

MTR Corporation Limited

---

**Mass Transit Railway –  
Lai Chi Kok Station  
Cheung Lai Street  
Pedestrian Subway and  
Entrances Works**

---

Project Profile

MTR Corporation Limited

**Mass Transit Railway - Lai Chi Kok Station  
Cheung Lai Street Pedestrian Subway and Enances Works**

Project Profile

November 2005

**Ove Arup & Partners Hong Kong Ltd**

Level 5, Festival Walk, 80 Tat Chee Avenue, Kowloon Tong, Kowloon, Hong Kong

Tel +852 2528 3031 Fax +852 2268

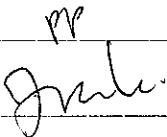
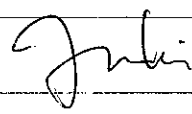

[www.arup.com](http://www.arup.com)

Job number 24152

Job title	Mass Transit Railway – Lai Chi Kok Station Cheung Lai Street Pedestrian Subway and Entrances Works	Job number
		24152

Document title	Project Profile	File reference
----------------	-----------------	----------------

Document ref

Revision	Date	Filename	24152-02.doc		
	11/05	Description	Project Profile		
			Prepared by	Checked by	Approved by
		Name	Isis Lai	Franki Chiu	Sam Tsoi
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
		Signature			

Issue Document Verification with Document



---

## CONTENTS

	Page
<b>1. BASIC INFORMATION</b>	<b>1</b>
1.1 Project Title	1
1.2 Project Description	1
1.3 Nature of the Project, and the Proposed Addition, Modification Or Alternation	1
1.4 Name of Project Proponent	2
1.5 Location of the Project	2
1.6 Name and Telephone Number of Contact Person(s)	2
1.7 Proposed Addition, Modification Or Alternation	2
1.8 Time-Table for the Addition, Modification Or Alternation	3
<b>2. POSSIBLE IMPACT ON THE ENVIRONMENT</b>	<b>4</b>
2.1 Major Elements of The Surrounding Environment	4
2.2 Noise	5
2.3 Air Quality	9
2.4 Water Quality	9
2.5 Waste Management	10
<b>3. DESCRIPTIONS OF MITIGATION MEASURES</b>	<b>10</b>
3.1 Noise	10
3.2 Air Quality	11
3.3 Water Quality	11
3.4 Waste Management	11
3.5 Environmental Monitoring and Audit (EM&A) Requirements	12
<b>4. USE OF PREVIOUSLY APPROVED EIA REPORTS</b>	<b>12</b>
<b>5. CONCLUSIONS</b>	<b>12</b>



**FIGURES**

FIGURE 1	Alignment of the subway
FIGURE 2	Longitudinal and typical cross-sections of the subway
FIGURE 3	Location of the vent shafts
FIGURE 4	Details of the vent shafts
FIGURE 5	Latest outline zoning plans
FIGURE 6	Location of NSRs
FIGURE 7	Location of the stockpile

**APPENDICES**

APPENDIX 1	Tentative Construction Programme and Worksite Locations
APPENDIX 2	Construction Plant Inventory (Unmitigated Scenario)
APPENDIX 3	Construction Noise Assessment (Unmitigated Scenario)
APPENDIX 4	Construction Plant Inventory and detailed Construction Noise Assessment (Mitigated Scenario)
APPENDIX 5	Calculation of Permissible SWL at Louvre
APPENDIX 6	Report Form for Complaints

## **PROJECT PROFILE**

### **1. BASIC INFORMATION**

#### **1.1 Project Title**

- 1.1.1 Mass Transit Railway – Lai Chi Kok Station Cheung Lai Street Pedestrian Subway and Entrances Works (hereafter called “the Project”)

#### **1.2 Project Description**

- 1.2.1 A pedestrian subway (hereafter called “the Subway”) connecting the Liberté and The Pacifica and the existing Lai Chi Kok MTR Corporation Limited (MTRC) station in Kowloon is proposed (**Figure 1**).
- 1.2.2 The purpose of this Project is to improve the accessibility to the Lai Chi Kok Station (LCK) from the existing and future developments by providing MTRC passengers a more direct, convenient and comfortable access to the LCK. Extending to the south of the West Kowloon Corridor, the subway will reduce at-grade pedestrian movements and provide significant improvements to the environmental and comfort levels experienced by passengers accessing LCK and people crossing Lai Chi Kok Road.
- 1.2.3 The Subway extending from the boundary of the existing LCK to the lot boundaries of the Liberté and The Pacifica will be owned, operated, managed and maintained by MTRC. The remaining areas of the Subway located within the lot boundaries of the developments including the integrated Entrance D3 to Liberté and the Entrance D4 to The Pacifica will be owned by the respective private developers.
- 1.2.4 The civil construction of the Subway will require approximately 28 months. Prior to construction of the Subway, it would need to take about 6 months for temporary diversion of an existing 1.8m diameter sewer located along Lai Chi Kok Road. The planned project completion date is by the end of Year 2008.

#### **1.3 Nature of the Project, and the Proposed Addition, Modification Or Alternation**

- 1.3.1 The works comprise of modification of the existing station, Lai Chi Kok (LCK) (including entrance connecting to the concourse), and construction of the Subway, three dedicated entrances and one integrated entrance to Liberté. The alignment of the Subway and the proposed locations of the subway entrances are shown in **Figure 1**. Details of the proposed addition, modification or alternation are given in **Section 1.7**.
- 1.3.2 In accordance with Section 5(10) of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499), the captioned Project would constitute a material change to an exempted designated project as the LCK has been in operation before the Ordinance came into effect. Hence, the procedures under the EIAO should be followed and an environmental permit is required prior to the commencement of the construction works.

## 1.4 Name of Project Proponent

MTR Corporation Limited  
MTR Tower  
Telford Plaza  
Kowloon Bay  
Hong Kong

## 1.5 Location of the Project

- 1.5.1 The Project site is located in an urban area of Lai Chi Kok, with relatively high volume of traffic running through the nearby Cheung Sha Wan Road, Western Kowloon Corridor and Lai Chi Kok Road (**Figure 1**).

## 1.6 Name and Telephone Number of Contact Person(s)

- 1.6.1 All queries regarding the Project can be addressed to:

Dr. Glenn Frommer	MTR Tower, Telford Plaza, Kowloon Bay, Hong Kong Tel No: 2993 3543 Fax No: 2993 7577 E-mail: <a href="mailto:gfrommer@mtr.com.hk">gfrommer@mtr.com.hk</a>
-------------------	--

Mr. Peter Leung	MTR Tower, Telford Plaza, Kowloon Bay, Hong Kong Tel No. 2993 2899 Fax No: 2993 7714 E-mail: <a href="mailto:pmfleung@mtr.com.hk">pmfleung@mtr.com.hk</a>
-----------------	--

## 1.7 Proposed Addition, Modification Or Alternation

- 1.7.1 The Project will involve modification of the existing station, Lai Chi Kok (LCK) (including entrance connecting to the concourse), and construction of the Subway, three dedicated entrances and one integrated entrance to Liberté. The proposed Subway will be fully air-conditioned and is approximately 300m in total length (i.e. walking distance) with access to Lai Chi Kok Road via The Pacifica. The internal clear width of the Subway between architectural finishes is about 4.5m, with a floor to ceiling height of about 2.8m. The alignment of the Subway is shown in **Figure 1**.
- 1.7.2 The horizontal alignment of the Subway passes underneath Cheung Lai Street, Lai Chi Kok Road and the Western Kowloon Corridor with a change in direction at the junction of Cheung Lai Street and Lai Chi Kok Road to avoid the foundation of the Western Kowloon Corridor.
- 1.7.3 The vertical alignment of the Subway ranges between the levels of +4.29mPD and -7.05mPD, where the lowest subway level is designed to avoid the existing 1.8m diameter sewer along Lai Chi Kok Road. The gradient of the Subway is between 1:12 and approximately 1:30. A longitudinal section of the Subway together with typical cross-sections through the subway is shown in **Figure 2**.
- 1.7.4 The smoke extraction and fan ventilation rooms are integrated within the Subway. The locations and details of the vent shafts are shown in **Figures 3 and 4**.
- 1.7.5 There are five proposed entrances. A street level dedicated entrance at The Pacifica, namely Entrance D4, is proposed to serve developments located to the south of Lai Chi Kok Road. A

stair of 2.6m wide provides access between the Subway level at –1.26mPD and ground level, where direct access will be provided to Lai Chi Kok Road via The Pacifica (**Figure 1**).

- 1.7.6 Two other dedicated street level entrances, namely Entrances D1 and D2, are proposed within the widened footway of the Cheung Lai Street. The proposed widening works will be implemented by others prior to the completion of the Subway, and do not form part of this Subway proposal. A single stair and a single ascending escalator are proposed respectively at these 2 Entrances, providing a direct access between the subway level at –2.7mPD and street level (**Figure 1**).
- 1.7.7 An integrated entrance, namely Entrance D3, will be provided to form a direct connection to Liberté. At northern end of the Subway, it connects directly to the concourse level of LCK, namely Entrance D, at an approximately level of –4.85mPD (**Figure 1**).
- 1.7.8 The Subway will be constructed by cut and cover technique (see **Section 1.8**). The construction would require the temporary diversion of the existing 1.8m diameter sewer located along Lai Chi Kok Road to ensure proper functioning of the sewer and no adverse effect on the maintenance of the sewer.

## 1.8 Time-Table for the Addition, Modification Or Alternation

- 1.8.1 MTRC is the Project Proponent with overall responsibility for the planning, design, construction and operation of the Project. Ove Arup & Partners Hong Kong Ltd. (Arup) was commissioned as the engineering and environmental consultant. The proposed works will be implemented by Contractor(s) to be appointed by MTRC.
- 1.8.2 The construction is scheduled to commence in early 2006 for completion by the end of Year 2008. The civil construction of the Subway would take approximately 28 months. Prior to construction of the Subway, it would need to take about 6 months for temporary diversion of an existing 1.8m diameter sewer located along Lai Chi Kok Road. The tentative implementation programme is shown below.

Activities	Month						
	1-5	6-10	11-15	16-20	21-25	26-30	31-35
Diversion of Lai Chi Kok Sewer	■						
Construction of Subway		■	■	■	■	■	■
Construction of smoke extraction air shaft (above ground)							■
Construction of fresh air intake shaft (above ground)							■
Construction of subway entrance D1 (above ground)							■
Construction of subway entrance D2 (above ground)							■
Construction of subway entrance D3 inside Liberté						■	
Construction of subway entrance D4 inside The Pacifica						■	

- 1.8.3 The Subway will be constructed by cut and cover technique. The use of alternative tunneling method such as horizontal mining is considered not appropriate, as it will require construction

of access pits at about every 25 to 30m. The construction of these pits requires long duration of lane closure and will have adverse impact on both vehicular and pedestrian traffic. Other tunneling method that involves the use of boring machine is also infeasible because the proposed subway is to be constructed at relative shallow depth. The soil cover above the bored tunnel is insufficient to prevent the occurrence of ground heaving due to overburden pressure provided by earth material.

1.8.4 The construction of Subway will be carried out in three sections simultaneously by cut and cover method, each with one set of the construction plant equipment for the work activities to be carried out phase by phase (**Appendix 1**). Vertical open cut will be undertaken along each section. Temporary walls and internal bracings will be installed to provide support for excavation. In order to maintain traffic flow, road decking will be provided as soon as practical. This will also act as a screen to minimize the nuisance to the public and pedestrian. All excavation and construction of the subway and its ancillary underground structure will be carried out underneath the deck thereby minimising environmental impacts. At-grade access points will be provided for transportation of material/spoil and workers' access. Once the construction of the subway structure is completed, the work areas will be backfilled with earth material and the road surface will be reinstated.

1.8.5 The work sequence for Project is shown in **Appendix 1** and described as follow:

- Diversion of the 1800mm sewer will be carried out before the construction of the subway.
- Traffic lanes will be closed in alternate fashion. At any time, only one lane will be closed at each location to minimize the impact to the traffic. Road surface will be demolished and utilities will be diverted. Temporary walls and grout curtain will be installed. King posts and first layer of bracing will be installed and the area will be covered by road deck immediately.
- Excavation will then be conducted under the road deck. Layers of bracing will be installed at suitable depth as the excavation progresses.
- Construction of the subway structures, including the plant room and ancillary ventilation adits, will be carried out under the road deck.
- Backfilling of the excavated ground will be undertaken underneath the deck until to the level near the first layer of bracing.
- Remaining backfilling and road reinstatement will be carried out in alternate fashion. Decking will be removed and the road surface will be reinstated to the original condition.
- Construction of the above ground structures, such as ventilation shafts and at-grade entrances, will be carried out.
- Electrical and Mechanical (E&M) equipment and subway interior works will be carried out.

## 2. POSSIBLE IMPACT ON THE ENVIRONMENT

### 2.1 Major Elements of The Surrounding Environment

2.1.1 The Project site is located in an urban area of Lai Chi Kok, with relatively high volume of traffic running through the nearby Cheung Sha Wan Road, Western Kowloon Corridor and Lai Chi Kok Road. The existing surrounding landuses in the vicinity of the proposed Project are mainly a mixture of industrial/commercial and residential buildings. The environment in the study area is dominated by road traffic noise.

- 2.1.2 To north of Lai Chi Kok Road, the area comprises of factories and commercial buildings. The Banyan Garden, Liberté and The Pacifica at the southern end of the Subway are identified as the major existing sensitive receivers. They are all high-rise buildings with the residential dwellings located on top of a podium at approximately 30m above the ground.
- 2.1.3 According to the latest Outline Zoning Plans (OZP) Cheung Sha Wan OZP S/K5/26 and South West Kowloon OZP S/K20/15, part of the industrial area to the north of Lai Chi Kok has been rezoned from “I” into “OU” annotated “Business” with the allowable plot ratio remaining the same. Under this zoning, office and other commercial uses will be permitted (**Figure 5**).
- 2.1.4 There are a number of existing and future planned/committed developments located within 500m of the Project site to the south of Lai Chi Kok Road. These include Sham Shui Po Government Primary School, Lai Chi Kok Catholic Primary School, Aqua Marine, a Senior Secondary School and a Public Housing Development (**Figure 5**). All of these planned developments are totally screened by the existing high-rise buildings including Banyan Garden, Liberté and The Pacifica, and hence potential environmental impacts are not anticipated during the construction of the Project.
- 2.1.5 The nearest Potentially Hazardous Installation (PHI) is the liquefied petroleum gas (LPG) store located to the west of Mei Foo Sun Chuen and at the end of Tat Yeung Road within the GIC site south of Ching Lai Court and Ching Cheung Road. It is at more than 500m away from the proposed Subway and hence potential risk arising from the LPG store is not expected.
- 2.1.6 There are no known archaeological site and declared monument within the 500m zone of the proposed subway alignment. The nearest declared monument is Lei Cheng Uk Han Tomb located at about 1000m at the eastern side of the Subway. Lai Chi Kok Hospital, a Grade III historic building, is located in the close vicinity of the proposed 500m zone. Given the large separation distance and small-scale construction works of the Project, no adverse impacts and disturbance on these buildings are anticipated.

## 2.2 Noise

### Construction Stage

- 2.2.1 Schedule of the construction works is indicated in **Appendix 1**. It is currently not envisaged that there would be construction activities undertaken outside 7am - 7pm. However, if the Contractor finds that there is a need to carry out night time work, he must apply a Construction Noise Permit (CNP) and ensure full compliance with the NCO requirements. The works will involve temporary diversion of sewer, construction of the Subway and the underground ancillary structures (e.g. plant rooms), and construction of the above ground vent shafts and subway entrance. The Subway will be constructed in three sections simultaneously, each with one set of the PME for the work activities. The work within each section will be carried out in an alternate fashion for different areas.
- 2.2.2 Potential impacts on Noise Sensitive Receivers (NSRs) during the construction stage will arise mainly from Powered Mechanical Equipment (PME). The PMEs to be employed in this project include hand-held breakers, generator, air compressors, excavators, lorries, mobile cranes, concrete pumps, concrete mixers, pokers, vibrating hammer, grout pump, ventilation fan, circular saw, road rollers, compactor, etc. The plant inventory and Sound Power Levels (SWLs) for each PME without mitigation measures are given in **Appendix 2**.

- 2.2.3 Practically, these PME's will not be operating for all times within a work site. In this assessment, similar utilisation rates adopted in "Modifications to MTRC TST Station Environmental Impact Assessment" have been assumed (**Section 4**). These are summarized in **Table 1** below. The utilization rates are considered realistic and practicable in achieving the construction programme by the Engineering Team and were agreed with the project proponent. For instance, a mobile crane will not require operating all time on site because, in reality, it takes time to rig up the wire rope, chain, lifting devices etc. before lifting a weight and unrig them after unloading a weight. It will be idling for most of the time.

**Table 1 :** Utilisation rates of PME's

PME	Utilisation Rate
Road roller and circular saw	50%
Hand-held breaker	80%
Excavators, dump trucks, compactor, vibrating hammer, lorries and crane lorries	65%
Mobile crane	30%

- 2.2.4 The construction activities and plant inventory were prepared by the Engineering Team, and reviewed and agreed by the project proponent. The maximum SWLs of each work activity are calculated and summarised in **Table 2** below.

**Table 2 :** Maximum SWLs of each key work activity (Unmitigated scenario)

Construction work	Activities with maximum SWL	Maximum SWL, dB(A)
Diversion of Lai Chi Kok Sewer	Remove obstruction, expose and divert existing utilities	114
	Installation of Temporary Walls, King Posts and Decking	115
	Excavations and Installation of Lateral Support	115
	Construction of manholes	113
	Laying of new pipes	114
	Backfilling and Removal of Shoring	113
	Re-divert utilities, road surface reinstatement and traffic diversion	116
Subway & the underground ancillary structures	Remove obstruction, expose and divert existing utilities	114
	Installation of Temporary Walls and Decking	115
	Excavations and Installation of Lateral Support	115
	Construction of the Subway Structure	113
	Backfilling and Removal of Shoring	113
	Re-divert utilities, road surface reinstatement and traffic diversion	116
Vent shaft & entrance	Construction of above-ground vent shaft and subway entrance	117

- 2.2.5 Four representative Noise Sensitive Receivers (NSRs) immediately facing the Project site have been selected to assess the construction noise impact (**Figure 6**). Results of construction noise assessments are summarised in **Table 3** and detailed in **Appendix 3**. Assessment indicate that adverse construction noise impacts are predicted at the NSRs under "unmitigated" scenario. The maximum predicted construction level is 84dB(A) at the Towers 6 and 7 of Liberté.

**Table 3 :** Predicted maximum construction noise levels at the NSRs - "unmitigated" scenario

NSR	Description	Noise Criteria, Leq (30mins), dB(A) <sup>[1]</sup>	Predicted Maximum Noise Level, dB(A)	Exceedance, dB(A)
R1	The Pacifica Tower 1	75	82	7
R2	Liberté Tower 6		84	9
R3	Liberté Tower 7		84	9
R4	Liberté Tower 8		83	8

Note:

[1] Technical Memorandum on Environmental Impact Assessment Process (TM-EIAO)

- 2.2.6 Construction noise can be mitigated by the use of quiet plant. The use of quiet plant associated with the construction works is prescribed in British Standard “Noise Control on Construction and Open Sites, BS5228: Part 1: 1997” which contains the SWLs for specific quiet PME. A list of quiet plant adopted in the assessment is given in **Table 4**.

**Table 4** : List of quiet plant adopted in the construction noise assessment

Quiet plant	BS 5228 Part 1 Identification	SWL, dB(A)
Circular Saw	BS Table C7 REF 78	106
Concrete Pump Truck	BS Table C6 REF 36	106
Concrete Lorry Mixer	BS Table C6 REF 33	96
Crane Lorry	BS Table C7 REF 101	94
Mobile Crane	BS Table C7 REF 112	102
Dump truck	BS Table C9 REF 24	104
Excavator	BS Table C3 REF 35	106
Lorry	BS Table C9 REF 19	102
Pokers	BS Table C6 REF 40	98
Road roller	BS Table C8 REF 30	101

- 2.2.7 To further alleviate the construction noise impacts, use of movable barrier or acoustic mat should be implemented for particular PMEs (**Table 5**). Movable temporary noise barriers, that can be located close to noisy plant and be moved iteratively with the plant along a worksite, can be very effective for screening noise from NSRs. A typical design of movable barrier which has been used locally is a wooden framed barrier with no openings or gaps and of the superficial density not less than 10 kg/m<sup>2</sup> implemented on site. Similar mitigation measures have been recommended in the EIA for the Modifications to MTRC Tsim Sha Tsui Station (EIA-053/2001) and implemented on site. Subsequent monitoring results indicate these measures are generally effective to ensure compliance of the stipulated noise criterion.

**Table 5** : Proposed movable barrier for Different PMEs

PME	Further mitigation measure	Reduction, dB(A)
Circular Saw	Movable noise barrier	5
Handheld breaker	Movable noise barrier	5
Vibrating hammer	Acoustic mat	5

- 2.2.8 With the use of quiet plants and movable barrier and acoustic mat, the predicted construction noise levels at the representative NSRs will comply with the noise criterion. There will be no residual construction noise impacts. The results are summarised in **Table 6** and the assessment is detailed in **Appendix 4**.



Table 6 : Predicted maximum construction noise levels at the NSRs – “Mitigated” scenario

NSR	Description	Noise Criteria, $L_{eq}$ (30mins), dB(A) [1]	Predicted Maximum Noise Level, dB(A)	Exceedance, dB(A)
R1	The Pacifica Tower 1	75	73	0
R2	Liberté Tower 6		74	0
R3	Liberté Tower 7		75	0
R4	Liberté Tower 8		74	0

Note:

[1] Technical Memorandum on Environmental Impact Assessment Process (TM-EIAO)

### **Operational Stage**

2.2.9 The operational fixed noise will emanate from the smoke extraction and fresh air vent shafts located near the Lai Chi Kok Road (**Figures 3 and 4**). Maximum allowable SWLs for all louvers, with regard to the separation distances and orientation from the nearest NSRs, cumulative noise impacts from other noise sources, as well as tonality, impulsiveness, and intermittency are predicted based on the Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (TM-Places). These predicted maximum allowable SWLs should be taken into account in the detailed design in order to meet the relevant legislative requirements.

2.2.10 The maximum allowable SWLs is summarised in **Table 7** and detailed calculation are presented in **Appendix 5**.

**Table 7** : Maximum allowable SWLs for the louvres

Louvre	Noise Criteria, dB(A) <sup>[1]</sup>		Permissible SWL, dB(A)	
	Daytime	Night-time	Daytime	Night-time
Smoke extraction	65	55	97	87
Fresh air intake	65	55	96	86

Note:

[1] Refer to Appendix 5 for details.

2.2.11 By proper implementing the above SWLs in the design, operational noise impacts are not anticipated.

## **2.3 Air Quality**

2.3.1 Construction dust will be potentially generated from surface excavation works, backfilling, wind erosion of all open sites, storage of spoil on site, as well as transportation / handling of spoil. There would be limited number of plants required for such small scale of the Project and the works would be carried out phase by phase. Most of the works will be carried out underneath the decks. During the construction period, the Contractor shall follow the requirements and implement dust suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation. As such, adverse impacts on air quality would not be expected.

2.3.2 There is no air quality impact during the operational phase. The smoke vents are located at more than 20m from the nearest receivers. During normal operation of the system, there will not be any smoke emanating from these vents. Hence, it is not anticipated that the smoke vent would have any adverse impacts on the neighbouring receivers.

## **2.4 Water Quality**

2.4.1 Potential major sources of water quality impacts may arise from the discharge of construction run-off and sewage effluent due to workforce during the construction phase. The Contractor is required to implement good site practices and appropriate mitigation measures as stipulated in ProPECC Note 1/94 “Construction Site Drainage” and “Recommended Pollution Control Clauses for Construction Contracts” to control the construction site discharges. It is anticipated that there will be no adverse water quality impact.

2.4.2 During the operational phase, there is no identified water pollution source from the Subway.

## 2.5 Waste Management

- 2.5.1 Solid wastes generated from the construction works mainly include excavated materials, construction and demolition waste, chemical wastes and general refuse. It is estimated that approximately 25,000m<sup>3</sup> of construction and demolition (C&D) materials would be generated as a result of construction of this Project. A temporary location at the site under the West Kowloon Corridor in front The Pacifica has been identified for temporary stockpiling to maximise the opportunity of reusing excavated fill material for backfilling (**Figure 7**). About half (i.e. 12,500m<sup>3</sup>) of the inert C&D materials could be reused and the remaining would need to be delivered to and disposed of at public filling areas available at that time subject to the permission from Civil Engineering Development Department (CEDD). The possible disposal site will be Tuen Mun Area 38.
- 2.5.2 The quantities of other types of waste arising from the construction phase of the Project should be minimal. Provided that the wastes generated from the project are properly handled, stored, recycled as far as possible, and disposed of in accordance with good waste management practices and relevant regulations and requirements under the Waste Disposal Ordinance, no significant waste impact arising from the construction stage of the Project would be envisaged.
- 2.5.3 During the operational phase, there is no generation of wastes arising from the Subway except general refuse from the pedestrian, which will be collected and removed by waste collector on a daily basis to minimise odour, pest and litter impacts. No adverse waste impact is anticipated.

## 3. DESCRIPTIONS OF MITIGATION MEASURES

### 3.1 Noise

#### Construction Stage

- 3.1.1 Construction noise can be mitigated to acceptable level by implementing good site practices such as orientating the noisy plants away from the nearby NSRs, proper fitting of silencers on the construction equipment, use of quiet plant, and use of movable barriers and acoustic mat to screen noise from noisy plants.
- 3.1.2 The following summarises good site practices and measures that should be followed during the construction period in order to ensure compliance of the noise criterion.
- Well maintained plant should be operated on-site and plant should be checked regularly;
  - Plants (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
  - Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs;
  - Silencers on construction equipment should be properly fitted and maintained during the construction works;
  - Mobile plant should be sited as far away from NSRs as possible and practicable;
  - Quiet plants described in **Section 2.2** should be used; and
  - Movable barrier or acoustic mat should be adopted for the PMEs as listed in **Section 2.2** above. A typical design of movable barrier which has been used locally is a wooden

framed barrier with no openings or gaps and of the superficial density not less than 10 kg/m<sup>2</sup> implemented on site.

### **Operational Stage**

- 3.1.3 Good practice should be incorporated in the design of vent shafts in order to minimise the operational noise nuisance on the neighbouring NSRs. Adequate direct noise mitigation measures including silencers, acoustic louvers, acoustic enclosures should be adopted. With proper design of louvers and implementation of the noise control measures, adverse operational noise impacts are not anticipated.

## **3.2 Air Quality**

- 3.2.1 Although most of the construction works would be carried out underground, appropriate dust mitigation measures stipulated in the Air Pollution Control (Construction Dust) Regulation should be implemented to control fugitive dust emission. The key following dust suppression measures are recommended:

- Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;
- Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;
- Cover all excavated or stockpile of dusty material by impervious sheeting or sprayed with water to maintain the entire surface wet;
- Provision of vehicle washing facilities at the exit points of the site;
- Tarpaulin covering of any dusty materials on a vehicle leaving the site.

## **3.3 Water Quality**

- 3.3.1 In order to control surface runoff satisfactorily without adverse impact during the construction stage, the Contractor should comply with the Water Pollution Control Ordinance (WPCO) and its subsidiary regulation. The key control measures are as follows:

- The Contractor should design and implement all the mitigation measures and practices specified in the ProPECC PN 1/94 “Construction Site Drainage” and “Recommended Pollution Control Clauses for Construction Contracts” issued by EPD.
- All runoffs arising from the construction site should be properly collected and treated to ensure the discharge standards as stipulated in WPCO are met. Silt trap and oil interceptor should be provided to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before being pumped to the public stormwater drainage system. The silt traps and oil interceptors should be cleaned and maintained regularly.
- Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent discharge permit is obtained under the WPCO by the Contractor.
- Site toilet facilities, if needed, should be chemical toilets or should have the foul water effluent directed to a foul sewer.

## **3.4 Waste Management**

3.4.1 Since the project is of small scale and about half of the total quantities of the excavated fill material can be reused for backfilling, the amount of C&D materials that needs to be hauled off site and disposal of is small. Proper waste management in the way of avoiding, minimising, reusing and recycling should be adopted in order to minimise the generation of various wastes and associated environmental impacts during the construction stage. The Contractor shall comply with the Waste Disposal Ordinance and its subsidiary regulations, and implement the necessary waste management measures. The following control measures are recommended:

- Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible.
- Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner.
- The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill. Independent audits of the Contractor and resident site staff will be undertaken to ensure that the correct procedures are being followed.
- Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.
- All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or recycling of materials and their proper disposal

### **3.5 Environmental Monitoring and Audit (EM&A) Requirements**

3.5.1 Although all construction impacts are short-term effects and no adverse effect would be anticipated on the environment with proposed mitigation measures in place, the project proponent has taken the initiative to implement a monitoring and audit programme during the construction phase to check on the implementation of the control measures.

3.5.2 An EM&A programme is recommended to include the monitoring of construction noise at Liberté once per week. The Contractor is required to submit an EM&A manual and implement the EM&A as approved by the Engineer. The Manual shall address all environmental aspects of concern during construction. Site inspection/audit would also be carried out. A typical complaint report form is attached in Appendix 6. Details of the monitoring procedures, methodology and action plans as well as complaint handling procedures shall make reference to approved EM&A Manual for the ‘Modifications to MTRC TST Station Environmental Impact Assessment’.

## **4. USE OF PREVIOUSLY APPROVED EIA REPORTS**

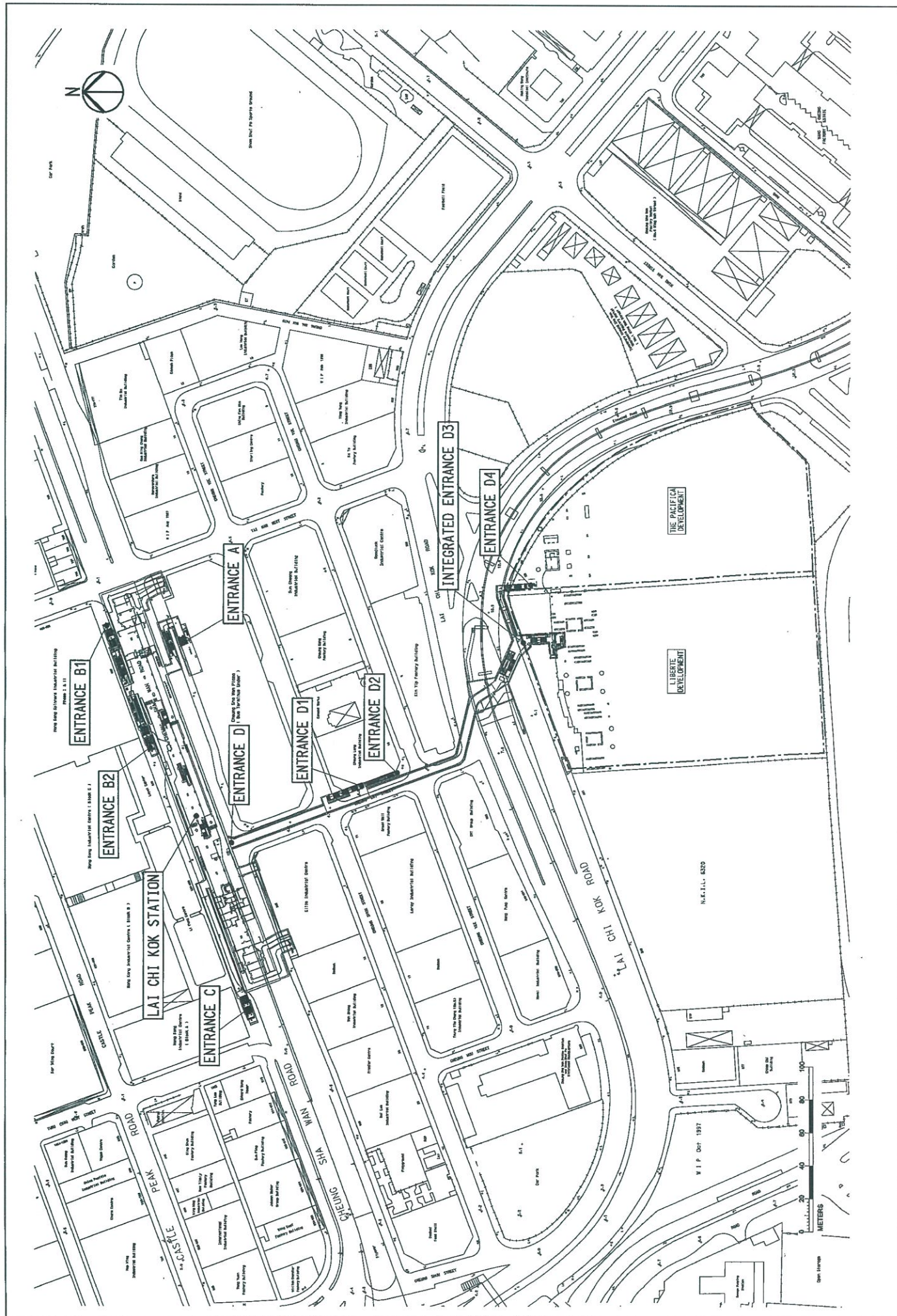
4.1.1 Reference has been made to the ‘Modifications to MTRC TST Station Environmental Impact Assessment’, dated May 2001 and the Environmental Permit (EP-113/2001/C). Due to the similar type of modification works carried out in the TST MTR Station, sound power levels of some silenced equipment employed in the TST Station modification works have been made reference to in the construction noise assessment of the Project. In addition to this, details of the monitoring procedures, methodology and action plans as well as complaint handling procedures stipulated in its approved EM&A Manual would also be adopted in this Project.

## **5. CONCLUSIONS**

- 5.1.1 The proposed Subway involves physical alternation to the existing Lai Chi Kok MTR Station and it would be considered as a project constituting a material change to an exempted designated project. Hence, this Project Profile is submitted under the EIAO to provide sufficient information for application of a direct Environmental Permit.
- 5.1.2 Potential environmental impacts in terms of air, noise, water, waste management associated with this project have been examined. Since most of the works for this Project will be undertaken under deck, adverse environmental impacts are not anticipated during both construction and operational stages, given that the recommended mitigation measures and site practices are properly implemented.
- 5.1.3 A limited EM&A programme is also recommended to ensure the proper implementation of control measures, and to monitor regularly the environmental impacts on the neighbouring areas throughout the construction period.

This page left blank intentionally

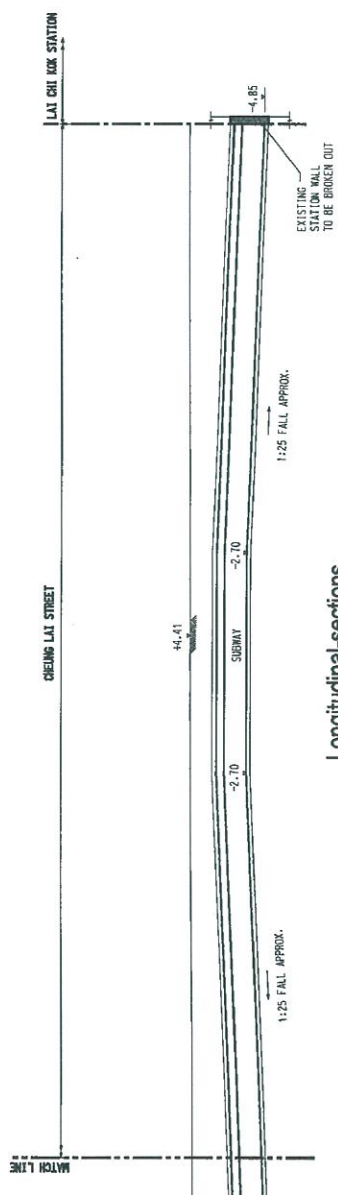
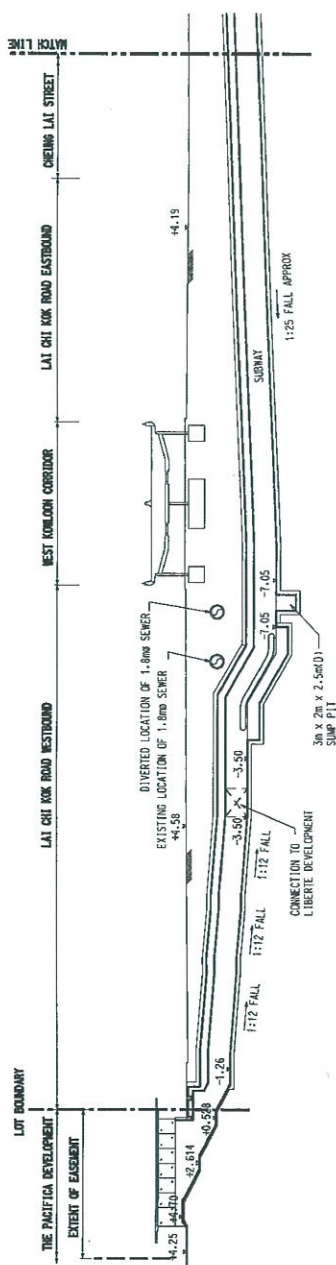




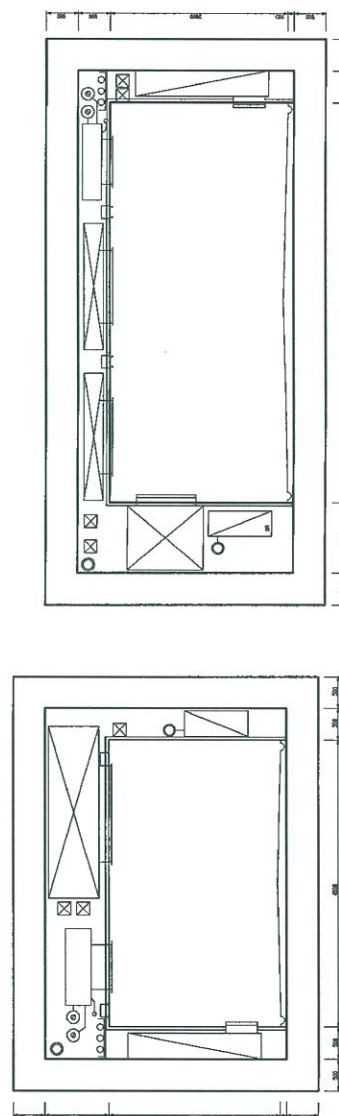
Alignment of the subway

Figure 1





### Longitudinal-sections



**SECTION 8 - B**

SECTION C - C (REFER TO FIGURE 3)

### Cross-sections

### Longitudinal and typical cross-sections of the subway

Figure 2

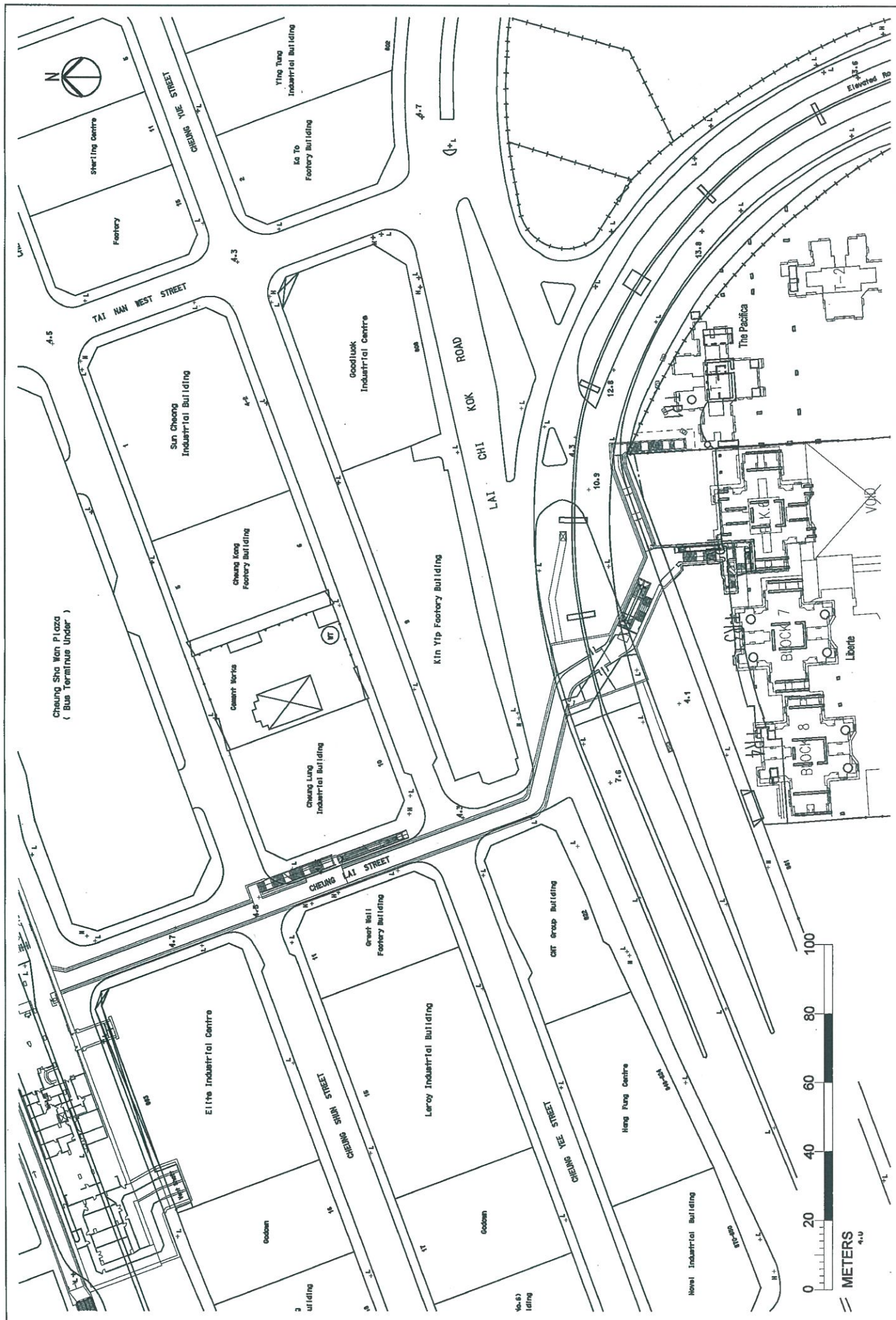












Location of NSRs

Figure 6





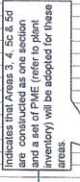
## APPENDIX 1

---

### **Tentative Construction Programme and Worksite Locations**

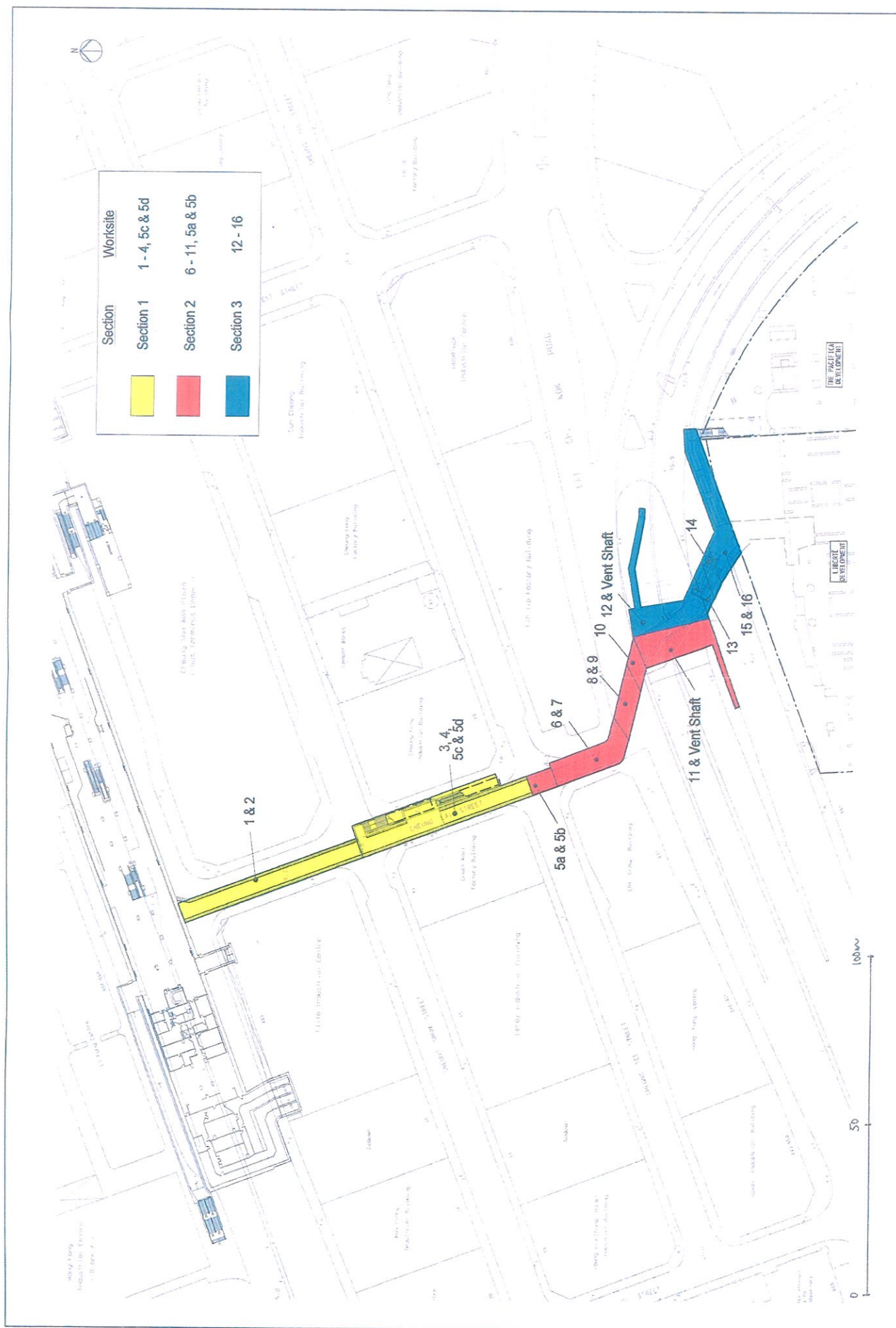


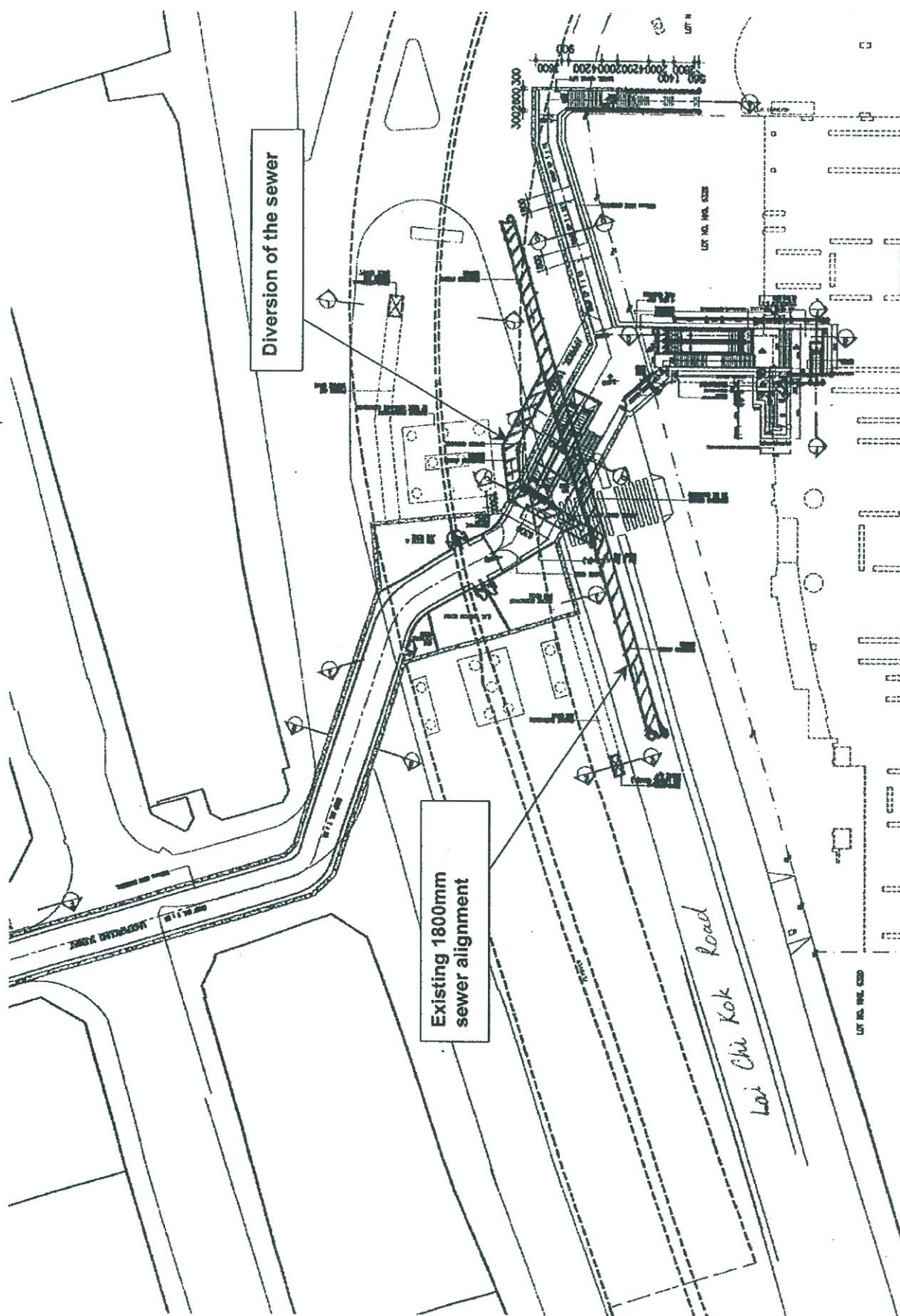
Job Title : Cheung Lai Street Subway  
Heading : Construction Programme



Note. The subway is constructed phase by phase and the areas are grouped for easy comparison. The noisier construction activities at the each grouped areas are identified and assessed in the assessment. For example, for areas 1, 5a, 6, and 16, the sound power levels of PMEs for construction activities "remove destruction and divert existing utilities", "installation of temporary wall and long pier", "installation of temporary wall and long pier", "installation of temporary wall and long pier", "installation of temporary wall and long pier" will be compared.







## APPENDIX 2

---

### **Construction Plant Inventory (Unmitigated Scenario)**



Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Unmitigated)

SWL Breakdown - Subway Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Max SWL
Remove obstruction, expose and divert existing utilities	Air compressor	1	CNP 002	1	102	0	102	
	Breaker handheld	2	CNP 024	1	108	-1	107	
	Excavator	3	CNP 081	1	112	-2	110	
	Generator, silenced	4	CNP 102	1	100	0	100	
	Crane lorry	5	CNP 048	1	112	-2	110	114
Installation of Temporary Walls and Decking	Excavator	1	CNP 081	1	112	-2	110	
	Generator, silenced	2	CNP 102	1	100	0	100	
	Lorry	3	CNP 141	1	112	-2	110	
	Vibrating hammer	4	CNP 172	1	115	-2	113	
	Drill Hole Machine (Electric)	5	CNP 186	1	100	0	100	
	Electric Grout Pump	6	CNP 106	1	105	0	105	
					Either : (1+2+3); (2+3+4); or (2+3+5+6)			115
Excavations and Installation of Lateral Support	* Breaker handheld	1	CNP 024	1	108	-15	93	
	Dump truck	2	CNP 067	1	117	-2	115	
	* Mini Excavator	3	CNP 082	1	94	-15	79	
	* Generator, silenced	4	CNP 102	1	100	-15	85	
	Lorry	5	CNP 141	1	112	-2	110	
	* Ventilation fan	6	CNP 241	1	108	-15	93	
	* Water pump	7	CNP 282	1	103	-15	88	
					Either : (1+3+4+6+7); (2+3+4+6+7); or (3+4+5+6+7)			115
Construction of the Subway Structure	Concrete lorry mixer	1	CNP 044	1	109	0	109	
	Concrete pump truck	2	CNP 047	1	109	0	109	
	Mobile Crane	3	CNP 048	1	112	-5	107	
	* Generator, silenced	4	CNP 102	1	100	-15	85	
	Crane lorry	5	CNP 048	1	112	-2	110	
	* Pokers	6	CNP 170	1	113	-15	98	
	* Ventilation fan	7	CNP 241	1	108	-15	93	
	* Water pump	8	CNP 282	1	103	-15	88	
	* Circular Saw	9	CNP 201	1	108	-15	93	
					Either : (3+4+5+7+8+9); or (1+2+3+4+6+7+8)			113
Backfilling and Removal of Shoring	Compactor	1	CNP 050	1	105	-2	103	
	Excavator	2	CNP 081	1	112	-2	110	
	Lorry	3	CNP 141	1	112	-2	110	113
Re-divert utilities, road surface reinstatement and traffic diversion	Concrete lorry mixer	1	CNP 044	1	109	0	109	
	Excavator	2	CNP 081	1	112	-2	110	
	Pokers	3	CNP 170	1	113	0	113	
	Road roller	4	CNP 185	1	108	-3	105	116

## Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile

\* Plants to be operated under deck

Either vibrating hammer or Odex drilling machine (i.e. auger) will be used for installing the temporary wall and king posts. The SWL for vibrating hammer is higher than that of Odex drilling machine, and hence has been assumed in the assessment

Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Unmitigated)

SWL Breakdown - Sewer	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Max SWL
Remove obstruction, expose and divert existing utilities	Air compressor	1	CNP 002	1	102	0	102	
	Breaker handheld	2	CNP 024	1	108	-1	107	
	Excavator	3	CNP 081	1	112	-2	110	
	Generator, silenced	4	CNP 102	1	100	0	100	
	Crane lorry	5	CNP 048	1	112	-2	110	114
Installation of Temporary Walls, King Posts and Decking	Excavator	1	CNP 081	1	112	-2	110	
	Generator, silenced	2	CNP 102	1	100	0	100	
	Lorry	3	CNP 141	1	112	-2	110	
	Vibrating hammer	4	CNP 172	1	115	-2	113	
	Drill Hole Machine (Electric)	5	CNP 186	1	100	0	100	
	Electric Grout Pump	6	CNP 106	1	105	0	105	
					Either: (1+2+3); (2+3+4); or (2+3+5+6)			115
Excavations and Installation of Lateral Support	Dump truck	1	CNP 067	1	117	-2	115	
	* Mini Excavator	2	CNP 082	1	94	-15	79	
	* Generator, silenced	3	CNP 102	1	100	-15	85	
	* Ventilation fan	4	CNP 241	1	108	-15	93	
	* Water pump	5	CNP 282	1	103	-15	88	
	Lorry	6	CNP 141	1	112	-2	110	
					Either: (1+3+4+5); (2+3+4+5); or (3+4+5+6)			115
Construction of manholes	Concrete lorry mixer	1	CNP 044	1	109	0	109	
	Concrete pump truck	2	CNP 047	1	109	0	109	
	Mobile Crane	3	CNP 048	1	112	-5	107	
	* Generator, silenced	4	CNP 102	1	100	-15	85	
	Crane lorry	5	CNP 048	1	112	-2	110	
	* Pilers	6	CNP 170	1	113	-15	98	
	* Ventilation fan	7	CNP 241	1	108	-15	93	
	* Water pump	8	CNP 282	1	103	-15	88	
	* Circular Saw	9	CNP 201	1	108	-15	93	
					Either: (3+4+5+7+8+9); or (1+2+3+4+6+7+8)			113
Laying of new pipes	Concrete lorry mixer	1	CNP 044	1	109	0	109	
	Concrete pump truck	2	CNP 047	1	109	0	109	
	* Generator, silenced	3	CNP 102	1	100	-15	85	
	Crane lorry	4	CNP 048	1	112	-2	110	
	* Pilers	5	CNP 170	1	113	-15	98	
	* Ventilation fan	6	CNP 241	1	108	-15	93	
	* Water pump	7	CNP 282	1	103	-15	88	
	* Circular Saw	8	CNP 201	1	108	-15	93	
					Either: (3+4+6+7+8); or (1+2+3+4+6+7)			114
Backfilling and Removal of Shoring	Compactor	1	CNP 050	1	105	-2	103	
	Excavator	2	CNP 081	1	112	-2	110	
	Lorry	3	CNP 141	1	112	-2	110	113
Re-divert utilities, road surface reinstatement and traffic diversion	Concrete lorry mixer	1	CNP 044	1	109	0	109	
	Excavator	2	CNP 081	1	112	-2	110	
	Pilers	3	CNP 170	1	113	0	113	
	Road roller	4	CNP 185	1	108	-3	105	116

## Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile

\* Plants to be operated under deck

Either vibrating hammer or Odex drilling machine (i.e. auger) will be used for installing the temporary wall and king posts. The SWL for vibrating hammer is higher than that of Odex drilling machine, and hence has been assumed in the assessment

Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Unmitigated)

SWL Breakdown - Entrance								
Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Combined SWL
Construction of Above ground Entrance	Generator, silenced	1	CNP 102	1	100	0	100	
	Crane Lorry	2	CNP 048	1	112	-2	110	
	Mobile Crane	3	CNP 048	1	112	-5	107	
	Circular Saw	4	CNP 201	1	108	-3	105	
	Concrete Pump Truck	5	CNP 047	1	109	0	109	
	Concrete Lorry Mixer	6	CNP 044	1	109	0	109	
	Pokers	7	CNP 170	1	113	0	113	117

Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile



Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Unmitigated)

SWL Breakdown - VentShaft								
Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Combined SWL
Construction of Above ground Vent Shaft	Generator, silenced	1	CNP 102	1	100	0	100	
	Crane Lorry	2	CNP 048	1	112	-2	110	
	Mobile Crane	3	CNP 048	1	112	-5	107	
	Circular Saw	4	CNP 201	1	108	-3	105	
	Concrete Pump Truck	5	CNP 047	1	109	0	109	
	Concrete Lorry Mixer	6	CNP 044	1	109	0	109	
	Pokers	7	CNP 170	1	113	0	113	117

Note:  
 Correction for utilisation rate should be referred to Table 1 of Project Profile

Project: Cheung Lai Street Subway  
Title: Construction Noise Assessment (Unmitigated)

SWL Breakdown								
Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Combined SWL
Stockpile	Excavator	1	CNP 081	1	112	-2	110	
	Lorry	2	CNP 141	1	112	-2	110	113

Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile



## APPENDIX 3

---

### **Construction Noise Assessment (Unmitigated Scenario)**

Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Unmitigated)  
 NSR: R1 (The Pacific Tower 1)

Month 16 - 19		Area 13 & 16	Area 5a, 5b, 5c, 5d	Area 3, 4, 5c & 5d	Stockpile
SWL		Excavations and Installation of Lateral Support	Excavations and Installation of Lateral Support	Excavations and Installation of Lateral Support	113
Distance (m)		115	115	115	113
Dist Corr		53	107	150	49
Barrier Corr		-42.5	-48.6	-51.5	-41.8
Façade Corr		0	0	0	0
Predicted CNL dB(A)		76	69	67	74
				Overall CNL dB(A)	79
Month 19 - 22		Area 12, 13, 14	Area 10, 11	Area 1 & 2	Stockpile
SWL		Excavations and Installation of Lateral Support	Excavations and Installation of Lateral Support	Excavations and Installation of Lateral Support	113
Distance (m)		115	115	115	113
Dist Corr		67	91	205	49
Barrier Corr		-44.6	-47.1	-54.2	-41.8
Façade Corr		0	0	0	0
Predicted CNL dB(A)		73	71	64	74
				Overall CNL dB(A)	78
Month 32 - 33		Area 16	Area 5a & 6	Area 1	Stockpile
SWL		Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	113
Distance (m)		116	116	116	113
Dist Corr		53	135	205	49
Barrier Corr		-42.5	-50.8	-54.2	-41.8
Façade Corr		0	0	0	0
Predicted CNL dB(A)		77	69	65	74
				Overall CNL dB(A)	79
Month 33		Area 12, 13, 14	Area 5b, 7a, 8	Area 2	Stockpile
SWL		Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	113
Distance (m)		116	116	116	113
Dist Corr		72	114	205	49
Barrier Corr		-45.1	-49.2	-54.2	-41.8
Façade Corr		0	0	0	0
Predicted CNL dB(A)		74	70	65	74
				Overall CNL dB(A)	78
Month 33		Area 14	Area 9 & 11	Area 3 & 5c	Stockpile
SWL		Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	113
Distance (m)		116	116	116	113
Dist Corr		67	91	150	49
Barrier Corr		-44.6	-47.1	-51.5	-41.8
Façade Corr		0	0	0	0
Predicted CNL dB(A)		75	72	68	74
				Overall CNL dB(A)	79
Month 34		Area 15	Area 10 & 11	Area 4 & 5d	Stockpile
SWL		Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	113
Distance (m)		116	116	116	113
Dist Corr		64	91	150	49
Barrier Corr		-44.1	-47.1	-51.5	-41.8
Façade Corr		0	0	0	0
Predicted CNL dB(A)		75	72	68	74
				Overall CNL dB(A)	82

#### Maximum construction noise level at R1 = 82dB(A) for Month 34

\* Remark: Distance to the nearest areas has been used in the assessment. The podium height is at about 30m above ground

Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Unmitigated)  
 NSR: R2 (Liberte Boick 6)

Month 16 - 19	Area 13 & 16		Area 5a, 5b, 6, 9		Area 3, 4, 5c & 5d	
	Excavations and Installation of Lateral Support		Excavations and Installation of Lateral Support		Excavations and Installation of Lateral Support	
SWL	115		115		115	
Distance (m)	38		78		124	
Dist Corr	-39.6		-46.0		-48.9	
Barrier Corr	0		0		0	
Facade Corr	3		3		3	
Predicted CNL, dB(A)	78		72		68	
	Overall CNL, dB(A)		Overall CNL, dB(A)		Overall CNL, dB(A)	
					80	

Month 19 - 22	Area 12, 13, 14		Area 10, 11		Area 1 & 2	
	Excavations and Installation of Lateral Support		Excavations and Installation of Lateral Support		Excavations and Installation of Lateral Support	
SWL	115		115		115	
Distance (m)	43		61		184	
Dist Corr	-40.8		-43.7		-53.3	
Barrier Corr	0		0		0	
Facade Corr	3		3		3	
Predicted CNL, dB(A)	77		74		65	
	Overall CNL, dB(A)		Overall CNL, dB(A)		Overall CNL, dB(A)	
					79	

Month 32 - 33	Area 16		Area 5a & 6		Area 1	
	Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion	
SWL	116		116		116	
Distance (m)	38		105		184	
Dist Corr	-39.6		-48.5		-53.3	
Barrier Corr	0		0		0	
Facade Corr	3		3		3	
Predicted CNL, dB(A)	80		71		66	
	Overall CNL, dB(A)		Overall CNL, dB(A)		Overall CNL, dB(A)	
					80	

Month 33	Area 12 & 13		Area 5b, 7a, 8		Area 2	
	Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion	
SWL	116		116		116	
Distance (m)	47		86		184	
Dist Corr	-41.4		-46.7		-53.3	
Barrier Corr	0		0		0	
Facade Corr	3		3		3	
Predicted CNL, dB(A)	78		72		66	
	Overall CNL, dB(A)		Overall CNL, dB(A)		Overall CNL, dB(A)	
					79	

Month 33	Area 14		Area 9 & 11		Area 3 & 5c	
	Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion	
SWL	116		116		116	
Distance (m)	43		61		124	
Dist Corr	-40.8		-43.7		-49.0	
Barrier Corr	0		0		0	
Facade Corr	3		3		3	
Predicted CNL, dB(A)	78		75		69	
	Overall CNL, dB(A)		Overall CNL, dB(A)		Overall CNL, dB(A)	
					81	

Month 34	Area 15		Area 10 & 11		Area 4 & 5d		Area 12	
	Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Construction of Vent shaft	
SWL	116		116		116		117	
Distance (m)	41		61		124		81	
Dist Corr	-40.2		-43.7		-48.9		-43.7	
Barrier Corr	0		0		0		0	
Facade Corr	3		3		3		3	
Predicted CNL, dB(A)	79		75		69		77	
	Overall CNL, dB(A)		Overall CNL, dB(A)		Overall CNL, dB(A)		Overall CNL, dB(A)	
							84	

Maximum construction noise level at R2 = 84dB(A) for Month 34

\* Remark: Distance to the nearest areas has been used in the assessment. The podium height is at about 30m above ground



Project: Chung Lai Street Subway  
 Title: Construction Noise Assessment (Unmitigated)  
 NSR: R3 (Liberto Block 7)

Month 1 - 6	Sewer Construction
SWL	116
Distance (m)	45
Dist Corr	-41.0
Barrier Corr	0
Facade Corr	3
Predicted SPL dB(A)	78

Area 15 & 16		Area 5a, 5b, 5c, 5d	Area 3, 4, 5c & 5d
Month 16 - 19	Excavations and Installation of Lateral Support	Excavations and Installation of Lateral Support	Excavations and Installation of Lateral Support
SWL	115	115	115
Distance (m)	42	69	114
Dist Corr	-40.5	-44.8	-48.1
Barrier Corr	0	0	0
Facade Corr	3	3	3
Predicted CNL dB(A)	78	73	69
Overall CNL dB(A)		79	

Area 12, 13, 14		Area 10, 11	Area 1 & 2
Month 19 - 22	Excavations and Installation of Lateral Support	Excavations and Installation of Lateral Support	Excavations and Installation of Lateral Support
SWL	115	115	115
Distance (m)	43	51	173
Dist Corr	-40.6	-42.1	-52.8
Barrier Corr	0	0	0
Facade Corr	3	3	3
Predicted CNL dB(A)	77	76	65
Overall CNL dB(A)		80	

Area 16		Area 5a & 5b	Area 1
Month 32 - 33	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion
SWL	116	116	116
Distance (m)	44	92	173
Dist Corr	-40.9	-47.3	-52.8
Barrier Corr	0	0	0
Facade Corr	3	3	3
Predicted CNL dB(A)	78	72	66
Overall CNL dB(A)		79	

Area 12 & 13		Area 5b, 7a, 8	Area 2
Month 33	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion
SWL	116	115	116
Distance (m)	44	75	173
Dist Corr	-40.9	-45.6	-52.8
Barrier Corr	0	0	0
Facade Corr	3	3	3
Predicted CNL dB(A)	78	74	66
Overall CNL dB(A)		80	

Area 14		Area 9 & 11	Area 3 & 5c
Month 33	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion
SWL	116	116	116
Distance (m)	43	51	114
Dist Corr	-40.6	-42.1	-49.1
Barrier Corr	0	0	0
Facade Corr	3	3	3
Predicted CNL dB(A)	79	77	70
Overall CNL dB(A)		81	

Area 15		Area 10 & 11	Area 4 & 5d	Area 11	Area 12
Month 34	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Construction of Vent shaft	Construction of Vent shaft
SWL	116	116	116	117	117
Distance (m)	42	51	114	51	51
Dist Corr	-40.5	-42.1	-49.1	-42.1	-42.1
Barrier Corr	0	0	0	0	0
Facade Corr	3	3	3	3	3
Predicted CNL dB(A)	79	77	70	78	78
Overall CNL dB(A)		84		84	

Maximum construction noise level at R3 = 84dB(A) for Month 34

\* Remark: Distance to the nearest areas has been used in the assessment. The podium height is at about 30m above ground

Project: Chung Lai Street Subway  
 Title: Construction Noise Assessment (Unmitigated)  
 NSR: R4 (Liberte Boick 8)

Area 15 & 16		Area 5a, 5b, 5c, 5d		Area 3, 4, 5c & 5d	
Excavations and Installation of Lateral Support		Excavations and Installation of Lateral Support		Excavations and Installation of Lateral Support	
Month 16 - 19	115	115	115	115	115
SWL	65	65	65	65	65
Distance (m)	-44.3	-44.3	-44.3	-44.3	-44.3
Dist Corr	0	0	0	0	0
Barrier Corr	3	3	3	3	3
Facade Corr	74	74	74	74	74
Predicted CNL dB(A)	74	74	74	74	74
Overall CNL dB(A)	77	77	77	77	77

Area 12, 13, 14		Area 10, 11		Area 1 & 2	
Excavations and Installation of Lateral Support		Excavations and Installation of Lateral Support		Excavations and Installation of Lateral Support	
Month 19 - 22	115	115	115	115	115
SWL	58	58	58	58	58
Distance (m)	-43.3	-43.3	-43.3	-43.3	-43.3
Dist Corr	0	0	0	0	0
Barrier Corr	3	3	3	3	3
Facade Corr	75	75	75	75	75
Predicted CNL dB(A)	75	75	75	75	75
Overall CNL dB(A)	79	79	79	79	79

Area 16		Area 5a & 5b		Area 1	
Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion	
Month 32 - 33	116	116	116	116	116
SWL	55	55	55	55	55
Distance (m)	-44.3	-44.3	-44.3	-44.3	-44.3
Dist Corr	0	0	0	0	0
Barrier Corr	3	3	3	3	3
Facade Corr	75	75	75	75	75
Predicted CNL dB(A)	75	75	75	75	75
Overall CNL dB(A)	79	79	79	79	79

Area 12 & 13		Area 5b, 7a & 8		Area 2	
Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion	
Month 33	116	116	116	116	116
SWL	57	57	57	57	57
Distance (m)	-43.2	-43.2	-43.2	-43.2	-43.2
Dist Corr	0	0	0	0	0
Barrier Corr	3	3	3	3	3
Facade Corr	76	76	76	76	76
Predicted CNL dB(A)	76	76	76	76	76
Overall CNL dB(A)	79	79	79	79	79

Area 14		Area 9 & 10		Area 3 & 5c	
Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion	
Month 33	116	116	116	116	116
SWL	58	58	58	58	58
Distance (m)	-43.3	-43.3	-43.3	-43.3	-43.3
Dist Corr	0	0	0	0	0
Barrier Corr	3	3	3	3	3
Facade Corr	76	76	76	76	76
Predicted CNL dB(A)	76	76	76	76	76
Overall CNL dB(A)	80	80	80	80	80

Area 15		Area 10 & 11a		Area 4 & 5d		Area 11		Area 12	
Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Re-divert utilities, road surface reinstatement & traffic diversion		Construction of Ventshaft		Construction of Ventshaft	
Month 34	116	116	116	116	116	117	117	117	117
SWL	60	60	60	60	60	48	48	48	48
Distance (m)	-43.6	-43.6	-43.6	-43.6	-43.6	-41.6	-41.6	-41.6	-41.6
Dist Corr	0	0	0	0	0	0	0	0	0
Barrier Corr	3	3	3	3	3	3	3	3	3
Facade Corr	76	76	76	76	76	79	79	79	79
Predicted CNL dB(A)	76	76	76	76	76	79	79	79	79
Overall CNL dB(A)	83	83	83	83	83	83	83	83	83

Subway Entrance		Subway Entrance		Subway Entrance	
Construction of Subway Entrance D1		Construction of Subway Entrance D2		Construction of Ventshaft	
Month 34	117	117	117	117	117
SWL	111	111	111	111	111
Distance (m)	-48.9	-48.9	-48.9	-48.9	-48.9
Dist Corr	0	0	0	0	0
Barrier Corr	3	3	3	3	3
Facade Corr	72	72	72	72	72
Predicted CNL dB(A)	72	72	72	72	72
Overall CNL dB(A)	81	81	81	81	81

Maximum construction noise level at R4 = 83dB(A) for Month 34

\* Remark: Distance to the nearest areas has been used in the assessment. The podium height is at about 30m above ground

## APPENDIX 4

---

### **Construction Plant Inventory and detailed Construction Noise Assessment (Mitigated Scenario)**



Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Mitigated)

SWL Breakdown - Subway								
Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Max SWL
Remove obstruction, expose and divert existing utilities	Air compressor	1	CNP 002	1	102	0	102	
	+ Breaker handheld	2	CNP 024	1	108	-6	102	
	Excavator	3	BS Table C3 REF 35	1	106	-2	104	
	Generator, silenced	4	CNP 103	1	95	0	95	
	Crane lorry	5	BS Table C7 REF 101	1	94	-2	92	108
Installation of Temporary Walls and Decking	Excavator	1	BS Table C3 REF 35	1	106	-2	104	
	Generator, silenced	2	CNP 103	1	95	0	95	
	Lorry	3	BS Table C9 REF 19	1	102	-2	100	
	+ Vibrating hammer	4	CNP 172	1	115	-7	108	
	Drill Hole Machine (Electric)	5	CNP 166	1	100	0	100	
	Electric Grout Pump	6	CNP 106	1	105	0	105	
Either : (1+2+3); (2+3+4); or (2+3+5+6)								109
Excavations and Installation of Lateral Support	* Breaker handheld	1	CNP 024	1	108	-15	93	
	Dump truck	2	BS Table C9 REF 24	1	104	-2	102	
	* Mini Excavator	3	CNP 082	1	94	-15	79	
	* Generator, silenced	4	CNP 103	1	95	-15	80	
	Lorry	5	BS Table C9 REF 19	1	102	-2	100	
	* Ventilation fan	6	CNP 241	1	108	-15	93	
	* Water pump	7	CNP 281	1	88	-15	73	
Either : (1+3+4+6+7); (2+3+4+6+7); or (3+4+5+6+7)								103
Construction of the Subway Structure	Concrete lorry mixer	1	BS Table C6 REF 33	1	96	0	96	
	Concrete pump truck	2	BS Table C6 REF 36	1	106	0	106	
	Mobile Crane	3	BS Table C7 REF 112	1	102	-5	97	
	* Generator, silenced	4	CNP 103	1	95	-15	80	
	Crane lorry	5	BS Table C7 REF 101	1	94	-2	92	
	* Pokers	6	BS Table C6 REF 40	1	98	-15	83	
	* Ventilation fan	7	CNP 241	1	108	-15	93	
	* Water pump	8	CNP 281	1	88	-15	73	
	* Circular Saw	9	BS Table C7 REF 78	1	106	-15	91	
Either : (3+4+5+7+8+9); or (1+2+3+4+6+7+8)								107
Backfilling and Removal of Shoring	Compactor	1	CNP 050	1	105	-2	103	
	Excavator	2	BS Table C3 REF 35	1	106	-2	104	
	Lorry	3	BS Table C9 REF 19	1	102	-2	100	107
Re-divert utilities, road surface reinstatement and traffic diversion	Concrete lorry mixer	1	BS Table C6 REF 33	1	96	0	96	
	Excavator	2	BS Table C3 REF 35	1	106	-2	104	
	Pokers	3	BS Table C6 REF 40	1	98	0	98	
	Road roller	4	BS Table C8 REF 30	1	101	-3	98	106

## Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile

+ Plant to be shielded by movable barrier/acoustic mat

\* Plants to be operated under deck

Either vibrating hammer or Odex drilling machine (i.e. auger) will be used for installing the temporary wall and king posts. The SWL for vibrating hammer is higher than that of Odex drilling machine, and hence has been assumed in the assessment

Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Mitigated)

SWL Breakdown - Sewer								
Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Max SWL
Remove obstruction, expose and divert existing utilities	Air compressor	1	CNP 002	1	102	0	102	
	+ Breaker handheld	2	CNP 024	1	108	-6	102	
	Excavator	3	BS Table C3 REF 35	1	106	-2	104	
	Generator, silenced	4	CNP 103	1	95	0	95	
	Crane lorry	5	BS Table C7 REF 101	1	94	-2	92	108
Either : (1+2+3); (2+3+4); or (2+3+5+6)								
Installation of Temporary Walls, King Posts and Decking	Excavator	1	BS Table C3 REF 35	1	106	-2	104	
	Generator, silenced	2	CNP 103	1	95	0	95	
	Lorry	3	BS Table C9 REF 19	1	102	-2	100	
	+ Vibrating hammer	4	CNP 172	1	115	-7	108	
	Drill Hole Machine (Electric)	5	CNP 166	1	100	0	100	
	Electric Grout Pump	6	CNP 106	1	105	0	105	
Either : (1+2+3); (2+3+4); or (2+3+5+6)								
Excavations and Installation of Lateral Support	Dump truck	1	BS Table C9 REF 24	1	104	-2	102	
	Mini Excavator	2	CNP 082	1	94	-15	79	
	Generator, silenced	3	CNP 103	1	95	-15	80	
	Ventilation fan	4	CNP 241	1	108	-15	93	
	Water pump	5	CNP 281	1	88	-15	73	
	Lorry	6	BS Table C9 REF 19	1	102	-2	100	
Either : (1+3+4+5); (2+3+4+5); or (3+4+5+6)								
Construction of manholes	Concrete lorry mixer	1	BS Table C6 REF 33	1	96	0	96	
	Concrete pump truck	2	BS Table C6 REF 36	1	106	0	106	
	Mobile Crane	3	BS Table C7 REF 112	1	102	-5	97	
	Generator, silenced	4	CNP 103	1	95	-15	80	
	Crane lorry	5	BS Table C7 REF 101	1	94	-2	92	
	Pokers	6	BS Table C6 REF 40	1	98	-15	83	
	Ventilation fan	7	CNP 241	1	108	-15	93	
	Water pump	8	CNP 281	1	88	-15	73	
	Circular Saw	9	BS Table C7 REF 78	1	106	-15	91	
Either : (3+4+5+7+8+9); or (1+2+3+4+6+7+8)								
Laying of new pipes	Concrete lorry mixer	1	BS Table C6 REF 33	1	96	0	96	
	Concrete pump truck	2	BS Table C6 REF 36	1	106	0	106	
	Generator, silenced	3	CNP 103	1	95	-15	80	
	Crane lorry	4	BS Table C7 REF 101	1	94	-2	92	
	Pokers	5	BS Table C6 REF 40	1	98	-15	83	
	Ventilation fan	6	CNP 241	1	108	-15	93	
	Water pump	7	CNP 281	1	88	-15	73	
	Circular Saw	8	BS Table C7 REF 78	1	106	-15	91	
Either : (3+4+6+7+8); or (1+2+3+4+6+7)								
Backfilling and Removal of Shoring	Compactor	1	CNP 050	1	105	-2	103	
	Excavator	2	BS Table C3 REF 35	1	106	-2	104	
	Lorry	3	BS Table C9 REF 19	1	102	-2	100	107
Re-divert utilities, road surface reinstatement and traffic diversion	Concrete lorry mixer	1	BS Table C6 REF 33	1	96	0	96	
	Excavator	2	BS Table C3 REF 35	1	106	-2	104	
	Pokers	3	BS Table C6 REF 40	1	98	0	98	
	Road roller	4	BS Table C8 REF 30	1	101	-3	98	106

## Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile

+ Plant to be shielded by movable barrier/acoustic mat

\* Plants to be operated under deck

Either vibrating hammer or Odex drilling machine (i.e., auger) will be used for installing the temporary wall and king posts. The SWL for vibrating hammer is higher than that of Odex drilling machine, and hence has been assumed in the assessment



Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Mitigated)

SWL Breakdown - Entrance								
Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Combined SWL
Construction of Above ground Entrance	Generator, silenced	1	CNP 103	1	95	0	95	
	Crane Lorry	2	BS Table C7 REF 101	1	94	-2	92	
	Mobile Crane	3	BS Table C7 REF 112	1	102	-5	97	
	+ Circular Saw	4	BS Table C7 REF 78	1	106	-8	98	
	Concrete Pump Truck	5	BS Table C6 REF 36	1	106	0	106	
	Concrete Lorry Mixer	6	BS Table C6 REF 33	1	96	0	96	
	Pokers	7	BS Table C6 REF 40	1	98	0	98	108

Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile

+ Plant to be shielded by movable barrier

Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Mitigated)

SWL Breakdown - VentShaft								
Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Combined SWL
Construction of Above ground Vent Shaft	Generator, silenced	1	CNP 103	1	95	0	95	
	Crane Lorry	2	BS Table C7 REF 101	1	94	-2	92	
	Mobile Crane	3	BS Table C7 REF 112	1	102	-5	97	
	+ Circular Saw	4	BS Table C7 REF 78	1	106	-8	98	
	Concrete Pump Truck	5	BS Table C6 REF 36	1	106	0	106	
	Concrete Lorry Mixer	6	BS Table C6 REF 33	1	96	0	96	
	Pokers	7	BS Table C6 REF 40	1	98	0	98	108

## Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile

+ Plant to be shielded by movable barrier

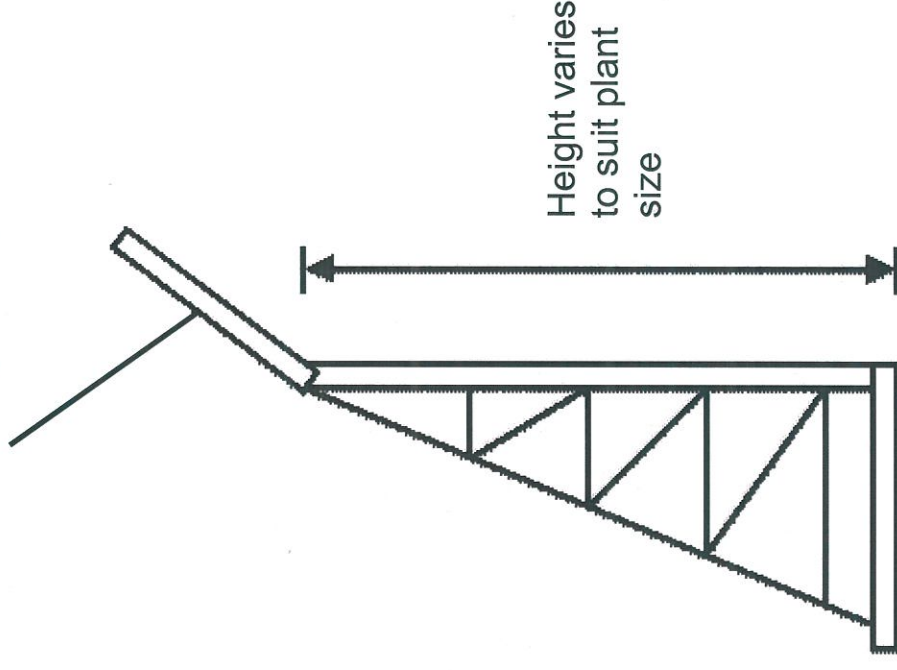
Project: Cheung Lai Street Subway  
Title: Construction Noise Assessment (Mitigated)

SWL Breakdown								
Activity	PME	Equipment ID	TM Identification	Unit	SWL	Correction	Sum SWL	Combined SWL
Stockpile	Excavator	1	BS Table C3 REF 35	1	106	-2	104	
	Lorry	2	BS Table C9 REF 19	1	102	-2	100	105

Note:

Correction for utilisation rate should be referred to Table 1 of Project Profile

Minimum surface density of  $10\text{kg/m}^2$



Typical Temporary Noise Barrier for  
Mobile Plant (~3-5m tall)

Noise reduction =  $5\text{dB(A)}$



Typical Acoustic Mat



Project: Chung Lai Street Subway  
 Title: Construction Noise Assessment (Mitigated)  
 NSR: R1 (The Pacific Tower 1)

Area 15 & 16		Area 5a, 5b, 5-9		Area 3, 4, 5c & 5d	
Month 25 - 29 & 31 - 32	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Stockpile
SWL	107	107	107	107	105
Distance (m)	53	107	150	49	49
Dist Corr	-42.5	-48.6	-51.5	-41.8	-41.8
Barrier Corr	0	0	0	0	0
Facade Corr	3	3	3	3	3
Predicted CNL, dB(A)	68	62	59	67	71
		Overall CNL, dB(A)		Overall CNL, dB(A)	
				71	

Area 12, 13, 14		Area 10, 11		Area 1 & 2	
Month 22 - 25 & 29 - 30	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Stockpile
SWL	107	107	107	107	105
Distance (m)	67	91	205	49	49
Dist Corr	-44.6	-47.1	-54.2	-41.8	-41.8
Barrier Corr	0	0	0	0	0
Facade Corr	3	3	3	3	3
Predicted CNL, dB(A)	66	63	56	67	70
		Overall CNL, dB(A)		Overall CNL, dB(A)	
				70	

Area 16		Area 5a & 6		Area 1	
Month 7 & 8	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Stockpile
SWL	109	109	109	105	105
Distance (m)	53	135	205	49	49
Dist Corr	-42.5	-50.6	-54.2	-41.8	-41.8
Barrier Corr	0	0	0	0	0
Facade Corr	3	3	3	3	3
Predicted CNL, dB(A)	69	61	58	67	72
		Overall CNL, dB(A)		Overall CNL, dB(A)	
				72	

Area 12 & 13		Area 5b, 7 & 8		Area 2	
Month 9 - 11	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Stockpile
SWL	109	109	109	109	105
Distance (m)	72	114	205	49	49
Dist Corr	-45.1	-49.2	-54.2	-41.8	-41.8
Barrier Corr	0	0	0	0	0
Facade Corr	3	3	3	3	3
Predicted CNL, dB(A)	67	63	58	67	71
		Overall CNL, dB(A)		Overall CNL, dB(A)	
				71	

Area 14		Area 9 & 11		Area 3 & 5c	
Month 12-13	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Stockpile
SWL	109	109	109	109	105
Distance (m)	67	91	150	49	49
Dist Corr	-44.6	-47.1	-51.5	-41.8	-41.8
Barrier Corr	0	0	0	0	0
Facade Corr	3	3	3	3	3
Predicted CNL, dB(A)	67	65	60	67	71
		Overall CNL, dB(A)		Overall CNL, dB(A)	
				71	

Area 15		Area 10 & 11		Area 4 & 5d		Area 12	
Month 24	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Construction of Vent shaft	Construction of Vent shaft	Stockpile
SWL	106	106	106	106	108	108	105
Distance (m)	64	91	150	49	91	83	49
Dist Corr	-44.1	-47.1	-51.5	-47.1	-41.8	-44.0	-41.8
Barrier Corr	0	0	0	0	0	0	0
Facade Corr	3	3	3	3	3	3	3
Predicted CNL, dB(A)	65	62	58	64	67	67	73
		Overall CNL, dB(A)		Overall CNL, dB(A)		Overall CNL, dB(A)	
						73	

Maximum construction noise level at R1 = 73dB(A) for Month 34

\* Remark: Distance to the nearest areas has been used in the assessment. The podium height is at about 30m above ground

**Project:** Cheung Lai Street Subway  
**Title:** Construction Noise Assessment (Mitigated)  
**NSR:** R2 (Liberte Bolck 6)

	Area 15 & 16	Area 5a, 5b, 6-9	Area 3, 4, 5a & 5d
Month 25 - 29 & 31 - 32	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring
SWL	107	107	107
Distance (m)	38	79	124
Dist Corr	-39.6	-46.0	-49.9
Barrier Corr	0	0	0
Façade Corr	3	3	3
Predicted CNL, dB(A)	70	64	60
		Overall CNL, dB(A)	72

Month 22 - 25 & 29 - 30	Area 12, 13, 14	Area 10, 11	Area 1 & 2
SWL	107	107	107
Distance (m)	43		184
Dist Corr	-40.8	-43.7	-53.3
Barrier Corr	0	0	0
Façade Corr	3	3	3
Predicted CNL, dB(A)	70	67	57
		Overall CNL, dB(A)	72

Month 7 & 8	Area 16	Area 5a & 6	Area 1
SWL	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts
	109	109	109
Distance (m)	38		184
Dist Corr	-39.6	-48.5	-53.3
Barrier Corr	0	0	0
Façade Corr	3	3	3
Predicted CNL, dB(A)	72	63	59
		Overall CNL, dB(A)	<b>73</b>

	Area 12 & 13	Area 5b, 7 & 8	Area 2
Month 9-11	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts
SWL	109	109	109
Distance (m)	47	86	184
Dist Corr	-41.4	-46.7	-53.3
Barrier Corr	0	0	0
Façade Corr	3	3	3
Predicted CNL dB(A)	70	65	59
		Overall CNL dB(A)	72

	Area 14	Area 9 & 11b	Area 3 & 5c
	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts
Month 12-13			
SWL	109	109	109
Distance (m)	43	61	124
Dist Corr	-40.8	-43.7	-49.9
Barrier Corr	0	0	0
Façade Corr	3	3	3
Predicted CNL dB(A)	71	68	62
		Overall CNL dB(A)	73

Month 34	Area 15	Area 10 & 11a	Area 4 & 5d	Area 11	Area 12
SWL	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Construction of Ventshaft	Construction of Ventshaft
	106	106	106	108	108
Distance (m)	41	61	124	61	49
Dist Corr	-40.2	-43.7	-43.9	-43.7	-41.8
Barrier Corr	0	0	0	0	0
Façade Corr	3	3	3	3	3
Predicted CNL, dB(A)	69	66	59	68	69
	Overall CNL, dB(A)				74

Maximum construction noise level at R2 = 74dB(A) for Month 34

\* Remark: Distance to the nearest areas has been used in the assessment. The podium height is at about 30m above ground



Project: Chung Lai Street Subway  
Title: Construction Noise Assessment (Mitigated)  
NSR: R3 (Liberte Bolck 7)

Month 1 - 6		Sewer Construction
SWL	109	
Distance (m)	45	
Dist Corr	-41.0	
Barrier Corr	0	
Facade Corr	3	
Predicted SPL, dB(A)	71	

Month 25 - 29 & 31 - 32		Area 15 & 16	Area 5a, 5b, 6-9	Area 3, 4, 5c & 5d
		Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring
SWL	107	107	107	107
Distance (m)	42	69	114	114
Dist Corr	-40.5	-44.8	-49.1	-49.1
Barrier Corr	0	0	0	0
Facade Corr	3	3	3	3
Predicted CNL, dB(A)	70	65	61	61
		Overall CNL, dB(A)		71

Month 22 - 25 & 29 - 30		Area 12, 13, 14	Area 10, 11	Area 1 & 2
		Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring
SWL	107	107	107	107
Distance (m)	43	51	173	173
Dist Corr	-40.6	-42.1	-52.8	-52.8
Barrier Corr	0	0	0	0
Facade Corr	3	3	3	3
Predicted CNL, dB(A)	70	68	58	58
		Overall CNL, dB(A)		72

Month 7 & 8		Area 16	Area 5a & 6	Area 1
		Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts
SWL	109	109	109	109
Distance (m)	44	92	173	173
Dist Corr	-40.9	-47.3	-52.8	-52.8
Barrier Corr	0	0	0	0
Facade Corr	3	3	3	3
Predicted CNL, dB(A)	71	65	59	59
		Overall CNL, dB(A)		72

Month 9-11		Area 12 & 13	Area 5b, 7& 8	Area 2
		Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts
SWL	109	109	109	109
Distance (m)	44	75	173	173
Dist Corr	-40.9	-45.5	-52.8	-52.8
Barrier Corr	0	0	0	0
Facade Corr	3	3	3	3
Predicted CNL, dB(A)	71	66	59	59
		Overall CNL, dB(A)		72

Month 12-13		Area 14	Area 9 & 11	Area 3 & 5c
		Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts
SWL	109	109	109	109
Distance (m)	43	51	114	114
Dist Corr	-40.6	-42.1	-49.1	-49.1
Barrier Corr	0	0	0	0
Facade Corr	3	3	3	3
Predicted CNL, dB(A)	71	70	63	63
		Overall CNL, dB(A)		74

Month 34		Area 15	Area 10 & 11	Area 4 & 5d	Area 11	Area 12
		Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Construction of Ventshaft	Construction of Ventshaft
SWL	106	106	106	106	108	108
Distance (m)	42	51	114	114	51	51
Dist Corr	-40.5	-42.1	-49.1	-49.1	-42.1	-42.1
Barrier Corr	0	0	0	0	0	0
Facade Corr	3	3	3	3	3	3
Predicted CNL, dB(A)	69	67	60	69	69	69
		Overall CNL, dB(A)		Overall CNL, dB(A)		75

Maximum construction noise level at R3 = 75dB(A) for Month 34

\* Remark: Distance to the nearest areas has been used in the assessment. The podium height is at about 30m above ground  
G:\envproject\04152\env\_data\const\_n\ Cons\_R3.xls : R3 (Mitigate)

Project: Cheung Lai Street Subway  
 Title: Construction Noise Assessment (Mitigated)  
 NSR: R4 (Liberte Bolick 8)

Month 16 - 19	Area 15 & 16		Area 5a, 5b, 6-9		Area 3, 4, 5c & 5d	
	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring
SWL	107	107	107	107	107	107
Distance (m)	65	66	66	104	104	104
Dist Corr	-44.3	-44.4	-44.4	-48.3	-48.3	-48.3
Barrier Corr	0	0	0	0	0	0
Façade Corr	3	3	3	3	3	3
Predicted CNL, dB(A)	66	66	66	62	62	62
	Overall CNL, dB(A)					70

Month 22 - 25 & 29 - 30	Area 12, 13, 14		Area 10, 11		Area 1 & 2	
	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring	Construction of subway structure/ Backfilling & removal of shoring
SWL	107	107	107	107	107	107
Distance (m)	58	48	48	165	165	165
Dist Corr	-43.3	-41.6	-41.6	-52.4	-52.4	-52.4
Barrier Corr	0	0	0	0	0	0
Façade Corr	3	3	3	3	3	3
Predicted CNL, dB(A)	67	66	66	58	58	58
	Overall CNL, dB(A)					71

Month 7-9	Area 16		Area 5a & 6		Area 1	
	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts
SWL	109	109	109	109	109	109
Distance (m)	65	80	80	165	165	165
Dist Corr	-44.3	-46.1	-46.1	-52.4	-52.4	-52.4
Barrier Corr	0	0	0	0	0	0
Façade Corr	3	3	3	3	3	3
Predicted CNL, dB(A)	68	66	66	59	59	59
	Overall CNL, dB(A)					70

Month 9-11	Area 12 & 13		Area 5b, 7 & 8		Area 2	
	Remove obstruction/Installation of temp walls & king posts	Remove obstruction/Installation of temp walls & king posts	Remove obstruction/Installation of temp walls & king posts	Remove obstruction/Installation of temp walls & king posts	Remove obstruction/Installation of temp walls & king posts	Remove obstruction/Installation of temp walls & king posts
SWL	109	109	109	109	109	109
Distance (m)	57	68	68	165	165	165
Dist Corr	-43.2	-44.7	-44.7	-52.4	-52.4	-52.4
Barrier Corr	0	0	0	0	0	0
Façade Corr	3	3	3	3	3	3
Predicted CNL, dB(A)	69	67	67	59	59	59
	Overall CNL, dB(A)					71

Month 12-13	Area 14		Area 9 & 11b		Area 3 & 5c	
	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts	Installation of temp walls & king posts
SWL	109	109	109	109	109	109
Distance (m)	58	48	48	104	104	104
Dist Corr	-43.3	-41.6	-41.6	-48.3	-48.3	-48.3
Barrier Corr	0	0	0	0	0	0
Façade Corr	3	3	3	3	3	3
Predicted CNL, dB(A)	68	70	63	61	61	61
	Overall CNL, dB(A)					73

Month 24	Area 15		Area 10 & 11a		Area 4 & 5d		Area 11		Area 12	
	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Re-divert utilities, road surface reinstatement & traffic diversion	Construction of Vent shaft	Construction of Vent shaft	Construction of Vent shaft	Construction of Vent shaft
SWL	106	106	106	106	106	106	108	108	108	108
Distance (m)	60	48	48	104	104	104	48	48	48	65
Dist Corr	-43.6	-41.6	-41.6	-48.3	-48.3	-48.3	-41.6	-41.6	-41.6	-44.3
Barrier Corr	0	0	0	0	0	0	0	0	0	0
Façade Corr	3	3	3	3	3	3	3	3	3	3
Predicted CNL, dB(A)	66	68	68	61	61	61	70	70	67	67
	Overall CNL, dB(A)									74

	Subway Entrance		Subway Entrance		Area 11		Area 12	
	Construction of Subway Entrance D1	Construction of Subway Entrance D2	Construction of Subway Entrance D1	Construction of Subway Entrance D2	Construction of Ventshaft	Construction of Ventshaft	Construction of Ventshaft	Construction of Ventshaft
Month 34	108	108	108	108	108	108	108	108
SWL								
Distance (m)	111	132	132	48	48		65	65
Dist Corr	-48.9	-50.4	-50.4	-41.6	-41.6		-44.3	-44.3
Barrier Corr	0	0	0	0	0		0	0
Façade Corr	3	3	3	3	3		3	3
Predicted CNL, dB(A)	62	61	61	70	70		67	67
	Overall CNL, dB(A)							72

Maximum construction noise level at R4 = 74dB(A) for Month 34

\* Remark: Distance to the nearest areas has been used in the assessment. The podium height is at about 30m above ground



## APPENDIX 5

---

### **Calculation of Permissible SWL at Louvre**

Project: Cheung Lai Street Subway  
 Title: Permissible SWL at Louvre  
 Date: 13-Aug-04

Receiver	Affected by IF	ASR <sup>(1)</sup>	Noise Levels / Criteria		Contributing Noise Sources	Appportioned Criteria	Propagation				Corrections: dB(A)			Permissible SWL, dB(A)			
			ANL <sup>(2)</sup>	Prevailing			Design	Hor Dist m	Vert Dist of NSR mPP	Vert Dist or Vent Shaft mPP	Dir. deg	Facade	Dist		Dir	Int	
Liberte Block 6	Daytime	Y	65	75	65	Smoke Extraction Louvre Fresh Air Intake Louvre	61 63 65	34 34 34	11 8 8	72 48	0 0	3 3	-45 -42	0 0	3 3	0 0	100 99
	Night-time	Y	55	70	55	Smoke Extraction Louvre Fresh Air Intake Louvre	50 54 55	34 34 34	11 8 8	72 48	0 0	3 3	-45 -42	0 0	3 3	89 90	

[1] Area Sensitivity Rating  
 The NSR (Liberte) is directly affected by West Kowloon Corridor. As per the Annual Traffic Census 2003, the traffic flow of West Kowloon Corridor (from Cheung Lai Street to Yen Chow Street - Station No. 3888) was 66,990.  
 Therefore, the Area Sensitivity Rating (ASR) at Liberte is C.

Project: Cheung Lai Street Subway  
 Title: Permissible SWL at Louvre  
 Date: 13-Aug-04

Receiver	Affected by IF	ASR (1)	Noise Levels / Criteria		Contributing Noise Sources	Appointed Criteria	Propagation			Corrections: dB(A)			Permissible SWL: dB(A)			
			ANL-5	Prevailing			Design	Horiz Dist. m	Vert Dist. of NSR, mPPD	Vert Dist. of Vent Shaft, mPPD	Start Dist. m	Dir. deg		Facade	Dist. Dir	Yon
Liberta Block 8	Daytime	Y	65	75	65	Smoke Extraction Louvre Fresh Air Intake Louvre	65	20	34	11	30	0	3	0	3	97
							55	80	34	8	84	0	3	-47	0	3
	Night-time	Y	55	70	55	Smoke Extraction Louvre Fresh Air Intake Louvre	55	20	34	11	30	0	3	0	3	87
							45	80	34	8	84	0	3	-47	0	3

[1] Area Sensitivity Rating  
 The NSR (Liberte) is immediately directly affected by West Kowloon Corridor. As per the Annual Traffic Census 2003, the traffic flow of West Kowloon Corridor (from Cheung Lai Street to Yen Chow Street - Station No. 3888) was 68,980. Therefore, the Area Sensitivity Rating (ASR) at Liberte is C.

**Project:** Cheung Lai Street Subway  
**Title:** Permissible SWL at Louvre  
**Date:** 13-Aug-04

Description	Permissible SWL at Louvre	
	Daytime	Night-time
Smoke Extraction Louvre	97	87
Fresh Air Intake Louvre	96	86

## APPENDIX 6

---

### **Report Form for Complaints**



**MTR Projects**  
**Sheet : 1 of 1**  
**Report Form For Complaints**

**CR Dept Ref:** \_\_\_\_\_  
**Unit Ref:** \_\_\_\_\_

**RECIPIENT**

Name: \_\_\_\_\_ (Project Hotline) Location: 23/F HQ Tel: 2993 3333  
Received Date: \_\_\_\_\_ Received Time: \_\_\_\_\_

**COMPLAINANT**

Name: \_\_\_\_\_ Tel: \_\_\_\_\_  
Address: \_\_\_\_\_

**COMPLAINT**

- ☐ TKE ☐ TMK ☐ LAR2  
☐ Noise ☐ Air quality/Dust ☐ Water ☐ Odour  
☐ Environment ☐ Traffic/Pedestrian ☐ Safety ☐ Others

Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Location: \_\_\_\_\_

Copy sent to SIOW (Time/Date)

Original sent to SCONE (Date)

**REVIEW RESULTS**

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

**RECOMMENDATIONS**

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

**ATTACHMENTS**

**Copy to ( Time / Date )**

PjCM \_\_\_\_\_ ; Construction Manager \_\_\_\_\_ ;  
Sustainability Development Manager \_\_\_\_\_