
APPENDIX 7.5

**THE PLANT INVENTORIES OF THE TAI PO
SEWAGE TREATMENT PLANT**

Appendix 7.5 The Plant inventories of the Tai Po STW -(Proposed New Equipment)

The Plant inventory for New Equipment of Tai Po STW

Treatment Units	No of item	Reference	SWL, dB(A)	Total SWL, dB(A)	Enclosed	Remark	Horsepower (kW) and rpm of pump	Air Flow rate in m3/s
<i>Stage III Works</i>								
Influent Pumping station								
Inlet pump	1	Ref 1 ⁽¹⁾	104	104	enclosed			
Final Sedimentation Tanks	2							
<i>Mixed Liquor channel</i>								
SAS Pumps	1	Ref 4 ⁽¹⁾	88	88	in chamber	duty		
SAS Pumps	1	Ref 4 ⁽¹⁾	88	88	in chamber	standby*		
Scum Pumps	1	Ref 4 ⁽¹⁾	88	88	in chamber	duty		
Scum Pumps	1	Ref 4 ⁽¹⁾	88	88	in chamber	standby*		
<i>SBR</i>								
Air Blower	1	Ref 5 ⁽¹⁾	104	104		1duty+1 standby		
Pump used for Equalisation Tank	1	Ref 3 ⁽¹⁾	92	92	in chamber	1duty+1 standby	3-7	less than 1800
Sludge pump	1	Ref 3 ⁽¹⁾	92	92	in chamber	1duty+1 standby	3-7	less than 1800
Pump Effluent pumping chamber	1	Ref 3 ⁽¹⁾	92	92	in chamber	1duty+1 standby	3-7	less than 1800
<i>Stage IV Works</i>								
Influent Pumping station								
Inlet pump	1	Ref 1 ⁽¹⁾	104	104	enclosed			
<i>Screen</i>								
mechanically raked bar screen	2	Ref 4 ⁽¹⁾	92	95				
mechanically raked bar screen	3	Ref 4 ⁽¹⁾	92	97		Existing item to be replaced by new item		
<i>Grit Removal Units</i>								
Detritor	1	Ref 4 ⁽¹⁾	80	80		duty		
Grit pump	2	Ref 3 ⁽¹⁾	92	95			2.2	1390
New grit classifiers	2	Ref 4 ⁽¹⁾	80	83		Existing item to be replaced by new item		
<i>Primary Sedimentation Tanks</i>								
primary sludge pump	1	Ref 3 ⁽¹⁾	92	92	in chamber	duty	11	1440
primary sludge pump	1	Ref 3 ⁽¹⁾	92	92	in chamber	standby*		
<i>Bioreactors</i>								
Bioreactor internal recycle pumps	6	Ref 3 ⁽¹⁾	92	100		duty	10	475
Bioreactor internal recycle pumps	1	Ref 3 ⁽¹⁾	92	92		standby*	10	475
<i>Final Sedimentation Tanks</i>								
Final Sedimentation Tanks	2							
Final Sedimentation Tanks	10					Existing tanks to be replaced by new tanks		
<i>Sludge Digestion Tank</i>								
Sludge Digester	1							
<i>Air Blower House</i>								
Air Blower	5	Ref 5 (1)	104	111	enclosed	duty		
Air Blower	1	Ref 5 (1)	104	104	enclosed	standby*		
<i>Primary Sludge Thickeners</i>								
Thickened sludge pumps for Primary Sludge Thickeners	2	Ref 3 ⁽¹⁾	94	97	in chamber	duty	18.5	1460
<i>Mixed Liquor channel</i>								
SAS Pumps	1	Ref 4 ⁽¹⁾	88	88	in chamber	duty	12.5	1460
SAS Pumps	1	Ref 4 ⁽¹⁾	88	88	in chamber	standby*	12.5	1460
Scum Pumps	1	Ref 4 ⁽¹⁾	88	88	in chamber	duty	12.5	1460
Scum Pumps	1	Ref 4 ⁽¹⁾	88	88	in chamber	standby*	12.5	1460

Appendix 7.5 The Plant inventories of the Tai Po STW -(Proposed New Equipment)

The Plant inventory for New Equipment of Tai Po STW

Treatment Units	No of item	Reference	SWL, dB(A)	Total SWL, dB(A)	Enclosed	Remark	Horsepower (kW) and rpm of pump	Air Flow rate in m3/s
<i>Common Facilities</i>								
Disinfection	(2+1)					2duty+1 standby		
<i>Sludge Activated Sludge Thickeners</i>								
Sludge Thickening House	(3+1)					3duty+1 standby		
Exhaust Fan	9	Ref 4 ⁽¹⁾	89	98	enclosed			
Thickened sludge pumps	3	Ref 3 ⁽¹⁾	92	97	enclosed	duty	11	1450
Thickened sludge pumps	1	Ref 3 ⁽¹⁾	92	92	enclosed	standby*	11	1450
Exhaust Fan	1	Ref 4 ⁽¹⁾	89	89	enclosed			
<i>Sludge Dewatering Units</i>								
Extended Sludge Dewatering House	(5+1)					5duty+1 standby		
Exhaust Fan	10	Ref 4 ⁽¹⁾	89	99				
Plate filter Presses	2	Ref 6 ⁽¹⁾	100	103	enclosed			
<i>Dewatering House</i>								
Feed Pump	5	Ref 3 ⁽¹⁾	92	99	enclosed		11	1470
Transfer pump	4	Ref 3 ⁽¹⁾	92	98	enclosed		7.5	1400
<i>Deodorizing Unit</i>								
Exhaust Fan	1	Ref 3 ⁽¹⁾	79	79				0.28
Exhaust Fan	1	Ref 3 ⁽¹⁾	79	79				0.01
Exhaust Fan	1	Ref 3 ⁽¹⁾	83	83				0.88
Exhaust Fan	1	Ref 3 ⁽¹⁾	83	83				0.87
Exhaust Fan	1	Ref 3 ⁽¹⁾	83	83				0.61
Exhaust Fan	1	Ref 3 ⁽¹⁾	79	79				0.01
Exhaust Fan	1	Ref 3 ⁽¹⁾	83	83				0.74

Note:

Ref1⁽¹⁾: The estimated SWLs of equipment were made reference to EIA Report "Main Drainage Channel and Poldered Village Protection Schemes for San Tin, NWNT"

Ref2⁽¹⁾: The estimated SWLs was determined by on-site measurement

Ref3⁽¹⁾: Good Practice on Pumping System Noise Control / Good Practices on Ventilation Noise Control

Ref4⁽¹⁾: The estimated SWLs of some items of equipment (SAS Pumps, Exhaust fan, mechanically raked bar screen, vortex type grit trap and new grit classifier and filter press) were made reference to the specifications of similar items of equipment provided by contractor

Ref5⁽¹⁾: The estimated SWLs were made reference to the EIA Report "Outlying Islands Sewerage Stage Phase I, Ngong Ping Sewerage Treatment Works, Sewerage Investigation - D&C".

Ref6⁽¹⁾: The estimated SWLs were made reference to the Final Report "Tai Po Sewage Treatment Works -Stage V, Preliminary Project Feasibility Study"

Enclosure Reduction⁽²⁾: Reduction of SWL due to the enclosure for the equipment

Screening Reduction⁽³⁾: Reduction of SWL due to the screening of line of sight by building or structures within the site

* Standby item was not included in the noise assessment

Appendix 7.5 The Plant inventories of the Tai Po STW -Cumulative Noise Assessment

The plant inventories of Tai Po Sewage Treatment Plant for Cumulative Noise Assessment

Treatment Units	No of item	Reference	SWL, dB(A)	Total SWL, dB(A)	Enclosed	Remark	Horsepower (kW) and rpm of pump	Air Flow rate in m3/s
Stage I/II Works								
Influent Pumping station								
Inlet pump	3	Ref 1 (1)	104	109	enclosed	duty	75	1450
Inlet pump	1	Ref 1 (1)	104	104	enclosed	standby*	75	1450
Screen + Grit Removal Units								
Mechanically raked bar screen	3	Ref 2 (1)	81	86		(3 duty+1standly)		
Screw type grit classifier	2	Ref 2 (1)	84	87				
Primary Sedimentation Tanks								
	8							
Bioreactors								
	6							
Internal recycle pumps	3	Ref 3 (1)	92	97	in tanks	duty	10	470
Internal recycle pumps	3	Ref 3 (1)	92	97	in tanks	duty	10	470
Final Sedimentation Tanks								
	10							
Sludge Digester								
	2							
Sludge Consolidation Tank								
Sludge Holding Tanks								
sludge pumps	2	Ref 3 (1)	92	95	in chamber		15	1455
Mixed Liquor channel								
SAS Pumps	1	Ref 4 (1)	88	88	in chamber	duty		
SAS Pumps	1	Ref 4 (1)	88	88	in chamber	standby*		
Scum Pumps	1	Ref 4 (1)	88	88	in chamber	duty		
Scum Pumps	1	Ref 4 (1)	88	88	in chamber	standby*		
Blower house								
Air blowers	4	Ref 5 (1)	104	110	enclosed	duty		
Air blowers	1	Ref 5 (1)	104	104	enclosed	standby*		
RAS Pumping Station								
RAS pump	2	Ref3 (1)	100	103	enclosed	duty	61	1500
RAS pump	1	Ref3 (1)	100	100	enclosed	standby*	61	1500
Gas Holder								
Primary Sludge Thickeners								
Thickened primary sludge pumps	5	Ref3 (1)	92	99	enclosed		15	1475
Chemical House								
Effluent Pumping Station								
Effluent pump	4	Ref5(1)	100	106	enclosed		400	585
Sludge Pumping Station								
Thickened Primary Sludge Pumps	4	Ref 3(1)	92	98	enclosed		15	1475
Exhaust Fan	1	Ref 4(1)	89	89				
SBR								
Air Blower	1	Ref5(1)	104	104		1duty+1 standby		
Pump used for Equalisation Tank	1	Ref 3(1)	92	92	in chamber	1duty+1 standby	3-7	less than 1800
Sludge pump	1	Ref 3(1)	92	92	in chamber	1duty+1 standby	3-7	less than 1800
Pump Effluent pumping chamber	1	Ref 3(1)	92	92	in chamber	1duty+1 standby	3-7	less than 1800

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The plant inventories of Tai Po Sewage Treatment Plant for Cumulative Noise Assessment

Treatment Units	No of item	Reference	SWL, dB(A)	Total SWL, dB(A)	Enclosed	Remark	Horsepower (kW) and rpm of pump	Air Flow rate in m3/s
Stage IV Works								
Influent Pumping station								
Inlet pump	3	Ref 1(1)	104	109	enclosed	duty		
Inlet pump	1	Ref 1(1)	104	104	enclosed	standby*		
Screen								
mechanically raked bar screen	4	Ref 4(1)	92	98		duty		
mechanically raked bar screen	1	Ref 4(1)	92	92		standby*		
Screening Conveyor	2							
Screening Compactor	1							
Grit Removal Units								
Detritor	2	Ref 4(1)	80	83		duty		
Grit pump	2	Ref 3(1)	92	95			2.2	1390
New grit classifiers	2	Ref 4(1)	80	83				
Primary Sedimentation Tanks								
primary sludge pump	(4+1)					4duty+1 standby		
primary sludge pump	1	Ref 3(1)	92	92	in chamber	duty	11	1440
primary sludge pump	1	Ref 3(1)	92	92	in chamber	standby*		
Bioreactors								
Bioreactor internal recycle pumps	7							
Bioreactor internal recycle pumps	14	Ref 3(1)	92	103		duty	10	475
Bioreactor internal recycle pumps	1	Ref 3(1)	92	92		standby*	10	475
Final Sedimentation Tanks								
	12							
RAS Pumping Station								
RAS pump	4	Ref 3(1)	97	103	enclosed		37	580
RAS pump	1	Ref 3(1)	97	97	enclosed		37	580
Sludge Digestion Tank								
Sludge Digester	3							
Sludge Consolidation Tanks								
sludge pumps	3	Ref 3(1)	92	97	in pipe gallery		11	1460
Central Building Complex								
Thickened Primary Sludge Pumps	3	Ref 3(1)	92	97	enclosed		11	1450
SAS Pumps	4	Ref 3(1)	92	98	enclosed		12.5	1460
Air Blower House								
Air Blower	5	Ref 5 (1)	104	111	enclosed			
Air Blower	1	Ref 5 (1)	104	104	enclosed			
Primary Sludge Thickeners								
Thickened sludge pumps for Primary Sludge Thickeners	2							
Primary Sludge Thickeners	2	Ref 3(1)	94	97	in chamber	duty	18.5	1460
Mixed Liquor channel								
SAS Pumps	1	Ref 4 (1)	88	88	in chamber	duty	12.5	1460
SAS Pumps	1	Ref 4 (1)	88	88	in chamber	standby*	12.5	1460
Scum Pumps	1	Ref 4 (1)	88	88	in chamber	duty	12.5	1460
Scum Pumps	1	Ref 4 (1)	88	88	in chamber	standby*	12.5	1460

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The plant inventories of Tai Po Sewage Treatment Plant for Cumulative Noise Assessment								
Treatment Units	No of item	Reference	SWL, dB(A)	Total SWL, dB(A)	Enclosed	Remark	Horsepower (kW) and rpm of pump	Air Flow rate in m ³ /s
Common Facilities								
Disinfection	(2+1)					2duty+1 standby		
Surplus Activated Sludge Thickeners	(3+1)					3duty+1 standby		
Sludge Thickening House					enclosed			
Exhaust Fan	9	Ref 4(1)	89	98	enclosed			
Thickened sludge pumps	3	Ref 3(1)	92	97	enclosed	duty	11 1450	
Thickened sludge pumps	1	Ref 3(1)	92	92	enclosed	standby*	11 1450	
Exhaust Fan	1	Ref 4(1)	89	89	enclosed			
Sludge Dewatering Units	(5+1)					5duty+1 standby		
Extended Sludge Dewatering House								
Exhaust Fan	10	Ref 4(1)	89	99				
Plate filter Presses	2	Ref 6(1)	100	103	enclosed			
Dewatering House								
Filter Press	3	Ref 6(1)	100	105	enclosed	duty		
Filter Press	1	Ref 6(1)	100	100	enclosed	standby*		
Feed Pump	5	Ref 3(1)	92	99	enclosed		11 1470	
Transfer pump	4	Ref 3(1)	92	98	enclosed		7.5 1400	
Leachate Pre-treatment Work								
Transfer pump	2	Ref 3(1)	103	106	in tank	2 duty + 1 standby	11 less than 3600	
Deodourizing Unit								
Exhaust Fan	1	Ref 3(1)	79	79				0.28
Exhaust Fan	1	Ref 3(1)	79	79				0.01
Exhaust Fan	1	Ref 3(1)	83	83				0.88
Exhaust Fan	1	Ref 3(1)	83	83				0.87
Exhaust Fan	1	Ref 3(1)	83	83				0.61
Exhaust Fan	1	Ref 3(1)	79	79				0.01
Exhaust Fan	1	Ref 3(1)	83	83				0.74
Note:								
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* Standby item was not included in the noise assessment								