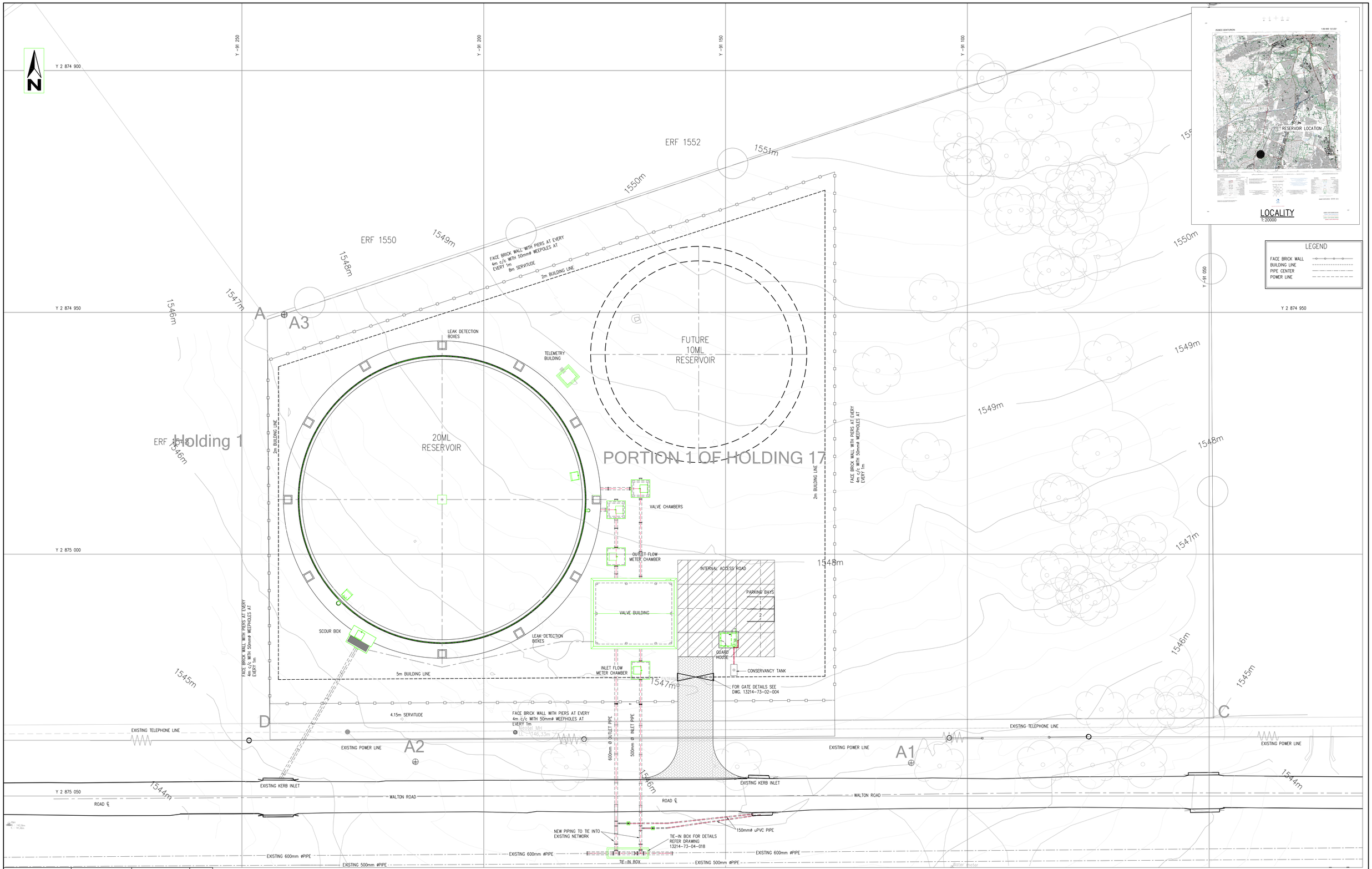
DRAWING REGISTER	
Job No:	**13214**
Client Ref:	**CARLSWALD 20ML REINFORCED CONCRETE RESERVOIR**
Contract No:	**JW14302R**
DRAWINGS NUMBER	**DRAWING DESCRIPTION**
SECTION 01 - GENERAL ARRANGEMENT	
13214-73-01-001	LAYOUT OF EXISTING SERVICES & PROPOSED NEW INFRASTRUCTURE
13214-73-01-002	SETTING OUT INFORMATION FOR THE NEW INFRASTRUCTURE
13214-73-01-003	JW CONSTRUCTION NAME BOARD
SECTION 02 - TERRACING, STORMWATER & RESERVOIR PIPEWORK	
13214-73-02-001	TERRACING , INTERCONNECTING PIPEWORK, ACCESS ROAD & SETTING OUT
13214-73-02-002	LEAK DETECTION, SCOUR PIPING & ACCESS ROAD LONGSECTIONS
13214-73-02-003	INLET & OUTLET PIPING LONGSECTIONS
13214-73-02-004	FENCE LAYOUT & DETAILS
SECTION 04 - RESERVOIR	
13214-73-04-001	GENERAL ARRANGEMENT & DETAILS
13214-73-04-002	LEAK DETECTION, CATLADDERS & ACCESS HATCH DETAILS
13214-73-04-003	RESERVOIR PIPING (INLET, OUTLET, OVERFLOW, SCOUR & DRAIN) DETAILS
13214-73-04-004	FLOWMETER CHAMBERS - 3D VIEWS
13214-73-04-005	FLOWMETER CHAMBERS - LAYOUT, SECTIONS & DETAILS
13214-73-04-006	VALVE CHAMBER - 3D VIEWS
13214-73-04-007	VALVE CHAMBER - LAYOUT, SECTIONS & DETAILS
13214-73-04-010	SCOUR BOX- 3D VIEWS
13214-73-04-011	SCOUR BOX - LAYOUT & SECTIONS
13214-73-04-012	INTERCONNECTING PIPING LAYOUT
13214-73-04-013	PIPE AND VALVE SCHEDULE (SHEET 1 OF 2)
13214-73-04-013	PIPE AND VALVE SCHEDULE (SHEET 2 OF 2)
13214-73-04-017	TIE-IN BOX - 3D VIEWS
13214-73-04-018	TIE-IN BOX - LAYOUT, SECTIONS & DETAILS

DRAWING REGISTER	
Job No:	**13214**
Client Ref:	**CARLSWALD 20ML REINFORCED CONCRETE RESERVOIR**
Contract No:	**JW14302R**
DRAWINGS NUMBER	**DRAWING DESCRIPTION**
SECTION 05 - BUILDINGS	
13214-73-05-001	TELEMETRY BUILDING-LAYOUTS, ELEVATIONS, SECTIONS AND DETAILS
13214-73-05-002	GUARD HOUSE - 3D VIEWS
13214-73-05-003	GUARD HOUSE - LAYOUTS, ELEVATIONS, SECTIONS AND DETAILS
13214-73-05-004	VALVE BUILDING - 3D VIEWS
13214-73-05-005	VALVE BUILDING - LAYOUT, DOOR & WINDOW SCHEDULE
13214-73-05-006	VALVE BUILDING - SECTIONS & DETAILS
13214-73-05-007	GUARD HOUSE - LAYOUTS, ELEVATIONS, SECTIONS AND DETAILS -ARCHITECTURAL
13214-73-05-008	TELEMETRY BUILDING - LAYOUTS, ELEVATIONS, SECTIONS AND DETAILS - ARCHITECTURAL
SECTION 06 - ELECTRICAL	
13214-73-06-001	ELECTRICAL CABLE ROUTES
13214-73-06-002	EARTHING LAYOUT
13214-73-06-003	SINGLE LINE DIAGRAM
13214-73-06-004	TYPICAL LOOP DIAGRAM LEVEL SENSOR
13214-73-06-005	TYPICAL LOOP DIAGRAM CLAMP-ON TYPE FLOW METER
13214-73-06-006	TYPICAL LOOP DIAGRAM OPEN CLOSE ACTUATOR
13214-73-06-007	TYPICAL LOOP DIAGRAM MODULATING ACTUATOR
13214-73-06-008	GUARD HUT POWER AND LIGHTING LAYOUT
13214-73-06-009	TELEMETRY HUT
13214-73-06-010	TYPICAL FIELD JB'S
13214-73-06-011	TYPICAL FIELD PLC
13214-73-06-012	EARTHING AND LIGHTING SYMBOLS.
13214-73-06-013	EXTERIOR LIGHTING LAYOUT
13214-73-06-014	VALVE BUILDING POWER AND LIGHTING LAYOUT



GENERAL ARRANGEMENT
1:250

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

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DESIGNED	J.S
DRAWN	J.P
CHECKED	J.S
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (PTY) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
GENERAL ARRANGEMENT
LAYOUT OF EXISTING SERVICES & PROPOSED NEW INFRUSTRUCTURE

DESIGN MANAGER

DATE

SCALE
1:250

AMENDMENTS

		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.S	14.03.2024

DRAWING No.

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-01-001

FILE No

C00

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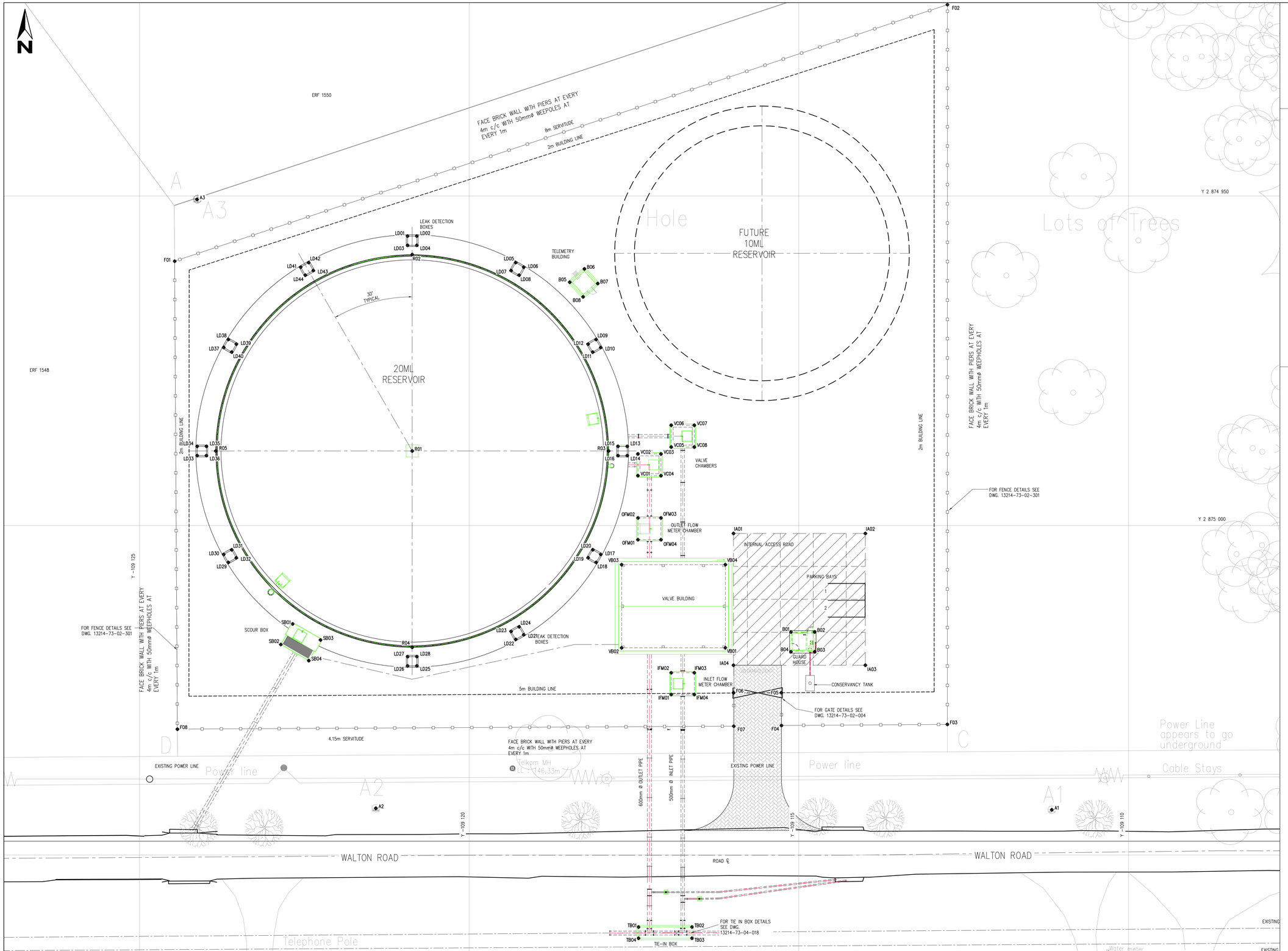

SETTING OUT
1:200

ISSUED FOR TENDER

BENCHMARK DETAILS TO BE CONFIRMED ON SITE

LEGEND

- FENCE LINE
- BUILDING LINE
- PIPE CENTER
- POWER LINE
- CONCRETE ACCESS ROAD
- ACCESS ROAD CONSTRUCTION JOINTS
- ACCESS ROAD EXPANSION JOINTS

SUBDIVISION DIAGRAM

Sdfile:Professional Land Surveyor 55-77-0480

	SIDES Metres	ANGLES OF DIRECTION
		Constants:
AB	123,77	251 39 40
BC	121,81	0 00 20
CD	116,96	89 39 40
DA	83,56	179 39 40
	LEEUWKOP 122	
	HALFWAY HOUSE WT 467	

	CO-ORDINATES Y System: WG 29° X		±0,00	±0,00
A	+91 244,66	A	+91 127,18	+2 874 951,23
B	+91 127,18	B	+91 127,19	+2 875 034,10
C	+91 244,17	C	+91 244,17	+2 875 034,79
		D	+94 285,74	+2 877 498,36
		A	+88 164,41	+2 874 880,48

S.G. No. 1027/2020
Approved
for SURVEYOR-GENERAL
07.07.2020

Act 16 of 2013
Ref : No.17/256/12/2018
Date : 03-03-2020

Description of Beacons
A,B,C,D ..... 16mm iron peg

Servitude Note
1. The figure ABba represents a right of way servitude vide Diagram S.G. No. 1029/2020 Deed of Servitude No.
2. The figure dcCD represents a right of way servitude vide Diagram S.G. No. 1028/2020 Deed of Servitude No.



Scale 1:2500

The figure A B C D represents 1,2043 hectares of land being PORTION 1 OF HOLDING 17 CARLSWALD AGRICULTURAL HOLDINGS City of Johannesburg Metropolitan Council Gauteng Province Surveyed in March 2020 by me

J.C. HUGHES (PLS 1121) Professional Land Surveyor

This diagram is annexed to No.	The original diagram is S.G. No. :A4761/1952	File : Holdings S.R. : 543/2020

VALVE BUILDING COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
VB01	91161.131	2875018.585
VB02	91176.861	2875018.585
VB03	91176.861	2875005.955
VB04	91161.131	2875005.955

GUARD HOUSE COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
B01	91151.186	2875016.177
B02	91147.586	2875016.177
B03	91147.586	2875019.177
B04	91151.186	2875019.177
B05	91184.725	2874963.095
B06	91182.506	2874961.077
B07	91180.488	2874963.297
B08	91182.708	2874965.314

INLET FLOW METER COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
IFM01	91169.345	2875025.670
IFM02	91169.345	2875022.370
IFM03	91165.845	2875022.370
IFM04	91165.845	2875025.670

SCOUR BOX COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
SB01	91226.762	2875014.957
SB02	91228.559	2875018.076
SB03	91222.538	2875017.391
SB04	91224.313	2875020.522

INTERNAL ACCESS ROAD COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
IA01	91159.896	2875001.222
IA02	91139.896	2875001.222
IA03	91139.896	2875021.222
IA04	91159.896	2875021.223

OUTLET FLOW METER COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
OFM01	91174.396	2875002.172
OFM02	91174.381	2874998.872
OFM03	91170.896	2874998.872
OFM04	91170.896	2875002.172

VALVE CHAMBER COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
VC01	91174.396	2874992.458
VC02	91174.396	2874989.158
VC03	91170.896	2874989.158
VC04	91170.896	2874992.458
VC05	91169.345	2874988.106
VC06	91169.345	2874984.806
VC07	91165.845	2874984.806
VC08	91165.845	2874988.106

BENCHMARKS COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD	ELEVATION
A1	91111.616	2875043.157	1546.014
A2	91214.140	2875042.926	1545.797
A3	91241.265	2874950.537	1547.244

FENCE COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
F01	91244.652	2874959.916
F02	91127.446	2874920.982
F03	91127.459	2875030.200
F04	91152.619	2875030.364
F05	91152.638	2875025.397
F06	91159.883	2875025.402
F07	91159.854	2875030.466
F08	91244.236	2875030.929

LEAK DETECTION BOXES COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
LD01	91209.330	2874956.095
LD02	91207.930	2874956.093
LD03	91209.328	2874957.495
LD04	91207.928	2874957.493
LD05	91192.930	2874960.113
LD06	91191.717	2874960.811
LD07	91193.628	2874961.327
LD08	91192.414	2874962.024
LD09	91180.736	2874971.792
LD10	91180.034	2874973.003
LD11	91181.245	2874973.705
LD12	91181.947	2874972.494
LD13	91176.014	2874988.007
LD14	91176.014	2874989.407
LD15	91177.414	2874988.007
LD16	91177.414	2874989.407
LD17	91180.030	2875004.402
LD18	91180.730	2875005.615
LD19	91181.943	2875004.915
LD20	91181.243	2875003.702
LD21	91191.714	2875016.600
LD22	91192.926	2875017.301
LD23	91193.627	2875016.089
LD24	91192.415	2875015.388
LD25	91207.923	2875021.318
LD26	91209.323	2875021.322
LD27	91209.327	2875019.922
LD28	91207.927	2875019.918
LD29	91236.520	2875005.620
LD30	91237.221	2875004.408
LD31	91236.009	2875003.707
LD32	91235.308	2875004.919
LD33	91241.239	2874989.408
LD34	91241.241	2874988.008
LD35	91239.841	2874988.006
LD36	91239.839	2874989.406
LD37	91237.216	2874973.000
LD38	91236.518	2874971.787
LD39	91235.304	2874972.485
LD40	91236.003	2874973.699
LD41	91225.541	2874960.815
LD42	91224.330	2874960.114
LD43	91223.628	2874961.325
LD44	91224.840	2874962.027

RESERVOIR COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
R01	91208.628	2874988.706
R02	91208.628	2874958.906
R03	91178.828	2874988.706
R04	91208.628	2875018.506
R05	91238.428	2874988.706

TIE-IN BOX COORDINATE LIST
WGS 84/ Lo 29° SYSTEM

POINT	Y—COORD	X—COORD
TB01	91174.297	2875060.949
TB02	91166.192	2875060.949
TB03	91166.192	2875062.649
TB04	91174.297	2875062.649

DEPARTMENT	APPROVED	DESIGNATION	DATE

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SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
GENERAL ARRANGEMENT
SETTING OUT INFORMATION FOR THE NEW INFRASTRUCTURE

DESIGN MANAGER

DATE

SCALE

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.S	14.03.2024

DRAWING NUMBER

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-01-002

FILE No

C 0 0

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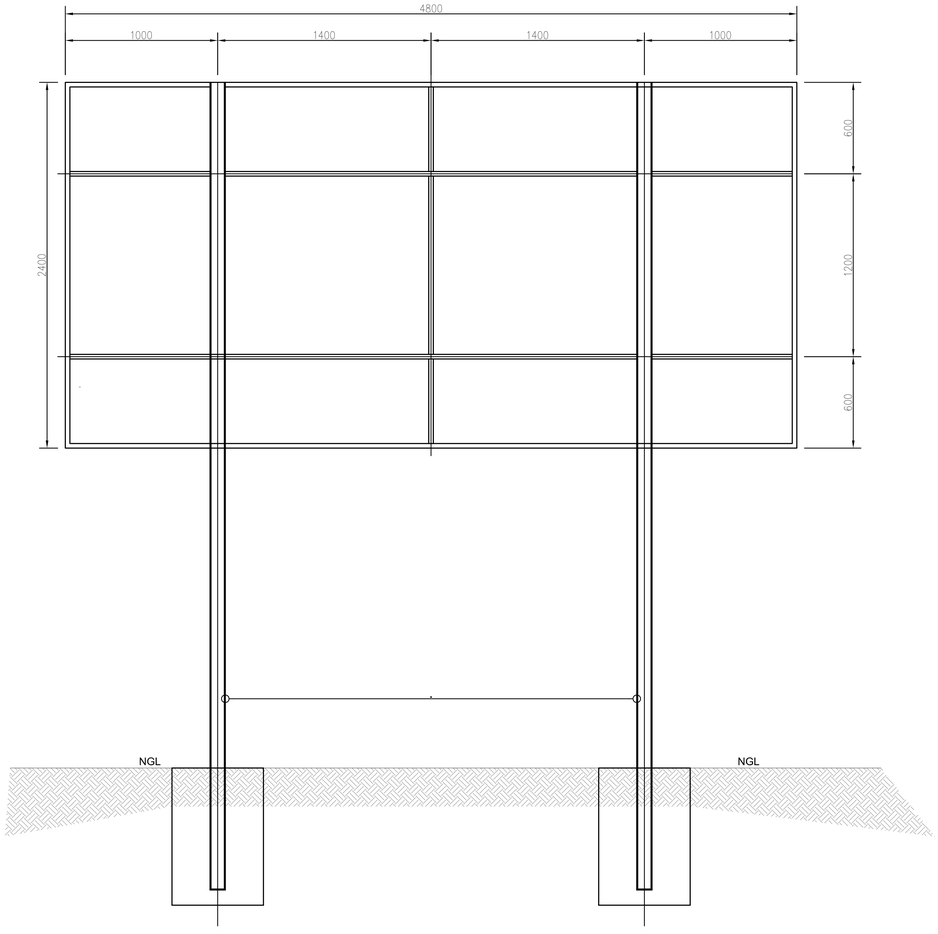
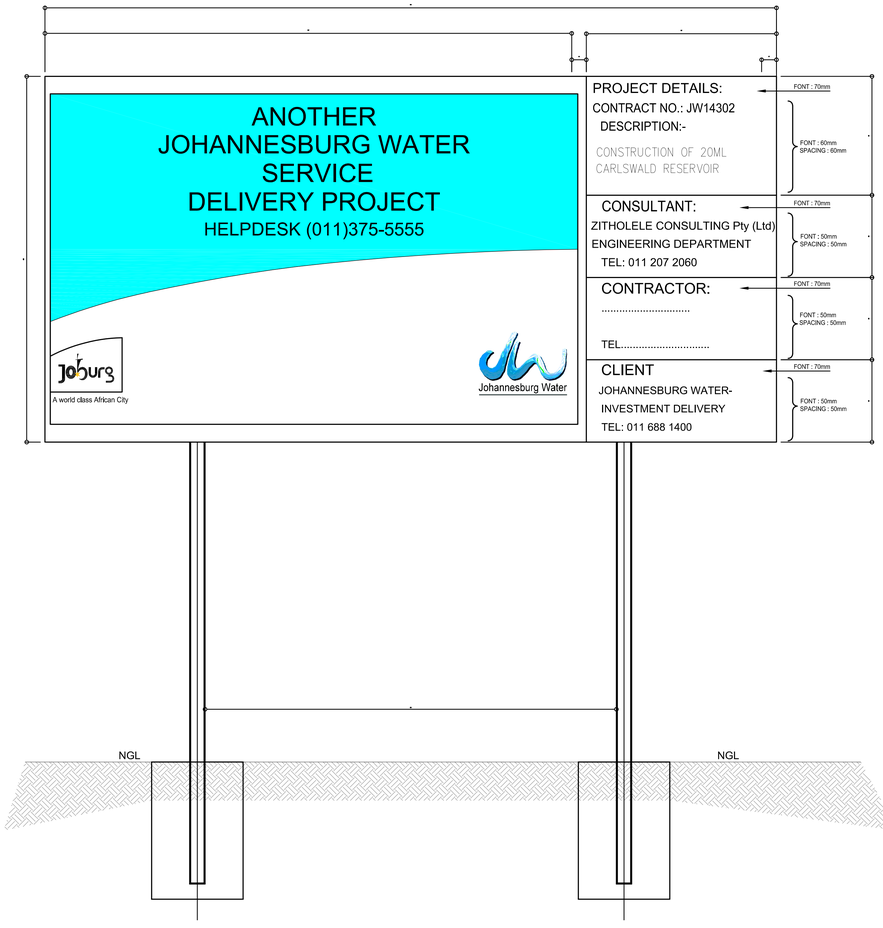
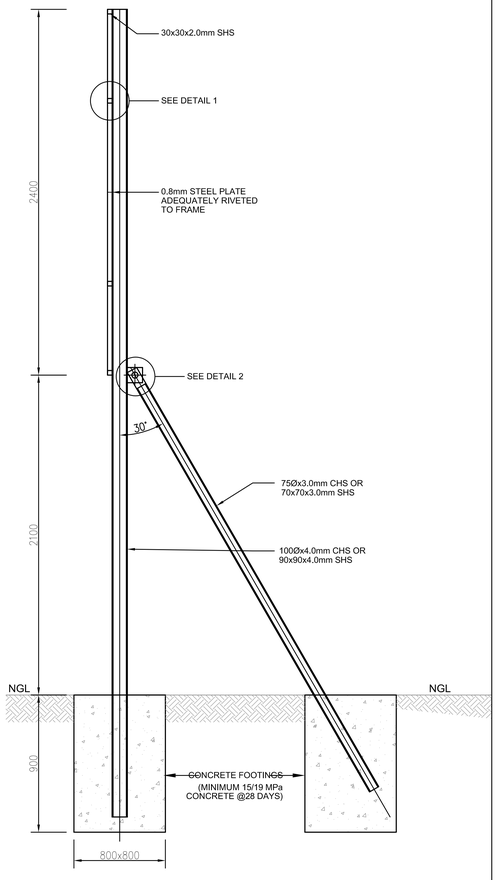


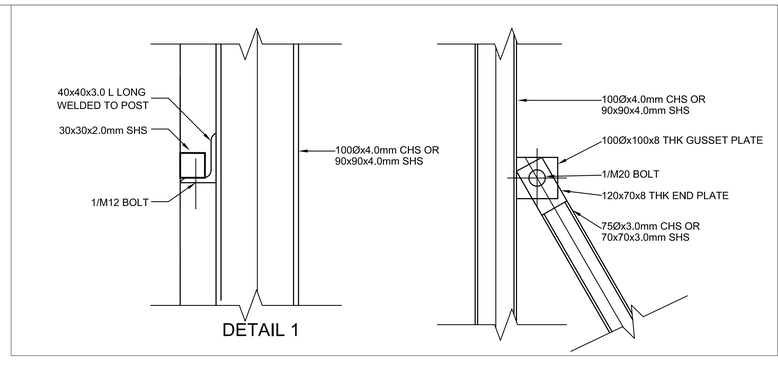
BACK ELEVATION



FRONT ELEVATION



TYPICAL SECTION



DETAIL 1

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
JW CONTRUCTION NAME BOARD

DESIGN MANAGER

DATE

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C00 ISSUED FOR CONSTRUCTION	J.S	14.03.2024

DRAWING NUMBER

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-01-003

FILE No
C 0 0

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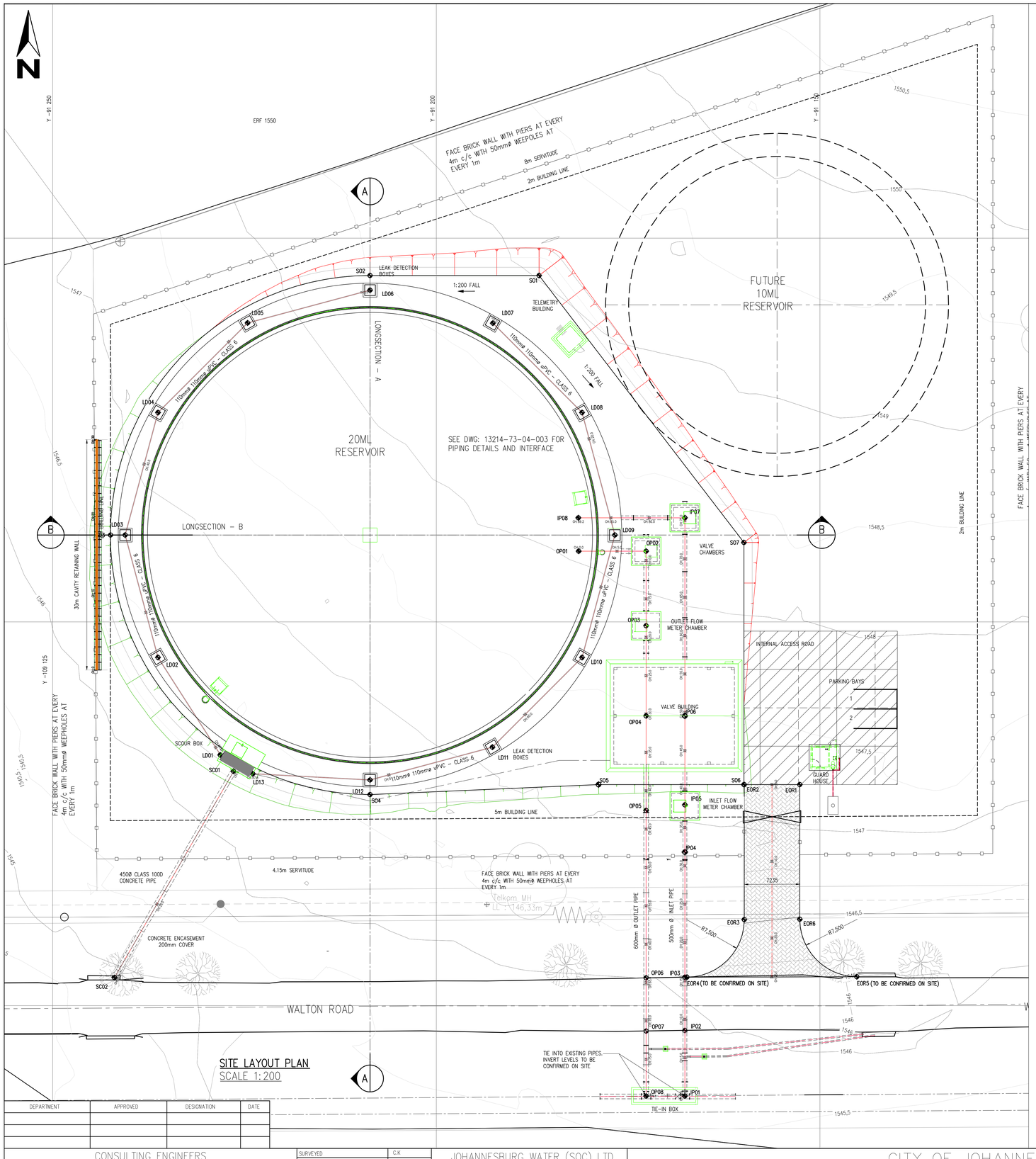
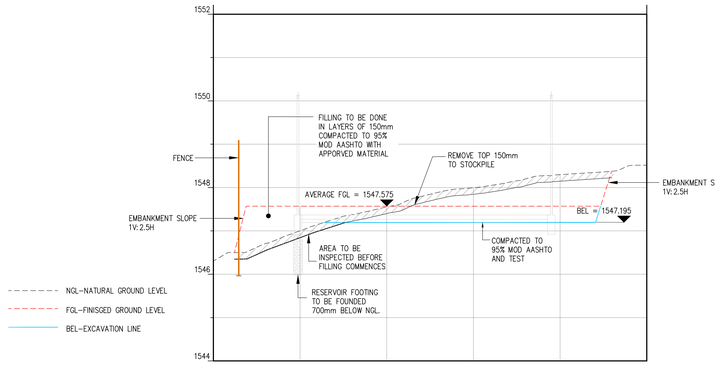


SITE LAYOUT PLAN
SCALE 1:200



SECTION B
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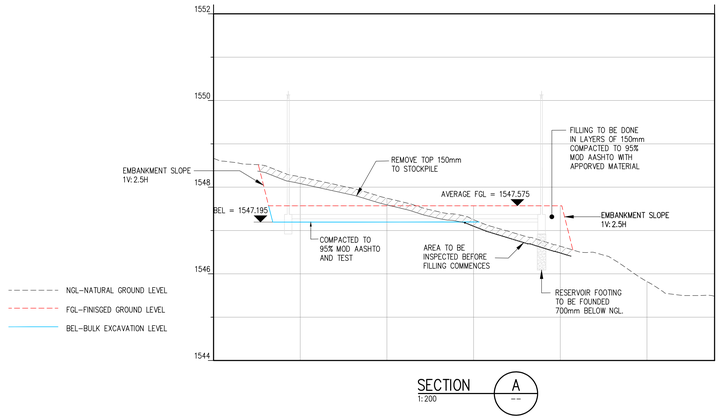
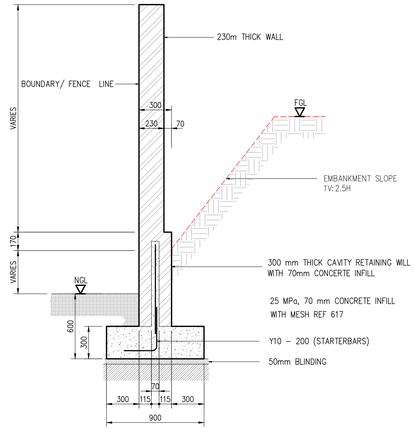


SECTION A
1:200



TYPICAL CAVITY RETAINING WALL SECTION
SCALE 1:20

LEAK DETECTION PIPE COORDINATE LIST WGS 84/ Lo 29° SYSTEM		
POINT	Y-COORD	X-COORD
LD01	91228.147	2875017.361
LD02	91236.270	2875004.657
LD03	91240.542	2874988.706
LD04	91236.266	2874972.747
LD05	91224.584	2874961.067
LD06	91208.628	2874956.792
LD07	91192.620	2874961.092
LD08	91180.996	2874972.741
LD09	91176.716	2874988.706
LD10	91180.992	2875004.662
LD11	91192.673	2875016.343
LD12	91208.628	2875020.619
LD13	91223.904	2875019.813

OVER FLOW PIPE COORDINATE LIST WGS 84/ Lo 29° SYSTEM		
POINT	Y-COORD	X-COORD
SC01	91226.420	2875019.482
SC02	91241.937	2875046.367

INLET PIPE COORDINATE LIST WGS 84/ Lo 29° SYSTEM		
POINT	Y-COORD	X-COORD
IP01	91167.595	2875061.809
IP02	91167.595	2875053.258
IP03	91167.595	2875046.313
IP04	91167.596	2875030.020
IP05	91167.595	2875023.861
IP06	91167.595	2875012.270
IP07	91167.595	2874986.456
IP08	91181.478	2874986.456

OUTLET PIPE COORDINATE LIST WGS 84/ Lo 29° SYSTEM		
POINT	Y-COORD	X-COORD
OP01	91181.432	2874990.808
OP02	91172.646	2874990.808
OP03	91172.646	2875000.522
OP04	91172.646	2875012.270
OP05	91172.647	2875024.585
OP06	91172.646	2875046.409
OP07	91172.646	2875053.336
OP08	91172.650	2875061.806

TERRACE SETTING OUT COORDINATE LIST WGS 84/ - Lo 29° SYSTEM			
POINT	Y-COORD	X-COORD	FGL
SO1	91186.601	2874954.887	TBC
SO2	91208.628	2874954.887	TBC
SO3	91242.447	2874988.706	TBC
SO4	91208.628	2875022.526	TBC
SO5	91178.846	2875021.222	TBC
SO6	91159.896	2875021.223	TBC
SO7	91159.896	2874989.680	TBC

EDGE OF ROAD COORDINATE LIST WGS 84/ - Lo 29° SYSTEM			
POINT	Y-COORD	X-COORD	FGL
EOR1	91152.619	2875021.225	1547.223
EOR2	91159.854	2875021.222	1547.179
EOR3	91159.854	2875038.813	1546.518
EOR4	91167.319	2875046.313	1546.077 TBC
EOR5	91145.185	2875046.261	1546.000 TBC
EOR6	91152.619	2875038.761	1546.490

DEPARTMENT	APPROVED	DESIGNATION	DATE

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CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
TERRACING, INTERCONNECTING PIPE WORK & ACCESS ROAD
LAYOUT & SETTING OUT

DESIGN MANAGER

DATE

SCALE

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION		20.03.2024

DRAWING NUMBER

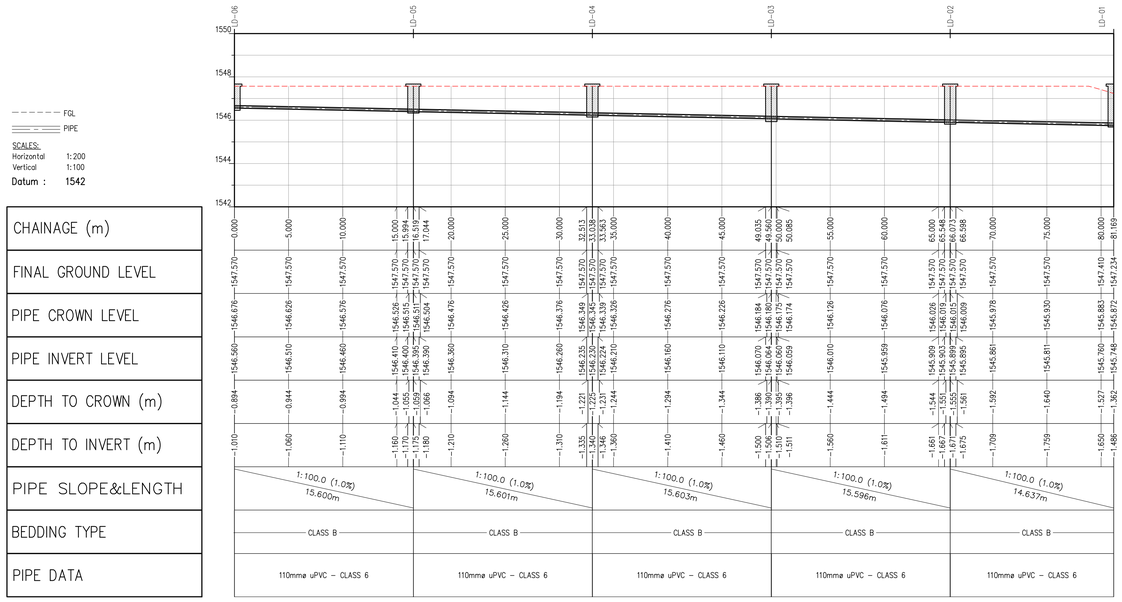
JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-02-001

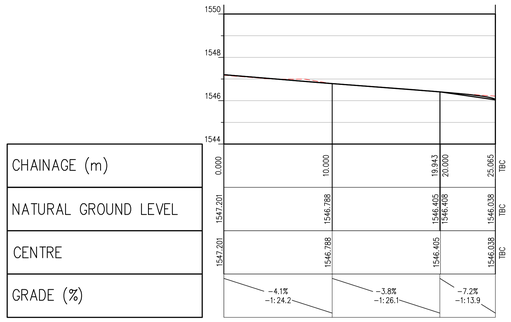
FILE No

C 0 0

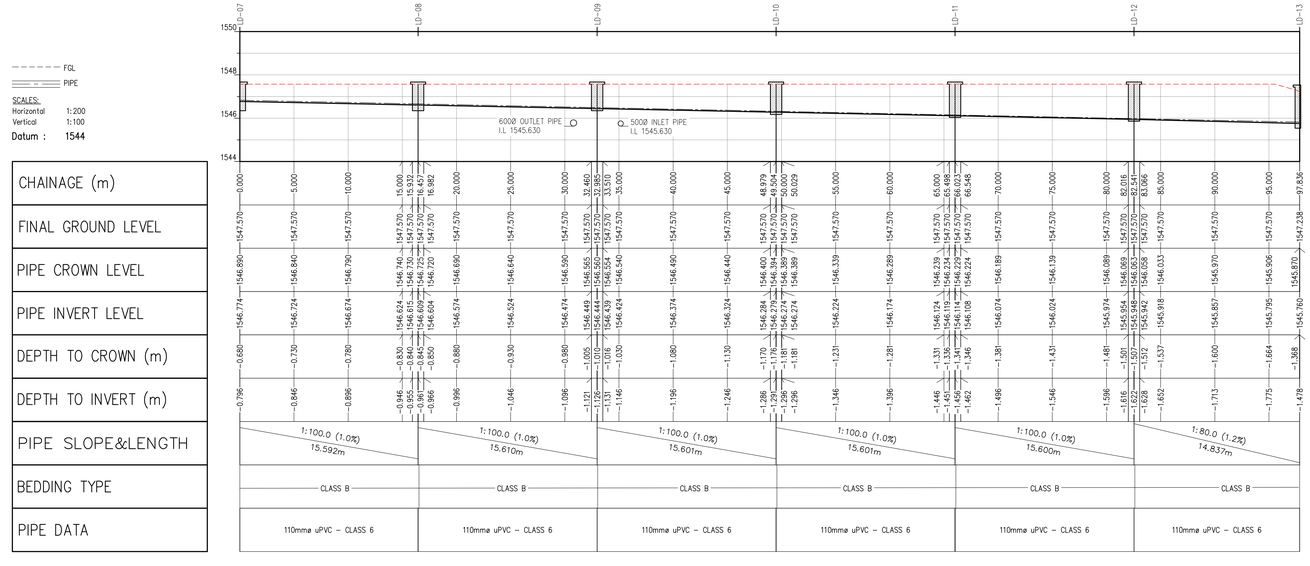
Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\CAD 3D\13214-73-02-(001-T02)-(002-T02)-(003-T02) - LAYOUT & SETTING OUT OF PIPEWORK.dwg Oct 23, 2024 - 5:24pm



LONGSECTION CHAINAGE 0.0 – 81.169 LD-06 TO LD-01



ACCESS ROAD LONGSECTION
SCALE 1:200



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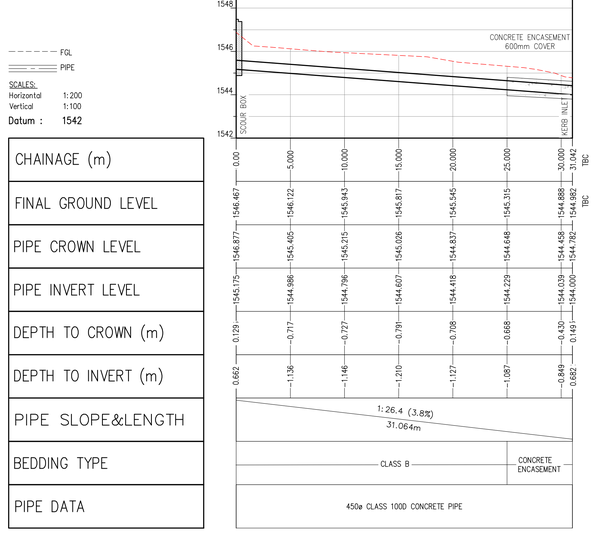

NOTE:

1. CONTRACTOR TO CONFIRM INVERT LEVEL AT KERB INLET (SC02) BEFORE CONSTRUCTION COMMENCES.
2. THE CONTRACTOR SHALL IMMEDIATELY MAKE THE ENGINEER AWARE IF THE INVERT LEVEL OF THE KERB INLET DIFFERS FROM THE INVERT LEVEL SHOWN ON THE DRAWING.

LONGSECTION CHAINAGE 0.0 – 31.042 SC01 TO SC02

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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DESIGNED	J.S
DRAWN	K.M
CHECKED	S.P
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
TERRACING, INTERCONNECTING PIPE WORK & ACESS ROAD
LEAK DETECTION, SCOUR PIPING & ACCESS ROAD LONGSECTIONS

DESIGN MANAGER

DATE

SCALE

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C00 ISSUED FOR CONSTRUCTION	J.S	20.03.2024

DRAWING NUMBER

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-02-002

FILE No

C 0 0

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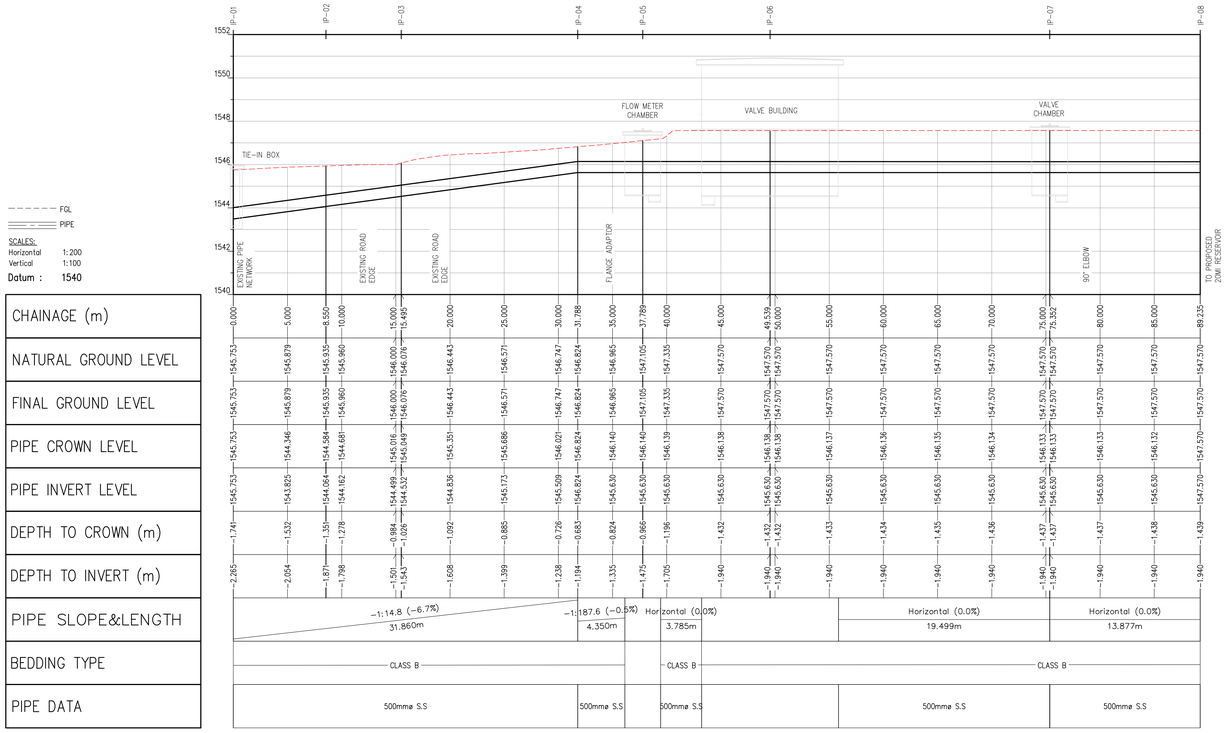
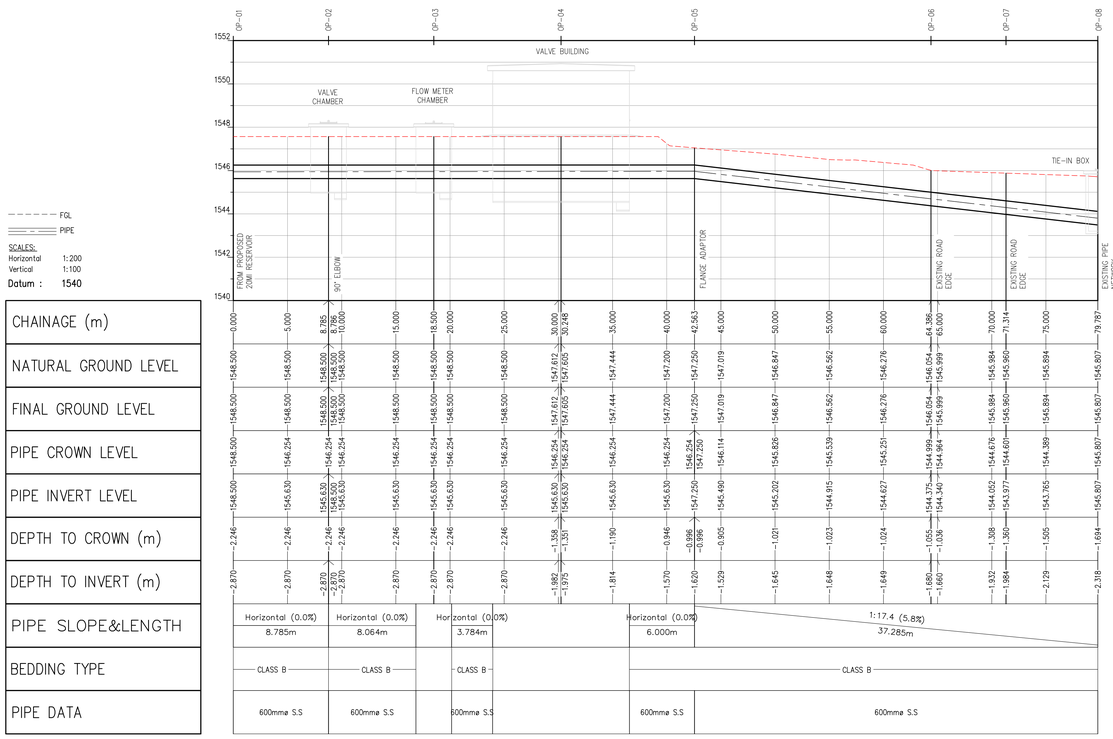


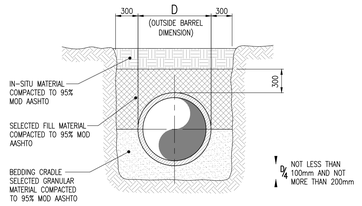
LONGSECTION 500Ø INLET PIPELINE



LONGSECTION 600Ø OUTLET PIPELINE

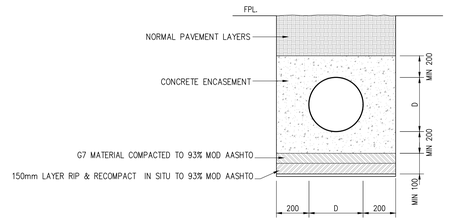
FGL
PIPE

SCALES:
Horizontal 1:200
Vertical 1:100
Datum : 1540



BEDDING CLASS "B" TO SABS 1200 LB

DETAIL 1 (1:50)



PIPELINE – TYPICAL CONCRETE ENCASEMENT
SCALE 1:20

NOTE:
ALL BEDDING SURROUND AND BACKFILL MATERIALS SHALL AFTER COMPACTION BE LESS PERMEABLE THAN THE IN-SITU SURROUNDING SOIL

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
TERRACING, INTERCONNECTING PIPEWORK & ACCESS ROAD
INLET AND OUTLET PIPING LONGSECTIONS

DESIGN MANAGER

DATE

SCALE

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C00 ISSUED FOR CONSTRUCTION	J.S	20.03.2024

DRAWING NUMBER

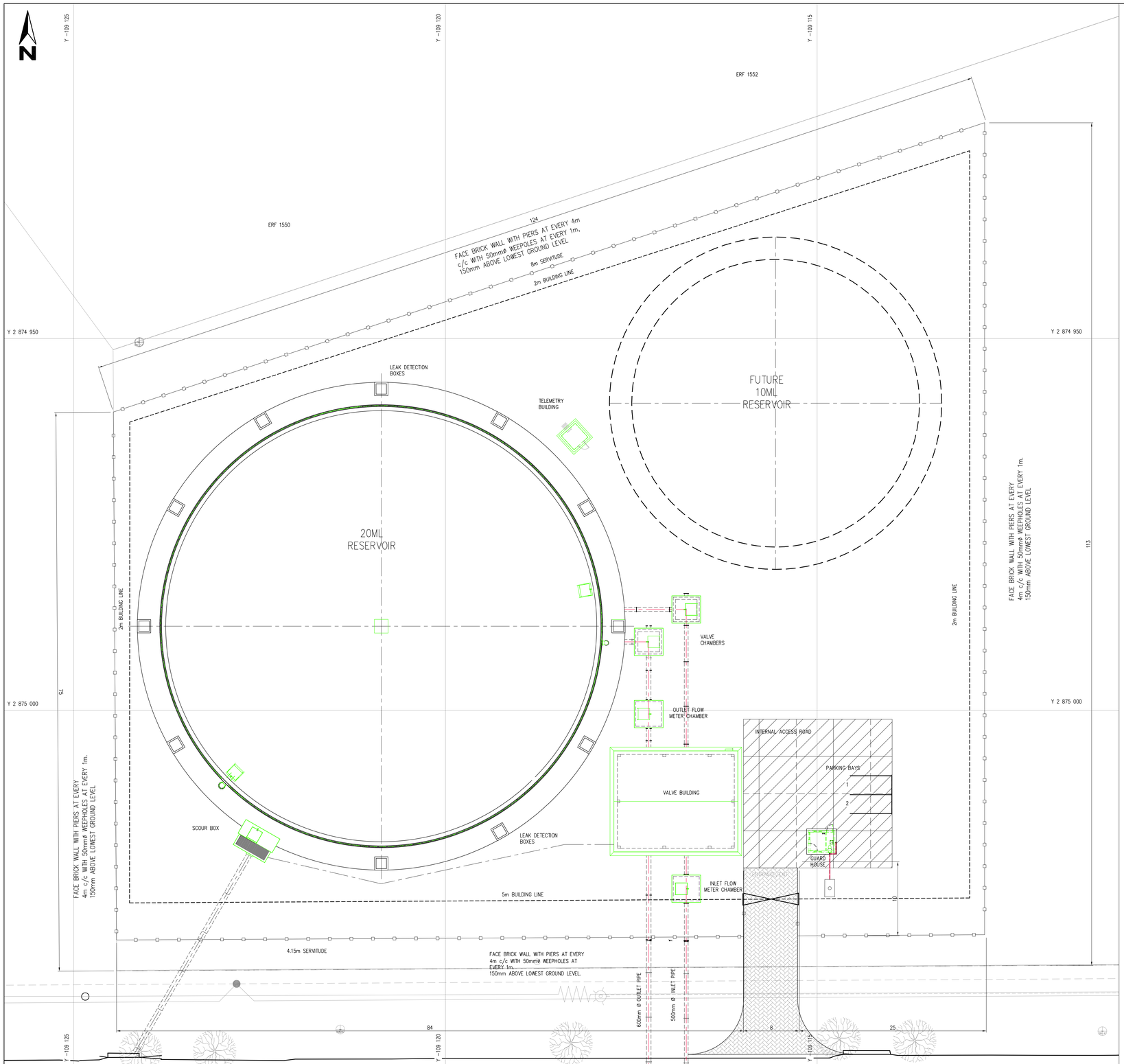
JW NUMBER JW14302R

CONSULTANT'S NUMBER 13214-73-02-003

FILE No

C 0 0

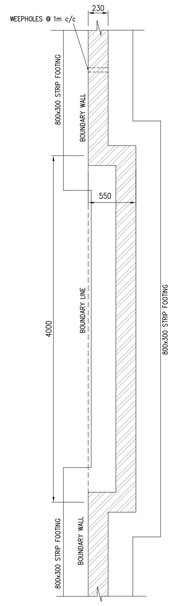
Z:\Projects\13214 – Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\CAD 3D\13214-73-02-(001-T02)-(002-T02)-(003-T02) – LAYOUT & SETTING OUT OF PIPEWORK.dwg Oct 23, 2024 – 5:30pm



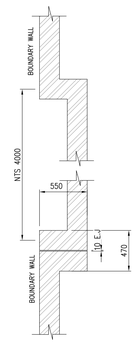
FENCE LAYOUT
1:200

LEGEND

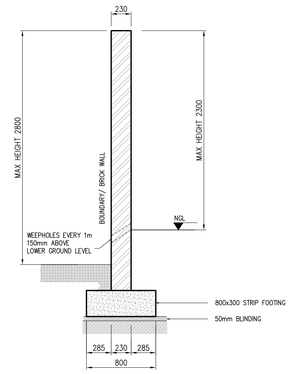
- BRICK WALL
- BUILDING LINE
- PIPE CENTER
- POWER LINE
- CONCRETE ACCESS ROAD
- ACCESS ROAD CONSTRUCTION JOINTS
- ACCESS ROAD EXPANSION JOINTS
- (E.J) EXPANSION JOINTS



PLAN ON BOUNDARY WALL
SCALE 1:20



DETAIL EVERY 20m
SCALE 1:20



TYPICAL SECTION THROUGH BOUNDARY WALL
SCALE 1:20

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
FENCE LAYOUT & DETAILS

DESIGN MANAGER

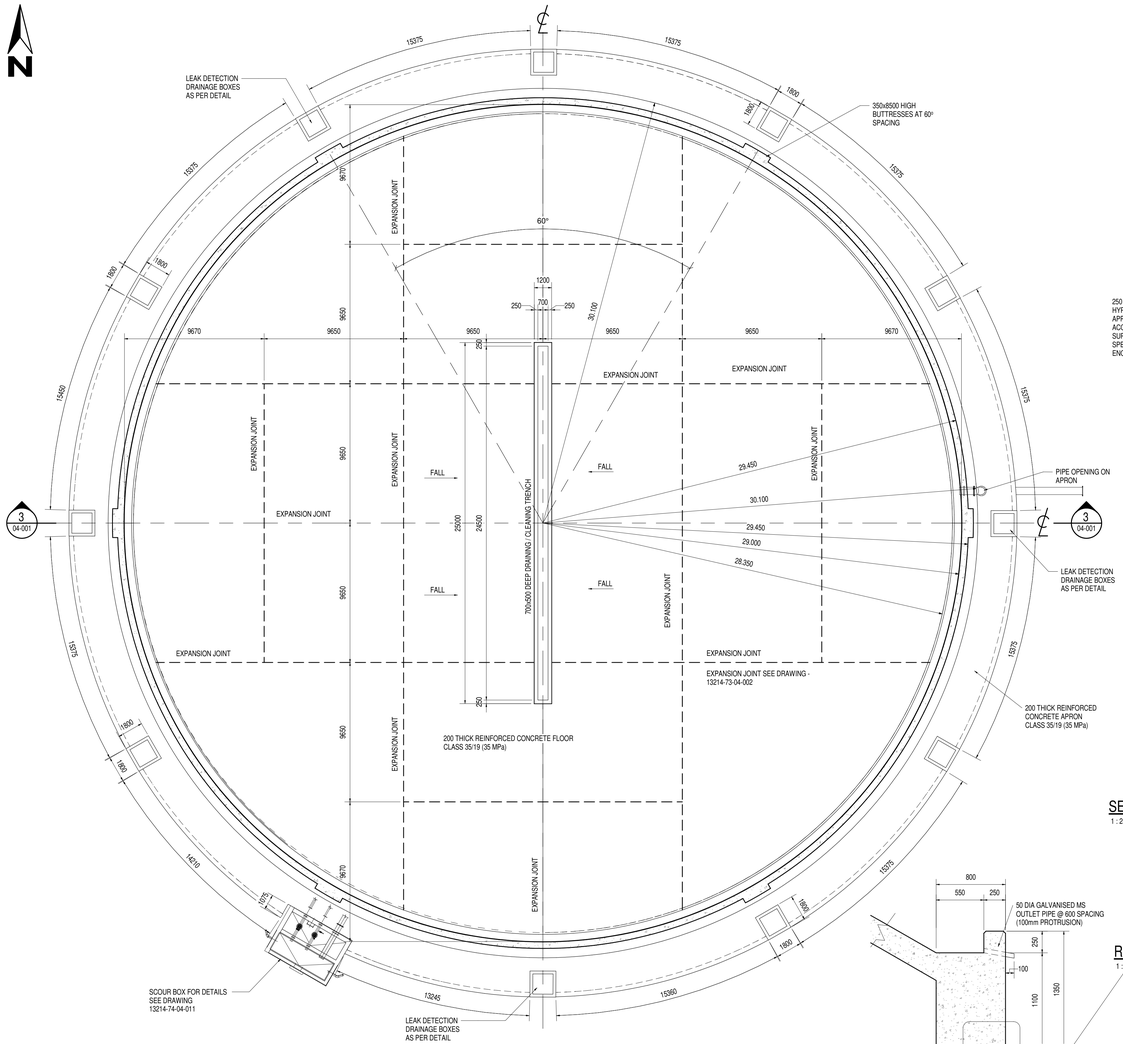
DATE

SCALE

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.S	15.03.2024

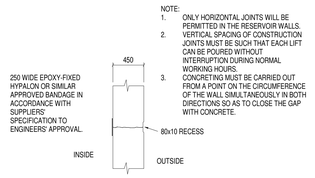
DRAWING NUMBER
JW NUMBER
JW14302R
CONSULTANTS NUMBER
13214-73-02-004
FILE No.
C 0 0

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\CAD 3D\13214-73-02-(004-C00) - FENCE LAYOUT & DETAILS.dwg Oct 23, 2024 - 5:12pm



GENERAL REQUIREMENTS: CONSTRUCTION JOINT

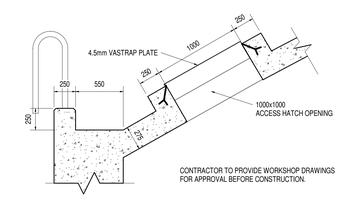
1. AT CONSTRUCTION JOINTS IN FLOOR SLABS, THE CONCRETE SHALL NOT ALLOWED TO RUN TO A FEATHER EDGE.
2. THE SURFACE OF THE FIRST POUR SHALL BE ROUGHENED WITHOUT DISTURBING THE COARSE AGGREGATE BY SPRAYING THE JOINT SUR-FACE TWO TO FLOUR HOURS AFTER THE CONCRETE HAS BEEN PLACED WITH A FINE SPRAY OF WATER AND BRUSHING WITH A STIFF BRUSH.
3. IF THE SURFACE HAS NOT BEEN ROUGHENED UN TILL THE CONCRETE HAS HARDENED, THE COARSE AGGREGATE NEAR THE SURFACE SHALL BE EXPOSED BY SAND BLASTING OR A SCALING HAMMER. THE JOINT SURFACE MUST BE CLEAN AND FREE OF LOOSE PARTICLES, AND DAMPENED BEFORE FRESH CONCRETE IS PLACED AGAINST IT.
4. THE CONCRETE AT THE JOINT MUST BE FULLY COMPACTED AND DENSE.



CONSTRUCTION JOINT

1:25

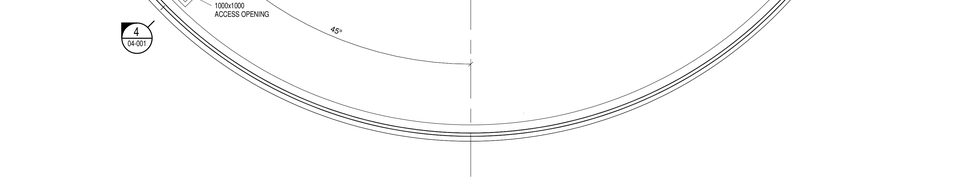
HORIZONTAL CONSTRUCTION JOINTS SHALL BE EQUALLY SPACED UNLESS OTHERWISE APPROVED



CONTRACTOR TO PROVIDE WORKSHOP DRAWINGS FOR APPROVAL BEFORE CONSTRUCTION.

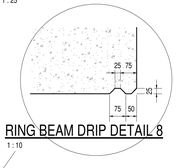
SECTION 4 SECTION THROUGH ACCESS OPENING

1 : 25



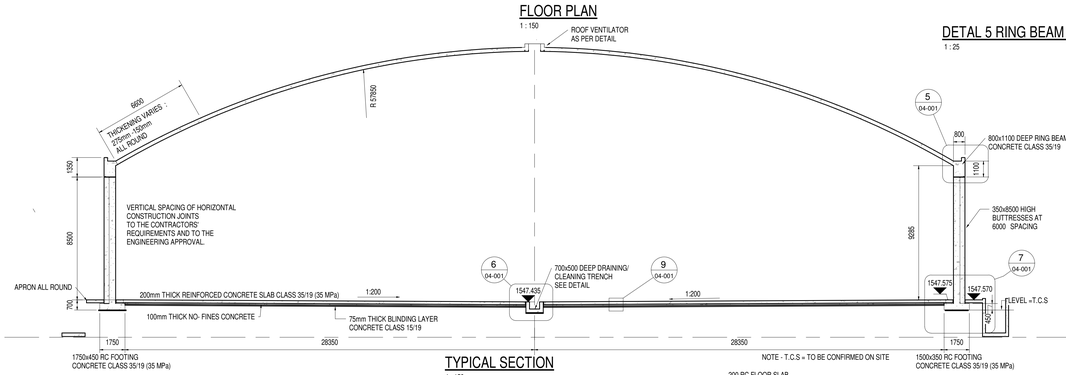
RING BEAM DRIP DETAIL 8

1 : 10



FLOOR PLAN

1 : 150

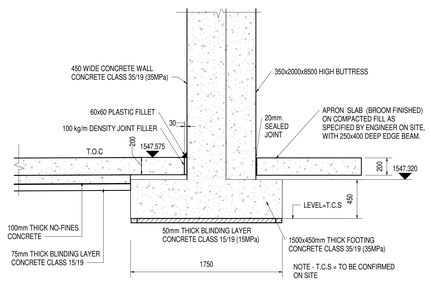


TYPICAL SECTION

1 : 150

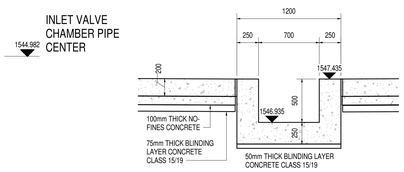
DETAIL 5 RING BEAM DETAIL

1 : 25



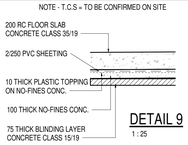
DETAIL 7 WALL FOUNDATION FOOTING

1 : 25



DETAIL 6 TRENCH DETAIL

1 : 25

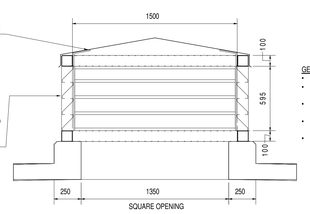


DETAIL 9

1 : 25

ROOF LAYOUT

1 : 150



ROOF VENTILATOR DETAIL

1:25

GENERAL NOTE AND SPECIFICATIONS:

- ALL DIMENSIONS AND LEVELS MUST BE CHECKED AND CONFIRMED ON SITE.
- ALL EXPOSED CONCRET CORNERS TO HAVE A 25mm CHAMFER UNLESS OTHERWISE NOTED.
- ALL EXCAVATIONS, REINFORCEMENT AND FORM WORK MUST BE INSPECTED AND APPROVED IN RIGHTING BEFORE ANY CONCRETE IS PLACED.
- THE METHOD OF CURING THE CONCRETE SHALL BE APPROVED BY THE ENGINEER.
- REBAR PLACING LEGEND:-
  EF - EACH FACE
  T1 - HIGHEST OF TOP LAYERS
  T2 - SECOND HIGHEST OF TOP LAYERS
  B1 - LOWEST OF BOTTOM LAYERS
  B2 - SECOND LOWEST OF BOTTOM LAYERS
  CRS - CENTRE TO CENTRE PLACING OF BARS
  ALT - ALTERNATE
  IF - INSIDE FACE
  OF - OUTSIDE FACE
  NF - NEAR FACE
  FF - FAR FACE
  EW - EACH WAY
  ABR - ALTERNATE BARS REVERSED
- COVER TO REBAR:-
  FOUNDATION - 50mm
  COLUMNS - 40mm
  BEAMS - 40mm
  SLABS - 40mm
- CONCRETE CLASSES:-
  BLINDING LAYER - CLASS 15/20 (15MPa)
  STRUCTURAL CONCRETE - CLASS 35/19 (35MPa)
- APPROVAL OF ADMIXTURES REQUIRED
  ADD THE FOLLOWING
  a. WATERPROOFING ADDITIVE WITH TRACING AGENT OR SIMILAR APPROVED
  b. MINIMUM DOSAGE 0.8% BY WEIGHT OF THE CEMENTITIOUS CONTENT, WITH 20YEARS WARRANTY AND ALL TO MANUFACTURERS SPECIFICATIONS. CONCRETE TO BE PLACED, PROTECTED AND CURED ACCORDING TO SANS 10100-2"

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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SURVEYED	CK
DESIGNED	NG
DRAWN	NM
CHECKED	GK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML CARLSWALD RESERVOIR RESERVOIR

GENERAL ARRAGEMENT & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	GK	07.03.2024

DRAWING NUMBER

JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-04-001

FILE NUMBER: C00

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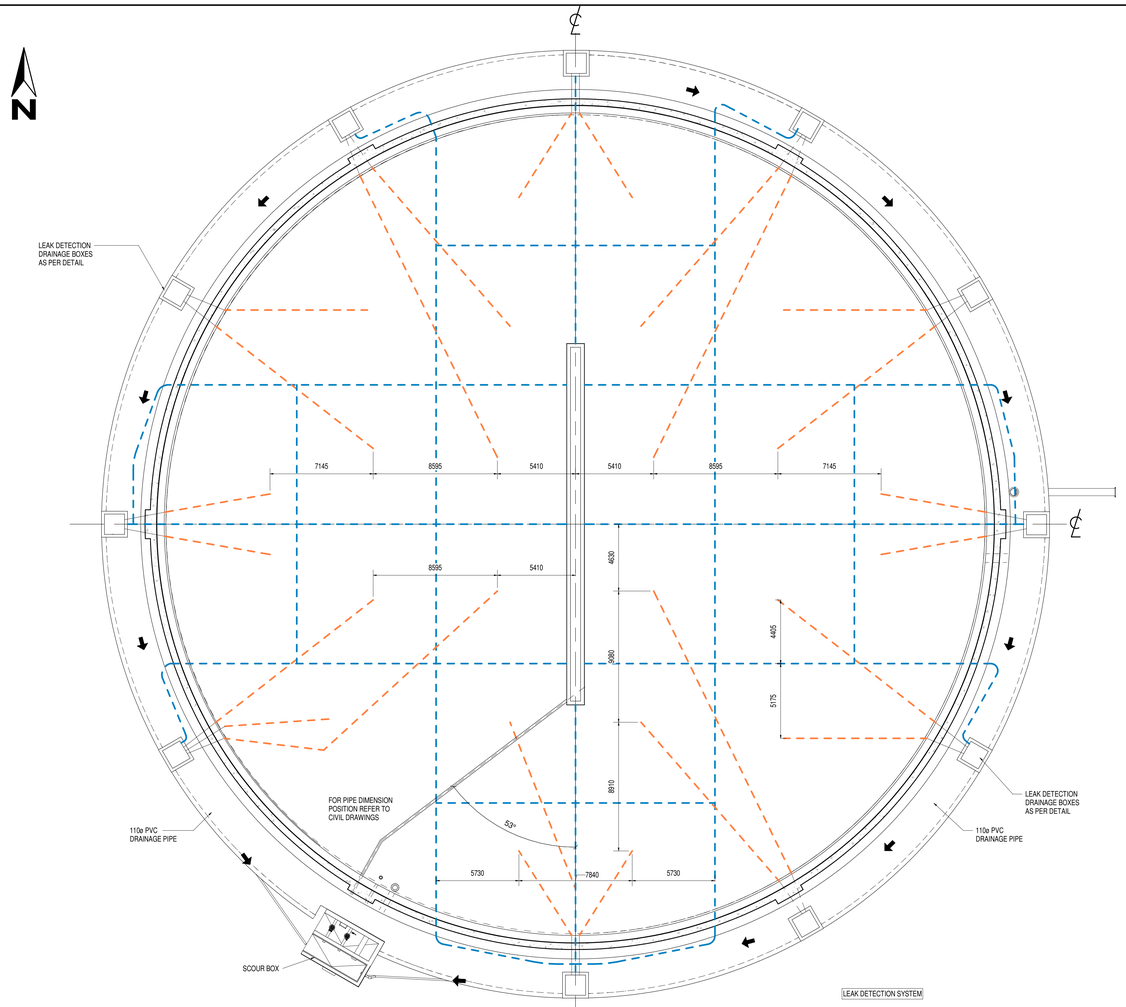
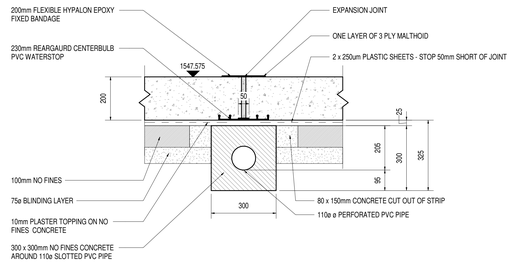
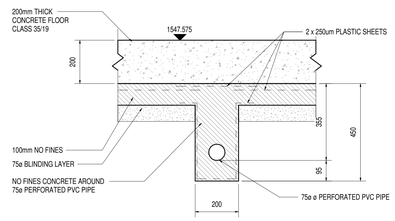


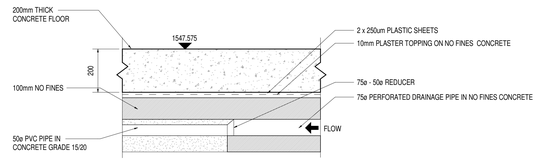
LEAK DETECTION LAYOUT
1 : 150



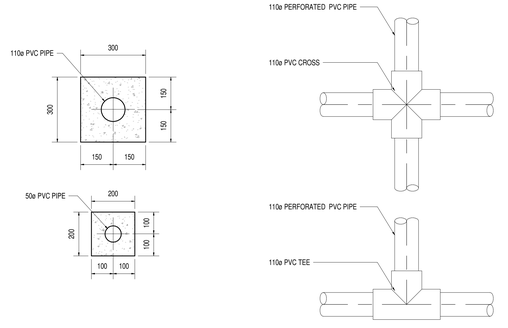
LEAK DETECTION UNDER EXPANSION JOINTS
1 : 10

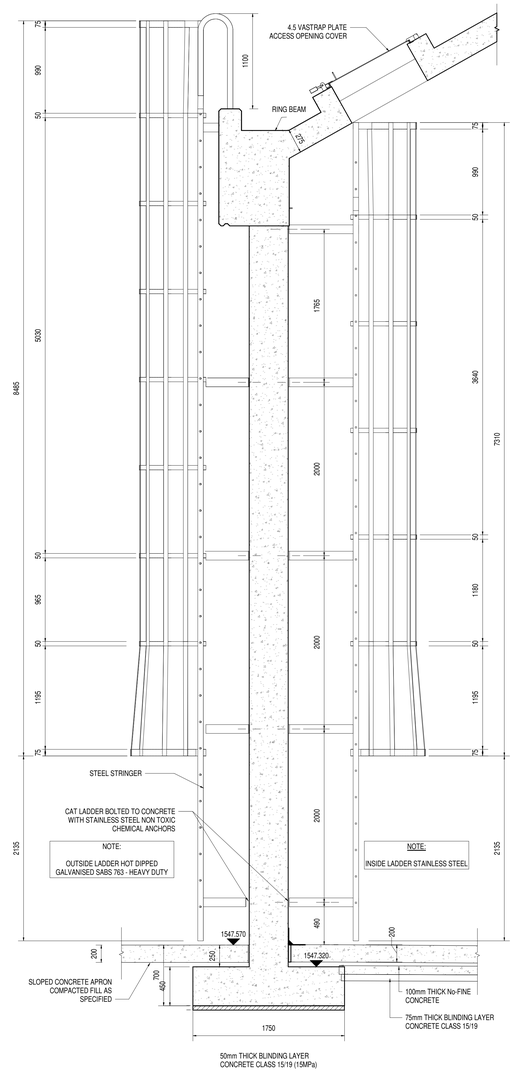


LEAK DETECTION UNDER SLAB
1 : 10

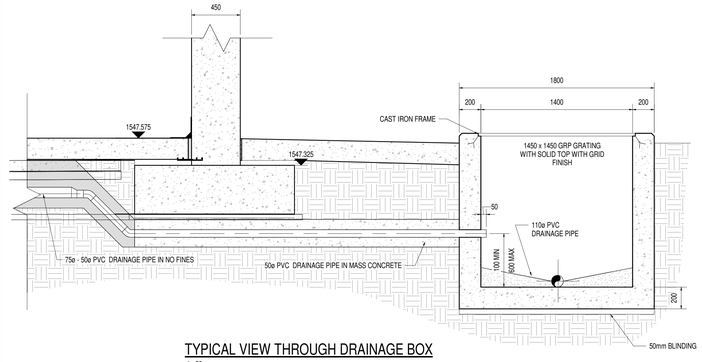


CONNECTION BETWEEN 50ø & 75ø PERFORATED DRAINAGE PIPE
1 : 10

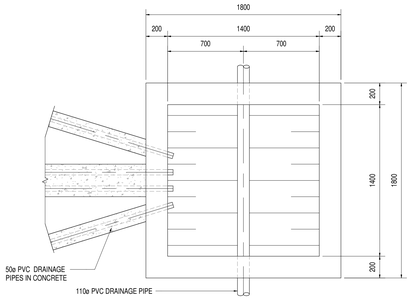




TYPICAL CAT LADDER DETAIL
1 : 25



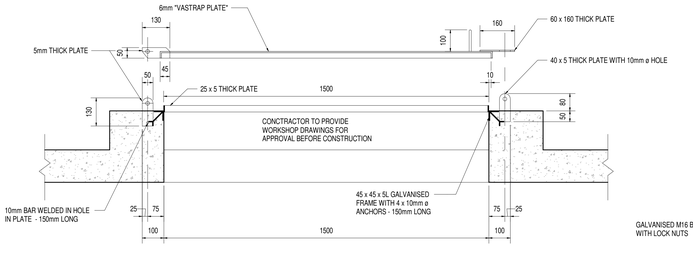
TYPICAL VIEW THROUGH DRAINAGE BOX
1 : 20



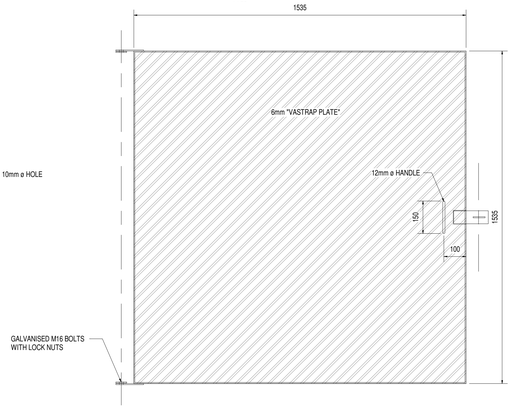
PLAN OF LEAK DETECTION BOX
1 : 20

TYPICAL CONCRETE ENCASEMENT SECTIONS
1 : 10

TYPICAL CROSS & T CONNECTION
1 : 10



ACCESS HATCH DETAIL
1 : 10



PLAN ON ACCESS HATCH
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ISSUED FOR TENDER

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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SURVEYED	CK
DESIGNED	NG
DRAWN	NM
CHECKED	GK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
LEAK DETECTION, CAT LADDERS
& ACCESS HATCH DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	GK	07.03.2024

DRAWING NUMBER

JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-04-002

FILE NUMBER

C 0 0

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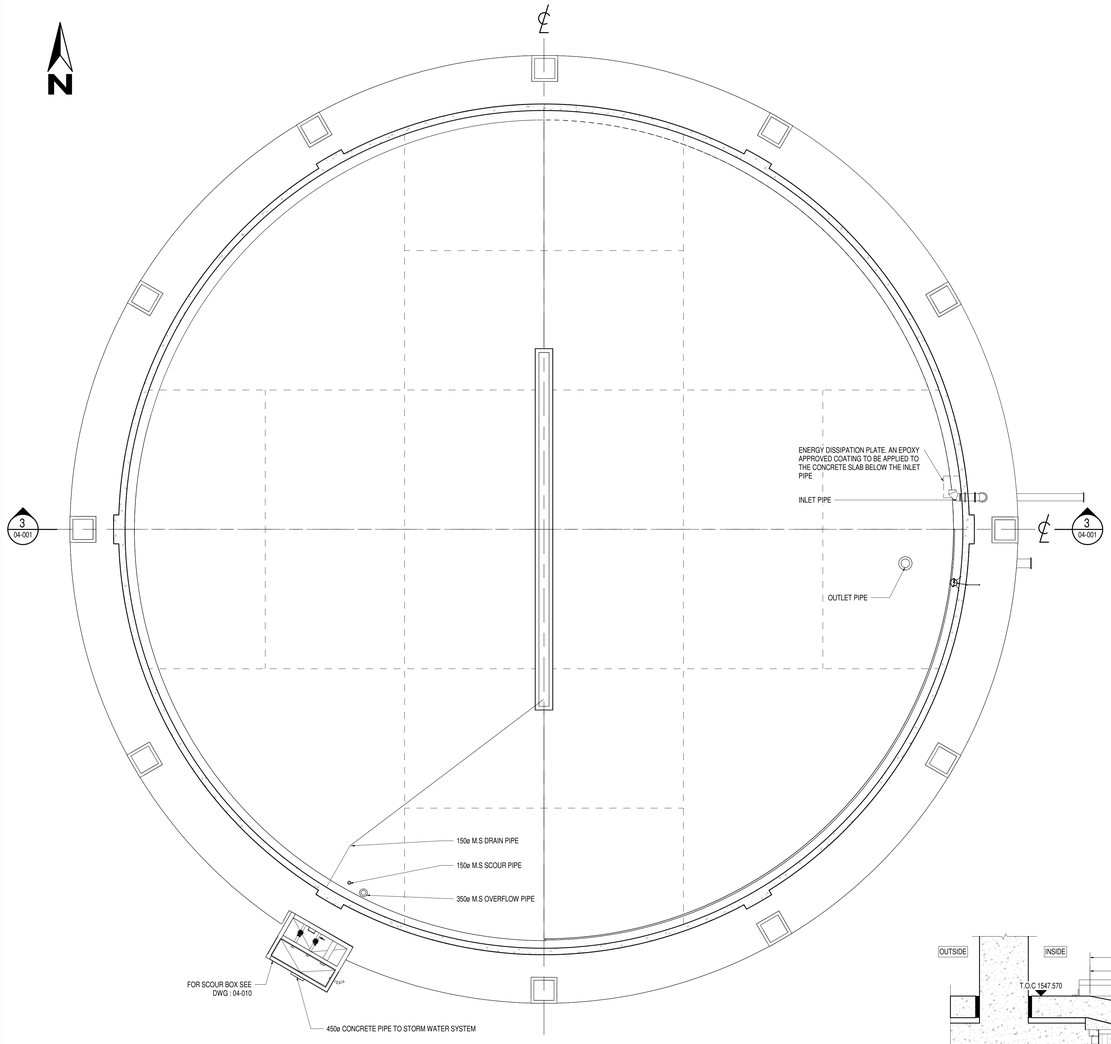


PIPEWORK LAYOUT
1 : 150

PIPE CORROSION SPECIFICATIONS.

COATED MILD STEEL PIPES:

MATERIAL TO BE USED SHALL BE A TWO-COMPONENT, HIGH SOLIDS, SOLVENT-BASED, EPOXY COATING SUITABLE FOR PERMANENT IMMERSION IN WATER.

- PREPARE INTERNAL & EXTERNAL SURFACES AS SPECIFIED IN CLAUSE 10.5.1 OR 10.5.2 AS APPROPRIATE, TO ACHIEVE A BLAST CLEANED SURFACE OF CLEANLINESS SA3, A PROFILE OF 50-100 MICRONS, DUST QUANTITY RATING OF NO GREATER THAN 2 (FIGURE 1 - ISO 8502-3:1992) AND SOLUBLE SALTS NOT MORE THAN 100MG/M2 (WEBER RIELLY TEST).
- MIX BASE AND CURING AGENT INDIVIDUALLY UNTIL HOMOGENEOUS, THEN MIX TOGETHER IN THE PROPORTIONS SUPPLIED OR SPECIFIED BY THE MANUFACTURER AND AGAIN MIX UNTIL HOMOGENEOUS. SPLIT PACKS, I.E. THE USE OF PART CONTAINERS IS NOT PERMITTED.
- APPLY TWO OR THREE COATS OF THE MIXED MATERIAL AS REQUIRED TO GIVE A TOTAL DRY FILM THICKNESS OF NOT LESS THAN 300 MICRONS NOR GREATER THAN 450 MICRONS.

  THE COATING SHALL BE APPLIED AT THE CORRECT SPRAYING VISCOSITY AND BY THE EQUIPMENT RECOMMENDED BY THE MANUFACTURER TO MINIMISE THE POROSITY OF THE APPLIED FILM.

  EACH COAT SHALL DIFFER IN COLOUR FROM THE PRECEDING COAT.

  EACH COAT SHALL BE APPLIED TO A THICKNESS NOT LESS THAN THE MINIMUM NOR GREATER THAN THE MAXIMUM RECOMMENDED BY THE MANUFACTURER.

  THE TIME INTERVAL BETWEEN COATS SHALL BE NOT LESS THAN THE MINIMUM NOR GREATER THAN THE MAXIMUM RECOMMENDED BY THE MANUFACTURER FOR THE PREVAILING AMBIENT TEMPERATURES THE OVERCOAT TIME BE EXCEEDED, THE SURFACE SHALL BE PREPARED AS SPECIFIED UNDER REPAIR BEFORE OVER-COATING.

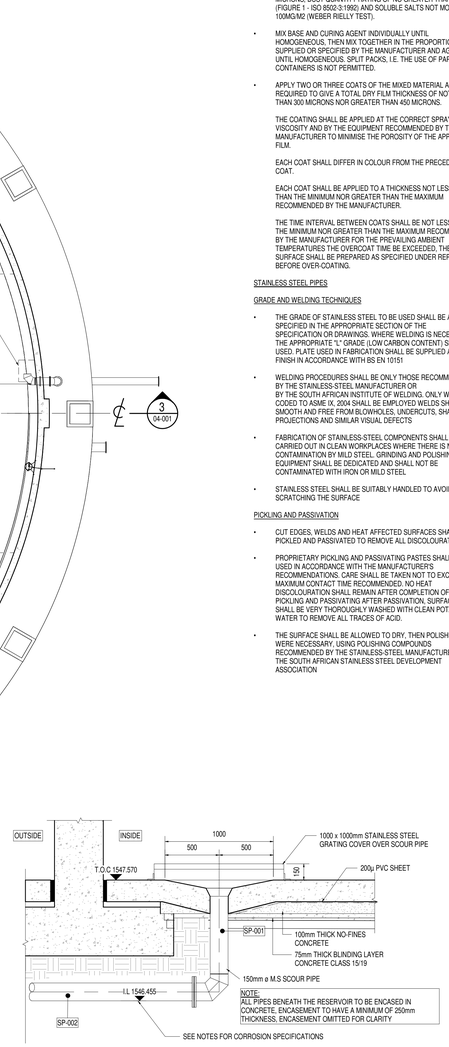
STAINLESS STEEL PIPES

GRADE AND WELDING TECHNIQUES

- THE GRADE OF STAINLESS STEEL TO BE USED SHALL BE AS SPECIFIED IN THE APPROPRIATE SECTION OF THE SPECIFICATION OR DRAWINGS. WHERE WELDING IS NECESSARY, THE APPROPRIATE "L" GRADE (LOW CARBON CONTENT) SHALL BE USED. PLATE USED IN FABRICATION SHALL BE SUPPLIED AS NO.1 FINISH IN ACCORDANCE WITH BS EN 10151
- WELDING PROCEDURES SHALL BE ONLY THOSE RECOMMENDED BY THE STAINLESS-STEEL MANUFACTURER OR BY THE SOUTH AFRICAN INSTITUTE OF WELDING. ONLY WELDERS CODED TO ASME IX, 2004 SHALL BE EMPLOYED WELDS SHALL BE SMOOTH AND FREE FROM BLOWHOLES, UNDERCUTS, SHARP PROJECTIONS AND SIMILAR VISUAL DEFECTS
- FABRICATION OF STAINLESS-STEEL COMPONENTS SHALL BE CARRIED OUT IN CLEAN WORKPLACES WHERE THERE IS NO CONTAMINATION BY MILD STEEL. GRINDING AND POLISHING EQUIPMENT SHALL BE DEDICATED AND SHALL NOT BE CONTAMINATED WITH IRON OR MILD STEEL
- STAINLESS STEEL SHALL BE SUITABLY HANDLED TO AVOID SCRATCHING THE SURFACE

PICKLING AND PASSIVATION

- CUT EDGES, WELDS AND HEAT AFFECTED SURFACES SHALL BE PICKLED AND PASSIVATED TO REMOVE ALL DISCOLOURATION
- PROPRIETARY PICKLING AND PASSIVATING PASTES SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CARE SHALL BE TAKEN NOT TO EXCEED THE MAXIMUM CONTACT TIME RECOMMENDED. NO HEAT DISCOLOURATION SHALL REMAIN AFTER COMPLETION OF PICKLING AND PASSIVATING AFTER PASSIVATION, SURFACES SHALL BE VERY THOROUGHLY WASHED WITH CLEAN POTABLE WATER TO REMOVE ALL TRACES OF ACID.
- THE SURFACE SHALL BE ALLOWED TO DRY, THEN POLISHED WERE NECESSARY, USING POLISHING COMPOUNDS RECOMMENDED BY THE STAINLESS-STEEL MANUFACTURERS OR THE SOUTH AFRICAN STAINLESS STEEL DEVELOPMENT ASSOCIATION



SCOUR PIPE DETAIL
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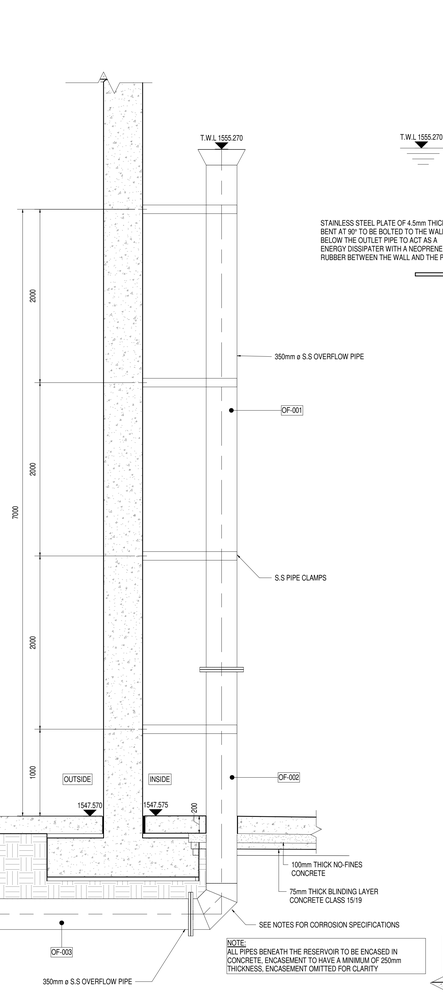

OVERFLOW PIPING DETAILS
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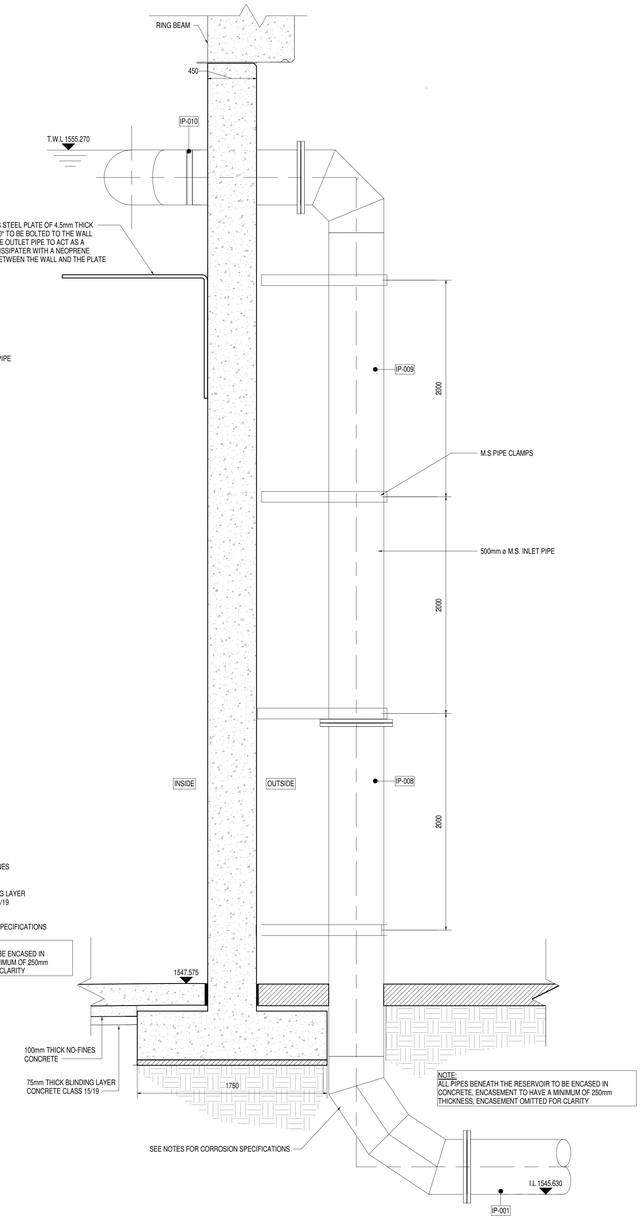

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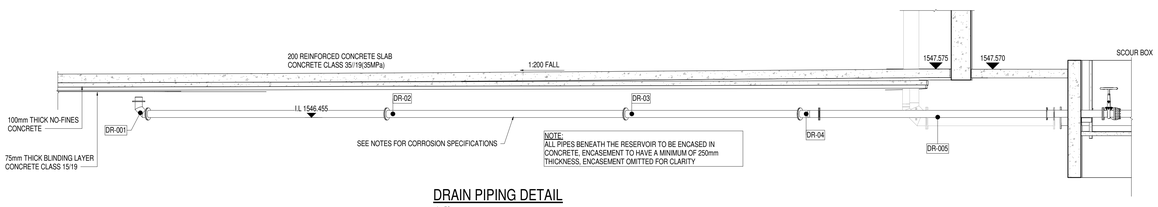

DRAIN PIPING DETAIL
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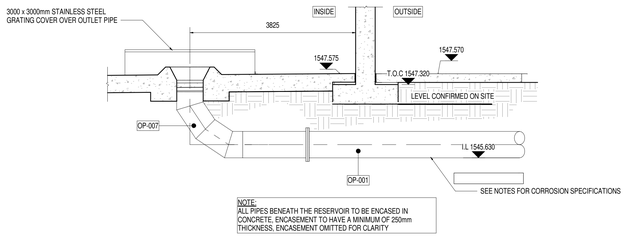

OUTLET PIPE DETAIL
1 : 50

DEPARTMENT	APPROVED	DESIGNATION	DATE

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SERVITUDES	
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Pr. Eng. No.	960406
DATE	07.03.2024

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
PIPING DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	GK	07.03.2024

DRAWING NUMBER

JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-04-003

FILE NUMBER

C 0 0

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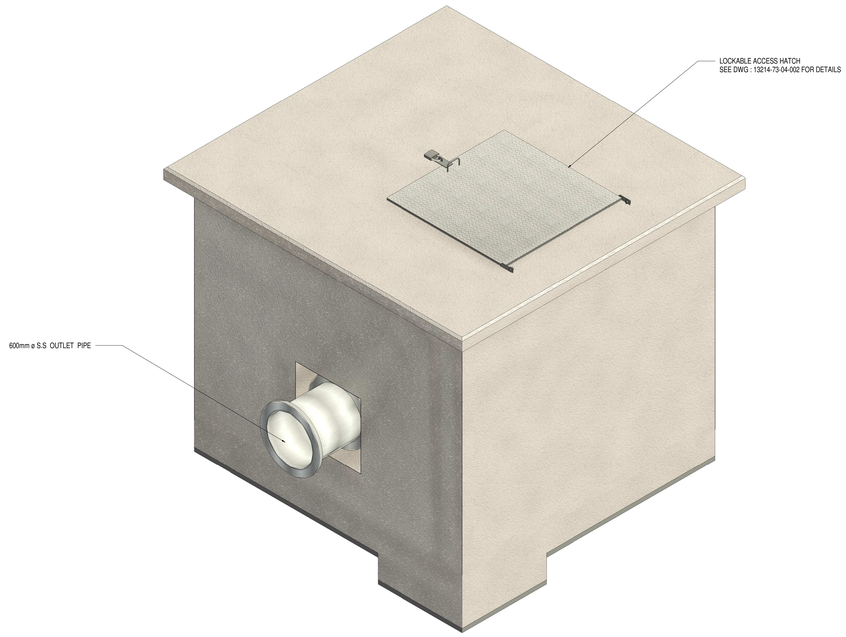
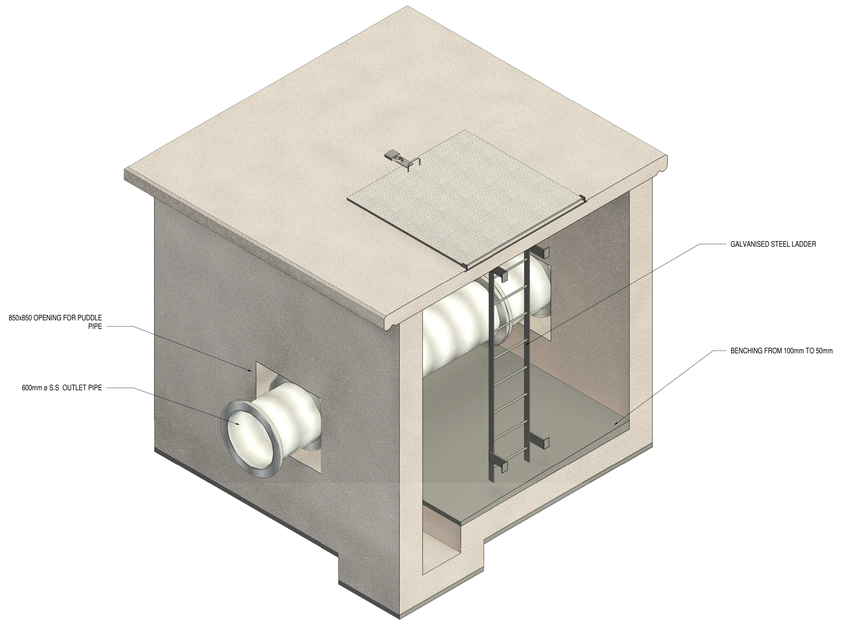
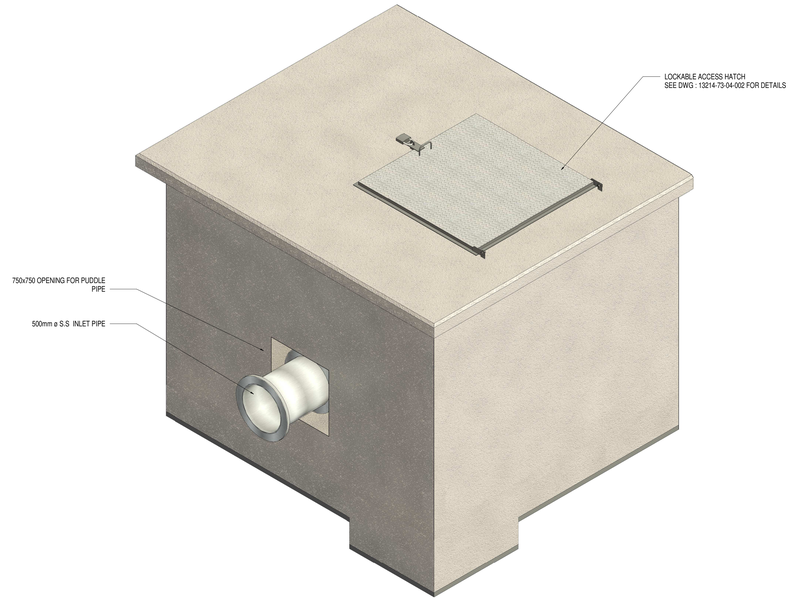


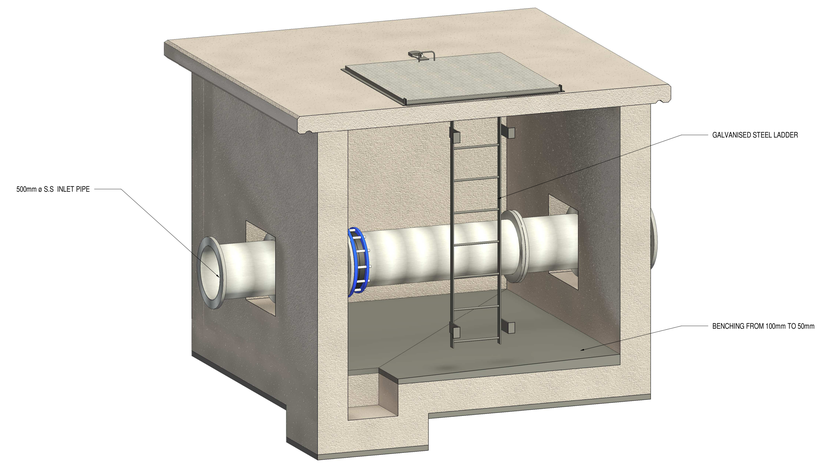
NORTH WESTERN 3D VIEW OUTLET FLOWMETER CHAMBER



OUTLET FLOW METER CHAMBER NORTH WESTERN 3D SECTION



NORTH WESTERN 3D VIEW INLET FLOWMETER CHAMBER



INLET FLOW METER CHAMBER SOUTH EASTERN 3D SECTION

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
FLOWMETER CHAMBERS
3D VIEWS

DESIGN MANAGER

DATE

SCALE: N.T.S

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	GK	07.03.2024

DRAWING NUMBER

JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-04-004

FILE NUMBER: C 0 0

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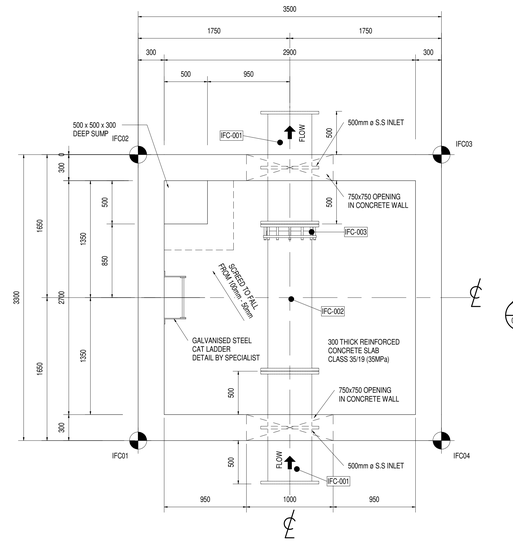
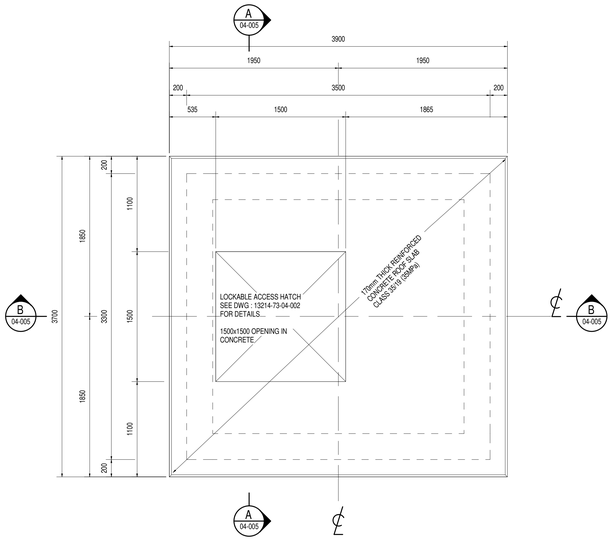


SURFACE BED LAYOUT OF INLET FLOW METER CHAMBER

1 : 25



ROOF LAYOUT OF INLET FLOW METER CHAMBER

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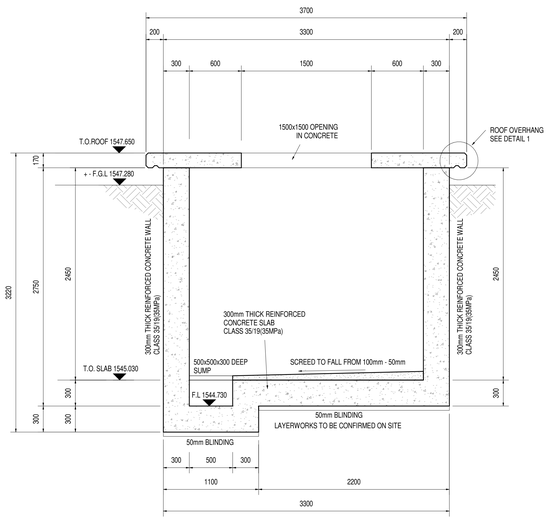

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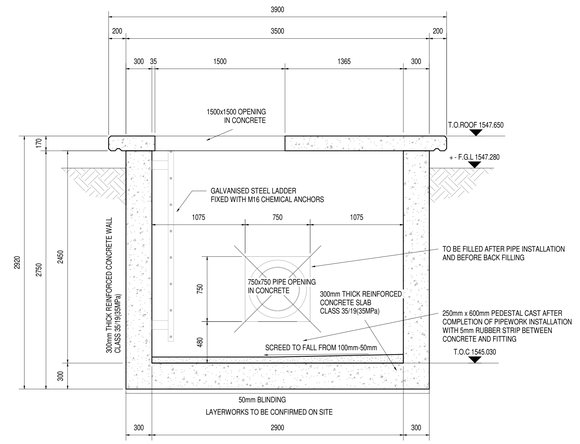

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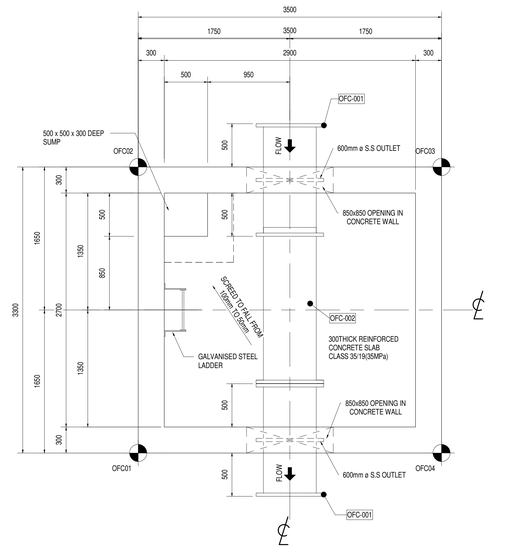

SURFACE BED LAYOUT OF OUTLET FLOW METER CHAMBER

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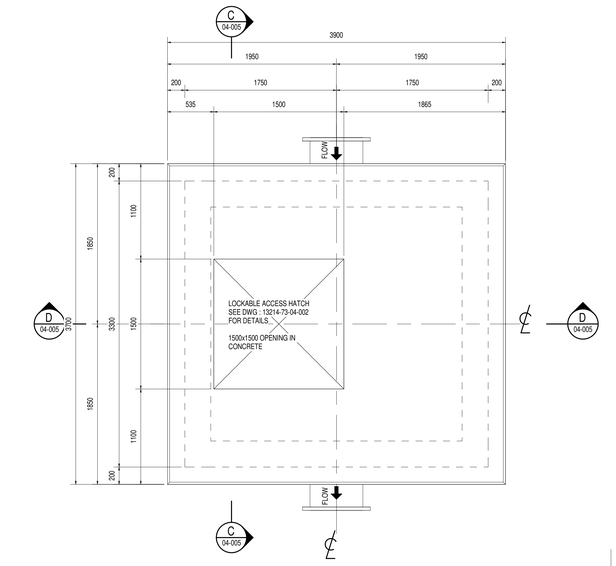

ROOF LAYOUT OF OUTLET FLOW METER CHAMBER

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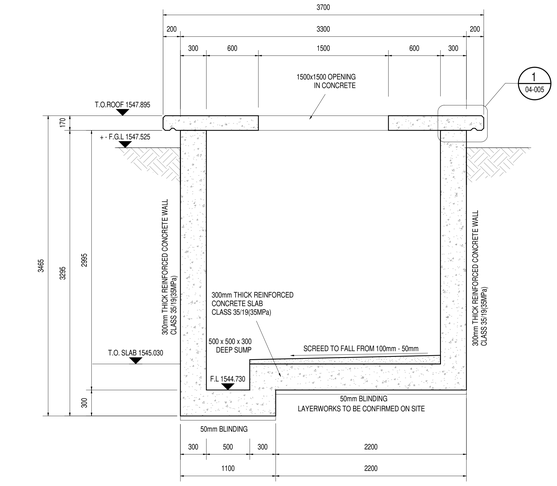

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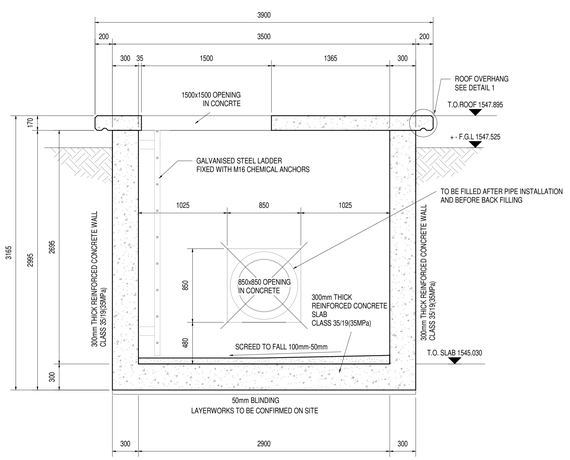

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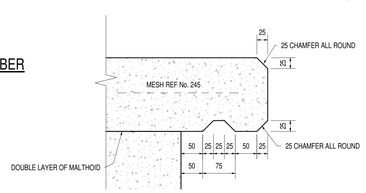

DETAIL 1

1 : 5 — 04-005

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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Pr. Eng. No.	960406
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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML

CARLSWALD RESERVOIR

FLOWMETER CHAMBERS

LAYOUT, SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	GK	07.03.2024

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CONSULTANT'S NUMBER: 13214-73-04-005

FILE NUMBER

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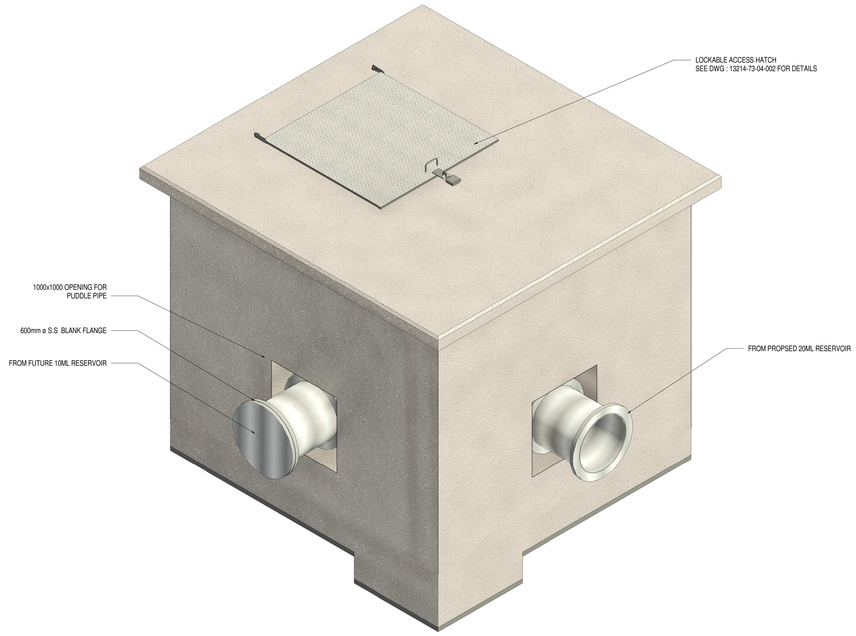
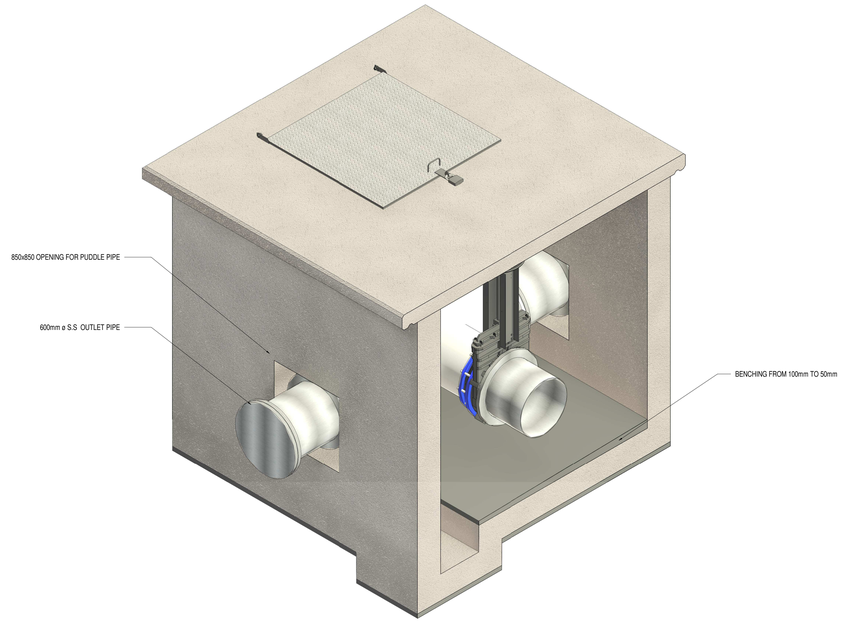
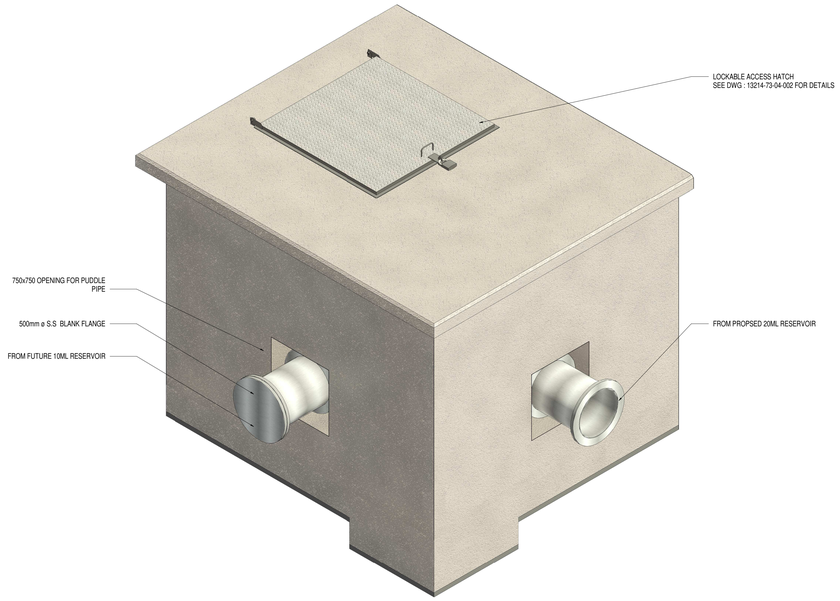


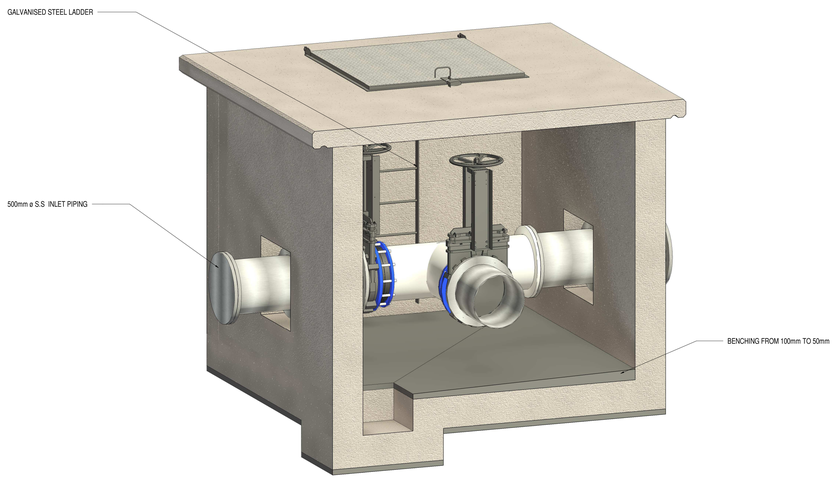
NORTH WESTERN 3D VIEW OUTLET VALVE CHAMBER



OUTLET VALVE CHAMBER NORTH WESTERN 3D SECTION



NORTH WESTERN 3D VIEW INLET VALVE CHAMBER



INLET VALVE CHAMBER SOUTH EASTERN 3D SECTION

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CONSULTING ENGINEERS

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Pr. Eng. No.	960406
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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
VALVE CHAMBERS
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DRAWING NUMBER

JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-04-006

FILE NUMBER

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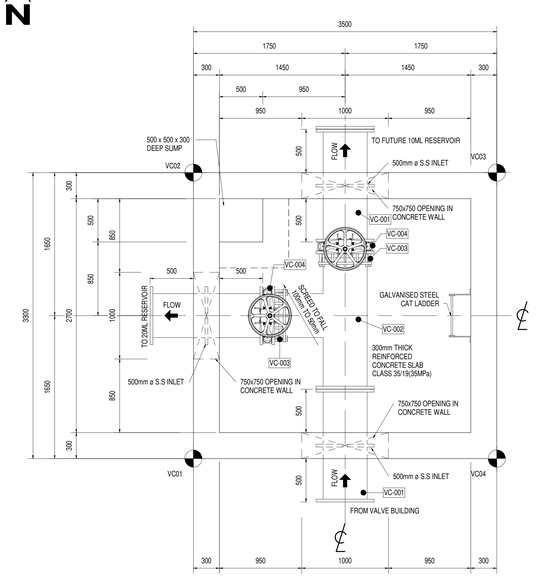
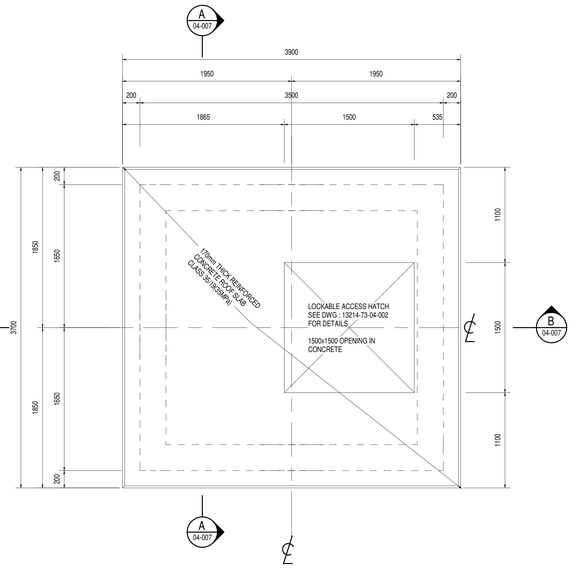


SURFACE BED LAYOUT OF INLET VALVE CHAMBER

1 : 25



ROOF LAYOUT OF INLET VALVE CHAMBER

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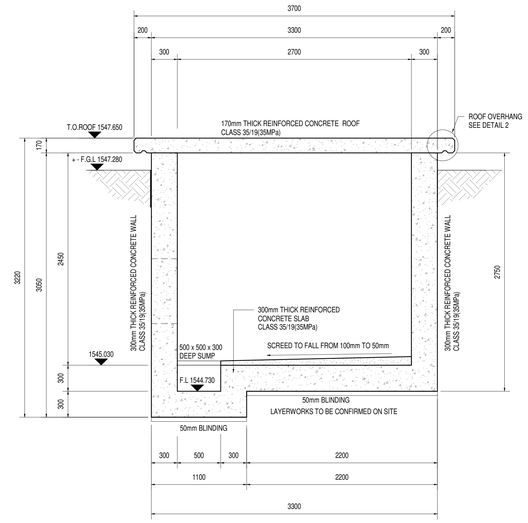

SECTION A 04-007

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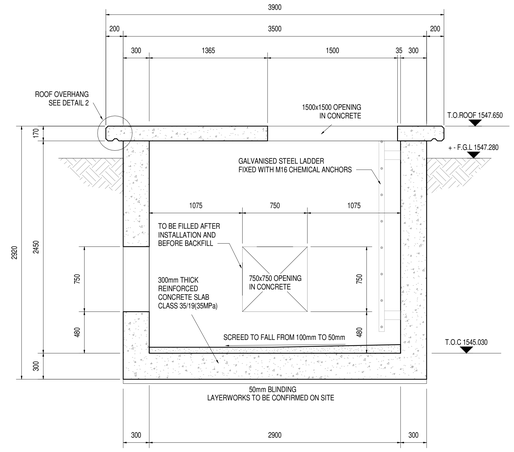

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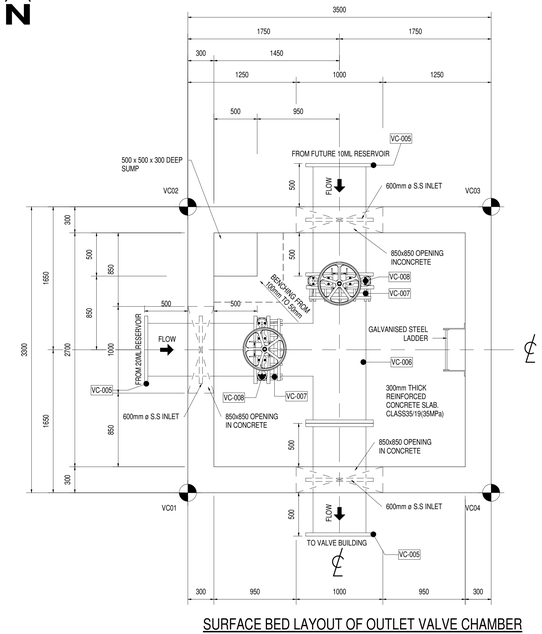
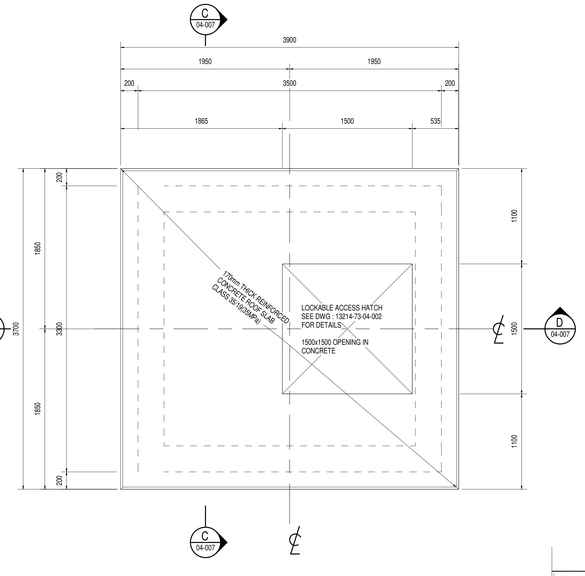


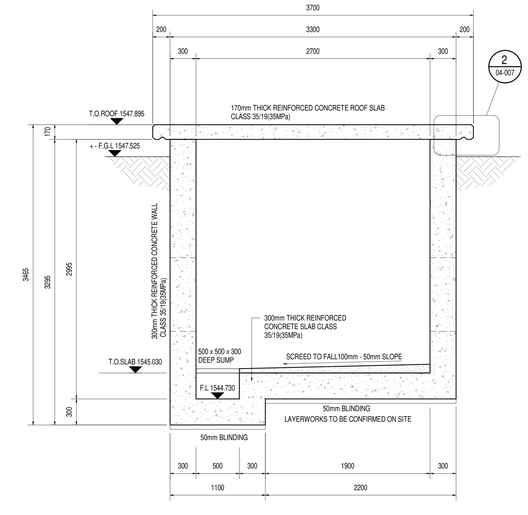
SURFACE BED LAYOUT OF OUTLET VALVE CHAMBER

1 : 25



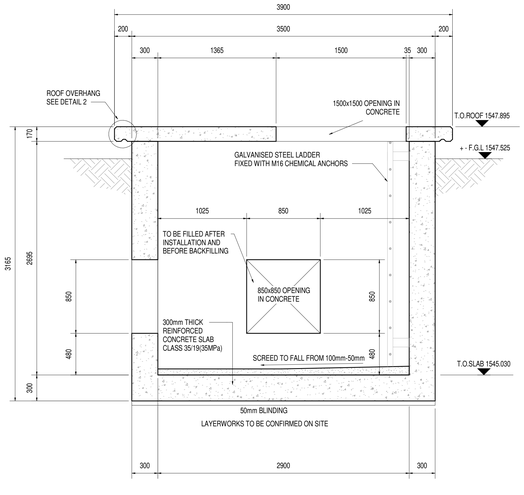
LAYOUT OF OUTLET VALVE CHAMBER

1 : 25



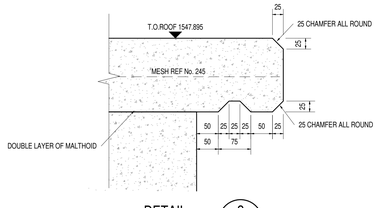
SECTION C 04-007

1 : 25



SECTION D 04-007

1 : 25



DETAIL 2 04-007

1 : 5

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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DESIGNED	NG
DRAWN	NM
CHECKED	GK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERWITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML

CARLSWALD RESERVOIR

VALVE CHAMBERS

LAYOUT, SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	GK	07.03.2024

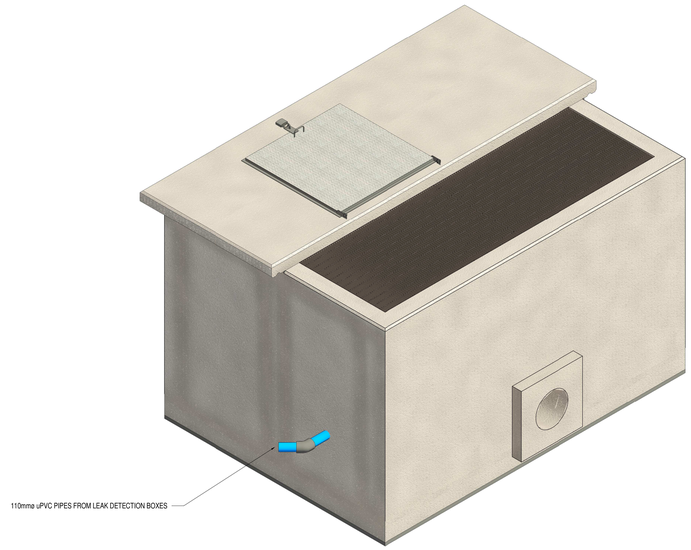
DRAWING NUMBER

JW NUMBER: JW14302R

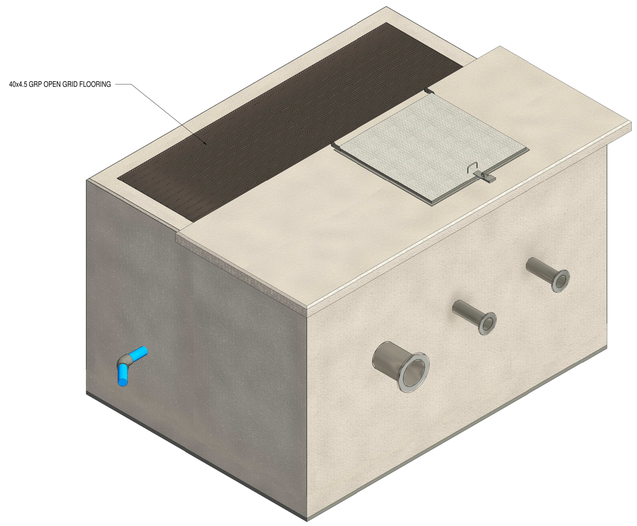
CONSULTANT'S NUMBER: 13214-73-04-007

FILE NUMBER: C 0 0

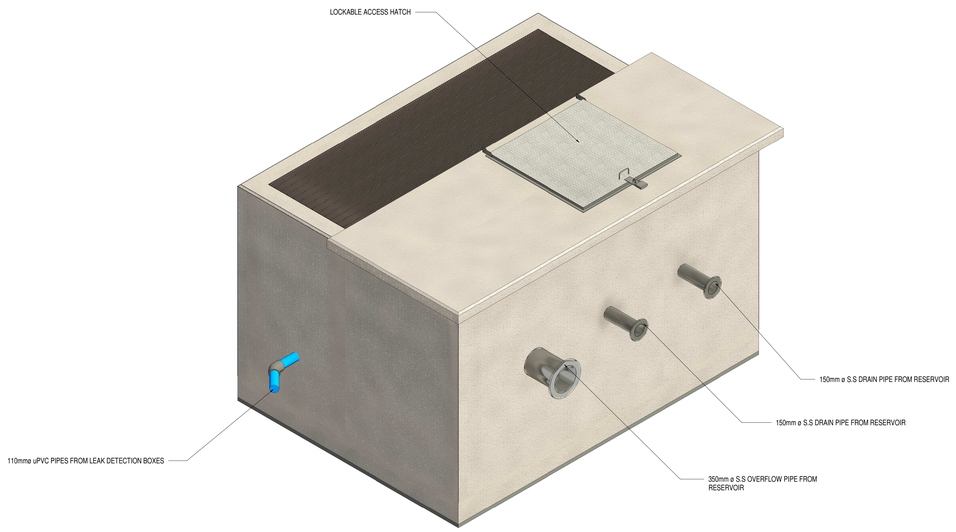
Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\Revit\13214-73-04-(006-C00)-(007-C00) - VALVE CHAMBERS.rvt



SCOUR BOX SOUTH WESTERN 3D VIEW



SCOUR BOX SOUTH EASTERN 3D VIEW



SCOUR BOX NORTH EASTERN 3D VIEW

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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DRAWN	NM
CHECKED	GK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
SCOUR BOX
3D VIEWS

DESIGN MANAGER

DATE

SCALE

N.T.S

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	GK	08.03.2024

DRAWING NUMBER

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-04-010

FILE NUMBER

C 0 0

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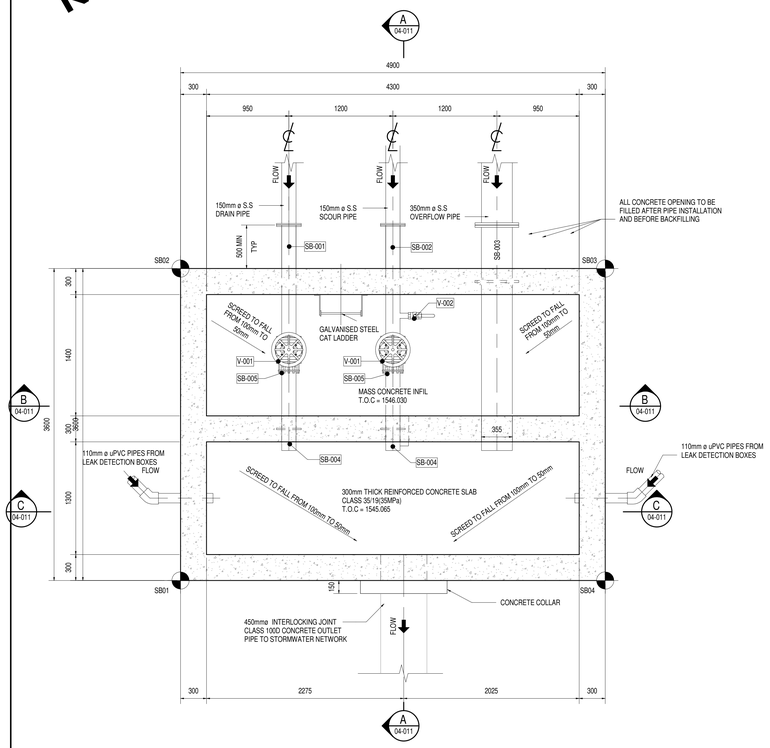
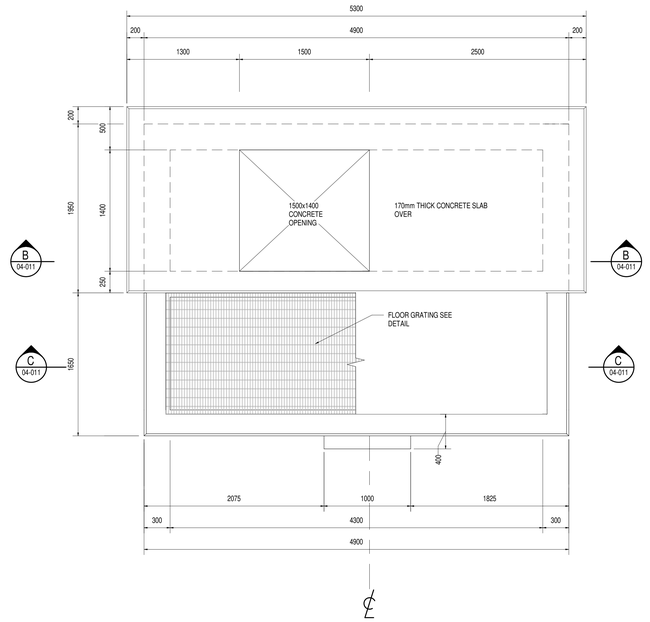


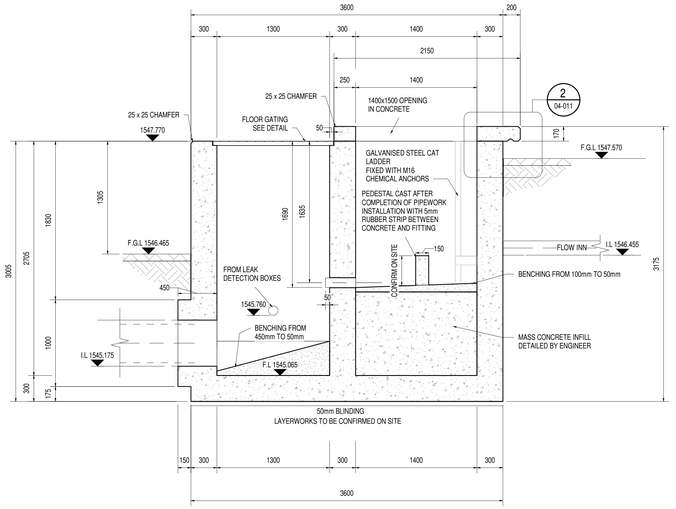
PLAN VIEW ON SCOUR BOX

1 : 25



SCOUR BOX TOP LAYOUT

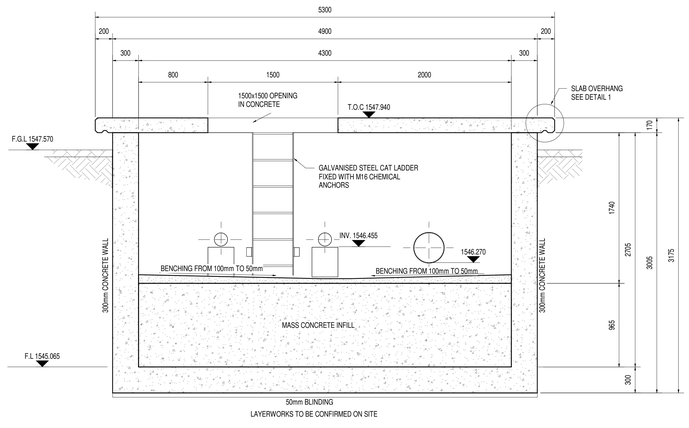
1 : 25



SECTION A

1 : 25

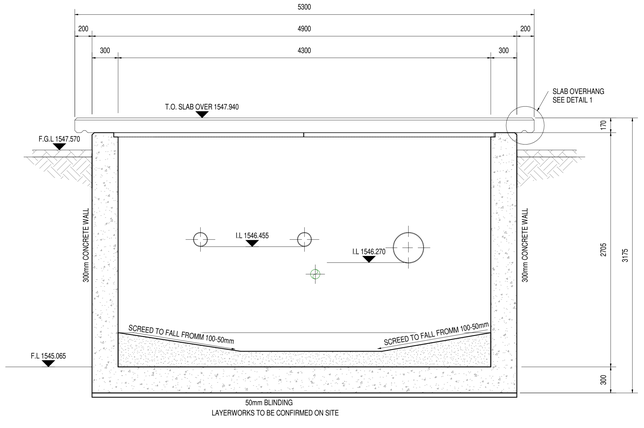
04-011



SECTION B

1 : 25

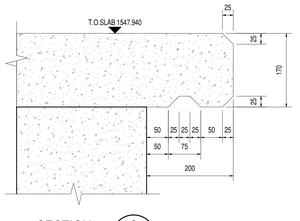
04-011



SECTION C

1 : 25

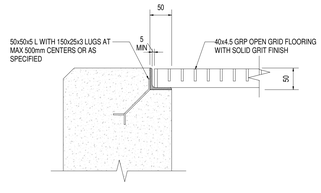
04-011



SECTION 2

1 : 5

04-011



TYPICAL DETAIL OF OPEN GRID FLOORING

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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DESIGNED	NG
DRAWN	NM
CHECKED	GK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
SCOUR BOX
LAYOUT & SECTIONS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	GK	07.03.2024

DRAWING NUMBER

JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-04-011

FILE NUMBER

C 0 0

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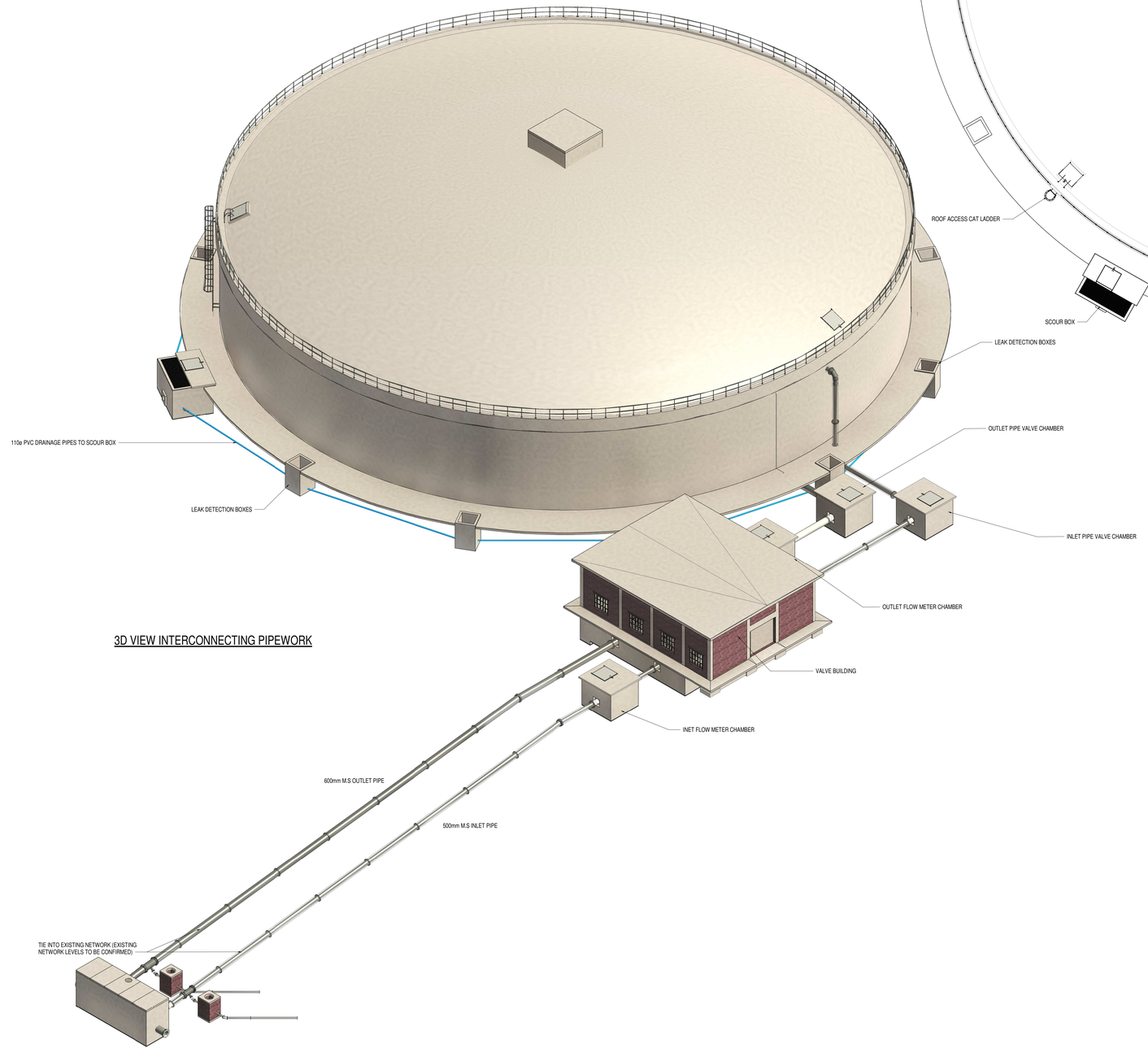
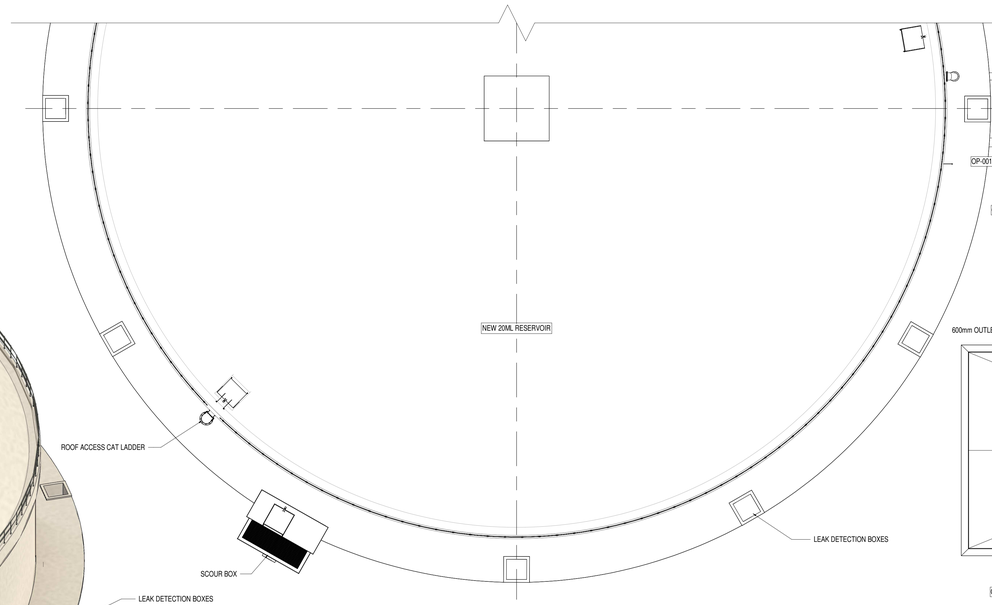
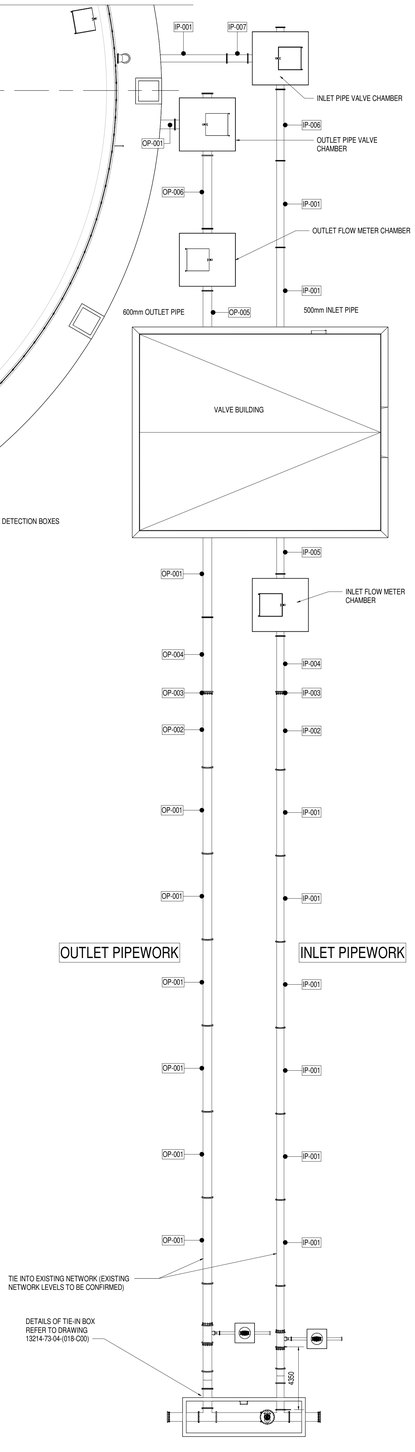


3D VIEW INTERCONNECTING PIPEWORK



INTERCONNECTING PIPING LAYOUT
1 : 150



DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

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DRAWN	J.P
CHECKED	J.S
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GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
INTERCONNECTING PIPING LAYOUT

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.S	18.03.2024

DRAWING NUMBER

JW NUMBER: JW14302R
CONSULTANT'S NUMBER: 13214-73-04-012
FILE NUMBER
C 0 0

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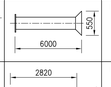
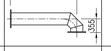
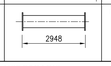
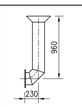
OVERFLOW PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
OF-001	350	Coated SS 304 4mm w.t.	FLANGED BELLMOUTH, O.A. 6000mm, BELLMOUTH 550mm DIA.		1		
OF-002	350	Coated SS 304 4mm w.t.	FLANGED 90° SHORT RADIUS BEND. ONE END 360mm C. to F. OTHER END 2820mm C. to F.		1		
OF-003	350	Coated SS 304 4mm w.t.	FLANGED PIPE, O.A. 2948mm		1		

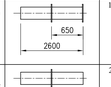
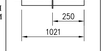
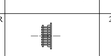
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

SCOUR PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
SP-001	150	Coated SS 304 3mm w.t.	90° SHORT RADIUS BEND ONE END 230mm C. TO F. AND FLANGED, OTHER END 960mm C. to F. WITH BELLMOUTH OD OF 245mm		1		
SP-002	150	Coated SS 304 3mm w.t.	FLANGED PIPE O.A.3190mm		1		

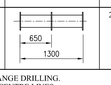
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

SCOUR BOX

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
SB-003	350	Coated SS 304 3mm w.t.	PUDDLE PIPE 0.A 2600mm. ONE END FLANGED WITH P.F. 650mm FROM FLANGED END.		1		
SB-004	150	Coated SS 304 3mm w.t.	PUDDLE PIPE 0.A 1021mm. BOTH ENDS PLAIN WITH P.F.D 250mm FROM END.		2		
SB-005	150	COATED M.S	FLANGE ADAPTOR		2		
V-001	150	D.I	WEDGE GATE VALVE, PN10, NON RISING SPINDLE, CLOCKWISE CLOSING, COMPLETE WITH HANDWHEEL, DUCTILE IRON BODY AND COVER, STAINLESS STEEL SPINDLE, "O" RING GLAND SEAL ARRANGEMENT, PINNED GUNMETAL SEATS		2		
V-002	50	SS 304	BALL VALVE		1		

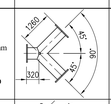
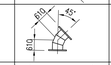
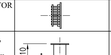
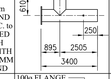
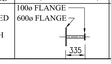
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INLET FLOW METER CHAMBER

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IFC-001	500	Coated SS 304 4mm w.t.	PUDDLE PIPE O.A. 1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.		2		

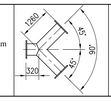
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-002	600	COATED M.S.	FLANGED 90° Y-PIECE, BRANCHES 1260mm C. to F. MAIN PIPE 320mm C. to F. WITH 50mm BOSS 320mm FROM MAIN FLANGED END		1		
VB-003	600	COATED M.S.	STANDARD D.F 45° SHORT RADIUS BEND, 610mm C TO F.		4		
VB-004	600	COATED M.S.	FLANGED PIPE O.A.555mm WITH 25mm BOSS 250mm FROM ONE END		2		
VB-005	600	COATED M.S.	FLANGE ADAPTOR		2		
VB-006	600	COATED M.S.	UN-EQUAL TEE, ONE END FLANGED 610mm C.to F. OTHER END PLAIN 2505mm C. to F. WITH FLANGED ENDED BRANCH 895mm C. to F.WITH 25MM BOSS 250MM FROM PLAIN END		2		
VB-007	100 x 600	COATED M.S.	600□ BLANK FLANGE DRILLED FOR 100□ PIPE O.A.335mm WITH FLANGED END		2		

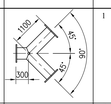
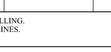
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-008	600	COATED M.S.	FLANGED 90° Y-PIECE, BRANCHES 1260mm C to F. MAIN PIPE 320mm C. to F.		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-017	500	COATED M.S	FLANGED 90° Y-PIECE, BRANCHES 1100mm C. to F. MAIN PIPE 300mm C. to F. WITH 50mm THREADED ENDED BOSS 300mm FROM FLANGED END AT THE BOTTOM AND A 100mm DIA. FLANGED ENDED BOSS AT THE TOP.		1		
V-005	600	D.I	WEDGE GATE VALVE, PN10, NON RISING SPINDLE, CLOCKWISE CLOSING, GEARBOX OPERATED COMPLETE WITH HANDWHEEL, DUCTILE IRON BODY AND COVER, STAINLESS STEEL SPINDLE, "O" RING GLAND SEAL ARRANGEMENT, PINNED GUNMETAL SEATS, O.A. 600mm		2		
V-006	100	SS 304	FLANGED BALL VALVE		2		
V-007	100	SS 304	DOUBLE ORIFICE AIR RELEASE AND VACUUM BREAKER VALVE WITH ANTI SHOCK MECHANISM		2		
V-008	600	D.I	FLANGED TILITING DISC NON-RETURN VALVE		2		
V-009	300	D.I	WEDGE GATE VALVE, PN10, NON RISING SPINDLE, CLOCKWISE CLOSING, GEARBOX OPERATED COMPLETE WITH HANDWHEEL, DUCTILE IRON BODY AND COVER, STAINLESS STEEL SPINDLE, "O" RING GLAND SEAL ARRANGEMENT, PINNED GUNMETAL SEATS, O.A. 380MM		4		

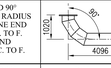
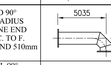
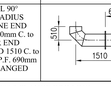
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
V-010	300	D.I	HYDRAULIC CONTROL VALVE INCLUDING 20mm SS BI-LEVEL CONTROL PILOT INSIDE RESERVOIR WITH 15mm SS CONNECTION PIE		2		

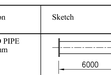
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IP-007	500	COATED M.S	FLANGED PIPE O.A.1456mm		1		
IP-008	500	COATED M.S	FLANGED 90° MEDIUM RADIUS BEND. ONE END 1020mm c. TO F. OTHER END 4096mm C. TO F.		1		
IP-009	500	COATED M.S	FLANGED 90° SHORT RADIUS BEND. ONE END 5035mm C. TO F. OTHER END 510mm C. TO F.		1		
IP-010	500	Coated SS 304 4mm w.t.	UNEQUAL 90° SHORT RADIUS BEND, ONE END PLAIN 510mm C. to F. OTHER END FLANGED 1510 C. to F. WITH P.F. 690mm FROM FLANGED END		1		

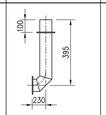
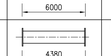
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

OUTLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
OP-001	600	COATED M.S	FLANGED PIPE O.A.6000mm		8		
OP-002	600	COATED M.S	PIPE ONE END FLANGED O.A.5227mm		1		
OP-003	600	COATED M.S	FLANGE ADAPTOR		1		
OP-004	600	COATED M.S	FLANGED PIPE O.A.5150mm		1		
OP-005	600	COATED M.S	FLANGED PIPE O.A 2998mm		1		

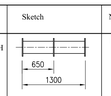
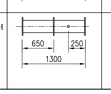
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

DRAIN PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
DR-001	150	Coated SS 304 3mm w.t.	90° SHORT RADIUS BEND ONE END FLANGED 230mm C. to F. OTHER END PLAIN 395mm C. to F. WITH P.F. 100mm FROM PLAIN END		1		
DR-002	150	Coated SS 304 3mm w.t.	FLANGED PIPE 0.A 6000mm		2		
DR-003	150	Coated SS 304 3mm w.t.	FLANGED PIPE 0.A 4380mm		1		
DR-004	150	Coated SS 304 3mm w.t.	FLANGED 24° MEDIUM RADIUS BEND 230mm C. to F		1		
DR-005	150	Coated SS 304 3mm w.t.	FLANGED PIPE O.A.5428mm		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

SCOUR BOX

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
SB-001	150	Coated SS 304 3mm w.t.	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.		1		
SB-002	150	Coated SS 304 3mm w.t.	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END AND 50mm BOSS 250mm FROM OTHER END		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INLET FLOW METER CHAMBER

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IFC-002	500	Coated MS 5mm w.t.	FLANGED PIPE O.A. 1680mm		1		
IFC-003	500	COATED M.S	FLANGE ADAPTOR		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

OUTLET FLOW METER CHAMBER

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
OFC-001	600	Coated SS 304 5mm w.t.	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.		2		
OFC-002	600	Coated MS 6mm w.t.	PIPE O.A.1800mm, ONE END FLANGED OTHER END PLAIN		1		
OFC-003	600	COATED M.S	FLANGE ADAPTOR		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-001	600	Coated SS 304 5mm w.t.	PUDDLE PIPE O.A.900mm BOTH ENDS FLANGED WITH P.F. 450mm FROM ONE END.		2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-009	600	COATED M.S.	FLANGED PIPE O.A. 1537mm		1		
VB-010	500	Coated SS 304 4mm w.t.	D.F. PUDDLE PIPE O.A.1300mm. WITH P.F. 650mm FROM ONE END.		2		
VB-011	500	COATED M.S.	FLANGED 90° Y-PIECE, BRANCHES 1100mm C. to F. MAIN PIPE 300mm C. to F. WITH 50mm BOSS 300mm FROM FLANGED END.		1		
VB-012	500	COATED M.S.	D.F 45° SHORT RADIUS BEND 510mm C. TO F.		4		
VB-013	500 x 300	COATED M.S.	FLANGED ECCENTRIC 500mm to 300mm REDUCER AND 300mm DIA. PIPE O.A.1090mm		2		
VB-014	300	COATED M.S.	FLANGE ADAPTOR		4		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VB-015	300	COATED M.S	PIPE ONE END FLANGED O.A.800mm		2		
VB-016	300	COATED M.S	PIPE ONE END FLANGED O.A.. 2000mm.		2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE BUILDING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
V-011	300	COATED M.S	FLANGED BASKET STRAINER, O.A. 800mm		2		
V-012	50	COATED M.S	THREADED BALL VALVE		2		
V-013	50	SS 304	DOUBLE ORIFICE AIR RELEASE AND VACUUM BREAKER VALVE WITH ANTI SHOCK MECHANISM		1		
V-014	600	D.I	WAFER TYPE KNIFE GATE VALVE, PN 10, STAINLESS STEEL BLADE AND SPINDLE, O.A. 110mm		4		
V-015	500	D.I	WAFER TYPE KNIFE GATE VALVE, PN 10, STAINLESS STEEL BLADE AND SPINDLE, O.A. 110mm		4		
V-016	25	S.S	THREADED BALL VALVE		3		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INTLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IP-001	500	COATED M.S	FLANGED PIPE O.A.6000mm		9		
IP-002	500	COATED M.S	PIPE PME EMD FLANGED O.A.5395mm		1		
IP-003	500	COATED M.S	FLANGE ADAPTOR		1		
IP-004	500	COATED M.S	FLANGED PIPE O.A.3848mm		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

INLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
IP-005	500	COATED M.S	FLANGED PIPE O.A.2997mm		1		
IP-006	500	COATED M.S	FLANGED PIPE O.A.4933mm		1		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

OUTLET PIPING

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
OP-006	600	COATED M.S	FLANGED PIPE O.A 5064mm		1		
OP-007	600	Coated SS 304 5mm w.t.	UNEQUAL 90° MEDIUM RADIUS BEND, ONE END FLANGED 2715mm C. to F. OTHER END WITH BELLMOUTH 1790mm C. to F.		1		
OP-008	600	Coated SS 304 5mm w.t.	FLANGED PIPE O.A 6000mm		1		

VALVE CHAMBERS

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VC-001	500	Coated SS 304 4mm w.t.	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.		3		
VC-002	500	Coated MS 5mm w.t.	UN-EQUAL TEE, PLAIN ENDED BRANCH 810mm C. to F. 850mm C. to F. FROM FLANGED END, OTHER END PLAIN 715mm C. to F.		1		
VC-003	500	Coated M.S.	FLANGE ADAPTOR		2		
VC-004	500	D.I	WAFER TYPE KNIFE GATE VALVE WITH STAINLESS STEEL BLADE AND SPINDLE, PN10, O.A. 100mm		2		
VC-005	600	Coated SS 304 5mm w.t.	PUDDLE PIPE O.A.1300mm. BOTH ENDS FLANGED WITH P.F. 650mm FROM ONE END.		3		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

VALVE CHAMBERS

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
VC-006	600	Coated MS 6mm w.t.	UN-EQUAL TEE, PLAIN ENDED BRANCH 800mm C. to F. 850mm C. to F. FROM FLANGED END, OTHER END PLAIN 700mm C. to F.		1		
VC-007	600	COATED M.S	FLANGE ADAPTOR		2		
VC-008	600	D.I	WAFER TYPE KNIFE GATE VALVE WITH STAINLESS STEEL BLADE AND SPINDLE, PN10, O.A. 110mm		2		

ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING.
ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES.
SKETCHES NOT TO SCALE.

PIPE SCHEDULE ABBREVIATIONS:

MAT	-	MATERIAL.
DIA	-	DIAMETER.
D.F	-	DOUBLE FLANGED.
P.F	-	PUDDLE FLANGE.
O.A	-	OVERALL.
C.TO.F	-	CENTRE TO FACE.
F.TO.F	-	FACE TO FACE.
C.I	-	CAST IRON.
D.I	-	DUCTILE IRON.
M.S	-	MILD STEEL.
S.S	-	STAINLESS STEEL.
G.M.S	-	GALVANISED MILD STEEL
W.T	-	WALL THICKNESS.
N.B	-	NOMINAL BORE.
E.M	-	END MACHINED.
M.T.S	-	MACHINED TO SUITE.

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
P.O. BOX 6002
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1685
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SURVEYED	C.K
DESIGNED	J.S
DRAWN	J.P
CHECKED	J.S
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.06.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
PIPE & VALVE SCHEDULE

DESIGN MANAGER

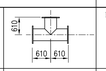
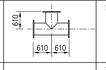
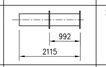
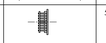
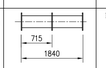
DATE

SCALE	AMENDMENTS	APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.S	14.04.2024

DRAWING NUMBER
JW NUMBER
JW14302R
CONSULTANT'S NUMBER
13214-73-04-013
FILE No
C 0 0

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\CAD 3D\CARLSWALD RESERVOIR_13214-73-04-(013-C00)-RESERVOIR PIPE & VALVE SCHEDULE.dwg Oct 30, 2024 - 10:51am

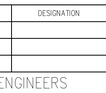
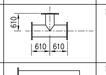
TIE-IN BOX & SCOUR VALVE CHAMBERS

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
TB-001	600 X 500	COATED M.S 6mm w.t	FLANGED REDUCING TEE. 610mm C. to F.		1		
TB-002	600	COATED M.S 6mm w.t	FLANGED EQUAL TEE, 610mm C. to F.		1		
TB-003	600	COATED M.S 6mm w.t	PIPE ONE END PLAIN, OTHER END FLANGED, O.A. 3675mm		1		
TB-004	600	Coated SS 304 5mm w.t	PUDDLE PIPE O.A 2115mm. ONE END FLANGED WITH P.F. 992mm FROM FLANGED END.		2		
TB-005	600	COATED M.S.	FLANGE ADAPTOR		5		
TB-006	500	Coated SS 304 5mm w.t	PUDDLE PIPE O.A.1840mm. BOTH ENDS FLANGED WITH P.F. 715mm FROM ONE END.		1		
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING. ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES. SKETCHES NOT TO SCALE.							

TIE-IN BOX & SCOUR VALVE CHAMBERS

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
TB-016	500	COATED M.S.	FLANGE ADAPTOR		2		
TB-017	150	HDG	D.F 45° FLANGED SHORT RADIUS BEND 230mm C. TO F.		2		
TB-018	150	HDG	PIPE ONE END PLAIN, OTHER FLANGED, O.A. 1500mm		2		
TB-019	150	COATED M.S	FLANGE ADAPTOR		2		
V-017	600	D.I	WEDGE GATE VALVE, PN10, NON RISING SPINDLE, CLOCKWISE CLOSING, COMPLETE WITH HANDWHEEL, DUCTILE IRON BODY ,AND COVER,, STAINLESS STEEL SPINDLE, "O" RING GLAND SEAL ARRANGEMENT, PINNED GUNMETAL SEATS		1		
V-018	150	D.I	RESILIENT SEAL GATE VALVE, CLASS 16 WITH FLANGED ENDS, NON-RISING SPINDLE, ANTI-CLOCKWISE CLOSING		2		
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING. ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES. SKETCHES NOT TO SCALE.							

TIE-IN BOX & SCOUR VALVE CHAMBERS

Mark on dwg	NB (mm)	Mat	Description	Sketch	No.	Rate	Amount
TB-007	600	Coated SS 304 5mm w.t	PUDDLE PIPE O.A.1350mm. BOTH ENDS FLANGED WITH P.F. 615mm FROM ONE END.		1		
TB-008	500	COATED M.S 5mm w.t	D.F 7° LONG RADIUS BEND 510mm C. TO F.		1		
TB-009	600	COATED M.S 6mm w.t	D.F 7° LONG RADIUS BEND 610mm C. to F.		1		
TB-010	500	COATED M.S 5mm w.t	PIPE ONE END PLAIN, OTHER FLANGED, O.A. 1500mm		1		
TB-011	600	COATED M.S 6mm w.t	PIPE ONE END PLAIN, OTHER FLANGED, O.A. 2000mm		1		
TB-012	500 X 150	COATED M.S 5mm w.t	FLANGED REDUCING TEE		1		
TB-013	600 X 150	COATED M.S 6mm w.t	FLANGED REDUCING TEE		1		
TB-014	500	COATED M.S 5mm w.t	PIPE ONE END PLAIN, OTHER FLANGED, O.A. 3240mm		1		
TB-015	600	COATED M.S 6mm w.t	PIPE ONE END PLAIN, OTHER FLANGED, O.A. 2870mm		1		
ALL FLANGES TO BE SANS 1123, 1000/3 FLANGE DRILLING. ALL FLANGE BOLT HOLES TO STRADDLE CENTRE LINES. SKETCHES NOT TO SCALE.							

PIPE SCHEDULE ABBREVIATIONS:

MAT	-	MATERIAL.
DIA	-	DIAMETER.
D.F	-	DOUBLE FLANGED.
P.F	-	PUDDLE FLANGE.
O.A	-	OVERALL.
C.TO.F	-	CENTRE TO FACE.
F.TO.F	-	FACE TO FACE.
C.I	-	CAST IRON.
D.I	-	DUCTILE IRON.
M.S	-	MILD STEEL.
S.S	-	STAINLESS STEEL.
G.M.S	-	GALVANISED MILD STEEL.
W.T	-	WALL THICKNESS.
N.B	-	NOMINAL BORE.
E.M	-	END MACHINED.
M.T.S	-	MACHINED TO SUITE.

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
P.O. BOX 6002
HALFWAY HOUSE
1685
TEL: (011) 207 2060
FAX: (086) 674 6121
EMAIL: mail@zitholele.co.za

SURVEYED	C.K
DESIGNED	J.S
DRAWN	B.M
CHECKED	J.S
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.06.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
RESERVOIR
PIPE & VALVE SCHEDULE

DESIGN MANAGER

DATE

SCALE

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.S	14.06.2024

DRAWING NUMBER

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-04-013

FILE No

C 0 0

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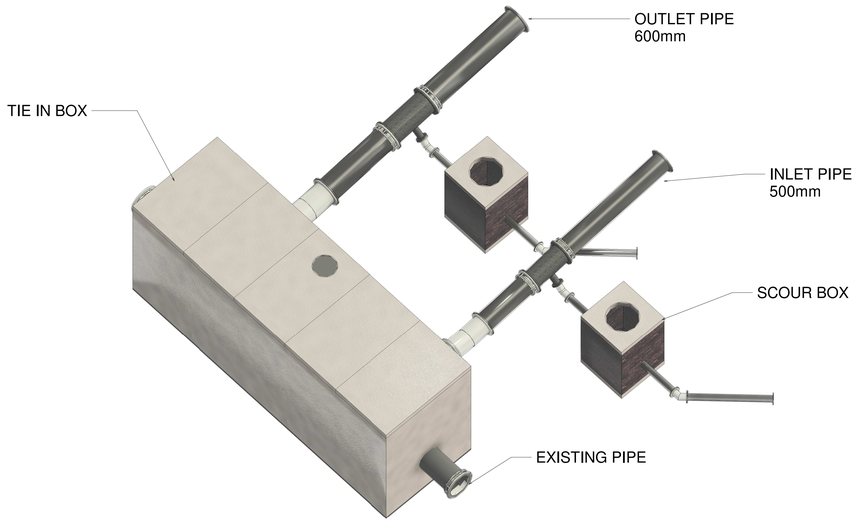
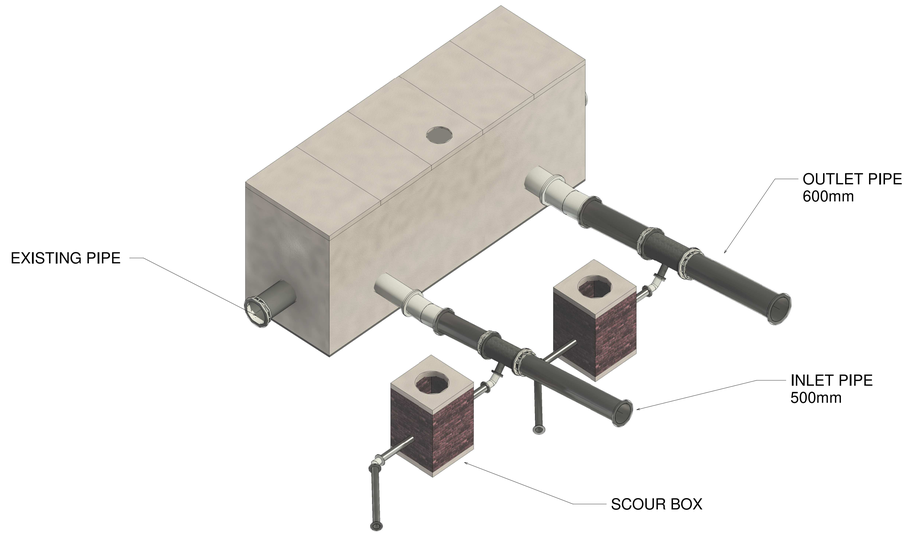
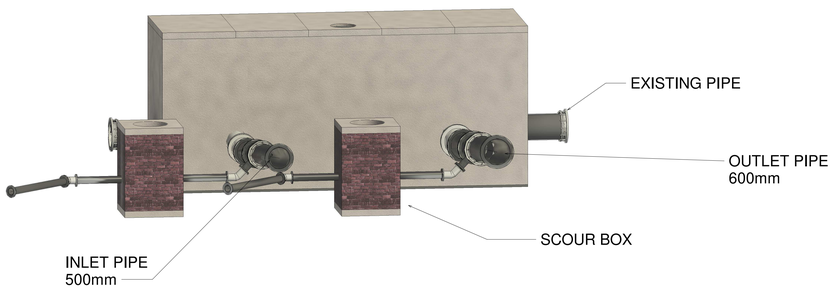


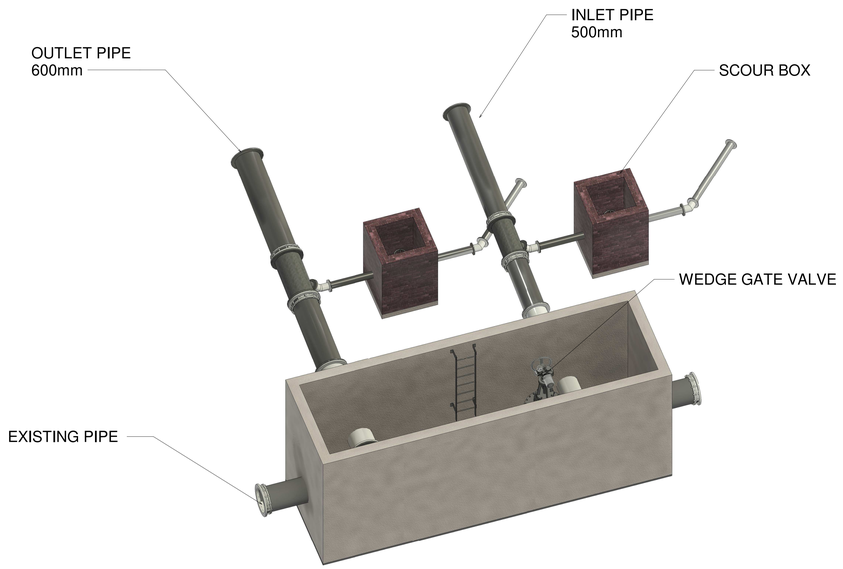
3D PLAN VIEW



ISOMETRIC VIEW A



ISOMETRIC VIEW B



ISOMETRIC VIEW C

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
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SURVEYED		
DESIGNED		J.S
DRAWN		J.P
CHECKED		J.S
SERVICES CHECKED		
GEOTECHNICAL INVESTIGATION		
SERVITUDES		
APPROVED	I. SWART	
Pr. Eng. No.	860169	
DATE	18.03.2024	

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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CITY OF JOHANNESBURG

CARLSWALD
20 Ml CARLSWALD RESERVOIR
RESERVOIR
TIE-IN BOX
3D VIEWS

DESIGN MANAGER

DATE

SCALE

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.S	18.03.2024

DRAWING NUMBER

JW NUMBER
14302R

CONSULTANT'S NUMBER
13214-73-04-017

FILE NUMBER

C 0 0

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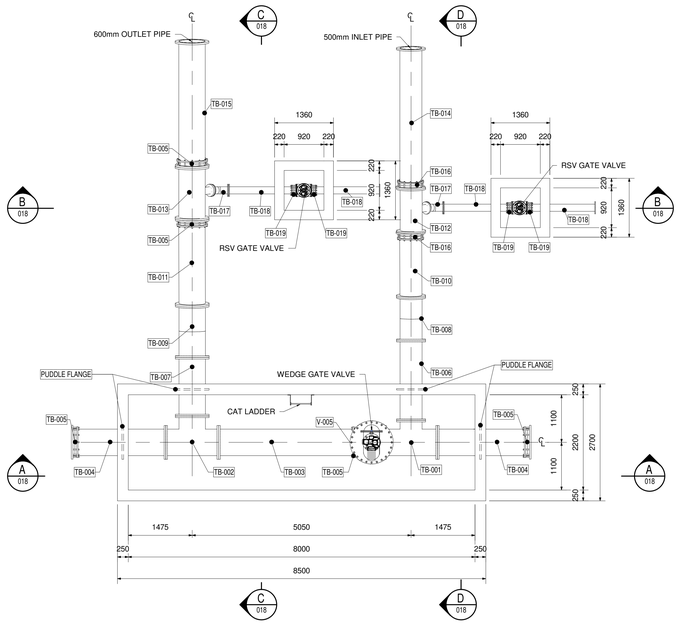
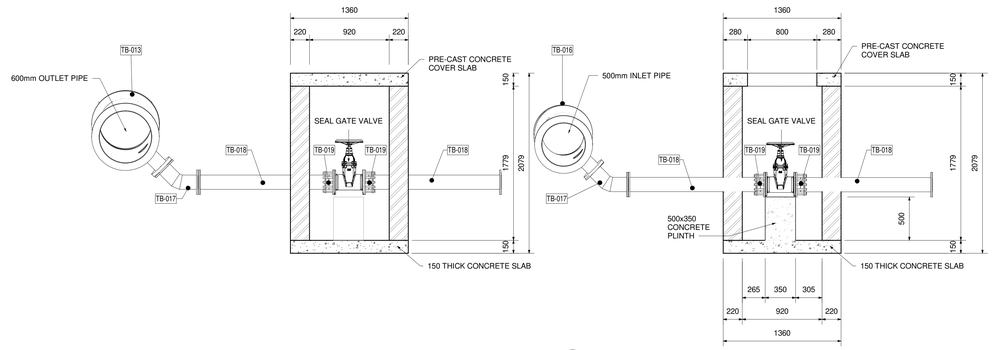


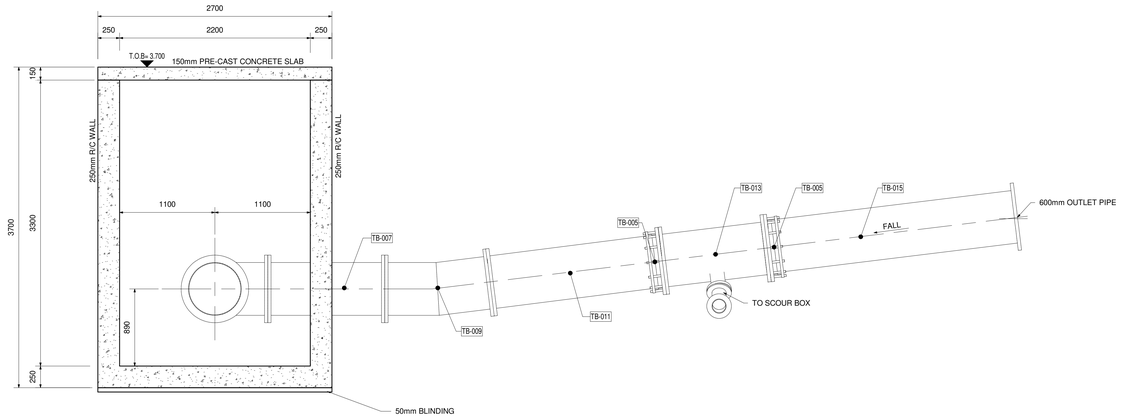
PLAN VIEW
1 : 50

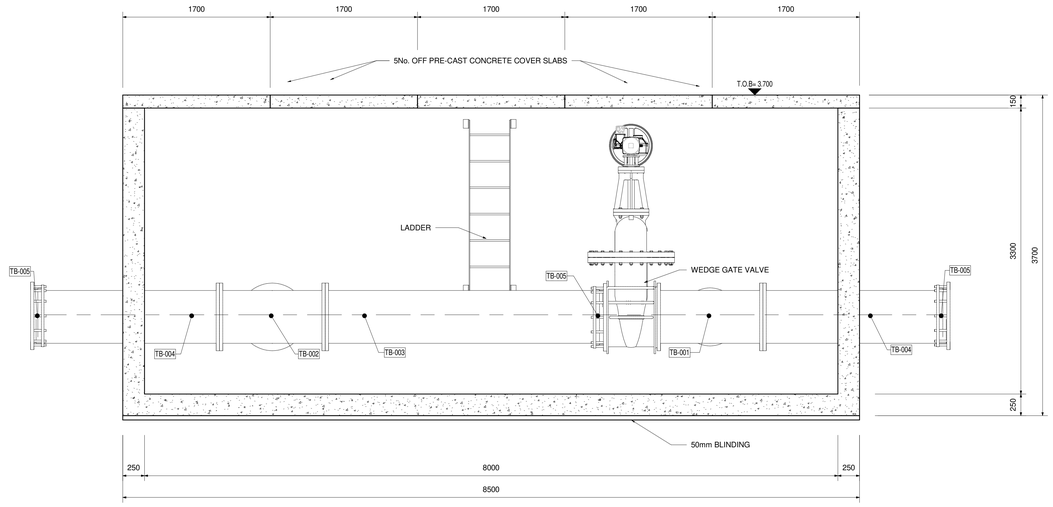
NOTE:-

T.O.B = TOP OF BOX
T.O.C = TOP OF CONCRETE
T.O.F = TOP OF FLOOR
FOR LEVELS REF. TO DRAWING 13214-73-02-003
TIE IN PIPE LEVELS TO BE CONFIRMED ON SITE

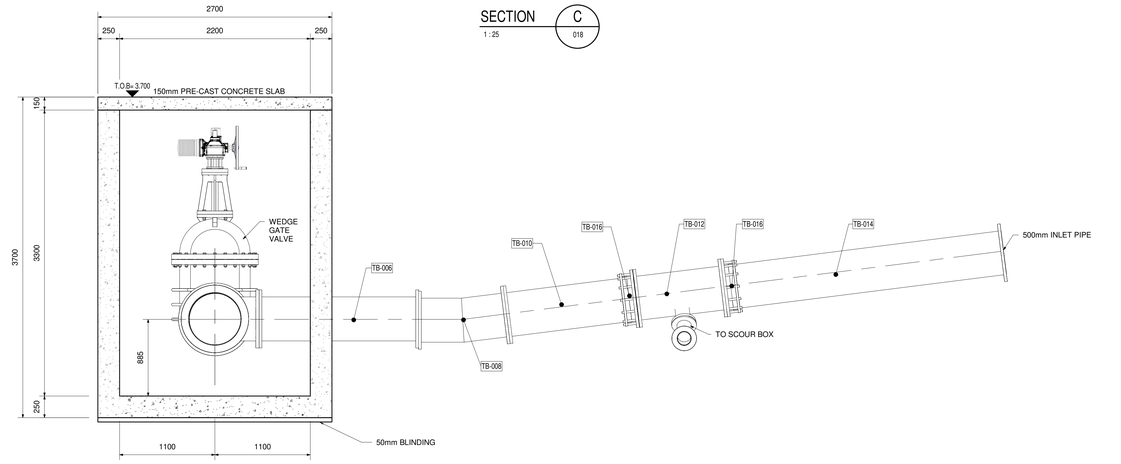


SECTION B 018
1 : 25





SECTION A 018
1 : 25



SECTION C 018
1 : 25

SECTION D 018
1 : 25

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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SURVEYED		
DESIGNED		J.S
DRAWN		J.P
CHECKED		J.S
SERVICES CHECKED		
GEOTECHNICAL INVESTIGATION		
SERVITUDES		
APPROVED	I. SWART	
Pr. Eng. No.	860169	
DATE	18.03.2024	

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CARLSWALD
20 Ml CARLSWALD RESERVOIR
RESERVOIR
TIE-IN BOX
LAYOUT & SECTIONS

DESIGN MANAGER

DATE

SCALE

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.S	18.03.2024

DRAWING NUMBER

JW NUMBER
14302R

CONSULTANT'S NUMBER
13214-73-04-018

FILE NUMBER

C 0 0

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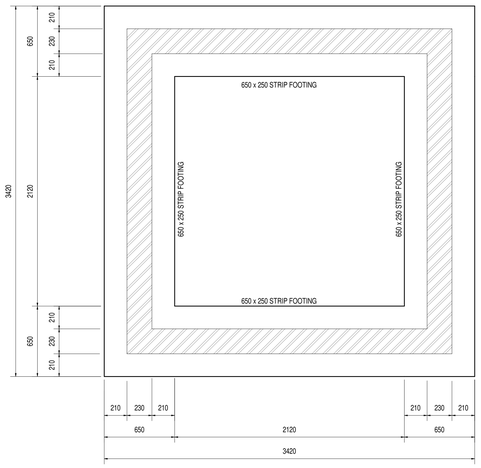
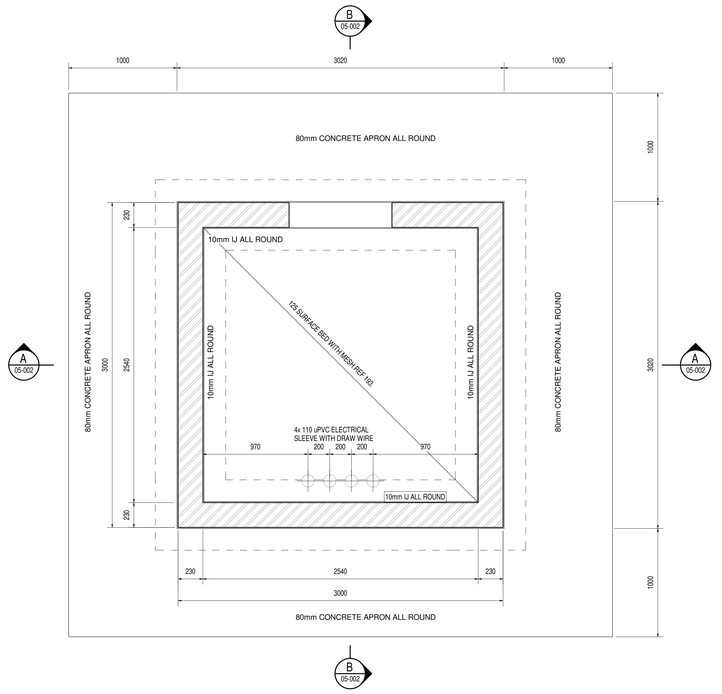
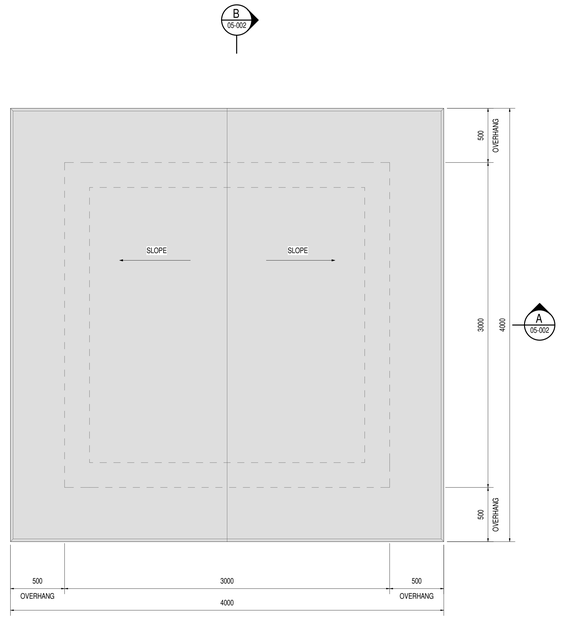


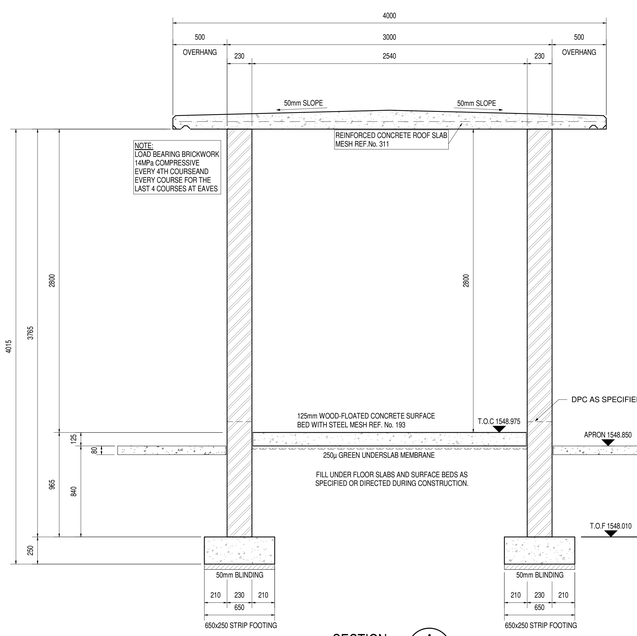
FOUNDATION LAYOUT
1 : 20



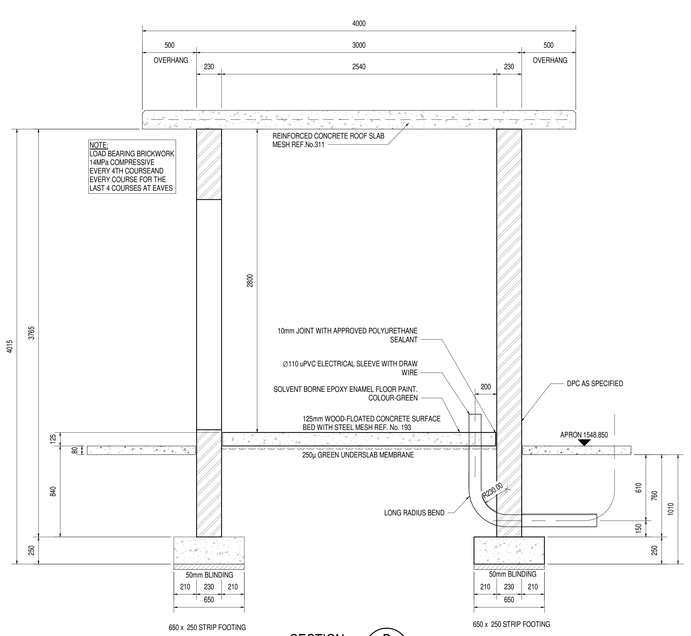
FLOOR LAYOUT
1 : 20



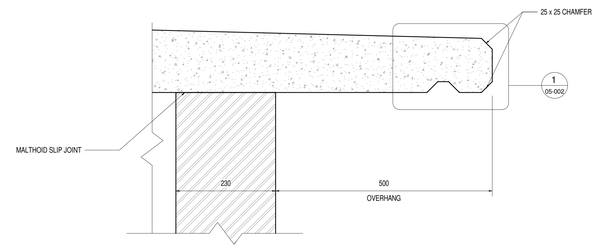
ROOF LAYOUT
1 : 20



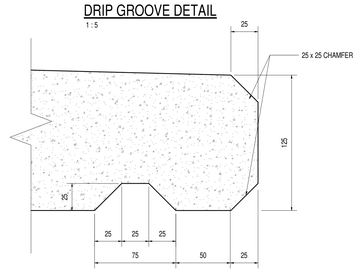
SECTION A
1 : 20 — 05-002



SECTION B
1 : 20 — 05-002



DRIP GROOVE DETAIL
1 : 5



DETAIL 1
1 : 2 — 05-002

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERWITUDES	
APPROVED	J. SWART
Pr. Eng. No.	860169
DATE	18.08.2023

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NEWTOWN

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
TELEMETRY BUILDING LAYOUTS, ELEVATIONS, SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	N.M	

JW NUMBER: JW14302R
CONSULTANT'S NUMBER: 13214-73-05-002
FILE NUMBER
C 0 0

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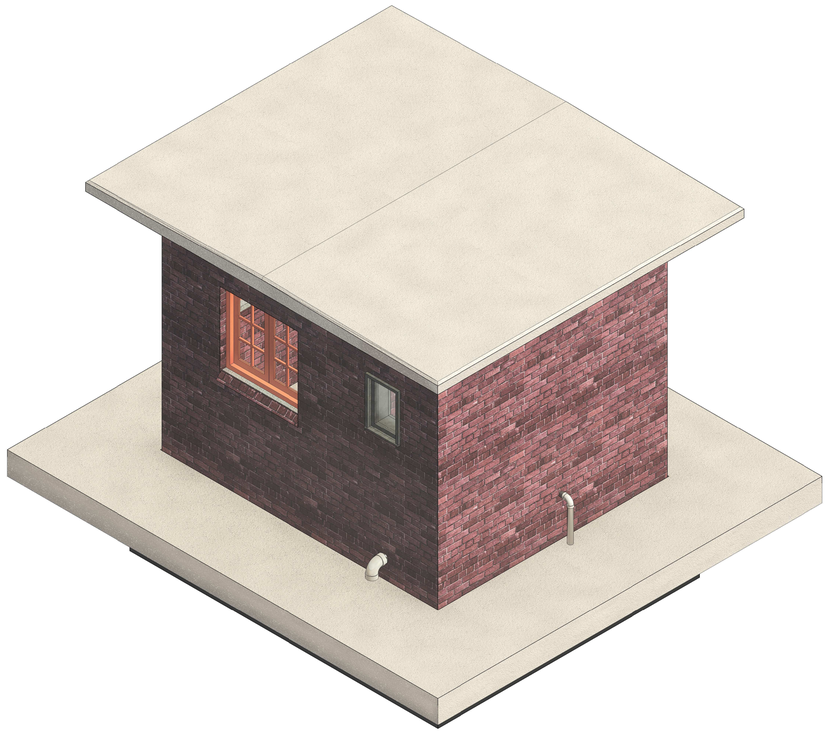
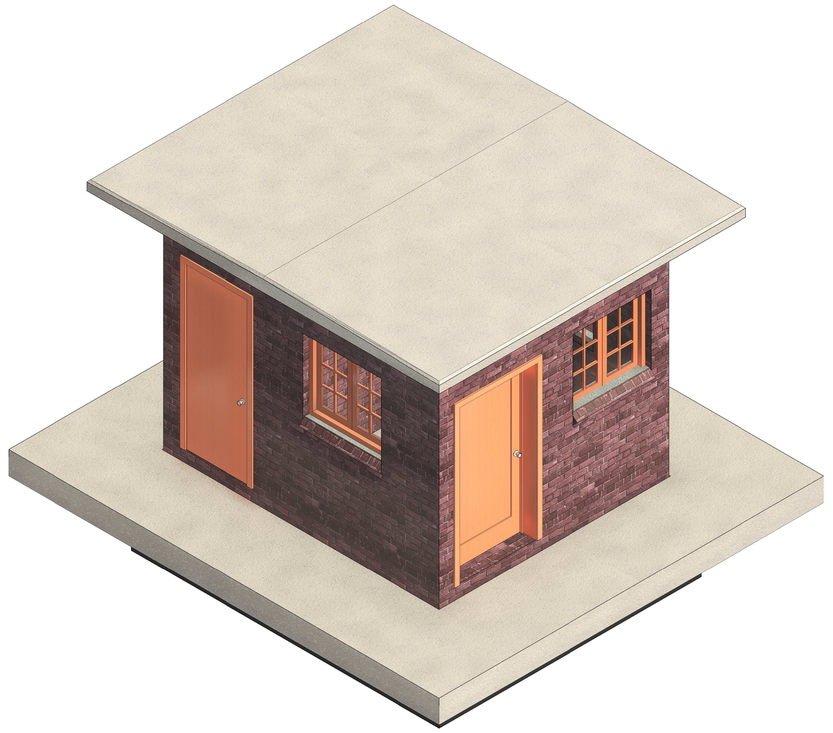
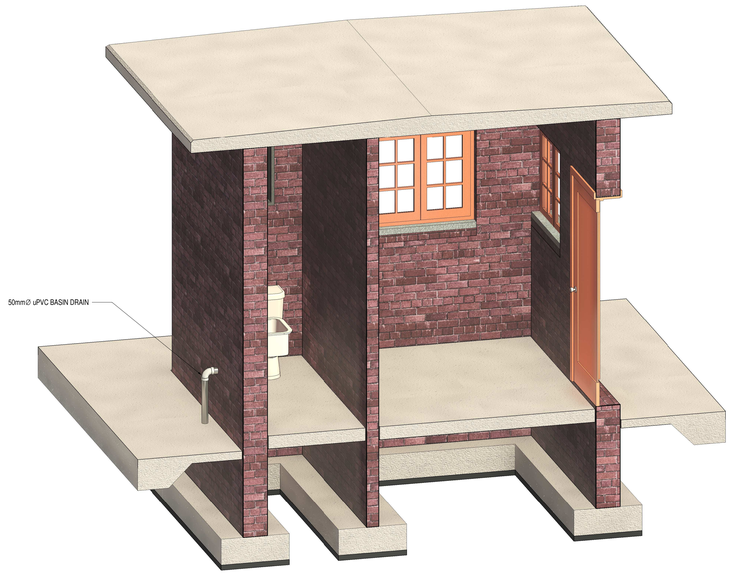


SOUTH EASTERN 3D VIEW



NORTH WESTERN 3D VIEW



SECTION 3D VIEW

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
P.O.BOX 6002
HALFWAY HOUSE
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SURVEYED	CK
DESIGNED	NG
DRAWN	NM
CHECKED	GK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
GUARD HOUSE
3D VIEWS

DESIGN MANAGER

DATE

SCALE

N.T.S

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	GK	07.03.2024

DRAWING NUMBER

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
18056-73-05-002

FILE NUMBER

C 0 0

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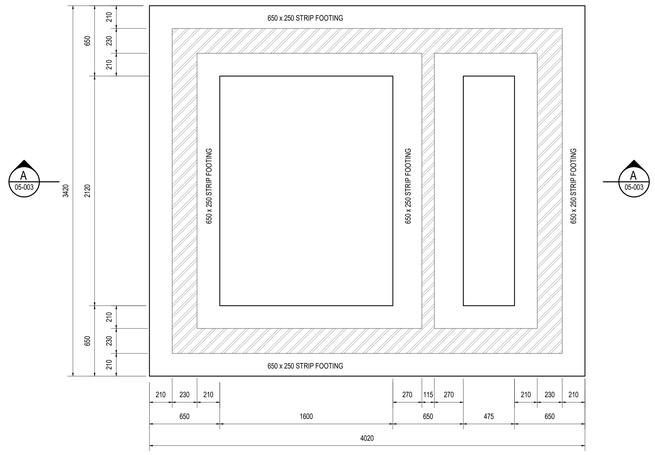
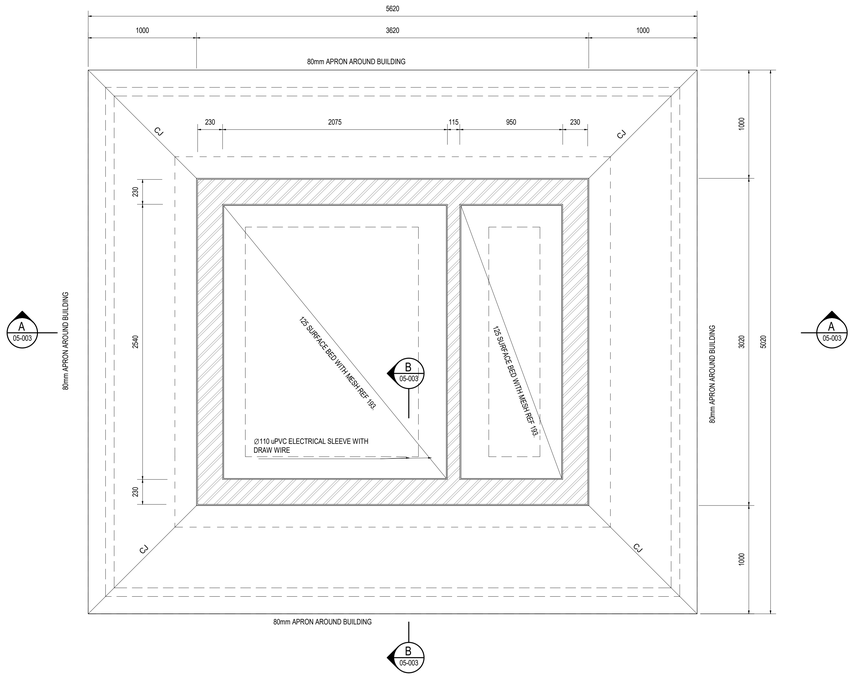
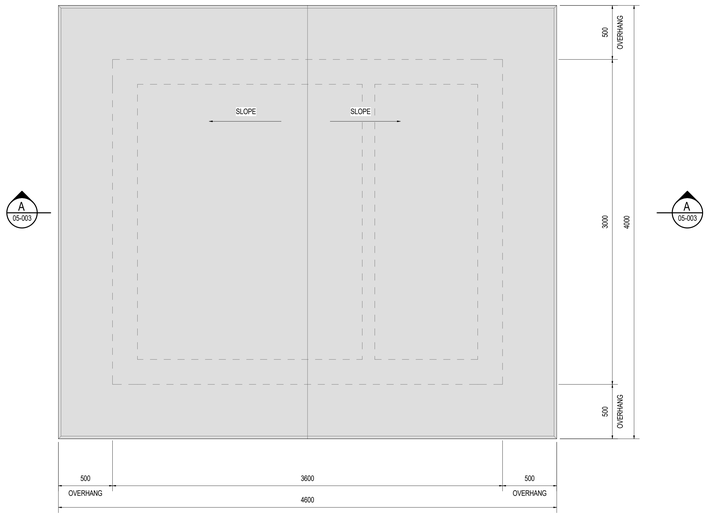


FOUNDATION LAYOUT
1 : 20

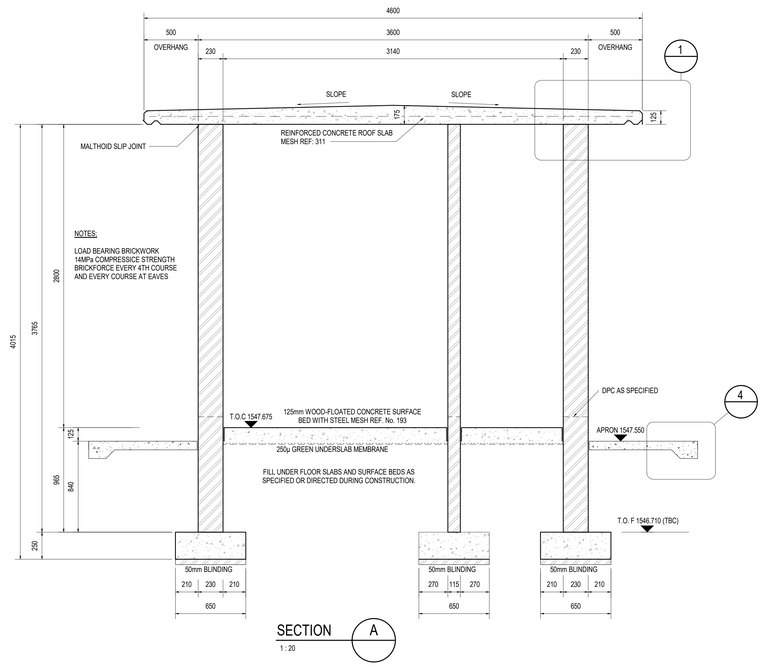


FLOOR LAYOUT
1 : 20

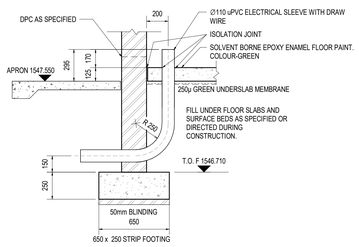


ROOF LAYOUT
1 : 20

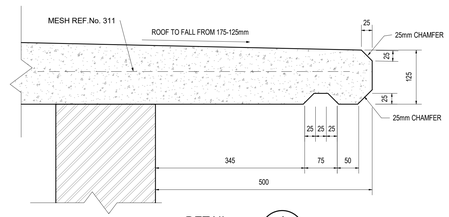
NOTE:
CJ = CONSTRUCTION JOINT
IJ = ISOLATION JOINT



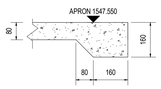
SECTION A
1 : 20



SECTION B
1 : 20



DETAIL 1
1 : 5



DETAIL 4
1 : 10

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
P.O.BOX 6002
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SURVEYED	CK
DESIGNED	NG
DRAWN	NM
CHECKED	GK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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NEWTOWN

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
GUARD HOUSE, LAYOUTS, ELEVATIONS,
SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	GK	07.03.2024

DRAWING NUMBER

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-05-003

FILE NUMBER

C 0 0

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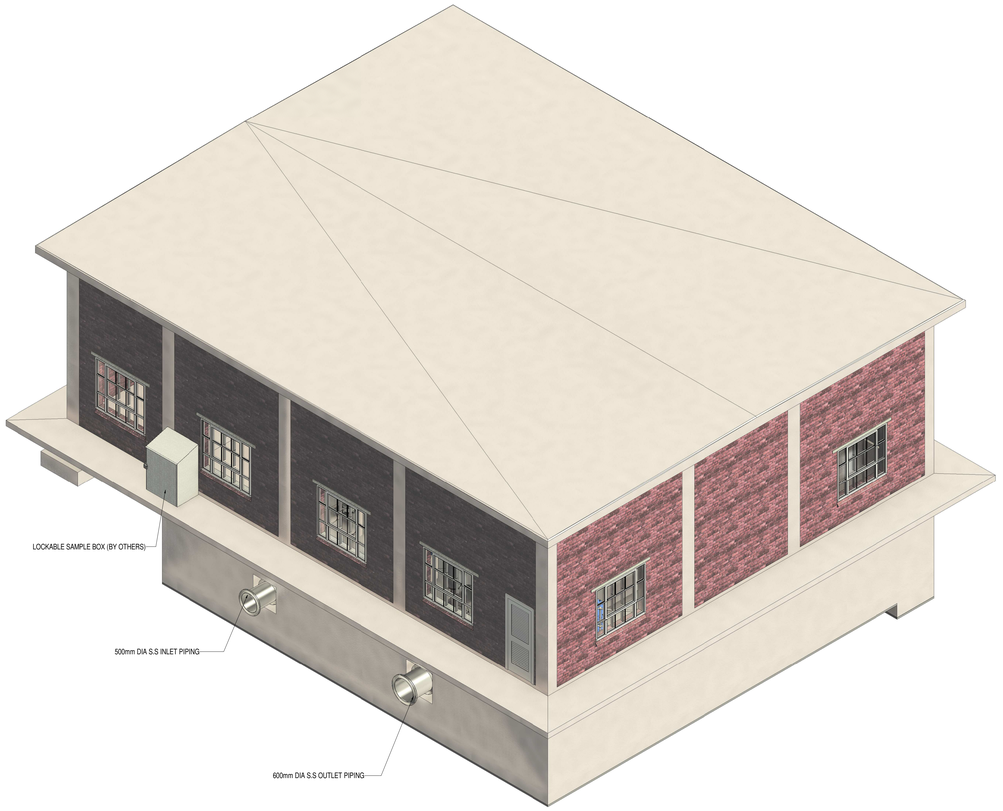
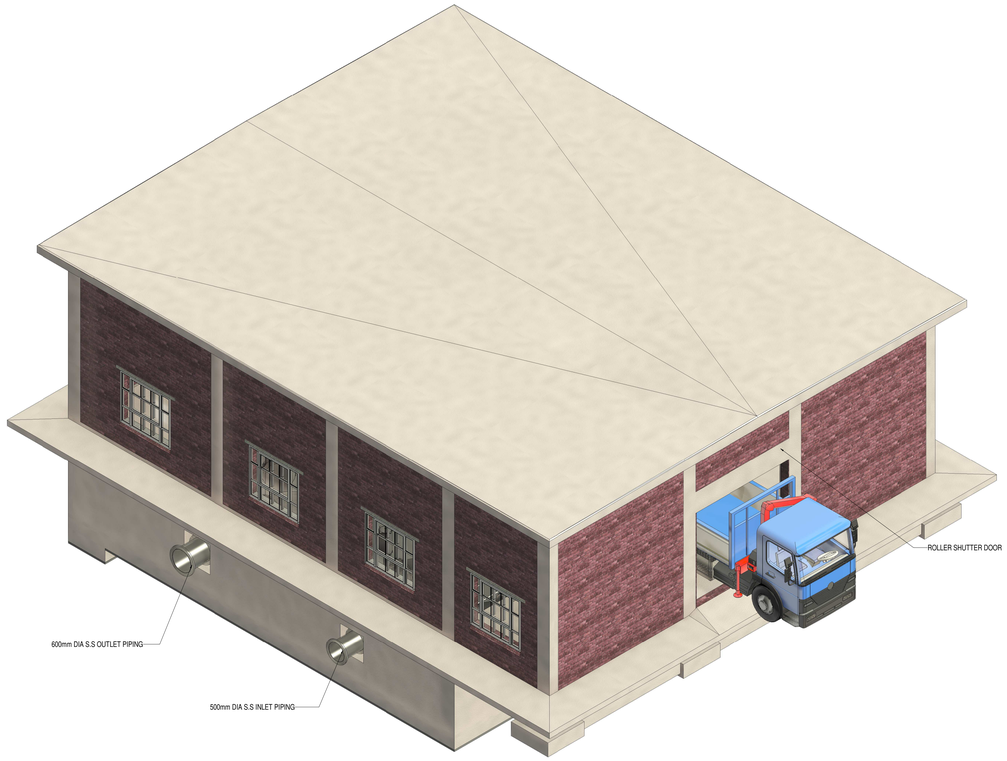
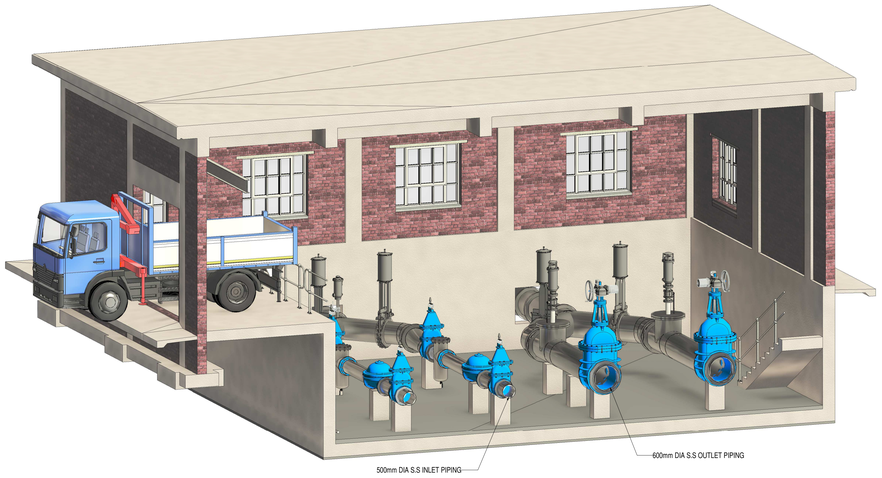
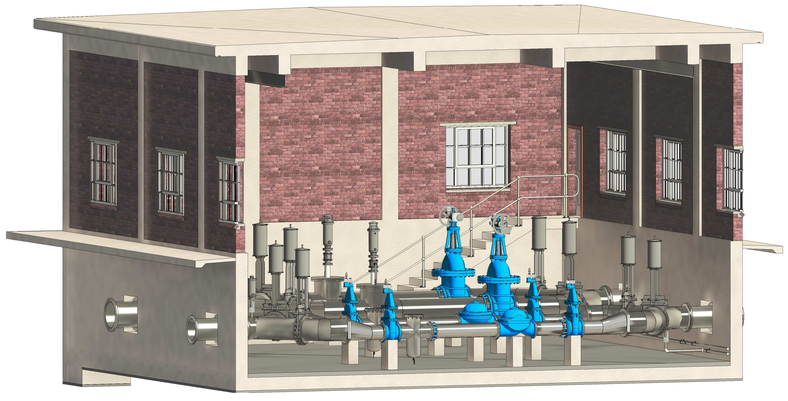


NORTH WESTERN 3D VIEW





NORTH EASTERN 3D SECTION



SOUTH EASTERN 3D SECTION

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

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SURVEYED	CK
DESIGNED	NG
DRAWN	NM
CHECKED	JK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
VALVE BUILDING
3D VIEWS

DESIGN MANAGER

DATE

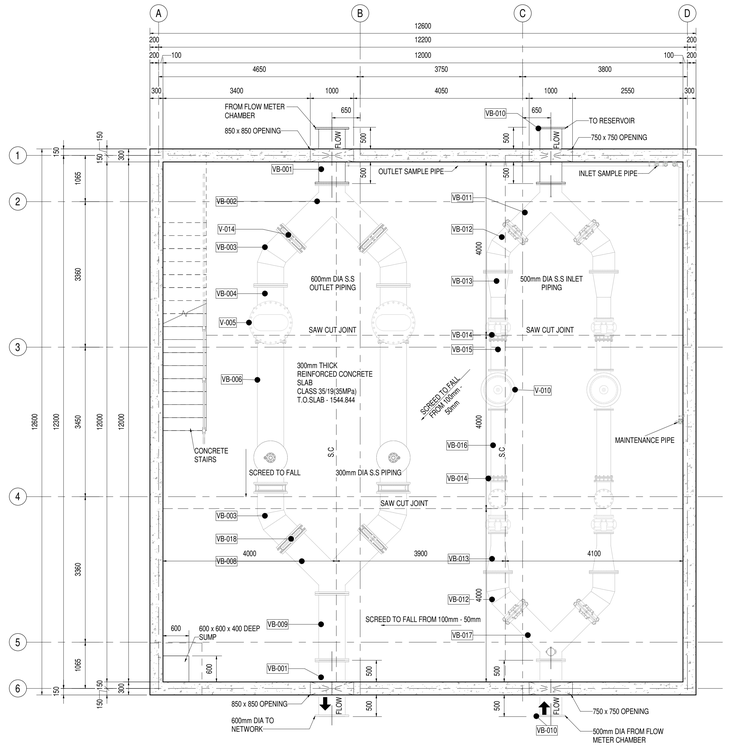
SCALE: N.T.S

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	GK	

DRAWING NUMBER

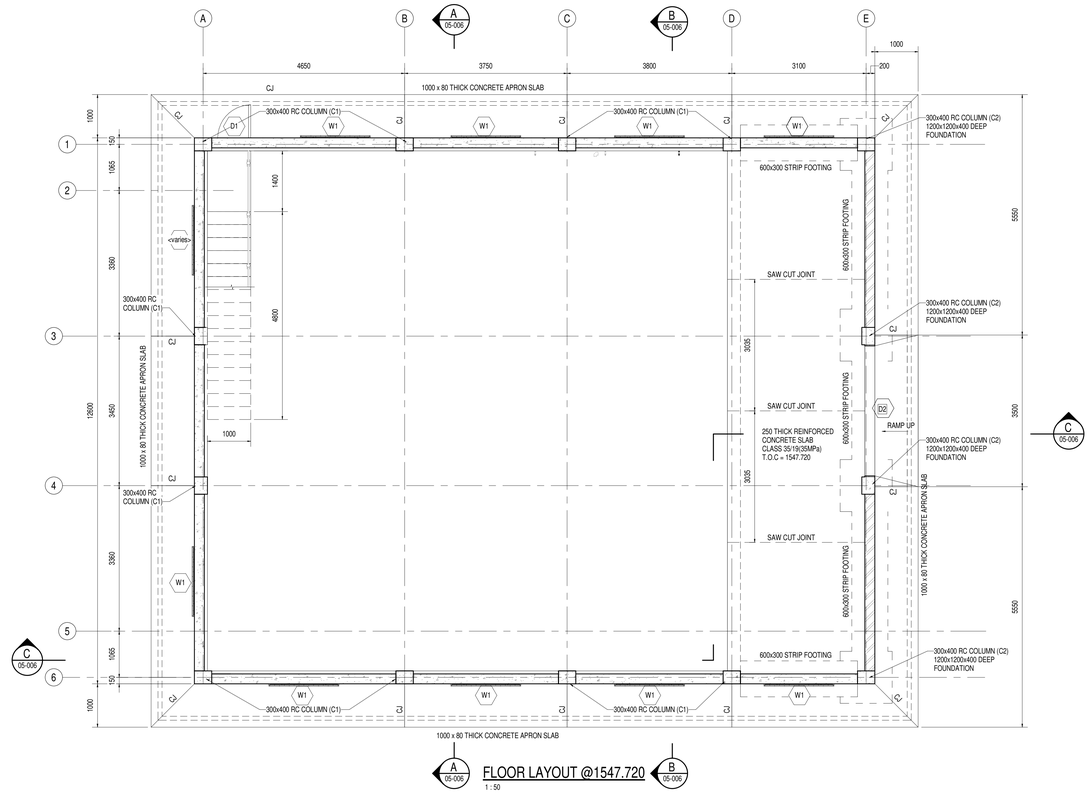
JW NUMBER: JW14302R
CONSULTANT'S NUMBER: 13214-73-05-004
FILE NUMBER
C 0 0

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\Revit\13214-73-05-(004-C00)-(005-C00)-(006-C00) - VALVE BUILDING.rvt



BASEMENT LAYOUT @ 1544.845

1 : 50



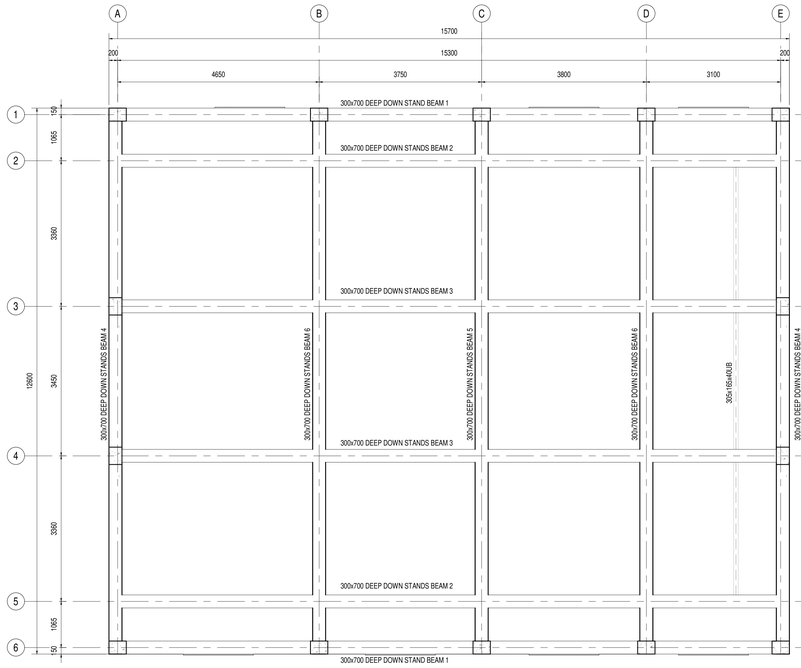
FLOOR LAYOUT @1547.720

1 : 50

GENERAL NOTES AND SPECIFICATION'S:

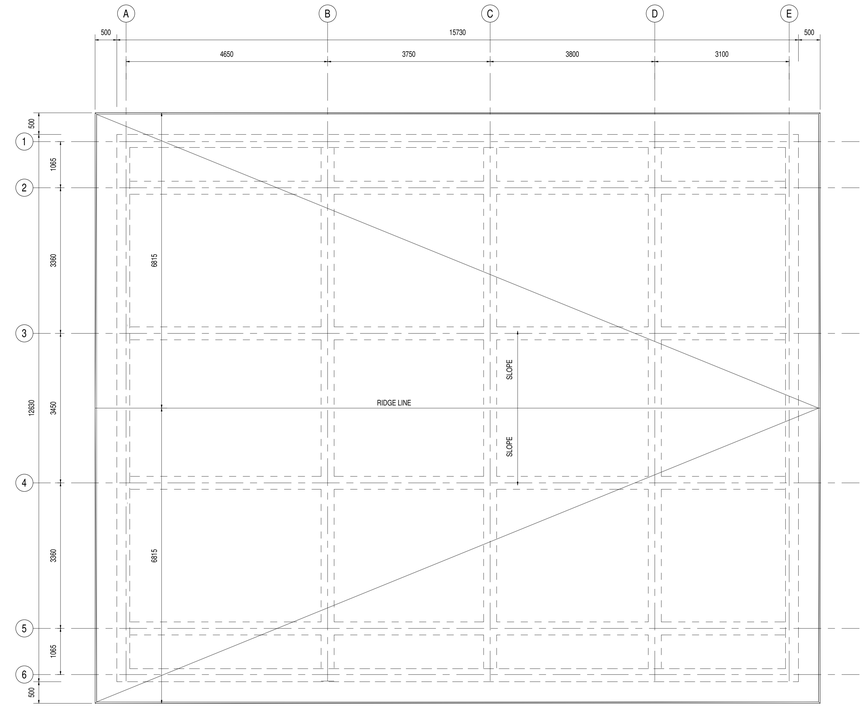
1. ALL DIMENSIONS AND LEVELS MUST BE CHECKED ON SITE. ANY DISCREPANCIES ON THE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER TO RECTIFY.
2. THE CONSTRUCTION OF ALL CONCRETE WORK MUST COMPLY WITH THE REQUIREMENTS OF SANS 2001-2007 PART CC1: CONCRETE WORKS (STRUCTURAL) AND PART CC2: CONCRETE WORKS (MINOR WORKS).
3. THE CONSTRUCTION OF ALL MASONRY WORK MUST COMPLY WITH SANS 2001-CM1:2007 MASONRY WALLING.
4. THE CONSTRUCTION OF ALL STRUCTURAL STEELWORK MUST COMPLY WITH SANS 2001-CS:2005 STRUCTURAL STEELWORK.
5. THE SIZE, POSITION AND LEVEL OF ALL OPENINGS FOR PIPEWORK TO BE CAST-IN AND VALVE PLINTHS & PIPE SUPPORTS SHOWN ON THE CIVIL AND STRUCTURAL DRAWINGS ARE PROVISIONAL AND MUST BE CONFIRMED AND APPROVED BY THE MECHANICAL SUPPLIER IN WRITING BEFORE CONSTRUCTION COMMENCES.
6. CONCRETE CLASSES (UNLESS OTHERWISE SPECIFIED IN THE PROJECT SPECIFICATION'S)
   1. STRUCTURAL CONCRETE: CLASS 35/19 (35 MPa)
   2. BENCHING: CLASS 20/19 (20 MPa)
   3. BLINDING: CLASS 15/19 (15 MPa)
7. CONCRETE COVER TO REINFORCEMENT SHALL BE 50mm UNLESS OTHERWISE SHOWN OR SPECIFIED.
8. ALL EXPOSED CONCRETE CORNERS SHALL HAVE A 25mm CHAMFER UNLESS OTHERWISE INDICATED OR SPECIFIED.
9. THE POSITIONS OF CONSTRUCTION JOINTS SHALL BE AS SHOWN ON THE DRAWINGS, OR AS AGREED UPON BETWEEN THE ENGINEER AND THE CONTRACTOR BEFORE CONSTRUCTION COMMENCES. NO DEVIATION FROM THE CONSTRUCTION JOINT POSITIONS SHOWN ON THE DRAWINGS SHALL BE PERMITTED WITHOUT THE WRITTEN APPROVAL OF THE ENGINEER.
10. STEEL FORMWORK/SHUTTERING SHALL BE USED IN THE CONSTRUCTION OF ALL CONCRETE STRUCTURES UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER.
11. FORMED SURFACE REQUIREMENTS SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATIONS.
12. THE DEGREE OF ACCURACY SHALL BE AS SPECIFIED IN THE PROJECT SPECIFICATIONS. THE DEGREE OF ACCURACY OF FINISHES SPECIFIED FOR FLOATED CONCRETE FINISHES IN PARTICULAR MUST BE STRICTLY COMPLIED WITH.
13. NO CONCRETE SHALL BE CAST WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER
14. APPROVAL OF ADMIXTURES REQUIRED ADD TH FOLLOWING
    a. WATERPROOFING ADDITIVE WITH TRACING AGENT SIMILAR APPROVED
    b. MINIMUM DOSAGE 0.8% BY WEIGHT OF THE CEMENTITIOUS CONTENT, WITH 20YEARS WARRANTY AND ALL TO MANUFACTURERS SPECIFICATIONS. CONCRETE TO BE PLACED, PROTECTED AND CURED ACCORDING TO "SANS 10100-2"

CJ = CONSTRUCTION JOINT
S.C= SAW CUT JOINT



DOWNSTAND BEAM LAYOUT

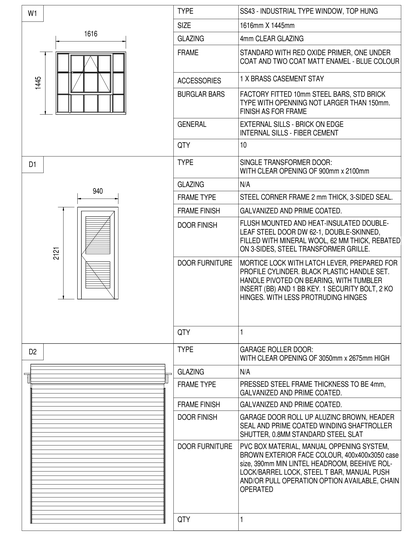
1 : 50



ROOF LAYOUT @ 1552.625

1 : 50

W1	TYPE	SS43 - INDUSTRIAL TYPE WINDOW, TOP HUNG	
	SIZE	1616mm X 1445mm	
	GLAZING	4mm CLEAR GLAZING	
	FRAME	STANDARD WITH RED OXIDE PRIMER, ONE UNDER COAT AND TWO COAT MATT ENAMEL - BLUE COLOUR	
	ACCESSORIES	1 X BRASS CASEMENT STAY	
	BURGLAR BARS	FACTORY FITTED 10mm STEEL BARS, STD BRICK TYPE WITH OPENNING NOT LARGER THAN 150mm. FINISH AS FOR FRAME	
	GENERAL	EXTERNAL SILLS - BRICK ON EDGE INTERNAL SILLS - FIBER CEMENT	
	QTY	10	
D1	TYPE	SINGLE TRANSFORMER DOOR: WITH CLEAR OPENING OF 900mm x 2100mm	
	GLAZING	N/A	
	FRAME TYPE	STEEL CORNER FRAME 2 mm THICK, 3-SIDED SEAL.	
	FRAME FINISH	GALVANIZED AND PRIME COATED.	
	DOOR FINISH	FLUSH MOUNTED AND HEAT-INSULATED DOUBLE-LEAF STEEL DOOR DIN 62-1, DOUBLE-SKINNED. FILLED WITH MINERAL WOOL, 62 MM THICK, REBATED ON 3-SIDES, STEEL TRANSFORMER GRILLE.	
	DOOR FURNITURE	MORTICE LOCK WITH LATCH LEVER, PREPARED FOR PROFILE CYLINDER. BLACK PLASTIC HANDLE SET. HANDLE PIVOTED ON BEARING, WITH TUMBLER INSERT (66) AND 1 BB KEY. 1 SECURITY BOLT, 2 KO HINGES. WITH LESS PROTRUDING HINGES	
	QTY	1	
D2	TYPE	GARAGE ROLLER DOOR: WITH CLEAR OPENING OF 3050mm x 2675mm HIGH	
	GLAZING	N/A	
	FRAME TYPE	PRESSED STEEL FRAME THICKNESS TO BE 4mm, GALVANIZED AND PRIME COATED.	
	FRAME FINISH	GALVANIZED AND PRIME COATED.	
	DOOR FINISH	GARAGE DOOR ROLL UP ALUZINC BROWN, HEADER SEAL AND PRIME COATED WINDING SHAFTROLLER SHUTTER, 0.8MM STANDARD STEEL SLAT	
	DOOR FURNITURE	PVC BOX MATERIAL, MANUAL OPPENING SYSTEM, BROWN EXTERIOR FACE COLOUR, 400x400x3050 case size, 390mm MIN LINTEL HEADROOM, BEEHIVE ROL-LOCK/BARREL LOCK, STEEL T BAR, MANUAL PUSH AND/OR PULL OPERATION OPTION AVAILABLE, CHAIN OPERATED	
	QTY	1	



DOOR AND WINDOW SCHEDULE

1 : 50

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

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FAX. 086 674 6121
EMAIL mail@zitholele.co.za

SURVEYED	CK
DESIGNED	NG
DRAWN	NM
CHECKED	GK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

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NEWTOWN

TEL: (011) 688 1400
FAX: (011) 688 1529

CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML

CARLSWALD RESERVOIR

BUILDINGS

VALVE BUILDING

LAYOUTS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	GK	22.04.24

DRAWING NUMBER

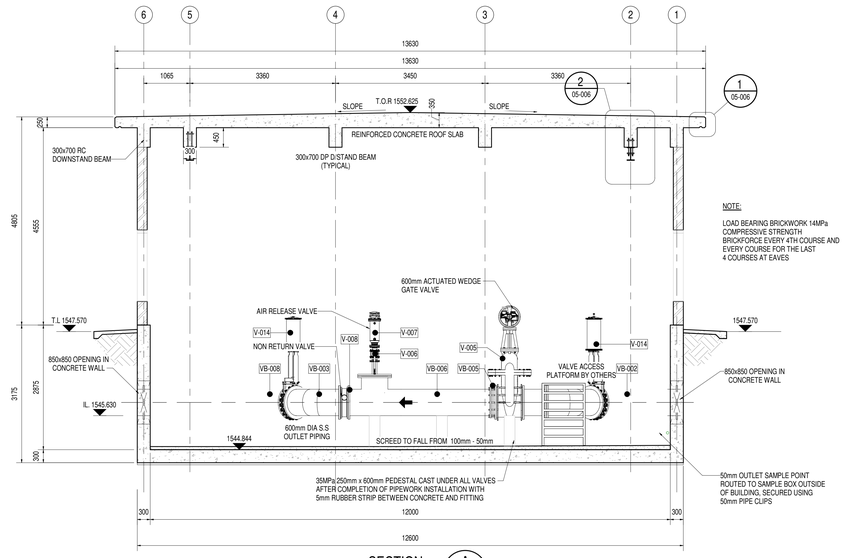
JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-05-005

FILE NUMBER

C 0 0

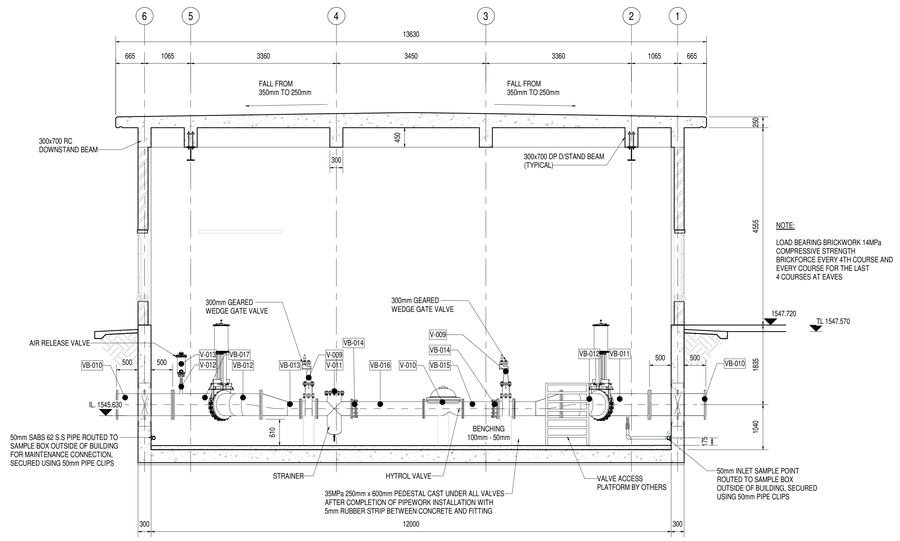
Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\Revit\13214-73-05-(004-C00)-(005-C00)-(006-C00) - VALVE BUILDING.rvt



NOTE:

LOAD BEARING BRICKWORK 14MPa
COMPRESSIVE STRENGTH
BRICKFORCE EVERY 4TH COURSE AND
EVERY COURSE FOR THE LAST
4 COURSES AT EAVES

SECTION A
1 : 50 — 05-005



NOTE:

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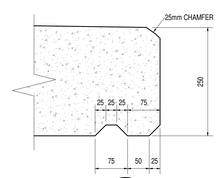
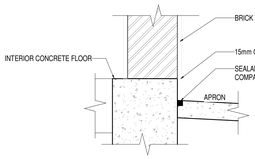
EVERY COURSE FOR THE LAST
4 COURSES AT EAVES

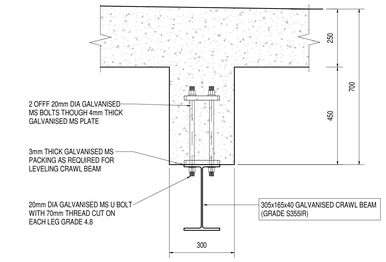
SECTION B
1 : 50 — 05-005



DETAIL 1
1 : 5 — 05-006



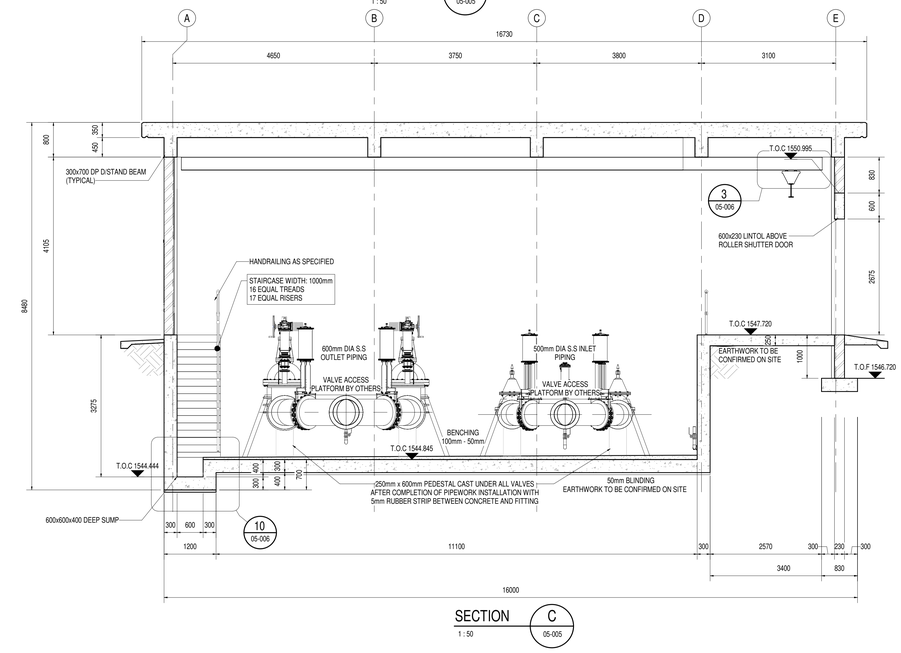
TYPICAL WALL TO FLOOR DETAIL
1 : 10



DETAIL 2
1 : 10 — 05-006

TL = TERRACE LEVEL
IL = INVERT LEVEL
CJ = CONSTRUCTION JOINT
T.O.C = TOP OF CONCRETE
T.O.F = TOP OF FOUNDATION

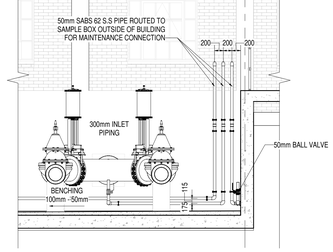
NOTE:- ALL LEVELS TO BE CONFIRMED ON SITE



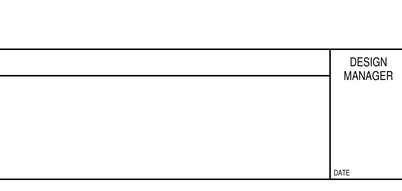
NOTE:

LOAD BEARING BRICKWORK 14MPa
COMPRESSIVE STRENGTH
BRICKFORCE EVERY 4TH COURSE AND
EVERY COURSE FOR THE LAST
4 COURSES AT EAVES

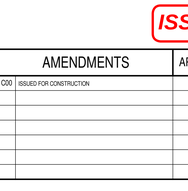
SECTION C
1 : 50 — 05-005



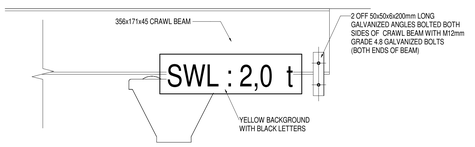
ELEVATION SHOWING MAINTENANCE PIPING
1 : 50



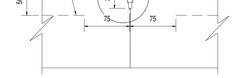
1200x1200x400 DEEP FOUNDATION
1 : 25



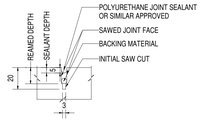
SECTION E
1 : 25 — 05-006



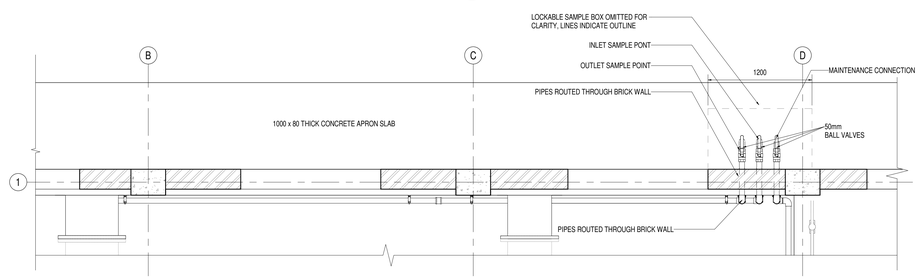
DETAIL 3
1 : 10 — 05-006



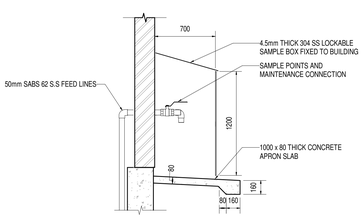
TYPICAL SAW CUT JOINT DETAIL
NTS



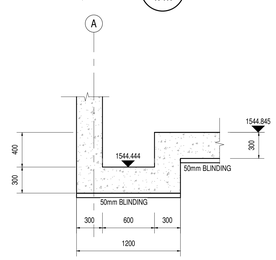
TYPICAL SAW CUT DETAIL
DETAIL 2



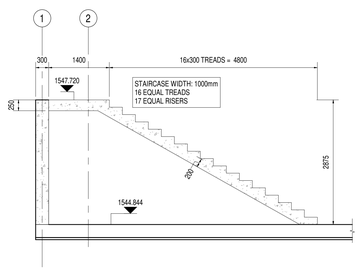
LAYOUT OF SAMPLE & MAINTENANCE POINTS
1 : 25



SECTION THROUGH SAMPLE BOX
1 : 25



600x600x400 DEEP SUMP
1 : 25



SECTION THROUGH STAIRS
1 : 50

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

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EMAIL mail@zitholele.co.za

SURVEYED	CK
DESIGNED	NG
DRAWN	NM
CHECKED	JK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
VALVE BUILDING
SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	GK	

DRAWING NUMBER

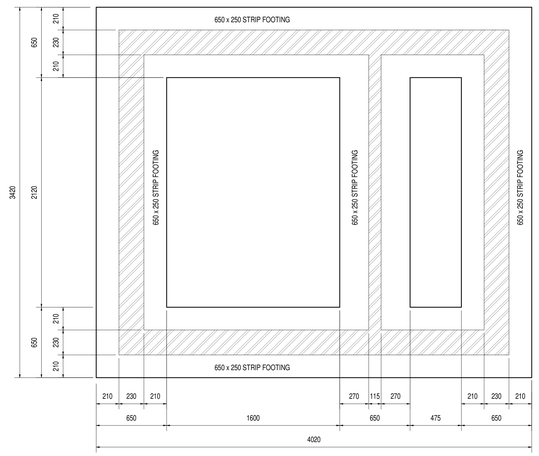
JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-05-006

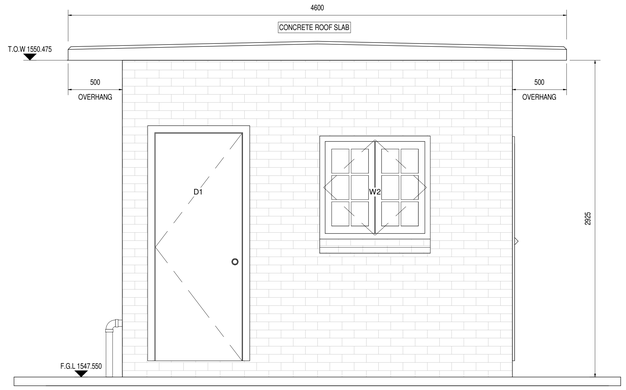
FILE NUMBER

C 0 0

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\Revit\13214-73-05-(004-C00)-(005-C00)-(006-C00) - VALVE BUILDING.rvt



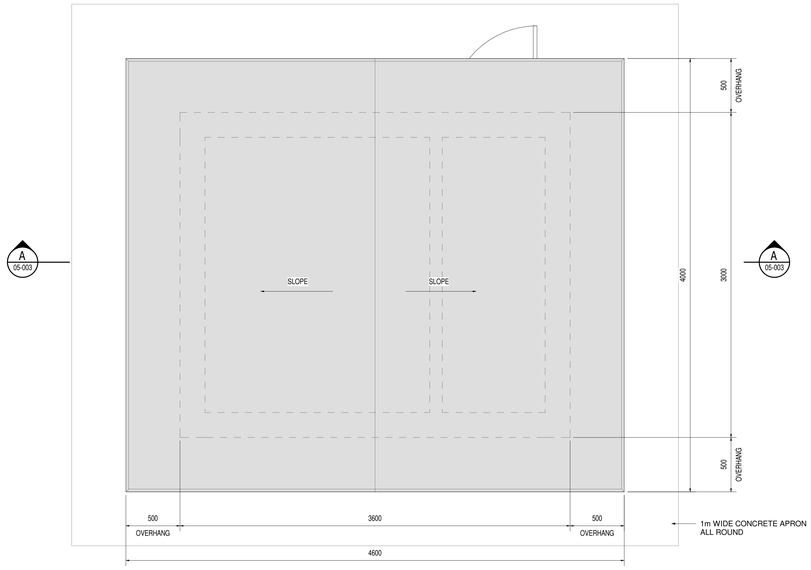
FOUNDATION LAYOUT
1 : 20



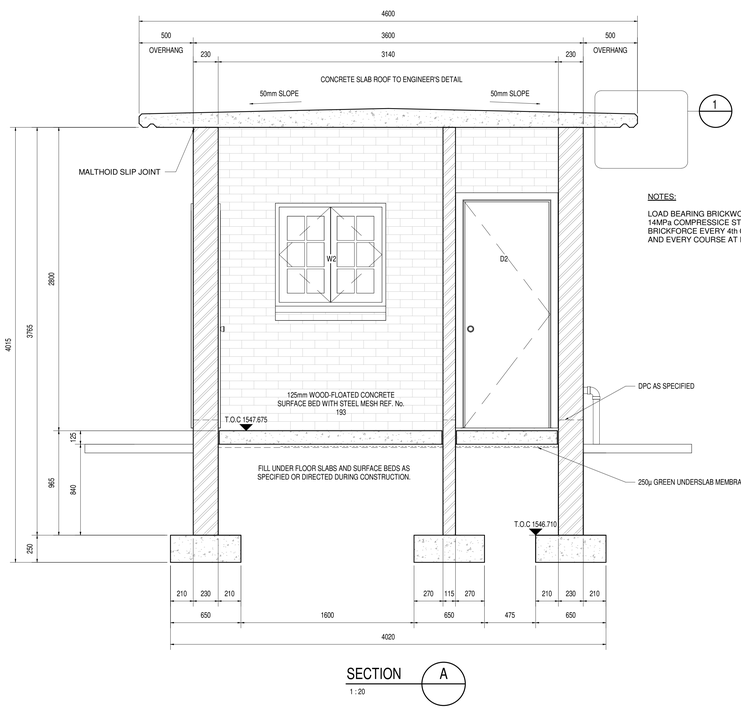
NORTHERN ELEVATION
1 : 20

NOTES:

LOAD BEARING BRICKWORK
14MPa COMPRESSICE STRENGTH
BRICKFORCE EVERY 4th COURSE
AND EVERY COURSE AT EAVES



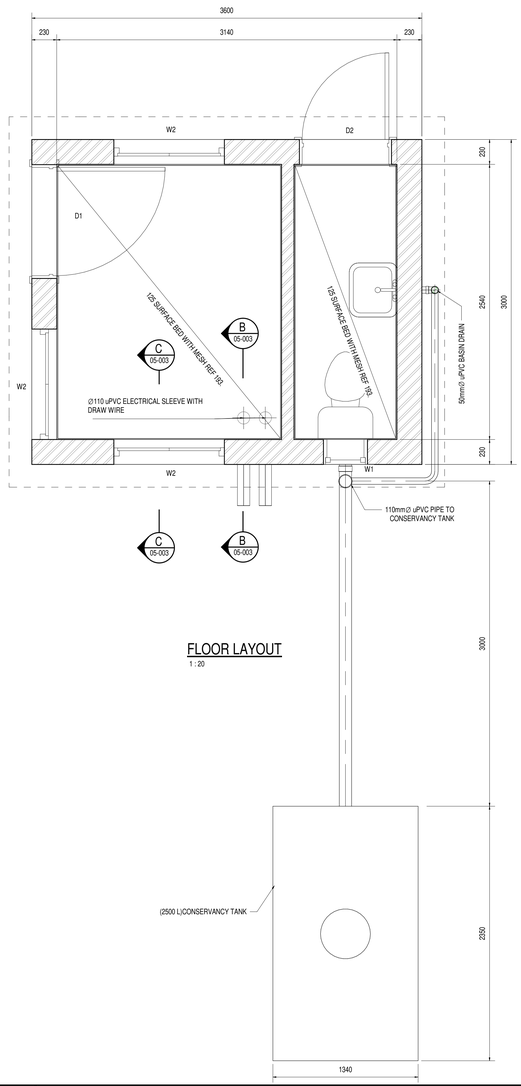
ROOF LAYOUT
1 : 20



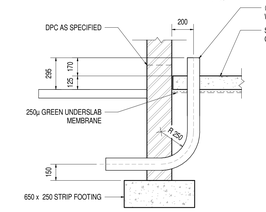
SECTION A
1 : 20

NOTES:

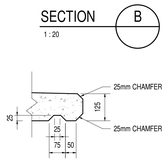
LOAD BEARING BRICKWORK
14MPa COMPRESSICE STRENGTH
BRICKFORCE EVERY 4th COURSE
AND EVERY COURSE AT EAVES



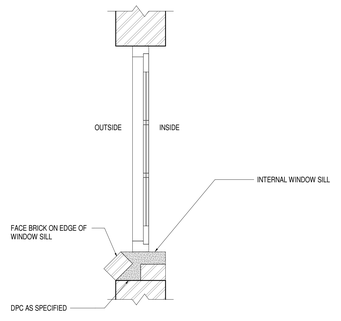
FLOOR LAYOUT
1 : 20



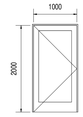
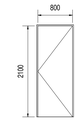
SECTION B
1 : 20



DETAIL 1
1 : 10



SECTION C
1 : 10

	DOORS	
	DESCRIPTION	QTY
	D1 : 1000mm x 2000mm HIGH SINGLE PANEL STEEL COMBINATION DOOR & FRAME WITH EXTERNAL SECURITY GATE.	1
	D2 : 800mm x 2100mm HIGH STANDARD SEMI-SOLID DOOR TO BE SUPPLIED WITH FRAME, CABIN HOOK AND A LEVEL 3 LOCK SET COMPLETE WITH TWO KEYS. ALL FITTINGS, DOOR RESTRAINTS AND HINGES SOLID BRASS	1

	WINDOWS	
	DESCRIPTION	QTY
	W1 - SS43 - INDUSTRIAL TYPE WINDOW: 410mm x 610mm - M FIXED WITH TRIM. INCLUDING 12mm DIA MS BURGLAR PROOFING ON FULL FACE OF WINDOW, GLAZED AND PAINTED TO SYSTEM A2.	1
	W2 - SS43 - INDUSTRIAL TYPE WINDOW: 1020mm x 950mm- DOUBLE SHUTTER WITH MULLION. ALUMINIUM WINDOW WITH HORIZONTAL PIVOT HUNG VENTILATOR INCLUDING 12mm DIA MS BURGLAR PROOFING ON FULL FACE OF WINDOW, GLAZED AND PAINTED TO SYSTEM A2.	3

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

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FAX. 086 674 6121
EMAIL mail@zitholele.co.za

SURVEYED	
DESIGNED	JK
DRAWN	NM
CHECKED	JK
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

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FAX: (011) 688 1529

CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
GUARD HOUSE, LAYOUTS, ELEVATIONS,
SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.S	14.06.2024

DRAWING NUMBER

JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-05-007

FILE NUMBER

C 0 0

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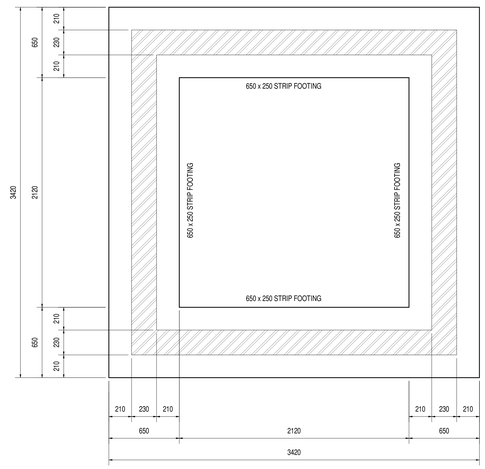
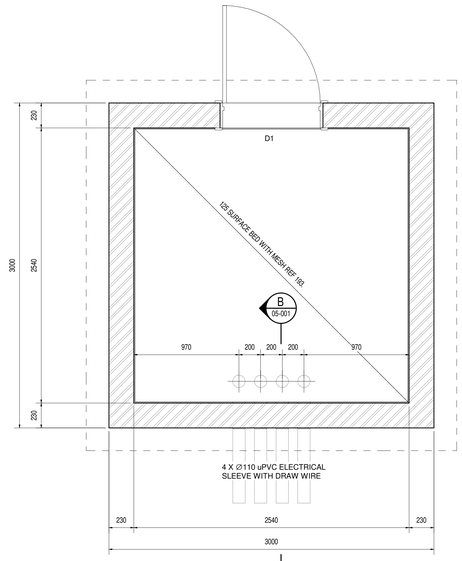
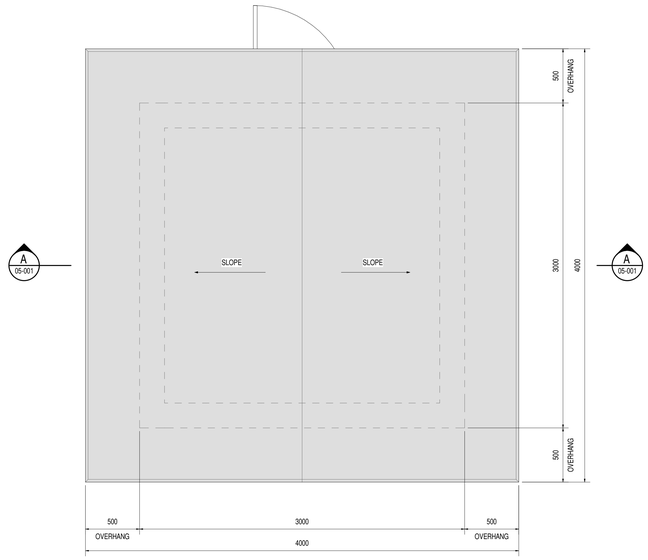


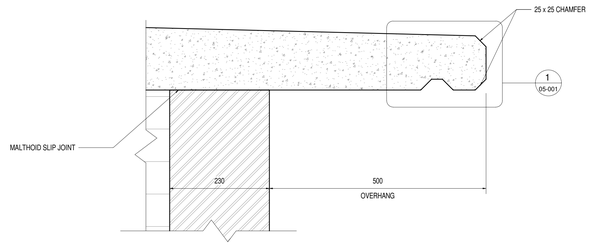
FOUNDATION LAYOUT
1 : 20



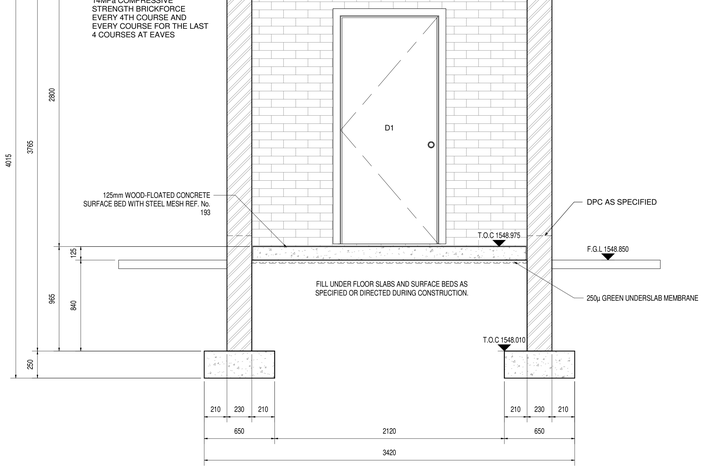
FLOOR LAYOUT
1 : 20



ROOF LAYOUT
1 : 20



DRIP GROOVE DETAIL
1 : 5



SECTION A
1 : 20
05-001

DETAIL 1
1 : 2
05-001

NORTHERN ELEVATION
1 : 20

SECTION B
1 : 20
05-001

ISSUED FOR TENDER

DOORS

	DESCRIPTION	QTY
	D1 : 900mm x 2100mm HIGH SINGLE PANEL STEEL COMBINATION DOOR & FRAME WITH EXTERNAL SECURITY GATE.	1

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

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1685
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SURVEYED	CK
DESIGNED	NG
DRAWN	DP
CHECKED	NG
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	JD. KVEVLI
Pr. Eng. No.	960406
DATE	07.03.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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NEWTOWN

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CITY OF JOHANNESBURG

CONSTRUCTION OF 20ML
CARLSWALD RESERVOIR
BUILDINGS
TELEMETRY BUILDING LAYOUTS, ELEVATIONS,
SECTIONS & DETAILS

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.S	14.06.2024

DRAWING NUMBER

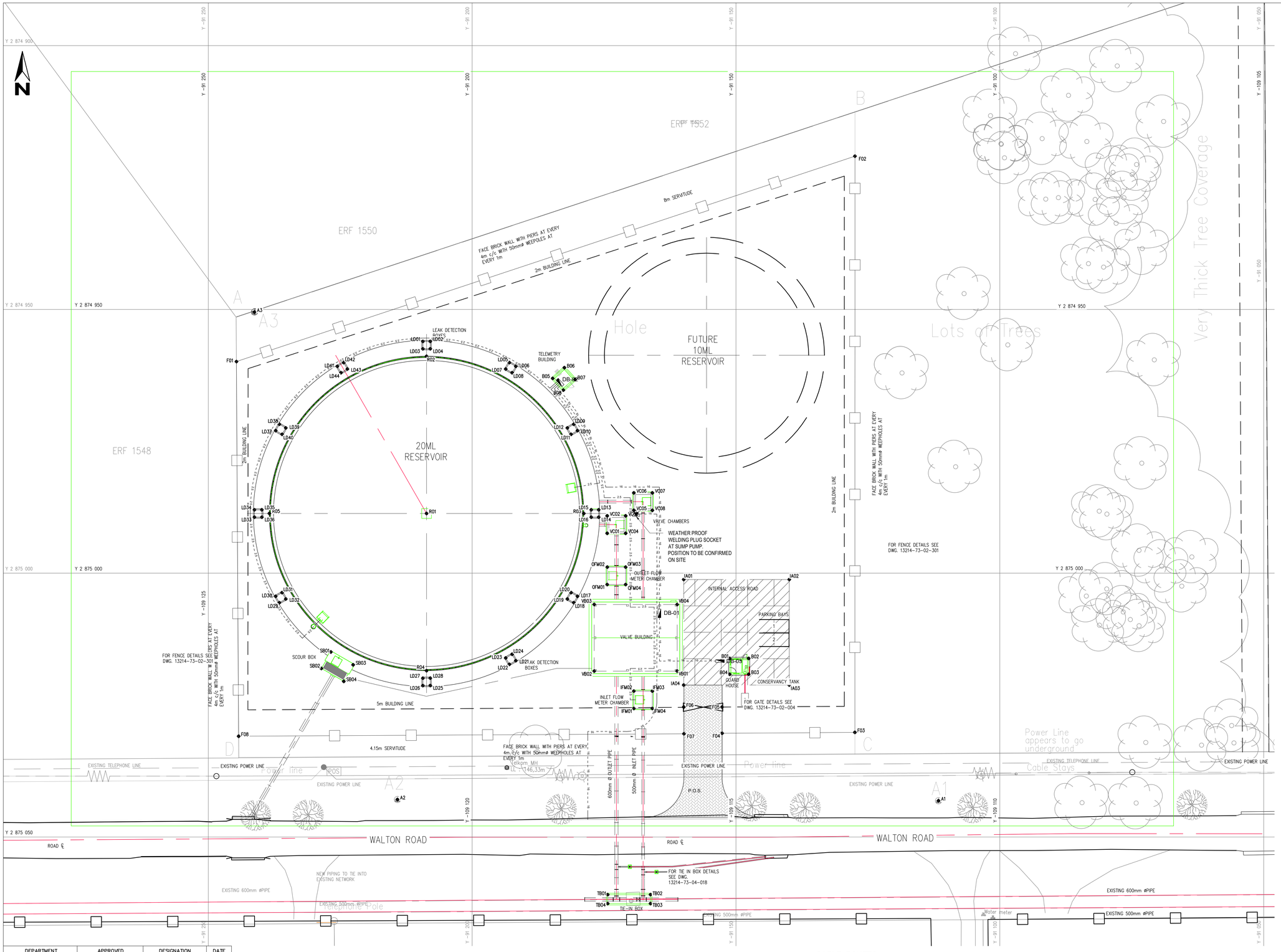
JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214-73-05-008

FILE NUMBER

C 0 0

Z:\Projects\13214 - Carlswald Reservoir\7 Drawings\73 Civil\00-MASTER FILE\Revit\13214-73-05-(008-C00) - TELEMTRY BUILDING LAYOUT, SECTIONS, ELEVATIONS & DETAILS (ARCHITECTURAL).rvt



CABLE ROUTES
1:250

CABLE LEGEND	
2.5	2.5mm² 3C CABLE
16	16mm² 3C CABLE
16	16mm² 4C CABLE
DB-MAIN	MAIN DISTRIBUTION BOARD

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

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e-mail: mail@djjc.co.za

SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	01.02.2024

JOHANNESBURG WATER (SOC) LTD

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FAX: (011) 688-1529

CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

CABLE ROUTES

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

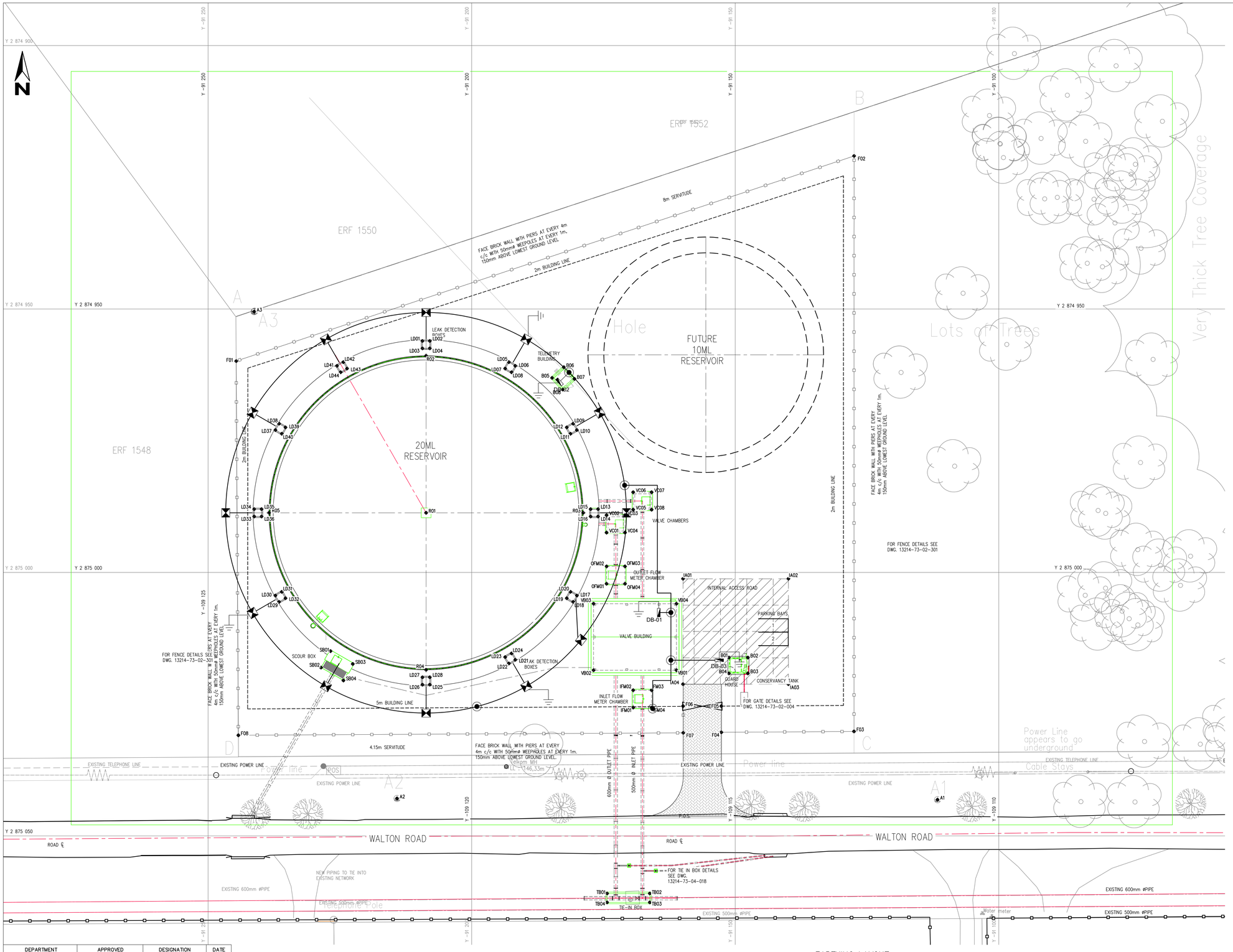
DRAWING No.

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-06-001

FILE No

C 0 0



EARTHING LAYOUT
1:250

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

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GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	01.02.2024

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

EARTHING LAYOUT

DESIGN MANAGER

DATE

SCALE: AS SHOWN

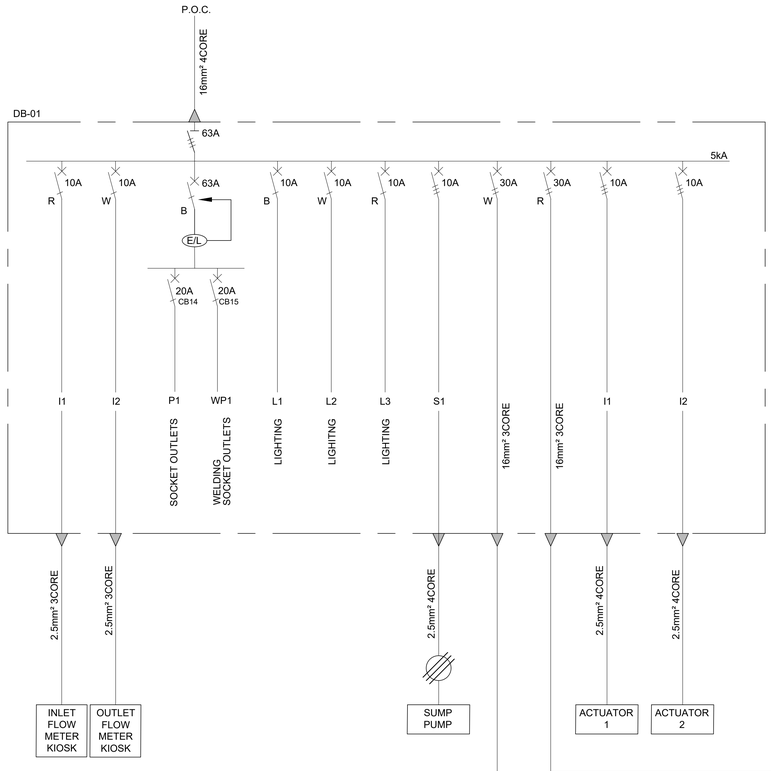
AMENDMENTS	APPROVED	DATE
C00 ISSUED CONSTRUCTION	J.v.T	01.02.2024

DRAWING No.

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-06-002

FILE No
C 0 0



LEGEND

SYMBOL	DESCRIPTION
XA SP	SINGLE POLE CIRCUIT BREAKER.
XA TP	THREE POLE CIRCUIT BREAKER.
XA SP	SINGLE POLE ISOLATOR.
XA TP	THREE POLE ISOLATOR.
XA TP	THREE POLE MOTOR RATED 3POLE CIRCUIT BREAKER.
CA	ANTI ISLAND SERIES CONTACTOR A - 63A
CB	ANTI ISLAND SERIES CONTACTOR B - 63A
XA ACB TP	AIR CIRCUIT BREAKER TRIPLE POLE
XA MCCB TP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
XA MCCB SP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
XA MCB SP	MINI CIRCUIT BREAKER SINGLE POLE
C	3 POLE CONTACTOR 22A
METER M	DIRECT IN LINE, DIN RAIL ENERGY METER
	40A DIN RAIL MOUNTED, 3 POLE CHANGE OVER SWITCH WITH ROTARY HANDLE FOR 1-0-11
	24 HOUR TIME SWITCH, WITH BATTERY BACK UP
XA	EARTH LEAKAGE.
	INVERTER
D/N	DAY NIGHT SWITCH
	CONTACTOR

DEPARTMENT	APPROVED	DESIGNATION	DATE

SINGLE LINE DIAGRAM
N.T.S.

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

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SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	01.02.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CARLSWALD
CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR
SINGLE LINE DIAGRAM

DESIGN MANAGER

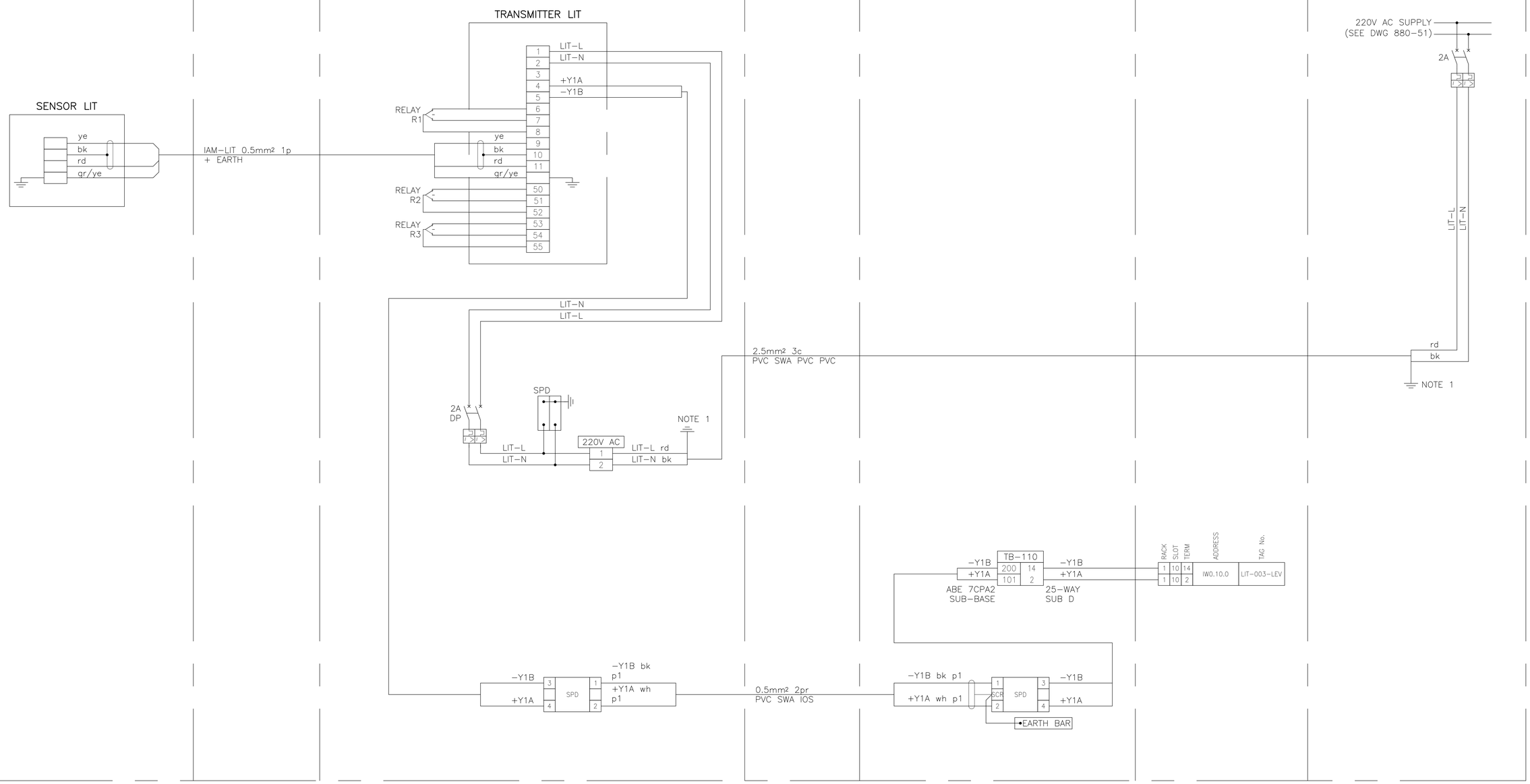
DATE

SCALE
AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.v.T	01.02.2024

DRAWING No.
JW NUMBER
JW14302R
CONSULTANT'S NUMBER
13214-73-06-003
FILE No
C 0 0

ULTRASONIC LEVEL LRANSMITTER				PLC/TELEMETRY PANEL		MCC
FIELD	CABLE No.	INSTRUMENT JUNCTION BOX ICP	CABLE No.	MARSHALLING	I/O CARD	MARSHALLING



DEPARTMENT	APPROVED	DESIGNATION	DATE

LOOP DIAGRAM
N.T.S.

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

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SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	01.02.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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FAX: (011) 688–1529

CITY OF JOHANNESBURG

CARLSWALD
CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR
TYPICAL LOOP DIAGRAM LEVEL SENSOR

DESIGN MANAGER

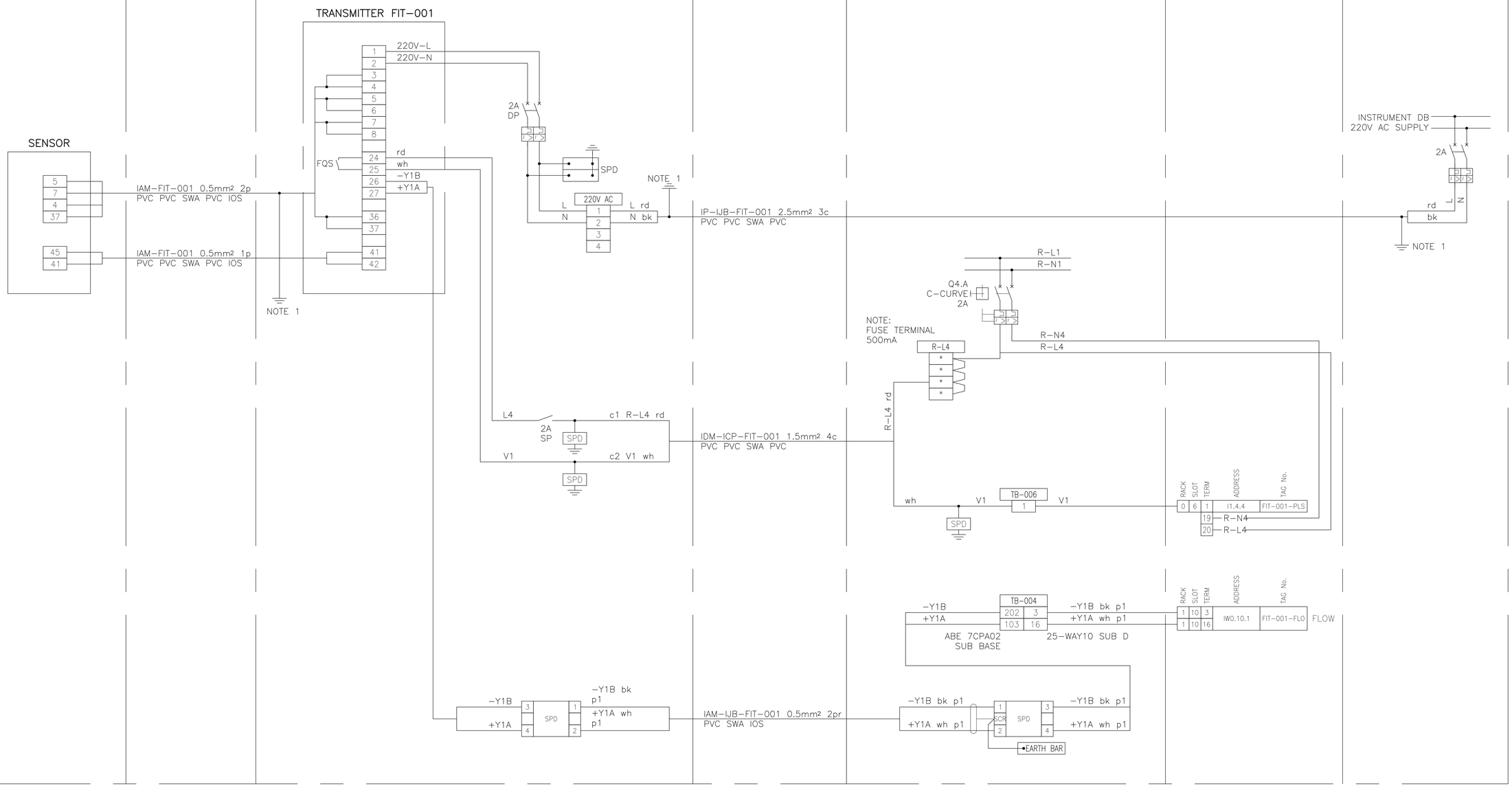
DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.v.T	01.02.2024

DRAWING No.
JW NUMBER
JW14302R
CONSULTANT'S NUMBER
1321 4–73–06–004
FILE No
C 0 0

MAG FLOW TRANSMITTER				PLC/TELEMETRY PANEL		MCC
FIELD	CABLE No.	INSTRUMENT JUNCTION BOX IJB	CABLE No.	MARSHALLING	I/O CARD	MCC MARSHALLING



DEPARTMENT	APPROVED	DESIGNATION	DATE

LOOP DIAGRAM
N.T.S.

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

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SURVEYED	C.K
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SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	01.02.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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65 NTEMI PILISO STREET
NEWTOWN

TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

TYPICAL LOOP DIAGRAM CLAMP-ON FLOW METER

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

DRAWING No.

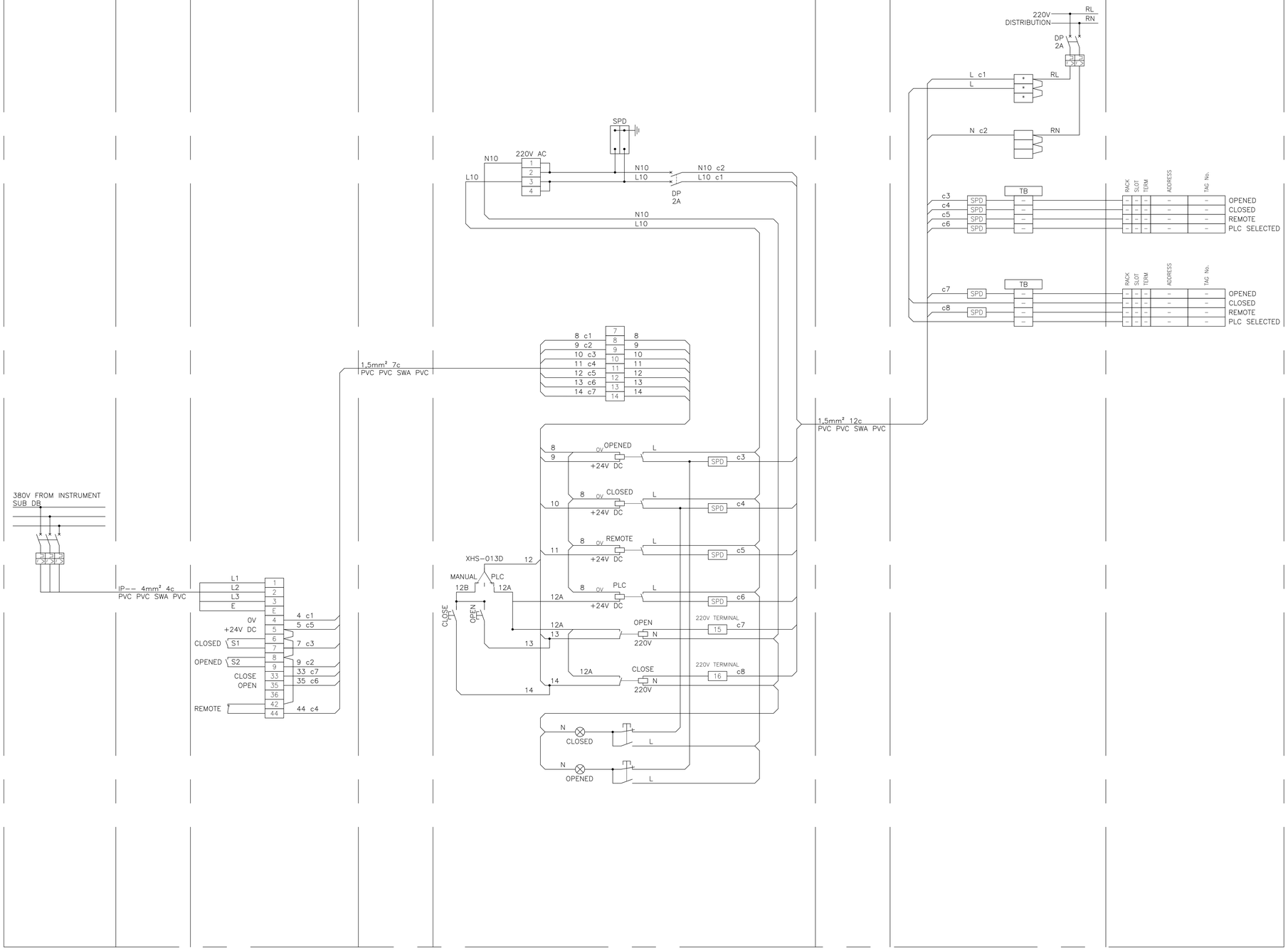
JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-06-005

FILE No

C 0 0

ON/OFF VALVE						PLC/TELEMETRY PANEL	
MCC	CABLE No.	FILELD	CABLE No.	INSTRUMENT JUNCTION BOX ICP	CABLE No.	MARSHALLING	I/O CARD



LOOP DIAGRAM
N.T.S.

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

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SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
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NEWTOWN

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

TYPICAL LOOP DIAGRAM OPEN/CLOSE ACTUATOR

DESIGN MANAGER

DATE

SCALE: AS SHOWN

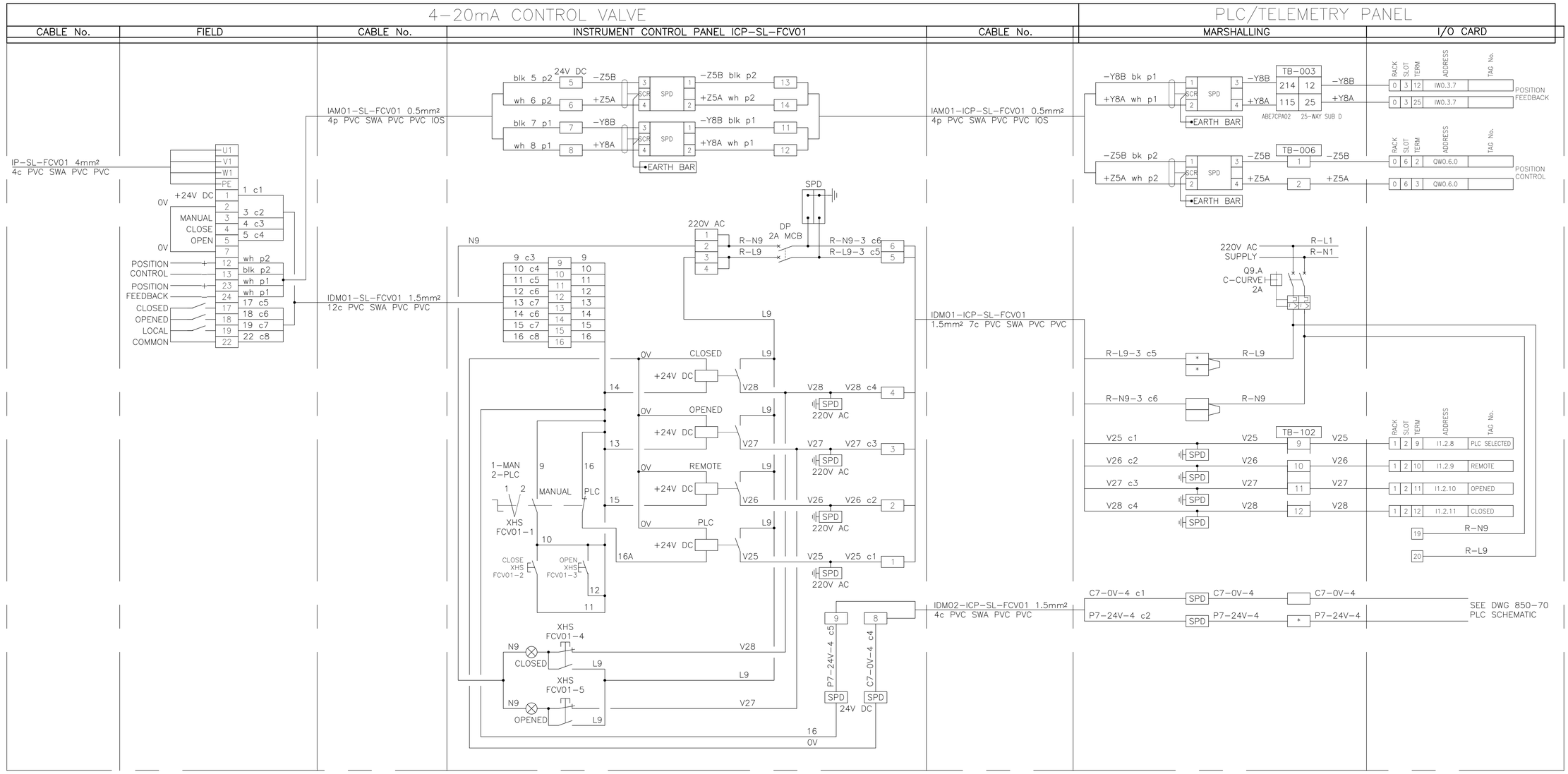
AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

DRAWING No.

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-06-006

FILE No
C 0 0



LOOP DIAGRAM
N.T.S.

DEPARTMENT	APPROVED	DESIGNATION	DATE

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

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JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

TYPICAL LOOP DIAGRAM MODULATING ACTUATOR

DESIGN MANAGER

DATE

SCALE: AS SHOWN

AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

ISSUED FOR TENDER

A0
DO NOT SCALE

DRAWING No.

JW NUMBER: JW14302R

CONSULTANT'S NUMBER: 13214–73–06–007

FILE No

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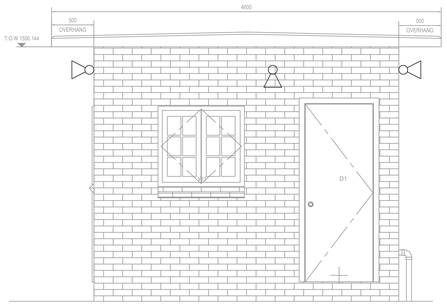
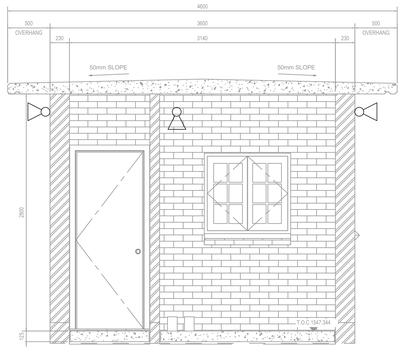
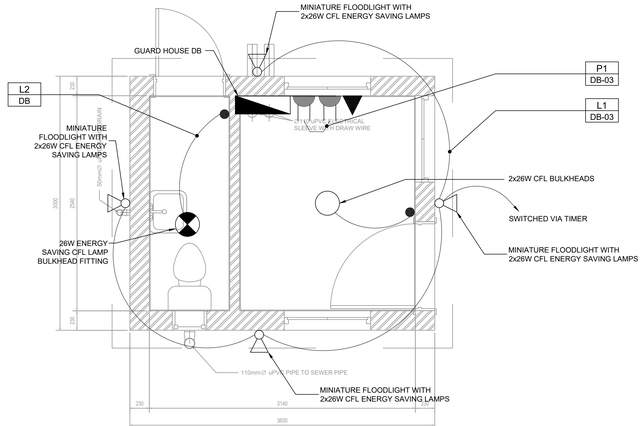


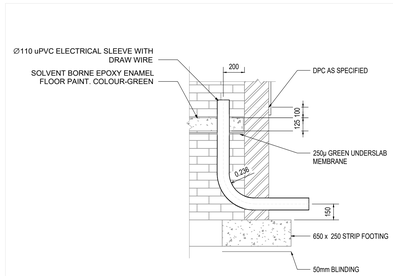
NORTH ELEVATION
SCALE 1: 25



EAST ELEVATION
SCALE 1: 25

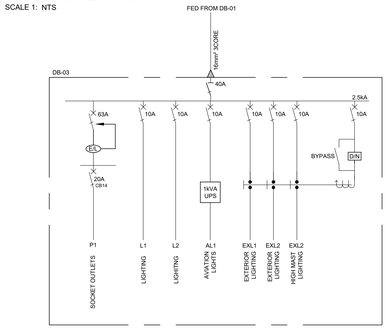


FLOOR PLAN
SCALE 1: 25



STRIP FOUNDATION DETAILS
SCALE 1: 20

SINGLE LINE DIAGRAM
SCALE 1: NTS



Light Fittings

Note: All luminaires must be approved by the Engineers representative prior to the installation of or any order being placed. Only light fittings as well as all light fitting components carrying the SABS mark of approval will be acceptable. All fluorescent light fittings shall be equipped with electronic control gear.

Type A	:	18W LED Ceiling mounted Bulkhead Neutral white enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 18W LED's lamps. Equal or similar to Bekabulk from Beka plus 1hour EMG maintained (emergency).	
Type B	:	32W LED wall mounted Bulkhead Neutral white enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 18W LED's lamps. Equal or similar to Bekanova from Beka plus 1hour EMG maintained (emergency).	
Type C	:	55W LED enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 55W LED's lamps. Equal or similar to Roughguard from Beka plus 1hour EMG maintained (emergency).	
Area lighting fitting		38W LED wall mounted Flood light natural white enclosed dust, moisture, vandal and corrosion proof luminaire. Similar and equal to Beka Omni star Micro	

ELECTRICAL LEGEND

- DISTRIBUTION BOARD
- TELEPHONE OUTLET (BLANK)
- DOUBLE SOCKET OUTLET (FLUSH)
- 1 x 26W CEILING MOUNTED BULKHEAD
- WALL MOUNTED BULKHEAD
- MINIATURE FLOODLIGHT
- LIGHT SWITCH
- WALL MOUNTED PHOTOCELL
- 2 x 26W CFL BULKHEAD

NOTE : ALL WIRING TO BE INSTALLED IN CONDUIT CHASED INTO WALLS

LEGEND

SYMBOL	DESCRIPTION
XA SP	SINGLE POLE CIRCUIT BREAKER.
XA TP	THREE POLE CIRCUIT BREAKER.
XA SP	SINGLE POLE ISOLATOR.
XA TP	THREE POLE ISOLATOR.
* XA TP	THREE POLE MOTOR RATED 3POLE CIRCUIT BREAKER.
CA	ANTI ISLAND SERIES CONTACTOR A - 63A
CB	ANTI ISLAND SERIES CONTACTOR B - 63A
XA ACB TP	AIR CIRCUIT BREAKER TRIPLE POLE
XA MCCB TP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
XA MCCB SP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
XA MCB SP	MINI CIRCUIT BREAKER SINGLE POLE
C	3 POLE CONTACTOR 22A
METER M	DIRECT IN LINE, DIN RAIL ENERGY METER
	40A DIN RAIL MOUNTED, 3 POLE CHANGE OVER SWITCH WITH ROTARY HANDLE FOR 1-0-11
	24 HOUR TIME SWITCH, WITH BATTERY BACK UP
XA 30	EARTH LEAKAGE.
	INVERTER
D/N	DAY NIGHT SWITCH
	CONTACTOR

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
P.O. BOX 6002
HALFWAY HOUSE
1685
TEL: (011) 207 2060
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Tel: +27 12 349 1105
e-mail: mail@djc.co.za

SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	01.02.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

TEL: (011) 688-1400
FAX: (011) 688-1529

CITY OF JOHANNESBURG

CARLSWALD
CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR
GUARD HUT POWER AND LIGHTING LAYOUT

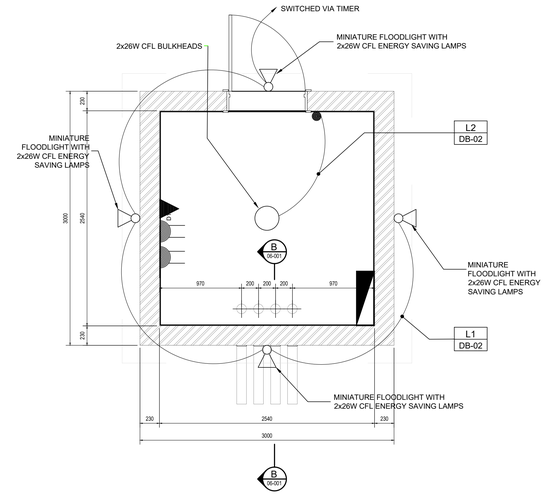
DESIGN MANAGER

DATE

SCALE
AS SHOWN

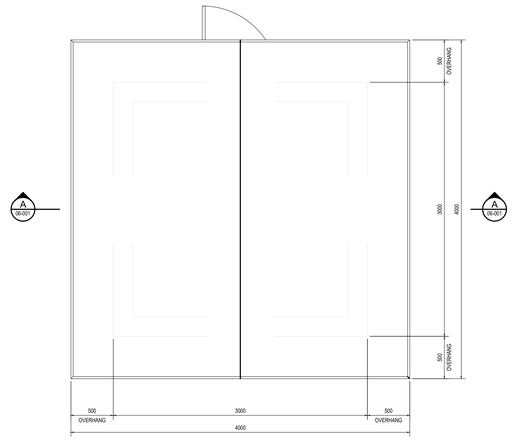
AMENDMENTS		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

DRAWING No.
JW NUMBER
JW14302R
CONSULTANT'S NUMBER
13214-73-06-008
FILE No
C 0 0



REFER TO DRAWING ../402
FOR ELECTRICAL LAYOUT

FLOOR PLAN
SCALE 1: 25



ROOF PLAN
SCALE 1: 25

Light Fittings

Note: All luminaires must be approved by the Engineers representative prior to the installation of or any order being placed. Only light fittings as well as all light fitting components carrying the SABS mark of approval will be acceptable. All fluorescent light fittings shall be equipped with electronic control gear.

Type A	:	18W LED Ceiling mounted Bulkhead Neutral white enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 18W LED's lamps. Equal or similar to Bekabulk from Beka plus 1hour EMG maintained (emergency).	
Type B	:	32W LED wall mounted Bulkhead Neutral white enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 18W LED's lamps. Equal or similar to Bekanova from Beka plus 1hour EMG maintained (emergency).	
Type C	:	55W LED enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 55W LED's lamps. Equal or similar to Roughguard from Beka plus 1hour EMG maintained (emergency).	
Area lighting fitting		38W LED wall mounted Flood light natural white enclosed dust, moisture, vandal and corrosion proof luminaire. Similar and equal to Beka Omni star Micro	

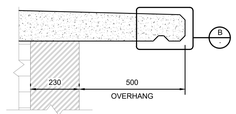
ELECTRICAL LEGEND

- DISTRIBUTION BOARD
- TELEPHONE OUTLET (BLANK)
- DOUBLE SOCKET OUTLET (FLUSH)
- 1 x 26W CEILING MOUNTED BULKHEAD
- WALL MOUNTED BULKHEAD
- MINIATURE FLOODLIGHT
- LIGHT SWITCH
- WALL MOUNTED PHOTOCELL
- 2 x 26W CFL BULKHEAD

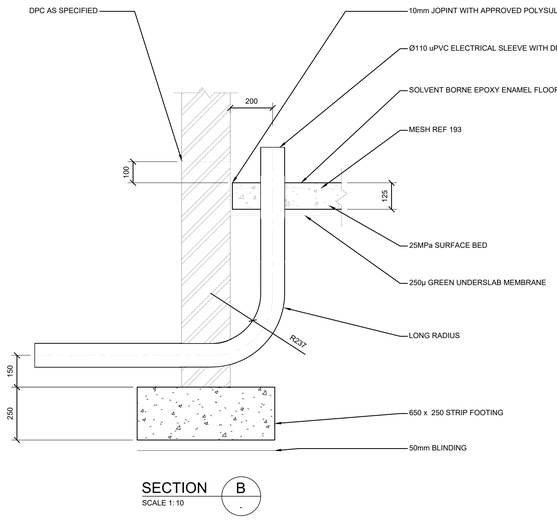
NOTE : ALL WIRING TO BE INSTALLED IN CONDUIT CHASED INTO WALLS

LEGEND

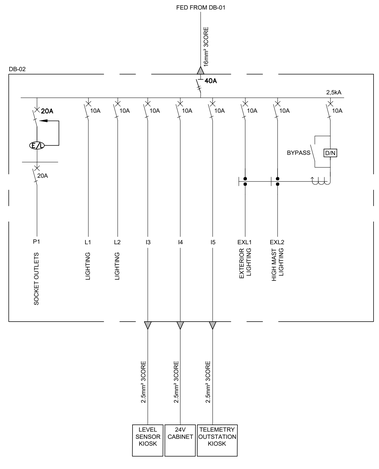
SYMBOL	DESCRIPTION
X XA SP	SINGLE POLE CIRCUIT BREAKER.
X XA TP	THREE POLE CIRCUIT BREAKER.
S XA SP	SINGLE POLE ISOLATOR.
S XA TP	THREE POLE ISOLATOR.
M X XA TP	THREE POLE MOTOR RATED 3POLE CIRCUIT BREAKER.
CA	ANTI ISLAND SERIES CONTACTOR A - 63A
CB	ANTI ISLAND SERIES CONTACTOR B - 63A
X XA ACB TP	AIR CIRCUIT BREAKER TRIPLE POLE
X XA MCCB TP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
X XA MCB SP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
X XA MCB SP	MINI CIRCUIT BREAKER SINGLE POLE
C	3 POLE CONTACTOR 22A
METER M	DIRECT IN LINE, DIN RAIL ENERGY METER
	40A DIN RAIL MOUNTED, 3 POLE CHANGE OVER SWITCH WITH ROTARY HANDLE FOR 1-0-11
	24 HOUR TIME SWITCH, WITH BATTERY BACK UP
S XA 30	EARTH LEAKAGE.
	INVERTER
D/N	DAY NIGHT SWITCH
	CONTACTOR



SECTION A
SCALE 1: 10



SECTION B
SCALE 1: 10



SINGLE LINE DIAGRAM
SCALE 1: NTS

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

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P.O. BOX 6002
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e-mail: mail@djjc.co.za

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CITY OF JOHANNESBURG

CARLSWALD
CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR
TELEMETRY HUT

DESIGN MANAGER

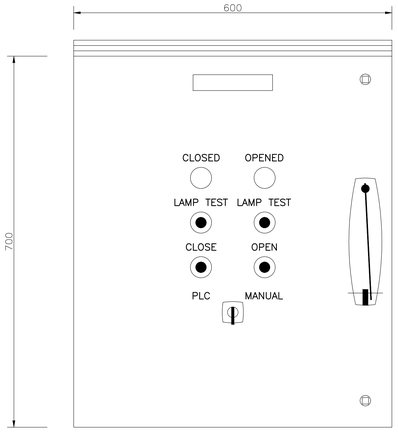
DATE

SCALE
AS SHOWN

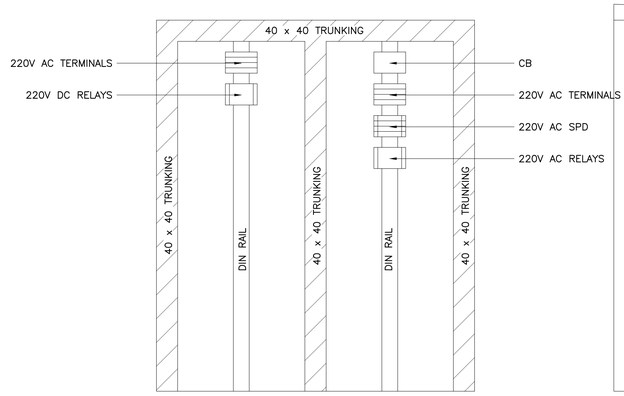
AMENDMENTS

		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

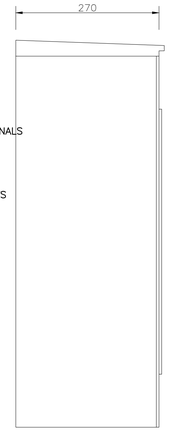
DRAWING No.
JW NUMBER
JW14302R
CONSULTANT'S NUMBER
1321 4–73–06–009
FILE No
C 0 0



FRONT VIEW



CHASSIS LAYOUT



SIDE VIEW

NOTE

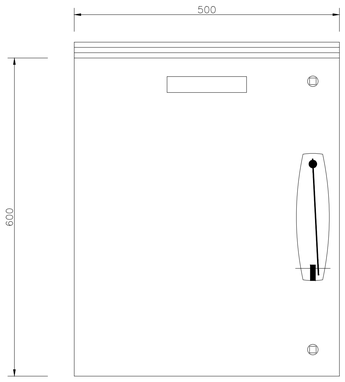
1) ACCESS: FRONT ONLY
2) DOUBLE DOOR
3) PROTECTION: IP65
4) MATERIAL: 1.5mm 3CR12 STAINLESS STEEL
5) COLOUR ELECTRIC ORANGE B26
6) CABLE ENTRY: BOTTOM VIA GLANDPLATE
7) DEPTH: 270mm

EQUIPMENT

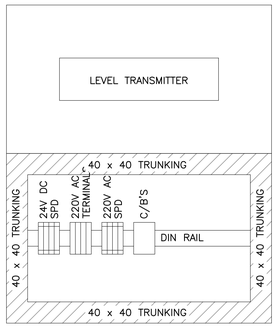
1) 1 x 2 POLE 2A CIRCUIT BREAKER – SCHNEIDER
2) 9 x SPD 220V AC – PHOENIX CONTACT
3) 4 x SWITCHES – SCHNEIDER
4) 2 x LIGHTS – SCHNEIDER
5) 1 x SELECTOR SWITCH – SCHNEIDER
6) 4 x TERMINALS 220V AC – WEIDMULLER
7) 8 x TERMINALS 24 DC – WEIDMULLER
8) 4 x RELAYS 24V DC – OMRON
9) 2 x RELAYS 220V AC ORMON
10) EARTH BAR FULL LENGHT

MODULATING VALVE CONTROL PANEL

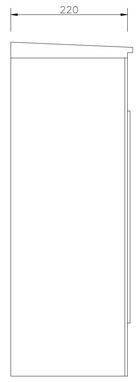
SCALE 1 : 5



FRONT VIEW



CHASSIS LAYOUT



SIDE VIEW

NOTE

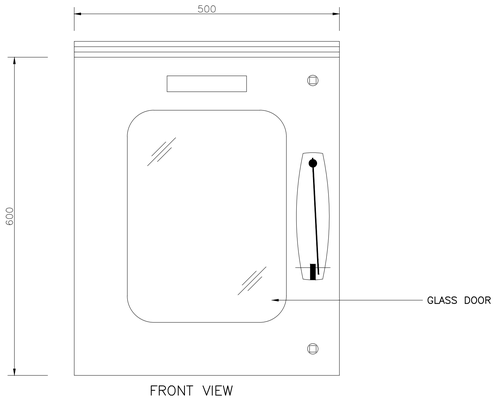
1) ACCESS: FRONT ONLY
2) PROTECTION: IP65
3) MATERIAL: 1.5mm 3CR12 STAINLESS STEEL
4) COLOUR ELECTRIC ORANGE B26
5) CABLE ENTRY: BOTTOM VIA GLANDPLATE
6) DEPTH: 220mm

EQUIPMENT

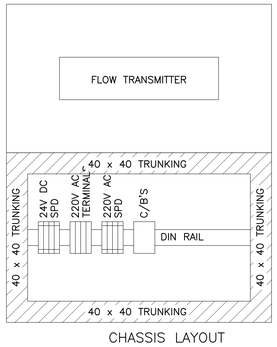
1) 1 x SPD 220V AC – PHOENIX CONTACT
2) 1 x SPD 24V DC – PHOENIX CONTACT
3) 2 x TERMINALS – WEIDMULLER
4) 1 x 2 POLE 2A CIRCUIT BREAKER – SCHNEIDER
5) 1 x 1 POLE 2A CIRCUIT BREAKER – SCHNEIDER
6) EARTH BAR FULL LENGHT

PRESSURE TRANSMITTER JUNCTION BOX

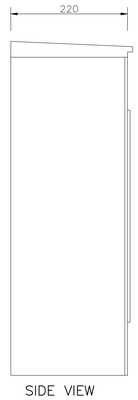
SCALE 1 : 5



FRONT VIEW



CHASSIS LAYOUT



SIDE VIEW

NOTE

1) ACCESS: FRONT ONLY
2) PROTECTION: IP65
3) MATERIAL: 1.5mm 3CR12 STAINLESS STEEL
4) COLOUR ELECTRIC ORANGE B26
5) CABLE ENTRY: BOTTOM VIA GLANDPLATE
6) DEPTH: 220mm

EQUIPMENT

1) 1 x SPD 220V AC – PHOENIX CONTACT
2) 1 x SPD 24V DC – PHOENIX CONTACT
3) 2 x TERMINALS – WEIDMULLER
4) 1 x 2 POLE 2A CIRCUIT BREAKER – SCHNEIDER
5) 1 x 1 POLE 2A CIRCUIT BREAKER – SCHNEIDER
6) EARTH BAR FULL LENGHT

FLOW TRANSMITTER JUNCTION BOX

SCALE 1 : 5

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

ZITHOLELE CONSULTING

ZITHOLELE
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HALFWAY HOUSE
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FAX: (086) 674 6121
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306 Freesia St, Lynnwood Ridge, Pretoria, 0081
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GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	01.02.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

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NEWTOWN

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

TYPICAL FIELD JB'S

DESIGN MANAGER

DATE

SCALE

AS SHOWN

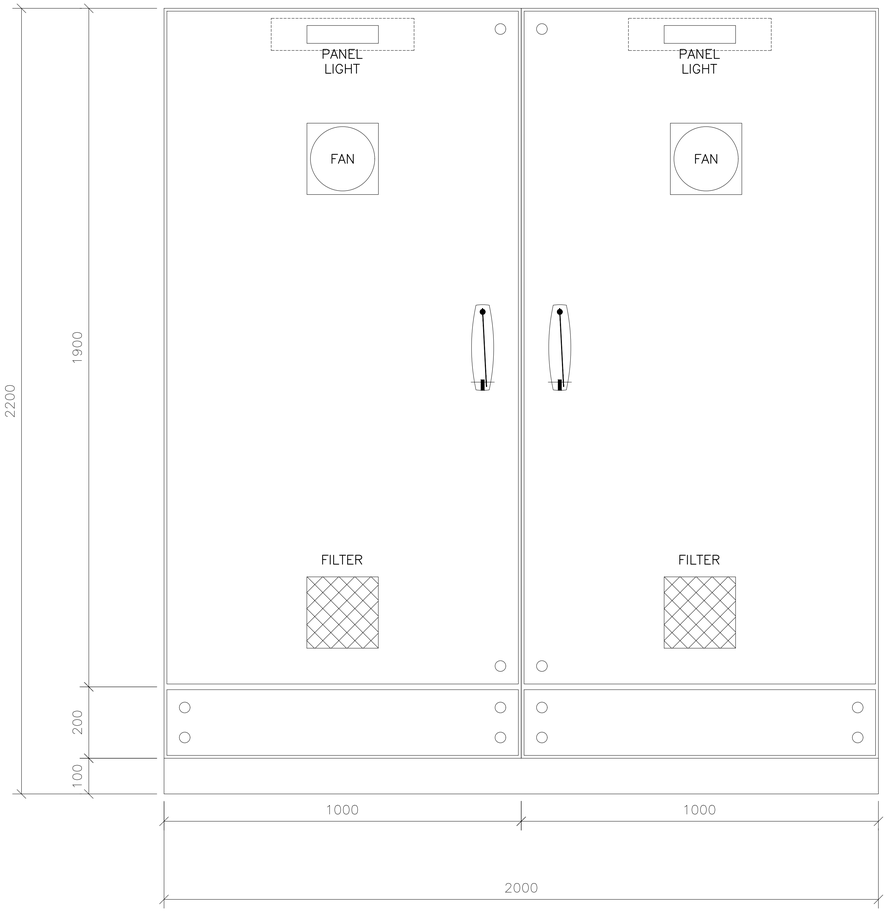
AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

DRAWING No.

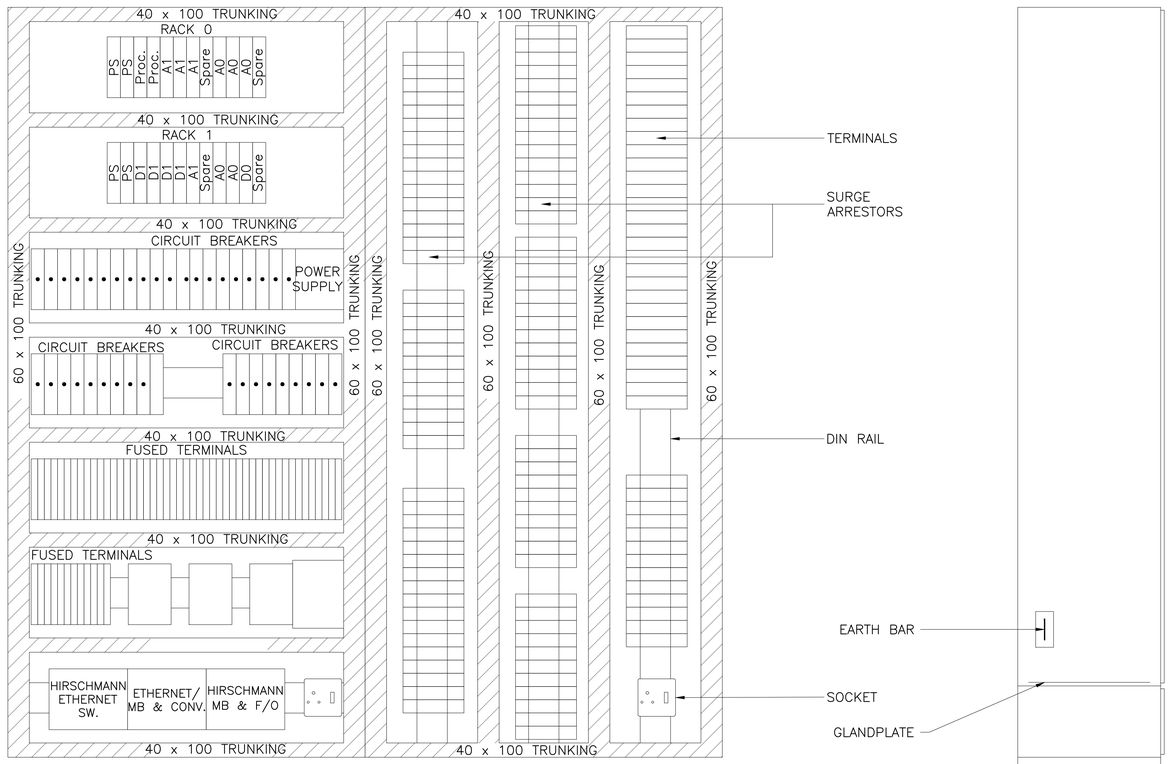
JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-06-010

FILE No
C 0 0



FRONT VIEW



CHASSIS LAYOUT

SIDE VIEW

NOTE

1) ACCESS: FRONT ONLY
2) CABLE ENTRY: BOTTOM
3) ENVIRONMENTAL PROTECTION: IP55
4) MATERIAL:2mm MILD STEEL
5) BASE 100mm x 50mm CHANNEL IRON
6) COLOUR ELECTRIC ORANGE B26
   (POWDER COATED)
7) DEPTH: 400mm

PLC PANEL

SCALE 1 : 10

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

TYPICAL FIELD PLC

DESIGN MANAGER

DATE

SCALE

AS SHOWN

AMENDMENTS		APPROVED	DATE
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CONSULTANT'S NUMBER
13214-73-06-011

FILE No
C 0 0



GROUND ROD.



CABLE CONNECTION



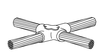
TEE SPLICE



PIPE BONDING



COPPER BRAID FOR GROUND BONDING JUMPER.



CABLE CROSS CONNECTION



DOUBLE CABLE CONNECTION



SHEET METAL BONDING



COPPER STRAP
CONNECTION,HORIZONTAL



COPPER STRAP
CONNECTION VERTICAL



COPPER STRAP TO CABLE



CABLE TO COPPER STRAP



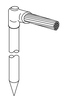
SHEET METAL BONDING



COPPER STRAP
TEE SPLICE HORIZONTAL



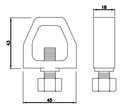
COPPER STRAP
TEE SPLICE VERTICAL



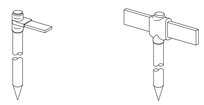
CABLE TO GROUND ROD



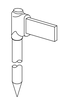
CABLE TO GROUND ROD



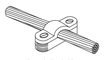
CLAMP



COPPER BAR TO GROUND ROD



COPPER BAR TO GROUND ROD



HEAVY DUTY CAST
CABLE SADDLE

COPPER STRAP CLAMP



COPPER TAPE BONDED
TO STEEL PLATE



CONDUIT GROUND BUSHING



TEST CLAMP



SQUARE CLAMP
(CROSS TEE)



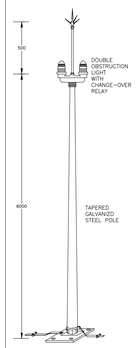
STRAIGHT CLAMP

COPPER STRAP CLAMP

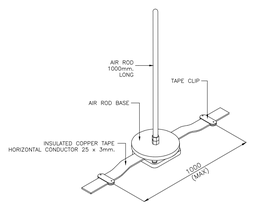
EXOTHERMIC WELDING DETAIL



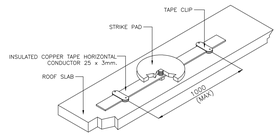
AIR TERMINAL SADDLE



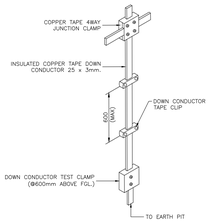
OBSTRUCTION LIGHT



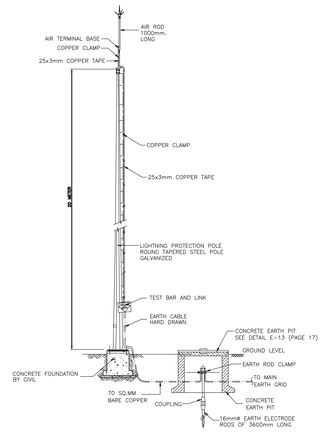
LIGHTNING PROTECTION – ROOF
MOUNTED AIR TERMINAL



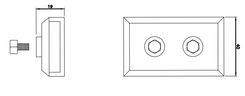
LIGHTNING PROTECTION – ROOF
MOUNTED STRIKE PAD



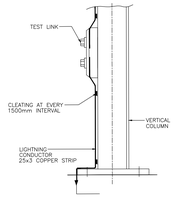
LIGHTNING PROTECTION – DOWN
CONDUCTOR WITH TEST CLAMP

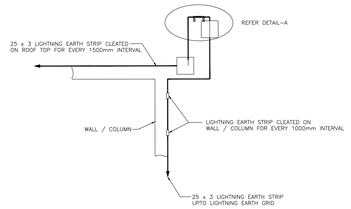


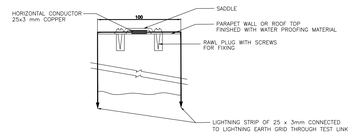
LIGHTNING PROTECTION POLE



E-16 TYPICAL TEST LINK

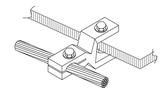




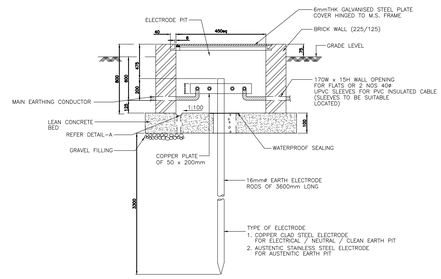


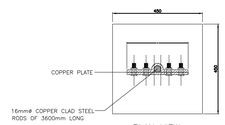
DETAIL-A

E-17 ELEVATION VIEW OF LAYING LIGHTNING STRIP
ON ROOF TOP AND WALL



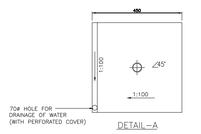
SUPPORT CLAMP





PLAN VIEW

TYPICAL EARTH PIT
ELECTRICAL, CLEAN, NEUTRAL, AUSTENTIC EARTH PIT



DETAIL-A

PLAN VIEW
FOR DRAINAGE OF WATER

ELEVATION

LIGHTNING EARTH PIT

CONCRETE EARTH HOUSING PLAN

CONCRETE EARTH HOUSING SECTION

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

A0
DO NOT SCALE

CONSULTING ENGINEERS

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SURVEYED	C.K
DESIGNED	J.vT
DRAWN	L.C
CHECKED	J.vT
SERVICES CHECKED	
GEOTECHNICAL INVESTIGATION	
SERVITUDES	
APPROVED	J. v TONDER
Pr. Eng. No.	970379
DATE	01.02.2024

JOHANNESBURG WATER (SOC) LTD

Johannesburg Water

TURBINE HALL
65 NTEMI PILISO STREET
NEWTOWN

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 MI CARLSWALD RESERVOIR

EARTHING AND LIGHTINING SYSMBOLS

DESIGN MANAGER

DATE

SCALE

AS SHOWN

AMENDMENTS

		APPROVED	DATE
C00	ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

DRAWING No.

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-06-012

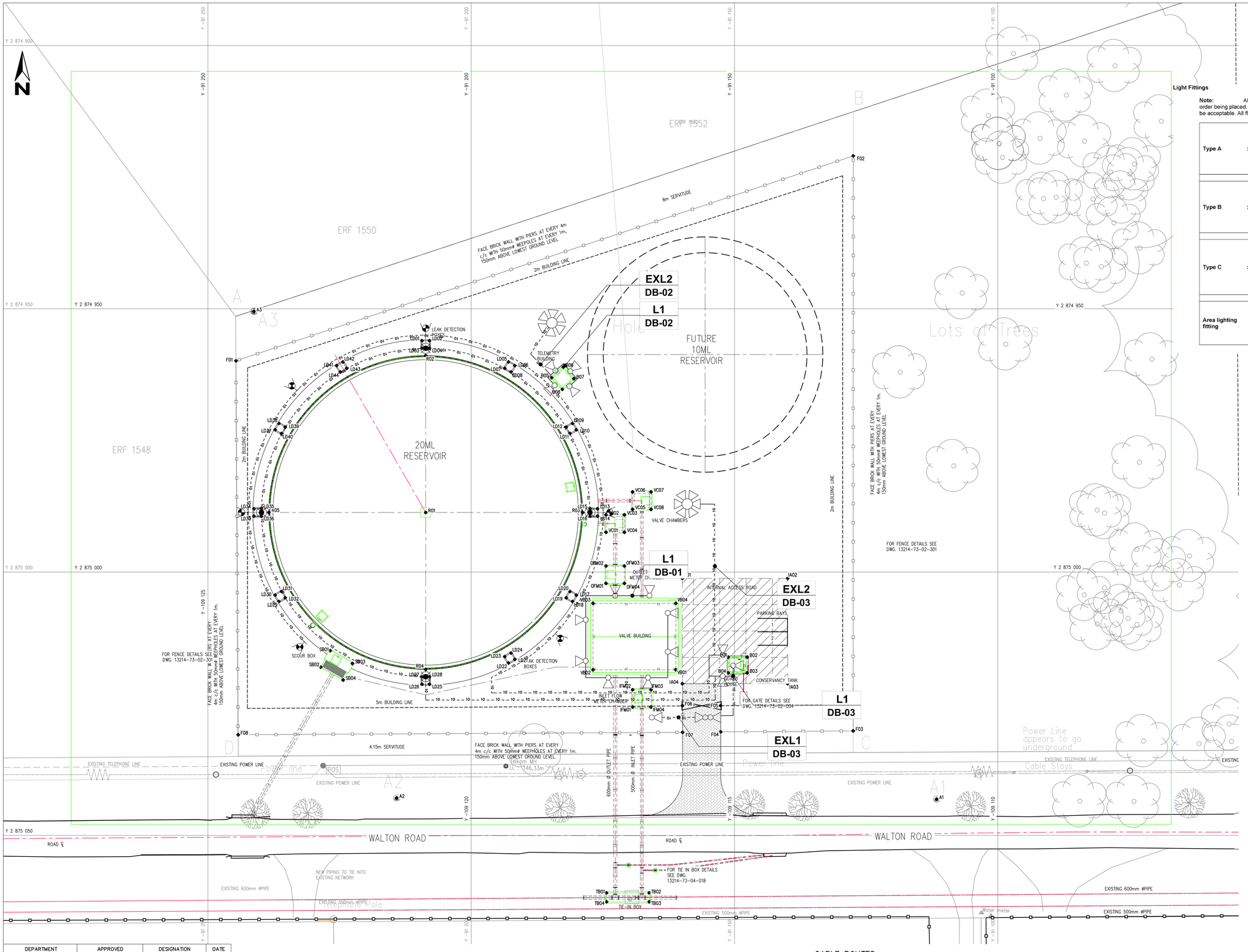
FILE No
C00

CABLE LEGEND	
—— – 10 – – 10 ——	10mm² 3C CABLE
	BASIC LED BASED AVIATION OBSTRUCTION LIGHT WITH FLASH
	57W BEKA LEDFLOAD MOUNTED AT 6000mm AFFL, OR SIMILAR APPROVED
	MINIATURE FLOODLIGHT WITH 30W CFL ENERGY SAVING LAMPS, OR SIMILAR APPROVED

Light Fittings

Note: All luminaires must be approved by the Engineers representative prior to the installation of or any order being placed. Only light fittings as well as all light fitting components carrying the SABS mark of approval will be acceptable. All fluorescent light fittings shall be equipped with electronic control gear.

Type A	:	18W LED Ceiling mounted Bulkhead Neutral white enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 18W LED's lamps. Equal or similar to Bekabulk from Beka plus 1hour EMG maintained (emergency).	
Type B	:	32W LED wall mounted Bulkhead Neutral white enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 18W LED's lamps. Equal or similar to Bekanova from Beka plus 1hour EMG maintained (emergency).	
Type C	:	55W LED enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 55W LED's lamps. Equal or similar to Roughguard from Beka plus 1hour EMG maintained (emergency).	
Area lighting fitting		38W LED wall mounted Flood light natural white enclosed dust, moisture, vandal and corrosion proof luminaire. Similar and equal to Beka Omni star Micro	



CABLE ROUTES
1:250

DEPARTMENT	APPROVED	DESIGNATION	DATE

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GEOTECHNICAL INVESTIGATION		
SERVITUDES		
APPROVED	J. v TONDER	
Pr. Eng. No.	970379	
DATE	01.02.204	

JOHANNESBURG WATER (SOC) LTD

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

EXTERIOR LIGHTING LAYOUT

DESIGN MANAGER

DATE

SCALE
AS SHOWN

AMENDMENTS			
C00	ISSUED FOR CONSTRUCTION	J.vT	01.02.2024

DRAWING No.

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-06-013

FILE No
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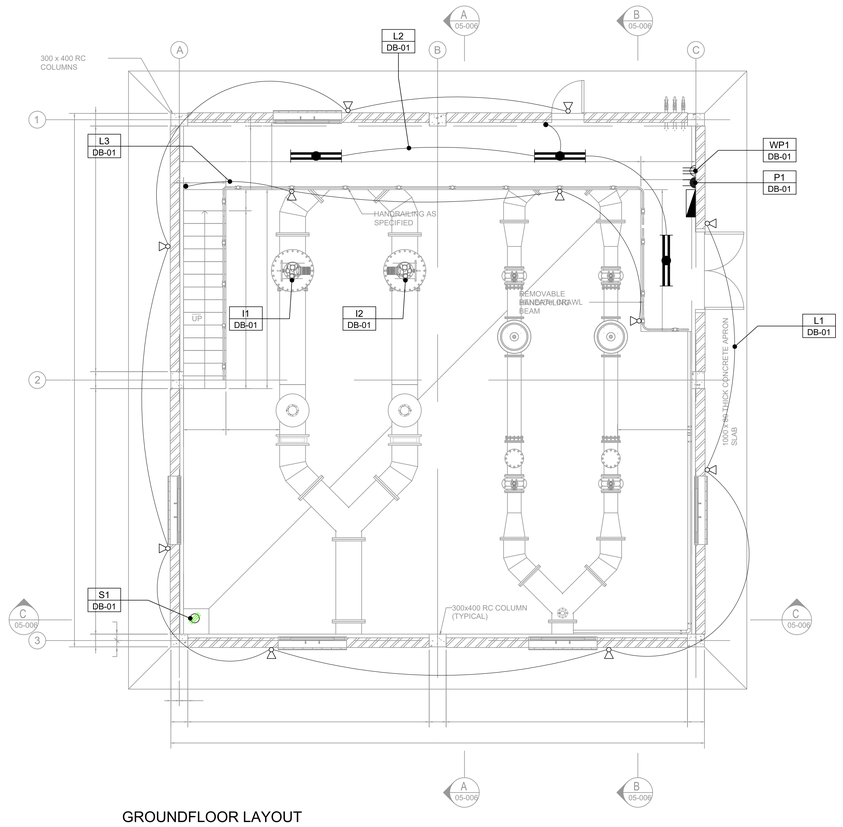
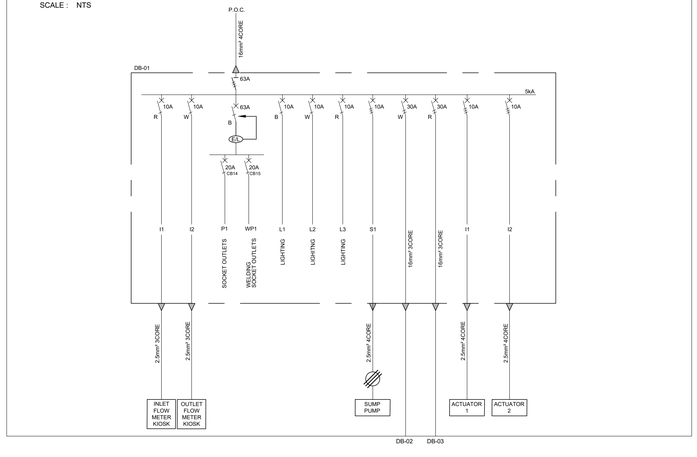


GROUNDFLOOR LAYOUT

SCALE : 50



Light Fittings

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Type A	:	18W LED Ceiling mounted Bulkhead Neutral white enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 18W LED's lamps. Equal or similar to Bekabulk from Beka plus 1hour EMG maintained (emergency).	
Type B	:	32W LED wall mounted Bulkhead Neutral white enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 18W LED's lamps. Equal or similar to Bekanova from Beka plus 1hour EMG maintained (emergency).	
Type C	:	55W LED enclosed dust, moisture, vandal and corrosion proof luminaire. The luminaire shall consist of a high-pressure die-cast marine grade aluminium body with a robust clear polycarbonate diffuser and shall be designed to operate 55W LED's lamps. Equal or similar to Roughguard from Beka plus 1hour EMG maintained (emergency).	
Area lighting fitting		38W LED wall mounted Flood light natural white enclosed dust, moisture, vandal and corrosion proof luminaire. Similar and equal to Beka Omni star Micro	

ELECTRICAL LEGEND

- DISTRIBUTION BOARD
- TELEPHONE OUTLET (BLANK)
- DOUBLE SOCKET OUTLET (FLUSH)
- WELDING PLUG OUTLET
- 1 x 26W CEILING MOUNTED BULKHEAD
- WALL MOUNTED BULKHEAD
- 1200mm OPEN CHANNEL FLUORESCENT (2 x 28W)
- MINIATURE FLOODLIGHT
- LIGHT SWITCH
- WALL MOUNTED PHOTOCELL
- 2 x 26W CFL BULKHEAD
- 3-PHASE ISOLATOR

NOTE : ALL WIRING TO BE INSTALLED IN CONDUIT CHASED INTO WALLS

LEGEND

SYMBOL	DESCRIPTION
XA SP	SINGLE POLE CIRCUIT BREAKER.
XA TP	THREE POLE CIRCUIT BREAKER.
XA SP	SINGLE POLE ISOLATOR.
XA TP	THREE POLE ISOLATOR.
XA TP	THREE POLE MOTOR RATED 3POLE CIRCUIT BREAKER.
CA	ANTI ISLAND SERIES CONTACTOR A - 63A
CB	ANTI ISLAND SERIES CONTACTOR B - 63A
XA ACB TP	AIR CIRCUIT BREAKER TRIPLE POLE
XA MCCB TP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
XA MCCB SP	MOULDED CASE CIRCUIT BREAKER TRIPLE POLE
XA MCB SP	MINI CIRCUIT BREAKER SINGLE POLE
C	3 POLE CONTACTOR 22A
METER M	DIRECT IN LINE, DIN RAIL ENERGY METER
	40A DIN RAIL MOUNTED, 3 POLE CHANGE OVER SWITCH WITH ROTARY HANDLE FOR 1-0-11
	24 HOUR TIME SWITCH, WITH BATTERY BACK UP
XA SP	EARTH LEAKAGE.
	INVERTER
D/N	DAY NIGHT SWITCH
	CONTACTOR

DEPARTMENT	APPROVED	DESIGNATION	DATE

ISSUED FOR TENDER

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CITY OF JOHANNESBURG

CARLSWALD

CONSTRUCTION OF 20 Ml CARLSWALD RESERVOIR

VALVE BUILDING POWER AND LIGHTING LAYOUT

DESIGN MANAGER

DATE

SCALE

AS SHOWN

AMENDMENTS	APPROVED	DATE
C00 ISSUED FOR CONSTRUCTION	J.v.T	01.02.2024

DRAWING No.

JW NUMBER
JW14302R

CONSULTANT'S NUMBER
13214-73-06-014

FILE No
C00