CO-ORDINATES			SYSTEM	WG 27°
POINT	Y±	X±		Z
TB1	-38432.980	2726991.115		909.116
TB2	-38476.725	2726622.854		911.393
TB3	-38494.473	2727350.102		907.930
TB4	-39432.895	2725160.424		936.058
TB5	-38337.021	2726752.452		907.797
TB6	-39253.699	2723279.116		942.943
TB7	-39271.033	2723030.700		947.403
TB8	-39376.349	2722369.890		943.178
TB9	-39402.737	2722379.003		951.254
TB10	-39273.228	2723411.030		937.639
TB11	-39273.225	2723411.024		937.726
TB13	-39311.673	2723541.762		935.151
TB14	-39387.274	2723690.483		935.154

Water Air/Scour Valves

ID	Y-Coord	X-Coord	NGL	Invert	Depth	Diameter	Type
1-1	-38492.261	2728010.383	913.918	913.602	0.315	80 mm	AV-2S
5-1	-38498.519	2727671.077	916.156	914.640	1.515	50 mm	AV-2S
12-1	-38490.635	2727261.656	907.386	906.170	1.215	80 mm	SV
15-1	-38827.609	2725926.853	926.526	925.010	1.515	50 mm	AV-2S
19-1	-39424.128	2725182.899	935.755	933.640	2.115	50 mm	AV-2S
25-1	-39752.478	2724261.281	940.827	939.012	1.815	80 mm	AV-2S
26-1	-39739.068	2724126.095	938.576	937.361	1.215	80 mm	SV
32-1	-39532.994	2723845.296	933.967	932.751	1.215	80 mm	SV
35-1	-39266.717	2723296.630	943.957	942.141	1.815	80 mm	AV-2S
37-1	-39173.548	2722902.657	941.691	941.691	0.000	80 mm	SV
37-2	-39106.410	2722799.238	944.773	944.773	0.000	80 mm	AV-2S
41-1	-39285.888	2722492.049	940.929	939.924	1.005	80 mm	SV

1) GENERAL NOTES

1.2. The New Customer Manager at the LOCAL Municipality Regional Office must be notified before any construction works related to the installation of water or sewer may be commence.

1.3. All construction work shall comply with the relevant SABS 1200 Specification and LOCAL Municipality specific requirements.

1.4. All materials used in installing water and sewer mains shall comply with the relevant SABS Specification and with the minimum requirements of LOCAL Municipality.

1.5. The position and depth of all existing services on the site and **off the site where affected by the works** shall be confirmed prior to any construction work on the installation of water of sewer mains being commenced.

1.6. Only LOCAL Municipality staff shall carry out tie-in connections to existing water and sewer manholes and mains. Note that a minimum of **2 weeks** notice shall be given to LOCAL Municipality staff to attend site inspections, meeting and any other necessary on site liaison.

1. SPECIFIC WATER REQUIREMENTS

1.1. For standard details refer to Construction standard drawings.

1.2. Protection of fittings and mains.

1.2.1. Steel mains: 3LPE lined internally and externally and suitably wrapped per specification.

1.2.2. Steel fittings: 3LPE coated internally and suitably wrapped per specification.

1.2.3. Galvanised fittings: suitably wrapped per specification.

1.3. All valve and below ground hydrant chambers to be watertight.

1.4. Position of across the road erf connections to be marked by a **W** cut into the kerbstone.

1.5. The contractor shall not operate any water valve or other fittings without the permission of LOCAL Municipality.

1.6. Cover to water mains:

The depths listed are depths to final ground level **inclusive** of **any landscaping** undertaken on the site.

	Minimum (mm)	Maximum (mm)
Gravel Road	1000	1500
Tarred roads and traffic areas	800	1500
Pedestrian areas and other areas		
no used by vehicular traffic	600	1500

1.7. All water mains are to be installed at 2 meters from erf boundaries unless otherwise shown on the drawing.

1.8. Any anchor blocks constructed are to properly shuttered and cast against undisturbed ground. Any over excavation is to be filled with mass concrete.

1.9. All flanges shall be fabricated to SANS 1123 - Table 2500/3.

GENERAL

1) All prefabricated fittings to be lined internally with Cement Mortar Lining 3LPE coated externally.

2) Flanged joints and V.J. couplings to be wrapped in Denso tape.

ISOLATING VALVES

1) Resilient seal valves (RSV) to be used for all pipe diameters.
2) Valves with uPVC body may also be used on reticulation networks.
3) Valves up to 200mm diameter may be plain ended.
4) Valves over 200mm diameter shall be flanged. Maximum distance between valves to be 600m.
5) Spacing on trunk mains to be 1-2 kilometers

SCOUR VALVES

1) Scour valves to be supplied at low points on network if above is not possible. Scour valves to be flanged.
2) Sizing of scour and air valves should be such that each section of pipe can be drained within 2 hours.
3) Valves to be arranged such that not more than 4 must be closed to isolate any portion of the network.

AIR VALVES

1) Air valves to be supplied at high points on network if above is not possible.
2) Sizing of scour and air valves should be such that each section of pipe can be drained within 2 hours.

PRESSURE REDUCING VALVES

1) Pressure gauges to be supplied upstream and downstream of pressure reducing valves.
2) Design to be done according to manufacturers specifications.
3) Pressure differential upstream and downstream of the valve shall not exceed the ratio of 3 to 1.
4) Smaller pressure reducing valves to be supplied on the bypass lines to handle smaller flows.
5) All valves to be flanged.
6) Each valve must be protected by a RSV on both sides of the valve.
7) Line filters (strainers) to be supplied before each valve.

PRESSURE RELEASE VALVES

1) Use with pressure reducing valves on the downstream side thereof
2) The release pressure to be 1.5 times the downstream setting of the pressure reducing valve.
3) Generally the size of the pressure release valve is 60% of the ruling pipe diameter.
4) All valves to be flanged
5) Valves must discharge water visibly and away from any private property.

FILTERS

1) Line filters to be used in front of any control valve.
2) Pressure gauges to be provided upstream and downstream of the filters.
3) Filter material to be of stainless steel and capable of handling 2,5 bar over the sieve.
4) Generally sieve openings of 5mm can be used.
5) Filters must be installed so as to allow for easy maintenance.
6) Sieve to point downwards.

VALVE BOXES

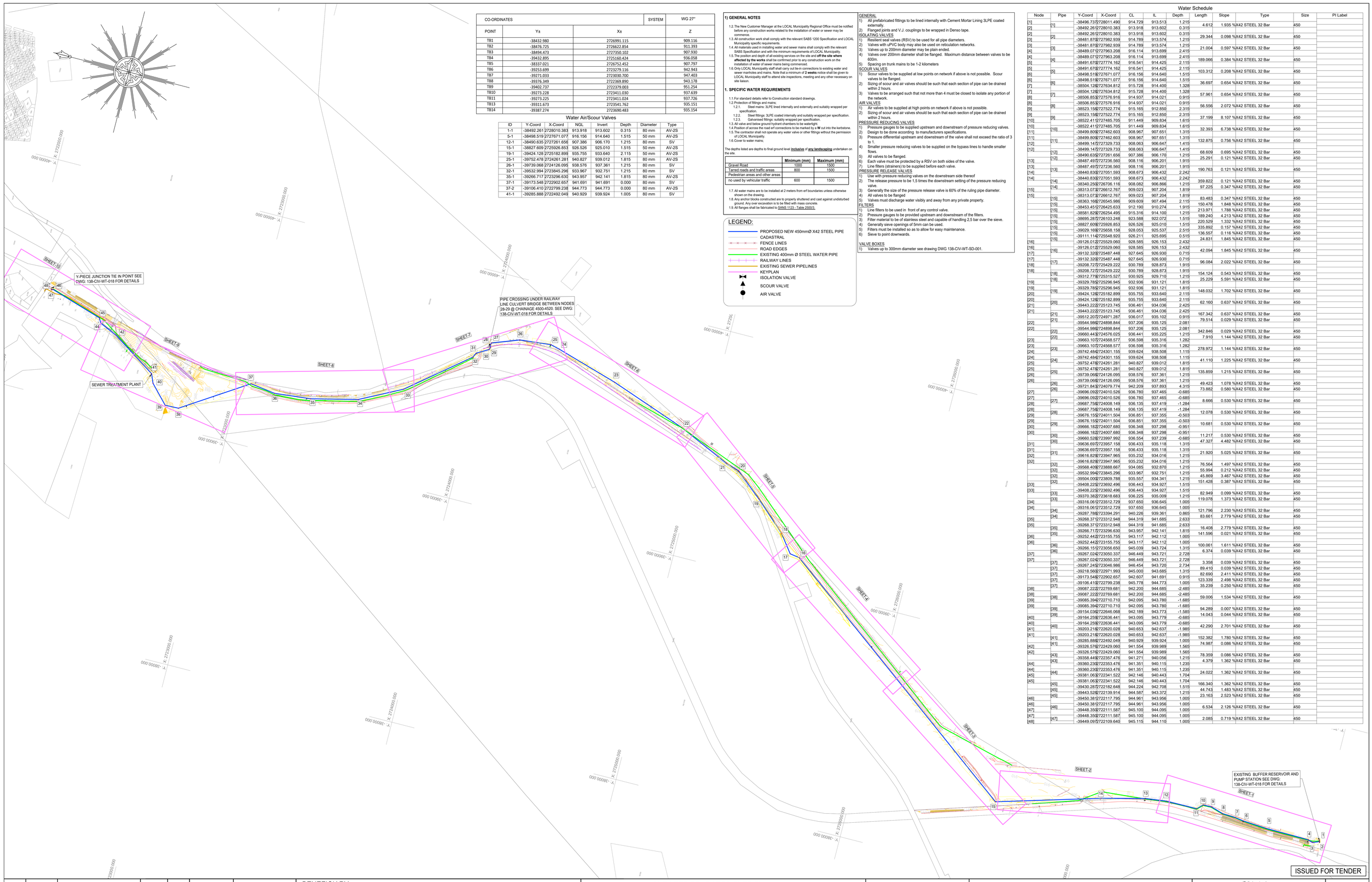
1) Valves up to 300mm diameter see drawing DWG 138-CIV-WT-SD-001.

LEGEND:

- PROPOSED NEW 450mmØ X42 STEEL PIPE
- CADASTRAL
- FENCE LINES
- ROAD EDGES
- EXISTING 400mm Ø STEEL WATER PIPE
- RAILWAY LINES
- EXISTING SEWER PIPELINES
- KEYPLAN
- ISOLATION VALVE
- SCOUR VALVE
- AIR VALVE

Water Schedule

Node	Pipe	Y-Coord	X-Coord	CL	IL	Depth	Length	Slope	Type	Size	PI Label
[1]		-38496.737	2728011.490	914.729	913.513	1.215					
	[1]						4.612	1.935 %	X42 STEEL 32 Bar	450	
[2]		-38492.261	2728010.383	913.918	913.602	0.315					
[2]		-38492.261	2728010.383	913.918	913.602	0.315					
	[2]						29.344	0.098 %	X42 STEEL 32 Bar	450	
[3]		-38481.870	2727982.939	914.789	913.574	1.215					
[3]		-38481.870	2727982.939	914.789	913.574	1.215					
	[3]						21.004	0.597 %	X42 STEEL 32 Bar	450	
[4]		-38489.071	2727963.208	916.114	913.699	2.415					
[4]		-38489.071	2727963.208	916.114	913.699	2.415					
	[4]						189.066	0.384 %	X42 STEEL 32 Bar	450	
[5]		-38491.670	2727774.162	916.541	914.425	2.115					
[5]		-38491.670	2727774.162	916.541	914.425	2.115					
	[5]						103.312	0.208 %	X42 STEEL 32 Bar	450	
[6]		-38498.519	2727671.077	916.156	914.640	1.515					
[6]		-38498.519	2727671.077	916.156	914.640	1.515					
	[6]						36.697	0.654 %	X42 STEEL 32 Bar	450	
[7]		-38504.128	2727634.812	915.728	914.400	1.328					
[7]		-38504.128	2727634.812	915.728	914.400	1.328					
	[7]						57.961	0.654 %	X42 STEEL 32 Bar	450	
[8]		-38506.853	2727576.916	914.937	914.021	0.915					
[8]		-38506.853	2727576.916	914.937	914.021	0.915					
	[8]						56.556	2.072 %	X42 STEEL 32 Bar	450	
[9]		-38523.158	2727522.774	915.165	912.850	2.315					
[9]		-38523.158	2727522.774	915.165	912.850	2.315					
	[9]						37.199	8.107 %	X42 STEEL 32 Bar	450	
[10]		-38522.411	2727485.705	911.449	909.834	1.615					
[10]		-38522.411	2727485.705	911.449	909.834	1.615					
	[10]						32.393	6.738 %	X42 STEEL 32 Bar	450	
[11]		-38499.809	2727462.603	908.967	907.651	1.315					
[11]		-38499.809	2727462.603	908.967	907.651	1.315					
	[11]						132.875	0.756 %	X42 STEEL 32 Bar	450	
[12]		-38499.147	2727329.733	908.063	906.647	1.415					
[12]		-38499.147	2727329.733	908.063	906.647	1.415					
	[12]						68.609	0.695 %	X42 STEEL 32 Bar	450	
[13]		-38490.635	2727261.656	907.386	906.170	1.215					
[13]		-38487.497	2727236.560	908.116	906.201	1.915					
	[13]						25.291	0.121 %	X42 STEEL 32 Bar	450	
[14]		-38487.497	2727236.560	908.116	906.201	1.915					
[14]		-38440.830	2727051.593	908.673	906.432	2.242					
	[14]						190.763	0.121 %	X42 STEEL 32 Bar	450	
[15]		-38440.830	2727051.593	908.673	906.432	2.242					
[15]		-38340.250	2726706.116	908.082	906.866	1.215					
	[15]						359.822	0.121 %	X42 STEEL 32 Bar	450	
[16]		-38340.250	2726706.116	908.082	906.866	1.215					
[16]		-38313.073	2726612.767	909.023	907.204	1.819					
	[16]						97.225	0.347 %	X42 STEEL 32 Bar	450	
[17]		-38313.073	2726612.767	909.023	907.204	1.819					
[17]		-38363.168	2726545.986	909.609	907.494	2.115					
	[17]						83.483	0.347 %	X42 STEEL 32 Bar	450	
[18]		-38453.457	2726425.633	912.190	910.274	1.915					
[18]		-38581.828	2726254.495	915.316	914.100	1.215					
	[18]						150.478	1.848 %	X42 STEEL 32 Bar	450	
[19]		-38695.287	2726103.248	923.588	922.072	1.515					
[19]		-38827.609	2725926.853	926.526	925.010	1.515					
	[19]						213.971	1.788 %	X42 STEEL 32 Bar	450	
[20]		-39029.166	2725658.158	928.053	925.537	2.515					
[20]		-39111.114	2725548.920	926.211	925.695	0.515					
	[20]						189.240	4.213 %	X42 STEEL 32 Bar	450	
[21]		-39126.012	2725529.060	928.585	926.153	2.432					
[21]		-39126.012	2725529.060	928.585	926.153	2.432					
	[21]						220.529	1.332 %	X42 STEEL 32 Bar	450	
[22]		-39132.320	2725487.448	927.645	926.930	0.715					
[22]		-39132.320	2725487.448	927.645	926.930	0.715					
	[22]						335.892	0.157 %	X42 STEEL 32 Bar	450	
[23]		-39208.727	2725429.222	930.789	928.873	1.915					
[23]		-39208.727	2725429.222	930.789	928.873	1.915					
	[23]						136.557	0.116 %	X42 STEEL 32 Bar	450	
[24]		-39312.771	2725315.527	930.925	929.710	1.215					
[24]		-39329.785	2725296.945	932.936	931.121	1.815					
	[24]						24.831	1.845 %	X42 STEEL 32 Bar	450	
[25]		-39329.785	2725296.945	932.936	931.121	1.815					
[25]		-39424.128	2725182.899	935.755	933.640	2.115					
	[25]						148.032	1.702 %	X42 STEEL 32 Bar	450	
[26]		-39424.128	2725182.899	935.755	933.640	2.115					
[26]		-39443.222	2725123.745	936.461	934.036	2.425					
	[26]						62.160	0.637 %	X42 STEEL 32 Bar	450	
[27]		-39443.222	2725123.745	936.461	934.036	2.425					
[27]		-39512.207	2724971.287	936.017	935.102	0.915					
	[27]						167.342	0.637 %	X42 STEEL 32 Bar	450	
[28]		-39544.986	2724898.844	937.206	935.125	2.081					
[28]		-39544.986	2724898.844	937.206	935.125	2.081					
	[28]						79.514	0.029 %	X42 STEEL 32 Bar	450	
[29]		-39660.443	2724576.025	936.441	935.225	1.215					
[29]		-39663.107	2724568.577	936.598	935.316	1.282					
	[29]						342.846	0.029 %	X42 STEEL 32 Bar	450	
[30]		-39663.107	2724568.577	936.598	935.316	1.282					
[30]		-39742.484	2724301.155	939.624	938.508	1.115					
	[30]						7.910	1.144 %	X42 STEEL 32 Bar	450	
[31]		-39742.484	2724301.155	939.624	938.508	1.115					
[31]		-39752.478	2724261.281	940.827	939.012	1.815					
	[31]						278.972	1.144 %	X42 STEEL 32 Bar	450	
[32]		-39752.478	2724261.281	940.827	939.012	1.815					
[32]		-39739.068	2724126.095	938.576	937.361	1.215					
	[32]						41.110	1.225 %	X42 STEEL 32 Bar	450	
[33]		-39739.068	2724126.095	938.576	937.361	1.215					
[33]		-39721.843	2724079.774	942.209	937.893	4.315					
	[33]						135.859	1.215 %	X42 STEEL 32 Bar	450	
[34]		-39696.092	2724010.526	936.780	937.465	-0.685					
[34]		-39696.092	2724010.526	936.780	937.465	-0.685					
	[34]						49.423	1.078 %	X42 STEEL 32 Bar	450	
[35]		-39687.758	2724008.149	936.135	937.419	-1.284					
[35]		-39687.758	2724008.149	936.135	937.419	-1.284					
	[35]						73.882	0.580 %	X42 STEEL 32 Bar	450	
[36]		-39676.155	2724011.504	936.851	937.355	-0.503					
[36]		-39676.155	2724011.504	936.851	937.355	-0.503					
	[36]						8.666	0.530 %	X42 STEEL 32 Bar	450	
[37]		-39666.182	2724007.680	936.348	937.298	-0.951					
[37]		-39666.182	2724007.680	936.348	937.298	-0.951					
	[37]						12.078	0.530 %	X42 STEEL 32 Bar	450	
[38]		-39660.526	2723997.992	936.554	937.239	-0.685					
[38]		-39636.697	2723957.158	936.433	935.118	1.315					
	[38]						47.327	4.482 %	X42 STEEL 32 Bar	450	
[39]		-39636.697	2723957.158	936.433	935.118	1.315					
[39]		-39616.828	2723947.965	935.232	934.016	1.215					
	[39]						21.920	5.025 %	X42 STEEL 32 Bar	450	
[40]		-39616.828	2723947.965	935.232	934.016	1.215					
[40]		-39504.000	2723809.788	935.557	934.341	1.215					
	[40]						76.564	1.497 %	X42 STEEL 32 Bar	450	
[41]		-39408.225	2723692.496	936.443	934.927	1.515					
[41]		-39408.225	2723692.496	936.443	934.927	1.515					
	[41]						55.994	0.212 %	X42 STEEL 32 Bar	450	
[42]		-39370.382	2723618.683	936.225	935.009	1.215					
[42]		-39370.382	2723618.683	936.225	935.009	1.215					
	[42]						45.869	3.467 %	X42 STEEL 32 Bar	450	
[43]		-39316.061	2723512.729	937.650	936.645	1.005					
[43]		-39316.061	2723512.729	937.650	936.645	1.005					
	[43]						151.428	0.387 %	X42 STEEL 32 Bar	450	
[44]		-39287.788	2723394.291	940.226	939.361	0.865					
[44]		-39268.371	2723312.948	944.319	941.685	2.633					
	[44]						83.661	2.779 %	X42 STEEL 32 Bar	450	
[45]		-39268.371	2723312.948	944.319	941.685	2.633					
[45]		-39266.717	2723296.630	943.957	942.141	1.815					
	[45]						16.408	2.779 %	X42 STEEL 32 Bar	450	
[46]		-39252.442	2723155.755	943.117	942.112	1.005					
[46]		-39252.442	2723155.755	943.117	942.112	1.005					
	[46]						141.596	0.021 %	X42 STEEL 32 Bar	450	
[47]		-39266.151	2723056.650	945.039	943.724	1.315					
[47]		-39267.024	2723050.337	946.449	943.721	2.728					
	[47]						6.374	0.039 %	X42 STEEL 32 Bar	450	
[48]		-39267.024	2723050.337	946.449	943.721	2.728					
[48]		-39267.245	2723046.986	946.454	943.720	2.734					
	[48]						3.358	0.039 %	X42 STEEL 32 Bar	450	
[49]		-39218.560	2722971.993	945.000	943.685	1.315					
[49]		-39173.548	2722902.657	942.607	941.691	0.915					
	[49]						89.410	0.039 %	X42 STEEL 32 Bar	450	
[50]		-39106.410	2722799.238	945.778	944.773	1.005					
[50]		-39087.222	2722769.681	942.200	944.685	-2.485					
	[50]						82.690	2.411 %	X42 STEEL 32 Bar	450	
[51]		-39087.222	2722769.681	942.200	944.685	-2.485					
[51]		-39085.394	2722710.710	942.095	943.780	-1.685					
	[51]						123.339	2.498 %	X42 STEEL 32 Bar	450	
[52]		-39085.394	2722710.710	942.095	943.780	-1.685					
[52]		-39154.036	2722646.068	942.189	943.773	-1.585					
	[52]						35.239	0.250 %	X42 STEEL 32 Bar	450	
[53]		-39164.259	2722636.441	943.095	943.779	-0.685					
[53]		-39164.259	2722636.441	943.095	943.779	-0.685					
	[53]						59.006	1.534 %	X42 STEEL 32 Bar	450	
[54]		-39203.218	2722620.028	940.653	942.637	-1.985					
[54]		-39203.218	2722620.028	940.653	942.637	-1.985					
	[54]						94.289	0.007 %	X42 STEEL 32 Bar	450	
[55]		-39285.888	2722492.049	940.929	939.924	1.005					
[55]		-39326.576	2722429.060	941.554	939.989	1.565					
	[55]						14.043	0.044 %	X42 STEEL 32 Bar	450	
[56]		-39326.576	2722429.060	941.554	939.989	1.565					
[56]		-39358.449	2722357.476	941.271	940.056	1.215					
	[56]						42.290	2.701 %	X42 STEEL 32 Bar	450	
[57]		-39360.230	2722353.476	941.351	940.115	1.235					
[57]		-39360.230	2722353.476	941.351	940.115	1.235					
	[57]						152.382	1.780 %	X42 STEEL 32 Bar	450	
[58]		-39381.063	2722341.522	942.146	940.443	1.704					
[58]		-39381.063	2722341.522	942.146	940.443	1.704					
	[58]						74.987	0.086 %	X42 STEEL 32 Bar	450	
[59]		-39430.287	2722182.648	944.224	942.708	1.515					
[59]		-39443.528	2722139.914	944.587	943.372	1.215					
	[59]						78.359	0.086 %	X42 STEEL 32 Bar	450	
[60]		-39443.528	2722139.914	944.587	943.372	1.215					
[60]		-39450.381	2722117.795	944.961	943.956	1.005					
	[60]						4.379	1.362 %	X42 STEEL 32 Bar	450	
[61]		-39450.381	2722117.795	944.961	943.956	1.005					
[61]		-39448.350	2722111.587	945.100	944.095	1.005					
	[61]						6.534	2.126 %	X42 STEEL 32 Bar	450	
[62]		-39448.350	2722111.587	945.100	944.095	1.005					
[62]		-39449.097	2722109.640	945.115	944.110	1.005					
	[62]						24.022	1.362 %	X42 STEEL 32 Bar	450	
[63]		-39449.097	2722109.640	945.115	944.110	1.005					
	[63]						2.085	0.719 %	X42 STEEL 32 Bar	450	



ISSUED FOR TENDER

No	DATE	REVISION	CONSULT	DIR
A	20-09-2022	ISSUED FOR TENDER	MAKONE	R.J.K

DESIGNED BY	B.N
CHECKED BY	B.N.
DRAWN BY	X.N
CHECKED BY	I.M

BENEFICIARY

THABAZIMBI LOCAL MUNICIPALITY
7 Rietbok Street
Thabazimbi
0380

ONTWERP DEUR / DESIGNED BY

CONSULTANT:

MAKONZE
260 CHURCH STREET Cnr WITKOPPEN ROAD
JUKSKEI PARK
JOHANNESBURG
2188

P.O. BOX 944
JUKSKEI PARK
2153

TEL: 011 704 0253

CONSULTING ENGINEERS
Civil, Structural Engineers & Project Managers

FOR: CLIENT DATE

CONSULTING ENGINEER DATE

CONTRACT NUMBER: TECH 04 2022 23

PROJECT
THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

DETAILS
THABAZIMBI PUMP STATION AND Y PIECE PIPELINE GENERAL LAYOUT

(Full signature)

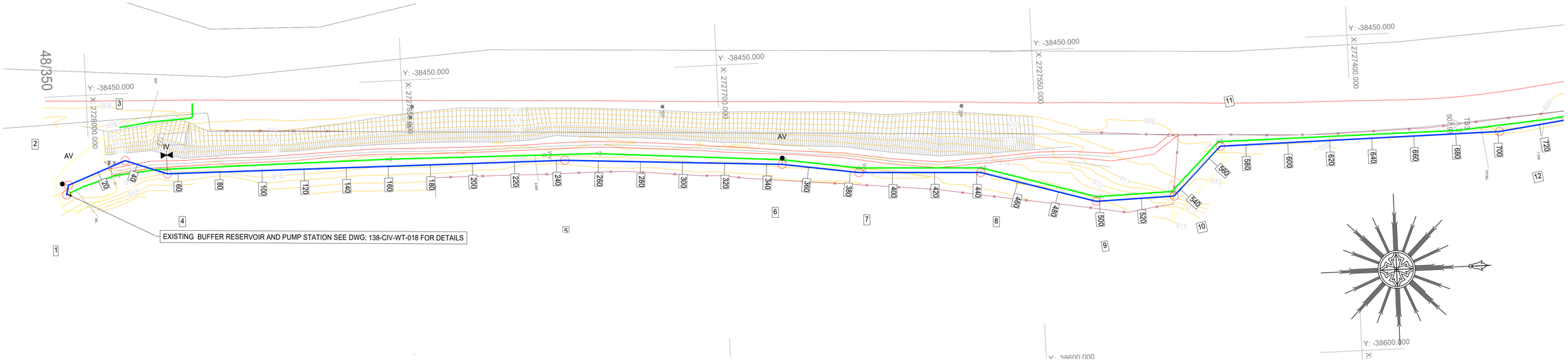
FOR: CLIENT DATE

For: CONSULTING ENGINEER DATE

SHEET 1 OF 1

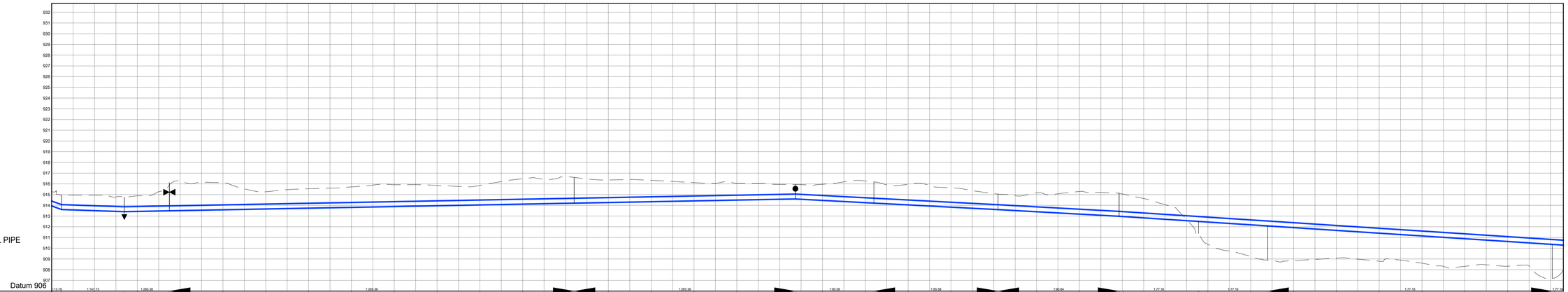
SCALE
AS SHOWN

CONSULTANTS DRAWING NUMBER	REVISION NO.	CLIENT DRAWING NUMBER
138-CIV-WT-001	A	



LEGEND:

- PROPOSED NEW 450mmØ X42 STEEL PIPE
- CADASTRAL
- FENCE LINES
- ROAD EDGES
- EXISTING 400mm Ø STEEL WATER PIPE
- RAILWAY LINES
- EXISTING SEWER PIPELINES
- KEYPLAN
- ISOLATION VALVE
- SCOUR VALVE
- AIR VALVE



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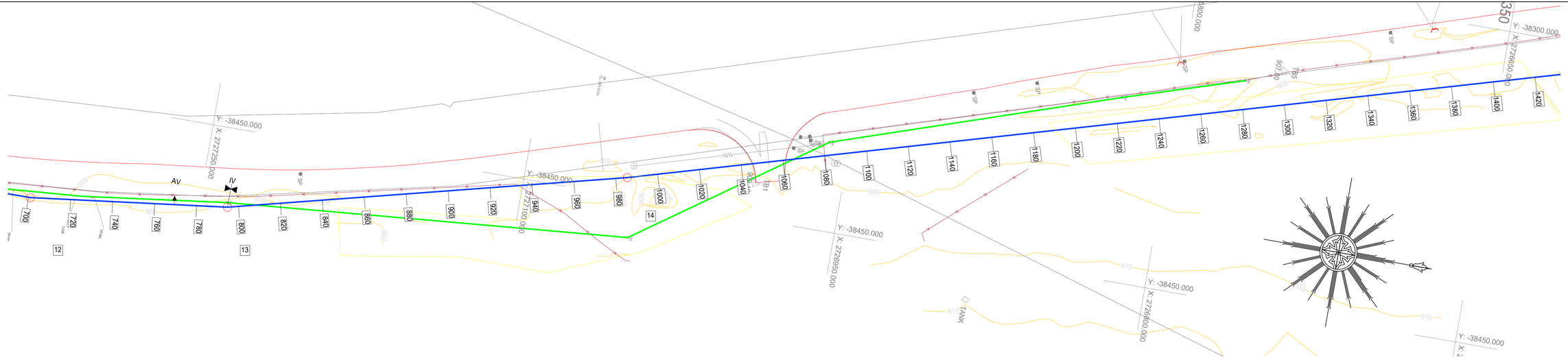

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- RAILWAY LINES
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- ISOLATION VALVE
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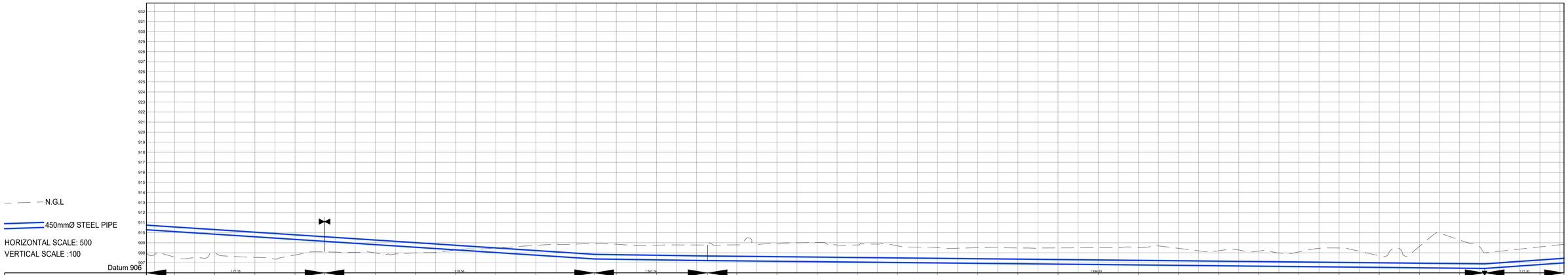

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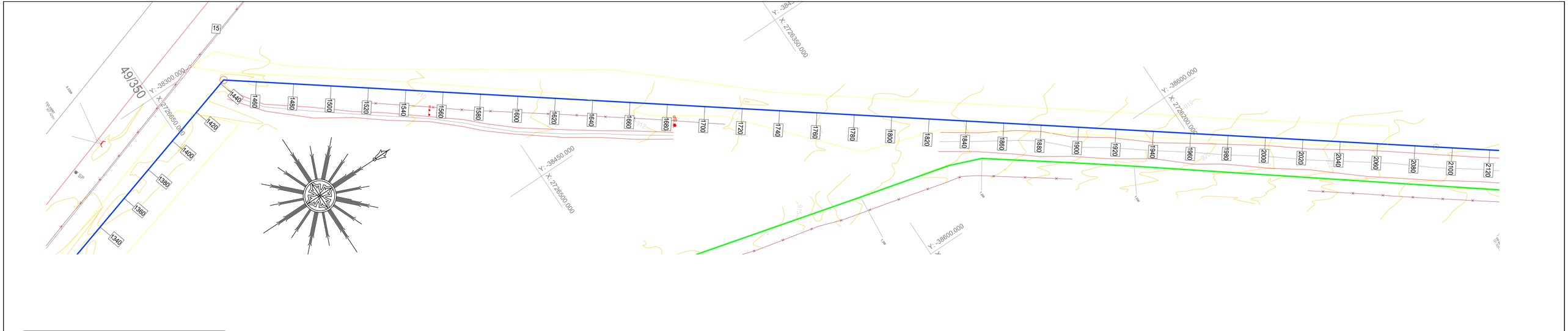

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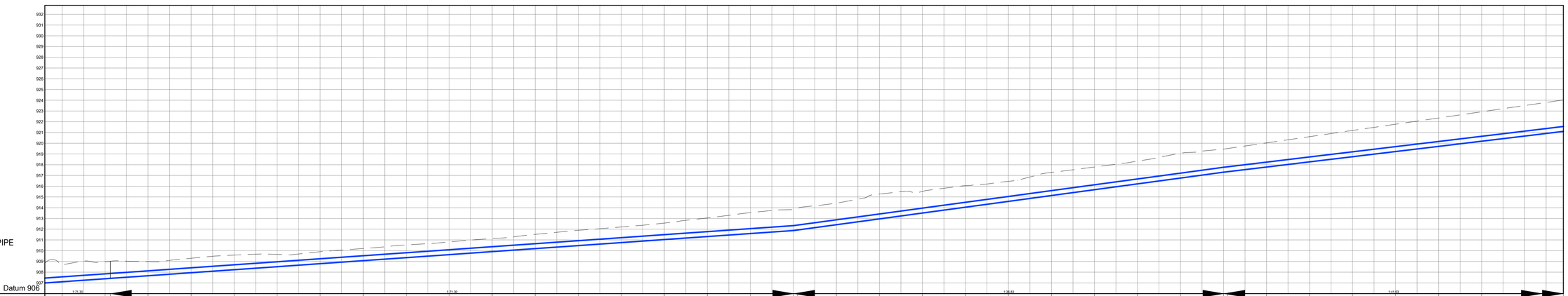

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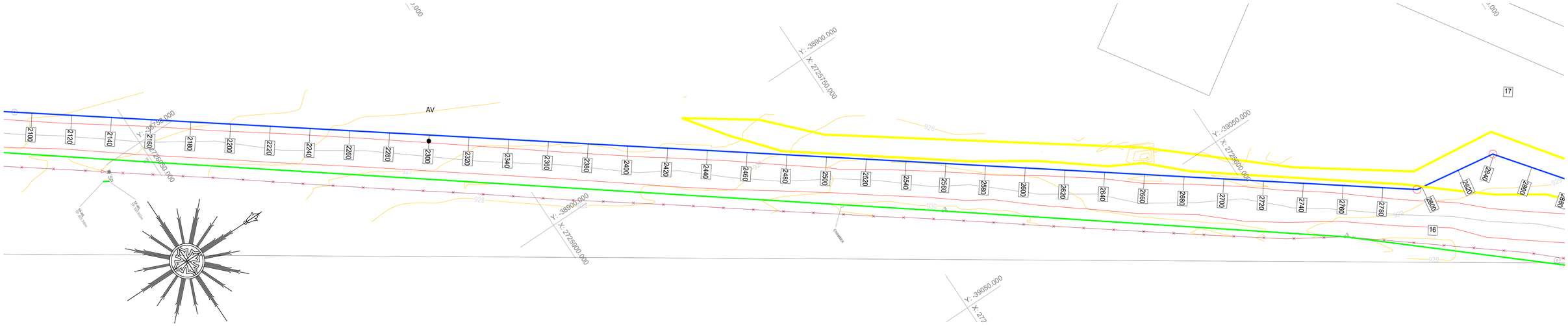

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- CADASTRAL
- FENCE LINES
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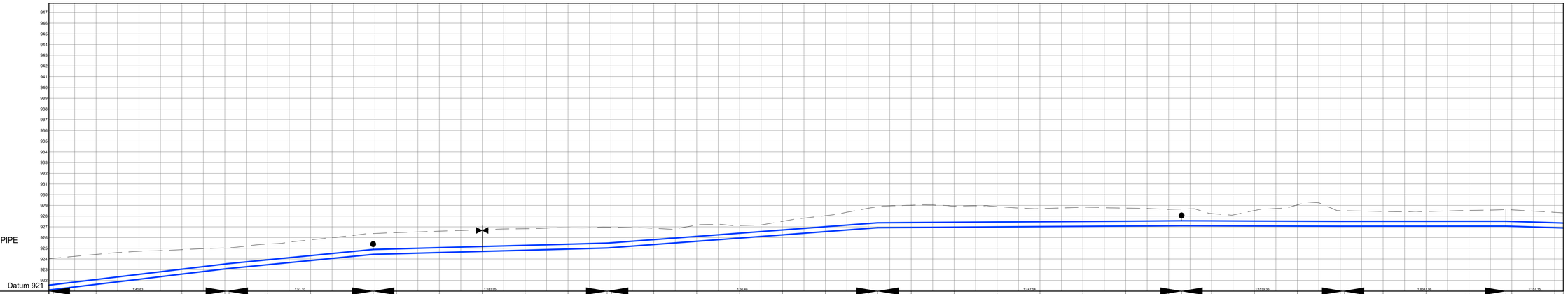

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Inlet Level / Outlet Level	921.140, 921.140, 927.628, 922.109, 922.548, 923.037, 923.002, 923.465, 923.856, 924.248, 924.427, 924.486, 924.596, 924.705, 924.814, 924.924, 926.037, 926.000, 925.351, 925.632, 925.933, 926.254, 926.554, 926.855, 926.920, 926.941, 926.968, 926.995, 927.021, 927.048, 927.075, 927.102, 927.110, 927.101, 927.088, 927.075, 927.062, 927.061, 927.063, 927.065, 927.066, 927.070, 927.070, 927.052, 928.305, 928.309
Depth	1.442, 2.916, 2.797, 2.609, 2.280, 1.905, 1.949, 1.925, 1.927, 1.955, 1.949, 1.914, 2.022, 2.024, 2.009, 1.989, 1.949, 1.916, 1.913, 1.517, 1.183, 1.265, 1.487, 1.866, 1.849, 2.074, 1.972, 1.898, 1.681, 1.776, 1.678, 1.528, 1.549, 1.139, 1.436, 1.972, 1.545, 1.545, 1.373, 1.367, 1.469, 1.545, 1.545, 1.432, 1.719
Node Name	[15], [16]
Pipe Name	[15], [16]
Link Type / Link Size	X42 STEEL 32 Bar 450, X42 STEEL 32 Bar 450
Length / Slope	82.944 m 2.402%, 68.250 m 1.957%, 109.085 m 0.547%, 126.074 m 1.505%, 141.716 m 0.134%, 75.307 m 0.065%, 75.916 m 0.012%, 26.761 m 0.636%
Flow	276.000 l/s, 276.000 l/s
Velocity	1.807 m/s, 1.807 m/s
Pressure (bar)	21.215, 20.978, 20.978, 20.808, 20.808, 20.688, 20.688, 20.430, 20.430, 20.330, 20.330, 20.292, 20.292, 20.248, 20.248, 20.243
Hydraulic Grade (m) / Head Loss	7.869 m, 0.255 m
Chainage	2118.000, 2120.000, 2140.000, 2160.000, 2180.000, 2200.000, 2220.000, 2230.000, 2240.000, 2260.000, 2280.000, 2299.137, 2300.000, 2320.000, 2340.000, 2360.000, 2380.000, 2418.241, 2420.000, 2440.000, 2460.000, 2480.000, 2500.000, 2504.501, 2520.000, 2540.000, 2560.000, 2580.000, 2600.000, 2620.000, 2640.000, 2660.000, 2680.000, 2700.000, 2720.000, 2740.000, 2760.000, 2780.000, 2797.240, 2800.000, 2820.000, 2840.000

Node [15] to [16]

ISSUED FOR TENDER

No	DATE	REVISION	CONSULT	DIR
A	20-09-2022	ISSUED FOR TENDER	MAKONE	R.J.K

DESIGNED BY	B.N
CHECKED BY	I.M
DRAWN BY	X.N
CHECKED BY	I.M

CLIENT

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MAKONE
CONSULTING ENGINEERS
Civil, Structural Engineers & Project Managers

FOR: CLIENT DATE

CONSULTING ENGINEER DATE

CONTRACT NUMBER: TECH 04 2022 23

PROJECT
THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

DETAILS
LAYOUT AND LONGITUDINAL SECTIONS

(Full signature)

FOR: CLIENT DATE

For: CONSULTING ENGINEER DATE

SHEET 4 OF 16

SCALE
AS SHOWN

CONSULTANTS DRAWING NUMBER	REVISION NO.	CLIENT DRAWING NUMBER
138-CIV-WT-005	A	

LEGEND:

- PROPOSED NEW 450mmØ X42 STEEL PIPE
- CADASTRAL
- FENCE LINES
- ROAD EDGES
- EXISTING 400mm Ø STEEL WATER PIPE
- RAILWAY LINES
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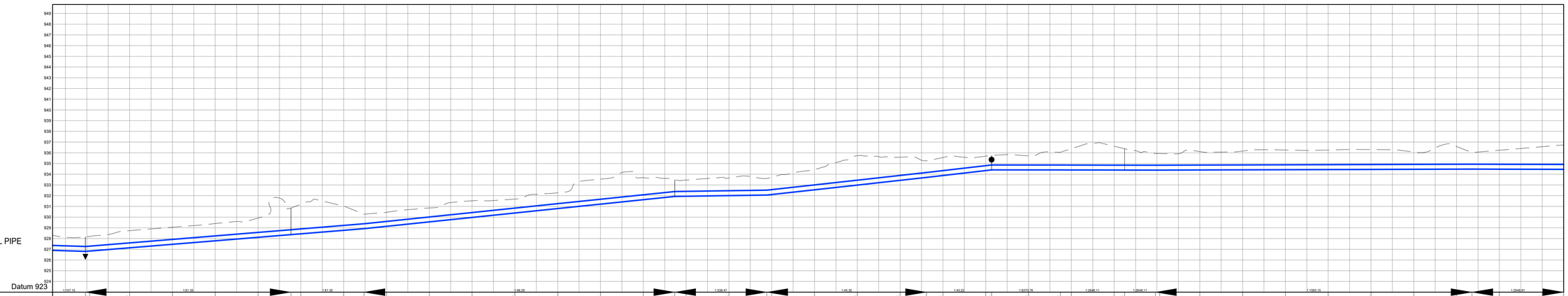
- KEYPLAN
- ISOLATION VALVE
- SCOUR VALVE
- AIR VALVE



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Inlet Level / Outlet Level	926.900, 926.802, 926.815, 927.139, 927.465, 927.791, 928.117, 928.368, 928.343, 928.443, 928.769, 928.824, 929.141, 929.556, 929.970, 930.384, 930.798, 931.212, 931.626, 931.851, 931.931, 931.948, 932.065, 932.055, 932.108, 932.549, 932.960, 933.431, 933.702, 933.881, 934.344, 934.426, 934.387, 934.410, 934.401, 934.369, 934.382, 934.390, 934.373, 934.346, 934.397, 934.410, 934.422, 934.435, 934.448, 934.460, 934.473, 934.497, 934.471, 934.461, 934.456
Depth	1.719, 1.349, 1.304, 1.601, 1.589, 1.606, 1.797, 2.489, 2.760, 2.264, 1.349, 1.305, 1.301, 1.554, 1.302, 1.474, 2.334, 2.055, 1.549, 1.510, 1.647, 1.549, 1.621, 1.929, 2.739, 2.159, 1.549, 1.679, 1.344, 1.349, 1.305, 1.649, 1.983, 2.224, 1.989, 1.549, 1.546, 1.714, 1.752, 1.639, 1.826, 1.855, 1.611, 2.110, 1.549, 1.787, 2.108, 1.570
Node Name	[17], [18], [19], [20], [21]
Pipe Name	[16], [17], [18], [19], [20], [21]
Link Type / Link Size	X42 STEEL 32 Bar 450; X42 STEEL 32 Bar 450; X42 STEEL 32 Bar 450; X42 STEEL 32 Bar 450; X42 STEEL 32 Bar 450; X42 STEEL 32 Bar 450
Length / Slope	15.327 m 0.636%; 96.077 m 1.630%; 34.128 m 1.630%; 145.218 m 2.071%; 43.013 m 0.295%; 74.591 m 2.205%; 30.434 m 2.314%; 32.174 m 0.016%; 29.984 m 0.038%; 14.447 m 0.038%; 147.865 m 0.063%; 42.817 m 0.049%
Flow	276.000 l/s; 276.000 l/s; 276.000 l/s; 276.000 l/s; 276.000 l/s; 276.000 l/s; 276.000 l/s
Velocity	1.807 m/s; 1.807 m/s; 1.807 m/s; 1.807 m/s; 1.807 m/s; 1.807 m/s; 1.807 m/s
Pressure (bar)	20.243, 20.248, 20.249, 20.240, 20.240, 19.966, 19.966, 19.588, 19.588, 19.560, 19.559, 19.346, 19.346, 19.259, 19.259, 19.241, 19.241, 19.225, 19.225, 19.217, 19.217, 19.123, 19.123, 19.095
Hydraulic Grade (m) / Head Loss	0.255 m; 0.569 m; 1.051 m; 0.870 m; 0.372 m; 1.443 m
Chainage	2894.000, 2939.377, 2940.000, 2960.000, 2980.000, 2990.000, 2920.000, 2955.391, 3000.000, 3020.000, 3040.000, 3060.000, 3080.000, 3100.000, 3114.702, 3120.000, 3140.000, 3157.714, 3160.000, 3180.000, 3200.000, 3220.000, 3232.287, 3240.000, 3260.000, 3268.713, 3280.000, 3294.887, 3300.000, 3320.000, 3324.871, 3339.318, 3340.000, 3360.000, 3380.000, 3400.000, 3420.000, 3440.000, 3460.000, 3480.000, 3487.193, 3500.000, 3520.000, 3530.000

Node [16] to [21]

ISSUED FOR TENDER

No	DATE	REVISION	CONSULT	DIR
A	20-09-2022	ISSUED FOR TENDER	MAKONE	R.J.K

DESIGNED BY	B.N
CHECKED BY	I.M
DRAWN BY	X.N
CHECKED BY	I.M

CLIENT

THABAZIMBI LOCAL MUNICIPALITY
7 Rietbok Street
Thabazimbi
0380

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FOR: CLIENT — DATE

CONSULTING ENGINEER — DATE

CONTRACT NUMBER: TECH 04 2022 23

PROJECT

THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

DETAILS

LAYOUT AND LONGITUDINAL SECTIONS

(Full signature)

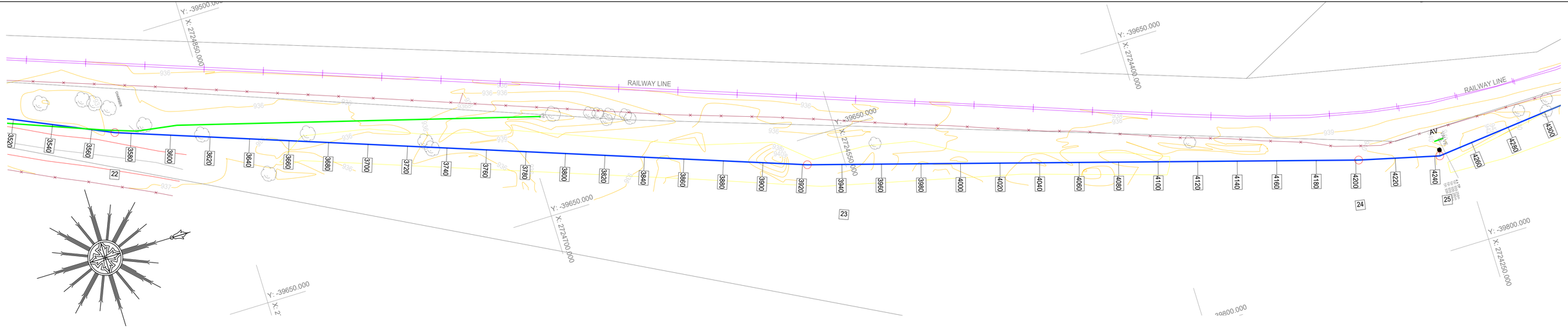
FOR: CLIENT — DATE

For: CONSULTING ENGINEER — DATE

SHEET 5 OF 16

SCALE: AS SHOWN

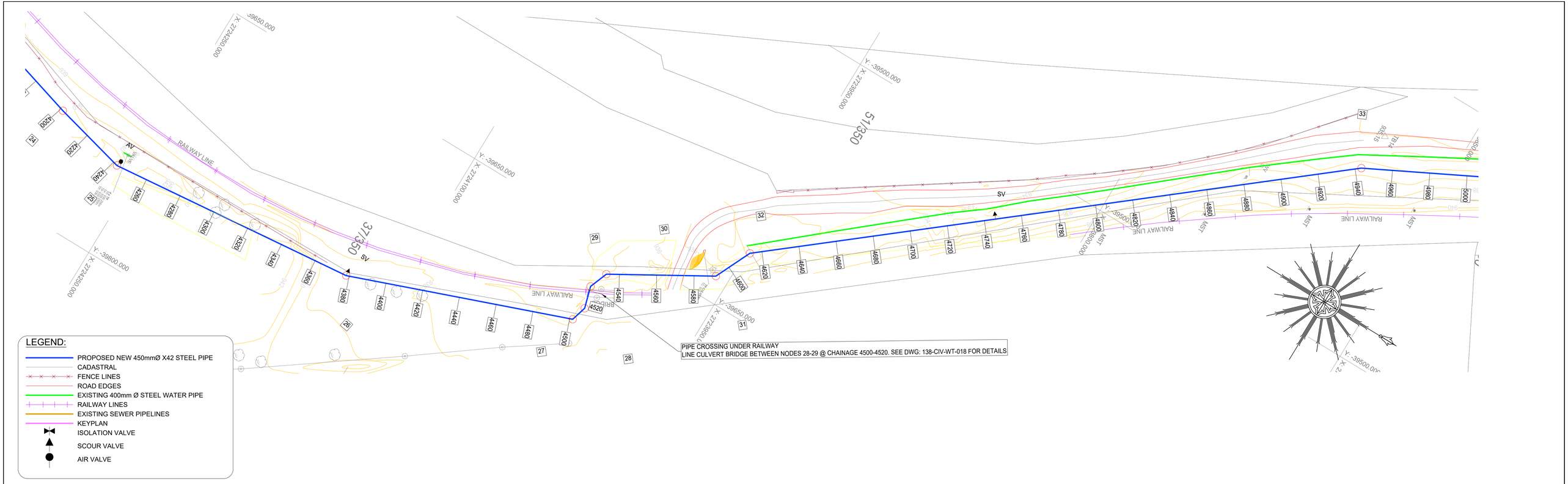
CONSULTANTS DRAWING NUMBER	REVISION NO.	CLIENT DRAWING NUMBER
138-CIV-WT-006	A	

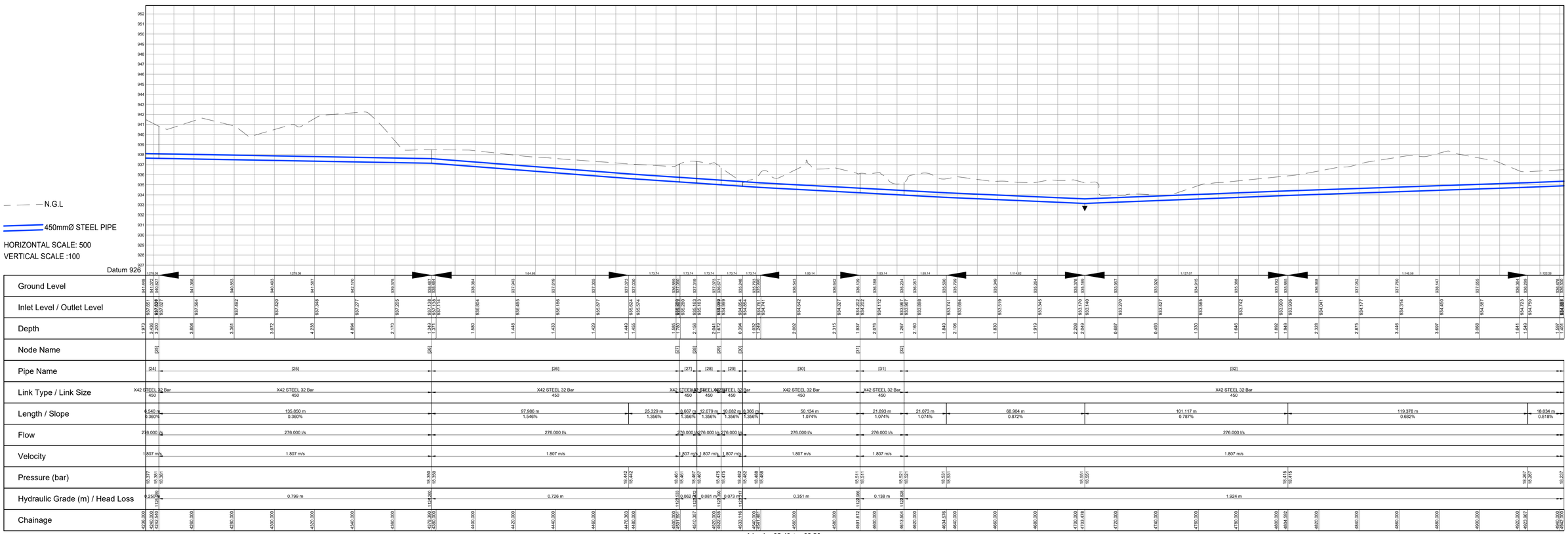


LEGEND:

- PROPOSED NEW 450mmØ X42 STEEL PIPE
- CADASTRAL
- FENCE LINES
- ROAD EDGES
- EXISTING 400mm Ø STEEL WATER PIPE
- RAILWAY LINES
- EXISTING SEWER PIPELINES
- KEYPLAN
- ISOLATION VALVE
- SCOUR VALVE
- AIR VALVE

| | | |





ISSUED FOR TENDER

A	20-09-2022	ISSUED FOR TENDER	MAKONE	R.J.K	DESIGNED BY	B.N	
					CHECKED BY	I.M	
					DRAWN BY	X.N	
					CHECKED BY	I.M	
No	DATE	REVISION	CONSULT	DIR			

CLIENT

THABAZIMBI LOCAL MUNICIPALITY
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CONSULTING ENGINEER — DATE

CONTRACT NUMBER: TECH 04 2022 23

PROJECT

THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

DETAILS

LAYOUT AND LONGITUDINAL SECTIONS

(Full signature)

FOR: CLIENT — DATE

For: CONSULTING ENGINEER — DATE

SHEET 7 OF 16

SCALE: AS SHOWN

CONSULTANTS DRAWING NUMBER	REVISION NO.	CLIENT DRAWING NUMBER
138-CIV-WT-008	A	

RAILWAY LINE
AV
MST
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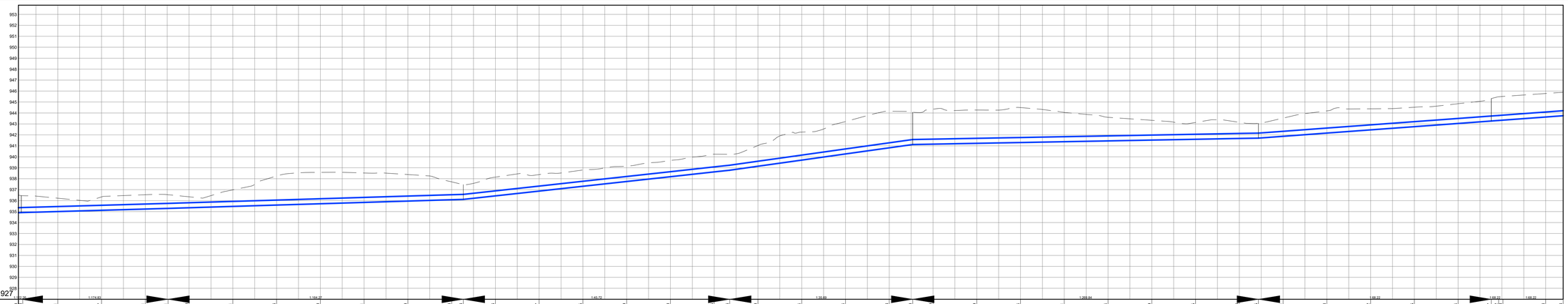
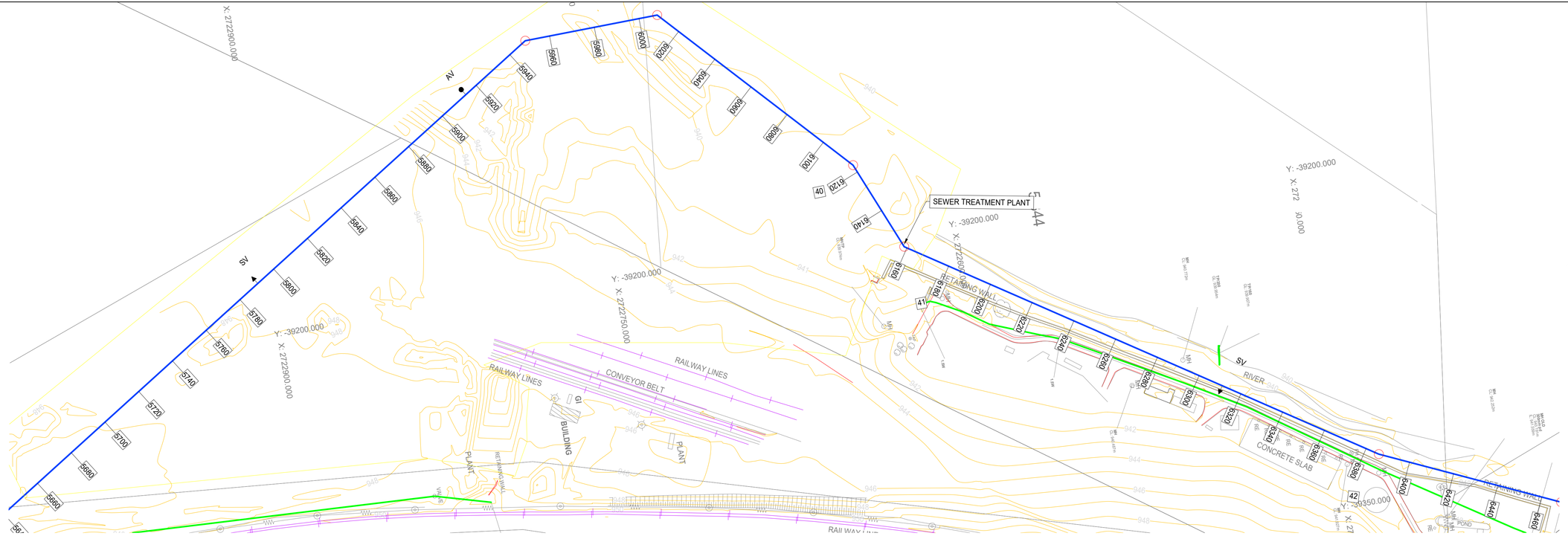
X: 272350.000
Y: -39200.000
X: 272200.000
Y: -39200.000
X: 272050.000
36/350
33
34
35
36
37


N.G.L
450mmØ STEEL PIPE
HORIZONTAL SCALE: 500
VERTICAL SCALE :100
Datum 927

| | | |


SEWER TREATMENT PLANT
RETAINING WALL
RAILWAY LINES
CONVEYOR BELT
BUILDING
PLANT
CONCRETE SLAB
RIVER
POND
AV
SV
Y: -39200.000
X: 2722900.000
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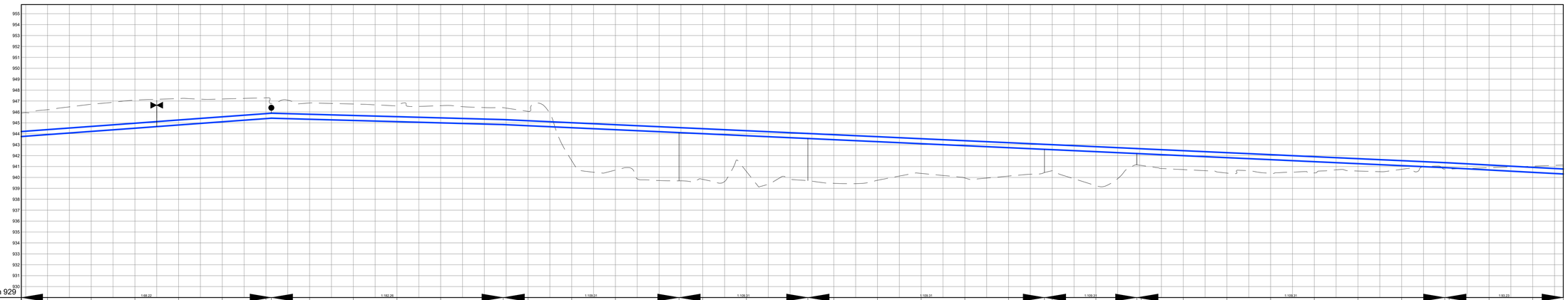
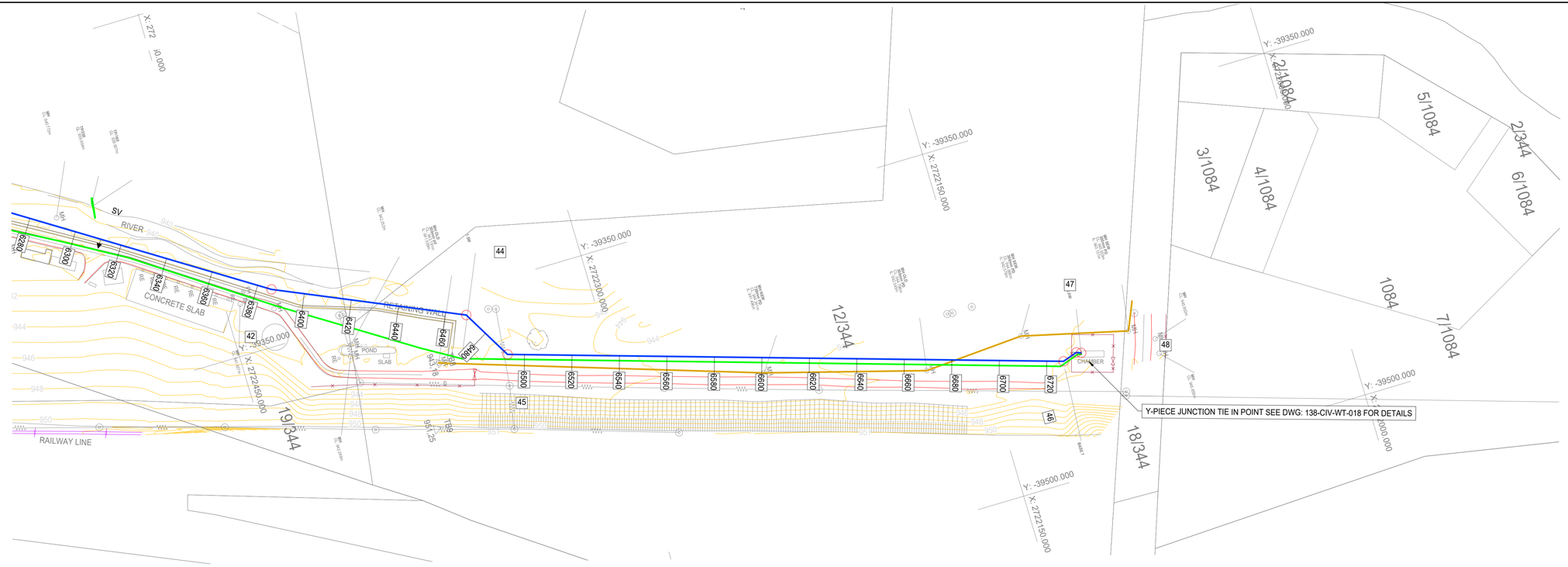
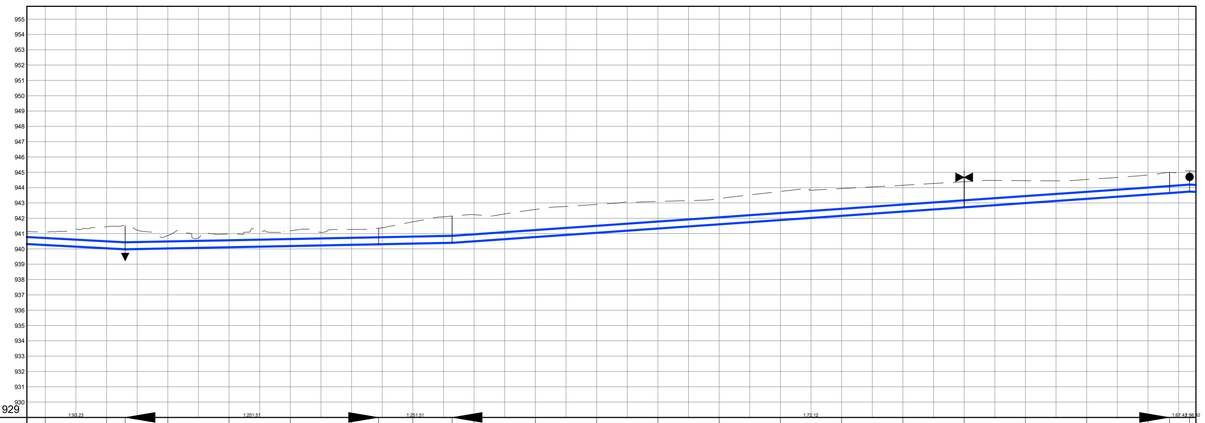
Y: -39350.000

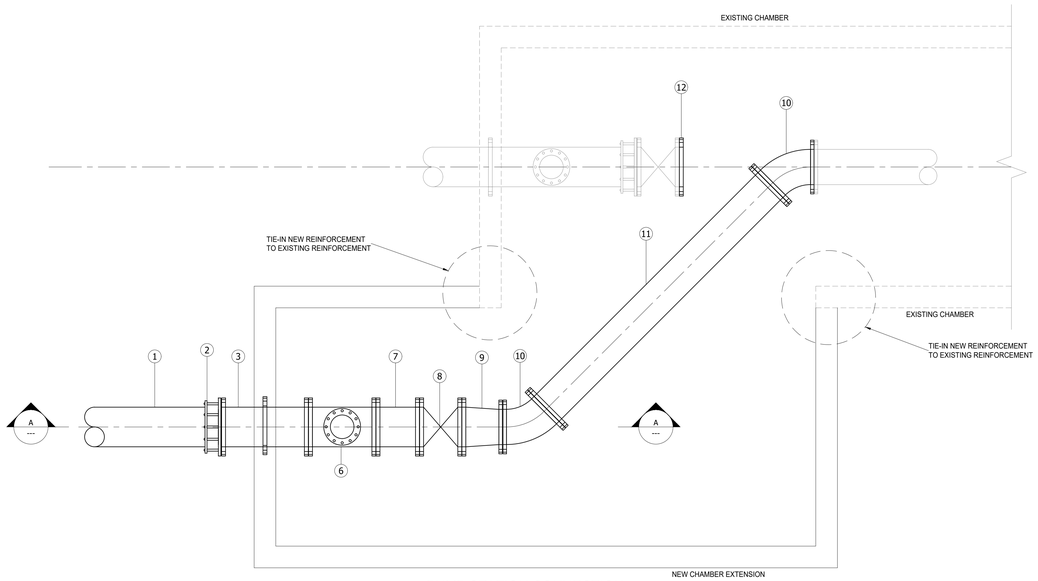

N.G.L
450mmØ STEEL PIPE
HORIZONTAL SCALE: 500
VERTICAL SCALE :100
Datum 929

| | | |


SV
RIVER
CONCRETE SLAB
RETAINING WALL
POND
SLAB
CHAMBER
RAILWAY LINE
12/344
19/344
18/344
1084
2/1084
3/1084
4/1084
5/1084
6/1084
7/1084
2/344
Y-PIECE JUNCTION TIE IN POINT SEE DWG: 138-CIV-WT-018 FOR DETAILS

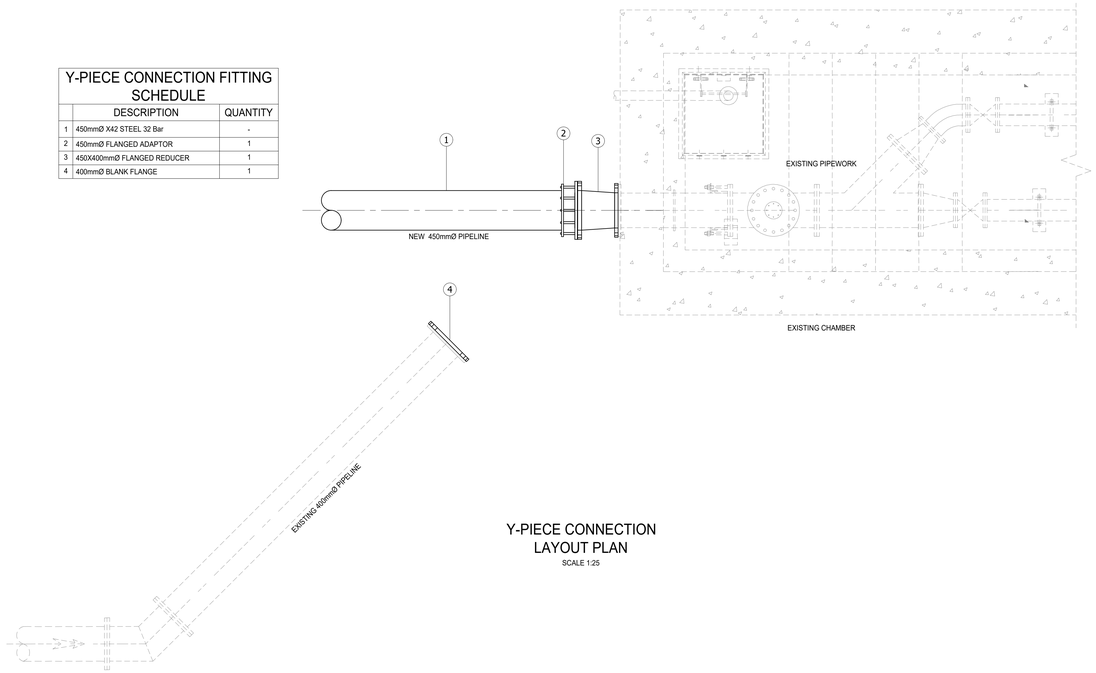

N.G.L
450mmØ STEEL PIPE
HORIZONTAL SCALE: 500
VERTICAL SCALE :100
Datum 929

| | | |

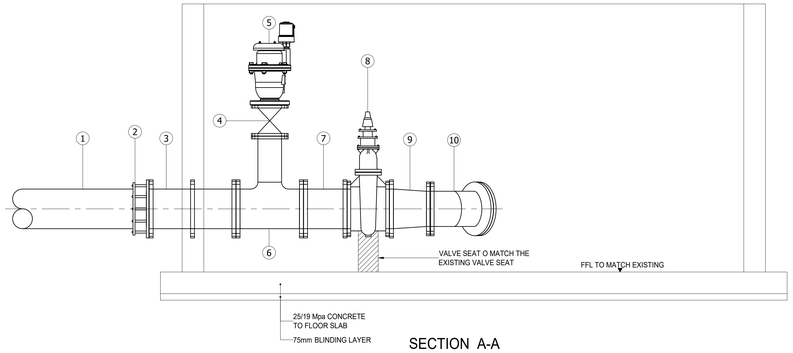


PUMP STATION CONNECTION
LAYOUT PLAN
SCALE 1:25

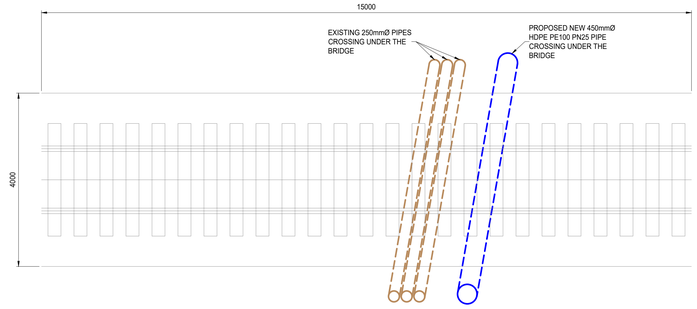
Y-PIECE CONNECTION FITTING SCHEDULE		
	DESCRIPTION	QUANTITY
1	450mmØ X42 STEEL 32 Bar	-
2	450mmØ FLANGED ADAPTOR	1
3	450X400mmØ FLANGED REDUCER	1
4	400mmØ BLANK FLANGE	1



Y-PIECE CONNECTION
LAYOUT PLAN
SCALE 1:25

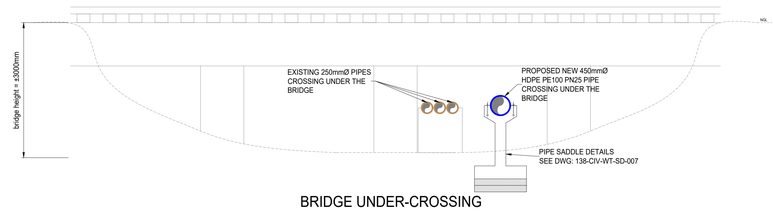


SECTION A-A
SCALE 1:25



BRIDGE UNDER-CROSSING
LAYOUT PLAN
SCALE 1:50

PUMP STATION CONNECTION FITTING SCHEDULE		
	DESCRIPTION	QUANTITY
1	450mmØ X42 STEEL 32 Bar	-
2	450mmØ FLANGED ADAPTOR	1
3	450mmØ FLANGED SPOOL PIPE WITH PUDDLE FLANGE	1
4	250mmØ ISLOTATION VALVE	1
5	250mmØ VENT-O-MAT AIRVALVE OR SIMILAR APPRODE	1
6	450X250mmØ REDUCING TEE	1
7	450mmØ FLANGED SPOOL PIPE	1
8	450mmØ ISLOTATION VALVE	1
9	450X400mmØ FLANGED REDUCER	1
10	400mmØ 45° FLANGED BEND	2
11	400mmØ FLANGED SPOOL PIPE	1
12	400mmØ BLANK FLANGE	1



BRIDGE UNDER-CROSSING
ELEVATION
SCALE 1:50

ISSUED FOR TENDER

No	DATE	REVISION	CONSULT	DIR
A	20-09-2022	ISSUED FOR TENDER	MAKONE	R.J.K

DESIGNED BY	B.N
CHECKED BY	B.N.
DRAWN BY	X.N
CHECKED BY	I.M

BENEFICIARY

THABAZIMBI LOCAL MUNICIPALITY
7 Rietbok Street
Thabazimbi
0380

ONTWERP DEUR / DESIGNED BY

CONSULTANT:
260 CHURCH STREET Cnr WITKOPPEN ROAD
JUKSKEI PARK
JOHANNESBURG
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P.O. BOX 944
JUKSKEI PARK
2153
TEL: 011 704 0253
MAKONZE
CONSULTING ENGINEERS
Civil, Structural Engineers & Project Managers

FOR: CLIENT — DATE
CONSULTING ENGINEER — DATE

CONTRACT NUMBER: TECH 04 2022 23

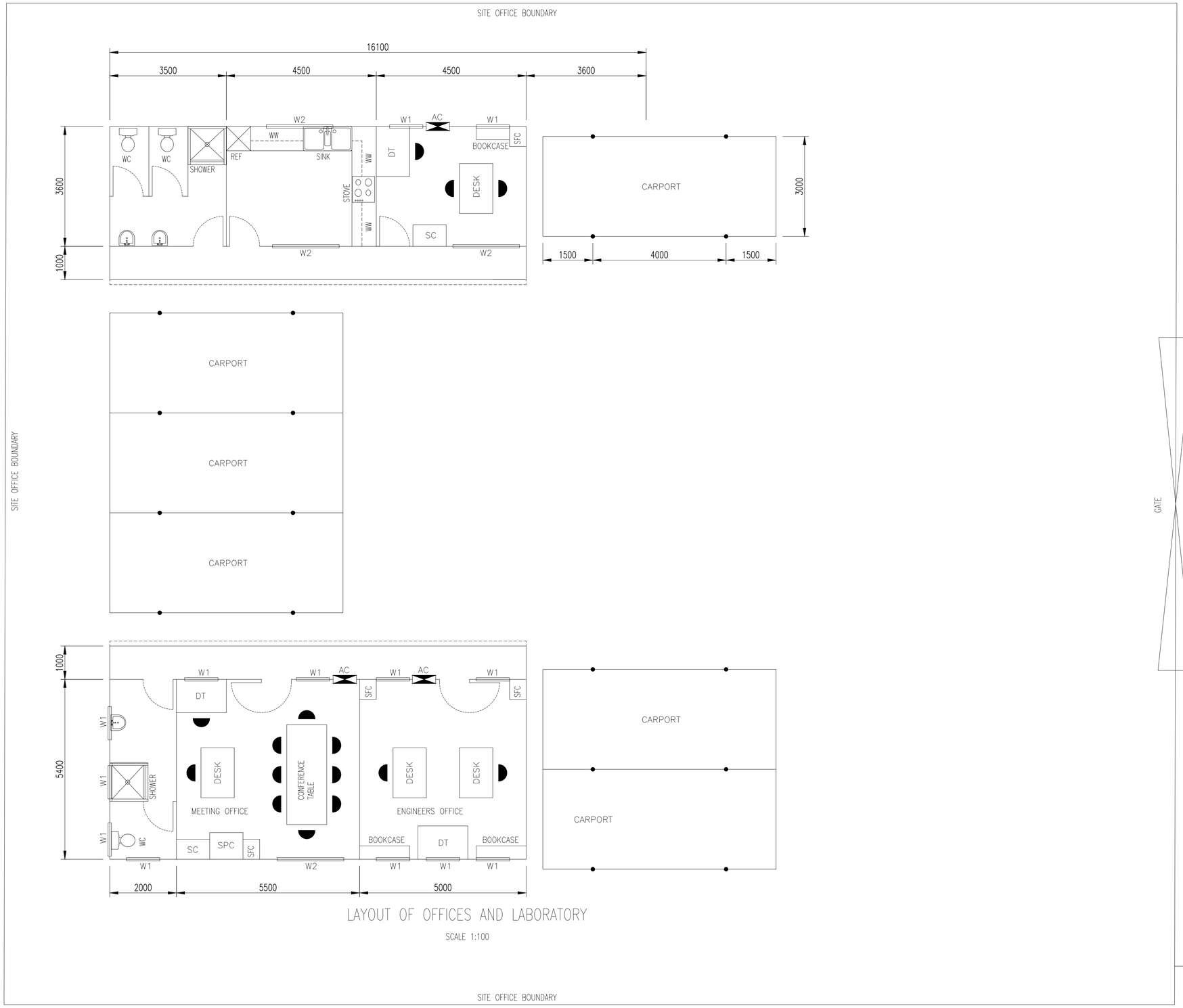
PROJECT
THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

DETAILS
PUMPSTATION AND Y-PIECE CONNECTION DETAILS

(Full signature)
FOR: CLIENT — DATE
For: CONSULTING ENGINEER — DATE

SHEET 1 OF 1
SCALE
AS SHOWN

CONSULTANTS DRAWING NUMBER	REVISION NO.	CLIENT DRAWING NUMBER
138-CIV-WT-012	A	



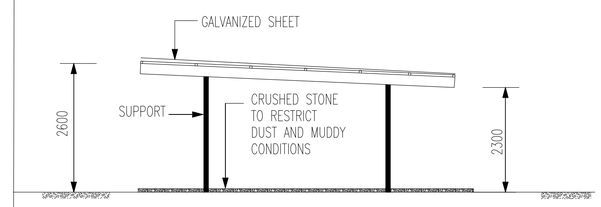
LAYOUT OF OFFICES AND LABORATORY

SCALE 1:100

ABLUTION

1. THE WC'S SHALL BE PROVIDED WITH ONE GLASS ENAMEL WATER CLOSET SYSTEM WITH P.V.C. SEAT AND LID EACH, AND SHALL BE WELL VENTILATED.
2. THE OTHER COMPARTMENT SHALL BE PROVIDED WITH TWO SHOWERS AND TWO HAND-WASH BASINS.
3. ALL THE NECESSARY TAPS, DRAINS, SEWERAGE AND HOT AND COLD WATER SUPPLY SHALL BE SUPPLIED.

4. WINDOW DETAIL:
   W1 : 1022mm x 949mm STEEL WINDOW FRAME.
   W2 : 2000mm x 949mm STEEL WINDOW FRAME.
   W3 : 654mm x 1220mm STEEL WINDOW FRAME.
   W4 : 1245mm x 1220mm STEEL WINDOW FRAME.
   W5 : 949mm x 1270mm STEEL WINDOW FRAME.



SIDE ELEVATION OF CARPORTS

SCALE 1:75

No	DATE	REVISION	CONSULT	DIR
A	20-09-22	ISSUED FOR TENDER	MCE	R.J.K.

1m 2m 3m 4m 5m 6m 7m 8m 9m 10m

DESIGNED BY	A.L.G
CHECKED BY	I.M
DRAWN BY	X.N
CHECKED BY	R.J.K.

BENEFICIARY

THABAZIMBI LOCAL MUNICIPALITY
7 Rietbok Street
Thabazimbi
0380

ONTWERP DEUR / DESIGNED BY

CONSULTANT:
200 CHURCH STREET C/v WITKOPPEN ROAD
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JUKSKEI PARK
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TEL: 011 704 0253
CONSULTING ENGINEERS
Civil, Structural Engineers & Project Managers

MKM DATE

CONSULTING ENGINEER DATE

CONTRACT NUMBER :

THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

TYPICAL LAYOUT OF SITE OFFICE

(Full signature)

FOR: MAKONE DATE

For: CONSULTING ENGINEER DATE

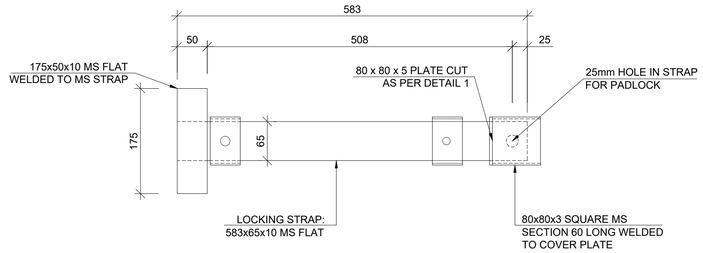
CONSULTANTS DRAWING NUMBER

R-1232-001

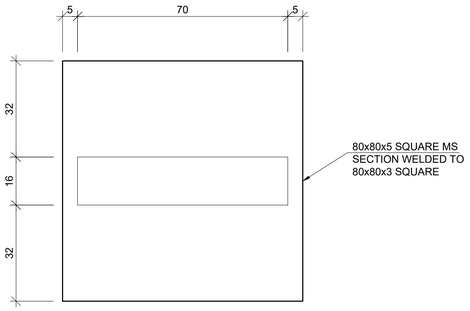
SHEET 1 OF 1

SCALE

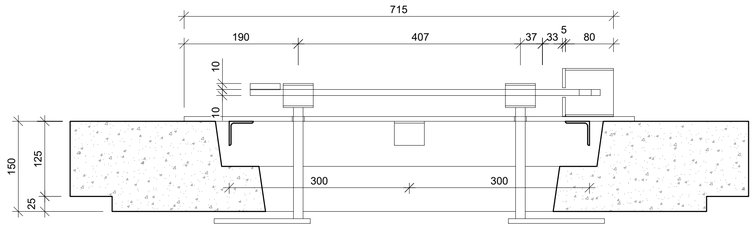
N.T.S.



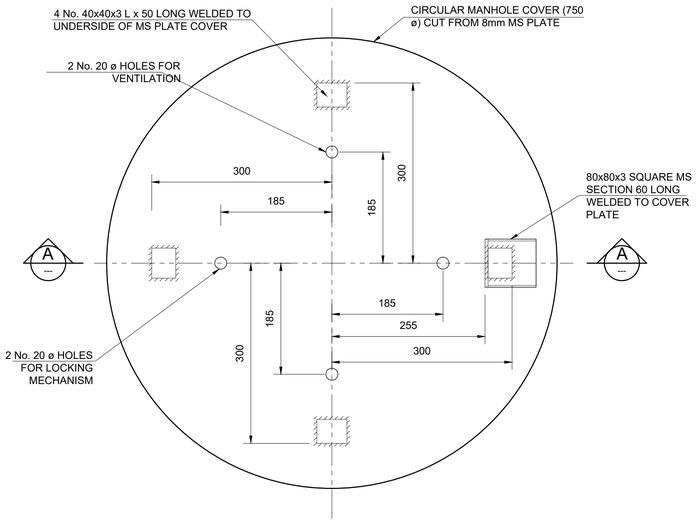
LOCKING MECHANISM DETAIL
SCALE 1:5



DETAIL 1
SCALE 1:1

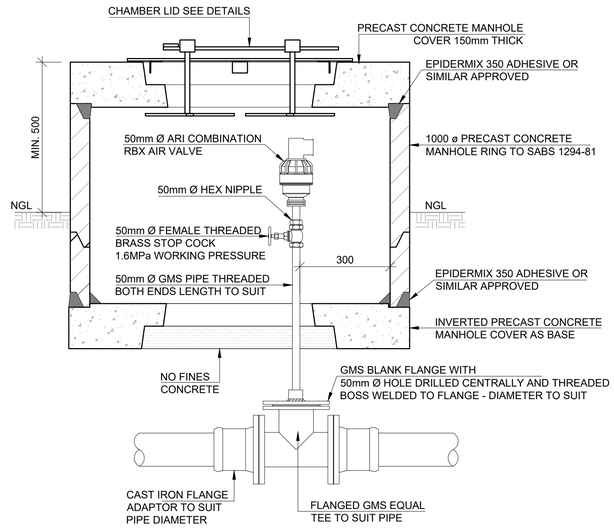


SECTION A-A
SCALE 1:5



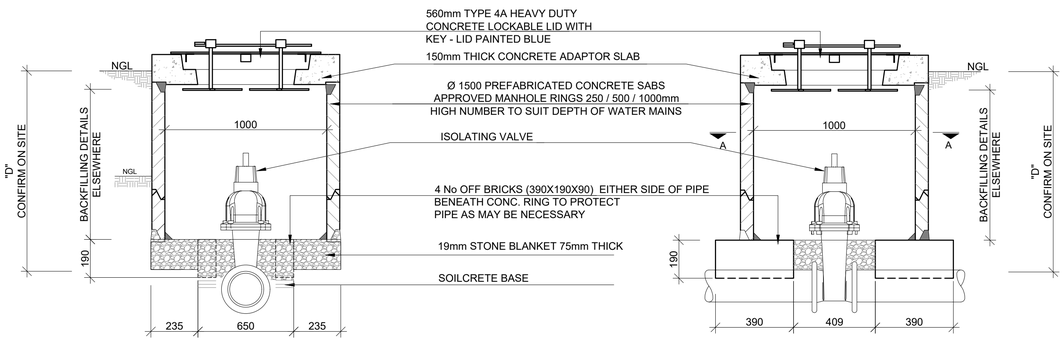
MILD STEEL MANHOLE COVER PLAN
SCALE 1:25

LOCKING BAR DETAILS



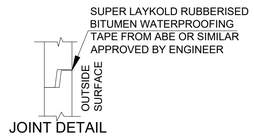
AIR VALVE CHAMBER
SCALE 1:5

AIR VALVE DETAILS

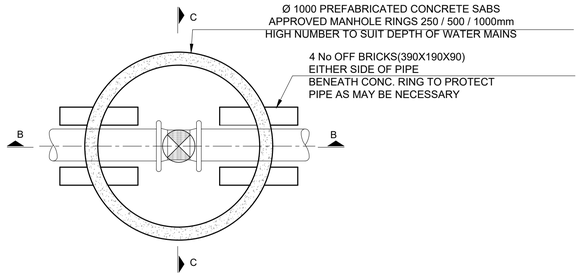


SECTION C-C
VALVE CHAMBER DETAIL
PREFABRICATED CONCRETE RINGS
SCALE 1:15

SECTION B-B
VALVE CHAMBER DETAIL
PREFABRICATED CONCRETE RINGS
SCALE 1:15



JOINT DETAIL
SCALE 1:10



SECTION A-A
SCALE 1:15

ISOLATING VALVE DETAIL

FOR TENDER

NOTES

- ALL WORK TO COMPLY WITH SABS 1200.
- ALL NEW WATER PIPES 1,25m FROM BOUNDARY LINE IF POSSIBLE, DIMENSIONS ON LAYOUT .
- ALL EXISTING SERVICES SHOWN ARE APPROXIMATE. BEFORE CONSTRUCTION COMMENCES.
- ALL POSITIONS OF EXISTING SERVICES MUST BE POINTED OUT BY THE LOCAL AUTHORITY.

DRAWING STATUS:

FOR TENDER

REV	DESCRIPTION	BY	DATE
A	ISSUED FOR TENDER	I.M	20-09-2022

CONTRACT NO: TECH 04 2022 23

CLIENT:

THABAZIMBI LOCAL MUNICIPALITY
7 Rietbok Street
Thabazimbi
0380

PROJECT

THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

DETAILS

ISOLATING VALVE AND AIR VALVE CHAMBER AND COVER DETAILS

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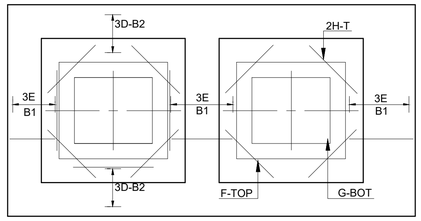
260 Church St / Witkoppen Rd
Jukskei Park
Johannesburg
2188
P.O. Box 944
Jukskei Park
2153
CONSULTING ENGINEERS
Civil, Struct Eng & Project Managers
TEL: 011 704 0253
FAX: 011 704 0037

DESIGNED	B.N	COPYRIGHT RESERVED	SCALE AS SHOWN @A1
DRAWN	X.N		
APPROVED	I.M	DATE 19 JANUARY 2022	

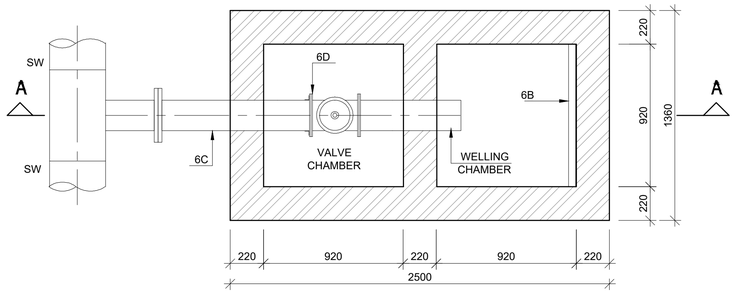
DRAWING No. 138-CIV-WT-SD-001 REV A

ITEM	No.	MARK	No.	TOT. No.	DIA.	c/c	LENGTH	SHAPE CODE	A	B	C	D	E/r
	COVER SLAB												
		D		6	Y12	-	2680	35	2560				
		E		9	Y12	-	1420	35	1300				
		F		2	Y16	-	2500	86	730	0	0		
		G		2	Y16	-	2850	86	840	0	0		
		H		16	Y10	-	750	20	750				
		J		21	Y10	-	400	20	400				

STEEL SCHEDULE
REINFORCEMENT DETAILS



PLAN OF COVER SLAB



PLAN

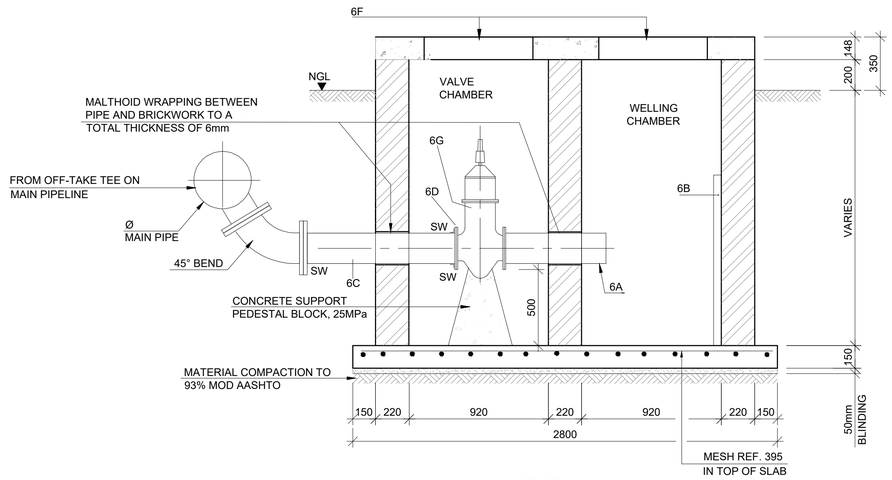
NOTES:

1. ALL BRICKWORK TO BE PLASTERED EXTERNALLY AND INTERNALLY TO ENSURE WATERTIGHT CHAMBER. USE ENGINEERING BRICKS. BRICK FORCE TO EVERY COURSE.
2. CONCRETE TO BE GRADE 25/19. COVER = 30mm.
3. ALL FITTINGS TO BE PAINTED WITH KSIR88 EPOXY PAINT,SUCH AS COPON KSIR88 OR SIMILAR APPROVED. AFTER INSTALLATION 5mm BFGW REPAIR WRAP COATING.
4. ALL FLANGES TO TABLE 1600 OF SANS 1123.
5. FOR CHAMBERS OF DEPTHS MORE THAN 2.5m, ENGINEER TO DESIGN FLOOR SLAB AND WALLS.
6. CHAMBERS TO FLASH WITH SURFACED AREAS IN ROADS E.T.C 7. OTHER : ISOLATION AND SCOUR VALVE SPECIFICATION REFER TO ANNEXURE E:

SCHEDULE OF FITTINGS

6A - 600 LENGTH x 168 x 4.5 MEDIUM CLASS MS PIPE TO SANS 62.
6B - 900 x 900 x 5 MS PLATE BOLTED TO THE WALL USING 4 No. x M10 RAWL BOLTS ONE IN EACH CORNER 100 x 100 OFF EACH FACE.
6C- 2000 LENGTH x 168 x 4.5 MEDIUM CLASS MS PIPE TO SANS 62.
6D- 168 ND SLIP ON BOSS FLANGE TO TABLE 1600 / 5 OF SANS 1123.
6G- 150 ND WATER WORKS PATTERN RESILIENT SEAL 6G - GATE VALVE, CLASS 16 TO SANS 664 WITH FLANGED ENDS TO TABLE 1600/3 OF SANS 1123, WITH CAP, NON-RISING SPINDLE, ANTI-CLOCKWISE CLOSING.
6F- DUCTILE IRON COVER - HEAVY DUTY ON ROADS AND POLYMER CONCRETE OR THEMOPLASTIC IN OTHER AREAS (FRAME SET IN REINFORCED CONCRETE ROOF IN BOTH CASES)

SW - SITE WELD



SECTION A - A
TYPICAL SCOUR VALVE CHAMBER 160mm N.B

FOR TENDER

NOTES

- ALL WORK TO COMPLY WITH SABS 1200.
- ALL MAIN WATER LINES TO BE Ø450mm HDPE PE100, PN25 TO SABS 966.
- ALL NEW WATER PIPES 1,25m FROM BOUNDARY LINE IF POSSIBLE, DIMENSIONS ON LAYOUT .
- ALL EXISTING SERVICES SHOWN ARE APPROXIMATE. BEFORE CONSTRUCTION COMMENCES.
- ALL POSITIONS OF EXISTING SERVICES MUST BE POINTED OUT BY THE LOCAL AUTHORITY.

DRAWING STATUS:

FOR TENDER

REV	DESCRIPTION	BY	DATE
A	ISSUED FOR TENDER	I.M	20-09-2022

CONTRACT NO: TECH 04 2022 23

CLIENT:

THABAZIMBI LOCAL MUNICIPALITY
7 Rietbok Street
Thabazimbi
0380

PROJECT

THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

DETAILS

TYPICAL SCOUR VALVE CHAMBER DETAILS

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Jukskei Park
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CONSULTING ENGINEERS
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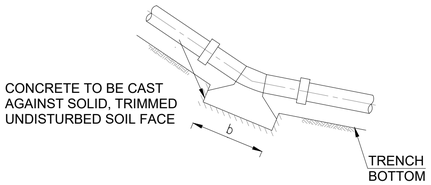
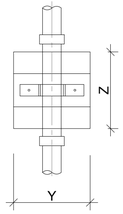
TEL: 011 704 0253
FAX: 011 704 0037

DESIGNED	B.N	COPYRIGHT RESERVED	AS SHOWN
DRAWN	X.N		SCALE
APPROVED	I.M	DATE	OCTOBER 2021

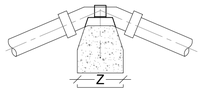
DRAWING No. 138-CIV-WT-SD-002 REV A



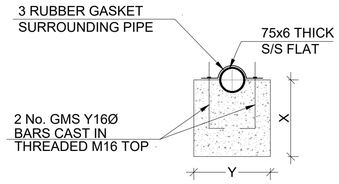
ELEVATION
SAGGING SECTION



PLAN
VERTICAL BENDS



ELEVATION
HOGGING SECTION



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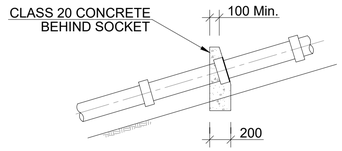
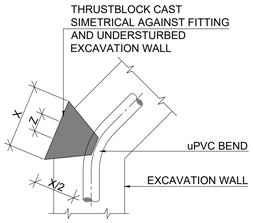
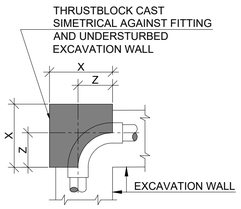


ELEVATION



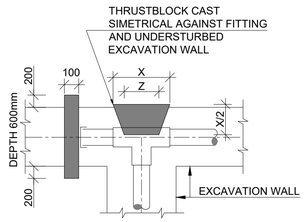
BEND	X	Z	DEPTH
450mm	2200	600	1760
400mm	1950	500	1550
315mm	1500	375	1200
225mm	1125	350	900
200mm	1000	325	800
150mm	750	275	600
100mm	500	175	400
75mm	375	125	300
50mm	250	75	200



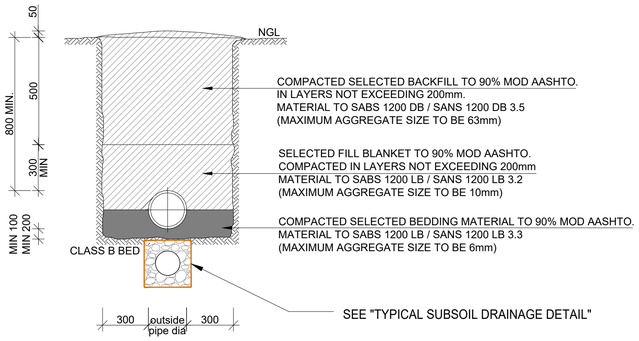
BEND	X	Z	DEPTH
450mm	3220	800	1870
400mm	2850	750	1650
315mm	2250	575	1300
225mm	1890	500	1000
200mm	1640	475	900
150mm	1210	400	700
100mm	740	350	500
75mm	530	175	400
50mm	330	125	300

NOTE:
SUPPLY POLYTHYLENE MEMBRANE
BETWEEN CONCRETE AND FITTING

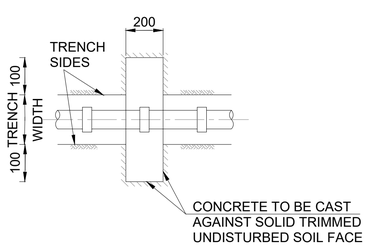
THRUST BLOCK DETAILS
SCALE 1:50



T-PIECE	X	Z	DEPTH
450mm	2770	800	1750
400mm	2450	700	1550
315mm	1950	550	1200
225mm	1475	425	900
200mm	1300	350	800
150mm	1000	275	600
100mm	650	200	400
75mm	500	150	300
50mm	325	100	200

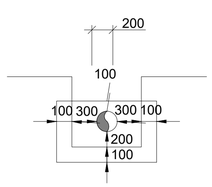


TRENCHING, BEDDING AND

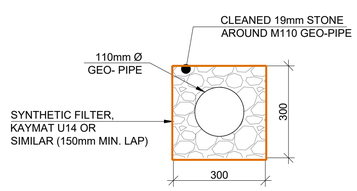


LAYOUT PLAN

STEEP VERTICAL CLIMB
GRADIENTS 1:5 OR STEEPER



TYPICAL SECTION



TYPICAL SUBSOIL
DRAINAGE DETAIL
SCALE 1 : 10

NOTE:
1. ALL CONCRETE GRADE 20MPa/19.
2. DIMENSIONS b AND c TO BE PROVIDED FOR EACH PIPE SIZE BY ENGINEER AT TIME OF CONSTRUCTION.
3. DIMENSIONS b c AND x y TO BE DETERMINED BY ENGINEER CONSIDERING PRESSURE AND SOIL CHARACTERISTICS AND PIPE TYPE.

FOR TENDER

NOTES

1. THRUST BLOCK DIMENSIONS ON THIS DRAWING ARE ONLY APPLICABLE UNDER THE FOLLOWING CONDITION:
   - UNDISTURBED SAND-GROUND MIXTURES OR DENSE UNIFORM SAND WITH A BEARING CAPACITY OF AT LEAST 150KPa.
   - UN-SUBMERGED CONDITIONS
   - MAXIMUM INTERNAL PIPE PRESSURE OF 18 BAR.
   IF THE CONTRACTOR IS NOT IN THE POSITION TO IDENTIFY THE ABOVE CONDITIONS, USE SHALL BE MADE OF AN ENGINEERING GEOLOGIST OR ENGINEER.
2. ALL CONCRETE TO BE 20MPa/19mm
3. HALF THE DEPTH OF THE THRUST BLOCK TO BE PLACED BELOW THE PIPE AXIS.
4. KEEP CONCRETE AWAY FROM THE COUPLINGS & THE PIPE JOINTS.
5. THRUST BLOCKS FOR PIPES Ø LARGER THAN 300mm & HIGHER TEST PRESSURES THAN 18 BAR SHALL BE DESIGNED BY THE ENGINEER.

DRAWING STATUS:

FOR TENDER

REV	DESCRIPTION	BY	DATE
A	ISSUED FOR TENDER	I.M	20-09-2022

CONTRACT NO: TECH 04 2022 23

CLIENT:

THABAZIMBI LOCAL MUNICIPALITY
7 Rietbok Street
Thabazimbi
0380

PROJECT

THABAZIMBI UPGRADING OF BULK WATER PIPELINE BETWEEN THABAZIMBI PUMP STATION AND THABAZIMBI Y PIECE WITHIN THABAZIMBI LOCAL MUNICIPALITY

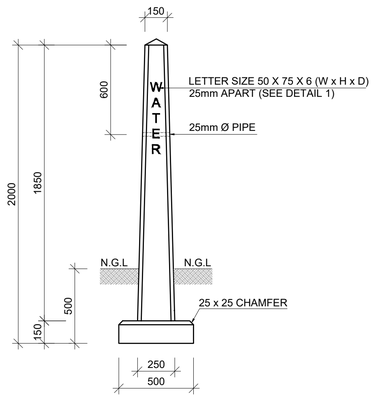
DETAILS

THRUST, ANCHOR
BLOCK AND BEDDING DETAILS

MAKONE
260 Church St / Witkoppen Rd
Jukskei Park
Johannesburg
2188
P.O. Box 944
Jukskei Park
2153
CONSULTING ENGINEERS
Civil, Struct Eng & Project Managers
TEL: 011 704 0253
FAX: 011 704 0037

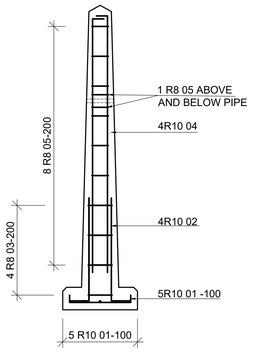
DESIGNED	B.N	COPYRIGHT RESERVED	SCALE
DRAWN	X.N		AS-SHOWN
APPROVED	I.M	DATE	OCTOBER 2021

DRAWING No. 138-CIV-WT-SD-003 REV A



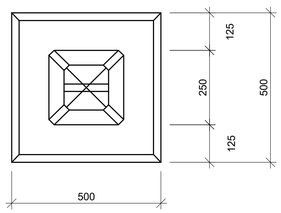
ELEVATION

SCALE 1:20



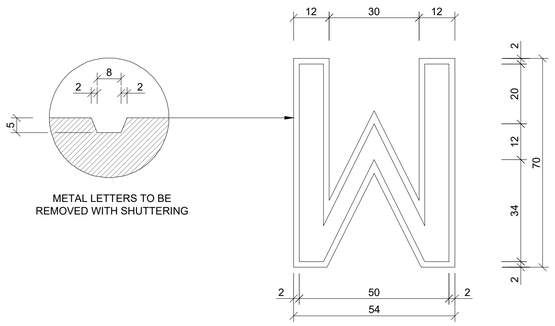
PIPE LINE MARKER REINFORCEMENT DETAIL

SCALE 1:20



PLAN

SCALE 1 : 10



DETAIL 1

N.T.S

FOR TENDER

NOTES

- ALL WORK TO COMPLY WITH SABS 1200.
- ALL MAIN WATER LINES TO BE Ø450mm HDPE PE100, PN25 TO SABS 966.
- ALL NEW WATER PIPES 1,25m FROM BOUNDARY LINE IF POSSIBLE, DIMENSIONS ON LAYOUT .
- ALL EXISTING SERVICES SHOWN ARE APPROXIMATE. BEFORE CONSTRUCTION COMMENCES.
- ALL POSITIONS OF EXISTING SERVICES MUST BE POINTED OUT BY THE LOCAL AUTHORITY.

FOR TENDER

REV	DESCRIPTION	BY	DATE
A	ISSUED FOR TENDER	I.M	20-09-2022

TENDER NO: TECH 04 2022 23

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DETAILS

WATER MARKER DETAILS

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Jukskei Park
Johannesburg
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P.O. Box 944
Jukskei Park
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CONSULTING ENGINEERS
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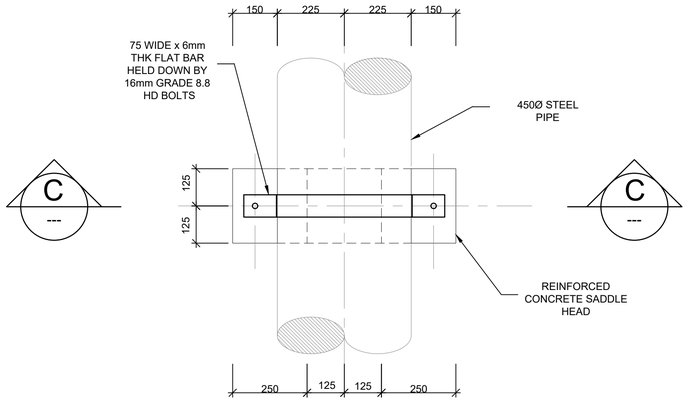
DRAWN	X.N		SCALE
APPROVED	I.M	DATE	OCTOBER 2021

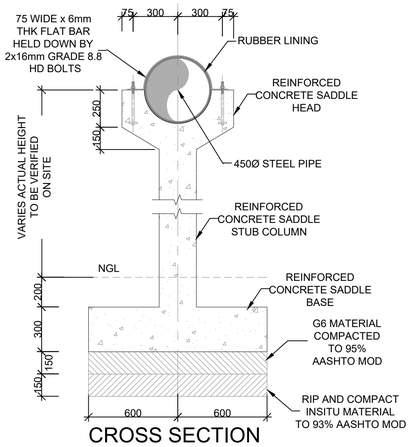
DRAWING No. 138-CIV-WT-SD-004 REV A

DRAWING No.S/115/WTD/04



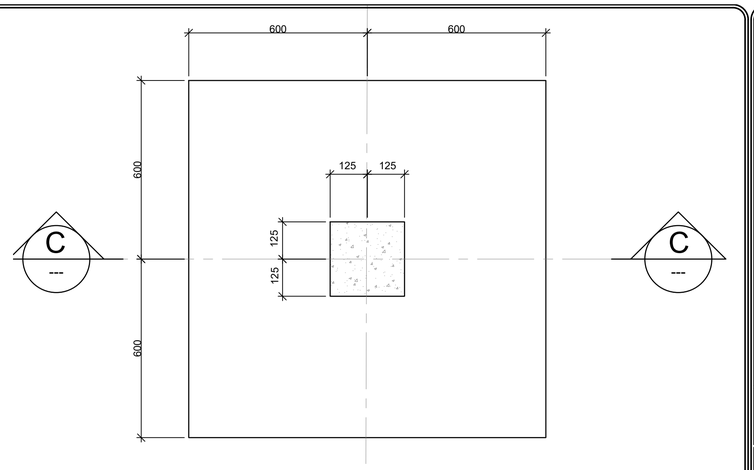
REINFORCED CONCRETE PIPE SADDLE HEAD PLAN DETAIL

SCALE 1:10



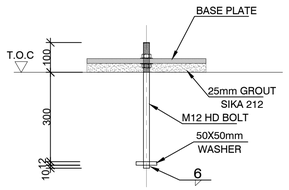
CROSS SECTION THROUGH C-C

SCALE 1:20



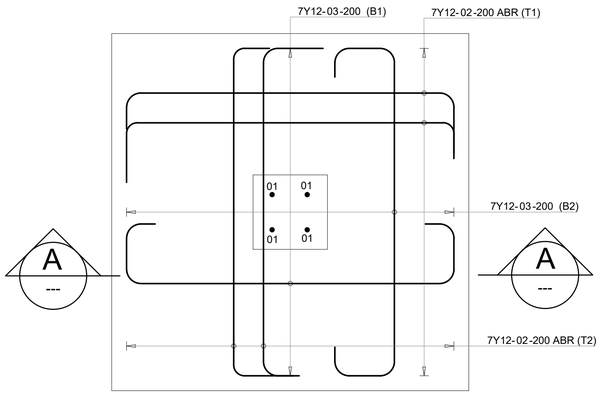
REINFORCED CONCRETE PIPE SADDLE BASE & STUB COLUMN PLAN DETAIL

SCALE 1:10



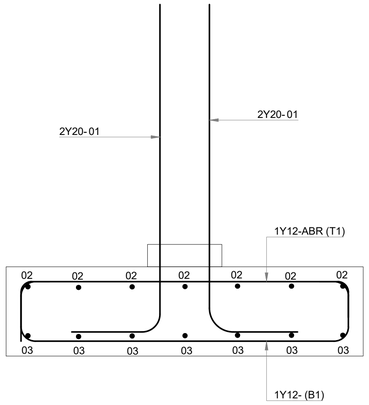
TYPICAL M16 HD BOLT DETAIL (GRADE 8.8)

SCALE 1 : 10



SADDLE BASE REINFORCEMENT LAYOUT

SCALE 1:10



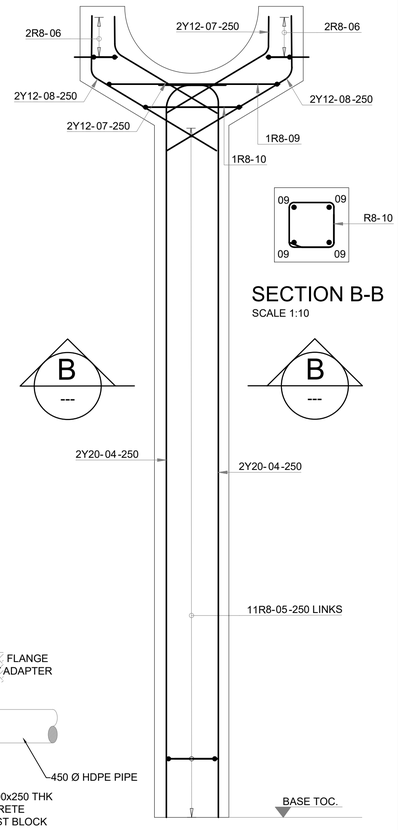
SECTION A-A

SCALE 1:10

MEMBER	NO OF	NO BARS	DIA	CUT LENGTH	TOTAL	BAR MARK	SC	A	B	C	D	E/R	kg
BASE	1	4	Y20	1350	4	01	37	1100	290				13
	1	14	Y12	1400	14	02	38	200	1100	120			17
	1	14	Y12	1600	14	03	55	90	200	1100	200		20
COLUMN	1	4	Y20	2650	4	04	37	200	2460				26
	1	11	R8	850	11	05	60	170	170				4
HEAD	1	4	R8	700	4	06	60	170	80				1
	1	4	Y12	500	4	07	62	100	100	400			2
	1	4	Y12	700	4	08	62	480	420	200			2
	1	1	R8	1650	1	09	60	170	570				1
	1	1	R8	1150	1	10	60	170	320				

	6	8	10	12	16	20	25	32	40	TOTAL
R		6								6
Y				42		39				81
TOTAL		6		42		39				87

NOTE:
LENGTH (B) OF BARMARK 04 VARIES IN RELATIONSHIP WITH THE GROUND PROFILE. OTHERWISE ACUTUAL LENTGHS SHOULD BE VERIFIED ON SITE

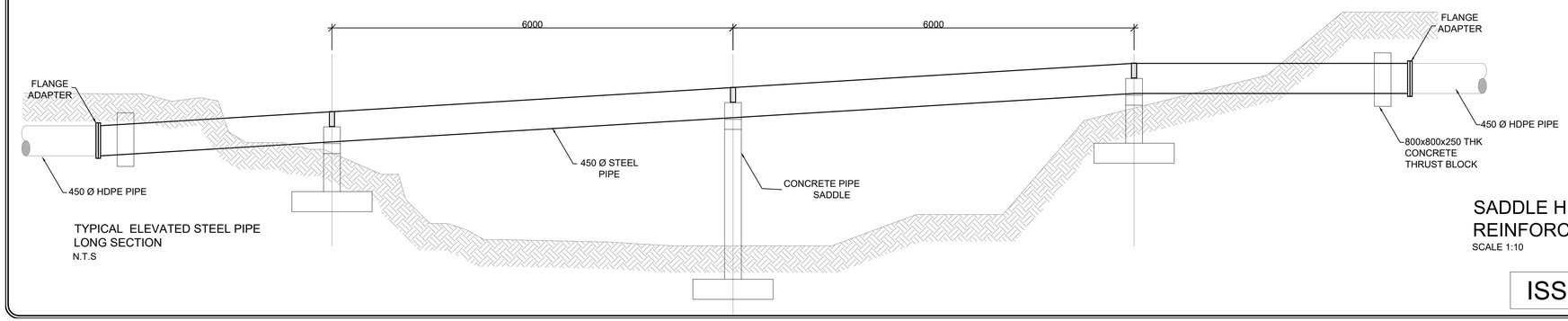


SADDLE HEAD & COLUMN REINFORCEMENT LAYOUT

SCALE 1:10

SECTION B-B

SCALE 1:10



TYPICAL ELEVATED STEEL PIPE LONG SECTION

N.T.S

ISSUED FOR TENDER

NOTES

1. THRUST BLOCK DIMENSIONS ON THIS DRAWING ARE ONLY APPLICABLE UNDER THE FOLLOWING CONDITION:
   - UNDISTURBED SAND-GROUND MIXTURES OR DENSE UNIFORM SAND WITH A BEARING CAPACITY OF AT LEAST 150KPa.
   - UN-SUBMERGED CONDITIONS
   - MAXIMUM INTERNAL PIPE PRESSURE OF 18 BAR.

   IF THE CONTRACTOR IS NOT IN THE POSITION TO IDENTIFY THE ABOVE CONDITIONS, USE SHALL BE MADE OF AN ENGINEERING GEOLOGIST OR ENGINEER.
2. ALL CONCRETE TO BE 20MPa/19mm
3. HALF THE DEPTH OF THE THRUST BLOCK TO BE PLACED BELOW THE PIPE AXIS.
4. KEEP CONCRETE AWAY FROM THE COUPLINGS & THE PIPE JOINTS.
5. THRUST BLOCKS FOR PIPES Ø LARGER THAN 300mm & HIGHER TEST PRESSURES THAN 18 BAR SHALL BE DESIGNED BY THE ENGINEER.

DRAWING STATUS:

ISSUED FOR TENDER

REV	DESCRIPTION	BY	DATE
A	ISSUED FOR TENDER	I.M	20-04-2022

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DETAILS

TYPICAL ELEVATED STEEL PIPE LONG SECTION AND PIPE SADDLE DETAILS

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DRAWN	X.N		AS-SHOWN
APPROVED	I.M	DATE	MAY 2022

DRAWING No. 138-CIV-WT-SD-007

REV A