1:50



SECTION B–B
SCALE 1:50



SECTION C–C
SCALE 1:50



SECTION D–D
SCALE 1:50

ITEM	DESCRIPTION	QTY.
1	POLY ELECTROLYTE DOSING SKID	1
2	500L POLY ELECTROLYTE DAY TANK	2
3	2500L POLY ELECTROLYTE BULK STORAGE TANKS	1
4	POLY ALUMINUM CHLORIDE DOSING SKID	1
5	500L POLY ALUMINUM CHLORIDE DAY TANK	1
6	10000L POLY ALUMINUM CHLORIDE BULK STORAGE TANK	1
7	GRUNDFOS DRY LIME POWDER SCREW FEEDER	2
8	GRUNDFOS DRY LIME POWDER HOPPER	2
9	STAINLESS STEEL GRUNDFOS DRY LIME POWDER WETTING BOWL	2

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	CN	TENDER DRAWING	27/07/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-614	CHEMICAL DOSING BUILDING, SECTIONS & DETAILS
1331-093-WTW-613	CHEMICAL DOSING BUILDING, PLAN AND ELEVATIONS
1331-093-WTW-602	LAYOUT PLAN

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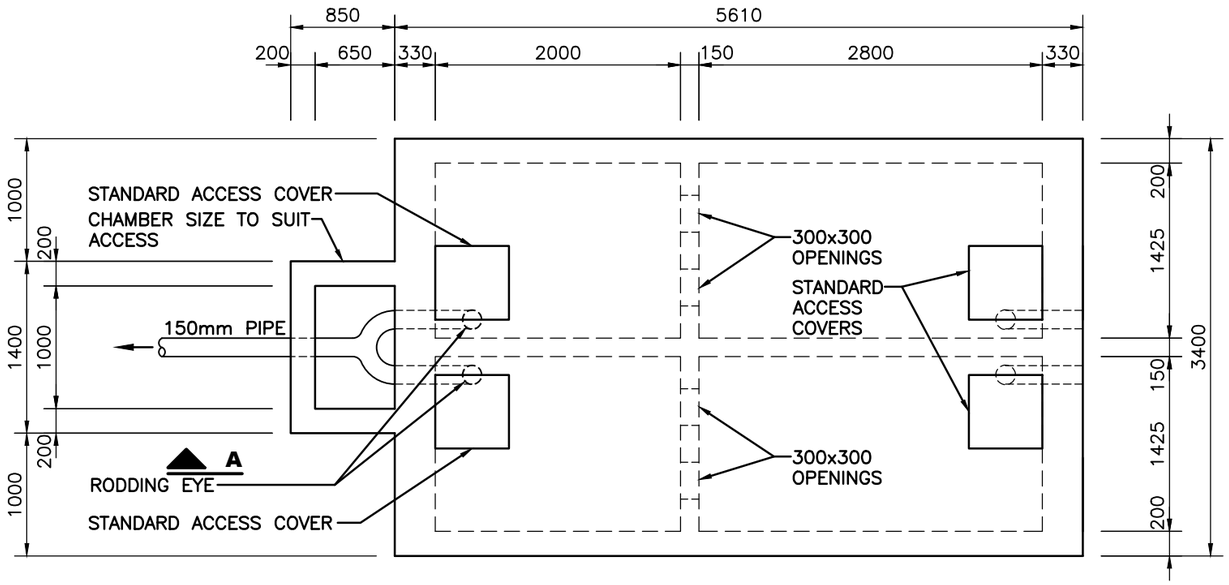
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
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ISO 9001:2015 CERTIFIED

DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M. VAWDA DIVISIONAL MANAGER	

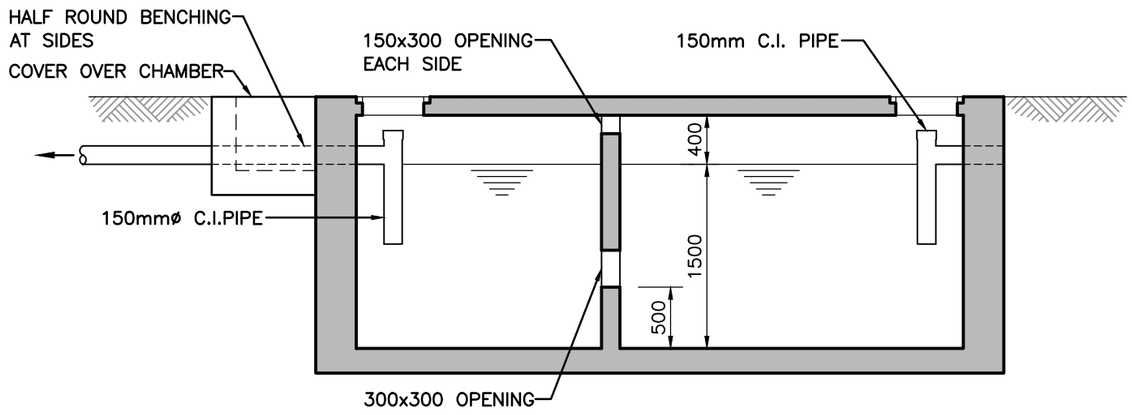
UGU DISTRICT MUNICIPALITY KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CHEMICAL DOSING BUILDING EQUIPMENT PLAN AND SECTIONS

SCALE	AS SHOWN	DATE	JULY 2021
DRAWING NUMBER	1331-093-WTW-647	A0	REVISION A



PLAN



SECTION A–A

FOR CONSTRUCTION

Ugu District Municipality

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	27/07/2021

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DRAWN	H.WILSON		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

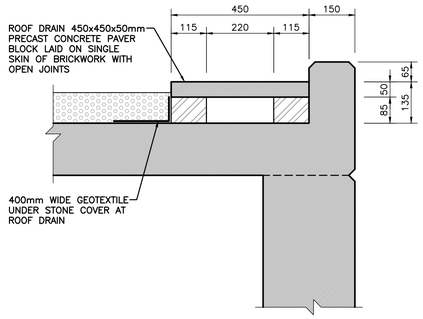
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DATE MAY 2021

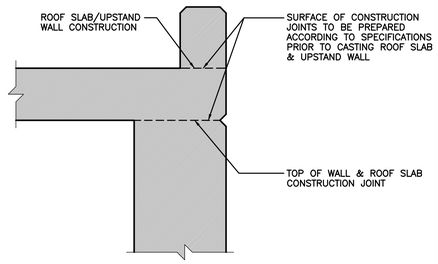
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
TYPICAL SEPTIC TANK

DRAWING NUMBER 1331-093-WTW-648 | A3 | REVISION A

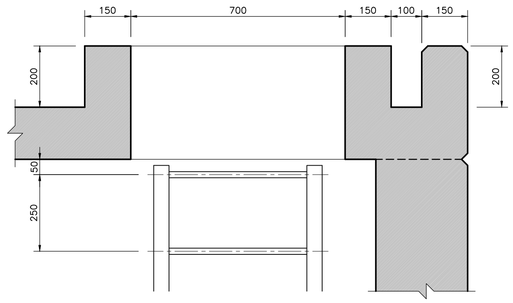
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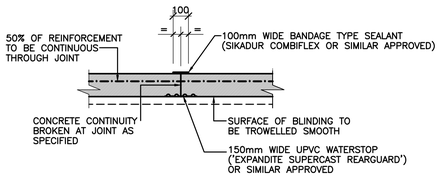
TYPICAL ROOF DRAIN DETAIL
SCALE 1:10



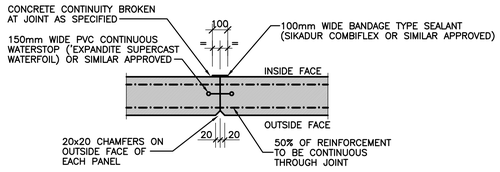
TOP OF WALL/ROOF JOINT
SCALE 1:10



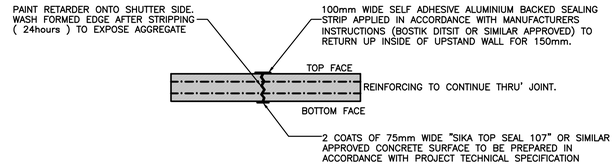
TYPICAL SECTION THROUGH ACCESS MANHOLE
SCALE 1:10



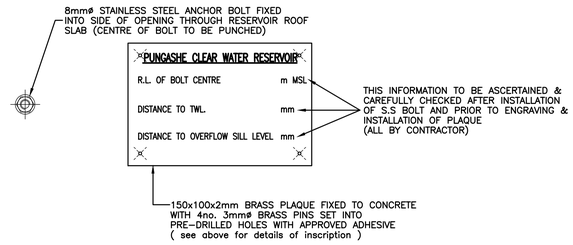
PARTIAL FLOOR JOINT (PFJ)
SCALE 1:20



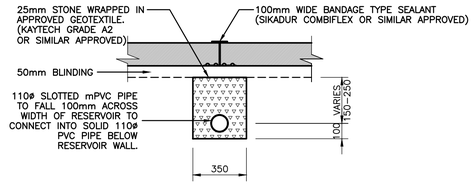
PARTIAL WALL JOINT (VERTICAL) (PWJ)
SCALE 1:20



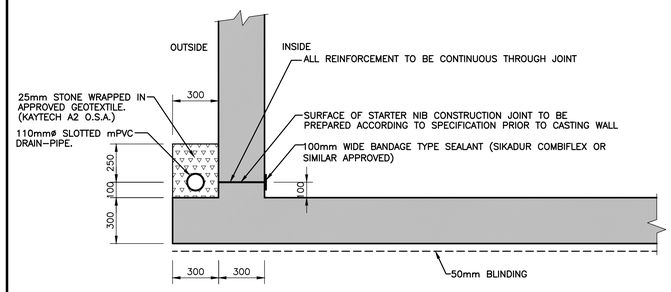
CONSTRUCTION JOINT IN ROOF SLAB
SCALE 1:20



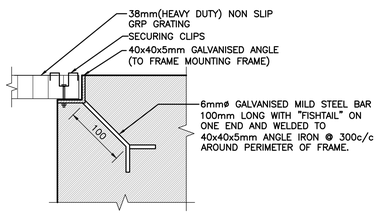
TYPICAL BENCH MARK
SCALE 1:2



DETAIL 'A'
TYPICAL DETAIL OF UNDERDRAIN
SCALE 1:20



DETAIL 'B'
TYPICAL BASE/WALL CONSTRUCTION JOINT & PERIPHERAL DRAIN
SCALE 1:20



TYPICAL FLOOR GRID
MOUNTING FRAME DETAIL
SCALE 1:5

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	1/07/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

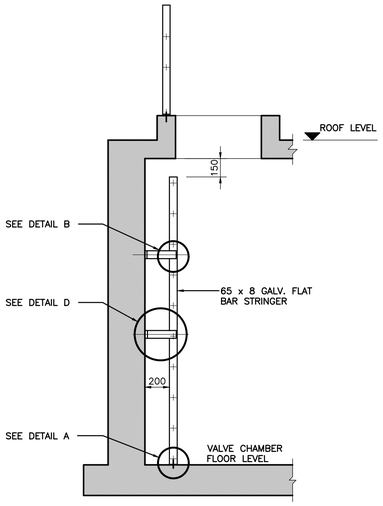
DRAWN	A.R.		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

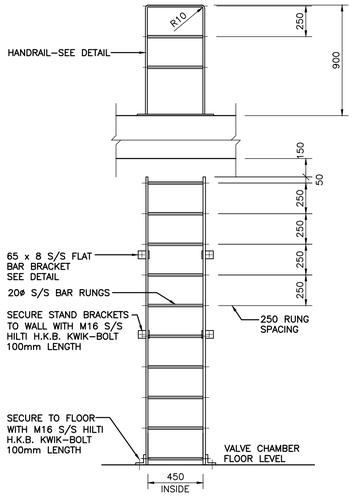
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

TYPICAL RESERVOIR CONCRETE SECTIONS AND DETAILS

SCALE	AS SHOWN	DATE	APRIL 2015
DRAWING NUMBER	1331-093-WTW-654	A1	REVISION A

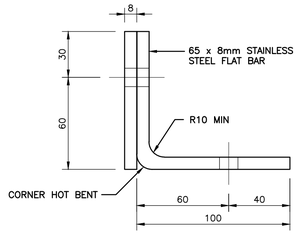


SIDE ELEVATION

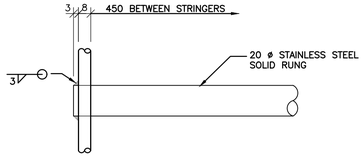


TYPICAL FRONT ELEVATION

LADDER FOR CHAMBER ACCESS
SCALE 1:25

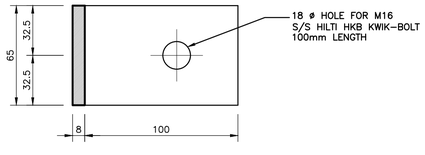


ELEVATION



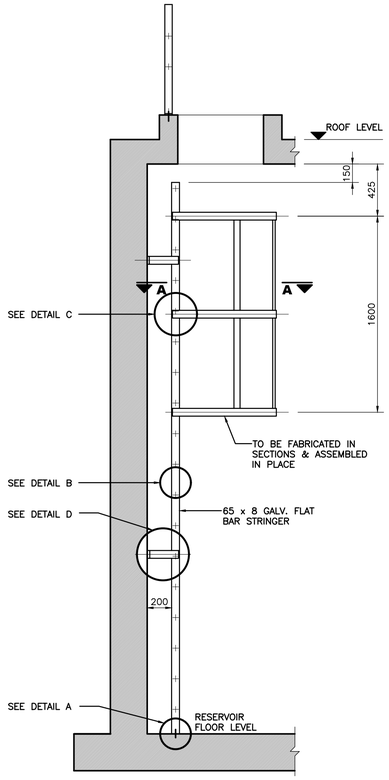
DETAIL B

DETAIL OF WELDED ATTACHMENT OF RUNG TO STRINGER
SCALE 1:2

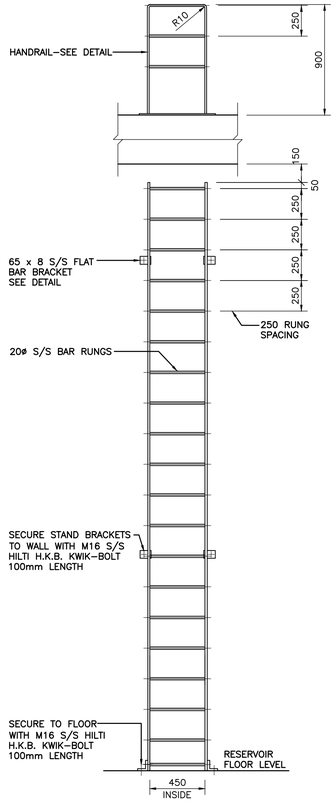


PLAN

DETAIL A
TYPICAL DETAIL OF LADDER FOOT
SCALE 1:2

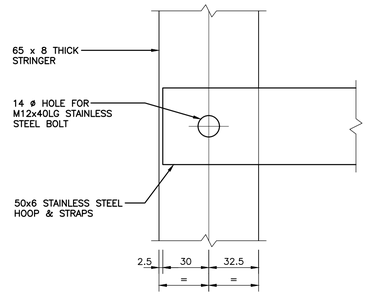


SIDE ELEVATION OF RESERVOIR

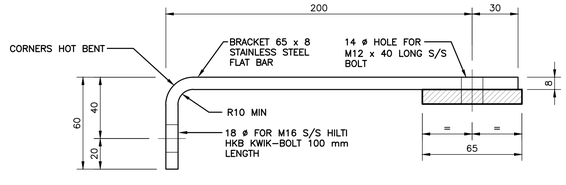


TYPICAL FRONT ELEVATION
(HOOPS & STRAPS OMITTED FOR CLARITY)

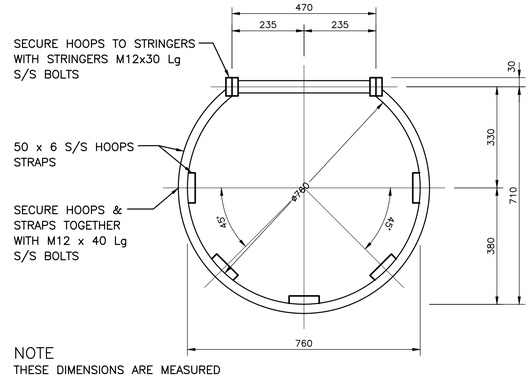
LADDER FOR RESERVOIR ACCESS
SCALE 1:25



DETAIL C
SCALE 1:2



DETAIL D
TYPICAL DETAIL OF WALL BRACKET
SCALE 1:2



NOTE
THESE DIMENSIONS ARE MEASURED AT RIGHT ANGLES TO THE CENTRE LINE OF THE STRINGER

SECTION A–A

CIRCULAR HOOP DIMENSIONS
SCALE 1:10

STRINGERS
1 STRINGERS TO BE FABRICATED FROM 65 X 8 THICK S/S FLAT BAR IN CONTINUOUS LENGTHS. IF JOINED FISH PLATES ARE TO BE USED ON INSIDE OF STRINGERS.
2 JOINTS TO BE BOLTED, RIVETED OR WELDED. BOLTS OR RIVETS TO BE NOT LESS THAN 2 x M12 ON EACH SIDE OF JOINT.

RUNGS
1 RUNGS TO BE FABRICATED FROM 20ø SOLID S/S ROUND BARS.
2 RUNGS TO BE FITTED INTO HOLES DRILLED IN STRINGERS AND WELDED. HOLES DRILLED TO ALLOW 0.8mm CLEARANCE.

SAFETY HOOPS
1 HOOPS AND STRAPS TO BE FABRICATED FROM 50 X 6mm THICK S/S FLATS.
2 ANY LADDER RISING MORE THAN 2.4m REQUIRES SAFETY HOOPS.
3 LOWER MOST HOOP AT 2,375m
4 HOOPS AND STRAPS MUST BE BOLTED.

HOLES
1 ALL BOLT HOLES TO BE DRILLED.

BOLTS
1 ALL BOLTS TO BE OF STAINLESS STEEL.

FINISH
ALL BURRS, WELD–FLASH AND SHARP EDGES TO BE REMOVED SMOOTH BY THE FINISHING TREATMENT.

NOTE :
1 ALL STEELWORK SHALL BE IN ACCORDANCE WITH SABS 0160. 'THE STRUCTURAL USE OF STEEL'
2 THIS DRAWING COMPLIES WITH THE MACHINERY AND OCCUPATIONAL SAFETY ACT No 6 OF 1983.
3 ALL STEELWORK AND BOLTS TO BE S/S.
4 EXPOSED BOLTS ON HANDRAIL TO BE SPOT WELDED AFTER INSTALLATION.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	08/06/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
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e-mail: mail@boschprojects.co.za
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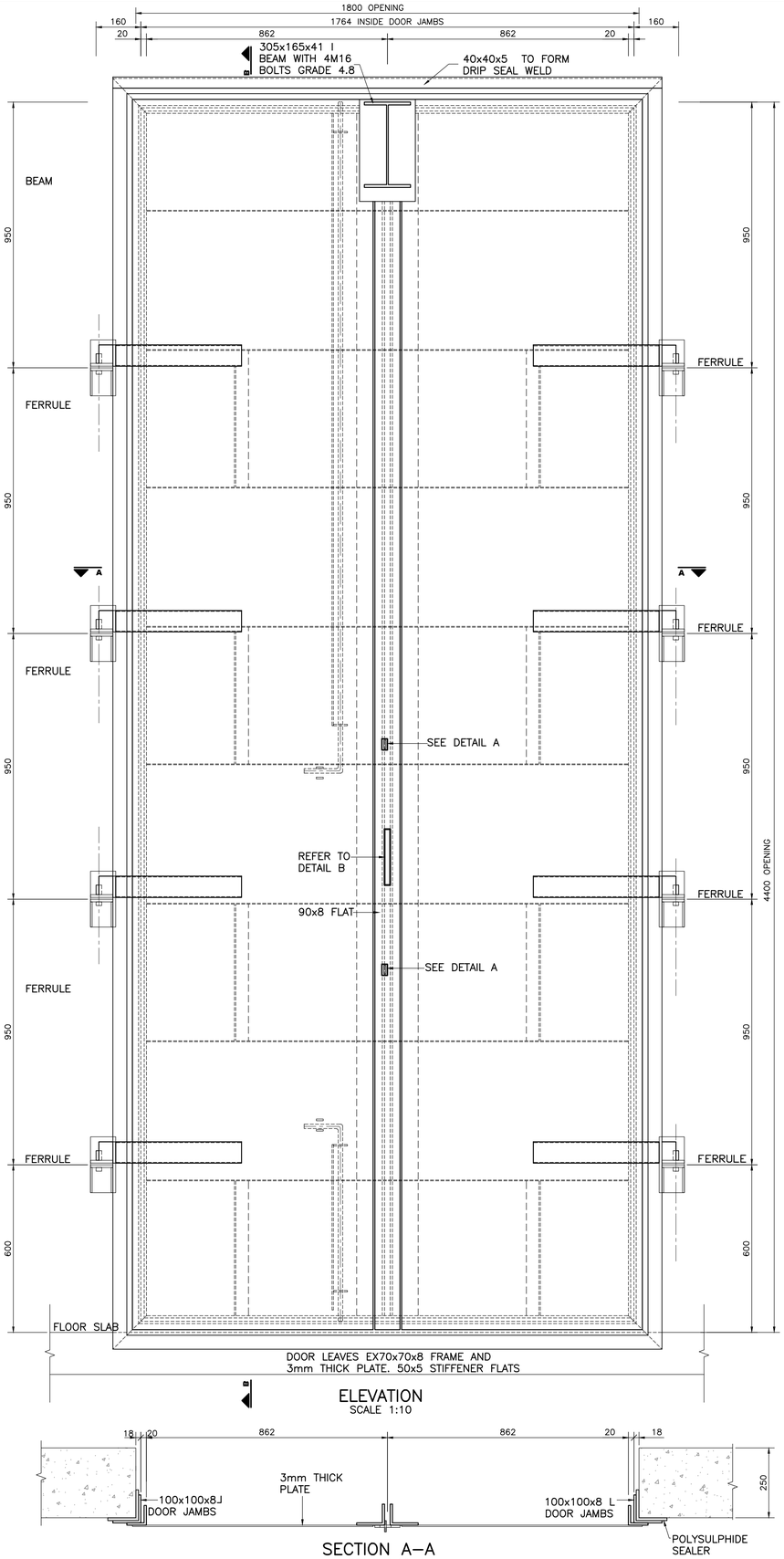
DRAWN	A.R.		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

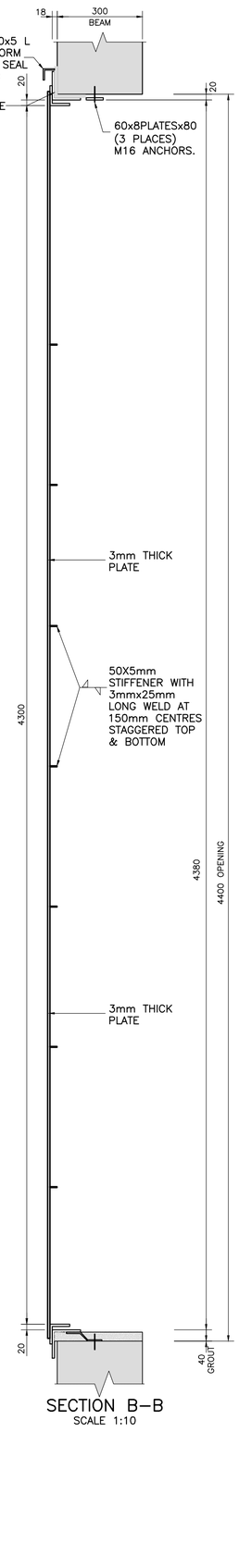
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

GALVANISED LADDER DETAILS

SCALE	AS SHOWN	DATE	APRIL 2015
DRAWING NUMBER	1331-093-WTW-655	A1	REVISION A

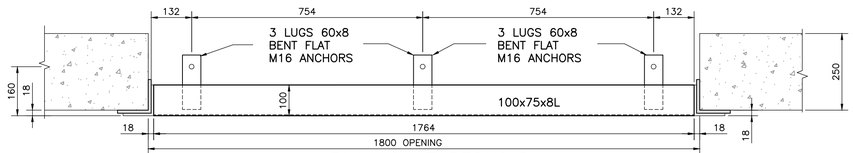


ELEVATION
SCALE 1:10

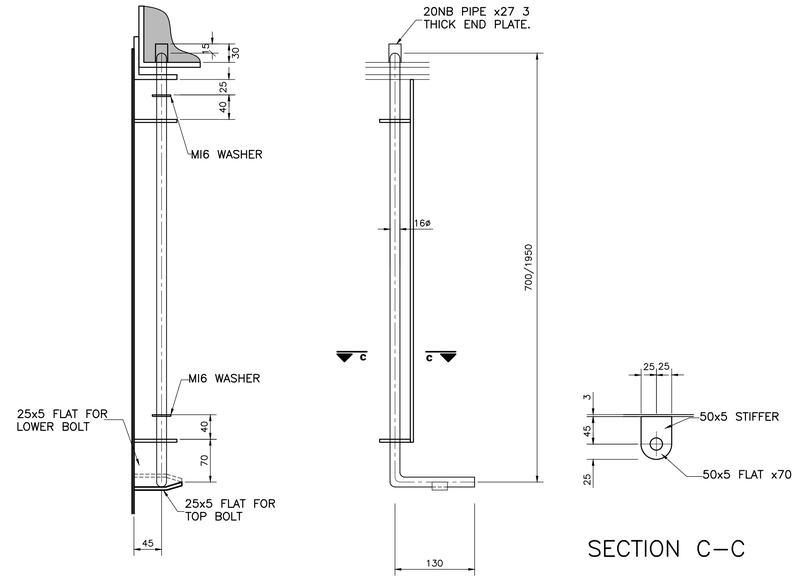


SECTION B–B
SCALE 1:10

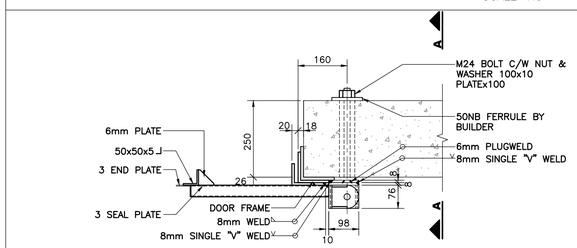
SECTION A–A
SCALE 1:10



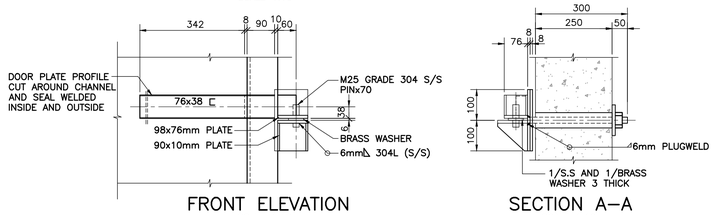
PLAN ON THRESHOLD
SCALE 1:10



TYPICAL DOOR BOLT DETAIL
SECTION C–C
SCALE 1:5



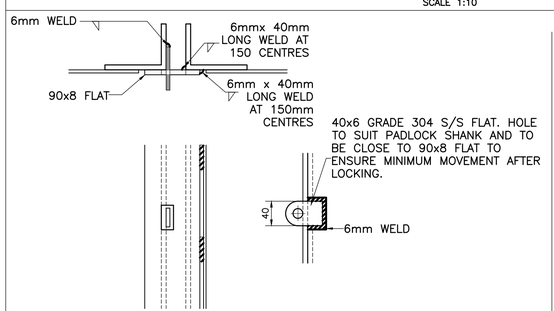
PLAN
SCALE 1:10



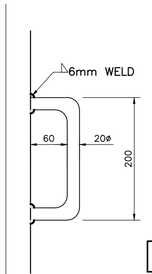
FRONT ELEVATION
SCALE 1:10

SECTION A–A
SCALE 1:10

HINGE DETAIL
SCALE 1:10



DETAIL A
SCALE 1:5



DETAIL B
SCALE 1:5

FOR CONSTRUCTION

GENERAL NOTES
PAINTING SHALL BE EPOXY FINISH TO STEEL DOOR AND FRAME.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T2	RC	D1 SIZE AMENDED	19/11/2021
T1	RC	TENDER DRAWING	25/06/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	R.C.	CHECKED	C.N. / A.L.R.
CIVIL ENGINEER	B.T.	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — PROJECT MANAGER — M. VAWDA — DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

WTW CLEARWATER PUMPSTATION
STEEL DOOR DETAIL

SCALE	AS SHOWN	DATE	JUNE. 2021
DRAWING NUMBER	1331/93/WTW/660	A1	REVISION A

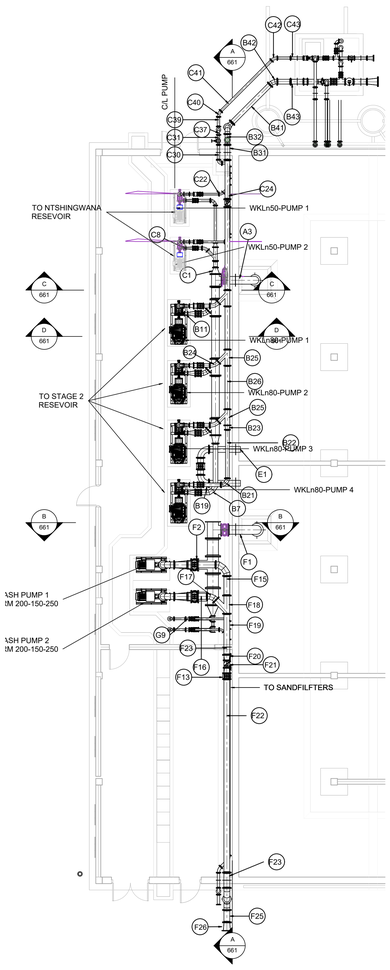
NOTE
THIS DRAWINGS IS TO BE READ IN CONJUNCTION WITH DRG. No. 1331-093-001-663

STEEL PIPEWORK

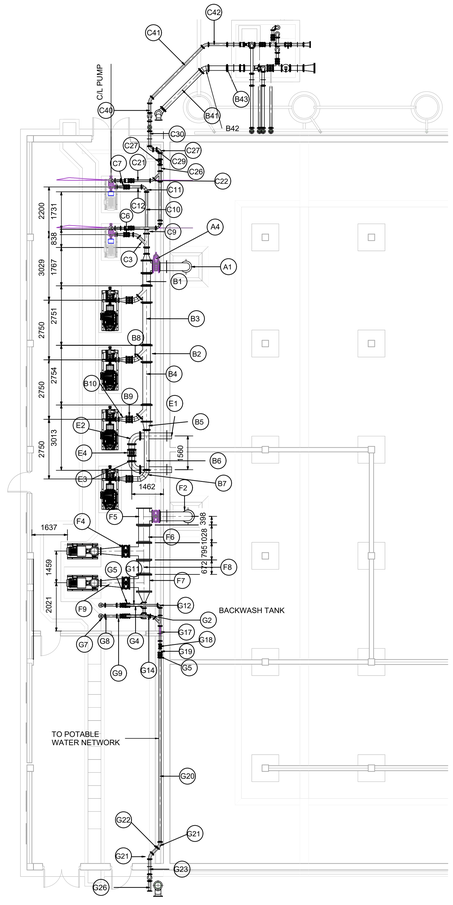
1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).
2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH 'PLASCOAT PPA571 AQUA' OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.5m, SHALL BE COATED AND LINED WITH 'COPON KSIR 88' OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH 'COPON HYCOTE 151' TO A DRY FILM THICKNESS OF 300 MICRONS.

3 ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT 'CONEX' TYPE FITTINGS
4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWORK SCHEDULE OR BOQ
5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.
6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE 'DENSO' WRAPPED.
7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.
8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S, (0.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.
9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

NOTE
ALL SUCTION SIDE FITTINGS AND PIPEWORK TO BE PN10 RATED.
ALL DELIVERY SIDE FITTINGS AND PIPEWORK TO BE PN10 RATED.
F.A.E. – FLANGED ALL ENDS
F.B.E. – FLANGED BOTH ENDS
F.O.E. – FLANGED ONE END
P.E. – PLAIN END



PUMPSTATION PLAN-B& F DELIVERY MANFOLDS
SCALE 1 : 100



PUMPSTATION PLAN 2-SUCTION MANIFOLD & C & G DELIVERY MANIFOLDS
SCALE 1 : 100

INTAKE PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
A1	350mmø STEEL PIPE, ±721mm LONG F.O.E WITH PUDDLE FLANGE LOCATED ±349mm FROM FLANGED END, WELDED TO A 350mmø 90° STEEL SHORT RADIUS PLAIN ENDED BEND WITH ±328mm LONG STEEL SPOOL PIECE WELDED TO A 500x350mmø STEEL CONCENTRIC ±500mm LONG	1
A2	350mmø RSV FLANGED GATE VALVE, PN10	1
A3	350mmø STEEL TEE, ± 588mm BARREL WITH BRANCH ±294 LONG, 290mm FROM BOTH ENDS F.A.E	1

BACKWASH TANK–RESEVOIR BY–PASS PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
E1	250mmø STEEL PIPE, ± 1505mm LONG , F.B.E.	2
E2	250mmø 90° , STEEL RADIUS BEND, F.B.E.	2
E3	250mmø STEEL PIPE, ± 270mm LONG , F.B.E.	2
E4	250mmø FLANGED RSV GATE VALVE, PN10	1

POTABLE WATER NETWORK PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
G1	500x100mmø STEEL ECCENTRIC REDUCER,±500mm LONG F.B.E.	1
G2	100mmØ STEEL TEE, ± 254mm BARREL WITH BRANCH ±130mm LONG, 127mm FROM BOTH ENDS, F.A.E	2
G3	100mmø STEEL PIPE, ± 250mm LONG , F.B.E.	1
G4	100mmø STEEL PIPE, ± 550mm LONG , F.B.E.	2
G5	100mmø FLANGED RSV GATE VALVE, PN10	3
G6	80x50mmø STEEL CONCENTRIC REDUCER,±150mm LONG F.B.E.	3
G7	80mmØ 90° , STEEL SHORT RADIUS BEND, F.B.E.	3
G8	80mmø STEEL PIPE, ± 560mm LONG , F.B.E.	2
G9	80mmØ FLANGED WAFER TYPE CHECK VALVE,PN40	2
G10	80mmø FLANGED RSV GATE VALVE, PN10	2
G11	80mmø STEEL PIPE, ± 1490mm LONG , F.B.E.	1
G12	80mmØ 90° , STEEL SHORT RADIUS BEND, F.B.E.	1
G13	80mmø STEEL PIPE, ± 490mm LONG , F.B.E.	1
G14	80mmø STEEL PIPE, ± 1165mm LONG , F.B.E.	1
G15	80mmØ 45° , STEEL SHORT RADIUS BEND, F.B.E.	1
G16	80x80mmØ STEEL REDUCING–SWEEP TEE,45° BRANCH, ±378 LONG, F.A.E	1
G17	100mmø STEEL PIPE, ±670mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
G18	50mmø FLANGED SENSUS WP–P MEISTREAM TURBINE FLOW METER O.S.A.	1
G19	100x50mmø STEEL CONCENTRIC REDUCER,±180mm LONG F.B.E.	1
G20	100mmø STEEL PIPE, ± 8375mm LONG , F.B.E.	1
G21	100mmØ 45° , STEEL SHORT RADIUS BEND, F.B.E.	2
G22	100mmø STEEL PIPE, ± 375mm LONG , F.B.E.	1
G23	100mmø STEEL PIPE, ±710mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
G24	100mmØ 90° , STEEL SHORT RADIUS BEND, F.B.E.	2
G25	100mmø STEEL PIPE, ± 1395mm LONG , F.B.E.	1
G26	100mmø STEEL/uPCV FLANGE ADAPTER	1

FOR CONSTRUCTION

Level Schedule	
Name	Elevation
Plan on Roof	188.983
HIGH LIFT PUMP C/L (STAGE 2)	184.784
HIGH LIFT PUMP C/L (NTSHINGWANA)	184.776
BACKWASH PUMP C/L	184.753
PUMPSTATION FFL	184.133

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	R.C.	APPROVED FOR CONSTRUCTION	14/11/2022
T1	NM	FOR CLIENT PROCUREMENT	16/07/2021
2	NM	FOR INTERNAL REVIEW	28/06/2021
1	NM	FOR INTERNAL REVIEW	11/06/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-656	CLEAR WATER PUMPSTATION-PLANS
1331-093-WTW-657	CLEAR WATER PUMPSTATION-SECTIONS
1331-093-WTW-658	CLEAR WATER PUMPSTATION-DETAILS
1331-093-WTW-659	SURGE CHAMBER-PLAN AND SECTIONS(STRUCTURAL)
1331-093-WTW-663	CLEAR WATER PUMPSTATION-SECTIONS (PIPEWORK DETAILS)
1331-093-WTW-664	SURGE CHAMBER-PLAN AND SECTIONS(PIPEWORK DETAILS)

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (031 535 6000
FAX: +27 (031 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFICATE

DRAWN	N.MDAKANE		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
CLEAR WATER HIGH LIFT PUMP STATION

PIPEWORK LAYOUTS

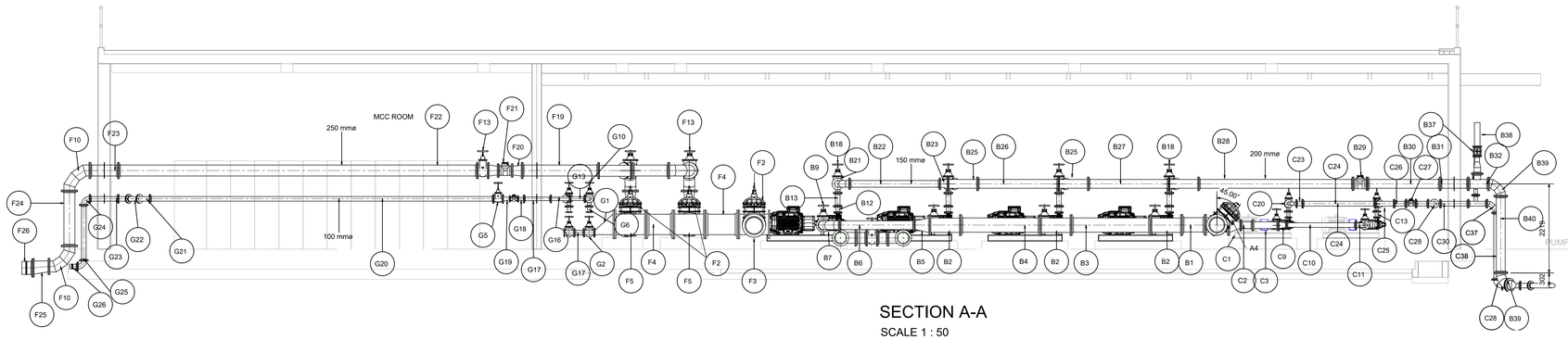
SCALE	DATE	REVISION
AS SHOWN	JULY 2021	
DRAWING NUMBER 1331-093-WTW-662	A0	A

NOTE
THIS DRAWINGS IS TO BE READ IN CONJUNCTION WITH DRG. No. 1331-093-001-662

STEEL PIPEWORK

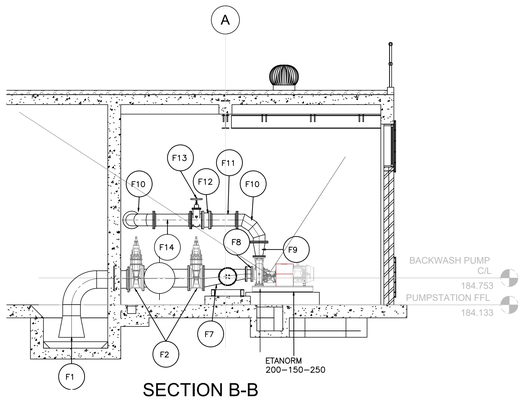
1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).
2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH 'PLASCOAT PPA571 AQUA' OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.5m, SHALL BE COATED AND LINED WITH 'COPON KSIR 88' OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH 'COPON HYCOTE 151' TO A DRY FILM THICKNESS OF 300 MICRONS.

3 ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT 'CONEX' TYPE FITTINGS
4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWORK SCHEDULE OR BOQ
5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.
6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE 'DENSO' WRAPPED.
7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.
8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S, (0.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.
9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

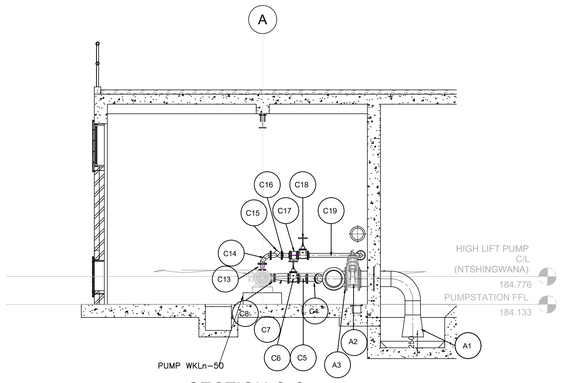


SECTION A-A
SCALE 1 : 50

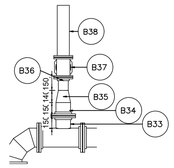
NOTE
ALL SUCTION SIDE FITTINGS AND PIPEWORK TO BE PN10 RATED.
ALL DELIVERY SIDE FITTINGS AND PIPEWORK TO BE PN10 RATED.
F.A.E. – FLANGED ALL ENDS
F.B.E. – FLANGED BOTH ENDS
F.O.E. – FLANGED ONE END
P.E. – PLAIN END



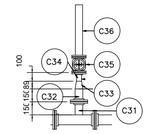
SECTION B-B
SCALE 1 : 50



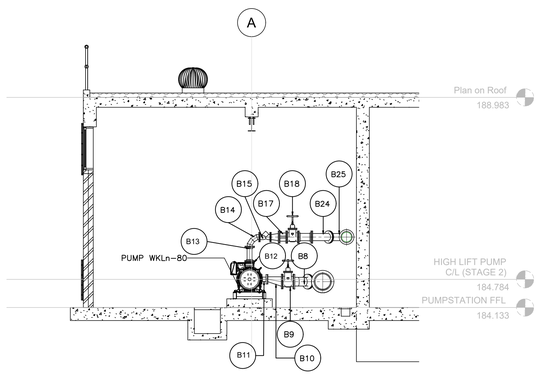
SECTION C-C
SCALE 1 : 50



DETAIL 1
SCALE 1 : 25



DETAIL 2
SCALE 1 : 25



SECTION D-D
SCALE 1 : 50

STAGE 2 PUMP–SET PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
B1	350mmø STEEL PIPE, ±590mm LONG , F.B.E.	1
B2	350x200mmØ STEEL REDUCING–SWEEP TEE,45° BRANCH, ±483 LONG, F.A.E	3
B3	350mmø STEEL PIPE, ±1985mm LONG , F.B.E.	1
B4	350mmø STEEL PIPE, ±1980mm LONG , F.B.E.	1
B5	350X200mm ø STEEL CONCENTRIC REDUCER, ±380mm LONG F.B.E.	1
B6	200mmø STEEL PIPE, ±1870mm LONG , F.B.E.	1
B7	200mmØ 90° , 4 SEG FAB STEEL RADIUS BEND WELDED TO A ±285mm LONG STEEL PIPE, F.O.E.	1
B8	200mmø 45° , 3 SEG. FAB.STEEL RADIUS BEND, F.B.E	3
B9	200mmø FLANGED RSV GATE VALVE, PN10	4
B10	200X100mm ø STEEL ECCENTRIC REDUCER, ±350mm LONG F.B.E.	4
B11	100mm ø DISMANTLING JOINT, F.B.E	4
B12	100X80mm ø STEEL CONCENTRIC REDUCER, ±150mm LONG F.B.E.	4
B13	100mmø STEEL PIPE, ±335mm LONG , F.B.E.	1
B14	100mmØ 90° , STEEL SHORT RADIUS BEND, F.B.E.	4
B15	100mmø "BERMAD" SURGE CONTROL VALVE, COMPLETE WITH PRESSURE SUSTAINING PILOT O.S.A.,PN40	4
B16	150X100mm ø STEEL CONCENTRIC REDUCER,±200mm LONG F.B.E.	4
B17	150mmø FLANGED SILENT CHECK VALVE PN40	4
B18	150mmø FLANGED RSV GATE VALVE, PN40	4
B19	150mmø STEEL PIPE, ±815mm LONG , F.B.E.	1
B20	150mmø STEEL PIPE, ±310mm LONG , F.B.E.	3
B21	150mmø 90° ,STEEL SHORT RADIUS BEND, F.B.E.	1
B22	100mmø STEEL PIPE, ±2265mm LONG , F.B.E.	1
B23	200x150mmø STEEL CONCENTRIC REDUCER,±200mm LONG F.B.E	1
B24	150mmØ 45° , STEEL RADIUS BEND, F.B.E	3
B25	200x150mmØ STEEL REDUCING–SWEEP TEE,45° BRANCH, ±584 LONG, F.A.E	3
B26	200mmø STEEL PIPE, ±2020mm LONG , F.B.E.	1
B27	200mmø STEEL PIPE, ±2010mm LONG , F.B.E.	1
B28	200mmø STEEL PIPE, ±3845mm LONG , F.B.E.	1
B29	200mmø FLANGED SENSUS WP–P MEISTREAM TURBINE FLOW METER O.S.A.	1
B30	200mmø STEEL PIPE, ±1810mm LONG , F.B.E.	1
B31	200mmø STEEL PIPE, ±700mm LONG WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
B32	200mmø STEEL PIPE, ±505mm LONG , F.B.E.	1
B33	150mmø STEEL PIPE, ±150mm LONG , F.O.E.	1
B34	150mmø STEEL PIPE, ±150mm LONG , F.O.E.	1
B35	150x100mmø STEEL CONCENTRIC REDUCER,±140mm LONG BUTT WELDED	1
B36	100mmø STEEL PIPE, ±150mm LONG , F.O.E.	1
B37	100mmø FLANGED RSV GATE VALVE, PN40	1
B38	100mmø DOUBLE PURPOSE AIR VALVE BSP FLANGED VENT O MAX RBX	1
B39	200mmØ 90° , 4 SEG FAB STEEL RADIUS BEND, F.B.E.	2
B40	200mmø STEEL PIPE, ±1910mm LONG , F.B.E.	1
B41	200mmø STEEL PIPE, ±2485mm LONG , F.B.E.	1
B42	200mmØ 45°, 3 SEG FAB STEEL RADIUS BEND, F.B.E	1
B43	200mmø STEEL PIPE, ±865mm LONG , F.B.E.	1

NTSHINGWANA PUMP–SET PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
C1	350x150mmø STEEL CONCENTRIC REDUCER,±300mm LONG F.B.E	1
C2	150mmø STEEL PIPE, ±320mm LONG , F.B.E.	1
C3	150x100mmØ STEEL REDUCING–SWEEP TEE,45° BRANCH, ±508 LONG, F.A.E	1
C4	100mmØ 45° , STEEL RADIUS BEND, F.B.E.	5
C5	100mmø STEEL PIPE, ±275mm LONG , F.B.E.	1
C6	100mmØ FLANGED RSV GATE VALVE, PN10	2
C7	100x65mmø STEEL ECCENTRIC REDUCER,±325mm LONG F.B.E	2
C8	65mmø DISMANTLING JOINT, F.B.E	2
C9	150x100mmø STEEL CONCENTRIC REDUCER,±200mm LONG F.B.E	1
C10	100mmø STEEL PIPE, ±1730mm LONG, F.B.E.	1
C11	100mmØ 90° , STEEL SHORT RADIUS BEND, F.B.E.	1
C12	100mmø STEEL PIPE, ±665mm LONG , F.B.E.	1
C13	80x50mmø STEEL CONCENTRIC REDUCER,±150mm LONG F.B.E	2
C14	80mmØ 90° ,STEEL SHORT RADIUS BEND, F.B.E.	2
C15	80mmø "BERMAD" SURGE CONTROL VALVE, COMPLETE WITH PRESSURE SUSTAINING PILOT O.S.A.,PN40	2
C16	100mmø STEEL PIPE, ±210mm LONG , F.B.E.	2
C17	80mmØ FLANGED SILENT CHECK VALVE PN40	2
C18	80mmØ FLANGED RSV GATE VALVE, PN40	2
C19	100mmø STEEL PIPE, ±1100mm LONG , F.B.E.	1
C20	80mmø 90° ,STEEL SHORT RADIUS BEND, F.B.E.	1
C21	80mmø STEEL PIPE, ±780mm LONG , F.B.E.	1
C22	80mmØ 45° , STEEL RADIUS BEND, F.B.E.	1
C23	100x80mmø STEEL CONCENTRIC REDUCER,±150mm LONG F.B.E	1
C24	100mmø STEEL PIPE, ±1805mm LONG, F.B.E.	1
C25	100x80mmØ STEEL REDUCING–SWEEP TEE,45° BRANCH, ±378 LONG, F.A.E	1
C26	100mmø STEEL PIPE, ±300mm LONG , F.B.E.	2
C27	50mmø FLANGED SENSUS WP–P MEISTREAM TURBINE FLOW METER O.S.A.	1
C28	100mmØ 90° , STEEL RADIUS BEND, F.B.E.	2
C29	100mmø STEEL PIPE, ±176mm LONG , F.B.E.	1
C30	100mmø STEEL PIPE, ±855mm LONG WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
C31	100mmø STEEL PIPE, 465mm LONG, F.B.E.	1
C32	80mmø STEEL PIPE, ±150mm LONG , F.O.E.	2
C33	80x50mmø STEEL CONCENTRIC REDUCER,±90mm LONG BUTT WELDED	1
C34	100mmø STEEL PIPE, ±100mm LONG , F.O.E.	1
C35	50mmø FLANGED RSV GATE VALVE, PN40	1
C36	50mmø DOUBLE PURPOSE AIR VALVE BSP FLANGED VENT O MAX RBX	1
C37	100mmØ 90° , 4 SEG FAB, STEEL RADIUS BEND, F.B.E.	1
C38	100mmø STEEL PIPE, ±1670mm LONG, F.B.E.	1
C39	100mmø STEEL PIPE, ±455mm LONG , F.B.E.	1
C40	100mmØ 45° , STEEL RADIUS BEND, F.B.E.	2
C41	100mmø STEEL PIPE, ±3315mm LONG , F.B.E.	1
C42	100mmø STEEL PIPE, ±865mm LONG , F.B.E.	1

INTAKE PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
A1	350mmø STEEL PIPE, ±721mm LONG F.O.E WITH PUDDLE FLANGE LOCATED ±349mm FROM FLANGED END, WELDED TO A 350mmØ 90° ,STEEL SHORT RADIUS PLAIN ENDED BEND WITH ±328mm LONG STEEL SPOOL PIECE WELDED TO A 500x350mmØ STEEL CONCENTRIC ±500mm LONG	1
A2	350mmø RSV FLANGED GATE VALVE, PN10	1
A3	350mmø STEEL TEE, ± 588mm BARREL WITH BRANCH ±294 LONG, 290mm FROM BOTH ENDS F.A.E	1

BACKWASH PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
F1	350mmø STEEL PIPE, ±755mm LONG F.O.E WITH PUDDLE FLANGE LOCATED ±350mm FROM FLANGED END, WELDED TO A 400mmØ 90° ,STEEL SHORT RADIUS PLAIN ENDED BEND WITH ±260mm LONG STEEL SPOOL PIECE WELDED TO A 600x400mmØ STEEL CONCENTRIC ±500mm LONG	1
F2	400mmø FLANGED RSV GATE VALVE, PN10	3
F3	500X400mmØ STEEL TEE, ± 787mm BARREL WITH BRANCH ±388 LONG, 398mm FROM BOTH ENDS, P.E ON ONE END	1
F4	500mmø STEEL PIPE, ± 1040mm LONG , F.B.E.	1
F5	500X400mmØ STEEL TEE, ± 795mm BARREL WITH BRANCH ±697 LONG, 398mm FROM BOTH ENDS, F.A.E	2
F6	500mmø STEEL PIPE, ± 680mm LONG , F.B.E.	1
F7	400X200mmø STEEL ECCENTRIC REDUCER,±1000mm LONG F.B.E.	2
F8	200mmØ DISMANTLING JOINT, F.B.E	2
F9	250x150mm ø STEEL CONCENTRIC REDUCER,±340mm LONG F.B.E.	2
F10	250mmØ 90° , 4 SEG FAB, STEEL LONG RADIUS BEND, F.B.E.	5
F11	250mmø STEEL PIPE, ± 625mm LONG , F.B.E.	2
F12	250mmØ FLANGED WAFER TYPE CHECK VALVE,PN40	2
F13	250mmØ FLANGED RSV GATE VALVE PN40	3
F14	250mmø STEEL PIPE, ± 855mm LONG , F.B.E.	1
F15	250mmø STEEL PIPE, ± 905mm LONG , F.B.E.	1
F16	250mmø STEEL PIPE, ± 450mm LONG , F.B.E.	1
F17	250mmØ 45° , 4 SEG FAB, STEEL SHORT RADIUS BEND, F.B.E.	1
F18	250x250mmØ STEEL SWEEP TEE, 45° BRANCH, ±708 LONG, F.A.E	1
F19	250mmø STEEL PIPE, ±1910mm LONG, WITH PUDDLE FLANGE LOCATED ±360mm FROM ONE END, F.B.E.	1
F20	250x200mmø STEEL CONCENTRIC REDUCER,±250mm LONG,F.B.E.	2
F21	200mmø FLANGED SENSUS WP–P MEISTREAM TURBINE FLOW METER O.S.A.	1
F22	250mmø STEEL PIPE, ± 8933mm LONG , F.B.E.	1
F23	250mmø STEEL PIPE, ±710mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
F24	250mmø STEEL PIPE, ± 1630mm LONG , F.B.E.	1
F25	250mmø STEEL PIPE, ± 575mm LONG , F.B.E.	1
F26	300x250mmø STEEL ECCENTRIC REDUCER,±400mm LONG F.B.E.	1
F27	300mmø uPVC FLANGE ADAPTOR	1

POTABLE WATER NETWORK PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
G1	500x100mmø STEEL ECCENTRIC REDUCER,±500mm LONG F.B.E.	1
G2	100mmØ STEEL TEE, ± 254mm BARREL WITH BRANCH ±130mm LONG, 127mm FROM BOTH ENDS, F.A.E	2
G3	100mmø STEEL PIPE, ± 250mm LONG , F.B.E.	1
G4	100mmø STEEL PIPE, ± 550mm LONG , F.B.E.	2
G5	100mmø FLANGED RSV GATE VALVE, PN10	3
G6	80x50mmø STEEL CONCENTRIC REDUCER,±150mm LONG F.B.E.	3
G7	80mmØ 90° , STEEL SHORT RADIUS BEND, F.B.E.	3
G8	80mmø STEEL PIPE, ± 560mm LONG , F.B.E.	2
G9	80mmØ FLANGED WAFER TYPE CHECK VALVE,PN40	2
G10	80mmø FLANGED RSV GATE VALVE, PN10	2
G11	80mmø STEEL PIPE, ± 1490mm LONG , F.B.E.	1
G12	80mmØ 90° , STEEL SHORT RADIUS BEND, F.B.E.	1
G13	80mmø STEEL PIPE, ± 490mm LONG , F.B.E.	1
G14	80mmø STEEL PIPE, ± 1165mm LONG , F.B.E.	1
G15	80mmØ 45° , STEEL SHORT RADIUS BEND, F.B.E.	1
G16	80x80mmø STEEL REDUCING–SWEEP TEE,45° BRANCH, ±378 LONG, F.A.E	1
G17	100mmø STEEL PIPE, ±670mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
G18	50mmø FLANGED SENSUS WP–P MEISTREAM TURBINE FLOW METER O.S.A.	1
G19	100x50mmø STEEL CONCENTRIC REDUCER,±180mm LONG F.B.E.	1
G20	100mmø STEEL PIPE, ± 8375mm LONG , F.B.E.	1
G21	100mmØ 45° , STEEL SHORT RADIUS BEND, F.B.E.	2
G22	100mmø STEEL PIPE, ± 375mm LONG , F.B.E.	1
G23	100mmø STEEL PIPE, ±710mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
G24	100mmØ 90° , STEEL SHORT RADIUS BEND, F.B.E.	2
G25	100mmø STEEL PIPE, ± 1395mm LONG , F.B.E.	1
G26	100mmø STEEL/uPCV FLANGE ADAPTER	1

FOR CONSTRUCTION

Level Schedule	
Name	Elevation
Plan on Roof	188.983
HIGH LIFT PUMP C/L (STAGE 2)	184.784
HIGH LIFT PUMP C/L (NTSHINGWANA)	184.776
BACKWASH PUMP C/L	184.753
PUMPSTATION FFL	184.133

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	R.C.	APPROVED FOR CONSTRUCTION	14/11/2022
T1	NM	FOR CLIENT PROCUREMENT	16/07/2021
2	NM	FOR INTERNAL REVIEW	28/06/2021
1	NM	FOR INTERNAL REVIEW	11/06/2021

1331-093-WTW-656	CLEAR WATER PUMPSTATION PLANS
1331-093-WTW-657	CLEAR WATER PUMPSTATION SECTIONS
1331-093-WTW-658	CLEAR WATER PUMPSTATION DETAILS
1331-093-WTW-659	SURGE CHAMBER-PLAN AND SECTIONS(STRUCTURAL)
1331-093-WTW-662	CLEAR WATER PUMPSTATION PLANS (PIPEWORK DETAILS)
1331-093-WTW-664	SURGE CHAMBER-PLAN AND SECTIONS(PIPEWORK DETAILS)
DRG. No.	REFERENCE DRAWING

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1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 536 6000
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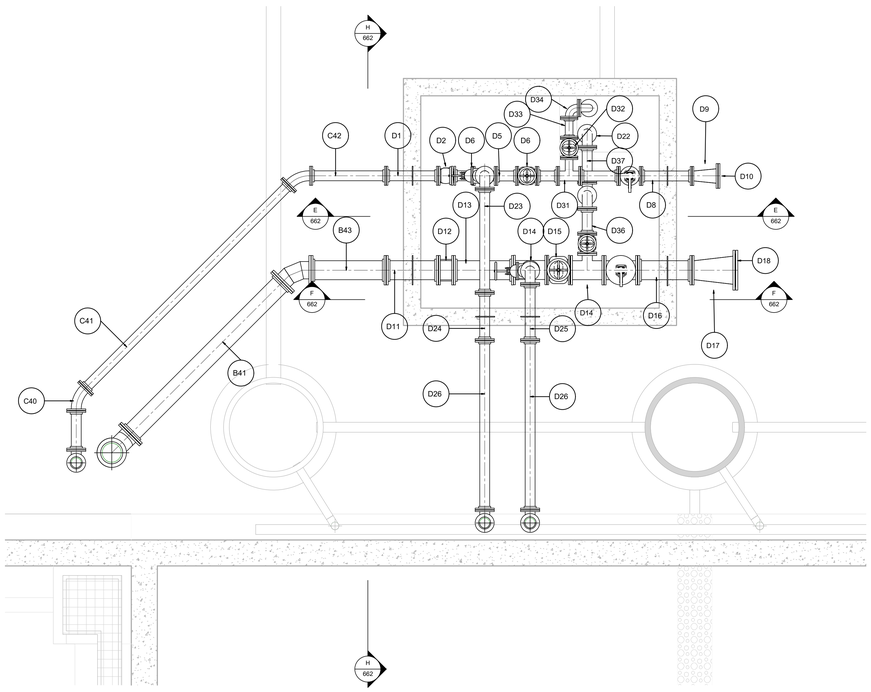
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MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1- UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CLEAR WATER HIGH LIFT PUMP STATION

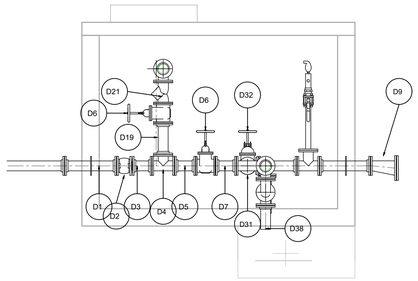
PIPEWORK LAYOUT - SECTIONS

SCALE	AS SHOWN	DATE	JULY 2021
DRAWING NUMBER	1331-093-WTW-663	REVISION	A0 A



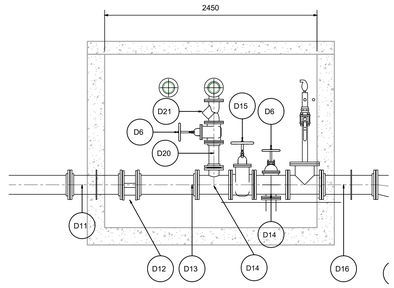
SURGE CHAMBER PLAN

SCALE 1 : 25



SECTION E-E

SCALE 1 : 25



SECTION F-F

SCALE 1 : 25

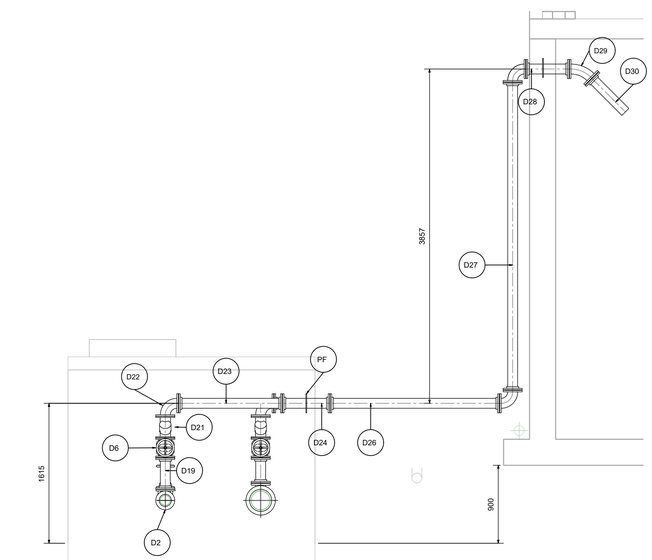
STEEL PIPEWORK

1 ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.ø).
2 LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH 'PLASCOAT PPA571 AQUA' OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.5m, SHALL BE COATED AND LINED WITH 'COPON KSIR 88' OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH 'COPON HYCOTE 151' TO A DRY FILM THICKNESS OF 300 MICRONS.

3 ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT 'CONEX' TYPE FITTINGS
4 ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWORK SCHEDULE OR BOQ
5 WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.
6 ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE 'DENSO' WRAPPED.
7 STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.
8 INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S, (0.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.
9 SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

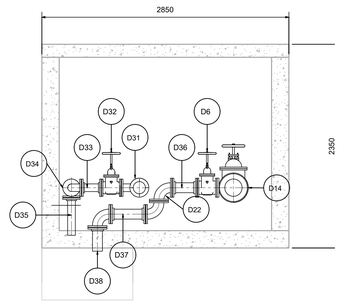
NOTE
ALL SUCTION SIDE FITTINGS AND PIPEWORK TO BE PN10 RATED.
ALL DELIVERY SIDE FITTINGS AND PIPEWORK TO BE PN10 RATED.
F.A.E. – FLANGED ALL ENDS
F.B.E. – FLANGED BOTH ENDS
F.O.E. – FLANGED ONE END
P.E. – PLAIN END

Level Schedule	
Name	Elevation
Plan on Roof	188.983
HIGH LIFT PUMP C/L (STAGE 2)	184.784
HIGH LIFT PUMP C/L (NTSHINGWANA)	184.776
BACKWASH PUMP C/L	184.753
PUMPSTATION FFL	184.133



SECTION G-G

SCALE 1 : 25



SECTION F-F

SCALE 1 : 25

SURGE CHAMBER PIPEWORK ITEMS

ITEM	DESCRIPTION	No. OFF
D1	100mmø STEEL PIPE, ±600mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
D2	100mmØ FLANGED SILENT CHECK VALVE PN40	1
D3	100mmø STEEL PIPE, ± 230mm LONG , F.B.E.	1
D4	100mmØ STEEL TEE, ± 254mm BARREL WITH BRANCH ±130mm LONG, 127mm FROM BOTH ENDS, F.A.E.	1
D5	100mmø STEEL PIPE, ± 245mm LONG F.B.E.	1
D6	100mmø FLANGED RSV GATE VALVE, PN40	4
D7	100mmø STEEL PIPE, ± 240mm LONG , F.B.E.	1
D8	100mmø STEEL PIPE, ±990mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED , F.B.E.	1
D9	150X100mmø STEEL ECCENTRIC REDUCER, ±300mm LONG F.B.E.	1
D10	150mmø STEEL BLANK FLANGE	1
D11	200mmø STEEL PIPE, ±600mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
D12	200mmØ FLANGED SILENT CHECK VALVE PN40	1
D13	200mmø STEEL PIPE, ± 690mm LONG , F.B.E.	1
D14	200X100mmø STEEL TEE, ± 388mm BARREL WITH BRANCH ±194 LONG, 194mm FROM BOTH ENDS, F.A.E.	2
D15	200mmø FLANGED RSV GATE VALVE, PN40	1
D16	200mmø STEEL PIPE, ±715mm LONG, WITH PUDDLE FLANGE LOCATED 280mm FROM ONE END, F.B.E.	1
D17	300X200mmø STEEL ECCENTRIC REDUCER,±500mm LONG F.B.E.	1
D18	300mmø STEEL BLANK FLANGE	1
D19	100mmø STEEL PIPE, ± 370mm LONG , F.B.E.	1
D20	100mmø STEEL PIPE, ± 295mm LONG , F.B.E.	1
D21	100mmø "BERMAD" SURGE CONTROL VALVE, COMPLETE WITH PRESSURE SUSTAINING PILOT O.S.A.,PN40	2
D22	100mmØ 90° , STEEL RADIUS BEND, F.B.E.	9
D23	100mmø STEEL PIPE, ±1200mm LONG , F.B.E.	1
D24	100mmø STEEL PIPE, ±550mm LONG, WITH PUDDLE FLANGE CENTRALLY LOCATED, F.B.E.	1
D25	100mmø STEEL PIPE, ±650mm LONG, WITH PUDDLE FLANGE LOCATED 270mm FROM ONE END, F.B.E.	1
D26	100mmø STEEL PIPE, ± 1960mm LONG , F.B.E.	2
D27	100mmø STEEL PIPE, ±3555mm LONG , F.B.E.	2
D28	100mmø STEEL PIPE, ± 500mm LONG , F.B.E.	2
D29	100mmØ 45° , STEEL RADIUS BEND, F.B.E.	2
D30	100mmø STEEL PIPE, ± 590mm LONG , F.B.E.	2
D31	100X80mmø STEEL TEE, ± 260mm BARREL WITH BRANCH ±210mm LONG, 130mm FROM BOTH ENDS, F.A.E.	1
D32	80mmø FLANGED RSV GATE VALVE, PN40	1
D33	80mmø STEEL PIPE, ± 230mm LONG, F.B.E.	1
D34	80mmø 90°, STEEL SHORT RADIUS BEND, F.B.E.	2
D35	80mmø STEEL PIPE, ± 435mm LONG, F.O.E.	1
D36	100mmø STEEL PIPE, ± 290mm LONG , F.B.E.	1
D37	100mmø STEEL PIPE, ± 405mm LONG , F.B.E.	1
D38	100mmø STEEL PIPE, ± 275mm LONG , F.O.E.	1

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	R.C.	APPROVED FOR CONSTRUCTION	14/11/2022
T1	NM	FOR CLIENT PROCUREMENT	16/07/2021
2	NM	FOR INTERNAL REVIEW	28/06/2021
1	NM	FOR INTERNAL REVIEW	11/06/2021

DRG. No.	REFERENCE DRAWING
1331-093-WTW-656	CLEAR WATER PUMPSTATION-PLANS
1331-093-WTW-657	CLEAR WATER PUMPSTATION-SECTIONS
1331-093-WTW-658	CLEAR WATER PUMPSTATION-DETAILS
1331-093-WTW-659	SURGE CHAMBER-PLAN AND SECTIONS(STRUCTURAL)
1331-093-WTW-662	CLEAR WATER PUMPSTATION-PLANS (PIPEWORK DETAILS)
1331-093-WTW-663	CLEAR WATER PUMPSTATION-SECTIONS (PIPEWORK DETAILS)

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 536 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFICATE

DRAWN	N.MDAKANE		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	N/A

APPROVED	S.MDAKA	M.VAWDA
	PROJECT MANAGER	DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND
WATER TREATMENT WORKS (6.5 ML/DAY)

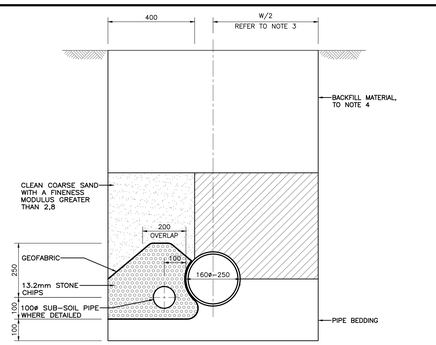
SURGE CHAMBER

PIPEWORK LAYOUT

SCALE	AS SHOWN	DATE	JULY 2021
DRAWING NUMBER	1331-093-WTW-664	A0	REVISION A

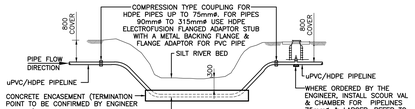

EXISTING WATER TREATMENT WORKS
EXISTING WATER TREATMENT WORKS
TOP OF SPILLWAY LVL 171.30
PROPOSED SPILLWAY WEIR
EXISTING CAUTIONS
BEDROCK
GUARD HUT
MANHOLE CL=178.00
X+3332000
Y+50300
X+3332100
X+3332200
STAY WIRE
WHITE MARKER
P/POLE
MANHOLE
YELLOW MARKER
TRACK
DRAIN
CLEAR WATER ACCESS ROAD
RM1-01
RM1-02
RM1-03
RM1-04
RM1-05
RM1-06
RM1-07
RM1-08
RM1-09
RM1-10
RM1-11
RM1-12
RM1-13
RM1-14
RM2-01
RM2-02
RM2-03
RM2-04
RM2-05
RM2-06
RM2-07
RM2-08
RM2-09
RM2-10
RM2-11
RM2-12
RM2-13
RM2-14
AV
S1-150mmØ STEEL
S2-300mmØ STEEL
VALVE CHAMBER
CLEARWATER PUMPSTATION
BACKWASH TANK
3250KL CLEARWATER RESERVOIR
MINISUB
PUMP STATION
SECURITY FENCE
FLOODLINE
SEPTIC TANK
160mmPVC
GUARD HUT
GUARDROOM
CHEMICAL BUILDING
GENERATOR ROOM
CHEMICAL STORE
OFFICE
LAB
CHLORINE ROOM
CHEMICAL STORE
OFFICE
LAB
CHLORINE ROOM
GENERATOR


NEW KWALEMBE
WATER TREATMENT
WORKS
PT30
RM0
RM1
RM2
RM3
RM4
RM5
RM6
RM7
RM8
RM9
RM10
RM11
RM12
RM13
RM14
RM15
RM16
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RM57
RM58
AV
SV
CHAMBER
CHAMBER
CHAMBER

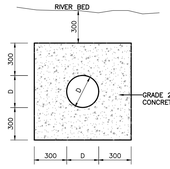


NOTES
1 SAND, STONE, GEOFABRIC AND PIPE REQUIRED FOR THE SUB-SOIL DRAINS ARE TO COMPLY WITH THE REQUIREMENTS OF CLAUSE P.D.3 OF THE SPECIFICATION.
2 UNLESS OTHERWISE SPECIFIED THE SUB-SOIL DRAINS ARE TO BE LAID AT THE MIN. DEPTHS INDICATED. MIN GRADE OF THE DRAIN IS TO BE 1%.
3 W = PAV WIDTH
D = O.D. OF PIPE
4 WHERE DETAILED BY ENGINEER CLEAN COARSE SAND LAYER SHALL BE EXTENDED TO THE EDGE OF THE ROAD.

COMBINED SUB-SOIL DRAIN DETAIL
SCALE 1:10



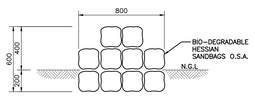
ELEVATION
SCALE 1:20



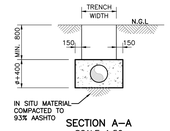
SECTION
SCALE 1:20

NOTE:
uPVC AND HDPE PIPELINE CLASS & DIAMETER TO BE AS INDICATED ON PIPELINE LAYOUT DRAWINGS.

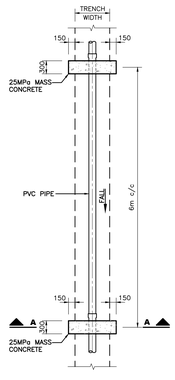
PIPELINE RIVER/STREAM CROSSING IN SILT BED



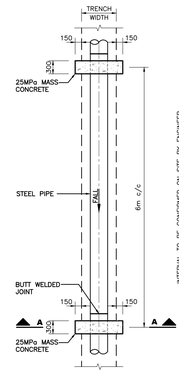
SECTION B-B
SCALE 1:20



SECTION A-A
SCALE 1:50

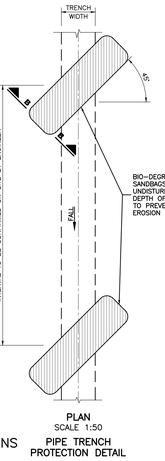


PLAN THRU' TRENCH FOR uPVC PIPE
SCALE 1:50



PLAN THRU' TRENCH FOR STEEL PIPE
SCALE 1:50

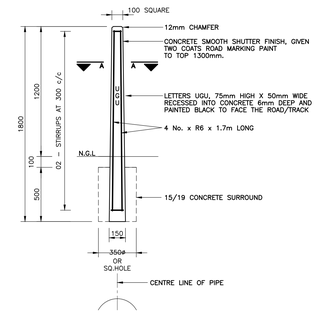
ANCHOR BLOCK DETAIL FOR STEEP PIPELINE SECTIONS



PLAN
SCALE 1:50

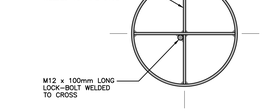
TRENCH DETAILS FOR SLOPES STEEPER THAN 1:5

PIPE TRENCH PROTECTION DETAIL



SECTION A-A
SCALE 1 : 5

TYPICAL PRECAST CONCRETE PIPE MARKER
SCALE 1 : 20

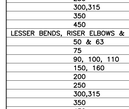


LONGITUDINAL SECTION THROUGH DISPERSER

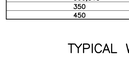
NOTES
1 FOR SCOUR VALVES INSTALLED ON 75mmø AND 90mmø PIPELINES, USE 80mmø JET DISPERSER.
2 FOR SCOUR VALVES INSTALLED ON 100mmø AND LARGER PIPELINES, USE 100mmø JET DISPERSER.
3 ALL BOLTS TO BE ELECTRO GALVANISED AND YELLOW PASSIVATED.
4 ALL BURIED STEEL PIPEWORK AND BOLTED CONNECTIONS TO BE DENSO WRAPPED TO STANDARD SPECIFICATION.
5 ALL STEEL PIPEWORK TO BE HOT DIP GALVANISED TO SANS 1461 (1999).

SECTION A-A

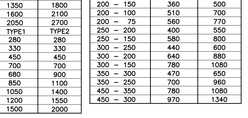
JET DISPERSER FOR SCOUR VALVE DETAIL
SCALE 1:5



REDUCERS



RISER ELBOW & TEES



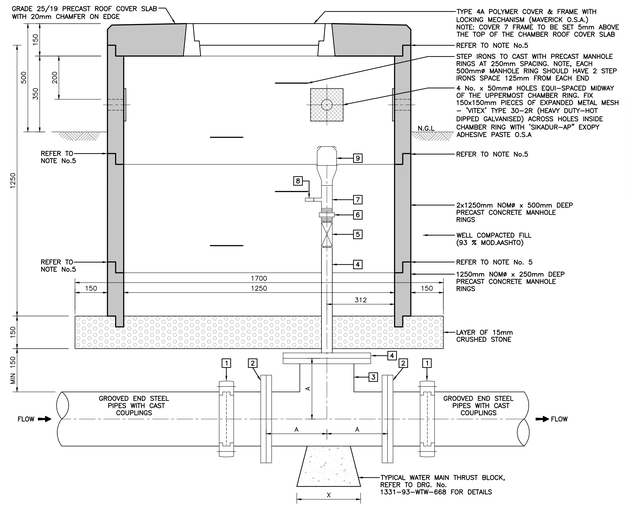
TYPICAL WATER MAIN THRUST BLOCKS

NOTE
1) SHOULD POOR SOIL CONDITIONS BE ENCOUNTERED, THE CONTRACTOR IS TO OBTAIN CONFIRMATION OF THRUST BLOCK SIZE FROM ENGINEER.
2) BLOCK SIZES BASED UPON SOIL WITH BEARING CAPACITY NOT LESS THAN 150 kPa.
3) FOR TYPE 1 (CLASS 9 OR CLASS C PIPE) >150mm IN DIAMETER BLOCK SIZES BASED UPON MAXIMUM TEST HEAD OF 135m (1.5 x 90m).
4) FOR TYPE 2 (CLASS 12/16 OR CLASS D/E/F PIPE) BLOCK SIZES BASED UPON MAXIMUM TEST HEAD OF 240m (1.5 x 160m).

TEES (BRANCH SIZE), END CAPS, 90° BENDS	X TYPE1	X TYPE2
50 & 63	380	380
75	450	450
90, 100, 110	600	600
150,160	900	900
200	900	1200
250	1130	1500
300,315	1350	1800
350	1600	2100
450	2050	2700
LESSER BENDS, RISER ELBOWS & RISER TEES	TYPE1	TYPE2
50 & 63	280	280
75	330	330
90, 100, 110	450	450
150, 160	700	700
200	680	900
250	850	1100
300,315	1050	1400
350	1200	1550
450	1500	2000

REDUCERS	Y TYPE1	Y TYPE2
75 – 50	210	210
100 – 75	240	240
100 – 50	340	340
150 – 100	430	430
150 – 75	520	520
150 – 50	580	580
200 – 150	360	500
200 – 100	510	700
200 – 75	560	770
250 – 200	400	550
250 – 150	580	800
300 – 250	440	600
300 – 200	640	880
300 – 150	780	1080
350 – 300	470	650
350 – 250	700	960
450 – 350	780	1080
450 – 300	970	1340

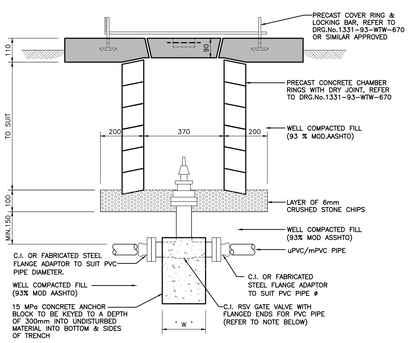
TYPICAL WATER MAIN THRUST BLOCKS
N.T.S.



50mmø AIR VALVE AND CHAMBER FOR STEEL PIPES LARGER THAN 90mmø DETAIL
SCALE 1:10

NOTES
1 ALL BOLTS TO BE ELECTRO GALVANISED AND YELLOW PASSIVATED.
2 ALL BURIED BOLTED CONNECTION TO BE DENSO WRAPPED TO STANDARD SPECIFICATION.
3 ALL STEEL PIPEWORK TO BE HOT DIP GALVANISED.
4 ALL FLANGES TO SANS 1123/77, TABLE TO SUIT AIR VALVE PRESSURE RATING.
5 ABE BITUMEN MANHOLE SEALING STRIPS (20mm x 1.1m STRIPS), OSA. STRIPS TO COVER INTERNAL CIRCUMFERENCE OF RING JOINT. PREPARATION AS PER MANUFACTURERS GUIDELINES.

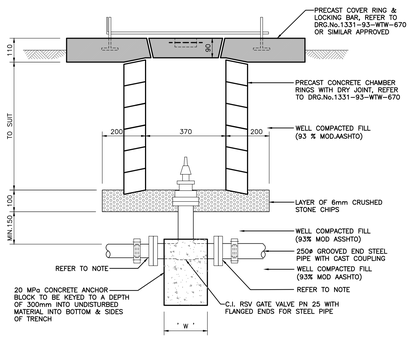
ITEM	DESCRIPTION	No
1	VICTAULIC COUPLING FOR GROOVED END STEEL PIPES	2
2	VJ FLANGED ADAPTOR O.S.A WITH GROOVED END FINISH.	2
3	STEEL EQUAL TEE WITH ALL ENDS FLANGED. (FOR 250mmø, A = 280mm; FOR 200mmø & 150mmø, A = 230mm).	1
4	STEEL BLANK FLANGE WITH 50mmø CENTRAL OPENING FOR 50mmø STEEL PIPE (ASTM A106) LENGTH TO SUIT, ONE END WELDED TO BLANK FLANGE & OTHER END BSP MALE THREADED	1
5	50mmø BALL VALVE (BSP FEMALE BOTH ENDS). PRESSURE RATING TO SUIT PIPE CLASS AS PER LAYOUT DRAWINGS	1
6	50mmØ HEX NIPPLE	1
7	50 x 15mm REDUCING TEE	1
8	15mm SOLID PLUG	1
9	50mmø DOUBLE PURPOSE AIR VALVE (BSP MALE). PRESSURE RATING TO SUIT PIPE CLASS AS PER LAYOUT DRAWINGS	1



NOTE
FOR 90mm – 315mmø PVC PIPELINE, USE FLANGED GATE VALVES (PN 16 PRESSURE RATED UNLESS OTHERWISE STATED) WITH C.I. OR FABRICATED STEEL FLANGE ADAPTOR TO SUIT PVC PIPE ø, ALL FLANGES TO SABS 1123 TABLE 1600.

PIPE NOM. ø	EQUIVALENT VALVE NOM. ø (SABS 664)	DIMENSION 'W' (mm)	VALVE TYPE
90mmø uPVC	80	250	FLANGED
110mmø uPVC	100	250	FLANGED
160mmø uPVC	150	300	FLANGED
200mmø uPVC	200	300	FLANGED
250mmø uPVC	250	300	FLANGED
315mmø uPVC	300	300	FLANGED

TYPICAL FLANGED ISOLATING VALVE & CHAMBER FOR PIPELINES FROM 90mm TO 315mmø DETAIL
SCALE 1:10

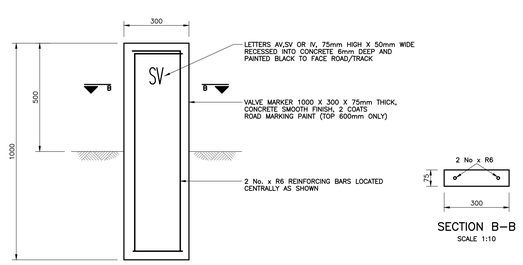


STEEL PIPE NOMINAL ø	EQUIVALENT VALVE ø (SABS 664)	DIMENSION 'W' (mm)	VALVE TYPE
250mmø	250	300	FLANGED

NOTE:
FOR 250mmø GROOVED END STEEL PIPE WITH CAST COUPLINGS, USE "VICTAULIC" COUPLING (O.S.A) AND STEEL FLANGE ADAPTOR WITH GROOVED END TO SUIT, FLANGES TO SABS 1123, TABLE 2500/3.

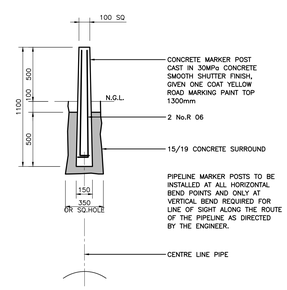
TYPICAL ISOLATING VALVE & CHAMBER FOR 250ø STEEL PIPELINES DETAIL
SCALE 1:10

NOTE:
1 ALL EDGES TO BE CHAMFERED 12 X 12 mm
2 MINIMUM CONCRETE COVER TO REINFORCEMENT TO BE 20mm
3. MINIMUM CONCRETE STRENGTH TO BE 35MPa/19mm WITH SMOOTH SHUTTER FINISH
4 FOR RETICULATION PIPELINES PAINT MARKER YELLOW
5 FOR BULK SUPPLY PIPELINES PAINT MARKER WHITE
6 POSITION PIPELINE MARKERS AT EVERY BEND TO INDICATE CURVE OF PIPE AND AT LEAST 100m APART ABOVE CENTRELINE OF PIPE



SECTION B-B
SCALE 1:10

TYPICAL PRECAST CONCRETE VALVE MARKER
SCALE 1:10



PIPE MARKER POST
SCALE 1:20

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	SM	CONSTRUCTION DRAWING	08/08/2023

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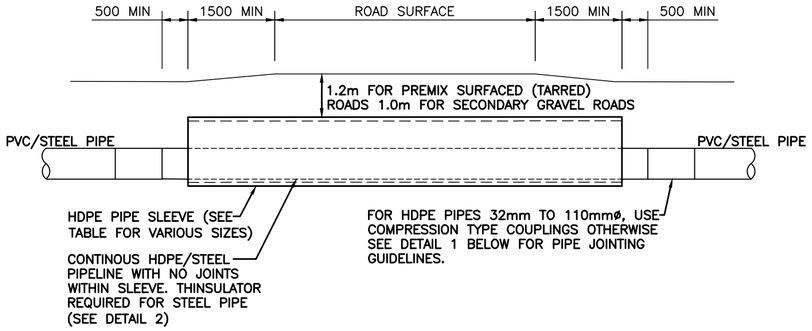
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GLOBAL ENGINEERING SOLUTIONS
1 HOLYWOOD PARK, 5 CANEGATE ROAD, LA LUCIA RIDGE OFFICE ESTATE, DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	H.WILSON		S.MDAKA
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M. VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

GENERAL DETAILS

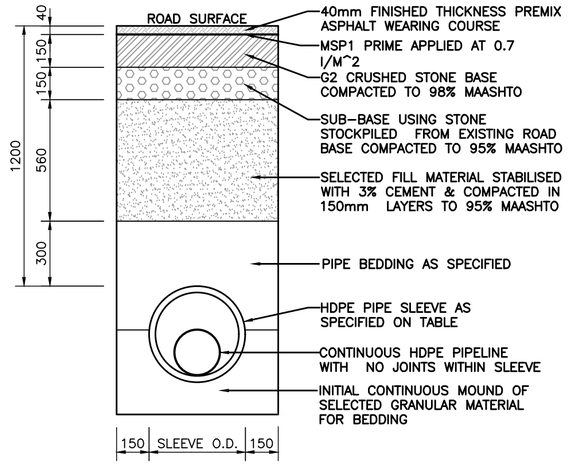
SCALE	AS SHOWN	DATE	AUG. 2023
DRAWING NUMBER	1331-093-WTW-668	A0	REVISION A



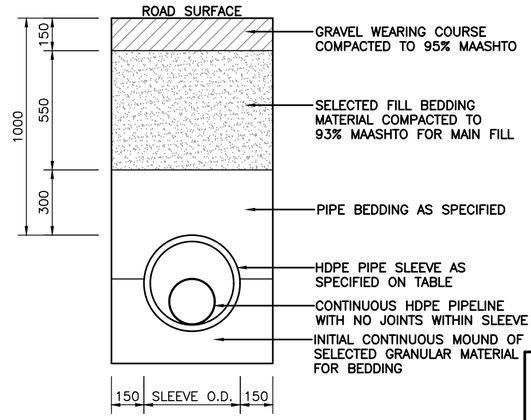
NOMINAL ø OF PIPELINE (mm)	SIZE, CLASS & TYPE OF SLEEVE (IF REQUIRED)	INTERNAL ø OF SLEEVE (mm)
600	900mm PE 100 HDPE (PN 10)	700
500	710mm PE 100 HDPE (PN 10)	621
400	630mm PE 100 HDPE (PN 10)	551
355	500mm PE 100 HDPE (PN 10)	437
315	500mm PE 100 HDPE (PN 10)	437
250	450mm PE 100 HDPE (PN 10)	393
200	450mm PE 100 HDPE (PN 10)	393
160	315mm PE 100 HDPE (PN 10)	275
110	200mm PE 100 HDPE (PN 10)	175
75	160mm PE 100 HDPE (PN 10)	140
50	110mm PE 100 HDPE (PN 10)	96
32	75mm PE 100 HDPE (PN 10)	65
25	75mm PE 100 HDPE (PN 10)	65

NOTE:
STEEL, PVC AND HDPE PIPELINE CLASS AND DIAMETER TO BE AS INDICATED ON PIPELINE LAYOUT DRAWINGS.

TYPICAL ELEVATION OF ROAD CROSSING (OPEN TRENCH EXCAVATION OR HORIZONTAL DIRECTIONAL DRILLING)
SCALE 1:100



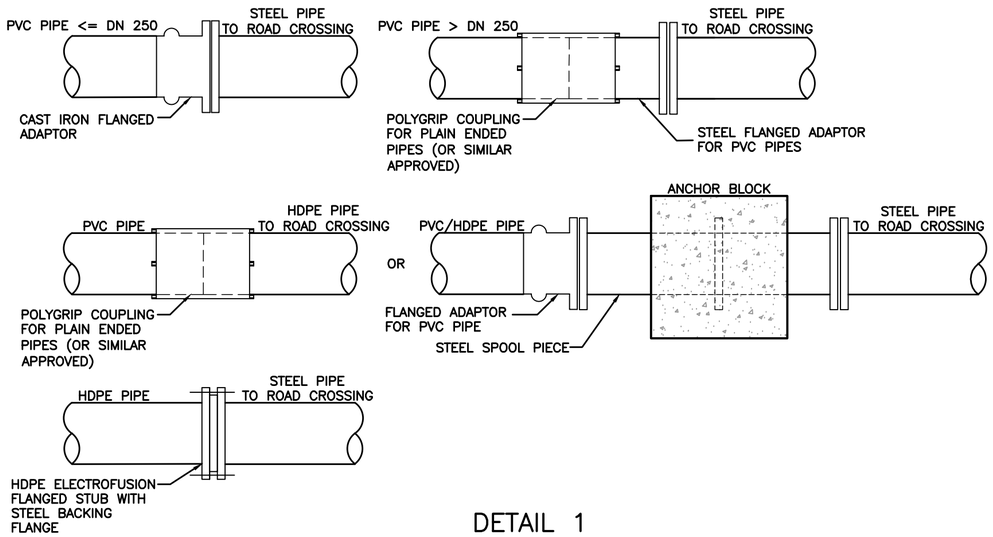
ASPHALT SURFACED ROAD CROSSING



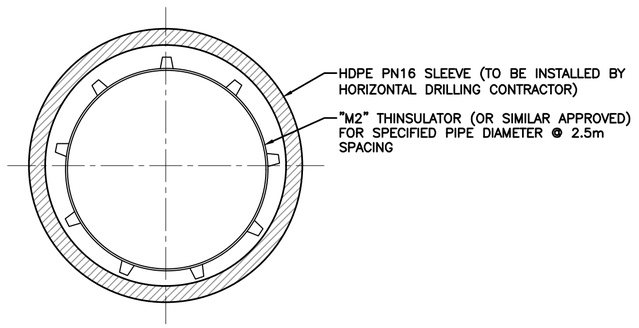
GRAVEL ROAD CROSSING

NOTES:
1) D.O.T ROADS REQUIRE A PIPE SLEEVE.
2) SLEEVES REQUIRED UNDER MUNICIPAL ROADS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
3) OPEN TRENCH ACROSS GRAVEL ROADS. THE REQUIREMENT FOR A PIPE SLEEVE IS TO BE CONFIRMED BY THE ENGINEER.
4) TRAFFIC ACCOMMODATION TO BE PROVIDED.

TYPICAL SECTIONS OF ROAD LAYER WORKS FOR ROAD CROSSINGS DONE BY OPEN TRENCH EXCAVATION
SCALE 1:20



DETAIL 1
TYPICAL PIPE JOINTING METHODS
SCALE 1:50



DETAIL 2
SECTION OF HDPE PIPE SLEEVE AND STEEL PIPE WITH THINSULATOR
SCALE 1:10

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	SM	CONSTRUCTION DRAWING	08/08/2023

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LA LUCIA RIDGE OFFICE ESTATE
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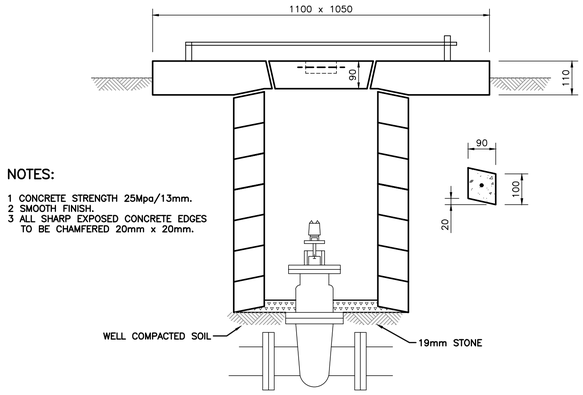
DRAWN	H.WILSON		S.MDAKA
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED | S.MDAKA PROJECT MANAGER | M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

ROAD CROSSING DETAILS

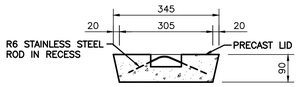
SCALE	AS SHOWN	DATE	AUG. 2023
DRAWING NUMBER	1331-093-WTW-669	A2	REVISION A



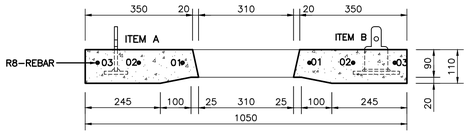
NOTES:

1 CONCRETE STRENGTH 25Mpa/13mm.
2 SMOOTH FINISH.
3 ALL SHARP EXPOSED CONCRETE EDGES TO BE CHAMFERED 20mm x 20mm.

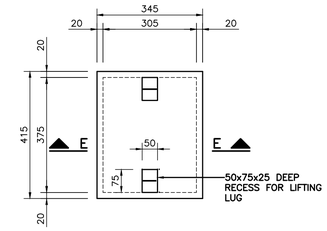
TYPICAL DETAIL OF MANHOLE USING SPACER RINGS
SCALE 1:10



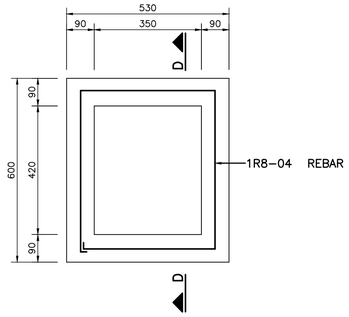
LID



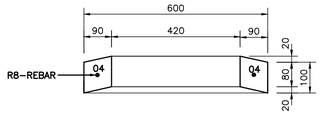
COVER
SECTION E–E
SCALE 1:10



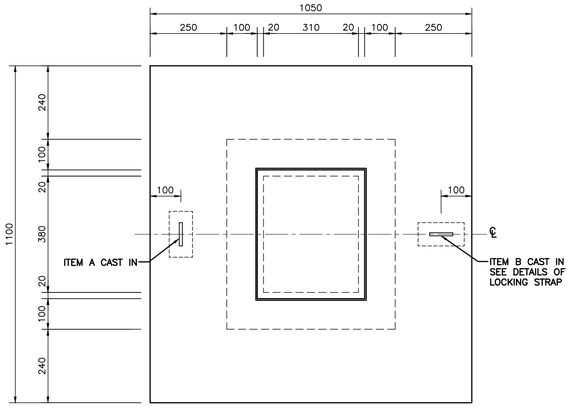
PLAN ON PRECAST LID
SCALE 1:10



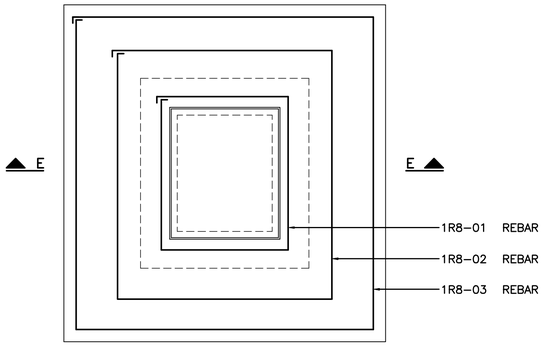
TYPICAL DETAIL OF MANHOLE SPACER RING
SCALE 1:10



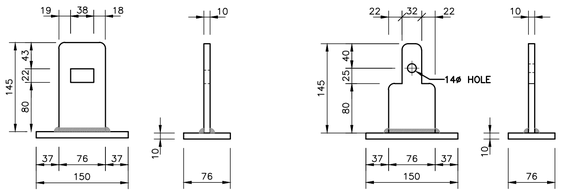
SECTION D–D
SCALE 1:10



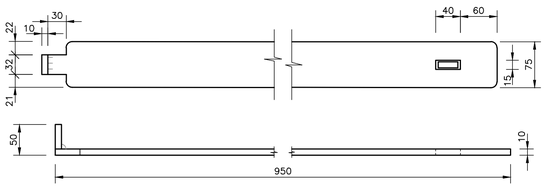
PLAN OF COVER
CONCRETE LAYOUT
SCALE 1:10



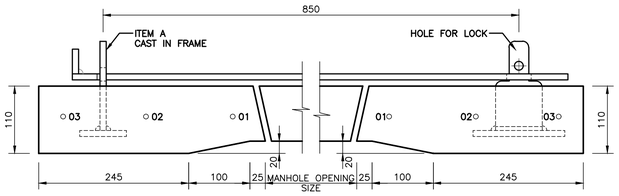
PLAN OF COVER
REINFORCEMENT LAYOUT
SCALE 1:10



ITEM A ITEM B



ITEM C



ASSEMBLY DETAIL

1 THESE UNITS ARE TO BE PROVIDED FOR AIR VALVE, SCOUR VALVE AND ISOLATING VALVE INSTALLATIONS ONLY.
2 ALL STEEL COMPONENTS TO BE HOT DIP GALVANISED TO SANS 763 AFTER FABRICATION AND THEN INSTALLED.
3 14mm DIA. HOLE IN ITEM B TO SUIT BBL PADLOCKS.
4 LOCKING BAR ASSEMBLY TO BE PLACED CENTRALLY ACROSS OPENING.
5 ALL CORNERS TO BE ROUNDED TO 10mm RADIUS AS SHOWN.

DETAILS OF LOCKING STRAP
SCALE 1:5

NOTES:

1 CONCRETE STRENGTH 25Mpa /13mm.
2 SMOOTH FINISH.
3 ALL SHARP EXPOSED CONCRETE EDGES TO BE CHAMFERED 20mm x 20mm.

SCHEDULE OF REINFORCING (PER ITEM)

ITEM	BAR MARK	DIAMETER	SHAPE CODE	DIMENSIONS			
				A	B	TOTAL LENGTH	MASS
FRAME (1 N°)	01	R8	60	500	420	2040	
	02	R8	60	800	700	3200	
	03	R8	60	1010	970	4160	
SPACER RING (1 N°)	04	R8	60	450	520	2140	

Ugu District Municipality

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GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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DRAWN	H.WILSON		S.MDAKA
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA PROJECT MANAGER — M.VAWDA DIVISIONAL MANAGER

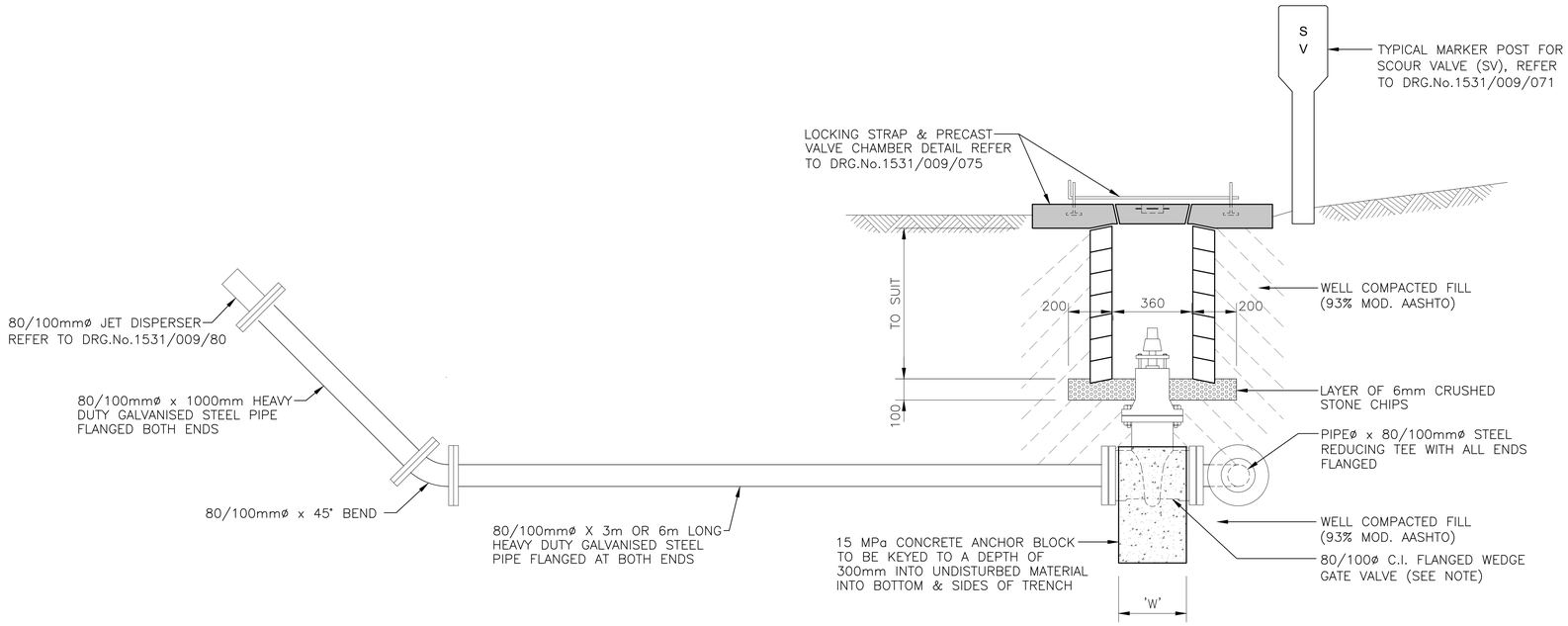
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

LOCKING STRAP AND PRECAST VALVE CHAMBER DETAILS

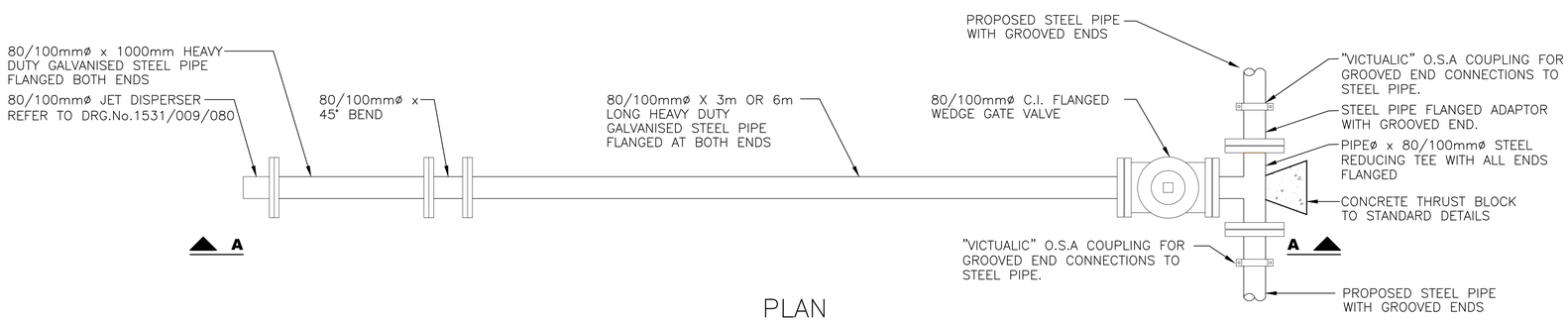
SCALE AS SHOWN
DATE AUG. 2023
DRAWING NUMBER 1331-093-WTW-670
A1
REVISION A

NOTES

1 ALL FLANGES DRILLED TO SANS 1123/3 TABLE TO SUIT WEDE GATE VALVE PRESSURE RATING.
2 ALL GALVANISED FITTINGS TO SANS 1461 (1999).
3 ALL GALVANISED FITTINGS AND ALL BOLTED CONNECTIONS TO BE 'DENSO' WRAPPED.
4 ANCHOR BLOCK TO BE FOUNDED INTO UNDISTURBED SOIL.
5 FOR PIPES 150mmø AND > USE 100mmø SCOUR PIPEWORK.
FOR PIPES <150mmø USE 80mmø SCOUR PIPEWORK.



SECTION A–A
SCALE 1:20



PLAN
SCALE 1:20

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

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1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
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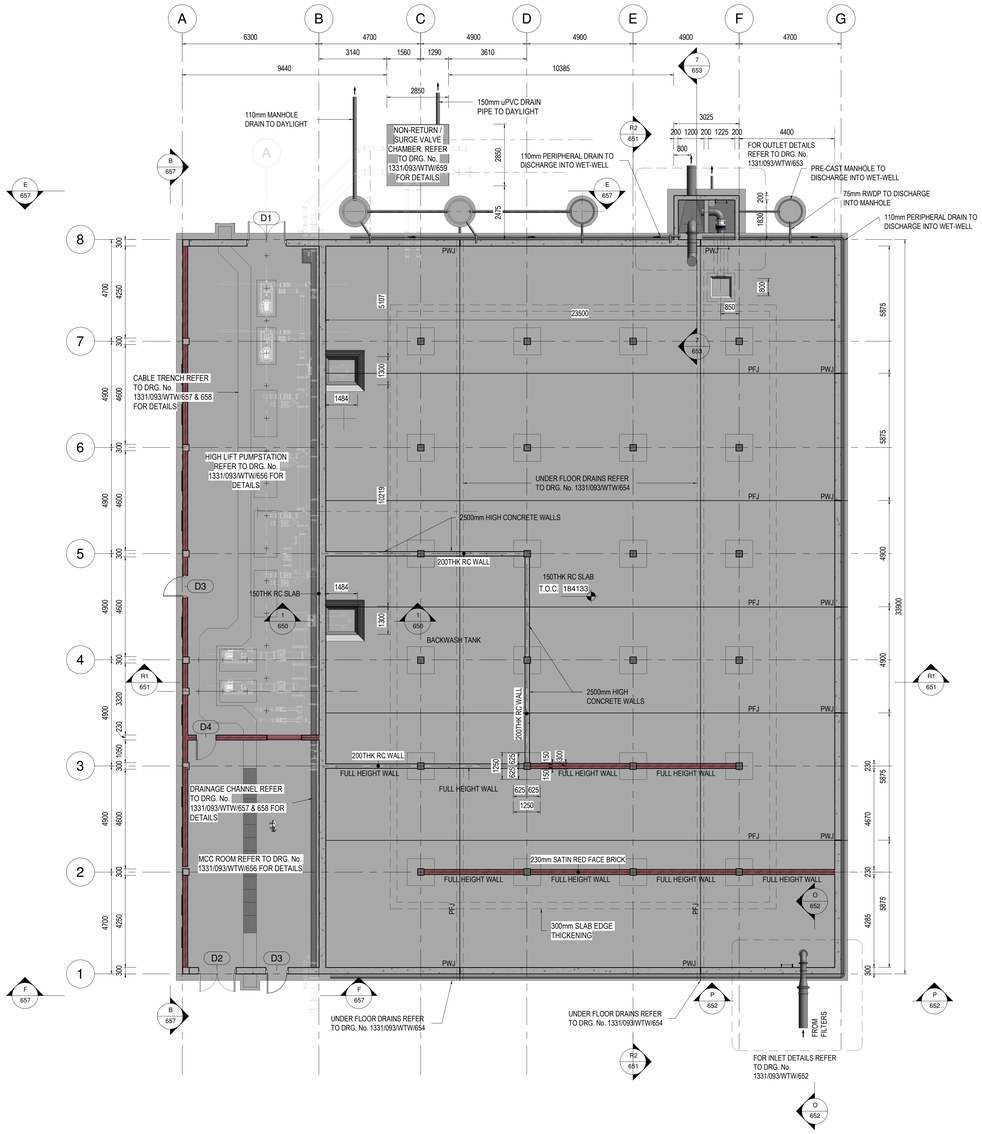
DRAWN	H.WILSON		S.MDAKA
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED | S.MDAKA PROJECT MANAGER | M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

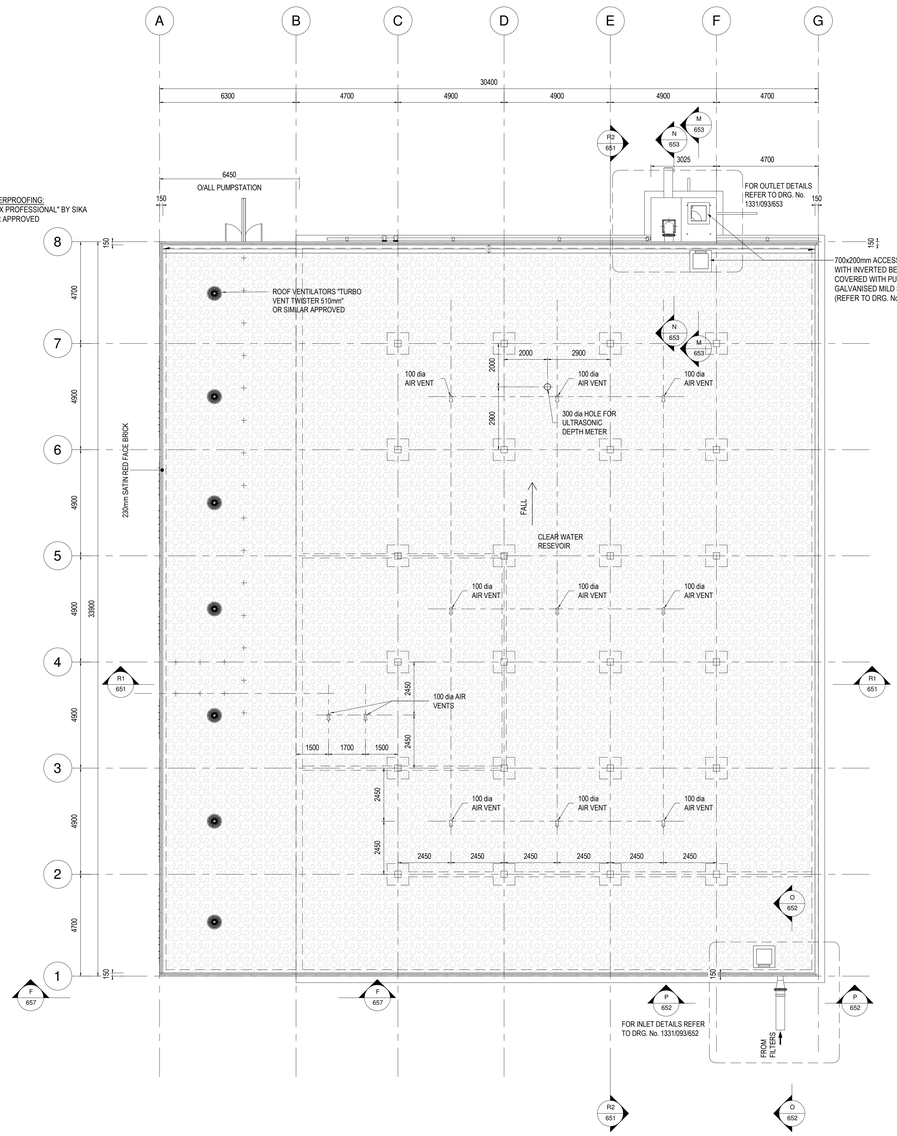
TYPICAL SCOUR VALVE & CHAMBER DETAILS FOR STEEL PIPELINES

SCALE AS SHOWN | DATE AUG. 2023
DRAWING NUMBER 1331-093-WTW-671 | A2 | REVISION A



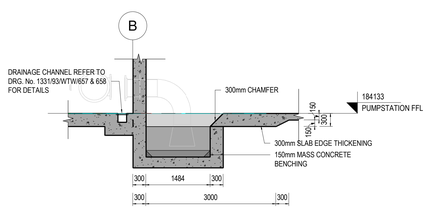
RESERVOIR FFL

SCALE 1 : 100



RESERVOIR ROOF LEVEL

SCALE 1 : 100



SECTION I-I

SCALE 1 : 50

NOTES:

GENERAL

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
- IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
- DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

1.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm. ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3.
- MINIMUM COVER TO REINFORCING:
  - FLOOR/BASE SLAB 50mm TOP & BOTTOM
  - WALLS - EARTH FACE 40mm
  - WATER FACE 50mm
  - ROOF SLAB - SOFFIT 50mm
  - - TOP 40mm
  - COLUMNS 50mm

4.
- CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5.
- ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6.
- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

1. **BRICKWORK:**
- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
- N.B/ 4 COURSES BRICKFORCE ABOVE WINDOWS AND DOORS.
- DPC AT FLOOR AND WINDOW CILL LEVELS.
- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2. **PLASTER**
- CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

3. **PAINTING**
- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
- CLEAN WITH SPIRITS AF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS
- ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
- PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES
- PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES TIMBERS

GROUND IMPROVEMENT

- THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:
- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APP'RD
A	R.C.	APPROVED FOR CONSTRUCTION	21/11/2022	
T1	ALR	TENDER DRAWING	29/06/2021	

1331-093-WTW-660	WTW-CLEAR WATER PUMPSTATION-STEEL DOOR DETAIL
1331-093-WTW-661	WTW-CLEAR WATER PUMPSTATION-3D VIEWS
1331-093-WTW-662	WTW-CLEAR WATER PUMPSTATION-PIPEWORK-PLANS
1331-093-WTW-663	WTW-CLEAR WATER PUMPSTATION-PIPEWORK-SECTIONS
1331-093-WTW-664	WTW-CLEAR WATER PUMPSTATION-SURGE CHAMBER PIPEWORK PLAN & SECTIONS
1331-093-WTW-602	OVERALL LAYOUT PLAN
DRG. No.	REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	R.COETZEE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

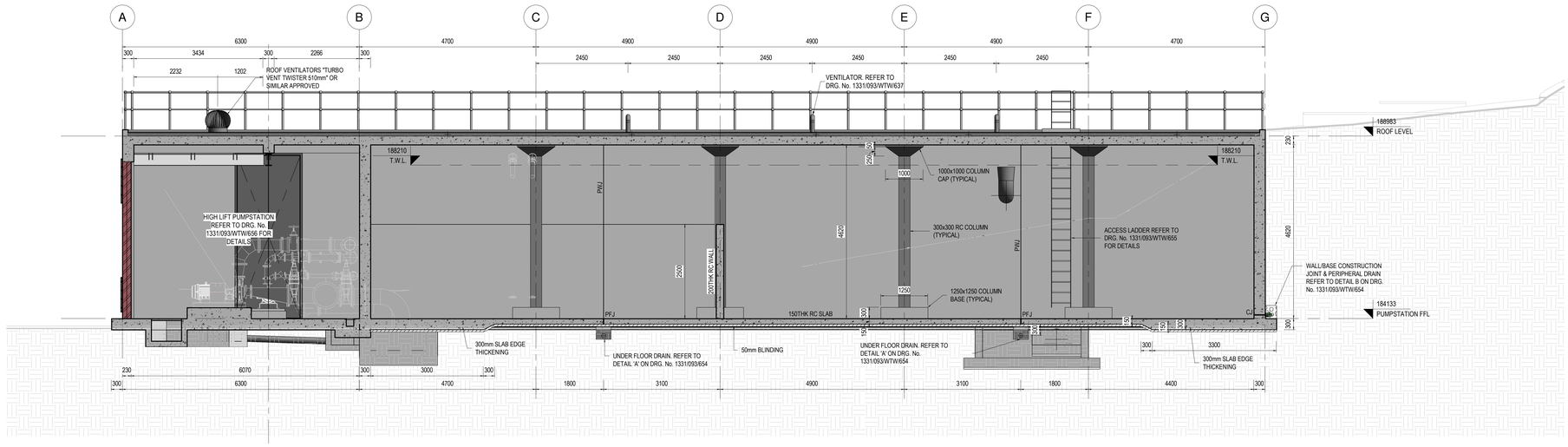
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
WTW-CLEAR WATER RESERVOIR

RESERVOIR G.A. - PLANS

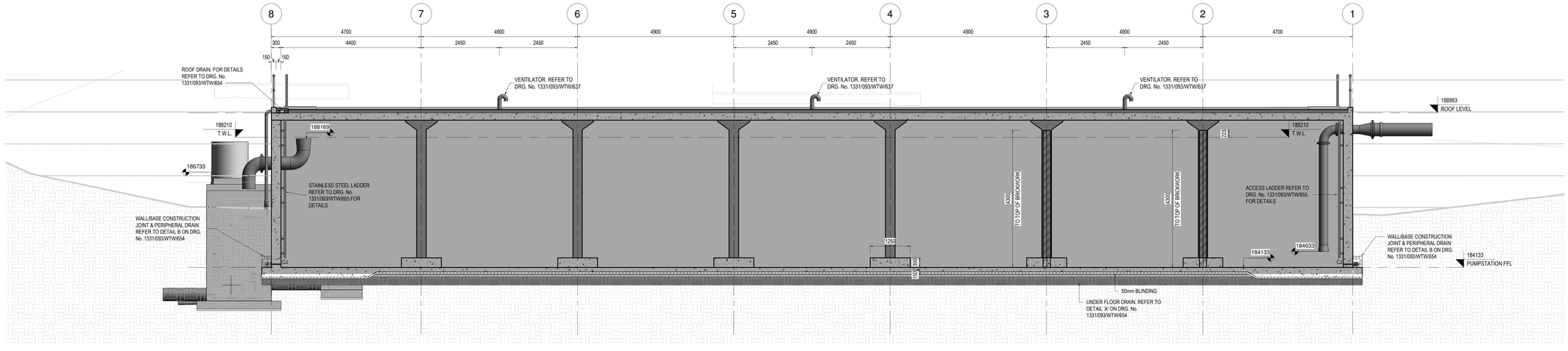
SCALE	AS SHOWN	DATE	21/11/2022
DRAWING NUMBER	1331/093/WTW/ 650	A0	REVISION A

FOR CONSTRUCTION



SECTION R1-R1

SCALE 1 : 50



SECTION R2-R2

SCALE 1 : 50

FOR CONSTRUCTION

NOTES:

GENERAL

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
- IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
- DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

1.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm. ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3.
- MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS - EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB - SOFFIT	50mm
- TOP	40mm
COLUMNS	50mm

4.
- CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5.
- ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6.
- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

1. **BRICKWORK:**
- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
- N.B! 4 COURSES BRICKFORCE ABOVE WINDOWS AND DOORS.
- DPC AT FLOOR AND WINDOW CILL LEVELS.
- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2. **PLASTER**
- CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

3. **PAINTING**
- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
- CLEAN WITH SPIRITS AF 33 TS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBER CEMENT CILLS
- ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
- PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
- PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES TIMBERS

GROUND IMPROVEMENT

- THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:
- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
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DRG. No.	REFERENCE DRAWING

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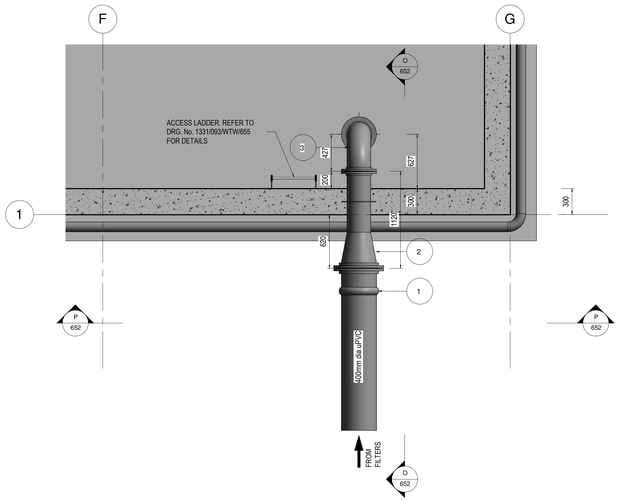
DRAWN	R.COETZEE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED
S.MDAKA — PROJECT MANAGER
M.VAWDA — DIVISIONAL MANAGER

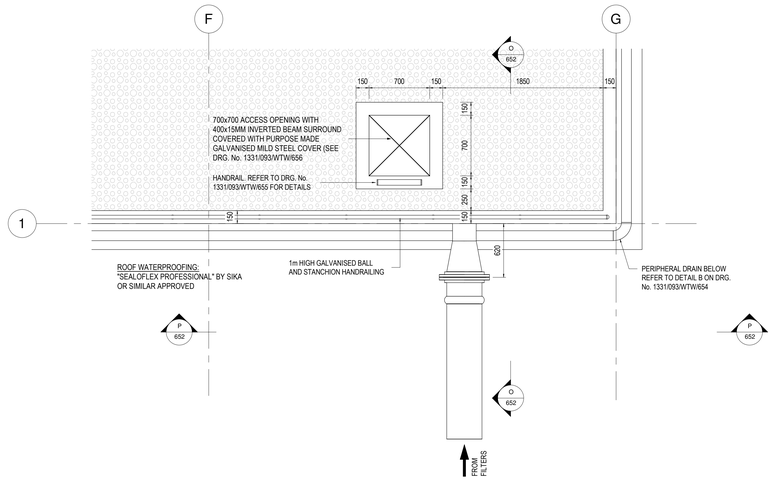
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RESERVOIR G.A. - SECTIONS

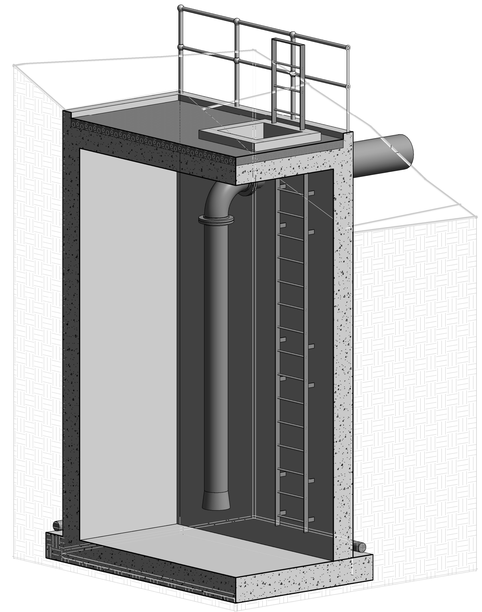
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DRAWING NUMBER	1331/093/WTW/ 651	A0	REVISION A



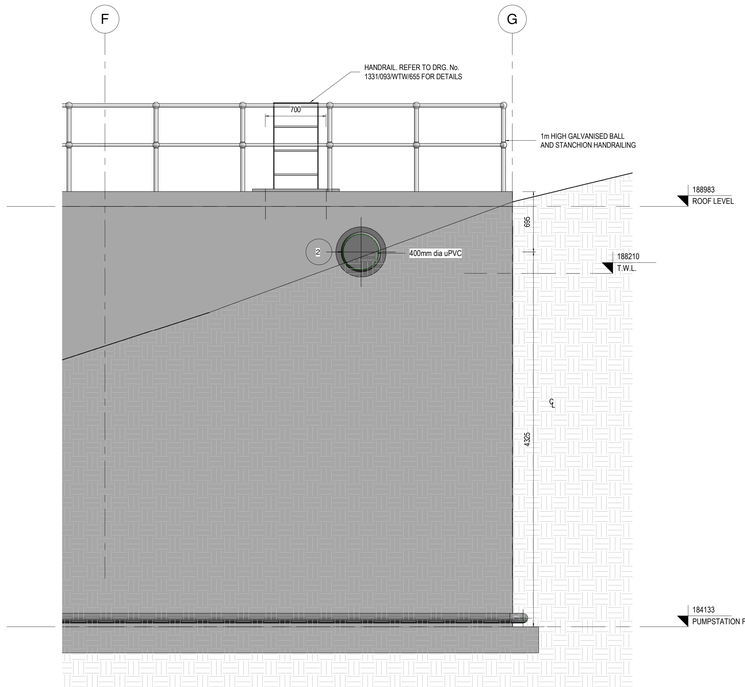
RESERVOIR INLET
SCALE 1 : 25



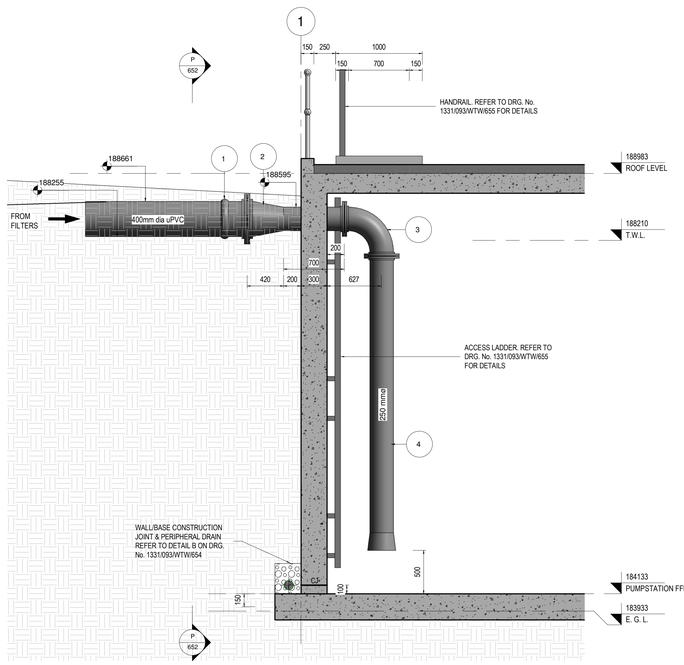
RESERVOIR INLET ROOF
SCALE 1 : 25



3D INLET
SCALE



SECTION P-P INLET
SCALE 1 : 25



SECTION O-O INLET
SCALE 1 : 25

INLET PIPE FITTINGS SCHEDULE

ITEM	DESCRIPTION	No.
1	400mmØ uPVC FLANGE ADAPTOR	1
2	400x250mmØ STEEL REDUCER 420mm LONG WELDED TO A 250mmØ STEEL PIPE 700mm LONG, FLANGED ONE END WITH PUDDLE FLANGE LOCATED 350mm FROM FLANGED END.	1
3	250mmØ 90° STEEL SHORT RADIUS BEND FLANGED BOTH ENDS	1
4	250mmØ STEEL SPOOL PIECE 3150mm LONG WITH ONE END FLANGED AND ONE END WELDED TO 250x300mmØ PLAIN REDUCER	1

FOR CONSTRUCTION

STEEL PIPEWORK:

1. GENERAL
- ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. Ø) AND SANS 719 (FOR PIPESLARGER THAN 150mm NOM.Ø)

2. LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH " PLASCOAT PPA571 AQUA " OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.50m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIERS SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3.
- ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4.
- ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5.
- WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6.
- ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7.
- STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY)CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8.
- INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S', (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9.
- SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

NOTES:

GENERAL
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
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3.
- MINIMUM COVER TO REINFORCING:
  - FLOOR/BASE SLAB 50mm TOP & BOTTOM
  - WALLS - EARTH FACE 40mm
  - WATER FACE 50mm
  - ROOF SLAB - SOFFIT 50mm
  - - TOP 40mm
  - COLUMNS 50mm

4.
- CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5.
- ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6.
- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

1. BRICKWORK:
- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
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- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2. PLASTER
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3. PAINTING
- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
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GROUND IMPROVEMENT
- THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER.
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Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

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1331-093-WTW-650	WTW-CLEAR WATER RESERVOIR-PLANS
1331-093-WTW-651	WTW-CLEAR WATER RESERVOIR-SECTIONS
1331-093-WTW-602	OVERALL LAYOUT PLAN

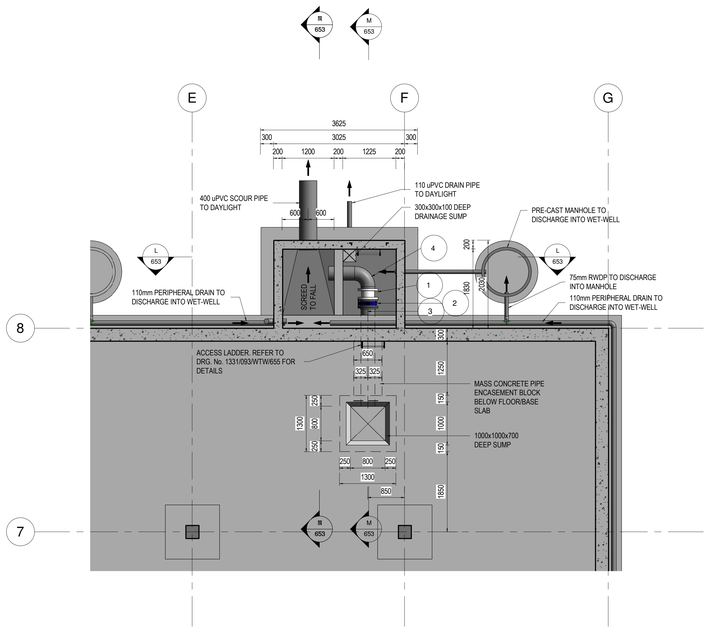
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1 HOLWOOD PARK
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LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
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INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

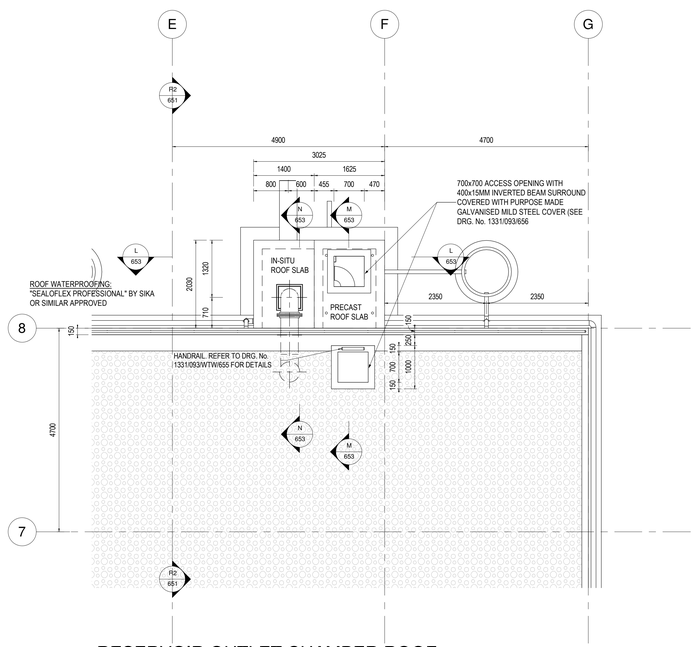
UGU DISTRICT MUNICIPALITY
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PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
WTW-CLEAR WATER RESERVOIR
RESERVOIR INLET STRUCTURE
PLAN AND SECTIONS

SCALE	AS SHOWN	DATE	21/11/2022
DRAWING NUMBER	1331/093/WTW/ 652	A0	REVISION A



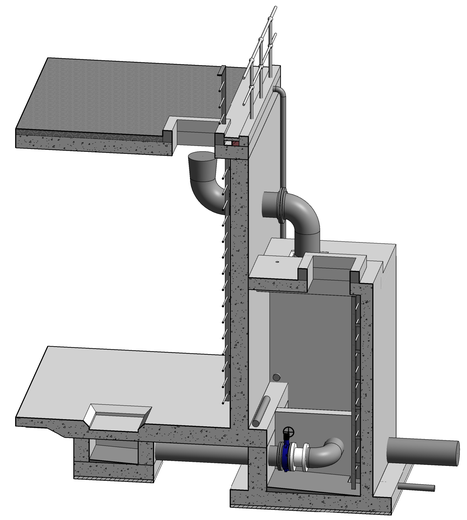
RESERVOIR OUTLET CHAMBER

SCALE 1 : 50



RESERVOIR OUTLET CHAMBER ROOF

SCALE 1 : 50



3D OUTLET CHAMBER

SCALE

STEEL PIPEWORK:

1. GENERAL

- ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. Ø) AND SANS 719 (FOR PIPESLARGER THAN 150mm NOM.Ø).

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- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH " PLASCOAT PPA571 AQUA " OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
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- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3.

- ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4.

- ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5.

- WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

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- ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

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- STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH' DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY)CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8.

- INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S', (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9.

- SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

NOTES:

GENERAL

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
- IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
- DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

1.

- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2.

- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm. ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3.

- MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS - EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB - SOFFIT	50mm
- TOP	40mm
COLUMNS	50mm

4.

- CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5.

- ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6.

- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

1. BRICKWORK:

- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
- N.B! 4 COURSES BRICKFORCE ABOVE WINDOWS AND DOORS.
- DPC AT FLOOR AND WINDOW CILL LEVELS.
- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2. PLASTER

- CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

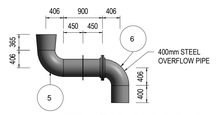
3. PAINTING

- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
- CLEAN WITH SPIRITS AF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS
- ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
- PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES
- PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES TIMBERS

GROUND IMPROVEMENT

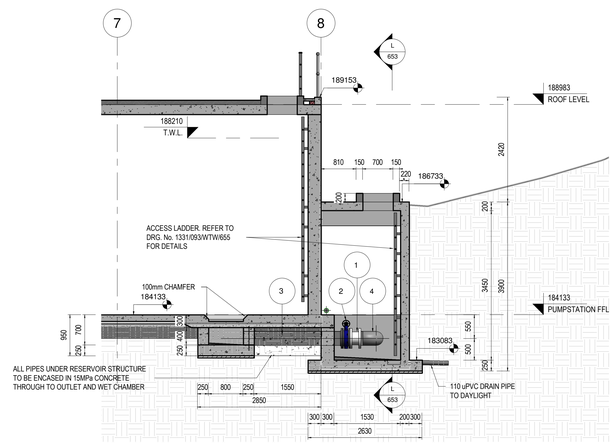
- THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER.
- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

OUTLET PIPE FITTINGS SCHEDULE		
ITEM	DESCRIPTION	No.
1	300mmØ V.J. COUPLING, PN10	1
2	300mmØ FLANGED BUTTERFLY VALVE WITH ACTUATOR, CLASS 10.	1
3	300mmØ PUDDLE PIPE F.O.E. ±2285mm LONG WITH PUDDLE FLANGE LOCATED 125mm FROM UNFLANGED END	1
4	300mmØ STEEL SHORT RADIUS 90° BEND (ANSI) - UNFLANGED WITH 600mm LONG SPOOL PIECE WELDED TO ONE END AND 100mm LONG SPOOL PIECE WELDED TO OTHER END	1
5	400mmØ STEEL PIPE WITH PUDDLE FLANGE CENTRALLY LOCATED, FLANGED ONE END THEN WELDED TO 400mmØ 90° STEEL SHORT RADIUS BEND WHICH IS WELDED TO A 400x450mmØ STEEL REDUCER.	1
6	400mmØ 90° STEEL BEND FLANGED ONE END AND WELDED TO 400mmØ 400mm LONG STEEL SPOOL PIECE.	1



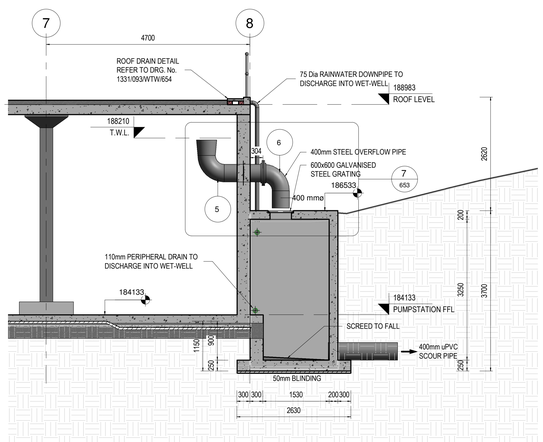
ITEM 5 & 6 DETAIL

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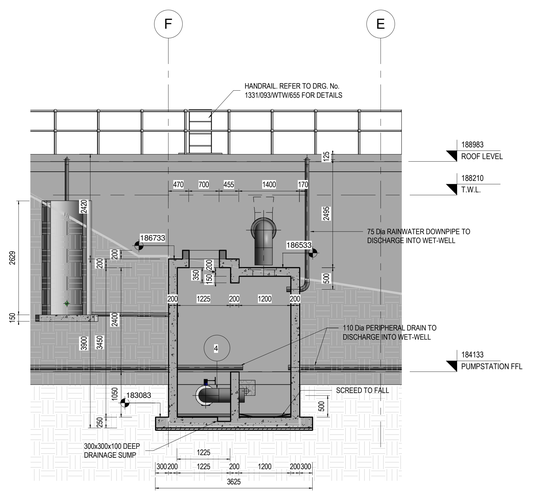
SECTION M-M OUTLET CHAMBER

SCALE 1 : 50



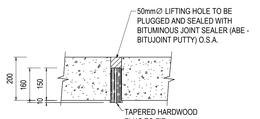
SECTION N-N OUTLET CHAMBER

SCALE 1 : 50



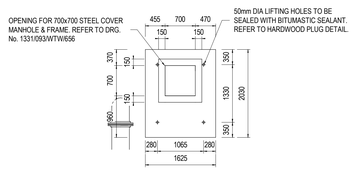
SECTION L-L OUTLET CHAMBER

SCALE 1 : 50



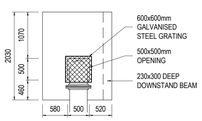
HARDWOOD PLUG DETAIL

SCALE 1 : 10



OUTLET CHAMBER PRE-CAST ROOF SLAB

SCALE 1 : 50



OUTLET CHAMBER IN-SITU ROOF SLAB

SCALE 1 : 50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	R.C.	APPROVED FOR CONSTRUCTION	21/11/2022	
T1	ALR	TENDER DRAWING	25/06/2021	

DRG. No.	REFERENCE DRAWING
1331-093-WTW-650	WTW-CLEAR WATER RESERVOIR PLANS
1331-093-WTW-651	WTW-CLEAR WATER RESERVOIR-SECTIONS
1331-093-WTW-602	OVERALL LAYOUT PLAN

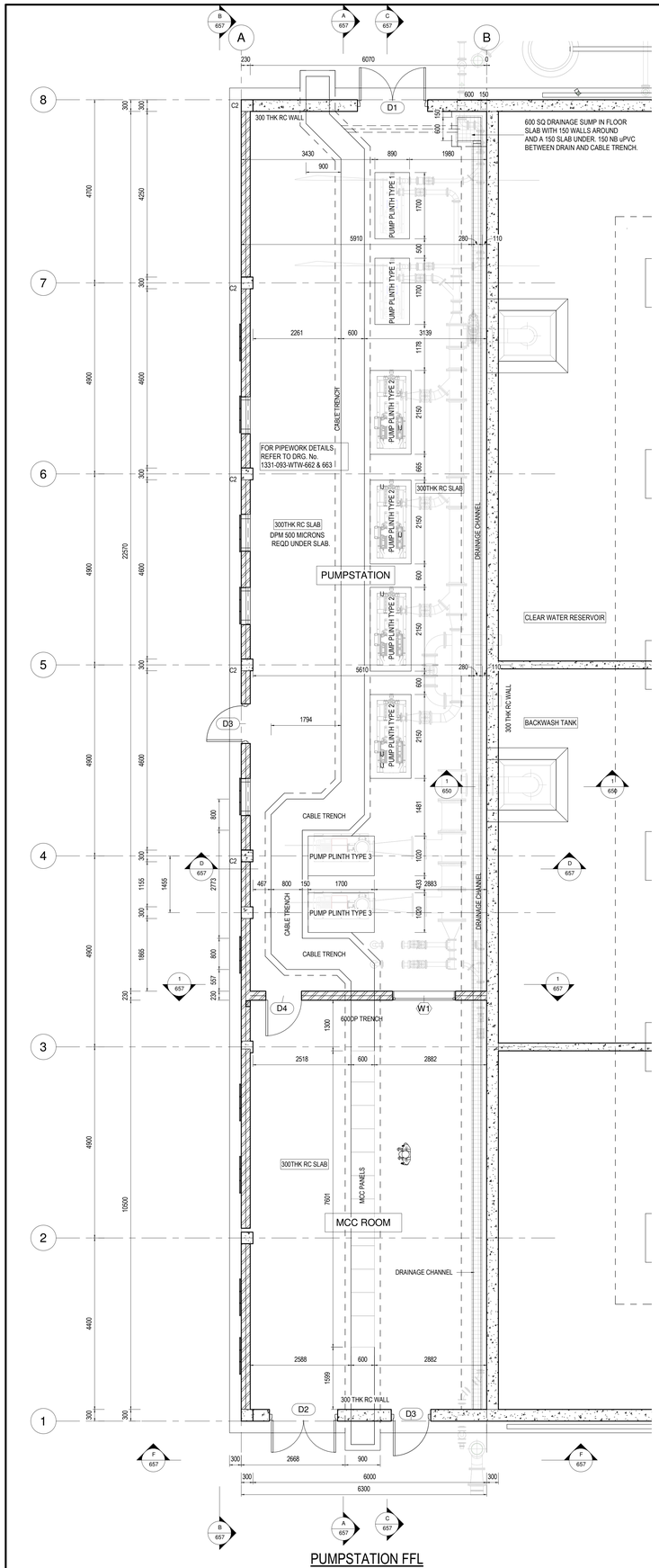
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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

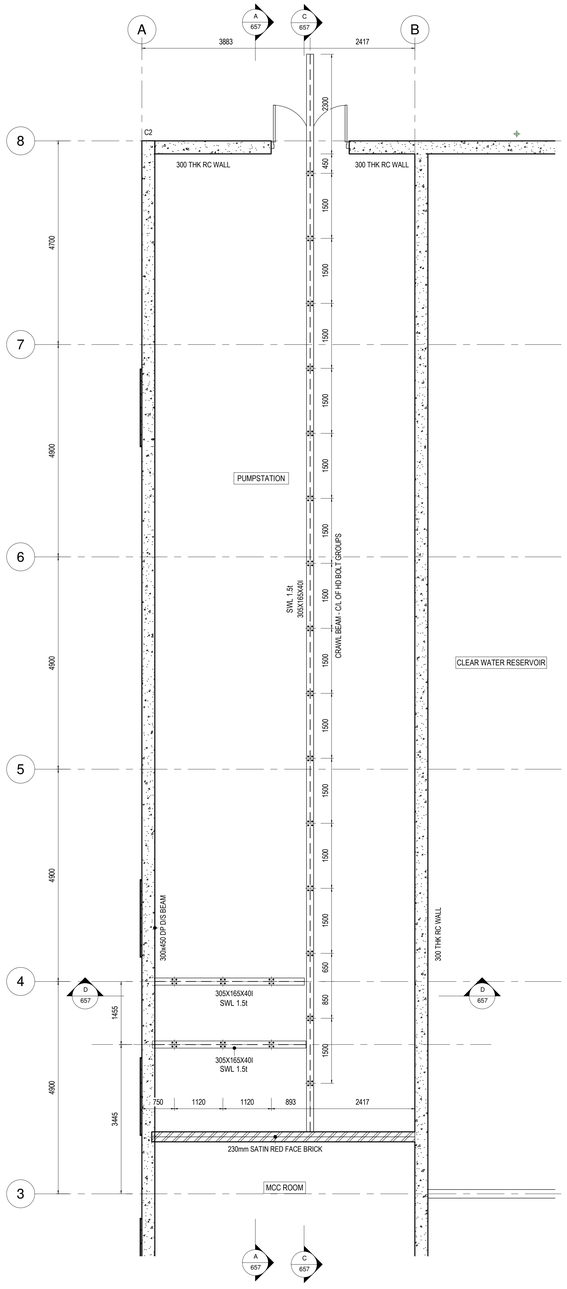
DRAWN	R.COETZEE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
WTW-CLEAR WATER RESERVOIR
RESERVOIR OUTLET CHAMBER
PLAN AND SECTIONS

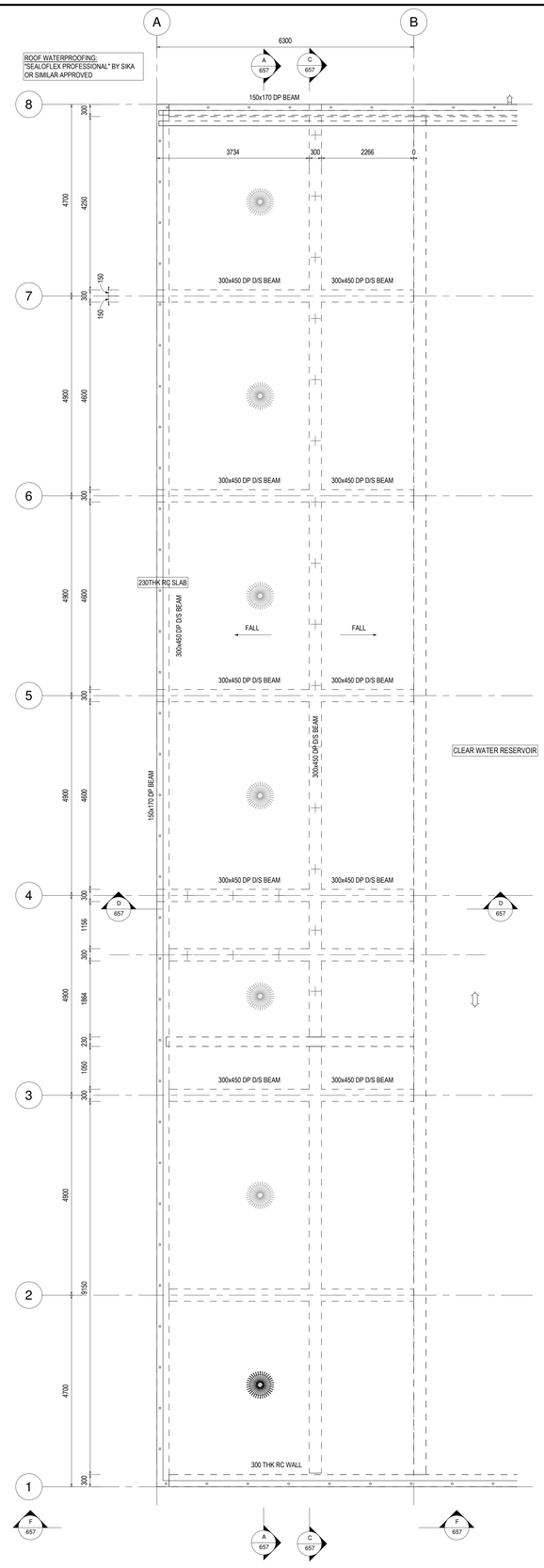
SCALE	AS SHOWN	DATE	21/11/2022
DRAWING NUMBER	1331/093/WTW/ 653	REVISION	A
	A0		



PUMPSTATION FFL
Scale 1 : 50



PLAN ON CRAWL BEAM
Scale 1 : 50



ROOF LEVEL
Scale 1 : 50

STEEL PIPEWORK:

1. GENERAL
- ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. Ø) AND SANS 719 (FOR PIPESLARGER THAN 150mm NOM.Ø).

2. LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH " PLASCOAT PPAS71 AQUA " OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.50m, SHALL BE COATED AND LINED WITH " COPON KSIR 68" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3.
- ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4.
- ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5.
- WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6.
- ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7.
- STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8.
- INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S' (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9.
- SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

Door Schedule

Mark	Description	Count	Height	Width
D1	CUSTOM STEEL DOUBLE PS DOOR AS PER DETAIL ON 1331/093/WTW/660	1	4350	1700
D2	TROX STEEL DOUBLE DOOR	1	2320	1650
D3	TROX STEEL SINGLE DOOR	2	2032	915
D4	MERANTI INTERNAL SINGLE DOOR	1	2032	915

NOTES:

GENERAL
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CONCRETE

1.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm. ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3.
- MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS - EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB - SOFFIT	50mm
- TOP	40mm
COLUMNS	50mm

4.
- CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5.
- ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6.
- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

1. BRICKWORK:
- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
- N.B! 4 COURSES BRICKFORCE ABOVE WINDOWS AND DOORS.
- DPC AT FLOOR AND WINDOW CILL LEVELS.
- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2. PLASTER
- CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS

3. PAINTING
- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
- CLEAN WITH SPIRITS AF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS
- ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
- PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES.
- PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES TIMBERS

GROUND IMPROVEMENT
- THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER.
- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	R.C.	APPROVED FOR CONSTRUCTION	21/11/2022	
T1	ALR	TENDER DRAWING	25/06/2021	

1331-093-WTW-660	WTW-CLEAR WATER PUMPSTATION-STEEL DOOR DETAIL
1331-093-WTW-661	WTW-CLEAR WATER PUMPSTATION-3D VIEWS
1331-093-WTW-662	WTW-CLEAR WATER PUMPSTATION-PIPEWORK-PLANS
1331-093-WTW-663	WTW-CLEAR WATER PUMPSTATION-PIPEWORK-SECTIONS
1331-093-WTW-664	WTW-CLEAR WATER PUMPSTATION-SURGE CHAMBER PIPEWORK PLAN & SECTIONS
1331-093-WTW-602	OVERALL LAYOUT PLAN
DRG. No.	REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	R.COETZEE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

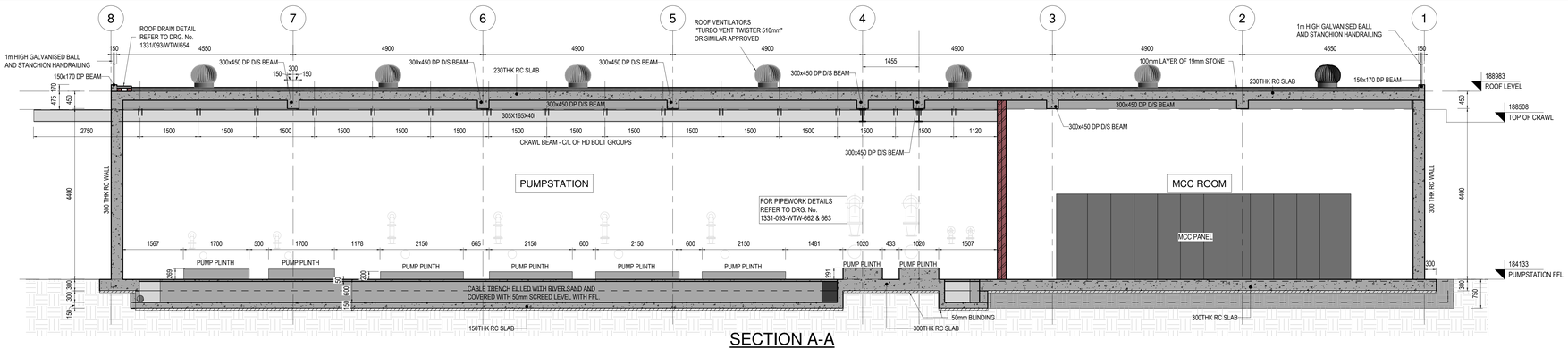
APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
WTW-CLEAR WATER RESERVOIR

PUMPSTATION PLANS

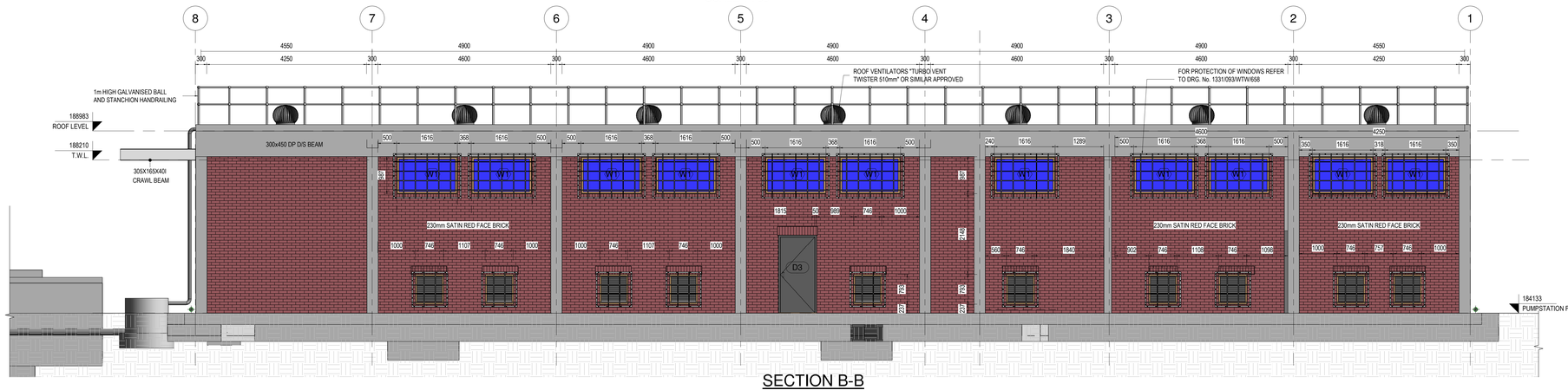
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A0	

FOR CONSTRUCTION



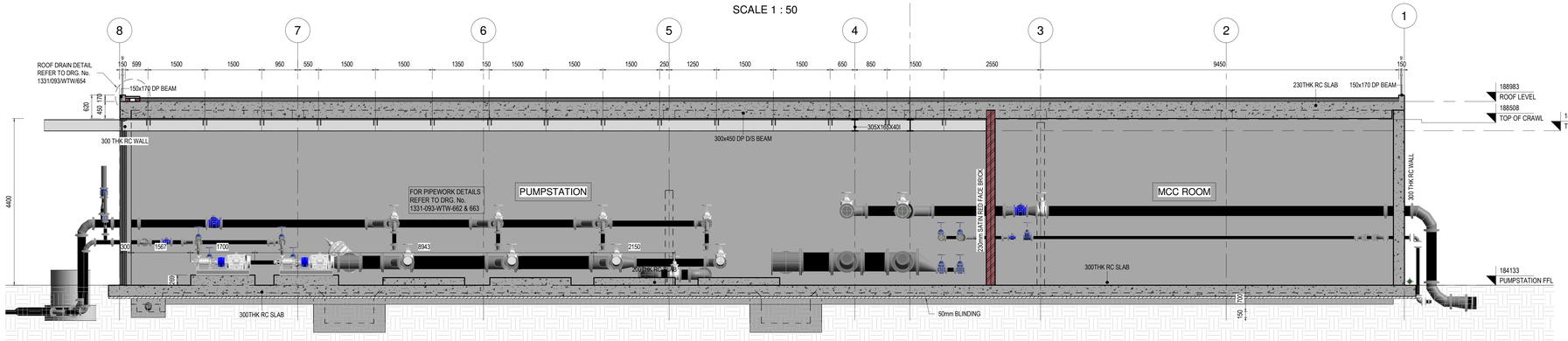
SECTION A-A

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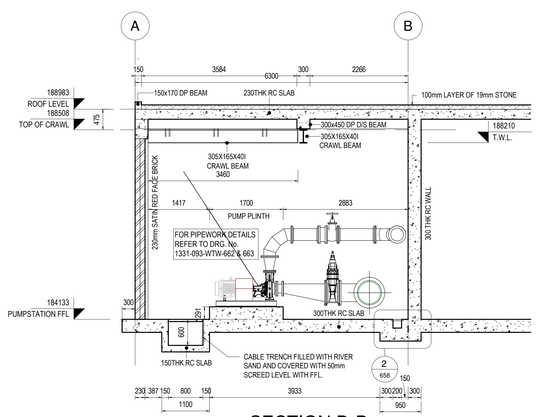
SECTION B-B

SCALE 1 : 50



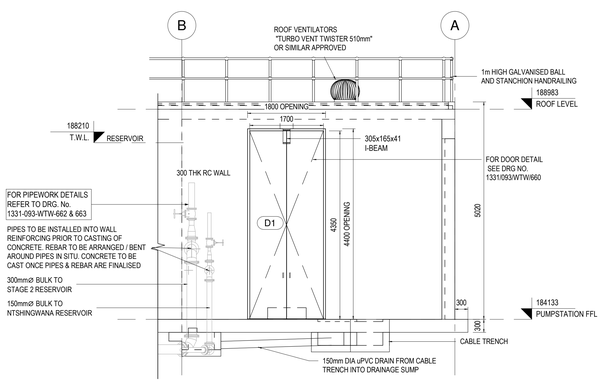
SECTION C-C

SCALE 1 : 50



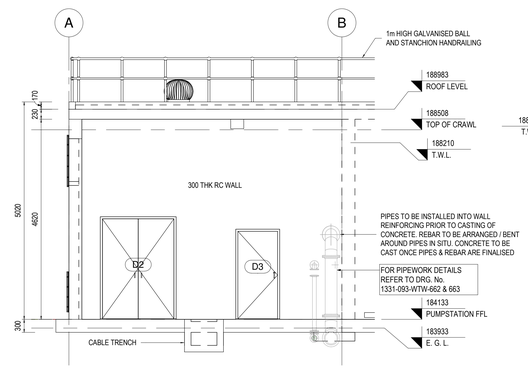
SECTION D-D

SCALE 1 : 50



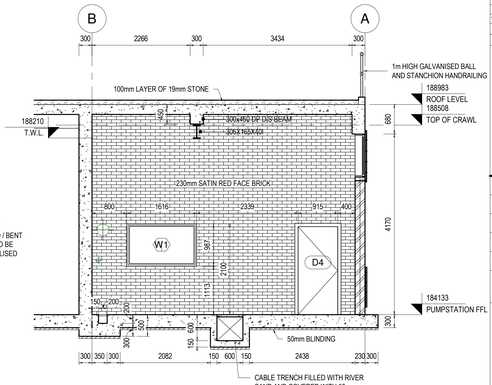
SECTION E-E

SCALE 1 : 50



SECTION F-F

SCALE 1 : 50



SECTION J-J

SCALE 1 : 50

FOR CONSTRUCTION

STEEL PIPEWORK:

1. GENERAL
- ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. Ø) AND SANS 719 (FOR PIPES LARGER THAN 150mm NOM.Ø).

2. LINING AND COATING
- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH " PLASCOAT PPA571 AQUA " OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.50m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIERS SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3.
- ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4.
- ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5.
- WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6.
- ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7.
- STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY) CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8.
- INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S' (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL. PRIOR TO CASTING CONCRETE.

9.
- SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

Door Schedule

Mark	Description	Count	Height	Width
D1	CUSTOM STEEL DOUBLE PS DOOR AS PER DETAIL ON 1331/093/WTW/660	1	4350	1700
D2	TROX STEEL DOUBLE DOOR	1	2320	1650
D3	TROX STEEL SINGLE DOOR	2	2032	915
D4	MERANTI INTERNAL SINGLE DOOR	1	2032	915

NOTES:

GENERAL
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
- IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
- DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

1.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm. ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3.
- MINIMUM COVER TO REINFORCING:
  FLOOR/BASE SLAB 50mm TOP & BOTTOM
  WALLS - EARTH FACE 40mm
  WATER FACE 50mm
  ROOF SLAB - SOFFIT 50mm
  - TOP 40mm
  COLUMNS 50mm

4.
- CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5.
- ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6.
- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

1. BRICKWORK:
- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
- N.B! 4 COURSES BRICKFORCE ABOVE WINDOWS AND DOORS.
- DPC AT FLOOR AND WINDOW CILL LEVELS.
- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2. PLASTER
- CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

3. PAINTING
- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
- CLEAN WITH SPIRITS AF SILICS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS
- ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
- PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES
- PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES TIMBERS

GROUND IMPROVEMENT
- THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER.
- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	R.C	APPROVED FOR CONSTRUCTION	21/11/2022	
T2	RC	D1 SIZE AMENDED	19/11/2021	
T1	ALR	TENDER DRAWING	25/06/2021	

DRG. No.	REFERENCE DRAWING
1331-093-WTW-660	WTW-CLEAR WATER PUMPSTATION-STEEL DOOR DETAIL
1331-093-WTW-661	WTW-CLEAR WATER PUMPSTATION-3D VIEWS
1331-093-WTW-662	WTW-CLEAR WATER PUMPSTATION-PIPEWORK-PLANS
1331-093-WTW-663	WTW-CLEAR WATER PUMPSTATION-PIPEWORK-SECTIONS
1331-093-WTW-664	WTW-CLEAR WATER PUMPSTATION-SURGE CHAMBER PLAN & SECTIONS
1331-093-WTW-602	OVERALL LAYOUT PLAN

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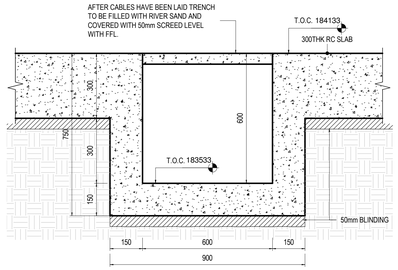
BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	R.COETZEE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
WTW-CLEAR WATER RESERVOIR

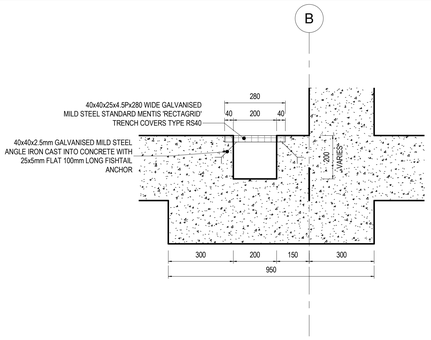
PUMPSTATION SECTIONS

SCALE	AS SHOWN	DATE	21/11/2022
DRAWING NUMBER	1331/093/WTW/ 657	A0	REVISION A



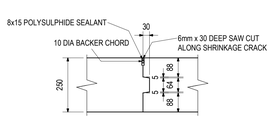
DETAIL 1-CABLE TRENCH

SCALE 1 : 10

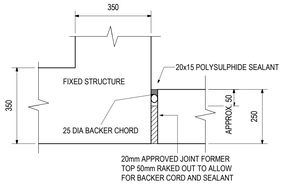


DETAIL 2-DRAINAGE CHANNEL

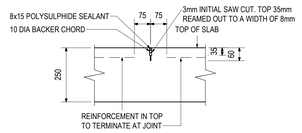
SCALE 1 : 10



DETAIL OF CONSTRUCTION JOINT (CJ)



DETAIL OF ISOLATION JOINT (IJ)



DETAIL OF SAW CUT JOINT (SCJ)

NOTES:

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3.
- MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB		50mm TOP & BOTTOM
WALLS - EARTH FACE		40mm
	WATER FACE	50mm
	ROOF SLAB - SOFFIT	50mm
	- TOP	40mm
COLUMNS		50mm

4.
- CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5.
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6.
- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

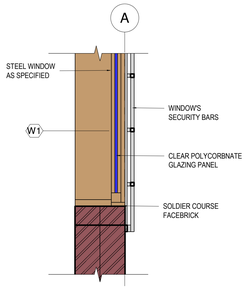
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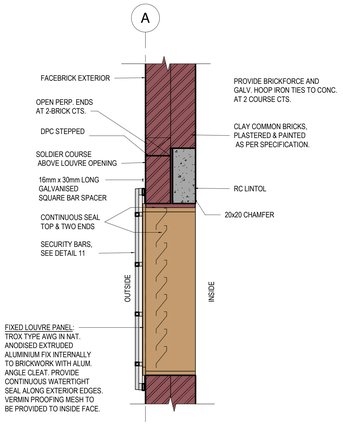
GROUND IMPROVEMENT

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- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.



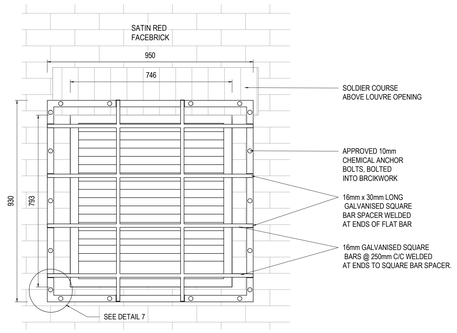
DETAIL 3-STEEL WINDOW BUILDING-IN DETAIL

SCALE 1 : 10



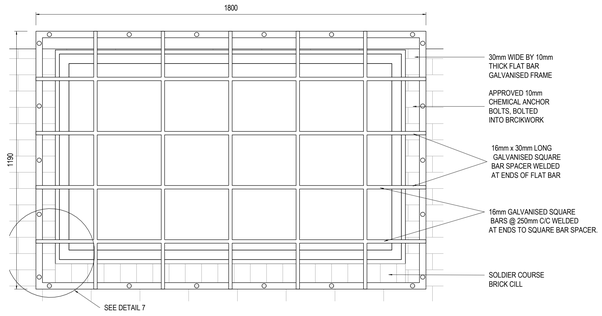
DETAIL 4
TYPICAL FOR ALL LOUVRE PANELS

SCALE 1 : 10



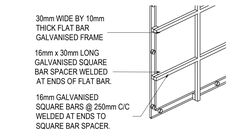
DETAIL 5-SECURITY BARS DETAIL FOR LOUVRE PANELS

SCALE 1 : 10



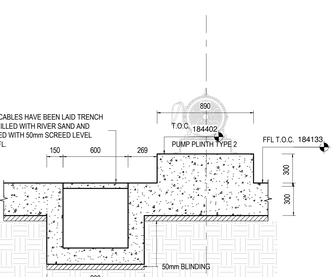
DETAIL 6
SECURITY BARS DETAIL FOR WINDOWS

SCALE 1 : 10



DETAIL 7 PART ISOMETRIC VIEW

SCALE

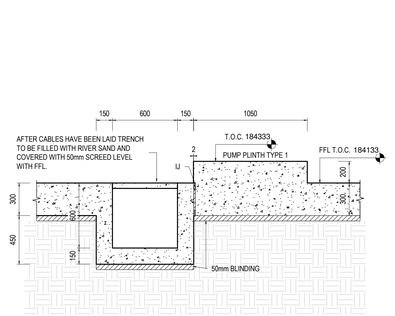


DETAIL 8
CONCRETE FLOORS SLAB & PERIMETER BRICKWORK DETAIL

SCALE 1 : 10

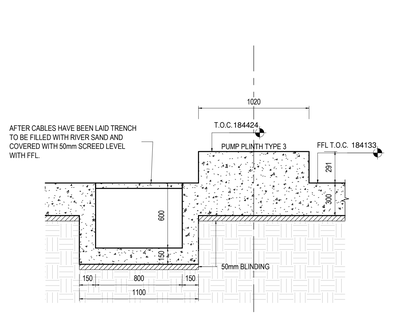
DETAIL 9-PUMP PLINTH TYPE 1

SCALE 1 : 20



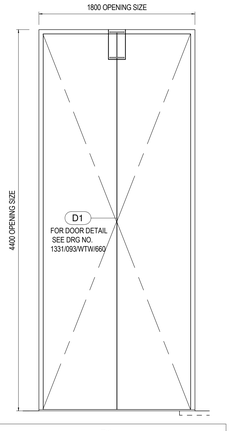
DETAIL 10-PUMP PLINTH TYPE 2

SCALE 1 : 20



DETAIL 11-PUMP PLINTH TYPE 3

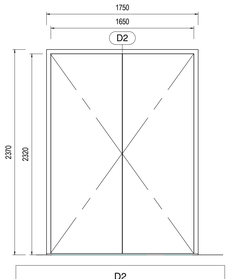
SCALE 1 : 20



D1				
Mark	Description	Count	Height	Width
D1	CUSTOM STEEL DOUBLE PS DOOR AS PER DETAIL ON 1331/093/WTW/660	1	4350	1700

D1-DETAIL

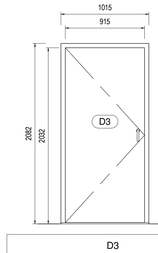
SCALE 1 : 25



D2				
Mark	Description	Count	Height	Width
D2	TROX STEEL DOUBLE DOOR	1	2320	1650

D2-DETAIL

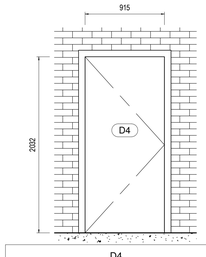
SCALE 1 : 25



D3				
Mark	Description	Count	Height	Width
D3	TROX STEEL SINGLE DOOR	2	2032	915

D3-DETAIL

SCALE 1 : 25



D4				
Mark	Description	Count	Height	Width
D4	MERANTI INTERNAL SINGLE DOOR	1	2032	915

D4-DETAIL

SCALE 1 : 25

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRO
A	R.C.	APPROVED FOR CONSTRUCTION	21/11/2022	
T1	ALR	TENDER DRAWING	25/06/2021	

1331-093-WTW-660 WTW-CLEAR WATER PUMPSTATION-STEEL DOOR DETAIL
1331-093-WTW-602 OVERALL LAYOUT PLAN

DRG. No.	REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

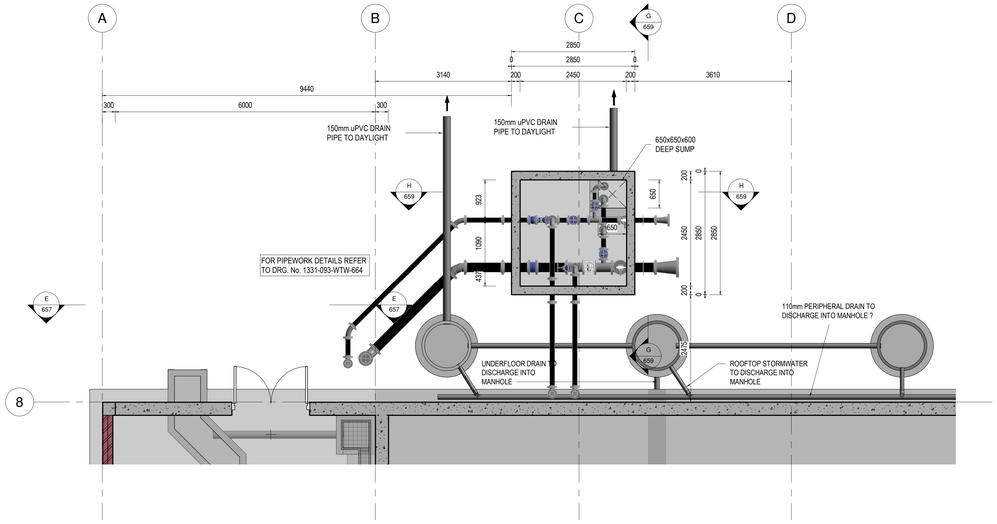
DRAWN	R.COETZEE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED	S.MDAKA	M.VAWDA
	PROJECT MANAGER	DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
WTW-CLEAR WATER RESERVOIR

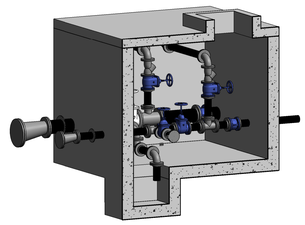
PUMPSTATION DETAILS

SCALE	AS SHOWN	DATE	21/11/2022
DRAWING NUMBER	1331/093/WTW/ 658	A0	REVISION A



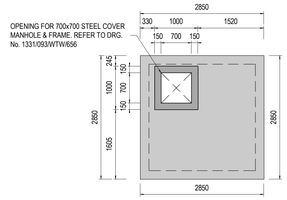
SURGE/NON-RETURN VALVE CHAMBER PLAN

SCALE 1 : 50



3D SURGE/NON-RETURN VALVE CHAMBER

SCALE



SURGE/NON-RETURN VALVE CHAMBER IN-SITU ROOF SLAB

SCALE 1 : 50

STEEL PIPEWORK:

1. GENERAL

- ALL STEEL PIPEWORK SHALL BE IN ACCORDANCE WITH SANS 62 (FOR PIPES UP TO 150mm NOM. Ø) AND SANS 719 (FOR PIPESLARGER THAN 150mm NOM.Ø).

2. LINING AND COATING

- STEEL PIPE SPECIALS TO BE LINED AND COATED WITH " PLASCOAT PPA571 AQUA " OR SIMILAR APPROVED POLYMER ALLOY COATING TO A MINIMUM DRY FILM THICKNESS OF 300 MICRONS.
- STEEL PIPE SPECIALS WITH LENGTHS GREATER THAN 2.50m, SHALL BE COATED AND LINED WITH " COPON KSIR 88" OR SIMILAR APPROVED EPOXY COATING TO A MINIMUM DRY THICKNESS OF 300 MICRONS.
- ALL COATINGS AND LININGS TO BE APPLIED IN ACCORDANCE WITH THE COATING SUPPLIER'S SPECIFICATION INCLUDING THE NECESSARY SURFACE PREPARATION REQUIREMENTS.
- PIPEWORK TO BE REINSTATED EXTERNALLY WITH " COPON HYCOTE 151" TO A DRY FILM THICKNESS OF 300 MICRONS.

3.

- ALL STEEL PIPEWORK UP TO 50mm NOMINAL DIAMETER TO GRADE 304 STAINLESS STEEL WITH BRASS DEZINCIFICATION RESISTANT "CONEX" TYPE FITTINGS

4.

- ALL FLANGES SHALL BE RATED AND DRILLED TO SANS 1123, TABLE 1600/3,2500/3 OR 4000/3 TO SUIT PRESSURE RATING AS STATED ON THE PIPEWROK SCHEDULE OR BOQ

5.

- WHERE NEW FLANGES CONNECT TO EXISTING, THE CONTRACTOR IS TO CONFIRM THE EXISTING FLANGE DRILLING AND TO SUPPLY NEW CONNECTING FLANGES TO SUIT EXISTING.

6.

- ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE "DENSO" WRAPPED.

7.

- STEEL PIPEWORK THROUGH WALLS TO BE WRAPPED WITH 'DENSO ULTRAFLEX' WITH 55% OVERLAP, UP TO 150mm FROM THE EDGE OF THE WALL ON EACH FACE. WIRE BRUSH TO ST 2 STANDARD & (IF NECESSARY)CLEAN PIPE WITH WHITE SPIRIT. PRIME WITH DENSO PRIMER 'D' & LET CURE FOR 30 MINUTES BEFORE APPLYING DENSO ULTRAFLEX.

8.

- INTERFACE BETWEEN CONCRETE WALL AND STEEL PIPEWORK TO BE SEALED WITH TWO STRIPS OF 'SIKA SWELL S', (O.S.A.), APPLIED 30mm APART AT CENTRE OF WALL, PRIOR TO CASTING CONCRETE.

9.

- SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO INSTALLATION.

NOTES:

GENERAL

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
- IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
- DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

1.

- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2.

- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 30MPa/40mm. ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3.

- MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS - EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB - SOFFIT	50mm
- TOP	40mm
COLUMNS	50mm

4.

- CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5.

- ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6.

- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

BRICKWORK

1. BRICKWORK:

- ALL EXPOSED EXTERNAL BRICKWORK SATIN RED FACEBRICK.
- ALL INTERNAL BRICKWORK TO BE CLAY COMMONS, PLASTERED AND PAINTED ACRYLIC PVA WHITE.
- OUTER FACE OF INTERNAL BRICKWORK SKIN TO BE BAGGED AND BITUMEN PAINTED.
- BRICKFORCE AT WINDOW CILL LEVEL AND WALL PLATE LEVEL ALL AROUND BUILDING.
- N.B! 4 COURSES BRICKFORCE ABOVE WINDOWS AND DOORS.
- DPC AT FLOOR AND WINDOW CILL LEVELS.
- MORTAR CLASS 2
- ENGLISH BOND BRICKWORK

2. PLASTER

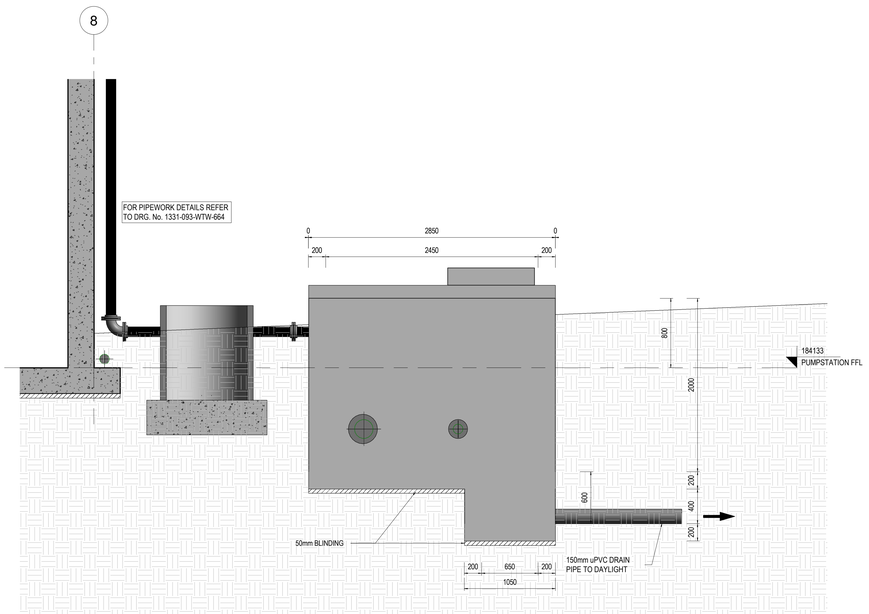
- CEMENT PLASTER 12mm THICK TO INTERNAL VERTICAL BRICK WALLS.

3. PAINTING

- PREPARE AND APPLY TWO COATS BITUMEN PAINT ON BRICK SKIN INCLUDING WORKING AROUND WIRE TIES
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND TWO COATS APPROVED PVA ACRYLIC PAINT TO INTERNAL WALLS, FIBBER CEMENT FASCIA AND BARGE BOARD.
- CLEAN WITH SPIRITS AF SALTS SOLUTION AND APPLY TWO COATS SILICONE BASED BRICK DRESSING IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO EXTERNAL FACE BRICK WALLING
- PREPARE AND APPLY ONE COAT PLASTER PRIMER AND ONE COAT UNIVERSAL UNDERCOAT AND ONE COAT APPROVED EGGSHELL ENAMEL PAINT ON FIBBER CEMENT CILLS
- ETCH AND APPLY ONE COAT ZINC PRIMER, ONE UNDERCOAT AND TWO FINISHING COATS APPROVED UNIVERSAL GLOSS ENAMEL PAINT ON STEEL SASHES AND FRAMES, HANDRAILS.
- PREPARE, STOP AND APPLY TWO COATS APPROVED VARNISH ON HARDWOOD DOORS AND FRAMES
- PREPARE, KNOT PRIME STOP, AND APPLY ONE COAT PINK WOOD PRIMER, ONE UNDERCOAT AND TWO COATS APPROVED UNIVERSAL EGGSHELL ENAMEL PAINT ON GENERAL SURFACES OF EAVES TIMBERS

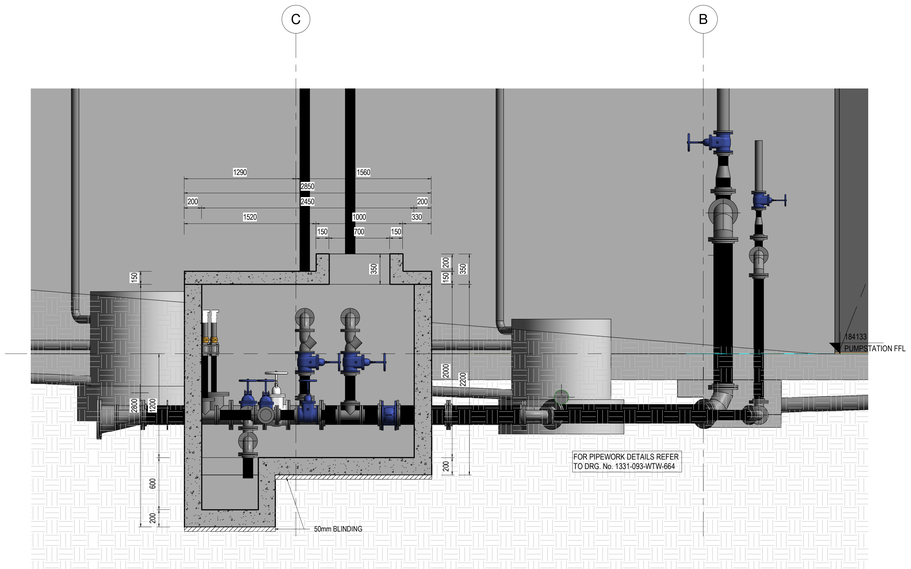
GROUND IMPROVEMENT

- THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER.
- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.



SECTION G-G

SCALE 1 : 25



SECTION H-H

SCALE 1 : 25

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD.
A	R.C	APPROVED FOR CONSTRUCTION	21/11/2022	
T1	ALR	TENDER DRAWING	29/06/2021	

1331-093-WTW-650	WTW-CLEAR WATER RESERVOIR-PLANS
1331-093-WTW-651	WTW-CLEAR WATER RESERVOIR-SECTIONS
1331-093-WTW-661	WTW-CLEAR WATER PUMPSTATION-3D VIEWS
1331-093-WTW-662	WTW-CLEAR WATER PUMPSTATION-PIPEWORK-PLANS
1331-093-WTW-663	WTW-CLEAR WATER PUMPSTATION-PIPEWORK-SECTIONS
1331-093-WTW-664	WTW-CLEAR WATER PUMPSTATION-SURGE CHAMBER
	PIPEWORK PLAN & SECTIONS
1331-093-WTW-602	OVERALL LAYOUT PLAN
DRG. No.	REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CAINGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	R.COETZEE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
WTW-CLEAR WATER RESERVOIR
SURGE / NON-RETURN VALVE CHAMBER
PLAN AND SECTIONS

SCALE	AS SHOWN	DATE	21/11/2022
DRAWING NUMBER	1331/093/WTW/ 659	REVISION	A
	A0		

FOR CONSTRUCTION

LEGEND

- LV CABLE ROUTE
- LV FEEDER CABLE ROUTE
- INSTRUMENTATION SLEEVE ROUTE
- FIRE DETECTION SLEEVE ROUTE
- TELKOM SLEEVE ROUTE
- CABLE SLEEVE UNDER ROAD
- 20m SCISSOR MAST WITH 4 x 270W LED FLOODLIGHTS WITH OPTIC 5188
- 750mmØ x 600mm dp PRECAST MANHOLE WITH MEDIUM DUTY COVER. ALL MANHOLES TO BE LINKED WITH 110Ø & 50Ø SLEEVES WITH 1mmØ DRAW WIRE

NOTE:
INSTRUMENTATION SLEEVES TO BE LAID MIN. 500mm AWAY FROM MV/LV CABLES

ELECTRICAL JUNCTION BOXES AT EACH PUMP

LV CABLE FROM 5m INSIDE FENCE BOUNDARY TO THE WEIR PUMPS SHALL BE ENCASED IN 15MPa MASS CONCRETE 150mm BELOW AND 150mm ABOVE CABLE AFTER TESTING OF THE CABLE.

LV CABLE TO THE WEIR PUMPS SHALL BE ENCASED IN 15MPa MASS CONCRETE 150mm BELOW AND 150mm ABOVE CABLE AFTER TESTING OF THE CABLE TO SUPPLY ABSTRACTION WEIR SUBMERSIBLE PUMPS 1 - 2

PROPOSED PIPELINE FROM ABSTRACTION WORKS TO WTW

1xINSTR SLEEVE
1xFD SLEEVE
1xTELKOM SLEEVE

3x160mmØ& 4x50mmØ PVC SLEEVES

7xLV CABLES IN 900mm DEEP TRENCH

SECURITY FENCE

M1

CLEARWATER PUMPSTATION

MCC

FLOODLINE

MH1

INSTALL E-STOP STATIONS AT ALL PUMPS

BACKWASH TANK

3250Kl CLEARWATER RESERVOIR

INSTALL 2 x STOP/START STATIONS AT SUPERNATANT PUMPS

BACKWASH POND 3.5m DEEP

SLUDGE PONDS 2 2m DEEP

SLUDGE PONDS 1 2m DEEP

STOCK FENCE

MH2 MH3 MH4 MH5 MH6 MH7 MH8 MH9 MH10 MH11 MH12 MH13 MH14 MH15 MH16

1x50mmØ PVC TELKOM SLEEVE

DIESEL RANK

GEN SET

DB-GEN

M4

1xLV CABLE 600mm DEEP TRENCH

DB-A SPECIALIST DB

FD 'L' PANEL

LAB/OFFICE CONTROL ROOM 1 2 3 4

FILTERS

SPECIALIST DB

CHLORINE DOSING

DB-D

1xINSTR SLEEVE
1xFD SLEEVE
1xTELKOM SLEEVE

MIXING CHAMBER

DB-C MCC PANEL SPECIALIST DB

CHEMICAL DOSING

M3

M2

OPERATORS ACCOMODATION

DB-F

DB-G

DB-B

SERVICES BUILDING

PROPOSED WATER TREATMENT WORKS

OUTLET CHAMBER

1,5 Ml RAW RAW WATER RESERVOIR

INLET CHAMBER

DB-E

DB-H

GATE

SECURITY FENCE

LV CABLE FROM ESKOM METER PANEL TO THE MCC IN THE CLEARWATER PUMPSTATION SHALL BE ENCASED IN 15MPa MASS CONCRETE 150mm BELOW AND 150mm ABOVE CABLE AFTER TESTING OF THE CABLE.

MINI SUBSTATION & METERING KIOSK 1.5m APART

P/POLE

EXISTING GRAVEL ACCESS ROAD

150mmØ STEEL TO NTSHINGWANA RESERVOIR

EXISTING WATER TREATMENT WORKS

BEDROCK

ISLAND

ROCK SHELF

SCATTERED ROCK BOULDERS

DRAIN

TRACK

MANHOLE CL=178.98

P/POLE

GR139

X+3332000

Y+50400

Y+50500

X+3332100

Y+50600

Y+50200

Y 50400

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
B	T.B.	REVISED FOR CONSTRUCTION	20/06/2023
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	07/07/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320

TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

ISO 9001:2015 CERTIFIED

DRAWN	S.LEITE		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	Z.NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

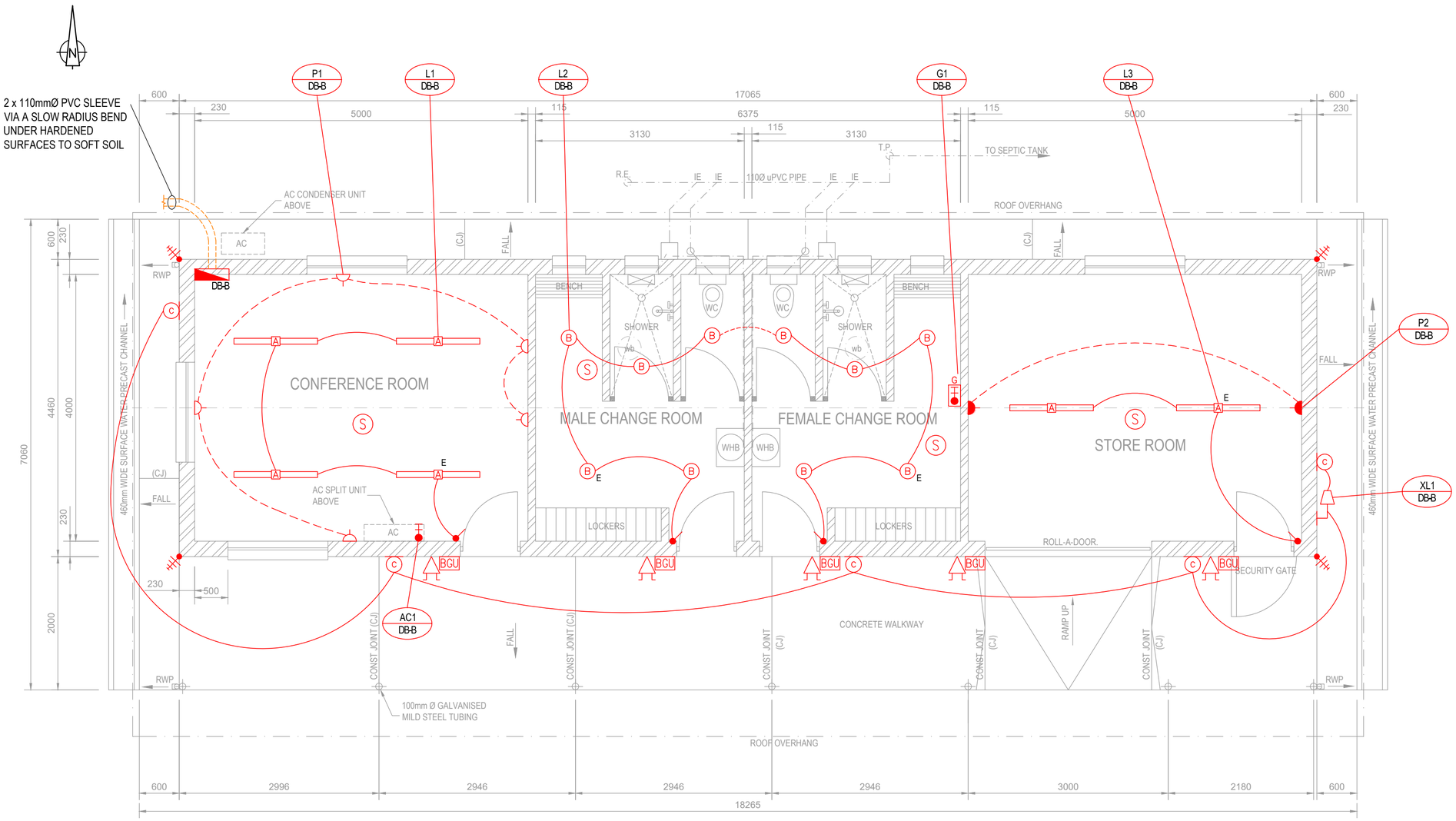
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

ELECTRICAL SITE PLAN

SCALE 1:500 | DATE 24/03/2021

DRAWING NUMBER 1331/093/EED/710 | A1 | REVISION B

FOR CONSTRUCTION



FLOOR PLAN

SCALE 1:50

LIGHTING SYMBOLS

A	REGENT LINEAR MINI 1200mm (1253x89) 31,2W LED LUMINAIRE
E A	AS ABOVE BUT WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
B	REGENT SOLO LED 20W CEILING MOUNTED BULKHEAD
E B	AS ABOVE BUT WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
C	REGENT SOLO LED 20W WALL MOUNTED BULKHEAD
	1 LEVER, 1 WAY LIGHT SWITCH MOUNTED 1200mm AFFL
2x	1 LEVER, 2 WAY, LIGHT SWITCH MOUNTED 1200mm AFFL
	PHOTO CELL

POWER SYMBOLS

	DISTRIBUTION BOARD
	SINGLE 16A, 3 PIN SSO, MOUNTED 300mm AFFL , ON POWERSKIRTING OR AS SPECIFIED
	SINGLE 16A, 3 PIN SSO, MOUNTED 1200mm AFFL
G	25A SURFACE MOUNTED IP65 GEYSER ISOLATOR @ 1800mm AFFL
	30A, 2 POLE ISOLATOR FOR AIRCON
	LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON INSIDE OF WALLS.
BGU	BREAK GLASS UNIT MOUNTED 1200mm AFFL (EXTERNAL)
	FIRE SIREN, MOUNTED 2500mm AFFL ABOVE BGU
S	SMOKE DETECTOR - CEILING MOUNTED

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	07/07/2021

DRG. No. | REFERENCE DRAWING

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

23A FLANDERS DRIVE
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DURBAN
SOUTH AFRICA, 4320

TEL: +27 (0)31 535 6000
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e-mail: mail@boschprojects.co.za
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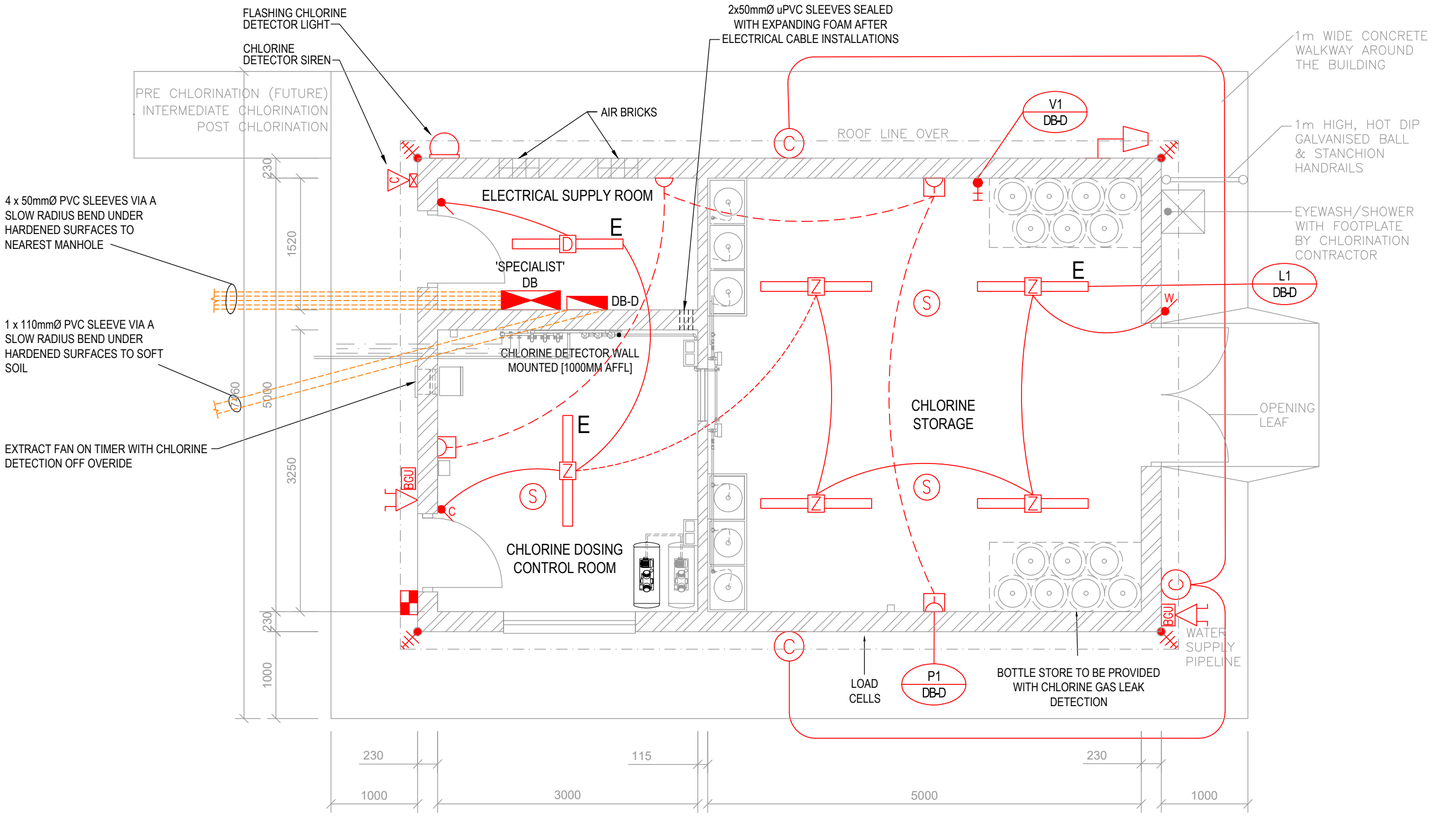
DRAWN	S.LEITE		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CONFERENCE ROOM, STORE ROOM AND ABLUTIONS
SMALL POWER AND LIGHTING LAYOUT

SCALE	AS SHOWN	DATE	NOV. 2017
DRAWING NUMBER	1331/093/EED/713	A2	REVISION A



PLAN

SCALE 1:50

LIGHTING SYMBOLS

E / D	REGENT NIMBUS SURFACE 1278mm WHITE 33W LED ZHAGA BOARDS 4000K 700mA NON-DIMMABLE FITTING WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
Z	REGENT HAZARDOUS - N50 Z2 47W LED LUMINAIRE IP65 316 S/S BODY WITH GLASS DIFFUSER
E / Z	AS ABOVE BUT WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
C	REGENT SOLO LED 20W WALL MOUNTED BULKHEAD
W	1 LEVER, 1 WAY IP65 WEATHERPROOF LIGHT SWITCH MOUNTED 1200mm AFFL
S	1 LEVER, 1 WAY IP65 CORROSION PROOF LIGHT SWITCH MOUNTED 1200mm AFFL
	PHOTO CELL

POWER SYMBOLS

	POWER DISTRIBUTION BOARD MOUNTED 2000mm AFFL TO TOP OF DB
	ALLOW FOR CORROSION PROOF IP65 DISTRIBUTION BOARD AS PER SPECIALIST SPECIFICATIONS
	SINGLE CORROSION PROOF 16A, 3 PIN SSO, MOUNTED 1200mm AFFL
	30A, 2 POLE ISOLATOR FOR VENT FAN
	LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON INSIDE OF WALLS
BGU	BREAK GLASS UNIT MOUNTED 1200mm AFFL (EXTERNAL)
	FIRE SIREN, MOUNTED 2500mm AFFL ABOVE BGU
	CHLORINE DETECTOR SIREN
S	SMOKE DETECTOR - CEILING MOUNTED
	63A, 4 PIN, WELDING OUTLET MOUNTED ON WALL

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	07/04/2021

DRG. No. | REFERENCE DRAWING

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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
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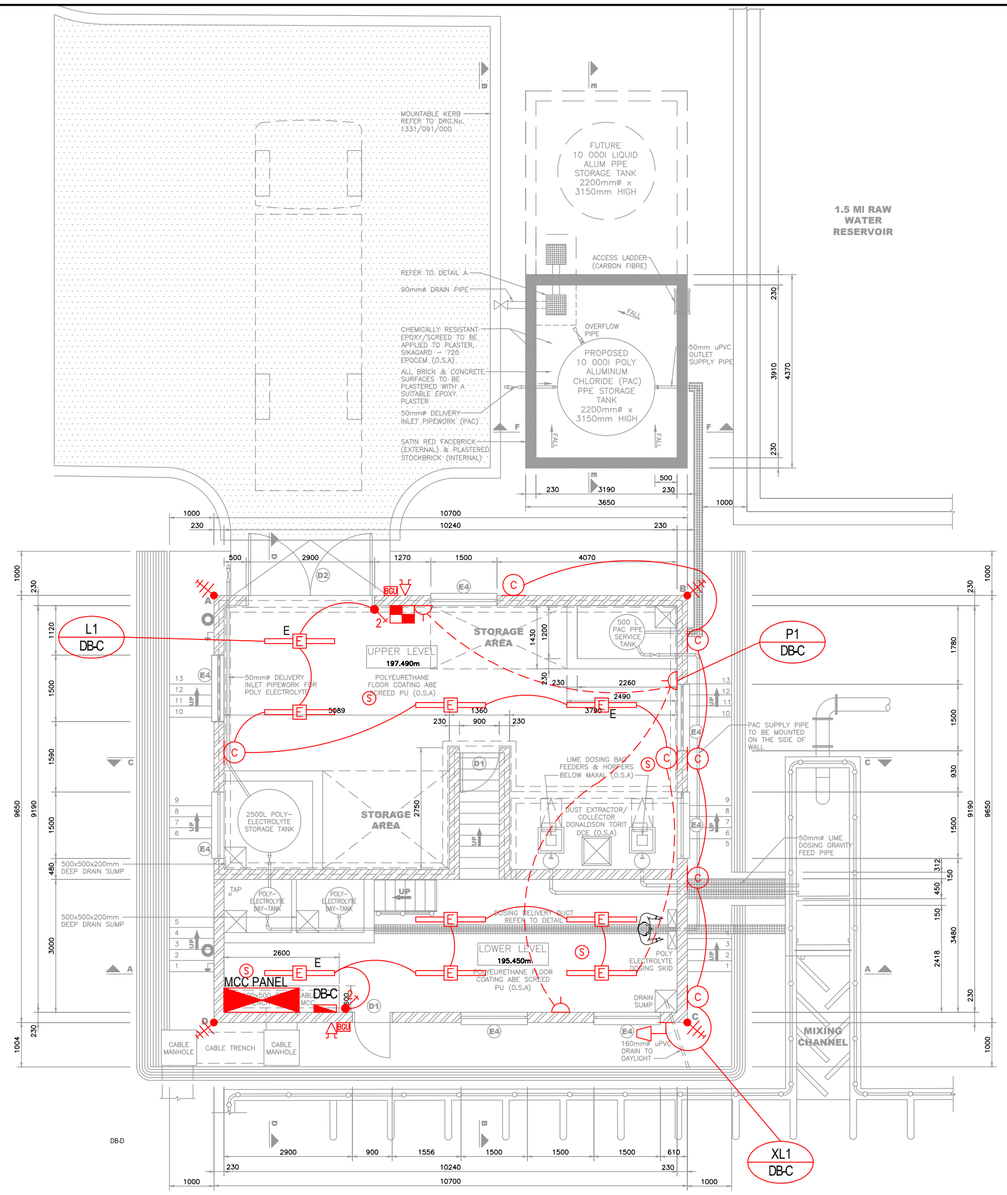
DRAWN	S.LEITE		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED | S.MDAKA PROJECT MANAGER | M.VAWDA DIVISIONAL MANAGER

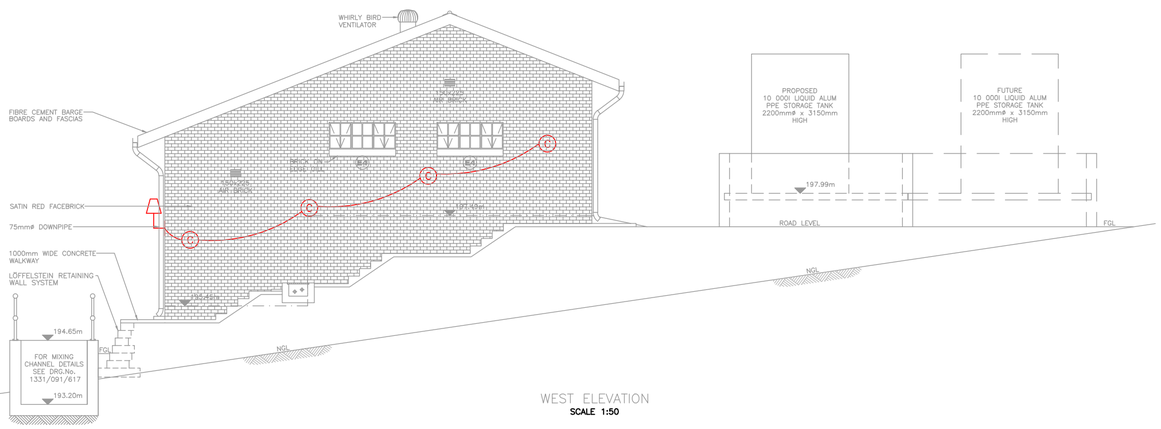
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CHLORINE DOSING BUILDING
SMALL POWER AND LIGHTING LAYOUT

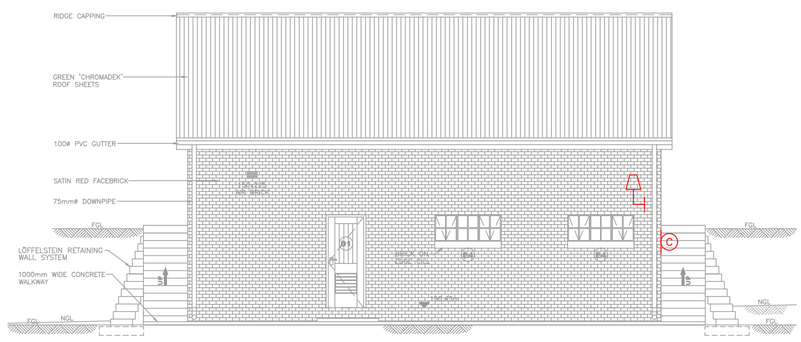
SCALE	AS SHOWN	DATE	NOV. 2017
DRAWING NUMBER	1331/093/EED/714	A2	REVISION A



PLAN
SCALE 1:50



WEST ELEVATION
SCALE 1:50



NORTH ELEVATION
SCALE 1:50

LIGHTING SYMBOLS

- REGENT NIMBUS (1578mm x 112mm) 35W LED LUMINAIRE IP65
- AS ABOVE BUT WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
- REGENT SOLO LED 20W WALL MOUNTED BULKHEAD
- 1 LEVER, 2 WAY, LIGHT SWITCH MOUNTED 1200mm AFFL
- PHOTO CELL

POWER SYMBOLS

- POWER DISTRIBUTION BOARD MOUNTED 2000mm AFFL TO TOP OF DB
- ALLOW FOR CORROSION PROOF IP65 DISTRIBUTION BOARD AS PER SPECIALIST SPECIFICATIONS
- SINGLE 16A, 3 PIN SSO, MOUNTED 300mm AFFL
- LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON INSIDE OF WALLS.
- BGU — BREAK GLASS UNIT MOUNTED 1200mm AFFL (EXTERNAL)
- FIRE SIREN, MOUNTED 2500mm AFFL ABOVE BGU
- S — SMOKE DETECTOR - CEILING MOUNTED
- 63A, 4 PIN, WELDING OUTLET MOUNTED ON WALL

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	07/04/2021

DRG. No. | REFERENCE DRAWING

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320

TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

ISO 9001:2015 CERTIFIED

DRAWN	S.LEITE		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED	S.MDAKA	M.VAWDA
	PROJECT MANAGER	DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CHEMICAL DOSING BUILDING
SMALL POWER AND LIGHTING LAYOUT

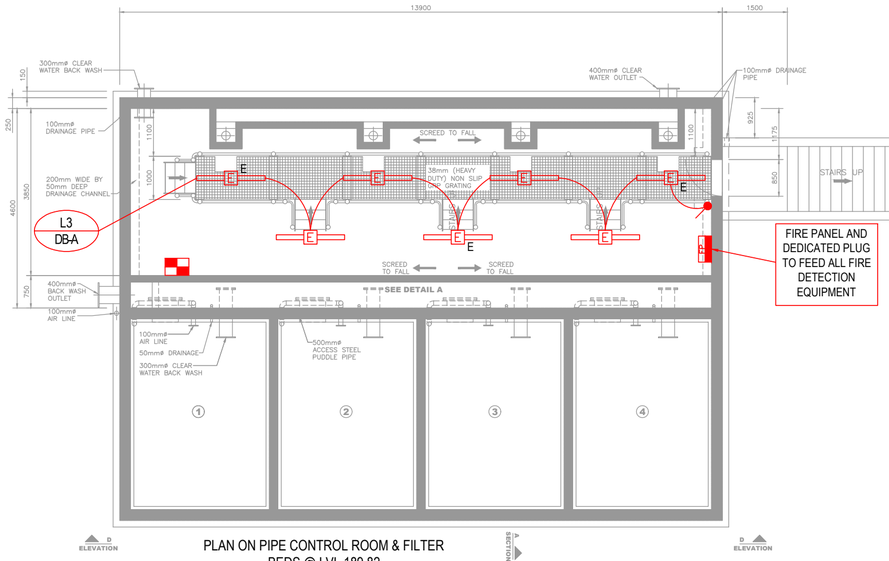
SCALE	AS SHOWN	DATE	NOV. 2017
DRAWING NUMBER	1331/093/EED/715	A2	REVISION A

POWER SYMBOLS

- POWER DISTRIBUTION BOARD MOUNTED 2000mm AFFL TO TOP OF DB
- ALLOW FOR CORROSION PROOF IP65 DISTRIBUTION BOARD AS PER SPECIALIST SPECIFICATIONS
- SINGLE 16A, 3 PIN SSO, MOUNTED 300mm AFFL , ON POWERSKIRTING OR AS SPECIFIED
- SINGLE 16A, 3 PIN SSO, MOUNTED 1200mm AFFL OR ABOVE WORK BENCH
- SINGLE 16A, 3 PIN DEDICATED SSO, MOUNTED 1200mm AFFL
- 25A FLUSH MOUNTED ISOLATOR BELOW SINK FOR HYDROBOIL
- 30A, 2 POLE ISOLATOR FOR AIRCON
- 30A, 2 POLE ISOLATOR FOR TOILET VENT
- 2 COMPARTMENT PVC HOSPITAL GREY POWER SKIRTING
- TELEPHONE POINT RJ11 MOUNTED ON POWER SKIRTING
- LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON INSIDE OF WALLS.
- BREAK GLASS UNIT MOUNTED 1200mm AFFL (EXTERNAL)
- FIRE SIREN, MOUNTED 2500mm AFFL ABOVE BGU
- SMOKE DETECTOR - CEILING MOUNTED
- FIRE DETECTION PANEL WALL MOUNTED @ 1700mm AFFL.
- 63A, 4 PIN, WELDING OUTLET MOUNTED ON WALL

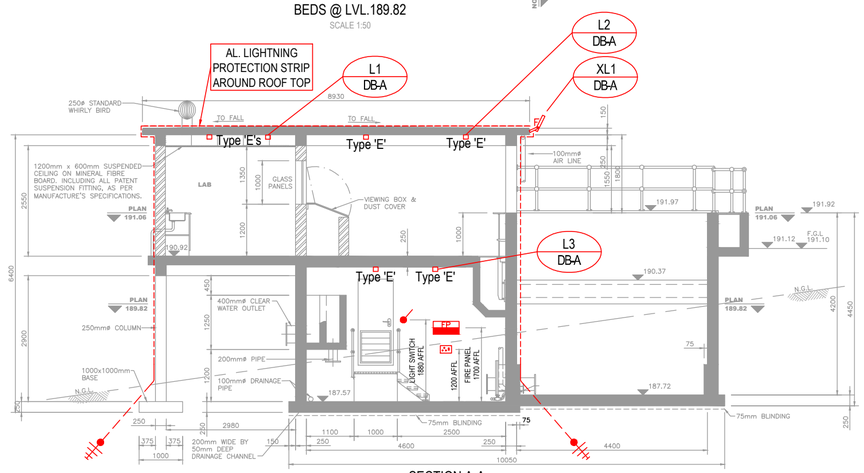
LIGHTING SYMBOLS

- REGENT NIMBUS (1578mm x 112mm) 35W LED LUMINAIRE IP65
- AS ABOVE BUT WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
- REGENT SOLO LED 20W CEILING MOUNTED BULKHEAD
- REGENT SOLO LED 20W BULKHEAD WALL MOUNTED
- REGENT ISTRIA TRUNION 72W LED FLOODLIGHT IP66 MOUNTED ON SLAB
- EXIT BATTERY LUMINAIRE WITH 1 x 8W T5 LAMP & CHARGING LED INDICATOR & ELECTRONIC CONTROL GEAR - MAINTAINED OPERATION Ni Cad BATTERY BACKUP FOR 2,6 HRS AT 40% LIGHT OUTPUT SURFACE / WALL MOUNTED 200mm ABOVE THE DOOR FRAME - PICTOGRAM TO READ EXIT
- 1 LEVER, 1 WAY LIGHT SWITCH MOUNTED 1200mm AFFL OR AS SPECIFIED
- PHOTO CELL



PLAN ON PIPE CONTROL ROOM & FILTER BEDS @ LVL.189.82

SCALE 1:50

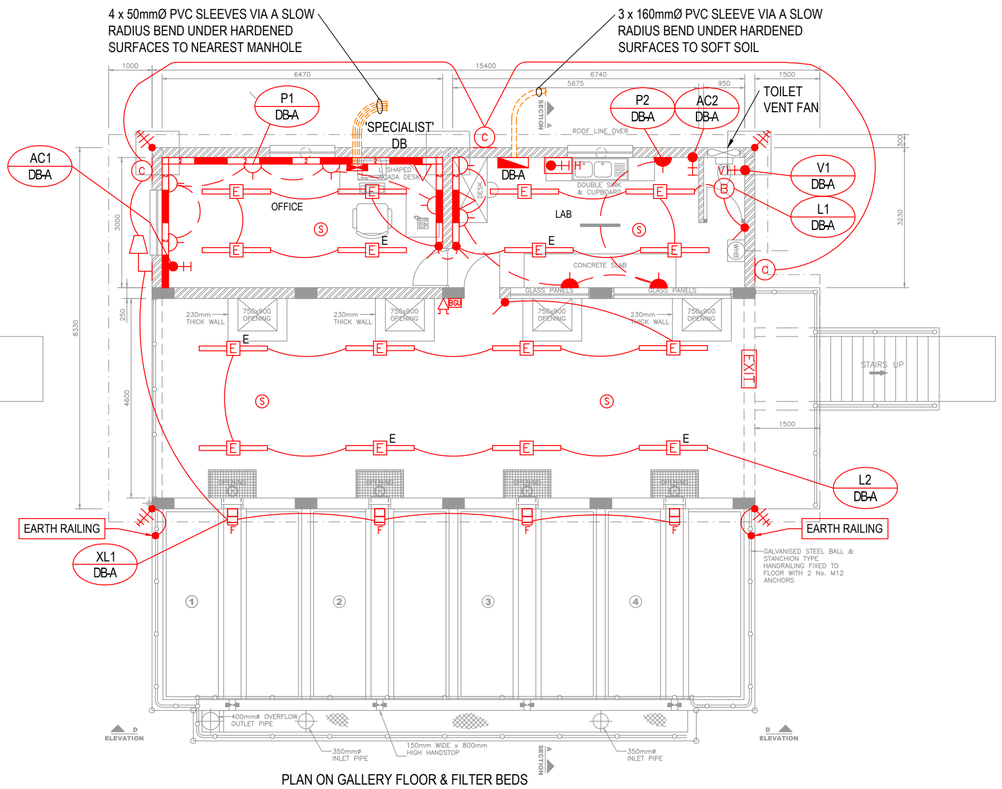


SECTION A-A

SCALE 1:50

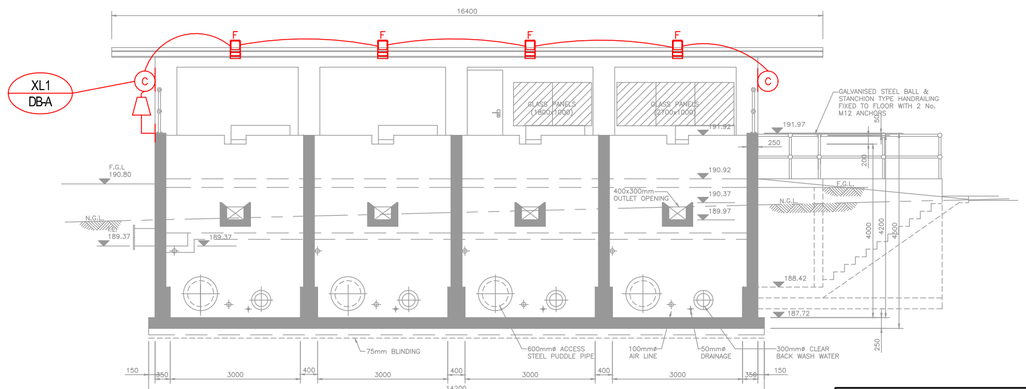
4 x 50mmØ PVC SLEEVES VIA A SLOW RADIUS BEND UNDER HARDENED SURFACES TO NEAREST MANHOLE

3 x 160mmØ PVC SLEEVE VIA A SLOW RADIUS BEND UNDER HARDENED SURFACES TO SOFT SOIL



PLAN ON GALLERY FLOOR & FILTER BEDS @ LVL.191.06

SCALE 1:50



ELEVATION D-D

SCALE 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	07/04/2021

DRG. No. | REFERENCE DRAWING

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

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ISO 9001:2015 CERTIFIED

DRAWN	S.LEITE	CHECKED	
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED	S.MDAKA	M.VAWDA
	PROJECT MANAGER	DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

FILTER BEDS, LAB AND OFFICE SMALL POWER AND LIGHTING LAYOUT

SCALE	DATE	REVISION
AS SHOWN	NOV. 2017	A

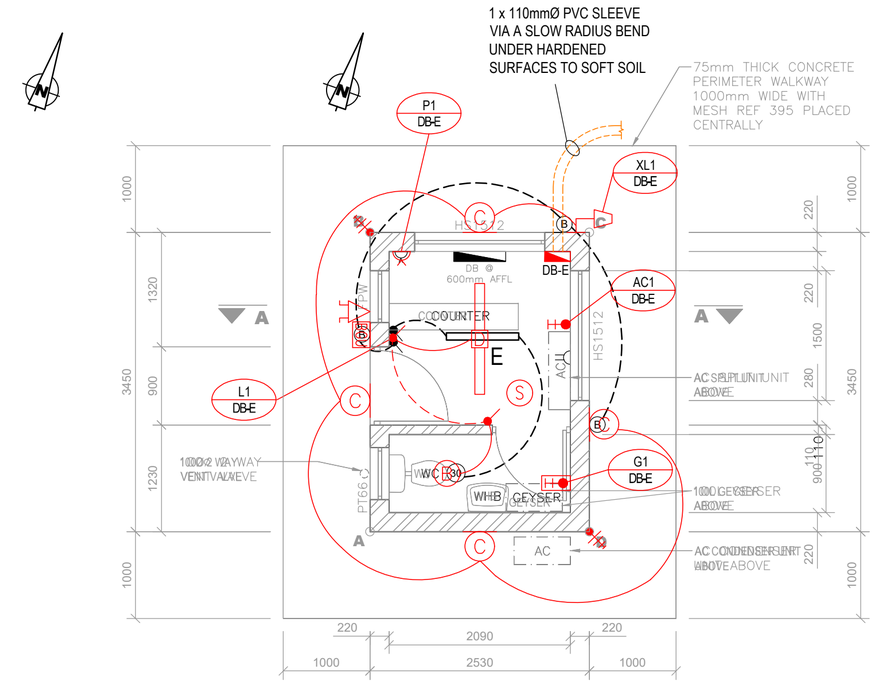
DRAWING NUMBER: 1331/093/EED/716 | A2

LIGHTING SYMBOLS

- REGENT NIMBUS (1278x112) 28W LED LUMINAIRE IP65
- AS ABOVE BUT WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
- REGENT SOLO LED 20W CEILING MOUNTED BULKHEAD
- REGENT SOLO LED 20W WALL MOUNTED BULKHEAD
- PHOTO CELL
- 1 LEVER, 1 WAY IP65 WEATHERPROOF LIGHT SWITCH MOUNTED 1200mm AFFL

POWER SYMBOLS

- DISTRIBUTION BOARD BELOW WINDOW FLUSH MOUNTED (RECESSED)
- DOUBLE 16A, 3 PIN SSO, MOUNTED 1200mm AFFL
- 30A, 2 POLE ISOLATOR FOR AIRCON MOUNTED @ 200mm BELOW CEILING LEVEL
- 25A IP65 GEYSER ISOLATOR IN CEILING VOID
- LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON INSIDE OF WALLS.
- BGU — BREAK GLASS UNIT MOUNTED 1200mm AFFL (EXTERNAL)
- FIRE SIREN, MOUNTED 2500mm AFFL ABOVE BGU
- S — SMOKE DETECTOR - CEILING MOUNTED



PLAN
SCALE 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	07/04/2021

DRG. No. | REFERENCE DRAWING

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
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website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	S.LEITE	CHECKED	
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

GUARD HOUSE BUILDING
SMALL POWER AND LIGHTING LAYOUT

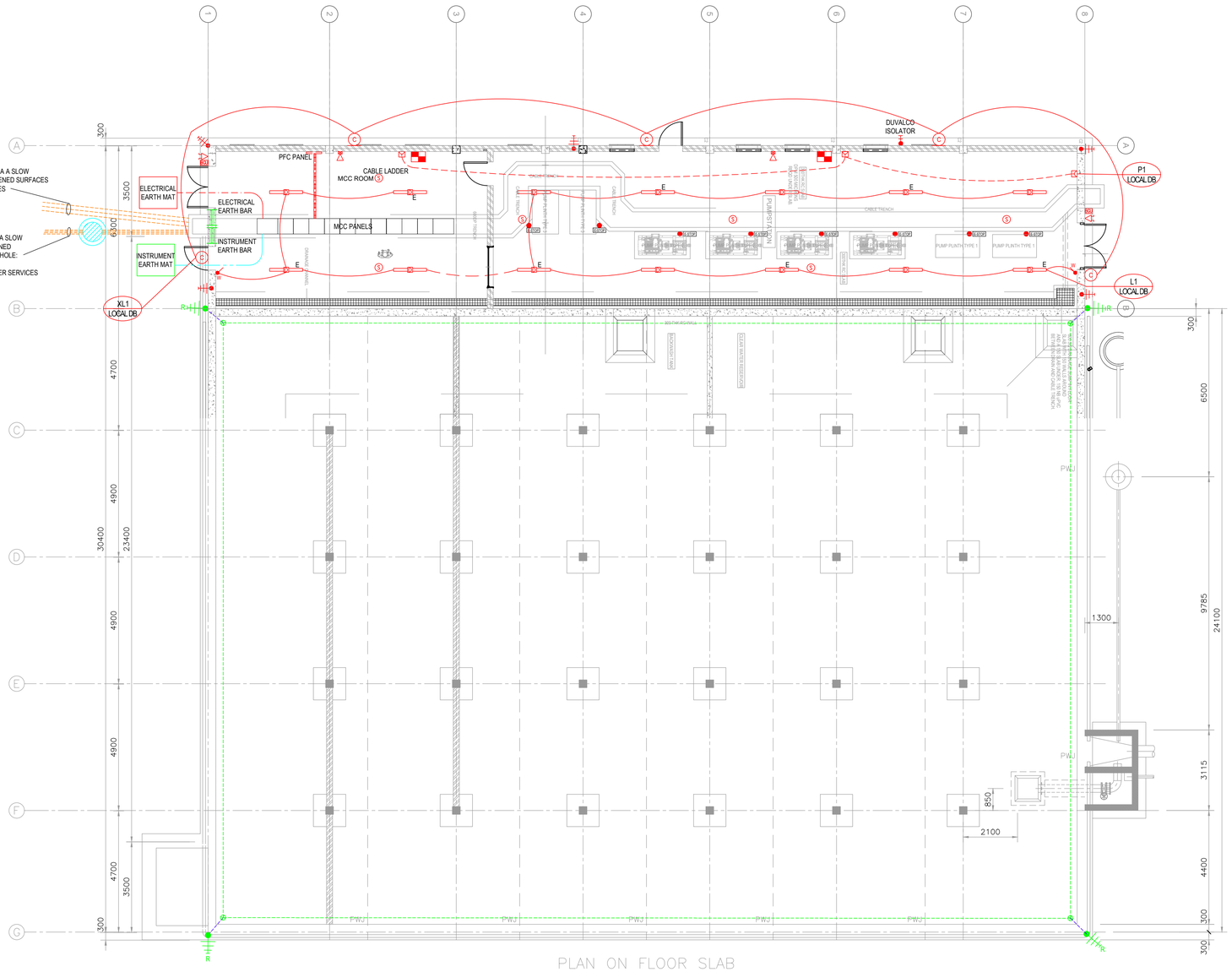
SCALE	AS SHOWN	DATE	NOV. 2017
DRAWING NUMBER	1331/093/EED/717	A2	REVISION A

POWER AND LIGHTING SYMBOLS

	REGENT NIMBUS SURFACE 1278mm WHITE 33W LED ZHAGA BOARDS 4000K 700mA NON-DIMMABLE FITTINGS
E	AS ABOVE BUT WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
C	REGENT SOLO LED 20W BULKHEAD WALL MOUNTED
	1 LEVER, 1 WAY IP65 WEATHERPROOF LIGHT SWITCH MOUNTED 1200mm AFFL
MCP	MANUAL CALL POINT / BREAK GLASS UNIT MOUNTED 1200mm AFFL (EXTERNAL)
	FIRE SIREN, MOUNTED 2500mm AFFL ABOVE BGU
	PIR SENSOR
S	SMOKE DETECTOR - CEILING MOUNTED
	LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON INSIDE OF WALLS
	E-STOP STATION ON FLOOR MOUNTED PEDESTAL
	SINGLE CORROSION PROOF 16A, 3 PIN SSO, MOUNTED 1200mm AFFL
H	30A, 2 POLE DUVALCO FILTER EXE Z1 FLAME PROOF ISOLATOR
	63A, 4 PIN, WELDING OUTLET MOUNTED ON WALL
	750mmØ x 600mm dp PRECAST MANHOLE WITH MEDIUM DUTY COVER. ALL MANHOLES TO BE LINKED WITH 110Ø & 50Ø SLEEVES WITH 1mmØ DRAW WIRE
	500mm x 80mm x 6mm EARTH BAR
	50mm² ALUMINIUM ROOF EARTH CONDUCTOR
	70mm² INSULATED, STRANDED Cu DOWN CONDUCTOR IN 25mmØ PVC CONDUIT
	CABLE LADDER
	EARTHING CONNECTION - EXOTHERMICALLY WELDED OR OXY-ACETYLENE BRAZED
R	1.8 x 16mmØ Cu EARTH ELECTRODE FOR RESERVOIR WITH MAX OF 10Ω EARTH RESISTANCE PER EARTH ROD

NOTE:

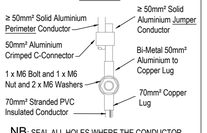
ALL CABLE DUCTS SHALL BE SEALED WITH PYROCOTE MINERAL WOOL PANELS AND 'KBS' FIRE AND WATER RESITANT COATING AFTER INSULATION AND TESTING OF CABLES.



PLAN ON FLOOR SLAB

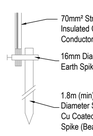
SCALE 1:100

DETAIL 1



NB: SEAL ALL HOLES WHERE THE CONDUCTOR PASSES THROUGH NON-METALLIC ROOFS WITH ROCKSET CEMENT

DETAIL 2

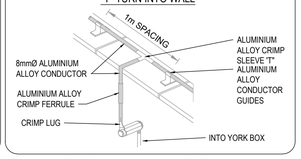


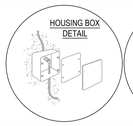
DETAIL 3

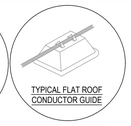


FLUSH MOUNTED S15 DUO WEATHERPROOF YORK BOX C/W SLIDING LID, S/S SCREWS, 2 x 70mm² CU LUGS, 1 x M6 BOLT, 1 X M6 NUT AND 2 x M6 WASHERS

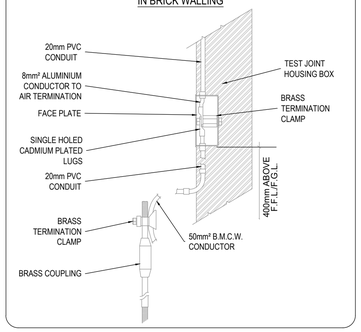
DETAIL 4
FLAT ROOF CONDUCTOR "T" TURN INTO WALL







DETAIL 5
TYPICAL INSTALLATION METHOD OF TEST JOINT HOUSING BOX IN BRICK WALLING



FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	07/04/2021

DRG. No. | REFERENCE DRAWING

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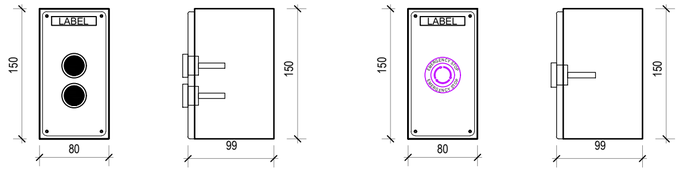
BOSCH PROJECTS
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DRAWN	S.LEITE		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	S.SUNDERALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S. MDAKA, PROJECT MANAGER — M. VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)
3250Kl CLEARWATER RESERVOIR PUMPSTATION
ELECTRICAL SMALL POWER AND LIGHTING LAYOUT

SCALE	1:100	DATE	29/03/2021
DRAWING NUMBER	1331/093/EED/720	A1	REVISION A



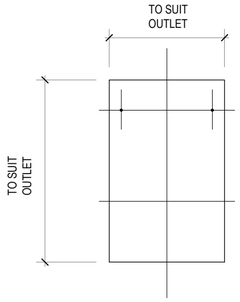
FRONT VIEW | SIDE VIEW | FRONT VIEW | SIDE VIEW

PUMP STOP/START STATION
scale 1:5

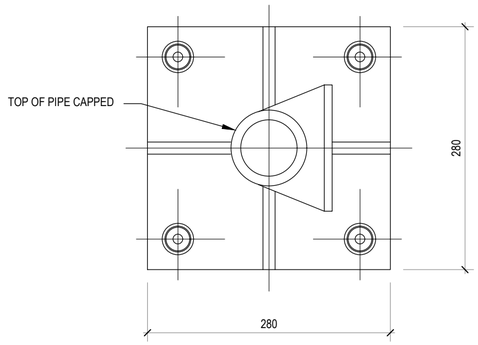
DIE CAST METAL ENCLOSURE
TYPICAL SIZE: 130x80x99mm (HxWxD)

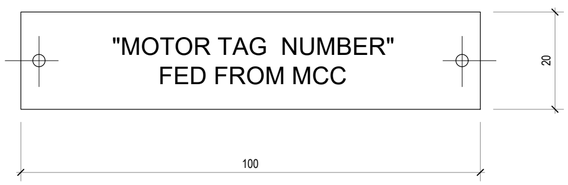
PUMP E - STOP STATION
scale 1:5

DIE CAST METAL ENCLOSURE
TYPICAL SIZE: 130x80x99mm (HxWxD)

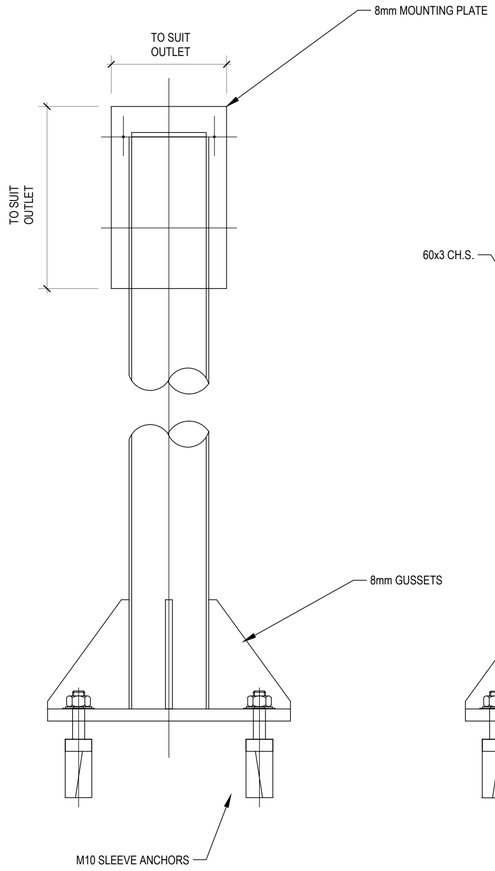


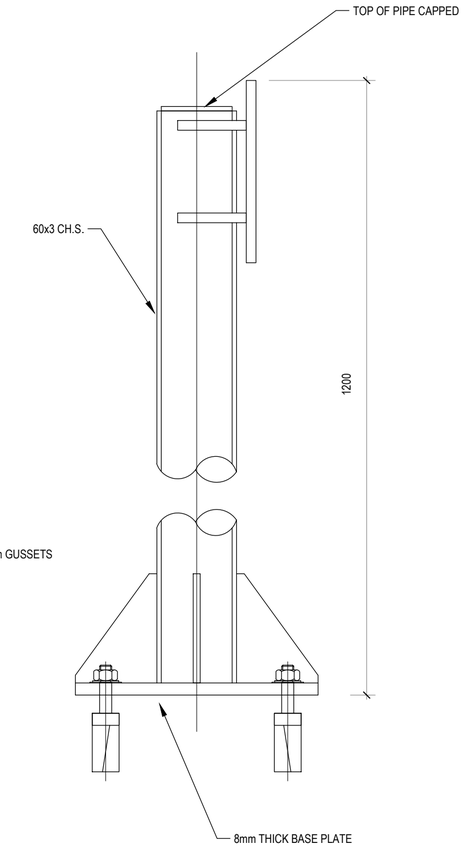
MOUNTING PLATE
8mm THICK





TRAFOLITE LABLE





PEDESTAL DETAIL FOR STOP / START AND E - STOP STATIONS
FLOOR MOUNTED STAND ASSEMBLY
scale 1:5

PEDESTAL TO BE 304L STAINLESS STEEL

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

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A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	09/04/2021

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BOSCH PROJECTS
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23A FLANDERS DRIVE
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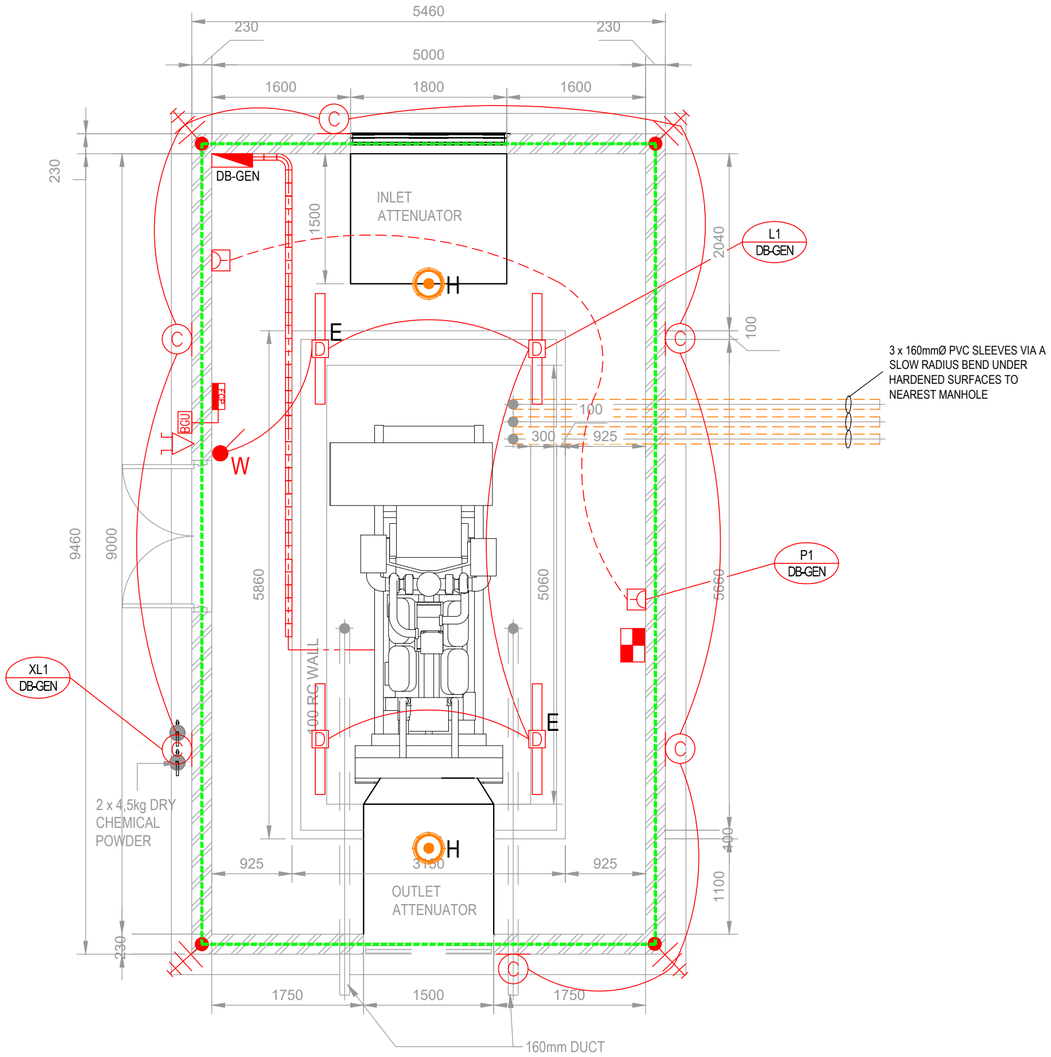
DRAWN	S.LEITE		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED | S.MDAKA PROJECT MANAGER | M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND
WATER TREATMENT WORKS (6.5 ML/DAY)

TYPICAL
STOP/START AND E-STOP STATION DETAILS

SCALE	AS SHOWN	DATE	APRIL 2021
DRAWING NUMBER	1331/093/EED/721	A2	REVISION A



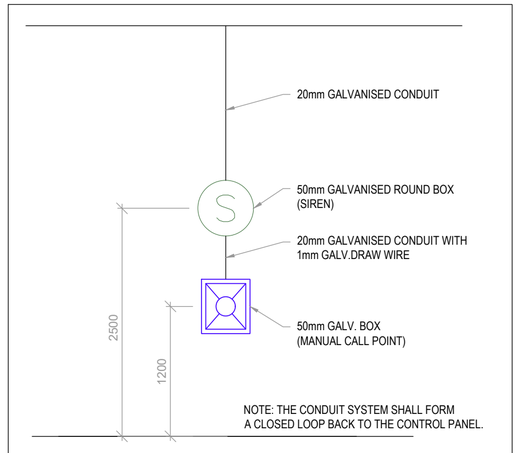
PLAN
SCALE 1:50

POWER AND LIGHTING SYMBOLS

- REGENT NIMBUS SURFACE 1278mm WHITE 33W LED ZHAGA BOARDS 4000K 700mA NON-DIMMABLE FITTINGS
- E — AS ABOVE BUT WITH 20% BATTERY BACKUP FOR 60min MAINTAINED
- C — REGENT SOLO LED 20W BULKHEAD WALL MOUNTED
- W — 1 LEVER, 1 WAY IP65 WEATHERPROOF LIGHT SWITCH MOUNTED 1200mm AFFL
- MANUAL CALL POINT / BREAK GLASS UNIT MOUNTED 1200mm AFFL (EXTERNAL)
- FIRE SIREN, MOUNTED 2500mm AFFL ABOVE BGU
- PIR SENSOR
- S — SMOKE DETECTOR - CEILING MOUNTED
- LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON INSIDE OF WALLS
- E-STOP STATION ON FLOOR MOUNTED PEDESTAL
- SINGLE CORROSION PROOF 16A, 3 PIN SSO, MOUNTED 1200mm AFFL
- 30A, 2 POLE DUVALCO FILTER EXE Z1 FLAME PROOF ISOLATOR
- 63A, 4 PIN, WELDING OUTLET MOUNTED ON WALL
- 750mmØ x 600mm dp PRECAST MANHOLE WITH MEDIUM DUTY COVER. ALL MANHOLES TO BE LINKED WITH 110Ø & 50Ø SLEEVES WITH 1mmØ DRAW WIRE
- 500mm x 80mm x 6mm EARTH BAR
- 50mm² ALUMINIUM ROOF EARTH CONDUCTOR
- 70mm² INSULATED, STRANDED Cu DOWN CONDUCTOR IN 25mmØ PVC CONDUIT
- EARTHING CONNECTION - EXOTHERMICALLY WELDED OR OXY-ACETYLENE BRAZED
- CABLE LADDER
- R — 1.8 x 16mmØ Cu EARTH ELECTRODE FOR RESERVOIR WITH MAX OF 10Ω EARTH RESISTANCE PER EARTH ROD
- H — HEAT DETECTOR MOUNTED ON CEILING.

NOTE:

ALL CABLE DUCTS SHALL BE SEALED WITH PYROCOTE MINERAL WOOL PANELS AND 'KBS' FIRE AND WATER RESITANT COATING AFTER INSULATION AND TESTING OF CABLES.



FIRE DETECTION CONDUIT DETAIL
NTS

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	T.B	TENDER DRAWING	07/07/2021

DRG. No. | REFERENCE DRAWING

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

DRAWN	T.BROOME		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

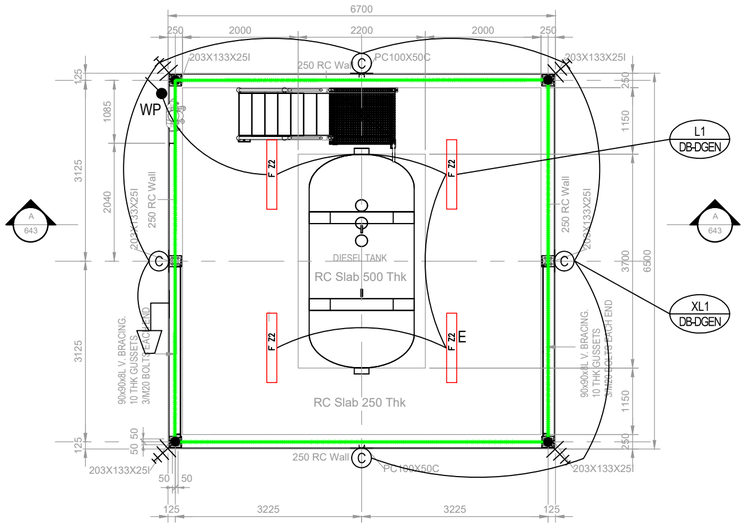
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

GENERATOR ROOM
SMALL POWER AND LIGHTING LAYOUT

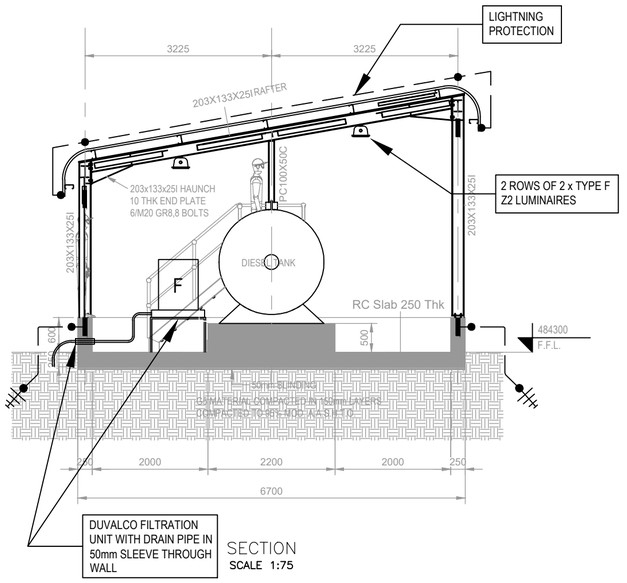
SCALE	AS SHOWN	DATE	07/07/2021
DRAWING NUMBER	1331/093/EED/722	A2	REVISION A

POWER AND LIGHTING SYMBOLS

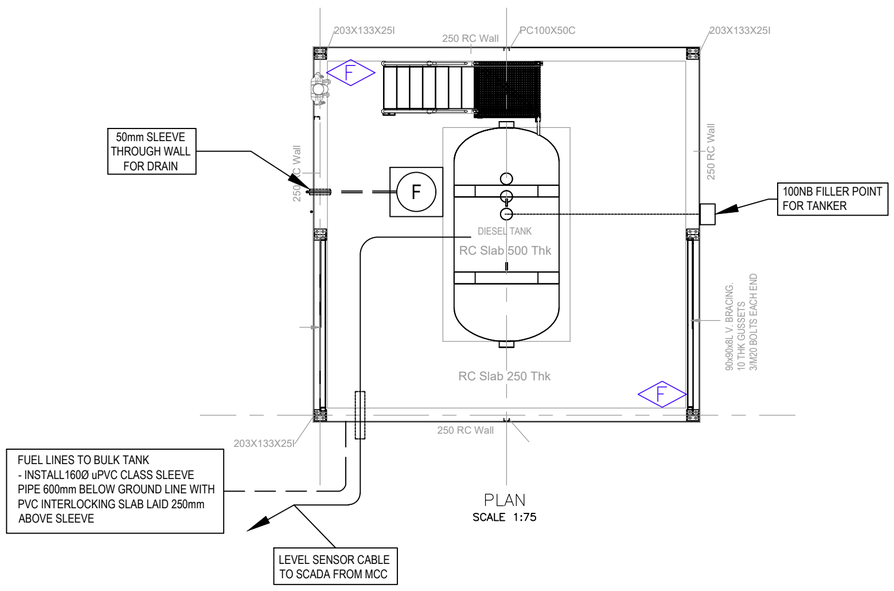
F 22	ZONE 2, IP65 RATED 1200mm LONG 2x28W LED LUMINAIRE WITH CLEAR POLYCARBONATE DIFFUSER AND GRP BODY
E F 22	AS ABOVE WITH BATTERY BACKUP @ 50% OUTPUT FOR 60 MINUTES THIS FITTING SHALL BE SUPPLIED VIA AN UNSWITCH LIVE
C	REGENT SOLO LED 20W BULKHEAD WALL MOUNTED
WP	WEATHER PROOF 1 LEVER, 1 WAY, 16 A ,250 V, MOUNTED 1400mm AFFL. TO BE MOUNTED OUTSIDE THE BUILDING
	LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON INSIDE OF WALLS
	50mm² ALUMINIUM ROOF EARTH CONDUCTOR
PEC	PHOTO CELL
F	DUVALCO FUEL FILTER UNIT - 220 VOLT
F	2 INTRINSICALLY SAFE FLAME DETECTORS TO BE MOUNTED ON THE COLUMNS DIAGONALLY TO EACH OTHER



PLAN
SCALE 1:75



SECTION
SCALE 1:75



PLAN
SCALE 1:75

FOR CONSTRUCTION

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A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	T.B.	TENDER DRAWING	12/07/21

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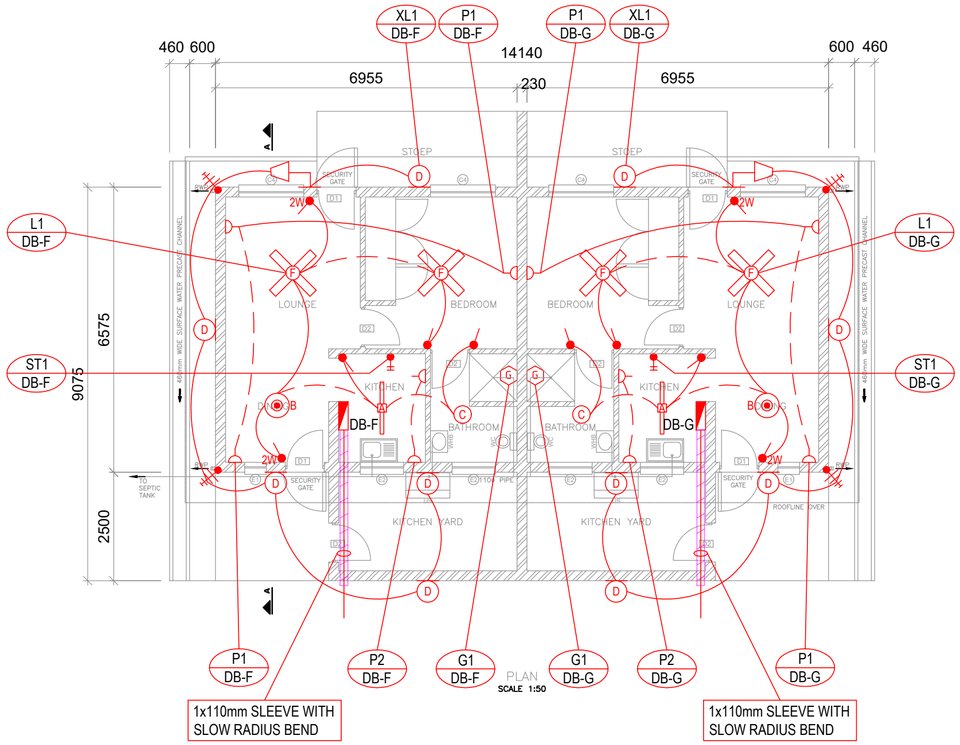
APPROVED | S. MDAKA — PROJECT MANAGER | M.VAWDA — DIVISIONAL MANAGER

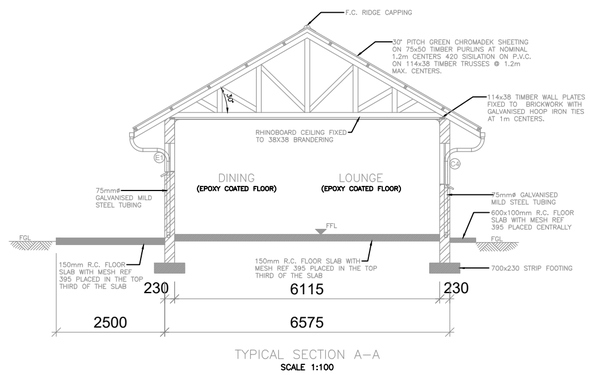
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

DIESEL GENERATOR ROOM
SMALL POWER AND LIGHTING LAYOUT

SCALE AS SHOWN | DATE 12/07/2021

DRAWING NUMBER 1331/093/EED/723 | A2 | REVISION A





TYPICAL SECTION A–A
SCALE 1:100

LIGHTING SYMBOLS

- REGENT LINEAR MINI 1200mm (1253x89) 31,2W LED LUMINAIRE
- RADIENT CEILING MOUNTED PENDANT LIGHT WITH E27 20W WHITE COOL LED BULB
- REGENT SOLO LED 20W CEILING MOUNTED BULKHEAD
- REGENT SOLO LED 20W WALL MOUNTED BULKHEAD IP65
- RADIANT JX01ANDMSTM CEILING FAN WITH E27 20W COOL WHITE LED BULB
- 2W — 1 LEVER, 2 WAY, LIGHT SWITCH MOUNTED 1200mm AFFL
- 1 LEVER, 1 WAY, LIGHT SWITCH MOUNTED 1200mm AFFL
- PHOTO CELL

POWER SYMBOLS

- DISTRIBUTION BOARD MOUNTED @2100mm TO TOP AFFL
- SINGLE 16A, 3 PIN SSO, MOUNTED @1200mm AFFL
- GEYSER ISOLATOR MOUNTED WITH 1m OF THE GEYSER. FINAL POSITION TO BE CONFIRMED WITH PLUMBER
- LIGHTNING PROTECTION COMPLETE WITH EARTH SPIKE AND EARTHING CONDUCTORS - DOWN CONDUCTORS TO RUN ON WITHIN WALLS.
- 45 A DP STOVE ISOLATOR MOUNTED @ 1200mm AFFL

Ugu District Municipality

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WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	T.B.	APPROVED FOR CONSTRUCTION	19/06/2023
1	T.B.	INTERNAL REVIEW	15/06/2023

DRG. No. | REFERENCE DRAWING

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
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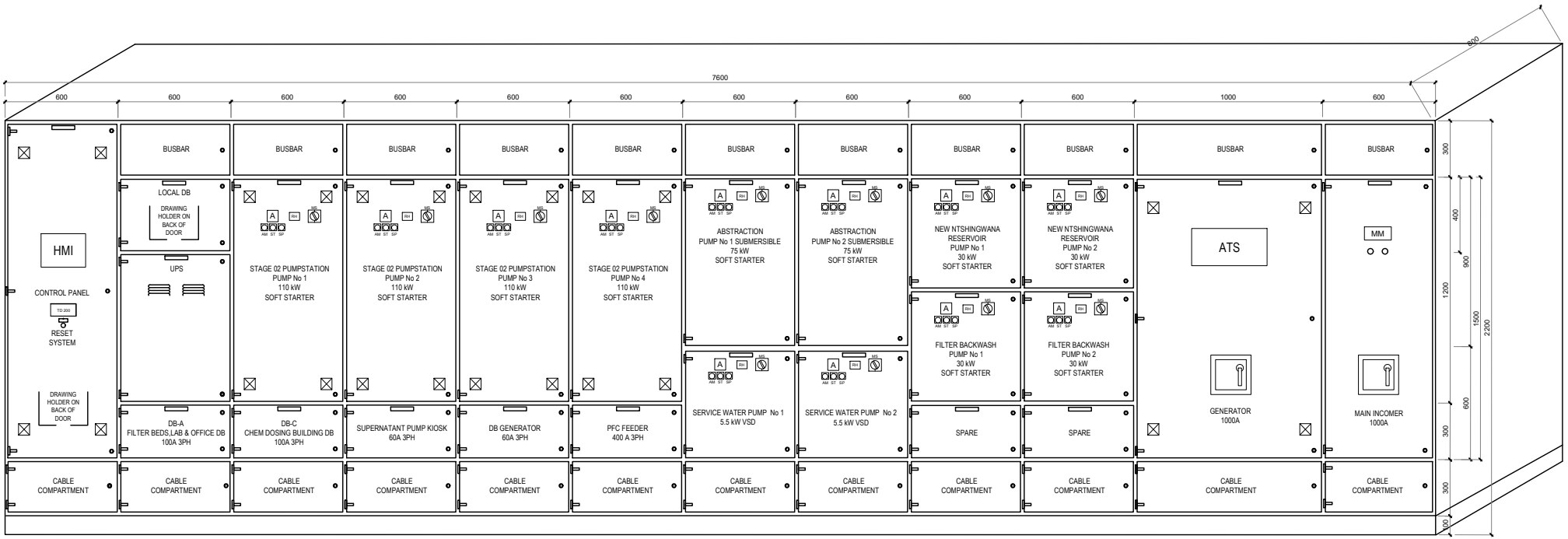
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MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S. MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

STAFF ACCOMMODATION
SMALL POWER AND LIGHTING LAYOUT

SCALE	1 : 100	DATE	15/06/2023
DRAWING NUMBER	1331/093/EED/725	A2	REVISION A



MAIN PANEL GENERAL ARRANGEMENT
FRONT ELEVATION

DETAILS OF DISTRIBUTION BOARD:			
DESIGNATION	: ABSTRACTION AND WATER TREAMENT WORKS MCC	SYSTEM VOLTAGE	: 400 V AC 3PH+N
LOCATION	: PUMPSTATION MCC ROOM	RUPTURING CAPACITY (kA)	: 30 (1 SEC)
MOUNTING	: FLOOR	BUSBAR RATING (AMPS)	: 2000
IP CLASS	: 54 CLOSED DOORS	BUSBAR AREA (mm²)	: 1250
PANEL ACCESS	: FRONT & BACK	SURGE ABSORBERS	: YES (3 PH + N)
CABLE ENTRY	: BOTTOM ENTRY	COLOUR	: ELECTRIC ORANGE (B26)
LOCKABLE DOOR	: YES	GENERATOR PANEL	: RED
SEGREGATION	: FORM 3B	PLINTH MATERIAL	: 3 CR12 BLACK
CO-ORDINATION	: IEC TYPE 2	MANUFACTURED FROM	: 3CR12

GENERAL NOTES:

1. PANEL TO COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER, AND MUST BE PARTIALLY TYPE TESTED.
2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.
3. CASCADING CIRCUIT BREAKERS MAY BE USED.
4. ALLOW SPARE CAPACITY ON PANEL.
5. MAINS ATS TO BE ELECTRICALLY & MECHANICALLY INTERLOCKED.
6. THIS IS A TYPICAL DRAWING AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED DESIGN OF THE CONTROL WIRING BASED ON THE PUMPSTATION CONTROL PHILOSOPHY AND THE EQUIPMENT THAT IS OFFERED.
7. SWITCHGEAR SELECTION SHALL BE STRICTLY FOR TYPE 2 CO-ORDINATION AS PER IEC 60947-4-1 AND IEC 60947-4-2.
8. AN E-STOP CONTACTOR WILL BE REQUIRED IF THE SOFT STARTER DOES NOT HAVE A CATEGORY 3 STOP.

FOR CONSTRUCTION

Ugu District Municipality

STATUTORY NOTE:
THE CLIENT IS RESPONSIBLE FOR ENSURING COMPLIANCE TO ANY LOCAL HEALTH AND SAFETY LAWS AND REGULATIONS

THIS DRAWING WAS PREPARED USING A CERTIFIED QUALITY MANAGEMENT SYSTEM TO **ISO 9001:2015**

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A	T.B.	APPROVED FOR CONSTRUCTION	19/06/2023
T1	S.L.	TENDER DRAWING	07/07/2021

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INSTRUMENT ENGINEER	Z.NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO

APPROVED
S.MDAKA
PROJECT MANAGER
M.VAWDA
DIVISIONAL MANAGER

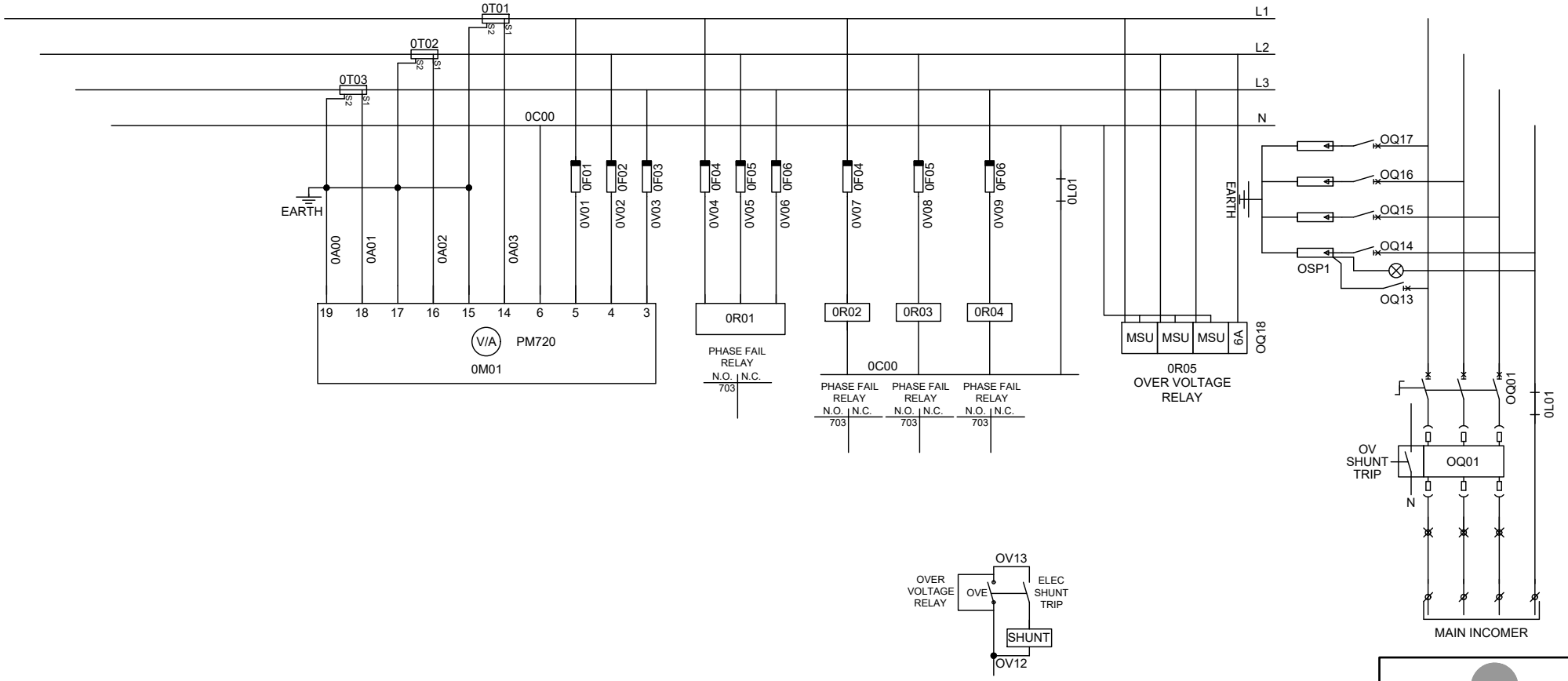
SCALE
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DATE
JUNE 2017

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION WORKS
CLEARWATER PUMPSTATION MCC
MAIN 400 V SUPPLY MAIN PANEL LAYOUT

DRAWING NUMBER 1331/93/ESL/711 Sht 1of 12 | A4 | REVISION A

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
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APPROVED
S.MDAKA
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M.VAWDA
DIVISIONAL MANAGER

SCALE
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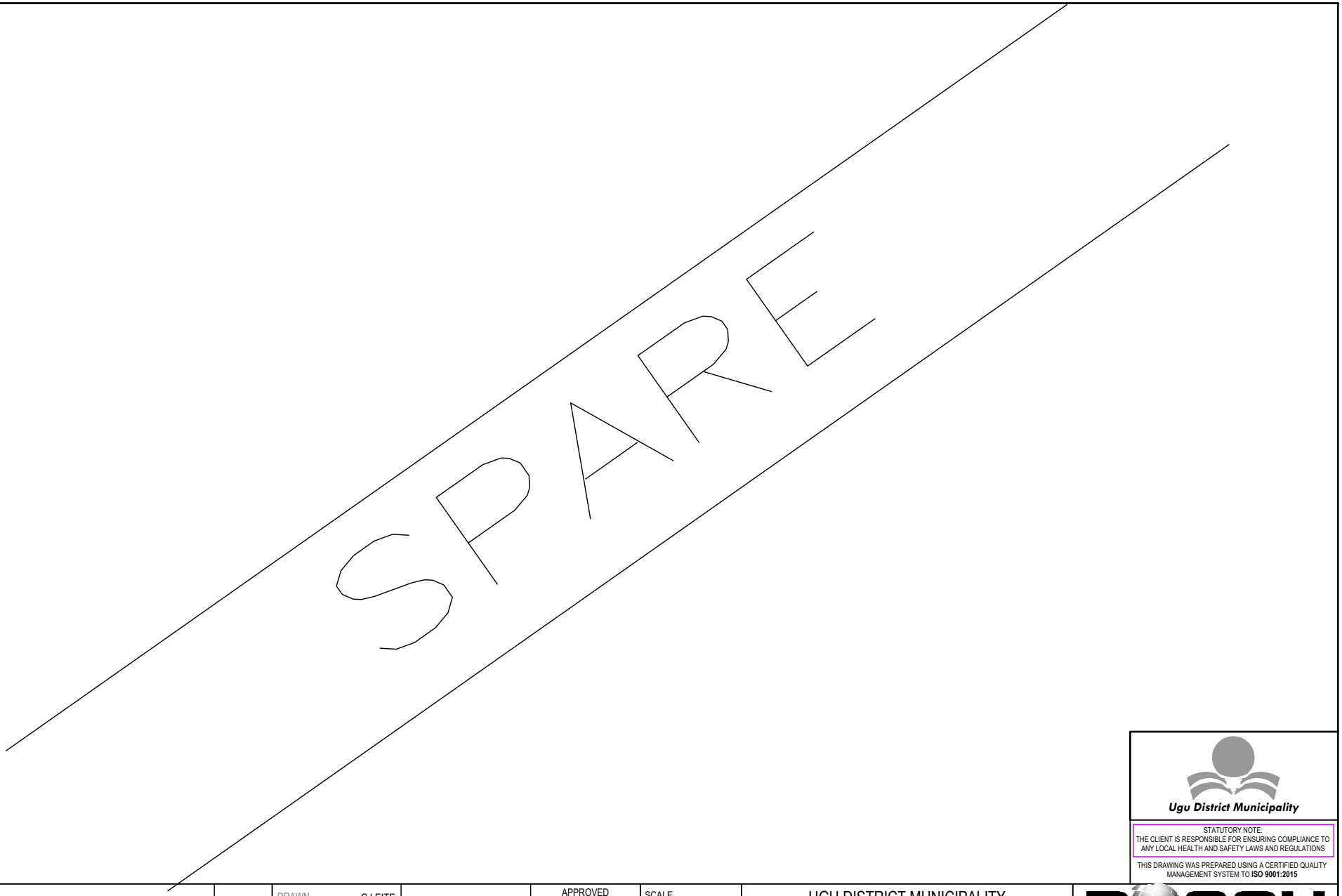
DATE
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION WORKS

MAIN 400 V SUPPLY SCHEMATIC DIAGRAM

DRAWING NUMBER 1331/93-ESL/711 Sht 2 of 12 | A4 | REVISION A

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GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
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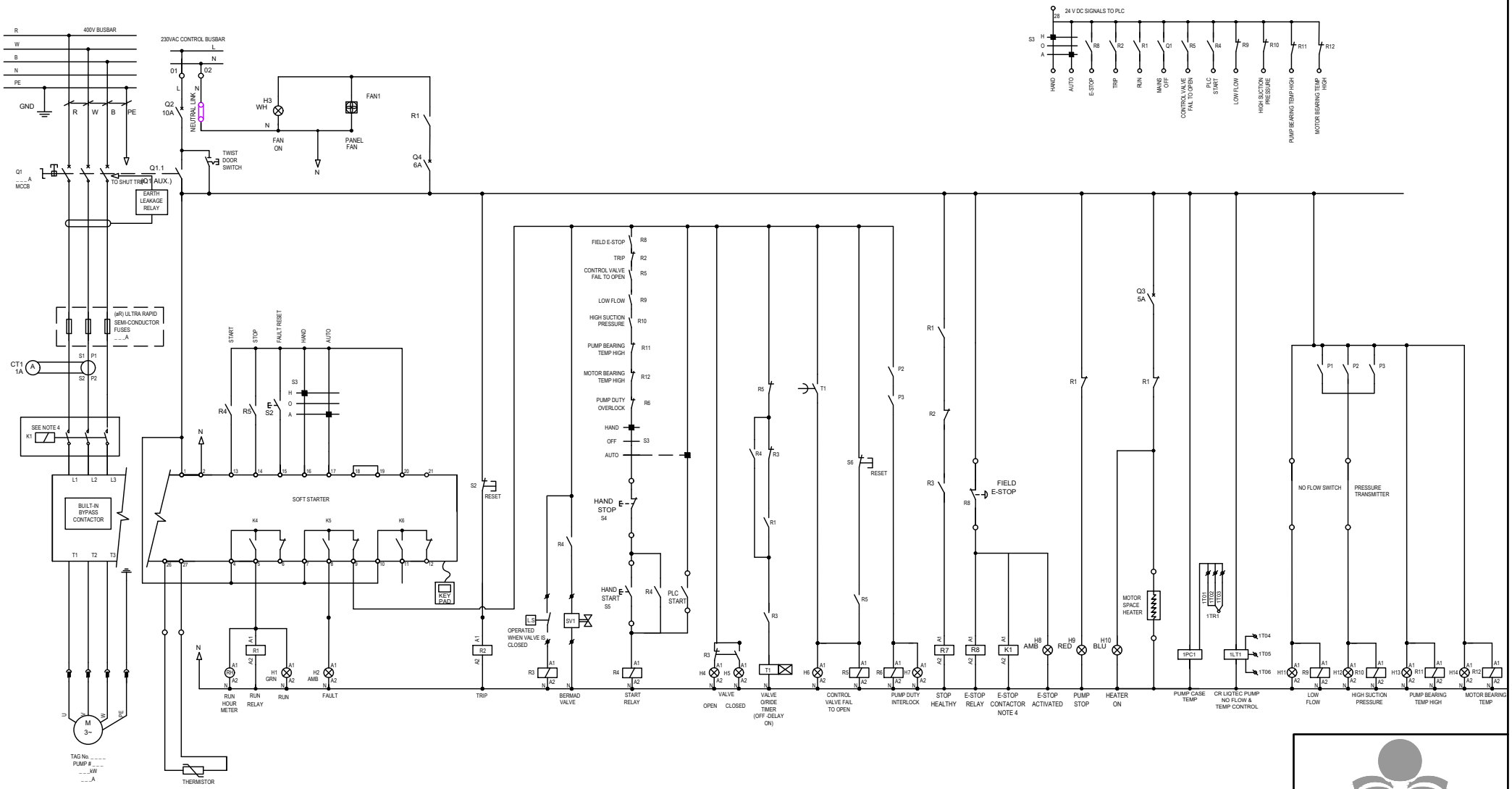
DATE
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION WORKS

MAIN 400 V SUPPLY SPARE

DRAWING NUMBER 1331/93-ESL/711 Sht 3 of 12 | A4 | REVISION A

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1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
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3. THE THREE PUMPS SHALL BE HARDWIRED WITH INTERLOCKS TO PREVENT BOTH PUMPS FROM RUNNING SIMULTANEOUSLY.
4. AN E-STOP CONTACTOR WILL BE REQUIRED IF THE SOFT STARTER DOES NOT HAVE A CATEGORY 3 STOP.

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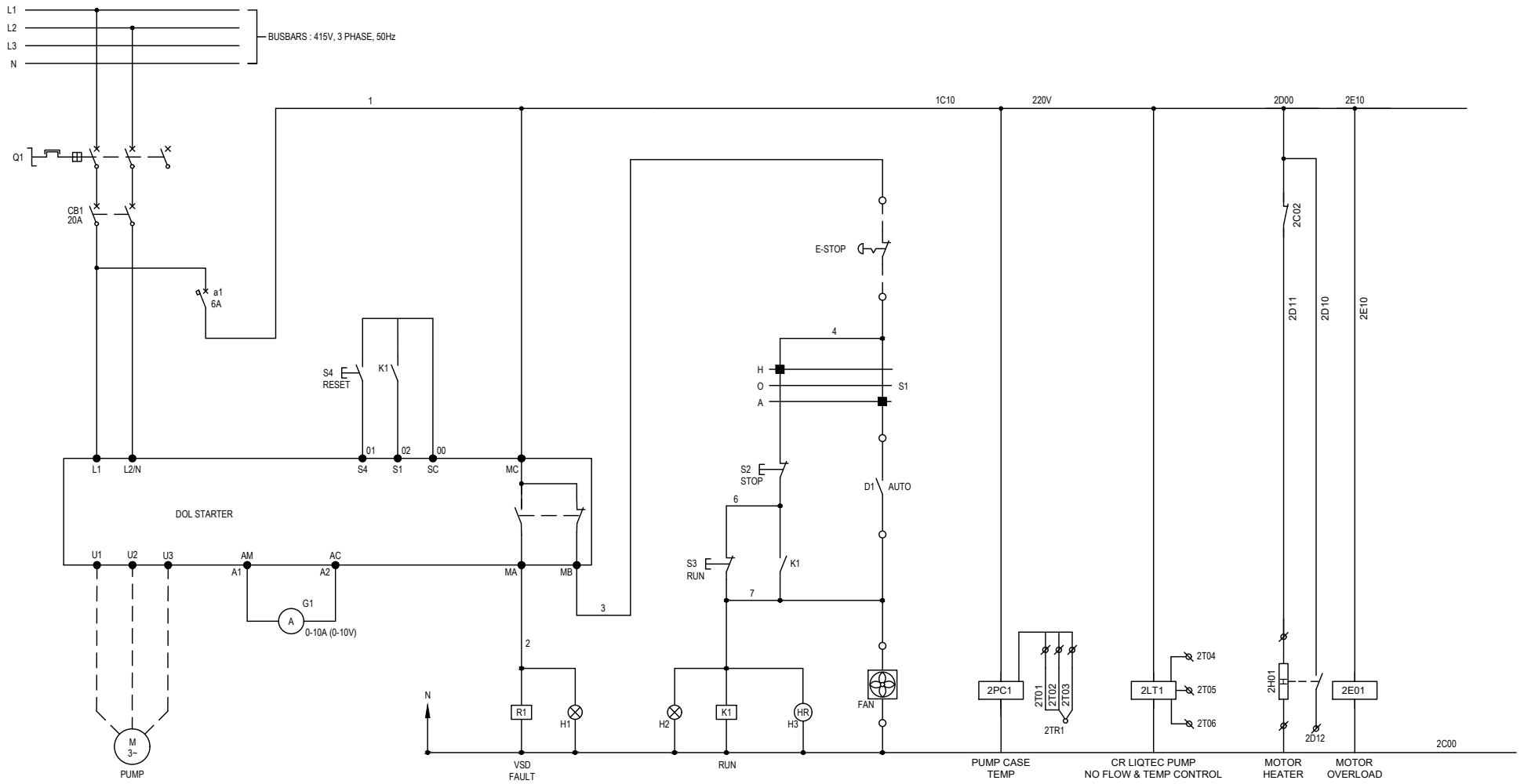
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION WORKS
TYPICAL SOFT STARTER PUMP SCHEMATIC DIAGRAM

DRAWING NUMBER 1331/93-ESL/711 Sht 4 of 12 | A4 | REVISION A

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5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
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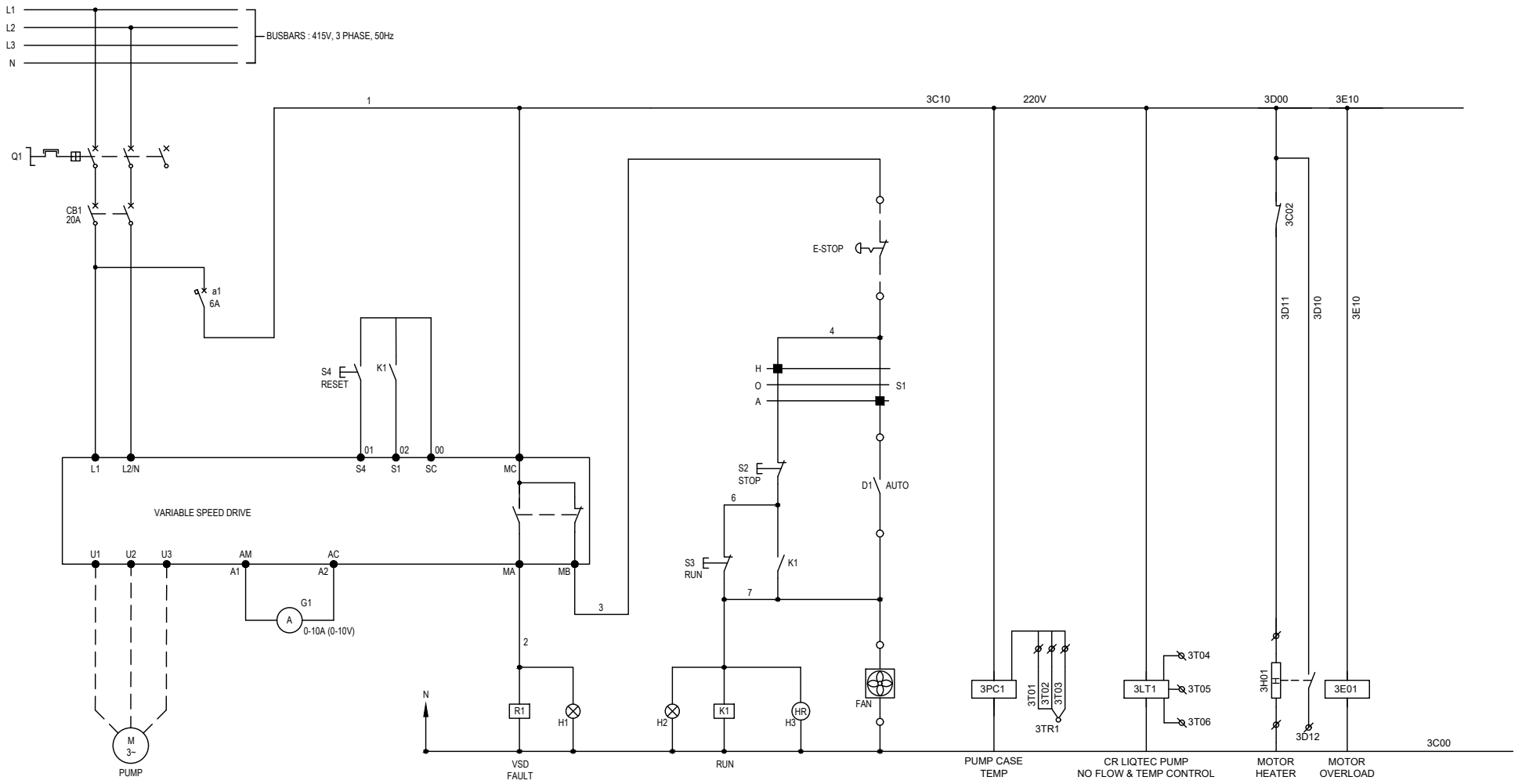
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION WORKS
TYPICAL DOL STARTER PUMP SCHEMATIC DIAGRAM

DRAWING NUMBER: 1331/93-ESL/711 Sht 5 of 12 | A4 | REVISION: A

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APPROVED
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PROJECT MANAGER
M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

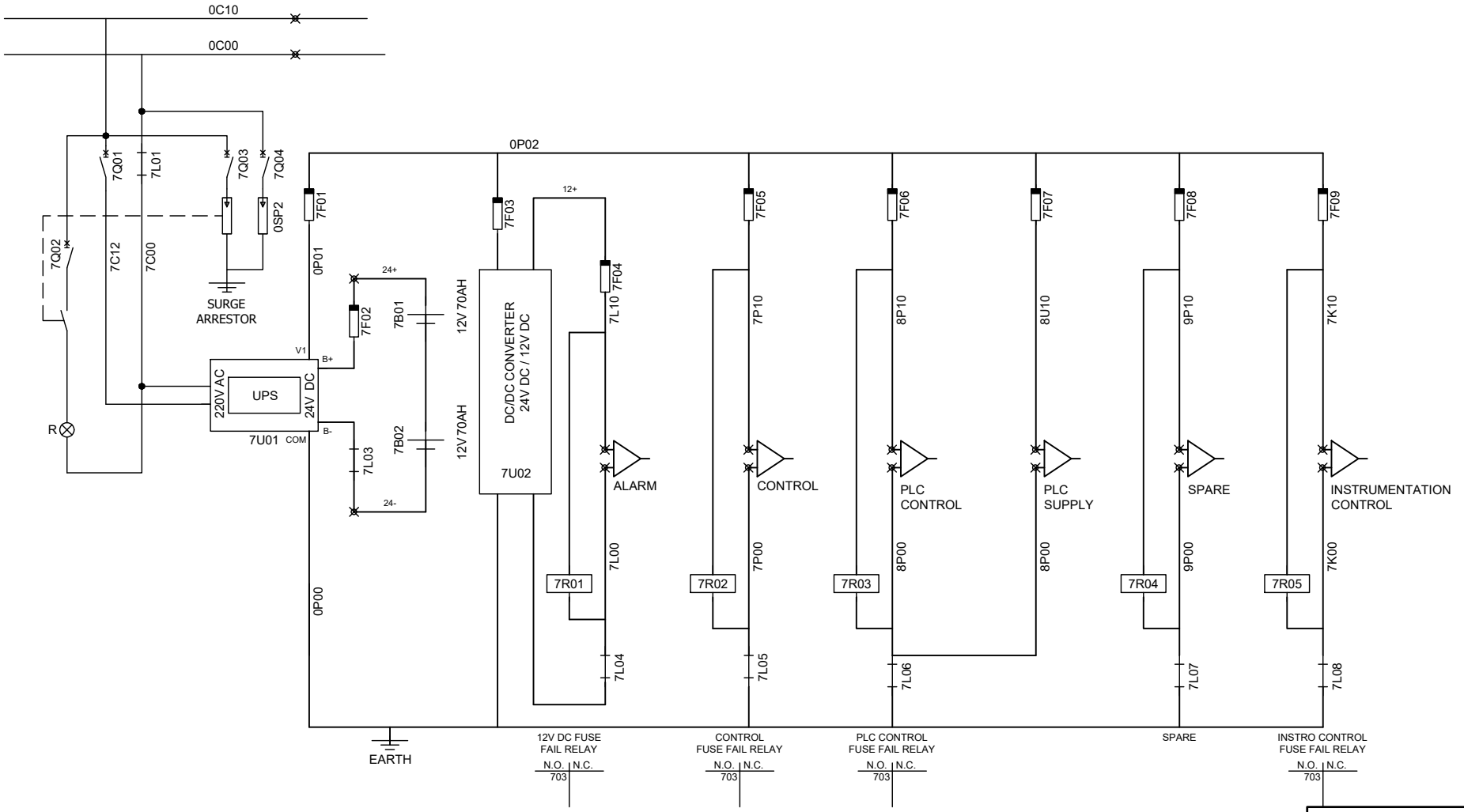
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION WORKS

TYPICAL VSD STARTER PUMP SCHEMATIC DIAGRAM

DRAWING NUMBER 1331/93-ESL/711 Sht 6 of 12 | A4 | REVISION A

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



NOTE:

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2. SWITCHGEAR SELECTION SHALL BE STRICTLY FOR TYPE 2 CO-ORDINATION AS PER IEC 60947-4-1 AND IEC 60947-4-2.
3. THE THREE PUMPS SHALL BE HARDWIRED WITH INTERLOCKS TO PREVENT BOTH PUMPS FROM RUNNING SIMULTANEOUSLY.
4. AN E-STOP CONTACTOR WILL BE REQUIRED IF THE SOFT STARTER DOES NOT HAVE A CATEGORY 3 STOP.

FOR CONSTRUCTION

Ugu District Municipality

STATUTORY NOTE:
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A	T.B.	APPROVED FOR CONSTRUCTION	19/06/2023
T1	S.L.	TENDER DRAWING	07/07/2021

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MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO

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DIVISIONAL MANAGER

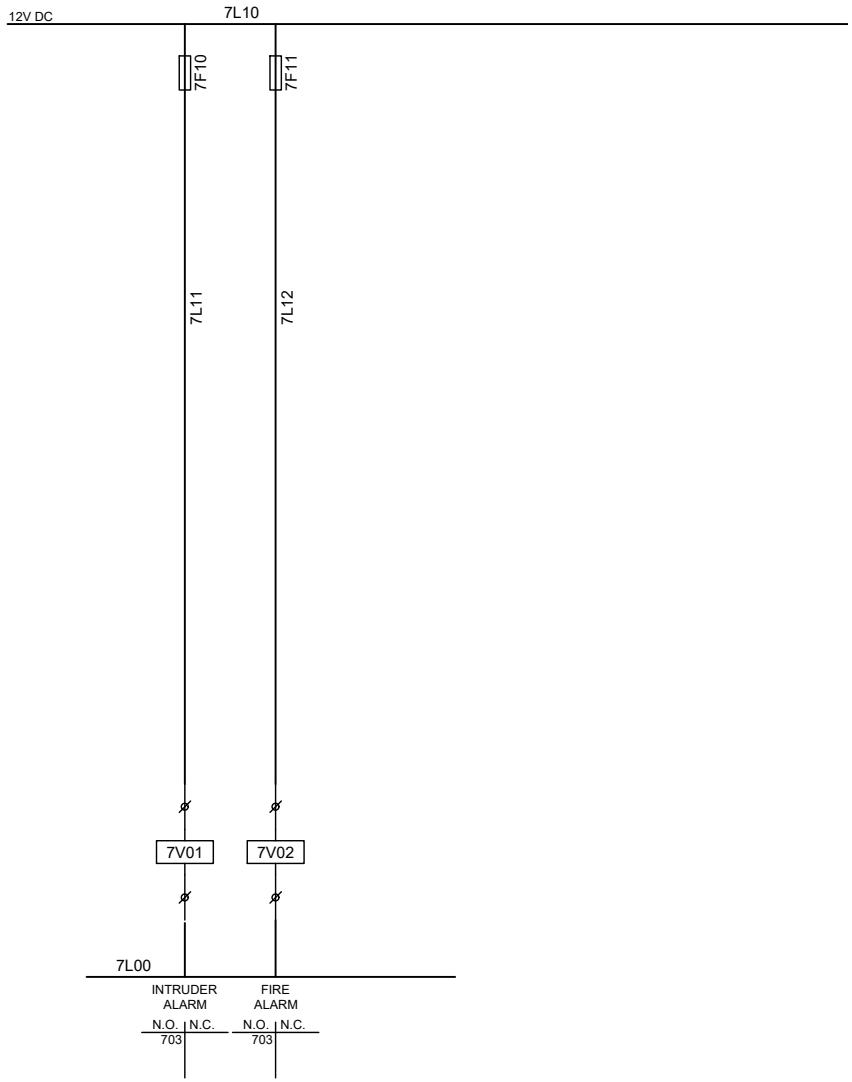
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION WORKS
ABSTRACTION AND WTW MAIN 400 V SUPPLY
CONTROL SECTION BUS SUPPLY SCHEMATIC DIAGRAM

DRAWING NUMBER 1331/93-ESL/711 Sht 7 of 12 | A4 | REVISION A

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LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
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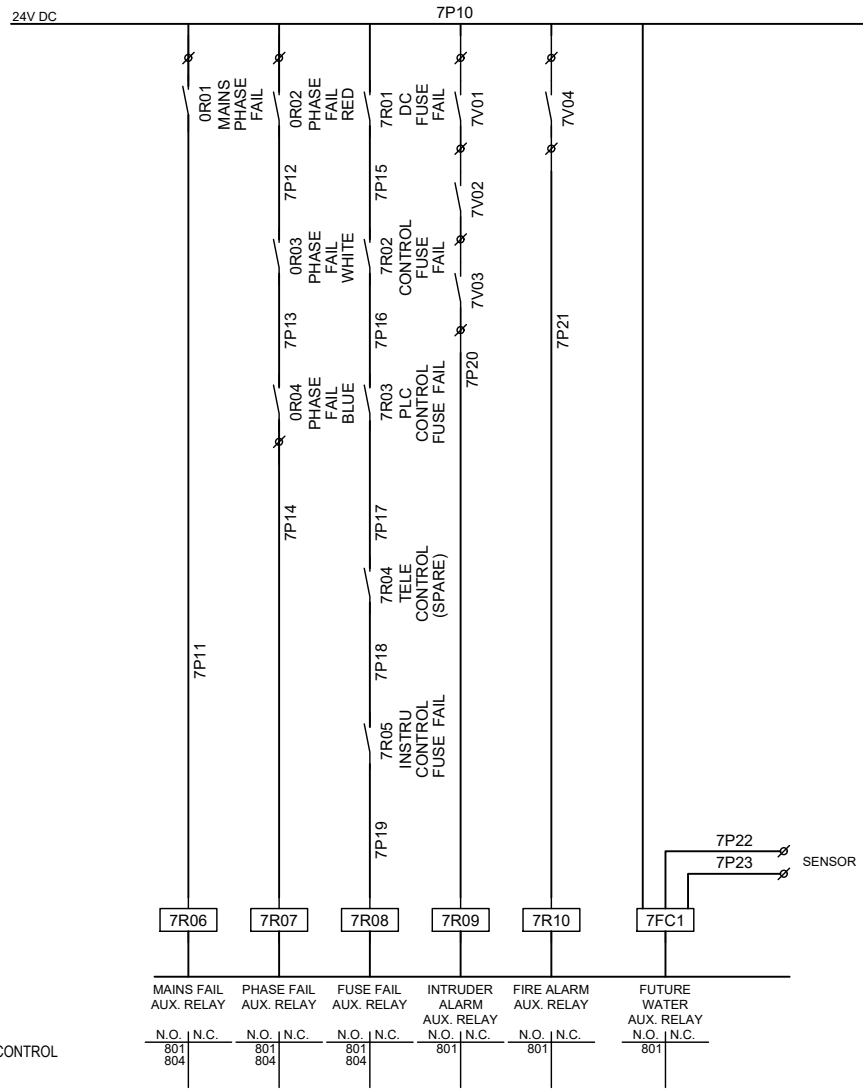
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION WORKS

ALARM SECTION CONTROL SCHEMATIC DIAGRAM

DRAWING NUMBER 1331/93/ESL/711 Sht 8 of 12 | A4 | REVISION A

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
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RELAY INTERFACE SECTION

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Ugu District Municipality

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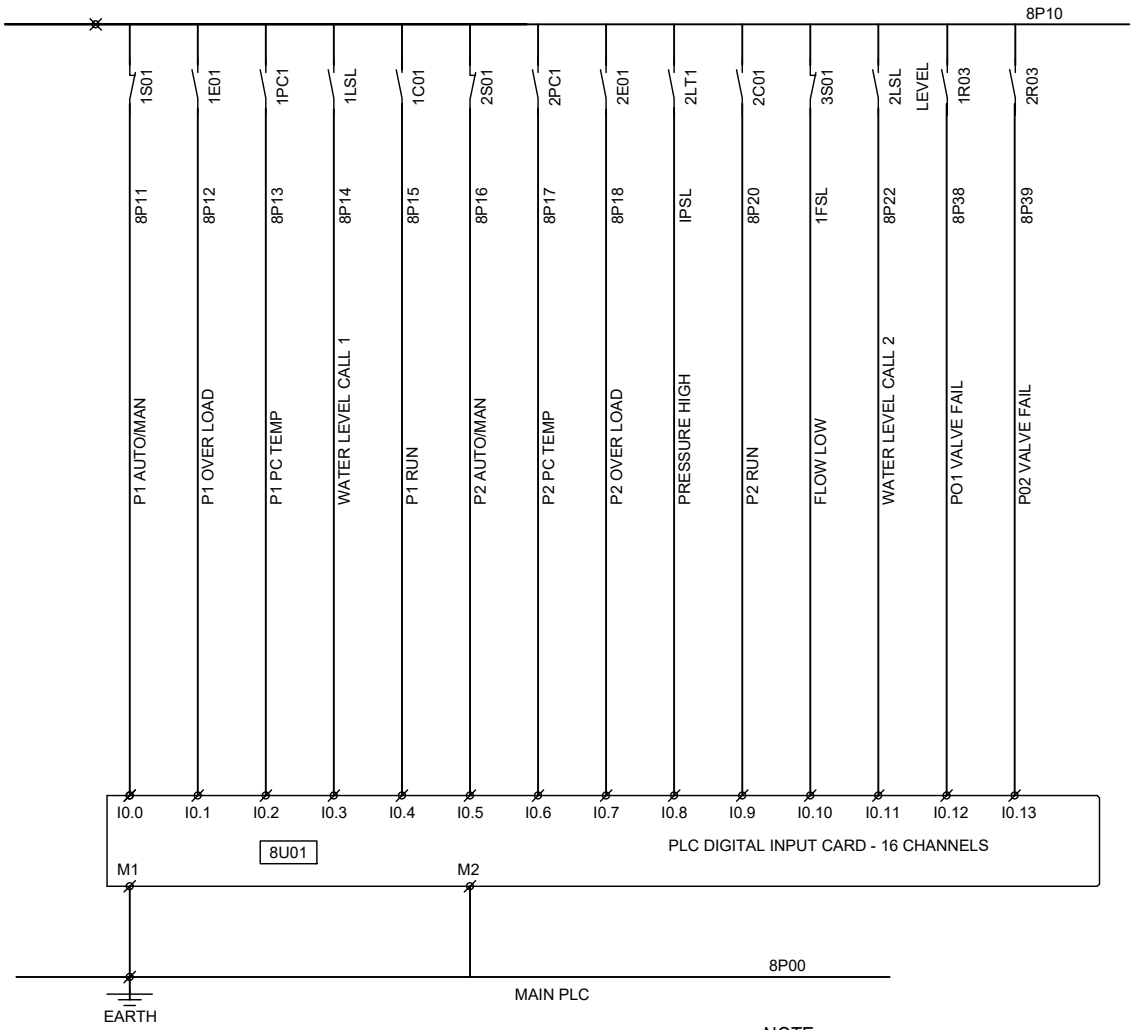
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION WORKS
RELAY INTERFACE
SECTION CONTROL SCHEMATIC DIAGRAM

DRAWING NUMBER 1331/93-ESL/711 Sht 9 of 12 | A4 | REVISION A

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PLC SECTION

FOR CONSTRUCTION

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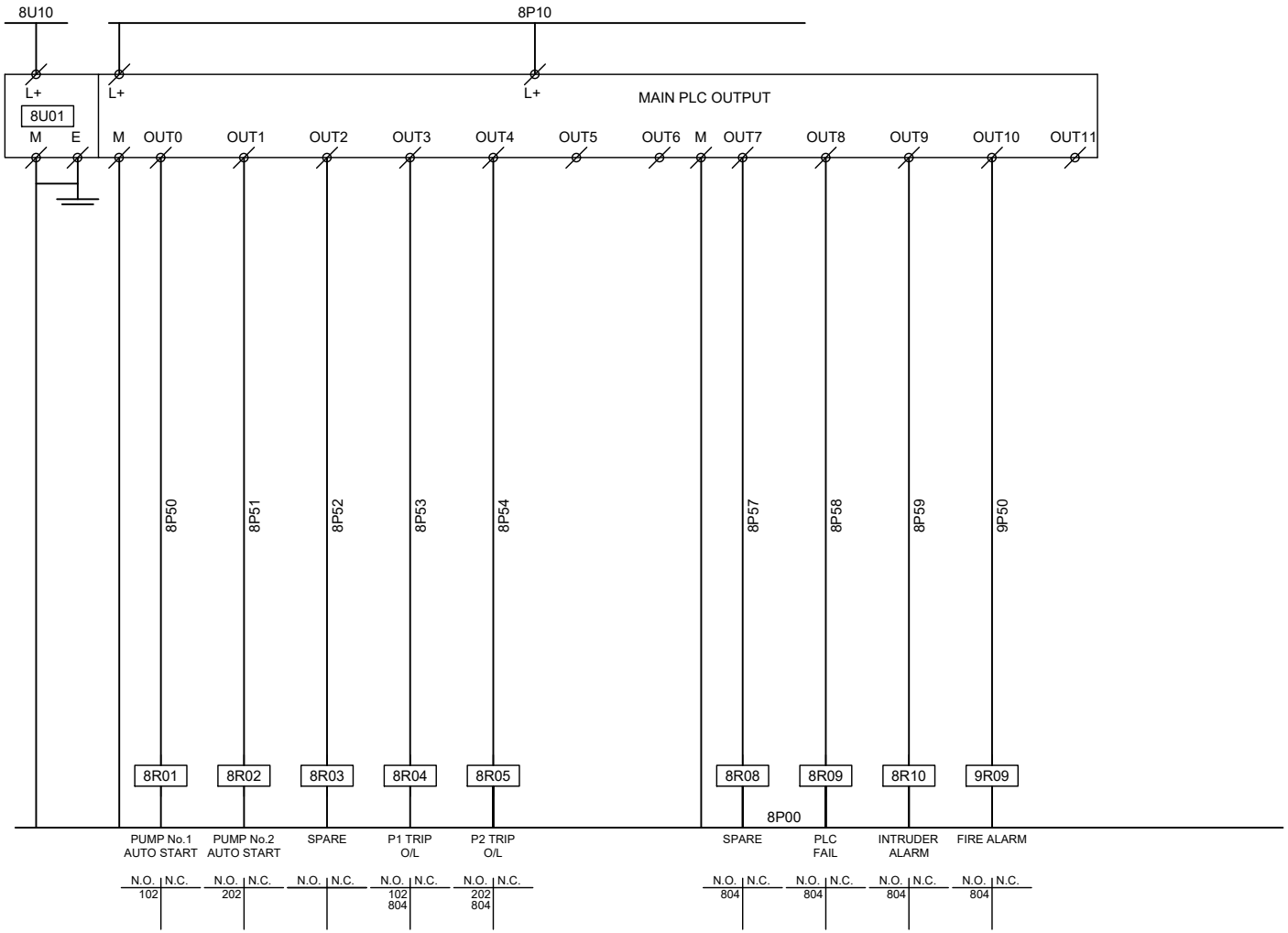
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION WORKS
PLC SECTION
PLC DIGITAL INPUTS SCHEMATIC DIAGRAM

DRAWING NUMBER: 331/93-ESL/711 Sht 10 of 12 | A4 | REVISION: A

BOSCH PROJECTS
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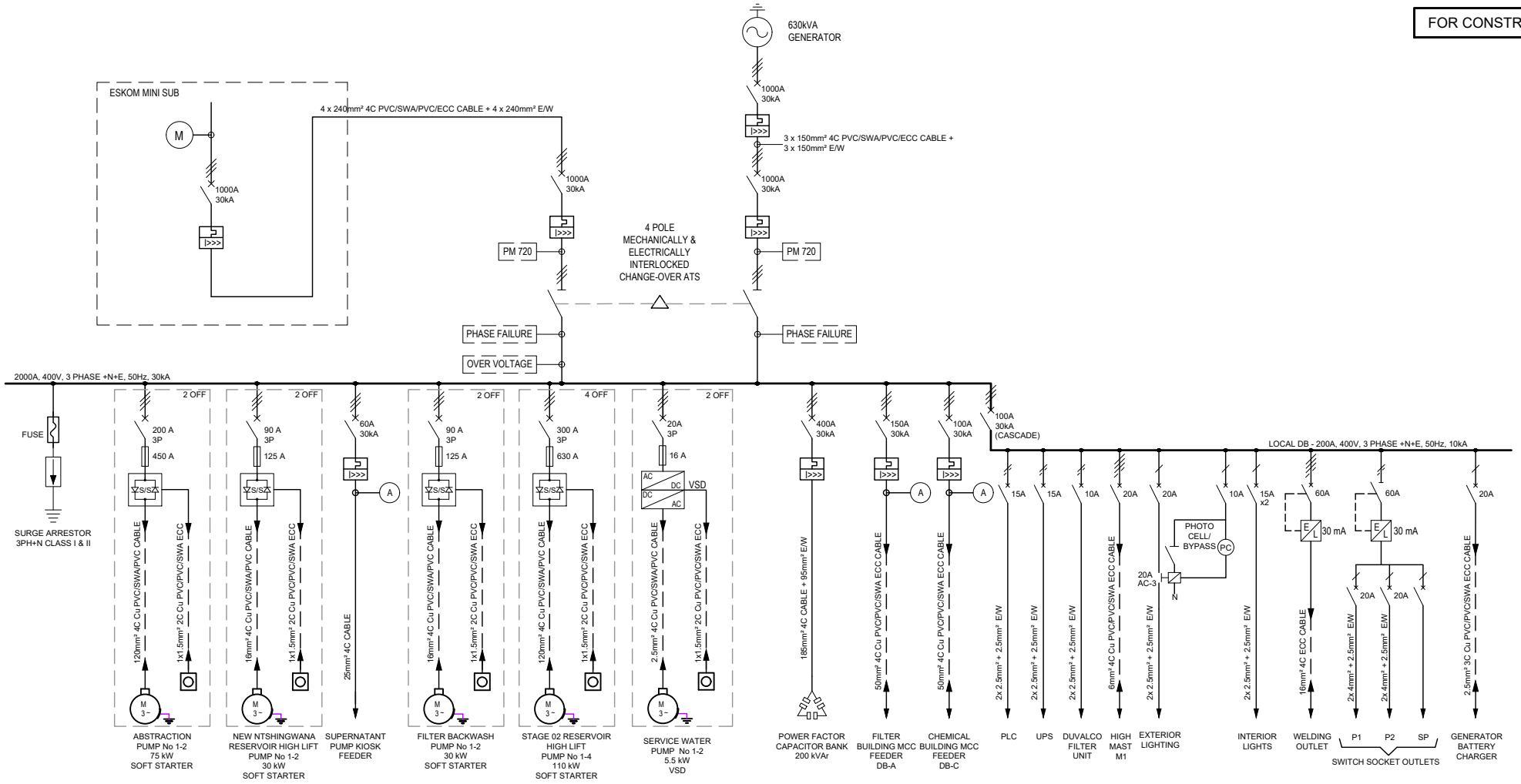
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION WORKS
PLC SECTION
PLC DIGITAL OUTPUTS SCHEMATIC DIAGRAM

DRAWING NUMBER 1331/93-ESL/711 Sht 11 of 12 | A4 | REVISION A

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

FOR CONSTRUCTION



DETAILS OF DISTRIBUTION BOARD:	
DESIGNATION	: ABSTRACTION AND WATER TREAMENT WORKS MCC MAIN PUMP PANEL
LOCATION	: PUMPSTATION MCC ROOM
MOUNTING	: FLOOR
IP CLASS	: 54 CLOSED DOORS
PANEL ACCESS	: FRONT & BACK
CABLE ENTRY	: BOTTOM ENTRY
LOCKABLE DOOR	: YES
SEGREGATION	: FORM 3B
CO-ORDINATION	: IEC TYPE 2

SYSTEM VOLTAGE	: 400 V AC 3PH+N
RUPTURING CAPACITY (kA)	: 30 (1 SEC)
BUSBAR RATING (AMPS)	: 2000
BUSBAR AREA (mm²)	: 1250
SURGE ABSORBERS	: YES (3 PH + N)
COLOUR	: ELECTRIC ORANGE (B26)
GENERATOR PANEL	: RED
PLINTH MATERIAL	: 3 CR12 BLACK
MANUFACTURED FROM	: 3CR12

GENERAL NOTES:

1. PANEL TO COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER, AND MUST BE PARTIALLY TYPE TESTED.
2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.
3. CASCADING CIRCUIT BREAKERS MAY BE USED.
4. ALLOW SPARE CAPACITY ON PANEL.
5. MAINS ATS TO BE ELECTRICALLY & MECHANICALLY INTERLOCKED.
6. THIS IS A TYPICAL DRAWING AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DETAILED DESIGN OF THE CONTROL WIRING BASED ON THE PUMPSTATION CONTROL PHILOSOPHY AND THE EQUIPMENT THAT IS OFFERED.
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Ugu District Municipality

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MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO

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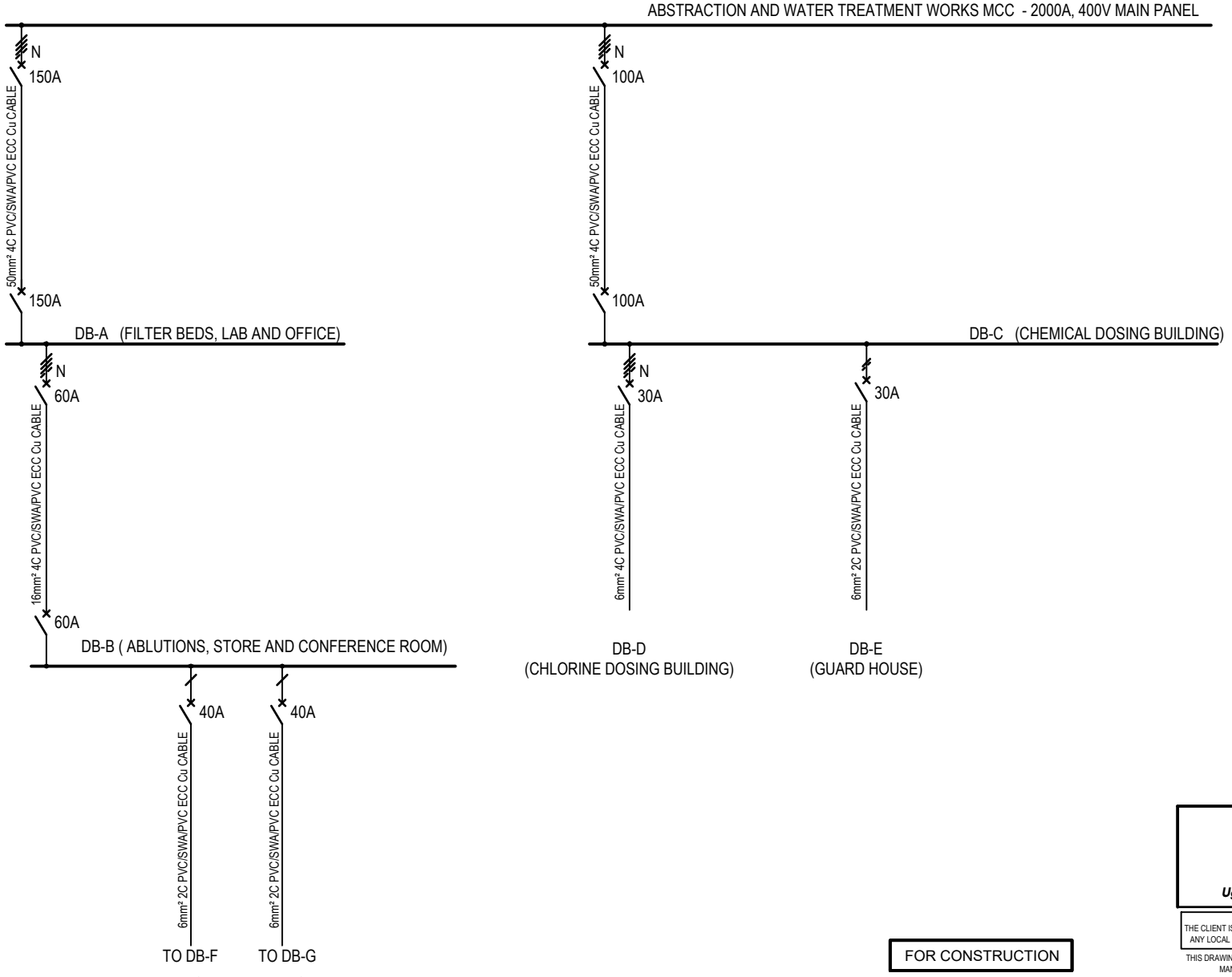
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION WORKS
CLEARWATER PUMPSTATION MCC
400 V MAIN PANEL SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93-ESL/711 Sht 12 of 12 | A4 | REVISION: A

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GLOBAL ENGINEERING SOLUTIONS
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5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
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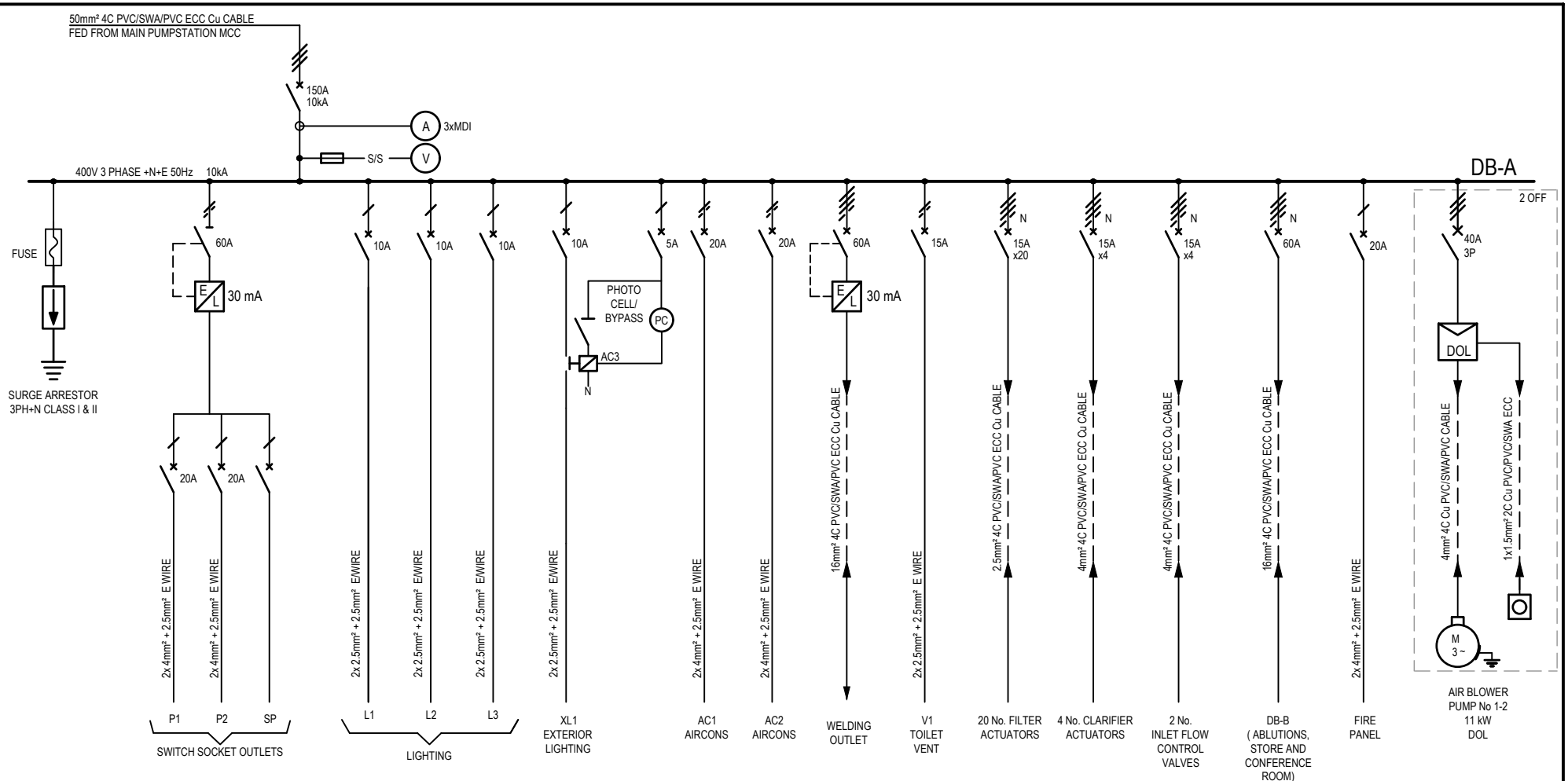
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SMALL POWER & LIGHTING DISTRIBUTION BOARDS NETWORK SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93/ESL/718 Sht 1 of 8 | A4 | REVISION: B

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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



DISTRIBUTION BOARD DETAILS:		NON-ESSENTIAL:		NOTES:
DESIGNATION	: DB-A	RUPTURING CAPACITY (kA)	: 10kA	1. THIS DB SHALL COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER.
LOCATION	: LABORATORY	BUSBAR RATING (AMPS)	: 150A	2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.
MOUNTING	: SURFACE WALL	SPARE CAPACITY	: 30%	3. CASCADING CIRCUIT BREAKERS TO BE USED
IP CLASS	: 54	SURGE ABSORBERS	: YES, 3PH +N	
CABLE ENTRY	: TOP & BOTTOM	COLOUR	: ORANGE	
LOCKABLE DOOR	: YES	MATERIAL	: 3CR12	

FOR CONSTRUCTION

Ugu District Municipality

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MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

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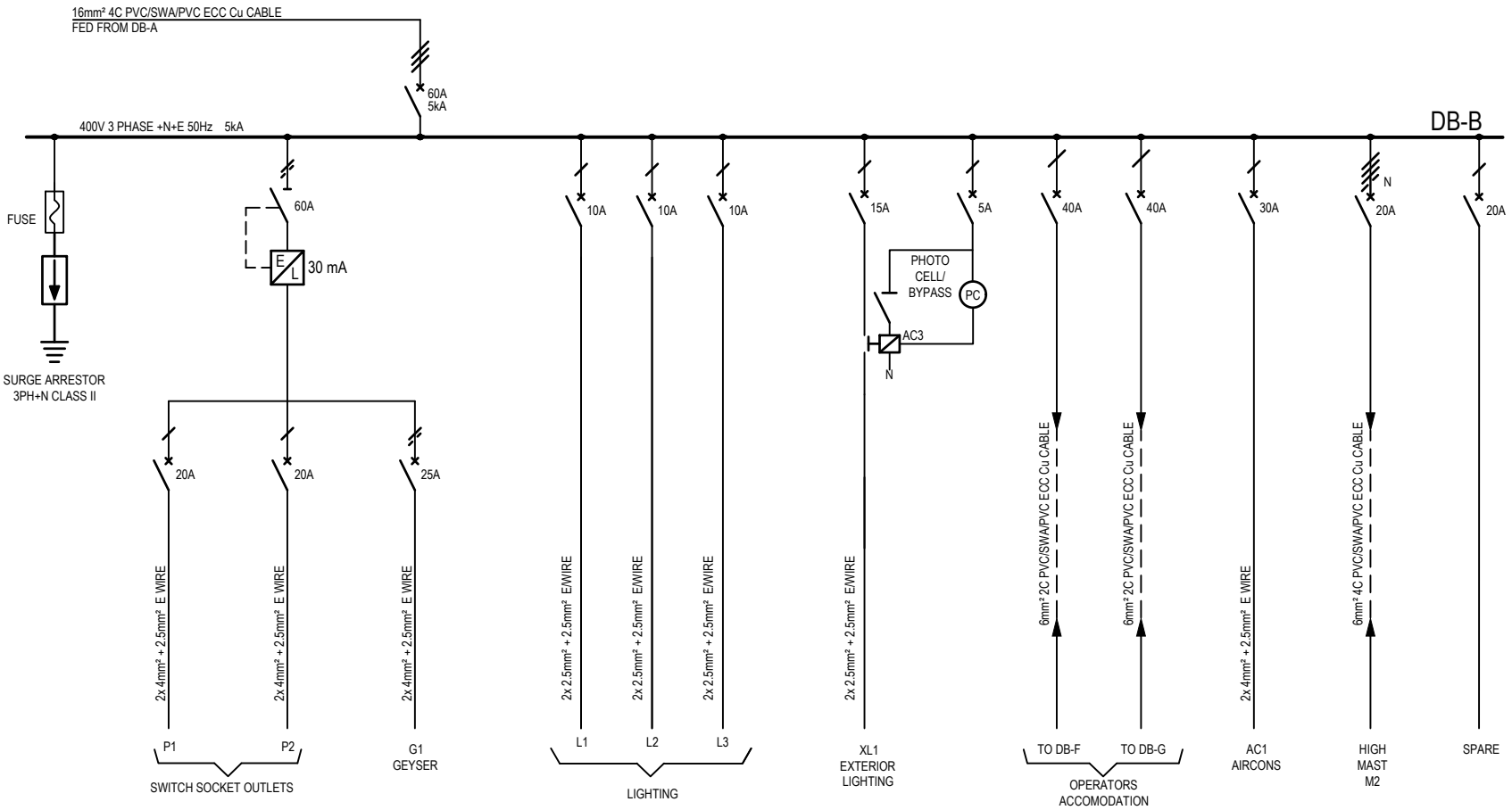
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SMALL POWER & LIGHTING DISTRIBUTION BOARDS
DB-A SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93/ESL/718 Sht 2 of 8 | A4 | REVISION: B

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MOUNT EDGECOMBE
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DISTRIBUTION BOARD DETAILS:		NON-ESSENTIAL:		NOTES:
DESIGNATION	: DB-B	RUPTURING CAPACITY (kA)	: 5kA	1. THIS DB SHALL COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER.
LOCATION	: CONFERENCE ROOM/SERVICES BLDG	BUSBAR RATING (AMPS)	: 60A	2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.
MOUNTING	: FLUSH	SPARE CAPACITY	: 30%	
IP CLASS	: 54	SURGE ABSORBERS	: YES, 3PH +N	
CABLE ENTRY	: BOTTOM	COLOUR	: WHITE	
LOCKABLE DOOR	: YES	MATERIAL	: 3CR12	

FOR CONSTRUCTION

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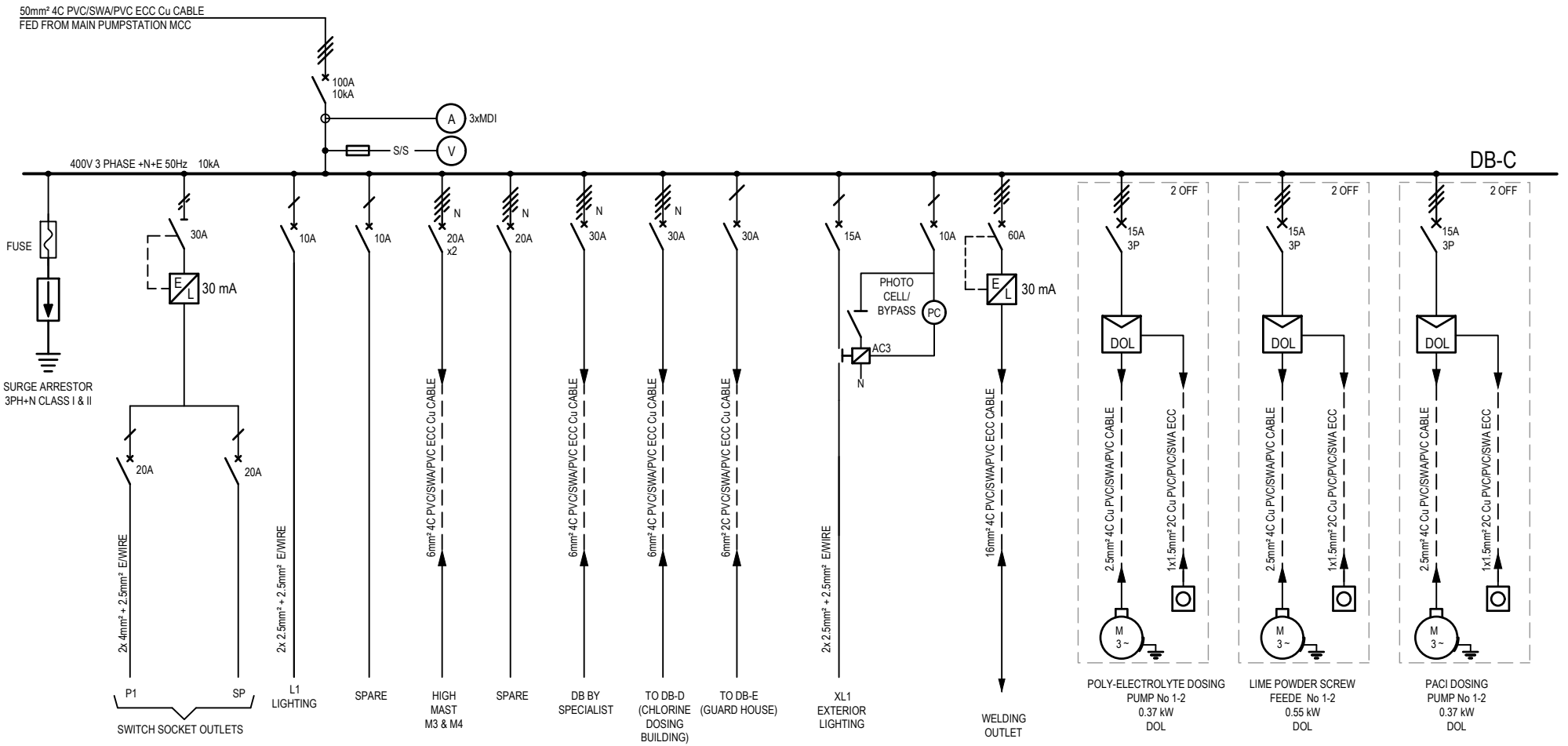
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SMALL POWER & LIGHTING DISTRIBUTION BOARDS
DB-B SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93/ESL/718 Sht 3 of 8 | A4 | REVISION: B

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



DISTRIBUTION BOARD DETAILS:	NON-ESSENTIAL:	NOTES:
DESIGNATION : DB-C LOCATION : CHEMICAL DOSING BUILDING MOUNTING : SURFACE WALL IP CLASS : 54 CABLE ENTRY : TOP & BOTTOM LOCKABLE DOOR : YES	RUPTURING CAPACITY (kA) : 10kA BUSBAR RATING (AMPS) : 150A SPARE CAPACITY : 30% SURGE ABSORBERS : YES, 3PH +N COLOUR : ORANGE MATERIAL : 3CR12	1. THIS DB SHALL COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER. 2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS. 3. CASCADING CIRCUIT BREAKERS TO BE USED

Ugu District Municipality

STATUTORY NOTE:
THE CLIENT IS RESPONSIBLE FOR ENSURING COMPLIANCE TO ANY LOCAL HEALTH AND SAFETY LAWS AND REGULATIONS

THIS DRAWING WAS PREPARED USING A CERTIFIED QUALITY MANAGEMENT SYSTEM TO **ISO 9001:2015**

FOR CONSTRUCTION

REV	BY	DESCRIPTION	DATE
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B	T.B.	REVISED FOR CONSTRUCTION	20/06/2023
A	N.M	APPROVED FOR CONSTRUCTION	07/12/2022
T1	S.L.	TENDER DRAWING	07/04/2021

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DRAWN	S.LEITE		
CIVIL ENGINEER	A.LeROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

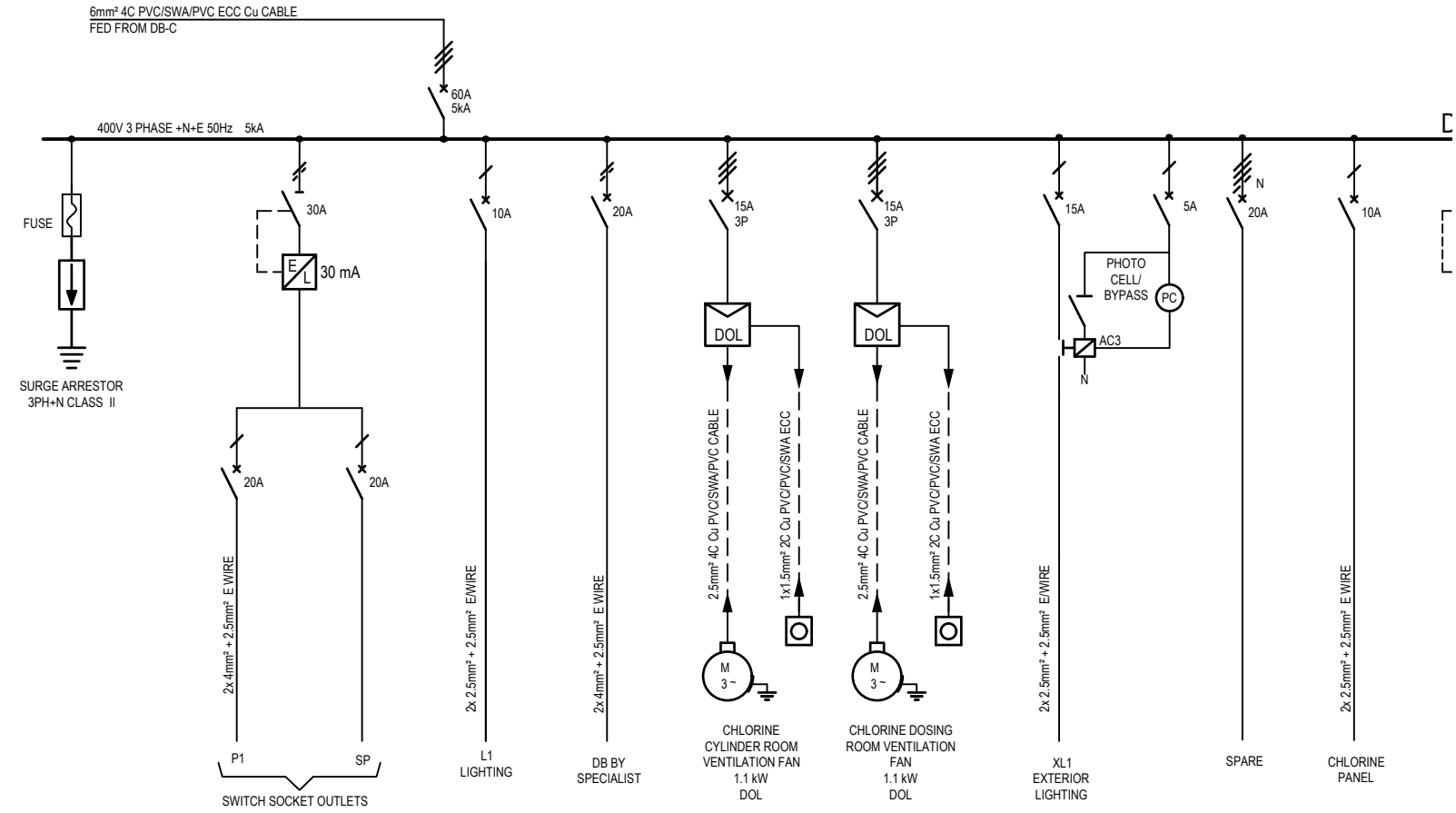
SCALE: NTS

DATE: NOV 2017

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SMALL POWER & LIGHTING DISTRIBUTION BOARDS
DB-C SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93/ESL/718 Sht 4 of 8 | A4 | REVISION: B

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



DISTRIBUTION BOARD DETAILS:		NON-ESSENTIAL:		NOTES:
DESIGNATION	: DB-D	RUPTURING CAPACITY (kA)	: 5kA	1. THIS DB SHALL COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER.
LOCATION	: CHLORINE DOSING BUILDING	BUSBAR RATING (AMPS)	: 60A	2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.
MOUNTING	: SURFACE WALL	SPARE CAPACITY	: 30%	3. CASCADING CIRCUIT BREAKERS TO BE USED
IP CLASS	: 54	SURGE ABSORBERS	: YES, 3PH +N	
CABLE ENTRY	: TOP & BOTTOM	COLOUR	: ORANGE	
LOCKABLE DOOR	: YES	MATERIAL	: 3CR12	

FOR CONSTRUCTION

Ugu District Municipality

STATUTORY NOTE:
THE CLIENT IS RESPONSIBLE FOR ENSURING COMPLIANCE TO ANY LOCAL HEALTH AND SAFETY LAWS AND REGULATIONS

THIS DRAWING WAS PREPARED USING A CERTIFIED QUALITY MANAGEMENT SYSTEM TO **ISO 9001:2015**

REV	BY	DESCRIPTION	DATE
		-	
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		-	
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B	T.B.	REVISED FOR CONSTRUCTION	20/06/2023
A	N.M	APPROVED FOR CONSTRUCTION	07/12/2022
T1	S.L.	TENDER DRAWING	07/04/2021

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DRAWN	S.LEITE		
CIVIL ENGINEER	A.LeROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

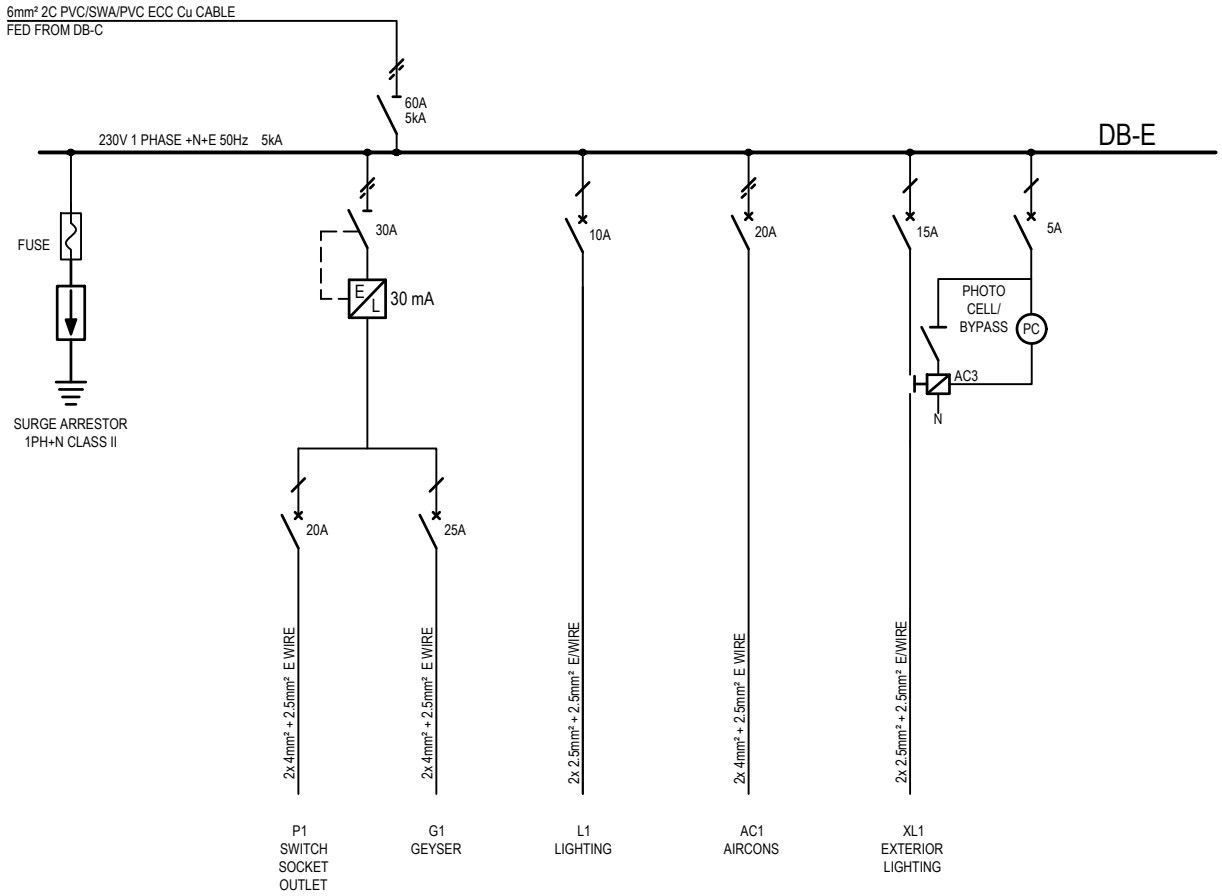
SCALE: NTS

DATE: NOV 2017

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SMALL POWER & LIGHTING DISTRIBUTION BOARDS DB-D SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93/ESL/718 Sht 5 of 8 | A4 | REVISION: B

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



DISTRIBUTION BOARD DETAILS:	NON-ESSENTIAL:	NOTES:
DESIGNATION : DB-E	RUPTURING CAPACITY (kA) : 5kA	1. THIS DB SHALL COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER.
LOCATION : GUARD HOUSE	BUSBAR RATING (AMPS) : 60A	2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.
MOUNTING : SURFACE WALL	SPARE CAPACITY : 30%	
IP CLASS : 54	SURGE ABSORBERS : YES, 1PH +N	
CABLE ENTRY : TOP & BOTTOM	COLOUR : RAL 9010	
LOCKABLE DOOR : YES	MATERIAL : 3CR12	

FOR CONSTRUCTION

Ugu District Municipality

STATUTORY NOTE:
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B	T.B.	REVISED FOR CONSTRUCTION	20/06/2023
A	N.M	APPROVED FOR CONSTRUCTION	07/12/2022
T1	S.L.	TENDER DRAWING	07/04/2021

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CIVIL ENGINEER	A.LeROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

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S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

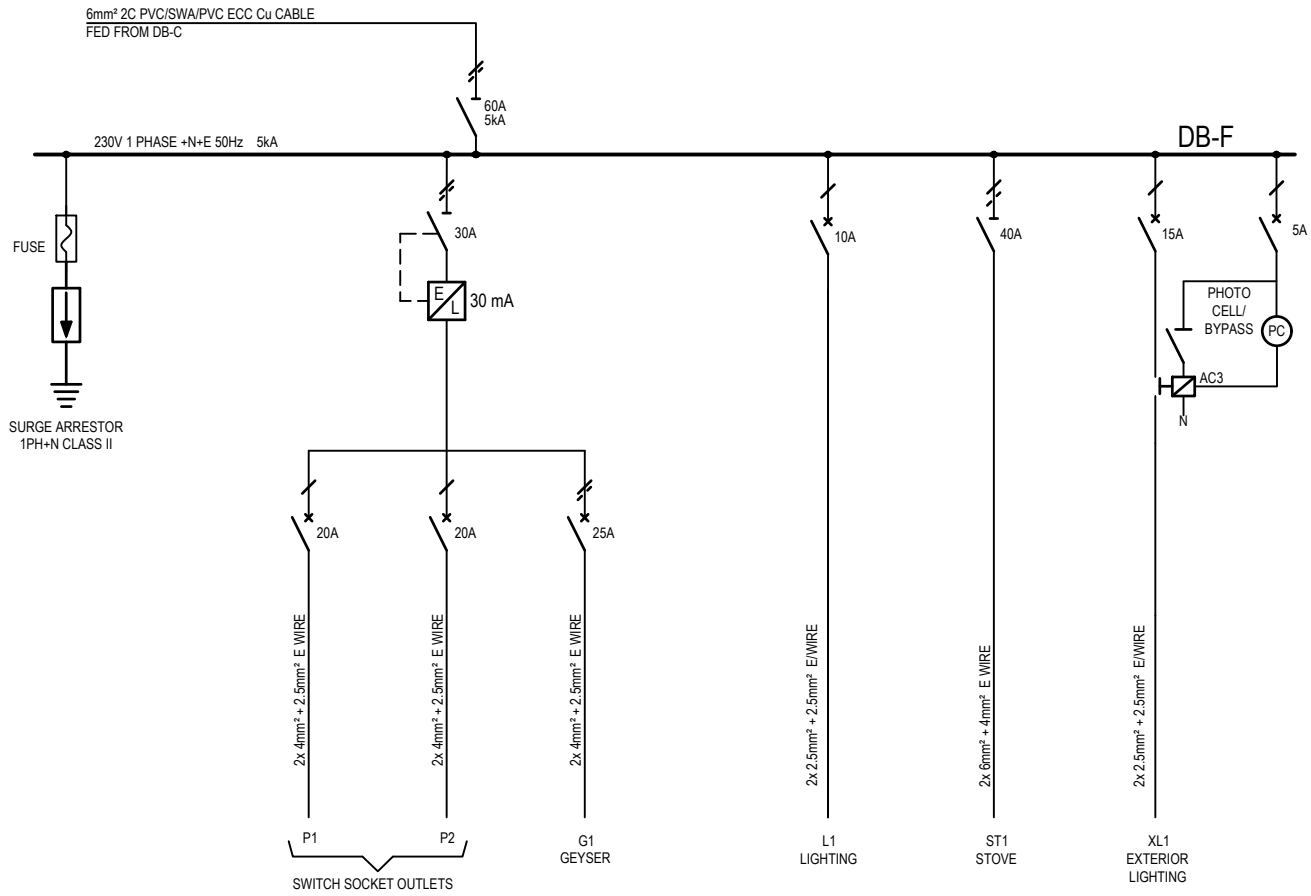
SCALE: NTS

DATE: NOV 2017

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SMALL POWER & LIGHTING DISTRIBUTION BOARDS DB-E SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93/ESL/718 Sht 6 of 8 | A4 | REVISION: B

BOSCH PROJECTS
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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED



DISTRIBUTION BOARD DETAILS:	NON-ESSENTIAL:	NOTES:
DESIGNATION : DB-F	RUPTURING CAPACITY (kA) : 5kA	1. THIS DB SHALL COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER.
LOCATION : MALE ACCOMMODATION	BUSBAR RATING (AMPS) : 60A	2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.
MOUNTING : FLUSH	SPARE CAPACITY : 30%	
IP CLASS : 54	SURGE ABSORBERS : YES, 1PH +N	
CABLE ENTRY : BOTTOM	COLOUR : RAL 9010	
LOCKABLE DOOR : YES	MATERIAL : 3CR12	

FOR CONSTRUCTION

Ugu District Municipality

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B	T.B.	REVISED FOR CONSTRUCTION	20/06/2023
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CIVIL ENGINEER	A.LeROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

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S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

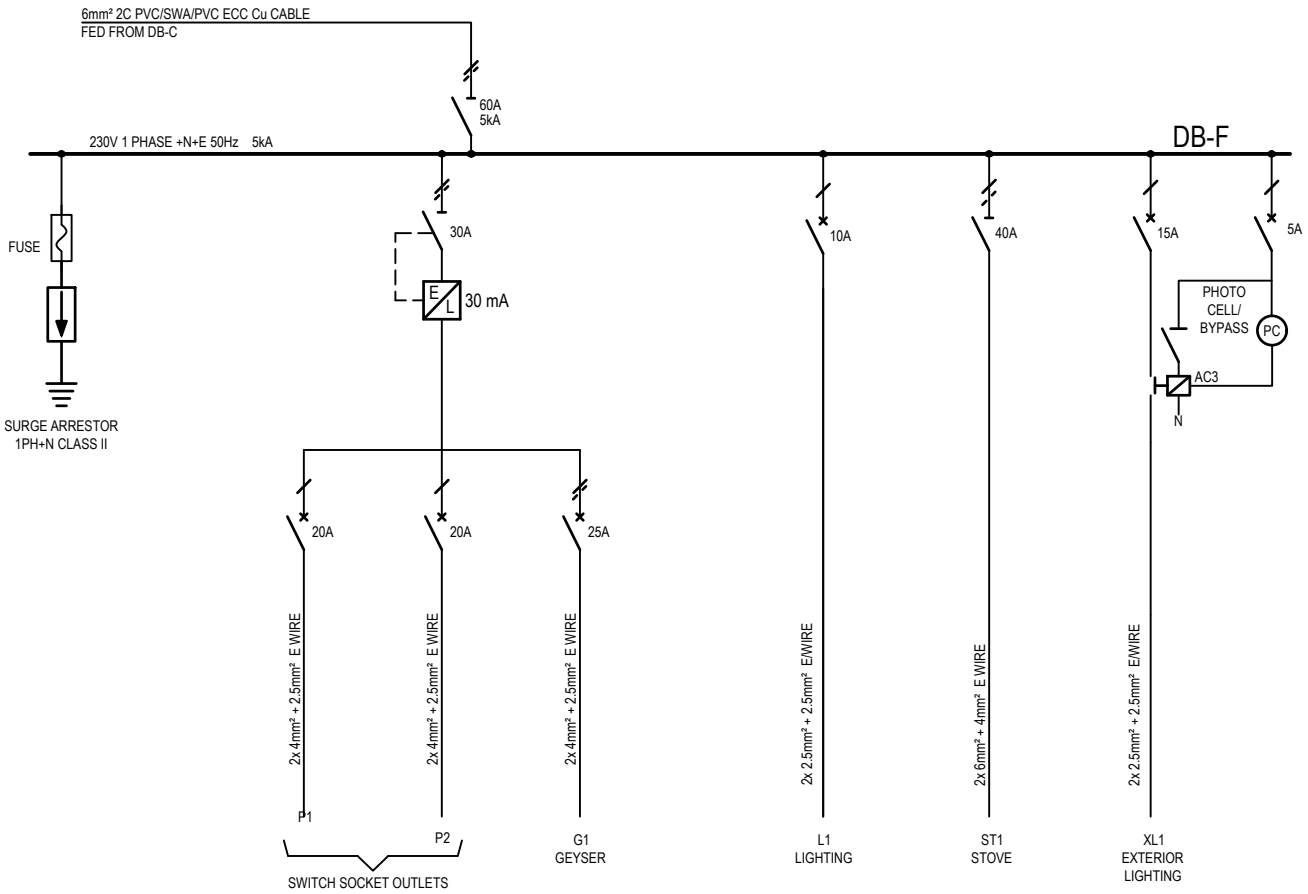
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UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SMALL POWER & LIGHTING DISTRIBUTION BOARDS
DB-F SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93/ESL/718 Sht 7 of 8 | A4 | REVISION: B

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



DISTRIBUTION BOARD DETAILS:	NON-ESSENTIAL:	NOTES:
DESIGNATION : DB-G LOCATION : FEMALE ACCOMMODATION MOUNTING : FLUSH IP CLASS : 54 CABLE ENTRY : BOTTOM LOCKABLE DOOR : YES	RUPTURING CAPACITY (kA) : 5kA BUSBAR RATING (AMPS) : 60A SPARE CAPACITY : 30% SURGE ABSORBERS : YES, 1PH +N COLOUR : RAL 9010 MATERIAL : 3CR12	1. THIS DB SHALL COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER. 2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.

FOR CONSTRUCTION

Ugu District Municipality

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B	T.B.	REVISED FOR CONSTRUCTION	20/06/2023
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CIVIL ENGINEER	A.LeROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

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S.MDAKA
PROJECT MANAGER
M.VAWDA
DIVISIONAL MANAGER

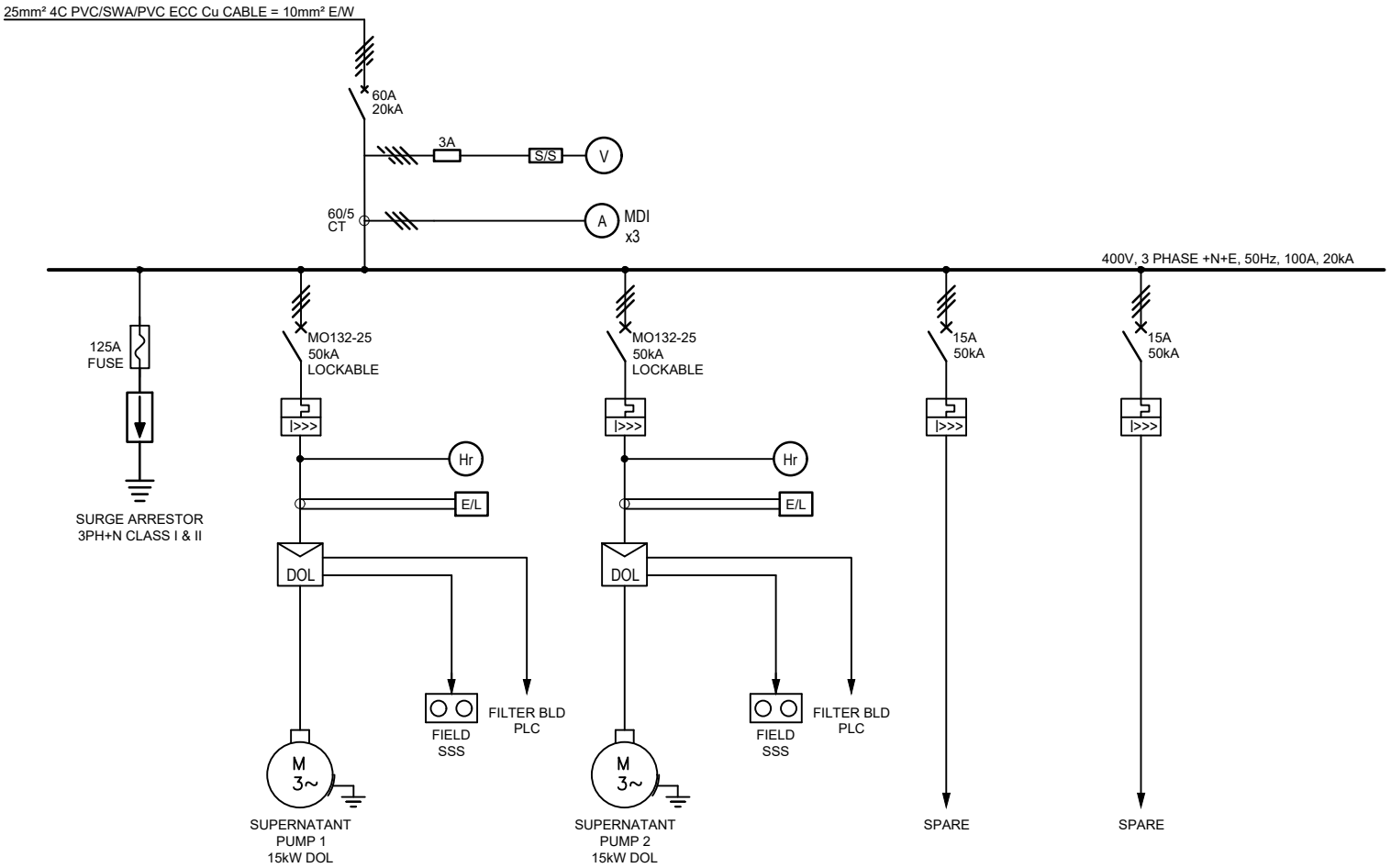
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DATE
NOV 2017

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SMALL POWER & LIGHTING DISTRIBUTION BOARDS
DB-G SINGLE LINE DIAGRAM

DRAWING NUMBER 1331/93/ESL/718 Sht 8 of 8 | A4 | REVISION B

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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



DISTRIBUTION BOARD DETAILS:	NON-ESSENTIAL:	NOTES:
DESIGNATION : SUPERNATANT PUMP MCC LOCATION : SLUDGE POND MOUNTING : MOUNTING SKIRT FIXED TO PURPOSE MADE CONCRETE PLINTH IP CLASS : 68 CABLE ENTRY : BOTTOM LOCKABLE DOOR : YES	RUPTURING CAPACITY (kA) : 10kA BUSBAR RATING (AMPS) : 100A SPARE CAPACITY : 30% SURGE ABSORBERS : YES, 3PH +N COLOUR : ELECTRIC ORANGE MATERIAL : 3CR12	1. THIS DB SHALL COMPLY WITH SANS 1473/61439 AND SHALL BE DESIGNED AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER. 2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS. 3. MCC TO HAVE ACCESSIBLE SKIRT TO ELEVATE MCC.

FOR CONSTRUCTION

Ugu District Municipality

STATUTORY NOTE:
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A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	S.L.	TENDER DRAWING	07/04/2021

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CIVIL ENGINEER	A.LeROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

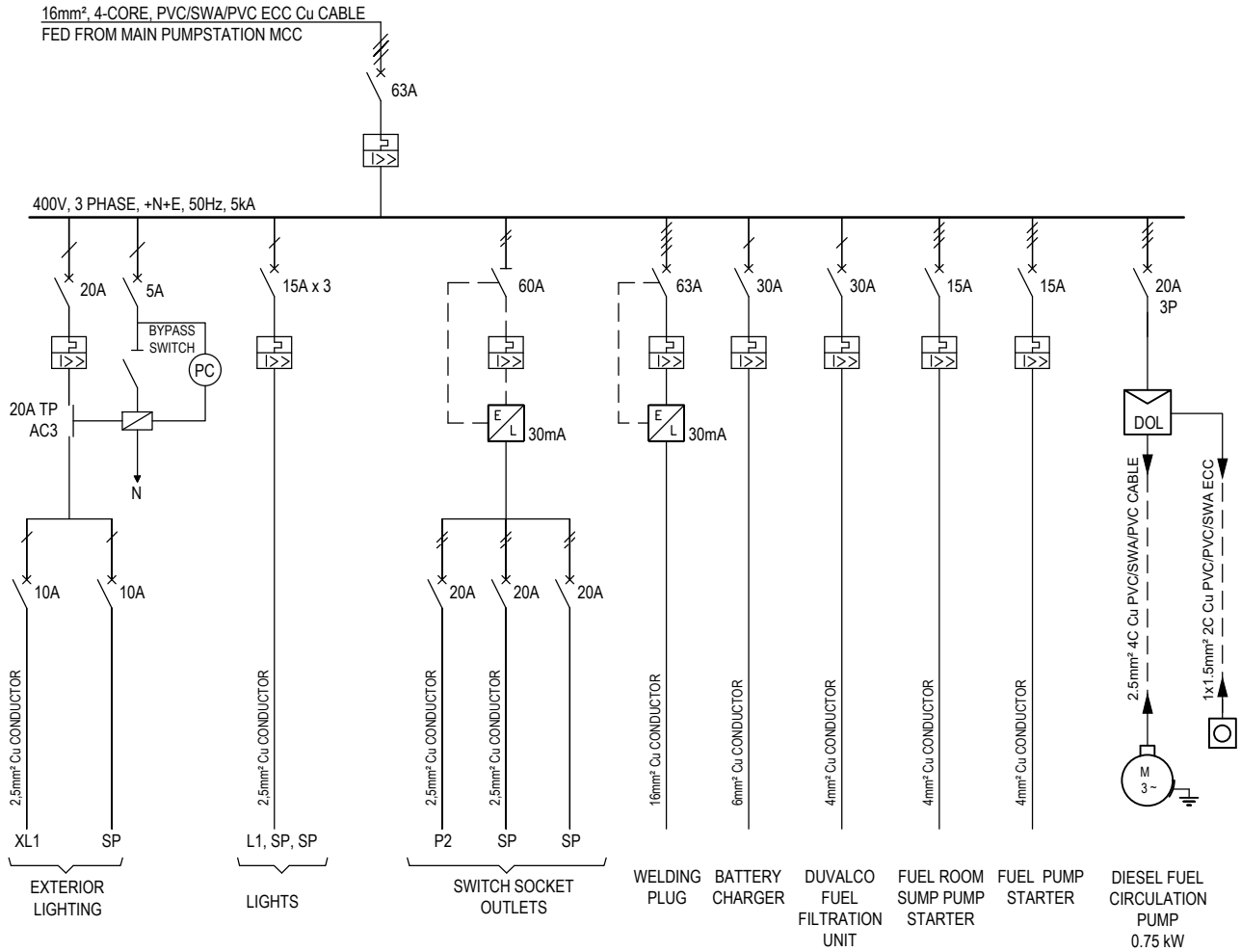
SCALE: NTS

DATE: NOV 2017

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION & WTW
SUPERNATANT PUMPS
SINGLE LINE DIAGRAM

DRAWING NUMBER: 1331/93/ESL/719 | A4 | REVISION: A

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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za



DISTRIBUTION BOARD DETAILS:		NON-ESSENTIAL:		NOTES:
DESIGNATION	: DB - GENERATOR	RUPTURING CAPACITY (kA)	: 5	1. THIS DB SHALL COMPLY WITH SANS 1973/60439 AND MANUFACTURED BY A SPECIALIST SWITCHBOARD MANUFACTURER.
LOCATION	: GENERATOR BUILDING	BUSBAR RATING (AMPS)	: 100A	2. ALL EQUIPMENT SHALL COMPLY TO THE RELEVANT SANS STANDARDS.
MOUNTING	: SURFACE	SURGE ABSORBERS	: YES (3PH+N)	3. MAIN SWITCH TO PROTRUDE DOOR.
IP CLASS	: 54	COLOUR	: ORANGE	
CABLE ENTRY	: TOP & BOTTOM	SPARE CAPACITY	: 25%	
LOCKABLE DOOR	: YES	MANUFACTURED FROM	: 1.6mm 3CR12	

Ugu District Municipality

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FOR CONSTRUCTION

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A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
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DRAWN	S.LEITE		
CIVIL ENGINEER	A.LeROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

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S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: NOV 2017

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WTW
GENERATOR
SINGLE LINE DIAGRAM

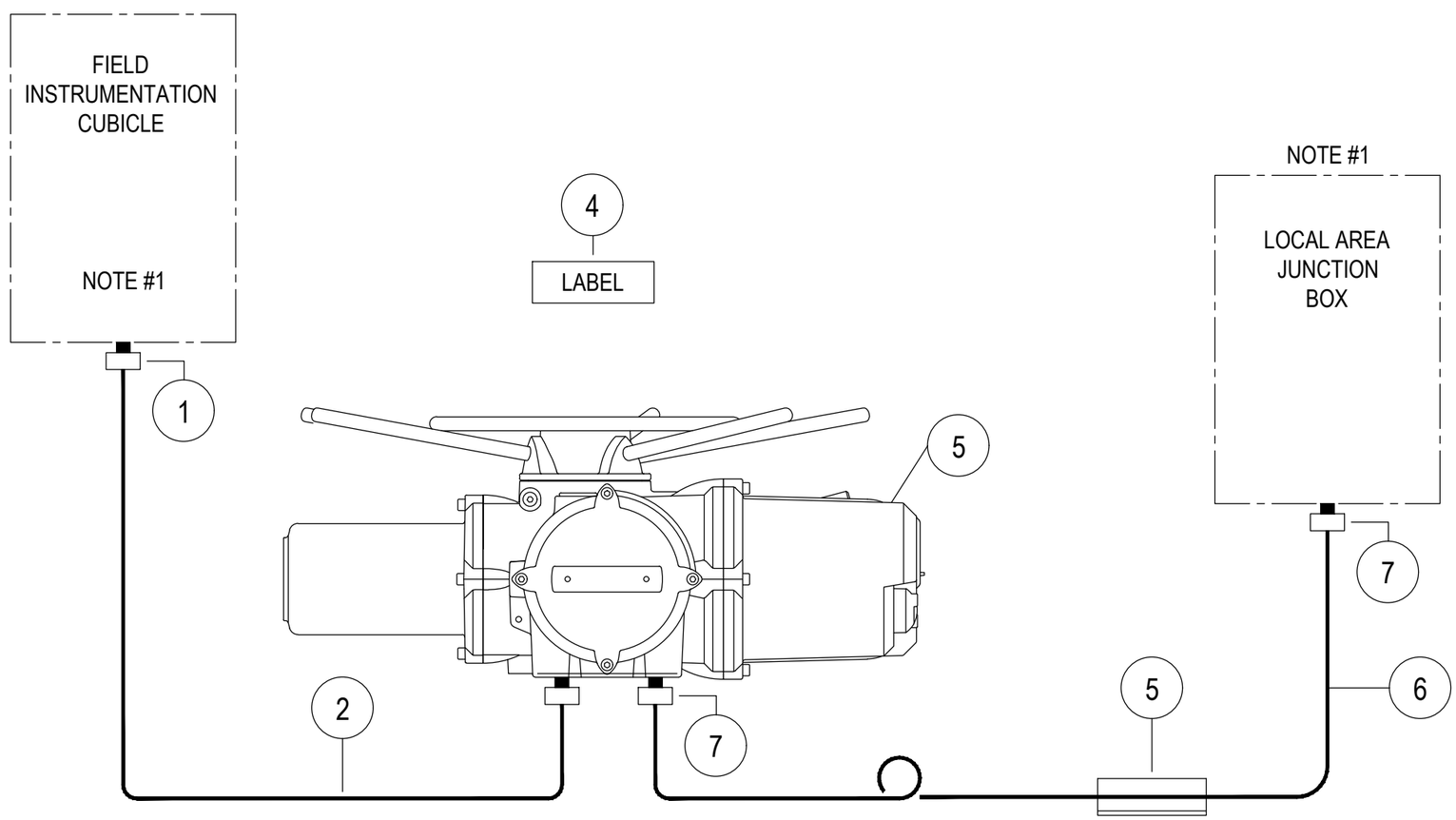
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MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

BILL OF MATERIALS FOR A TYPICAL INSTALLATION

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE "2" ENVIRO	-	2
2	4 PAIR x 1.00mm² DEKABON SCRN/ARM CABLE	-	30m
3	ANGLE SUPPORT 40x40x5	HGMS	15m
4	TRAFOLITE LABEL 80x30	-	1
5	ACTUATOR	-	NOTE 2
6	2.5mm² 4C Cu PVC/PVC/SWA/PVC	-	30m
7	ADJUSTABLE GLAND SIZE "0" ENVIRO	-	2

TAG NUMBER
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NOTES:

1. LOCAL AREA JB ALLOWED FOR IN THE BOQ.
2. ACTUATOR SUPPLY COSTS ALLOWED FOR IN MAIN INSTRUMENTATION BOQ.

FOR CONSTRUCTION

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	T.B.	TENDER DRAWING	16/07/2021

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DRAWN: T.BROOME			APPROVED
CIVIL ENGINEER: N/A	STRUCTURAL ENGINEER: N/A		S.MDAKA, PROJECT MANAGER
INSTRUMENT ENGINEER: .NDABA	ELECTRICAL ENGINEER: S.SUNDERLALL		
MECHANICAL ENGINEER: N/A	PROCESS ENGINEER: S.NXUMALO		M.VAWDA, DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
ELECTRIC ACTUATED VALVE HOOK-UP DIAGRAM

DRAWING NUMBER: 1331-093-PCI-0001 | A3 | REVISION: A

Ugu District Municipality

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320

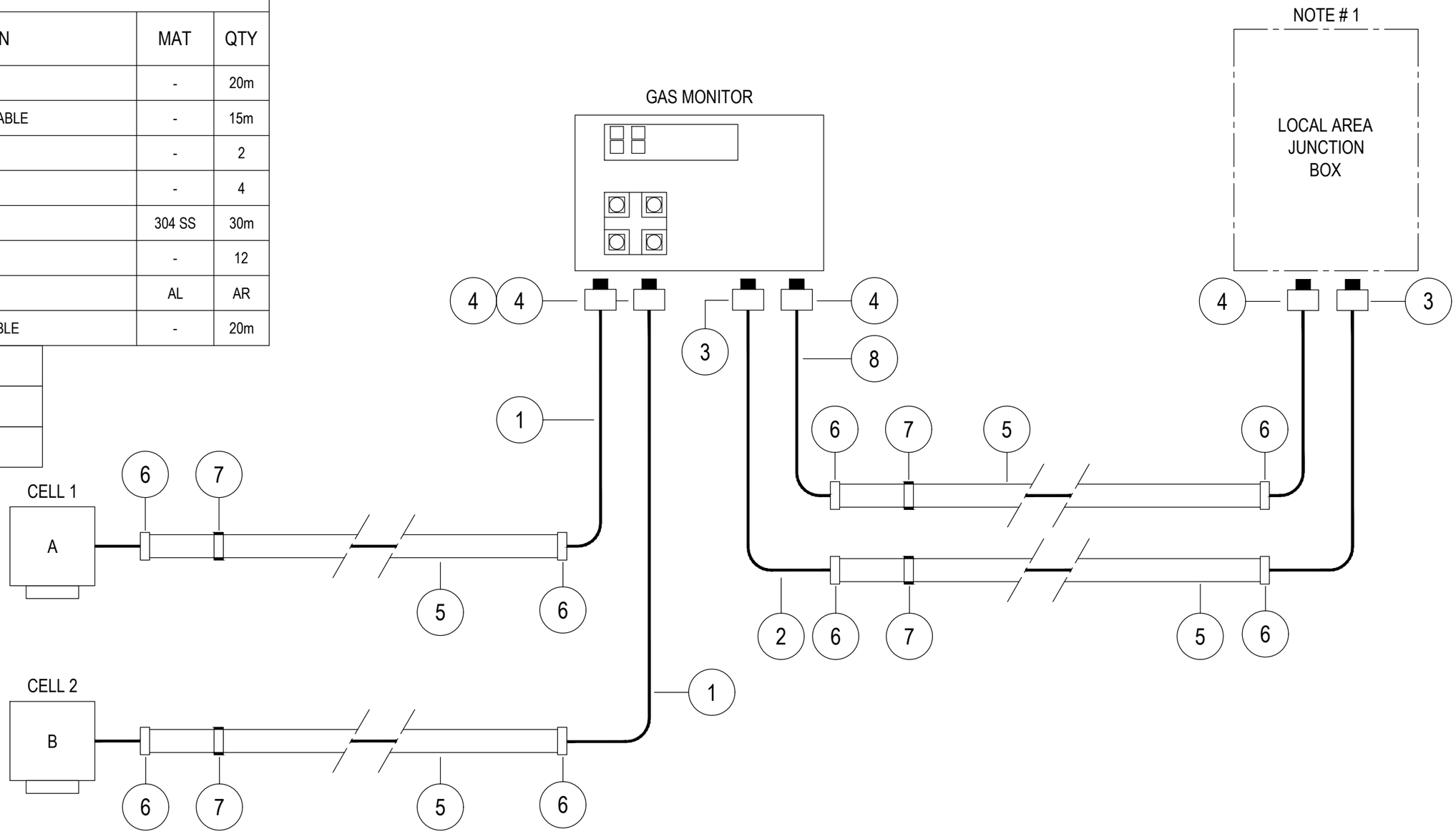
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FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

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BILL OF MATERIALS

No.	DESCRIPTION	MAT	QTY
1	SPECIAL CABLE (FREE ISSUE)	-	20m
2	3 CORE x 1.5mm² PVC / SWA/PVC CABLE	-	15m
3	ADJACENT GLAND SIZE '0' IP68	-	2
4	COMPRESSION GLAND SIZE '0' IP68	-	4
5	25mm OD THIN WALL CONDUIT	304 SS	30m
6	25mm CONDUIT END CAP	-	12
7	25mm CONDUIT SADDLE	AL	AR
8	2 PAIR x 0.5mm SCRN/ARM DEK CABLE	-	20m

TAG NUMBER
-
-



FOR CONSTRUCTION

NOTES

1. LOCAL AREA JB ALLOWED FOR IN THE BOQ.

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A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
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DRAWN	T.BROOME		
CIVIL ENGINEER	N/A	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	Z.NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
CHLORINE GAS ANALYSER HOOK-UP DIAGRAM

DRAWING NUMBER: 1331-093-PCI-0002 | A3 | REVISION: A

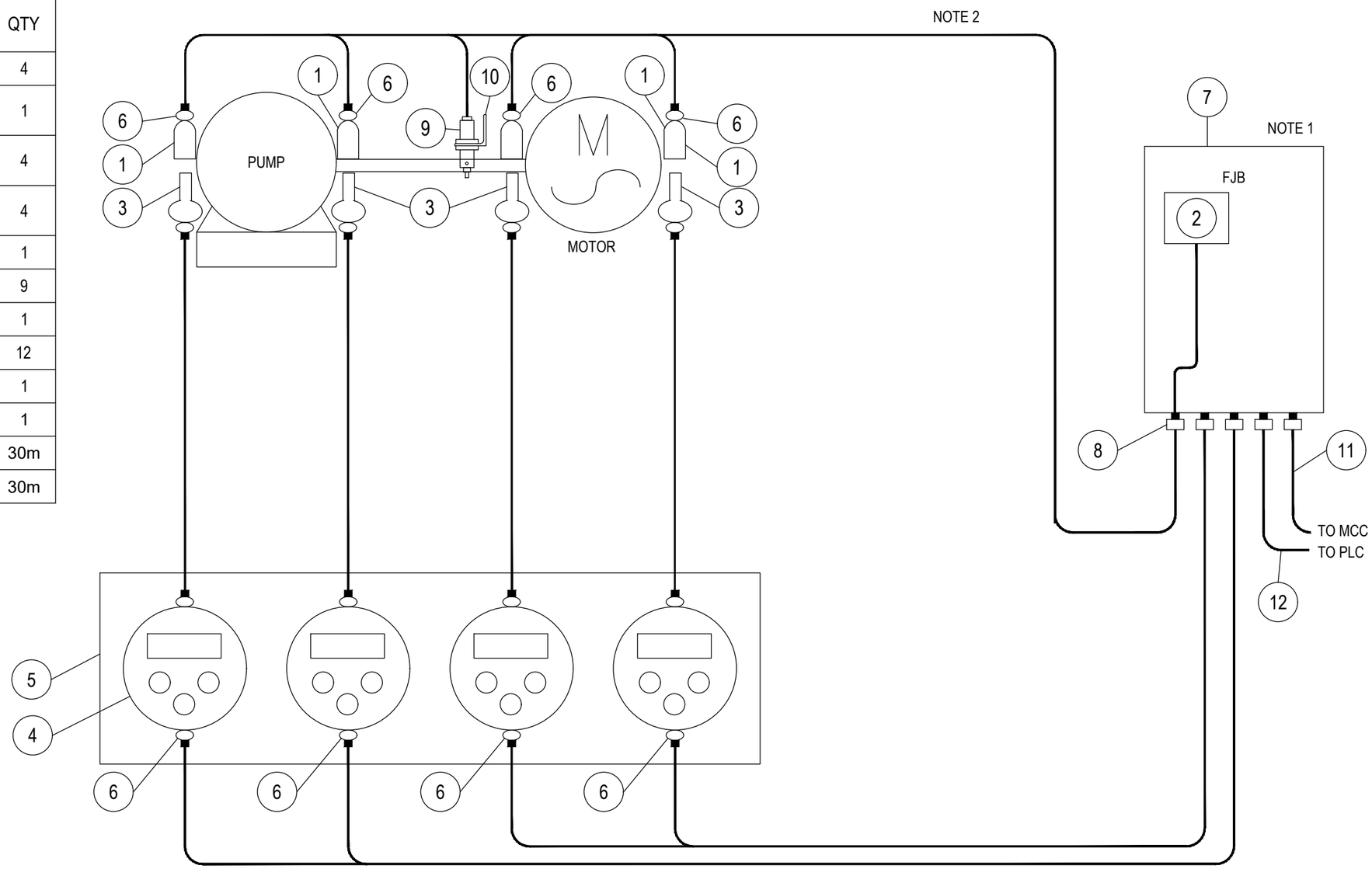
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TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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BILL OF MATERIALS FOR A TYPICAL INSTALLATION

No.	DESCRIPTION	MAT	QTY
1	VIBRATION SENSOR VSA001-IFM	-	4
2	DIAGNOSTIC ELECTRONICS FOR VIBRATION SENSORS VSE100-IFM	-	1
3	PT100 TEMPERATURE PROBE TS2759 WITH 10m CABLE-IFM	-	4
4	TEMPERATURE TRANSMITTER TR2439 WITH PROTECTIVE COVER E30420-IFM	-	4
5	STAINLESS STEEL GAUGE PLATE-IFM	-	1
6	M12 CONNECTOR PLUG WITH 10m CABLE EVC006	-	9
7	FIELD JUNCTION BOX	304SS	1
8	COMPRESSION GLAND SIZE '0' IP68	–	12
9	INDUCTIVE SENSOR FOR SPEED IGW200-IFM	-	1
10	SPEED SENSOR MOUNTING BRACKET	304SS	1
11	IOS DEKABON 12 PR 1mm² CABLE	-	30m
12	IOS DEKABON 8 PR 1mm² CABLE	-	30m

TAG NUMBER
-
-



NOTES:

1. FJB COSTS ALLOWED FOR IN MAIN BOQ. FOR FJB DETAIL REFER TO 1331-093-PCI-0016 - FJB GA

2. SENSOR CABLES ARE INDIVIDUALLY CONNECTED TO THE FJB.

FOR CONSTRUCTION

Ugu District Municipality

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A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
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CIVIL ENGINEER	N/A	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	Z.NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
MOTOR PROTECTION HOOK-UP DIAGRAM

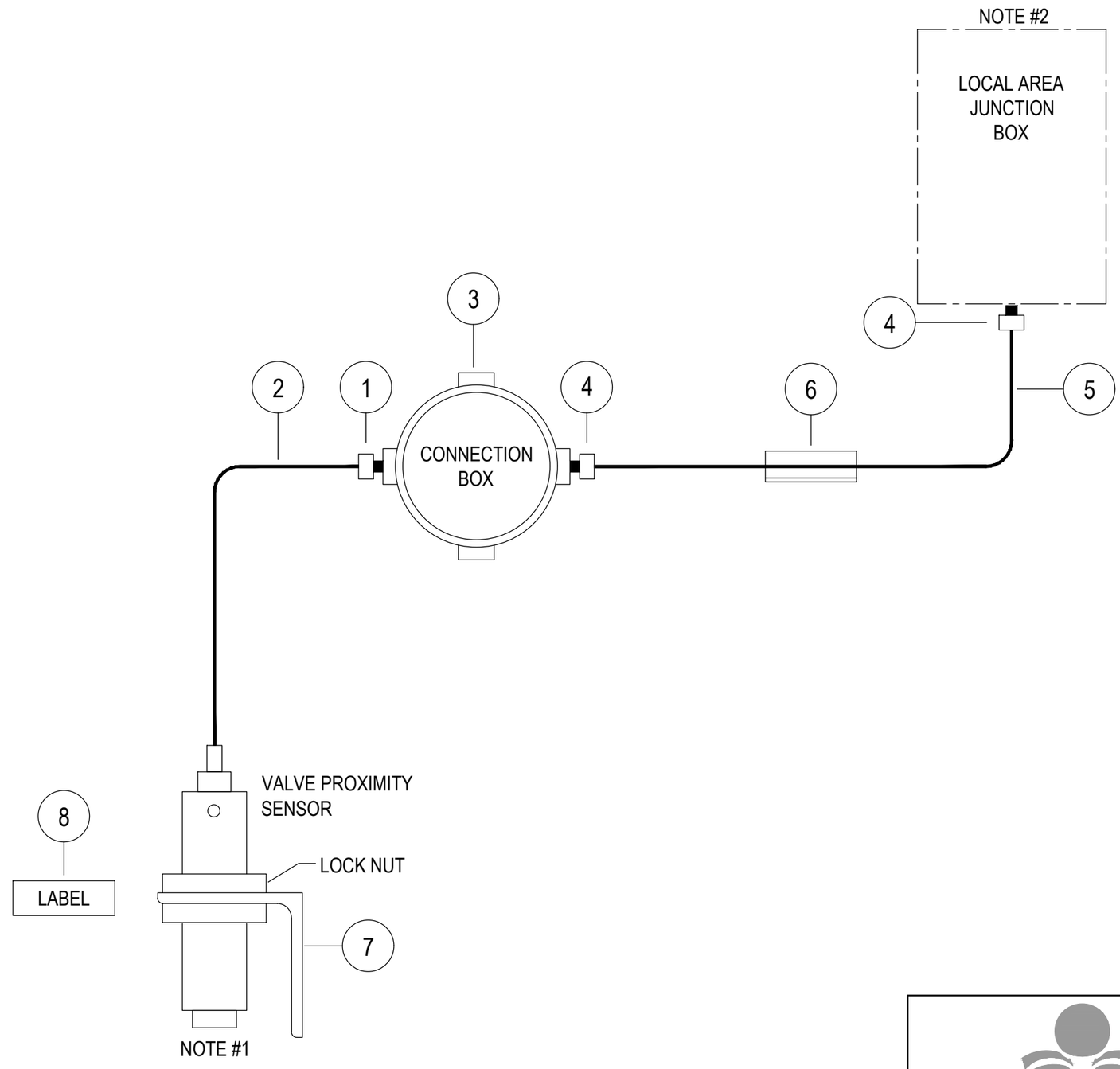
DRAWING NUMBER: 1331-093-PCI-0003 | A3 | REVISION: A

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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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BILL OF MATERIALS FOR A TYPICAL INSTALLATION

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE '00' IP68	-	1
2	2 CORE x 1.0mm² PVC/PVC CABLE (PART OF SWITCH)	-	3m
3	CCG CONNECTION BOX WITH 8 x 2.5 TERMINALS - IP68 & BRACKET	-	1
4	COMPRESSION GLAND SIZE '0' CCG IP68	-	2
5	2 PAIRx1.0mm² DEKABON CABLE SCRN/ARM	-	30m
6	ANGLE SUPPORT 40x40x5	HGMS	15m
7	40x60X60 ANGLE BRACKET WITH 12mm HOLE	HGMS	1
8	TRAFOLITE LABEL 80 x 30 (LABEL TYPE 1)	-	1

TAG NUMBER
-
-



NOTES:

1. SENSOR IS PART OF THE BERMAD VALVE; INSTALLATION BY E&I CONTRACTOR.
2. LOCAL AREA JB ALLOWED FOR IN THE BOQ.

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INSTRUMENT ENGINEER	T.NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
LIMIT SWITCH BERMAD HOOK-UP DIAGRAM

DRAWING NUMBER: 1331-093-PCI-0004 | A3 | REVISION: A

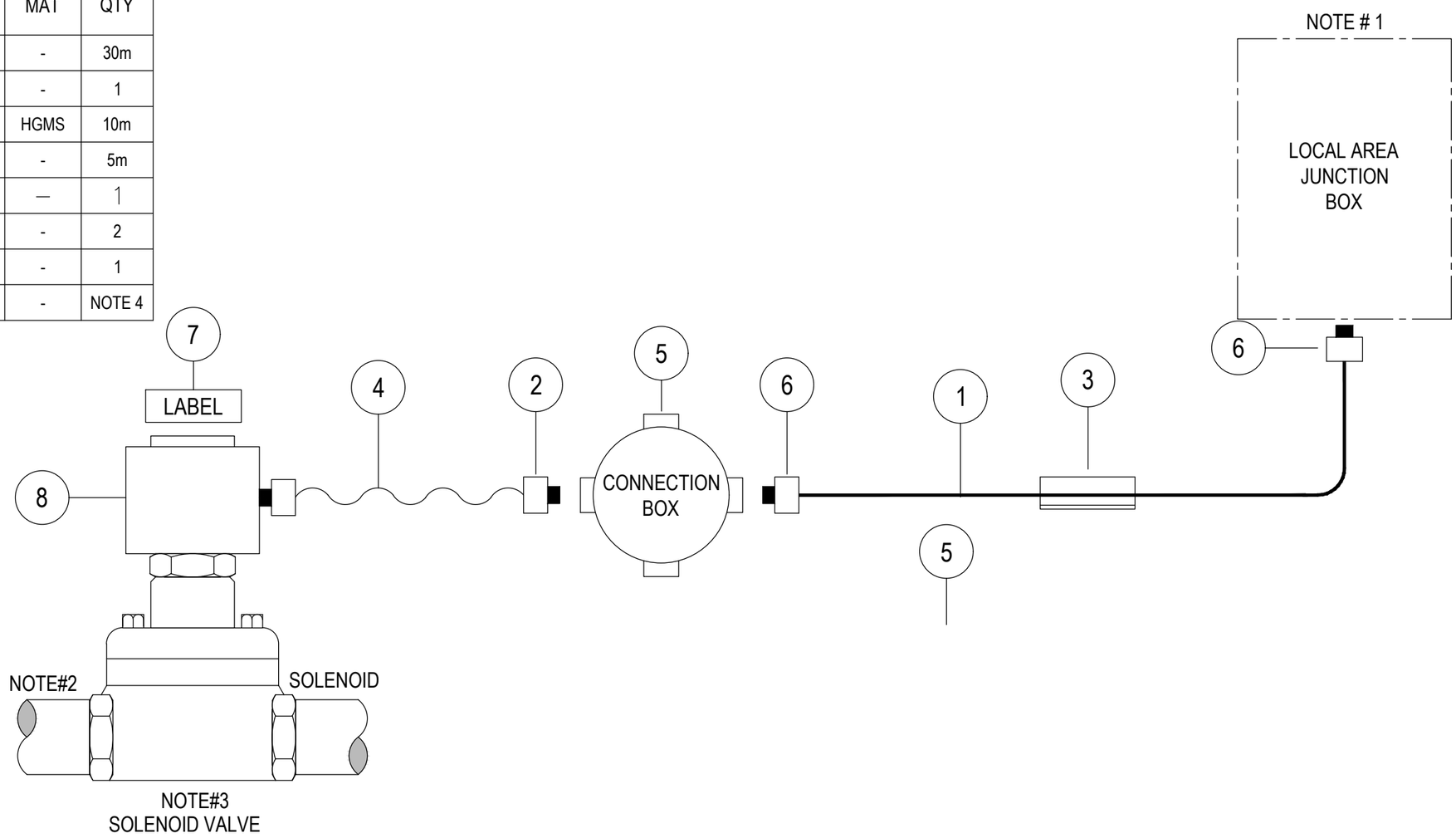
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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
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BILL OF MATERIALS FOR A TYPICAL INSTALLATION

No.	DESCRIPTION	MAT	QTY
1	2.5mm² 3C SWA CABLE	-	30m
2	COMPRESSION GLAND SIZE 'O' IP68	-	1
3	ANGLE IRON SUPPORT 40x40x5	HGMS	10m
4	2.5mm² 3C CABTYRE CABLE	-	5m
5	IP68 CCG BOX WITH 8 TERMINALS	—	1
6	ADJUSTABLE GLAND SIZE 1 - IP68	-	2
7	TRAFOLITE LABEL 80x30	-	1
8	SOLENOID VALVE	-	NOTE 4

TAG NUMBER
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NOTES:

1. LOCAL AREA JB ALLOWED FOR IN THE BOQ.
2. VALVE PROCESS CONNECTION TO BE IN LINE THREADED CONNECTED.
3. SOLENOID VALVE TO BE INSTALLED ON PIPING BY MECHANICAL CONTRACTOR.
4. SOLENOID VALVE SUPPLY COSTS ALLOWED FOR IN MAIN INSTRUMENTATION BOQ.

FOR CONSTRUCTION

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INSTRUMEN ENGINEER	Z.NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
IN-LINE SOLINOID VALVE HOOK-UP DIAGRAM

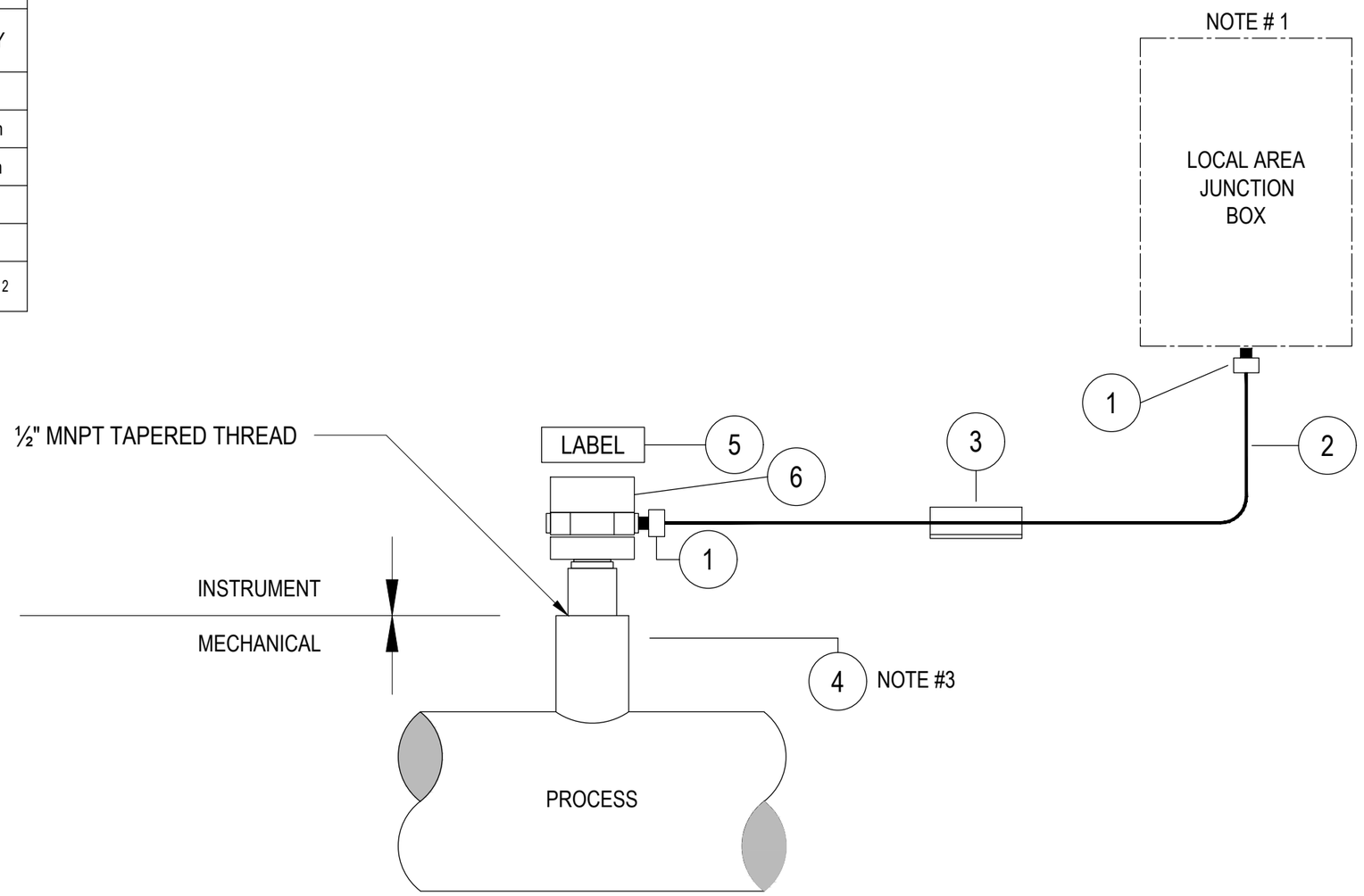
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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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BILL OF MATERIALS FOR A TYPICAL INSTALLATION

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE '0' IP68	-	2
2	2 PRx1mm² DEKOBON IOS CABLE	-	30m
3	ANGLE SUPPORT 40x40x5	HGMS	15m
4	½" NPT TAPERED THREAD	-	1
5	TRAFOLITE LABEL - 80x30	-	2
6	PRESSURE TRANSMITTER	-	NOTE 2

TAG NUMBER
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NOTES:

1. LOCAL AREA JB ALLOWED FOR IN THE BOQ.
2. PRESSURE TRANSMITTER SUPPLY COSTS ALLOWED FOR IN MAIN INSTRUMENTATION BOQ.
3. ½" NPT TAPERED THREAD SOCKET TO BE SUPPLIED BY MECHANICAL CONTRACTOR.

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INSTRUMENT ENGINEER	NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

S.MDABA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
PRESSURE TRANSMITTER HOOK-UP DIAGRAM

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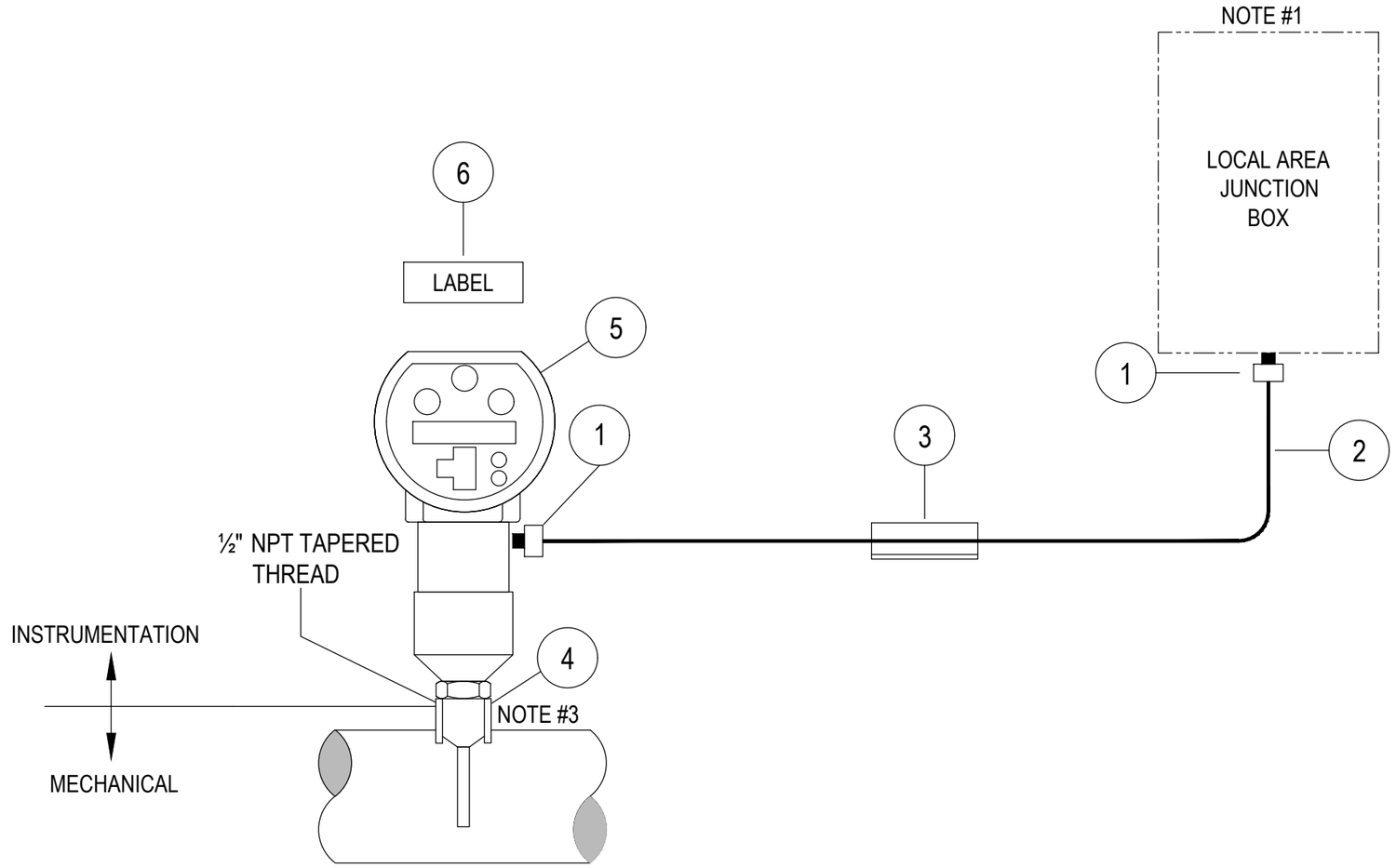
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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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BILL OF MATERIALS FOR A TYPICAL INSTALLATION

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE '0' IP68	-	2
2	1.0mm², 2 PAIR DEKABON CABLE	-	30m
3	ANGLE SUPPORT 40x40x5	HGMS	SOQ
4	½" NPT TAPERED THREAD	-	NOTE 3
5	FLOW SWITCH	-	NOTE 2
7	TRAFOLITE LABEL	-	1

TAG NUMBER
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NOTES:

1. LOCAL AREA JB ALLOWED FOR IN THE BOQ.
2. FLOW SWITCH SUPPLY COSTS ALLOWED FOR IN THE MAIN INSTRUMENTATION BOQ.
3. MOUNTING SOCKET TO BE SUPPLIED BY THE MECHANICAL CONTRACTOR

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MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
FLOW SWITCH HOOK-UP DIAGRAM

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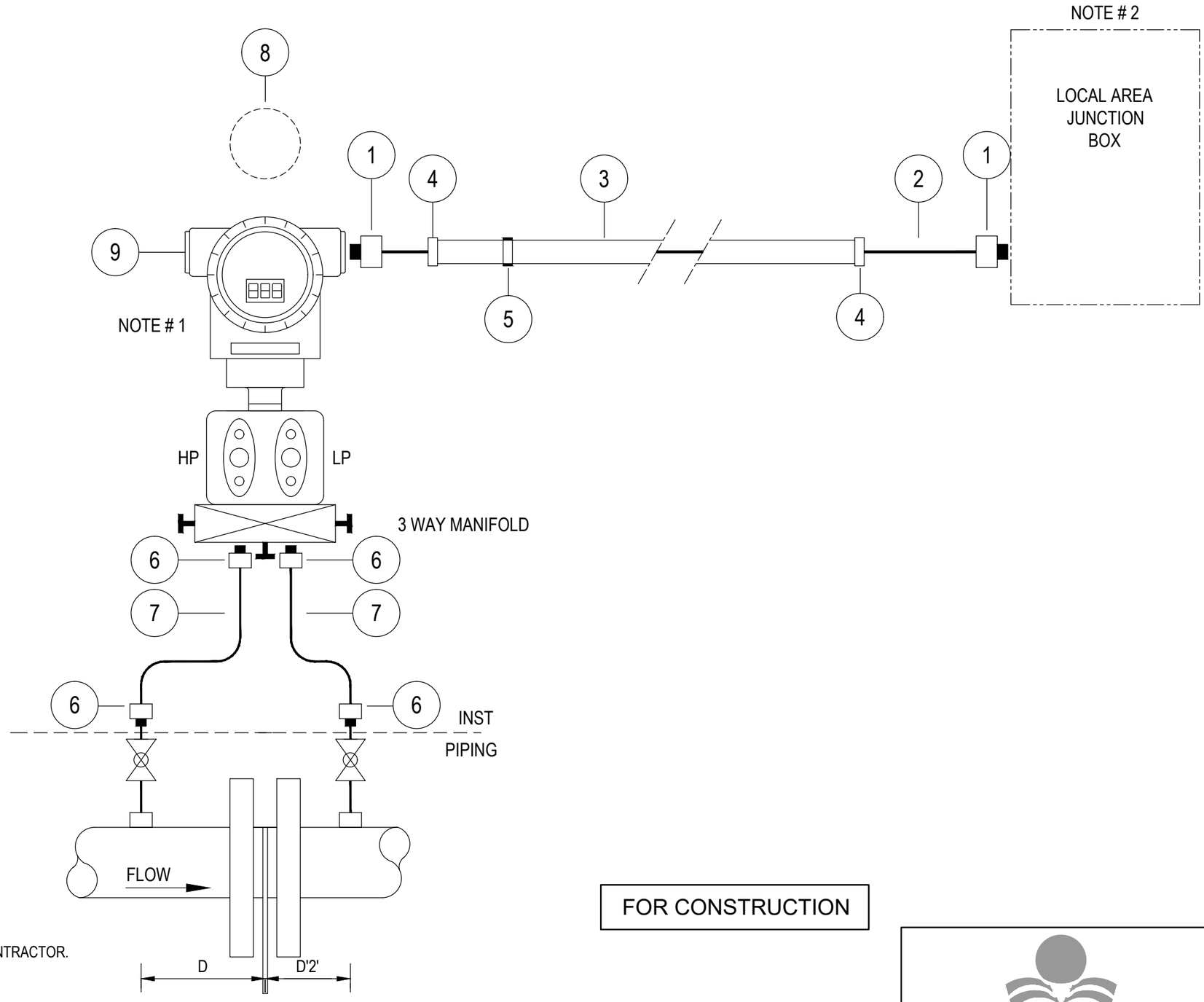
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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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BILL OF MATERIALS

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE '1' CCG COR. GUARD	-	2
2	1 PAIR 1.5mm DEKABON SCR/ARM CABLE (1855-6E600)	-	25m
3	25mm OD THIN WALL CONDUIT	304SS	10m
4	25mm CONDUIT END CAP	AL	AR
5	25mm CONDUIT SADDLE	AL	AR
6	½" NPT - 12mm OD STUD	316 SS	4
7	12mm OD UNION (AS REQUIRED)	316 SS	2
8	50mmØ PIPE STAND GALVANISED	MS	1
9	DP TRANSMITTER	NOTE 1	1

TAG NUMBER
-
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NOTES:

1. TRANSMITTER MOUNTED ABOVE PROCESS TAKE-OFFS BY INSTRUMENT CONTRACTOR.
2. LOCAL AREA JB ALLOWED FOR IN THE BOQ.

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CIVIL ENGINEER: N/A	STRUCTURAL ENGINEER: N/A		S.MDAKA, PROJECT MANAGER
INSTRUMENT ENGINEER: Z.NDABA	ELECTRICAL ENGINEER: S.SUNDERLALL		
MECHANICAL ENGINEER: N/A	PROCESS ENGINEER: S.NXUMALO		M.VAWDA, DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
DP TRANSMITTER HOOK-UP DIAGRAM

DRAWING NUMBER: 1331-093-PCI-0008 | A3 | REVISION: A

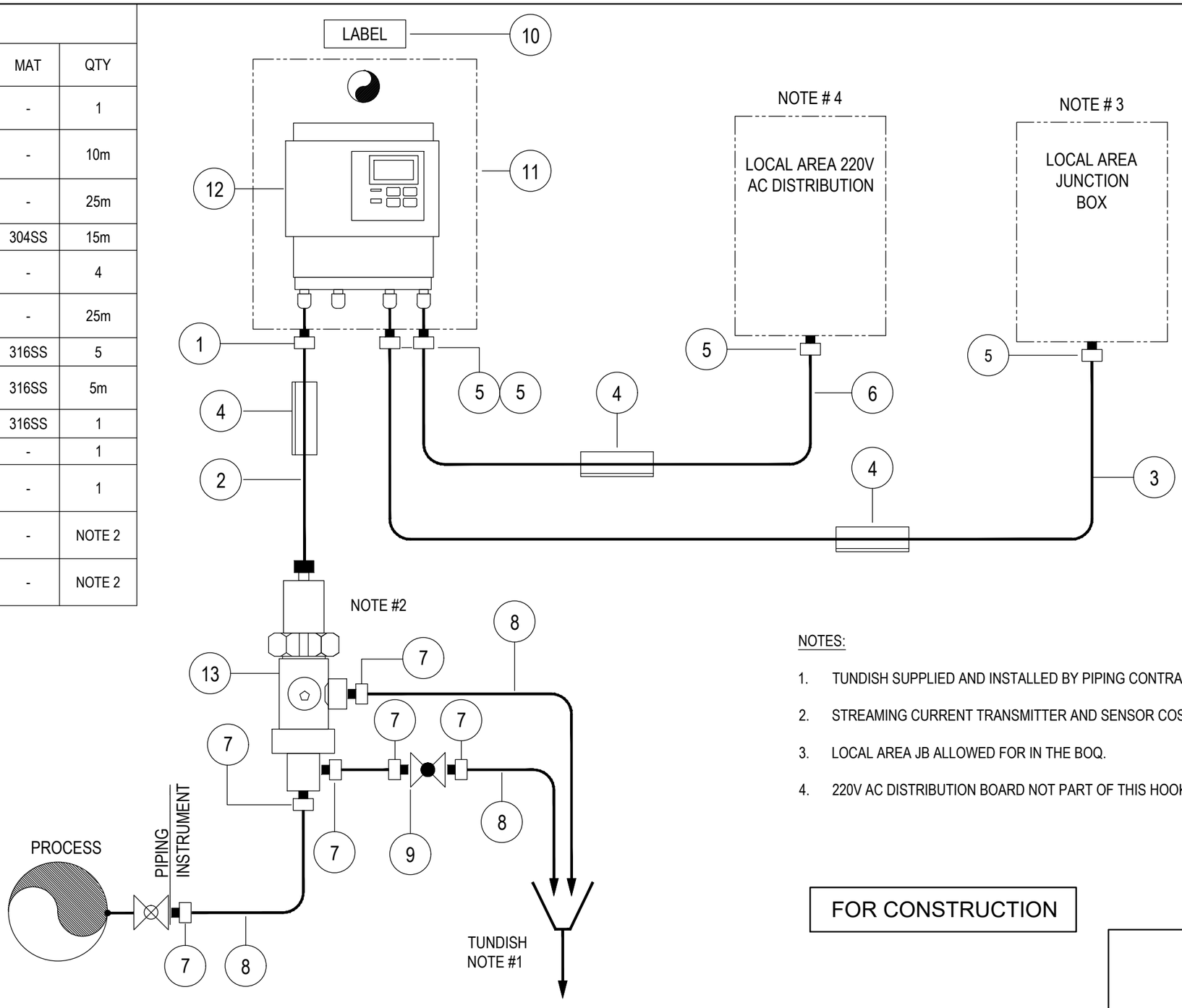
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GLOBAL ENGINEERING SOLUTIONS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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BILL OF MATERIALS

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE '0' CCG POSIGRIP	-	1
2	SPECIAL CABLE 7 CORE SCRN (FREE ISSUE)	-	10m
3	1 PAIRx0.5mm² PVC/SWA/SCRN CABLE (BLUE)	-	25m
4	ANGLE SUPPORT 25x25x3	304SS	15m
5	ADJUSTABLE GLAND SIZE '0' CCG COR GUARD	-	4
6	3 CORE x 1.5mm² PVC/SWA/PVC CABLE	-	25m
7	1/2" 12mm OD STUD COUPLING	316SS	5
8	12mm OD TUBING (1mm WALL) SEAMLESS	316SS	5m
9	1/2" SCREWED BALL VALVE (16 bar)	316SS	1
10	LABEL - REFER LABEL TYPE 1	-	1
11	INSTRUMENT ENCLOSURE WITH PIPE STAND (304SS) TYPE NIC-BX4	-	1
12	TURBIDITY TRANSMITTER	-	NOTE 2
13	SENSOR	-	NOTE 2

TAG NUMBER
-
-



NOTES:

1. TUNDISH SUPPLIED AND INSTALLED BY PIPING CONTRACTOR
2. STREAMING CURRENT TRANSMITTER AND SENSOR COSTS ALLOWED FOR IN BOQ.
3. LOCAL AREA JB ALLOWED FOR IN THE BOQ.
4. 220V AC DISTRIBUTION BOARD NOT PART OF THIS HOOKUP

FOR CONSTRUCTION

Ugu District Municipality

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CIVIL ENGINEER	N/A	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	Z.NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

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S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
STREAMING CURRENT ELEMENT & TRANSMITTER HOOK-UP DIAGRAM

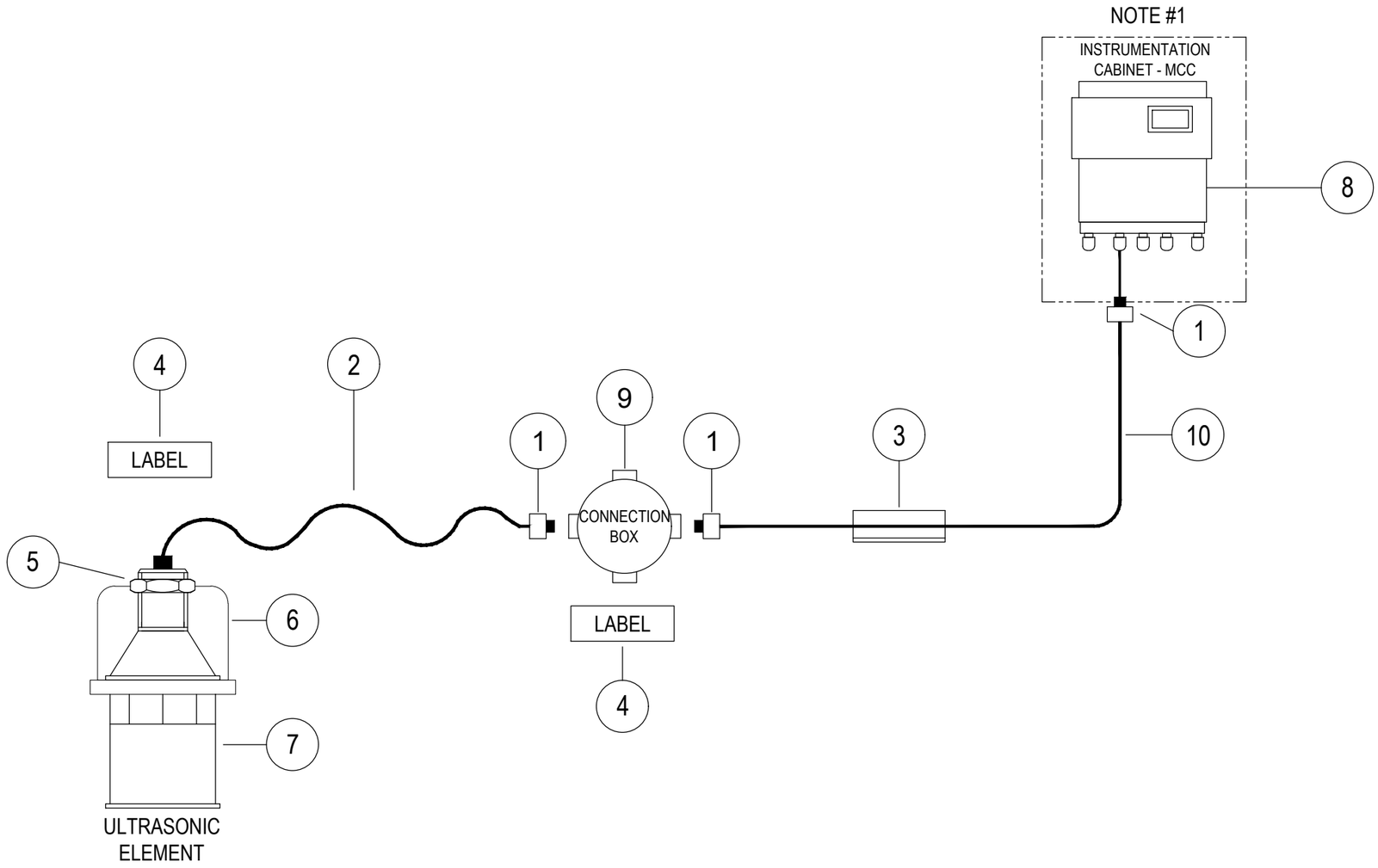
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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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BILL OF MATERIALS FOR A TYPICAL INSTALLATION

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE '0' IP68	-	3
2	INSTRUMENT OEM CABLE	-	NOTE 2
3	ANGLE SUPPORT 40x40x5	HGMS	10m
4	TRAFOLITE LABEL 80 x 30	-	2
5	BOLTS/NUTS/WASHERS TO SUIT DN80 PN16 FLANGE	316SS	1 SET
6	BRACKET FOR ULTRASONIC ELEMENT	304SS	1
7	ULTRASONIC ELEMENT		NOTE 3
8	LEVEL TRANSMITTER		NOTE 3
9	IP68 CCG BOX WITH 8 TERMINALS		1
10	2 PR 1mm² DEKABON IOS CABLE		30m

TAG NUMBER
-
-



NOTES:

1. INSTRUMENTATION CABINET COSTS ARE ALLOWED FOR IN THE MAIN BOQ.
2. CONTRACTOR TO CHECK CORRECT LENGTH REQUIRED AND ALLOW FOR ALL NECESSARY COSTS. A MINIMUM CABLE LENGTH OF 10m SHALL BE ALLOWED.
3. ULTRASONIC ELEMENT AND LEVEL TRANSMITTER SUPPLY COSTS ALLOWED FOR IN MAIN INSTRUMENTATION BOQ.

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MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

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S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
ULTRASONIC LEVEL TRANSMITTER HOOK-UP DIAGRAM

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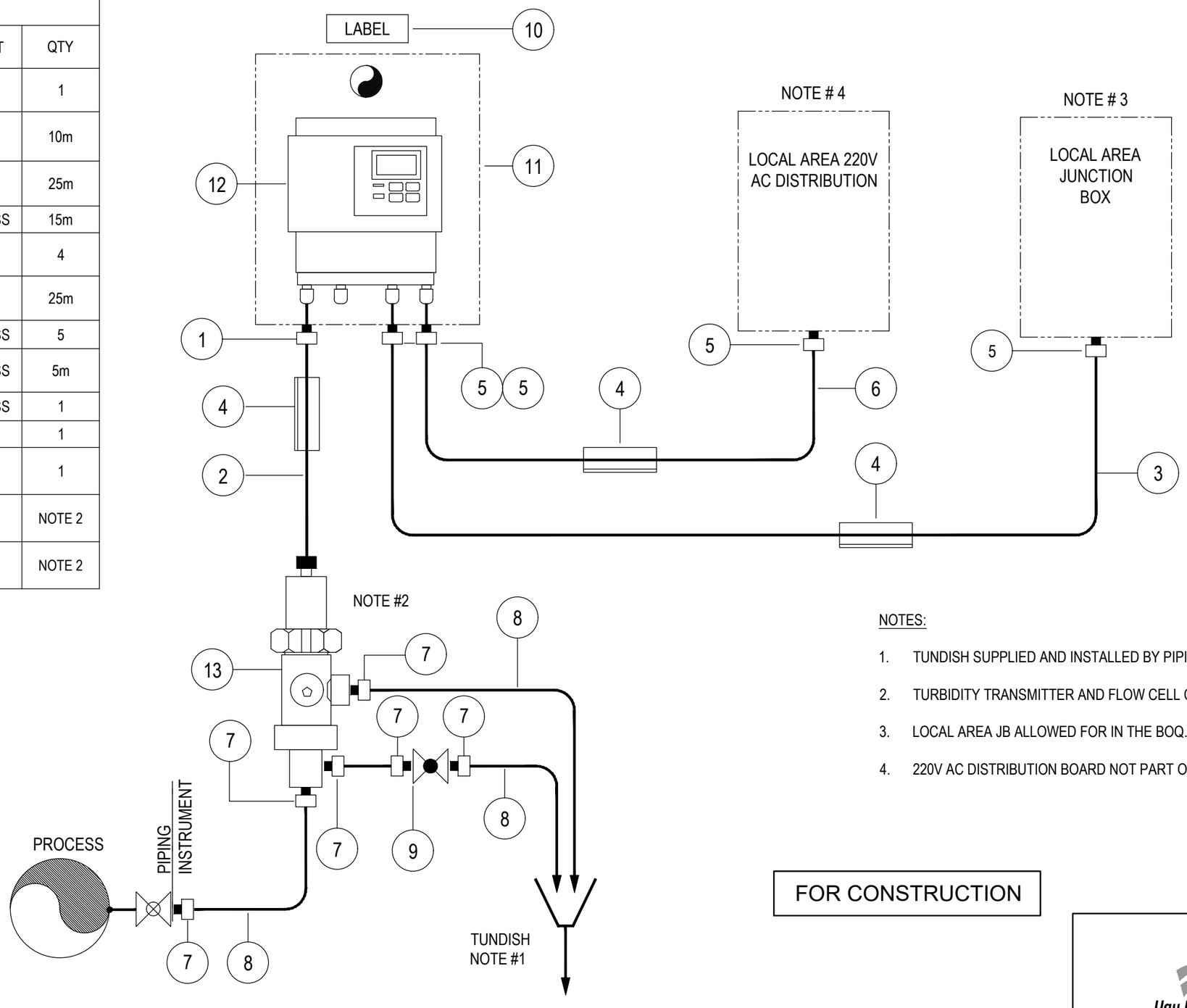
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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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BILL OF MATERIALS

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE '0' CCG POSIGRIP	-	1
2	SPECIAL CABLE 7 CORE SCRN (FREE ISSUE)	-	10m
3	1 PAIRx0.5mm² PVC/SWA/SCRN CABLE (BLUE)	-	25m
4	ANGLE SUPPORT 25x25x3	304SS	15m
5	ADJUSTABLE GLAND SIZE '0' CCG COR GUARD	-	4
6	3 CORE x 1.5mm² PVC/SWA/PVC CABLE	-	25m
7	1/2" 12mm OD STUD COUPLING	316SS	5
8	12mm OD TUBING (1mm WALL) SEAMLESS	316SS	5m
9	1/2" SCREWED BALL VALVE (16 bar)	316SS	1
10	LABEL - REFER LABEL TYPE 1	-	1
11	INSTRUMENT ENCLOSURE WITH PIPE STAND (304SS) TYPE NIC-BX4	-	1
12	TURBIDITY TRANSMITTER	-	NOTE 2
13	FLOW CELL	-	NOTE 2

TAG NUMBER
-
-



NOTES:

1. TUNDISH SUPPLIED AND INSTALLED BY PIPING CONTRACTOR
2. TURBIDITY TRANSMITTER AND FLOW CELL COSTS ALLOWED FOR IN BOQ.
3. LOCAL AREA JB ALLOWED FOR IN THE BOQ.
4. 220V AC DISTRIBUTION BOARD NOT PART OF THIS HOOKUP

FOR CONSTRUCTION

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MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
TURBIDITY TRANSMITTER HOOK-UP DIAGRAM

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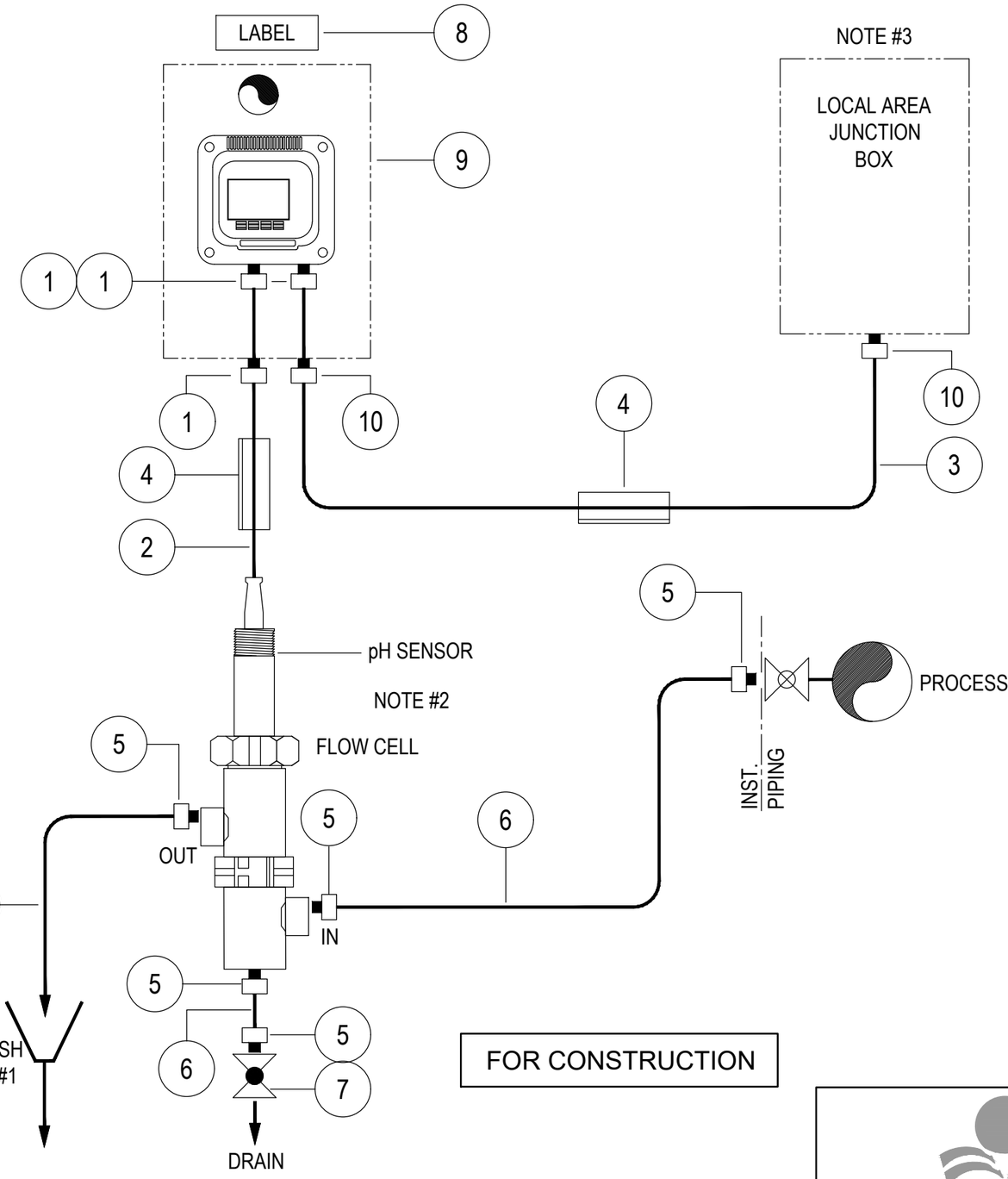
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MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

BILL OF MATERIALS

No.	DESCRIPTION	MAT	QTY
1	COMPRESSION GLAND SIZE '0' CCG POSIGRIP	-	3
2	SPECIAL CABLE 7 CORE SCRN (FREE ISSUE)	-	10m
3	1 PAIRx0.5mm² PVC/SWA/SCRN CABLE (BLUE)	-	25m
4	ANGLE SUPPORT 25x25x3	304SS	15m
5	1/2" - 12mm OD STUD COUPLING	316SS	5
6	12mm OD TUBING (1mm WALL) SEAMLESS	316SS	5m
7	1/2" SCREWED BALL VALVE (16 Bar)	316SS	1
8	LABEL - REFER LABEL TYPE 1	-	1
9	INSTRUMENT ENCLOSURE WITH PIPE STAND (304SS) TYPE NIC-BX4	-	1
10	CABLE GLAND SIZE '0' CCG COR. GUARD	-	2

TAG NUMBER
-
-



NOTES:

1. TUNDISH SUPPLIED AND INSTALLED BY PIPING CONTRACTOR.
2. pH TRANSMITTER, SENSOR AND FLOW CELL SUPPLIED BY EPS VENDOR AND INSTALLED BY INSTRUMENT CONTRACTOR.
3. LOCAL AREA JB TO BE ALLOWED FOR IN THE BOQ.

FOR CONSTRUCTION

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	T.B.	TENDER DRAWING	16/07/2021

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DRAWN	T.BROOME		
CIVIL ENGINEER	N/A	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	Z.NDABA	ELECTRICAL ENGINEER	S.SUNDERLALL
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

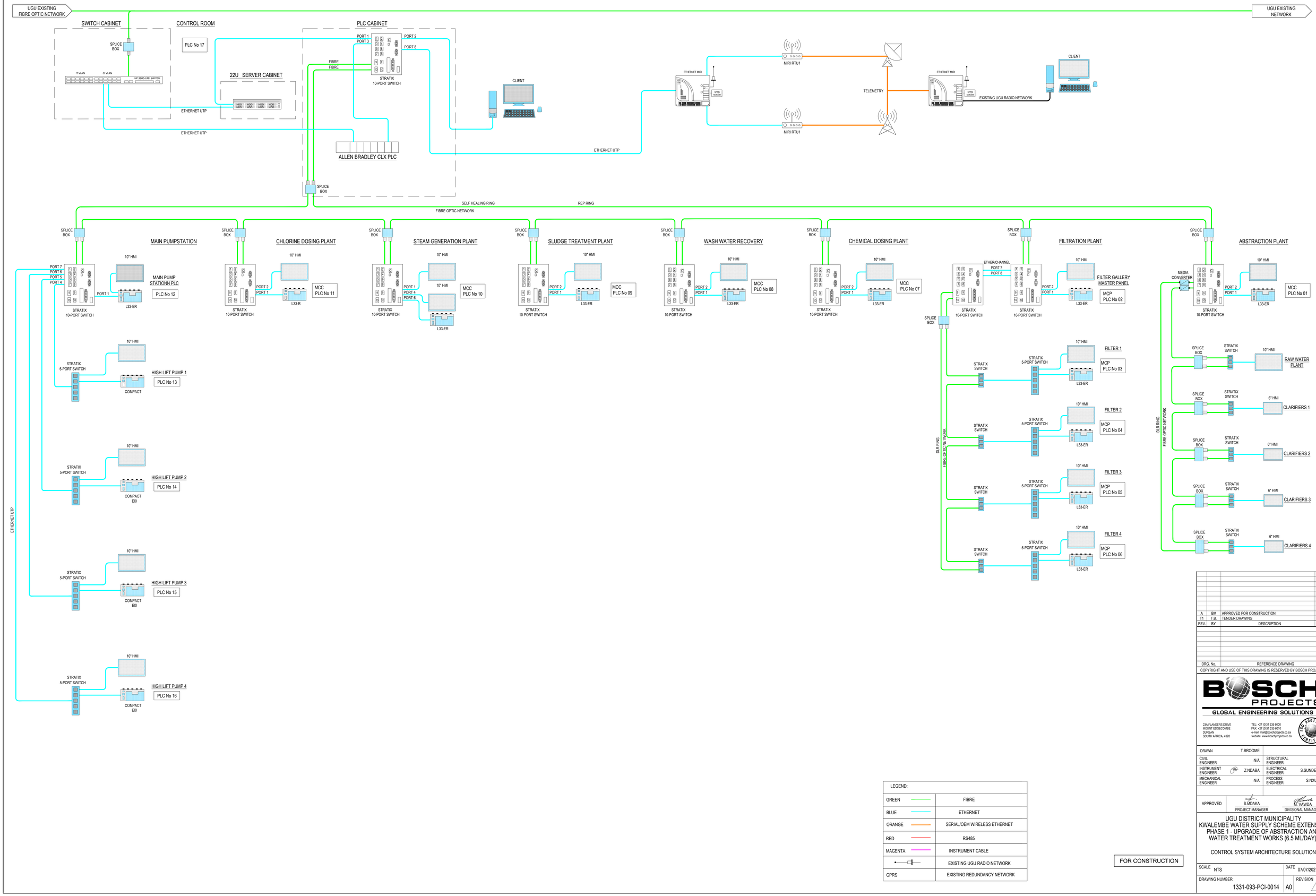
DATE: 29/06/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION & WATER TREATMENT WORKS (6.5 ML/DAY)
PH ELEMENT & TRANSMITTER HOOK-UP DIAGRAM

DRAWING NUMBER: 1331-093-PCI-0013 | A3 | REVISION: A

Ugu District Municipality

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GLOBAL ENGINEERING SOLUTIONS
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MOUNT EDGECOMBE
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LEGEND:	
GREEN	FIBRE
BLUE	ETHERNET
ORANGE	SERIAL/OEM WIRELESS ETHERNET
RED	RS485
MAGENTA	INSTRUMENT CABLE
	EXISTING UGU RADIO NETWORK
GPRS	EXISTING REDUNDANCY NETWORK

FOR CONSTRUCTION

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A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	T.B.	TENDER DRAWING	16/07/2021

DRG. No. | REFERENCE DRAWING

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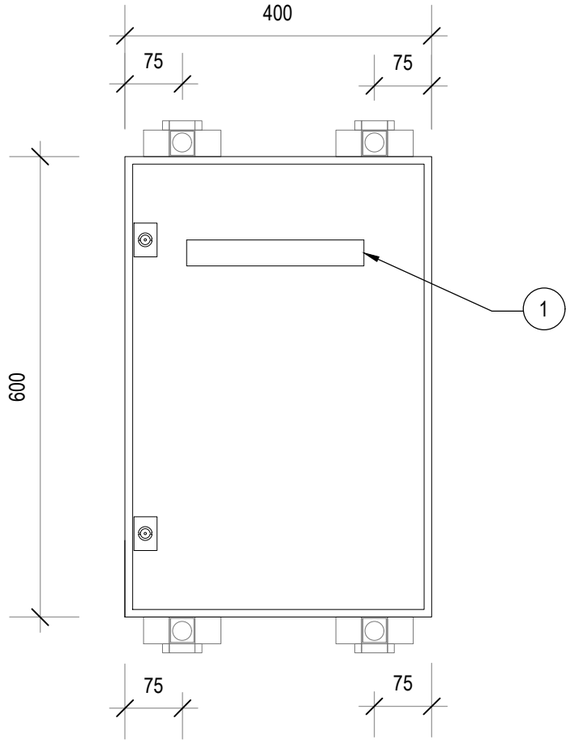
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MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO
APPROVED	S.MDAKA PROJECT MANAGER		M. VAIVDA DIVISIONAL MANAGER

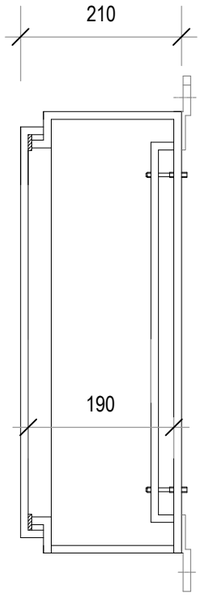
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CONTROL SYSTEM ARCHITECTURE SOLUTION

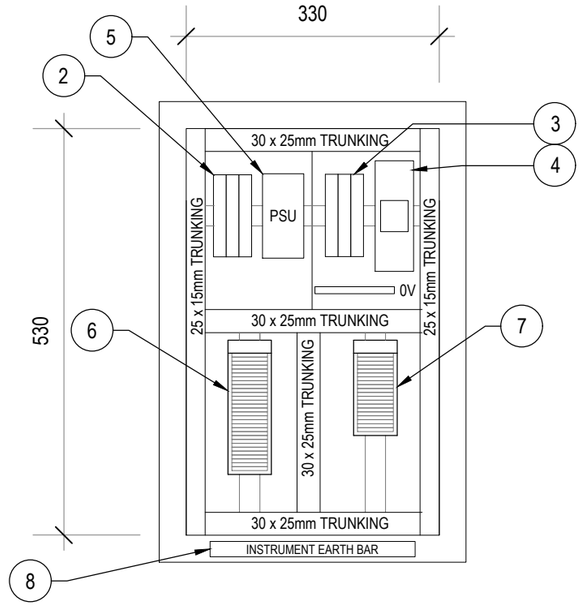
SCALE	NTS	DATE	07/07/2021
DRAWING NUMBER	1331-093-PCI-0014	A0	REVISION A



FRONT ELEVATION



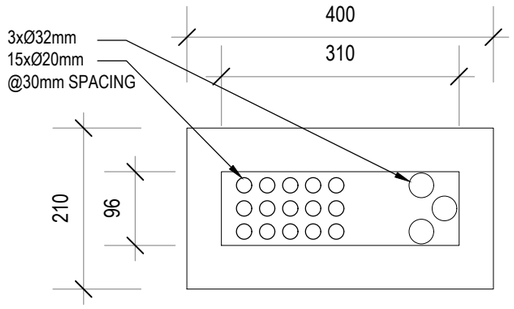
SIDE ELEVATION



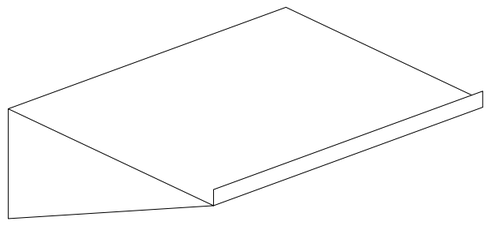
MOUNTING PANEL DETAILS

LEGEND:

1. CABINET LABEL (TYPE 2C)
   TEXT LINE 1 - 3.5mm : XX-FJB-XX
   TEXT LINE 2 - 2.5mm : XXX
2. 220V AC DISTRIBUTION
   1 x M&G 6A DP ISO
   2 x M&G 2A CB's
   220V AC TO HAVE LABEL HOLDER
3. 24V DC DISTRIBUTION
   3 x M&G 2A CB's
   24V DC TO HAVE LABEL HOLDER & 0V BAR
4. VSE 100 DIAGNOSTIC ELECTRONICS
   FOR VIBRATION SENSORS
5. DIN MOUNTED 24 VDC WEIDMULLER 5 A PSU
6. XI (AIN) TO MCC
   30 x WDU 2.5 TERMINALS (5.1mm WIDTH)
7. X2 (AIN) TO FIELD INSTRUMENT MCC
   20 x WDU 2.5 TERMINALS (5.1mm WIDTH)
8. INSTRUMENT EARTH BAR
   WEIDMULLER NSCH 028 020
   SCREWS 029 670



GLANDING PLATE
310x96



SPLASH PROOF HOOD
TO COVER F.J.B. WITH
SUFFICIENT OVERHANG
(APPROX 150mm)

NOTES:

1. CABINET TYPE : TO BE CONSTRUCTED OF 304SS, ENCLOSURE RATING IP 65.
2. CABINET FINISH: POWDER COATED ELECTRIC ORANGE.
3. CABINET TO BE SURFACE MOUNTED ON GALVANISED ANGLE FRAME USING M8 GALVANISED BOLTS.
4. CONTRACTOR TO PROVIDE AND INSTALL ANY ADDITIONAL TERMINALS AS REQUIRED.
5. PANEL MANUFACTURER TO SUPPLY, INSTALL AND FIT ALL LABELS FOR ALL RAILS AND EQUIPMENT INSIDE ALL PANELS/CABINETS.
6. PANEL MANUFACTURER TO SUPPLY AND INSTALL SPLASH PROOF COVER.
7. ALL SPARE CORES TO BE TERMINATED.
8. CONTRACTOR TO SUPPLY SUITABLE BLANKS FOR ANY SPARE GLAND HOLES.
9. MOUNTING PLATE AND DOORS TO BE BONDED BY AN EARTH STRAP TO THE EARTH CONNECTION ON THE PANEL FRAME, USING 8mm EARTH STUDS, PROVIDED BY THE PANEL MANUFACTURER.
10. INSTRUMENT EARTH IS INSULATED.

FOR CONSTRUCTION

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	T.B.	TENDER DRAWING	16/07/2021

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MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	S.NXUMALO

APPROVED

S.MDAKA
PROJECT MANAGER

M.VAWDA
DIVISIONAL MANAGER

SCALE: NTS

DATE: 16/07/2021

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION
& WATER TREATMENT WORKS (6.5 ML/DAY)
FIELD JUNCTION BOX
GENERAL ARRANGEMENT

DRAWING NUMBER: 1331-093-PCI-0015 | A3 | REVISION: A

Ugu District Municipality

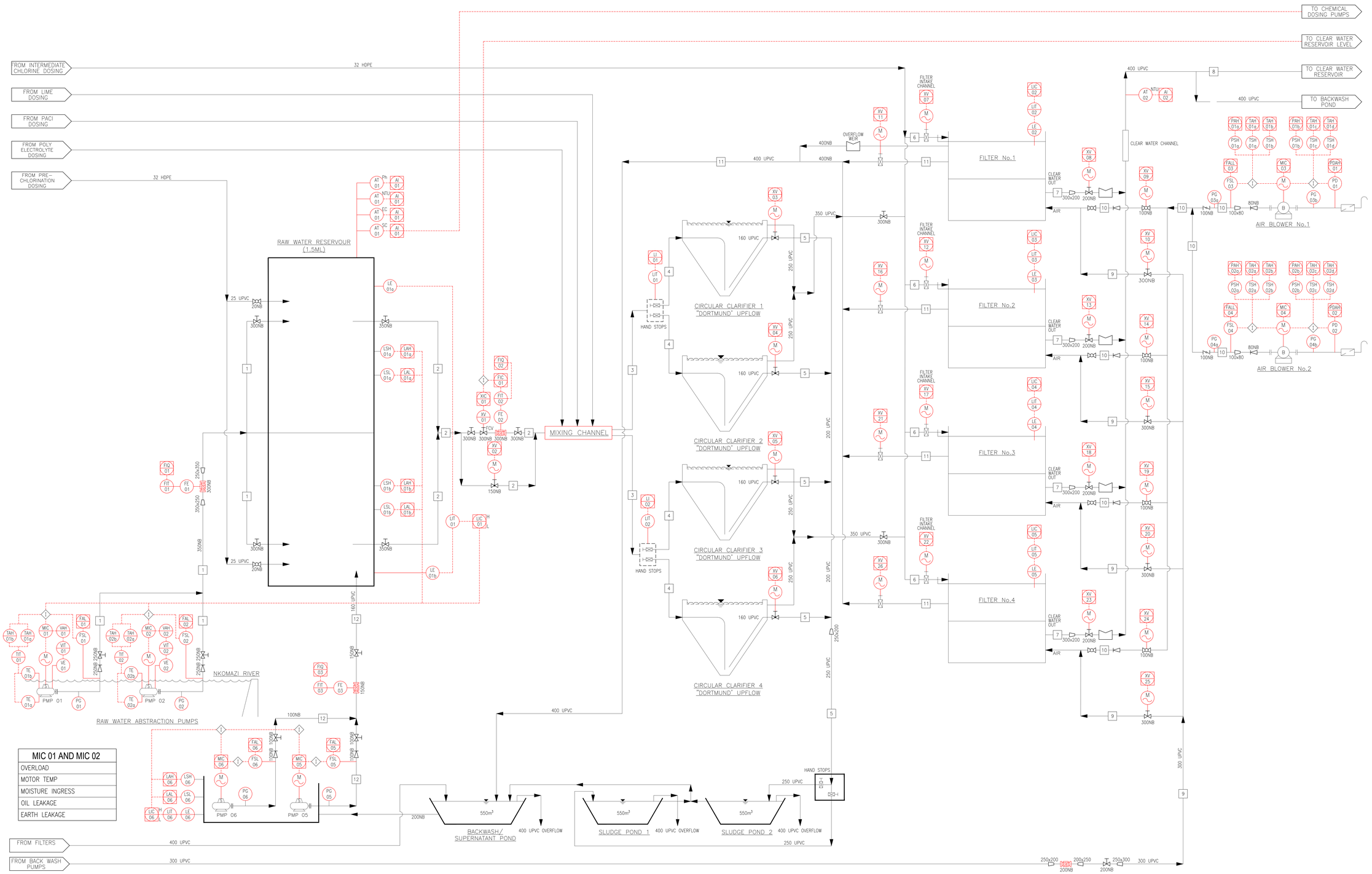
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ISO 9001:2015 CERTIFIED

STREAM No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PRODUCT																														
MIN. FLOW m3/hr.																														
NORMAL FLOW m3/hr.																														
DESIGN FLOW m3/hr.																														
PRESSURE mH2O																														
TEMP °C																														
VISCOSITY cP																														
DENSITY kg/m3																														



LEGEND

- GATE VALVE
- CONTROL VALVE
- ACTUATED VALVE
- SAFETY VALVE
- FLOAT VALVE
- BUTTERFLY VALVE
- BALL VALVE
- NON-RETURN VALVE
- SCREW DOWN NON-RETURN VALVE
- DIAPHRAGM VALVE
- 3-WAY VALVE
- SLUICE WITH HAND & GEARBOX
- AIR BLOWER
- SUBMERSIBLE PUMP
- AIR COMPRESSOR
- CENTRIFUGAL PUMP
- PROGRESSIVE CAVITY PUMP
- POSITIVE DISPLACEMENT PUMP
- STATIC MIXER
- MIXER
- ELECTRIC MOTOR
- FAN
- EARTH
- GEARBOX
- MECHANICAL SCREEN
- HAND RAKED SCREEN
- FILTER
- PRESSURE REGULATOR
- ORIFICE PLATE
- AIR DIFFUSER
- SOFTWARE LINK
- CROSSING LINES NOT CONNECTED
- INSTRUMENT ELECTRICAL LEAD
- PIPE LINE (Main Duty)
- FLOW DIRECTION ARROW
- INSTRUMENT AIR LINES
- TRACED PIPE
- RUBBER JOINT
- REDUCER
- SIGHT GLASS
- SPRAY
- DRAIN
- DAMPER
- ROTAMETER
- TERMINAL POINT
- VENT TO ATMOSPHERE
- HYDRO SEAL
- STRAINER
- SURFACE AERATOR
- VACUUM INJECTOR
- MAC FLOW METER
- ULTRASONIC FLOW METER
- VENTURI FLUME
- WEIR
- GAS FLARE
- VACUUM REGULATOR
- FLAME ARRESTOR
- TELESCOPIC VALVE
- WATER TYPE PRESSURE RELIEF VALVE

INSTRUMENT ABBREVIATIONS

LETTER	MEASURED VARIABLE	TRANSMITTERS BLIND	READOUT INDICATING	INDICATING
A	ANALYSIS	AT	AIT	AI
B				
C	CONDUCTIVITY	CT	CIT	CI
D	DENSITY	DT	DIT	DI
E	VOLTAGE	ET	EIT	EI
F	FLOW	FT	FIT	FI
G	HAND			
I	CURRENT	IT	IIT	II
J	POWER	JT	JIT	JI
K	TIME	KT	KIT	KI
L	LEVEL	LT	LIT	LI
P	PRESSURE	PT	PIT	PI
PD	PRESSURE DIFF	PDT	PDIT	PDI
Q	QUANTITY	QT	QIT	QI
R	RADIATION	RT	RIT	RI
S	SPEED	ST	SIT	SI
T	/FREQUENCY	TT	TIT	TI
V	TEMPERATURE	VT	VIT	VI
W	VIBRATION	WT	WIT	WI
X	WEIGHT/FORCE	XT	XIT	XI
Y	EVENT/STATE	YT	YIT	YI
Z	POSITION	ZT	ZIT	ZI

DISCREET INSTRUMENTS — PANEL MOUNTED (PS) / FIELD MOUNTED (FS)

SHARED DISPLAY SHARED CONTROL DCS/PLC (PSH)

OUTPUT FUNCTION

C – CONTROL
A – ALARM
S – SWITCH
I – INDICATION

LINE No. DESCRIPTION

05 - V1 - 006 - 1400 - P1 - L

- L — LAGGED PIPE
- P1 — PIPE SPECIFICATION
- 1400 — PIPE SIZE
- 006 — LINE No.
- V1 — PROCESS MEDIA (PRODUCT)
- 05 — AREA CODE

REV.	BY	DESCRIPTION	DATE	APPRD
B	T.B.	REVISED FOR CONSTRUCTION	28/02/2023	
A	N.M.	APPROVED FOR CONSTRUCTION	11/01/2023	
T1	T.B.	TENDER DRAWING	02/08/2021	

DRG. No.	REFERENCE DRAWING
1331-093-P&ID-603 SHT 5	CHLORINATION P&ID SHEET 5 OF 5
1331-093-P&ID-603 SHT 4	MAIN PUMPSTATION P&ID SHEET 4 OF 5
1331-093-P&ID-603 SHT 3	STANDBY POWER GENERATOR P&ID SHEET 3 OF 5
1331-093-P&ID-603 SHT 2	CHEMICAL DOSING P&ID SHEET 2 OF 5

STATUTORY NOTE:
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THIS DRAWING WAS PREPARED USING A CERTIFIED QUALITY MANAGEMENT SYSTEM TO **ISO 9001:2008**

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK, S CAMEGATE ROAD, LA LUCIA RIDGE OFFICE ESTATE, DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

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DRAWN	T.BROOME		
CIVIL ENGINEER	A.Le ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO
APPROVED	S.MDAKA PROJECT MANAGER		M.VAIVDA DIVISIONAL MANAGER

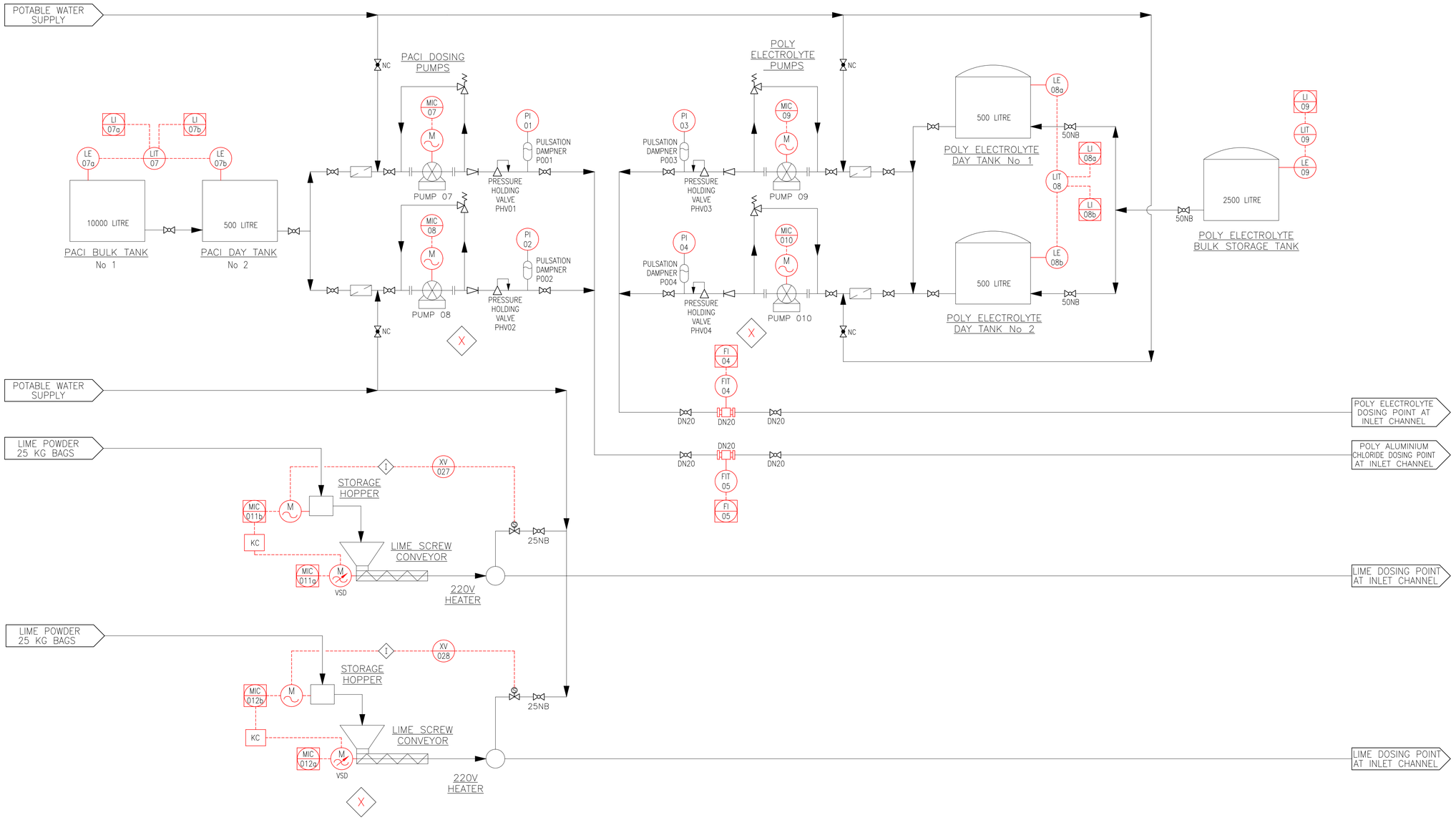
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

ABSTRACTION FILTRATION P&ID
SHEET 1 OF 5

SCALE	NTS	DATE	11/01/2023
DRAWING NUMBER	1331-093-PID-603 SHT.1	A0	REVISION B

PLANT/ITEM No.																			
DESCRIPTION																			
EQUIPMENT DETAILS																			

STREAM No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
PRODUCT	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MIN. FLOW m3/hr.																			
NORMAL FLOW m3/hr.																			
DESIGN FLOW m3/hr.																			
PRESSURE mH2O																			
TEMP. °C																			
VISCOSITY cP																			
DENSITY kg/m3																			
BRIX																			



LEGEND

- GATE VALVE
- CONTROL VALVE
- ACTUATED VALVE
- SAFETY VALVE
- FLOAT VALVE
- BUTTERFLY VALVE
- BALL VALVE
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- ELECTRIC MOTOR
- FAN
- EARTH
- GEARBOX
- MECHANICAL SCREEN
- HAND RAKED SCREEN
- FILTER
- PRESSURE REGULATOR
- SOFTWARE LINK
- CROSSING LINES NOT CONNECTED
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- VENT TO ATMOSPHERE
- HYDRO SEAL
- STRAINER
- SURFACE AERATOR
- VACUUM INJECTOR
- MAG FLOW METER
- ULTRASONIC FLOW METER
- WATER TYPE PRESSURE RELIEF VALVE
- VENTURI FLUME
- ORIFICE PLATE
- WEIR
- AIR DIFFUSER
- GAS FLARE VACUUM REGULATOR
- TELESCOPIC VALVE
- FLAME ARRESTOR

LINE No. DESCRIPTION

05 - V1 - 006 - 1400 - P1 - L

- L: LAGGED PIPE
- P1: PIPE SPECIFICATION
- 1400: PIPE SIZE
- 006: LINE No.
- V1: PROCESS MEDIA (PRODUCT)
- 05: AREA CODE

REV.	BY	DESCRIPTION	DATE	APPR'D
B	T.B.	REVISED FOR CONSTRUCTION	28/02/2023	
A	N.M.	APPROVED FOR CONSTRUCTION	11/01/2023	
1	T.B.	TENDER DRAWING	02/08/2021	

DRG. No.	REFERENCE DRAWING
1331-093-PID-603 SHT.5	CHLORINATION P&ID SHEET 2 OF 5
1331-093-PID-603 SHT.4	MAIN PUMPSTATION P&ID SHEET 2 OF 5
1331-093-PID-603 SHT.3	STANDBY POWER GENERATOR P&ID SHEET 2 OF 5
1331-093-PID-603 SHT.1	ABSTRACTION P&ID SHEET 2 OF 5

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ISO 9001:2015 CERTIFIED

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1 HOLWOOD PARK
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LA LUCIA RIDGE OFFICE ESTATE
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DRAWN	T.BROOME		
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MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO

APPROVED S.MDAKA PROJECT MANAGER | M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CHEMICAL DOSING P&ID SHEET 2 OF 5

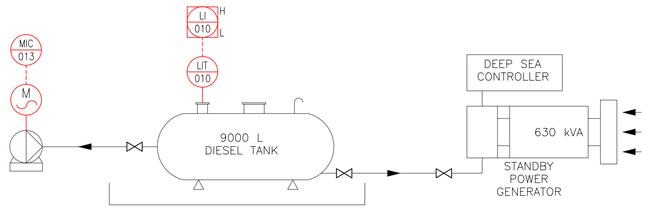
SCALE	NTS	DATE	11/01/2023
DRAWING NUMBER	1331-093-PID-603 SHT.2	A1	REVISION B

PLANT/ITEM No.	–	–	–	–	–	–	–	–	–	–	–	–
DESCRIPTION												
EQUIPMENT DETAILS												

STREAM No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
PRODUCT	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MIN. FLOW m3/hr.																			
NORMAL FLOW m3/hr.																			
DESIGN FLOW m3/hr.																			
PRESSURE mH2O																			
TEMP. °C																			
VISCOSITY cP																			
DENSITY kg/m3																			
BRIX																			

ALARMS

- BATTERY LOW VOLTAGE
- GENSET OVERSPEED
- GENSET LOW OIL PRESSURE
- GENSET HIGH COOLANT TEMPERATURE
- GENSET BATTERY CHARGER FAULT
- GENSET MAINTENANCE ALARM
- GENSET FAILED TO START
- GENSET LOW COOLANT LEVEL



LEGEND

- GATE VALVE
- CONTROL VALVE
- ACTUATED VALVE
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LINE No. DESCRIPTION

05 - V1 - 006 - 1400 - P1 - L

- L: LAGGED PIPE
- P1: PIPE SPECIFICATION
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1	T.B.	TENDER DRAWING	02/08/2021	

DRG. No.	REFERENCE DRAWING
1331-093-PID-603 SHT.5	CHLORINATION P&ID SHEET 2 OF 5
1331-093-PID-603 SHT.4	MAIN PUMPSTATION P&ID SHEET 2 OF 5
1331-093-PID-603 SHT.2	CHEMICAL DOSING P&ID SHEET 2 OF 5
1331-093-PID-603 SHT.1	ABSTRACTION P&ID SHEET 2 OF 5

STATUTORY NOTE:
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THIS DRAWING WAS PREPARED USING A CERTIFIED QUALITY MANAGEMENT SYSTEM TO **ISO 9001:2008**

ISO 9001:2015 CERTIFIED

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1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320

TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

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DRAWN	T.BROOME		
CIVIL ENGINEER	A.Le.ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO

APPROVED S.MDAKA PROJECT MANAGER M.VAWDA DIVISIONAL MANAGER

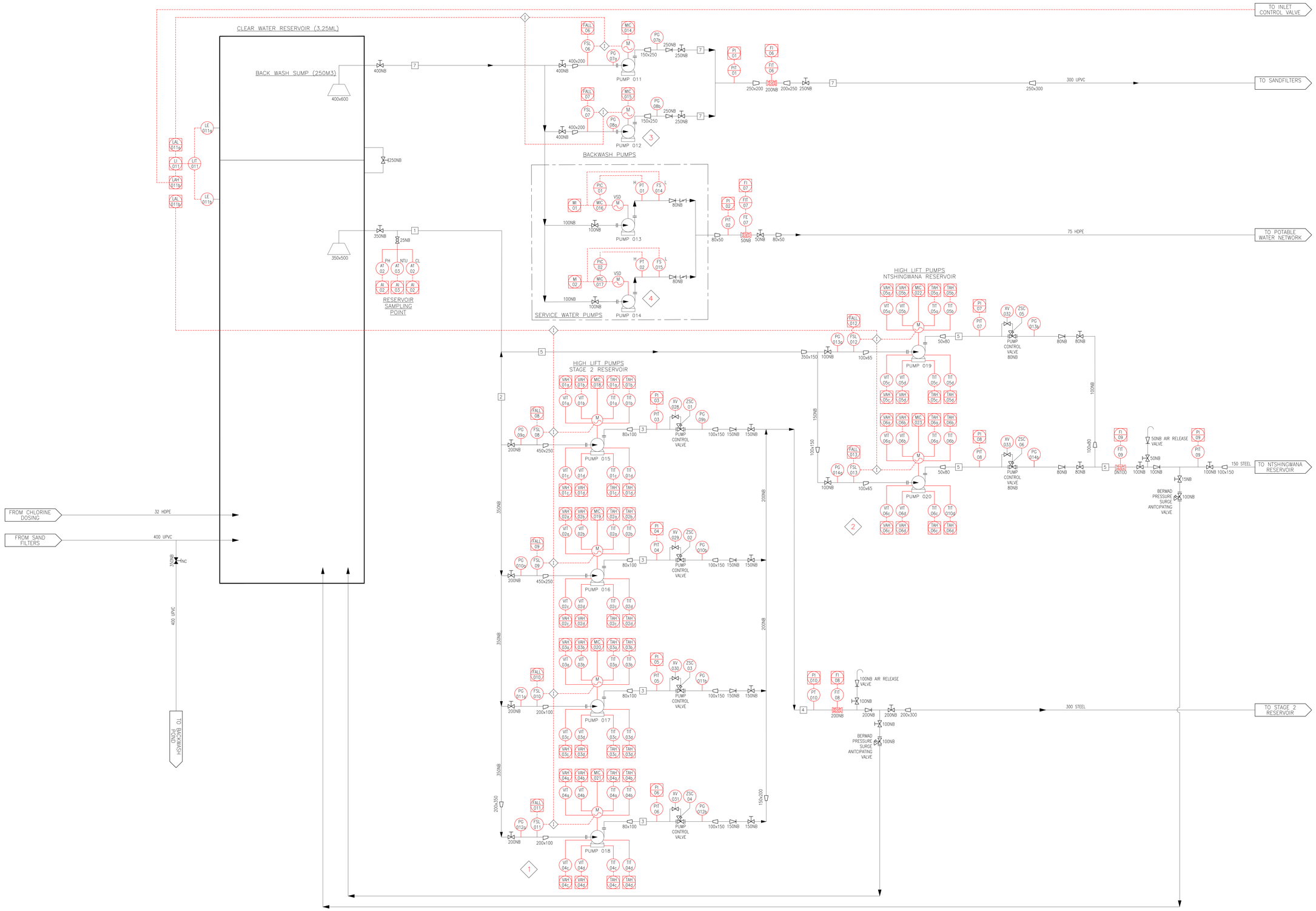
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

STANDBY POWER GENERATOR P&ID SHEET 3 OF 5

SCALE	NTS	DATE	11/01/2023
DRAWING NUMBER	1331-093-PID-603 SHT.3	A1	REVISION B

PLANT/ITEM No.	–	–	–	–	–	–	–	–	–	–	–
DESCRIPTION											
EQUIPMENT DETAILS											

STREAM No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
PRODUCT	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MIN. FLOW m3/hr.																														
NORMAL FLOW m3/hr.																														
DESIGN FLOW m3/hr.																														
PRESSURE mH2O																														
TEMP °C																														
VISCOSITY cP																														
DENSITY kg/m3																														



LEGEND

- GATE VALVE
- CONTROL VALVE
- ACTUATED VALVE
- SAFETY VALVE
- FLOAT VALVE
- BUTTERFLY VALVE
- BALL VALVE
- NON-RETURN VALVE
- SCREW DOWN NON-RETURN VALVE
- DIAPHRAGM VALVE
- 3-WAY VALVE
- SLUICE WITH HAND & GEARBOX
- AIR BLOWER
- SUBMERSIBLE PUMP
- AIR COMPRESSOR
- CENTRIFUGAL PUMP
- PROGRESSIVE CAVITY PUMP
- POSITIVE DISPLACEMENT PUMP
- STATIC MIXER
- MIXER
- ELECTRIC MOTOR
- FAN
- EARTH
- GEARBOX
- MECHANICAL SCREEN
- HAND RAKED SCREEN
- FILTER
- PRESSURE REGULATOR
- ORIFICE PLATE
- AIR DIFFUSER
- SOFTWARE LINK
- CROSSING LINES NOT CONNECTED
- INSTRUMENT ELECTRICAL LEAD
- PIPE LINE (Main Duty)
- FLOW DIRECTION ARROW
- INSTRUMENT AIR LINES
- TRACED PIPE
- RUBBER JOINT
- REDUCER
- SIGHT GLASS
- SPRAY
- DRAIN
- DAMPER
- ROTAMETER
- TERMINAL POINT
- VENT TO ATMOSPHERE
- HYDRO SEAL
- STRAINER
- SURFACE AERATOR
- VACUUM INJECTOR
- MAG FLOW METER
- ULTRASONIC FLOW METER
- VENTURI FLUME
- WEIR
- GAS FLARE
- VACUUM REGULATOR
- FLAME ARRESTOR
- TELESCOPIC VALVE
- WATER TYPE PRESSURE RELIEF VALVE

INSTRUMENT ABBREVIATIONS

LETTER	MEASURED VARIABLE	TRANSMITTERS BLIND	READOUT INDICATING	READOUT INDICATING
A	ANALYSIS	AT	AIT	AI
B				
C	CONDUCTIVITY	CT	CIT	CI
D	DENSITY	DT	DIT	DI
E	VOLTAGE	ET	EIT	EI
F	FLOW	FT	FIT	FI
G	HAND			
I	CURRENT	IT	IIT	II
J	POWER	JT	JIT	JI
K	TIME	KT	KIT	KI
L	LEVEL	LT	LIT	LI
P	PRESSURE	PT	PIT	PI
PD	PRESSURE DIFF	PDT	PDIT	PDI
Q	QUANTITY	QT	QIT	QI
R	RADIATION	RT	RIT	RI
S	SPEED	ST	SIT	SI
T	/FREQUENCY	TT	TIT	TI
V	TEMPERATURE	VT	VIT	VI
W	VIBRATION	WT	WIT	WI
Y	WEIGHT/FORCE	YT	YIT	YI
Z	EVENT/STATE	ZT	ZIT	ZI
	POSITION			

WEIR

DISCREET INSTRUMENTS — PANEL MOUNTED — FIELD MOUNTED

SHARED DISPLAY SHARED CONTROL DCS/PLC

OUTPUT FUNCTION

C – CONTROL
A – ALARM
E – ELEMENT
S – SWITCH
I – INDICATION

LINE No. DESCRIPTION

05 - V1 - 006 - 1400 - P1 - L

- L — LAGGED PIPE
- P1 — PIPE SPECIFICATION
- 1400 — PIPE SIZE
- 006 — LINE No.
- V1 — PROCESS MEDIA (PRODUCT)
- 05 — AREA CODE

REV.	BY	DESCRIPTION	DATE	APPRD
B	T.B.	REVISED FOR CONSTRUCTION	28/02/2023	
A	N.M.	APPROVED FOR CONSTRUCTION	11/01/2023	
T1	T.B.	TENDER DRAWING	02/08/2021	

DRG. No.	REFERENCE DRAWING
1331-093-PID-603 SHT.5	CHLORINATION P&ID SHEET 5 OF 5
1331-093-PID-603 SHT.3	STANDBY POWER GENERATOR P&ID SHEET 3 OF 5
1331-093-PID-603 SHT.2	CHEMICAL DOSING P&ID SHEET 2 OF 5
1331-093-PID-603 SHT.1	ABSTRACTION FILTRATION P&ID SHEET 1 OF 5

STATUTORY NOTE:
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DURBAN, SOUTH AFRICA 4320
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INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

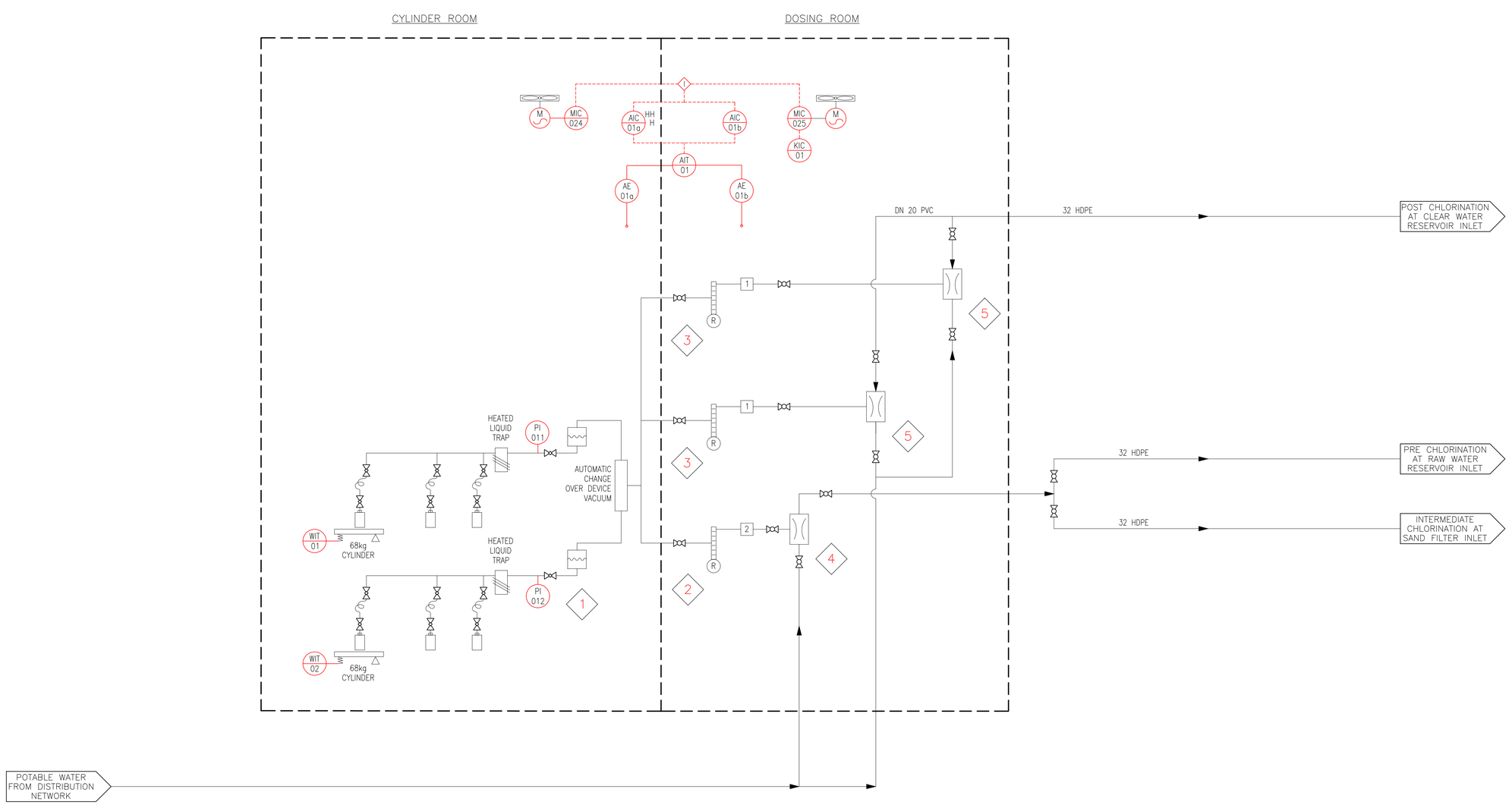
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

MAIN PUMPSTATION P&ID SHEET 4 OF 5

SCALE	NTS	DATE	11/02/2023
DRAWING NUMBER	1331-093-PID-603 SHT.4	A0	REVISION B

PLANT/ITEM No.	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
DESCRIPTION																														
EQUIPMENT DETAILS																														

STREAM No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
PRODUCT	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
MIN. FLOW m3/hr.																			
NORMAL FLOW m3/hr.																			
DESIGN FLOW m3/hr.																			
PRESSURE mH2O																			
TEMP. °C																			
VISCOSITY cP																			
DENSITY kg/m3																			
BRIX																			



PLANT/ITEM No.	–	–	–	–	–	–	–	–	–	–	–	–
DESCRIPTION												
EQUIPMENT DETAILS												

LEGEND

- GATE VALVE
- CONTROL VALVE
- ACTUATED VALVE
- SAFETY VALVE
- FLOAT VALVE
- BUTTERFLY VALVE
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- STATIC MIXER
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- VENTURI FLUME
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- GAS FLARE
- TELESCOPIC VALVE
- VACUUM REGULATOR
- FLAME ARRESTOR

LINE No. DESCRIPTION

05 - V1 - 006 - 1400 - P1 - L
- LAGGED PIPE
- PIPE SPECIFICATION
- PIPE SIZE
- LINE No.
- PROCESS MEDIA (PRODUCT)
- AREA CODE

REV.	BY	DESCRIPTION	DATE	APPR'D
B	T.B.	REVISED FOR CONSTRUCTION	28/02/2023	
A	N.M.	APPROVED FOR CONSTRUCTION	11/01/2023	
1	T.B.	TENDER DRAWING	02/08/2021	

WEIR

DRG. No.	REFERENCE DRAWING
1331-093-PID-603 SHT.4	MAIN PUMPSTATION P&ID SHEET 4 OF 5
1331-093-PID-603 SHT.3	STANDBY POWER GENERATOR P&ID SHEET 3 OF 5
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1331-093-PID-603 SHT.1	ABSTRACTION P&ID SHEET 2 OF 5

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MECHANICAL ENGINEER	C.NEL	PROCESS ENGINEER	S.NXUMALO

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CHLORINATION P&ID SHEET 5 OF 5

SCALE	DATE
NTS	11/01/2023
DRAWING NUMBER: 1331-093-PID-603 SHT.5	A1
REVISION: B	

UNIT		REINFORCEMENT					BENDING DIMENSIONS TO SHAPE CODES SANS 282						OTHER SHAPES
MARK	No	BAR MK	TYPE & DIA.	No. IN EACH	TOTAL No.	LENGTH	SH. CODE	A	B	C	D	E OR r	
		01	Y10		84	2600	37	120					
		02	Y10		98	1750	38	120	1600				
		03	Y10		72	2200	20						
		04	Y10		54	6800	20						
		05	Y10		132	4500	37	120					
		06	Y10		340	2050	38	120	1900				
		07	Y10		4	1800	38	120	1600				
		08	Y10		4	1400	38	120	1200				
		09	Y10		4	1000	38	120	800				
		10	Y10		4	600	38	120	400				
		15	Y10		108	1500	38	120	1350				
		16	Y10		12	800	38	120	650				
		17	Y12		6	600	20						
		18	Y12		4	1800	38	120	1600				

UNIT		REINFORCEMENT					BENDING DIMENSIONS TO SHAPE CODES SANS 282						OTHER SHAPES
MARK	No	BAR MK	TYPE & DIA.	No. IN EACH	TOTAL No.	LENGTH	SH. CODE	A	B	C	D	E OR r	
		19	Y10		68	1000	38	120	860				
		20	Y12		32	600	37	500					
		21	Y12		9	1000	62	750	525				
		21a	Y12		12	1250	62	990	700				
		22	Y10		18	1250	38	120	1100				
		23	Y10		6	1700	38	150	1500				
		24	Y10		804	1800	38	120	1600				
		25	Y10		64	6700	37	150					
		26	Y10		64	6900	37	150					
		27	Y10		32	3250	37	150					
		28	Y10		32	4100	37	150					
		29	Y10		32	3400	62	1340	950				
		30	Y10		32	3250	62	1280	905				
		31	Y12	6	336	1800	37	1600					
		32	Y12	8	448	1300	37	1050					

MASS (Kg)

TYPE	SIZE 8	10	12	16	20	25	32		TOTAL
R									–
Y									–
TOT.									–

KWALEMBE WATER SUPPLY SCHEME
EXTENSION – PHASE 1

WATER TREATMENT WORKS
MIXING CHANNEL
BENDING SCHEDULE

DRAWN JMB

ENG. S. ALLY

DATE 30/06/21

BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS

REFERENCE DRAWING 1331–093–SBS–0006

SCHEDULE No. 0006/01 A

MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
BASE 1	1	4	Y12	3150	4	01A	35	2960					11
	1	4	Y12	3250	4	01B	35	3045					12
	1	4	Y12	3350	4	01C	35	3130					12
	1	4	Y12	3400	4	01D	35	3215					12
	1	4	Y12	3500	4	01E	35	3300					12
	1	4	Y12	3600	4	01F	35	3385					13
	1	4	Y12	3700	4	01G	35	3470					13
	1	12	Y12	3050	12	02	34	2940					32
	1	32	Y12	3400	32	03	34	3290					97
	1	4	Y12	1200	4	04A	20	1200					4
	1	4	Y12	1300	4	04B	20	1285					5
	1	4	Y12	1400	4	04C	20	1370					5
	1	4	Y12	1450	4	04D	20	1455					5
	1	4	Y12	1550	4	04E	20	1540					6
	1	4	Y12	1650	4	04F	20	1625					6
	1	4	Y12	1700	4	04G	20	1710					6
	1	4	Y12	1800	4	04H	20	1795					6
	1	4	Y12	1900	4	04I	20	1880					7
	1	4	Y12	2000	4	04J	20	1965					7
	1	2	Y12	1300	2	05A	35	1090					2
	1	2	Y12	1350	2	05B	35	1150					2
	1	2	Y12	1400	2	05C	35	1215					2
	1	2	Y12	1500	2	05D	35	1275					3
	1	2	Y12	1550	2	05E	35	1335					3
	1	2	Y12	1600	2	05F	35	1400					3
	1	2	Y12	1650	2	05G	35	1460					3
	1	2	Y12	1750	2	05H	35	1520					3
	1	2	Y12	1800	2	05I	35	1585					3
	1	2	Y12	1850	2	05J	35	1645					3
	1	2	Y12	1900	2	05K	35	1705					3

MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
	1	2	Y12	2000	2	05L	35	1770					4
	1	2	Y12	2050	2	05M	35	1830					4
	1	2	Y12	2100	2	05N	35	1895					4
	1	2	Y12	2150	2	05O	35	1955					4
	1	2	Y12	2200	2	05P	35	2015					4
	1	2	Y12	2300	2	05Q	35	2080					4
	1	2	Y12	2350	2	05R	35	2140					4
	1	2	Y12	2400	2	05S	35	2200					4
	1	2	Y12	2500	2	05T	35	2265					4
	1	2	Y12	2550	2	05U	35	2325					5
	1	2	Y12	2600	2	05V	35	2385					5
	1	2	Y12	2650	2	05W	35	2450					5
	1	2	Y12	2700	2	05X	35	2510					5
	1	14	Y12	1250	14	06	35	1040					16
	1	6	Y12	6850	6	10	35	6630					36
	1	12	Y12	9500	12	11	35	9280					101
	1	2	Y12	4900	2	12A	35	4700					9
	1	2	Y12	5250	2	12B	35	5035					9
	1	2	Y12	5600	2	12C	35	5365					10
	1	2	Y12	5900	2	12D	35	5700					10
	1	2	Y12	6250	2	12E	35	6030					11
	1	2	Y12	6600	2	12F	35	6365					12
	1	2	Y12	6900	2	12G	35	6700					12
	1	2	Y12	7250	2	12H	35	7030					13
	1	2	Y12	7600	2	12I	35	7365					13
	1	2	Y12	7900	2	12J	35	7695					14
	1	2	Y12	8250	2	12K	35	8030					15
	1	12	Y12	4900	12	13	35	4700					52
	1	2	Y12	600	2	14A	34	510					1
	1	2	Y12	1200	2	14B	34	1065					2

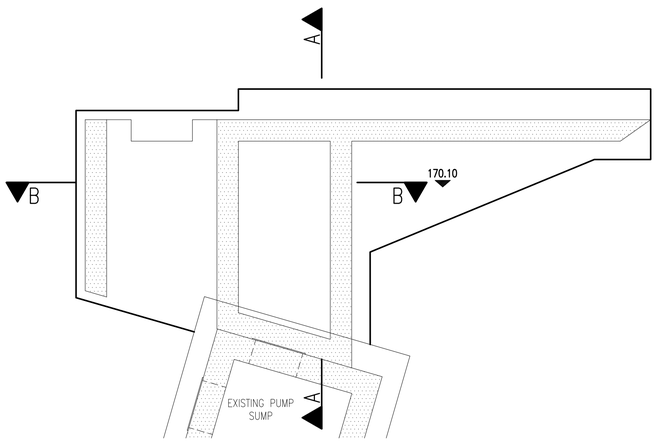
MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
	1	2	Y12	1750	2	14C	34	1625					3
	1	2	Y12	2300	2	14D	34	2180					4
	1	2	Y12	1150	2	15A	34	1060					2
	1	2	Y12	1500	2	15B	34	1370					3
	1	2	Y12	1800	2	15C	34	1680					3
	1	2	Y12	2100	2	15D	34	1990					4
	1	2	Y12	2400	2	15E	34	2300					4
	1	2	Y12	2700	2	15F	34	2610					5
	1	30	Y25	1950	30	15	34	1750					225
	1	48	Y10	1000	48	ST01	83	250	170	250	250		30
BASE 2	1	24	Y12	2800	24	20	34	2690					60
	1	16	Y12	2450	16	21	34	2340					35
	1	3	Y12	1650	3	22	35	1420					4
	1	2	Y12	1450	2	25A	51	950	[670]			330	3
	1	2	Y12	1550	2	25B	51	950	[740]			330	3
	1	2	Y12	1600	2	25C	51	950	[810]			330	3
	1	2	Y12	1700	2	25D	51	950	[885]			330	3
	1	2	Y12	1750	2	25E	51	950	[955]			330	3
	1	2	Y12	1850	2	25F	51	950	[1025]			330	3
	1	2	Y12	1900	2	25G	51	950	[1100]			330	3
	1	2	Y12	1950	2	25H	51	950	[1170]			330	3
	1	1	Y12	2050	1	25I	51	950	[1240]			330	2
	1	12	Y12	850	12	26	35	640					9
	1	34	Y12	2600	34	27	35	2400					78
	1	2	Y12	350	2	28A	20	340					1
	1	2	Y12	800	2	28B	20	780					1
	1	2	Y12	1200	2	28C	20	1215					2
	1	2	Y12	1650	2	28D	20	1650					3
	1	2	Y12	2100	2	28E	20	2090					4
	1	2	Y12	800	2	29A	34	670					1

MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
	1	2	Y12	850	2	29B	34	750					2
	1	2	Y12	950	2	29C	34	835					2
	1	2	Y12	1050	2	29D	34	920					2
	1	1	Y12	1100	1	29E	34	1000					1
	1	2	Y12	1100	2	30A	34	1000					2
	1	6	Y12	1300	6	31	35	1070					7
	1	16	Y16	600	16	C01	20	600					15
	1	7	Y10	1000	7	ST01	83	250	170	250	250		4
	1	2	Y12	1150	2	ST02A	34	1040					2
	1	2	Y12	1250	2	ST02B	34	1120					2
	1	2	Y12	1300	2	ST02C	34	1205					2
	1	2	Y12	1400	2	ST02D	34	1290					2
	1	1	Y12	1500	1	ST02E	34	1370					1

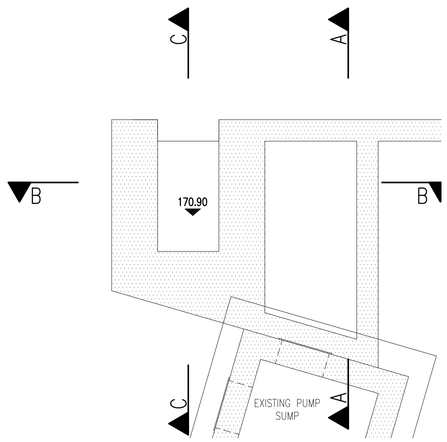
	6	8	10	12	16	20	25	32	40	TOTAL
R										
Y			34	972	15		225			1246
TOTAL			34	972	15		225			1246

COVER: 50mm

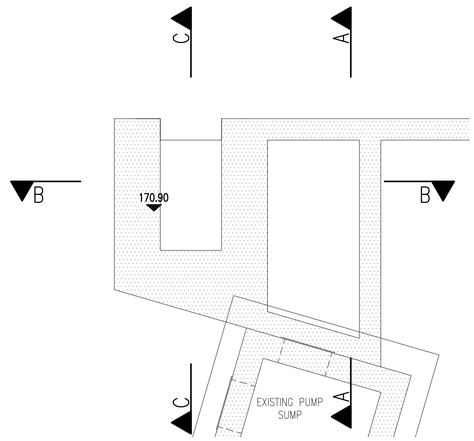
FOR ROOF SLAB REINFORCING, SEE DRAWING 002.
FOR WALL REINFORCING SEE DRAWING 003.
FOR SECTIONS, SEE DRAWING 003.



BASE 1 REINFORCING LAYOUT
SCALE 1:50



BASE 2 BOTTOM REINFORCING LAYOUT
SCALE 1:50



BASE 2 TOP REINFORCING LAYOUT
SCALE 1:50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	30/11/2022
T1	ALR	TENDER DRAWING	8/10/2021

1331-093-WTW-501 PROPOSED WEIR DIVERSION, AUTOMATIC SCOUR GATE CHAMBER

DRG. No. | REFERENCE DRAWING

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5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2008 CERTIFIED

DRAWN	P.NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S. ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED | S.MDAKA PROJECT MANAGER | M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PROPOSED WEIR DIVERSION
AUTOMATIC SCOUR GATE CHAMBER
REINFORCING TO BASES

SCALE	AS SHOWN	DATE	
DRAWING NUMBER	1331-093-SBS-001	A1	REVISION A

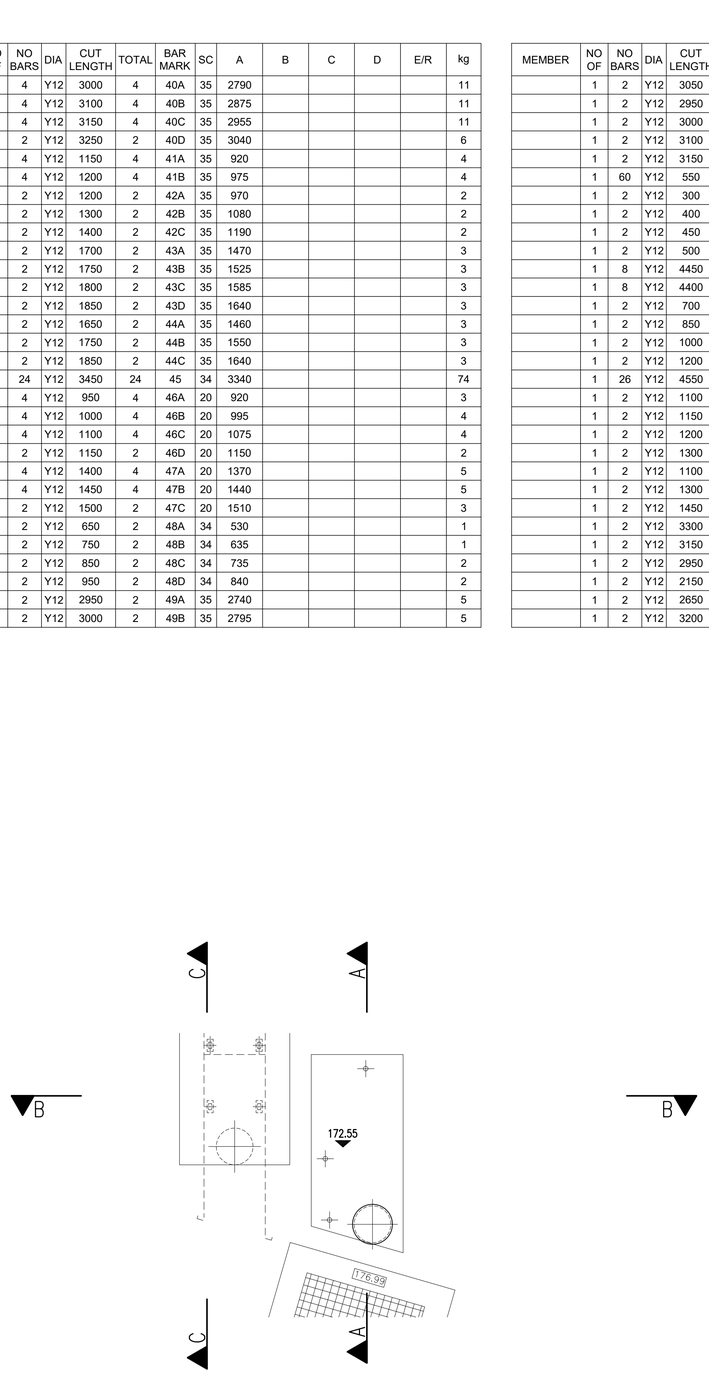
MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
ROOF SLAB	1	4	Y12	3000	4	40A	35	2790					11
	1	4	Y12	3100	4	40B	35	2875					11
	1	4	Y12	3150	4	40C	35	2955					11
	1	2	Y12	3250	2	40D	35	3040					6
	1	4	Y12	1150	4	41A	35	920					4
	1	4	Y12	1200	4	41B	35	975					4
	1	2	Y12	1200	2	42A	35	970					2
	1	2	Y12	1300	2	42B	35	1080					2
	1	2	Y12	1400	2	42C	35	1190					2
	1	2	Y12	1700	2	43A	35	1470					3
	1	2	Y12	1750	2	43B	35	1525					3
	1	2	Y12	1800	2	43C	35	1585					3
	1	2	Y12	1850	2	43D	35	1640					3
	1	2	Y12	1650	2	44A	35	1460					3
	1	2	Y12	1750	2	44B	35	1550					3
	1	2	Y12	1850	2	44C	35	1640					3
	1	24	Y12	3450	24	45	34	3340					74
	1	4	Y12	950	4	46A	20	920					3
	1	4	Y12	1000	4	46B	20	995					4
	1	4	Y12	1100	4	46C	20	1075					4
	1	2	Y12	1150	2	46D	20	1150					2
	1	4	Y12	1400	4	47A	20	1370					5
	1	4	Y12	1450	4	47B	20	1440					5
	1	2	Y12	1500	2	47C	20	1510					3
	1	2	Y12	650	2	48A	34	530					1
	1	2	Y12	750	2	48B	34	635					1
	1	2	Y12	850	2	48C	34	735					2
	1	2	Y12	950	2	48D	34	840					2
	1	2	Y12	2950	2	49A	35	2740					5
	1	2	Y12	3000	2	49B	35	2795					5

MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
	1	2	Y12	3050	2	49C	35	2850					5
	1	2	Y12	2950	2	50A	35	2740					5
	1	2	Y12	3000	2	50B	35	2815					5
	1	2	Y12	3100	2	50C	35	2885					6
	1	2	Y12	3150	2	50D	35	2960					6
	1	60	Y12	550	60	51	35	340					29
	1	2	Y12	300	2	52A	35	90					1
	1	2	Y12	400	2	52B	35	165					1
	1	2	Y12	450	2	52C	35	235					1
	1	2	Y12	500	2	52D	35	310					1
	1	8	Y12	4450	8	53	34	4340					32
	1	8	Y12	4400	8	54	20	4400					31
	1	2	Y12	700	2	55A	34	580					1
	1	2	Y12	850	2	55B	34	745					2
	1	2	Y12	1000	2	55C	34	905					2
	1	2	Y12	1200	2	55D	34	1070					2
	1	26	Y12	4550	26	55	35	4350					105
	1	2	Y12	1100	2	56A	35	870					2
	1	2	Y12	1150	2	56B	35	945					2
	1	2	Y12	1200	2	56C	35	1015					2
	1	2	Y12	1300	2	56D	35	1090					2
	1	2	Y12	1100	2	57A	35	900					2
	1	2	Y12	1300	2	57B	35	1075					2
	1	2	Y12	1450	2	57C	35	1250					3
	1	2	Y12	3300	2	58A	35	3100					6
	1	2	Y12	3150	2	58B	35	2930					6
	1	2	Y12	2950	2	58C	35	2755					5
	1	2	Y12	2150	2	59A	35	1940					4
	1	2	Y12	2650	2	59B	35	2460					5
	1	2	Y12	3200	2	59C	35	2980					6

MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
	1	2	Y12	3700	2	59D	35	3500					7
	1	2	Y12	750	2	60A	35	520					1
	1	2	Y12	1150	2	60B	35	935					2
	1	2	Y12	1550	2	60C	35	1355					3
	1	2	Y12	2000	2	60D	35	1770					4
	1	2	Y12	2100	2	61A	35	1880					4
	1	2	Y12	1800	2	61B	35	1570					3
	1	2	Y12	1450	2	61C	35	1260					3
	1	2	Y12	1150	2	61D	35	950					2
	1	12	Y12	700	12	62	35	470					7
	1	4	Y12	3450	4	63A	35	3260					12
	1	4	Y12	3550	4	63B	35	3335					13
	1	2	Y12	3600	2	63C	35	3410					6
	1	4	Y12	600	4	64A	34	510					2
	1	4	Y12	700	4	64B	34	585					2
	1	2	Y12	2950	2	65A	35	2720					5
	1	2	Y12	3050	2	65B	35	2845					5
	1	2	Y12	3200	2	65C	35	2975					6
	1	2	Y12	3300	2	65D	35	3100					6
	1	24	Y16	1500	24	C02	20	1500					57
	1	8	Y16	1200	8	C03	20	1200					15

	6	8	10	12	16	20	25	32	40	TOTAL
R										
Y				565	72					637
TOTAL				565	72					637





ROOF SLAB REINFORCING LAYOUT
SCALE 1:50

COVER: 50mm

FOR BASE REINFORCING, SEE DRAWING 001.
FOR WALL REINFORCING SEE DRAWING 003.
FOR SECTIONS, SEE DRAWING 003.

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	30/11/2022
T1	ALR	TENDER DRAWING	8/10/2021

1331-093-WTW-501 PROPOSED WEIR DIVERSION, AUTOMATIC SCOUR GATE CHAMBER

DRG. No. REFERENCE DRAWING

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5 CANEGATE ROAD
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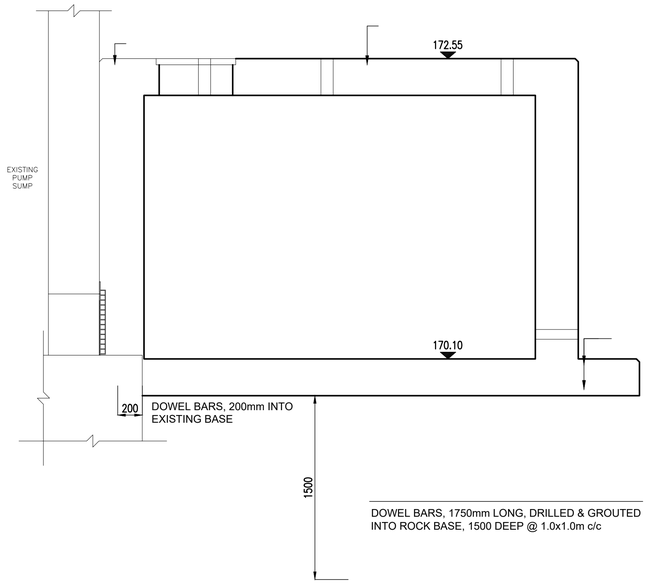
DRAWN	P.NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S. ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

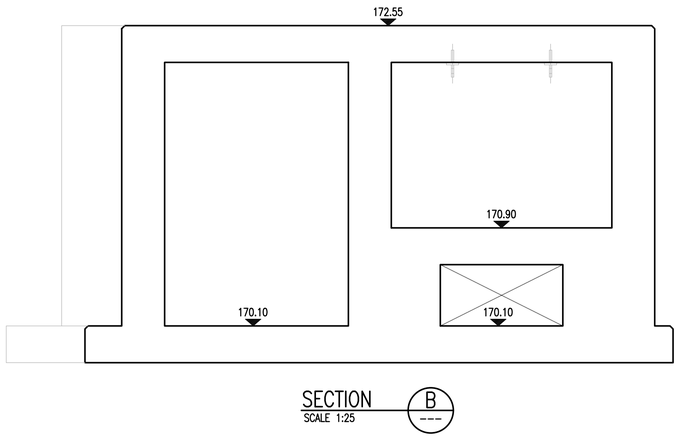
PROPOSED WEIR DIVERSION
AUTOMATIC SCOUR GATE CHAMBER
REINFORCING TO ROOF SLAB

SCALE AS SHOWN		DATE
DRAWING NUMBER 1331-093-SBS-002	A1	REVISION A



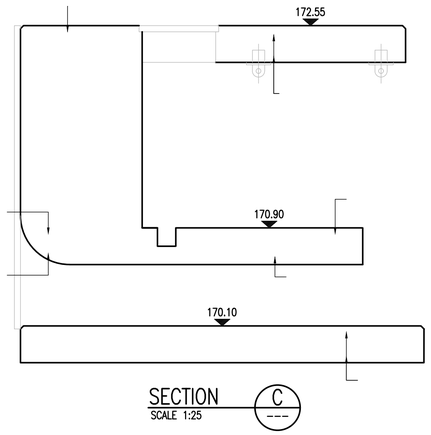
DOWEL BARS, 1750mm LONG, DRILLED & GROUTED INTO ROCK BASE, 1500 DEEP @ 1.0x1.0m c/c

SECTION A
SCALE 1:25



DOWEL BARS, 1750mm LONG, DRILLED & GROUTED INTO ROCK BASE, 1500 DEEP @ 1.0x1.0m c/c

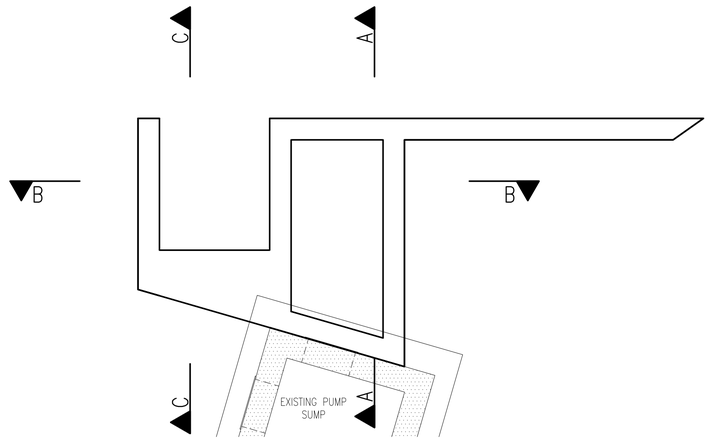
SECTION B
SCALE 1:25



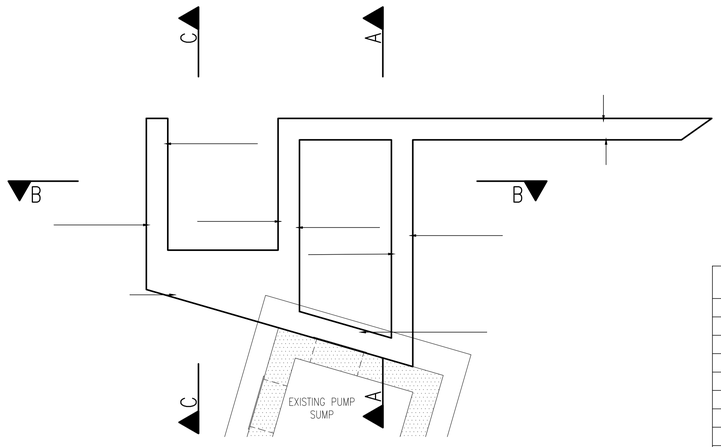
DOWEL BARS, 1750mm LONG, DRILLED & GROUTED INTO ROCK BASE, 1500 DEEP @ 1.0x1.0m c/c

SECTION C
SCALE 1:25





WALL REINFORCING LAYOUT – STARTER BARS
SCALE 1:50



WALL REINFORCING LAYOUT
SCALE 1:50

COVER: 50mm

FOR BASE REINFORCING, SEE DRAWING 001.
FOR ROOF SLAB REINFORCING SEE DRAWING 002.

MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
WALL	1	452	Y12	900	452	40	20	900					361
	1	258	Y12	2400	258	41	20	2400					550
	1	16	Y12	2900	16	42	35	2700					41
	1	16	Y12	3000	16	43	35	2780					43
	1	16	Y12	3600	16	44	35	3390					51
	1	16	Y12	4050	16	45	35	3860					58
	1	16	Y12	4150	16	46	35	3930					59
	1	16	Y12	7100	16	47	35	6870					101
	1	16	Y12	6700	16	48	35	6510					95
	1	16	Y12	4650	16	49	35	4420					66
	1	132	Y12	1000	132	50	34	900					117
	1	16	Y12	3550	16	51	35	3330					50
	1	77	Y12	2050	77	52	35	1850					140
	1	220	Y12	850	220	53	35	650					166
	1	72	Y10	450	72	54	35	250					20
	1	20	Y12	850	20	55A	35	640					15
	1	20	Y12	950	20	55B	35	725					17
	1	20	Y12	1000	20	55C	35	815					18
	1	20	Y12	1100	20	55D	35	900					20
	1	20	Y12	1200	20	55E	35	985					21
	1	20	Y12	1300	20	55F	35	1075					23
	1	10	Y12	1350	10	55G	35	1160					12
	1	50	Y10	2650	50	56A	35	2450					82
	1	1	Y10	1250	1	57A	35	1030					1
	1	1	Y10	1600	1	57B	35	1390					1
	1	1	Y10	1950	1	57C	35	1750					1
	1	7	Y10	2300	7	58	20	2300					10

	6	8	10	12	16	20	25	32	40	TOTAL
R										
Y			115	2024						2138
TOTAL			115	2024						2138

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :
WATER IMPLEMENTATION AGENCY MANAGER :
WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	30/11/2022
T1	ALR	TENDER DRAWING	8/10/2021

1331-093-WTW-501 PROPOSED WEIR DIVERSION, AUTOMATIC SCOUR GATE CHAMBER
DRG. No. REFERENCE DRAWING

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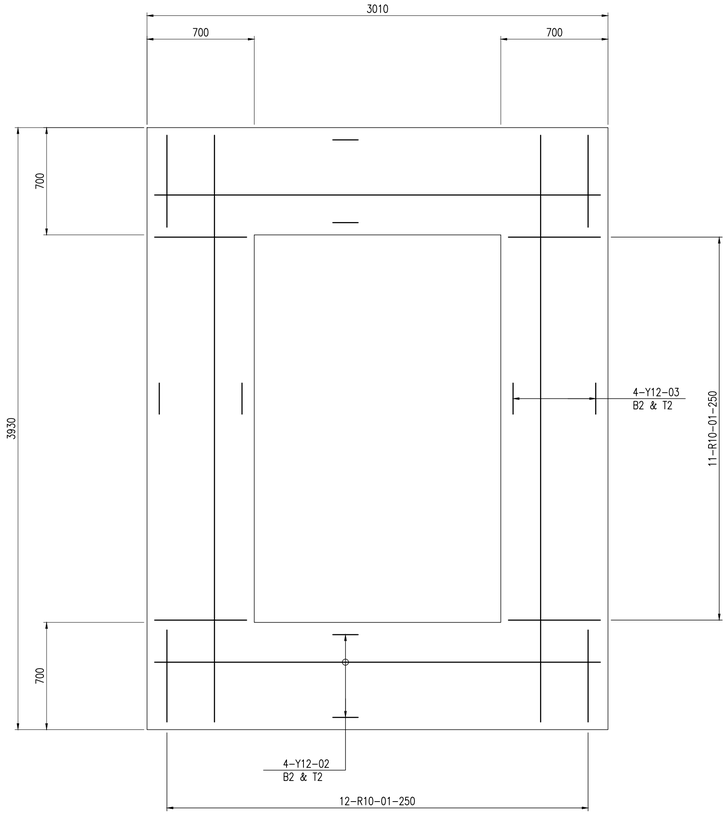
DRAWN	P.NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S. ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

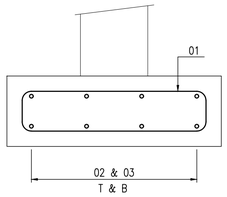
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PROPOSED WEIR DIVERSION
AUTOMATIC SCOUR GATE CHAMBER
REINFORCING TO WALLS

SCALE: AS SHOWN
DATE:
DRAWING NUMBER: 1331-093-SBS-003
A1
REVISION: A

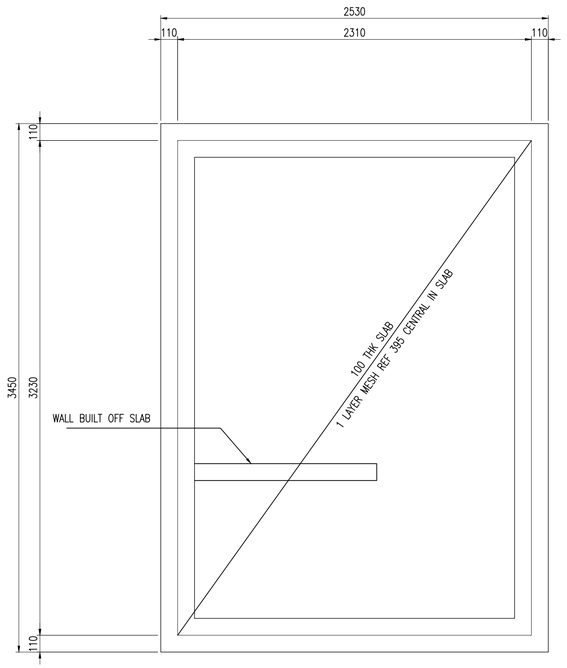


PLAN – FOUNDATIONS

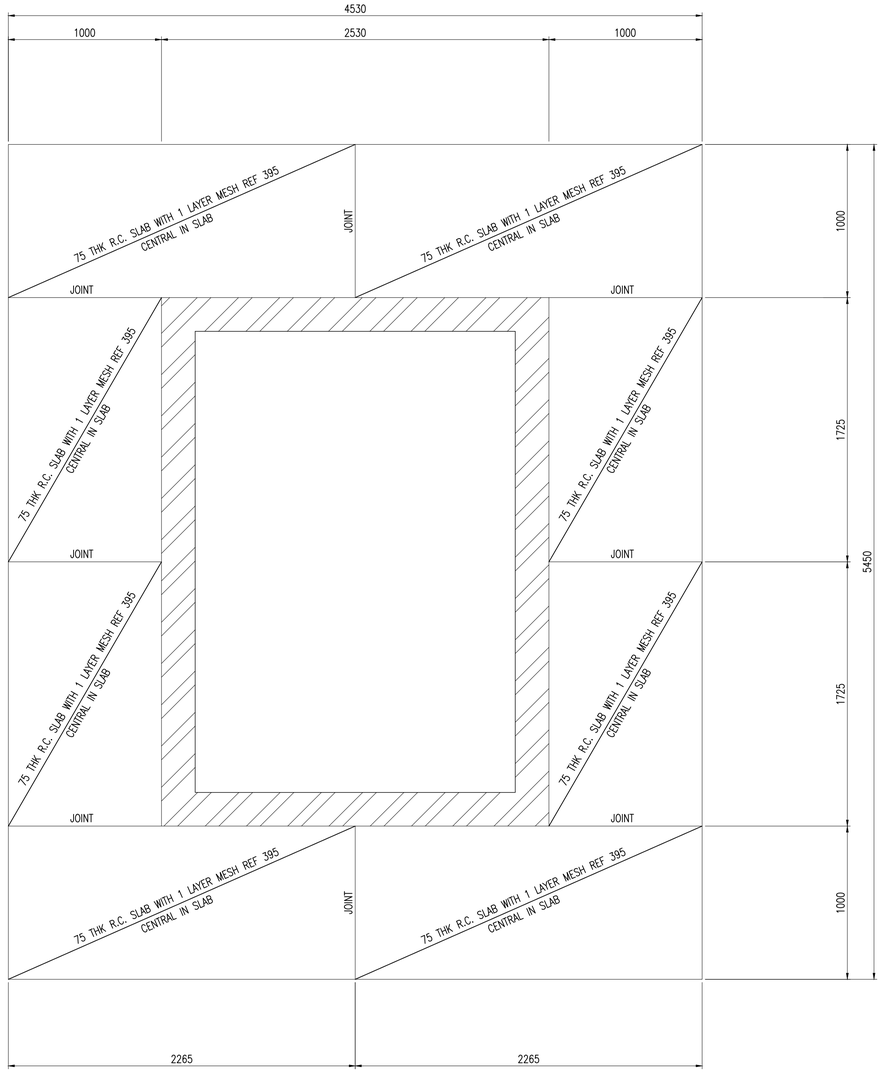


TYPICAL SECTION – FOUNDATION

UNIT	REINFORCEMENT					BENDING DIMENSIONS TO SHAPE CODES SANS 282					
MARK	BAR MK	TYPE & DIA.	No. IN EACH	TOTAL No.	LENGTH	SH. CODE	A	B	C	D	E OR r
FOUNDATION	01	R10		46	1600	60	600	130			
	02	Y12		16	2900	20					
	03	Y12		16	3800	20					
SURFACE BED	MESH REF 395 = 7m^2										
APRON SLAB	MESH REF 395 = 15m^2										



PLAN – SURFACE BED



PLAN – APRON SLAB

NOTES

GENERAL

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.

2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.

3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO BE 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS – EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB – SOFFIT	50mm
– TOP	40mm
COLUMNS	50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

GROUND IMPROVEMENT

1 THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:

- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	30/11/2022
T1	ALR	TENDER DRAWING	26/07/2021

1331-093-WTW-607 GUARD HOUSE

DRG. No. | REFERENCE DRAWING

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ISO 9001:2015 CERTIFIED

DRAWN	J.M.D.		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

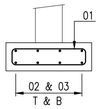
APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

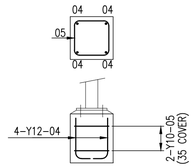
GUARD HOUSE FOUNDATION REINFORCEMENT

SCALE	1:20	DATE	JULY 2021
DRAWING NUMBER	1331-093-SBS-004	A1	REVISION A

FOR CONSTRUCTION

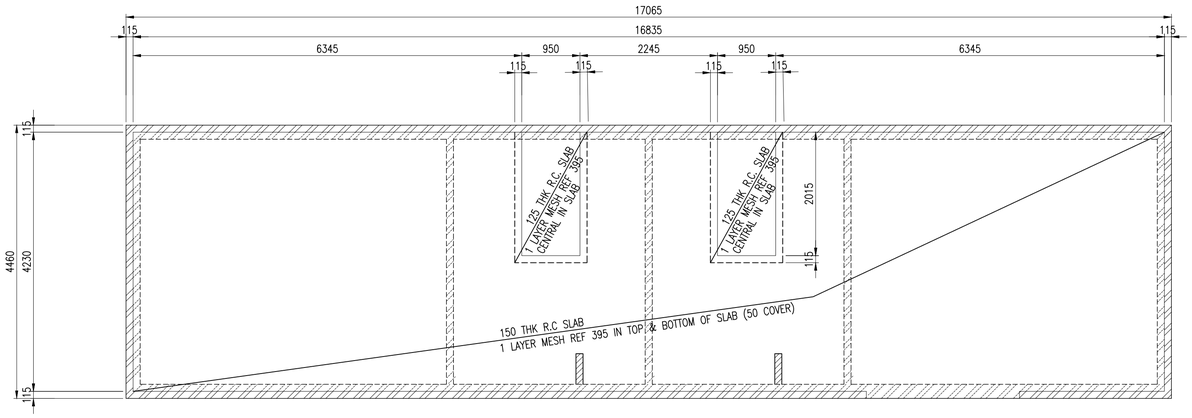


TYPICAL SECTION – FOUNDATION

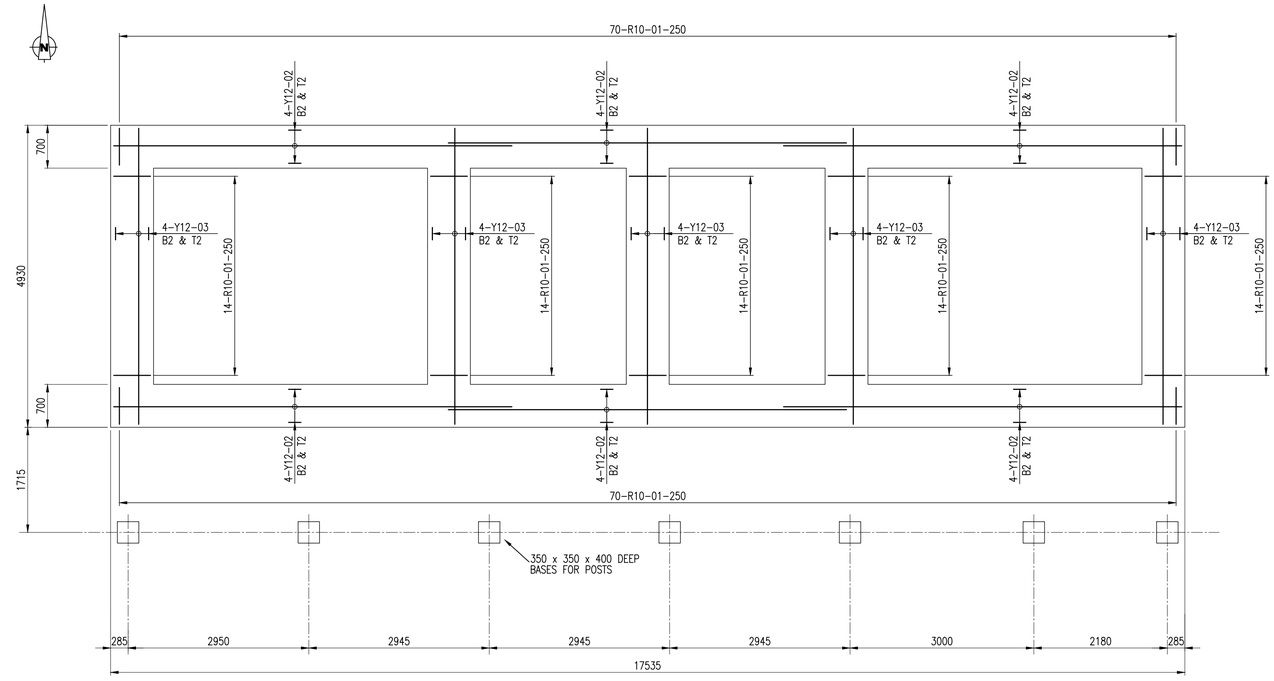


TYPICAL SECTION – BASE

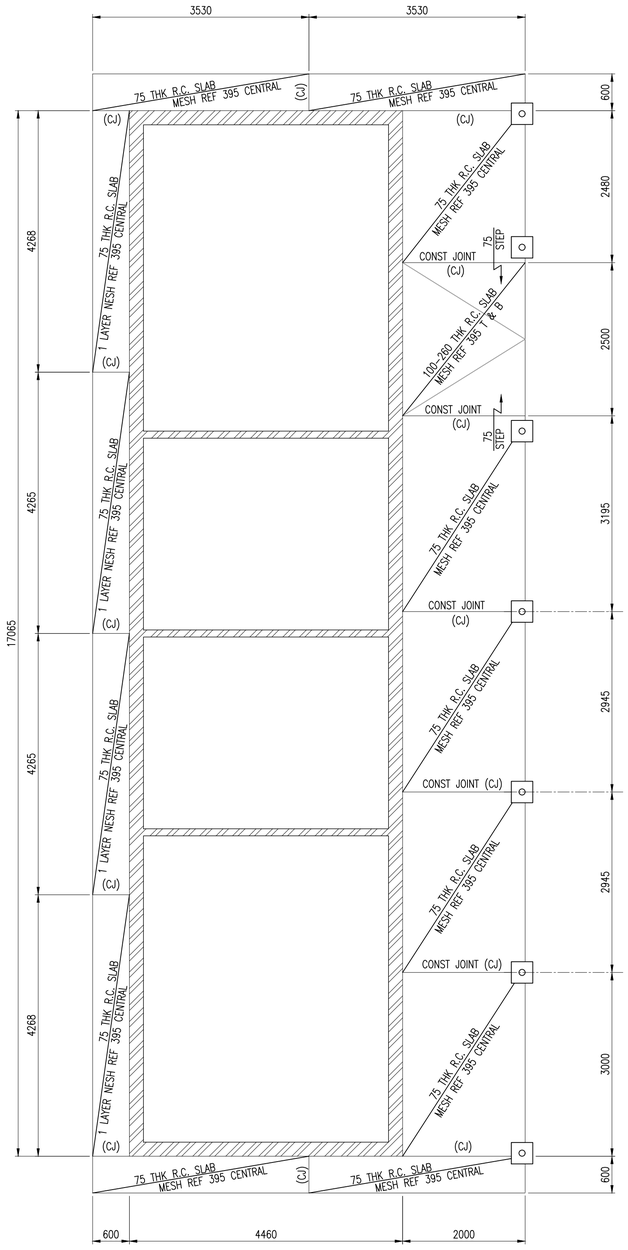
UNIT	REINFORCEMENT					BENDING DIMENSIONS TO SHAPE CODES SANS 282					
MARK	BAR MK	TYPE & DIA.	No. IN EACH	TOTAL No.	LENGTH	SH. CODE	A	B	C	D	E OR r
FOUNDATION	01	R10		210	1600	60	600	130			
	02	Y12		48	6500	20					
	03	Y12		40	4800	20					
SURFACE BED	MESH REF 395 = 75m²										
APRON SLAB	MESH REF 395 = 55m²										
7	04	Y12	4	28	430	37	300				
BASE	05	Y10	2	14	1300	60	280	280			



PLAN – SURFACE BED



PLAN – FOUNDATIONS



PLAN – APRON SLAB

FOR CONSTRUCTION

NOTES

GENERAL

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.

2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.

3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON–WATER RETAINING STRUCTURES TO BE 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm	TOP & BOTTOM
WALLS – EARTH FACE	40mm	
WATER FACE	50mm	
ROOF SLAB – SOFFIT	50mm	
– TOP	40mm	
COLUMNS	50mm	

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

GROUND IMPROVEMENT

1 THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:

- STAGE 1: OVER–EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	30/11/2022
T1	ALR	TENDER DRAWING	26/07/2021

1331-093-WTW-624 SERVICES BUILDING

DRG. No. REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

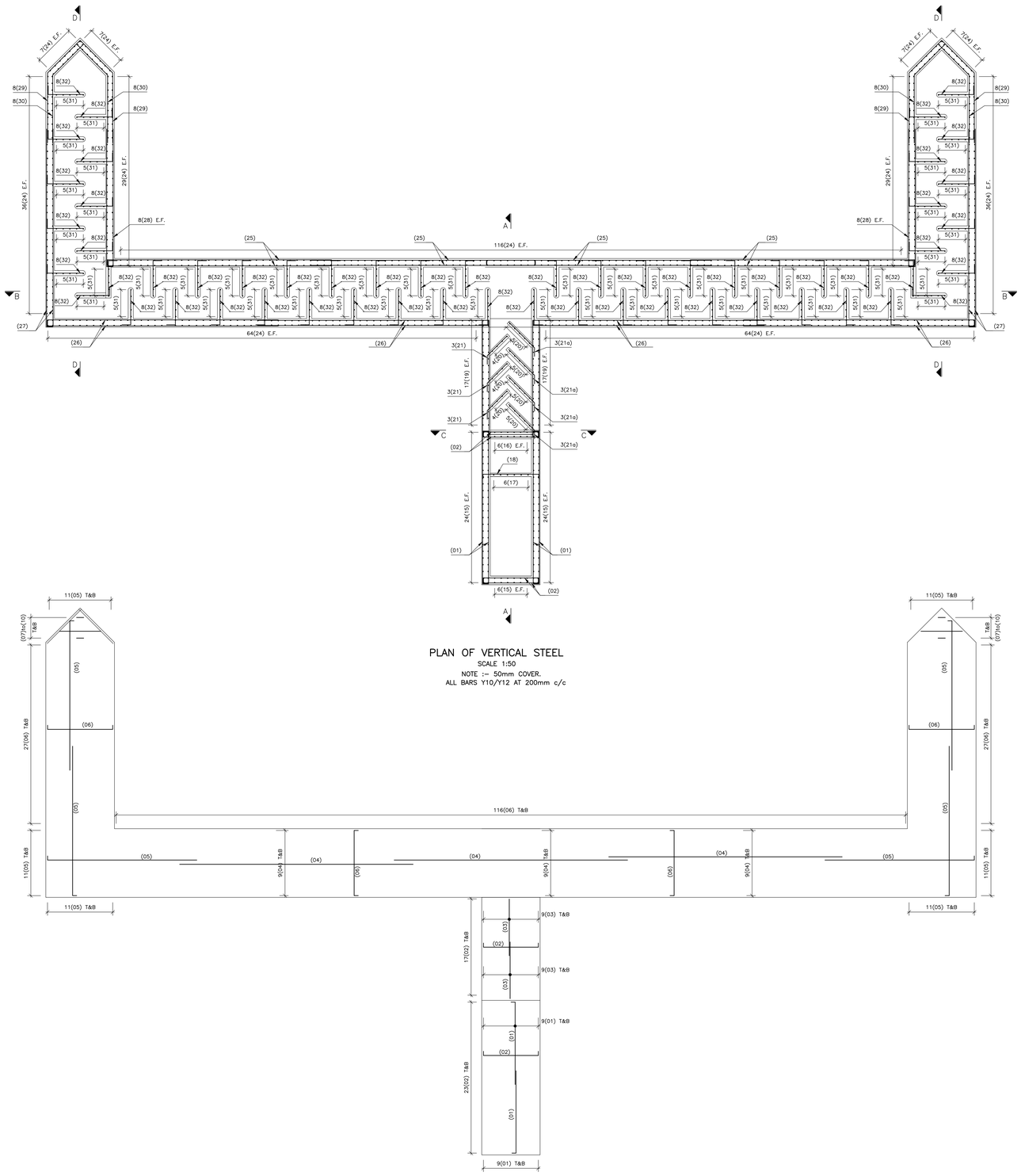
DRAWN	J.M.D.		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIRALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

SERVICES BUILDING FOUNDATION REINFORCEMENT

SCALE	1:20	DATE	JULY 2021
DRAWING NUMBER	1331-093-SBS-005	A1	REVISION A



PLAN OF VERTICAL STEEL

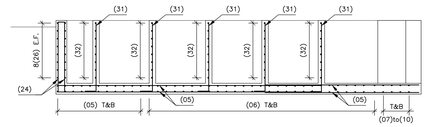
SCALE 1:50

NOTE :– 50mm COVER.
ALL BARS Y10/Y12 AT 200mm c/c

PLAN VIEW OF BASE STEEL

SCALE 1:50

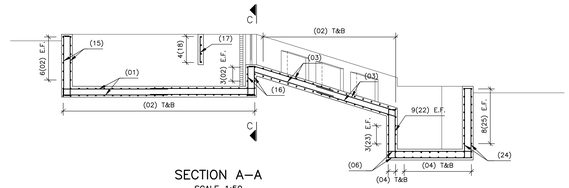
NOTE :– 50mm COVER.
ALL BARS Y10/Y12 AT 200mm c/c



SECTION D–D

SCALE 1:50

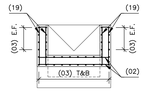
NOTE :– 50mm COVER.
ALL BARS Y10/Y12 AT 200mm c/c



SECTION A–A

SCALE 1:50

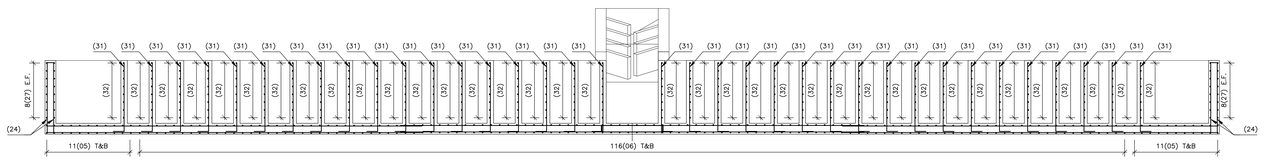
NOTE :– 50mm COVER.
ALL BARS Y10/Y12 AT 200mm c/c



SECTION C–C

SCALE 1:50

NOTE :– 50mm COVER.
ALL BARS Y10/Y12 AT 200mm c/c



SECTION B–B

SCALE 1:50

NOTE :– 50mm COVER.
ALL BARS Y10/Y12 AT 200mm c/c

FOR CONSTRUCTION

NOTES

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4. ENGINEERING FILL TO EGINEERS SPECIFICATION.
5. ALL EXPOSED CONCRETE EDGE TO HAVE 20x20mm CHAMFER UNLESS OTHERWISE NOTED.
6. CONCRETE MIXES :

6.1 STRENGTH

BLINDING	– 15MPa/20
MASS CONCRETE	– 15MPa/20
FLOOR	– 35MPa/20
WALL FOOTING	– 35MPa/20
WALL	– 35MPa/20
COLUMNS	– 35MPa/20
ROOF	– 35MPa/20

6.2 C/W RATIO 1.89 MIN.

6.3 COVER

FOOTING	– 50mm
FLOOR	– 40mm
COLUMNS	– 40mm
WALLS	– 40mm
ROOF	– 40mm

7. REINFORCEMENT :
7.1 LAP : 60 x BAR DIAMETER.
8. ALL STEEL COMPONENTS HOT DIPPED GALVANIZED.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	30/11/2021
T1	ALR	TENDER DRAWING	26/07/2021

1331-093-SBS-BS-006	BENDING SCHEDULE
1331-093-SCD-004	CONCRETE DETAILS
1331-093-WTW-617	MIXING CHANNEL
DRG. No.	REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFICATE

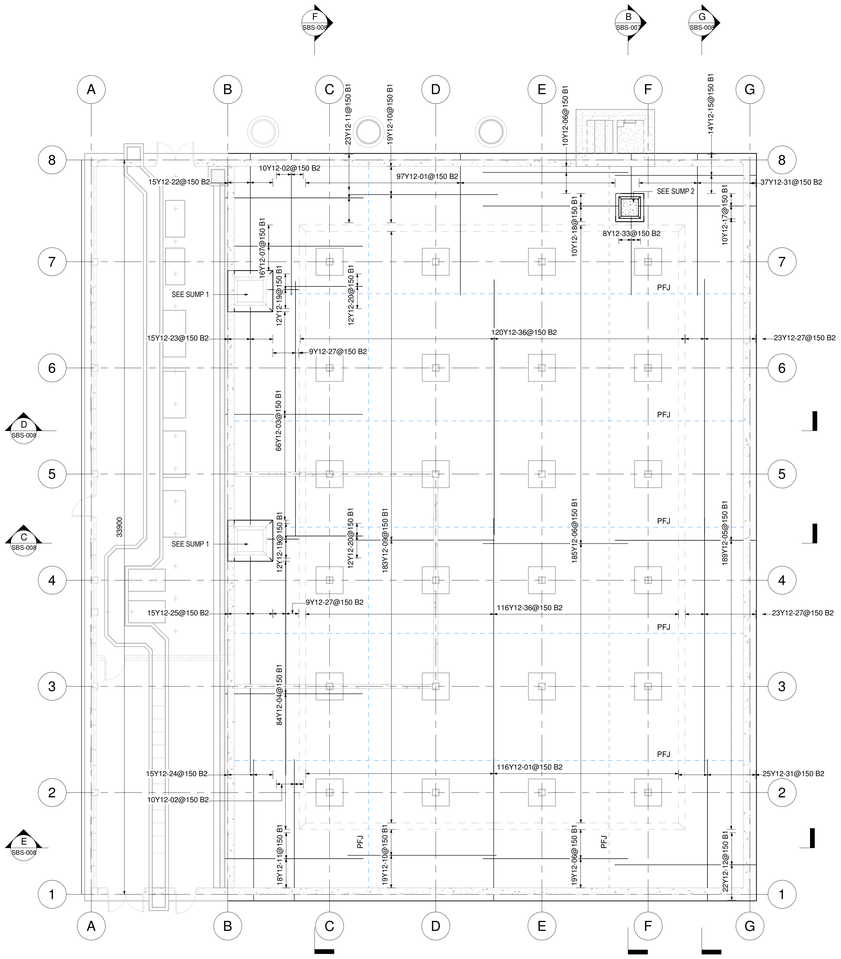
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APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

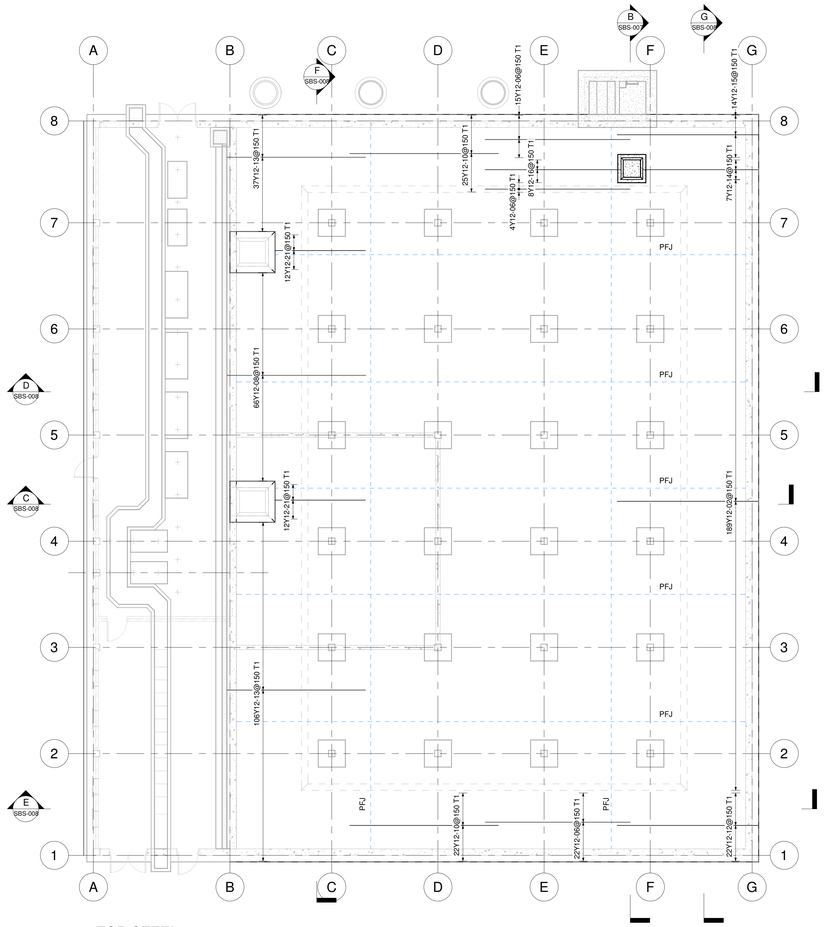
MIXING CHANNEL OUTLET SLUICE GATE REBAR DETAILS

SCALE	AS SHOWN	DATE	JULY 2021
DRAWING NUMBER	1331-093-SBS-0006 A0	REVISION	A



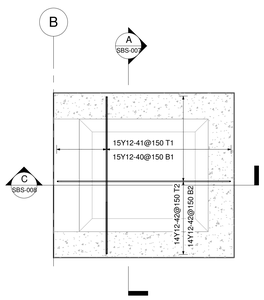
BOTTOM STEEL

1 : 100



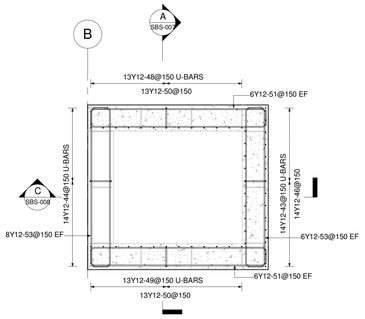
1 TOP STEEL

1 : 100



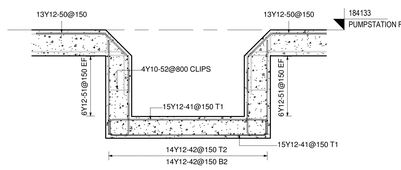
SUMP 1 FLOOR

1 : 25



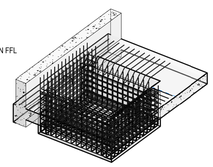
SUMP 1 WALLS

1 : 25

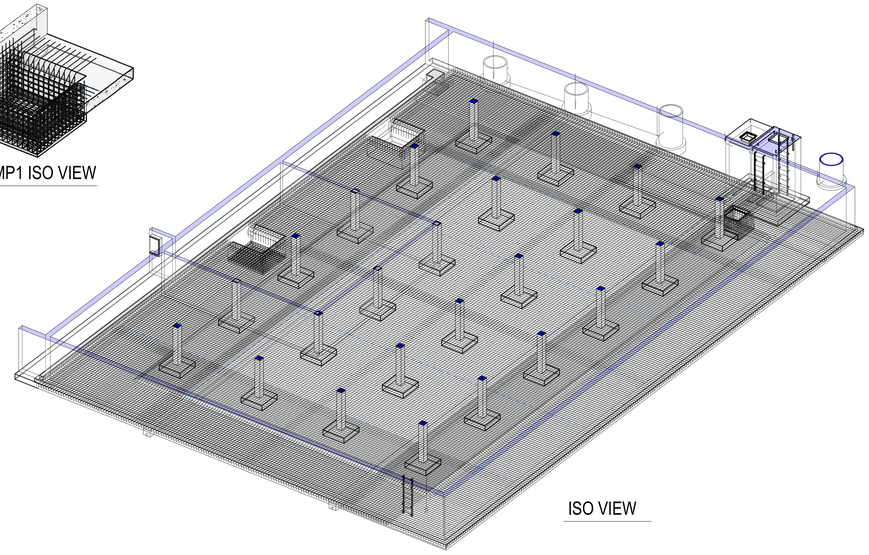


A SECTION A

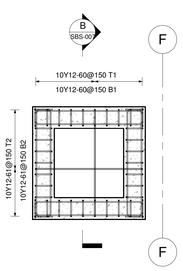
1 : 25



SUMP1 ISO VIEW

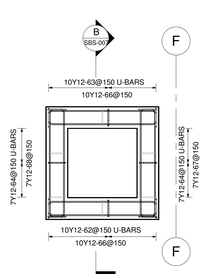


ISO VIEW



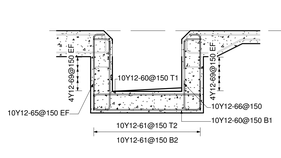
SUMP 2 FLOOR

1 : 25



SUMP 2 WALLS

1 : 25



B SECTION B

1 : 25

SEE DRAWING SBS-008 FOR SECTIONS

REBAR SCHEDULE

No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
RESERVOIR FLOOR												
1	01	Y12	213	213	6700	42	3270	340	2940	160	290	0
1	02	Y12	224	224	6650	37	190	6500	0	0	0	0
1	03	Y12	66	66	6550	42	3410	340	2630	160	300	0
1	04	Y12	84	84	6550	42	3410	340	2640	160	300	0
1	05	Y12	189	189	6700	42	3260	330	2950	160	290	0
1	06	Y12	255	255	6700	20	6690	0	0	0	0	0
1	07	Y12	16	16	6400	42	3260	340	2630	160	300	0
1	08	Y12	66	66	6800	37	6400	440	0	0	0	0
1	09	Y12	183	183	6700	20	6700	0	0	0	0	0
1	10	Y12	85	85	6850	20	6850	0	0	0	0	0
1	11	Y12	41	41	6550	37	190	6380	0	0	0	0
1	12	Y12	44	44	6650	37	190	6510	0	0	0	0
1	13	Y12	143	143	6550	37	190	6390	0	0	0	0
1	14	Y12	7	7	6050	38	190	5310	620	0	0	0
1	15	Y12	28	28	6650	37	200	6500	0	0	0	0
1	16	Y12	8	8	6500	37	6270	240	0	0	0	0
1	17	Y12	10	10	5650	38	190	5390	150	0	0	0
1	18	Y12	10	10	6450	37	6270	190	0	0	0	0
1	19	Y12	24	24	1900	37	500	1450	0	0	0	0
1	20	Y12	24	24	3650	41	650	330	2660	160	290	0
1	21	Y12	24	24	4350	37	190	4190	0	0	0	0
1	22	Y12	15	15	6150	54	190	5310	500	0	0	0
1	23	Y12	15	15	11000	38	500	10060	500	0	0	0
1	24	Y12	15	15	6700	37	6500	230	0	0	0	0
1	25	Y12	15	15	10450	37	9970	500	0	0	0	0
1	26	Y12	20	20	6600	37	120	6500	0	0	0	0
1	27	Y12	134	134	11750	20	11770	0	0	0	0	0
1	28	Y12	15	15	5700	38	190	5400	190	0	0	0
1	29	Y12	15	15	10000	38	190	9680	190	0	0	0
1	30	Y12	15	15	9960	37	190	9760	0	0	0	0
1	31	Y12	335	335	6650	37	6500	190	0	0	0	0
1	32	Y12	8	8	2300	38	190	2040	130	0	0	0
1	33	Y12	8	8	3800	42	350	330	2950	170	280	0
1	34	Y12	8	8	2300	38	190	2000	190	0	0	0
1	35	Y12	8	8	3750	37	3600	190	0	0	0	0
1	36	Y12	236	236	11800	20	11780	0	0	0	0	0
1	45	Y12	1	1	1400	37	130	1330	0	0	0	0
1	47	Y12	10	10	1650	49	550	720	400	390	510	0
1	50	Y12	26	26	1850	48	680	390	790	280	280	0
1	54	Y10	6	6	500	35	250	0	0	0	0	0
SUMP 1 FLOOR												
2	40	Y12	15	30	2150	38	190	1820	190	0	0	0
2	41	Y12	15	30	3300	55	600	190	1820	190	600	0
2	42	Y12	28	56	2300	38	180	2000	180	0	0	0
SUMP 1 WALLS												
2	43	Y12	14	28	2200	38	900	250	1100	0	0	0
2	44	Y12	14	28	3200	38	1500	250	1500	0	0	0
2	46	Y12	14	28	900	37	700	250	0	0	0	0
2	48	Y12	13	26	2100	38	1100	240	840	0	0	0
2	49	Y12	13	26	2200	38	900	240	1100	0	0	0
2	51	Y12	24	48	2350	35	2030	0	0	0	0	0
2	52	Y10	16	32	500	35	240	0	0	0	0	0
2	53	Y12	28	56	2150	35	1840	0	0	0	0	0
2	54	Y10	6	12	500	35	250	0	0	0	0	0
SUMP 2 FLOOR												
1	60	Y12	20	20	1550	38	190	1240	190	0	0	0
1	61	Y12	20	20	1550	38	180	1240	180	0	0	0
SUMP 2 WALLS												
1	62	Y12	10	10	1800	38	800	200	850	0	0	0
1	63	Y12	10	10	1800	38	850	200	800	0	0	0
1	64	Y12	14	14	1800	38	850	200	800	0	0	0
1	65	Y12	20	20	750	37	130	660	0	0	0	0
1	66	Y12	20	20	750	34	600	0	0	0	0	0
1	67	Y12	14	14	750	37	150	640	0	0	0	0
1	68	Y12	14	14	750	37	580	200	0	0	0	0
1	69	Y12	32	32	1550	35	1250	0	0	0	0	0
1	70	Y10	6	6	450	35	190	0	0	0	0	0
1	71	Y12	6	6	500	35	200	0	0	0	0	0

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30	
1	PN	INTERNAL REVIEW	2022.03.28	

DRG. No REFERENCE DRAWING

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FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	P. NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

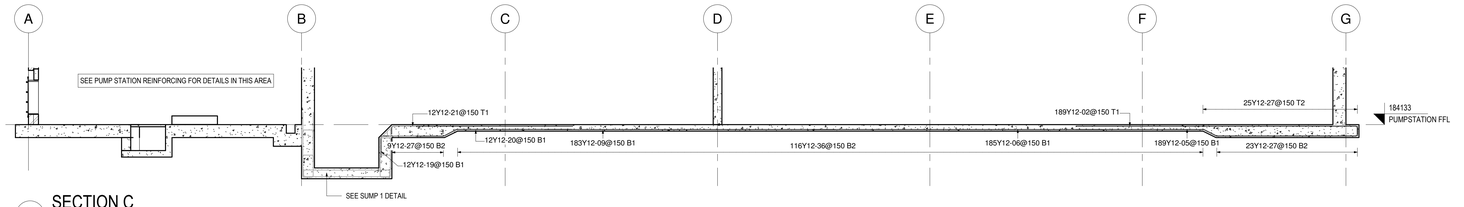
APPROVED: S.MDAKA, PROJECT MANAGER; M.VADIWA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

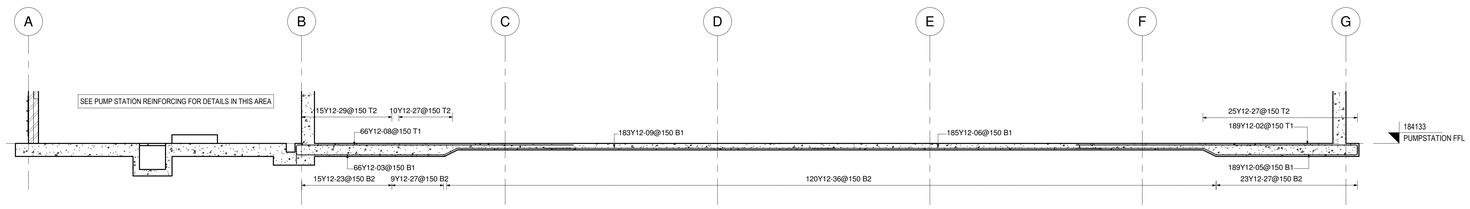
RESERVOIR FLOOR REINFORCING
RESERVOIR FLOOR - PLAN

SCALE	AS SHOWN	DATE	2022.11.30
DRAWING NUMBER	1331-093 SBS-007	A0	REVISION A

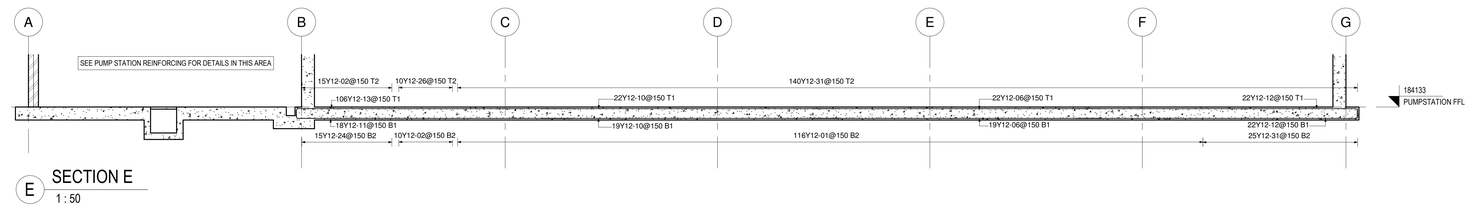
FOR CONSTRUCTION



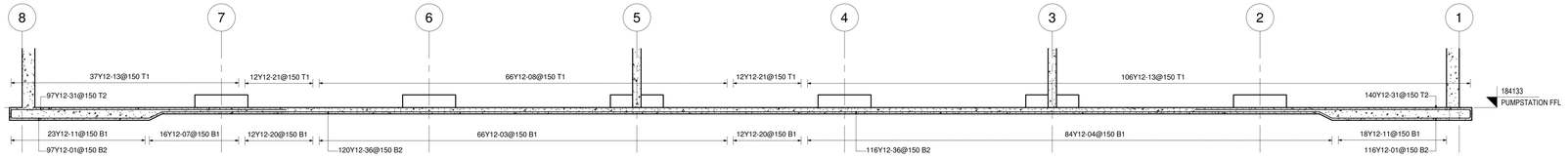
C SECTION C
1 : 50



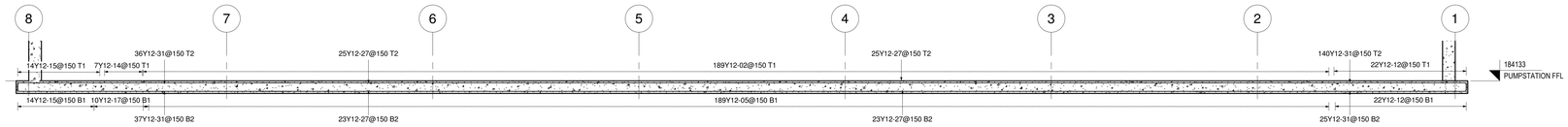
D SECTION D
1 : 50



E SECTION E
1 : 50



F SECTION F
1 : 50



G SECTION G
1 : 50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30	
1	PN	INTERNAL REVIEW	2022.03.28	

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TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	P. NAICKER		
CIVIL ENGINEER	A LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

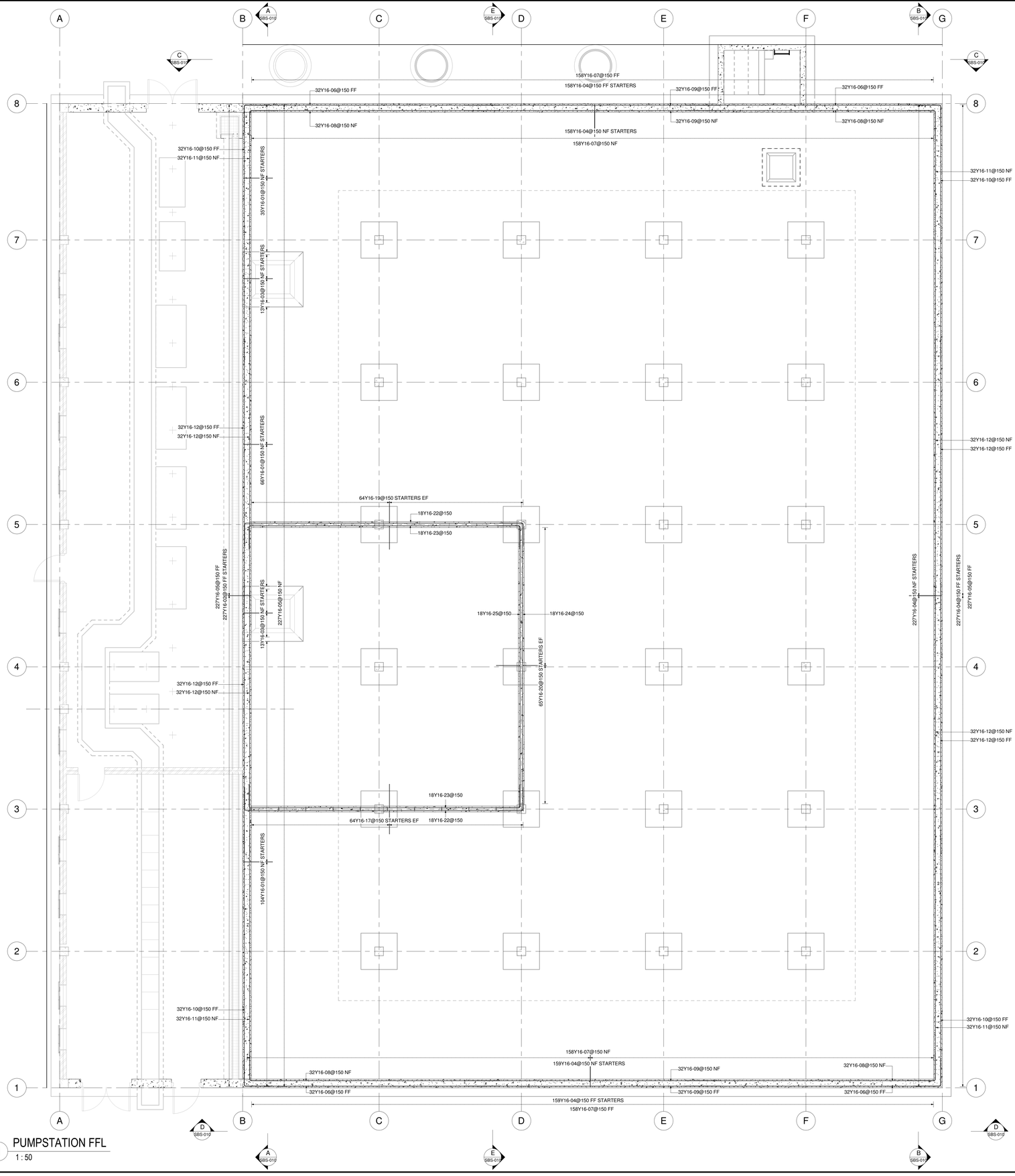
APPROVED | S.MDAKA PROJECT MANAGER | M.VADWA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

RESERVOIR FLOOR REINFORCING
RESERVOIR FLOOR SECTIONS

SCALE: AS SHOWN | DATE: 2022.11.30

DRAWING NUMBER: 1331-093 SBS-008 | A0 | REVISION: A

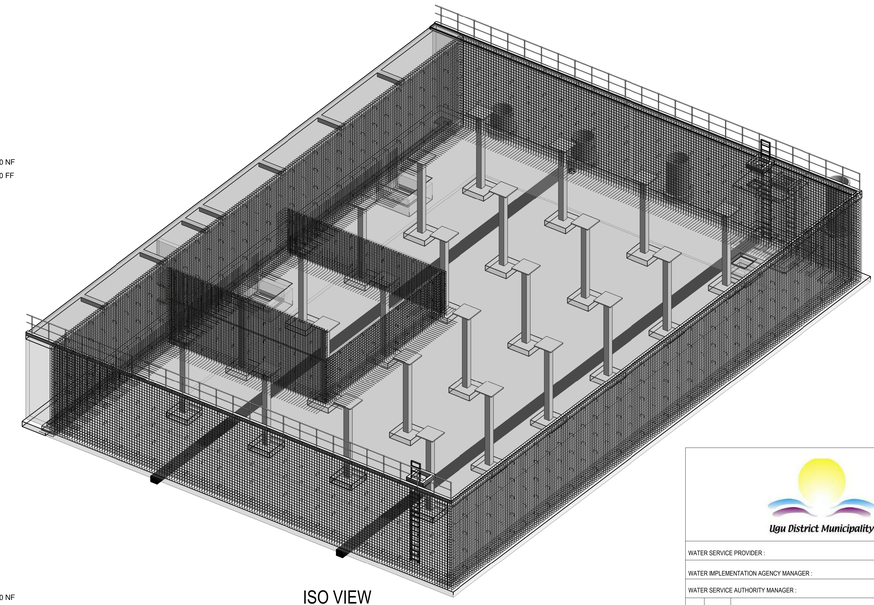


1 PUMPSTATION FFL
1 : 50

REBAR SCHEDULE

No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
RESERVOIR WALLS												
1	01	Y16	205	205	2250	37	1300	1000	0	0	0	0
1	02	Y16	227	227	2350	37	1500	880	0	0	0	0
1	03	Y16	26	26	3200	37	2250	1000	0	0	0	0
1	04	Y16	1088	1088	2200	37	1330	890	0	0	0	0
1	05	Y16	908	908	5000	37	4790	240	0	0	0	0
1	06	Y16	128	128	9700	37	8800	950	0	0	0	0
1	07	Y16	632	632	5000	37	240	4790	0	0	0	0
1	08	Y16	128	128	9500	37	8610	950	0	0	0	0
1	09	Y16	128	128	8850	20	8840	0	0	0	0	0
1	10	Y16	128	128	9750	37	8830	950	0	0	0	0
1	11	Y16	128	128	9550	37	8640	950	0	0	0	0
1	12	Y16	256	256	9300	20	9310	0	0	0	0	0
1	13	Y10	600	600	500	35	240	0	0	0	0	0
1	15	Y16	194	194	2550	37	140	2440	0	0	0	0
1	16	Y16	64	64	2550	37	2440	140	0	0	0	0
1	17	Y16	64	64	1750	37	1000	810	0	0	0	0
1	18	Y16	64	64	1750	37	1000	800	0	0	0	0
1	19	Y16	128	128	1950	37	1200	800	0	0	0	0
1	20	Y16	130	130	1950	37	810	1200	0	0	0	0
1	21	Y16	128	128	4350	37	140	4240	0	0	0	0
1	22	Y16	36	36	11150	38	800	9610	800	0	0	0
1	23	Y16	36	36	10850	38	800	9340	800	0	0	0
1	24	Y16	18	18	11450	38	800	9920	800	0	0	0
1	25	Y16	18	18	11250	38	800	9730	800	0	0	0
1	26	Y16	13	13	10500	38	180	9610	800	0	0	0
1	27	Y16	13	13	10250	38	180	9340	800	0	0	0
1	28	Y10	121	121	400	35	140	0	0	0	0	0

SEE DRAWING SBS-002 FOR SECTIONS



ISO VIEW

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30	
1	PN	INTERNAL REVIEW	2022.03.22	

DRG. No. | REFERENCE DRAWING

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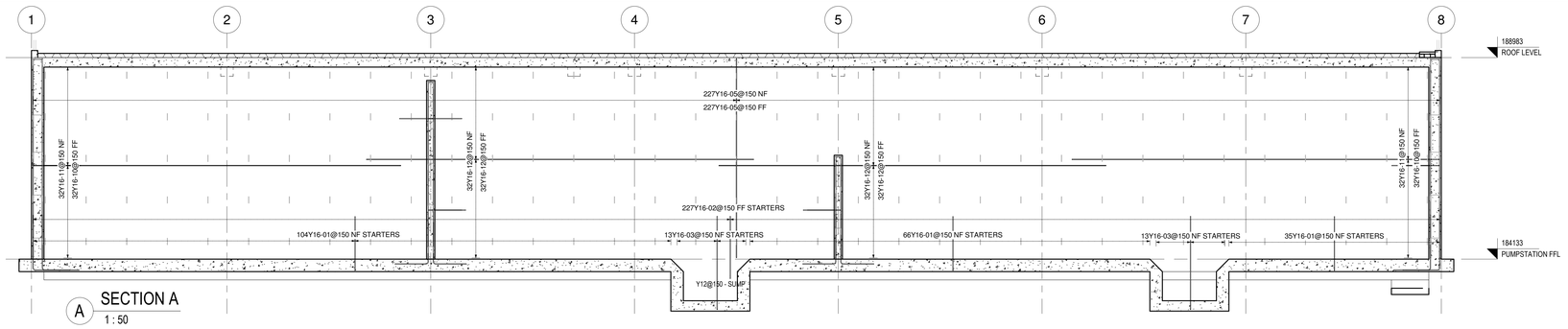
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DURBAN
SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	P. NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VADWA DIVISIONAL MANAGER	

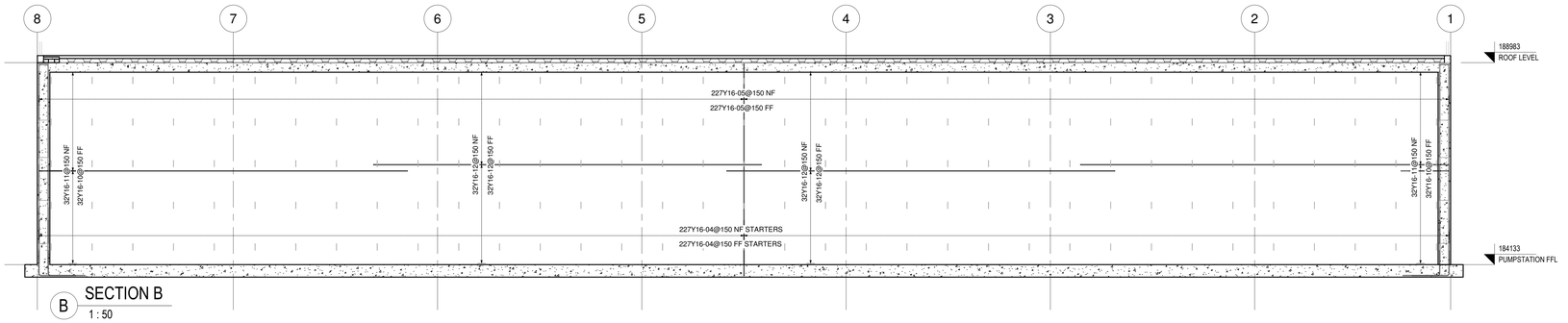
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

RESERVOIR WALL REINFORCING PLAN

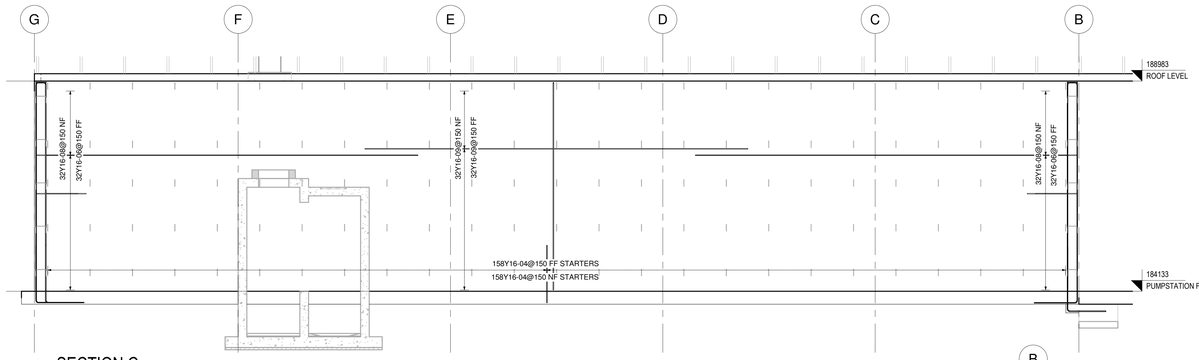
SCALE	DATE
AS SHOWN	2022.11.30
DRAWING NUMBER	REVISION
1331-093 SBS-009 A0	A



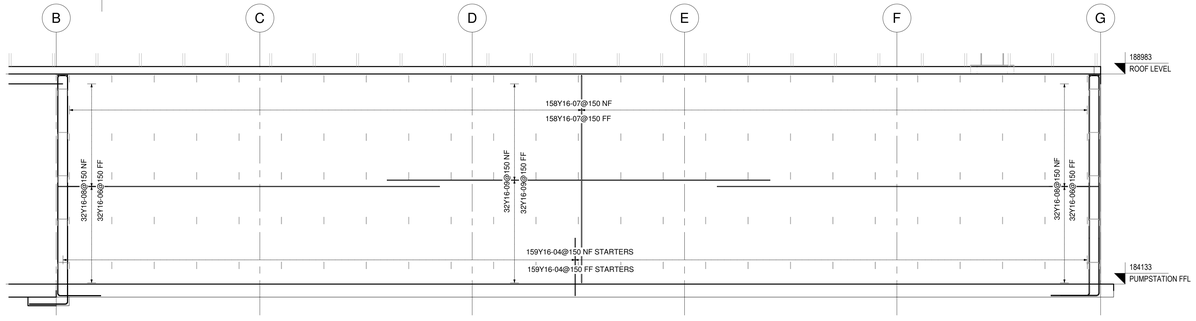
A SECTION A
1 : 50



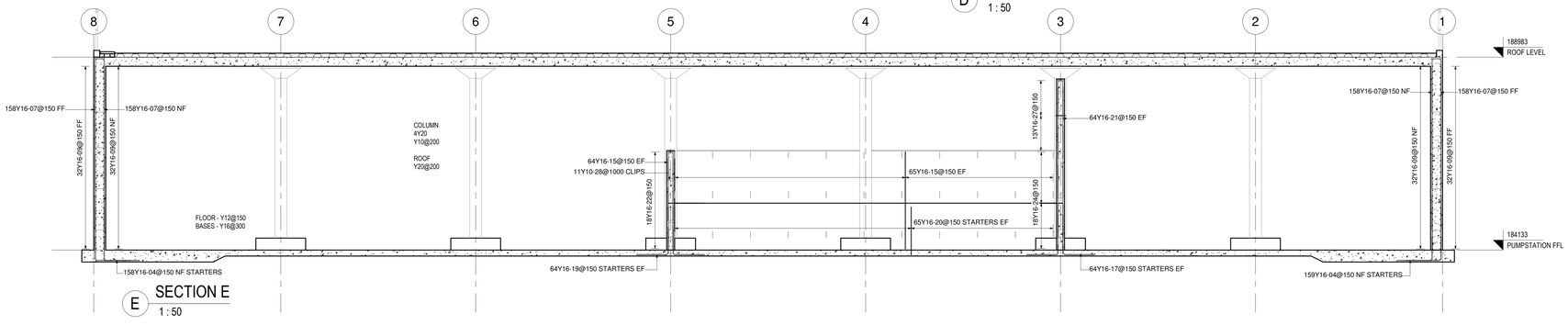
B SECTION B
1 : 50



C SECTION C
1 : 50



D SECTION D
1 : 50



E SECTION E
1 : 50

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30	
1	PN	INTERNAL REVIEW	2022.03.22	

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FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	P. NAICKER		
CIVIL ENGINEER	A LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED | S.MDAKA PROJECT MANAGER | B.VADIWA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

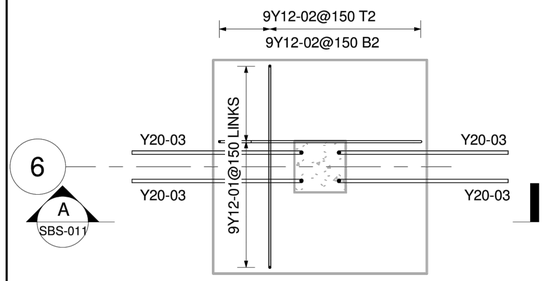
RESERVOIR WALL REINFORCING SECTIONS

SCALE: AS SHOWN | DATE: 2022.11.30

DRAWING NUMBER: 1331-093 SBS-010 | A0 | REVISION: A

REBAR SCHEDULE

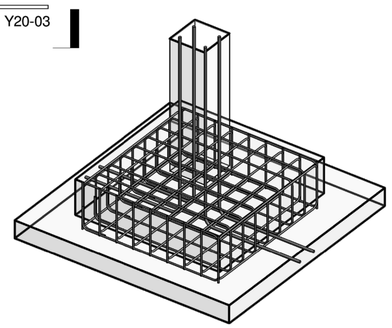
No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
24	01	Y12	9	216	3400	60	390	1190	0	0	0	0
24	02	Y12	18	432	1900	38	380	1190	380	0	0	0
24	03	Y20	4	96	2450	37	1500	1000	0	0	0	0



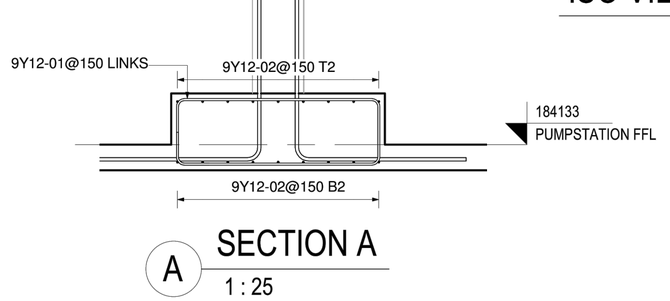
PLAN ON BASES

1 : 25

24 No. OFF



ISO VIEW



A SECTION A

1 : 25

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30
1	PN	INTERNAL REVIEW	2022.03.28

DRG. No.

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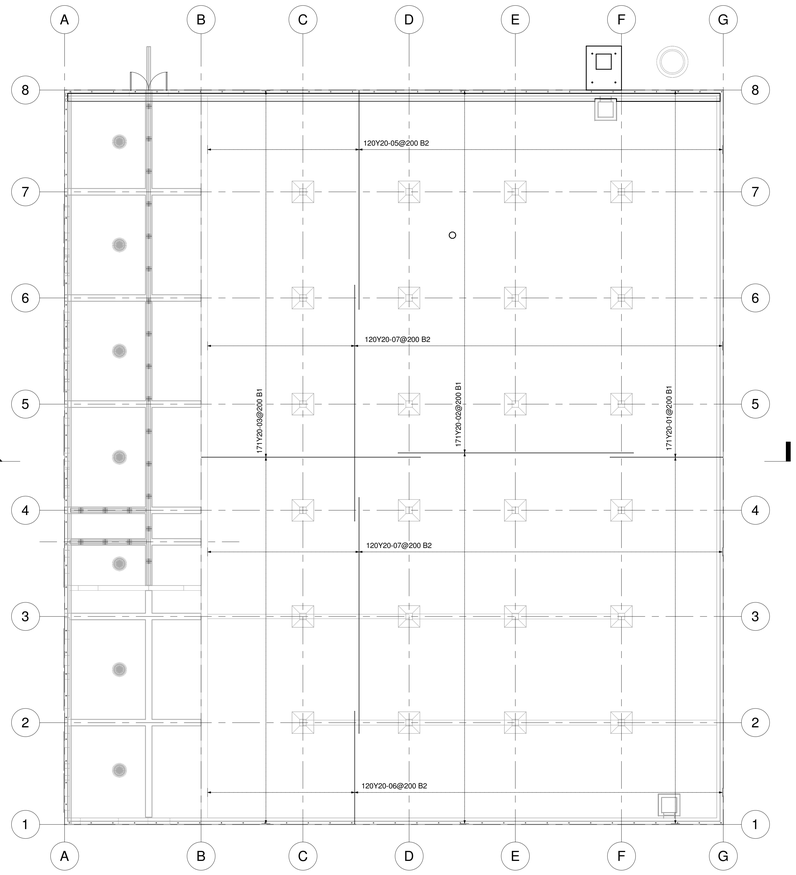
DRAWN	P. NAICKER		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	S. ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
PROJECT MANAGER	S. MDAKA	DIVISIONAL MANAGER	M. VAWDA

SCALE: AS SHOWN

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
RESERVOIR-BASE REINFORCING

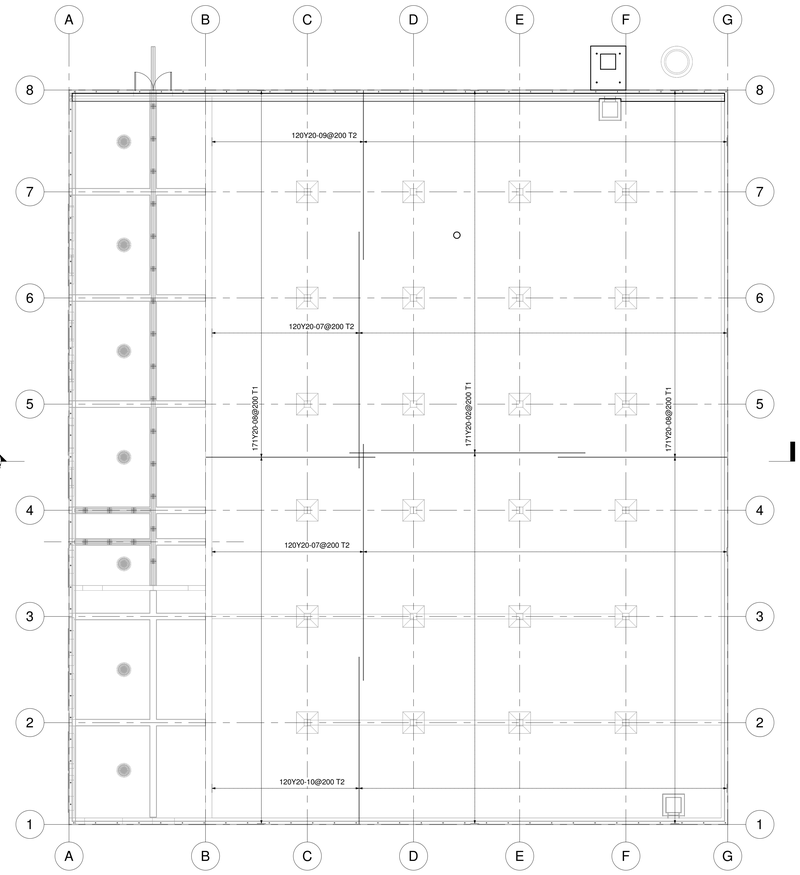
DRAWING NUMBER: 1331-093-SBS-011 | A4 | REVISION: A

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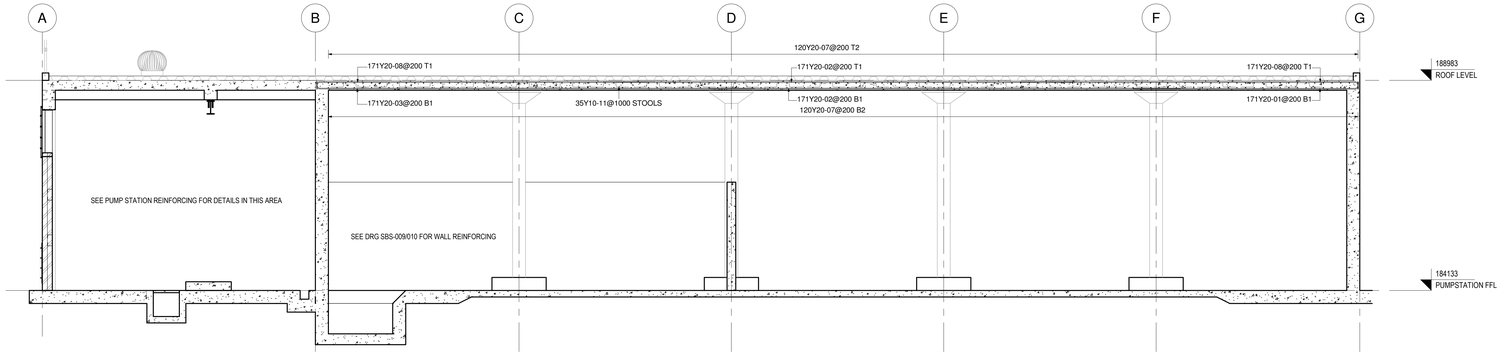
ROOF LEVEL-BOTTOM STEEL

1 : 100



ROOF LEVEL-TOP STEEL

1 : 100



A SECTION A

1 : 50

REBAR SCHEDULE

No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
1	01	Y20	171	171	5300	37	5200	170	0	0	0	0
1	02	Y20	342	342	10850	20	10870	0	0	0	0	0
1	03	Y20	171	171	10200	37	10100	170	0	0	0	0
1	05	Y20	120	120	10200	37	150	10100	0	0	0	0
1	06	Y20	120	120	5300	37	150	5200	0	0	0	0
1	07	Y20	480	480	10900	20	10900	0	0	0	0	0
1	08	Y20	342	342	7900	37	7800	170	0	0	0	0
1	09	Y20	120	120	7900	37	150	7800	0	0	0	0
1	10	Y20	120	120	7800	37	150	7700	0	0	0	0
1	11	Y10	805	805	1000	83	300	110	300	300	300	0

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30	
t	PN	INTERNAL REVIEW	2022.03.29	

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SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
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website: www.boschprojects.co.za

DRAWN	P. NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED | S.MDAKA PROJECT MANAGER | M.VADWA DIVISIONAL MANAGER

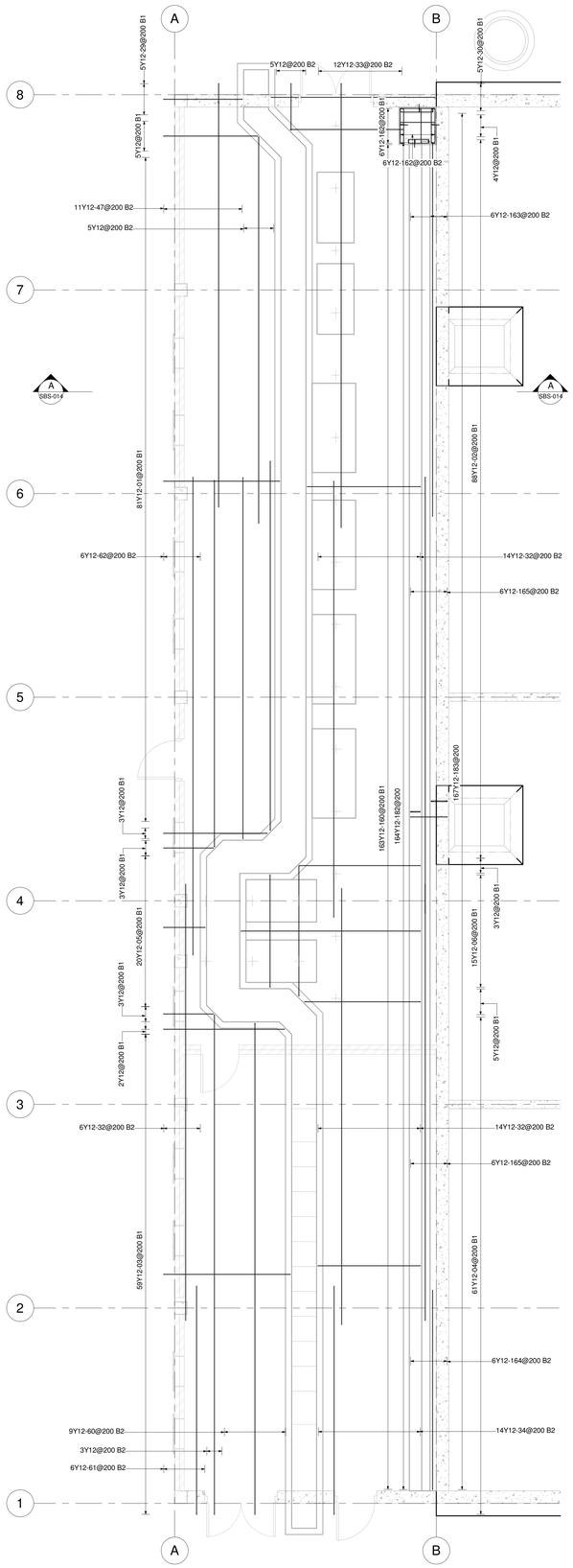
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND
WATER TREATMENT WORKS (6.5 ML/DAY)

RESERVOIR - ROOF SLAB REINFORCING

SCALE AS SHOWN | DATE 2022.11.30

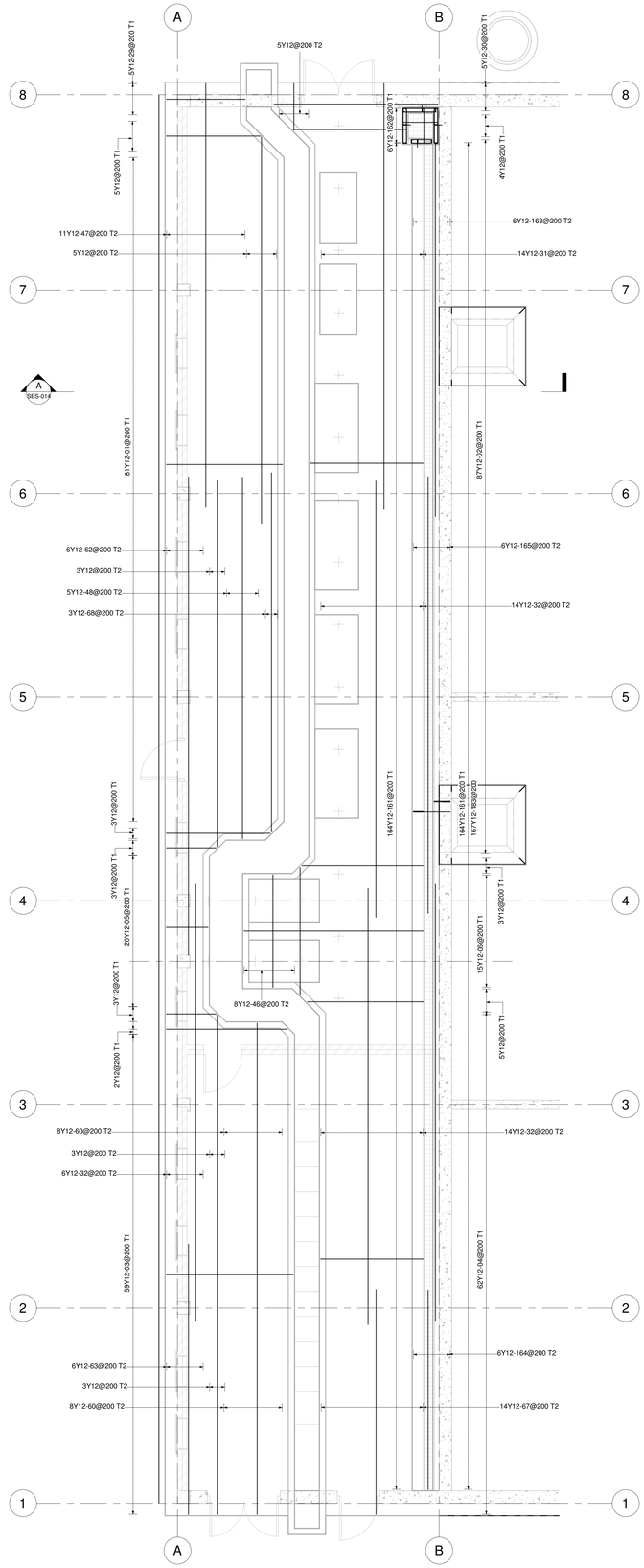
DRAWING NUMBER 1331-093 SBS-012 | A0 | REVISION A

FOR CONSTRUCTION



BOTTOM STEEL

1 : 50

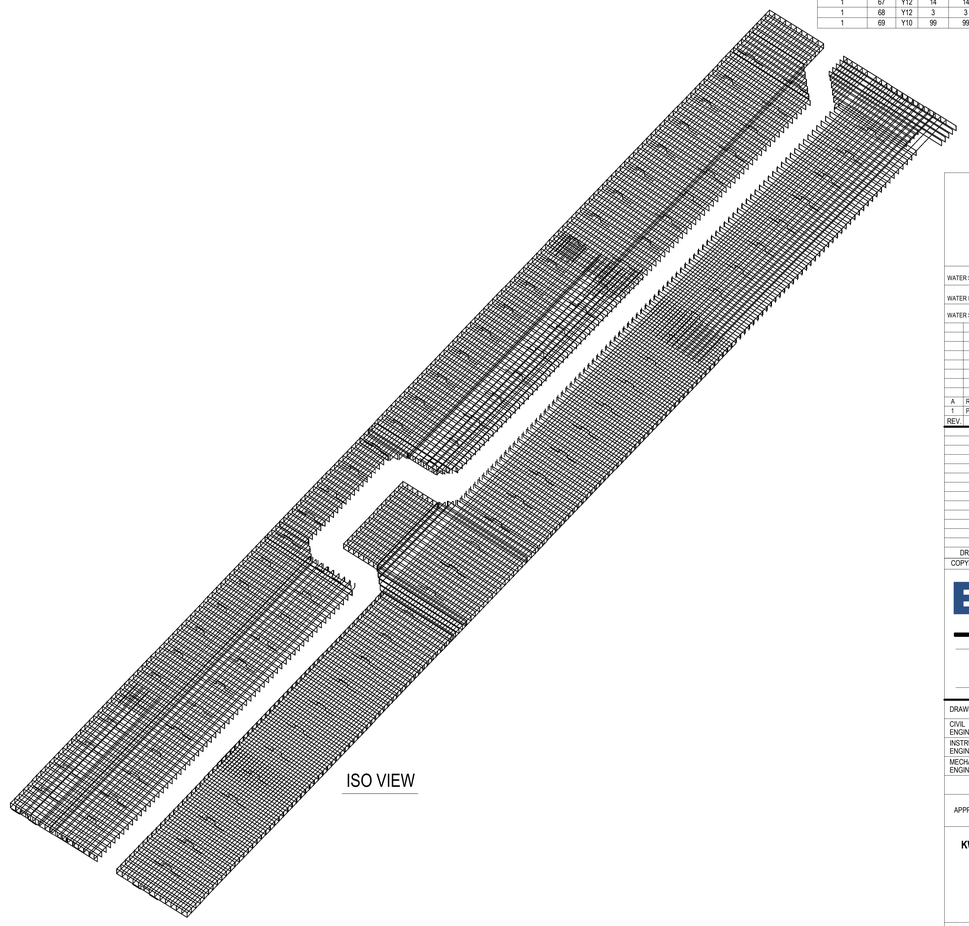


TOP STEEL

1 : 50

PUMP HOUSE REBAR SCHEDULE

No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
PUMP ROOM FLOOR												
1	01	Y12	162	162	3200	38	240	2800	240	0	0	0
1	02	Y12	175	175	3150	38	240	2730	240	0	0	0
1	03	Y12	118	118	3500	38	240	3060	240	0	0	0
1	04	Y12	123	123	2900	38	240	2470	240	0	0	0
1	05	Y12	40	40	1450	38	240	1010	240	0	0	0
1	06	Y12	30	30	4750	38	240	4320	240	0	0	0
1	07	Y12	4	4	3050	38	240	2630	240	0	0	0
1	08	Y12	2	2	2850	38	240	2450	240	0	0	0
1	09	Y12	2	2	2700	38	240	2270	240	0	0	0
1	10	Y12	2	2	2500	38	240	2090	240	0	0	0
1	11	Y12	2	2	2350	38	240	1910	240	0	0	0
1	12	Y12	2	2	3000	38	240	2560	240	0	0	0
1	13	Y12	4	4	3150	38	240	2740	240	0	0	0
1	14	Y12	2	2	3350	38	240	2910	240	0	0	0
1	15	Y12	2	2	3500	38	240	3090	240	0	0	0
1	16	Y12	2	2	2800	38	240	2370	240	0	0	0
1	17	Y12	2	2	2900	38	240	2500	240	0	0	0
1	18	Y12	4	4	1450	38	240	1020	240	0	0	0
1	19	Y12	2	2	1600	38	240	1200	240	0	0	0
1	20	Y12	4	4	1800	38	240	1390	240	0	0	0
1	21	Y12	4	4	3500	38	240	3100	240	0	0	0
1	22	Y12	4	4	3350	38	240	2920	240	0	0	0
1	23	Y12	2	2	2900	38	240	2480	240	0	0	0
1	24	Y12	2	2	3050	38	240	2640	240	0	0	0
1	25	Y12	2	2	3200	38	240	2790	240	0	0	0
1	26	Y12	2	2	3350	38	240	2950	240	0	0	0
1	27	Y12	2	2	1600	38	240	1200	240	0	0	0
1	28	Y12	2	2	3450	38	240	3040	240	0	0	0
1	29	Y12	10	10	2300	38	240	1900	240	0	0	0
1	30	Y12	10	10	4350	38	240	3950	240	0	0	0
1	31	Y12	14	14	10450	37	220	10250	0	0	0	0
1	32	Y12	68	68	10500	20	10500	0	0	0	0	0
1	33	Y12	12	12	10900	37	220	10690	0	0	0	0
1	34	Y12	14	14	5700	37	220	5500	0	0	0	0
1	35	Y12	2	2	1150	38	220	770	220	0	0	0
1	36	Y12	2	2	1350	38	220	950	220	0	0	0
1	37	Y12	2	2	1500	38	220	1130	220	0	0	0
1	38	Y12	2	2	1700	38	220	1300	220	0	0	0
1	39	Y12	2	2	1850	38	220	1480	220	0	0	0
1	40	Y12	1	1	3200	38	220	2810	220	0	0	0
1	41	Y12	1	1	3500	38	220	3130	220	0	0	0
1	42	Y12	1	1	3850	38	220	3460	220	0	0	0
1	43	Y12	1	1	3450	38	220	3060	220	0	0	0
1	44	Y12	1	1	3750	38	220	3370	220	0	0	0
1	45	Y12	1	1	3100	38	220	2740	220	0	0	0
1	46	Y12	16	16	3100	38	220	2710	220	0	0	0
1	47	Y12	22	22	10400	37	220	10200	0	0	0	0
1	48	Y12	11	11	8900	37	220	8700	0	0	0	0
1	49	Y12	2	2	9200	37	9010	240	0	0	0	0
1	50	Y12	2	2	9050	37	8830	240	0	0	0	0
1	51	Y12	2	2	8850	37	8640	240	0	0	0	0
1	52	Y12	2	2	10200	37	220	10030	0	0	0	0
1	53	Y12	2	2	9850	37	220	9660	0	0	0	0
1	54	Y12	2	2	9500	37	220	9300	0	0	0	0
1	55	Y12	2	2	9150	37	220	8940	0	0	0	0
1	56	Y12	2	2	8750	37	220	8580	0	0	0	0
1	57	Y12	1	1	8700	37	8520	220	0	0	0	0
1	58	Y12	1	1	9100	37	8890	220	0	0	0	0
1	59	Y12	1	1	9450	37	9250	220	0	0	0	0
1	60	Y12	17	17	12150	35	11830	0	0	0	0	0
1	61	Y12	6	6	5650	34	5500	0	0	0	0	0
1	62	Y12	12	12	11500	20	11510	0	0	0	0	0
1	63	Y12	6	6	6650	34	6510	0	0	0	0	0
1	64	Y12	2	2	12550	35	12210	0	0	0	0	0
1	65	Y12	2	2	12350	35	12020	0	0	0	0	0
1	66	Y12	2	2	12150	35	11840	0	0	0	0	0
1	67	Y12	14	14	5600	37	220	5410	0	0	0	0
1	68	Y12	3	3	8850	37	240	8640	0	0	0	0
1	69	Y10	99	99	1200	53	300	200	300	200	300	0



ISO VIEW

SEE DRAWING SBS-008 FOR SECTIONS

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	R.C.	APPROVED FOR CONSTRUCTION	2022.11.30	
f	PN	INTERNAL REVIEW	2022.03.31	

DRG. No. | REFERENCE DRAWING

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TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
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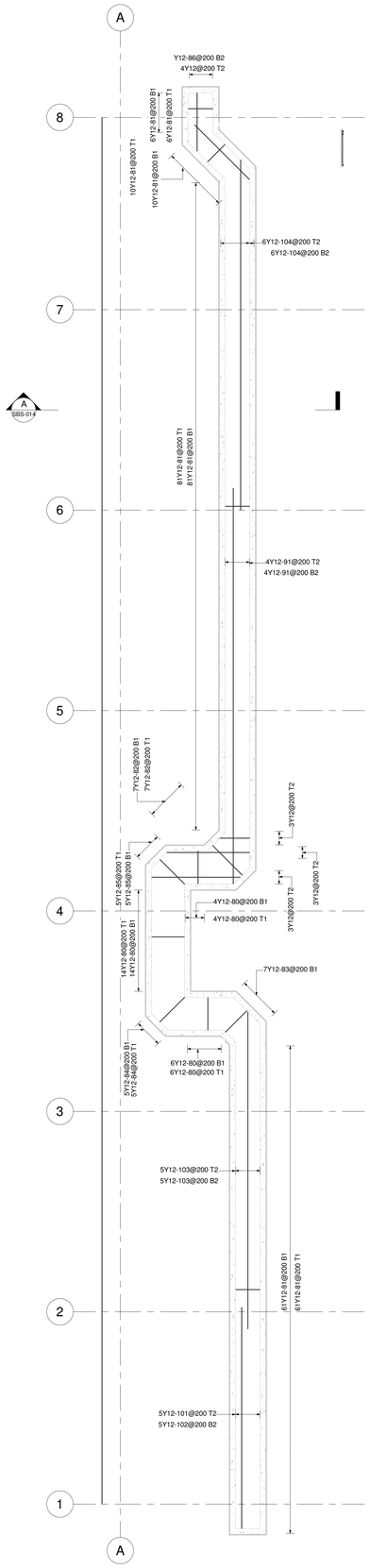
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CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.NADIWA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PUMP STATION
TRENCH LAYOUT
FLOOR PLAN REINFORCING

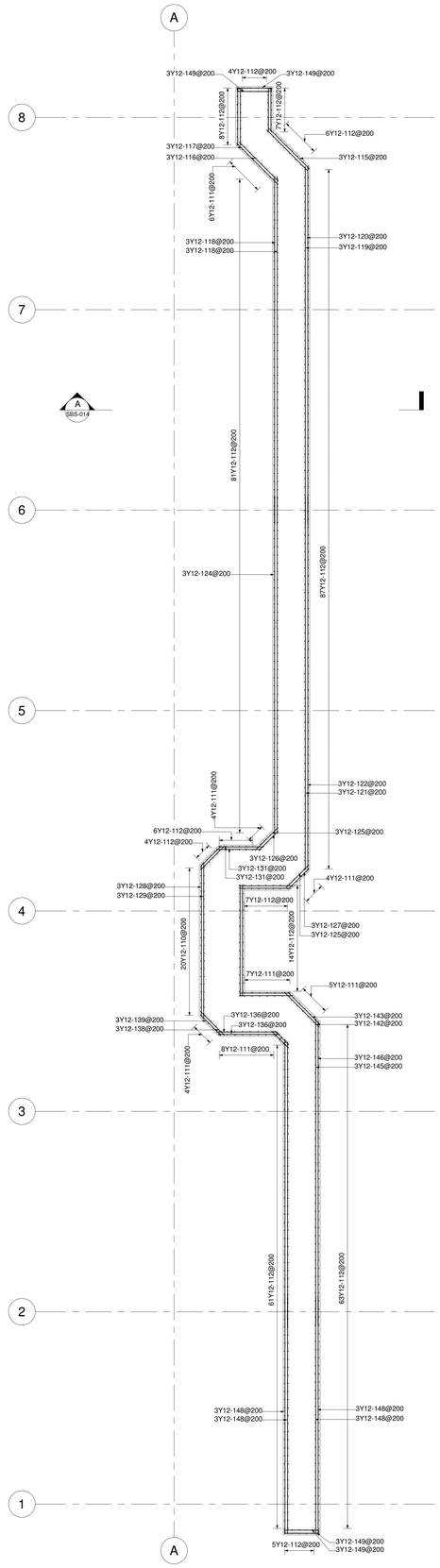
SCALE	AS SHOWN	DATE	2022.11.30
DRAWING NUMBER	1331-093 SBS-013	A0	REVISION A

FOR CONSTRUCTION



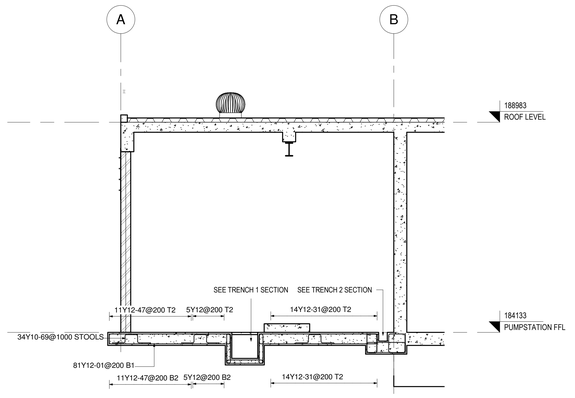
TRENCH 1 FLOOR LAYOUT

1 : 50



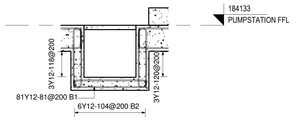
TRENCH 1 WALL LAYOUT

1 : 50



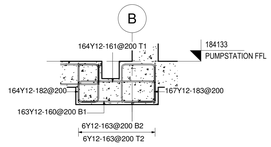
A SECTION A

1 : 50



TRENCH 1 SECTION

1 : 25



TRENCH 2 SECTION

1 : 25

FOR CONSTRUCTION

TRENCH REBAR SCHEDULE

No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
TRENCH 1 FLOOR												
1	80	Y12	48	48	1150	38	90	1040	90	0	0	0
1	81	Y12	316	316	950	38	90	840	90	0	0	0
1	82	Y12	14	14	1400	38	90	1270	90	0	0	0
1	83	Y12	14	14	1100	38	90	980	90	0	0	0
1	84	Y12	10	10	1250	38	90	1140	90	0	0	0
1	85	Y12	10	10	1300	38	90	1160	90	0	0	0
1	86	Y12	2	2	1650	38	90	1530	90	0	0	0
1	87	Y12	2	2	1850	38	90	1710	90	0	0	0
1	88	Y12	2	2	2000	38	90	1900	90	0	0	0
1	89	Y12	2	2	2200	38	90	2090	90	0	0	0
1	90	Y12	8	8	1900	20	1880	0	0	0	0	0
1	91	Y12	8	8	9750	37	90	9670	0	0	0	0
1	92	Y12	2	2	2550	38	90	2450	90	0	0	0
1	93	Y12	2	2	2450	38	90	2310	90	0	0	0
1	94	Y12	2	2	2300	38	90	2170	90	0	0	0
1	95	Y12	2	2	1300	38	90	1180	90	0	0	0
1	96	Y12	2	2	1150	38	90	1020	90	0	0	0
1	97	Y12	2	2	950	38	90	850	90	0	0	0
1	98	Y12	2	2	2750	38	90	2610	90	0	0	0
1	99	Y12	2	2	2400	38	90	2290	90	0	0	0
1	100	Y12	2	2	2550	38	90	2450	90	0	0	0
1	101	Y12	5	5	5600	37	5530	90	0	0	0	0
1	102	Y12	5	5	5600	37	90	5530	0	0	0	0
1	103	Y12	10	10	7950	37	7920	60	0	0	0	0
1	104	Y12	12	12	8800	37	90	8730	0	0	0	0
TRENCH 1 WALLS												
1	110	Y12	40	40	1050	38	500	100	500	0	0	0
1	111	Y12	401	401	1050	38	500	100	500	0	0	0
1	112	Y12	386	386	1150	38	550	100	550	0	0	0
1	113	Y12	6	6	1100	37	90	1060	0	0	0	0
1	114	Y12	6	6	1450	37	90	1400	0	0	0	0
1	115	Y12	6	6	1400	20	1410	0	0	0	0	0
1	116	Y12	3	3	1350	20	1340	0	0	0	0	0
1	117	Y12	3	3	1400	20	1410	0	0	0	0	0
1	118	Y12	6	6	8500	20	8500	0	0	0	0	0
1	119	Y12	3	3	8750	20	8740	0	0	0	0	0
1	120	Y12	3	3	8750	20	8750	0	0	0	0	0
1	121	Y12	3	3	9150	20	9130	0	0	0	0	0
1	122	Y12	3	3	9150	20	9150	0	0	0	0	0
1	123	Y12	3	3	8250	20	8240	0	0	0	0	0
1	124	Y12	3	3	8250	20	8250	0	0	0	0	0
1	125	Y12	6	6	800	20	780	0	0	0	0	0
1	126	Y12	3	3	650	20	650	0	0	0	0	0
1	127	Y12	3	3	700	20	700	0	0	0	0	0
1	128	Y12	3	3	3700	20	3710	0	0	0	0	0
1	129	Y12	3	3	3800	20	3820	0	0	0	0	0
1	130	Y12	6	6	2700	20	2720	0	0	0	0	0
1	131	Y12	6	6	1100	20	1090	0	0	0	0	0
1	132	Y12	3	3	1300	20	1310	0	0	0	0	0
1	133	Y12	3	3	1250	20	1250	0	0	0	0	0
1	134	Y12	3	3	1250	20	1240	0	0	0	0	0
1	135	Y12	3	3	1300	20	1300	0	0	0	0	0
1	136	Y12	6	6	1500	20	1490	0	0	0	0	0
1	137	Y12	3	3	700	20	700	0	0	0	0	0
1	138	Y12	6	6	800	20	820	0	0	0	0	0
1	139	Y12	3	3	700	20	700	0	0	0	0	0
1	140	Y12	3	3	600	20	580	0	0	0	0	0
1	141	Y12	3	3	450	20	460	0	0	0	0	0
1	142	Y12	3	3	1200	20	1200	0	0	0	0	0
1	143	Y12	3	3	1100	20	1080	0	0	0	0	0
1	144	Y12	3	3	7050	20	7030	0	0	0	0	0
1	145	Y12	3	3	7500	20	7510	0	0	0	0	0
1	146	Y12	3	3	7450	20	7460	0	0	0	0	0
1	147	Y12	3	3	6950	20	6940	0	0	0	0	0
1	148	Y12	12	12	5800	20	5800	0	0	0	0	0
1	149	Y12	12	12	950	38	100	840	100	0	0	0
TRENCH 2 FLOOR												
1	160	Y12	163	163	1750	38	450	900	450	0	0	0
1	161	Y12	164	164	1350	38	250	900	250	0	0	0
1	162	Y12	24	24	1000	38	100	850	100	0	0	0
1	163	Y12	12	12	9200	37	230	9000	0	0	0	0
1	164	Y12	12	12	5000	37	230	4800	0	0	0	0
1	165	Y12	24	24	10500	20	10500	0	0	0	0	0
1	182	Y12	164	164	1600	60	240	450	0	0	0	0
1	183	Y12	167	167	1900	60	390	450	0	0	0	0
TRENCH 2 WALLS												
1	162	Y12	8	8	1000	38	100	850	100	0	0	0
1	166	Y12	1	1	2000	60	100	800	0	0	0	0
1	167	Y12	1	1	2000	60	100	790	0	0	0	0
1	168	Y12	3	3	1000	38	100	850	100	0	0	0
1	169	Y12	5	5	1000	38	100	850	100	0	0	0
1	170	Y12	6	6	950	38	100	800	100	0	0	0
1	171	Y12	4	4	650	38	100	500	100	0	0	0
1	180	Y12	5	5	2000	60	100	790	0	0	0	0
1	181	Y12	5	5	1550	60	100	570	0	0	0	0

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	R.C.	APPROVED FOR CONSTRUCTION	2022.11.30	
1	PN	INTERNAL REVIEW	2022.03.31	

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MOUNT EDGECOMBE
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SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	P. NAICKER		
CIVIL ENGINEER	A LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

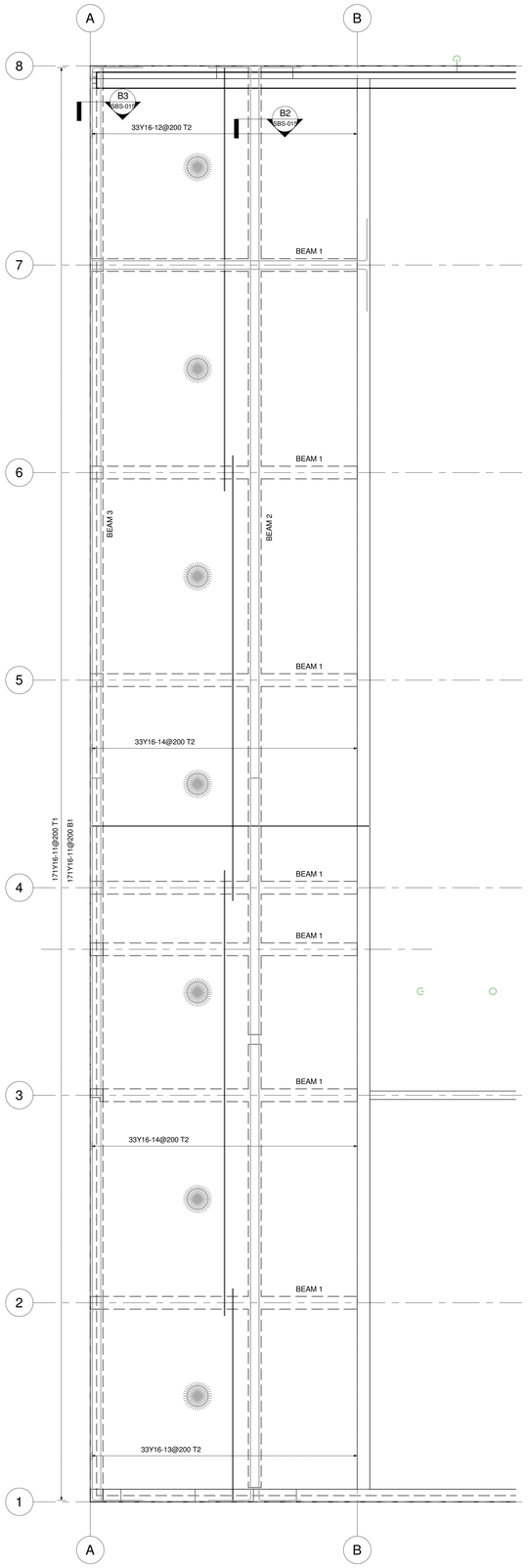
APPROVED — S.MDAKA, PROJECT MANAGER — B.VADWA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

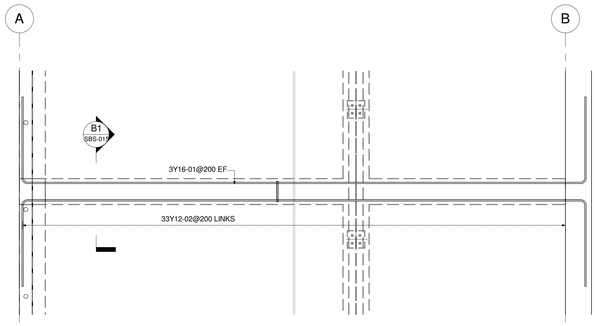
PUMP STATION
TRENCH LAYOUT
PLAN & SECTIONS

SCALE: AS SHOWN | DATE: 2022.11.30

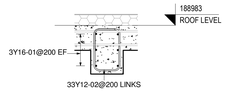
DRAWING NUMBER: 1331-093 SBS-014 | A0 | REVISION: A



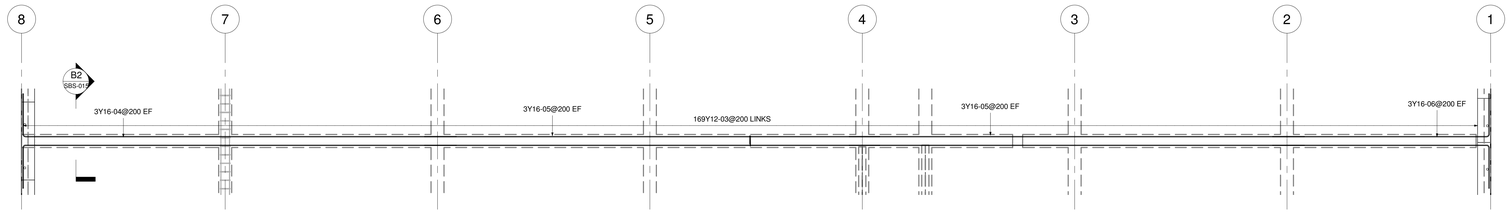
ROOF LEVEL
1 : 50



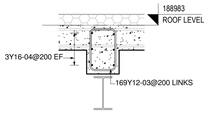
BEAM 1 LAYOUT
1 : 25



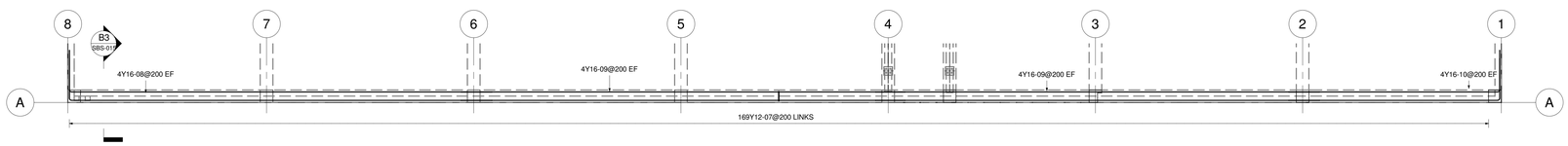
SECTION THRU' BEAM 1
1 : 20



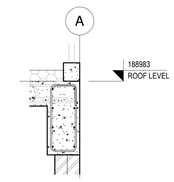
BEAM 2 LAYOUT
1 : 50



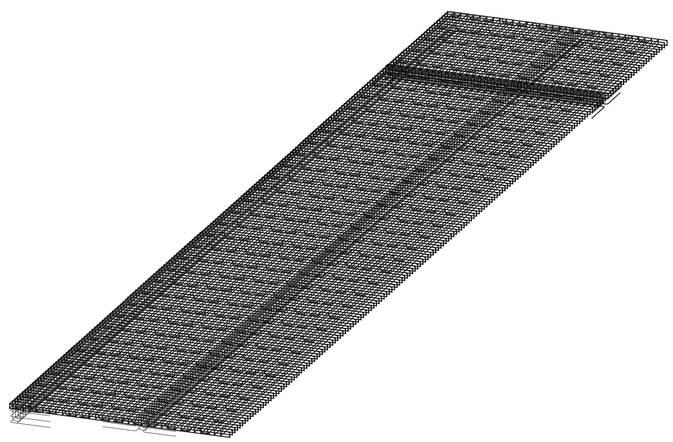
B2 SECTION THRU' BEAM 2
1 : 20



BEAM 3 LAYOUT
1 : 50



B3 SECTION THRU' BEAM 3
1 : 20



ISO VIEW

REBAR SCHEDULE												
No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
BEAM 1												
7	01	Y16	6	42	8450	38	1000	6510	1000	0	0	0
7	02	Y12	33	231	1500	60	240	390	0	0	0	0
BEAM 2												
1	03	Y12	169	169	1500	60	390	240	0	0	0	0
1	04	Y16	6	6	10950	37	1000	10000	0	0	0	0
1	05	Y16	12	12	10500	20	10500	0	0	0	0	0
1	06	Y16	6	6	5950	37	1000	5000	0	0	0	0
BEAM 3												
1	07	Y12	169	169	1950	60	240	620	0	0	0	0
1	08	Y16	8	8	10950	37	1000	10000	0	0	0	0
1	09	Y16	16	16	10500	20	10500	0	0	0	0	0
1	10	Y16	8	8	5950	37	1000	5000	0	0	0	0
PUMP STATION ROOF SLAB												
1	11	Y16	342	342	6800	38	170	6540	170	0	0	0
1	12	Y16	66	66	10100	37	150	10000	0	0	0	0
1	13	Y16	66	66	5100	37	150	5000	0	0	0	0
1	14	Y16	132	132	10500	20	10500	0	0	0	0	0
1	15	Y16	210	210	1000	53	300	140	300	140	300	0

SEE DRAWING SBS-008 FOR SECTIONS

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30	
1	PN	INTERNAL REVIEW	2022.03.31	

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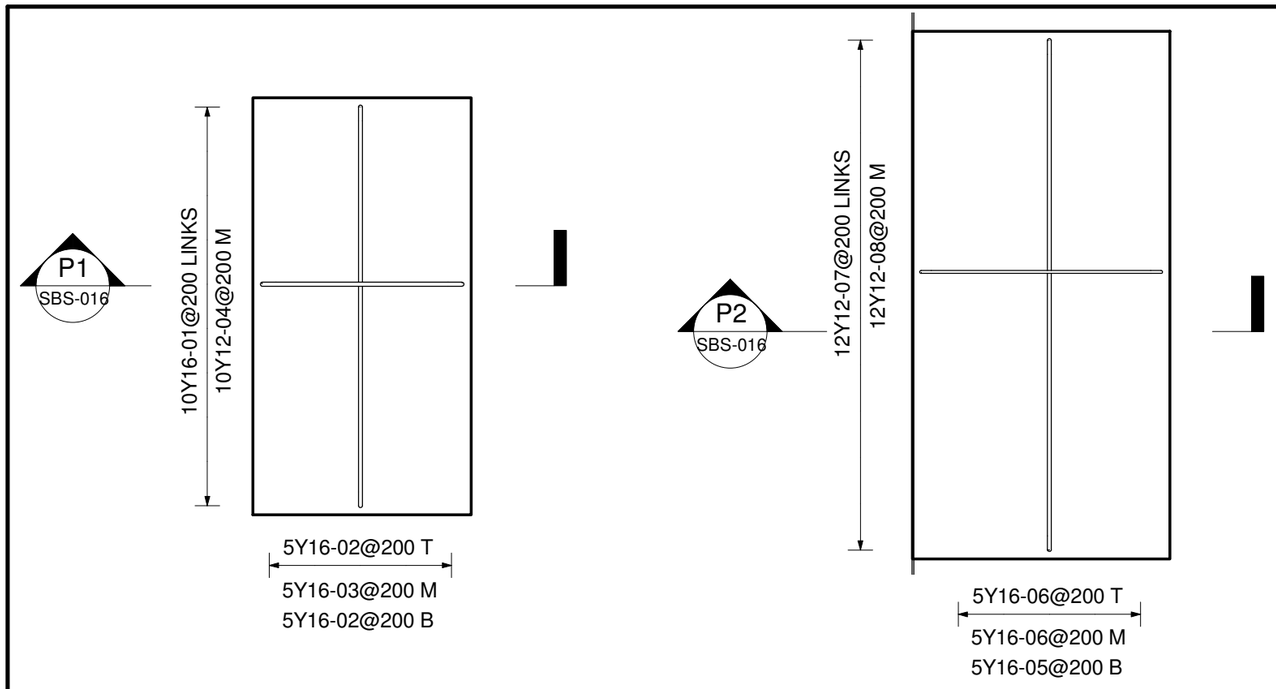
DRAWN	P. NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VADWA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PUMP STATION
ROOF SLAB REINFORCING

SCALE	AS SHOWN	DATE	2022.11.30
DRAWING NUMBER	1331-093 SBS-015	A0	REVISION A

FOR CONSTRUCTION



PLAN ON PLINTH TYPE 1

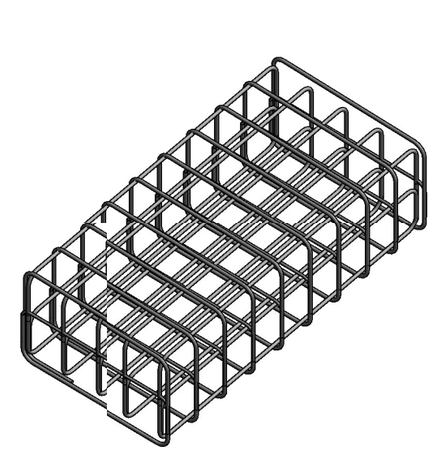
1 : 25

PLAN ON PLINTH TYPE 2

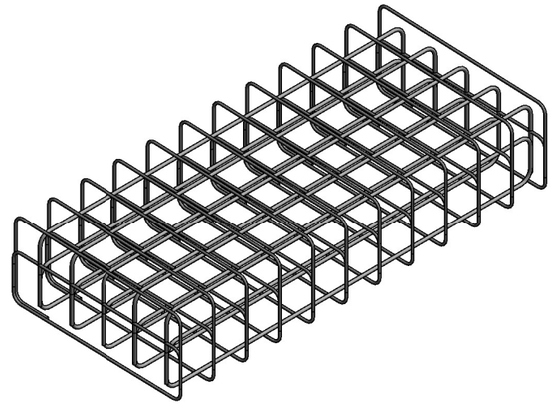
1 : 25

REBAR SCHEDULE

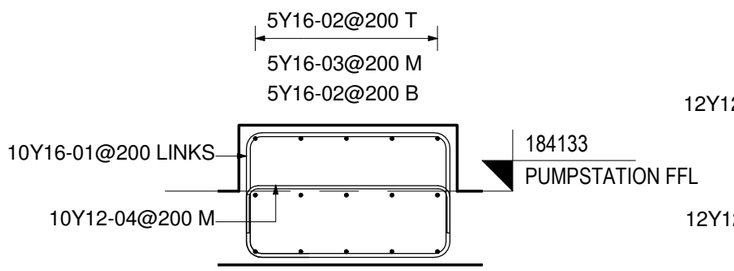
No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
PUMP PLINTH TYPE 1												
2	01	Y16	10	20	3000	60	510	830	0	0	0	0
2	02	Y16	10	20	2050	35	1640	0	0	0	0	0
2	03	Y16	5	10	1950	38	200	1630	200	0	0	0
2	04	Y12	10	20	1150	35	830	0	0	0	0	0
PUMP PLINTH TYPE 2												
4	05	Y16	5	20	2500	35	2090	0	0	0	0	0
4	06	Y16	10	40	2400	38	200	2090	200	0	0	0
4	07	Y12	12	48	3100	60	440	990	0	0	0	0
4	08	Y12	12	48	1300	35	990	0	0	0	0	0



ISO VIEW-PLINTH 1

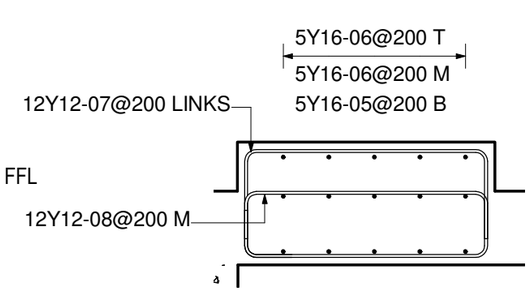


ISO VIEW-PLINTH 2



P1 PLINTH 1

1 : 25



P2 PLINTH 2

1 : 25

SCALE	AS SHOWN	DATE	2022.11.30
DRAWING NUMBER	1331-093-SBS-016	A3	REVISION A

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30
1	PN	INTERNAL REVIEW	2022.03.31

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1
.
.
PUMP STATION
REINFORCING PLINTH LAYOUT

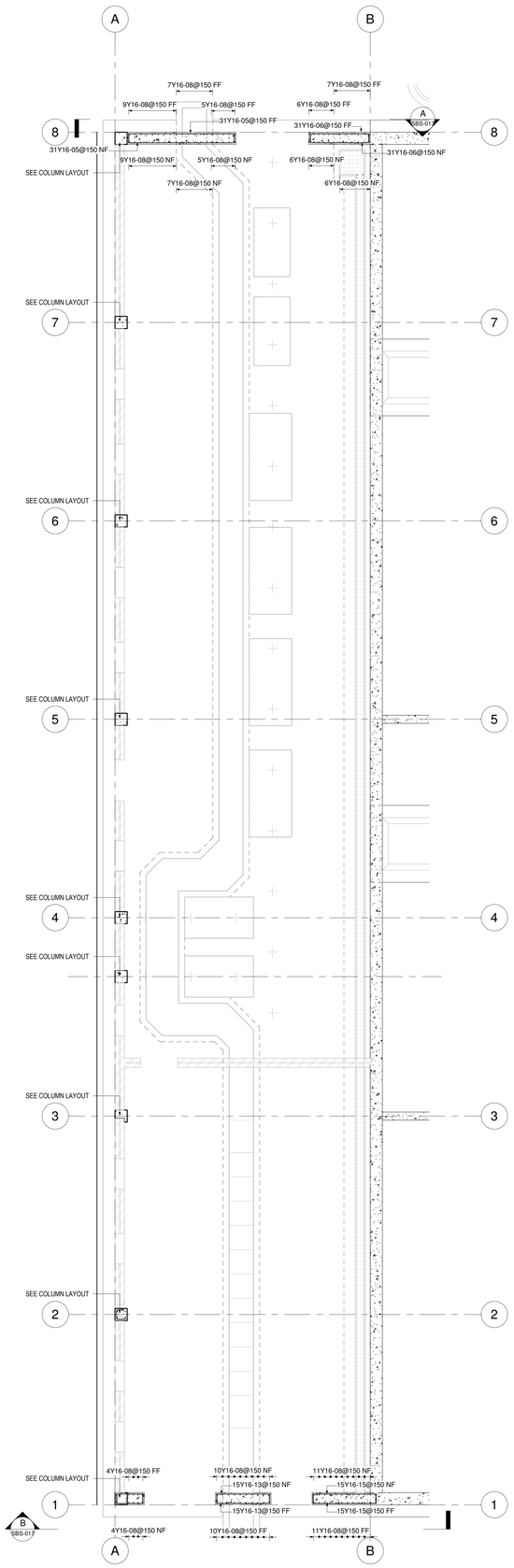
DRAWN	P. NAICKER		
CIVIL ENGINEER	A. LE ROUX	STRUCTURAL ENGINEER	S. ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
PROJECT MANAGER	S. MDAKA	DIVISIONAL MANAGER	M. VAWDA

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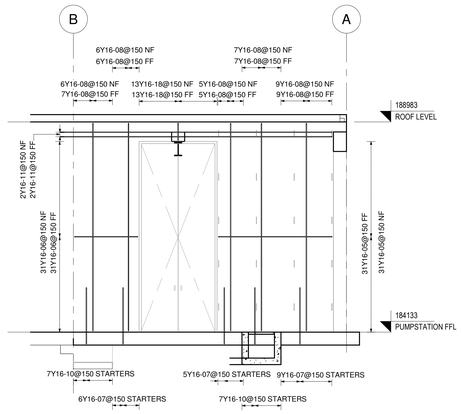
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INNOVATIVE PEOPLE . EXCEPTIONAL RESULTS

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MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

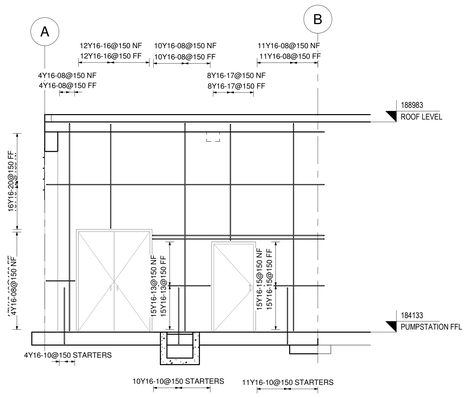
ISO 9001:2015 CERTIFIED



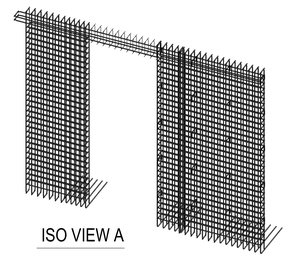
1 PUMPSTATION FFL
1 : 50

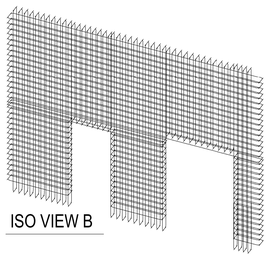


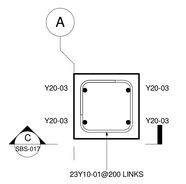
A SECTION A
1 : 50



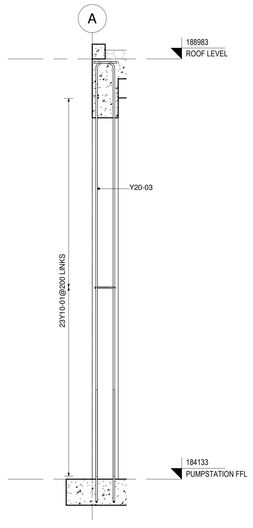
B SECTION B
1 : 50



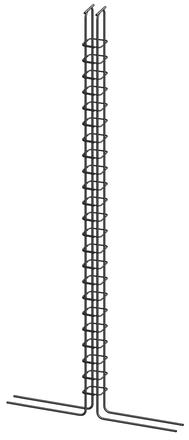




PLAN ON COLUMN
1 : 10



C SECTION THRU COLUMN
1 : 25



REBAR SCHEDULE

No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
PUMP HOUSE COLUMN												
9	01	Y10	23	207	1150	60	240	240	0	0	0	0
9	02	Y20	4	36	2250	37	1000	1300	0	0	0	0
9	03	Y20	4	36	5000	37	240	4790	0	0	0	0
PUMP STATION WALL												
1	05	Y16	62	62	3000	38	240	2620	240	0	0	0
1	06	Y16	62	62	1850	38	240	1460	240	0	0	0
1	07	Y16	40	40	2250	37	1000	1300	0	0	0	0
1	08	Y16	117	117	4950	37	220	4790	0	0	0	0
1	09	Y10	20	20	500	35	240	0	0	0	0	0
1	10	Y16	78	78	1450	37	200	1300	0	0	0	0
1	11	Y16	4	4	6650	38	240	6270	240	0	0	0
1	12	Y16	16	16	6850	38	250	6410	250	0	0	0
1	13	Y16	30	30	1750	38	250	1320	250	0	0	0
1	14	Y16	4	4	4400	38	250	3970	250	0	0	0
1	15	Y16	30	30	2000	38	250	1570	250	0	0	0
1	16	Y16	24	24	2800	38	230	2400	230	0	0	0
1	17	Y16	16	16	3050	38	230	2680	230	0	0	0
1	18	Y16	26	26	750	38	230	400	230	0	0	0
1	19	Y16	34	34	1100	38	250	670	250	0	0	0
1	20	Y16	16	16	6850	38	250	6410	250	0	0	0

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPRD
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30	
1	PN	INTERNAL REVIEW	2022.04.01	

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MOUNT EDGECOMBE
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SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	P. NAICKER		
CIVIL ENGINEER	A LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED | S.MDAKA PROJECT MANAGER | M.VADIVIA DIVISIONAL MANAGER

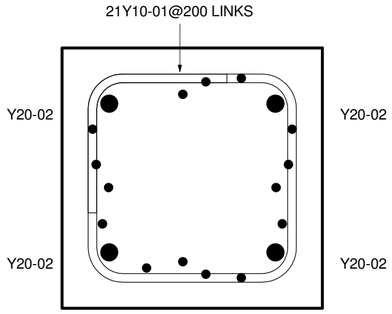
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PUMPSTATION
WALL & COLUMN REINFORCING

SCALE	DATE
AS SHOWN	2022.11.30

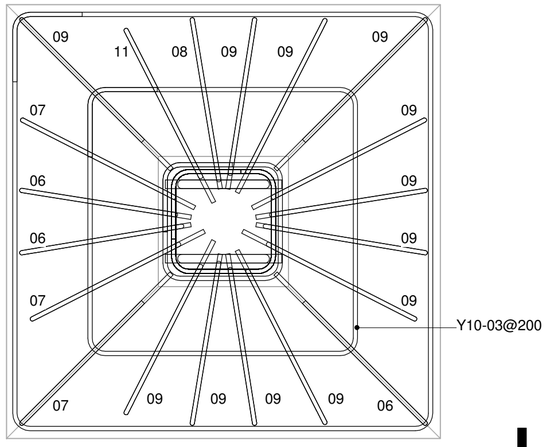
DRAWING NUMBER		REVISION
1331-093 SBS-017	A0	A

FOR CONSTRUCTION



PLAN ON COLUMN

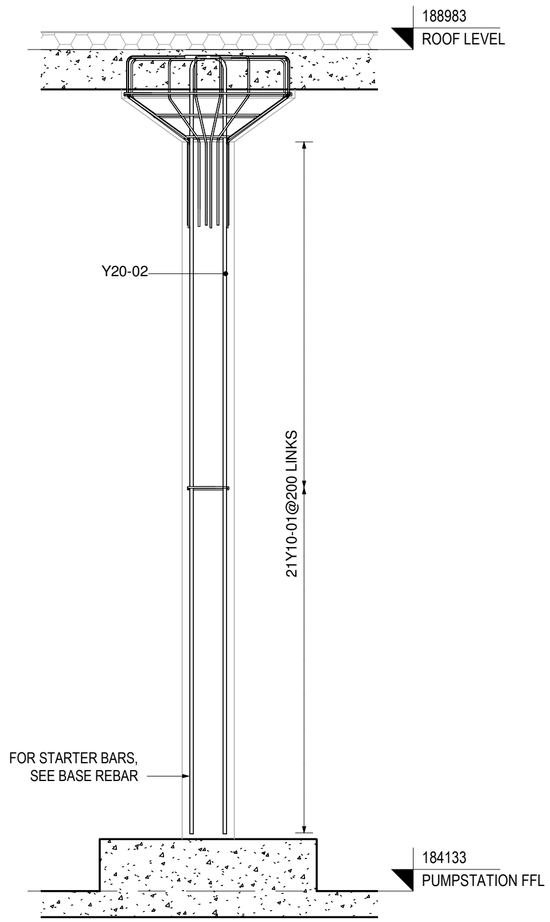
1 : 5



A
SBS-018

PLAN ON DROP HEAD

1 : 10



A SECTION A

1 : 25

FOR CONSTRUCTION

REBAR SCHEDULE

No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
24	01	Y10	21	504	1150	60	240	240	0	0	0	0
24	02	Y20	4	96	4700	37	240	4490	0	0	0	0
24	03	Y10	1	24	1300	60	280	270	0	0	0	0
24	04	Y10	1	24	2700	60	620	620	0	0	0	0
24	05	Y10	1	24	4050	60	970	960	0	0	0	0
24	06	Y10	3	72	1600	Rebar Shape 3	500	460	230	450	0	
24	07	Y10	4	96	1550	Rebar Shape 1	400	230	470	470	0	
24	08	Y10	4	96	1550	Rebar Shape 1	400	230	450	500	0	
24	09	Y10	4	96	1600	Rebar Shape 3	500	470	230	450	0	
24	10	Y10	4	96	1150	Rebar Shape 4	400	230	550	0	0	
24	11	Y10	1	24	1500	Rebar Shape 3	400	460	230	450	0	

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	2022.11.30
1	SA	INTERNAL REVIEW	2022.04.01

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MOUNT EDGCOUMBE
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SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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DRAWN	P. NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VADWA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

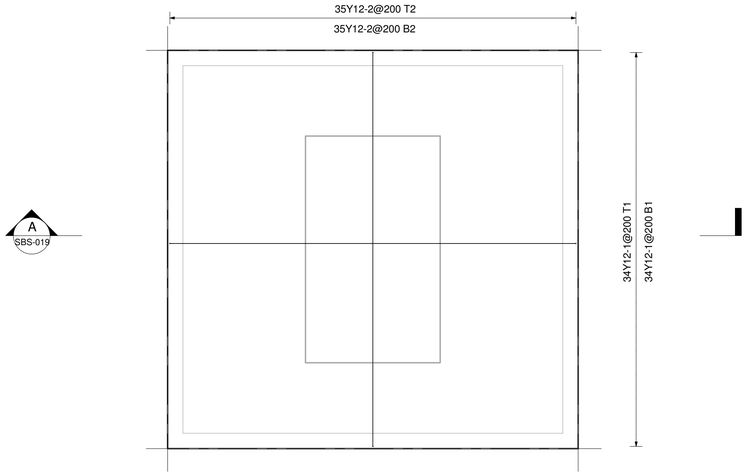
RESERVOIR
COLUMN REINFORCING

SCALE AS SHOWN

DRAWING NUMBER 1331-093-SBS-018 | A2 | REVISION A

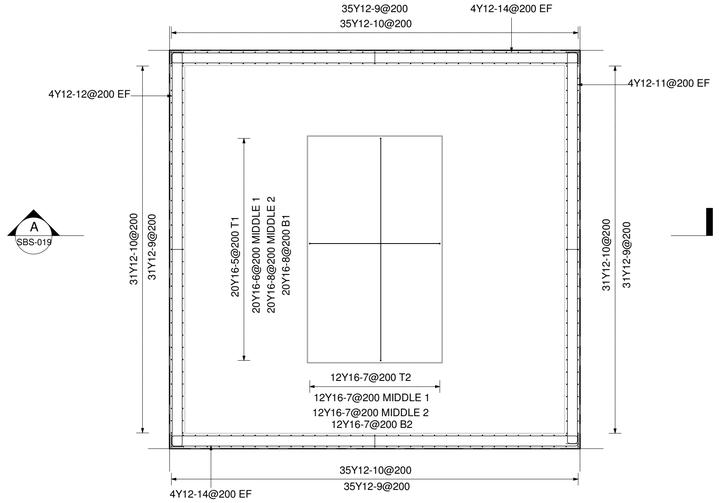
REBAR SCHEDULE

No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
DIESEL TANK BASE												
1	4	Y16	20	20	3400	38	670	2140	670	0	0	0
1	5	Y16	20	20	2950	38	440	2140	440	0	0	0
1	6	Y16	20	20	2550	35	2140	0	0	0	0	0
1	7	Y16	48	48	4050	35	3640	0	0	0	0	0
1	8	Y16	40	40	2450	38	200	2130	200	0	0	0
DIESEL TANK SLAB												
1	1	Y12	68	68	6950	38	190	6640	190	0	0	0
1	2	Y12	70	70	6750	38	180	6440	180	0	0	0
1	3	Y10	48	48	1100	83	300	160	300	300	300	0
DIESEL TANK WALLS												
1	9	Y12	132	132	1700	38	780	200	780	0	0	0
1	10	Y12	132	132	1250	38	550	200	550	0	0	0
1	11	Y12	8	8	6700	38	190	6400	190	0	0	0
1	12	Y12	8	8	6750	38	190	6450	190	0	0	0
1	14	Y12	16	16	6950	38	190	6650	190	0	0	0
1	15	Y10	30	30	450	35	200	0	0	0	0	0



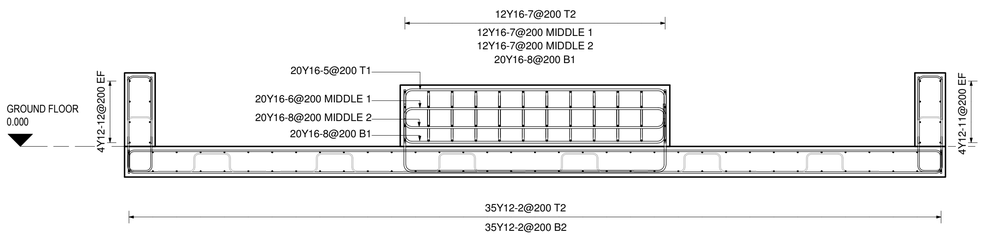
DIESEL TANK SLAB

1 : 50



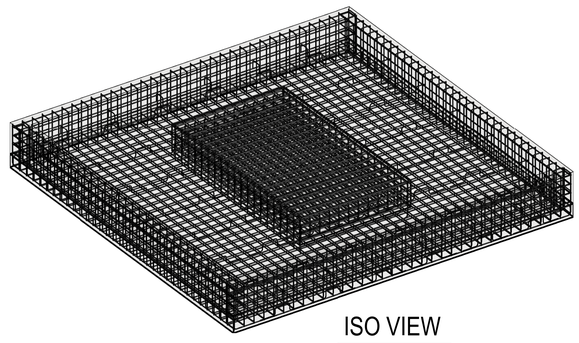
DIESEL TANK BASE & WALLS

1 : 50



A SECTION A

1 : 25



ISO VIEW

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APPR'D
A	PN	APPROVED FOR CONSTRUCTION	2022.08.15	
1	PN	INTERNAL REVIEW	2022.08.10	

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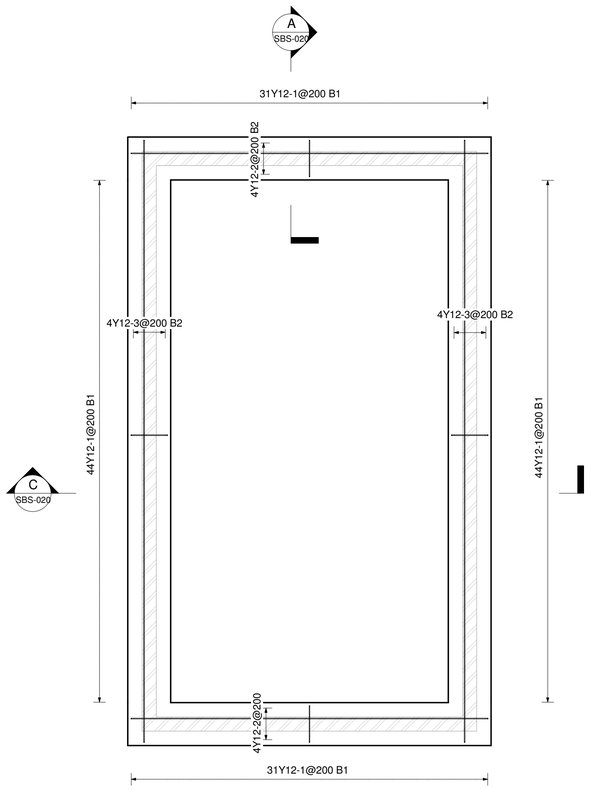
DRAWN	P. NAICKER		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VADWA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

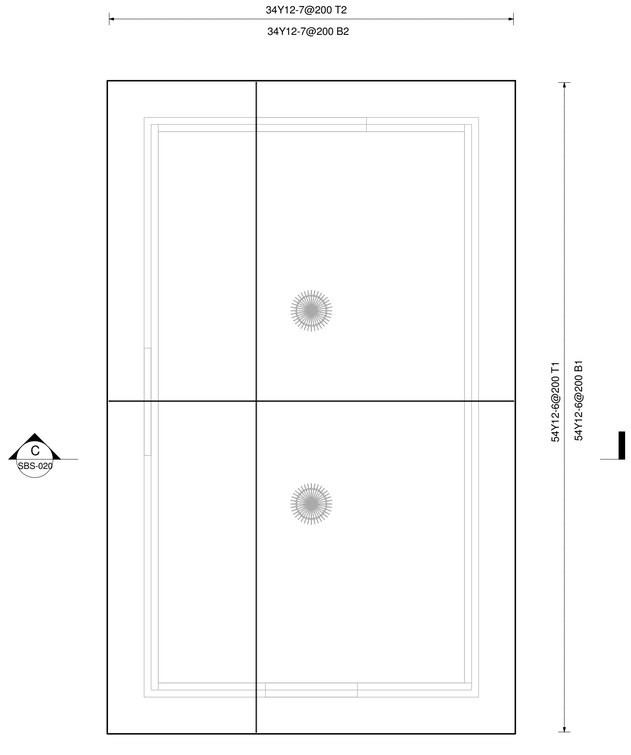
DIESEL TANK
REINFORCING LAYOUT

SCALE	AS SHOWN	DATE	2022.08.15
DRAWING NUMBER	1331-093 SBS-019	A0	REVISION A



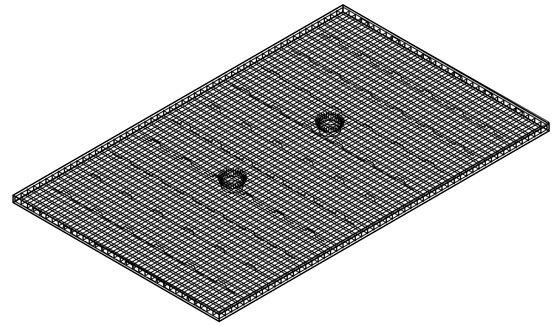
STRIP FOOTING REINFORCING LAYOUT

1 : 50



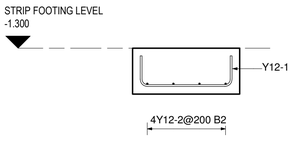
ROOF SLAB REINFORCING LAYOUT

1 : 50



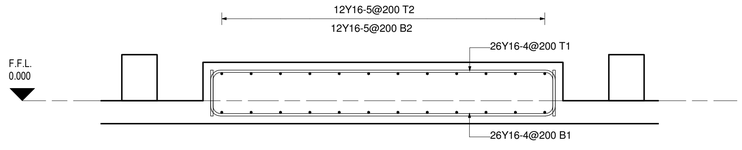
ISO VIEW - ROOF SLAB

REBAR SCHEDULE												
No OF	Rebar Mark	Dia	No. IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
1. STRIP FOOTING												
	1	Y12	150	0	950	38	200	600	200	0	0	0
	2	Y12	8	0	6150	38	180	5830	180	0	0	0
	3	Y12	8	0	10150	38	180	9630	180	0	0	0
2. PLINTH												
	4	Y16	52	0	2750	38	300	2250	300	0	0	0
	5	Y16	24	0	5400	38	250	4960	250	0	0	0
3. SLAB												
	6	Y12	108	0	6850	38	150	6610	150	0	0	0
	7	Y12	68	0	10800	38	140	10610	140	0	0	0
	8	Y10	72	0	1000	83	300	110	300	300	300	0



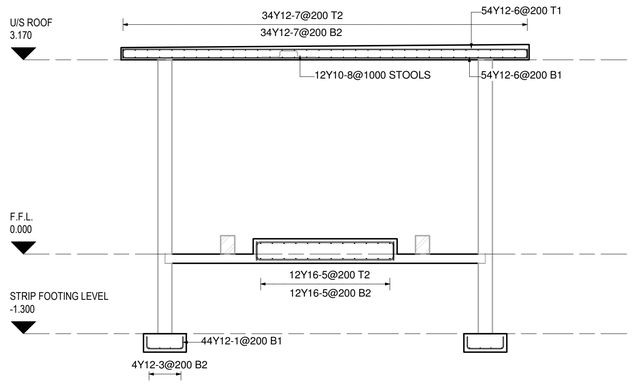
A SECTION A

1 : 20



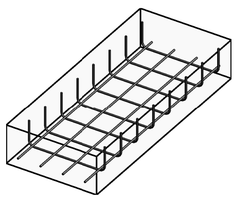
B SECTION B THRU' PLINTH

1 : 20

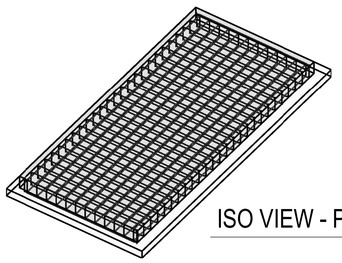


C SECTION C

1 : 50



ISO VIEW - STRIP FOOTING



ISO VIEW - PLINTH

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE	APP'D
A	PN	APPROVED FOR CONSTRUCTION	2022.08.15	
1	PN	INTERNAL REVIEW	2022.08.15	

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SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	P. NAICKER		
CIVIL ENGINEER	S. ALLY	STRUCTURAL ENGINEER	S. ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

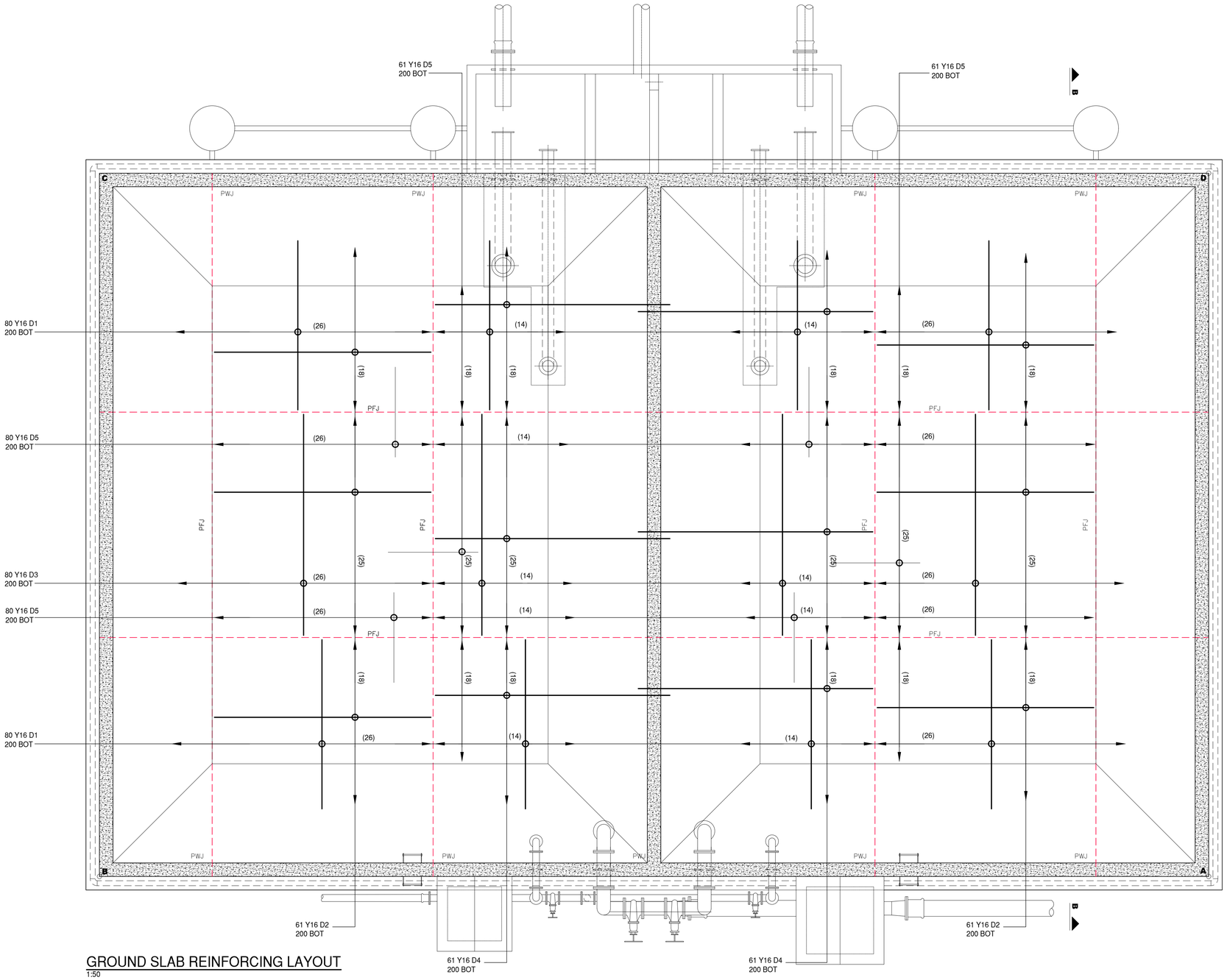
APPROVED — S.MDAKA, PROJECT MANAGER — M.VADWA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1-UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

GENERATOR BUILDING
REINFORCING LAYOUT
STRIP FOOTING, PLINTH & ROOF SLAB

SCALE: AS SHOWN | DATE: 2022.08.15

DRAWING NUMBER: 1331-093 SBS-020 | A1 | REVISION: A



GROUND SLAB REINFORCING LAYOUT

1:50

FOR CONSTRUCTION

0mm 20mm 40mm 60mm 80mm 100mm

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	30/11/2022
1	TC	FOR INTERNAL REVIEW	25/11/2022

DRG. No. | REFERENCE DRAWING

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23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4320

TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

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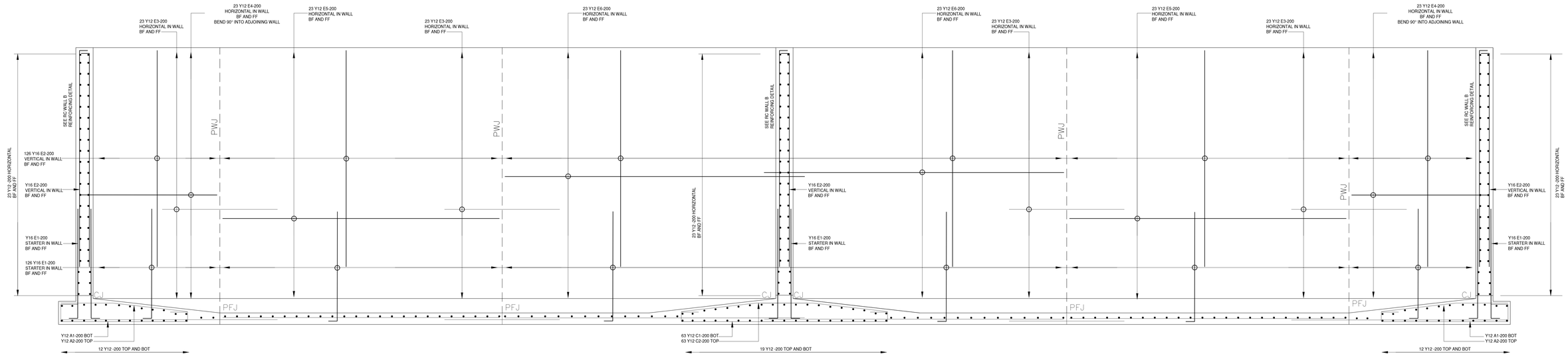
DRAWN	T. CHETTY		
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND
WATER TREATMENT WORKS (6.5 ML/DAY)

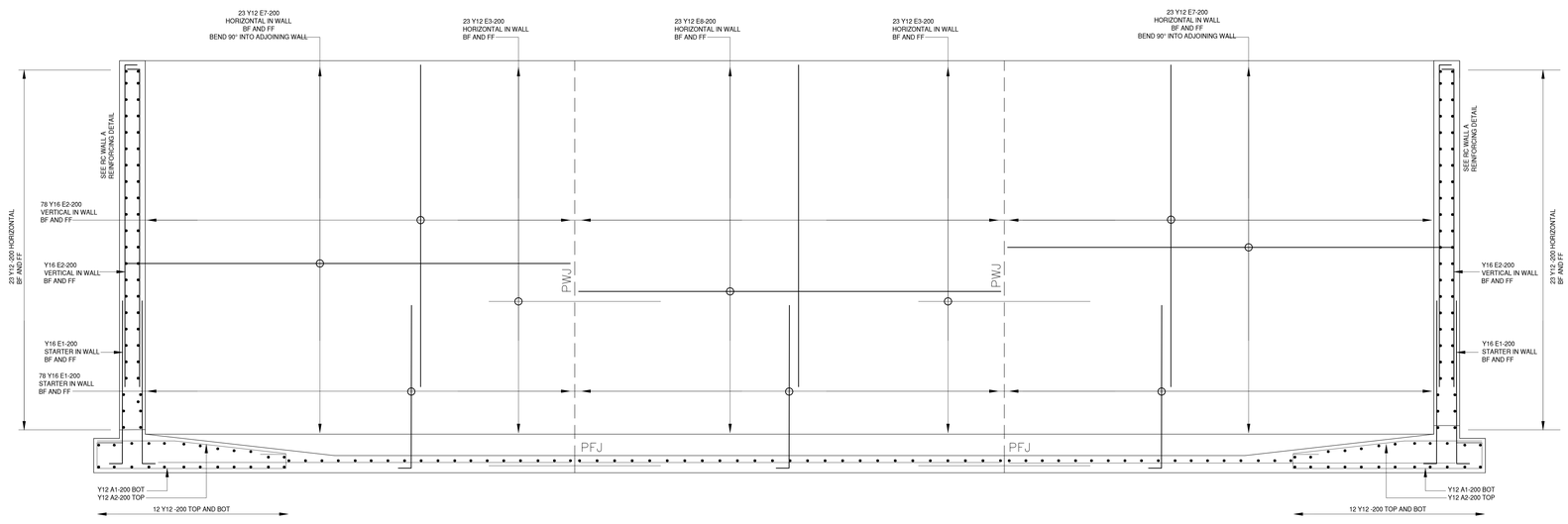
RAW WATER RESERVOIR
GROUND SLAB REINFORCING LAYOUT

SCALE	AS SHOWN	DATE	NOV. 2022
DRAWING NUMBER	1331-093-SBS-021	A1	REVISION A



RC WALL A - REINFORCING SECTION

1:25



RC WALL B - REINFORCING SECTION

1:25

0mm 20mm 40mm 60mm 80mm 100mm

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	10/06/2021

DRG. No. | REFERENCE DRAWING

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DURBAN
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TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
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website: www.boschprojects.co.za

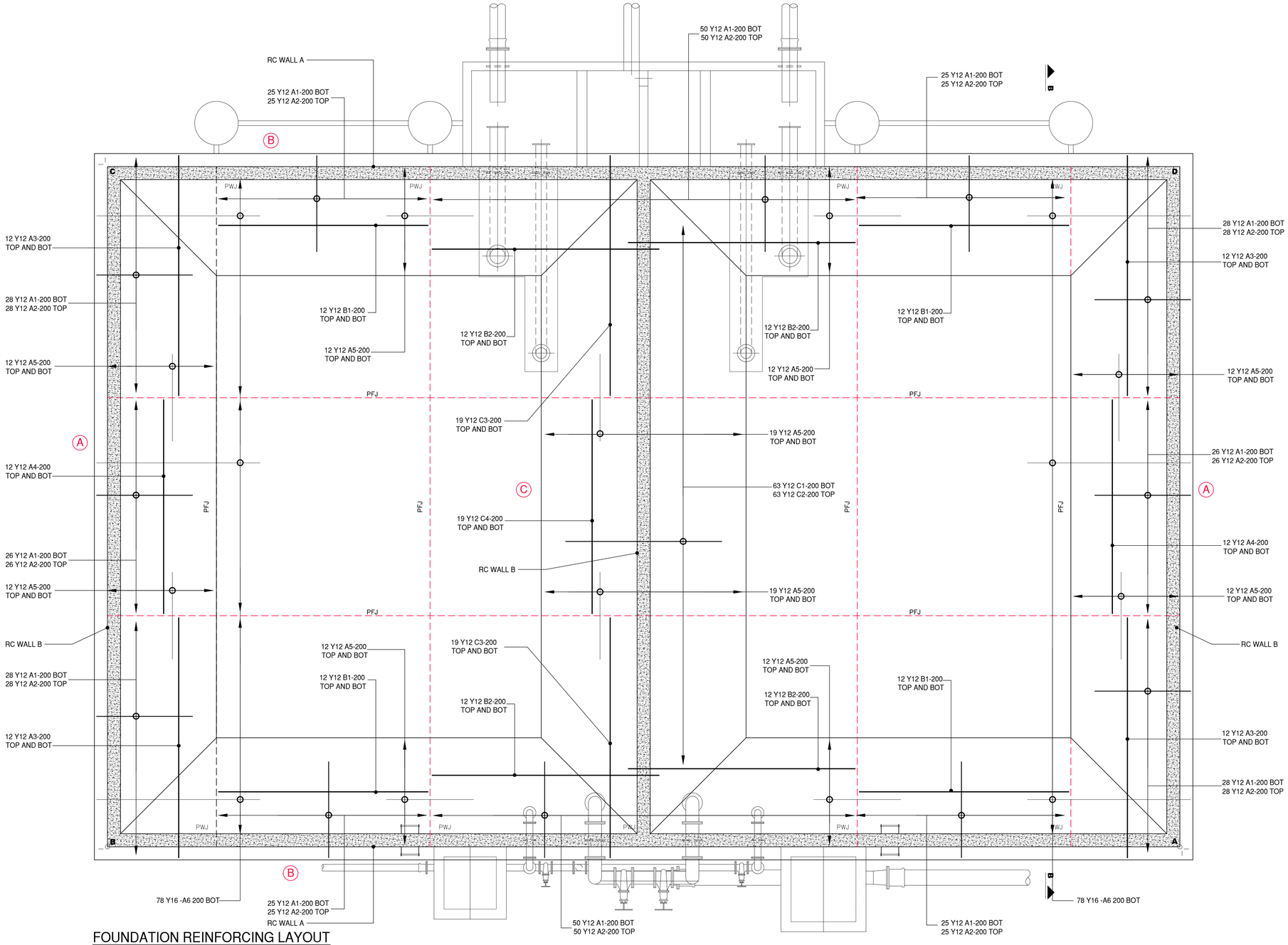
DRAWN	T. CHETTY		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.XIDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

RAW WATER RESERVOIR
RC WALL SECTION REINFORCEMENT LAYOUT

SCALE	AS SHOWN	DATE	NOV. 2022
DRAWING NUMBER	1331-093-SBS-022	A0	REVISION A



FOUNDATION REINFORCING LAYOUT

1:50

FOR CONSTRUCTION

0mm 20mm 40mm 60mm 80mm 100mm

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	30/11/2022
1	TC	FOR INTERNAL REVIEW	25/11/2022

DRG. No. | REFERENCE DRAWING

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e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
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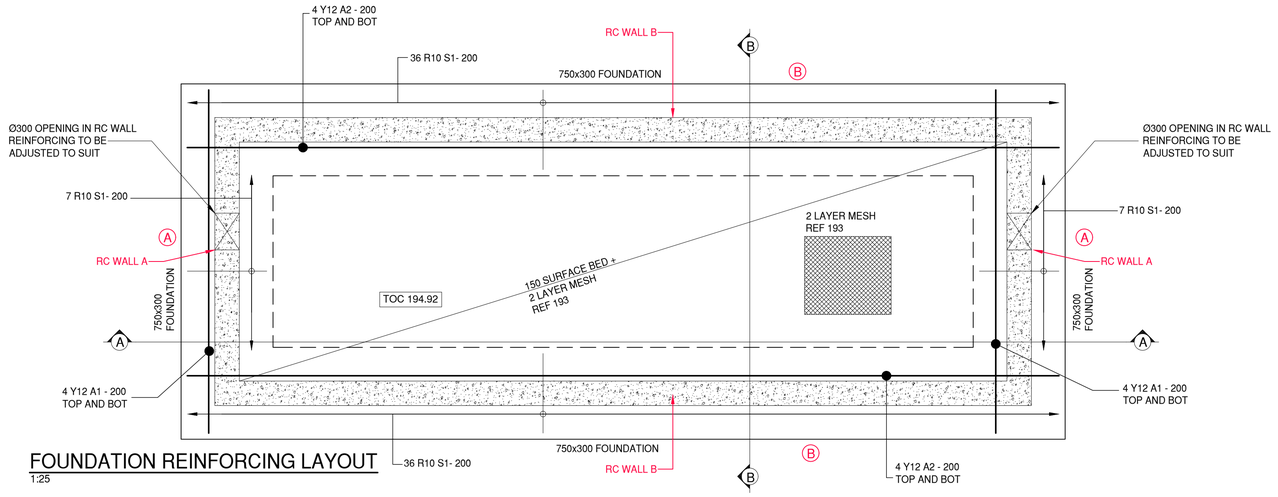
DRAWN	T. CHETTY		
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

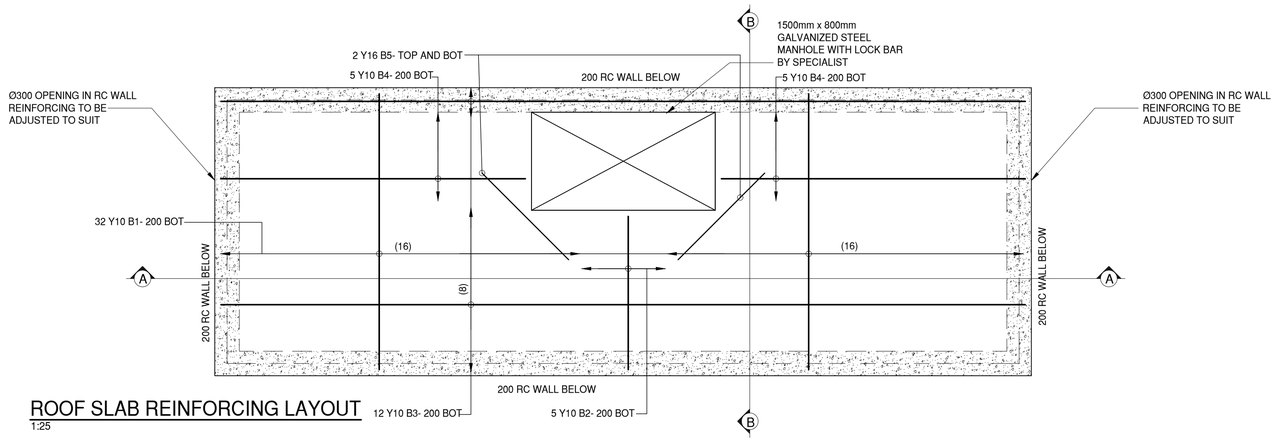
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND
WATER TREATMENT WORKS (6.5 ML/DAY)

RAW WATER RESERVOIR
FOUNDATION REINFORCING LAYOUT

SCALE	AS SHOWN	DATE	NOV. 2022
DRAWING NUMBER	1331-093-SBS-023	A1	REVISION A

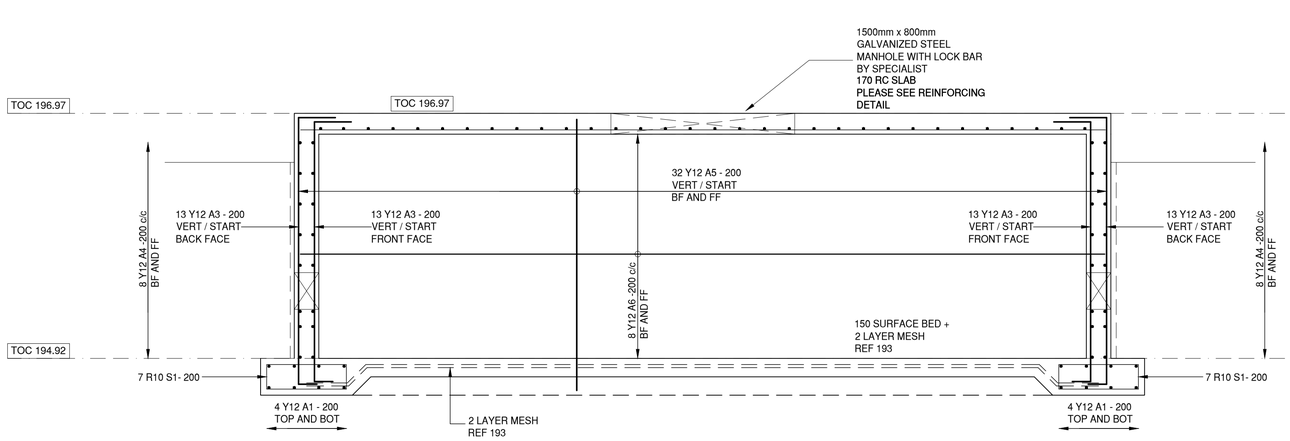


FOUNDATION REINFORCING LAYOUT
1:25

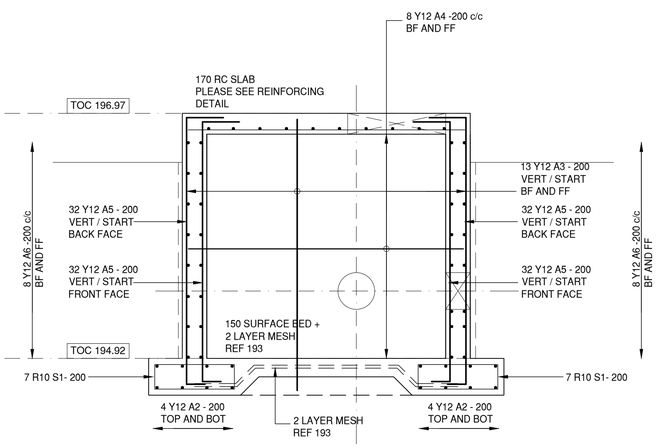


ROOF SLAB REINFORCING LAYOUT
1:25

KWALEMBE - FLOW CONTROL CHAMBER												
No OF	Rebar Mark	Dia	No.IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
FOUNDATION A												
2	S1	R10	7	14	1800	60	200	650	0	0	0	0
2	A1	Y12	4x2	16	2800	20	2800	0	0	0	0	0
FOUNDATION B												
2	S1	R10	36	72	1800	60	200	650	0	0	0	0
2	A2	Y12	4x2	16	7100	20	7100	0	0	0	0	0
RETAINING WALL A												
2	A3	Y12	13x2	52	2600	38	300	2200	0	0	0	0
2	A4	Y12	8x2	32	2500	38	150	2250	0	0	0	0
RETAINING WALL B												
2	A5	Y12	32x2	128	2600	38	300	2200	0	0	0	0
2	A6	Y12	8x2	32	6800	38	150	6550	0	0	0	0
170 RC SLAB												
1	B1	Y10	32	32	2250	20	2250	0	0	0	0	0
1	B2	Y10	5	5	1250	20	1250	0	0	0	0	0
1	B3	Y10	12	12	1250	20	6550	0	0	0	0	0
1	B4	Y10	5x2	10	2500	20	2500	0	0	0	0	0
1	B5	Y16	2x2	4	1000	20	1000	0	0	0	0	0



SECTION A-A
1:25



SECTION B-B
1:25

FOR CONSTRUCTION

0mm 20mm 40mm 60mm 80mm 100mm

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	30/11/2022
1	TC	FOR INTERNAL REVIEW	25/11/2022

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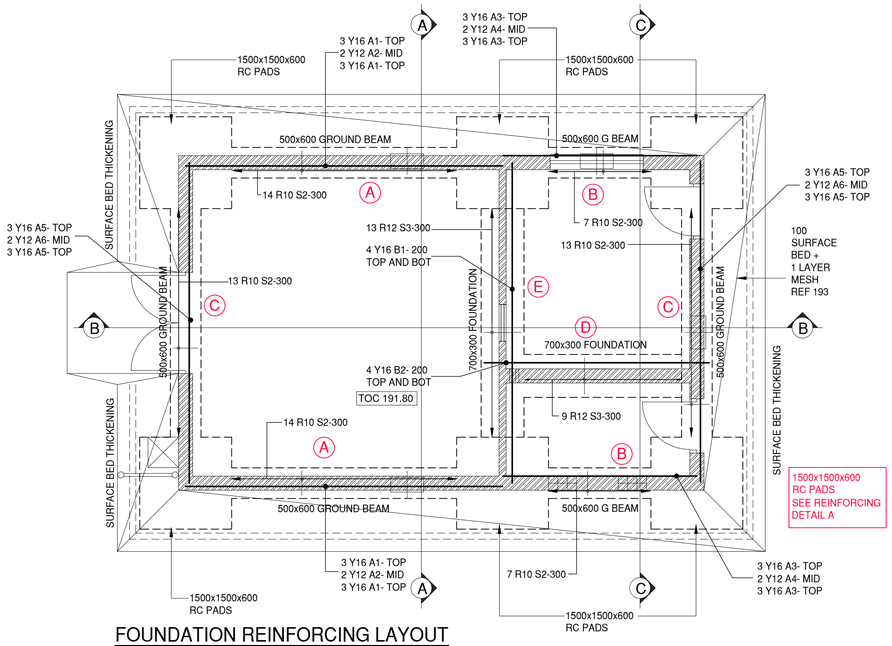
DRAWN	T. CHETTY		
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

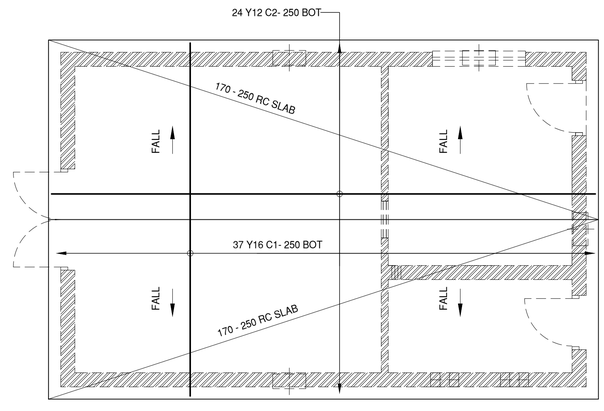
RAW WATER RESERVOIR
FLOW CONTROL CHAMBER
REINFORCING DETAILS

SCALE	AS SHOWN	DATE	NOV. 2022
DRAWING NUMBER	1331-093-SBS-024	A1	REVISION A

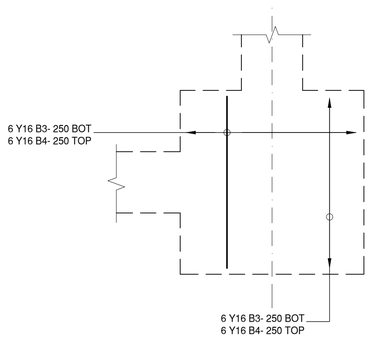


FOUNDATION REINFORCING LAYOUT
1:50

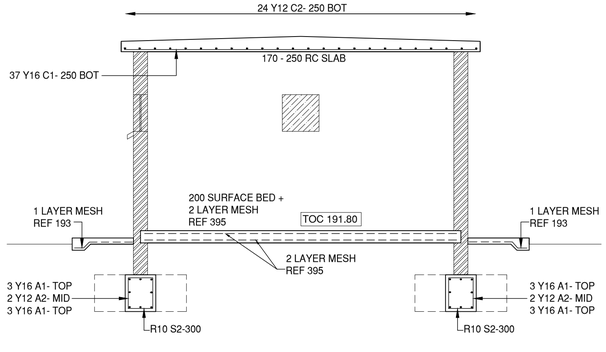
KWALEMBE - CHLORINE DOSING BUILDING												
No OF	Rebar Mark	Dia	No.IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
FOUNDATION A												
2	S2	R10	14	28	1900	60	500	400	0	0	0	0
2	A1	Y16	6	12	5250	20	5200	0	0	0	0	0
2	A2	Y12	2	4	5250	20	5200	0	0	0	0	0
FOUNDATION B												
2	S2	R10	7	14	1900	60	500	400	0	0	0	0
2	A3	Y16	6	12	3150	20	3150	0	0	0	0	0
2	A4	Y12	2	4	3150	20	3150	0	0	0	0	0
FOUNDATION C												
2	S2	R10	13	26	1900	60	500	400	0	0	0	0
2	A5	Y16	6	12	5250	20	5250	0	0	0	0	0
2	A6	Y12	2	4	5250	20	5250	0	0	0	0	0
FOUNDATION D												
1	S3	R10	13	13	1700	60	200	600	0	0	0	0
1	B1	Y12	4x2	8	5250	20	5250	0	0	0	0	0
FOUNDATION E												
1	S3	R10	9	9	1700	60	200	600	0	0	0	0
1	B2	Y12	4x2	8	3650	20	3650	0	0	0	0	0
1500 x 1500 x 600 RC PAD												
6	B3	Y16	6x2	72	2750	55	250	500	1400	500	0	0
6	B4	Y16	6x2	72	1400	20	1400	0	0	0	0	0
170 - 250 SLAB												
1	C1	Y16	37	37	5750	20	5750	0	0	0	0	0
1	C2	Y12	24	24	8850	20	8850	0	0	0	0	0



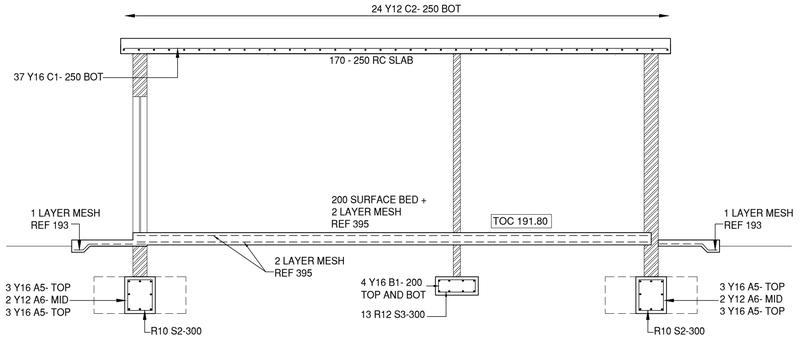
ROOF SLAB REINFORCING LAYOUT
1:50



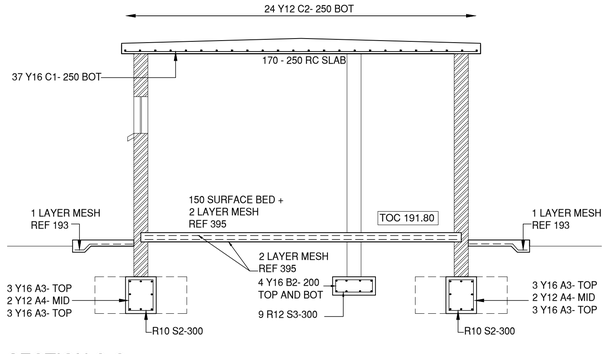
1500x1500x600 BASE DETAIL A
1:25



SECTION A-A
1:50



SECTION B-B
1:50



SECTION C-C
1:50

FOR CONSTRUCTION

0mm 20mm 40mm 60mm 80mm 100mm

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	30/11/2022
1	TC	FOR INTERNAL REVIEW	25/11/2022

DRG. No. | REFERENCE DRAWING

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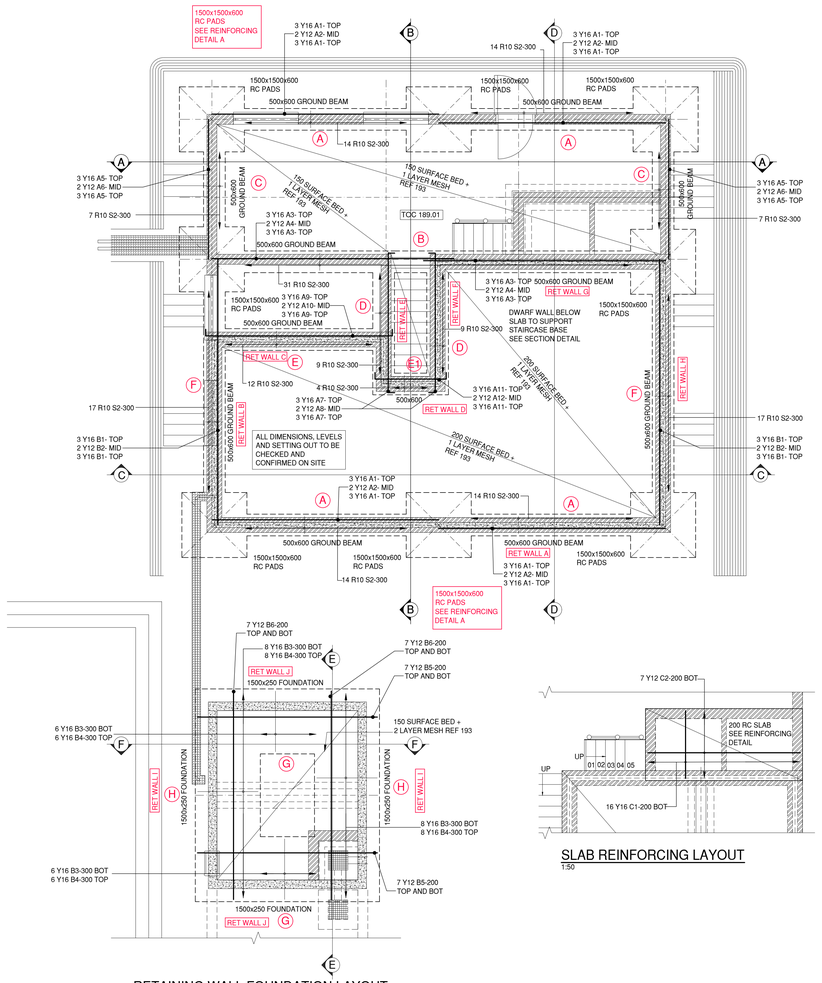
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DRAWN	T. CHETTY		
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAWDA DIVISIONAL MANAGER	

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

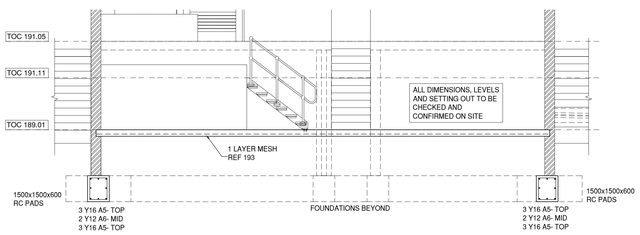
CHLORINE DOSING BUILDING REINFORCEMENT DETAILS

SCALE	AS SHOWN	DATE	NOV. 2022
DRAWING NUMBER	1331-093-SBS-025	REVISION	A1 A

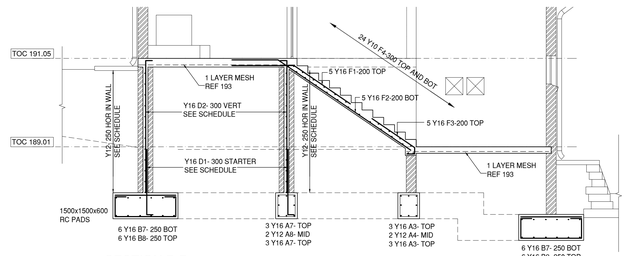


SLAB REINFORCING LAYOUT
1:50

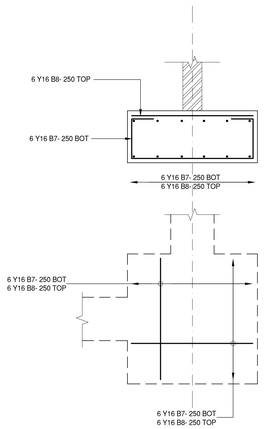
RETAINING WALL FOUNDATION LAYOUT
1:50



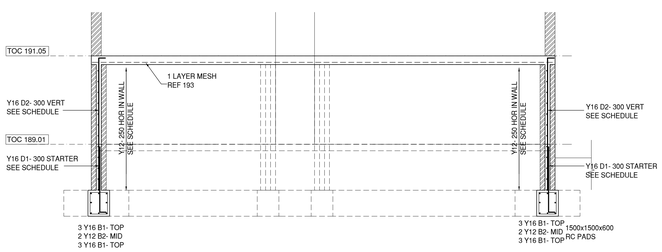
SECTION A-A
1:50



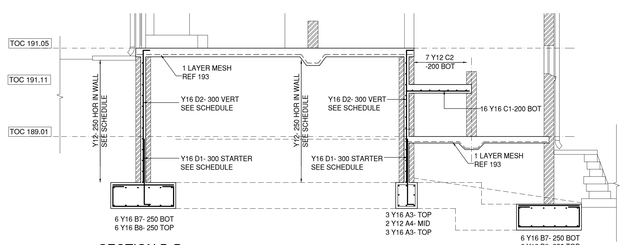
SECTION B-B
1:50



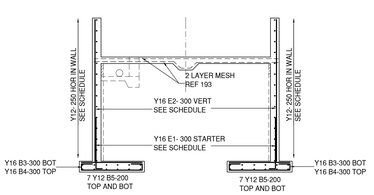
1500x1500x600 BASE DETAIL A
1:25



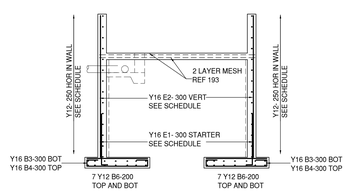
SECTION C-C
1:50



SECTION D-D
1:50



SECTION E-E
1:50



SECTION F-F
1:50

FOR CONSTRUCTION

KWALEMBE - CHEMICAL DOSING BUILDING

No OF	Rebar Mark	Dia	No.IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
FOUNDATION A												
4	S2	R10	14	56	1900	60	500	400	0	0	0	0
4	A1	Y16	6	24	5250	20	5250	0	0	0	0	0
4	A2	Y12	2	8	5250	20	5250	0	0	0	0	0
FOUNDATION B												
1	S2	R10	31	31	1900	60	500	400	0	0	0	0
1	A3	Y16	3x2x2	12	5600	20	5600	0	0	0	0	0
1	A4	Y12	2x2	4	5600	20	5600	0	0	0	0	0
FOUNDATION C												
2	S2	R10	7	14	1900	60	500	400	0	0	0	0
2	A5	Y16	6	12	3250	20	3250	0	0	0	0	0
2	A6	Y12	2	4	3250	20	3250	0	0	0	0	0
FOUNDATION D												
2	S2	R10	9	18	1900	60	500	400	0	0	0	0
2	A7	Y16	6	12	3450	38	150	3200	0	0	0	0
2	A8	Y12	2	4	3450	38	150	3200	0	0	0	0
FOUNDATION E												
1	S2	R10	12	12	1900	60	500	400	0	0	0	0
1	A9	Y16	6	6	4550	38	150	4300	0	0	0	0
1	A10	Y12	2	2	4550	38	150	4300	0	0	0	0
FOUNDATION E1												
1	S2	R10	4	4	1900	60	500	400	0	0	0	0
1	A11	Y16	6	6	1900	38	150	1650	0	0	0	0
1	A12	Y12	2	2	1900	38	150	1650	0	0	0	0
FOUNDATION F												
2	S2	R10	17	34	1900	60	500	400	0	0	0	0
2	B1	Y16	6	12	6150	20	6150	0	0	0	0	0
2	B2	Y12	2	4	6150	20	6150	0	0	0	0	0
FOUNDATION G												
2	B3	Y16	6	12	2050	55	250	150	1400	150	0	0
2	B4	Y16	6	12	1400	20	1400	0	0	0	0	0
2	B5	Y12	7x2	28	4150	20	4150	0	0	0	0	0
FOUNDATION H												
2	B3	Y16	8	16	2050	55	250	150	1400	150	0	0
2	B4	Y16	8	16	1400	20	1400	0	0	0	0	0
2	B6	Y12	7x2	28	4800	20	4800	0	0	0	0	0
1500 x 1500 x 600 RC PAD												
8	B7	Y16	6x2	96	2750	55	250	500	1400	500	0	0
8	B8	Y16	6x2	96	1400	20	1400	0	0	0	0	0
200 RC SLAB												
1	C1	Y16	16	16	1550	20	1550	0	0	0	0	0
1	C2	Y12	7	7	3550	20	3550	0	0	0	0	0

KWALEMBE - CHEMICAL DOSING BUILDING

No OF	Rebar Mark	Dia	No.IN EACH	TOTAL No.	Length	S C	A	B	C	D	E	r
RETAINING WALL A												
1	D1	Y16	35	35	1750	34	1600	0	0	0	0	0
1	D2	Y16	35	35	3150	34	3050	0	0	0	0	0
1	D3	Y12	12x2	24	5700	34	5600	0	0	0	0	0
RETAINING WALL B												
1	D1	Y16	15	15	1750	34	1600	0	0	0	0	0
1	D2	Y16	15	15	3150	34	3050	0	0	0	0	0
1	D4	Y12	12	12	4550	38	150	4300	0	0	0	0
RETAINING WALL C												
1	D1	Y16	14	14	1750	34	1600	0	0	0	0	0
1	D2	Y16	14	14	3150	34	3050	0	0	0	0	0
1	D5	Y12	12	12	4150	38	150	3900	0	0	0	0
RETAINING WALL D												
1	D1	Y16	5	5	1750	34	1600	0	0	0	0	0
1	D2	Y16	5	5	3150	34	3050	0	0	0	0	0
1	D6	Y12	12	12	1500	38	150	1250	0	0	0	0
RETAINING WALL E												
1	D1	Y16	4	4	1750	34	1600	0	0	0	0	0
1	D2	Y16	4	4	3150	34	3050	0	0	0	0	0
1	D7	Y12	12	12	1400	54	150	1150	0	0	0	0
RETAINING WALL F												
1	D1	Y16	10	10	1750	34	1600	0	0	0	0	0
1	D2	Y16	10	10	3150	34	3050	0	0	0	0	0
1	D8	Y12	12	12	3100	54	150	2850	0	0	0	0
RETAINING WALL G												
1	D1	Y16	18	18	1750	34	1600	0	0	0	0	0
1	D2	Y16	18	18	3150	34	3050	0	0	0	0	0
1	D9	Y12	12	12	5450	38	150	5200	0	0	0	0
RETAINING WALL H												
1	D1	Y16	21	21	1750	34	1600	0	0	0	0	0
1	D2	Y16	21	21	3150	34	3050	0	0	0	0	0
1	D10	Y12	12	12	6350	38	150	6100	0	0	0	0
RETAINING WALL I												
2	E1	Y16	14	28	1350	34	1250	0	0	0	0	0
2	E2	Y16	14	28	3200	34	3200	0	0	0	0	0
2	E3	Y12	14	28	4450	38	150	4200	0	0	0	0
RETAINING WALL J												
2	E1	Y16	12	24	1350	34	1250	0	0	0	0	0
2	E2	Y16	12	24	3200	34	3200	0	0	0	0	0
2	E4	Y12	14	28	3800	38	150	3550	0	0	0	0
INTERNAL STAIRCASE												
1	F1	Y16	5	5	3000	62	1600	900	0	0	0	0
1	F2	Y16	5	5	4700	62	3700	2100	0	0	0	0
1	F3	Y16	5	5	1550	99B	1200	150	150	0	700	0

0mm 20mm 40mm 60mm 80mm 100mm

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	BM	APPROVED FOR CONSTRUCTION	14/11/2022
T1	ALR	TENDER DRAWING	10/08/2022

ORG. No. | REFERENCE DRAWING

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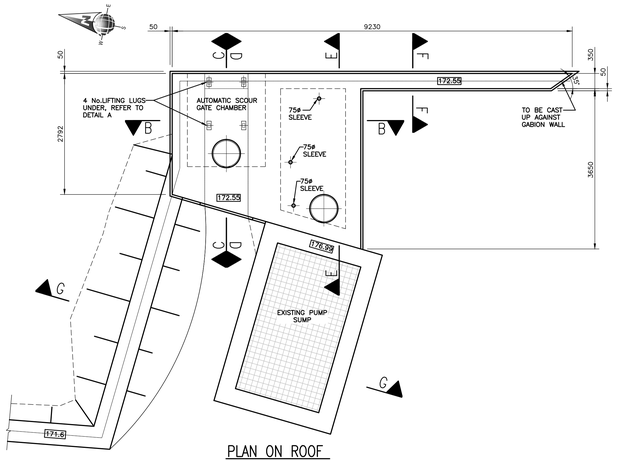
BOSCH PROJECTS
INNOVATIVE PEOPLE . EXCEPTIONAL RESULTS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

DRAWN	T. CHETTY		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	N/A
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER	M.VAVDA DIVISIONAL MANAGER	

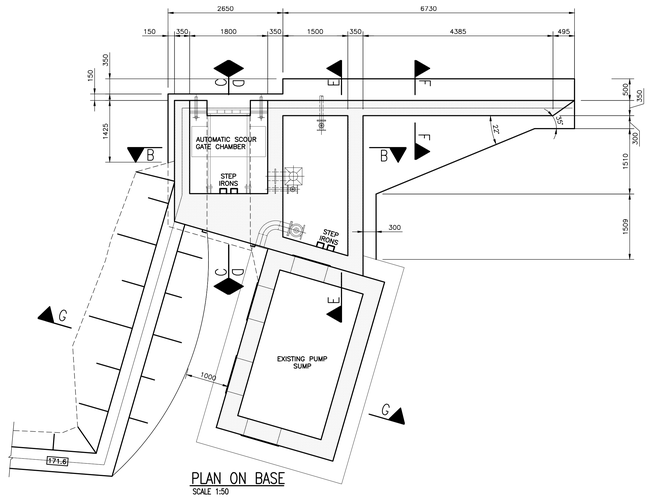
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

CHEMICAL DOSING BUILDING
REINFORCING DETAILS

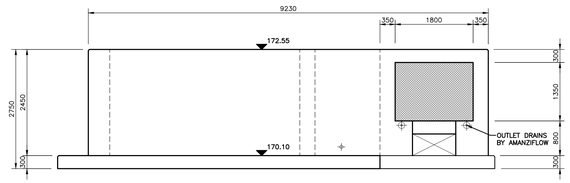
SCALE	AS SHOWN	DATE	NOV. 2022
DRAWING NUMBER	1331-093-SBS-026	A0	REVISION A



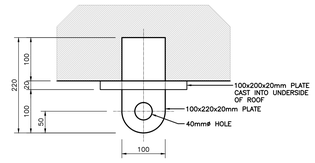
PLAN ON ROOF
SCALE 1:50



PLAN ON BASE
SCALE 1:50



EAST ELEVATION
SCALE 1:50



DETAIL A
LIFTING LUGS 4 No.
SCALE 1:5

GENERAL NOTES

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.

2 CONCRETE SHALL HAVE A MINIMUM 28 DAY CUBE CRUSHING STRENGTH (150mm CUBE) AS INDICATED BELOW FOR THE VARIOUS ELEMENTS.
   a) BLINDING AND MASS FILLING = 10MPa
   b) ALL CONCRETE = 35MPa (19mm STONE)

3 ALL CONCRETE IS TO BE MOIST CURED FOR 7 DAYS OR HAVE AN APPROVED CURING COMPOUND APPLIED.

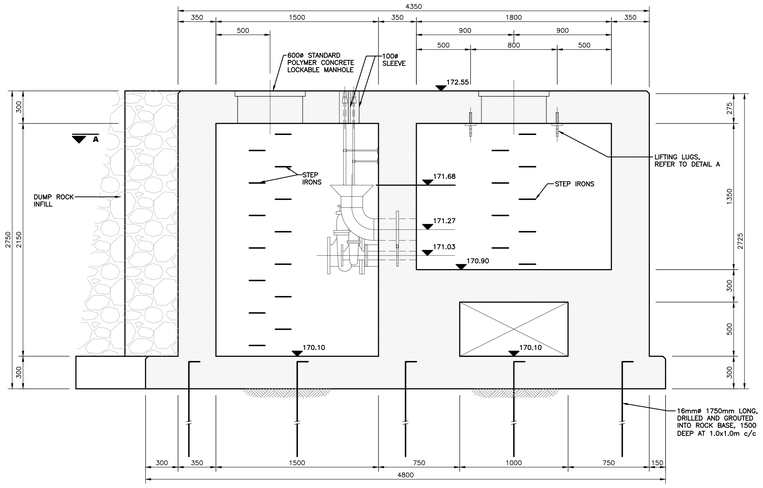
4 ALL EXPOSED CONCRETE EDGES TO HAVE 25x25mm CHAMFER.

5 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF THE CONTRACTOR IS IN DOUBT HE SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.

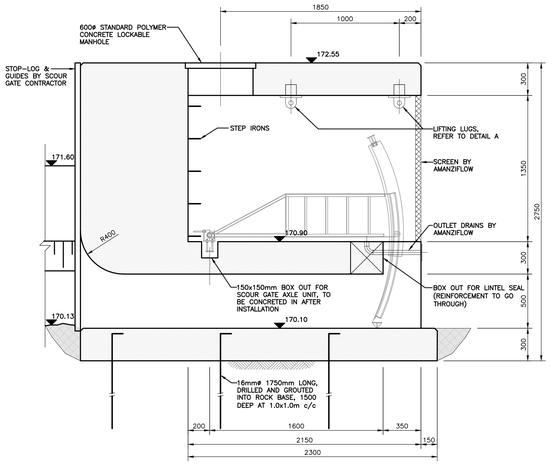
6 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

7 ALL REINFORCEMENT TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING ANY CONCRETE.

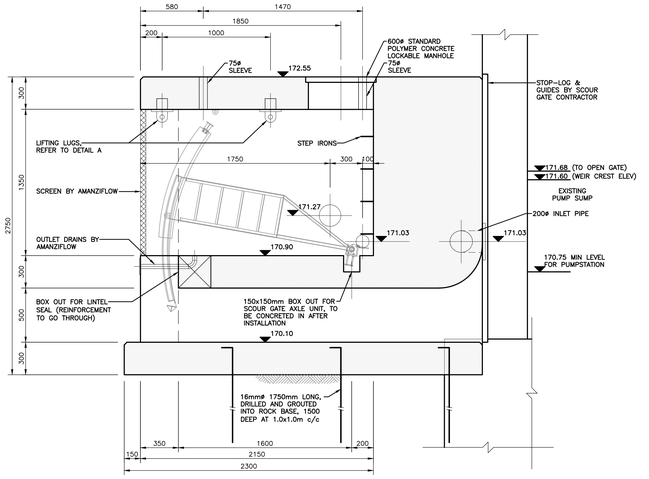
8 CONCRETE COVER TO REINFORCEMENT SHALL BE MAINTAINED BY USE OF CEMENT MORTAR COVER BLOCKS.



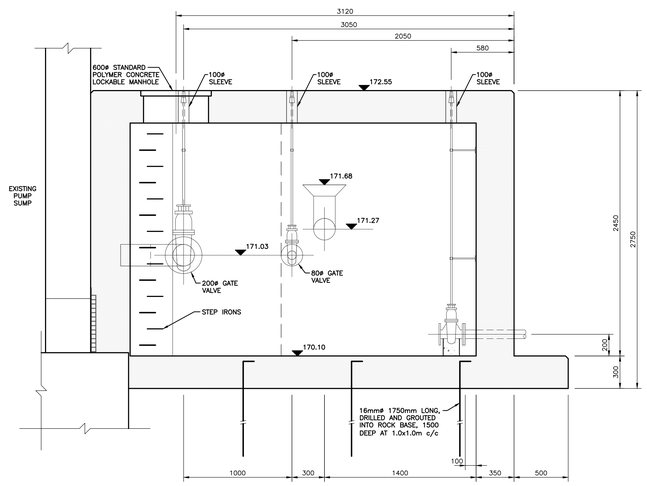
SECTION B
SCALE 1:20



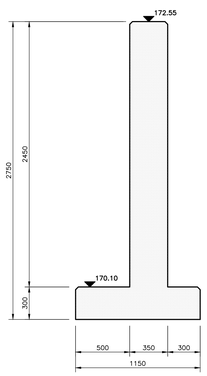
SECTION C
SCALE 1:20



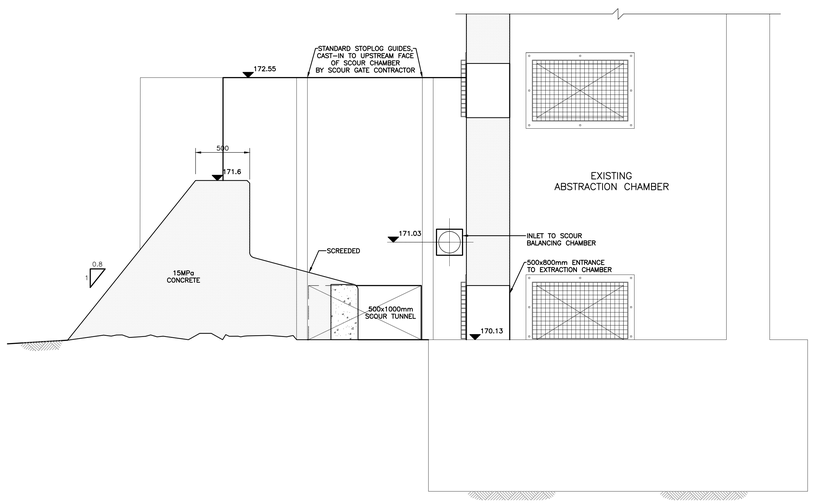
SECTION D
SCALE 1:20



SECTION E
SCALE 1:20



SECTION F
SCALE 1:20



SECTION G
SCALE 1:20

FOR CONSTRUCTION

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	PN	APPROVED FOR CONSTRUCTION	30/11/2021
1	PN	INTERNAL REVIEW	15/03/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK, 5 CANEGATE ROAD, LA LUCIA RIDGE OFFICE ESTATE, DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

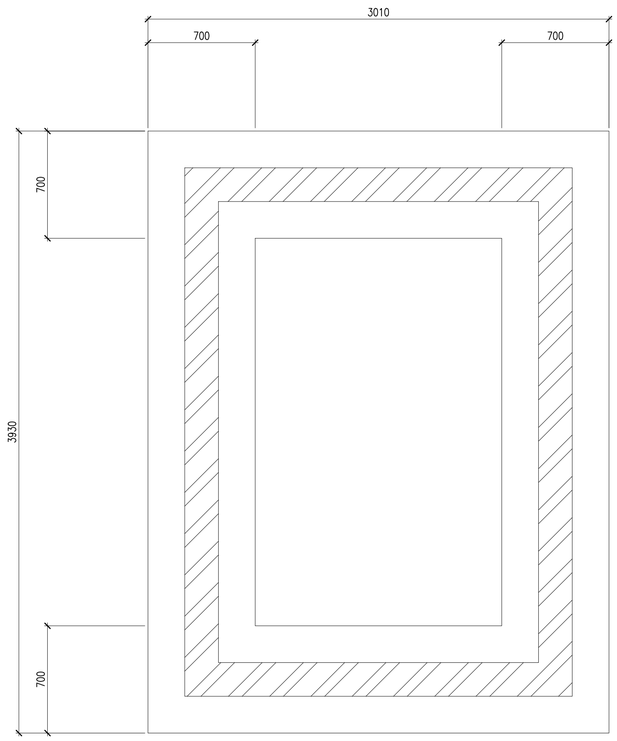
DRAWN	P. NAICKER	CHECKED	S. ALLY
CIVIL ENGINEER	S. ALLY	STRUCTURAL ENGINEER	S. ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S. MDAKA, PROJECT MANAGER — M. YAWDA, DIVISIONAL MANAGER

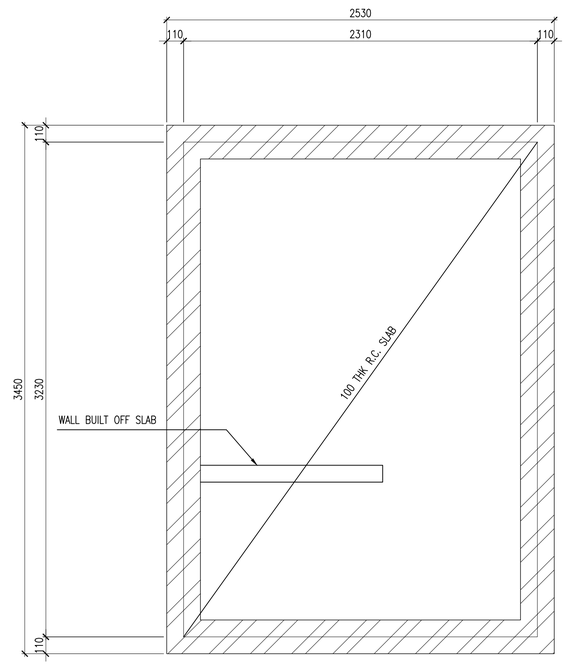
UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

PROPOSED WEIR DIVERSION AUTOMATIC SCOUR GATE CHAMBER

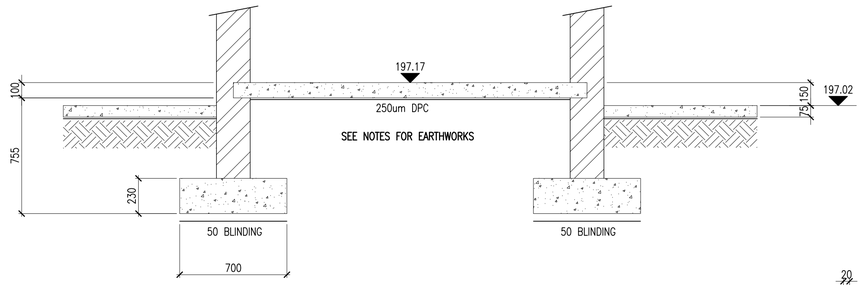
SCALE	AS SHOWN	DATE	MAY 2021
DRAWING NUMBER	1331-093-SCD-0001	A0	REVISION A



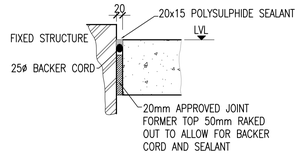
PLAN – FOUNDATIONS



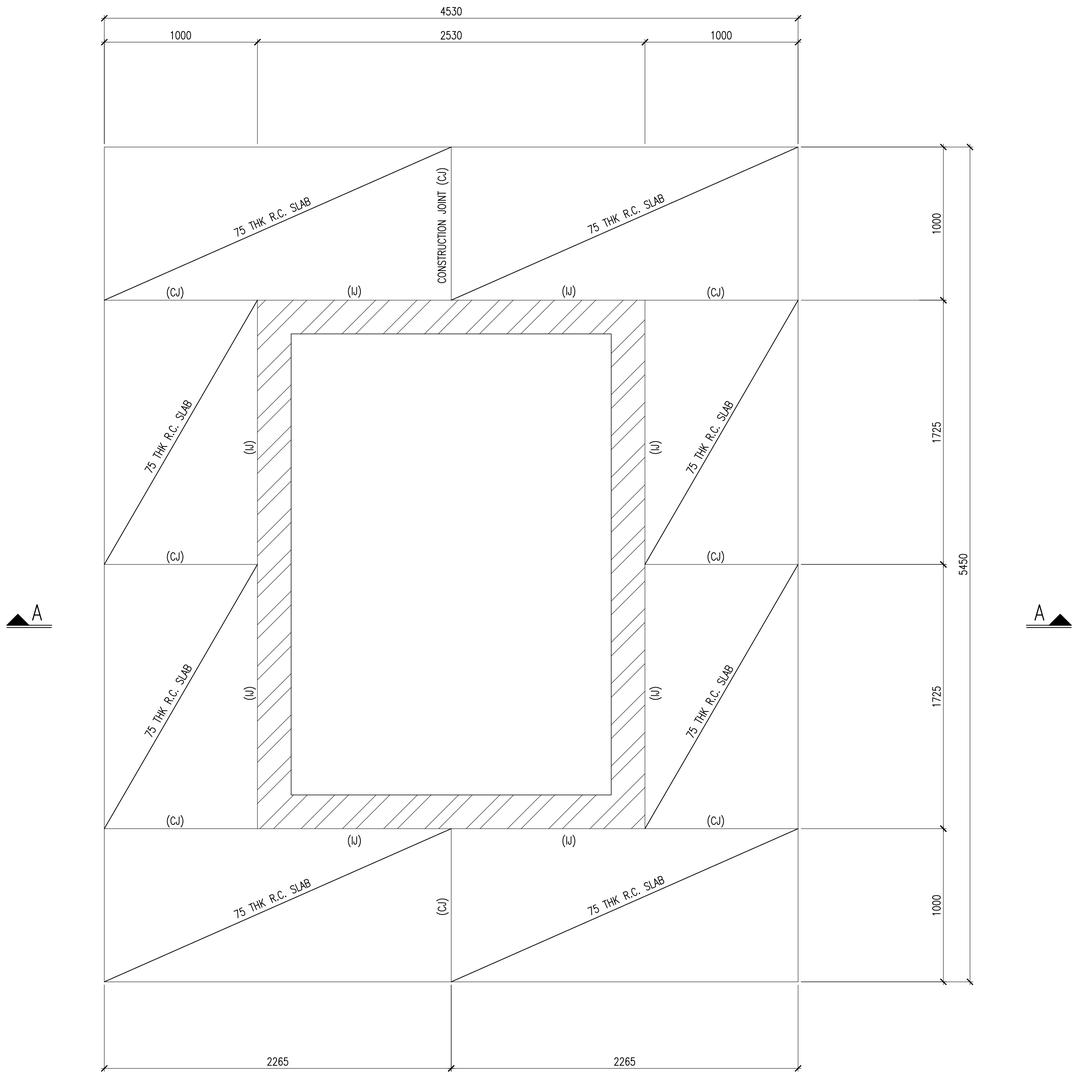
PLAN – SURFACE BED



SECTION A – A



TYPICAL DETAIL OF ISOLATION JOINTS (IJ)



A

A

PLAN – APRON SLAB

FOR CONSTRUCTION

NOTES

GENERAL

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3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO BE 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB		50mm TOP & BOTTOM
WALLS – EARTH FACE		40mm
	WATER FACE	50mm
ROOF SLAB – SOFFIT		50mm
	– TOP	40mm
COLUMNS		50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

GROUND IMPROVEMENT

1 THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:

- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	JMD	APPROVED FOR CONSTRUCTION	30/11/2022
T1	N.M	TENDER DRAWING	26/07/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

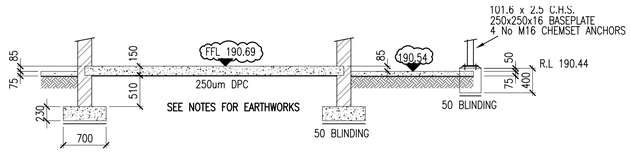
DRAWN	J.M.D.		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED: S.MDAKA, PROJECT MANAGER; M.VAWDA, DIVISIONAL MANAGER

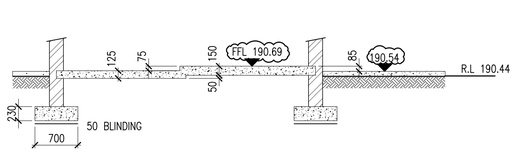
UGU DISTRICT MUNICIRALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

GUARD HOUSE CONCRETE DETAILS

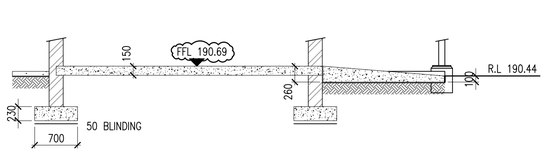
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DRAWING NUMBER	1331-093-SCD-0002	A1	REVISION A



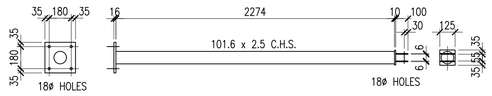
SECTION A – A



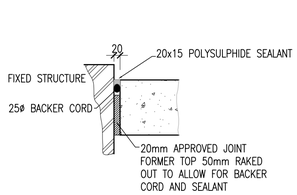
SECTION B – B



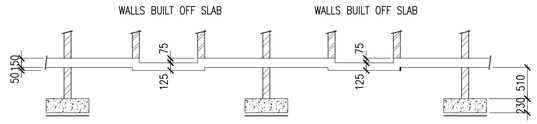
SECTION C – C



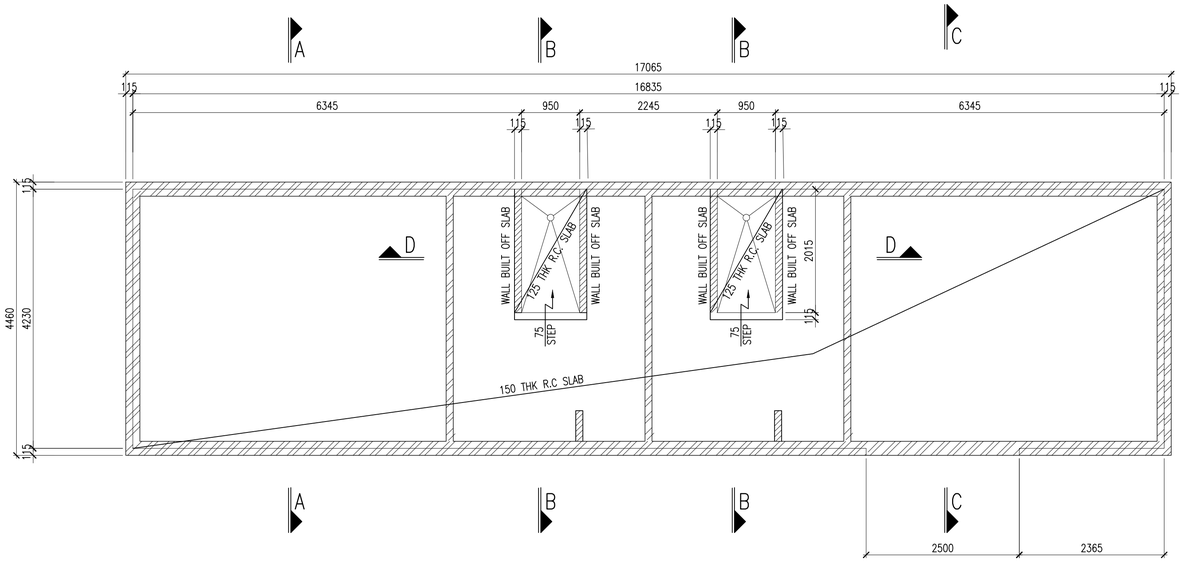
ROOF SUPPORT POST
7 No REQUIRED – GALVANISED



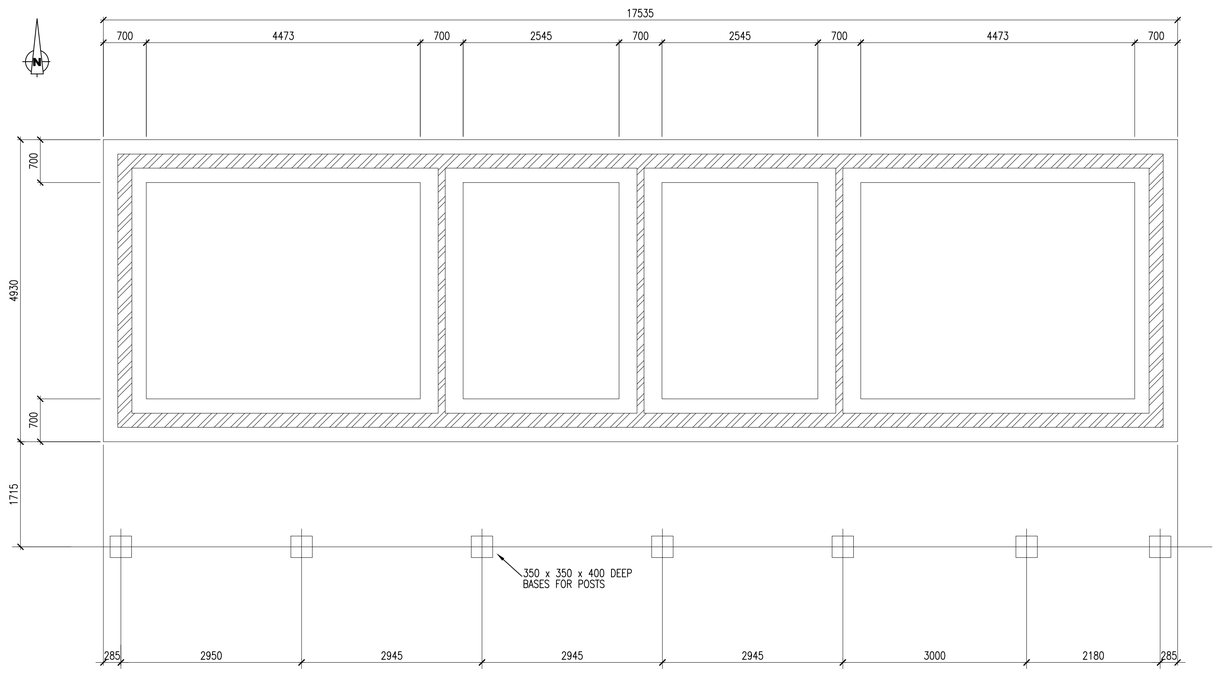
TYPICAL DETAIL OF
ISOLATION JOINTS (IJ)



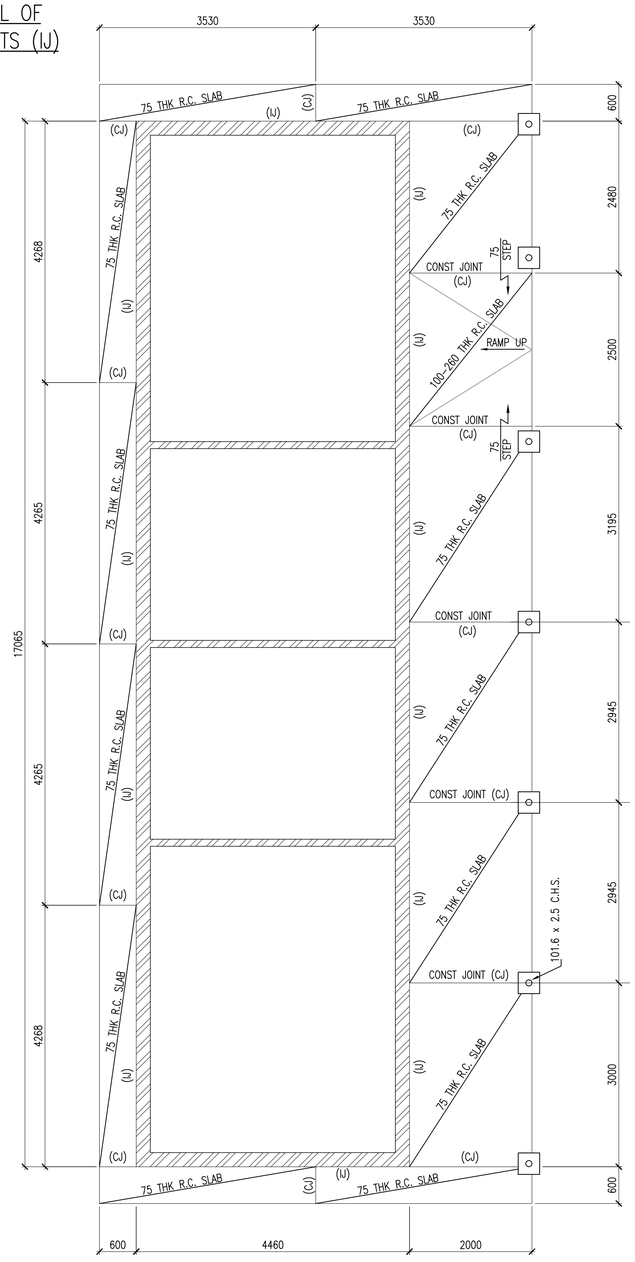
SECTION D – D



PLAN – SURFACE BED



PLAN – FOUNDATIONS



PLAN – APRON SLAB

FOR CONSTRUCTION

NOTES

GENERAL

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CONCRETE

1 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER AND FOR MASS CONCRETE IS TO BE 15MPa/20mm.

2 MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, AND BASES FOR WATER RETAINING STRUCTURES TO BE 35MPa/20mm, ALL OTHER CONCRETE FOR NON-WATER RETAINING STRUCTURES TO BE 25MPa/20mm CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.

3 MINIMUM COVER TO REINFORCING:

FLOOR/BASE SLAB	50mm TOP & BOTTOM
WALLS – EARTH FACE	40mm
WATER FACE	50mm
ROOF SLAB – SOFFIT	50mm
– TOP	40mm
COLUMNS	50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

GROUND IMPROVEMENT

1 THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:

- STAGE 1: OVER-EXCAVATE OVER THE PLAN AREA OF THE STRUCTURE AND 1m BEYOND DOWN TO A SUITABLE FOUNDING DEPTH AS DIRECTED BY THE ENGINEER BELOW FLOOR LEVEL.
- STAGE 2: COMPACT THE BASE WITH A 12 TONNE VIBRATORY ROLLER TO ACHIEVE 93% OF MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY FOR AT LEAST 500mm BELOW EXCAVATION LEVEL.
- STAGE 3: FOLLOWING COMPACTION OF THE BASE OF THE EXCAVATION, INTRODUCE G4 MATERIAL IN LAYERS (200mm WHEN PLACED LOOSE) WHICH SHOULD BE COMPACTED TO ACHIEVE 98% MOD.A.A.S.H.T.O.
- STAGE 4: COMPACT THE G4 EQUIVALENT MATERIAL IN LAYERS NOT EXCEEDING 200mm WHEN PLACED LOOSE, TO ACHIEVE 98% MOD.A.A.S.H.T.O. MAXIMUM DRY DENSITY. COMPACTION OF THE LAYERS SHOULD PROCEED TO UNDERSIDE OF STRUCTURE. THEREAFTER EXCAVATIONS FOR FOUNDATIONS AND DRAINAGE TRENCHES CAN BE UNDERTAKEN PRIOR TO CASTING BLINDING.

Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	JMD	APPROVED FOR CONSTRUCTION	30/11/2022
T1	N.M	TENDER DRAWING	26/07/2021

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za
ISO 9001:2015 CERTIFIED

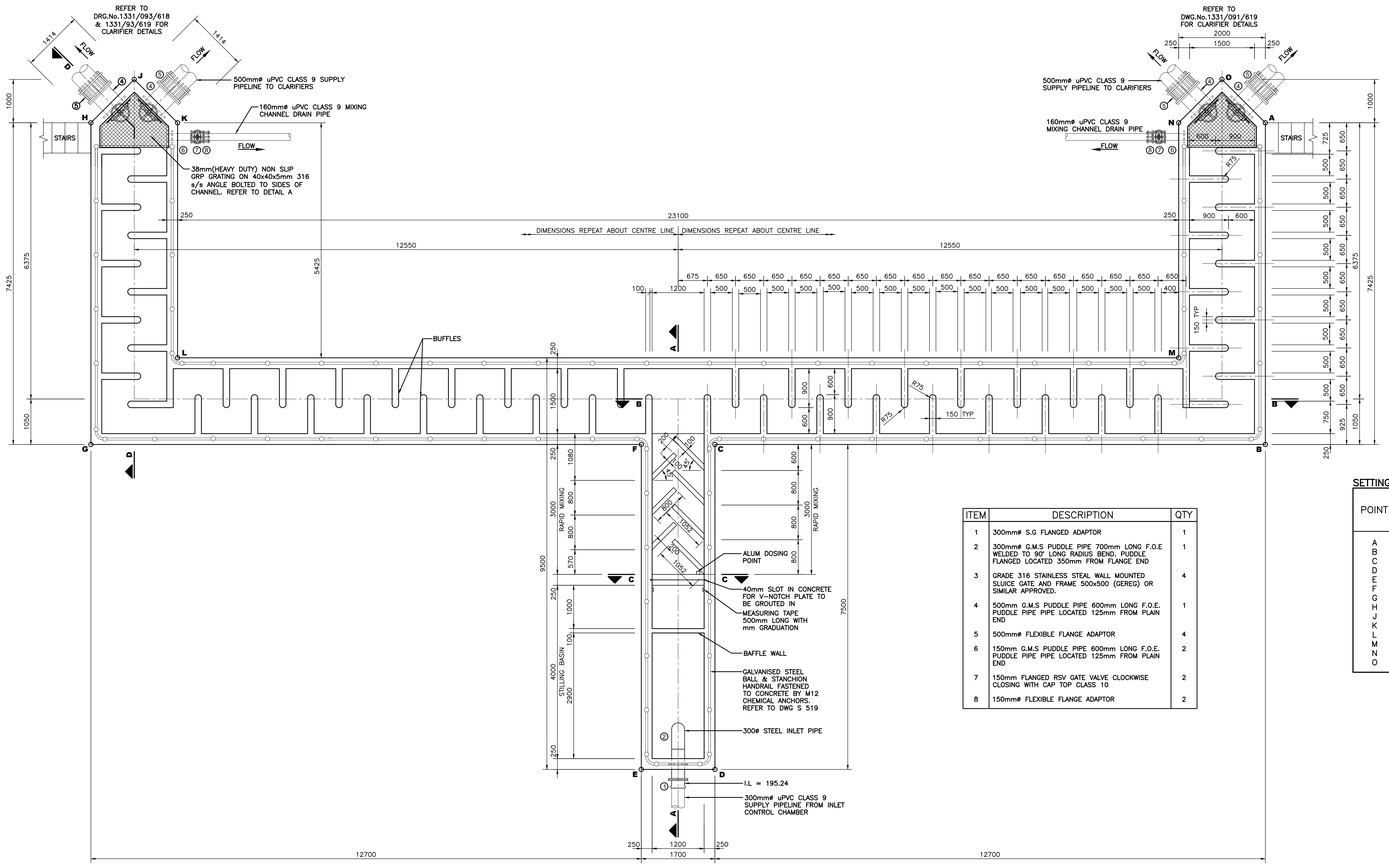
DRAWN	J.M.D.		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A

APPROVED — S.MDAKA, PROJECT MANAGER — M.VAWDA, DIVISIONAL MANAGER

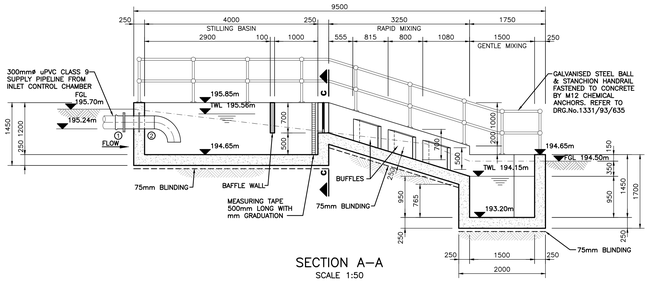
UGU DISTRICT MUNICIRALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

SERVICES BUILDING CONCRETE DETAILS

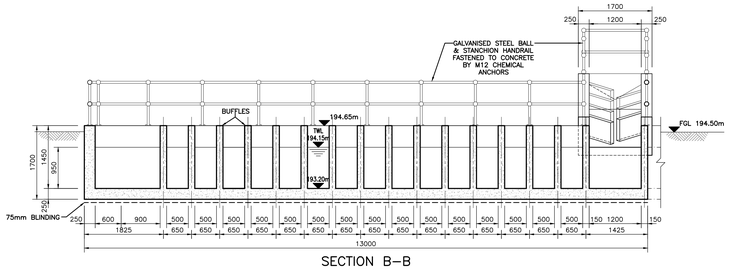
SCALE	1:20	DATE	JULY 2021
DRAWING NUMBER	1331-093-SCD-0003	A1	REVISION A



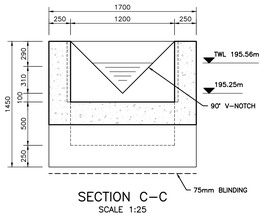
PLAN
SCALE 1:50



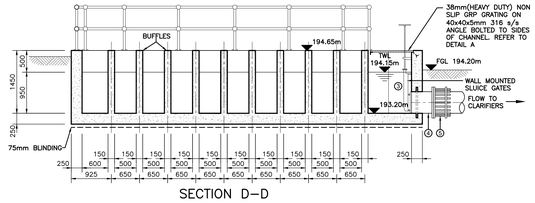
SECTION A–A
SCALE 1:50



SECTION B–B
SCALE 1:50



SECTION C–C
SCALE 1:25

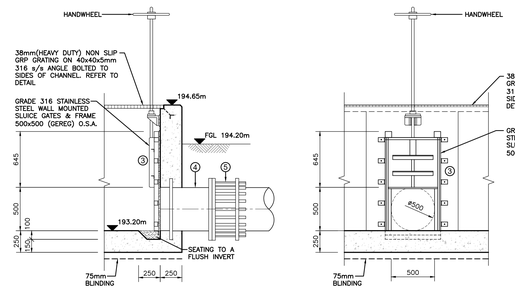


SECTION D–D
SCALE 1:50

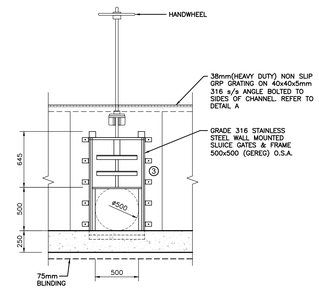
SETTING OUT DATA

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C	387.816	2095.072
D	384.843	2101.958
E	386.404	2102.632
F	389.376	2095.746
G	401.036	2100.779
H	403.979	2093.962
J	403.457	2092.648
K	402.143	2093.169
L	399.993	2098.150
M	378.784	2088.995
N	380.935	2084.015
O	380.413	2082.700

ITEM	DESCRIPTION	QTY
1	300mmø S.G FLANGED ADAPTOR	1
2	300mmø G.M.S PUDDLE PIPE 700mm LONG F.O.E WELDED TO 90° LONG RADIUS BEND. PUDDLE FLANGED LOCATED 350mm FROM FLANGE END	1
3	GRADE 316 STAINLESS STEAL WALL MOUNTED SLUICE GATE AND FRAME 500x500 (GEREG) OR SIMILAR APPROVED.	4
4	500mm G.M.S PUDDLE PIPE 600mm LONG F.O.E. PUDDLE PIPE PIPE LOCATED 125mm FROM PLAIN END	1
5	500mmø FLEXIBLE FLANGE ADAPTOR	4
6	150mm G.M.S PUDDLE PIPE 600mm LONG F.O.E. PUDDLE PIPE PIPE LOCATED 125mm FROM PLAIN END	2
7	150mm FLANGED RSV GATE VALVE CLOCKWISE CLOSING WITH CAP TOP CLASS 10	2
8	150mmø FLEXIBLE FLANGE ADAPTOR	2

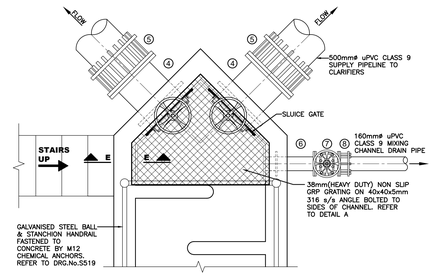


SECTION
SCALE 1:25

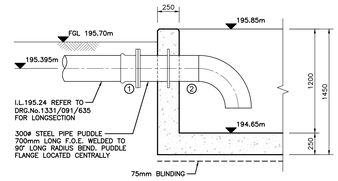


ELEVATION
SCALE 1:25

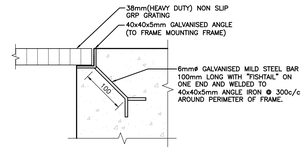
MIXING CHANNEL OUTLET
SLUICE GATE DETAIL



MIXING CHANNEL OUTLET DETAIL
SCALE 1:25



MIXING CHANNEL INLET DETAIL
SCALE 1:25



DETAIL A
MOUNTING FRAME DETAIL
SCALE 1:5

NOTES

GENERAL

1 THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER DRAWINGS & ANY DISCREPANCIES BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.

2 IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS 1200. IF IN DOUBT THE CONTRACTOR SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.

3 DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO THE IMPLEMENTATION OF ANY WORK.

CONCRETE

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FLOOR/BASE SLAB		50mm TOP & BOTTOM
WALLS – EARTH FACE		40mm
	– WATER FACE	50mm
ROOF SLAB – SOFFIT		50mm
	– TOP	40mm
COLUMNS		50mm

4 CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF. 395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB

5 ENGINEER TO INSPECT ALL REINFORCEMENT AND FORMWORK PRIOR TO CASTING CONCRETE.

6 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.

GROUND IMPROVEMENT

1 THE FOLLOWING GROUND IMPROVEMENT MEASURES ARE REQUIRED WHERE DIRECTED BY THE ENGINEER:
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Ugu District Municipality

WATER SERVICE PROVIDER :

WATER IMPLEMENTATION AGENCY MANAGER :

WATER SERVICE AUTHORITY MANAGER :

REV.	BY	DESCRIPTION	DATE
A	JMB	APPROVED FOR CONSTRUCTION	30/11/2022
T1	ALR	TENDER DRAWING	26/07/2021

1331-093-SBS-006 REINFORCEMENT DETAILS
1331-093-WTW-617 MIXING CHANNEL

ORG. No. REFERENCE DRAWING

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BOSCH PROJECTS
GLOBAL ENGINEERING SOLUTIONS
1 HOLWOOD PARK
5 CANEGATE ROAD
LA LUCIA RIDGE OFFICE ESTATE
DURBAN, SOUTH AFRICA, 4320
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschprojects.co.za

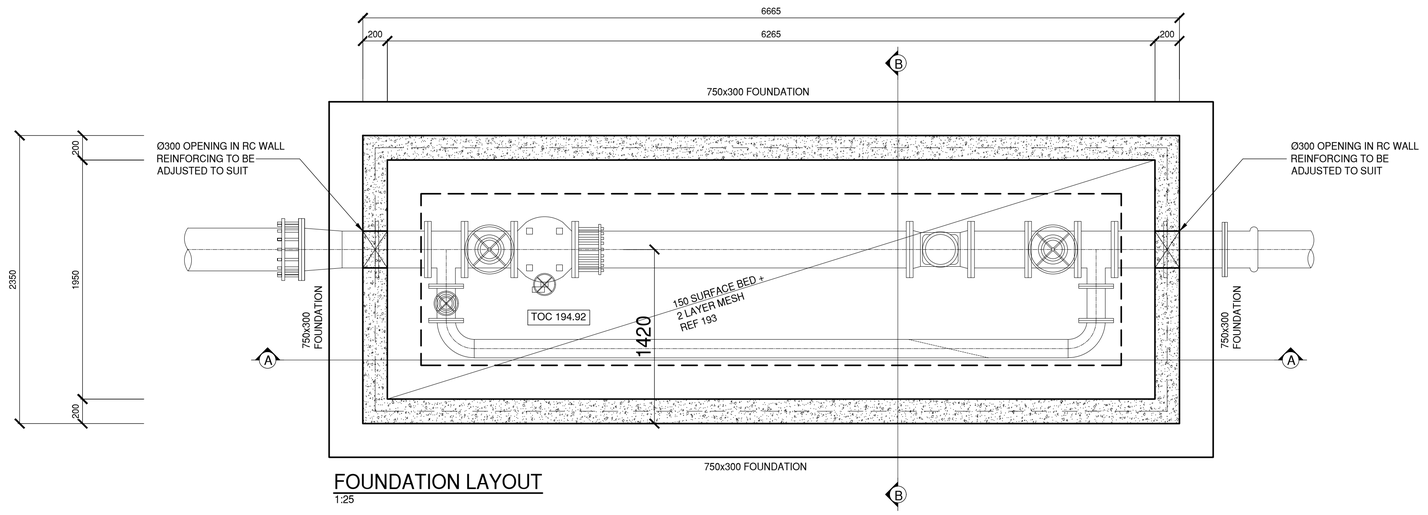
DRAWN	J.M.B.		
CIVIL ENGINEER	A.LE ROUX	STRUCTURAL ENGINEER	S.ALLY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
APPROVED	S.MDAKA PROJECT MANAGER		M.VAWDA DIVISIONAL MANAGER

UGU DISTRICT MUNICIPALITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION
PHASE 1 - UPGRADE OF ABSTRACTION AND WATER TREATMENT WORKS (6.5 ML/DAY)

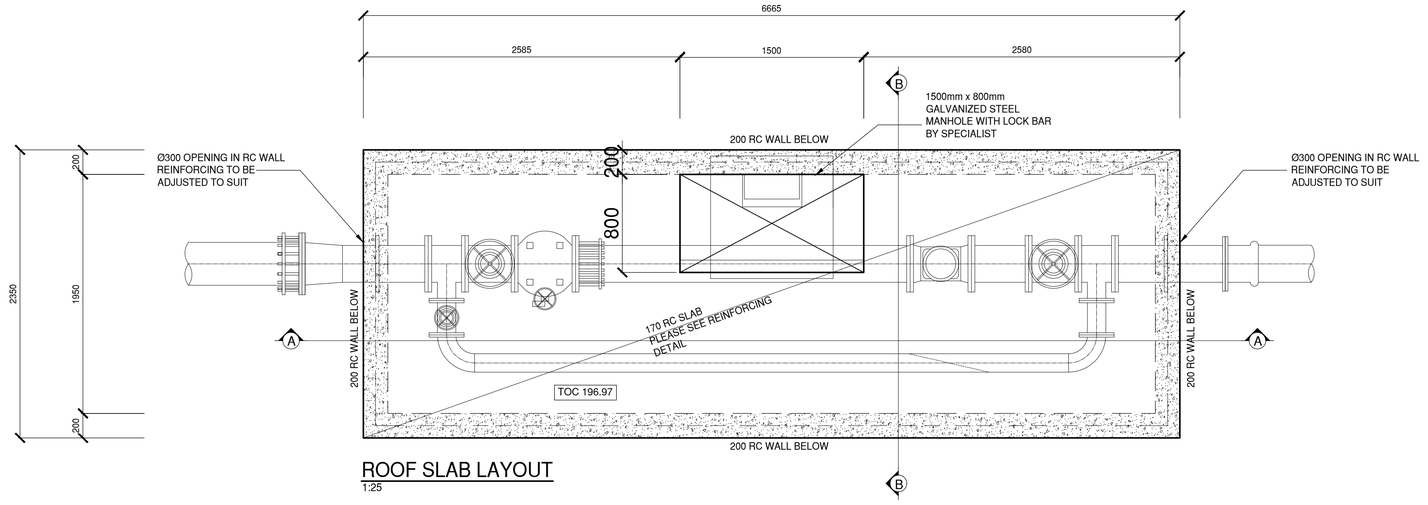
MIXING CHANNEL OUTLET SLUICE GATE REBAR DETAILS

SCALE	AS SHOWN	DATE	JULY 2021
DRAWING NUMBER	1331-093-SCD-004	A0	REVISION A

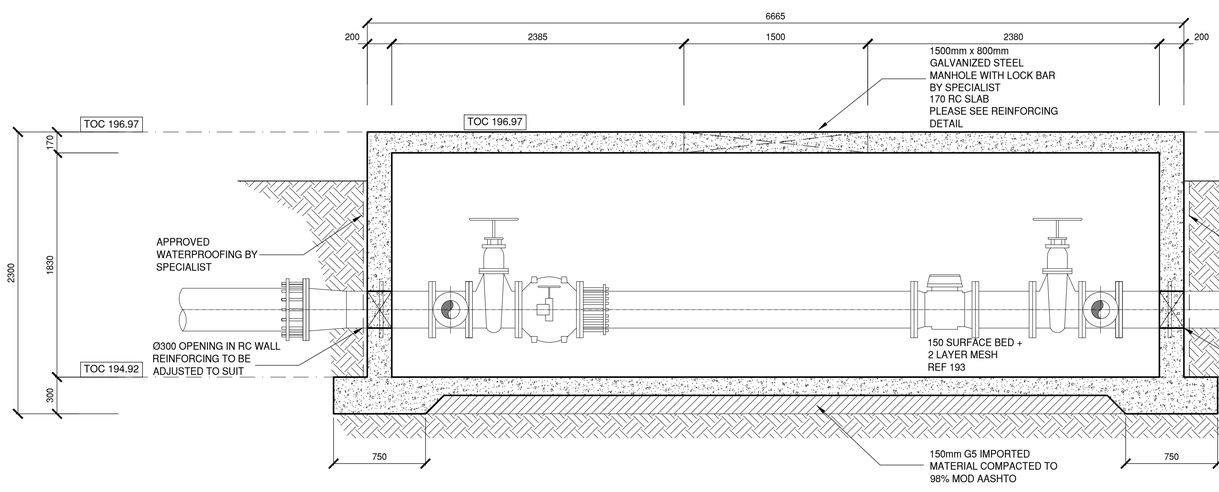
FOR CONSTRUCTION



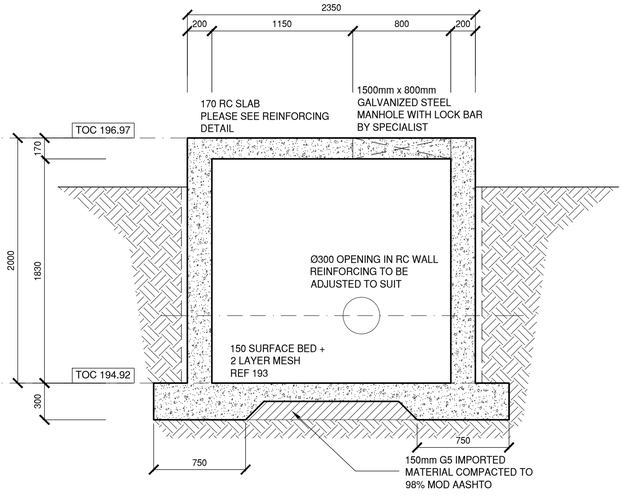
FOUNDATION LAYOUT
1:25



ROOF SLAB LAYOUT
1:25



SECTION A-A
1:25



SECTION B-B
1:25

CONCRETE NOTES:

1. ALL LOADINGS TO BE IN ACCORDANCE WITH SANS 10160
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, MECHANICAL AND STRUCTURAL STEEL LAYOUTS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
3. CONCRETE SHALL HAVE A MINIMUM 28 DAY CUBE CRUSHING STRENGTH (150mm CUBE) :
   a. WATER RETAINING STRUCTURES: 25MPa (20 mm STONE)
   b. ALL OTHER NONE-WATER RETAINING STRUCTURES: 25MPa (20 mm STONE)
   c. BLINDING LAYER & MASS CONCRETE: 15MPa (20mm STONE)
4. MINIMUM COVER TO REINFORCEMENT:
   BASE SLAB/FLOOR: 50mm TOP & BOTTOM
   WALLS: EARTH FACE-40mm
   WATER FACE-50mm
   ROOF SLAB: SOFFIT-50mm
   TOP- 40mm
   COLUMNS: 50mm
5. CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF.395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB
6. ALL CONCRETE IS TO BE MOIST CURED FOR 7 DAYS OR HAVE AN APPROVED CURING COMPOUND APPLIED.
7. ALL EXPOSED CONCRETE EDGES TO HAVE 20x20 CHAMFER. UNLESS OTHERWISE NOTED.
8. IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS1200. IF THE CONTRACTOR IS IN DOUBT HE SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
9. AGGREGATES - MAXIMUM ALLOWABLE SLUMP TO SANS 1200 G CLAUSE 5.5.1.2.
10. ALL REINFORCEMENT TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING ANY CONCRETE.
11. CONCRETE COVER TO REINFORCEMENT SHALL BE MAINTAINED BY USE OF CEMENT MORTAR COVER BLOCKS OR APPROVED PLASTIC SPACERS.
12. ALL HOLDING DOWN BOLTS CAST INTO CONCRETE TO BE HOT DIP GALVANIZED TO SANS SPECIFICATION U.O.N.

0mm 20mm 40mm 60mm 80mm 100mm

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	30-11-2022
1	TC	FOR INTERNAL REVIEW	25-11-2022

DRG. No. | REFERENCE DRAWING

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BOSCH PROJECTS
INNOVATIVE PEOPLE . EXCEPTIONAL RESULTS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschholdings.co.za
ISO 9001:2015 CERTIFIED

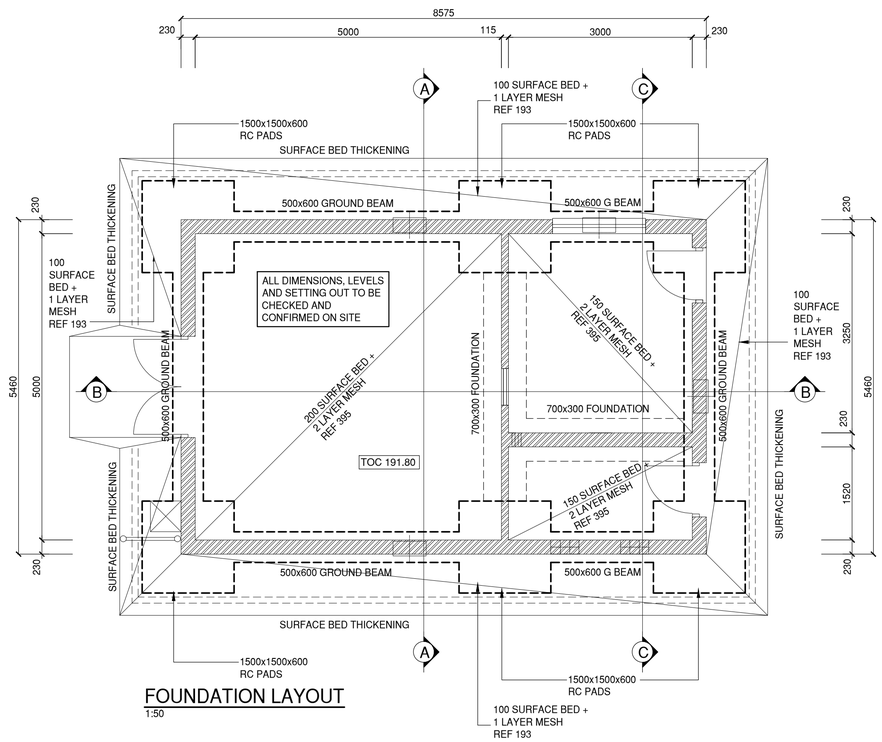
DRAWN	TRENTON CHETTY		
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	K. OLDBURY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
PROJECT MANAGER	S.MDAKA	DIVISIONAL MANAGER	M. VAWDA

UGU DISTRICT MUNICIPAILITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1

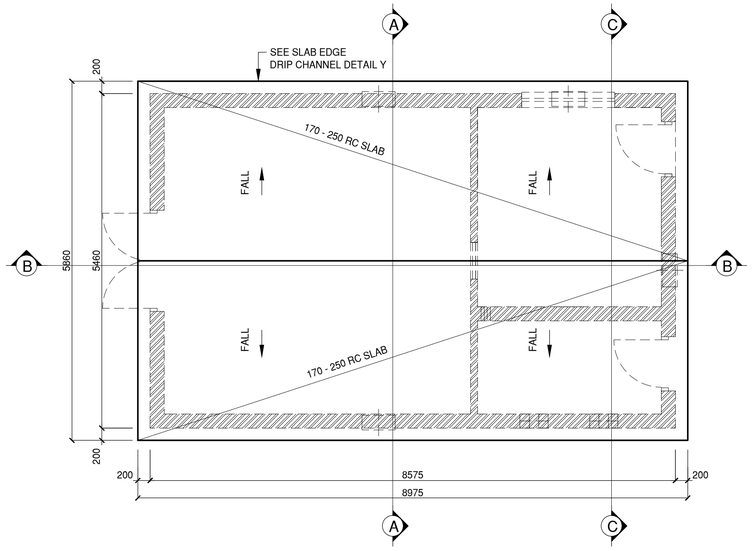
1.5 ML RAW WATER RESERVOIR
FLOW CONTROL CHAMBER
FOUNDATION, SLABS AND SECTION LAYOUTS

SCALE	AS NOTED	DATE	25-11-2022
DRAWING NUMBER	1331-093-SCD-0005	SIZE	A1
		REVISION	A

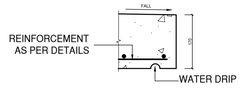
FOR CONSTRUCTION



FOUNDATION LAYOUT
1:50



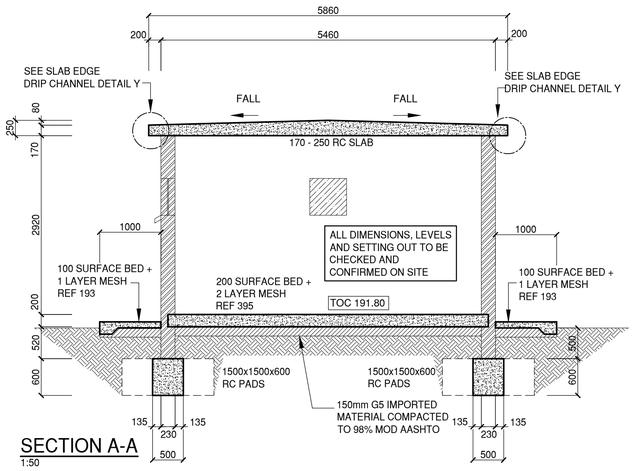
ROOF SLAB LAYOUT
1:50



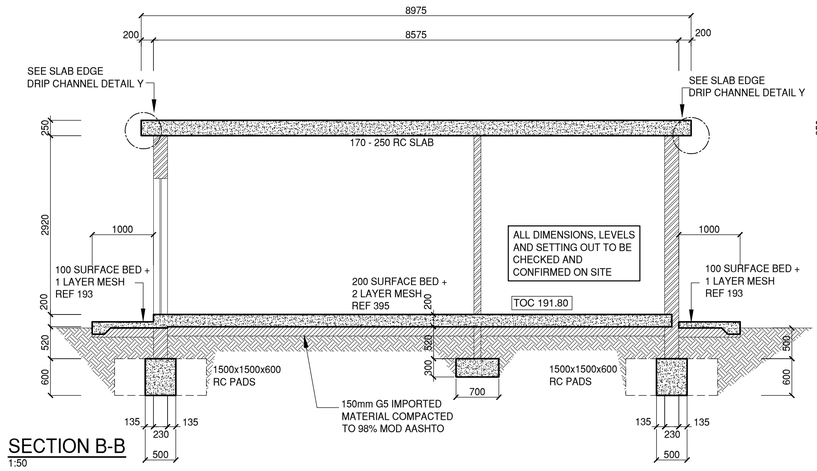
DETAIL Y
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CONCRETE NOTES:

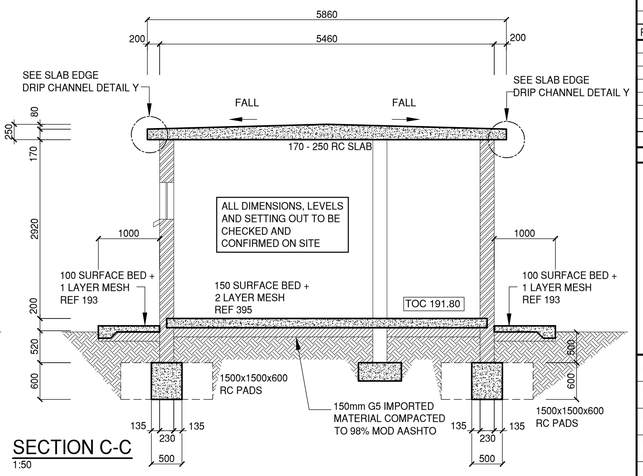
1. ALL LOADINGS TO BE IN ACCORDANCE WITH SANS 10160
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   TOP- 40mm
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SECTION A-A
1:50



SECTION B-B
1:50



SECTION C-C
1:50

FOR CONSTRUCTION

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	30-11-2022
1	TC	FOR INTERNAL REVIEW	25-11-2022

DRG. No. | REFERENCE DRAWING

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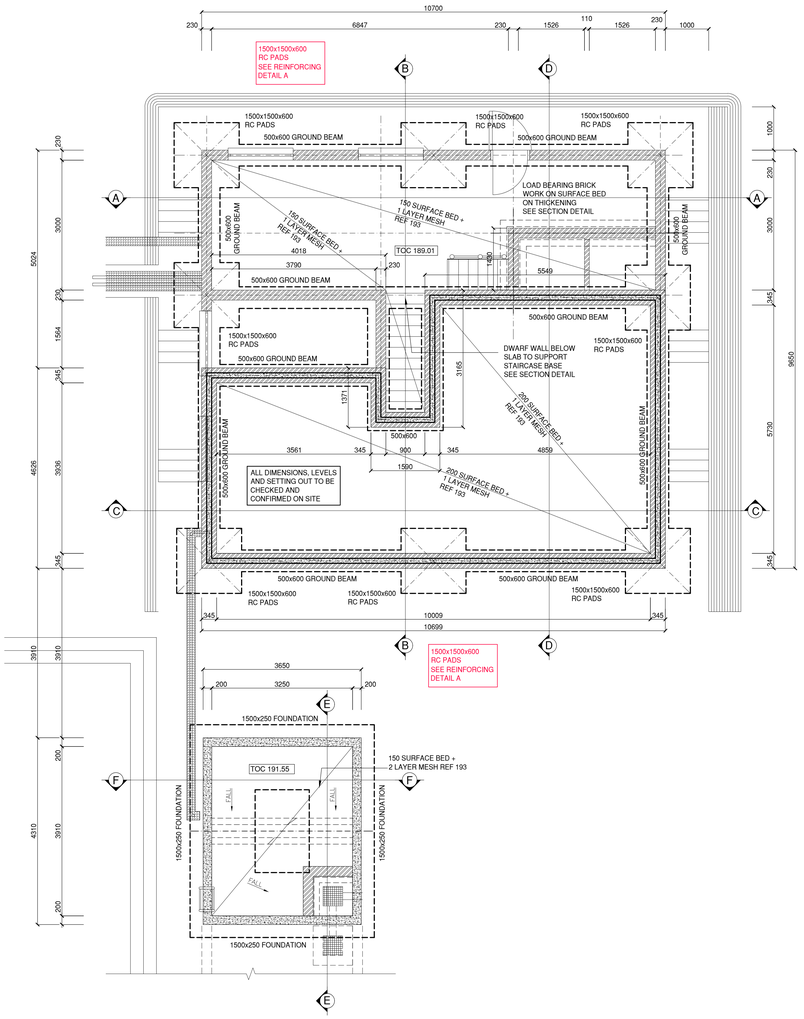
BOSCH PROJECTS
INNOVATIVE PEOPLE . EXCEPTIONAL RESULTS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
FAX: +27 (0)31 535 6010
e-mail: mail@boschprojects.co.za
website: www.boschholdings.co.za
ISO 9001:2015 CERTIFIED

DRAWN	TRENTON CHETTY		
CIVIL ENGINEER	S.MDAKA	STRUCTURAL ENGINEER	K. OLDBURY
INSTRUMENT ENGINEER	N/A	ELECTRICAL ENGINEER	N/A
MECHANICAL ENGINEER	N/A	PROCESS ENGINEER	N/A
PROJECT MANAGER	S.MDAKA	DIVISIONAL MANAGER	M. VAWDA

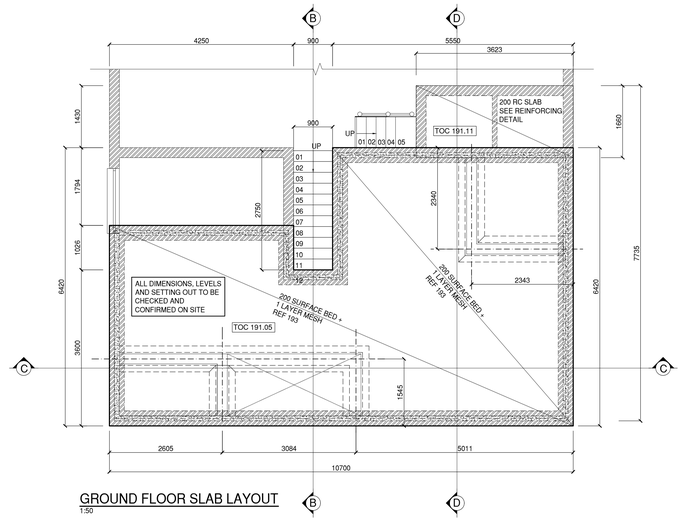
UGU DISTRICT MUNICIPAILITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1

CHLORINE DOSING BUILDING
FOUNDATION, SLAB AND SECTION DETAILS

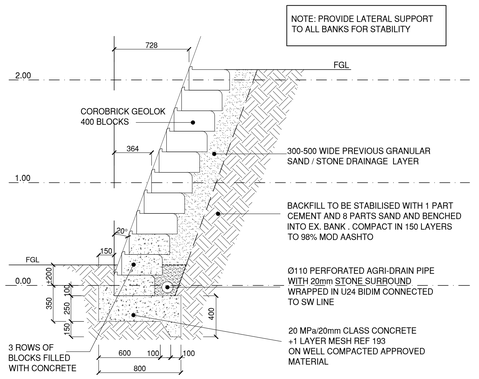
SCALE AS NOTED	DATE 25-11-2022	
DRAWING NUMBER 1331-093-SCD-0006	SIZE A1	REVISION A



RETAINING WALL FOUNDATION LAYOUT
1:50



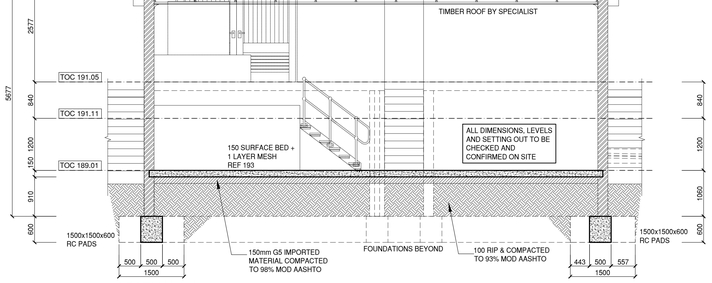
GROUND FLOOR SLAB LAYOUT
1:50



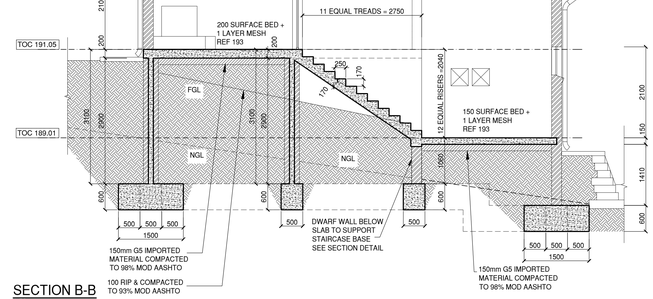
TYPICAL SECTION - GEOLOCK 400 RETAINING WALL
SCALE 1:25

CONCRETE NOTES:

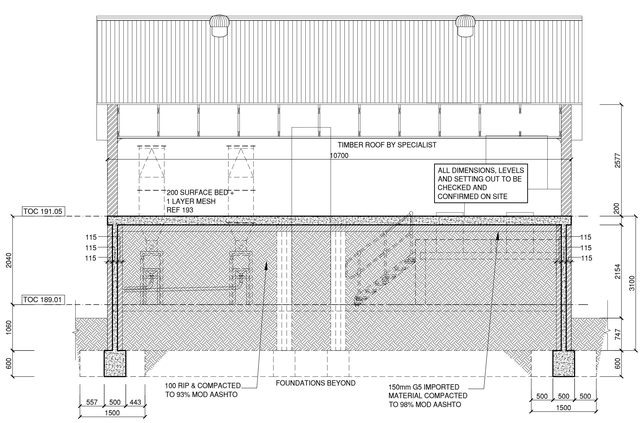
1. ALL LOADINGS TO BE IN ACCORDANCE WITH SANS 10160
2. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ARCHITECTURAL, MECHANICAL AND STRUCTURAL STEEL LAYOUTS. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO IMPLEMENTATION OF ANY FURTHER WORK.
3. CONCRETE SHALL HAVE A MINIMUM 28 DAY CUBE CRUSHING STRENGTH (150mm CUBE) :
   a. WATER RETAINING STRUCTURES: 25MPa (20 mm STONE)
   b. ALL OTHER NONE-WATER RETAINING STRUCTURES: 25MPa (20 mm STONE)
   c. BLINDING LAYER & MASS CONCRETE: 15MPa (20mm STONE)
4. MINIMUM COVER TO REINFORCEMENT:
   BASE SLAB/FLOOR: 50mm TOP & BOTTOM
   WALLS: EARTH FACE-40mm
   WATER FACE-50mm
   ROOF SLAB: SOFFIT-50mm
   TOP- 40mm
   COLUMNS: 50mm
5. CONCRETE SURFACE BEDS AND WALKWAYS TO HAVE REF.395 REINFORCEMENT MESH WITH 50mm COVER TO TOP OF SLAB
6. ALL CONCRETE IS TO BE MOIST CURED FOR 7 DAYS OR HAVE AN APPROVED CURING COMPOUND APPLIED.
7. ALL EXPOSED CONCRETE EDGES TO HAVE 20x20 CHAMFER. UNLESS OTHERWISE NOTED.
8. IN GENERAL ALL WORK SHALL COMPLY WITH THE SPECIFICATION AND OR RELEVANT SECTION OF SANS1200. IF THE CONTRACTOR IS IN DOUBT HE SHALL SEEK DIRECTION FROM THE ENGINEER BEFORE COMMENCING WORK.
9. AGGREGATES - MAXIMUM ALLOWABLE SLUMP TO SANS 1200 G CLAUSE 5.5.1.2.
10. ALL REINFORCEMENT TO BE INSPECTED BY THE ENGINEER PRIOR TO CASTING ANY CONCRETE.
11. CONCRETE COVER TO REINFORCEMENT SHALL BE MAINTAINED BY USE OF CEMENT MORTAR COVER BLOCKS OR APPROVED PLASTIC SPACERS.
12. ALL HOLDING DOWN BOLTS CAST INTO CONCRETE TO BE HOT DIP GALVANIZED TO SANS SPECIFICATION U.O.N.



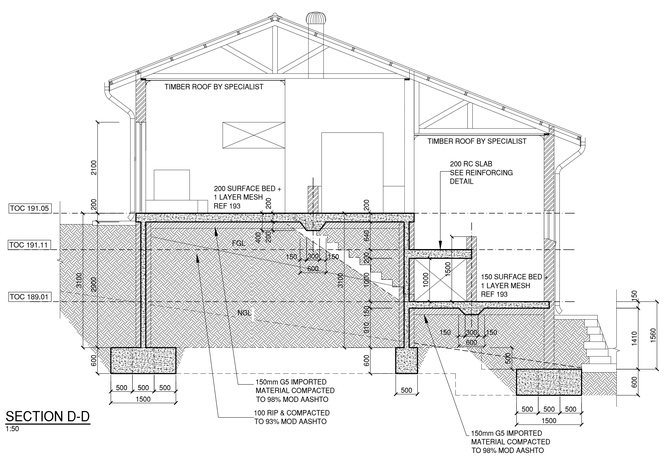
SECTION A-A
1:50



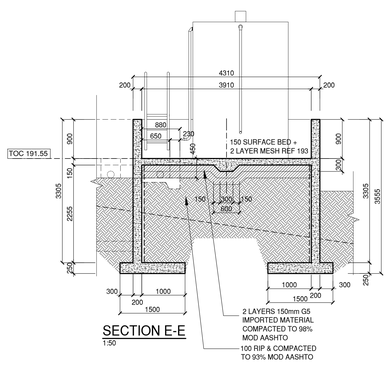
SECTION B-B
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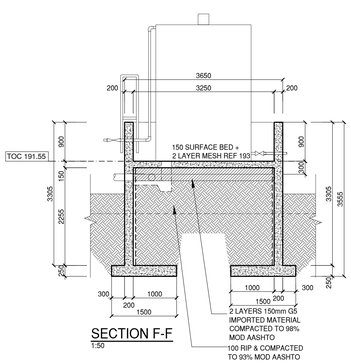
SECTION C-C
1:50



SECTION D-D
1:50



SECTION E-E
1:50



SECTION F-F
1:50

0mm 20mm 40mm 60mm 80mm 100mm

REV.	BY	DESCRIPTION	DATE
A	NM	APPROVED FOR CONSTRUCTION	30-11-2022
1	TC	FOR INTERNAL REVIEW	25-11-2022

DRG. No. — REFERENCE DRAWING

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BOSCH PROJECTS
INNOVATIVE PEOPLE . EXCEPTIONAL RESULTS
23A FLANDERS DRIVE
MOUNT EDGECOMBE
DURBAN
SOUTH AFRICA, 4302
TEL: +27 (0)31 535 6000
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UGU DISTRICT MUNICIPAILITY
KWALEMBE WATER SUPPLY SCHEME EXTENSION PHASE 1

CHEMICAL DOSING BUILDING
FOUNDATIONS, SLAB AND SECTIONS LAYOUT

SCALE	AS NOTED	DATE	25-11-2022
DRAWING NUMBER	1331-093-SCD-0007	SIZE	A0
		REVISION	A

FOR CONSTRUCTION