Detailed Calculation of Operation Noise Levels

Mitigated Scenario

Noise Criterion (dB(A))

53	07:00-23:00
45	23:00-07:00

CKH - Cheung King House

Project Specific PME Item	SWL dB(A)	No. of Items	Total SWL, dB(A)	Dist.	Dist. Corr., dB(A)	Screening Corr., dB(A)	Façade Corr., dB(A)	Corrected Noise Levels, dB(A)
Operation Noise of Cheung Chau STW								
Operation of Area A - Primary Treatment Units								
Submersible pump (ref 1)	85	10	95	82	-46.3	-20	3	31.7
Mechanically raked fine screen (ref 3)	89	3	94	82	-46.3	-20	3	30.7
Deodourization fans (ref 4)	85	4	91	82	-46.3	-20	3	27.7
Exhaust Fan with acoustic louver (ref 2)	79	14	90	82	-46.3	-10	3	36.7
Operation of Area B - MBR Equipment Unit (Part 1)								
Mechanical Pump (ref 5)	92	9	102	65	-44.2	-20	3	40.8
Deodourization fans (ref 4)	85	2	88	65	-44.2	-20	3	26.8
Exhaust Fan with acoustic louver (ref 2)	79	8	88	65	-44.2	-10	3	36.8
Operation of Area C - MBR Equipment Unit (Part 2)								
Mechanical Pump (ref 5)	92	9	102	117	-49.3	-20	3	35.7
Deodourization fans (ref 4)	85	2	88	117	-49.3	-20	3	21.7
Exhaust Fan with acoustic louver (ref 2)	79	4	85	117	-49.3	-10	3	28.7
Operation of Area D - Sludge Treatment Unit								
Submersible pump (ref 1)	85	2	88	127	-50.1	-20	3	20.9
Deodourization fans (ref 4)	85	2	88	127	-50.1	-20	3	20.9
Exhaust Fan with acoustic louver (ref 2)	79	6	87	127	-50.1	-10	3	29.9
Operation of Area E - Air Blower Room								
Blower (ref 6)	85	7	93	159	-52.0	-20	3	24.0
Exhaust Fan with acoustic louver (ref 2)	79	4	85	159	-52.0	-10	3	26.0
Operation of Area F - Existing Outfall Pumping Station and Header Tank								
Mechanical Pump (ref 5)	92	12	103	160	-52.1	-20	3	33.9
Deodourization fans (ref 4)	85	4	91	160	-52.1	-20	3	21.9
Exhaust Fan with acoustic louver (ref 2)	79	14	90	160	-52.1	-10	3	30.9
							Total	45.0

CKH - Cheung King House	Max.	Comply with Noise Criterion
Daytime	45	Yes
Night-time	45	Yes

Remarks:
(ref 1) SWL of plant refer to CNP283
(ref 2) Assuming the acoustic louver provides a noise reduction of -10dB(A) as required
(ref 3) SWL of plant refer to the approved EIA Report on Tai Po Sewage Treatment Works Stage V (EIA-097/2004)
(ref 4) SWL of plant refer to Good Practices on Ventilation System Noise Control based on the flow rate of 17,000 m^3/hr and 125 Pa.
(ref 5) SWL of plant refer to Good Practices on Pumping System Noise Control based on the horsepower of pumpset 20 hp at 1800 rpm.
(ref 6) SWL of plant refer to the tender specification for Shatin STW Stage 3 Upgrading and approved EIA of Harbour Area Treatment Scheme (HATS) Stage 2A (EIA-148/2008)

All plants are enclosed inside concrete structure of the STW building. A -20 dB(A) noise reduction has been assumed.
Acoustic louvers: assume a -10dB(A) noise reduction

Detailed Calculation of Operation Noise Levels

Mitigated Scenario

Noise Criterion (dB(A))	
53	07:00-23:00
45	23:00-07:00

CSH2 - Cheung Shun House

Project Specific PME Item	SWL dB(A)	No. of Items	Total SWL, dB(A)	Dist.	Dist. Corr., dB(A)	Screening Corr., dB(A)	Façade Corr., dB(A)	Corrected Noise Levels, dB(A)
Operation Noise of Cheung Chau STW								
Operation of Area A - Primary Treatment Units								
Submersible pump (ref 1)	85	10	95	84	-46.5	-20	3	31.5
Mechanically raked fine screen (ref 3)	89	3	94	84	-46.5	-20	3	30.5
Deodourization fans (ref 4)	85	4	91	84	-46.5	-20	3	27.5
Exhaust Fan with acoustic louver (ref 2)	79	14	90	84	-46.5	-10	3	36.5
Operation of Area B - MBR Equipment Unit (Part 1)								
Mechanical Pump (ref 5)	92	9	102	81	-46.2	-20	3	38.8
Deodourization fans (ref 4)	85	2	88	81	-46.2	-20	3	24.8
Exhaust Fan with acoustic louver (ref 2)	79	8	88	81	-46.2	-10	3	34.8
Operation of Area C - MBR Equipment Unit (Part 2)								
Mechanical Pump (ref 5)	92	9	102	131	-50.3	-20	3	34.7
Deodourization fans (ref 4)	85	2	88	131	-50.3	-20	3	20.7
Exhaust Fan with acoustic louver (ref 2)	79	4	85	131	-50.3	-10	3	27.7
Operation of Area D - Sludge Treatment Unit								
Submersible pump (ref 1)	85	2	88	139	-50.8	-20	3	20.2
Deodourization fans (ref 4)	85	2	88	139	-50.8	-20	3	20.2
Exhaust Fan with acoustic louver (ref 2)	79	6	87	139	-50.8	-10	3	29.2
Operation of Area E - Air Blower Room								
Blower (ref 6)	85	7	93	165	-52.3	-20	3	23.7
Exhaust Fan with acoustic louver (ref 2)	79	4	85	165	-52.3	-10	3	25.7
Operation of Area F - Existing Outfall Pumping Station and Header Tank								
Mechanical Pump (ref 5)	92	12	103	153	-51.7	-20	3	34.3
Deodourization fans (ref 4)	85	4	91	153	-51.7	-20	3	22.3
Exhaust Fan with acoustic louver (ref 2)	79	14	90	153	-51.7	-10	3	31.3
							Total	44.0

CSH2 - Cheung Shun House	Max.	Comply with Noise Criterion
Daytime	44	Yes
Night-time	44	Yes

Remarks:
(ref 1) SWL of plant refer to CNP283
(ref 2) Assuming the acoustic louver provides a noise reduction of -10dB(A) as required
(ref 3) SWL of plant refer to the approved EIA Report on Tai Po Sewage Treatment Works Stage V (EIA-097/2004)
(ref 4) SWL of plant refer to Good Practices on Ventilation System Noise Control based on the flow rate of 17,000 m^3/hr and 125 Pa.
(ref 5) SWL of plant refer to Good Practices on Pumping System Noise Control based on the horsepower of pumpset 20 hp at 1800 rpm.
(ref 6) SWL of plant refer to the tender specification for Shatin STW Stage 3 Upgrading and approved EIA of Harbour Area Treatment Scheme (HATS) Stage 2A (EIA-148/2008)

All plants are enclosed inside concrete structure of the STW building. A -20 dB(A) noise reduction has been assumed.
Acoustic louvers: assume a -10dB(A) noise reduction

Detailed Calculation of Operation Noise Levels

Mitigated Scenario

PSSL - No. 1A Pak She Second Lane

Noise Criterion (dB(A))	
55	07:00-23:00
45	23:00-07:00

Project Specific PME Item	SWL dB(A)	No. of Items	Total SWL, dB(A)	Dist.	Dist. Corr., dB(A)	Screening Corr., dB(A)	Façade Corr., dB(A)	Corrected Noise Levels, dB(A)
Operation Noise of Sewage Pumping Station								
Operation of Pak She Sewage Pumping Station								
Submersible pump (ref 1)	85	2	88	22	-34.8	-20	3	36.2
Exhaust Fan with acoustic louver (ref 2)	79	2	82	22	-34.8	-10	3	40.2
Mechanically raked fine screen (ref 3)	89	2	92	22	-34.8	-20	3	40.2
Deodourization fans (ref 4)	85	1	85	22	-34.8	-20	3	33.2
							Total	44.0

PSSL - No. 1A Pak She Second Lane	Max.	Comply with Noise Criterion
Daytime	44	Yes
Night-time	44	Yes

Remarks:

(ref 1) SWL of plant refer to CNP283

(ref 2) SWL of plant refer to approved EIA of Harbour Area Treatment Scheme (HATS) Stage 2A (EIA-148/2008) and Good Practices on Ventilation System Noise Control based on the flow rate of 1,300 m^3/hr)

(ref 3) SWL of plant refer to the approved EIA Report on Tai Po Sewage Treatment Works Stage V (EIA-097/2004)

(ref 4) SWL of plant refer to Good Practices on Ventilation System Noise Control based on the flow rate of 17,000 m^3/hr and 125 Pa.

All plants are enclosed inside concrete structure of the SPS building. A -20 dB(A) noise reduction has been assumed.
Acoustic louvers: assume a -10dB(A) noise reduction