

Appendix 4.12

**Detail Calculation of
Existing Landfill
Operational Noise**

Project: North-east New Territories (NENT) Landfill Extension
Title: Existing Landfill Operation Noise Assessment

Noise Sensitive Receiver: **SR1** Wo Keng Shan Tsuen

Source ID	Description	Source Type	SWL	Distance	Adjustments			Total	Facade	CNL, L _{eq} dB(A) [2]
					Distance ⁽¹⁾	Screening ⁽³⁾	Air absorption ⁽⁴⁾			
ES1	Leachate treatment plant (Lagoon)	Fixed	75	1452	-71	0	-4.4	6	3	8
ES2	Ammonia scrapping plant	Fixed	88	1283	-70	0	-3.8	6	3	23
ES3	Flare Station	Fixed	98	1029	-68	0	-3.1	0	3	30
Total CNL, L _{eq} (30min) dB(A)										31

Noise Sensitive Receiver: **SR2** Village houses at Junction of Ng Chow Road and Wo Keng Shan Road

Source ID	Description	Source Type	SWL	Distance	Adjustments			Total	Facade	CNL, L _{eq} dB(A) [2]
					Distance ⁽¹⁾	Screening ⁽³⁾	Air absorption ⁽⁴⁾			
ES1	Leachate treatment plant (Lagoon)	Fixed	75	1980	-74	0	-5.9	6	3	4
ES2	Ammonia scrapping plant	Fixed	88	1796	-73	0	-5.4	6	3	19
ES3	Flare Station	Fixed	98	1579	-72	0	-4.7	0	3	24
Total CNL, L _{eq} (30min) dB(A)										25

Noise Sensitive Receiver: **SR3** Cheung Shan Wu Tse

Source ID	Description	Source Type	SWL	Distance	Adjustments			Total	Facade	CNL, L _{eq} dB(A) [2]
					Distance ⁽¹⁾	Screening ⁽³⁾	Air absorption ⁽⁴⁾			
ES1	Leachate treatment plant (Lagoon)	Fixed	75	2442	-78	0	-7.3	6	3	1
ES2	Ammonia scrapping plant	Fixed	88	2274	-75	0	-6.8	6	3	15
ES3	Flare Station	Fixed	98	2018	-74	0	-6.1	0	3	21
Total CNL, L _{eq} (30min) dB(A)										22

Noise Sensitive Receiver: **SR4** Miu Keng

Source ID	Description	Source Type	SWL	Distance	Adjustments			Total	Facade	CNL, L _{eq} dB(A) [2]
					Distance ⁽¹⁾	Screening ⁽³⁾	Air absorption ⁽⁴⁾			
ES1	Leachate treatment plant (Lagoon)	Fixed	75	3090	-78	0	-9.3	6	3	0
ES2	Ammonia scrapping plant	Fixed	88	2933	-77	0	-8.8	6	3	11
ES3	Flare Station	Fixed	98	2666	-77	0	-8.0	0	3	16
Total CNL, L _{eq} (30min) dB(A)										18

Noise Sensitive Receiver: **SR5** Wing Fal Yuen

Source ID	Description	Source Type	SWL	Distance	Adjustments			Total	Facade	CNL, L _{eq} dB(A) [2]
					Distance ⁽¹⁾	Screening ⁽³⁾	Air absorption ⁽⁴⁾			
ES1	Leachate treatment plant (Lagoon)	Fixed	75	2800	-77	-10	-8.4	6	3	0
ES2	Ammonia scrapping plant	Fixed	88	2638	-76	-10	-7.9	6	3	3
ES3	Flare Station	Fixed	98	2375	-76	0	-7.1	0	3	18
Total CNL, L _{eq} (30min) dB(A)										19

Noise Sensitive Receiver: **SR6** Heung Yuen Wai

Source ID	Description	Source Type	SWL	Distance	Adjustments			Total	Facade	CNL, L _{eq} dB(A) [2]
					Distance ⁽¹⁾	Screening ⁽³⁾	Air absorption ⁽⁴⁾			
ES1	Leachate treatment plant (Lagoon)	Fixed	75	474	-62	-10	-1.4	6	3	11
ES2	Ammonia scrapping plant	Fixed	88	655	-64	-10	-2.0	6	3	21
ES3	Flare Station	Fixed	98	824	-66	-10	-2.5	0	3	22
Total CNL, L _{eq} (30min) dB(A)										25

Noise Sensitive Receiver: **SR7** Tsung Yuen Ha

Source ID	Description	Source Type	SWL	Distance	Adjustments			Total	Facade	CNL, L _{eq} dB(A) [2]
					Distance ⁽¹⁾	Screening ⁽³⁾	Air absorption ⁽⁴⁾			
ES1	Leachate treatment plant (Lagoon)	Fixed	75	739	-65	0	-2.2	6	3	16
ES2	Ammonia scrapping plant	Fixed	88	879	-67	0	-2.6	6	3	27
ES3	Flare Station	Fixed	98	1152	-69	0	-3.5	0	3	28
Total CNL, L _{eq} (30min) dB(A)										31

Noise Sensitive Receiver: **SR8** Ha Heung Yuen

Source ID	Description	Source Type	SWL	Distance	Adjustments			Total	Facade	CNL, L _{eq} dB(A) [2]
					Distance ⁽¹⁾	Screening ⁽³⁾	Air absorption ⁽⁴⁾			
ES1	Leachate treatment plant (Lagoon)	Fixed	75	395	-60	-10	-1.2	6	3	13
ES2	Ammonia scrapping plant	Fixed	88	583	-63	-10	-1.7	6	3	22
ES3	Flare Station	Fixed	98	803	-66	0	-2.4	0	3	33
Total CNL, L _{eq} (30min) dB(A)										33

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Noise Sensitive Receiver: SR9 Lin Ma Hang

Source ID	Description	Source Type	SWL	Distance	Adjustments				Total	Facade	CNL; L _{eq} dB(A) [2]
					Distance [1]	Screening [3]	Air absorption [4]				
ES1	Leachate treatment plant (Lagoon)	Fixed	75	2022	-74	-10	-6.1	6	3	0	
ES2	Ammonia scrapping plant	Fixed	88	2024	-74	-10	-6.1	6	3	7	
ES3	Flare Station	Fixed	98	1838	-73	-10	-5.5	0	3	12	
Total CNL, L _{eq} (30min) dB(A)										13	

Noise Sensitive Receiver: SR10 Tung Lo Hang

Source ID	Description	Source Type	SWL	Distance	Adjustments				Total	Facade	CNL; L _{eq} dB(A) [2]
					Distance [1]	Screening [3]	Air absorption [4]				
ES1	Leachate treatment plant (Lagoon)	Fixed	75	432	-61	-10	-1.3	6	3	12	
ES2	Ammonia scrapping plant	Fixed	88	246	-56	-10	0.0	6	3	31	
ES3	Flare Station	Fixed	98	171	-53	-10	0.0	0	3	38	
Total CNL, L _{eq} (30min) dB(A)										39	

Note:

- [1] Distance correction for fixed plant and notional source = $-20 \log r - 8$ based on hemi-spherical radiation, where r = distance.
- [2] Total CNL, L_{eq}(30min) dB(A) = $10 \cdot \text{Antilog}(\text{Corrected noise level of ES1, ES2, ES3})$
- [3] 10dB(A) reduction for total screening from natural topography, 5dB(A) reduction for partial screening from the hill slope.
- [4] Assuming typical Relative humidity is at 70% and Temperature is at 25°C, based on ISO9613 "Method for calculation of the Absorption of Sound By the Atmosphere", the air absorption is $-3\text{dB} / \text{km}$