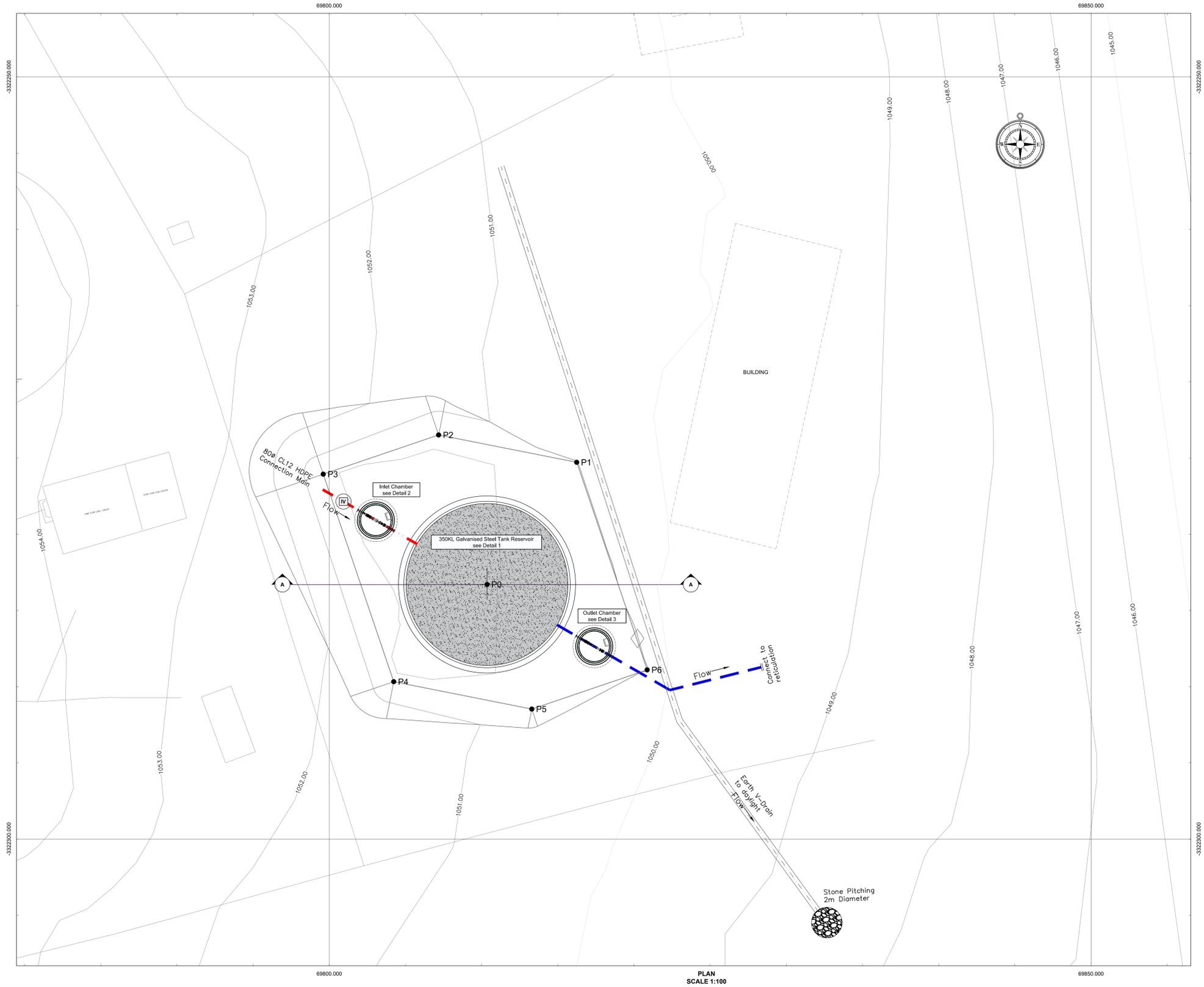
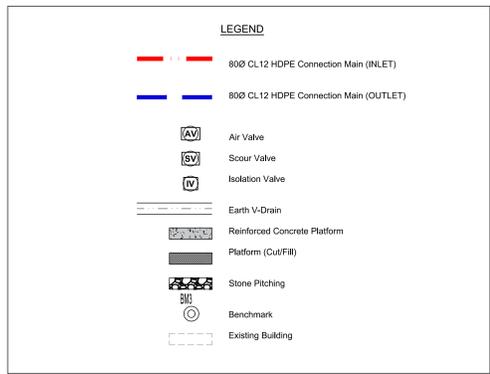


BENCHMARKS

COORDINATES			
POINT	Y	X	LEVEL
BM1	-3322240.958	70132.040	1020.650
BM2	-3322085.488	69933.216	1027.880
BM3	-3322162.166	69991.741	1030.530
BM4	-3322132.937	69914.076	1035.350

PLATFORM

COORDINATES			
POINT	Y	X	LEVEL
P0	-3322284.958	69608.488	0.000
P1	-3322276.942	69814.369	1050.300
P2	-3322275.144	69605.308	1050.220
P3	-3322277.719	69797.734	1050.372
P4	-3322291.335	69802.363	1050.300
P5	-3322293.133	69611.424	1050.100
P6	-3322290.558	69618.998	1050.156



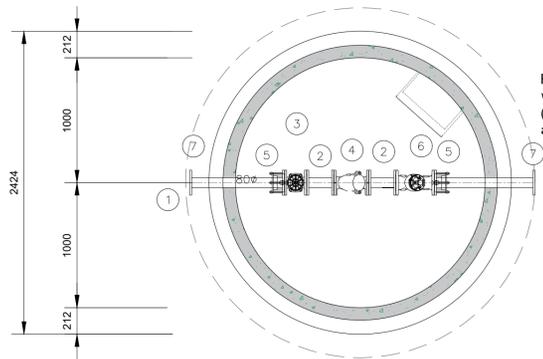
GENERAL NOTES

- Do not scale this drawing. Work to figure by dimensions, only. Any discrepancies to be brought to the Engineers attention prior to implementation of any work.
- Minimum concrete cube strength @ 28 days for blinding layer is to be 15MPa minimum concrete cube strength @ 28 days for walls, floor slabs, roof slabs, columns, foundations and external non-water retaining structure is to be 30MPa.
- Concrete cover specifications are to be in accordance with the contract document design specifications.
- Minimum cover to reinforcing all concrete members 25mm top & bottom.
 - PWJ - partial wall vertical joint
 - PFI - partial floor joint
- Engineer to inspect all reinforcement prior to casting concrete.
- 20x20mm chamfer on all exposed concrete edges unless otherwise noted.
- All steel flanges to S.A.B.S. 1123/77 table 1000/3 unless otherwise indicated.
- Brick work:
 - All exposed external brickwork satin red facebrick.
 - All internal brickwork to be clay commons, plastered and painted acrylic pva white.
 - Outer face of internal brickwork skin to be bagged and bitumen painted.
 - Brickforce at windowsill level and wall plate level all around building.
 - N.B : 4 coarse brickforce above windows and doors.
 - DPC at floor and windowsill levels.
- Plaster:
 - Cement plaster 12mm thick to internal vertical brick walls.
- Painting:
 - Prepare and apply two coats bitumen paint on brick skin including working around wire ties.
 - Prepare and apply one coat plaster primer and two coats approved pva acrylic paint to internal walls, fibre cement fascia and barge board.
 - Clean with spirits of salts solution and apply two coats silicone-based brick dressing in strict accordance with the manufacturer's instructions to external face brick walling.
 - Prepare and apply one coat plaster primer and one coat universal undercoat and one coat approved eggshell enamel paint on fibre cement sills.
 - Etch and apply one coat zinc primer, one undercoat and two finishing coats approved universal gloss enamel paint on steel sashes, frames, and burglar bars.
 - Prepare, stop and apply two coats approved varnish on hardwood doors and frames.
 - Prepare, knot prime stop, and apply one coat pink wood primer, one undercoat and two coats approved universal eggshell enamel paint on general surfaces of eaves timbers.
- All steel pipe specials to be rlsan lined and coated to specifications.
- All buried steel pipework & bolted connections to be 'denso' wrapped to specifications.
- All puddle pipes to be tape wrapped to specifications.
- All bolts & nuts to be hot dip galvanised, unless otherwise indicated.
- All construction activities shall be executed to the Engineer's approval.
- Setting out & final positioning of all steel pipework, including puddle pipes, to be confirmed by contractor on site, prior to fabrication and installation.

Project Manager: TSI CONSULTING ENG.	
Urban Planners	
Architects	
Quantity Surveyors	
Structural Engineers: TSI CONSULTING ENG.	
Civil Engineers: TSI CONSULTING ENG.	
Electrical Engineers	
Mechanical Engineers	
Landscape Architects	
Contractor	
CLIENT	
IMPLEMENTING AGENT	
PROJECT: ST APOLLINARIS HOSPITAL: 72 HOUR WATER STORAGE TANK	
TSI Consulting Engineers (Pty) Ltd PO Box 902 Kokstad 4700 Tel: _____ Fax: _____ Email: info@tsiengineers.co.za	
DRAWING: GENERAL LAYOUT	
STAGE: DETAIL DESIGN	
CLIENT'S SIGNATURE	
DRAWING USAGE	
APPROVED _____ Drawn by Date TSI Engineers (Pty) Ltd Checked by Date 02/04/2023 Scale: 1:100 @ A0 SIZE	Project No: TBC Date Drawn: 2023/04/12 Print Date: 2023/04/12
Layout ID: 1001	Revision: 00 Status: TENDER

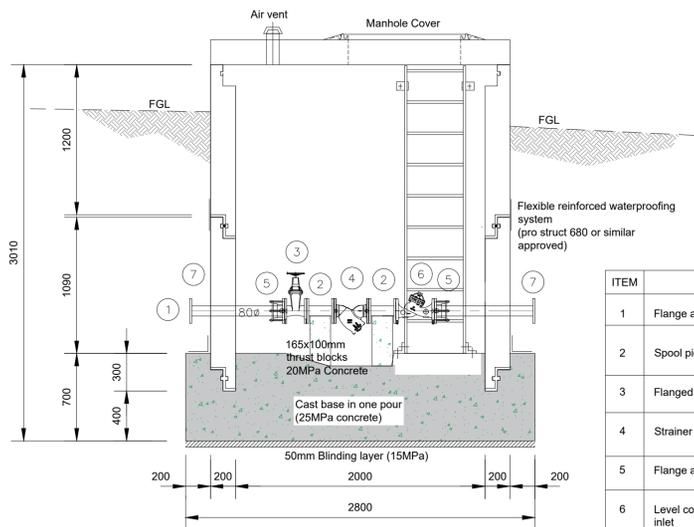
NOTES

- DO NOT SCALE THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY. ANY DISCREPANCIES TO BE BROUGHT TO THE ENGINEERS ATTENTION PRIOR TO IMPLEMENTATION OF ANY WORK.
- MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR BLINDING LAYER IS TO BE 15MPa MINIMUM CONCRETE CUBE STRENGTH @ 28 DAYS FOR FLOOR SLABS, ROOF SLABS, COLUMNS, FOUNDATIONS AND EXTERNAL NON-WATER RETAINING STRUCTURE IS TO BE 35MPa. CONCRETE COVER SPECIFICATIONS ARE TO BE IN ACCORDANCE WITH THE CONTRACT DOCUMENT DESIGN SPECIFICATIONS.
- MINIMUM COVER TO REINFORCING FLOOR/BASE SLAB 50mm TOP & BOTTOM
- WALLS - EARTH FACE 40mm
- WATER FACE 50mm
- ROOF SLAB - SOFFIT 50mm
- TOP 40mm
- COLUMNS 50mm
- PWJ - PARTIAL WALL VERTICAL JOINT PFJ - PARTIAL FLOOR JOINT
- ENGINEER TO INSPECT ALL REINFORCEMENT PRIOR TO CASTING CONCRETE.
- 20x20mm CHAMFER ON ALL EXPOSED CONCRETE EDGES UNLESS OTHERWISE NOTED.
- ALL STEEL FLANGES TO S.A.B.S. 1123/77 TABLE 1600/3 UNLESS OTHERWISE INDICATED
- ALL STEEL PIPE SPECIALS TO BE RILSAN LINED AND COATED TO SPECIFICATIONS.
- ALL BURIED STEEL PIPEWORK & BOLTED CONNECTIONS TO BE 'DENSO' WRAPPED TO SPECIFICATION
- ALL PUDDLE PIPE TO BE TAPE WRAPPED TO SPECIFICATION.
- ALL BOLTS & NUTS TO BE HOT DIP GALVANISED, UNLESS OTHERWISE INDICATED
- ALL CONSTRUCTION ACTIVITIES SHALL BE EXECUTED TO THE ENGINEERS APPROVAL.
- SETTING OUT & FINAL POSITIONING OF ALL STEEL PIPEWORK, INCLUDING PUDDLE PIPES, TO BE CONFIRMED BY CONTRACTOR ON SITE, PRIOR TO FABRICATION AND INSTALLATION.



INLET CHAMBER [DN2500mm Manhole]

PLAN
SCALE 1:25



INLET CHAMBER [DN2500mm Manhole]

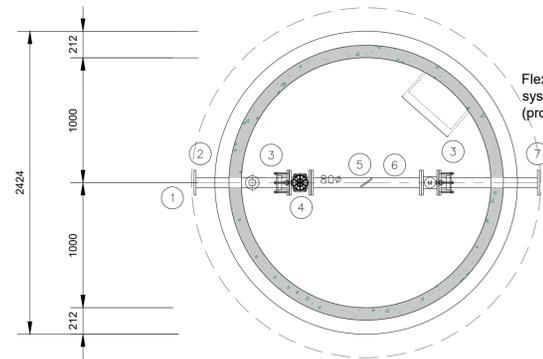
SECTION
SCALE 1:25

DETAIL 2

NOTES

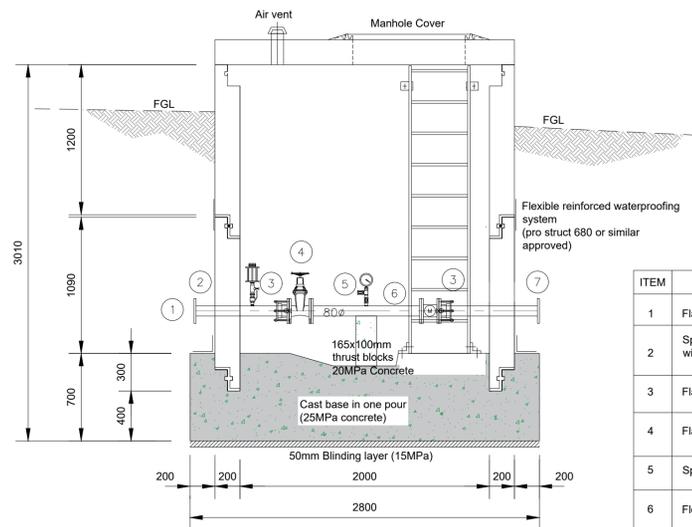
- Position of ventilator pipes to be decided on site refer to detail.
- Roof slab to be 150mm above NGL in undeveloped areas and to be in undeveloped areas and to be 50mm above NGL in developed areas
- 50mm above ngl in developed areas water main thrust block not shown
- Water main thrust block not shown

Flexible reinforced waterproofing system (pro struct 680 or similar approved)



OUTLET CHAMBER [DN2500mm Manhole]

PLAN
SCALE 1:25



OUTLET CHAMBER [DN2500mm Manhole]

SECTION
SCALE 1:25

DETAIL 3

NOTES

- Position of ventilator pipes to be decided on site refer to detail.
- Roof slab to be 150mm above NGL in undeveloped areas and to be in undeveloped areas and to be 50mm above NGL in developed areas
- 50mm above ngl in developed areas water main thrust block not shown
- Water main thrust block not shown

Flexible reinforced waterproofing system (pro struct 680 or similar approved)

CLASS 16 INLET CHAMBER DETAILS

ITEM	DESCRIPTION	QTY	Diameter, Length
1	Flange adaptor steel to UPVC.	1	80mmØ
2	Spool piece flanged both ends.	2	80mmØ ±215mm Long
3	Flanged RSV Non-rising spindle gate valve	1	80mmØ
4	Strainer F.B.E	2	80mmØ
5	Flange adaptor.	1	80mmØ
6	Level control valve with float pilot, PN16 to reservoir inlet	1	80mmØ
7	Spool pipe connection to reservoir inlet, F.O.E	1	80mmØ, Length to suit

CLASS 16 OUTLET CHAMBER DETAILS

ITEM	DESCRIPTION	QTY	Diameter, Length
1	Flange adaptor steel to UPVC.	1	80mmØ
2	Spool pipe connection to reservoir outlet, F.O.E. Fitted with Air Valve as shown	2	80mmØ, ±730mm Long to suit
3	Flange adaptor	2	80mmØ
4	Flanged RSV Non-rising spindle gate valve	1	80mmØ
5	Spool pipe, F.O.E fitted with Pressure Gauge	1	80mmØ
6	Flow Meter	1	80mmØ
7	Spool pipe connection to reticulation, F.O.E	1	80mmØ, +/-750mm to suit

Rev	Desc	Change history	Date

Project Manager	TSI CONSULTING ENG.
Urban Planners	
Architects	
Quantity Surveyors	
Structural Engineers	TSI CONSULTING ENG.
Civil Engineers	TSI CONSULTING ENG.
Electrical Engineers	
Mechanical Engineers	
Landscape Architects	
Contractor	
CLIENT	

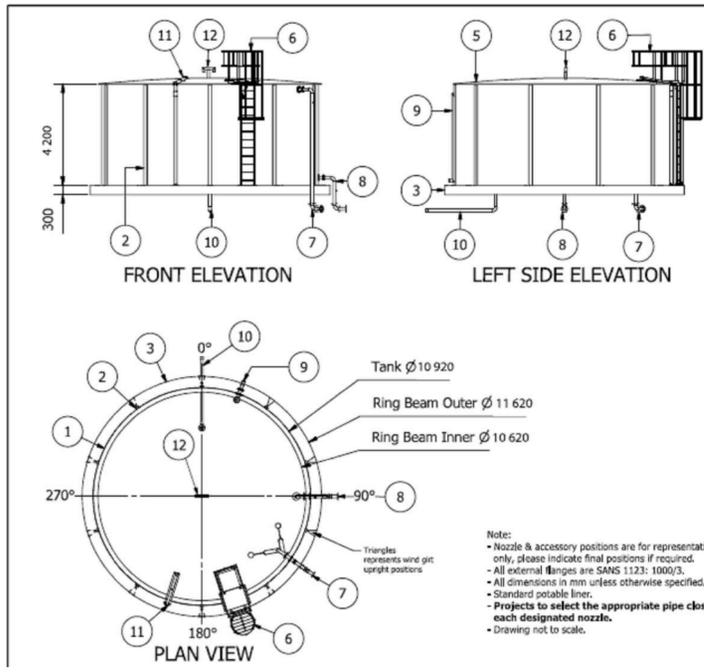
IMPLEMENTING AGENT	

PROJECT	ST APOLLINARIS HOSPITAL: 72 HOUR WATER STORAGE TANK
---------	----------------------------------------------------------------

TSI Consulting Engineers (Pty) Ltd	
PO Box 902 Kokstad 4700	Tel : Fax : Email : info@tsiengineers.co.za

DRAWING	
DETAILS 2 & 3: INLET AND OUTLET CHAMBER	

STAGE	DETAIL DESIGN
CLIENT'S SIGNATURE	
DRAWING USAGE	
APPROVED	Client Tsweni
Project No:	TBC
Drawn by Date	2023/04/12
Checked by Date	2023/04/12
Scale	1:20 @ A1 SIZE
Layout ID	1003
Revision	00
Status	TENDER

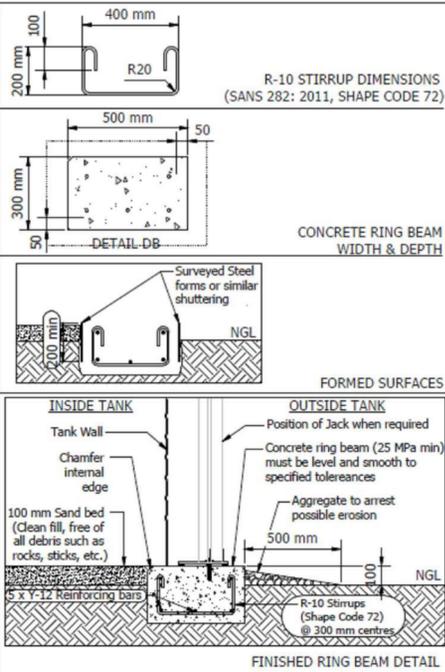
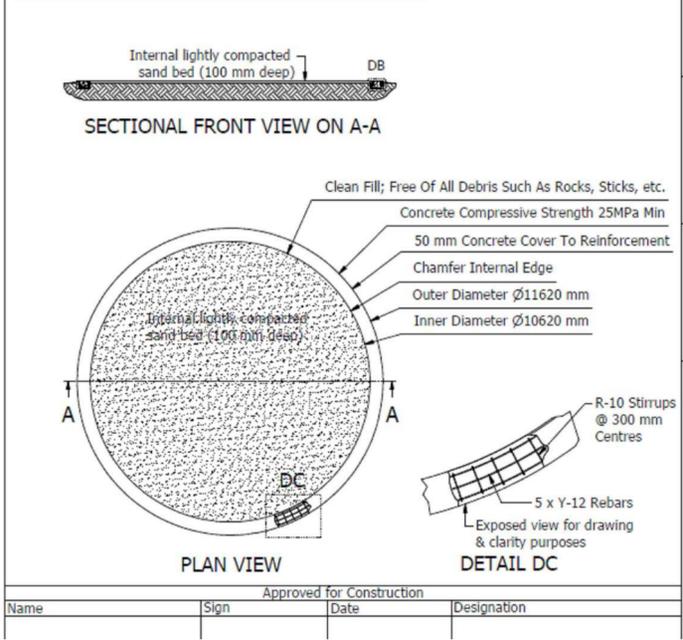


PARTS LIST			
ITEM	QTY	PART NUMBER	DESCRIPTION
1	1	Tank Wall Panels	Zincalume Steel Panels, Steel Grade G300, with AZ150 Heavy Duty Coating.
2	16	Wind Girts	Wind Girts are made from 2,4 mm hot dipped galvanised sheet metal, Punched and bent into profile.
3	1	Concrete Ring Beam	Reinforced, 25MPa min.
4	1	Truss Set (not shown)	Made from SHS (300 MPa min) and EA steel. Hot dipped galvanised after fabrication.
5	1	Dome Roof	Zincalume corrugated sheets, 0,47 mm thick, Grade G550, with AZ150 coating.
6	1	Tank Access	Fixed, internal & external ladders, safety cage, platform, access hatch and hand rails.
7	1	Inlet - 80NB	Internal dual valve adaptor, 2 x Balem 411 float control valves (2 x Steam socket extensions, 2 x hex nipples & 2 x plastic ceiling tubes), external downpipe (terminates below ground), ext flange complete with pipe closure & pipe clamp(s).
8	1	Outlet - 80NB	Internal anti-vortex (Standard), external downpipe (terminates below ground), ext flange complete with pipe closure.
9	1	Overflow - 100NB	Internal bellmouth, external downpipe with grooved termination complete with pipe clamp(s).
10	1	Scour - 80NB	Internal flange, external threaded female socket with nipple and ball valve.
11	1	Water Level Indicator	5 Rings
12	2	Ventilator	Static, 76 x 76 SHS.

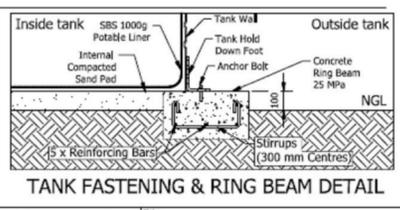
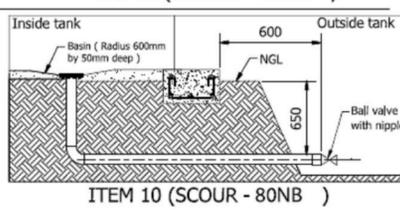
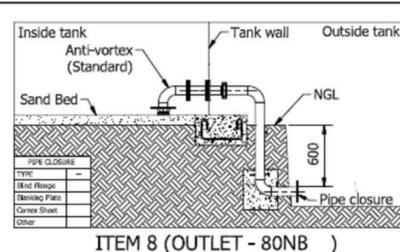
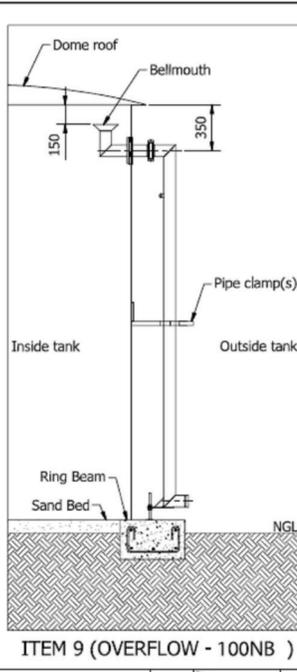
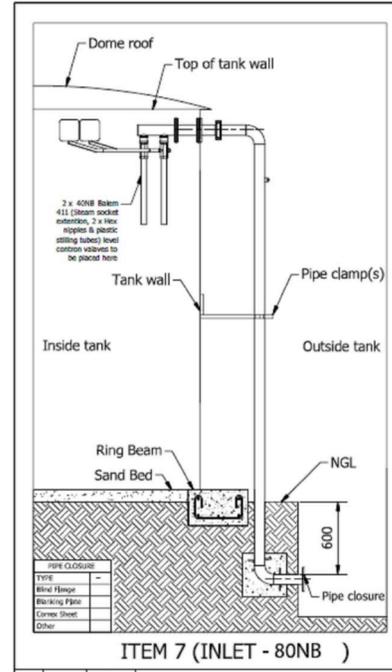
TANK & PROJECT DETAILS				
QUOTE No.	PROJECT	TANK MODEL	GROSS	EFFECTIVE
	ST. Apollinaris Hospital	ST16/04	394 kl	

Note:
 • Nozzle & accessory positions are for representation only, please indicate final positions if required.
 • All external flanges are SANS 1123: 1000/3.
 • All dimensions in mm unless otherwise specified.
 • Standard potable liner.
 • Projects to select the appropriate pipe closure for each designated nozzle.
 • Drawing not to scale.

ST16 CONCRETE RING BEAM - NOT TO SCALE



Approved for Construction			
Name	Sign	Date	Designation



Project Manager	TSI CONSULTING ENG.
Urban Planners	
Architects	
Quantity Surveyors	
Structural Engineers	TSI CONSULTING ENG.
Civil Engineers	TSI CONSULTING ENG.
Electrical Engineers	
Mechanical Engineers	
Landscape Architects	
Contractor	
CLIENT	
 KWAZULU-NATAL PROVINCE HEALTH REPUBLIC OF SOUTH AFRICA	
IMPLEMENTING AGENT	
 KWAZULU-NATAL PROVINCE HEALTH REPUBLIC OF SOUTH AFRICA	
PROJECT	ST APOLLINARIS HOSPITAL: 72 HOUR WATER STORAGE TANK
 TSI Consulting Engineers (Pty) Ltd PO Box 902 Tel: Fax: Inhlabane 4700 Email: info@tsiconsulting.co.za	

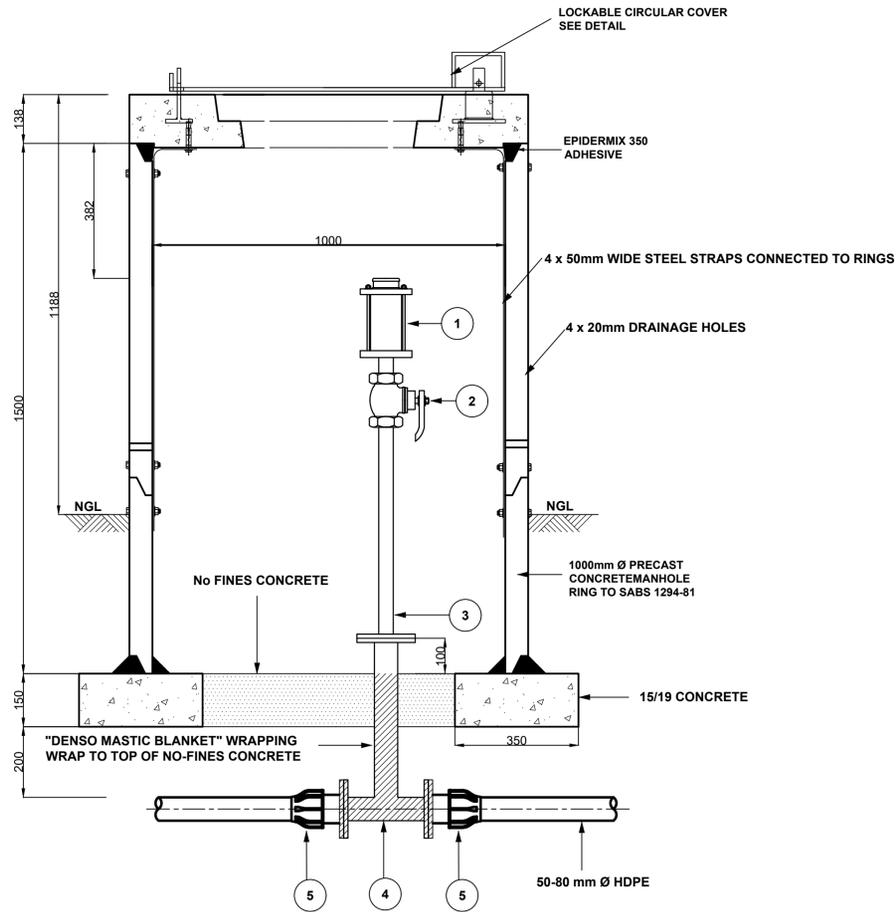
DETAILS 1: 350KL RESERVOIR

STAGE: **DETAIL DESIGN**

CLIENT'S SIGNATURE: _____

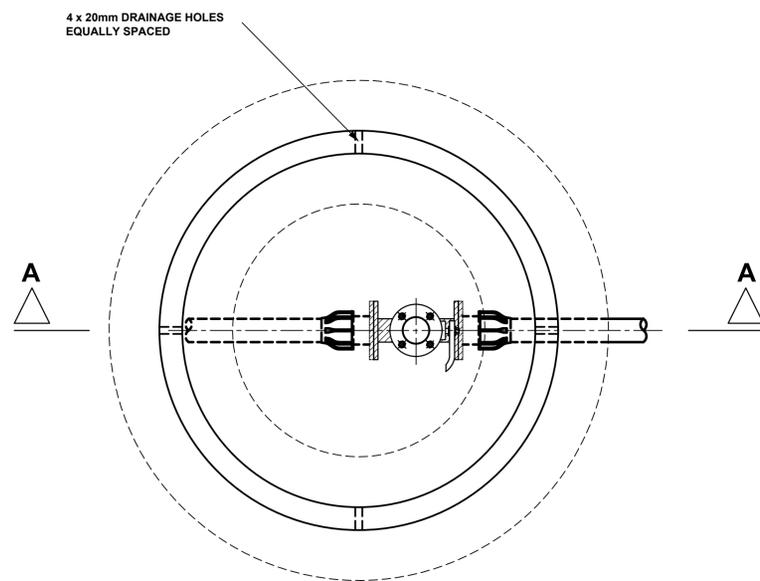
DRAWING USAGE: _____

APPROVED	Client	Project No:
	Tsveni	ST APP05
Drawn by Date:	TSI Engineers (Pty) Ltd	Date Drawn:
2023/04/12		2023/04/12
Checked by Date:		Print date:
2023/04/12		2023/04/12
Scale:	NTS	@ A1 SIZE
Layout ID:	Revision:	Status:
1004	00	TENDER



FITTINGS SCHEDULE FOR PIPES

ITEM No.	DIA.	DESCRIPTION	No. OFF
①	25 (50)	VENT-O-MAT AIR VALVE 025-RBX-16-1-1 OR 050-RBX-16-1-1	1
②	25 (50)	GLEN BALL VALVE	1
③	25 (50)	GMS STRAIGHT, THREADED ONE END, FLANGED ONE END 600mm, CONFIRM LENGTH ON SITE	1
④	50	EQUAL TEE, FLANGED ALL ENDS. T 450mm LONG	1
⑤	50	COMPRESSION FLANGE ADAPTER	2
⑥	50-80	COMPRESSION REDUCER	2



NOTES

- The Contractor shall excavate each trench such that the width conforms to the requirements of Subclause 5.2 of SABS 1200 DB or as shown in the drawing.
- The Contractor shall prepare the trench bottom in accordance with the requirements of SABS 1200 DB, apply bedding and fill according to SABS 1200 LB awing LB-2
- No bedding shall be laid until the Engineer has approved the trench, measured the depth if necessary, and authorized pipe laying to proceed.
- In the placing of bedding, all voids under the overhang of the pipes shall be filled and the compaction shall be carried out uniformly on each side of the pipe so as not to cause any lateral or vertical displacement of the pipe.
- Bedding shall be carried out as pipe laying proceeds, and shall be completed before the acceptance test is carried out.
- Pipes and fittings shall be fitted with spigot and socket rubber ring joints and shall comply with the relevant requirements of SABS 966.
- The degree of compaction attained for bedding (other than concrete and the material over the top of the pipeline) shall be 90 % of modified AASHTO maximum density (see 6.1).
- The Engineer may order density tests to be carried out to determine the density and grading of the bedding.
- The tests may be carried out by the sand replacement method or, where the grading of the bedding is such that the particle size is not less than 0,075 mm and not more than 2 mm, by use of a dynamic cone penetrometer. If the density is below that specified, the Engineer may order removal and recompaction.
- As the work proceeds, pipelines shall be tested in convenient lengths by means of test equipment supplied by the Contractor. Each test shall be carried out in the presence of the Engineer or his representative.
- The Contractor shall be responsible for carrying out all tests and for all expenses incurred in this connection.
- The hydraulic test shall be repeated until the Engineer is satisfied that the section under test complies with the said requirement.

- ALL DIMENSIONS IN MILLIMETRES
- CONCRETE TO BE CLASS 15/19 UNLESS OTHERWISE SPECIFIED
- COVER TO REINFORCEMENT TO BE 40mm
- AIR VALVE TO BE POSITIONED ABOVE NGL
- ALL FLANGES TO MINIMUM 1 600 kPA OR TO SUIT PIPE CLASS
- ALL THREADS TO BSP STANDARDS
- ALL BURIED FITTINGS AND HINGES TO BE WRAPPED IN "DENSO MASTIC BLANKET" TAPE
- ALL STEEL COMPONENTS INCLUDING BOLTS GALVANISED TO ISO 1461 : 2000
- ALL WELDS TO BE FULL PENETRATION TO BS 534 AND FILLET WELD TO BE 80% OF WALL THICKNESS OR WITH A MINIMUM OF 5mm

Project Manager
Urban Planners
Architects
Quantity Surveyors -
Structural Engineers - TSI CONSULTING ENG.
Civil Engineers - TSI CONSULTING ENG.
Electrical Engineers
Mechanical Engineers
Landscape Architects -
Contractor

CLIENT

IMPLEMENTING AGENT

PROJECT

**ST APOLLINARIS HOSPITAL:
72 HOUR WATER STORAGE TANK**

TSI Consulting Engineers (Pty) Ltd
PO Box 902
Kokstad
4700

DRAWING

DETAIL: AIR VALVE DETAILS FOR 50-80 DIA

STAGE **DESIGN DEVELOPMENT**

CLIENT'S SIGNATURE

DRAWING USAGE

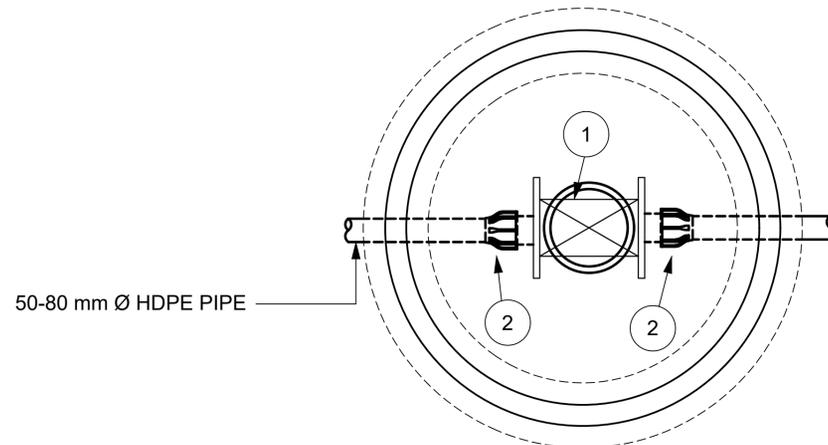
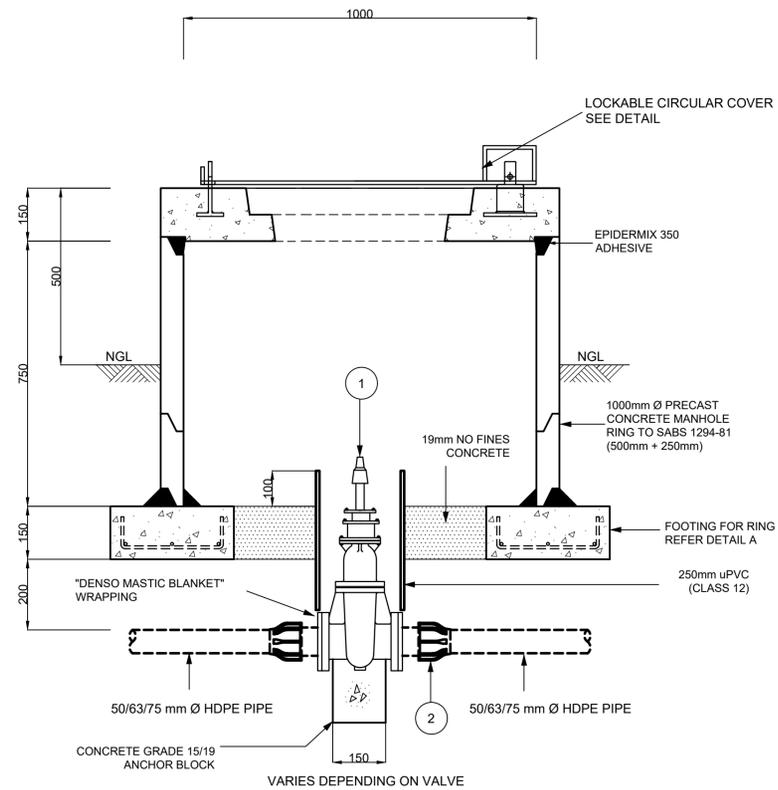
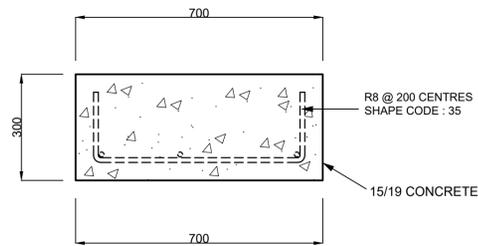
APPROVED	Client	Project No
	Tenant	ST APP05
Drawn by Date	TSI CONSULTING ENGINEERS	Date Drawn:
Checked by Date		2023/03/22
Scale: 1:100, 1:50	@ A1 SIZE	Print date:
		2023/03/22

Layout ID	Revision	Status
1005	00	FOR TENDER

FITTINGS SCHEDULE FOR PIPES

ITEM No.	DIA.	DESCRIPTION	No. OFF
①	75-80	GATE VALVE CLASS 16	1
②	50-80	* COMPRESSION FLANGE ADAPTER FOR HDPE PIPES	1

*1. SIZE AND TYPE OF ISOLATING VALVE IN ACCORDANCE WITH DETAILS SHOWN ON LAYOUT DRAWING
 *2. DIAMETER OF CONNECTING PIPE WORK AND FITTINGS TO SUIT SIZE OF ISOLATING VALVE.



NOTES

- The Contractor shall excavate each trench such that the width conforms to the requirements of Subclause 5.2 of SABS 1200 DB or as shown in the drawing.
- The Contractor shall prepare the trench bottom in accordance with the requirements of SABS 1200 DB, apply bedding and fill according to SABS 1200 LB awing LB-2
- No bedding shall be laid until the Engineer has approved the trench, measured the depth if necessary, and authorized pipe laying to proceed.
- In the placing of bedding, all voids under the overhang of the pipes shall be filled and the compaction shall be carried out uniformly on each side of the pipe so as not to cause any lateral or vertical displacement of the pipe.
- Bedding shall be carried out as pipe laying proceeds, and shall be completed before the acceptance test is carried out.
- Pipes and fittings shall be fitted with spigot and socket rubber ring joints and shall comply with the relevant requirements of SABS 966.
- The degree of compaction attained for bedding (other than concrete and the material over the top of the pipeline) shall be 90 % of modified AASHTO maximum density (see 6.1).
- The Engineer may order density tests to be carried out to determine the density and grading of the bedding.
- The tests may be carried out by the sand replacement method or, where the grading of the bedding is such that the particle size is not less than 0,075 mm and not more than 2 mm, by use of a dynamic cone penetrometer. If the density is below that specified, the Engineer may order removal and recompaction.
- As the work proceeds, pipelines shall be tested in convenient lengths by means of test equipment supplied by the Contractor. Each test shall be carried out in the presence of the Engineer or his representative.
- The Contractor shall be responsible for carrying out all tests and for all expenses incurred in this connection.
- The hydraulic test shall be repeated until the Engineer is satisfied that the section under test complies with the said requirement.

- ALL DIMENSIONS IN MILLIMETRES
- CONCRETE TO BE CLASS 15/19 UNLESS OTHERWISE SPECIFIED
- COVER TO REINFORCEMENT TO BE 40mm
- AIR VALVE TO BE POSITIONED ABOVE NGL TO SUIT PIPE CLASS
- ALL FLANGES TO MINIMUM 1 600 KPA OR TO SUIT PIPE CLASS
- ALL THREADS TO BSP STANDARDS
- ALL BURIED FITTINGS AND HINGES TO BE WRAPPED IN "DENSO MASTIC BLANKET" TAPE
- ALL STEEL COMPONENTS INCLUDING BOLTS GALVANISED TO ISO 1461 : 2009
- ALL WELDS TO BE FULL PENETRATION TO BS 534 AND FILLET WELD TO BE 80% OF WALL THICKNESS OR WITH A MINIMUM OF 5mm

Project Manager	
Urban Planners	
Architects	
Quantity Surveyors	-
Structural Engineers	- TSI CONSULTING ENG.
Civil Engineers	- TSI CONSULTING ENG.
Electrical Engineers	
Mechanical Engineers	
Landscape Architects	-
Contractor	

CLIENT

IMPLEMENTING AGENT

PROJECT

**ST APOLLINARIS HOSPITAL:
72 HOUR WATER STORAGE TANK**

TSI Consulting Engineers (Pty) Ltd

PO Box 902
Kokstad
4700

DRAWING

DETAIL: 50-80 DIA ISOLATION VALVE TYPICAL DETAILS

STAGE **DESIGN DEVELOPMENT**

CLIENT'S SIGNATURE

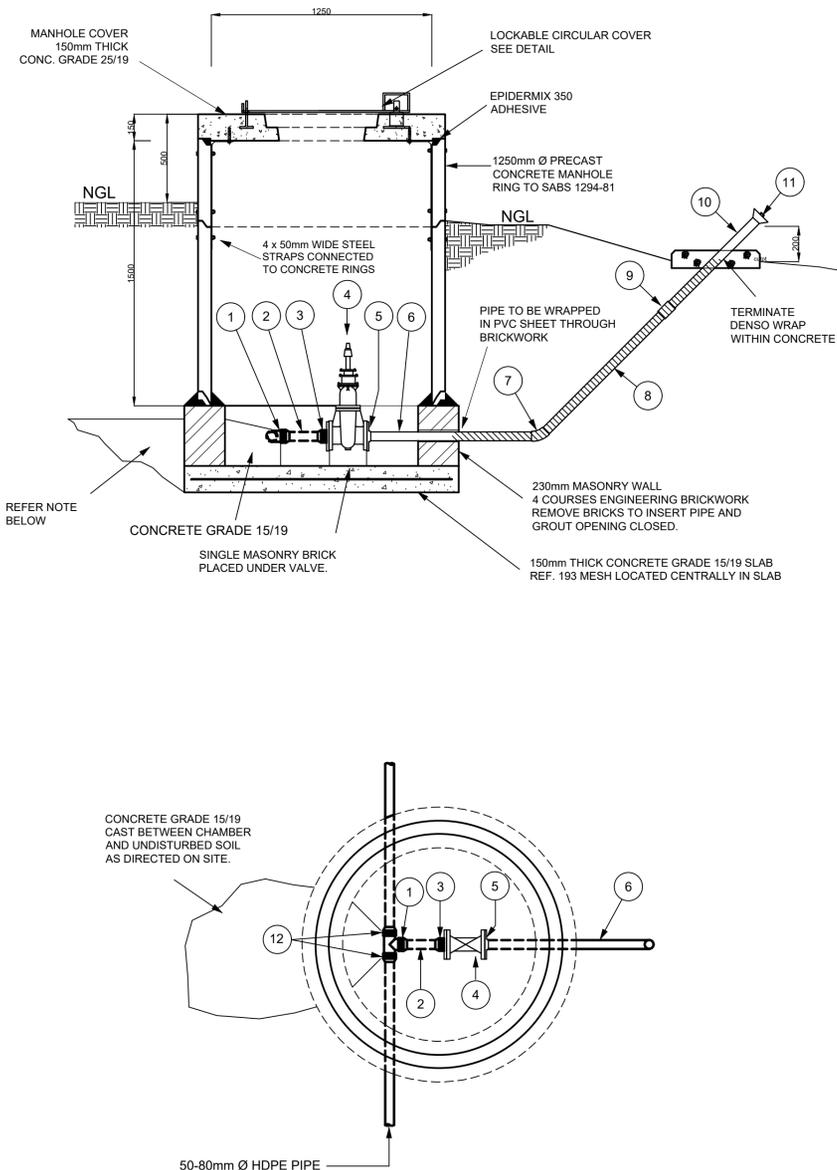
DRAWING USAGE

APPROVED	Client	Project No
	Tenant	ST APP05
Drawn by	Date	Date Drawn
TSI CONSULTING ENGINEERS		2023/03/22
Checked by	Date	Print date
		2023/03/22
Scale:	1:100, 1:50	@ A1 SIZE

Layout ID	Revision	Status
1006	00	FOR TENDER

FITTINGS SCHEDULE FOR PIPES

ITEM No.	DIA.	DESCRIPTION	No. OFF
①	50	50 Ø EQUAL TEE, HDPE COMPRESSION FITTING	1
②	50	HDPE STRAIGHT PIPE, CLASS 10 220mm LONG	1
③	50	FLANGE ADAPTOR HDPE COMPRESSION FITTING	1
④	50	WATERWORKS GATE VALVE TO SABS 664	1
⑤	50	FLANGE ADAPTOR FOR THREADED GMS PIPE	1
⑥	50	GMS STRAIGHT PIPE, THREADED BOTH ENDS 900mm LONG, CONFIRM LENGTH ON SITE	1
⑦	50	GMS ELBOW, FOR THREADED GMS PIPE	1
⑧	50	GMS STRAIGHT PIPE, THREADED BOTH ENDS 1120mm LONG, CONFIRM LENGTH ON SITE	1
⑨	50	COUPLING, FOR THREADED GMS PIPE	1
⑩	50	GMS STRAIGHT PIPE THREADED BOTH ENDS 800mm, CONFIRM LENGTH ON SITE	1
⑪	50	JET DISPENSER	1
⑫	50-80	COMPRESSION REDUCER	2



NOTES

- The Contractor shall excavate each trench such that the width conforms to the requirements of Subclause 5.2 of SABS 1200 DB or as shown in the drawing.
- The Contractor shall prepare the trench bottom in accordance with the requirements of SABS 1200 DB, apply bedding and fill according to SABS 1200 LB awing LB-2
- No bedding shall be laid until the Engineer has approved the trench, measured the depth if necessary, and authorized pipe laying to proceed.
- In the placing of bedding, all voids under the overhang of the pipes shall be filled and the compaction shall be carried out uniformly on each side of the pipe so as not to cause any lateral or vertical displacement of the pipe.
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- ALL STEEL COMPONENTS INCLUDING BOLTS GALVANISED TO ISO 1461 : 2000
- ALL WELDS TO BE FULL PENETRATION TO BS 534 AND FILLET WELD TO BE 80% OF WALL THICKNESS OR WITH A MINIMUM OF 5mm

Project Manager	
Urban Planners	
Architects	
Quantity Surveyors	-
Structural Engineers	- TSI CONSULTING ENG.
Civil Engineers	- TSI CONSULTING ENG.
Electrical Engineers	
Mechanical Engineers	
Landscape Architects	-
Contractor	



PROJECT
**ST APOLLINARIS HOSPITAL:
 72 HOUR WATER STORAGE TANK**



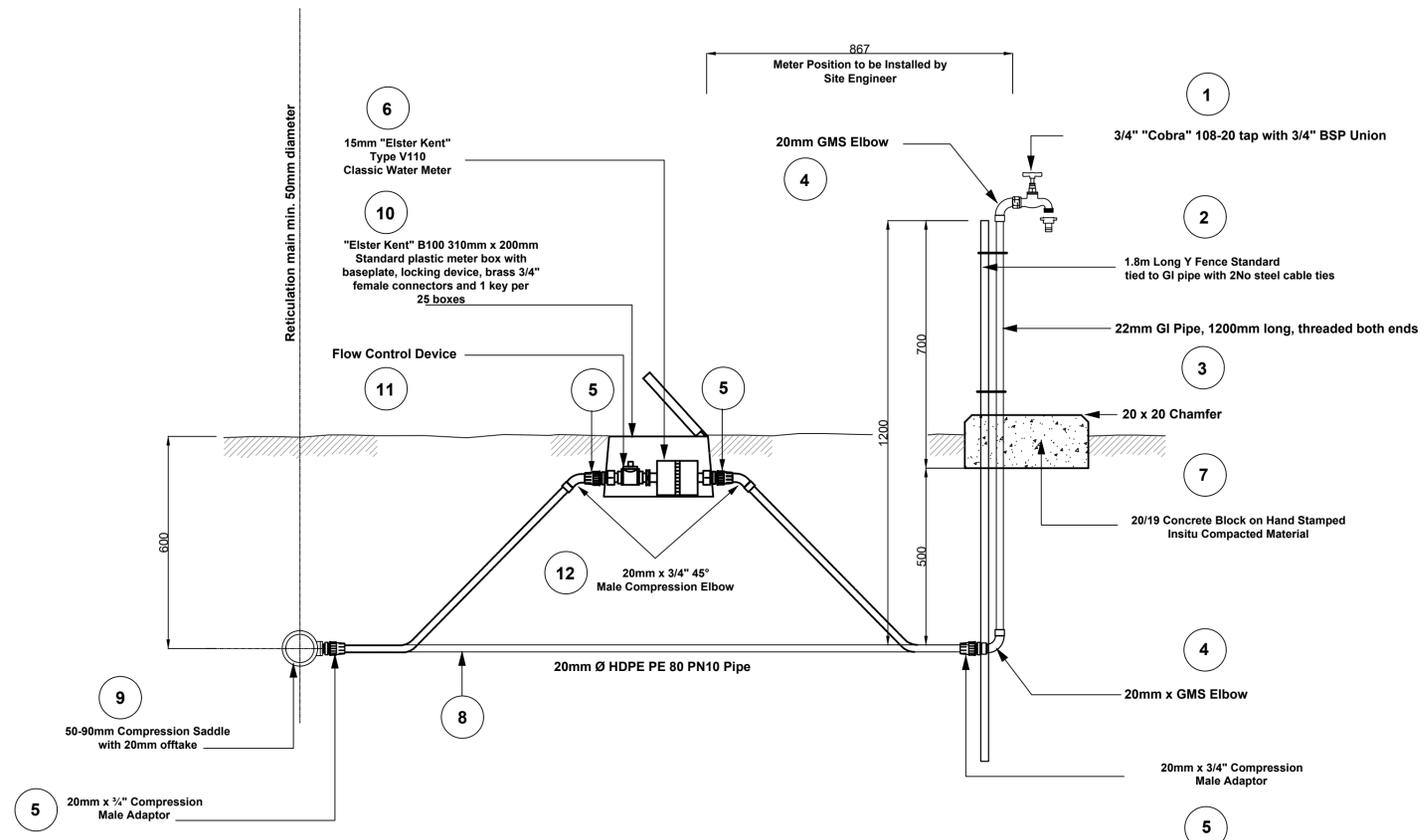
TSI Consulting Engineers (Pty) Ltd
 PO Box 902
 Kokstad
 4700

DRAWING
**DETAIL: 50-80 DIA SCOUR VALVE TYPICAL
 DETAILS**

STAGE **DESIGN DEVELOPMENT**
 CLIENT'S SIGNATURE
 DRAWING USAGE

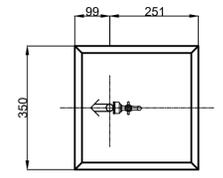
APPROVED	Client	Project No
	Tenant	ST APP05
Drawn by Date	TSI CONSULTING ENGINEERS	Date Drawn:
Checked by Date		2023/03/22
Scale:	1:100, 1:50	Print date:
	@ A1 SIZE	2023/03/22

Layout ID	Revision	Status
1007	00	FOR TENDER



FITTINGS SCHEDULE

ITEM	DESCRIPTION	No. OFF
1	3/4" "COBRA" 108-20 TAP WITH 3/4" BSP UNION	1
2	1800mm LONG Y FENCE STANDARD TIE TO GALVANISED IRON PIPE WITH No. 2 CABLE TIES	1
3	22mm GALVANISED IRON PIPE 1200mm LONG, THREADED BOTH ENDS	1
4	20mm GMS ELBOW	2
5	20mm x 3/4" COMPRESSION MALE ADAPTOR	4
6	15mm "ELASTER" TYPE V110 CLASSIC WATER METER	1
7	20/19 CONCRETE BLOCK ON HAND STAMPED INSITU COMPACTED MATERIAL	1
8	20mm Ø HDPE PE 80 PN10 PIPE	10m
9	50/63/75/90mm COMPRESSION SADDLE WITH 20mm OFFTAKE	1
10	"ELSTER KENT" B100 310mm x 200mm STANDARD PLASTIC METER BOX WITH BASEPLATE, LOCKING DEVICE, BRASS 3/4" FEMALE CONNECTORS AND 1 KEY PER 25 BOXES	1
11	FLOW CONTROL DEVICE ("SMARTFLO")	1
12	20mm x 3/4" 45° MALE COMPRESSION ELBOW	2



- NOTES**
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Contractor

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IMPLIMENTING AGENT

PROJECT

**ST APOLLINARIS HOSPITAL:
72 HOUR WATER STORAGE TANK**

TSI Consulting Engineers (Pty) Ltd
PO Box 902
Kokstad
4700

DRAWING

DETAIL: YARD TAP DETAILS WITH FLOW CONTROLLER

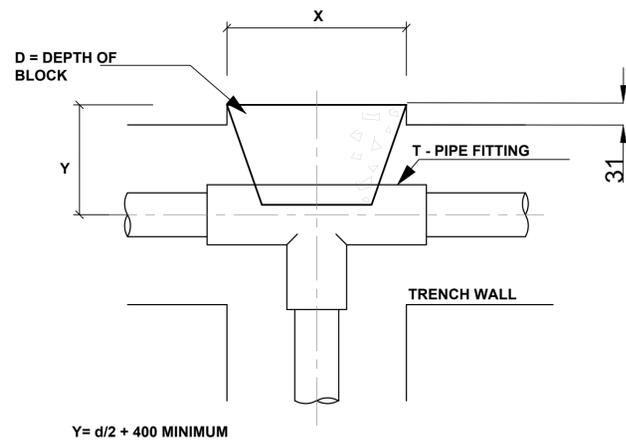
STAGE **DESIGN DEVELOPMENT**

CLIENT'S SIGNATURE

DRAWING USAGE

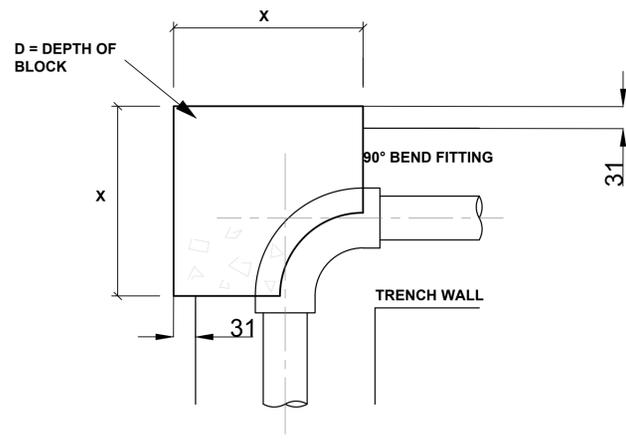
APPROVED	Client	Project No
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TSI CONSULTING ENGINEERS		2023/03/22
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Layout ID	Revision	Status
1008	00	FOR TENDER



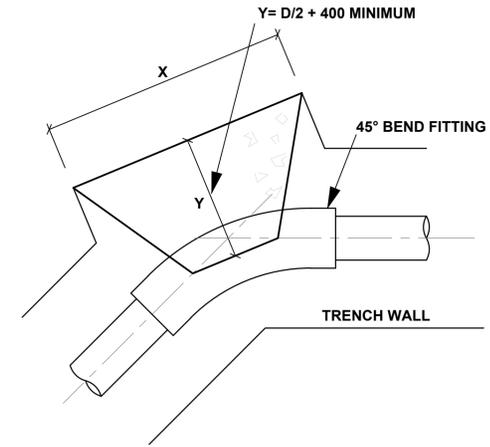
TEE CONNECTION THRUST BLOCK FOR PRESSURE PIPELINE

PIPE (mm)	X (mm)	D (mm)
50	300	150
75	300	150
80	400	200
110	500	250
160	600	300



90° BEND THRUST BLOCK FOR PRESSURE PIPELINE

PIPE (mm)	X (mm)	D (mm)
50	560	225
75	560	225
80	650	300
110	730	375
160	825	450

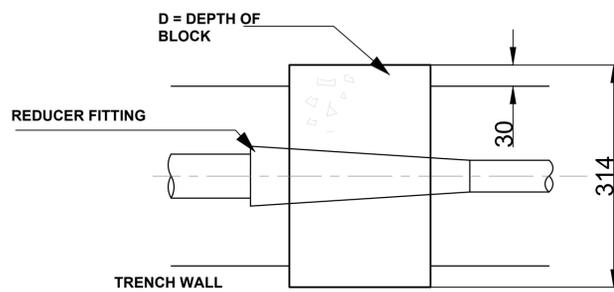


45°/22.5° BEND THRUST BLOCK FOR PRESSURE PIPELINE

PIPE (mm)	X (mm)	D (mm)
50	300	150
75	300	150
80	400	200
110	500	250
160	600	300

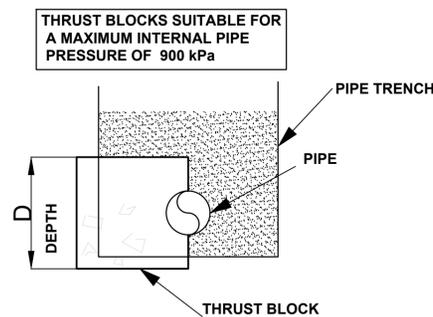
NOTES

- The Contractor shall excavate each trench such that the width conforms to the requirements of Subclause 5.2 of SABS 1200 DB or as shown in the drawing.
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REDUCER CONNECTION THRUST BLOCK FOR PRESSURE PIPELINE

PIPE (mm)	X (mm)	D (mm)
80	700	300
110	700	300
160	700	300



TYPICAL SECTION

- BACKSIDE OF THRUST BLOCK TO BE ON UNDISTURBED GROUND.
- CONCRETE GRADE 15/19 FOR ALL THRUST BLOCKS.
- d = PIPE Ø

Project Manager	
Urban Planners	
Architects	
Quantity Surveyors	-
Structural Engineers	- TSI CONSULTING ENG.
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Landscape Architects	-
Contractor	



PROJECT
ST APOLLINARIS HOSPITAL:
72 HOUR WATER STORAGE TANK



TSI Consulting Engineers (Pty) Ltd
PO Box 902
Kokstad
4700

DRAWING
DETAIL: THRUST BLOCK

STAGE **DESIGN DEVELOPMENT**
CLIENT'S SIGNATURE
DRAWING USAGE

APPROVED	Client	Project No
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Drawn by Date	TSI CONSULTING ENGINEERS	Date Drawn
Checked by Date		2023/03/22
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		2023/03/22

Layout ID **1009** Revision **00** Status **FOR TENDER**

NOTES

- 1: THESE UNITS TO BE PROVIDED FOR MAN HOLES AND WHERE EVER ELSE ORDERED BY ENGINEER.
- 2: ALL COMPONENTS TO BE MILD STEEL HOT DIPPED GALVANISED.
- 3: 14 Ø HOLE IN ITEM B TO SUIT ABUS PADLOCK.
- 4: ASSEMBLY TO BE PLACED CENTRALLY ACROSS MANHOLE/OPENING.
- 5: ALL CORNERS TO BE 10mm Ø RADIUS AS SHOWN.
- 6: ALL DIMENSIONS IN MILLIMETERS.

Project Manager
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Architects
Quantity Surveyors -
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Contractor

CLIENT



IMPLIMENTING AGENT



PROJECT

**ST APOLLINARIS HOSPITAL:
72 HOUR WATER STORAGE TANK**



TSI Consulting Engineers (Pty) Ltd
PO Box 902
Kokstad
4700

DRAWING

DETAIL: LOCKING BAR

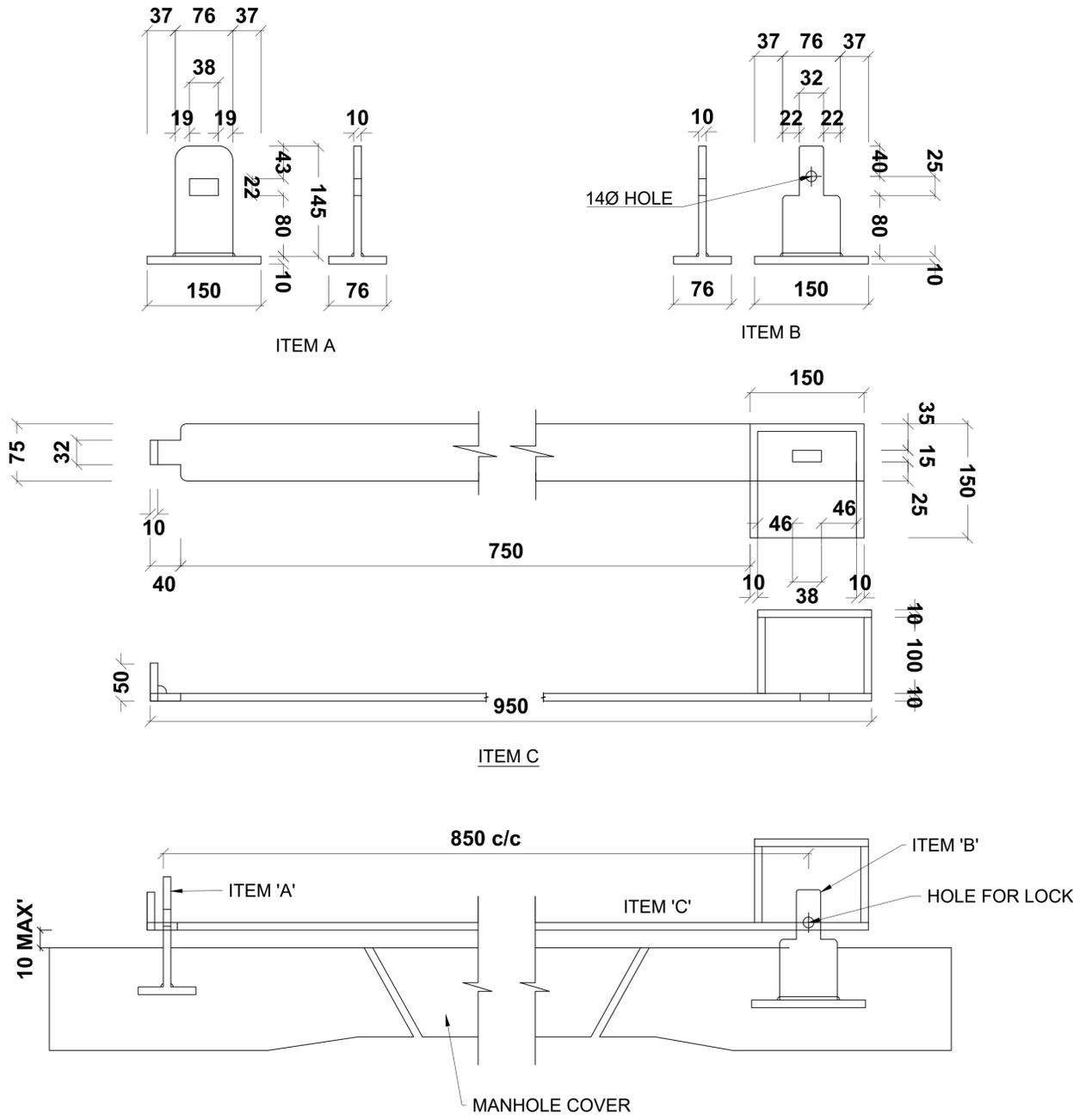
STAGE **DESIGN DEVELOPMENT**

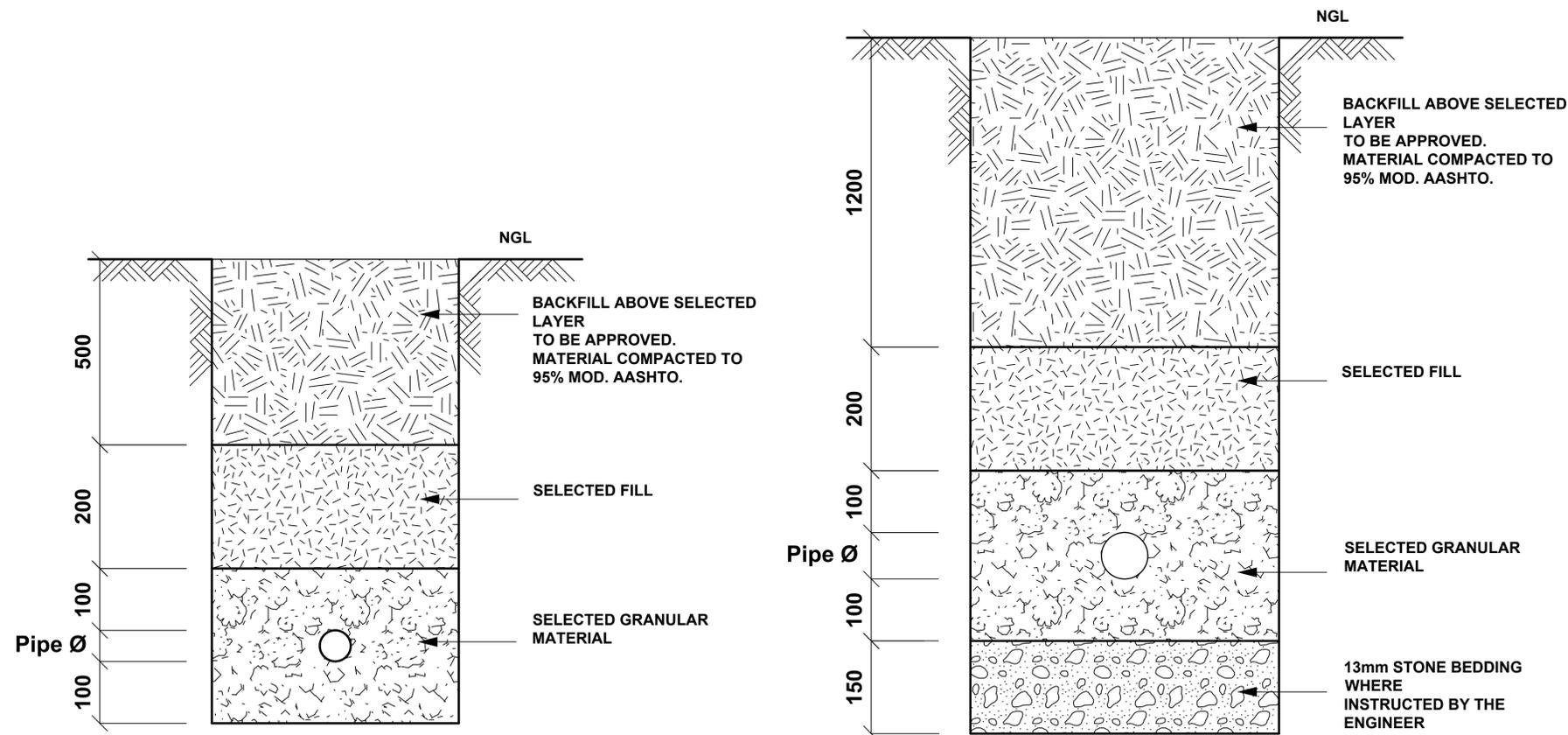
CLIENT'S SIGNATURE

DRAWING USAGE

APPROVED	Client	Project No
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TSI CONSULTING ENGINEERS		2023/03/22
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Layout ID	Revision	Status
1011	00	FOR TENDER





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Project Manager
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Architects
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Structural Engineers - TSI CONSULTING ENG.
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CLIENT

IMPLEMENTING AGENT

PROJECT

**ST APOLLINARIS HOSPITAL:
72 HOUR WATER STORAGE TANK**



TSI Consulting Engineers (Pty) Ltd
PO Box 902
Kokstad
4700

DRAWING

DETAIL: TYPICAL BEDDING

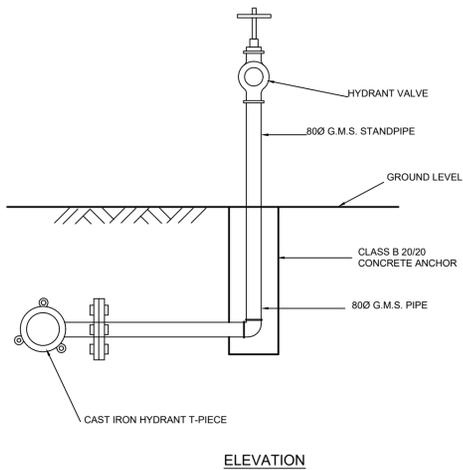
STAGE **DESIGN DEVELOPMENT**

CLIENT'S SIGNATURE

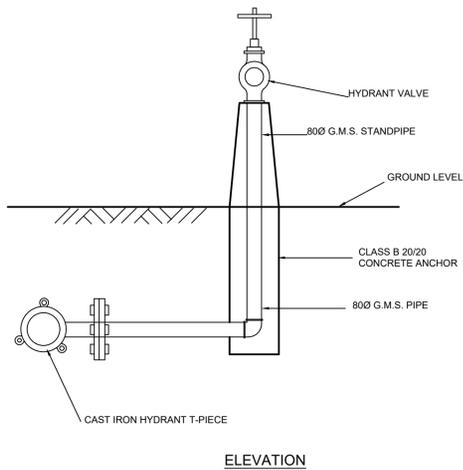
DRAWING USAGE

APPROVED	Client	Project No
	Tenant	ST APP05
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TSI CONSULTING ENGINEERS		2023/03/22
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		2023/03/22
Scale:	1:100, 1:50	@ A1 SIZE

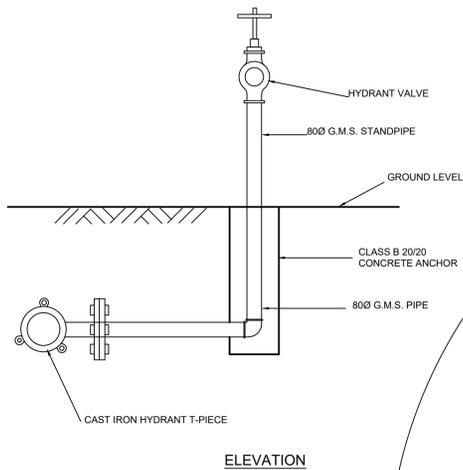
Layout ID	Revision	Status
1011	00	FOR TENDER



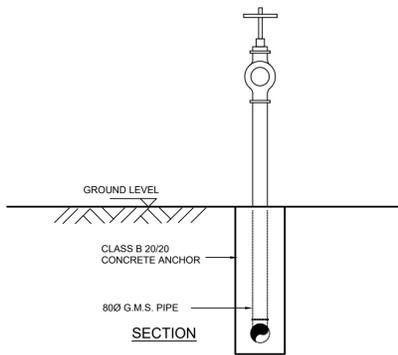
ELEVATION



ELEVATION

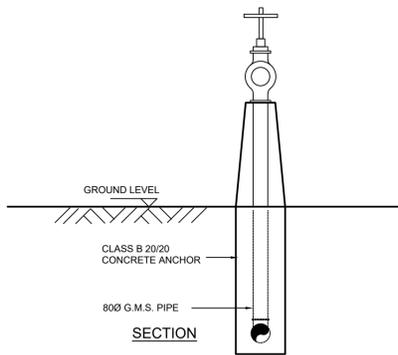


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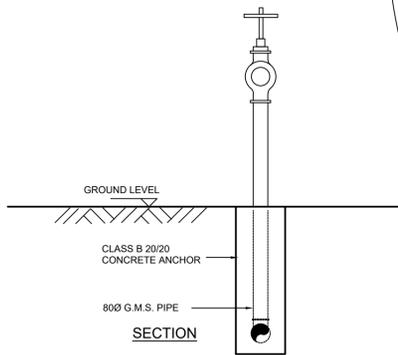
SECTION

NOTE: G.M.S. PIPEWORK UNDER GROUND TO BE PLASTERED, WRAPPED WITH DENSO TAPE OR SIMILAR APPROVED.



SECTION

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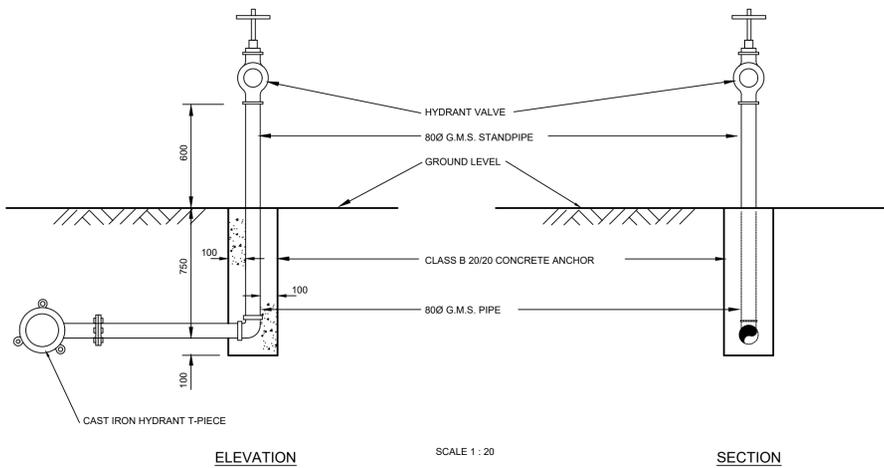
SECTION

NOTE: G.M.S. PIPEWORK UNDER GROUND TO BE PLASTERED, WRAPPED WITH DENSO TAPE OR SIMILAR APPROVED.

TYPICAL DETAIL OF FIRE HYDRANT

TYPICAL DETAIL OF FIRE HYDRANT WITH CONCRETE SURROUND

TYPICAL DETAIL OF FIRE HYDRANT



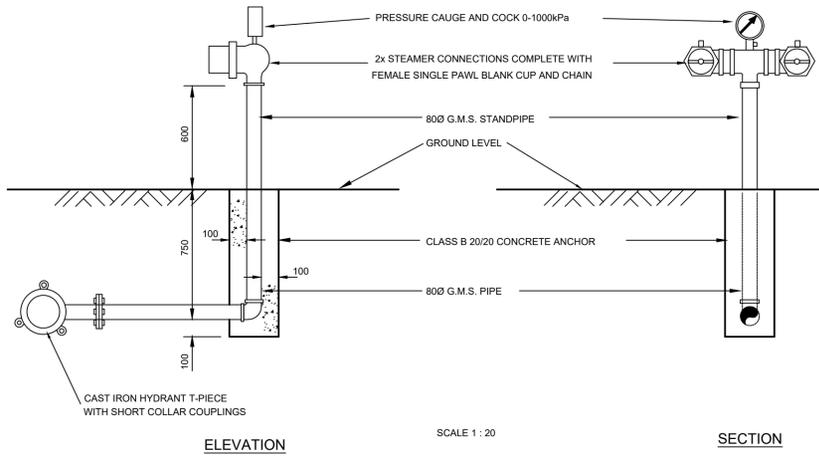
ELEVATION

SCALE 1 : 20

SECTION

TYPICAL DETAIL OF FIRE HYDRANT

NOTE: G.M.S. PIPEWORK UNDER GROUND TO BE PLASTERED, WRAPPED WITH DENSO TAPE OR SIMILAR APPROVED.

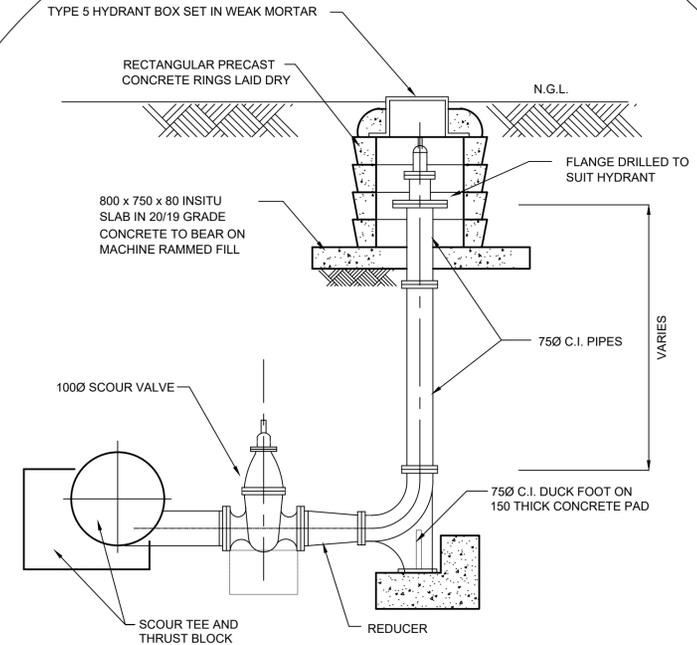


ELEVATION

SCALE 1 : 20

SECTION

TYPICAL DETAIL OF TWIN BOOSTER



TYPICAL UNDERGROUND FIRE HYDRANT

SCALE 1:20

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**ST APOLLINARIS HOSPITAL:
72 HOUR WATER STORAGE TANK**

TSI Consulting Engineers (Pty) Ltd
PO Box 902
Kokstad
4700

DRAWING

DETAIL: FIRE HYDRANTS

STAGE **DESIGN DEVELOPMENT**

CLIENT'S SIGNATURE

DRAWING USAGE

APPROVED	Client	Project No
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TSI CONSULTING ENGINEERS	2023/03/22	2023/03/22
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1012	00	FOR TENDER