

b. 管網計算

Node Data

Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
0	-55.49	207.66	183.7	23.96
1	2.38	207.15	183.5	23.65
2	1.94	206.12	184.0	22.12
3	6.86	205.26	183.9	21.36
4	5.02	205.21	183.8	21.41
5	9.37	203.90	185.0	18.90
6	4.83	204.19	184.1	20.09
7	3.82	206.42	184.0	22.42
8	7.53	205.78	184.3	21.48
9	7.28	203.60	184.6	19.00
10	6.46	205.59	184.4	21.19
55.49				

Pipeline Data

Node Number		Dia.	Length	Friction	Head Loss	Flow	Velocity	H.Gradient
Up-stream	Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	‰
0	1	250	84	120	0.51	55.49	1.13	6.17
1	2	150	310	120	1.03	10.44	0.59	3.37
2	3	150	380	120	0.86	8.50	0.48	2.31
3	4	150	460	120	0.05	1.64	0.09	0.11
4	5	150	240	120	1.31	13.67	0.77	5.56
5	6	100	480	120	-0.29	-1.44	-0.18	0.62
6	1	150	500	120	-2.96	-14.27	-0.81	6.02
1	7	200	140	120	0.73	28.41	0.91	5.30
7	8	200	160	120	0.64	24.59	0.78	4.06
8	4	200	280	120	0.57	17.06	0.54	2.06
6	9	150	290	120	0.59	8.00	0.45	2.06
9	10	150	520	120	0.01	0.72	0.04	0.02
10	5	150	280	120	-0.31	-5.74	-0.33	1.12

5) 配水管管網計算 (Madina Town: DMA II - 3)

日最大需要水量: 3,050 m³/d

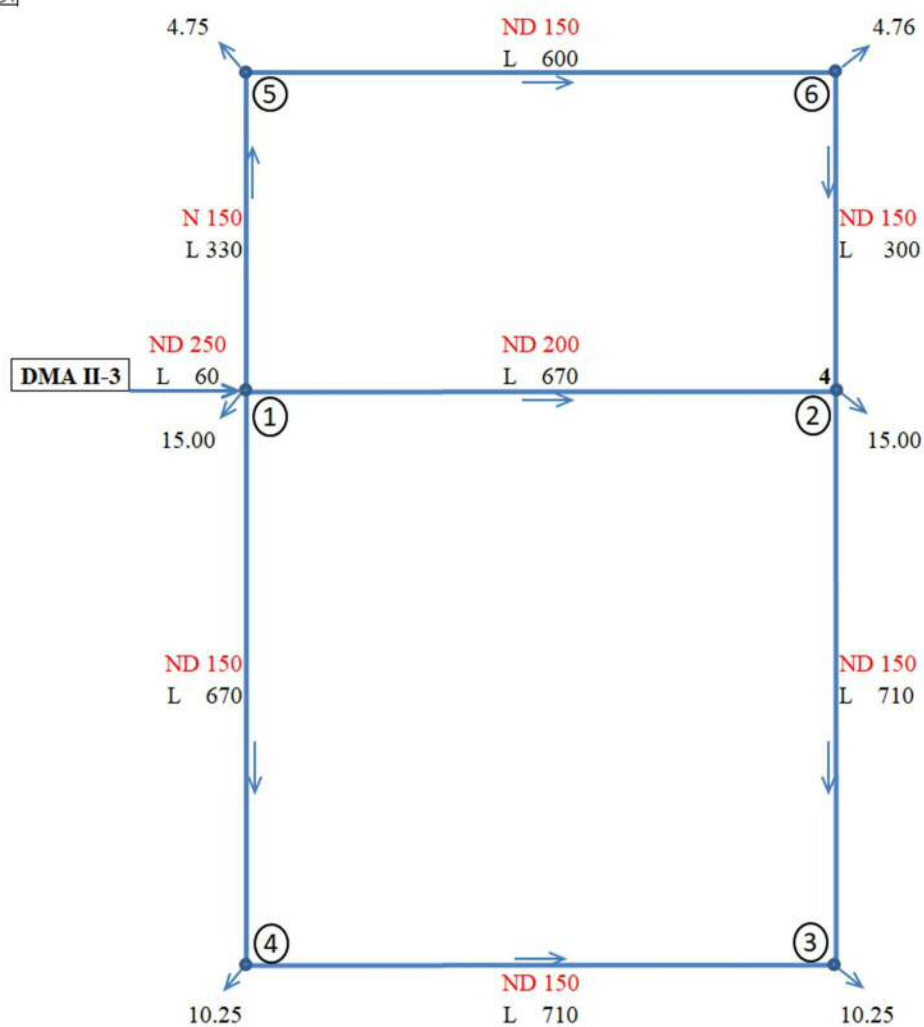
時間最大需要水量: 216 m³/h

60.01 l/s

(Peak Hourly Factor: 1.7)

放出点:	1	2	3	4	5	6	Σq
放出流量 (l/s):	15.00	15.00	10.25	10.25	4.75	4.76	60.01
地盤高:	184.5	183.8	184.0	184.7	184.7	184.6	
区間:	①~②	①~⑤	②~③	③~④	④~①	⑤~⑥	⑥~②
管径 (mm):	200	150	150	150	150	150	150
延長 (m):	670	330	710	710	670	600	300

a. 管網模式図



b. 管網計算

Node Data

Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
0	-60.01	207.16	184.6	22.56
1	15.00	206.18	184.5	21.68
2	15.00	204.14	183.8	20.34
3	10.25	202.78	184.0	18.78
4	10.25	202.95	184.7	18.25
5	4.75	204.96	184.7	20.26
6	4.76	204.17	184.6	19.57

Pipeline Data

Node Number		Dia.	Length	Friction	Head Loss	Flow	Velocity	H.Gradient
Up-stream	Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	%
0	1	250	140	120	0.99	60.01	1.22	7.13
1	2	200	670	120	2.03	21.20	0.68	3.08
2	3	150	710	120	1.36	7.75	0.44	1.94
3	4	150	710	120	-0.17	-2.50	-0.14	0.24
4	1	150	670	120	-3.22	-12.75	-0.72	4.89
1	5	150	330	120	1.22	11.06	0.63	3.76
5	6	150	600	120	0.79	6.31	0.36	1.33
6	2	150	300	120	0.03	1.55	0.09	0.10

6) 配水管網計算 (Madina Town: DMA II - 4)

日最大需要水量: 4,680 m³/d

時間最大需要水量:

332 m³/h

92.08 l/s

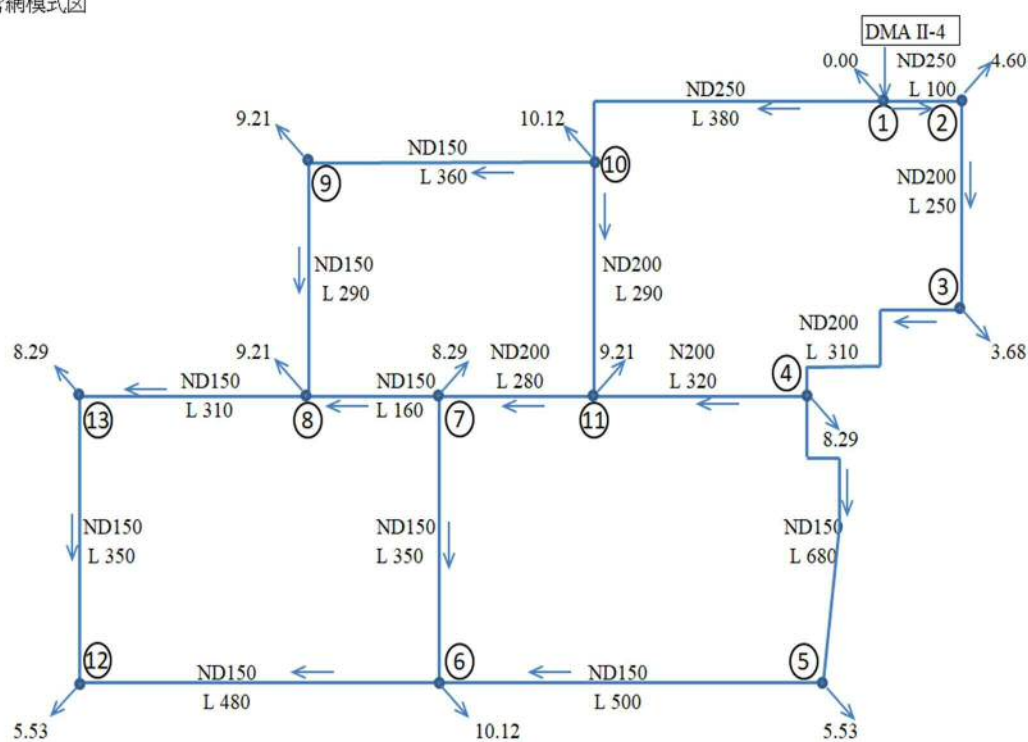
(Peak Hourly Factor:

1.7)

Node No.:	1	2	3	4	5	6	7	
Demand (l/s):	0.00	4.60	3.68	8.29	5.53	10.12	8.29	
GL:	183.5	183.40	183.8	183.9	184.1	184.6	184.2	
Section:	①~②	②~③	③~④	④~⑤	⑤~⑥	⑥~⑦	⑦~⑧	⑦~⑪
ND:	250	200	150	150	150	150	150	200
L:	100	250	310	680	500	350	160	280

Node No.:	8	9	10		11	12	13	
Demand (l/s):	9.21	9.21	10.12		9.21	5.53	8.29	92.08
GL:	184.4	184.3	183.8		183.8	194.6	185.0	
Section:	⑧~⑨	⑨~⑩	⑩~⑪	⑩~①	⑪~④	⑫~⑬	⑬~⑧	
ND (mm):	150	150	200	250	200	150	150	
L (m):	290	360	290	380	320	350	310	

a. 管網模式圖



b. 管網計算

Node Data

Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
0	-92.08	206.13	183.4	
1	0.00	205.15	183.5	21.65
2	4.60	204.87	183.4	21.47
3	3.68	203.22	183.8	19.42
4	8.29	201.59	183.9	17.69
5	5.53	199.29	184.1	15.19
6	10.12	198.86	184.6	14.26

Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
7	8.29	199.88	184.2	15.68
8	9.21	199.34	184.4	14.94
9	9.21	199.90	184.3	15.60
10	10.12	202.85	183.8	19.05
11	9.21	201.36	183.8	17.56
12	5.53	198.51	184.6	13.91
13	8.29	198.52	185.0	13.52

Pipeline Data

Node Number		Dia.	Length	Friction	Head Loss	Flow	Velocity	H.Gradient
Up-stream	Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	%
0	1	250	63	120	0.98	92.08	1.88	15.75
1	2	250	100	120	0.28	36.79	0.75	2.89
2	3	200	250	120	1.65	32.19	1.03	6.68
3	4	200	310	120	1.63	28.51	0.91	5.34
4	5	150	680	120	2.30	10.55	0.60	3.44
5	6	150	500	120	0.43	5.02	0.28	0.87
6	7	150	350	120	-1.02	-9.73	-0.55	2.96
7	8	150	160	120	0.55	10.60	0.60	3.47
8	9	150	290	120	-0.56	-7.81	-0.44	1.97
9	10	150	360	120	-2.96	-17.02	-0.96	8.34
10	11	200	290	120	1.49	28.15	0.90	5.21
10	1	250	380	120	-2.30	-55.29	-1.13	6.13
11	7	200	280	120	1.48	28.61	0.91	5.37
11	4	200	320	120	-0.23	-9.67	-0.31	0.72
6	12	150	480	120	0.35	4.63	0.26	0.75
12	13	150	350	120	-0.01	-0.91	-0.05	0.04
13	8	150	310	120	-0.81	-9.20	-0.52	2.67

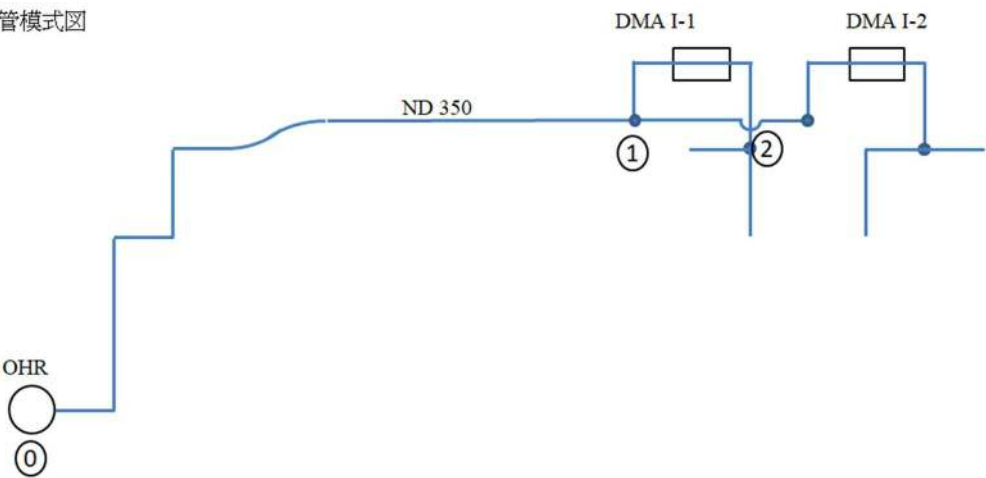
参考：2028 年における配水管システム

(1) 配水本管水理計算と管径の決定

1) 配水本管水理計算 (DZ-I Abddulahpur)

計画流量	unit	本計画 (2028)		
		Zone I	Zone I - 1	DMA II - 2
日最大需要水量	m ³ /d	5,960	3,100	2,860
時間最大需要水量	m ³ /hr	373	194	179
	l/s	103.47	53.82	49.65

a. 配管模式図



b. 水理計算

Year 2028

Section	Flow (l/s)	ND (mm)	L (m)	i ‰	hf (m)	GL	WL* (m)	Eff. Head (m)
0						186.1	210.60	24.5
1	103.5	350	630	3.80	2.39	186.3	208.21	21.9
2	49.7	300	100	2.07	0.21	185.1	208.00	22.9

注 *: 配水塔低水位 + 211.10
配水場内損失水頭 0.5 mを見込む。

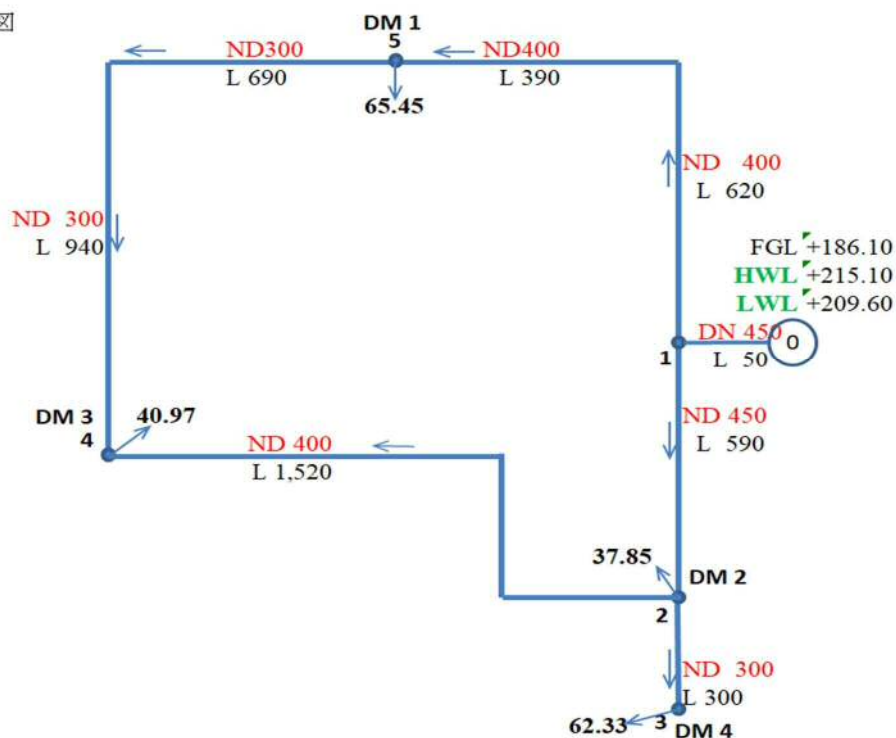
2) 配水本管管網計算と管径の決定 (DZ II Madina Town)

計画流量 (2028):	単位	Zone II	DMA II-1	DMA II-2	DMA II-3	DMA II-4
日最大需要水量	m ³ /d	11,900	3,770	2,180	2,360	3,590
時間最大重要水量	m ³ /hr	744	236	136	148	224
	l/s	206.60	65.45	37.85	40.97	62.33

管網計算

2028 年

a. 管網模式図



b. 管網計算

Node Data

Node No.	Type	Flow l/sec	WL *1 m	GL m	Eff. Head m	Note
0		-206.60	209.60	186.1	23.5	
1		0.00	209.40	183.9	25.5	
2		37.85	208.40	183.7	24.8	DM 2
3		62.33	207.47	183.4	24.0	DM 4
4		40.97	208.09	184.6	23.5	DM 3
5		65.45	208.29	185.8	22.4	DM 1

note *: LWL of OHR + 209.60
loss in Distribution Center as 0.5m is assumed.

Pipeline Data

Node Number	Dia.	Length	Friction	Head Loss	Flow	Velocity	H. gradient
Up-stream Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	%o
0 1	450	50	120	0.20	206.60	1.30	4.01
1 2	450	590	120	1.00	130.55	0.82	1.72
2 3	300	300	120	0.93	62.33	0.88	3.15
4 5	300	1630	120	-0.19	-10.60	-0.15	-0.12
4 2	400	1520	120	-0.31	-30.37	-0.24	-0.21
5 1	400	1010	120	-1.12	-76.05	-0.61	-1.12

(2) 配水支管管網計算と口径の決定

1) 配水管管網計算 (Abddulahpur: DMA I - 1)

日最大需要水量: 3,100 m³/d

時間最大需要水量: 219.6 m³/h

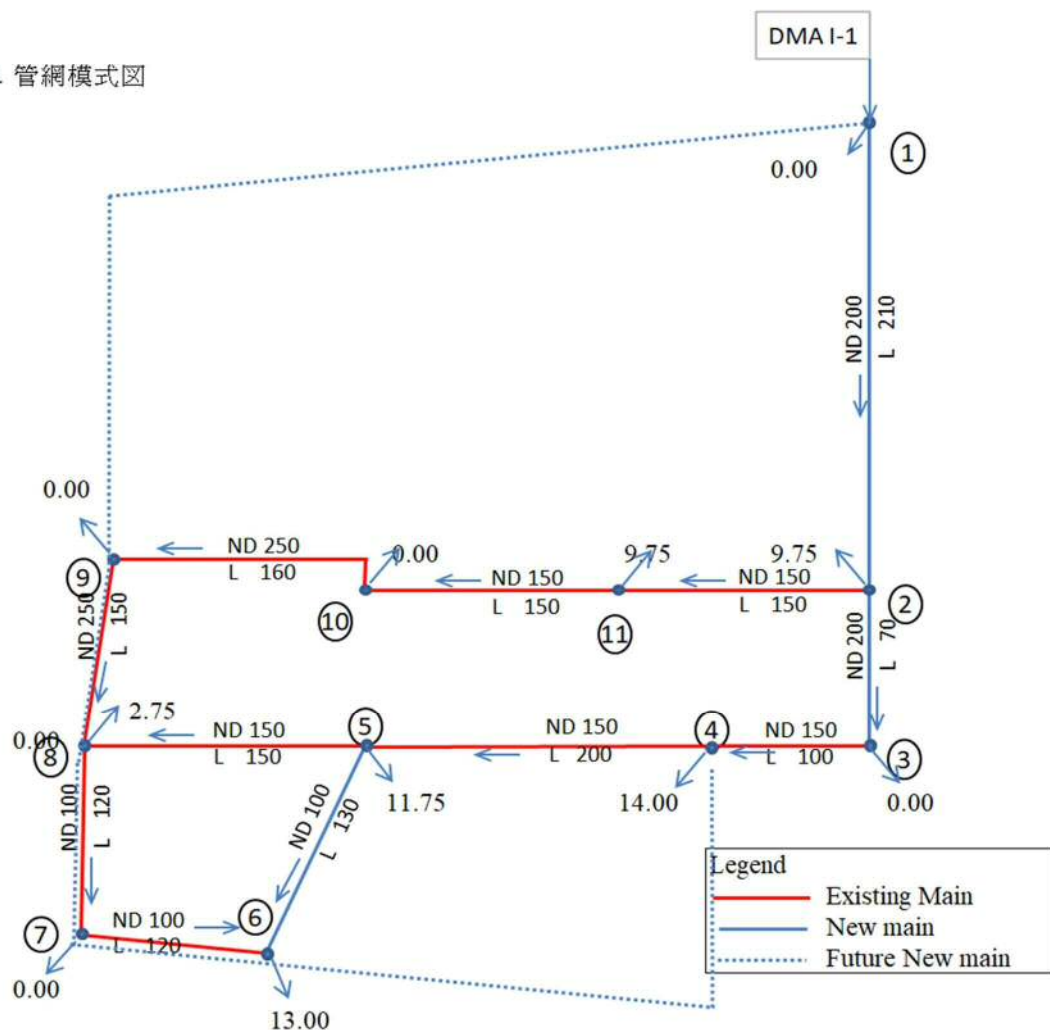
61.00 l/s

(Peak Hourly Factor: 1.7)

放出点:	1	2	3	4	5	6	7
放出流量 (l/s):	0.00	9.75	0.00	14.00	11.75	13.00	0.00
地盤高:	185.3	185.5	185.50	185.6	185.7	185.8	185.9
区間:	①~②	②~③	③~④	④~⑤	⑤~⑥	⑥~⑦	⑦~⑧
管径 (mm):	200	200	150	150	150	100	100
延長 (m):	210	70	100	200	150	130	120

放出点:	8	9	10	11	Σq
放出流量 (l/s):	2.75	0.00	0.00	9.75	61.00
地盤高:	185.8	185.8	185.7	185.6	
区間:	⑧~⑨	⑨~⑩	⑩~⑪	⑪~②	
管径 (mm):	250	250	150	150	
延長 (m):	150	160	150	150	

a. 管網模式図



b. 管網計算

Node Data

Node No.	Flow l/sec	WL m	GL m	Eff. Head m
0	-61.000	208.21	185.3	22.91
1	0.000	207.64	185.3	22.34
2	9.750	203.13	185.5	17.63
3	0.000	202.78	185.5	17.28
4	14.000	200.78	185.6	15.18
5	11.750	199.70	185.7	14.00
6	13.000	198.05	185.8	12.25
7	0.000	198.96	185.9	13.06
8	2.750	199.86	185.8	14.06
9	0.000	199.93	185.8	14.13
10	0.000	200.01	185.7	14.31
11	9.750	200.86	185.6	15.26

Pipeline Data

Node Number		Dia.	Length	Friction	Head Loss	Flow	Velocity	H.Gradient
Up-stream	Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	%
0	1	250	78	120	0.57	61.00	1.24	7.35
1	2	200	210	120	4.52	61.00	1.94	21.80
2	3	200	70	120	0.35	27.56	0.88	5.01
3	4	150	100	120	2.00	27.56	1.56	20.34
4	5	150	200	120	1.08	13.56	0.77	5.48
5	8	150	150	120	-0.16	-5.60	-0.32	1.07
5	6	100	130	120	1.65	7.41	0.94	12.90
6	7	100	120	120	-0.90	-5.59	-0.71	7.66
7	8	100	120	120	-0.90	-5.59	-0.71	7.66
8	9	250	150	120	-0.07	-13.94	-0.28	0.48
9	10	250	160	120	-0.08	-13.94	-0.28	0.48
10	11	150	150	120	-0.85	-13.94	-0.79	5.77
11	2	150	150	120	-2.27	-23.69	-1.34	15.38

2) 配水管網計算 (Abdulahpur: DMA I - 2)

日最大需要水量: 2,860 m³/d

時間最大需要水量: 202.6 m³/h

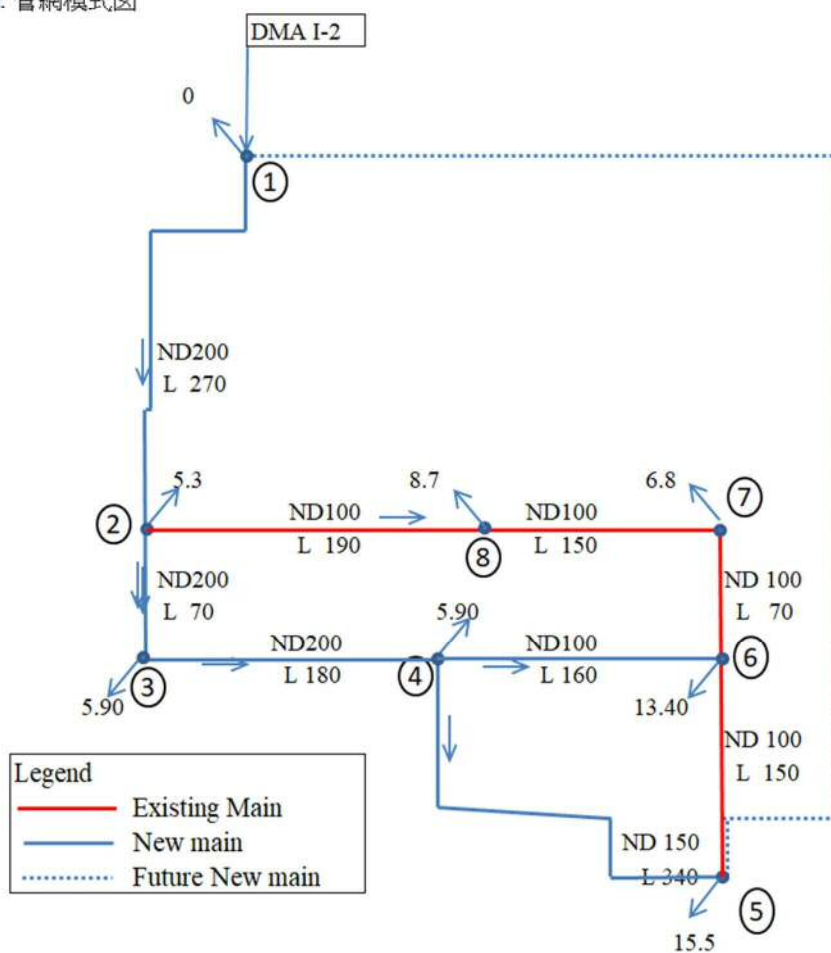
56.3 l/s

(Peak Hourly Factor: 1.7)

放出点:	1	2	3	4	5	6	7
放出流量 (l/s):	0.00	5.30	5.90	5.90	15.50	8.10	6.90
地盤高:	185.1	185.2	185.4	185.9	186.1	185.5	185.5
区間:	①~②	②~③	③~④	④~⑤	⑤~⑥	⑥~⑦	⑧~④
管径 (mm):	200	200	200	150	100	100	100
延長 (m):	270	70	180	340	150	70	160

放出点:	8	Σq
放出流量 (l/s):	8.70	56.30
地盤高:	185.4	
区間:	⑧~②	
管径 (mm):	100	
延長 (m):	190	1,390

a. 管網模式図



b. 管網計算

Node Data

Node No.	Flow l/sec	WL m	GL m	Eff. Head m
0	-56.30	208.00	185.10	22.90
1	0.00	207.51	185.10	22.41
2	5.30	202.51	185.20	17.31
3	5.90	201.83	185.40	16.43
4	5.90	200.54	185.90	14.64
5	15.50	197.43	186.10	11.33
6	8.10	197.17	185.50	11.67
7	6.90	196.86	185.50	11.36
8	8.70	197.15	185.40	11.75

Pipeline Data

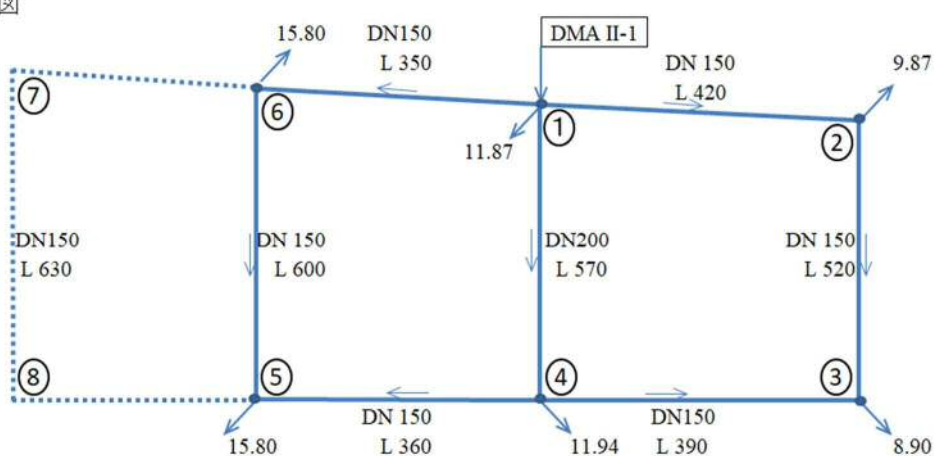
Node Number		Dia.	Length	Friction	Head Loss	Flow	Velocity	H.Gradient
Up-stream	Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	%
0	1	250	78	120	0.49	56.30	1.15	6.34
1	2	200	270	120	5.01	56.30	1.79	18.79
2	3	200	70	120	0.68	39.60	1.26	9.80
3	4	200	180	120	1.29	33.70	1.07	7.27
4	5	150	340	120	3.11	18.05	1.02	9.30
5	6	100	150	120	0.26	2.55	0.32	1.79
6	7	100	70	120	0.31	4.20	0.53	4.51
6	4	100	160	120	-3.37	-9.75	-1.24	21.44
7	8	100	150	120	-0.29	-2.70	-0.34	2.00
8	2	100	190	120	-5.36	-11.40	-1.45	28.65

3) 配水管網計算 (Madina Town: DMA II - 1)

日最大需要水量: 3,770 m³/d 時間最大需要水量: 267.0 m³/h
74.18 l/s
(Peak Hourly Factor: 1.7)

放出点:	1	2	3	4	5	6	Σq
放出流量 (l/s):	11.87	9.87	8.90	11.94	15.80	15.80	74.18
地盤高:	185.6	186.8	184.6	184.6	184.9	185.1	
区間:	①~②	①~④	②~③	③~④	④~⑤	⑤~⑥	⑥~①
管径 (mm):	150	200	150	150	150	150	150
延長 (m):	420	570	520	390	360	600	350

a. 管網模式図



b. 管網計算

Node Data

Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
0	-74.18	208.29	185.8	22.49
1	11.87	207.67	185.6	22.07
2	9.87	205.04	186.8	18.24
3	8.90	204.62	184.6	20.02
4	11.94	204.85	184.6	20.25
5	15.80	203.40	184.9	18.50
6	15.80	203.78	185.1	18.68

Pipeline Data

Node Number Up-stream	Node Number Dn-stream	Dia. m	Length m	Friction Co-efficient	Head Loss m	Flow l/sec	Velocity m/sec	H.Gradient ‰
0	1	250	60	120	0.63	74.18	1.51	10.56
1	2	150	420	120	2.63	14.70	0.83	6.36
2	3	150	520	120	0.41	4.83	0.27	0.81
3	4	150	390	120	-0.23	-4.07	-0.23	0.59
4	5	150	360	120	1.45	11.56	0.66	4.08
5	6	150	600	120	-0.38	-4.24	-0.24	0.64
6	1	150	350	120	-3.89	-20.04	-1.13	11.28
1	4	200	570	120	2.82	27.57	0.88	5.02

4) 配水管管網計算 (Madina Town: DMA II - 2)

日最大需要水量: 2,180 m³/d

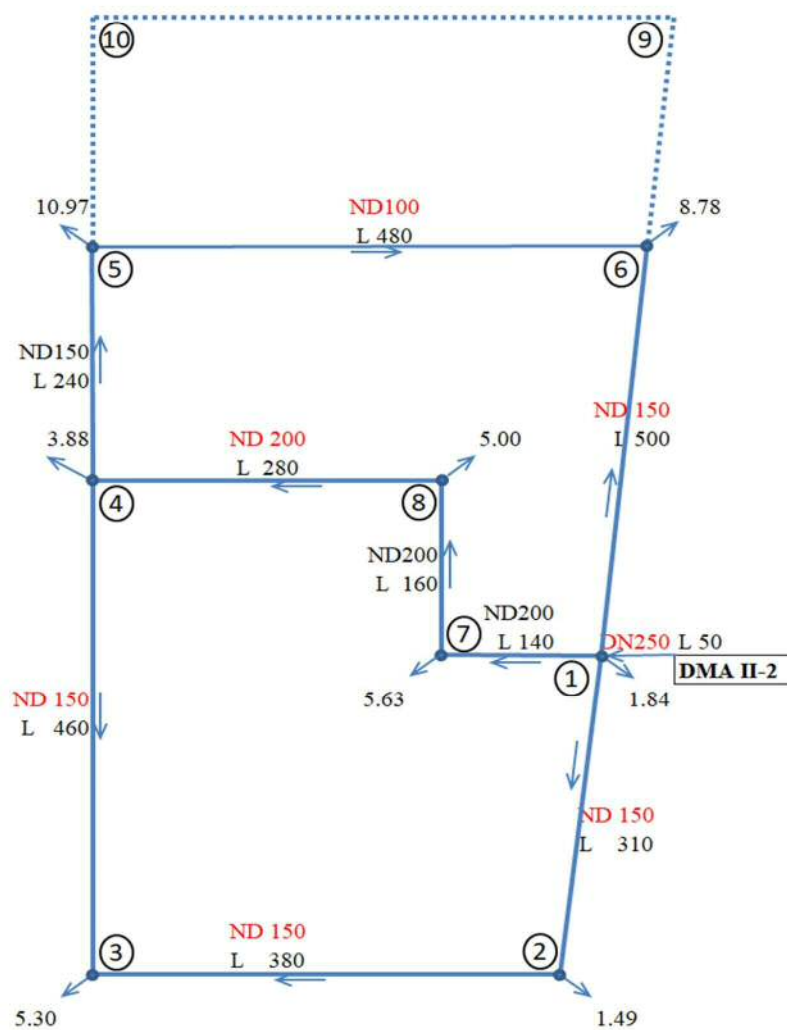
時間最大需要水量: 154 m³/h

42.89 l/s

(Peak hourly Factor: 1.7)

放出点:	1	2	3	4	5	
放出流量 (l/s):	1.84	1.49	5.30	3.88	10.97	
地盤高:	183.5	184.0	183.9	183.8	185.0	
区間:	①~②	①~⑦	②~③	③~④	④~⑤	⑤~⑧
管径 (mm):	150	200	150	150	150	100
延長 (m):	310	140	380	460	240	480
放出点:	6	7	8	9	10	
放出流量 (l/s):	8.78	5.63	5.00	0.00	0.00	Σq
地盤高:	184.1	184.0	184.3	184.6	184.4	42.89
区間:	⑥~①	⑧~⑨	⑦~⑧	⑧~④		
管径 (mm):	150	150	200	200		
延長 (m):	500	290	160	280		

a. 管網模式図



b. 管網計算

Node Data

Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
0	-42.89	208.40	183.7	24.70
1	1.84	208.08	183.5	24.58
2	1.49	207.47	184.0	23.47
3	5.30	206.96	183.9	23.06
4	3.88	206.94	183.8	23.14
5	10.97	206.25	185.0	21.25
6	8.78	206.51	184.1	22.41
7	5.63	207.59	184.0	23.59
8	5.00	207.25	184.3	22.95

Pipeline Data

Node Number		Dia.	Length	Friction	Head Loss	Flow	Velocity	H.Gradient
Up-stream	Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	‰
0	1	250	84	120	0.32	42.89	0.87	3.83
1	2	150	310	120	0.61	7.89	0.45	2.01
2	3	150	380	120	0.51	6.40	0.36	1.37
3	4	150	460	120	0.02	1.10	0.06	0.05
4	5	150	240	120	0.69	9.62	0.55	2.90
5	6	100	480	120	-0.26	-1.35	-0.17	0.55
6	1	150	500	120	-1.57	-10.13	-0.57	3.20
1	7	200	140	120	0.50	23.03	0.73	3.59
7	8	200	160	120	0.34	17.40	0.55	2.14
8	4	200	280	120	0.32	12.40	0.40	1.14

5) 配水管網計算 Madina Town: (DMA II - 3)

日最大需要水量: 2,360 m³/d

時間最大需要水量:

167 m³/h

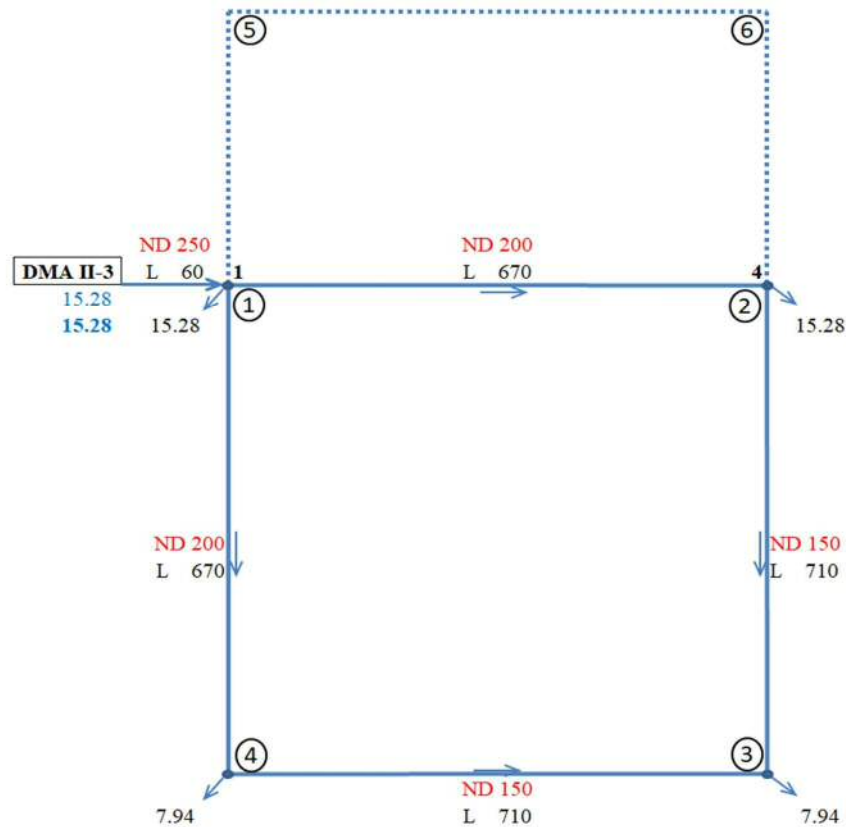
46.44 l/s

(Peak Hourly Factor:

1.7)

放出点:	1	2	3	4	5	6	Σq
放出流量 (l/s):	15.28	15.28	7.94	7.94	0.00	0.00	46.44
地盤高:	184.5	183.8	184.0	184.7	184.7	184.6	
区間:	①~②	①~⑤	②~③	③~④	④~①	⑤~⑧	⑧~②
管径 (mm):	200	150	150	150	150	150	
延長 (m):	670	330	710	710	670	600	300

a. 管網模式図



b. 管網計算

Node Data

Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
0	-46.44	208.09	184.6	23.49
1	15.28	207.48	184.5	22.98
2	15.28	205.58	183.8	21.78
3	7.94	204.94	184.0	20.94
4	7.94	205.14	184.7	20.44

Pipeline Data

Node Number		Dia.	Length	Friction	Head Loss	Flow	Velocity	H.Gradient
Up-stream	Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	%
0	1	250	140	120	0.61	46.44	0.95	4.44
1	2	200	670	120	1.90	20.44	0.65	2.88
2	3	150	710	120	0.64	5.16	0.29	0.92
3	4	150	710	120	-0.20	-2.78	-0.16	0.29
4	1	150	670	120	-2.34	-10.72	-0.61	3.55

6) 配水管網計算 (Madina Town: DMA II - 4)

日最大需要水量: 3,590 m³/d

時間最大需要水量:

254 m³/h

70.64 l/s

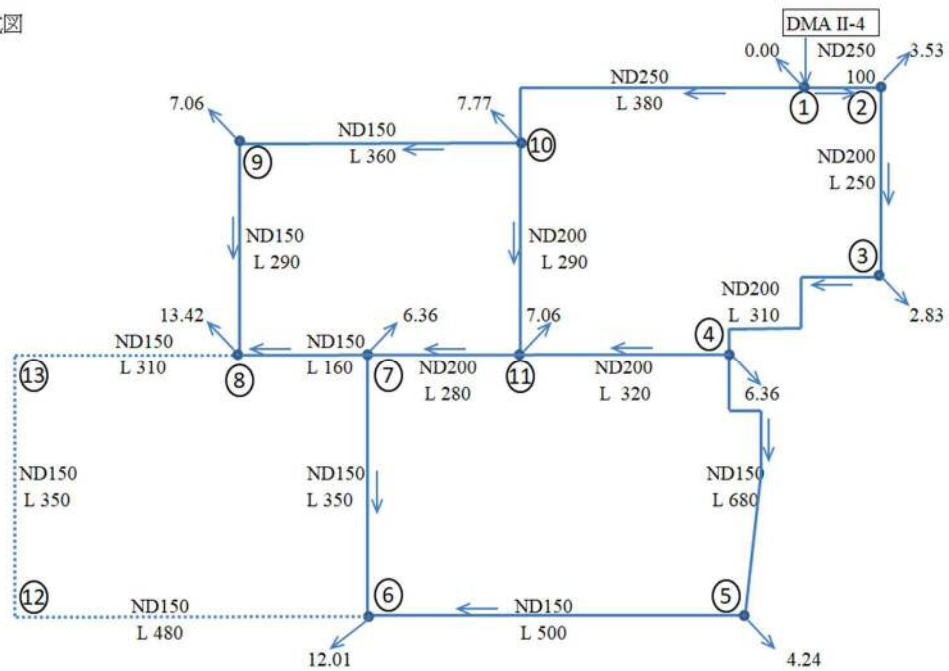
(Peak Hourly Factor:

1.7)

放出点:	1	2	3	4	5	6	7	
放出流量 (l/s):	0.00	3.53	2.83	6.36	4.24	12.01	6.36	
地盤高:	183.5	183.40	183.8	183.9	184.1	184.6	184.2	
区間:	①~②	②~③	③~④	④~⑤	⑤~⑥	⑥~⑦	⑦~⑧	⑦~⑪
管径 (mm):	250	200	150	150	150	150	150	200
延長 (m):	100	250	310	680	500	350	480	160

放出点:	8	9	10		11	12	13	Σq
放出流量 (l/s):	13.42	7.06	7.77		7.06	0	0	70.64
地盤高:	184.4	184.3	183.8		183.8	194.6	185.0	
区間:	⑧~⑨	⑨~⑩	⑩~⑪	⑩~①	⑪~④	⑫~⑬	⑬~⑧	
管径 (mm):	150	150	200	250	200	150	150	
延長 (m):	290	360	290	380	320	350	310	

a. 管網模式図



b. 管網計算

Node Data

Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
0	70.64	207.47	183.4	24.07
1	0.00	206.87	183.5	23.37
2	3.53	206.70	183.4	23.30
3	2.83	205.68	183.8	21.88
4	6.36	204.67	183.9	20.77
5	4.24	203.19	184.1	19.09
6	12.01	202.90	184.6	18.30
	28.97			

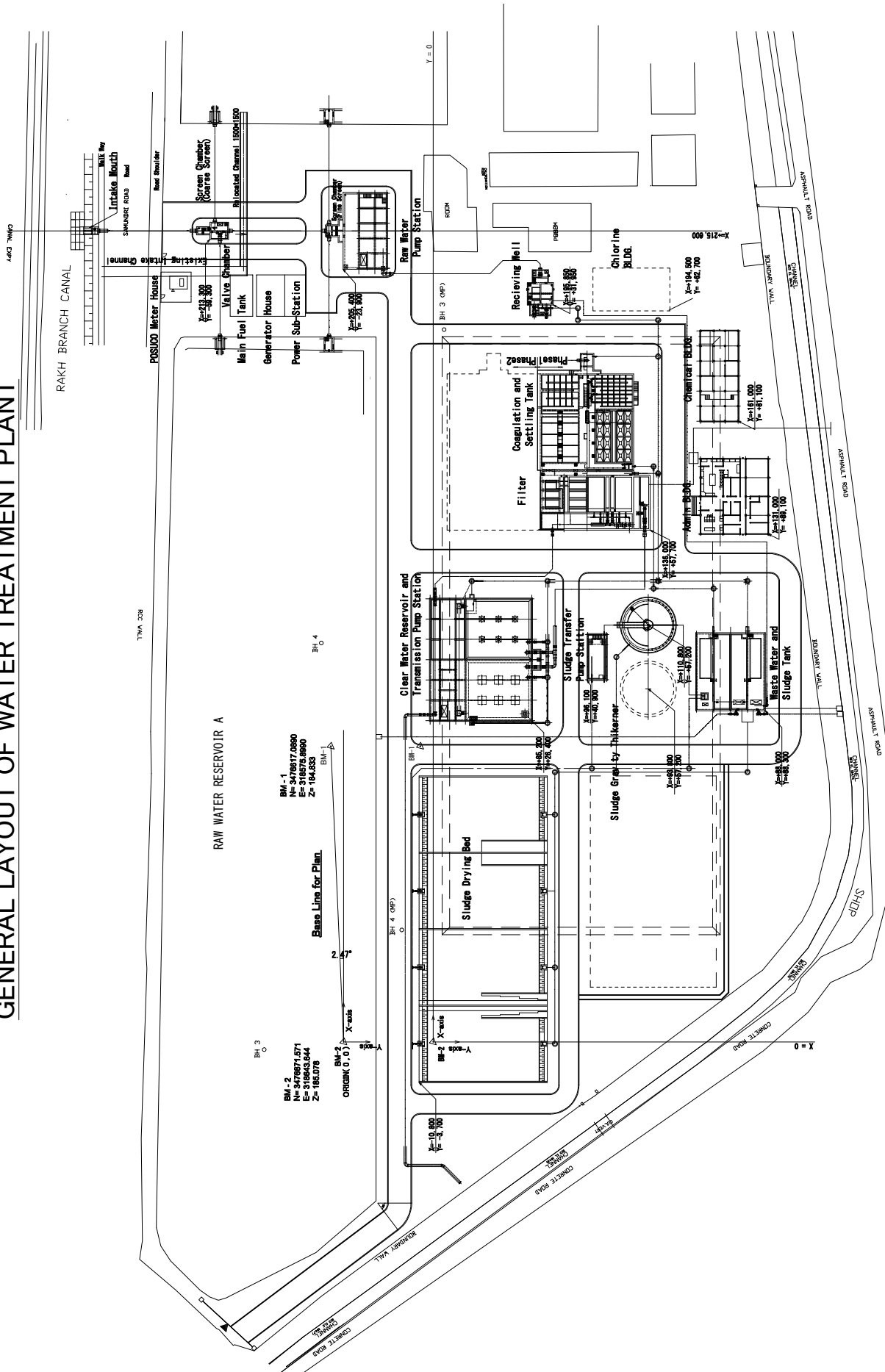
Node No.	Discharge l/sec	WL m	GL m	Eff. Head m
7	6.36	203.60	184.2	19.40
8	13.42	203.52	184.4	19.12
9	7.06	203.81	184.3	19.51
10	7.77	205.47	183.8	21.67
11	7.06	204.53	183.8	20.73
	41.67		70.64	

Pipeline Data

Node Number		Dia.	Length	Friction	Head Loss	Flow	Velocity	H.Gradient
Up-stream	Dn-stream	m	m	Co-efficient	m	l/sec	m/sec	%
0	1	250	63	120	0.60	70.64	1.44	9.65
1	2	250	100	120	0.18	28.37	0.58	1.78
2	3	200	250	120	1.02	24.84	0.79	4.14
3	4	200	310	120	1.01	22.01	0.70	3.31
4	5	150	680	120	1.48	8.31	0.47	2.21
5	6	150	500	120	0.29	4.07	0.23	0.59
6	7	150	350	120	-0.70	-7.94	-0.45	2.04
7	8	150	160	120	0.08	7.98	0.45	2.06
8	9	150	290	120	-0.29	-5.44	-0.31	1.01
9	10	150	360	120	-1.67	-12.50	-0.71	4.71
10	11	200	290	120	0.94	22.00	0.70	3.30
11	7	200	280	120	0.93	22.29	0.71	3.38
11	4	200	320	120	-0.14	-7.35	-0.23	0.43
10	1	250	380	120	-1.40	-42.27	-0.86	3.73

GENERAL LAYOUT OF WATER TREATMENT PLANT

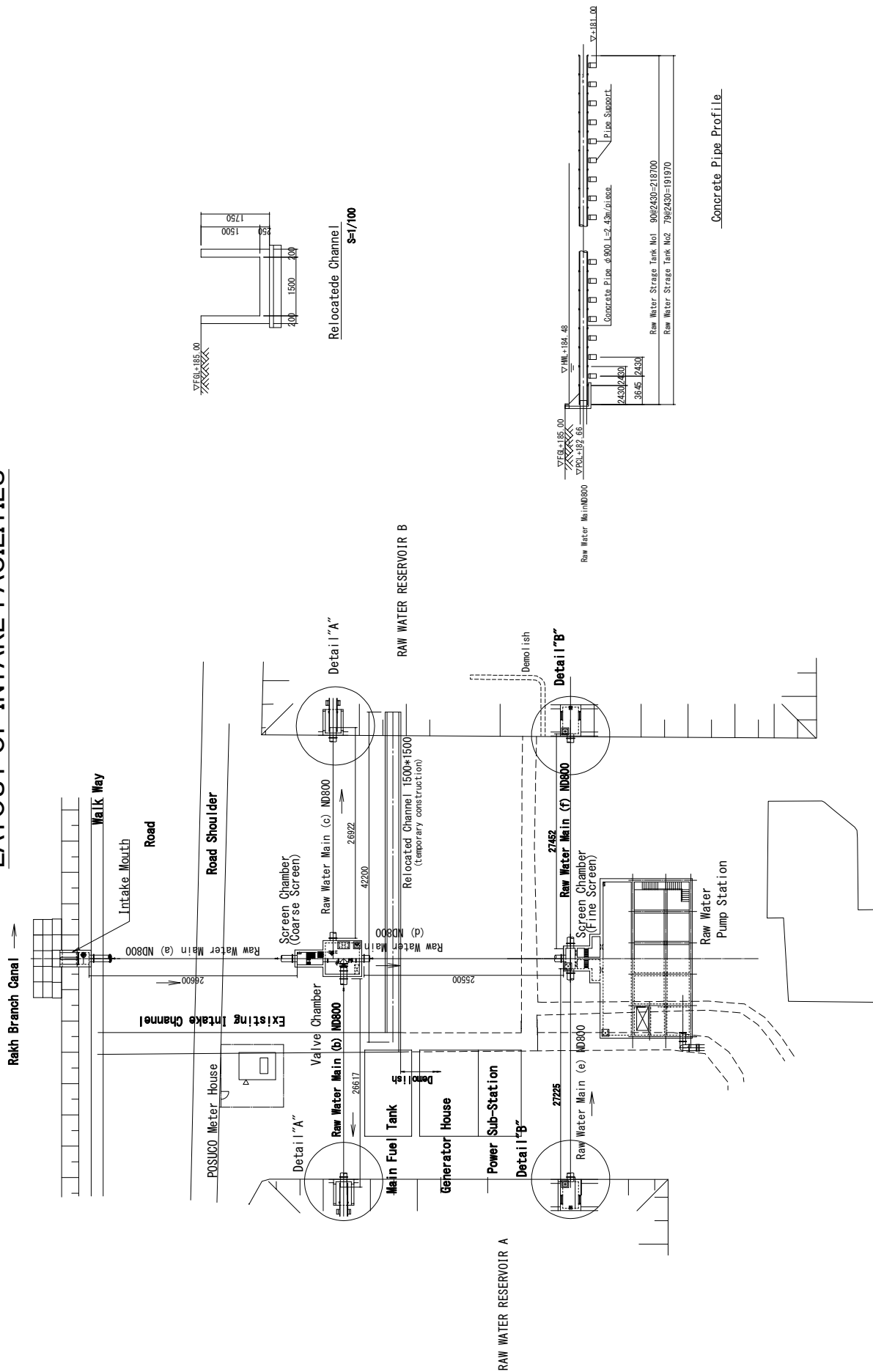
資料7 その他の資料・情報
(5) 概略設計図



PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GENERAL LAYOUT OF WATER TREATMENT PLANT		DRAWING NO: WTP-C-01
	SCALE: 1/1,000		

WTP-01

LAYOUT OF INTAKE FACILITIES



PROJECT TITLE:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER
TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD

DRAWING TITLE:
LAYOUT OF INTAKE FACILITIES

SCALE:
1/500

DRAWING NO:
WTP-C-02

WTP-02

[illegible]

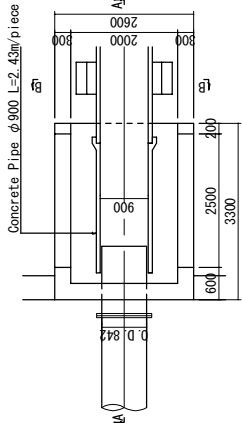
PROJECT TITLE:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER
TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD

SCALE:

WTP-03

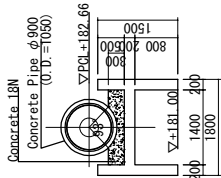
CONNECTION FACILITIES OF STORAGE TANK

Detail "A"
S=1/100

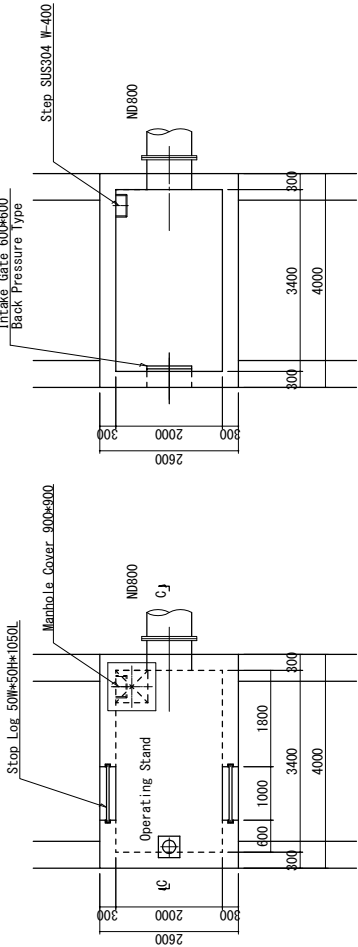


Plan

B-B Section

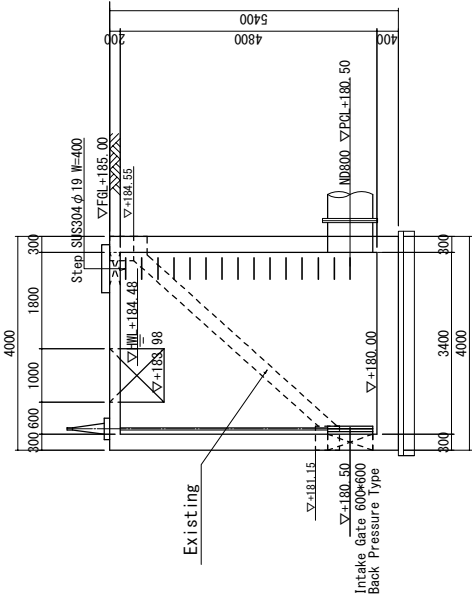


Detail "B"
S=1/100

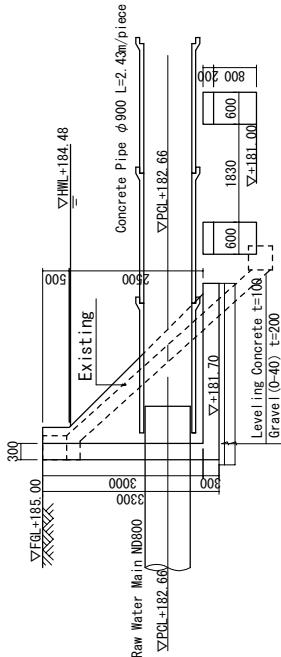


PLAN

Plane Section



C-C Section

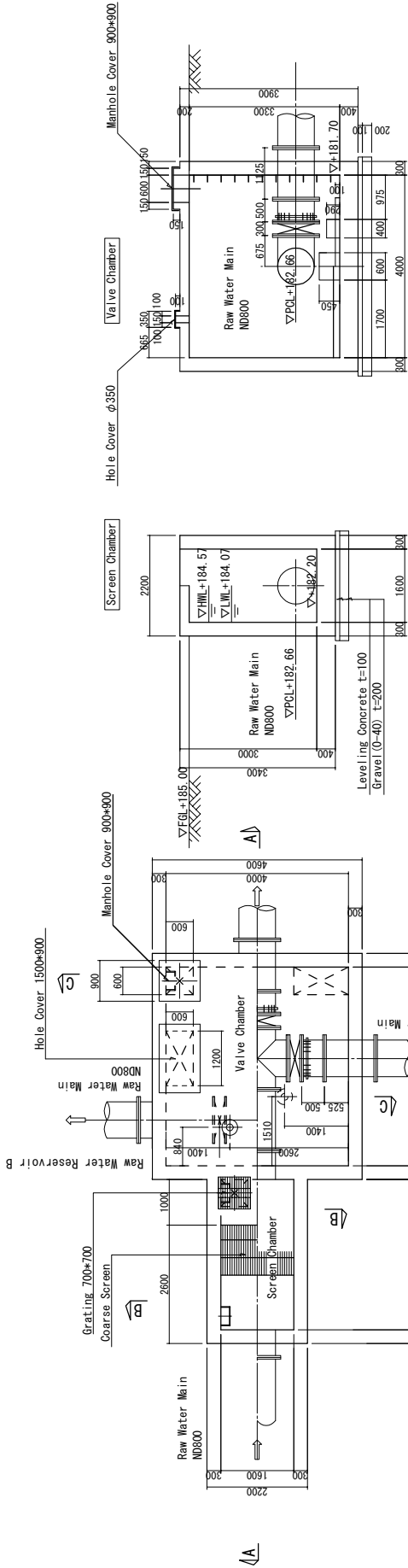


A-A Section

PROJECT TITLE:	DRAWING TITLE:	SCALE:	DRAWING NO:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	CONNECTION FACILITIES OF STORAGE TANK	1/100	WTP-C-04

WTP-04

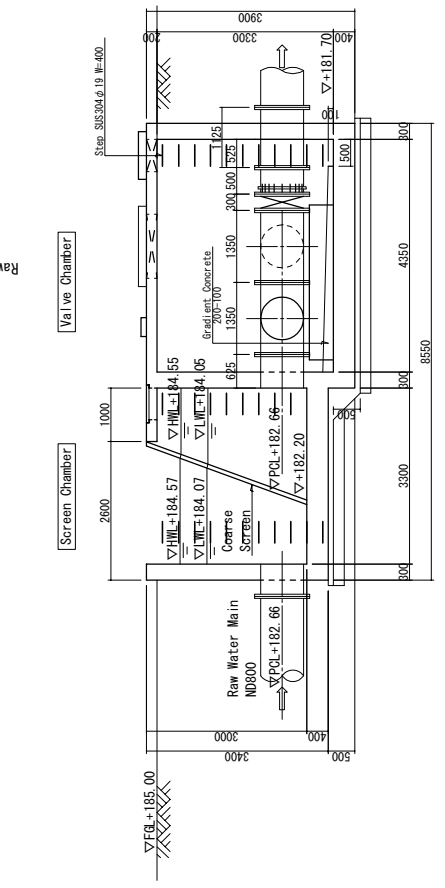
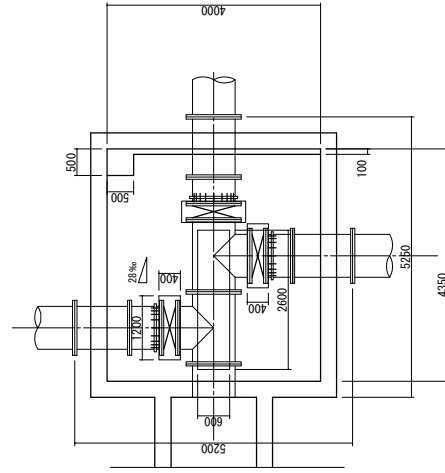
SCREEN AND RAW WATER DISTRIBUTION VALVE CHAMBER



B - B SECTION

C - C SECTION

PLAN



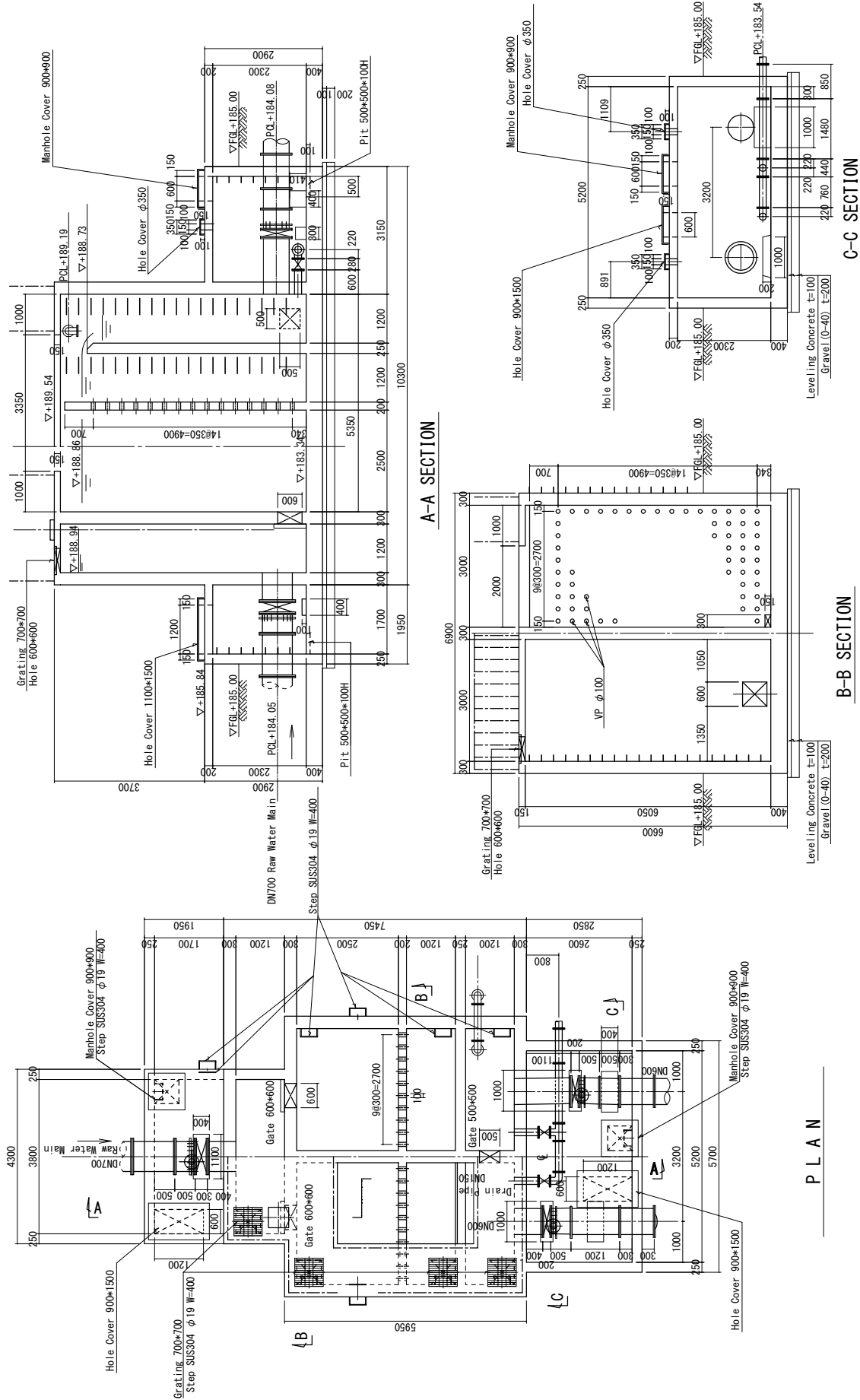
A - A SECTION

PIPE SUPPORT

	PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: SCREEN AND RAW WATER DISTRIBUTION VALVE CHAMBER	SCALE:	DRAWING NO:
			1/100	WTP-C-05

[illegible]

RECEIVING AND DISTRIBUTION TANK



PROJECT TITLE:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER
TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD

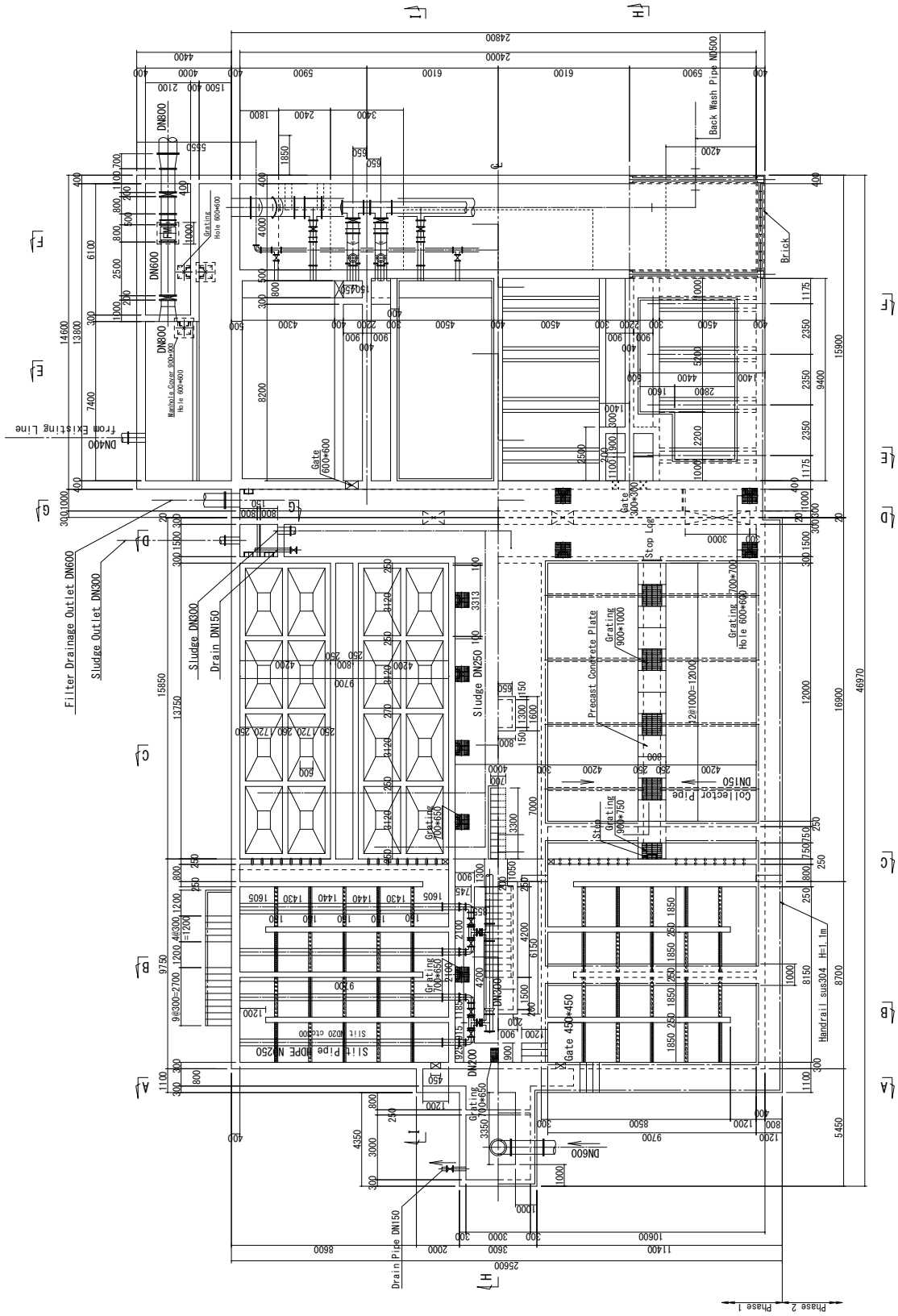
DRAWING TITLE:
RECEIVING AND DISTRIBUTION TANK

SCALE:
1/100

DRAWING NO:
WTP-C-07

WTP-07

COAGULATION, SETTLING TANK AND RAPID SAND FILTER (1)



PROJECT TITLE:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER
TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD

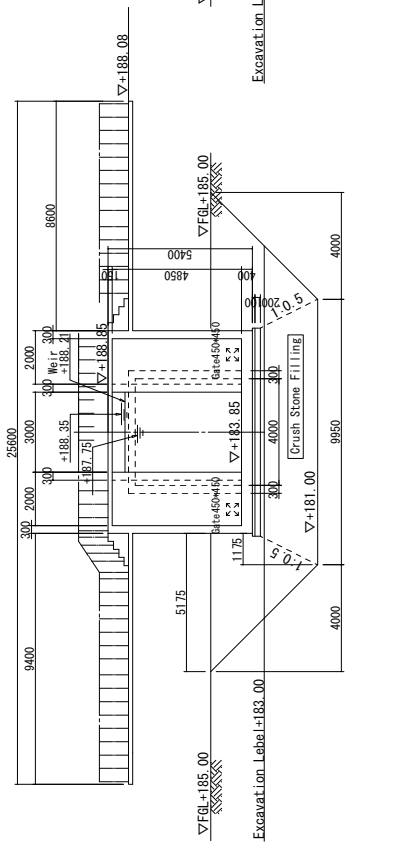
DRAWING TITLE:
COAGULATION, SETTLING TANK AND RAPID SAND FILTER (1)

SCALE:
1/200

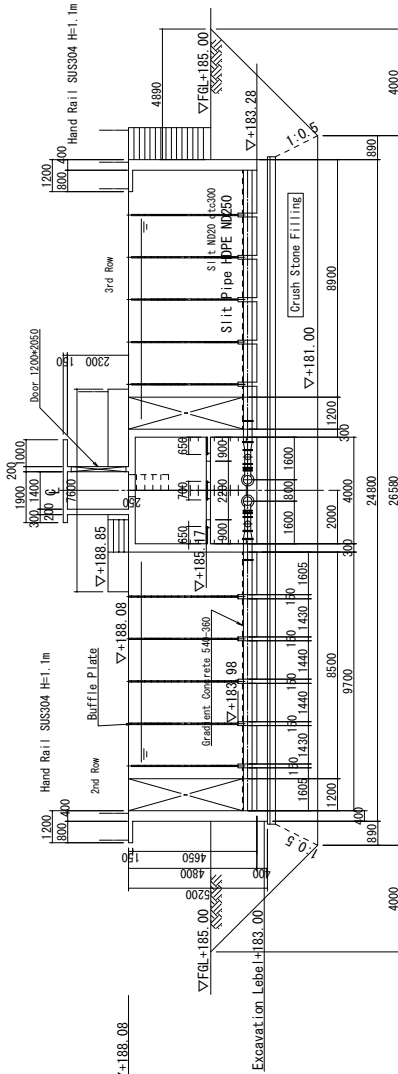
DRAWING NO:
WTP-C-08

WTP-08

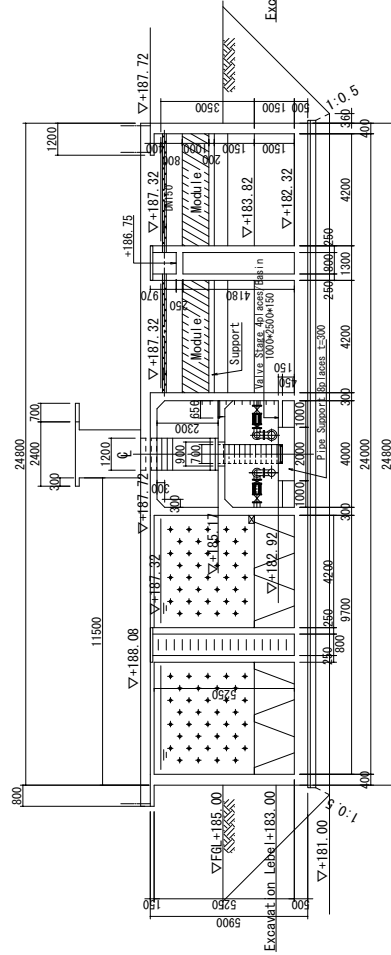
COAGULATION, SETTLING TANK AND RAPID SAND FILTER (2)



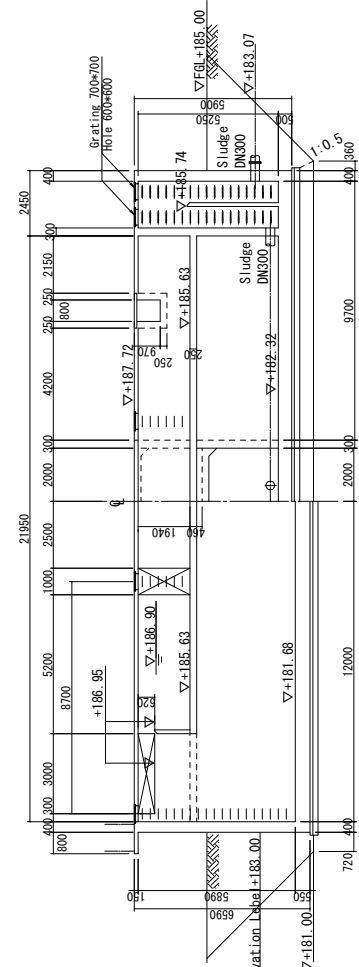
A-A SECTION



B-B SECTION



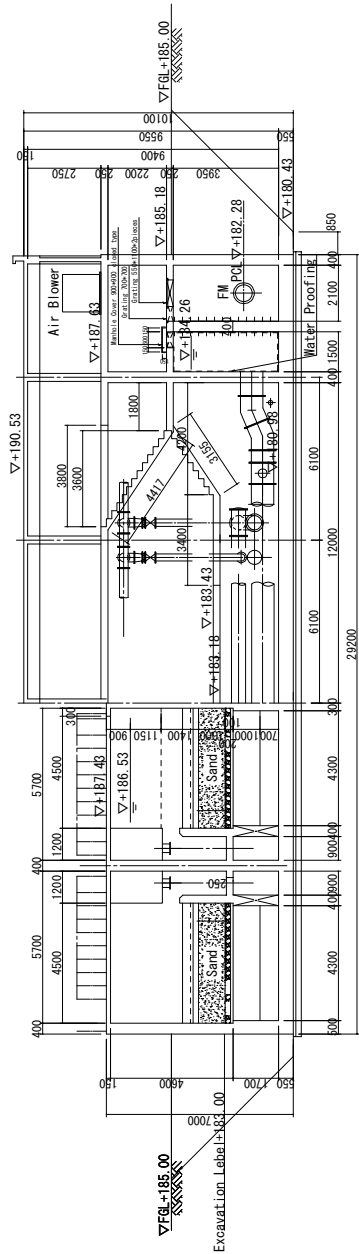
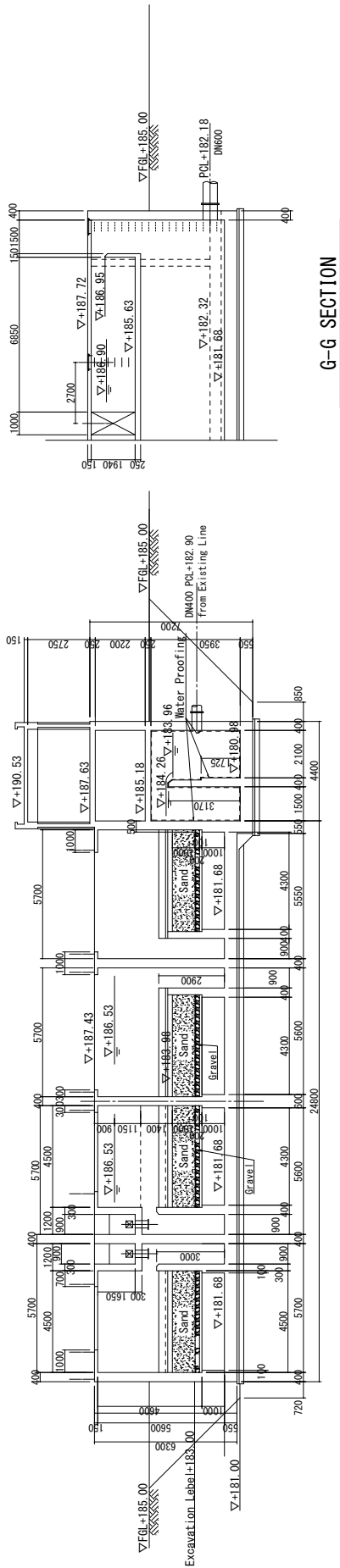
C-C SECTION



D-D SECTION

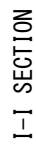
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: COAGULATION, SETTLING TANK AND RAPID SAND FILTER (2)		DRAWING NO:
	SCALE: 1/200		WTP-C-09

COAGULATION, SETTLING TANK AND RAPID SAND FILTER (3)



PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: COAGULATION, SETTLING TANK AND RAPID SAND FILTER (3)		DRAWING NO:
	SCALE: 1/200		WTP-C-10

App 7(5)-11



PROJECT TITLE:	THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE:	COAGULATION, SETTLING TANK AND RAPID SAND FILTER (4)	SCALE:	1/200	DRAWING NO.:	WTP-C-11
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WTP-11

[illegible]

Technical drawing of a 3-way pipe fitting assembly. The drawing shows a side view of the assembly with various dimensions in millimeters. Key components include a central body with two inlet ports (DN600) and one outlet port (DN800). Dimensions include overall length (3200), inlet port diameter (DN600), outlet port diameter (DN800), and various radii (RCP, RCP DN700). The drawing is labeled "Overflow Inlet DIP DN600" and "Clear Water Pipe DIP DN800".

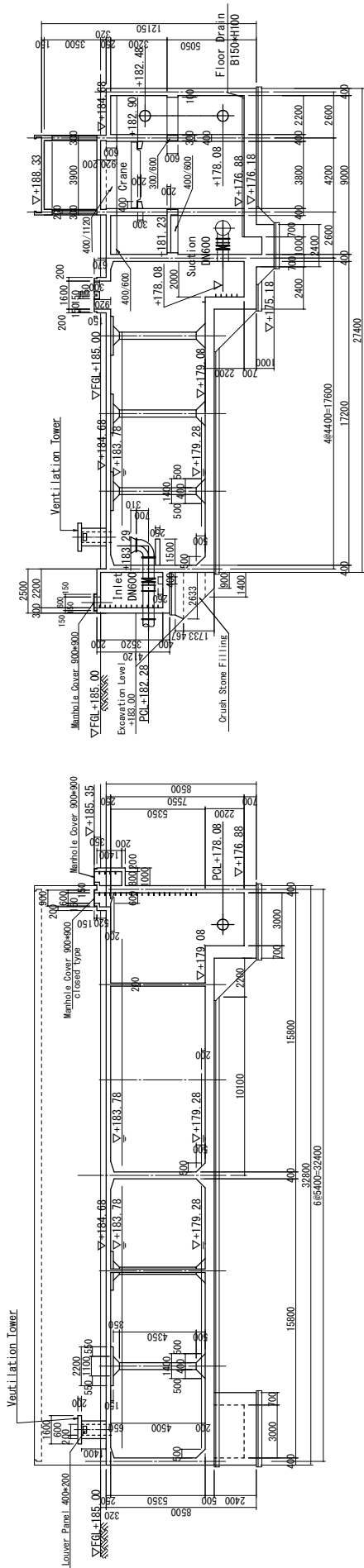
PROJECT TITLE:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER
TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD

DRAWING TITLE:
CLEAR WATER RESERVOIR AND TRANSMISSION PUMP STATION (1)

SCALE:	DRAWING NO:
1/250	WTP-C-12

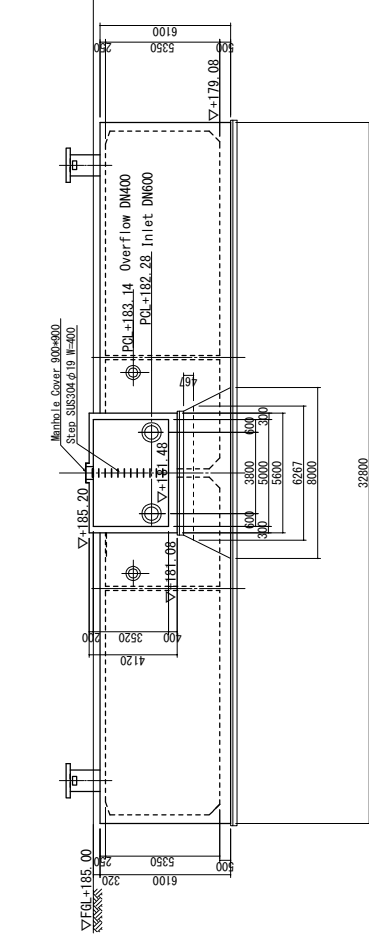
App 7(5)-12

CLEAR WATER RESERVOIR AND TRANSMISSION PUMP STATION (2)

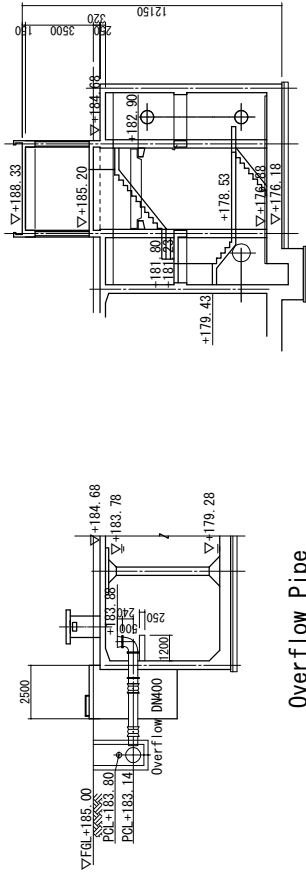


A-A SECTION

C-C SECTION



B-B SECTION



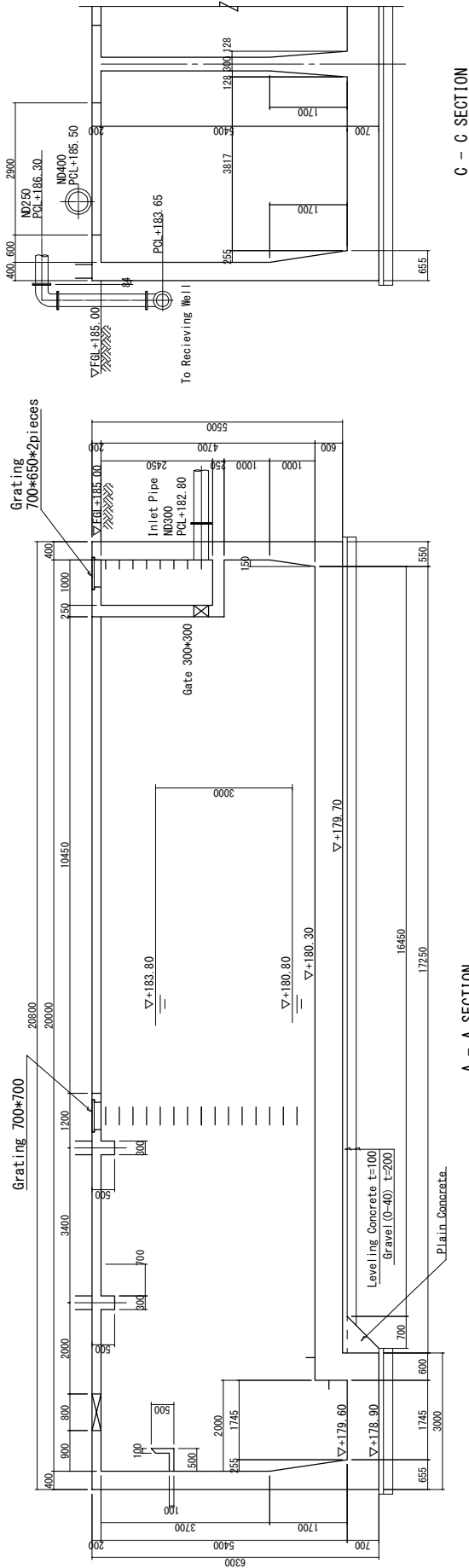
Stairs - Section

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: CLEAR WATER RESERVOIR AND TRANSMISSION PUMP STATION (2)		DRAWING NO: WTP-C-13
	SCALE: 1/250		

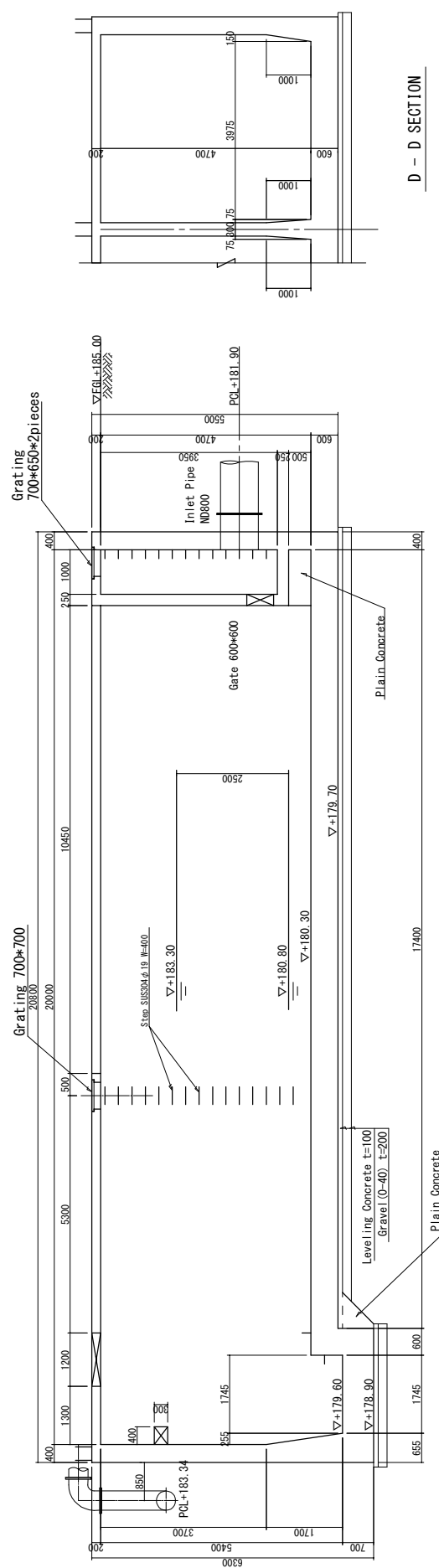
PLAN



WASTE WATER TANK (2)



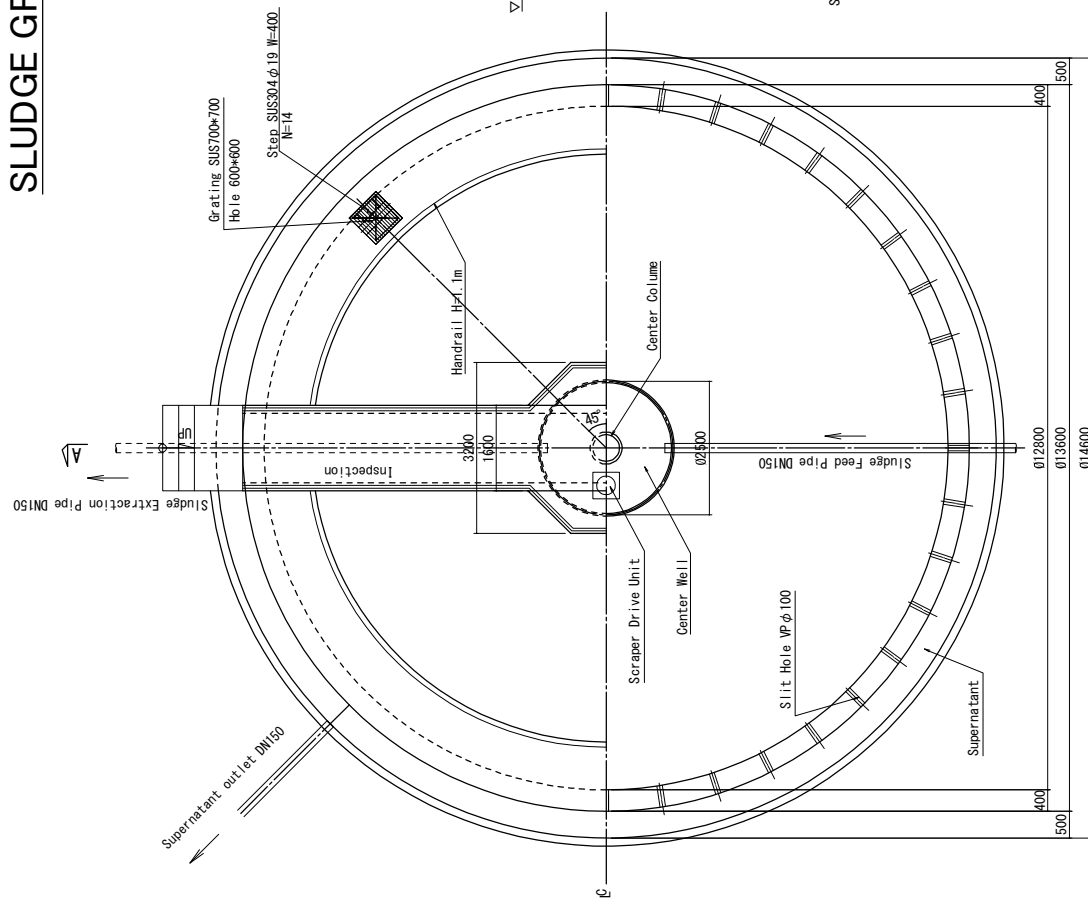
C - C SECTION



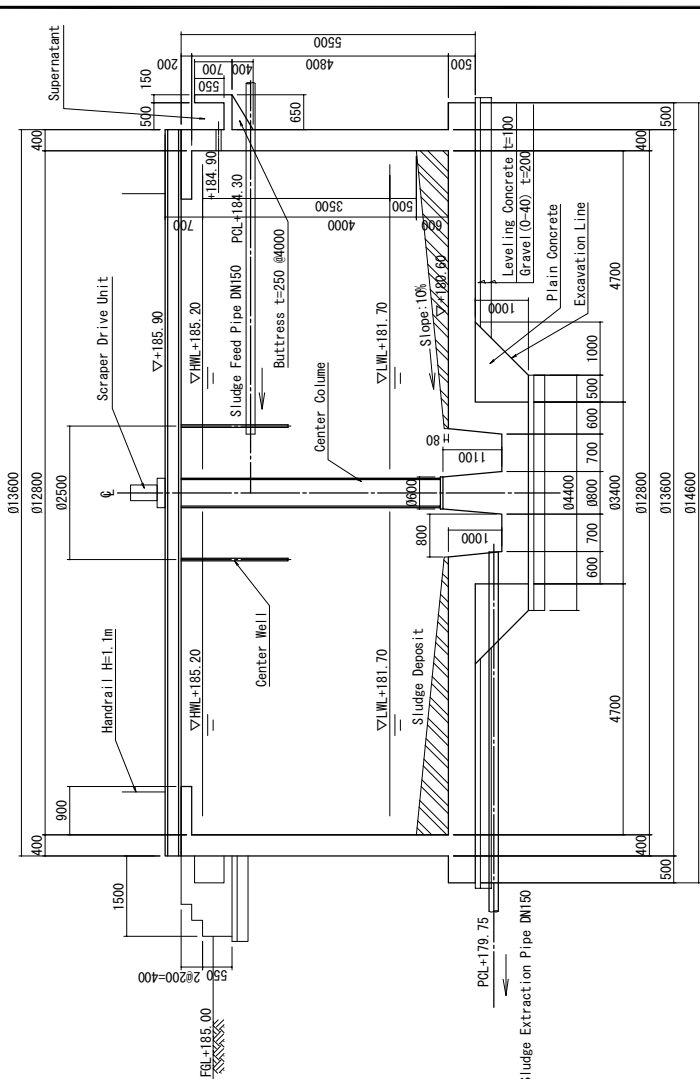
D - D SECTION

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: WASTE WATER TANK (2)		DRAWING NO: WTP-C-15
	SCALE:	1/100	

SLUDGE GRAVITY THICKENER



P L A N

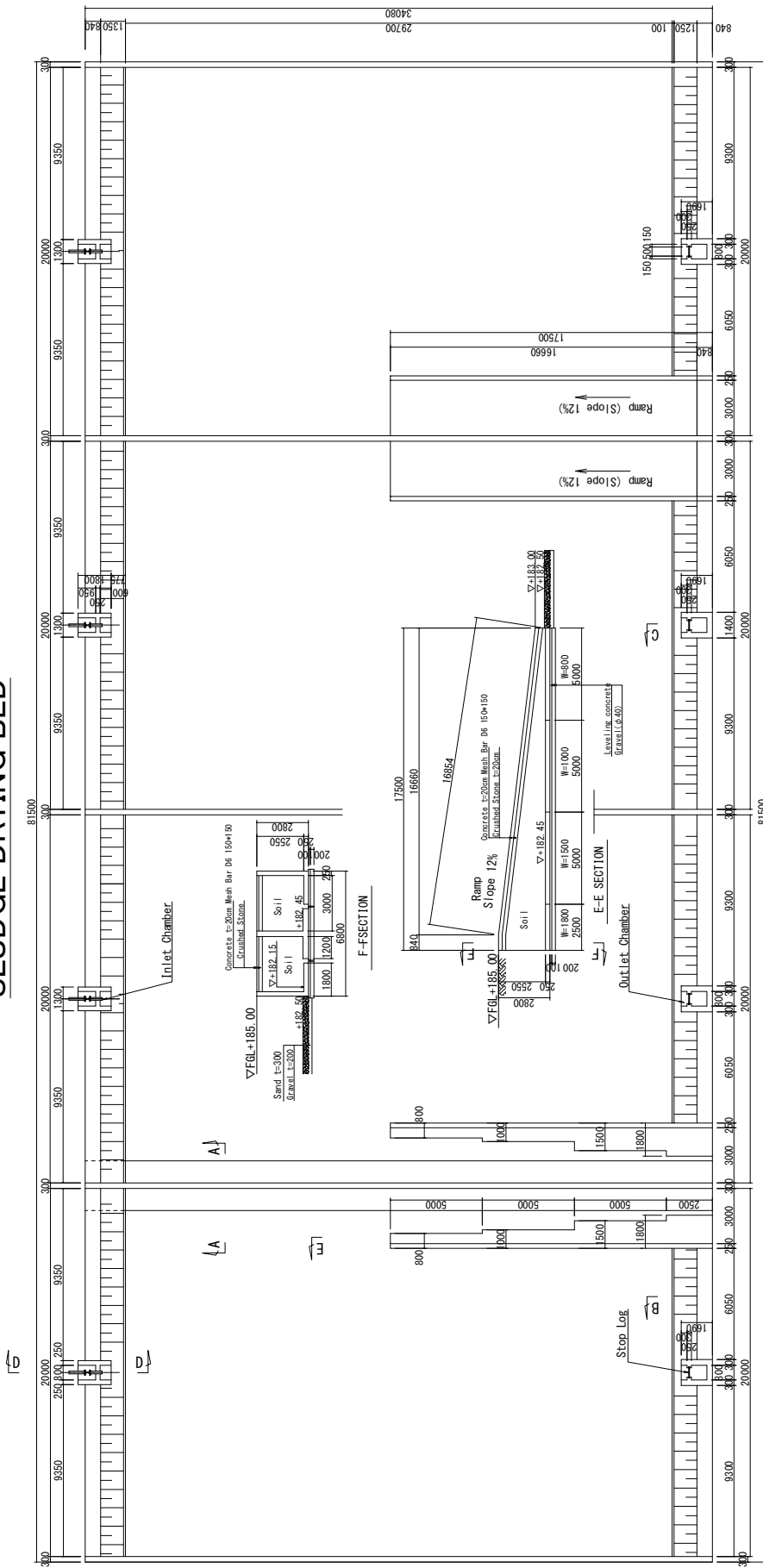


	PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: SLUDGE GRAVITY THICKENER	DRAWING NO:	
			SCALE:	WTP-C-16
			1/100	

WTP-16

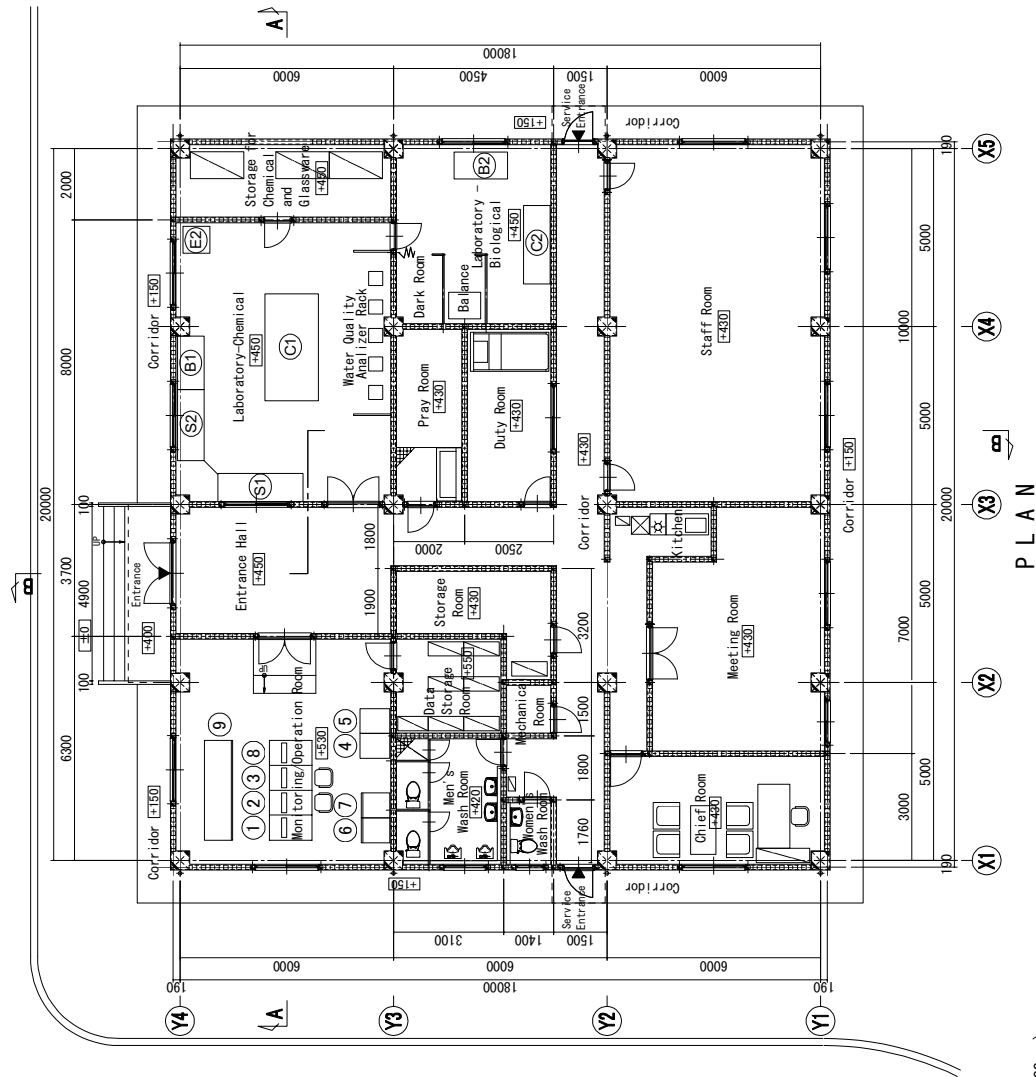
[illegible]

SLUDGE DRYING BED



ADMINISTRATION BUILDING(1)

Layout Plan S=1/150



ID No.	NAME
1	ENGINEERING STATION
2	OPERATOR STATION
3	OPERATOR STATION
4	A4 COLOR LASER PRINTER
5	A3 MONOCHROME LASER PRINTER
6	POWER DISTRIBUTION PANEL
7	TELEMETER PANEL
8	CAMERA SERVER
9	GRAPHIC MONITORING PANEL

- GL+ Reinforced Concrete Pillar (500mm x 500mm)
- Brick Wall and Mortar Finish (total thickness 160mm)
- Partition Wall (Print Plywood)
- Roof Drain

Laboratory - Chemical/Biological			
Chemical Test	Furniture	Equipment/Testing	
(C1)	Center Table	Water quality testing	
(S1)	Side Table	pH meter, Turbidity meter, Conductivity, Stirrer	
(S2)	Side Table	Spectrophotometer	
(B1)	Sink Basin	Jar Tester	
(E2)	Refrigerator		
(C2)	Center Table	Water quality testing	
(B2)	Sink Basin		

PROJECT TITLE:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD

DRAWING TITLE:
Administration Building(1) - Layout Plan

SCALE:
1/150

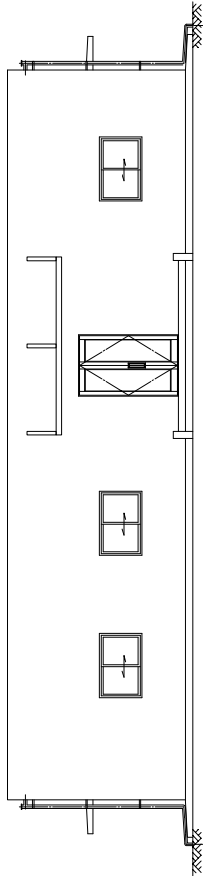
DRAWING NO:
WTP-A-01

WTP-19

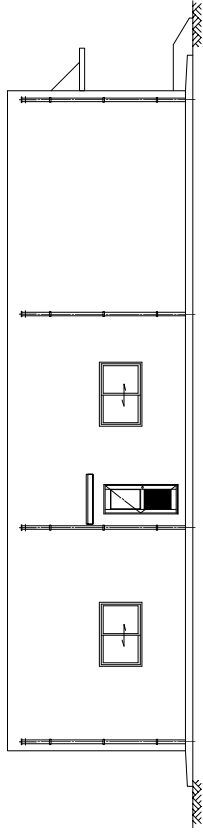
ADMINISTRATION BUILDING(2)

Side View

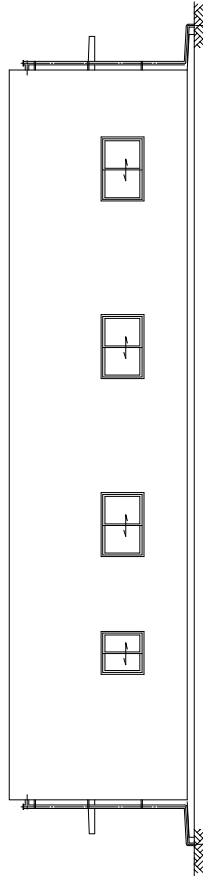
S=1/150



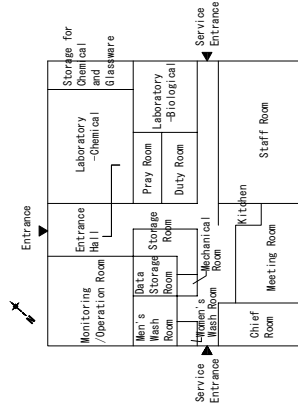
FRONT VIEW
(Entrance Facade)



SIDE VIEW
(Eastwest)



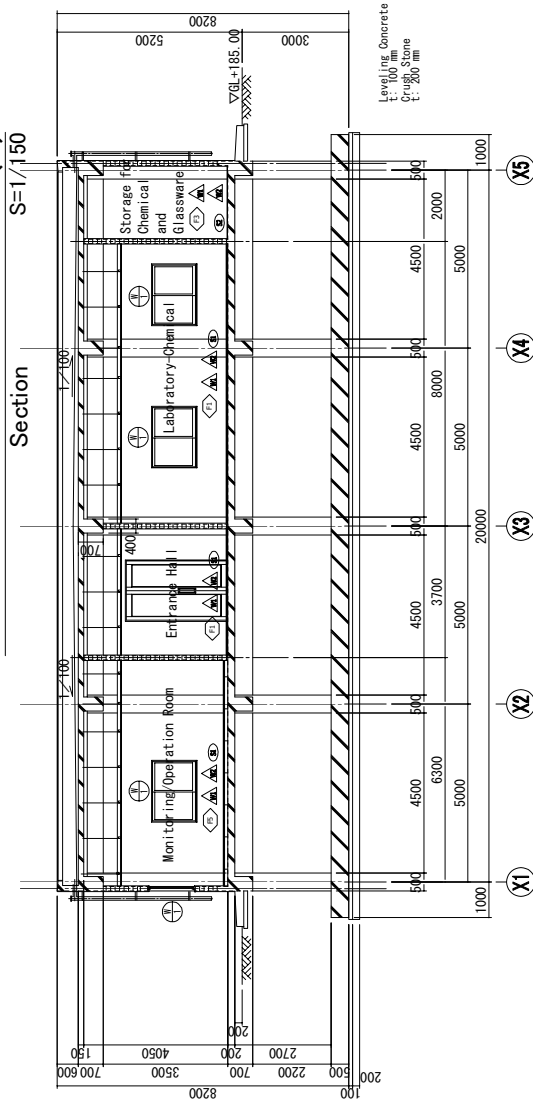
BACK VIEW



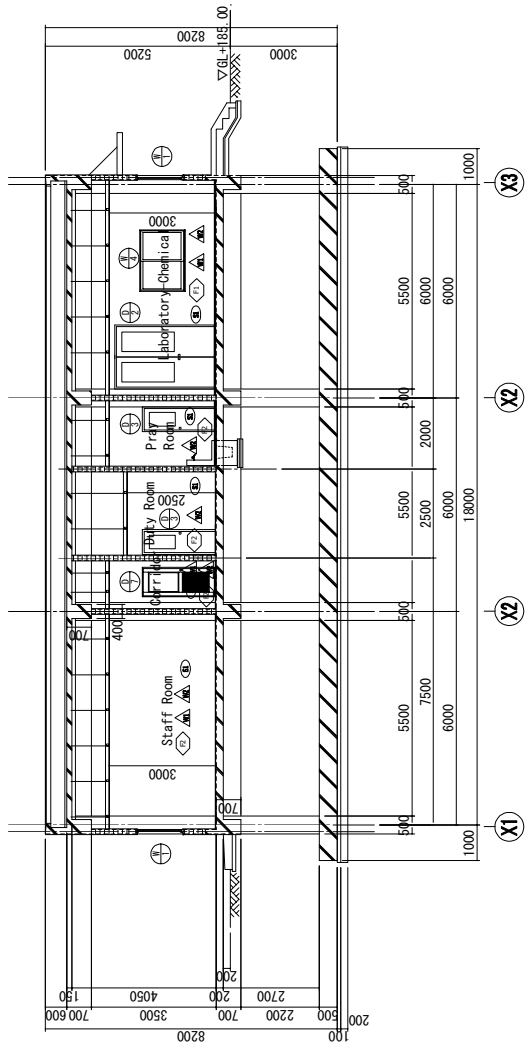
Key Plan

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: Administration Building(2) -Side View		DRAWING NO:
	SCALE: 1/150		WTP-A-02

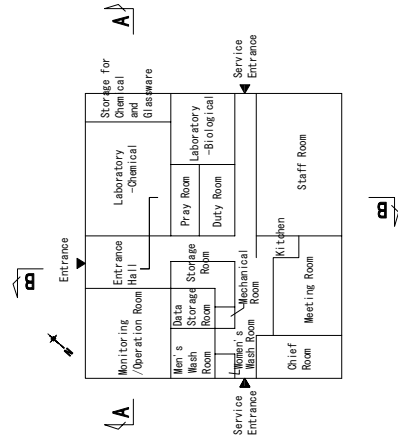
ADMINISTRATION BUILDING(3)



A-A SECTION



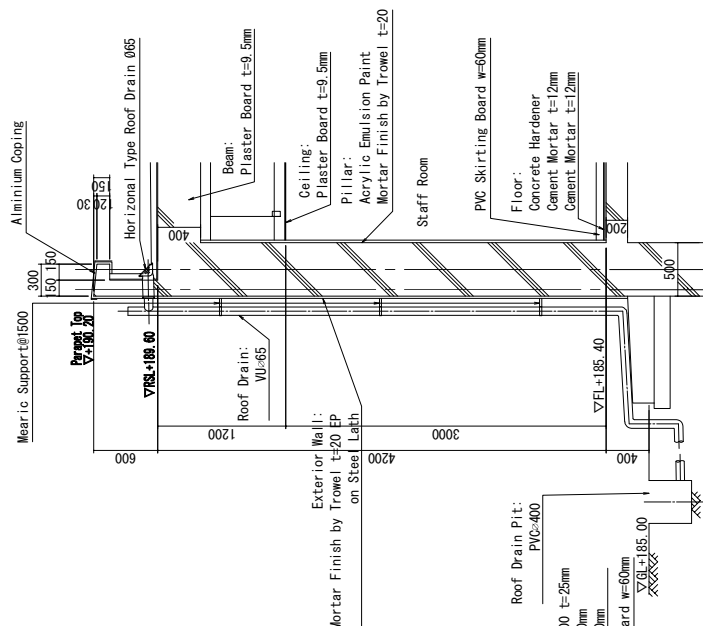
B-B SECTION



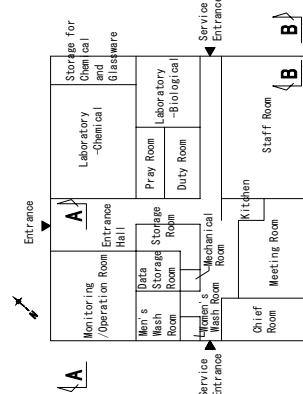
Key Plan

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: Administration Building(3) – Section		DRAWING NO: WTP-A-03
	SCALE: 1/150		

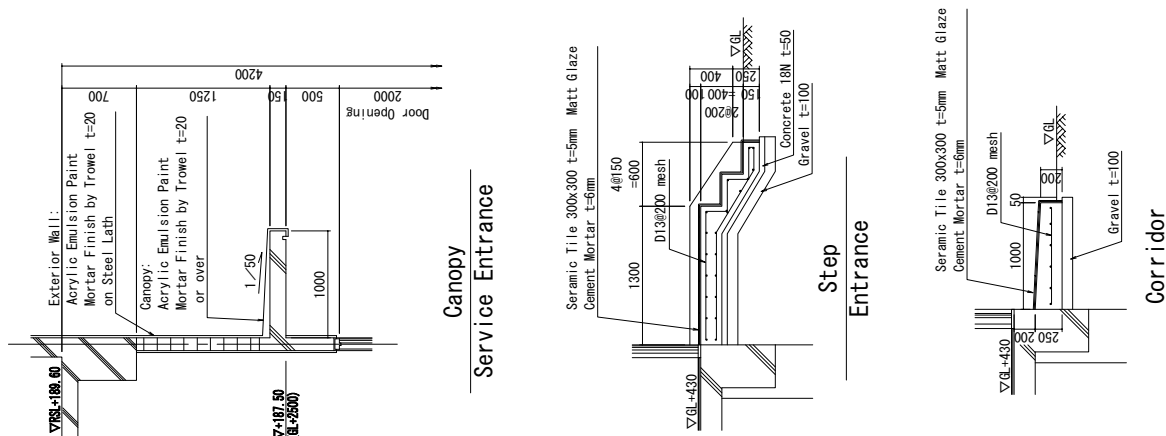
Sectional Details

$$\frac{S=1/50}{}$$


SECTIONAL DETAIL A



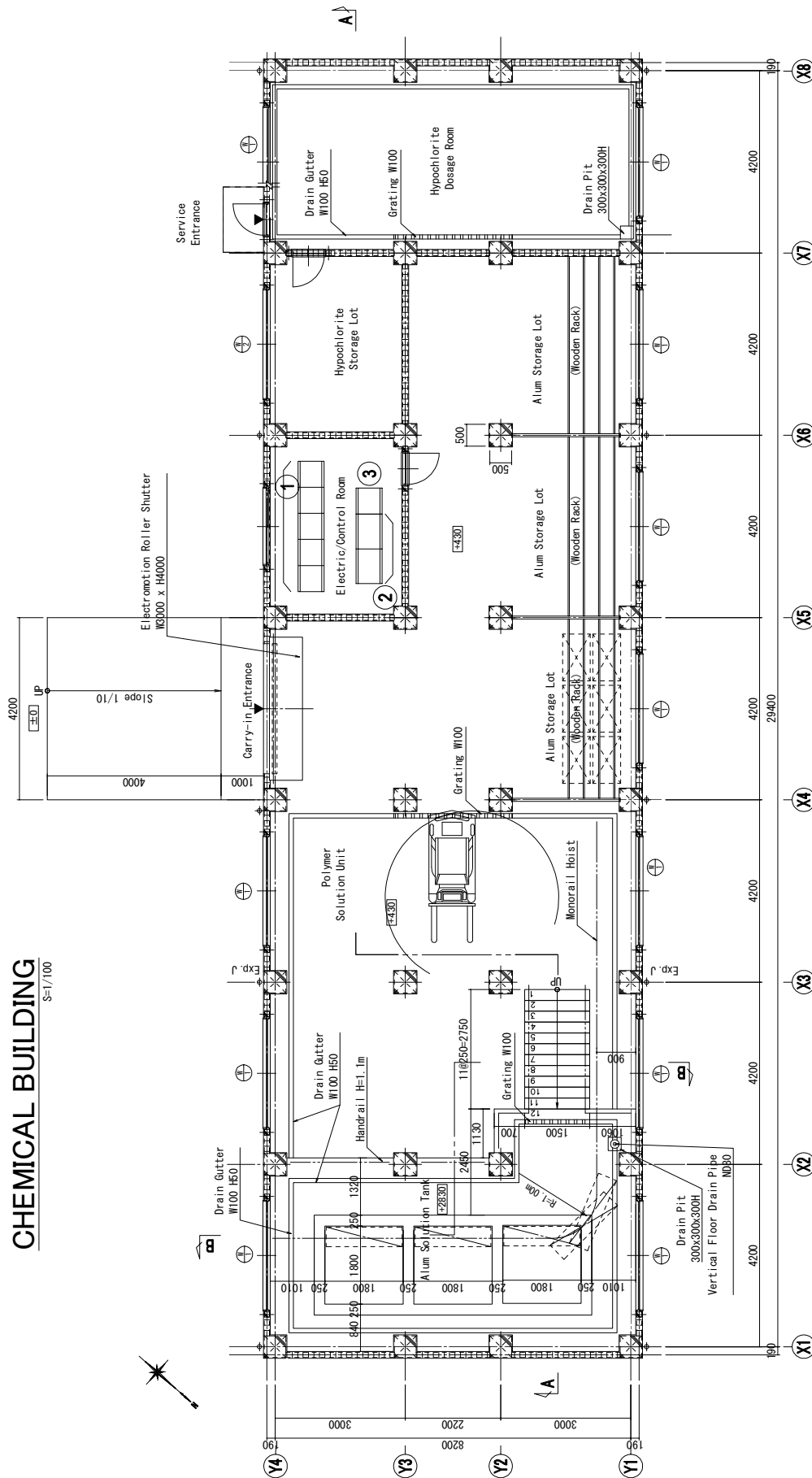
Key Plan



	PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: Administration Building(4) -Sectional Details	
		SCALE:	DRAWING NO: WTP-A-04
		1/50	

CHEMICAL BUILDING

S-1/100



ID No.	NAME
①	MC FOR CHEMICAL BUILDING
②	AUX. RELAY PANEL FOR CHEMICAL BUILDING
③	INSTRUMENTATION PANEL

P L A N

GL+
Reinforced Concrete Pillar (500mm x 500mm)
Brick Wall (thickness 180mm)
Roof Drain PVC ND80

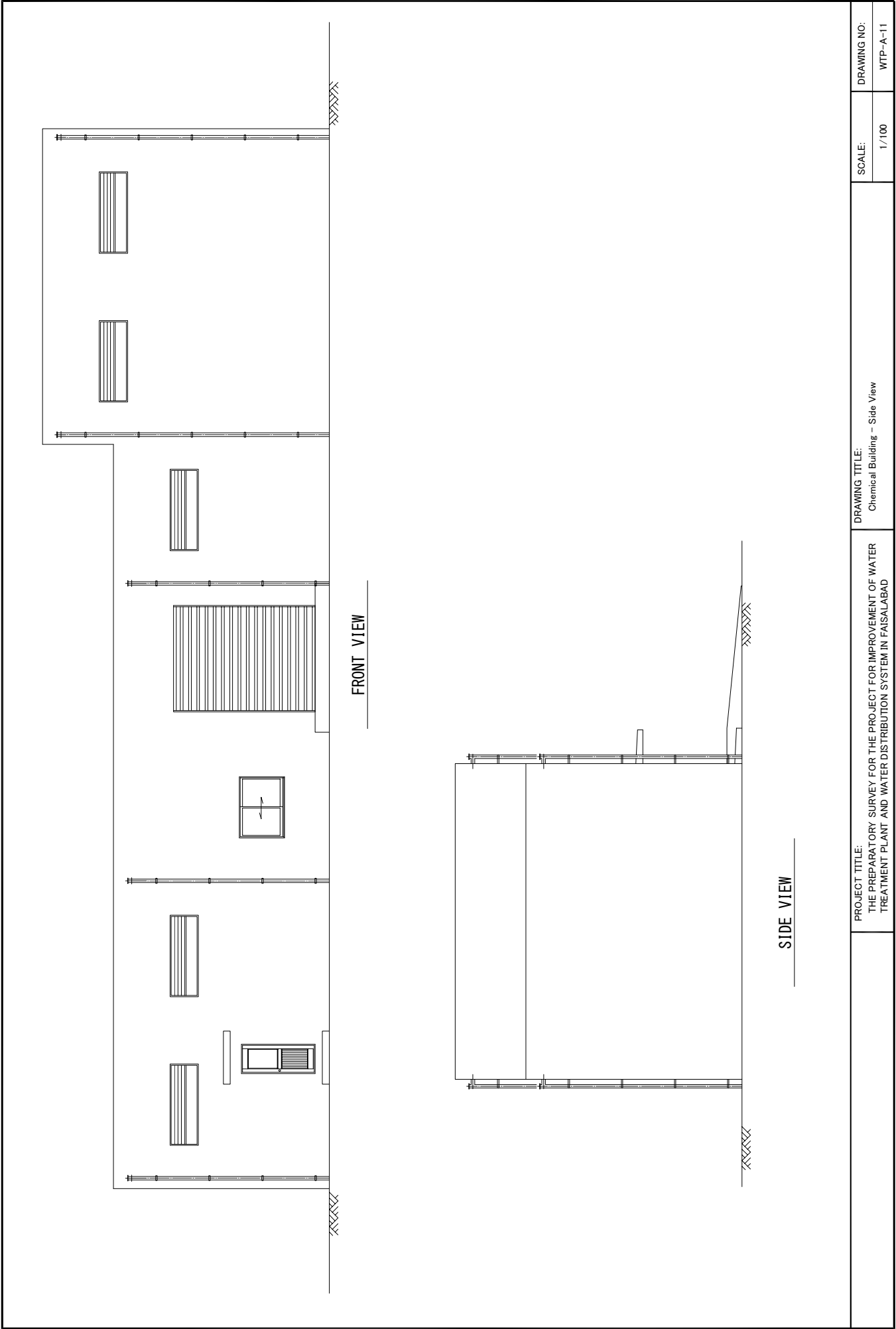
PROJECT TITLE:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER
TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD

DRAWING TITLE:
Chemical Building - Layout Plan

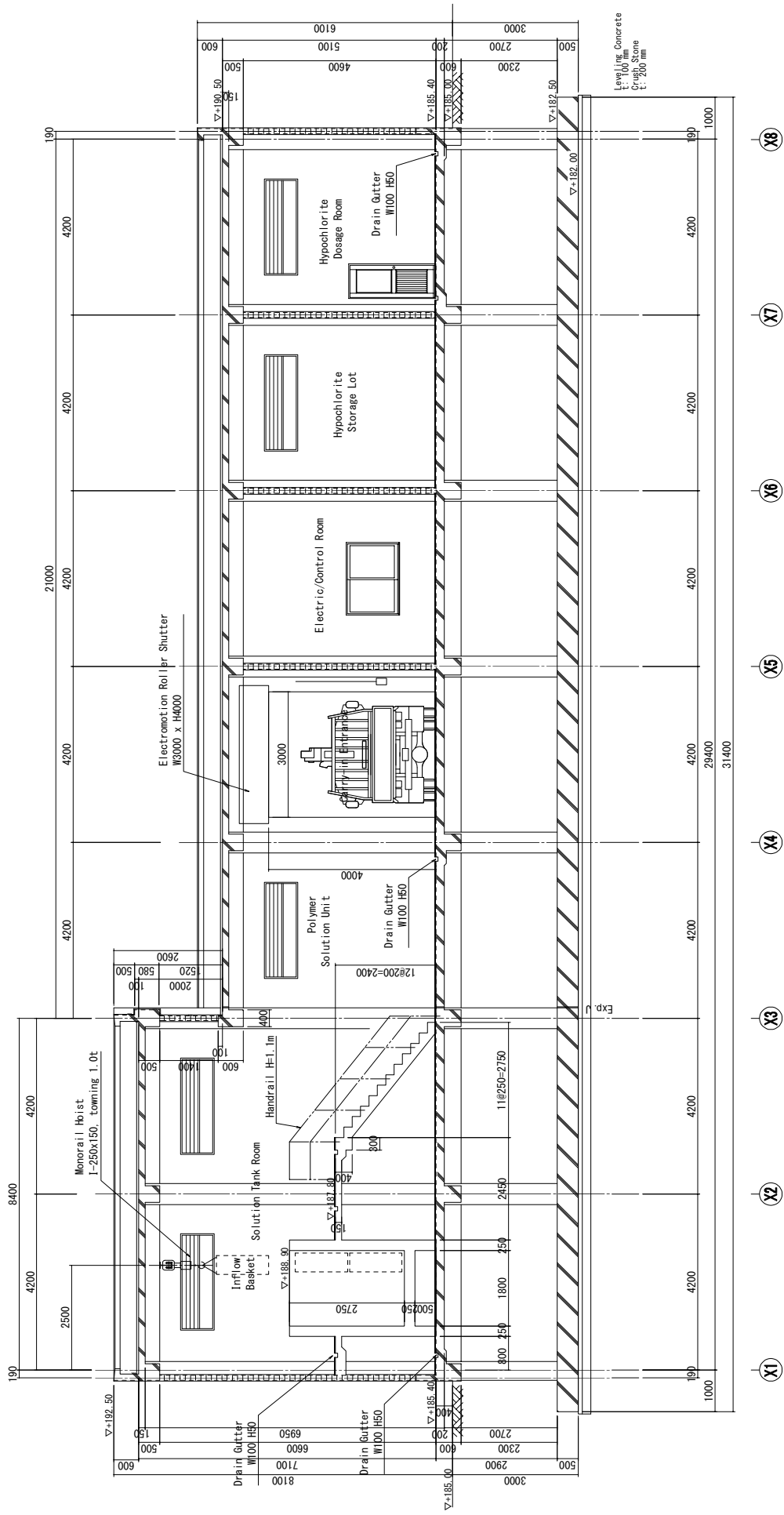
SCALE:
1/100

DRAWING NO:
WTP-A-10

WTP-23

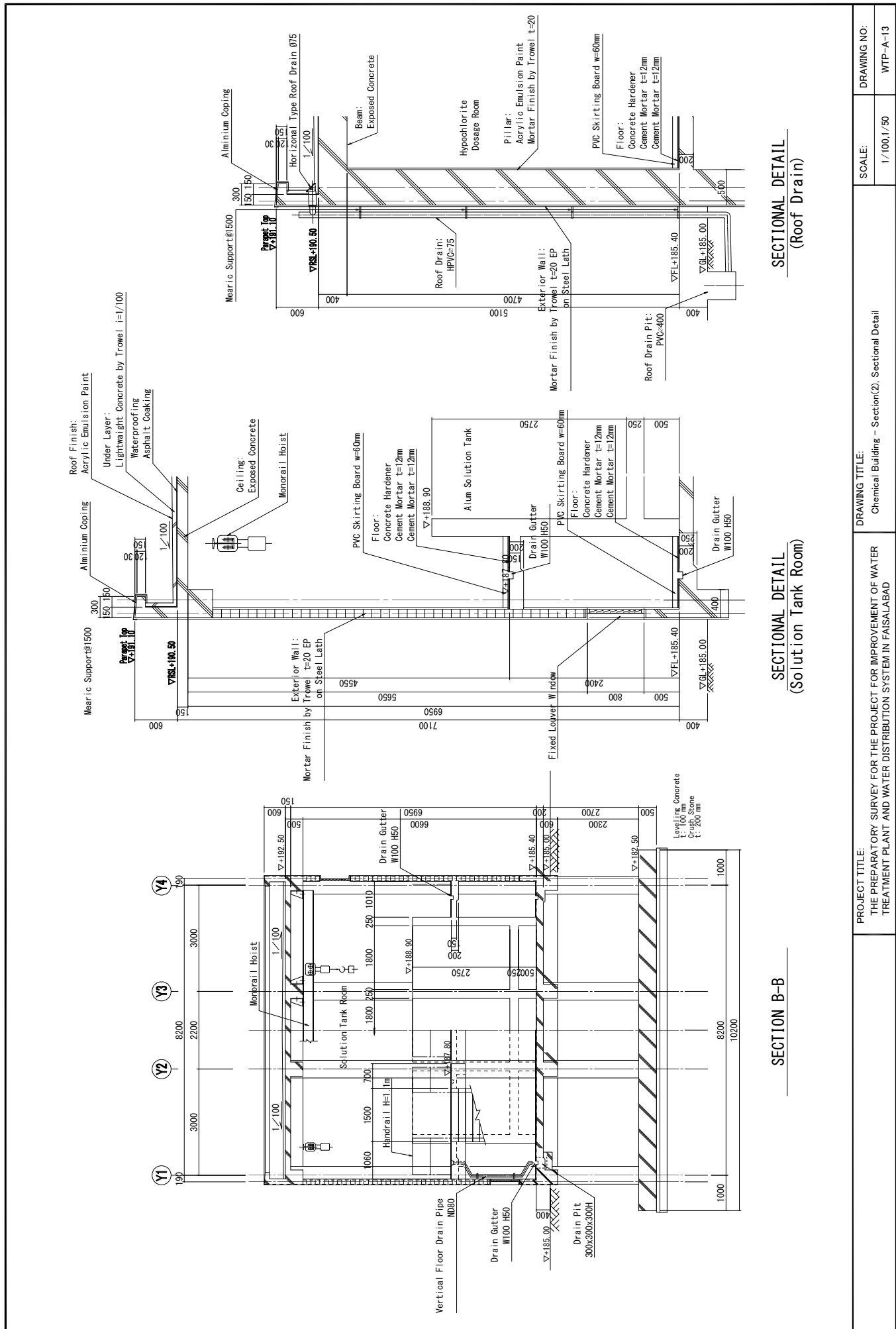


PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: Chemical Building – Side View		SCALE: 1/100	DRAWING NO: WTP-A-11



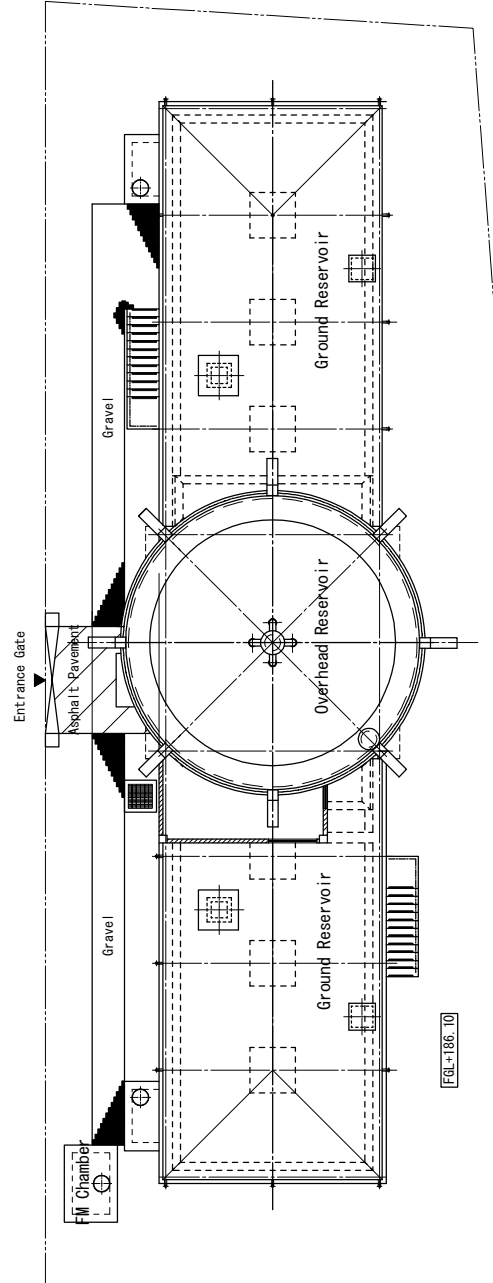
SECTION A-A

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: Chemical Building - Section(1)		DRAWING NO: WTP-A-12
	SCALE:	1/100	



PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: Chemical Building - Section(2), Sectional Detail		DRAWING NO: WTP-A-13
	SCALE: 1/100, 1/50		WTP-26

GENERAL LAYOUT



PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GENERAL LAYOUT		DRAWING NO: DC#1-C-01
	SCALE: 1/200	DC#1-01	

GROUND RESERVOIR (1)

This architectural plan illustrates the layout of Ground Reservoir (1). The structure is rectangular with overall dimensions of 40500mm by 12000mm. Key features include:

- Entrances:** Outside stairs and handrails (SS304) with a height of 1.10m are located on the right side.
- Internal Features:** A central machine hatch, a ladder, and a handrail (SS304) are shown.
- Structural Elements:** A brick wall and a parapet are indicated.
- Utilities:** A rooftop drain pipe and a ventilation tower are located on the left side.
- Dimensions:** Various internal and external dimensions are provided, such as 8700mm, 1900mm, and 15400mm.
- Level Markings:** Elevation markers like +188.45 and +188.50 are shown.

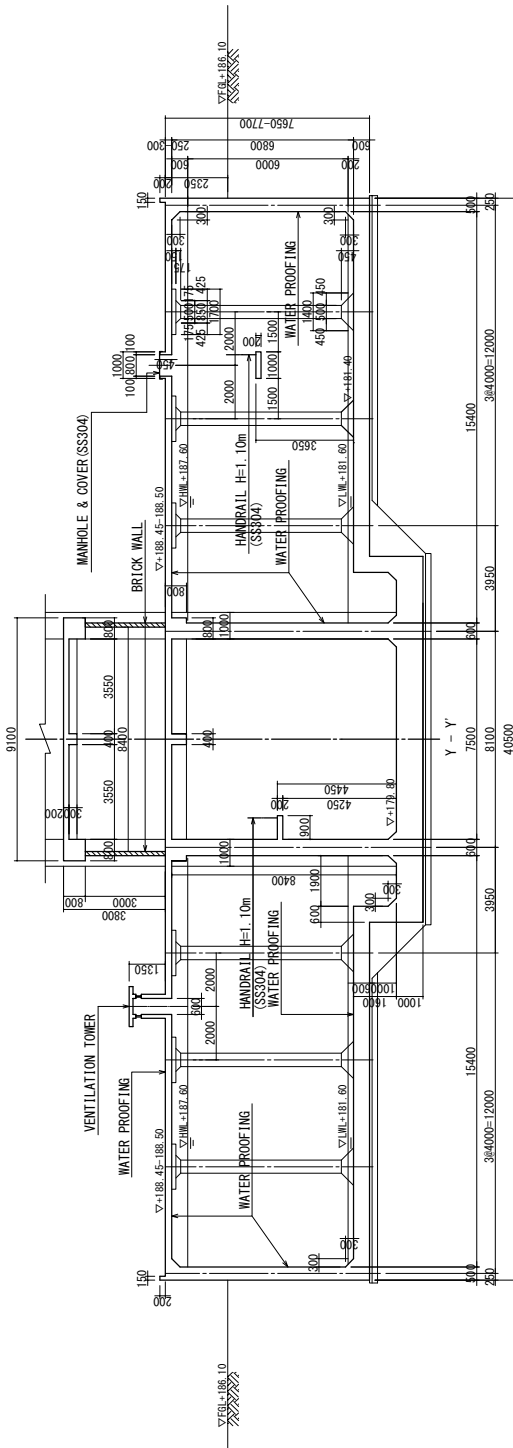
This architectural plan illustrates the layout of Ground Reservoir (1). The structure is rectangular with overall dimensions of 40500mm by 12000mm. Key features include:

- Entrances:** Outside stairs and handrails (SS304) with a height of 1.10m are located on the right side.
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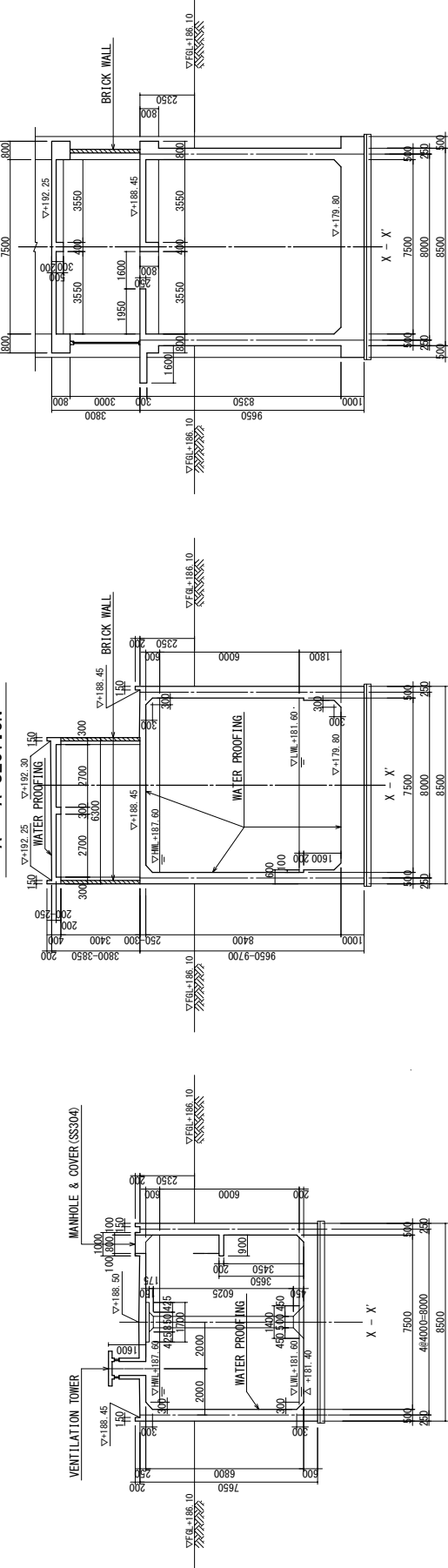
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (1)	SCALE: 1/200	DRAWING NO: DCH1-C-02

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (1)	DRAWING NO: DCH1-C-02
	SCALE: 1/200	

GROUND RESERVOIR (2)



A - A SECTION



PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (2)		DRAWING NO: DC#1-C-03
	SCALE:	1/200	

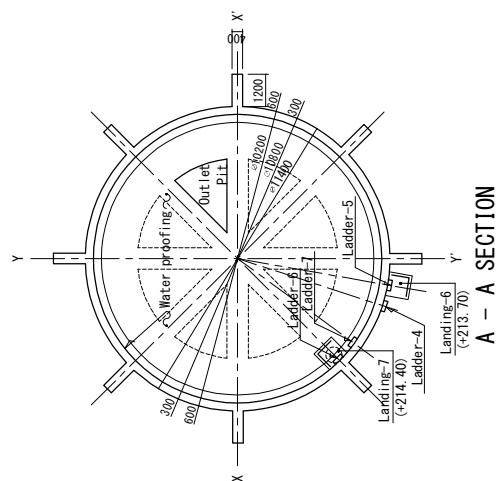
The top diagram shows a circular cross-section of a tunnel with a diameter of 10,000 mm. It features a central ventilation duct with a diameter of 1,000 mm. Various ladders and landings are indicated, including Ladder-1, Ladder-2, Ladder-3, Ladder-4, and Ladder-5. The diagram also shows a central ventilation duct with a diameter of 1,000 mm and a central ventilation duct with a diameter of 1,000 mm. The diagram is labeled with 'Ventilation tower', 'Water proofing', 'Manhole cover Cast iron $\phi 600$ ', and 'Handrail (SS304) H=1.10m'.

The middle diagram shows a circular cross-section of a tunnel with a diameter of 10,000 mm. It features a central ventilation duct with a diameter of 1,000 mm. Various ladders and landings are indicated, including Ladder-1, Ladder-2, Ladder-3, Ladder-4, and Ladder-5. The diagram also shows a central ventilation duct with a diameter of 1,000 mm and a central ventilation duct with a diameter of 1,000 mm. The diagram is labeled with 'Ventilation tower', 'Water proofing', 'Manhole cover Cast iron $\phi 600$ ', and 'Handrail (SS304) H=1.10m'.

The bottom diagram shows a circular cross-section of a tunnel with a diameter of 10,000 mm. It features a central ventilation duct with a diameter of 1,000 mm. Various ladders and landings are indicated, including Ladder-1, Ladder-2, Ladder-3, Ladder-4, and Ladder-5. The diagram also shows a central ventilation duct with a diameter of 1,000 mm and a central ventilation duct with a diameter of 1,000 mm. The diagram is labeled with 'Ventilation tower', 'Water proofing', 'Manhole cover Cast iron $\phi 600$ ', and 'Handrail (SS304) H=1.10m'.

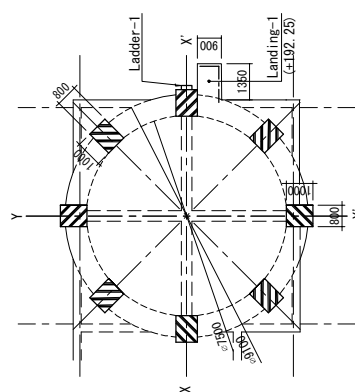
B - B SECTION

C - C SECTION
(C-2, C-3)



A - A SECTION

C - C SECTION
(C-1)

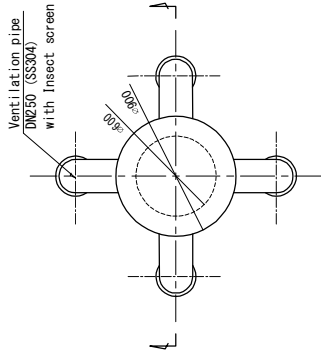
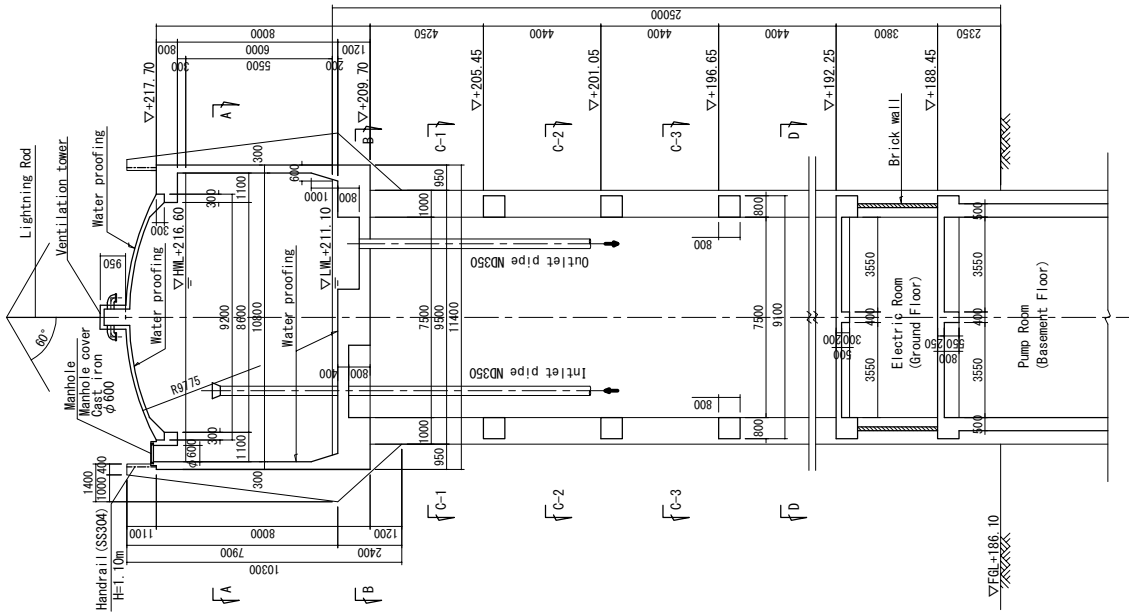


D - D SECTION

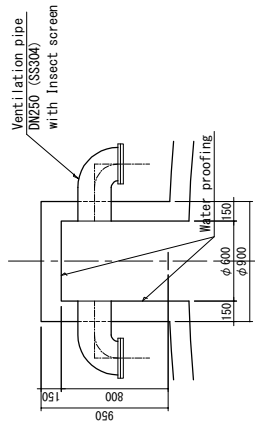
	PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FASALABAD	DRAWING TITLE: OVERHEAD RESERVOIR (1)	SCALE:	DRAWING NO:
			1/200	DC#1-C-05

App 7(5)-30

OVERHEAD RESERVOIR (2)



PLAN



SECTION

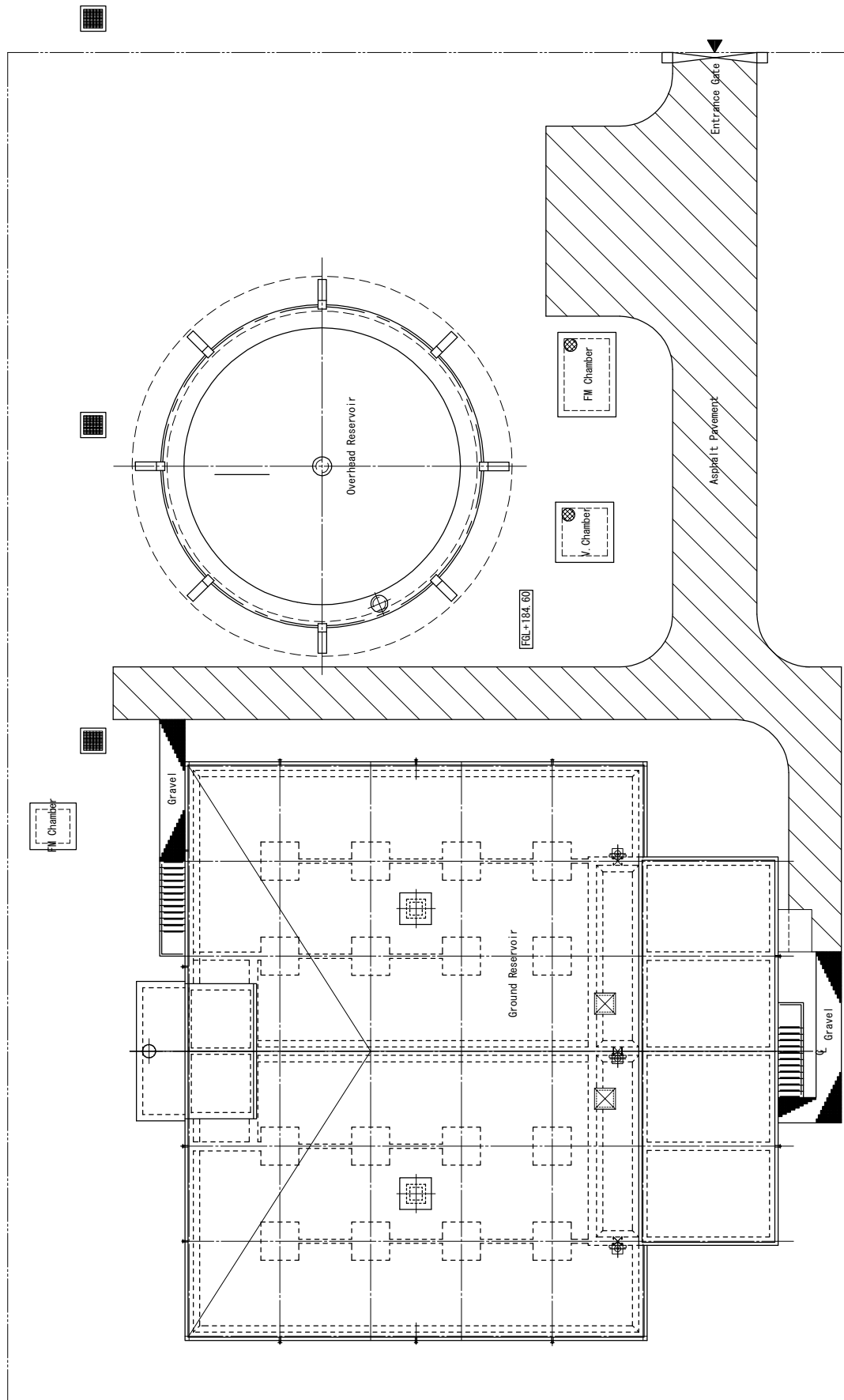
Ventilation tower
S=1/50

E - E SECTION
S=1/200

PROJECT TITLE:	DRAWING TITLE:	SCALE:	DRAWING NO:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	OVERHEAD RESERVOIR (2)	1/200	DC#1-C-06

DC#1-05

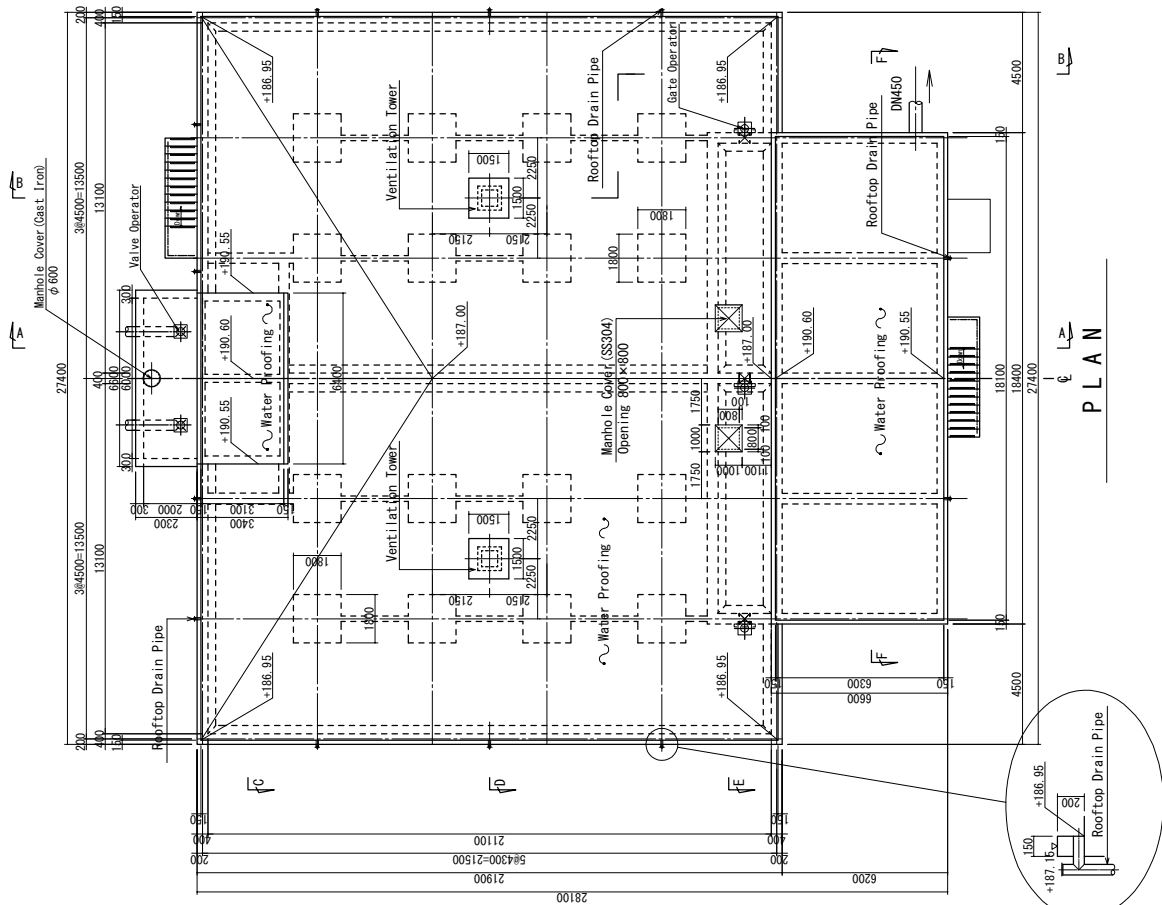
GENERAL LAYOUT



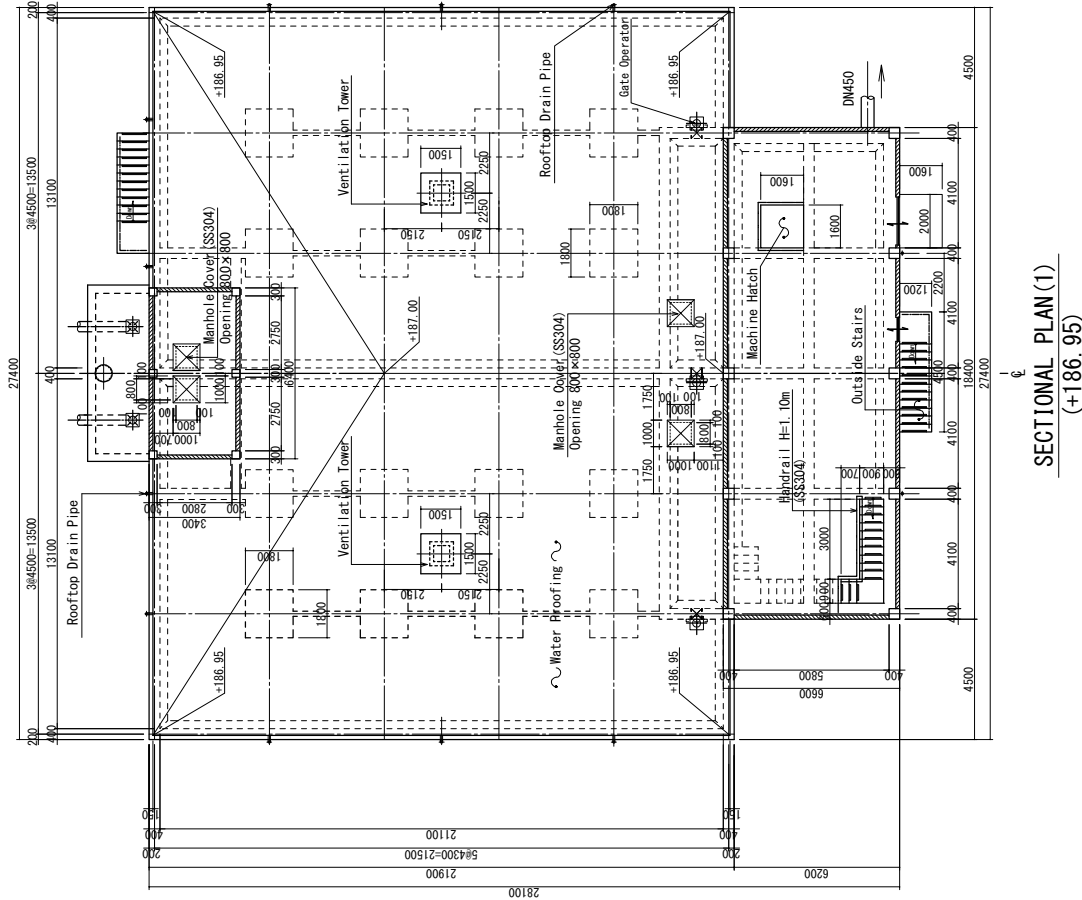
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GENERAL LAYOUT		SCALE: 1/200	DRAWING NO: DC#2-C-01

DC#2-01

GROUND RESERVOIR (1)



PLAN

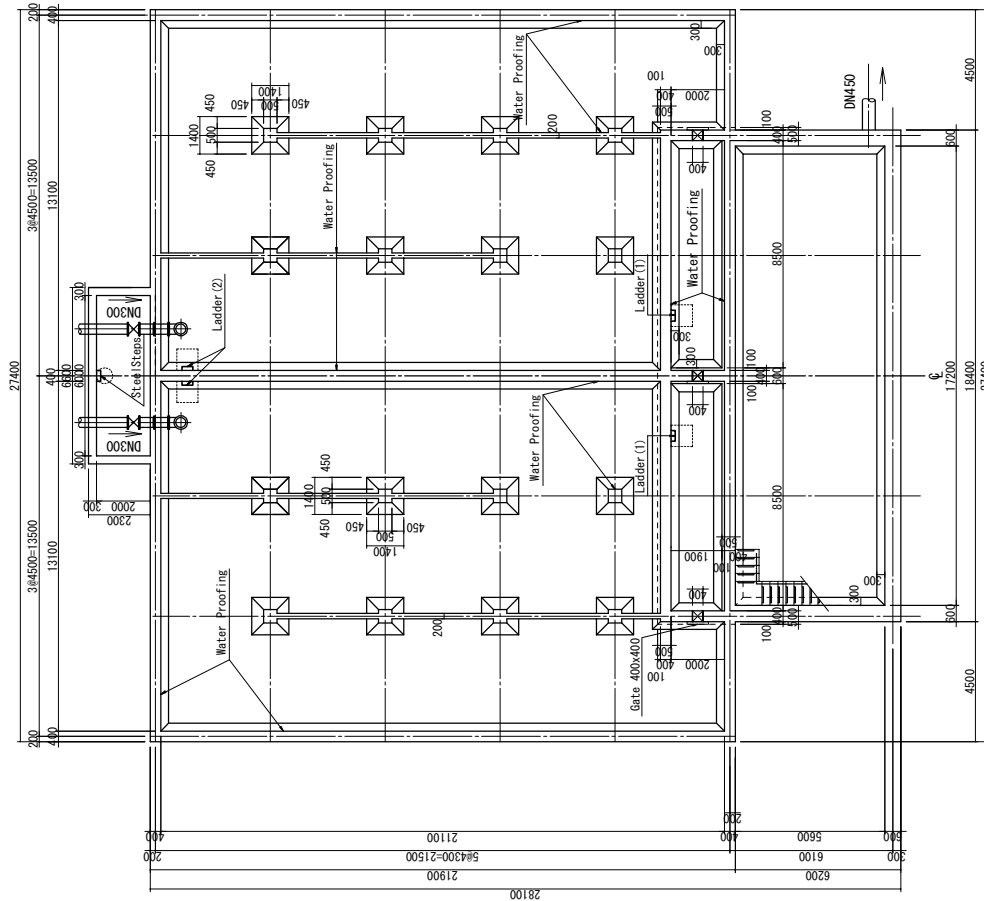


SECTIONAL PLAN (1)
(+186.95)

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (1)		SCALE: 1/200	DRAWING NO: DC#2-C-02

DC#2-02

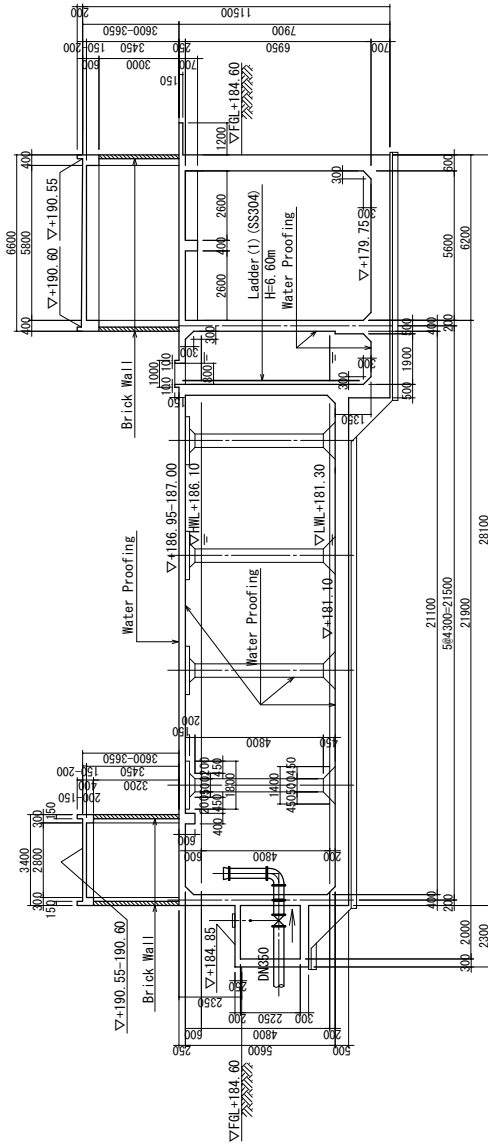
GROUND RESERVOIR (2)



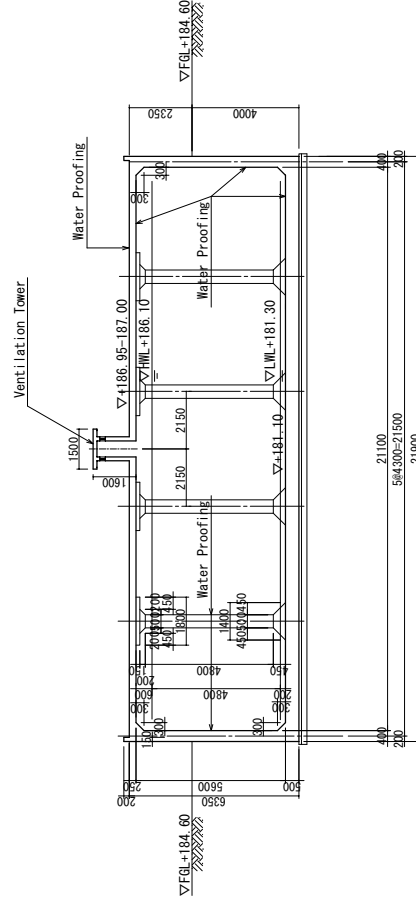
SECTIONAL PLAN (2)

PROJECT TITLE:	DRAWING TITLE:	SCALE:	DRAWING NO:
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	GROUND RESERVOIR (2)	1/200	DC#2-C-02
DC#2-03			

GROUND RESERVOIR (3)



A - A SECTION

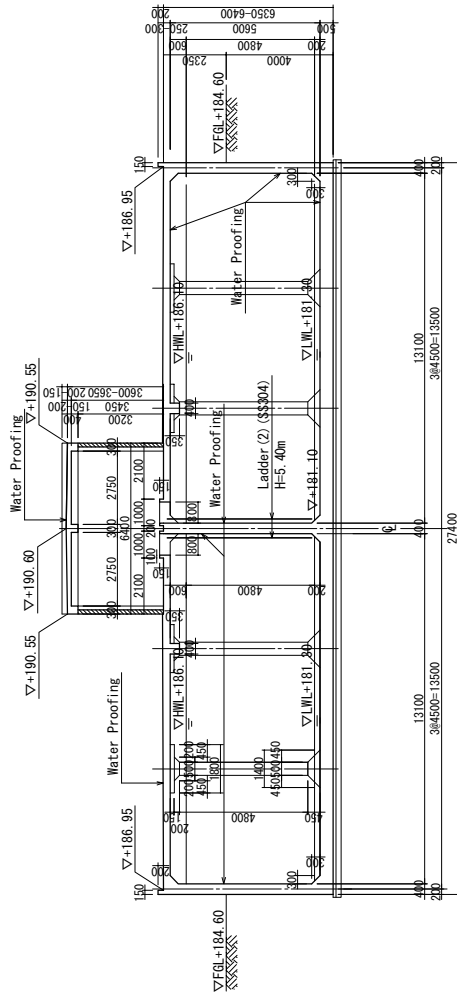


B - B SECTION

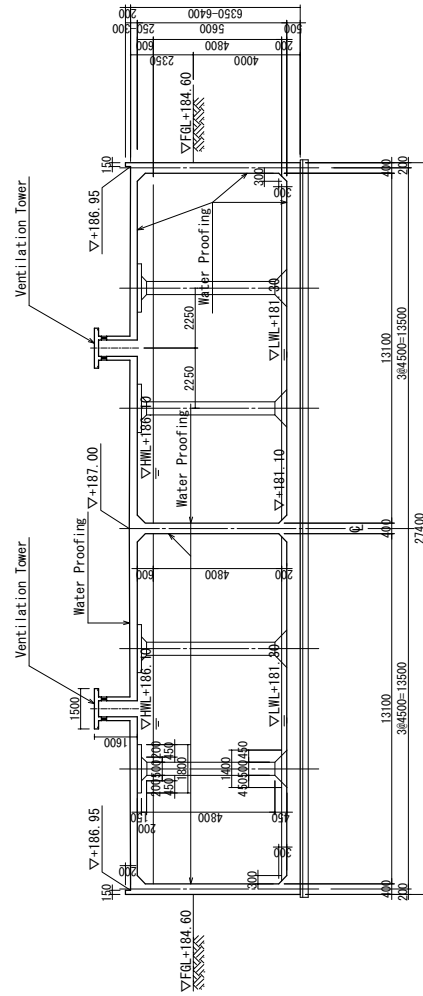
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (3)		DRAWING NO: DC#2-C-04
	SCALE:	1 / 200	

DC#2-04

GROUND RESERVOIR (4)



C - C SECTION



D - D SECTION

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (4)		DRAWING NO:
	SCALE: 1/200		DC#2-C-05

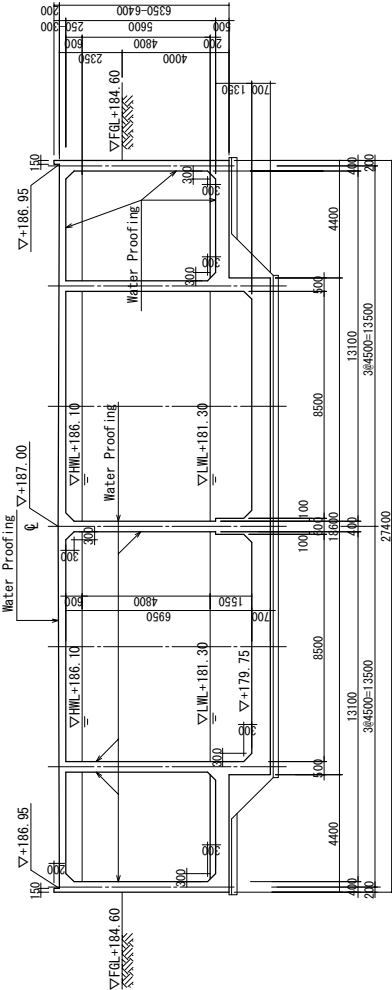
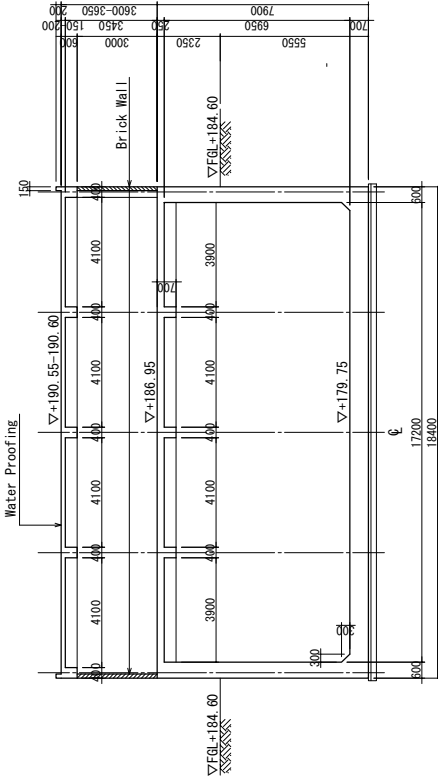
DC#2-05

GROUND RESERVOIR (5)

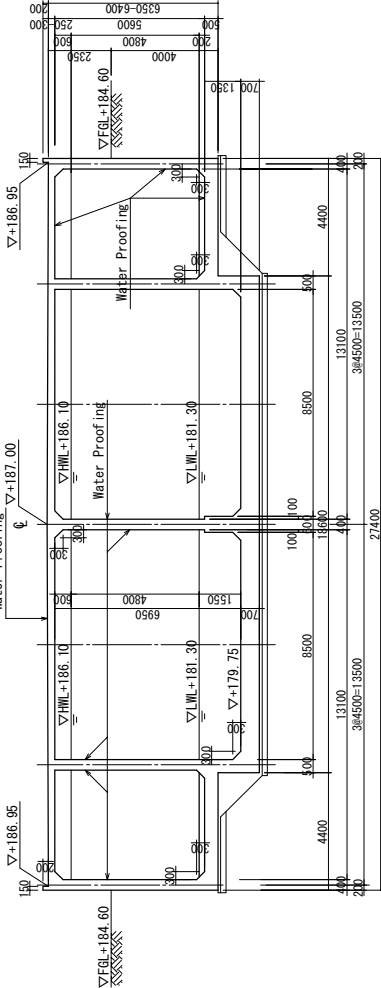
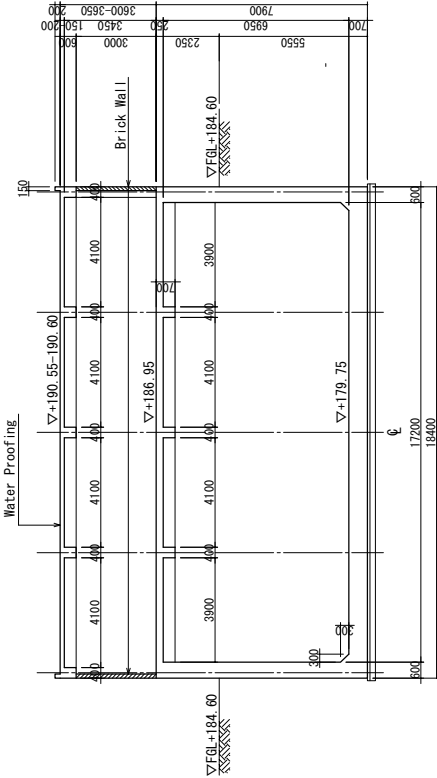
E - E SECTION

F - F SECTION

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (5)		DRAWING NO: DCH2-C-06
	SCALE: 1/200		

GROUND RESERVOIR (5)					
			E - E SECTION		
			F - F SECTION		
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD			DRAWING TITLE: GROUND RESERVOIR (5)		
			SCALE:		DRAWING NO:
			1/200		DC#2-C-06

[illegible]

GROUND RESERVOIR (5)					
					
E – E SECTION			F – F SECTION		
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD			DRAWING TITLE: GROUND RESERVOIR (5)		
			SCALE:		DRAWING NO:
			1/200		DC#2-C-06

GROUND RESERVOIR (5)					
			E - E SECTION		
			F - F SECTION		
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD			DRAWING TITLE: GROUND RESERVOIR (5)		
SCALE:			DRAWING NO:		
1/200			DCH2-C-06		

GROUND RESERVOIR (5)					
			E - E SECTION		
			F - F SECTION		
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD			DRAWING TITLE: GROUND RESERVOIR (5)		
			SCALE:		DRAWING NO:
			1/200		DC#2-C-06

GROUND RESERVOIR (5)

E - E SECTION

F - F SECTION

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (5)	DRAWING NO: DCH2-C-06
	SCALE: 1/200	

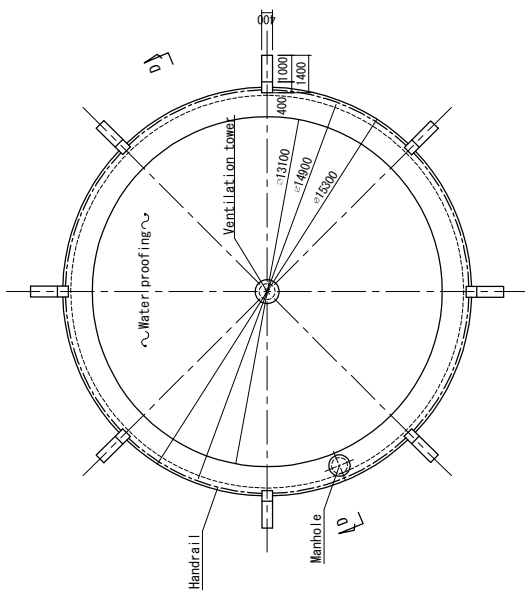
GROUND RESERVOIR (5)

E - E SECTION

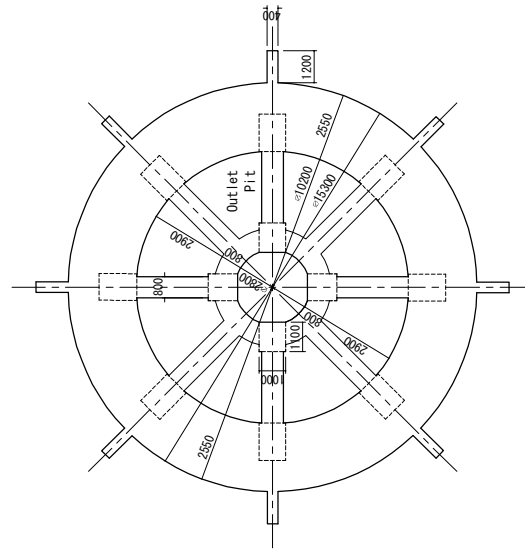
F - F SECTION

PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: GROUND RESERVOIR (5)		DRAWING NO: DCH2-C-06
	SCALE: 1/200		

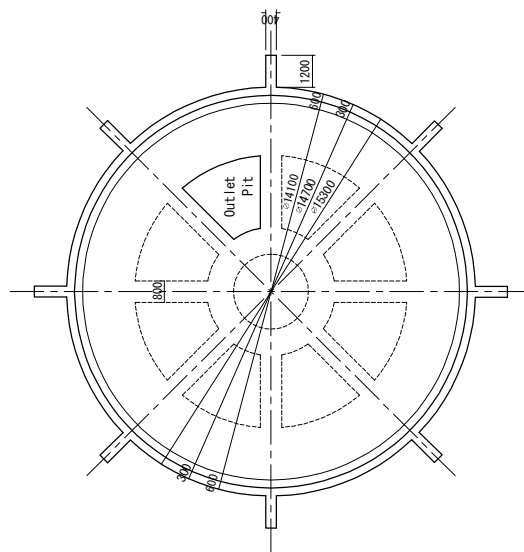
OVERHEAD RESERVOIR (1)



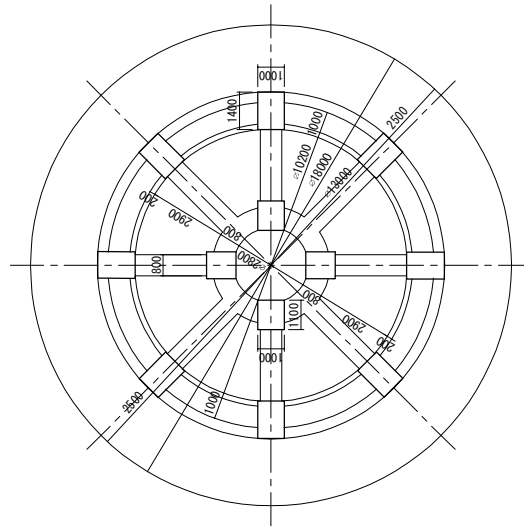
PLAN



B – B SECTION



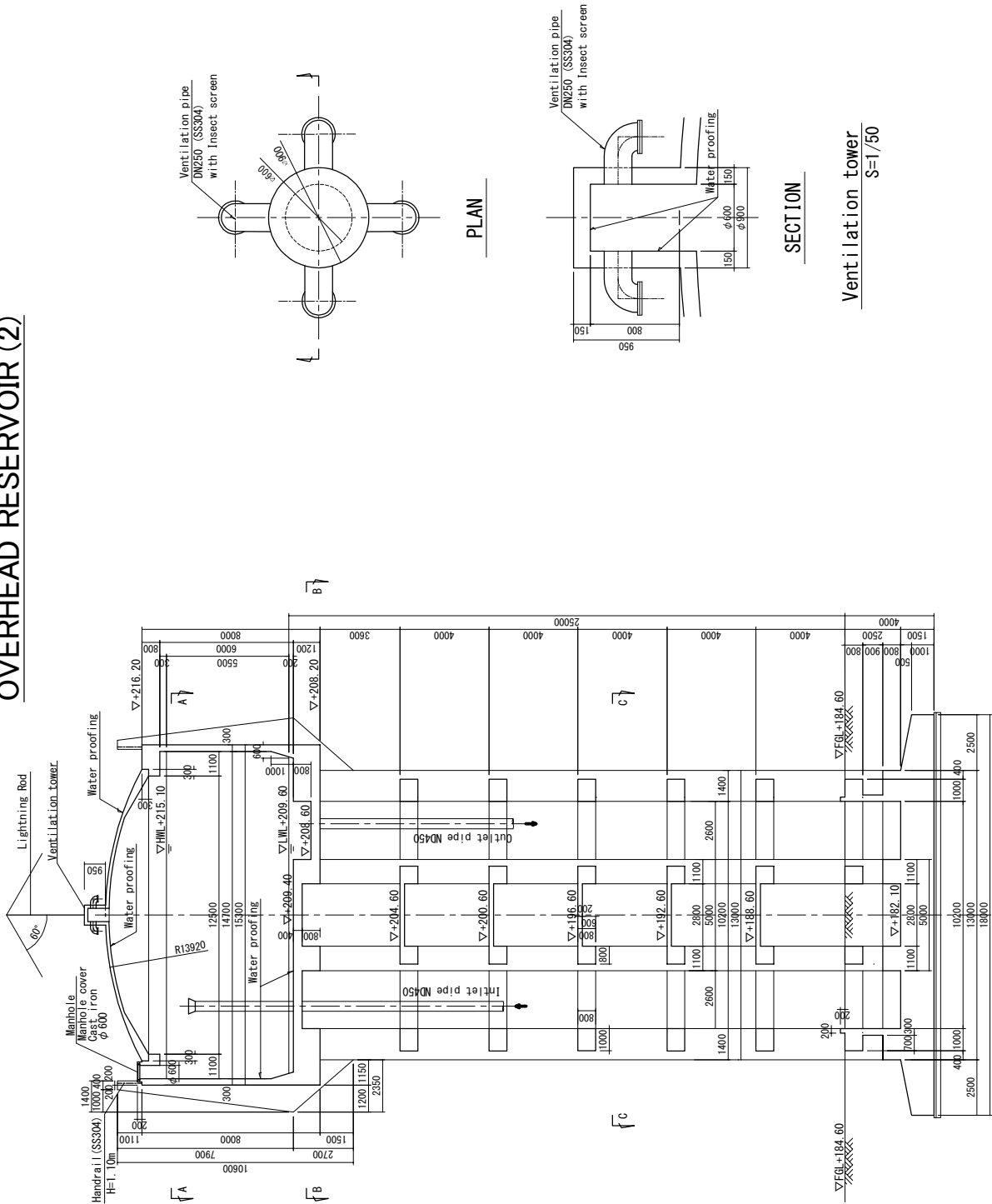
A – A SECTION



C – C SECTION

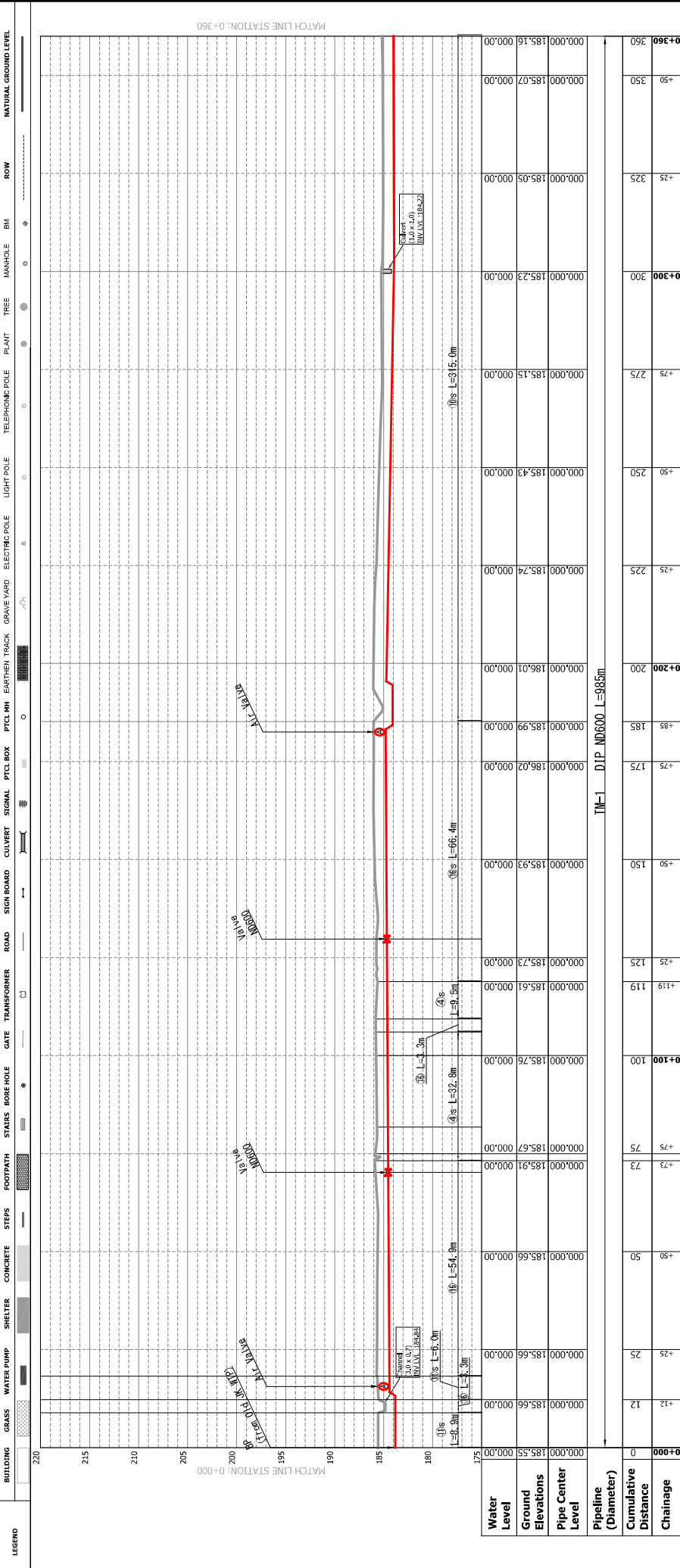
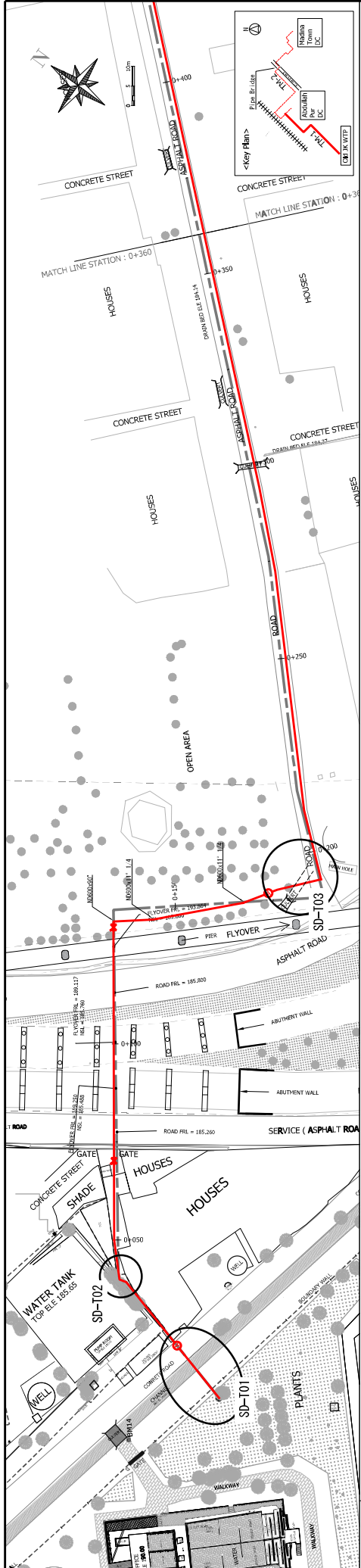
PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: OVERHEAD RESERVOIR (1)		SCALE: 1/200	DRAWING NO: DC#2-C-09

OVERHEAD RESERVOIR (2)



PROJECT TITLE: THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD	DRAWING TITLE: OVERHEAD RESERVOIR (2)		DRAWING NO:
	SCALE: 1/200		DC#2-C-10

DC#2-08



PROJECT TITLE:		DRAWING TITLE:		DRAWING NO:	
THE PREPARATORY SURVEY FOR THE PROJECT FOR IMPROVEMENT OF WATER TREATMENT PLANT AND WATER DISTRIBUTION SYSTEM IN FAISALABAD		PLAN AND PROFILE OF TRANSMISSION MAIN (1)		TM-001	
		SCALE:		1/1000, 1/400	

