Johannesburg Water (SOC) Ltd

Johannesburg Water

CONTRACT JW14340

CROSBY BULK INFRASTRUCTURE PROJECT

VOLUME 4

TENDER DRAWINGS

ZUTARI
IMPACT. ENGINEERED.

PERTH EMPIRE WATER MAINS UPGRADE

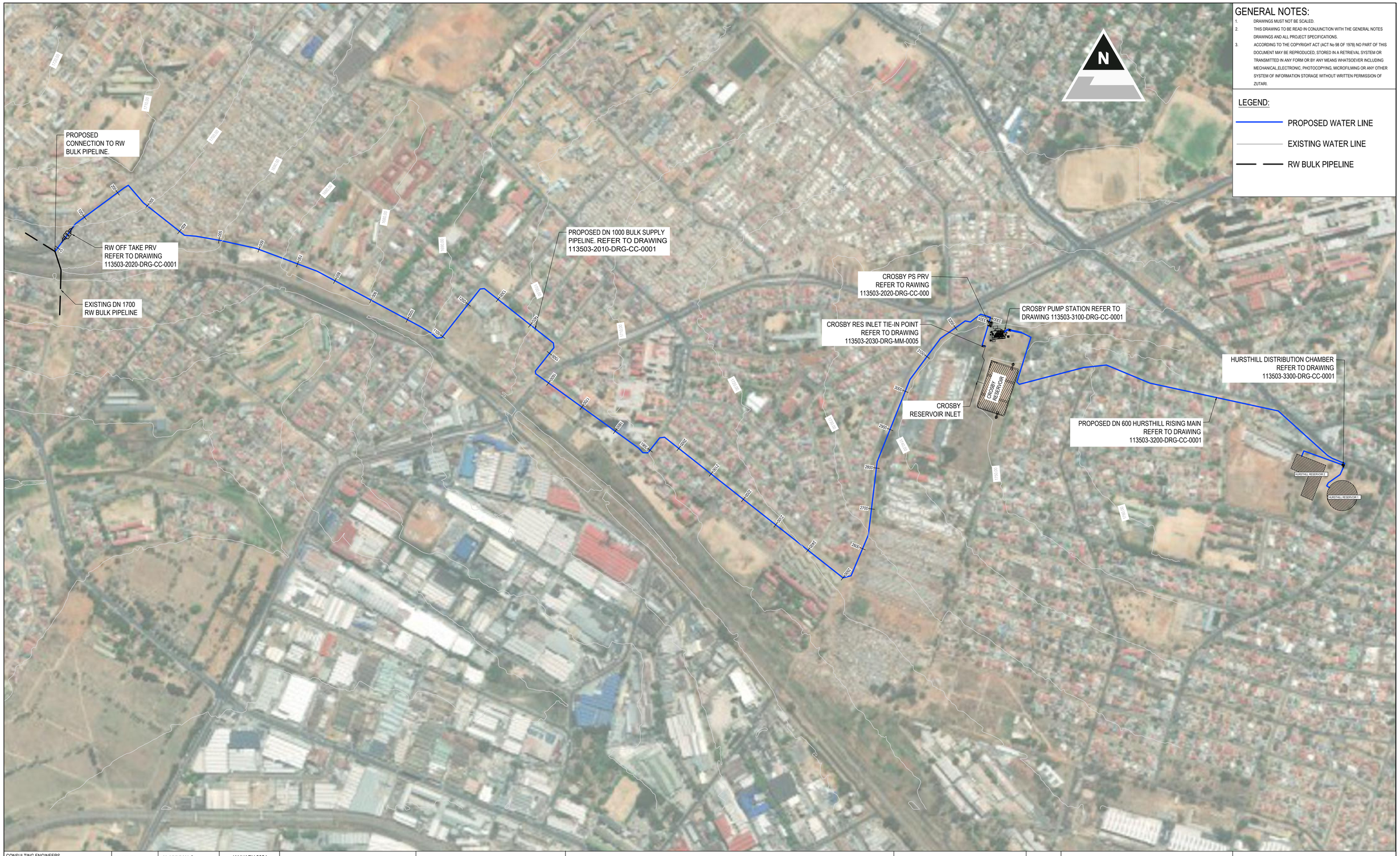
CROSBY BULK INFRASTRUCTURE PROJECT

Johannesburg Water

DRAWING NUMNER	TITLE	FOR TENDER			FOR CONSTRUCTION		
		T0	T1	T2	Rev. 0	Rev. 1	Rev. 2
	Description						
	2000 - GENERAL						
	SITE LAYOUT						
113503-2000-DRG-CC-0001	CROSBY BULK INFRASTRUCTURE PROJECT - GENERAL SITE LAYOUT - KEY PLAN	07/02/2024					
113503-2000-DRG-CC-0002	CROSBY BULK INFRASTRUCTURE PROJECT - RAND WATER 0FFTAKE - GENERAL ARRANGEMENT	07/02/2024					
113503-2000-DRG-CC-0003	CROSBY BULK INFRASTRUCTURE PROJECT - CROSBY SITE LAYOUT - GENERAL ARRANGEMENT	07/02/2024					
113503-2000-DRG-CC-0004	CROSBY BULK INFRASTRUCTURE PROJECT - HURSTHILL SITE LAYOUT - GENERAL ARRANGEMENT	07/02/2024					
	2010 - CROSBY BULK INFRASTRUCTURE PROJECT						
	LAYOUT AND LONG SECTION						
113503-2010-DRG-CC-0001	CROSBY BULK INFRASTRUCTURE PROJECT - GENERAL ARRANGEMENT - KEY PLAN	07/02/2024					
113503-2010-DRG-CC-0002	CROSBY BULK INFRASTRUCTURE PROJECT - LAYOUT AND LONG SECTION - SHEET 1 OF 4	07/02/2024					
113503-2010-DRG-CC-0003	CROSBY BULK INFRASTRUCTURE PROJECT - LAYOUT AND LONG SECTION - SHEET 2 OF 4	07/02/2024					
113503-2010-DRG-CC-0004	CROSBY BULK INFRASTRUCTURE PROJECT - LAYOUT AND LONG SECTION - SHEET 3 OF 4	07/02/2024					
113503-2010-DRG-CC-0005	CROSBY BULK INFRASTRUCTURE PROJECT - LAYOUT AND LONG SECTION - SHEET 4 OF 4	07/02/2024					
	HURSTHILL RISING MAIN						
	LAYOUT AND LONG SECTION						
113503-3200-DRG-CC-0001	HURSTHILL RISING MAIN - PIPELINE LAYOUT - KEY PLAN	07/02/2024					
113503-3200-DRG-CC-0002	HURSTHILL RISING MAIN - LAYOUT AND LONGSECTION - SHEET 1 OF 3	07/02/2024					
113503-3200-DRG-CC-0003	HURSTHILL RISING MAIN - LAYOUT AND LONGSECTION - SHEET 2 OF 3	07/02/2024					
113503-3200-DRG-CC-0004	HURSTHILL RISING MAIN - LAYOUT AND LONGSECTION - SHEET 3 OF 3	07/02/2024					
113503-3200-DRG-CC-0005	HURSTHILL RISING MAIN - LAYOUT AND LONGSECTION - SHEET 3 OF 4	07/02/2024					
	PRESSURE REDUCING VALVE						
	CIVIL						
113503-2020-DRG-CC-0001	GENERAL DETAIL - RAND WATER CONNECTION PRV -	07/02/2024					
113503-2020-DRG-CC-0002	GENERAL DETAIL - CROSBY RESERVOIR PRV -	07/02/2024					
	MECHANICAL						
113503-2030-DRG-MM-0001	GENERAL DETAIL - RAND WATER CONNECTION PRV - SHEET 1 OF 4	07/02/2024					
113503-2030-DRG-MM-0002	GENERAL DETAIL - RAND WATER CONNECTION PRV - SHEET 2 OF 4	07/02/2024					
113503-2030-DRG-MM-0003	GENERAL DETAIL - CROSBY RESERVOIR PRV - SHEET 3 OF 4	07/02/2024					
113503-2030-DRG-MM-0004	GENERAL DETAIL - CROSBY RESERVOIR PRV - SHEET 4 OF 4	07/02/2024					
113503-2030-DRG-MM-0005	CROSBY BULK INFRASTRUCTURE PROJECT - CONNECTION TO CROSBY RESERVOIR INLET PIPE	07/02/2024					
	CONSTRUCTION SEQUENCE						
113503-3130-DRG-CS-0001	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - EXISTING PUMP STATION ISOMETRIC VIEW	07/02/2024					
113503-3130-DRG-CS-0002	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 1	07/02/2024					
113503-3130-DRG-CS-0003	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 2	07/02/2024					
113503-3130-DRG-CS-0004	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 3	07/02/2024					
113503-3130-DRG-CS-0005	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 4	07/02/2024					
113503-3130-DRG-CS-0006	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 5	07/02/2024					
113503-3130-DRG-CS-0007	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 6	07/02/2024					
113503-3130-DRG-CS-0008	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 7	07/02/2024					
113503-3130-DRG-CS-0009	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 7 - ISOMETRIC VIEW	07/02/2024					
113503-3130-DRG-CS-0010	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 8	07/02/2024					
113503-3130-DRG-CS-0011	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 9	07/02/2024					
113503-3130-DRG-CS-0012	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 10	07/02/2024					
113503-3130-DRG-CS-0013	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - CONSTRUCTION SEQUENCE STEP 10 - ISOMETRIC VIEW	07/02/2024					
113503-3130-DRG-CS-0014	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - OVERLAY DRAWING - PUMPSTATION PIPEWORK	07/02/2024					
113503-3130-DRG-CS-0015	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - EXISTING PUMP STATION PIPEWORK IMAGES	07/02/2024					
113503-3130-DRG-CS-0016	RAND WATER CONNECTION TO CROSBY RESERVOIR PIPELINE - NEW PUMSTATION PIPE LAYOUT	07/02/2024					

	PUMP STATION						
	CIVIL DRAWINGS						
113503-3100-DRG-CC-0001	CROSBY PUMP STATION - GENERAL ARRANGEMENT	07/02/2024					
113503-3100-DRG-CC-0002	CROSBY PUMP STATION - PLAN VIEW - SHEET 1 OF 3	07/02/2024					
113503-3100-DRG-CC-0003	CROSBY PUMP STATION - PLAN VIEW - SHEET 2 OF 3	07/02/2024					
113503-3100-DRG-CC-0004	CROSBY PUMP STATION - ELEVATIONS - SHEET 3 OF 3	07/02/2024					
113503-3100-DRG-CC-0005	CROSBY PUMP STATION - SECTIONS	07/02/2024					
113503-3100-DRG-CC-0006	CROSBY PUMP STATION - PLAN VIEW - PLINTHS AND CABLE TRENCHES	07/02/2024					
	MECHANICAL DRAWINGS						
113503-3110-DRG-MM-0001	CROSBY PUMP STATION - MECHANICAL ARRANGEMENT	07/02/2024					
113503-3110-DRG-MM-0002	CROSBY PUMP STATION - MECHANICAL ARRANGEMENT - SHEET 2 OF 2	07/02/2024					
113503-3110-DRG-MM-0003	CROSBY PUMP STATION - MECHANICAL ARRANGEMENT - SHEET 3 OF 3	07/02/2024					
113503-3110-DRG-MM-0004	CROSBY PUMP STATION - MECHANICAL ARRANGEMENT - SHEET 4 OF 4	07/02/2024					
113503-3110-MFD-MM-0001	MECHANICAL FLOW DIAGRAM - CROSBY PUMP STATION AND ASSOCIATED PIPE WORKS	07/02/2024					
113503-3110-MFD-MM-0002	MECHANICAL FLOW DIAGRAM - CROSBY PUMP STATION TEMPORARY WORKS	07/02/2024					
113503-3110-PFD-MM-0001	PROCESS FLOW DIAGRAM -	07/02/2024					
	ELECTRICAL DRAWINGS						
113503-3140-DRG-EE-0001	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - SITE PLAN -ELECTRICAL LAYOUT	07/02/2024					
113503-3140-DRG-EE-0002	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - FIELD ISOLATOR LAYOUT	07/02/2024					
113503-3140-DRG-EE-0003	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - SINGLE LINE DIAGRAM	07/02/2024					
113503-3140-DRG-EE-0004	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - SMALL POWER & LIGHTING LAYOUT	07/02/2024					
113503-3140-DRG-EE-0005	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - EARTHING AND LIGHTNING PROTECTION LAYOUT	07/02/2024					
113503-3140-DRG-EE-0006	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - FIRE DETECTION LAYOUT	07/02/2024					
	INSTRUMENTATION DRAWINGS						
113503-3000-PID-EE-0001	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - PROCESS AND INSTRUMENTATION DIAGRAM TO BRIXTON	07/02/2024					
113503-3000-PID-EE-0002	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - PROCESS AND INSTRUMENTATION DIAGRAM TO HURSTHILL	07/02/2024					
113503-3000-PID-EE-0003	PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE CROSBY BULK INFRASTRUCTURE PROJECT - PROCESS AND INSTRUMENTATION DIAGRAM TO BRIXTON TEMPORARY WORKS	07/02/2024					
	PUMP STATION GENERAL DETAILS						
	TEMPORARY WORKS						
	MECHANICAL						
113503-3310-DRG-MM-0007	GENERAL DETAILS TEMPORARY PUMP MECHANICALS - SHEET 1 OF 2	07/02/2024					
113503-3310-DRG-MM-0008	GENERAL DETAILS TEMPORARY PUMP MECHANICALS - SHEET 2 OF 2	07/02/2024					
113503-3310-DRG-MM-0009	TEMPORARY BRIXTON PUMP DISCHARGE PIPEWORK MECHANICAL DETAILS - SHEET 1 OF 1	07/02/2024					
113503-3310-DRG-MM-0010	TEMPORARY BRIXTON PUMP SUCTION PIPEWORK MECHANICAL DETAILS - SHEET 1 OF 1	07/02/2024					
113503-3310-DRG-MM-0011	TEMPORARY GRAVITY BYPASS MECHANICAL DETAILS - SHEET 1 OF 1	07/02/2024					
113503-3310-DRG-MM-0012	TEMPORARY PRV INLET PIPEWORK MECHANICAL DETAILS - SHEET 1 OF 1	07/02/2024					
113503-3310-DRG-MM-0013	TEMPORARY PRV OUTLET PIPEWORK MECHANICAL DETAILS SHEET - SHEET 1 OF 1	07/02/2024					
113503-3310-DRG-MM-0014	TEMPORARY PRV SET MECHANICAL DETAIL - SHEET 1 OF 1	07/02/2024					
	CIVIL						
113503-3300-DRG-CC-0005	GENERAL DETAILS TEMPORARY PUMPS CIVILS	07/02/2024					
113503-3300-DRG-CC-0006	GENERAL DETAILS TEMPORARY PRV CIVILS	07/02/2024					
113503-3300-DRG-CC-0007	GENERAL DETAILS TEMPORARY MCC SLAB	07/02/2024					
	DISTRIBUTION CHAMBER						
	CIVIL						
113503-3300-DRG-CC-0001	HURSTHILL RESERVOIR DISTRIBUTION CHAMBER CIVILS - SHEET 1 OF 1	07/02/2024					
	MECHANICAL						
113503-3310-DRG-MM-0001	HURSTHILL RESERVOIR DISTRIBUTION CHAMBER MECHANICALS - SHEET 1 OF 2	07/02/2024					
113503-3310-DRG-MM-0002	HURSTHILL RESERVOIR DISTRIBUTION CHAMBER MECHANICALS - SHEET 2 OF 2	07/02/2024					
	CIVIL						
113503-3300-DRG-CC-0002	CROSBY RISING MAIN FLOW METER CHAMBER CIVILS - SHEET 1 OF 1	07/02/2024					
	MECHANICAL						
113503-3310-DRG-MM-0003	CROSBY RISING MAIN FLOW METER CHAMBER MECHANICALS - SHEET 1 OF 2	07/02/2024					
113503-3310-DRG-MM-0004	CROSBY RISING MAIN FLOW METER CHAMBER MECHANICALS - SHEET 2 OF 2	07/02/2024					
	ISOLATION CHAMBERS						
	CIVIL						
113503-3300-DRG-CC-0003	GENERAL DETAILS - ISOLATION VALVE CHAMBER RESERVOIR OUTLET	07/02/2024					
113503-3300-DRG-CC-0004	GENERAL DETAILS - ISOLATION VALVE CHAMBER GRAVITY MAIN	07/02/2024					
	MECHANICAL						
113503-3310-DRG-MM-0005	GENERAL DETAILS - ISOLATION VALVE CHAMBER RESERVOIR OUTLET	07/02/2024					
113503-3310-DRG-MM-0006	GENERAL DETAILS - ISOLATION VALVE CHAMBER GRAVITY MAIN	07/02/2024					

	TYPICAL DETAIL						
	CIVIL						
113503-3400-DRG-CC-0001	TYPICAL DETAILS AND STANDARDS - SCOUR VALVE CHAMBER IN THE ROAD PRISM	07/02/2024					
113503-3400-DRG-CC-0002	TYPICAL DETAILS AND STANDARDS - AIR VALVE CHAMBER	07/02/2024					
113503-3400-DRG-CC-0003	TYPICAL DETAILS AND STANDARDS - TRENCH EXCAVATION AND BACKFILL	07/02/2024					
113503-3400-DRG-CC-0004	TYPICAL DETAILS AND STANDARDS - PIPE MARKER BLOCKS	07/02/2024					
113503-3400-DRG-CC-0005	TYPICAL DETAILS AND STANDARDS - PIPE JACKING SECTIONS	07/02/2024					
113503-3400-DRG-CC-0006	TYPICAL DETAILS AND STANDARDS - STEEL ACCESS LADDERS, STEEL STEPS, VENT, LIFTING LUG AND MANHOLE COVER	07/02/2024					
113503-3400-DRG-CC-0007	TYPICAL DETAILS AND STANDARDS - CAST IN COVER AND FRAMES	07/02/2024					
113503-3400-DRG-CC-0008	TYPICAL DETAILS AND STANDARDS - CONNECTION DETAIL TO HURSTHILL RESERVIOR	07/02/2024					
113503-3400-DRG-CC-0009	TYPICAL DETAILS AND STANDARDS - PRECAST COVER SLAB	07/02/2024					
	MECHANICAL DRAWINGS						
113503-3410-DRG-MM-0001	TYPICAL DETAILS AND STANDARDS - SCOUR VALVE CHAMBER - SHEET 1 OF 2	07/02/2024					
113503-3410-DRG-MM-0002	TYPICAL DETAILS AND STANDARDS - AIR VALVE CHAMBER -	07/02/2024					
113503-3410-DRG-MM-0003	TYPICAL DETAILS AND STANDARDS - PIPE ANCHOR SPPORT DETAIL AND THE HOLDING DOWN BOLT DETAIL -	07/02/2024					
113503-3410-DRG-MM-0004	TYPICAL DETAILS AND STANDARDS - CONNECTION DETAIL TO HURSTHILL RESERVIOR -	07/02/2024					
113503-3410-DRG-MM-0005	TYPICAL DETAILS AND STANDARDS - PIPE SINGLE SUPPORT -	07/02/2024					
113503-3410-DRG-MM-0006	TYPICAL DETAILS AND STANDARDS - SCOUR VALVE CHAMBER - SHEET 2 OF 2	07/02/2024					
	GUARD HOUSE						
113503-3500-DRG-CC-0001	GUARD HOUSE - ISOMETRIC VIEW	28/05/2024					
113503-3500-DRG-CC-0002	GUARD HOUSE - PLAN LAYOUT	28/05/2024					
113503-3500-DRG-CC-0003	GUARD HOUSE - SECTIONS	28/05/2024					
113503-3500-DRG-CC-0004	GUARD HOUSE - ELEVATIONS	28/05/2024					
113503-3500-DRG-CC-0005	GUARD HOUSE - SCHEDULES	28/05/2024					
113503-3500-DRG-CC-0006	GUARD HOUSE - FOUNDATION & SURFACE BED LAYOUT	28/05/2024					
113503-3500-DRG-CC-0007	TYPICAL DETAILS - BUILDING DETAILS SHEET 1 OF 4	28/05/2024					
113503-3500-DRG-CC-0008	TYPICAL DETAILS - BUILDING DETAILS SHEET 2 OF 4	28/05/2024					
113503-3500-DRG-CC-0009	TYPICAL DETAILS - BUILDING DETAILS SHEET 3 OF 4	28/05/2024					
113503-3500-DRG-CC-0010	TYPICAL DETAILS - BUILDING DETAILS SHEET 4 OF 4	28/05/2024					
113503-3500-DRG-EL-2000	ELECTRICAL - GUARD HOUSE SMALL POWER AND LIGHTING LAYOUT	28/05/2024					
	STRUCTURAL						
113503-2120-DRG-SS-0001	TYPICAL DETAILS AND STANDARDS - PUMP PLINTH, JOINTS, CABLE TRENCHES, FLOOR LAYERWORKS & EXISTING TRENCH BACKFILL	07/02/2024					
113503-2120-DRG-SS-0002	TYPICAL DETAILS AND STANDARDS - STAIRCASES	07/02/2024					
113503-2120-DRG-SS-0003	TYPICAL DETAILS AND STANDARDS - PIPE SUPPORT PLINTHS	07/02/2024					
113503-2120-DRG-SS-0004	TYPICAL DETAILS AND STANDARDS - LOW-LEVEL ACCESS PODIUMS	07/02/2024					
113503-2120-DRG-SS-0005	TYPICAL DETAILS AND STANDARDS - FLOOR PLAN - CONCRETE JOINT DETAILS	07/02/2024					
	CROSBY PUMPSTATION						
	AS-BUILTS						
213530	CROSBY PUMPSTATION ELECTRICAL INSTALLATION	07/08/2024					
CED-81-89	CROSBY RESERVOIR PUMP HOUSE PLAN HV CHAMBER AND CONTROL ROOM	07/08/2024					
CED-81-59	CROSBY RESERVOIR PUMP STATION	07/08/2024					
17-0071	CROSBY RESERVOIR PUMPHOUSE	07/08/2024					
JW4071/6	THRUST BLOCK CROSBY PUMPSTATION LAYOUT DRAWING	07/08/2024					



GENERAL NOTES:

1. DRAWINGS MUST NOT BE SCALED.
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LEGEND:

- PROPOSED WATER LINE
- EXISTING WATER LINE
- RW BULK PIPELINE

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

DESIGNED	N. NXUMALO	JANUARY 2024
DRAWN	N. NXUMALO	JANUARY 2024
CHECKED	S. MNQONYWA	JANUARY 2024
APPROVED BY:	C. KAN	JANUARY 2024
	SIGNATURE	DATE
ECSA REG. No.		
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG. No.		

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION AND ASSOCIATED PIPELINES
GENERAL SITE LAYOUT

APPROVAL BY JW DEPOT			SCALE
CHECKED			
APPROVED BY:			1:3000
	SIGNATURE	DATE	
APPROVAL BY JW PLANNING			
CHECKED			
APPROVED BY:			
	SIGNATURE	DATE	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	01/2024

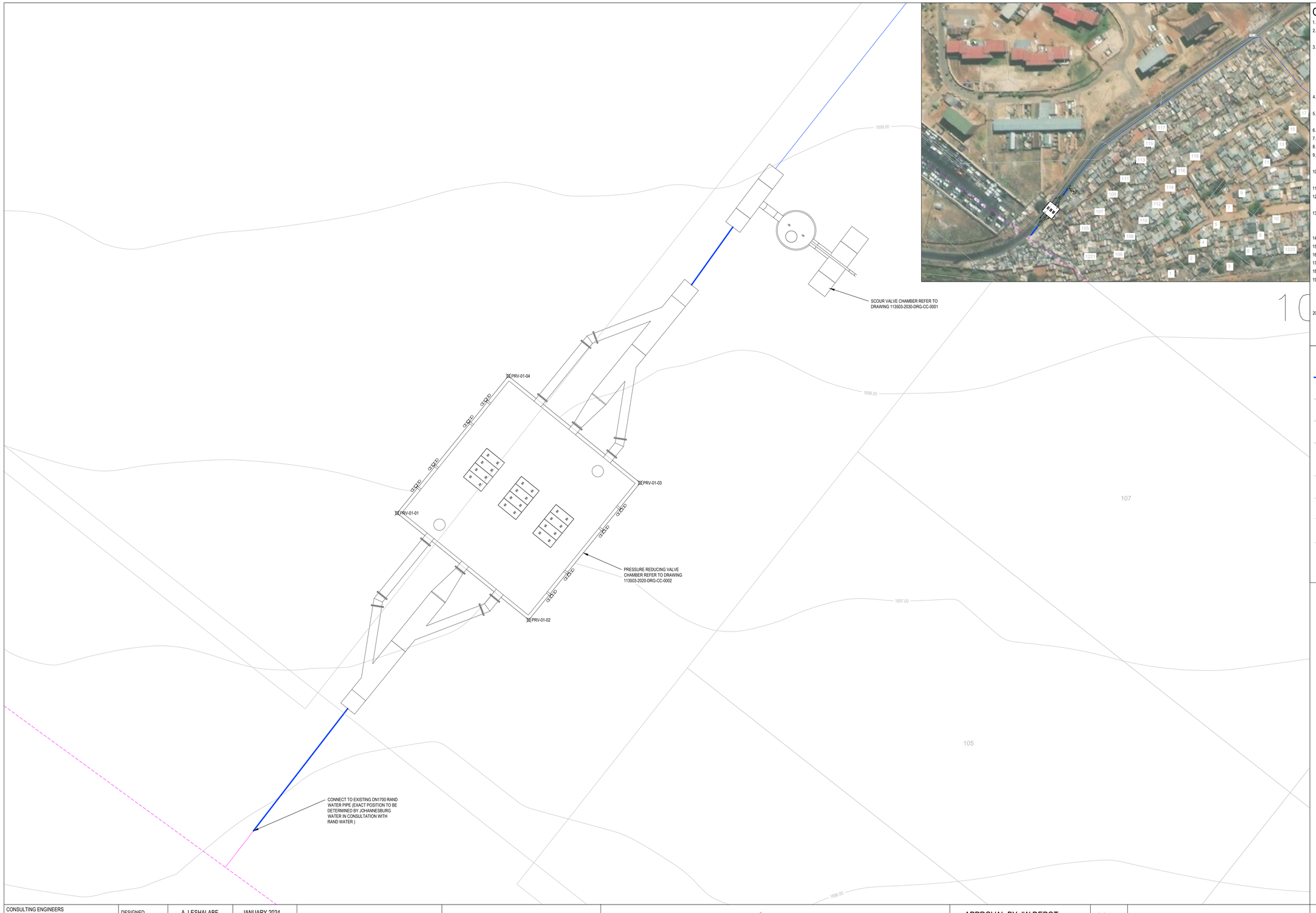
DRAWING No.

113503 - 2000-DRG-CC-0001 - T0

PROJECT No. | DRAWING No. | REV.

A0 ORIGINAL PAGE SIZE | SHEET 1 OF 1

FILE No.



GENERAL NOTES:

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4. ALL DIMENSIONS IN METERS UNLESS OTHERWISE STATED ALL LEVELS IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE STATED.
5. FOR CO-ORDINATES OF PIPELINE P/S AND SURVEY BEACONS SEE REFERENCE DRAWINGS.
6. VERTICAL AND HORIZONTAL BENDS INDICATED IN DECIMAL DEGREES.
7. ALL SCALES DEPICTED ON THIS DRAWING ARE FOR A0 PAPER SIZE.
8. MINIMUM COVER OVER PIPE TO BE 0.8 m
9. EXISTING SERVICES TO BE EXPOSED AND LEVELS TO BE CONFIRMED WITH THE ENGINEER PRIOR TO THE INSTALLATION OF ANY NEW PIPE WORK ON SITE.
10. ALL EXCAVATIONS DEEPER THAN 1.5 m MUST BE ADEQUATELY SHORED AND BRACED.
11. WAYLEAVE APPROVAL CONDITIONS TO BE STRICTLY ADHERED TO.
12. ACCOMMODATION OF TRAFFIC TO BE IN STRICT ACCORDANCE TO SOUTH AFRICAN ROAD TRAFFIC SIGN MANUAL.
13. THE SPOILING OF MATERIAL ALONGSIDE EXCAVATIONS WILL NOT BE PERMITTED WITHIN THE ROAD RESERVE AT ANY POINT ALONG THE EXTENT OF THE WORKS.
14. CATHODIC PROTECTION TO BE PROVIDED TO THE NEW PIPE
15. ALL BENDS SHALL BE MEDIUM RADIUS BENDS.
16. FOR AIR VALVE DETAILS REFER TO DWG. No.113503-3400-DRG-CC-0002.
17. FOR SCOUR VALVE DETAILS REFER TO DWG. No.113503-3400-DRG-CC-0001.
18. FOR CLASS B BEDDING, REFER TO DWG. No.113503-3400-DRG-CC-0003.
19. 1000 mm Ø (10.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.
20. 600 mm Ø (6.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.

LEGEND:

- PROPOSED WATER LINE
- EXISTING DN750 WATER LINE
- EXISTING DN900 WATER LINE
- TO BE DECOMMISSIONED WATER LINE
- EXITING SEWER LINE
- EXISTING STORMWATER LINE
- EXISTING ELECTRICAL LINE
- NGL
- V/H BENDS

RANDWATER CONNECTION PRESSURE REDUCINNG VALVE COORDINATES LIST WGS 84 LO-29

POINT	X	Y
PRV-01-01	2897828.234	104099.626
PRV-01-02	2897834.341	104092.098
PRV-01-03	2897826.502	104085.729
PRV-01-04	2897820.390	104093.261

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED	A. LESHALABE	JANUARY 2024	
DRAWN	A. LESHALABE	JANUARY 2024	
CHECKED	S. MNQONYWA	JANUARY 2024	
APPROVED BY:	C. KAN	JANUARY 2024	
	SIGNATURE	DATE	
ECSA REG. No.			
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG. No.			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

RAND WATER OFFTAKE
GENERAL ARRANGEMENT

APPROVAL BY JW DEPOT		
CHECKED		
APPROVED BY:		
	SIGNATURE	DATE
APPROVAL BY JW PLANNING		
CHECKED		
APPROVED BY:		
	SIGNATURE	DATE

SCALE: AS SHOWN

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	01/2024

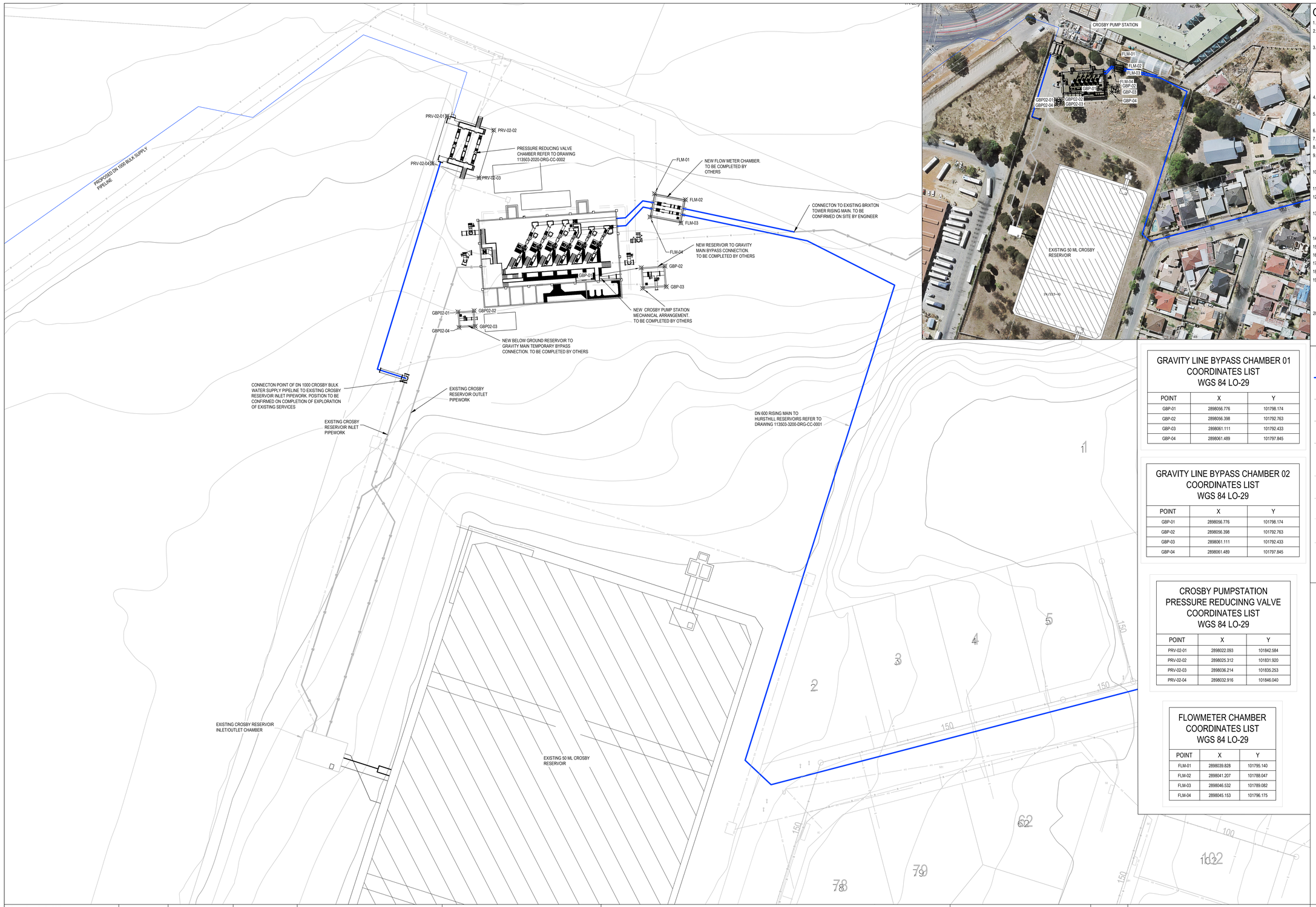
DRAWING No.

113503 - 2000-DRG-CC-0002 - T0
PROJECT No. DRAWING No. REV.

A0 ORIGINAL PAGE SIZE

SHEET 1 OF 1

FILE No.



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4. ALL DIMENSIONS IN METERS UNLESS OTHERWISE STATED ALL LEVELS IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE STATED.
5. FOR CO-ORDINATES OF PIPELINE PI'S AND SURVEY BEACONS SEE REFERENCE DRAWINGS.
6. VERTICAL AND HORIZONTAL BENDS INDICATED IN DECIMAL DEGREES.
7. ALL SCALES DEPICTED ON THIS DRAWING ARE FOR A0 PAPER SIZE.
8. MINIMUM COVER OVER PIPE TO BE 0.8 m
9. EXISTING SERVICES TO BE EXPOSED AND LEVELS TO BE CONFIRMED WITH THE ENGINEER PRIOR TO THE INSTALLATION OF ANY NEW PIPE WORK ON SITE.
10. ALL EXCAVATIONS DEEPER THAN 1.5 m MUST BE ADEQUATELY SHORED AND BRACED.
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12. ACCOMMODATION OF TRAFFIC TO BE IN STRICT ACCORDANCE TO SOUTH AFRICAN ROAD TRAFFIC SIGN MANUAL.
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19. 1000 mm Ø (10.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.
20. 600 mm Ø (6.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.

LEGEND:

- PROPOSED WATER LINE
- EXISTING DN750 WATER LINE
- EXISTING DN900 WATER LINE
- TO BE DECOMMISSIONED WATER LINE
- EXITING SEWER LINE
- EXISTING STORMWATER LINE
- EXISTING ELECTRICAL LINE
- NGL
- V/H BENDS

GRAVITY LINE BYPASS CHAMBER 01 COORDINATES LIST WGS 84 LO-29

POINT	X	Y
GBP-01	2898056.776	101798.174
GBP-02	2898056.398	101792.763
GBP-03	2898061.111	101792.433
GBP-04	2898061.489	101797.845

GRAVITY LINE BYPASS CHAMBER 02 COORDINATES LIST WGS 84 LO-29

POINT	X	Y
GBP-01	2898056.776	101798.174
GBP-02	2898056.398	101792.763
GBP-03	2898061.111	101792.433
GBP-04	2898061.489	101797.845

CROSBY PUMPSTATION PRESSURE REDUCINNG VALVE COORDINATES LIST WGS 84 LO-29

POINT	X	Y
PRV-02-01	2898022.093	101842.584
PRV-02-02	2898025.312	101831.920
PRV-02-03	2898036.214	101835.253
PRV-02-04	2898032.916	101846.040

FLOWMETER CHAMBER COORDINATES LIST WGS 84 LO-29

POINT	X	Y
FLM-01	2898039.828	101795.140
FLM-02	2898041.207	101788.047
FLM-03	2898046.532	101789.082
FLM-04	2898045.153	101796.175

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED	A. LESHALABE	JANUARY 2024	
DRAWN	A. LESHALABE	JANUARY 2024	
CHECKED	S. MNQONYWA	JANUARY 2024	
APPROVED BY:	C. KAN	JANUARY 2024	
	SIGNATURE	DATE	
ECSA REG. No.			
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG. No.			

Johannesburg Water

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY SITE LAYOUT - GENERAL ARRANGEMENT

APPROVAL BY JW DEPOT			SCALE
CHECKED			AS SHOWN
APPROVED BY:			
	SIGNATURE	DATE	
APPROVAL BY JW PLANNING			
CHECKED			
APPROVED BY:			
	SIGNATURE	DATE	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	01/2024

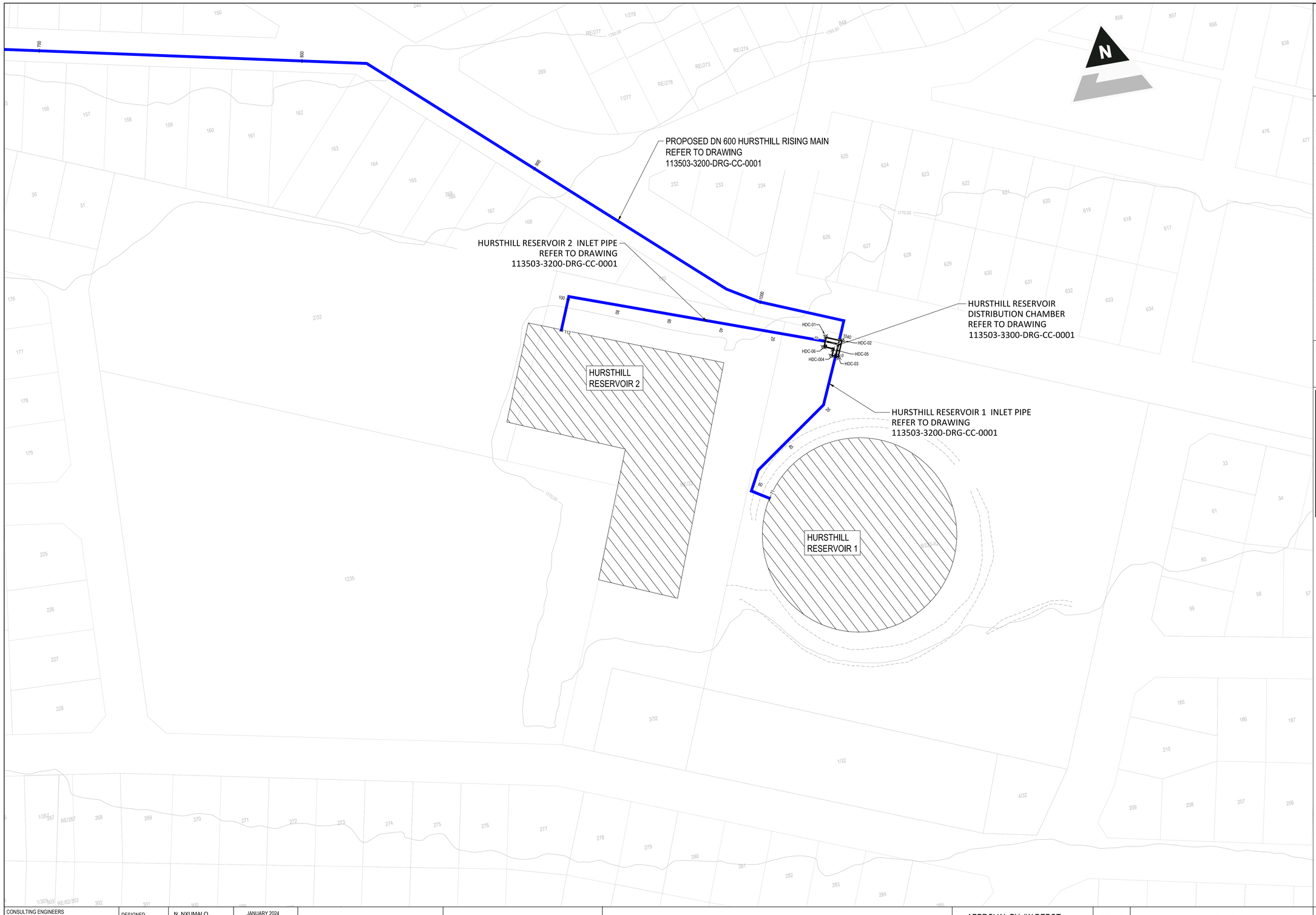
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113503 - 2000-DRG-CC-0003 - T0
PROJECT No. DRAWING No. REV.

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FILE No.



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6. ERTICAL AND HORIZONTAL BENDS INDICATED IN DECIMAL DEGREES.
7. ALL SCALES DEPICTED ON THIS DRAWING ARE FOR A0 PAPER SIZE.
8. MINIMUM COVER OF 0.8 m ON ALL OTHER AREAS AND 1.0 m UNDER ROADS OVER PIPELINES.
9. EXISTING SERVICES TO BE EXPOSED AND LEVELS TO BE CONFIRMED WITH THE ENGINEER PRIOR TO THE INSTALLATION OF ANY NEW PIPE WORK ON SITE.
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15. ALL BENDS SHALL BE MEDIUM RADIUS BENDS.
16. FOR AIR VALVE DETAILS REFER TO DWG. No.113503-2030-DRG-CC-0003.
17. FOR SCOUR VALVE DETAILS REFER TO DWG. No.113503-2030-DRG-CC-00001.
18. FOR CONCRETE ENCASEMENT DETAILS REFER TO No.113503-2030-DRG-CC-0004.
19. FOR CLASS B BEDDING, REFER TO DWG. No.113503-2030-DRG-CC-0004.
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LEGEND:

PROPOSED WATER LINE

HURSTHILL DISTRIBUTION CHAMBER SETING-OUT COORDINATES WGS 84 LO-29

POINT	X	Y
HDC-01	2898372.420	100985.228
HDC-02	2898374.945	100979.239
HDC-03	2898381.027	100981.802
HDC-004	2898379.939	100984.382
HDC-05	2898377.590	100983.392
HDC-06	2898376.152	100986.801

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OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED	N. NXUMALO	JANUARY 2024
DRAWN	N. NXUMALO	JANUARY 2024
CHECKED	S. MNQONYWA	JANUARY 2024
APPROVED BY:	C. KAN	JANUARY 2024
	SIGNATURE	DATE
ECSA REG. No.		
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Johannesburg Water

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MARSHALLTOWN
2107

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

HURSTHILL SITE LAYOUT
GENERAL ARRANGEMENT

APPROVAL BY JW DEPOT		
CHECKED		
APPROVED BY:		
	SIGNATURE	DATE
APPROVAL BY JW PLANNING		
CHECKED		
APPROVED BY:		
	SIGNATURE	DATE

SCALE: 1:500

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	FOR TENDER	01/2024

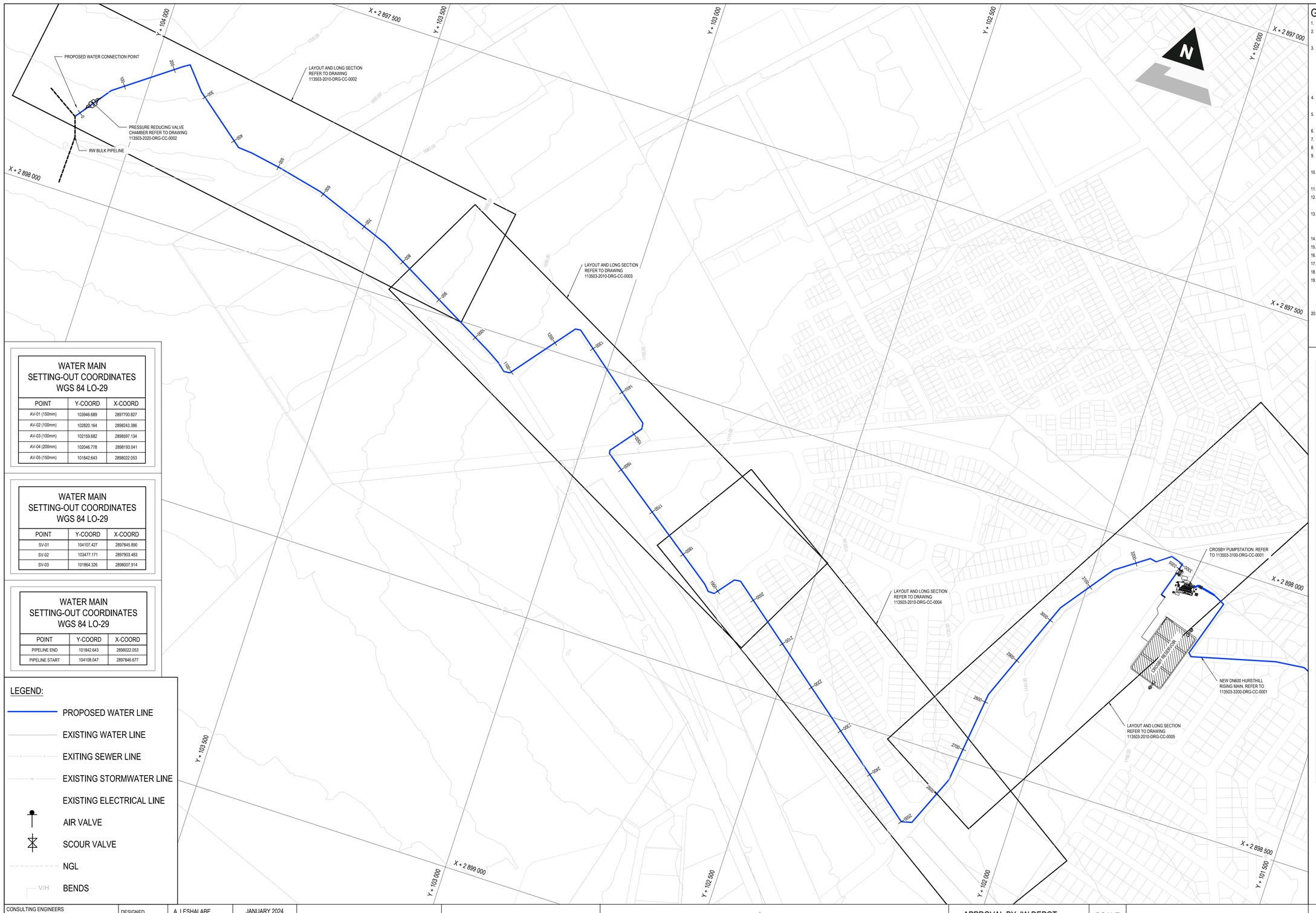
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113503 - 2000-DRG-CC-0004 - T0
PROJECT No. DRAWING No. REV.

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SHEET 1 OF 1

FILE No.



WATER MAIN SETTING-OUT COORDINATES WGS 84 LO-29

POINT	Y-COORD	X-COORD
AV-01 (150mm)	103946.689	2897700.827
AV-02 (100mm)	102820.164	2898243.386
AV-03 (100mm)	102159.682	2898597.134
AV-04 (200mm)	102046.778	2898193.041
AV-05 (150mm)	101842.643	2898022.053

WATER MAIN SETTING-OUT COORDINATES WGS 84 LO-29

POINT	Y-COORD	X-COORD
SV-01	104107.427	2897845.890
SV-02	103477.171	2897903.483
SV-03	101864.326	2898007.914

WATER MAIN SETTING-OUT COORDINATES WGS 84 LO-29

POINT	Y-COORD	X-COORD
PIPELINE END	101842.643	2898022.053
PIPELINE START	104108.047	2897846.677

LEGEND:

- PROPOSED WATER LINE
- EXISTING WATER LINE
- EXITING SEWER LINE
- EXISTING STORMWATER LINE
- EXISTING ELECTRICAL LINE
- AIR VALVE
- SCOUR VALVE
- NGL
- V/H BENDS

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WATER MAIN SETTING-OUT COORDINATES WGS 84 LO-29

POINT	Y-COORD	X-COORD
BH-01	104064.525	2897787.896
BH-02	103946.689	2897700.827
BH-03	103936.338	2897694.498
BH-04	103899.732	2897737.210
BH-05	103799.713	2897816.044
BH-06	103771.547	2897818.316
BH-07	103711.543	2897828.852
BH-08	103625.365	2897847.975
BH-09	103477.071	2897903.521
BH-10	103225.364	2898038.723
BH-11	103201.962	2898052.845
BH-12	103186.094	2898066.088
BH-13	103174.213	2898064.872
BH-14	103081.110	2897946.751
BH-15	103071.176	2897945.574
BH-16	102903.166	2898077.978
BH-17	102901.841	2898089.162
BH-18	102947.054	2898146.527
BH-19	102946.003	2898152.654
BH-20	102695.753	2898333.725
BH-21	102685.493	2898344.768
BH-22	102673.371	2898344.921
BH-23	102644.672	2898308.514
BH-24	102632.746	2898307.101
BH-25	102199.140	2898648.868
BH-26	102179.510	2898643.837
BH-27	102137.544	2898544.990
BH-28	102116.060	2898366.582
BH-29	102036.194	2898166.529
BH-30	101962.185	2898066.816
BH-31	101902.087	2898024.337
BH-32	101889.604	2898026.831
BH-33	101864.326	2898007.914
BH-34	101840.555	2898015.308

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DESIGNED	A. LESHALABE	JANUARY 2024	
DRAWN	A. LESHALABE	JANUARY 2024	
CHECKED	S. MNQONYWA	JANUARY 2024	
APPROVED BY:	C. KAN	JANUARY 2024	
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Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY BULK SUPPLY PIPELINE - GENERAL ARRANGEMENT

APPROVAL BY JW DEPOT			SCALE
CHECKED			
APPROVED BY:			1:2500
	SIGNATURE	DATE	
APPROVAL BY JW PLANNING			
CHECKED			
APPROVED BY:			
	SIGNATURE	DATE	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	01/2024

DRAWING No.

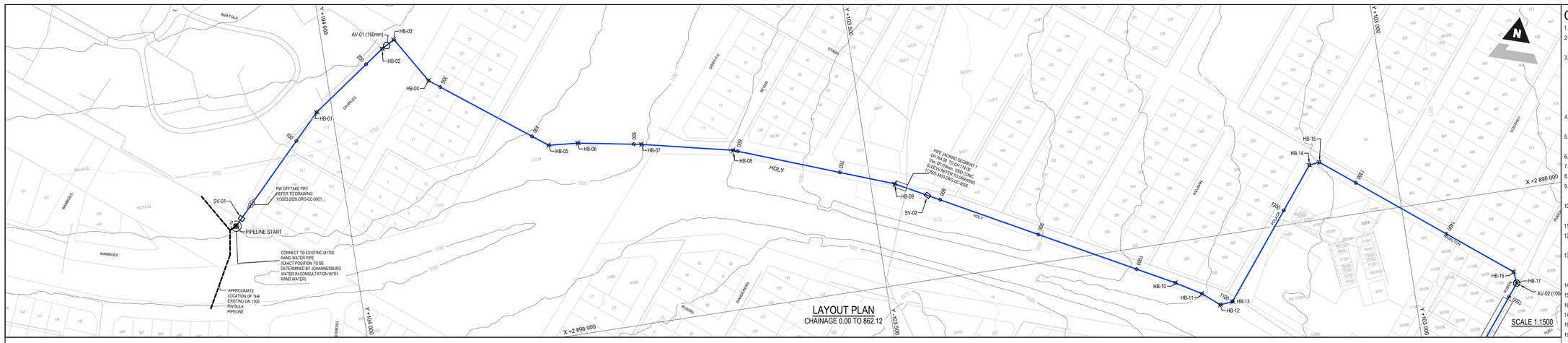
113503 - 2010-DRG-CC-0001 - T0

PROJECT No. | DRAWING No. | REV.

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SHEET 1 OF 1

FILE No.



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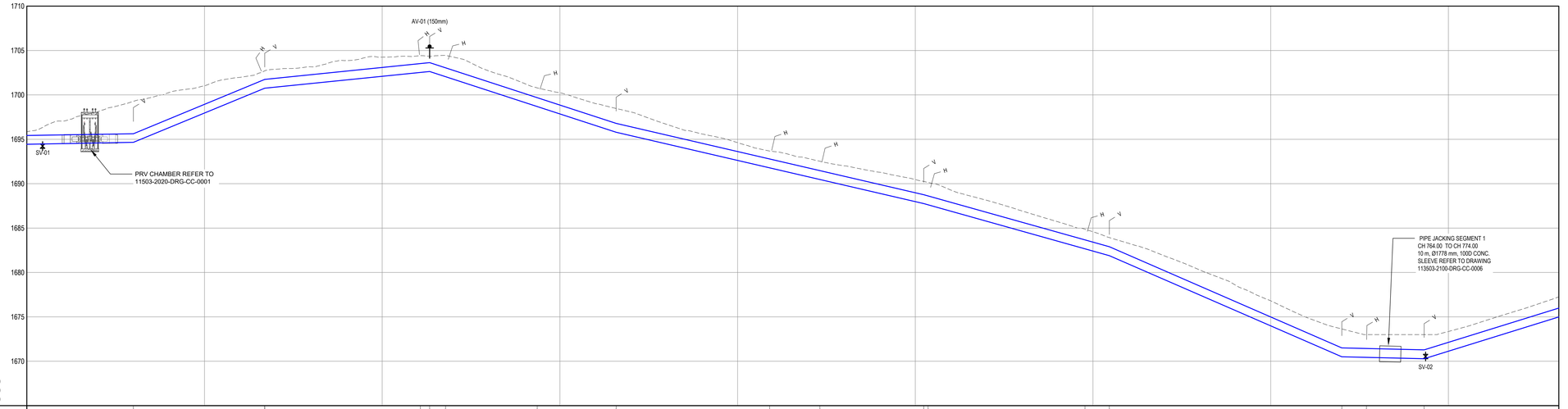
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GENERAL NOTES:

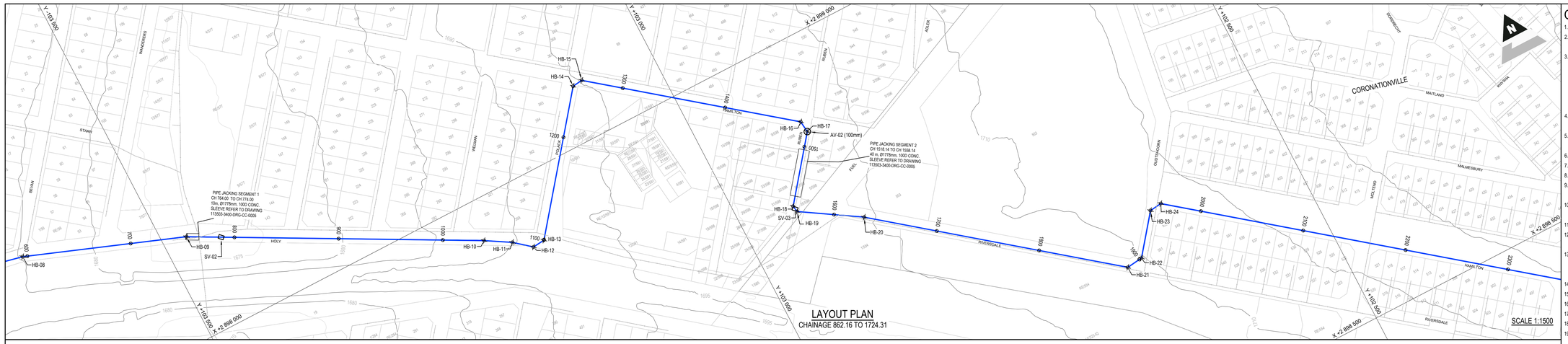
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LEGEND:

- PROPOSED WATER LINE
- EXISTING DN750 WATER LINE
- EXISTING DN900 WATER LINE
- TO BE DECOMMISSIONED WATER LINE
- EXITING SEWER LINE
- EXISTING STORMWATER LINE
- EXISTING ELECTRICAL LINE
- NGL
- V/H BENDS



| | | |



LAYOUT PLAN
CHAINAGE 862.16 TO 1724.31

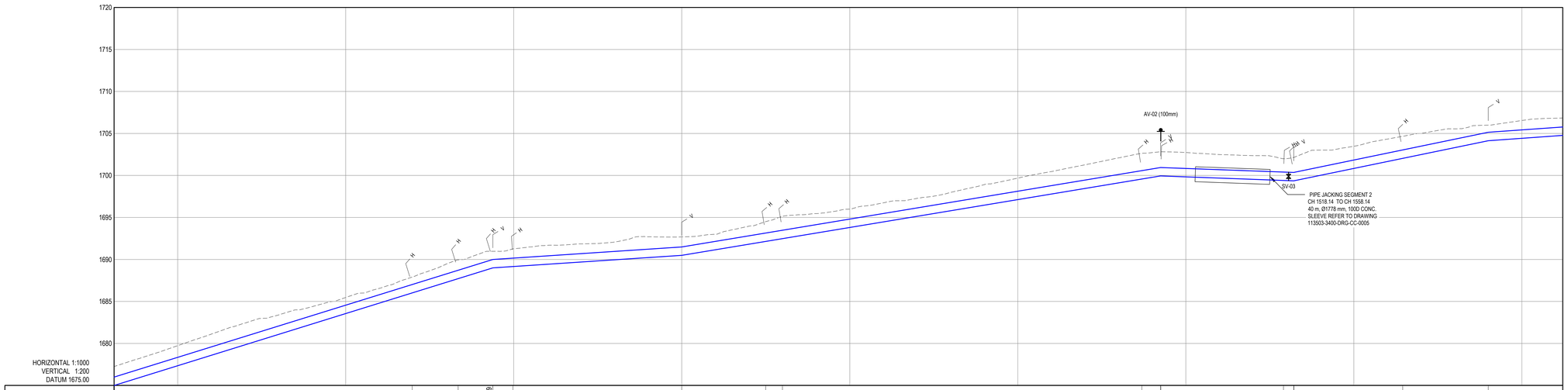
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GENERAL NOTES:

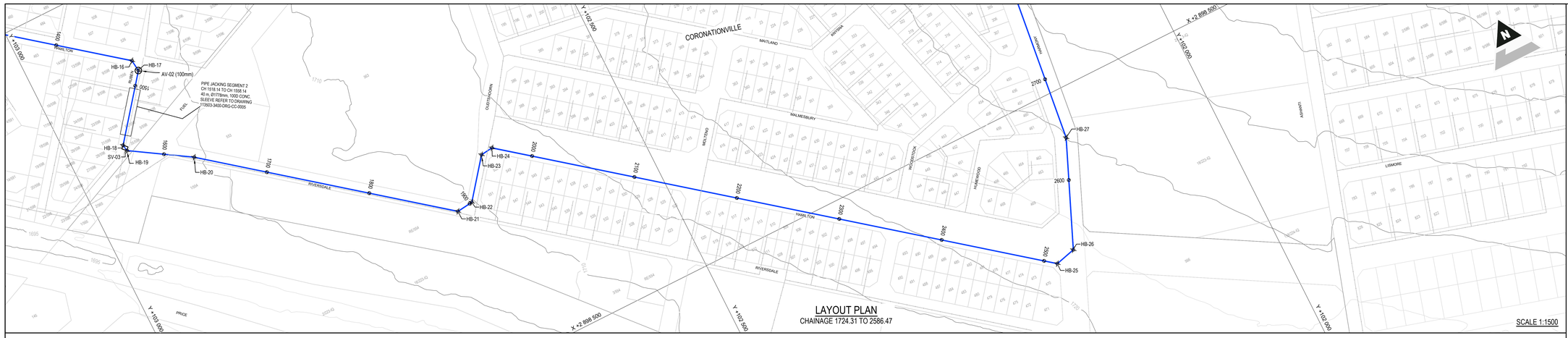
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5. FOR CO-ORDINATES OF PIPELINE P/S AND SURVEY BEACONS SEE REFERENCE DRAWINGS.
6. VERTICAL AND HORIZONTAL BENDS INDICATED IN DECIMAL DEGREES.
7. ALL SCALES DEPICTED ON THIS DRAWING ARE FOR A0 PAPER SIZE.
8. MINIMUM COVER OVER PIPE TO BE 0.8 m
9. EXISTING SERVICES TO BE EXPOSED AND LEVELS TO BE CONFIRMED WITH THE ENGINEER PRIOR TO THE INSTALLATION OF ANY NEW PIPE WORK ON SITE.
10. ALL EXCAVATIONS DEEPER THAN 1.5 m MUST BE ADEQUATELY SHORED AND BRACED.
11. WAYLEAVE APPROVAL CONDITIONS TO BE STRICTLY ADHERED TO.
12. ACCOMMODATION OF TRAFFIC TO BE IN STRICT ACCORDANCE TO SOUTH AFRICAN ROAD TRAFFIC SIGN MANUAL.
13. THE SPOILING OF MATERIAL ALONGSIDE EXCAVATIONS WILL NOT BE PERMITTED WITHIN THE ROAD RESERVE AT ANY POINT ALONG THE EXTENT OF THE WORKS.
14. CATHODIC PROTECTION TO BE PROVIDED TO THE NEW PIPE
15. ALL BENDS SHALL BE MEDIUM RADIUS BENDS.
16. FOR AIR VALVE DETAILS REFER TO DWG. No.113503-3400-DRG-CC-0002.
17. FOR SCOUR VALVE DETAILS REFER TO DWG. No.113503-3400-DRG-CC-0001.
18. FOR CLASS B BEDDING, REFER TO DWG. No.113503-3400-DRG-CC-0003.
19. 1000 mm Ø (10.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.
20. 600 mm Ø (6.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.

LEGEND:

- PROPOSED WATER LINE
- EXISTING DN750 WATER LINE
- EXISTING DN900 WATER LINE
- TO BE DECOMMISSIONED WATER LINE
- EXITING SEWER LINE
- EXISTING STORMWATER LINE
- EXISTING ELECTRICAL LINE
- NGL
- V/H BENDS

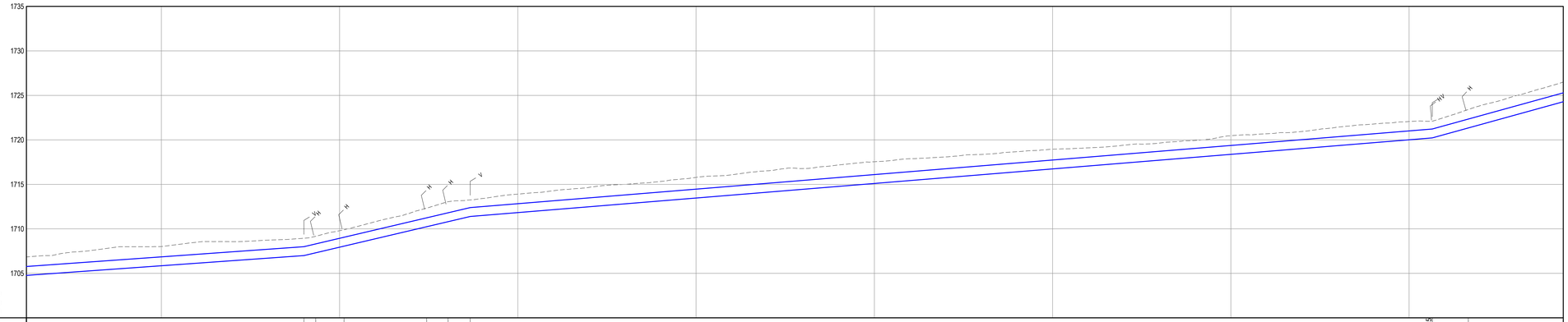


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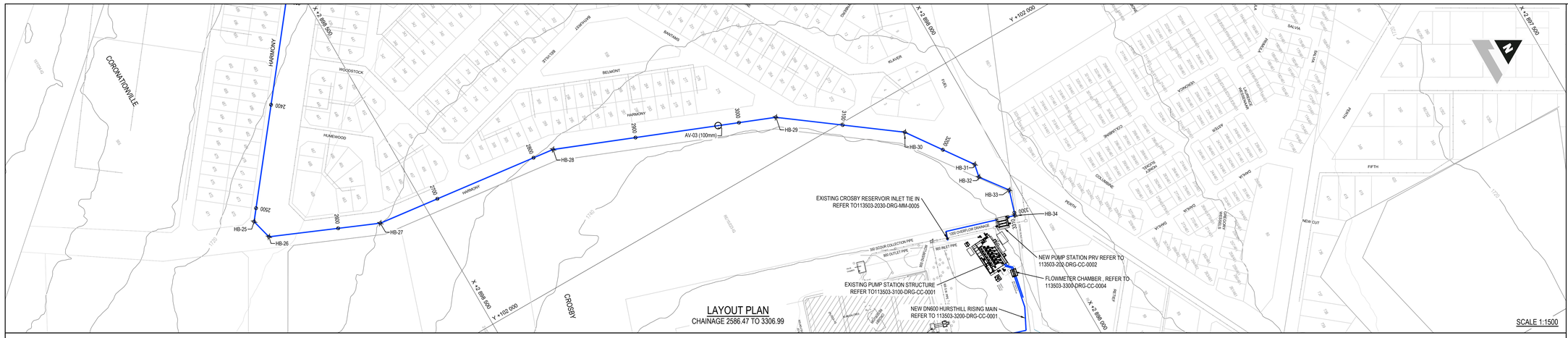
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CHAINAGE 1724.31 TO 2586.47

SCALE 1:1500



HORIZONTAL 1:1000
VERTICAL 1:200
DATUM 1700.00

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LAYOUT PLAN
CHAINAGE 2586.47 TO 3306.99

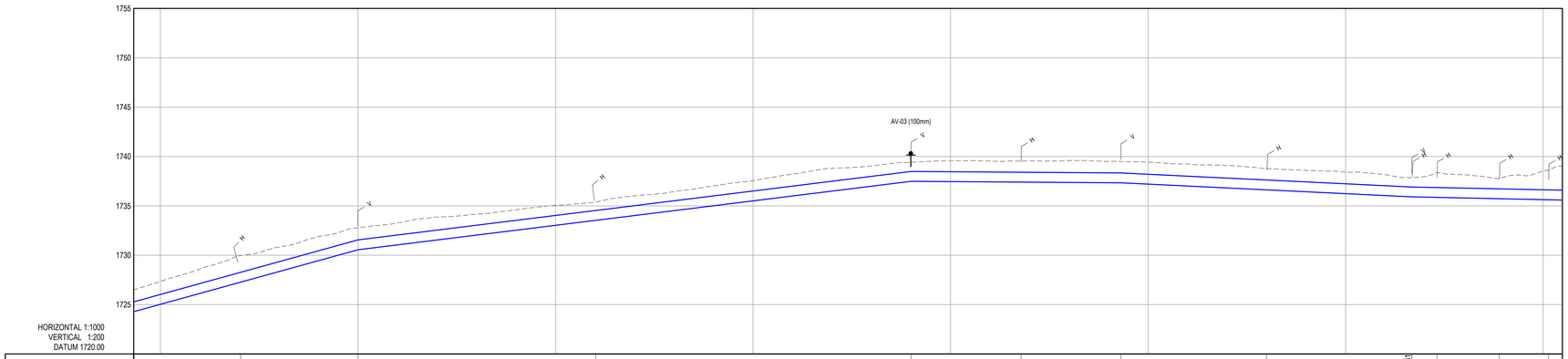
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GENERAL NOTES:

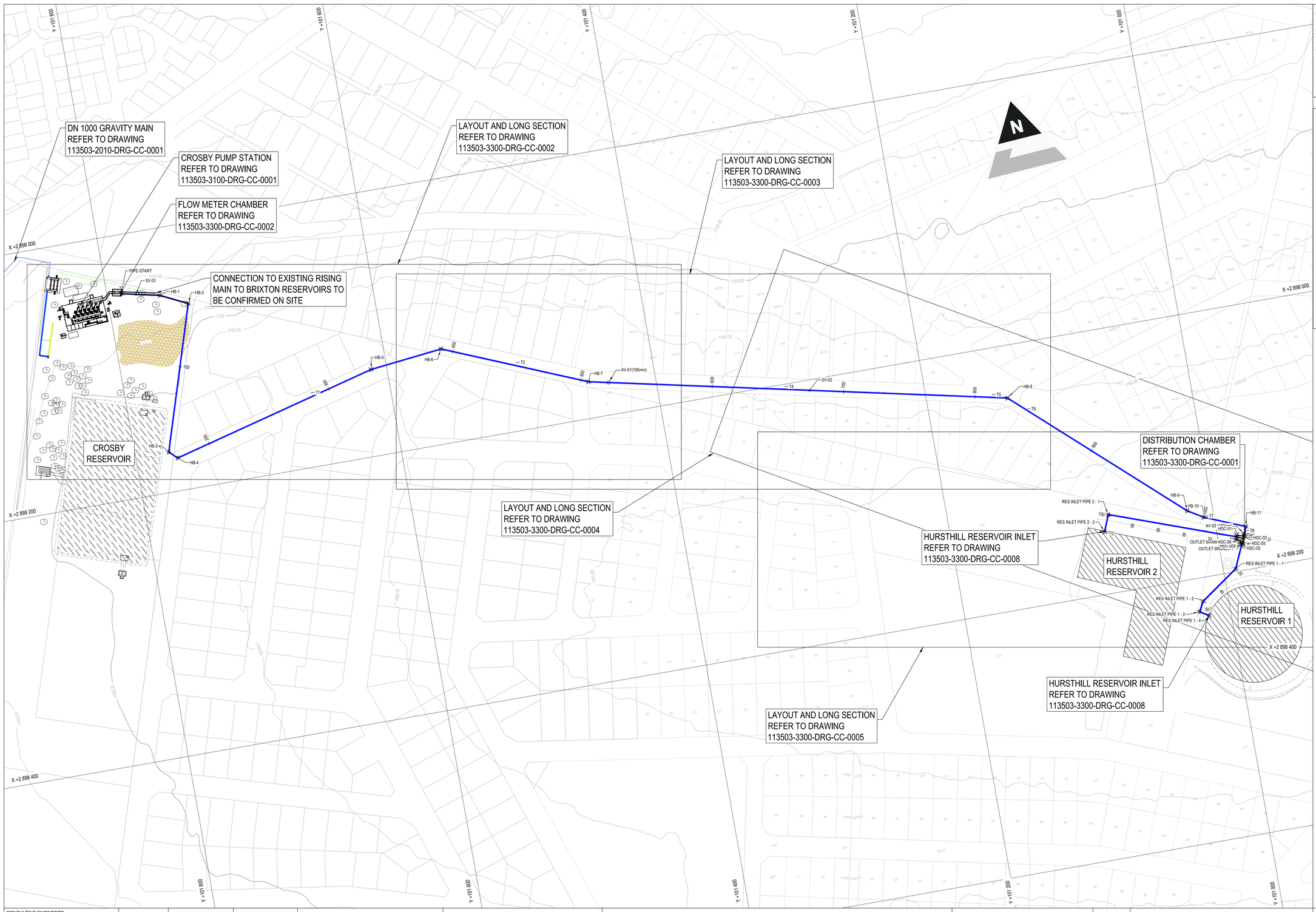
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- EXISTING ELECTRICAL LINE
- NGL
- V/H BENDS



| | | |



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LEGEND:

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- EXISTING WATER LINE
- EXISTING SEWER LINE
- EXISTING STORMWATER LINE
- EXISTING ELECTRICAL LINE
- EXISTING TELKOM LINE
- AV-01 (100 mm) — AIR VALVE
- SV-01 — SCOUR VALVE
- NGL
- V/H — BENDS

RISING MAIN BETWEEN CROSBY AND HURSTHILL RESERVOIR HORIZONTAL BENDS COORDINATES LIST WGS 84 LO-29

POINT	Y	X	INVERT LEVEL
HB-1	101760.356	2898050.948	0.000
HB-2	101740.219	2898060.769	0.000
HB-3	101774.412	2898169.502	1749.380
HB-4	101768.475	2898175.086	1749.530
HB-5	101611.901	2898134.330	1757.490
HB-6	101556.796	2898128.220	1759.490
HB-7	101450.852	2898172.194	1760.060
HB-8	101139.080	2898239.750	1757.790
HB-9	101019.311	2898348.001	0.000
HB-10	101007.881	2898354.921	0.000
HB-11	100977.415	2898367.569	1768.550

RISING MAIN BETWEEN CROSBY AND HURSTHILL RESERVOIR AIR VALVES AND SCOUR VALVES COORDINATES LIST WGS 84 LO-29

POINT	Y	X	INVERT LEVEL
AV-01(100mm)	101435.797	2898175.456	1760.000
AV-02 (100mm)	100979.605	2898372.766	1768.710
SV-01	101778.238	2898046.985	1739.170
SV-02	101286.282	2898207.878	1755.910

HURSTHILL DISTRIBUTION CHAMBER SETING-OUT COORDINATES WGS 84 LO-29

POINT	X	Y
HDC-01	2898372.420	100985.228
HDC-02	2898374.945	100979.239
HDC-03	2898381.027	100981.802
HDC-004	2898379.939	100984.382
HDC-05	2898377.590	100983.392
HDC-06	2898376.152	100986.801

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

Johannesburg Water
17 HARRISON STREET
MARSHALLTOWN
2107
TEL: (011) 688-1400
FAX: (011) 688-1529

DESIGNED	H. GERBER		31.01.24
DRAWN	H. GERBER		31.01.24
CHECKED	S. MNQONYWA		31.01.24
APPROVED BY:		SIGNATURE	DATE
ECSA REG. No.			
CHECKED BY:		SIGNATURE	DATE
ECSA REG. No.			

Joburg

PERTH EMPIRE CORRIDORS OF FREEDOM WATER MAINS UPGRADE
CROSBY PUMP STATION AND ASSOCIATED PIPELINES

HURSTHILL RISING MAIN - PIPELINE LAYOUT
KEY PLAN

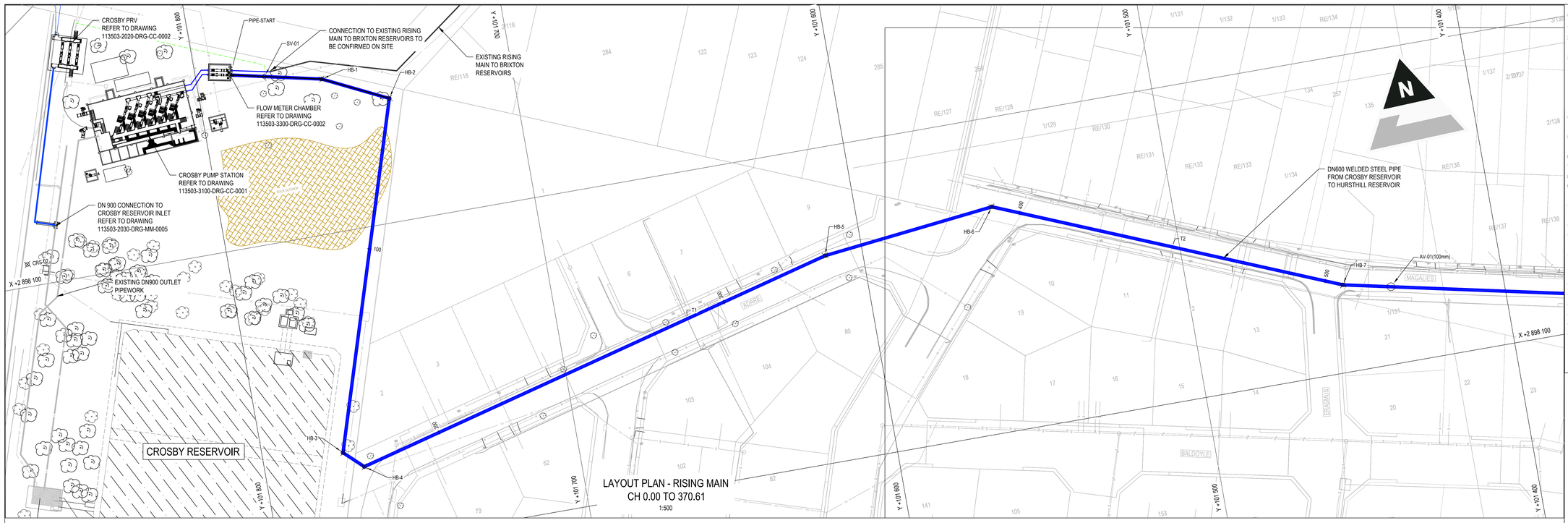
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APPROVAL BY JW PLANNING			
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	SIGNATURE	DATE	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	FOR TENDER	31.01.24

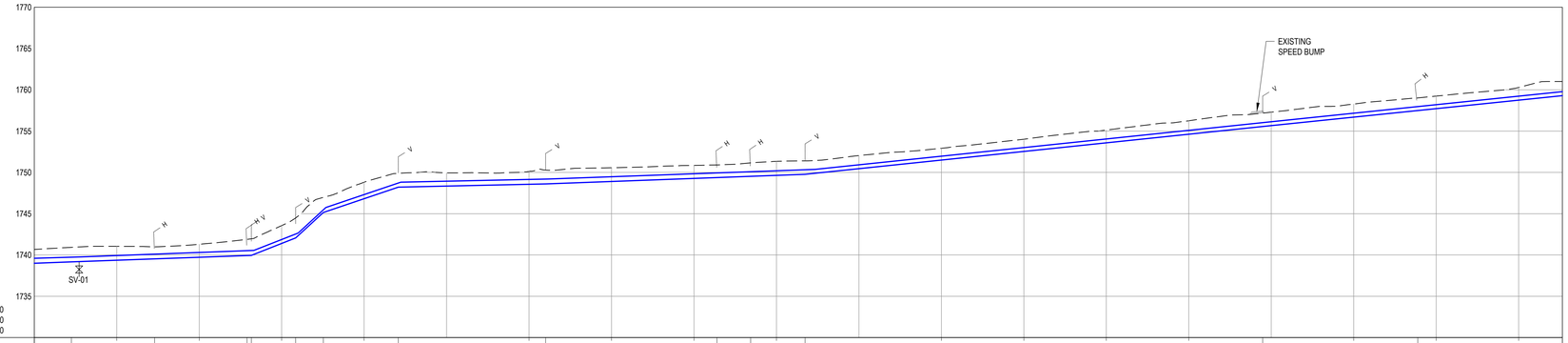
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113503 - 3200-DRG-CC-0001 - T0
PROJECT No. / DRAWING No. / REV.

A0 ORIGINAL PAGE SIZE
SHEET 1 OF 1
FILE No.

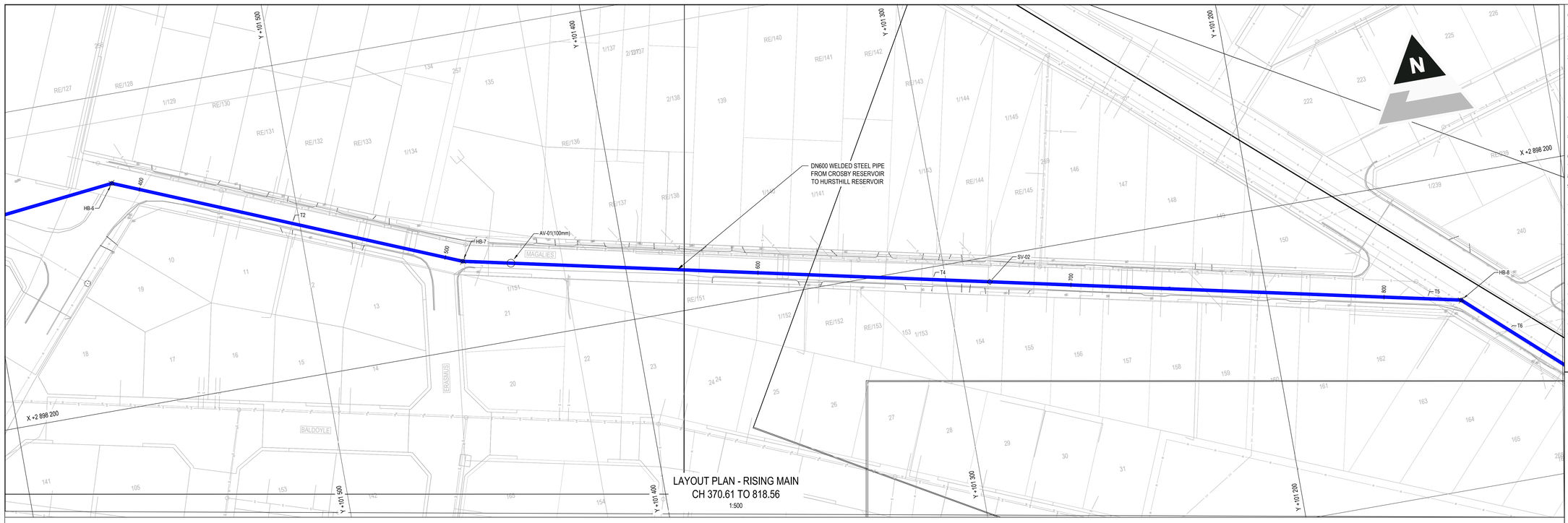


LAYOUT PLAN - RISING MAIN
CH 0.00 TO 370.61
1:500

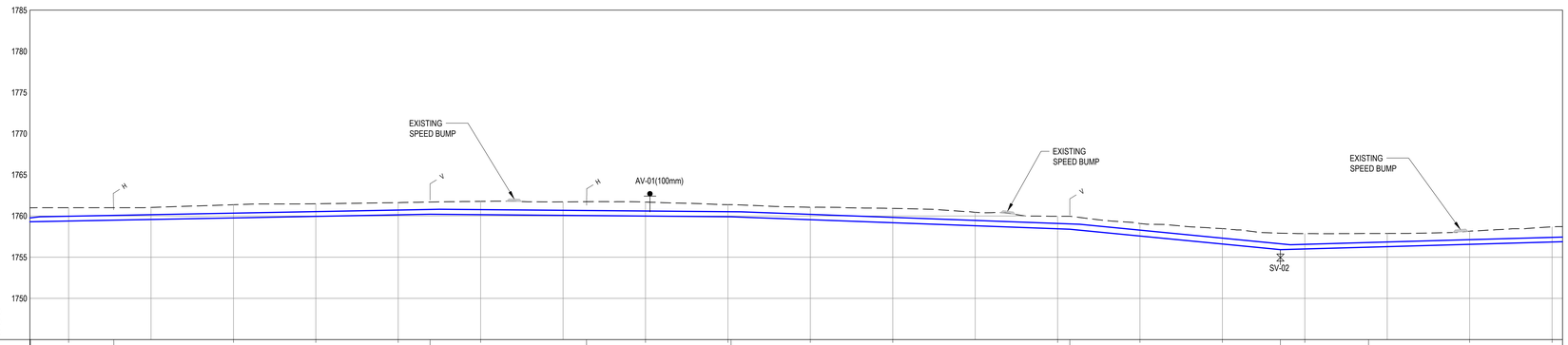


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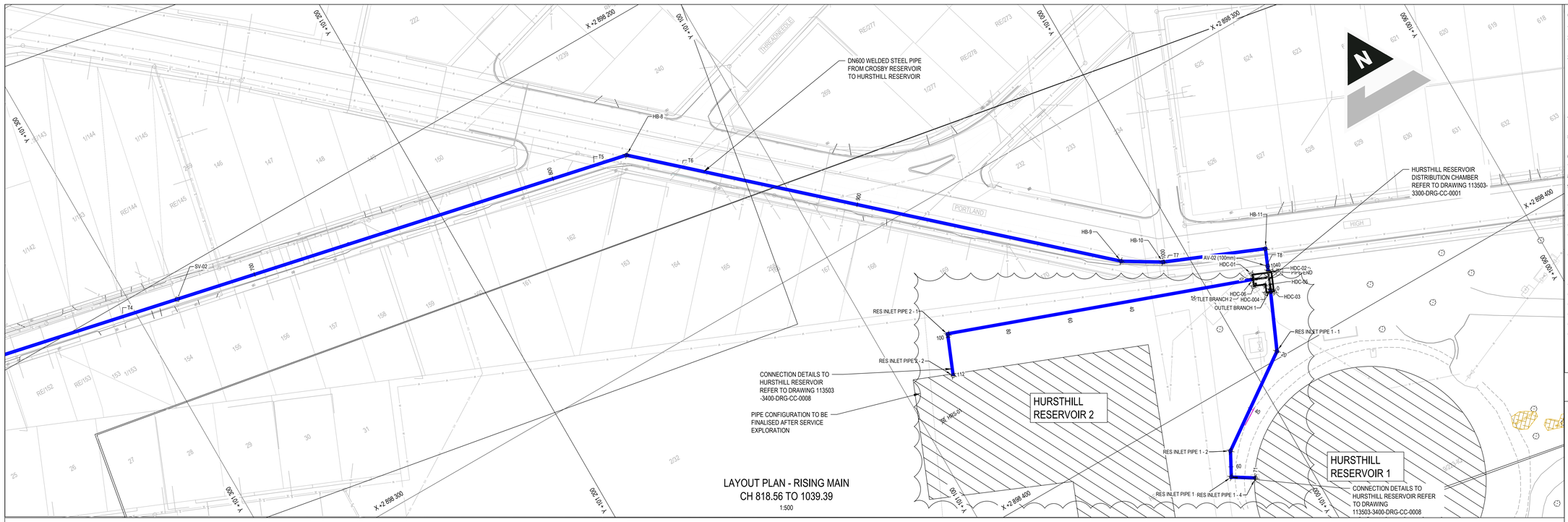


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CH 370.61 TO 818.56
1:500

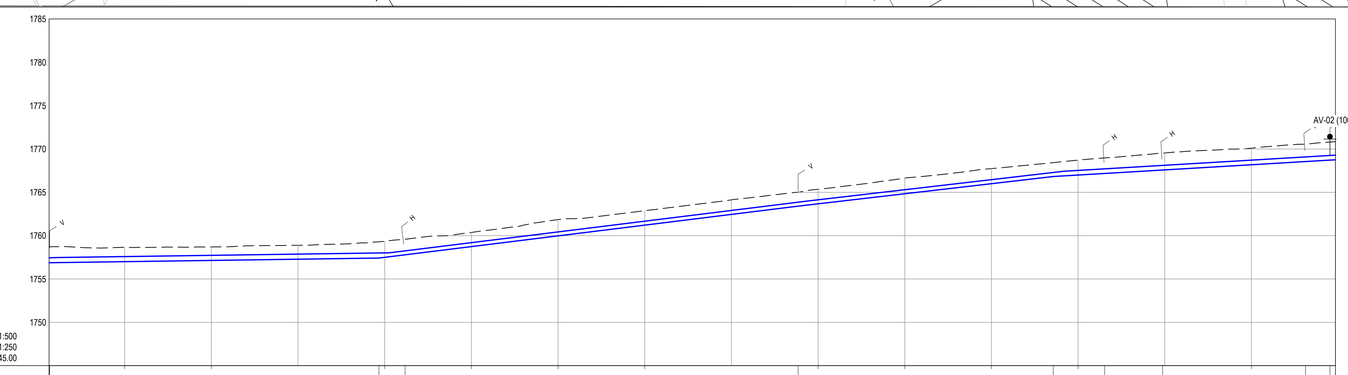


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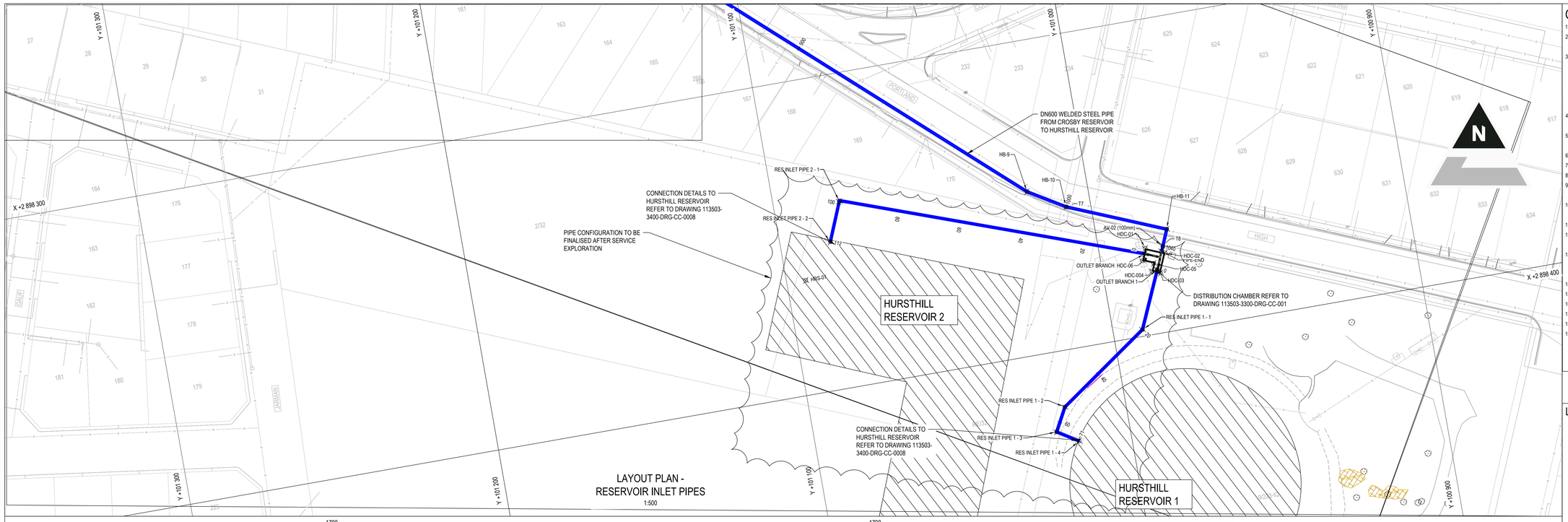


LAYOUT PLAN - RISING MAIN
CH 818.56 TO 1039.39
1:500



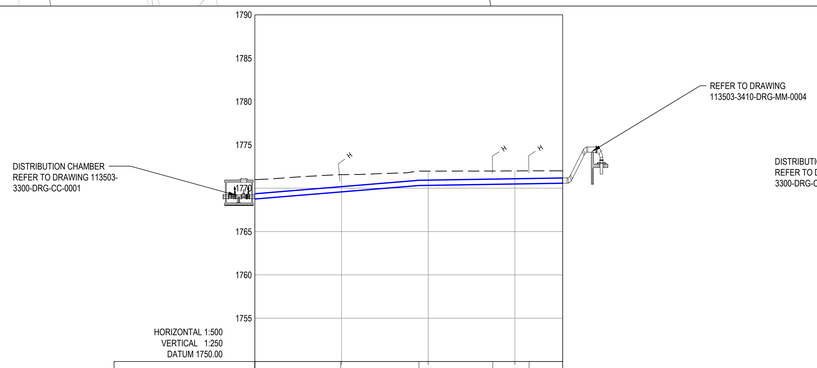
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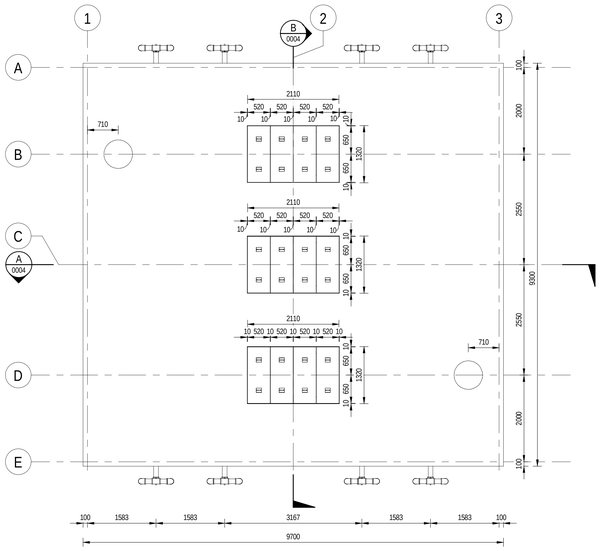


LAYOUT PLAN - RESERVOIR INLET PIPES

1:500

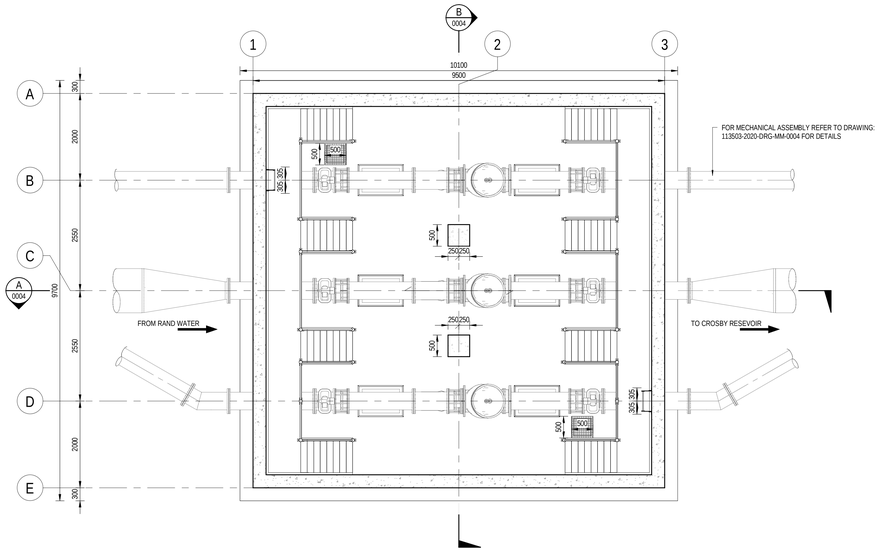


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PRV SYSTEM PLAN VIEW

SCALE 1 : 50

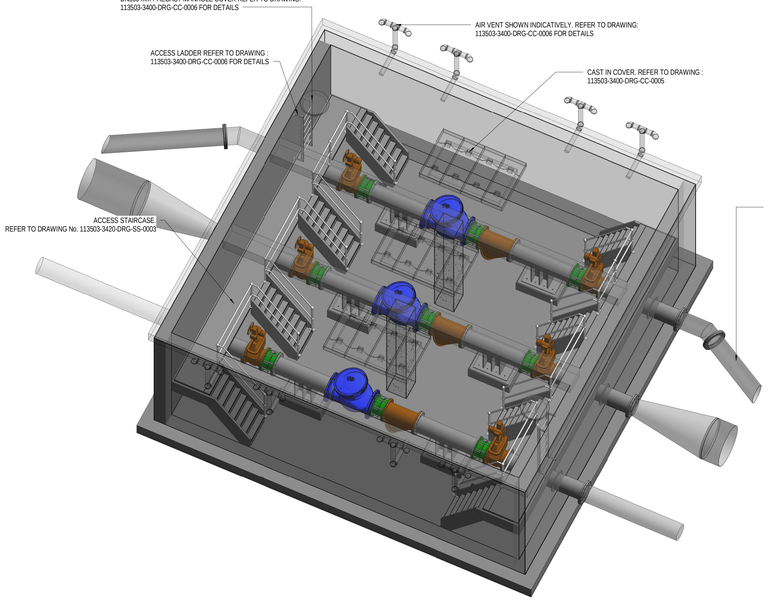


PRV SYSTEM PLAN VIEW - ROOF REMOVED

SCALE 1 : 50

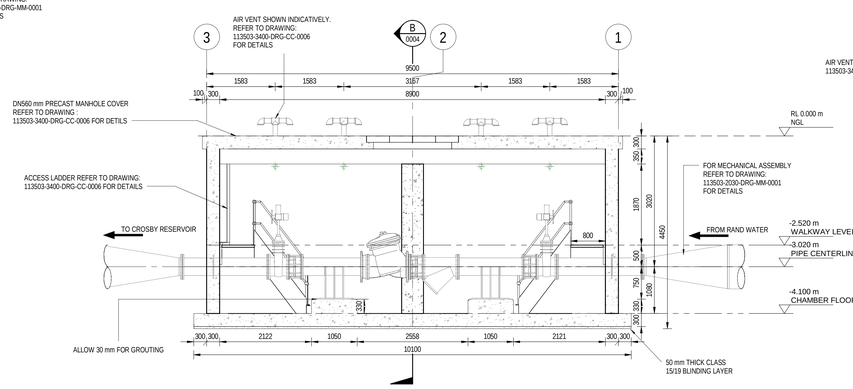
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3. THE CONTRACTOR SHALL SURVEY ALL ABOVE GROUND AND UNDERGROUND PIPES TO CONFIRM THE LEVELS AND SHALL PROVIDE SURVEY INFORMATION TO THE ENGINEER.
4. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CONTRACTOR ON SITE
5. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
6. RE-ENFORCEMENT STEEL SHALL BE MINIMUM 50 mm CLEAR OF PUDDLE PIPE AND FLANGES.
7. ALL PLINTHS ARE TO BE CAST AFTER SURFACE BED
8. ALL PLINTHS MUST HAVE A MINIMUM THICKNESS OF 200 mm
9. ALL BOLTS MUST BE AT LEAST 60 mm AWAY FROM THE EDGES AND INSIDE THE REINFORCEMENT
10. ANCHOR BOLTS MUST BE 150 mm DEEP INTO THE PLINTHS
11. ALL STEEL BOLTS, NUTS AND WASHERS SHALL BE GRADE 8.8 HOT DIPPED MILD STEEL. ANCHOR BOLTS TO BE 16 mm
12. FOR MECHANICAL DRAWINGS, REFER TO DRAWING No. 113503-3120-DRG-MM-0001
13. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND SHALL BE CHECKED BY THE CONTRACTOR BEFORE ORDERING ANY MATERIAL ANY DISCREPANCIES MUST BE REPORTED TO ENGINEER.
14. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE SHOWN
15. CONCRETE FINISHES SHALL BE AS FOLLOWS, EXCEPT WHERE OTHERWISE SHOWN:
    - SMOOTH SPECIAL TO SURFACES EXPOSED TO VIEW
    - ROUGH TO SURFACES AGAINST WHICH BACKFILL OR FURTHER CONCRETE WILL BE PLACED
    - FLOOR FINISHES INSIDE CHAMBERS AND PULP STATIONS TO BE WOOD FLOATED
16. INSULATION MATERIAL MUST BE PLACED BETWEEN DISSIMILAR METALS.
17. CONCRETE TO BE PLACED ON A 50 mm BLINDING LAYER
18. FOR ISOLATION JOINT, SAWCUT JOINT AND GENERAL STRUCTURAL DETAILS SEE DRAWINGS:
    - 113503-2120-DRG-SS-0005
19. ALL BURIED SECTIONS OF STEEL PIPE, FLANGES AND BOLTS TO BE COVERED BY VISCO ELASTIC TAPE WITH PVC WRAPPING (STOPAQ OR SIMILAR APPROVED)
20. 28 DAY CONCRETE CUBE COMPRESSIVE STRENGTH
    - BLINDING LAYER: CLASS 15/19 15 MPa
    - FOOTINGS: CLASS 35/19 35 MPa
    - COLUMNS & WALLS: CLASS 35/19 35 MPa
    - SLABS: CLASS 35/19 35 MPa
21. PIPES THROUGH SLAB
    - POLYURETHANE APPLICATION AREA TO BE CLEAN, SOUND, FREE OF LOOSE PARTICLES, DUST, LAITANCE OILS AND OTHER CONTAMINANTS.
    - POLYURETHANE SEALANT TO BE APPLIED AROUND ENTIRE PIPE.
    - MINIMUM THICKNESS OF REINFORCED CONCRETE TO BE 100mm ON EACH SIDE.
    - APPLICATION PROCEDURE TO BE ACCORDING TO MANUFACTURER SPECIFICATIONS.
22. ALL EXPOSED EXTERNAL EDGES IN CONCRETE WORK SHALL HAVE 20 mm x 20 mm CHAMFERS.
23. FINAL CHAMBER LEVEL TO BE AT LEAST 350 mm ABOVE NGL. CHAMBER HEIGHT TO BE CONFIRMED ON SITE.
24. CHAMBER HEIGHT INDICATED INDICATIVELY. MINIMUM COVER TO TOP OF PIPE TO BE 1000 mm. FINAL COVER SLAB LEVEL TO BE A MINIMUM OF 350 mm ABOVE NGL. FINAL HEIGHT OF CHAMBER TO BE CONFIRMED FROM PIPELINE LONGSECTIONS.
25. THE TOP OF THE CHAMBER NEEDS TO HAVE A SMOOTH FINISH TO ENSURE THE PRECAST COVER SEATS APPROPRIATELY.
26. 2 x 150 mm THICK G7 LAYERS COMPACTED TO 93% MOD AASTHO 1 x 150 mm THICK IN-SITU ROADBED COMPACTED TO 90% MOD AASTHO
27. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE PIPEWORK, VALVES AND SPECIALS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE DESIGN ENGINEER FOR APPROVAL BEFORE MANUFACTURING OR FABRICATION COMMENCES. THE DESIGN MUST BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATION.
28. THE LEVELS AND DIMENSIONS ARE BASED ON THE AVAILABLE INFORMATION AT THE TENDER STAGE THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SERVICES ARE SURVEYED. IF ANY DISCREPANCIES ARISE OR DESIGN CHANGES ARE REQUIRED, IT MUST IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.



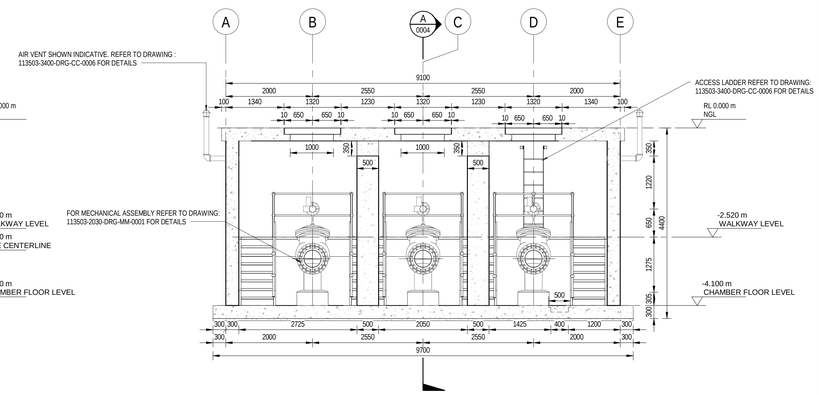
ISOMETRIC VIEW

NTS



SECTION A

SCALE 1 : 50



SECTION B

SCALE 1 : 50

CONSULTING ENGINEERS	DESIGNED:	L. GWIJI	26.01.24				
ZUTARI IMPACT. ENGINEERED.	DRAWN:	N. NXUMALO	26.01.24				
32A JELLICOE AVENUE OXFORD CORNER ROSEBANK SOUTH AFRICA TEL: +27 11 214 4500	CHECKED:	S. MNQONYWA	26.01.24				
	APPROVED BY:	C. KAN	26.01.24				
		SIGNATURE	DATE				
	ECSA REG No:						
CLIENT	CHECKED BY:						
		SIGNATURE	DATE				
17 HARRISON STREET MARSHALLTOWN 2107	ECSA REG No:						

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

GENERAL CIVIL DETAILS
RAND WATER CONNECTION PRV CHAMBER

APPROVAL BY JW DEPOT			SCALE
CHECKED:			1 : 50
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.24

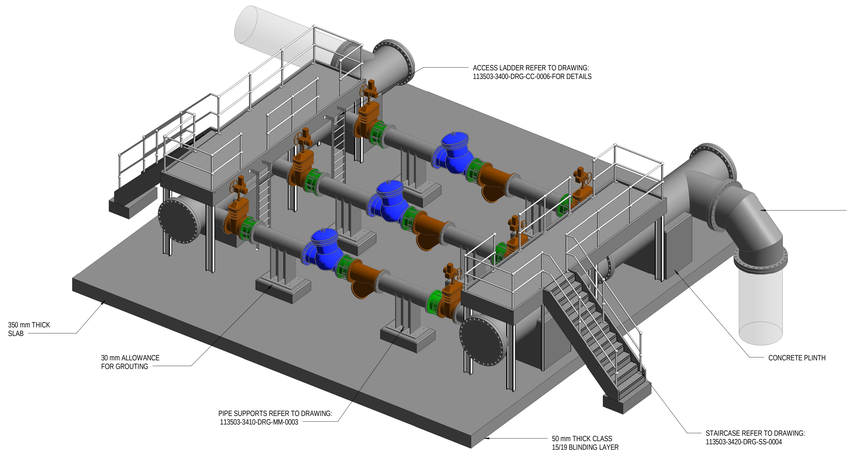
DRAWING No.

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113503	- 2020 - DRG - CC - 0001	-		T0

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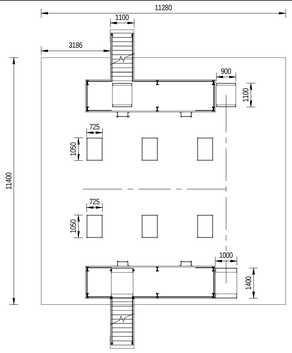
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Plot Date: 2024/01/29 07:27:56
DWG: CC



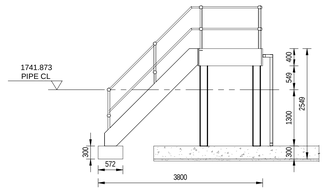
ISOMETRIC VIEW

SCALE



PLAN VIEW - MECHANICALS REMOVED

SCALE 1 : 100

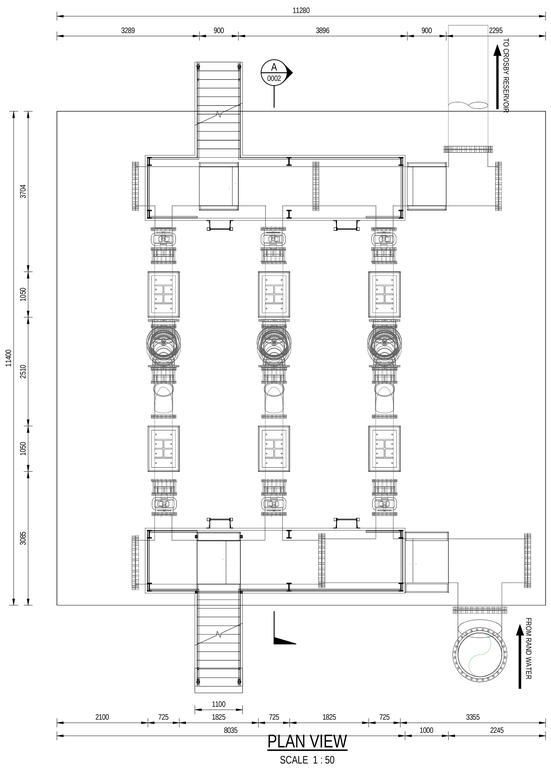


LADDER AND STAIR SIDE VIEW

SCALE 1 : 50

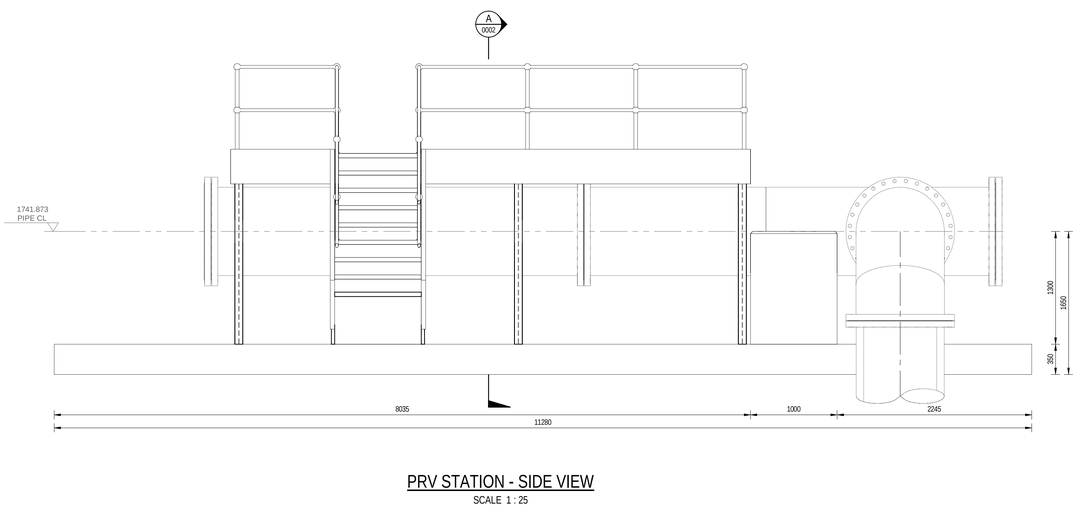
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3. THE CONTRACTOR SHALL SURVEY ALL ABOVE GROUND AND UNDERGROUND PIPES TO CONFIRM THE LEVELS AND SHALL PROVIDE SURVEY INFORMATION TO THE ENGINEER.
4. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CONTRACTOR ON SITE
5. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
6. RE-ENFORCEMENT STEEL SHALL BE MINIMUM 50 mm CLEAR OF PUDDLE PIPE AND FLANGES.
7. ALL PLINTHS ARE TO BE CAST AFTER SURFACE BED
8. ALL PLINTHS MUST HAVE A MINIMUM THICKNESS OF 200 mm
9. ALL BOLTS MUST BE AT LEAST 60 mm AWAY FROM THE EDGES AND INSIDE THE REINFORCEMENT
10. ANCHOR BOLTS MUST BE 150 mm DEEP INTO THE PLINTHS
11. ALL STEEL BOLTS, NUTS AND WASHERS SHALL BE GRADE 8.8 HOT DIPPED MILD STEEL, ANCHOR BOLTS TO BE 16 mm
12. FOR MECHANICAL DRAWINGS, REFER TO DRAWING No. 113503-3120-DRG-MM-0001
13. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND SHALL BE CHECKED BY THE CONTRACTOR BEFORE ORDERING ANY MATERIAL ANY DISCREPANCIES MUST BE REPORTED TO ENGINEER.
14. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE SHOWN
15. CONCRETE FINISHES SHALL BE AS FOLLOWS. EXCEPT WHERE OTHERWISE SHOWN:
    - SMOOTH SPECIAL TO SURFACES EXPOSED TO VIEW
    - ROUGH TO SURFACES AGAINST WHICH BACKFILL OR FURTHER CONCRETE WILL BE PLACED
    - FLOOR FINISHES INSIDE CHAMBERS AND PULP STATIONS TO BE WOOD FLOATED
16. INSULATION MATERIAL MUST BE PLACED BETWEEN DISSIMILAR METALS.
17. CONCRETE TO BE PLACED ON A 50 mm BLINDING LAYER
18. FOR ISOLATION JOINT, SAWCUT JOINT AND GENERAL STRUCTURAL DETAILS SEE DRAWINGS: 113503-2120-DRG-SS-0005
19. ALL BURIED SECTIONS OF STEEL PIPE, FLANGES AND BOLTS TO BE COVERED BY VISCO ELASTIC TAPE WITH PVC WRAPPING (STOPAQ OR SIMILAR APPROVED)
20. 28 DAY CONCRETE CUBE COMPRESSIVE STRENGTH
    - BLINDING LAYER: CLASS 15/19 15 MPa
    - FOOTINGS: CLASS 35/19 35 MPa
    - COLUMNS & WALLS: CLASS 35/19 35 MPa
    - SLABS: CLASS 35/19 35 MPa
21. PIPES THROUGH SLAB
    - POLYURETHANE APPLICATION AREA TO BE CLEAN, SOUND, FREE OF LOOSE PARTICLES, DUST, LAITANCE OILS AND OTHER CONTAMINANTS.
    - POLYURETHANE SEALANT TO BE APPLIED AROUND ENTIRE PIPE.
    - MINIMUM THICKNESS OF REINFORCED CONCRETE TO BE 100mm ON EACH SIDE.
    - APPLICATION PROCEDURE TO BE ACCORDING TO MANUFACTURER SPECIFICATIONS.
22. ALL EXPOSED EXTERNAL EDGES IN CONCRETE WORK SHALL HAVE 20 mm x 20 mm CHAMFERS.
23. FINAL CHAMBER LEVEL TO BE AT LEAST 350 mm ABOVE NGL. CHAMBER HEIGHT TO BE CONFIRMED ON SITE.
24. CHAMBER HEIGHT INDICATED INDICATIVELY. MINIMUM COVER TO TOP OF PIPE TO BE 1000 mm, FINAL COVER SLAB LEVEL TO BE A MINIMUM OF 350 mm ABOVE NGL. FINAL HEIGHT OF CHAMBER TO BE CONFIRMED FROM PIPELINE LONGSECTIONS.
25. THE TOP OF THE CHAMBER NEEDS TO HAVE A SMOOTH FINISH TO ENSURE THE PRECAST COVER SEATS APPROPRIATELY.
26. 2 x 150 mm THICK G7 LAYERS COMPACTED TO 93% MOD AASTHO 1 x 150 mm THICK IN-SITU ROADBED COMPACTED TO 90% MOD AASTHO
27. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE PIPEWORK, VALVES AND SPECIALS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE DESIGN ENGINEER FOR APPROVAL BEFORE MANUFACTURING OR FABRICATION COMMENCES. THE DESIGN MUST BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATION.
28. THE LEVELS AND DIMENSIONS ARE BASED ON THE AVAILABLE INFORMATION AT THE TENDER STAGE THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SERVICES ARE SURVEYED. IF ANY DISCREPANCIES ARISE OR DESIGN CHANGES ARE REQUIRED, IT MUST IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.



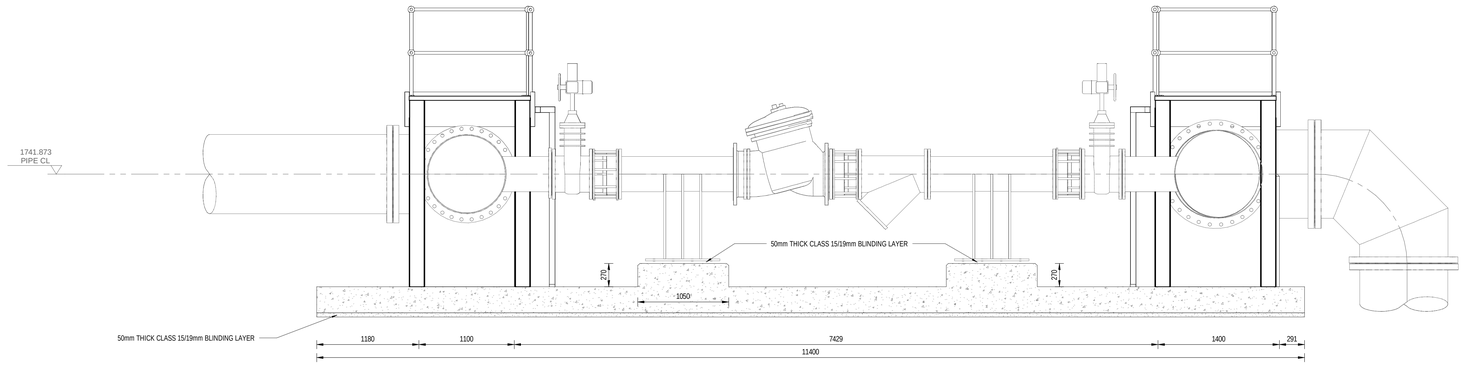
PLAN VIEW

SCALE 1 : 50



PRV STATION - SIDE VIEW

SCALE 1 : 25



SECTION A

SCALE 1 : 25

CONSULTING ENGINEERS	DESIGNED:	N. NXUMALO	29.01.24
ZUTARI IMPACT. ENGINEERED.	DRAWN:	N. NXUMALO	29.01.24
32A JELLICOE AVENUE OXFORD CORNER ROSEBANK SOUTH AFRICA TEL: +27 11 214 4500	CHECKED:	S.MNQONYWA	29.01.24
	APPROVED BY:	C.KAN	29.01.24
		SIGNATURE	DATE
	ECSA REG No:		
CLIENT	CHECKED BY:		
		SIGNATURE	DATE
17 HARRISON STREET MARSHALLTOWN 2107	ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

GENERAL DETAIL
CROSBY RESERVOIR PRV

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	29.01.2024

DRAWING No.

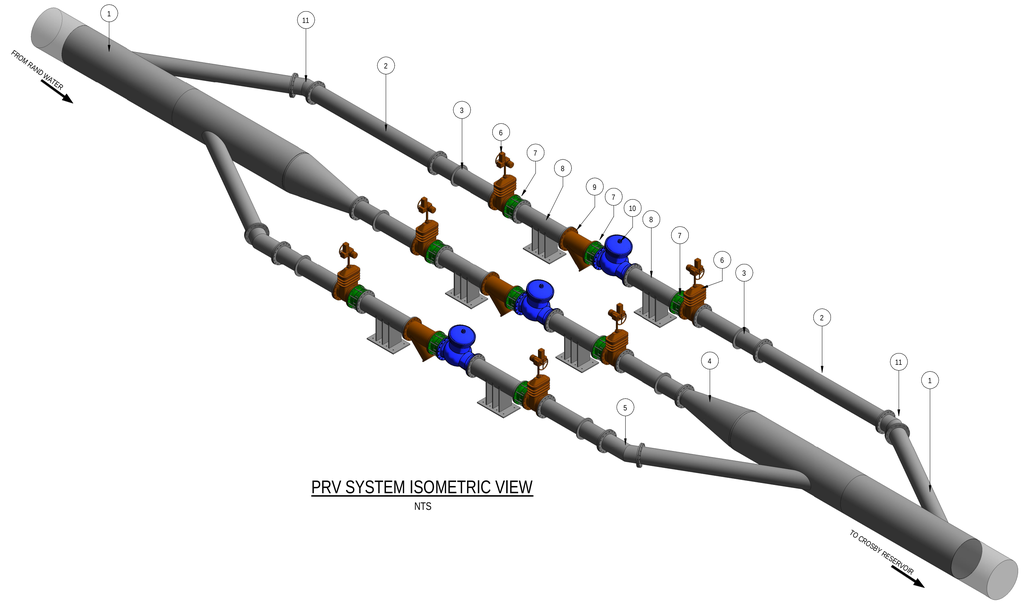
113503 - 2020 - DRG - CC - 0002 - T0

PROJECT No. DRAWING No. REV.

A0 ORIGINAL PAGE SIZE

SHEET 1 OF 1

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PRV SYSTEM ISOMETRIC VIEW

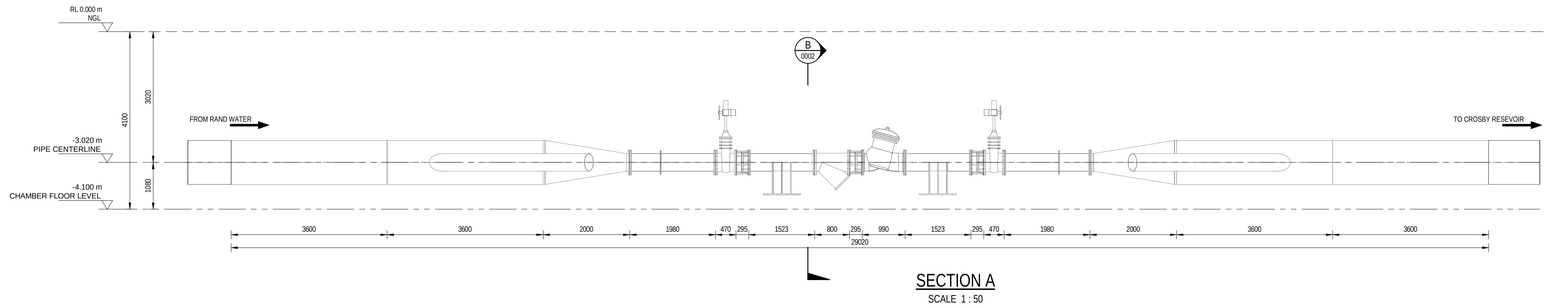
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PART LIST PRV ASSEMBLY

ITEM	QTY	PART DESCRIPTION
1	4	DN 1000 x 400 30 DEGREE LATERAL T- PIECE; REFER TO ITEM DETAIL AND TO NOTE 12
2	2	DN 400 SPOOL PIECE FLANGED ON BOTH ENDS; REFER TO ITEM DETAIL
3	6	DN 400 x 6 mm SAN 719; GRADE C SPOOL PIECE FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF) INCLUDING PUDDLE FLANGE; REFER TO ITEM 3 DETAIL
4	2	DN 1000 x 400 CONCENTRIC REDUCER; REFER TO ITEM DETAIL
5	2	DN 400 30 DEGREEE MEDIUM RADIUS BEND; REFER TO ITEM DETAIL
6	6	DN 400 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
7	9	DN 400 PN 16 DISMANTLING JOINT, DRILLED TO SANS 1123 TABLE 1600/3 (RF)
8	6	DN 400 PN16 SPOOL PIECE WITH PIPE ANHOR SUPPORT; REFER TO ITEM DETAIL
9	3	DN 400 PN 16 STRAINER, FLANGED TO SANS 1123 TABLE 1600/3 (RF)
10	3	DN 400 PN 16 PRESSURE REDUCING VALVE, FLANGED TO SANS 1123 TABLE 1600/3 (RF)
11	2	DN 400 30 DEGREEE MEDIUM RADIUS BEND; REFER TO ITEM DETAIL

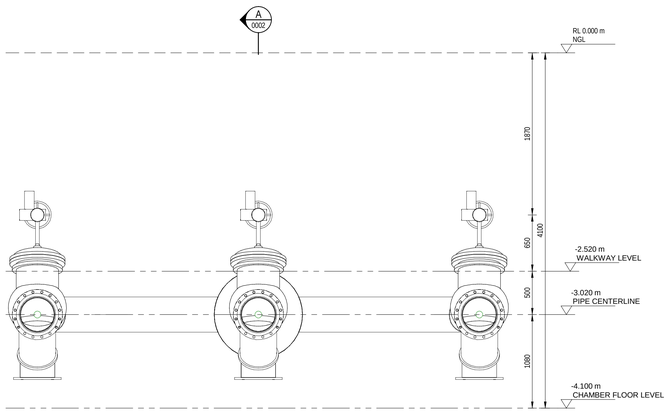
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4. RE-INFORCEMENT STEEL SHALL BE MINIMUM OF 50mm CLEAR OF PUDDLE PIPE AND FLANGES.
5. ALL FLANGES TO BE DRILLED OFF-CENTRE TO SANS 1123 TABLE 1600/3 OR 2500/3 AS SPECIFIED IN SCHEDULE OF FITTINGS. CONNECTING FLANGE HOLES IN OPPOSITE FLANGES MUST BE IN LINE.
6. ALL STEELWORK TO BE FINISHED ACCORDING TO PROJECT SPECIFICATIONS.
7. ALL VALVES ACCORDING TO PROJECT SPECIFICATIONS.
8. ALL SPECIALS ACCORDING TO PROJECT SPECIFICATIONS.
9. ALL JOINTING BOLTS AND NUTS TO BE HOT-DIP GALVANISED.
10. A COMPLETE SET OF DETAILED SHOP DRAWINGS OF ALL FITTINGS MUST BE SUBMITTED FOR THE ENGINEER'S APPROVAL, PRIOR TO FABRICATION.
11. REFER TO MECHANICAL DATA SHEET FOR EQUIPMENT DETAILS.
12. PIPE REINFORCEMENTS NOT SHOWN. REQUIREMENTS FOR REINFORCEMENT TO BE VERIFIED AND DESIGNED BY CONTRACTOR.
13. CONTRACTOR TO CONFIRM DIMENSIONS.
14. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING



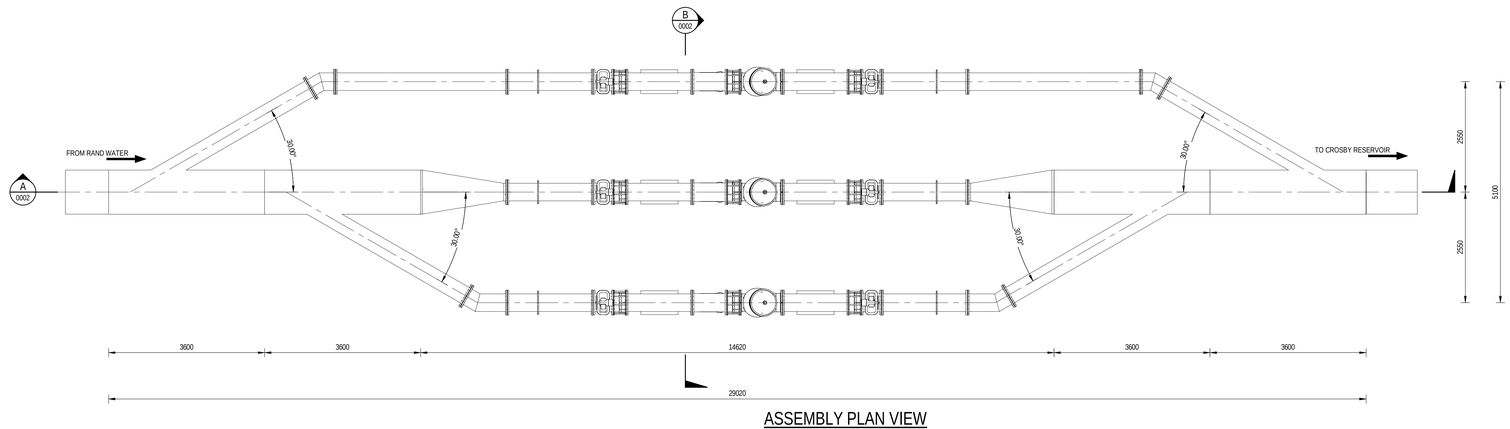
SECTION A

SCALE 1 : 50



SECTION B

SCALE 1 : 25



ASSEMBLY PLAN VIEW

SCALE 1 : 50

CONSULTING ENGINEERS	DESIGNED:	L. GWIJI	12.05.23
ZUTARI IMPACT. ENGINEERED.	DRAWN:	L. VAN VELZE	26.01.24
32A JELLICOE AVENUE OXFORD CORNER ROSEBANK SOUTH AFRICA TEL: +27 11 214 4500	CHECKED:	M. BULBULIA	26.01.24
	APPROVED BY:	R. BARRY	26.01.24
		SIGNATURE	DATE
	ECSA REG No:		
CLIENT	CHECKED BY:		
		SIGNATURE	DATE
17 HARRISON STREET MARSHALLTOWN 2107	ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

GENERAL DETAIL
RAND WATER CONNECTION PRV
MECHANICAL DETAIL SHEET 1

APPROVAL BY JW DEPOT			SCALE
CHECKED:			As indicated
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.24

DRAWING No.

113503 - 2030-DRG-MM-0001 - T0

PROJECT No. DRAWING No. REV.

A0 SHEET 01 OF 02

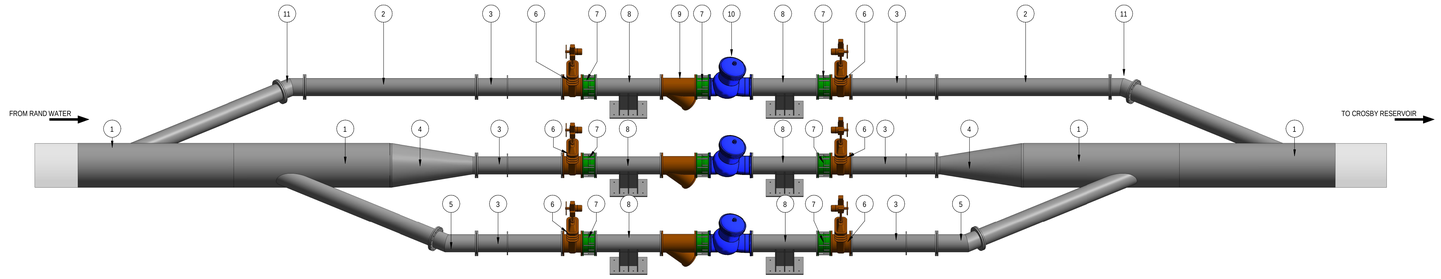
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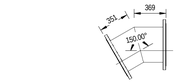
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PART LIST PRV ASSEMBLY

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1	4	DN 1000 x 400 30 DEGREE LATERAL T- PIECE; REFER TO ITEM DETAIL AND TO NOTE 12
2	2	DN 400 SPOOL PIECE FLANGED ON BOTH ENDS; REFER TO ITEM DETAIL
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4	2	DN 1000 x 400 CONCENTRIC REDUCER; REFER TO ITEM DETAIL
5	2	DN 400 30 DEGREEE MEDIUM RADIUS BEND; REFER TO ITEM DETAIL
6	6	DN 400 PN16 GATE VALVE (WEDGE) , MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
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9	3	DN 400 PN 16 STRAINER, FLANGED TO SANS 1123 TABLE 1600/3 (RF)
10	3	DN 400 PN 16 PRESSURE REDUCING VALVE, FLANGED TO SANS 1123 TABLE 1600/3 (RF)
11	2	DN 400 30 DEGREEE MEDIUM RADIUS BEND; REFER TO ITEM DETAIL



ISOMETRIC VIEW: PRV SYSTEM
NTS



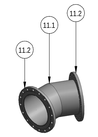
PLAN VIEW: ITEM 11
SCALE 1 : 25

NOTES:

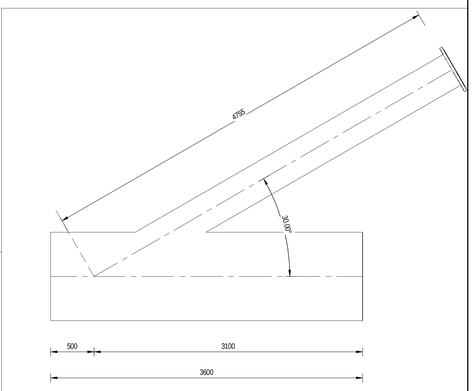
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8. ALL SPECIALS ACCORDING TO PROJECT SPECIFICATIONS.
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13. CONTRACTOR TO CONFIRM DIMENSIONS.
14. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING

PART LIST - ITEM 11

ITEM	QTY	PART DESCRIPTION
11.1	1	DN 400 x 6 mm 30 DEGREE MEDIUM RADIUS (2xD) BEND TO SANS 719 GRADE C; BOTH ENDS FLANGED
11.2	2	DN 400 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3



ISOMETRIC VIEW: ITEM 11
NTS



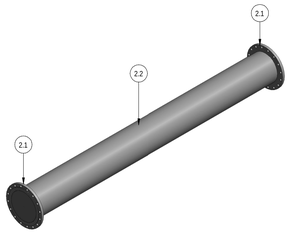
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SCALE 1 : 25



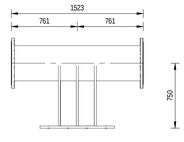
PLAN VIEW: ITEM 2
SCALE 1 : 25

PARTS LIST ITEM 2

ITEM	QTY	PART DESCRIPTION
2.1	2	DN 400 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3
2.2	1	DN 400 x 6 mm SPOOL PIECE TO SANS 719 GRADE C; FLANGED ON BOTH ENDS



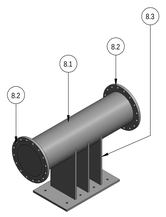
ISOMETRIC VIEW: ITEM 2
NTS



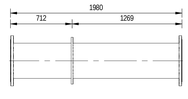
ELEVATION VIEW: ITEM 8
SCALE 1 : 25

PARTS LIST ITEM 8

ITEM	QTY	PART DESCRIPTION
8.1	1	DN 400 x 6 mm SPOOL PIECE TO SANS 719 GRADE C; FLANGED BOTH ENDS, WELDED TO PIPE SUPPORT
8.2	2	DN 400 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3
8.3	1	DN 400 STEEL PIPE ANCHOR SUPPORT



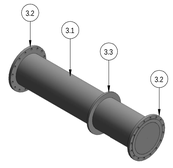
ISOMETRIC VIEW: ITEM 8
NTS



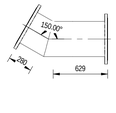
PLAN VIEW: ITEM 3
SCALE 1 : 25

PARTS LIST - ITEM 3

ITEM	QTY	PART DESCRIPTION
3.1	1	DN 400 x 6 mm SPOOL PIECE TO SANS 719 GRADE C; FLANGED BOTH ENDS, WITH PUDDLE FLANGE
3.2	2	DN 400 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3
3.3	1	DN 400 PN 16 PUDDLE FLANGE



ISOMETRIC VIEW: ITEM 3
NTS



PLAN VIEW: ITEM 5
SCALE 1 : 25

PARTS LIST ITEM 5

ITEM	QTY	PART DESCRIPTION
5.1	1	DN 400 x 6 mm 30 DEGREE MEDIUM RADIUS (2xD) BEND TO SANS 719 GRADE C; ONE END FLANGED
5.2	2	DN 400 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3



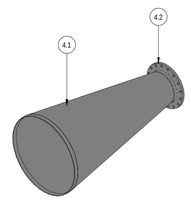
ISOMETRIC VIEW: ITEM 5
NTS



PLAN VIEW: ITEM 4
SCALE 1 : 25

PARTS LIST ITEM 4

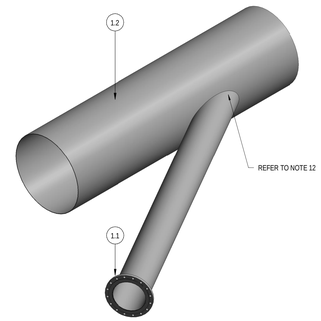
ITEM	QTY	PART DESCRIPTION
4.1	1	DN 1000 x 400 x 10 mm CONCENTRIC REDUCER TO SANS 719 GRADE C; ONE END FLANGED
4.2	1	DN 400 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3



ISOMETRIC VIEW: ITEM 4
NTS

PARTS LIST - ITEM 1

ITEM	QTY	PART DESCRIPTION
1.1	1	DN 400 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3
1.2	1	DN 1000 (10 mm) x 400 (6mm) x 30 DEGREE UNEQUAL LATERAL TO SANS 719 GRADE C; BRANCH FLANGED



ISOMETRIC VIEW: ITEM 1
NTS

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L. GWIJI	12.05.23
DRAWN:	L. VAN VELZE	26.01.24
CHECKED:	M. BULBULIA	26.01.24
APPROVED BY:	R. BARRY	26.01.24
	SIGNATURE	DATE
ECSA REG No:		
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

GENERAL DETAIL
RAND WATER CONNECTION PRV
MECHANICAL DETAIL SHEET 2

APPROVAL BY JW DEPOT			SCALE
CHECKED:			As indicated
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.24

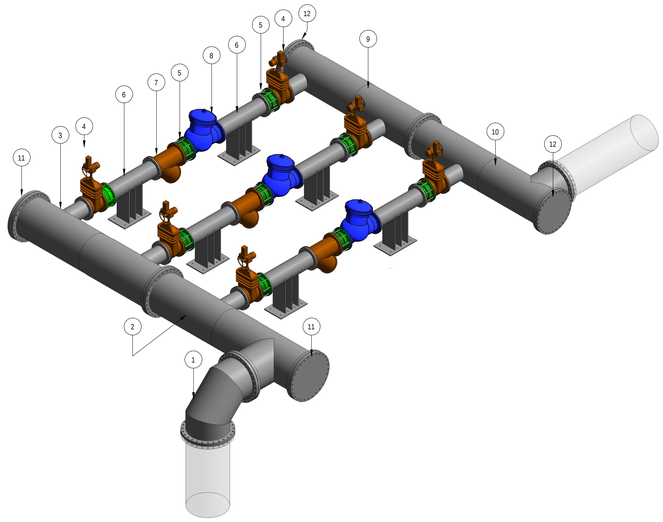
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113503 - 2030 - DRG - MM - 0002 - T0
PROJECT No. | DRAWING No. | REV.

A0 | SHEET 02 OF 02
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ISOMETRIC VIEW -PRV STATION MECHANICALS

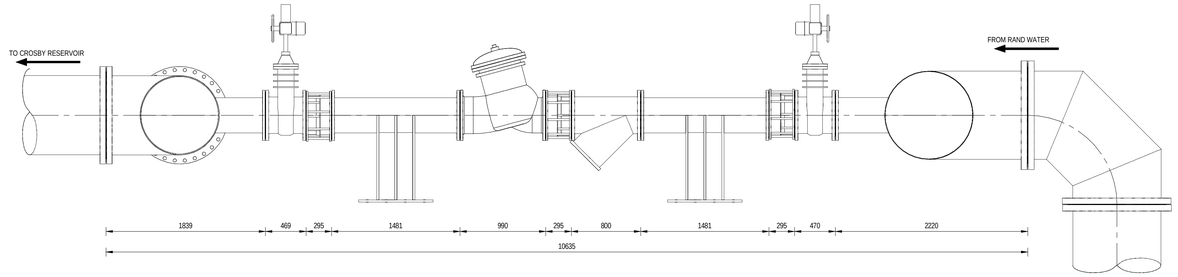
SCALE

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3. THE CONTRACTOR SHALL SURVEY ALL ABOVE GROUND AND UNDERGROUND PIPES TO CONFIRM LEVELS AND SHALL PROVIDE SURVEY INFORMATION TO THE ENGINEER.
4. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CONTRACTOR ON SITE
5. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE PIPEWORK, VALVES AND SPECIALS. THE CONTRACTOR SHALL SUBMIT HIS SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL BEFORE MANUFACTURING OR FABRICATION COMMENCES. THE DESIGN MUST BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATION.
6. FLANGED DRILLINGS AND PIPE SUPPORTS TO BE CONFIRMED ON SITE BY THE CONTRACTER.
7. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS
8. THE CONTRACTOR SHALL SUBMIT A SHUTDOWN AND REPLACEMENT PROCEDURE AND METHODOLOGY TO THE ENGINEER FOR APPROVAL BEFORE COMMENCEMENT OF WORK.
9. RE-INFORCEMENT STEEL SHALL BE MINIMUM OF 50mm CLEAR OF PUDDLE PIPE AND FLANGES.
10. ALL FLANGES TO BE DRILLED OFF-CENTRE TO SANS 1123 TABLE 1600/3 OR 2500/3 AS SPECIFIED IN SCHEDULE OF FITTINGS. CONNECTING FLANGE HOLES IN OPPOSITE FLANGES MUST BE IN LINE.
11. ALL STEELWORK TO BE FINISHED ACCORDING TO PROJECT SPECIFICATIONS.
12. ALL VALVES ACCORDING TO PROJECT SPECIFICATIONS.
13. ALL SPECIALS ACCORDING TO PROJECT SPECIFICATIONS.
14. ALL JOINTING BOLTS AND NUTS TO BE HOT-DIP GALVANISED.
15. A COMPLETE SET OF DETAILED SHOP DRAWINGS OF ALL FITTINGS MUST BE SUBMITTED FOR THE ENGINEER'S APPROVAL, PRIOR TO FABRICATION.

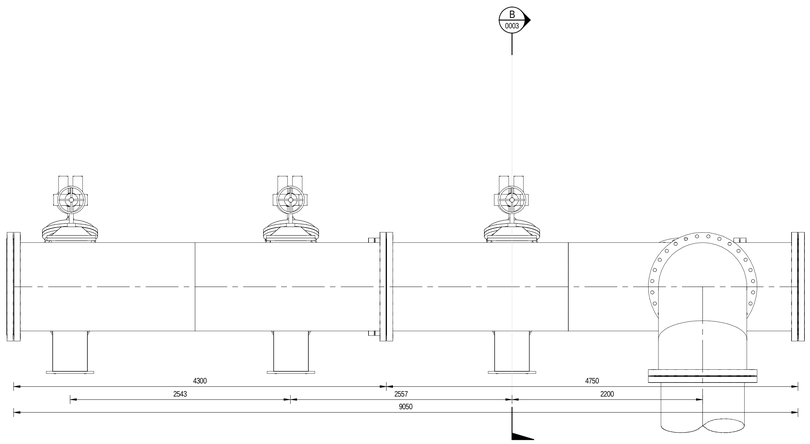
PARTS LIST - PRV ASSEMBLY

ITEM	QTY	ASSEMBLY DESCRIPTION
1	1	DN1000x 90 DEGREE MEDIUM RADIUS BEND SANS 719 GRADE C: FLANGED ON ALL SIDE TO SANS 1123 TABLE 1600/3 (RF); REFER TO ITEM 1 FOR DETAIL
2	1	DN 1000 x 400 x 90 DEGREE TEE WELDED TO DN 1000 x 1000 x 90 DEGREE TEE TO SANS 719 GRADE C: FLANGED ON ALL SIDE; REFER TO ITEM 2 DETAIL
3	1	DN 1000 x 400 x 90 DEGREE TEE WELDED TO DN 1000 x 400 x 90 DEGREE TEE TO SANS 719 GRADE C: FLANGED ON ALL SIDES; REFER TO ITEM 3 DETAIL
4	6	DN 400 PN 16 WEDGE GATE VALVE TO SANS 664, WITH GEARBOX, RISING SPINDLE, FLANGED TO SANS 1123 T ABLE 1600/3
5	9	DN 400 PN 16 DISMANTLING JOINT, DRILLED TO SANS 1123 TABLE 1600/3
6	6	DN 400 PN SPOOL PIECE WITH PIPE ANHOR SUPPORT; REFER TO ITEM 6 DETAIL
7	3	DN 400 PN 16 STRAINER, FLANGED TO SANS 1123 TABLE 1600/3
8	3	DN 400 PN 16 PRESSURE REDUCING VALVE, FLANGED TO SANS 1123 TABLE1600/3
9	1	DN 900 x 400 x 10 MM 90 DEGREE TEE WELDED TO DN 900 x 400 x 10 MM 90 DEGREE TEE TO SANS 719 GRADE C: FLANGED ON ALL SIDE; REFER TO ITEM 9 DETAIL
10	1	DN 900 x 400 x 10 MM 90 DEGREE TEE WELDED TO DN 900 x 900 x 90 DEGREE TEE TO SANS 719 GRADE C: FLANGED ON ALL SIDES; REFER TO ITEM 10 DETAIL
11	2	DN 1000 PN 16 BLANK FLANGE TO SANS (RF) 1123 TABLE 1600/3
12	2	DN 900 PN 16 BLANK FLANGE TO SANS (RF) 1123 TABLE 1600/3



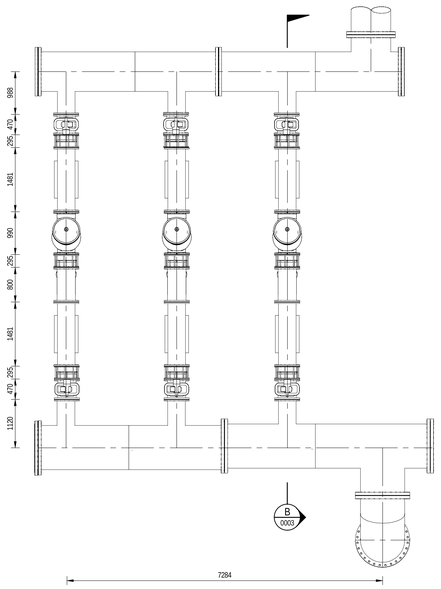
SECTION B

SCALE 1 : 25



PRV STATION MECHANICAL - SIDE VIEW

SCALE 1 : 25



PRV STATION MECHANICALS - PLAN VIEW

SCALE 1 : 50

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

GENERAL DETAIL
CROSBY RESERVOIR PRV
MECHANICAL DETAIL SHEET 1

APPROVAL BY JW DEPOT			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

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AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.2024

DRAWING No.

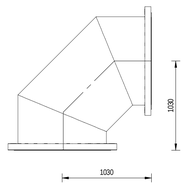
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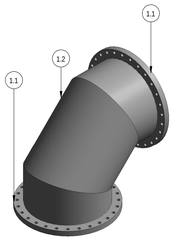
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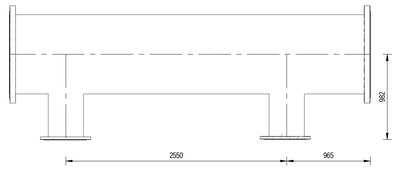
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ISOMETRIC VIEW - ITEM 1

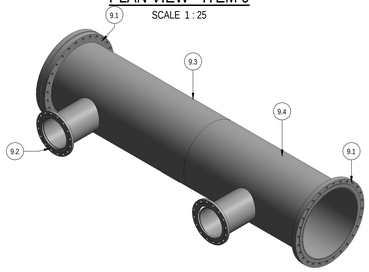
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PARTS LIST - ITEM 1		
ITEM	QTY	PART DESCRIPTION
1.1	2	DN1000 x 10 MM 90 DEGREE MEDIUM RADIUS BEND SANS 719 GRADE C: FLANGED ON ALL SIDE TO SANS 1123 TABLE 1600/3 (RF)
1.2	1	DN 1000 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3



PLAN VIEW - ITEM 9

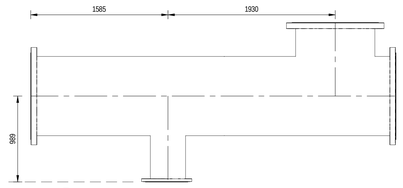
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ISOMETRIC VIEW - ITEM 9

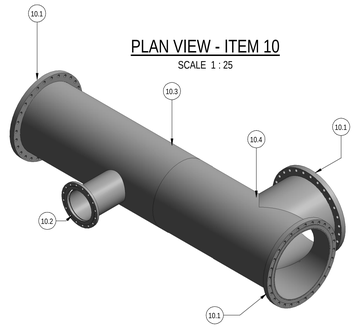
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PARTS LIST - ITEM 9		
ITEM	QTY	PART DESCRIPTION
9.1	2	DN 900 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
9.2	2	DN 400 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
9.3	1	DN 900 x 400 x 10 MM, 90 DEGREE UNEQUAL TEE TO SANS 719 GRADE C
9.4	1	DN 900 x 400 x 10 MM, 90 DEGREE UNEQUAL TEE TO SANS 719 GRADE C



PLAN VIEW - ITEM 10

SCALE 1 : 25

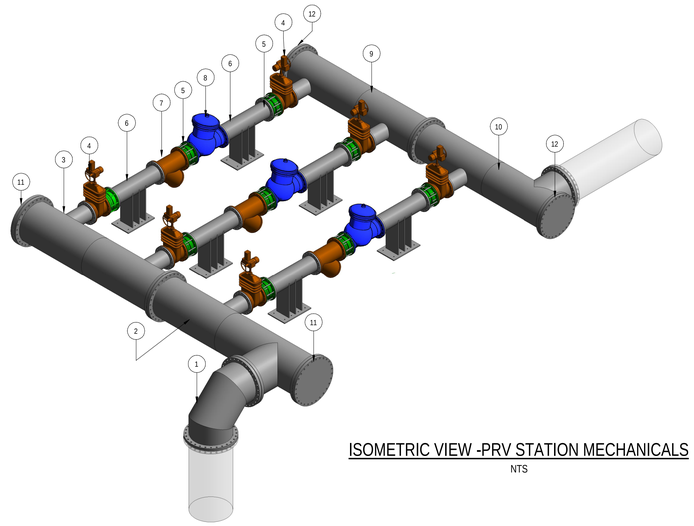


ISOMETRIC VIEW - ITEM 10

NTS

PARTS LIST - ITEM 10		
ITEM	QTY	PART DESCRIPTION
10.1	3	DN 900 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
10.2	1	DN 400 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
10.3	1	DN 900 x 400 x 10 MM 90 DEGREE UNEQUAL TEE TO SANS 719 GRADE C
10.4	1	DN 900 x 900 x 10 MM 90 DEGREE EQUAL TEE TO SANS 719 GRADE C

PARTS LIST - PRV ASSEMBLY		
ITEM	QTY	ASSEMBLY DESCRIPTION
1	1	DN1000x 90 DEGREE MEDIUM RADIUS BEND SANS 719 GRADE C: FLANGED ON ALL SIDE TO SANS 1123 TABLE 1600/3 (RF); REFER TO ITEM 1 FOR DETAIL
2	1	DN 1000 x 400 x 90 DEGREE TEE WELDED TO DN 1000 x 1000 x 90 DEGREE TEE TO SANS 719 GRADE C: FLANGED ON ALL SIDE; REFER TO ITEM 2 DETAIL
3	1	DN 1000 x 400 x 90 DEGREE TEE WELDED TO DN 1000 x 400 x 90 DEGREE TEE TO SANS 719 GRADE C; FLANGED ON ALL SIDES; REFER TO ITEM 3 DETAIL
4	6	DN 400 PN 16 WEDGE GATE VALVE TO SANS 664, WITH GEARBOX, RISING SPINDLE, FLANGED TO SANS 1123 T ABLE 1600/3
5	9	DN 400 PN 16 DISMANTLING JOINT, DRILLED TO SANS 1123 TABLE 1600/3
6	6	DN 400 PN SPOOL PIECE WITH PIPE ANHOR SUPPORT; REFER TO ITEM 6 DETAIL
7	3	DN 400 PN 16 STRAINER, FLANGED TO SANS 1123 TABLE 1600/3
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10	1	DN 900 x 400 x 10 MM 90 DEGREE TEE WELDED TO DN 900 x 900 x 90 DEGREE TEE TO SANS 719 GRADE C: FLANGED ON ALL SIDES; REFER TO ITEM 10 DETAIL
11	2	DN 1000 PN 16 BLANK FLANGE TO SANS (RF) 1123 TABLE 1600/3
12	2	DN 900 PN 16 BLANK FLANGE TO SANS (RF) 1123 TABLE 1600/3

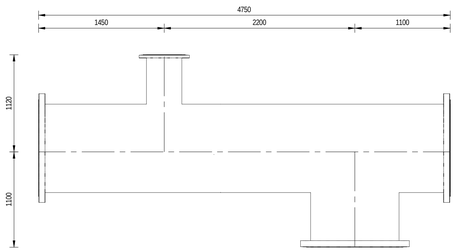


ISOMETRIC VIEW -PRV STATION MECHANICALS

NTS

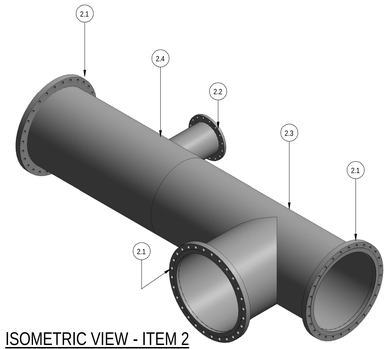
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7. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS
8. THE CONTRACTOR SHALL SUBMIT A SHUTDOWN AND REPLACEMENT PROCEDURE AND METHODOLOGY TO THE ENGINEER FOR APPROVAL BEFORE COMMENCEMENT OF WORK
9. RE-INFORCEMENT STEEL SHALL BE MINIMUM OF 50mm CLEAR OF PUDDLE PIPE AND FLANGES.
10. ALL FLANGES TO BE DRILLED OFF-CENTRE TO SANS 1123 TABLE 1600/3 OR 2500/3 AS SPECIFIED IN SCHEDULE OF FITTINGS. CONNECTING FLANGE HOLES IN OPPOSITE FLANGES MUST BE IN LINE.
11. ALL STEELWORK TO BE FINISHED ACCORDING TO PROJECT SPECIFICATIONS.
12. ALL VALVES ACCORDING TO PROJECT SPECIFICATIONS.
13. ALL SPECIALS ACCORDING TO PROJECT SPECIFICATIONS.
14. ALL JOINTING BOLTS AND NUTS TO BE HOT-DIP GALVANISED.
15. A COMPLETE SET OF DETAILED SHOP DRAWINGS OF ALL FITTINGS MUST BE SUBMITTED FOR THE ENGINEER'S APPROVAL, PRIOR TO FABRICATION.



PLAN VIEW - ITEM 2

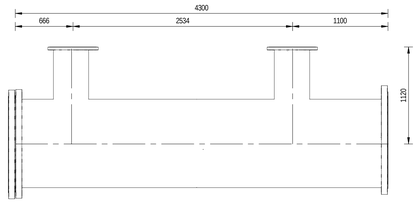
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ISOMETRIC VIEW - ITEM 2

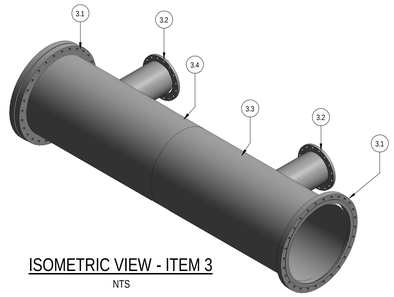
NTS

PARTS LIST - ITEM 2		
ITEM	QTY	PART DESCRIPTION
2.1	3	DN 1000 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
2.2	1	DN 400 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
2.3	1	DN 1000 x 1000 x 10 MM, 90 DEGREE EQUAL TEE TO SANS 719 GRADE C
2.4	1	DN 1000 x 400 x 10 MM, 90 DEGREE UNEQUAL TEE TO SANS 719 GRADE C



PLAN VIEW - ITEM 3

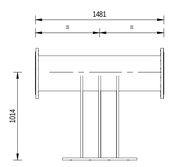
SCALE 1 : 25



ISOMETRIC VIEW - ITEM 3

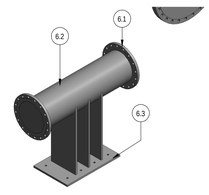
NTS

PARTS LIST - ITEM 3		
ITEM	QTY	PART DESCRIPTION
3.1	2	DN 1000 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
3.2	2	DN 400 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
3.3	1	DN 1000 x 400 x 10 MM 90 DEGREE UNEQUAL TEE TO SANS 719 GRADE C
3.4	1	DN 1000 x 400 x 10 MM 90 DEGREE UNEQUAL TEE TO SANS 719 GRADE C



ELEVATION VIEW - ITEM 6

SCALE 1 : 25



ISOMETRIC VIEW - ITEM 6

NTS

PARTS LIST - ITEM 6		
ITEM	QTY	PART DESCRIPTION
6.1	2	DN 400 PN 16 FLANGE TO SANS (RF) 1123 TABLE 1600/3
6.2	1	DN 400 x 6 mm SPOOL PIECE TO SANS 719 GRADE C; FLANGED ON BOTH ENDS
6.3	1	DN 400 STEEL PIPE ANCHOR SUPPORT; REFER TO DRAWING: 113503-3410-DRG-MM-0003

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA TEL: +27 11 214 4500

CLIENT
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MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	12.05.23
DRAWN:	L.GWIJI	26.01.24
CHECKED:	M. BULBULIA	26.01.24
APPROVED BY:	R.BARRY	26.01.24
	SIGNATURE	DATE
ECSA REG No:		
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

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MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

GENERAL DETAIL
CROSBY RESERVOIR PRV
MECHANICAL DETAIL SHEET 2

APPROVAL BY JW DEPOT			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

SCALE: AS SHOWN

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.2024

DRAWING No.

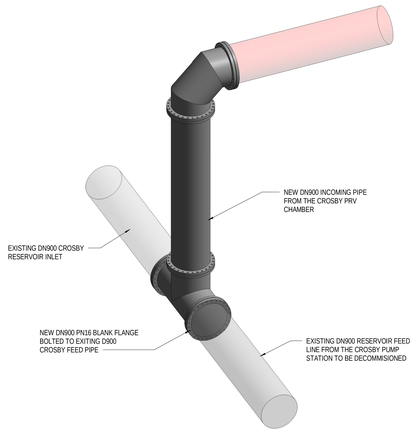
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PROJECT No. | DRAWING No. | REV.

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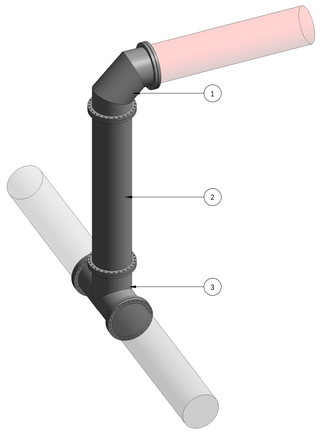
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CROSBY RESEVOIR INLET TIE-IN DETAIL

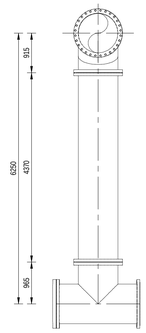
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TIE - IN ITEM LIST		
ITEM	QTY	DESCRIPTION
1	1	DN 900 90 DEGREEE MEDIUM RADIUS BEND; REFER TO ITEM DETAIL
2	1	DN 900 SANS 719 GRADE C SPOOL PIECE FLANGED ON BOTH END REFER TO ITEM DETAIL
3	1	DN 900 FLANGED EQUAL TEE; REFER TO ITEM DETAIL



CROSBY RESEVOIR INLET TIE-IN ITEMS DETAIL

NTS

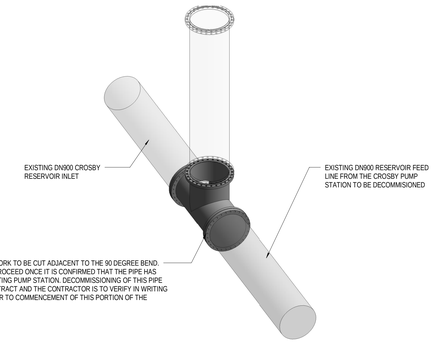


CROSBY RESEVOIR INLET TIE-IN SIDE VIEW

SCALE 1 : 50

NOTES:

1. DRAWINGS MUST NOT BE SCALED.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE GENERAL NOTES DRAWINGS AND ALL PROJECT SPECIFICATIONS.
3. ACCORDING TO THE COPYRIGHT ACT (ACT No 98 OF 1978) NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WHATSOEVER INCLUDING MECHANICAL, ELECTRONIC, PHOTOCOPYING, MICROFILMING OR ANY OTHER SYSTEM OF INFORMATION STORAGE WITHOUT WRITTEN PERMISSION OF ZUTARI.
4. RE-INFORCEMENT STEEL SHALL BE MINIMUM OF 50mm CLEAR OF PUDDLE PIPE AND FLANGES.
5. ALL FLANGES TO BE DRILLED OFF-CENTRE TO SANS 1123 TABLE 1600/3 OR 2500/3 AS SPECIFIED IN SCHEDULE OF FITTINGS. CONNECTING FLANGE HOLES IN OPPOSITE FLANGES MUST BE IN LINE.
6. ALL STEELWORK TO BE FINISHED ACCORDING TO PROJECT SPECIFICATIONS.
7. ALL VALVES ACCORDING TO PROJECT SPECIFICATIONS.
8. ALL SPECIALS ACCORDING TO PROJECT SPECIFICATIONS.
9. ALL JOINTING BOLTS AND NUTS TO BE HOT-DIP GALVANISED.
10. A COMPLETE SET OF DETAILED SHOP DRAWINGS OF ALL FITTINGS MUST BE SUBMITTED FOR THE ENGINEER'S APPROVAL, PRIOR TO FABRICATION.
11. REFER TO MECHANICAL DATA SHEET FOR EQUIPMENT DETAILS.
12. PIPE REINFORCEMENTS NOT SHOWN. REQUIREMENTS FOR REINFORCEMENT TO BE VERIFIED AND DESIGNED BY CONTRACTOR.

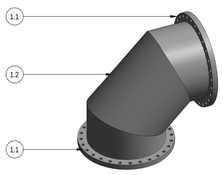


THE EXISTING CROSBY RESERVOIR PIPEWORK TO BE CUT ADJACENT TO THE 90 DEGREE BEND. THIS CONNECTION / ACTIVITY CAN ONLY PROCEED ONCE IT IS CONFIRMED THAT THE PIPE HAS BEEN DECOMMISSIONED WITHIN THE EXISTING PUMP STATION. DECOMMISSIONING OF THIS PIPE IS NOT PART OF THE CONTRACTOR'S CONTRACT AND THE CONTRACTOR IS TO VERIFY IN WRITING THAT THIS PIPE IS DECOMMISSIONED PRIOR TO COMMENCEMENT OF THIS PORTION OF THE WORK.

CROSBY RESEVOIR INLET TIE-IN DETAIL

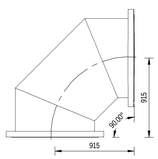
NTS

ITEM 1 - PARTS LIST		
PART NUMBER	QTY	DESCRIPTION
1.1	2	DN 900 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3
1.2	1	DN 900 x 8 mm 30 DEGREE MEDIUM RADIUS (1xD) BEND TO SANS 719 GRADE C; ONE END FLANGED



ITEM 1 ISOMETRIC VIEW

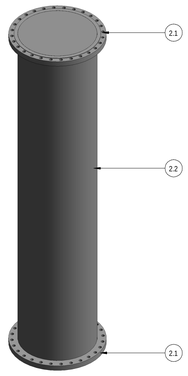
NTS



ITEM 1 SIDE VIEW

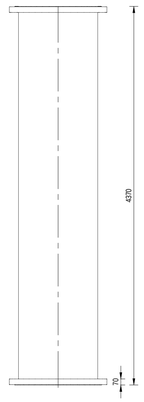
SCALE 1 : 25

ITEM 2 - PARTS LIST		
PART NUMBER	QTY	DESCRIPTION
2.1	2	DN 900 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3
2.2	1	DN 900 X 8 mm SPOOL PIECE TO SANS 719 GRADE C; FLANGED ON BOTH ENDS



ITEM 2 ISOMETRIC VIEW

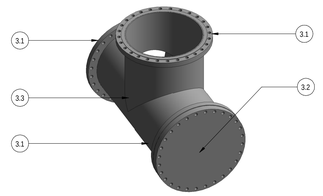
NTS



ITEM 2 SIDE VIEW

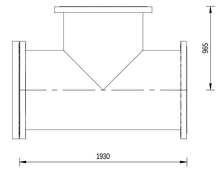
SCALE 1 : 25

ITEM 3- PARTS LIST		
PART NUMBER	QTY	DESCRIPTION
3.1	3	DN 900 PN 16 FLANGE SANS 1123 (RF) TABLE 1600/3
3.2	1	BLANK FLANGE DN 900 SANS 1123 TABLE 1600/3 (RF)
3.3	1	DN 900 EQUAL TEE



ITEM 3 ISOMETRIC VIEW

NTS



ITEM 3 SIDE VIEW

SCALE 1 : 25

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	N.NXUMALO	14.06.23
DRAWN:	L.GWIJI	31.01.24
CHECKED:	S MNQONYWA	31.01.24
APPROVED BY:	R.BARRY	31.01.24
	SIGNATURE	DATE
ECSA REG No:	20160835	
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE

CROSBY BULK INFRASTRUCTURE PROJECT
TIE IN TO CROSBY RESERVOIR INLET PIPE

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	31.01.24

DRAWING No.

113503 - 2030 - DRG - MM - 0005 - T0

PROJECT No. DRAWING No. REV.

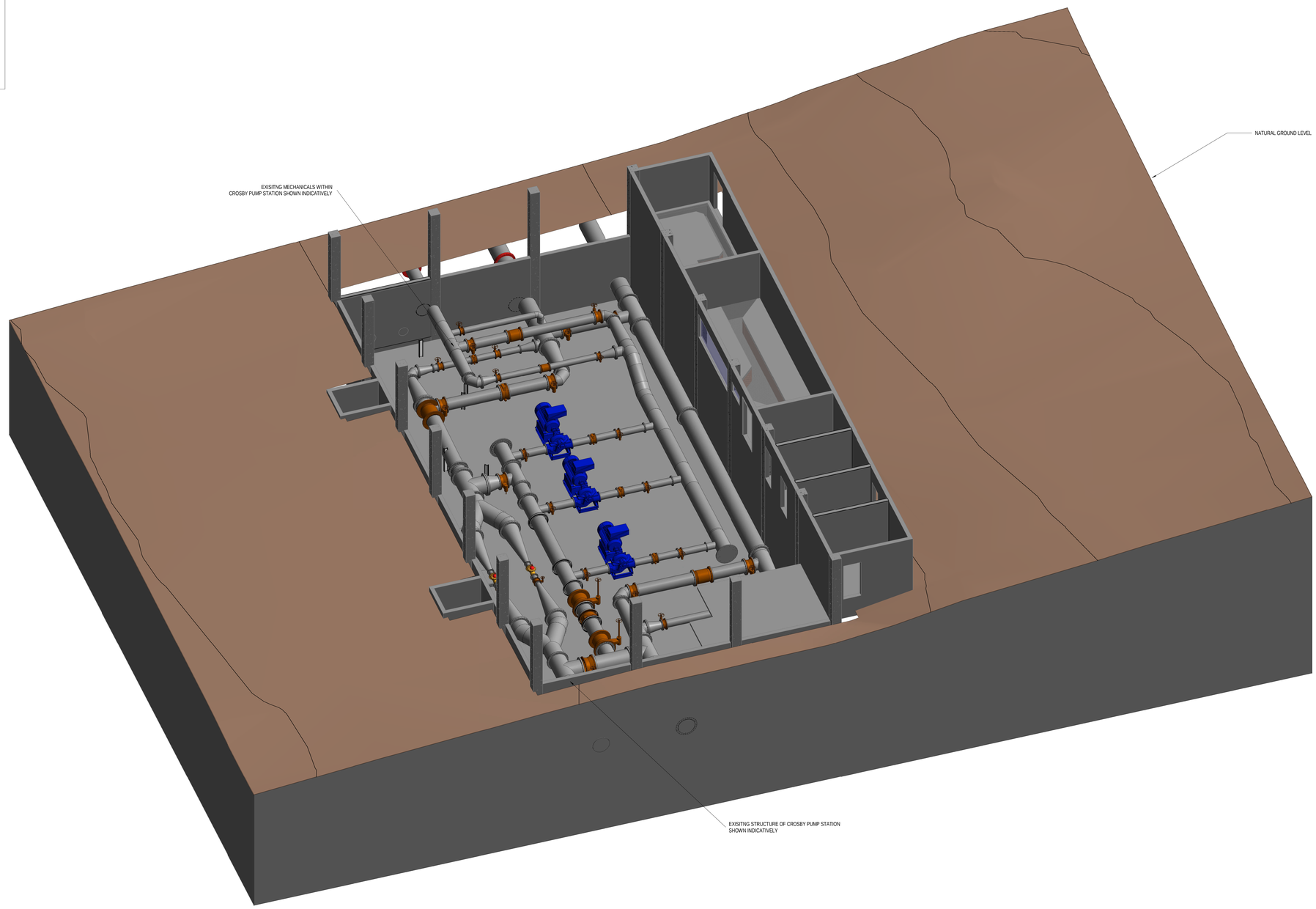
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SHEET 01 OF 01

File Name: BM.3624M-J113503 Bristol Reservoir and Tower ARK\JOTE R-T0 CROSBY RESERVOIR INLET PIPE.rvt
Offset: MM
Plot Date: 2024/01/31 13:44:36

GENERAL NOTES:

1. DRAWINGS MUST NOT BE SCALED.
2. ACCORDING TO THE COPYRIGHT ACT (ACT No 98 OF 1978) NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WHATSOEVER INCLUDING MECHANICAL, ELECTRONIC, PHOTOCOPYING, MICROFILMING OR ANY OTHER SYSTEM OF INFORMATION STORAGE WITHOUT WRITTEN PERMISSION FROM ZUTARI.
3. THE CONTRACTOR SHALL SURVEY ALL ABOVE GROUND AND UNDERGROUND PIPES TO CONFIRM LEVELS AND SHALL PROVIDE SURVEY INFORMATION TO THE ENGINEER.
4. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CONTRACTOR ON SITE
5. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE PIPEWORK, VALVES AND SPECIALS. THE CONTRACTOR SHALL SUBMIT HIS SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL BEFORE MANUFACTURING OR FABRICATION COMMENCES. THE DESIGN MUST BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATION.
6. FLANGED DRILLINGS AND PIPE SUPPORTS TO BE CONFIRMED ON SITE BY THE CONTRACTOR.
7. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATIONS
8. THE CONTRACTOR SHALL SUBMIT A SHUTDOWN AND REPLACEMENT PROCEDURE AND METHODOLOGY TO THE ENGINEER FOR APPROVAL BEFORE COMMENCEMENT OF WORK



EXISTING CROSBY PUMP STATION - 3D VIEW

NTS

CONSULTING ENGINEERS

ZUTARI IMPACT. ENGINEERED.

32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI		30.01.24
DRAWN:	L. VAN VELZE		30.01.24
CHECKED:	E.LOTTERING		30.01.24
APPROVED BY:	R.BARRY		30.01.24
	SIGNATURE		DATE
ECSA REG No:	20160835		
CHECKED BY:			
	SIGNATURE		DATE
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

EXISTING INFRASTRUCTURE AT CROSBY PUMP STATION

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APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0001 - T0

PROJECT No. | DRAWING No. | REV.

A0 ORIGINAL PAGE SIZE | SHEET 01 OF 16

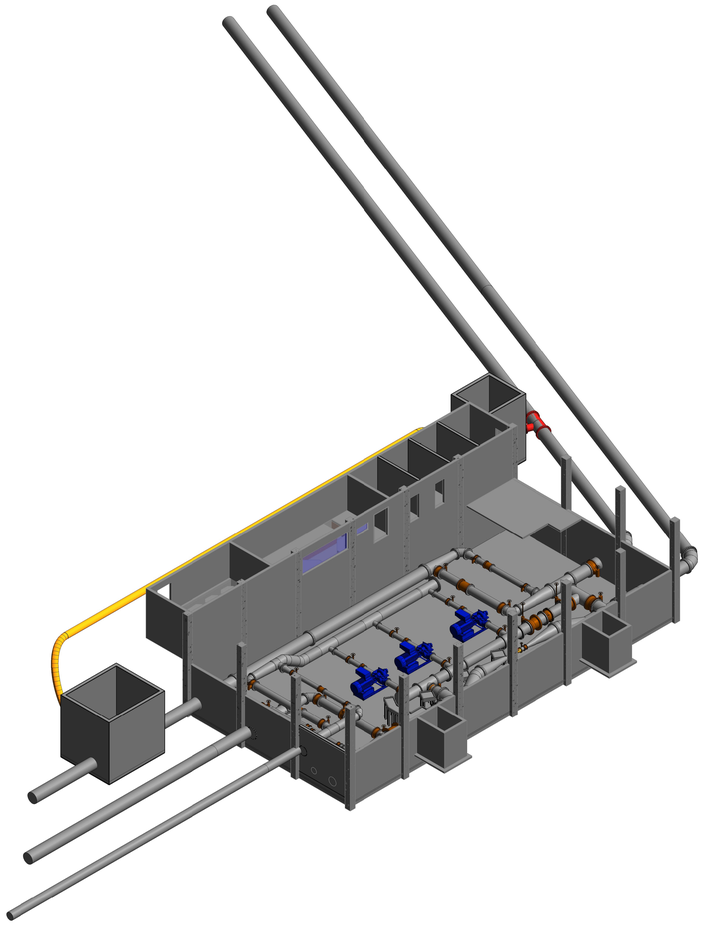
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CONSTRUCTION STEPS:

1.1 CONSTRUCT NEW PERMANENT DN900 x DN600 CONNECTION ON EXISTING RESERVOIR OUTLET. ISOLATION VALVE TO FITTED ON THE BRANCH WITHIN A PERMANENT ISOLATION VALVE CHAMBER. ISOLATION VALVE TO BE CLOSED.
1.2 CONSTRUCT NEW PERMANENT DN900 x DN600 CONNECTION ON EXISTING GRAVITY MAIN. ISOLATION VALVES TO BE FITTED ON THE EXISTING GRAVITY MAIN AND BRANCH WITHIN A PERMANENT ISOLATION VALVE CHAMBER. GRAVITY MAIN ISOLATION VALVE TO BE OPEN AND BRANCH ISOLATION VALVE TO BE CLOSED.
1.3 CONSTRUCT NEW TEMPORARY GRAVITY MAIN.
1.4 NEWLY CONSTRUCTED ISOLATION VALVE FROM STEP 1.2 ON EXISTING GRAVITY MAIN TO BE CLOSED AND BRANCH ISOLATION VALVES FROM STEPS 1.1 AND 1.2 TO BE OPENED.

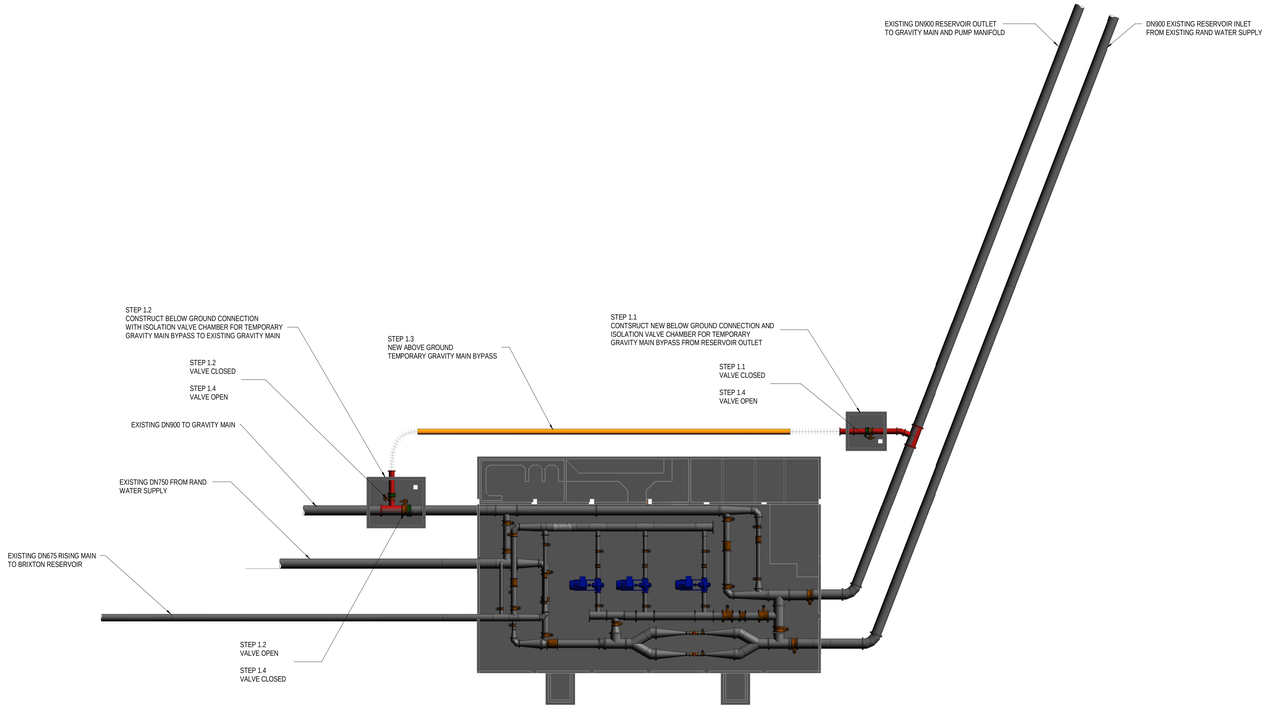
KEY

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK



STEP 1 - ISOMETRIC VIEW

NTS



STEP 1 - PLAN VIEW

SCALE 1 : 200

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24	
DRAWN:	L. VAN VELZE	30.01.24	
CHECKED:	E.LOTTERING	30.01.24	
APPROVED BY:	R.BARRY	30.01.24	
	SIGNATURE	DATE	
ECSA REG No:	20160835		
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

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CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 1

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	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0002 - T0

PROJECT No. | DRAWING No. | REV.

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SHEET 02 OF 16

Plot Date: 2024/01/31 11:09:10 Office: CS Filename: BAK [M]:\JW\113503\ Erosion Reservoir and Tower Area\REDZONE\CAD\RED_PS_withPe_GRAVITY_FEED-Network.rvt

CONSTRUCTION STEPS:

2.1 CONSTRUCT NEW PERMANENT DN900 x DN600 CONNECTION ON EXISTING RESERVOIR OUTLET WITH ABOVE GROUND ISOLATION VALVE ON THE BRANCH. ISOLATION VALVE TO BE CLOSED.

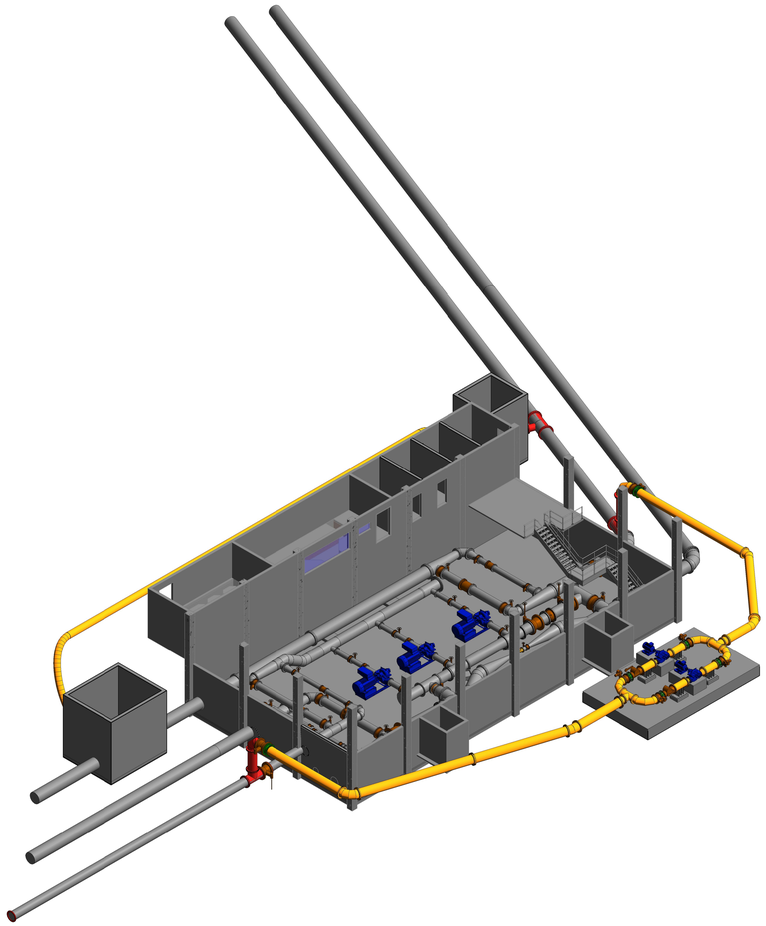
2.2 CONSTRUCT TEMPORARY PUMP STATION INCLUDING ISOLATION AND CHECK VALVES. TEMPORARY SUCTION LINE TO CONNECT TO BRANCH ISOLATION VALVE FROM STEP 2.1. TEMPORARY DISCHARGE LINE TO CONNECT TO BRANCH ISOLATION VALVE TO BE CONSTRUCTED IN STEP 2.3.

2.3 CONSTRUCT NEW PERMANENT DN675 x DN600 CONNECTION ON EXISTING BRIXTON PUMP MAIN. ISOLATION VALVES TO BE FITTED ON THE EXISTING BRIXTON PUMP MAIN AND NEW ABOVE GROUND BRANCH. ISOLATION VALVE ON EXISTING BRIXTON PUMP MAIN TO BE OPEN. I SOLATION VALVE ON BRANCH TO BE CLOSED.

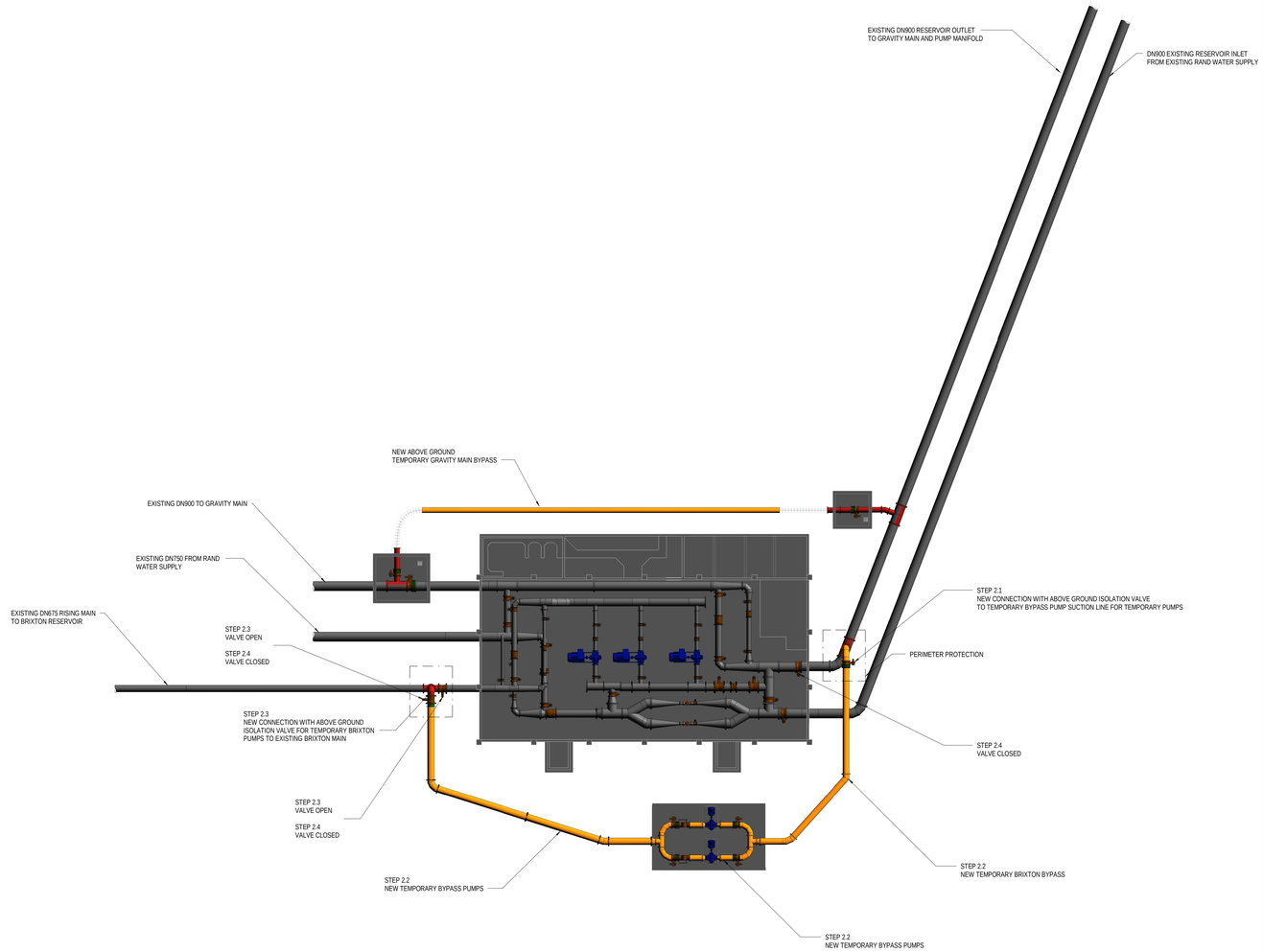
2.4 EXISTING ISOLATION VALVE ON THE CROSBY SUCTION MANIFOLD TO BE CLOSED. NEWLY CONSTRUCTED ISOLATION VALVE FROM STEP 2.3 ON EXISTING BRIXTON PUMP MAIN TO BE CLOSED AND BRANCH ISOLATION VALVES FROM STEPS 2.1 AND 2.3 TO BE OPENED.

KEY

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK



STEP 2 - ISOMETRIC VIEW
NTS



STEP 2 - PLAN VIEW
SCALE 1 : 200

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24
DRAWN:	L.VAN VELZE	30.01.24
CHECKED:	E.LOTTERING	30.01.24
APPROVED BY:	R.BARRY	30.01.24
	SIGNATURE	DATE
ECSA REG No:	20160835	
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 2

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	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
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REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0003 - T0
PROJECT No. DRAWING No. REV.

A0 ORIGINAL PAGE SIZE
SHEET 03 OF 16

Filename: BIM JMLM.113503 Brixton Reservoir and Tower ANA\MEDIA\DRAWINGS\ARCHIVED_PS_WIP_SEPERATE_DRAWITS_FEED\Arrowsmith.rvt
Office: CS
Plot Date: 2024/01/02 11:02:53

CONSTRUCTION STEPS:

3.1 CONSTRUCT NEW TEMPORARY DN750 x DNXXX CONNECTION ON EXISTING RAND WATER SUPPLY WITH ABOVE GROUND ISOLATION VALVE ON THE BRANCH. ISOLATION VALVE TO BE CLOSED.

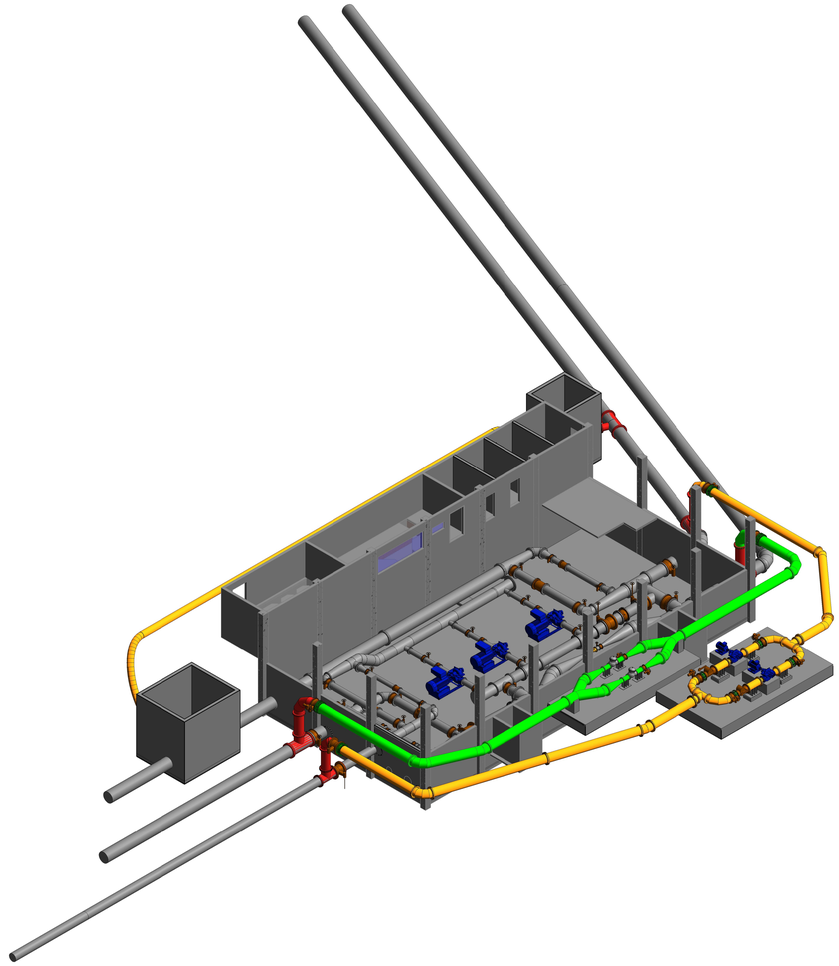
3.2 CONSTRUCT NEW TEMPORARY DN900 x DNXXX CONNECTION ON EXISTING RESERVOIR INLET WITH ABOVE GROUND ISOLATION VALVE ON THE BRANCH. ISOLATION VALVE TO BE CLOSED.

3.3 CONSTRUCT NEW TEMPORARY PRV STATION INCLUDING ISOLATION VALVES AND SPECIALS. TEMPORARY UPSTREAM PIPEWORK TO CONNECT TO BRANCH ISOLATION VALVE FROM STEP 3.2. TEMPORARY DOWNSTREAM PIPEWORK TO CONNECT TO BRANCH ISOLATION VALVE FROM STEP 3.1

3.4 BLANK OFF THE EXISTING RAND WATER SUPPLY AND THE EXISTING RESERVOIR INLET. ISOLATION VALVES ON THE BRANCHES FROM STEP 3.1 AND 3.2 TO BE OPENED.

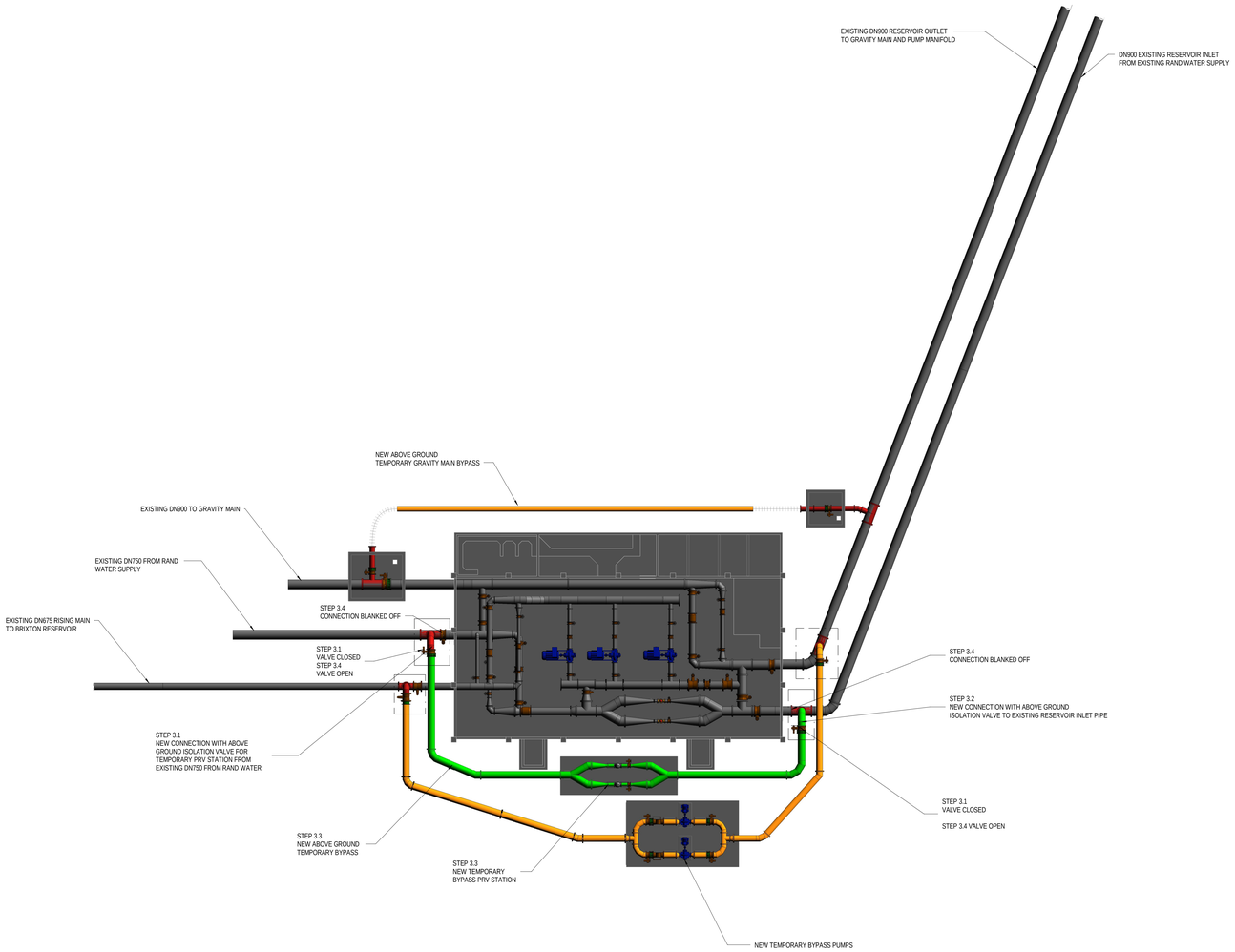
KEY:

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK
4. TEMPORARY BYPASS SUPPLY TO CROSBY RESERVOIR PIPEWORK



STEP 3 - ISOMETRIC VIEW

NTS



STEP 3 - PLAN VIEW

SCALE 1 : 200

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32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24
DRAWN:	L. VAN VELZE	30.01.24
CHECKED:	E.LOTTERING	30.01.24
APPROVED BY:	R.BARRY	30.01.24
	SIGNATURE	DATE
ECSA REG No:	20160835	
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 3

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0004 - T0

PROJECT No. DRAWING No. REV.

A0 ORIGINAL PAGE SIZE

SHEET 04 OF 16

Filename: BIM /BIM 113503- Brixton Reservoir and Tower ANNUREDDIVIDED_PS_WTP_SEPERATE_GRAVITY_FEED.rtwmtemplate.rvt

Plot Date: 2024/01/03 11:09:18 Plotted: CS

CONSTRUCTION STEPS:

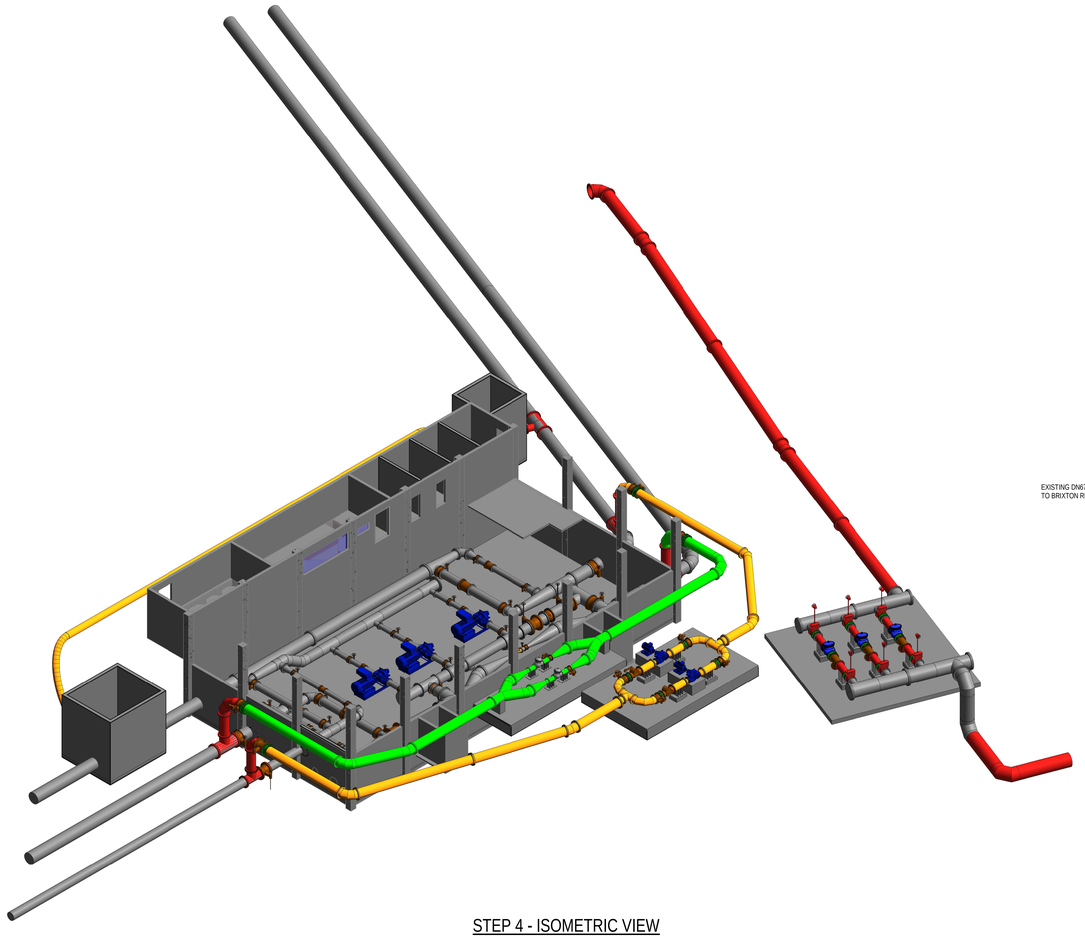
4.1 CONSTRUCT NEW PERMANENT DN1000 WATER MAIN FROM RAND WATER SUPPLY UP TO THE INDICATED POSITION OF THE NEW PRV STATION.

4.2 CONSTRUCT NEW PERMANENT PRV STATION INCLUDING ISOLATION VALVES, STRAINERS AND SPECIALS. CONNECT THE DN1000 WATER MAIN FROM STEP 4.1 TO THE UPSTREAM END OF THE PRV STATION. DOWNSTREAM ISOLAION VALVES TO BE CLOSED.

4.3 CONSTRUCT NEW PERMANENT DN900 CONNECTION FROM PRV STATION TO EXISTING DN900 RESERVOIR INLET PIPE, EXCLUDING TIE-IN. REFER TO STEP 5 FOR TIE-IN

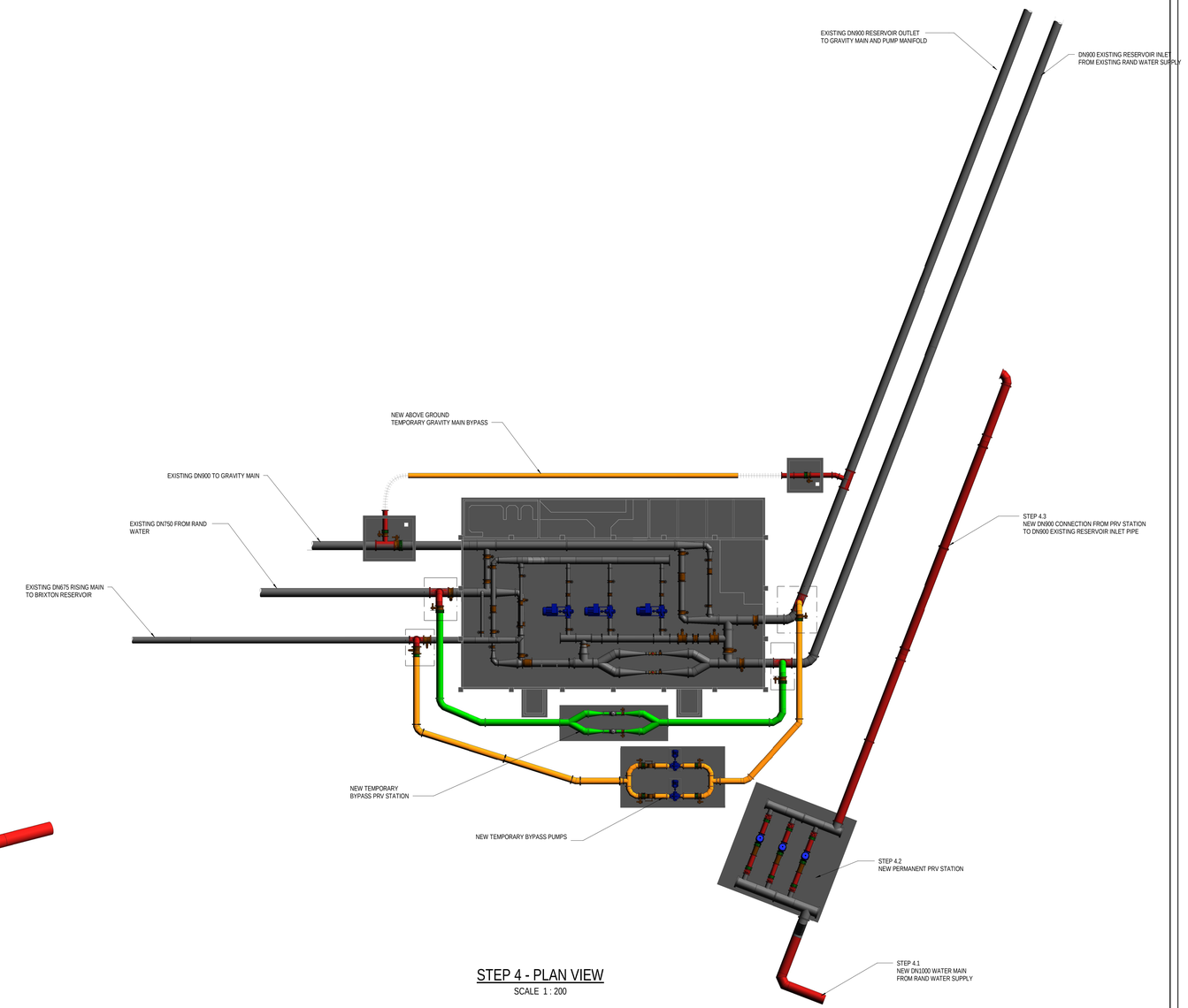
KEY:

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK
4. TEMPORARY BYPASS SUPPLY TO CROSBY RESERVOIR PIPEWORK



STEP 4 - ISOMETRIC VIEW

NTS



STEP 4 - PLAN VIEW

SCALE 1 : 200

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24
DRAWN:	L. VAN VELZE	30.01.24
CHECKED:	E.LOTTERING	30.01.24
APPROVED BY:	R.BARRY	30.01.24
	SIGNATURE	DATE
ECSA REG No:	20160835	
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

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17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 4

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0005 - T0

PROJECT No. DRAWING No. REV.

A0 ORIGINAL PAGE SIZE

SHEET 05 OF 16

File Name: BIM (MUNI 113503- Brixton Reservoir and Tower Arkuel\DGN\FIGURES_PS_MPH_SEPERATE_GRAVITY_FEED Variation.rvt

Plot Date: 2024/02/16 11:12:20 Offset: CS



GENERAL NOTES:

1. DRAWINGS MUST NOT BE SCALED.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE GENERAL NOTES DRAWINGS AND ALL PROJECT SPECIFICATIONS.
3. ACCORDING TO THE COPYRIGHT ACT (ACT No 98 OF 1978) NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WHATSOEVER INCLUDING MECHANICAL,ELECTRONIC, PHOTOCOPYING, MICROFILMING OR ANY OTHER SYSTEM OF INFORMATION STORAGE WITHOUT WRITTEN PERMISSION OF ZUTARI.
4. ALL DIMENSIONS IN METERS UNLESS OTHERWISE STATED ALL LEVELS IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE STATED.
5. FOR CO-ORDINATES OF PIPELINE PI'S AND SURVEY BEACONS SEE REFERENCE DRAWINGS.
6. VERTICAL AND HORIZONTAL BENDS INDICATED IN DECIMAL DEGREES.
7. ALL SCALES DEPICTED ON THIS DRAWING ARE FOR A0 PAPER SIZE.
8. MINIMUM COVER OVER PIPE TO BE 0.8 m
9. EXISTING SERVICES TO BE EXPOSED AND LEVELS TO BE CONFIRMED WITH THE ENGINEER PRIOR TO THE INSTALLATION OF ANY NEW PIPE WORK ON SITE.
10. ALL EXCAVATIONS DEEPER THAN 1.5 m MUST BE ADEQUATELY SHORED AND BRACED.
11. WAYLEAVE APPROVAL CONDITIONS TO BE STRICTLY ADHERED TO.
12. ACCOMMODATION OF TRAFFIC TO BE IN STRICT ACCORDANCE TO SOUTH AFRICAN ROAD TRAFFIC SIGN MANUAL.
13. THE SPOILING OF MATERIAL ALONGSIDE EXCAVATIONS WILL NOT BE PERMITTED WITHIN THE ROAD RESERVE AT ANY POINT ALONG THE EXTENT OF THE WORKS.
14. CATHODIC PROTECTION TO BE PROVIDED TO THE NEW PIPE
15. ALL BENDS SHALL BE MEDIUM RADIUS BENDS.
16. FOR AIR VALVE DETAILS REFER TO DWG. No.113503-3400-DRG-CC-0002.
17. FOR SCOUR VALVE DETAILS REFER TO DWG. No.113503-3400-DRG-CC-0001.
18. FOR CLASS B BEDDING, REFER TO DWG. No.113503-3400-DRG-CC-0003.
19. 1000 mm Ø (10.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.
20. 600 mm Ø (6.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED	L. GWIJI	30.01.24
DRAWN	L. GWIJI	30.01.24
CHECKED	S. MNQONYWA	30.01.24
APPROVED BY:	R.BARRY	30.01.24
	SIGNATURE	DATE
ECSA REG. No.		
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG. No.		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

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

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

EXISTING AND TEMPORARY PUMP STATION PIPE WORK

APPROVAL BY JW DEPOT		
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	SIGNATURE	DATE
APPROVAL BY JW PLANNING		
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APPROVED BY:		
	SIGNATURE	DATE

SCALE: AS SHOWN

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

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113503 - 3130-DRG-CS-0006 - T0
PROJECT No. DRAWING No. REV.

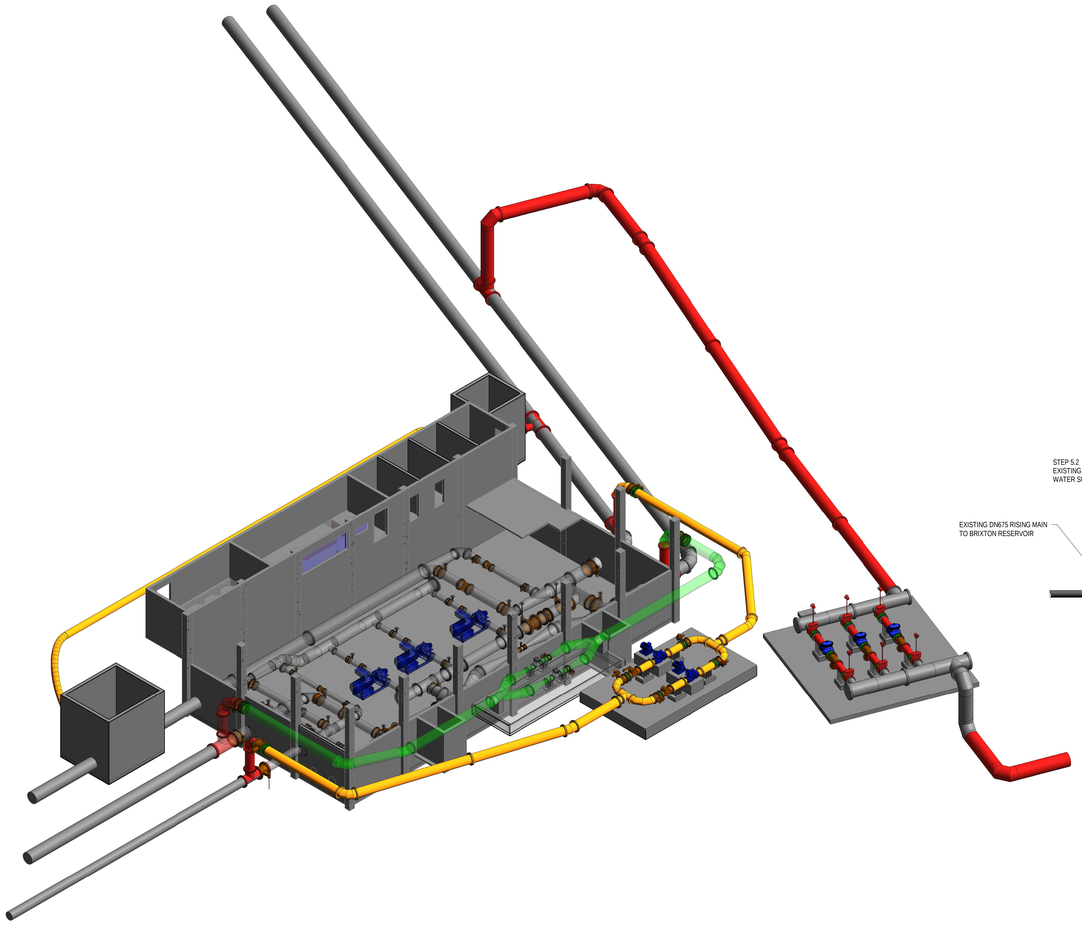
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SHEET 06 OF 16
FILE No.

CONSTRUCTION STEP:

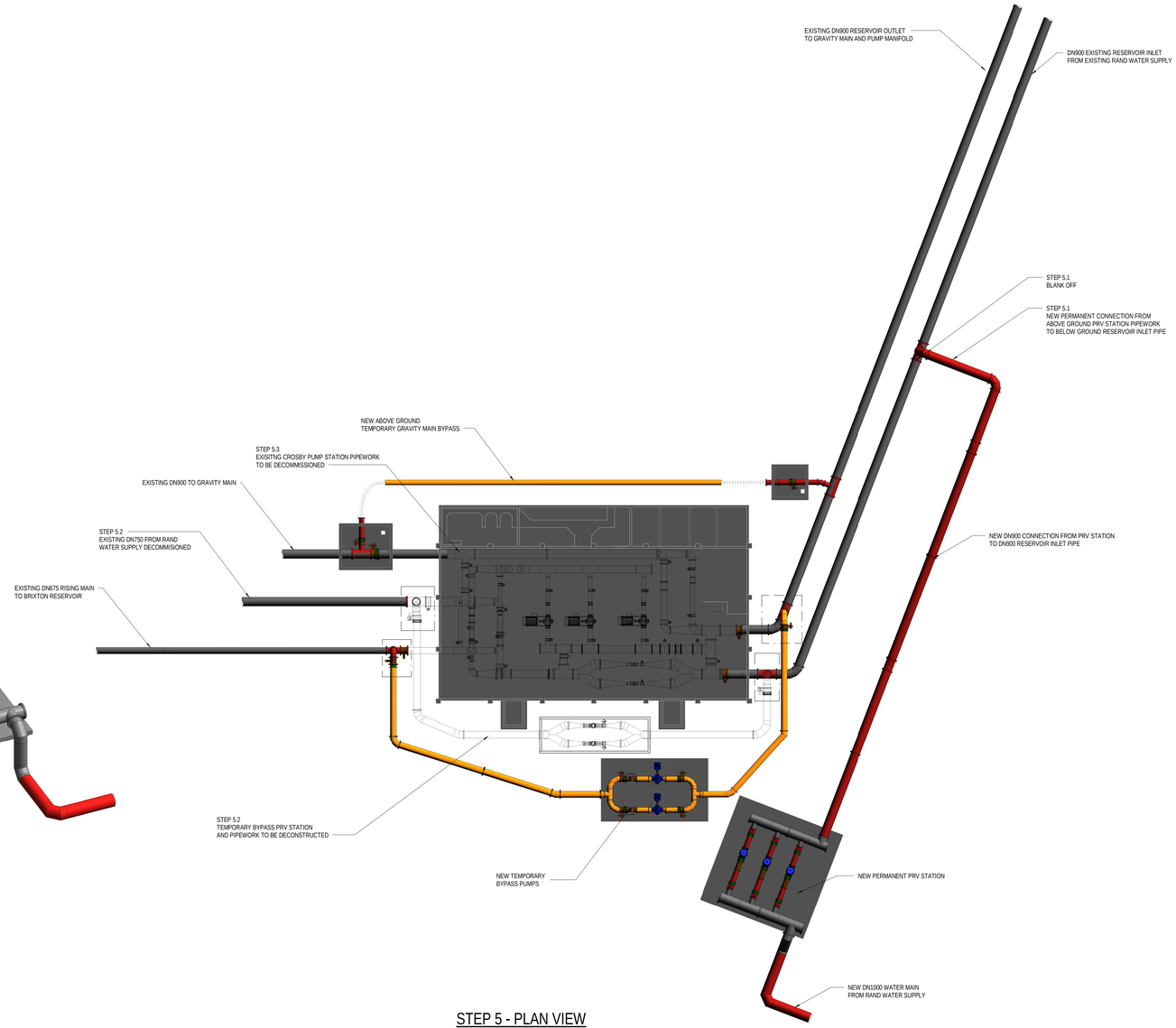
5.1 CONSTRUCT NEW PERMANENT DN600 CONNECTION FROM THE NEW PRV STATION TO THE RESERVOIR INLET PIPE.
5.2 TEMPORARY PRV STATION AND PIPEWORK TO BE DECONSTRUCTED. ISOLATION VALVES FROM THE EXISTING DN750 RAND WATER SUPPLY AND TO THE RESERVOIR INLET TO BE CLOSED. THUS DECOMMISIONING THE RAND WATER SUPPLY VIA DN750.
5.3 DECONSTRUCT AND REMOVE EXISTING PIPEWORK WITHIN CROSBY PUMP STATION.

KEY:

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK
4. TEMPORARY BYPASS SUPPLY TO CROSBY RESERVOIR PIPEWORK



STEP 5 - ISOMETRIC VIEW
NTS



STEP 5 - PLAN VIEW
SCALE 1 : 200

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OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24
DRAWN:	L. VAN VELZE	30.01.24
CHECKED:	E.LOTTERING	30.01.24
APPROVED BY:	R.BARRY	30.01.24
	SIGNATURE	DATE
ECSA REG No:	20160835	
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ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 5

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AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0007 - T0
PROJECT No. DRAWING No. REV.

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SHEET 07 OF 16

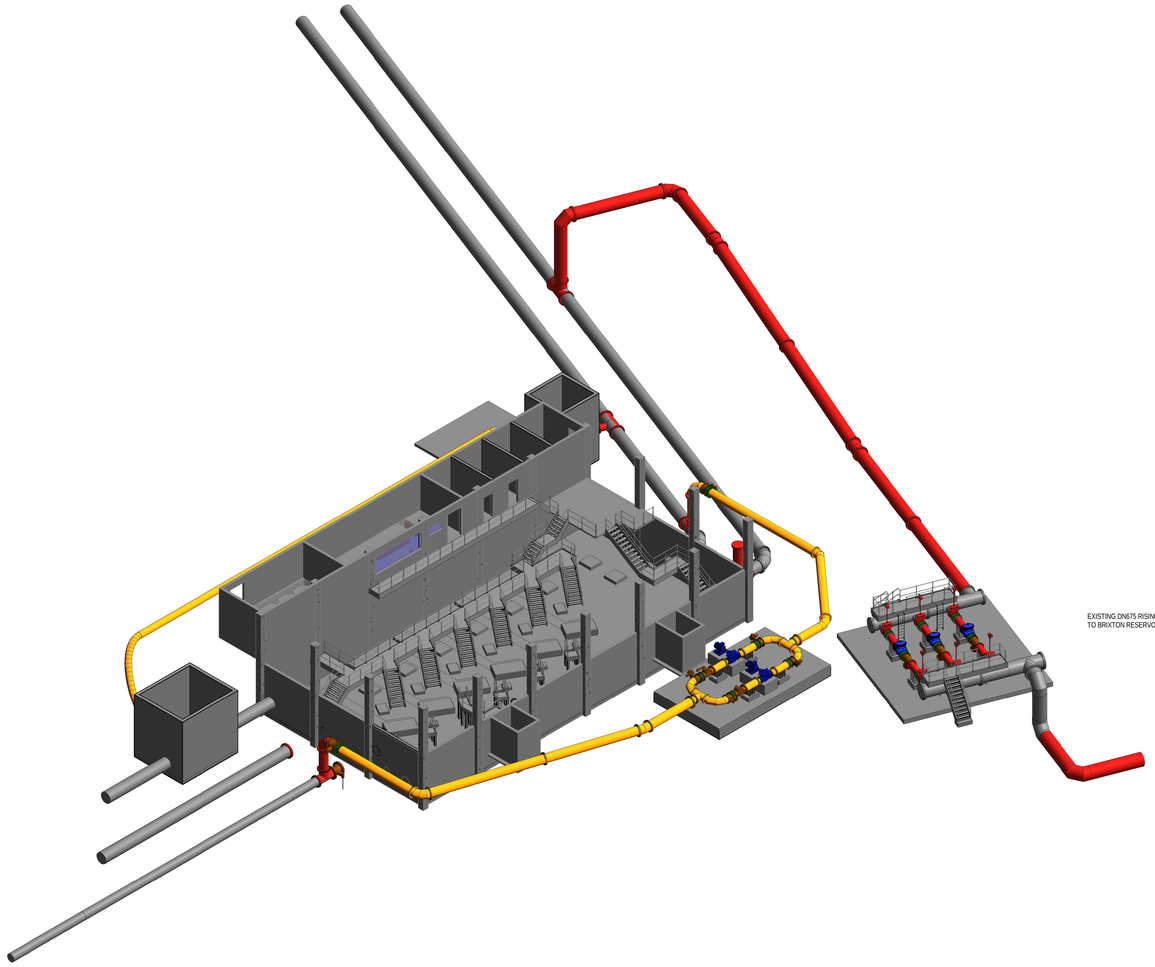
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Plot Date: 2024/01/23 11:10:55

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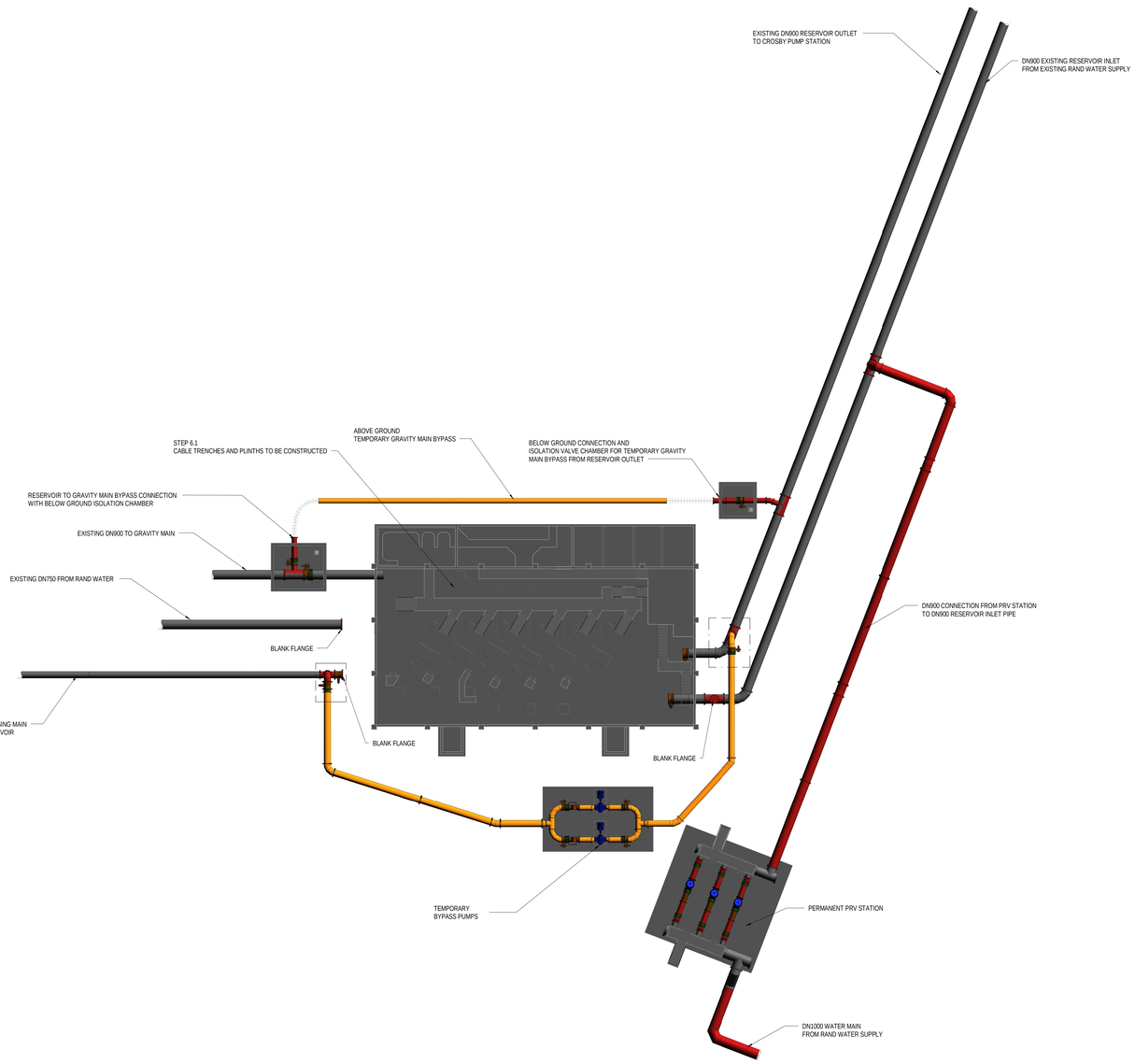
6.1 PREPARE CABLE TRENCHES/CONDUITS AND ELECTRICAL CABLING FOR NEW PUMPS AND PIPING

KEY:

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK
4. TEMPORARY BYPASS SUPPLY TO CROSBY RESERVOIR PIPEWORK



STEP 6 - ISOMETRIC VIEW
NTS



STEP 6 - PLAN VIEW
SCALE 1 : 200

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ZUTARI IMPACT. ENGINEERED.
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OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24
DRAWN:	L. VAN VELZE	30.01.24
CHECKED:	E.LOTTERING	30.01.24
APPROVED BY:	R.BARRY	30.01.24
	SIGNATURE	DATE
ECSA REG No:	20160835	
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ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 6

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AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

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PROJECT No.		DRAWING No.		REV.
113503	-	3130 - DRG - CS - 0008	-	T0

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SHEET 08 OF 16

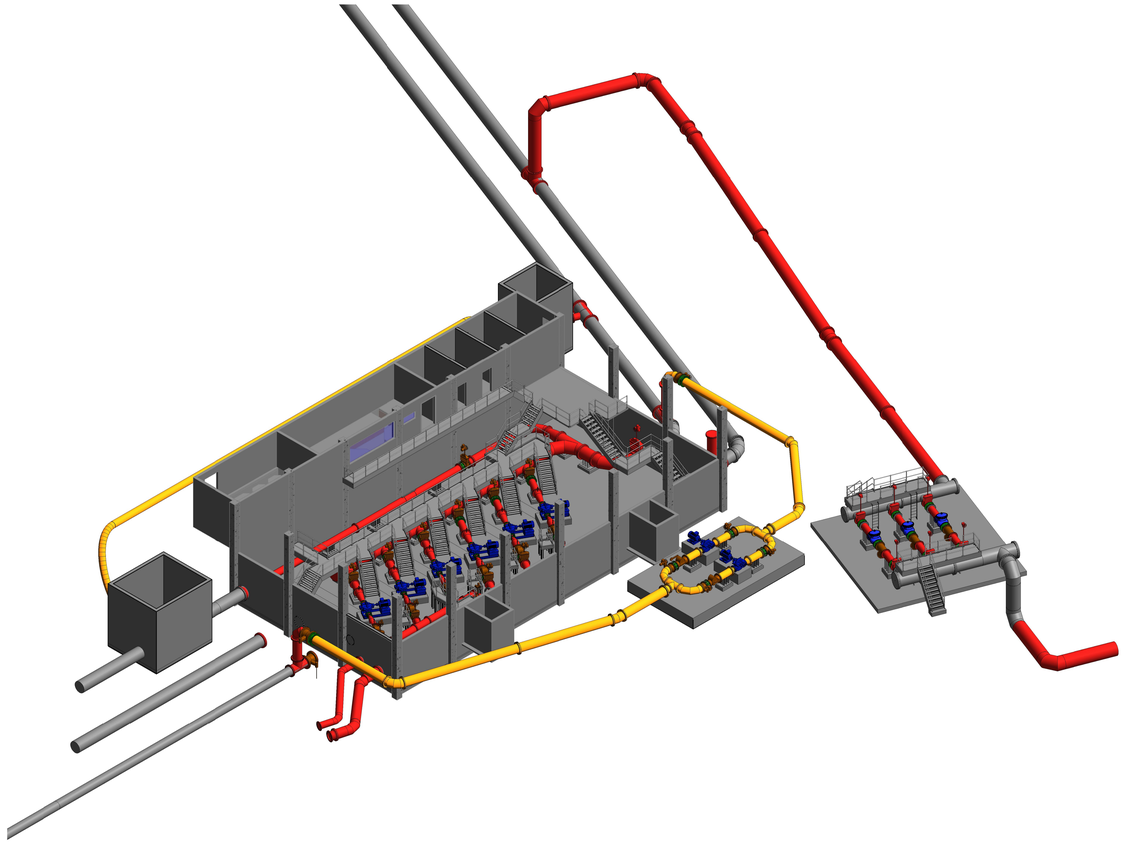
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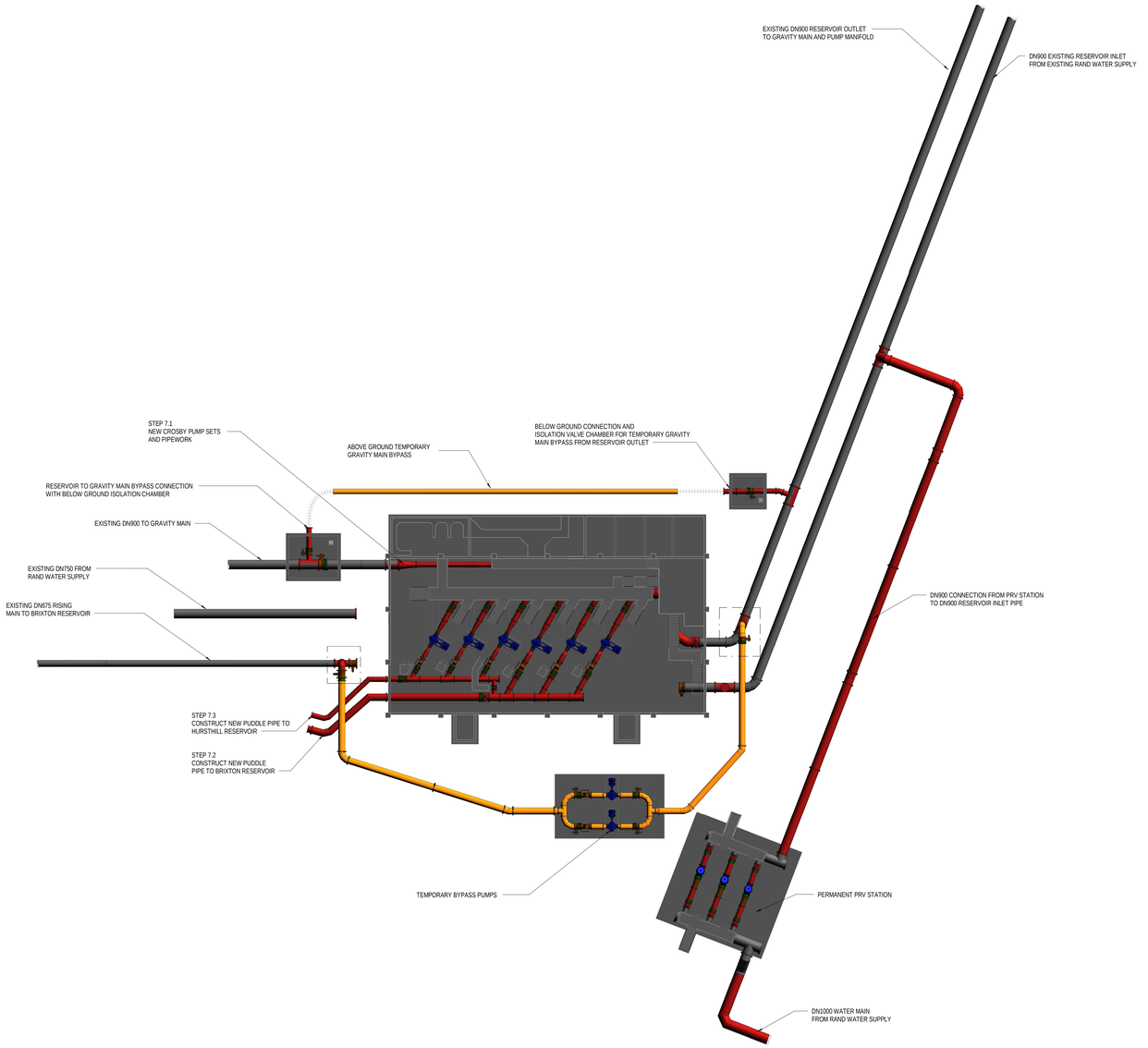
7.1 CONSTRUCT NEW BRIXTON AND HURSTHILL PUMP SETS AND PIPEWORK IN THE CROSBY PUMP STATION INCLUDING ALL ISOLATION AND CHECK VALVES, SPECIALS AND FLOW METERS.
7.2 CONSTRUCT NEW PUDDLE PIPE FOR THE BRIXTON RESERVOIR RISING MAIN CONNECTION
7.3 CONSTRUCT NEW PUDDLE PIPE FOR THE HURSTHILL RESERVOIR RISING MAIN CONNECTION
7.4 CONSTRUCT NEW MCC CONCRETE SLAB

KEY:

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK
4. TEMPORARY BYPASS SUPPLY TO CROSBY RESERVOIR PIPEWORK



STEP 7 - ISOMETRIC VIEW
NTS



STEP 7 - PLAN VIEW
SCALE 1 : 200

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24	
DRAWN:	L. VAN VELZE	30.01.24	
CHECKED:	E.LOTTERING	30.01.24	
APPROVED BY:	R.BARRY	30.01.24	
	SIGNATURE	DATE	
ECSA REG No:	20160835		
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	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water
17 HARRISON STREET
MARSHALLTOWN
2107
TEL: (011) 688-1400
FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 7

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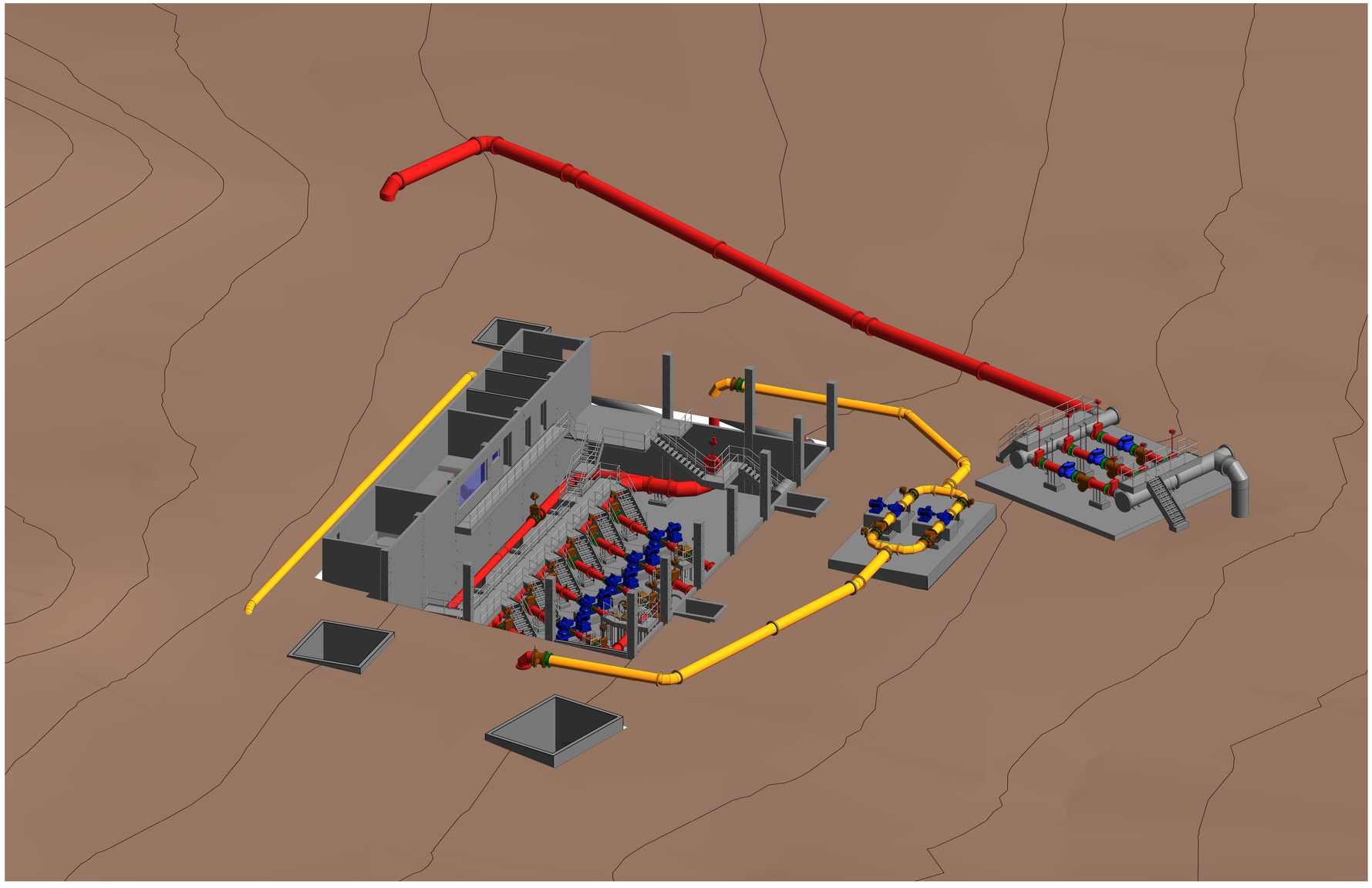
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REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0009 - T0
PROJECT No. DRAWING No. REV.

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SHEET 09 OF 16

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Plot Date: 2024/02/15 11:18:32
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STEP 7 - 3D VIEW WITH SURFACE

NTS

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OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24	
DRAWN:	L. VAN VELZE	30.01.24	
CHECKED:	E.LOTTERING	30.01.24	
APPROVED BY:	R.BARRY	30.01.24	
	SIGNATURE	DATE	
ECSA REG No:	20160835		
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Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 7 - 3D VIEW

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	SIGNATURE BY:	DATE:	
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APPROVED BY:			
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REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

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113503 - 3130 - DRG - CS - 0010 - T0

PROJECT No. | DRAWING No. | REV.

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SHEET 10 OF 16

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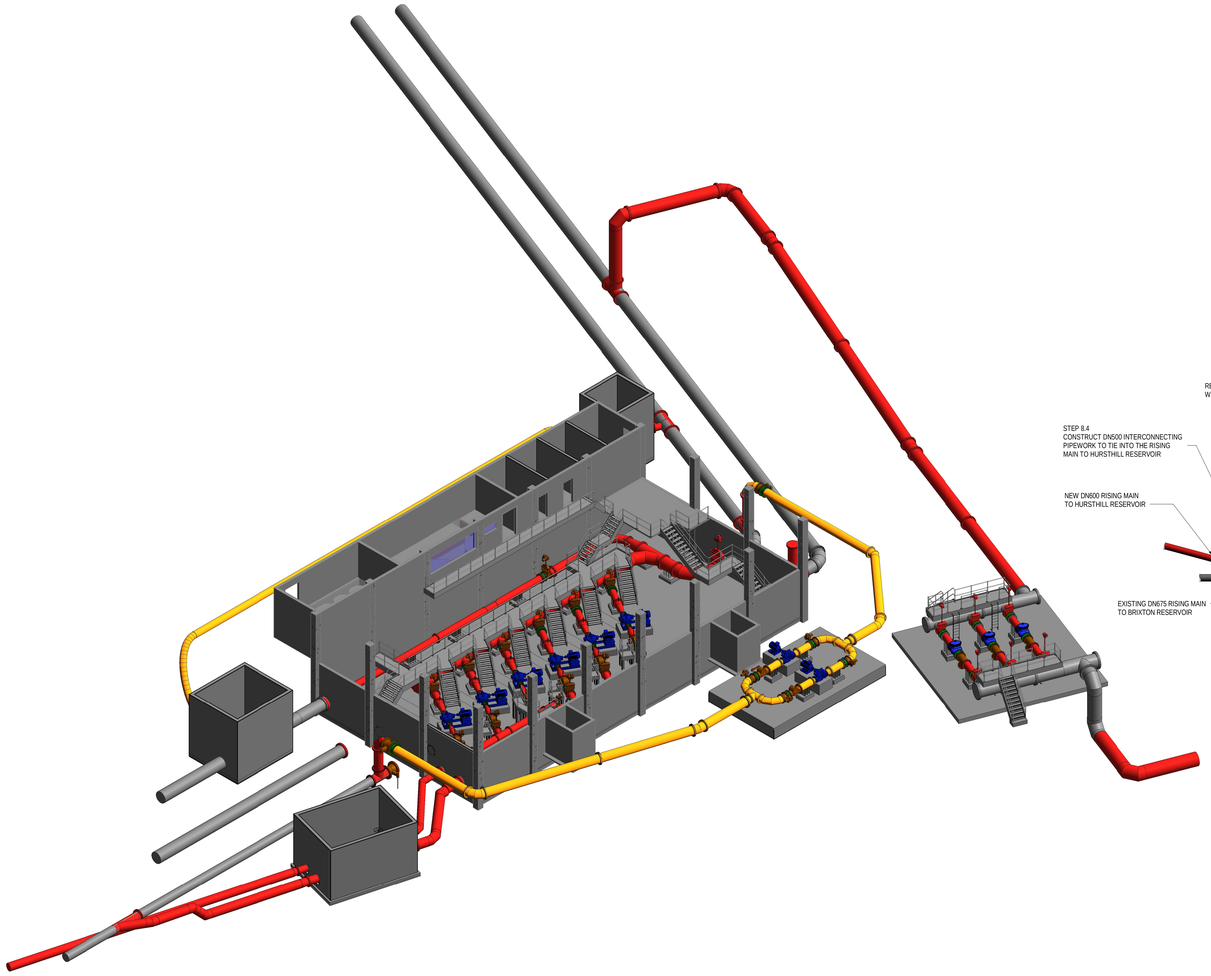
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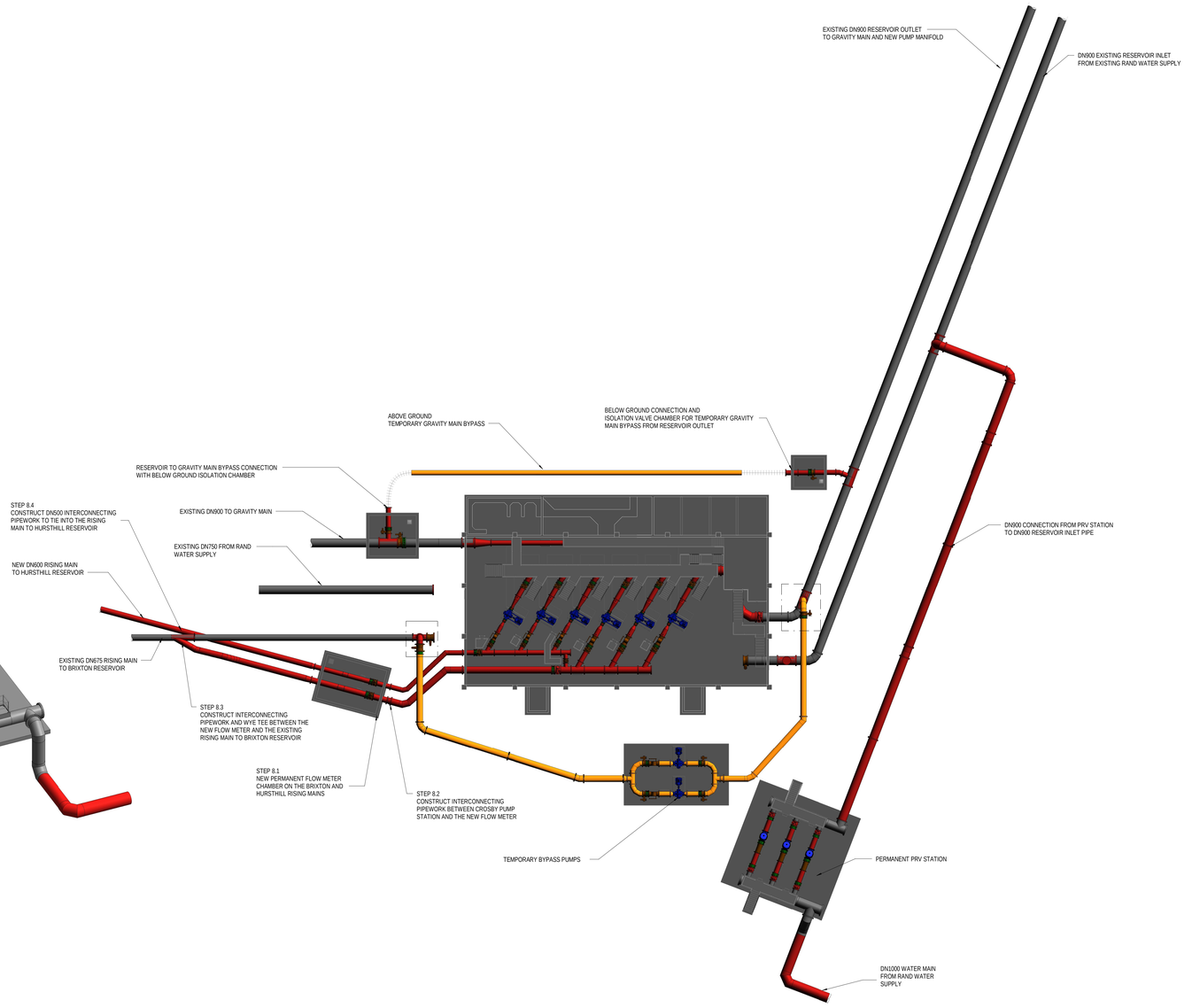
8.1 CONSTRUCT NEW PERMANENT FLOW METER CHAMBER INCLUDING ISOLATION VALVES. DOWNSTREAM ISOLATION VALVE ON THE BRIXTON RISING MAIN TO BE CLOSED.
8.2 CONSTRUCT THE CONNECTING PIPEWORK BETWEEN THE NEW BRIXTON AND HURSHILL PUMP SETS TO THE FLOW METER CHAMBER.
8.3 CONSTRUCT THE CONNECTING PIPEWORK AND WYE TEE FROM THE FLOW METER CHAMBER TO THE EXISTING BRIXTON RISING MAIN.
8.4 CONSTRUCT THE CONNECTING PIPEWORK FROM THE FLOW METER CHAMBER TO TIE INTO THE HURSTHILL RISING MAIN.

KEY:

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK
4. TEMPORARY BYPASS SUPPLY TO CROSBY RESERVOIR PIPEWORK



STEP 8 - ISOMETRIC VIEW
NTS



STEP 8 - PLAN VIEW
SCALE 1 : 200

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24	
DRAWN:	L. VAN VELZE	30.01.24	
CHECKED:	E.LOTTERING	30.01.24	
APPROVED BY:	R.BARRY	30.01.24	
	SIGNATURE	DATE	
ECSA REG No:	20160835		
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	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

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CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 8

APPROVAL BY JW DEPOT			SCALE
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APPROVAL BY JW PLANNING			
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AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0011 - T0
PROJECT No. DRAWING No. REV.

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SHEET 11 OF 16

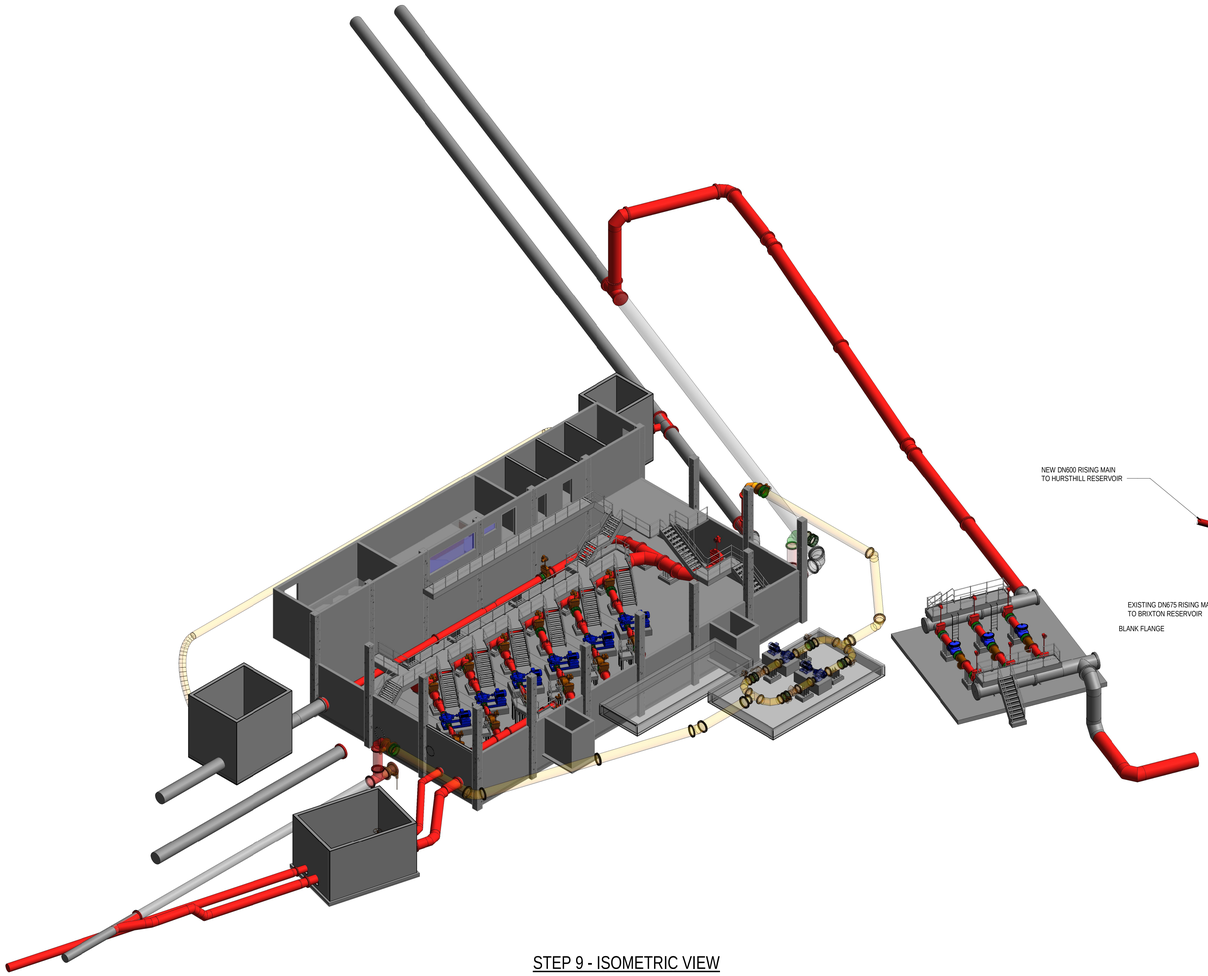
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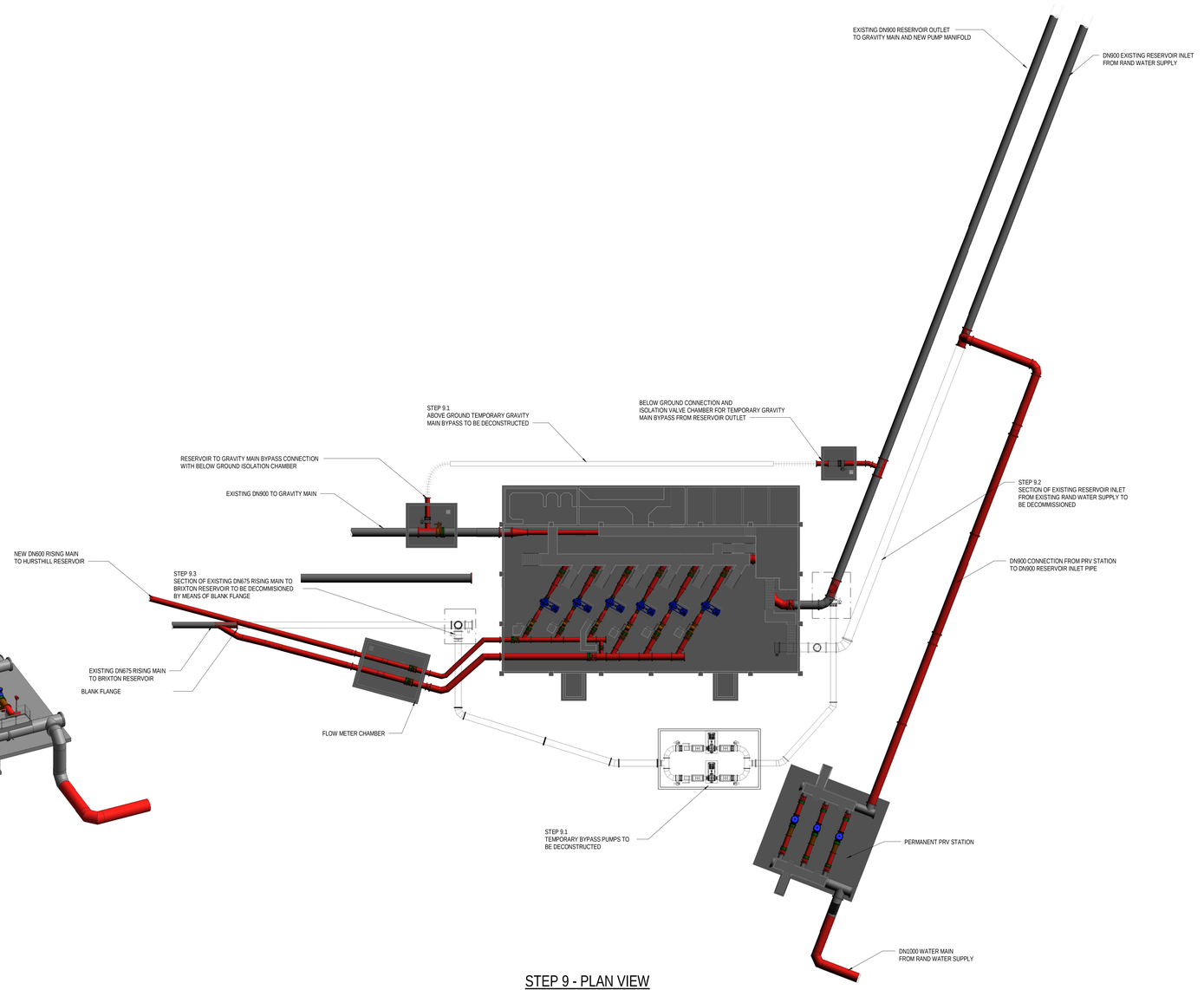
9.1 DECONSTRUCT TEMPORARY PUMP STATION BYPASS PIPEWORK.
9.2 DECOMMISSION THE EXISTING DN900 RESERVOIR INLET PIPEWORK BETWEEN CROSBY PUMP STATION AND THE DN900 CONNECTION FROM THE PRV STATION.
9.3 DECOMMISSION THE EXISTING BRIXTON RISING MAIN PIPEWORK BY MEANS OF A BLANK FLANGE AS INDICATED.

KEY:

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK
4. TEMPORARY BYPASS SUPPLY TO CROSBY RESERVOIR PIPEWORK



STEP 9 - ISOMETRIC VIEW
NTS



STEP 9 - PLAN VIEW
SCALE 1 : 200

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24
DRAWN:	L. VAN VELZE	30.01.24
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APPROVED BY:	R.BARRY	30.01.24
	SIGNATURE	DATE
ECSA REG No:	20160835	
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CONSTRUCTION SEQUENCE STEP 9

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APPROVAL BY JW PLANNING			
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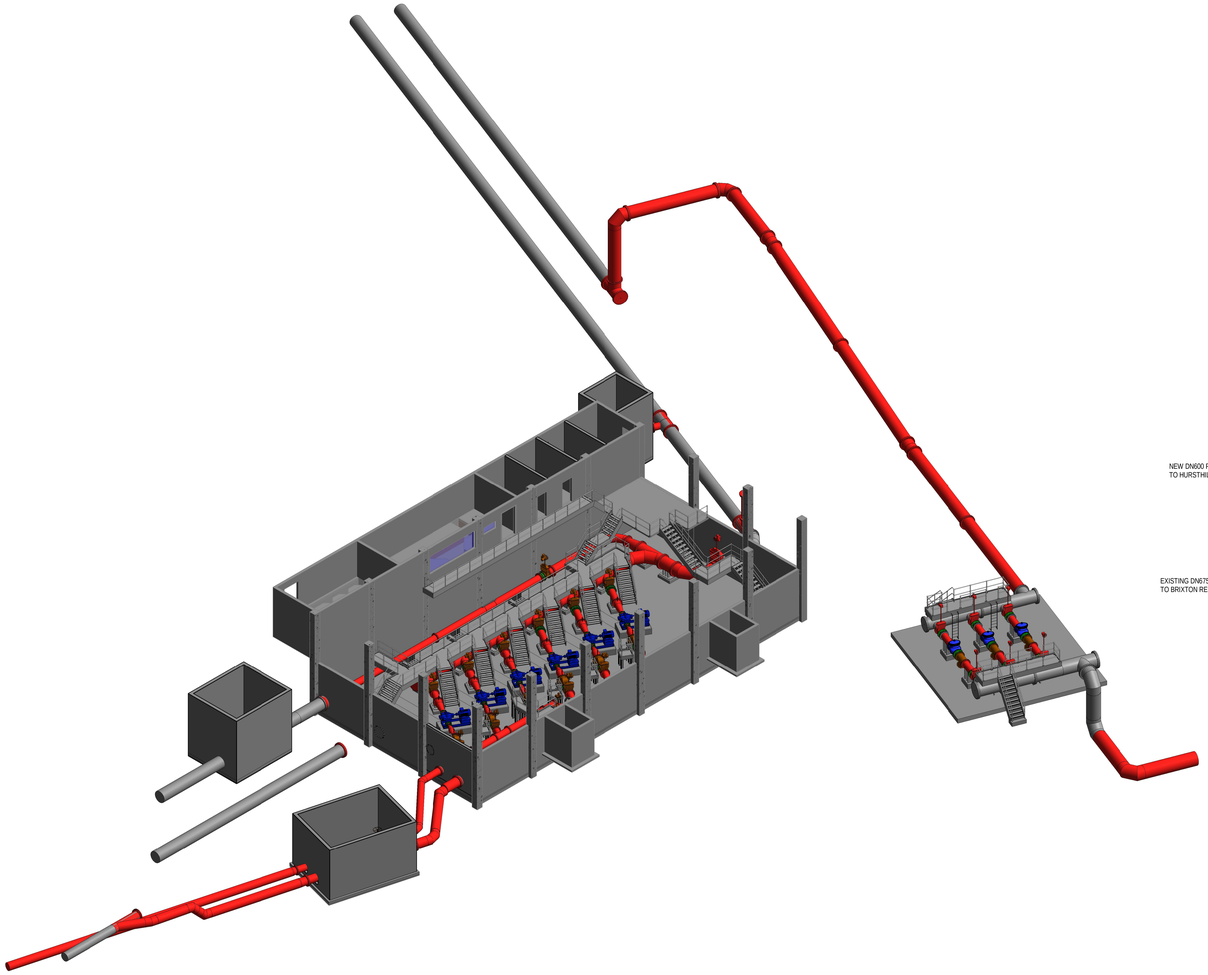
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SHEET 12 OF 16

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Plot Date: 2024/01/31 11:34:12 Office: CS

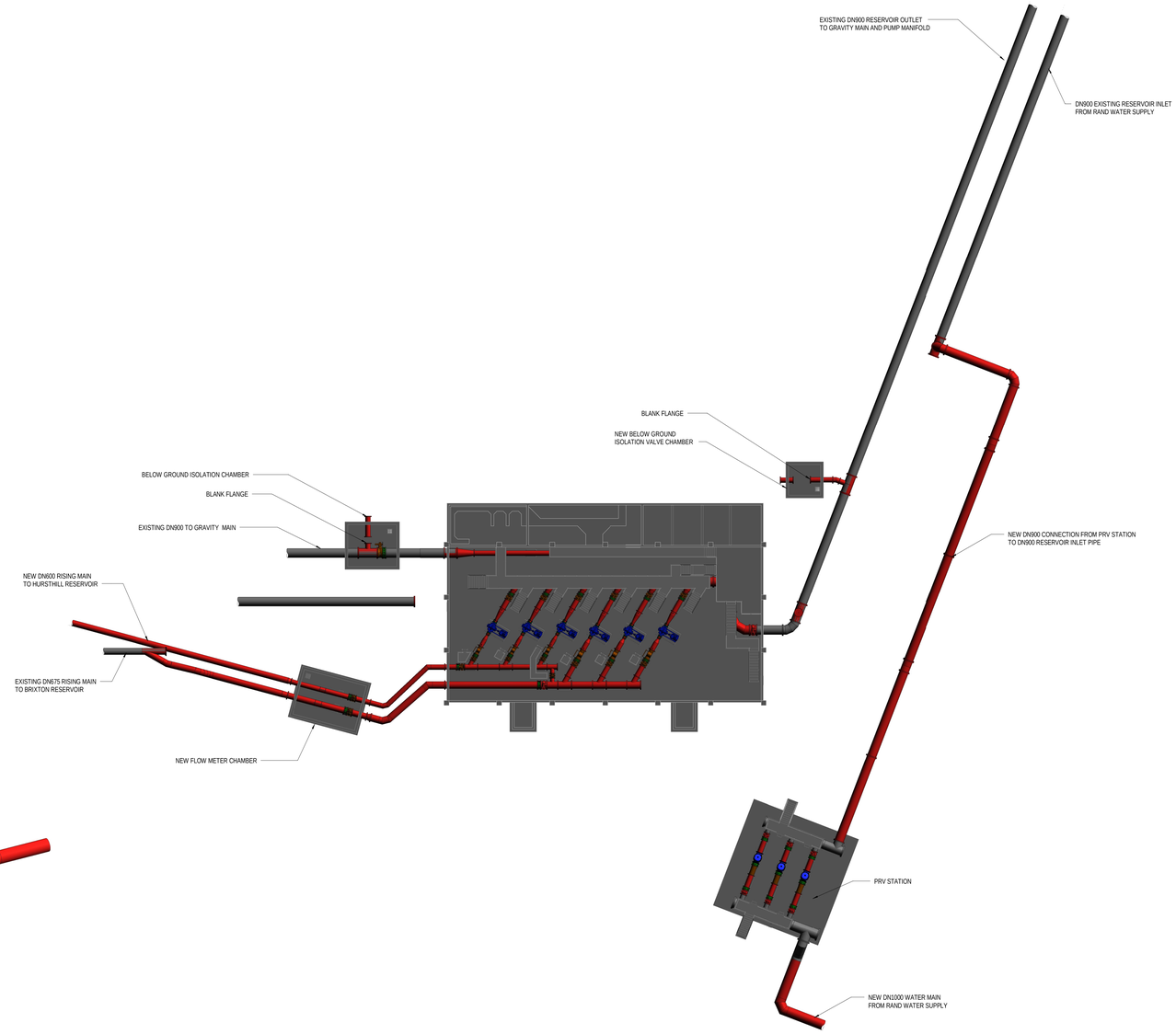
KEY

1. EXISTING PIPEWORK
2. NEW PERMANENT PIPEWORK
3. TEMPORARY PIPEWORK



END OF CONSTRUCTION SEQUENCE - ISOMETRIC VIEW

NTS



END OF CONSTRUCTION SEQUENCE - PLAN VIEW

SCALE 1 : 200

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OXFORD CORNER
ROSEBANK
SOUTH AFRICA TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	17.11.23
DRAWN:	L. VAN VELZE	17.11.23
CHECKED:	E.LOTTERING	17.11.23
APPROVED BY:	R.BARRY	17.11.23
	SIGNATURE	DATE
ECSA REG No:	20160835	
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

END OF CONSTRUCTION SEQUENCE

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

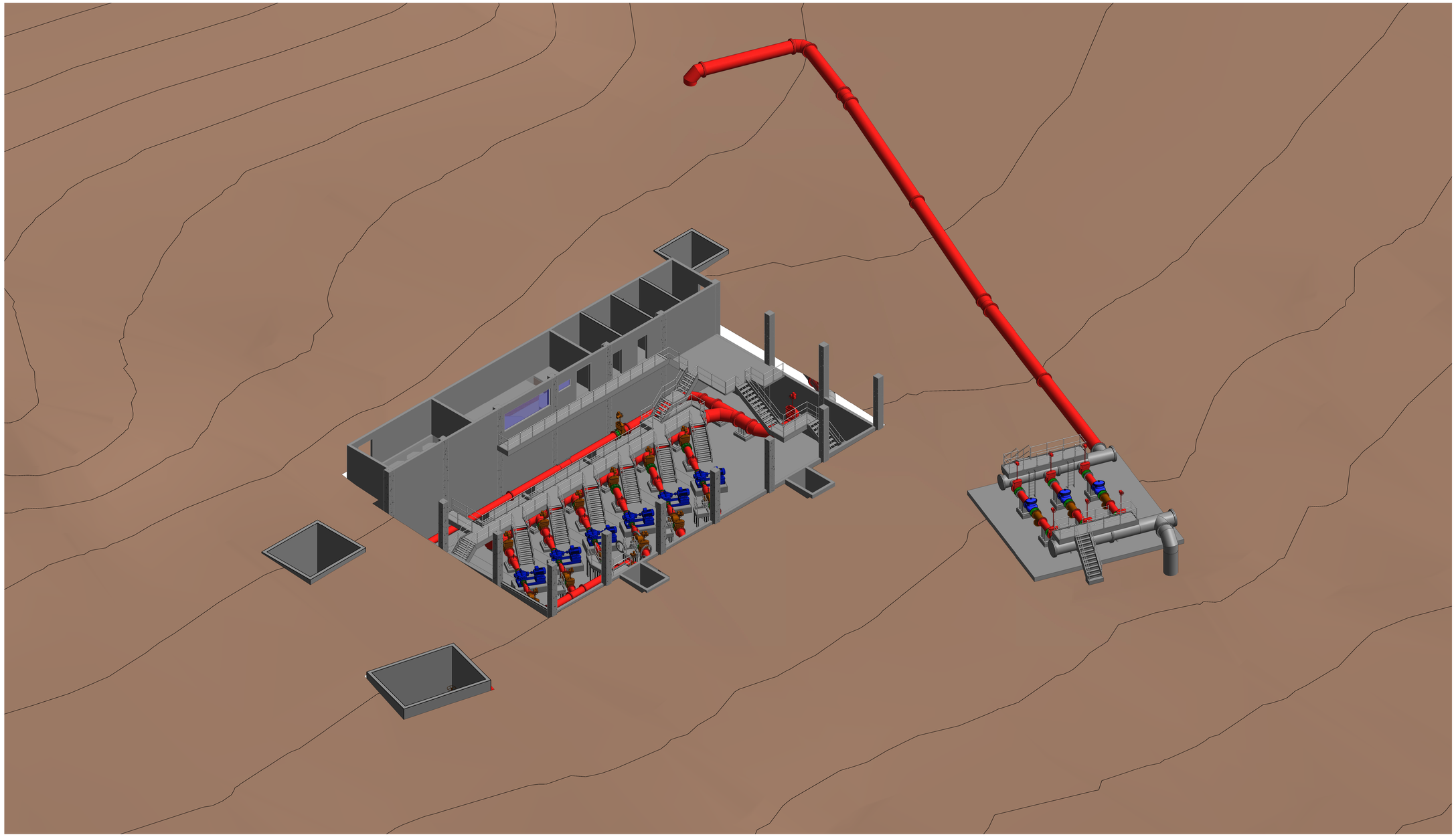
113503 - 3130 - DRG - CS - 0013 - T0

PROJECT No. DRAWING No. REV.

A0 ORIGINAL PAGE SIZE

SHEET 13 OF 16

Plot Date: 2024/01/29, 11:40:33 Plotted by: CS Filename: BAK-N-113503- Bryston Reservoir and Tower Arkive\REZONKVGARD_PS_WPH_SEPERATE_GRAVITY_FEED revised.rvt



END OF CONSTRUCTION SEQUENCE - ISOMETRIC VIEW WITH SURFACE

NTS

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32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI		17.11.23
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APPROVED BY:	R.BARRY		17.11.23
	SIGNATURE		DATE
ECSA REG No:	20160835		
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	SIGNATURE		DATE
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

END OF CONSTRUCTION SEQUENCE - 3D VIEW

APPROVAL BY JW DEPOT			SCALE
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APPROVED BY:			
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APPROVAL BY JW PLANNING			
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APPROVED BY:			
	SIGNATURE BY:	DATE:	

REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0014 - T0

PROJECT No. | DRAWING No. | REV.

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SHEET 14 OF 16

File Name: Eskom BM 3MCM 113503 Boston Reservoir and Tower Rehab\ECO\ACAD\01_PS_WTH_SEPERATE_GRAVITY_FEED revised.rvt

Plot Date: 2024/01/31 12:46:47 Office: CS

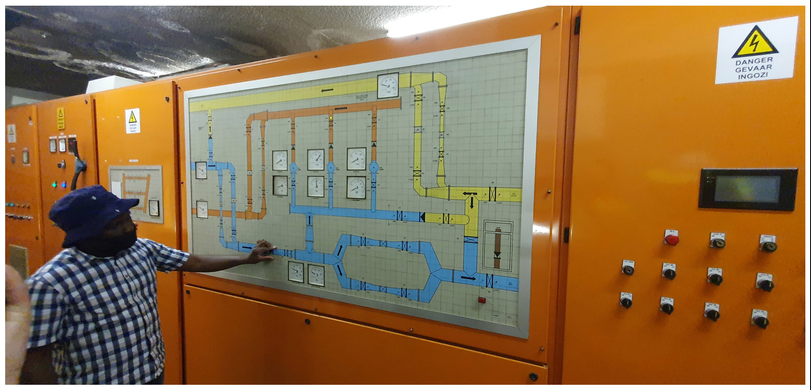


















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ZUTARI
IMPACT. ENGINEERED.

32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L.GWIJI	30.01.24	
DRAWN:	L.GWIJI	30.01.24	
CHECKED:	E.LOTTERING	30.01.24	
APPROVED BY:	R.BARRY	30.01.24	
	SIGNATURE	DATE	
ECSA REG No:	20160835		
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

EXISTING PUMP STATION PIPE WORK PICTURES

APPROVAL BY JW DEPOT			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

SCALE: AS SHOWN

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

113503 - 3130 - DRG - CS - 0015 - T0

PROJECT No. | DRAWING No. | REV.

A0 ORIGINAL PAGE SIZE

SHEET 15 OF 16

Filename: BIM (MUNI) 113503- Bruton Reservoir and Tower ANA\RECENTATIONED_PS_WTP_SERVER\TE_CRUTY\TE_FEED revised.rvt
Plot Date: 2024/01/31 11:42:07
Office: CS



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4. ALL DIMENSIONS IN METERS UNLESS OTHERWISE STATED ALL LEVELS IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE STATED.
5. FOR CO-ORDINATES OF PIPELINE PI'S AND SURVEY BEACONS SEE REFERENCE DRAWINGS.
6. VERTICAL AND HORIZONTAL BENDS INDICATED IN DECIMAL DEGREES.
7. ALL SCALES DEPICTED ON THIS DRAWING ARE FOR A0 PAPER SIZE.
8. MINIMUM COVER OVER PIPE TO BE 0.8 m
9. EXISTING SERVICES TO BE EXPOSED AND LEVELS TO BE CONFIRMED WITH THE ENGINEER PRIOR TO THE INSTALLATION OF ANY NEW PIPE WORK ON SITE.
10. ALL EXCAVATIONS DEEPER THAN 1.5 m MUST BE ADEQUATELY SHORED AND BRACED.
11. WAYLEAVE APPROVAL CONDITIONS TO BE STRICTLY ADHERED TO.
12. ACCOMMODATION OF TRAFFIC TO BE IN STRICT ACCORDANCE TO SOUTH AFRICAN ROAD TRAFFIC SIGN MANUAL.
13. THE SPOILING OF MATERIAL ALONGSIDE EXCAVATIONS WILL NOT BE PERMITTED WITHIN THE ROAD RESERVE AT ANY POINT ALONG THE EXTENT OF THE WORKS.
14. CATHODIC PROTECTION TO BE PROVIDED TO THE NEW PIPE
15. ALL BENDS SHALL BE MEDIUM RADIUS BENDS.
16. FOR AIR VALVE DETAILS REFER TO DWG. No.113503-3400-DRG-CC-0002.
17. FOR SCOUR VALVE DETAILS REFER TO DWG. No.113503-3400-DRG-CC-0001.
18. FOR CLASS B BEDDING, REFER TO DWG. No.113503-3400-DRG-CC-0003.
19. 1000 mm Ø (10.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.
20. 600 mm Ø (6.0 mm WALL THICKNESS) GRADE X42 TO API 5L WELDED STEEL PIPES, INTERNALLY LINED WITH SINGLE COAT SOLVENT FREE LIQUID EPOXY LINING (600 MICRONS DFT) TO SANS 1217 AND EXTERNALLY COATING WITH POLYISOBUTENE VISCO-ELASTIC (STOPAQ) OR SIMILAR APPROVED.

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED	L. GWIJI	30.01.24	
DRAWN	L. GWIJI	30.01.24	
CHECKED	S. MNQONYWA	30.01.24	
APPROVED BY:	R.BARRY		
	SIGNATURE	DATE	
ECSA REG. No.			
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG. No.			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

NEW PUMP STATION PIPE WORK LAYOUT

APPROVAL BY JW DEPOT		
CHECKED		
APPROVED BY:		
	SIGNATURE	DATE
APPROVAL BY JW PLANNING		
CHECKED		
APPROVED BY:		
	SIGNATURE	DATE

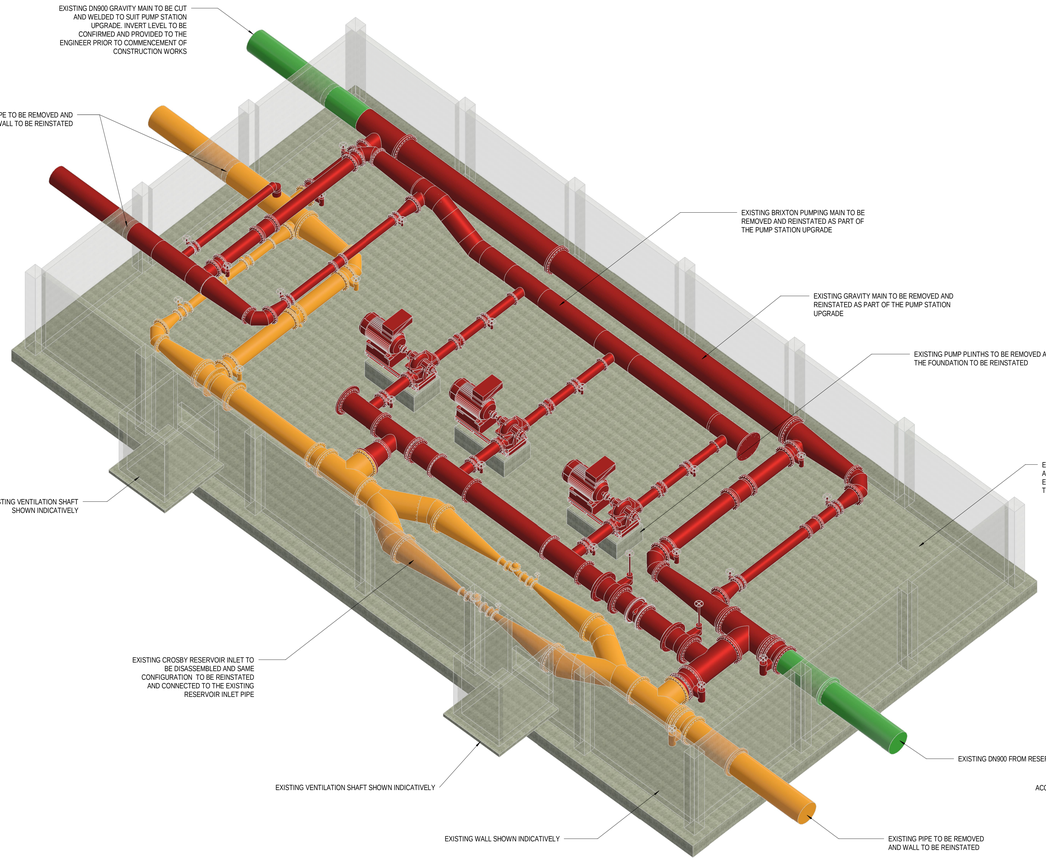
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AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	30.01.24

DRAWING No.

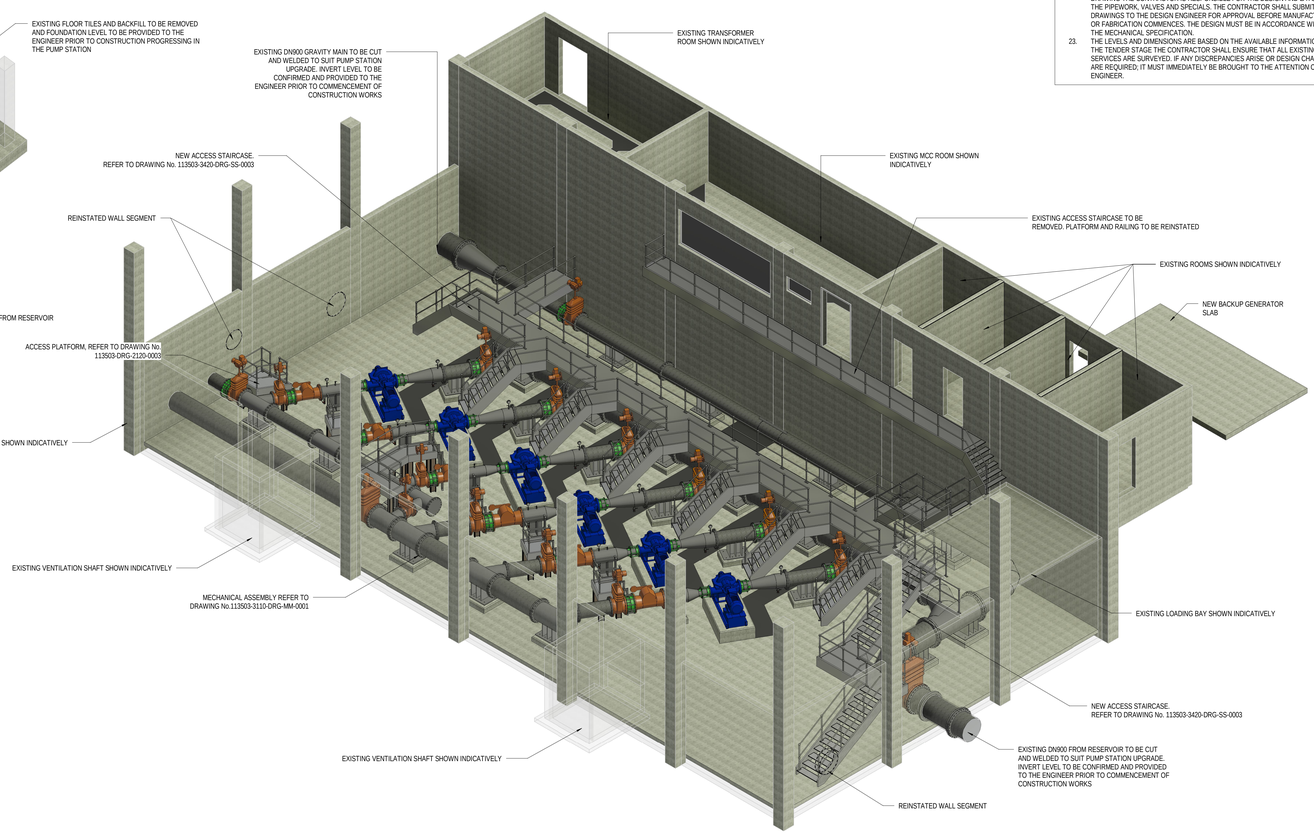
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PROJECT No. DRAWING No. REV.

A0 ORIGINAL PAGE SIZE
SHEET 16 OF 16
FILE No.



EXISTING MECHANICAL CONFIGURATION - ISOMETRIC

NTS



UPGRADED MECHANICAL CONFIGURATION - ISOMETRIC VIEW

NTS

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3. THE CONTRACTOR SHALL SURVEY ALL ABOVE GROUND AND UNDERGROUND PIPES TO CONFIRM THE LEVELS AND SHALL PROVIDE SURVEY INFORMATION TO THE ENGINEER
4. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CONTRACTOR ON SITE
5. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
6. RE-ENFORCEMENT STEEL SHALL BE MINIMUM 50 mm CLEAR OF PUDDLE PIPE AND FLANGES.
7. ALL PLINTHS ARE TO BE CAST AFTER SURFACE BED
8. ALL PLINTHS MUST HAVE A MINIMUM THICKNESS OF 200 MM
9. ALL BOLTS MUST BE AT LEAST 60 MM AWAY FROM THE EDGES AND INSIDE THE REINFORCEMENT
10. ANCHOR BOLTS MUST BE 150 MM DEEP INTO THE PLINTHS
11. ALL STEEL BOLTS, NUTS AND WASHERS SHALL BE GRADE 8.8 HOT DIPPED MILD STEEL. ANCHOR BOLTS TO BE 16 MM
12. THE LEVELS AND DIMENSIONS ARE BASED ON THE TOPOGRAPHIC SURVEY AND AVAILABLE INFORMATION AT THE DESIGN STAGE. THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SERVICES ARE SURVEYED. IF ANY IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
13. FOR MECHANICAL DRAWINGS, REFER TO DRAWING No. 113503-3120-DRG-MM-0001
14. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND SHALL BE CHECKED BY THE CONTRACTOR BEFORE ORDERING ANY MATERIAL ANY DISCREPANCIES MUST BE REPORTED TO ENGINEER.
15. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE SHOWN
16. CONCRETE CLASSES SHALL BE AS FOLLOWS:
    - CLASS 35/19 35 MPa. TO ALL CONCRETE UNLESS OTHERWISE SHOWN
    - CLASS 15/19 15 MPa TO BLINDING AND MASS CONCRETE FILLING
17. CONCRETE FINISHES SHALL BE AS FOLLOWS. EXCEPT WHERE OTHERWISE SHOWN:
    - SMOOTH SPECIAL TO SURFACES EXPOSED TO VIEW
    - ROUGH TO SURFACES AGAINST WHICH BACKFILL OR FURTHER CONCRETE WILL BE PLACED
    - FLOOR FINISHES INSIDE CRAMERS AND PULP STATIONS TO BE WOOD FLOATED
18. ALL EXPOSED EDGES TO HAVE 20X20 CHAMFERS.
19. INSULATION MATERIAL MUST BE PLACED BETWEEN DISSIMILAR METALS.
20. CONCRETE TO BE PLACED ON A 50 MM BLINDING LAYER
21. FOR ISOLATION JOINT, SAWCUT JOINT AND GENERAL STRUCTURAL DETAILS SEE DRAWINGS:
    - 113503-2120-DRG-SS-0005
22. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE PIPEWORK, VALVES AND SPECIALS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE DESIGN ENGINEER FOR APPROVAL BEFORE MANUFACTURING OR FABRICATION COMMENCES. THE DESIGN MUST BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATION.
23. THE LEVELS AND DIMENSIONS ARE BASED ON THE AVAILABLE INFORMATION AT THE TENDER STAGE THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SERVICES ARE SURVEYED. IF ANY DISCREPANCIES ARISE OR DESIGN CHANGES ARE REQUIRED, IT MUST IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	N. NXUMALO	29.01.2024	
DRAWN:	N. NXUMALO	29.01.2024	
CHECKED:	S. MNQONYWA	29.01.2024	
APPROVED BY:	C. KAN	29.01.2024	
	SIGNATURE	DATE	
ECSA REG No:			
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	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
GENERAL ARRANGEMENT

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	29.01.24

DRAWING No.

113503 - 3100 - DRG - CC - 0001 - T0

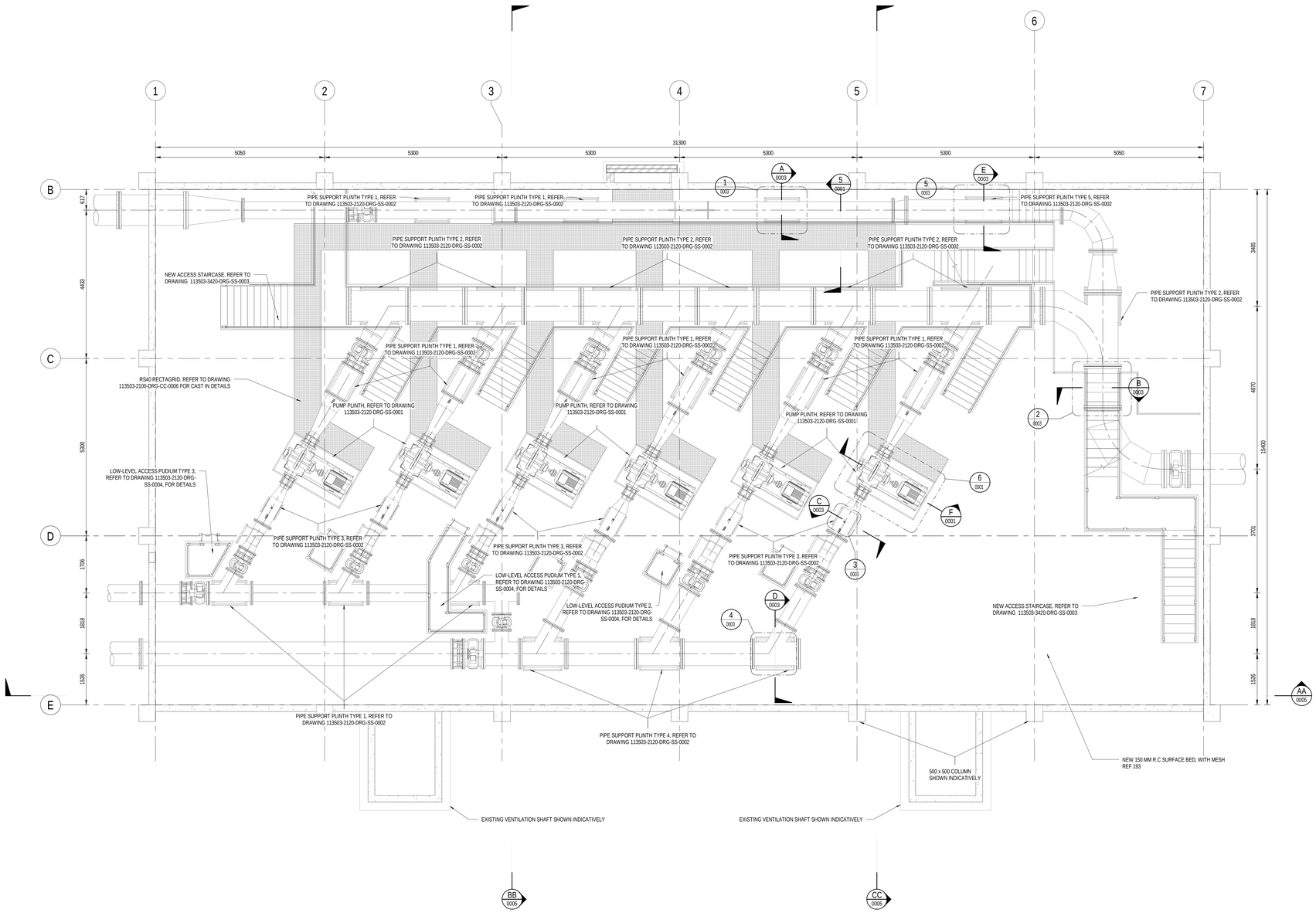
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SHEET 1 OF 1

FILE No.

Plot Date: 2024/01/29 14:31:43 Office: CC Filename: BIM 360:/All Projects/113503_3000_AECOM ICA/RD_PS_WTN_SEPERATE_GRAVITY_FEED.rvt



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4. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CONTRACTOR ON SITE
5. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
6. RE-ENFORCEMENT STEEL SHALL BE MINIMUM 50 mm CLEAR OF PUDDLE PIPE AND FLANGES.
7. ALL PLINTHS ARE TO BE CAST AFTER SURFACE BED
8. ALL PLINTHS MUST HAVE A MINIMUM THICKNESS OF 200 MM
9. ALL BOLTS MUST BE AT LEAST 60 MM AWAY FROM THE EDGES AND INSIDE THE REINFORCEMENT
10. ANCHOR BOLTS MUST BE 150 MM DEEP INTO THE PLINTHS
11. ALL STEEL BOLTS, NUTS AND WASHERS SHALL BE GRADE 8.8 HOT DIPPED MILD STEEL, ANCHOR BOLTS TO BE 16 MM
12. THE LEVELS AND DIMENSIONS ARE BASED ON THE TOPOGRAPHIC SURVEY AND AVAILABLE INFORMATION AT THE DESIGN STAGE. THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SERVICES ARE SURVEYED. IF ANY IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
13. FOR MECHANICAL DRAWINGS, REFER TO DRAWING No. 113503-3120-DRG-MM-0001
14. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND SHALL BE CHECKED BY THE CONTRACTOR BEFORE ORDERNG ANY MATERIAL ANY DISCREPANCIES MUST BE REPORTED TO ENGINEER.
15. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE SHOWN
16. CONCRETE CLASSES SHALL BE AS FOLLOWS:
    - CLASS 35/19 35 MPa TO ALL CONCRETE UNLESS OTHERWISE SHOWN
    - CLASS 15/19 15 MPa TO BLINDING AND MASS CONCRETE FILLING
17. CONCRETE FINISHES SHALL BE AS FOLLOWS. EXCEPT WHERE OTHERWISE SHOWN:
    - SMOOTH SPECIAL TO SURFACES EXPOSED TO VIEW
    - ROUGH TO SURFACES AGAINST WHICH BACKFILL OR FURTHER CONCRETE WILL BE PLACED
    - FLOOR FINISHES INSIDE CRAMERS AND PULP STATIONS TO BE WOOD FLOATED
18. ALL EXPOSED EDGES TO HAVE 20X20 CHAMFERS.
19. INSULATION MATERIAL MUST BE PLACED BETWEEN DISSIMILAR METALS.
20. CONCRETE TO BE PLACED ON A 50 MM BLINDING LAYER
21. FOR ISOLATION JOINT, SAWCUT JOINT AND GENERAL STRUCTURAL DETAILS SEE DRAWINGS:
    - 113503-2120-DRG-SS-0005
22. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE PIPEWORK, VALVES AND SPECIALS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE DESIGN ENGINEER FOR APPROVAL BEFORE MANUFACTURING OR FABRICATION COMMENCES. THE DESIGN MUST BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATION.
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PUMP STATION - FLOOR LEVEL PLAN VIEW

SCALE 1 : 50

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	N. NXUMALO	29.01.2024	
DRAWN:	N. NXUMALO	29.01.2024	
CHECKED:	S.MNQONYWA	29.01.2024	
APPROVED BY:	C.KAN	29.01.2024	
	SIGNATURE	DATE	
ECSA REG No:			
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
PLAN VIEW
SHEET 1 OF 2

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

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T0	ISSUED FOR TENDER	29.01.24

DRAWING No.

113503 - 3100 - DRG - CC - 0002 - T0

PROJECT No. | DRAWING No. | REV.

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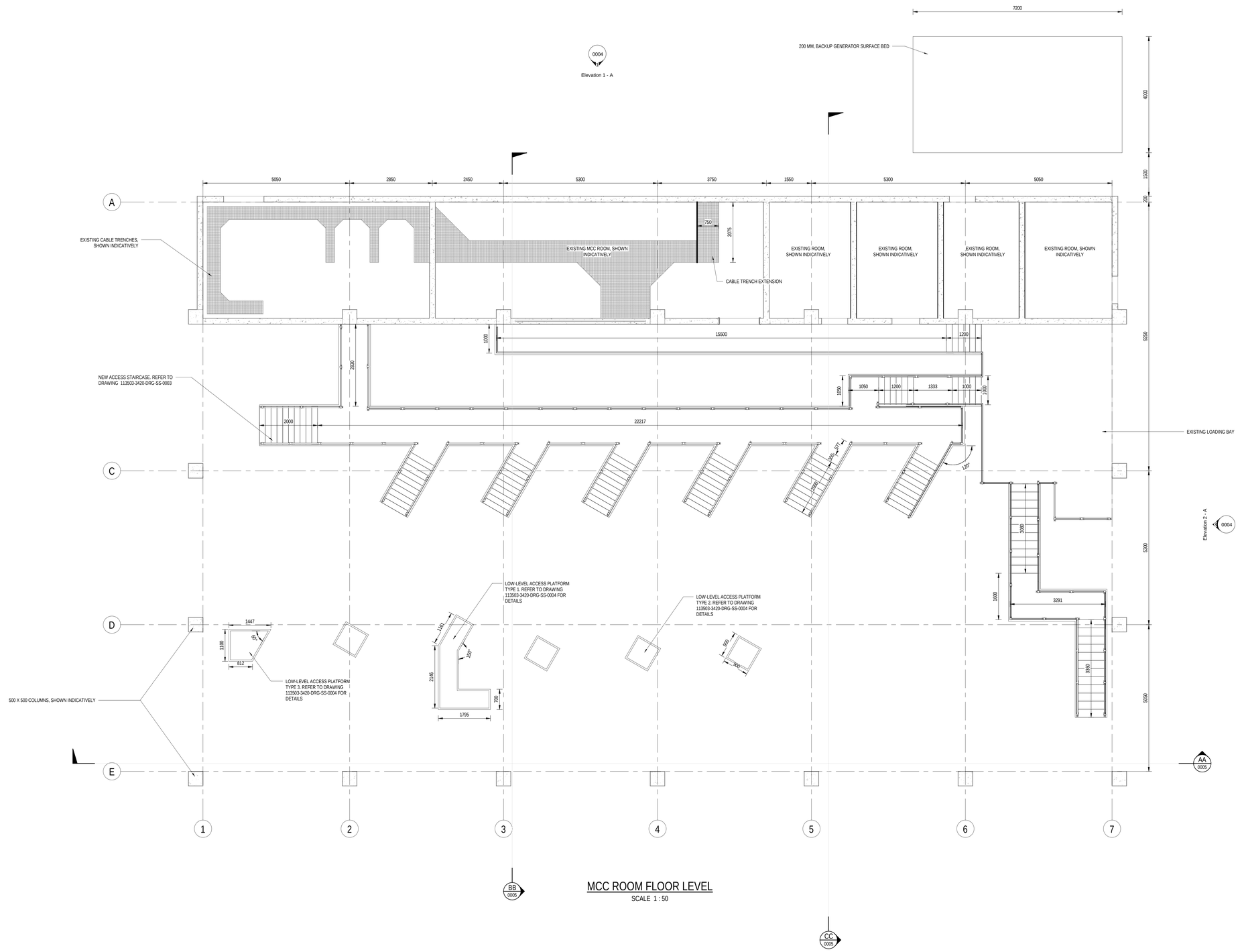
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FILE No.

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Plot Date: 2024/01/29 14:51:51
Offset: CC

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7. ALL PLINTHS ARE TO BE CAST AFTER SURFACE BED
8. ALL PLINTHS MUST HAVE A MINIMUM THICKNESS OF 200 MM
9. ALL BOLTS MUST BE AT LEAST 60 MM AWAY FROM THE EDGES AND INSIDE THE REINFORCEMENT
10. ANCHOR BOLTS MUST BE 150 MM DEEP INTO THE PLINTHS
11. ALL STEEL BOLTS, NUTS AND WASHERS SHALL BE GRADE 8.8 HOT DIPPED MILD STEEL, ANCHOR BOLTS TO BE 16 MM
12. THE LEVELS AND DIMENSIONS ARE BASED ON THE TOPOGRAPHIC SURVEY AND AVAILABLE INFORMATION AT THE DESIGN STAGE. THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SERVICES ARE SURVEYED. IF ANY IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
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    - FLOOR FINISHES INSIDE CRAMERS AND PULP STATIONS TO BE WOOD FLOATED
18. ALL EXPOSED EDGES TO HAVE 20X20 CHAMFERS.
19. INSULATION MATERIAL MUST BE PLACED BETWEEN DISSIMILAR METALS.
20. CONCRETE TO BE PLACED ON A 50 MM BLINDING LAYER
21. FOR ISOLATION JOINT, SAWCUT JOINT AND GENERAL STRUCTURAL DETAILS SEE DRAWINGS:
    - 113503-2120-DRG-SS-0005
22. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE PIPEWORK, VALVES AND SPECIALS. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE DESIGN ENGINEER FOR APPROVAL BEFORE MANUFACTURING OR FABRICATION COMMENCES. THE DESIGN MUST BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATION.
23. THE LEVELS AND DIMENSIONS ARE BASED ON THE AVAILABLE INFORMATION AT THE TENDER STAGE THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SERVICES ARE SURVEYED. IF ANY DISCREPANCIES ARISE OR DESIGN CHANGES ARE REQUIRED, IT MUST IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.



MCC ROOM FLOOR LEVEL

SCALE 1 : 50

CONSULTING ENGINEERS	DESIGNED:	N. NXUMALO	29.01.2024
ZUTARI IMPACT. ENGINEERED.	DRAWN:	N. NXUMALO	29.01.2024
32A JELLICOE AVENUE OXFORD CORNER ROSEBANK SOUTH AFRICA TEL: +27 11 214 4500	CHECKED:	S. MNQONYWA	29.01.2024
	APPROVED BY:	C. KAN	29.01.2024
		SIGNATURE	DATE
	ECSA REG No:		
CLIENT	CHECKED BY:		
		SIGNATURE	DATE
17 HARRISON STREET MARSHALLTOWN 2107	ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
PLAN VIEW
SHEET 2 OF 2

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
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AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	29.01.24

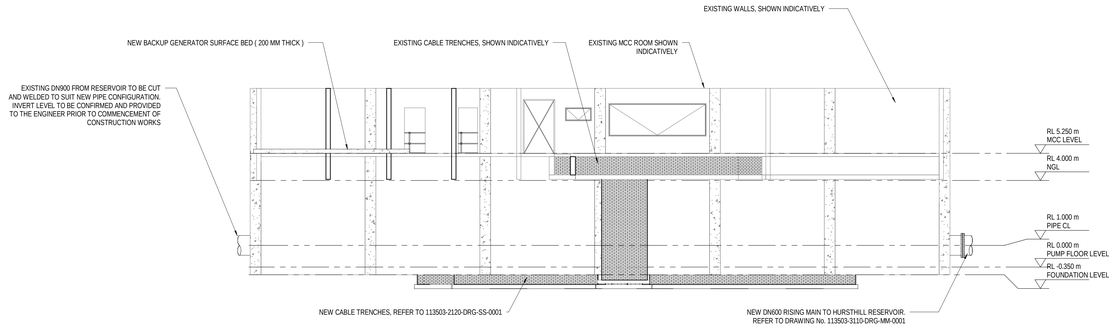
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PROJECT No.		DRAWING No.		REV.
113503	-	3100 - DRG - CC - 0003	-	T0

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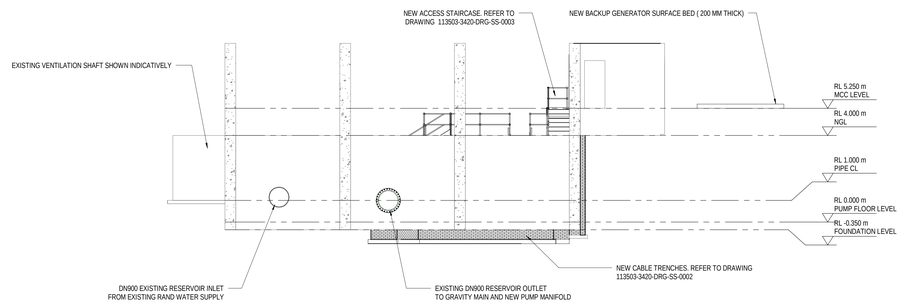
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Office: GC



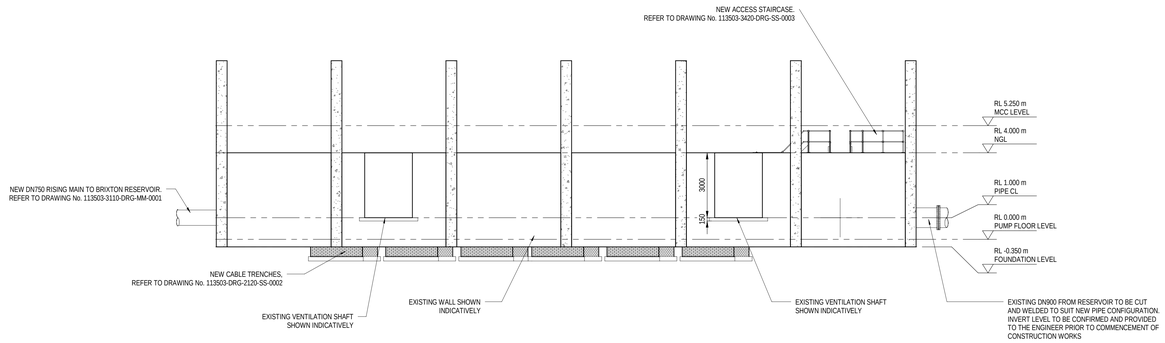
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SCALE 1 : 100



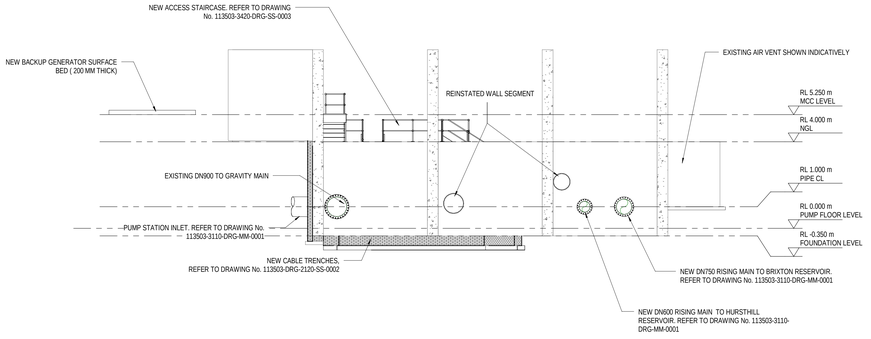
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SCALE 1 : 100



ELEVATION 1 - B

SCALE 1 : 100



ELEVATION 2 - B

SCALE 1 : 100

NOTES:

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3. THE CONTRACTOR SHALL SURVEY ALL ABOVE GROUND AND UNDERGROUND PIPES TO CONFIRM THE LEVELS AND SHALL PROVIDE SURVEY INFORMATION TO THE ENGINEER
4. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CONTRACTOR ON SITE
5. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
6. RE-ENFORCEMENT STEEL SHALL BE MINIMUM 50 mm CLEAR OF PUDDLE PIPE AND FLANGES.
7. ALL PLINTHS ARE TO BE CAST AFTER SURFACE BED
8. ALL PLINTHS MUST HAVE A MINIMUM THICKNESS OF 200 MM
9. ALL BOLTS MUST BE AT LEAST 60 MM AWAY FROM THE EDGES AND INSIDE THE REINFORCEMENT
10. ANCHOR BOLTS MUST BE 150 MM DEEP INTO THE PLINTHS
11. ALL STEEL BOLTS, NUTS AND WASHERS SHALL BE GRADE 8.8 HOT DIPPED MILD STEEL, ANCHOR BOLTS TO BE 16 MM
12. THE LEVELS AND DIMENSIONS ARE BASED ON THE TOPOGRAPHIC SURVEY AND AVAILABLE INFORMATION AT THE DESIGN STAGE. THE CONTRACTOR SHALL ENSURE THAT ALL EXISTING SERVICES ARE SURVEYED. IF ANY IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE ENGINEER.
13. FOR MECHANICAL DRAWINGS, REFER TO DRAWING No. 113503-3120-DRG-MM-0001
14. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN AND SHALL BE CHECKED BY THE CONTRACTOR BEFORE ORDERING ANY MATERIAL ANY DISCREPANCIES MUST BE REPORTED TO ENGINEER.
15. ALL LEVELS ARE IN METERS ABOVE SEA LEVEL UNLESS OTHERWISE SHOWN
16. CONCRETE CLASSES SHALL BE AS FOLLOWS:
    - CLASS 35/19 35 MPa TO ALL CONCRETE UNLESS OTHERWISE SHOWN
    - CLASS 15/19 15 MPa TO BLINDING AND MASS CONCRETE FILLING
17. CONCRETE FINISHES SHALL BE AS FOLLOWS. EXCEPT WHERE OTHERWISE SHOWN:
    - SMOOTH SPECIAL TO SURFACES EXPOSED TO VIEW
    - ROUGH TO SURFACES AGAINST WHICH BACKFILL OR FURTHER CONCRETE WILL BE PLACED
    - FLOOR FINISHES INSIDE CRAMERS AND PULP STATIONS TO BE WOOD FLOATED
18. ALL EXPOSED EDGES TO HAVE 20X20 CHAMFERS.
19. INSULATION MATERIAL MUST BE PLACED BETWEEN DISSIMILAR METALS.
20. CONCRETE TO BE PLACED ON A 50 MM BLINDING LAYER
21. FOR ISOLATION JOINT, SAWCUT JOINT AND GENERAL STRUCTURAL DETAILS SEE DRAWINGS:
    - 113503-2120-DRG-SS-0005
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CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	N. NXUMALO	29.01.2024	
DRAWN:	N. NXUMALO	29.01.2024	
CHECKED:	S.MNQONYWA	29.01.2024	
APPROVED BY:	C.KAN	19.01.24	
	SIGNATURE	DATE	
ECSA REG No:			
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
ELEVATION VIEWS

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	29.01.24

DRAWING No.

113503 - 3100 - DRG - CC - 0004 - T0

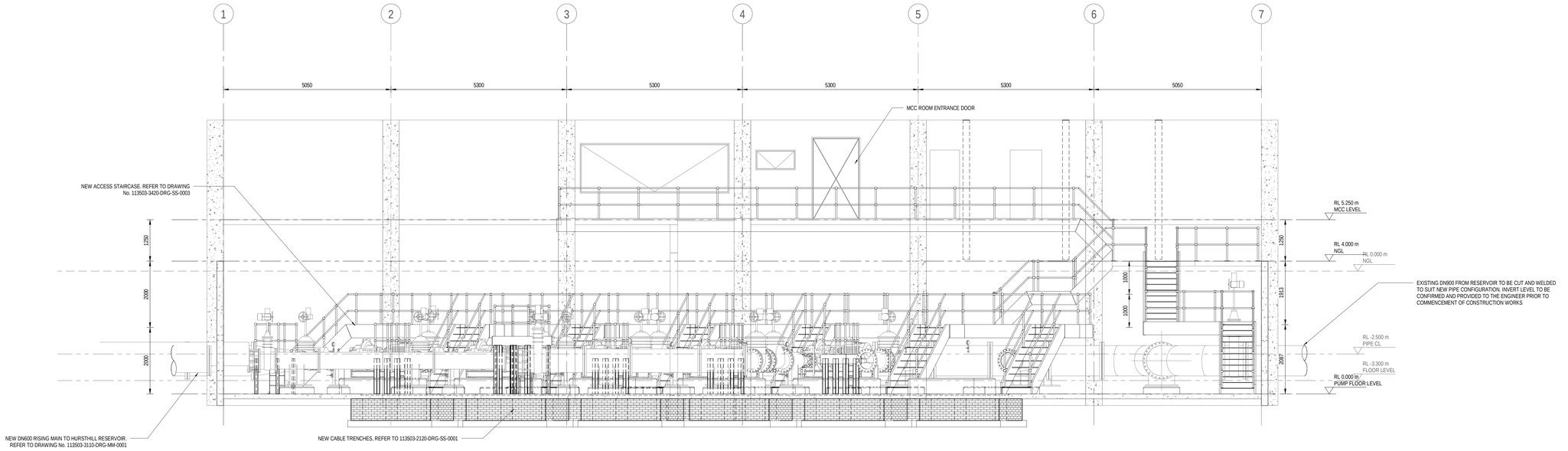
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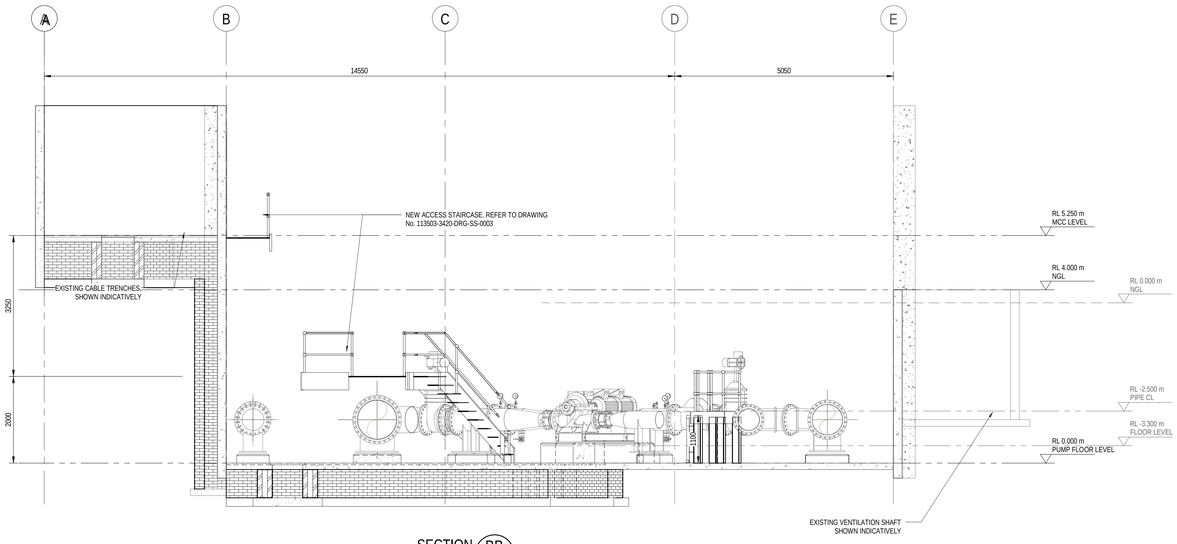
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Plot Date: 2024/01/29 14:20:30 Officer: CC



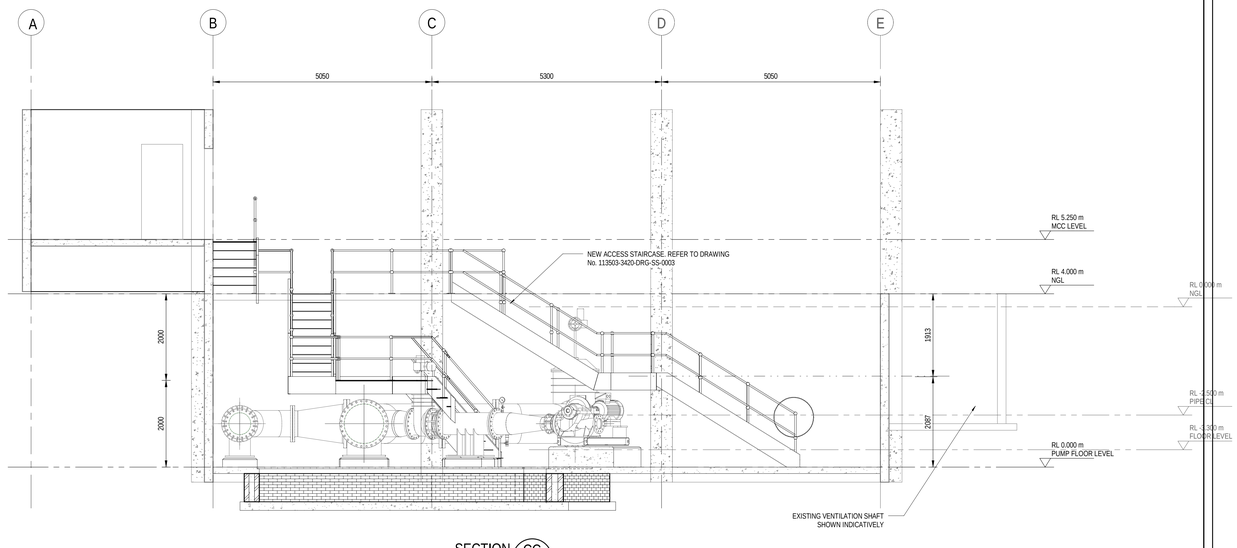
SECTION AA
1 : 50
0002

NOTES:

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SECTION BB
1 : 50
0002



SECTION CC
1 : 50
0002

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	N. NXUMALO		29.01.2024
DRAWN:	N. NXUMALO		29.01.2024
CHECKED:	S. MNQONYWA		29.01.2024
APPROVED BY:	C. KAN		29.01.2024
	SIGNATURE		DATE
ECSA REG No:			
CHECKED BY:			
	SIGNATURE		DATE
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMPSTATION
SECTION VIEWS

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	29.01.24

DRAWING No.

113503 - 3100 - DRG - CC - 0005 - T0

PROJECT No. | DRAWING No. | REV.

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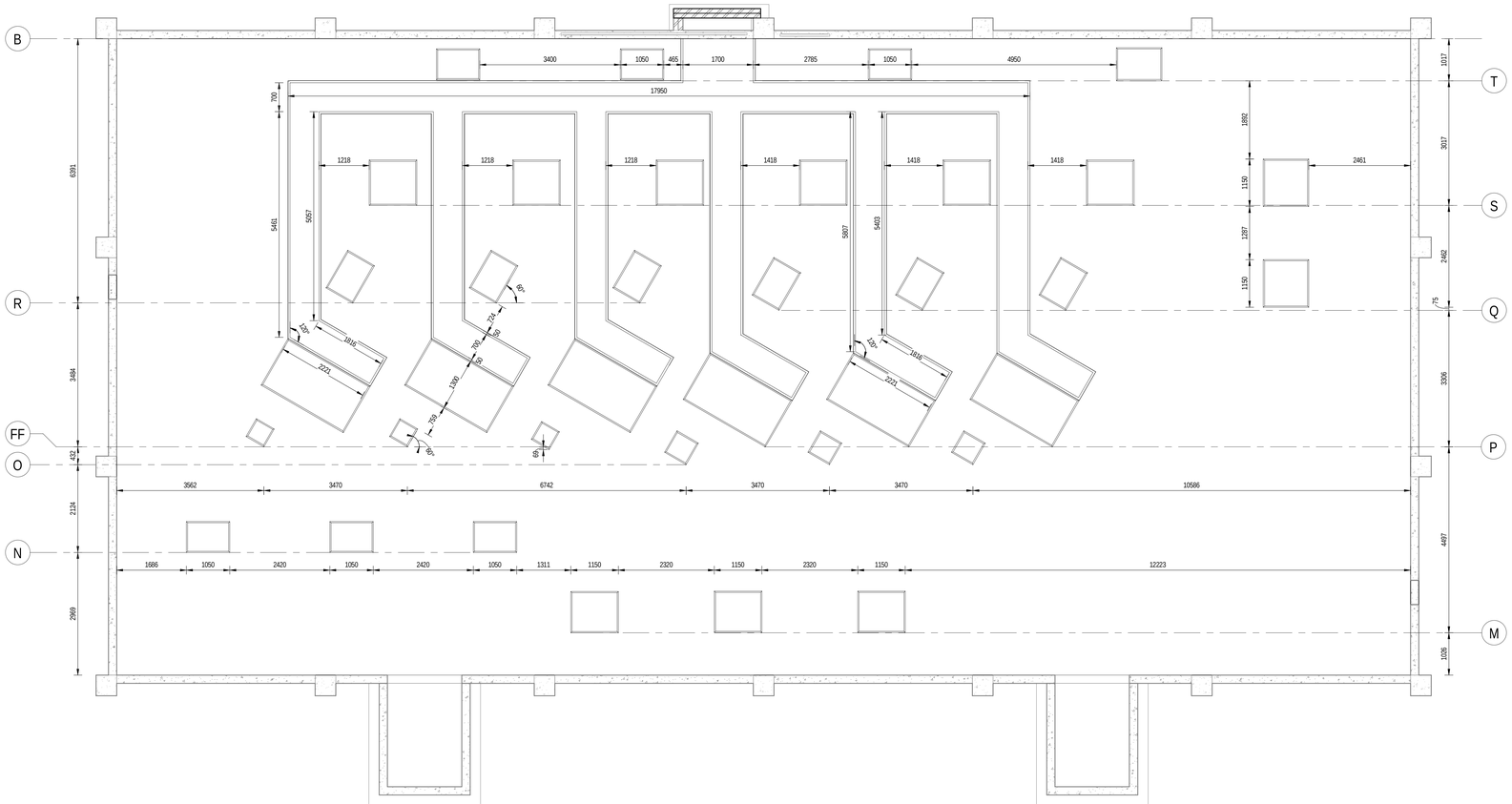
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Plot Date: 2024/01/29 14:42:43
Office: CC

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4. ALL DIMENSIONS ARE TO BE CONFIRMED BY THE CONTRACTOR ON SITE
5. CORROSION PROTECTION SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS.
6. THE CONTRACTOR SHALL SUBMIT A SHUTDOWN AND REPLACEMENT PROCEDURE AND METHODOLOGY TO THE ENGINEER FOR APPROVAL BEFORE COMMENCEMENT OF WORK
7. RE-ENFORCEMENT STEEL SHALL BE MINIMUM 50 mm CLEAR OF PUDDLE PIPE AND FLANGES.
8. ALL PLINTHS ARE TO BE CAST AFTER SURFACE BED
9. ALL PLINTHS MUST HAVE A MINIMUM THICKNESS OF 200 MM
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12. ALL ANCHOR BOLTS TO BE GRADE 8.8 AND 16 MM
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14. FOR MECHANICAL DRAWINGS, REFER TO DRAWING No. 113503-3120-DRG-MM-0001



PUMP FLOOR LEVEL

SCALE 1 : 50

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ZUTARI IMPACT. ENGINEERED.

32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	N. NXUMALO	19.01.24	
DRAWN:	N. NXUMALO	19.01.24	
CHECKED:	S.MNQONYWA	19.01.24	
APPROVED BY:	C.KAN	19.01.24	
	SIGNATURE	DATE	
ECSA REG No:			
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
PLAN VIEW
PLINTHS AND CABLE TRENCHES

APPROVAL BY JW DEPOT			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

SCALE: AS SHOWN

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	19.01.24

DRAWING No.

113503 - 3100 - DRG - CC - 0006 - T0

PROJECT No. | DRAWING No. | REV.

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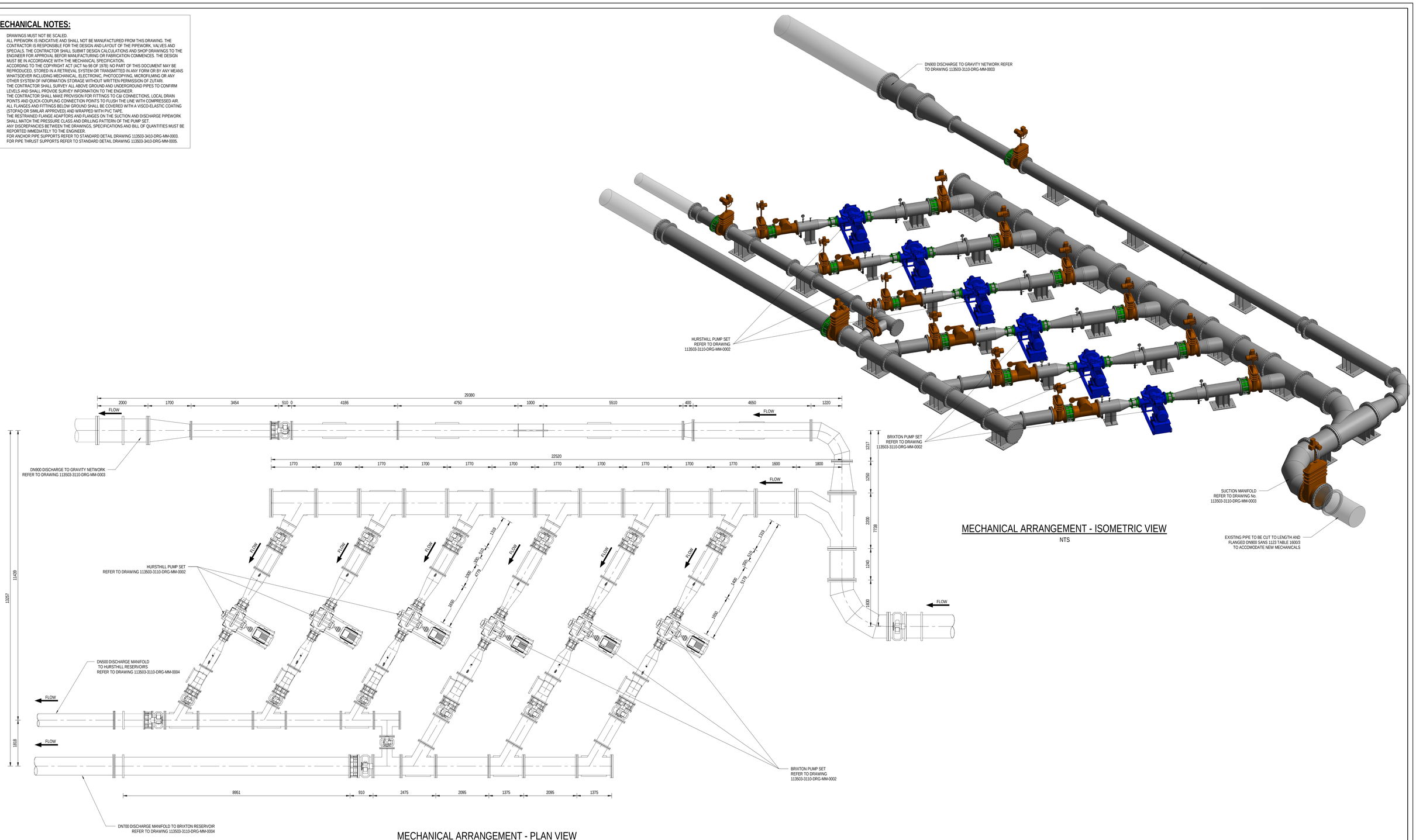
SHEET 1 OF 1

FILE No.

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Plot Date: 2024/01/22 19:07:37 Plotter: CC

MECHANICAL NOTES:

1. DRAWINGS MUST NOT BE SCALED.
2. ALL PIPEWORK IS INDICATIVE AND SHALL NOT BE MANUFACTURED FROM THIS DRAWING. THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND LAYOUT OF THE PIPEWORK, VALVES AND SPECIALS. THE CONTRACTOR SHALL SUBMIT DESIGN CALCULATIONS AND SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL BEFOR MANUFACTURING OR FABRICATION COMMENCES. THE DESIGN MUST BE IN ACCORDANCE WITH THE MECHANICAL SPECIFICATION.
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4. THE CONTRACTOR SHALL SURVEY ALL ABOVE GROUND AND UNDERGROUND PIPES TO CONFIRM LEVELS AND SHALL PROVIDE SURVEY INFORMATION TO THE ENGINEER.
5. THE CONTRACTOR SHALL MAKE PROVISION FOR FITTINGS TO C&I CONNECTIONS, LOCAL DRAIN POINTS AND QUICK-COUPLING CONNECTION POINTS TO FLUSH THE LINE WITH COMPRESSED AIR.
6. ALL FLANGES AND FITTINGS BELOW GROUND SHALL BE COVERED WITH A VISCO-ELASTIC COATING (STOPAQ OR SIMILAR APPROVED) AND WRAPPED WITH PVC TAPE.
7. THE RESTRAINED FLANGE ADAPTORS AND FLANGES ON THE SUCTION AND DISCHARGE PIPEWORK SHALL MATCH THE PRESSURE CLASS AND DRILLING PATTERN OF THE PUMP SET.
8. ANY DISCREPANCIES BETWEEN THE DRAWINGS, SPECIFICATIONS AND BILL OF QUANTITIES MUST BE REPORTED IMMEDIATELY TO THE ENGINEER.
9. FOR ANCHOR PIPE SUPPORTS REFER TO STANDARD DETAIL DRAWING 113503-3410-DRG-MM-0003.
10. FOR PIPE THRUST SUPPORTS REFER TO STANDARD DETAIL DRAWING 113503-3410-DRG-MM-0005.



MECHANICAL ARRANGEMENT - ISOMETRIC VIEW

NTS

MECHANICAL ARRANGEMENT - PLAN VIEW

SCALE 1 : 50

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	J. VD LINDE	17.11.22
DRAWN:	L. GWIJI	25.01.24
CHECKED:	M. BULBULIA	25.01.24
APPROVED BY:	R. BARRY	25.01.24
	SIGNATURE	DATE
ECSA REG No:		
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
MECHANICAL ARRANGEMENT
SHEET 1 OF 4

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.2024

DRAWING No.

113503 - 3110 - DRG - MM - 0001 - T0

PROJECT No. | DRAWING No. | REV.

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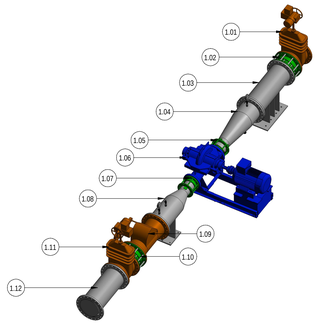
SHEET 1 OF 4

FILE No.

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Plot Date: 2024/01/26 09:10:07
Offset: Mid

PARTS LIST - BRIXTON PUMP SET

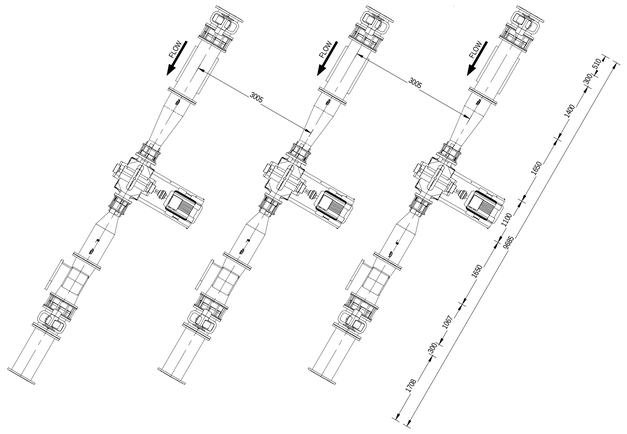
ITEM	QTY	PART DESCRIPTION
1.01	1	DN500 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
1.02	1	DN500 DISMANTLING JOINT, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
1.03	1	DN500 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF), WITH ANCHOR SUPPORT
1.04	1	DN500 X DN300 CONCENTRIC REDUCER, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF), WITH DN25 AND DN50 FEMALE BSP STANDARD SOCKETS
1.05	1	DN 300 RESTRAINED FLANGE ADAPTER FLANGED TO SANS 1123 TABLE 1600/3
1.06	1	KSB OMEGA 250-480 OR SIMILAR APPROVED
1.07	1	DN 250 RESTRAINED FLANGE ADAPTER FLANGED TO SANS 1123 TABLE 1600/3
1.08	1	DN500 X DN250 CONCENTRIC REDUCER, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF), WITH THRUST SUPPORT, WITH DN25 AND DN50 FEMALE BSP THREADED STANDARD SOCKETS
1.09	1	DN500 SWING CHECK VALVE, FLANGED BOTH ENDS SANS 1123 TABLE 1600/1 (RF)
1.10	1	DN500 DISMANTLING JOINT, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
1.11	1	DN500 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
1.12	1	DN500X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
1.13	2	PRESSURE GAUGE
1.14	3	DN25 BALL VALVE, FEMALE BSP THREADED BOTH ENDS
1.15	3	DN25 SANS 62 MEDIUM DUTY PIPE SPOOL, MALE BSP THREADED BOTH ENDS
1.16	2	DN50 SANS 62 MEDIUM DUTY PIPE SPOOL, MALE BSP THREADED BOTH ENDS
1.17	2	DN50 BALL VALVE, FEMALE BSP THREADED BOTH ENDS



ONLY ONE OF THREE PUMP LINE IS LABELLED AS BRIXTON PUMP LINES ARE IDENTICAL

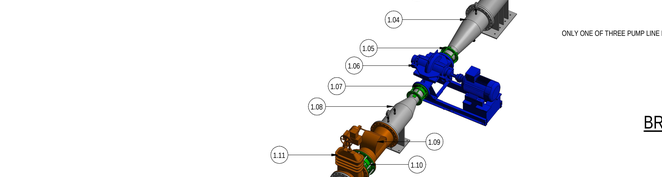
BRIXTON PUMP SET - ISOMETRIC VIEW

NTS



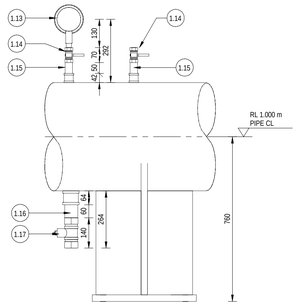
BRIXTON PUMP SET - PLAN VIEW

SCALE 1 : 50



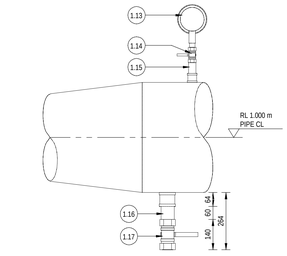
BRIXTON PUMP SET - SIDE VIEW

SCALE 1 : 50



DETAIL A 0002

1 : 10

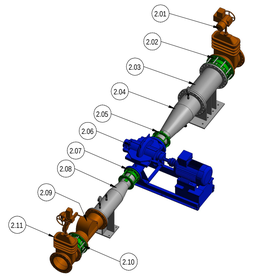


DETAIL B 0002

1 : 10

PARTS LIST - HURSTHILL PUMP SET

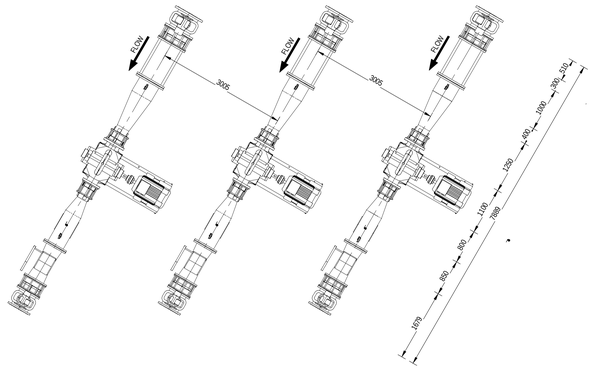
ITEM	QTY	PART DESCRIPTION
2.01	1	DN500 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
2.02	1	DN500 DISMANTLING JOINT, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
2.03	1	DN500 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF), WITH ANCHOR SUPPORT
2.04	1	DN500 X DN300 CONCENTRIC REDUCER, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF), WITH DN25 AND DN50 FEMALE BSP THREADED STANDARD SOCKETS
2.05	1	DN300 RESTRAINED FLANGE ADAPTER FLANGED TO SANS 1123 TABLE 1600/3
2.06	1	KSB OMEGA 250-480 OR SIMILAR APPROVED
2.07	1	DN250 RESTRAINED FLANGE ADAPTER FLANGED TO SANS 1123 TABLE 1600/3
2.08	1	DN400 X DN250 CONCENTRIC REDUCER, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF) WITH THRUST SUPPORT, WITH DN25 AND DN50 FEMALE BSP THREADED STANDARD SOCKETS
2.09	1	DN400 SWING CHECK VALVE, FLANGED BOTH ENDS SANS 1123 TABLE 1600/1 (RF)
2.10	1	DN400 DISMANTLING JOINT, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
2.11	1	DN400 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
2.12	2	PRESSURE GAUGE
2.13	3	DN25 BALL VALVE, FEMALE BSP THREADED BOTH ENDS
2.14	3	DN25 SANS 62 MEDIUM DUTY PIPE SPOOL, MALE BSP THREADED BOTH ENDS
2.15	2	DN50 SANS 62 MEDIUM DUTY PIPE SPOOL, MALE BSP THREADED BOTH ENDS
2.16	2	DN50 BALL VALVE, FEMALE BSP THREADED BOTH ENDS



ONLY ONE OF THREE PUMP LINE IS LABELLED AS HURSTHILL PUMP LINES ARE IDENTICAL

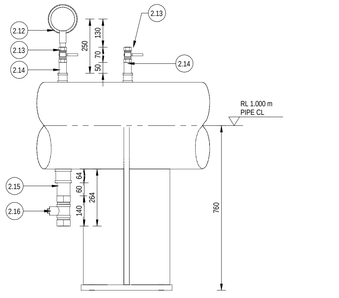
HURSTHILL PUMP SET - ISOMETRIC VIEW

NTS



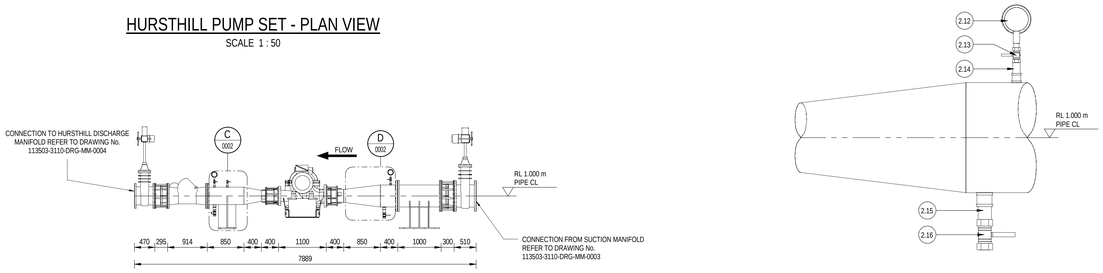
HURSTHILL PUMP SET - PLAN VIEW

SCALE 1 : 50



DETAIL C 0002

1 : 10



HURSTHILL PUMP SET - SIDE VIEW

SCALE 1 : 50

DETAIL D 0002

1 : 10

NOTES:

1. ALL DIMENSIONS TO BE CONFIRMED ON SITE.
2. FOR GENERAL ARRANGEMENTS, REFER TO DRAWING No. 113503-3110-DRG-MM-0001

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	J. VD LINDE		17.11.22
DRAWN:	L.GWIJI		26.01.24
CHECKED:	M. BULBULIA		26.01.24
APPROVED BY:	R. BARRY		26.01.24
	SIGNATURE		DATE
ECSA REG No:			
CHECKED BY:			
	SIGNATURE		DATE
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
MECHANICAL ARRANGEMENT
SHEET 2 OF 4

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.2024

DRAWING No.

113503 - 3110 - DRG - MM - 0002 - T0

PROJECT No. | DRAWING No. | REV.

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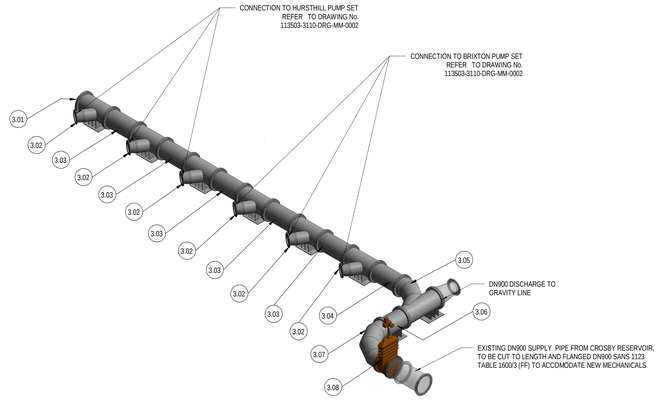
SHEET 2 OF 4

FILE No.

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Office: MM
Plot Date: 2024/01/26 09:51:10

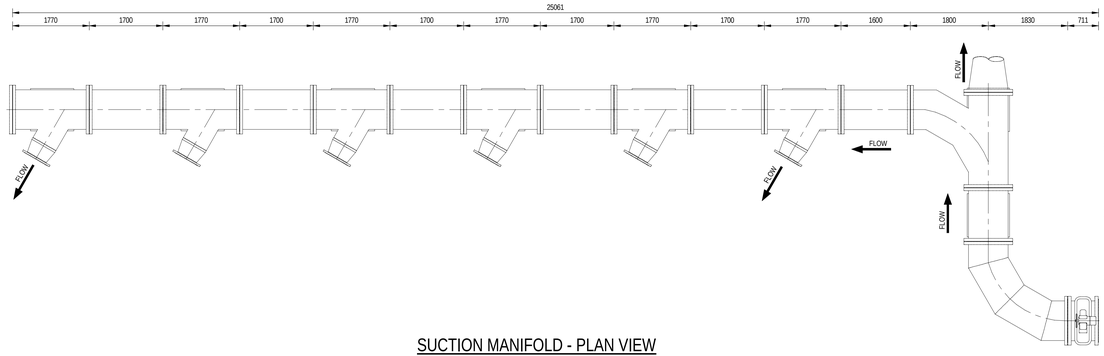
PARTS LIST - SUCTION MANIFOLD

ITEM	QTY	PART DESCRIPTION
3.01	1	DN900 BLANK FLANGE, DRILLED IN ACCORDANCE TO SANS 1123 TABLE 1600/3 (FF)
3.02	6	DN900 X DN600 60 DEG REDUCING TEE WITH WELDED ON DN600 X DN500 CONCENTRIC REDUCER, ALL ENDS FLANGED TO SANS 1123 TABLE 1600/3, WITH ANCHOR SUPPORT
3.03	5	DN900 X 8 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF
3.04	1	DN900 X 8 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF
3.05	1	DN900 X 8 mm, SANS 719 GRADE C SWEEP TEE , FLANGED BOTH ALL ENDS SANS 1123 TABLE 1600/3 (FF)
3.06	1	DN900 X 8 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF), WITH ANCHOR SUPPORT
3.07	1	DN900 SEGMENTED MEDIUM RADIUS SWEEP BEND, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF)
3.08	1	DN900 WEDGE GATE VALVE SANS 665-1, MANUALLY ACTUATED, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF)



SUCTION MANIFOLD - ISOMETRIC VIEW

NTS

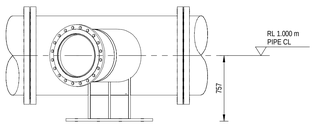


SUCTION MANIFOLD - PLAN VIEW

SCALE 1 : 50

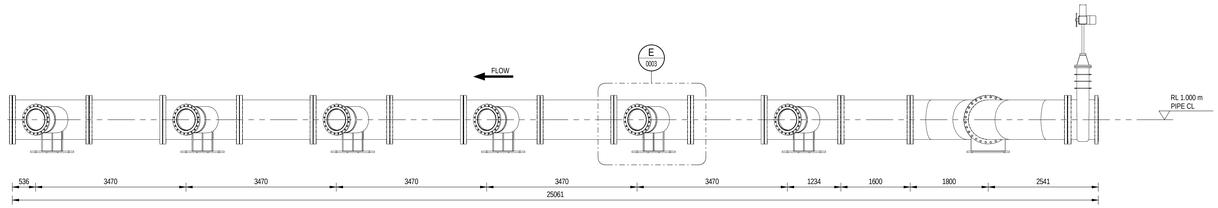
NOTES:

1. ALL DIMENSIONS TO BE CONFIRMED ON SITE.
2. FOR GENERAL ARRANGEMENTS, REFER TO DRAWING No. 113503-3110-DRG-MM-0001



DETAIL E 0003

1 : 25

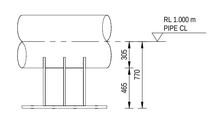


SUCTION MANIFOLD - SIDE VIEW

SCALE 1 : 50

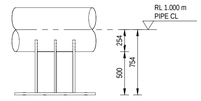
PARTS LIST - GRAVITY LINE

ITEM	QTY	PART DESCRIPTION
4.01	1	DN900 X DN500 CONCENTRIC REDUCER, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF)
4.02	1	DN500 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF)
4.03	1	DN500 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF), WITH ANCHOR SUPPORT
4.04	1	DN500 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF), WITH ANCHOR SUPPORT
4.05	1	DN500 DISMANTLING JOINT, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
4.06	1	DN500 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (FF)
4.07	1	DN600 X DN500 CONCENTRIC REDUCING TEE, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF)
4.08	1	DN600 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF), WITH ANCHOR SUPPORT
4.09	1	DN500 SEGMENTED MEDIUM RADIUS SWEEP BEND, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF)
4.10	1	DN900 X DN600 CONCENTRIC REDUCER, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (FF)
4.11	1	DN500 PN16 ALTRASONIC FLOW METER TO BS ISO 12242:2012



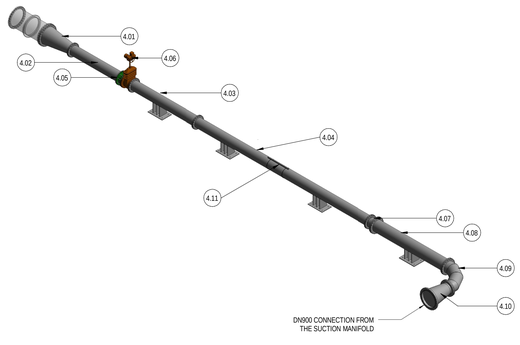
DETAIL F 0003

1 : 25



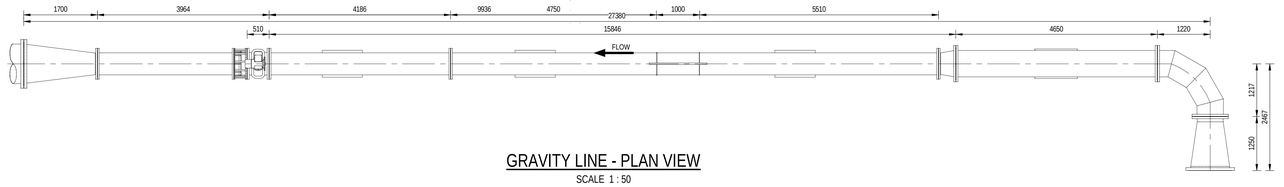
DETAIL G 0003

1 : 25



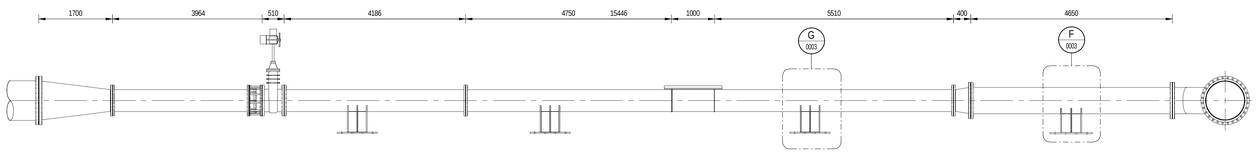
GRAVITY LINE - ISOMETRIC VIEW

NTS



GRAVITY LINE - PLAN VIEW

SCALE 1 : 50



GRAVITY LINE - SIDE VIEW

SCALE 1 : 50

CONSULTING ENGINEERS

ZUTARI IMPACT. ENGINEERED.

32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	J. VD LINDE	17.11.22
DRAWN:	L.GWIJI	26.01.24
CHECKED:	S.CHETTY	26.01.24
APPROVED BY:	R. BARRY	26.01.24
	SIGNATURE	DATE
ECSA REG No:		
CHECKED BY:		
	SIGNATURE	DATE
ECSA REG No:		

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
MECHANICAL ARRANGEMENT
SHEET 3 OF 4

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
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AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.2024

DRAWING No.

113503 - 3110 - DRG - MM - 0003 - T0

PROJECT No. | DRAWING No. | REV.

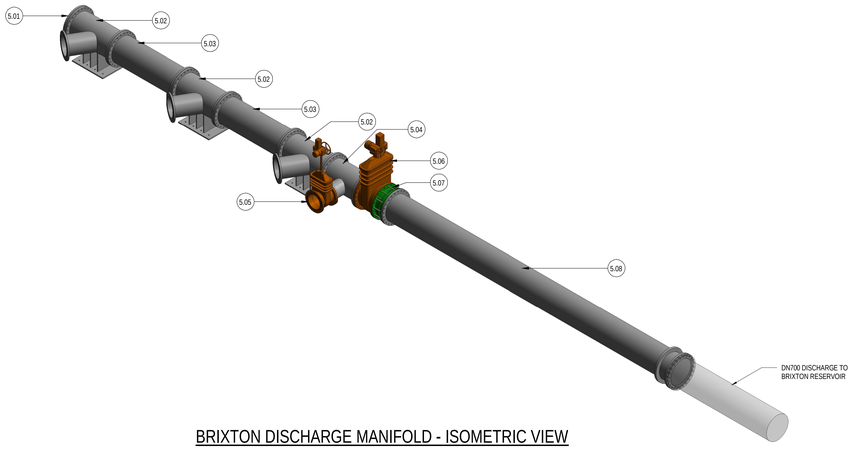
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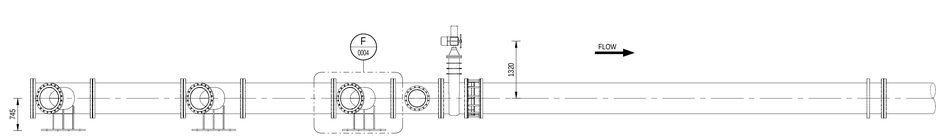
PARTS LIST - BRIXTON DISCHARGE MANIFOLD

ITEM	QTY	PART DESCRIPTION
5.01	1	DN700 BLANK FLANGE, DRILLED IN ACCORDANCE TO SANS 1123 TABLE 1600/3 (RF)
5.02	3	DN700 X DN500 60 DEG REDUCING TEE, ALL ENDS FLANGED TO SANS 1123 TABLE 1600/3 (RF), WITH ANCHOR SUPPORT
5.03	2	DN700 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
5.04	1	DN700 X DN400 60 DEG REDUCING TEE, ALL ENDS FLANGED TO SANS 1123 TABLE 1600/3 (RF), WITH ANCHOR SUPPORT
5.05	1	DN400 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
5.06	1	DN700 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
5.07	1	DN700 DISMANTLING JOINT, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
5.08	1	DN700 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)



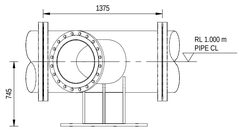
BRIXTON DISCHARGE MANIFOLD - ISOMETRIC VIEW

NTS



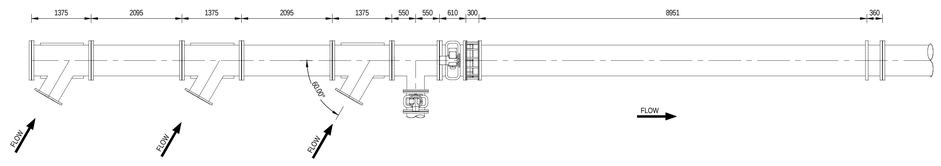
BRIXTON DISCHARGE MANIFOLD - SIDE VIEW

SCALE 1 : 50



DETAIL F 0004

1 : 25



BRIXTON DISCHARGE MANIFOLD - PLAN VIEW

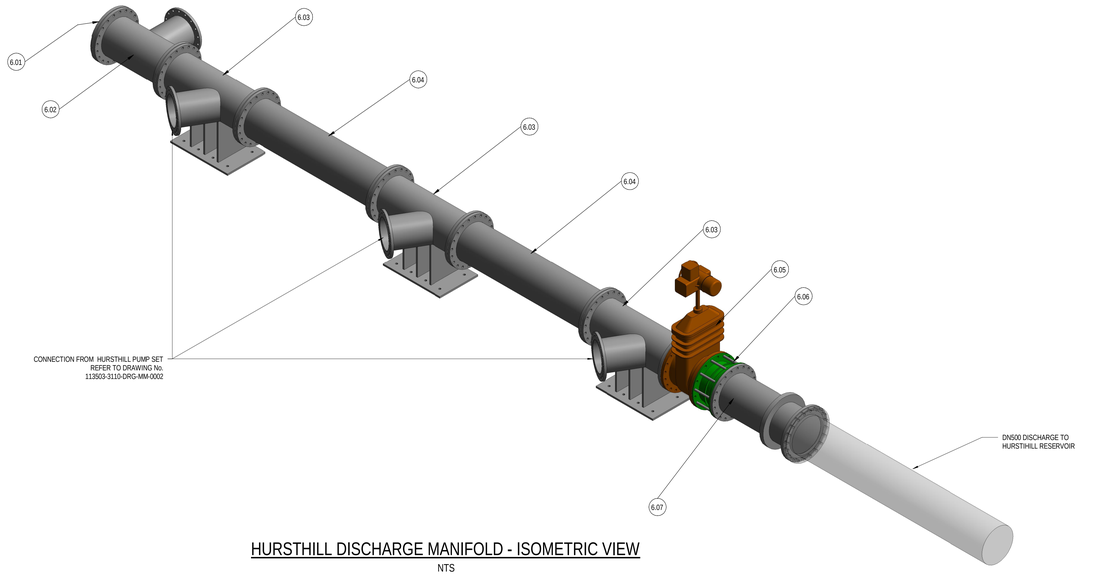
SCALE 1 : 50

PARTS LIST - HURSTHILL DISCHARGE MANIFOLD

ITEM	QTY	PART DESCRIPTION
6.01	1	DN500 BLANK FLANGE, DRILLED IN ACCORDANCE TO SANS 1123 TABLE 1600/3 (RF)
6.02	1	DN500 X DN400 90 DEG REDUCING TEE, ALL ENDS FLANGED TO SANS 1123 TABLE 1600/3 (RF), WITH ANCHOR SUPPORT
6.03	3	DN500 X DN400 60 DEG REDUCING TEE, ALL ENDS FLANGED TO SANS 1123 TABLE 1600/3 (RF), WITH ANCHOR SUPPORT
6.04	2	DN500 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
6.05	1	DN500 PN16 GATE VALVE (WEDGE) ; MANUALLY ACTUATED, SANS 664 NON-RISING SPINDLE - SHORT PATTERN WITH GEARBOX ; FLANGED SANS 1123 TABLE 1600/3 (RF)
6.06	1	DN500 DISMANTLING JOINT, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)
6.07	1	DN500 X 6 mm, SANS 719 GRADE C PIPE SPOOL, FLANGED BOTH ENDS SANS 1123 TABLE 1600/3 (RF)

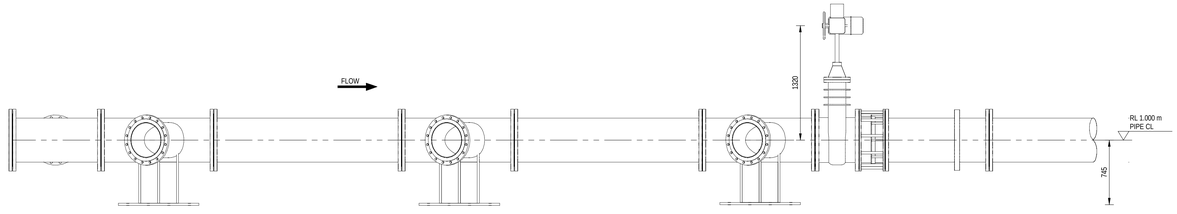
NOTES:

1. ALL DIMENSIONS TO BE CONFIRMED ON SITE.
2. FOR GENERAL ARRANGEMENTS, REFER TO DRAWING No. 113503-3110-DRG-MM-0001



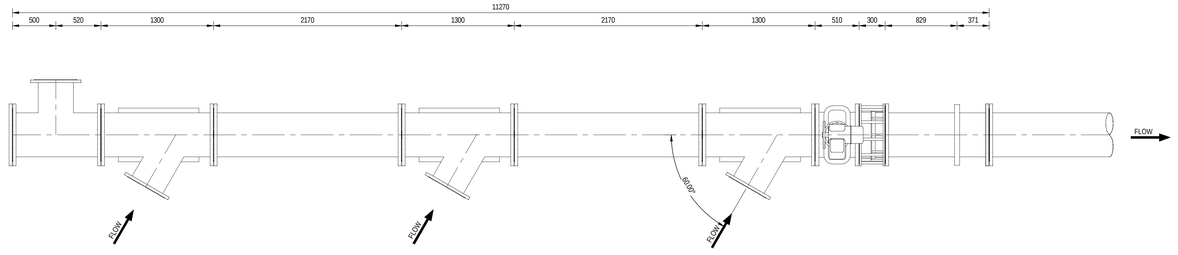
HURSTHILL DISCHARGE MANIFOLD - ISOMETRIC VIEW

NTS



HURSTHILL DISCHARGE MANIFOLD - SIDE VIEW

SCALE 1 : 25



HURSTHILL DISCHARGE MANIFOLD - PLAN VIEW

SCALE 1 : 25

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	J. VD LINDE	17.11.22	
DRAWN:	L.GWIJI	26.01.24	
CHECKED:	S. CHETTY	26.01.24	
APPROVED BY:	R. BARRY	26.01.24	
	SIGNATURE	DATE	
ECSA REG No:			
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

CROSBY PUMP STATION
MECHANICAL ARRANGEMENT
SHEET 4 OF 4

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	26.01.2024

DRAWING No.

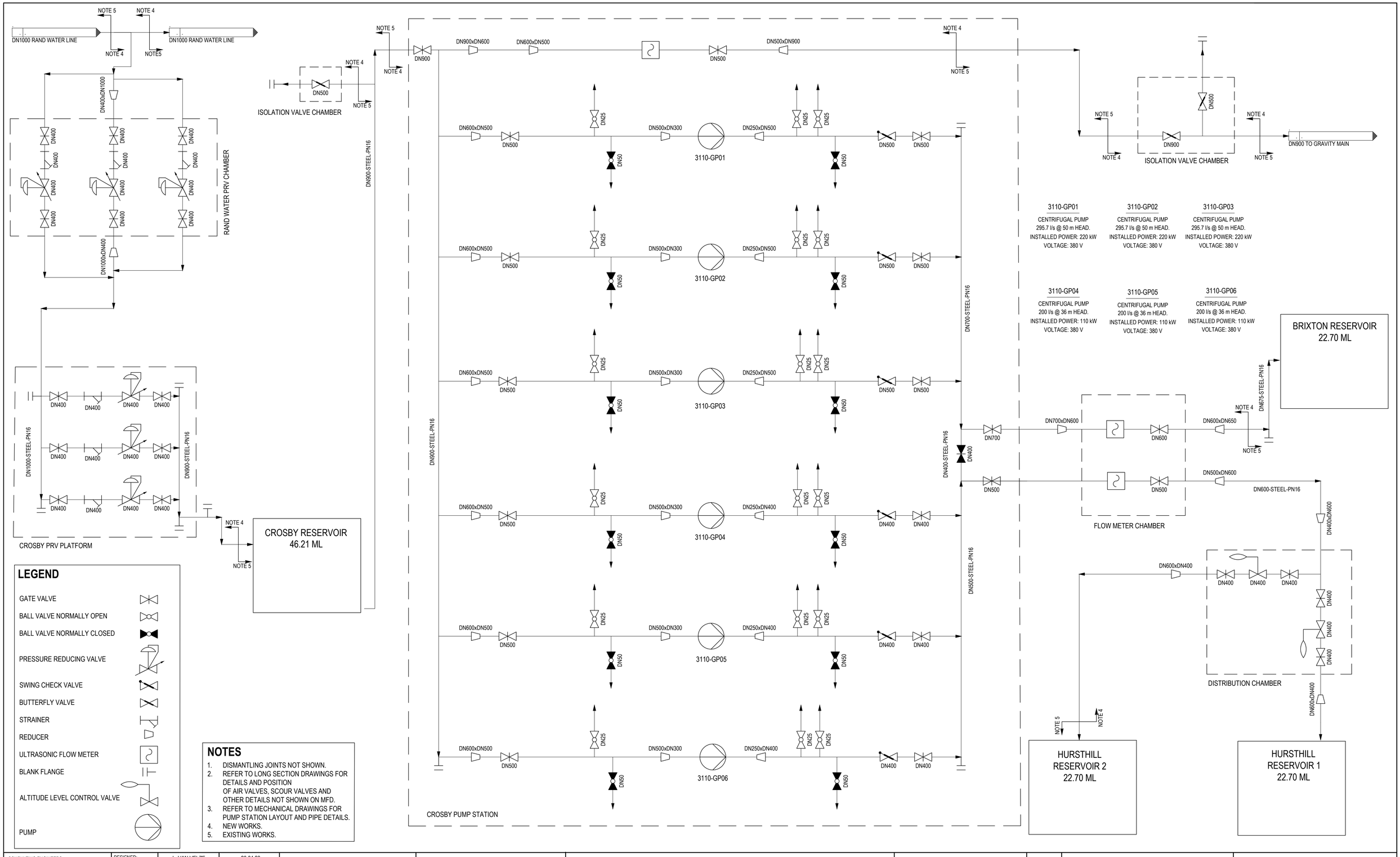
113503 - 3110 - DRG - MM - 0004 - T0

PROJECT No. | DRAWING No. | REV.

A0 ORIGINAL PAGE SIZE | SHEET 4 OF 4

FILE No.

File Name: BIM 360:\No 113503- Brixton Reservoir and Tower Article\113503_XAM_MECDWG\ISSUED_PS_sht\Pn_GRAVITY_FEED MECH MODEL.rvt
Office: XAM
Plot Date: 2024/01/26 09:17:09



LEGEND

- GATE VALVE
- BALL VALVE NORMALLY OPEN
- BALL VALVE NORMALLY CLOSED
- PRESSURE REDUCING VALVE
- SWING CHECK VALVE
- BUTTERFLY VALVE
- STRAINER
- REDUCER
- ULTRASONIC FLOW METER
- BLANK FLANGE
- ALTITUDE LEVEL CONTROL VALVE
- PUMP

NOTES

1. DISMANTLING JOINTS NOT SHOWN.
2. REFER TO LONG SECTION DRAWINGS FOR DETAILS AND POSITION OF AIR VALVES, SCOUR VALVES AND OTHER DETAILS NOT SHOWN ON MFD.
3. REFER TO MECHANICAL DRAWINGS FOR PUMP STATION LAYOUT AND PIPE DETAILS.
4. NEW WORKS.
5. EXISTING WORKS.

3110-GP01
CENTRIFUGAL PUMP
295.7 l/s @ 50 m HEAD.
INSTALLED POWER: 220 kW
VOLTAGE: 380 V

3110-GP02
CENTRIFUGAL PUMP
295.7 l/s @ 50 m HEAD.
INSTALLED POWER: 220 kW
VOLTAGE: 380 V

3110-GP03
CENTRIFUGAL PUMP
295.7 l/s @ 50 m HEAD.
INSTALLED POWER: 220 kW
VOLTAGE: 380 V

3110-GP04
CENTRIFUGAL PUMP
200 l/s @ 36 m HEAD.
INSTALLED POWER: 110 kW
VOLTAGE: 380 V

3110-GP05
CENTRIFUGAL PUMP
200 l/s @ 36 m HEAD.
INSTALLED POWER: 110 kW
VOLTAGE: 380 V

3110-GP06
CENTRIFUGAL PUMP
200 l/s @ 36 m HEAD.
INSTALLED POWER: 110 kW
VOLTAGE: 380 V

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ZUTARI
IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L. VAN VELZE	20.04.23	
DRAWN:	L. VAN VELZE	29.01.24	
CHECKED:	M. BULBULIA	29.01.24	
APPROVED BY:	R. BARRY	29.01.24	
	SIGNATURE	DATE	
ECSA REG No:	20160835		
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

MECHANICAL FLOW DIAGRAM
PERMANENT WORKS

APPROVAL BY JW DEPOT			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

SCALE: AS SHOWN

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	29.01.24

DRAWING No.

113503 - 3110 - MFD -MM- 0001 - T0
PROJECT No. DRAWING No. REV.

A0 ORIGINAL PAGE SIZE
SHEET 1 OF 1

Filename
Office
Plot Date

3110-GP07

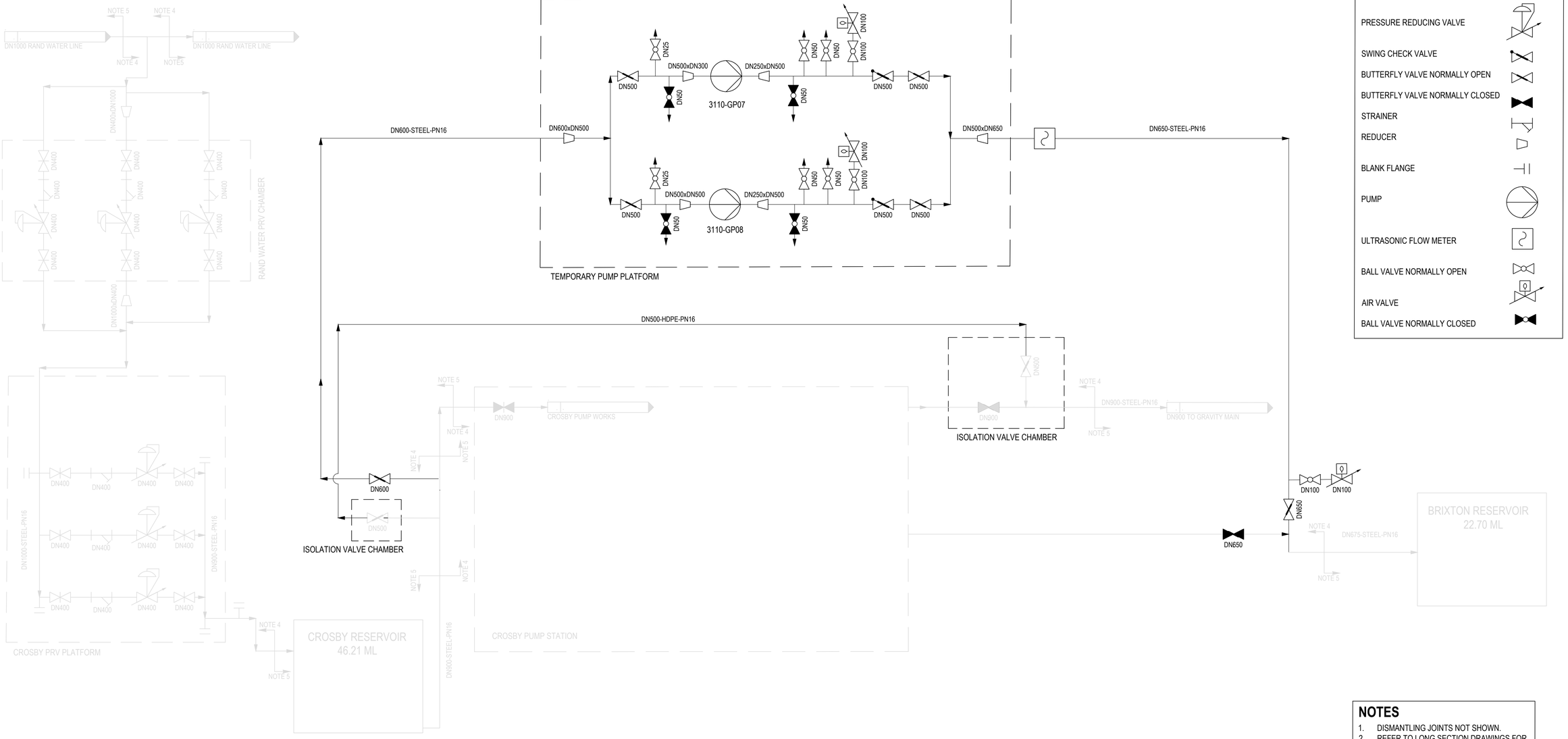
CENTRIFUGAL PUMP
224 l/s @ 39.9 m HEAD.
INSTALLED POWER: 220kW
VOLTAGE: 380 V

3110-GP08

CENTRIFUGAL PUMP
224 l/s @ 39.9 m HEAD.
INSTALLED POWER: 220 kW
VOLTAGE: 380 V

LEGEND

- GATE VALVE
- GATE VALVE NORMALLY CLOSED
- PRESSURE REDUCING VALVE
- SWING CHECK VALVE
- BUTTERFLY VALVE NORMALLY OPEN
- BUTTERFLY VALVE NORMALLY CLOSED
- STRAINER
- REDUCER
- BLANK FLANGE
- PUMP
- ULTRASONIC FLOW METER
- BALL VALVE NORMALLY OPEN
- AIR VALVE
- BALL VALVE NORMALLY CLOSED



NOTES

1. DISMANTLING JOINTS NOT SHOWN.
2. REFER TO LONG SECTION DRAWINGS FOR DETAILS AND POSITION OF AIR VALVES, SCOUR VALVES AND OTHER DETAILS NOT SHOWN ON MFD.
3. REFER TO MECHANICAL DRAWINGS FOR PUMP STATION LAYOUT AND PIPE DETAILS.
4. NEW WORKS.
5. EXISTING WORKS.
6. TEMPORARY WORKS SHOWN IN BLACK.
7. PERMANENT WORKS SHOWN IN GRAY.

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED:	L. VAN VELZE	18.06.23	
DRAWN:	L. VAN VELZE	29.01.24	
CHECKED:	M. BULBULIA	29.01.24	
APPROVED BY:	R. BARRY	29.01.24	
	SIGNATURE	DATE	
ECSA REG No:	20160835		
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG No:			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

MECHANICAL FLOW DIAGRAM
TEMPORARY WORKS

APPROVAL BY JW DEPOT			SCALE
CHECKED:			AS SHOWN
APPROVED BY:			
	SIGNATURE BY:	DATE:	
APPROVAL BY JW PLANNING			
CHECKED:			
APPROVED BY:			
	SIGNATURE BY:	DATE:	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	29.01.24

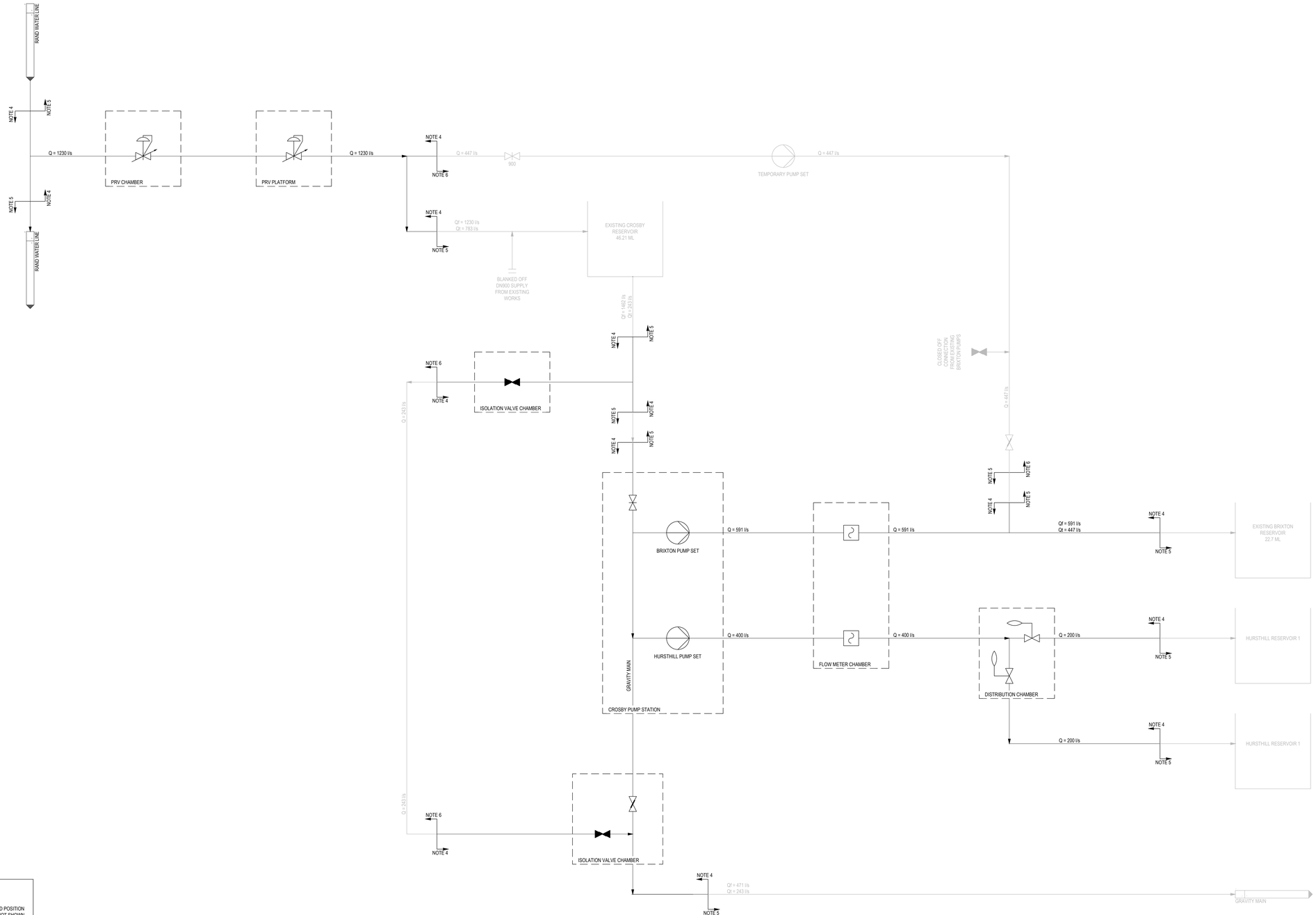
DRAWING No.

113503 - 3110 - MFD - MM - 0002 - T0

PROJECT No. | DRAWING No. | REV.

A0 ORIGINAL PAGE SIZE | SHEET 1 OF 1

Filename
Office
Plot Date



NOTES:

1. DISMANTLING JOINTS NOT SHOWN.
2. REFER TO LONG SECTION DRAWINGS FOR DETAILS AND POSITION OF AIR VALVES, SCOUR VALVES AND OTHER DETAILS NOT SHOWN ON MFD.
3. REFER TO MECHANICAL DRAWINGS AND MFDs FOR PUMP STATION AND CHAMBER LAYOUTS AND PIPE DETAILS.
4. NEW WORKS.
5. EXISTING WORKS.
6. TEMPORARY WORKS.

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ZUTARI IMPACT. ENGINEERED.

32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT

17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED	L.GWIJI		23.05.23
DRAWN	L.GWIJI		09.06.23
CHECKED	E. LOTTERING		09.06.23
APPROVED BY:	R. BARRY	SIGNATURE	13.06.23 DATE
ECSA REG. No.			
CHECKED BY:		SIGNATURE	DATE
ECSA REG. No.			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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PERTH EMPIRE CORRIDOR OF FREEDOM WATER MAINS UPGRADE
CROSBY BULK INFRASTRUCTURE PROJECT

PROCESS FLOW DIAGRAM

APPROVAL BY JW DEPOT			
CHECKED			
APPROVED BY:			
	SIGNATURE	DATE	
APPROVAL BY JW PLANNING			
CHECKED			
APPROVED BY:			
	SIGNATURE	DATE	

SCALE

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	ISSUED FOR TENDER	23.05.23

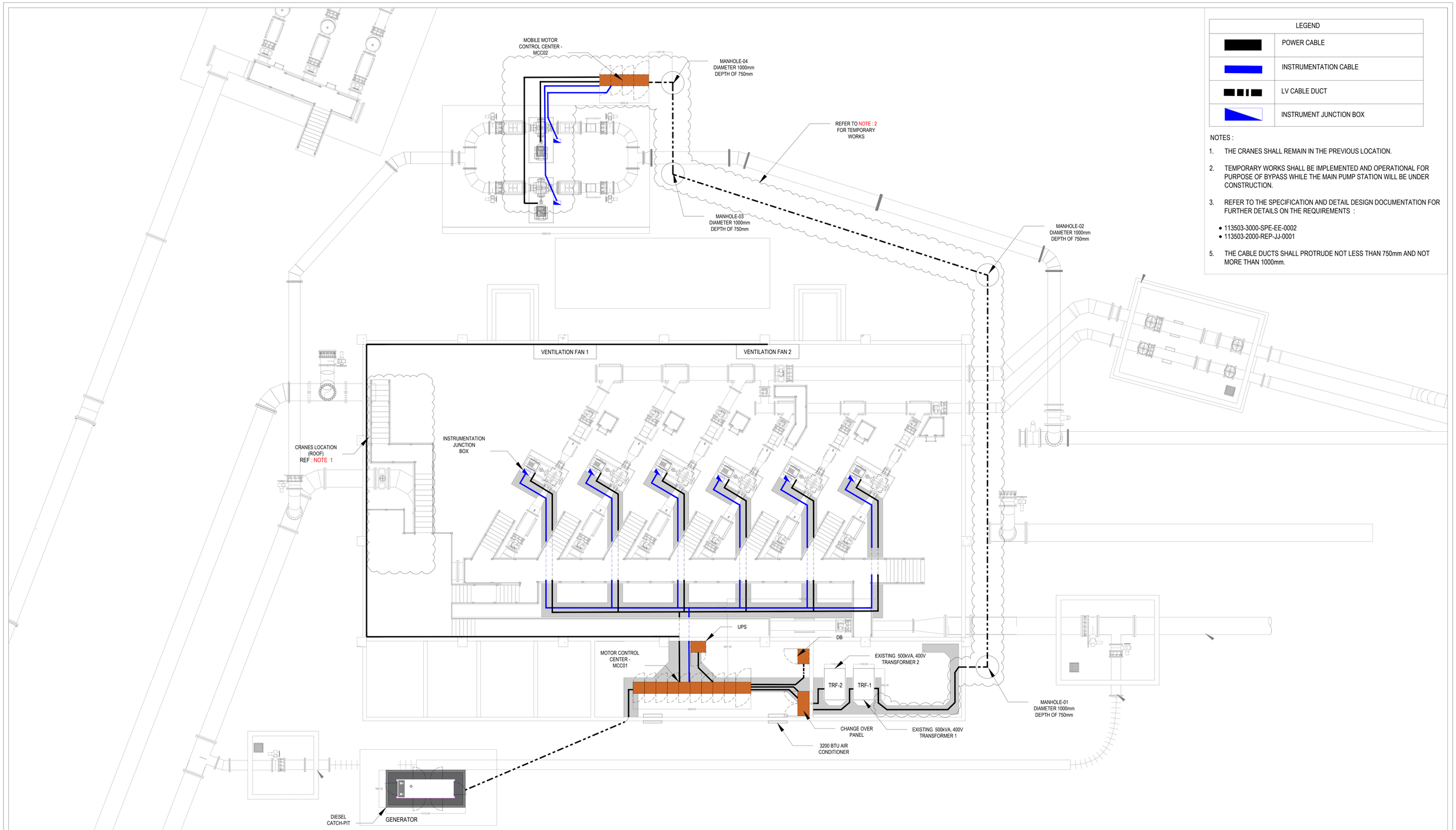
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113503 - 3110-PFD-MM-0001 - T0

PROJECT No. | DRAWING No. | REV.

A0 ORIGINAL PAGE SIZE | SHEET 1 OF 1

FILE No.



LEGEND	
	POWER CABLE
	INSTRUMENTATION CABLE
	LV CABLE DUCT
	INSTRUMENT JUNCTION BOX

NOTES :

1. THE CRANES SHALL REMAIN IN THE PREVIOUS LOCATION.
2. TEMPORARY WORKS SHALL BE IMPLEMENTED AND OPERATIONAL FOR PURPOSE OF BYPASS WHILE THE MAIN PUMP STATION WILL BE UNDER CONSTRUCTION.
3. REFER TO THE SPECIFICATION AND DETAIL DESIGN DOCUMENTATION FOR FURTHER DETAILS ON THE REQUIREMENTS :
   - 113503-3000-SPE-EE-0002
   - 113503-2000-REP-JJ-0001
5. THE CABLE DUCTS SHALL PROTRUDE NOT LESS THAN 750mm AND NOT MORE THAN 1000mm.

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32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

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

DESIGNED	N. ZUNGU	11.01.24
DRAWN	N. ZUNGU	11.01.24
CHECKED	T. MOHLAMONYANE	11.01.24
APPROVED BY:	P. MAJA	11.01.24
	SIGNATURE	DATE
ECSA REG. No.	9870130	

CROSBY PUMP STATION
SITE PLAN ELECTRICAL LAYOUT

APPROVAL BY JW DEPOT

CHECKED		
APPROVED BY:		
	SIGNATURE	DATE

APPROVAL BY JW PLANNING

CHECKED		
APPROVED BY:		
	SIGNATURE	DATE

SCALE

AMENDMENTS

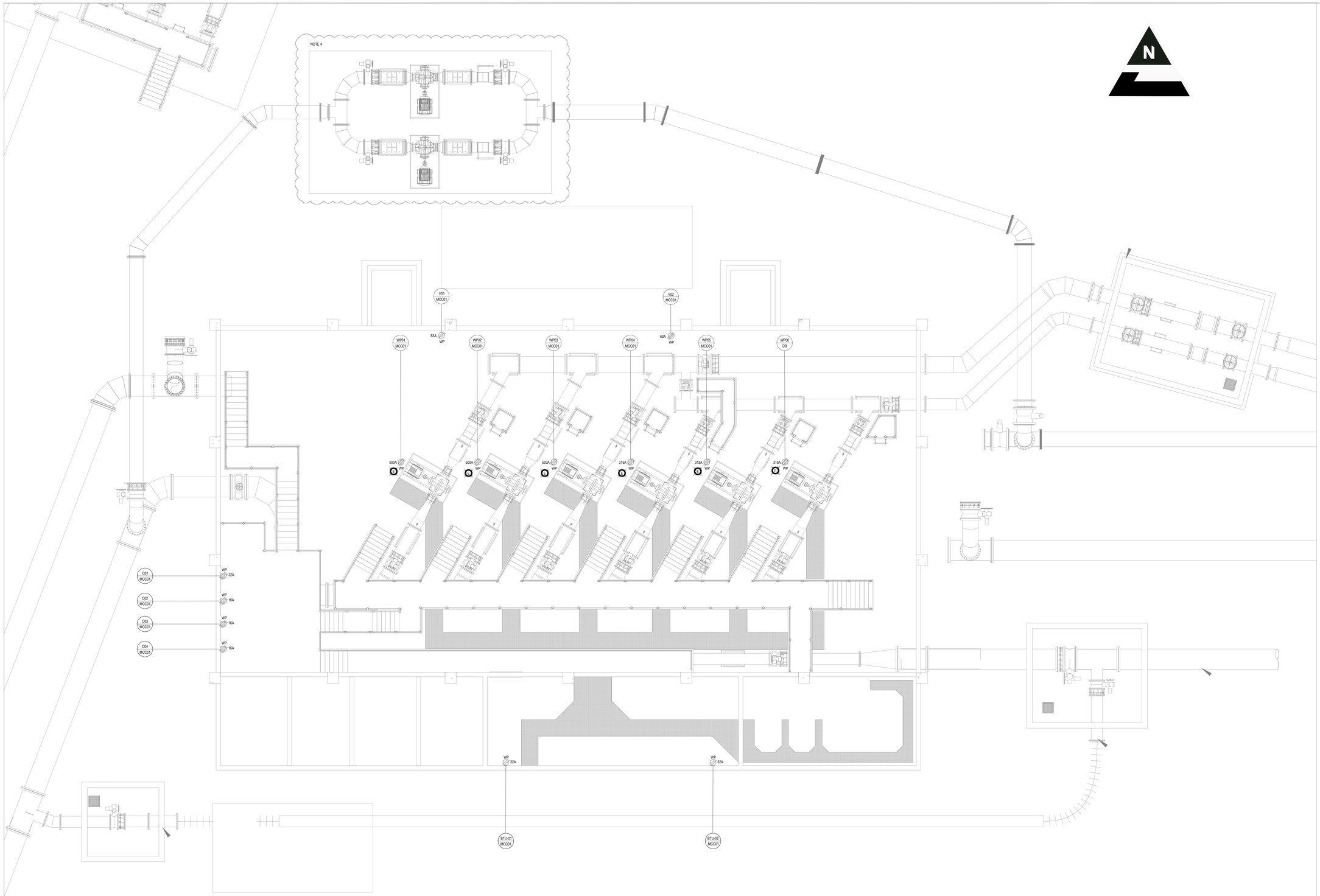
REV:	DESCRIPTION	DATE:
T0	FOR TENDER	11.01.2023

DRAWING No.

PROJECT No.		DRAWING No.		REV.
113503	-	3140-DRG-EE-0001	-	T0

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FILE No.



LEGEND:

SYMBOL	DESCRIPTION
	16A, SINGLE SWITCHED SOCKET OUTLET, SURFACE MOUNTED @ 300mm AFFL. WATER TIGHT (WATER & DUST PROOF COVER) (BS-546, SABS-164)
	60A, 5-PIN, THREE PHASE, INDUSTRIAL SWITCHED SOCKET OUTLET, SURFACE MOUNTED AT 1000mm AFFL, UNLESS OTHERWISE SPECIFIED. ABB INTERLOCK INDUSTRIAL SOCKET WITH ALUMINIUM ALLOY HOUSING, OR SIMILAR APPROVED. (IEC 60 309-1,-2,-4.)
WP	2 POLE INDUSTRIAL ISOLATOR SWITCH, WATER PROOF, IP65, SURFACE MOUNTED UNLESS OTHERWISE SPECIFIED. AMPERE (A) RATING INDICATED ON THE DRAWING.
WP	4 POLE INDUSTRIAL ISOLATOR SWITCH, WATER PROOF, IP65, SURFACE MOUNTED UNLESS OTHERWISE SPECIFIED. AMPERE (A) RATING INDICATED ON THE DRAWING.
	FIELD CONTROL STATION EMERGENCY STOP PUSH BUTTON, PEDESTAL/POLE MOUNTED @ 1300mm AFFL.
	CIRCUIT INDICATION
	CIRCUIT LINK INDICATION

CIRCUIT DESCRIPTION:

"XX"	ELECTRICAL CIRCUIT (LIGHT CIRCUIT)
DB-"X"	ELECTRICAL DISTRIBUTION BOARD
AC	HVAC / AIR-CONDITIONING / EXTRACTOR FAN, CIRCUIT
C	MOTORISED LIFTING CRANE, CIRCUIT
F	FIRE DETECTION, CIRCUIT
MD	MOTORISED DOOR, CIRCUIT
P	SOCKET OUTLET, CIRCUIT
WP	WATER PUMP, CIRCUIT
WSP	WATER SUMP PUMP, CIRCUIT

DRAWING NOTES:

1. ALL SWITCHED SOCKET OUTLET CIRCUIT WIRING TO BE 4mm² PVC COPPER CONDUCTORS WITH 2.5mm² GREEN BARE COPPER EARTH WIRE(BCEW), UNLESS OTHERWISE SPECIFIED.
2. MAIN CONTRACTOR AND ELECTRICAL CONTRACTOR TO CO-ORDINATE ALL SUSPENDED, FLUSH AND SURFACE MOUNTED WIRE-WAYS FOR ELECTRICAL AND ELECTRONIC CIRCUITING ON SITE, AS PER SANS 10142 REQUIREMENTS.
3. MAIN CONTRACTOR AND ELECTRICAL CONTRACTOR TO CO-ORDINATE ALL ELECTRICAL AND ELECTRONIC EQUIPMENT ON SITE.
4. THE TEMPORARY PUMP STATION OBTAIN POWER FROM MCC02
5. REFER TO THE SPECIFICATION AND DETAIL DESIGN DOCUMENTATION FOR FURTHER DETAILS ON THE REQUIREMENTS
   - 113503-3000-SPE-EE-0002
   - 113503-2000-REP-JJ-0001

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED	N. ZUNGU	11.01.24	
DRAWN	N. ZUNGU	11.01.24	
CHECKED	T. MOHLAMONYANE	11.01.24	
APPROVED BY:	P.MAJA	11.01.24	
	SIGNATURE	DATE	
ECSA REG. No.	980130		
CHECKED BY:			
	SIGNATURE	DATE	
ECSA REG. No.			

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

Joburg

CROSBY PUMP STATION
FIELD ISOLATOR LAYOUT

APPROVAL BY JW DEPOT			SCALE
CHECKED			
APPROVED BY:			
	SIGNATURE	DATE	
APPROVAL BY JW PLANNING			
CHECKED			
APPROVED BY:			
	SIGNATURE	DATE	

AMENDMENTS		
REV:	DESCRIPTION	DATE:
T0	FOR TENDER	11.01.24

DRAWING No.

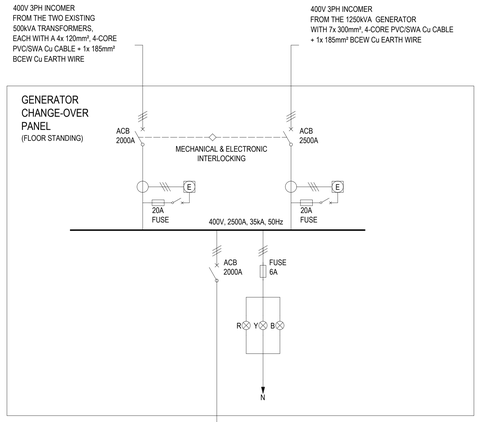
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PROJECT No. | DRAWING No. | REV.

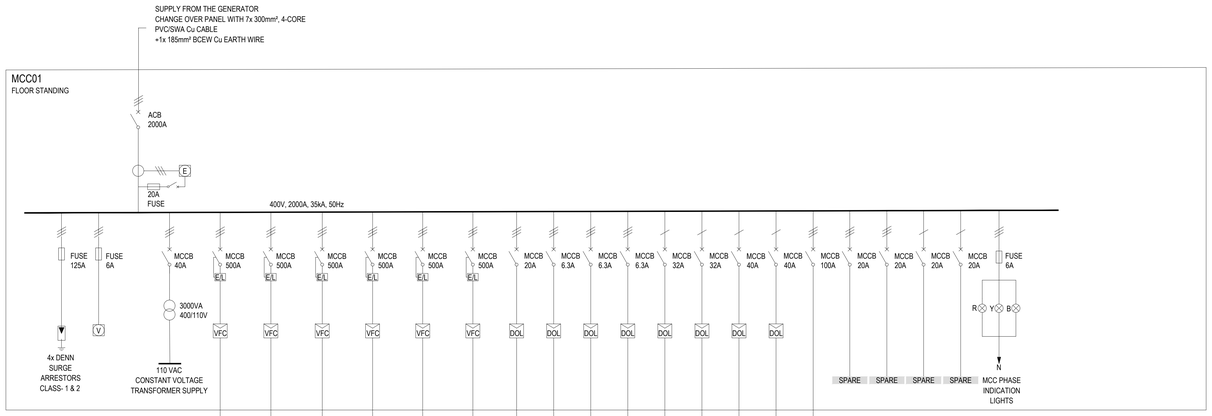
A0 SHEET 1 OF 1

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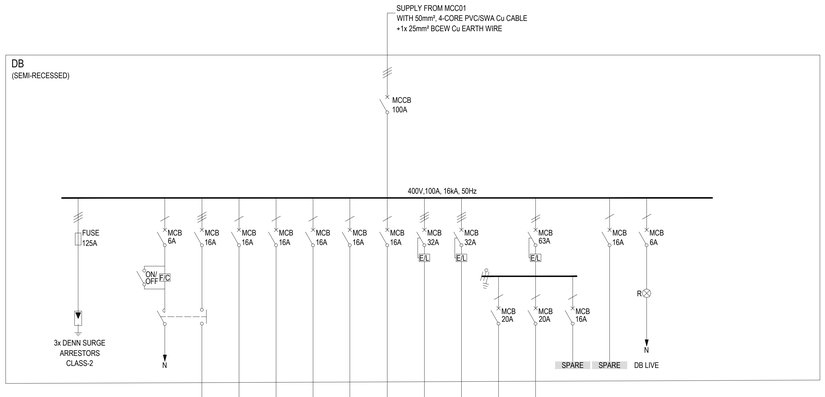
FILE No.



MCC01	-	CIRCUIT
R-Y-B	-	PHASE INDICATION – R-RED ~ Y-YELLOW ~ B-BLUE
(7x) 300 x 3c(W)	-	SIZE (mm²) x "QTY" cores, CABLE (C), WIRING (W), SUFFIX (S)
(1x) 150(b)	-	EARTH WIRE SIZE (mm²) ~ BCEW (b), ICEW (i)
MCC01	DB PHASE INDICATION LIGHTS	NOTE: TERMINATION POINTS FOR CIRCUIT PHASE INDICATION TO COMPLY WITH THE SANS WIRING COLOUR CODES - • PROTECTIVE EARTH (PE) - GREEN-YELLOW • NEUTRAL (N) - BLACK • LINE, SINGLE PHASE (L) - RED • LINE, THREE PHASE (L1) - RED • LINE, THREE PHASE (L2) - YELLOW • LINE, THREE PHASE (L3) - BLUE

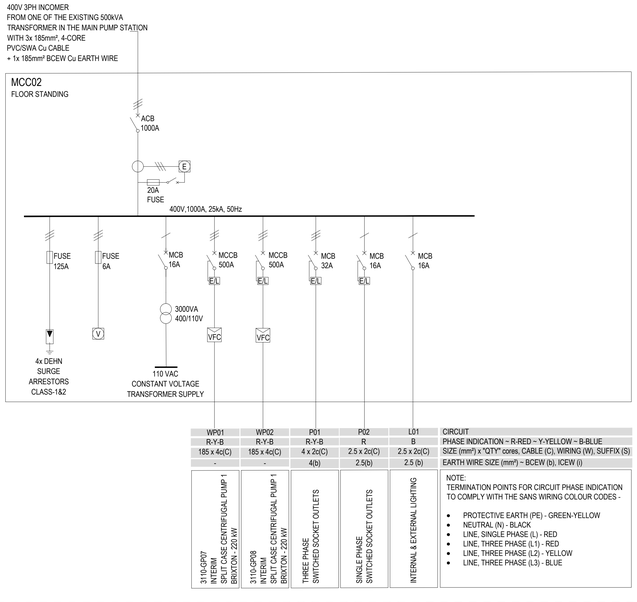


	WP01	WP02	WP03	WP04	WP05	WP06	C01	C02	C03	C04	BTU-01	BTU-02	V01	V02	DB	-	-	-	-	CIRCUIT
	R-Y-B	R-Y-B	R-Y-B	R-Y-B	R-Y-B	R-Y-B	R-Y-B	R-Y-B	R-Y-B	R-Y-B	R	Y	B	R	R-Y-B	R-Y-B	R-Y-B	Y	R	PHASE INDICATION – R-RED ~ Y-YELLOW ~ B-BLUE
	(2x) 150x 4c(C)	(2x) 150x 4c(C)	(2x) 150 x 4c(C)	150 x 4c(C)	150 x 4c(C)	150 x 4c(C)	2.5 x 4c(C)	1.5x 4c(C)	1.5x4c(C)	1.5 x 4c(C)	4x3c(C)	4x 3c(C)	6x 3c(C)	6x 3c(C)	50 x 4c(C)	-	-	-	-	SIZE (mm²) x "QTY" cores, CABLE (C), WIRING (W), SUFFIX (S)
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	25 (b)	-	-	-	-	EARTH WIRE SIZE (mm²) ~ BCEW (b), ICEW (i)
	3110-GP01 SPLIT CASE CENTRIFUGAL PUMP 1 BRIXTON - 220 kW	3110-GP02 SPLIT CASE CENTRIFUGAL PUMP 2 BRIXTON - 220 kW	3110-GP03 SPLIT CASE CENTRIFUGAL PUMP 3 BRIXTON - 220 kW MOTOR	3110-GP04 SPLIT CASE CENTRIFUGAL PUMP 4 HURSTHILL - 110 kW MOTOR	3110-GP05 SPLIT CASE CENTRIFUGAL PUMP 5 HURSTHILL - 110 kW	3110-GP06 SPLIT CASE CENTRIFUGAL PUMP 6 HURSTHILL - 110 kW	CRANE HOIST MOTOR 8 kW	CRANE LONG TRAVEL MOTOR 1.10 kW	CRANE CROSS MOTOR 1 0.3 kW	CRANE CROSS MOTOR 2 0.3 kW	32 000 BTU SPLIT UNIT AIR CONDITIONER 1 3.5 kW	32 000 BTU SPLIT UNIT AIR CONDITIONER 2 3.5 kW	VENTILATION FAN 1 5 kW	VENTILATION FAN 2 5 kW	DB	SPARE	SPARE	SPARE	SPARE	NOTE: HETERMINATION POINTS FOR CIRCUIT PHASE INDICATION TO COMPLY WITH THE SANS WIRING COLOUR CODES - • PROTECTIVE EARTH (PE) - GREEN-YELLOW • NEUTRAL (N) - BLACK • LINE, SINGLE PHASE (L) - RED • LINE, THREE PHASE (L1) - RED • LINE, THREE PHASE (L2) - YELLOW • LINE, THREE PHASE (L3) - BLUE



	L01	L02	L03	L04	L05	UPS	P01	P02	P03	P04	-	-	CIRCUIT
	R	Y	B	R	Y	R	R-Y-B	R-Y-B	Y	Y	R	Y	PHASE INDICATION – R-RED ~ Y-YELLOW ~ B-BLUE
	2.5x 1c(W)	2.5 x 3c(C)	2.5 x 3c(C)	2.5 x 3c(C)	2.5 x 3c(C)	1.5 x 2c(C)	2.5 x 3c(W)	2.5 x 3c(W)	2.5 x 2c(W)	2.5 x 2c(W)	-	-	SIZE (mm²) x "QTY" cores, CABLE (C), WIRING (W), SUFFIX (S)
	(-)	2.5(b)	2.5(b)	2.5(b)	2.5(b)	2.5(b)	4(b)	4(b)	4(b)	4(b)	-	-	EARTH WIRE SIZE (mm²) ~ BCEW (b), ICEW (i)
	PHOTOCELL SWITCH	EXTERNAL LIGHTING	INTERNAL LIGHTING (MCC ROOM)	INTERNAL LIGHTING (PUMP STATION-TOP LIGHTS)	INTERNAL LIGHTING (PUMP STATION)	INTERNAL LIGHTING (TRANSFORMER ROOM)	UPS FEEDER	THREE PHASE SWITCHED SOCKET OUTLETS	THREE PHASE SWITCHED SOCKET OUTLETS	SINGLE PHASE SWITCHED SOCKET OUTLETS	SINGLE PHASE SWITCHED SOCKET OUTLETS	SPARE	SPARE	NOTE: TERMINATION POINTS FOR CIRCUIT PHASE INDICATION TO COMPLY WITH THE SANS WIRING COLOUR CODES - • PROTECTIVE EARTH (PE) - GREEN-YELLOW • NEUTRAL (N) - BLACK • LINE, SINGLE PHASE (L) - RED • LINE, THREE PHASE (L1) - RED • LINE, THREE PHASE (L2) - YELLOW • LINE, THREE PHASE (L3) - BLUE

TEMPORARY PUMP STATION



	WP01	WP02	P01	P02	L01	CIRCUIT
	R-Y-B	R-Y-B	R-Y-B	R	B	PHASE INDICATION – R-RED ~ Y-YELLOW ~ B-BLUE
	185 x 4c(C)	185 x 4c(C)	4 x 2c(C)	2.5 x 2c(C)	2.5 x 2c(C)	SIZE (mm²) x "QTY" cores, CABLE (C), WIRING (W), SUFFIX (S)
	-	-	4(b)	2.5(b)	2.5 (b)	EARTH WIRE SIZE (mm²) ~ BCEW (b), ICEW (i)
	3110-GP07 INTERNAL SPLIT CASE CENTRIFUGAL PUMP 1 BRIXTON - 220 kW	3110-GP08 INTERNAL SPLIT CASE CENTRIFUGAL PUMP 1 BRIXTON - 220 kW	THREE PHASE SWITCHED SOCKET OUTLETS	SINGLE PHASE SWITCHED SOCKET OUTLETS	INTERNAL & EXTERNAL LIGHTING	NOTE: TERMINATION POINTS FOR CIRCUIT PHASE INDICATION TO COMPLY WITH THE SANS WIRING COLOUR CODES - • PROTECTIVE EARTH (PE) - GREEN-YELLOW • NEUTRAL (N) - BLACK • LINE, SINGLE PHASE (L) - RED • LINE, THREE PHASE (L1) - RED • LINE, THREE PHASE (L2) - YELLOW • LINE, THREE PHASE (L3) - BLUE

GENERAL NOTES:

1. DRAWINGS MUST NOT BE SCALED.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE GENERAL NOTES DRAWINGS AND ALL PROJECT SPECIFICATIONS.
3. ACCORDING TO THE COPYRIGHT ACT (ACT No 98 OF 1978) NO PART OF THIS DOCUMENT MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS WHATSOEVER INCLUDING MECHANICAL,ELECTRONIC, PHOTOCOPYING, MICROFILMING OR ANY OTHER SYSTEM OF INFORMATION STORAGE WITHOUT WRITTEN PERMISSION OF AURECON.

LEGEND:

SYMBOL	DESCRIPTION
	BUSBAR
	BUSBARS INDICATION: L, N, E (FOR A SINGLE PHASE SYSTEM)
	BUSBARS INDICATION: L1, L2, L3, N, E (FOR A THREE PHASE SYSTEM)
	1-PHASE INDICATION
	1-PHASE & NEUTRAL INDICATION
	3-PHASE INDICATION
	3-PHASE & NEUTRAL INICATION
"X"A "Y"P	CIRCUIT BREAKER (RATING BY "X", NUMBER OF POLES INDICATED BY "Y")
"X"A "Y"P	ISOLATOR (RATING BY "X", NUMBER OF POLES INDICATED BY "Y")
"X"A "Y"P "Z"	CONTACTOR (RATING BY "X", NUMBER OF POLES INDICATED BY "Y", TYPE BY "Z")
	CONTACTOR POLE INDICATION
E/L "Y"P "Z"	"EARTH LEAKAGE" UNIT (NUMBER OF POLES INDICATED BY "Y", SENSITIVITY BY "Z")
"X"A "Y"P "Z" E/L	"EARTH LEAKAGE" RESIDUAL CURRENT CIRCUIT BREAKER UNIT • CURRENT LIMITING (RATING BY "X", NUMBER OF POLES INDICATED BY "Y", TYPE BY "Z")
	FUSE HOLDER (LABELLED)
	CURRENT TRANSFORMER (CT)
E	ENERGY METER (A, V, kW/h)
Am	MAX. DEMAND METER
A	AMMETER
V	VOLTAGE METER
ON/ OFF F/C	PHOTO-CELL SWITCH WITH BY-PASS SWITCH. (BY-PASS SWITCH MOUNTED IN DB)
	SURGE ARRESTOR
	EARTH WIRE CONNECTED TO EARTH BAR
N	WIRE/CABLE CONNECTED TO NEUTRAL BAR
"X"	PHASE INDICATOR LIGHT (LIGHT COLOUR BY "X")
	STANDBY GENERATOR
VFC	VARIABLE FREQUENCY CONTROLLER
DOL	DIRECT ONLINE STARTER
M	3-PHASE MOTOR
	VOLTAGE TRANSFORMER

DRAWING NOTES:

1. DB SHALL COMPLY WITH REQUIREMENTS OF IEC 61439-1 AND SANS 61439-1, (LV SWITCHGEAR AND CONTROL GEAR ASSEMBLIES).
2. DB SHALL HAVE LOCKABLE STEEL DOORS AND LEGEND CARD HOLDER FIXED TO THE INSIDE OF THE DOOR.
3. ALLOW 30% SPARE SPACE IN DB.
4. ALLOW 25% SPARE SPACE IN MCC01
5. CABLE & CONDUIT ENTRY : TOP & BOTTOM.
6. FRAME & DOOR : WHITE COLOUR RAL 9001
7. ALL CIRCUIT BREAKERS TO BE **SCHNEIDER**.
8. BUSBARS TO BE COLOUR CODED WITH SHRINK INSULATION FOR FULL LENGTH
9. MINIMUM EARTH WIRE CONNECTION BETWEEN SURGE PROTECTION DEVICES AND EARTH BAR : 25mm² GREEN INSULATED WIRE, MAX LENGTH 400mm.
10. SWITCHING CONTACTORS TO BE SCHNEIDER, OR EQUAL APPROVED TYPE WITH NO & NC AUXILIARY CONTACTS.
11. ALL LABELS SHALL BE ENGRAVED WITH BLACK ON WHITE.
12. ALL INTERNAL EQUIPMENT TO BE LABELED.
13. MAIN DB LABLE TO BE 30mm IN HEIGHT.
14. CIRCUITS TO BE LABELLED IN LOGICAL ORDER, WITH DETAILS REFLECTED ON LEGEND CARD.
15. LEGEND CARD TO BE TYPED OUT & FIXED TO INSIDE OF DB DOOR.
16. TEXT STYLE ON LEGEND CARD NOT TO BE SMALLER THAT "ARIAL- SIZE 12"

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CONSULTING ENGINEERS
ZUTARI
IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500
CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

DESIGNED	N. ZUNGU	11.01.24
DRAWN	N. ZUNGU	11.01.24
REVIEWER:	T. MOHLAMONYANE	11.01.24
APPROVED BY:	P.MAJA	11.01.24
	SIGNATURE	DATE
ECSA REG. No.	9870130	
CHECKED BY:		
	SIGNATURE	DATE
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Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

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

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CROSBY PUMP STATION
SINGLE LINE DIAGRAM

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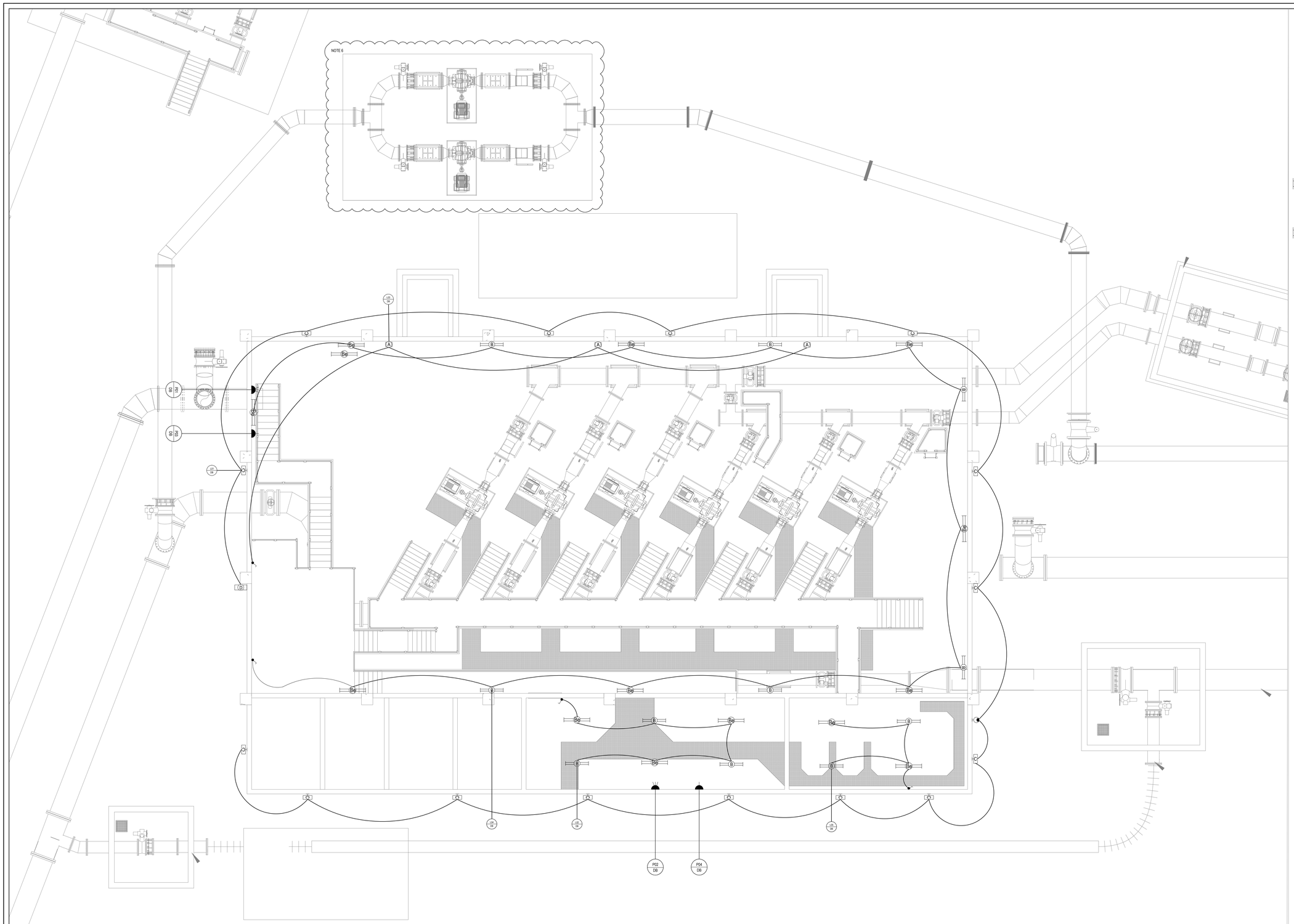
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FILE No.



LEGEND:

SYMBOL	DESCRIPTION
A	INDUSTRIAL LUMINAIRE, SURFACE MOUNTED, IP66, WITH ELECTRONIC CONTROL GEAR, TYPE A : 81W, LED, 4000K BEKA LEDnova 5120, OR SIMILAR PERFORMANCE
Ae	INDUSTRIAL LUMINAIRE, SURFACE MOUNTED, IP66, WITH ELECTRONIC CONTROL GEAR, 60min SELF MAINTAINED BATTERY BACK-UP, TYPE Ae : 81W, LED, 4000K BEKA LEDnova 5120, OR SIMILAR PERFORMANCE
B	INDUSTRIAL LUMINAIRE, SURFACE MOUNTED, IP65, WITH ELECTRONIC CONTROL GEAR, TYPE B : 2x 54W, T5 FL, 4000K BEKA VAPOURLINE, OR SIMILAR PERFORMANCE
Be	INDUSTRIAL LUMINAIRE, SURFACE MOUNTED, IP65, WITH ELECTRONIC CONTROL GEAR, 60min SELF MAINTAINED BATTERY BACK-UP, TYPE Be : 2x 54W, T5 FL, 4000K BEKA VAPOURLINE, OR SIMILAR PERFORMANCE
C	INDUSTRIAL LUMINAIRE, SURFACE MOUNTED, IP65, WITH ELECTRONIC CONTROL GEAR, TYPE C : 18W LED, 4000K BEKA - BEKABULK, OR SIMILAR PERFORMANCE
D	FLOOD LIGHT LUMINAIRE, SURFACE MOUNTED, IP66, WITH ELECTRONIC CONTROL GEAR, TYPE F : 279W LED, 4000K BEKA LEDflood 1300, OR SIMILAR PERFORMANCE
	PHOTO-CELL SWITCH, SURFACE MOUNTED
	INDUSTRIAL LIGHT SWITCH - ONE WAY, WEATHER PROOF, SURFACE MOUNTED @ 1300mm AFFL
	CIRCUIT INDICATION
	CIRCUIT LINK INDICATION

CIRCUIT DESCRIPTION:

"XX" / DB-"X"	ELECTRICAL CIRCUIT (LIGHT CIRCUIT) ELECTRICAL DISTRIBUTION BOARD
L	LIGHT, CIRCUIT
Le	EMERGENCY LIGHT, CIRCUIT

SMALL POWER:

	16A, SINGLE SWITCHED SOCKET OUTLET, SURFACE MOUNTED @ 300mm AFFL, WATER TIGHT (WATER & DUST PROOF COVER) (BS-546, SABS-164)
	32A, 3-PIN, THREE PHASE, INDUSTRIAL SWITCHED SOCKET OUTLET, SURFACE MOUNTED AT 1000mm AFFL, UNLESS OTHERWISE SPECIFIED. ABB INTERLOCK INDUSTRIAL SOCKET WITH ALUMINIUM ALLOY HOUSING, OR SIMILAR APPROVED. (IEC 60 309-1,-2,-4.)

DRAWING NOTES:

1. REFER TO THE SPECIFICATION AND DETAIL DESIGN DOCUMENTATION FOR FURTHER DETAILS ON THE REQUIREMENTS
   - 113503-3000-SPE-EE-0002
   - 113503-2000-REP-JJ-0001
2. ALL EMERGENCY LIGHT LUMINARIES TO HAVE SEPARATE UN-SWITCHED SELF MAINTAINED SUPPLY FROM THE LV ELECTRICAL DISTRIBUTION BOARD FOR BATTERY BACK-UP.
3. ALL LIGHT CIRCUIT WIRING TO BE 2.5mm² PVC COPPER CONDUCTORS WITH 2.5mm² GREEN INSULATED COPPER EARTH WIRE, UNLESS OTHERWISE SPECIFIED.
4. LIGHT SWITCHES TO BE AT 1300mm AFFL, UNLESS OTHERWISE SPECIFIED.
5. MAIN CONTRACTOR AND ELECTRICAL CONTRACTOR TO CO-ORDINATE AL SUSPENDED, FLUSH AND SURFACE MOUNTED WIRE-WAYS FOR ELECTRICAL AND ELECTRONIC CIRCUITING ON SITE, AS PER SANS 10142 REQUIREMENTS.
6. MAIN CONTRACTOR AND ELECTRICAL CONTRACTOR TO CO-ORDINATE ALL ELECTRICAL AND ELECTRONIC EQUIPMENT ON SITE.
7. THE SMALL POWER & LIGHTING SHALL BE SUPPLIED FROM MCC02

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

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

DESIGNED	N. ZUNGU	11.01.24	
DRAWN	N. ZUNGU	11.01.24	
CHECKED	T. MOHLAMONYANE	11.01.24	
APPROVED BY:	P.MAJA	11.01.24	
	SIGNATURE	DATE	
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CROSBY PUMP STATION
SMALL POWER & LIGHTING LAYOUT

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SCALE

AMENDMENTS

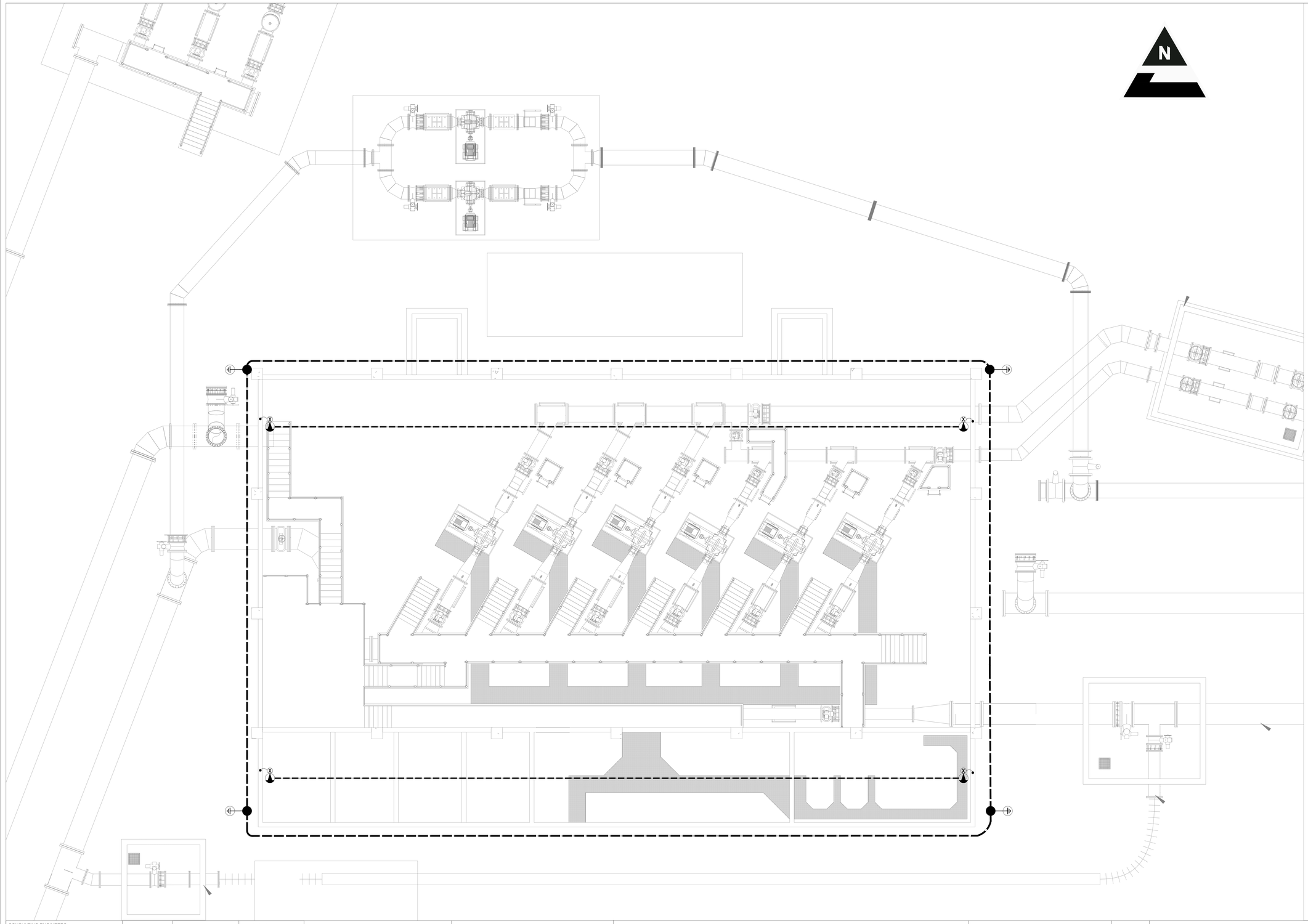
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FILE No.



LEGEND:

SYMBOL	DESCRIPTION
TP	TEST POINT BOX WITH COVER INCLUDING BRASS TERMINAL WITH NUTS AND WASHERS, SURFACE MOUNTED AT 300mm AFGL.
	RING EARTH ELECTRODE, BARE Cu SIZE TO BE DETERMINED IN ACCORDANCE WITH SANS 62305-3 BUT MINIMUM 70mm², MINIMUM 1000mm BFGL AND 1500mm FROM BUILDING
	10mm Ø SOLID Cu, UNDER FLOOR FOUNDATION.
	10mm Ø STEEL CONDUCTOR WITH MOUNTING ACCESSORIES.
	10mm Ø AIR TERMINAL ROD WITH MOUNTING ACCESSORIES.
	EXTENSIBLE Cu EARTH ELECTRODE, 1,6m MINIMUM, DRIVEN TO A DEPTH PRE-DETERMINED BY THE SOIL RESISTIVITY SURVEY.
	BONDING POINT TO 10mm Ø SOLID Cu CONDUCTOR. BONDING SHALL BE EXOTHERMICALLY WELDED (CALCKWELD)
	BONDING POINT FOR RING EARTH ELECTRODE AND 10mm Ø SOLID Cu CONDUCTOR. BONDING SHALL BE EXOTHERMICALLY WELDED (CALCKWELD)
	BONDING POINT TO INTERNAL RE-ENFORCING STEEL WITHIN CONCRETE. BONDING SHALL BE CLAMPED OR EXOTHERMICALLY WELDED (CALCKWELD)
	SURFACE MOUNTED Cu EARTH BAR, LENGTH = 500mm, SIZE = 50mmX6mm. (MOUNTED IN TRENCHES AND AGAINST WALL) WITH 12x M12 HOLES.
	1x 70mm² 1-CORE BARE Cu EARTH WIRE, TERMINATED AT THE SURFACE MOUNTED EARTH-BAR AND EXOTHERMICALLY WELDED TO THE 10mm Ø Cu SOLID CONDUCTOR EARTH-MATT.

GENERAL NOTES:

1. THE EARTHING IS ALREADY INSTALLED, GIVEN THAT THIS BUILDING IS NOT RECENT CONSTRUCTION. AS A RESULT, THE EARTH MAT WILL BE INSTALLED OUTSIDE THE PUMP STATION
2. REFER TO THE SPECIFICATION AND DETAIL DESIGN DOCUMENTATION FOR FURTHER DETAILS ON THE REQUIREMENTS
   - 113503-3000-SPE-EE-0002
   - 113503-2000-REP-JJ-0001

CONSULTING ENGINEERS
ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
17 HARRISON STREET
MARSHALLTOWN
2107

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Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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CROSBY PUMP STATION
EARTH AND LIGHTNING PROTECTION LAYOUT

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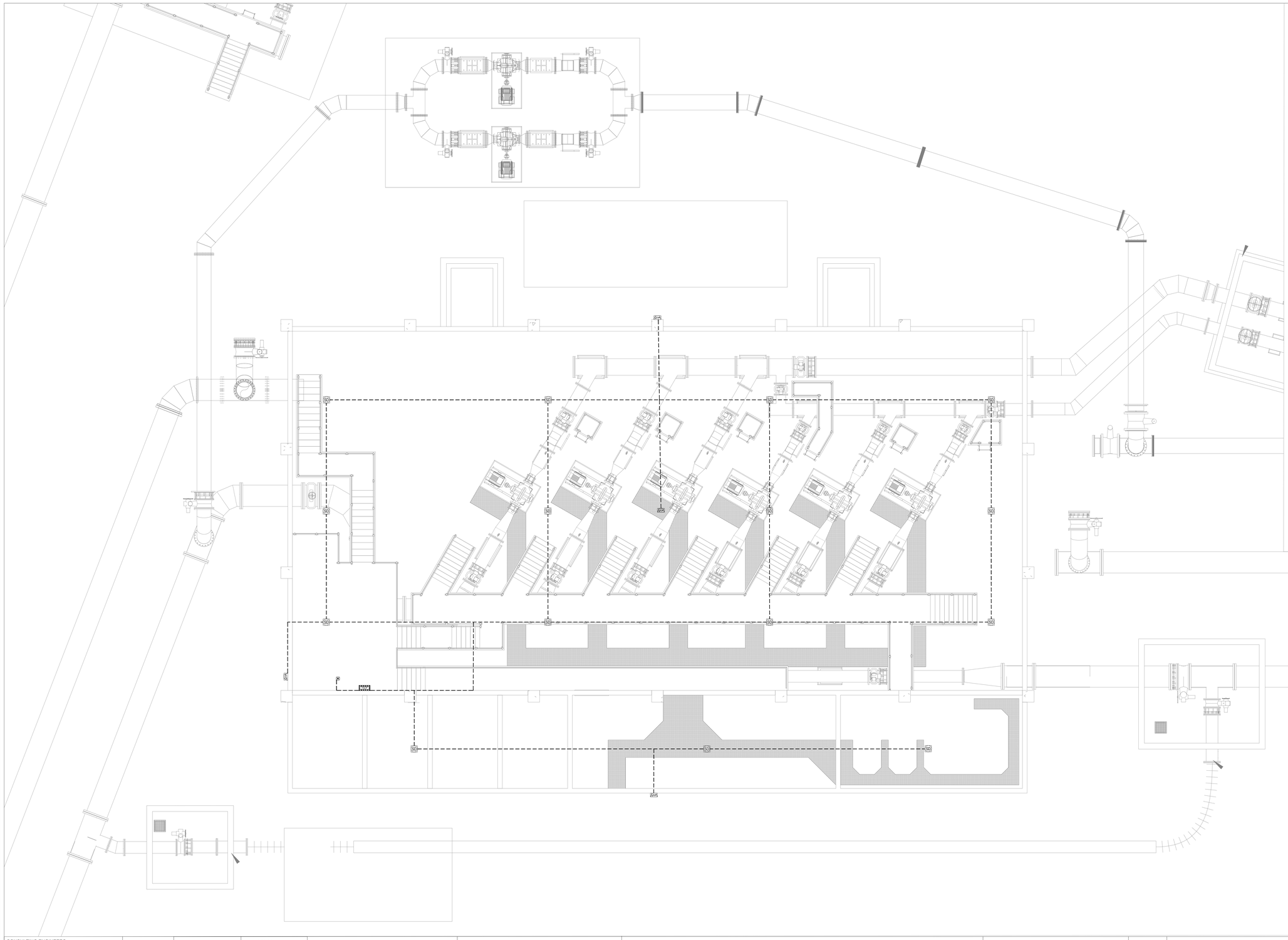
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FILE No.



LEGEND:

SYMBOL	DESCRIPTION
	RESETTABLE MANUAL CALL POINT UNIT, SURFACE MOUNTED AGAINST WALL AT 1400mm AFFL.
	COMBINED SOUNDER AND STROBE, -FIXED TO A SURFACE MOUNTED 4 x 4 STEEL DRAW-BOX (RED PAINTED) WITH STEEL PARTITION AND COVER PLATE (RED PAINTED).
SD	SMOKE DETECTOR WITH DETECTOR BASE, -FIXED TO A SURFACE MOUNTED 4 x 4 STEEL DRAW-BOX (RED PAINTED) WITH STEEL PARTITION AND COVER PLATE. (RED PAINTED).
FACP	2-ZONE ADDRESSABLE FIRE ALARM CONTROL PANEL, SURFACE MOUNTED AT 1400mm AFFL, INCLUDING 4-HOUR EMERGENCY BATTERY BACK-UP POWER SUPPLY. FIRE ALARM CONTROL PANEL TO BE LINKED TO THE COMMUNICATIONS TO JOHANNESBURG WATER AND THE REPEATER PANEL IN THE GUARD HOUSE.
-------	RED PAINTED 25mm dia. STEEL CONDUIT (STRAIGHT LENGTHS, ELBOWS, ETC), SURFACE MOUNTED AGAINST CONCRETE CEILING AND WALL, INCLUDING ALL CONDUIT MOUNTING ACCESSORIES, (COUPLINGS, CONNECTORS, STRAPS, BUSHINGS, LOCK NUTS AND WASHERS, CONCRETE MOUNTED SCREWS AND BOLTS, ETC.) CONDUITS TO TERMINATE AT EQUIPMENT WITH MOUNTING ACCESSORIES.

GENERAL NOTE

1. REFER TO THE SPECIFICATION AND DETAIL DESIGN DOCUMENTATION FOR FURTHER DETAILS ON THE REQUIREMENTS
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   - 113503-2000-REP-JJ-0001

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ZUTARI IMPACT. ENGINEERED.
32A JELLICOE AVENUE
OXFORD CORNER
ROSEBANK
SOUTH AFRICA
TEL: +27 11 214 4500

CLIENT
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Johannesburg Water

17 HARRISON STREET
MARSHALLTOWN
2107

TEL: (011) 688-1400

FAX: (011) 688-1529

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FIRE DETECTION LAYOUT

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FILE No.