

ベトナム国
ハノイ都市圏水道PPPドン河事業
準備調査（PPPインフラ事業）

ファイナル・レポート
付録-3 送水管設計図

平成24年5月
（2012年）

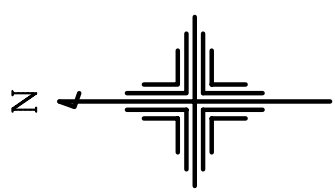
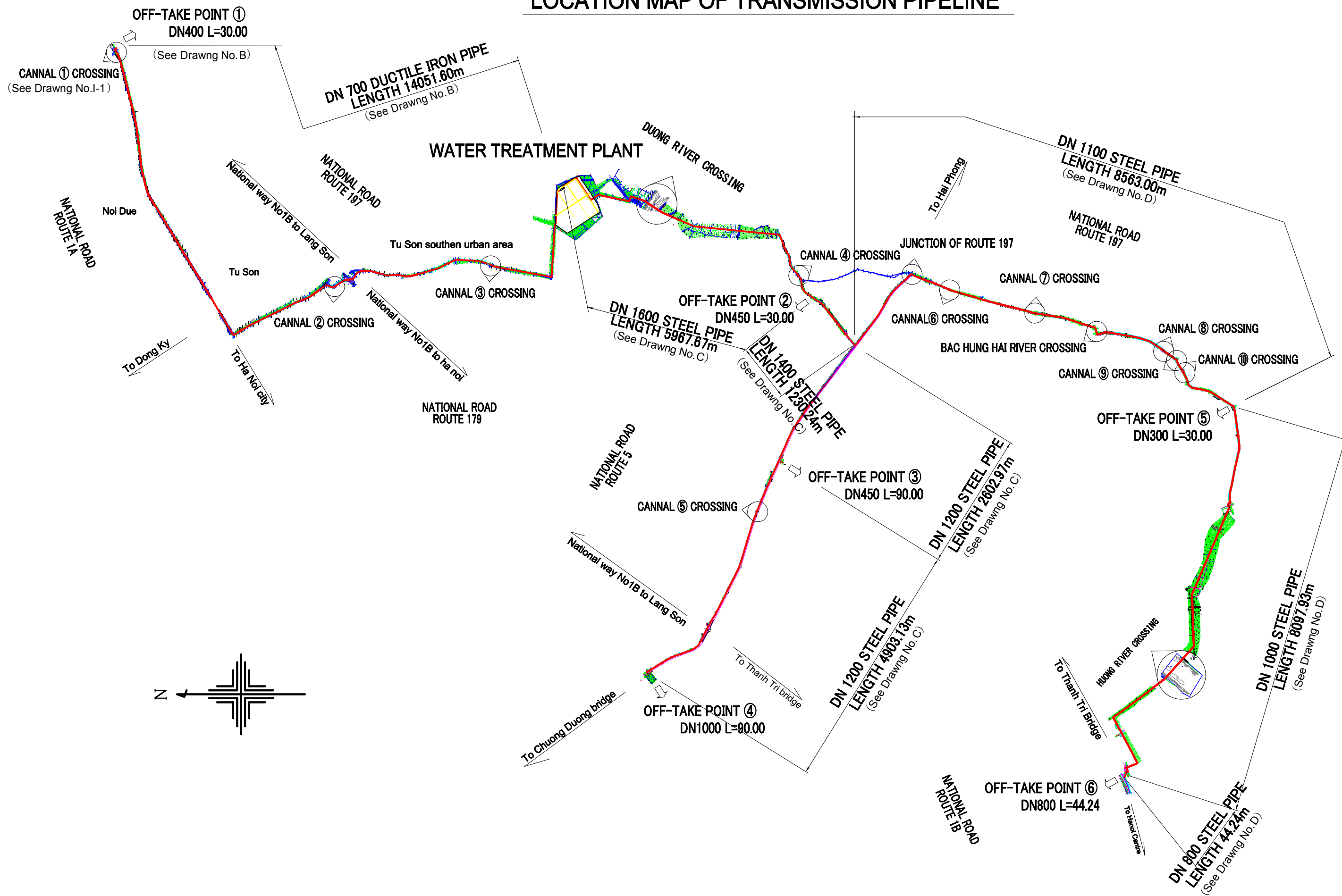
独立行政法人国際協力機構
（JICA）

メタウォーター（株）
（株）東京設計事務所
（株）クボタ
プライスウォーターハウスコーパス（株）

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H-1	PLAN AND PROFILE FOR JACKING METHOD AT LOCATION OF OFF-TAKE	H=1/500 V=1/200	J-4	DETAIL OF AIR CHAMBER	None			
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LOCATION MAP OF TRANSMISSION PIPELINE



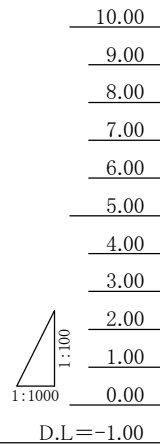
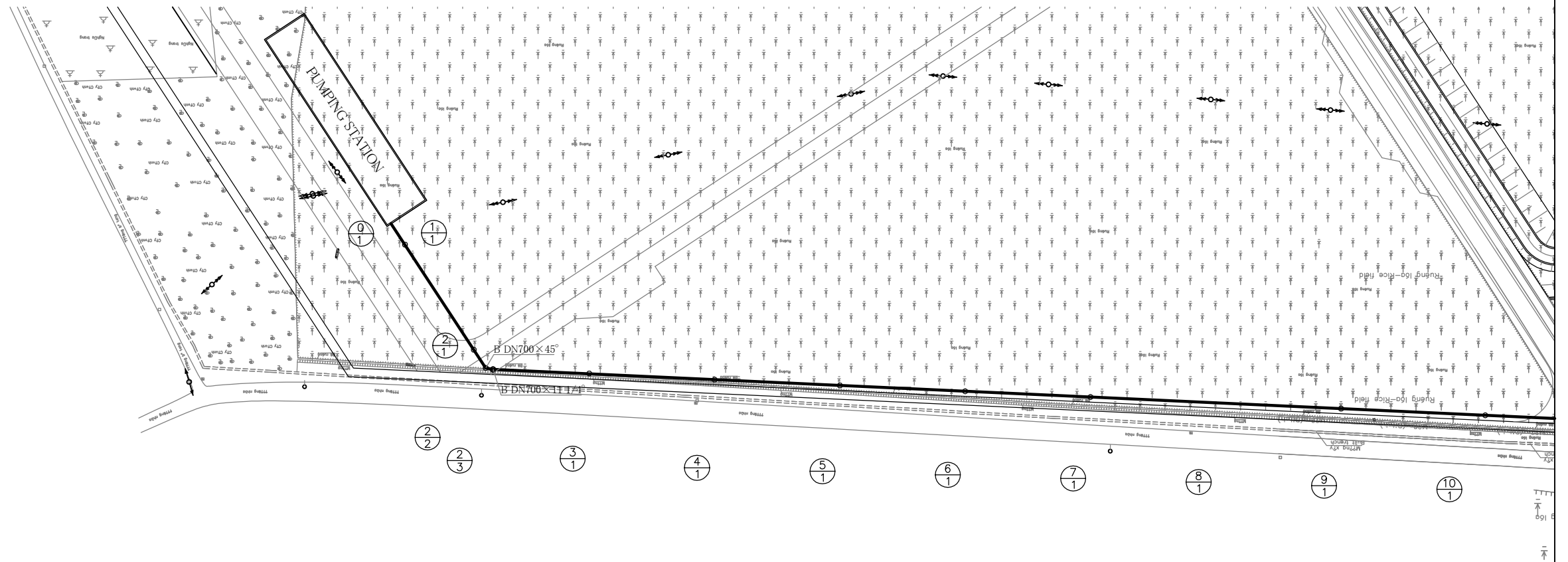
JICA Study Team						Date: Oct. 2011	Duong River Water Treatment Plant Transmission Pipeline	Drawing No
	No.					Scale: none	LOCATION MAP OF TRANSMISSION PIPELINE	A
THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM								

PLAN AND PROFILE OF TRANSMISSION PIPELINE

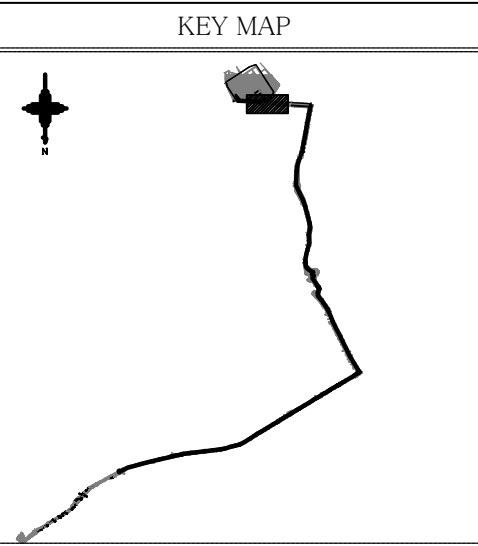
KEY MAP

LEGEND

REMARK	DESCRIPTION
	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
	STATION

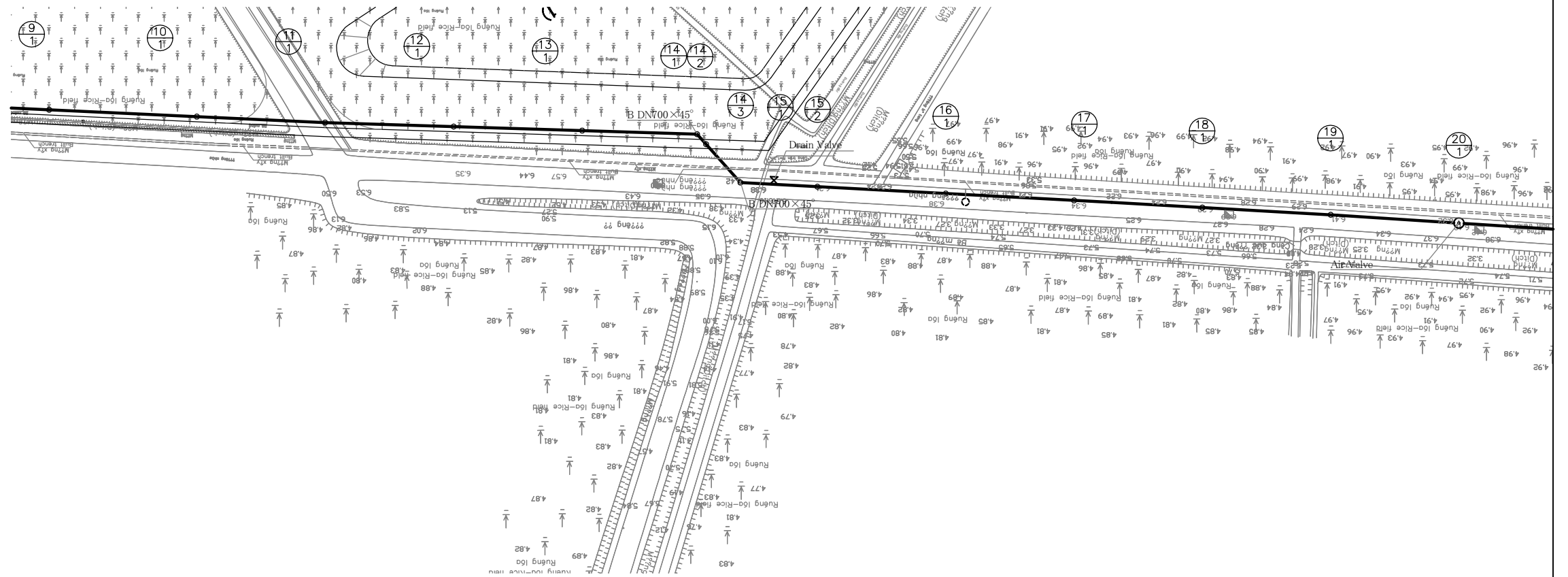


PIPE GRADIENT (%)	i=0.92												
EXCAVATION DEPTH (m)	1.70	1.71	1.70	1.70	1.62	1.52	1.61	1.70	1.73	1.52	1.64	1.63	
INVERT ELEVATION (m)	3.53	3.52	3.48	3.48	2.34	3.36	3.35	3.29	3.24	3.20	3.15	3.10	
GROUND ELEVATION (m)	5.23	5.23	5.17	5.17	5.05	4.90	4.94	4.99	4.97	4.71	4.79	4.73	
ACCUMULATED DISTANCE (m)	0.00	10.00	80.00	82.45	110.00	160.00	210.00	260.00	310.00	360.00	410.00	460.00	
ROTATION ANGLE	45° 11' 1/4"												
STATION	0+1	1+1	2+1	2+2	2+3	3+1	4+1	5+1	6+1	7+1	8+1	9+1	10+1
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE												



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION

PLAN AND PROFILE OF TRANSMISSION PIPELINE



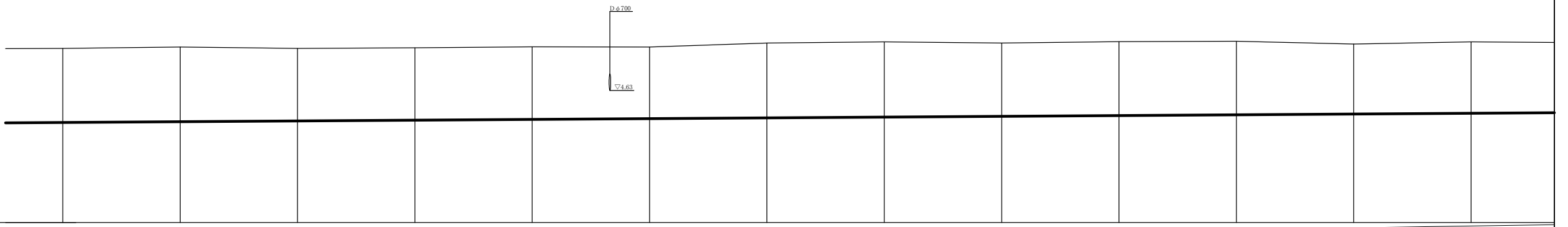
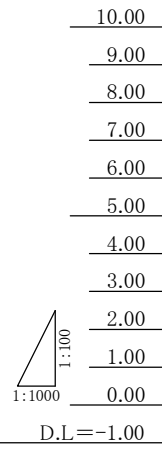
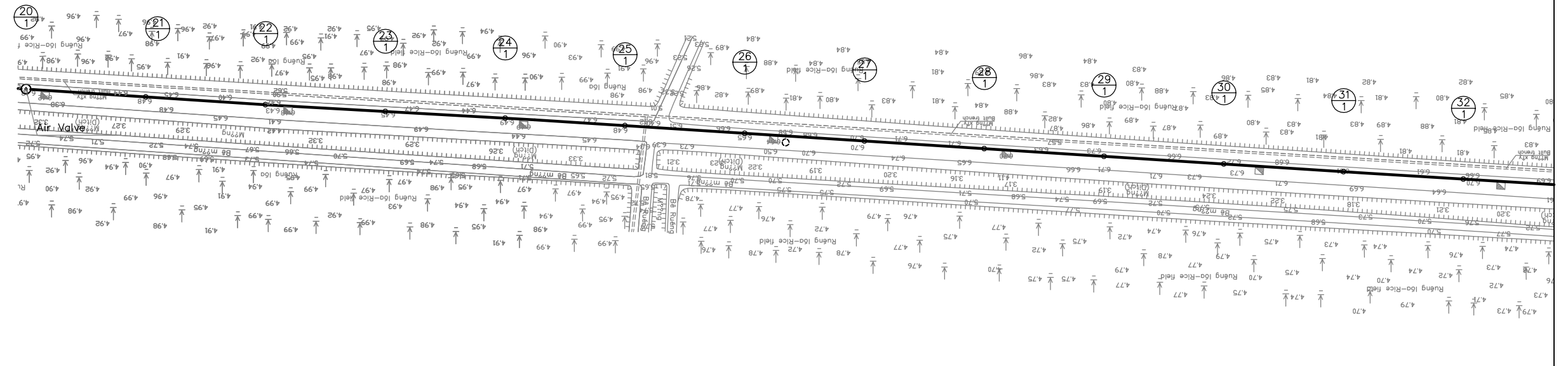
	9+1	10+1	11+1	12+1	13+1	14+1	14+2	14+3	15+1	15+2	16+1	17+1	18+1	19+1	20+1
PIPE GRADIENT (%)	i=0.92														
EXCAVATION DEPTH (m)	1.64	1.63	3.45	1.57	1.63	1.70	1.81	1.81	3.32	3.21	3.25	3.17	3.19	3.18	3.16
INVERT ELEVATION (m)	3.15	3.10	3.06	3.01	2.96	2.92	2.81	2.81	3.09	3.11	3.14	3.17	3.20	3.24	3.27
GROUND ELEVATION (m)	4.79	4.73	6.52	4.58	4.59	4.62	4.62	4.71	6.22	6.31	6.38	6.34	6.39	6.41	6.42
ACCUMULATED DISTANCE (m)	410.00	460.00	510.00	560.00	610.00	654.70	660.00	664.45	668.34	710.00	724.45	760.00	810.00	860.00	910.00
ROTATION ANGLE	45° 45'45" 45'45"														
STATION	⊙ 9 1	⊙ 10 1	⊙ 11 1	⊙ 12 1	⊙ 13 1	⊙ 14 1	⊙ 14 2	⊙ 14 3	⊙ 15 1	⊙ 15 2	⊙ 16 1	⊙ 17 1	⊙ 18 1	⊙ 19 1	⊙ 20 1
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE														

PLAN AND PROFILE OF TRANSMISSION PIPELINE

KEY MAP

LEGEND

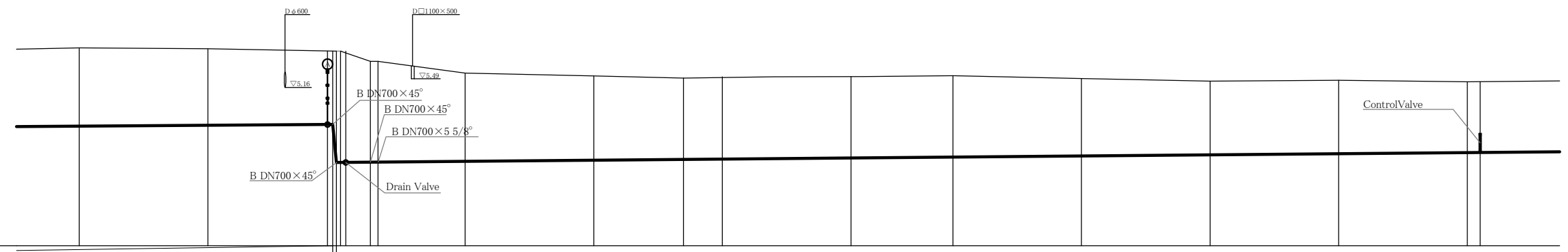
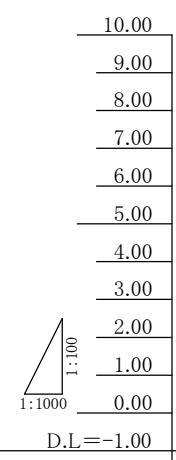
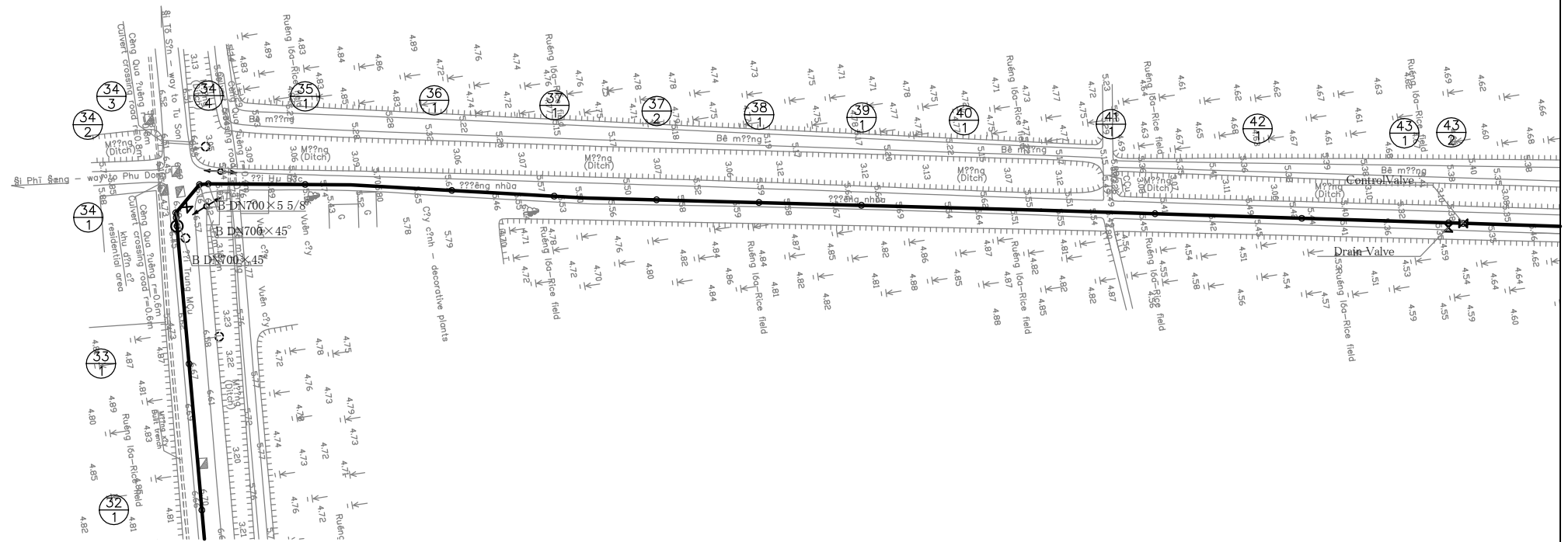
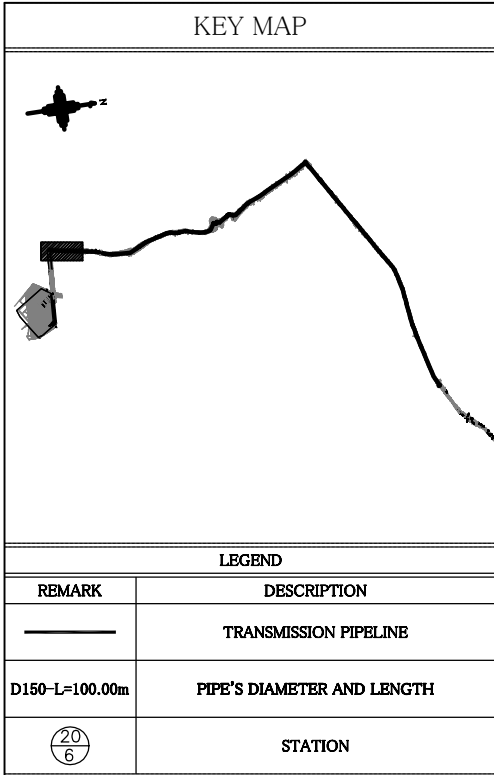
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 6	STATION



PIPE GRADIENT (%)	i=0.66												
EXCAVATION DEPTH (m)	3.16	3.18	3.09	3.09	3.10	3.05	3.19	3.21	3.13	3.15	3.14	2.89	3.05
INVERT ELEVATION (m)	3.27	3.30	3.33	3.37	3.40	3.44	3.46	3.50	3.53	3.56	3.59	3.63	3.66
GROUND ELEVATION (m)	6.42	6.48	6.42	6.45	6.49	6.48	6.65	6.70	6.65	6.71	6.75	6.61	6.70
ACCUMULATED DISTANCE (m)	900.00	1010.00	1060.00	1110.00	1160.00	1210.00	1260.00	1310.00	1360.00	1410.00	1460.00	1510.00	1560.00
ROTATION ANGLE													
STATION	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1	⊙ 1
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE												

JICA Study Team	No.														
	THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM										Date: Oct. 2011	Duong River Water Treatment Plant Transmission Pipeline	Drawing No		
										Scale H=1/100 V=1/1000	PLAN AND PROFILE OF TRANSMISSION PIPELINE	B-3			

PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)	i=0.86																
EXCAVATION DEPTH (m)	3.05	2.98	2.96	3.41	3.93	3.93	3.44	3.28	3.17	3.18	3.18	3.17	3.02	2.87	2.86	2.76	2.74
INVERT ELEVATION (m)	3.66	3.69	3.72	3.74	3.93	3.93	2.29	2.31	2.36	2.37	2.42	2.46	2.50	2.54	2.59	2.63	2.64
GROUND ELEVATION (m)	6.70	6.67	6.58	6.59	6.18	6.18	5.72	5.61	5.53	5.58	5.59	5.62	5.51	5.41	5.44	5.38	5.38
ACCUMULATED DISTANCE (m)	1560.00	1610.00	1638.46	1661.60	1673.15	1676.15	1710.00	1760.00	1794.90	1810.00	1860.00	1910.00	1960.00	2010.00	2060.00	2110.00	2115.00
ROTATION ANGLE	A454545° D 45° 5 5/8°																
STATION	⊙ 32 1	⊙ 33 1	⊙ 34 1	⊙ 34 2	⊙ 34 3	⊙ 34 4	⊙ 35 1	⊙ 36 1	⊙ 36 2	⊙ 37 1	⊙ 38 1	⊙ 39 1	⊙ 40 1	⊙ 41 1	⊙ 42 1	⊙ 43 1	⊙ 43 2
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE																

JICA Study Team

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011
Scale:
H=1/100
V=1/1000

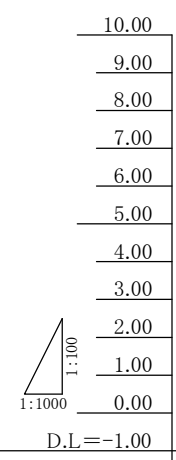
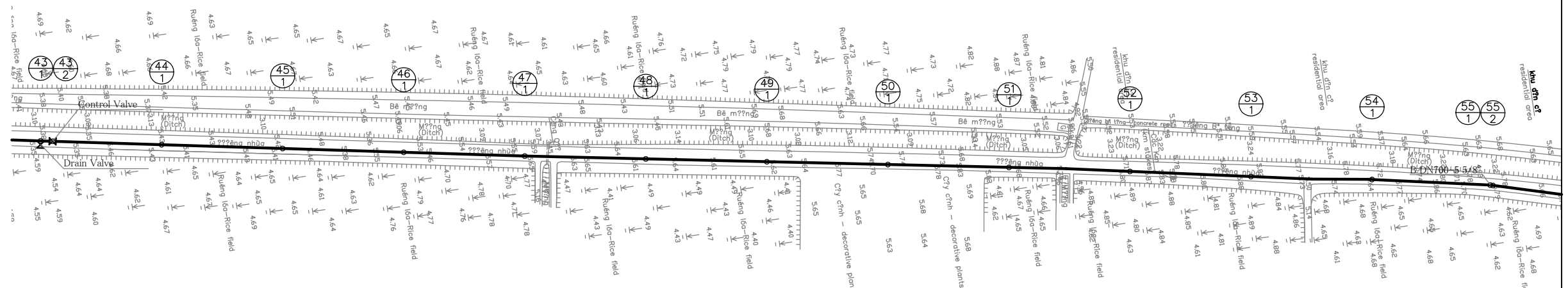
Duong River Water Treatment Plant Transmission Pipeline
PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No
B-4

PLAN AND PROFILE OF TRANSMISSION PIPELINE

KEY MAP

LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION

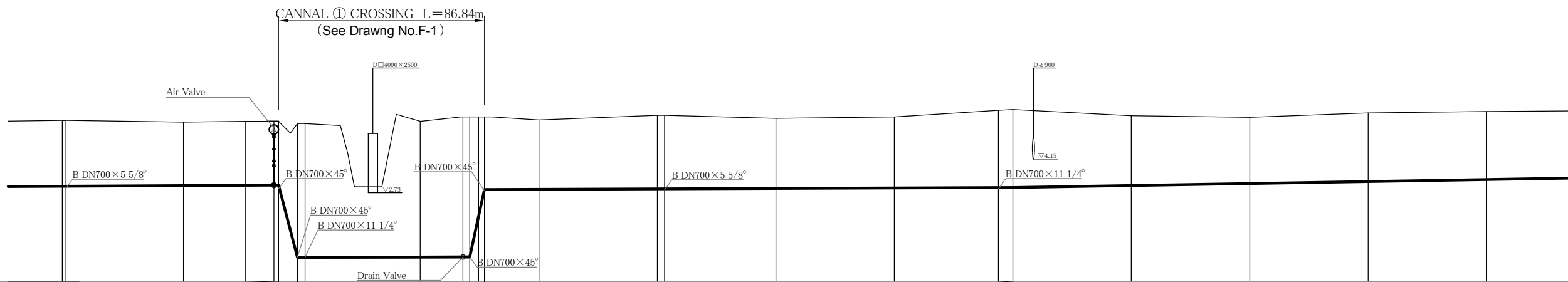
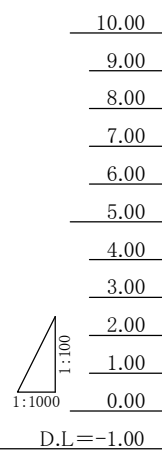
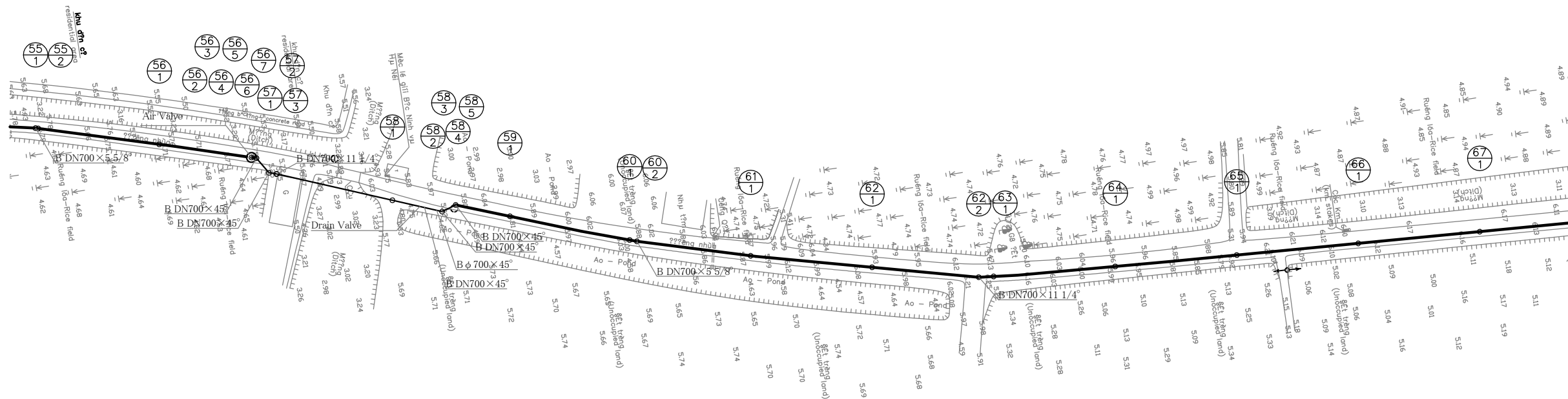


PIPE GRADIENT (%)	i=0.53														
EXCAVATION DEPTH (m)	2.76	2.74	2.76	2.71	2.77	2.85	2.78	2.77	2.86	2.78	2.87	2.87	2.74	2.78	2.78
INVERT ELEVATION (m)	2.63	2.64	2.67	2.72	2.76	2.80	2.83	2.86	2.88	2.91	2.93	2.96	2.98	3.01	3.01
GROUND ELEVATION (m)	5.38	5.38	5.43	5.42	5.53	5.65	5.61	5.62	5.74	5.68	5.80	5.82	5.72	5.79	5.79
ACCUMULATED DISTANCE (m)	2110.00	2115.00	2160.00	2210.00	2260.00	2310.00	2360.00	2410.00	2460.00	2510.00	2560.00	2610.00	2660.00	2708.85	2710.00
ROTATION ANGLE	v														
STATION	⊙ 43 1	⊙ 43 2	⊙ 44 1	⊙ 45 1	⊙ 46 1	⊙ 47 1	⊙ 48 1	⊙ 49 1	⊙ 50 1	⊙ 51 1	⊙ 52 1	⊙ 53 1	⊙ 54 1	⊙ 54 2	⊙ 55 1
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE														

PLAN AND PROFILE OF TRANSMISSION PIPELINE

KEY MAP

LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



PIPE GRADIENT (%)	i=0.40															i=1.67										
EXCAVATION DEPTH (m)	2.78	2.78	2.88	2.71	2.70	5.66	5.66	5.77	3.06	3.22	3.06	2.83	3.10	3.10	2.96	3.00	3.26	3.30	2.95	2.80	2.90	2.87				
INVERT ELEVATION (m)	3.01	3.01	3.04	3.05	3.08	-0.01	-0.01	-0.02	-0.87	-0.70	-0.87	2.88	2.90	2.90	2.92	2.94	2.95	2.96	3.04	3.12	3.21	3.29				
GROUND ELEVATION (m)	5.79	5.79	5.71	5.75	5.75	5.65	5.65	5.75	5.93	5.93	5.93	5.81	6.00	6.00	5.87	5.93	6.21	6.25	5.96	5.92	6.10	6.19				
ACCUMULATED DISTANCE (m)	2708.85	2710.00	2780.00	2786.23	2798.15	2800.15	2811.31	2860.00	2882.30	2887.30	2890.13	2910.00	2960.00	2963.05	3010.00	3060.00	3103.90	3110.00	3160.00	3210.00	3260.00	3310.00				
ROTATION ANGLE	5 5/8°		A 45°				D 45°				5 5/8°		11 1/4°													
STATION	⊙ 54 2	⊙ 55 1	⊙ 56 1	⊙ 56 2	⊙ 56 3	⊙ 56 4	⊙ 56 5	⊙ 56 6	⊙ 57 1	⊙ 57 2	⊙ 58 1	⊙ 58 2	⊙ 58 3	⊙ 58 4	⊙ 58 5	⊙ 59 1	⊙ 60 1	⊙ 60 2	⊙ 61 1	⊙ 62 1	⊙ 62 2	⊙ 63 1	⊙ 64 1	⊙ 65 1	⊙ 66 1	⊙ 67 1
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE																									

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011

Scale
H=1/100
V=1/1000

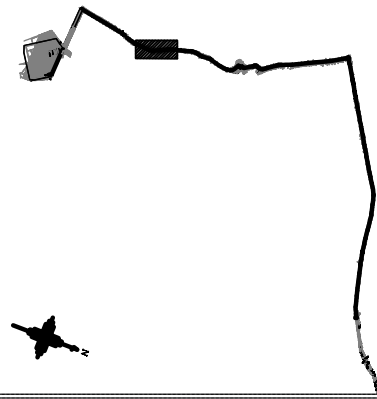
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

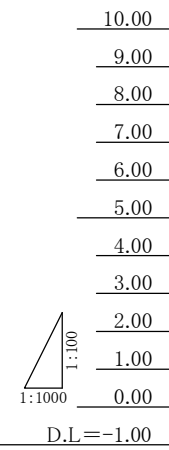
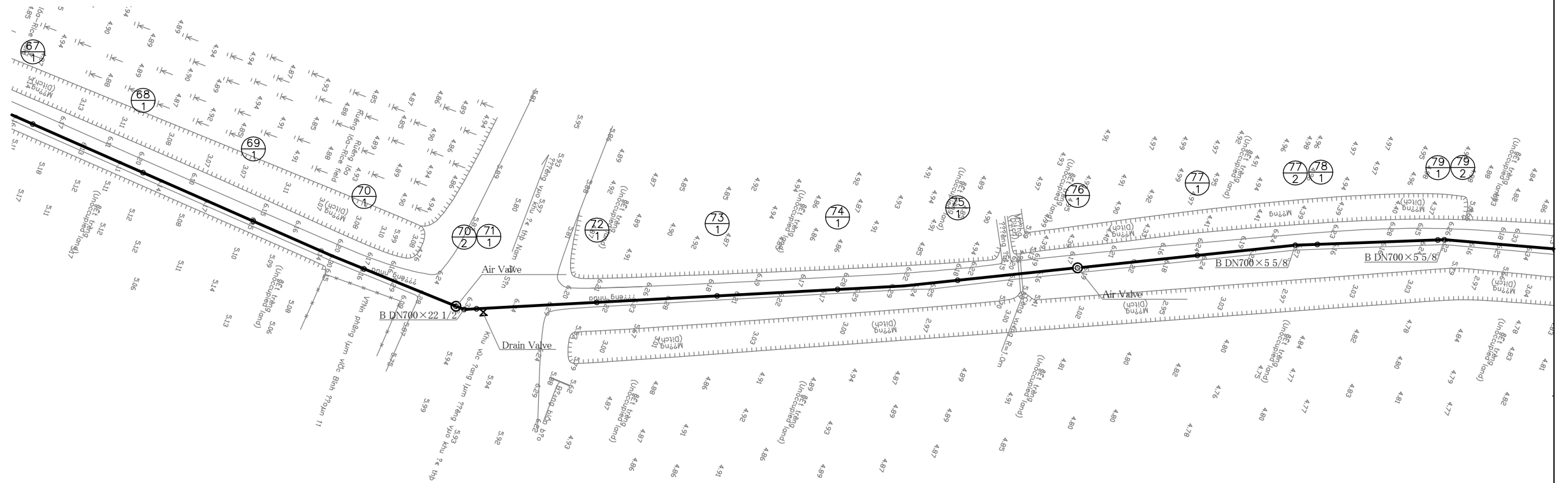
Drawing No

B-6

KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)	-1.67													-0.50												
EXCAVATION DEPTH (m)	2.87	2.83	2.70	2.62	2.70	4.00	4.00	3.21	3.11	3.08	3.13	3.01	3.05	2.79	2.79	2.82	2.80	2.71	2.75							
INVERT ELEVATION (m)	3.29	3.38	3.46	3.54	3.62	2.32	2.32	2.72	3.12	3.14	3.15	3.17	3.19	3.40	3.40	3.43	3.45	3.45	3.48							
GROUND ELEVATION (m)	6.16	6.20	6.15	6.16	6.32	6.32	6.37	6.22	6.22	6.21	6.28	6.18	6.22	6.19	6.29	6.29	6.29	6.19	6.22							
ACCUMULATED DISTANCE (m)	3310.00	3380.00	3410.00	3460.00	3500.00	3500.00	3513.36	3560.00	3560.00	3596.00	3660.00	3710.00	3760.00	3760.00	3810.00	3810.00	3829.86	3829.86	3910.00							
ROTATION ANGLE					A 45°45' D 22 1/2"								45°45'				5 5/8'									
STATION	67/1	68/1	69/1	70/1	70/2	71/1	72/1	73/1	74/1	75/1	76/1	77/1	77/2	78/1	79/1	79/2										
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE																									

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date.
Oct. 2011

Scale
V=1/100
H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

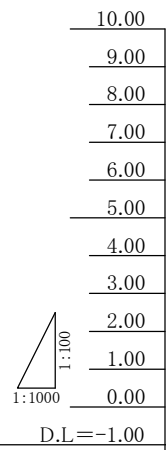
Drawing No

B-7

KEY MAP

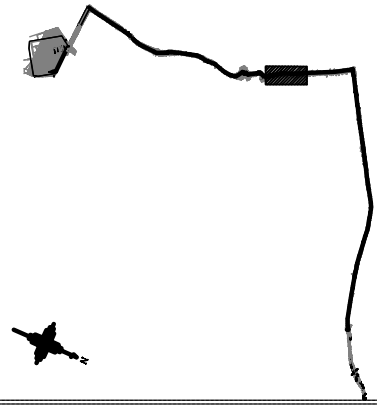
LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
(20/6)	STATION

PLAN AND PROFILE OF TRANSMISSION PIPELINE

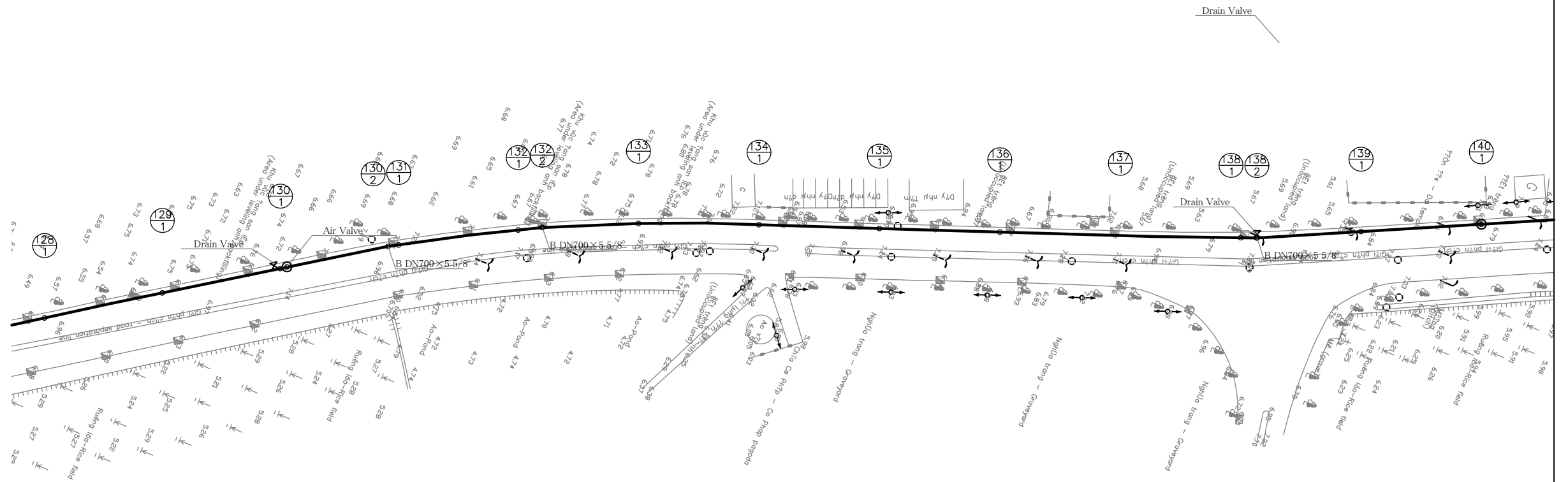


PIPE GRADIENT (%)	1.00																					
EXCAVATION DEPTH (m)	3.04	3.00	2.94	2.92	2.92	3.29	3.30	3.29	3.39	3.39	3.23	3.12	3.12	2.92	2.90	2.88	2.88	2.74	2.86	2.87	2.78	2.74
INVERT ELEVATION (m)	3.51	3.51	3.48	3.42	3.42	3.19	3.20	3.21	3.23	3.23	3.20	3.14	3.15	3.19	3.24	3.28	3.28	3.33	3.38	3.43	3.47	3.52
GROUND ELEVATION (m)	6.46	6.46	6.42	6.40	6.40	6.48	6.50	6.50	6.55	6.62	6.43	6.26	6.26	6.10	6.13	6.16	6.16	6.07	6.33	6.29	6.25	6.26
ACCUMULATED DISTANCE (m)	4500.00	4510.00	4520.00	4530.00	4540.00	4550.00	4560.00	4570.00	4580.00	4590.00	4600.00	4610.00	4620.00	4630.00	4640.00	4650.00	4660.00	4670.00	4680.00	4690.00	4700.00	4710.00
ROTATION ANGLE	11 1/4'	5 5/8'	45'45" 45'45"	5 5/8'	5 5/8'	22 1/2'	11 1/4'	v	11 1/4'	5 5/8'												
STATION	(90/2)	(91/1)	(91/2)	(92/1)	(92/2)	(93/1)	(93/2)	(94/1)	(94/2)	(94/3)	(95/1)	(95/2)	(96/1)	(97/1)	(97/2)	(97/3)	(98/1)	(99/1)	(100/1)	(101/1)	(102/1)	(103/1)
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE																					

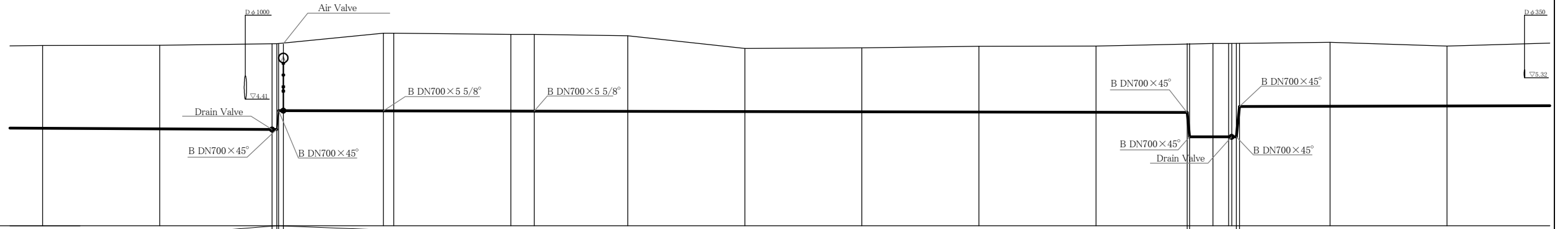
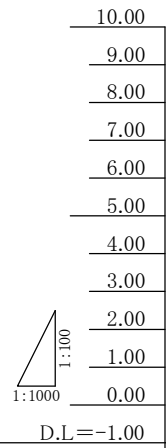
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
20/6	STATION



PIPE GRADIENT (%)	i = 0.50		i = 0.20										i = 0.25		
EXCAVATION DEPTH (m)	3.53	3.57	3.56 2.96	3.99 3.32	3.28	3.28	3.23	2.70	2.73	2.81	2.83	2.83 2.83	2.83 2.83	2.74	2.56
INVERT ELEVATION (m)	3.17	3.15	3.12 3.02	3.24 3.91	3.90	3.90	3.89	3.88	3.87	3.86	3.85	3.84 2.80	3.84 2.80	4.11	4.12
GROUND ELEVATION (m)	6.70	6.71	6.78 5.24	7.23 7.23	7.18	7.18	7.12	6.58	6.60	6.67	6.68	6.77 6.77	6.79 6.79	6.84	6.68
ACCUMULATED DISTANCE (m)	6360.00	6410.00	6460.00 6460.20	6505.60 6510.00	6560.00	6570.05	6610.00	6660.00	6710.00	6760.00	6810.00	6848.96 6850.00	6860.00 6860.20	6910.00	6960.00
ROTATION ANGLE			D 45° A	5 5/8°	5 5/8°							45° 45°	5 5/8° 45°		
STATION	128/1	129/1	130/1	130/2 131/1	132/1 132/2	133/1	134/1	135/1	136/1	137/1	138/1	138/2	139/1	140/1	
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE														

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011

Scale
V=1/100
H=1/1000

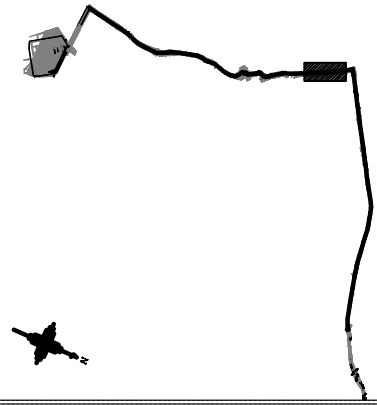
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

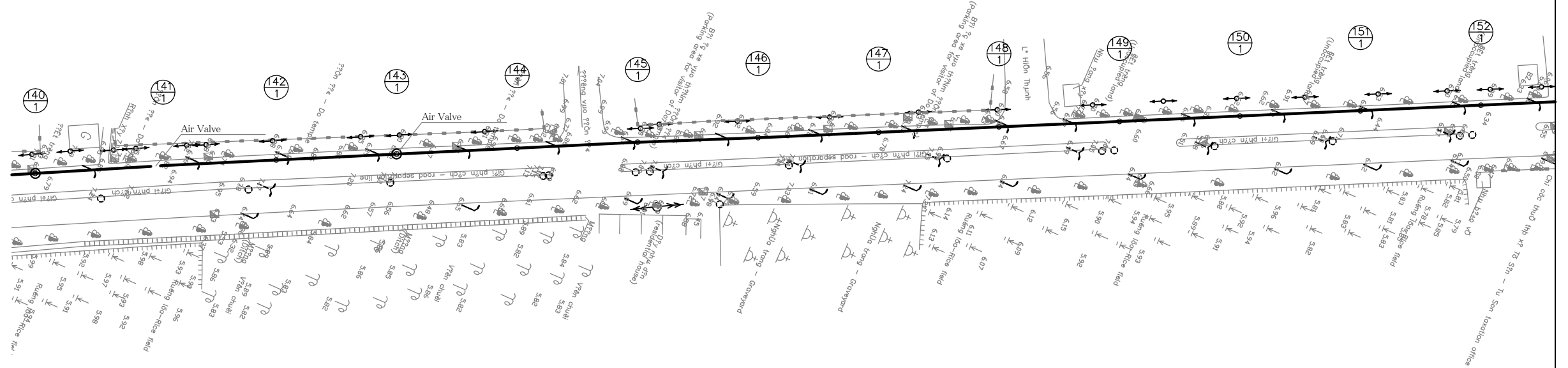
Drawing No

B-12

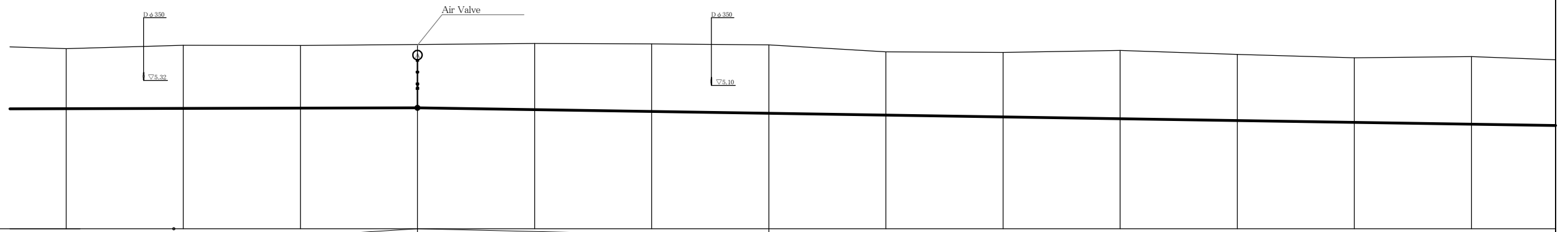
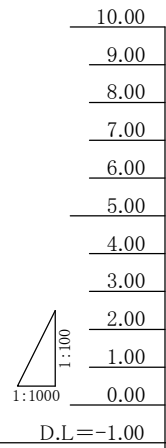
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



PIPE GRADIENT (%)	i = 0.25				i = 5.56										
EXCAVATION DEPTH (m)	2.56	2.89	2.67	2.67	2.83	2.88	2.92	2.70	2.76	2.91	2.82	2.76	2.88		
INVERT ELEVATION (m)	4.12	4.13	4.15	4.16	4.08	3.99	3.92	3.85	3.69	3.68	3.61	3.54	3.45		
GROUND ELEVATION (m)	6.68	6.82	6.81	6.82	6.90	6.88	6.84	6.54	6.52	6.60	6.43	6.29	6.34		
ACCUMULATED DISTANCE (m)	6860.00	7010.00	7060.00	7110.00	7160.00	7210.00	7260.00	7310.00	7360.00	7410.00	7460.00	7510.00	7560.00		
ROTATION ANGLE	A														
STATION	⊙ 140 1	⊙ 141 1	⊙ 142 1	⊙ 143 1	⊙ 144 1	⊙ 145 1	⊙ 146 1	⊙ 147 1	⊙ 148 1	⊙ 149 1	⊙ 150 1	⊙ 151 1	⊙ 152 1		
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE														

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011

Scale
V=1/100
H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No

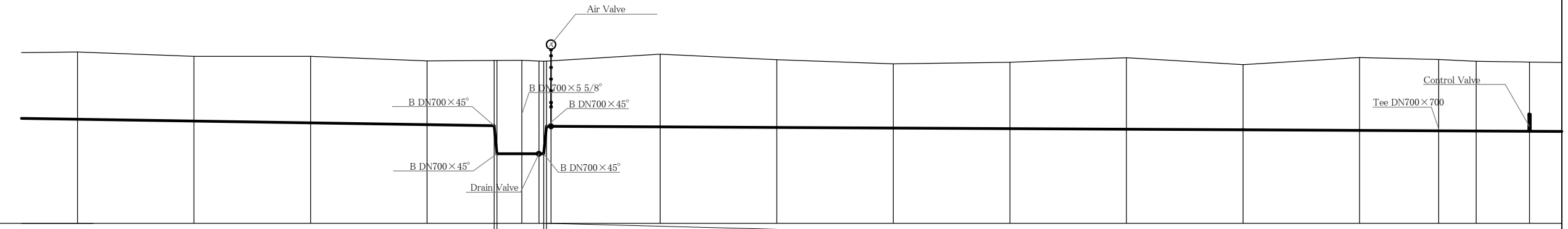
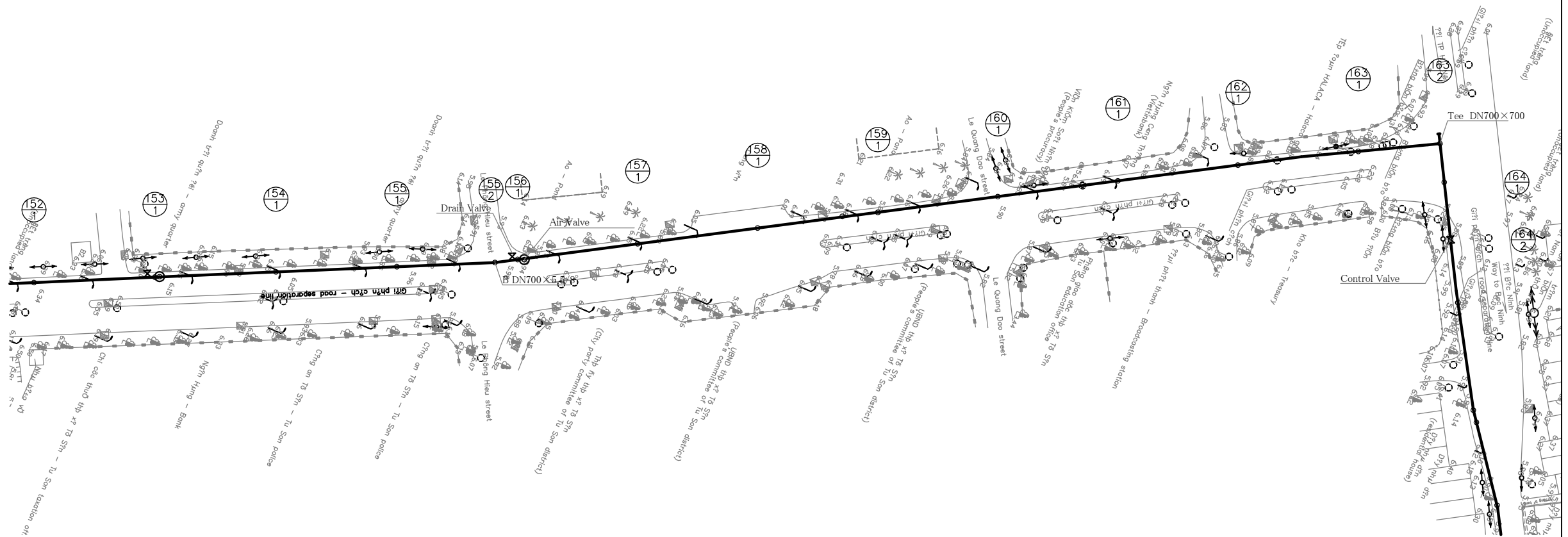
B-13

PLAN AND PROFILE OF TRANSMISSION PIPELINE

KEY MAP

LEGEND

REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION

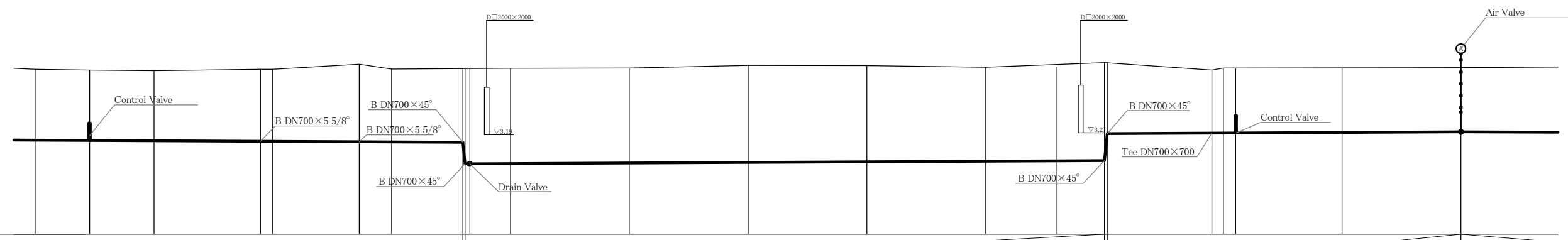
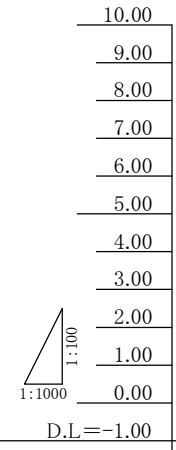
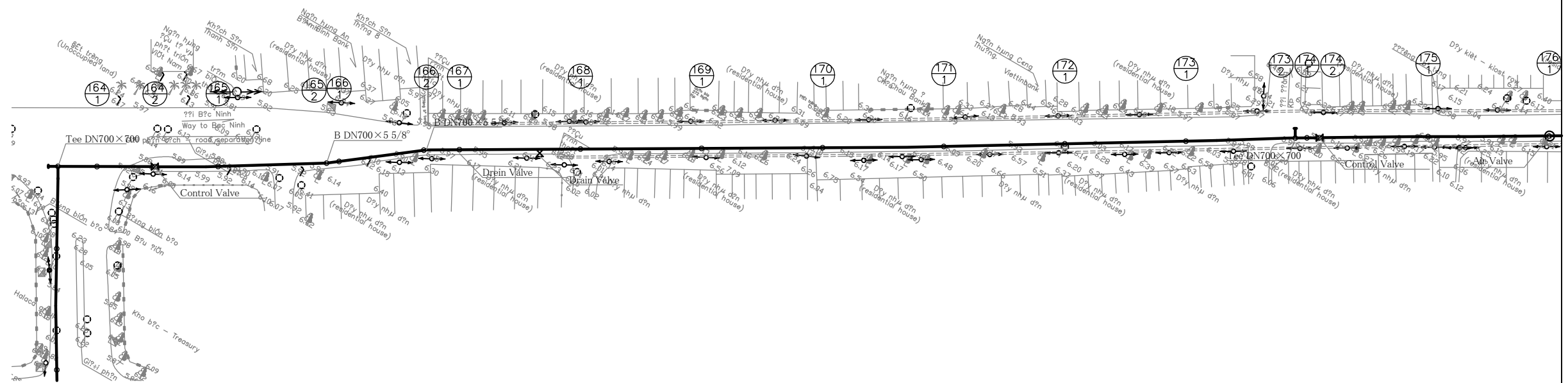


PLAN AND PROFILE OF TRANSMISSION PIPELINE

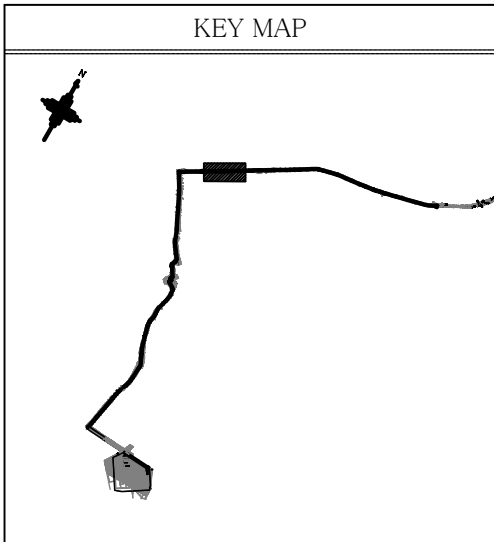
KEY MAP

LEGEND

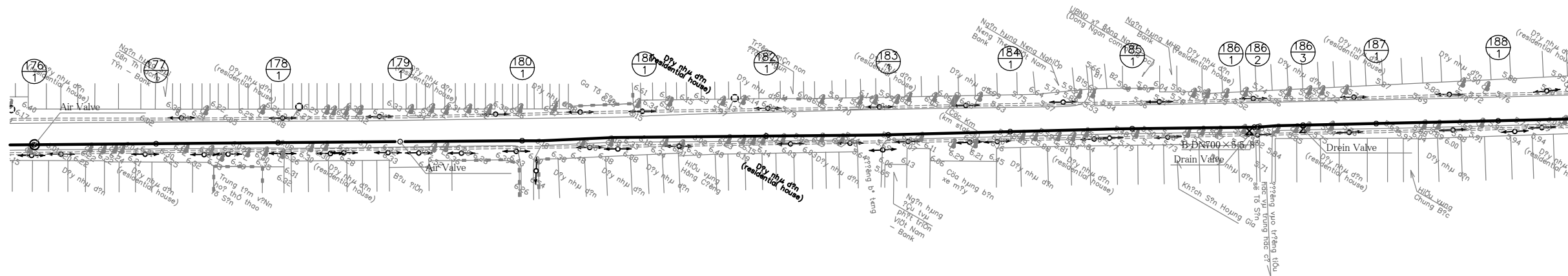
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



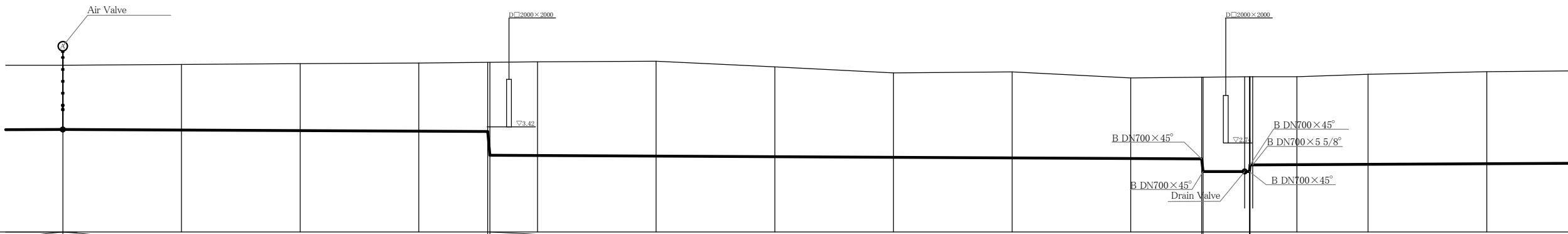
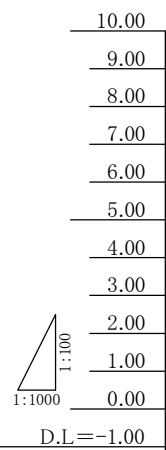
PIPE GRADIENT (%)	i = 0.50																					
EXCAVATION DEPTH (m)	2.98	2.97	2.95	3.64	3.03	3.26	3.07	3.08	3.99	4.01	3.99	4.08	4.10	4.03	4.12	2.95	3.88	3.96	2.73	2.72	2.70	
INVERT ELEVATION (m)	2.96	2.95	2.94	2.30	2.91	2.89	2.89	2.87	1.97	1.98	2.00	2.05	2.05	2.08	2.10	3.24	2.03	2.04	3.27	3.29	3.31	
GROUND ELEVATION (m)	5.92	5.91	5.88	5.94	5.94	6.15	5.95	5.95	5.96	5.98	5.99	6.10	6.09	6.03	6.03	5.22	5.19	5.91	5.99	5.99	6.00	6.01
ACCUMULATED DISTANCE (m)	8160.00	8182.00	8210.00	8254.80	8260.00	8296.35	8310.00	8340.00	8340.37	8360.00	8410.00	8460.00	8510.00	8560.00	8608.92	8610.00	8655.20	8660.00	8665.20	8710.00	8760.00	
ROTATION ANGLE	v		5 5/8"		5 5/8"		45°		45°		45°		45°		17700x700 V		A		A			
STATION	⊙ 164 1	⊙ 164 2	⊙ 165 1	⊙ 165 2	⊙ 166 1	⊙ 166 2	⊙ 167 1	⊙ 168 1	⊙ 169 1	⊙ 170 1	⊙ 171 1	⊙ 172 1	⊙ 173 1	⊙ 173 2	⊙ 174 1	⊙ 174 2	⊙ 175 1	⊙ 176 1				
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE																					



PLAN AND PROFILE OF TRANSMISSION PIPELINE

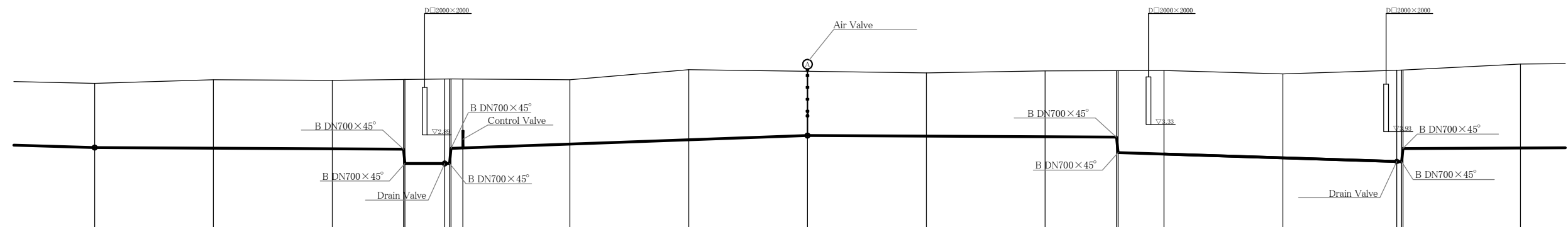
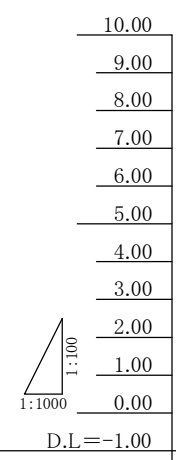
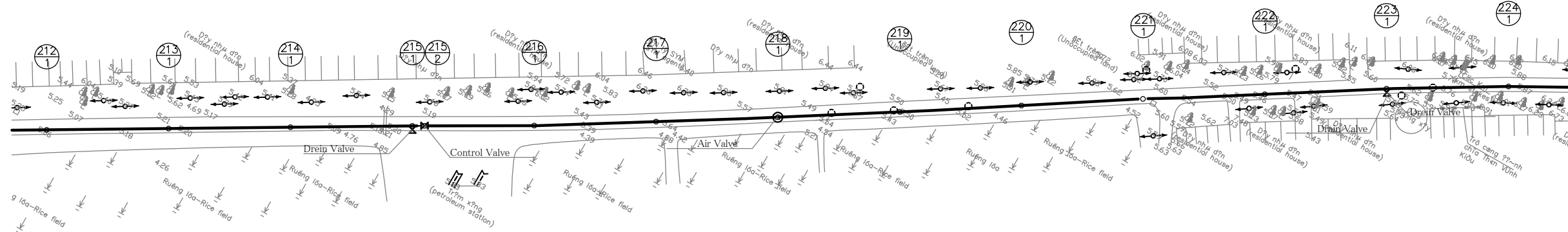
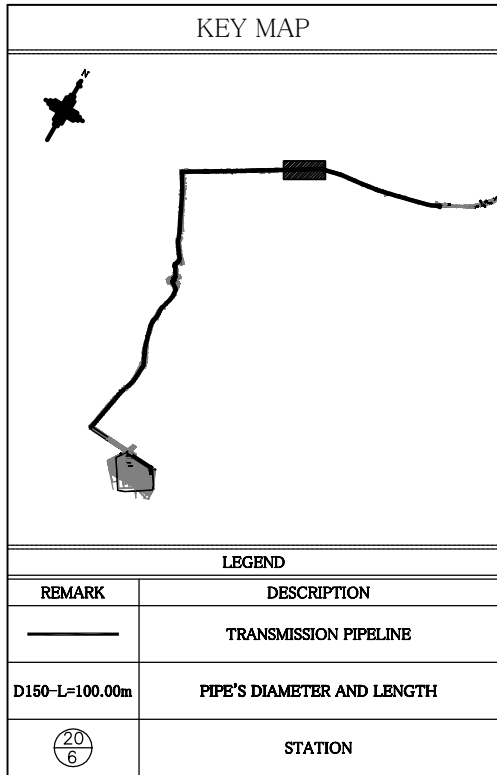


LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②① ⑥	STATION



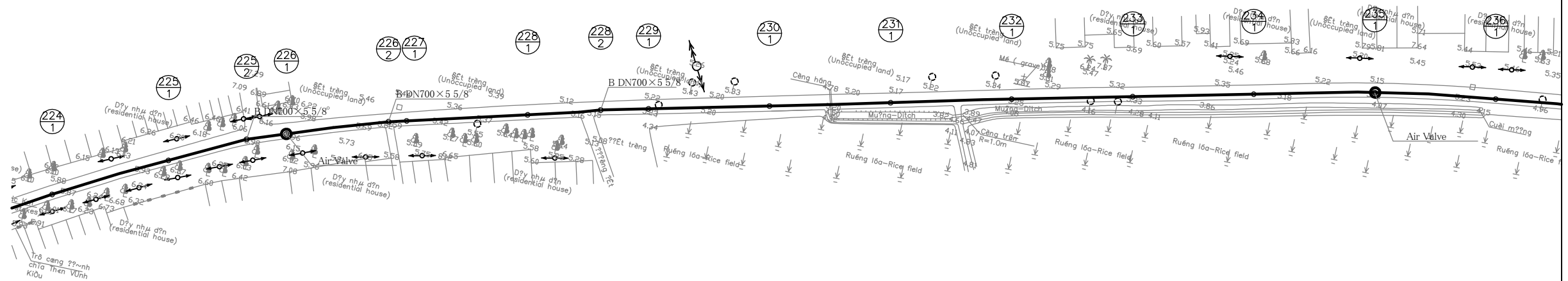
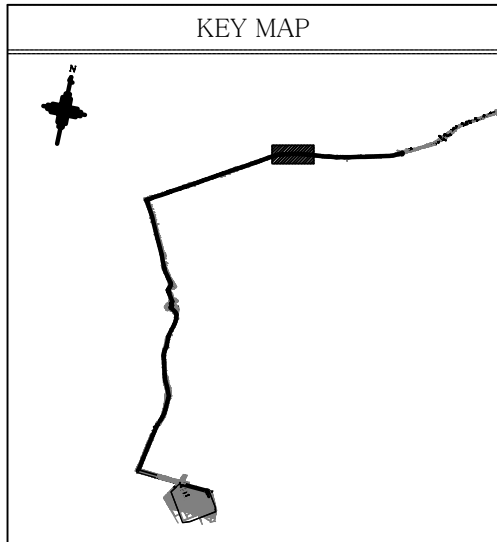
PIPE GRADIENT (%)	i = 0.50																		
EXCAVATION DEPTH (m)	2.70	2.76	2.82	2.87	2.91	3.91	3.94	3.99	3.78	3.55	3.62	3.39	3.44	3.97	3.99	3.72	3.71	3.79	3.88
INVERT ELEVATION (m)	3.31	3.29	3.26	3.24	3.22	2.23	2.22	2.19	2.17	2.14	2.12	2.09	2.08	1.54	1.54	1.82	1.83	1.84	1.87
GROUND ELEVATION (m)	6.01	6.04	6.08	6.10	5.13	5.14	6.15	6.18	5.94	5.69	5.73	5.48	5.52	5.53	5.54	5.53	5.63	5.74	5.74
ACCUMULATED DISTANCE (m)	8760.00	8810.00	8860.00	8910.00	8939.00	8940.00	8960.00	9010.00	9060.00	9110.00	9160.00	9210.00	9239.00	9240.00	9261.40	9280.00	9310.00	9360.00	9360.00
ROTATION ANGLE	A				45°								45°		45° 5' 5/8"				
STATION	①⑦⑥ ①	①⑦⑦ ①	①⑦⑧ ①	①⑦⑨ ①	①⑧① ①		①⑧② ①	①⑧③ ①	①⑧④ ①	①⑧⑤ ①	①⑧⑥ ① ② ③			①⑧⑦ ①	①⑧⑧ ①				
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE																		

PLAN AND PROFILE OF TRANSMISSION PIPELINE

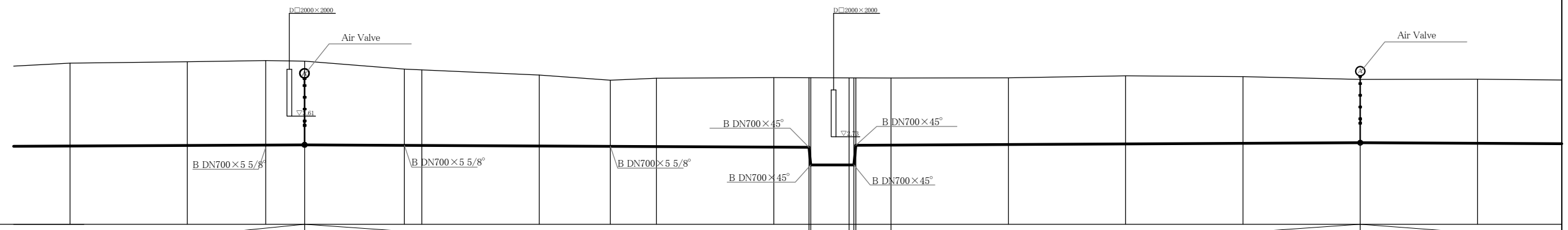
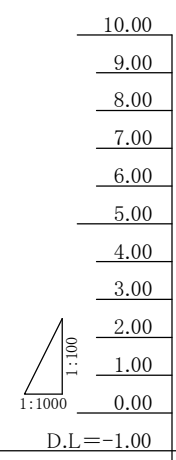


PIPE GRADIENT (%)				$i = 0.50$		$i = 3.60$		$i = 0.50$		$i = 3.08$		
EXCAVATION DEPTH (m)	2.70	2.88	2.88	3.24	3.54	2.92	2.71	2.66	2.78	2.74	3.51	3.53
INVERT ELEVATION (m)	2.36	2.34	2.31	2.30	1.89	2.34	2.51	2.69	2.82	2.90	2.09	1.93
GROUND ELEVATION (m)	5.06	5.21	5.19	5.31	5.26	5.25	5.21	5.64	5.59	5.59	5.60	5.46
ACCUMULATED DISTANCE (m)	10560.00	10610.00	10660.00	10690.00	10709.30	10715.00	10760.00	10810.00	10860.00	10890.00	11010.00	11060.00
ROTATION ANGLE				45°	45°	45°	A		45°	45°		D
STATION	212+1	213+1	214+1	215+1	215+2	216+1	217+1	218+1	219+1	220+1	221+1	222+1
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE											

PLAN AND PROFILE OF TRANSMISSION PIPELINE

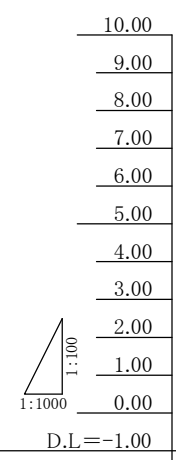
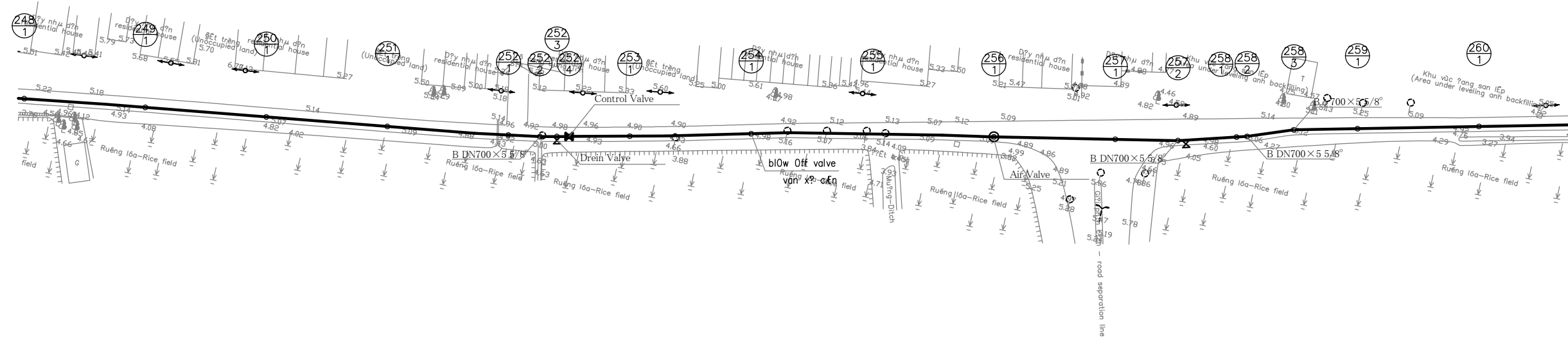
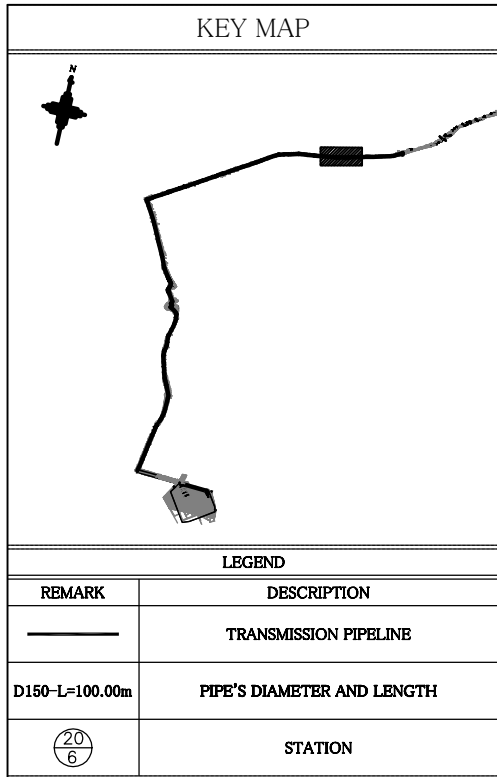


LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



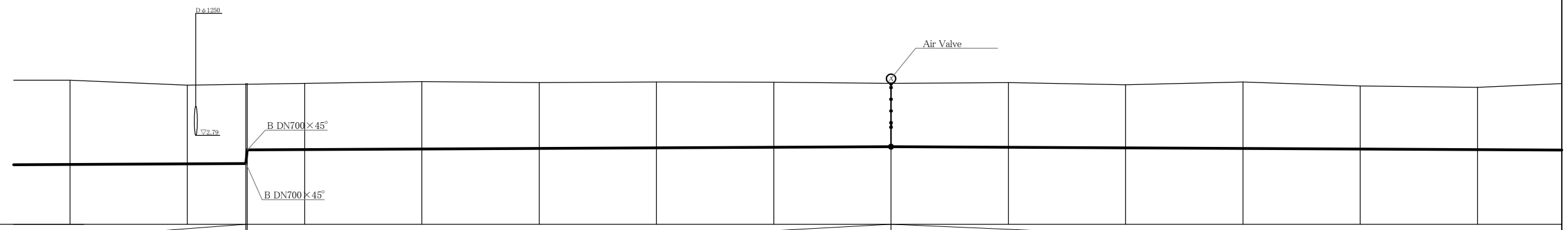
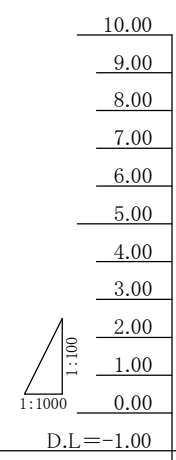
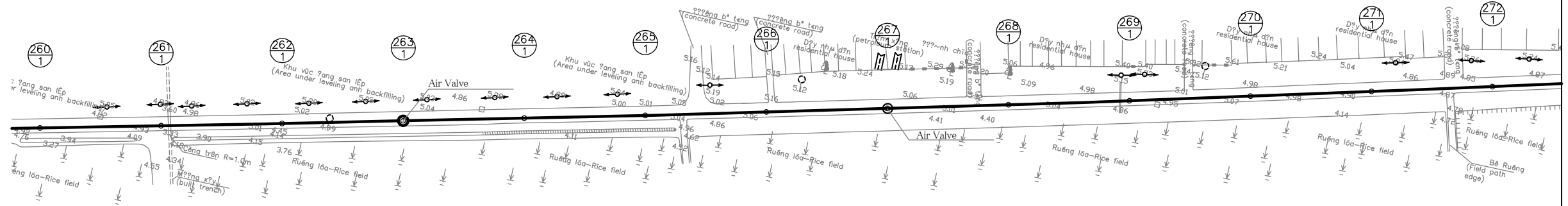
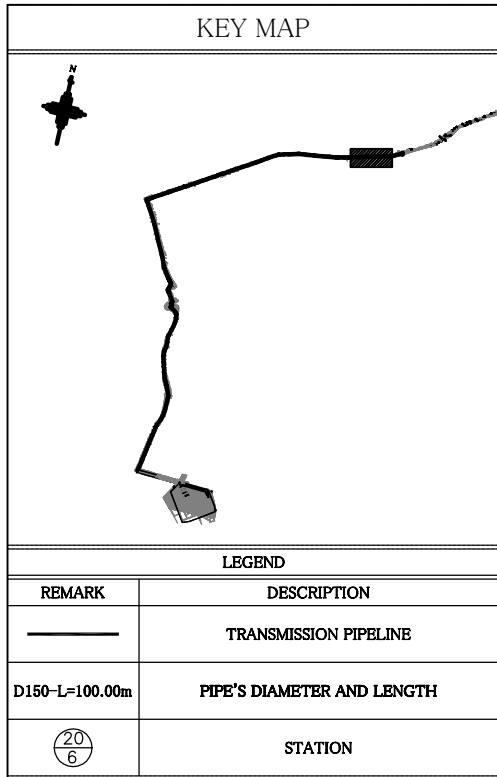
PIPE GRADIENT (%)	i = 0.50		i = 0.50																	
EXCAVATION DEPTH (m)	3.53	3.57	3.60	3.57	3.44	3.23	3.03	2.83	2.92	2.97	2.98	3.73	3.71	2.87	2.86	2.85	2.90	2.85	2.88	2.74
INVERT ELEVATION (m)	2.34	2.37	2.38	2.39	2.37	2.37	2.34	2.33	1.77	2.29	2.28	1.53	1.53	2.38	2.38	2.41	2.43	1.48	2.48	2.46
GROUND ELEVATION (m)	5.87	5.93	5.98	5.96	5.62	5.59	5.37	5.15	5.23	5.26	5.26	5.26	5.24	5.25	5.24	5.25	5.33	5.30	5.18	5.19
ACCUMULATED DISTANCE (m)	11180.00	11210.00	11243.45	11260.00	11302.50	11310.00	11360.00	11390.30	11410.00	11460.00	11475.00	11475.75	11484.15	11485.00	11510.00	11560.00	11610.00	11660.00	11710.00	11760.00
ROTATION ANGLE			5 5/8°		A		5 5/8°		5 5/8°		45°		45°		D 45°		A			
STATION	⊙ 224 1	⊙ 225 1	⊙ 225 2	⊙ 226 1	⊙ 226 2	⊙ 227 1	⊙ 228 1	⊙ 228 2	⊙ 229 1	⊙ 230 1	⊙ 231 1	⊙ 232 1	⊙ 233 1	⊙ 234 1	⊙ 235 1	⊙ 236 1				
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE																			

PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)	I = 1.60, I = 0.50, I = 0.50, I = 0.50																											
EXCAVATION DEPTH (m)	2.84	2.83	2.84	2.74	2.70	3.88	3.80	2.72	2.70	2.68	2.59	2.64	2.69	2.70	2.78	2.69	3.47	3.56	3.56	3.61	3.63	3.60						
INVERT ELEVATION (m)	2.59	2.51	2.43	2.35	1.72	1.33	2.32	2.30	2.31	2.32	2.34	2.37	2.39	2.31	2.27	1.49	2.50	1.51	1.52	1.52	1.53	1.55						
GROUND ELEVATION (m)	5.23	5.14	5.07	5.09	5.01	5.00	4.92	4.92	5.00	5.00	4.90	4.98	5.05	5.09	4.96	4.96	5.06	5.06	5.12	5.12	5.15	5.15						
ACCUMULATED DISTANCE (m)	12360.00	12410.00	12460.00	12510.00	12544.94	12510.00	12560.00	12561.17	12572.95	12580.00	12586.00	12610.00	12660.00	12710.00	12760.00	12810.00	12835.00	12835.78	12860.00	12864.35	12863.75	12910.00	12960.00					
ROTATION ANGLE											45°			D 45°			5 5/8" V			5 5/8" 45°			5 5/8"			5 5/8"		
STATION	⊙ 248 1	⊙ 249 1	⊙ 250 1	⊙ 251 1	⊙ 252 1	⊙ 252 2	⊙ 252 3	⊙ 252 4	⊙ 253 1	⊙ 254 1	⊙ 255 1	⊙ 256 1	⊙ 257 1	⊙ 257 2	⊙ 258 1	⊙ 258 2	⊙ 258 3	⊙ 259 1	⊙ 260 1									
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE																											

PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)														
EXCAVATION DEPTH (m)	3.00	3.36	3.38 2.80	2.83	2.88	2.81	2.81	2.78	2.70	2.76	2.69	2.64	2.69	2.66
INVERT ELEVATION (m)	1.55	1.58	1.59 2.18	2.19	2.21	2.24	2.26	2.29	2.31	2.29	2.29	2.24	2.21	2.19
GROUND ELEVATION (m)	5.15	4.93	4.97 4.86	5.01	5.09	5.04	5.07	5.06	5.01	5.04	4.95	5.07	4.90	4.84
ACCUMULATED DISTANCE (m)	12960.00	13010.00	13035.00 13035.59	13060.00	13110.00	13160.00	13210.00	13260.00	13310.00	13360.00	13410.00	13460.00	13510.00	13560.00
ROTATION ANGLE	45° A													
STATION	⊙ 260 1	⊙ 261 1	⊙ 262 1	⊙ 263 1	⊙ 264 1	⊙ 265 1	⊙ 266 1	⊙ 267 1	⊙ 268 1	⊙ 269 1	⊙ 270 1	⊙ 271 1	⊙ 272 1	
PIPE DIAMETER	DN 700 DUCTILE IRON PIPE													

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011

Scale
V=1/100
H=1/1000

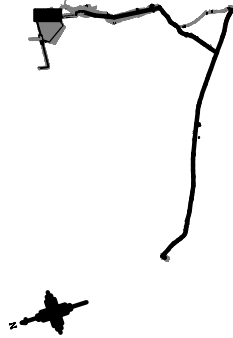
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

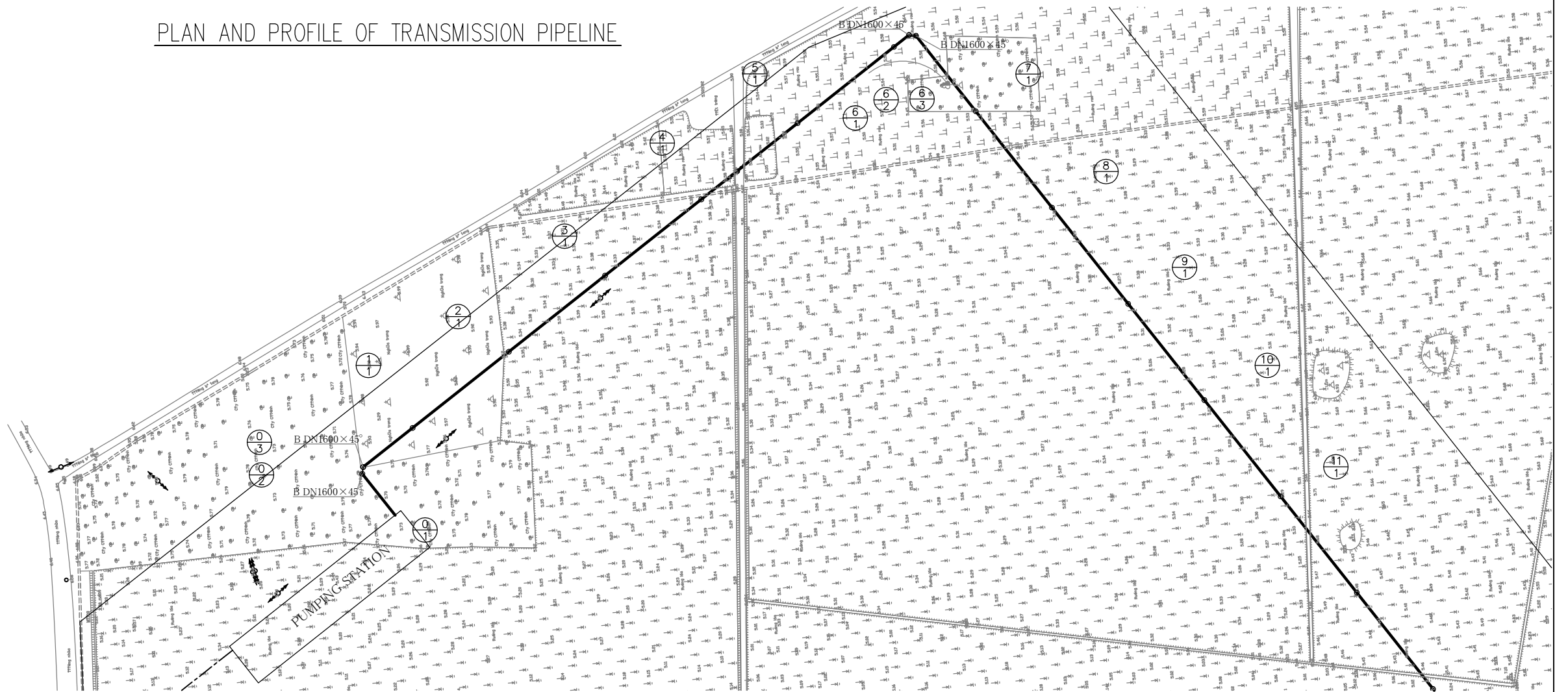
Drawing No

B-23

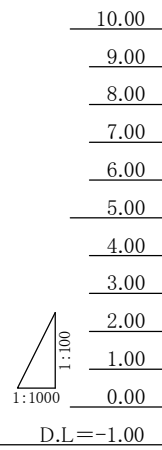
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



	0/1	0/2	0/3	1/1	2/1	3/1	4/1	5/1	6/1	6/2	6/3	7/1	8/1	9/1	10/1	11/1
PIPE GRADIENT (%)	-															
EXCAVATION DEPTH (m)	1.73	1.74	1.74	1.77	1.79	1.78	1.50	2.05	2.00	4.09	2.03	2.21	1.83	1.91	1.91	2.32
INVERT ELEVATION (m)	3.65	5.64	5.64	3.63	3.60	3.58	3.55	3.53	3.50	1.44	3.50	3.48	3.45	3.43	3.40	3.38
GROUND ELEVATION (m)	5.36	5.37	5.37	5.39	5.39	5.35	5.05	5.57	5.50	5.53	5.54	5.68	5.28	5.33	5.31	5.69
ACCUMULATED DISTANCE (m)	0.00	21.51	24.33	50.00	100.00	150.00	200.00	250.00	300.00	307.90	310.73	350.00	400.00	450.00	500.00	550.00
ROTATION ANGLE	-															
STATION	⊙ 0 1	⊙ 0 2	⊙ 0 3	⊙ 1 1	⊙ 2 1	⊙ 3 1	⊙ 4 1	⊙ 5 1	⊙ 6 1	⊙ 6 2	⊙ 6 3	⊙ 7 1	⊙ 8 1	⊙ 9 1	⊙ 10 1	⊙ 11 1
PIPE DIAMETER	DN 1600 STEEL PIPE															

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date.
Oct. 2011

Scale
V=1/100
H=1/1000

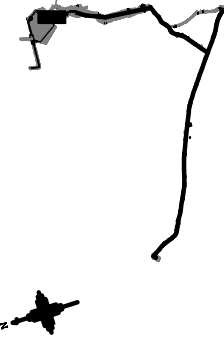
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

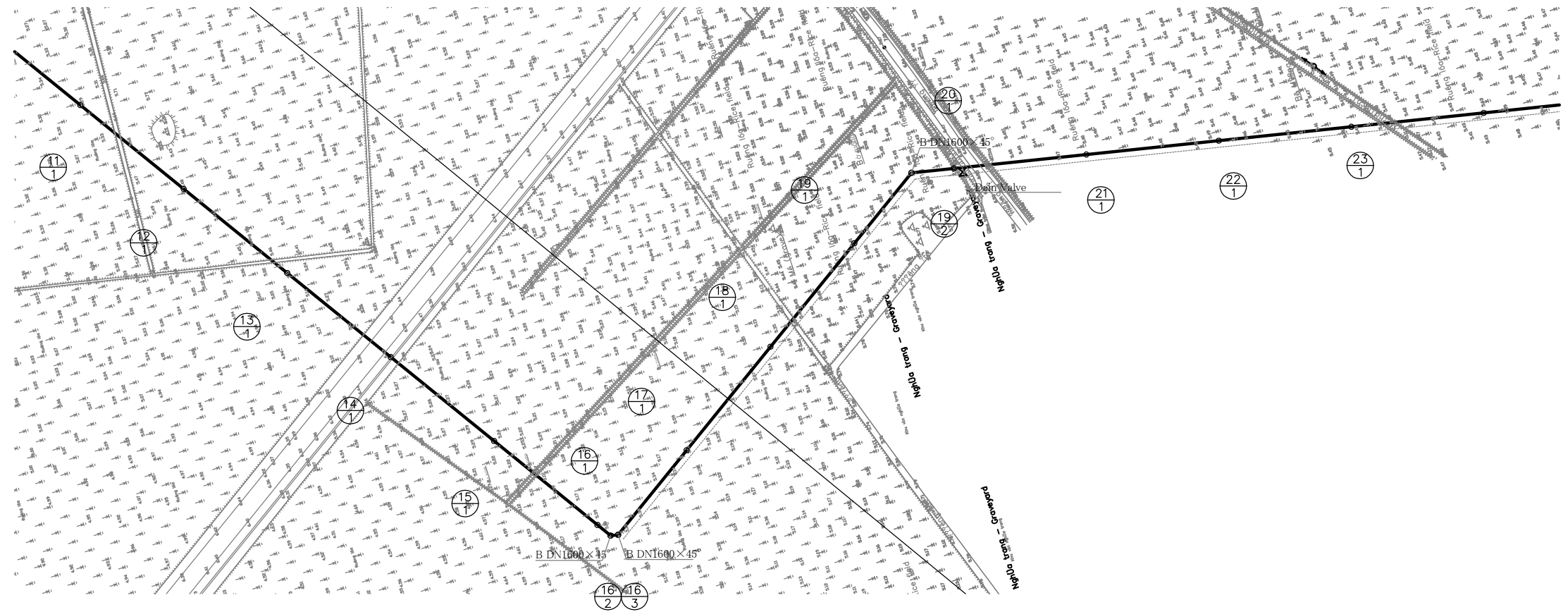
Drawing No

C-1

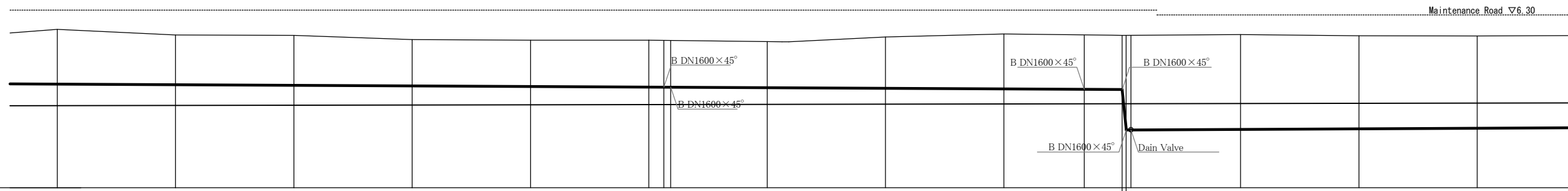
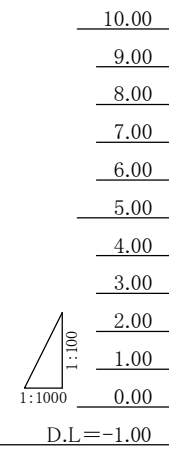
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



PIPE GRADIENT (%)	i=0.50																
EXCAVATION DEPTH (m)	2.32	2.10	2.11	1.96	1.96	1.98	1.98	1.98	1.95	2.17	2.32	2.28	2.28	4.01	3.92	3.90	
INVERT ELEVATION (m)	3.38	3.35	3.33	3.30	3.28	3.25	3.25	3.25	3.23	3.20	3.18	3.16	3.15	1.47	1.49	1.52	
GROUND ELEVATION (m)	5.69	5.45	5.43	5.26	5.23	5.23	5.16	5.16	5.17	5.37	5.49	5.44	5.43	5.47	5.42	5.41	
ACCUMULATED DISTANCE (m)	500.00	600.00	650.00	700.00	750.00	800.00	808.33	809.16	850.00	900.00	950.00	983.96	1000.00	1003.69	1050.00	1100.00	1150.00
ROTATION ANGLE	45°45'																
STATION	⊙ 11 1	⊙ 12 1	⊙ 13 1	⊙ 14 1	⊙ 15 1	⊙ 16 1	⊙ 16 2	⊙ 16 3	⊙ 17 1	⊙ 18 1	⊙ 19 1	⊙ 19 2	⊙ 20 1	⊙ 21 1	⊙ 22 1	⊙ 23 1	
PIPE DIAMETER	DN 1600 STEEL PIPE																

JICA Study Team

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date.
Oct. 2011

Scale
V=1/100
H=1/1000

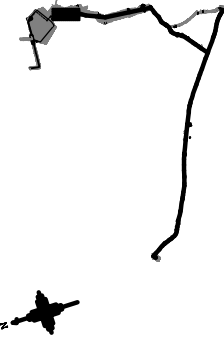
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

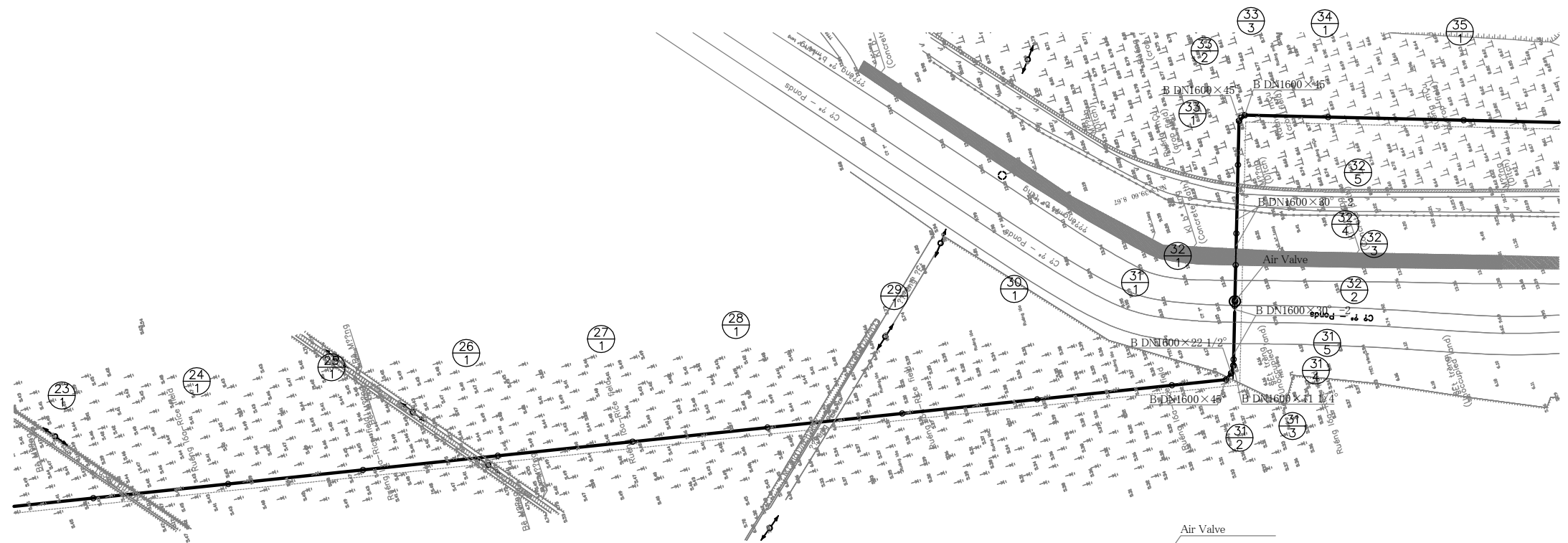
Drawing No

C-2

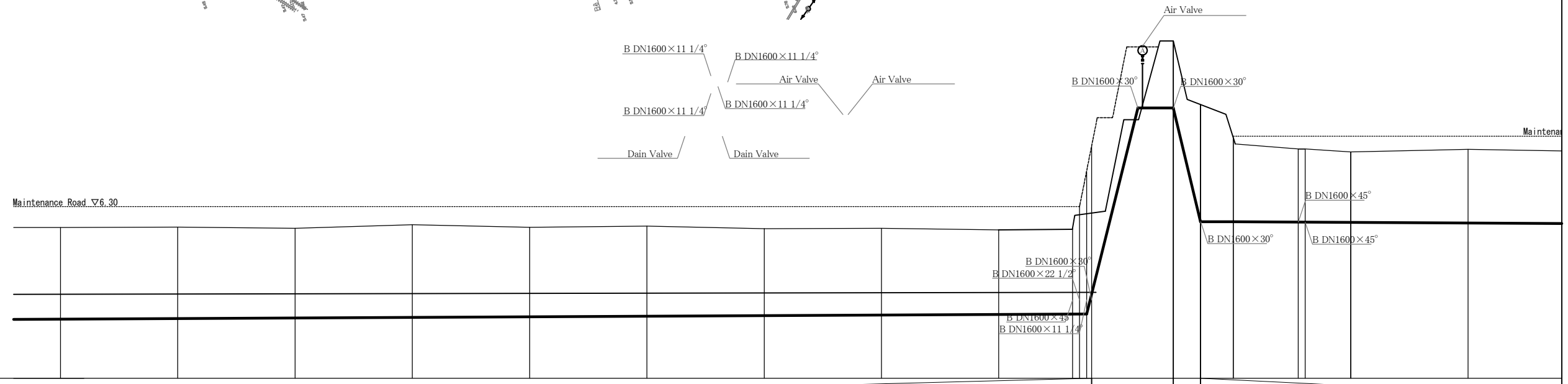
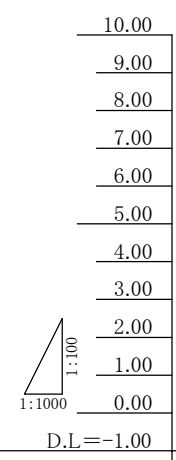
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②③ ⑥	STATION



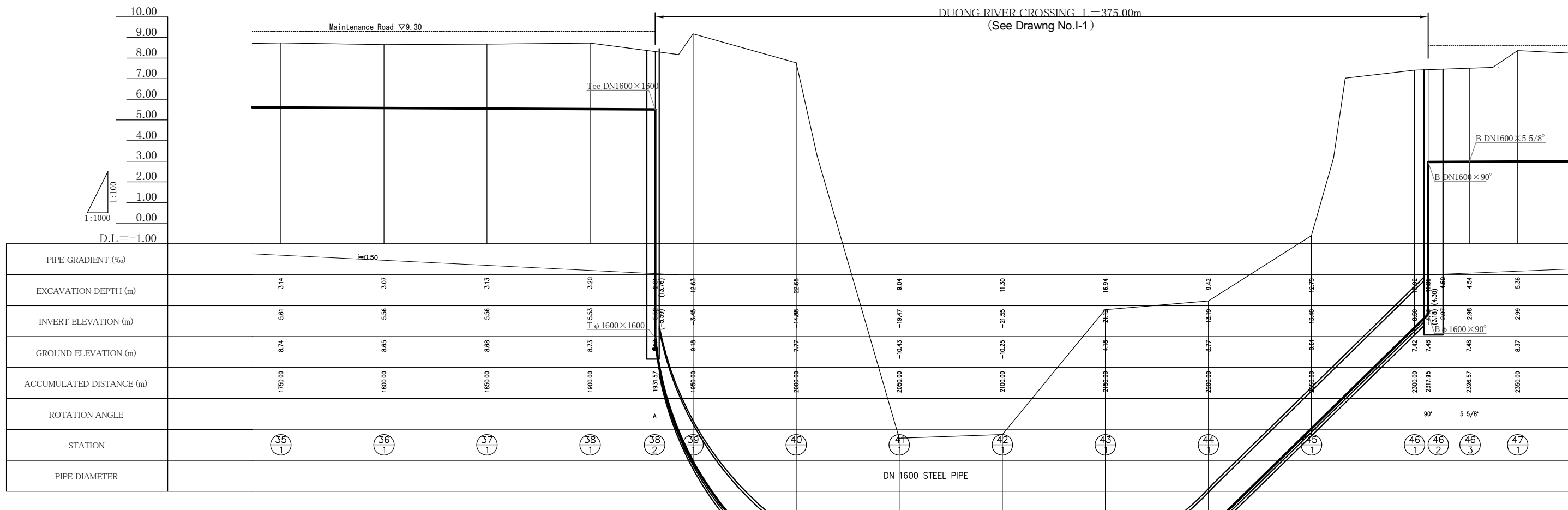
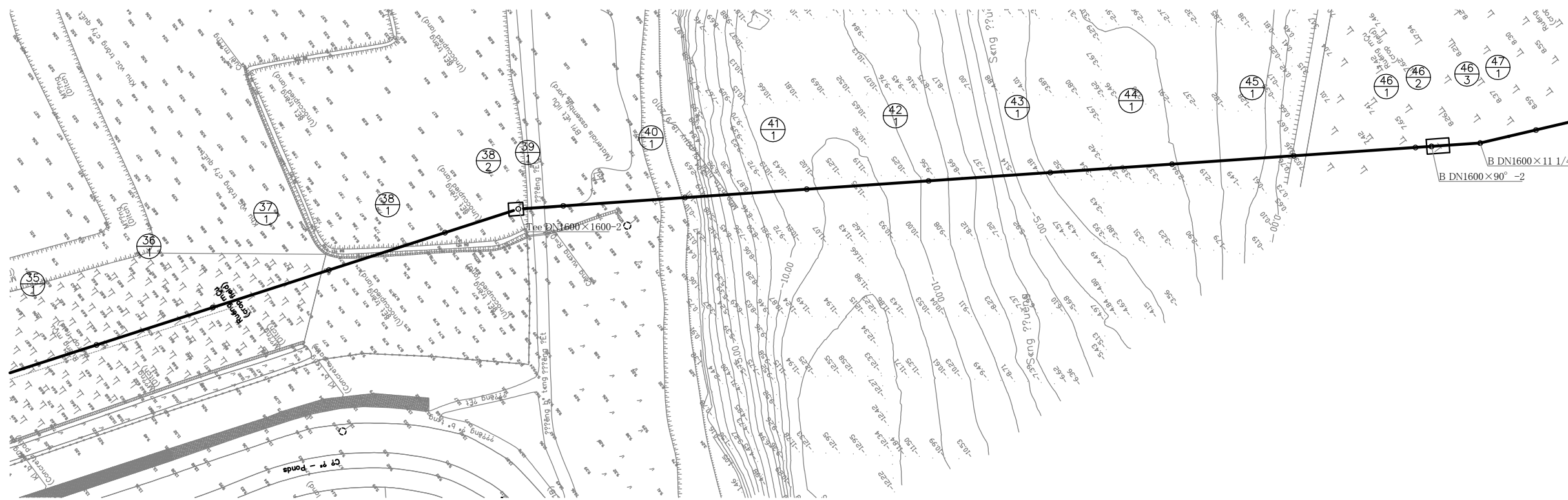
PIPE GRADIENT (%)	i=0.50																						
EXCAVATION DEPTH (m)	3.90	3.89	3.82	3.95	3.81	3.84	3.70	3.70	3.60	3.65	4.23	4.27	4.30	0.12	2.85	4.98	3.59	3.12	3.12	3.00	3.14		
INVERT ELEVATION (m)	1.52	1.54	1.56	1.59	1.61	1.64	1.66	1.69	1.71	1.73	1.73	1.73	1.73	10.50	10.50	10.50	10.50	10.50	10.50	10.50	10.50		
GROUND ELEVATION (m)	5.41	5.43	5.38	5.53	5.42	5.47	5.36	5.38	5.31	5.34	5.94	5.96	6.00	10.00	10.00	10.64	9.43	8.76	8.76	8.63	8.74		
ACCUMULATED DISTANCE (m)	1150.00	1200.00	1250.00	1300.00	1350.00	1400.00	1450.00	1500.00	1550.00	1581.95	1584.95	1587.95	1591.99	1600.00	1608.15	1609.15	1631.50	1631.50	1650.00	1677.55	1680.55	1700.00	1750.00
ROTATION ANGLE											22 1/2°	45°	11 1/4°	30°	A	30°	30°	30°	45°	45°			
STATION	②③ ①	②④ ①	②⑤ ①	②⑥ ①	②⑦ ①	②⑧ ①	②⑨ ①	③⑩ ①	③① ①	③① ②	③① ③	③① ④	③① ⑤	③② ①	③② ②	③② ③	③② ④	③② ⑤	③③ ①	③③ ②	③④ ③	③④ ①	③⑤ ①
PIPE DIAMETER	DN 1600 STEEL PIPE																						

KEY MAP

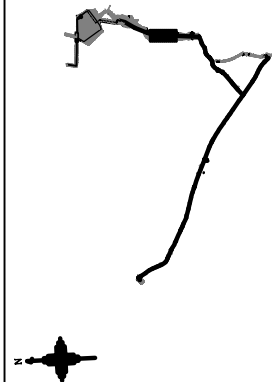
LEGEND

REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②① ⑥	STATION

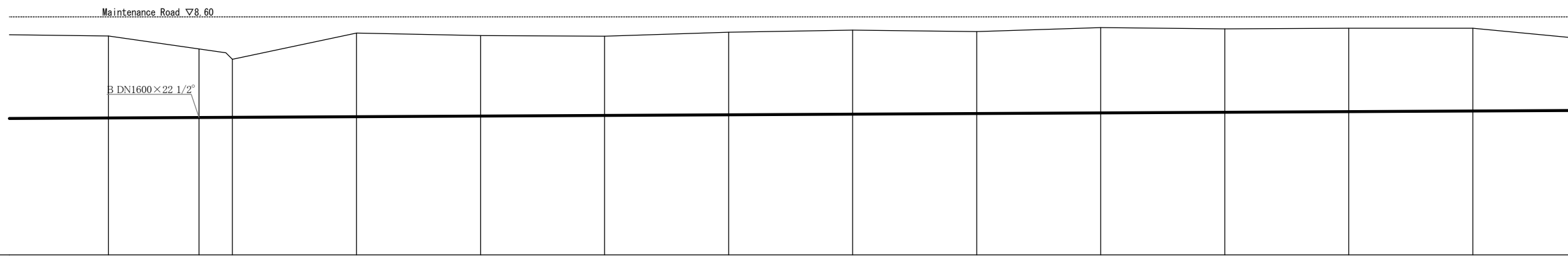
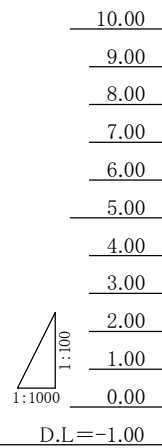
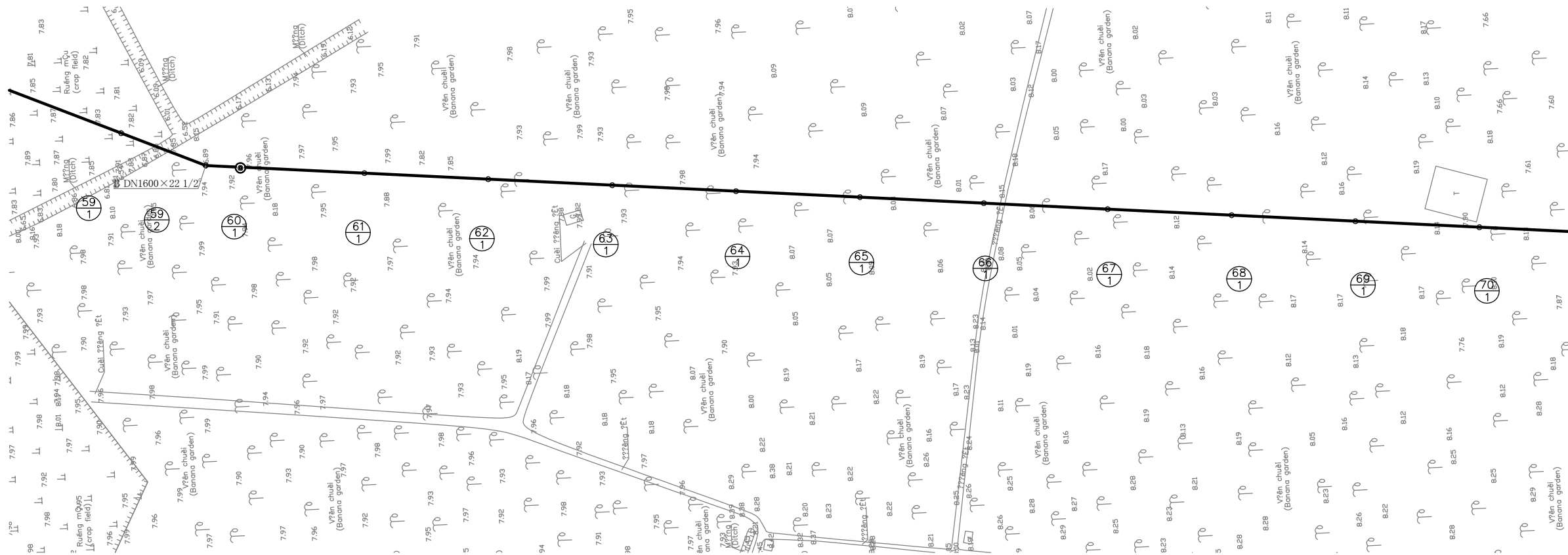
PLAN AND PROFILE OF TRANSMISSION PIPELINE



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 6	STATION



PIPE GRADIENT (%)	i=0.50												
EXCAVATION DEPTH (m)	3.31	2.77	2.34	3.38	3.25	3.20	3.33	3.40	3.31	3.45	3.37	3.37	3.34
INVERT ELEVATION (m)	4.53	4.55	4.55	4.58	4.60	4.63	4.65	4.68	4.70	4.73	4.75	4.75	4.80
GROUND ELEVATION (m)	7.83	7.85	6.89	7.95	7.85	7.82	7.98	8.07	8.01	8.17	8.12	8.14	8.14
ACCUMULATED DISTANCE (m)	2950.00	2986.46	3000.00	3050.00	3100.00	3150.00	3200.00	3250.00	3300.00	3350.00	3400.00	3450.00	3500.00
ROTATION ANGLE	22 1/2'												
STATION	⊙ 59 1	⊙ 59 2	⊙ 60 1	⊙ 61 1	⊙ 62 1	⊙ 63 1	⊙ 64 1	⊙ 65 1	⊙ 66 1	⊙ 67 1	⊙ 68 1	⊙ 69 1	⊙ 70 1
PIPE DIAMETER	DN 1600 STEEL PIPE												

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011
Scale:
V=1/100
H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No

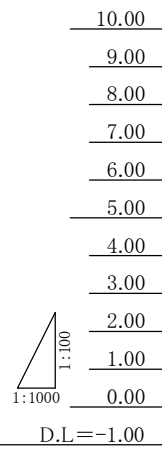
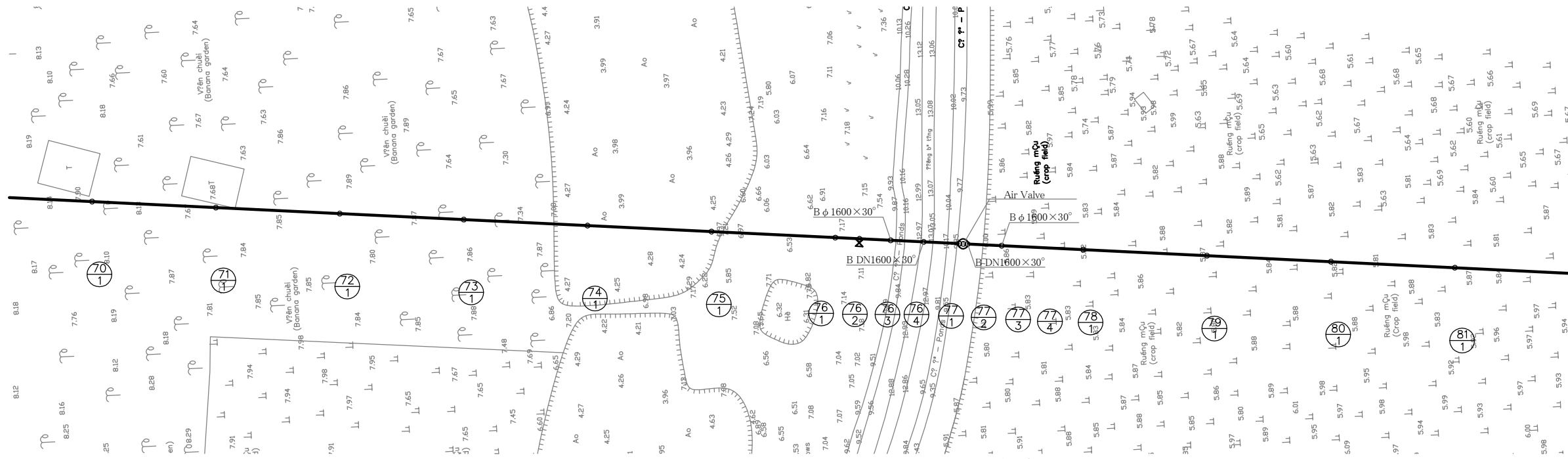
C-6

KEY MAP

LEGEND

REMARK	DESCRIPTION
	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
	STATION

PLAN AND PROFILE OF TRANSMISSION PIPELINE



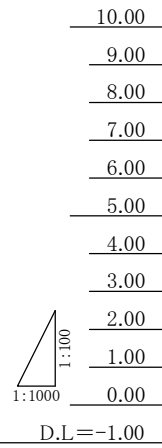
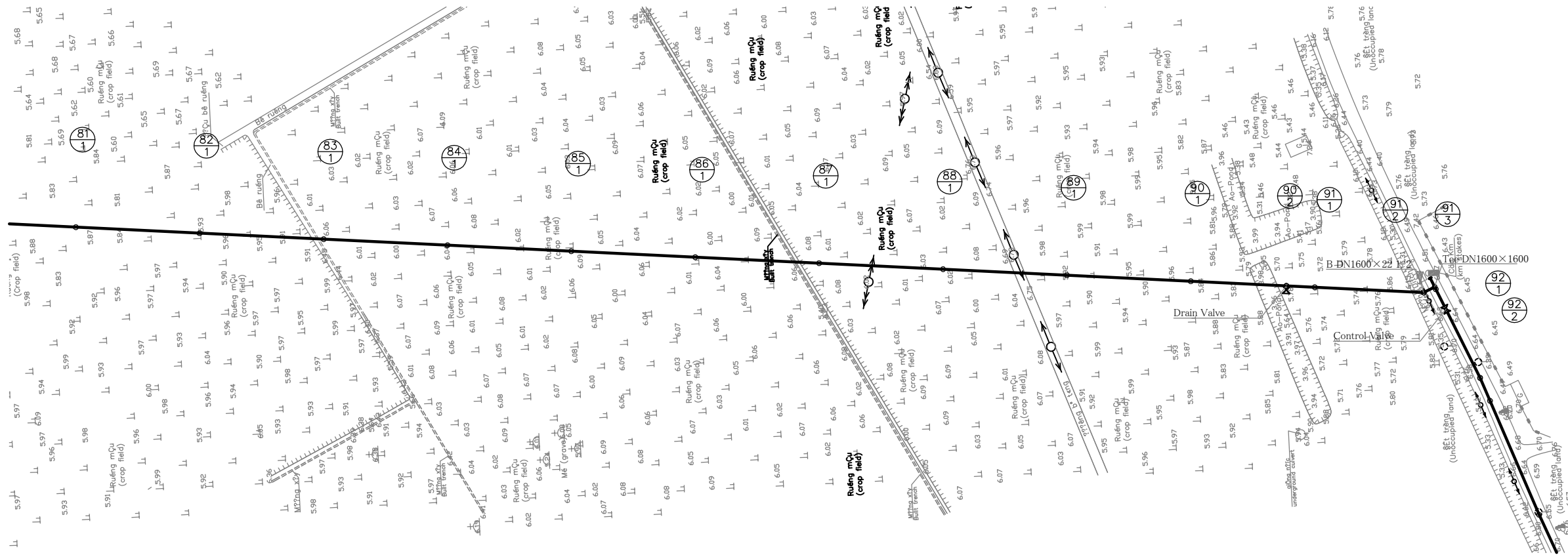
PIPE GRADIENT (%)																		
EXCAVATION DEPTH (m)		3.34	2.85	3.00	3.00	1.78	4.93	1.58	1.86	4.49	2.47	2.47	2.95	2.93	3.01	2.98	3.06	
INVERT ELEVATION (m)		4.80	4.83	4.85	4.88	4.90	4.93	4.95	4.96	4.97	10.50	10.50	10.50	2.89	2.87	2.84	2.82	
GROUND ELEVATION (m)		8.14	7.67	7.85	7.87	7.08	4.24	6.53	6.53	9.47	12.97	12.97	5.86	5.82	5.87	5.82	5.87	
ACCUMULATED DISTANCE (m)	3500.00	3500.00	3600.00	3650.00	3700.00	3750.00	3800.00	3809.76	3819.85	3847.00	3850.00	3857.98	3874.48	3900.00	3950.00	4000.00	4050.00	
ROTATION ANGLE												0	22 1/2°	22 1/2°	22 1/2°	22 1/2°		
STATION	70+1	71+1	72+1	73+1	74+1	75+1	76+1	76+2	76+3	76+4	77+1	77+2	77+3	77+4	78+1	79+1	80+1	81+1
PIPE DIAMETER	DN 1600 STEEL PIPE																	

PLAN AND PROFILE OF TRANSMISSION PIPELINE

KEY MAP



LEGEND	
REMARK	DESCRIPTION
	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
	STATION



PIPE GRADIENT (%)	-0.50																	
EXCAVATION DEPTH (m)	3.06	3.14	3.15	3.15	3.90	3.90	3.92	4.00	3.99	3.97	3.97	1.99	3.82	4.17	4.17	4.21	3.91	
INVERT ELEVATION (m)	2.82	2.79	2.77	2.77	2.14	2.12	2.09	2.07	2.04	2.02	1.99	1.97	1.97	1.94	1.94	1.94	2.70	
GROUND ELEVATION (m)	5.87	5.93	5.91	5.91	6.04	6.01	6.01	6.06	6.03	5.98	5.96	6.51	5.78	6.64	6.64	6.64	6.64	
ACCUMULATED DISTANCE (m)	4050.00	4100.00	4150.00	4153.02	4200.00	4250.00	4300.00	4350.00	4400.00	4450.00	4500.00	4538.61	4550.00	4593.34	4600.00	4600.00	4608.84	4610.80
ROTATION ANGLE													11 1/4° 11 1/4°				22 1/2° D 11 1/4° T91600X1600 11 1/4°	
STATION	81 1	82 1	83 1	84 1	85 1	86 1	87 1	88 1	89 1	90 1	90 2	91 1	91 2	92 1	92 2	92 3	92 1	92 2
PIPE DIAMETER	DN 1600 STEEL PIPE																	

JICA Study Team

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011

Scale:
V=1/100
H=1/1000

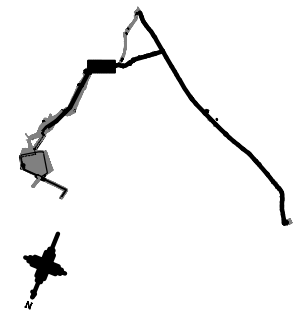
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

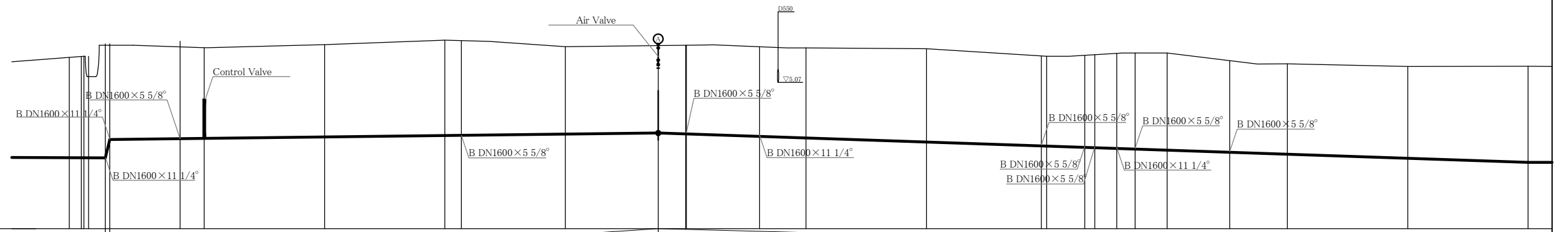
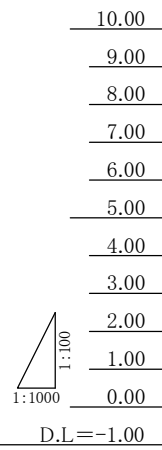
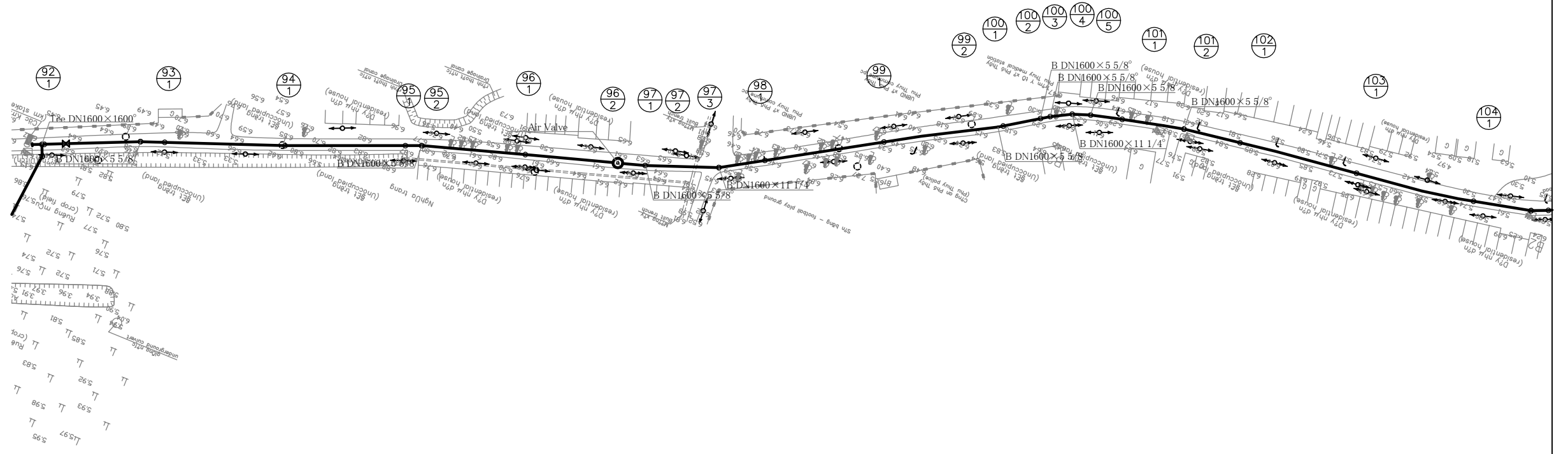
Drawing No

C-8

KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)	i=1.10																		i=0.50																	
EXCAVATION DEPTH (m)	4.17	4.17	4.21	3.81	3.77	3.84	3.96	3.93	3.63	3.63	3.63	3.73	3.74	3.88	3.73	3.82	3.86	3.95	3.99	4.04	3.80	3.75	3.81	3.99												
INVERT ELEVATION (m)	1.94	1.94	1.94	2.70	2.74	2.75	2.81	2.87	2.87	2.92	2.97	2.95	2.95	2.83	2.76	2.59	2.43	2.37	2.36	2.33	2.30	2.28	2.17	2.09	1.92	1.75										
GROUND ELEVATION (m)	6.64	6.64	6.64	6.64	6.82	6.51	6.64	6.62	6.63	6.55	6.47	6.61	6.47	6.50	6.47	5.83	5.84	5.84	5.73	5.73	6.29	5.74	5.84	5.73	5.74											
ACCUMULATED DISTANCE (m)	4593.34	4593.34	4600.34	4608.94	4610.80	4700.00	4750.00	4756.80	4800.00	4838.60	4850.00	4850.27	4880.55	4900.00	4950.00	4987.28	5015.81	5019.95	5028.14	5036.76	5050.00	5076.02	5100.00	5150.00	5200.00											
ROTATION ANGLE	22 1/2° D T11600x1600			11 1/4°			5 5/8° V			5 5/8°			A			5 5/8°			11 1/4°			5 5/8°			5 5/8°											
STATION	91+2	91+3	92+1	92+2	92+3	93+1	94+1	95+1	95+2	96+1	96+2	97+1	97+2	97+3	98+1	99+1	99+2	100+1	100+2	100+3	100+4	100+5	101+1	101+2	102+1	103+1	104+1									
PIPE DIAMETER	DN 1600 STEEL PIPE																																			

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Date:
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H=1/1000

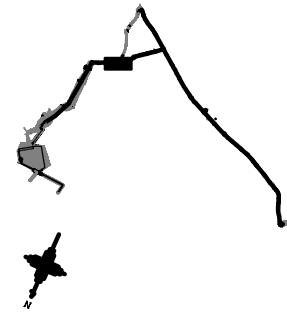
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

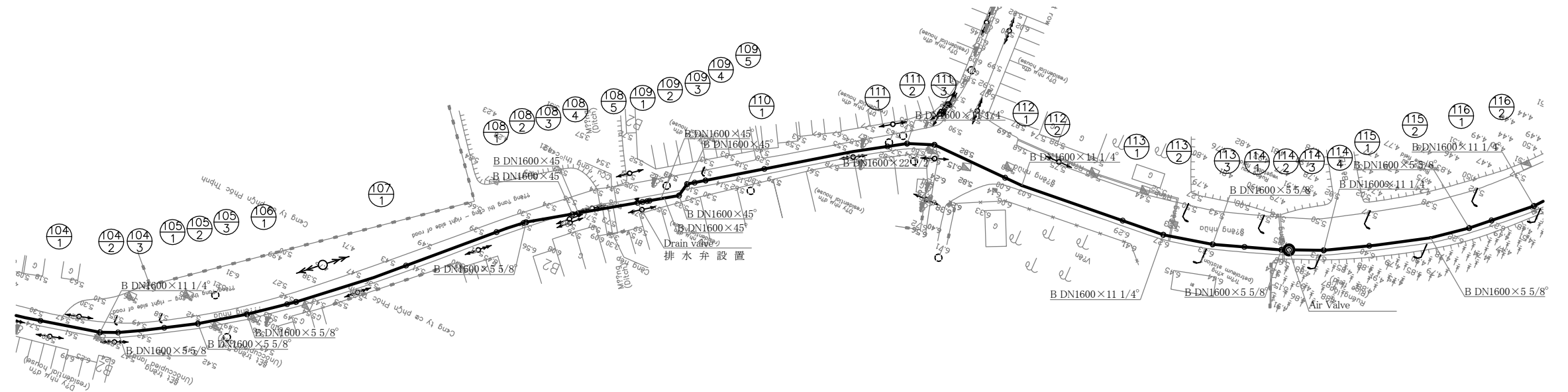
Drawing No

C-9

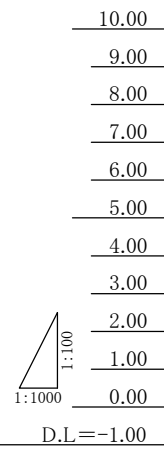
KEY MAP



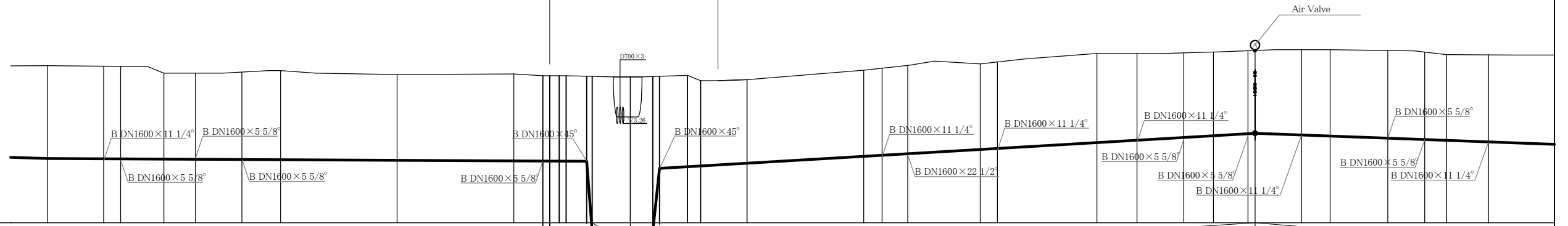
PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 6	STATION



CANNAL ④ CROSSING L=31.21m
(See Drawing No.F-4)



PIPE GRADIENT (%)	[Profile View]																																				
EXCAVATION DEPTH (m)	3.99	3.98	3.98	3.70	3.70	3.76	3.83	3.69	3.74	3.67	3.55	6.66	6.66	6.66	6.66	3.93	3.67	3.59	3.70	3.74	3.79	3.68	3.72	3.83	3.73	3.64	3.59	3.56	3.66	3.71	3.77	3.76	3.69	3.74			
INVERT ELEVATION (m)	1.75	1.74	1.74	1.73	1.72	1.71	1.70	1.68	1.65	1.65	1.64	-1.36	-1.36	-1.36	-1.36	1.41	1.44	1.56	2.85	1.90	1.96	2.15	2.19	2.44	2.55	2.66	2.74	2.83	2.85	2.77	2.73	2.63	2.75	2.54	2.47		
GROUND ELEVATION (m)	5.74	5.42	5.42	5.42	5.36	5.39	5.53	5.36	5.39	5.31	5.31	5.26	5.26	5.26	5.26	5.33	5.10	5.14	5.55	6.27	6.27	5.82	6.33	6.27	6.43	6.38	6.33	6.22	6.22	6.20	6.43	5.89	5.77	6.22	5.77		
ACCUMULATED DISTANCE (m)	5200.00	5224.19	5231.45	5250.00	5283.51	5283.46	5300.00	5350.00	5400.00	5412.45	5419.49	5422.49	5438.61	5446.14	5450.00	5458.61	5474.45	5474.58	5500.00	5550.00	5557.95	5568.88	5600.00	5607.39	5650.00	5667.19	5687.27	5700.00	5714.81	5717.81	5731.73	5750.00	5774.73	5790.55	5800.00	5817.91	
ROTATION ANGLE	11 1/4°		5 5/8°		5 5/8°				5 5/8°		45°		0°		45°		45°		11 1/4°/22 1/2°			11 1/4°		11 1/4°		5 5/8°		5 5/8°A		11 1/4°		5 5/8°		5 5/8°		11 1/4°	
STATION	⊙ 104 1	⊙ 104 2	⊙ 104 3	⊙ 105 1	⊙ 105 2	⊙ 105 3	⊙ 106 1	⊙ 107 1	⊙ 108 1	⊙ 108 2	⊙ 108 3	⊙ 108 4	⊙ 108 5	⊙ 109 1	⊙ 109 2	⊙ 109 3	⊙ 109 4	⊙ 109 5	⊙ 110 1	⊙ 111 1	⊙ 111 2	⊙ 111 3	⊙ 112 1	⊙ 112 2	⊙ 113 1	⊙ 113 2	⊙ 113 3	⊙ 114 1	⊙ 114 2	⊙ 114 3	⊙ 114 4	⊙ 115 1	⊙ 115 2	⊙ 115 3	⊙ 116 1	⊙ 116 2	
PIPE DIAMETER	DN 1600 STEEL PIPE																																				

JICA Study Team

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date.
Oct. 2011

Scale
V=1/100
H=1/1000

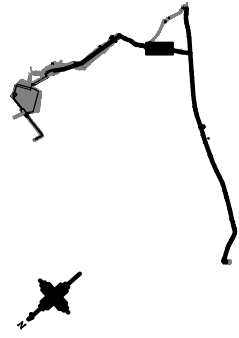
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

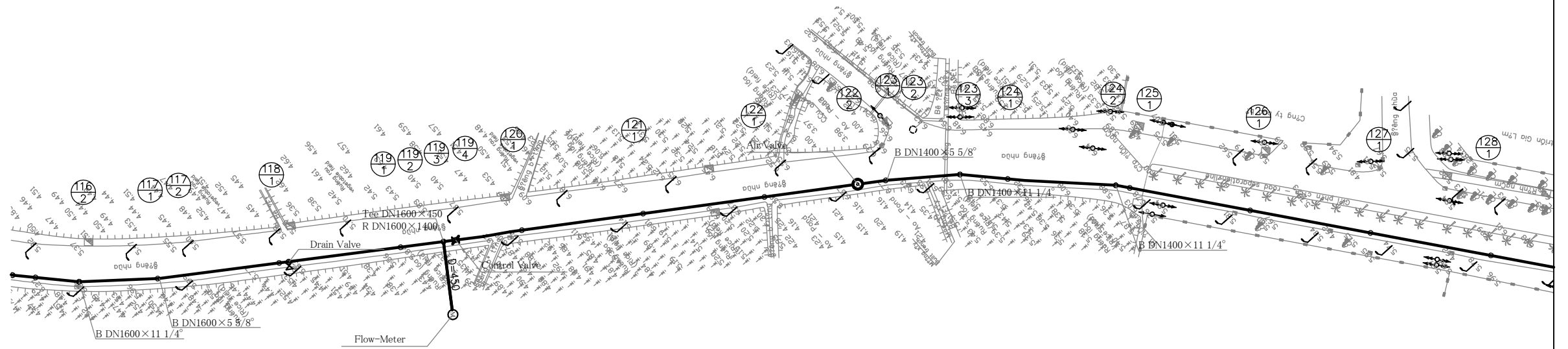
Drawing No

C-10

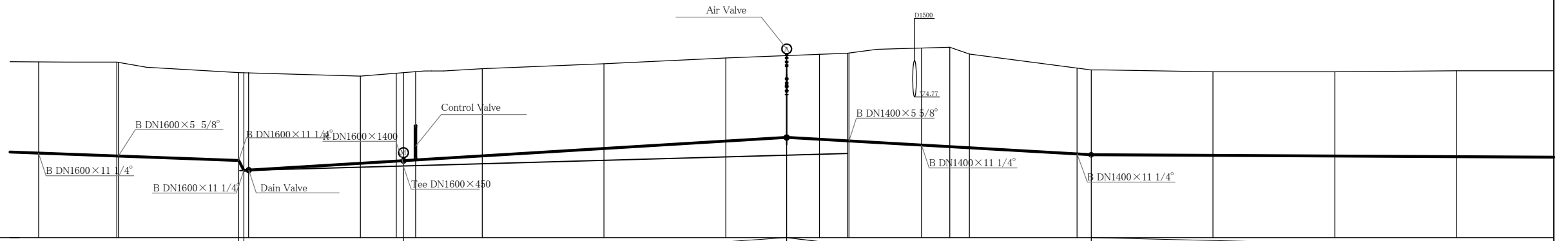
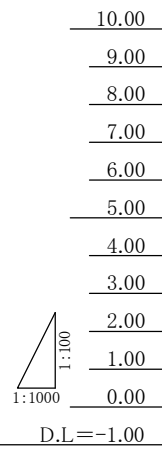
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 6	STATION



PIPE GRADIENT (%)	i=3.80		i=6.05										i=5.66									
EXCAVATION DEPTH (m)	3.74	3.84	3.81	3.58	3.61	3.59	3.63	3.58	3.49	3.41	3.36	3.49	3.60	3.61	3.99	4.08	3.95	3.52	3.48	3.44	3.46	3.53
INVERT ELEVATION (m)	2.47	2.35	2.77	2.05	2.14	2.16	2.19	2.35	2.66	2.96	3.11	3.04	2.97	2.97	2.80	2.73	2.69	2.44	2.40	2.37	2.35	2.33
GROUND ELEVATION (m)	5.77	6.20	5.77	5.63	6.14	6.14	6.14	5.93	6.14	6.37	6.47	5.88	6.57	5.88	5.81	6.53	5.81	5.81	5.88	5.81	5.81	5.85
ACCUMULATED DISTANCE (m)	5817.91	5950.00	5950.00	5950.00	5964.66	5967.66	5972.66	6000.00	6050.00	6100.00	6125.00	6138.46	6150.00	6150.51	6180.40	6200.00	6244.18	6250.00	6300.00	6350.00	6400.00	
ROTATION ANGLE	11 1/4°	5 5/8°	11 1/4° D	M	V					A	5 5/8°	11 1/4°	11 1/4°									
STATION	⊙ 116 2	⊙ 117 1	⊙ 117 2	⊙ 118 1	⊙ 119 1	⊙ 119 2	⊙ 119 3	⊙ 119 4	⊙ 120 1	⊙ 121 1	⊙ 122 1	⊙ 122 2	⊙ 123 1	⊙ 123 2	⊙ 123 3	⊙ 124 1	⊙ 124 2	⊙ 125 1	⊙ 126 1	⊙ 127 1	⊙ 128 1	
PIPE DIAMETER	DN 1400 STEEL PIPE								DN 1400 STEEL PIPE													

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Date:
Oct. 2011

Scale
V=1/100
H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

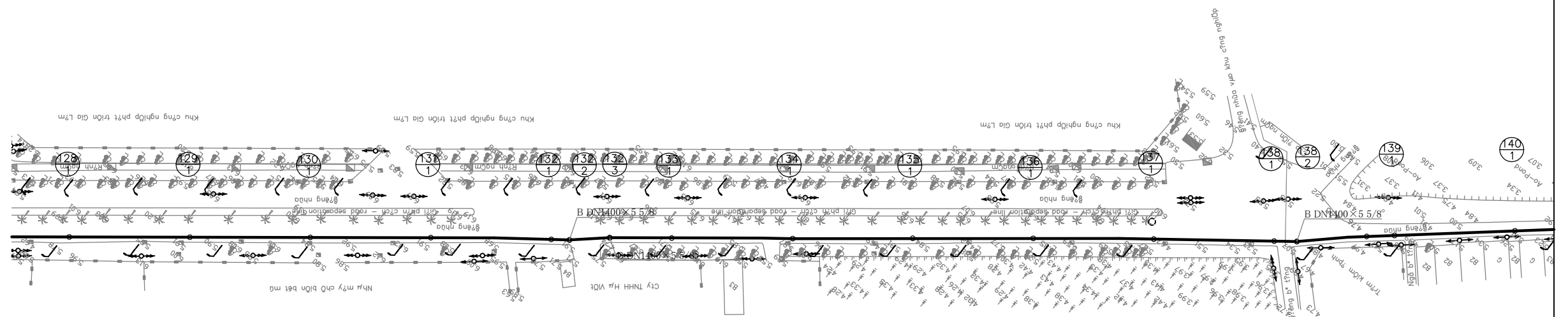
Drawing No

C-11

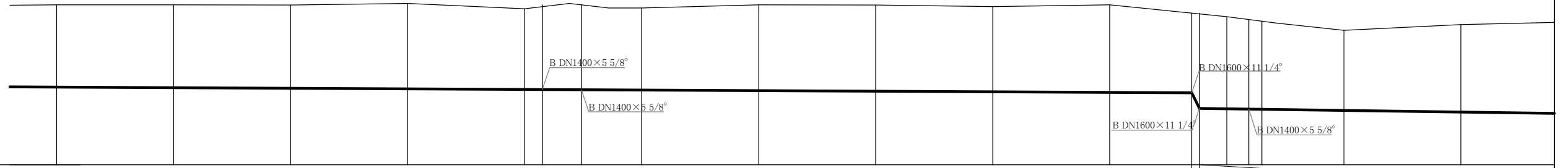
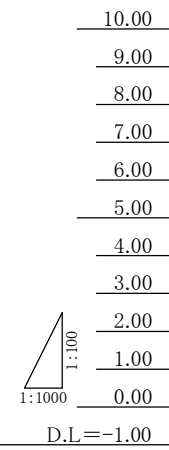
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



PIPE GRADIENT (%)	i=0.50																		
EXCAVATION DEPTH (m)	3.33	3.55	3.57	3.66	3.46	3.35	3.63	3.51	3.68	3.69	3.65	3.75	3.41	4.07	3.94	3.88	3.77	3.43	3.74
INVERT ELEVATION (m)	2.33	2.30	2.28	2.25	2.23	2.22	2.22	2.20	2.18	2.15	2.13	2.10	2.08	1.42	1.40	1.39	1.38	1.33	1.26
GROUND ELEVATION (m)	5.85	5.85	5.84	5.91	5.68	5.85	5.85	5.71	5.85	5.84	5.77	5.85	5.85	5.85	5.34	5.00	5.00	4.76	5.00
ACCUMULATED DISTANCE (m)	6400.00	6450.00	6500.00	6550.00	6600.00	6607.56	6624.27	6650.00	6700.00	6750.00	6800.00	6850.00	6885.00	6888.48	6900.00	6908.41	6950.00	7000.00	
ROTATION ANGLE	5 5/8° 5 5/8° 11 1/4° 11 1/4° 5 5/8°																		
STATION	⊙ 128 1	⊙ 129 1	⊙ 130 1	⊙ 131 1	⊙ 132 1	⊙ 132 2	⊙ 132 3	⊙ 133 1	⊙ 134 1	⊙ 135 1	⊙ 136 1	⊙ 137 1	⊙ 138 1	⊙ 138 2	⊙ 139 1	⊙ 140 1			
PIPE DIAMETER	D=DN00400 STEEL PIPE																		

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Date:
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Scale
V=1/100
H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No

C-12

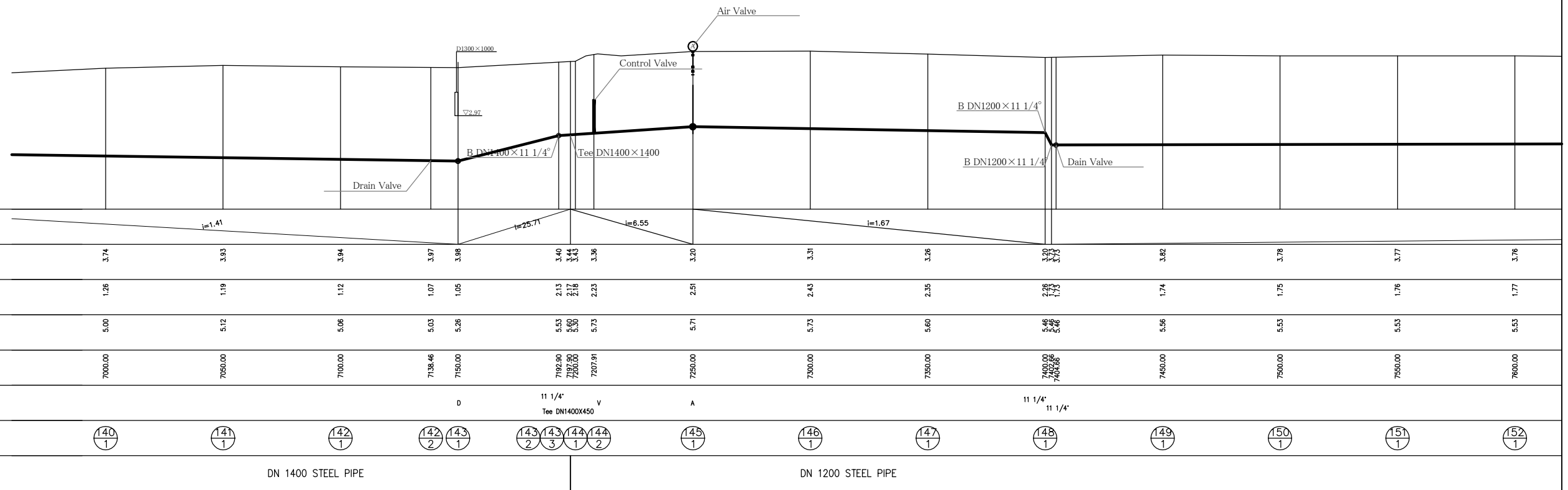
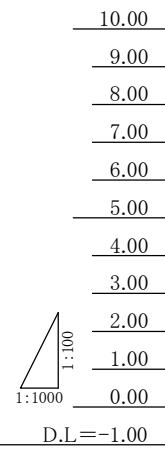
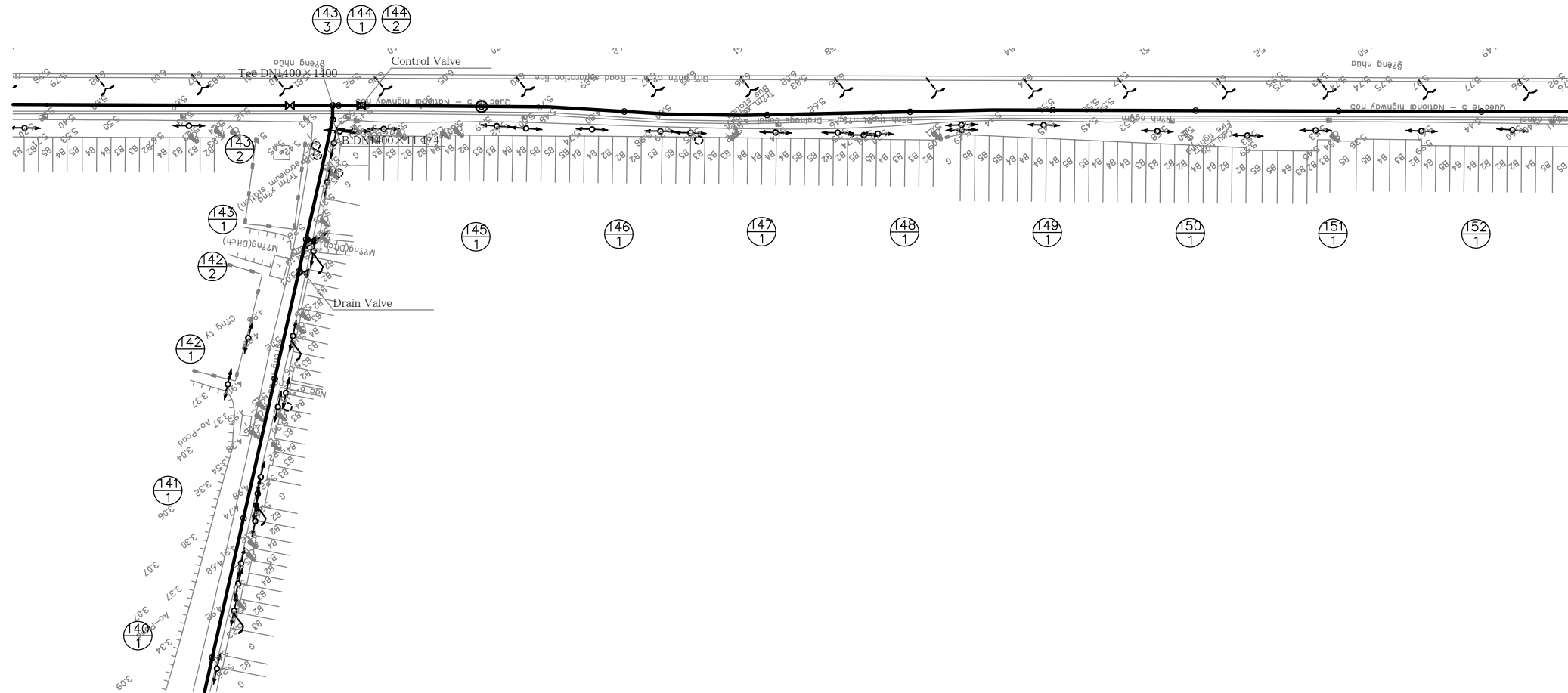
KEY MAP



LEGEND

REMARK	DESCRIPTION
	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
	STATION

PLAN AND PROFILE OF TRANSMISSION PIPELINE



JICA Study Team

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Date:
Oct. 2011

Scale
V=1/100
H=1/1000

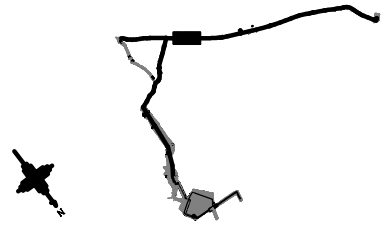
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

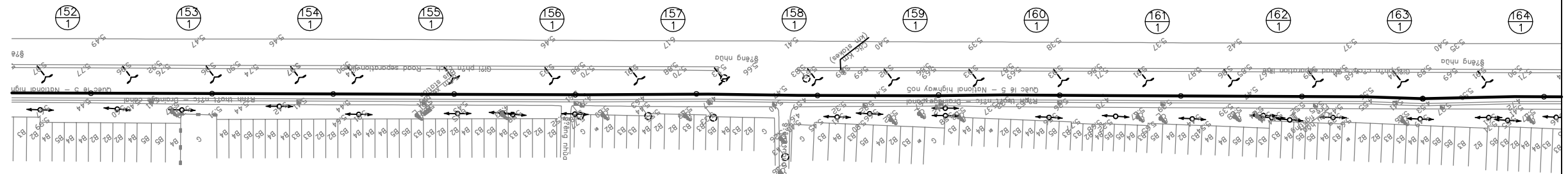
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C-13

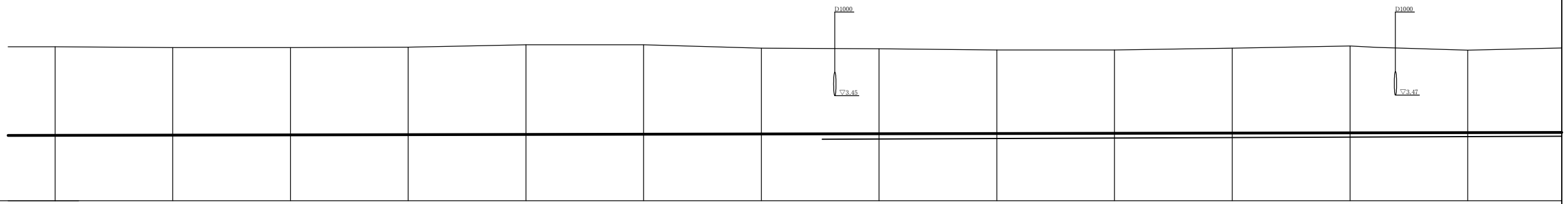
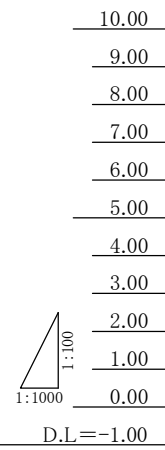
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
	STATION



PIPE GRADIENT (%)	i=0.20												
EXCAVATION DEPTH (m)	3.76	3.71	3.70	3.71	3.80	3.79	3.64	3.60	3.54	3.53	3.60	3.68	3.49
INVERT ELEVATION (m)	1.77	1.78	1.79	1.80	1.81	1.82	1.83	1.84	1.85	1.86	1.87	1.88	1.89
GROUND ELEVATION (m)	5.53	5.49	5.49	5.51	5.61	5.61	5.47	5.44	5.39	5.39	5.47	5.56	5.38
ACCUMULATED DISTANCE (m)	7600.00	7650.00	7700.00	7750.00	7800.00	7850.00	7900.00	7950.00	8000.00	8050.00	8100.00	8150.00	8200.00
ROTATION ANGLE													
STATION	152+00	153+00	154+00	155+00	156+00	157+00	158+00	159+00	160+00	161+00	162+00	163+00	164+00
PIPE DIAMETER	DN 1200 STEEL PIPE												

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Date.
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Scale
V=1/100
H=1/1000

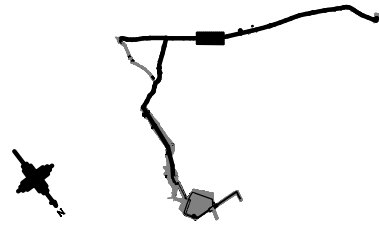
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

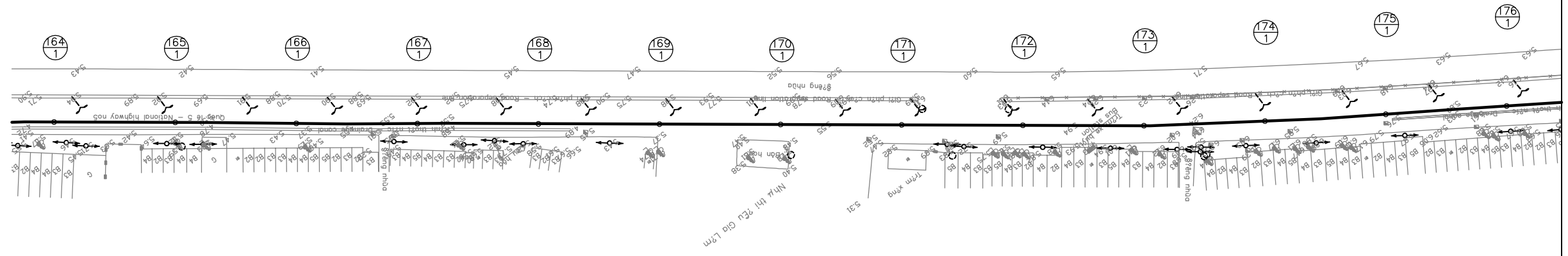
Drawing No

C-14

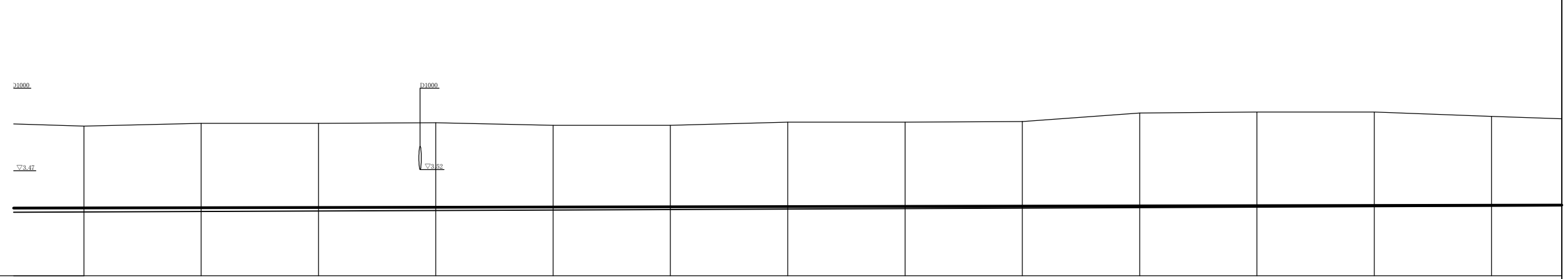
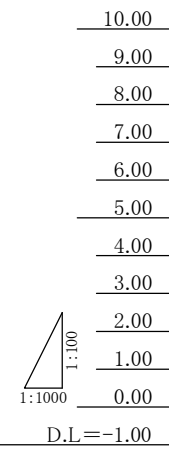
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②① ⑥	STATION



PIPE GRADIENT (%)	0.00												
EXCAVATION DEPTH (m)	3.49	3.60	3.59	3.61	3.49	3.48	3.60	3.59	3.61	3.96	3.99	3.98	3.79
INVERT ELEVATION (m)	1.89	1.90	1.91	1.92	1.93	1.94	1.95	1.96	1.97	1.98	1.99	2.00	2.01
GROUND ELEVATION (m)	5.38	5.50	5.50	5.53	5.42	5.42	5.55	5.55	5.58	5.94	5.98	5.98	5.80
ACCUMULATED DISTANCE (m)	8200.00	8250.00	8300.00	8350.00	8400.00	8450.00	8500.00	8550.00	8600.00	8650.00	8700.00	8750.00	8800.00
ROTATION ANGLE	0.00												
STATION	①⑥④ ①	①⑥⑤ ①	①⑥⑥ ①	①⑥⑦ ①	①⑥⑧ ①	①⑥⑨ ①	①⑦① ①	①⑦② ①	①⑦③ ①	①⑦④ ①	①⑦⑤ ①	①⑦⑥ ①	
PIPE DIAMETER	DN 1200 STEEL PIPE												

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
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H=1/1000

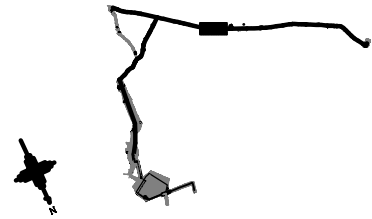
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

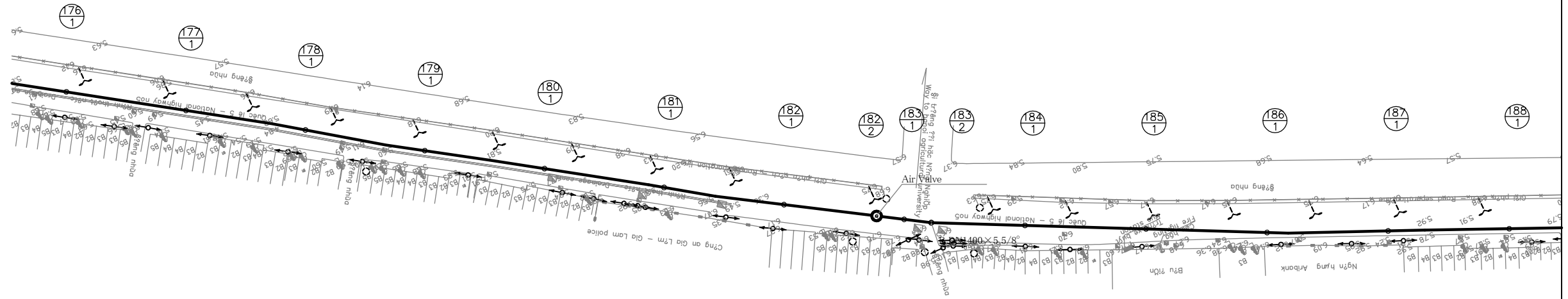
Drawing No

C-15

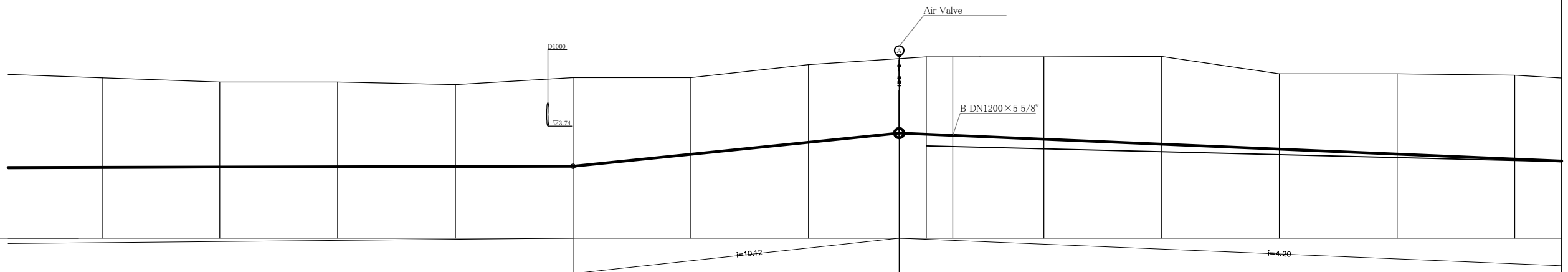
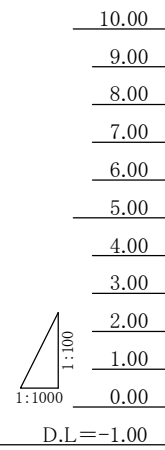
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
(20/6)	STATION



PIPE GRADIENT (%)	-10.12														-4.20	
EXCAVATION DEPTH (m)	3.79	3.60	3.59	3.47	3.76	3.26	3.30	3.17	3.29	3.34	3.50	3.72	3.20	3.41	3.56	
INVERT ELEVATION (m)	2.01	2.02	2.03	2.04	2.05	2.51	3.06	3.45	3.40	3.36	3.17	2.98	2.77	2.56	2.35	
GROUND ELEVATION (m)	5.80	5.62	5.62	5.51	5.81	5.81	6.36	6.70	6.69	6.70	6.69	6.70	5.97	5.97	5.91	
ACCUMULATED DISTANCE (m)	8800.00	8850.00	8900.00	8950.00	9000.00	9050.00	9100.00	9138.53	9150.00	9161.30	9200.00	9250.00	9300.00	9350.00	9400.00	
ROTATION ANGLE	A 5 5/8"															
STATION	176+1	177+1	178+1	179+1	180+1	181+1	182+1	182+2	183+1	183+2	184+1	185+1	186+1	187+1	188+1	
PIPE DIAMETER	DN 1200 STEEL PIPE															

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Date:
Oct. 2011

Scale
V=1/100
H=1/1000

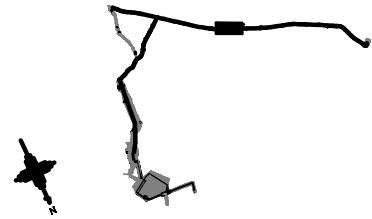
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

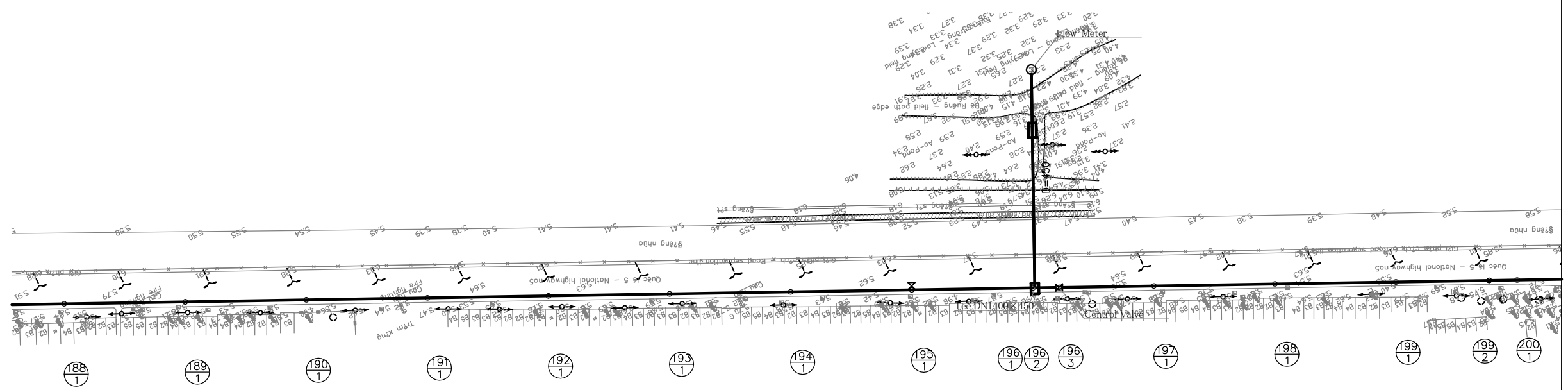
Drawing No

C-16

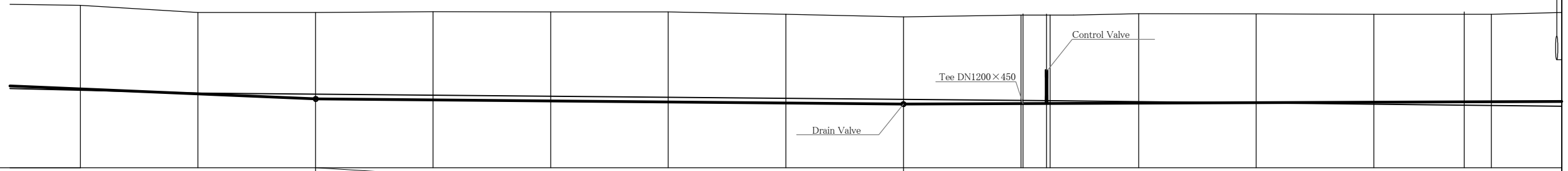
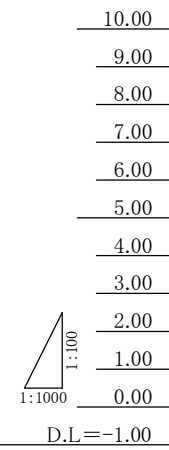
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



PIPE GRADIENT (%)	i=0.88															
EXCAVATION DEPTH (m)	3.56	3.46	3.68	3.76	3.79	3.84	3.78	3.72	3.77	3.76	3.81	3.78	3.74	3.73	3.72	
INVERT ELEVATION (m)	2.35	2.14	1.93	1.88	1.84	1.80	1.75	1.71	1.73	1.73	1.75	1.77	1.79	1.81	1.81	
GROUND ELEVATION (m)	5.91	5.60	5.60	5.64	5.63	5.63	5.53	5.42	5.50	5.49	5.55	5.54	5.53	5.62	5.53	
ACCUMULATED DISTANCE (m)	9400.00	9450.00	9500.00	9550.00	9600.00	9650.00	9700.00	9750.00	9800.00	9810.87	9850.00	9900.00	9950.00	9988.51	10000.00	
ROTATION ANGLE	D T71400X450															
STATION	⊙ 188 1	⊙ 189 1	⊙ 190 1	⊙ 191 1	⊙ 192 1	⊙ 193 1	⊙ 194 1	⊙ 195 1	⊙ 196 1	⊙ 196 2	⊙ 196 3	⊙ 197 1	⊙ 198 1	⊙ 199 1	⊙ 199 2	⊙ 200 1
PIPE DIAMETER	DN 1200 STEEL PIPE															

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Date.
Oct. 2011

Scale
V=1/100
H=1/1000

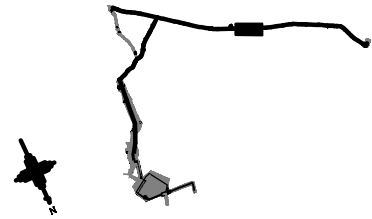
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

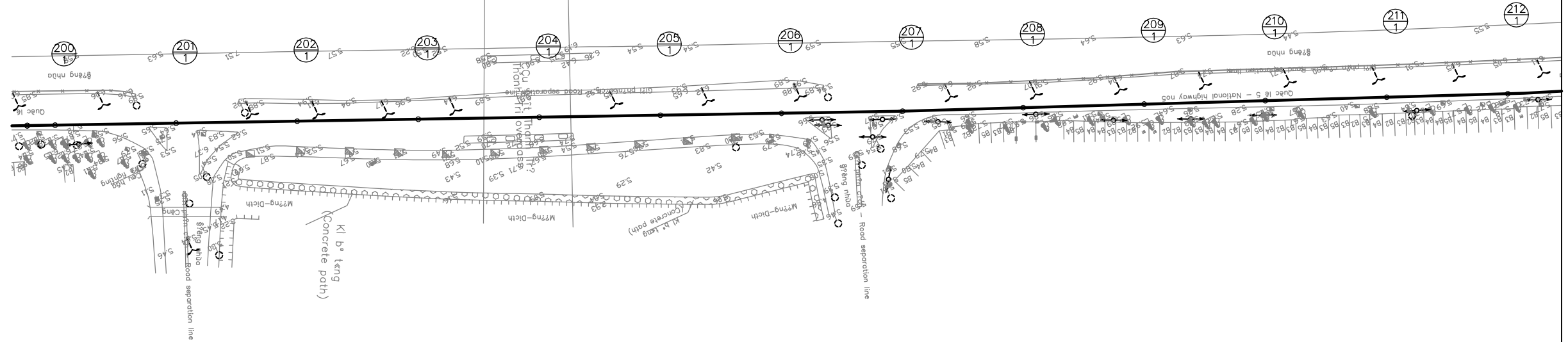
Drawing No

C-17

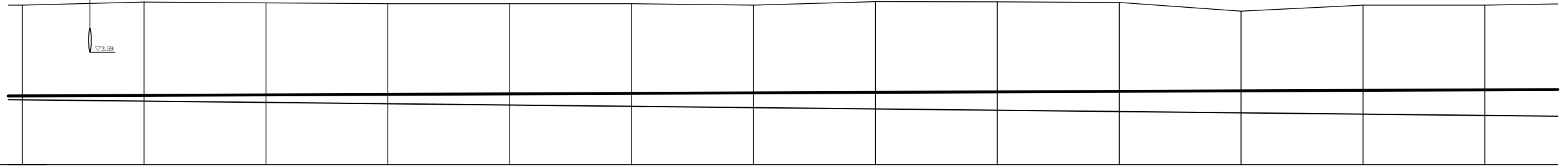
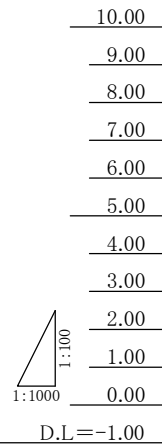
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
	STATION



PIPE GRADIENT (%)	-0.41												
EXCAVATION DEPTH (m)	3.72	3.82	3.77	3.72	3.70	3.68	3.60	3.72	3.69	3.65	3.27	3.50	3.48
INVERT ELEVATION (m)	1.81	1.83	1.85	1.87	1.89	1.91	1.94	1.96	1.98	2.00	2.02	2.04	2.06
GROUND ELEVATION (m)	5.53	5.65	5.62	5.59	5.59	5.59	5.53	5.67	5.66	5.64	5.28	5.53	5.53
ACCUMULATED DISTANCE (m)	10000.00	10050.00	10100.00	10150.00	10200.00	10250.00	10300.00	10350.00	10400.00	10450.00	10500.00	10550.00	10600.00
ROTATION ANGLE													
STATION	200+00	201+00	202+00	203+00	204+00	205+00	206+00	207+00	208+00	209+00	210+00	211+00	212+00
PIPE DIAMETER	DN 1200 STEEL PIPE												

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Scale
V=1/100
H=1/1000

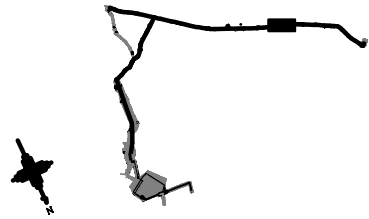
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

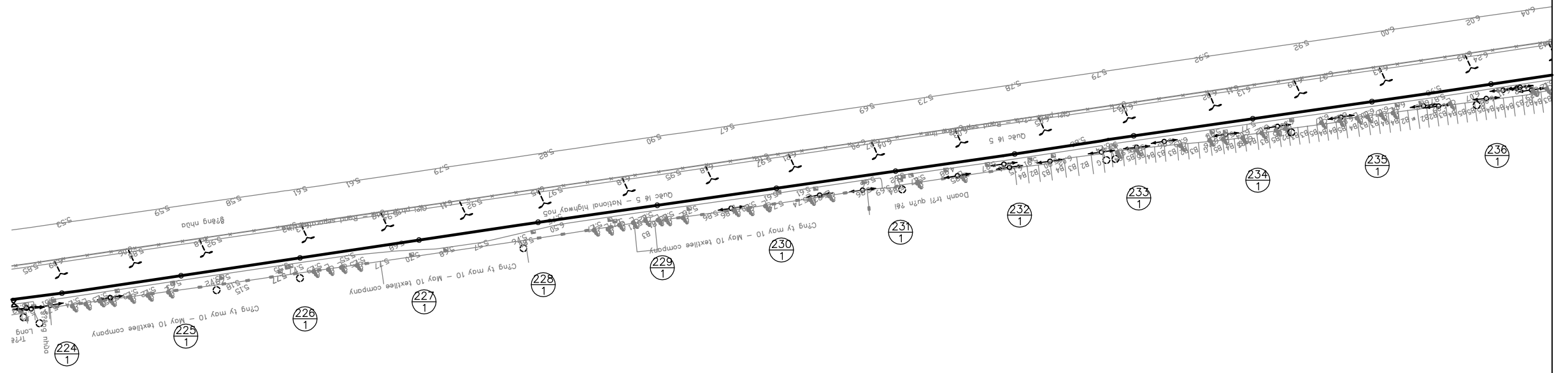
Drawing No

C-18

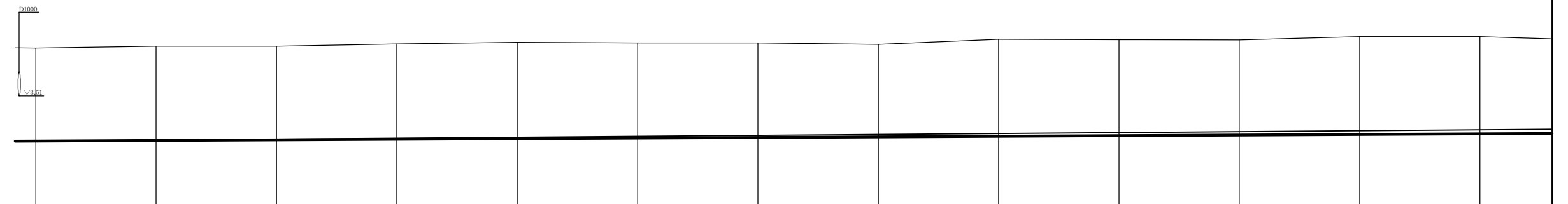
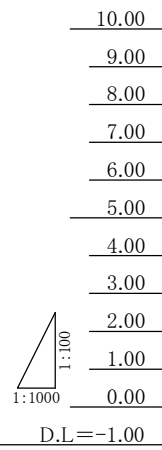
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②① ⑥	STATION



PIPE GRADIENT (%)	i=0.50												
EXCAVATION DEPTH (m)	3.87	3.93	3.90	3.97	4.01	3.96	3.93	3.85	4.03	4.00	3.96	4.07	4.04
INVERT ELEVATION (m)	1.64	1.67	1.69	1.72	1.74	1.77	1.79	1.82	1.84	1.87	1.89	1.92	1.94
GROUND ELEVATION (m)	5.51	5.59	5.59	5.68	5.75	5.72	5.72	5.66	5.87	5.86	5.85	5.98	5.98
ACCUMULATED DISTANCE (m)	11200.00	11250.00	11300.00	11350.00	11400.00	11450.00	11500.00	11550.00	11600.00	11650.00	11700.00	11750.00	11800.00
ROTATION ANGLE													
STATION	②②④ ①	②②⑤ ①	②②⑥ ①	②②⑦ ①	②②⑧ ①	②②⑨ ①	②③① ①	②③② ①	②③③ ①	②③④ ①	②③⑤ ①	②③⑥ ①	②③⑥ ①
PIPE DIAMETER	DN 1200 STEEL PIPE												

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Oct. 2011

Scale
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H=1/1000

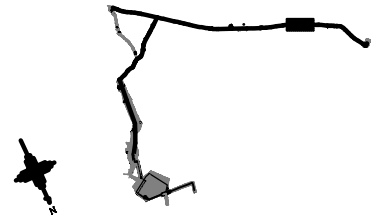
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

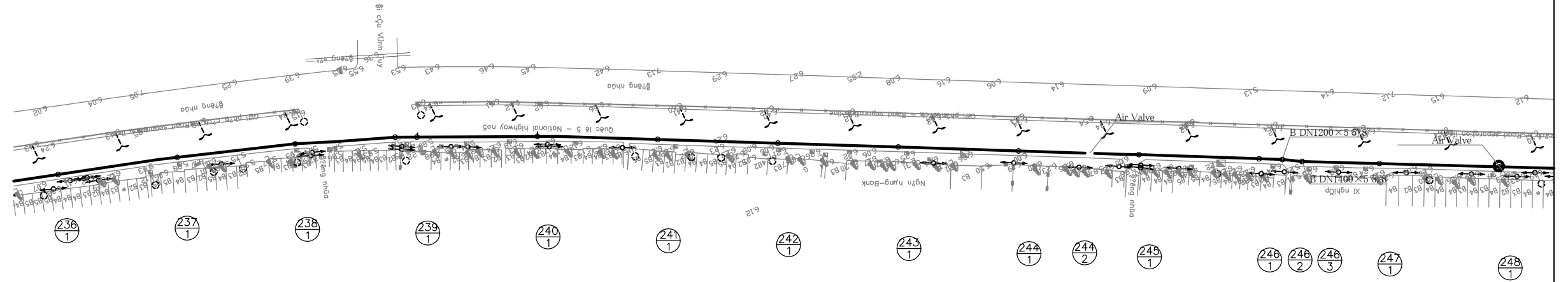
Drawing No

C-20

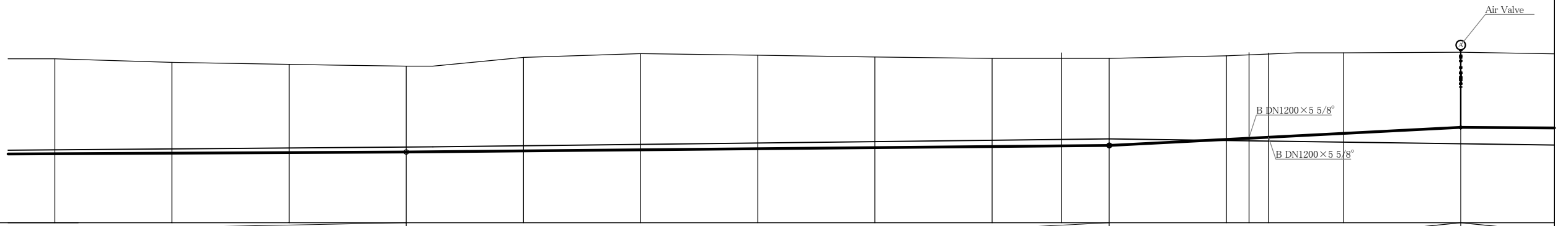
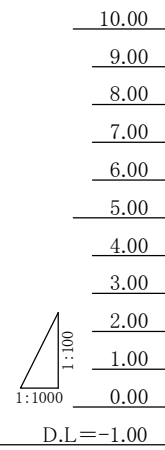
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
20/6	STATION



PIPE GRADIENT (%)	i=0.03														i=5.06		
EXCAVATION DEPTH (m)	4.04	3.87	3.76	3.66	3.98	4.09	3.99	3.96	3.76	3.73	3.71	3.56	3.56	3.55	3.44	3.20	
INVERT ELEVATION (m)	1.94	1.97	1.99	2.02	2.06	2.11	2.16	2.20	2.25	2.28	2.30	2.55	2.60	2.64	2.81	3.06	
GROUND ELEVATION (m)	5.98	5.83	5.75	5.67	6.04	6.20	6.14	6.06	6.00	6.24	6.00	6.11	6.26	6.26	6.24	6.26	
ACCUMULATED DISTANCE (m)	11800.00	11850.00	11900.00	11950.00	12000.00	12050.00	12100.00	12150.00	12200.00	12228.64	12250.00	12300.00	12309.09	12317.93	12350.00	12400.00	
ROTATION ANGLE	5 5/8° 5 5/8°													A			
STATION	236+1	237+1	238+1	239+1	240+1	241+1	242+1	243+1	244+1	244+2	245+1	246+1	246+2	246+3	247+1	248+1	
PIPE DIAMETER	DN 1200 STEEL PIPE																

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H=1/1000

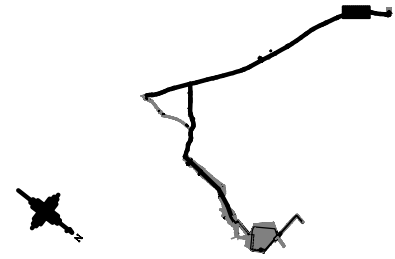
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

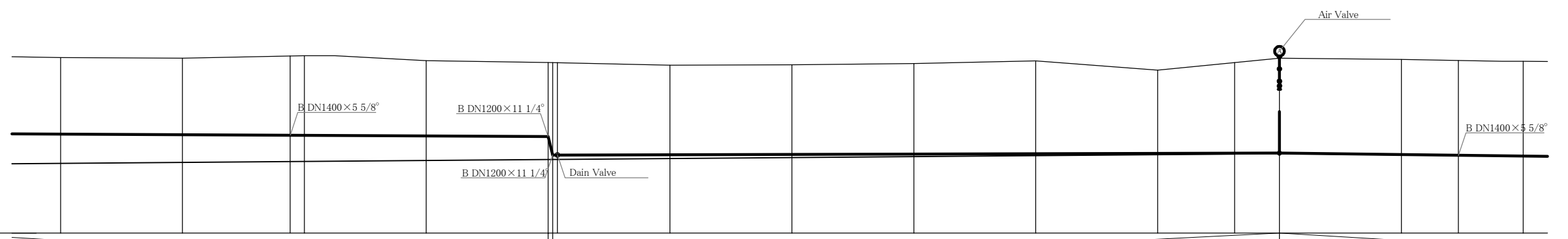
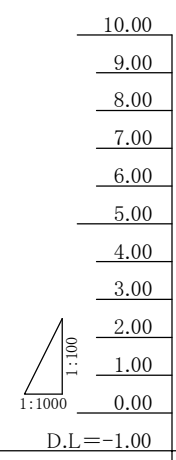
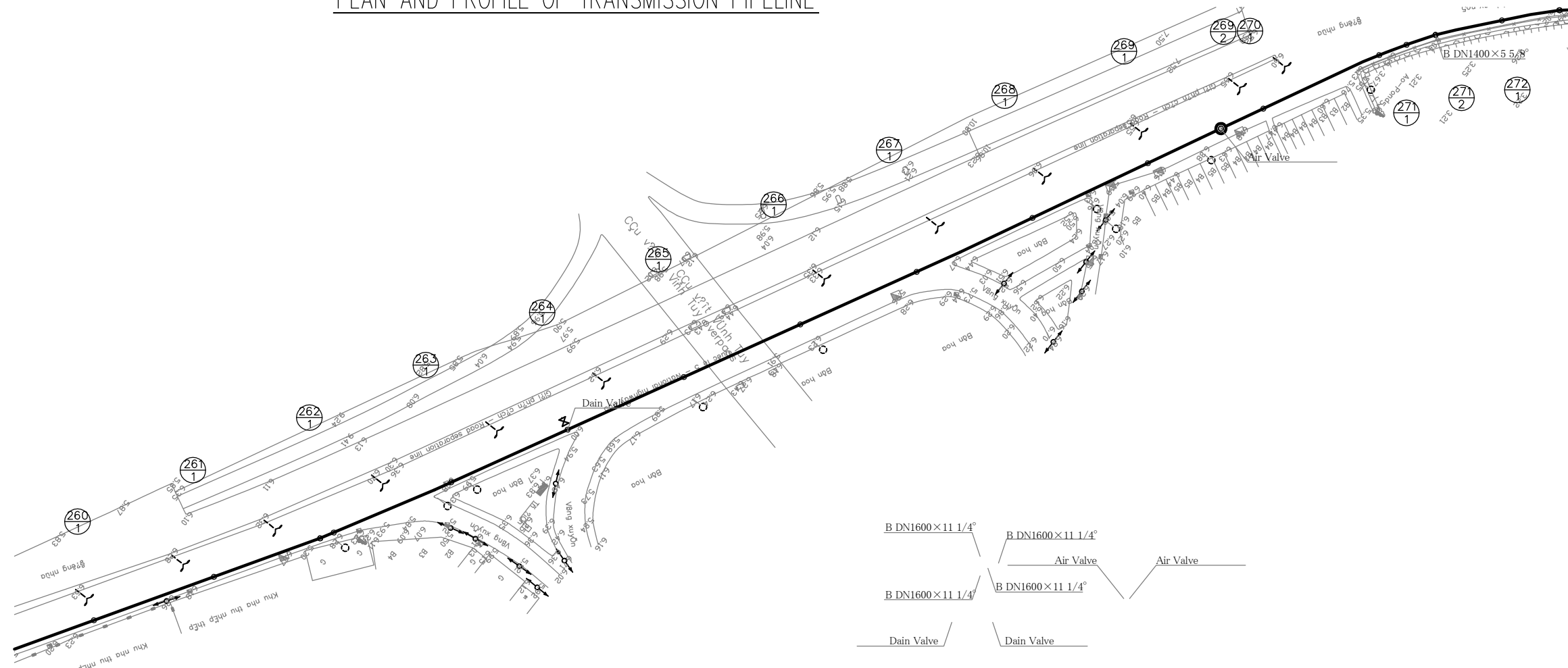
Drawing No

C-21

KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)			i=0.50		i=0.27											
EXCAVATION DEPTH (m)	3.14	3.14	3.25	3.27	3.09	3.88	3.68	3.72	3.81	3.42	3.72	3.90	3.91	3.89	3.89	
INVERT ELEVATION (m)	3.07	3.04	3.02	3.02	2.99	2.97	2.22	2.23	2.25	2.26	2.27	2.28	2.21	2.20	2.15	
GROUND ELEVATION (m)	6.20	6.18	6.00	6.28	6.08	6.01	5.89	5.91	5.96	6.07	5.69	6.05	6.13	5.91	6.05	
ACCUMULATED DISTANCE (m)	13000.00	13060.00	13094.19	13100.00	13150.00	13200.00	13250.00	13300.00	13350.00	13400.00	13400.00	13461.64	13500.00	13573.37	13600.00	
ROTATION ANGLE			5 5/8°		11 1/4° D											
STATION	260/1	261/1	262/2	262/1	263/1	264/1	265/1	266/1	267/1	268/1	269/1	269/2	270/1	271/1	271/2	272/1
PIPE DIAMETER	DN 1200 STEEL PIPE															

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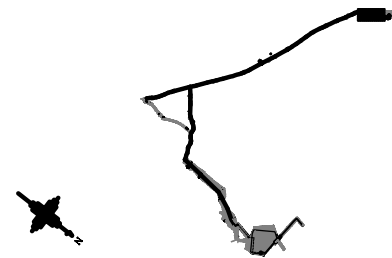
THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
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Date:
Oct. 2011
Scale:
V=1/100
H=1/1000

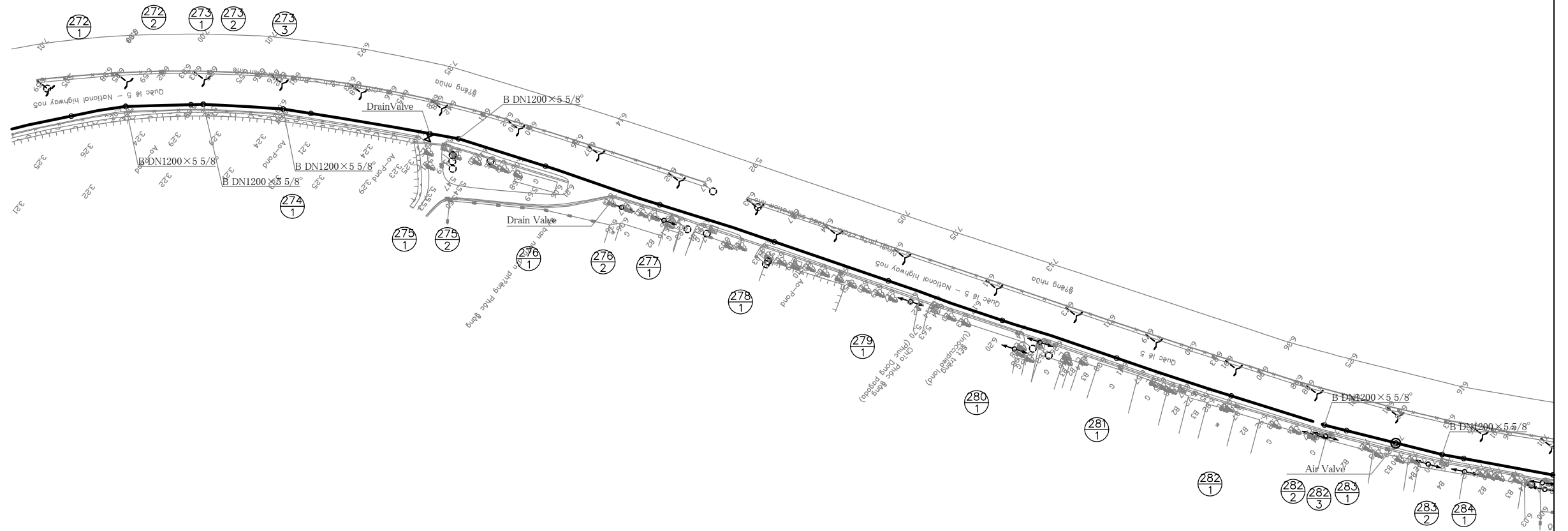
Duong River Water Treatment Plant Transmission Pipeline
PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No
C-23

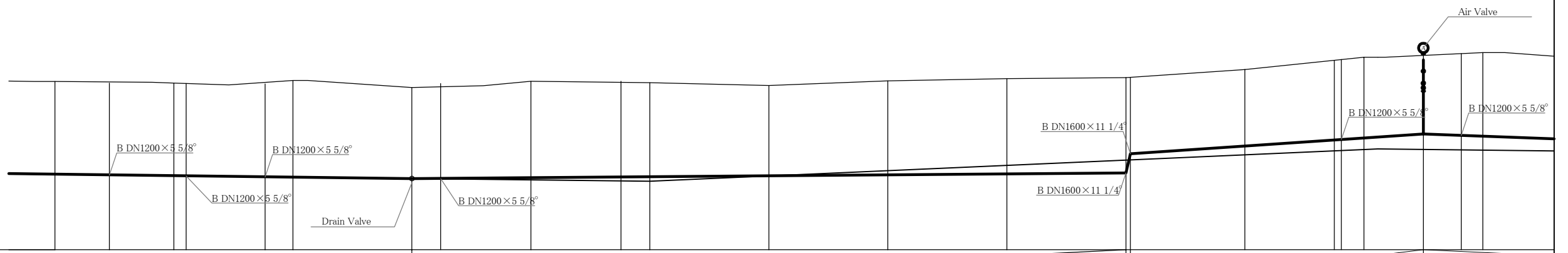
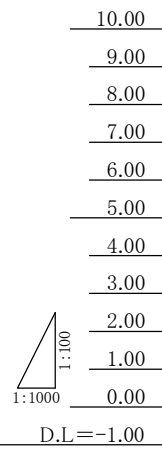
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②① ⑥	STATION



PIPE GRADIENT (%)	i=1.24										i=0.80				i=6.24							
EXCAVATION DEPTH (m)	3.89	3.90	3.89	3.87	3.89	4.05	3.82	3.84	4.04	3.97	3.94	3.78	3.94	3.99	4.98	3.21	3.34	3.85	3.39	3.29	3.43	3.50
INVERT ELEVATION (m)	2.15	2.14	2.10	2.09	2.05	2.05	1.98	1.99	2.02	2.05	2.06	2.10	2.14	2.18	3.22	3.35	3.56	3.12	3.69	3.85	3.80	3.76
GROUND ELEVATION (m)	6.05	5.80	5.98	5.80	5.87	6.09	5.80	6.00	6.06	6.00	6.00	5.88	6.08	6.17	8.21	6.55	6.97	6.97	7.07	7.14	6.54	7.26
ACCUMULATED DISTANCE (m)	13600.00	13622.88	13650.00	13655.12	13688.33	13700.00	13750.00	13762.12	13800.00	13817.88	13850.00	13900.00	13950.00	14000.00	14050.93	14100.00	14137.57	14140.57	14150.00	14175.00	14190.90	14200.00
ROTATION ANGLE	5 5/8'		5 5/8'		5 5/8'		D 5 5/8'															
STATION	②72 1	②72 2	②73 1	②73 2	②73 3	②74 1	②75 1	②75 2	②76 1	②76 2	②77 1	②78 1	②79 1	②80 1	②81 1	②82 1	②82 2	②82 3	②83 1	②83 2	②84 1	②84 2
PIPE DIAMETER	DN 1200 STEEL PIPE																					

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Scale
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H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No

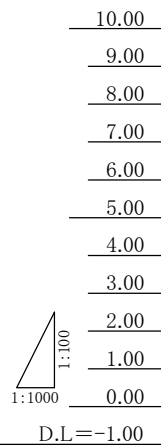
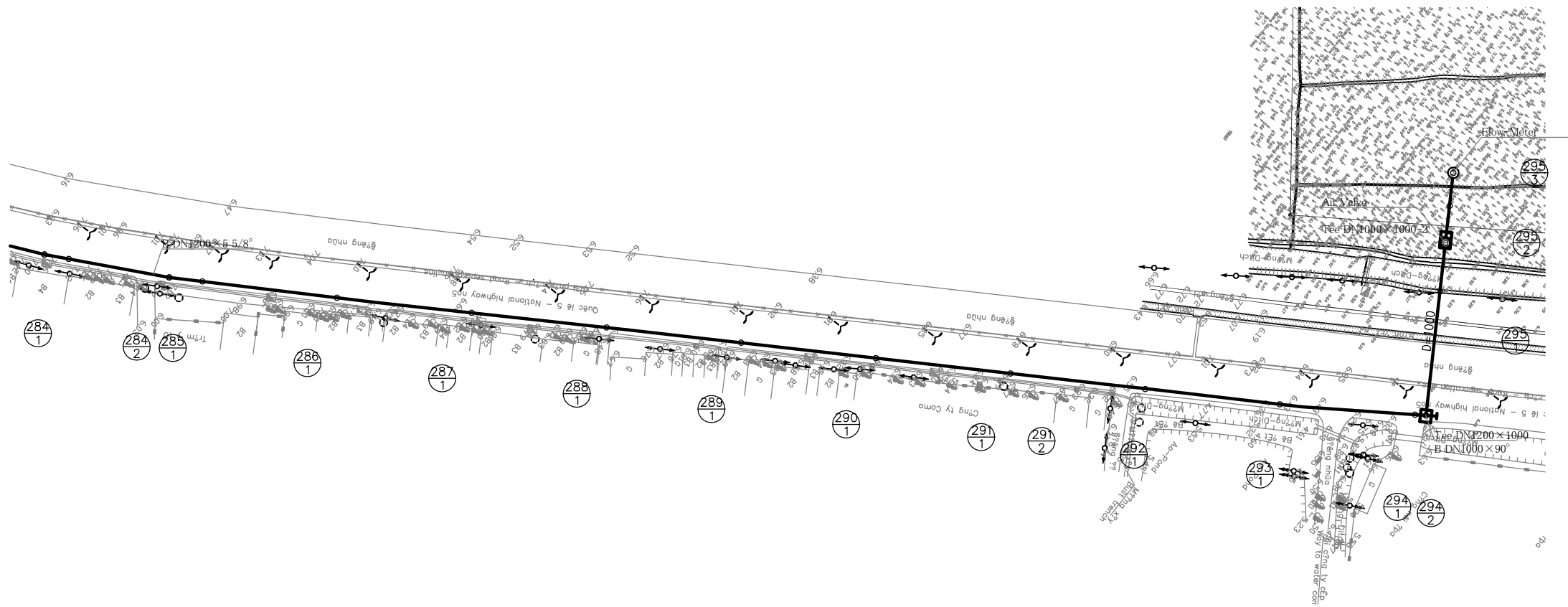
C-24

PLAN AND PROFILE OF TRANSMISSION PIPELINE

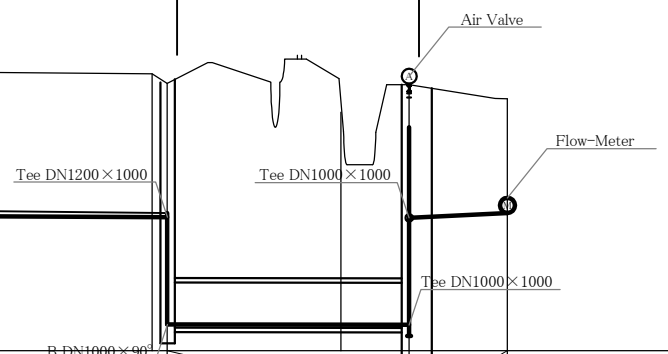
KEY MAP

LEGEND

REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②①⑥	STATION



ROUTE 5 AND RAILWAY CROSSING, L=64.00m
(See Drawing No.H-1)



PIPE GRADIENT (%)	i=3.80															i=0.50				
EXCAVATION DEPTH (m)	3.43	3.50	3.44	3.40	3.16	3.47	3.66	3.60	3.69	3.64	3.97	3.81	3.79	3.54	5.62	6.35	3.02			
INVERT ELEVATION (m)	3.80	3.76	3.62	3.57	3.39	3.20	3.01	2.82	2.63	2.81	2.58	2.56	2.53	2.99	-0.32	-0.32	2.64			
GROUND ELEVATION (m)	6.54	7.26	6.66	6.97	6.54	6.66	6.66	6.42	6.32	6.24	6.55	6.36	6.32	6.07	5.30	6.03	5.66			
ACCUMULATED DISTANCE (m)	14190.00	14200.00	14237.65	14250.00	14300.00	14350.00	14400.00	14450.00	14500.00	14550.00	14600.00	14650.00	14700.00	14768.02	14750.00	14768.02	14794.02			
ROTATION ANGLE	5 5/8°		5 5/8°										90° T11400X1000		T11000X1000 A		M			
STATION	②⑧③②	②⑧④①	②⑧⑤①	②⑧⑥①	②⑧⑦①	②⑧⑧①	②⑧⑨①	②⑨①①	②⑨②①	②⑨③①	②⑨④①	②⑨④②	②⑨⑤①	②⑨⑤②	②⑨⑤③					
PIPE DIAMETER	DN 1200 STEEL PIPE											D=1000								

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No.			
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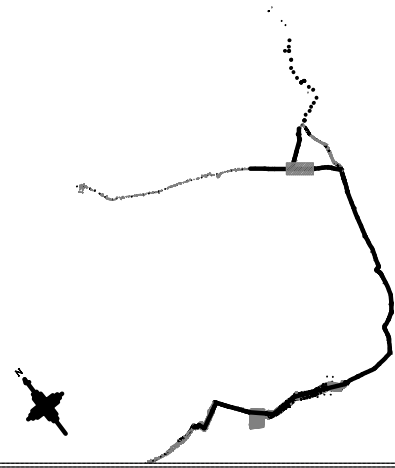
THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

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Oct. 2011
Scale:
V=1/100
H=1/1000

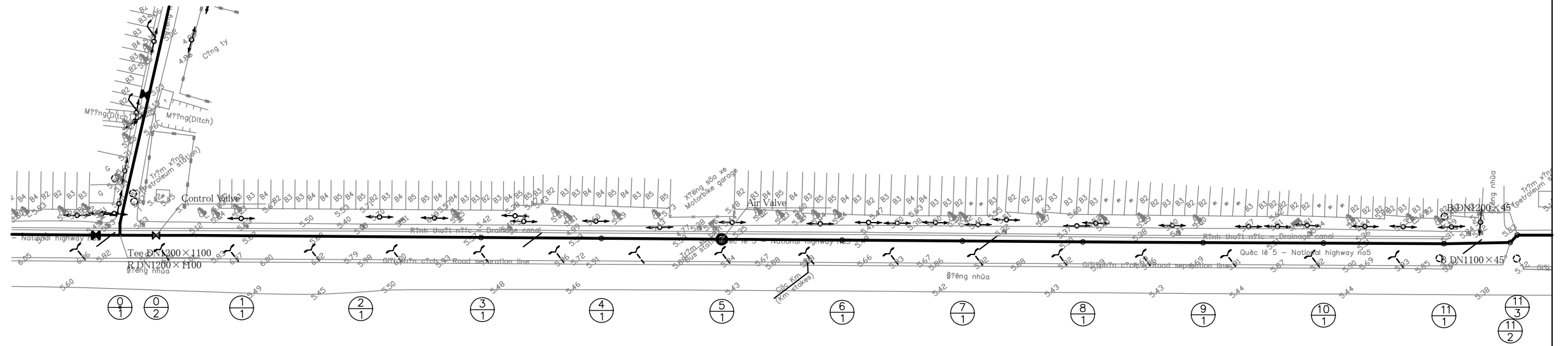
Duong River Water Treatment Plant Transmission Pipeline
PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No
C-25

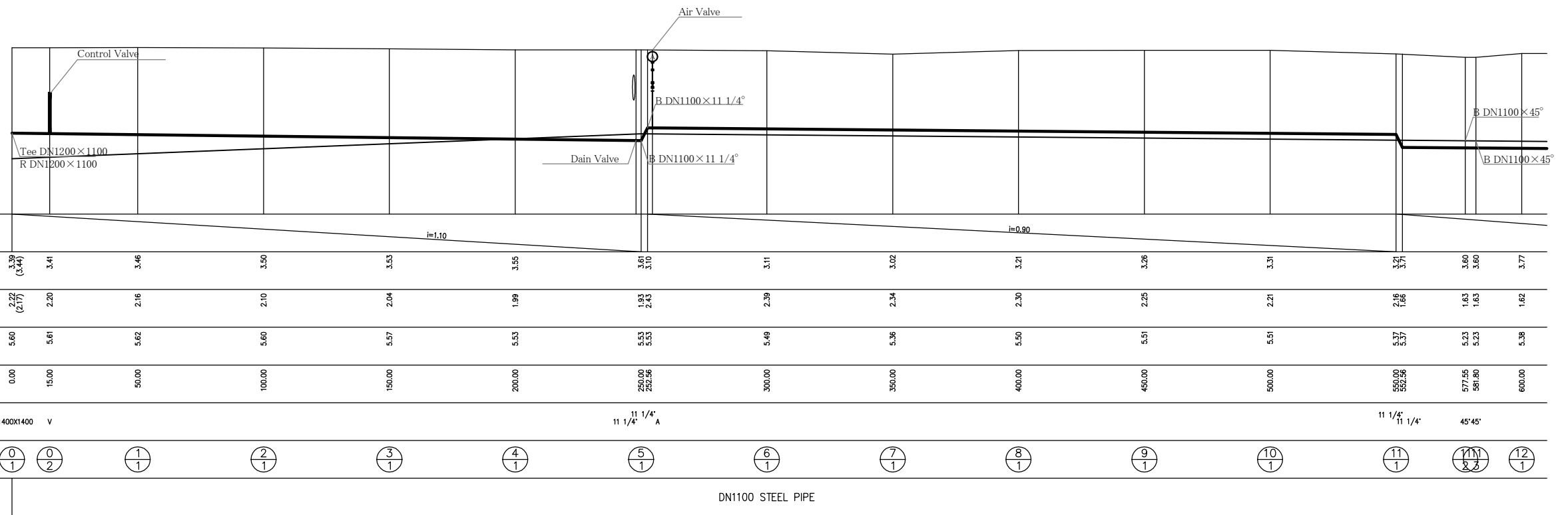
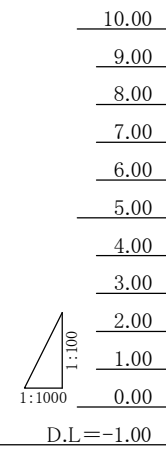
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
② 6	STATION



PIPE GRADIENT (%)	i=1.10												i=0.90			
EXCAVATION DEPTH (m)	3.39 (3.44)	3.41	3.46	3.50	3.53	3.55	3.61 3.10	3.11	3.02	3.21	3.26	3.31	3.37 1.86	3.60 1.63	3.60 1.63	3.77 1.62
INVERT ELEVATION (m)	2.22 (2.17)	2.20	2.16	2.10	2.04	1.99	1.93 2.43	2.39	2.34	2.30	2.25	2.21	2.16 1.86	1.63	1.63	1.62
GROUND ELEVATION (m)	5.60	5.61	5.62	5.60	5.57	5.53	5.53 5.35	5.49	5.36	5.50	5.51	5.51	5.37 5.37	5.23	5.23	5.38
ACCUMULATED DISTANCE (m)	0.00	15.00	50.00	100.00	150.00	200.00	250.00 252.56	300.00	350.00	400.00	450.00	500.00	550.00 552.56	577.55	581.80	600.00
ROTATION ANGLE	T71400X1400 V						11 1/4° A						11 1/4°		45°45'	
STATION	0 1	0 2	1 1	2 1	3 1	4 1	5 1	6 1	7 1	8 1	9 1	10 1	11 1	11 2	12 1	
PIPE DIAMETER	DN1100 STEEL PIPE															

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Scale
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H=1/1000

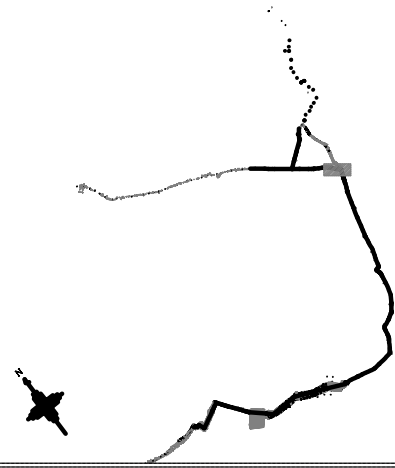
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

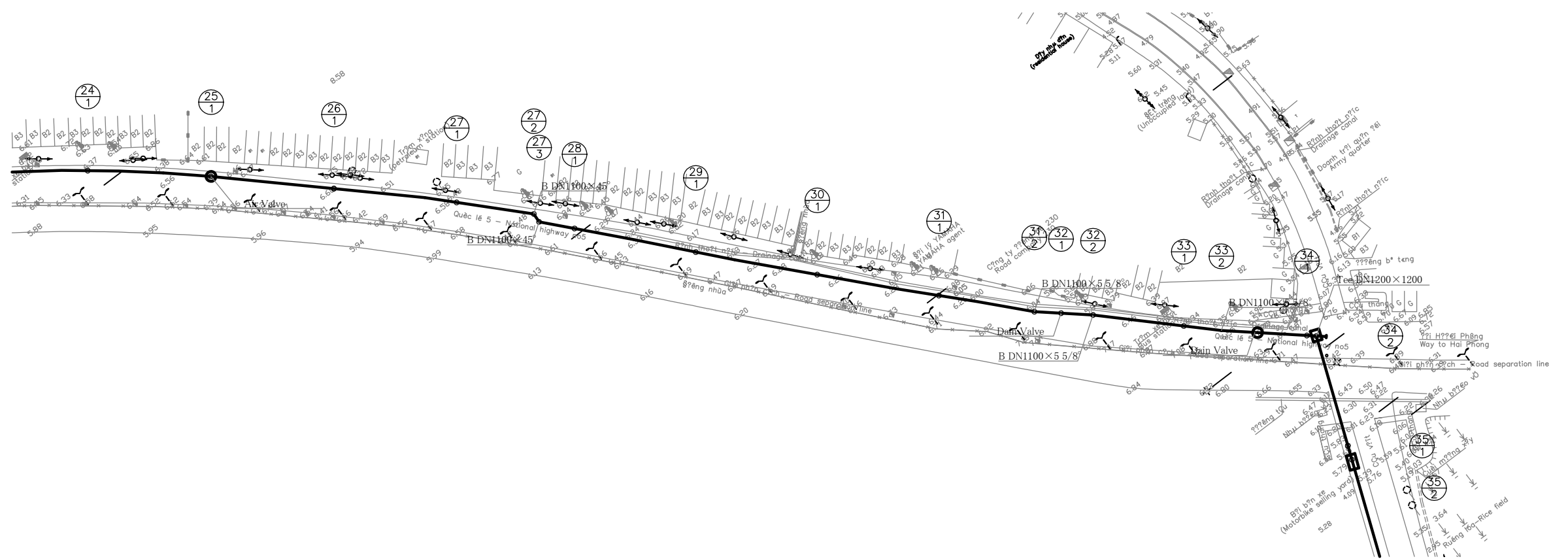
Drawing No

D-1

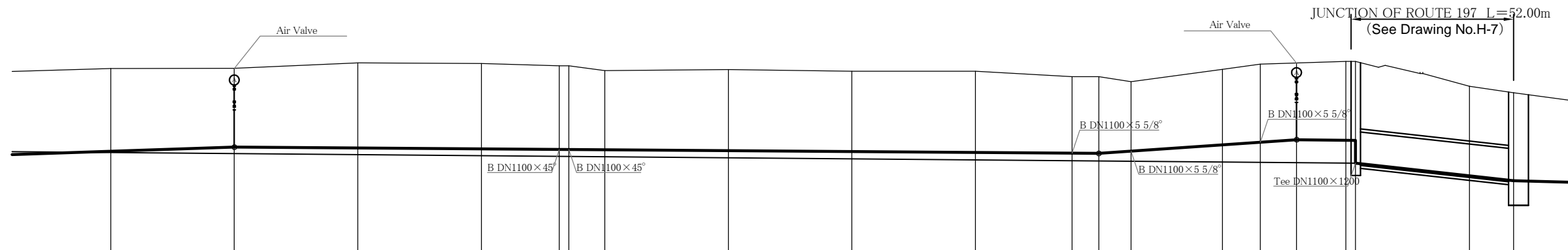
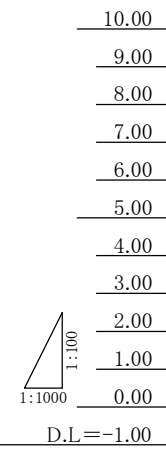
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 6	STATION



PIPE GRADIENT (%)	i=0.71																				i=6.90		0	
EXCAVATION DEPTH (m)	3.35	3.20	3.45	3.47	3.39	3.39	3.21	3.29	3.26	3.29	3.10	3.11	2.82	3.06	3.17	3.11	3.20	4.13	3.55	3.56				
INVERT ELEVATION (m)	3.02	3.19	3.15	3.12	3.09	3.09	3.08	3.04	3.01	2.97	2.94	2.94	3.08	3.28	3.39	3.49	3.47	2.54	2.10	1.83				
GROUND ELEVATION (m)	6.37	6.38	6.60	6.58	6.48	6.48	6.29	6.33	6.26	6.26	6.04	6.04	5.84	6.34	6.55	6.60	6.66	6.66	5.85	5.39				
ACCUMULATED DISTANCE (m)	1200.00	1250.00	1300.00	1350.00	1381.55	1385.40	1400.00	1450.00	1500.00	1550.00	1589.15	1600.00	1613.00	1650.00	1665.30	1680.00	1700.00	1703.85	1750.00	1767.85				
ROTATION ANGLE	A				45°45'				5 5/8" D 5 5/8"				5 5/8" A		T1200X1200									
STATION	⊙ 24 1	⊙ 25 1	⊙ 26 1	⊙ 27 1	⊙ 27 2	⊙ 28 1	⊙ 29 1	⊙ 30 1	⊙ 31 1	⊙ 31 2	⊙ 32 1	⊙ 32 2	⊙ 33 1	⊙ 33 2	⊙ 34 1	⊙ 34 2	⊙ 35 1	⊙ 35 2						
PIPE DIAMETER	DN1100 STEEL PIPE																							

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Scale
V=1/100
H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

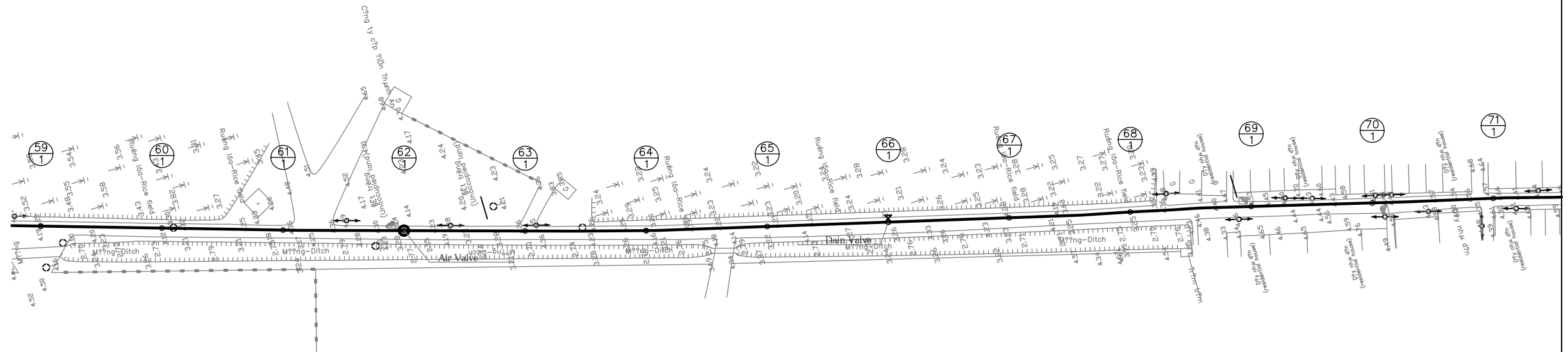
Drawing No

D-3

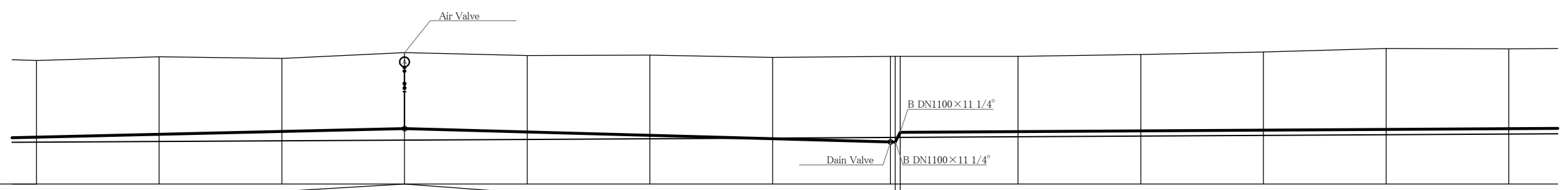
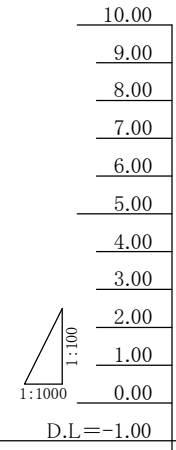
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



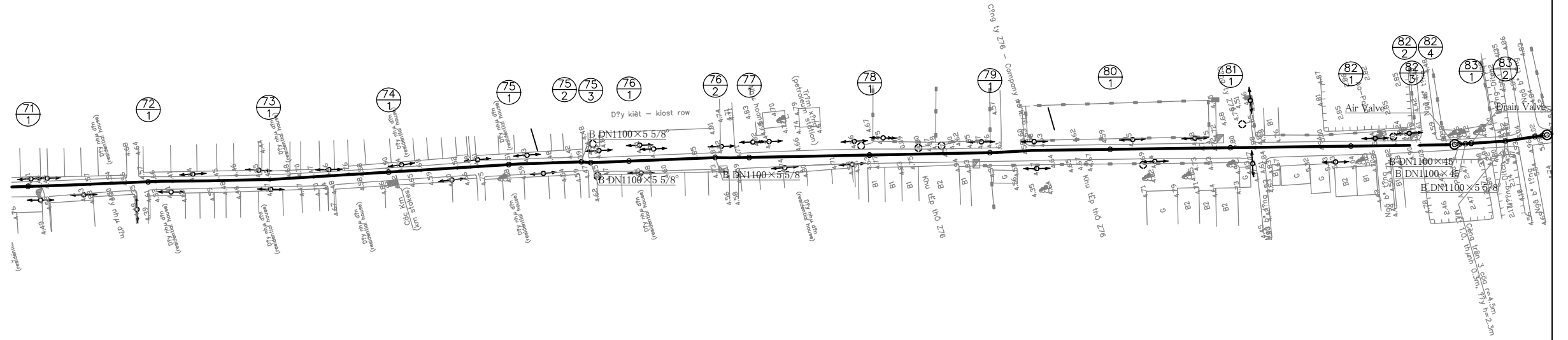
LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②① ⑥	STATION



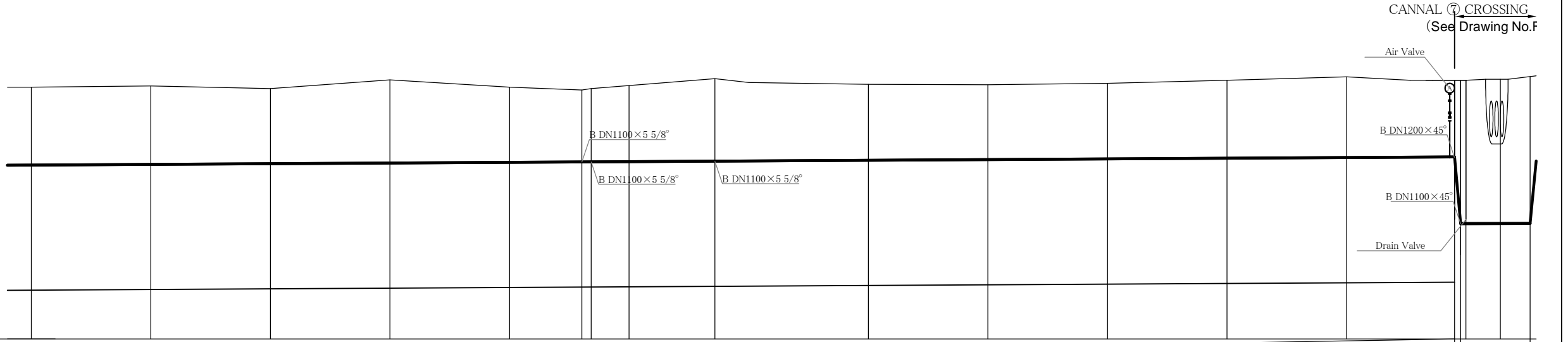
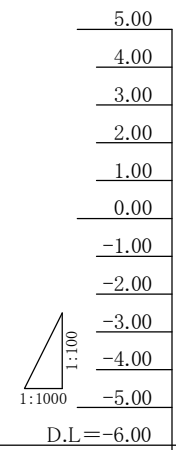
PIPE GRADIENT (%)	i=23.2											i=27.5																				
EXCAVATION DEPTH (m)	3.13	3.16	2.98	3.10	3.12	3.28	3.31	3.50	3.10	3.07	3.11	3.19	3.31	3.26	3.13	3.16	2.98	3.10	3.12	3.28	3.31	3.50	3.10	3.07	3.11	3.19	3.31	3.26				
INVERT ELEVATION (m)	0.91	1.03	1.15	1.26	1.13	0.99	0.85	0.71	1.11	1.14	1.17	1.20	1.23	1.26	0.91	1.03	1.15	1.26	1.13	0.99	0.85	0.71	1.11	1.14	1.17	1.20	1.23	1.26				
GROUND ELEVATION (m)	4.04	4.19	4.12	4.36	4.24	4.26	4.16	4.21	4.21	4.21	4.28	4.38	4.53	4.51	4.04	4.19	4.12	4.36	4.24	4.26	4.16	4.21	4.21	4.28	4.38	4.53	4.51					
ACCUMULATED DISTANCE (m)	2950.00	3000.00	3050.00	3100.00	3150.00	3200.00	3250.00	3300.00	3302.01	3350.00	3400.00	3450.00	3500.00	3500.00	2950.00	3000.00	3050.00	3100.00	3150.00	3200.00	3250.00	3300.00	3302.01	3350.00	3400.00	3450.00	3500.00					
ROTATION ANGLE	A														11 1/4° A																	
STATION	⑤⑨ ①	⑥① ①	⑥② ①	⑥③ ①	⑥④ ①	⑥⑤ ①	⑥⑥ ①	⑥⑦ ①	⑥⑧ ①	⑥⑨ ①	⑦① ①	⑦② ①	⑦③ ①	⑦④ ①	⑤⑨ ①	⑥① ①	⑥② ①	⑥③ ①	⑥④ ①	⑥⑤ ①	⑥⑥ ①	⑥⑦ ①	⑥⑧ ①	⑥⑨ ①	⑦① ①	⑦② ①	⑦③ ①	⑦④ ①				
PIPE DIAMETER	DN1100 STEEL PIPE																															

KEY MAP

PLAN AND PROFILE OF TRANSMISSION PIPELINE

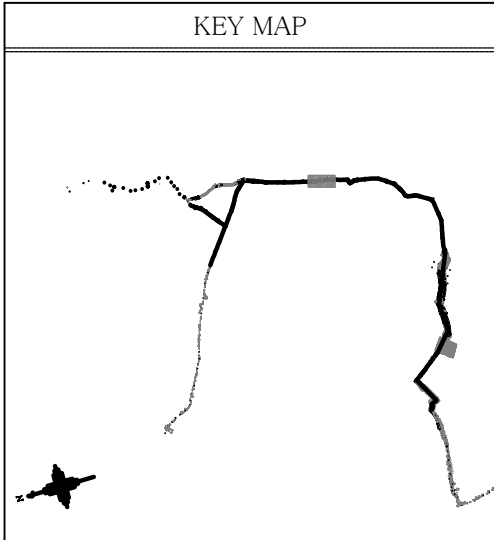


LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
20/6	STATION

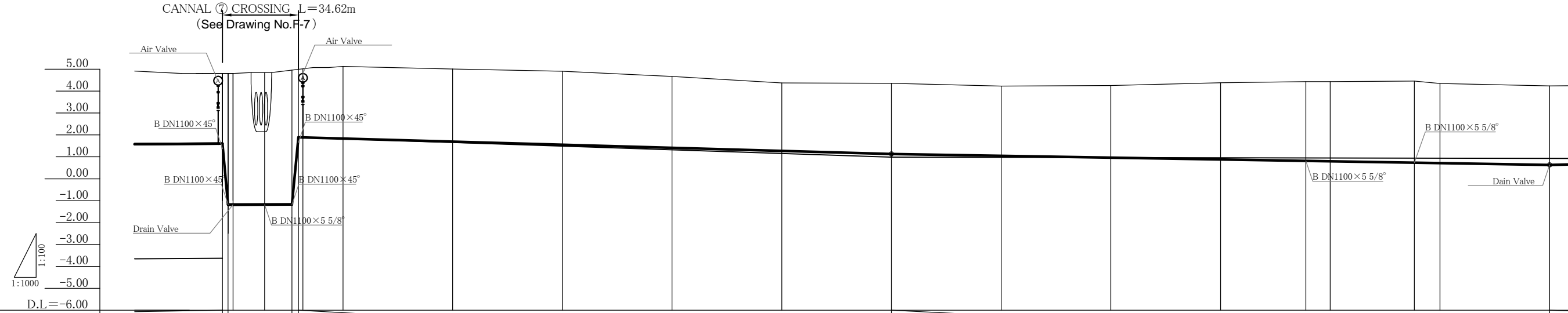
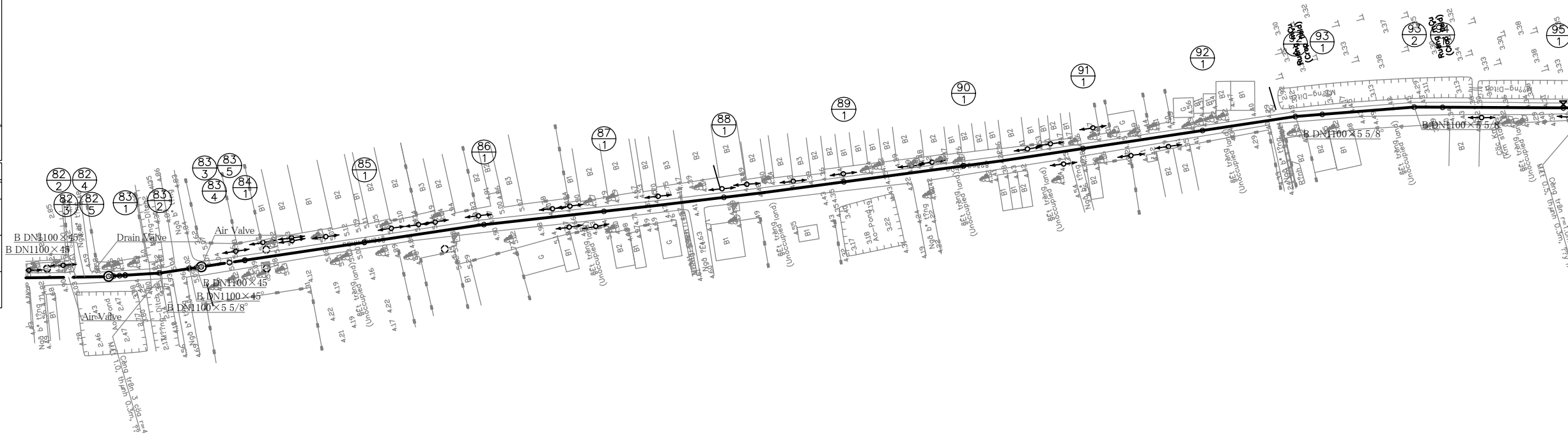


PIPE GRADIENT (%)	I=0.58																				
EXCAVATION DEPTH (m)	3.28	3.28	3.14	3.48	3.14	3.00	3.06	3.18	3.45	3.28	3.17	3.13	3.16	3.26	3.37	3.20	6.99	7.02	7.25		
INVERT ELEVATION (m)	1.26	1.29	1.32	1.34	1.37	1.39	1.39	1.40	1.42	1.43	1.46	1.49	1.52	1.55	1.58	1.60	-1.19	-2.18	-1.18		
GROUND ELEVATION (m)	4.51	4.56	4.45	4.82	4.51	4.39	4.45	4.58	4.87	4.71	4.63	4.61	4.67	4.80	4.94	4.80	4.80	4.84	5.02		
ACCUMULATED DISTANCE (m)	3550.00	3600.00	3650.00	3700.00	3750.00	3782.20	3784.10	3800.00	3835.90	3850.00	3900.00	3950.00	4000.00	4050.00	4100.00	4145.12	4147.67	4150.00	4164.30	4186.50	
ROTATION ANGLE	5 5/8' DN1100 STEEL PIPE																				
STATION	71+1	72+1	73+1	74+1	75+1	75+2	75+3	76+1	76+2	77+1	78+1	79+1	80+1	81+1	82+1	82+2	82+3	82+4	83+1	83+2	83+3

PLAN AND PROFILE OF TRANSMISSION PIPELINE



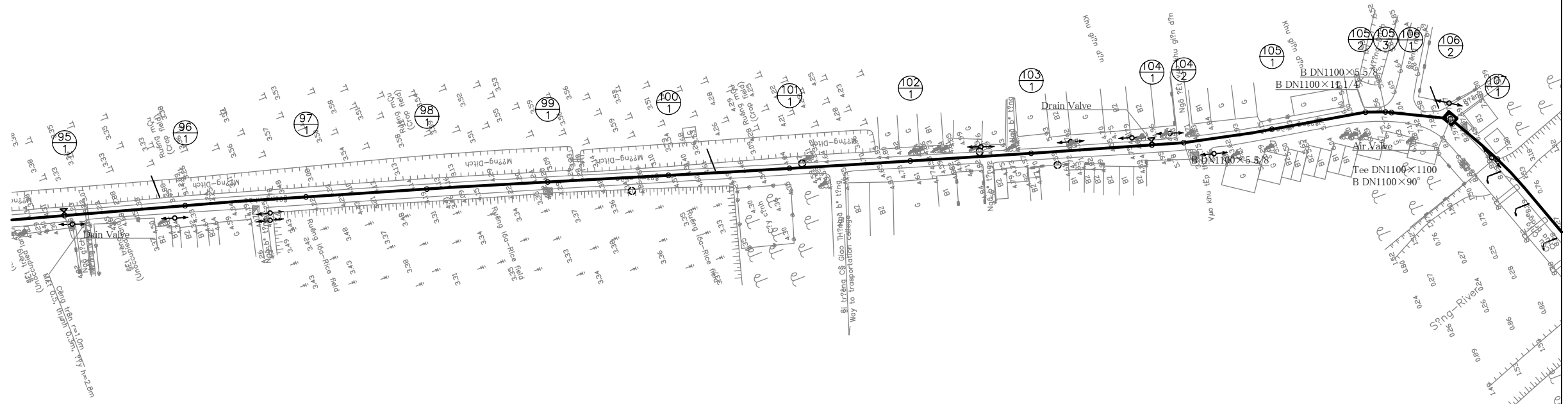
LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



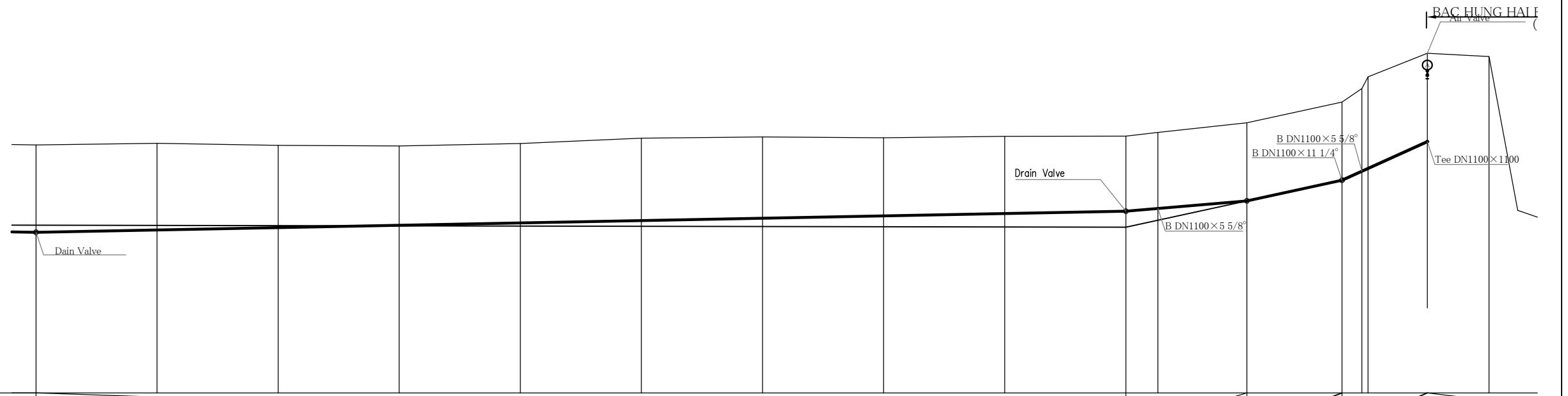
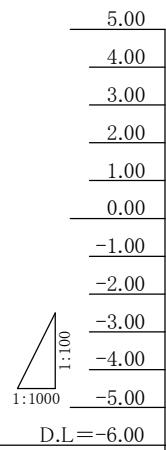
PIPE GRADIENT (%)	i=2.94										i=1.67												
EXCAVATION DEPTH (m)	3.20	6.89	7.02	7.25	3.70	3.29	3.31	3.35	3.25	3.10	3.22	3.18	3.29	3.50	3.62	3.64	3.72	3.63	3.60				
INVERT ELEVATION (m)	1.60	-1.19	-2.18	-1.18	1.88	1.83	1.89	1.55	1.41	1.27	1.13	1.05	0.97	0.88	0.82	0.80	0.74	0.72	0.63				
GROUND ELEVATION (m)	4.80	4.80	4.84	5.02	5.02	5.12	5.00	4.90	4.66	4.37	4.35	4.22	4.25	4.38	4.43	4.43	4.45	4.34	4.23				
ACCUMULATED DISTANCE (m)	4145.12	4147.67	4150.00	4164.30	4186.50	4190.33	4200.00	4260.00	4300.00	4350.00	4400.00	4450.00	4500.00	4550.00	4600.00	4650.00	4688.30	4700.00	4750.00				
ROTATION ANGLE	A 45°45' D			5 5/8'			45°45' A			DN1100 STEEL PIPE										5 5/8'		5 5/8'	
STATION	⊙ 82 2	⊙ 82 3	⊙ 82 4	⊙ 83 1	⊙ 83 2	⊙ 83 3	⊙ 83 4	⊙ 83 5	⊙ 84 1	⊙ 85 1	⊙ 86 1	⊙ 87 1	⊙ 88 1	⊙ 89 1	⊙ 90 1	⊙ 91 1	⊙ 92 1	⊙ 92 2	⊙ 93 1	⊙ 93 2	⊙ 94 1	⊙ 95 1	

KEY MAP

PLAN AND PROFILE OF TRANSMISSION PIPELINE

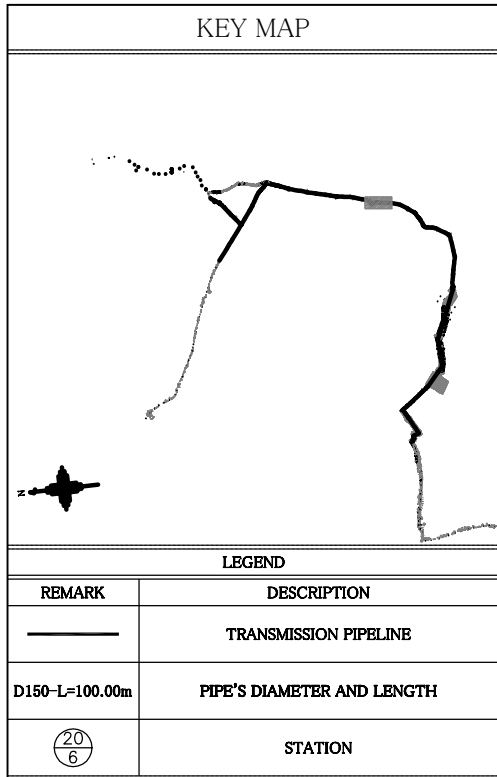


LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②① ⑥	STATION

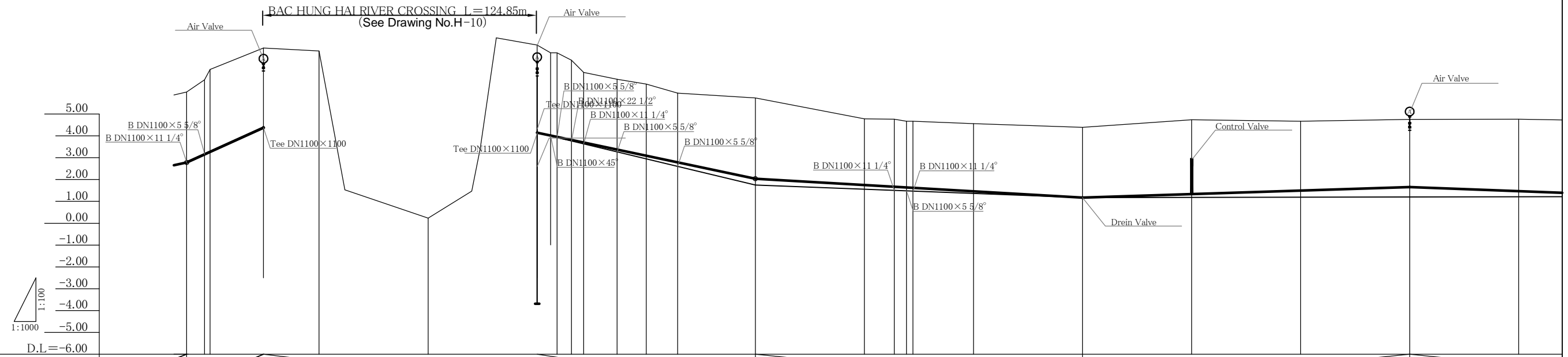
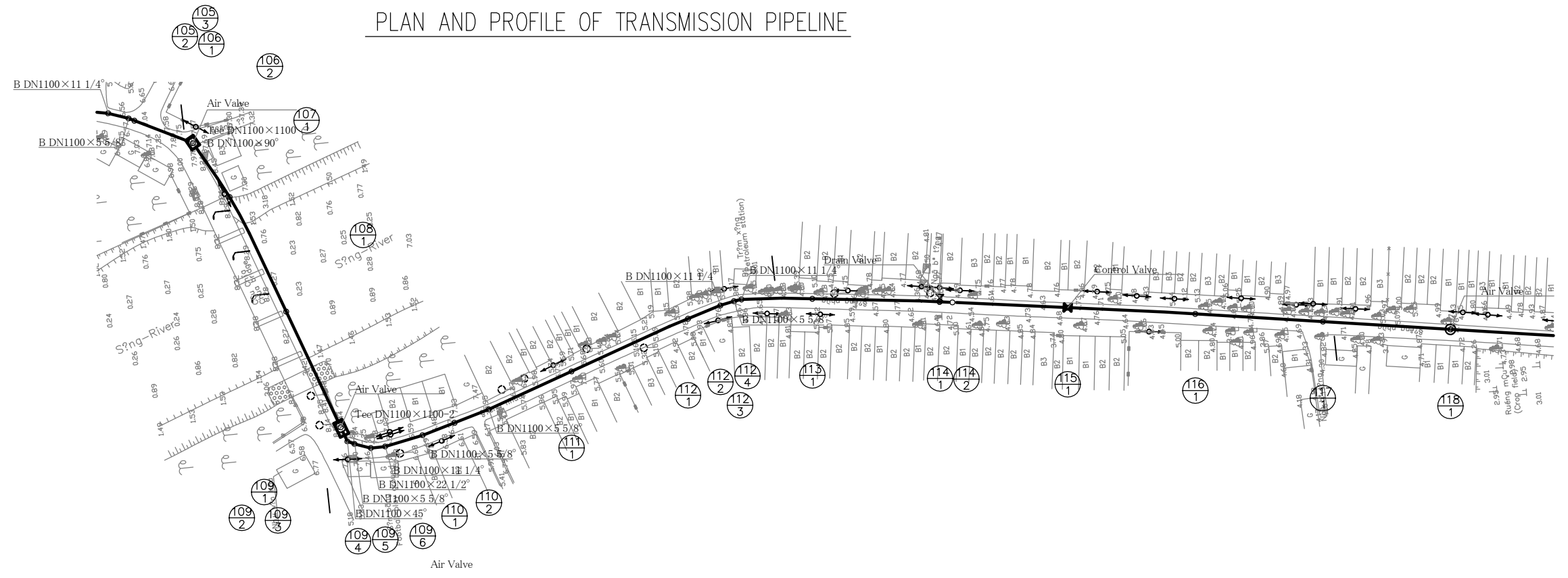


PIPE GRADIENT (%)	i=1.93											i=8.6		i=21.9		i=5.7	
EXCAVATION DEPTH (m)	3.60	3.58	3.40	3.27	3.28	3.40	3.35	3.23	3.19	3.10	3.14	3.23	3.22	2.98	3.65 (11.20)	11.06	
INVERT ELEVATION (m)	0.63	0.73	0.83	0.92	1.02	1.12	1.21	1.31	1.41	1.50	1.62	1.93	2.78	3.60	4.37 (-3.18)	-3.18	
GROUND ELEVATION (m)	4.23	4.30	4.22	4.19	4.29	4.51	4.56	4.53	4.59	4.60	4.75	5.15	6.00	6.56	8.02	7.88	
ACCUMULATED DISTANCE (m)	4750.00	4800.00	4850.00	4900.00	4950.00	5000.00	5050.00	5100.00	5150.00	5200.00	5213.20	5250.00	5288.30	5327.50	5324.50	5350.00	
ROTATION ANGLE	DN1100 STEEL PIPE											D 5 5/8"		11 1/4 5/8"		A	
STATION	⑨⑤ ①	⑨⑥ ①	⑨⑦ ①	⑨⑧ ①	⑨⑨ ①	⑩① ①	⑩① ①	⑩② ①	⑩③ ①	⑩④ ①	⑩④ ②	⑩⑤ ①	⑩⑤ ②	⑩⑥ ③	⑩⑥ ①	⑩⑦ ①	

JICA Study Team	Date:	Oct. 2011	Duong River Water Treatment Plant Transmission Pipeline	Drawing No		
	No.					
THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM			Scale	V=1/100 H=1/1000	PLAN AND PROFILE OF TRANSMISSION PIPELINE	D-9



PLAN AND PROFILE OF TRANSMISSION PIPELINE



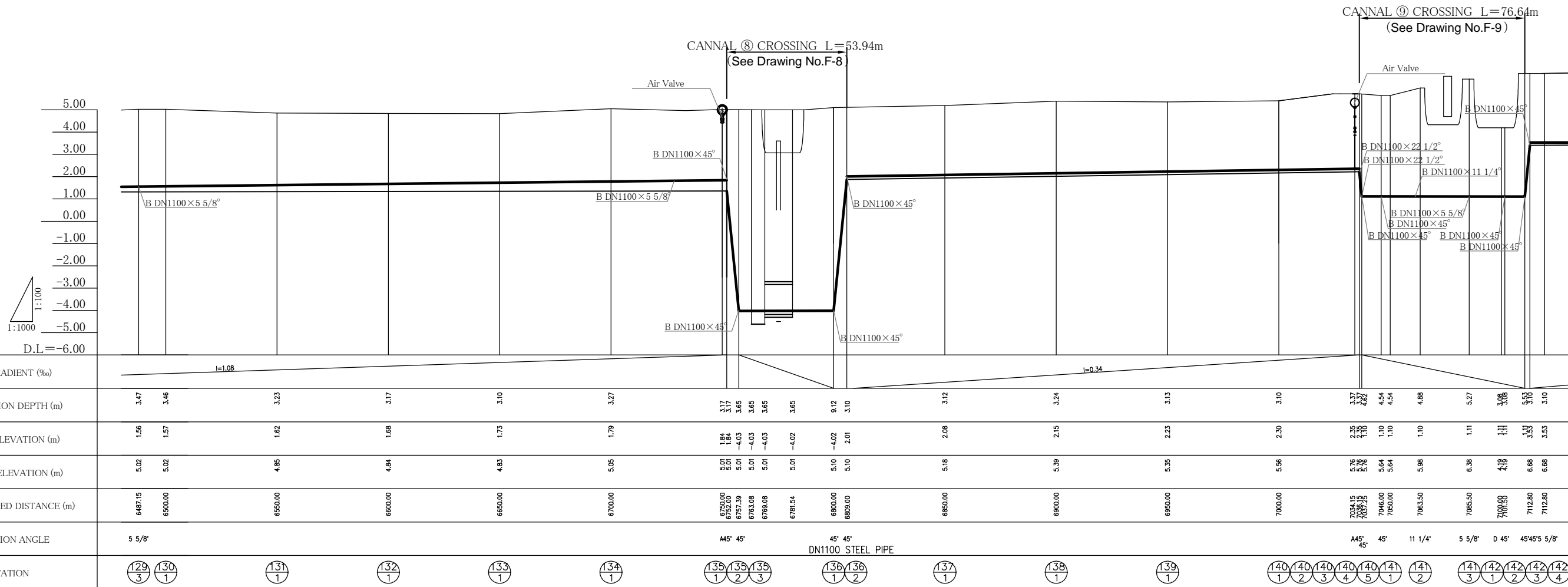
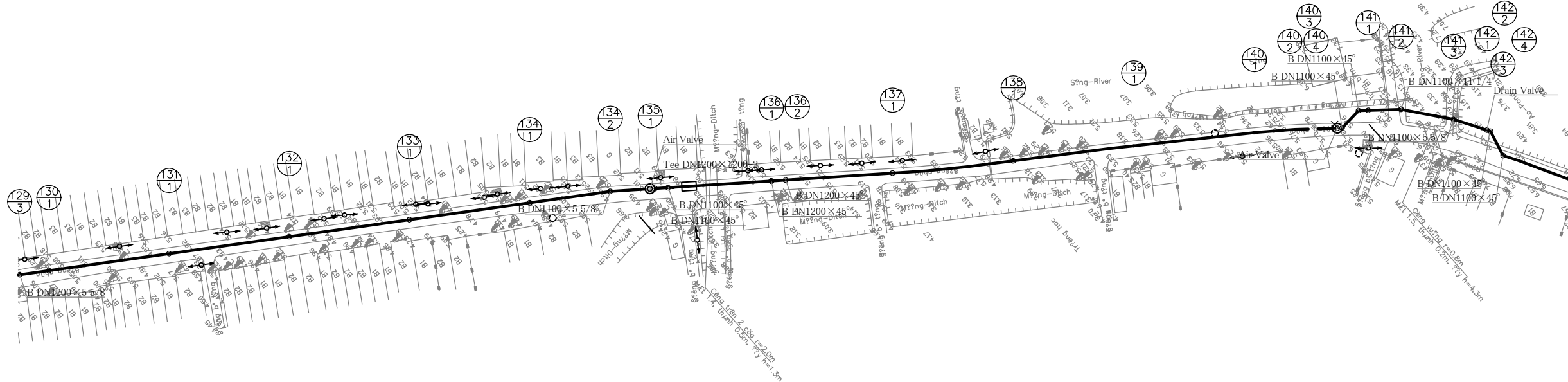
PIPE GRADIENT (%)		$i=55.7$		$i=19.8$		$i=5.8$		$i=3.20$														
EXCAVATION DEPTH (m)	3.22	3.98	3.65 (1.20)	11.08	3.42	11.30 (4.00)	3.65	3.22	3.70	3.03	3.09	3.19	3.10	3.22	3.40	3.18	3.30					
INVERT ELEVATION (m)	2.78	3.99	4.37 (-3.19)	-3.18	-3.19	-3.19 (4.14)	3.61	3.37	3.09	2.79	2.04	1.75	1.67	1.48	1.62	1.46	1.17	1.33	1.49	1.65	1.47	
GROUND ELEVATION (m)	6.00	7.97	8.02	7.88	0.23	8.15	7.80	6.59	6.37	5.95	5.73	4.78	4.76	4.87	4.56	4.39	4.73	4.67	4.75	4.76		
ACCUMULATED DISTANCE (m)	5898.30	5900.00	5924.50	5950.00	5400.00	5450.00	5465.70	5471.30	5486.60	5500.00	5514.40	5550.00	5600.00	5613.70	5622.30	5650.00	5700.00	5750.00	5800.00	5850.00	5900.00	
ROTATION ANGLE	11 1/4 5/8"	A				A	45 1/2 1 1/4"	5 5/8"	5 5/8"				11 1/4 5/8"	D							A	
STATION	②① ⑥	②② ⑦	②③ ⑧	②④ ⑨	②⑤ ⑩	②⑥ ⑪	②⑦ ⑫	②⑧ ⑬	②⑨ ⑭	②⑩ ⑮	②⑪ ⑯	②⑫ ⑰	②⑬ ⑱	②⑭ ⑲	②⑮ ⑳	②⑯ ㉑	②⑰ ㉒	②⑱ ㉓	②㉑ ㉔	②㉒ ㉕	②㉓ ㉖	②㉔ ㉗

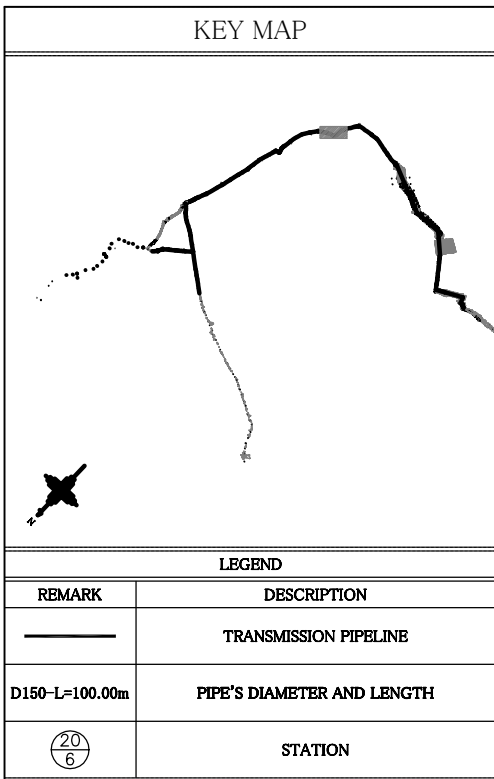
PLAN AND PROFILE OF TRANSMISSION PIPELINE

KEY MAP

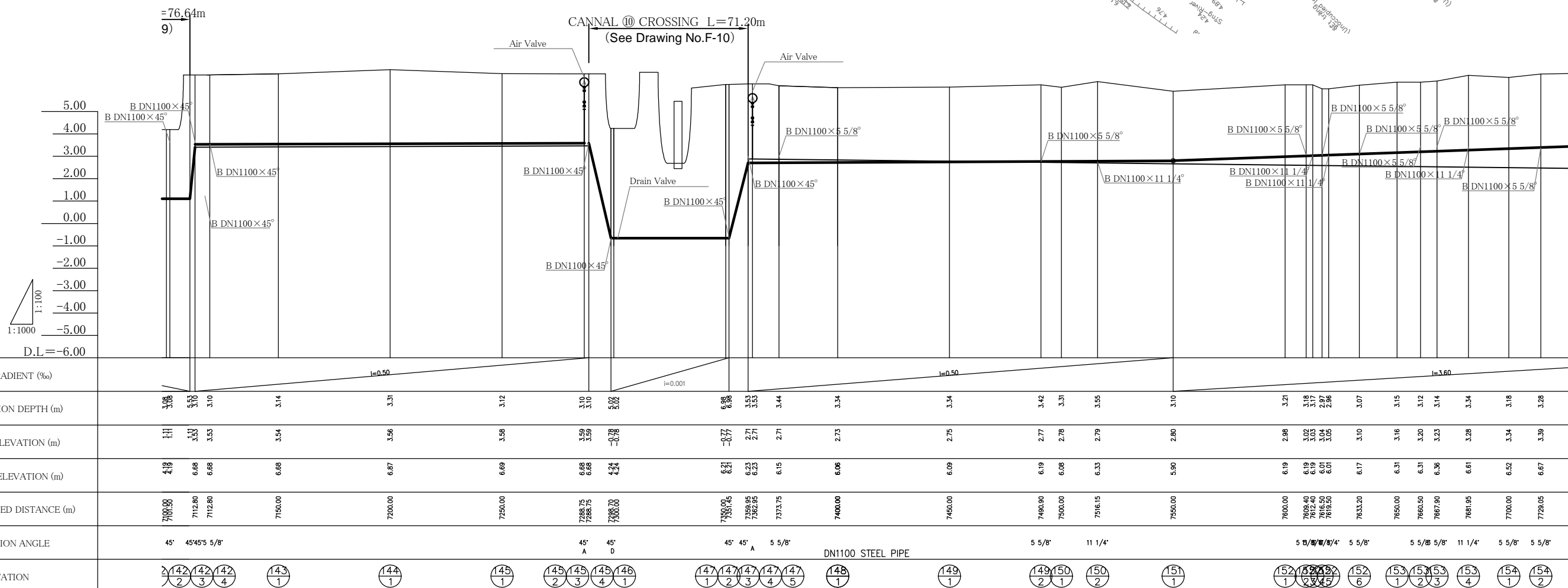
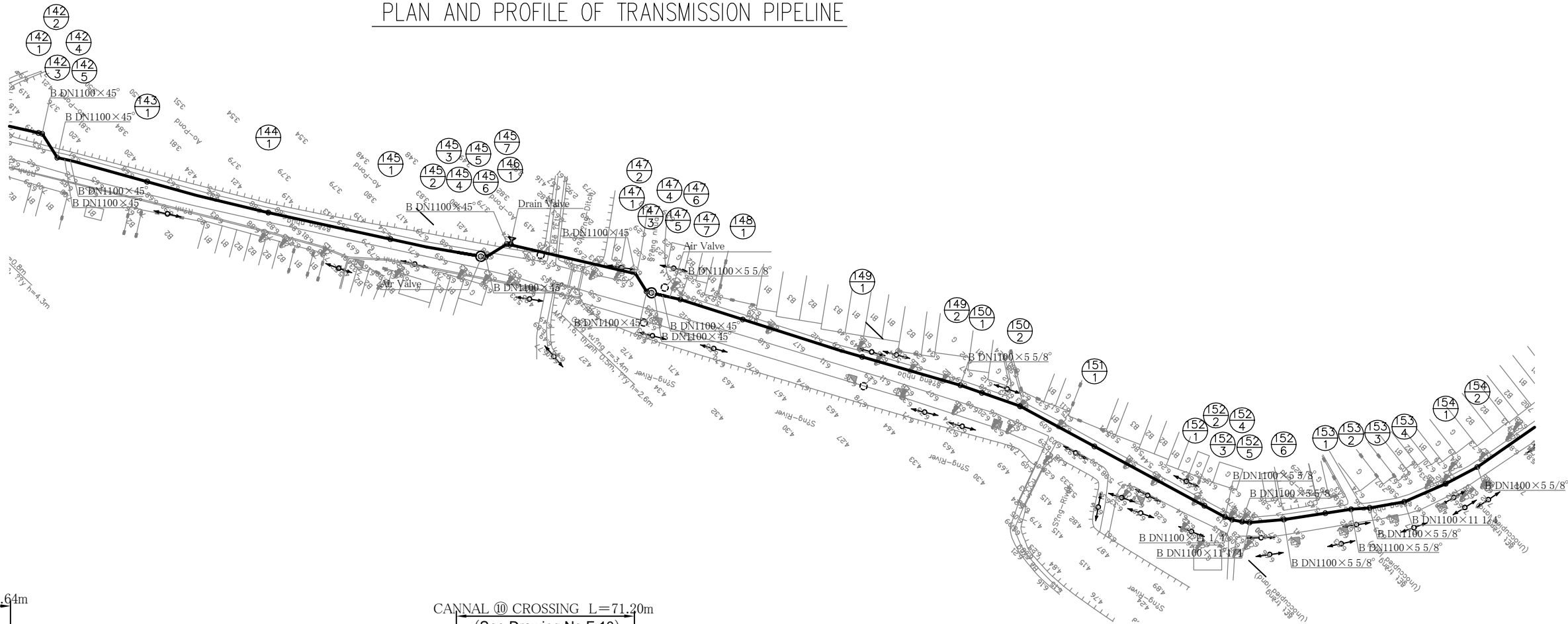
LEGEND

REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
②① ⑥	STATION

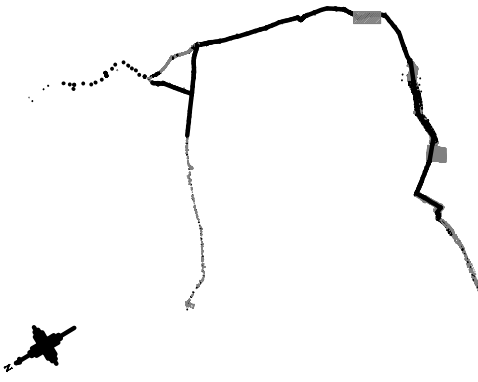




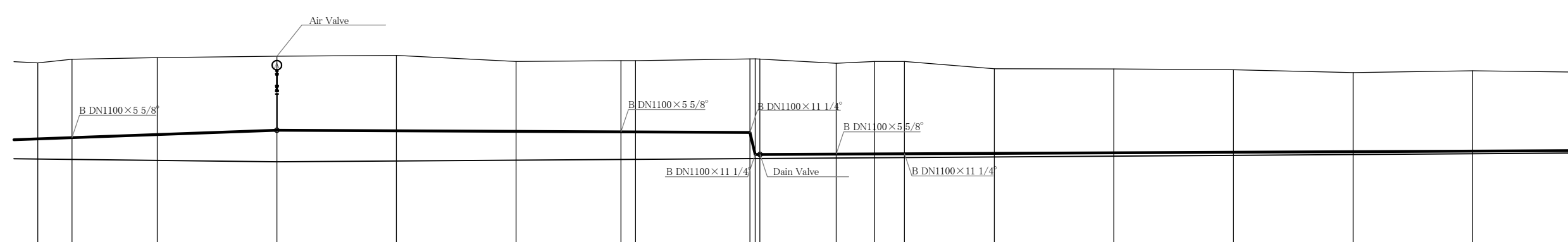
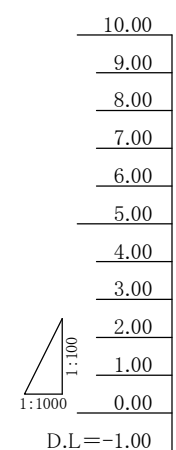
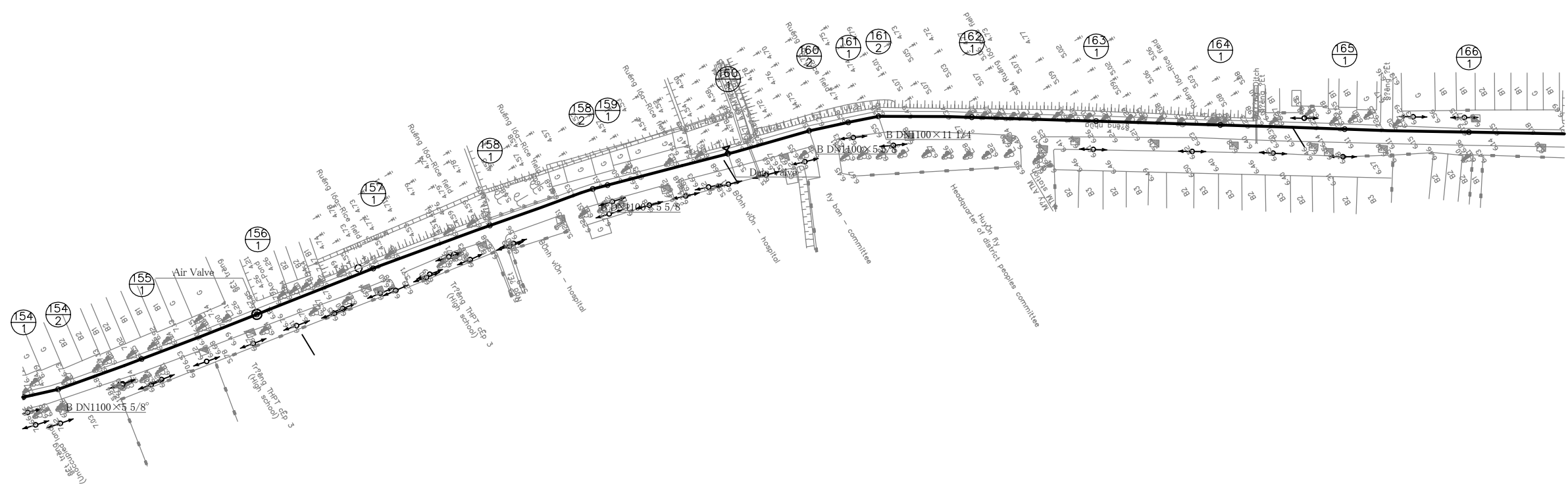
PLAN AND PROFILE OF TRANSMISSION PIPELINE



KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)	i=0.50																	
EXCAVATION DEPTH (m)	3.18	3.28	3.22	3.10	3.16	2.83	2.98	2.99	3.08	3.80	3.87	3.87	3.54	3.51	3.45	3.31	3.37	
INVERT ELEVATION (m)	3.34	3.39	3.52	3.70	3.68	3.65	3.63	3.63	3.68	2.70	2.71	2.72	2.73	2.76	2.78	2.80	2.83	
GROUND ELEVATION (m)	6.52	6.67	6.74	6.81	6.83	6.58	6.61	6.61	6.76	6.50	6.58	6.59	6.27	6.26	6.23	6.11	6.19	
ACCUMULATED DISTANCE (m)	7700.00	7730.05	7750.00	7800.00	7850.00	7900.00	7943.85	7950.00	8000.00	8033.90	8050.00	8077.25	8100.00	8150.00	8200.00	8250.00	8300.00	
ROTATION ANGLE	5 5/8°	5 5/8°		A			5 5/8°		11 1/4°	11 1/4°	5 5/8°	11 1/4°						
STATION	154/1	154/2	155/1	156/1	157/1	158/1	158/2	159/1	160/1	160/2	161/1	161/2	162/1	163/1	164/1	165/1	166/1	
PIPE DIAMETER	DN1100 STEEL PIPE																	

JICA Study Team

No.			
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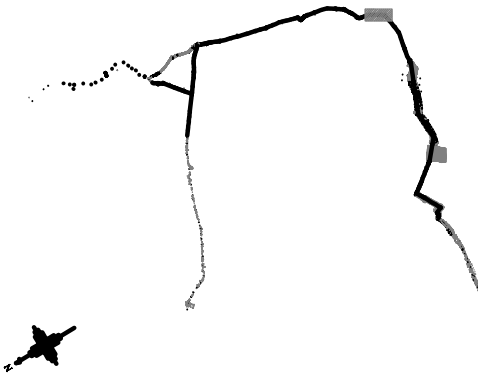
THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011
Scale:
V=1/100
H=1/1000

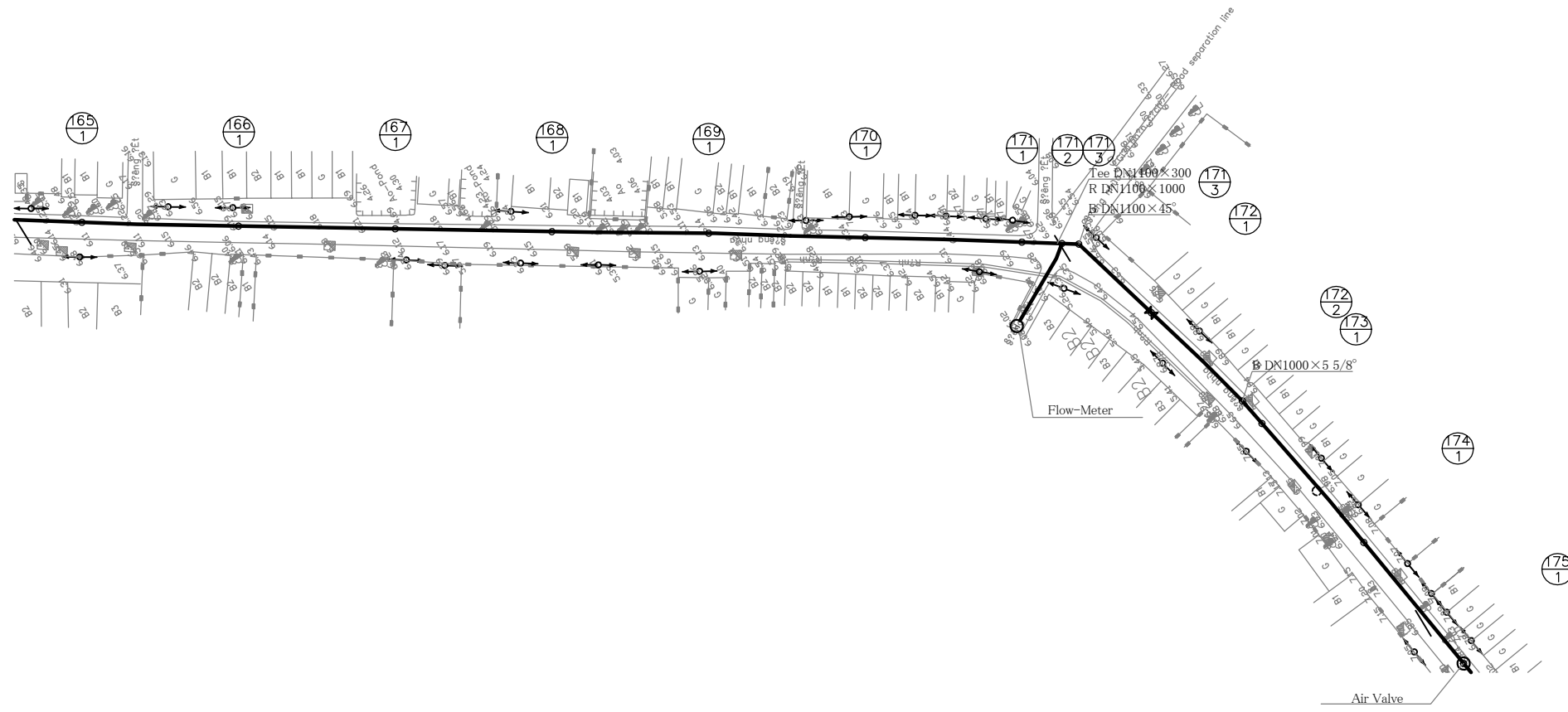
Duong River Water Treatment Plant Transmission Pipeline
PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No
D-14

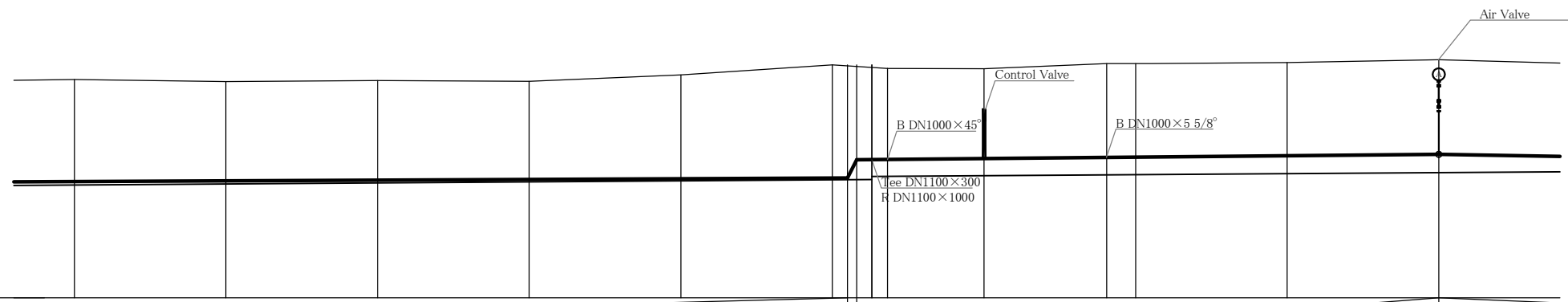
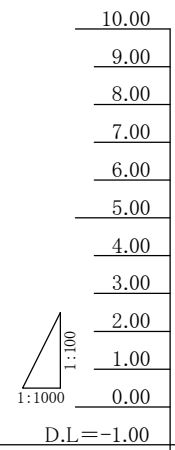
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



PIPE GRADIENT (%)	0.50										1.00					
EXCAVATION DEPTH (m)	3.37	3.27	3.28	3.24	3.42	3.73	3.78	3.74	3.04	3.00	2.96	3.09	3.08	3.07	3.12	
INVERT ELEVATION (m)	2.83	2.85	2.87	2.90	2.92	2.94	2.95	2.94	3.55	3.55	3.58	3.62	3.63	3.68	3.73	
GROUND ELEVATION (m)	6.19	6.12	6.15	6.13	6.34	6.67	6.65	6.64	6.59	6.55	6.54	6.71	6.71	6.75	6.84	
ACCUMULATED DISTANCE (m)	8300.00	8350.00	8400.00	8450.00	8500.00	8550.00	8555.00	8560.00	8563.00	8568.15	8600.00	8640.45	8650.00	8700.00	8750.00	
ROTATION ANGLE											11 1/4°			5 5/8°		A
STATION	⊙ 166 1	⊙ 167 1	⊙ 168 1	⊙ 169 1	⊙ 170 1	⊙ 171 1	⊙ 171 2	⊙ 171 3	⊙ 172 1	⊙ 172 2	⊙ 173 1	⊙ 174 1	⊙ 175 1			
PIPE DIAMETER	DN1100 STEEL PIPE										DN1000 STEEL PIPE					

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date.
Oct. 2011

Scale
V=1/100
H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

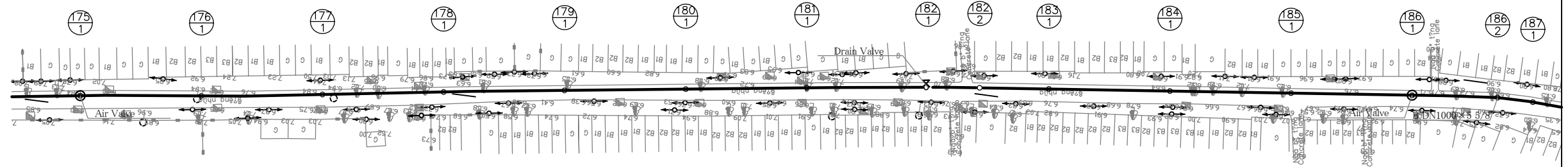
Drawing No

D-15

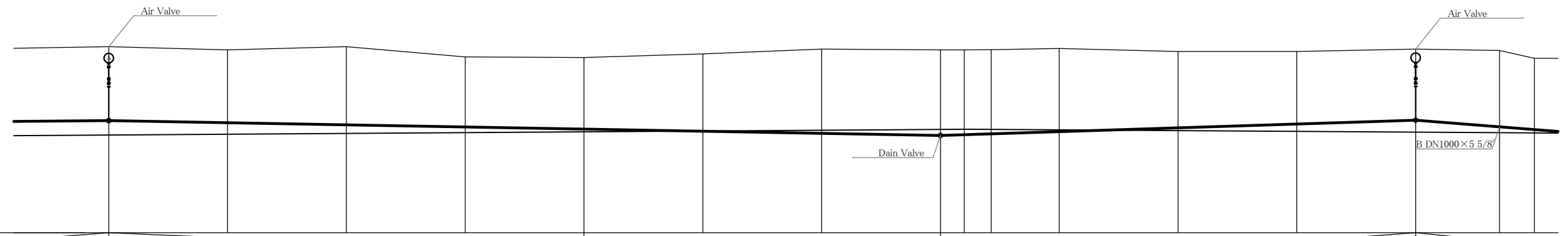
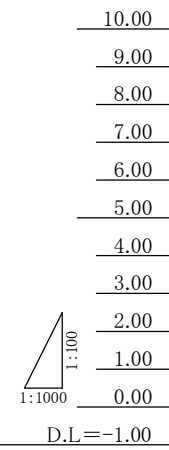
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
$\frac{20}{6}$	STATION



PIPE GRADIENT (%)	i=0.57													i=0					
EXCAVATION DEPTH (m)	3.12	3.07	3.30	2.96	3.01	3.35	3.53	3.45	3.36	3.42	3.33	3.36	3.50	3.46	3.14				
INVERT ELEVATION (m)	3.73	3.64	3.55	3.46	3.37	3.28	3.31	3.35	3.35	3.34	3.42	3.58	3.73	3.46	3.35				
GROUND ELEVATION (m)	6.84	6.70	6.84	6.41	6.38	6.53	6.74	6.70	6.71	6.76	6.64	6.64	6.74	6.68	6.35				
ACCUMULATED DISTANCE (m)	8750.00	8800.00	8850.00	8900.00	8950.00	9000.00	9050.00	9100.00	9136.15	9150.00	9200.00	9250.00	9300.00	9335.35	9350.00				
ROTATION ANGLE	A													D		V	A		5 5/8"
STATION	$\frac{175}{1}$	$\frac{176}{1}$	$\frac{177}{1}$	$\frac{178}{1}$	$\frac{179}{1}$	$\frac{180}{1}$	$\frac{181}{1}$	$\frac{182}{1}$	$\frac{182}{2}$	$\frac{183}{1}$	$\frac{184}{1}$	$\frac{185}{1}$	$\frac{186}{1}$	$\frac{186}{2}$	$\frac{187}{1}$				
PIPE DIAMETER	DN1000 STEEL PIPE																		

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011

Scale
V=1/100
H=1/1000

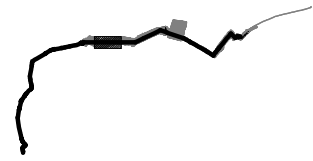
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

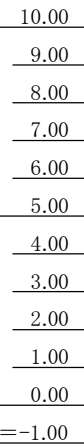
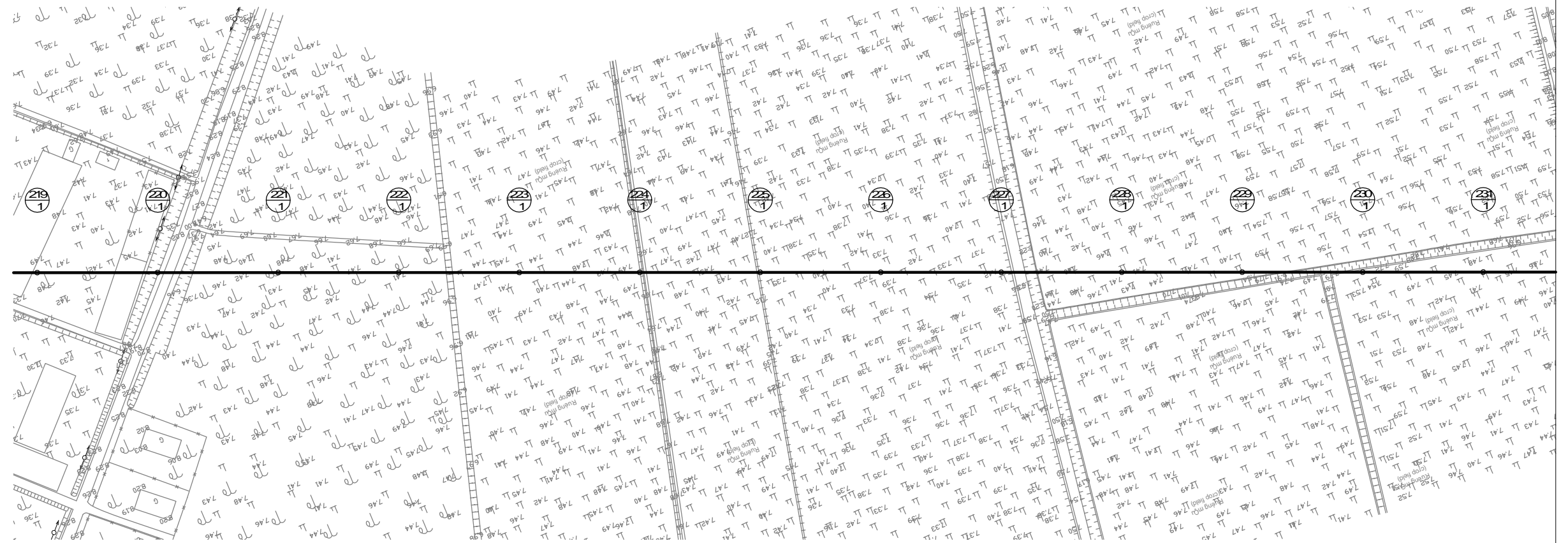
Drawing No

D-16

KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)	i=0.50												
EXCAVATION DEPTH (m)	3.0	4.6	3.8	3.6	3.8	3.7	3.5	3.7	3.5	3.7	3.5	3.6	3.6
INVERT ELEVATION (m)	3.9	3.6	3.4	3.1	3.7	3.7	3.7	3.7	3.7	3.6	3.2	3.9	3.6
GROUND ELEVATION (m)	7.4	8.2	7.4	7.1	7.4	7.4	7.5	7.5	7.4	7.1	7.4	7.4	7.1
ACCUMULATED DISTANCE (m)	1000.00	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00	1100.00
ROTATION ANGLE													
STATION	219+1	220+1	221+1	222+1	223+1	224+1	225+1	226+1	227+1	228+1	229+1	230+1	231+1
PIPE DIAMETER	DN1000 STEEL PIPE												

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011

Scale
V=1/100
H=1/1000

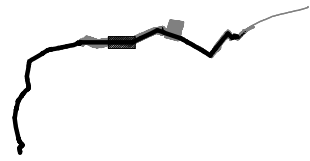
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

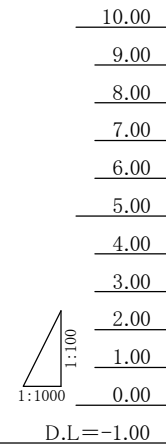
Drawing No

D-20

KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)	-													
EXCAVATION DEPTH (m)	3.05	4.52	3.87	3.19	3.16	3.15	3.38	4.04	3.32	3.38	3.38	3.74	3.88	3.88
INVERT ELEVATION (m)	3.88	3.84	3.81	3.46	3.49	3.89	3.70	3.81	3.82	4.03	4.14	4.25	4.38	4.47
GROUND ELEVATION (m)	7.41	8.36	7.27	6.67	6.67	6.74	7.08	7.86	7.14	8.01	8.02	7.99	8.02	8.03
ACCUMULATED DISTANCE (m)	11000.00	11000.00	11000.00	11700.00	11700.00	11700.00	11800.00	11800.00	11800.00	11800.00	12000.00	12000.00	12100.00	12100.00
ROTATION ANGLE	D V													
STATION	231/1	232/1	233/1	234/1	234/2	235/1	236/1	237/1	238/1	239/1	240/1	241/1	242/1	243/1
PIPE DIAMETER	DN1000 STEEL PIPE													

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011
Scale:
V=1/100
H=1/1000

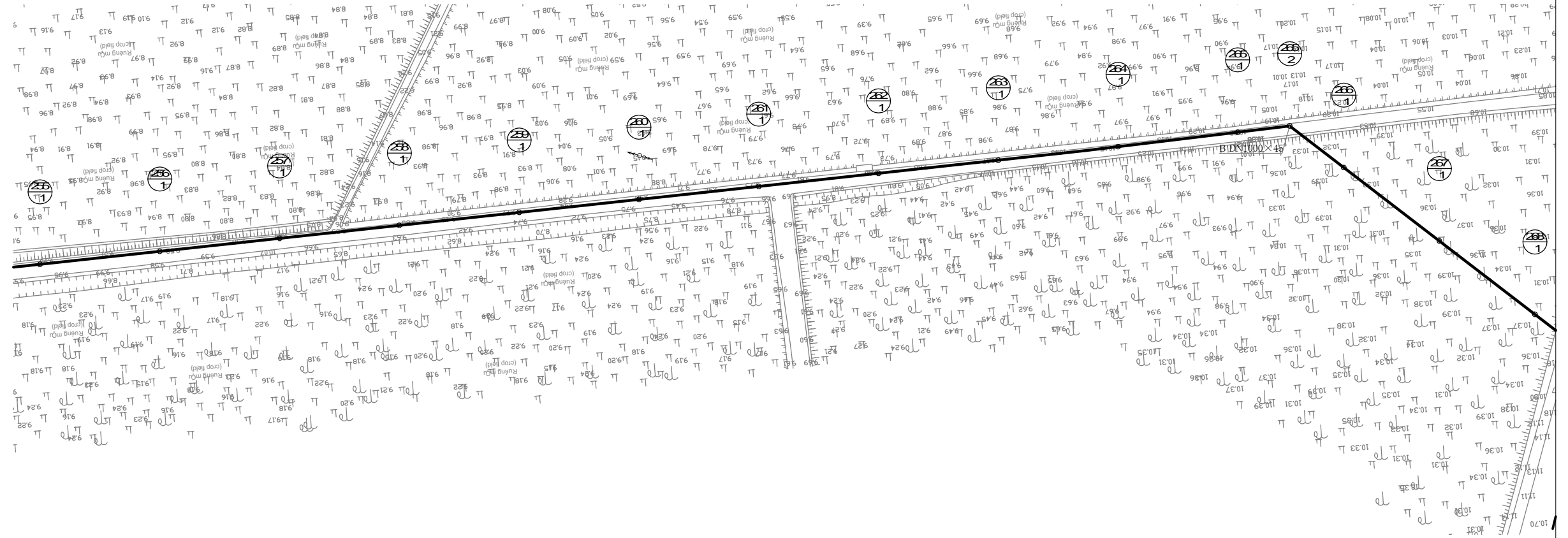
Duong River Water Treatment Plant Transmission Pipeline
PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No
D-21

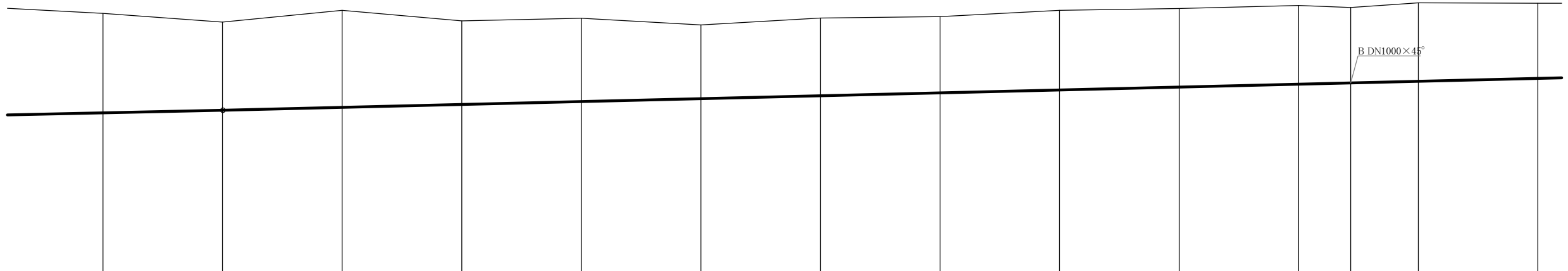
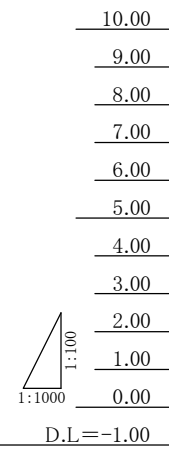
KEY MAP



PLAN AND PROFILE OF TRANSMISSION PIPELINE

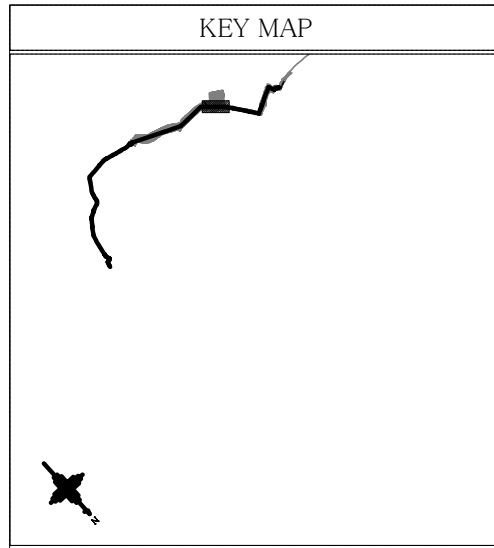


LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
20/6	STATION

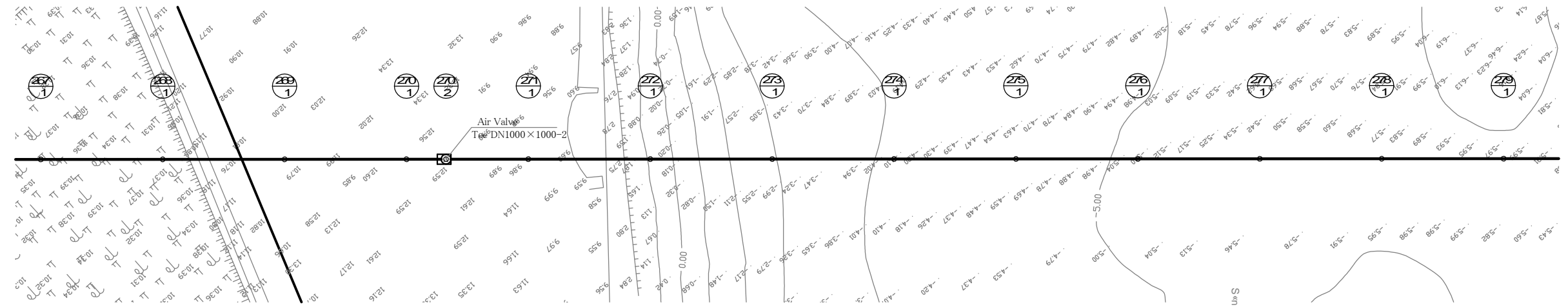


PIPE GRADIENT (%)	=24.2													
EXCAVATION DEPTH (m)	4.18	3.08	4.05	3.49	3.49	3.08	3.25	3.18	3.32	3.29	3.30	3.15	3.28	3.14
INVERT ELEVATION (m)	5.79	5.90	6.02	6.14	6.28	6.39	6.51	6.60	6.75	6.87	6.90	7.04	7.11	7.28
GROUND ELEVATION (m)	9.97	8.98	10.07	9.63	9.74	9.46	9.76	9.81	10.07	10.16	10.20	10.19	10.39	10.42
ACCUMULATED DISTANCE (m)	12700.00	12800.00	12900.00	13000.00	13100.00	13200.00	13300.00	13400.00	13500.00	13600.00	13700.00	13800.00	13900.00	14000.00
ROTATION ANGLE	45													
STATION	230/1	231/1	232/1	233/1	234/1	235/1	236/1	237/1	238/1	239/1	240/1	241/2	242/1	243/1
PIPE DIAMETER	DN1000 STEEL PIPE													

JICA Study Team				Date.	Oct. 2011	Duong River Water Treatment Plant Transmission Pipeline	Drawing No
				Scale	V=1/100 H=1/1000	PLAN AND PROFILE OF TRANSMISSION PIPELINE	D-23
THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM							



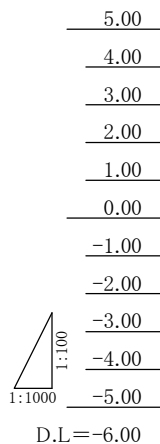
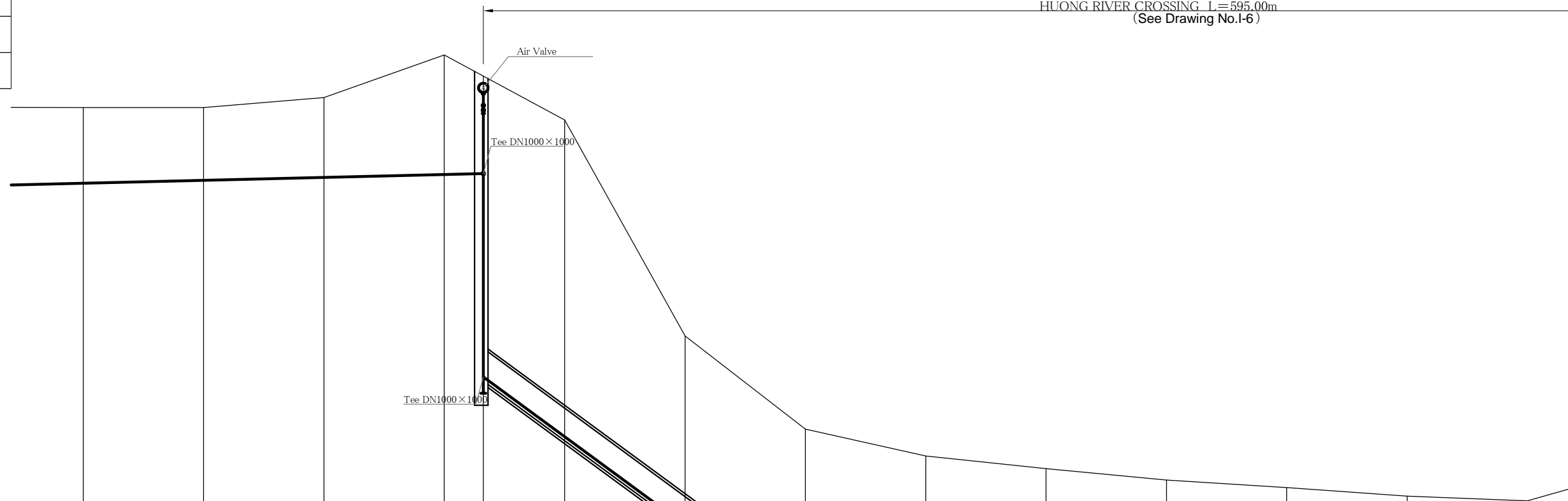
PLAN AND PROFILE OF TRANSMISSION PIPELINE



HUONG RIVER CROSSING L=595.00m
(See Drawing No.I-6)

LEGEND

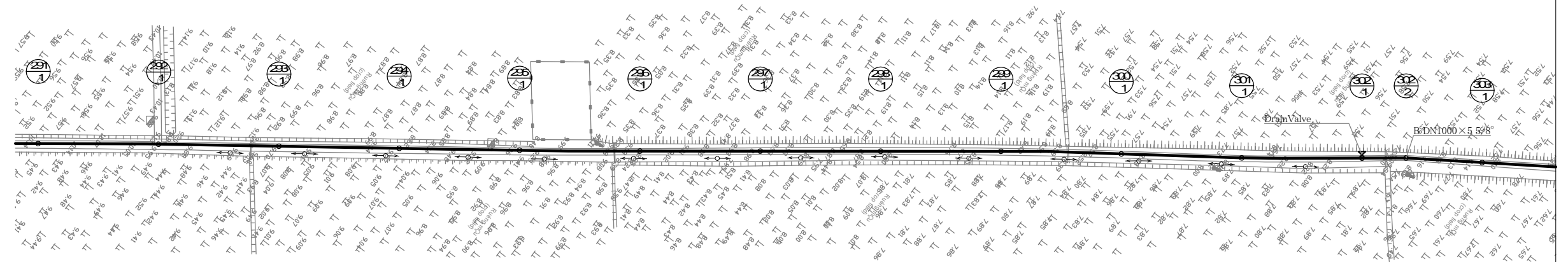
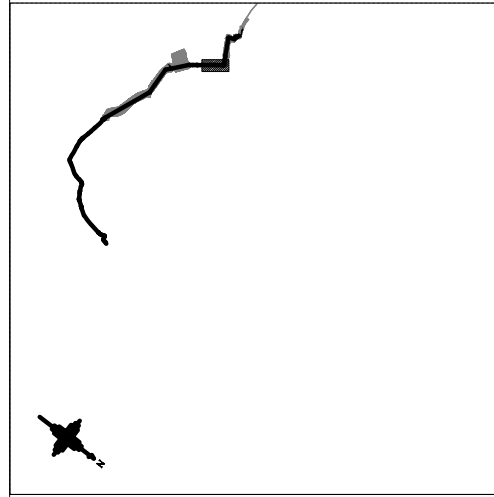
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
20/6	STATION



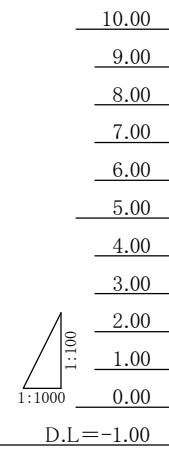
勾配 (%) SLOPE OF RAIN (%)																				
掘削深さ (m) THICKNESS (m)	3.14	3.02	3.32	4.97	4.05 (12.87)	13.19	7.85	7.85	10.52	12.80	13.15	11.50	9.57	7.48						
管底高 (m) INVERT LEVEL (m)	7.23	7.26	7.47	7.29	7.83 (0.82)	-3.30	-4.57	-6.07	-7.42	-8.74	-9.85	-10.82	-11.54	-12.07						
地盤高 (m) LEVELING GROUND ELEVATION (m)	10.37	10.37	10.79	12.26	11.88	9.89	8.88	7.20	5.49	4.19	2.90	1.60	0.30	-0.97						
追加距離 (m) DISTANCE - TOTAL (m)	13800.00	13900.00	13950.00	13990.00	13995.20	13990.00	13980.00	13970.00	13960.00	13950.00	13940.00	13930.00	13920.00	13910.00						
回転角度 ROTATION ANGLE					A															
測点 NAME FILE	267/1	268/1	269/1	270/1	270/2	271/1	272/1	273/1	274/1	275/1	276/1	277/1	278/1	279/1						
管径 PIPE DIAMETER																				

KEY MAP

PLAN AND PROFILE OF TRANSMISSION PIPELINE

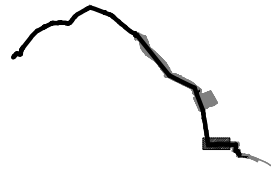


LEGEND	
REMARK	DESCRIPTION
—	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
⊙ 20 6	STATION



PIPE GRADIENT (%)	i=3.50														
EXCAVATION DEPTH (m)	3.04	3.25	3.25	3.29	3.29	3.00	3.08	3.29	3.08	3.29	3.08	3.04	3.21	3.29	3.25
INVERT ELEVATION (m)	6.31	6.13	5.98	6.29	6.01	5.43	6.26	5.98	5.97	4.91	4.73	4.58	4.38	4.38	4.40
GROUND ELEVATION (m)	9.34	9.38	9.23	9.54	9.30	8.43	9.34	9.27	8.26	8.27	7.77	7.58	7.60	7.67	7.64
ACCUMULATED DISTANCE (m)	14620.00	14620.00	14620.00	14700.00	14700.00	14800.00	14800.00	14800.00	14800.00	14800.00	15000.00	15000.00	15100.00	15118.15	15120.00
ROTATION ANGLE	0														
STATION	20+00	20+05	20+10	20+15	20+20	20+25	20+30	20+35	20+40	20+45	20+50	20+55	20+60	20+65	20+70
PIPE DIAMETER	DN1000 STEEL PIPE														

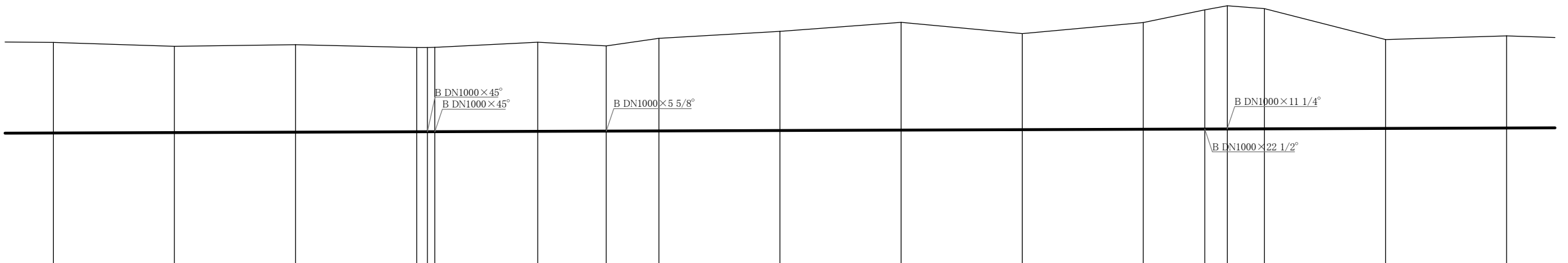
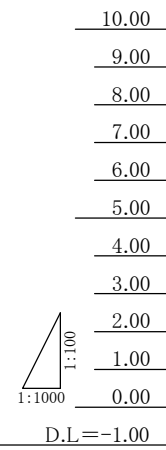
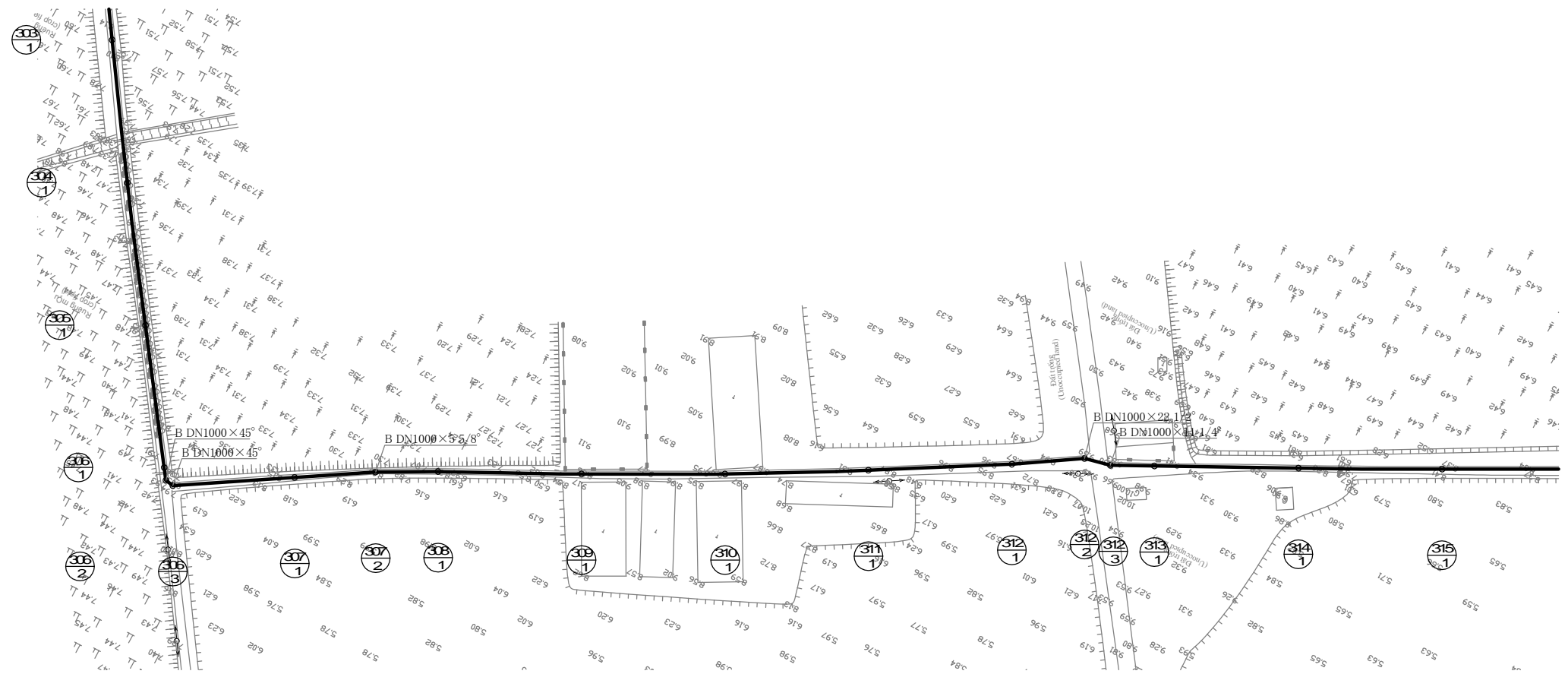
KEY MAP



LEGEND

REMARK	DESCRIPTION
	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
	STATION

PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)																			
EXCAVATION DEPTH (m)	3.75	3.7	3.62	3.48	3.46	3.48	3.5	3.5	3.5	4.0	4.6	3.9	4.4	4.5	5.0	4.9	3.8	3.7	
INVERT ELEVATION (m)	4.4	4.2	4.3	4.4	4.4	4.4	4.7	4.6	4.6	4.9	4.2	4.4	4.5	4.5	4.5	4.7	4.9	4.6	
GROUND ELEVATION (m)	8.14	7.9	8.0	7.9	7.8	7.8	8.2	8.0	8.1	8.9	8.7	8.3	8.9	8.9	8.8	8.6	8.3	8.4	
ACCUMULATED DISTANCE (m)	15110.00	15200.00	15300.00	15394.45	15394.45	15397.45	15500.00	15579.25	15600.00	15600.00	15600.00	15600.00	15600.00	15600.00	15604.05	15604.05	15600.00	15700.00	15700.00
ROTATION ANGLE				45°	5.68°						22.12°						11.14°		
STATION	303+1	304+1	305+1	306+1	306+2	306+3	307+1	307+2	308+1	309+1	310+1	311+1	312+1	312+2	313+3	313+1	314+1	315+1	
PIPE DIAMETER	DN1000 STEEL PIPE																		

JICA Study Team

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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date:
Oct. 2011

Scale
V=1/100
H=1/1000

Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No

D-27

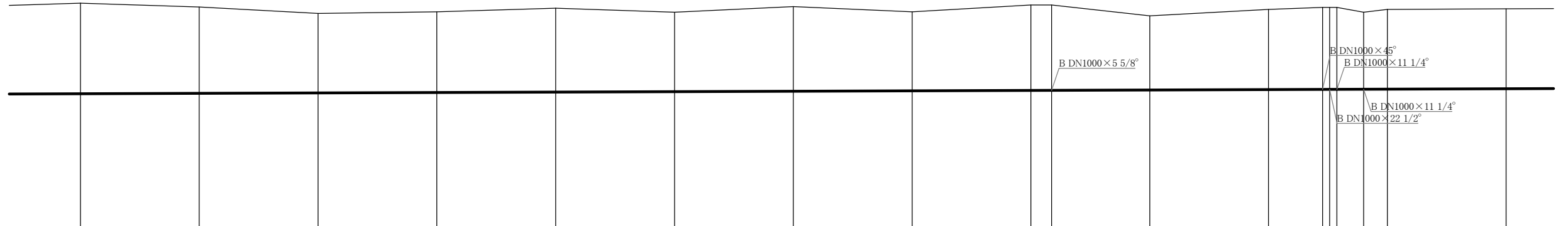
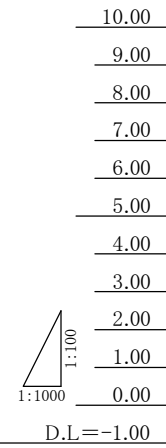
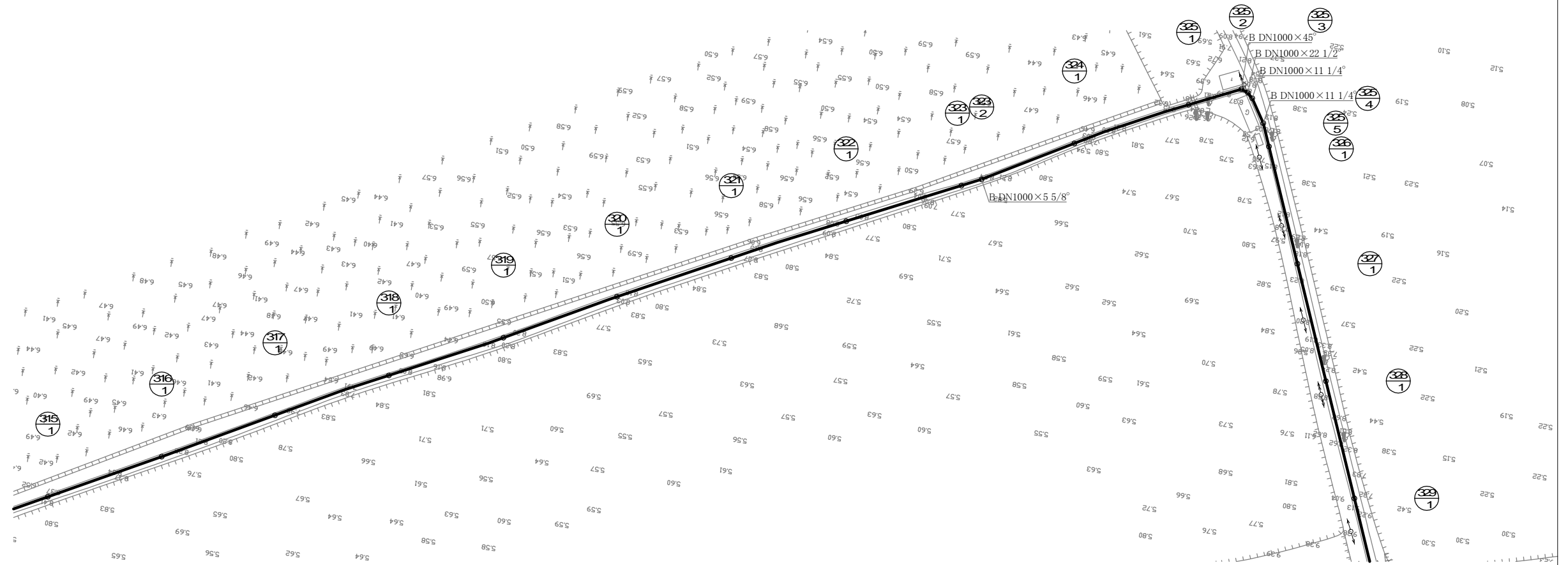
KEY MAP



LEGEND

REMARK	DESCRIPTION
	TRANSMISSION PIPELINE
D150-L=100.00m	PIPE'S DIAMETER AND LENGTH
	STATION

PLAN AND PROFILE OF TRANSMISSION PIPELINE



PIPE GRADIENT (%)	i=0.35																	
EXCAVATION DEPTH (m)	3.21	3.05	3.05	3.40	3.05	3.05	3.07	3.39	2.80	3.00	3.13	3.38	3.48	3.48	3.25	3.38	3.38	
INVERT ELEVATION (m)	4.80	4.82	4.84	4.88	4.87	4.88	4.71	4.72	4.74	4.74	4.78	4.77	4.78	4.78	4.78	4.78	4.81	
GROUND ELEVATION (m)	8.01	7.87	7.89	8.28	7.92	7.93	8.27	8.11	7.54	7.74	7.91	8.15	8.26	8.26	8.03	8.16	8.19	
ACCUMULATED DISTANCE (m)	15700.00	15800.00	15900.00	16000.00	16100.00	16200.00	16300.00	16400.00	16500.00	16600.00	16700.00	16800.00	16927.75	16977.75	17027.75	17077.75	17127.75	
ROTATION ANGLE												5.98°		45° 22 1/2° 11 1/2°				
STATION	315+1	316+1	317+1	318+1	319+1	320+1	321+1	322+1	323+1	323+2	324+1	325+1	325+2	325+3	325+4	325+5	327+1	
PIPE DIAMETER	DN1000 STEEL PIPE																	

JICA Study Team

No.			
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THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

Date.
Oct. 2011

Scale
V=1/100
H=1/1000

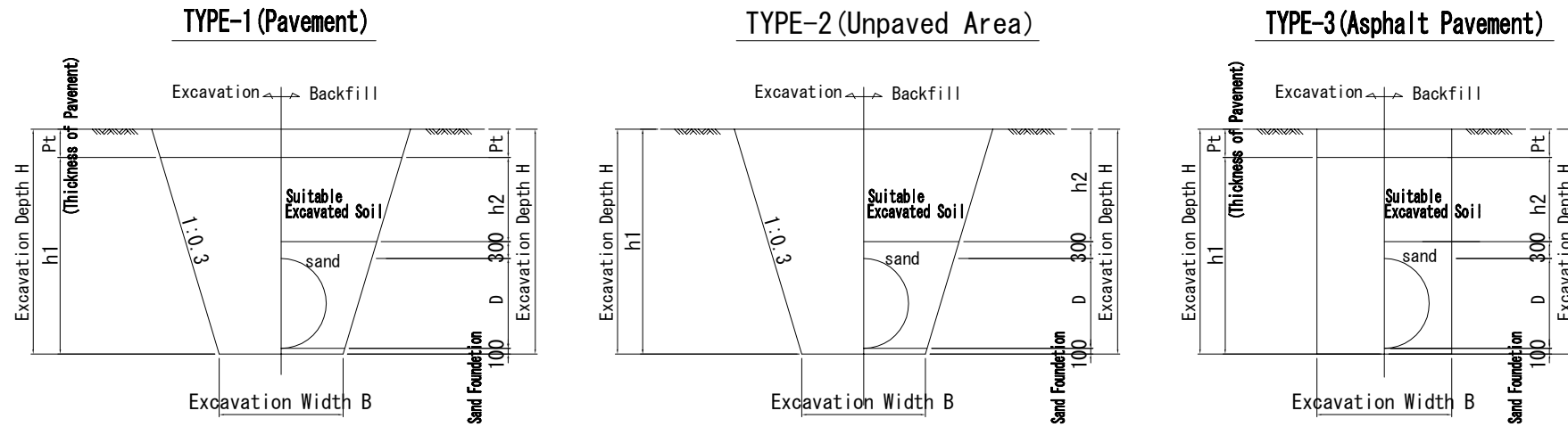
Duong River Water Treatment Plant Transmission Pipeline

PLAN AND PROFILE OF TRANSMISSION PIPELINE

Drawing No

D-28

CROSS SECTION OF TYPICAL EARTHWORKS FOR PIPE Laying



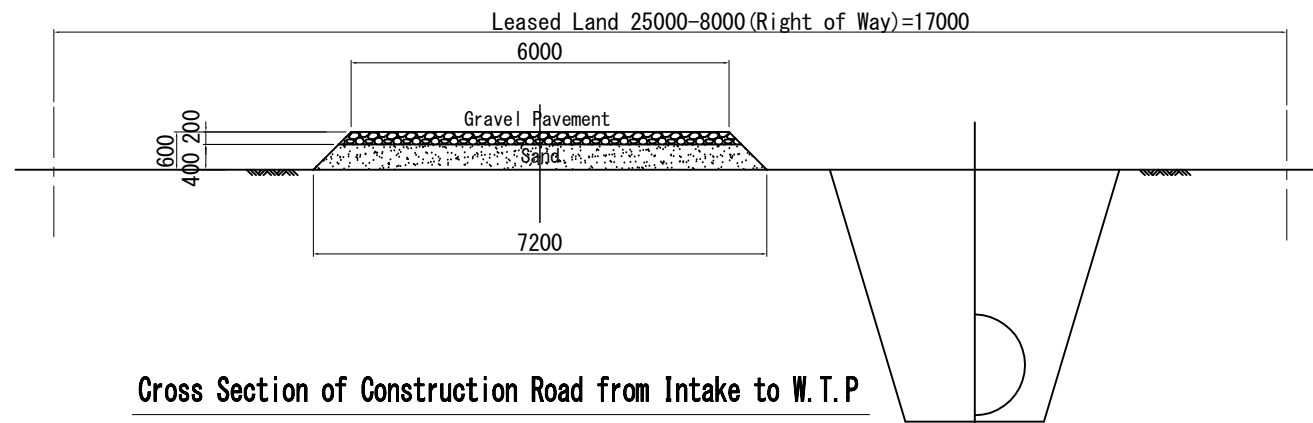
Dimension

Diameter D	TYPE	Location of Pipe Laying	Excavation Width B	Thickness of Pavement	Layer #)
DN450	TYPE-2	Cultivated Area	1050	—	—
DN700	TYPE-1	1 A/179	1300	520	D=50mm O=70mm P=1kg/m ² B=150mm S=350mm
	TYPE-2	Water Treatment Plant	1300	—	—
DN1000	TYPE-3	1 A/179	1600	520	D=50mm O=70mm P=1kg/m ² B=150mm S=350mm
	TYPE-1	197	1600	795	D=50mm O=70mm P=1kg/m ² B=150mm S=350mm
DN1100	TYPE-2	Cultivated Area	1600	—	—
	TYPE-3	197	2000	795	Pa1=15mm Pa2=30mm B1=350mm S1=400mm
DN1200	TYPE-1	197	1700	795	Pa1=15mm Pa2=30mm B1=350mm S1=400mm
	TYPE-3	197	2100	795	Pa1=15mm Pa2=30mm B1=350mm S1=400mm
DN1400	TYPE-1	5	2100	530	D=50mm O=80mm P=1kg/m ² B=150mm S=250mm
	TYPE-3	5	2200	530	D=50mm O=80mm P=1kg/m ² B=150mm S=250mm
DN1400	TYPE-2	Cultivated Area	2200	—	—
	TYPE-3	182	2400	670	D=50mm O=70mm P=1kg/m ² B=150mm S=400mm

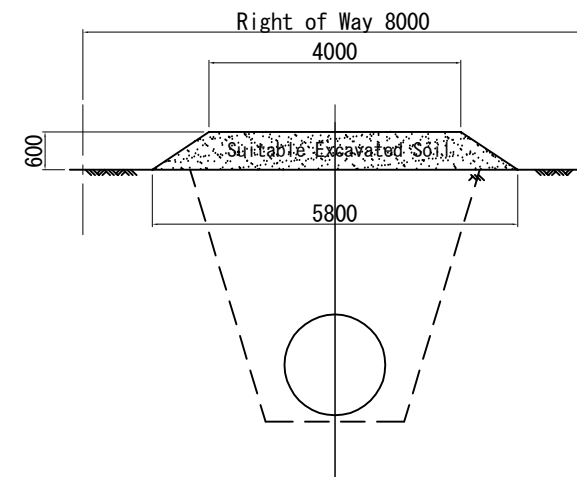
*) D:Dense graded bituminous concrete (50mm)
 O:Open-graded bituminous concrete (70mm)
 B:Base course (250mm)
 S:Subbase course (250mm)
 Pa1:Penetration bituminous pavement (15mm 4kg/m²)
 Pa2:Penetration bituminous pavement (30mm 4kg/m²)
 B1:Base course (Gravel40~60)
 B2:Subbase course (Cobble)

Cross Section of Construction Road and Maintenance Road

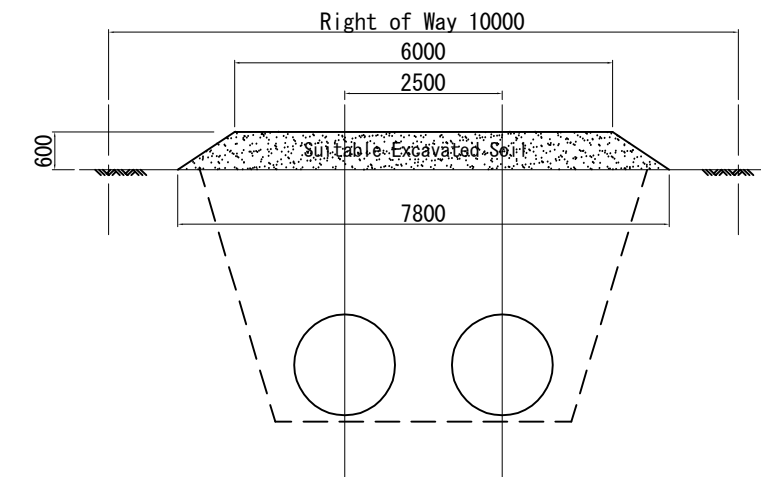
Cross Section of Construction Road
(Area other than Road)



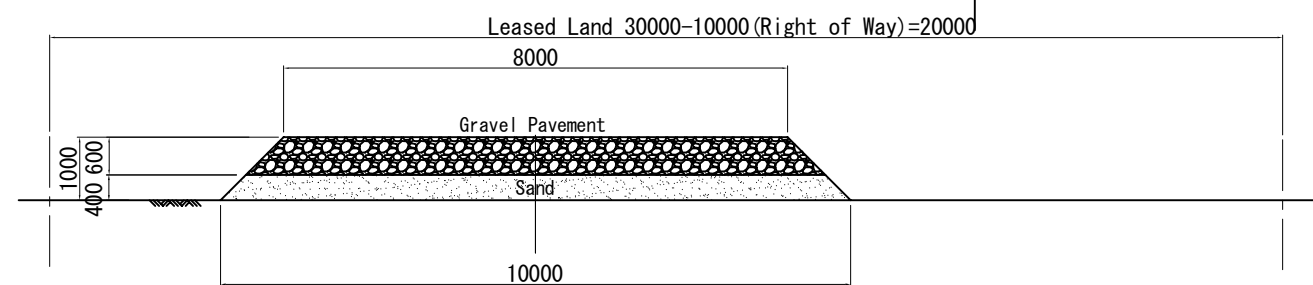
Cross Section of Maintenance Road
(Area other than Road)



Cross Section of Maintenance Road
(Intake to Water Treatment Plant)



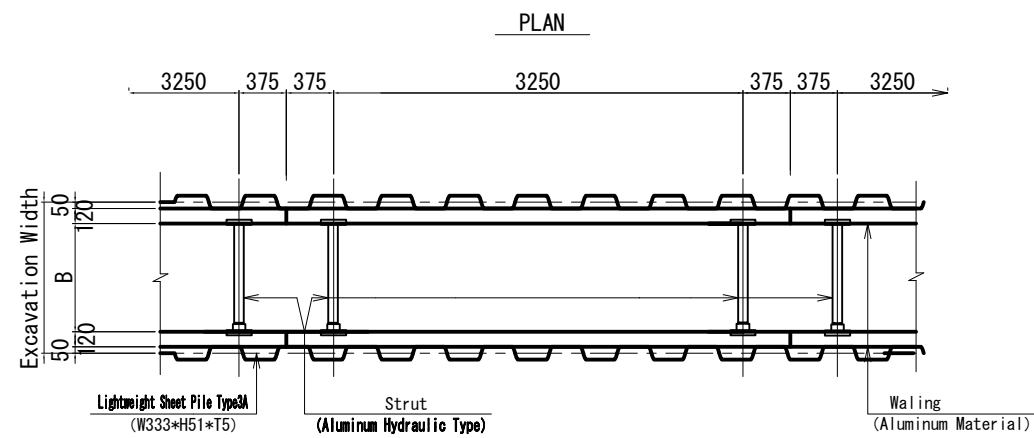
Cross Section of Construction Road from Intake to W.T.P



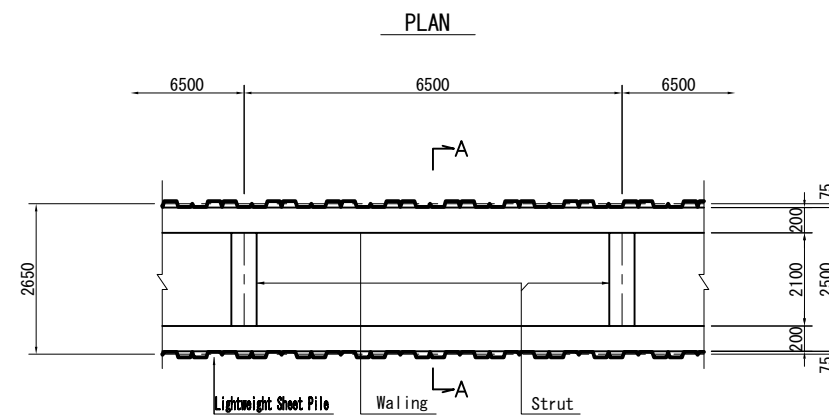
No.			
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TYPICAL SHEATHING WORKS S=NONE

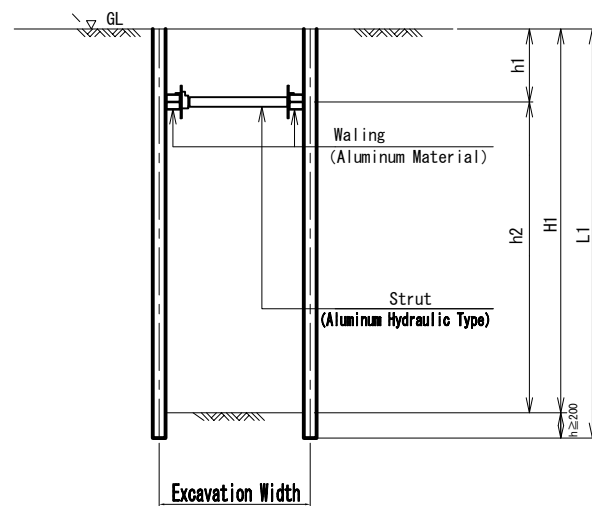
POSITIONING OF LIGHTWEIGHT SHEET PILE
(DN φ 700~1400mm)



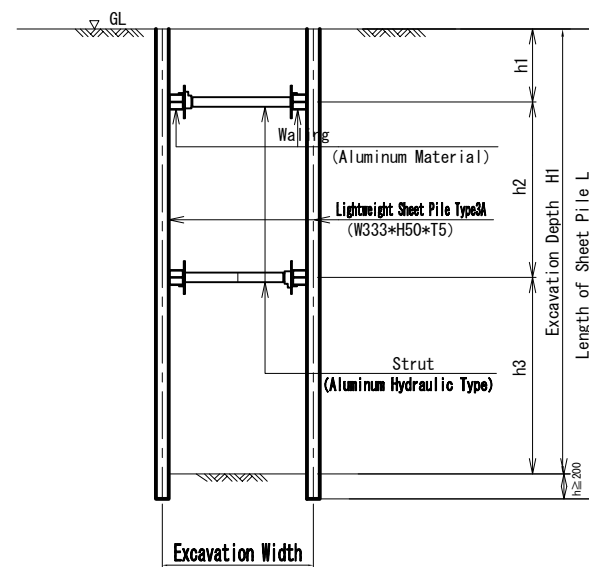
DRIVING OF RIGHTWEIGHT SHEET PILE
(DN φ 1600mm)



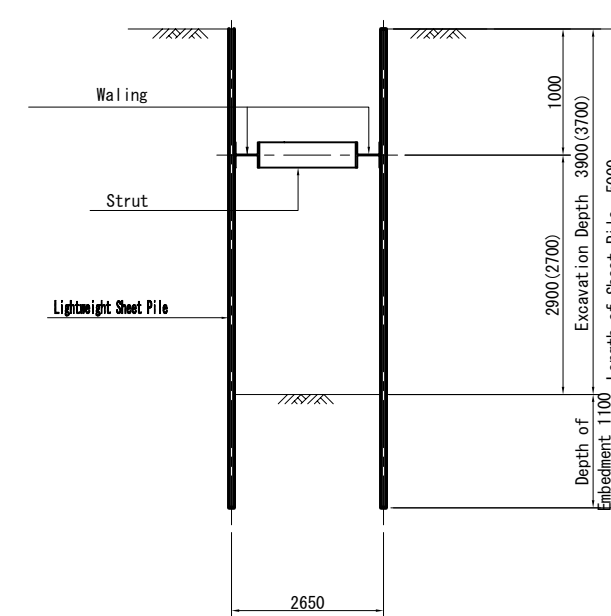
Cross Section(TYPE1 Excavation Depth Less than 3m)



Cross Section(TYPE2 Excavation Depth More than 3m)



CROSS SECTION A-A



Dimension

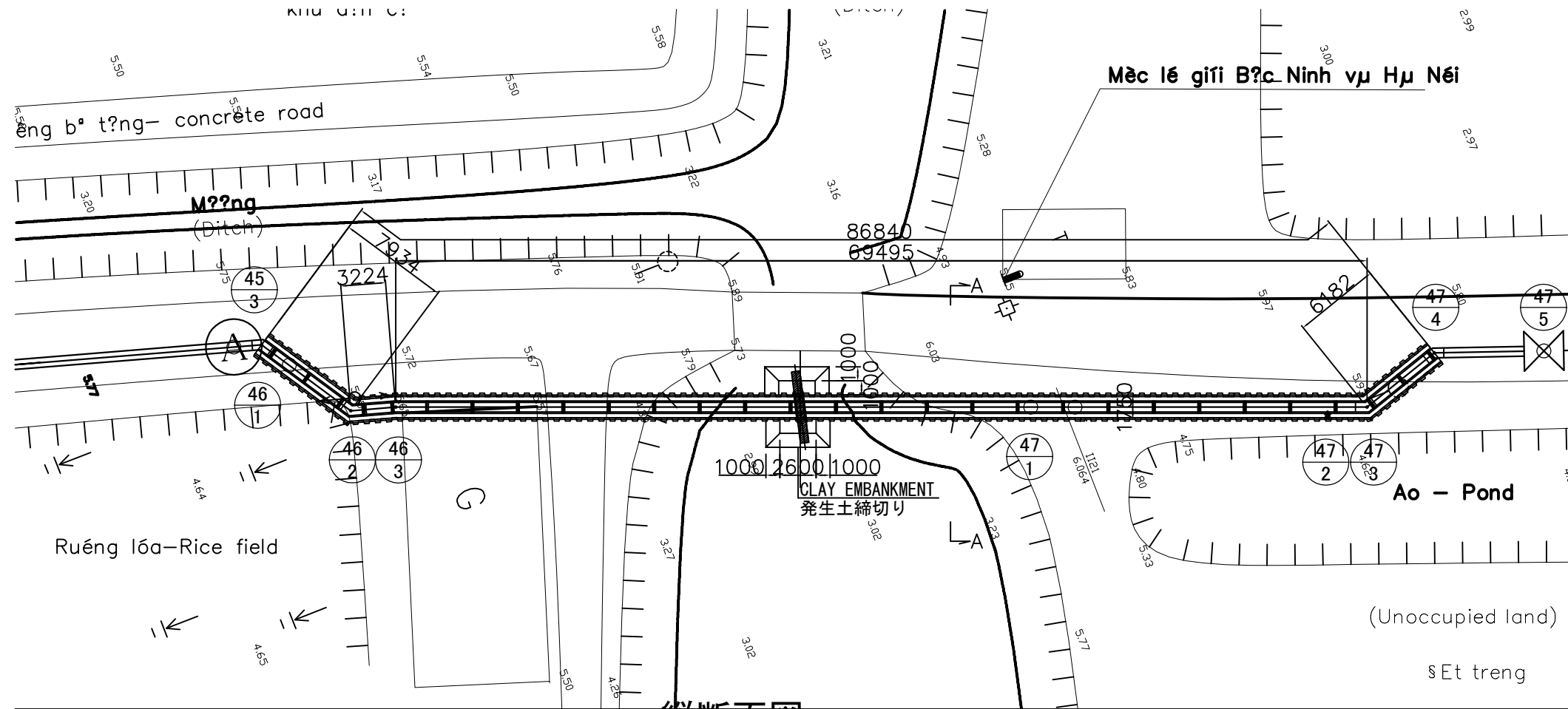
Diameter	Excavation Width	B	H ₁	H ₂	H ₃
φ 700	1.60	0.80	0.50	(1.50)	
φ 1000	2.00	0.80	0.50	1.50	
φ 1100	2.10	0.80	0.50	1.50	
φ 1200	2.20	0.80	0.50	1.50	
φ 1400	2.40	0.80	0.50	1.50	

- ※ 1 LightWeight Sheet pile type3A (Width333mm*hieght50mm* Theckness5)
Tengel strength 400N/mm more allowable bending Unit stress 210N/mm more 1m당 Section Modulus 144cm more
- ※ 2 Aluminum Waling Timbers (Width120mm*120mm)
Allowable Bending Unit Stress 173N/mm more Allowable Shearing unit stress 100N/mm more Section Modulus 121cm more
- ※ 3 Hydraulic Jack
Allowable Axial force 78.4KN/pcs more

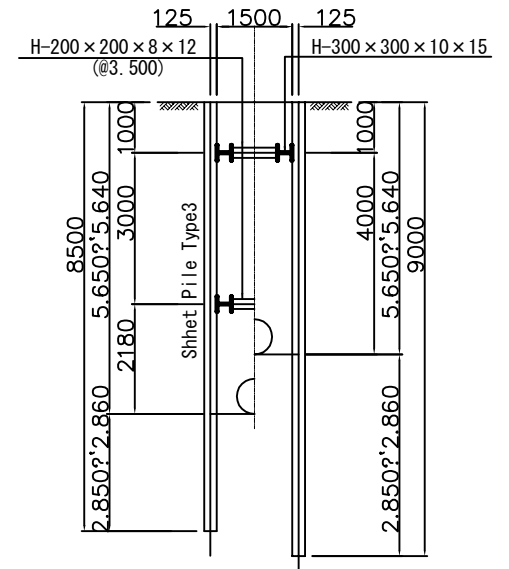
No.			
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179-1号線水路横断 仮設図 CANAL ① CROSSING PLAN ALONG ROUTE 179

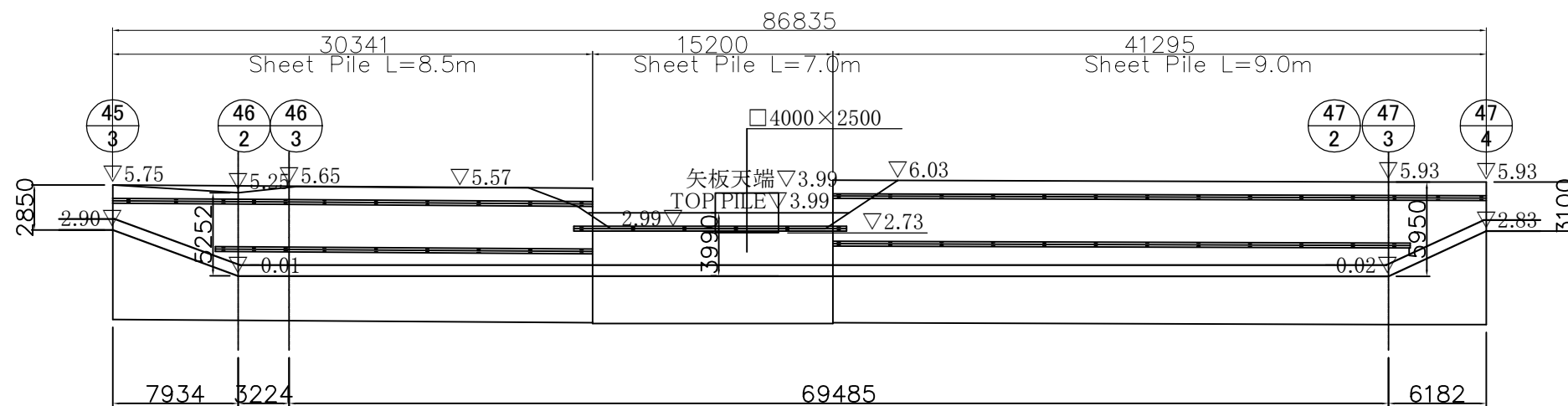
平面図
PLAN SCALE: 1/400



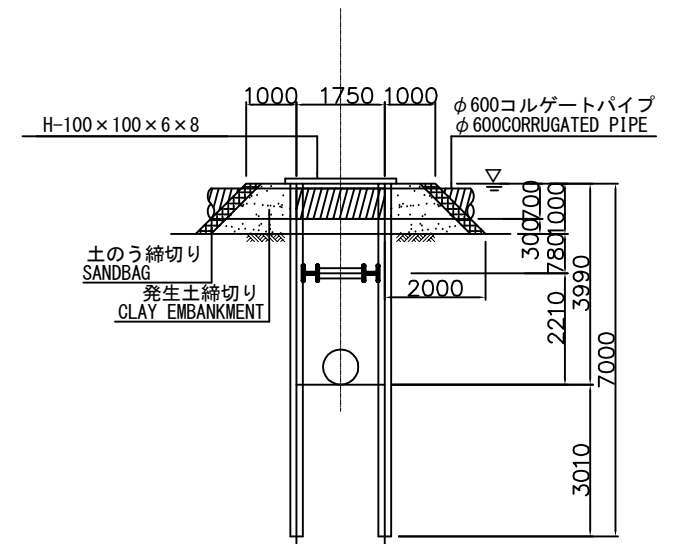
断面図
CROSS SECTION A-A SCALE: 1/150



縦断面図
PROFILE SCALE: 1/400

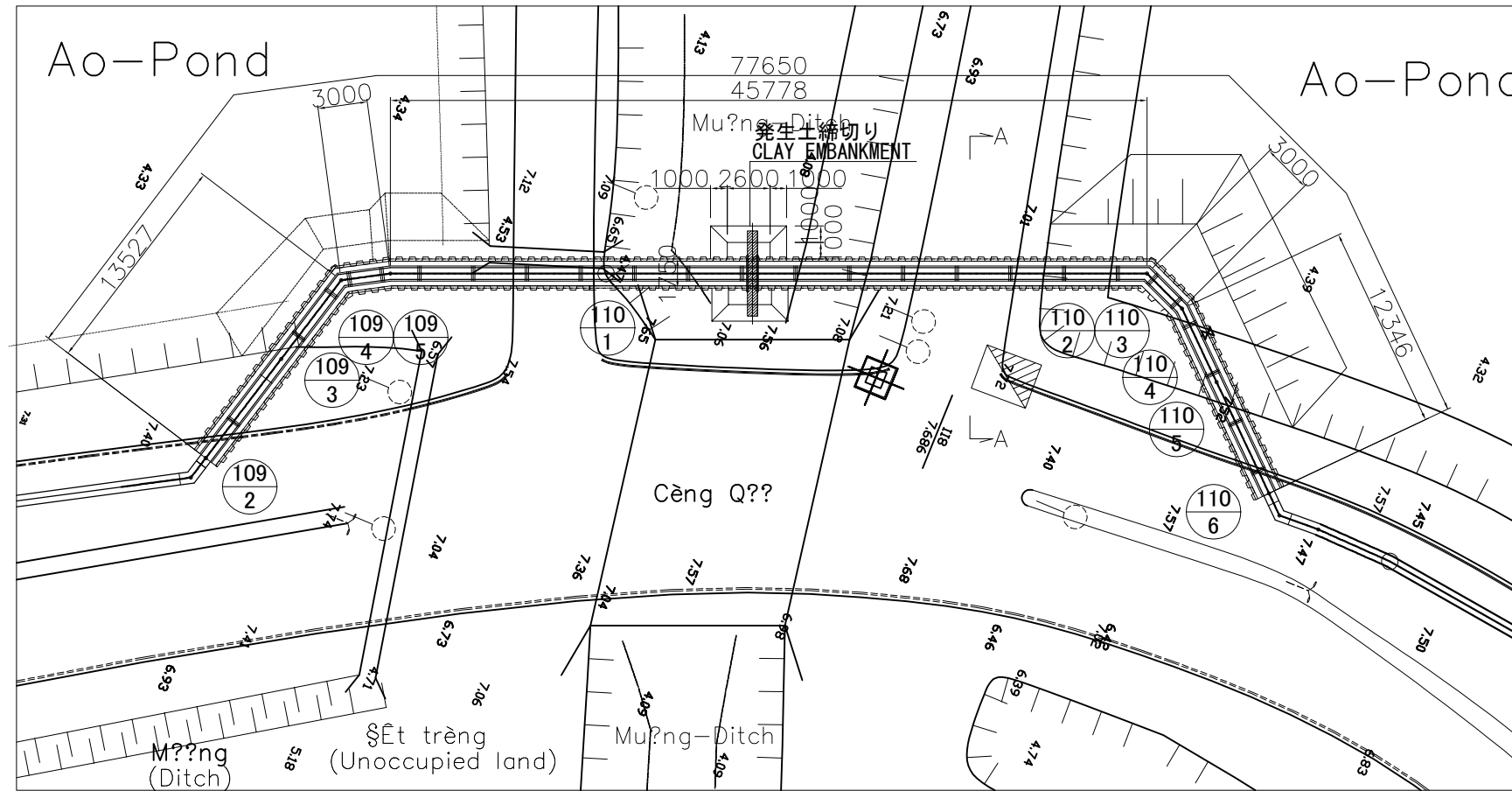


土のう一般図
EMBANKMENT FOR STOPPING CANAL FLOW SCALE: 1/150

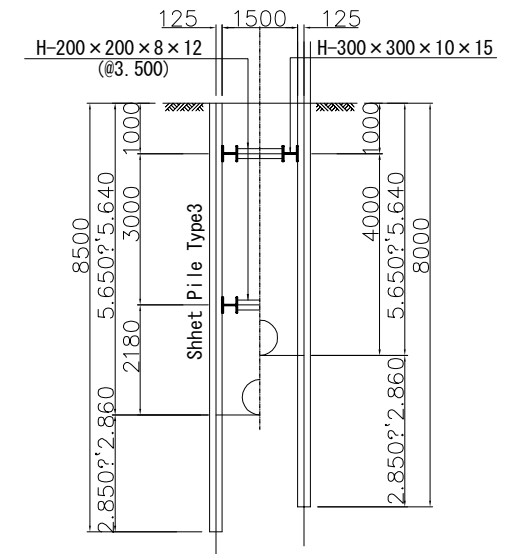


179-2号線水路横断 仮設図 CANAL ② CROSSING PLAN ALONG ROUTE 179

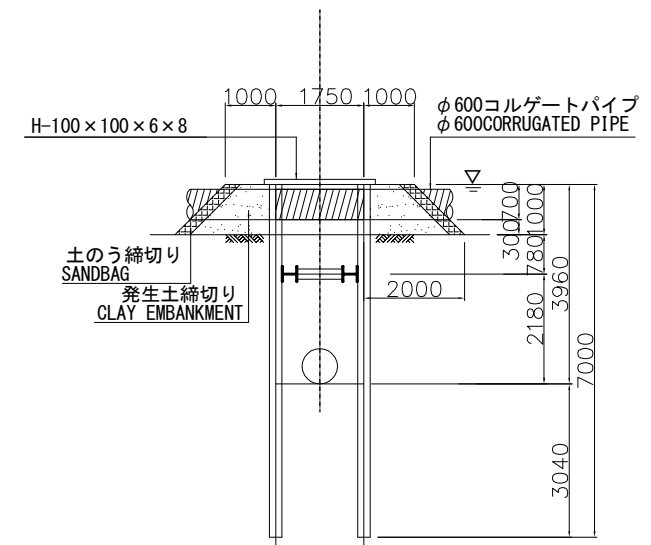
平面図
PLAN SCALE: 1/400



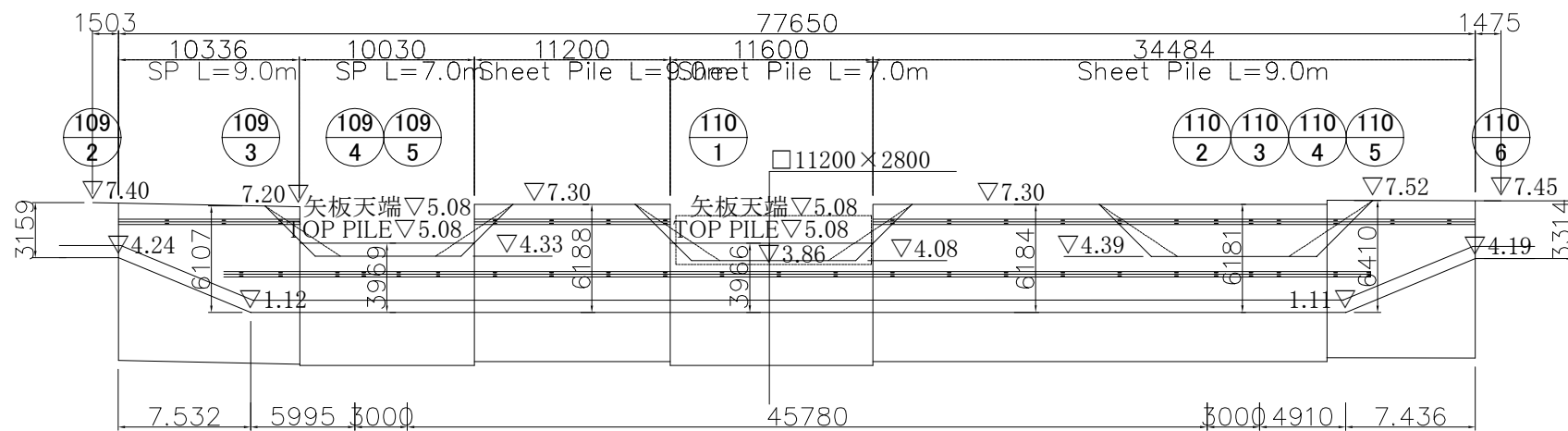
断面図
CROSS SECTION A-A SCALE: 1/150



土のう一般図
EMBANKMENT FOR STOPPING CANAL FLOW
SCALE: 1/150



縦断面図
PROFILE SCALE: 1/400

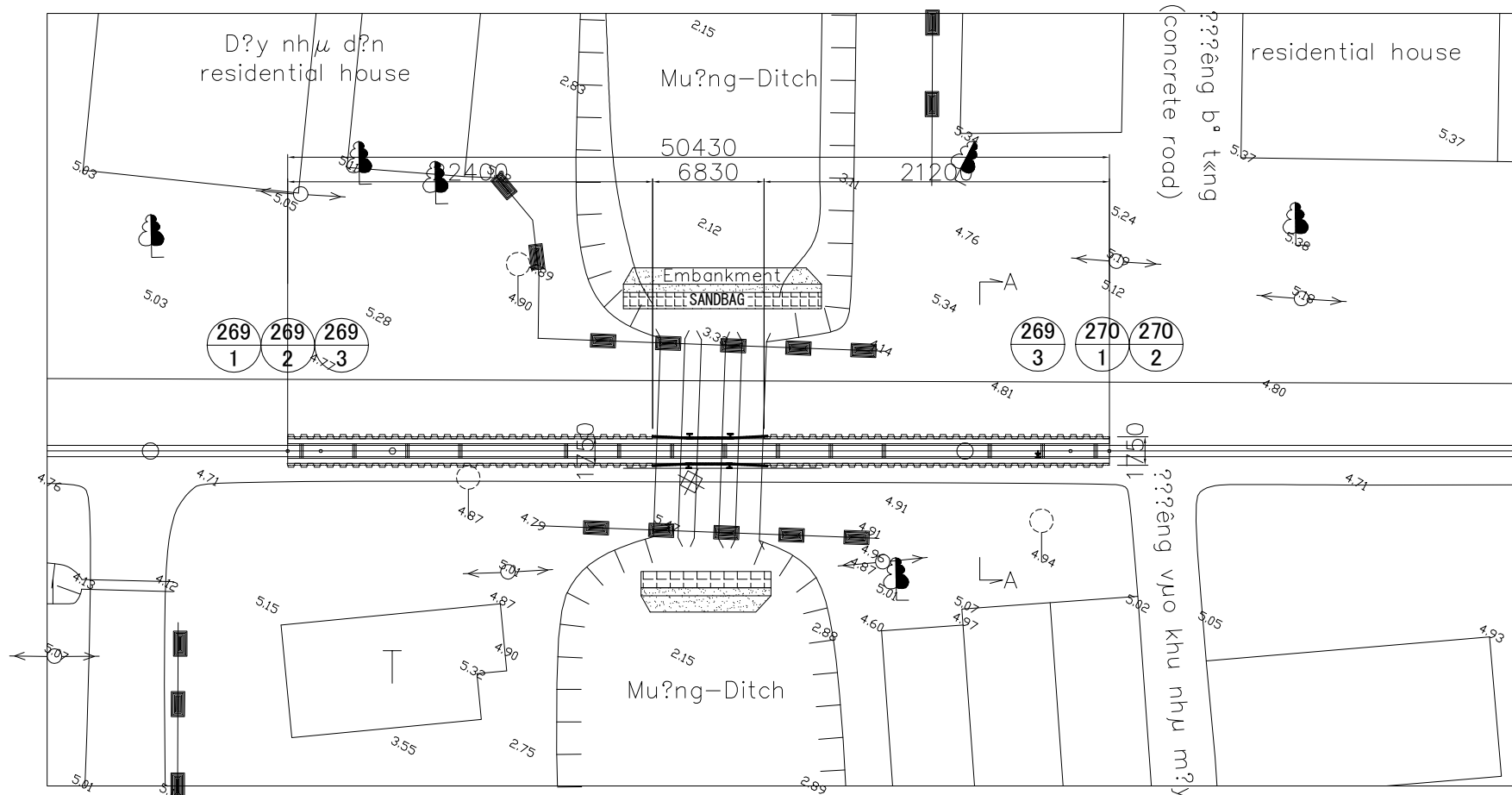


No.			
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1A号線水路横断 仮設図 CANAL ③ CROSSING PLAN ALONG ROUTE 1A

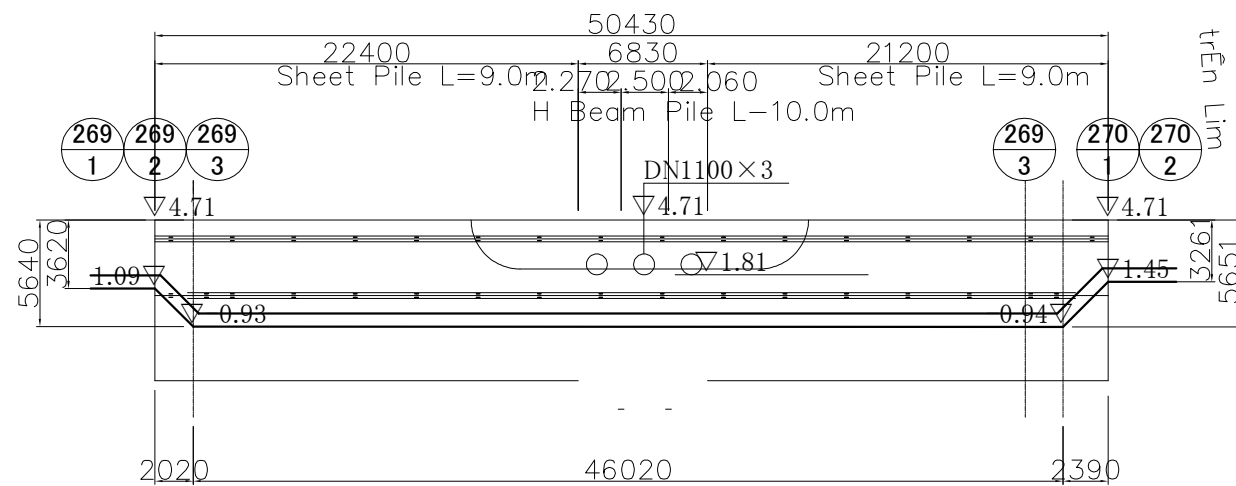
平面図
PLAN

SCALE: 1/400



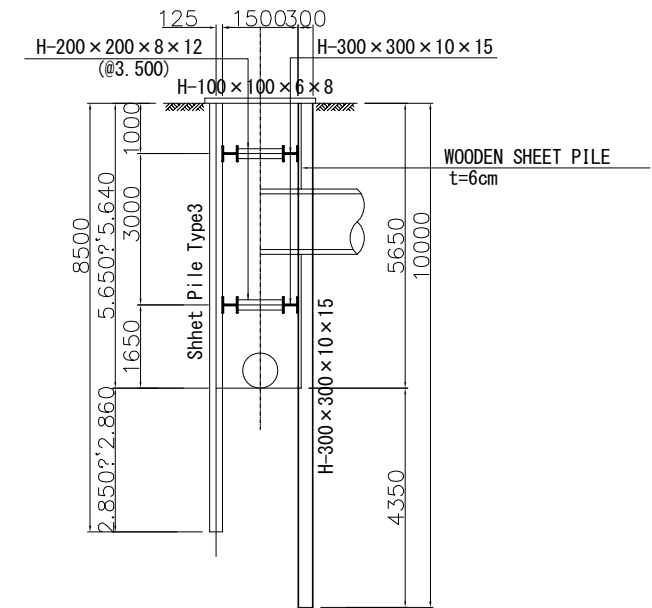
縦断面図
PROFILE

SCALE: 1/400



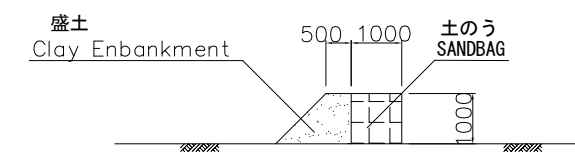
断面図

CROSS SECTION A-A SCALE: 1/150



土のう一般図
EMBANKMENT FOR STOPPING CANAL FLOW

SCALE: 1/150

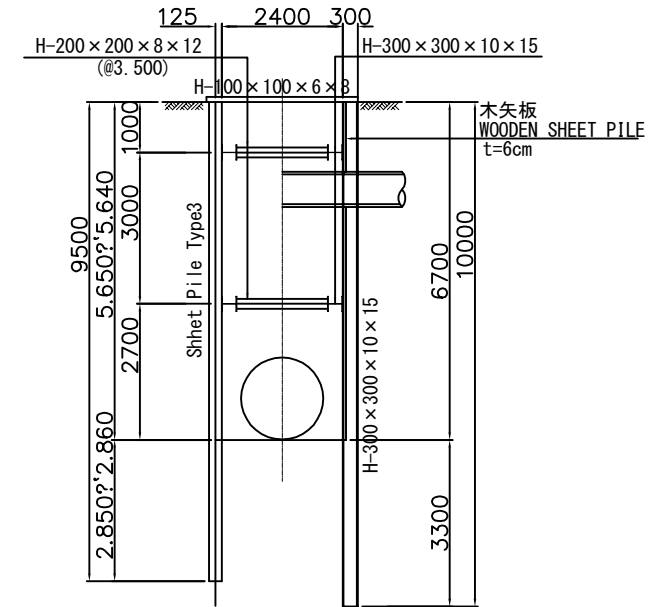
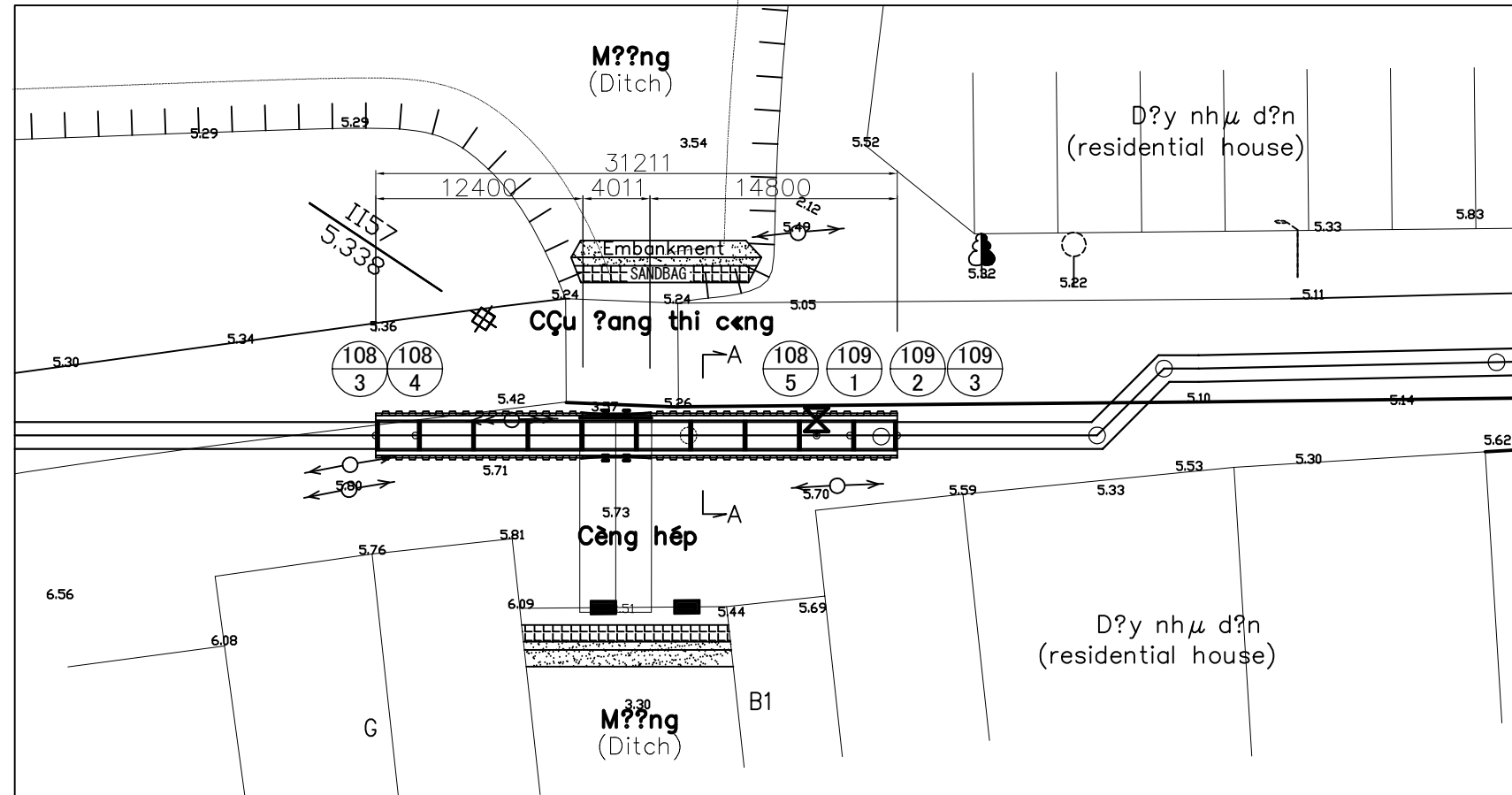


No.			
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182号線水路横断 仮設図 CANAL ④ CROSSING PLAN ALONG ROUTE 182

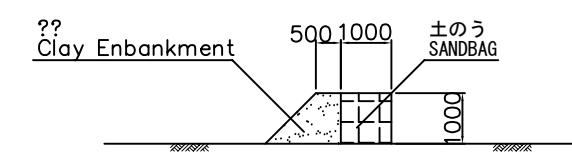
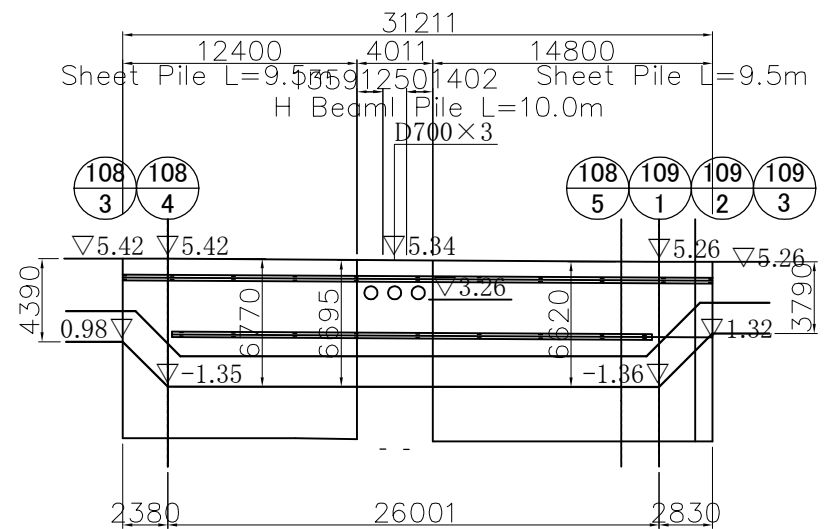
平面図
PLAN SCALE: 1/400

断面図
CROSS SECTION A-A SCALE: 1/150



縦断面図
PROFILE SCALE: 1/400

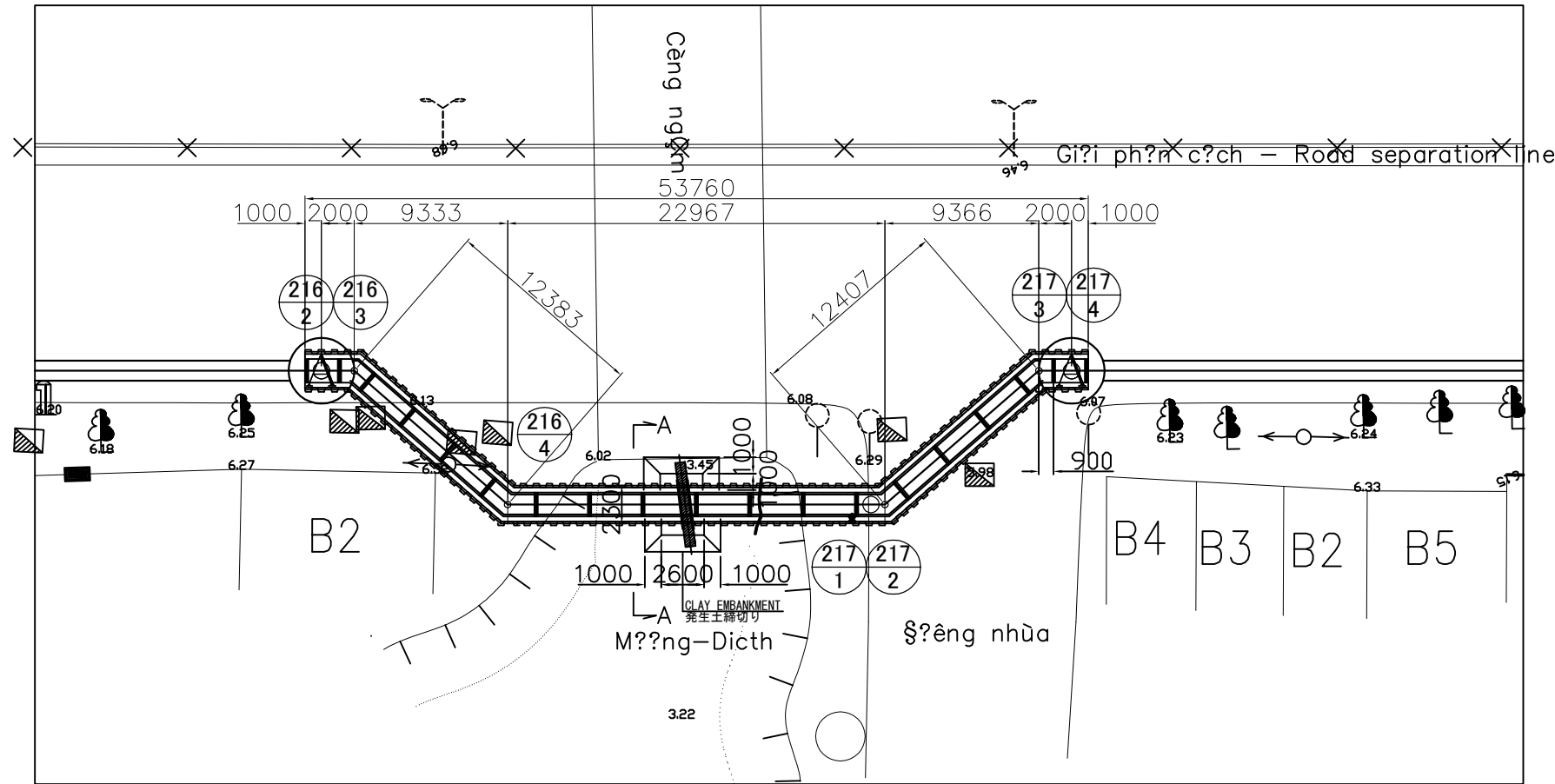
締切り詳細図
EMBANKMENT FOR STOPPING CANAL FLOW
SCALE: 1/150



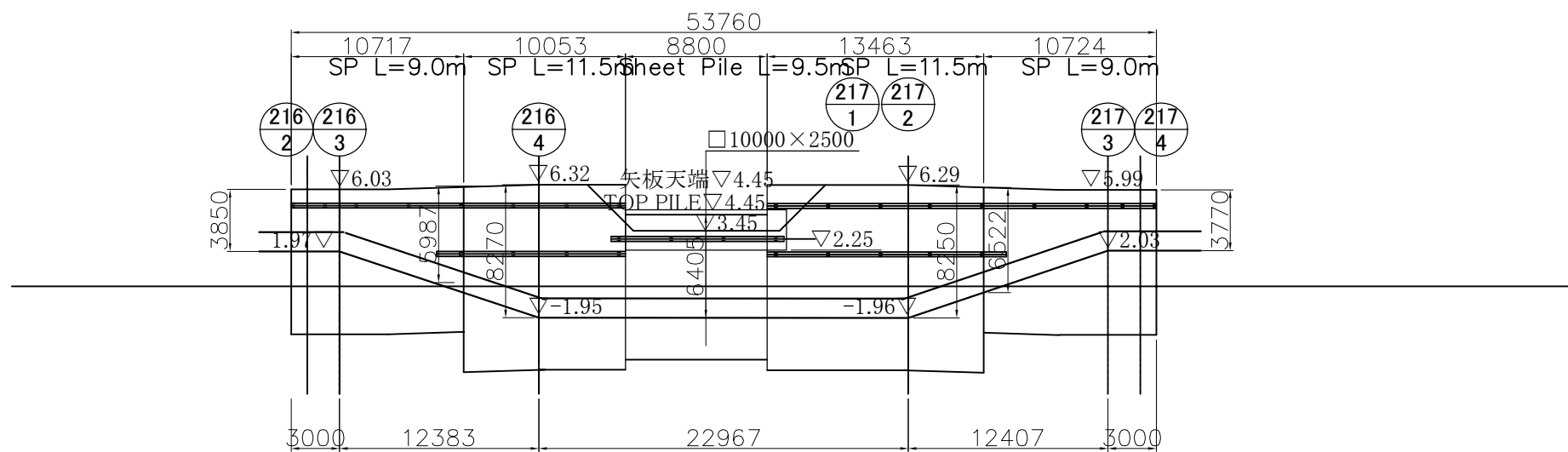
JICA Study Team						Date. Oct. 2011	Duong River Water Treatment Plant Transmission Pipeline	Drawing No
	No.					Scale S=1/400 S=1/150	CANAL ④ CROSSING PLAN ALONG ROUTE 182	F-4
THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM								

5号線水路横断 仮設図 CANAL ⑤ CROSSING PLAN ALONG ROUTE 5

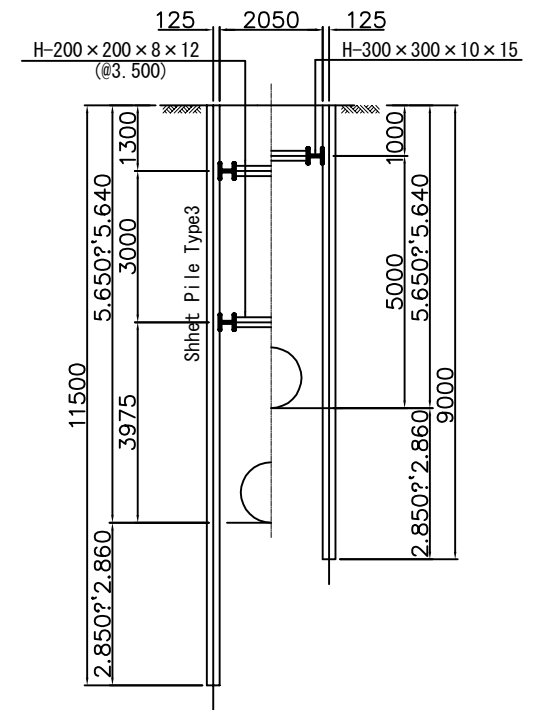
平面図
PLAN SCALE: 1/400



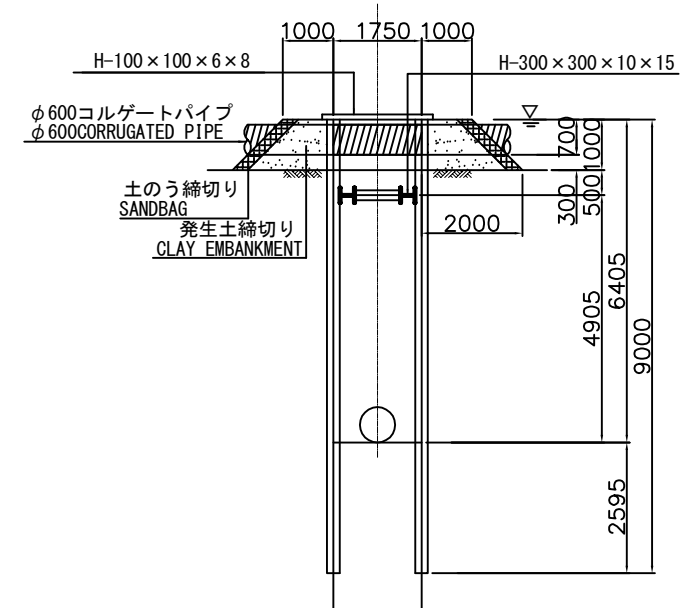
縦断面図
PROFILE SCALE: 1/400



断面図
CROSS SECTION A-A SCALE: 1/150



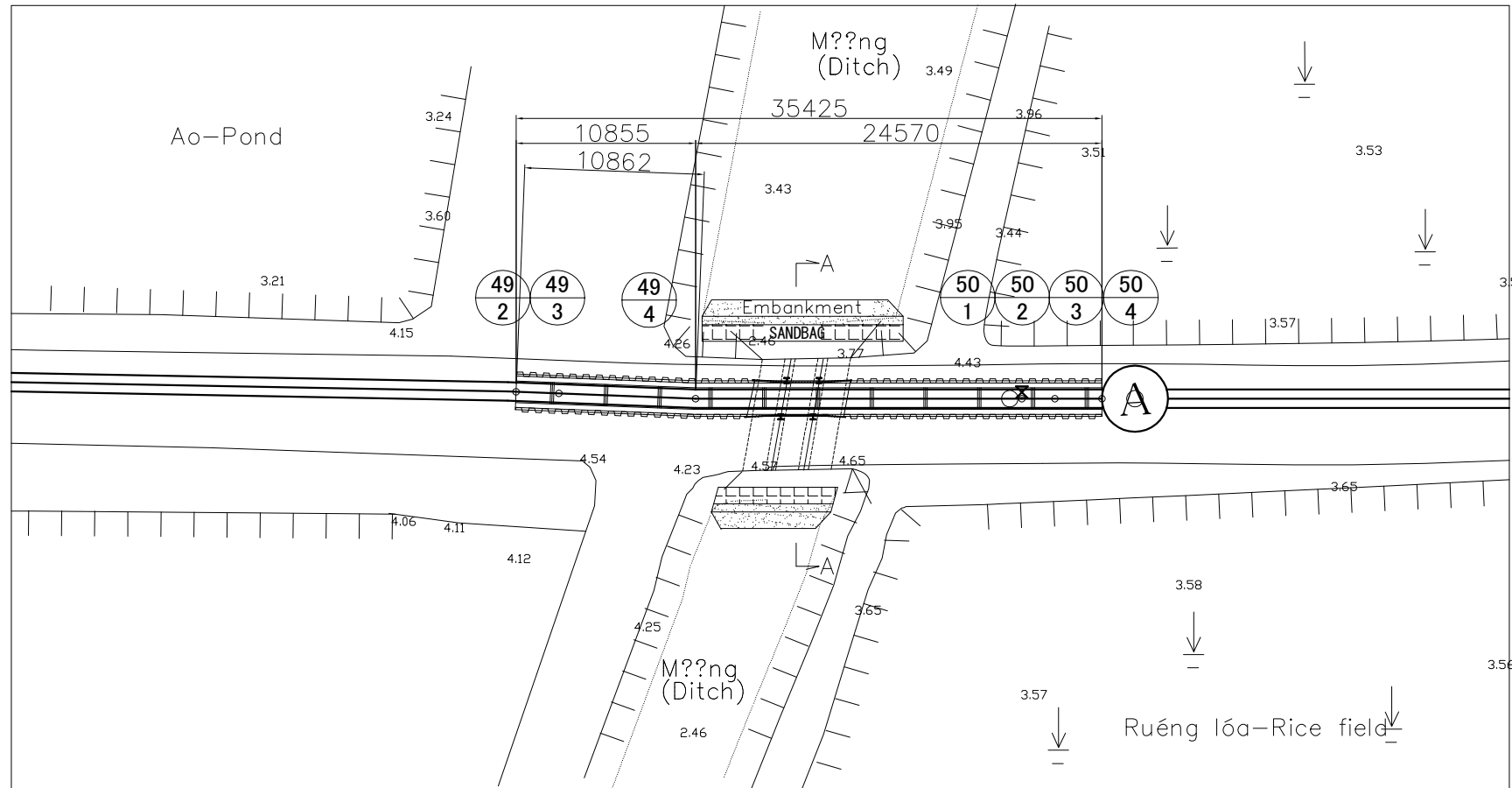
土のう一般図
EMBANKMENT FOR STOPPING CANAL FLOW SCALE: 1/150



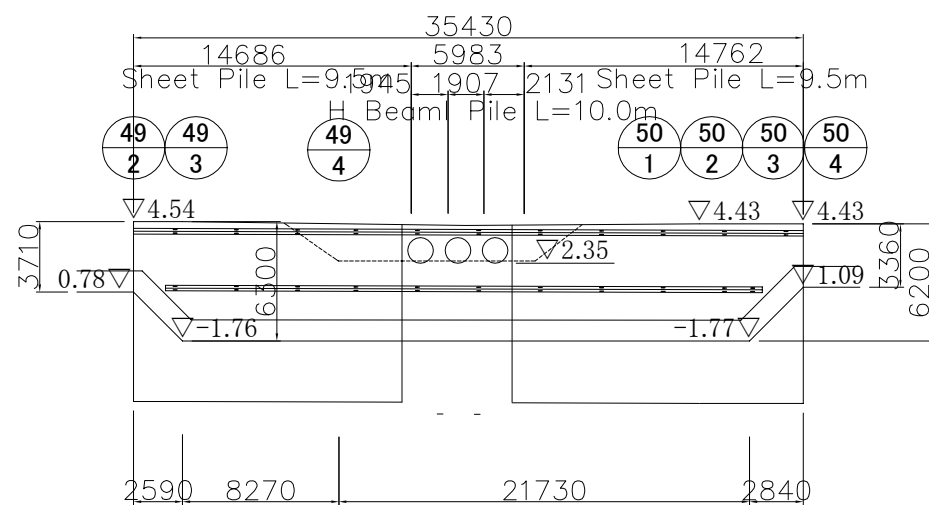
No.			
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197-1号線水路横断 仮設図 CANAL ⑥ CROSSING PLAN ALONG ROUTE 197

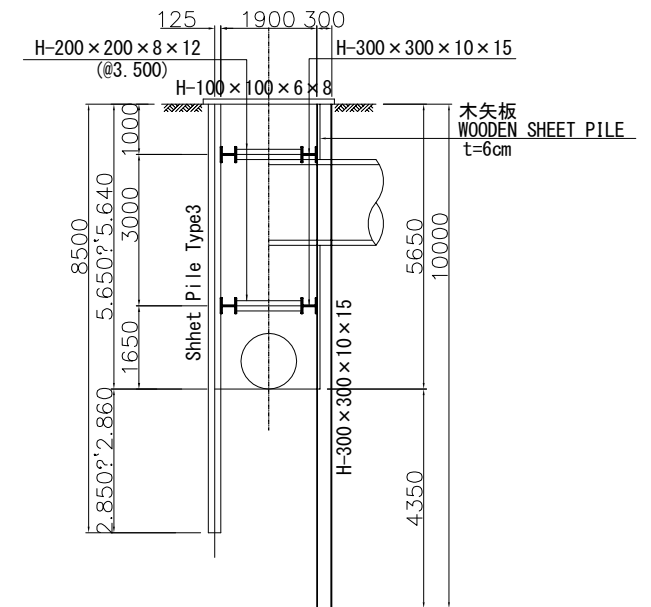
**平面図
PLAN** SCALE: 1/400



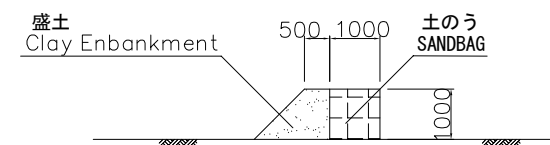
**縦断面図
PROFILE** SCALE: 1/400



**断面図
CROSS SECTION A-A** SCALE: 1/150



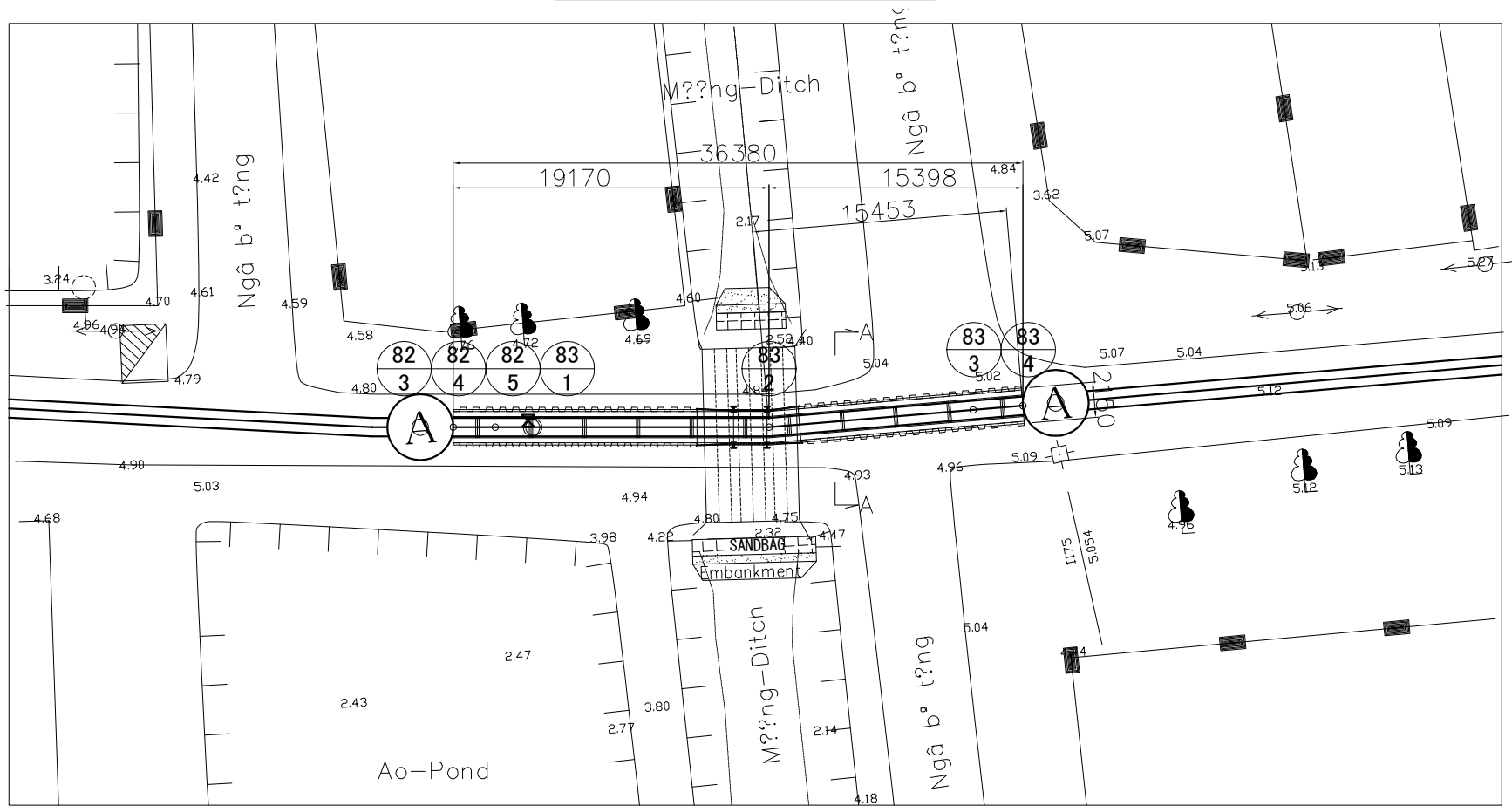
**土のう一般図
EMBANKMENT FOR STOPPING CANAL FLOW**
SCALE: 1/150



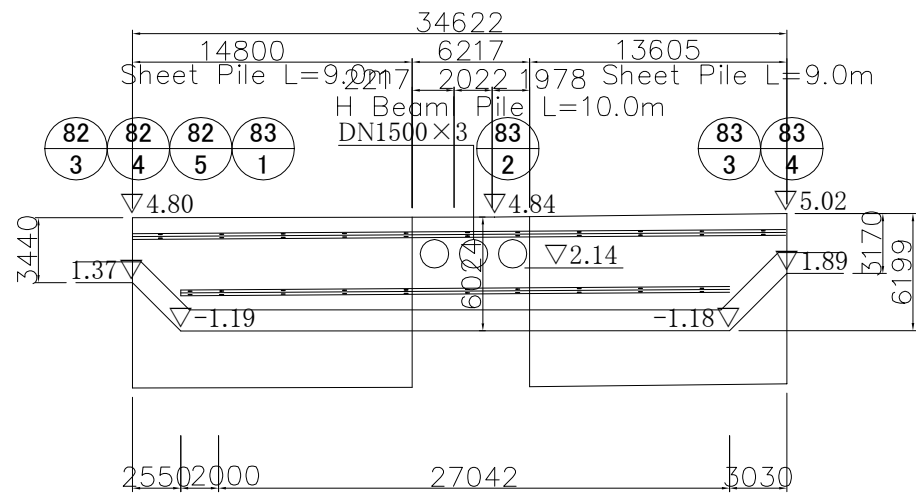
No.			
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CANAL ⑦ CROSSING PLAN ALONG ROUTE 197

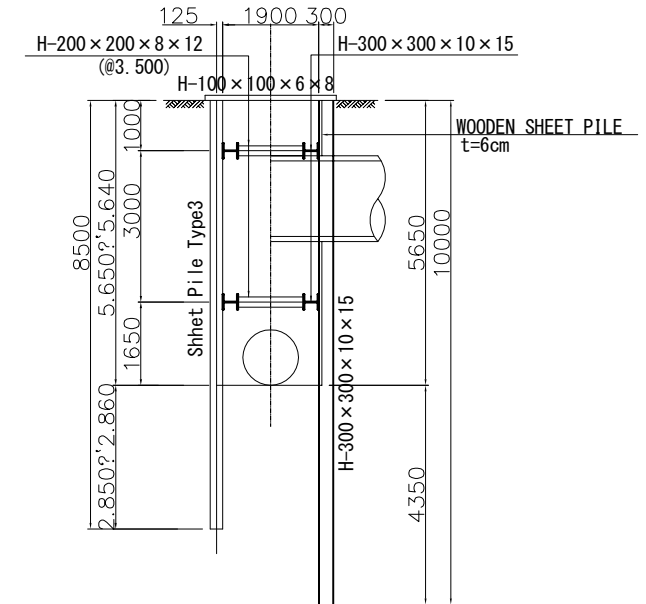
PLAN SCALE: 1/400



PROFILE SCALE: 1/400

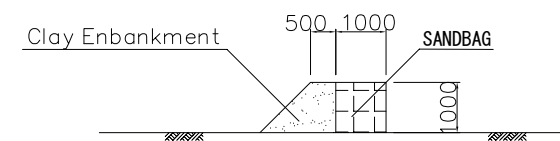


CROSS SECTION A-A SCALE: 1/150



EMBANKMENT FOR STOPPING CANAL FLOW

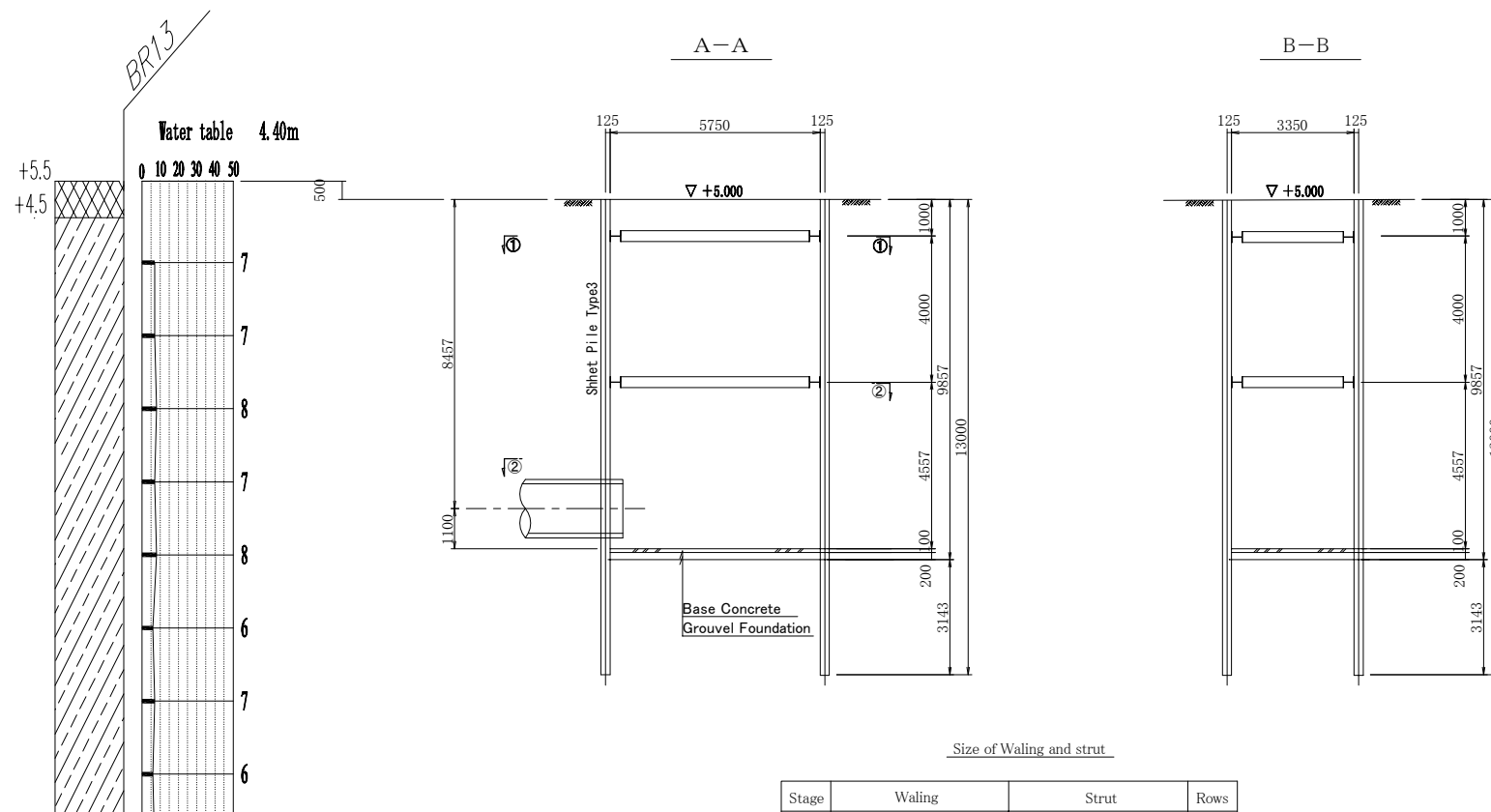
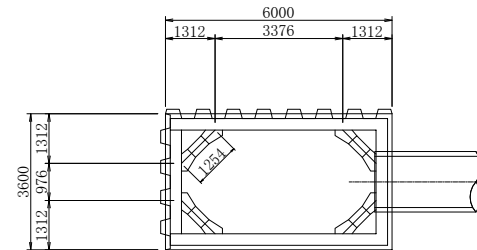
SCALE: 1/150



No.			
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PLAN OF SHAFT AT CANNAL ⑧ CROSSING ALONG ROUTE 197

DEPARTURE SHAFT S= 1:100



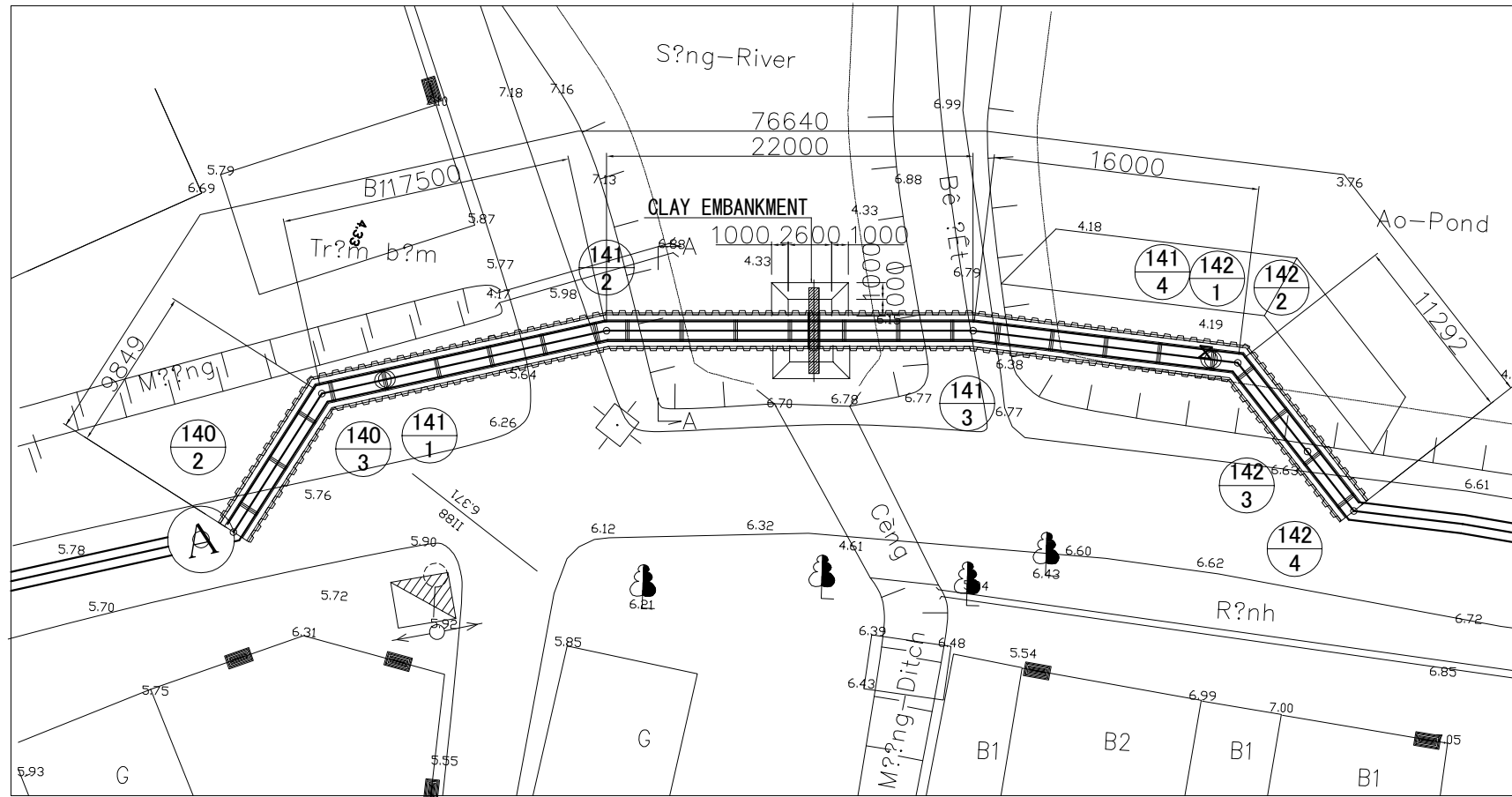
Size of Waling and strut

Stage	Waling	Strut	Rows
①	H-300×300×10×15	H-300×300×10×15	1
②	H-300×300×10×15	H-300×300×10×15	1

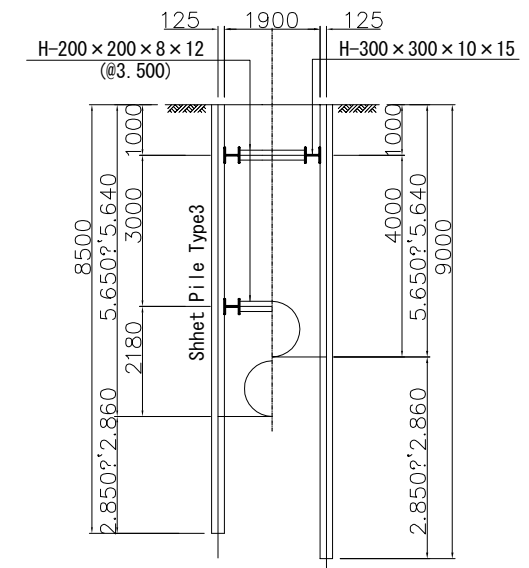
No.			
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CANAL ⑨ CROSSING PLAN ALONG ROUTE 197

PLAN SCALE: 1/400

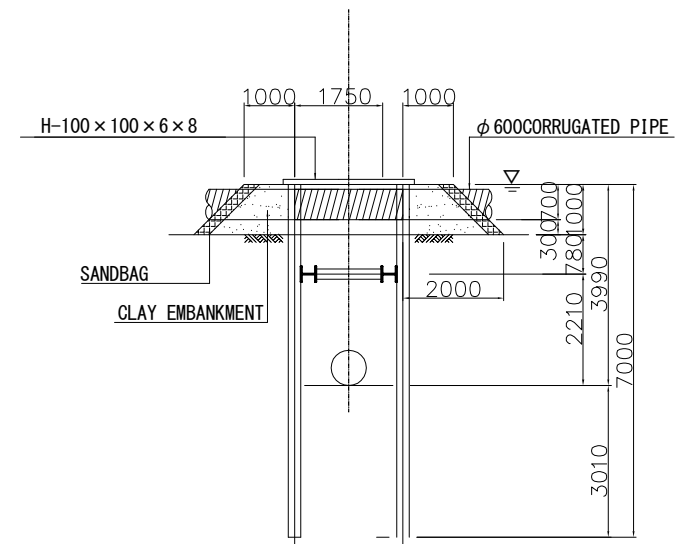


CROSS SECTION A-A SCALE: 1/150

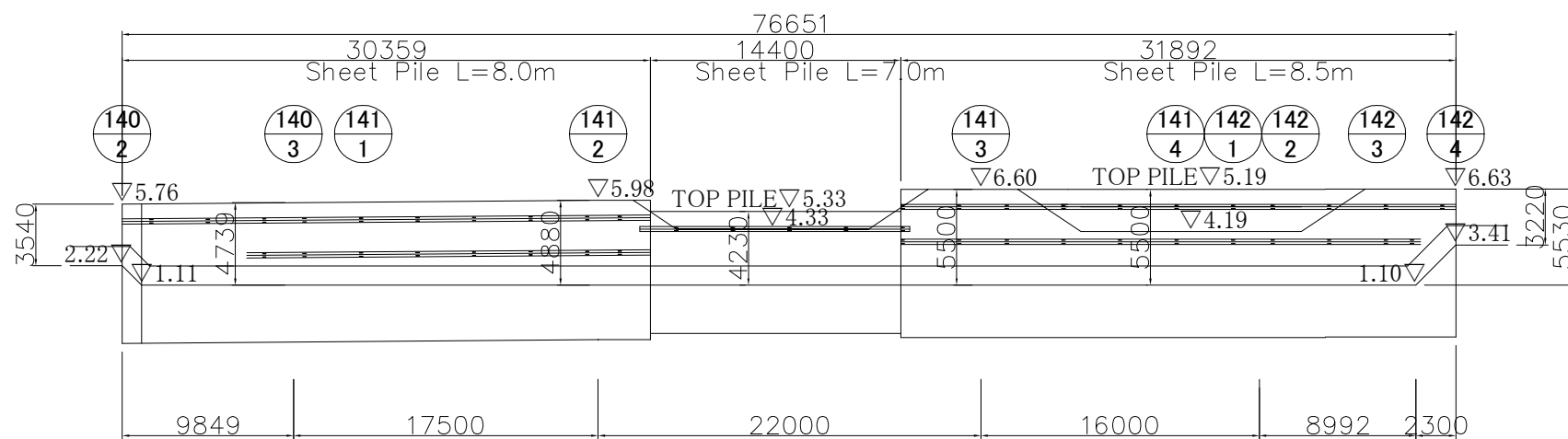


EMBANKMENT FOR STOPPING CANAL FLOW

SCALE: 1/150



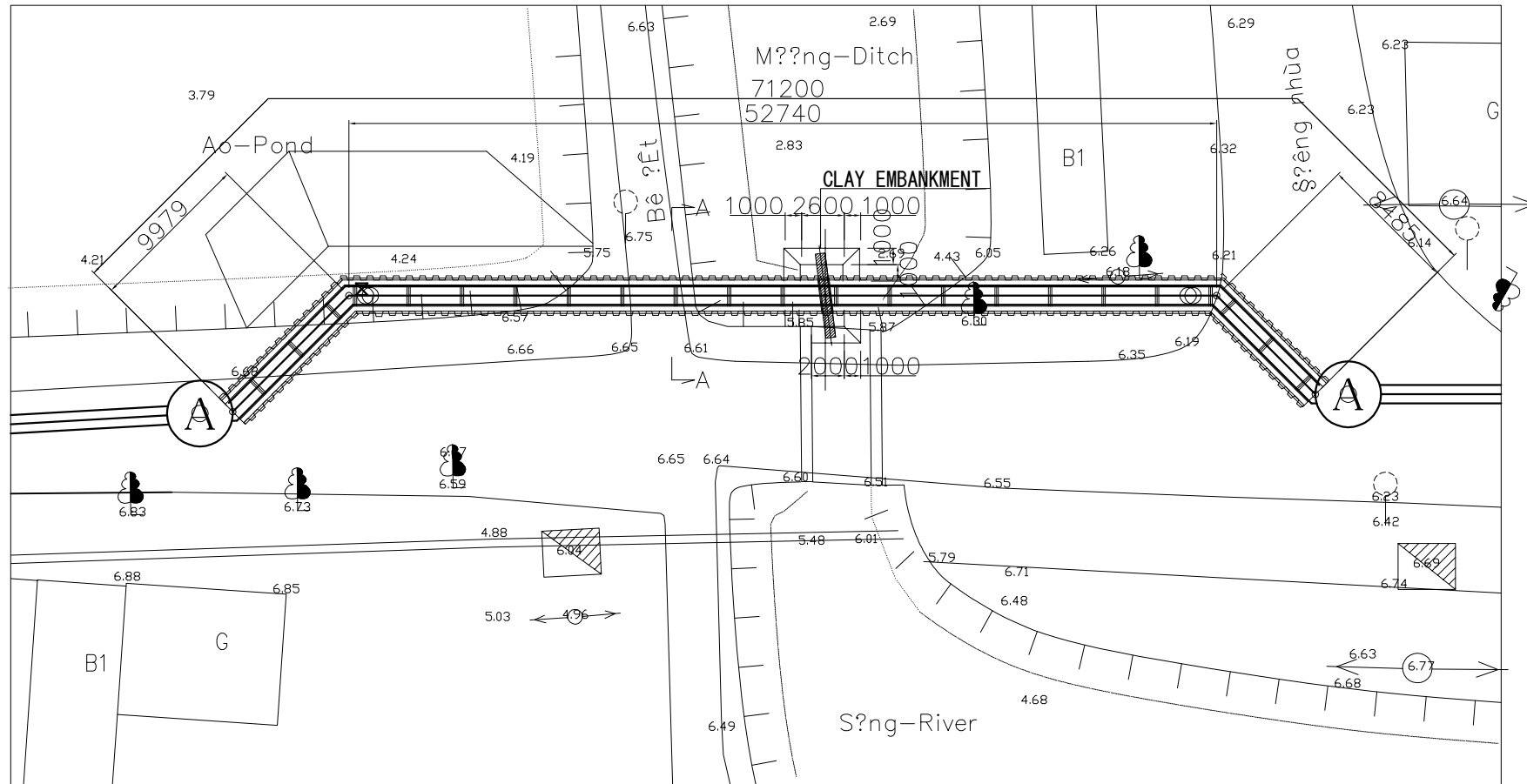
PROFILE SCALE: 1/400



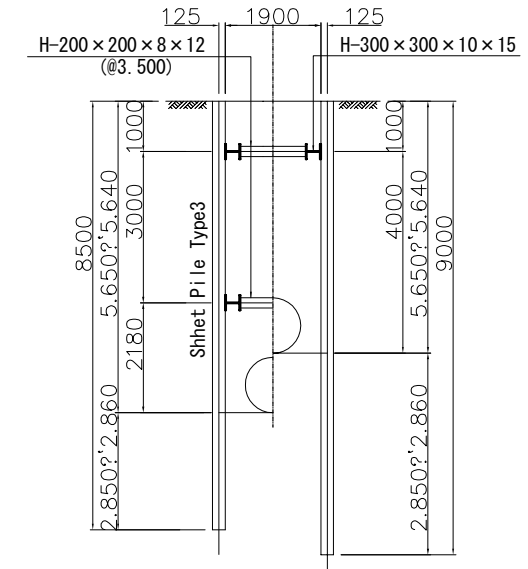
No.			
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CANAL ⑩ CROSSING PLAN ALONG ROUTE 197

PLAN SCALE: 1/400



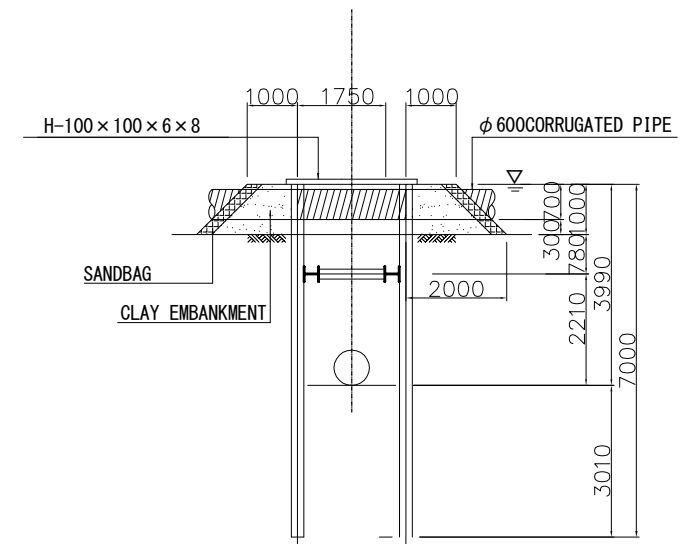
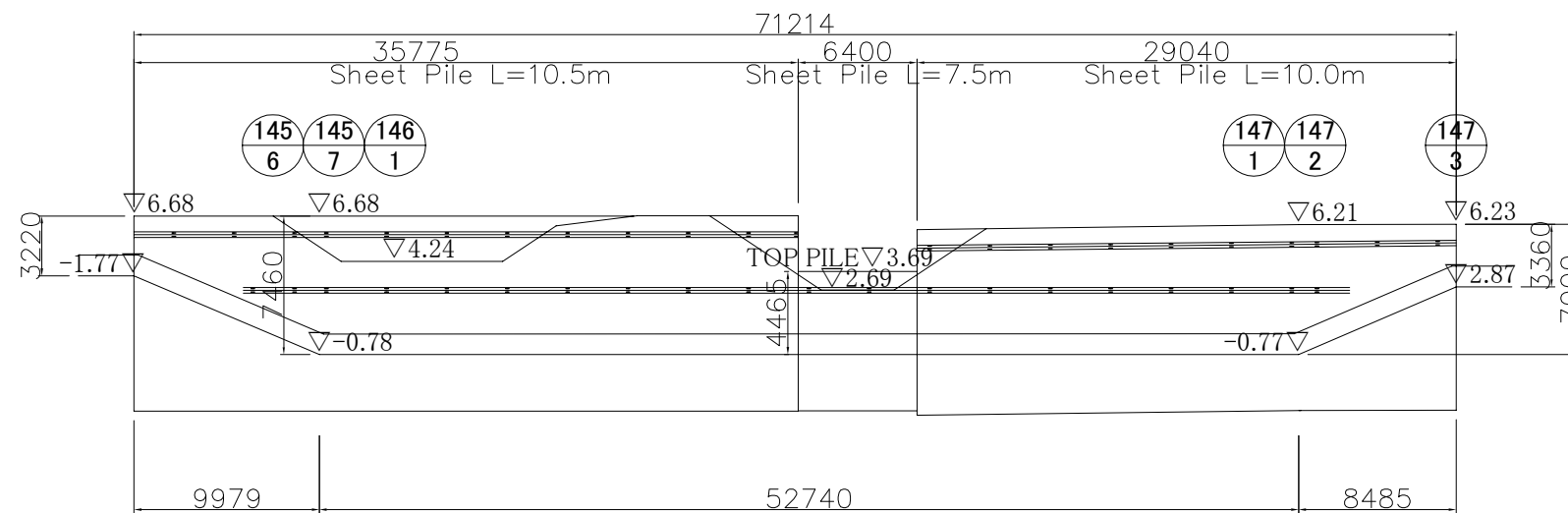
CROSS SECTION A-A SCALE: 1/150



EMBANKMENT FOR STOPPING CANAL FLOW

SCALE: 1/150

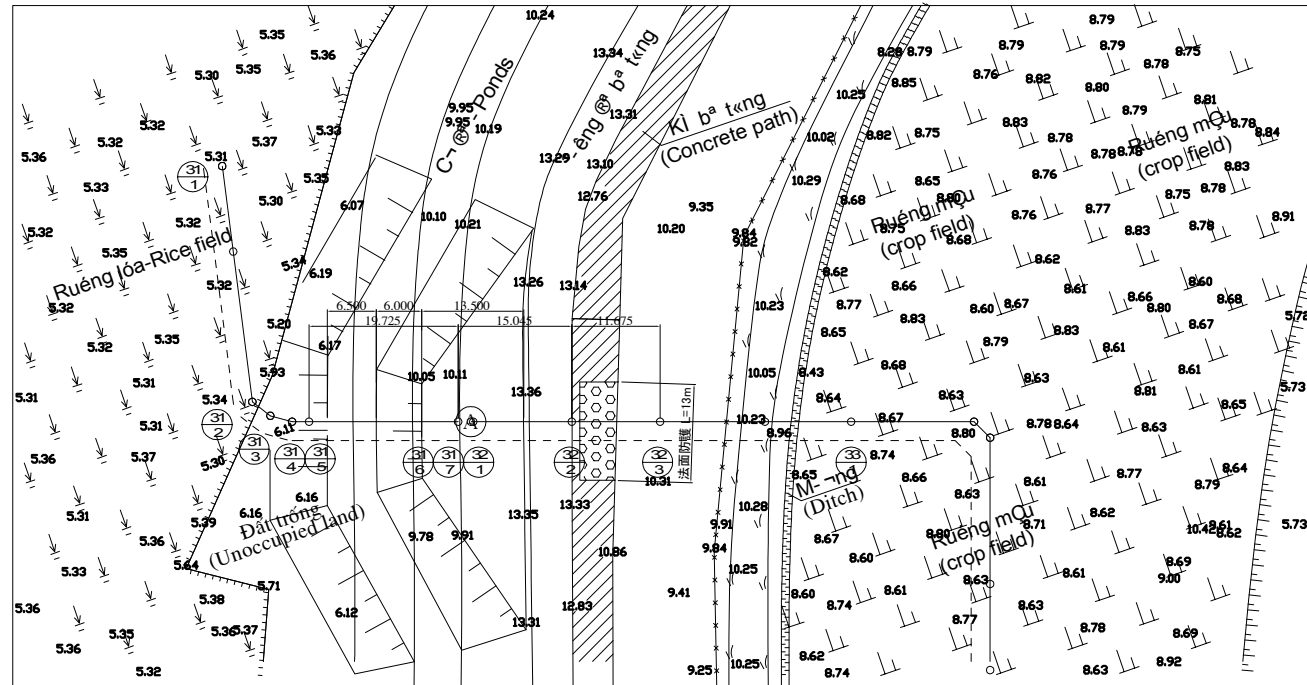
PROFILE SCALE: 1/400



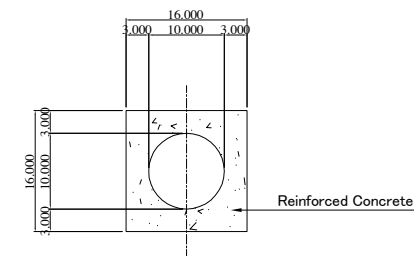
No.			
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DON RIVER 左岸堤防横断断面図 S=1 : 1000 PIPE CROSSING LEFT EMBANKMENT ON DON RIVER

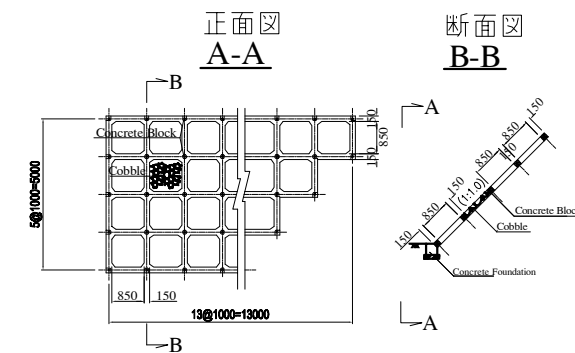
PLAN H=1/1000



防護コンクリート詳細図
Concrete Protection Structure
S=1 : 100

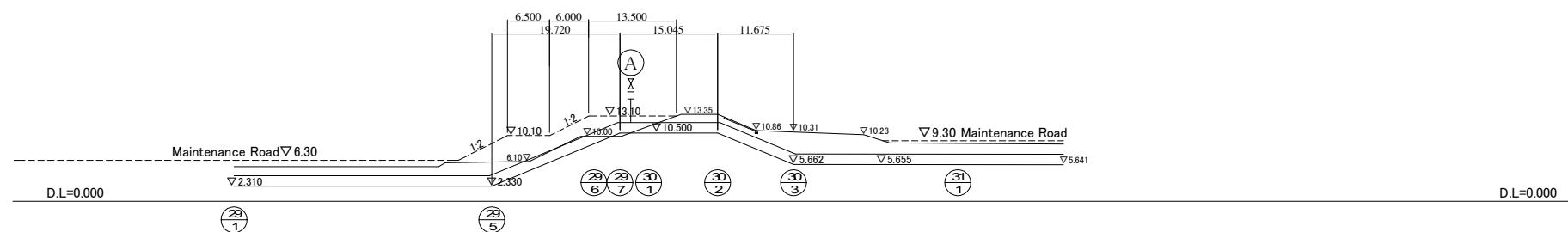


法枠ブロック構造図
Concrete Block for Slope Protection



基礎工詳細図
Concrete Foundation

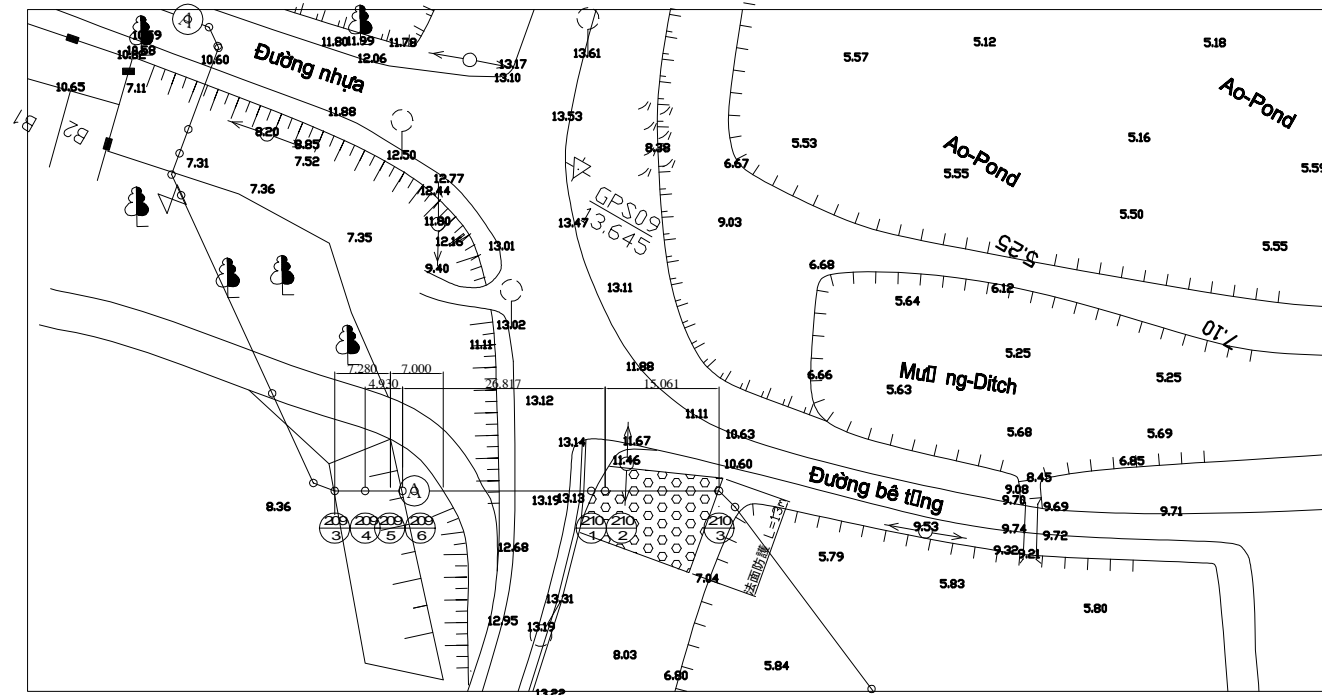
PROFILE H,V=1/1000



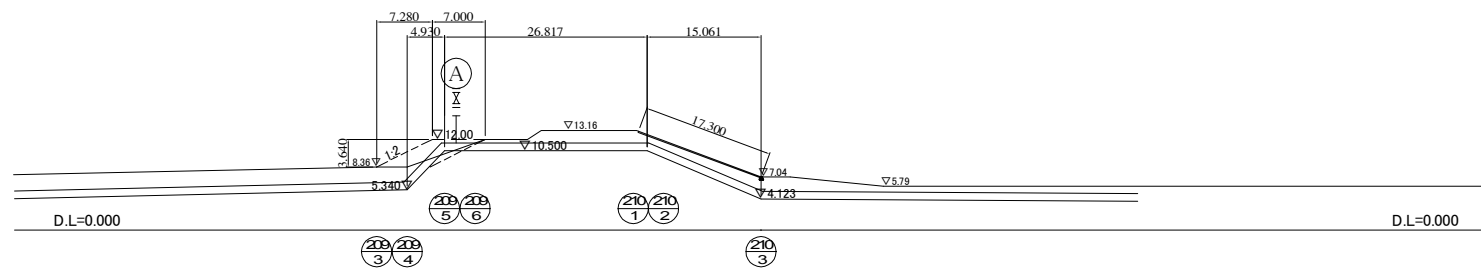
JICA Study Team									
	No.								
THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM						Date. Oct. 2011	Duong River Water Treatment Plant Transmission Pipeline	Drawing No	
						Scale H,V=1/1000	PIPE CROSSING LEFT EMBANKMENT ON DON RIVER	G-1	

HON RIVER 左岸堤防横断面図 S=1 : 1000 PIPE CROSSING LEFT EMBANKMENT ON HON RIVER

PLAN H=1/1000

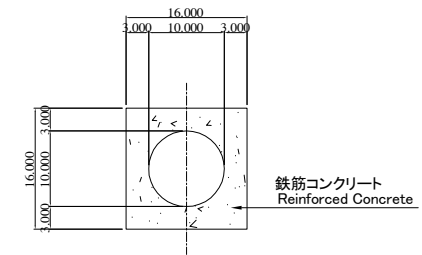


PROFILE H,V=1/1000



防護コンクリート詳細図
Concrete Protection Structure

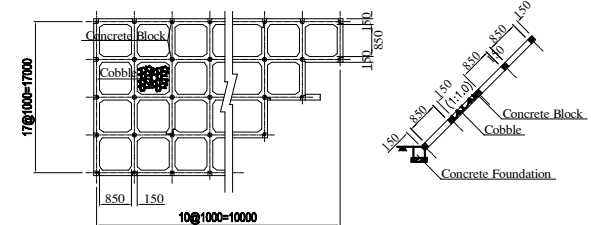
S=1 : 100



法枠ブロック構造図
Concrete Block for Slope Protection

正面図
A-A

断面図
B-B



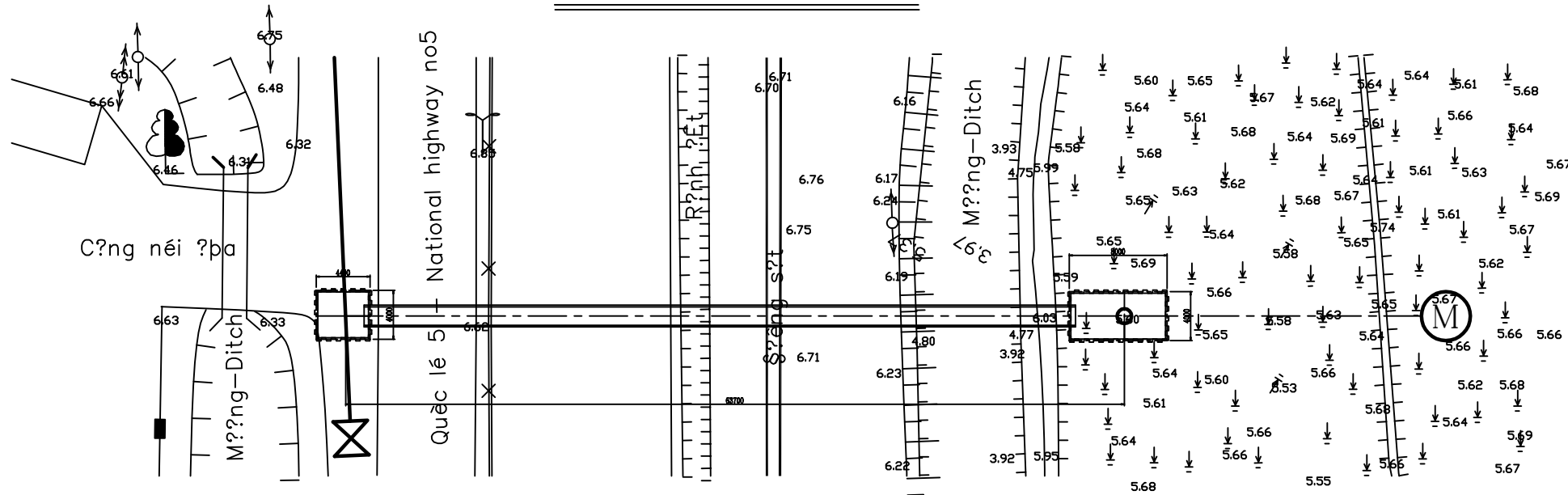
基礎工詳細図
Concrete Foundation



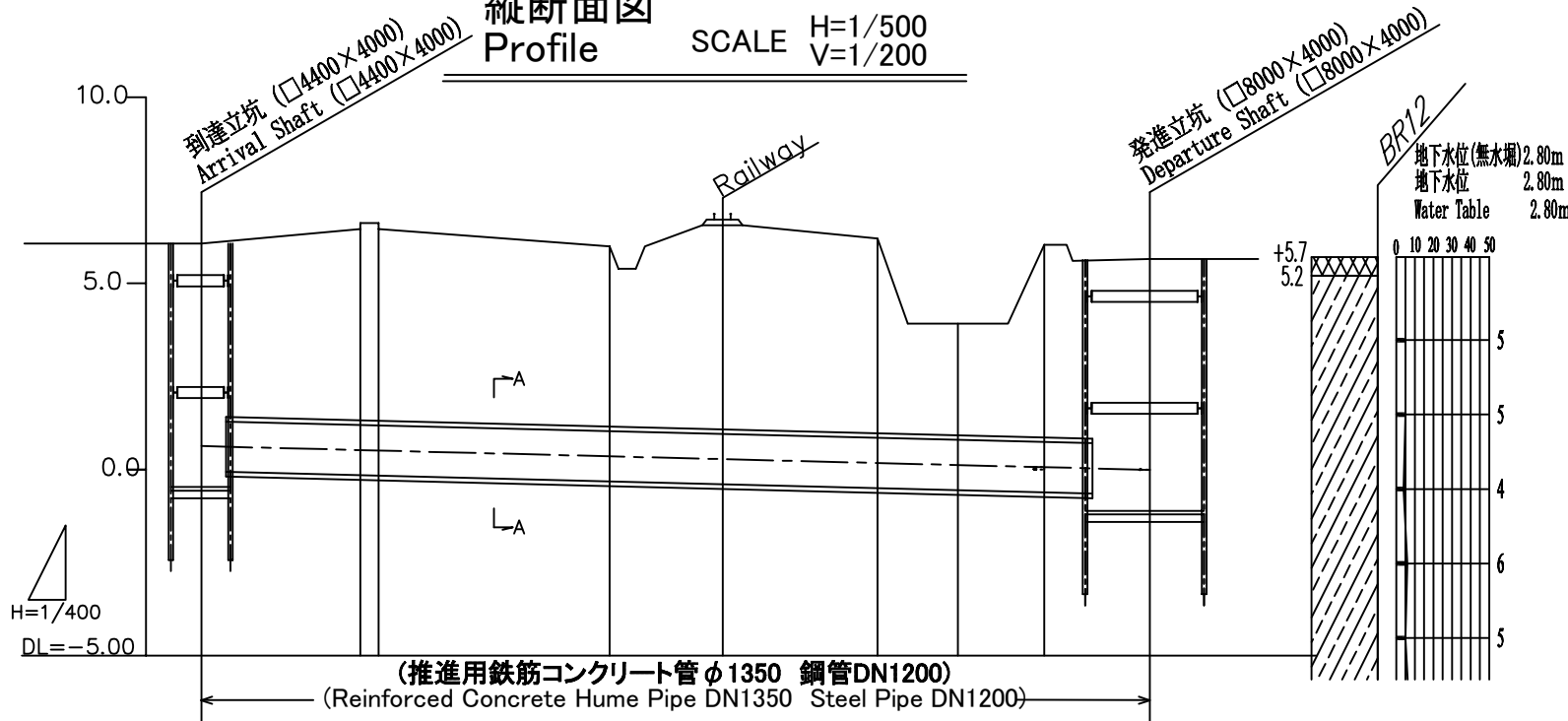
No.			
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Take Point 4 推進平面・縦断面図 PLAN AND PROFILE FOR JACKING METHOD AT LOCATION OF OFF-TAKE POINT 4

平面図
PLAN SCALE: 1/500

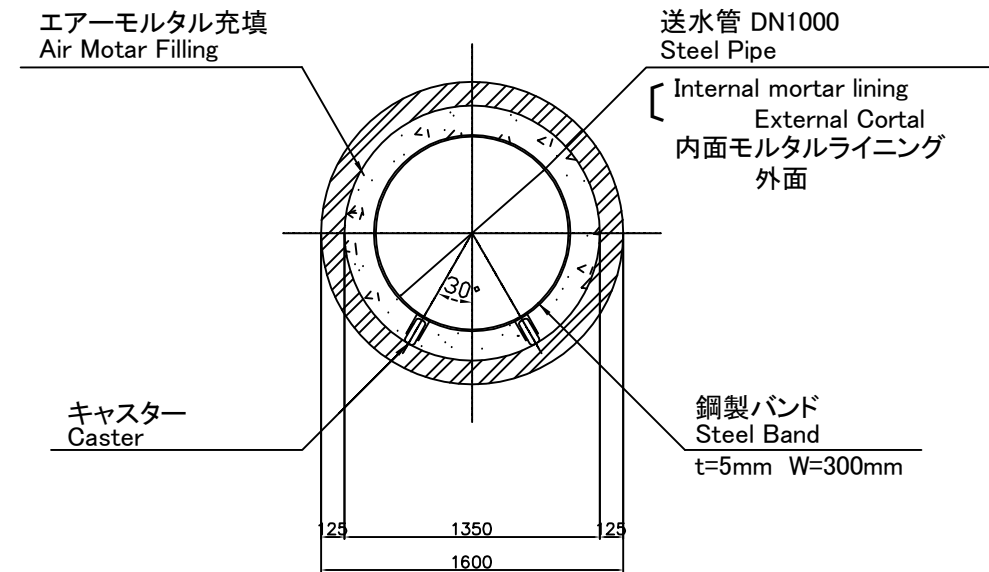


縦断面図
Profile SCALE H=1/500 V=1/200



Ground Elevation	6.07	6.62	6.62	5.99	6.71	6.19	3.92	6.03	5.65
Earth Covering	5.44	6.10	6.11	5.64	6.43	6.03	3.80	5.97	5.66
Center Elev of Pipeline	0.63	0.52	0.51	0.35	0.28	0.17	0.12	0.06	-0.01
Accumulated Distance	0.00	10.67	11.90	27.41	35.02	45.41	50.80	56.61	63.70

断面図
Cross Section A-A

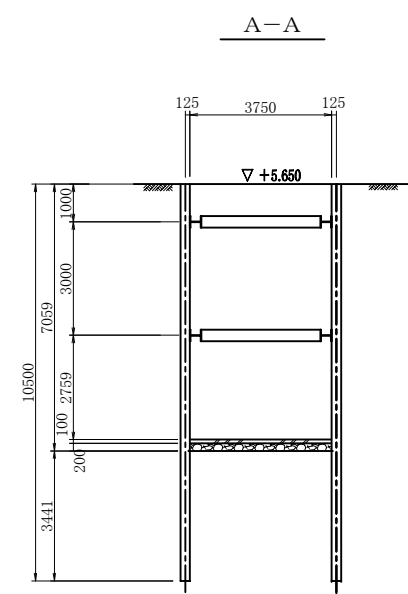
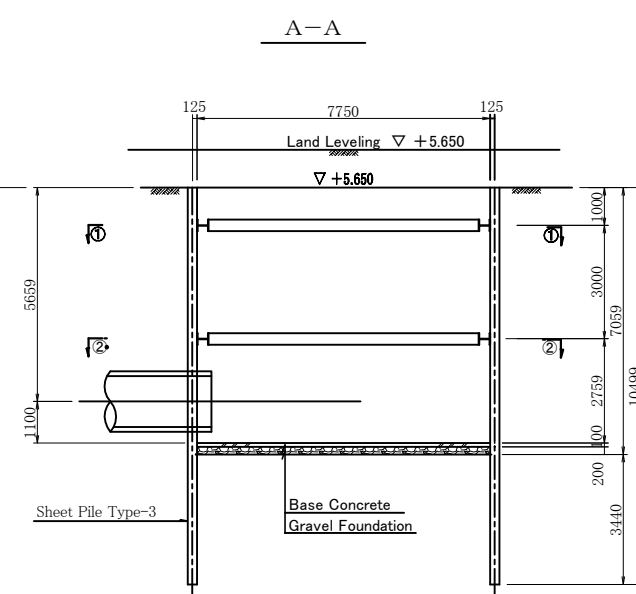
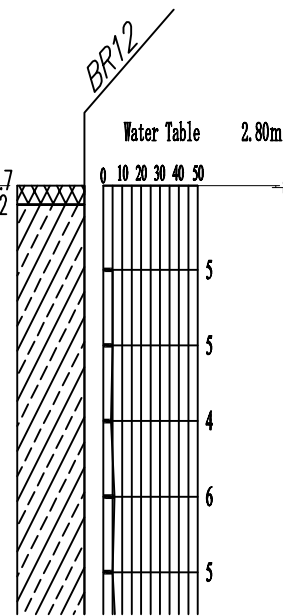
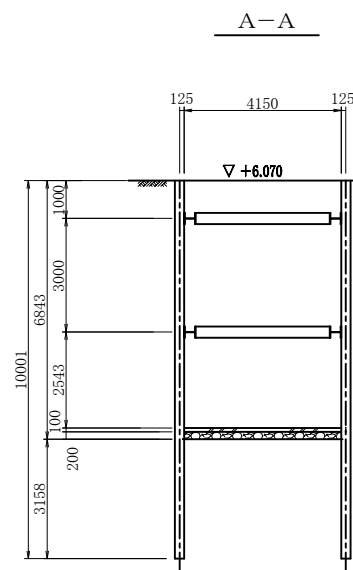
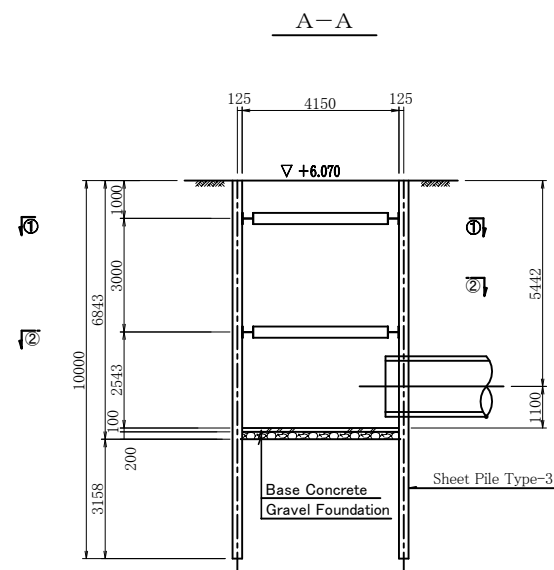
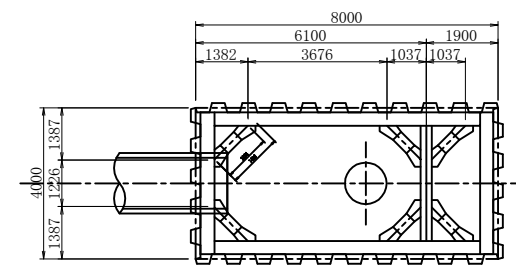
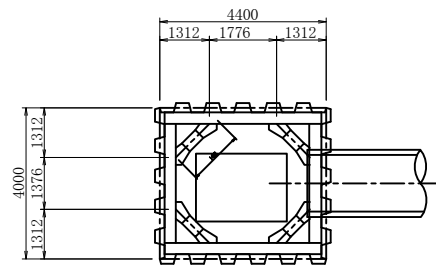


PLAN OF SHAFT AT LOCATION OF OFF-TAKE POINT 4

S = 1:100

ARRIVAL SHAFT

DEPARTURE SHAFT



Size of Waling and Strut

Stage	Waling	Strut	Rows
①	H-300×300×10×15	H-300×300×10×15	1
②	H-300×300×10×15	H-300×300×10×15	1

Size of Waling and Strut

Stage	Waling	Strut	Rows
①	H-400×400×13×21	H-300×300×10×15	1
②	H-400×400×13×21	H-300×300×10×15	1

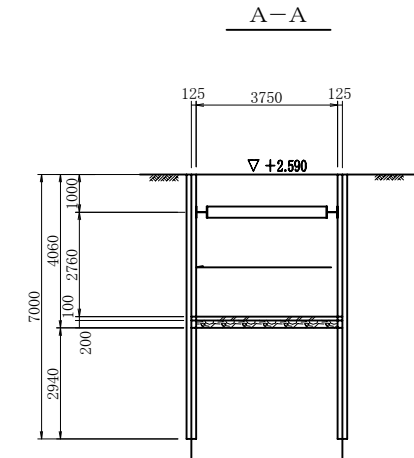
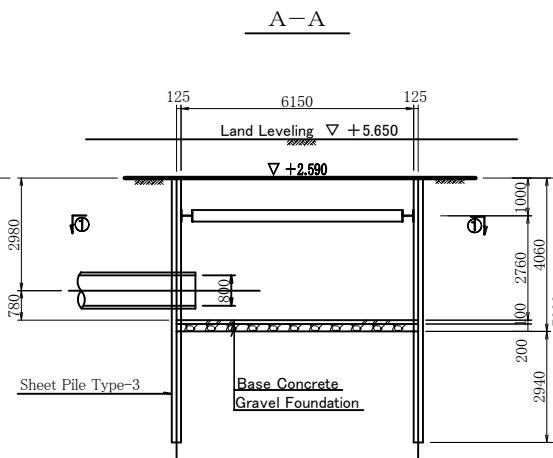
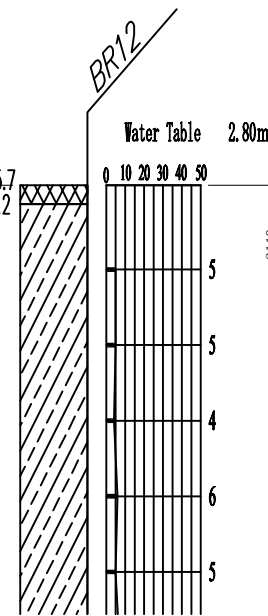
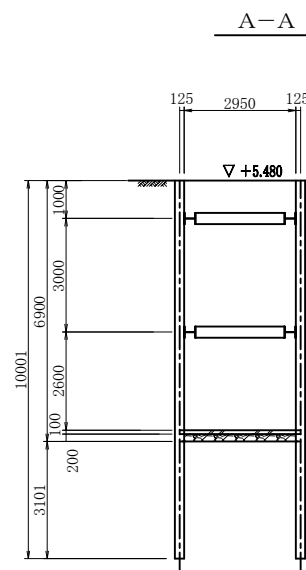
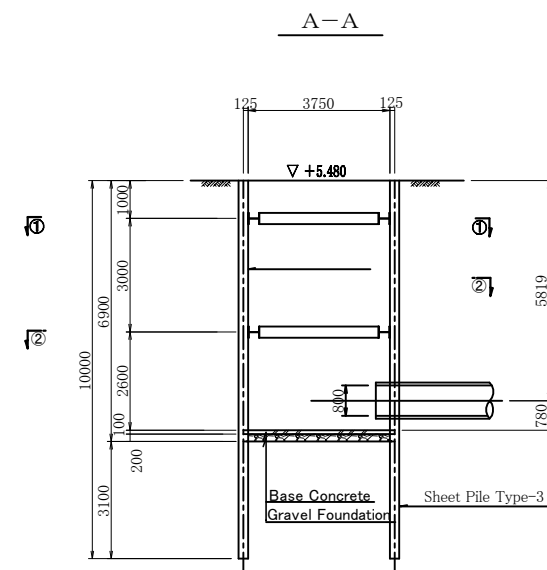
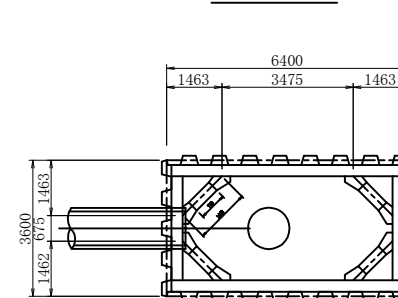
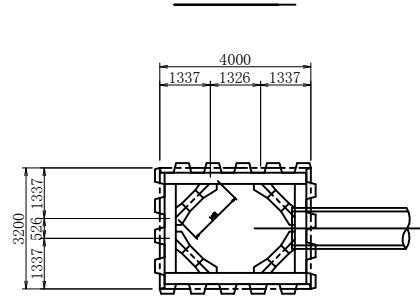
No.			
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PLAN OF SHAFT AT LOCATION OF OFF-TAKE POINT 3

S= 1:100

ARRIVAL SHAFT

DEPARTURE SHAFT



Size of Waling and Strut

Stage	Waling	Strut	Rows
①	H-300×300×10×15	H-300×300×10×15	1
②	H-300×300×10×15	H-300×300×10×15	1

Size of Waling and Strut

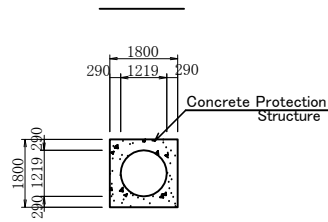
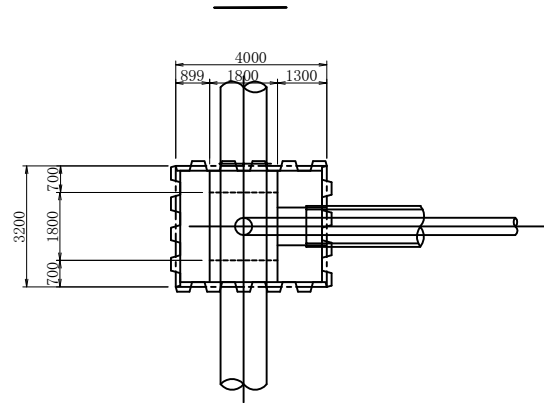
Stage	Waling	Strut	Rows
①	H-400×400×13×21	H-300×300×10×15	1

No.			
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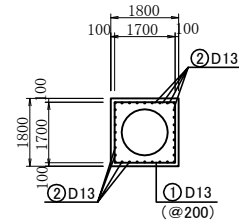
REINFORCED CONCRETE STRUCTURE AT BEND OF OFF-TAKE POINT 3

S = 1:100

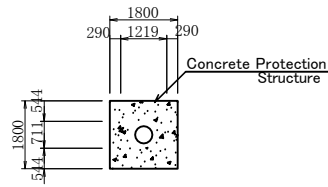
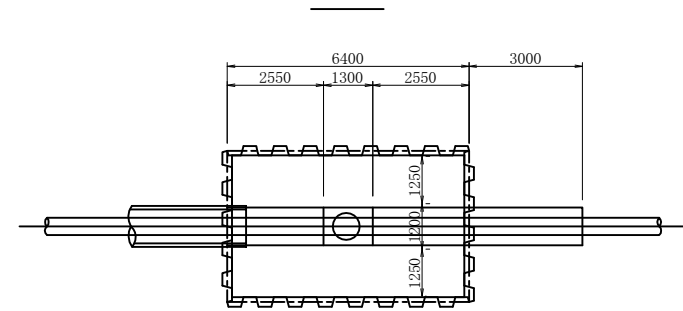
ARRIVAL SHAFT



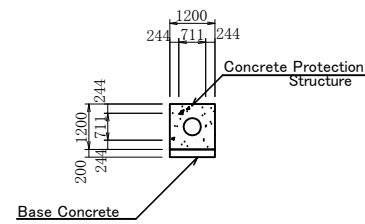
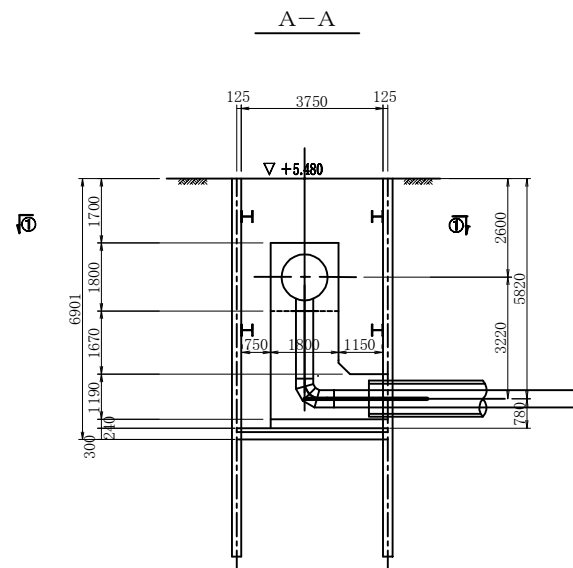
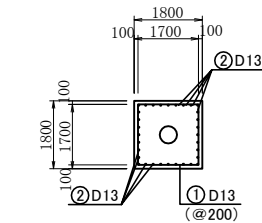
DN1200 STEEL BAR ARRANGEMENT



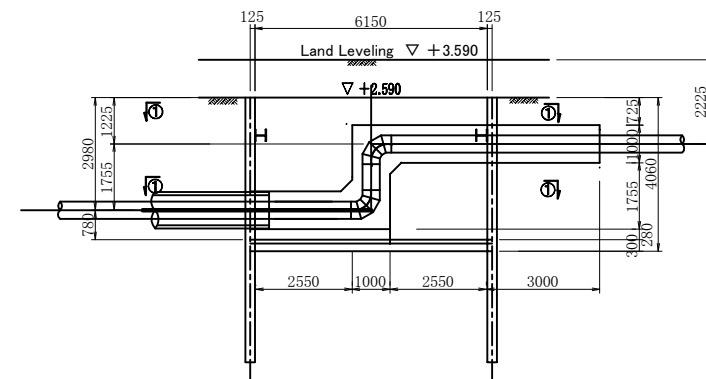
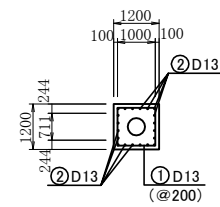
DEPARTURE SHAFT



DN1200 STEEL BAR ARRANGEMENT



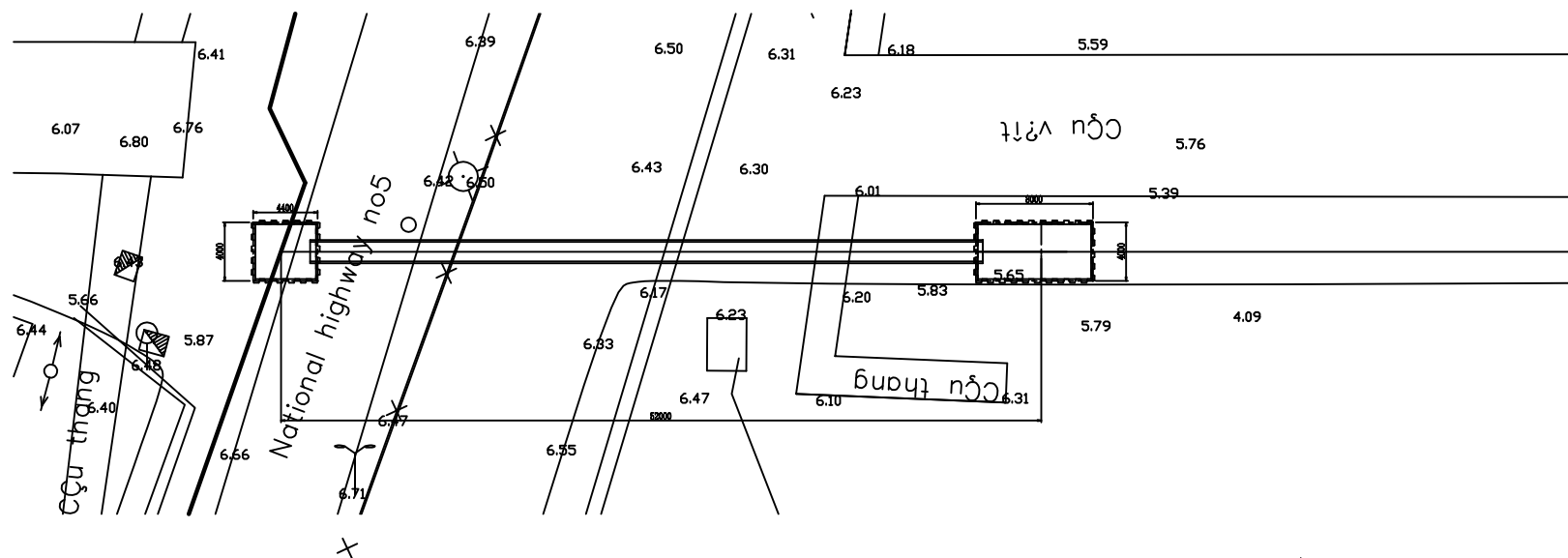
DN1200 STEEL BAR ARRANGEMENT



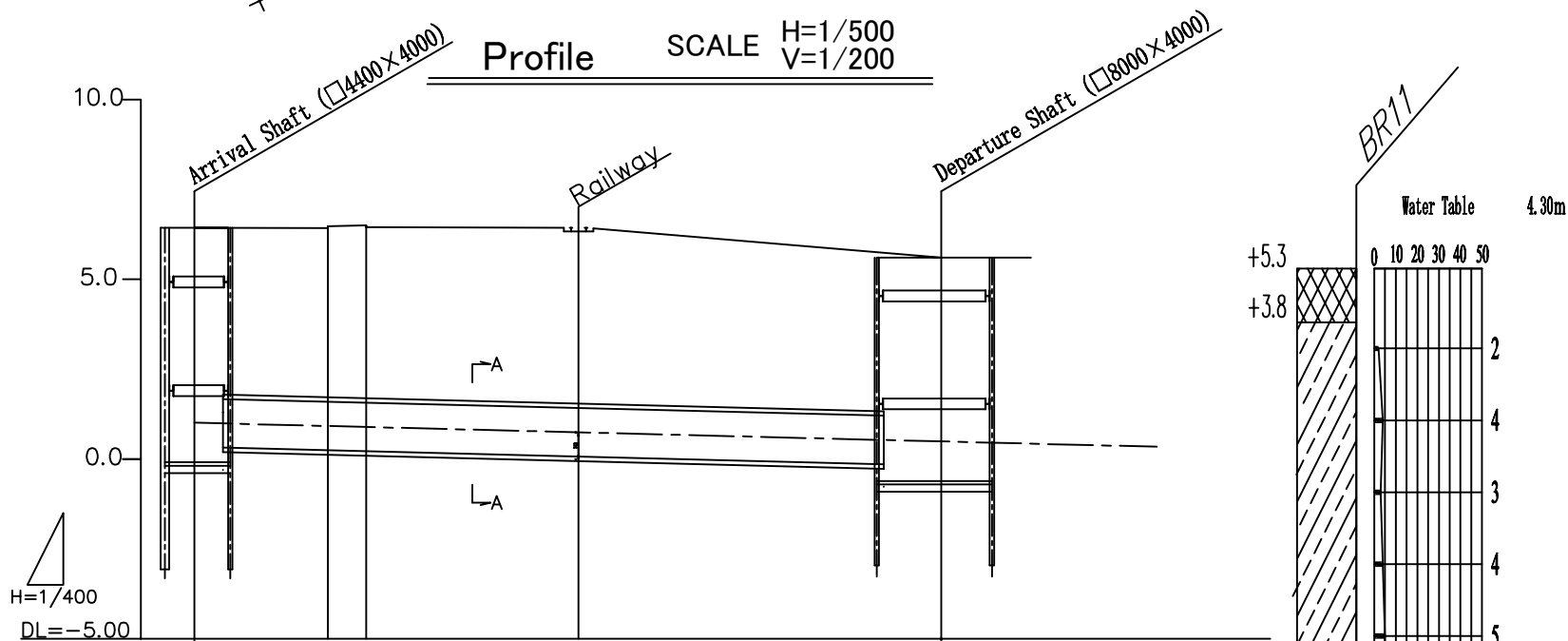
JICA Study Team				THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM	Date. Oct. 2011	Duong River Water Treatment Plant Transmission Pipeline	Drawing No
	No.				Scale S-1/100	REINFORCED CONCRETE STRUCTURE AT BEND OF OFF-TAKE POINT 3	H-6

PLAN AND PROFILE FOR JACKING METHOD AT JUNCTION ON ROUTE 197

PLAN SCALE: 1/500

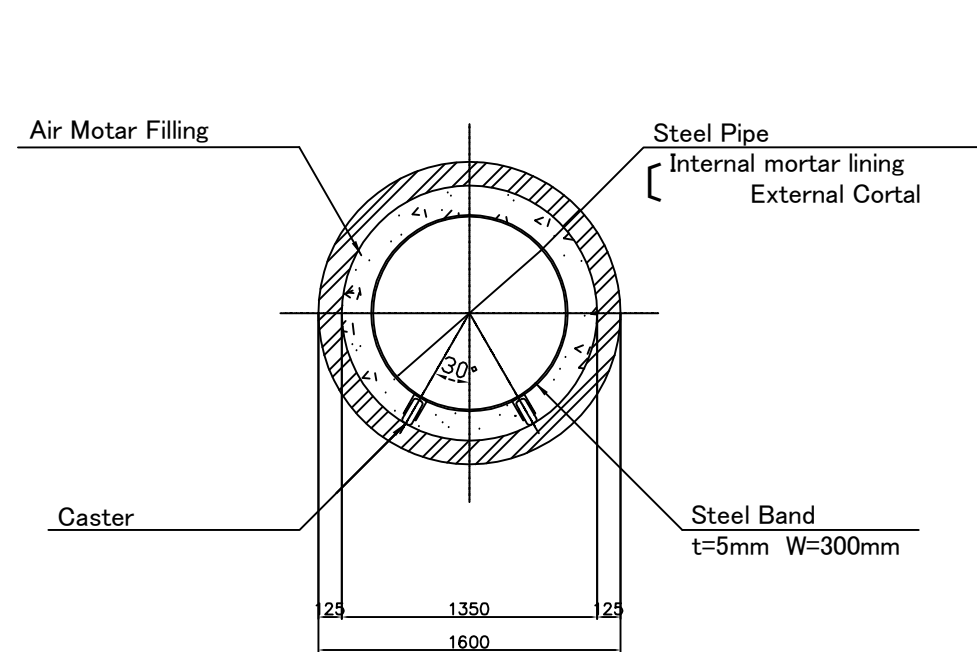


Profile SCALE H=1/500 V=1/200



	0.00	9.30	11.97	26.75	52.00
Ground Elevation	6.40	6.42	6.50	6.43	5.60
Earth Covering	5.42	5.47	5.61	5.69	5.11
Center Elev of Pipeline	1.01	0.92	0.89	0.74	0.49
Accumulated Distance	0.00	9.30	11.97	26.75	52.00

Cross Section A-A



No.			
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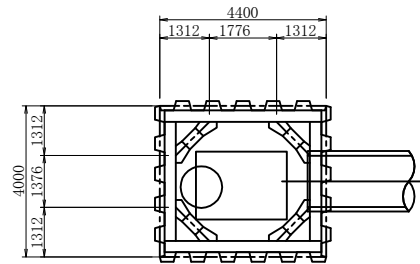
197号線横断 発進・到達仮設図 PLAN OF SHAFT AT JUNCTION ON ROUTE 197

S= 1:100

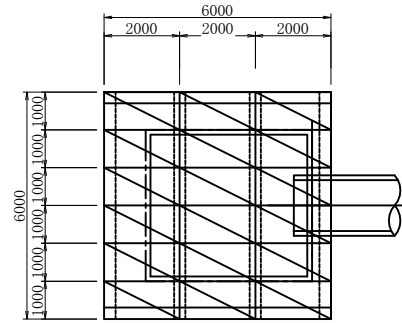
到達立坑 ARRIVAL SHAFT

発進立坑 DEPARTURE SHAFT

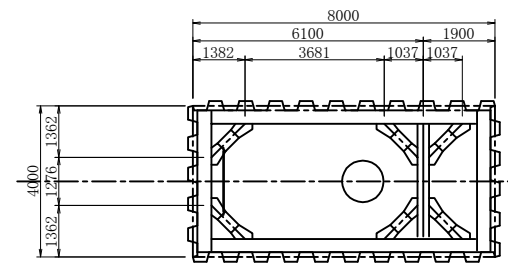
stage ②-②



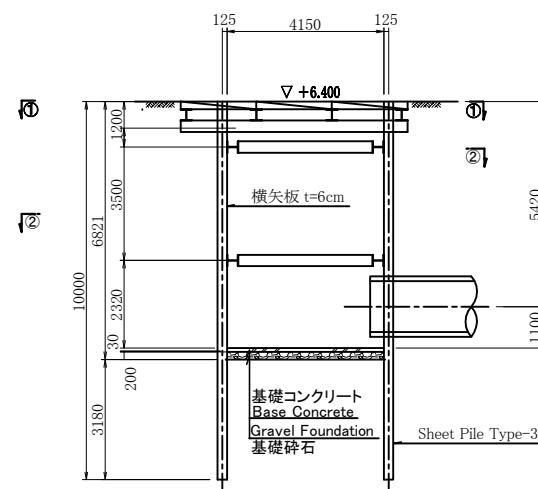
stage ①-①



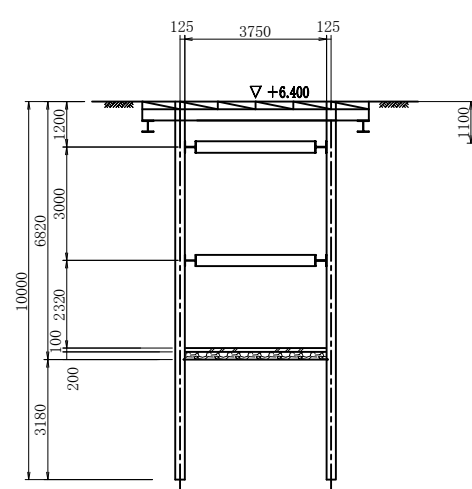
stage ①-②



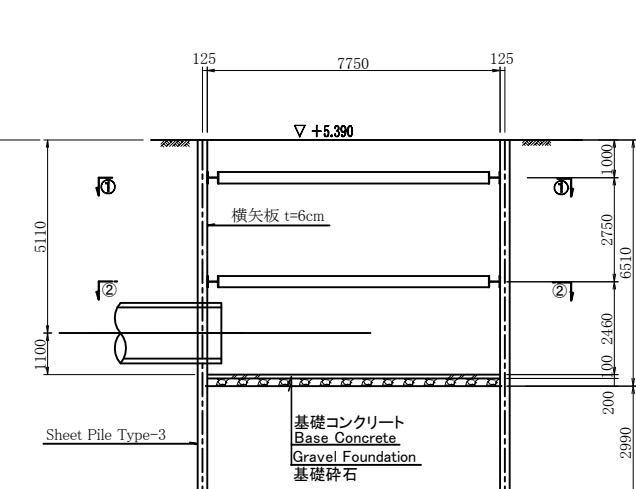
A-A



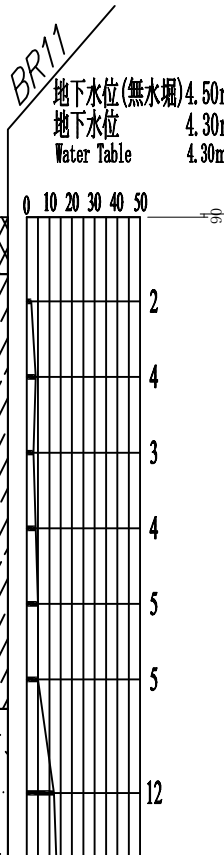
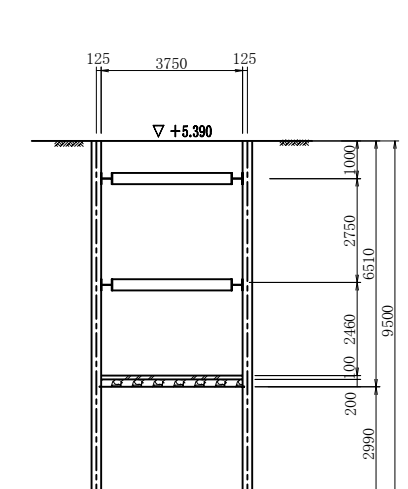
A-A



A-A



A-A



仮設材寸法表
Size of Waling and Strut

段目	腹起	切梁・火打ち	段数
Stage	Waling	Strut	Rows
①	H-300×300×10×15	H-300×300×10×15	1
②	H-300×300×10×15	H-300×300×10×15	1

仮設材寸法表
Size of Waling and Strut

段目	腹起	切梁・火打ち	段数
Stage	Waling	Strut	Rows
①	H-400×400×13×21	H-300×300×10×15	1
②	H-400×400×13×21	H-300×300×10×15	1

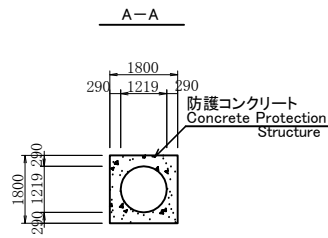
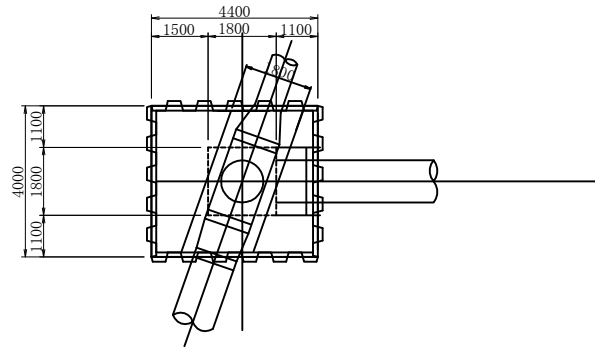
No.			
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197号線横断 防護コンクリート詳細図 REINFORCED CONCRETE STRUCTURE AT BEND ON ROUTE 197

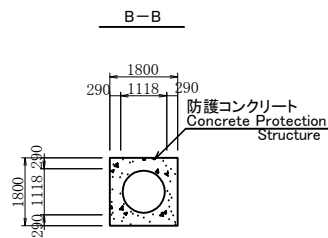
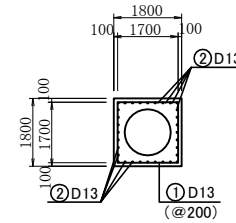
S= 1:100

到達立坑 ARRIVAL SHAFT

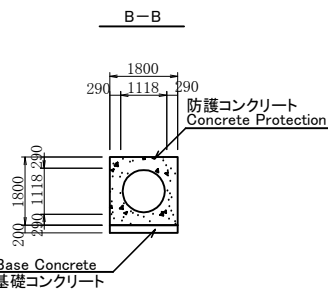
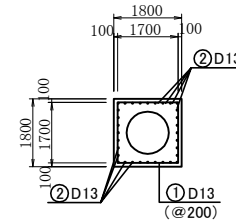
stage ①



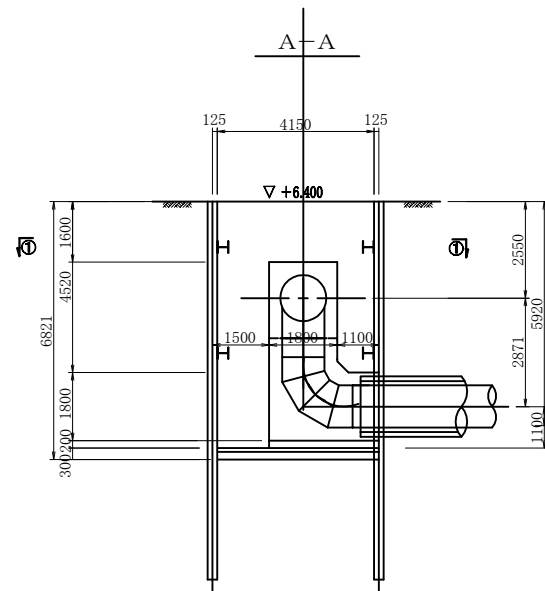
DN1200 配筋 断面図
DN1200 STEEL BAR ARRANGEMENT



DN1000 配筋 断面図
DN1000 STEEL BAR ARRANGEMENT

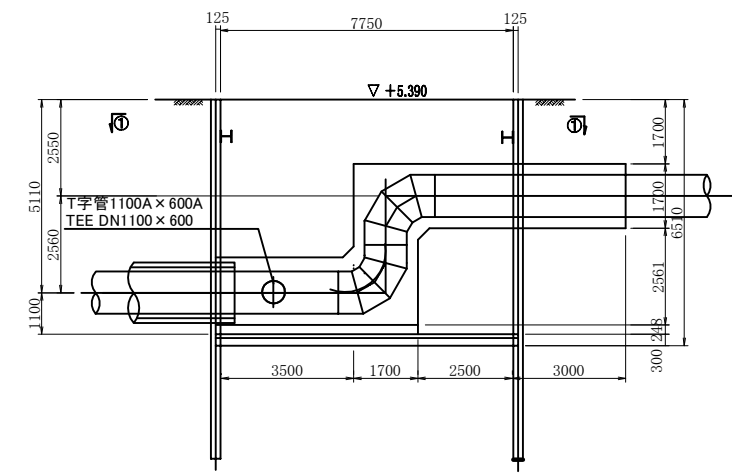
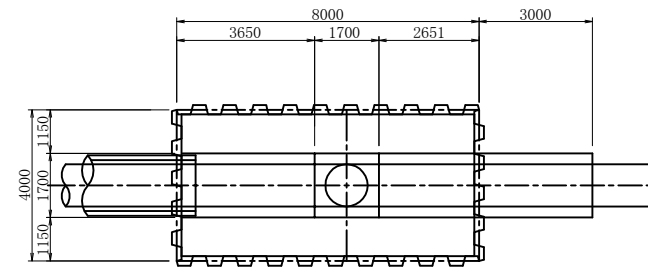


Base Concrete
基礎コンクリート



発進立坑 DEPARTURE SHAFT

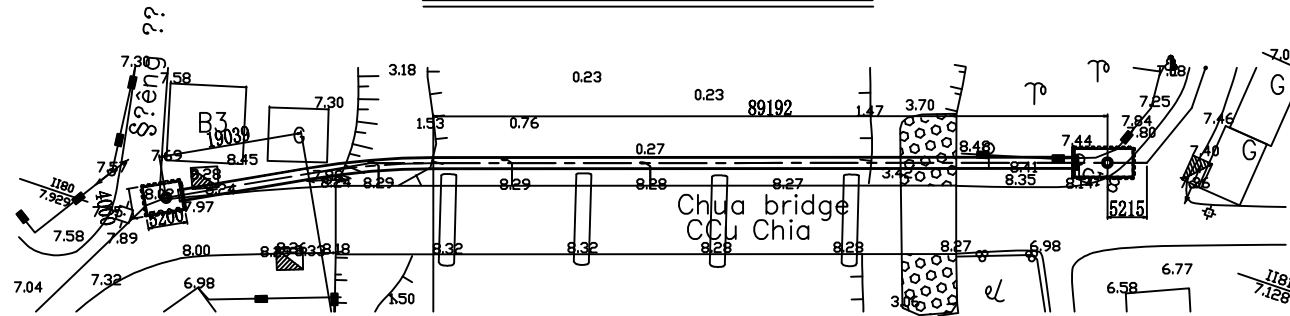
stage ①



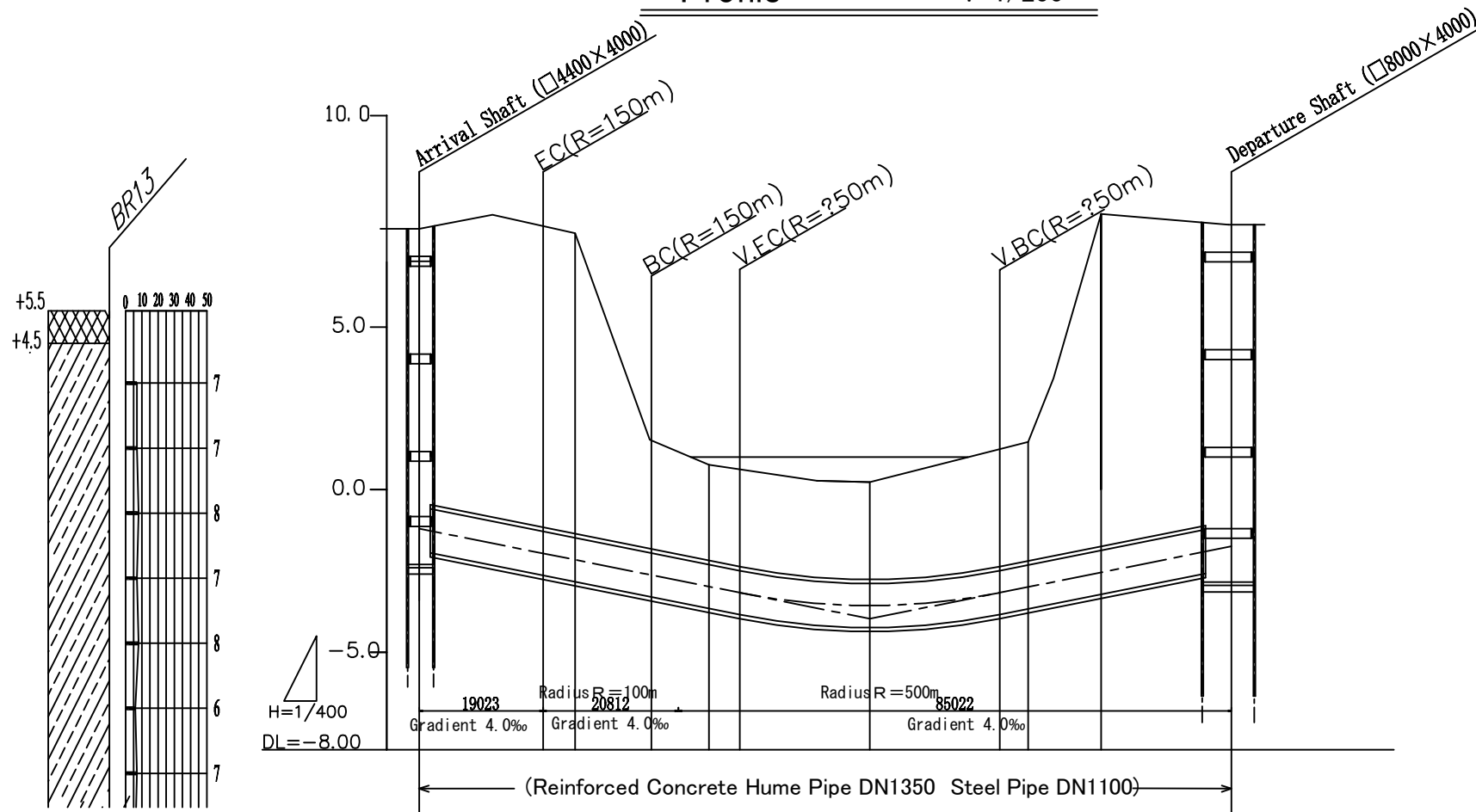
No.			
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PLAN AND PROFILE FOR JACKING METHOD AT LOCATION ON BAC HUNG HAI RIVER

PLAN SCALE: 1/1000

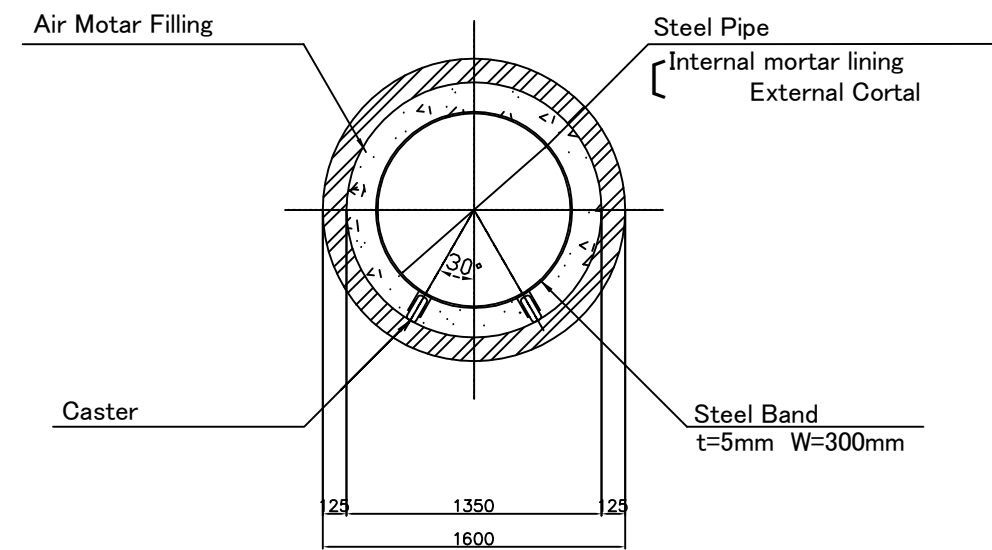


Profile SCALE H=1/1000
V=1/200



Ground Elevation	8.02	8.45	7.88	1.53	0.76	0.62	0.23	1.25	1.47	8.48	8.15
Earth Covering	9.22	10.01	10.04	4.14	3.74	3.79	3.80	4.42	4.47	11.03	9.90
Center Elev of Pipeline	-1.20	-1.96	-2.16	-2.63	-2.98	-3.17	-3.57	-3.17	-3.00	-2.55	-1.75
Accumulated Distance	0.00	19.04	23.96	35.68	44.53	49.27	69.25	89.23	93.62	104.84	124.85

Cross Section A-A



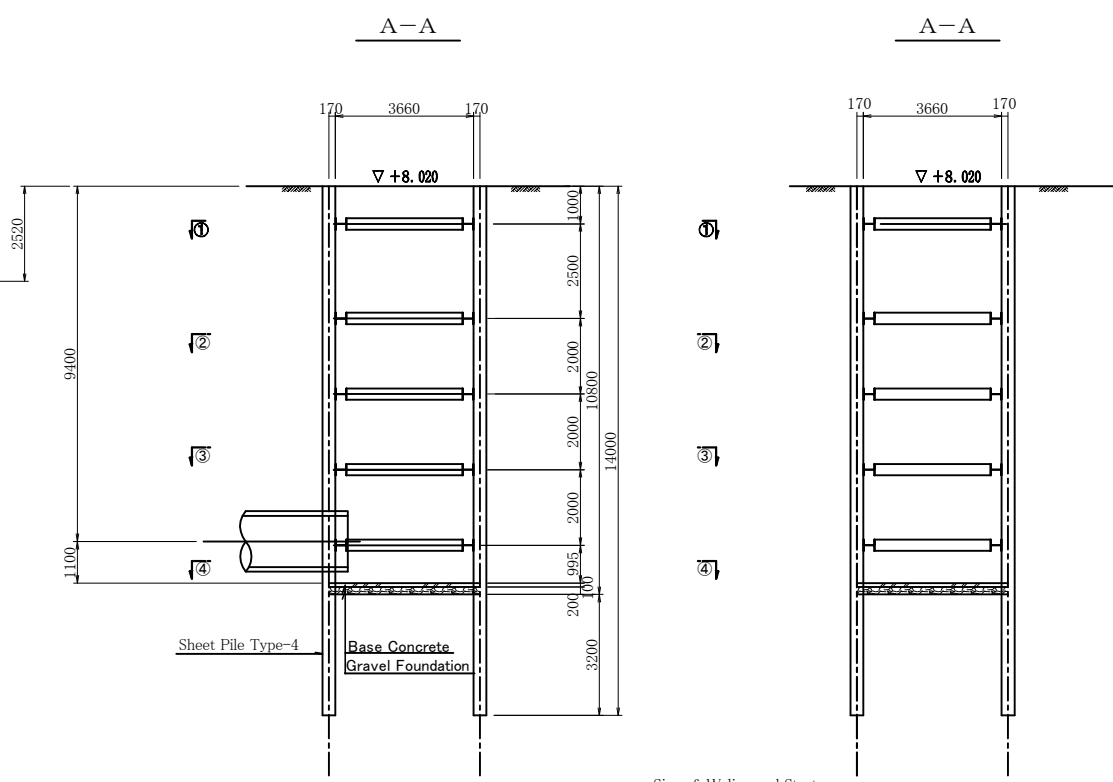
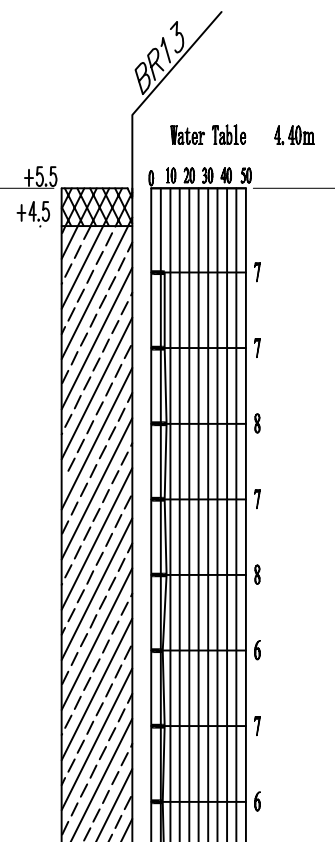
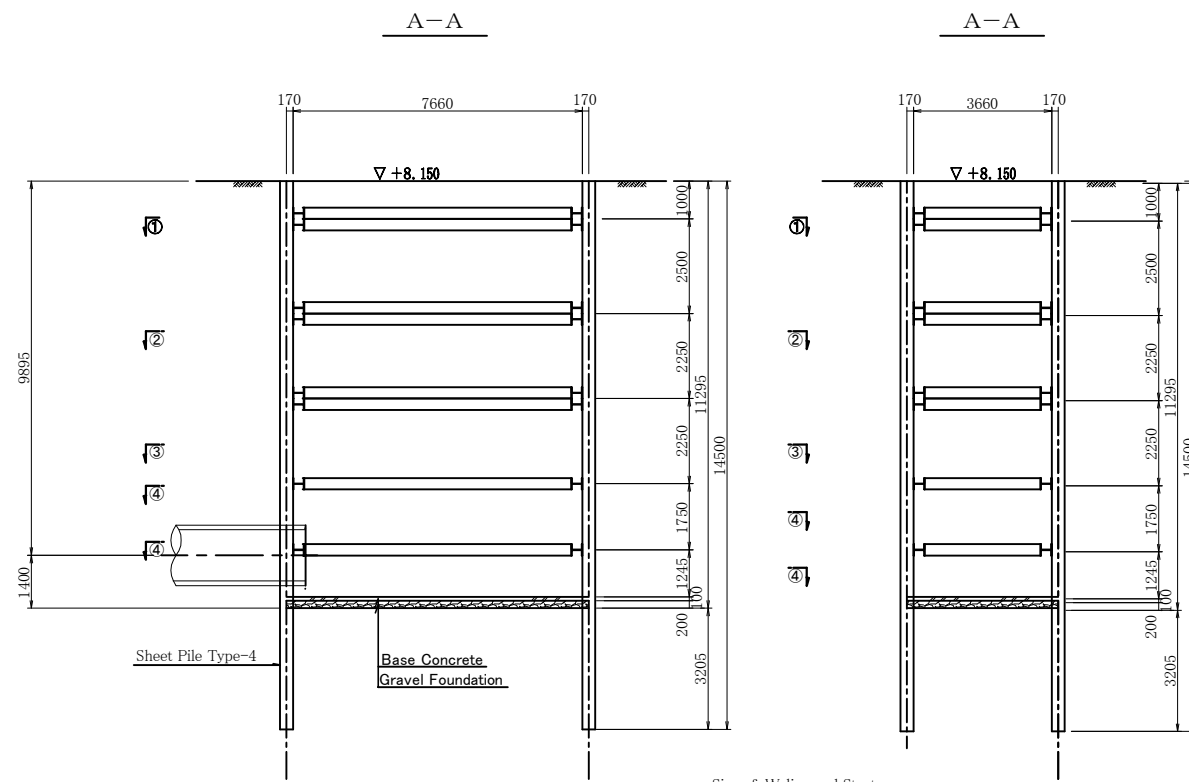
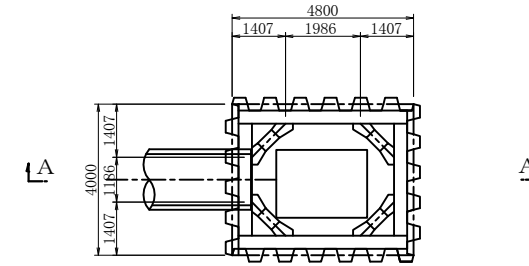
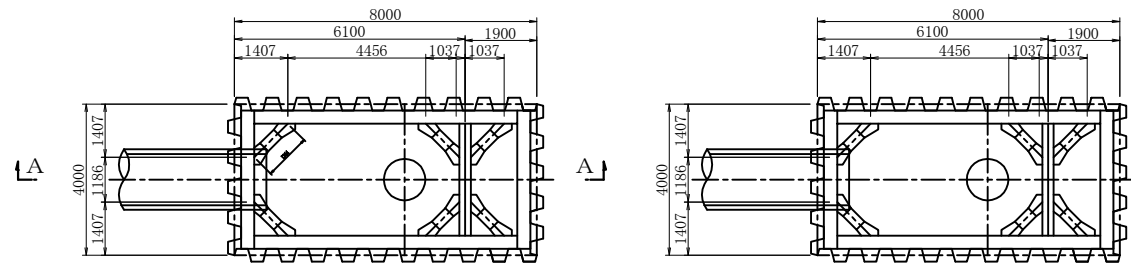
No.			
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PLAN OF SHAFT AT LOCATION OF BAC HUNG HAI RIVER

S= 1:100

DEPARTURE SHAFT

ARRIVAL SHAFT



Stage	Waling	Strut	Rows
①	H-350×350×12×19	H-300×300×10×15	2
②	H-350×350×12×19	H-300×300×10×15	2
③	H-350×350×12×19	H-300×300×10×15	2
④	H-400×400×13×21	H-300×300×10×15	1
⑤	H-400×400×13×21	H-300×300×10×15	1

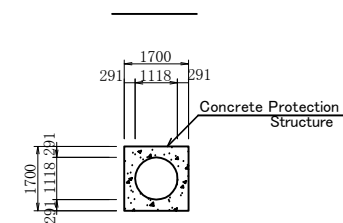
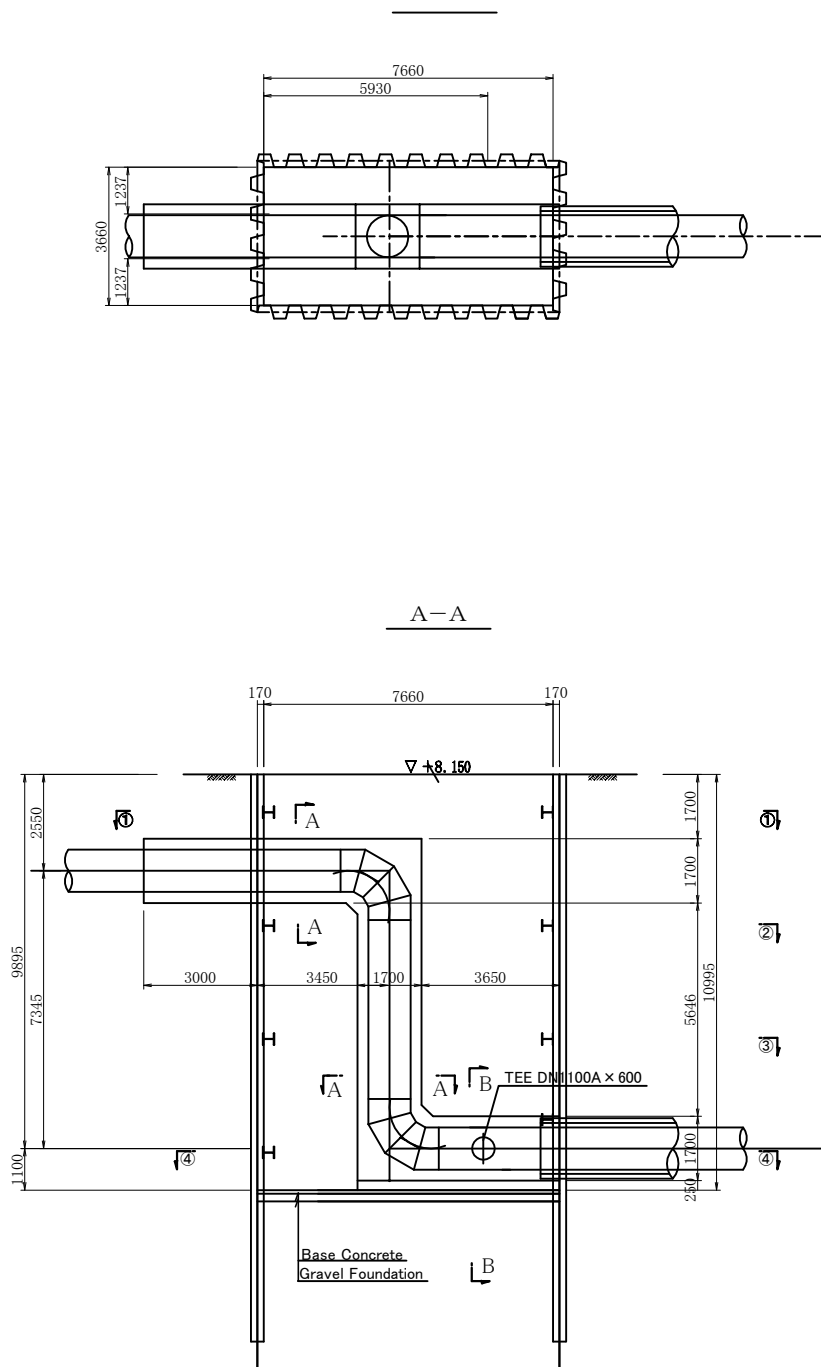
Stage	Waling	Strut	Rows
①	H-300×300×10×15	H-300×300×10×15	1
②	H-300×300×10×15	H-300×300×10×15	1
③	H-300×300×10×15	H-300×300×10×15	1
④	H-300×300×10×15	H-300×300×10×15	1
⑤	H-300×300×10×15	H-300×300×10×15	1

No.			
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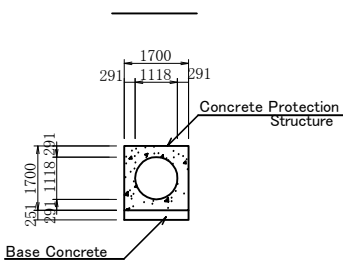
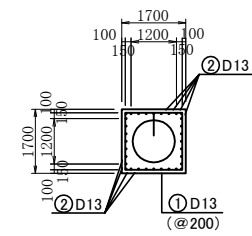
REINFORCED CONCRETE STRUCTURE AT BEND OF BAC HUNG HAI RIVER

S= 1:100

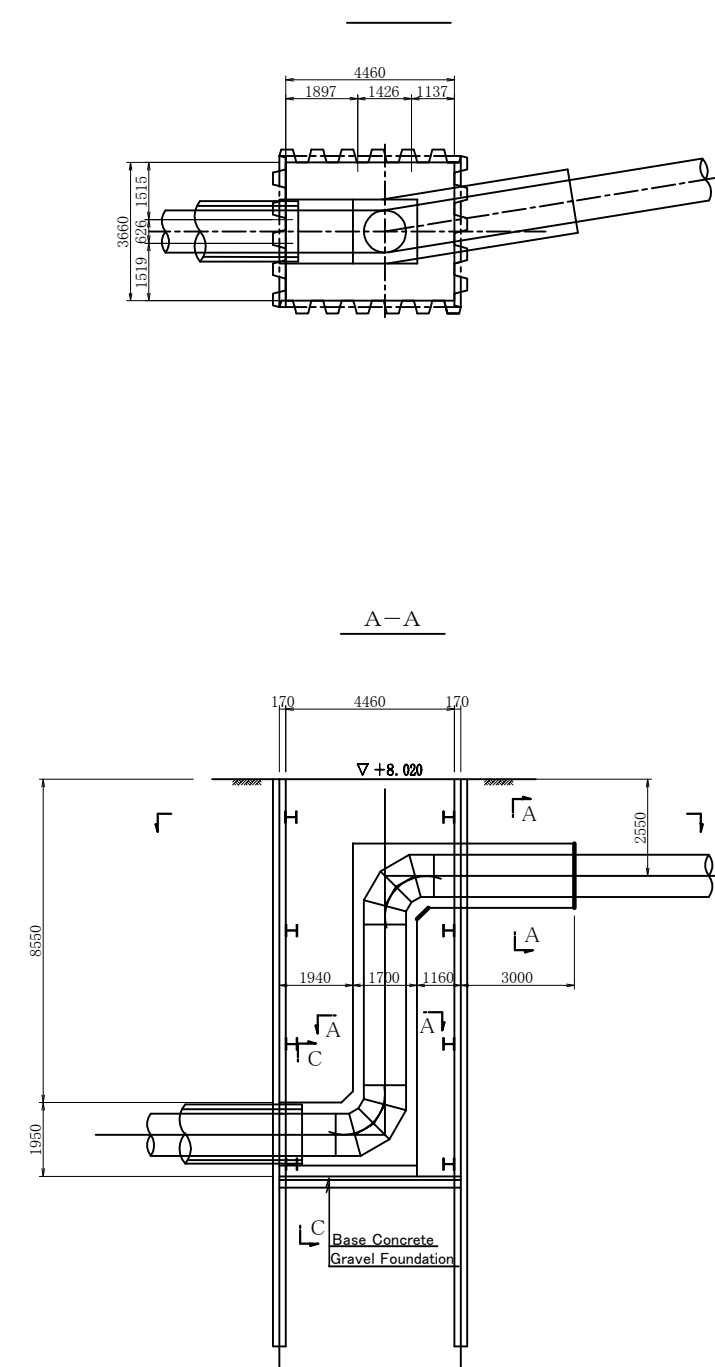
DEPARTURE SHAFT



STEEL BAR ARRANGEMENT



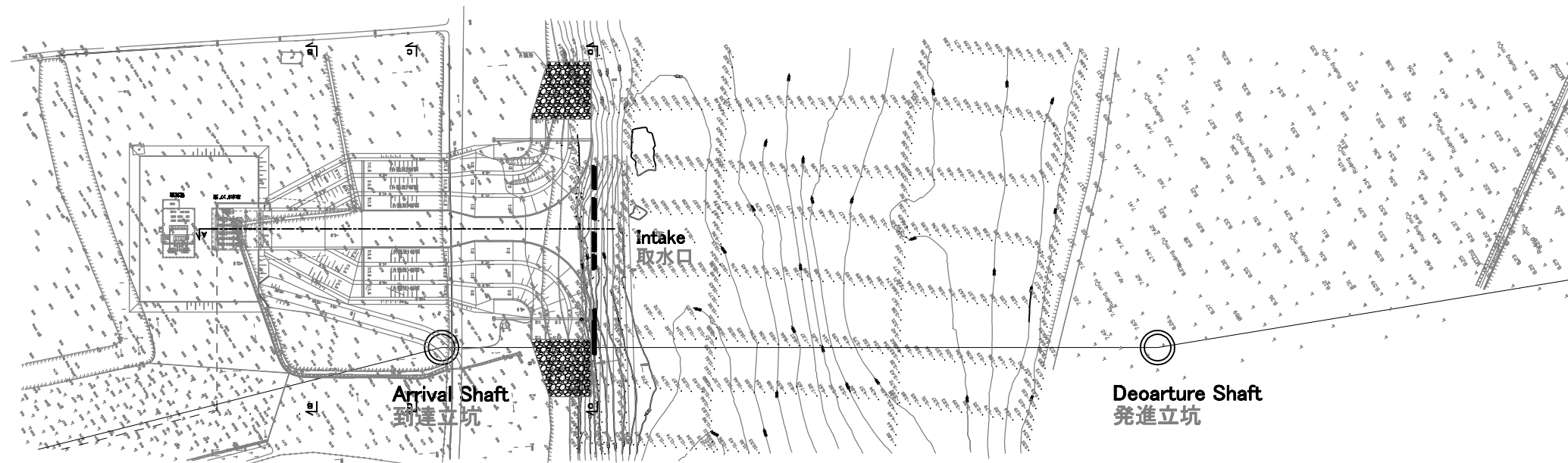
ARRIVAL SHAFT



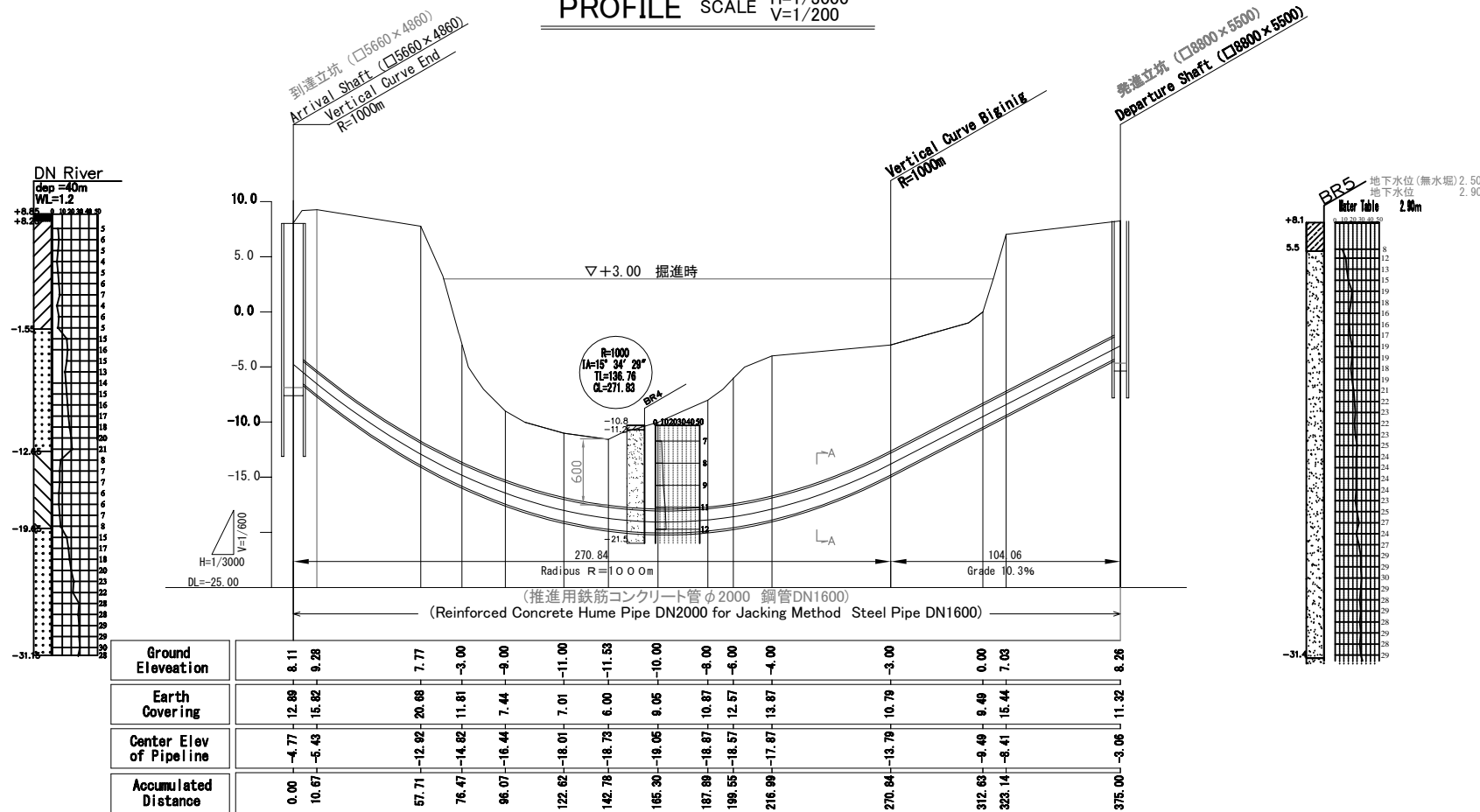
JICA Study Team	No.				THE PREPARATORY SURVEY ON THE DUONG RIVER WATER SUPPLY SYSTEM PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM	Date. Oct. 2011	Duong River Water Treatment Plant Transmission Pipeline	Drawing No
						Scale S-1/100		

PLAN AND PROFILE FOR JACKING METHOD AT LOCATION OF DUONG RIVER

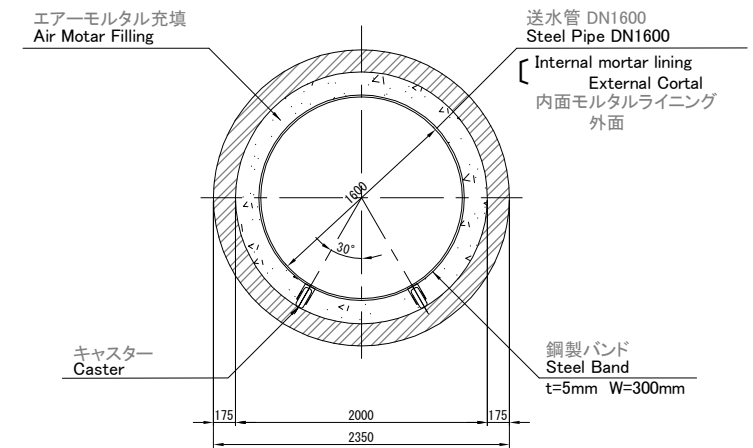
PLAN SCALE: 1/3000



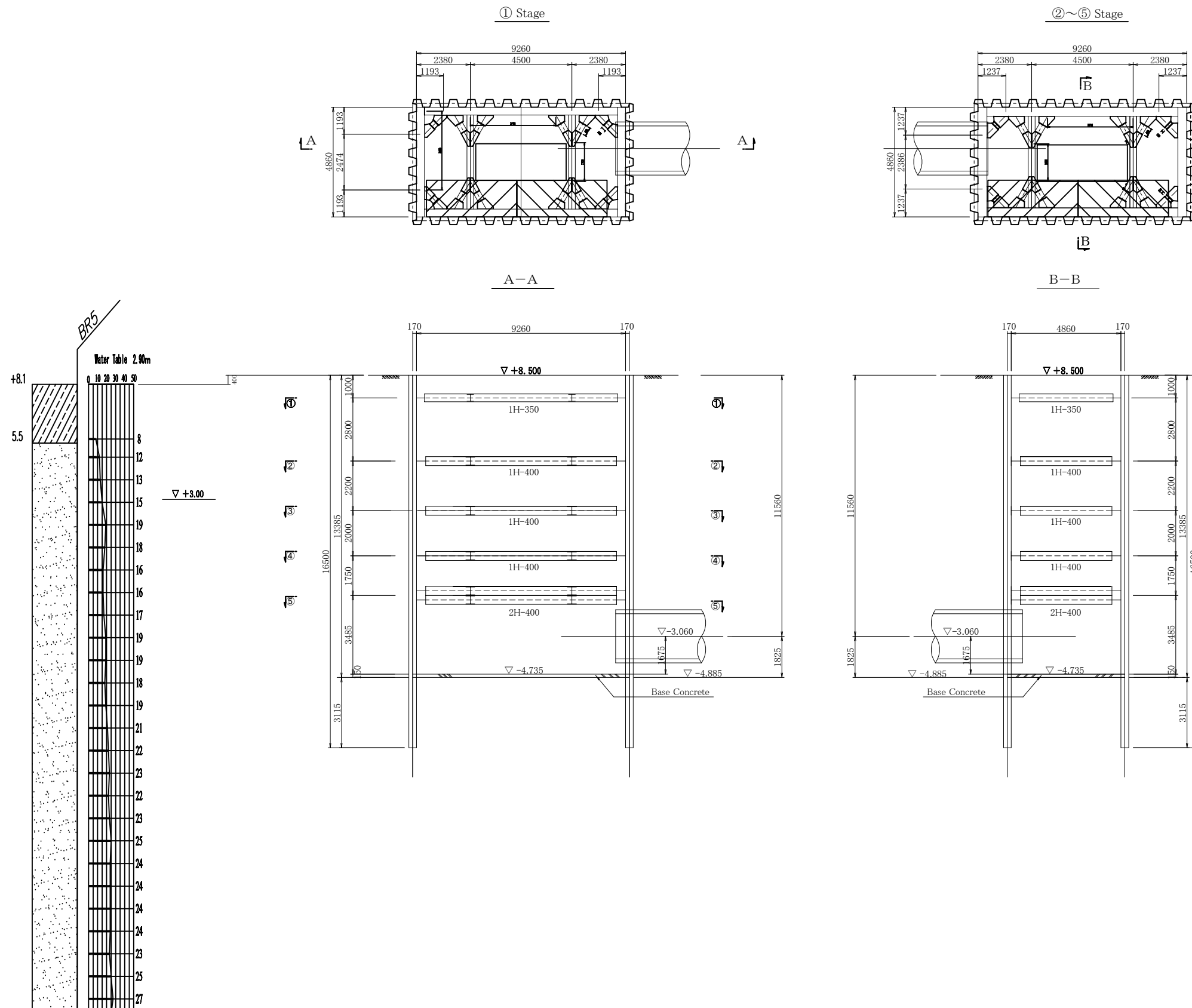
PROFILE SCALE H=1/3000 V=1/200



断面図
Cross Section A-A
S=1/60



PLAN OF DEPARTURE SHAFT ON DUONG RIVER S= 1:100

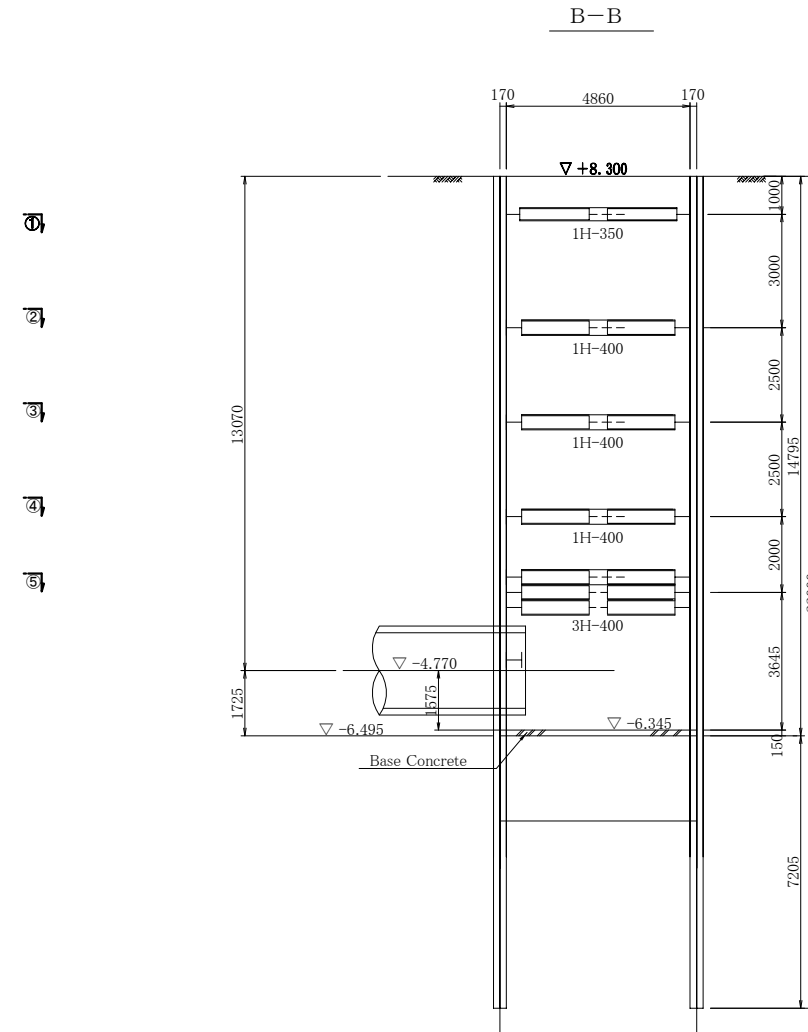
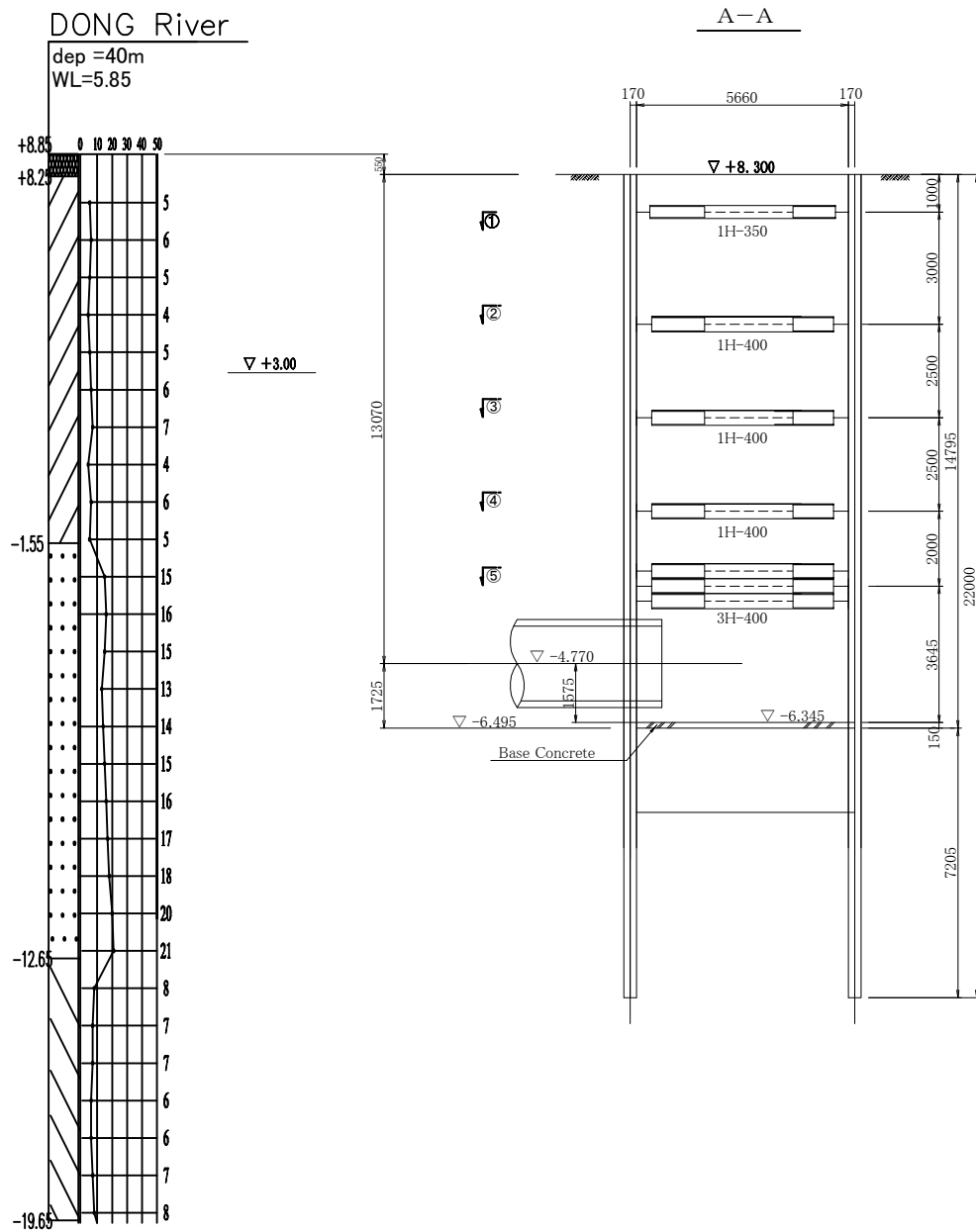
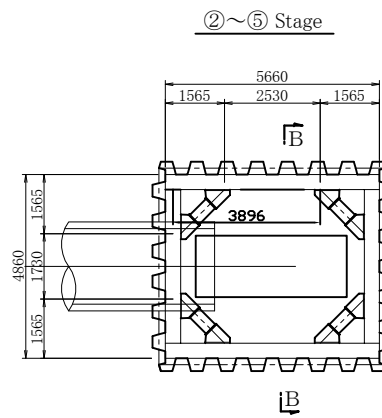
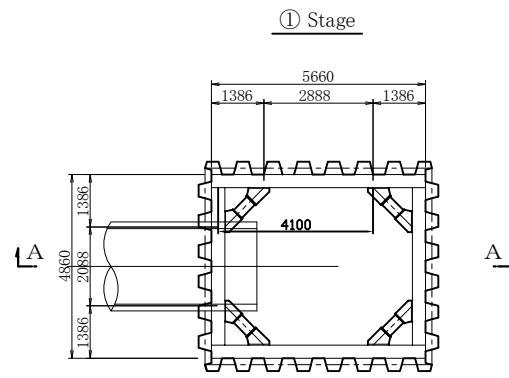


Size of waling and Strut

Stage	Waling	Strut	Rows
①	H-350×350×12×19	H-300×300×10×15	1
②	H-400×400×13×21	H-300×300×10×15	1
③	H-400×400×13×21	H-300×300×10×15	1
④	H-400×400×13×21	H-300×300×10×15	1
⑤	H-400×400×13×21	H-300×300×10×15	2

No.			
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PLAN OF ARRIVAL SHAFT ON DUONG RIVER S= 1:100



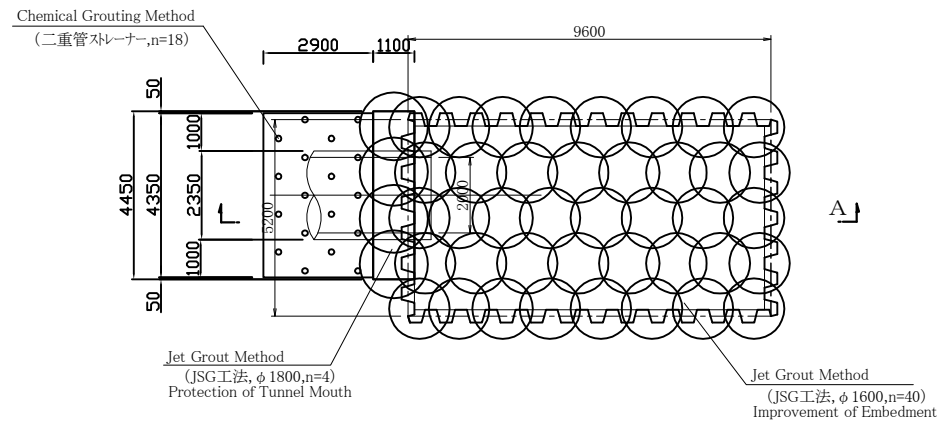
Size of waling and Strut

Stage	Waling	Strut	Rows
①	H-350×350×12×19	H-300×300×10×15	1
②	H-400×400×13×21	H-300×300×10×15	1
③	H-400×400×13×21	H-300×300×10×15	1
④	H-400×400×13×21	H-300×300×10×15	1
⑤	H-400×400×13×21	H-300×300×10×15	3

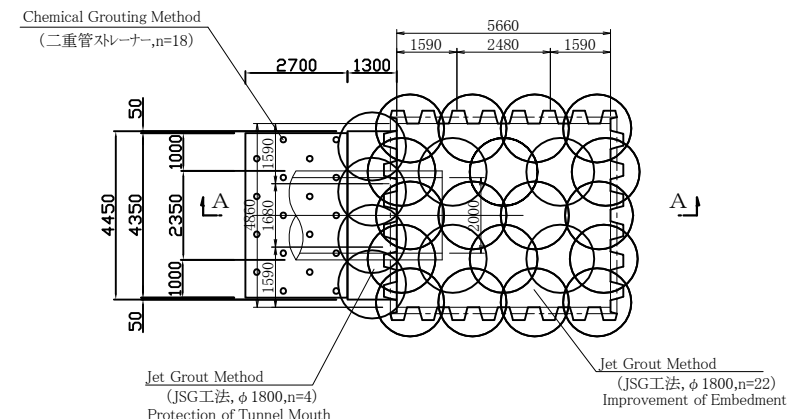
No.			
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SOIL IMPROVEMENT FOR JACKING METHOD ON DUONG RIVER S= 1:100

DEPARTURE SHAFT
PLAN

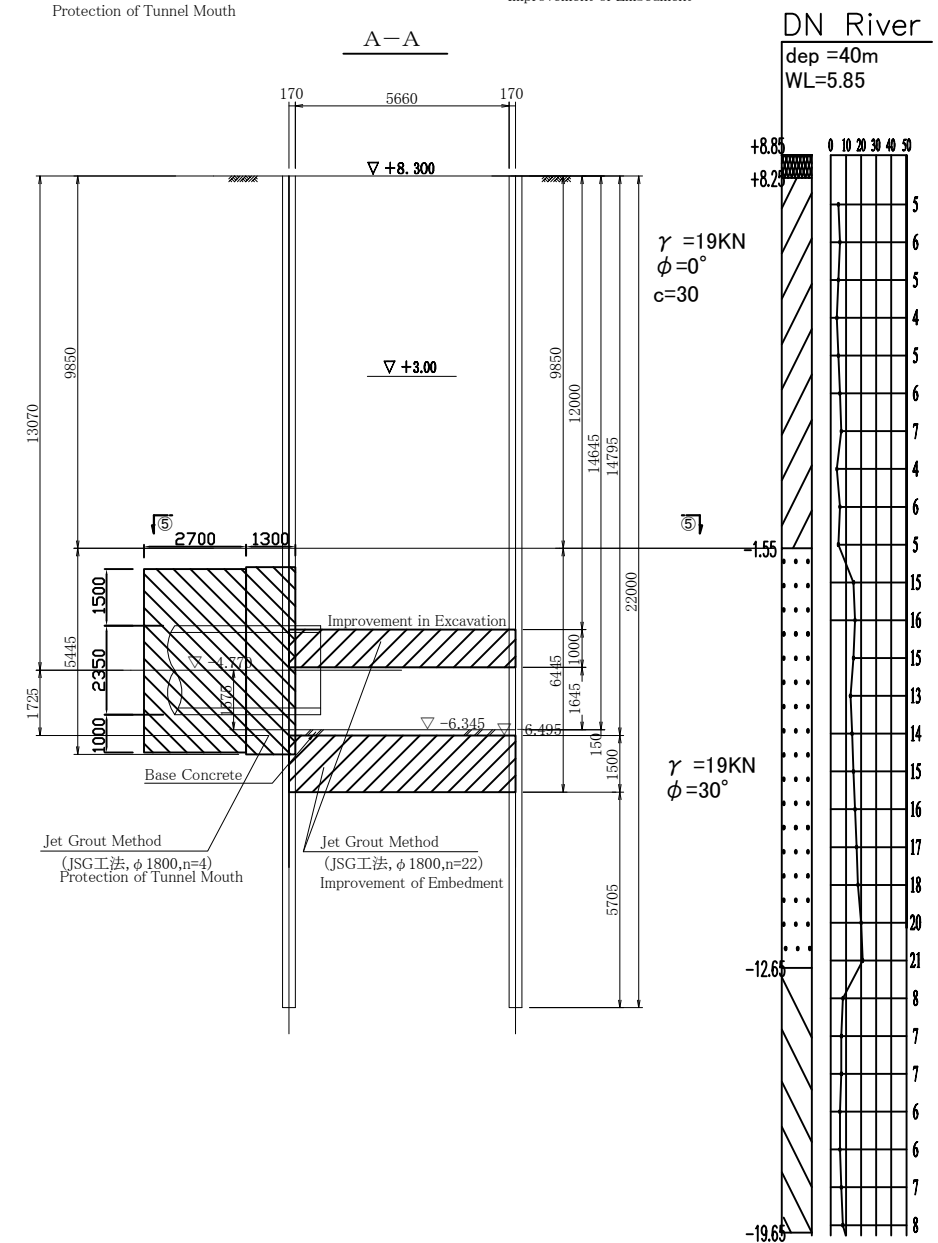
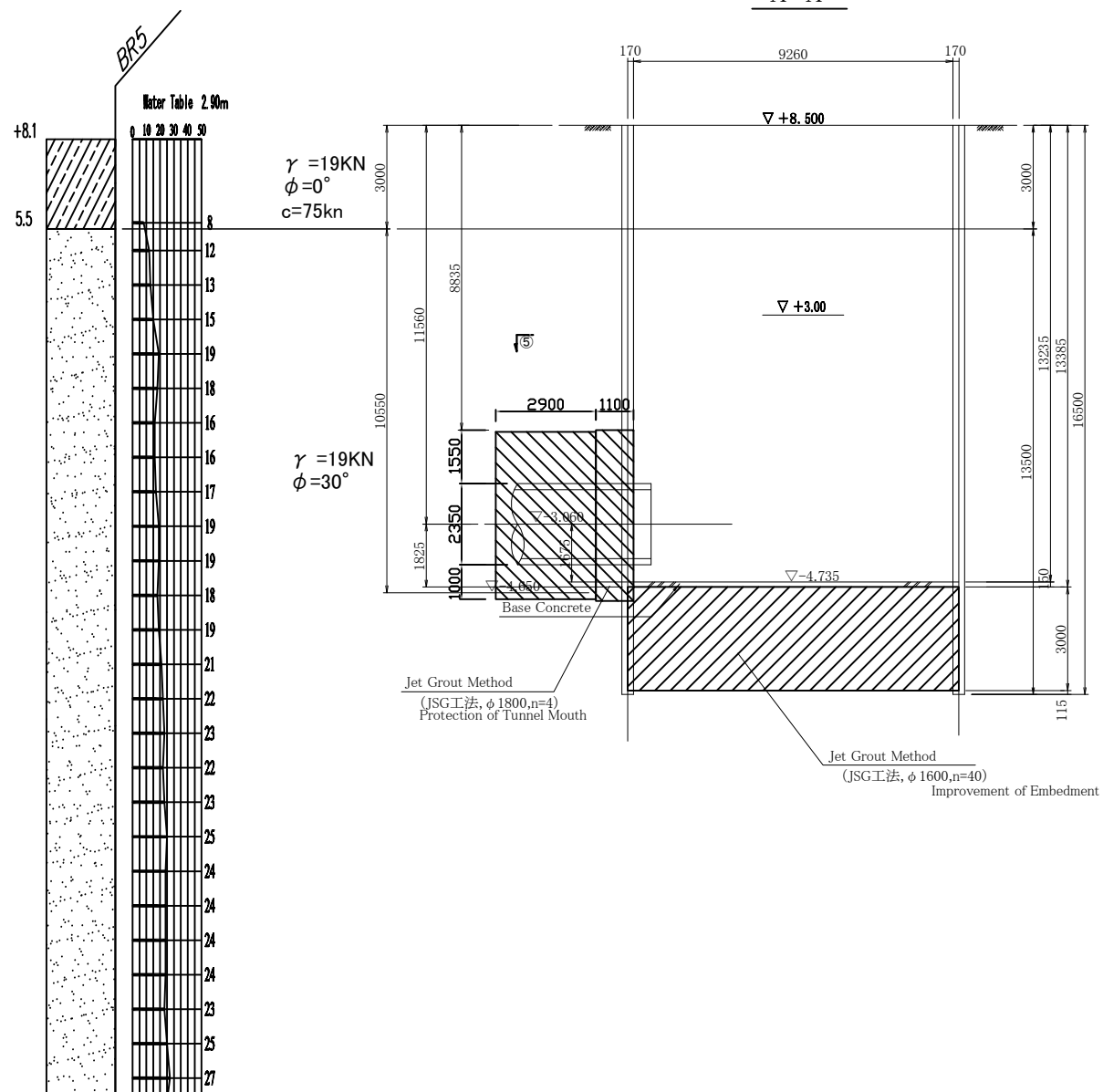


ARRIVAL SHAFT
PLAN



A-A

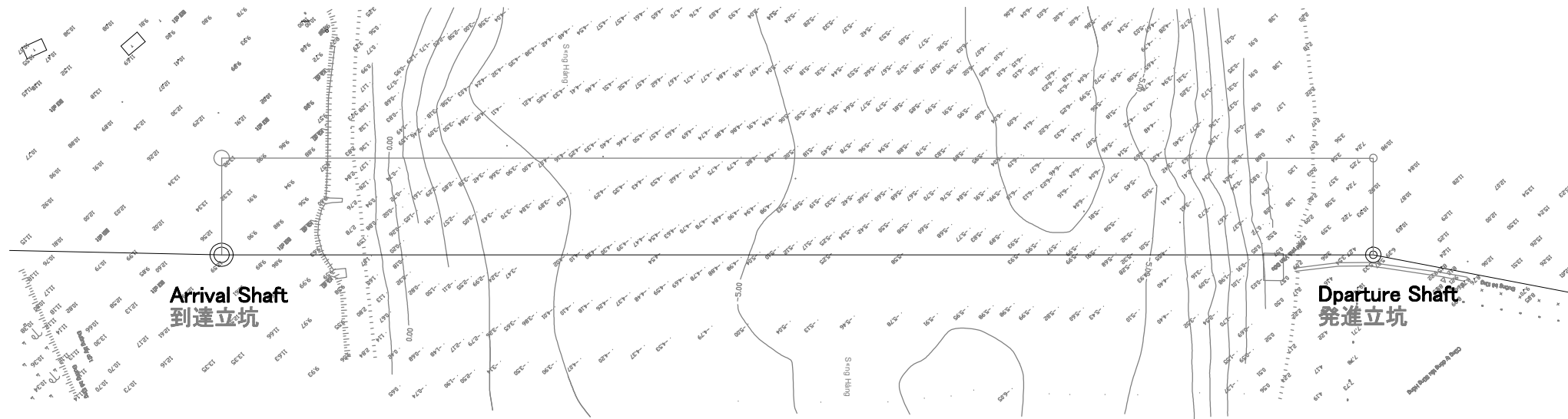
A-A



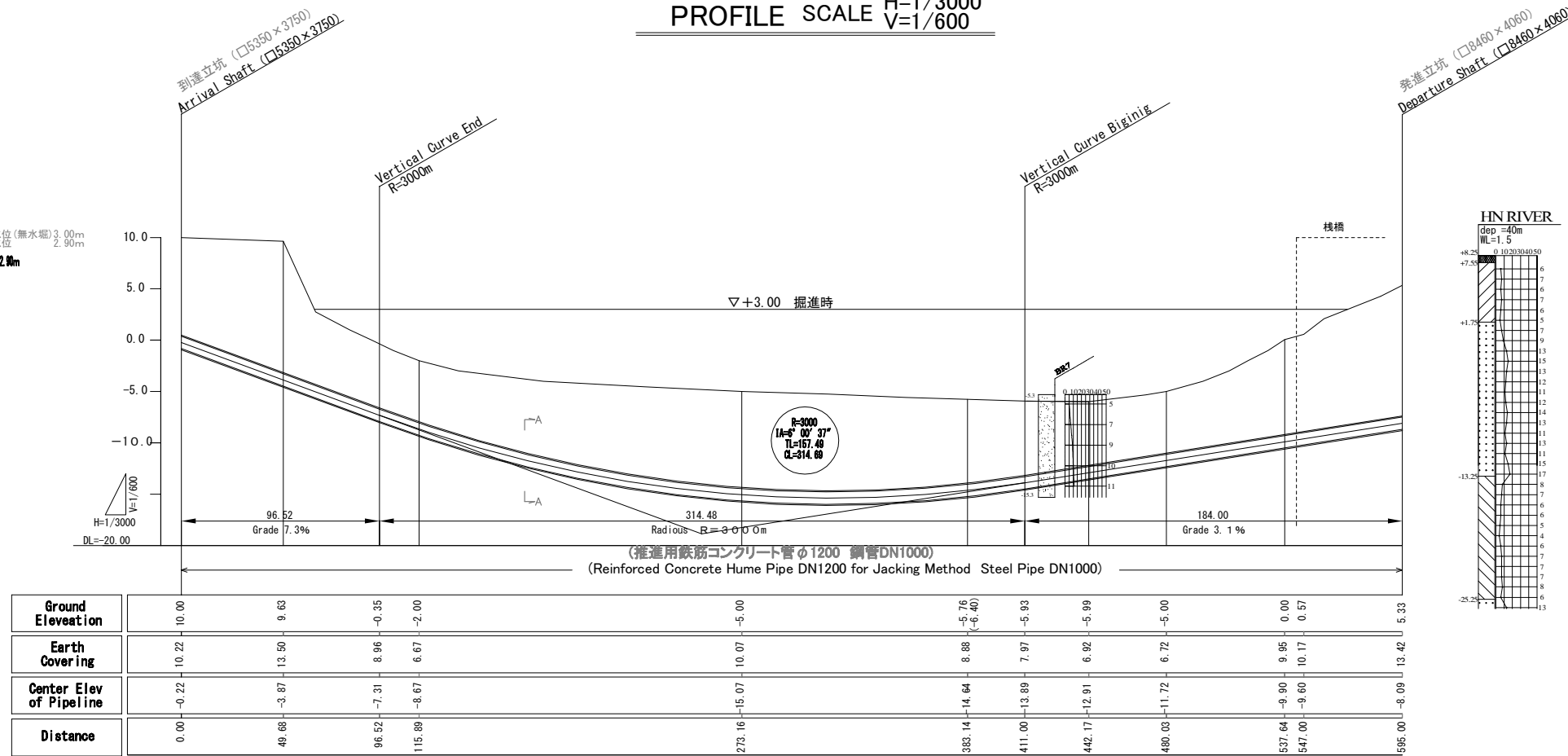
No.			
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PLAN AND PROFILE FOR JACKING METHOD AT LOCATION OF HUONG RIVER

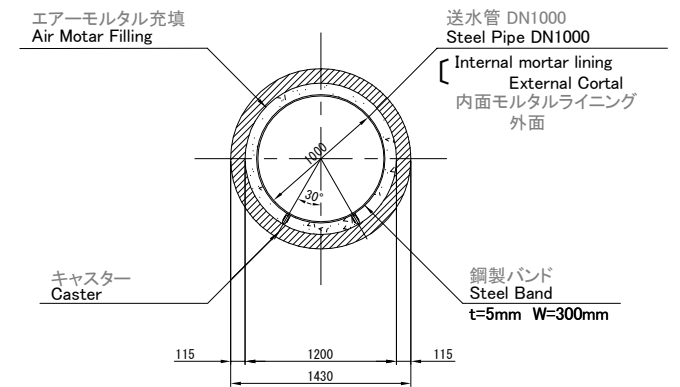
PLAN SCALE: 1/3000



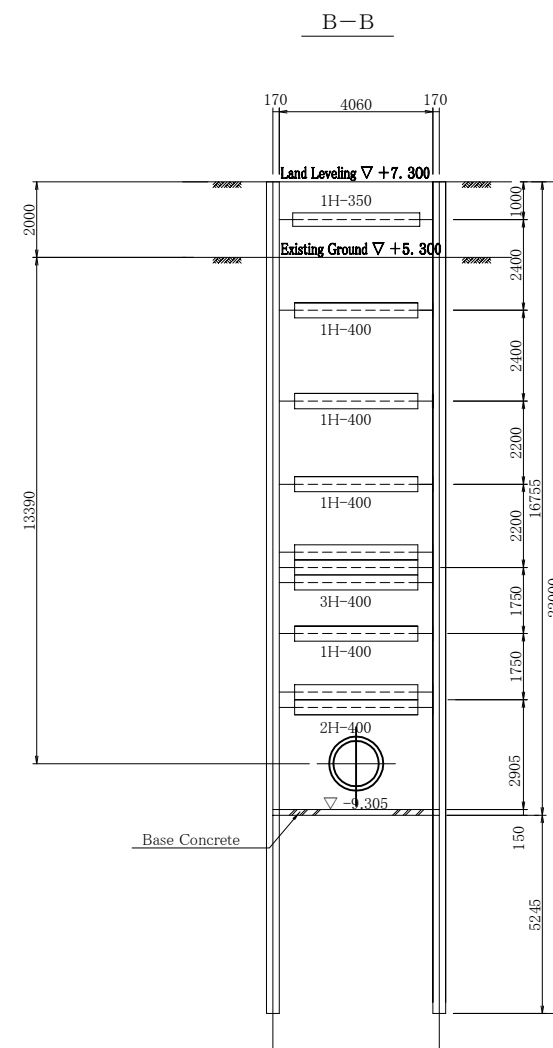
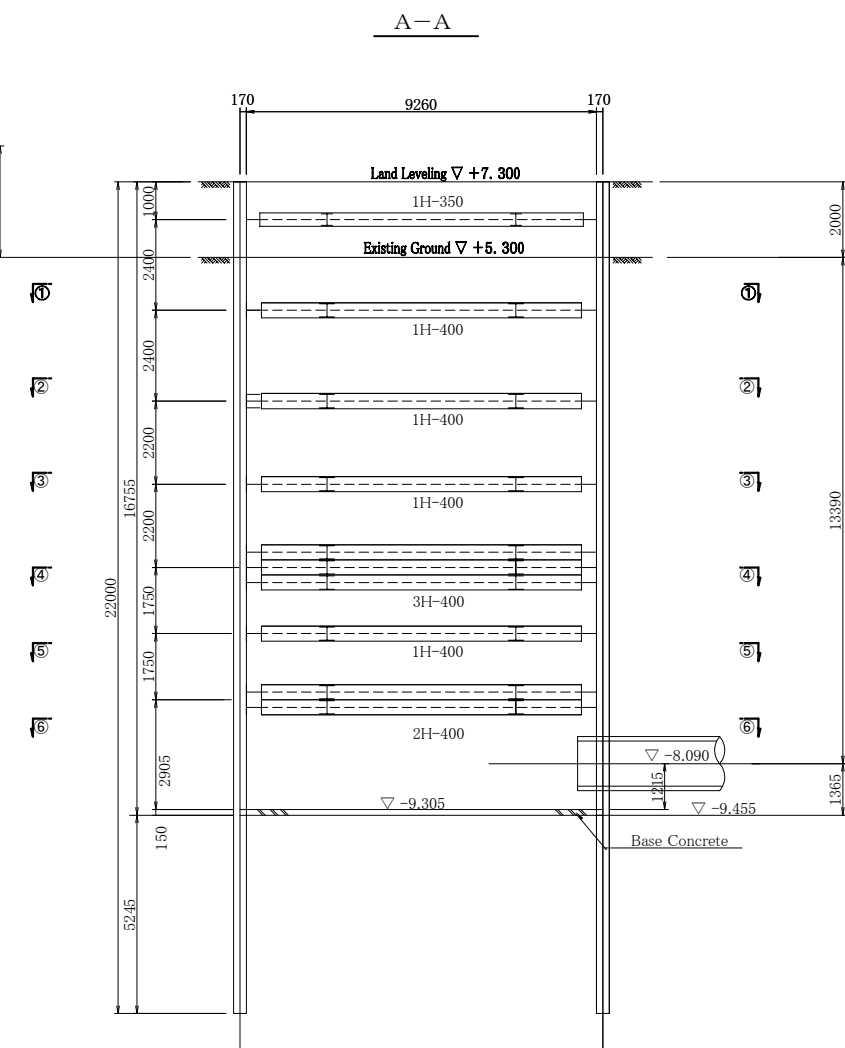
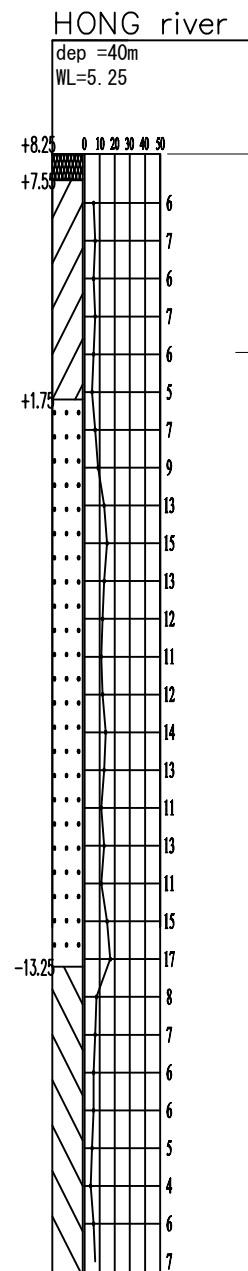
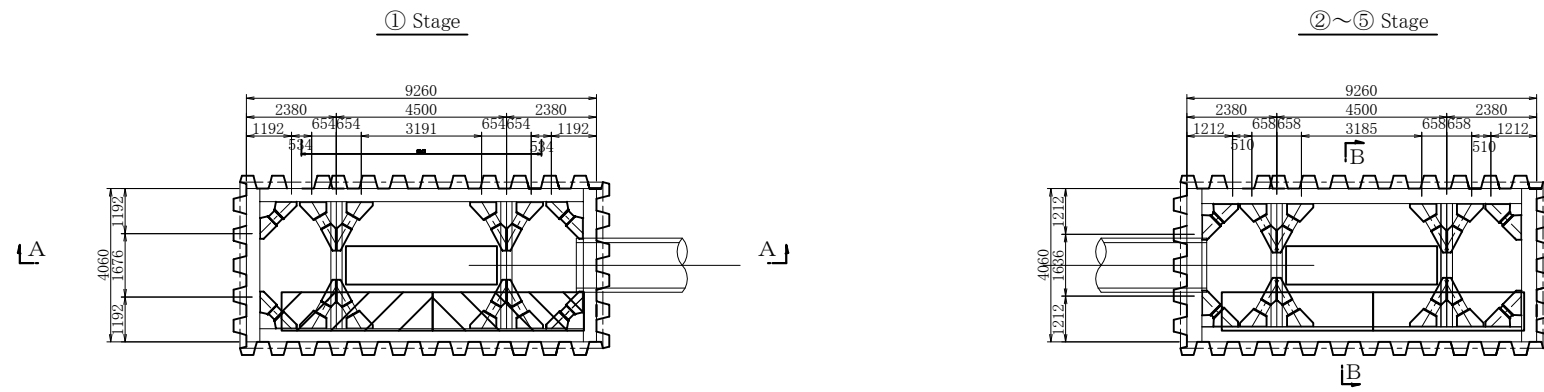
PROFILE SCALE H=1/3000 V=1/600



断面図 S=1/60



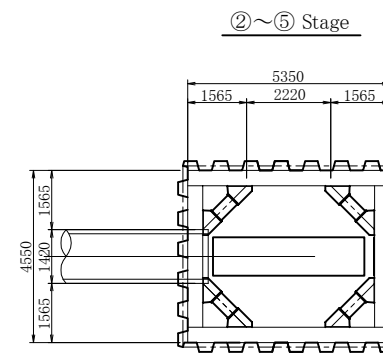
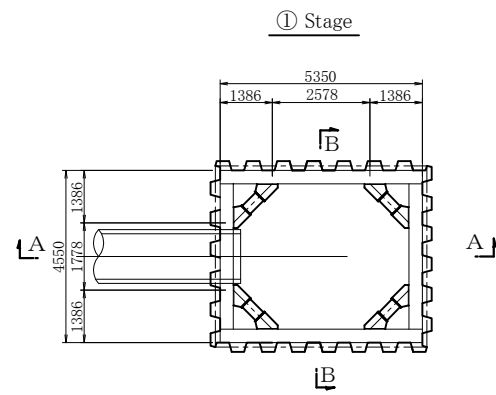
PLAN OF DEPARTURE SHAFT ON HUONG RIVER S= 1:100



Size of waling and Strut

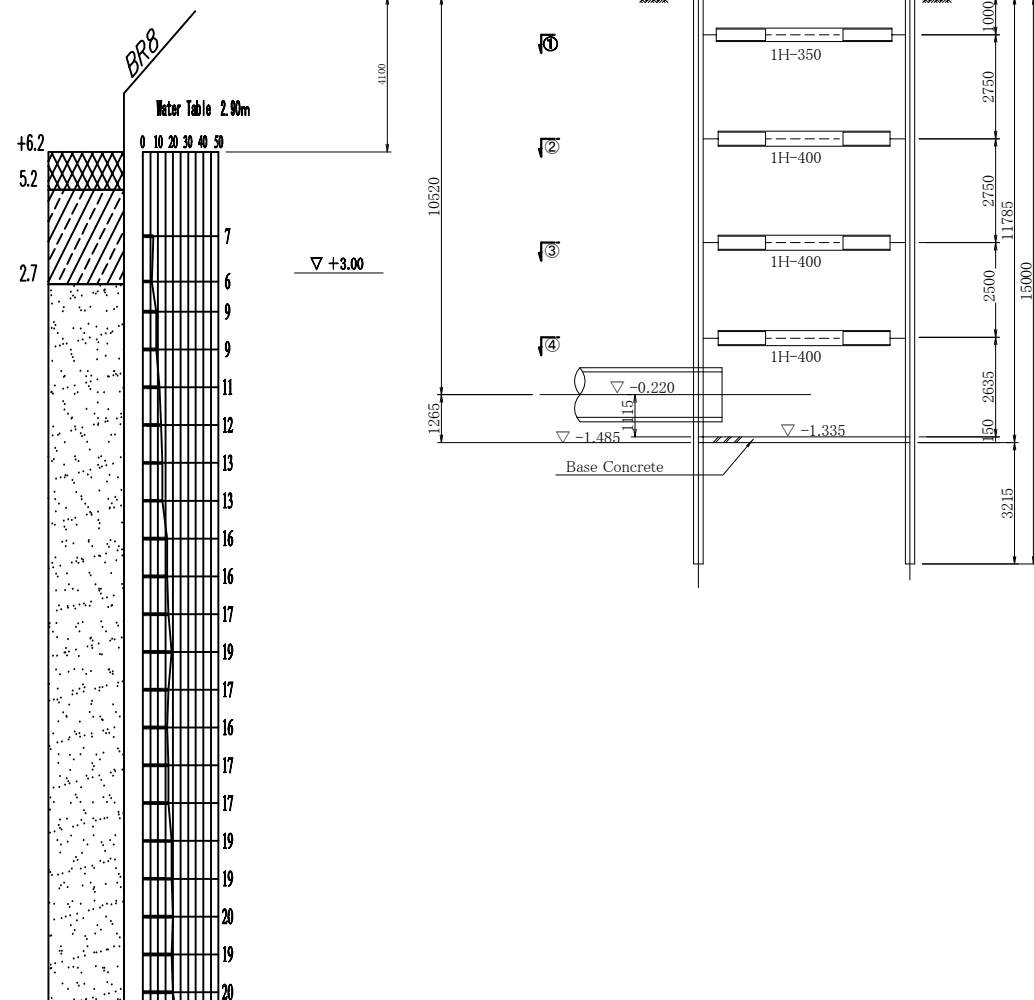
Stage	Waling	Strut	Rows
①	H-350×350×12×19	H-300×300×10×15	1
②	H-400×400×13×21	H-300×300×10×15	1
③	H-400×400×13×21	H-300×300×10×15	1
④	H-400×400×13×21	H-300×300×10×15	1
⑤	H-400×400×13×21	H-300×300×10×15	3
⑥	H-400×400×13×21	H-300×300×10×15	1
⑦	H-400×400×13×21	H-300×300×10×15	2

PLAN OF ARRIVAL SHAFT ON HUONG RIVER $S=1:100$



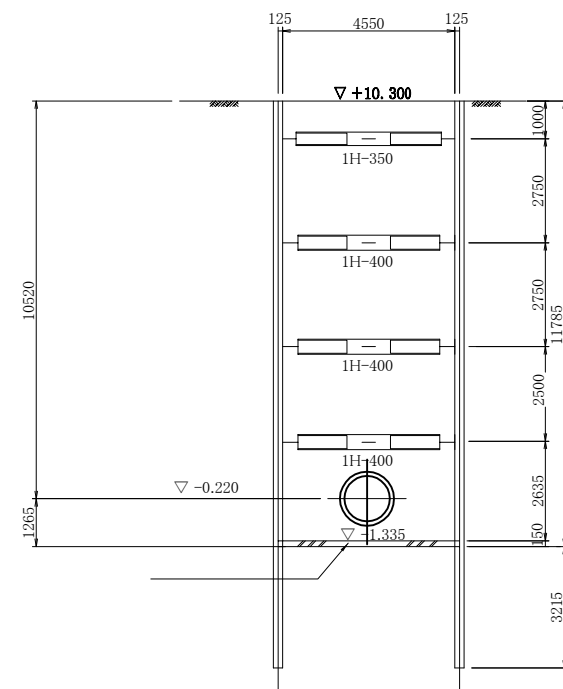
A-A

B-B



①
②
③
④

Base Concrete



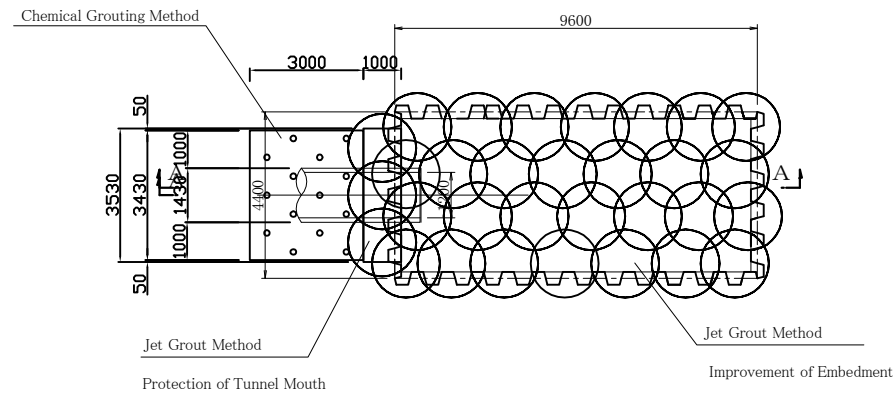
Size of waling and Strut

Stage	Waling	Strut	Rows
①	H-350×350×12×19	H-300×300×10×15	1
②	H-400×400×13×21	H-300×300×10×15	1
③	H-400×400×13×21	H-300×300×10×15	1
④	H-400×400×13×21	H-300×300×10×15	1

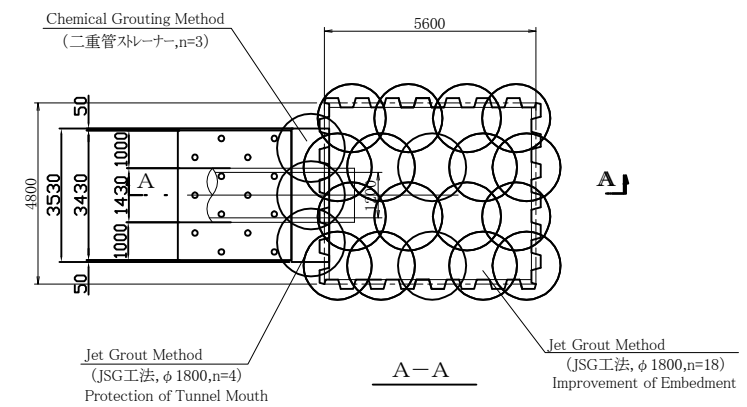
No.			
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SOIL IMPROVEMENT FOR JACKING METHOD ON HUONG REIVER S= 1:100

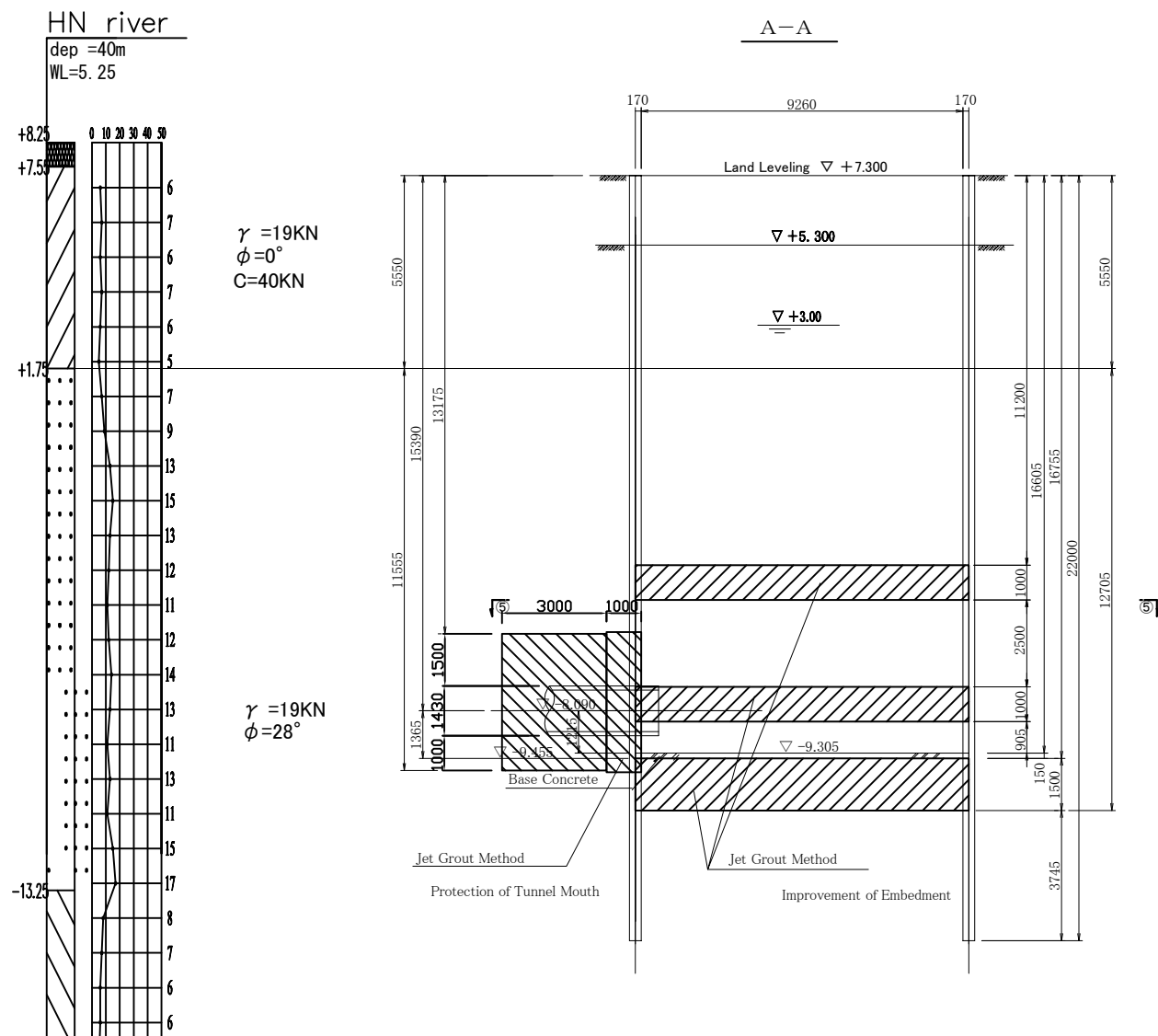
**DEPARTURE SHAFT
PLAN**



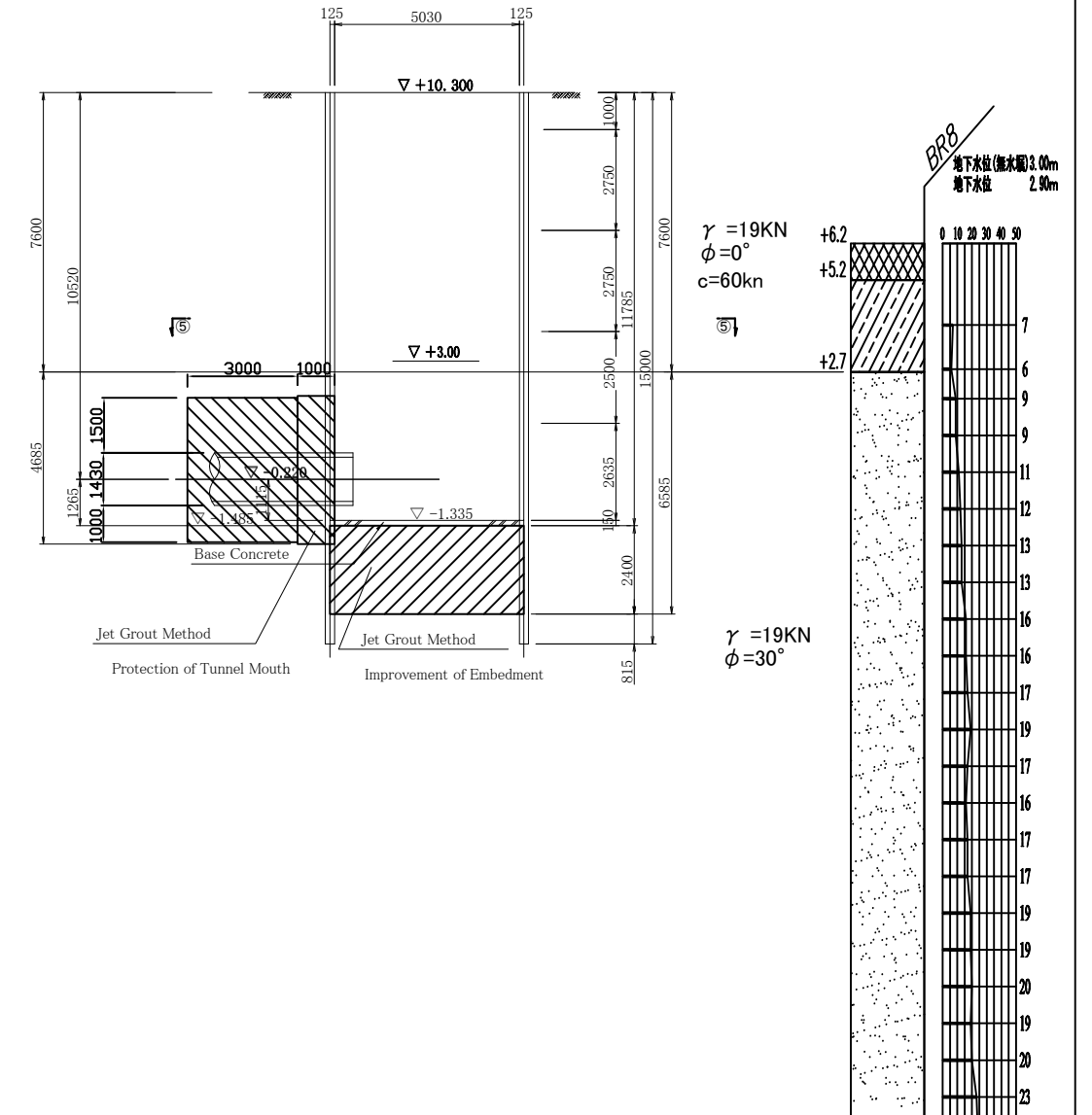
**ARRIVAL SHAFT
PLAN**



A-A



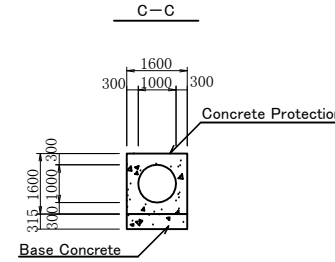
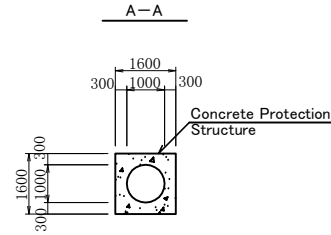
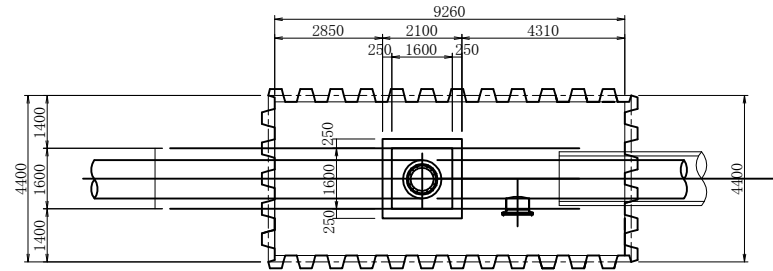
A-A



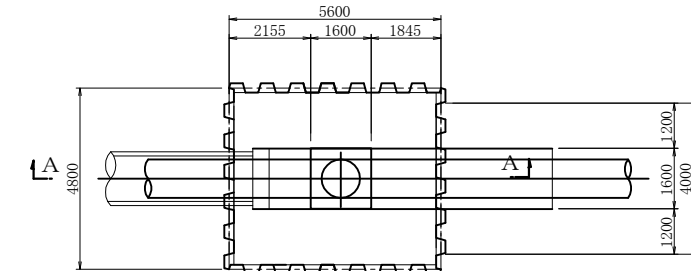
No.			
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REINFORCED CONCRETE STRUCTURE AT BEND ON HUONG RIVER S= 1:100

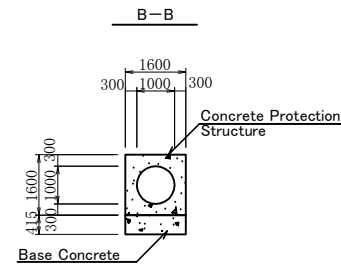
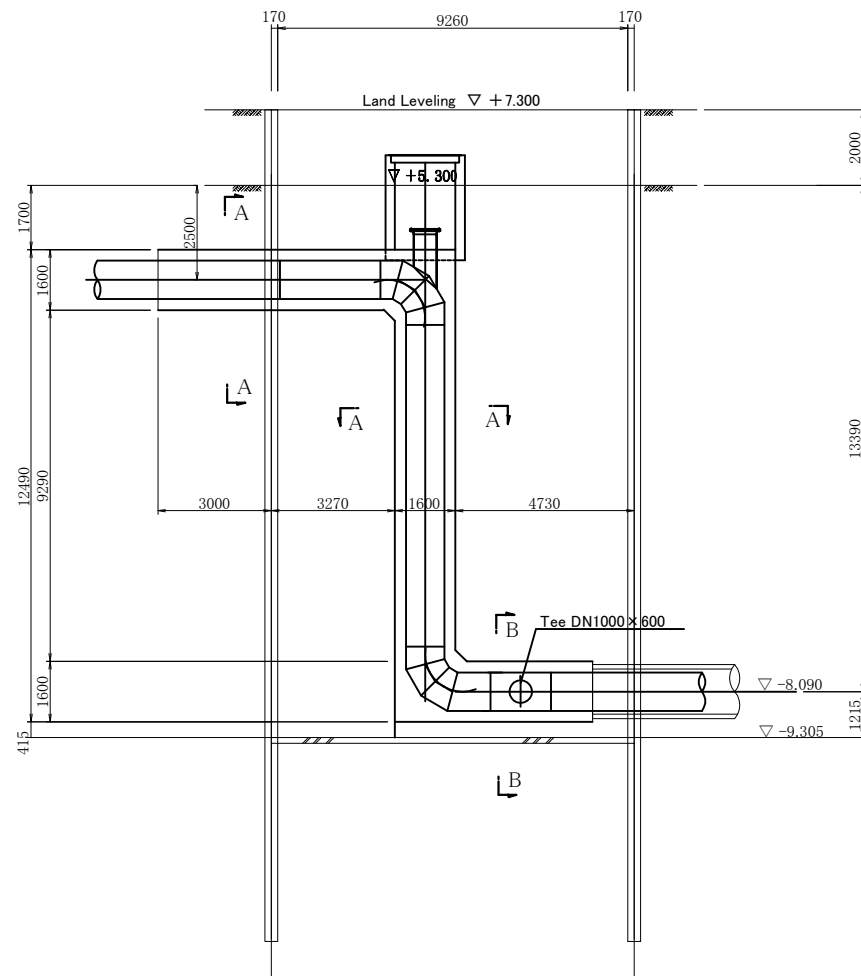
**DEPARTURE SHAFT
PLAN**



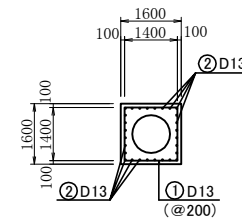
**ARRIVAL SHAFT
PLAN**



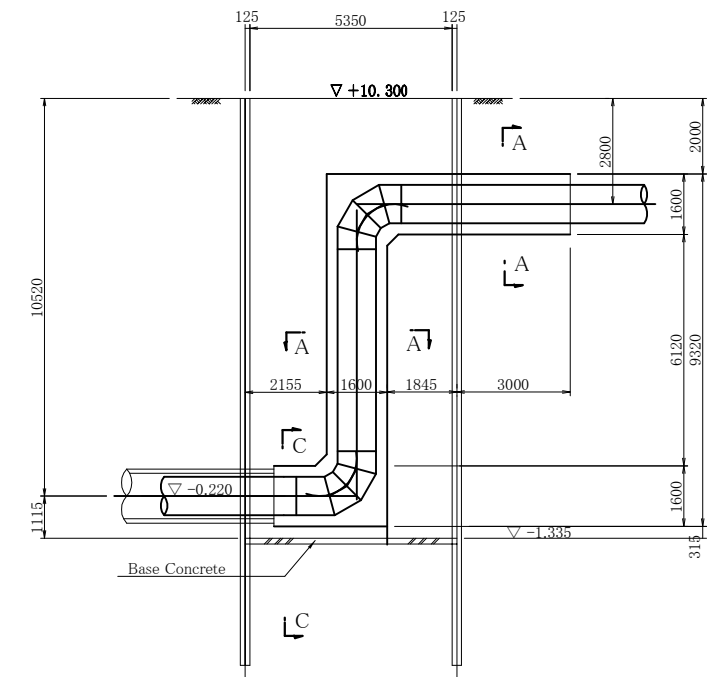
PROFILE



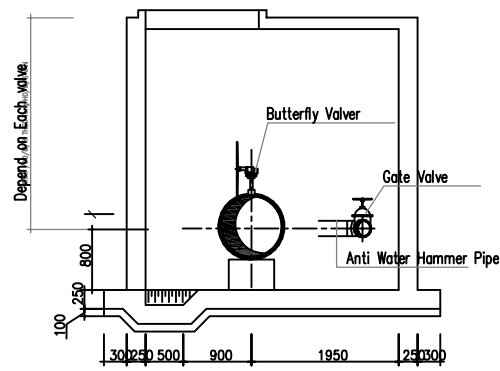
STEEL BAR ARRANGEMENT



PROFILE

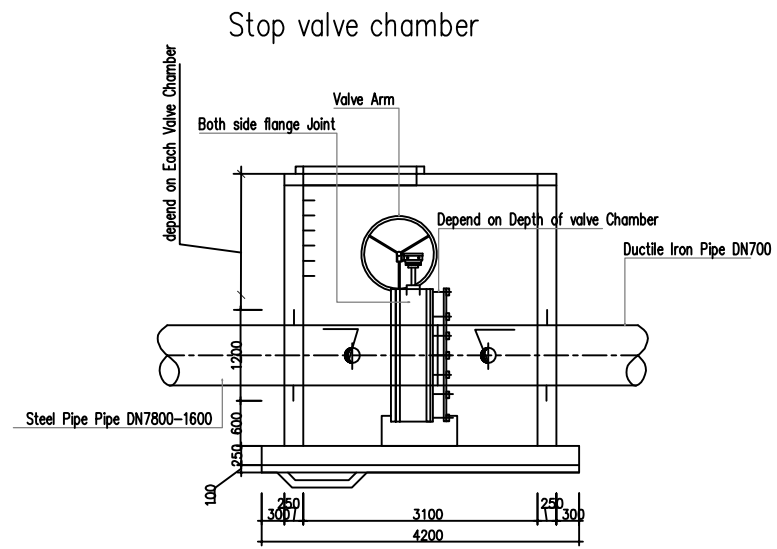


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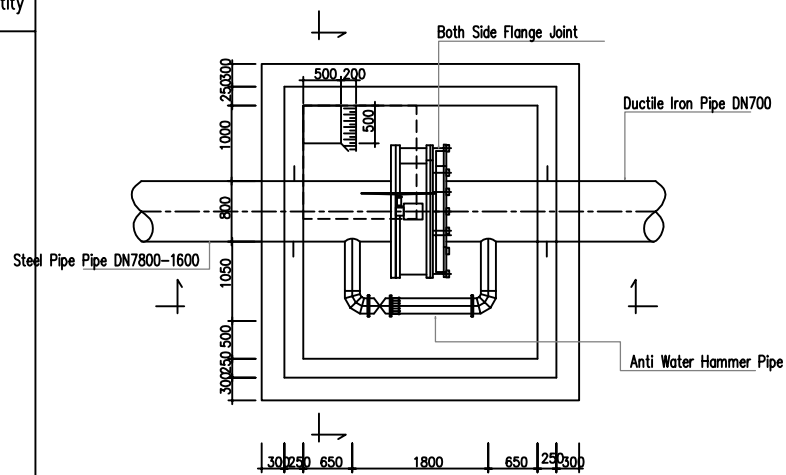


Stop Valve Component

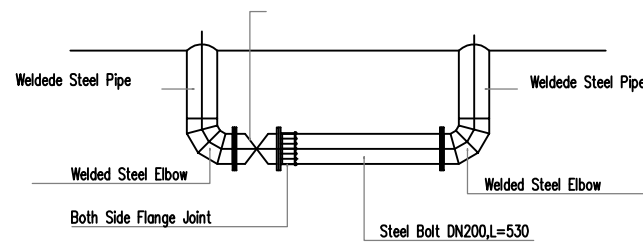
No.	Material	Type	Unit	Quantity
1	Butterfly Valve	Depend on Pipe		
2	Hollow Steel Flange			
3	Bolt			
4	Rubber Joint			
5	Both Side Joint			
6	Flexible Joint			
7	gate Valve			
8	Hollow Steel Flange			
9	Bolt			
10	Rubber Joint			
11	Inter Lock Flange			
12	Steel Bolt			
13	Short Steel Pipe			
14	Welded Steel Elbow			
15	Steel Stop Foil			



section a-a

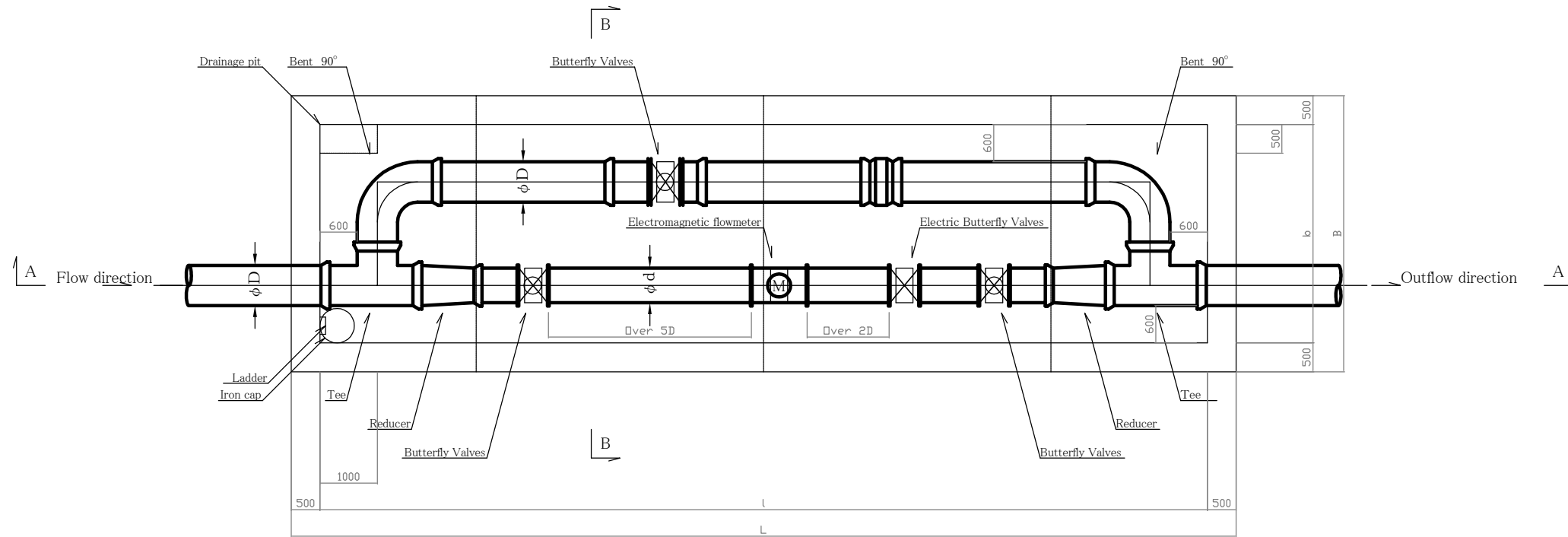


Section b-b
detail anti water Hammer pipe

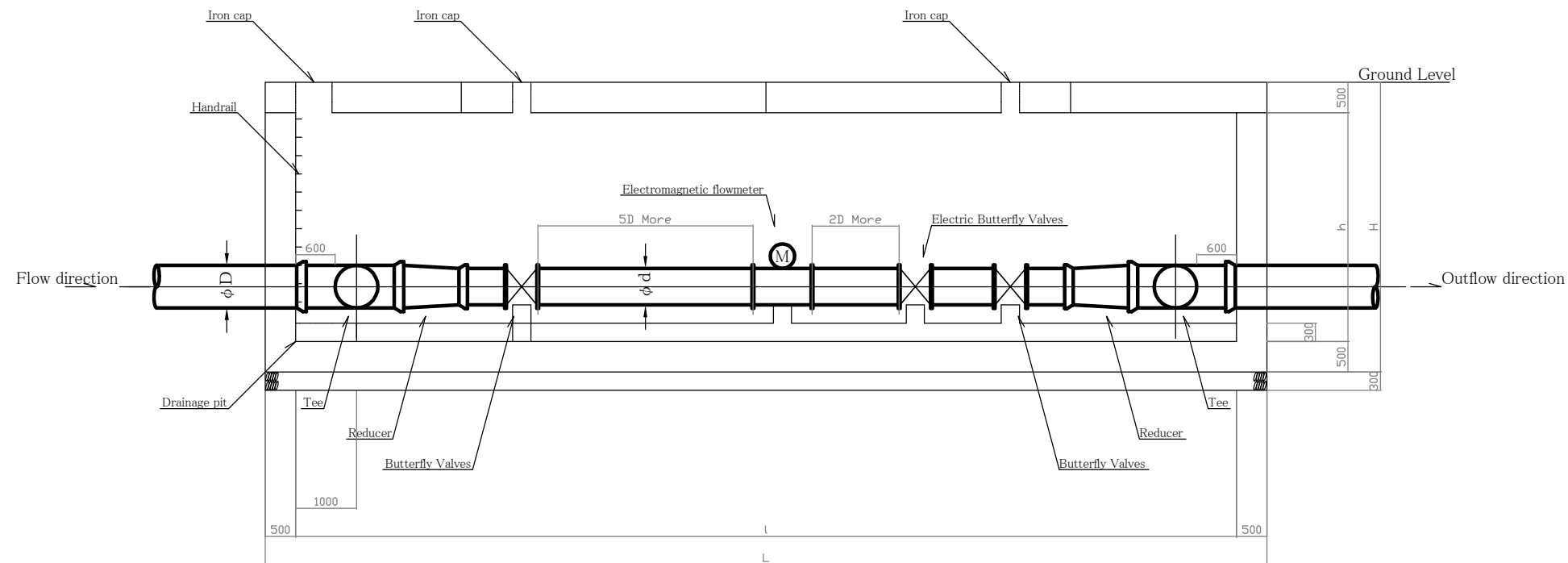


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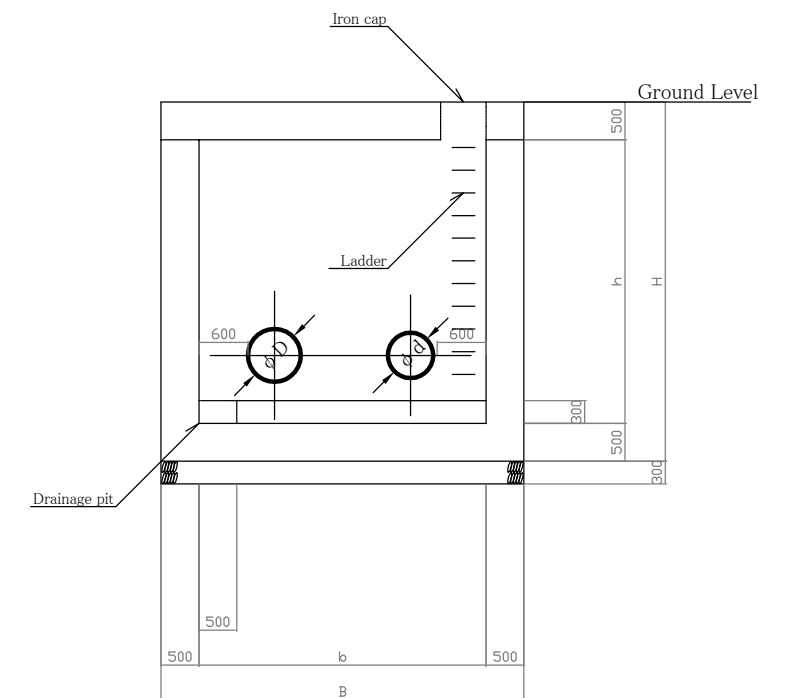
PLAN OF FLOWMETER CHAMBER



Section A-A

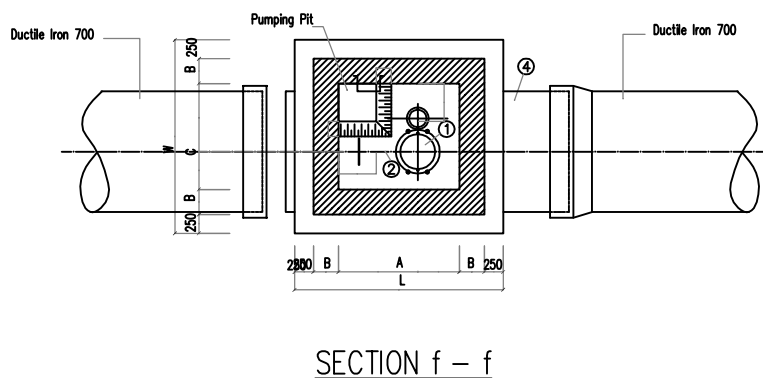
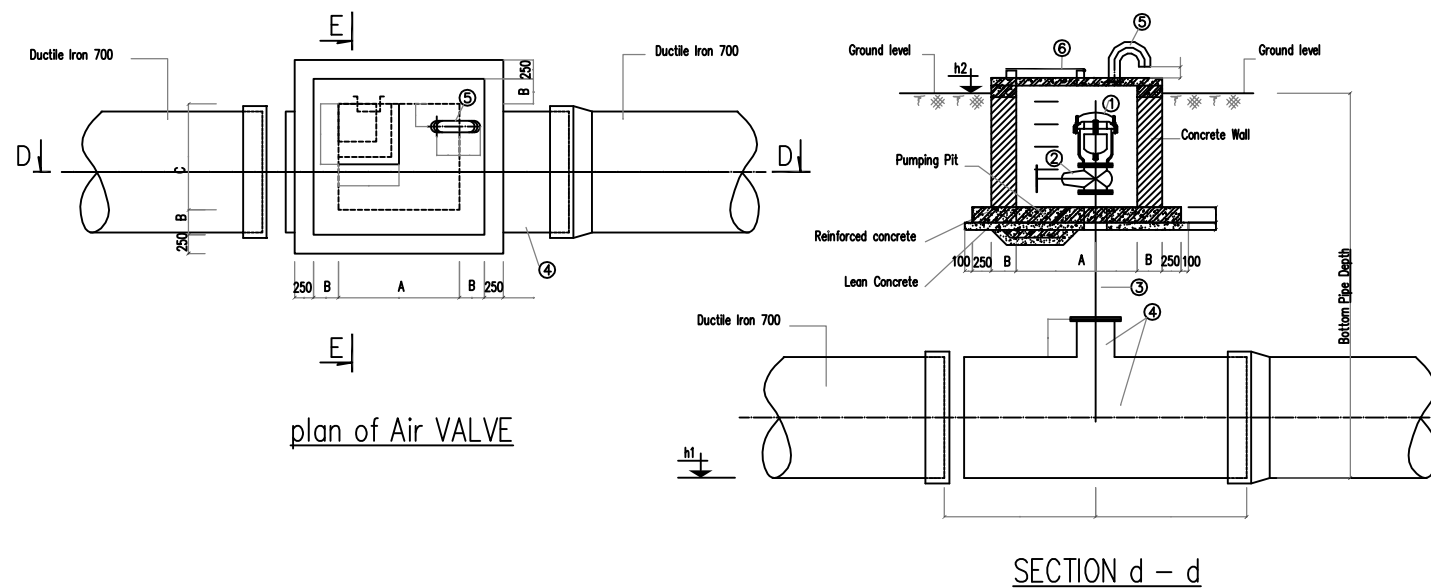


Section B-B



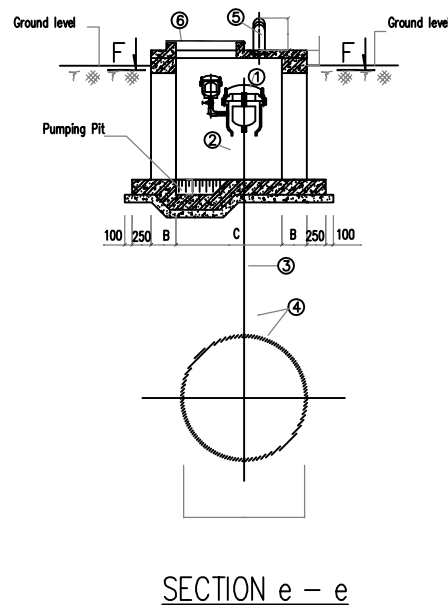
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Detail of dn700 Air valve chamber

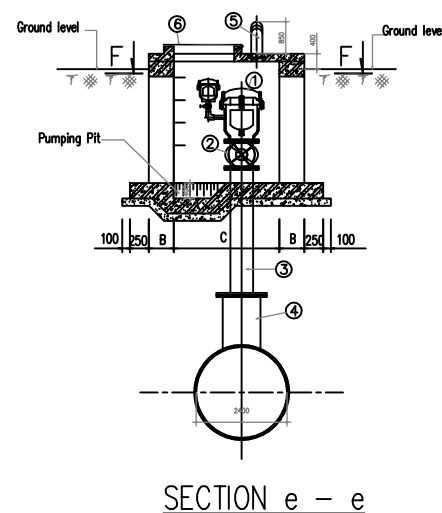
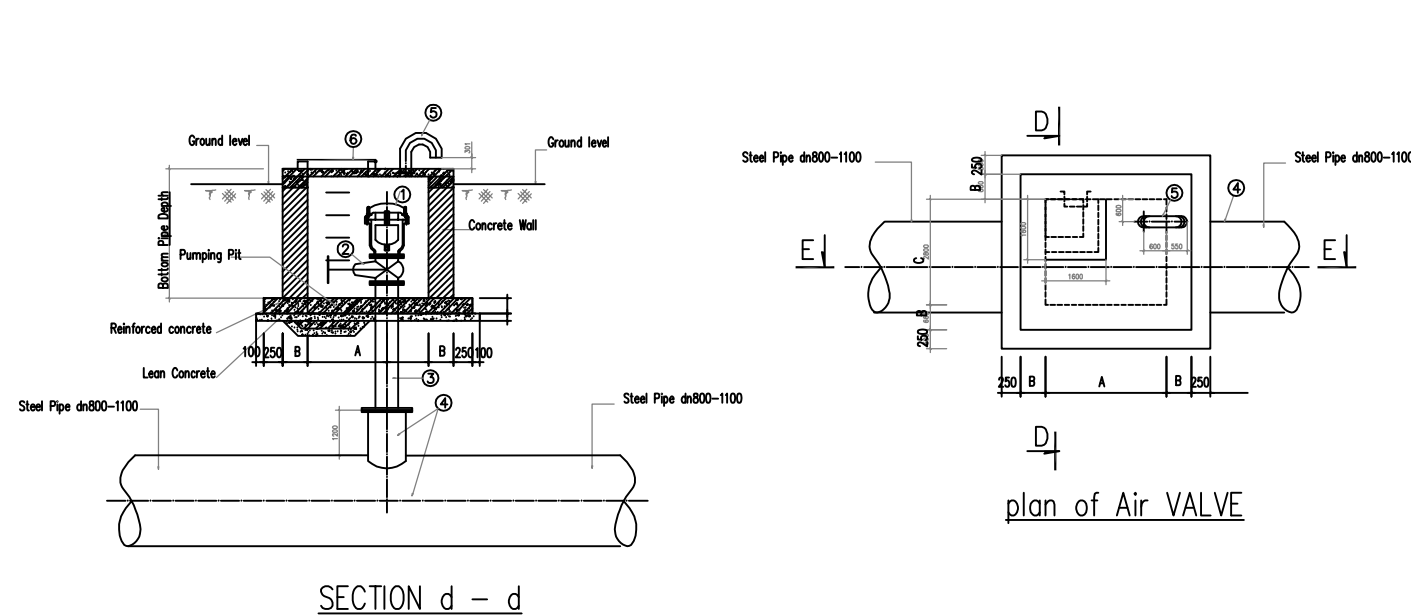


AIR VALVE COMPONENT

No.	Material	UNIT	QUANTITY
①	Flange Air Valve dn300	set	1
②	Both Side Flange Gate Valve	piece	1
③	Stainless Steel Bolt dn300	piece	1
④	Tee dn700 x500	piece	1
⑤	Airduct dn150	piece	1
⑥	Cap	piece	1



Detail of Dn800-1100 Air valve chamber



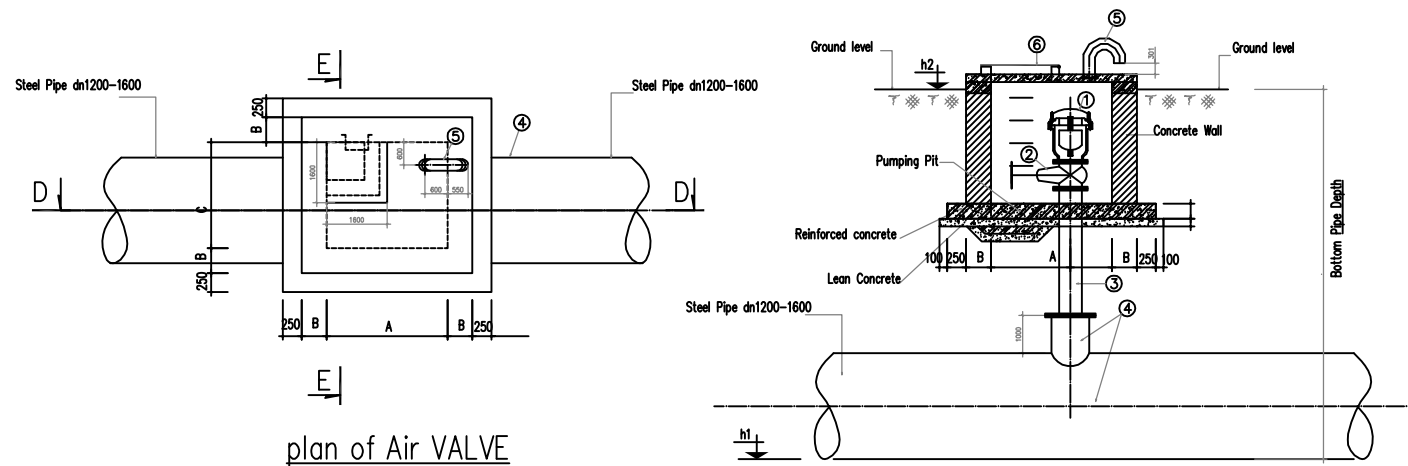
AIR VALVE COMPONENT

No.	Material	UNIT	QUANTITY
①	Flange Air Valve dn300	set	1
②	Both Side Flange Gate Valve	piece	1
③	Stainless Steel Bolt dn300	piece	1
④	Tee dn800-1600 x500	piece	1
⑤	Airduct dn150	piece	1
⑥	Cap	piece	1

SECTION e - e

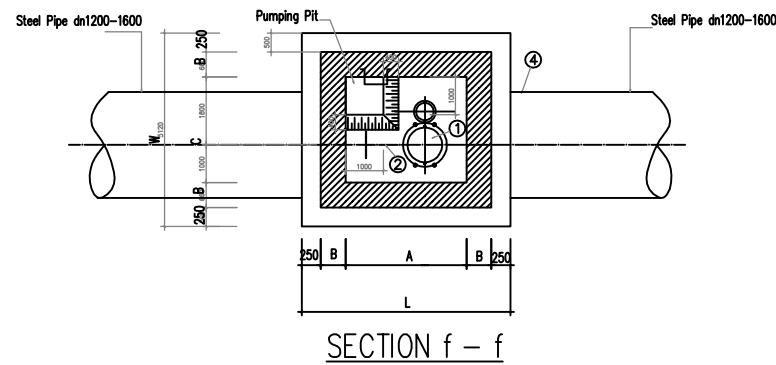
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Detail of DN1200-1600 Air valve chamber



plan of Air VALVE

SECTION d - d



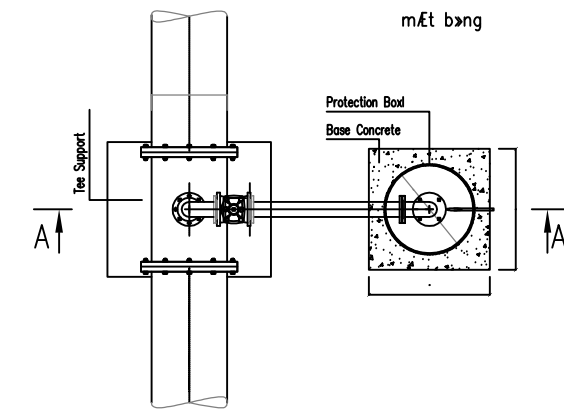
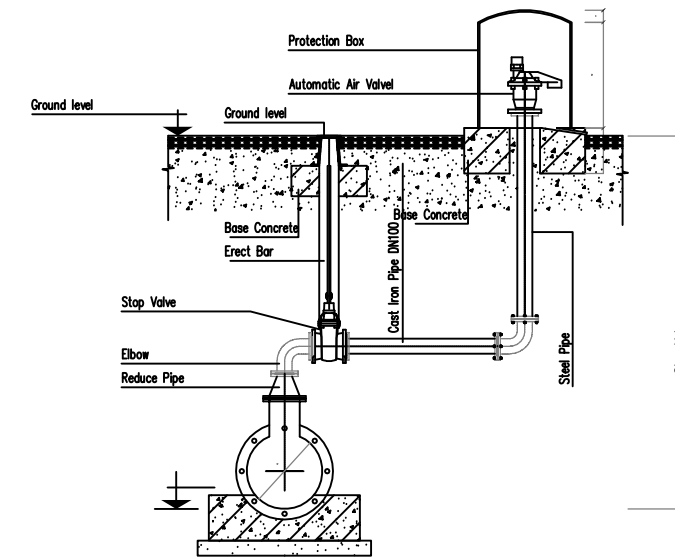
SECTION f - f

SECTION e - e

AIR VALVE COMPONENT

No.	Material	UNIT	QUANTITY
①	Flange Air Valve dn300	set	1
②	Both Side Flange Gate Valve	piece	1
③	Stainless Steel Bolt dn300	piece	1
④	Tee dn1400-1600 x500	piece	1
⑤	Air duct dn150	piece	1
⑥	Cap	piece	1

Detail of Air Valve

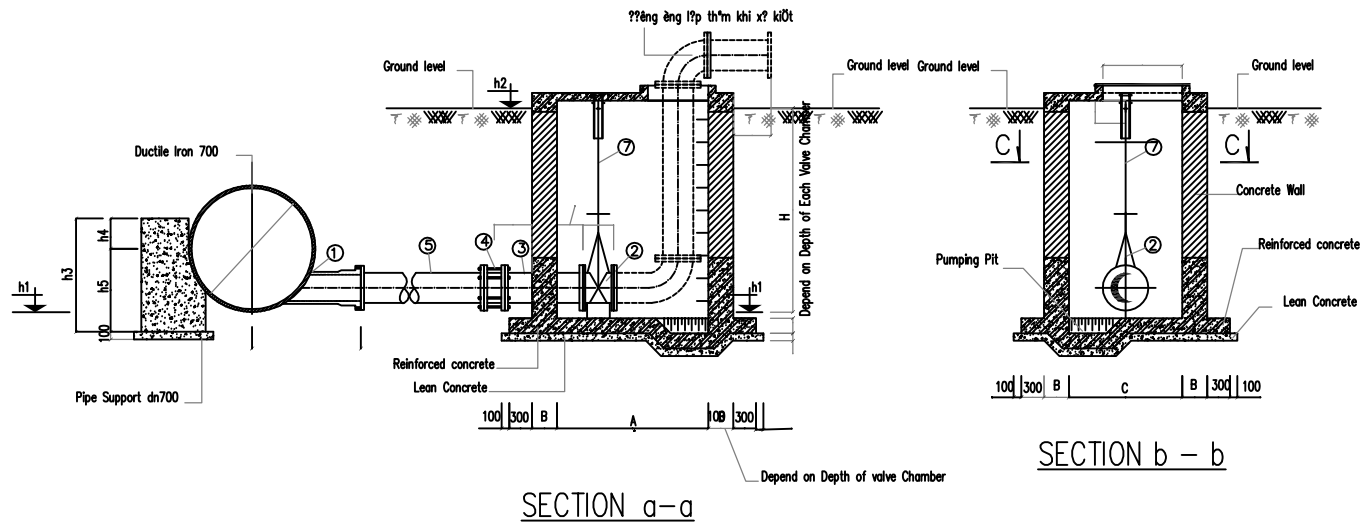


Air VALVE COMPONENT

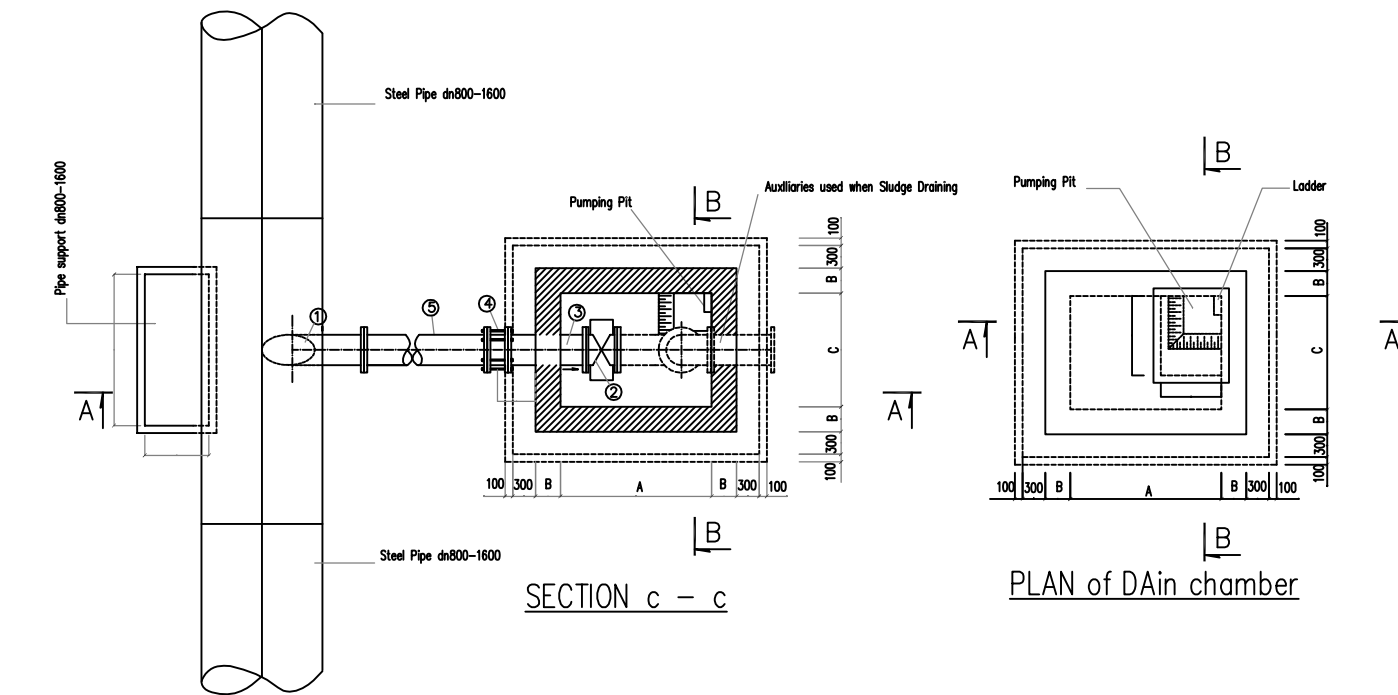
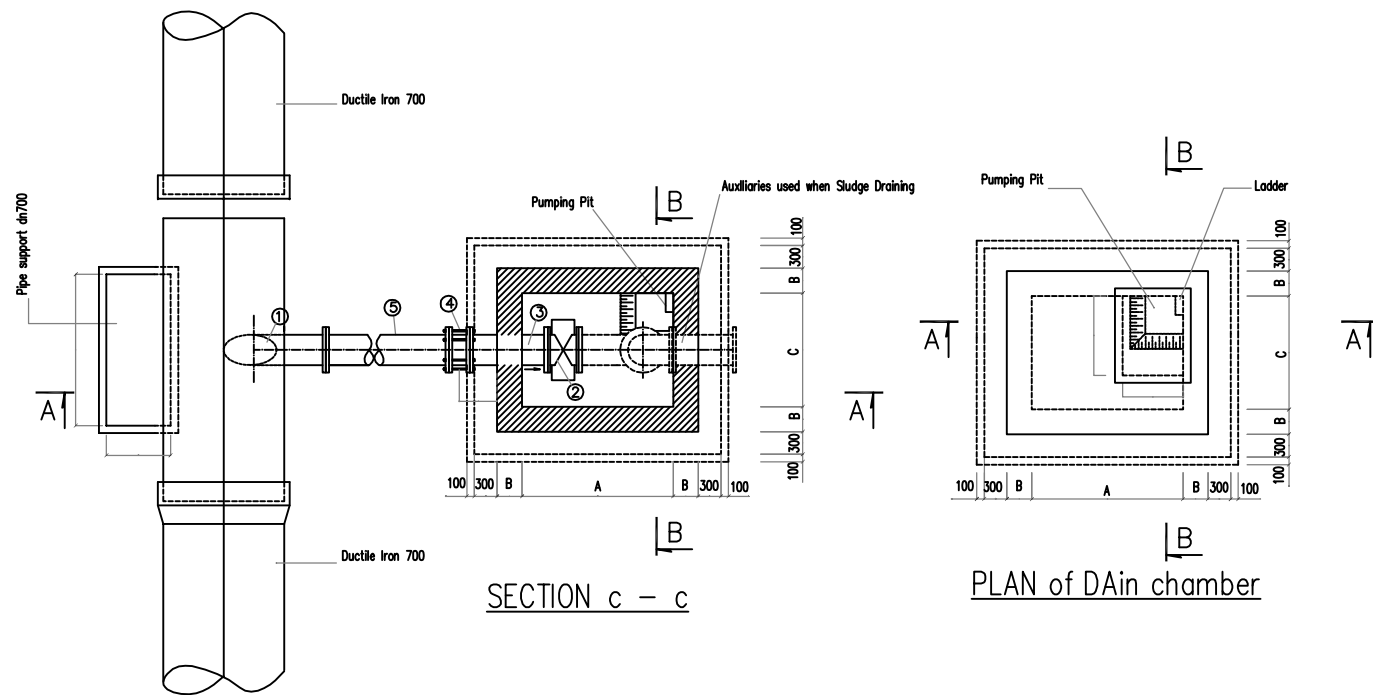
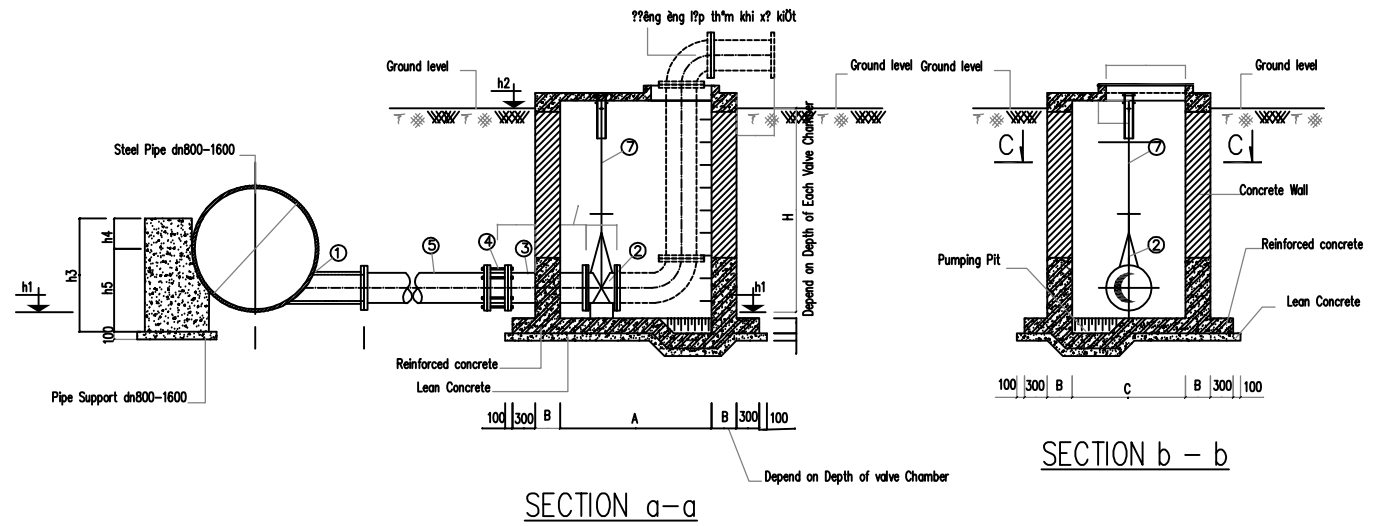
No.	Material	UNIT	QUANTITY
1	Cast Iron or Steel Tee	piece	1
2	Butterfly Valve +Hollow Flange	piece	1
3	Air Valve	piece	1
4	Protection box	piece	1

No.			
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Detail of dn700 Drain pit



Detail of dn800-1600 Drain pit



DRAIN VALVE COMPONENT

No.	Material	UNIT	QUANTITY
①	Sludge Drain Tee d#700 x d#n400	set	1
②	Stoop Valve dn400	piece	1
③	Both Side Flange Bolt dn400	piece	2
④	Flexible joint dn400	piece	2

DRAIN VALVE COMPONENT

No.	Material	UNIT	QUANTITY
①	Sludge Drain Tee d#800-1600 x d#n400	set	1
②	Stoop Valve dn400	piece	1
③	Both Side Flange Bolt dn400	piece	2
④	Flexible joint dn400	piece	2

No.			
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