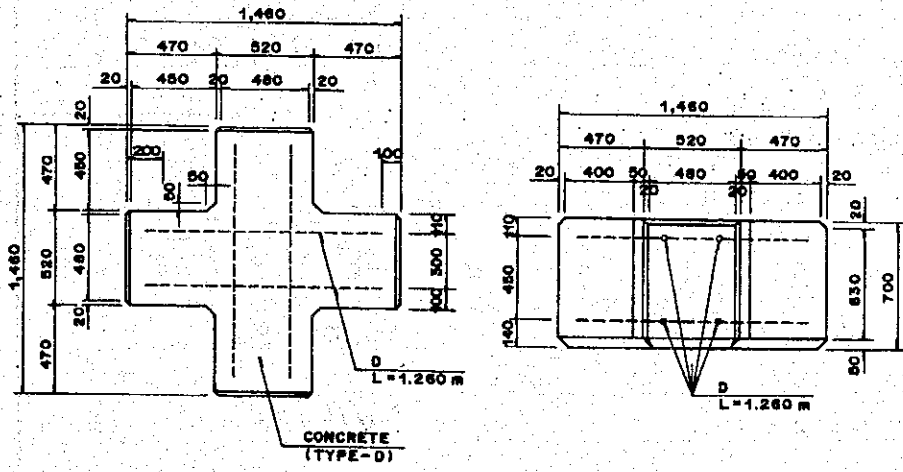


PER 1 BLOCK

TYPE OF WORK :	CROSS - SHAPE BLOCK (W=2.0 ^t /piece)	CALCULATION	RESULT
LOCATION :	 <p>CONCRETE (TYPE-D)</p>	<p>CONCRETE (TYPE-D)</p> $V_1 = 0.52 \times 0.47 \times 0.70 \times 4 + 0.52^2 \times 0.70 = 0.874$ $V_2 = \frac{1}{2} \times 0.05^2 \times 0.70 \times 4 = 0.004$ $V_3 = -\frac{1}{2} \times 0.02^2 \times 0.52 \times 4 = -0.001$ $V_4 = -\frac{1}{2} \times 0.05^2 \times 1.46 \times 4 = -0.007$ $\text{TOTAL} = 0.870$ <p>FORM (H < 4.0m)</p> $A = 0.70 \times 1.46 \times 4 = 4.088$ <p>REINFORCING BAR</p> <p>(Φ 16, $w = 1.58 \text{ kgf/m}$)</p> $W_1 = 8 \text{ Bars} \times 1.26 \times 1.58 = 15.926$ <p>(Φ 16, $w = 1.58 \text{ kgf/m}$)</p> $W_2 = 4 \text{ Bars} \times 0.80 \times 1.58 = 5.056$ $\text{TOTAL} = 20.982 \text{ kgf}$	<p>0.870 m³</p> <p>4.088 m²</p> <p>20.982 kgf</p>

TYPE OF WORK : CROSS - SHAPE BLOCK (W=2.0^{tf}/piece)
 LOCATION :

(1/2)

CALCULATION	RESULT
CONCRETE BLOCK	
$n_1 = 811.08 \div 1.50^2 = 360.48 \doteq 360$	
$n_2 = 703.85 \div 1.50^2 = 312.82 \doteq 312$	
$n_3 = (711.88 \div 9.0) \div 1.50 = 52.73 \doteq 52 \times 6 = 312$	
$n_4 = 837.00 \div 1.50^2 = 372$	
TOTAL = 1356	1356 nos.
RUBBLE STONE FILLING	
$V_1 = (811.08 \times 0.70) - 360 \times 0.87 = 254.556$	
$V_2 = (703.85 \times 0.70) - 312 \times 0.87 = 221.255$	
$V_3 = (711.88 \times 0.70) - 312 \times 0.87 = 226.876$	
$V_4 = (837.00 \times 0.70) - 372 \times 0.87 = 262.260$	
TOTAL = 964.947	964.947 m ³
GRAVEL BEDDING	
$V_1 = 811.08 \times 0.10 = 81.108$	
$V_2 = 703.85 \times 0.10 = 70.385$	
$V_3 = 711.88 \times 0.10 = 71.188$	
$V_4 = 837.00 \times 0.10 = 83.700$	
TOTAL = 306.381	306.381 m ³

TYPE OF WORK : CROSS - SHAPE BLOCK (W=2.0^{tf}/piece)
LOCATION :

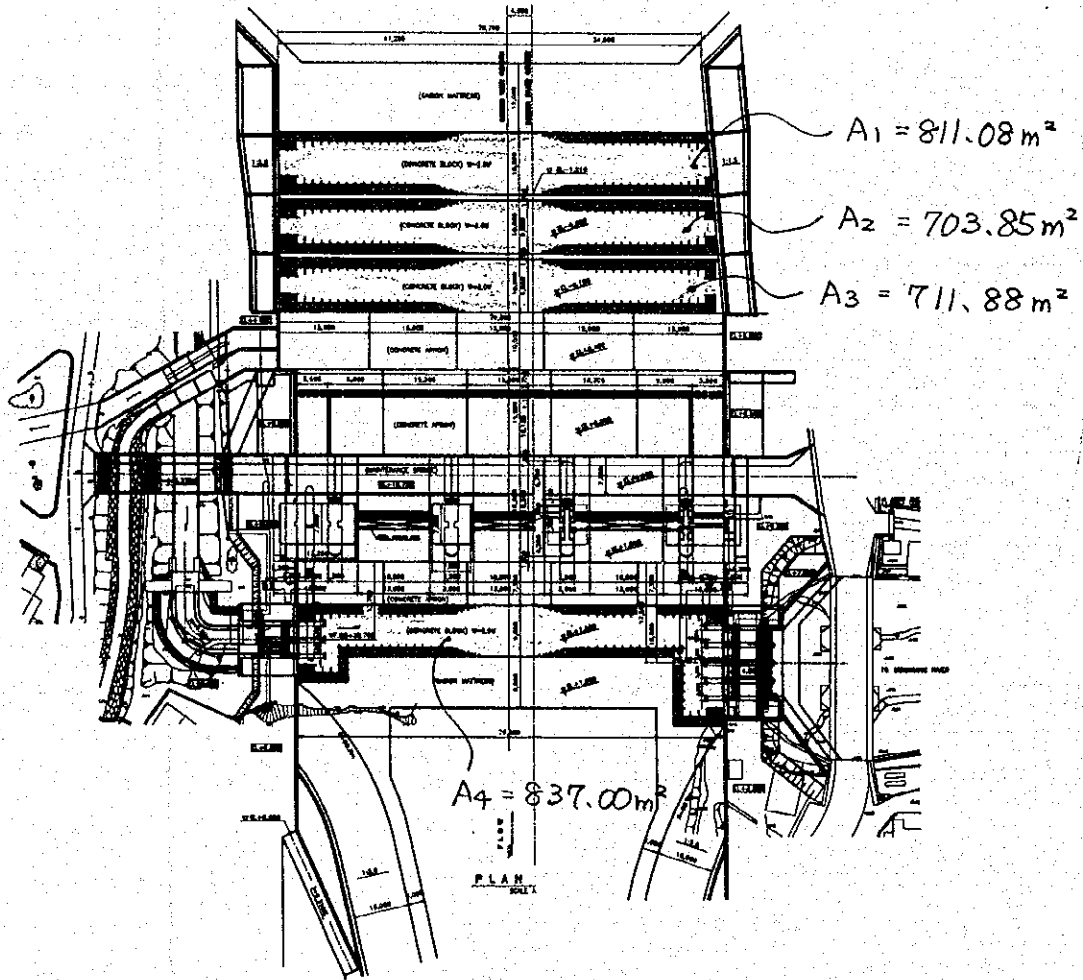
CALCULATION	RESULT
GEOTEXTILE SHEET / MAT	
$A = (811.08 + 703.85 + 711.88 + 837.00)$	
$= 3063.810$	3063.810m ²

TYPE OF WORK

CROSS - SHAPE BLOCK (W=2.0^{tf}/piece)

LOCATION

EXPLANATORY DRAWING



REVERBED PARTITION

TYPE OF WORK :

GRAVEL BEDDING

LOCATION :

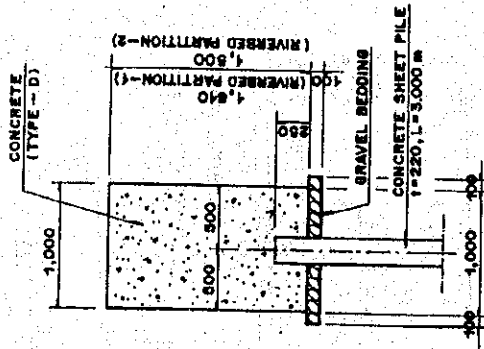
CALCULATION

RESULT

$$V_1 = (1.00 + 0.10 \times 2) \times 77.80 \times 0.10 = 9.336$$

$$V_2 = (1.00 + 0.10 \times 2) \times 78.70 \times 0.10 = 9.444$$

$$TOTAL = 18.780 \quad 18.780 m^3$$

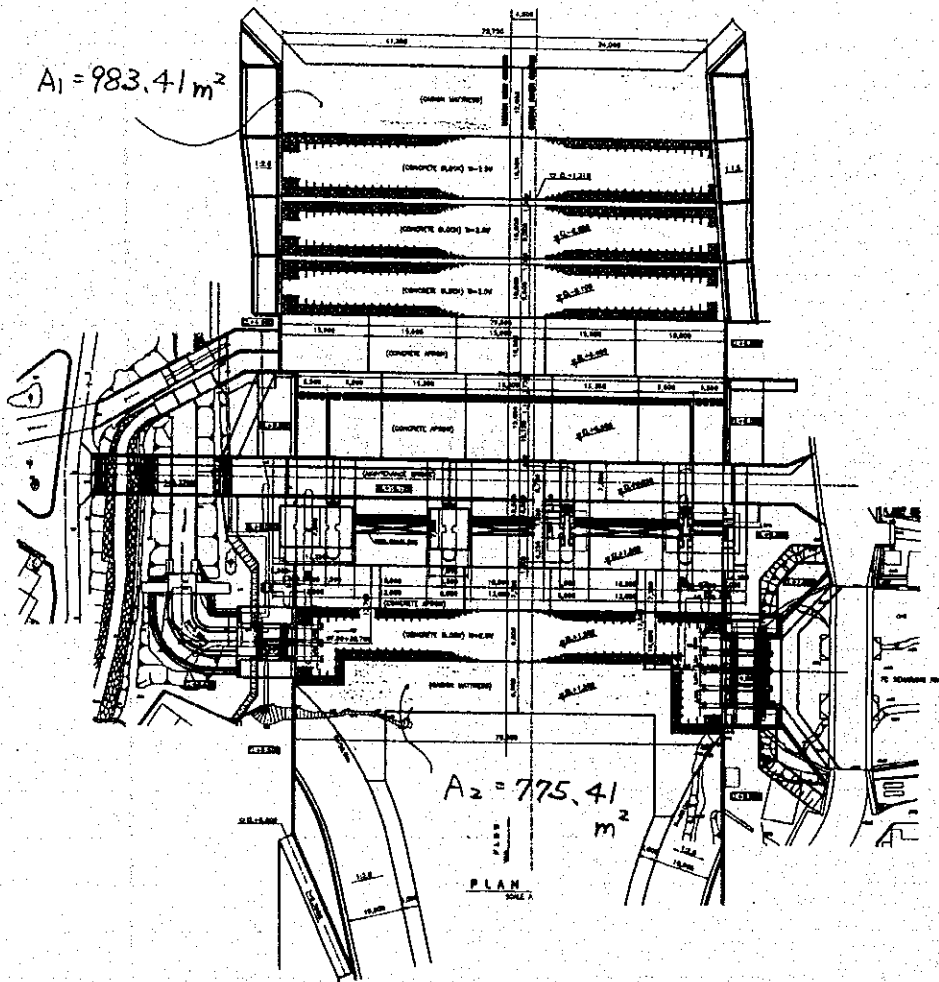


DETAIL OF RIVERBED PARTITION
SCALE: C

TYPE OF WORK : GABION MATTRESS

LOCATION :

EXPLANATORY DRAWING



TYPE OF WORK : DRAINAGE CHANNEL

LOCATION :

CALCULATION		RESULT
CONCRETE TYPE C1		
$V_1 = \{(10.803 \times 7.20) - \frac{1}{2} \times 2.574 \times 1.486\} \times 0.50$	= 37.935	
$V_2 = \frac{1}{2} \times 2.60 \times 4.503 \times 0.50$	= 2.927	
$V_3 = \{0.35 \times (7.251 + 7.157) \times \frac{1}{2} \times 2.15\} + \frac{1}{2} \times 0.20^2 \times 7.251 + \frac{1}{2} \times 0.20^2 \times 7.157$	= 5.709	
$V_4 = \{0.35 \times (4.101 + 4.201) \times \frac{1}{2} \times 2.15\} + \frac{1}{2} \times 0.20^2 \times 4.101 + \frac{1}{2} \times 0.20^2 \times 4.201$	= 3.290	
$V_5 = \{0.35 \times (8.229 + 8.135) \times \frac{1}{2} \times 2.15\} + \frac{1}{2} \times 0.20^2 \times 8.229 + \frac{1}{2} \times 0.20^2 \times 8.135$	= 6.484	
$V_6 = \{0.35 \times (2.972 + 3.08) \times \frac{1}{2} \times 2.15\} + \frac{1}{2} \times 0.20^2 \times 2.972 + \frac{1}{2} \times 0.20^2 \times 3.08$	= 2.398	
TOTAL	= 58.743	58.743 m³
LEVELING CONCRETE TYPE E		
$V_1 = \{(10.403 \times 7.20) - \frac{1}{2} \times 2.574 \times 1.486\} \times 0.10$	= 7.299	
$V_2 = \frac{1}{2} \times 2.60 \times 4.503 \times 0.10$	= 0.585	
$V_3 = 0.10 \times (7.829 + 2.972) \times 0.10$	= 0.108	
TOTAL	= 7.992	7.992 m³
FORM		
(H < 4.0 m)		
$A_1 = (7.20 \times 0.50) + 0.35 \times 2.15 \times 2 + \frac{1}{2} \times 0.20^2 \times 3$	= 5.165	
$A_2 = 2.65 \times 8.229$	= 21.807	
$A_3 = 2.65 \times 2.972$	= 7.876	
$A_4 = 1.95 \times 8.135$	= 15.863	

TYPE OF WORK : DRAINAGE CHANNEL

LOCATION :
:

CALCULATION		RESULT
$A_5 = 1.95 \times 3.08$	= 6.006	
$A_6 = 1.95 \times 7.251$	= 14.139	
$A_7 = 1.95 \times 4.101$	= 7.997	
$A_8 = 1.95 \times 7.157$	= 13.956	
$A_9 = 1.95 \times 4.201$	= 8.192	
$A_{10} = \sqrt{2} \times 0.20 \times 8.135$	= 2.301	
$A_{11} = \sqrt{2} \times 0.20 \times 3.08$	= 0.871	
$A_{12} = \sqrt{2} \times 0.20 \times 7.251$	= 2.051	
$A_{13} = \sqrt{2} \times 0.20 \times 4.101$	= 1.160	
$A_{14} = \sqrt{2} \times 0.20 \times 7.157$	= 2.024	
$A_{15} = \sqrt{2} \times 0.20 \times 4.201$	= 1.188	
TOTAL	= 110.596	110.596 m ²
FORM		
(H < 4.0 m)		
$A = 0.10 \times (7.829 + 2.972)$	= 1.080	1.080 m ²
WATER STOP (B = 200 mm)		
$L_1 = 6.30 + 5.20$	= 11.500	
$L_2 = 8.314$		
$L_3 = 2.150 \times 2$	= 4.300	
TOTAL	= 24.114	24.114 m

TYPE OF WORK : DRAINAGE CHANNEL

LOCATION :

:

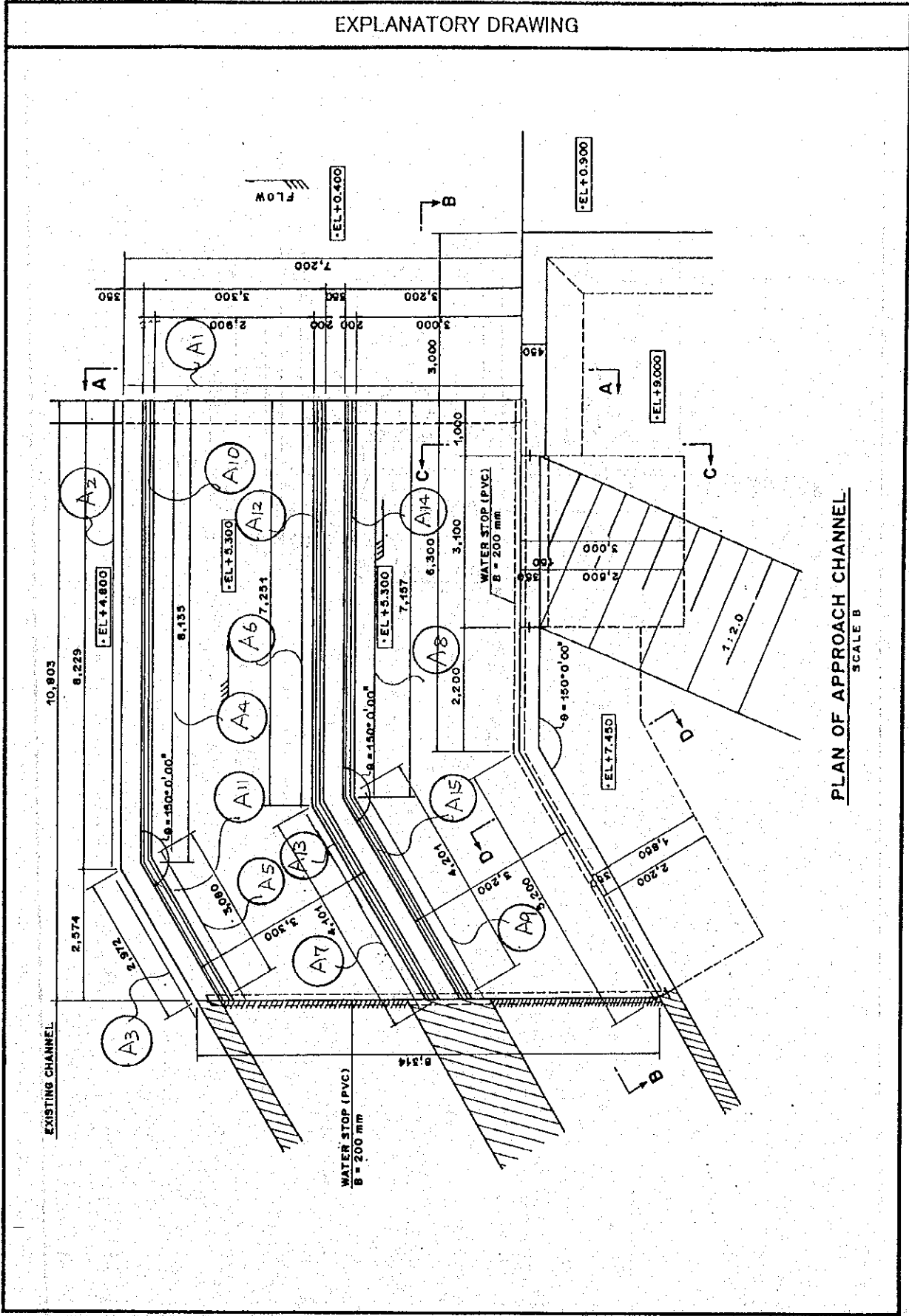
CALCULATION		RESULT
SCAFFOLDING		
$A_1 = 2.65 \times 8.229$	= 21.807	
$A_2 = 2.65 \times 2.972$	= 7.876	
$A_3 = 2.15 \times 8.135$	= 17.490	
$A_4 = 2.15 \times 3.05$	= 6.558	
$A_5 = 2.15 \times 7.251$	= 15.590	
$A_6 = 2.15 \times 4.101$	= 8.817	
$A_7 = 2.15 \times 7.157$	= 15.388	
$A_8 = 2.15 \times 4.201$	= 9.032	
$A_9 = 0.35 \times 2.65 \times 2$	= 1.855	
TOTAL	= 104.413	104.413 m ²
JOINT FILLER (t = 10, ELASTIC MATERIAL)		
$A_1 = 7.20 \times 0.40$	= 2.880	
$A_2 = 0.50 \times 6.30$	= 3.150	
$A_3 = 0.50 \times 5.2$	= 2.600	
$A_4 = (0.35 \times 2.15) \times 2 + 0.50 \times 7.20$	= 5.105	
TOTAL	= 13.735	13.735 m ²
REINFORCING BAR		
D 16 (W = 1.58 kg./m)		
$n_1 = 1.00 : 0.25$	= 4 Bars	
$L_1 = 7.02 + 2.445$	= 9.465 m/Bar	

DRAINAGE CHANNEL

TYPE OF WORK : FORM
 LOCATION : LEFT BANK

(1/2)

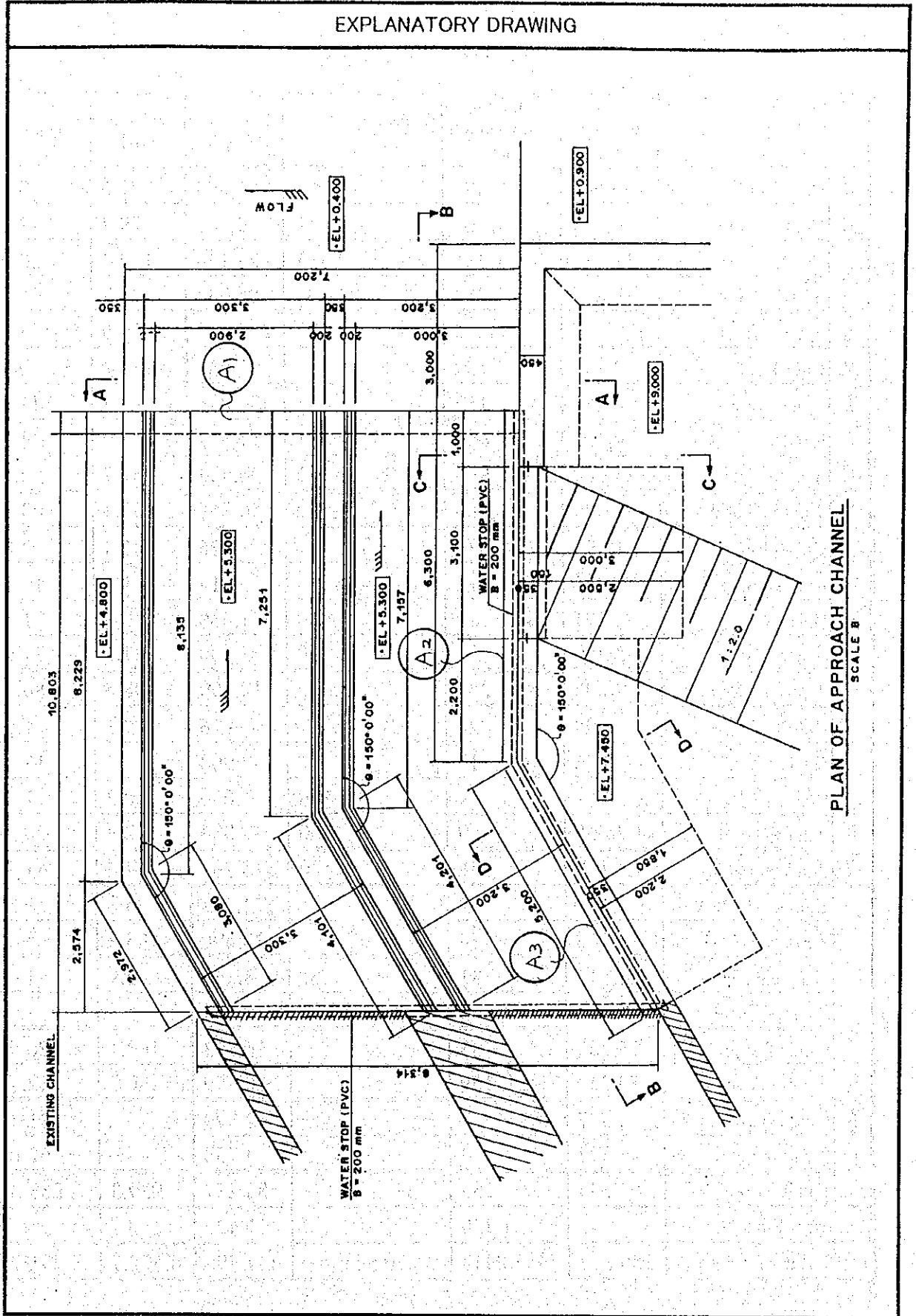
EXPLANATORY DRAWING



PLAN OF APPROACH CHANNEL
 SCALE B

TYPE OF WORK : DRAINAGE CHANNEL
 : JOINT FILLER
 LOCATION : LEFT BANK

EXPLANATORY DRAWING



PLAN OF APPROACH CHANNEL
SCALE B

3.5 Gates

Total Quantity of Gate

	Steel Material (kg)	Material purchased(kg)	Machine single unit(kg)	Sub-total (kg)	Painting (m ²)	Acid cleaning (m ²)	
Flood Discharge Gate	Gate Leaf	50,605	488	-	51,093	771.6	0.4
	Guide frame	10,724	61	-	10,785	29.2	72.0
	Hoist	18,480	1,535	4,141	24,156	169.4	20.0
	1 gate Total	79,809	2,084	4,141	86,034	970.2	92.4
	3 gates Total	239,427	6,252	12,423	258,102	2,910.6	277.2
Sediment Flush Gate	Gate Leaf	9,899	152	-	10,051	149.3	0.3
	Guide frame	6,659	182	-	6,841	35.4	47.4
	Hoist	9,102	659	1,781	11,542	83.0	4.1
	1 gate Total	25,660	993	1,781	28,434	267.7	51.8
	2 gates Total	51,320	1,986	3,562	56,868	535.4	103.6
Right Intake Gate	Gate Leaf	1,096	30	-	1,126	25.4	2.0
	Guide frame	902	12	-	914	1.6	18.1
	Hoist	271	29	760	1,060	0.2	1.5
	1 gate Total	2,269	71	760	3,100	27.2	21.6
	4 gates Total	9,076	284	3,040	12,400	108.8	86.4
Left Intake Gate	Gate Leaf	898	28	-	926	22.1	1.2
	Guide frame	896	12	-	908	-	18.1
	Hoist	261	29	760	1,050	0.2	1.4
	1 gate Total	2,055	69	760	2,884	22.3	20.7
	2 gates Total	4,110	138	1,520	5,768	44.6	41.4
Temporary Gate	Gate leaf(1/2)	4,692	32	-	4,724	75.8	1.3
	4 gates Total	18,768	128	-	18,896	303.2	5.2
	Gate leaf(2/2)	4,511	31	-	4,542	72.9	1.3
	2 gates Total	9,022	62	-	9,084	145.8	2.6
	Guide frame ^(18.5m)	16,780	53	-	16,833	160.1	70.9
	3 gates Total	50,340	159	-	50,499	480.3	212.7
	Guide frame ^(5.5m)	2,377	2	-	2,379	-	31.4
	2 gates Total	4,754	4	-	4,758	-	62.8
	1 unit Total	82,884	353	-	83,237	929.3	283.3
Electrical Equ.		21,420		21,420			
Total	386,817	30,433	20,545	437,795	4,528.7	791.9	

Flood Discharge Gate (Gate Body) Gate leaf, steel material (1/3)										
No.	Item	Material	Dimensions (mm)		Quantity		Weight (kg)		Painting Area (m ²)	
			Shape	x Length	Unit	W	Unit	W	Painting	Acid
1	Gate Main Body									
1-1	Shell (Front)	SS400	PL	14 x 711 x 18256	1	1426.5	1,427		26.0	
1-2	"	SS400	PL	14 x 2300 x 18256	1	4614.6	4,615		84.0	
1-3	"	SS400	PL	14 x 1044 x 18256	1	2094.6	2,095		38.1	
1-4	" Shell (Bottom)	SS400	PL	14 x 2390 x 18256	1	4795.1	4,795		87.3	
1-5	" Shell (Rear)	SS400	PL	14 x 2200 x 18256	1	4413.9	4,414		80.3	
1-6	" Shell (Top)	SS400	PL	14 x 2064 x 18256	1	4141.1	4,141		75.4	
1-7	Horizontal Beam	SS400	L	150 x 150 x 12 x 18256	14	498.4	6,978		150.0	
1-8	Diafram	SS400	PL	9 x 500 x 9050	5	319.7	1,599		45.3	
1-9	"	SS400	PL	12 x 150 x 6487	5	91.7	459		9.7	
1-10	Side Plate	SS400	PL	22 x 2550 x 4200	2	1849.6	3,699		42.8	
1-11	End Diafram	SS400	PL	16 x 2472 x 3600	2	1117.7	2,235		35.6	
1-12	Plate for Axis Hole	SS400	PL	40 x ϕ (500-290)	8	40.9	327		2.9	
1-13	Stop Hook Bracket	SS400	PL	22 x (500 x 700-200 x 500)	2	43.2	86		1.0	
1-14	"	SS400	PL	16 x 600 x 700	4	52.8	211		3.4	
1-15	Weep Hole Plate	SS400	PL	19 x ϕ (300-200)	14	5.9	83		1.5	
1-16	Side Watertight Rubber Pad	SS400	PL	16 x 100 x 4200	2	52.8	106		1.7	
1-17	" Fitting Plate	SS400	PL	16 x 265 x 4200	2	139.8	280		4.5	
1-18	" Rubber Pad	SUS304	PL	12 x 75 x 4200	2	30.0	60			
1-19	Bottom End Rubber Pad	SUS304	PL	12 x 100 x 18230	1	173.5	174			
1-20	Inside Inspection Passage Way	SS400	PL	12 x 100 x 600	45	5.7	257		5.4	
1-21	"	SS400	PL	6 x 50 x 18000	6	42.4	254		10.8	
1-22	"	SS400	PL	6 x 19 x 600	100	0.5	50		2.3	
1-23	"	SS400	PL	6 x 44 x 18000	2	37.3	75		3.2	
1-24	"	SS400	L	90 x 90 x 6 x 18000	2	149.0	298		12.6	
1-25	"	SS400	PL	9 x 150 x 100	12	1.1	13		0.4	
1-26	"	SS400	PL	9 x 100 x 100	12	0.7	8		0.2	
1-27	"	SS400	PL	22 x 150 x 150	12	3.9	47		0.5	
1-28	Rear Trap	SS400	PL	9 x 75 x 4000	2	21.2	42		1.2	
1-29	"	SS400	PL	12 x 100 x 200	12	1.9	23		0.5	
1-30	"	SS400	RB	ϕ 19 x 400	14	0.9	13		0.3	
1-31	Deflecting Plate	SS400	PL	9 x 500 x 3200	2	113.0	226		6.4	
1-32	" Plate	SS400	L	75 x 75 x 12 x 600	2	7.8	16		0.4	

Flood Discharge Gate (Gate Body) Gate Inf, Steel material (2/3)									
No.	Item	Material	Dimensions (mm)		Quantity	Weight (kg)		Painting Area (m ²)	
			Shape	x Length		Unit W	W	Painting	Acid
2									
2-1	Manhole	SS400	PL	9 x ϕ 720	6	28.8	173	5.0	
2-2	" Plate	SS400	PL	22 x ϕ (750-560)	6	33.8	203	2.9	
2-3	" Bracket	SS400	PL	19 x 100 x 135	8	2.0	16	0.2	
2-4	" Bracket	SS400	PL	19 x 100 x 300	8	4.5	36	0.5	
2-5	" Handle	SS400	RB	ϕ 19 x 360	4	0.8	3	0.1	
2-6	" Pin	SUS304	RB	ϕ 28 x 350	4	1.7	7		
3									
3-1	Main Roller	SCMn3B	O	ϕ (1000-240) x 200	4	1162.1	4,648	9.0	
3-2	Main Axis	SUS304	O	ϕ 290 x 1600	4	838.1	3,352		
3-3	Disk Spring	SK5	PL	6 x ϕ (280-210)	8	1.3	10		
3-4	Plate of Disk Spring	SUS304	PL	25 x ϕ (290-205)	8	6.6	53		
3-5	End Plate	SS400	PL	19 x ϕ 200	4	4.7	19	0.3	
3-6	Key Plate	SS400	PL	16 x 80 x 270	8	2.7	22	0.4	
4									
4-1	Side Roller	S45C-H	O	ϕ (250-76) x 100	4	35.0	140	0.8	
4-2	" Axis	SUS304	O	ϕ 65 x 165	4	4.3	17		
4-3	Guide Bush	BC3	PL	19 x 40 x 60	32	0.4	13		
4-4	Shaft Box	SS400	PL	12 x 360 x 490	4	16.6	66	1.4	
4-5	"	SS400	PL	12 x 228 x 428	8	9.2	74	1.6	
4-6	"	SS400	PL	12 x 344 x 428	8	13.9	111	2.4	
4-7	"	SS400	PL	16 x 200 x 344	4	8.6	34	0.6	
4-8	"	SUS304	PL	10 x 50 x 100	16	0.4	6	0.2	
4-9	"	SUS304	PL	10 x 50 x 200	8	0.8	6	0.2	
4-10	Roller Bearing	SS400	PL	9 x 130 x 202	8	1.9	15	0.4	
4-11	"	SS400	PL	9 x 280 x 202	8	4.0	32	0.9	
4-12	"	SS400	PL	12 x 180 x 288	4	4.9	20	0.4	
4-13	"	SGP	P ₁ P _e	90A x 175	4	1.8	7	0.2	
4-14	"	SS400	O	ϕ 30 x 295	4	1.6	6	0.1	
4-15	"	SS400	PL	9 x 25 x 40	4	0.1	---	---	
4-16	"	SS400	PL	19 x 50 x 70	16	0.5	8	0.1	

Flood Discharge Gate (Gate Sheet) : Guide frame, steel material (1/2)									
No.	Item	Material	Dimensions (mm)		Quantity	Weight (kg)		Painting	Acid
			Shape	Length		Unit W	W		
6	Gate Sheet								
6-1	Rear Side (F)	SS400	PL	22 x 300 x 7500	4	388.6	1,554		
6-2	" (W)	SS400	PL	22 x 306 x 7500	2	396.4	793		
6-3	Roller Rail	SUS304	PL	20 x 350 x 7500	2	416.3	833		10.5
6-4	Side Gate Sheet	SUS304	PL	12 x 510 x 7500	2	364.0	728		15.3
6-5	Side Rib	SS400	PL	12 x 287 x 7500	2	202.8	406		
6-6	Fitting Pad	SS400	PL	10 x 360 x 480	2	13.6	27		
6-7	Fitting Pad	SUS304	PL	10 x 360 x 480	2	13.7	27		0.7
7									
7-1	Fore Side	SS400	H	244 x 175 x 7/11 x 7500	2	327.0	654		
7-2	Roller Connection	SUS304	PL	20 x 220 x 7500	2	261.7	523		6.6
7-3	Rubber Connection	SUS304	PL	12 x 475 x 7500	2	339.0	678		14.3
7-4	Rib	SS400	PL	9 x 221 x 295	32	4.6	147		
7-5	Fitting Pad	SS400	PL	10 x 255 x 410	2	8.2	16		
7-6	Fitting Pad	SUS304	PL	10 x 255 x 410	2	8.3	17		0.4
8									
8-1	Lower Side (Middle)	SS400	H	244 x 175 x 7/11 x 19120	1	833.6	834		
8-2	" (Laying Metal Fitting)	SUS304	PL	12 x 200 x 18260	1	347.5	348		7.3
9									
9-1	" (End Metal Fitting)	SS400	H	244 x 175 x 7/11 x 1650	2	71.9	144		
9-2	" (Laying Metal Fitting)	SUS304	PL	12 x 600 x 1670	2	95.4	191		4.0
9-3	Jointing Metal	SS400	PL	12 x 84 x 222	8	1.8	14		
9-4	Jointing Part	SS400	L	250 x 90 x 9 x 150	4	5.2	21		
9-5	Jointing Part	SS400	PL	16 x 125 x 300	4	4.7	19		

Flood Discharge Gate (Hoisting System), Steel Material

No.	Item	Material	Dimensions (mm)		Quantity	Weight (kg)		Painting Area (m ²)	
			Shape	Length		Unit W	W	Painting	Acid
14	Hoisting System								
14-1	Drum Shell	SM400C	PL	75 × 3487 × 1400	1	2874.2	2,874	9.8	
14-2	" Web	SM400C	PL	40 × φ (1060-300)	1	254.9	255	1.8	
14-3	" Boss	S35C	O	φ (320-200) × 250	1	96.2	96	0.5	
14-4	" Rib	SS400	PL	22 × 170 × 890	6	26.1	157	1.8	
14-5	" Flange	SM400C	PL	40 × φ (1500-1190)	1	205.7	206	1.7	
14-6	" Gear Rim	SCM435	PL	90 × 210 × 7760	1	1151.3	1,151	3.3	
14-7	" Web	SM400C	PL	40 × φ (2400-300)	1	1398.3	1,398	9.3	
14-8	" Boss	S35C	O	φ (320-200) × 250	1	96.2	96	0.5	
14-9	" Rib	SS400	PL	22 × 140 × 1030	6	24.9	149	1.7	
14-10	" Fitting Pad	SM400A	PL	32 × 120 × 300	6	9.0	54	0.4	
14-11	" Pinion	SCM440	O	φ (460-160) × 250	1	286.7	287	0.8	
14-12	" Axis	S45C-N	O	φ 180 × 1800	1	359.6	360	1.1	
14-13	" Pinion Axis	S45C-N	O	φ 160 × 1000	1	157.8	158	0.5	
15									
15-1	Pinion Bearing	SS400	PL	150 × 170 × 480	2	96.1	192	0.3	
15-2	"	SS400	PL	145 × 170 × 320	2	61.9	124	0.2	
15-3	Bush	BC3	O	φ (190-150) × 180	2	16.5	33		
16									
16-1	Stop Hook	SM400C	PL	60 × 200 × 3200	2	301.4	603	2.6	
16-2	"	S25C	O	φ (220-136) × 250	2	46.1	92	0.7	
16-3	Key Plate	SS400	PL	9 × 50 × 170	8	0.6	5	0.1	
17									
17-1	Tension Rod	S45C-N	O	φ 60 × 3000	2	66.6	133	1.1	
17-2	Mat. Plate	SUS304N2	PL	55 × □ 310	2	41.9	84	0.4	
17-3	Mat. Plate	SUS304	PL	12 × 120 × 200	2	2.3	5	0.1	
17-4	Spherical Mat	SUS304	O	φ (180-75) × 60	2	10.0	20	0.2	
17-5	Mat. Plate	SM490A	PL	25 × □ 300	2	17.7	35	0.4	
17-6	Lock Nut	S45C-N	PL	70 × □ 110	4	6.7	27	0.1	

Flood Discharge Gate (Hoisting System) , steel material (2/4)										
No.	Item	Material	Dimensions (mm)		Quantity	Weight (kg)		Painting Area (m ²)		
			Shape	Length		Unit W	W	Painting	Acid	
18										
18-1	Sheave	FC250	PCD770		2	196.0	392			
18-2	" Axis	S45C-N	O		2	26.6	53	0.3		
18-3	Key Plate	SS400	PL	9 x 50 x 170	8	0.6	5	0.1		
18-4	Sheave Bracket	SS400	PL	22 x 400 x 600	2	41.5	83	1.0		
18-5	"	SM400A	PL	25 x 500 x 700	4	68.7	275	2.8		
18-6	"	SUS304	PL	10 x ϕ 250	4	3.9	16		0.4	
18-7	"	SS400	PL	16 x 100 x 680	8	8.5	68	1.1		
18-8	"	SS400	PL	9 x 100 x 700	6	5.0	30	0.8		
19										
19-1	Hoisting Deck Partion	SS400	PL	19 x 200 x 3700	4	110.4	442	5.9		
19-2	"	SS400	PL	16 x 760 x 3700	2	353.2	706	11.3		
19-3	"	SS400	PL	19 x 580 x 1400	1	121.1	121	1.6		
19-4	"	SS400	PL	20 x 100 x 900	2	14.1	28	0.4		
19-5	"	SS400	PL	19 x 500 x 580	1	43.3	43	0.6		
19-6	"	SS400	PL	19 x 500 x 450	1	33.6	34	0.5		
19-7	"	SS400	PL	19 x 500 x 400	1	29.8	30	0.4		
19-8	"	SS400	PL	19 x 200 x 580	2	17.3	35	0.5		
19-9	"	SS400	PL	16 x 750 x 610	4	57.5	230	3.7		
19-10	"	SS400	PL	16 x 115 x 850	2	12.3	25	0.4		
19-11	Table of Electric Mortar	SS400	PL	15 x \square 200	1	4.7	5	0.1		
19-12	"	SS400	PL	35 x \square 300	1	24.7	25	0.2		
19-13	"	SS400	L	200 x 90 x 8 x 400	2	12.1	24	0.6		
19-14	"	SS400	PL	9 x 80 x 200	4	1.1	4	0.1		
19-15	"	SS400	PL	9 x 200 x 300	1	4.2	4	0.1		
19-16	"	SS400	PL	9 x \square 200	1	2.8	3	0.1		
19-17	Mat for Reduction Gear	SS400	PL	25 x 150 x 1400	2	41.2	82	0.8		
19-18	Rib	SS400	PL	16 x 160 x 762	10	15.3	153	2.4		

Sediment Flush Gate (Gate Body) Gate leaf, steel material (1/2)									
No.	Item	Material	Dimensions (mm)		Quantity	Weight (kg)		Painting Area (m ²)	
			Shape	Length		Unit W	W	Painting	Acid
1	Gate Body								
1-1	Skin Plate	SS400	PL	12 x 5820 x 4130	1	2264.3	2,264	48.1	
1-2	Skin Plate	SS400	PL	25 x 200 x 5820	1	228.4	228	2.3	
1-3	No. 1. Main Beam F	SS400	PL	16 x 150 x 5540	2	104.4	209	3.3	
1-4	No. 1. Main Beam W	SS400	PL	12 x 368 x 5788	1	200.6	201	4.3	
1-5	No. 2. Main Beam F	SS400	PL	16 x 350 x 5540	2	243.5	487	7.8	
1-6	No. 2. Main Beam W	SS400	PL	12 x 368 x 5788	1	200.6	201	4.3	
1-7	No. 3. Main Beam F	SS400	PL	16 x 350 x 5540	2	243.5	487	7.8	
1-8	No. 3. Main Beam W	SS400	PL	12 x 368 x 5788	1	200.6	201	4.3	
1-9	No. 4. Main Beam F	SS400	PL	16 x 350 x 5540	2	243.5	487	7.8	
1-10	No. 4. Main Beam W	SS400	PL	12 x 368 x 5788	1	200.6	201	4.3	
1-11	No. 5. Main Beam F	SS400	PL	16 x 250 x 5540	1	174.0	174	2.8	
1-12	No. 5. Main Beam W	SS400	PL	12 x 375 x 5788	1	204.5	205	4.3	
1-13	Vertical Beam F	SS400	PL	16 x 150 x 4350	4	82.0	328	5.2	
1-14	Vertical Beam W	SS400	PL	12 x 368 x 4350	2	150.8	302	6.4	
1-15	* Bearing	SM400C	PL	45 x (368 x 450 - φ150)	4	52.3	209	1.2	
1-16	Rubber Fitting Mat	SS400	L	100 x 100 x 10 x 4350	2	64.8	130	3.4	
1-17	Sheave Bracket	SS400	PL	16 x (650 x 1000 - φ150)	4	79.4	318	5.1	
1-18	Sheave Bracket	SS400	PL	16 x 368 x 650	4	30.0	120	1.9	
1-19	Sheave Doubling	SM400C	PL	50 x φ (280-150)	4	17.2	69	0.6	
1-20	Weep Hole	SS400	PL	9 x φ (200-80)	24	1.9	46	1.5	
1-21	Vertical Beam F	SS400	PL	12 x 150 x 725	5	12.4	62	1.1	
1-22	Vertical Beam W	SS400	PL	9 x 388 x 1024	5	32.2	161	4.0	
1-23	Vertical Beam F	SS400	PL	12 x 150 x 700	5	10.6	53	1.1	
1-24	Vertical Beam W	SS400	PL	9 x 388 x 1038	5	29.8	149	4.0	
1-25	Vertical Beam F	SS400	PL	12 x 150 x 700	5	9.2	46	1.1	
1-26	Vertical Beam W	SS400	PL	9 x 388 x 1038	5	27.3	137	4.0	
1-27	Vertical Beam F	SS400	PL	12 x 150 x 575	5	6.0	30	0.9	
1-28	Vertical Beam W	SS400	PL	9 x 388 x 1037	5	24.5	123	4.0	
1-29	Shaft Doubling	SS400	PL	22 x φ (240-135)	4	5.3	21	0.4	
1-30	Lower Rubber Fixing	SUS304	PL	12 x 135 x 5730	1	73.6	74		
1-31	Side Rubber Fixing	SUS304	PL	12 x 65 x 4340	2	26.8	54		
1-32	Grease Block	SUS304	PL	35 x 75 x 190	2	4.0	8		0.1
1-33	Topping Plate	SS400	PL	9 x 19 x 50	40	0.1	4	0.1	

Sediment Flush Gate (Gate Sheet) Guide Frame Sheet Material (1/2)										
No.	Item	Material	Dimensions (mm)		Quantity	Weight (kg)		Painting	Painting Area (m ²)	Acid
			Shape	Length		Unit W	W			
	Gate Sheet									
5	Rear Side									
5-1	Gate Sheet F	SS400	PL	19 x 200 x 7500	4	223.7	895			
5-2	Gate Sheet W	SS400	PL	19 x 212 x 7500	2	237.2	474			
5-3	Cover Plate	SUS304	PL	12 x 270 x 7500	2	192.7	385		8.1	
5-4	Anchor Plate	SS400	FB	75 x 12 x 220	30	1.6	48			
5-5	Connecting Plate	SS400	PL	12 x 360 x 400	4	13.6	54			
5-6	Roller Rail	SUS304	PL	10 x 220 x 7500	2	130.9	262		6.6	
6										
6-1	Gate Sheet	SS400	H	175 x 175 x 7.5/11 x 4000	2	161.6	323	8.1		
6-2	Cover Plate	SUS304	PL	12 x 270 x 4000	2	102.8	206		4.3	
6-3	Rib	SS400	PL	12 x 153 x 238	8	3.4	27	0.6		
6-4	Connecting Plate	SS400	PL	12 x 360 x 400	2	13.6	27	0.6		
6-5	Roller Rail	SUS304	PL	10 x 220 x 4000	2	69.8	140		3.5	
7	Fore Side									
7-1	Gate Sheet	SS400	H	175 x 175 x 7.5/11 x 7500	2	303.0	606			
7-2	Cover Plate	SUS304	PL	12 x 450 x 7500	2	321.2	642		13.5	
7-3	Anchor Plate	SS400	FB	75 x 12 x 220	30	1.6	48			
7-4	Connecting Plate	SS400	PL	12 x 200 x 400	4	7.5	30			
8										
8-1	Gate Sheet	SS400	H	175 x 175 x 7.5/11 x 4000	2	161.6	323	8.1		
8-2	Cover Plate	SUS304	PL	12 x 270 x 4000	2	102.8	206		4.3	
8-3	Rib	SS400	PL	12 x 153 x 238	8	3.4	27	0.6		
8-4	Connecting Plate	SS400	PL	12 x 200 x 400	2	7.5	15	0.3		
9	Gate Floor									
9-1	Flour Beam	SS400	H	175 x 175 x 7.5/11 x 6000	1	242.4	242			
9-2	Flour Beam	SS400	H	175 x 175 x 7.5/11 x 1100	2	44.4	89			
9-3	Liner	SUS304	PL	25 x 500 x 5420	1	537.3	537		5.4	
9-4	Liner	SUS304	PL	25 x 400 x 1030	2	81.7	163		1.7	
9-5	Rib	SS400	PL	16 x 85 x 153	24	1.6	38			
9-6	Rib	SS400	PL	16 x 175 x 200	18	4.4	79			

Sediment Flush Gate (Hoisting System), Steel Material (1/3)									
No.	Item	Material	Dimensions (mm)		Quantity	Weight (kg)		Painting Area (m ²)	
			Shape	Length		Unit W	W	Painting	Acid
11	Hoisting Apparatus								
11-1	Drum Shell	SM400C	PL	60 × 1000 × 2324	2	1094.6	2,189	9.3	
11-2	" Frange	SS400	PL	24 × φ (1000-790)	2	55.6	111	1.5	
11-3	" Web	SS400	PL	28 × φ (700-230)	2	75.5	151	1.5	
11-4	" Boss	S25C	O	φ (240-130) × 150	2	37.6	75	0.5	
11-5	" Rib	SS400	PL	19 × 90 × 235	12	3.2	38	0.5	
11-6	Drum Gear	SCMn5B		M14 NT=88	2	450.0	900		
11-7	Drum Pinion	SCM440		M14 NT=26	2	48.0	96		
11-8	Drum Axis	S45C-N	O	φ 130 × 1300	2	135.5	271	1.1	
11-9	Drum Pinion Axis	S45C-N	O	φ 120 × 650	2	57.7	115	0.5	
11-10	Gear Cover	SS400	PL	2.3	2	80.0	160		
11-11	Chain Cover	SS400	PL	2.3	2	10.0	20		
11-12	Key Plate	SS400	PL	12 × 60 × 200	8	1.1	9	0.2	
12									
12-1	Sheave	FC250		P.C.D 540	2	95.0	190		
12-2	" Axis	SUS304	O	φ 180 × 550	2	111.0	222		
13									
13-1	Aspherical Bottom Washer	SUS304	PL	55 × (310 × 310 - φ 125)	2	36.6	73		0.3
13-2	Stopper	SUS304	PL	12 × 120 × 200	2	2.3	5		0.1
13-3	Washer Plate	SS400	PL	25 × □ 300	2	17.7	35	0.4	
13-4	Aspherical Bottom Washer	SUS304	O	φ 180 × 60	2	12.1	24		0.2
13-5	Stop Washer	SS400	PL	35 × φ 180)	2	7.0	14	0.1	
13-6	Lock Nut	S45C-H	O	φ 130 × 66	4	6.9	28	0.2	
13-7	Tension Rod	S45C-H	RB	φ 55 × 1700	2	31.8	64	0.6	
14									
14-1	Emergency Top Pipe	SUS304TP	Pipe	25A Sch40 × 2500	1	6.4	6		0.3
14-2	" Washer	SS400	PL	9 × 200 × 300	1	4.2	4	0.1	
14-3	" Fixing Plate	SS400	PL	6 × 90 × 140	1	0.6	1	—	
14-4	Emergency Dog	SUS304	O	φ 120 × 40	1	3.6	4		—

Sediment Flush Gate (Hoisting System), steel material										(2/3)	
No.	Item	Material	Dimensions (mm)		Quantity	Weight (kg)		Painting Area (m ²)			
			Shape	Length		Unit W	W	Painting	Acid		
15											
15-1	Shaft Bearing	SS400	PL	150 × 130 × 295	4	45.2	181	0.3			
15-2	Shaft Bearing	SS400	PL	150 × 135 × 445	4	70.7	283	0.5			
15-3	Bush	BC3	O	φ (140-100) × 160	4	10.3	41				
15-4	Bolt	SS400	O	φ 24 × 190	16	0.7	11	0.2			
16											
16-1	Mechanical Table (Running Gear)	SS400	PL	19 × 200 × 2500	4	74.6	298	4.0			
16-2	"	SS400	PL	12 × 377 × 2500	2	88.8	178	3.8			
16-3	"	SS400	PL	19 × 200 × 130	6	3.9	23	0			
16-4	"	SS400	PL	12 × 377 × 160	3	5.7	17	0.4			
16-5	"	SS400	PL	20 × 120 × 980	2	18.5	37	0.5			
16-6	"	SS400	PL	19 × 250 × 400	1	14.9	15	0.2			
16-7	"	SS400	PL	15 × 270 × 380	1	12.1	12	0.2			
16-8	"	SS400	PL	12 × 90 × 380	1	3.2	3	0.1			
16-9	"	SS400	PL	12 × 90 × 125	4	1.1	4	0.1			
16-10	"	SS400	PL	15 × 270 × 190	1	6.0	6	0.1			
16-11	"	SS400	PL	12 × 133 × 200	1	2.5	3	0.1			
16-12	"	SS400	PL	12 × 133 × 125	2	1.6	3	0.1			
16-13	"	SS400	PL	12 × 170 × 377	8	6.0	48	1.0			
16-14	"	SS400	PL	19 × 250 × 377	4	14.1	56	0.8			
16-15	"	SS400	RB	φ 32 × 15	4	0.1	-	-			
16-16	Cover	SS400	CPL	6 × 400 × 1000	2	20.8	42	1.6			
16-17	"	SS400	CPL	6 × 900 × 1000	2	46.8	94	3.6			
16-18	"	SS400	FB	50 × 6 × 750	6	1.8	11	0.5			
16-19	"	SS400	RB	φ 16 × 350	8	0.6	5	0.1			
17											
17-1	Mechanical Gear Table	SS400	PL	19 × 200 × 2250	8	67.1	537	7.2			
17-2	"	SS400	PL	12 × 412 × 2250	4	87.3	349	7.4			
17-3	"	SS400	PL	19 × 200 × 1200	6	35.8	215	2.9			
17-4	"	SS400	PL	19 × 550 × 1200	2	98.4	197	2.6			
17-5	"	SS400	PL	12 × 412 × 1230	4	47.7	191	4.1			
17-6	"	SS400	PL	12 × 350 × 1230	2	40.6	81	1.7			

