

**ANNEX 9**  
**DETAILS OF**  
**TREATMENT PLANTS**

# **1. SPECIFICATIONS OF TREATMENT PLANTS**

**KAOLIEO**  
**TREATMENT PLANT**

## Specifications of Kaolieo Treatment Plant Facilities

### 1) Intake Facility

Item	Intake Tower		Pontoon (Floating Dock)	
a. Dimension	Oval: <sup>B</sup> 4.800 m × <sup>L</sup> 7.800 m× <sup>H</sup> 18.800m		<sup>B</sup> 3.5 m × <sup>L</sup> 4.0 m × <sup>H</sup> 0.5 m W/Float	
b. Dimension of Pump House	Oval: <sup>B</sup> 5.800m × <sup>L</sup> 8.800m× <sup>H</sup> 5.600m		<sup>B</sup> 4.5 m × <sup>L</sup> 5.0 m × <sup>H</sup> 1.7 m	
c. Material of Intake	Reinforce Concrete		Steel	
d. Intake Pump	Type	Vertical Mixed Flow Pump	Type	Centrifugal Pump
	Capacity	7.65 m <sup>3</sup> /min	Capacity	4.5 m <sup>3</sup> /min
	Total Head	19.5 m	Total Head	40 m
	Motor	37 kW	Motor	45 kW
	Speed	1,470 rpm	Speed	1,450 rpm
	Number	3 Unit	Number	1 Unit
	Present Condition	<b>Decrease 20% of Rated Capacity to be ascertained by Flow Measurement</b>	Present Condition	<b>Decrease 15% of Rated Capacity to be ascertained by Flow Measurement</b>
e. Operation Schedule of Intake Pumps	Alternately Operation(15 – 22hr)		15 – 22hr	
f. Gate	Type	Sluice with Manual Floor Stand	Type	---
	Diameter	D700 mm	Diameter	---
	Number	2 Unit	Number	---
g. Gate Valve	Diameter	D250 mm	Diameter	D200 mm
	Operator	W/Operating Nut	Operator	W/Hand Wheel
	Number	3 Unit	Number	1 Unit
	Remarks	Rising Stem	Remarks	---
	Present Condition	<b>Non-working by leakage</b>		
h. Check Valve	Diameter	D250 mm	Diameter	D200 mm
	Number	3 Unit	Number	1 Unit
i. Butterfly Valve	Diameter	500 mm	Diameter	---
	Operator	W/Hand Wheel	Operator	---
	Number	1 Unit	Number	---
	Purpose	Intake Control Valve	Purpose	---
	Remarks	Horizontal Type	Remarks	---
	Present Condition	<b>Non-working</b>		
j. Chain Block	Type	Fixed	Type	---
	Capacity	5 ton	Capacity	---
j. Piping	Diameter	D250-D500 mm	Diameter	D200 mm × D250mm
	Material	SP	Material	SP

## 2) Raw Water Transmission Facility

Item	Intake Tower		Pontoon (Floating Dock)	
	Parameter	Value	Parameter	Value
a. Piping	Diameter	500 mm	Diameter	D200 mm
	Material	SP	Material	SP & Cornice Pipe
	Length	30.0 m	Length	38 m
b. Inspection Bridge	Dimension	<sup>W</sup> 1570 m × <sup>H</sup> 1.50 m	Dimension	---
	Type	Truss Structure Type	Type	---
	Length	25 m	Length	---
	Material	Steel	Material	---
c. Flow Meter	Type	Orifice	Type	---
	Diameter	500 mm	Diameter	----
	Number	1 Unit	Number	---

## 3) Treatment Facilities

a. Space for Expansion Area	Enough Space	
b. Design Capacity	22,000 m <sup>3</sup> /day	
c. Receiving Well and Mixing Well	Water Level	+176.000 m
	Dimension	<sup>D</sup> 2.80 m × <sup>H</sup> 4.00 m × <sup>EWD</sup> 3.35 m
	Number of Basin	1 Basin
	Type	Flash Mixer / Weir
	Volume	82.51 m <sup>3</sup>
	Retention Time	5.4 min
	Flash Mixer	Vertical Propeller Type, 3.7 kW, 1,500/1,800 rpm
	Piping	D400 mm × SP
d. Flocculation Basin	Drain Valve	D100 mm
	Dimension	<sup>W</sup> (6.0×2) m × <sup>L</sup> (0.9+1.0×3)+(0.9+1.6)m × <sup>H</sup> 5.6 m × <sup>EWD</sup> 3.5 m
	Number of Basin	2 Basins / 4 Units
	Type	Zigzag – Up and Down (Non-using)
	Volume	268.8 m <sup>3</sup> /Basin
	Retention Time	35.2 min (23.1 min at present)
	Inlet Valve	D400 mm × 2 Units
e. Sedimentation Basin	Drain Valve	D250 mm × 4 Units
	Water Level	+175.400 m
	Dimension	<sup>W</sup> (6.0×2) m × <sup>L</sup> 14.70 m × <sup>H</sup> 5.8 m × <sup>EWD</sup> 5.15 m
	Number of Basin	2 Basins / 4 Units
	Type	Horizontal Flow
	Volume	908.5 m <sup>3</sup> /Basin
	Retention Time	2.0 h (1.3 h at present) : <b>Over-loading</b>
f. Pre-filtration Basin	Average Velocity	123.6 mm/min
	Surface Loading	39.8 mm/min
	Water Level	175.250 m
	Dimension	<sup>W</sup> 10.00 m × <sup>L</sup> 7.0 m × <sup>H</sup> ??? m × <sup>EWD</sup> 5.15 m
	Number of Basin	2 Basins / 4 Units
	Type	Up-flow Gravel Filtration
	Depth of Gravel	0.4 m
	Size of Gravel	D?? mm - D?? mm
g. Filtration Basin	Wash Water Drain Valve	D150 mm × 4 Units
	Drain Valve	D150 mm × 2 Units
	Water Level	+174.580 m
	Dimension	<sup>W</sup> 5.50 m × <sup>L</sup> 8.20 m
	Number of Basin	4 Units
	Type	Gravity Sand Filter
	Filtered Area	45.10 m <sup>2</sup> /Unit
Filtration Rate	122 m <sup>3</sup> /d/m <sup>2</sup>	
Depth of Sand	0.60 m	

g. Filtration Basin	Type of Under - Drain			
	Surface Washing Rate	0.60 m <sup>3</sup> /min/m <sup>2</sup>		
	Back Washing Rate	0.15 m <sup>3</sup> /min/m <sup>2</sup>		
	Inlet Valve	D300 mm × 4 Units		
	Filtered Valve	D250 mm × 4Units × 2 Pieces		
	Back Wash Valve	D450 mm × 4 Units		
	Surface Washing Valve	D200 mm × 4 Units		
	Filtered Controller	D250 mm × 4 Units × Double Seat		
	Loss Head Meter	4 Units : Dial Type Indicator <b>Non-working</b>		
	Wash Drain Valve	D400 mm × 8 Units		
	Drain Valve	D100 mm × 4 Units		
	Piping	D450 mm ~ D100 mm		
	Back Wash Pump	D350 mm × <sup>Q</sup> 14.5 m <sup>3</sup> /min × <sup>H</sup> 18.0m × 60kw × 3 Units		
h. Clear Water Reservoir	Water Level	HWL +170.600 m LWL +166.600 m		
	Dimension	<sup>W</sup> 16.00 m × <sup>L</sup> 32.00 m × <sup>H</sup> 4.50 m × <sup>EWD</sup> 4.00 m		
	Number of Basin	2 Basins		
	Type	Flat Slab Structure		
	Volume	4,096 m <sup>3</sup>		
	Retention Time	4.9 h		
	Valve	Inlet	D400 mm × 2 Units	
		Maintenance	D300 mm × 6 Units	
			D350 mm × 2 Units	
	Over Flow	D200 mm × 2 Units		
Piping	D400 mm ~ D200 mm : DCIP			
Water Level Meter	2 Places			
i. Chemical Feeding Facilities	Tank	Alum Storage Tank	Cylindrical × FRP × <sup>Q</sup> 5,500 <sup>l</sup> × 3 Units	
		Alum Contact Water Level Head Tank	Rectangular × Stainless Steel × 100 <sup>l</sup> × 1 Unit	
		Hypo. Storage Tank	Cylindrical × FRP × <sup>Q</sup> 800 <sup>l</sup> × 2 Units <b>Non-working</b>	
		Hypo. Contact Water Level Head Tank	Rectangular × PVC × 50 <sup>l</sup> × 1 Unit <b>Non-working</b>	
	Pump	Alum Circulation Pump	<sup>Q</sup> 100 l/min × <sup>H</sup> 8.0m × 0.75kw × 2Units <b>Non-working</b>	
		Hypo. Circulation Pump	<sup>Q</sup> 60 l/min × <sup>H</sup> 8.0m × 0.75kw × 2Units <b>Non-working</b>	
	Alum Mixer	Vertical Propeller Type		
	Flow Meter	Alum Flow Meter	20 l/min × 3 Units	
		Hypo. Flow Meter	20 l/min × 3 Units <b>Non-working</b>	
	Flow Controller	Alum Flow Controller	3 Units	
		Hypo. Flow Controller	3 Units <b>Non-working</b>	
	Monorail System	Geared Trolley, 0.5 ton <b>Non-working</b>		
	j. Distribution Pump Station	Distribution Pump	Type	Centrifugal Pump
			Capacity	6.3 m <sup>3</sup> /min
Total Head			67.0 m	
Motor			110 kW	
Speed			1,470 rpm	
	Number	4 Units		

j. Distribution Pump Station	Back Wash Pump (Surface Wash Pump)	Type	Centrifugal Pump		
		Capacity	14.5 m <sup>3</sup> /min		
		Total Head	18.0 m		
		Motor	60 kW		
		Speed	980 rpm		
		Number	3 Units		
	Vacuum Pump	Type	Centrifugal Pump		
		Capacity	1.1 m <sup>3</sup> /min (Wind Volume)		
		Total Head	620 mmHg m		
		Motor	2.2 kW		
		Speed	1,450 rpm		
		Number	2 Units		
	Gate Valve	Distribution Delivery	Diameter	200 mm	
			Operator	W/Manual Floor Stand	
			Number	4 Unit	
			Remarks	Non-Rising Stem	
		Back Wash Delivery	Diameter	350 mm	
			Operator	W/Manual Floor Stand	
			Number	3 Unit	
			Remarks	Non-Rising Stem	
	Check Valve	Distribution Delivery	Diameter	200 mm	
Number			4 Unit		
Back Wash Delivery		Diameter	350 mm		
		Number	3 Unit		
Piping	D200 mm , D350 mm : SP				
	D100 mm, D350 mm : SP/DCIP				
k. Others	Butterfly Valve	Back Wash Water Control	Diameter	450 mm	
			Operator	W/Hand Wheel	
			Number	1 Unit	
			Remarks	Horizontal Type	
		Present Condition	<b>Non-working</b>		
		Surface Wash Water Control	Diameter	200 mm	
			Operator	W/Manual Floor Stand	
			Number	1 Unit	
	Remarks		Vertical Type		
	Present Condition	<b>Non-working</b>			
	Drain Pump	Type	Diesel Engine Type		
		Capacity	7.50 m <sup>3</sup> /min		
		Total Head	? m		
		Diesel Engine	kW		
Speed		? rpm			
Number		1 Unit			

**CHINAIMO**  
**TREATMENT PLANT**



## Specifications of Chinaimo Treatment Plant Facilities

### 1) Intake Facility

a. Dimension	<sup>B</sup> 5.000 m × <sup>L</sup> 20.000 m×2 Units <sup>B</sup> 5.000 m × <sup>L</sup> 4.800 m× <sup>H</sup> 18.000m×2 Units		
b. Dimension of Pump House	<sup>B</sup> 12.150m × <sup>L</sup> 4.800m× <sup>H</sup> 5.000m		
c. Material of Intake	Reinforce Concrete		
d. Intake Pump	Type	Vertical Mixed Flow Pump	Vertical Submersible Pump
	Capacity	18.0 m <sup>3</sup> /min	18.0 m <sup>3</sup> /min
	Total Head	14.8 m	14.8 m
	Motor	75 kW	75 kW
	Speed	1,480 rpm	1,470 rpm
	Number	4 Unit	2 Unit
	Pump Support	Steel Construction, W/Ladder & Landing	
e. Operation Schedule of Intake Pumps	Alternately Operation ( 18 – 20 h/Unit)		
f. Sluice Gate	Operator	W/ Manual Floor Stand	
	Diameter	D1,000 mm	
	Number	5 Unit	
g. Gate Valve	Diameter	D350 mm	
	Operator	W/Operating Nut	
	Number	6 Unit	
	Remarks	Rising Stem	
h. Check Valve	Diameter	D350 mm	
	Number	6 Unit	
i. Screen	Number	1 Set	
j. Level Meter	Type	Ultra Sonic Type	
	Number	1 Set	
k. Motor Hoist	Type	ESM	
	Capacity	5 ton, 10/0.19kW	
	Number	2 Units	
l. Service Tank	Type	Make-up Tank for No.5 & No.6 Raw Water Intake Pump	
	Number	2 Units	
m. Piping	Diameter	D350 - D1,000 mm	
	Material	SP	
n. Operating Staff	No. of Staff	8 Persons / Group (24 hours) : including Treatment Plant	
	Shift	8:00----20:00 ; All Member, 20:00----8:00 : 3 Shift	

## 2) Raw Water Transmission Facility

a. Butterfly Valve	Diameter	1,100 mm	
	Operator	Electric	
	Number	1 Unit	
	Purpose	Raw Water Control Valve	
	Remarks	Horizontal Type	
b. Piping	Diameter	D800 – D1,100 mm	
	Material	SP & DIP	
	Length	210.0 m	
c. Flow Meter	Type	Orifice Type	Ultra Sonic Type
	Diameter	1,100 mm × 800 mm	D1,100 mm
	Number	1 Unit	1 Unit

## 3) Treatment Facilities

a. Space for Expansion Area	<b>Limited Space but affect under construction</b>			
b. Design Capacity	88,000 m <sup>3</sup> /day (80,000 m <sup>3</sup> /day : Nominal Design Capacity)			
c. Receiving Well and Mixing Well	Water Level	+173.950 m		
	Dimension	W 5.00 m × L 3.30 m × H 4.35 m × <sup>EWD</sup> 3.75 m		
	Number of Basin	1 Basin		
	Type	Weir × <sup>H</sup> 3.50 m×4 Sets :Uniformity Distribution		
	Volume	61.9 m <sup>3</sup>		
	Retention Time	1.0 min (0.9 min at present average ) : <b>Over-loading</b>		
	Butterfly Valve	Diameter	1,100 mm	
		Operator	Manual	
		Number	1 Unit	
	Sluice Gate	Operator	W/ Manual Floor Stand	
		Diameter	D100 mm	
		Number	4 Unit	
	Drain Gate Valve	Diameter	D400 mm	D80 mm
Operator		W/Operating Nut	W/Operating Nut	---
Number		1 Unit	4 Units	2 Units
Piping	D1,100mm – D80 mm × DIP			
d. Flocculation Basin	Water Level	+173.550 m		
	Dimension (per Unit)	W 6.70 m×L (0.90+0.95+1.00+1.05+1.15+1.25)+ (1.35) m×H (3.85 – 2.99) m× <sup>EWD</sup> (2.59 – 3.15) m		
	Number of Basin	4 Basins / 8 Units		
	Type	Zigzag – Up and Down		
	Volume	294.2 m <sup>3</sup> /Basin		
	Retention Time	19.3 min (17.6 min at present) : <b>Over-loading</b>		
	Drain Valve	D300 mm × 8Units		
	Drain Sluice Gate	360 mm ×230 mm		
e. Sedimentation Basin	Water Level	+173.250 m		
	Dimension	W 13.60 m × L 64.05 m × H (3.01 – 2.51) m × <sup>EWD</sup> (2.50 – 2.00) m		
	Number of Basin	4 Basins		
	Type	Horizontal Flow with Launder		
	Volume	1,980 m <sup>3</sup> /Basin		
	Detention Time	2.40 h (1.97 h at present) : <b>Over-loading</b>		
	Launder	W 0.50 m × L 20.0 m × H 0.32 m × 4 <sup>Pieces</sup> /Basin		
	Weir Loading	137.5 m <sup>3</sup> /d/m (150.8 m <sup>3</sup> /d/m)		
	Average Velocity	0.50 m/min {0.40 m/min} (0.55 m/min at present)		
	Surface Loading	17.4 mm/min (15 – 30 mm/min) (19.1 mm/min at present)		
	Wash Pump	Capacity	0.72 m <sup>3</sup> /min	
		Total Head	25.0 m	
		Motor	75 kW	
Speed		3,000 rpm		
Number		1 Unit		

e. Sedimentation Basin	Wash Water Control Valve	Diameter	D250 mm	
		Operator	W/Operating Nut (Rising Stem)	
		Number	1 Unit	
	Wash Water Valve	Diameter	D100 mm	
		Operator	W/Operating Nut (Rising Stem)	
		Number	24 Units	
	Top Valve	Diameter	D350 mm	
		Operator	W/Manual Floor Stand	
		Number	8 Units	
	Sluice Gate	Operator	W/ Manual Floor Stand	
		Diameter	D1,000 × D1,000 mm	
		Number	12 Units	
f. Filtration Basin	Water Level	+173.168 m		
	Dimension	$^W 5.50 \text{ m} \times ^L 14.00 \text{ m}$		
	Number of Basin	8 Units		
	Type	Gravity Sand Filter		
	Filtered Area	79.00 m <sup>2</sup> /Unit		
	Filtration Rate	142.9 m <sup>3</sup> /d/m <sup>2</sup> (163.3 m <sup>3</sup> /d/m <sup>2</sup> )		
	Depth of Sand	1.00 m		
	Type of Under Drain	Porous Concrete		
		Diffusing Gravel		
		Honeycomb Slab		
		Perforated Pipe		
		Supporting Beam		
	Back Washing Rate (Air)	0.33 m <sup>3</sup> /min/m <sup>2</sup> (Back Wash Pump) + Wash Water Channel's Water		
	Air Control Valve	Diameter	D250 mm	
		Operator	Air Cylinder Drive	
		Number	8 Units	
	Back Wash Valve	Diameter	D500 mm	
		Operator	Air Cylinder Drive	
		Number	8 Units	
	Volvoset	Diameter	B400/500	
		Operator	Pneumatic Drive	
		Capacity	125 m <sup>3</sup> /d	
		Number	8Units	
	Gate	Operator	W/ Manual Floor Stand	
		Diameter	700 × 700 mm	
		Number	4 Units	
	Sluice Gate	Operator	Motor Drive	W/ Manual Floor Stand
		Diameter	265 × 820 mm	1,350 × 1,350 mm
		Number	16 Units	1 Units
	Clogging Detector	Type	Differential Pressure	
		Number	8 Units	
	Top Valve	D100 mm × 4 Units		
Drain Valve	D150 mm × 8 Units			
Flow Meter	Float Type : Chlorination Chamber			
Piping	D 100mm ~ D 500mm			
g. Clear Water Reservoir	Water Level	HWL +170.810 m		
		LWL +167.910 m		
	Dimension	$^W 19.80 \text{ m} \times ^L 24.60 \text{ m} \times ^H 4.00 \text{ m} \times ^{EWD} 2.90 \text{ m}$		
	Number of Basin	2 Basins		
	Type	Flat Slab Structure		
	Volume	1,412.5 m <sup>3</sup> /Basin		
	Retention Time	0.8 h (0.7 h at present)		
Level Meter	Immersion Type × 2 Sets			

g. Clear Water Reservoir	Control Valve	Operator	Manual	Manual
		Diameter	1,100 mm	600 mm
		Number	4 Units	1 Unit
	Drain Valve	D200 mm × 2Units		
	Piping	D1,100 mm ~ D200 mm : DIP		
	Water Level Meter	2 Places		
h. Chemical Feeding Facilities	Mixer	Alum	Type	HF-7405
			Specifications	1.5 kW × 380V
			Number	4 Units
		Hypo	Type	HF-7403
			Specifications	0.4 kW × 380V
			Number	3 Units
		Lime	Type	HF-7406
			Specifications	2.2 kW × 380V
			Number	2 Units
		Saturator	Type	HF-7402
			Specifications	0.2 kW × 380V
			Number	1 Unit
	Tank	Alum Storage Tank	<sup>W</sup> 2.0 m × <sup>L</sup> 2.5 m × <sup>H</sup> 2.5 × 4 Units	
		Hypo. Storage Tank	<sup>W</sup> 1.2 m × <sup>L</sup> 2.6 m × <sup>H</sup> 2.3 × 3 Units	
		Lime Storage Tank	<sup>W</sup> 1.5 m × <sup>L</sup> 1.5 m × <sup>H</sup> 2.2 × 2 Units	
	Lime Saturator	<sup>W</sup> 3.3 m × <sup>L</sup> 3.3 m × <sup>H</sup> 5.0 × 1 Unit		
	Ejector	Type	5PS-WK-TT	
		Number	4 Units	
	Alum Doser	2 Units		
	Hypo Doser	3 Units		
	Flow Meter	Type	Orifice	
		Number	3 Units	
	Crain System	Overhead Traveling Crane	EMS × 1 Ton × 1 Unit	
		Electric Chain Hoist	EMS × 1 Ton × 1 Unit	
	Design of Dosing Rate for Chemicals	Aluminum Sulfate	Maximum	mg/l
			Minimum	mg/l
			Average	mg/l
Polymer		Maximum	mg/l	
		Minimum	mg/l	
		Average	mg/l	
Lime		Maximum	mg/l	
		Minimum	mg/l	
		Average	mg/l	
Hypochlorite		Maximum	mg/l	
		Minimum	mg/l	
		Average	mg/l	
i. Transmission / Distribution Pump Station	Transmission/Distribution Pump	Type	Centrifugal Pump	Centrifugal Pump
		Capacity	14.1 m <sup>3</sup> /min	4.3 m <sup>3</sup> /min
		Total Head	56.0 m	66.0 m
		Motor	180 kW	80 kW
		Speed	980 rpm	1,485 rpm
		Number	6 Units	2 Units

i. Transmission / Distribution Pump Station	Back Wash Pump	Type	Centrifugal Pump	
		Capacity	25.5 m <sup>3</sup> /min	
		Total Head	6.0 m	
		Motor	37 kW	
		Speed	735 rpm	
		Number	2 Units	
	Vacuum Pump	Type		
		Capacity	0.7 m <sup>3</sup> /min (Wind Volume)	
		Total Head	620 mmHg m	
		Motor	1.5 kW	
		Speed	1,410 rpm	
		Number	2 Units	
	Chain Hoist	Manual Operation × 1 Unit		
	Air Blower	Type		
		Capacity	94.6 m <sup>3</sup> /min (Wind Volume)	
		Pressure	0.3 kg/cm <sup>2</sup>	
		Motor	90 kW	
		Speed	1,500 rpm	
		Number	2 Units	
		Air Filter	DV-70, 90 kW	
		Silencer	DV-70, 90 kW	
		Air Filter, Silencer	DV-70, 90 kW	
	Air Compressor	Type	3.7P-9.5T	
		Capacity	400l/min	
		Number	2 Units	
	Gate Valve	Distribution Delivery to City	Diameter	350 mm
			Operator	Motor Drive
			Number	6 Units
			Remarks	Non-Rising Stem
		Distribution Delivery to Thadeua	Diameter	200 mm
			Operator	Motor Drive
			Number	2 Units
Remarks			Non-Rising Stem	
Back Wash Delivery		Diameter	400 mm	
		Operator	W/Operating Nut	
		Number	2 Units	
		Remarks	Rising Stem	
Check Valve	Distribution Delivery to City	Diameter	350 mm	
		Number	6 Units	
	Distribution Delivery to Thadeua	Diameter	200 mm	
		Number	2 Units	
	Back Wash Delivery	Diameter	400 mm	
		Number	2 Units	
	Blower Delivery	Diameter	250 mm	
		Number	2 Units	

j. Others	Butterfly Valve	Clear Water Control (Suction Pit)	Diameter	800 mm	
			Operator	Manual	
			Number	1 Unit	
			Remarks	D600 mm	
		Clear Water Control (Flow Meter Chamber)	Diameter	500 mm	
			Operator	Electric	
			Number	1 Unit	
			Purpose	To City	To Thadeua
	Flow Meter (Flow Meter Chamber)	Type	Ultra Sonic Type	Ultra Sonic Type	
		Diameter	D500 mm	D300 mm	
		Number	1 Unit	1 Unit	
Pressure Meter		Pressure of Clear Water at Flow Meter Chamber			

## **2. PRESENT CONDITIONS OF MECHANICAL EQUIPMENT AND MATERIALS**

**KAOLIEO**  
**TREATMENT PLANT**



Present Conditions on Mechanical Equipment and Materials at Kaolieo Water Treatment Plant

Item	No.	Name	Location	Capacity (m <sup>3</sup> /min)	Total head (m)	Motor (kw)	Speed (rpm)	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks	
								Working	Non- working				
Pump	P-1	Intake pump	No.1 Intake pump house	7.65	19.5	37	1,470	OK			Replaced	Declene Pump Capacity:7.65m <sup>3</sup> /min→6.0m <sup>3</sup> /min	
	P-2	ditto	No.2 ditto	7.65	19.5	37	1,470	OK			Replaced	Declene Pump Capacity:7.65m <sup>3</sup> /min→6.0m <sup>3</sup> /min	
	P-3	ditto	No.3 ditto	7.65	19.5	37	1,470	OK			Replaced	Declene Pump Capacity:7.65m <sup>3</sup> /min→6.0m <sup>3</sup> /min	
	P-3'	ditto	No.4 On the pontoon	4.5	40.0	45	1,460	OK					Installed on Jan. '02 by NPV
	P-3	Drainage pump	No.1 Clear water reservoir	0.3	15.0	0.75	2,900						Non-installed
	P-3	ditto	No.2 ditto	0.3	15.0	0.75	2,900						Non-installed
	P-6	Distribution pump	No.1 Distribution pump house	6.3	67.0	110	1,470	OK					Deteriorated over 20's years:6.3m <sup>3</sup> /min→5.3m <sup>3</sup> /min
	P-7	ditto	No.2 ditto	6.3	67.0	110	1,470	OK					Deteriorated over 20's years:6.3m <sup>3</sup> /min→5.3m <sup>3</sup> /min
	P-8	ditto	No.3 ditto	6.3	67.0	110	1,470	OK					Deteriorated over 20's years:6.3m <sup>3</sup> /min→5.3m <sup>3</sup> /min
	P-9	ditto	No.4 ditto	6.3	67.0	110	1,470	OK					Deteriorated over 20's years:6.3m <sup>3</sup> /min→5.3m <sup>3</sup> /min
	P-10	Back wash pump	No.1 Distribution pump house	15.5	18.0	60	980	OK					Deteriorated over 20's years
	P-11	ditto	No.2 ditto	15.5	18.0	60	980	OK					Deteriorated over 20's years
	P-12	ditto	No.3 ditto	15.5	18.0	60	980	OK					Deteriorated over 20's years
	P-13	Vaccum pump	No.1 Distribution pump house	(Wind volume) 1.1	(Max. vacuum)620mmHg	2.2	1,450	OK					Change new one by NPV
P-14	ditto	No.2 ditto	(Wind volume) 1.1	(Max. vacuum)620mmHg	2.2	1,450	OK					Deteriorated over 20's years	
Item	No.	Name	Location	Capacity (Ø/min)	Total head (m)	Motor (kw)	Speed (rpm)	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks	
Working	Non- working												
Chemical Pump	P-21	Alum circulation pump	No.1 Alum feeding room	100	8	0.75			NON			Replaced	
	P-22	ditto	No.2 ditto	100	8	0.75			NON			Replaced	
	P-23	Hypo. Circulation pump	No.1 Chlorination room	60	8	0.75			NON			Replaced	
	P-24	ditto	No.2 ditto	60	8	0.75			NON			Replaced	
Item	No.	Name	Location	Type	Material	Capacity (Ø)	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks		
Working	Non- working												
Tank	T-1	Alum storage tank	No.1 Alum feeding room	Cylindrical	FRP	5,500			OK				
	T-2	ditto	No.2 ditto	Cylindrical	FRP	5,500			OK				
	T-3	ditto	No.3 ditto	Cylindrical	FRP	5,500			OK				
	T-4	Alum constant water level head tank		Cylindrical	Stainless Steel	100			OK				
	T-5	Hypo. Storage tank	No.1 Chlorination room	Cylindrical	FRP	800			NON			Replaced	
	T-6	ditto	No.2 ditto	Cylindrical	FRP	800			NON			Replaced	
	T-7	Hypo. constant water level head tank	ditto	Rectangular	PVC	50			NON			Replaced	
Item	No.	Name	Location	Type	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks				
Working	Non- working												
Mixer	M-1	Flash mixer	Mixing basin	Vertical propellar		OK							
	M-2	Alum mixer	Alum feeding room	Vertical propellar		OK							
	M-3	ditto	ditto	Vertical propellar		OK							
	M-4	ditto	ditto	Vertical propellar		OK							
Item	No.	Name	Location	Dia. (mm)	Operator	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks		
Working	Non- working												
Gate Valve	V-11	Intake pump delivery valve	No.1 Intake pump house	250	W/operating nut	Rising stem			NON		Replaced		
	V-12	ditto	No.2 ditto	250	W/operating nut	Rising stem			NON		Replaced		
	V-13	ditto	No.3 ditto	250	W/operating nut	Rising stem	OK				Replaced		
	V-14	Reservoir maintenance valve	No.1 Clear water reservoir	300	W/manual floor stand	Non-rising stem	OK				Repaired 1 times by NPV		
	V-15	ditto	No.2 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-16	ditto	No.3 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-17	ditto	No.4 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-18	ditto	No.5 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-19	ditto	No.6 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-20	ditto	No.7 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-21	ditto	No.8 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-22	ditto	No.9 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-23	ditto	No.10 ditto	300	W/manual floor stand	Non-rising stem	OK						
	V-24	Distribution pump delivery valve	No.1 Distribution pump house	200	W/manual floor stand	Non-rising stem	OK						

Gate Valve	V-25	ditto	No.2	ditto	200	W/manual floor stand	Non-rising stem	OK				
	V-26	ditto	No.3	ditto	200	W/manual floor stand	Non-rising stem	OK				
	V-27	ditto	No.4	ditto	200	W/manual floor stand	Non-rising stem	OK				
	V-28	Backwash pump delivery valve	No.1	ditto	350	W/manual floor stand	Non-rising stem	OK				
	V-29	ditto	No.2	ditto	350	W/manual floor stand	Non-rising stem	OK				
	V-30	ditto	No.3	ditto	350	W/manual floor stand	Non-rising stem	OK				
		Flocculation basin inlet valve	No.1	Flocculation basin	400	W/operating nut	Non-rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	400	W/operating nut	Non-rising stem	OK			Replaced	Deteriorated over 40's years
		Flocculation basin drain valve	No.1	Flocculation basin	250	W/operating nut	Non-rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	250	W/operating nut	Non-rising stem	OK			Replaced	Deteriorated over 40's years
		Gravel filter drain valve	No.1	Gravel filter	150	W/operating nut	Non-rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	150	W/operating nut	Non-rising stem	OK			Replaced	Deteriorated over 40's years
		Sedimentation drain valve	No.1	Sedimentation basin	150	W/operating nut	Non-rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	150	W/operating nut	Non-rising stem	OK			Replaced	Deteriorated over 40's years
		Filter inlet valve	No.1	Filter control floor	300	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	300	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.3	ditto	300	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.4	ditto	300	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		Filtered valve	No.1	Filter control floor	250	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	250	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.3	ditto	250	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.4	ditto	250	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.5	ditto	250	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.6	ditto	250	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.7	ditto	250	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.8	ditto	250	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		Filter backwash valve	No.1	Filter control floor	450	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	450	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.3	ditto	450	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.4	ditto	450	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		Filter surface wash valve	No.1	Filter control floor	200	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	200	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.3	ditto	200	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.4	ditto	200	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		Top valve	No.1	Filter control floor	400	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	400	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.3	ditto	400	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.4	ditto	400	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.5	ditto	400	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.6	ditto	400	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.7	ditto	400	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.8	ditto	400	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		Filter drain valve	No.1	Filter control floor	100	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.2	ditto	100	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
		ditto	No.3	ditto	100	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years
	ditto	No.4	ditto	100	W/manual floor stand	Rising stem	OK			Replaced	Deteriorated over 40's years	
Check Valve	Item	No.	Name	Location	Dia. (mm)			Present Status	Re-working by Repair /Overhaul	To be Replaced New One	Remarks	
								Working	Non- working			
		V-51	Intake pump delivery valve	Intake pump house	250			OK				
		V-52	ditto	ditto	250			OK				
		V-53	ditto	ditto	250			OK				
		V-54	Distribution pump delivery valve	Distribution pump	200			OK				
		V-55	ditto	ditto	200			OK				
		V-56	ditto	ditto	200			OK				
		V-57	ditto	ditto	200			OK				
		V-58	Backwash pump delivery valve	ditto	350			OK				
		V-59	ditto	ditto	350			OK				
	V-60	ditto	ditto	350			OK					

Item	No.	Name	Location	Dia. (mm)	Operator	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non- working			
Butterfly Valve	V-72	Intak control valve	Intake pump house	500	W/handwheel	Horizontal type		NON		Relaced	
	V-73	Backwash water control valve	Flow control chamber	450	W/handwheel	Horizontal type		NON		Relaced	
	V-74	Surface water control valve	Flow control chamber	200	W/handwheel	Vertical type		NON		Relaced	
Item	No.	Name	Location	Dia. (mm)	Material		Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non- working			
Piping	G-1	Intake pump piping	Intaka pump house	Φ 250-Φ500	SP		OK				
	G-2	Backwash piping	Flow control chamber	Φ 450	DCIP		OK				
	G-3	Surfacewash piping	Flow control chamber	Φ 200	DCIP		OK				
	G-4	Distribution pump suction bellmouth(Existing)	Clear water reservoir	Φ 250	DCIP		OK				
	G-5	Distribution pump piping	Distribution pump	Φ 200	SP		OK				
	G-6	Distribution main by-pass piping	Distribution pump	Φ 100	SP/DCIP		OK				
	G-7	Backwasy pump suction pipe bellmouth	Clear water reservoir	Φ 350	DCIP		OK				
	G-8	Backwash pump piping (Existing)	Distribution pump	Φ 350	SP		OK				
	G-9	Backwash pump piping (Additional)	Distribution pump	Φ 350	SP/DCIP		OK				
Item	No.	Name	Location	Type	Capacity	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non- working			
Miscellaneous Equipment	E-1	Gate	No.1 Intake pump house	Sluice	Φ 700mm	W/manual floor stand	OK				
	E-2	ditto	No.2 ditto	Sluice	Φ 700mm	W/manual floor stand	OK				
	E-3	Chain block	ditto	Fixed	5 ton		OK				
	E-4	Pump support	ditto	Steel construction		W/ladder & landing		NON		Replaced	
	E-5	Filter controller	No.1 Filter valve room	Double seat	Φ 250mm		OK				
	E-6	ditto	No.2 ditto	Double seat	Φ 250mm		OK				
	E-7	ditto	No.3 ditto	Double seat	Φ 250mm		OK				
	E-8	ditto	No.4 ditto	Double seat	Φ 250mm		OK				
	E-9	Loss head meter	No.1 ditto	Dial type indicator	Max. 5 m			NON		Replaced	
	E-10	ditto	No.2 ditto	Dial type indicator	Max. 5 m			NON		Replaced	
	E-11	ditto	No.3 ditto	Dial type indicator	Max. 5 m			NON		Replaced	
	E-12	ditto	No.4 ditto	Dial type indicato	Max. 5 m			NON		Replaced	
	E-13	Alum flow meter	No.1 Alum feeding room		20 l/min		OK				
	E-14	ditto	No.2 ditto		20 l/min		OK				
	E-15	ditto	No.3 ditto		20 l/min		OK				
	E-16	Alum flow controller	No.1 ditto				OK				
	E-17	ditto	No.2 ditto				OK				
	E-18	ditto	No.3 ditto				OK				
	E-19	Working stage	ditto	Structure steel Member Frame with			OK				
	E-20	Monorail system	ditto	Geared trolley	0.5 ton			NON		Replaced	
	E-21	Hypo. Flow meter	No.1 Chlorination room		2 l/min			NON		Replaced	
	E-22	ditto	No.2 ditto		2 l/min			NON		Replaced	
	E-23	ditto	No.3 ditto		2 l/min			NON		Replaced	
	E-24	Hypo.flow controller	No.1 ditto					NON		Replaced	
	E-25	ditto	No.2 ditto					NON		Replaced	
	E-26	ditto	No.3 ditto					NON		Replaced	

**CHINAIMO**  
**TREATMENT PLANT**

**Present Conditions on Mechanical Equipment and Materials at Chinaimo Water Treatment Plant**

Item	No.	Name	Location	Capacity	Total head	Motor	Speed	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks	
				(m <sup>3</sup> /min)	(m)	(kw)	(rpm)	Working	Non-working				
<b>Pump</b>	P-1	Raw water pump	No.1	Raw water intake tower	18.0	14.8	75	1,480	OK			Repair to change impeller, impeller ring and suction bell	
	P-2	Ditto	No.2	Ditto	18.0	14.8	75	1,480	OK				
	P-3	Ditto	No.3	Ditto	18.0	14.8	75	1,480	OK			Replace the new motor due to motor fire on May, 12, '01. Repair to change bearing sleeve, suction bell, etc. on Feb.14, '02 and Jul. 30, '02.	
	P-4	Ditto	No.4	Ditto	18.0	14.8	75	1,480	OK			Repair to change impeller, bearing sleeve, ball bearing, etc. on Jun. 23, '99, Jan. 2, '01 and Jun. 4, '02.	
	P-5	Ditto	No.5	Ditto	18.0	14.8	75	1,470	OK			Repair to change impeller, impeller ring on Feb. 28, '02.	
	P-6	Ditto	No.6	Ditto	18.0	14.8	75	1,470	OK			Repair to change impeller, impeller ring on Dec. 4, '02.	
	P-7	Wash water pump	No.1	Pumping station	25.5	6.0	37	735	OK				
	P-8	Ditto	No.2	Ditto	25.5	6.0	37	735	OK				
	P-9	Clear water pump	No.1	Pumping station	14.1	56.0	180	980	OK				
	P-10	Ditto	No.2	Ditto	14.1	56.0	180	980	OK				Repair to change packing sleeve, ball bearing and liner ring on Aug. 16, '99
	P-11	Ditto	No.3	Ditto	14.1	56.0	180	980	OK				
	P-12	Ditto	No.4	Ditto	14.1	56.0	180	980	OK				Repair to change packing sleeve, ball bearing on Oct. 9,
	P-13	Ditto	No.5	Ditto	14.1	56.0	180	980	OK				
	P-14	Ditto	No.6	Ditto	14.1	56.0	180	980	OK				
	P-15	Clear water pump to Thadeua	No.1	Pumping station	4.3	66.0	80	1,485	OK				
	P-16	Ditto	No.2	Ditto	4.3	66.0	80	1,485	OK				
	P-17	Wash pump		Sedimentation tank	0.72	25.0	75	3,000	OK				
	P-18	-----		-----									
	P-19	Vaccum pump	No.1	Pumping station	0.7	620mmHg	1.5	1,410	OK				
	P-20	Ditto	No.2	Ditto	0.7	620mmHg	1.5	1,410	OK				
Item	No.	Name	Location	Dia.	Operator	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks		
				(mm)			Working	Non-working					
<b>Gate Valve</b>	V-1	Raw water pump delivery	No.1	Raw water intake tower	350	W/Operating nut	Rising Stem	OK					
	V-2	Ditto	No.2	Ditto	350	Ditto	Ditto	OK					
	V-3	Ditto	No.3	Ditto	350	Ditto	Ditto	OK					
	V-4	Ditto	No.4	Ditto	350	Ditto	Ditto	OK					
	V-5	Ditto	No.5	Ditto	350	Ditto	Ditto	OK					
	V-6	Ditto	No.6	Ditto	350	Ditto	Ditto	OK					
	V-7	Wash water valve	No.1	Sedimentation tank	100	W/Operating nut	Rising Stem	OK					
	V-8	Ditto	No.2	Ditto	100	Ditto	Ditto	OK					
	V-9	Ditto	No.3	Ditto	100	Ditto	Ditto	OK					
	V-10	Ditto	No.4	Ditto	100	Ditto	Ditto	OK					
	V-11	Ditto	No.5	Ditto	100	Ditto	Ditto	OK					
	V-12	Ditto	No.6	Ditto	100	Ditto	Ditto	OK					
	V-13	Ditto	No.7	Ditto	100	Ditto	Ditto	OK					
	V-14	Ditto	No.8	Ditto	100	Ditto	Ditto	OK					
	V-15	Ditto	No.9	Ditto	100	Ditto	Ditto	OK					
	V-16	Ditto	No.10	Ditto	100	Ditto	Ditto	OK					
	V-17	Ditto	No.11	Ditto	100	Ditto	Ditto	OK					
	V-18	Ditto	No.12	Ditto	100	Ditto	Ditto	OK					
	V-19	Wash water pump delivery	No.1	Pumping station	400	W/Operating nut	Rising Stem	OK					
	V-20	Ditto	No.2	Ditto	400	Ditto	Ditto	OK					
	V-21	Clear water pump delivery	No.1	Pumping station	350	Motor Drive	Non Rising Stem	OK					

Item	No.	Name	Location	Dia. (mm)	Operator	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non- working			
Gate Valve	V-22	Clear water pump delivery	No.2	Ditto	350	Motor Drive	Non Rising Stem	OK			
	V-23	Ditto	No.3	Ditto	350	Ditto	Ditto	OK			
	V-24	Ditto	No.4	Ditto	350	Ditto	Ditto	OK			
	V-25	Ditto	No.5	Ditto	350	Ditto	Ditto	OK			
	V-26	Ditto	No.6	Ditto	350	Ditto	Ditto	OK			
	V-27	Clear water pump delivery	No.1	Pumping station	200	Motor Drive	Non Rising Stem	OK			
	V-28	Ditto	No.2	Ditto	200	Ditto	Ditto	OK			
	V-29	Air control valve	No.1	Filter	250	Air Cylinder Drive	--	OK			
	V-30	Ditto	No.2	Ditto	250	Ditto	--	OK			
	V-31	Ditto	No.2	Ditto	250	Ditto	--	OK			
	V-32	Ditto	No.2	Ditto	250	Ditto	--	OK			
	V-33	Ditto	No.2	Ditto	250	Ditto	--	OK			
	V-34	Ditto	No.2	Ditto	250	Ditto	--	OK			
	V-35	Ditto	No.2	Ditto	250	Ditto	--	OK			
	V-36	Ditto	No.2	Ditto	250	Ditto	--	OK			
	V-37	Wash water control valve		Sedimentation tank	250	W/Operating nut	Rising Stem	OK			
	V-38	Back wash valve	No.1	Filter	500	Air Cylinder Drive	--	OK			
	V-39	Ditto	No.2	Ditto	500	Ditto	--	OK			
	V-40	Ditto	No.3	Ditto	500	Ditto	--	OK			
	V-41	Ditto	No.4	Ditto	500	Ditto	--	OK			
	V-42	Ditto	No.5	Ditto	500	Ditto	--	OK			
	V-43	Ditto	No.6	Ditto	500	Ditto	--	OK			
	V-44	Ditto	No.7	Ditto	500	Ditto	--	OK			
	V-45	Ditto	No.8	Ditto	500	Ditto	--	OK			
	V-130	Solenoid valve	No.1	Pumps	25	Solenoid Drive	For Vaccum	OK			
	V-131	Ditto	No.2	Ditto	25	Ditto	Ditto	OK			
	V-132	Ditto	No.3	Ditto	25	Ditto	Ditto	OK			
	V-133	Ditto	No.4	Ditto	25	Ditto	Ditto	OK			
	V-134	Ditto	No.5	Ditto	25	Ditto	Ditto	OK			
	V-135	Ditto	No.6	Ditto	25	Ditto	Ditto	OK			
	V-136	Ditto	No.7	Ditto	25	Ditto	Ditto	OK			
	V-137	Ditto	No.8	Ditto	25	Ditto	Ditto	OK			
	V-138	Ditto	No.9	Ditto	25	Ditto	Ditto	OK			
	V-139	Ditto	No.10	Ditto	25	Ditto	Ditto	OK			
	V-140	Solenoid valve	No.1	Pumps	25	Solenoid Drive	For Vaccum	OK			
	V-141	Ditto	No.2	Ditto	25	Ditto	Ditto	OK			
	V-142	Ditto	No.3	Ditto	25	Ditto	Ditto	OK			
	V-143	Ditto	No.4	Ditto	25	Ditto	Ditto	OK			
	V-144	Ditto	No.5	Ditto	25	Ditto	Ditto	OK			
	V-145	Ditto	No.6	Ditto	25	Ditto	Ditto	OK			
	V-146	Ditto	No.7	Ditto	25	Ditto	Ditto	OK			
	V-147	Ditto	No.8	Ditto	25	Ditto	Ditto	OK			
	V-148	Ditto	No.9	Ditto	25	Ditto	Ditto	OK			
	V-149	Ditto	No.10	Ditto	25	Ditto	Ditto	OK			
	V-80	Wash water valve	No.13	Sedimentation tank	100	W/Operating nut	Rising Stem	OK			
	V-81	Ditto	No.14	Ditto	100	Ditto	Ditto	OK			

Item	No.	Name	Location	Dia. (mm)	Operator	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non- working			
Gate Valve	V-82	Wash water valve	No.15	Sedimentation tank	100	W/Operating nut	Rising Stem	OK			
	V-83	Ditto	No.16	Ditto	100	Ditto	Ditto	OK			
	V-84	Ditto	No.17	Ditto	100	Ditto	Ditto	OK			
	V-85	Ditto	No.18	Ditto	100	Ditto	Ditto	OK			
	V-86	Ditto	No.19	Ditto	100	Ditto	Ditto	OK			
	V-87	Ditto	No.20	Ditto	100	Ditto	Ditto	OK			
	V-88	Ditto	No.21	Ditto	100	Ditto	Ditto	OK			
	V-89	Ditto	No.22	Ditto	100	Ditto	Ditto	OK			
	V-90	Ditto	No.23	Ditto	100	Ditto	Ditto	OK			
	V-91	Ditto	No.24	Ditto	100	Ditto	Ditto	OK			
	V-92	Drain valve	No.1	Receiving well	80	W/Operating nut	Rising Stem	OK			
	V-93	Ditto	No.2	Ditto	80	Ditto	Ditto	OK			
	V-94	Ditto	No.3	Ditto	80	Ditto	Ditto	OK			
	V-95	Ditto	No.4	Ditto	80	Ditto	Ditto	OK			
	V-96	Ditto	No.5	Ditto	400	Ditto	Ditto	OK			
	V-97	Ditto	No.6	Ditto	150			OK			
	V-98	Ditto	No.7	Ditto	150			OK			
	V-99	Drain valve	No.1	Flocculation basin	300			OK			
	V-100	Ditto	No.2	Ditto	300			OK			
	V-101	Ditto	No.3	Ditto	300			OK			
	V-102	Ditto	No.4	Ditto	300			OK			
	V-103	Ditto	No.5	Ditto	300			OK			
	V-104	Ditto	No.6	Ditto	300			OK			
	V-105	Ditto	No.7	Ditto	300			OK			
V-106	Ditto	No.8	Ditto	300			OK				
V-107	Drain valve	No.1	Filter	150			OK				
V-108	Ditto	No.2	Ditto	150			OK				
V-109	Ditto	No.3	Ditto	150			OK				
V-110	Ditto	No.4	Ditto	150			OK				
V-111	Ditto	No.5	Ditto	150			OK				
V-112	Ditto	No.6	Ditto	150			OK				
V-113	Ditto	No.7	Ditto	150			OK				
V-114	Ditto	No.8	Ditto	150			OK				
Item	No.	Name	Location	Type	Capacity	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non- working			
Miscellaneous Equipment	F-1	Motor hoist	No.1	Raw water intake tower	ESM	5 t	10/0.19kw	OK			
	F-2	Ditto	No.2	Ditto	ESM	5 t	10/0.19kw	OK			
	F-3	Sluice gate		Raw water intake tower	Φ1000	—	W/Manual floor stand	OK			
	F-4	Sluice gate		Ditto	Φ1000	—	W/Manual floor stand	OK			
	F-5	Sluice gate		Ditto	Φ1000	—	W/Manual floor stand	OK			
	F-6	Sluice gate		Ditto	Φ1000	—	W/Manual floor stand	OK			
	F-7	Sluice gate		Ditto	Φ1000	—	W/Manual floor stand	OK			
	F-8	Sluice gate	No.1	Receiving wll	Φ800	—	W/Manual floor stand	OK			
	F-9	Ditto	No.2	Ditto	Φ800	—	W/Manual floor stand	OK			
	F-10	Ditto	No.3	Ditto	Φ800	—	W/Manual floor stand	OK			

Item	No.	Name	Location	Type	Capacity	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non- working			
Miscellaneous Equipment	F-11	Sluice gate No.4	Receiving wll	Φ800	—	W/Manual floor stand	OK				
	F-12	Drain sluice gate	Baffled-flow flocculation basin	360×230			OK				
	F-13	Top valve No.1	Sedimentation tank	Φ350			W/Manual floor stand	OK			
	F-14	Ditto No.2	Ditto	Φ350			W/Manual floor stand	OK			
	F-15	Ditto No.3	Ditto	Φ350			W/Manual floor stand	OK			
	F-16	Ditto No.4	Ditto	Φ350			W/Manual floor stand	OK			
	F-17	Ditto No.5	Ditto	Φ350			W/Manual floor stand	OK			
	F-18	Ditto No.6	Ditto	Φ350			W/Manual floor stand	OK			
	F-19	Ditto No.7	Ditto	Φ350			W/Manual floor stand	OK			
	F-20	Ditto No.8	Ditto	Φ350			W/Manual floor stand	OK			
	F-21	Gate No.1	Filter	700×700			W/Manual floor stand	OK			
	F-22	Ditto No.2	Ditto	700×700			W/Manual floor stand	OK			
	F-23	Ditto No.3	Ditto	700×700			W/Manual floor stand	OK			
	F-24	Ditto No.4	Ditto	700×700			W/Manual floor stand	OK			
	F-25	Volvoct No.1	Filter regulator room	8400/500	125m <sup>3</sup> /d		Pneumatic drive	OK			
	F-26	Ditto No.2	Ditto	8400/500	125m <sup>3</sup> /d		Pneumatic drive	OK			
	F-27	Ditto No.3	Ditto	8400/500	125m <sup>3</sup> /d		Pneumatic drive	OK			
	F-28	Ditto No.4	Ditto	8400/500	125m <sup>3</sup> /d		Pneumatic drive	OK			
	F-29	Ditto No.5	Ditto	8400/500	125m <sup>3</sup> /d		Pneumatic drive	OK			
	F-30	Ditto No.6	Ditto	8400/500	125m <sup>3</sup> /d		Pneumatic drive	OK			
	F-31	Ditto No.7	Ditto	8400/500	125m <sup>3</sup> /d		Pneumatic drive	OK			
	F-32	Ditto No.8	Ditto	8400/500	125m <sup>3</sup> /d		Pneumatic drive	OK			
	F-33	Aie compressor	Machinery room	3.7P-9.5T	400l/min			OK			
	F-34	Ditto	Ditto	3.7P-9.5T	400l/min			OK			
	F-35	Air filter	Air blower	DV-70	90kw			OK			
	F-36	Silencer	Air blower	DV-70	90kw			OK			
	F-37	Air filter, silencer	Air blower	DV-70	90kw			OK			
	F-38	Orifice meter	Raw water control room	1100/800mm			SUS304	OK			
	F-39	Sluice gate No.1	Sedimentation tank	1000/1000			W/Manual floor stand	OK			
	F-40	Ditto No.2	Ditto	1000/1000			W/Manual floor stand	OK			
	F-41	Ditto No.3	Ditto	1000/1000			W/Manual floor stand	OK			
	F-42	Ditto No.4	Ditto	1000/1000			W/Manual floor stand	OK			
	F-43	Ditto No.5	Ditto	1000/1000			W/Manual floor stand	OK			
	F-44	Ditto No.6	Ditto	1000/1000			W/Manual floor stand	OK			
	F-45	Ditto No.7	Ditto	1000/1000			W/Manual floor stand	OK			
	F-46	Ditto No.8	Ditto	1000/1000			W/Manual floor stand	OK			
	F-47	Ditto No.9	Ditto	1000/1000			W/Manual floor stand	OK			
	F-48	Ditto No.10	Ditto	1000/1000			W/Manual floor stand	OK			
	F-49	Ditto No.11	Ditto	1000/1000			W/Manual floor stand	OK			
	F-50	Ditto No.12	Ditto	1000/1000			W/Manual floor stand	OK			
	F-51	Flow meter	Raw water pipe line	Φ1100			Ultra sonic type	OK			
	F-52	Sluice gate	Filter No.1	265×820			Motor Drive	OK			
	F-53	Ditto	Filter No.2	265×820			Motor Drive	OK			
	F-54	Ditto	Filter No.3	265×820			Motor Drive	OK			
	F-55	Ditto	Filter No.4	265×820			Motor Drive	OK			



Item	No.	Name	Location	Type	Capacity	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non-working			
Miscellaneous Equipment	F-56	Sluice gate	Filter No.5	265×820		Motor Drive	OK				
	F-57	Ditto	Filter No.6	265×820		Motor Drive	OK				
	F-58	Ditto	Filter No.7	265×820		Motor Drive	OK				
	F-59	Ditto	Filter No.8	265×820		Motor Drive	OK				
	F-60	Ditto	Filter No.9	265×820		Motor Drive	OK				
	F-61	Ditto	Filter No.10	265×820		Motor Drive	OK				
	F-62	Ditto	Filter No.11	265×820		Motor Drive	OK				
	F-63	Ditto	Filter No.12	265×820		Motor Drive	OK				
	F-64	Ditto	Filter No.13	265×820		Motor Drive	OK				
	F-65	Ditto	Filter No.14	265×820		Motor Drive	OK				
	F-66	Ditto	Filter No.15	265×820		Motor Drive	OK				
	F-67	Ditto	Filter No.16	265×820		Motor Drive	OK				
	<b>F-68</b>	<b>Flow meter</b>	<b>Flow meter chamber</b>	<b>Φ300</b>		<b>For Tha Deua</b>		<b>NON</b>	<b>REPAIR</b>		<b>Malfunction of transmitter from Sep. 26, '02 to present</b>
	F-69	Ditto	Ditto	Φ500		For City	OK				Malfunction of transmitter on Sep. 26, '02. Substitute the Thadeua for the City.
	F-70	Screen	Raw water intake tower				OK				
	F-71	Chain hoist	Pumping Station	Manual Operation			OK				
	F-72	Service tank for No.5 Pump	Raw water intake tower	Make-up tank			OK				
	F-73	Service tank for No.6 Pump	Ditto	Make-up tank			OK				
	F-74	Sluice gate	Filter	1350×1350			OK				
	F-75	Top valve	No.1 Filter	Φ100			OK				
	F-76	Ditto	No.2 Ditto	Φ100			OK				
	F-77	Ditto	No.3 Ditto	Φ100			OK				
	F-78	Ditto	No.4 Ditto	Φ100			OK				
	F-79	Level meter	Clear water reservoir	Immersion			OK				
	F-80	Ditto	Ditto	Immersion			OK				
	F-81	Flow meter	Filtered water canal	Flort type			OK				
	F-82	Level meter	Raw water intake tower	Ultra sonic type	15m		OK				
	F-83	Crogging detector	No.1 Filter	Differential Pressure	0		OK				
	F-84	Ditto	No.2 Ditto	Differential Pressure	0		OK				
	F-85	Ditto	No.3 Ditto	Differential Pressure	0		OK				
	F-86	Ditto	No.4 Ditto	Differential Pressure	0		OK				
	F-87	Ditto	No.5 Ditto	Differential Pressure	0		OK				
	F-88	Ditto	No.6 Ditto	Differential Pressure	0		OK				
F-89	Ditto	No.7 Ditto	Differential Pressure	0		OK					
F-90	Ditto	No.8 Ditto	Differential Pressure	0		OK					
F-91	Clear water pressure meter	Flow meter chamber	Pressure			OK					

Item	No.	Name	Location	Dia. (mm)	Operator	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
							Working	Non- working			
Butterfly Valve	V-71	Raw water control valve	Raw water flow meter chamber	1,100	Electric		OK				Replaced the new motor due to motor fire on Sep. 5, '99
	V-72	Clear water control valve No.1	Clear water reservoir	1,100	Manual		OK				
	V-73	Ditto No.1	Ditto	1,100	Manual		OK				
	V-74	Ditto No.2	Ditto	1,100	Manual		OK				
	V-75	Ditto No.2	Ditto	1,100	Manual		OK				
	V-76	Clear water control valve	Clear water reservoir	600	Manual		OK				
	V-77	Clear water control valve	Suction pit	800	Manual	Φ600mm	OK				
	V-78	Clear water control valve	Flow meter chamber	500	Electric		OK				
	V-79	Raw water control valve	Receiving well	1,100	Manual		OK				
Item	No.	Name	Location	Dia. (mm)		Remarks	Working	Non- working	Re-working by Repair /Overhaul	To be Replaced New One	Remarks
Check Valve	V-51	Raw waqter delivery valve No.1	Raw water intake tower	350			OK				
	V-52	Ditto No.2	Ditto	350			OK				
	V-53	Ditto No.3	Ditto	350			OK				
	V-54	Ditto No.4	Ditto	350			OK				
	V-55	Ditto No.5	Ditto	350			OK				
	V-56	Ditto No.6	Ditto	350			OK				
	V-57	Wash water delivery valve No.1	Pumping Station	400			OK				
	V-58	Ditto No.2	Ditto	400			OK				
	V-59	Clear water delivery valve No.1	Pumping Station	350			OK				
	V-60	Ditto No.2	Ditto	350			OK				
	V-61	Ditto No.3	Ditto	350			OK				
	V-62	Ditto No.4	Ditto	350			OK				
	V-63	Ditto No.5	Ditto	350			OK				
	V-64	Ditto No.6	Ditto	350			OK				
	V-65	Clear water delivery valve No.1	Pumping Station	200			OK				
	V-66	Ditto No.2	Ditto	200			OK				
	V-67	Blower delivery valve No.1	Pumping Station	250			OK				
	V-68	Ditto No.2	Ditto	250			OK				
Item	No.	Name	Location	Type		Remarks	Working	Non- working	Re-working by Repair /Overhaul	To be Replaced New One	Remarks
Mixer	M-1	Alum mixer No.1	Administration building	HF-7405		1.5kw 380V	OK				
	M-2	Ditto No.2	Ditto	HF-7405		1.5kw 380V	OK				
	M-3	Ditto No.3	Ditto	HF-7405		1.5kw 380V	OK				
	M-4	Ditto No.4	Ditto	HF-7405		1.5kw 380V	OK				
	M-5	Hypo mixer No.1	Administration building	HF-7403		0.4kw 380V	OK				
	M-6	Ditto No.2	Ditto	HF-7403		0.4kw 380V	OK				
	M-7	Ditto No.3	Ditto	HF-7403		0.4kw 380V	OK				
	M-8	Lime mixer No.1	Administration building	HF-7406		2.2kw 380V					Disused due to needless adjustment of pH
	M-9	Ditto No.2	Ditto	HF-7406		2.2kw 380V					Disused due to needless adjustment of pH
	M-10	Saturator mixer	Administration building	HF-7402		0.2kw 380V					Disused due to needless adjustment of pH

Item	No.	Name	Location	Type	Capacity	Remarks	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks	
							Working	Non- working				
Miscellaneous Equipment	E-1	Overhead travelling crane	Administration building	ESM	1 ton		OK					
	E-2	Electric chain hoist	Administration building	ESM	1 ton		OK					
	E-3	Ejecter No.1	Administration building	5PS-WK-TT			OK					
	E-4	Ditto No.2	Ditto	5PS-WK-TT			OK					
	E-5	Ditto No.3	Ditto	5PS-WK-TT			OK					
	E-6	Ditto No.4	Ditto	5PS-WK-TT			OK					
	T-1	Alum doser No.1	Administration building				OK					
	T-2	Ditto No.2	Ditto				OK					
	T-3	Hypo doser No.1	Administration building				OK					
	T-4	Ditto No.2	Ditto				OK					
	T-5	Ditto No.3	Ditto				OK					
	T-6	Orifice meter No.1	Administration building	FLW-K			OK					
	T-7	Ditto No.2	Ditto	FLW-K			OK					
T-8	Ditto No.3	Ditto	FLW-K				NON	REPAIR				
Item	No.	Name	Location	Capacity	Pressure	Motor	Speed	Present Status		Re-working by Repair /Overhaul	To be Replaced New One	Remarks
				(m <sup>3</sup> /min)	(kg/cm <sup>2</sup> )	(kw)	(rpm)	Working	Non- working			
Blower	B-1	Air blower No.1	Pumping Station	94.6	0.3	90	1500	OK				
	B-2	Ditto No.2	Ditto	94.6	0.3	90	1500	OK				