

REPUBLIC OF UGANDA



**VOLUME 4-2: BOOK OF DRAWINGS
(GROWTH CENTRE RESERVOIRS)**

INTEGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP)

**CONSTRUCTION OF BUTALEJA AND BUSOLWE WATER SUPPLY AND
SANITATION SYSTEM**

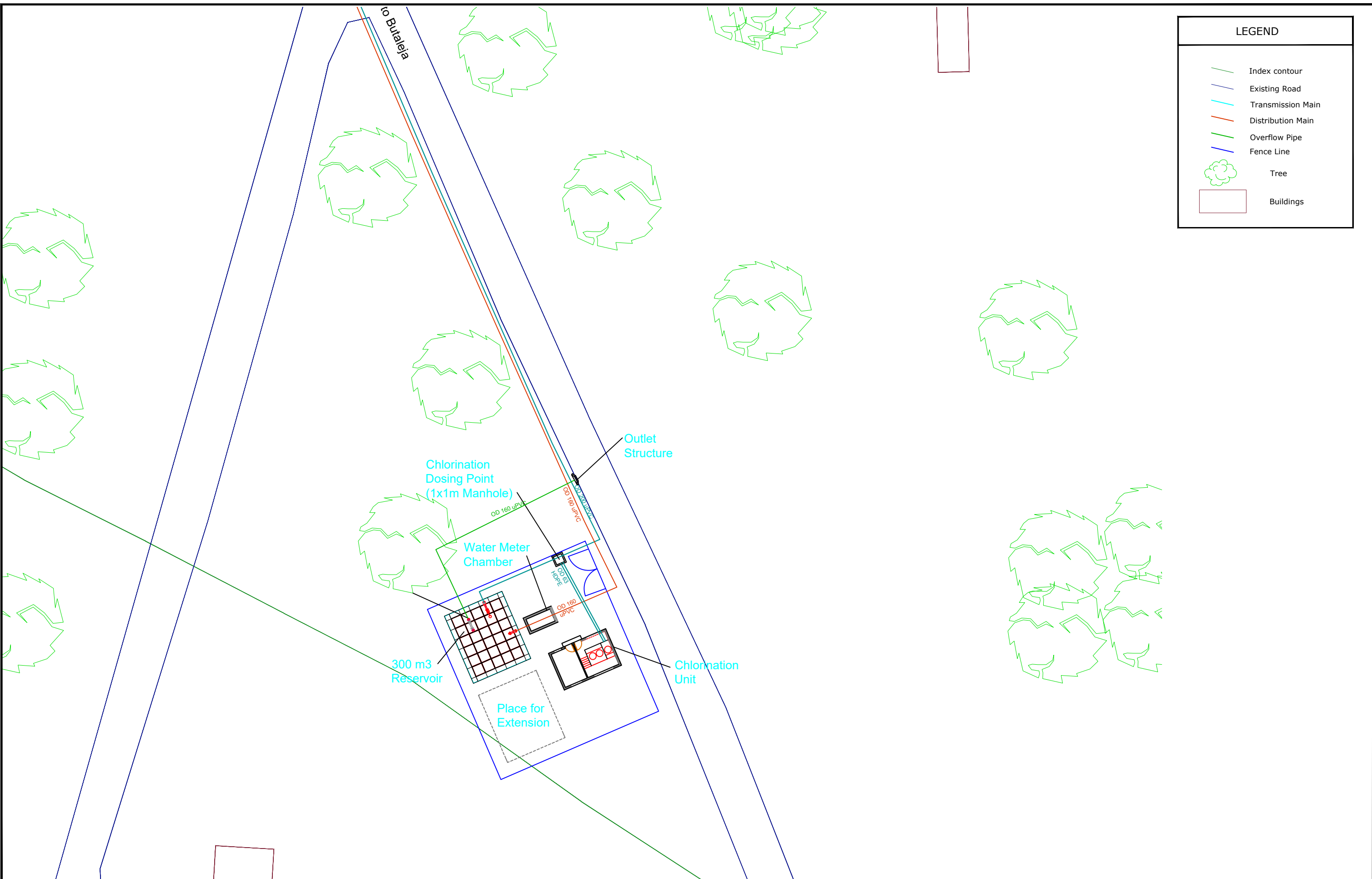
CONTRACT NO: MWE/WRKS/21-22/00005/2

SUBMITTED BY:











JULY 2022

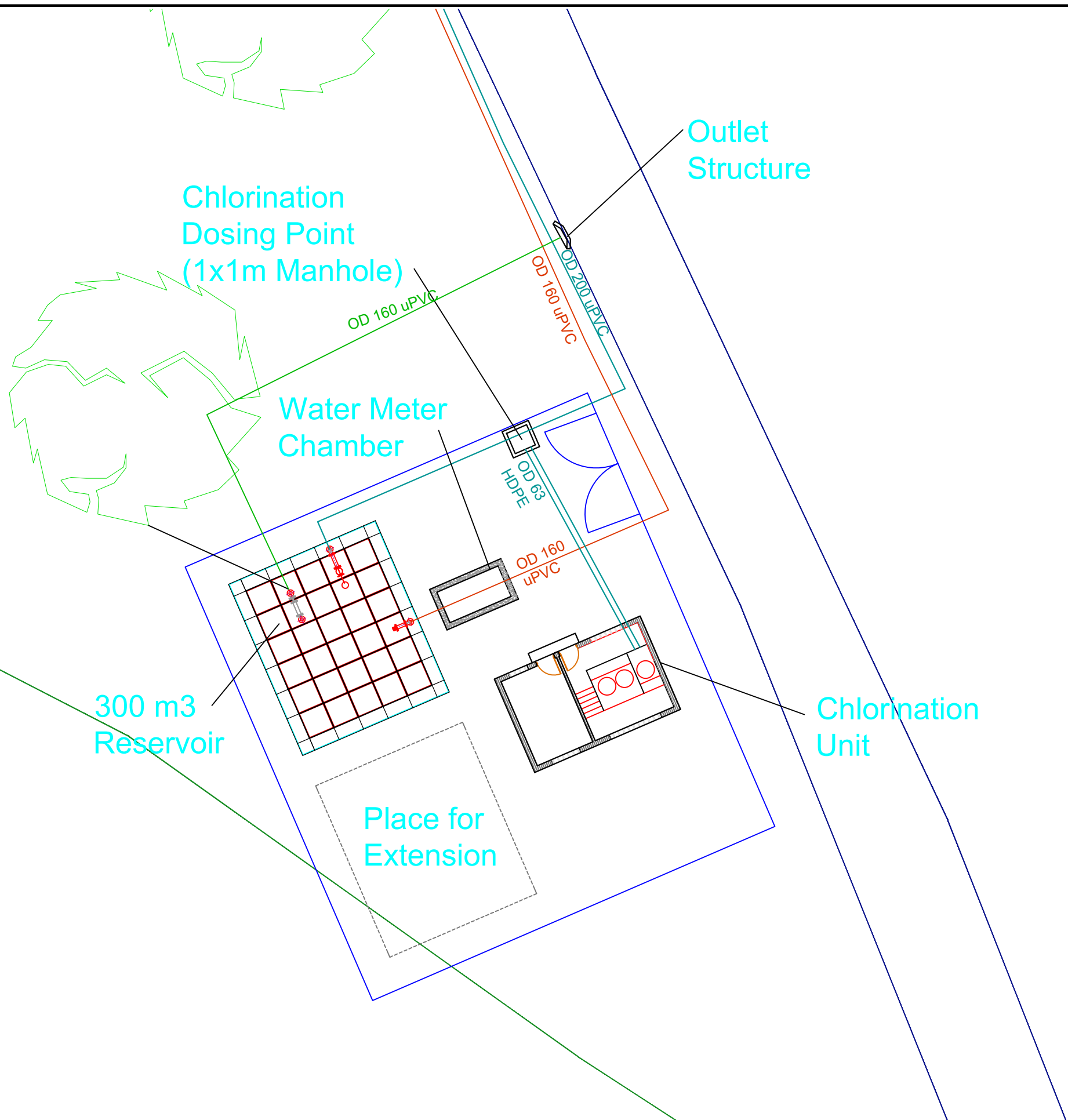
BUTALEJA



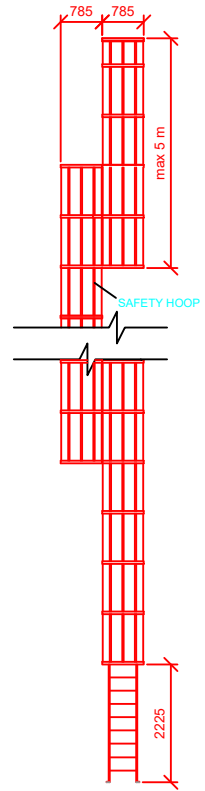
LEGEND	
	Index contour
	Existing Road
	Transmission Main
	Distribution Main
	Overflow Pipe
	Fence Line
	Tree
	Buildings

 CLIENT Government of Uganda Ministry of Water and Environment	 FUNDED BY WORLD BANK	 CONSULTANT saman Samaan Corp. CHEIL HDL-ENGINEERING CO. LTD. AWE Engineers	PROJECT REFERENCE NUMBER : INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP) CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE	DRAWING DESCRIPTION				
				GROWTH CENTERS - RESERVOIRS GENERAL LAYOUT - BUTALEJA		DATE 25/11/2021	DRAWN: Andrew Turyakira	
				CONSTRUCTION SUPERVISION		SHEET NUMBER 1 OF 1	DESIGNED: Ceaser Kisa Wakibi	
				GENERAL LAYOUT SHEET 1 OF 1		DRAWING SCALE 1:400	CHECKED: Ronald Musenze	
				CATEGORY DETAIL				
				DRAWING NUMBER IWMDP/MBA/6-L-003				
				APPROVED: OH Dongwoom				

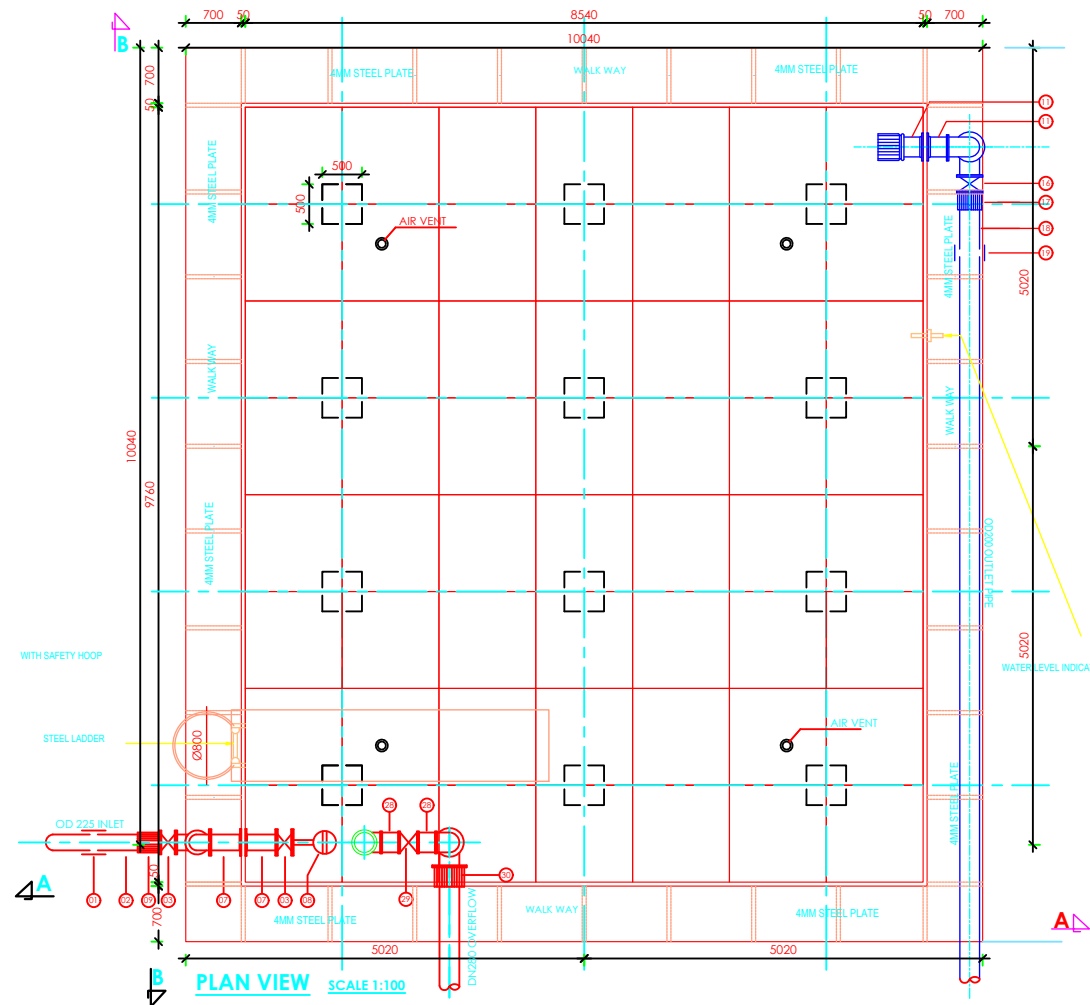
LEGEND	
	Index contour
	Existing Road
	Transmission Main
	Distribution Main
	Overflow Pipe
	Fence Line
	Tree
	Buildings



 CLIENT Government of Uganda Ministry of Water and Environment	 FUNDED BY WORLD BANK	 CONSULTANT saman Samaan Corp. CHEIL HDL-ENGINEERING CO. LTD.  AWE Engineers	PROJECT REFERENCE NUMBER : INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP) CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE	DRAWING DESCRIPTION		DATE 25/11/2021		DRAWN: Andrew Turyakira DESIGNED: Ceaser Kisa Wakibi CHECKED: Ronald Musenze APPROVED: OH Dongwoom			
				GROWTH CENTERS - RESERVOIRS GENERAL LAYOUT - BUTALEJA		SHEET NUMBER 1 OF 1	DRAWING SCALE 1:400		A3		
				CONSTRUCTION SUPERVISION	GENERAL LAYOUT SHEET 1 OF 1	CATEGORY DETAIL			DRAWING NUMBER IWMDP/MBA/6-L-003		



Detail Ladder
Scale 1:100



PLAN VIEW SCALE 1:100

Notes

Pipework, Valves and Equipment

1. ANY INCOMPATIBILITIES WITH REGARDS TO THE SPECIFICATION MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ORDERING THE MATERIALS
2. ALL PIPEWORK TO BE HOT-DIP GALVANIZED IN ACCORDANCE TO BS EN ISO 1461, MINIMUM THICKNESS 70 MICRONS
3. ALL RSV GATE VALVES MUST BE CLOCKWISE CLOSING
4. GASKETS FOR FLANGED JOINTS SHALL BE OF COMPRESSED NON-ASBESTOS SYNTETIC FIBER TO BS 7531 GRADE Y AND FULL FACED WITH A MINIMUM THICKNESS OF 2 mm
5. FOR ALL BOLTS, ONE WASHER ON THE BOLT AND WASHER ON THE NUT SIDE TO BE FITTED. A MINIMUM OF 2-4 THREADS IS TO BE PROTRUDING THE NUT SIDE AFTER THIGHTENING
6. ALL FITTINGS AT IMCOMING PIPE PN16, ALL OTHER FITTINGS PN 10
7. ALL BOLTS, NUTS AND WASHERS TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH BS EN ISO 1461, MINIMUM 70 MICRONS THICK
8. ALL THREADED JOINTS TO BE TREATED WITH 'HICHEM' SOLVENTLESS TRAVELLING FILLER OR 'EPIDERMIX 372' ACCORDING TO SUPPLIERS MAKING GOOD OF GALVANIZED JOINTS ONLY WHERE APPROVED BY THE ENGINEER
9. ALL BURIED BOLTS AND FLANGES SHALL BE WRAPPED IN PETROLEUM MASTIC AND TAPE, IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION
10. VALVE BOXES AS PER DRAWING 1-D-004
11. ALL BURIED STEEL PIPEWORK BITUMEN TAPE WRAPPED, DENSOCLAD 70 (OR EQUAL APPROVED)
12. TECHNICAL DATASHEETS FOR ALL FITTINGS AND EQUIPMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL

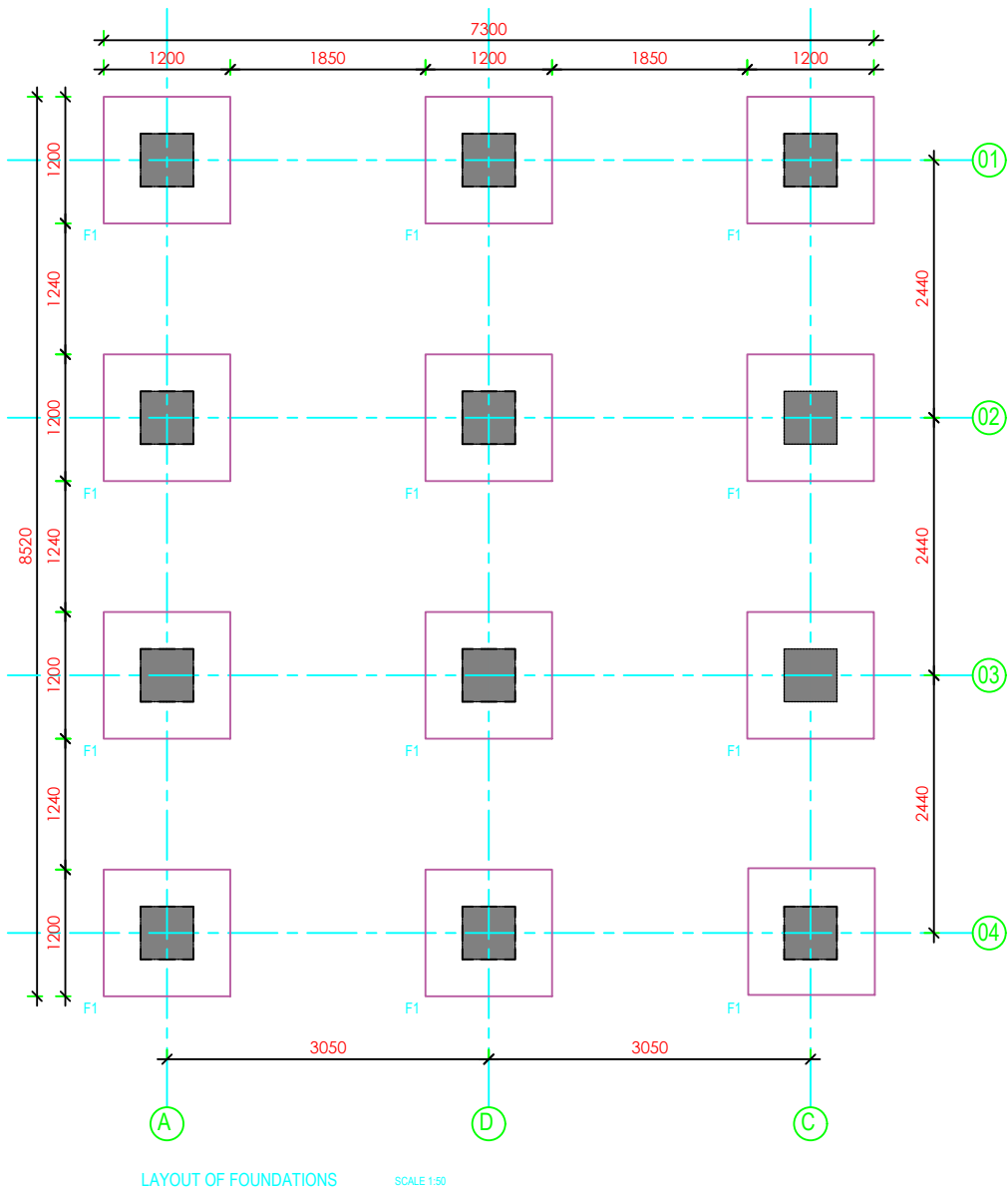
Tank

1. ALL MEMBERS TO BE HOT-DIP GALVANIZED IN ACCORDANCE WITH BS ISO 1461
2. STRUCTURE TO BE WATERTIGHT, NO VISIBLE LEAKS PERMITTED
3. TANK TO BE MADE FROM HOT PRESSED GALVANIZED STEEL PANELS, MANUFACTURED IN ACCORDANCE WITH BS1564:1975 AND WRAS APPROVED
4. FLANGES TO BE INCORPORATED INTO THE PANELS WHERE SHOWN IN THE DRAWING
5. THE CONTRACTOR SHALL PRODUCE AND SUBMIT SHOP DRAWINGS FOR APPROVAL BY ENGINEER

PIPE FITTING SCHEDULE

1. 1No.DN 225 Vicking Johnson or Similar Coupling.
2. 1No.DN 225 Pipe not exceeding 2.0m.
3. 1No.DN 225 All Flanged Gate Valve.
4. 1 NO. DN225 All Flanged 900 bend.
7. 2No.DN 225 Double Flanged Pipe not exceeding 0.6m.
8. 1No.DN 225 Flanged Ball Float Valve.
9. 1No.DN 225 Flanged Adaptor,Maxi type or similar.
10. 1No.DN 150 Flanged Outlet Pipe Strainer.
11. 2No.DN 150 Double Flanged Pipe not exceeding 0.6m. 12.1No.DN 150 All Flanged 900 bend.
13. 2No.DN 150 Double Flanged Pipe not exceeding 6.0m.
14. 1No.DN 150 Double Flanged Pipe not exceeding 2.0m.
15. 1No.DN 150 All Flanged Duck foot 900 bend.
16. 1No.DN 150 Flanged Gate Valve.
17. 1No.DN 150 Flanged Adaptor,Maxi type or similar.
18. 1No.DN150 Double Flanged Pipe not exceeding 2.0m.
19. 1No.DN150 Vicking Johnson or Similar Coupling.
20. 1No.DN150 Flanged Bell Mouth.
21. 1No.DN200 Double Flanged Pipe not exceeding 2.8m.
22. 1No.DN200 Double Flanged Pipe not exceeding 2.0m.
23. 1No.DN200/100 All Flanged Tee.
24. 2No.DN200 Double Flanged Pipe not exceeding 6.0m.
25. 1No.DN 200 All Flanged Duck foot 900 bend.
26. 1No.DN100 All Flanged Pipe with puddle flange n.e 2.0m.
27. 1No.DN 100 All Flanged 900 bend.
28. 1No.DN100 Double Flanged Pipe not exceeding 0.4m.
29. 1No.DN100 Flanged Gate Valve.
30. 1No.DN100 Flanged Adaptor,Maxi type or similar.

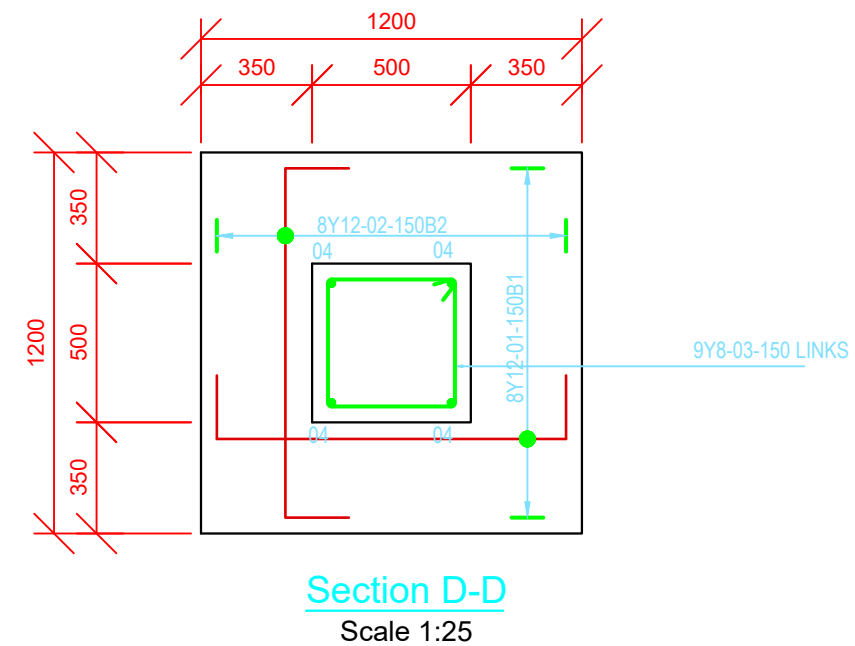
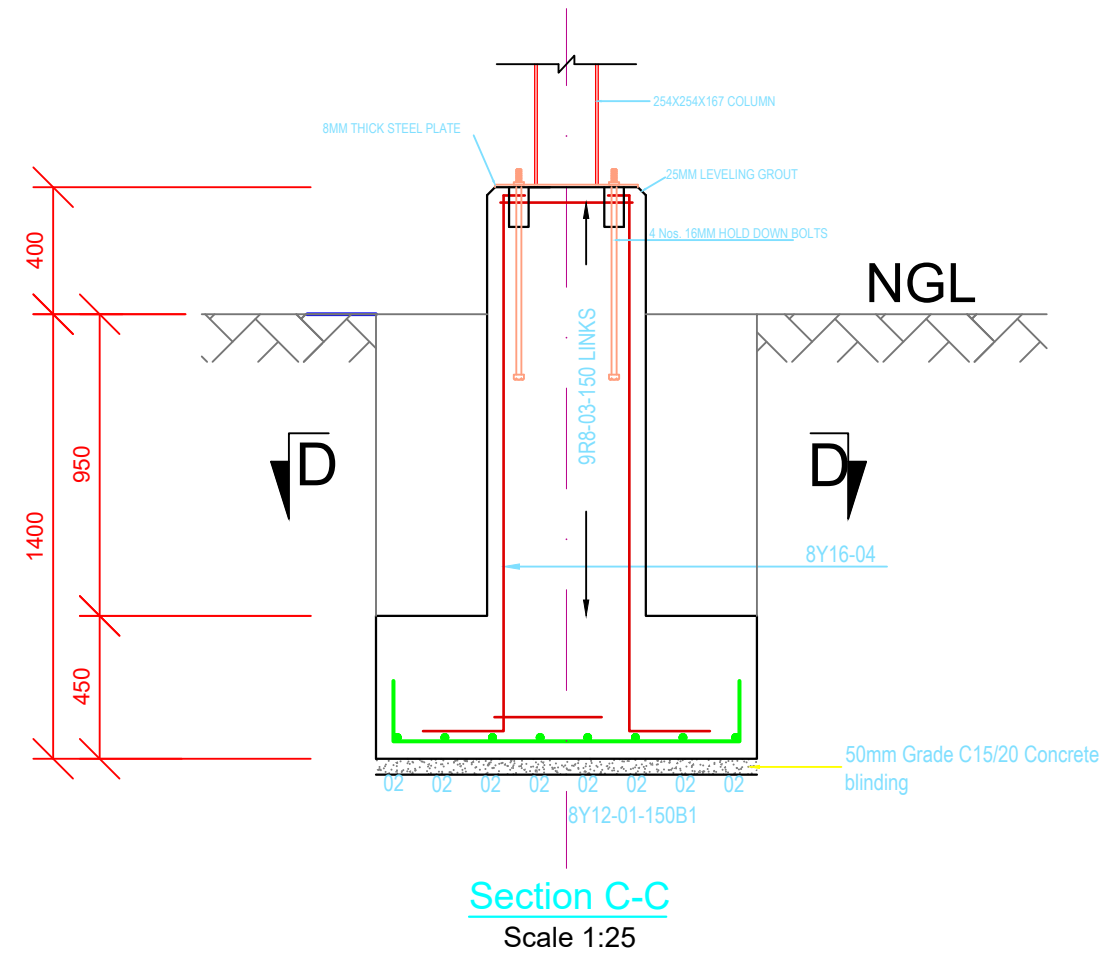
<p>Government of Uganda Ministry of Water and Environment</p>	<p>WORLD BANK</p>	<p>AWE Engineers</p>	<p>PROJECT REFERENCE NUMBER :</p> <p>INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP)</p> <p>CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE</p>	DRAWING DESCRIPTION		DATE	14/12/2021	DRAWN: Andrew Turyakira
				<p>GROWTH CENTERS - RESERVOIRS 300m³ RESERVOIR BUTALEJA</p>		SHEET NUMBER	1 OF 3	
CONSTRUCTION SUPERVISION		BUTALEJA RESERVOIR SHEET 1 OF 3		DRAWING SCALE	H=1:1000 V=1:100 A3	CATEGORY	DETAIL	CHECKED: Ronald Musenze
				DRAWING NUMBER			IWMDP/MBA/6-S-003	APPROVED: OH Dongwoom



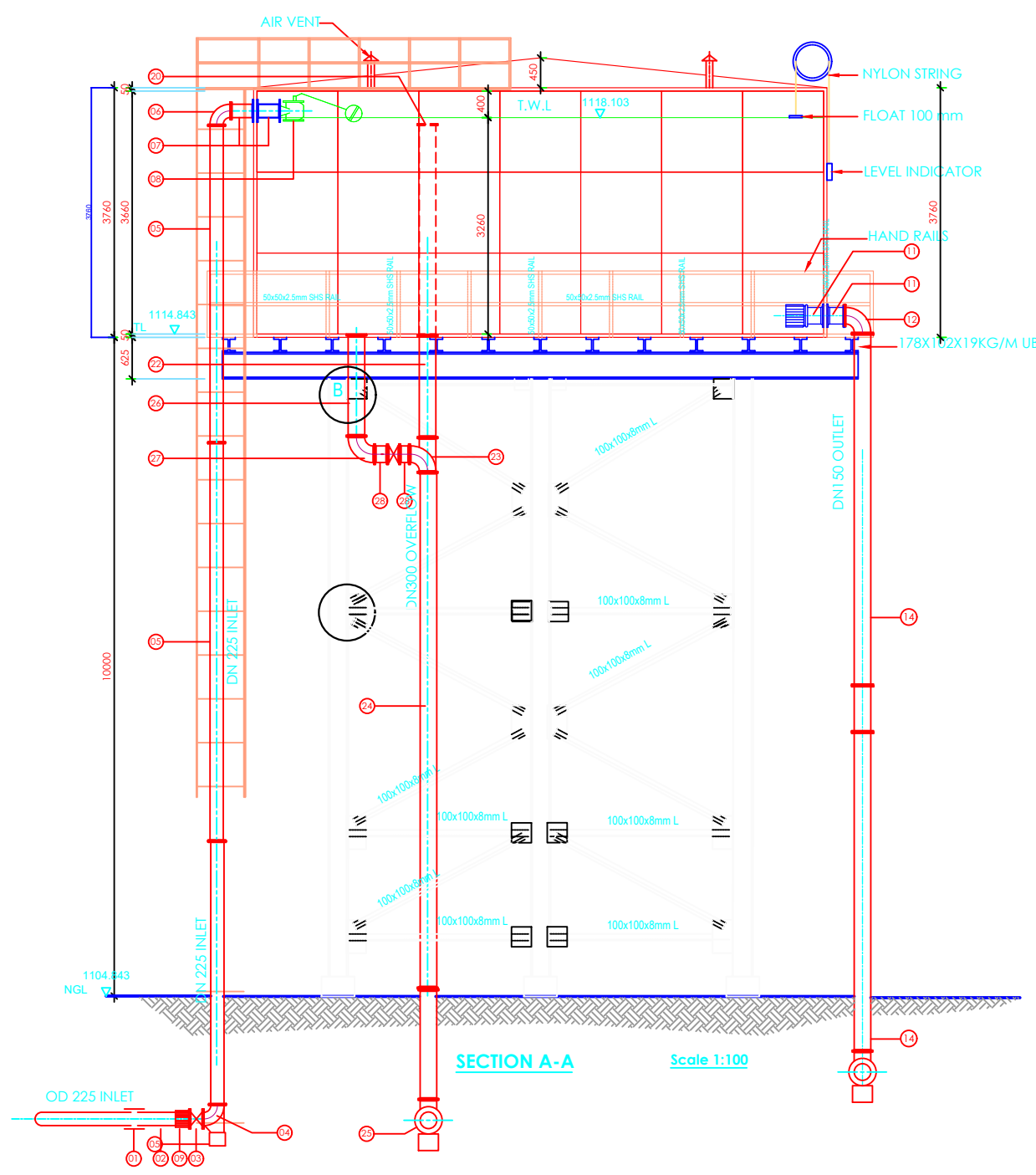
Notes

Concrete

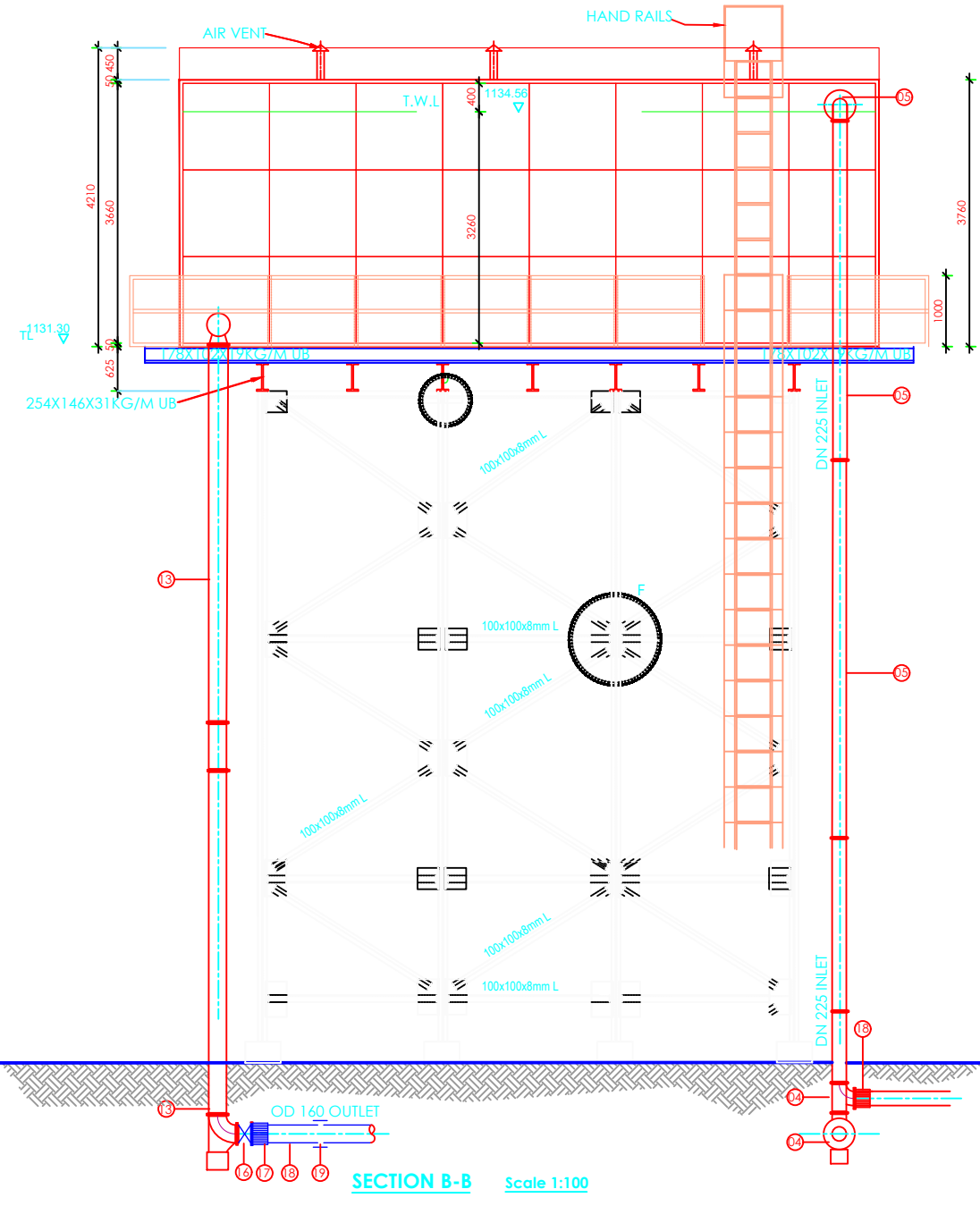
1. ALL STRUCTURAL CONCRETE TO BE C25/20
2. ALL EXPOSED CONCRETE CORNERS TO BE CHAMFERED
3. 50mm BLINDING TO BE POURED BENEATH EVERY FOOTING, BLINDING OF GRADE ST3/20
4. NO CONCRETE TO BE POURED WITH PRIOR APPROVAL OF THE ENGINEER
5. SIDES OF FOOTING BASE TO BE POURED AGAINST NATURAL GROUND
6. CONCRETE COVER TO BE 30mm



<p>Government of Uganda Ministry of Water and Environment</p>	<p>WORLD BANK</p>		PROJECT REFERENCE NUMBER :	DRAWING DESCRIPTION		DATE	14/12/2021	DRAWN: Andrew Turyakira	
			INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP)	GROWTH CENTERS - RESERVOIRS 300m ³ RESERVOIR BUTALEJA		SHEET NUMBER	3 OF 3		DESIGNED: Ceaser Kisa Wakiibi
			CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE	CONSTRUCTION SUPERVISION	BUTALEJA RESERVOIR SHEET 3 OF 3	DRAWING SCALE	H=1:1000 V=1:100 A3		
					CATEGORY		DETAIL	CHECKED: Ronald Musenze	
					DRAWING NUMBER		IWMDP/MBA/6-S-003	APPROVED: OH Dongwoom	











SECTION A-A Scale 1:100

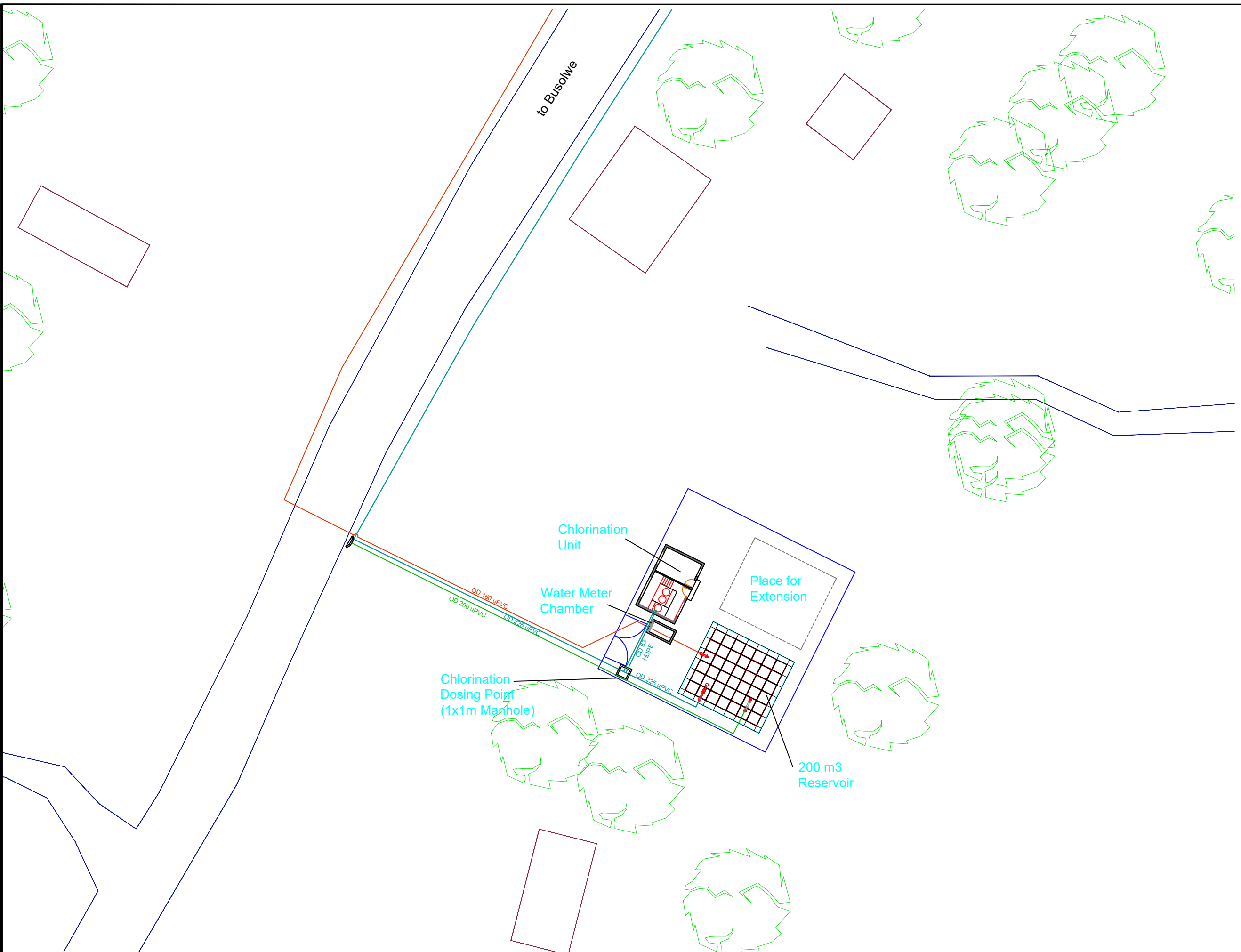


SECTION B-B Scale 1:100

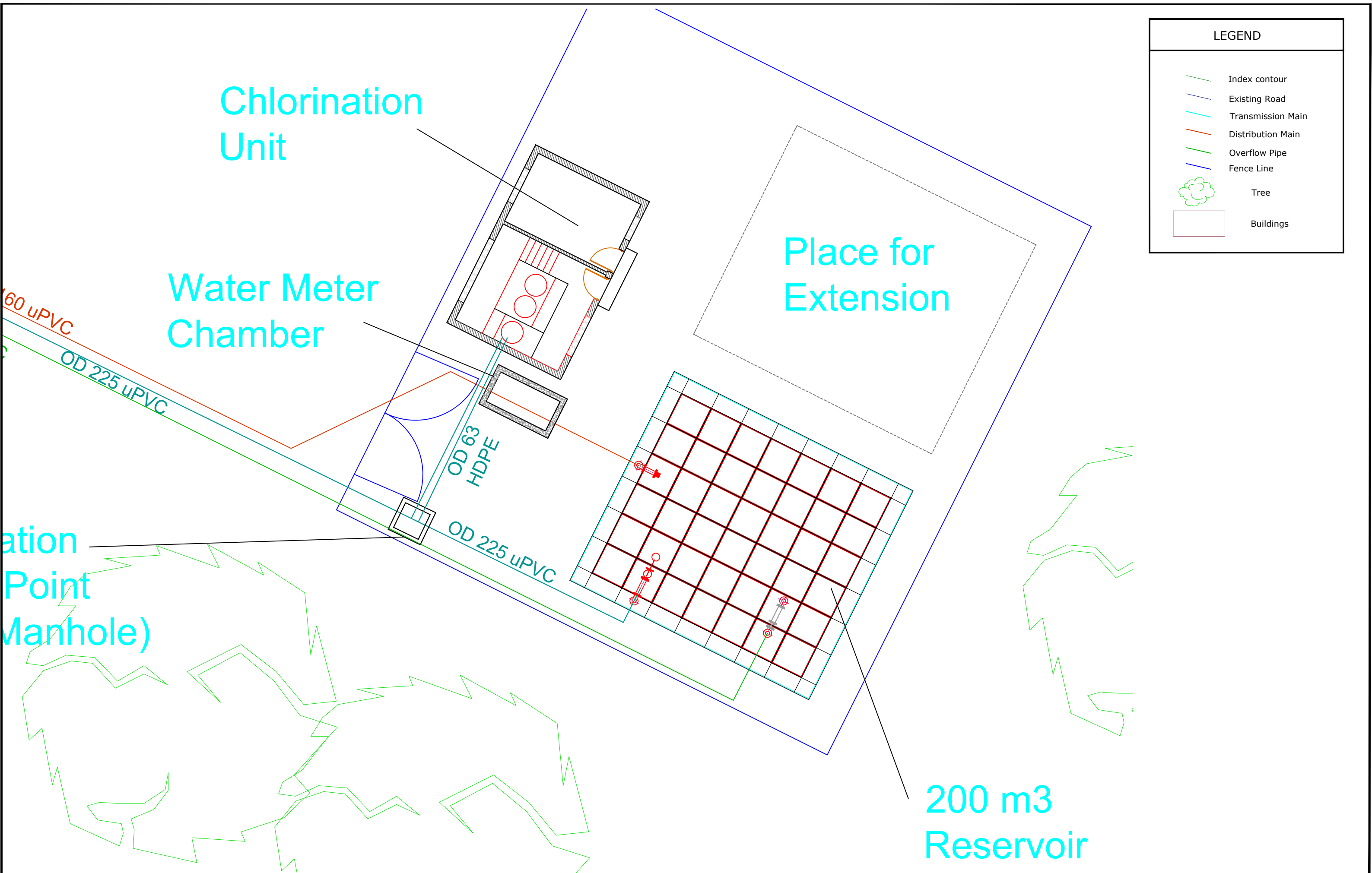
<p>Government of Uganda Ministry of Water and Environment</p>	<p>WORLD BANK</p>		PROJECT REFERENCE NUMBER :	DRAWING DESCRIPTION		DATE	14/12/2021	DRAWN: Andrew Turyakira	
			INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP)	GROWTH CENTERS - RESERVOIRS 300m ³ RESERVOIR BUTALEJA		SHEET NUMBER	2 OF 3		DESIGNED: Ceaser Kisa Wakibi
			CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE	CONSTRUCTION SUPERVISION	BUTALEJA RESERVOIR	DRAWING SCALE	H=1:1000 V=1:100 A3		
					SHEET 2 OF 3	DRAWING NUMBER			APPROVED: OH Dongwoom
				IWMDB/BA/6-S-003					

BUSOLWE

LEGEND	
	Index contour
	Existing Road
	Transmission Main
	Distribution Main
	Overflow Pipe
	Fence Line
	Tree
	Buildings



 Government of Uganda Ministry of Water and Environment	 WORLD BANK	 saman Samen Corp.	 CHEIL CHEIL ENGINEERING CO. LTD.	PROJECT REFERENCE NUMBER : INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP) CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE	DRAWING DESCRIPTION		DATE	25/11/2021	DRAWN:	Andrew Turyakira		
					GROWTH CENTERS - RESERVOIRS GENERAL LAYOUT - BUSOLWE		SHEET NUMBER	1 OF 1		DESIGNED:	Ceaser Kisa Wakiibi	
					CONSTRUCTION SUPERVISION	GENERAL LAYOUT SHEET 1 OF 1	DRAWING SCALE	1:400			A3	CHECKED:
							CATEGORY	DETAIL		APPROVED:	OH Dongwoom	
		DRAWING NUMBER										
		IWMDP/MBA/6-L-001										

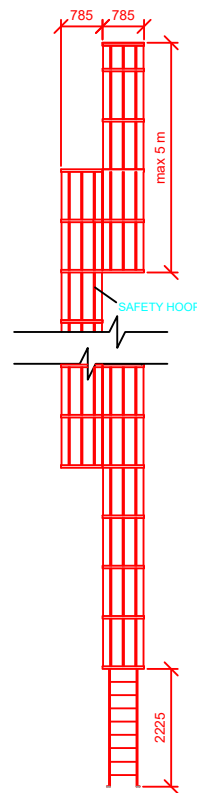


LEGEND	
	Index contour
	Existing Road
	Transmission Main
	Distribution Main
	Overflow Pipe
	Fence Line
	Tree
	Buildings

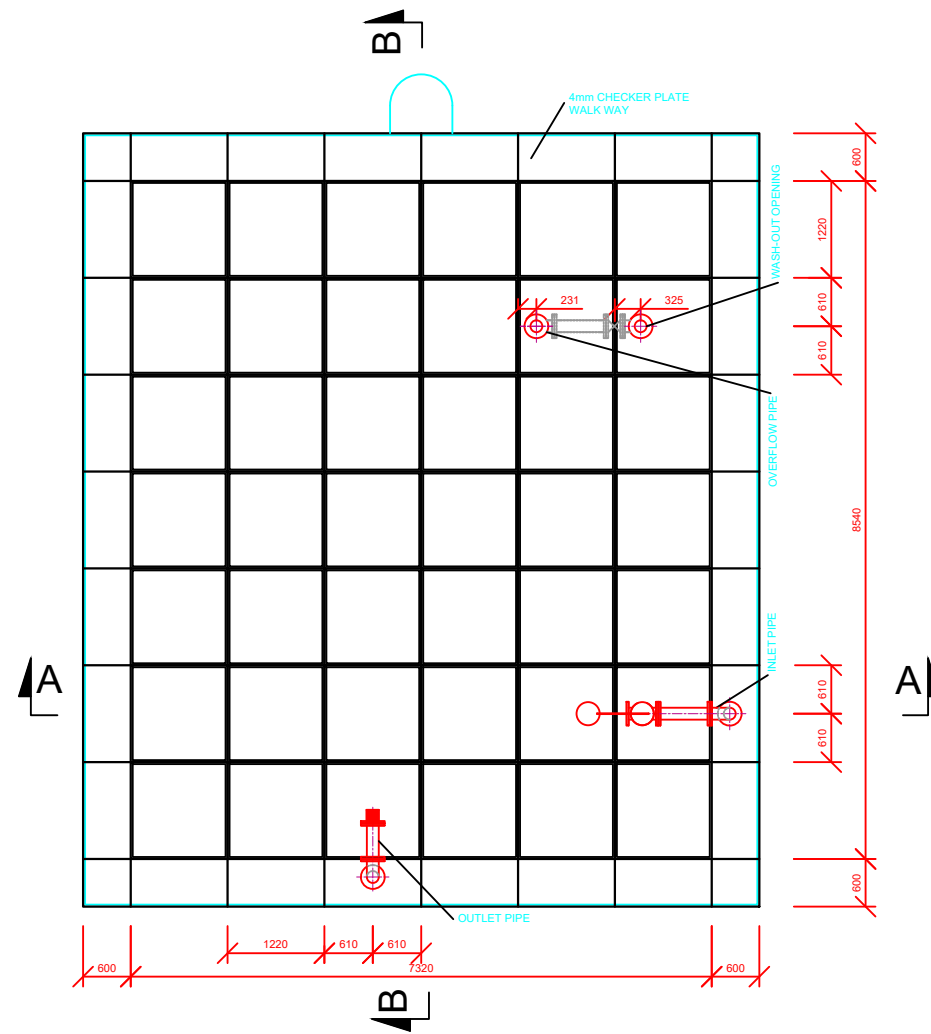
ation
Point
(Manhole)

200 m3
Reservoir

CLIENT	FUNDED BY	CONSULTANT	PROJECT REFERENCE NUMBER :	DRAWING DESCRIPTION		DATE	25/11/2021	DRAWN:	Andrew Turyakira	
 Government of Uganda Ministry of Water and Environment	 WORLD BANK	 saman Saman Corp.	 CHEIL CHEIL-ENGINEERING CO. LTD.	INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP)		SHEET NUMBER	1 OF 1	DESIGNED:	Ceaser Kisa Wakiibi	
				CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE		DRAWING SCALE	1:400	A3	CHECKED:	Ronald Musenze
				CONSTRUCTION SUPERVISION	GENERAL LAYOUT	DRAWING NUMBER		APPROVED:	OH Dongwoom	
					SHEET 1 OF 1	IWMDP/MBA/6-L-001				



Detail Ladder
Scale 1:100



Elevation at Inlet Water Level
Scale 1:75

Notes

Pipework, Valves and Equipment

- ANY INCOMPATIBILITIES WITH REGARDS TO THE SPECIFICATION MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ORDERING THE MATERIALS
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- ALL RSV GATE VALVES MUST BE CLOCKWISE CLOSING
- GASKETS FOR FLANGED JOINTS SHALL BE OF COMPRESSED NON-ASBESTOS SYNTETIC FIBER TO BS 7531 GRADE Y AND FULL FACED WITH A MINIMUM THICKNESS OF 2 mm
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- ALL BOLTS, NUTS AND WASHERS TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH BS EN ISO 1461, MINIMUM 70 MICRONS THICK
- ALL THREADED JOINTS TO BE TREATED WITH 'HICHEM' SOLVENTLESS TRAVELLING FILLER OR 'EPIDERMIX 372' ACCORDING TO SUPPLIERS
- MAKING GOOD OF GALVANIZED JOINTS ONLY WHERE APPROVED BY THE ENGINEER
- ALL BURIED BOLTS AND FLANGES SHALL BE WRAPPED IN PETROLEUM MASTIC AND TAPE, IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION
- VALVE BOXES AS PER DRAWING 1-D-004
- ALL BURIED STEEL PIPEWORK BITUMEN TAPE WRAPPED, DENSOCCLAD 70 (OR EQUAL APPROVED)
- TECHNICAL DATASHEETS FOR ALL FITTINGS AND EQUIPMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL

Tank

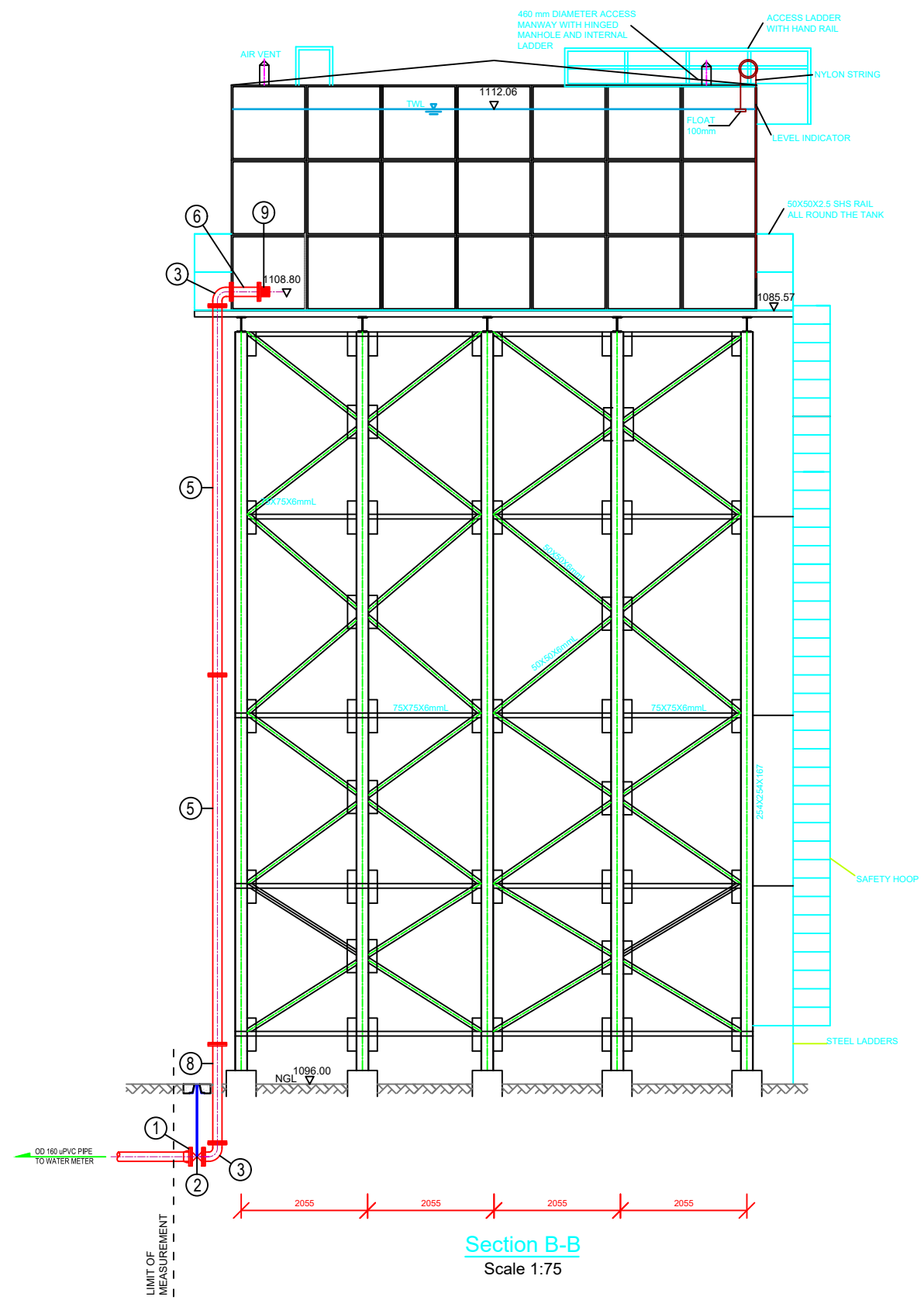
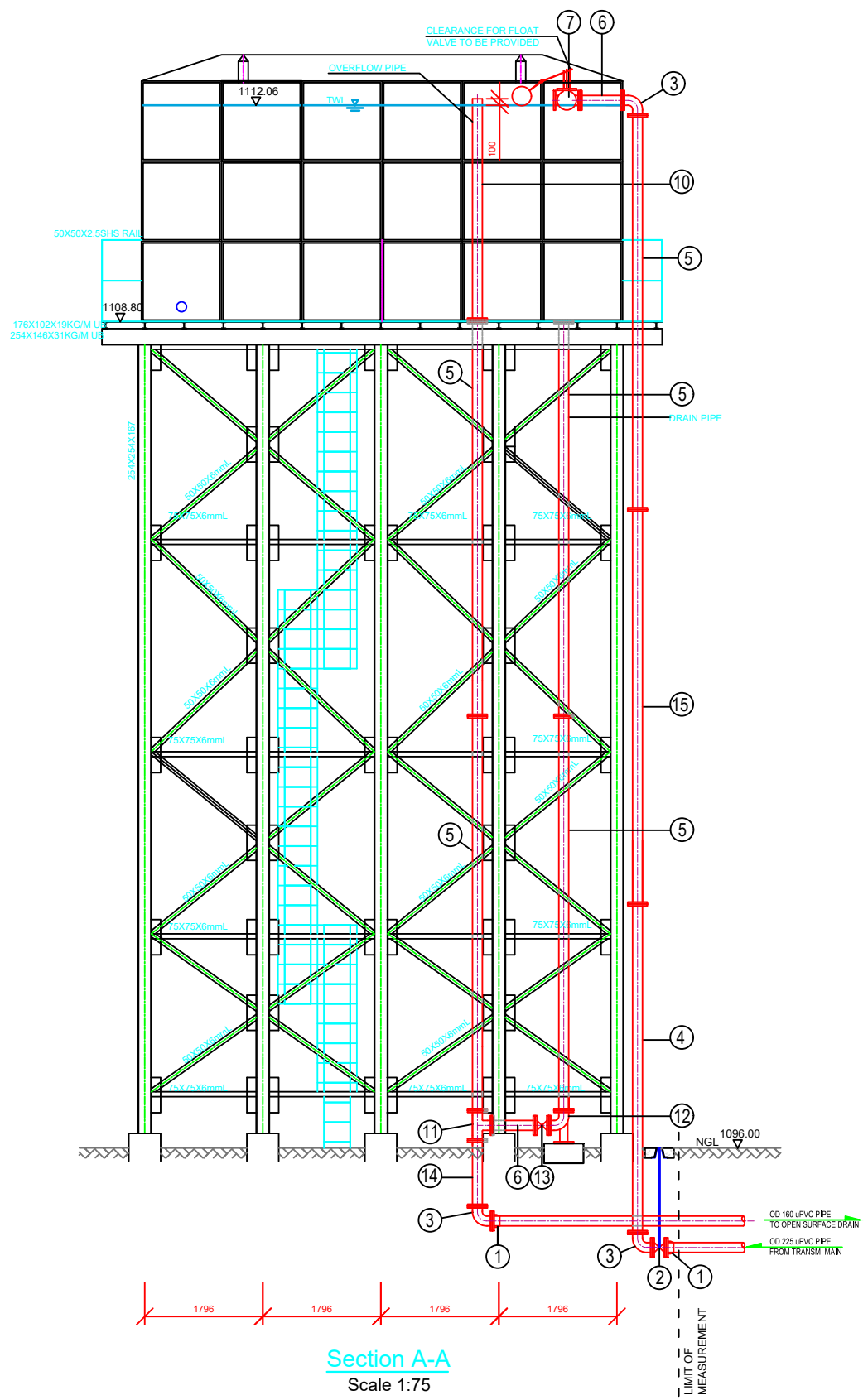
- ALL MEMBERS TO BE HOT-DIP GALVANIZED IN ACCORDANCE WITH BS ISO 1461
- STRUCTURE TO BE WATERTIGHT, NO VISIBLE LEAKS PERMITTED
- TANK TO BE MADE FROM HOT PRESSED GALVANIZED STEEL PANELS, MANUFACTURED IN ACCORDANCE WITH BS1564:1975 AND WRAS APPROVED
- FLANGES TO BE INCORPORATED INTO THE PANELS WHERE SHOWN IN THE DRAWING
- THE CONTRACTOR SHALL PRODUCE AND SUBMIT SHOP DRAWINGS FOR APPROVAL BY ENGINEER

PIPE & FITTING SCHEDULE

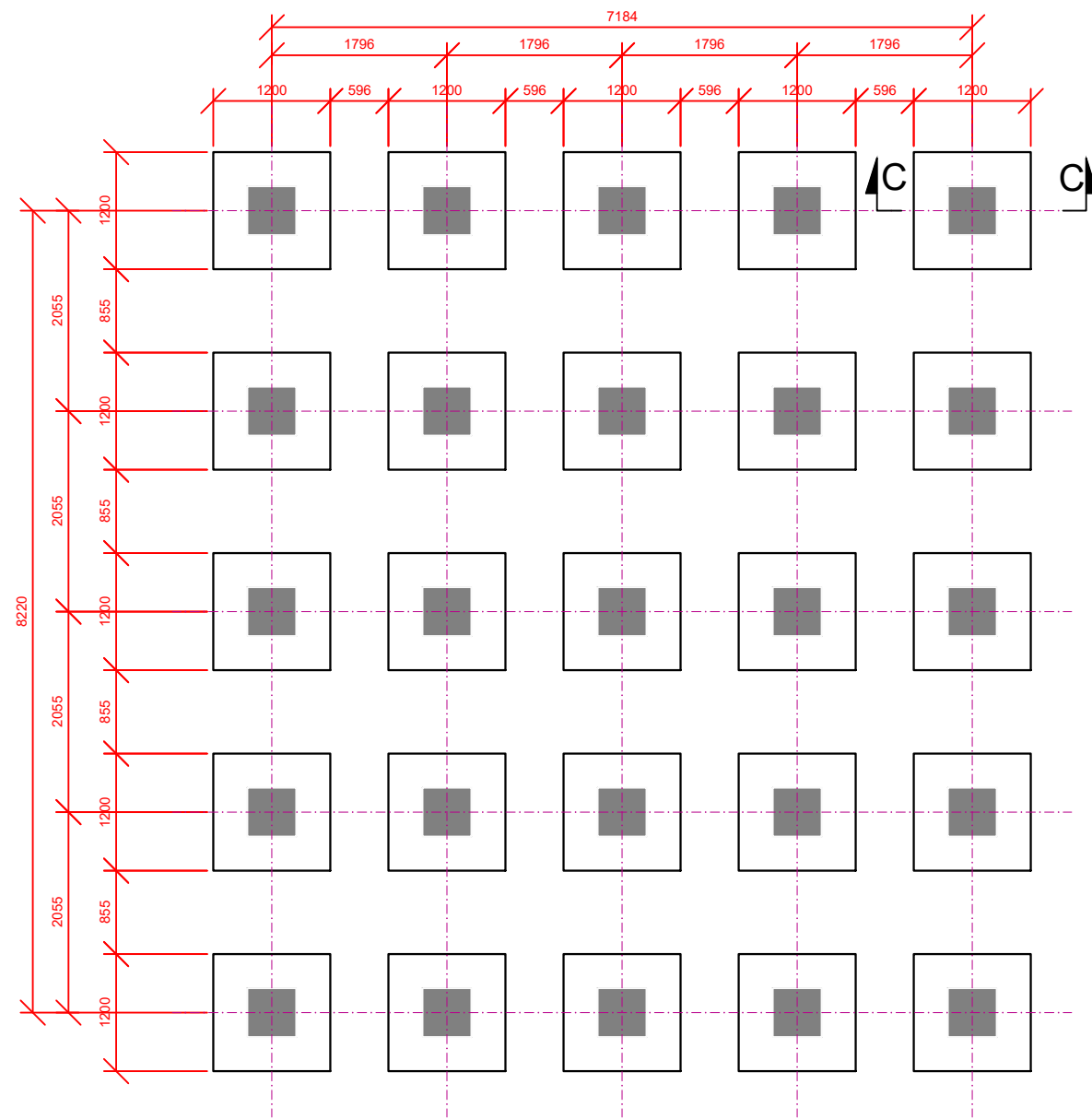
ITEM	Qty.	Dia.	BoQ Item	DETAILS	DESCRIPTION
①	3	150 mm	n/a		DN 150 Ductile Iron, Ranger Type Flange Adaptor, Connection to OD 160 mm uPVC pipe. Epoxy coated with anchor bolts.
②	2	150 mm	n/a		DN 150 Gate Valve to EN 558-1, basic series 14, resilient seated, flanged on both sides, epoxy coated to bs 6920, Body Bonnet and Wedge Ductile Iron, Wedge EPDM vulcanized, Stem in Stainless Steel, suitable for underground installation, incl. extension spindle (2 m) and valve box
③	3	150 mm	n/a		DN 150 mild steel bend, 90°, Seamless, Hot-dip galvanized, Flanged on both sides
④	1	200 mm	n/a		DN 200 mild steel spool piece, length 5m, Hot-dip galvanized, Flanged on both sides, incl. 2 clamps to be mounted against columns of tank
⑤	4	150 mm	n/a		DN 150 mild steel spool piece, length 6m, Hot-dip galvanized, Flanged on both sides, incl. 2 clamps to be mounted against columns of tank
⑥	2	150 mm	n/a		DN 150 mild steel spool piece, length 650mm, Hot-dip galvanized, Flanged on both sides
⑦	1	150 mm	n/a		DN 150 Float Valve, Internal Pilot Type, tight closing with neoprene disc, cast iron body with stainless steel float, flanged, globe type
⑧	1	150 mm	n/a		DN 150 mild steel spool piece, length 1.6m, Hot-dip galvanized, Flanged on both sides
⑨	1	150 mm	n/a		DN 150 Strainer, Stainless Steel basket
⑩	1	150 mm	n/a		DN 150 mild steel spool piece, length 3.66m, Hot-dip galvanized, Flanged on one sides
⑪	1	150 mm	n/a		DN 150 mild steel equal T-Piece, Hot-dip galvanized, Flanged on one sides
⑫	1	150 mm	n/a		DN 150 mild steel bend, 90°, Seamless, Hot-dip galvanized, Flanged on both sides, with duckfoot
⑬	2	150 mm	n/a		DN 150 Gate Valve to EN 558-1, basic series 14, resilient seated, flanged on both sides, epoxy coated to bs 6920, Body Bonnet and Wedge Ductile Iron, Wedge EPDM vulcanized, Stem in Stainless Steel, with hand wheel
⑭	2	150 mm	n/a		DN 150 mild steel spool piece, length 1000mm, Hot-dip galvanized, Flanged on both sides
⑮	4	150 mm	n/a		DN 150 mild steel spool piece, length 6m, Hot-dip galvanized, Flanged on both sides, incl. 2 clamps to be mounted against columns of tank
⑯	2	200 mm	n/a		DN 200 mild steel bend, 90°, Seamless, Hot-dip galvanized, Flanged on both sides

FL = Flange, PL = Plain End

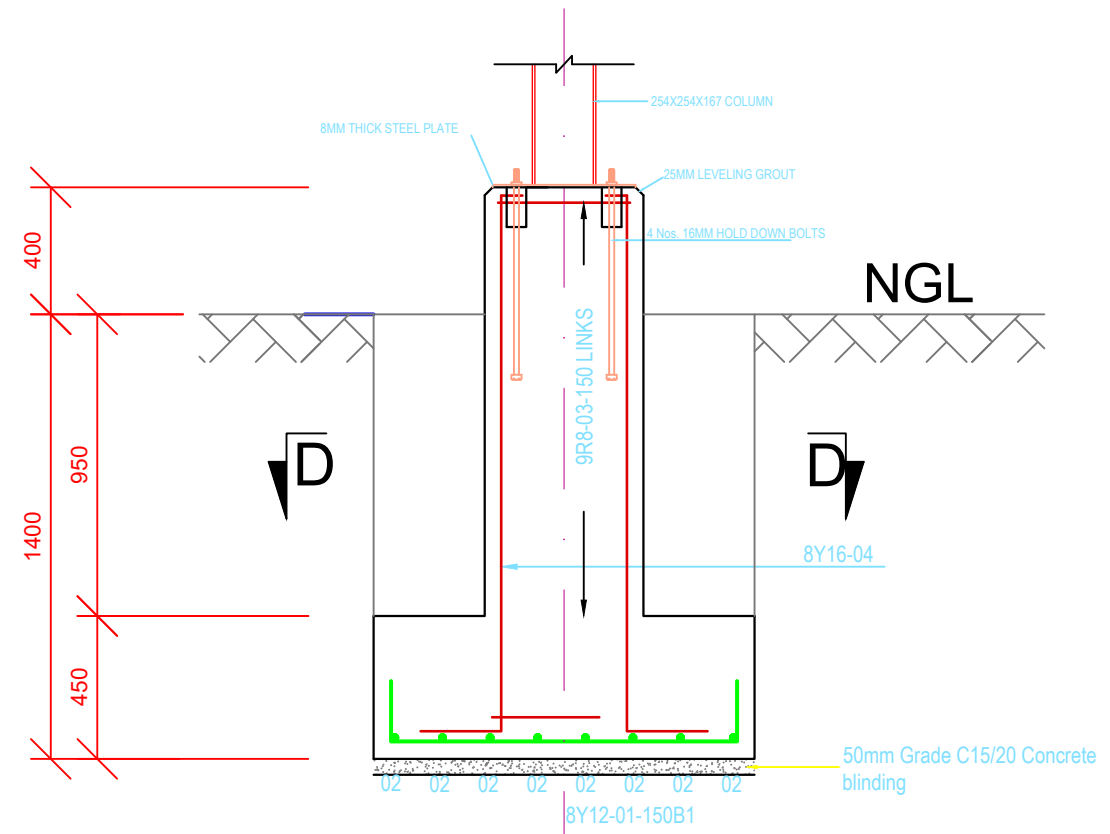
 Government of Uganda Ministry of Water and Environment	 FUNDED BY WORLD BANK	 CONSULTANT	PROJECT REFERENCE NUMBER : INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP) CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE	DRAWING DESCRIPTION		DATE		DRAWN:	Andrew Turyakira
				GROWTH CENTERS - RESERVOIRS 200m³ RESERVOIR BUSOLWE		14/12/2021 SHEET NUMBER 1 OF 3			
CONSTRUCTION SUPERVISION		BUSOLWE RESERVOIR SHEET 1 OF 3		DRAWING SCALE		A3		CHECKED:	Ronald Musenze
				CATEGORY		DETAIL			
						DRAWING NUMBER			
						IWMDP/MBA/6-S-001			



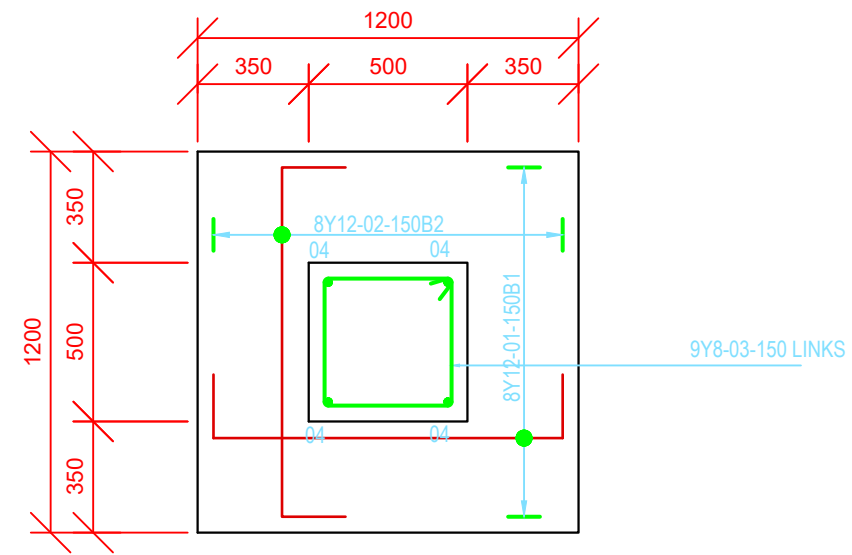
<p>Government of Uganda Ministry of Water and Environment</p>	<p>WORLD BANK</p>		PROJECT REFERENCE NUMBER :	DRAWING DESCRIPTION		DATE	14/12/2021	DRAWN: Andrew Turyakira	
			INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP)	GROWTH CENTERS - RESERVOIRS 200m ³ RESERVOIR BUSOLWE		SHEET NUMBER	2 OF 3		DESIGNED: Ceaser Kisa Wakiibi
			CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE	CONSTRUCTION SUPERVISION	BUSOLWE RESERVOIR	DRAWING SCALE	H=1:1000 V=1:100 A3		
					SHEET 2 OF 3	CATEGORY	DETAIL		CHECKED: Ronald Musenze
						DRAWING NUMBER	IWMDP/MBA/6-S-001	APPROVED: OH Dongwoom	



Layout of Foundations
Scale 1:75



Section C-C
Scale 1:25



Section D-D
Scale 1:25

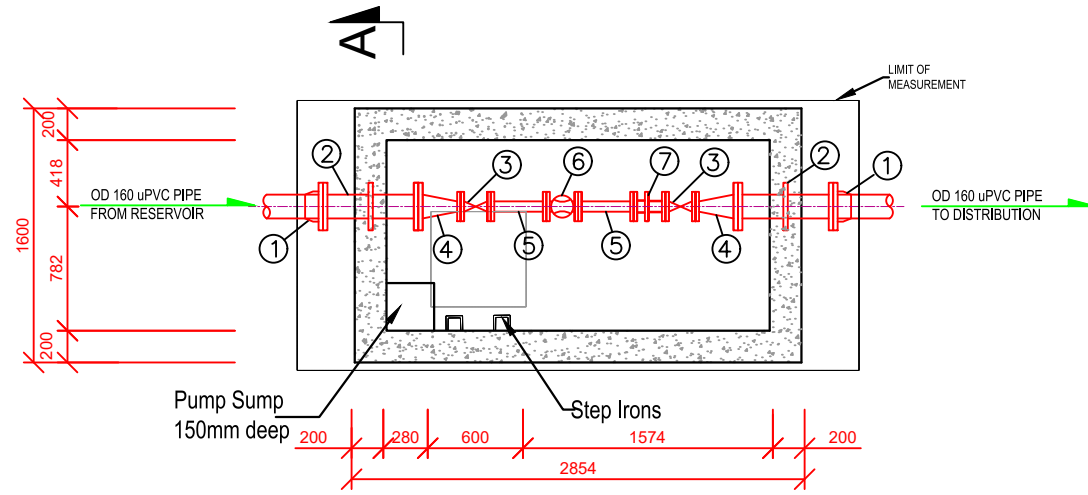
Notes

Concrete

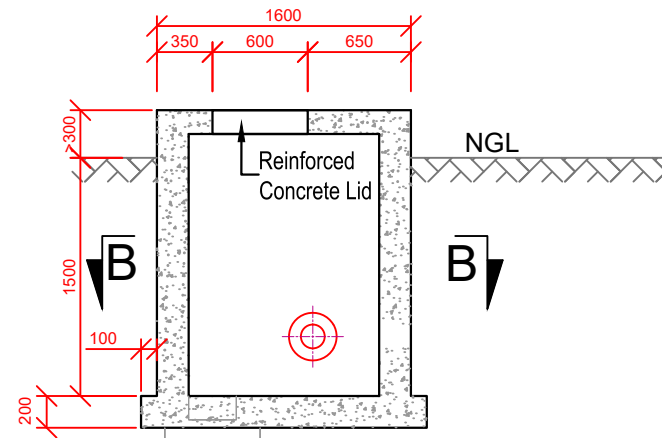
1. ALL STRUCTURAL CONCRETE TO BE C25/20
2. ALL EXPOSED CONCRETE CORNERS TO BE CHAMFERED
3. 50mm BLINDING TO BE POURED BENEATH EVERY FOOTING, BLINDING OF GRADE ST3/20
4. NO CONCRETE TO BE POURED WITH PRIOR APPROVAL OF THE ENGINEER
5. SIDES OF FOOTING BASE TO BE POURED AGAINST NATURAL GROUND
6. CONCRETE COVER TO BE 30mm

 CLIENT Government of Uganda Ministry of Water and Environment	 FUNDED BY WORLD BANK	 saman CHEIL CONSULTANT	PROJECT REFERENCE NUMBER : INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP) CONSTRUCTION WORKS FOR WATER SUPPLY AND SANITATION SYSTEM IN SMALL TOWNS OF BUTALEJA AND BUSOLWE	DRAWING DESCRIPTION		DATE	14/12/2021	DRAWN:	Andrew Turyakira
				GROWTH CENTERS - RESERVOIRS 200 m³ BUSOLWE RESERVOIR		SHEET NUMBER	3 OF 3		DESIGNED:
				CONSTRUCTION SUPERVISION	BUSOLWE RESERVOIR SHEET 3 OF 3	DRAWING SCALE	H=1:1000 V=1:100 A3	CHECKED:	Ronald Musenze
						CATEGORY			DETAIL
						DRAWING NUMBER		IWMDB/MBA/6-S-001	

WATER METER



SECTION B-B
Scale 1:50



SECTION A-A
Scale 1:50

PIPE & FITTING SCHEDULE

ITEM	Qty.	Dia.	BoQ Item	DETAILS	DESCRIPTION
①	2	150 mm	n/a		DN 150 Ductile Iron, Ranger Type Flange Adaptor, Connection to OD 160 mm uPVC pipe. Epoxy coated with anchor bolts.
②	2	150 mm	n/a		DN 150 mild steel spool piece, length 600mm, Hot-dip galvanized, Flanged on both sides, with puddle flange
③	2	150 mm	6J811		DN 150 Gate Valve to EN 558-1, basic series 14, resilient seated, flanged on both sides, epoxy coated to bs 6920, Body Bonnet and Wedge Ductile Iron, Wedge EPDM vulcanized, Stem in Stainless Steel, incl handwheel
④	2	150 mm / 65 mm	n/a		DN 150 to DN 65 mild steel taper, Hot-dip galvanized, Flanged on both sides
⑤	2	65 mm	n/a		DN 65 mild steel spool piece, length 350mm, Hot-dip galvanized, Flanged on both sides
⑥	1	65 mm	6J91		DN 65 Woltmann type flow meter, cast iron, epoxy coated, min flow 0.4 m ³ /h, max flow 120 m ³ /h, max temp 50°, flow capacity at 0.1 bar pressure loss > 45.5 m ³ /h
⑦	1	65 mm	n/a		DN 65 Dismantling Joint, Cast Iron, Epoxy coated, with continuous threaded anchor bolts on both sides

FL = Flange, PL = Plain End, PF = Puddle Flange

Notes

Pipework, Valves and Equipment

- ANY INCOMPATIBILITIES WITH REGARDS TO THE SPECIFICATION MUST BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE ORDERING THE MATERIALS
- ALL RSV GATE VALVES MUST BE CLOCKWISE CLOSING
- ALL VALVES TO BE PLACED ON MASS CONCRETE PEDESTALS
- GALVANIZING TO BS EN ISO 1461, MINIMUM 70 MICRONS THICK
- GASKETS FOR FLANGED JOINTS SHALL BE OF COMPRESSED NON-ASBESTOS SYNTHETIC FIBER TO BS 7531 GRADE Y AND FULL FACED WITH A MINIMUM THICKNESS OF 2 mm
- FOR ALL BOLTS, ONE WASHER ON THE BOLT AND WASHER ON THE NUT SIDE TO BE FITTED. A MINIMUM OF 2-4 THREADS IS TO BE PROTRUDING THE NUT SIDE AFTER TIGHTENING
- ALL FITTINGS PN 6 OR ABOVE
- ALL BOLTS, NUTS AND WASHERS TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH BS EN ISO 1461, MINIMUM 70 MICRONS THICK
- ALL THREADED JOINTS TO BE TREATED WITH 'HICHEM' SOLVENTLESS TRAVELLING FILLER OR 'EPIDERMIX 372' ACCORDING TO SUPPLIERS MAKING GOOD OF GALVANIZED JOINTS ONLY WHERE APPROVED BY THE ENGINEER
- ALL BURIED BOLTS AND FLANGES SHALL BE GALVANIZED IN PETROLEUM MASTIC AND TAPE, IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATION
- ALL BURIED STEEL PIPEWORK OUTSIDE THE CHAMBER TO BE BITUMEN TAPE WRAPPED, DENSOCALD 70 (OR EQUAL APPROVED)

Concrete

- ALL STRUCTURAL CONCRETE TO BE C25/19 AND ALL MASS CONCRETE TO BE ST4/19
- ALL EXPOSED CONCRETE CORNERS TO BE CHAMFERED
- WHERE THE PIPE ENTERS RIGID STRUCTURES A 10mm RUBBER WRAP (50 DUROMETER) SHALL BE INSTALLED
- 50 mm BLINDING TO BE POURED BENEATH EVERY STRUCTURE
- ALL CONCRETE STRUCTURES TO BE WATER RETAINING
- NO CONCRETE SHALL BE POURED WITHOUT THE PRIOR APPROVAL OF THE ENGINEER

General

- THE CONTRACTOR SHALL PRODUCE AND SUBMIT SHOP DRAWINGS FOR ALL PIPEWORK AND EQUIPMENT FOR APPROVAL BY ENGINEER
- TECHNICAL DATASHEETS SHEETS OF ALL FITTINGS AND SPECIALS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL

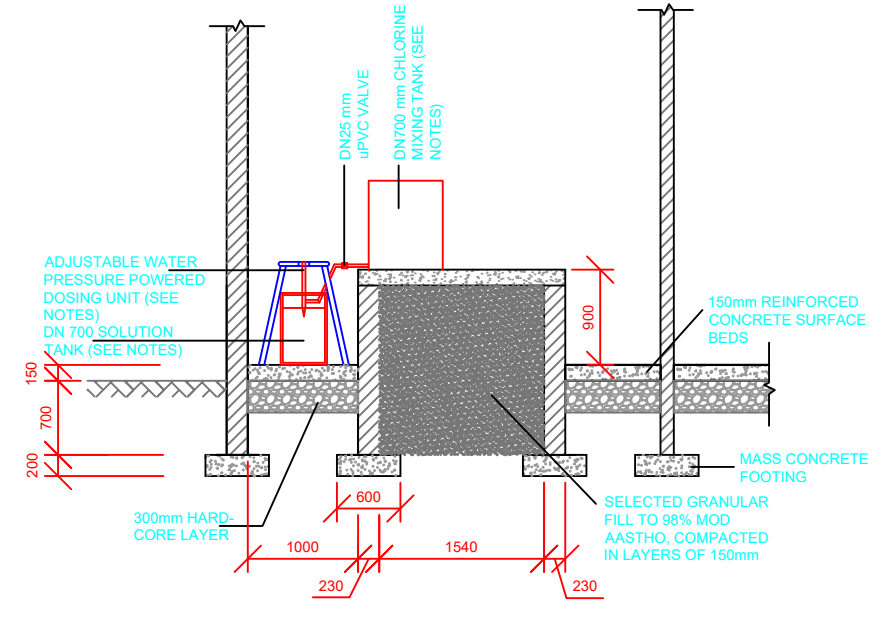
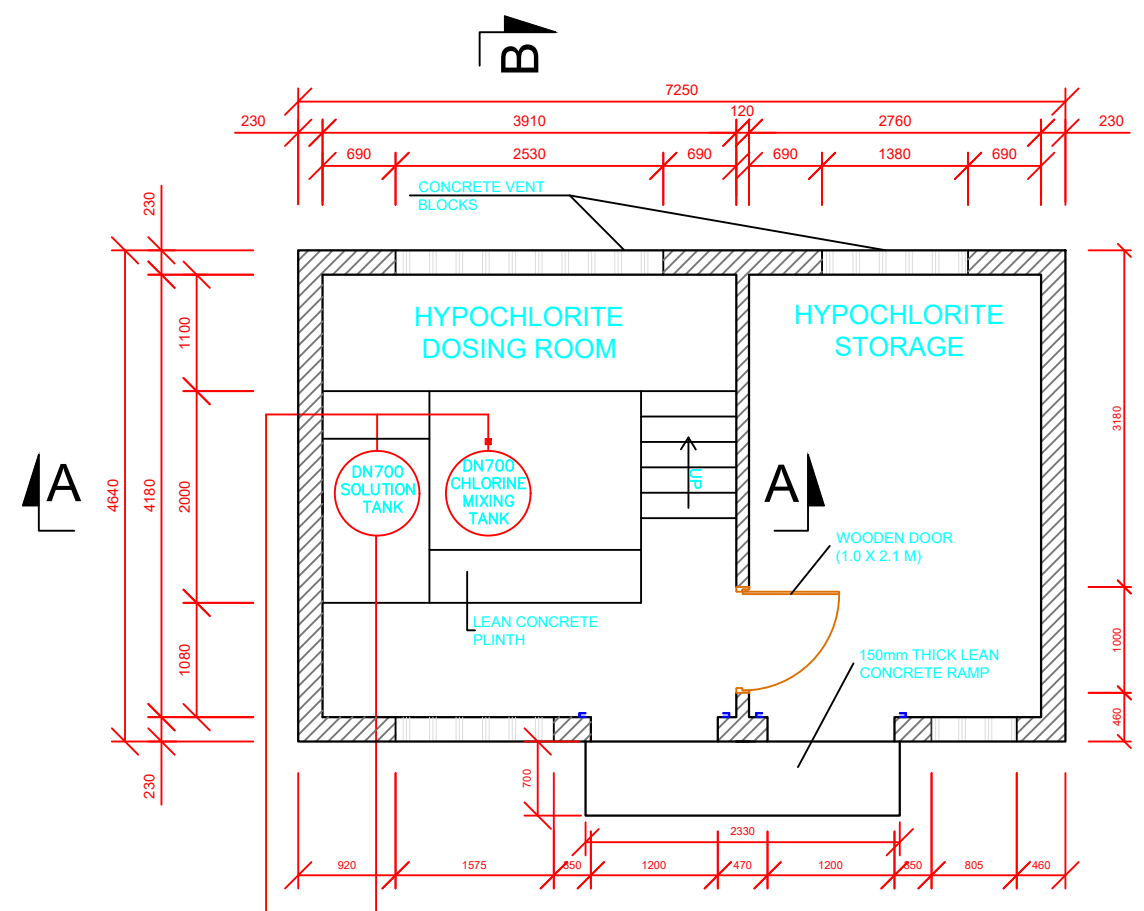
		CLIENT National Water and Sewerage Corporation Government of Uganda Ministry of Water and Environment THE WORLD BANK	FUNDED BY THE WORLD BANK	CONSULTANT saman CHEIL AWE Engineers	PROJECT REFERENCE NUMBER: INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP) CONSULTANCY SERVICES FOR DESIGN REVIEW OF MBALE WATER SUPPLY AND SANITATION PROJECT	DRAWING DESCRIPTION GROWTH CENTERS - RESERVOIRS WATER METER CHAMBER		DATE 25/11/2021 SHEET NUMBER 1 OF 1 DRAWING SCALE H=1:1000 V=1:100 A3	DRAWN: Andrew Turyakira DESIGNED: Ceaser Kisa Wakiibi CHECKED: Ronald Musenze APPROVED: OH Dongwoom
		DESIGN REVIEW	WATER METER CHAMBER SHEET 1 OF 1	CATEGORY DETAIL DRAWING NUMBER IWMDP/MBA/6-D-001					

CHLORINATION UNIT FOR
ALL SMALL TOWNS

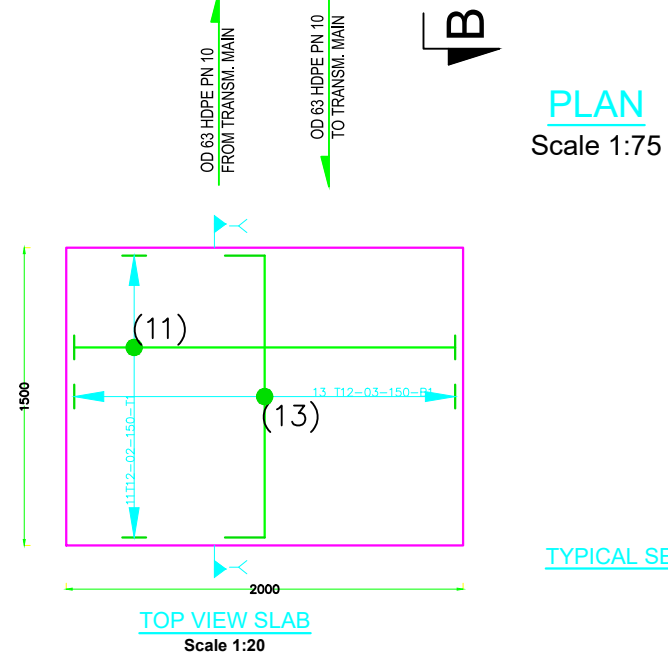
Notes

General

1. CONCRETE IN SURFACE BEDS AND STRIP FOOTING OF GRADE ST4/20
2. CONCRETE IN RING BEAM AND REINFORCED CONCRETE SLAB OF GRADE C25/20
3. PE FOIL TO BE PLACED BENEATH SURFACE BEDS
4. STRIP FOOTING TO BE POURED AGAINST NATURAL GROUND
5. GRAVEL UNDER SURFACE BED TO BE COMPACTED TO 95% MOD ASTHOO
6. ONLY PRE-TREATED WOOD TO BE USED FOR ROOF MEMBERS AND DOOR
7. CORRUGATED IRON ROOF SHEETS TO BE GALVANIZED AND OF GAUGE 24
8. DPC TO BE PLACED IN FIRST BRICK COURSE OVER GROUND LEVEL
9. 50MM BLINDING TO BE POURED BENEATH SURFACE BEDS, PE FOIL TO BE PLACED BETWEEN BLINDING AND SURFACE BED LAYER
10. GROUND FOR FOUNDATION TO BE INSPECTED BY ENGINEER
11. PRECAST CONCRETE LINTELS ON DOORS (1.2M)
12. ALL MEMBERS OF CHLORINE DOSING UNIT SHALL BE OF MADE OF UPVC OR HDPE MATERIALS
13. STAIR WITH 175MM RISE AND 280MM RUN, MASS CONCRETE
14. WALLS PLASTERED INSIDE AND OUTSIDE, CEMENT SAND RATIO 1:3
15. SOLUTION TANK AND MIXING TANK SHALL HAVE CAPACITY OF 0.3 M3 AND SHALL BE EQUIPPED WITH A DRAIN AT THE BOTTOM OF THE TANK
16. DOSING PUMP SHALL BE WATER PRESSURE POWERED WITH INTERNAL INJECTION SUCKED OUT OF THE SOLUTION TANK, WITH INTERNAL SPRING LOADED INJECTION CHECK VALVE, BUILT-IN AIR BLEEDER, SUITABLE FOR CHEMICAL ATTACK

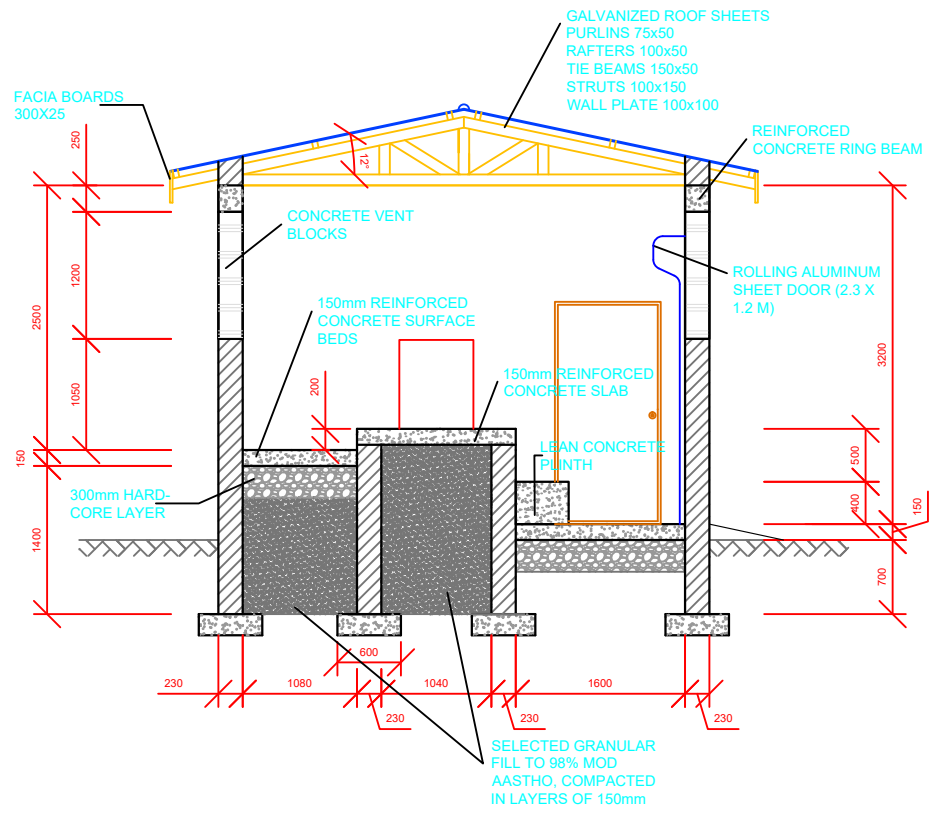


SECTION A-A
Scale 1:75



PLAN
Scale 1:75

TYPICAL SECTION RING BEAM
Scale 1:20



SECTION B-B
Scale 1:75

		PROJECT REFERENCE NUMBER: INTERGRATED WATER MANAGEMENT AND DEVELOPMENT PROJECT (IWMDP) CONSULTANCY SERVICES FOR DESIGN REVIEW OF MBALE WATER SUPPLY AND SANITATION PROJECT		DRAWING DESCRIPTION GROWTH CENTERS - RESERVOIRS CHLORINATION UNIT		DATE: 25/11/2021 SHEET NUMBER: 1 OF 3 DRAWING SCALE: H=1:1000 V=1:100 A3	DRAWN: Andrew Turyakira DESIGNED: Ceaser Kisa Wakiibi
		DESIGN REVIEW	CHLORINATION UNIT SHEET 1 OF 1	DRAWING NUMBER IWMDP/MBA/6-S-005		CHECKED: Ronald Musenze APPROVED: OH Dongwoom	