



食物環境衛生署  
Food and Environmental  
Hygiene Department

策劃及拓展組  
Planning and Development Section  
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Our Ref. : (3) in FEHD P 5/404/76 Pt. XVI

Your Ref. : 60028568/C/dcf1902161

17 February 2009

ENSR Asia (HK) Ltd.  
11/F, Grand Centra Plaza, Tower 2  
138 Shatin Rural Committee Road  
Shatin  
(Attn : Mr Derek LAM Fax : 2891 0305)

Dear Mr LAM,

**Phased reprovisioning of Cape Collinson Crematorium  
Environmental Impact Assessment Study:  
Agreement on assumptions for air quality  
and noise assessments**

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With reference to your letter quoted above dated 16 February 2009 containing the documents, i.e. Enclosure 1 - Assumptions/Design Parameters Adopted in Air Quality Impact Assessment, Enclosure 2- Construction Plant Inventory and Enclosure 3- Fixed Plant Inventory, please note that the contents of all 3 Enclosures are in order and FEHD agrees with the assumptions for assessment.

Yours sincerely,

(N. L. Shum)

for Director of Food and Environmental Hygiene

c.c. Arch SD

(Attn : Mr Joseph LAM)

Fax : 2290 2304

**ENSR Asia (HK) Ltd.**

11/F Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, N.T., Hong Kong

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Your Ref:

Our Ref: 60028568/C/dcf1902161

**By Post and Fax (3101 0450)**Food & Environmental Hygiene Department  
2/F, 3 Edinburgh Place  
Central  
Hong KongAttn: Mr. Shum Nam Lung

16 February 2009

Dear Mr. Shum,

**Phased Reprovisioning of Cape Collison Crematorium  
Environmental Impact Assessment Study****Agreement on Assumptions for Air Quality and Noise Assessments**

In accordance with Section 3.4.1.3 (iii)(b) and Section (iv) in Appendix C of the EIA Study Brief no. ESB-177/2008, we are pleased to enclose herewith the following documents for your agreement. Enclosure 1 has been revised in accordance with your comments as per your letter ref. (1) in FEHD P5/404/76 Pt. XVI dated 16 February 2009.

Enclosure 1: Assumptions/Design Parameters Adopted in Air Quality Impact Assessment (4 pages)

Enclosure 2: Construction Plant Inventory (5 pages)

Enclosure 3: Fixed Plant Inventory (1 page)

Please note that our previous letters ref. 60028568/C/dcf1902101 dated 10 February 2009 and 60028568/C/dcf1902131 dated 13 February 2009 shall be superseded by this letter.

We would be grateful to receive your agreement on or before 17 February 2009. Should you have any queries, please feel free to contact the undersigned at 3105 8513.

Yours faithfully,  
For and on behalf of  
**ENSR Asia (HK) Ltd**



Derek Lam  
Senior Environmental Consultant

Encl.

cc ASD – Mr. Joe Lam (w/encl.)

Fax: 2290 2304

Co-Chairmen: T C K Shum, R C Weber. President: M Chan. Managing Director (Ag.) : M Chan.

Executive Directors : F C M Cheung, Y T Tang, J K W Lam. Associates : L M L Tsui, P C T Lee, J J Xiong.

Offices : Bangkok, Beijing, Guangzhou, Hong Kong, Kuala Lumpur, Kunshari, Manila, Nanchang, Shanghai, Shenzhen, Singapore, Tokyo.

Maunsell AECOM Group Chief Executive : T C K Shum. President : D D S Lo. Chief Financial Officer : P K L Wong.

## Enclosure 1 - Assumptions/Design Parameters Adopted in Air Quality Impact Assessment

### Assumptions for Construction Activities of the Project

1. The construction programme for the captioned Project is summarized in **Table 1**.

**Table 1 Construction/Demolition Works Programme of the Project**

Duration	Description	Construction Activity
July 2010 – March 2012	Phase 1 - Provision of four new cremators and ancillary facilities	<ul style="list-style-type: none"><li>- Site formation;</li><li>- Building works;</li><li>- Construction of four new cremators.</li></ul>
March 2012 – December 2014	Phase 2 - Demolition of the existing crematorium and construction of the remaining facilities for the new crematorium	<ul style="list-style-type: none"><li>- Demolition of the existing crematorium;</li><li>- Site formation;</li><li>- Construction of the six new cremators;</li><li>- Building works for the remaining facilities.</li></ul>

2. Prior to Phase 1 construction works, tree transplanting will be carried out in advance from January 2010 to June 2010.
3. There will be no overlapping of construction/demolition works between Phase 1 and Phase 2. Besides, 12 working hours per day (07:00 – 19:00) would be assumed for the dusty construction works in the assessment.

### Design Parameters/Assumptions for the New Cremators

1. There will be no more than ten of both existing and new cremators in operation at any time (i.e. two new cremators and eight existing cremators) during testing and commissioning period of Phase 1 to avoid additional loading of chimney emissions to the environment. In other words, eight out of 12 existing cremators will be operated concurrently with two new cremators during T&C period of Phase 1. The T&C period of Phase 1 would not exceed 4 months and the actual testing of four new cremators would last for about 28 days within the T&C period. Only two new cremators will be tested at any one time with 3 cremation cycles or the requisite number of complete cycles to cover a minimum period of six hours, whichever is the longer duration daily for each new cremator.
2. A total of ten cremators will be provided in the new crematorium upon completion of the Project. Nine cremators are of 170 kg/cycle capacity and the remaining one cremator is of 250 kg/cycle

capacity. The total operating capacity of the cremators is about 1,780 kg/cycle (i.e. 1,526 kg/hour based on 70 minutes average cycle time) under full load conditions.

3. The actual flue gas volumetric flow rates of the 170 kg and 250 kg cremators are 2,500m<sup>3</sup>/hour (at 6.3% oxygen, 15.5% moisture, 200°C) and 4,600m<sup>3</sup>/hour (at 11% oxygen, 12.7% moisture, 200°C), respectively.
4. After the completion of the Project, the new crematorium will be operated for a maximum of 17 hours starting at 0930 every day.
5. There are 10 numbers of chimneys for the ten cremators. The design of the chimneys is summarized in **Table 2**.

**Table 2 Design of Chimneys**

	No. of Chimney	Diameter of Chimney	Exit Velocity	Discharge Temperature of flue gas at chimney exit	Height of Chimney	Exhaust direction
Chimneys for 170 kg/cycle cremators	9	0.22 m	15m/s	120°C	In the range of ~ 24m to ~ 26m above ground	Upward
Chimneys for 250 kg/cycle cremators	1	0.30m	15m/s	120°C	~ 24m above ground	Upward

6. The air pollutants from the new cremator chimneys will not exceed the concentration limits stipulated in 'A Guidance Note on the Best Practicable Means for Incinerators (Crematoria), BPM 12/2(06), EPD, September 2008'. The size of particulate matter emitted from the cremator is assumed to be less than 10 µm (i.e. within the RSP category), and daily emission limit of RSP is assumed to be 40 mg/m<sup>3</sup>. The emission limits of the cremator to be employed in the assessment are summarized in **Table 3**.

**Table 3 Emission Limits of Various Air Pollutants**

Air Pollutant	Target Emission Limit (mg/m <sup>3</sup> ) <sup>(1)</sup>	Emission Limits in Best Practicable Means (mg/m <sup>3</sup> ) <sup>(1) (2)</sup>
Particulates <sup>(3)</sup>	40	40

Air Pollutant	Target Emission Limit (mg/m <sup>3</sup> ) <sup>(1)</sup>	Emission Limits in Best Practicable Means (mg/m <sup>3</sup> ) <sup>(1)(2)</sup>
Gaseous and vaporous organic substances, expressed as organic carbon (TOC)	20	20
Hydrogen chloride (HCL)	30	30
Carbon monoxide (CO)	100	100
Mercury and its compounds, expressed as mercury (Hg)	0.05	0.05
Dioxins	0.1 <sup>(4)</sup>	0.1 <sup>(4)</sup>
Nitrogen oxides (NO <sub>x</sub> as NO <sub>2</sub> ) <sup>(5)</sup>	380	-
Sulphur dioxide (SO <sub>2</sub> ) <sup>(5)</sup>	180	-

Notes:

- (1) All air pollutant concentrations are expressed at reference conditions of temperature 273 K, pressure 101.3 kPa, 11% oxygen and dry gas.
- (2) The emission limits for all pollutants, except Mercury and Dioxins, are in hourly average. Average time of mercury and dioxins emissions limit: a minimum of three complete cremation cycles or the requisite number of complete cremation cycles to cover a minimum period of six hours, whichever is the longer duration.
- (3) The particulate emission limit is assumed to be RSP.
- (4) The unit is ng I-TEQ/m<sup>3</sup>.
- (5) Reference to the Ministry of Public Safety & Solicitor General, British Columbia, Canada – Crematorium Operations and Emissions.

7. The maximum air pollutant emission rates of the cremators, based on the target emission limits and the flue gas emission rate, are summarized in **Table 4**.

**Table 4 Maximum Emission Rates of Various Air Pollutants**

Air Pollutant	Target Emission Limit (mg/m <sup>3</sup> ) <sup>(1)</sup>	Maximum Emission Rates (g/s)	
		170 kg cremator	250 kg cremator
Particulates <sup>(2)</sup>	40	1.998E-02	2.575E-02
Gaseous and vaporous organic substances,	20	9.989E-03	1.288E-02

Air Pollutant	Target Emission Limit (mg/m <sup>3</sup> ) <sup>(1)</sup>	Maximum Emission Rates (g/s)	
		170 kg cremator	250 kg cremator
expressed as organic carbon			
Hydrogen chloride (HCL)	30	1.498E-02	1.931E-02
Carbon monoxide (CO)	100	4.995E-02	6.438E-02
Mercury and its compounds, expressed as mercury (Hg)	0.05	2.497E-05	3.219E-05
Dioxins	0.1 <sup>(3)</sup>	4.995E-11	6.438E-11
Nitrogen oxides (NO <sub>x</sub> as NO <sub>2</sub> )	380	1.898E-01	2.447E-01
Sulphur dioxide (SO <sub>2</sub> )	180	8.991E-02	1.159E-01

Notes:

- (1) Emission limits are reference to 0°C and 101.325 kPa, 11% oxygen and dry gas.
- (2) The particulate emission limit is assumed to be RSP.
- (3) The unit is ng I-TEQ/m<sup>3</sup>.

### Assumptions for Joss Paper Burning

1. Assuming 6 cremation time slots per cremator are available a day, the duration of a typical joss burning memorial ceremony is 10 minutes and the burning material is assumed to be 0.5kg per ceremony.

**Enclosure 2 Powered Mechanical Equipment (PME) for Demolition/Construction Tasks During Normal Daytime Working Hours (Without Mitigation Measures)**

**ADVANCE WORK PRIOR TO PHASE 1 WORK**

**Tree Transplanting**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Excavator / Backhoe	CNP 081	1	112	80%	111	
Lorry, with Crane	CNP 144	1	112	80%	111	
Overall Noise Level, dB(A)					114	

**PHASE 1 DEVELOPMENT**

**Site Formation Works**

- Remove obstruction, expose and divert existing utilities

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	1	104	100%	104	
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	2	108	80%	110	
Excavator	CNP 081	1	112	65%	110	
Generator, silenced, 75dB(A) at 7m	CNP 102	1	100	100%	100	
Lorry, gross vehicle weight > 38 tonne	CNP 141	2	112	65%	113	
Overall Noise Level, dB(A)					116	

- Re-divert utilities and Road surface reinstatement

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Concrete lorry mixer	CNP 044	1	109	80%	108	
Excavator/loader, wheeled/tracked	CNP 081	1	112	65%	110	
Poker, vibratory, hand-held	CNP 170	1	113	50%	110	
Road roller	CNP 185	1	108	50%	105	
Overall Noise Level, dB(A)					115	

- Slope and Wall Modification/Remedial Works

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Soil Nailing Drilling Machine	CNP 064	2	103	65%	104	
Rock Dowel Drilling Machine	CNP 064	2	103	65%	104	
Compactor, vibratory	CNP 050	3	105	50%	107	
Concrete lorry mixer	CNP 044	2	109	80%	111	
Concrete pump, stationary/lorry mounted	CNP 047	1	109	80%	108	
Bar bender & Cutter	CNP 021	1	90	50%	87	
Saw, circular, wood	CNP 201	1	108	50%	105	
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	1	104	100%	104	
Grout pump	CNP 106	1	105	65%	103	
Overall Noise Level, dB(A)					116	

- Installation of temporary walls and decking

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Excavator/loader, wheeled/tracked	CNP 081	1	112	65%	110	
Generator, silenced, 75dB(A) at 7m	CNP 102	1	100	100%	100	
Lorry, gross vehicle weight > 38 tonne	CNP 141	2	112	65%	113	
Vertical Pipe Pile Rig	CNP 166	2	100	80%	102	
Crane, mobile/barge mounted (diesel)	CNP 048	2	112	30%	110	
Grout pump	CNP 106	2	105	65%	106	
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	1	104	100%	104	
Overall Noise Level, dB(A)					117	

- Excavations and installation of lateral support

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	3	104	100%	109	
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	2	108	80%	110	
Dump truck, gross vehicle weight > 38 tonne	CNP 067	3	117	65%	120	
Excavator/loader, wheeled/tracked	CNP 081	1	112	65%	110	
Generator, silenced, 75dB(A) at 7m	CNP 102	2	100	100%	103	
Bulldozer	CNP 030	3	115	65%	118	
Lorry, gross vehicle weight > 38 tonne	CNP 141	1	112	65%	110	
Ventilation fan	CNP 241	2	108	100%	111	
Water pump (petrol)	CNP 263	2	102	100%	105	
Rock drill, crawler mounted (hydraulic)	CNP 182	1	123	80%	122	
Overall Noise Level, dB(A)					126	

**Substructure Works**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Compactor, vibratory	CNP 050	2	105	50%	105	
Excavator/loader, wheeled/tracked	CNP 081	2	112	65%	113	
Lorry, gross vehicle weight > 38 tonne	CNP 141	2	112	65%	113	
Vertical Pre-boring H Pile Rig	CNP 166	2	100	80%	102	
Grout pump	CNP 106	2	105	65%	106	
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	2	104	100%	107	
Generator, silenced, 75dB(A) at 7m	CNP 102	1	100	100%	100	
Ventilation fan	CNP 241	1	108	100%	108	
Mobile crane	CNP 048	1	112	30%	107	
Crane Lorry	CNP 048	1	112	65%	110	
Circular saw (wood)	CNP 201	2	108	50%	108	
Concrete pump	CNP 047	1	109	80%	108	
Concrete lorry mixer	CNP 044	2	109	80%	111	
Hand held vibratory	CNP 173	2	102	50%	102	
Bar bender & cutter	CNP 021	2	90	50%	90	
Dump truck	CNP 067	1	117	30%	112	
Overall Noise Level, dB(A)					121	

**Superstructure Works**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Crane Lorry	CNP 048	1	112	65%	110	
Tower crane	CNP 049	1	95	30%	90	
Concrete pump	CNP 047	1	109	80%	108	
Concrete lorry mixer	CNP 044	2	109	80%	111	
Hand held vibratory	CNP 173	2	102	50%	102	
Air Compressor	CNP 002	2	102	100%	105	
Generator	CNP 101	2	108	100%	111	
Bar bender & cutter	CNP 021	2	90	50%	90	
Dump truck	CNP 067	1	117	30%	112	
Lorry, gross vehicle weight > 38 tonne	CNP 141	2	112	65%	113	
Circular saw (wood)	CNP 201	2	108	50%	108	
Overall Noise Level, dB(A)					119	

**Landscape Works**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Excavator / Backhoe	CNP 081	1	112	80%	111	
Lorry, with Crane	CNP 144	1	112	80%	111	
Overall Noise Level, dB(A)					114	

**Fitting-out Works**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Mobile crane	CNP 048	1	112	80%	111	
Crane lorry	CNP 048	1	112	80%	111	
Dump truck	CNP 067	1	117	30%	112	
Lorry, gross vehicle weight > 38 tonne	CNP 141	1	112	65%	110	
Overall Noise Level, dB(A)					117	

**Demolition of Existing Chinese Service Hall**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Crane Lorry	CNP 048	1	112	65%	110	
Air Compressor	CNP 002	1	102	100%	102	
Generator	CNP 101	1	108	100%	108	
Dump truck	CNP 067	1	117	65%	115	
Lorry, gross vehicle weight > 38 tonne	CNP 141	1	112	65%	110	
Hand held pneumatic breaker (20 - 35 kg)	CNP 025	2	111	80%	113	
Ventilation fan	CNP 241	1	108	100%	108	
Bulldozer	CNP 030	1	115	80%	114	
Concrete crusher, excaavator mounted	CNP 055	1	103	80%	102	
Overall Noise Level, dB(A)					121	



## PHASE 2 DEVELOPMENT

### Remove Obstruction, Expose and Divert Existing Utilities

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	1	104	100%	104	
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	2	108	80%	110	
Excavator	CNP 081	1	112	65%	110	
Generator, silenced, 75dB(A) at 7m	CNP 102	1	100	100%	100	
Lorry, gross vehicle weight > 38 tonne	CNP 141	2	112	65%	113	
Overall Noise Level, dB(A)					116	

### Installation of Temporary Walls and Decking

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Excavator/loader, wheeled/tracked	CNP 081	1	112	65%	110	
Generator, silenced, 75dB(A) at 7m	CNP 102	1	100	100%	100	
Lorry, gross vehicle weight > 38 tonne	CNP 141	2	112	65%	113	
Vertical Pipe Pile Rig	CNP 166	2	100	80%	102	
Crane, mobile/berge mounted (diesel)	CNP 048	2	112	30%	110	
Grout pump	CNP 106	2	105	65%	106	
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	1	104	100%	104	
Overall Noise Level, dB(A)					117	

### Demolition of Existing Cremators and Services Halls

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Crane Lorry	CNP 048	1	112	65%	110	
Air Compressor	CNP 002	1	102	100%	102	
Generator	CNP 101	1	108	100%	108	
Dump truck	CNP 067	3	117	65%	120	
Lorry, gross vehicle weight > 38 tonne	CNP 141	1	112	65%	110	
Hand held pneumatic breaker (20 - 35 kg)	CNP 025	3	111	80%	115	
Ventilation fan	CNP 241	3	108	100%	113	
Bulldozer	CNP 030	1	115	80%	114	
Concrete crusher, excaavator mounted	CNP 055	2	103	80%	105	
Overall Noise Level, dB(A)					123	

### Excavations and Installation of Lateral Support Works

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	3	108	80%	112	
Dump truck, gross vehicle weight > 38 tonne	CNP 067	2	117	65%	118	
Excavator/loader, wheeled/tracked	CNP 081	3	112	65%	115	
Generator, silenced, 75dB(A) at 7m	CNP 102	1	100	100%	100	
Bulldozer	CNP 030	2	115	65%	116	
Lorry, gross vehicle weight > 38 tonne	CNP 141	3	112	65%	115	
Ventilation fan	CNP 241	1	108	100%	108	
Water pump (petrol)	CNP 263	2	102	100%	105	
Rock drill, crawler mounted (hydraulic)	CNP 182	3	123	80%	127	
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	1	104	100%	104	
Overall Noise Level, dB(A)					128	

### Slope and Wall Modification /Remedial Works (Part 1)

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Soil Nailing Drilling Machine	CNP 064	1	103	65%	101	
Rock Dowel Drilling Machine	CNP 064	2	103	65%	104	
Compactor, vibratory	CNP 050	2	105	50%	105	
Concrete lorry mixer	CNP 044	1	109	80%	108	
Concrete pump, stationary/lorry mounted	CNP 047	1	109	80%	108	
Bar bender & Cutter	CNP 021	1	90	50%	87	
Saw, circular, wood	CNP 201	1	108	50%	105	
Grout pump	CNP 106	2	105	65%	106	
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	1	104	65%	102	
Overall Noise Level, dB(A)					115	

**Slope and Wall Modification /Remedial Works (Part 2)**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Soil Nailing Drilling Machine	CNP 064	1	103	65%	101	
Rock Dowel Drilling Machine	CNP 064	2	103	65%	104	
Compactor, vibratory	CNP 050	2	105	50%	105	
Concrete lorry mixer	CNP 044	1	109	80%	108	
Concrete pump, stationary/lorry mounted	CNP 047	1	109	80%	108	
Bar bender & Cutter	CNP 021	1	90	50%	87	
Saw, circular, wood	CNP 201	1	108	50%	105	
Grout pump	CNP 106	2	105	65%	106	
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	1	104	65%	102	
Overall Noise Level, dB(A)					115	

**Substructure Works**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Compactor, vibratory	CNP 050	2	105	50%	105	
Excavator/loader, wheeled/tracked	CNP 081	2	112	65%	113	
Lorry, gross vehicle weight > 38 tonne	CNP 141	2	112	65%	113	
Vertical Pre-boring H Pile Rig	CNP 166	2	100	80%	102	
Grout pump	CNP 106	2	105	65%	106	
Air compressor, air flow > 30m <sup>3</sup> /min	CNP 003	2	104	100%	107	
Generator, silenced, 75dB(A) at 7m	CNP 102	2	100	100%	103	
Ventilation fan	CNP 241	1	108	100%	108	
Mobile crane	CNP 048	1	112	30%	107	
Crane Lorry	CNP 048	1	112	65%	110	
Circular saw (wood)	CNP 201	2	108	50%	108	
Concrete pump	CNP 047	1	109	80%	108	
Concrete lorry mixer	CNP 044	2	109	80%	111	
Hand held vibratory	CNP 173	2	102	50%	102	
Dump truck	CNP 067	1	117	30%	112	
Bar bender & cutter.	CNP 021	2	90	50%	90	
Overall Noise Level, dB(A)					121	

**Superstructure Works**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Crane Lorry	CNP 048	1	112	65%	110	
Tower crane	CNP 049	1	95	30%	90	
Concrete pump	CNP 047	1	109	80%	108	
Concrete lorry mixer	CNP 044	2	109	80%	111	
Hand held vibratory	CNP 173	2	102	50%	102	
Air Compressor	CNP 002	2	102	100%	105	
Generator	CNP 101	2	108	100%	111	
Bar bender & cutter	CNP 021	2	90	50%	90	
Dump truck	CNP 067	1	117	30%	112	
Lorry, gross vehicle weight > 38 tonne	CNP 141	2	112	65%	113	
Saw, circular, wood	CNP 201	2	108	50%	108	
Overall Noise Level, dB(A)					119	

**Construction of the New Transfer Room**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Crane Lorry	CNP 048	1	112	65%	110	
Air Compressor	CNP 002	1	102	100%	102	
Generator	CNP 101	1	108	100%	108	
Dump truck	CNP 067	1	117	65%	115	
Lorry, gross vehicle weight > 38 tonne	CNP 141	1	112	65%	110	
Hand held pneumatic breaker (20 - 35 kg)	CNP 025	2	111	80%	113	
Ventilation Fan	CNP 241	1	108	100%	108	
Bulldozer	CNP 030	1	115	80%	114	
Concrete crusher, excavator mounted	CNP 055	1	103	80%	102	
Overall Noise Level, dB(A)					121	

**Landscape Works**

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Excavator / Backhoe	CNP 081	1	112	80%	111	
Lorry, with Crane	CNP 144	1	112	80%	111	
Overall Noise Level, dB(A)					114	

Fitting-out Works

	TM Ref. /other Ref.	No. of Items	SWL/ Item dB(A)	On-time %	Overall SWL, dB(A)	Remarks
<b>PME</b>						
Mobile crane	CNP 048	1	112	80%	111	
Crane lorry	CNP 048	1	112	80%	111	
Dump truck	CNP 067	1	117	30%	112	
Lorry, gross vehicle weight > 38 tonne	CNP 141	1	112	65%	110	
Overall Noise Level, dB(A)					117	

Enclosure 3 Fixed Plant Inventory

Location	ID	Equipment	Ref.	Sound Power Level (SWL), dB(A)	Number of Equipment	Overall SWL, dB(A)
Phase 1	1	Condensers of Split-type Air-Conditioning Units	[1]	76.5	9	86.1
	2	Radiators for Cremators	[1]	88.0	4	94.0
	3	General Exhaust Fans (Cremator Plant Room)	[1]	96.5	4	102.6
	4	General Exhaust Fans (Filtration Plant Room)	[1]	88.5	2	91.6
	5	Fan Room (General E&M)	[1]	94.5	4	100.6
	6	Fan Room (Service Hall 1)	[1]	87.5	4	93.6
	7	Fan Room (Services Hall 2)	[1]	66.5	1	66.5
Phase 2	8	Condensers of Mortuary A/C	[1]	76.5	2	79.5
	9	Radiators for Cremators	[1]	88.0	6	95.8
	10	General Exhaust Fans (Cremator Plant Room)	[1]	96.5	3	101.3
	11	General Exhaust Fans (Filtration Plant Room)	[1]	88.5	3	93.3
	12	Fan Room (General Use)	[1]	79.5	3	84.3
	13	Fan Room (Service Hall 3)	[1]	79.5	3	84.3
New Transformer Room			[3]	85.0	1	85.0
Existing Electric Sub-station			[2]	69.4	1	69.4

Remarks:

- [1] SWL is calculated based on noise data provided by Supplier
- [2] SWL is calculated based on on-site measured noise level using standard acoustic principle
- [3] SWL for transformer is made reference with "San Wai STW and Ha Tsuen PS - EIA (2003)".