

**GENERAL NOTES**

1. SPECIFIC CATALOGUE DIMENSIONS WITH REGARD TO PUMPING EQUIPMENT, VALVES, ETC. WERE USED IN THE DESIGN LAYOUTS. SHOULD DIMENSIONS OF APPROVED EQUIPMENT NOT CONCORD WITH THOSE OF THE DESIGN, IT SHALL BE THE CONTRACTOR'S SOLE RESPONSIBILITY TO REVISE SUCH DIMENSIONS ACCORDINGLY, TO THE APPROVAL OF THE ENGINEER.

2. **ITEM:** EACH ITEM IS TO BE CLEARLY MARKED ACCORDING TO THE NUMBERS GIVEN IN THE LIST

3. ALL FLANGES ARE TO BE IN ACCORDANCE WITH SANS 1123, UNLESS STATED DIFFERENTLY. WORKING TABLE

CLASS	PRESSURE	SANS 1123
6	600 kPa	600/3
10	1 000 kPa	1 000/3
16	1 600 kPa	1 600/3
25	2 500 kPa	2 500/3
40	4 000 kPa	4 000/3

\* FLAT FACED FLANGES TO BE USED TESTING PRESSURE - 1.5 x WORKING PRESSURE, FOR ALL FLANGES, COUPLING AS WELL AS PUDDLE FLANGES.

**IT IS ESSENTIAL THAT PUDDLE FLANGES ARE NOT DRILLED.** WHERE PUDDLES ARE NON STANDARD SUCH PUDDLE FLANGES NEED NOT BE CIRCULAR, BUT SHALL MEET THE SPECIFIED PRESSURE RATING AND SHALL PROJECT AT LEAST 100mm FROM OUTER WALL OF THE PIPE.

GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 2 500 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION BEP J59, OR EQUIVALENT. GASKETS FOR PRESSURE RATINGS ABOVE 2 500 kPa, UP TO AND INCLUDING 4 000 kPa, SHALL BE CUT FROM MATERIAL MANUFACTURED TO THE SPECIFICATION B.S. 2915 B, OR EQUIVALENT. GASKETS FOR PRESSURE RATINGS UP TO AND INCLUDING 1 600 kPa SHALL BE 3 mm THICK CAF FULL FACE GASKETS. GASKETS FOR PRESSURE RATINGS ABOVE 1 600 kPa SHALL BE 3 mm THICK CAF RING GASKETS.

4. **PROTECTION CODES:**  
**EP:** ALL SURFACES SHALL BE BLAST CLEANED TO SA 2½ AND TO BE COATED WITH 3 LAYERS OF EPOXY RESIN TO GIVE A MIN. DRY FILM THICKNESS OF 250µm. REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 1.2.3, 1.2.4 AND 1.2.5.  
**FP:** FACTORY PROTECTION  
**CM:** ALL PIPE SPECIALS TO BE SANDBLASTED TO Sa 2½, CLEANED AND TO BE COATED WITH SINTAKOTE EXTERNAL, 10mm THICK CEMENT MORTAR LINED INTERNAL.  
**GM:** HOT DIPPED GALVANISED MILD STEEL IN ACCORDANCE WITH THE SPECIFICATION.

5. **MATERIAL:** GRADE 300 WA STEEL AS PRESCRIBED IN SANS 1431 WITH A MINIMUM WALL THICKNESS AS SPECIFIED. ALL PIPE ITEMS TO BE 4.5mm MINIMUM WALL THICKNESS UNLESS INDICATED DIFFERENTLY. ALSO REFER TECHNICAL SPECIFICATION: PUMPS, PIPEWORK AND ANCILLARY EQUIPMENT CLAUSE 2.3.4 FOR MINIMUM WALL THICKNESS.

6. **VALVES:** ALL VALVES TO BE FLANGED AND RATED PN10 MINIMUM. ALL GEARBOX POSITIONS TO BE AS FOR RIGHT HAND VALVE, RIGHT HAND PROJECTION, UNLESS STATED DIFFERENTLY ON DRAWINGS OR ITEM LIST. RESILIENT SEAL GATE: IN ACCORDANCE TO SANS 864, RIGHT HAND LOCKING. ALL VALVES ARE TO BE EQUIPPED WITH HAND WHEELS, UNLESS OTHERWISE STATED. VALVES TO BE SUPPLIED WITH THE NECESSARY PRESSURE REDUCERS AND / OR GEARS TO ENABLE FUNCTIONING AT THE SPECIFIED UNBALANCED PRESSURE.

7. **ABBREVIATIONS:**  
 AC - ASBESTOS CEMENT  
 CI - CAST IRON  
 FA - FLANGE ADAPTOR  
 FC - FLEXIBLE COUPLING  
 GS - GALVANISED STEEL  
 MS - MILD STEEL  
 SS - STAINLESS STEEL

8. **BOLTS** BOLT LENGTHS SHALL MAKE ALLOWANCE FOR TWO x 3mm THICK WASHERS AND A 3mm THICK GASKET SHALL BE PROVIDED FOR EACH PIPE ITEM AS LISTED. BOLTS THAT PROTRUDE BEYOND THE NUT BY A MINIMUM OF TWO THREADS, WHEN THE ASSEMBLIES ARE FULLY TIGHTENED, SHALL BE USED. A WASHER SHALL BE FITTED UNDER ALL BOLT/SCREW HEADS AND NUTS.

ALL BOLTS, NUTS AND WASHERS ON PIPE WORK TO BE HOT DIP GALVANISED MS

**EXCEPTIONS SHALL BE** FOR SS TO SS FLANGE CONNECTIONS, OR NON-INSULATED SS TO MS FLANGE CONNECTIONS

CONNECTING MATERIAL FOR SUCH TO BE POWDER COATED 304 SS BOLTS, NUTS AND WASHERS.

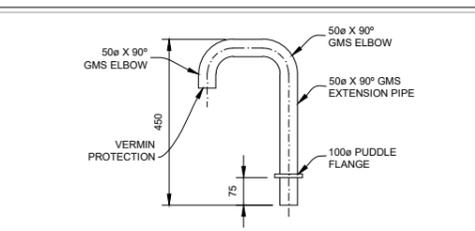
9. PROVIDE APPROPRIATE BOLT UNITS (CONSISTING OF A STANDARD LENGTH BOLT, NUT AND TWO WASHERS) AND RING GASKET FOR EACH SET OF FLANGES AND FOR FLANGE ADAPTOR TO FLANGE INSTALLATIONS.

10. **SUPPORTS AND ANCHOR SUPPORTS** SUPPORTS OR ANCHOR SUPPORTS ARE REQUIRED FOR CERTAIN PIPE ITEMS. TENDERER TO SUBMIT DETAILS OF PROPOSED SUPPORTS AND ANCHORS AS PART OF WORKSHOP DRAWINGS REQUIRED FOR EACH PIPE ITEM, IF NOT DETAILED. NO SITE WELDING SHALL BE PERMITTED ON SUPPORTS OR ANCHORS, WHICH COULD DAMAGE FACTORY APPLIED CORROSION PROTECTION. ALL ANCHOR BOLTS TO BE 16 mm Ø MINIMUM OF 316 STAINLESS STEEL.

11. **PIPE DETAILING:** LAYOUTS DETAILED INCLUDE FOR A 3mm THICK GASKET.

12. PIPE ITEM DIMENSIONS ON DRAWINGS NEED TO BE VERIFIED BY THE CONTRACTOR ON SITE PRIOR TO THE MANUFACTURE OF ANY ITEMS.

13. ALL BOLTS AND NUTS OUTSIDE OF CONCRETE CHAMBER IN GROUND MATERIAL TO BE WRAPPED WITH AN APPROVED CORROSION PROTECTIVE WRAPPING (DENZO OR SIMILAR APPROVED).



**GOOSENECK VENT PIPE DETAIL**  
N.T.S.

**NOTE:**  
 1. SEE FITTING SCHEDULE FOR PIPE DIAMETERS.  
 2. INNER WALLS PLASTERED 13mm THICK (1:5 CEMENT - SAND MIXTURE)  
 3. ALL MANHOLES DEEPER THAN 1050mm MUST BE CONSTRUCTED AS FOLLOWS:  
 a.) FIRST 1050mm BELOW GROUND LEVEL CAN BE 230mm BRICKWORK WITH BRICKFORCE (REINFORCING EVERY 2nd COURSE).  
 b.) WALL SECTIONS BELOW THE 1050mm DEPTH MUST BE CONSTRUCTED IN REINFORCED CONCRETE, 230-250mm THICK. REBAR CAN BE REF 395MESH BOTH SIDES.

**PIPE LIST**

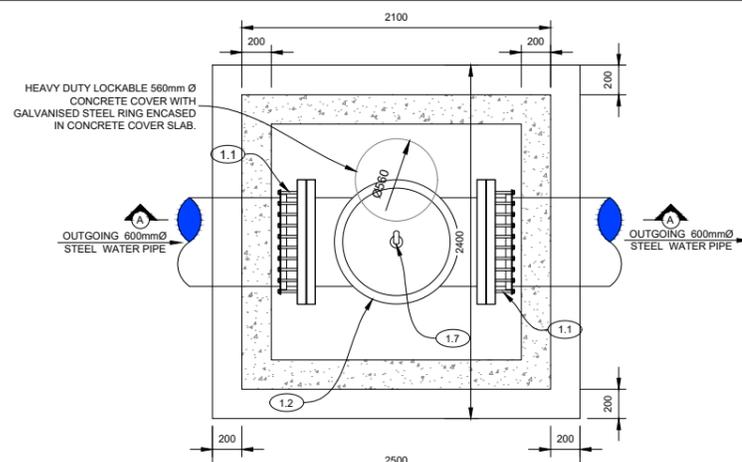
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	AMEND	DIMENSIONS
1.1	2	25	EP	600mm Ø FLANGE ADAPTOR TO SUIT INCOMING OPVC PIPE.	STANDARD	
1.2	1	25	EP	600mm Ø FLANGED MS EQUAL TEE-PIECE.		
1.3	1	25	EP	600 x 400mm Ø FLANGED MS CONCENTRIC REDUCER.		
1.4	1	25	EP	400 x 200mm Ø FLANGED MS CONCENTRIC REDUCER.		
1.5	1	25	EP	50mm Ø MS PIPE WITH ONE SIDE FLANGED AND THE OTHER SIDE A 200 x 50mm Ø REDUCING FLANGE		
1.6	1	25	FP	50mm Ø FLANGED RSV GATE VALVE, HANDWHEEL RIGHT HAND CLOSING.		
1.7	1	25	EP	50mm Ø MS FLANGED PIPE PIECE		
1.8	1	25	FP	50mm Ø DOUBLE ACTING AIR VALVE WITH ANTI-SHOCK MECHANISM	STANDARD	

**PIPE LIST**

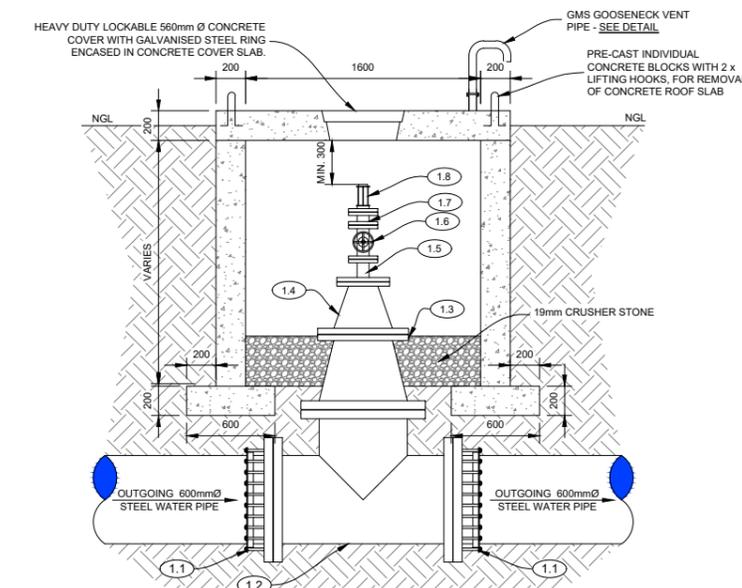
ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	AMEND	DIMENSIONS
2.1	2	25	EP	600mm Ø FLANGE ADAPTOR TO SUIT INCOMING OPVC PIPE.	STANDARD	
2.2	1	25	EP	600mm Ø FLANGED MS EQUAL TEE-PIECE.		
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**PIPE LIST**

ITEM	AMOUNT	CLASS	PROTECTION	DESCRIPTION	AMEND	DIMENSIONS
3.1	2	16	EP	600mm Ø FLANGE ADAPTOR TO SUIT INCOMING OPVC PIPE.	STANDARD	
3.2	1	16	EP	600mm Ø FLANGED MS EQUAL TEE-PIECE.		
3.3	1	16	EP	600 x 400mm Ø FLANGED MS CONCENTRIC REDUCER.		
3.4	1	16	EP	400 x 200mm Ø FLANGED MS CONCENTRIC REDUCER.		
3.5	1	16	EP	50mm Ø MS PIPE WITH ONE SIDE FLANGED AND THE OTHER SIDE A 200 x 50mm Ø REDUCING FLANGE		
3.6	1	16	FP	50mm Ø FLANGED RSV GATE VALVE, HANDWHEEL RIGHT HAND CLOSING.		
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3.8	1	16	FP	50mm Ø DOUBLE ACTING AIR VALVE WITH ANTI-SHOCK MECHANISM	STANDARD	

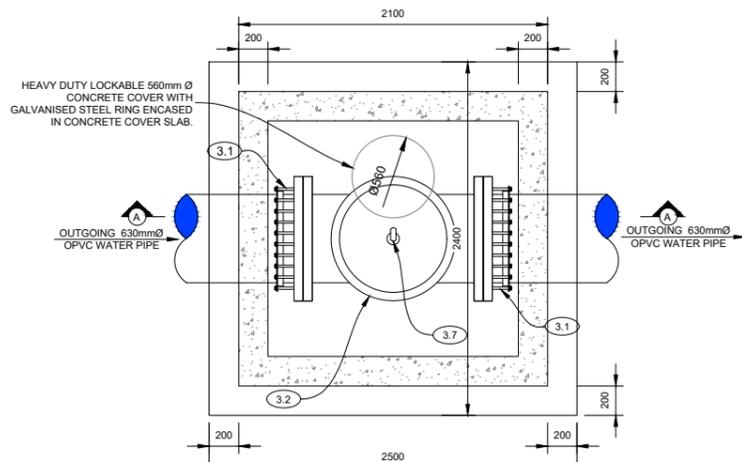


**PLAN VIEW: 50mmØ DOUBLE ACTING AIR VALVE ON 600mmØ PIPELINE**  
SCALE 1:25



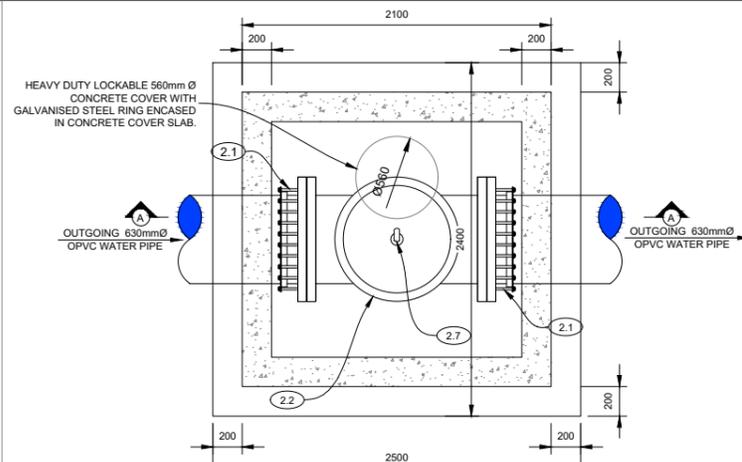
**SECTION A-A: 50mmØ DOUBLE ACTING AIR VALVE ON 600mmØ PIPELINE**  
SCALE 1:25

**DETAIL 1: TYPICAL DETAILS: 50mmØ DOUBLE ACTING AIR VALVE ON 600mmØ PIPELINE**

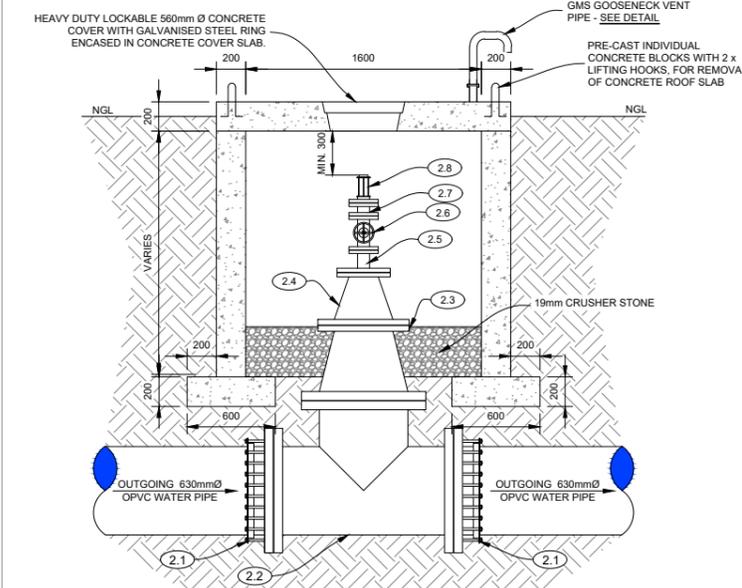


**PLAN VIEW: 50mmØ DOUBLE ACTING AIR VALVE ON 630mmØ PIPELINE**  
SCALE 1:25

**DETAIL 3: TYPICAL DETAILS: 50mmØ DOUBLE ACTING AIR VALVE ON 630mmØ PIPELINE**

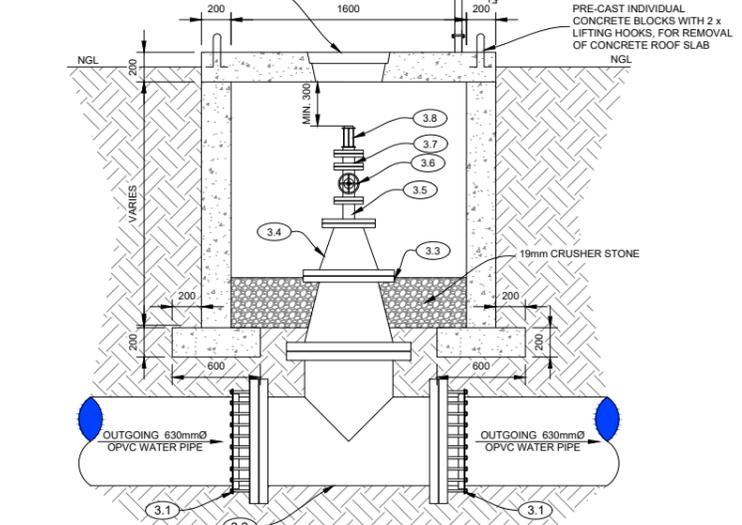


**PLAN VIEW: 50mmØ DOUBLE ACTING AIR VALVE ON 630mmØ PIPELINE**  
SCALE 1:25



**SECTION A-A: 50mmØ DOUBLE ACTING AIR VALVE ON 630mmØ PIPELINE**  
SCALE 1:25

**DETAIL 2: TYPICAL DETAILS: 50mmØ DOUBLE ACTING AIR VALVE ON 630mmØ PIPELINE**



**SECTION A-A: 50mmØ DOUBLE ACTING AIR VALVE ON 630mmØ PIPELINE**  
SCALE 1:25

**DETAIL 3: TYPICAL DETAILS: 50mmØ DOUBLE ACTING AIR VALVE ON 630mmØ PIPELINE**

FOR TENDER PURPOSES

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RA	REVISED PROJECT DESCRIPTION	2022/06/09	P.M
Rev	Description	Date	Dft Dsn
AMENDMENTS			

SERVICE: **DIENS**

**WATER**

DESIGNED/ONTWERP: J. LUCKHOFF  
 DRAWN/GETEKEN: M. DAVEL  
 CAD FILE NAME/CAD LEER NAAM: 3110W11005RA-009RA.dwg  
 CHECKED/INGESIEN: W.J. STRYDOM (nr)  
 APPROVED/GOEDGEKEUR: W.J. STRYDOM (nr)

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CLIENT: **Nkangala District Municipality**

PROJECT: **PROJEK**

**LOSKOP REGIONAL BULK WATER SUPPLY SCHEME: WORK PACKAGE 2**

TITLE: **BULK WATER PUMP MAIN: AIR VALVE ASSEMBLIES AND CHAMBERS SHEET 1 OF 7**

DATE/DATUM: **DECEMBER 2021**

SCALE/SKAAL: **A1 AS SHOWN**

SCALE REF. **SKAAL VERWYS.**

CONSULTANT DWG. NO. **N/3110/W/11/005/RA** KONSULTANT TEK. NR.

CLIENT DWG. NO. KLIËNT TEK. NO.