

Appendix-5

TRUNK SEWER



## **Appendix 5 TRUNK SEWER**

### **5.1 Revised (Updated) Preliminary Design of Trunk Sewers**

Revised preliminary design of trunk sewers are conducted and presented in the following calculation sheets and drawings:

- 1) Table 5.1.1 Trunk Sewer Capacity Design Sheet, Trunk Sewer East, Central and West
- 2) Sewer Network Plan, No.1 to No.11
- 3) Trunk Sewer Profiles; Trunk Sewer East, Drawings No.1 to No.7 and Trunk Sewer West, Drawing No.1 to No.5

Table 5.1.1 Trunk Sewer Capacity Design Sheet

Trunk Sewer East		200 lpcd															
Line No. of Upper Sewer	Line No. of Lower Sewer	Sewer Length (m)		Sewerage Area (ha)		Population		Average Flow (m <sup>3</sup> /d)			Peak Factor	Max. Flow (m <sup>3</sup> /s)		Sewer Line			
		Increment	Total	Increment	Total	Increment	Total	Sewage	Inlet	Total		Sewage	Total	Dia. (mm)	Slope ( $\omega$ )	V (m/s)	Cap. (m <sup>3</sup> /s)
ST-31	ST-32	563	563	9.0	9.0	1,999	1,999	400	0	400	4.829	0.022	0.022	300	2.8	0.941	0.067
ST-42	ST-32	217		27.0	27.0	6,013	6,013	1,203	0	1,203	3.907	0.055	0.055	400	3.0	0.908	0.114
ST-32	ST-33	696		0.0	36.0	0	8,012	1,602	0	1,602	3.739	0.070	0.070	400	3.0	0.908	0.114
ST-43	ST-33	246	246	40.8	40.8	9,098	9,098	1,820	0	1,820	3.666	0.078	0.078	450	3.0	0.982	0.156
ST-33	ST-34	540	540	0.0	76.8	0	17,110	3,422	0	3,422	3.326	0.132	0.132	600	2.8	1.107	0.313
ST-34	ST-35	60		0.0	76.8	0	17,110	3,422	0	3,422	3.326	0.132	0.132	600	2.8	1.107	0.313
ST-44	ST-35	364	364	22.8	22.8	4,555	4,555	911	0	911	4.078	0.043	0.043	350	3.5	0.897	0.086
ST-35	ST-36	351		0.0	99.6	0	21,665	4,333	0	4,333	3.207	0.161	0.161	600	2.8	1.107	0.313
ST-45	ST-36	512	512	32.6	32.6	3,554	3,554	711	0	711	4.237	0.035	0.035	350	3.5	0.897	0.086
ST-36	ST-37	803		0.0	132.2	0	25,219	5,044	0	5,044	3.133	0.183	0.183	600	2.4	1.064	0.301
ST-46	ST-37	561	561	45.8	45.8	5,002	5,002	1,000	0	1,000	4.020	0.047	0.047	350	3.5	0.897	0.086
ST-37	ST-38	459		0.0	178.0	0	30,221	6,044	0	6,044	3.047	0.214	0.214	700	2.4	1.179	0.454
ST-47	ST-38	296	296	31.9	31.9	4,086	4,086	817	0	817	4.147	0.040	0.040	350	3.5	0.897	0.086
ST-38	ST-39	905		0.0	209.9	0	34,307	6,861	0	6,861	2.988	0.238	0.238	700	2.4	1.179	0.454
ST-48	ST-39	180	180	39.6	39.6	421	421	84	0	84	5.887	0.006	0.006	200	3.0	0.743	0.023
ST-39	ST-40	941		0.0	249.5	0	34,728	6,946	0	6,946	2.983	0.240	0.240	700	2.4	1.179	0.454
ST-49	ST-40	954	954	64.7	64.7	687	687	137	0	137	5.460	0.009	0.009	200	3.0	0.743	0.023
ST-40	ST-41	471		0.0	314.2	0	35,415	7,083	0	7,083	2.974	0.244	0.244	700	2.4	1.179	0.454
ST-50	ST-41	390	390	12.6	12.6	1,434	1,434	287	0	287	4.872	0.017	0.017	250	2.8	0.833	0.041
ST-41	MT-22	1,084		72.7	399.5	8,634	45,483	9,097	0	9,097	2.861	0.302	0.302	800	2.2	1.234	0.620
MT-22	MT-23'	982		82.1	481.6	41,549	87,032	17,406	0	17,406	2.589	0.522	0.522	900	1.8	1.207	0.768
MT-23'	MT-24'	690		0.0	481.6	0	87,032	17,406	0	17,406	2.589	0.522	0.522	900	1.8	1.207	0.768
MT-23	MT-24	968		28.4	28.4	9,840	9,840	1,968	0	1,968	3.622	0.083	0.083	400	3.5	0.980	0.123
ST-51	ST-52	1,542	1,542	61.5	61.5	2,590	2,590	518	0	518	4.449	0.027	0.027	300	2.8	0.941	0.067
ST-52	ST-53	1,315	2,857	60.6	122.1	21,212	23,802	4,760	0	4,760	3.161	0.175	0.175	600	2.4	1.064	0.301
ST-53	MT-24	1,368		41.8	163.9	11,657	35,459	7,092	0	7,092	2.973	0.245	0.245	700	2.2	1.129	0.434
MT-24	MT-25	290		0.0	192.3	0	45,299	9,060	0	9,060	2.863	0.301	0.301	800	2.2	1.234	0.620
MT-30	MT-25	1,116		45.6	45.6	14,198	14,198	2,840	0	2,840	3.423	0.113	0.113	500	2.6	0.981	0.193
MT-25	MT-26	462		0.0	237.9	0	59,497	11,899	0	11,899	2.745	0.379	0.379	800	2.2	1.234	0.620
ST-55	ST-56	65	65	125.3	125.3	23,042	23,042	4,608	0	4,608	3.177	0.170	0.170	700	2.4	1.179	0.454
ST-56	MT-26	1,616	1,681	20.9	146.2	2,242	25,284	5,057	0	5,057	3.132	0.184	0.184	700	2.4	1.179	0.454
MT-26	MT-27	97		0.0	384.1	0	84,781	16,956	0	16,956	2.600	0.511	0.511	900	2.0	1.273	0.810
ST-54	MT-24'	583		130.1	130.1	44,960	44,960	8,992	0	8,992	2.866	0.299	0.299	800	2.2	1.234	0.620
MT-24'	MT-25'	190		0.0	611.7	0	131,992	26,398	0	26,398	2.428	0.742	0.742	1,000	1.8	1.295	1.017
MT-25'	MT-27	1,330		18.1	630.8	3,156	135,148	27,030	0	27,030	2.419	0.757	0.757	1,000	1.8	1.295	1.017
MT-27	MT-28	152		0.0	1,014.9	0	219,929	43,986	0	43,986	2.245	1.143	1.143	1,200	1.8	1.379	1.559
ST-58	MT-28	931		33.5	33.5	4,951	4,951	990	0	990	4.026	0.047	0.047	350	3.5	0.897	0.086
MT-28	MT-29	420		0.0	1,048.4	0	224,880	44,976	0	44,976	2.237	1.165	1.165	1,200	1.8	1.379	1.559
ST-64	ST-65	365		28.0	28.0	11,184	11,184	2,237	0	2,237	3.551	0.092	0.092	450	2.8	0.949	0.151
ST-66	ST-65	171		7.6	7.6	4,182	4,182	836	0	836	4.132	0.040	0.040	350	3.5	0.897	0.086
ST-65	MT-29	248		9.2	44.8	1,210	16,576	3,315	0	3,315	3.343	0.129	0.129	600	2.8	1.107	0.313
ST-59	ST-60	508		31.9	31.9	1,262	1,262	252	0	252	4.971	0.015	0.015	250	2.8	0.833	0.041
ST-62	ST-60	291		14.5	14.5	1,554	1,554	311	0	311	4.812	0.018	0.018	300	2.8	0.941	0.067
ST-60	ST-61	378		31.9	78.3	3,420	6,236	1,247	0	1,247	3.886	0.057	0.057	400	3.0	0.908	0.114
ST-63	ST-61	625		34.6	34.6	4,556	4,556	911	0	911	4.078	0.043	0.043	350	3.5	0.897	0.086
ST-61	MT-29	256		9.2	122.1	1,210	12,002	2,400	0	2,400	3.513	0.098	0.098	500	2.6	0.981	0.193

**Table 5.1.1 Trunk Sewer Capacity Design Sheet**

**Trunk Sewer East**

200 lpcd

Line No. of Upper Sewer	Line No. of Lower Sewer	Sewer Length (m)		Sewerage Area (ha)		Population		Average Flow (m <sup>3</sup> /d)			Peak Factor	Max. Flow (m <sup>3</sup> /s)		Sewer Line			
		Increment	Total	Increment	Total	Increment	Total	Sewage	Inlet	Total		Sewage	Total	Dia. (mm)	Slope (‰)	V (m/s)	Cap. (m <sup>3</sup> /s)
<b>MT-29</b>	<b>AT-1</b>	<b>432</b>		<b>0.0</b>	<b>1,215.3</b>	<b>0</b>	<b>253,458</b>	<b>50,692</b>	<b>0</b>	<b>50,692</b>	<b>2.196</b>	<b>1.289</b>	<b>1.289</b>	<b>1,500</b>	<b>1.3</b>	<b>1.442</b>	<b>2.549</b>
<b>Connect to Trunk Sewer, Central</b>																	
<b>AT-1</b>	<b>AT-2</b>	<b>420</b>		<b>0.0</b>	<b>2,740.6</b>	<b>0</b>	<b>647,329</b>	<b>129,466</b>	<b>0</b>	<b>129,466</b>	<b>1.901</b>	<b>2.849</b>	<b>2.849</b>	<b>1,800</b>	<b>1.2</b>	<b>1.565</b>	<b>3.982</b>
<b>AT-2</b>	<b>AT-3</b>	<b>890</b>		<b>0.0</b>	<b>2,740.6</b>	<b>0</b>	<b>647,329</b>	<b>129,466</b>	<b>0</b>	<b>129,466</b>	<b>1.901</b>	<b>2.849</b>	<b>2.849</b>	<b>1,800</b>	<b>1.2</b>	<b>1.565</b>	<b>3.982</b>
<b>ST-69</b>	<b>ST-70</b>	<b>3,335</b>		<b>193.5</b>	<b>193.5</b>	<b>7,658</b>	<b>7,658</b>	<b>1,532</b>	<b>0</b>	<b>1,532</b>	<b>3.764</b>	<b>0.067</b>	<b>0.067</b>	<b>400</b>	<b>3.0</b>	<b>0.908</b>	<b>0.114</b>
ST-71	ST-70	1,368		39.2	39.2	1,551	1,551	310	0	310	4.815	0.018	0.018	250	2.8	0.833	0.041
<b>ST-70</b>	<b>AT-3</b>	<b>742</b>		<b>10.6</b>	<b>243.3</b>	<b>2,371</b>	<b>11,580</b>	<b>2,316</b>	<b>0</b>	<b>2,316</b>	<b>3.532</b>	<b>0.095</b>	<b>0.095</b>	<b>450</b>	<b>2.8</b>	<b>0.949</b>	<b>0.151</b>
ST-67	ST-68	645		92.8	92.8	20,674	20,674	4,135	0	4,135	3.231	0.155	0.155	600	2.8	1.107	0.313
ST-68	<b>AT-3</b>	<b>1,227</b>		<b>74.4</b>	<b>167.2</b>	<b>16,566</b>	<b>37,240</b>	<b>7,448</b>	<b>0</b>	<b>7,448</b>	<b>2.951</b>	<b>0.255</b>	<b>0.255</b>	<b>700</b>	<b>2.2</b>	<b>1.129</b>	<b>0.434</b>
<b>AT-3</b>	<b>AT-4</b>	<b>492</b>		<b>55.4</b>	<b>3,208.5</b>	<b>12,334</b>	<b>708,483</b>	<b>141,697</b>	<b>0</b>	<b>141,697</b>	<b>1.875</b>	<b>3.076</b>	<b>3.076</b>	<b>2,000</b>	<b>1.2</b>	<b>1.679</b>	<b>5.274</b>
<b>AT-4</b>	<b>AT-5</b>	<b>904</b>		<b>0.0</b>	<b>4,100.5</b>	<b>0</b>	<b>950,905</b>	<b>190,181</b>	<b>0</b>	<b>190,181</b>	<b>1.792</b>	<b>3.945</b>	<b>3.945</b>	<b>2,000</b>	<b>1.2</b>	<b>1.679</b>	<b>5.274</b>
<b>AT-5</b>	<b>AT-6</b>	<b>678.4</b>		<b>144.0</b>	<b>4,244.5</b>	<b>14,204</b>	<b>965,109</b>	<b>193,022</b>	<b>0</b>	<b>193,022</b>	<b>1.787</b>	<b>3.993</b>	<b>3.993</b>	<b>2,000</b>	<b>1.2</b>	<b>1.679</b>	<b>5.274</b>
<b>AT-6</b>	<b>WWTP</b>	<b>286.7</b>		<b>0.0</b>	<b>4,490.6</b>	<b>0</b>	<b>989,386</b>	<b>197,877</b>	<b>0</b>	<b>197,877</b>	<b>1.781</b>	<b>4.079</b>	<b>4.079</b>	<b>2,000</b>	<b>1.2</b>	<b>1.679</b>	<b>5.274</b>

Table 5.1.1 Trunk Sewer Capacity Design Sheet

Trunk Sewer Central		200 lpcd											Sewer Line				
Line No. of Upper Sewer	Line No. of Lower Sewer	Sewer Length (m)		Sewerage Area (ha)		Population		Average Flow (m <sup>3</sup> /d)			Peak Factor	Max. Flow (m <sup>3</sup> /s)		Dia. (mm)	Slope (ω/ω)	V (ms <sup>-1</sup> )	Cap. (m <sup>3</sup> /s)
		Increment	Total	Increment	Total	Increment	Total	Sewage	Inlet	Total		Sewage	Total				
ST-6	ST-7	1,543	1,543	57.7	57.7	2,358	2,358	472	0	472	4.513	0.025	0.025	300	2.8	0.941	0.067
ST-8	ST-7	168	168	2.0	2.0	81	81	16	0	16	7.600	0.002	0.002	150	3.0	0.614	0.011
ST-7	ST-2	27	1,738	0.0	59.7	0	2,439	488	0	488	4.490	0.026	0.026	<b>300</b>	<b>2.8</b>	0.941	0.067
ST-1	ST-2	2,434	2,434	125.5	125.5	12,614	12,614	2,523	0	2,523	3.486	0.102	0.102	500	2.8	1.018	0.200
ST-2	ST-3	389	2,823	13.9	199.1	1,399	16,452	3,290	0	6,301	3.028	0.116	0.116	<b>500</b>	<b>2.6</b>	0.981	0.193
ST-9	ST-3	752	752	74.3	74.3	7,471	7,471	1,494	0	1,494	3.779	0.066	0.066	400	3.0	0.908	0.114
ST-3	ST-4	40		0.0	273.4	0	23,923	4,785	0	4,785	3.159	0.175	0.175	<b>600</b>	<b>2.4</b>	1.064	0.301
ST-10	ST-4	637	637	16.3	16.3	1,635	1,635	327	0	327	4.775	0.019	0.019	250	2.8	0.833	0.041
ST-4	ST-5	520		14.0	303.7	1,406	26,964	5,393	0	5,393	3.101	0.194	0.194	<b>600</b>	<b>2.4</b>	1.064	0.301
ST-11	ST-5	602	602	31.7	31.7	9,566	9,566	1,913	0	1,913	3.638	0.081	0.081	450	3.0	0.987	0.156
ST-5	MT-1	<b>278</b>	880	0.0	335.4	0	36,530	7,306	0	7,306	2.960	0.251	0.251	<b>700</b>	<b>2.2</b>	1.129	0.434
ST-12	MT-1	653	653	90.1	90.1	19,640	19,640	3,928	0	3,928	3.256	0.149	0.149	600	2.4	1.064	0.301
MT-1	MT-2	<b>939</b>	1,592	0.0	425.5	0	56,170	11,234	0	11,234	2.770	0.361	0.361	<b>800</b>	<b>2.0</b>	1.176	0.591
ST-13	MT-2	964	964	54.5	54.5	13,430	13,430	2,686	0	2,686	3.453	0.108	0.108	500	2.6	0.981	0.193
MT-2	MT-3	<b>108</b>		0.0	480.0	0	69,600	13,920	0	13,920	2.680	0.432	0.432	<b>900</b>	<b>1.8</b>	1.207	0.768
ST-14	MT-3	814	814	107.2	107.2	9,830	9,830	1,966	0	1,966	3.623	0.083	0.083	450	1.5	0.982	0.156
MT-3	MT-4	<b>621</b>		0.0	587.2	0	79,430	15,886	0	15,886	2.626	0.483	0.483	<b>900</b>	<b>1.8</b>	1.207	0.768
ST-15	MT-4	588	588	34.8	34.8	5,806	5,806	1,161	0	1,161	3.929	0.053	0.053	400	3.0	0.908	0.114
MT-4	MT-5	<b>38</b>		0.0	622.0	0	85,236	17,047	0	17,047	2.597	0.513	0.513	<b>900</b>	<b>1.8</b>	1.209	0.768
ST-16	MT-5	634	634	65.5	65.5	6,703	6,703	1,341	0	1,341	3.842	0.060	0.060	400	3.5	0.980	0.123
ST-17	MT-5	1,001	1,001	38.2	38.2	6,382	6,382	1,276	0	1,276	3.872	0.058	0.058	400	3.5	0.980	0.123
MT-5	MT-6	<b>803</b>		6.1	731.8	2,631	100,952	20,190	0	20,190	2.531	0.592	0.592	<b>900</b>	<b>1.8</b>	1.207	0.768
ST-18	MT-6	579	579	96.8	96.8	1,028	1,028	206	0	206	<b>5.127</b>	0.013	0.013	250	2.8	0.833	0.041
MT-6	MT-7	<b>710</b>		7.2	835.8	3,114	105,094	21,019	0	21,019	2.515	0.612	0.612	<b>1,000</b>	<b>1.6</b>	1.221	0.959
ST-19	MT-7	263	263	42.4	42.4	450	450	90	0	90	<b>5.825</b>	0.007	0.007	200	3.0	0.743	0.023
MT-7	MT-8	<b>1,588</b>		14.1	892.3	6,072	111,616	22,323	0	22,323	2.492	0.644	0.644	<b>1,000</b>	<b>1.6</b>	1.221	0.959
ST-20	MT-8	734	734	33.6	33.6	6,280	6,280	1,256	0	1,256	3.881	0.057	0.057	400	3.5	0.980	0.123
MT-8	MT-9	<b>113</b>		0.0	925.9	0	117,896	23,579	0	23,579	2.471	0.675	0.675	<b>1,000</b>	<b>1.6</b>	1.221	0.959
ST-21	MT-9	105	105	33.4	33.4	6,232	6,232	1,246	0	1,246	3.886	0.057	0.057	400	3.5	0.980	0.123
MT-9	MT-10	<b>118</b>		35.2	994.5	6,574	130,702	26,140	0	26,140	2.432	0.736	0.736	<b>1,000</b>	<b>1.6</b>	1.221	0.959
ST-22	MT-10	2,248	2,248	25.4	25.4	8,562	8,562	1,712	0	1,712	3.701	0.074	0.074	400	3.0	0.908	0.114
MT-10	MT-11	<b>37</b>		0.0	1,019.9	0	139,264	27,853	0	27,853	2.408	0.777	0.777	<b>1,100</b>	<b>1.6</b>	1.301	1.237
ST-23	ST-24	1,124	1,124	28.4	28.4	4,020	4,020	804	0	804	4.157	0.039	0.039	350	3.5	0.897	0.086
ST-25	ST-24	542	542	28.4	28.4	4,020	4,020	804	0	804	4.157	0.039	0.039	350	2.6		
ST-24	MT-11	1,222		34.4	91.2	7,582	15,622	3,124	0	3,124	3.373	0.122	0.122	500	2.6	0.981	0.193
MT-11	MT-12	<b>293</b>		0.0	1,111.1	0	154,886	30,977	0	30,977	2.369	0.850	0.850	<b>1,100</b>	<b>1.6</b>	1.301	1.237

**Table 5.1.1 Trunk Sewer Capacity Design Sheet**

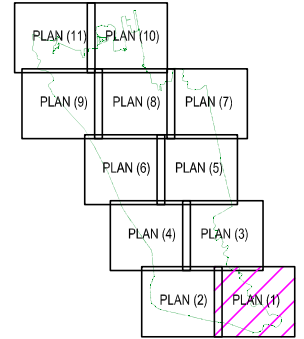
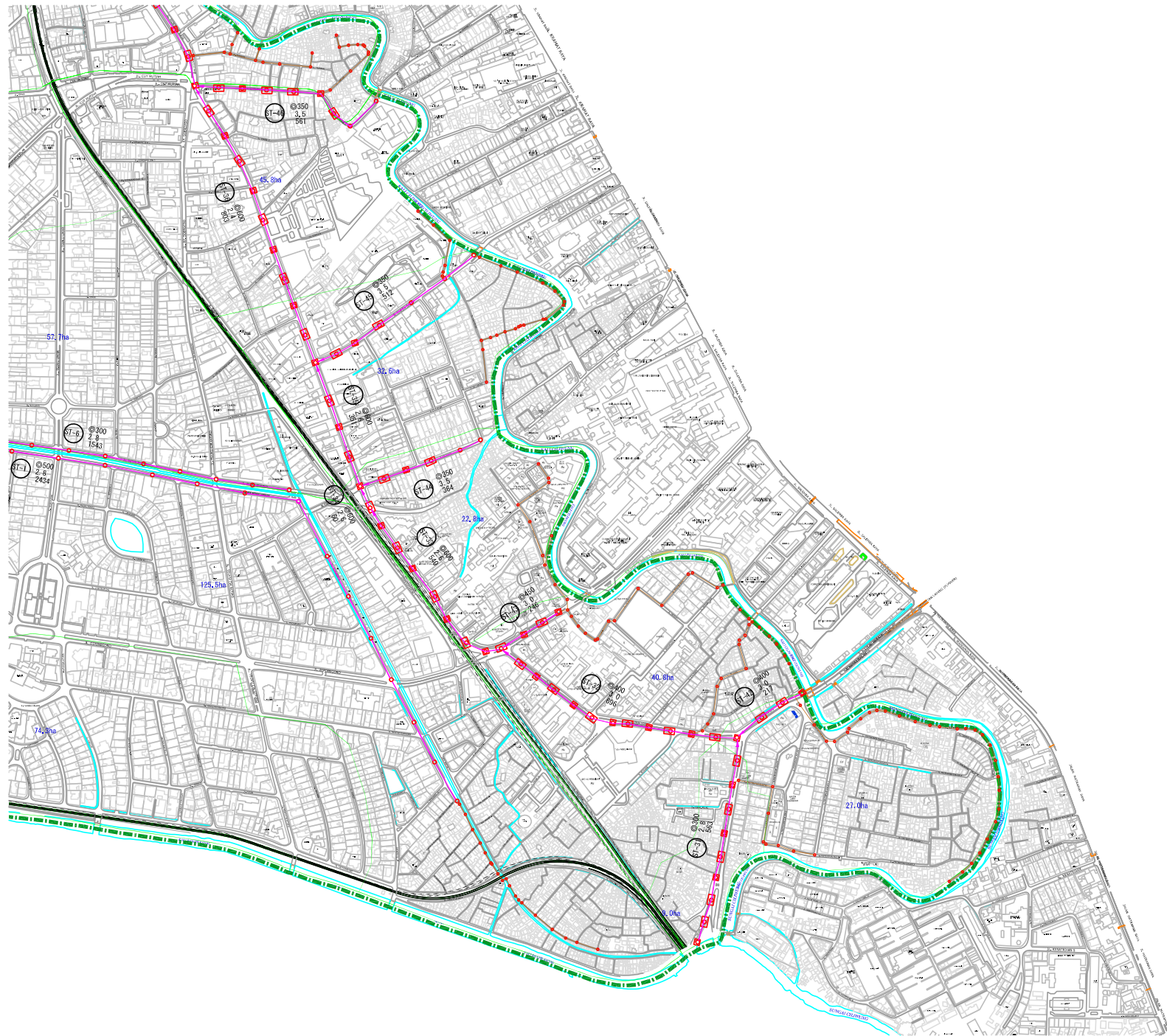
Trunk Sewer Central		200 lpcd															
Line No. of Upper Sewer	Line No. of Lower Sewer	Sewer Length (m)		Sewerage Area (ha)		Population		Average Flow (m <sup>3</sup> /d)			Peak Factor	Max. Flow (m <sup>3</sup> /s)		Sewer Line			
		Increment	Total	Increment	Total	Increment	Total	Sewage	Inlet	Total		Sewage	Total	Dia. (mm)	Slope (i <sub>min</sub> )	V (ms <sup>-1</sup> )	Cap. (m <sup>3</sup> /s)
ST-26	ST-27	1,048	1,048	49.6	49.6	7,022	7,022	1,404	0	1,404	3.815	0.062	0.062	400	3.5	0.980	0.123
ST-28	ST-27	53	53	21.1	21.1	6,830	6,830	1,366	0	1,366	3.831	0.061	0.061	400	3.0	0.908	0.114
ST-27	MT-12	1,222	2,323	35.1	105.8	11,390	25,242	5,048	0	5,048	3.133	0.184	0.184	600	2.4	1.064	0.301
<b>MT-12</b>	<b>MT-13</b>	<b>1,479</b>		0.0	1,216.9	0	180,128	36,026	0	36,026	2,315	0.966	0.966	<b>1,200</b>	<b>1.5</b>	1.335	1.510
ST-29	MT-20	663	663	81.1	81.1	41,245	41,245	8,249	0	8,249	2,905	0.278	0.278	700	2.2	1.129	0.434
MT-20	MT-13	1,285	1,948	67.9	149.0	61,102	102,347	20,469	0	20,469	2,525	0.599	0.599	1,000	1.8	1.295	1.017
<b>MT-13</b>	<b>MT-14</b>	<b>33</b>		0.0	1,365.9	0	282,475	56,495	0	56,495	2,160	1.413	1.413	<b>1,500</b>	<b>1.3</b>	1.442	2.549
MT-21	MT-14	1,647	1,647	139.0	139.0	100,270	100,270	20,054	0	20,054	2,533	0.588	0.588	900	1.8	1.207	0.768
<b>MT-14</b>	<b>MT-15</b>	<b>642</b>		0.0	1,504.9	0	382,745	76,549	0	76,549	2,061	1.827	1.827	<b>1,500</b>	<b>1.3</b>	1.442	2.549
ST-30	MT-15	961	961	20.4	20.4	11,126	11,126	2,225	0	2,225	3,554	0.092	0.092	450	2.8	0.949	0.151
<b>MT-15</b>	<b>AT-1</b>	<b>329</b>		0.0	1,525.3	0	393,871	78,774	0	78,774	2,052	1.871	1.871	<b>1,500</b>	<b>1.3</b>	1.442	2.549
	<b>Joint to Trunk Sewer East</b>																

Note: The figures in red color show the revised ones from those in PPP-FS

**Table 5.1.1 Trunk Sewer Capacity Design Sheet**

Trunk Sewers West		200 lpcd															
Line No. of Upper Sewer	Line No. of Lower Sewer	Sewer Length (m)		Sewerage Area (ha)		Population		Average Flow (m <sup>3</sup> /d)			Peak Factor	Max. Flow (m <sup>3</sup> /s)		Sewer Line			
		Increment	Total	Increment	Total	Increment	Total	Sewage	Inlet	Total		Sewage	Total	Dia. (mm)	Slope (s/100)	V (ms/)	Cap. (m <sup>3</sup> /s)
ST-73	MT-32	756	756	55.0	55.0	40,142	40,142	8,028	0	8,028	2.917	0.272	0.272	700	2.2	1.129	0.434
ST-74	MT-32	615	615	10.7	10.7	4,498	4,498	900	0	900	4.086	0.043	0.043	350	3.5	0.897	0.086
MT-32	MT-33	704	2,075	30.3	96.0	12,746	57,386	11,477	0	11,477	2.761	0.367	0.367	800	2.0	1.178	0.591
ST-75	MT-33	1,147		85.0	85.0	43,702	43,702	8,740	0	8,740	2.879	0.292	0.292	700	2.4	1.179	0.454
MT-33	MT-35	629		81.1	262.1	18,470	119,558	23,912	0	23,912	2.466	0.683	0.683	1,000	1.8	1.295	1.017
MT-17	MT-18	1,524		96.7	96.7	43,135	43,135	8,627	0	8,627	2.885	0.289	0.289	700	2.4	1.179	0.454
ST-72	MT-18	482		18.7	18.7	4,160	4,160	832	0	832	4.135	0.040	0.040	350	3.5	0.897	0.086
MT-18	MT-35	34		0.0	115.4	0	47,295	9,459	0	9,459	2.844	0.312	0.312	800	2.0	1.176	0.591
MT-35	MT-34	545		72.2	449.7	16,441	183,294	36,659	0	36,659	2.309	0.980	0.980	1,100	1.6	1.301	1.237
MT-34	ST-88	671		40.0	489.7	8,897	192,191	38,438	0	38,438	2.292	1.020	1.020	1,200	1.6	1.379	1.559
ST-80	ST-77	787		64.4	64.4	6,357	6,357	1,271	0	1,271	3.874	0.057	0.057	350	3.5	0.897	0.086
ST-76	ST-77	567		110.1	110.1	10,866	10,866	2,173	0	2,173	3.567	0.090	0.090	450	2.8	0.949	0.151
ST-77	ST-78	2,558		116.9	291.4	11,534	28,757	5,751	0	5,751	3.071	0.205	0.205	600	2.6	1.107	0.313
ST-81	ST-78	468		40.1	40.1	8,921	8,921	1,784	0	1,784	3.677	0.076	0.076	400	3.0	0.908	0.114
ST-78	ST-79	128		0.0	331.5	0	37,678	7,536	0	7,536	2.945	0.257	0.257	700	2.2	1.129	0.434
ST-82	ST-79	790		29.4	29.4	2,899	2,899	580	0	580	4.372	0.030	0.030	300	2.8	0.941	0.067
ST-83	ST-79	475		43.4	43.4	9,654	9,654	1,931	0	1,931	3.633	0.082	0.082	400	3.5	0.980	0.123
ST-79	ST-88	836		0.0	404.3	0	50,231	10,046	0	10,046	2.818	0.328	0.328	800	2.2	1.234	0.620
ST-88	AT-5	323		0.0	894.0	0	242,422	48,484	0	48,484	2.211	1.241	1.241	1,350	1.5	1.444	2.067
ST-84	ST-87	2,411		190.2	190.2	18,759	18,759	3,752	0	3,752	3.279	0.143	0.143	800	2.4	1.064	0.301
ST-86	ST-87	1,677		55.9	55.9	5,518	5,518	1,104	0	1,104	3.959	0.051	0.051	350	3.5	0.897	0.086
ST-87	AT-6	100		0.0	246.1	0	24,277	4,855	0	4,855	3.152	0.178	0.178	600	2.4	1.064	0.301
	Joint to Trunk Sewer East																



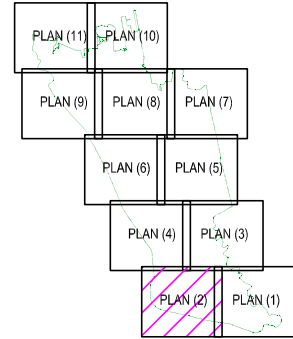
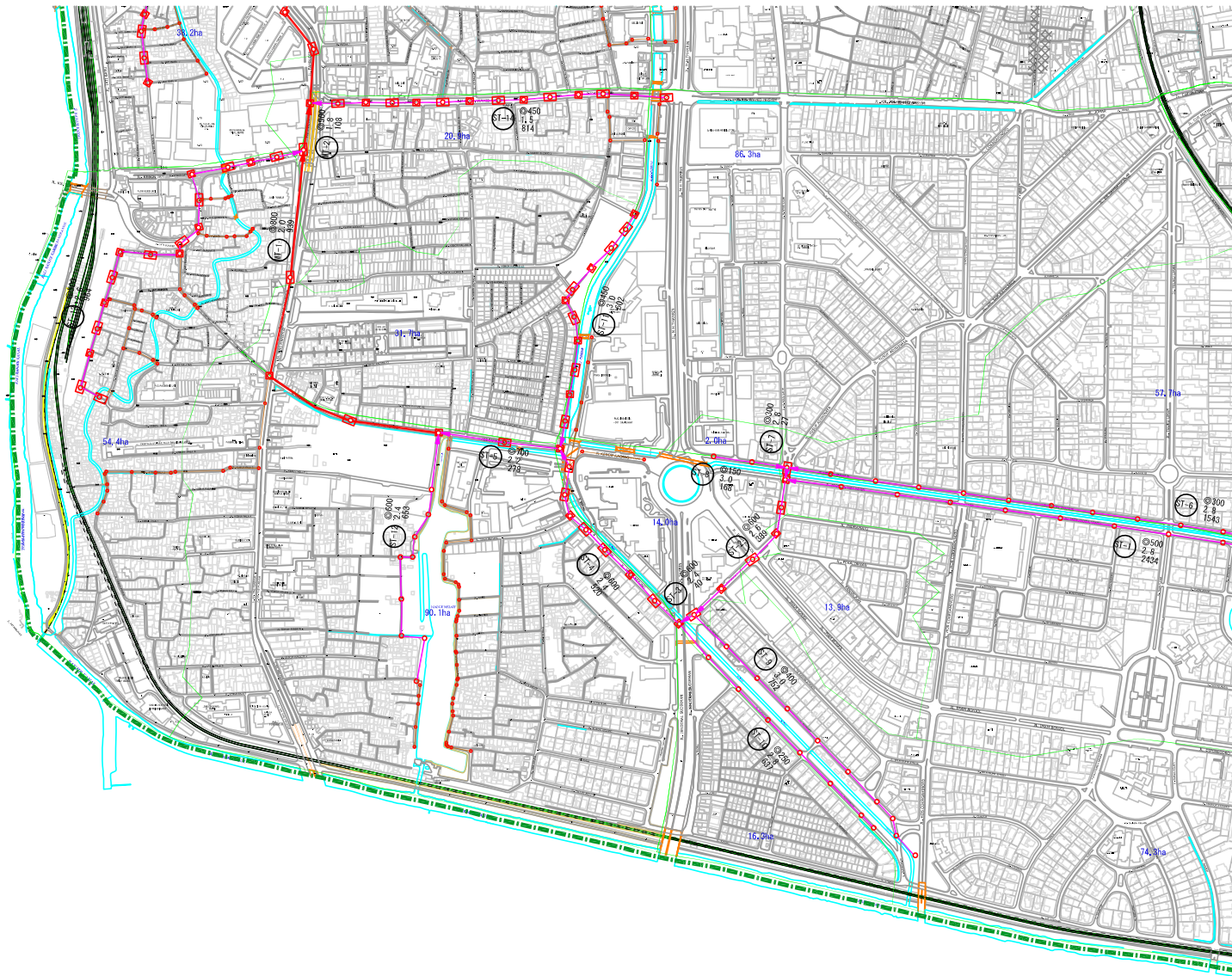


KEY PLAN

LEGEND

- - - - - Boundary of Project Area
- Boundary of Wastewater Collection Sector Area
- Main Trunk Sewer
- Sub Trunk Sewer
- Tertiary Sewer
- Line Number
- ①1500 Sewer Diameter (mm)
- 1.4 Sewer Gradient (%)
- 432 Sewer Length (m)
- Wastewater Collection Sector Area (ha)
- Departure Vertical Shaft
- Arrival Vertical Shaft

NO.	DATE	DESCRIPTIONS	APPD. BY
REVISIONS			
DRAWING TITLE:			
<b>SEWER NETWORK PLAN (1) REVISED</b>			
SCALE:		A1 1/5000	UNITS:
		A3 1/10000	
PROJECT:			
THE SUPPLEMENTAL STUDY FOR METROPOLITAN SANITATION MANAGEMENT INVESTMENT PROGRAM; SEWERAGE SYSTEM DEVELOPMENT IN DKI JAKARTA (ES)			
DESIGNED BY	DATE	SIGNATURE	
DRAWN BY			
CHECKED BY			
APPROVED BY:			
DRAWING NO.:		REV.	
JAPAN INTERNATIONAL COOPERATION AGENCY			



KEY PLAN

LEGEND

- Boundary of Project Area
- Boundary of Wastewater Collection Sector Area
- Main Trunk Sewer
- Sub Trunk Sewer
- Tertiary Sewer
- ① Line Number
- ⊙ Sewer Diameter (mm)
- % Sewer Gradient (%)
- Sewer Length (m)
- Wastewater Collection Sector Area (ha)
- ⊠ Departure Vertical Shaft
- ⊡ Arrival Vertical Shaft

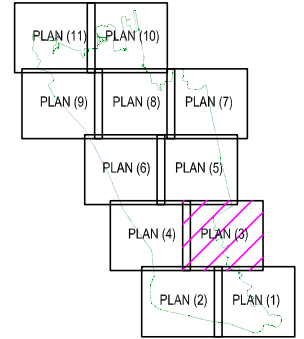
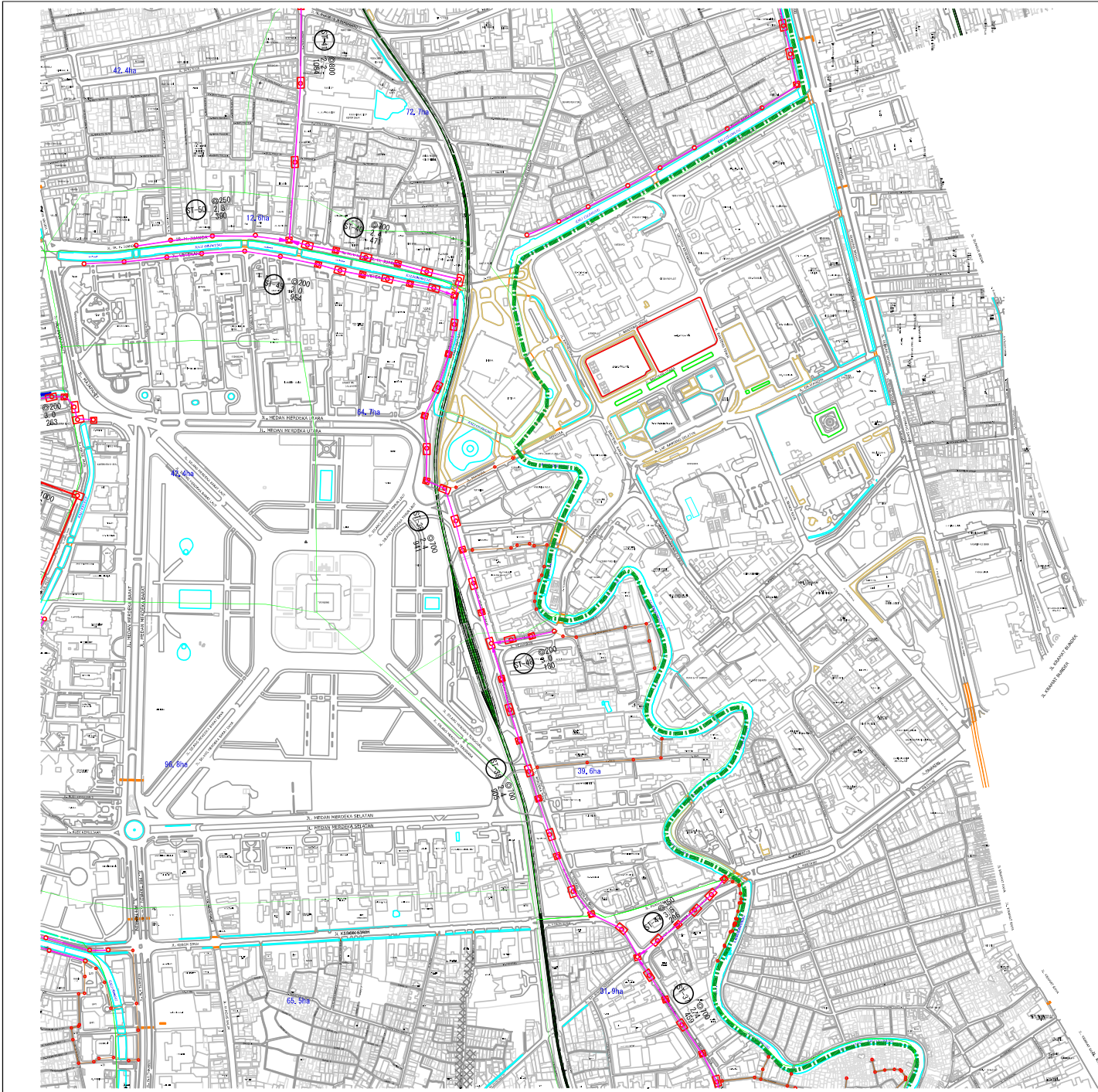

NO.	DATE	DESCRIPTIONS	APPD. BY
REVISIONS			

DRAWING TITLE:  
**SEWER NETWORK PLAN (2)**

SCALE:	A1	1/5000	UNITS:
	A3	1/10000	

PROJECT:  
PREPARATORY SURVEY FOR  
PPP INFRASTRUCTURE PROJECT  
SEWAGE TREATMENT PLANT PROJECT  
IN DKI JAKARTA

DESIGNED BY:	DATE:	SIGNATURE:
DRAWN BY:		
CHECKED BY:		
APPROVED BY:		
DRAWING NO.:		REV.:

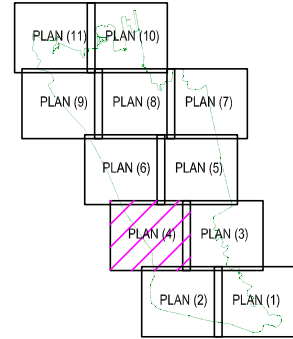
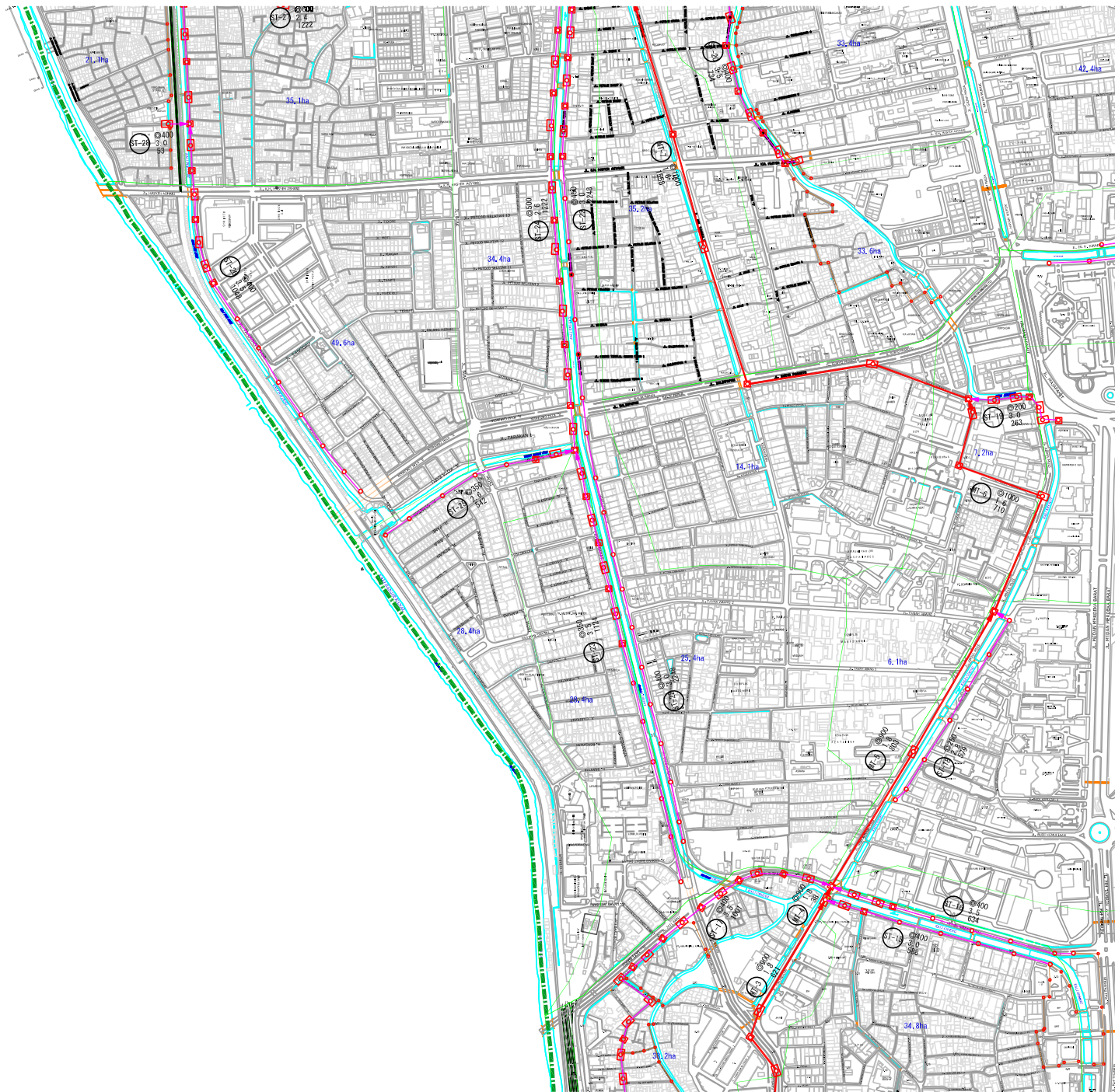


KEY PLAN

LEGEND

- Boundary of Project Area
- Boundary of Wastewater Collection Sector Area
- Main Trunk Sewer
- Sub Trunk Sewer
- Tertiary Sewer
- Line Number
- ⊙ Sewer Diameter (mm)
- % Sewer Gradient (%)
- Sewer Length (m)
- Wastewater Collection Sector Area (ha)
- ⊠ Departure Vertical Shaft
- ⊡ Arrival Vertical Shaft

NO.	DATE	DESCRIPTIONS	APPD. BY
REVISIONS			
DRAWING TITLE:			
SEWER NETWORK PLAN (3) REVISED			
SCALE:			
A1	1/5000	UNITS:	
A3	1/10000		
PROJECT:			
THE SUPPLEMENTAL STUDY FOR METROPOLITAN SANITATION MANAGEMENT INVESTMENT PROGRAM; SEWERAGE SYSTEM DEVELOPMENT IN DKI JAKARTA (E/S)			
DESIGNED BY	DATE	SIGNATURE	
DRAWN BY			
CHECKED BY			
APPROVED BY:			
DRAWING NO.:		REV.	
JAPAN INTERNATIONAL COOPERATION AGENCY			

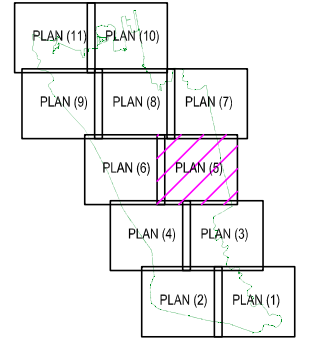
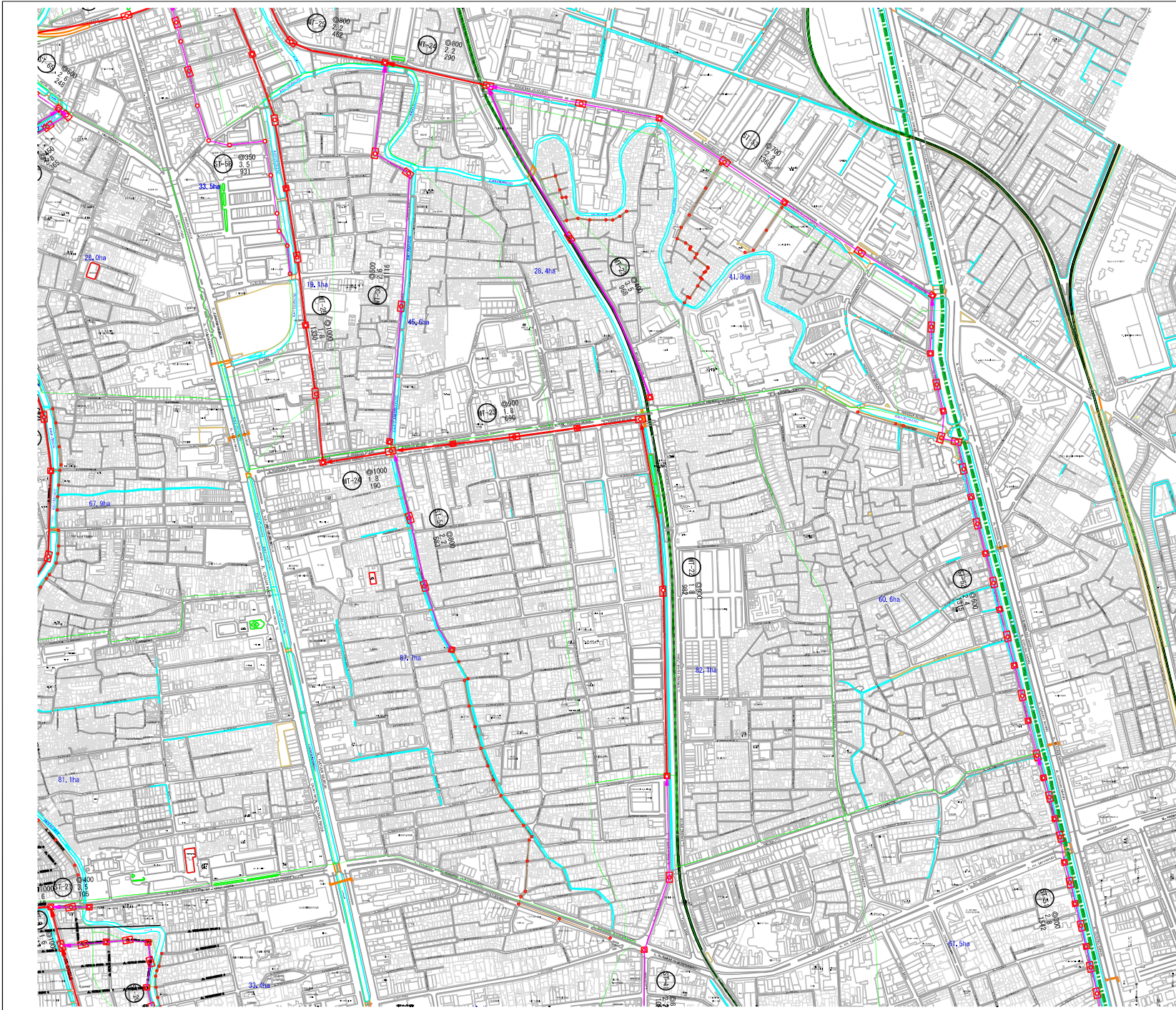


KEY PLAN

LEGEND

- Boundary of Project Area
- Boundary of Wastewater Collection Sector Area
- Main Trunk Sewer
- Sub Trunk Sewer
- Tertiary Sewer
- Line Number
- Sewer Diameter (mm)
- Sewer Gradient (%)
- Sewer Length (m)
- Wastewater Collection Sector Area (ha)
- Departure Vertical Shaft
- Arrival Vertical Shaft

REVISIONS			
NO.	DATE	DESCRIPTIONS	APPD. BY
DRAWING TITLE:			
SEWER NETWORK PLAN (4)			
SCALE:			
A1	1/5000	UNITS:	
A3	1/10000		
PROJECT:			
PREPARATORY SURVEY FOR PPP INFRASTRUCTURE PROJECT SEWAGE TREATMENT PLANT PROJECT IN DKI JAKARTA			
DESIGNED BY	DATE	SIGNATURE	
DRAWN BY			
CHECKED BY			
APPROVED BY:			
DRAWING NO.:		REV.	
JAPAN INTERNATIONAL COOPERATION AGENCY			



KEY PLAN

LEGEND

- Boundary of Project Area
- Boundary of Wastewater Collection Sector Area
- Main Trunk Sewer
- Sub Trunk Sewer
- Tertiary Sewer
- Line Number
- ⊙ Sewer Diameter (mm)
- ⊙ Sewer Gradient (%)
- Sewer Length (m)
- Wastewater Collection Sector Area (ha)
- Departure Vertical Shaft
- Arrival Vertical Shaft

NO.	DATE	DESCRIPTIONS	APPD. BY

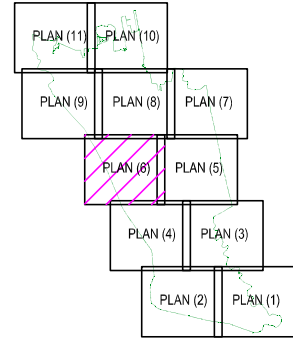
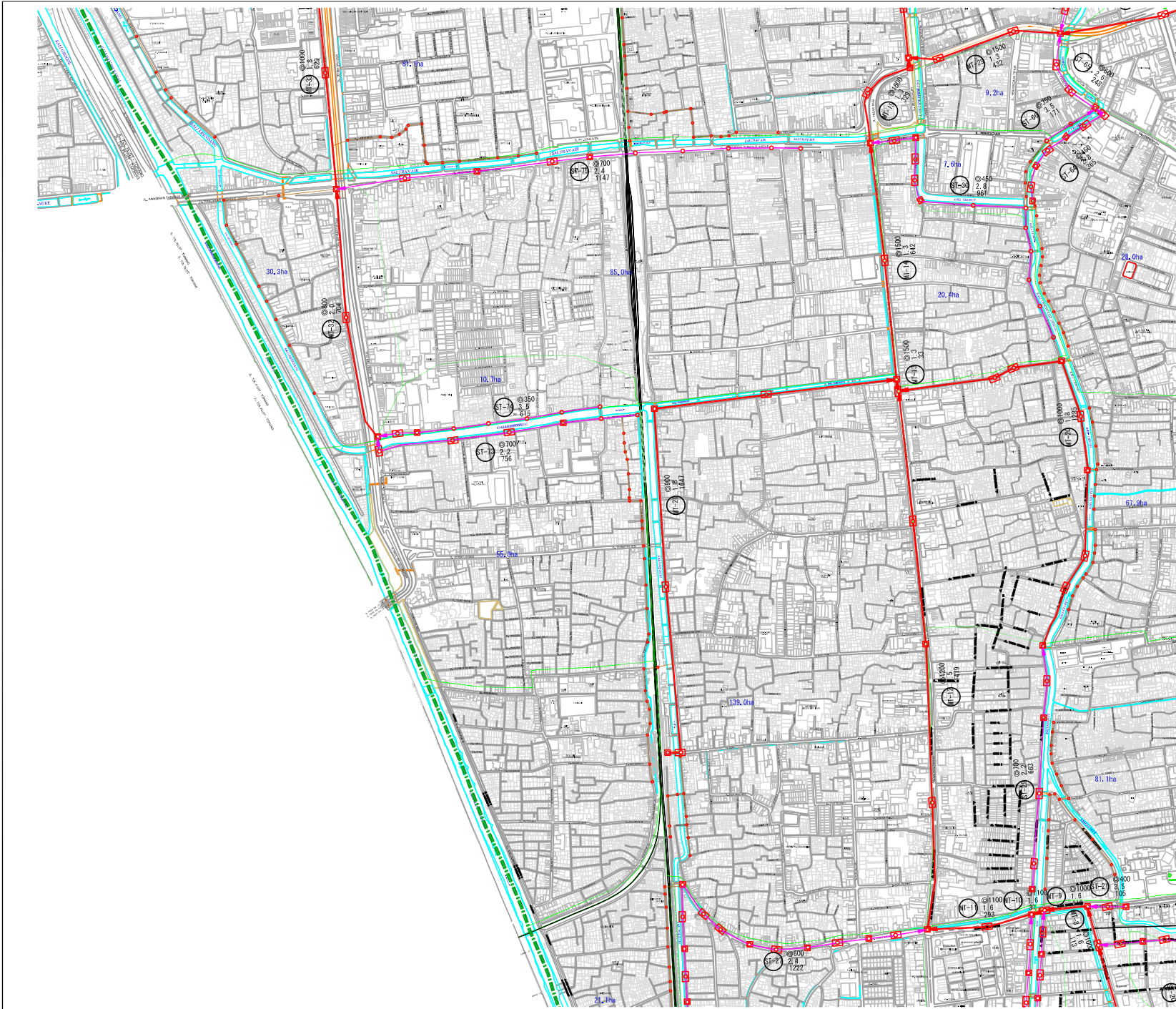
REVISIONS

DRAWING TITLE:  
SEWER NETWORK PLAN (5) REVISED

SCALE: A1 1/5000 UNITS:  
A3 1/10000

PROJECT:  
THE SUPPLEMENTAL STUDY FOR METROPOLITAN  
SANITATION MANAGEMENT INVESTMENT PROGRAM;  
SEWERAGE SYSTEM DEVELOPMENT IN DKI JAKARTA (EIS)

DESIGNED BY	DATE	SIGNATURE
DRAWN BY		
CHECKED BY		
APPROVED BY:		
DRAWING NO.:		REV.

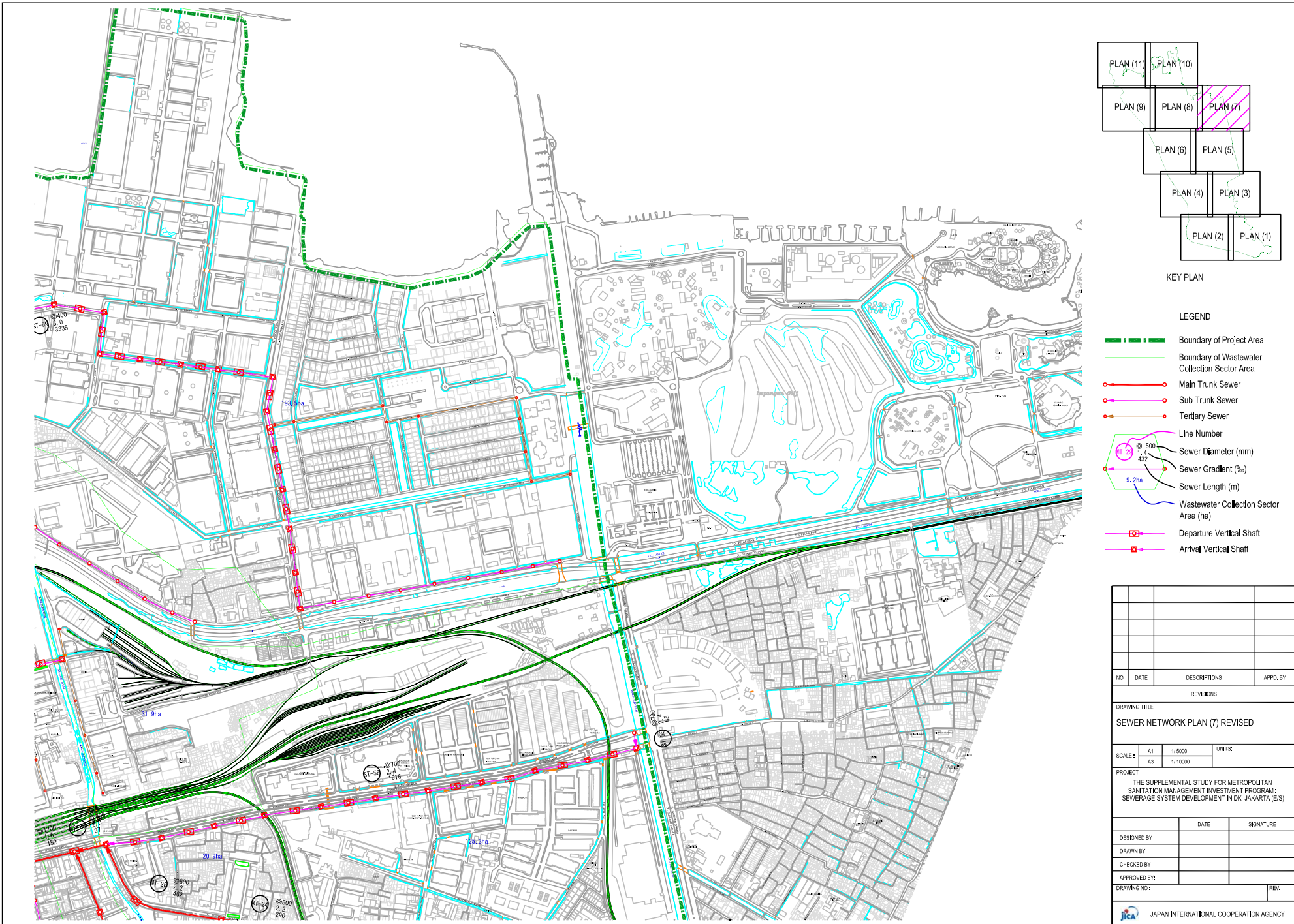


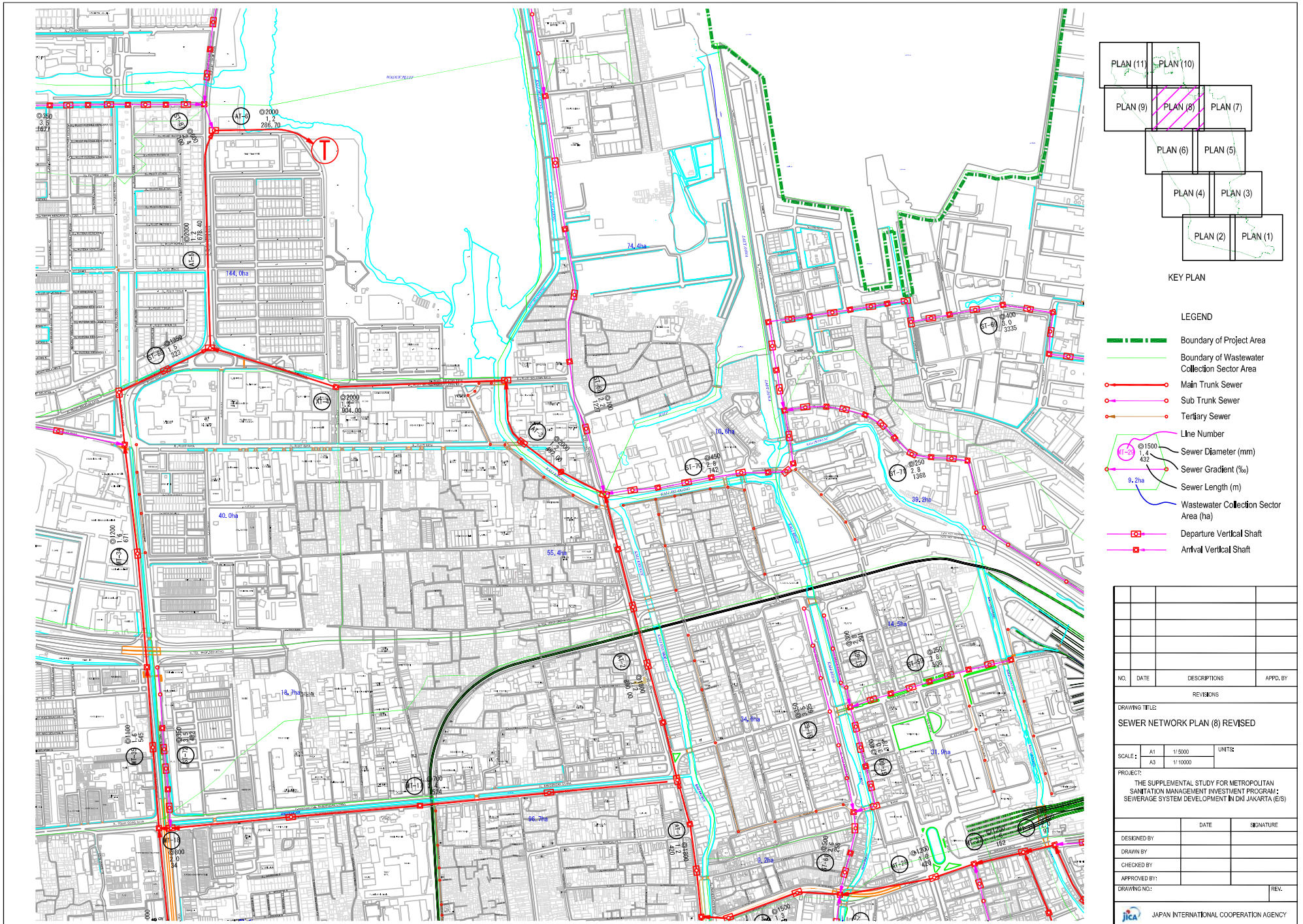
KEY PLAN

LEGEND

- Boundary of Project Area
- Boundary of Wastewater Collection Sector Area
- Main Trunk Sewer
- Sub Trunk Sewer
- Tertiary Sewer
- Line Number
- Sewer Diameter (mm)
- Sewer Gradient (%)
- Sewer Length (m)
- Wastewater Collection Sector Area (ha)
- Departure Vertical Shaft
- Arrival Vertical Shaft

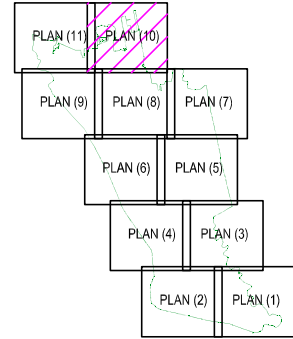
REVISIONS			
NO.	DATE	DESCRIPTIONS	APPD. BY
DRAWING TITLE:			
SEWER NETWORK PLAN (6) REVISED			
SCALE:			
A1	1/5000	UNITS:	
A3	1/10000		
PROJECT:			
THE SUPPLEMENTAL STUDY FOR METROPOLITAN SANITATION MANAGEMENT INVESTMENT PROGRAM; SEWERAGE SYSTEM DEVELOPMENT IN DKI JAKARTA (ES)			
DESIGNED BY	DATE	SIGNATURE	
DRAWN BY			
CHECKED BY			
APPROVED BY:			
DRAWING NO.:		REV.	
JAPAN INTERNATIONAL COOPERATION AGENCY			











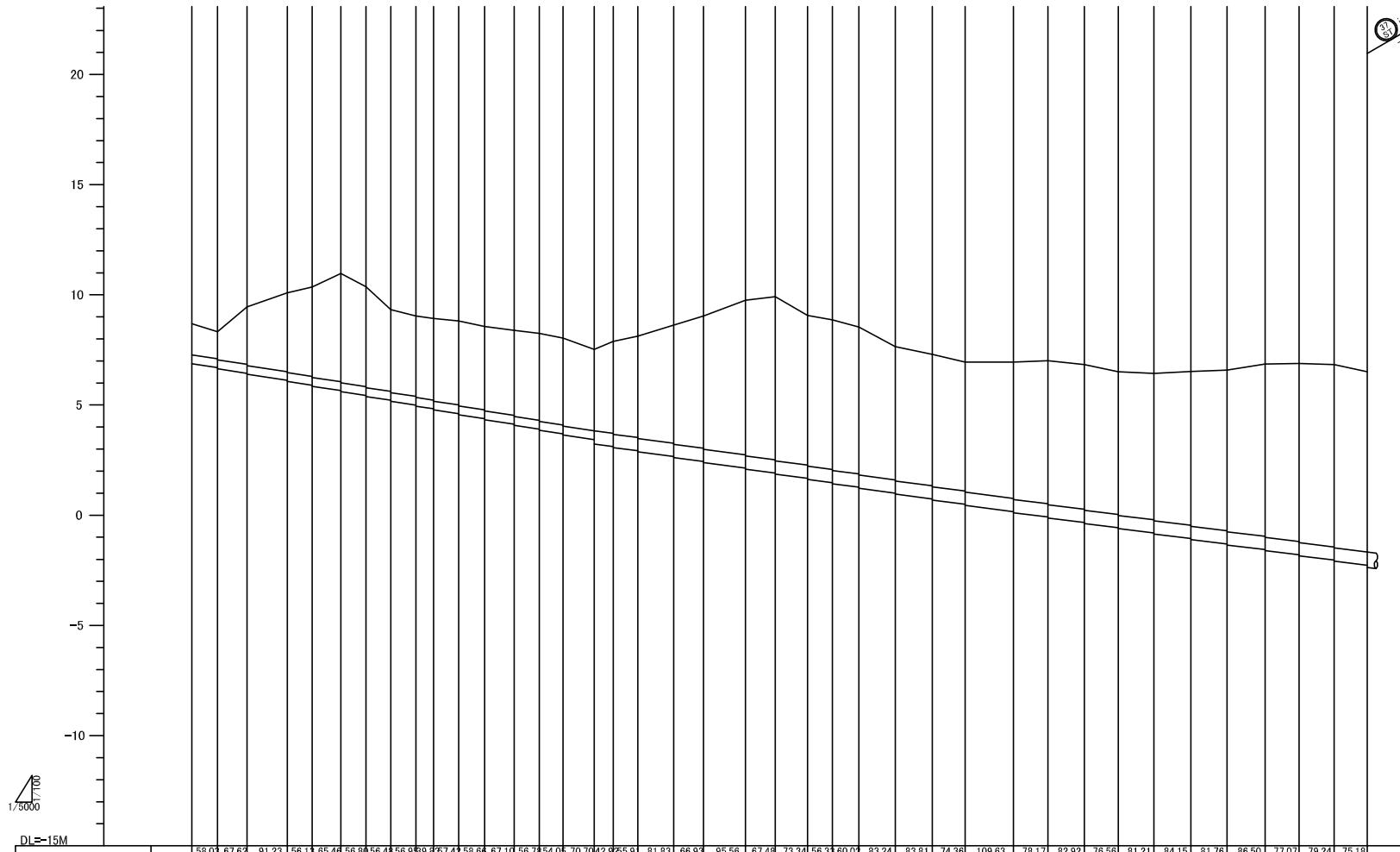
KEY PLAN

LEGEND

- - - - - Boundary of Project Area
- — — — — Boundary of Wastewater Collection Sector Area
- — — — — Main Trunk Sewer
- — — — — Sub Trunk Sewer
- — — — — Tertiary Sewer
- — — — — Line Number
- ⊙ Sewer Diameter (mm)
- ⊙ Sewer Gradient (%)
- ⊙ Sewer Length (m)
- — — — — Wastewater Collection Sector Area (ha)
- ⊠ Departure Vertical Shaft
- ⊡ Arrival Vertical Shaft

REVISIONS			
NO.	DATE	DESCRIPTIONS	APPD. BY
DRAWING TITLE:			
SEWER NETWORK PLAN (10)			
SCALE:			
A1	1/5000	UNITS:	
A3	1/10000		
PROJECT:			
PREPARATORY SURVEY FOR PPP INFRASTRUCTURE PROJECT SEWAGE TREATMENT PLANT PROJECT IN DKI JAKARTA			
DESIGNED BY	DATE	SIGNATURE	
DRAWN BY			
CHECKED BY			
APPROVED BY:			
DRAWING NO.:		REV.	
JAPAN INTERNATIONAL COOPERATION AGENCY			

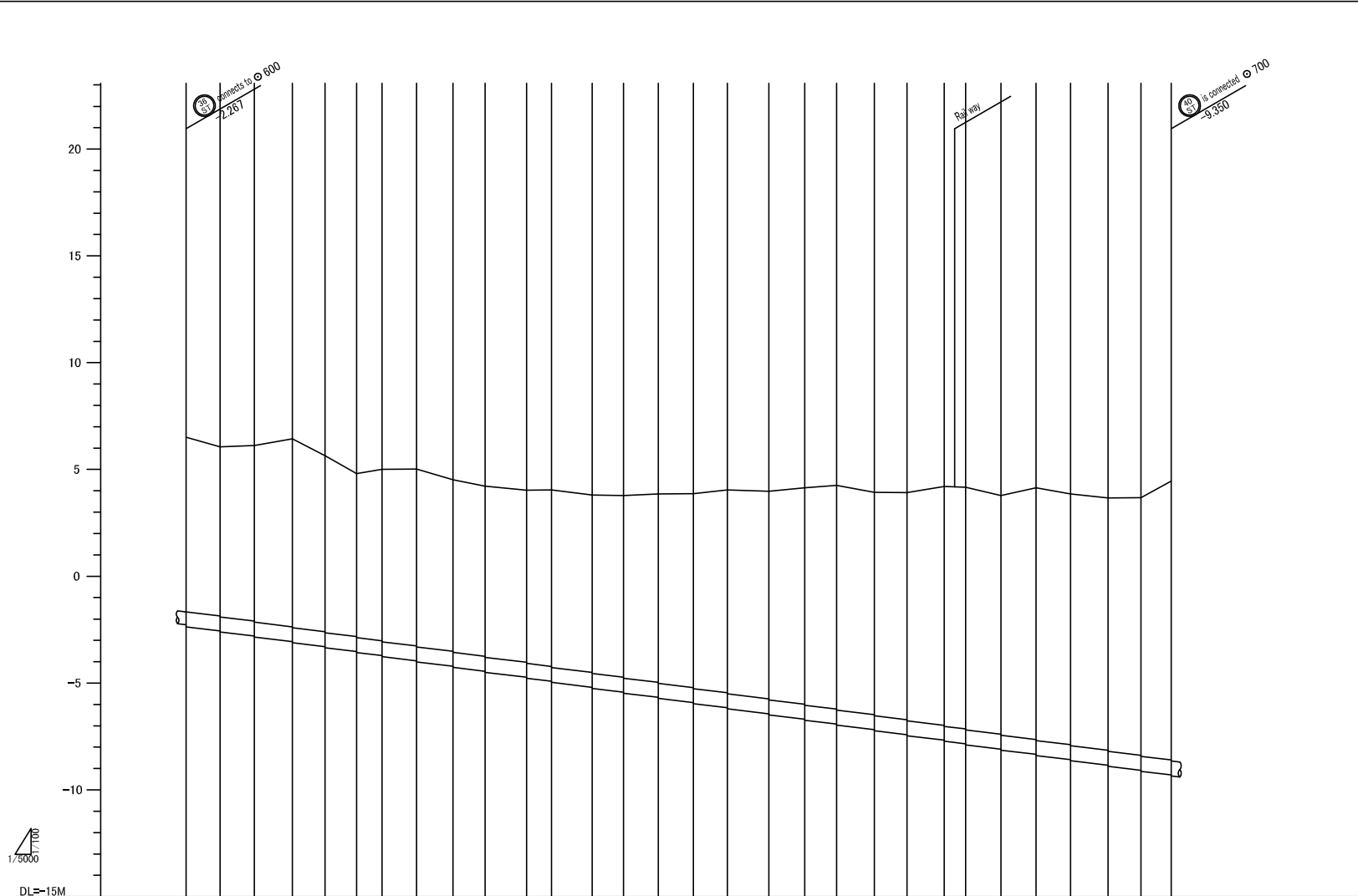




DL=-15M	56.03	67.62	91.23	56.13	65.24	56.58	56.48	56.89	67.44	56.64	67.10	56.78	54.01	70.70	42.83	65.91	81.83	66.93	95.56	67.48	73.34	56.33	60.02	83.24	83.81	74.36	109.63	78.17	82.92	76.56	81.21	84.15	81.76	86.50	77.07	79.24	75.18			
Sewer Line Number	42 ST								52 ST												53 ST																		53 ST	
Diameter (mm)	400								400												600																600			
Slope (‰)	3.00								3.00												2.60																2.40			
Length (m)	216.88								696.36												540.30																351.04			
Ground Elevation (m)	8.69	8.33	9.45	10.09	10.35	10.97	10.37	9.33	9.04	8.93	8.39	8.25	8.04	7.53	7.89	8.13	8.63	9.04	9.76	9.91	9.07	8.87	8.54	7.85	7.30	6.95	6.95	7.01	6.83	6.51	6.43	6.52	6.58	6.88	6.89	6.83	6.51			
Earth Cover (m)	1.39	1.20	1.25	0.59	0.70	0.83	0.77	0.83	0.81	0.81	0.88	0.96	0.91	0.96	0.91	0.81	0.83	0.90	0.92	0.97	0.85	0.80	0.87	0.81	0.86	0.84	0.81	0.82	0.81	0.82	0.84	0.83	0.82	0.82	0.82	0.82	0.82	0.82		
Invert Elevation (m)	6.899	6.925	6.442	6.118	6.086	5.854	5.850	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854	5.854		
Cu. Length (m)	0.00	58.03	125.85	216.88	273.01	338.47	385.27	451.75	508.70	568.53	605.95	664.61	731.71	788.09	842.54	913.24	956.16	1012.07	1093.30	1160.83	1256.39	1323.87	1387.21	1453.54	1513.56	1596.80	1680.04	1754.57	1864.00	1942.77	2025.09	2102.25	2183.46	2287.01	2348.37	2455.87	2512.94	2592.18	2667.36	

Jakarta Sewerage	
Zone - 1	
Sewer Line No.	
42 ST	52 ST
53 ST	53 ST

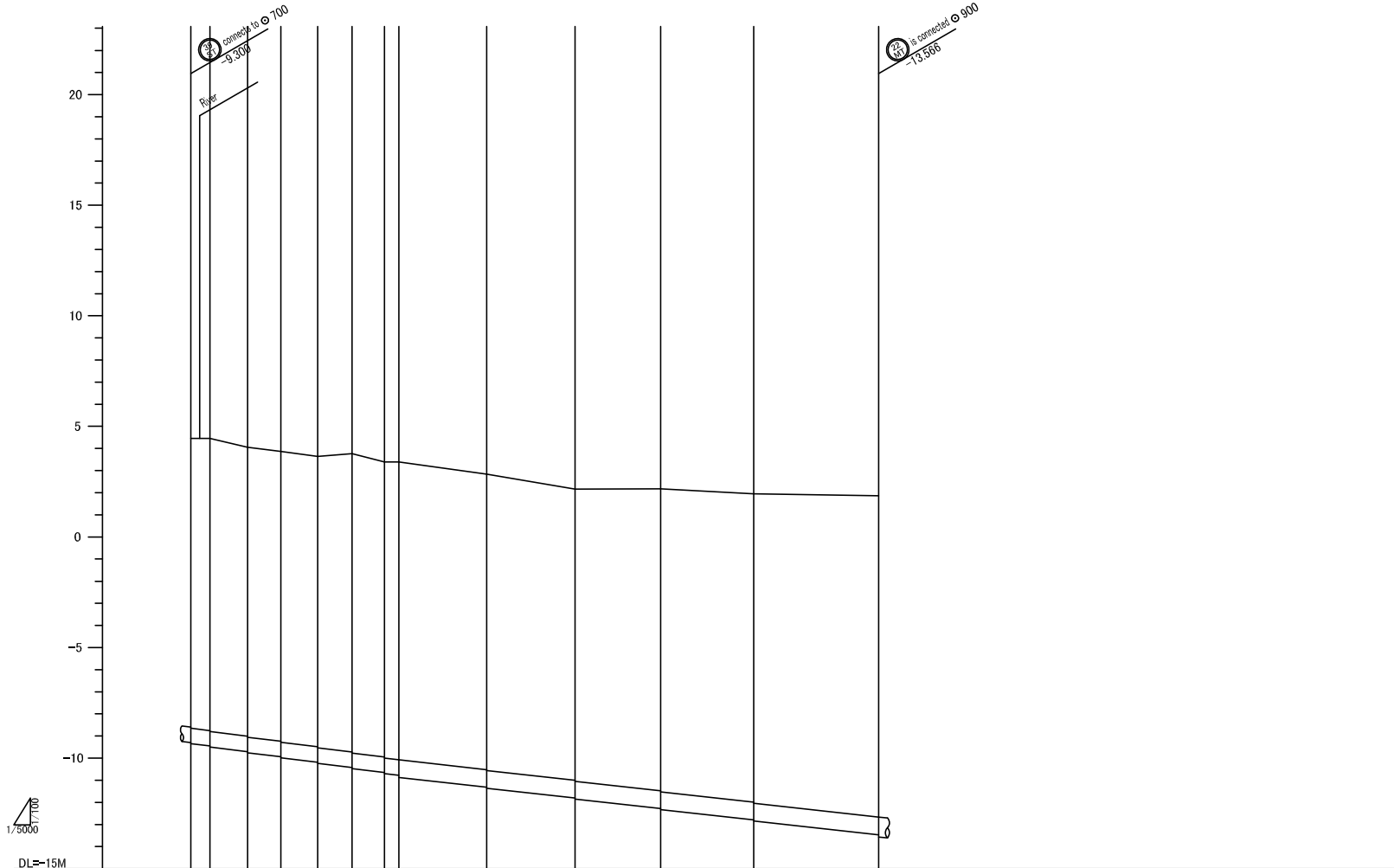
Jakarta Sewerage Zone - 1	
Trunk Sewer East	
Scale	Verticel = 1:100 Horizontel = 1:5000
Drawing No.	1/7
2014 June	



Sewer Line Number	DL=-15M																													
	Diameter (mm)	Ø 700					Ø 700					Ø 700																		
	Slope (‰)	2.40 ‰																												
	Length (m)	458.86					904.52					941.47																		
	Ground Elevation (m)	6.51	6.06	6.12	6.43	5.64	4.80	5.01	5.02	4.52	4.22	4.03	4.05	3.80	3.78	3.85	3.68	4.05	3.88	4.14	4.25	3.83	3.92	4.20	4.17	3.78	4.14	3.85	3.67	3.68
Earth Cover (m)	8.12	7.86	8.21	6.74	8.18	7.57	7.97	6.22	7.98	7.96	6.00	6.21	6.24	6.45	6.81	6.02	6.50	6.86	10.07	10.41	10.35	10.58	11.12	11.26	11.12	11.72	11.58	11.76	12.05	12.89
Invert Elevation (m)	-2.367	-2.558	-2.801	-3.084	-3.297	-3.575	-3.718	-3.981	-4.215	-4.485	-4.728	-4.919	-5.197	-5.492	-5.815	-6.156	-6.489	-6.859	-7.141	-7.397	-7.622	-7.815	-8.044	-8.341	-8.585	-8.845	-9.060	-9.300	-9.521	
Cu. Length (m)	-2067.204	-2746.704	-2827.324	-2916.104	-2892.224	-3006.474	-3126.424	-3206.594	-3291.104	-3386.604	-3463.774	-3522.404	-3617.294	-3690.874	-3854.274	-3933.204	-4030.744	-4114.634	-4189.094	-4277.044	-4353.634	-4441.154	-4481.174	-4574.174	-4656.094	-4736.724	-4824.094	-4901.394	-4972.274	

Jakarta Sewerage	
Zone - 1	
Sewer Line No.	
37 ST	38 ST
39 ST	

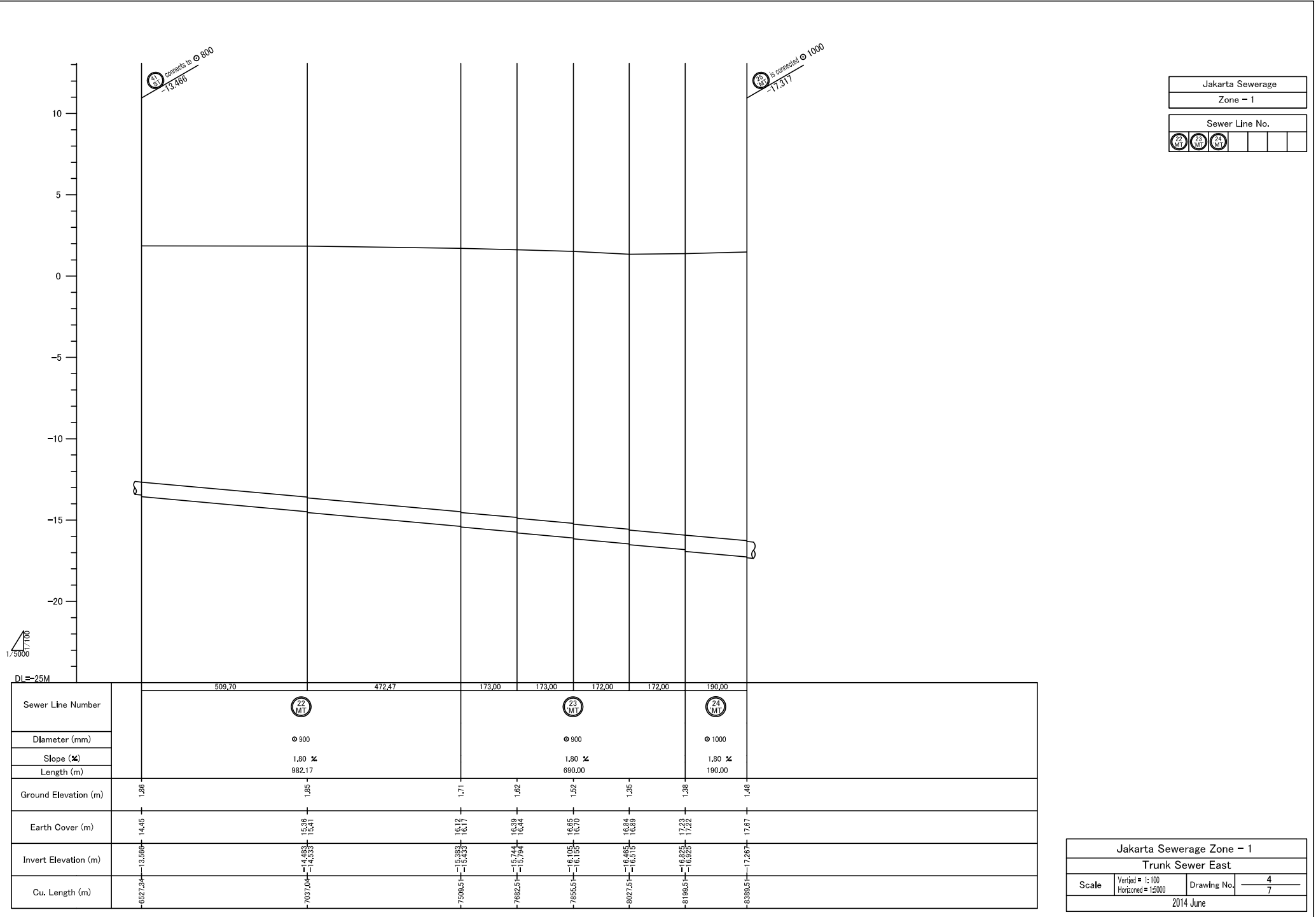
Jakarta Sewerage Zone - 1	
Trunk Sewer East	
Scale	Verticel = 1:100 Horizontel = 1:5000
Drawing No.	2/7
2014 June	



Sewer Line Number	40 ST										41 ST															
	Ø 700										Ø 800															
	2.40 ‰										2.20 ‰															
	470.71										1084.42															
Ground Elevation (m)	4.45	4.45	4.06	3.86	3.64	3.77	3.39	3.39	2.84	2.17	2.18	1.95	1.86	4.45	4.45	4.06	3.86	3.64	3.77	3.39	3.39	2.84	2.17	2.18	1.95	1.86
Earth Cover (m)	13.04	13.15	13.06	13.04	13.07	13.44	13.28	13.41	13.29	13.11	13.60	13.88	14.46	13.04	13.15	13.06	13.04	13.07	13.44	13.28	13.41	13.29	13.11	13.60	13.88	14.46
Invert Elevation (m)	-9.350	-9.453	-9.768	-9.939	-10.189	-10.476	-10.652	-10.751	-11.318	-11.897	-12.252	-12.645	-13.460	-9.350	-9.453	-9.768	-9.939	-10.189	-10.476	-10.652	-10.751	-11.318	-11.897	-12.252	-12.645	-13.460
Cu. Length (m)	497.22	501.526	5100.524	5175.51	5258.064	5336.80	5409.504	5442.324	5641.53	5841.27	6034.90	6245.13	6527.34	497.22	501.526	5100.524	5175.51	5258.064	5336.80	5409.504	5442.324	5641.53	5841.27	6034.90	6245.13	6527.34

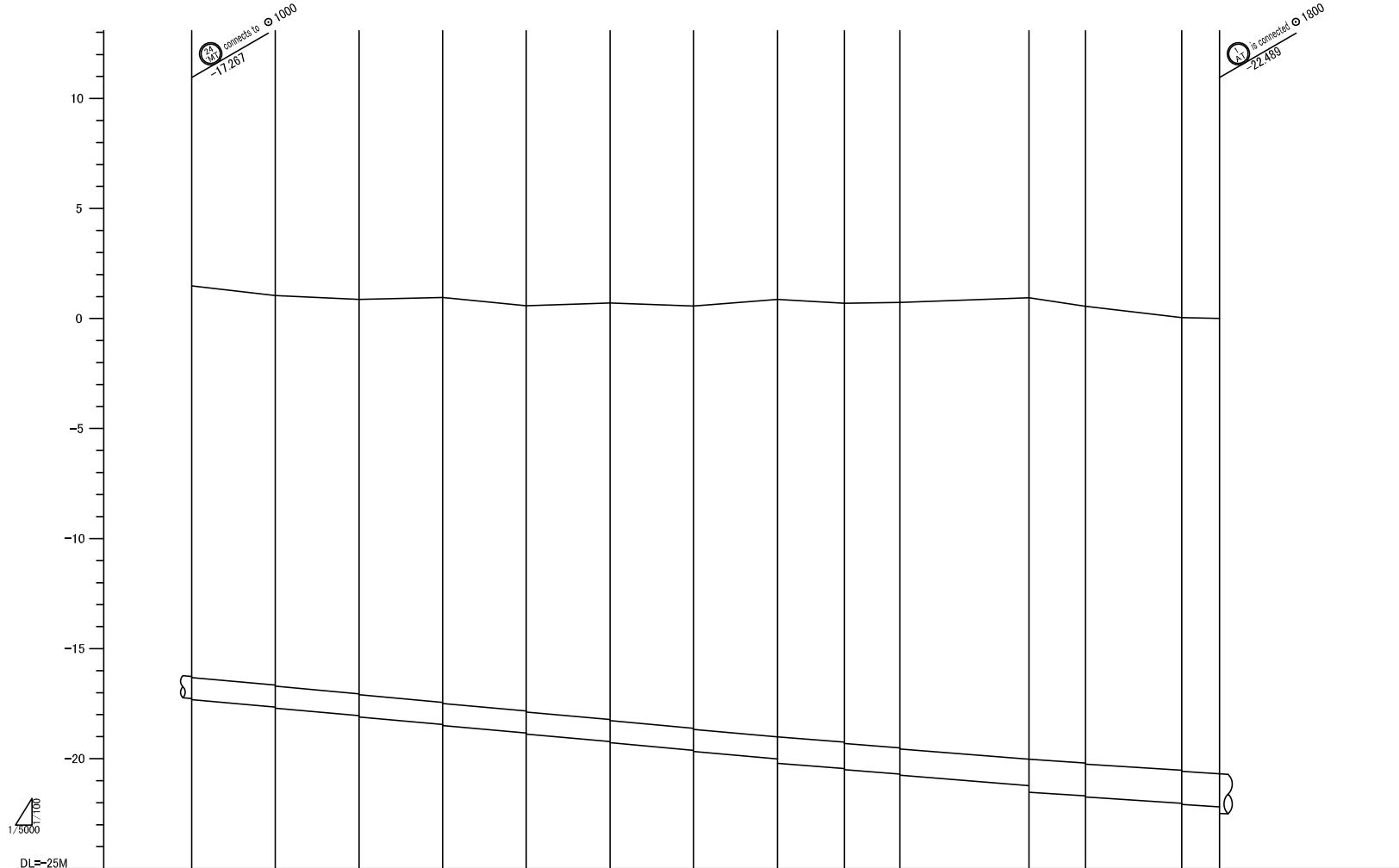
Jakarta Sewerage				
Zone - 1				
Sewer Line No.				
40 ST	41 ST			

Jakarta Sewerage Zone - 1			
Trunk Sewer East			
Scale	Verticed = 1:100 Horizonted = 1:5000	Drawing No.	3/7
2014 June			



Jakarta Sewerage	
Zone - 1	
Sewer Line No.	
22 MT	23 MT
24 MT	

Jakarta Sewerage Zone - 1	
Trunk Sewer East	
Scale	Verticed = 1:100 Horizonted = 1:5000
Drawing No.	4/7
2014 June	

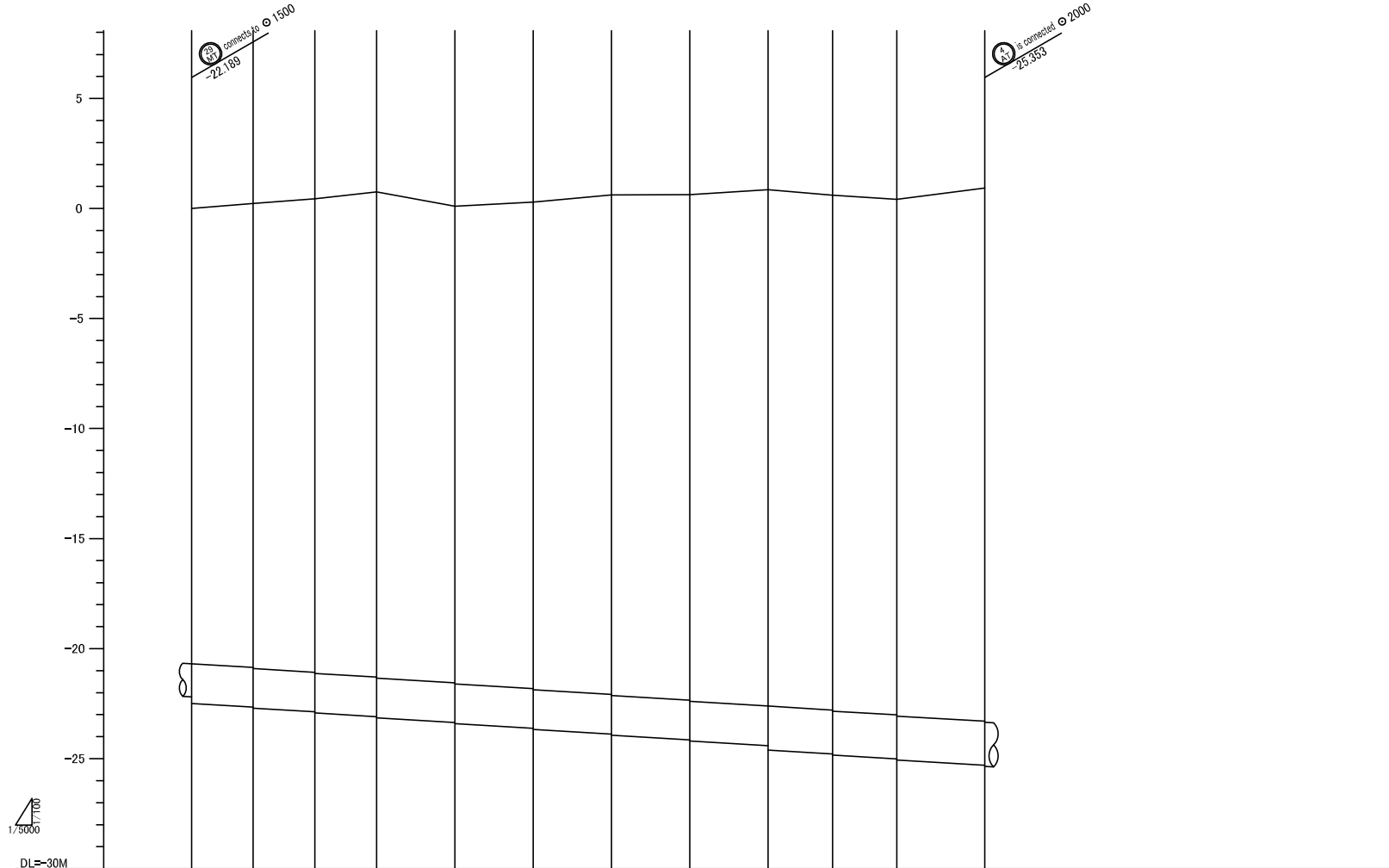


Sewer Line Number	190,00	190,00	190,00	190,00	190,00	190,00	152,25	126,07	293,45	127,79	219,23	85,14		
	Diameter (mm) $\varnothing$ 1000 $\varnothing$ 1200 $\varnothing$ 1200 $\varnothing$ 1500													
	Slope (‰) 1,80 ‰      1,60 ‰      1,60 ‰      1,30 ‰													
	Length (m) 1330,00      152,25      419,52      432,16													
Ground Elevation (m)	1,48	1,05	0,87	0,86	0,58	0,71	0,57	0,87	0,70	0,73	0,94	0,56	0,04	0,00
Earth Cover (m)	17,72	17,63 17,68	17,84 17,89	18,32 18,37	18,33 18,38	18,86 18,91	19,11 19,16	19,80 19,79	19,86 19,91	20,14 20,19	20,87 20,83	20,61 20,66	20,43 20,48	20,55
Invert Elevation (m)	-17,317	-17,650 -17,709	-18,051 -18,101	-18,443 -18,493	-18,835 -18,885	-19,227 -19,277	-19,619 -19,669	-20,011 -20,211	-20,403 -20,505	-20,707 -20,757	-21,129 -21,527	-21,653 -21,743	-22,028 -22,078	-22,189
Cu. Length (m)	-8389,5	-8579,5	-8769,5	-8959,5	-9149,5	-9339,5	-9529,5	-9719,5	-9871,76	-9997,53	-10291,28	-10419,07	-10638,30	-10723,44

Jakarta Sewerage	
Zone - 1	
Sewer Line No.	

Jakarta Sewerage Zone - 1		
Trunk Sewer East		
Scale	Verticed = 1:100 Horizonted = 1:5000	Drawing No. <u>5</u> 7
2014 June		

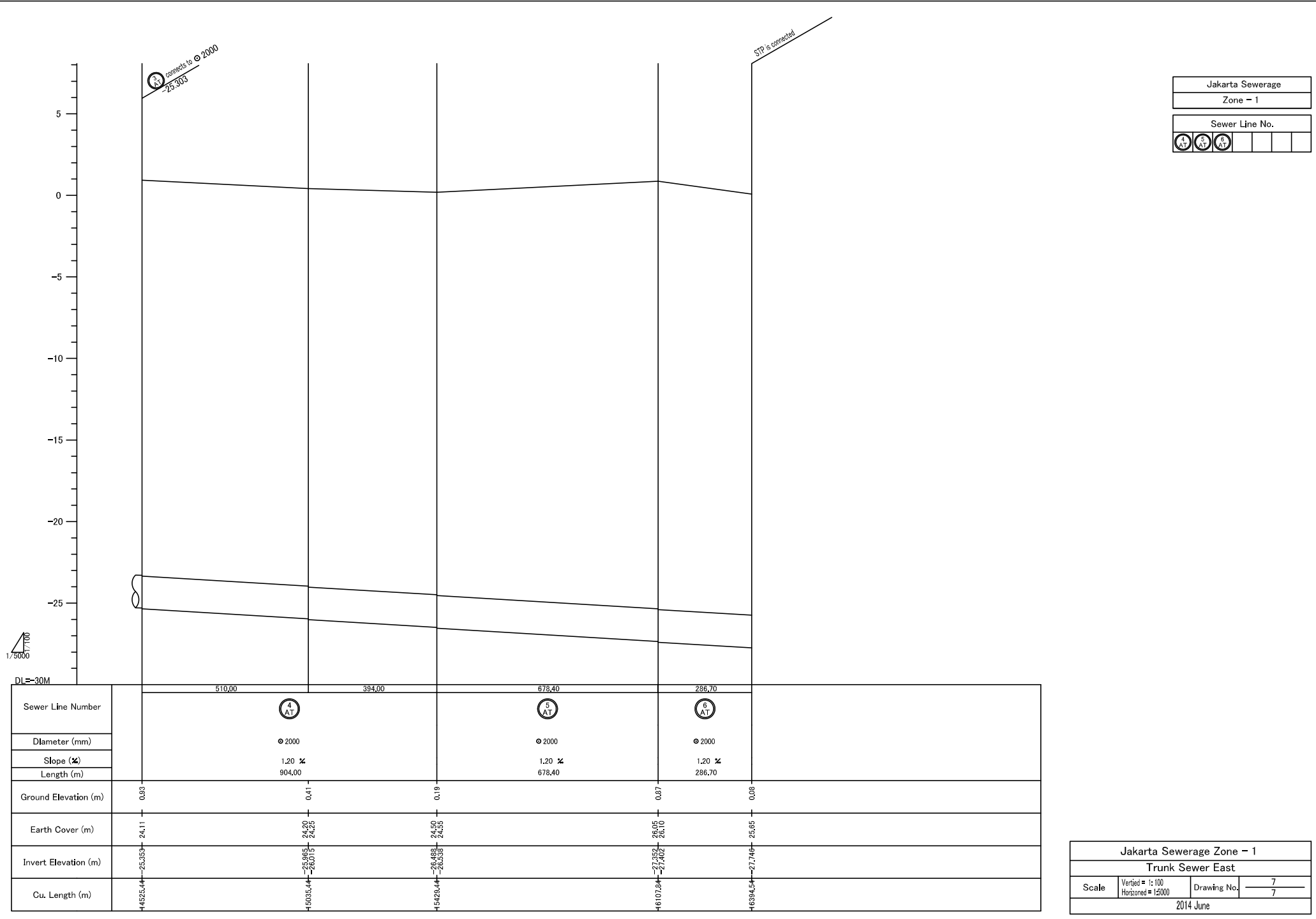




Sewer Line Number	1		2				3					
	AT		AT				AT					
	1800		1800				2000					
	1.20%		1.20%				1.20%					
Diameter (mm)	1800		1800				2000					
Slope (%)	1.20%		1.20%				1.20%					
Length (m)	420.00		890.00				492.00					
Ground Elevation (m)	0.00	0.23	0.44	0.75	0.10	0.29	0.62	0.63	0.86	0.60	0.41	0.93
Earth Cover (m)	20.53	20.93	21.36	21.88	21.50	22.00	22.55	22.87	23.30	23.26	23.30	24.06
Invert Elevation (m)	-22.489	-22.657	-22.925	-23.093	-23.357	-23.621	-23.885	-24.149	-24.413	-24.678	-25.013	-25.300
Cu. Length (m)	2723.44	2863.44	3003.44	3143.44	3321.44	3489.44	3677.44	3865.44	4033.44	4179.44	4325.44	44525.44

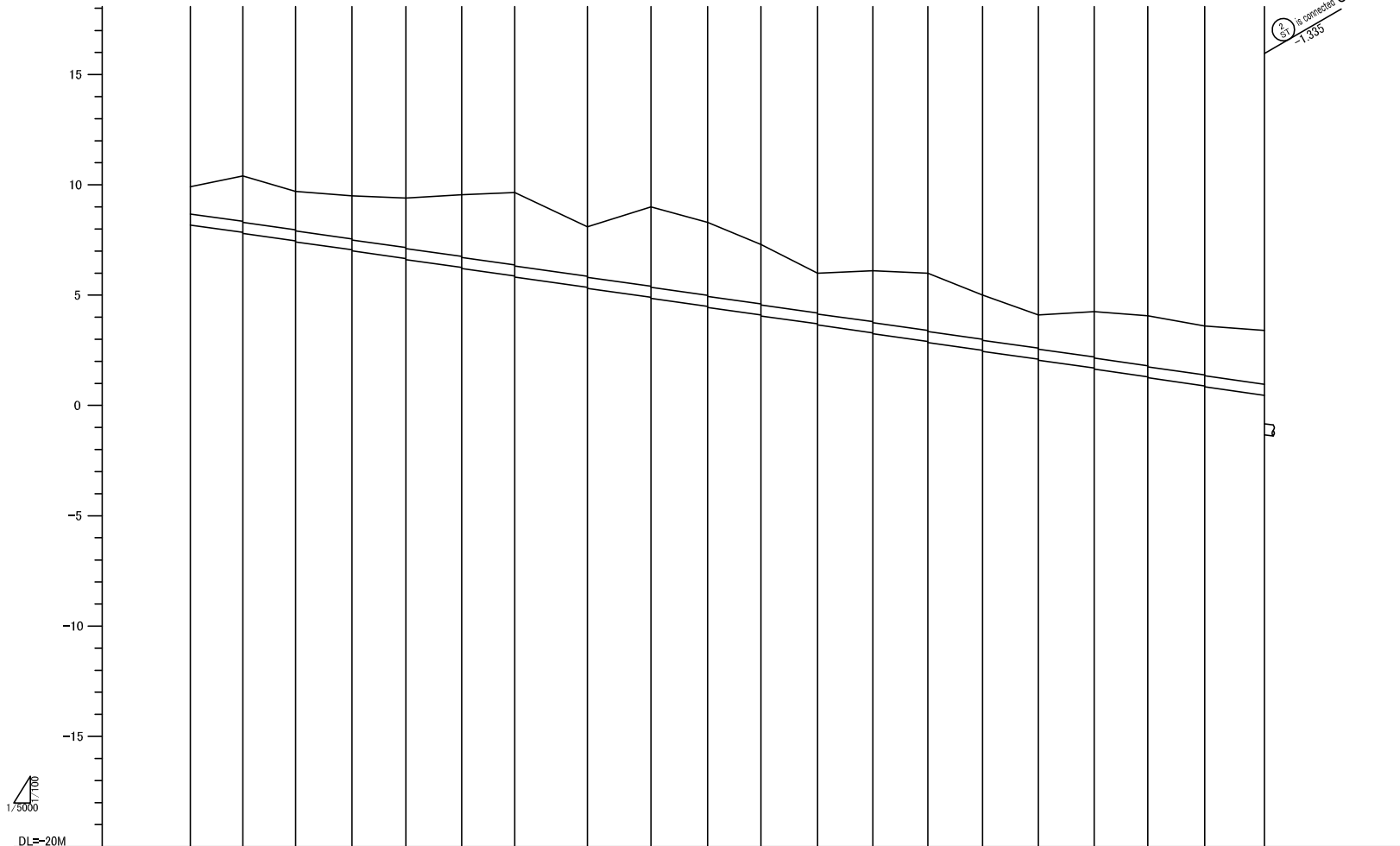
Jakarta Sewerage	
Zone - 1	
Sewer Line No.	
AT	AT

Jakarta Sewerage Zone - 1	
Trunk Sewer East	
Scale	Verticel = 1:100 Horizonted = 1:5000
Drawing No.	6 7
2014 June	



Jakarta Sewerage	
Zone - 1	
Sewer Line No.	
1	2

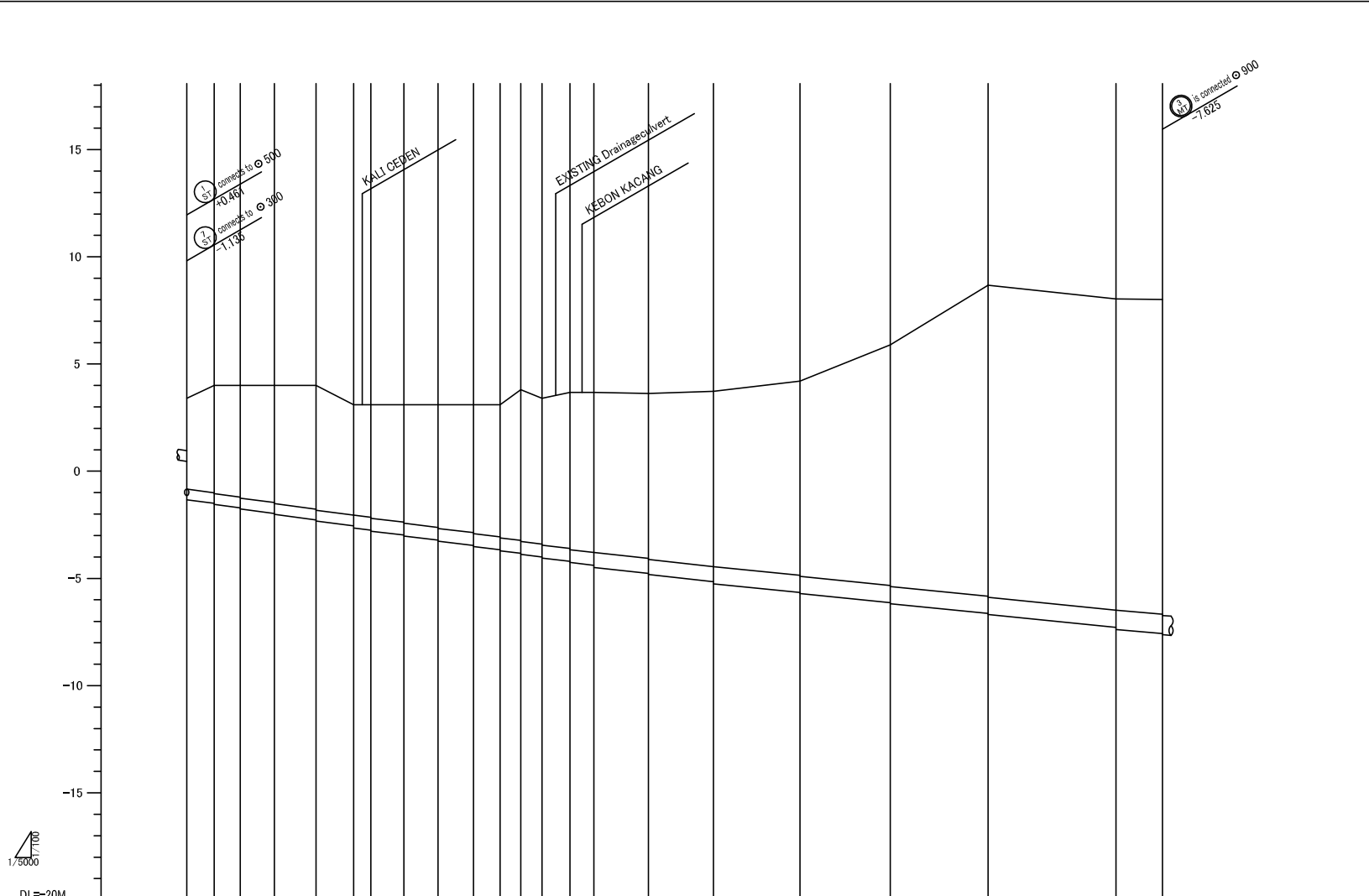
Jakarta Sewerage Zone - 1	
Trunk Sewer East	
Scale	Vertical = 1:100 Horizontal = 1:5000
Drawing No.	7/7
2014 June	



DL=-20M	119.27	119.24	127.87	122.34	126.28	120.39	164.46	143.95	126.76	121.08	127.99	125.31	124.63	124.05	126.27	126.52	121.59	126.81	135.57	
Sewer Line Number	(1) ST																			
Diameter (mm)	ø 500																			
Slope (‰)	2.80 ‰																			
Length (m)	2434.38																			
Ground Elevation (m)	9.92	10.40	9.70	9.50	9.40	9.55	9.65	8.10	9.00	8.30	7.30	6.00	6.10	6.00	5.80	4.10	4.25	4.08	3.80	3.40
Earth Cover (m)	1.20	2.00	1.75	1.96	2.20	2.75	3.24	2.20	3.55	3.26	2.65	1.76	2.26	2.56	1.96	1.46	2.02	2.22	2.17	2.40
Invert Elevation (m)	8.78	8.40	7.95	7.54	7.20	6.80	6.41	5.36	4.95	4.44	4.05	3.67	3.26	2.84	2.50	2.06	1.64	1.30	0.89	0.46
Cu. Length (m)	0.00	19.11	238.51	366.38	488.72	615.00	735.39	889.85	1043.00	1172.50	1233.04	1421.03	1546.04	1671.57	1795.02	1921.09	2048.91	2170.00	2238.01	2434.38

Jakarta Sewerage				
Zone - 1				
Sewer Line No.				
(1) ST				

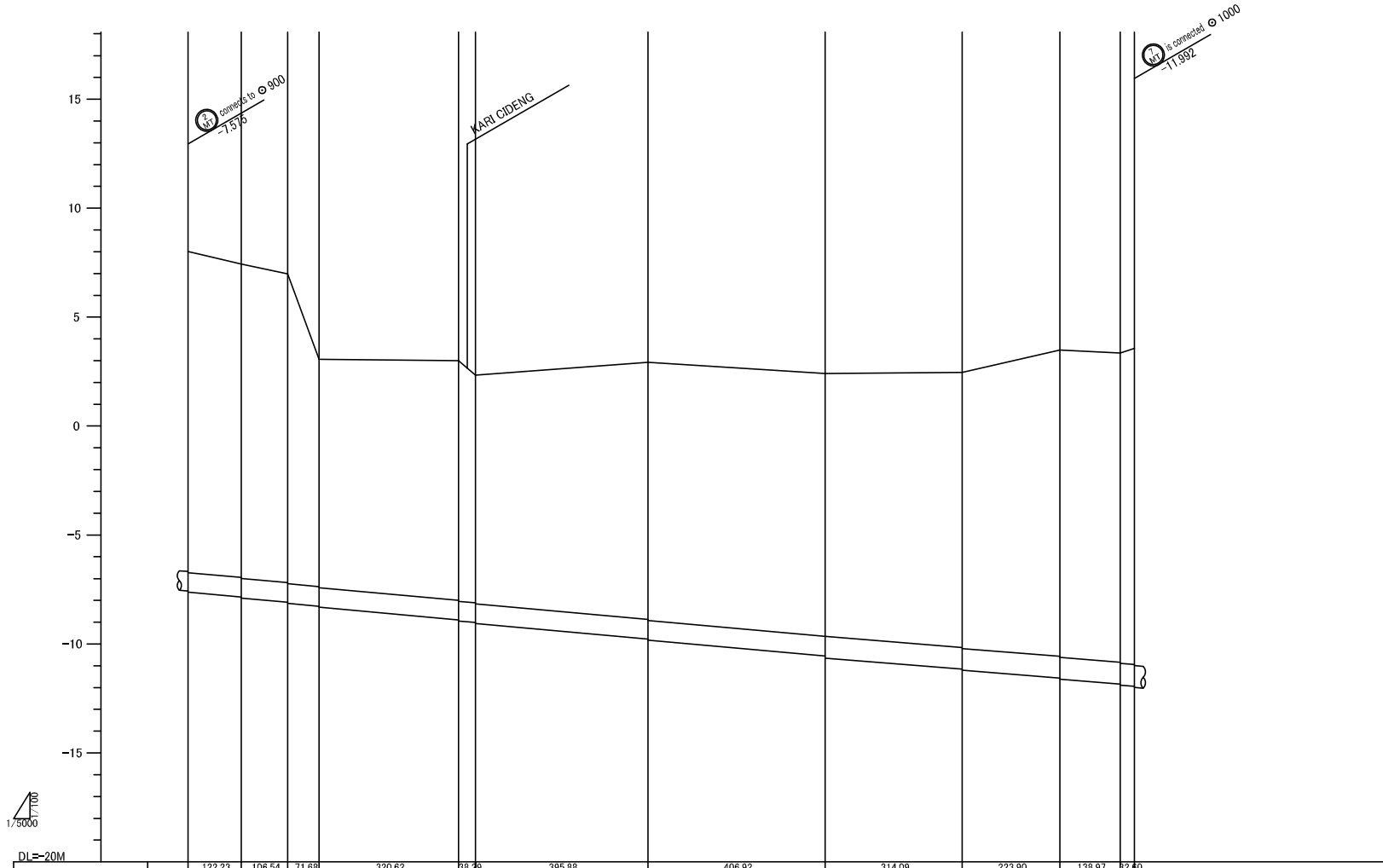
Jakarta Sewerage Zone - 1		
Trunk Sewer West		
Scale	Verticed = 1:100 Horizoned = 1:5000	Drawing No. <u>1/5</u>
2014 June		



DL=-20M	63.77	60.79	79.50	97.41	87.39	40.04	77.09	79.92	82.24	62.40	47.93	99.56	65.12	55.76	127.28	151.17	201.93	210.30	228.21	298.08	108.33	
Sewer Line Number			ST-1	ST-2			ST-3			ST-4			ST-5			MT-1			MT-2			
Diameter (mm)			Ø 500	Ø 600			Ø 600			Ø 700			Ø 700			Ø 800			Ø 900			
Slope (‰)			2.60	2.40			2.40			2.20			2.20			2.00			1.80			
Length (m)			388.86	40.04			520.01			278.45			938.52			108.33						
Ground Elevation (m)	3.40	4.19	4.00	4.00	3.10	3.10	3.10	3.10	3.10	3.10	3.80	3.40	3.69	3.68	3.63	3.72	4.21	5.90	8.67	8.03	8.01	
Earth Cover (m)	4.19	4.96	5.01	5.17	5.42	5.47	5.78	5.78	5.10	5.10	5.24	5.67	5.72	5.92	5.97	6.12	6.17	6.17	6.03	6.75	6.80	6.89
Invert Elevation (m)	-1.335	-1.501	-1.351	-1.709	-1.966	-2.016	-2.269	-2.319	-2.546	-2.616	-2.732	-2.977	-3.027	-3.210	-3.269	-3.456	-3.516	-3.696	-3.716	-3.831	-4.000	-4.050
Cu. Length (m)	-2494.38	-2498.15	-2558.54	-2638.44	-2735.35	-2823.24	-2863.28	-2940.37	-3020.29	-3102.25	-3184.03	-3212.86	-3292.14	-3327.53	-3383.29	-35	-3861.74	-3963.67	-4073.97	-4302.19	-4600.26	-4708.39

Jakarta Sewerage	
Zone - 1	
Sewer Line No.	
2 ST	3 ST
4 ST	5 ST
MT	MT

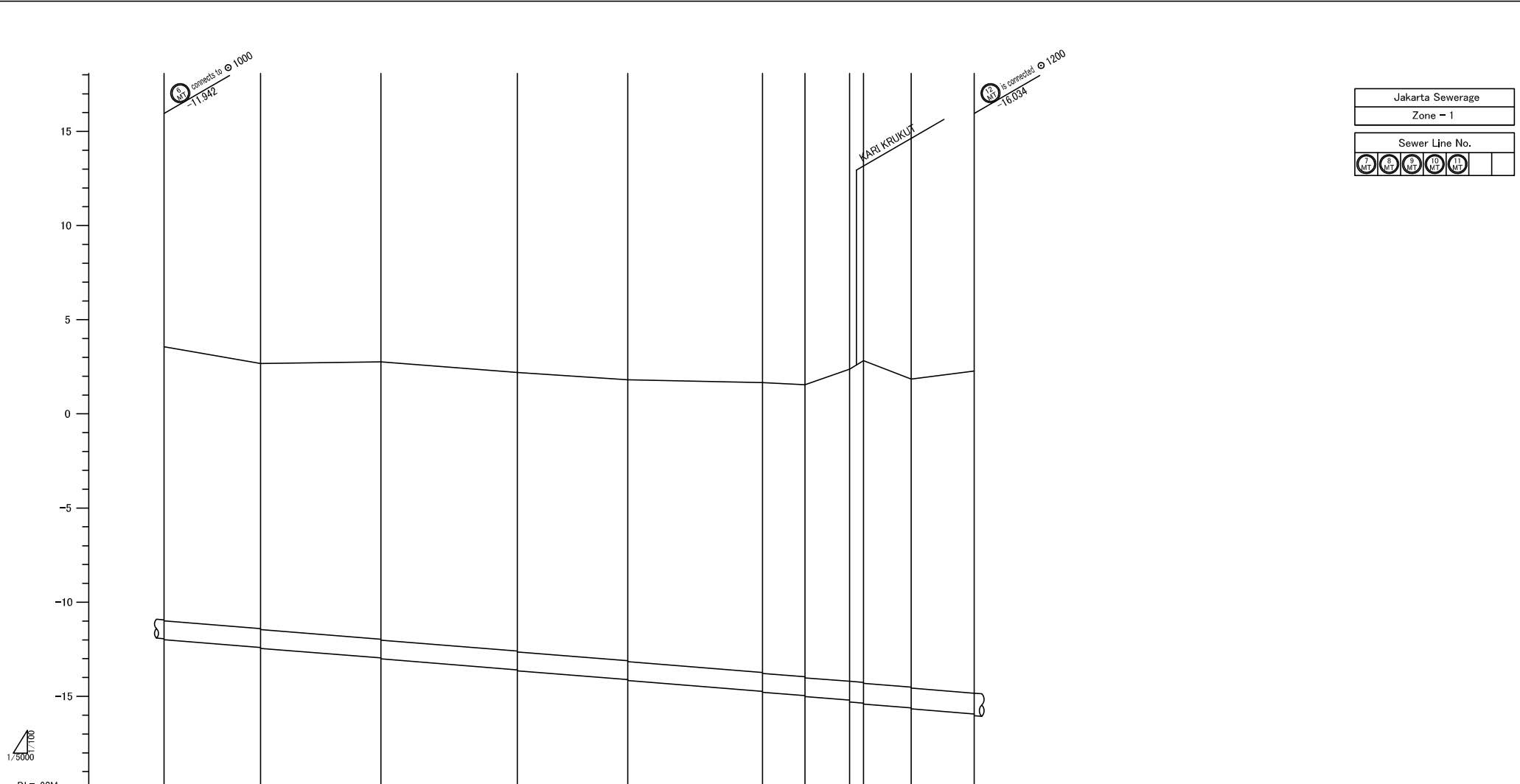
Jakarta Sewerage Zone - 1	
Trunk Sewer West	
Scale	Verticed = 1:100 Horized = 1:5000
Drawing No.	2/5
2014 June	



Sewer Line Number	122.23	106.54	71.68	320.62	38.29	395.88	406.92	314.09	223.90	136.97	82.40
			3	3	3	3	3	3	3	3	3
			MT	MT	MT	MT	MT	MT	MT	MT	MT
			900	900	900	900	900	900	1000	900	900
Diameter (mm)											
Slope (‰)			1.80	1.80	1.80	1.80	1.80	1.60	1.60	1.60	1.60
Length (m)			621.07	38.29	802.80	709.56					
Ground Elevation (m)	8.01	7.43	6.88	3.00	2.34	2.82	2.41	2.46	3.49	3.35	3.57
Earth Cover (m)	14.66	14.30	14.35	10.97	10.97	11.77	11.99	12.54	12.59	12.88	14.11
Invert Elevation (m)	-7.625	-7.895	-8.087	-8.137	-8.286	-8.316	-8.401	-8.557	-8.620	-8.683	-8.746
Cu. Length (m)	-4708.50	-4830.02	-4937.36	-5009.04	-5289.06	-5367.55	-5763.83	-6170.75	-6464.34	-6708.74	-6847.71

Jakarta Sewerage	
Zone - 1	
Sewer Line No.	
3	4
5	6

Jakarta Sewerage Zone - 1	
Trunk Sewer West	
Scale	Verticed = 1:100 Horizonted = 1:5000
Drawing No.	3 5
2014 June	

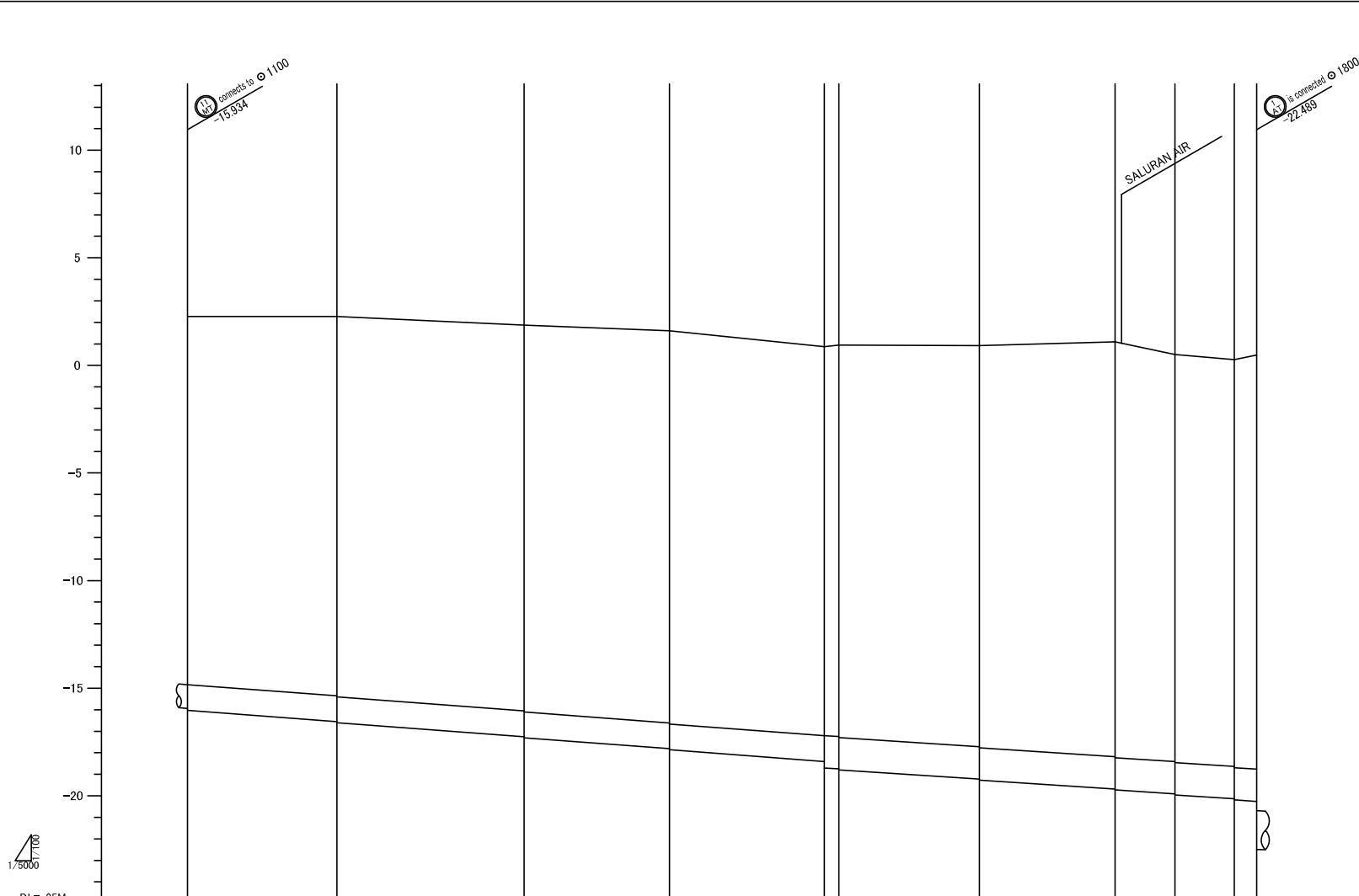


Jakarta Sewerage				
Zone - 1				
Sewer Line No.				
MT	MT	MT	MT	MT

DL=-20M  
1/5000

Sewer Line Number											
Diameter (mm)	Ø 1000										
Slope (‰)	1.60 ‰										
Length (m)	1588.16										
Ground Elevation (m)	3.57	2.67	2.76	2.20	1.81	1.66	1.54	2.38	2.82	1.85	2.28
Earth Cover (m)	14.48	13.99 14.04	14.64 14.69	14.71 14.76	14.84 14.89	15.31 15.36	15.42 15.47	16.50 17.00	17.05 17.05	16.28 16.33	17.03
Invert Elevation (m)	-11.942	-12.402 -12.452	-12.984 -13.014	-13.533 -13.583	-14.113 -14.163	-14.734 -14.784	-14.965 -15.015	-16.204 -16.254	-16.334 -16.384	-15.616 -15.666	-15.944
Cu. Length (m)	-8860.3	-7196.298	-7456.03	-7817.19	-8111.17	-8468.47	-8691.1	-8899.00	-8737.12	-8863.19	-9000.17

Jakarta Sewerage Zone - 1		
Trunk Sewer West		
Scale	Verticed = 1:100 Horizonted = 1:5000	Drawing No. <u>4</u> 5
2014 June		



DL=-25M		347.23	434.19	337.65	359.67	83.47	326.66	314.96	139.07	138.11	51.57
Sewer Line Number				12 MT		13 MT		14 MT		15 MT	
Diameter (mm)				1200		1500		1500		1500	
Slope (‰)				1.50		1.30		1.30		1.30	
Length (m)				1478.74		83.47		641.62		328.75	
Ground Elevation (m)	2.28	2.27	1.87	1.91	0.87	0.95	0.92	1.09	0.50	0.27	0.48
Earth Cover (m)	17.02	17.53	17.53	18.18	17.98	18.08	18.50	18.13	18.77	18.77	19.10
Invert Elevation (m)	-16.034	-16.805	-17.268	-17.82	-18.402	-18.726	-19.271	-19.690	-19.961	-20.141	-20.254
Cu. Length (m)	-9030.02	-9377.80	-9811.09	-10149.69	-10500.91	-10542.79	-10869.44	-11184.40	-11323.47	-11461.89	-11513.15

Jakarta Sewerage	
Zone - 1	
Sewer Line No.	
12 MT	13 MT
14 MT	15 MT

Jakarta Sewerage Zone - 1	
Trunk Sewer West	
Scale	Verticed = 1:100 Horizonted = 1:5000
Drawing No.	5 / 5
2014 June	