

DETAIL DRAWINGS (1)

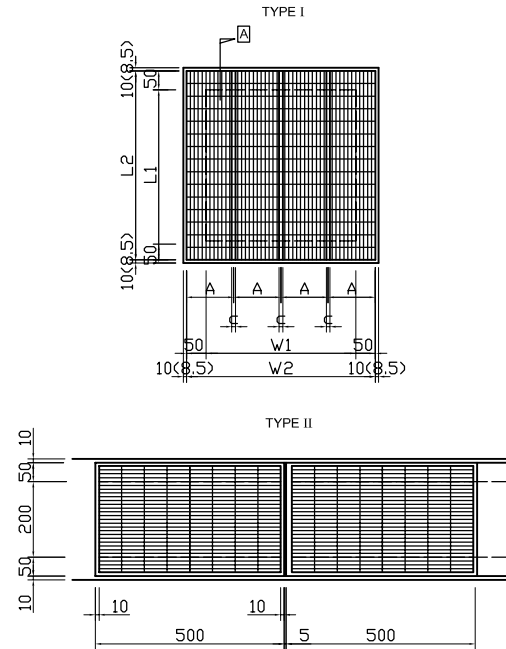
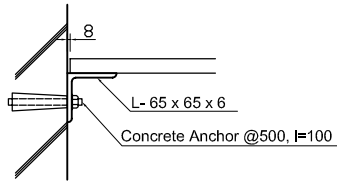
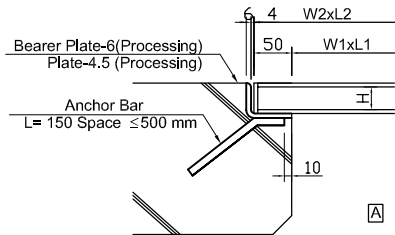
D-1 Grating Cover and Bearer Form Design Load (for floor) 360kg/m² Allowable Deflection (for floor) L/300

Selection of Grating for floor type (Reference)				
Bar H x b x b2	L1	Bearer Plate (mm)	Bar Space	Unit Weight
FB 19 x 4.5(3)	~ 500	4.5	30	27 kg/m²
FB 25 x 4.5(3)	501 ~ 1400	4.5	30	34 kg/m²
IB 32 x 5 x 3	1401 ~ 1800	6.0	30	37 kg/m²
IB 38 x 5 x 3	1801 ~ 2100	6.0	30	43 kg/m²
IB 44 x 5 x 3	2101 ~ 2500	6.0	30	50 kg/m²
IB 50 x 7 x 4	2501 ~ 3000	6.0	35	64 kg/m²

Flat bar



I bar



Specially

1. Grating is made by steel (CT3) and pressure welding. Surface coating is melting galvanized.
2. Bearer Form is remove the rust and coating with melting galvanized or more high quality.
3. Anchor bar is setted 100 mm distance from the corner.

Mark	Facilities	Type	L1	W1	L2	W2	A	c	H	Separate Number	Place	Total
GC-1	Grating Cover of Primary SedimentationTank	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	2	6
	Grating Cover of Aeration Tank	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	2	6
	Grating Cover of Pipe Galary A	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	6	18
	Grating Cover of Water Supply Facilities	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	6	18
	Grating Cover of Pipe Gallery of Blower Building	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	1	3
	Grating Cover of Pipe Gallery of E	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	2	6
	Grating Cover of Main Building	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	1	3
	Grating Cover of Dewatering Building	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	3	9
	Grating Cover of Disinfection Tank	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	1	3
	Grating Cover of Water Supply Facilities	I	1000	1500	1100	1600	360 x 3	10 x 4	25	5	1	5
	Grating Cover of Pipe Gallery of F	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	2	6
	Grating Cover of Pipe Gallery of G	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	2	6
	Grating Cover of Pipe Gallery of H	I	1000	1000	1100	1100	360 x 3	10 x 2	25	3	1	3
	Total											92
GC-2	Grating Cover of Primary Sedimentation Tank	II	480	200	500	300	1	5	25	14	2	28
		II	480	200	500	300	1	5	25	16	2	32
	Grating Cover of Aeration Tank	II	480	200	500	300	1	5	25	14	2	28
		II	480	200	500	300	1	5	25	16	2	32
	Grating Cover of Blower Building	II	480	200	500	300	1	5	25	14	1	14
		II	480	200	500	300	1	5	25	8	1	8
		II	480	200	500	300	1	5	25	12	3	36
	Grating Cover of Pipe Gallery of A	II	480	200	500	300	1	5	25	14	1	14
	Grating Cover of Pipe Gallery of B	II	480	200	500	300	1	5	25	10	2	20
	Grating Cover of Pipe Gallery of F	II	480	200	500	300	1	5	25	14	2	28
	Grating Cover of Pipe Gallery of H	II	480	200	500	300	1	5	25	14	1	14
	Grating Cover of Water Supply Facilities	II	480	200	500	300	1	5	25	6	2	12
	Grating Cover of Main Building	II	480	200	500	300	1	5	25	14	1	14
		II	480	200	500	300	1	5	25	5	2	10
	Grating Cover of Dewatering Building	II	480	200	500	300	1	5	25	14	3	42
		II	480	200	500	300	1	5	25	4	2	8
		II	480	200	500	300	1	5	25	3	2	6
		II	480	200	500	300	1	5	25	12	2	24
	Lift Pumping Station	II	480	200	500	300	1	5	25	1	2	2
		II	480	200	500	300	1	5	25	6	2	12
	Total											384
GC-3	Grating Cover of Desinfection Tank	I	1300	1800	1400	1400	320 x 4	6.25	32	4	2	8
Total											8	
GC-4	Grating Cover of Desinfection Tank	I	2000	2000	2100	2100	496 x 4	5.25	38	4	2	8
Total											8	
GC-5	Grating Cover of Desinfection Tank	I	2500	2500	2600	2600	495 x 10	5.56	44	10 x 2	1	20
Total											20	
GC-6	Grating Cover of Desinfection Tank	I	2000	2100	2100	510	397 x 5	5	38	1	1	1
Total											1	
GC-7	Grating Cover of Outflow Pit	I	2000	4000	2100	4100	496 x 7	5.25	38	8	1	8
Total											8	
GC-8	Grating Cover of Lift Pumping Station	I	500	1000	600	1100	498 x 2	4	25	2	3(6)	6(12)
Total											6(12)	
GC-9	Grating Cover of Lift Pumping Station	I	500	800	600	900	496 x 5	5	25	5	2(4)	10(20)
GC-10	Grating Cover of Lift Pumping Station	I	500	800	600	900	496 x 4	5	25	4	2(4)	8(16)
Total											18(36)	

NOTES :

- ALL DIMENSIONS ARE MM UNLESS STATED OTHERWISE
- THE SPECIFICATION TO BE REFERRED FOR MORE INFORMATION OF MATERIAL GRADES

NO.	DATE	DESCRIPTIONS	BY	APRO.
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REVISIONS

PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE E
WASTEWATER TREATMENT PLANT
DETAIL DRAWINGS (1)
GRATING COVER and BEARER FORM

SCALE : 1/1, 1/5, 1/10

JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

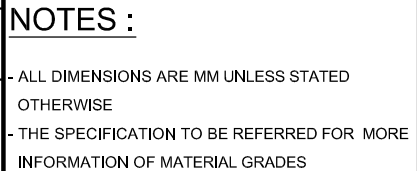
PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KIMURA TORU	CHECKED KONDO MASAMI
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DATE : JUNE 2001	DWG. No. PE - WWTP -229 -31
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<u>DETAIL DRAWINGS (2)</u>	
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D-2	Concrete Cover and Bearer Form	Design Load (for floor) 360kg/m ²	Allowable Deflection (for floor)
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NO.	DATE	DESCRIPTIONS	BY	APRO.

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

SCALE: 1/5	
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DATE : JUNE 2001	DWG.No. PE - WWTP - 229 - 32
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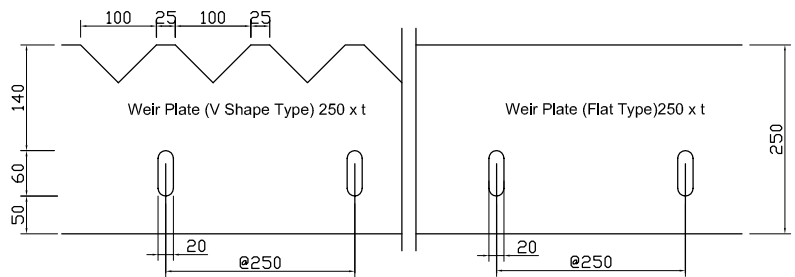
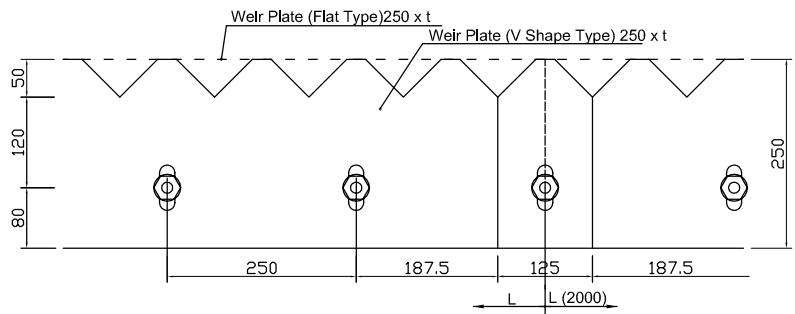
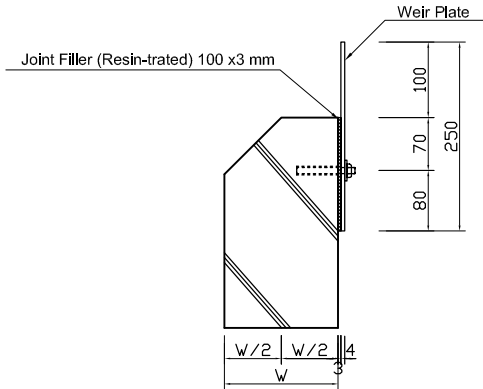
DETAIL DRAWINGS (3)

D-3 Overflow Weir

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Materials for 1 m (Reference)				
Item	Shape	Unit	Number	Quality of Material
Overflow weir plate	250 x t	M	1	Tempered Plastic
Castin Fitting Anchor	M16	Number	4	SUS 304
Joint Filler	100 x 3	M	1	Resin ~ treated



Ⓐ Type

Ⓑ Type

Mark	Facilities	Weir Level	Water Level	Type	W(mm)	L / Place(mm)	L / Waterway(m)	Place(Number)	Total(m)
OFW-1	Primary Sedimentation Tank	+6.000	+6.040	A	150	2000	13	20	260
	Final Sedimentation Tank	+5.000	+5.030	A	150	2000	27	20	540
OFW-2	Aeration Tank	+5.200	+5.250	B	500	2000	8.25	10	82.5
OFW-3	Return Sludge Plt	+5.200		B	500	600	0.6	10	6
OFW-4	Desinfection Tank	+2.000	+2.920	B	500	5000	5	1	5
OFW-5	Gravily Thickener	+2.430	+2.500	A	150	2000	42.547	1	42.550

NO.	DATE	DESCRIPTIONS	BY	APRO.
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HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE E
WASTEWATER TREATMENT PLANT

DETAIL DRAWINGS (3)
OVERFLOW WEIR

SCALE: 1/5

JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

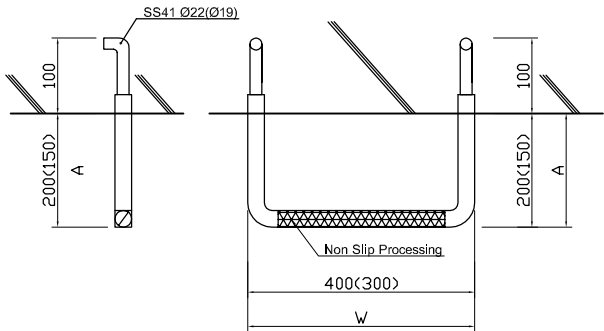
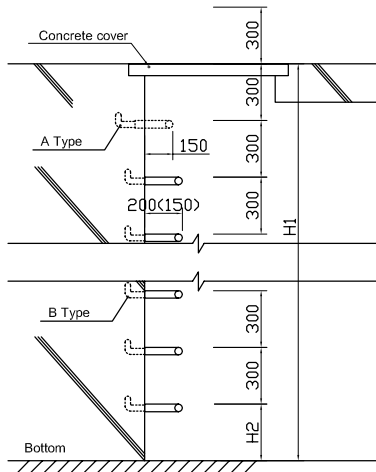
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DESIGNED KIMURA TORU	CHECKED KONDO MASAMI
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DATE : JUNE 2001	DWG. No. PE - WWTP - 229 - 33
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DETAIL DRAWINGS (4)

D-4 Steel Step (B Type, For Wall)



Specially

1. Step is made by steel (CT3) and covered by polypropylene.
2. Step will be welded to reinforcement as well as possible
3. Dimensions inside of () are for step width 300 mm
4. A type is used for slab thickness is less than 300 mm

Mark :SS	Unit :mm						
Facilities	A	W	H1	H2	Separate Number	Place Number	Total
Lift Pumping Station							
- Inflow Part	200	400	2700	300	8	2	16
Grit Chamber	200	400	3700	100	12	2	24
- Pump Well	200	400	5700	300	18	1	36
- Discharge Tank	200	400	17200	100	57	1	114
Distribution Tank							
- Main Part	200	400	11900	2200*	39	1	39
	200	400	5800	100	19	1	19
- Branch Part	200	400	3000	300	9	4	36
Primary Sedimentation Tank							
- Inflow Waterway	200	400	3000	300	9	20	180
- Outflow Waterway	200	400	1700	200	5	10	50
- Bypass Waterway	200	400	1200	300	3	2	6
Aeration Tank							
- Inflow Waterway	200	400	1200	300	3	22	66
- Air Pipe Pit	200	400	1900	100	6	10	60
- Bypass Waterway	200	400	1200	300	3	4	12
Final Sedimentation Tank							
- Inflow Waterway	200	400	1700	200	5	12	60
- At Tank	200	400	4370	170	13	20	260
- Bypass Waterway	200	400	1200	300	3	4	12
- Outflow Waterway	200	400	3200	200	10	11	110
Outflow Pit	200	400	8050	250	26	1	26
Disinfection Tank	200	400	6230	230	20	4	80
Water Supply Facility							
- The Conection Part	200	400	6230	230	20	1	20
- Secondary Effluent Tank	200	400	6230	230	20	1	20
- Sand Filtration Effluent Tank	200	400	7030	130	23	1	23
- Backwash Waswater Tank	200	400	7030	130	23	1	23
Gravity Thickener							
- Thickener Effluent Tank	200	400	6200	200	20	1	20
Grand Total							1312

*Space(Without Wall)

NOTES :

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PROJECT MANAGEMENT UNIT FOR
HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT

THE DETAILED DESIGN ON HO CHI MINH CITY
WATER ENVIRONMENT IMPROVEMENT PROJECT
IN THE SOCIALIST REPUBLIC OF VIET NAM

PACKAGE E
WASTEWATER TREATMENT PLANT
DETAIL DRAWINGS (4)
STEEL STEP

SCALE: 1/5, 1/20

JICA JAPAN INTERNATIONAL COOPERATION
AGENCY (JICA)

PACIFIC CONSULTANTS INTERNATIONAL

DESIGNED KIMURA TORU	CHECKED KONDO MASAMI
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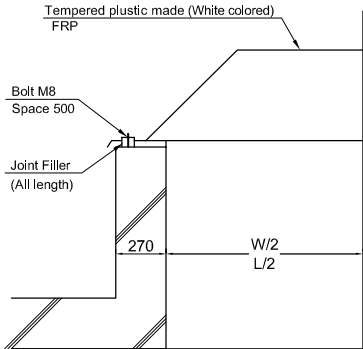
DATE : JUNE 2001	DWG. No. PE - WWTP - 229 - 34
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DETAIL DRAWINGS (5)

D-5 Sky Light and Carry in Space (Scale: 1/20)

NOTES :

- ALL DIMENSIONS ARE MM UNLESS STATED OTHERWISE
- THE SPECIFICATION TO BE REFERRED FOR MORE INFORMATION OF MATERIAL GRADES



Facilities	Style	W mm	L mm	Design Load kg/m²	Place	Total
Primary Sedimentation Tank	Desorption	2000	2000	120	22	22
Aeration Tank	Desorption	2000	2000	120	12	12
Final Sedimentation	Desorption	2000	2000	120	11	11
Pipe Gallery	Desorption	2000	2000	120	5	5
Total						50
Gravity Thickener	Desorption	1500	1500	120	1	1
Total						1
Water Supply Facilities	Desorption	2000	2000	120	3	3
Total						3

NO.	DATE	DESCRIPTIONS	BY	APRO.

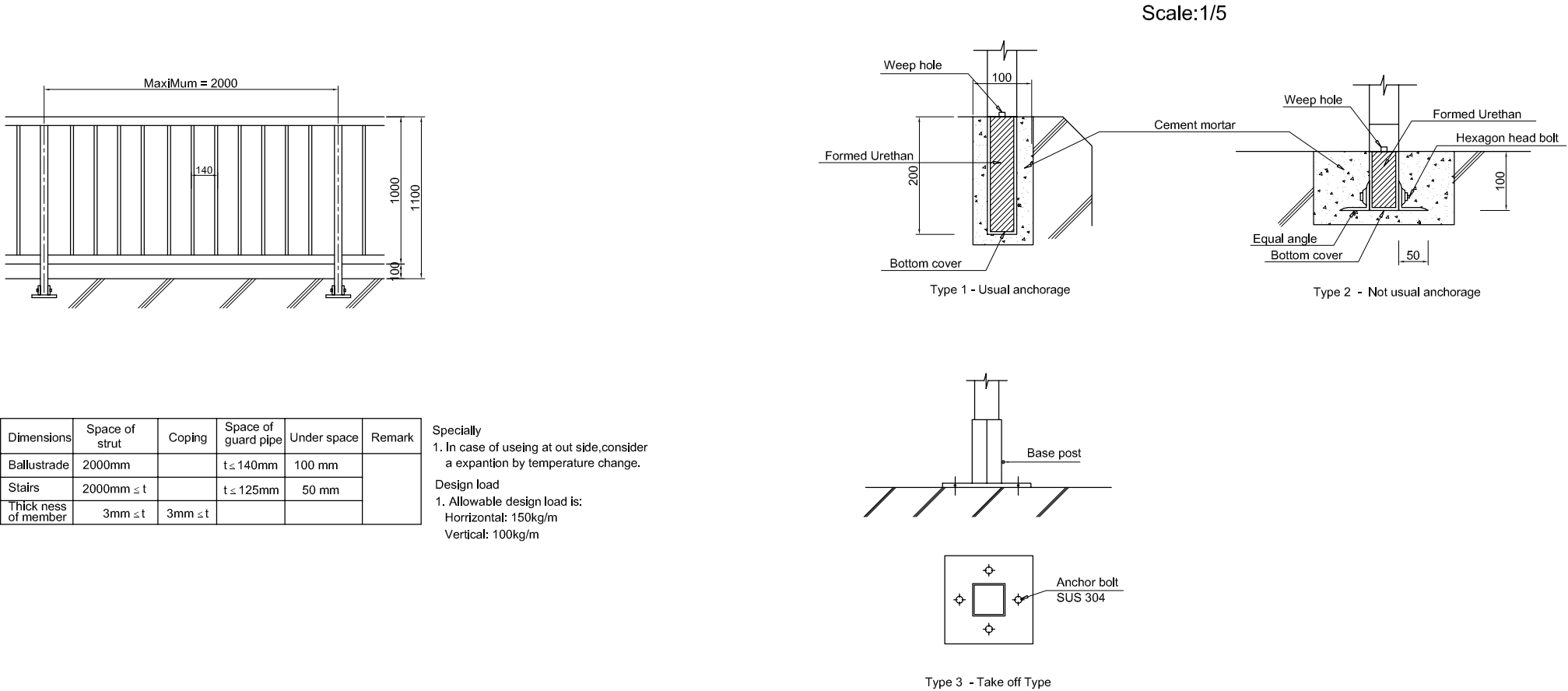
REVISIONS	
PROJECT MANAGEMENT UNIT FOR HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT	
THE DETAILED DESIGN ON HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM	
PACKAGE E WASTEWATER TREATMENT PLANT DETAIL DRAWINGS (5) SKY LIGTH	
SCALE: 1/20	
 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
 PACIFIC CONSULTANTS INTERNATIONAL	
DESIGNED KIMURA TORU	CHECKED KONDO MASAMI
DATE : JUNE 2001	DWG. No. PE - WWTP - 229 - 35

DETAIL DRAWINGS (6)

D - 6 Steel Balustrade

NOTES :

- ALL DIMENSIONS ARE MM UNLESS STATED OTHERWISE
- THE SPECIFICATION TO BE REFERRED FOR MORE INFORMATION OF MATERIAL GRADES



Mark	Facilities	Type	Length (mm)	Number of Guard Pipe			Number of Strut		
				Separate Number	Place Number	Total	Separate Number	Place Number	Total
AB - 1	Distribution Tank	2	22400	160	1	160	21	1	21
	Inflow Waterway	2	98000	700	2	1400	49	2	98
	+8.000 Level Plan	2	267700	1912	1	1912	134	1	134
	+6.900 Level Plan	2	163250	1166	1	1166	82	1	82
	Primary Sedimentation Tank	2	25800	184	18	3312	17	18	306
	Primary Sedimentation Tank	2	24100	172	2	344	12	2	24
	+6.400 Level Plan	2	195250	1395	1	1395	98	1	98
	Aeration Tank	2	100400	717	10	7170	49	10	510
	+5.900 Level Plan	2	55000	393	1	393	28	1	28
	Final Sedimentation Tank	2	45400	324	18	5832	23	18	414
	Final Sedimentation Tank	2	43400	310	2	620	22	2	44
	Outflow waterway	2	119450	853	1	853	62	1	62
	Steps (from +8,000 to +6,900)	2	2200	16	6	96	2	6	12
	Water Supply								
	- At +4.500	2	38000	271	1	271	19	1	19
	- At +4.000 Plan	2	43000	307	1	307	22	1	22
	- At Ladder(from +4.000 to +2.200)	2	6100	44	1	44	4	1	4
AB - 2	Disinfection Tank	2	292760	2091	1	2091	146	1	146
	Total AB - 1					28446			2004
	Primary Sedimentation Tank	3	3700	27	20	540	1	20	20
	Final Sedimentation Tank	3	3700	27	20	540	1	20	20
	Total AB - 2					1080			40

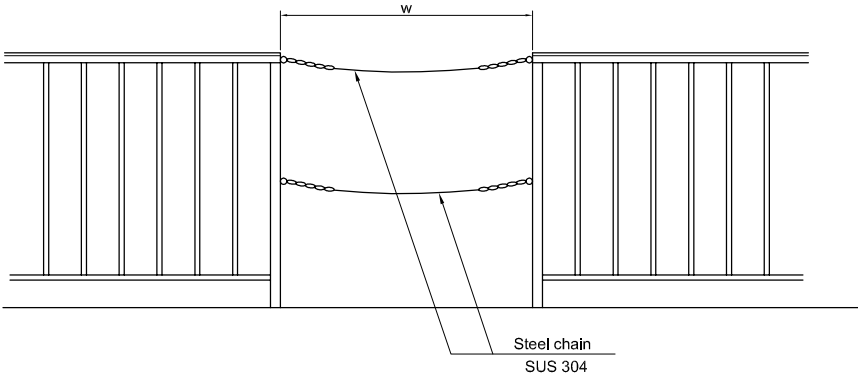
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REVISIONS				
PROJECT MANAGEMENT UNIT FOR HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT				
THE DETAILED DESIGN ON HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM				
PACKAGE E WASTEWATER TREATMENT PLANT				
DETAIL DRAWINGS (6) STEEL BALUSTRAD				
SCALE : 1/5, 1/20.				
JICA		JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)		
P		PACIFIC CONSULTANTS INTERNATIONAL		
DESIGNED KIMURA TORU		CHECKED KONDO MASAMI		
DATE : JUNE 2001		DWG. No. PE - WWTP - 229 - 36		

DETAIL DRAWINGS (7)

D - 7 Steel Chain

NOTES :

- ALL DIMENSIONS ARE MM UNLESS STATED OTHERWISE
- THE SPECIFICATION TO BE REFERRED FOR MORE INFORMATION OF MATERIAL GRADES



Mark	Facilities	W	Separate Number	Place Number	Total
SSC - 1	Primary Sedimentation Tank	1800	2	9	18
	Final Sedimentation Tank	1800	2	9	18
	Total SSC - 1				36
SSC - 2	Aeration Tank	2000	1	8	8
	Outflow Waterway	2000	1	1	1
	Total SSC - 2				9
	Grand Total				45

NO.	DATE	DESCRIPTIONS	BY	APRO.

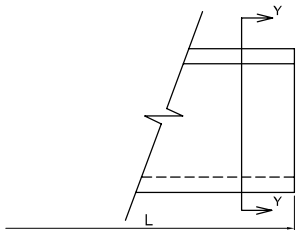
REVISIONS	
PROJECT MANAGEMENT UNIT FOR HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT	
THE DETAILED DESIGN ON HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM	
PACKAGE E WASTEWATER TREATMENT PLANT DETAIL DRAWINGS (7) STEEL CHAIN	
SCALE : 1/20.	
 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)	
 PACIFIC CONSULTANTS INTERNATIONAL	
DESIGNED KIMURA TORU	CHECKED KONDO MASAMI
DATE : JUNE 2001	DWG. No. PE - WWTP - 229 - 37

DETAIL DRAWINGS (8)

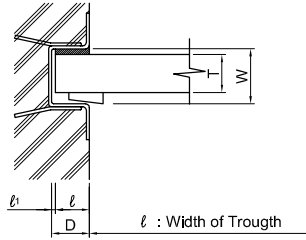
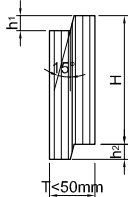
D-8 Synthetic Wooden Stop Log

SYNTHETIC WOODEN STOP LOG. Scale: 1/10

Thickness less than 50mm

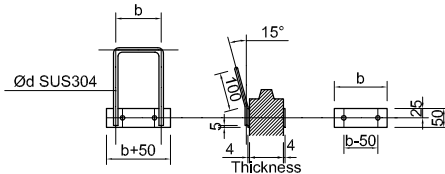


Type A



Type C

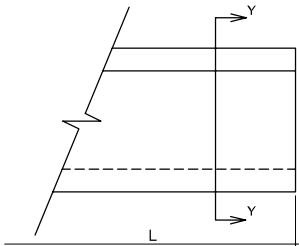
STOP LOG HANDLE. Scale: 1/10



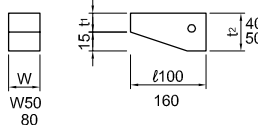
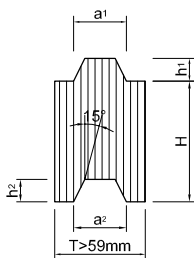
Type 1

Size of Handle		
Kind	Dimension(mm)	
	Ø d	b
~ 80	10	120
~ 140	12	120
~ 210	16	120

Thickness more than 59mm



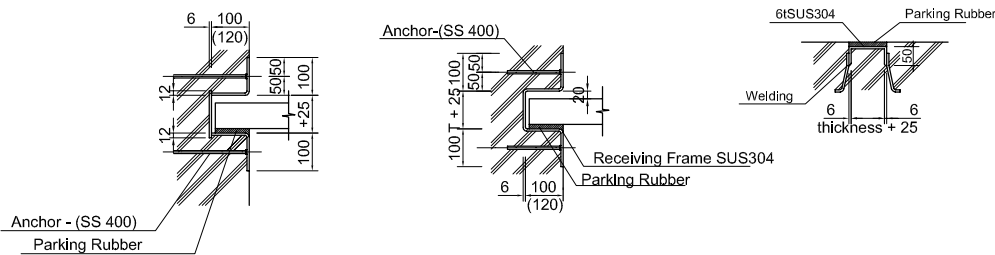
Type B



Type 2

Size of Handle			
Kind	Dimension(mm)		
	Ø d	b	h
~ 140	12	120	50
~ 210	16	140	50

METAL FRAME. Scale: 1/10



Unit : mm

Type	Kind	Thickness T	Dimension				Height H	Lenght L	Reference(Weigth(kgf/m²))			W	D
			a ₁	a ₂	h ₁	h ₂			Density 0.5	Density 0.74	Density 1.0		
A	50	49	—	—	20	21	170 - 600	ℓ +160	20.5	37.0	50.0	75	100
	60	59	20	20.5	20	21	170 - 600		30.0	44.4	60.0	85	100
	70	69	25	20.5	20	21	170 - 600		35.0	51.8	70.0	95	100
	80	78	25	20.5	20	21	170 - 600		39.0	57.7	78.0	105	100
	100	98	35	35.5	20	21	170 - 600		49.0	72.5	98.0	125	100
	120	118	40	40.5	20	21	170 - 600		59.0	87.3	118.0	145	100
	140	138	45	45.5	30	31	160 - 600		69.0	102.1	138.0	165	100
	150	147	45	45.5	30	31	160 - 300		73.5	108.7	147.0	175	120
	160	157	50	50.5	30	31	160 - 300		78.5	116.2	157.0	185	120
	180	177	55	50.5	30	31	160 - 300		88.5	131.0	177.0	205	120
B	200	197	65	65.5	30	31	160 - 300	ℓ +200	98.5	145.8	197.0	225	120
	210	207	70	70.5	30	31	160 - 300		103.5	153.2	207.0	235	120

Mark	Facilities	Type	Dimension of Trough (W × H)	Dimension of Stop Log	T	Height Per Piece	Weigth			Separate Number	Place Number	Total
							kgf/m² (Density 1.0)	Per Piece	Per Stop Log			
SL - 1	Lift Pumping Station											
	- Before Coarse Screen	B	2500 × 1500	2660 × 1500	118	250	118	78.47	470.82	6	2	12
	Total SL - 1											12
SL - 2	Lift Pumping Station											
	- Grit Chamber	B	2000 × 1500	2160 × 1500	98	250	98	52.92	317.52	6	2	12
	Total SL - 2											12
SL - 3	Primary Sedimentation Tank											
	- Inflow Waterway	A	1000 × 1500	1160 × 1500	49	500	50	29.0	87.0	30	2	60
	Total SL - 3											60
SL - 4	Primary Sedimentation Tank											
	- Outflow Trough	A	1000 × 1000	1160 × 1000	49	500	50	29.0	58.0	24	1	24
	Aeration Tank											
	- Inflow Waterway	A	1000 × 1000	1160 × 1000	49	500	50	29.0	58.0	6	10	60
	Final Sedimentation Tank											
	- Inflow Waterway	A	1000 × 1000	1160 × 1000	49	500	50	29.0	58.0	24	1	24
	Total SL - 4											108
SL - 5	Final Sedimentation Tank											
	- Outflow Trough	B	2000 × 2000	2160 × 2000	98	250	98	52.92	423.36	104	1	104
	Total SL - 5											104
SL - 6	Primary Sedimentation Tank											
	- Bypass Waterway	A	1500 × 1500	1660 × 1500	49	500	50	41.5	124.5	3	2	6
	Aeration Tank											
	- Bypass Waterway	A	1500 × 1500	1660 × 1500	49	500	50	41.5	124.5	3	2	6
	Total SL - 6											12
SL - 7	Final Sedimentation Tank											
	- Bypass Waterway	A	1500 × 1000	1660 × 1000	49	500	50	41.5	83.0	2	2	4
	Total SL - 7											4
SL - 8	Disinfection Tank	B	2000 × 5500	2160 × 5500	138	250	138	74.52	1639.44	22	1	22
	Total SL - 8											22
SL - 9	Aeration Tank											
	Upper Opening of Baffle Wall	A	500 × 300	660 × 400	49	400	50	13.2	13.2	1	60	60
	Total SL - 9											60

NOTES :

- ALL DIMENSIONS ARE MM UNLESS STATED OTHERWISE
- THE SPECIFICATION TO BE REFERRED FOR MORE INFORMATION OF MATERIAL GRADES

NO.	DATE	DESCRIPTIONS	BY	APRO.	
REVISIONS					
PROJECT MANAGEMENT UNIT FOR HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT					
THE DETAILED DESIGN ON HO CHI MINH CITY WATER ENVIRONMENT IMPROVEMENT PROJECT IN THE SOCIALIST REPUBLIC OF VIET NAM					
PACKAGE E WASTEWATER TREATMENT PLANT DETAIL DRAWINGS (8) SYNTHETIC WOODEN STOP LOG					
SCALE : 1/10					
 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)					
 PACIFIC CONSULTANTS INTERNATIONAL					
DESIGNED KIMURA TORU			CHECKED KONDO MASAMI		
DATE : JUNE 2001		DWG. No. PE - WWTP -229 -38			