Highways Department
The Government of the Hong Kong Special Administrative Region

Agreement No. WD 6/2007 Improvement to Pok Oi Interchange – Environmental Impact Assessment Study: *Environmental Impact Assessment Report*

17 November 2008

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FINAL REPORT

Highways Department

Agreement No. WD 6/2007 Improvement to Pok Oi Interchange – Environmental Impact Assessment Study: *Environmental Impact Assessment Report*

November 2008

Reference 0072252

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Dr Robin Kennish

Signed: 

Position: Director

Date: 17 November 2008

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1 INTRODUCTION

1.1 BACKGROUND

At present, traffic queues are already observed on the northern approach of the Pok Oi Roundabout (POR) during the evening peak period and on the southern approach at both morning and evening peaks. The situation will likely deteriorate further when the nearby developments are completed. The tailback of traffic onto the southbound carriageway on the northern approach to POR may block the through traffic from Tai Lam Tunnel / New Territories (NT) North to Tuen Mun / Tin Shui Wai / Hong Kong – Shenzhen Western Corridor.

The *Technical Feasibility Statement* (TFS) for the Improvement to Pok Oi Interchange was completed in November 2005. In September 2006, Highways Department (HyD) commissioned Mott Connell Ltd (MCL) to undertake the *Traffic Impact Assessment* and *Alignment Design Study (Agreement No. WD 3/2006)*. The Study reviewed the preliminary improvement layouts proposed in the TFS, presented recommendations on the preferred alignment, configuration and layout, and investigated the traffic carrying capacities of the improvement scheme.

An application under the *Environmental Impact Assessment Ordinance (EIAO)* for an *Environmental Impact Assessment (EIA) Study Brief* was submitted by HyD in May 2007 with the *EIA Study Brief* (No. ESB-166/2007) issued in July 2007.

ERM-Hong Kong, Ltd (ERM), supported by Halcrow China Ltd (Halcrow), has been commissioned by HyD to undertake the *Improvement to Pok Oi Interchange – Environmental Impact Assessment Study* (hereafter referred to as "the Assignment") under *Agreement No. WD 6/2007*. As part of the Assignment, an EIA Study has been undertaken in accordance with the *EIA Study Brief* (No. ESB-166/2007).

This *EIA Report* addresses the nature and extent of the potential environmental impacts associated with the construction and operation of the Improvement to the Pok Oi Interchange (hereafter referred to as "the Project").

1.2 OBJECTIVES OF THE EIA STUDY

The overall objectives of the EIA Study are to provide information on the nature and extent of environmental impacts arising from the Project and related activities that take place concurrently; to recommend appropriate mitigation measures to control the potential environmental impact so that it complies with the requirements of the *Technical Memorandum on Environmental Impact Assessment Process of Environmental Impact Assessment Ordinance* (*EIAO-TM*), and to confirm the environmental acceptability of the Project. An

analysis to identify elements of the Project that qualify as Designated Projects (DPs) is presented in *Section 2.2*.

The specific objectives of the EIA Study described in the *EIA Study Brief* are as follows:

(i) to describe the Project and associated works together with the requirements for carrying out the Project;

(ii) to identify and describe elements of community and environment likely to be affected by the Project and/or likely to cause adverse impacts to the Project, including natural and man-made environment and the associated environmental constraints;

(iii) to provide information on the consideration of alternatives to avoid and minimise the potential environmental impacts to environmentally sensitive areas and other sensitive uses; to compare the environmental benefits and dis-benefits of each of the different options; to provide reasons for selecting the preferred option(s) and to describe the part of environmental factors played in the selection of preferred option(s);

(iv) to identify and quantify all environmental sensitive receivers, emission sources and determine the significance of impacts on sensitive receivers and potential affected uses;

(v) to identify and quantify any potential landscape and visual impacts and to propose measures to mitigate these impacts;

(vi) to propose the provision of mitigation measures so as to minimize pollution, environmental disturbance and nuisance during construction and operation of the Project;

(vii) to investigate the feasibility, practicability, effectiveness and implications of the proposed mitigation measures;

(viii) to identify, within the Study Area, any individual project(s) that fall under Schedule 2 and/or Schedule 3 of the *EIAO*; to ascertain whether the findings of this EIA Study have adequately addressed the environmental impacts of those projects; and where necessary, to identify the outstanding issues that need to be addressed in any further detailed EIA study;

(ix) to identify, predict and evaluate the residual environmental impacts (i.e. after practicable mitigation) and the cumulative effects expected to arise during the construction and operation phases of the Project in relation to the sensitive receivers and potential affected uses;

(x) to identify, assess and specify methods, measures and standards, to be included in the detailed design, construction and operation of the Project which are necessary to mitigate these environmental impacts and cumulative effects and reduce them to acceptable levels;

(xi) to investigate the extent of the secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the EIA Study, as well as the provision of any necessary modification; and

(xii) to design and specify environmental monitoring and audit requirements to ensure the effective implementation of the recommended environmental protection and pollution control measures.

As specified in the *EIA Study Brief*, the EIA Study will address the following key environmental issues due to the construction and operation of the Project:

- potential noise and air quality impacts from the construction and operation of the Project to sensitive receivers along or near the Project, taking into account the cumulative impact from the operation of existing and planned roads and developments in the assessment area of the Project;
- potential water quality impact on the relevant water system(s) from the construction and operation activities of the Project;
- waste arising as a result of the construction activities of the Project and potential land contamination from land to be resumed for the Project; and
- potential landscape and visual impacts from the construction and operation of the Project especially impact caused by the above ground structures including noise mitigation measures.

1.3 ORGANISATION OF THE REPORT

The remainder of this report is organised as follows:

- *Section 2* describes the scope and the outline implementation programme of the Project and identifies the DP elements;
- *Section 3* presents the need for the Project and considerations given to alternative construction methods and works sequences;
- *Section 4* presents the noise assessment;
- *Section 5* presents the air quality assessment;
- *Section 6* presents the water quality assessment;
- *Section 7* assesses the waste management implications;
- *Section 8* presents the landscape and visual assessment;
- *Section 9* summarises the environmental outcomes associated with the Project; and

- *Section 10* describes the requirements for environmental monitoring and audit.

2 DESCRIPTION OF THE PROJECT

2.1 SCOPE OF THE PROJECT

The Project is located at the Pok Oi Interchange (POI) in the Yuen Long region of the North-West New Territories. The Study Area is generally rural in nature, with village houses at Wong Uk Tsuen and Small Traders New Village in the surrounding area and along the Yuen Long Highway, high-rise residential development at YOHO Town, educational institution at Kwong Ming Ying Loi School, Pok Oi Hospital and Jockey Club Care and Attention Home.

The proposed scope and alignment of the Project are shown in *Figure 2.1a* and described as follows:

- provision of a single lane flyover (approximately 140m in length) adjacent to the northbound carriageway of Pok Oi Flyover (POF) (denoted as Flyover A in *Figure 2.1a* and subsequent sections of this report);
- construction of a slip road (approximately 410m in length) connecting the northbound carriageway of the ground level road of Yuen Long Highway (YLH) on the southern arm of POR to the proposed flyover (denoted as Slip Road A in *Figure 2.1a* and subsequent sections of this report);
- construction of a slip road (approximately 100m in length) connecting the proposed flyover to the northbound carriageway of the ground level section of YLH on the northern arm of POR (denoted as Slip Road B in *Figure 2.1a* and subsequent sections of this report);
- construction of a slip road (approximately 280m in length) connecting the southbound carriageway of POF to the southbound carriageway of the ground level section of YLH on the southern arm of POR (denoted as Slip Road C in *Figure 2.1a* and subsequent sections of this report);
- resurfacing and re-marking of a stretch of the southbound carriageway (approximately 280m in length) of the ground level section of YLH on the northern arm of POR to increase the number of traffic lanes on the carriageway from three to four (denoted as Road Resurfacing and Remarking A in *Figure 2.1a* and subsequent sections of this report);
- resurfacing and re-marking of a stretch of the northbound carriageway (approximately 470m in length) of the ground level section of YLH on the northern arm of POR (denoted as Road Resurfacing and Remarking B in *Figure 2.1a* and subsequent sections of this report);
- construction of a segregated left-turn lane (approximately 110m in length) at the northern arm of POR (denoted as Left-turn Lane A in *Figure 2.1a* and subsequent sections of this report); and

- associated ancillary works.

An outline implementation programme of the Project is provided in *Annex A*.

2.2 *DESIGNATED PROJECT ELEMENTS*

An analysis has been conducted to identify elements of the Project that qualify as Designated Projects (DPs) under the provisions of the *EIAO*. The key focus is to analyse the Project with reference to Item A.1, Schedule 2 of the *EIAO* that defines 'a road which is an expressway, trunk road, primary distributor road or district distributor road including new roads, and major extensions or improvements to existing roads' as a DP.

The first step of the analysis considers whether any element of the Project qualifies as a DP by virtue of being a major extension or improvement to existing roads under the definition of Item A.1, Schedule 2 of the *EIAO*. For this part of the analysis, it is necessary to establish whether the road traffic noise impact due to any part of the proposed roadworks will result in significant traffic noise impact. The traffic noise impact is considered significant if the traffic noise level with the roadworks is greater than that without the roadworks at the design year by 1.0 dB(A) or more. If any part of the project causes significant increase in traffic noise, the whole project will become a DP. The detailed road traffic noise predictions are presented in *Section 4* and the assessment has confirmed that the traffic noise levels with any part of the proposed works of the Project will not be greater than that without the works at the design year by 1.0 dB(A) or more. As a result, the whole project is not a DP by virtue of Item A.1, Schedule 2 of the *EIAO*.

The roadworks of the Project will involve the construction of a number of discrete new road sections, including Flyover A, Slip Roads A, B and C and the segregated Left-turn Lane A. These proposed new road sections are classified according to the Road Classification System adopted by Transport Department (TD). The classification of the proposed new road sections, which was agreed with TD, is presented in *Table 2.2a*.

Table 2.2a Road Classication for Proposed New Road Sections of the Project

Proposed New Road Section	Classification
Flyover A	Rural Trunk Road
Slip Road A	Rural Trunk Road
Slip Road B	Expressway
Slip Road C	Rural Trunk Road
Segregated Left-turn Lane A	Rural Trunk Road

Table 2.2a indicates that each of the five new proposed new road sections of the Project qualify as DP by virtue of Item A.1, Schedule 2 or the *EIAO* for being new roads which are either an expressway or a trunk road. The extent of road sections qualified as a DP are presented in *Figure 2.2a*.

Road Resurfacing and Remarking A and B along stretches of the northbound and southbound carriageways of Yuen Long Highway on the northern arm of

POI will not involve any change in the road nature, alignment, and traffic capacity between the scenarios with and without the Project. In addition, no substantial construction works will be required. These elements of the Project do not qualify as DPs.

The Project will be physically connected with the existing roads and considerations have been given to check whether the proposed works would cause any material change in terms of other environment aspects, such as landscape and visual implications and ecological impact, to the existing roads that are exempted projects under the *EIAO*. No material change to exempted projects has been identified.

Based on the above analysis, it is concluded that the DP elements of the Project are those indicated in *Table 2.2a*.

2.3 TRAFFIC FORECAST

Traffic forecasts were provided by HyD. For the purpose of this EIA Study, peak hour traffic flows for years 2011, 2016, 2021 and 2026 have been forecasted for all major roads within 500m of the Project boundary. The traffic forecast employed for this assessment was endorsed by the Transport Department (TD) (*Annex B*).

2.4 CONSTRUCTION PROGRAMME

The construction of the Project is scheduled to commence in December 2009 and to be completed in December 2011.

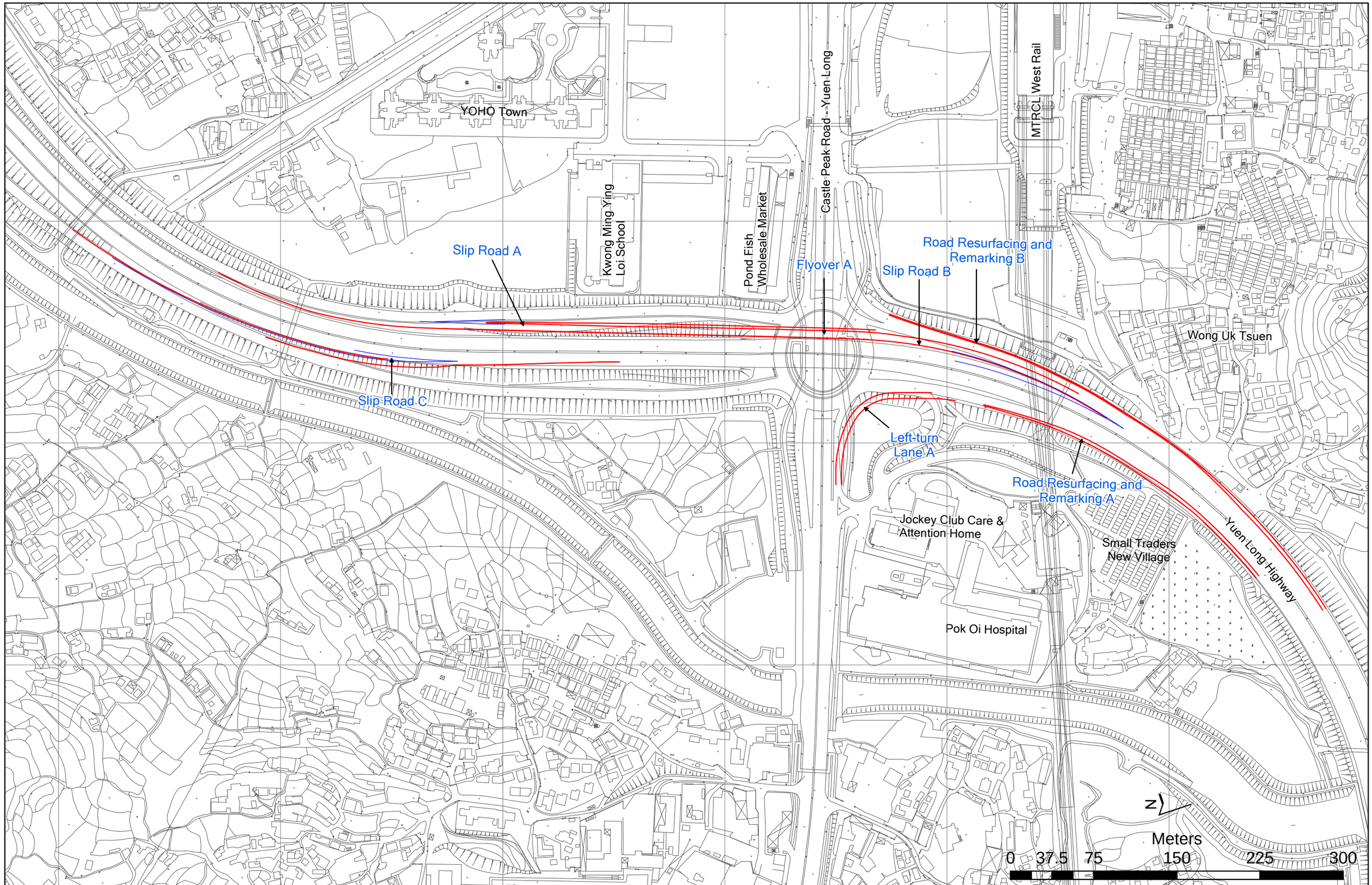
2.5 CONCURRENT PROJECTS

The Project may have interactions with the following projects, which are currently envisaged to be constructed at the same time:

- Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 (Project No. 7721CL/A): The proposed project is for the extension of Road L3 in Yuen Long Area 16 located next to the MTR West Rail Yuen Long Station. The scope of the project mainly comprises the extension of an exiting carriageway by about 220m and its associated drainage and landscape works. The construction works are expected to commence in 2008 for completion in 2011.

- Proposed Left-Turn Lane at Pok Oi Interchange for the Development at YOHO Town Phase II: An exclusive left-turn lane for access to the planned private development of YOHO Town Phase II from Castle Peak Road – Yuen Long Section immediately west of POR will be constructed by Sun Hung Kai Properties Ltd together with the said development. The construction period is envisaged to be about one year. The works will be completed in or before 2010.

The locations of concurrent projects within 500m of the Study Area are indicated in *Figure 2.5a*.



Highways Department The Government of the Hong Kong Special Administrative Region	Consultant Environmental Resources Managment ERM Halcrow Halcrow China Ltd. As Engineering Sub-consultant	Agreement No. : WD 6/2007	Environmental Impact Assessment Report	FIGURE 2.1a	
		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: PROPOSED WORKS	Checked PS / Designed TF	Scale - / Drawn AM / Rev. / Date 13/06/2008

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Key

Extent of Road Sections within the Meaning of Item A.1 of Schedule 2 of EIAO

YOHO Town

Kwong Ming Ying Loi School

Pond Fish Wholesale Market

Castle Peak Road - Yuen Long

MTRCL West Rail

Slip Road A

Slip Road C

Flyover A

Slip Road B

Road Resurfacing and Remarking B

Wong Uk Tsuen

Left-turn Lane A

Road Resurfacing and Remarking A

Jockey Club Care & Attention Home

Small Traders New Village

Yuen Long Highway

Pok Oi Hospital

N

Meters

0 50 100 200

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		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: EXTENT OF ROAD SECTIONS WITHIN THE MEANING OF ITEM A.1 OF SCHEDULE 2 OF EIAO	Checked: PS Designed: TF	Scale: - Drawn: AM Date: 2/07/2008

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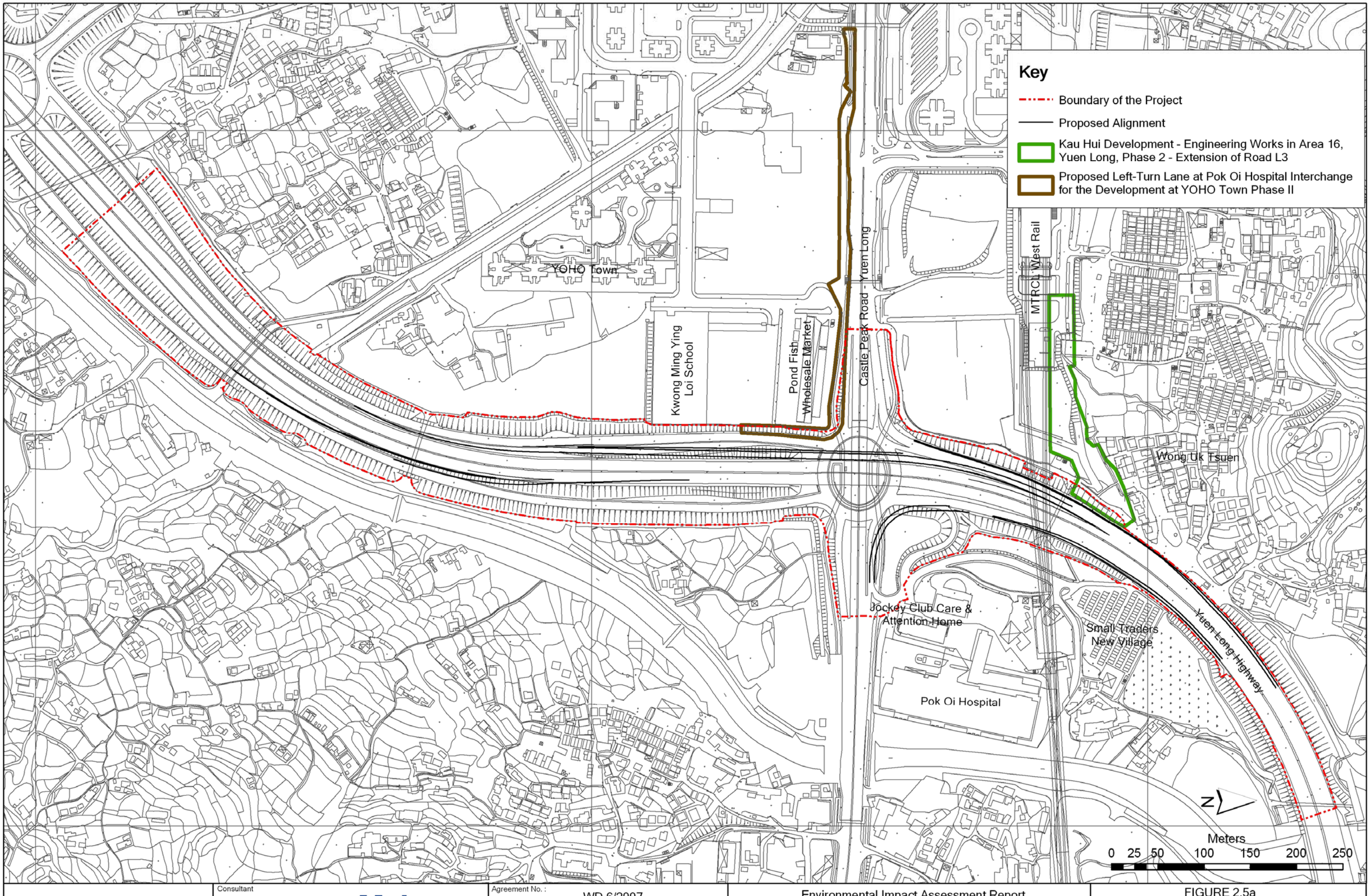

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Figure Title: CONCURRENT PROJECTS

FIGURE 2.5a

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3 CONSIDERATION OF ALTERNATIVES

3.1 INTRODUCTION

In accordance with the requirements of *Section 3.3* of the *EIA Study Brief*, this Section describes the need for the Project and the consideration of alternative construction methods and work sequence.

3.2 THE NEED FOR THE PROJECT

As highlighted in *Section 1*, traffic queues are already observed on the northern and southern approaches of POR during the evening peak period. The situation will likely deteriorate further when the nearby development is in place. The tailback of traffic on the southbound carriageway of the northern approach may block the through traffic from Tai Lam Tunnel / NT North to Tuen Mun / Tin Shui Wai / the Hong Kong – Shenzhen Western Corridor. It is envisaged that POR will become saturated progressively with the increasing population intake in the nearby area.

The objective of the Project is to relieve the traffic pressure and traffic queues of the existing POR so that its design flow / capacity ratio can be maintained at a reasonable value acceptable to the Transport Department (TD).

In accordance with the *Traffic Impact Assessment Report*[1], the Ratios of Flow to Capacity (RFC) of POR are 0.84 and 0.99 during AM and PM Peaks for the Year 2006, respectively. As demonstrated by the RFC, POR has almost reached its capacity in Year 2006. With the proposed improvement works, the RFC could be reduced from 1.05 to 0.57 and 1.22 to 0.78 in Year 2011 for the AM and PM Peaks, respectively. The proposed improvement works were shown to be capable of relieving the queuing problem at POR.

3.3 CONSIDERATIONS OF ALTERNATIVE CONSTRUCTION METHODS AND WORK SEQUENCE

Different construction methods for the foundation works, erection of the new flyover deck and retaining structures are examined based on the following criteria:

- Severity and duration of the construction impacts on the nearby environmental sensitive receivers;
- Traffic impacts on the existing carriageways;

[1] Traffic Impact Assessment Report prepared under the Agreement No. WD 3/2006 for Improvement to Pok Oi Interchange - Traffic Impact Assessment and Alignment Design Study dated July 2007.

- Site constraints, such as limited working spaces, unforeseen ground conditions and potential impacts on the existing structures;
- Satisfaction to the design requirements, such as loading requirements and retained heights; and
- Tight construction programme.

3.3.1 Options for Piling

Four piling options have been assessed during preliminary design, namely,

- ***Option A:*** Continuous Flight Auger Piles;
- ***Option B:*** Large Diameter Bored Piles***;***
- ***Option C:*** Pre-bored Concrete Piles; and
- ***Option D:*** Driven Steel H-piles.

The above options are considered common piling methods in Hong Kong and therefore the required machinery should be available in the Hong Kong market for foundation construction. Benefits and drawbacks of each option are discussed below and summarised in *Table 3.3a*:

Option A: Continuous Flight Auger (CFA) Piles

In this construction method, continuous flight auger is used to form the pile holes, which will be infilled with concrete or grout after the placing of steel reinforcement which would either be steel H-piles or rebar cages. The sizes of CFA piles range from 300mm to 700mm in diameter and the most common pile size is 610mm in diameter.

Benefits

- Piles can be installed without appreciable noise and vibration;
- Generally ground loss/disturbance is minimal during pile hole excavation and therefore less disturbance on the adjacent structures and piles;
- Compared with Options B and C, it is a more economic pile construction method under suitable ground condition (i.e. for cohesive soils) and satisfying load requirements;
- Less working spaces are required compared with Option B;
- Construction time is relatively fast; and
- There is no restriction on the normal working hours.

Drawbacks

- Pre-excavation or pre-boring may be required to cope with any underground obstruction such as boulders within the soil matrix;
- Compared with Option B, this pile type has less structural capacities to resist lateral and vertical loads;
- Specialist contractor may be required to ensure workmanship; and

- Designed pile length is limited by the construction plants and it is generally less than 40m.

Option B: Large Diameter Bored Piles

Shafts of the large diameter bored piles are constructed by traditional boring machines with temporary steel casings or drilling fluid as a supporting system. Chisel and grab system with casings, and Reverse Circulation Drilling (RCD) are the common large bored pile construction plants. Typical sizes of large diameter bored piles range from 1m to 3m in diameter. In Hong Kong, large diameter bored piles are usually designed as end-bearing piles founding in bedrock. For friction pile design, shaft-grouting may be provided to enhance the shaft frictional resistance.

Benefits

- Extensive experience of using this type of construction method has been developed in Hong Kong;
- Compared with Options C and D, less noise and vibration will be generated during pile installation;
- It is relatively easy to overcome underground obstructions;
- Compared with Option A, this construction method has higher flexibility in designing longer piles to suit design requirements;
- This pile type has larger structural capacities to cater for lateral and vertical loads; and
- With provision of temporary casings during pile excavation, shaft collapse and over-excavation can be minimized.

Drawbacks

- Comparatively larger working spaces are required due to larger piling plants required;
- It may be susceptible to bulging or necking during pile concreting in unstable ground due to the larger pile size;
- Compared with Options A and C, risk of loosening of surrounding soil is higher, causing ground movement and structural impacts on the adjacent structures; and
- Extension of working hours to the restricted hours may be required for concreting of very long piles.

Option C: Pre-bored Concrete Pile

Pile shafts are formed by drilling rigs with the use of down-the-hole hammers. Pre-bored concrete piles are considered as small diameter bored piles. Therefore, similar to the large diameter bored pile construction, the pre-bored holes will be inserted with rebar cages and in-filled with concrete. Shaft-grouting can also be provided for enhancing shaft resistance for friction piles.

Benefits

- It is relatively easy to overcome underground obstructions by down-the-hole hammers;
- Compared with Option A, this construction method has higher flexibility in designing longer piles to suit design requirements;
- Compared with Option D, less ground borne vibration will be induced;
- With provision of temporary casings during pile excavation, shaft collapse and over-excavation can be minimized.

Drawbacks

- Pile excavation by down-the-hole (DTH) hammer will cause disturbance affecting the adjacent structures and foundations;
- Construction Noise Permit (CNP) under the Noise Control Ordinance (NCO) will be required for the use of DTN hammer. Longer construction period may be required due to the restricted working hours imposed by the Authority;
- It may be susceptible to bulging or necking during pile concreting in unstable ground; and
- Possible collapse of the annulus space (over-cut) between the side wall and temporary casing before pile concreting would reduce the skin friction.

Option D: Driven Steel H-Pile

This construction method is to pitch H-piles using percussion method until final sets are achieved. A hydraulic hammer is commonly used for pile driving in Hong Kong. In bouldery grounds, pre-boring can be carried out before the insertion of the pile. The bored holes will be subsequently infilled with sand and the H-piles driven to design founding levels.

Benefits

- Pile installation method is relatively simple and degree of redundancy can be easily incorporated to provide flexibility to deal with any unexpected ground condition;
- Extensive experiences of driving H-piles within marble areas in Hong Kong;
- Installation is generally unaffected by groundwater conditions;
- Compared with Options A and C, this pile type can be designed to withstand high bending and tensile stresses; and
- Compared with Option A, this construction method has higher flexibility to design longer piles to suit design requirement.

Drawbacks

- The driving operation will generate relatively high noise and vibration levels, affecting the nearby environmental sensitive receivers;
- Construction Noise Permit (CNP) under the Noise Control Ordinance (NCO) will be required for percussion pile installation. Longer construction

period may be required due to the restricted working hours imposed by the Authority;

- Higher ground borne vibration and movement induced from the driving operation may cause damage to the adjacent piles, structures and utilities installations;
- Pre-boring may be required to overcome underground obstructions and require longer construction period.

3.3.2 Selection of Pile Construction Method

By comparing the above four options, Option A - Continuous Flight Auger (CFA) Pile is preferable in view of the following:

- Relatively less noise and vibration impacts;
- No restriction on normal working hours;
- Relatively fast construction rate;
- Less impacts to existing structures; and
- Satisfying the loading and ground condition requirements.

Table 3.3a Comparison of Alternative Pile Construction Methods

Options	Alternative Construction Methods	Benefits	Drawbacks
A	Continuous Flight Auger Pile	• Piles can be installed without appreciable noise and vibration; • Generally ground loss/disturbance is minimal during pile hole excavation and therefore less disturbance on the adjacent structures and piles; • Compared with Options B and C, it is a more economic pile construction method under suitable ground condition (i.e. for cohesive soils) and satisfying load requirements; • Less working spaces are required compared with Option B; • Construction time is relatively fast; and • There is no restriction on the normal working hours.	• Pre-excavation or pre-boring may be required to cope with any underground obstruction such as boulders within the soil matrix; • Compared with Option B, this pile type has less structural capacities to resist lateral and vertical loads; • Specialist contractor may be required to ensure the pile construction workmanship; and • Designed pile length is limited by the construction plants and it is generally less than 40m.
B	Large Diameter Bored Pile	• Extensive experience of using this type of construction method has been developed in Hong Kong; • Compared with Options C and D, less noise and vibration will be generated during pile installation; • It is relatively easy to overcome underground obstructions; • Compared with Option A, this construction method has higher flexibility in designing longer piles to suit design requirement; • This pile type has larger structural capacities to cater for lateral and vertical loads; and • With provision of temporary casings during pile excavation, shaft collapse and over-excavation can be minimized.	• Comparatively larger working spaces are required due to larger piling plants required; • It may be susceptible to bulging or necking during pile concreting in unstable ground due to the larger pile size; Compared with Options A and C, risk of loosening of surrounding soil is higher, causing ground movement and structural impacts on the adjacent structures; and • Extension of working hours to the restricted hours may be required for concreting of very long piles.
C	Pre-bored Concrete Pile	• It is relatively easy to overcome underground obstructions by down-the-hole hammers; • Compared with Option A, this construction method has higher flexibility in designing longer piles to suit design requirements; • Compared with Option D, less ground borne vibration will be induced; • With provision of temporary casings during pile excavation, shaft collapse and over-excavation can be minimized.	• Pile excavation by down-the-hole (DTH) hammer will cause disturbance affecting the adjacent structures and foundations; • Construction Noise Permit (CNP) under the Noise Control Ordinance (NCO) will be required for the use of DTN hammer. Longer construction period may be required due to the restricted working hours imposed by the Authority; • It may be susceptible to bulging or necking during pile concreting in unstable ground; and • Possible collapse of the annulus space (over-cut) between the side wall and temporary casing before pile concreting would reduce the skin friction.

Options	Alternative Construction Methods	Benefits	Drawbacks
D	Driven Steel H-Pile	• Pile installation method is relatively simple and degree of redundancy can be easily incorporated to provide flexibility to deal with any unexpected ground condition; • Extensive experiences of driving H-piles within marble areas in Hong Kong; • Installation is generally unaffected by groundwater conditions; • Compared with Options A and C, this pile type can be designed to withstand high bending and tensile stresses; and • The pile installation method has less settlement concern, which is essential for bridge structures.	• The driving operation will generate relatively high noise and vibration levels, affecting the nearby environmental sensitive receivers; • Construction Noise Permit (CNP) under the Noise Control Ordinance (NCO) will be required for percussion pile installation. Longer construction period may be required due to the restricted working hours imposed by the Authority; • Higher ground borne vibration and movement induced from the driving operation may cause damage to the adjacent piles, structures and utilities installations; • Pre-boring may be required to overcome underground obstructions and require longer construction period.

3.3.3 Options for Construction of New Flyover Deck

Three methods for construction of the new flyover deck have been examined. The benefits and drawbacks of each method are discussed below and summarised in *Table 3.3b*:

Option 1: Precast Segmental Balanced Cantilever Box Girder

Due to limited working areas on site and heavy traffic flows at the existing interchange, concrete box girder segments is likely to be used for construction of the flyover. They are usually cast in casting yards in Mainland China, and shipped to Hong Kong to the contractor's work area. The segments will be placed in a symmetrical manner about the pier head so as to create a balanced cantilever. The segments will be then fixed by post-tensioning. The same operation will continue until the box girder reaches the abutment or the adjacent completed balanced cantilever. In-situ stitch joint will be formed between the cantilevers to provide continuity of the bridge deck.

Benefits

- Conventional falseworks and formworks are not required and therefore extensive temporary road closures/diversions at the interchange can be avoided;
- In-situ concreting works are significantly reduced compared with the other methods, minimizing the potential impacts to the environment, such as noise and air quality. In addition, the operation is quieter compared with other methods;
- Construction time is shorter and better construction planning can be achieved;
- Although not labour intensive as most of the works can be achieved off site. Even so, more experience and mature skilled labourers have been developed in recent years in Hong Kong for this method of construction, and therefore local resources should be readily available.

Drawbacks

- Construction cost is relatively high for an approximately 140m long bridge; and;
- The gantry girder cannot be very long thus restricting the span length to a maximum of around 60m currently in Hong Kong.
- Worldwide specialist contractors may be required.

Option 2: Cast In-situ Deck with Conventional Temporary Works

Falseworks/scaffolding will be erected across the existing carriageway for placement of formworks. Rebar fixing will be subsequently carried out before in-situ concreting of the deck structure.

Benefits

- It is a simple and straight forward construction method;
- Extensive experiences have been gained among the local contractors.

Drawbacks

- Temporary road closure is necessary for erection of falseworks and during concreting, causing significant impacts to the existing traffic;
- Construction time may be taken longer for the span-by-span construction method;
- More working areas are required; and
- More construction plants will be involved for the in-situ works and the longer construction period will induce higher environmental impacts to the surroundings, such as noise and air quality impacts.

Option 3: Cast In-situ Balanced Cantilever Box Girder by Form Travellers

This construction method is a combination of Options 1 and 2. First pair of the box girder segments will be cast in-situ symmetrically about the pier head by conventional falseworks and formworks. Form travellers will be launched and anchored on the previously cast segments for rebar fixing and concreting of the subsequent pair of segments. After stressing the new segments to the deck structure, the travelling formworks will be moved forward and the construction procedures will be repeated until completion of the bridge deck.

Benefits

- Requirements of the conventional falseworks and formworks is greatly reduced; and
- Heavy lifting operations are minimised.

Drawbacks

- It is time consuming for steel fixing, concreting of segments and adjustment of the form travellers as compared with the other two options, causing longer construction period and higher environmental impacts;
- Comparatively, more construction plants will be involved for the in-situ works, which will also induce higher environmental impacts on the surroundings, such as noise and air quality impacts.
- Temporary road closure during day-time cannot be avoided, particularly for concreting above existing carriageway, which cause disturbances to the traffic;
- There is limited experiences for highways construction using form travellers in Hong Kong; and
- Worldwide specialist contractors may be required.

3.3.4 Selection of Construction Method for New Flyover Deck

The potential environmental impacts to the NSRs in the vicinity, disturbance to existing traffic flows and construction speed are all important factors in the selection of a preferred construction method for the new flyover deck. Option 3 is considered to be inferior in all the above aspects, and therefore has not been considered further. Both Options 1 - Precast Segmental Balanced

Cantilever Box Girder and Option 2 - Cast In-situ Deck with Conventional Temporary Works are found to be acceptable in terms of the potential construction noise impacts, as demonstrated in *Section 4*. Option 1 is a common method for the construction of flyovers/viaducts in Hong Kong in recent years, and therefore the required construction equipment should be readily available. Option 1 however has an advantage over Option 2 in its faster construction speed, and therefore helps to reduce the duration of potential environmental impacts arising from the works of the Project. Based on the above, Option 1 has been adopted as the method for deck construction for the purpose of the following environmental assessments but the prospective contractor may still adopt Option 2 where site and traffic conditions allow.

Table 3.3b Comparison of Alternative Construction Methods for New Flyer Deck

Options	Alternative Construction Methods	Benefits	Drawbacks
1	Precast Segmental Balanced Cantilever Box Girder	• Conventional falseworks and formworks are not required and therefore extensive temporary road closures/diversions at the interchange can be avoided; • In-situ concreting works are significantly reduced compared with the other methods, minimizing the potential impacts to the environment, such as noise and air quality; In addition, the operation is quiet compared with other methods. • Construction time is shorter and better construction planning can be achieved; • Although not labour intensive as most of the works can be achieved off site. Even so, more experience and mature skilled labourers have been developed in recent years in Hong Kong for this method of construction, and therefore local resources should be readily available.	• Construction cost is relatively high for an approximately 140m long bridge; • The gantry girder cannot be very long thus restricting the span length to a maximum of around 60m currently in Hong Kong; and • Worldwide specialist contractors may be required.
2	Cast In-situ Deck with Conventional Temporary Works	• It is a simple and straight forward construction method; • Extensive experiences have been gained among the local contractors.	• Temporary road closure is necessary for erection of falseworks and during concreting, causing significant impacts to the existing traffic; • Construction time may be taken longer for the span-by-span construction method; • More working areas are required; and • More construction plants will be involved for the in-situ works and the longer construction period will induce higher environmental impacts to the surroundings, such as noise and air quality impacts.

Options	Alternative Construction Methods	Benefits	Drawbacks
3	Cast In-situ Balanced Cantilever Box Girder by Form Travellers	• Requirements of the conventional falseworks and formworks is greatly reduced; and • Heavy lifting operations are minimised.	• It is time consuming for steel fixing, concreting of segments and adjustment of the form travellers as compared with the other two options, causing longer construction period and higher environmental impacts; • Comparatively, more construction plants will be involved for the in-situ works, which will also induce higher environmental impacts on the surroundings, such as noise and air quality impacts; • Temporary road closure during day-time can not be avoided, particularly for concreting above existing carriageway, which cause disturbances to the traffic; • There is limited experiences for highways construction using form travellers in Hong Kong; and • Worldwide specialist contractors may be required.

3.3.5 Options for Construction of Retaining Structures

Three types of retaining structures are considered for the formation of road embankments, namely reinforced concrete (RC) cantilever wall, piled wall and reinforced earth (RE) wall. As these are widely adopted as solutions for retaining structures in Hong Kong in recent years, the required machinery should be available during construction.

Construction of RC cantilever walls involves excavation, formwork erection, rebar fixing, placing of wall drainage system, in-situ concreting, temporary works removal and backfilling of the walls. It is a relatively straight forward construction method and extensive project experiences have been gained in Hong Kong.

Piled wall utilizes the lateral resistance of the piles for earth retaining purpose. It is commonly used in areas where excavation for RC wall construction is difficult or technically infeasible. Piled wall construction involves pile shaft excavation using piling plants, placing of rebar cages/H-piles, in-situ shaft concreting/grouting, excavation and construction of lagging between piles. The retained height would generally be higher than the RC wall, and excavation works would be much less. However, pile installation usually induces noise and vibration with higher degree of environmental concerns. Moreover, for the works immediately adjacent to the existing carriageways, temporary road closure or traffic diversion may be required to provide larger working spaces required for the piling plants.

Construction works for RE wall comprises excavation, and placing of fill materials and reinforcements in compacted backfill layers until the design road formation level is reached. The construction sequences are relatively simple and construction rate is usually faster than the conventional RC retaining wall construction. Experiences in the use of RE wall have been gained in recent years to form embankment slopes for highway projects in Hong Kong. Moreover, this wall structure is flexible and can accommodate higher differential settlement that is particularly suitable for the Project site, which has the presence of compressible layers. From environmental point of view, the construction method comparatively generates less noise, and consumes less energy.

By comparing the above three construction method of retaining structures, it is considered that the RE wall option is more preferable in terms of environmental consideration, construction speed and flexibility. However, RC cantilever walls at some areas are still required due to small retaining height required or site constraints, such as tie-in issues with the proposed/existing RC structures.

In conclusion, the optimum solution of retaining structures is provision of RE walls, associated with RC walls, where appropriate.

3.3.6 Consideration of Construction Sequences

The interchange improvement works are broadly grouped into three main tasks as follows:

Task 1: Provision of southbound carriageways, including construction works for Road Resurfacing & Remarking A, Left-turn Lane A and Slip Road C; and

Task 2: Provision of northbound carriageways, including construction works for Slip Roads A and B, new flyover and Road Resurfacing & Remarking B.

Task 3: Earmark an approximate 200m long and 2.5m high vertical noise barrier along the southern arm of the northbound carriageway of Yuen Long Highway to the east of the planned schools (refer to *Annex C11-2* for noise barrier location).

Overall Planning

Task 2 is scheduled to start following the commencement of Task 1 for alleviating the cumulative environmental impacts to the surroundings and to enable early handover of the carriageway.

Construction sequences are also highly dependent on the selection of construction methods. Consideration of different construction methods for piling works, erection of the new flyover deck and retaining walls has already been discussed in above sections. However, one of key approaches is to maximize the use of pre-cast units, and therefore minimise in-situ works and the consequential environmental impacts on the Project site. Other preferences in the construction methods include fast construction progress and the use of relatively silent plant.

Construction Works for Task 1

The existing alignment of the Road Resurfacing & Remarking A is to be locally adjusted to increase the number of carriageway lanes from three to four. Works include resurfacing of the existing carriageway and reprovision of road markings.

Left-turn Lane A construction includes dismantling of the existing noise barrier, construction of a subway extension, and integrated planter and retaining structures, formation of fill embankment slopes, construction of pavement and the associated drainage, watermain, utilities and landscaping works.

Construction of Slip Road C involves retaining walls construction, re-profiling of the existing fill embankment slopes, construction of pavement and the associated drainage, watermain, utilities and landscaping works.

As shown on the construction programme in *Annex C2*, it is anticipated that construction of Task 1 will take around one and half year. Other than the construction methods and sequences described above, there are limited

alternatives due to the relatively straight-forward works sequences and the tight construction programme.

Construction Works for Task 2

Construction of the new flyover involves pile installations, construction of pilecaps and piers/columns, erection of deck, installation of parapets and planters, pavement works and the associated drainage, watermain, utilities and landscaping works.

Similar to the construction of Slip Road C, works for Slip Roads A and B comprise construction of retaining walls or formation fill embankment slopes, installation of parapets, construction of pavement and the associated drainage, watermain, utilities and landscaping works.

The existing alignment of Road Resurfacing & Remarking B is to be slightly shifted westward to accommodate the additional lane at the northbound carriageway. Works mainly consist of road formation and re-surfacing, and reprovision of existing drainage and road furniture along the realigned carriageway.

Noise induced from piling works is one of the major concerns; construction works for Slip Roads A and B are therefore planned to commence after the completion of the pile installation works. Moreover, pavement construction of Slip Roads A and B, the new flyover and Road Resurfacing & Remarking B is planned to be conducted in a similar period so that paving of the southbound carriageway can be carried out within the same time frame. Consequently, it can reduce the numbers of overlapping joints and mobilization of construction plants. In addition, it can mitigate the overall level of disturbance to the environment and traffic.

Construction Works for Task 3

Construction of the proposed noise barrier will be earmarked as a provisional work of the Project as the construction schedule of the planned schools has not yet been confirmed. Moreover, it is anticipated that the noise barrier will be designed in form of a retaining structure with an extended wall plinth for the noise barrier. Therefore, construction of the noise barrier will involve site formation, retaining wall construction, backfilling works and reinstatement of the existing street furniture. Furthermore, the noise barrier will be positioned at the crest of existing fill embankment slope of Yuen Long Highway, and therefore re-profiling /reinstatement of the existing fill slopes may be required during the noise barrier construction.

4 NOISE

4.1 INTRODUCTION

This *Section* assesses the potential noise impacts associated with the construction and operation of the Project.

4.2 RELEVANT LEGISLATION AND GUIDELINES

4.2.1 Construction Noise

The principal legislation relating to the control of construction noise is the *Environmental Impact Assessment Ordinance* (*EIAO*) (Cap. 499). The *Technical Memorandum on Environmental Impact Assessment Process* (*EIAO-TM*), issued under the *EIAO*, provides guidelines and noise criteria for evaluating the noise impact.

The *Noise Control Ordinance (Cap. 400)* (*NCO*) also provides means to assess the construction noise impact. Various Technical Memoranda (TMs), which stipulate control approaches and criteria, have been issued under the *NCO*. The following TMs are applicable to the control of noise impact from construction activities:

- *Technical Memorandum on Noise from Construction Work other than Percussive Piling* (*GW-TM*); and
- *Technical Memorandum on Noise from Construction Work in Designated Areas* (*DA-TM*).

General Construction Works

Under the *EIAO*, potential noise impact arising from general construction works during normal working hours (ie 07:00 to 19:00 hrs on any day not being a Sunday or public holiday) at 1 m from the external façade of the uses, which rely on opened windows for ventilation, is to be assessed in accordance with the noise criteria specified in the *EIAO-TM*. The *EIAO-TM* noise standards are presented in *Table 4.2a*.

Table 4.2a EIAO-TM Day-time Construction Noise Standards ($L_{eq,\ 30\ min}$ dB(A))

Use	Noise Standard (dB(A))
Domestic Premises	75
Educational Institutions (normal periods)	70
Educational Institutions (during examination periods)	65

Notes:

(1) The above standards apply to uses which reply on opened windows for ventilation.

(2) The above standards shall be viewed as the maximum permissible noise levels assessed at 1m from the external façade.

When assessing a Construction Noise Permit (CNP) application for the use of Powered Mechanical Equipment (PME) during the restricted hours, the Noise Control Authority will compare the Acceptable Noise Levels (ANLs), as promulgated in *GW-TM*, and the Corrected Noise Levels (CNLs) (ie after accounting for factors such as barrier effects and reflections) associated with the proposed PME operations. The ANLs are obtained with corrections for the duration of the CNP and multiple permit situations, if applicable, to the Basic Noise Levels (BNLs). The BNLs are related to the noise sensitivity of the area in question and different Area Sensitivity Ratings (ASR) have been established to reflect the background characteristics of different areas. The appropriate ASR for the Noise Sensitive Receiver (NSR) is determined with reference to *Table 4.2b*.

Table 4.2b ***Area Sensitivity Ratings***

Types of Area Containing NSR	**Degree to which NSR is affected by Influencing Factor (IF)**		
	Not Affected	**Indirectly Affected**	**Directly Affected**
Rural area, including Country Parks or village type developments	A	B	B
Low density residential area consisting of low-rise or isolated high-rise developments	A	B	C
Urban area	B	C	C
Area other than those above	B	B	C

Notes:

The following definitions apply:

(a) "Country Park" means an area that is designated as a country park pursuant to section 14 of the *Country Parks Ordinance*;

(b) "directly affected" means that the NSR is at such a location that noise generated by the IF is readily noticeable at the NSR and is a dominant feature of the noise climate of the NSR;

(c) "indirectly affected" means that the NSR is at such a location that noise generated by the IF, whilst noticeable at the NSR, is not a dominant feature of the noise climate of the NSR;

(d) "not affected" means that the NSR is at such a location that noise generated by the IF is not noticeable at the NSR; and

(e) "urban area" means an area of high density, diverse development including a mixture of such elements as industrial activities, major trade or commercial activities and residential premises.

The relevant BNLs are shown in *Table 4.2c*.

Table 4.2c ***Basic Noise Levels for General Construction Works (BNL, $L_{eq,\ 5\ min}$ dB(A))***

Time period	**Area Sensitivity Rating (dB(A))**		
	A	B	C
All days during the evening (ie 19:00-23:00 hrs) and general holidays (including Sundays) during the day and evening (ie 07:00-23:00 hrs)	60	65	70
All days during the night-time (ie 23:00-07:00 hrs)	45	50	55

The Noise Control Authority will consider a well-justified CNP application, for construction works within restricted hours as guided by the relevant TMs issued under the *NCO*. The Noise Control Authority will take into account

adjoining land uses and any previous complaints against construction activities at the site before making a decision. Nothing in this *EIA Report* shall bind the Noise Control Authority in making its decision. The Noise Control Authority may include any conditions in a CNP that it considers appropriate. Failure to comply with any such conditions may lead to cancellation of the CNP and prosecution action under the *NCO*.

4.2.2 Operational Road Traffic Noise

The traffic noise standards for planning purposes specified in Table 1 under Annex 5 of the *EIAO-TM* were employed as the noise limits for the road traffic noise impact assessment. The applicable road traffic noise standards are presented in *Table 4.2d*.

Table 4.2d EIAO-TM Road Traffic Noise Standards ($L_{10,\ 1\ hour}$ dB(A))

Use	Noise Standard (dB(A))
Domestic Premises	70
Educational Institutions	65
Hospitals and Homes for the Aged	55

Notes:

(1) The above standards apply to uses which reply on opened windows for ventilation.

(2) The above standards shall be viewed as the maximum permissible noise levels assessed at 1m from the external façade.

For traffic noise assessment, the major roads within 300 m of the Project boundary have been included in the assessment.

The traffic noise impact is considered significant if the traffic noise level at the Noise Sensitive Receivers (NSRs) with the road project is greater than that without the road project at the design year by 1.0 dB(A) or more.

The noise level due to the traffic on the Project should not exceed the criteria as presented in *Table 4.2d* by 1.0 dB(A).

In the case where noise prediction results show NSRs still exposed to noise levels exceeding the relevant noise criteria after the implementation of all direct mitigation measures, the total number of existing dwellings, classrooms and other noise sensitive elements which may qualify for indirect technical remedies, the associated costs and any implications for such implementation should be identified and estimated. The eligibility of the affected premises for indirect technical remedies will be determined with reference to the following three criteria:

- The predicted overall noise level at the NSR from the Project together with other traffic noise in the vicinity must be above the noise criteria presented in *Table 4.2d*;

- The predicted overall noise level at the NSR is at least 1.0 dB(A) more than the prevailing traffic noise level, ie, the total traffic noise level existing before the works to construct the road were commenced; and

- The contribution from the Project to the increase in predicted overall noise level at the NSR must be at least 1.0 dB(A).

4.3 BASELINE ENVIRONMENTAL CONDITIONS AND NOISE SENSITIVE RECEIVERS

4.3.1 Baseline Environmental Conditions

The Study Area is generally rural in nature, with the surrounding land comprising scattered village houses, school, hospital, home of the aged, new high-rise residential developments, and unoccupied open spaces. In accordance with the Outline Zoning Plans (OZP) for Yuen Long (No.S/YL/17), Nam Sang Wai (No.S/YL-NSW/8) and Tai Tong (No.S/YL-TT/14), the land uses of the surrounding areas were zoned as "Open Space" (O), "Government/Institution/Community" (GIC), "Comprehensive Development Area" (CDA), "Village Type Development" (V), "Undetermined" (U) and "Agriculture" (AGR) (*Figures 4.3a* to *4.3c*).

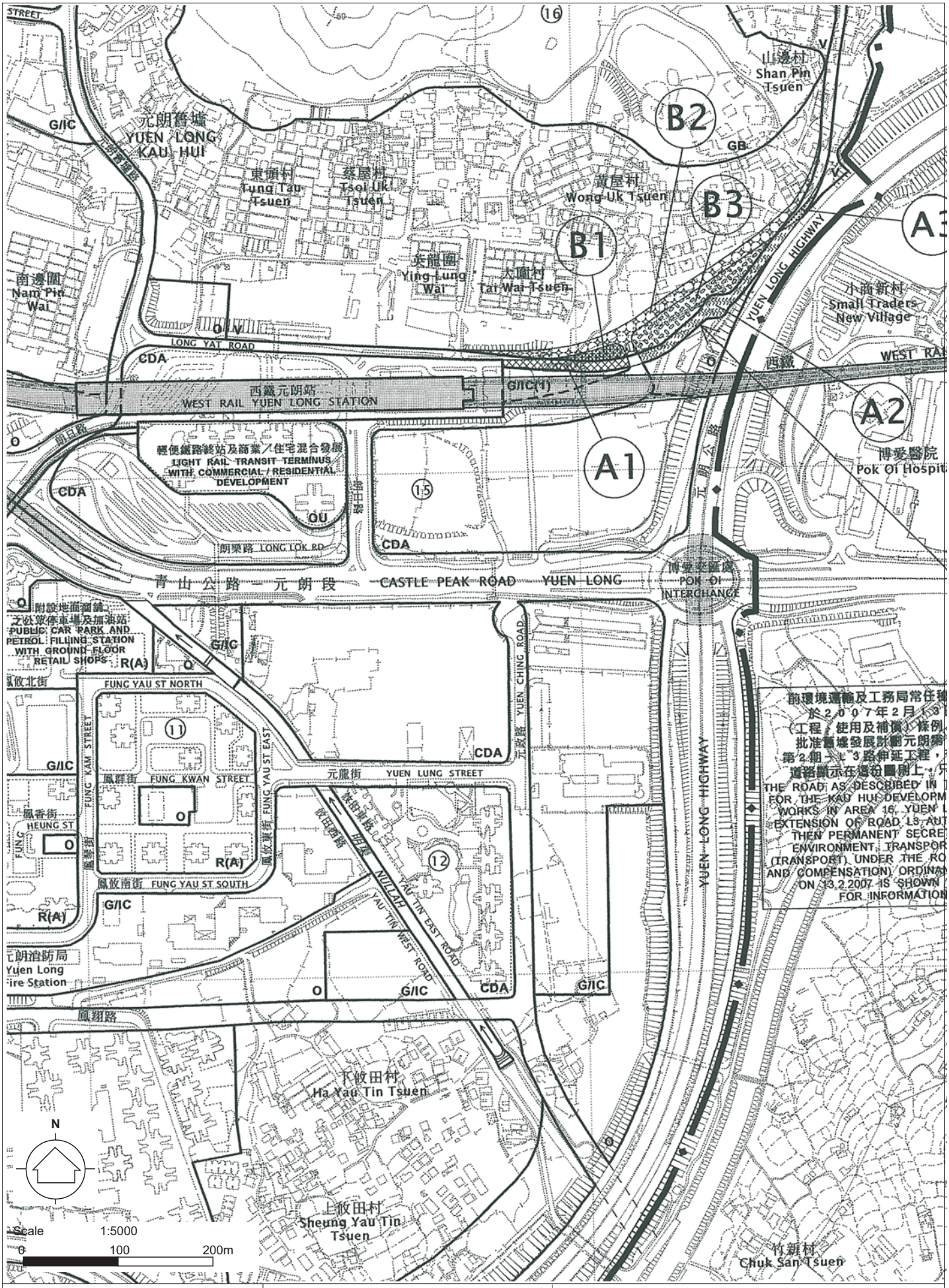
The environment of the Study Area is already subject to a high level road traffic noise. The existing traffic noise sources are mainly the traffic on the Yuen Long Highway, Pok Oi Roundabout and Castle Peak Road – Yuen Long Section. Noise barriers were installed for parts of the existing Yuen Long Highway within the Study Area to protect the NSRs in the vicinity, in particular the low-rise village houses at Wong Uk Tsuen and Small Traders New Village.

4.3.2 Noise Sensitive Receivers

In accordance with the requirements stated in Section 3.4.1.2 of the *EIA Study Brief*, the Study Area for the noise impact assessment covered a distance of 300m from the boundary of the Project. Only the first layer of the NSRs located along Yuen Long Highway were included in the assessment as the NSRs behind were located further away from the road and were screened. The area considered in the assessment is shown in *Figure 4.3d*.

The selected existing representative NSRs that may potentially be affected by the construction and operation of the Project include Wong Uk Tsuen, Small Traders New Village, Chuk San Tsuen, Hoover Garden and village houses along Yuen Long Highway, the high-rise residential development at YOHO Town, Kwong Ming Ying Loi School (an educational institution), and Jockey Club Care and Attention Home (a home for the aged).

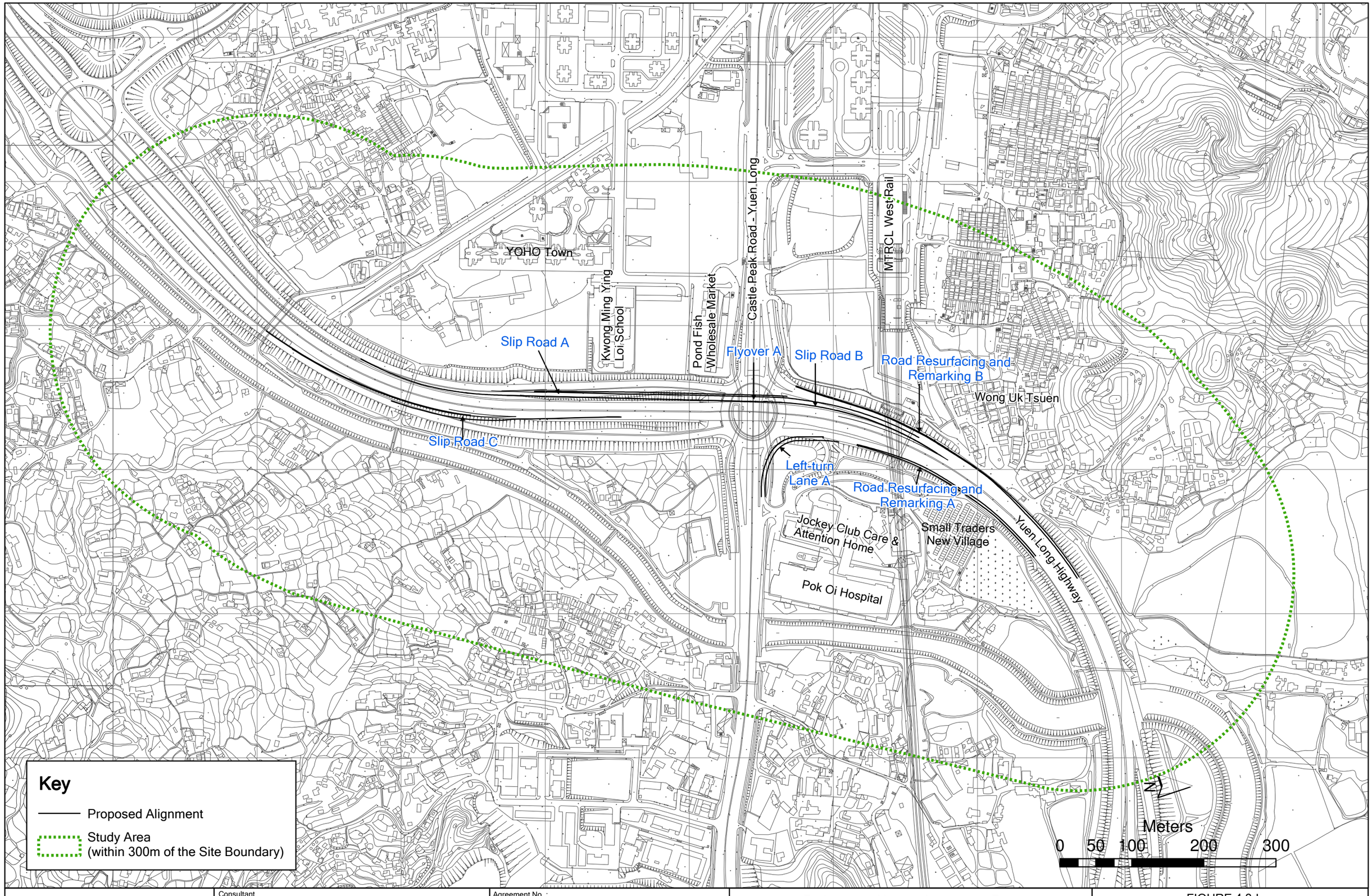
In accordance with the OZPs for Yuen Long, Nam San Wai and Tai Tong referenced above, the areas immediately east of the Yuen Long Highway are zoned as "Undetermined" (U) and "Agriculture" (AGR), the areas immediately to the west of the Yuen Long Highway are zoned as "Open



Agreement No. : WD 6/2007	Improvement to Pok Oi Interchange – Environmental Impact Assessment Study	Environmental Impact Assessment Report
Highways Department The Government of the Hong Kong Special Administrative Region	Consultant: Environmental Resources Management (ERM); Halcrow China Ltd. As Engineering Sub-consultant	Figure 4.3a
		Project Title : Extract from Yuen Long - Outline Zoning Plan (S/YL/17)
		FILE: 0072252d DATE: 12/12/2007

Agreement No. : WD 6/2007	Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Environmental Impact Assessment Report
Highways Department, The Government of the Hong Kong Special Administrative Region	Consultant: Environmental Resources Management (ERM); Halcrow China Ltd. As Engineering Sub-consultant	Figure 4.3b
		Project Title : Extract from Nam Sang Wai - Outline Zoning Plan (S/YL-NSW/8)
		FILE: 0072252d1 DATE: 12/12/2007

Agreement No. : WD 6/2007	Improvement to Pok Oi Interchange – Environmental Impact Assessment Study	Environmental Impact Assessment Report
Highways Department, The Government of the Hong Kong Special Administrative Region	Consultant: Environmental Resources Management (ERM); Halcrow China Ltd. As Engineering Sub-consultant	Figure 4.3c
		Project Title : Extract from Tai Tong - Outline Zoning Plan (S/YL-TT/14)
		FILE: 0072252d2 DATE: 12/12/2007



Highways Department The Government of the Hong Kong Special Administrative Region	Consultant Environmental Resources Managment ERM Halcrow Halcrow China Ltd. As Engineering Sub-consultant	Agreement No. : WD 6/2007 Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Environmental Impact Assessment Report Figure Title: STUDY AREA FOR NOISE IMPACT ASSESSMENT	FIGURE 4.3d Checked PS / Scale - / Rev. Designed TF / Drawn AM / Date 3/07/2008

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Space" (O), "Government/Institution/Community" (GIC), "Comprehensive Development Area" (CDA) and "Village Type Development" (V).

Site visits to Pok Oi Hospital and Jockey Club Care and Attention Home were carried out on 18 January 2008. According to the management of Pok Oi Hospital, central air-conditioning system was provided to the hospital and there was no staff quarters within the hospital. Pok Oi Hospital therefore does not rely on openable windows for ventilation as shown in the written confirmation from the Hospital in *Annex C1*. As observed during the site visit and confirmed by the floor plans provided by the management of Jockey Club Care and Attention Home, the rooms facing Yuen Long Highway were bedrooms and therapy rooms installed with window-type air-conditioners and openable windows. Some of the windows were found to be opened during the site visit. As a result, Pok Oi Hospital was not identified as NSR, but the Jockey Club Care and Attention Home was identified as NSR.

Planning Department (PlanD) and Lands Department (LandsD) were consulted on the land use planning for the nearby areas. LandsD confirmed that there is no planned development within the nearby three zones, including the "Village" zone in which Wong Uk Tsuen is located, the "Undetermined" zone in which Small Trade New Village is located and the "Agricultural" zone in which scattered village houses are located.

Based on the information provided by the PlanD, residential developments were planned within the CDA zones, including Yuen Long Area 12 and Area 15, an Indoor Recreational Centre & Combined Wholesale Food Market and two educational institutions were planned within the GIC zone. However, there are no proposed layouts available for the Indoor Recreational Centre & Combined Wholesale Food Market and the two educational institutions. As the food market is not noise sensitive and the indoor recreation centre will likely be installed with central air-conditioning system and fixed glazing (thereby eliminating its reliance on openable windows for ventilation), they were not identified as NSR.

Information from PlanD indicated that there are a number of schemes approved and remain valid for the CDA zones, Yuen Long Area 12 and Area 15. Assessment points were included in the traffic noise impact assessment at the boundary of the CDA zones with 180 degrees view angle facing Yuen Long Highway and the POR. Taken into account the presence of a drainage reserve, which is a non-building area, along the eastern and southeastern lot boundaries of Area 15 facing Yuen Long Highway and Castle Peak Road, assessment points were set back to exclude this non-building area.

PlanD also confirmed that a Planning Application for Residential Development with Preservation of Pun Uk (No. A/YL-NSW/15) had expired. New scheme layout was received recently but formal Planning Application was not received by PlanD. As the approved scheme under No. A/YL-NSW/15 is the best information available, the assessment was undertaken based on this scheme, as shown in *Annex C1*, to assess the noise impact for all potential NSRs.

Yuen Long Small Traders New Village Public School was located at Small Traders New Village, but it was ceased operation. Based on the information provided by the Education Bureau in *Annex C1*, the existing school building is planned for non-school educational use with minor fitting-out works. Assessment was therefore undertaken based on the existing school building.

The locations of the identified representative existing and planned NSRs, and photographs showing the existing NSRs are presented in *Figure 4.3e*.

Descriptions of the representative NSRs and the separation distances between the NSRs and the Project are provided in *Table 4.3a*.

Table 4.3a ***Representative Noise Sensitive Receivers***

NSR	Location	Use	No. of Floors	Ground Level (mPD)	No. of Dwellings/ Classrooms Represented
WUT1	Wong Uk Tsuen	Residential	3	3.9	3
STNV1	Small Traders New Village	Residential	2	3.9	2
JCCAH1 & JCCAH2	Jockey Club Care & Attention Home	Home for the aged	6 (a)	4.9	70
V1	Village houses facing slip road (south bound) of Yuen Long Highway - south of POI	Residential	2	4.6	1
V2		Residential	2	4.2	1
V3	Chuk San Tsuen	Residential	2	6.6	1
V4		Residential	2	7.4	1
V5		Residential	4	7.8	4
V6	Hoover Garden	Residential	3	5.3	3
YT1 – YT3	YOHO Town Phase I	Residential	36	5	720
KMYLS1 & KMYLS2	Kwong Ming Ying Loi School	Educational Institution	5	5.3	32
ND1	Planned Development at Yuen Long Area 12 (b)	Residential	28-44	5.1	(c)
ND2 & ND3	Planned Development at Yuen Long Area 15 (b)	Residential	25-39	5.1	(c)
PS1	Planned School(b)	Educational Institution	7	5.2	(c)
PU1	Planned Residential Development with Preservation of Pun Uk (b)	Residential	14-17	5.0	95

Hoover Garden
YOHO Town
Kwong Ming Ying Loi School
Pond Fish Wholesale Market
Castle Peak Road - Yuen Long
Planned Development at Yuen Long Area 15
MTRCL West Rail
Wong Uk Tsuen
Yuen Long Highway
Chuk San Tsuen
Jockey Club Care & Attention Home
Small Traders New Village
Pok Oi Hospital

V6
YT3
YT2
YT1
ND1
PS1
KMYLS2
KMYLS1
ND3
ND2
WUT1
V3
V4
V5
V2
V1
JCCAH1
JCCAH2
PU1
STNV1
ExSTNVPSI

Key

- Representative Noise Sensitive Receivers
- Proposed Alignment

N

0 50 100 200 300

Meters

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Environmental Impact Assessment Report

Figure Title: REPRESENTATIVE NOISE SENSITIVE RECEIVERS

FIGURE 4.3e

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NSR	Location	Use	No. of Floors	Ground Level (mPD)	No. of Dwellings/ Classrooms Represented
ExSTNVPS1	Planned non-school educational use at the Ex-Small Traders New Village Public School (b)	Educational Institution	1	3.9	6

Notes:

(a) The ground floor of this NSR is a lobby with plant rooms, ie not noise-sensitive.
(b) Planned NSRs for operational noise impact assessment only.
(c) Not available for planned development.

4.4 *ASSESSMENT METHODOLOGY*

4.4.1 *Construction Phase*

The construction noise impact assessment was undertaken in accordance with the procedures outlined in the *GW-TM,* which is issued under the *NCO* and the *EIAO-TM*. The assessment methodology is summarised as follows:

- Locate representative NSRs that may be affected by the Project;
- Determine the plant teams for corresponding activities, based on the agreed plant inventory;
- Assign sound power levels (SWLs) to the Powered Mechanical Equipment (PME) proposed based on the *GW-TM*, *British Standard BS 5228*[(1)] and list of SWLs of other commonly used PME[(2)];
- Calculate the correction factors based on the distance between the NSRs and the notional noise source position of the work sites;
- Apply corrections in the calculations, such as potential screening effects and acoustic reflection, if any; and
- Predict the construction noise levels at NSRs in the absence of any mitigation measures.

The construction noise assessment was undertaken based on the proposed construction works programme and plant inventory presented in *Annexes C2* and *C3*. The Project Proponent has reviewed the programme and plant inventory, and has confirmed that they are reasonable and practicable for completing the Project within the scheduled timeframe. The proposed methods for the construction of the Project are common in Hong Kong and the PMEs proposed are available in the Hong Kong market. For example, the

(1) British Standard "Noise and Vibration Control on Construction and Open Sites – Part I", BS 5228: Part I

(2) "Sound power levels of other commonly used PME" prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf)

piles of the existing Yuen Long Highway flyover were also installed by CFA machine.

The total SWL associated with each construction activity was established. Owing to the small construction work sites involved in the Project, the construction noise levels at NSRs were calculated based on the distances between the respective NSRs and their nearest site boundaries. The potential noise impacts at NSRs were subsequently evaluated by comparing the predicted noise levels with the *EIAO-TM* day-time construction noise limits ($L_{eq, 30min}$ dB(A)), as outlined in *Section 4.2.1*.

4.4.2 Operational Phase

The road traffic noise impact assessment due to the improvement to POI was based on the procedures given in *Calculation of Road Traffic Noise* (*CRTN*) published by the UK Department of Transport. The assessment has been undertaken for the scenarios of with and without the Project during the peak hour in respect of the maximum traffic projections within a 15 year period following the commencement of the operation of the Project. The AM peak hour traffic flow for Year 2026 was considered to be the maximum traffic forecast during the period 2011 to 2026, and therefore was adopted for the assessment (*Annex B*). The traffic forecast employed for this assessment was endorsed by Transport Department (TD) (*Annex B*).

The road surface types and speed limits for the road sections in the Project are indicated in *Annex B*. The design information of the proposed roads in *Table 4.4a* was agreed by TD:

Table 4.4a Design Information of the Proposed Roads

Proposed Roads	Road Type	Road Speed (kph)	Road Surface
Flyover A	Rural Trunk Road	70kph	Low Noise Surface
Slip Road A	Rural Trunk Road	50 - 70kph	Bitumen & Low Noise Surface
Slip Road B	Expressway	70 - 80kph	Low Noise Surface
Slip Road C	Rural Trunk Road	50kph	Bitumen
Segregated Left-turn Lane A	Rural Trunk Road	50kph	Bitumen

Based on the as-built drawings provided by HyD, absorptive noise barriers of 1m to 3.5 m in height were erected along the road edges of the existing Yuen Long Highway Flyover. Noise barriers of 0.8m to 4m height were also erected along the road edges of the existing slip roads on the northern arm of Yuen Long Highway. These noise barriers have been included in the noise model and their locations are presented in *Annex C*.

Some sections of the existing noise barriers will have to be demolished for the construction of the Project, which are presented in *Annex C5*. The existing 0.8m and 2m noise barriers at the POR will be demolished after the completion of the new segregated left-turn lane and its associated planter wall. A short section of the existing 3m high noise barrier will be required to setback for about 2m to allow bus sight-line for the new segregated left-turn

lane. This section of noise barrier will be taken out in the noise model for the Project (without mitigation) to represent a worse-case scenario.

In accordance with the policy and requirements set out in the *Technical Circular (Works) No. 10/2005* for *Planting on Footbridges and Flyovers* published by the then Environmental, Transport and Works Bureau, planters will be provided for the new flyover. In addition to the planters, a 1.1m high concrete parapet wall along the road sides of the new flyover and a 1.5m high planter wall along the new segregated left-turn lane will be provided following the requirements of typical highway engineering design to form part of the road works. These provisions are incorporated in the noise assessment. Indicative sections of the proposed concrete parapet wall and the planter wall are presented in *Annex C6*.

The predicted noise levels due to the Project were evaluated by comparison with the *EIAO-TM* traffic noise limits ($L_{10, 1hr}$ dB(A)), as outlined in *Section 4.2.2*.

4.5 IDENTIFICATION OF POTENTIAL IMPACTS

4.5.1 Construction Phase

Noise arising from the construction activities of the Project will likely have potential noise impacts on the nearby NSRs if unmitigated. The major activities associated with the construction phase will involve the use of PME and they are summarised as follows:

- Site clearance and site formation;
- Road drainage, utilities and water main works;
- Demolition of existing structures;
- Piling by Continuous Flight Auger (CFA);
- Construction of retaining walls and abutments by silent piler;
- Subway extension;
- Construction of pilecaps and piers;
- Construction of new flyover by balanced cantilever precast;
- Installation of concrete parapets and planters; and
- Pavement construction.

It is anticipated that percussive piling will not be required. The normal working hours of the Contractor will be between 07:00 and 19:00 hours from Monday to Saturday (except public holidays). For construction method Option 1, ie precast segment balanced cantilever box girder, is adopted for the

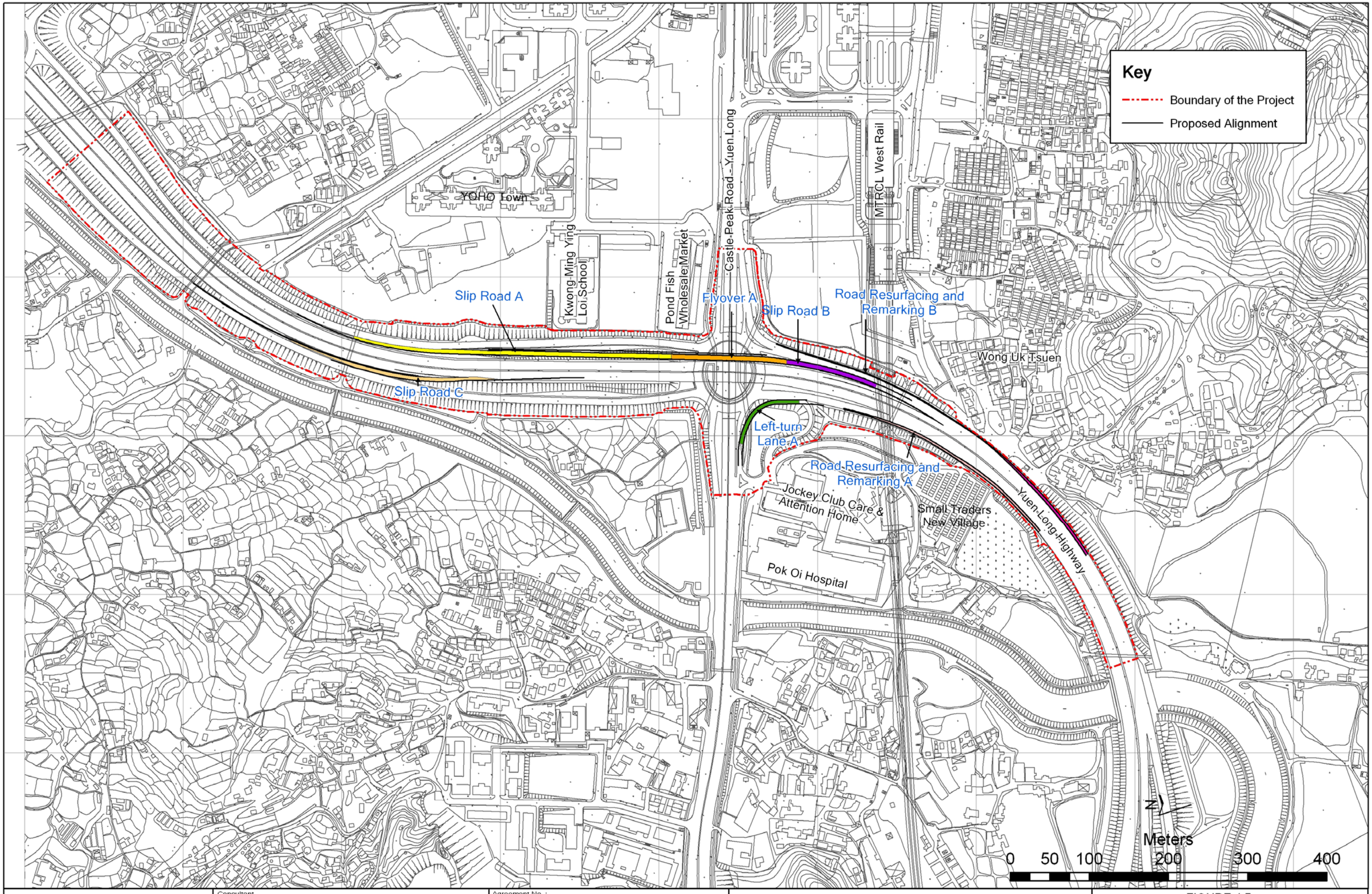
new flyover deck, construction activities during night-time, which is within the restricted hours under the NCO, are expected for the installation of precast concrete segments and the erection of sign gantry to avoid disruption of traffic on the existing roads during daytime and to ensure that the launching of precast segments over busy road sections will not jeopardise road safety. During the detailed design and the construction of the Project, every effort will be made to streamline the work cycle for the flyover deck construction to minimise the requirement for work activities within the restricted hours. If construction method Option 2, ie cast in-situ deck with conventional temporary works, is adopted, two additional months will be required for constructing the new flyover and the construction programme will be revised as shown in *Annex C2*. *Figure 4.5a* indicates the location of work areas.

For construction works planned during the restricted hours, it will be the responsibility of the Contractor to ensure compliance with the *NCO* and the relevant TMs. In such cases, the Contractor will be required to submit a CNP application to the Noise Control Authority and abide by any conditions stated in the CNP, should one be issued. There is no guarantee that a CNP will be issued for the Project construction. The Noise Control Authority will consider a well-justified CNP application, once filed, for construction works within restricted hours as guided by the relevant TMs issued under the NCO. The Noise Control Authority will take into account of contemporary conditions/situations of adjoining land uses and any previous complaints against construction activities at the site before making his decision in granting a CNP. Nothing in this report shall bind EPD in making its decision. If a permit is to be issued, EPD will include any conditions considered appropriate and such conditions are to be followed while the works covered by the permit are being carried out. Failure to comply with the conditions stipulated will lead to cancellation of the permit and prosecution action under the *NCO*.

As indicated in *Section 2.3*, the Project may interact with the following concurrent projects:

- Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 (Project No. 7721CL/B): The proposed project is for the extension of Road L3 in Yuen Long Area 16 located next to the West Rail Yuen Long Station. The scope of the project mainly comprises the extension of an exiting carriageway by about 220m and its associated drainage and landscape works. The construction period will commence in August 2008 and end in 2011.

- Proposed Left Turn Lane at Pok Oi Interchange for the Development at YOHO Town Phase II: An exclusive left turn lane in Pok Oi Interchange will be constructed by Sun Hung Kai Properties Ltd. together with the private development YOHO Town Phase II. The exclusive left turn lane will be located in the south-west corner of the interchange, ie, for vehicles from Shap Pat Heung Interchange to Yuen Long Town. The construction period is about 1 year. The works will be completed on or before 2010.



Highways Department The Government of the Hong Kong Special Administrative Region	Consultant Environmental Resources Managment ERM Halcrow Halcrow China Ltd. As Engineering Sub-consultant	Agreement No. : WD 6/2007	Environmental Impact Assessment Report	FIGURE 4.5a
		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: Construction Work Areas	Checked PS / Scale - / Rev. / Designed TF / Drawn AM / Date 10/07/2008

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The locations of concurrent projects within 300m of the study area are indicated in *Figure 2.5a*. The construction programme and plant inventory for the above-mentioned concurrent projects are not available at this stage. Cumulative noise impacts were assessed based on an assumed typical plant inventory for small scale road works.

4.5.2 Operational Phase

The objective of the Project is to relieve the traffic pressure and traffic queues of the existing POR by means of the flyover, slip roads, segregated left-turn lane and the associated works. During the operation of the Project, it may increase the road traffic noise impacts on the nearby NSRs. Practical direct noise mitigation measures will be recommended, if necessary, to alleviate the potential noise impact.

4.6 EVALUATION OF IMPACTS

4.6.1 Construction Phase

The predicted construction noise levels during daytime periods for construction method for flyover A Options 1 and 2 are presented in *Tables 4.6a* and *4.6b*, respectively. Details of the noise calculations are presented in *Annex C7*.

Table 4.6a Predicted Construction Noise Levels during Daytime Period (Without Mitigation) (Construction Method for Flayover A - Option 1 : Precast Segment Balanced Centilever Box Girder)

NSR	Description	Predicted Maximum Construction Noise Levels[(a)], $L_{eq, 30\ min}$ dB(A)	Cumulative Noise Levels, dB(A)	Noise Criteria, dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	65 – **77**	65 – **78**	75
JCCAH2	Jockey Club Care & Attention Home – southern facade	54 – **77**	54 – **77**	75
KMYLS1	Kwong Ming Ying Loi School	62 - **82**	62 - **82**	70
KMYLS2	Kwong Ming Ying Loi School	51 – **81**	51 - **81**	70
STNV1	Small Traders New Village	65 - **78**	65 - **79**	75
V1	Village houses facing slip road (south bound) of Yuen Long Highway - south of POI	60 – 74	60 – 74	75
V2		60 - **76**	60 - **76**	75
V3	Chuk San Tsuen	43 – **76**	43 – **76**	75
V6	Hoover Garden	54 – 70	54 – 70	75

NSR	Description	Predicted Maximum Construction Noise Levels[a], $L_{eq, 30\ min}$ dB(A)	Cumulative Noise Levels, dB(A)	Noise Criteria, dB(A)
WUT1	Wong Uk Tsuen	65 – **78**	66 – **81**	75
YT1	YOHO Town Phase I	59 - 70	59 - 70	75

Notes:
(a) All predicted noise levels were corrected with 3dB(A) for façade reflection.
(b) **Bold** value indicates exceedance of noise criteria of 75 dB(A) for residential premises, 70 dB(A) for educational institutions during daytime period.

Table 4.6b ***Predicted Construction Noise Levels during Daytime Period (Without Mitigation) (Construction Method for Flayover A - Option 2 : Cast In-situ Deck with Conventional Temporary Works)***

NSR	Description	Predicted Maximum Construction Noise Levels[a], $L_{eq, 30\ min}$ dB(A)	Cumulative Noise Levels, dB(A)	Noise Criteria, dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	67 – **77**	67 – **78**	75
JCCAH2	Jockey Club Care & Attention Home – southern facade	62 – **77**	62 – **77**	75
KMYLS1	Kwong Ming Ying Loi School	67 - **82**	67 - **82**	70
KMYLS2	Kwong Ming Ying Loi School	56 – **81**	56 - **81**	70
STNV1	Small Traders New Village	65 - **78**	66 - **79**	75
V1	Village houses facing slip road (south bound) of Yuen Long Highway - south of POI	64 – 74	64 – 74	75
V2		64 - **76**	64 - **76**	75
V3	Chuk San Tsuen	53 – **76**	53 – **76**	75
V6	Hoover Garden	57 – 70	57 – 70	75
WUT1	Wong Uk Tsuen	65 – **78**	68 – **81**	75
YT1	YOHO Town Phase I	62 - 71	62 - 71	75

Notes:
(a) All predicted noise levels were corrected with 3dB(A) for façade reflection.
(b) **Bold** value indicates exceedance of noise criteria of 75 dB(A) for residential premises, 70 dB(A) for educational institutions during daytime period.

The results indicate that the construction noise impacts at most of the NSRs exceeded the *EIAO-TM* noise criteria during daytime period. Mitigation measures will therefore be required to mitigate the construction noise impact.

4.6.2 Operational Phase

Designated Project Analysis

Road traffic noise levels have been predicted at a total of 21 representative NSR locations, including existing and planned uses. *Annex C8* presents the breakdown of the noise levels with and without the Project. The results indicate that the traffic noise level with the road project is not greater than that

without the road project at the design year by 1.0dB(A) or more at any of the NSRs and will not result in any adverse impact on the NSRs. The Project as a whole will not constitute any material change on the noise front to exempted projects. Hence, it is not required to consider noise mitigation measures in the context of the whole project boundary to reduce the traffic noise impacts at all NSRs to meet the *EIAO-TM* noise criteria.

Road Traffic Noise

Without noise mitigation measures in place, the predicted noise levels at the representative NSRs were in the range of 58 to 83 dB(A) with the Project. Results indicated that the predicted noise levels exceeded the traffic noise criteria due to the Project and other existing roads at the planned NSR PS1, while exceedance predicted at other NSRs would be due to other existing roads only. Noise mitigation measures for the two planned schools are required to alleviate the adverse traffic noise impact.

Detailed results of the road traffic noise impact assessment with the road plots and input files are presented in *Annex C9*.

4.7 MITIGATION OF ADVERSE ENVIRONMENTAL IMPACTS

4.7.1 Construction Phase

In view of the predicted noise exceedances during the construction of the Project, the following mitigation measures have been considered:

- Good Site Practice;
- Use of quiet PME;
- Use of acoustic enclosure;
- Adoption of movable noise barriers; and
- Scheduling of PME/Construction Activities.

Good Site Practices

Good site practices and noise management can considerably reduce the impact of construction site activities on nearby NSRs. The noise benefits of these practices can vary according to specific site conditions and operations. Since the effect of the good site practices could not be quantified, the mitigated noise levels calculated in the subsequent sections have not taken account of this effect. The following site practices should be followed during the construction of the Project:

- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;

- Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program;
- Mobile plant, if any, should be sited as far away from NSRs as possible;
- Machines and plant (such as trucks) 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 should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs;
- Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities; and
- The contractor should liaise with the school regarding the examination periods. Noisy construction activities, including piling, excavation and earth-breaking works, will be carried out outside the examination periods.

Use of Quiet PME

The use of quiet PME was considered to be a practicable means to mitigate the construction noise impact. Quiet plant is defined as a PME having actual SWL lower than the value specified in the GW-TM. Quiet PME that have been adopted in the assessment are summarised in *Table 4.7a*.

Table 4.7a Sound Power Level of Quiet PME

PME Item	BS 5228 / EPD QPME Reference	Sound Power Level, dB(A)
Excavator	BS C3/97	105
Mobile crane	BS C7/114	101
Concrete truck	BS C6/23	100
Road roller	BS C8/30	101
Vibratory poker	BS C6/40	98
Asphalt paver	BS C8/24	101
Vibratory roller	BS C3/115	102
Concrete pump	BS C6/36	106
Excavator	EPD 00057	103

Use of Acoustic Enclosure

Temporary acoustic enclosure is a common and effective means to mitigate the noise impact arising from operation of certain small size PMEs. A frame covered with noise insulation materials (sound insulation materials with a superficial surface density of at least 7 kg/m^2 or sound absorbing materials of at least 50mm and average absorption coefficient between 125 Hz and 4000 Hz of 0.4) could at least 5 dB(A) reduction for plant items such as hand-held

breaker and circular wood saw. The locations of the temporary acoustic enclosure shall be adjusted wherever and whenever necessary to protect the noise sensitive receivers, the enclosures shall have no openings or gaps.

Adoption of Movable Noise Barriers

The use of noise barriers will be an effective means to mitigate the noise impact arising from the construction works, particularly for low-rise NSRs. Movable noise barriers of 3 m in height with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers. The length of the barrier should be at least five times greater than its height. It is anticipated that the major noise source of all PMEs, including movable and large PMEs, will be located at a level lower than the top of the proposed movable barriers, and therefore these barriers could produce at least a 5 dB(A) noise reduction for mobile plant such as excavator and roller as well as large scale plant such as a crane. With reference to *A Practical Guide for the Reduction of Noise from Construction Works*, the noise barrier material should have a superficial surface density of at least 7 kg/m^2 and have no openings or gaps. *Figure 4.7a* shows the approximate locations of the proposed movable noise barriers for the construction of slip road A facing Kwong Ming Ying Loi School (NSR KMYLS1).

Scheduling of PME/Construction Activities

In view of the limited separation distance between NSRs KMYLS1 and KMYLS2 and the nearest work sites at slip road A as well as flyover A, the predicted noise level will still exceed the noise criteria. For NSR KMYLS1, exceedance of 2 dB(A) during normal teaching period and 7 dB(A) during examination period is anticipated. For NSR KMYLS2, the predicted noise level complies with the noise criteria of 70 dB(A) during normal teaching period. It will however exceed the noise criteria for examination period by 5 dB(A). Practical mitigation measures with the use of quiet PMEs and movable noise barriers have been exhausted, taking into account the engineering and programming point of view. To further alleviate the construction noise impacts, only one group of PME (Group A or B) will be operated during road drainage, utilities and water mains works at work site of slip road A (*Annex C10*). The predicted noise level at NSRs KMYLS1 and KMYLS2 would comply with the criterion of 70 dB(A) during normal teaching period. It is recommended to cease all construction activities at the work sites of slip road A and flyover A during examination period.

Similar to the situation for NSRs KMYLS1 and KMYLS2, NSRs STNV1 and WUT1 are located within a small distance from the nearest work site for road resurfacing and remarking A and B respectively. The predicted noise level will still exceed the noise criteria of 75 dB(A) by 1 dB(A). Apart from the use of quiet PME, it is proposed that only one group of PME (either Group A or Group B) should be operated during the works within the respective work sites of road resurfacing and remarking A and B. The predicted noise level at

NSR STNV1 and WUT1 would comply the relevant noise criteria. The detailed calculations are presented in *Annex C10*.

The above mitigation measures have been vetted and confirmed by the Project Proponent as being practicable in completing the works within the scheduled timeframe. It is considered practical to specify the total SWL of all plant items to be used on-site so that flexibility is allowed for the Contractor to select plant items to suit the construction needs.

With the implementation of the use of quiet PME, movable noise barriers and scheduling of construction works for various construction activities as shown in *Annex C10*, the mitigated noise levels at the representative NSRs were calculated and the results for daytime periods for construction method Options 1 and 2 for new flyover deck are summarised in *Tables 4.7b* and *4.7c*, respectively.

Table 4.7b ***Predicted Construction Noise Levels during Daytime Period (With Mitigation) (Construction Method for Flayover A - Option 1 : Precast Segment Balanced Centilever Box Girder)***

NSR	Description	Predicted Maximum Construction Noise Levels(a), Leq, 30 min dB(A)	Cumulative Noise Levels, dB(A)	Noise Criteria, dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	61 – 72	61 – 73	75
JCCAH2	Jockey Club Care & Attention Home – southern facade	50 – 72	50 – 72	75
KMYLS1	Kwong Ming Ying Loi School	58 – 70	58 – 70	70
KMYLS2	Kwong Ming Ying Loi School	47 – 69	47 – 69	70
STNV1	Small Traders New Village	57 – 75	57 – 75	75
V1	Village houses facing slip road (south bound) of Yuen Long Highway – south of POI	56 – 68	56 – 68	75
V2		56 – 69	56 – 70	75
V3	Chuk San Tsuen	39 – 68	39 – 68	75
V6	Hoover Garden	50 – 63	50 – 63	75
WUT1	Wong Uk Tsuen	58 – 74	58 – 74	75
YT1	YOHO Town Phase I	55 – 64	55 – 64	75

Note:
(a) All predicted noise levels were corrected with 3dB(A) for façade reflection.

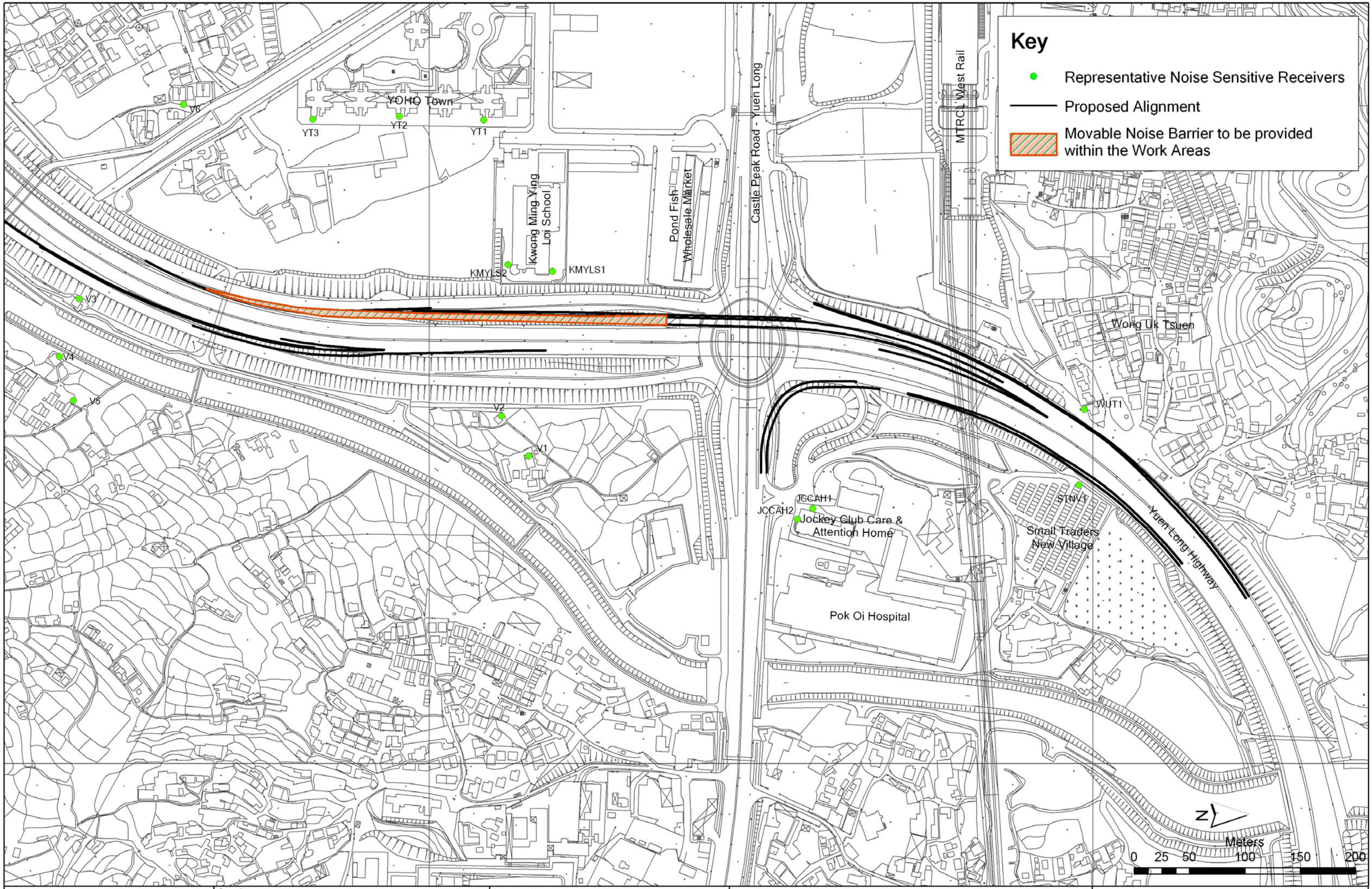

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FIGURE 4.7a

Figure Title: LOCATION OF PROPOSED MOVABLE NOISE BARRIERS DURING CONSTRUCTION PHASE

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Table 4.7c ***Predicted Construction Noise Levels during Daytime Period (With Mitigation) (Construction Method for Flayover A - Option 2 : Cast In-situ Deck with Conventional Temporary Works)***

NSR	Description	Predicted Maximum Construction Noise Levels(a), Leq, 30 min dB(A)	Cumulative Noise Levels, dB(A)	Noise Criteria, dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	62 – 72	62 – 73	75
JCCAH2	Jockey Club Care & Attention Home – southern facade	56 – 72	56 – 72	75
KMYLS1	Kwong Ming Ying Loi School	61 – 70	61 – 70	70
KMYLS2	Kwong Ming Ying Loi School	50 – 69	50 – 69	70
STNV1	Small Traders New Village	59 – 75	59 – 75	75
V1	Village houses facing slip road (south bound) of Yuen Long Highway – south of POI	59 – 68	59 – 68	75
V2		59 – 69	59 – 70	75
V3	Chuk San Tsuen	46 – 68	46 – 68	75
V6	Hoover Garden	52 – 63	52 – 63	75
WUT1	Wong Uk Tsuen	60 – 74	60 – 74	75
YT1	YOHO Town Phase I	57 – 64	64 – 64	75

Note:
(a) All predicted noise levels were corrected with 3dB(A) for façade reflection.

The results indicate that with the adoption of the recommended mitigation measures, no exceedance of the *EIAO-TM* noise criteria during the daytime period is anticipated. No further mitigation will therefore be required.

For the proposed noise barrier to mitigate the traffic noise impact on the planned schools due to the Project, it will only be constructed when there is an implementation programme for the construction of the planned schools. The construction noise impact was estimated at the nearest NSRs KMYLS1, KMYLS2 and YT1. With the use of quiet PME and movable noise barriers, in conjunction with careful scheduling of works, the predicted noise levels at the NSRs are anticipated to comply with the *EIAO-TM* daytime noise criteria for residential premises and education institutions during normal teaching period. Details of the calculations are given in *Annex C10*. It is recommended to cease all noisy construction activities at the work site of slip road A and flyover A during examination periods.

4.7.2 Operational Phase

With the results of the prediction indicated noise exceedance at the planned NSR PS1 due to both the Project and other existing roads, direct mitigation measure would be required to reduce the noise from the Project to a level that it:

- is not higher than the *EIAO-TM* noise criteria; and

- has no significant contribution to the overall noise from other existing roads, if the cumulative noise level (i.e. noise from the Project together with other existing roads) exceeds the *EIAO-TM* noise criteria.

The following direct mitigation measure has been proposed:

- A section of approximately 200m long 2.5m high vertical barrier along the northern bound of Yuen Long Highway in front of the planned schools within the CDA zone. The barrier is proposed to be concrete structures installed with reflective barrier panels to align with the visual appearance of the existing noise-screening structures provided along Yuen Long Highway. As this section of barrier was proposed to protect the planned schools, it is only required to be constructed before the occupation of the planned schools.

The proposed direct mitigation measures are presented in *Annex C11*.

With the provision of the proposed direct mitigation measure, the predicted overall noise levels at most of the NSRs still exceed the *EIAO-TM* noise criteria due to the noise contributions from the other existing roads. However, the predicted noise levels due to the Project at all NSRs comply with the *EIAO-TM* noise criteria. *Annex C11* presents the breakdown of the noise levels for the scenarios without the Project, with the Project (without mitigation) and with the Project (with mitigation). Detailed results of the road traffic noise impact assessment with the road plots and input files are presented in *Annex C11*.

As the noise contributions from the Project to the increase in the predicted overall noise levels at the NSRs are not more than 1.0 dB(A) and the predicted noise levels due to the Project at all NSRs comply with the *EIAO-TM* noise criteria, no further direct mitigation measures are considered effective in mitigating the noise impact.

4.8 RESIDUAL ENVIRONMENTAL IMPACTS

4.8.1 Construction Phase

With the implementation of the recommended noise control mitigation measures, the cumulative construction noise levels from the Project and the concurrent projects would comply with the *EIAO-TM* daytime noise criteria. No residual impact is anticipated.

4.8.2 Operational Phase

With the provision of the proposed direct noise mitigation measure, the noise contributions due to the Project at all representative NSRs would be less than 1.0 dB(A) and the predicted noise levels due to the Project would all comply with the *EIAO-TM* noise criteria. Noise exceedance at the representative NSRs, if any, would be due to the other existing roads.

As the contributions from the Project to the increase in the predicted overall noise levels are not more than 1.0 dB(A), none of the representative NSRs is considered eligible for indirect technical remedies in the form of acoustic insulation and air conditioning under the *EIAO-TM*.

4.9 ENVIRONMENTAL MONITORING AND AUDIT

4.9.1 Construction Phase

With regard to the potential noise impact arising from the construction activities of the Project on the nearby NSRs, it is recommended that Environmental Monitoring and Audit (EM&A) be undertaken during the construction phase of the Project. The EM&A programme is required to monitor compliance with permissible noise levels. In addition, site audits are recommended to be undertaken regularly during the construction phase to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented. Details of the EM&A requirements are provided in *Section 10* and the *EM&A Manual*.

4.9.2 Operational Phase

Notwithstanding that noise exceedance was predicted for the planned NSRs only and the existing NSRs will not be subject to adverse noise impacts during the operational phase of the Project, noise monitoring is recommended to be carried out during the first year after opening to ensure noise compliance. Details of the EM&A requirements are provided in *Section 10* and the *EM&A Manual*.

4.10 CONCLUSIONS

4.10.1 Construction Phase

The construction noise impacts of the Project during normal daytime working hours were predicted in this *EIA Study*. With the use of quiet PME, movable barriers and scheduling of construction activities, the noise levels at all representative NSRs are predicted to comply with the construction noise standards.

4.10.2 Operational Phase

The potential road traffic noise impacts were assessed based on the worst case traffic forecast for Year 2026. The predicted noise levels exceeded the *EIAO-TM* noise criteria due to both Project and other existing roads at the planned schools within the G/IC site. A direct mitigation measure was proposed to mitigate the noise impacts at the NSR PS1, where the predicted noise levels due to the Project exceeded the *EIAO-TM* noise criteria.

With the proposed 2.5m high vertical barrier for the planned schools, the contributions from the Project to the increase in the predicted overall noise levels at all representative NSRs was not more than 1.0 dB(A). The predicted

noise levels due to the Project complied with the *EIAO-TM* noise criteria, though the overall noise levels at most of the NSRs would still exceed the *EIAO-TM* noise criteria. However, these noise exceedance are due to the other existing roads.

5 AIR QUALITY ASSESSMENT

5.1 INTRODUCTION

This *Section* assesses the potential air quality impact associated with the construction and operation of the Project.

5.2 RELEVANT LEGISLATION AND GUIDELINES

The principal legislation for the management of air quality in Hong Kong is the *Air Pollution Control Ordinance* (*Cap. 311*) (*APCO*). Under the APCO, *Air Quality Objectives* (AQOs) were established for the management of air quality in Hong Kong. *Table 5.2a* presents the statutory limits for air pollutants and the maximum allowable numbers of exceedances over specific periods.

Table 5.2a Hong Kong Air Quality Objectives (μg m^{-3}) [(a)]

Air Pollutant	Averaging Time			
	1 Hour [(b)]	8 Hours [(c)]	24 Hour [(c)]	1 Year [(d)]
Sulphur Dioxide (SO_2)	800	-	350	80
Total Suspended Particulates (TSP)	-	-	260	80
Respirable Suspended Particulates (RSP) [(e)]	-	-	180	55
Nitrogen Dioxide (NO_2)	300	-	150	80
Carbon Monoxide (CO)	30,000	10,000	-	-
Photochemical Oxidants (as ozone) [(f)]	240	-	-	-

Notes:

(a) Measured at 298K (25°C) and 101.325 kPa (one atmosphere)
(b) Not to be exceeded more than three times per year
(c) Not to be exceeded more than once per year
(d) Arithmetic mean
(e) Respirable suspended particulates means suspended particles in air with a norminal aerodynamic diameter of 10 micrometres or smaller
(f) Photochemical oxidants are determined by measurement of ozone only.

The *EIAO–TM* also stipulates an hourly total suspended particulates (TSP) concentration of 500 μg m^{-3} for construction dust impact assessment.

5.3 BASELINE ENVIRONMENTAL CONDITIONS AND SENSITIVE RECEIVERS

5.3.1 Baseline Environmental Conditions

The existing air quality in the Study Area (*Figure 5.3a*) is predominantly influenced by the vehicular emissions from the existing POR, Castle Peak Road and YLH and their slip roads. The nearest air quality monitoring station (AQMS) operated by Environmental Protection Department (EPD) is located on the roof of Yuen Long Government Offices. The annual average concentrations of NO_2, RSP and TSP recorded for the last five years at the Yuen Long AQMS were used as the background data for assessing the total air quality for this assessment. The data from the Yuen Long AQMS are summarised in *Table 5.3a*.

Table 5.3a Background Air Quality

Air Pollutants	Background Concentration (μg m^{-3}) [a]
Nitrogen Dioxide (NO_2)	60
Respirable Suspended Particulates (RSP)	64 [b]
Total Suspended Particulates (TSP)	103 [b]

Notes:

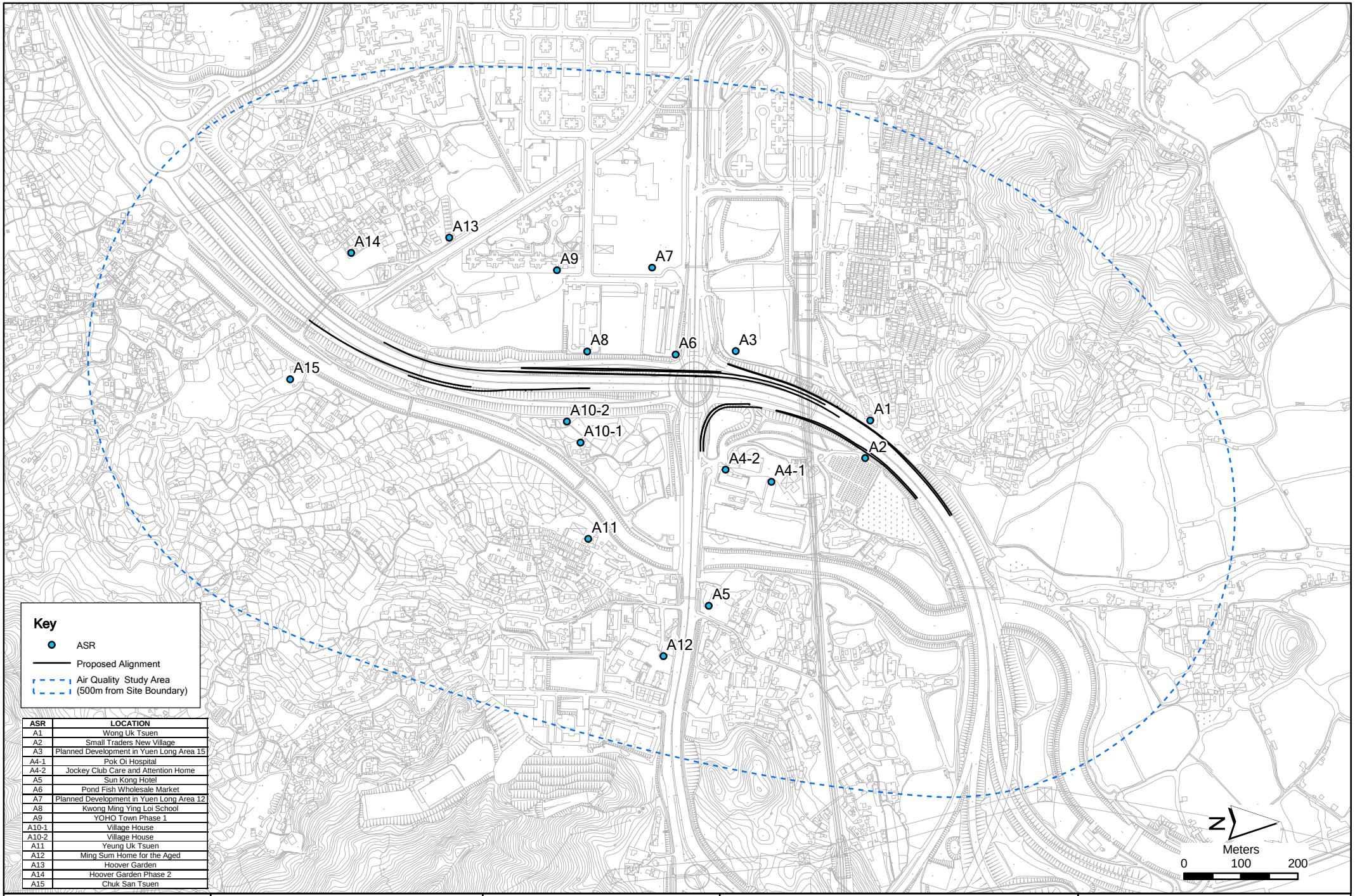
(a) Annual average data on air pollutant concentrations measured at EPD Yuen Long AQMS for the past 5 years (2003 – 2007) (http://www.epd-asg.gov.hk/english/report/aqr.php)

(b) The RSP and TSP levels recorded at EPD Yuen Long AQMS exceeds the corresponding Air Quality Objective.

5.3.2 Air Sensitive Receivers

Air sensitive receivers (ASRs) were identified according to *Annex 12* of EIAO-TM. Planned developments were identified with reference to the latest Outline Zoning Plan (No. S/YL/17 gazetted in November 2007). The identified ASRs are presented in *Table 5.3b* and *Figure 5.3a*.

The existing environment of the Study Area is predominantly rural with a number of villages within its boundary. YOHO Town Phase I, which is a more recent high-rise development with five residential blocks, is located to the southwest of the POI. Two planned ASRs (ie ASRs A3 and A7), which are comprehensive developments with both residential and commercial uses, have been identified in Yuen Long Areas 15 and 12 to the northwest and southwest of the POI, respectively.



ASR	LOCATION
A1	Wong Uk Tsuen
A2	Small Traders New Village
A3	Planned Development in Yuen Long Area 15
A4-1	Pok Oi Hospital
A4-2	Jockey Club Care and Attention Home
A5	Sun Kong Hotel
A6	Pond Fish Wholesale Market
A7	Planned Development in Yuen Long Area 12
A8	Kwong Ming Ying Loi School
A9	YOHO Town Phase 1
A10-1	Village House
A10-2	Village House
A11	Yeung Uk Tsuen
A12	Ming Sum Home for the Aged
A13	Hoover Garden
A14	Hoover Garden Phase 2
A15	Chuk San Tsuen

Highways Department
The Government of the Hong Kong Special Administrative Region

Consultant
Environmental Resources Managment
ERM

Halcrow
Halcrow China Ltd.
As Engineering Sub-consultant

Agreement No. : WD 6/2007

Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study

Environmental Impact Assessment Report

Figure Title: Air Sensitive Receivers

FIGURE 5.3a

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Table 5.3b Identified Air Sensitive Receivers

ASR	Location	Approximate Distance from Site Boundary (m)	Type of Uses [a]	Approximate Maximum Height of the Building above Ground (m)
A1	Wong Uk Tsuen	10	R	6
A2	Small Traders New Village	10	R	6
A3	Planned Development in Yuen Long Area 15	30	CDA	117
A4-1	Pok Oi Hospital	130	Hospital	18
A4-2	Jockey Club Care and Attention Home	65	Hospital	18
A5	Sun Kong Hotel	290	C	9
A6	Pond Fish Vegetable Market	25	C	5
A7	Planned Development in Yuen Long Area 12	180	CDA	132
A8	Kwong Ming Ying Lai School	30	Educational Institute	15
A9	YOHO Town	170	R	105
A10-1	Village House	35	R	6
A10-2	Village House	70	R	6
A11	Yeung Uk Tsuen	260	R	6
A12	Ming Sum Hope for the Aged	390	Home for the aged	6
A13	Hoover Garden	190	R	9
A14	Hoover Garden Phase 2	220	R	9
A15	Chuk San Tsuen	90	R	9

Notes:

(a) R = Residential developments, C = Commercial premises, CDA = Comprehensive Development Area

5.4 POTENTIAL SOURCES OF IMPACT

5.4.1 Construction Phase

The Project involves the construction of a flyover and a number of new slip roads, resurfacing and re-marking of existing road sections to provide an additional traffic lane. The major dust generating construction activities associated with the Project are the demolition of existing structures, site formation, minor excavation and filling works, removing lane markings from the existing road surface, piling, concreting and road paving works.

Excavation and backfilling will be required for site formation and foundation works. About 32,000 m^3 of materials (ie, about a total of 74 m^3 per day of excavated materials) [1] will be excavated from different construction works throughout the construction phase and about 23,300 m^3 of which will be surplus materials to be transported off-site (ie about 13 truckloads per day of

[1] Assuming 24 working days a month, the daily generation rate of excavated materials = 32,000 m^3 / 18 months / 24 days = 74 m^3 per day.

excavated materials will be transported off-site per day [1]). HyD has estimated that The excavated materials are generated from the 9th month to the 21st month (tentatively scheduled for the period from August 2010 to August 2011). Since the construction of slip roads will be carried out in small sections, the works area for each section will be small and confined. The quantity of excavated materials generated from each construction worksite will therefore be limited. In view of the nature of the Project and the small area of works sites for each section, it is not anticipated that dust emissions will cause adverse air quality impacts within the Study Area with the implementation of the good site practices and dust control measures recommended in *Section 5.7*.

Potential air quality impacts may arise from the use of Powered Mechanical Equipment (PME) during the construction works. Since the number of PMEs required on-site will be limited, the gaseous emissions associated with the operation of such equipment on site are expected to be minor and will not cause adverse air quality impacts.

5.4.2 Operational Phase

Vehicular emissions are the potential sources of impact during the operation of the Project. Vehicular emission sources within the Study Area are dominated by road traffic on the proposed new road sections and the existing road network including POR, Castle Peak Road and YLH.

The objective of the Project is to relieve the traffic pressure and traffic queue of the existing POR. The design flow of POI, Castle Peak Road and Yuen Long Highway will be maintained, and therefore no increase of traffic will occur as a result of this Project.

Nitrogen dioxide (NO_2) and respirable suspended particulates (RSP) are the key air pollutants of concern.

5.4.3 Cumulative Impacts

As indicated in *Section 2.3*, *Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 (Project No. 7721CL/A)* and *Proposed Left-Turn Lane at Pok Oi Interchange for the Development at YOHO Town Phase II* are identified as concurrent projects that may cause cumulative environmental impact with this Project in the vicinity.

The scope of *Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 (Project No. 7721CL/A)* mainly comprises the extension of an existing carriageway by about 220m and its associated drainage and landscape works. The proposed project is under tender assessment stage. The construction is expected to commence in end 2008 and end in 2011.

[1] Assuming one truckload is 6m³ and a bulking factor of 1.4, the number of truck trips for transporting surplus materials offsite per day is 23,300 x 1.4 ÷ 18 ÷ 24 ÷ 6 = 12.5 Bulking factor is defined as the volume after excavation (or bulk volume) divided by the volume before excavation (or undisturbed volume).

A dedicated left-turn lane for access to the planned private development of YOHO Town Phase II from Castle Peak Road – Yuen Long Section immediately west of POR will be constructed by Sun Hung Kai Properties Ltd. together with the said development. The construction period is envisaged to be about one year. The works will be completed in or before 2010.

Construction Phase

The construction programme of the Project will have an overlap of about 10 months and 1 year with the above-mentioned concurrent projects, respectively. No major excavation works are expected to be required for the concurrent projects, hence, adverse cumulative dust impacts are not anticipated.

Operational Phase

The Kau Hui Development and the dedicated left-turn lane for access to the planned private development of YOHO Town Phase II from Castle Peak Road – Yuen Long Section will be considered in the operational phase air quality impact.

5.5 ASSESSMENT METHODOLOGY

5.5.1 Construction Phase

As discussed in *Section 5.4.1*, no adverse dust impact is expected, and therefore no quantitative assessment is required.

5.5.2 Operational Phase

Vehicular Emission Rate Estimation

As discussed in *Section 5.4.2*, NO_2 and RSP are the concerned air pollutants from vehicular emissions. The EMFAC-HK model was adopted to estimate the NO_2 and RSP emission rates for the input to the subsequent dispersion model for the assessment of the air pollutant concentrations in the vicinity of the Project.

The Guideline on Modelling Vehicle Emissions by EPD was used as a reference to develop the assumptions and parameters for the EMFAC-HK for this Project.

The methodology and assumptions were developed with reference to the adopted for the approved *EIA of Widening of Tuen Mun Road at Tsing Tin Interchange* (EIA-142/2007). Some assumptions were made in accordance with published information from the EPD and relevant Government departments.

Vehicle Classes

Based on the information in *Table 4.4 (Registration and Licensing of Vehicle by Fuel Type)* of the *Transport Monthly Digest (Apr 2008)* and the vehicle population provided by EPD, the modelled "vehicle fleet" (ie, all motor vehicles operating on roads within the Study Area) was broken down into 16 vehicle classes as shown in *Table 5.5a*. The vehicle group classification was based on the definition in The *Annual Traffic Census 2006 – Appendix F Vehicle Classification System*.

Table 5.5a Vehicle Classes in EMFAC-HK Model

Vehicle Class	Description	Fuel Type	Gross Vehicle Weight
MC1	Petrol Private Cars (PC) & Light Goods Vehicles (LGV)	Petrol	All
MC3	Diesel Private Cars & Light Goods Vehicles <2.5t	Diesel	<=2.5 t
MC4	Diesel Private Cars & Light Goods Vehicles	Diesel	>2.5–3.5 t
MC5	Public Light Bus	LPG, Diesel	All
MC6	Light Goods Vehicles	Diesel	>3.5-5.5 t
MC7	Medium & Heavy Goods Vehicles with GVW 5.5-15t	Diesel	>5.5-15 t
MC8	Medium & Heavy Goods Vehicles with GVW >=15t	Diesel	>15 t
MC10	Double Deck Franchised Buses	Diesel	All
MC11	Motor Cycles	Petrol	All
Taxi3	Taxi	LPG	All
Taxi4	Private Light Buses < 3.5t	LPG, Diesel	<=3.5 t
Taxi5	Private Light Buses > 3.5t	LPG, Diesel	>3.5 t
Taxi6	Non- franchised Buses <6.4t	Diesel	<=6.4 t
Taxi7	Non- franchised Buses 6.4-15t	Diesel	>6.4-15 t
Taxi8	Non- franchised Buses >15t	Diesel	>15 t
Taxi10	Single Deck Franchised Buses	Diesel	All

According to the *Transport Monthly Digest (Apr 2008)*, 0.5% of private cars operated on diesel fuel and 3% of the light goods vehicles (LGV) in Hong Kong are operated on petrol fuel. The adoption of stringent emission standards for diesel private cars since April 1998 (*Hong Kong Yearbook 2000*) [1] has also virtually halted respective registrations. All private cars were therefore assumed to be run on petroleum and grouped as 'petrol private car', and all light goods vehicles were assumed to be using diesel fuel and grouped as 'diesel light good vehicle' in the model.

Road Grouping

With reference to the current road links and design scheme within 500m of the site boundary, the speed limits on (i) Yuen Long Highway; (ii) newly proposed northbound flyover, (iii) Castle Peak Road and (iv) road links merging with POR and main roads and other local roads are 80 kph, 70 kph, 50 kph and <8kph, respectively. Details of the current road design scheme and road classifications are presented in *Figure 5.5a*.

[1] Hong Kong Yearbook 2000: http://www.yearbook.gov.hk/2000/eng/16/c16-03.htm

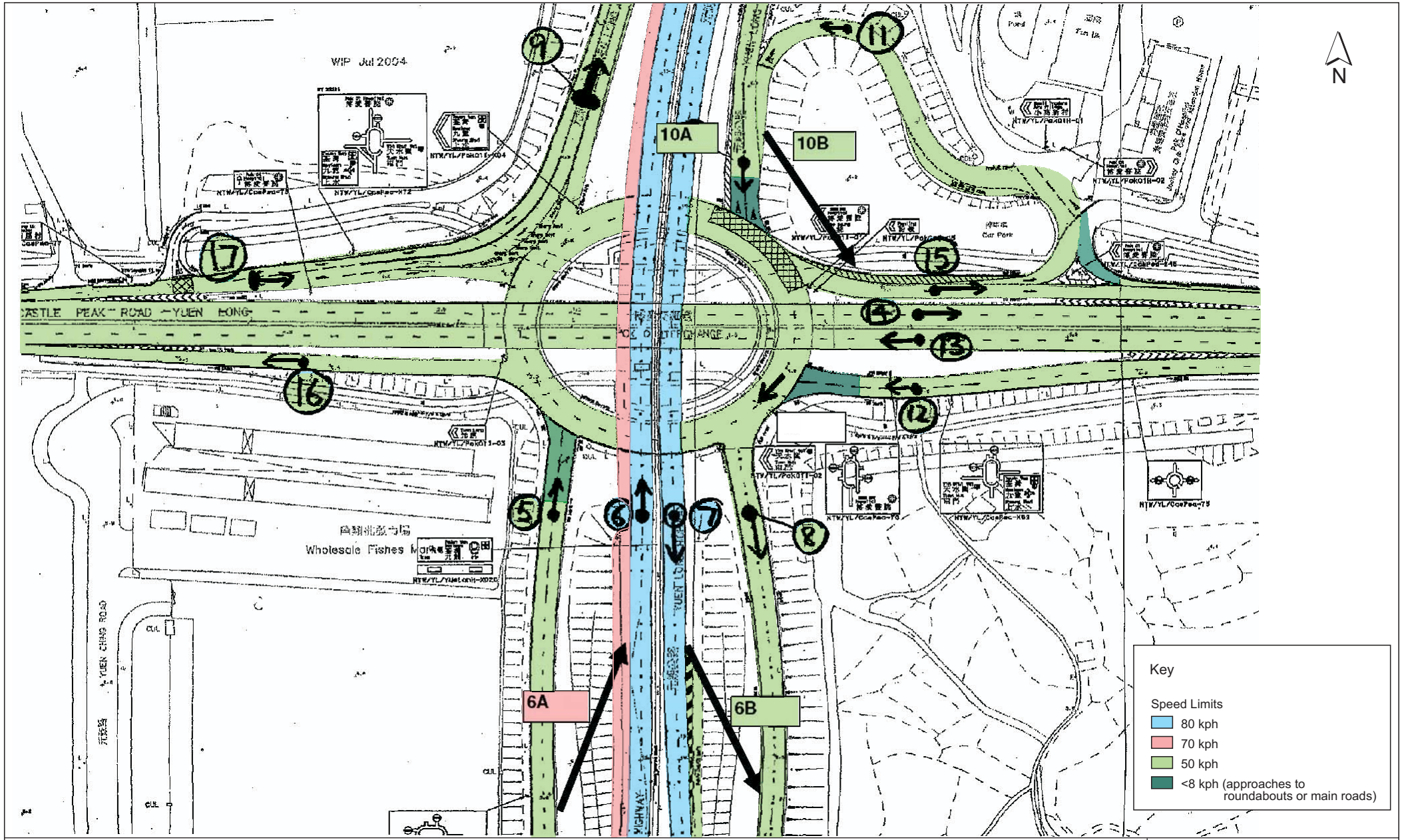

Figure 5.5a

Road Design Scheme and EMFACHK Road Classes

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Environmental Resources Management

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Modelling Modes

The latest version of the model, EMFAC-HK v1.2, provided by EPD was employed in this Project. "Burden mode" was selected as it is the one that can provide the hourly vehicular emissions according to the diurnal variations of vehicle-mile-travelled (VMT), trips, ambient temperature, relative humidity and speed. Model output files in both TextFile (CSV) and MVE17G (CSV) formats were generated.

Exhaust Technology Fractions

Each vehicle class had diverse technological factors in different years. According to the underlying assumption in EMFAC-HK, each vehicle class could be modelled by individual characteristics of unique technology groups. Each technology group representing the same vehicle class had the same emission control technologies, similar in-use deterioration rates and responded the same to repair. In short, emission performances from the same class of vehicles would be identical due to same emission standards and emission control measures installed.

The *Up to Date Vehicle Licensed Number by Age and Technology Group Fractions* listed on the EPD website had been adopted in the model run. While the exhaust technology fractions are only provided up to Year 2003, data after 2003 have been projected in accordance with EPD *Guidelines on Modelling Vehicle Emissions Appendix II 'The Implementation Schedule of Vehicle Emission Standards in Hong Kong'*, Appendix III *'The Technology Group Indexes'*. The breakdown of technology fractions in the transition periods between each EURO type in the *Implementation Schedule of Vehicle Emission Standards in Hong Kong* had been projected based on the implementation time of emission standard during the listed year in the *Implementation Schedule of Vehicle Emission Standards in Hong Kong*.

According to the EPD's *Guideline on Modelling Vehicle Emissions*, all emission control programs implemented in Hong Kong have been included in the EMFAC-HK model. While no other emission control measures were assumed in the assessment, reference was made for the projected breakdown (%) in Years 2004 to 2026 of diesel & LPG private light bus > 3.5t to data before 2003 in "*Technology Group Fraction*" table provided by EPD. For emission standard implementation years, a conservative approach was used in the assumption of technology fractions based on the *Implementation Schedule of Vehicle Emission Standards in Hong Kong* and the *Up to Date Vehicle Licensed Number by Age and Technology Group Fractions.*

In accordance with EPD's *Guideline on Modelling Vehicle Emissions Appendix II*, emission standard of diesel franchised buses would be upgraded to Euro III since 1 October 2001. However, franchised bus – single deck (FBSD) in 2001 was not upgraded to Euro III in the technology group fraction table provided by EPD. As a conservative approach, the emission standards of FBSD in Year 2001 - 2005 were therefore assumed to be Euro II and the emission standards of FBSD after Year 2005 had followed those provided in the *Implementation*

Schedule of Vehicle Emission Standards in Hong Kong. In addition, no detailed breakdown of technology fraction for FBDD and FBSD before 1995 was available. As a conservative approach, the technology fractions for all FBDD and FBDD before 1995 were classified as pre-Euro. The adjusted technology group fractions are presented in *Annex D1-1*. A summary of the applied technology fractions is also presented in *Annex D1-2*.

Evaporative Technology Fractions

Default values in EMFAC-HK were adopted.

Vehicle Population

As recommended in the EPD's *Guideline on Modelling Vehicle Emissions*, the Vehicle Population in Year 2003 were used except for private cars and taxis. After the implementation of stringent emission standards in 1998, new certification of diesel private cars registration ceased. The number of diesel private car was therefore extracted and grouped as petrol private car, while LGV < 2.5t and LGV 2.5t – 3.5t was also extracted and grouped as diesel LGV < 2.5t and LGV 2.5t – 3.5 respectively. Since the implementation of a subsidy program in 2001, 99.9% of the taxis in Hong Kong have switched from diesel to LPG by 2003. With the choice of only one fuel type available for taxis in the EMFAC-HK model, 100% of taxis in the Study Area were assumed to be LPG taxi.

The Environment, Transport and Works Bureau (ETWB) implemented an incentive scheme that encouraged replacement of diesel public light buses with LPG or electric ones since 2002. According to the EPD's information [1], about 58% of the registered public light buses are currently operating on LPG, while 2,500 public light buses have switched from diesel to LPG with reference to information regarding LPG Vehicle Scheme from EMSD [2]. As a conservative approach, the incentive scheme for public light buses was not considered in this assessment. The vehicle population in Year 2011 was calculated and is summarized in *Annex D2*.

Accrual Rate

The accrual rates in the EMFAC-HK model are estimated from the local mileage data adjusted to reflect the total vehicle-mile-travelled (VMT) for each vehicle class. The default rates were used in this Study.

Diurnal Variation of Daily Trips

Hourly Traffic Flow : Peak hour flows at 0800-0900 and 1800-1900 for all vehicle classes in 2026 were projected. Non-peak hour traffic flow (00:00 - 08:00 and 09:00 - 12:00) was calculated by weighing against the percentage of daily flow in 08:00-09:00, while the non-peak hour traffic flow (12:00 - 18:00

(1) EPD website, Cleaning the Air at Street Level, http://www.epd.gov.hk/epd/english/environmentinhk/air/prob_solutions/cleaning_air_atroad.html

(2) EMSD website, LPG Vehicle Scheme, http://www.emsd.gov.hk/emsd/eng/sgi/lpg.shtml

and 19:00 - 00:00) were calculated by weighing against the percentage of daily flow in 18:00-19:00. The hourly traffic flow and the breakdown have been approved by the Transport Department. The hourly traffic flow and breakdown are presented in *Annexes D3*.

Calculation of Diurnal Variation of Daily Trips : The diurnal variation of daily trips was used to estimate the start emissions of petrol vehicles, thus the trips of those vehicles other than petrol vehicles were assumed to be zero. The number of trips per day of petrol vehicle was equivalent to the number of cold starts per day. Cold starts were expected at those road links merging with the POI and at the Pok Oi Hospital exit and no cold starts were expected on the middle of Yuen Long Highway and Castle Peak Road. Diurnal variation of daily trips with cold starts was estimated based on the ratio of trip/VMT in the entire territory and the Study Area. The vehicle trips on respective roads were determined using the following formula:

Vehicle Trip of Class 1 in the Study Area at hour 1 = [VMT for Vehicle Class 1 in the Study Area at hour 1] X [Vehicle Trip of Class 1 in the territory (default in model)] / [VMT for Vehicle Class 1 in the Territory (default in model)]

Diurnal Variation of Daily Vehicle Mile Travelled (VMT)

The VMT represents the total distance travelled by vehicles on a weekday. The VMT was calculated by multiplying the number of vehicles based on the forecast hourly traffic flow in Year 2026 and the length of road travelled in the Study Area. The input in the model was in terms of vehicle/fuel/hour.

The calculation of VMT for Public Light Bus (PLB) had taken in the assumption that LPG PLB and Private Light Bus (PrLB) made up 58% and 13%of the total light bus population, respectively with reference to *Table 4.4* (Registration and Licensing of Vehicles by Fuel Type) of the *Transport Monthly Digest (Apr 2008)*. All PrLBs were also assumed to be operating from 07:00 to 19:00, and therefore the VMTs during the other hours were taken to be zero. The calculated VMTs for all vehicle classes are summarized in *Annex D4*.

Hourly Temperature and Relative Humidity Profile

The Wetland Park meteorological station, operated by the Hong Kong Observatory (HKO), is the closest station to the Project and the hourly data of ambient temperature and relative humidity recorded at this station in 2007 were adopted for the model input.

Speed Fraction

Reference was made to the information provided by the Highways Department for the speed limits of each road and was approved by the Transport Department (*Annex B*). The design speed limits for most road links within the Study Area are 50kph, whereas the limit on the newly proposed northbound flyover and Yuen Long Highway are 70 kph and 80 kph, respectively (refer to *Figure 5.5a*). The vehicles at the road junctions connecting to the POR and Castle Peak Road would slow down, and as a

conservative approach, the road speeds for respective links with cold start were assumed to be less than 8 kph. It is also assumed in the model that all vehicle classes had the same speed profile. During the peak hour, the vehicle speeds would be reduced and the peak hour speed was derived based on the peak traffic flow in Year 2026 and volume/capacity ratio. During the peak hour, the speeds of (i) Yuen Long Highway; (ii) newly proposed northbound flyover; and (iii) Castle Peak Road and other roads were determined to be 71 kph, 63 kph and 31 kph, respectively. The maximum speed for buses, MGVs/HGVs and motorcycles was estimated to be 63 kph during the peak hour as the maximum speed of these vehicle types are restricted to 70 kph. Road links where cold start existed were expected to have a speed limit of less than 8 kph during the peak hour in 2026.

Among all daily emission rates, the road speed fractions that led to the worst case emissions were applied to predict emission factor. The total daily NO_x and RSP emissions from vehicles travelling at the design flow speed and the peak hour flow speed in 2026 were therefore compared in the sensitivity test. The NO_x and RSP emissions predicted from non-peak and peak hours were compared and the road speed that generating higher NO_x and RSP emissions were applied to all hours in the prediction of total hourly emissions in this Study as a conservative approach.

Sensitivity Test for Identification of Worst Speed Limit for EMFAC-HK Model

A sensitivity test was conducted using the traffic flow in 2026 to simulate the effect on the total daily NO_x and RSP emissions during the peak (ie, peak-hour flow speed) and non-peak hours (ie design speed). The results of the sensitivity test for different road groups are summarized in *Tables 5.5b* to *5.5e*.

Table 5.5b ***Total Daily NO_x and RSP Emissions under Non-peak and Peak Hour on Road Links of 80 kph during Year 2026***

Vehicle Type	**Total Daily NO_x Emission (ton/day)**		**Total Daily RSP Emission (ton/day)**	
	Non-peak Hour (Design Speed)	**Peak Hour (Peak-hour Flow Speed)**	**Non-peak Hour (Design Speed)**	**Peak Hour (Peak-hour Flow Speed)**
PC&LGV	0.004799	0.004856	0.000159	0.000165
PC&LGV - <2.5t	0.000332	0.000306	0.000068	0.000074
LGV 2.5-3.5t	0.001625	0.001501	0.000291	0.000315
Public Light Bus	0.000369	0.000340	0.000161	0.000173
LGV>3.5t	0.013131	0.012128	0.000217	0.000235
HGV<15t	0.098707	0.094458	0.002457	0.002712
HGV>15t	0.011210	0.010727	0.000197	0.000217
FBDD	0.017314	0.016354	0.000279	0.000307
MC	0.001144	0.001101	0.000042	0.000040
Taxi - Taxi (LPG)	0.000996	0.001008	0.000066	0.000069
PrLB<3.5t	0.000000	0.000000	0.000000	0.000000
PrLB>3.5t	0.000218	0.000219	0.000083	0.000098
NFB<6.4t	0.000000	0.000000	0.000000	0.000000
NFB6.4-15t	0.002540	0.002431	0.000058	0.000064
NFB>15t	0.000000	0.000000	0.000000	0.000000
FBSD	0.000681	0.000643	0.000015	0.000016
Total	0.153066	0.146072	0.004093	0.004485

Table 5.5c ***Total Daily NO_x and RSP Emissions under Non-peak and Peak Hours on Road Links of 70kph during Year 2026***

Vehicle Type	Total Daily NO_x Emission (ton/day)		Total Daily RSP Emission (ton/day)	
	Non-peak Hour (Design Speed)	Peak Hour (Peak-hour Flow Speed)	Non-peak Hour (Design Speed)	Peak Hour (Peak-hour Flow Speed)
PC&LGV	0.000269	0.000277	0.000009	0.000010
PC&LGV - <2.5t	0.000001	0.000001	0.000000	0.000000
LGV 2.5-3.5t	0.000002	0.000002	0.000000	0.000000
Public Light Bus	0.000019	0.000015	0.000073	0.000073
LGV>3.5t	0.000019	0.000019	0.000000	0.000000
HGV<15t	0.002039	0.001951	0.000051	0.000056
HGV>15t	0.000226	0.000216	0.000004	0.000004
FBDD	0.000500	0.000472	0.000008	0.000009
MC	0.000000	0.000000	0.000000	0.000000
Taxi - Taxi (LPG)	0.000071	0.000073	0.000005	0.000005
PrLB<3.5t	0.000000	0.000000	0.000000	0.000000
PrLB>3.5t	0.000000	0.000000	0.000000	0.000000
NFB<6.4t	0.000000	0.000000	0.000000	0.000000
NFB6.4-15t	0.000077	0.000073	0.000002	0.000002
NFB>15t	0.000000	0.000000	0.000000	0.000000
FBSD	0.000022	0.000021	0.000000	0.000001
Total	0.003245	0.00312	0.000152	0.000160

Table 5.5d ***Total Daily NO_x and RSP Emissions under Non-peak and Peak Hours on Road Links of 50kph during Year 2026***

Vehicle Type	Total Daily NO_x Emission (ton/day)		Total Daily RSP Emission (ton/day)	
	Non-peak Hour (Design Speed)	Peak Hour (Peak-hour Flow Speed)	Non-peak Hour (Design Speed)	Peak Hour (Peak-hour Flow Speed)
PC&LGV	0.003986	0.005000	0.000159	0.000336
PC&LGV - <2.5t	0.000238	0.000287	0.000075	0.000123
LGV 2.5-3.5t	0.001246	0.001503	0.000343	0.000562
Public Light Bus	0.000376	0.000450	0.000246	0.000391
LGV>3.5t	0.009476	0.011430	0.000241	0.000395
HGV<15t	0.026973	0.032536	0.000882	0.001447
HGV>15t	0.003071	0.003705	0.000071	0.000116
FBDD	0.009098	0.012026	0.000195	0.000355
MC	0.001246	0.001097	0.000046	0.000058
Taxi - Taxi (LPG)	0.001594	0.002006	0.000127	0.000268
PrLB<3.5t	0.000000	0.000000	0.000000	0.000000
PrLB>3.5t	0.000240	0.000290	0.000141	0.000229
NFB<6.4t	0.000000	0.000000	0.000000	0.000000
NFB6.4-15t	0.001358	0.001639	0.000041	0.000067
NFB>15t	0.000000	0.000000	0.000000	0.000000
FBSD	0.000352	0.000465	0.000010	0.000018
Total	0.059254	0.072434	0.002577	0.004365

Table 5.5e ***Total Daily NO_x and RSP Emissions under Non-peak and Peak Hours on Road Links of 50kph (with cold starts) during Year 2026***

Vehicle Type	Total Daily NO_x Emission (ton/day)		Total Daily RSP Emission (ton/day)	
	Non-peak Hour (Design Speed)	Peak Hour (Peak-hour Flow Speed)	Non-peak Hour (Design Speed)	Peak Hour (Peak-hour Flow Speed)
PC&LGV	0.000115	0.000115	0.000017	0.000017
PC&LGV - <2.5t	0.000007	0.000007	0.000004	0.000004
LGV 2.5-3.5t	0.000035	0.000035	0.000015	0.000015
Public Light Bus	0.000001	0.000001	0.000001	0.000001
LGV>3.5t	0.000283	0.000283	0.000012	0.000012
HGV<15t	0.000982	0.000982	0.000051	0.000051
HGV>15t	0.000111	0.000111	0.000004	0.000004
FBDD	0.000377	0.000377	0.000013	0.000013
MC	0.000016	0.000016	0.000002	0.000002
Taxi - Taxi (LPG)	0.000016	0.000016	0.000005	0.000005
PrLB<3.5t	0.000000	0.000000	0.000000	0.000000
PrLB>3.5t	0.000001	0.000001	0.000001	0.000001
NFB<6.4t	0.000000	0.000000	0.000000	0.000000
NFB6.4-15t	0.000043	0.000043	0.000002	0.000002
NFB>15t	0.000000	0.000000	0.000000	0.000000
FBSD	0.000013	0.000013	0.000001	0.000001
Total	0.002000	0.002000	0.000128	0.000128

The sensitivity test results indicate that the total daily NO_x emissions are higher during the peak hour at lower speeds (<50kph) and during the non-peak hour at higher speeds (70-80kph). On the other hand, the total RSP emissions at all speeds are higher during the peak hour. The sum of emissions for NO_x and RSP of all road groups during the peak hour is higher than that of the non-peak hour. As a result, the peak-hour flow speed was adopted for the estimation of the worst-case NO_x emissions on low speed road links (50kph (with cold starts) and 50kph) and RSP emissions at all road links (50kph (with cold starts), 50kph, 70kph and 80kph) in the EMFAC-HK model. The non-peak hour flow speed was adopted for the estimation of the worst case NO_x emissions on high speed roads (70kph and 80kph).

Model Year

EMFAC-HK model was run for the year from 2011 to 2026 using the VMT of each road link and the peak-hour flow speed in Year 2026. A summary of the predicted total daily NO_x and RSP emissions are summarized in *Annex D5* and the highest total daily NO_x and RSP emissions would occur in year 2011. Therefore, the hourly emissions of each vehicle type in 2011 were divided by the corresponding total VMT to determine the emission factors in gram per miles per vehicle and maximum emission factors which are summarized in *Annex D6*. The maximum emission factor for each vehicle type was adopted in the subsequent CALINE4 air dispersion model for the prediction of pollutant concentrations at the Air Sensitive Receivers (ASRs).

Sensitivity Test for AM and PM Peak Hourly Traffic Flow and Vehicle Mix

A sensitivity test between the AM and PM peak traffic flows and vehicle mixes was conducted to simulate the total vehicular emissions. A summary of the predicted NO_x and RSP emission factors by adopting the AM and PM traffic data was presented in *Annex D7*. The sensitivity test results indicate the AM peak hourly traffic flow and vehicle mix produce higher NO_x and RSP emissions and hence the AM peak hourly traffic flows and vehicle mixes in 2026 (ie 15 years after the Project completion) are used for the worst case estimation.

Assessment of Air Pollutant Concentrations

The EPD-approved air dispersion model, CALINE4, was used to predict the maximum hourly and daily concentrations of NO_2 and RSP at 1.5m to 20m above ground of the identified ASRs. The CALINE4 model calculates hourly concentrations only. With reference to *Screening Procedures for Estimating the Air Quality Impact of Stationary Source* (EPA-454/R-92-019), a conversion factor of 0.4 was used to convert the maximum hourly concentrations to daily average concentrations.

The forecasted AM peak hourly traffic flow, vehicle mixes for relevant road links and fleet emission factors of NO_2 and RSP in 2026 for the CALINE4 model prediction are presented in *Annex D8*. In accordance with EPD's *Guidelines on Choice of Models and Model Parameters*, 20% of NO_x was assumed to be converted into NO_2 for the purpose of this assessment.

The following daytime worst-case meteorological conditions were adopted in the model run:

- Wind speed 1 ms^{-1}
- Wind direction worst case for each ASR
- Stability class D
- Standard deviation of wind direction 12
- Surface roughness 100 cm
- Mixing height 500 m
- Ambient temperature 25.5 °C

Background NO_2 and RSP concentrations, as presented in *Table 5.3a*, were added to the predicted concentrations to obtain cumulative air pollutant concentrations to check against the respective AQO criteria.

Existing and future noise barriers, if installed for the road links considered, have also be taken into account in the model by shifting the road height to the top of the noise barrier.

Isopleths showing hourly and daily NO_2 and RSP concentrations within the Study Area were also plotted to show the general impacts of the air pollutants in the vicinity of the Project.

5.6 EVALUATION OF IMPACTS

5.6.1 Construction Phase

As discussed in *Section 5.4.1*, in view of the nature, relatively small scale of the Project and small construction works area, it is not anticipated that dust emissions will cause adverse air quality impacts within the Study Area with the implementation of good site practices and the dust control measures recommended in *Section 5.7*.

5.6.2 Operational Phase

Cumulative maximum hourly concentrations of NO_2 and daily average concentrations of NO_2 and RSP, taking the background concentrations of the respective pollutants into account, were predicted at 1.5 to 20m above ground level. The results are shown in *Tables 5.6a* to *5.6c*.

Table 5.6a Predicted Maximum Hourly NO_2 Concentrations

ASR	Predicted Maximum Hourly NO_2 Concentration (μgm^{-3}) [a]				
	1.5m Above Ground	5m Above Ground	10m Above Ground	15m Above Ground	20m Above Ground
A1 [b]	282	282	271	-	-
A2 [b]	207	203	177	-	-
A3	203	199	192	177	162
A4-1	128	124	120	120	113
A4-2	150	146	139	131	120
A5 [b]	135	131	128	-	-
A6 [c]	282	263	-	-	-
A7	162	158	154	143	135
A8	214	210	199	184	-
A9	139	139	139	135	131
A10-1 [b]	143	143	139	-	-
A10-2 [b]	169	169	158	-	-
A11 [b]	101	101	101	-	-
A12 [b]	128	128	124	-	-
A13 [b]	120	120	120	-	-
A14 [b]	116	116	113	-	-
A15 [b]	158	154	154	-	-
AQO	**300**	**300**	**300**	**300**	**300**

Notes:

(a) Background concentrations of NO_2 (i.e. 60 μgm^{-3}) have been included.

(b) As the maximum heights of ASRs A1, A2, A5, A10 to A15 are all below 10 m above ground, therefore, the impact was assessed at 1.5m, 5m and 10m above ground only.

(c) As ASR A6 is a one-storey building, the impact was only assessed at 1.5m and 5m above ground.

Table 5.6b Predicted 24-hour Average NO_2 Concentrations

ASR	Predicted 24-hour Average NO_2Concentration (μgm^{-3}) [a]				
	1.5m Above Ground	5m Above Ground	10m Above Ground	15m Above Ground	20m Above Ground
A1 [b]	149	149	144	-	-
A2 [b]	119	117	107	-	-
A3	117	116	113	107	101
A4-1	87	86	84	84	81
A4-2	96	95	92	89	84
A5 [b]	90	89	87	-	-
A6 [c]	149	141	-	-	-
A7	101	99	98	93	90
A8	122	120	116	110	-
A9	92	92	92	90	89
A10-1 [b]	93	93	92	-	-
A10-2 [b]	104	104	99	-	-
A11 [b]	77	77	77	-	-
A12 [b]	87	87	86	-	-
A13 [b]	84	84	84	-	-
A14 [b]	83	83	81	-	-
A15 [b]	99	98	98	-	-
AQO	**150**	**150**	**150**	**150**	**150**

Notes:

(a) Background concentrations of NO_2 (i.e. 60 μgm^{-3}) have been included.

(b) As the maximum heights of ASRs A1, A2, A5, A10 to A15 are all below 10 m above ground, therefore, the impact was assessed at 1.5m, 5m and 10m above ground only.

(c) As ASR A6 is a one-storey building, the impact was only assessed at 1.5m and 5m above ground.

Table 5.6c Predicted 24-hour Average RSP Concentrations

ASR	Predicted 24-hour Average RSP Concentration (μgm^{-3}) [a]				
	1.5m Above Ground	5m Above Ground	10m Above Ground	15m Above Ground	20m Above Ground
A1 [b]	99	99	97	-	-
A2 [b]	85	85	82	-	-
A3	90	88	84	81	78
A4-1	78	77	76	75	74
A4-2	83	83	81	79	77
A5 [b]	82	81	80	-	-
A6 [c]	104	99	-	-	-
A7	82	82	80	78	76
A8	90	90	87	84	
A9	78	78	77	77	76
A10-1 [b]	78	77	77	-	-
A10-2 [b]	82	82	80	-	-
A11 [b]	73	73	72	-	-
A12 [b]	80	80	79	-	-
A13 [b]	74	74	74	-	-
A14 [b]	73	73	73	-	-
A15 [b]	80	80	80	-	-
AQO	**180**	**180**	**180**	**180**	**180**

Notes:

(a) Background concentrations of RSP (i.e. 64 μgm^{-3}) have been included.

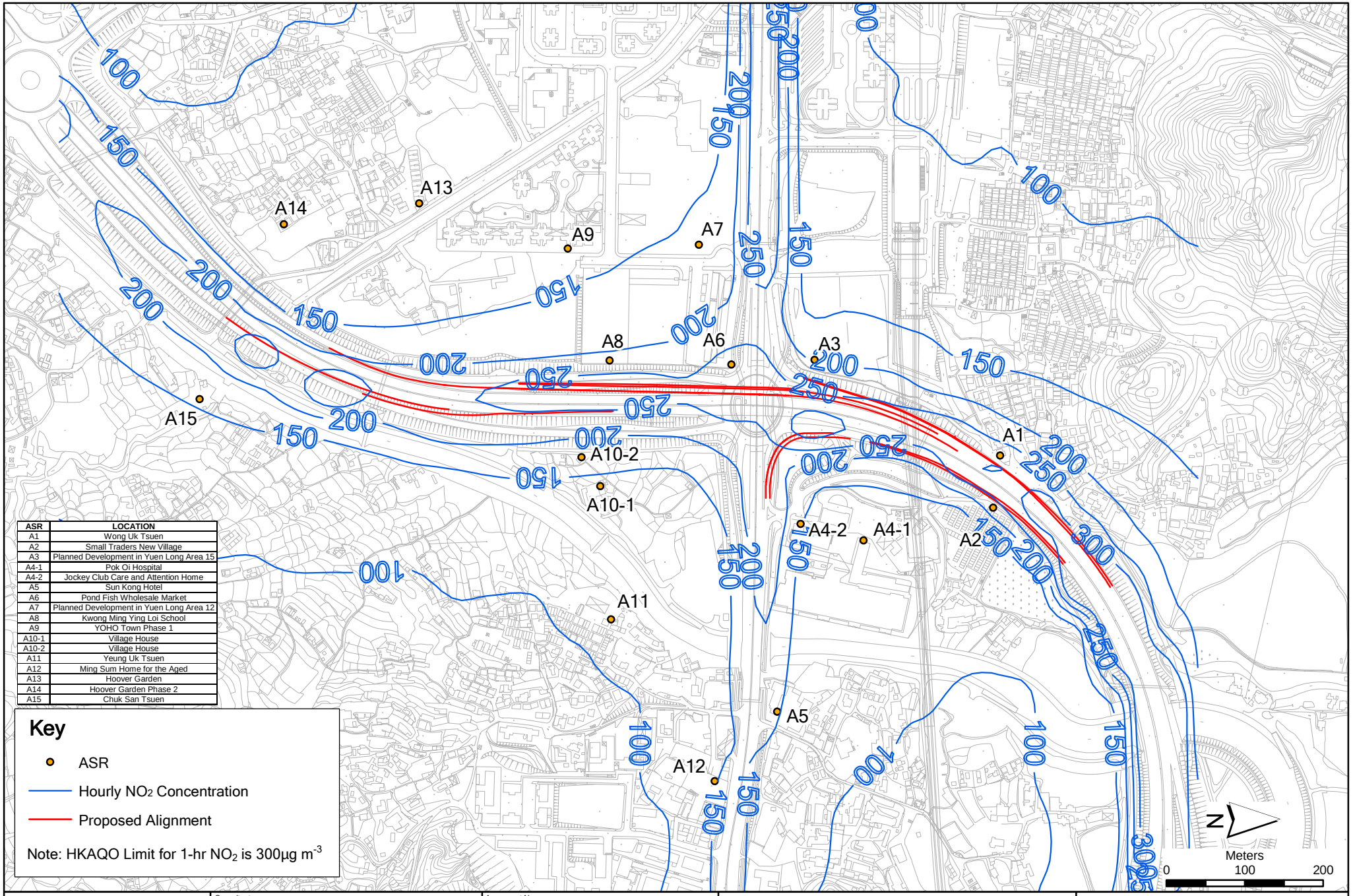
(b) As the maximum heights of ASRs A1, A2, A5, A10 to A15 are all below 10 m above ground, therefore, the impact was assessed at 1.5m, 5m and 10m above ground only.

(c) As ASR A6 is a one-storey building, the impact was only assessed at 1.5m and 5m above ground.

The predictions show that there are no exceedance of the AQOs for maximum hourly and 24-hour average concentrations of NO_2 and 24-hour average concentrations of RSP at all identified ASRs taking into account the background concentrations and the existing and future noise barriers. The predicted maximum hourly and 24-hour average NO_2 concentrations and 24-hour average RSP concentrations range from 101 - 282 $\mu g\ m^{-3}$, 77 - 149 $\mu g\ m^{-3}$ and 72 – 104 $\mu g\ m^{-3}$, respectively and the worst affected height is predicted at 1.5m above ground at all identified ASRs.

Figures 5.6a to *5.6f* show the maximum hourly and 24-hour average NO_2 and 24-hour average RSP concentrations at 1.5m and 10m above ground level. The different time averaged NO_2 and RSP concentrations are well within the respective AQOs at all ASRs taking into account the background concentrations. Exceedance of maximum hourly and daily NO_2 concentration was predicted along YLH. The affected areas are YLH and the embankment of YLH and no ASRs are located within the affected area. Hence, the air quality impact due to the Project and the current road links are acceptable.

It must be emphasized that the objective of the Project is only to relieve the traffic pressure and traffic queues of the existing POR and that the design traffic flow / capacity ratio will be maintained. There will not be any



ASR	LOCATION
A1	Wong Uk Tsuen
A2	Small Traders New Village
A3	Planned Development in Yuen Long Area 15
A4-1	Pok Oi Hospital
A4-2	Jockey Club Care and Attention Home
A5	Sun Kong Hotel
A6	Pond Fish Wholesale Market
A7	Planned Development in Yuen Long Area 12
A8	Kwong Ming Ying Loi School
A9	YOHO Town Phase 1
A10-1	Village House
A10-2	Village House
A11	Yeung Uk Tsuen
A12	Ming Sum Home for the Aged
A13	Hoover Garden
A14	Hoover Garden Phase 2
A15	Chuk San Tsuen

Key

- ASR
- Hourly NO_2 Concentration
- Proposed Alignment

Note: HKAQO Limit for 1-hr NO_2 is 300µg m^{-3}

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Figure Title: PREDICTED MAXIMUM 1-HOUR NO_2 CONCENTRATION(µg m^{-3}) AT 1.5m ABOVE GROUND

FIGURE 5.6a

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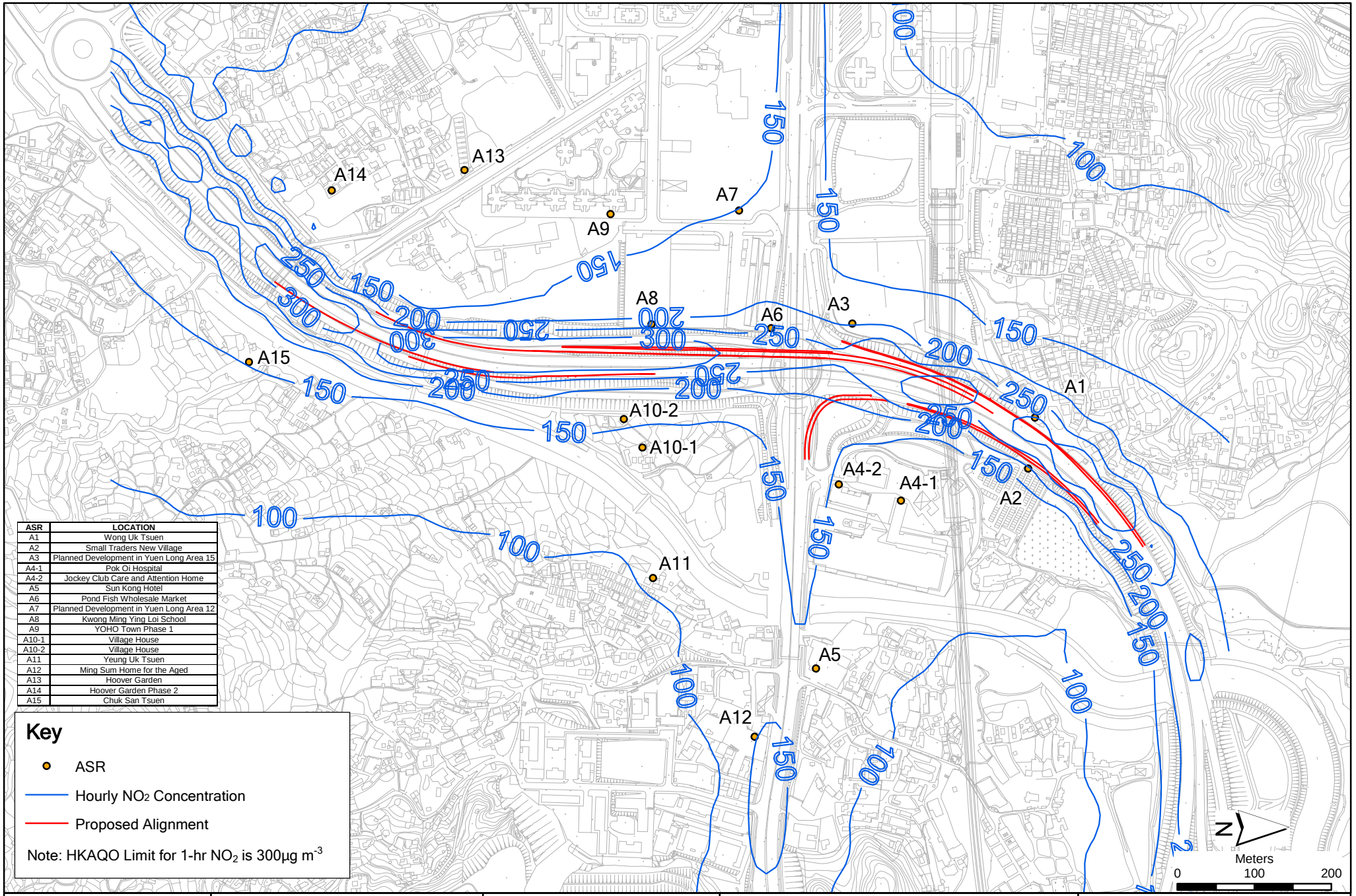

ASR	LOCATION
A1	Wong Uk Tsuen
A2	Small Traders New Village
A3	Planned Development in Yuen Long Area 15
A4-1	Pok Oi Hospital
A4-2	Jockey Club Care and Attention Home
A5	Sun Kong Hotel
A6	Pond Fish Wholesale Market
A7	Planned Development in Yuen Long Area 12
A8	Kwong Ming Ying Loi School
A9	YOHO Town Phase 1
A10-1	Village House
A10-2	Village House
A11	Yeung Uk Tsuen
A12	Ming Sum Home for the Aged
A13	Hoover Garden
A14	Hoover Garden Phase 2
A15	Chuk San Tsuen

Key

- ASR
- Hourly NO_2 Concentration
- Proposed Alignment

Note: HKAQO Limit for 1-hr NO_2 is 300μg m^{-3}

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FIGURE 5.6b

Figure Title: PREDICTED MAXIMUM 1-HOUR NO_2 CONCENTRATION(μg m^{-3}) AT 10m ABOVE GROUND

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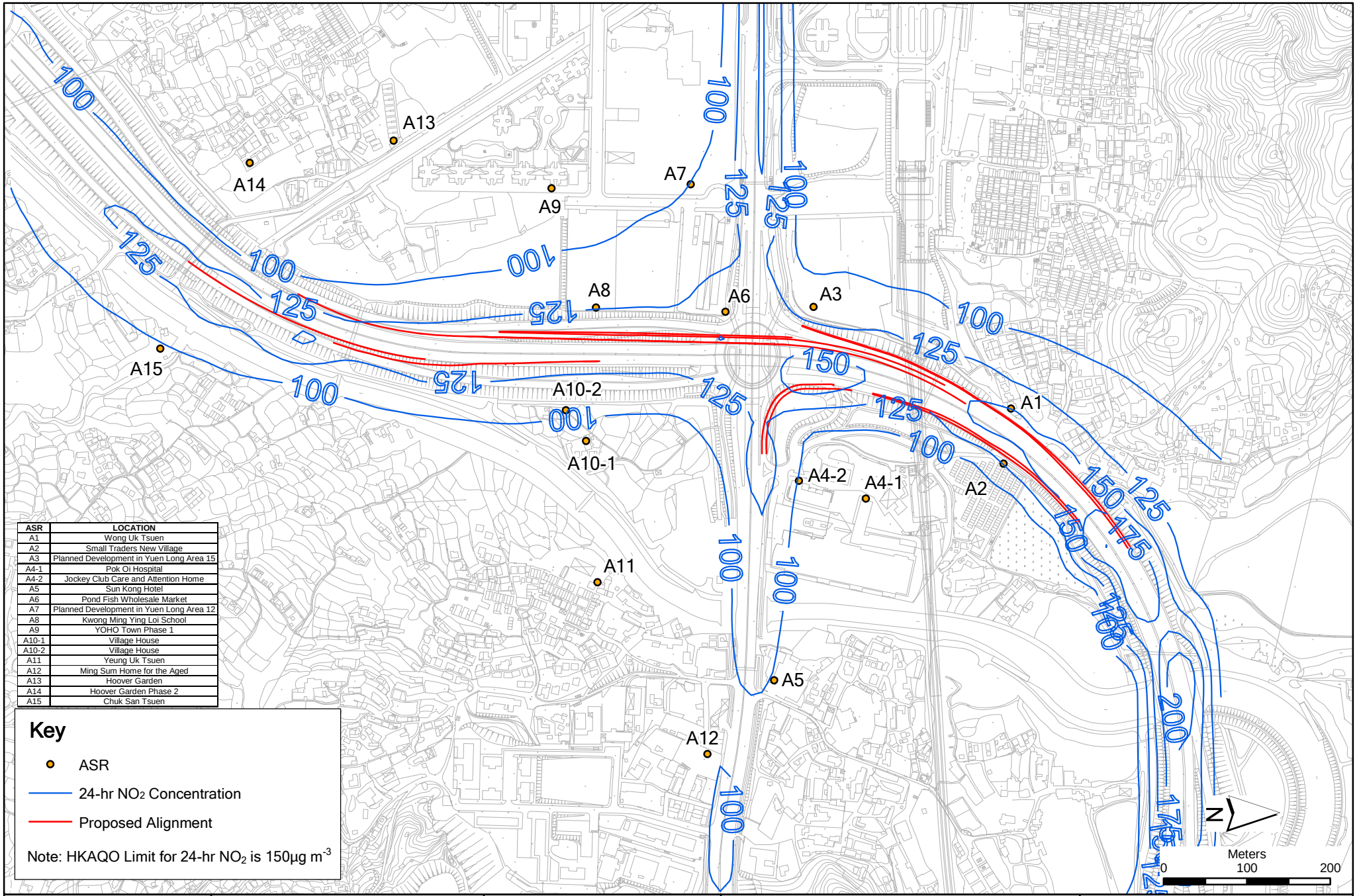

ASR	LOCATION
A1	Wong Uk Tsuen
A2	Small Traders New Village
A3	Planned Development in Yuen Long Area 15
A4-1	Pok Oi Hospital
A4-2	Jockey Club Care and Attention Home
A5	Sun Kong Hotel
A6	Pond Fish Wholesale Market
A7	Planned Development in Yuen Long Area 12
A8	Kwong Ming Ying Loi School
A9	YOHO Town Phase 1
A10-1	Village House
A10-2	Village House
A11	Yeung Uk Tsuen
A12	Ming Sum Home for the Aged
A13	Hoover Garden
A14	Hoover Garden Phase 2
A15	Chuk San Tsuen

Key

- ASR
- 24-hr NO_2 Concentration
- Proposed Alignment

Note: HKAQO Limit for 24-hr NO_2 is 150μg m^{-3}

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FIGURE 5.6c

Figure Title: PREDICTED DAILY NO_2 CONCENTRATION(μg m^{-3}) AT 1.5m ABOVE GROUND

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TF	AM	03/11/2008

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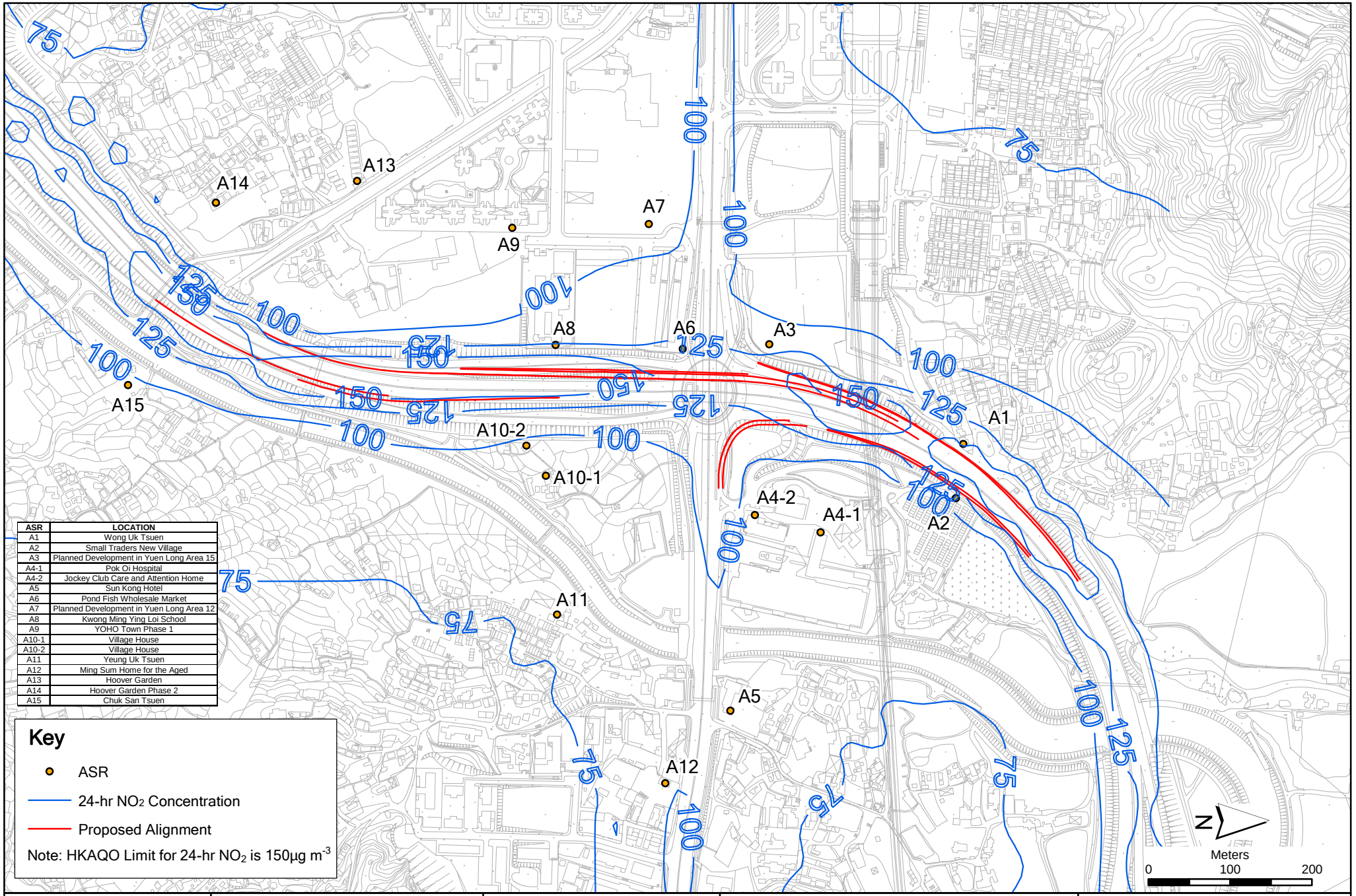

ASR	LOCATION
A1	Wong Uk Tsuen
A2	Small Traders New Village
A3	Planned Development in Yuen Long Area 15
A4-1	Pok Oi Hospital
A4-2	Jockey Club Care and Attention Home
A5	Sun Kong Hotel
A6	Pond Fish Wholesale Market
A7	Planned Development in Yuen Long Area 12
A8	Kwong Ming Ying Loi School
A9	YOHO Town Phase 1
A10-1	Village House
A10-2	Village House
A11	Yeung Uk Tsuen
A12	Ming Sum Home for the Aged
A13	Hoover Garden
A14	Hoover Garden Phase 2
A15	Chuk San Tsuen

Key

- ASR
- 24-hr NO_2 Concentration
- Proposed Alignment

Note: HKAQO Limit for 24-hr NO_2 is 150μg m^{-3}

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FIGURE 5.6d

Figure Title: PREDICTED DAILY NO_2 CONCENTRATION(μg m^{-3}) AT 10m ABOVE GROUND

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Designed	Drawn	Date
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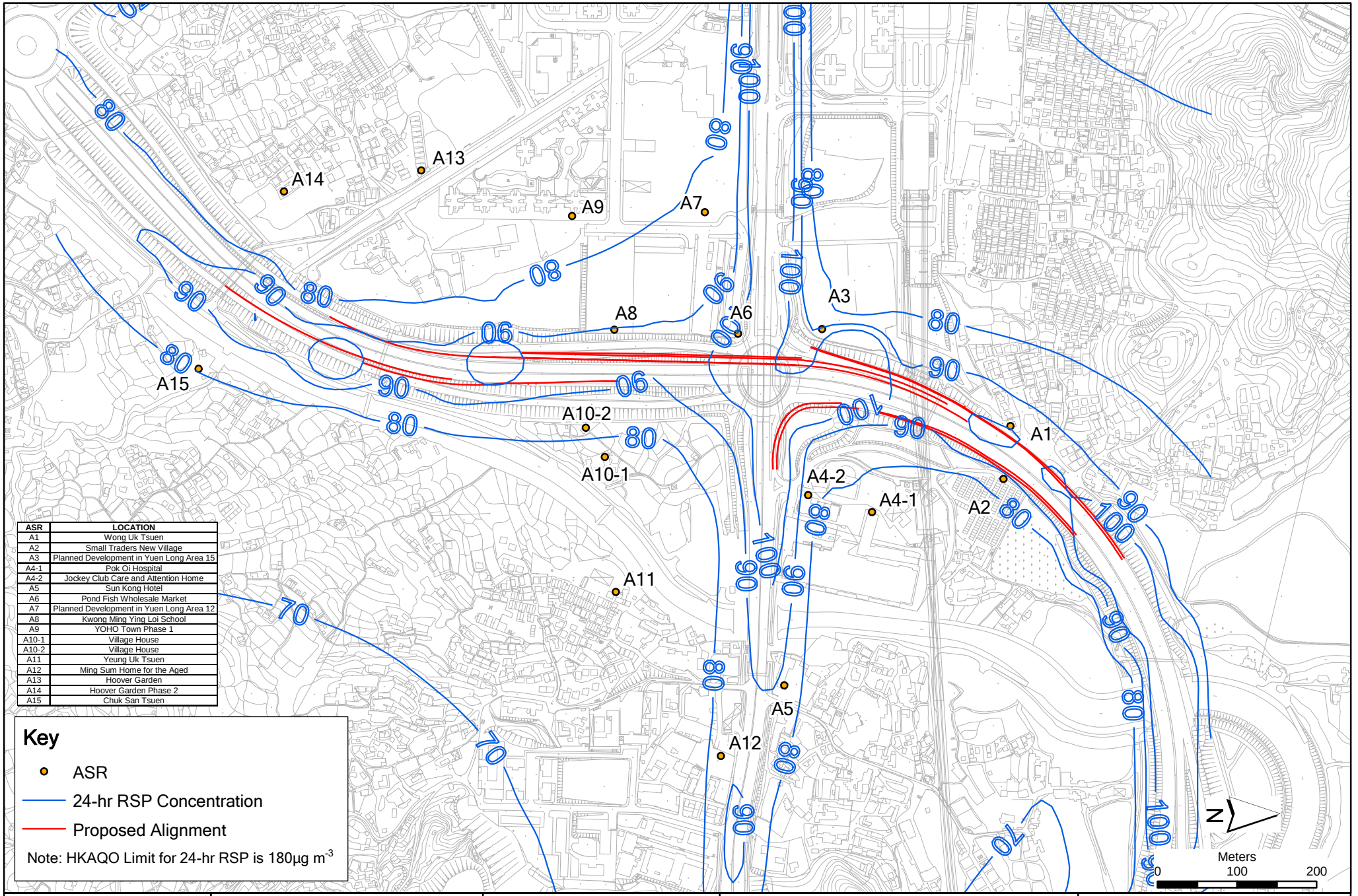

ASR	LOCATION
A1	Wong Uk Tsuen
A2	Small Traders New Village
A3	Planned Development in Yuen Long Area 15
A4-1	Pok Oi Hospital
A4-2	Jockey Club Care and Attention Home
A5	Sun Kong Hotel
A6	Pond Fish Wholesale Market
A7	Planned Development in Yuen Long Area 12
A8	Kwong Ming Ying Loi School
A9	YOHO Town Phase 1
A10-1	Village House
A10-2	Village House
A11	Yeung Uk Tsuen
A12	Ming Sum Home for the Aged
A13	Hoover Garden
A14	Hoover Garden Phase 2
A15	Chuk San Tsuen

Key

- ASR
- 24-hr RSP Concentration
- Proposed Alignment

Note: HKAQO Limit for 24-hr RSP is 180μg m^{-3}

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Figure Title: PREDICTED DAILY RSP CONCENTRATION(μg m^{-3}) AT 1.5m ABOVE GROUND

FIGURE 5.6e

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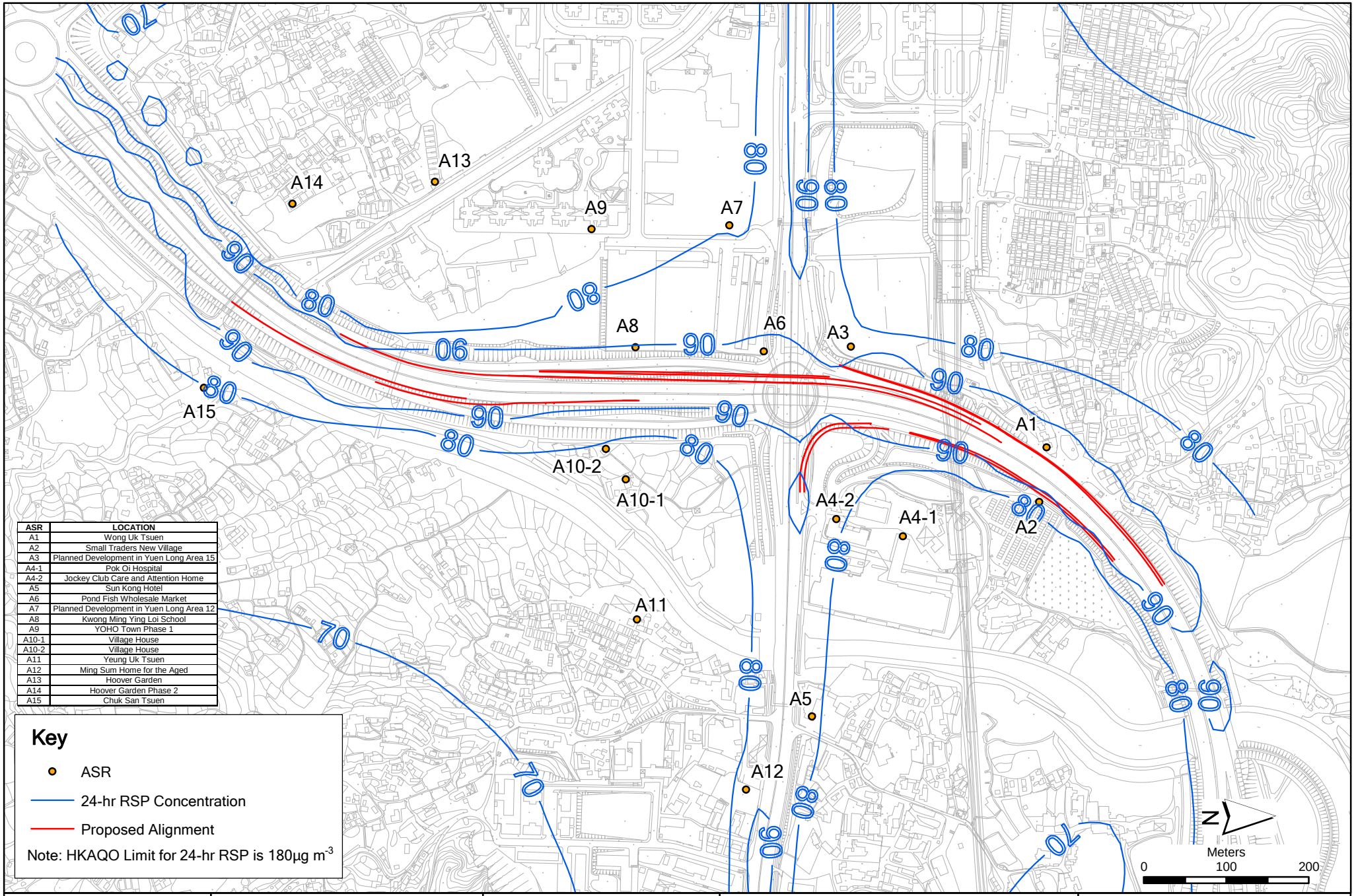

ASR	LOCATION
A1	Wong Uk Tsuen
A2	Small Traders New Village
A3	Planned Development in Yuen Long Area 15
A4-1	Pok Oi Hospital
A4-2	Jockey Club Care and Attention Home
A5	Sun Kong Hotel
A6	Pond Fish Wholesale Market
A7	Planned Development in Yuen Long Area 12
A8	Kwong Ming Ying Loi School
A9	YOHO Town Phase 1
A10-1	Village House
A10-2	Village House
A11	Yeung Uk Tsuen
A12	Ming Sum Home for the Aged
A13	Hoover Garden
A14	Hoover Garden Phase 2
A15	Chuk San Tsuen

Key

- ASR
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Note: HKAQO Limit for 24-hr RSP is 180μg m^{-3}

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Environmental Impact Assessment Report

Figure Title: PREDICTED DAILY RSP CONCENTRATION(μg m^{-3}) AT 10m ABOVE GROUND

FIGURE 5.6f

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increase in traffic as a result of this Project. The levels of NO_2 and RSP predicted for YLH are mainly due to the existing high traffic volume on that particular road section.

5.7 MITIGATION MEASURES

5.7.1 Construction Phase

The construction of the Project will involve site formation, piling, concreting and road paving works. The dust impact during the construction phase will be minimized with the implementation of good site practices and dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulation*, which are summarised as follows:

- Any stockpile of dusty material will be covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet;
- Where a site boundary adjoins a road, or other area accessible to the public, hoarding shall be provided a long the entire length of that portion of the site boundary;
- All dusty materials will be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;
- Where a vehicle leaving the works site is carrying a load of dusty materials, the load will be covered entirely with clean impervious sheeting to ensure that the dusty materials do not leak from the vehicles;
- The working area of any demolition, excavation or earth moving operation will be sprayed with water or dust suppression chemicals immediately after the operation so as to maintain the entire surface wet;
- The construction plants will be regularly maintained to avoid the emissions of black smoke; and
- The construction plants will be switched off when not in use to avoid gaseous emissions.

5.7.2 Operational Phase

No mitigation measures are required as no exceedances of the respective criteria are predicted.

5.8 ENVIRONMENTAL MONITORING AND AUDIT (EM&A)

Regular site audit during the construction phase is recommended to ensure that mitigation measures recommended in *Section 5.7* are carried out.

No EM&A for air quality is required during operational phase.

5.9 CONCLUSION

The key dust generating construction activities associated with the Project are site formation, minor excavation and filling works, demolition of the existing structures, removal of lane markings on existing road surface, piling, concreting and road paving works. In view of the nature and sequencing of the Project, and the small scale of the construction works, air quality impact due to dust emissions is not anticipated with the implementation of good site practices and dust control measures stipulated in the *Air Pollution Control (Construction Dust) Regulations*. Air quality impact due to gaseous emissions from the use of PMEs during construction works is expected to be insignificant due to the limited use of such equipment and the adoption of good site practices. Regular site audits are recommended to ensure the implementation of the prescribed dust control measures and the adoption of good site practices.

Upon completion of the Project, vehicular emission from the traffic on the open roads is the main potential source of air quality impacts. The key air pollutants from vehicular emissions include NO_2 and RSP. A quantitative assessment has been conducted with the peak hourly traffic flow of the proposed new roads and the existing road network and their fleet emission factors estimated using the EMFAC-HK model. The prediction indicated no exceedance of hourly and daily average concentrations of NO_2 or daily average concentrations of RSP in the vicinity of the Project.

It must be emphasized that the objective of the Project is to relieve the traffic pressure and traffic queues of the existing POR and the design traffic flow / capacity ratio will be maintained. There is not expected to be any increase in traffic as a direct result of this Project.

The vehicular emissions associated with road traffic with the implementation of the Project are expected to comply with the respective AQOs, and therefore will not cause any unacceptable adverse air quality impacts.

6 WATER QUALITY

6.1 INTRODUCTION

This *Section* presents an assessment of the potential water quality impacts associated with the construction and operation of the Project. The key environmental issues in respect of water quality impacts associated with the Project would be the proper control of construction site runoff and drainage during site formation and foundation works for the proposed flyover, slip roads and associated works. Recommendations for mitigation measures have been made, where considered necessary, to minimise the identified water quality impacts to an acceptable level. In accordance with the *EIA Study Brief*, the Study Area should include areas within 300 m of the Site Boundary.

6.2 RELEVANT LEGISLATION AND GUIDELINES

6.2.1 *Water Pollution Control Ordinance (WPCO)*

The *Water Pollution Control Ordinance* (*Cap. 358*) (*WPCO*), in existence since 1980, is the major piece of legislation relating to the protection and control of water quality in Hong Kong. According to the WPCO and its subsidiary legislation, Hong Kong waters are divided into ten water control zones (WCZ). Corresponding statements of Water Quality Objectives (WQO) are stipulated for different water regimes (marine waters, inland waters, bathing beaches subzones, secondary contact recreation subzones and fish culture subzones) in the WCZ based on their beneficial uses. The Study Area is located within the Deep Bay WCZ.

River water quality is ranked according to its compliance with the WQOs. The annual compliance of the monthly water quality data with each of the water quality parameters is indicated by a percentage, with 100% compliance indicating that all data for twelve consecutive months are compliant with the WQO. For the Project, the source of pollutants would predominantly be from any construction runoff that may contain eroded soils. Parameters of concern would therefore be pH, Suspended Solids (SS), Dissolved Oxygen (DO), Chemical Oxygen Demand (COD) and Biological Oxygen Demand (BOD). The WQOs of these parameters for the inland waters of the Deep Bay WCZ are listed in *Table 6.2a*.

Table 6.2a Water Quality Objectives for Inland Waters in Deep Bay WCZ

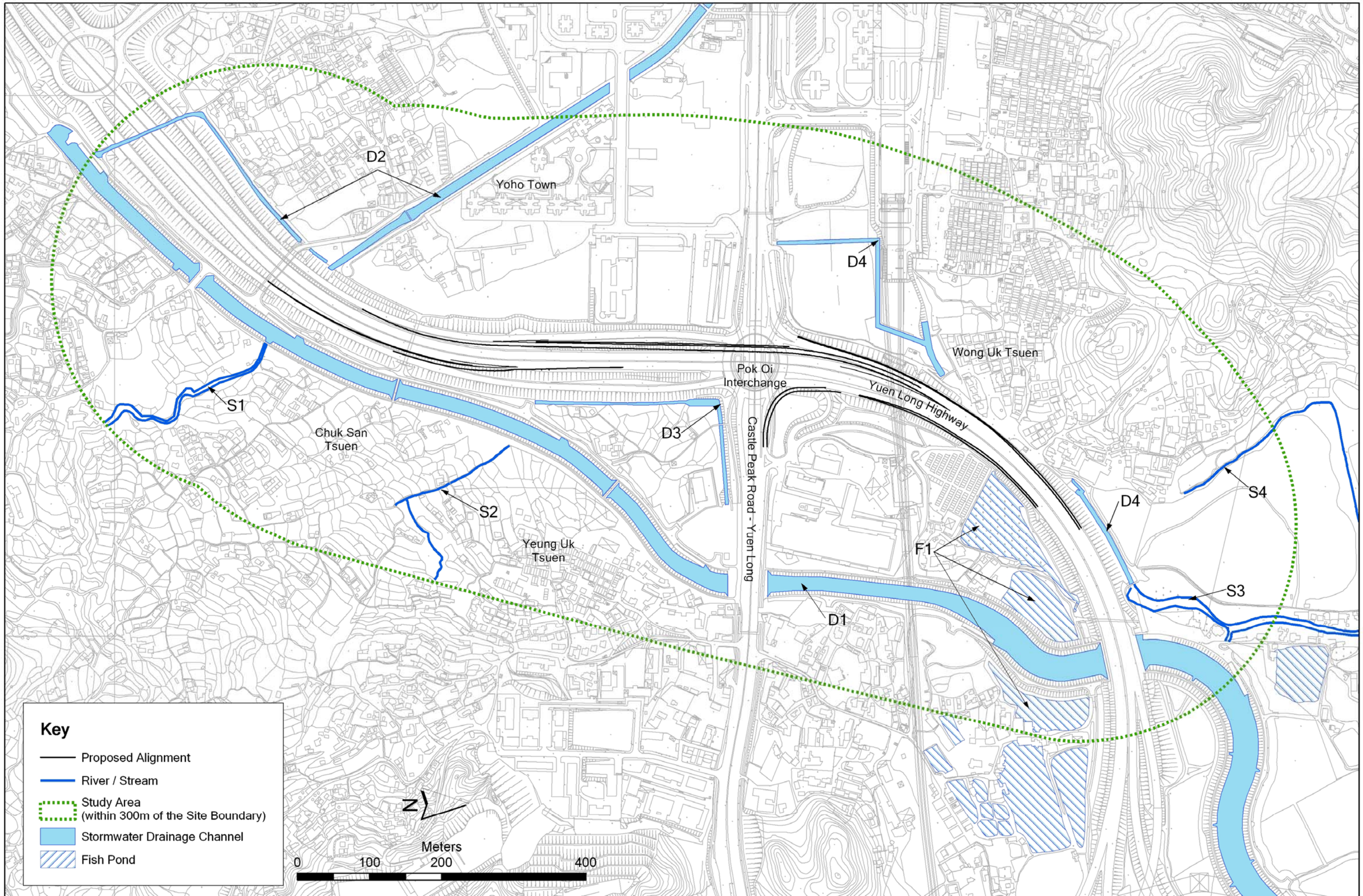
Concerned Parameters	Water Quality Objectives (WQOs)	Deep Bay WCZs or sub-zones to which the WQOs apply
pH	Waste discharges shall not cause the pH of the water to exceed the range of 6.5-8.5 units.	Yuen Long & Kam Tin (Upper and Lower); Beas, Indus & Ganges Sub-zones and Water Gathering Ground Subzones
	The pH of the water should be within the range of 6.0-9.0 units.	Other inland waters
Suspended solids (SS)	Waste discharges shall not cause the annual median of suspended solids to exceed 20 milligrams per litre.	Yuen Long & Kam Tin (Upper and Lower); Beas, Indus & Ganges Sub-zones, Water Gathering Ground Subzones and other inland waters
Dissolved oxygen (DO)	Waste discharge shall not cause the level of DO to be less than 4 mg/L	Yuen Long & Kam Tin (Upper and Lower); Beas, Indus & Ganges Sub-zones, Water Gathering Ground Subzones and other inland waters
Chemical oxygen demand (COD)	Waste discharges shall not cause the chemical oxygen demand to exceed 15 milligrams per litre.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	Waste discharges shall not cause the chemical oxygen demand to exceed 30 milligrams per litre.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters
5-day biochemical oxygen demand (BOD)	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 3 milligrams per litre.	Yuen Long & Kam Tin (Upper) Subzone, Beas Subzone, Indus Subzone, Ganges Subzone and Water Gathering Ground Subzones
	Waste discharges shall not cause the 5-day biochemical oxygen demand to exceed 5 milligrams per litre.	Yuen Long & Kam Tin (Lower) Subzone and other inland waters

6.2.2 *Technical Memorandum (TM) issued under WPCO*

Besides setting the WQOs, the *WPCO* controls effluent discharging into the WCZs through a licensing system. A *Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters* was issued under the *WPCO (WPCO-TM)* which gives guidance on the permissible effluent discharges based on the type of receiving waters (foul sewers, storm water drains, inland and coastal waters). The limits control the physical, chemical and microbial quality of effluents. Under the *WPCO-TM*, effluents discharged into inland waters are subject to standards for particular volumes of discharge. The discharge standard will vary with the use of downstream water. The majority of the inland water bodies within the Study Area (see *Figure 6.2a*) are surface water drains, which are classified as Group D inland waters. Any new effluent discharge during the construction phase would be required to comply with the terms and conditions of a discharge licence, issued by EPD, under the *WPCO*.

6.2.3 *Practice Notes*

A practice note for professional persons (*ProPECC PN*) was issued by the EPD to provide environmental guidelines for handling and disposal of construction



Highways Department The Government of the Hong Kong Special Administrative Region	Consultant Environmental Resources Managment ERM Halcrow Halcrow China Ltd. As Engineering Sub-consultant	Agreement No. : WD 6/2007	Environmental Impact Assessment Report	FIGURE 6.2a	
		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: Water Sensitive Receivers	Checked: PS Designed: TF	Scale: - Drawn: AM Rev. Date: 1/11/2007

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site discharges. *ProPECC PN 1/94*, entitled "*Construction Site Drainage*" provides good practice guidelines for dealing with various types of discharge from a construction site. Practices outlined in *ProPECC PN 1/94* should be followed as far as possible during construction to minimise the water quality impact due to construction site runoff.

6.3 BASELINE CONDITIONS AND SENSITIVE RECEIVERS

6.3.1 Baseline Conditions

The Site is located inland and direct impacts arising from the Project activities on marine water quality are not expected. Supports for the flyover and slip roads would not be located within any watercourses.

The following water bodies are identified within the Study Area. The locations of these water bodies are shown in *Figure 6.2a*:

- There is a main stormwater drainage channel, D1, located to the east of the Site. The drainage channel runs in a generally northerly direction and eventually joins Kam Tin River. The drainage channel was part of Drainage Services Department (DSD)'s drainage improvement works to prevent flooding in Yuen Long District.

- Another stormwater drainage channel, D2, with a width smaller than that of D1 and runs along Yau Tin East/West Road to the southwest of the Site.

- Two small stormwater drains, D3 and D4, are located to the east and west of the Site respectively. Both of the small drains are open channels. D3 is situated between an area of agricultural land to the southeast of POR and the southern arm of POR and it mainly collects the water from the agricultural land. D4 runs across the eastern boundary of Wong Uk Tsuen.

- A group of three fish ponds, F1, are located to the north of the Site and Small Traders New Village in an area between West Rail and YLH.

- A number of small rivers/streams, S1 to S4, run into the drainage channel from the adjacent catchments but all of these are outside the boundary of the Project.

No water quality data are available for these water bodies.

6.3.2 *Water Sensitive Receivers*

The identified water bodies within the Study Area are regarded as Water Sensitive Receivers (WSRs). None of the WSRs are located within the boundary of the Project. The shortest distance from the boundary of the Project to each of the WSRs is shown in *Table 6.3a*.

Table 6.3a Shortest Distance Between the Water Sensitive Receivers (WSRs) and the Limit of the Works Area

WSR	Description	Shortest distance from the Boundary of the Project (m)
D1	Stormwater Drainage Channel	36.4
D2	Stormwater Drainage Channel	133.0
D3	Stormwater Drainage Channel	40.8
D4	Stormwater Drainage Channel	28.0
F1	Fish Pond	13.2
S1	Stream	114.7
S2	Stream	109.0
S3	Stream	156.7
S4	Stream	101.3

6.4 *ASSESSMENT METHODOLOGY*

The Study Area for the water quality impact assessment is defined by a distance of 300 m from the boundary of the Project. The WSRs within the Study Area were identified in *Section 6.3*.

Construction methods and configurations and operation of the Project, as presented in *Sections 2* and *3*, have been reviewed in terms of their potential to impact water quality. Based on this review, potential sources of water quality impact that may arise during the construction and operational phases of the Project have been identified and are presented *Section 6.5*. All the identified sources of potential water quality impact were then evaluated and their impact significance were determined in *Section 6.5*. If considered necessary, effective and practicable water pollution and mitigation measures have been recommended in *Section 6.6* to assist in reducing any identified adverse impacts on water quality to acceptable levels.

6.5 *IDENTIFICATION AND EVALUATION OF ENVIRONMENTAL IMPACTS*

6.5.1 *Construction Phase*

Potential sources of water quality impact associated with the construction of the Project have been identified and include:

- construction site runoff and drainage;
- general construction activities;

- sewage generated by on-site workforce; and
- piling activities.

Construction Site Runoff and Drainage

Runoff from the construction works areas during site clearance and site formation activities may contain increased loads of sediments, other suspended solids and potentially contaminants. Potential sources of pollution from site drainage include:

- runoff and erosion from exposed soil surfaces, earth working areas and stockpiles;
- release of grouting and cement materials with rain wash;
- wash water from dust suppression sprays; and
- fuel and lubricants from maintenance of construction vehicles and mechanical equipment.

Sediment laden runoff may carry pollutants (adsorbed onto the particle surfaces) into the nearby WSRs. Associated effects which may arise include increased suspended solids concentrations in receiving waters and blockage of stormwater drains.

Mitigation measures should be implemented to control construction site runoff and drainage from the works areas, and to prevent runoff and drainage water with high levels of suspended solids from entering the nearby WSRs. With the implementation of adequate construction site drainage and provision of sediment removal facilities as described in *Section 6.6.1*, it is anticipated that unacceptable water quality impacts on the WSRs would not arise.

General Construction Activities

On-site construction activities may cause water pollution from the following:

- uncontrolled discharge of debris and rubbish such as packaging, construction materials and refuse; and
- spillages of liquids stored on-site, such as oil, diesel and solvents, which may be likely to result in water quality impacts if they enter the nearby stormwater drainage channels.

As detailed in *Section 6.6.1*, good construction and site management practices should be observed to ensure that litter, fuels and solvents do not enter the surrounding stormwater drains.

Sewage generated by On-site Workforce

Domestic sewage would be generated from the workforce during the construction phase. It is expected that the temporary sewage will be adequately treated by interim sewage collection facilities, such as portable chemical toilets, which would be installed within the construction site. It is unlikely that sewage generated from the Site would have significant water quality impact on the WSRs, provided that sewage is not discharged directly to the adjacent watercourses, and the interim sewage collection facilities are sufficient and properly maintained.

Piling Activities

Continuous flight auger piling instead of bored piling will be used for the construction of the bridge pier foundations. Any groundwater generated from the piling activities will be collected and directed to sedimentation facilities for treatment before discharge to meet the relevant *WPCO-TM* standards.

Cumulative Impacts

Adjacent projects identified to involve concurrent construction activities during the construction period of the Project are:

- Kau Hui Development – Engineering Works in Area 16, Yuen Long, Phase 2 – Extension of Road L3, to be undertaken by Civil Engineering and Development Department (CEDD); and

- Proposed Left-Turn Lane at Pok Oi Interchange for the Development at YOHO Town Phase II, to be undertaken by Sun Hung Kai Properties Ltd.

The construction works of CEDD's project is scheduled to commence in August 2008 and be completed towards the end of 2010. Excavation works are expected to be completed before the commencement of construction activities for the Project, ie February 2009. The potential for cumulative water quality impacts arising from the concurrent construction activities is considered limited. Should any activities overlap, it is expected that the associated cumulative impacts would be minor with no unacceptable adverse impacts anticipated to occur.

The construction period of Sun Hung Kai's project will last for approximately one year and will be completed on or before 2010. As this project is of a relatively small scale and a short duration, no adverse cumulative water quality impacts are expected to result from its concurrent implementation with the Project.

With the implementation of mitigation measures to control construction site runoff and drainage, potential impacts on water quality would be controlled to within the boundary of the Project.

6.5.2 *Operational Phase*

The only identified potential source of impact on water quality during the operational phase would be runoff from the road surfaces. A surface water drainage system would be provided to collect the road runoff. It is recommended that standard HyD road gullies be installed along the drainage system to trap silt and grit in the first flush of runoff.

6.6 *MITIGATION MEASURES*

Proposed mitigation measures for containing and minimising water quality impacts are summarised below.

6.6.1 *Construction Phase*

Construction Site Run-off and Drainage

Good site practices outlined in ProPECC PN 1/94 should be followed as far as practicable to minimise surface runoff and the chance of erosion, and also to retain and reduce any suspended solids prior to discharge. These practices include the follows:

- Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from runoff to meet the requirements of the *WPCO-TM* standard. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms.

- Careful programming of the works to minimise surface excavations for the Project during the wet season. If excavation of soil cannot be avoided during the wet season, exposed slope surfaces should be covered by tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms are summarised in ProPECC PN 1/94.

- Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion.

- Open stockpiles of construction materials or construction wastes on-site of more than $50m^3$ should be covered with tarpaulin or similar fabric during rainstorms. These materials should not be placed near water courses.

- A Drainage Management Plan (DMP) should be prepared by the Contractor and submitted to EPD before the commencement of any construction works to detail the procedures for control of construction site runoff. No site run-off or drainage should be allowed enter the nearby WSRs.

General Construction Activities

- Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the nearby WSRs. Stockpiles of cement and other construction materials should be kept covered when not being used.

- Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greater. The bund should be drained of rainwater after a rain event.

Sewage generated from On-site Workforce

- Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site. A licensed contractor would be responsible for appropriate disposal and regular maintenance of these facilities.

Piling Activities

- Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from groundwater to meet the requirements of the *WPCO-TM* standard. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected and maintained on a regular basis to ensure proper and efficient operation at all times and particularly during rainstorms.

6.6.2 Operational Phase

It is recommended that the standard HyD road gullies be installed along the road drainage system to trap any silt and grit in the first flush of runoff.

6.7 RESIDUAL ENVIRONMENTAL IMPACT

With the full implementation of the recommended mitigation measures for the construction and operational phases of the Project, no unacceptable residual impacts on water quality are expected. It is recommended that regular site audits of the implementation of the recommended mitigation measures be undertaken during the construction phase.

6.8 ENVIRONMENTAL MONITORING AND AUDIT

The impact assessment has evaluated that there would be no water quality impacts on the WSRs within the Study Area. As a result, it is considered that environmental monitoring of water quality is not required. Nevertheless, regular site inspection is recommended to ensure that the recommended mitigation measures are properly implemented.

6.9 CONCLUSIONS

6.9.1 Construction Phase

No WSRs were identified within the limits of the works area. Water quality impacts are negligible and minimal during the construction phase of the Project provided that good site practices and housekeeping are implemented. No water quality monitoring is thus considered necessary during the construction phase.

6.9.2 Operational Phase

For the operation of the Project, the only source of water quality impact would be runoff from the road surface. A surface water drainage system should be provided to collect the road runoff and to facilitate drainage of runoff during rainstorms. With the provision of an appropriate road drainage system, no adverse water quality impacts are anticipated. No operational water quality monitoring is considered necessary.

7 WASTE MANAGEMENT

7.1 INTRODUCTION

This *Section* identifies the potential wastes arising from the construction of the Project and potential environmental impacts associated with the handling and disposal of waste. The assessment is conducted in accordance with the criteria in *Annexes 7* and *15* of the *EIAO-TM* and the requirements of the *EIA Study Brief* for the Project, which are summarised as follows:

- Analysis of Activities and Waste Generation – identify the quantity, quality and timing of the waste arising as a result of the construction and operation activities of the Project;
- Proposal for Waste Management – evaluate the opportunities for reducing waste generation, on-site / off-site reuse and recycling; estimate the types and quantities of waste required to be disposed and the disposal options; the impact caused by handling, collection and disposal of waste;
- Land Contamination Potential – identify all land lots/sites within the study area boundary which are potential contaminated and provides list of potential contaminants and possible remediation options.

7.2 RELEVANT LEGISLATION AND GUIDELINES

The following legislation covers, or has some bearing upon, the handling, treatment and disposal of wastes in Hong Kong, and has been considered in the assessment.

- *Waste Disposal Ordinance (Cap 354);*
- *Waste Disposal (Chemical Waste) (General) Regulation (Cap 354C);*
- *Land (Miscellaneous Provisions) Ordinance (Cap 28)*; and
- *Public Health and Municipal Services Ordinance (Cap 132) - Public Cleansing and Prevention of Nuisances Regulation.*

7.2.1 *Waste Disposal Ordinance (Cap 354)*

The *Waste Disposal Ordinance* (WDO) prohibits the unauthorised disposal of wastes, with waste defined as any substance or article, which is abandoned. Under the *WDO*, wastes can only be disposed of at a licensed site. A breach of these regulations can lead to the imposition of a fine and/or a prison sentence. The *WDO* also provides for the issuing of licences for the collection and transport of wastes. Licences are not, however, currently issued for the collection and transport of construction waste or trade waste.

The *Waste Disposal (Charges for Disposal of Construction Waste) Regulation* defined construction waste as any substance, matters or things that is generated from construction work and abandoned, whether or not it has been processed or stockpiled before being abandoned, but does not include any sludge, screening or matter removed in or generated from any desludging, desilting or dredging works.

The Construction Waste Disposal Charging Scheme came into operation on 1 December 2005. Processing of account applications by the EPD started on the same day. A contractor who undertakes construction work with value of HK$1 million or above is required to open a billing account solely for the contract. Charging for the disposal of construction waste started on 20 January 2006.

Depending on the percentage of inert materials, construction & demolition materials (C&D materials) can be disposed of at public fill, sorting facilities, landfills and outlying islands transfer facilities, where differing disposal costs would be applied. The scheme encourages waste reduction so that the contractor or Project Proponent can minimise their costs. *Table 7.2a* summarises the Government's C&D materials disposal facilities, the types of waste accepted and disposal the associated costs.

Table 7.2a Government Waste Disposal Facilities for C&D Materials

Government Waste Disposal Facilities	Type of Construction Waste Accepted	Charge Per Tonne
Public fill reception facilities	Consisting entirely of inert construction waste	$27
Sorting facilities	Containing more than 50% by weight of inert construction waste	$100
Landfills	Containing not more than 50% by weight of inert construction waste	$125
Outlying Islands Transfer Facilities	Containing any percentage of inert construction waste	$125

7.2.2 Waste Disposal (Chemical Waste) (General) Regulation

Chemical waste as defined under the *Waste Disposal (Chemical Waste) (General) Regulation* includes any substance being scrap material, or unwanted substances specified under *Schedule 1* of the *Regulation*, if such a substance or chemical occurs in such a form, quantity or concentration so as to cause pollution or constitute a danger to health or risk of pollution to the environment.

Chemical waste producers shall register with the Environmental Protection Department (EPD). Any person who contravenes this requirement commits an offence and is liable to a fine and imprisonment. Producers of chemical wastes must treat their wastes, utilising on-site plant licensed by the EPD or have a licensed collector take the wastes to a licensed facility. For each consignment of wastes, the waste producer, collector and disposer of the

wastes must sign all relevant parts of a computerised trip ticket. The system is designed to allow the transfer of wastes to be traced from cradle-to-grave.

The *Regulation* prescribes the storage facilities to be provided on site including labelling and warning signs. To minimise the risks of pollution and danger to human health or life, the waste producer is required to prepare and make available written procedures to be observed in the case of emergencies due to spillage, leakage or accidents arising from the storage of chemical wastes. He/she must also provide employees with training in such procedures.

7.2.3 Land (Miscellaneous Provisions) Ordinance (Cap 28)

The inert portion of C&D materials (also called public fill) may be taken to public filling areas. Public filling areas usually form part of land reclamation schemes and are operated by the Civil Engineering and Development Department (CEDD). The *Land (Miscellaneous Provisions) Ordinance* requires that individuals or companies who deliver public fill to the public filling areas obtain Dumping Licences. The licences are issued by the CEDD under delegated authority from the Director of Lands.

Individual licences and windscreen stickers are issued for each vehicle involved. Under the licence conditions, public filling areas will accept only inert building debris, soil, rock and broken concrete. There is no size limit on rock and broken concrete, and a small amount of timber mixed with inert material is permissible. The material should, however, be free from marine mud, household refuse, plastic, metal, industrial and chemical wastes, animal and vegetable matter and any other materials considered unsuitable by the public filling supervisor.

7.2.4 Public Cleansing and Prevention of Nuisances Regulation

This *Regulation* provides further control on the illegal dumping of wastes on unauthorised (unlicensed) sites. The illegal dumping of wastes can lead to a fine and/or imprisonment.

7.2.5 Other Relevant Guidelines

Other 'guideline' documents, which detail how the project proponent or contractor should comply with the local regulations, are as follows:

- *Waste Disposal Plan for Hong Kong* (December 1989), Planning, Environment and Lands Branch Government Secretariat, Hong Kong Government;
- *Environmental Guidelines for Planning In Hong Kong* (1990), Hong Kong Planning Standards and Guidelines, Hong Kong Government;
- *New Disposal Arrangements for Construction Waste* (1992), EPD & CED, Hong Kong Government;
- *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes* (1992), EPD, Hong Kong Government;

- *Works Branch Technical Circular (WBTC) No. 32/92, The Use of Tropical Hard Wood on Construction Site*; Works Branch, Hong Kong Government;
- *WBTC No. 2/93, Public Dumps,* Works Branch, Hong Kong Government;
- *WBTC No. 2/93B, Public Filling Facilities*, Works Branch, Hong Kong Government;
- *Waste Reduction Framework Plan, 1998 to 2007*, Planning, Environment and Lands Bureau, Government Secretariat, 5 November 1998;
- *WBTC Nos. 25/99, 25/99A* and *25/99C, Incorporation of Information on Construction and Demolition Material Management in Public Works Sub-committee Papers*; Works Bureau, Hong Kong SAR Government;
- *WBTC No. 12/2000, Fill Management*; Works Bureau, Hong Kong SAR Government;
- *WBTC Nos. 6/2002 and 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness.* Works Bureau, Hong Kong SAR Government;
- *WBTC No. 12/2002, Specification Facilitating the Use of Recycled Aggregates.* Works Bureau, Hong Kong SAR Government;
- *ETWBTC No. 33/2002, Management of Construction and Demolition Material Including Rock*; Environment, Transport and Works Bureau, Hong Kong SAR Government;
- *ETWBTC No. 31/2004, Trip Ticket System for Disposal of Construction & Demolition Materials*, Environment, Transport and Works Bureau, Hong Kong SAR Government; and
- *ETWBTC No. 19/2005*, *Environmental Management on Construction Sites*, Hong Kong SAR Government.

7.3 EXPECTED WASTE ARISINGS DURING THE CONSTRUCTION PHASE

During the construction phase, the main activities, which will potentially result in the generation of waste, include clearance of vegetation, construction of sub-structures and abutments of the new flyover, removal of existing road embankment and parapets, construction of subway, and reprofiling of existing barriers. The typical waste types associated with these activities include:

- construction waste;
- chemical waste;
- sewage; and
- general refuse.

It is anticipated that no waste will be arise during the operational phase of the Project, and therefore no operational impacts with implications on waste management is expected.

7.4 WASTE IMPACT ASSESSMENT

7.4.1 Construction & Demolition Materials

Construction and demolition (C&D) material would be generated from the following works of the Project:

- Clearance of existing vegetation to be affected by the works;
- Construction of retaining wall and flyover;
- Demolition of existing parapets or footing for existing noise barriers;
- Fill slope / slope reprofiling involved in road realignment; and
- Extension of subway under Left-Turn Lane A.

The key types of excavated and demolition materials expected to be generated during the construction works include excavated soil, fill and concrete. The total volume of the excavated and demolition materials currently estimated by HyD is approximately 33,000 m^3. A breakdown of the estimated quantities of excavated and demolition materials from the different types of works of the Project is presented in *Table 7.4a*.

Table 7.4a Summary of Excavation and Demolition Quantities

Road Segment / Associated Works	Description of Construction Works	Excavation Volume (m^3)	Demolition Volume (m^3)
Slip Road A	Construction of retaining walls	5,200	150
	Diverge from existing road (road widening)	600	50
Flyover A	Construction of the new flyover (including piling, pile caps and abutments)	3,500	150
Slip Road B	Construction of retaining walls	4,700	50
Slip Road C	Construction of retaining walls	10,400	100
	Reprofile existing slope	700	-
Left-turn Lane A	Construction of retaining walls and planter walls	1,400	-
	Construction of subway extension	400	-
	Removal of 1m high stem of the existing retaining wall	-	100
	Reconstruction of the existing road embankment with re-provision of planter wall at slope crest	1,000	-
	Reprofile of existing noise barrier	400	100
Road Resurfacing and Remarking A	Offsetting the kerb, extending the crossfall and resurfacing of carriageway	-	100
Road Resurfacing and Remarking B	Resurfacing of carriageway	-	100
Construction of 1m high noise barrier	Excavation and backfilling activities	2,600	-
Associated drainage, sewerage, water main and utilities works	Excavation and backfilling activities	500	100
Landscaping works	Excavation and backfilling activities	600	-
Total		***32,000***	***1,000***

The Project would require about 34,000 m^3 of soil/granular fill and 4,000 m^3 rock fill. The requirements for fill materials will be partly met by reusing the inert excavated materials generated from the Project itself. HyD has estimated that about 30% of the excavated materials are suitable for reuse on-site.

C&D materials would be generated mainly from the excavation of the existing road embankments or slopes and a portion of these materials could be used for re-profiling of the existing slopes. Opportunities for reusing the inert C&D material on-site for the retaining structures, which constitutes a key requirement for fill materials, have also been explored but found to be limited. As indicated in *Section 3.3.5*, earth reinforced retaining structures have been adopted for the construction of Slip Roads A and B taking into account the potential noise impacts on the surrounding sensitive receivers and the flexibility for working in the limited space available for the works. Specific considerations on the filling materials is required for the proposed earth reinforced retaining structure to satisfy the relevant design/performance requirements, such as the grading requirement of the selected fill. From the information provided by available ground investigation records, the site geology is complex and comprises fill materials, alluvium, Super-Karst Deposit and completely decomposed rock (Metamudstone/Metasiltone /Granodiorite). The construction works of the Project are expected to involve mainly excavation in the in-situ fill materials and alluvium. The variable properties and extent of the in-situ fill materials to be excavated and their clayey and silty properties would render them unsuitable for reuse as filling materials in the proposed retaining structures. The estimated 30% on-site reuse of excavated materials is therefore considered reasonable and achievable based on the adopted engineering design and the site-specific geological information.

The surplus inert C&D materials should be delivered to public fill facilities for reuse. Based on the trends observed in the data published by EPD in *Monitoring of Solid Waste in Hong Kong* and HyD's experience in similar previous projects, it is also estimated that about 10% of the demolition materials are C&D waste which would be disposed of at landfill. Based on the above, about 9,600 m^3 of excavation materials would be reused on site and about 23,300 m^3 of inert C&D materials would be disposed of to public fill reception facilities for other beneficial uses. Approximately 100 m^3 of non-inert materials generated from the excavation and demolition activities and about 400 m^3 of cleared vegetation would be disposed of as C&D waste to designated landfills or refuse transfer stations. As the engineering design of the Project is still ongoing, HyD will continue to explore opportunities for enhancing on-site reuse of excavated materials and for reducing the quantity of C&D waste for landfill disposal. HyD will maintain close liaison with EPD and the Public Fill Committee (PFC) in this regard. *Table 7.4b* summarises the estimated C&D materials arising and the associated disposal routes.

Table 7.4b Summary of Estimated Major C&D Material Arising and Disposal Route

	Total Quantities Generated	Quantities to be Reuse on-site (a)	Quantities to be Reuse in Public Fill Reception Facilities	Quantities to be Disposed of at Landfill (b)
Excavated materials	32,000 m^3	9,600 m^3	22,400 m^3 at Tuen Mun Area 38 Fill Bank or other approved public fill facilities	-
Demolition materials	1,000 m^3	-	900 m^3 at Tuen Mun Area 38 Fill Bank or other approved public fill facilities	100 m^3 at WENT Landfill or other approved designated landfill sites
Cleared vegetation	400 m^3	-	-	400 m^3 at WENT Landfill or other approved designated landfill sites
Total	***33,400 m^3***	***9,600 m^3***	***23,300 m^3***	***500 m^3***

Notes:

(a) It is anticipated that about 30% of the excavated materials are suitable to be reuse on-site.

(b) It is anticipated that about 10% of the demolition materials are C&D waste would be disposed of to designated landfills.

The majority of the C&D materials will be generated from the 4th month to the 21st month (tentatively from March 2010 to August 2011) as a result of the construction works for piles, retaining walls, new flyover and embankments. A sequential construction method will be used to facilitate the separation of inert and non-inert materials, as far as possible, to enable the beneficial use of the inert materials and to minimise waste disposal costs. Assuming a bulking factor of 1.4, it is estimated that about 13 truck trips will be required each day to dispose of the C&D materials (1) to the Tuen Mun Area 38 Fill Bank or other approved designated public fill facilities. The number of truck trips required to dispose of C&D waste to the West New Territories (WENT) Landfill or other approved designated landfill sites will be minimal owing to the relatively small volume of such materials expected to be generated over the entire construction phase. The delivery of the C&D materials to public fill reception facilities and landfills will be monitored using a trip ticket system implemented in accordance with *ETWB TCW No. 31/2004*.

7.4.2 Chemical Waste

Chemical waste, as defined under the *Waste Disposal (Chemical Waste) (General) Regulation*, includes any unwanted substances specified under *Schedule 1* of the *Regulation*. Substances likely to be generated from the construction of the Project may include:

- Residual paints and solvents; and
- Used lubricant oil from maintenance of the construction plant.

(1) Trucks per day = 23,300 m^3 of C&D materials to be disposed offsite x bulk factor 1.4 / 18 months / 24 days per month / 6 m^3 per truck = 12.5

(3) Based on DSD Sewerage Manual Part 1, domestic sewerage generated by employed population is 0.06 m^3/ day.

It is anticipated that the quantity of chemical waste to be generated will be small and in the order of a few hundred litres for whole construction phase. These chemical waste will be stored and disposed of in an appropriate manner, as outlined in the *Waste Disposal (Chemical Waste) (General) Regulation* and the *Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.*

7.4.3 Sewage

Sewage will arise from the construction workforce. It is estimated that a maximum of about 120 workers will be working at the site at any one time. The amount of sewage to be generated will be about 7.2 m^3 per day [3]. An adequate number of portable toilets will be provided at the site to ensure that sewage from site staff is properly collected. The portable toilets will be desludged and maintained regularly by a licensed contractor. No adverse environmental impacts are envisaged.

7.4.4 General Refuse

General refuse will be generated by the workforce. It is expected that the quantity of general refuse (mainly consisting of food waste, aluminium cans and waste paper) to be generated from the site staff will therefore be small (in the order of 78 kg per day [1]). Recyclable materials (ie paper, plastic bottles and aluminium cans) will be separated for recycling, in order to reduce the amount of general refuse to be disposed of at landfill.

The non-recyclable refuse will be placed in bags and stored in enclosed bins, and disposed of on a daily basis. This will avoid the occurrence of wind blown litter, odour, water quality impacts and vermin nuisance. The general refuse will be transported to the WENT Landfill or other approved designated landfill sites for disposal. No adverse environmental impact is envisaged.

Given that the quantity of general refuse to be disposed of at landfill is small, no adverse impact on the operation of the station is anticipated.

7.5 MITIGATION MEASURES

The assessment indicates that with the implementation of the proposed waste management practices at the work sites, no adverse environmental impacts are envisaged for the handling, collection and disposal of waste arising from the construction of the Project. No mitigation measures will be required.

This section further describes the good construction site practices to avoid or further reduce the potential environmental impacts associated with the handling, collection and disposal of construction and chemical wastes arising from the construction of the Project.

[1] Based on an assumption of the general refuse generated rate of workers of 0.65 kg/day/ capital

The Contractor must ensure that all the necessary waste disposal permits or licences are obtained prior to the commencement of the construction works. The Contractor should incorporate these recommendations into a Waste Management Plan (WMP) for the construction works. The Contractor should submit the plan to Project Proponent's Engineer Representative for endorsement prior to the commencement of the construction works. The plan should incorporate site-specific factors, such as the designation of areas for the segregation and temporary storage of reusable and recyclable materials.

It will be the Contractor's responsibility to ensure that only reputable licensed waste collectors are used and that appropriate measures to reduce adverse impacts, including windblown litter and dust from the transportation of these wastes, are employed. In addition, the Contractor must ensure that all the necessary permits or licences required under the *Waste Disposal Ordinance* are obtained for the construction phase.

Waste Management Hierarchy

The various waste management options are categorised in terms of preference from an environmental viewpoint. The options considered to be most preferable have the least environmental impacts and are more sustainable in the long term. The hierarchy is as follows:

- Avoidance and reduction;
- Reuse of materials;
- Recovery and recycling; and
- Treatment and disposal.

The above hierarchy has been used to evaluate and select waste management options. The aim has been to reduce waste generation and reduce waste handling and disposal costs.

The Contractor should consult the EPD for the final disposal of wastes and implement the following good site practices and mitigation measures:

Waste Reduction Measures

Good management and control can prevent generation of significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:

- Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal;

- Encourage collection of aluminium cans and waste paper by individual collectors during construction with separate labelled bins being provided to allow the segregation of these wastes from other general refuse generated by the workforce;

- Any unused chemicals and those with remaining functional capacity be recycled as far as possible;

- Use of reusable non-timber formwork to reduce the amount of C&D materials;

- Prior to disposal of construction waste, wood, steel and other metals should be separated, to the extent practical for re-use and/or recycling to reduce the quantity of waste to be disposed at landfills;

- Proper storage and site practices to reduce the potential for damage or contamination of construction materials; and

- Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste.

7.5.1 Construction Waste

Wherever practicable, the excavated soil will be segregated from other wastes to avoid contamination, and reused on-site for filling to reduce the amount of construction waste to be disposed off-site.

Good site practices during the construction activities would avoid adverse waste management related. Recommendations for good site practices during the construction activities include:

- Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.

- Training of site personnel in proper waste management and chemical waste handling procedures.

- Provision of sufficient waste disposal points and regular collection for disposal.

- Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.

- Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.

- A recording system for the amount of wastes generated, recycled and disposed of (including the disposal sites).

7.5.2 Management of Waste Disposal

The construction contractor will open a billing account with the EPD in accordance with the *Waste Disposal (Charges for Disposal of Construction Waste) Regulation*. Every construction waste or public fill load to be transferred to the Tuen Mun Area 38 Fill Bank or other approved designated public fill facilities will require a valid "chit".

A trip-ticket system will also be established in accordance with *Works Bureau Technical Circular No.31/2004* to monitor the disposal of construction waste at the Tuen Mun Area 38 Fill Bank or other approved designated public fill facilities, and to control fly-tipping. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor.

7.5.3 Chemical Waste

The construction contractor will be registered as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the *Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.* Containers used for the storage of chemical wastes should:

- Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;
- Have a capacity of less than 450 L unless the specifications have been approved by the EPD; and
- Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.

The storage area for chemical wastes will:

- Be clearly labelled and used solely for the storage of chemical waste;
- Be enclosed on at least 3 sides;
- Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest;
- Have adequate ventilation;
- Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary); and
- Be arranged so that incompatible materials are appropriately separated.

Chemical waste should be collected by a licensed chemical waste collector to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility.

7.5.4 Staff Training

At the commencement of the construction works, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including waste reduction, reuse and recycling.

7.5.5 Summary of Waste Handling Procedures and Disposal Routes

The summary of the various waste types likely to be generated during the construction works for the Project, together with the recommended handling and disposal methods are summarized in *Table 7.5a*.

Table 7.5a Summary of Waste Handling Procedures and Disposal Routes

Waste material type	Total quantities generated	Quantities to be reuse on-site	Quantities to be disposed off-site	Proper handling procedures	Disposal
C&D Materials	32,900 m^3 of inert C&D materials and 500 m^3 of C&D waste	9,600 m^3 of inert C&D materials reuse on-site for filling	23,300 m^3 of inert C&D materials and 500 m^3 of C&D waste	Handle in accordance with good site practices and sorting of inert C&D material (public fill) and C&D waste onsite.	Inert C&D materials send to public filling are for other beneficial uses; C&D waste for disposal of at landfill.
Chemical Waste	Few hundred litre for whole construction phase	-	Few hundred litre	Handle in accordance with *the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes* and collect by licensed chemical waste collectors.	Chemical Waste Treatment Centre
Sewage	7.2 m^3 per day	-	7.2 m^3 per day	Portable toilets will be desludged and maintained regularly by licensed contractor	To be collected by licensed sewage collector for treatment
General Refuse	78 kg per day	-	78 kg per day	Provide on-site refuse collection points waste segregation.	To be collected by licensed waste collector for disposal of at landfill.

7.6 *RESIDUAL ENVIRONMENTAL IMPACTS*

No residual waste management impact is envisaged after the completion of the Project construction works.

7.7 *LAND CONTAMINATION*

Potential land contamination issues for all land lots/sites within the Study Area are considered below. Past and present activities or land uses that may cause land contamination problems are assessed.

The assessment is undertaken in accordance with Clause 3.4.4.2 (iii) of the *EIA Study Brief, Annex 19* of the EIAO-TM and *Guidance Note for Contaminated Land Assessment and Remediation* issued by *EPD* in 2007.

7.7.1 Assessment Methodology

The objective of this assessment is to evaluate and identify the potential land contamination associated with the past and present activities or land uses within the Study Area and develop an assessment plan to determine the extent of any contamination present, if required. To achieve the objective, a desktop study to review the past and present activities or land uses within the Study Area and an assessment on any potential environmental impacts arising as a result of historical land contamination or during future use of the proposed new roads were undertaken.

7.7.2 Desktop Study

A desktop study was conducted to review past and present land uses, activities and installations within the Study Area and its vicinity that may have the potential to cause land contamination. The following sources of information were collected and reviewed:

- Hong Kong Topographic Survey maps (1:1000, 1:5000 and 1:10,000) from 1967 to present, Survey and Mapping Office, Lands Department;
- *Hong Kong Geological Survey* (*Sheet 6, Series HGM 20, Edition I – 1988*), Survey and Mapping Office, Lands Department;
- Selected aerial photographs of the Site and its surrounding areas from 1964 onwards; and
- Selected historical photographs of the Study Area and its surrounding areas in the archives of Hong Kong Public Library (HKPL).

7.7.3 Site History

A review of the site history was conducted based on the examination and analysis of selected aerial photographs and survey maps of the Study Area. Selected aerial photographs taken in 1964, 1973, 1983, 1993, 1995, 1996, 1998, 2005 and 2007 and survey maps published since 1967 of the Study Area were reviewed. A list of relevant aerial photographs reviewed is presented in *Table 7.7a.*

Table 7.7a Aerial Photographs Reviewed

Date of Photograph	Lands Department Reference No.	Height (Feet)	Observations
16 December 1964	3268	1800	View of Yuen Long. The Study Area was used for agriculture. Agricultural fields and ponds were found.
20 February 1973	3419	3000	View of Yuen Long. The Study Area was used for agriculture. Agricultural fields, ponds and squatter huts were found. Castle Peak Road was in place.
26 September 1983	49474	3000	View of Yuen Long. The Study Area was used for agriculture. Agricultural fields, ponds, squatter huts and high-rise buildings were found. Foot bridge crossing Castle Peak Road was in place.
28 May 1993	CN3435	3000	View of Pok Oi Interchange. The roundabout and slip roads to the south of roundabout were under construction. A school was located in the proposed Left-Turn Lane A area.
19 July 1995	CN10237	3200	View of Pok Oi Interchange. The roundabout and slip roads to the south of roundabout were in place.
31 October 1996	CN15287	3000	View of Pok Oi Interchange. The slip roads to the north of the roundabout were under construction.
10 July 1998	CN19928	3000	View of Pok Oi Interchange. The slip roads to the north of the roundabout were in place. Yuen Long Highway was under construction. The school located in the proposed Left-Turn Lane A area had been demolished and the area was used as for accommodating a construction site office.
07 May 2005	CW65272	2500	View of Pok Oi Interchange. West Rail was in operation. YOHO Town Phase I was occupied while Phase II was under construction. Kwong Ming Ying Loi School was under construction. Part of the proposed Left-Turn Lane A area was paved and used for vehicle parking.
25 July 2007	CW77365	3000	View of Pok Oi Interchange. Kwong Ming Ying Loi School was in use. Proposed Left-Turn Lane A area was no longer used for vehicle parking.

Source of Aerial Photographs: Survey and Mapping Office, Lands Department

Historically, the Study Area was mostly agricultural fields and ponds. Scattered squatter huts were found. The most prominent change to the land uses within the Study Area was the construction of POI. POI with its slip roads and YLH have been in place since 1993 and 1998, respectively.

From the historical aerial photographs and Hong Kong Topographic Survey maps examined, part of the area for the proposed Left-Turn Lane A was a school before 1996. The school was demolished and the land was paved and

used for a construction site office from 1998 and vehicle parking from 2002, respectively. A site visit undertaken on 12 October 2007 found that the area was fenced off, signed as Government Land and no longer used for car parking.

7.7.4 Geology and Superficial Deposits

Hong Kong Geological Survey (Sheet 6, Series HGM 20, Edition I – 1988) shows that the Study Area is underlain by Holocene alluvium and Holocene mainly undivided dark grey marine mud of Hang Hau Formation of the Quaternary age.

From the historical photographs examined, the Study Area was shown to be within the works boundary of YLH in 1998. The natural solid and superficial deposits would have been disturbed by the construction activities of YLH. It is therefore believed that further impact from the Project on the same deposits will be minimal.

7.7.5 Existing Land uses

According to Hong Kong topographic survey maps published by the Lands Department, the existing land uses in the Study Area, excluding the area for the proposed Left-Turn Lane A, were roads and highways. The land uses within these areas have not changed since the completion of POI and YLH.

As for the area for the proposed Left-Turn Lane A, the land was allocated as Government Land and zoned "Undetermined" in the latest OZP.

7.7.6 Potential Impacts

The review of past and present land uses of the Study Area indicates that the area, except that for the proposed Left-Turn Lane A, has been used for roads and highways since 1995. Based on the fact that the Project will not extend beyond the existing road reserve, land contamination is not expected to be a concern.

For the area in which the proposed Left-Turn Lane A will be located, it was paved with hardstanding during its previous uses as a construction site office and car park. The potential for land contamination is also considered low.

Based on the above, it is anticipated that contaminated materials would not be encountered during the construction of the Project and implications with respect to construction worker exposure to contaminated materials and contaminated material disposal are not expected.

7.8 ENVIRONMENTAL MONITORING AND AUDIT

To facilitate monitoring and control over the Contractor's environmental performance in terms of waste management, a waste monitoring and audit programme should be implemented during the construction phase. The aims of the monitoring and audit programme are:

- To review the Contractor's Waste Management Plan (WMP) including the quantities and types of C&D materials generated, reused and disposed of off-site; the amount of fill materials exported from/imported to the Site and the quantity of timber used in temporary works construction for each process/activity;

- To monitor the implementation and achievement of the WMP on-site to assess its effectiveness; and

- To monitor the follow-up actions for deficiencies identified.

Joint site audits by the Environmental Team and the Contractor should be undertaken on a regular basis. Particular attention should be given to the Contractor's provision of sufficient spaces, adequacy of resources and facilities for on-site sorting and temporary storage of C&D material. The C&D materials to be disposed of from the Project should be visually inspected. The public fill for delivery to off-site stockpiling areas should contain no observable non-inert materials (eg, general refuse, timber, etc). Furthermore, the waste to be disposed of at refuse transfer stations or landfills should as far as possible contains no observable inert or reusable/recyclable C&D materials (eg, soil, broken rock, metal, and paper/cardboard packaging, etc). Any irregularities observed during the regular site audits should be raised promptly to the Contractor for rectification.

To facilitate assessment of the effectiveness of the waste management measures, the WMP should state the performance targets to be achieved in reducing generation of C&D materials taking account of the Site constraints. The performance targets should cover the following items and should be agreed with HyD at the beginning of the Contract.

- The percentage of excavated materials to be sorted to recover the soil and broken rock for reuse on site or deliver to the off-site stockpiling area;

- The percentage of metal to be recovered for collection by recycling contractors; and

- The percentage of cardboard and paper packaging (for plant, equipment and materials) to be recovered. The recovered materials will be properly stockpiled in dry and covered condition to prevent cross contamination by other wastes.

The findings of the waste audits should be reported in regular Environmental Monitoring and Audit (EM&A) Reports.

7.9 CONCLUSIONS

The quantities of construction waste, chemical wastes, sewage and general refuse to be generated during the construction phase of the Project are expected be small. With the implementation of general good construction site practices, the construction of the Project will not cause adverse waste

management or environmental impacts. Waste arisings, which are expected to comprise silt or grit removed from road gullies and litter collected from road surface, during the operational phase will be minimal and will not cause any environmental impact.

Based on the desktop studies and site inspection undertaken, no contaminated sites were identified in the vicinity of the Project. A small area in which the proposed Left-Turn Lane will be located was found to have been used a construction site office and vehicle parking. During both the above uses, the area was paved. Based on the above, the potential for land contamination and impacts upon site workers during the construction of the Project is considered to be insignificant and no adverse environmental impacts associated with land contamination are anticipated. No further investigations are considered necessary.

8 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

8.1 INTRODUCTION

This *Section* presents the Landscape and Visual Impact Assessment (LVIA) for the construction and operation of the Proposed Improvement to Pok Oi Interchange (POI).

8.2 ASSESSMENT METHODOLOGY

In accordance with *EIAO Guidance Note No. 8/2002*, the main components of the LVIA are as follows:

- Description of the Project;
- Review of the planning and development control framework;
- Tree survey results;
- Baseline study of landscape character, landscape resources and also visual resources such as key views and the visual character and amenity of the Study Area;
- Landscape impact assessment during construction and operation of the Project;
- Visual impact assessment during construction and operation of the Project;
- Recommendations for landscape and visual mitigation measures for both the construction and operation phases; and
- Assessment of the residual impacts and conclusion on the acceptability of the Project.

8.3 PROJECT DESCRIPTION

The Proposed Improvement to the POI will comprise the construction of slip roads, a left-turn lane and a flyover and the resurfacing and re-marking of road sections at the POI.

The detailed description is provided in *Section 2* and the proposed alignment of the Project is shown in *Figure 2.1a*.

8.4 LEGISLATION REQUIREMENTS AND EVALUATION CRITERIA

The LVIA was undertaken in accordance with the guidelines and requirements stipulated in *Annexes 10* and *18* of the *EIAO-TM* under the *EIAO* (Cap.499, S16), entitled "Criteria for Evaluating Visual and Landscape Impact" and "Guidelines for Landscape and Visual Impact Assessment", respectively and the *EIAO Guidance Note No. 8/2002* "*Preparation of Landscape and Visual Impact Assessment Under the Environmental Impact Assessment Ordinance*." The landscape assessment considers the potential impacts of the Project on the existing landscape and particularly on the landscape resources within 100m of the Project Site.

The visual assessment analyses the potential visual impacts of the Proposed Improvement to the POI on the existing views and the visual amenity, particularly from the Visually Sensitive Receivers (VSR) within the viewshed (sometimes referred to as the Zone of Visual Influence (ZVI). This report will use the term "viewshed". In order to illustrate the visual impacts of the development, photomontages prepared from selected viewpoints compare the existing conditions with the view after commissioning. The residual impacts are evaluated qualitatively, in accordance with the requirements of *Annex 10* of the *EIAO-TM*.

8.5 PLANNING

The surroundings of the existing POI are varied in nature, containing scattered village houses, school, hospital, home of the aged, new high-rise residential developments, and unoccupied open spaces. The proposed improvement works is located within the Outline Zoning Plans (OZP) for Yuen Long (No.S/YL/17), Nam Sang Wai (No.S/YL-NSW/8) and Tai Tong (No.S/YL-TT/14), the land uses to the surrounding areas of the Project were zoned as "Open Space" (O), "Government/Institution/Community" (GIC), "Comprehensive Development Area" (CDA), "Village Type Development" (V), "Undetermined" (U) and "Agriculture" (AGR) (*Figures 4.3a* to *4.3c*).

The objective of the Project is to relieve the current traffic pressures at the POI. This Project represents an improvement to the existing POI and therefore is not considered to have potential conflicts with the Planning Intention of this OZP.

8.6 TREE SURVEY

A broad brush tree survey was undertaken for the Project. A total of approximately 670 trees were identified. Details of the tree survey are presented in *Annex E*.

Methodology

Topographical surveys, including identification of the location of the trees, were undertaken by HyD. The tree survey was undertaken within the Project Site in accordance with *Section 3.4.5.4* of *EIA Study Brief No. ESB-138/2006*, the guideline from *ETWB TCW Nos. 3/2006*, *55/2002*, *2/2004*, *LAO Practice Note Nos. 6/2000* and *8/2002*.

The most commonly occurring tree species include *Acacia confusa, Acacia mangium, Casuarina equisetifolia* and *Bauhinia* spp.

The canopy heights range from 5 to 10 m, with the canopy width ranging from 3 to 10 m. Generally the trunk Diameter at Breast Height (DBH) was 100 to 450 mm

As the detailed design of the proposed works is not yet available at this stage, the number of trees to be retained, transplanted and removed are estimated based on the preliminary design of the proposed works. The estimated numbers would be updated in the tree removal application to be prepared and submitted to the Lands Department for approval in the detailed design stage in accordance with *ETWB TCW No. 3/2006*.

8.7 LANDSCAPE IMPACT ASSESSMENT

8.7.1 Methodology

In accordance with *Annex 18* of the *EIAO-TM*, the landscape impact assessment will cover the following:

- Describe the baseline landscape within 100m of the Project Site and the works area of the enabling works along the access routes.
- Describe the Landscape Character Areas (LCAs) and Landscape Resources (LRs) including describing edges as different LRs.
- Map the distribution of the LCAs and LRs.
- Propose a qualitative and quantitative assessment of significant thresholds which reflect the magnitude of change and sensitivity to change of a particular LCAs and LRs.
- Analyse the landscape impacts during construction, impact after development, and off-site landscape impacts. This section analyses the extent to which these landscape units and edges are changed, using both quantitative and qualitative assessments.
- Examine landscape measures that will contribute to reducing any landscape impacts or will enhance the landscape associated with the Proposed Improvement to the POI. This may include planting, new landscaped areas and re-vegetation. The residual landscape impacts are also analysed.

- Provide conclusions on the impacts of the Project.

8.7.2 Baseline Landscape Conditions

As specified by the EIA Study Brief, the area for the Landscape Impact Assessment covers the area within 100m of the proposed works. The landscape baseline study examines the potential impacts on the Project Site and surrounding areas in terms of both the LCAs and the LRs.

The LCAs and LRs of the Study Area have been categorised according to the presence of common elements. These include factors such as:

- Topography;
- Vegetation type (both species and age);
- Built forms;
- Evidence on human modifications;
- Land use (past and present); and
- Edges.

8.7.3 General Landscape Description

The baseline landscape character of surroundings of the POI is dominated by both urban and rural characteristics. Scattered around the Site are village houses and disturbed areas including open storage and open carparks. Roadside plantation exists along most of the Yuen Long Highway and Castle Peak Road sections near the Site. An area of agricultural land and a nullah is located along one side of the Yuen Long Highway on the south of the Pok Oi Roundabout (POR).

The topography of the area is generally flat with a number of developed areas with urban structures of moderate height including a care home, a school and a wholesale market.

8.7.4 Landscape Sensitivity

An understanding of the sensitivity to change of the LCAs and LRs is important when analysing the overall landscape impact of the Proposed Improvement to the POI upon the LCAs and LRs.

Factors affecting the sensitivity of change for evaluation of landscape are:

- Quality of LCAs and LRs;
- Importance and rarity of special landscape elements;
- Ability of the landscape to accommodate change;

- Significance of the change in the local and regional context; and
- Maturity of the landscape.

The degree of sensitivity of the LCAs and LRs is classified as follows:

i) High – eg;. important components or landscape of particularly distinctive character susceptible to small changes;

ii) Medium – eg; a landscape of moderately valued characteristics reasonably tolerant to change; and

iii) Low – eg; a relatively unimportant landscape which is able to accommodate extensive change.

The following section describes each of the LCAs and LRs within the Study Area.

8.7.5 Landscape Character Areas

The Landscape Character Map of Hong Kong identifies three different Landscape Character Types within the Study Area. These Landscape Character Types have been adopted as the Landscape Character Areas (LCAs) for the Study. The location of these LCAs is shown in *Figure 8.7a* and the impact on these LCAs is shown in *Figure 8.7b.*

Key

Proposed Alignment

Landscape Character Type

- Miscellaneous Urban Fringe Landscapes
- Urban Peripheral Village Landscapes
- Miscellaneous Rural Fringe Landscape

YOHO Town

Kwong Ming Ying Loi School

Castle Peak Road - Yuen Long

KCRC West Rail

Wong Uk Tsuen

Jockey Club Care & Attention Home

Small Traders New Village

Yuen Long Highway

Pok Oi Hospital

N

Meters

0 50 100 200 300

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Agreement No. : WD 6/2007	Environmental Impact Assessment Report	FIGURE 8.7a	
Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: EXISTING LANDSCAPE CHARACTER AREAS	Checked PS	Scale -	Rev.
		Designed SL	Drawn AM	Date 21/07/2008

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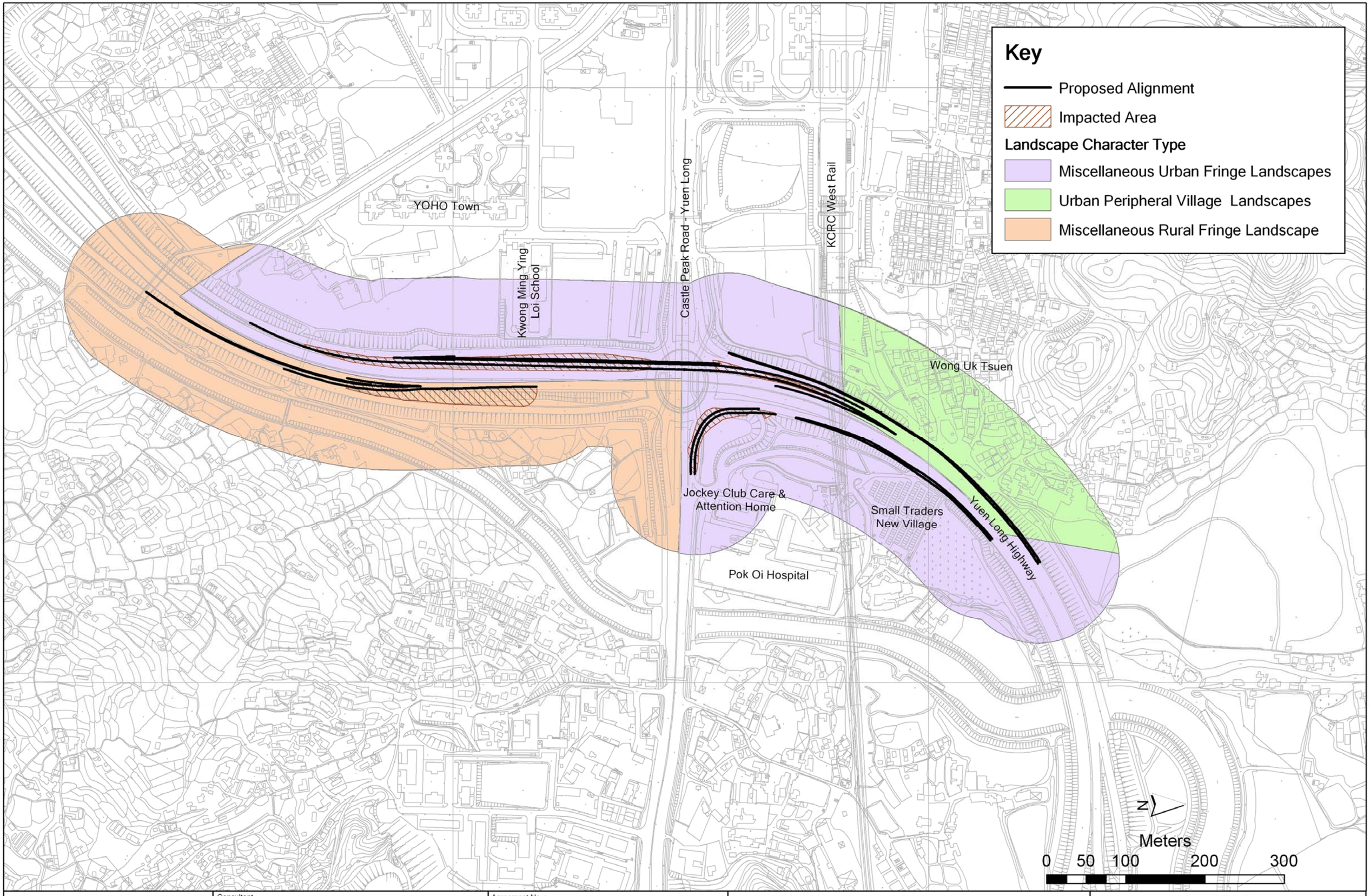

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Agreement No. : WD 6/2007	Environmental Impact Assessment Report	FIGURE 8.7b	
Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: LANDSCAPE CHARACTER AREAS IMPACTS	Checked PS / Designed SL	Scale - / Drawn AM / Rev. / Date 21/07/2008

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LCA1 – Miscellaneous Rural Fringe Landscape

Figure 8.7c Miscellaneous Rural Fringe Landscape

This LCA is characterised by the agricultural area to the south-east of the site and a portion of the nullah. This LCA is of medium quality, with a low-medium ability to accommodate change, mainly due to the natural/farming elements present. The sensitivity of this LCA is considered to be *moderate.*

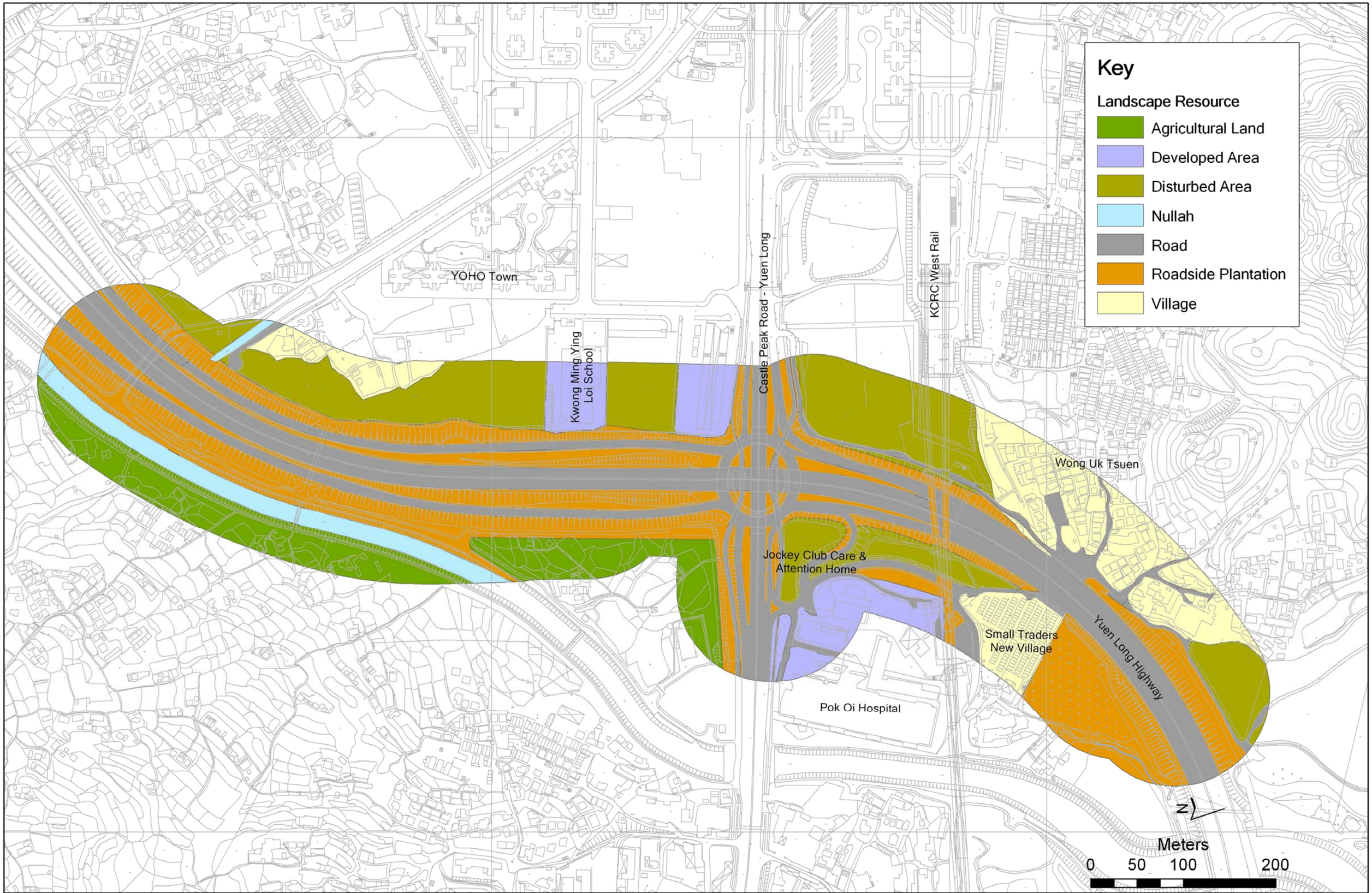
LCA2 – Miscellaneous Urban Fringe Landscape

Figure 8.7d Miscellaneous Urban Fringe Landscape

This LCA is characterised by the semi-developed and disturbed areas of land. These areas contain some developments but in no discernable pattern. This LCA has a high ability to accommodate change, has a low significance and is generally an immature landscape. The sensitivity of this LCA is considered to be *low*.

Figure 8.7e Urban Peripheral Village Landscape

This LCA is comprised of a portion of the Wong Uk Tsuen village area. This area is characterised by low rise village style development in an organic layout. It has a high ability to accommodate change, and a low significance as these areas are common on the broader context. The sensitivity of this LCA is considered to be *low*.



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Environmental Impact Assessment Report

Figure Title: EXISTING LANDSCAPE RESOURCES

FIGURE 8.7f

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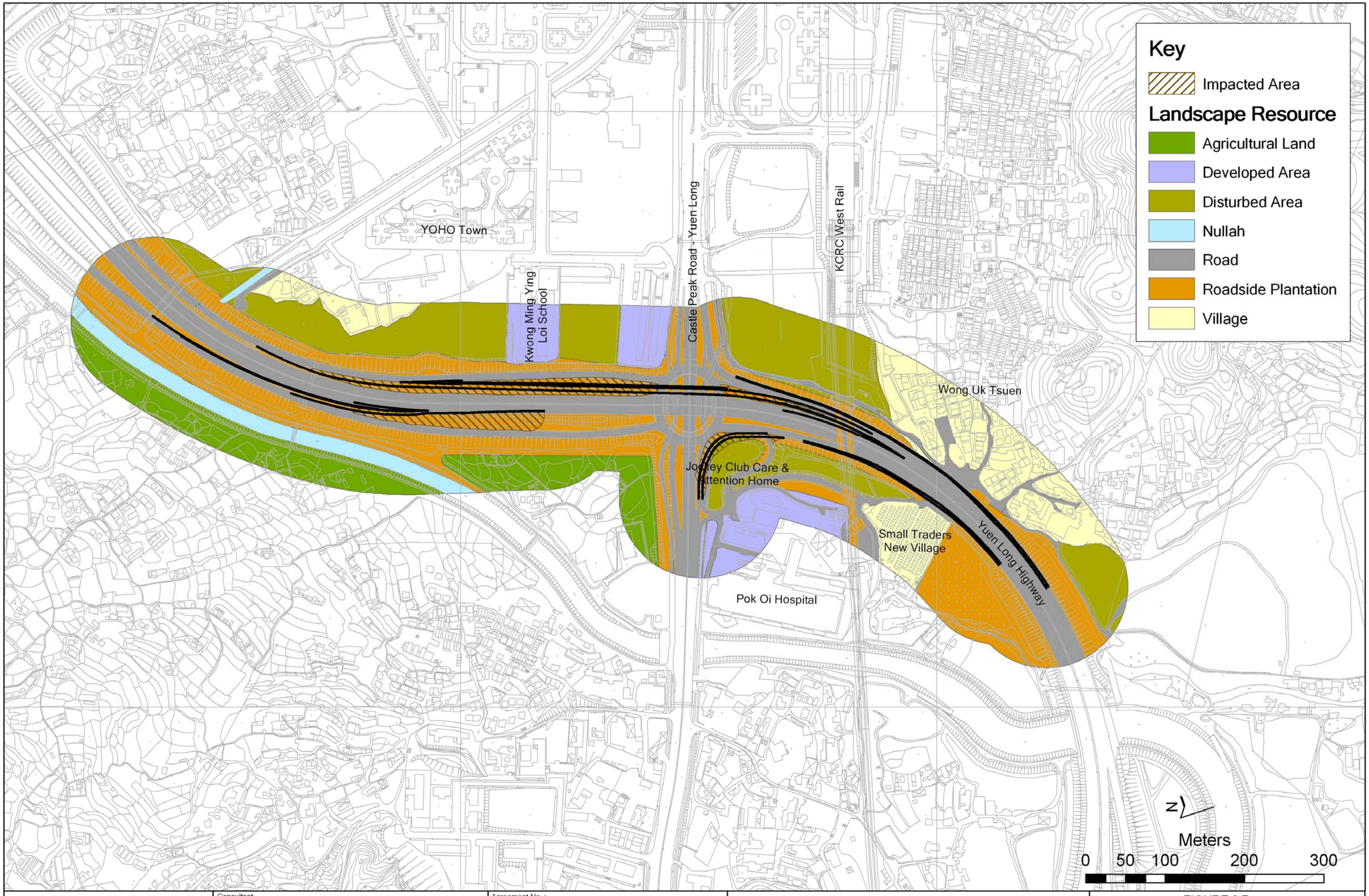

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Agreement No. : WD 6/2007	Environmental Impact Assessment Report	FIGURE 8.7g	
Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: LANDSCAPE RESOURCES IMPACTS	Checked PA	Scale -	Rev.
		Designed SL	Drawn AM	Date 21/07/2008

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8.7.6 Landscape Resources

Seven LRs have been identified. The location of these LRs is shown in *Figure 8.7f* and the impact on these LRs is shown in *Figure 8.7g.*

LR 1 – Roads

Figure 8.7h Roads

The road area is comprised of the Yuen Long Highway that dissects the study area in a north-south direction, and the Castle Peak Road in an east-west direction. The typical associated infrastructure includes lighting, signage etc. This LR can easily accommodate change, is very common and has no regional significance. The sensitivity of the Road is considered to be *low*.

LR 2 – Agricultural Land

Figure 8.7i Agricultural Land

A small area of agricultural land is located at the south-east of the POI. The LR can moderately accommodate change, has a low maturity. However it is relatively un-common in the study area and in the broader regional context. The sensitivity of the Agricultural land is therefore considered to be *medium.*

LR 3 – Roadside Plantation

Figure 8.7j Roadside Plantation

The LR refers to the existing mature buffer planting along the Yuen Long Highway and the Castle Peak Road which provides good screening effect and enhances the overall landscape quality of the surrounding environment. This LR is very common and has low regional significance. This LR can accommodate change and the sensitivity is considered to be *medium.*

LR 4 – Developed Area

Figure 8.7k ***Developed Area***

The developed area consists comprises of the Kwong Ming Ying Loi School, the Pond Fish Wholesale Market and a section of the Jockey Club Care and Attention Home. The LR is very common in the region, with low landscape value and can easily accommodate change. This LR is considered to have *low* sensitivity.

LR 5 – Disturbed Area

Figure 8.7l Disturbed Area

The Disturbed Area consists of an open depot, concrete paved or unpaved open spaces with scattered vegetation and construction sites. This LR can easily accommodate change, is very common in the region and is of low landscape quality. The sensitivity of the Disturbed Area is *low.*

LR 6 – Nullah

Figure 8.7m Nullah

A nullah runs almost parallel along a section of the Yuen Long Highway. This nullah branches from the outfall of the Kam Tin River and has been artificially channelised. In dry seasons, water fills up the narrow section of the nullah in the middle, exposing vegetation on the broad base of the nullah. During the wet season, higher flows in the nullah may cover the vegetation, exposing only the concrete embankment. This LR is relatively common in this region, it can accommodate change and has a moderate landscape value. The sensitivity of the nullah is considered to be *low.*

LR 7 – Village

Figure 8.7n Village

Several villages including Wong Uk Tsuen and Small Traders New Village are located in the surround areas. The village areas are highly developed and dominated by blocks of village houses, concrete paths, landscaped areas and fenced off abandoned lands occupied by weeds and construction materials.

This LR is relatively common in the region and can accommodate change, and is generally of low landscape quality. The sensitivity of the Village area is considered to be *low*.

8.7.7 Distribution of LCAs and LRs

Table 8.7a Landscape Character Areas (LCAs) and Landscape Resources (LRs)

ID	LCA/LR	Area (hectare)/ Length (km) Within Study Area
LCA 1	Miscellaneous Rural Fringe Landscapes	8.55ha
LCA 2	Miscellaneous Urban Fringe Landscapes	17.97ha
LCA 3	Urban Peripheral Village Landscapes	4.48ha
LR 1	Roads	2.56ha
LR 2	Agricultural Land	1.91ha
LR 3	Roadside Plantation	3.23ha
LR 4	Developed Area	1.39ha
LR 5	Disturbed Area	7.68ha
LR 6	Nullah	10.52ha
LR 7	Village	3.71ha

8.7.8 Landscape Impacts During Construction

The two key factors that affect the evaluation of LCA and LR impacts are the magnitude of change and the sensitivity of the landscape areas/resources. The sensitivity to change for each of the LCAs and LRs has been described above and the factors affecting the magnitude of change are outlined below.

Factors affecting the magnitude of change for assessing landscape impacts are:

- Compatibility of the Proposed Improvement to POI with the surrounding landscape, ie how well will it fit with its surrounds;
- Scale of the development, ie how big is the development relative to its surroundings, and;
- Reversibility of change. ie to how easily the changes to the landscape can be reversed.
- The magnitude of change is classified as follows:
- Large – notable change in the landscape characteristics over an extensive area ranging to very intensive change over a more limited area;
- Intermediate – moderate changes to a local area;
- Small – changes to specific landscape components; and
- Negligible – no substantial changes to the baseline condition.

The landscape impact is a product of the magnitude of change that the Project will have and the sensitivity of the LR. *Table 8.7b* shows the significance threshold of the LR impacts.

Table 8.7b Significance Threshold of Potential Landscape Resource Impact

		Sensitivity to Change		
Magnitude of Change Caused by Project		**Low**	**Medium**	**High**
	Large	Moderate Impact	Moderate/Significant Impact	Significant Impact
	Intermediate	Slight/Moderate Impact	Moderate Impact	Moderate/ Significant Impact
	Small	Slight Impact	Slight/Moderate Impact	Moderate Impact
	Negligible	Negligible Impact	Negligible Impact	Negligible Impact

Table 8.7c provides some definitions of the significance thresholds for LR and LCA impacts.

Table 8.7c Adverse / Beneficial Impact of Landscape Impact

Level of Impacts (Negative / Beneficial/ Neither)			
Significant:	**Moderate:**	**Slight:**	**Negligible**
Adverse / beneficial impact where the Project would cause significant degradation or improvement in existing landscape baseline conditions	Adverse / beneficial impact where the Project would cause noticeable degradation or improvement in existing landscape baseline conditions	Adverse /beneficial impact where the Project would cause a barely noticeable degradation or improvement in existing landscape conditions or where the changes brought about by the Project would not be apparent in visual terms	The Project does not affect the existing landscape baseline conditions

8.7.9 Unmitigated Landscape Impacts During Construction

Table 8.7d shows the impact of the Project on each of the LRs and LCAs and the overall impact based on the preceding Landscape Impact Assessment Matrix.

Table 8.7d Unmitigated Landscape Impact Significance Threshold Matrix

ID	LR/LCA	Area / Length	Area Affected by the Project	% of Area / Length Affected	Sensitivity to Change	Magnitude of Change	Significance Threshold of Landscape Impact
LCA 1	Miscellaneous Rural Fringe Landscapes	8.55	0.69	8.1%	Moderate	Small	Moderate
LCA 2	Miscellaneous Urban Fringe Landscapes	17.97	0.96	5.3%	Low	Small	Slight
LCA 3	Urban Peripheral Village Landscapes	4.48	Nil	0%	Low	Negligible	Negligible
LR 1	Roads	2.56	0.14	5.4%	Low	Small	Slight
LR 2	Agricultural Land	1.91	Nil	0%	Moderate	Negligible	Negligible
LR 3	Roadside Plantation	3.23	1.46	45.2%	Moderate	Large	Moderate
LR 4	Developed Area	1.39	Nil	0%	Low	Negligible	Negligible
LR 5	Disturbed Area	7.68	0.05	0.7%	Low	Negligible"	Negligible"
LR 6	Nullah	10.52	Nil	0%	Low	Negligible"	Negligible"
LR 7	Village	3.71	Nil	0%	Low	Negligible"	Negligible"

8.7.10 Summary of Un-mitigated Impacts on Landscape Resources

LR 1 – Roads

The road has low sensitivity due to the common nature in the surrounding region and the high ability to accommodate change. However, the close proximity to the Project Site impose a small but intermediate magnitude of change this LR. The significance threshold is therefore *slight adverse.*

LR 2 – Agricultural Land

The agricultural land is of medium sensitivity, with the negligible magnitude of change expected as a result of the Project, the significance threshold of landscape impact is also *negligible.*

LR 3 – Roadside Plantation

The roadside plantation is considered to have a medium sensitivity. The immediate proximity of the Project Site, approximately 45.2% of this LR will be affected, resulting in significance threshold of *moderate Adverse.*

LR 4 – Developed Area

The developed area is very common in the region, with no landscape value and can easily accommodate change. The Project will not impose changes to this LR, and with the low sensitivity the significance threshold is considered to be *negligible.*

LR 5 – Disturbed Area

A very small proportion of the disturbed area will be affected by the Project Site. With its low landscape quality and sensitivity, the significance threshold of this LR is *negligible.*

LR 6 – Nullah

The nullah has a low sensitivity due its ability to accommodate change and commonality in the region. The Project Site will not impose magnitude of change to this LR. The significance threshold of the nullah is *negligible.*

LR 7 – Village

Due to the relatively long distance between the nullah and the Project Site, the Project will not impose changes to this LR. With the low sensitivity of this LR, the significance threshold is *negligible.*

8.7.11 Landscape Mitigation Measures

Landscape Mitigation Measures are proposed to not only further reduce these impacts but to generally improve the amenity of the Project.

LMM 1 – Soil stabilisation and planting. During the design phase, a soil stabilisation and embankment planting strategy will be developed to ensure that land affected by slope excavation can be replanted. Soil preparation and the selection and provision of suitable growing medium is to be completed in accordance with the relevant best practice guidelines.

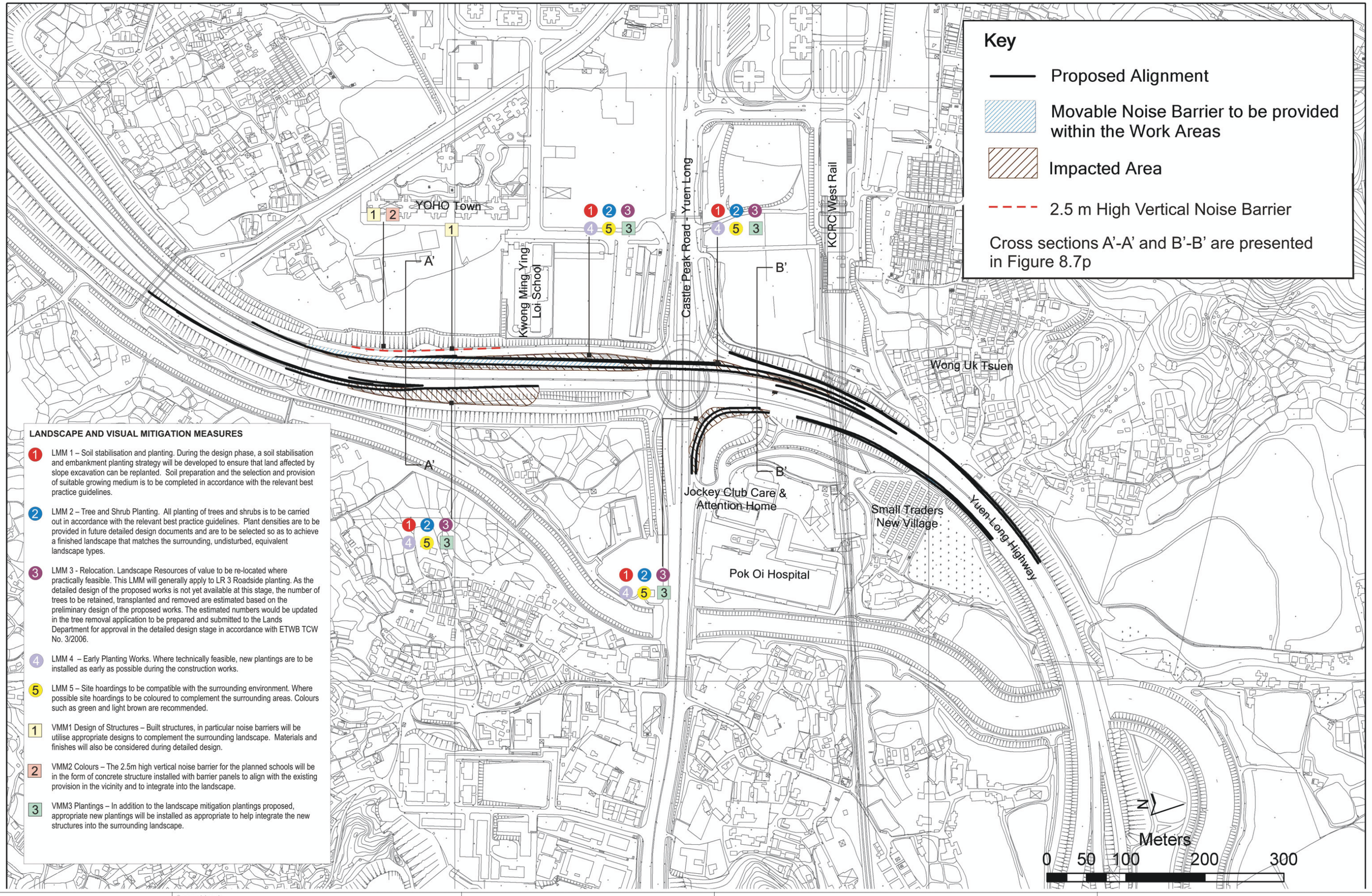
LMM 2 – Tree and Shrub Planting. All planting of trees and shrubs is to be carried out in accordance with the relevant best practice guidelines. Plant densities are to be provided in future detailed design documents and are to be selected so as to achieve a finished landscape that matches the surrounding, undisturbed, equivalent landscape types. The proposed sizes for trees and shrubs are heavy standard and whip, respectively.

LMM 3- Relocation. Landscape Resources of value to be re-located where practically feasible. This LMM will generally apply to LR 3 Roadside planting. As the detailed design of the proposed works is not yet available at this stage, the number of trees to be retained, transplanted and removed are estimated based on the preliminary design of the proposed works. The estimated numbers would be updated in the tree removal application to be prepared and submitted to the Lands Department for approval in the detailed design stage in accordance with *ETWB TCW No. 3/2006*.

LMM 4 – Early Planting Works. Where technically feasible, new plantings are to be installed as early as possible during the construction works.

LMM 5 – Site hoardings to be compatible with the surrounding environment. Where possible site hoardings to be coloured to complement the surrounding areas. Colours such as green and light brown are recommended.

The landscape mitigation measures are shown in *Figure 8.7o*.



LANDSCAPE AND VISUAL MITIGATION MEASURES

1. LMM 1 – Soil stabilisation and planting. During the design phase, a soil stabilisation and embankment planting strategy will be developed to ensure that land affected by slope excavation can be replanted. Soil preparation and the selection and provision of suitable growing medium is to be completed in accordance with the relevant best practice guidelines.

2. LMM 2 – Tree and Shrub Planting. All planting of trees and shrubs is to be carried out in accordance with the relevant best practice guidelines. Plant densities are to be provided in future detailed design documents and are to be selected so as to achieve a finished landscape that matches the surrounding, undisturbed, equivalent landscape types.

3. LMM 3 - Relocation. Landscape Resources of value to be re-located where practically feasible. This LMM will generally apply to LR 3 Roadside planting. As the detailed design of the proposed works is not yet available at this stage, the number of trees to be retained, transplanted and removed are estimated based on the preliminary design of the proposed works. The estimated numbers would be updated in the tree removal application to be prepared and submitted to the Lands Department for approval in the detailed design stage in accordance with ETWB TCW No. 3/2006.

4. LMM 4 – Early Planting Works. Where technically feasible, new plantings are to be installed as early as possible during the construction works.

5. LMM 5 – Site hoardings to be compatible with the surrounding environment. Where possible site hoardings to be coloured to complement the surrounding areas. Colours such as green and light brown are recommended.

1. VMM1 Design of Structures – Built structures, in particular noise barriers will be utilise appropriate designs to complement the surrounding landscape. Materials and finishes will also be considered during detailed design.

2. VMM2 Colours – The 2.5m high vertical noise barrier for the planned schools will be in the form of concrete structure installed with barrier panels to align with the existing provision in the vicinity and to integrate into the landscape.

3. VMM3 Plantings – In addition to the landscape mitigation plantings proposed, appropriate new plantings will be installed as appropriate to help integrate the new structures into the surrounding landscape.

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Environmental Impact Assessment Report

Landscape and Visual Mitigation Plan

Figure 8.7o

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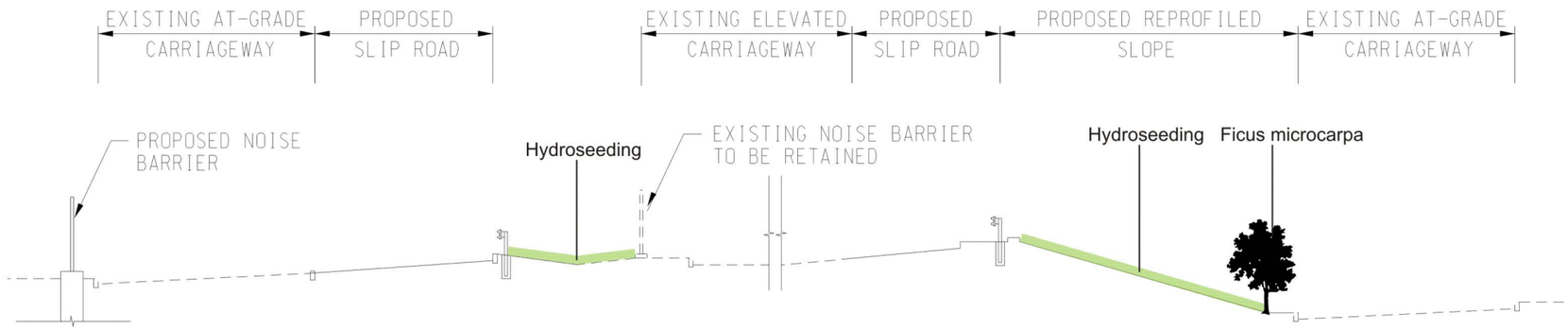
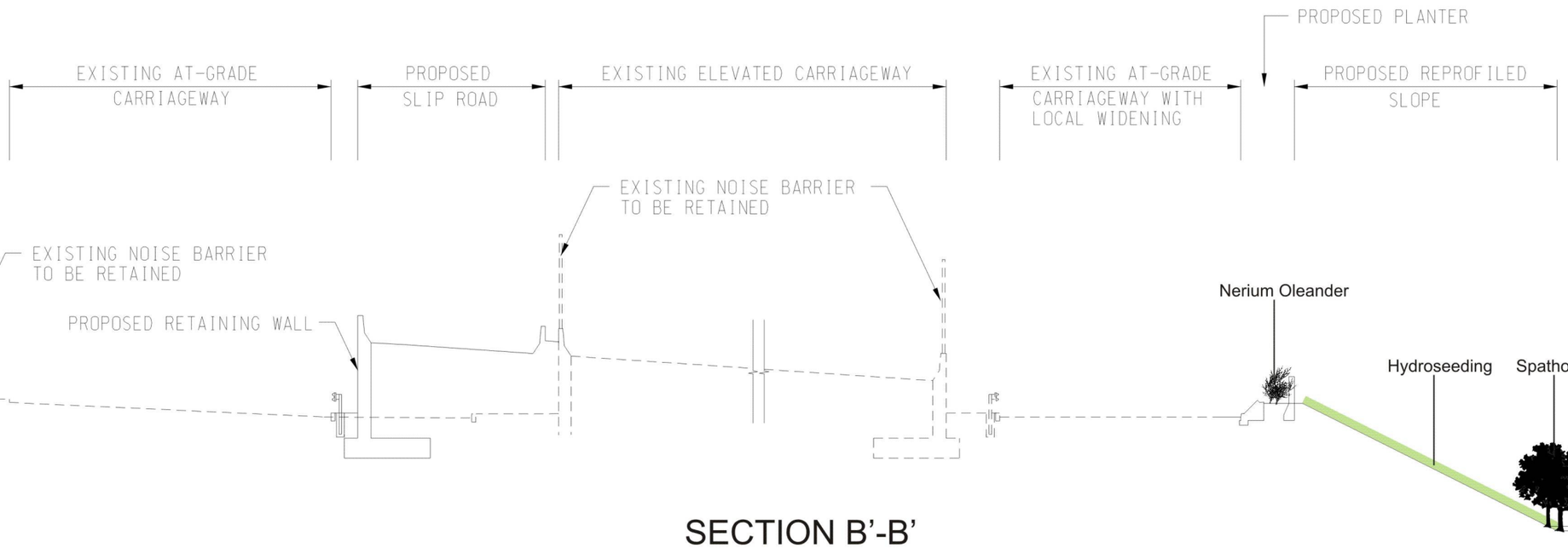
Designed	Drawn	Date
SL	AM	07/01/2008



SECTION A'-A'



SECTION B'-B'

Notes: All Dimensions are in Millimeters

Highways Department The Government of the Hong Kong Special Administrative Region	Consultant ERM Environmental Resources Management Halcrow China Ltd. As Engineering Sub-consultant	Agreement No. : WD 6/2007 Project Title : Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Environmental Impact Assessment Report Cross-sections A'-A' and B'-B' showing the Proposed Landscape and Visual Mitigation Measures	Figure 8.7p Checked PA / Scale / Rev. Designed SL / Drawn AM / Date 07/01/2008

Table 8.7e Mitigated and Un-mitigated Construction Impacts

	Un-mitigated Construction impacts			Mitigated Construction Impacts	
	Construction Impact threshold	**Adverse/ Beneficial/Neither**	**Recommended Construction Mitigation Measures**	**Construction Impact threshold following mitigation**	**Adverse/ Beneficial/Neither**
LCA 1 Miscellaneous Rural Fringe Landscapes	Slight	Adverse	4-5	Slight	Adverse
LCA 2 Miscellaneous Urban Fringe Landscapes	Slight	Adverse	4-5	Slight	Adverse
LCA 3 Urban Peripheral Village Landscapes	Negligible	Neither	Nil	Negligible	Neither
LR 1 Roads	Slight	Adverse	4-5	Negligible	Neither
LR 2 Agricultural Land	Negligible	Neither	Nil	Negligible	Neither
LR 3 Roadside Plantation	Moderate	Adverse	4-5	Moderate	Adverse
LR 4 Developed Area	Negligible	Neither	Nil	Negligible	Neither
LR 5 Disturbed Area	Negligible	Neither	Nil	Negligible	Neither
LR 6 Nullah	Negligible	Neither	Nil	Negligible	Neither
LR 7 Village	Negligible	Neither	Nil	Negligible	Neither

Table 8.7f Mitigated and Un-mitigated Operation Impacts

	Un-Mitigated Impacts			Mitigated Impacts		
	Operation	**Adverse/ Beneficial/Neither**	**Recommended Mitigation**	**Operation Day 1**	**Operation Year 10**	**Adverse/ Beneficial/Neither**
LCA 1 Miscellaneous Rural Fringe Landscapes	Slight	Adverse	1-3	Slight	Negligible	Neither
LCA 2 Miscellaneous Urban Fringe Landscapes	Slight	Neither	1-3	Slight	Negligible	Neither
LCA 3 Urban Peripheral Village Landscapes	Negligible	Neither	Nil	Negligible	Negligible	Neither
LA 1 Roads	Slight	Adverse	1-3	Slight	Negligible	Neither
LA 2 Agricultural Land	Negligible	Neither	Nil	Negligible	Negligible	Neither
LA 3 Roadside Plantation	Moderate	Adverse	1-3	Moderate	Slight	Adverse
LA 4 Developed Area	Negligible	Neither	Nil	Negligible	Negligible	Neither
LA 5 Disturbed Area	Negligible	Neither	Nil	Negligible	Negligible	Neither
LA 6 Nullah	Negligible	Neither	Nil	Negligible	Negligible	Neither
LA 7 Village	Negligible	Neither	Nil	Negligible	Negligible	Neither

8.7.12 Effectiveness of Landscape Character Areas and Landscape Resource Mitigation Measures

The mitigation measures proposed will effectively further reduce the impacts identified.

8.7.13 Summary of Residual Impacts on the Landscape Character Areas During Construction

There will be no residual construction impacts on any of the LCAs.

8.7.14 Summary of Residual Impacts on Landscape Character Areas During Operation

There will be no residual operation impacts on any of the LCAs.

8.7.15 Summary of Residual Impacts on the Landscape Resources During Construction

There will be no residual construction impacts on any of the LRs with the exception of LR3 Roadside Plantation which may have a *moderate adverse* residual construction impact.

8.7.16 Summary of Residual Impacts on Landscape Resources during Operation

There will be no residual operation impacts on any of the LRs with the exception of LR3 Roadside Plantation which may have a *slight adverse* residual construction impact.

8.8 VISUAL IMPACT ASSESSMENT

8.8.1 Introduction

The following tasks were undertaken in the visual impact assessment.

Define the viewshed that would be potentially impacted by the Project and map the areas of visual impact - This task describes the viewshed of the Project. Geographical Information System (GIS) software was utilised to determine areas that could potentially see the Project. This GIS viewshed analysis was based solely on topography and did not take into account the screening potential of vegetation, which would further reduce the actual viewshed. The GIS viewshed analysis also mapped the visibility of the Project from roads and houses.

Assess indicative viewpoints as a means of assessing the visual impact on the broader landscape - This task describes a number of Visually Sensitive Receiver (VSR) viewpoints around the Project, which have been selected as indicative of the range of views from accessible locations within the viewshed. Photomontages have been prepared to show the existing landscape and the landscape with the Project at the key VSRs.

Discuss visual mitigation measures - This task examines measures (if required) that will reduce any potential visual impacts. This may include planting and recommendations for material and finishes. These measures will also help improve the overall amenity of the Project. Residual impacts are also discussed.

8.8.2 Viewshed Determination and Areas of Potential Visual Impact

The baseline for a visual impact assessment is an understanding of the existing visual qualities within the region that can be visually affected by a development. This area is referred to as the viewshed.

Defining an appropriate viewshed is the starting point to understanding the visual impacts of a development as the area of the viewshed will vary depending on the nature and scale of the proposed development. The larger a development the greater the viewshed as it may be visually apparent for a greater distance. Once the viewshed is established, locations can be identified within the viewshed that are either particularly sensitive or indicative of the visual impact for a number of locations. In some circumstances, viewpoints may be identified beyond the viewshed to recognise the visual impact on locations of particularly high sensitivity.

The proposed noise barriers are the major visual element of the Project and may visually impact on the surrounding landscape. As the viewer moves

further away from these structures the visual impact decreases until it is no longer visible. However, before the point of non-visibility is reached, the noise barriers have reduced in scale such that they no longer has a significant visual impact on the landscape. In most landscapes, especially those which have some degree of human intervention, the limit of the viewshed is defined as that point at which the noise barriers would have an insignificant effect on the view.

8.8.3 Areas of Potential Visual Impact

A GIS viewshed analysis can determine those areas that can potentially be visually impacted by the Project. Such analysis is based on topography only, and shows those areas that would be screened by intervening hills etc. It does not account intervening vegetation or buildings, nor does it take into account small variations in topography, such as road cuttings. Therefore it is a conservative assessment of those areas that may be potentially able to view the structures of the Project. In addition it should also be noted that in the areas shown as 'not visible' this is based on visible on ground level. It does not take into account the potential visibility from on top of structures.

In addition to the GIS assessment undertaken, several detailed site inspections have been undertaken to confirm those areas that can potentially see the project and may therefore experience a visual impact.

Figure 8.8a shows the areas that can potentially view the Project.

8.8.4 Baseline Visual Character

The general baseline visual character of the development site is dominated by the existing Pok Oi interchange and the surrounding high rise residential developments at Yoho Town and Sun Yuen Long Centre. The distant vegetated hills to the east form a backdrop to the site.

8.8.5 Visually Sensitive Receivers

To determine the likely VSRs, a desktop assessment and detailed site assessment were carried out. The most sensitive VSRs were then identified and to encompass the likely range of potentially affected VSRs (*Figure 8.8b*).

8.8.6 VSR Assessment

The following factors have been considered in the visual impact assessment.

VSR Sensitivity

The first set of criteria relate to the sensitivity of the VSRs. They include:

- Value and quality of existing views;
- Availability and amenity of alternative views;

VSR 1 Sun Yuen Long Centre

VSR 1 Yoho Town

VSR 5 Ying Lung Wai

VSR 5 Tsoi Uk Tsuen

VSR 5 Tai Wai Tsuen

VSR 3 Kwong Ming Ying Loi School

VSR 6 Road Users of Pok Oi Interchange

VSR 5 Wong Uk Tsuen

VSR 2 Pok Oi Hospital

VSR 4 Yeung Uk Tsuen Village

N

Meters

0 50 100 200

Key

- VSR & Photomontage
- VSR
- Proposed Alignment
- Not Visible
- Visible

Highways Department, The Government of the Hong Kong Special Administrative Region	Consultant: Environmental Resources Managment (ERM); Halcrow China Ltd. As Engineering Sub-consultant	Agreement No.: WD 6/2007	Environmental Impact Assessment Report	FIGURE 8.8a
		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: VIEWSHED	Checked: PS; Scale: -; Rev.: ; Designed: SL; Drawn: AM; Date: 17/12/2008

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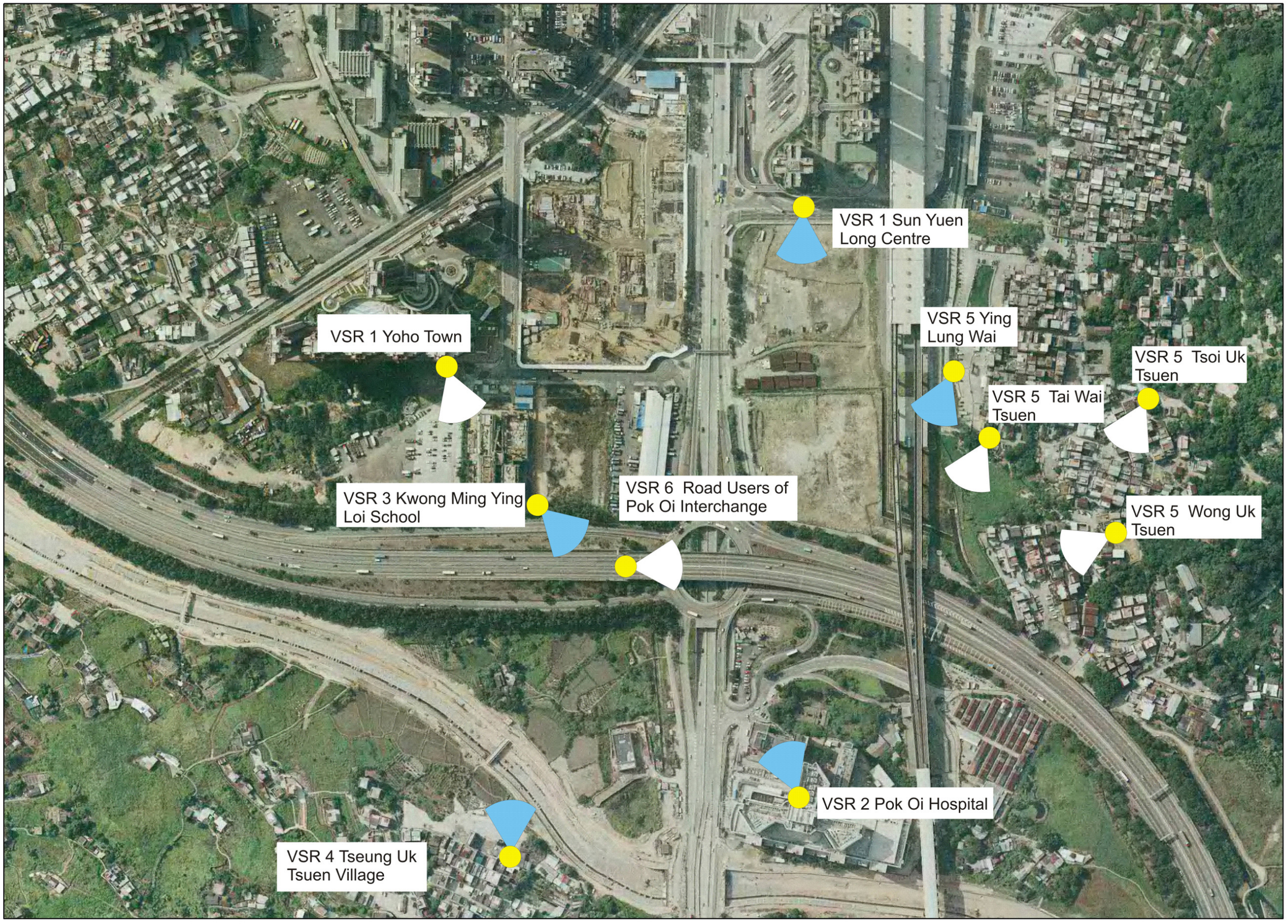

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Agreement No. : WD 6/2007

Project Title : Improvement to Pok Oi Interchange - Environmental Impact Assessment Study

Environmental Impact Assessment Report

Visually Sensitive Receiver Locations

Figure 8.8b

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- Type and estimated number of receiver population;
- Viewer numbers;
- Duration of frequency of view; and
- Degree of visibility.

The views available to the identified VSRs were rated in accordance with their sensitivity to change using high, medium or low and are defined as follows:

- High

i. The nature of the viewer groups who expect a high degree of control over their immediate environment; and

- Medium

ii. The nature of the viewer groups who have some degree of control over their immediate environment.

- Low

iii. The nature of the viewer groups does not expect a high degree of control over their immediate environment.

It should be noted that the above provided are a guide only, and each VSR regardless of type is assessed according to its specific circumstances.

8.8.7 Magnitude of Change

This set of criteria is related to the specific details of the proposal and how it relates to the existing landscape and the visible magnitude of change it will cause. The criteria to be assessed are:

- Compatibility of the Project with the surrounding landscape;
- Reversibility of change;
- Scale of development;
- Viewing distance;
- Potential blockage of view; and
- Duration of impact under construction and operation phases.

The magnitude of change to a view was rated as large, intermediate, small or negligible and are defined as follows:

- Large: eg major change in view;
- Intermediate: eg moderate change in view;
- Small: eg minor change in view, and;

- Negligible: eg no discernible change in view.

The degree of visual impact or significance threshold was rated in a similar fashion to the landscape impact, ie significant, moderate, slight and negligible. Therefore, the visual impact is a product of the magnitude of change to the existing baseline conditions, the landscape context and the sensitivities of VSRs. The significance threshold of visual impact was rated for the construction phase and for Day 1 and Year 10 of the operation phase.

8.8.8 Visual Impact Assessment from Visually Sensitive Receivers (VSR)

Figure 8.8b shows the indicative viewpoints from publicly accessible locations, which have been selected for analysis. The viewpoints have been selected to represent the range of views from accessible locations.

VSR1 – View from Sun Yuen Long Centre and Yoho Town.

This VSR is located at about 400 metres west of the Project. Sun Yuen Long Centre is a residential complex and therefore the VSR will have a high sensitivity. The three phases of Yoho Town are located to the south of Sun Yuen Long Centre, and are at about 170 metres west of the Project.

Figure 8.8c shows that the changes to Pok Oi interchange will be visible to a small extent.

Table 8.8a Sensitivity / Quality

Items	Sensitivity / Quality
Value and quality of view	Moderate
Number of VSR	Many
Availability and amenity of alternative views	High
Duration and frequency of views to development	Medium
Degree of visibility of Development	Medium
Sensitivity/Quality of VSR	High

Table 8.8b Magnitude of Change

Items	Construction	Operation
Compatibility with surrounding landscape	Moderate	High
Viewing Distance to Proposed Development	400m	400m
Potential blockage of view	Low	Low
Duration of impacts	Temporary	Permanent
Scale of development	Small	Small
Reversibility of change	Irreversible	Irreversible
Magnitude of change	Small	Small

VSR 1- LOOKING EAST FROM SUN YUEN LONG CENTRE: EXISTING CONDITIONS AT THE DEVELOPMENT SITE.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION MEASURES AT DAY 1.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE DAY 1 OF OPERATION WITHOUT LANDSCAPE AND VISUAL MITIGATION MEASURES

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION AT YEAR 10.

SUGGESTED SPECIES

BOUGAINVILLEA SPECTABILIS

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Photomontage from Visually Sensitive Receiver 1

Figure 8.8c

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Table 8.8c Significance Threshold during Construction

		Sensitivity / Quality			Beneficial
		Low	**Medium**	**High**	
Magnitude of Change	**Large**	Moderate Impact	Moderate / significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight / Moderate impact	Moderate Impact	Moderate /significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

Table 8.8d Significance Threshold during Operation

		Sensitivity / Quality			Beneficial
		Low	**Medium**	**High**	
Magnitude of Change	**Large**	Moderate Impact	Moderate/ significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight /Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

According the Significance Threshold matrices presented above, there will be *Moderate* impact during construction and operation. However given the highly compatible nature of the Project with the existing visual character, the impact is considered to be *Moderate.*

VSR2 – View from Pok Oi Hospital

This VSR is located approximately 180 metres from the Project. The hospital experiences different types of VSRs including employees, visitors and patients.

Figure 8.8d shows that the changes to Pok Oi interchange will be barely discernable for this VSR.

Table 8.8e Sensitivity / Quality

Items	Sensitivity / Quality
Value and quality of view	Medium
Number of VSR	Medium
Availability and amenity of alternative views	Medium
Duration and frequency of views to development	Low
Degree of visibility of Development	Low
Sensitivity/Quality of VSR	Low

Table 8.8f Magnitude of Change

Items	Construction	Operation
Compatibility with surrounding landscape	Moderate	High
Viewing Distance to Proposed Development	180m	180m
Potential blockage of view	Low	Low
Duration of impacts	Temporary	Permanent
Scale of development	Small	Small
Reversibility of change	Irreversible	Irreversible
Magnitude of change	Small	Small

Table 8.8g Significance Threshold during Construction

		Sensitivity / Quality			Beneficial
		Low	Medium	High	
Magnitude of Change	Large	Moderate Impact	Moderate /significant impact	Significant impact	Neither beneficial nor adverse
	Intermediate	Slight /Moderate impact	Moderate Impact	Moderate/significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	Adverse
	Negligible	Negligible impact	Negligible impact	Negligible impact	

VSR 2 - LOOKING WEST FROM POK OI HOSPITAL: EXISTING CONDITIONS AT THE DEVELOPMENT SITE.

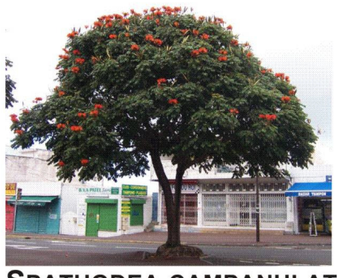
VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION MEASURES AT DAY 1.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE DAY 1 OF OPERATION WITHOUT LANDSCAPE AND VISUAL MITIGATION MEASURES

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION AT YEAR 10.

SUGGESTED SPECIES

NERIUM OLEANDER



SPATHODEA CAMPANULATA

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Photomontage from Visually Sensitive Receiver 2

Figure 8.8d

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Table 8.8h Significance Threshold during Operation

		Sensitivity / Quality			Beneficial
		Low	Medium	High	
Magnitude of Change	**Large**	Moderate impact	Moderate / significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight / Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

According the Significance Threshold matrices presented above, there will be *Slight* impact during construction and operation. However given the highly compatible nature of the Project with the existing visual character, the impact is considered to be *Slight Adverse*.

VSR3 – View from Kwong Ming Ying Loi School

This VSR is located approximately 25 metres from the Project at the closest point. The school comprises students, teachers and associated staff and for the purposes of this assessment are classified as worker VSRs

Figure 8.8e shows that the changes to Pok Oi interchange will be visible for this VSR.

Table 8.8i Sensitivity / Quality

Items	Sensitivity / Quality
Value and quality of view	Medium
Number of VSR	Medium
Availability and amenity of alternative views	Medium
Duration and frequency of views to development	Medium
Degree of visibility of Development	Low
Sensitivity/Quality of VSR	Low

Table 8.8j Magnitude of Change

Items	Construction	Operation
Compatibility with surrounding landscape	Moderate	High
Viewing Distance to Proposed Development	25m	25m
Potential blockage of view	Low	Low
Duration of impacts	Temporary	Permanent
Scale of development	Small	Small
Reversibility of change	Irreversible	Irreversible
Magnitude of change	Small	Small

Table 8.8k Significance Threshold during Construction

		Sensitivity / Quality			Beneficial
		Low	**Medium**	**High**	
Magnitude of Change	**Large**	Moderate Impact	Moderate / significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight / Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

Table 8.8l Significance Threshold during Operation

		Sensitivity / Quality			Beneficial
		Low	**Medium**	**High**	
Magnitude of Change	**Large**	Moderate Impact	Moderate /significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight / Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

According the Significance Threshold matrices presented above, there will be *Slight* impact during construction and operation. However given the highly compatible nature of the Project with the existing visual character, the impact is considered to be *Slight Adverse.*

A noise barrier is proposed along the edge of the off ramp adjacent to the planned school as shown on *Annex C11-2.* As this section of barrier was proposed to protect the planned schools, it is only required to be constructed before the occupation of the planned schools. The existing vegetation almost completely screens the view to the proposed noise barrier as can be seen.

VSR4 – View from Yeung Uk Tsuen Village

These VSR's are located approximately 300 metres from the Project. The village is at a lower level than the Project and there is extensive vegetation screening the Project.

Figure 8.8f shows that the changes to Pok Oi interchange will not be visible.

VSR 3 - LOOKING EAST FROM KWONG MING YING LOI SCHOOL: EXISTING CONDITIONS AT THE DEVELOPMENT SITE.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION MEASURES AT DAY 1.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE DAY 1 OF OPERATION WITHOUT LANDSCAPE AND VISUAL MITIGATION MEASURES

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION AT YEAR 10.

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Photomontage from Visually Sensitive Receiver 3

Figure 8.8e

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VSR 4- LOOKING SOUTH-WEST FROM YEUNG UK TSUEN: EXISTING CONDITIONS AT THE DEVELOPMENT SITE.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION MEASURES AT DAY 1.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE DAY 1 OF OPERATION WITHOUT LANDSCAPE AND VISUAL MITIGATION MEASURES

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION AT YEAR 10.

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Photomontage from
Visually Sensitive Receiver 4

Figure 8.8f

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Table 8.8m Sensitivity / Quality

Items	Sensitivity / Quality
Value and quality of view	Medium
Number of VSR	Many
Availability and amenity of alternative views	Medium
Duration and frequency of views to development	Medium
Degree of visibility of Development	Nil
Sensitivity/Quality of VSR	High

Table 8.8n Magnitude of Change

Items	**Construction**	**Operation**
Compatibility with surrounding landscape	Moderate	High
Viewing Distance to Proposed Development	25m	25m
Potential blockage of view	Low	Low
Duration of impacts	Temporary	Permanent
Scale of development	Small	Small
Reversibility of change	Irreversible	Irreversible
Magnitude of change	Negligible	Negligible

Table 8.8o Significance Threshold during Construction

		Sensitivity / Quality			**Beneficial**
		Low	**Medium**	**High**	
Magnitude of Change	**Large**	Moderate Impact	Moderate / significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight /Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight /Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

Table 8.8p Significance Threshold during Operation

		Sensitivity / Quality			Beneficial
		Low	Medium	High	
Magnitude of Change	**Large**	Moderate Impact	Moderate / significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight / Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

Due to the extensive screening vegetation between this VSR and the existing site, the Project will not be visible for this VSR, resulting in a *Negligible* impact.

VSR 5 Views from Villages at the Northwest of the Site.

The villages include Wong Uk Tsuen, Tai Wai Tsuen, Ying Lung Wai, Tsoi Uk Tsuen and they are clustered to the north-east of the site. They are residential VSRs, and they are generally located at a lower lever than the Pok Oi Interchange. The Project is also screened by existing roadside vegetation. They are 200-300m from the site. It is possible that parts of the Project will be visible from within these village areas.

Table 8.8q Sensitivity / Quality

Items	Sensitivity / Quality
Value and quality of view	Medium
Number of VSR	Many
Availability and amenity of alternative views	Medium
Duration and frequency of views to development	Medium
Degree of visibility of Development	Small
Sensitivity/Quality of VSR	High

Table 8.8r Magnitude of Change

Items	**Construction**	**Operation**
Compatibility with surrounding landscape	Moderate	High
Viewing Distance to Proposed Development	200m	200m
Potential blockage of view	Low	Low
Duration of impacts	Temporary	Permanent
Scale of development	Small	Small
Reversibility of change	Irreversible	Irreversible
Magnitude of change	Small	Small

Table 8.8s Significance Threshold during Construction

		Sensitivity / Quality			Beneficial
		Low	**Medium**	**High**	
Magnitude of Change	**Large**	Moderate Impact	Moderate / significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight /Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight /Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

Table 8.8t Significance Threshold during Operation

		Sensitivity / Quality			Beneficial
		Low	**Medium**	**High**	
Magnitude of Change	**Large**	Moderate Impact	Moderate / significant impact	Significant impact	**Neither beneficial nor adverse**
	Intermediate	Slight / Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	**Adverse**
	Negligible	Negligible impact	Negligible impact	Negligible impact	

As these VSR's are residential they have a high sensitivity to change. As it is possible some areas of the development will be visible, the magnitude of change is considered to be small. This will result in a *Moderate Adverse* Significance Threshold during both construction and operation.

VSR 6 Views for Road Users of Pok Oi Interchange

The users for the altered Pok Oi Interchange will be road users. The road users will have views to the alterations from vary distances, but the closest will be approximately 10m.

Table 8.8u Sensitivity / Quality

Items	Sensitivity / Quality
Value and quality of view	Low
Number of VSR	Many
Availability and amenity of alternative views	Low
Duration and frequency of views to development	Medium
Degree of visibility of Development	High
Sensitivity/Quality of VSR	Low

Table 8.8v Magnitude of Change

Items	Construction	Operation
Compatibility with surrounding landscape	Moderate	High
Viewing Distance to Proposed Development	10m	10m
Potential blockage of view	Low	Low
Duration of impacts	Temporary	Permanent
Scale of development	Small	Small
Reversibility of change	Irreversible	Irreversible
Magnitude of change	Small	Small

Table 8.8w Significance Threshold during Construction

		Sensitivity / Quality			Beneficial
		Low	Medium	High	
Magnitude of Change	Large	Moderate Impact	Moderate / significant impact	Significant impact	Neither beneficial nor adverse
	Intermediate	Slight /Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight /Moderate impact	Moderate impact	Adverse
	Negligible	Negligible impact	Negligible impact	Negligible impact	

Table 8.8x Significance Threshold during Operation

		Sensitivity / Quality			Beneficial
		Low	Medium	High	
Magnitude of Change	Large	Moderate Impact	Moderate / significant impact	Significant impact	Neither beneficial nor adverse
	Intermediate	Slight / Moderate impact	Moderate Impact	Moderate/ significant impact	
	Small	Slight impact	Slight / Moderate impact	Moderate impact	Adverse
	Negligible	Negligible impact	Negligible impact	Negligible impact	

The road users are considered to have a low sensitivity to change as the existing quality of the view is low. The development will be visible, but only for a short duration which will result in a significance threshold that is *Slight* and *Neither Beneficial nor Adverse.*

VSR 5- LOOKING SOUTH-WEST FROM YING LUNG WAI: EXISTING CONDITIONS AT THE DEVELOPMENT SITE.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION MEASURES AT DAY 1.

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE DAY 1 OF OPERATION WITHOUT LANDSCAPE AND VISUAL MITIGATION MEASURES

VIEW DISPLAYING THE 3D MODEL OF THE DEVELOPMENT SITE WITH LANDSCAPE AND VISUAL MITIGATION AT YEAR 10.

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Photomontage from Visually Sensitive Receiver 5

Figure 8.8g

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8.8.9 Visual Mitigation Measures

Whilst the impacts identified in the section above range from Slight to Negligible, some Visual Mitigation Measures are proposed to not only reduce the impacts to improve the overall appearance of the Project.

VMM1 Design of Structures Built structures, in particular noise barriers will be utilise appropriate designs to complement the surrounding landscape. Materials and finishes will also be considered during detailed design.

VMM2 Colours The 2.5m high vertical noise barrier for the planned schools will be in the form of concrete structure installed with barrier panels to align with the existing provision in the vicinity and to integrate into the landscape.

VMM3 Plantings In addition to the landscape mitigation plantings proposed, appropriate new plantings will be installed as appropriate to help integrate the new structures into the surrounding landscape.

Figure 8.7o shows the locations of these measures.

Table 8.8y Un-mitigated and Mitigated Impacts at the VSRs

VSR	Un-Mitigated Visual Impact		Recommended Mitigation	Mitigated Impacts		
	Construction	Operation		Construction	Operation Day 1	Operation Year 10
1 Sun Yuen Long Centre and Yoho Town	Moderate	Moderate	1-3	Slight	Slight	Slight
2 Pok Oi Hospital	Slight	Slight	1-3	Slight	Slight	Slight
3 Kwong Ming Ying Loi School	Slight	Slight	1-3	Slight	Slight	Slight
4 Yeung Uk Tsuen	Negligible	Negligible	Nil	Negligible	Negligible	Negligible
5 Villages at the Northwest of the Site	Moderate	Moderate	1-3	Slight	Slight	Slight
6 Road Users of Pok Oi Interchange	Slight	Slight	1-3	Slight	Slight	Slight

8.8.10 Visual Impact Summary

The unmitigated impacts identified are *Slight* for the following VSRs:

VSR 1 Sun Yuen Long Centre and Yoho Town;

VSR 2 Pok Oi Hospital;

VSR 3 Kwong Ming Ying Loi School, and;

VSR 6 Road users of Pok Oi Interchange.

Whilst Visual Mitigation Measures are proposed to reduce these impacts, a *slight adverse* residual impact will remain for these VSRs.

The unmitigated impacts are identified as moderate for VSR 1 and VSR 5 villages at the northwest of the Site, however following the implementation of the Visual Mitigation Measures, there will be a *slight adverse* residual impact.

For VSR 4, the village at Yeung Uk Tsuen, the development will not be visible and therefore the residual impact will be *negligible.*

8.9 CONCLUSIONS

Three Landscape Character Areas (LCAs) were identified, LCA1 Miscellaneous Rural Fringe Landscape, LCA2 Miscellaneous Urban Fringe Landscape, and LCA3 Urban Peripheral Village Landscapes. The residual impacts on all three LCAs will be *negligible.*

A total of seven Landscape Resources (LRs) were identified, LR1 Roads, LR2 Agricultural Land, LR3 Roadside Plantation, LR4 Developed Area, LR5 Disturbed Area, LR6 Nullah and LR7 Village. LR3 Roadside Vegetation will experience *moderate adverse* and *slight adverse* residual impacts during construction and operation respectively. However, there will be *negligible* residual impacts on all other Landscape Resources.

Six Visually Sensitive Receivers were identified, and five of the six will experience *slight adverse* residual impacts, and one will experience *negligible* residual impacts.

According to *Annex 10* of the *EIAO-TM* the Landscape and Visual Impacts are considered *acceptable with mitigation*.

The major sensitive areas within the Study Area include residential premises, wholesale market, hospital, home for the aged and educational institutions. With the implementation of the proposed mitigation measures, no adverse environmental impacts are expected at the air, noise and water quality sensitive receivers within the Study Area during the construction and operational phases of the Project. A summary of the key environmental outcomes of the EIA Study and benefits of the environmental protection measures recommended are presented in *Table 9.1a*.

Table 9.1a Summary of Key Environmental Outcomes/Benefits

Issue	Environmental Outcomes/Benefits
The Project	**Requirements:** • Construction of the 140m long single lane flyover with 410m and 100m long slip roads connecting from ground level to flyover and from flyover back to ground level, respectively. • Construction of the 280m long slip road connecting the southbound carriage of POF to the southbound carriageway of the ground level section of YLH on the southern arm of POR. • Resurfacing and re-marking of two stretches of southbound and northbound carriageways of the ground level section of YLH on the northern arm of POR. • Construction of the 110m long segregated left-turn lane at the northern arm of POR. • Construction of associated earth retaining structures, slope works and works on environmental mitigation, landscape, drainage, road lightings, water mains and traffic aids. **Benefits:** • The Project can relieve the traffic pressure and traffic queues on the existing POR. **Potential consequences without the Project:** • Without the Project, the northern and southern approaches of POR will further deteriorate and the tailback of traffic on the southbound carriageway of the northern approach may block the through traffic from Tai Lam Tunnel / NT North to Tuen Mun / Tin Shui Wai / Hong Kong – Shenzhen Western Corridor. Long queues would be anticipated at both ends of Interchange and as a result of severely congested in POR. • With traffic congestion at both ends of POR, there would be consequential adverse air quality impacts to the nearby ASRs as the vehicles are in idling condition in traffic congestion.

Issue	Environmental Outcomes/Benefits
Construction Noise Impact	*Impact/Problem:* • Unmitigated cumulative construction noise level is up to 82 dB(A). *Environmental benefits of environmental protection measures recommended & Environmentally sensitive areas protected:* • Recommended mitigation measures: adopting quiet construction plant, movable noise barriers and scheduling of PMEs/construction activities; and implementing good site practices. • For the mitigated scenario, the predicted noise levels at all representative NSRs comply with the daytime construction noise standard as set out in the *EIAO-TM*.
Road Traffic Noise Impact	*Impact/Problem:* • The traffic noise levels with and without the Project at the design year are not increased by 1.0 dB(A). • No adverse traffic noise impacts are anticipated at the existing and future ASRs with the provision of 2.5m high vertical noise barrier for the planned school.
Construction Air Quality Impact	*Impact/Problem:* • Potential dust nuisance. *Environmental benefits of environmental protection measures recommended:* • Mitigation measures: implement the *Air Pollution Control (Construction Dust) Regulation* and good site practices. • No adverse air quality impacts are anticipated.
Operational Air Quality Impact	*Impact/Problem:* No adverse traffic emission impacts are anticipated at the existing and future ASRs.
Construction Water Quality Impact	*Impact/Problem:* • General construction activities associated with the construction of the Project could lead to site runoff. *Environmental benefits of environmental protection measures recommended:* • All of the recommended mitigation measures are implemented and all construction site / work area discharges comply with the *TM-DSS* standards. • No unacceptable residual water quality impacts are expected during the construction of the Project.
Operational Water Quality Impact	*Impact/Problem:* • Adverse water quality impacts associated with the operation of the Project are not expected at the water sensitive receivers within the Study Area. Therefore, there will be no residual impact associated with the operation of the Project.

Issue	Environmental Outcomes/Benefits
Waste Management Implications	*Impact/Problem:* • Wastes generated by construction activities: general refuse from the workforce, chemical waste from plant and equipment maintenance, and C&D material from excavation works and the demolition of existing structures. *Environmentally friendly designs recommended:* • C&D material with suitable characteristics should be reused on-site as far as practicable. Surplus material would require disposal to a public fill reception facility. *Environmental benefits of environmental protection measures recommended:* • With the implementation of the recommended mitigation measures and practices for the handling, transportation and disposal of the identified waste arisings, no adverse environmental impacts are expected.
Landscape and Visual Impact	*Impact/Problem:* • Three Landscape Character Areas (LCAs) , LCA1 Miscellaneous Rural Fringe Landscape, LCA2 Miscellaneous Urban Fringe Landscape, and LCA3 Urban Peripheral Village Landscapes, were identified. The residual impacts on all three LCAs will be negligible. • A total of seven Landscape Resources (LRs) , LR1 Roads, LR2 Agricultural Land, LR3 Roadside Plantation, LR4 Developed Area, LR5 Disturbed Area, LR6 Nullah and LR7 Village, were identified. LR3 Roadside Plantation will experience moderate adverse and slight adverse residual impacts during construction and operation respectively. However, there will be negligible residual impacts on all other Landscape Resources. • Four Visually Sensitive Receivers (VSRs) , VSR1 Sun Yuen Long Centre, VSR2 Pok Oi Hospital, VSR3 Kwong Ming Ying Loi School and VSR4 Yeung Uk Tsuen, were identified. There will be negligible residual impacts (impact at year 10) on all four VSRs.

10 ENVIRONMENTAL MONITORING AND AUDIT

10.1 INTRODUCTION

This *Section* presents the EM&A requirements for the construction and operation of the Project, based on the assessment results for the various environmental issues considered.

The objectives of undertaking EM&A for the Project are as follows:

- to provide a database against which any short- or long-term environmental impacts of the Project can be determined;
- to provide an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards;
- to monitor the performance of the Project and the effectiveness of mitigation measures;
- to verify the environmental impacts predicted in this EIA;
- to determine project compliance with regulatory requirements, standards and government policies;
- to take remedial action if unexpected problems or unacceptable impacts arise; and
- to provide data to enable an environmental audit.

The following sections discuss the recommended EM&A requirements. A separate EM&A Manual has been prepared for the Project to provide details of the EM&A programme and procedures.

10.2 AIR QUALITY

10.2.1 Construction Phase

With the implementation of the proposed dust suppression measures stipulated in the *Air Pollution Control (Construction Dust) Regulation*, good site practices and comprehensive dust monitoring and audit, the dust impact would be further diminished.

Regular site auditing is recommended to ensure the efficacy of the control measures.

10.2.2 Operational Phase

There will be no exceedance of AQOs at the sensitive receivers. No mitigation measures or environmental monitoring are considered necessary during the operational phase of the Project.

10.3 NOISE

10.3.1 Construction Phase

Construction noise impacts from the Project are expected at the representative NSRs. Appropriate mitigation measures such as the adoption of quiet PMEs, movable noise barrier and scheduling of PMEs/construction activities are required to alleviate the impacts to a level that meets the *EIAO-TM* criteria. Noise monitoring during the construction phase of the Project is recommended to ensure that the relevant criteria are not exceeded and that the recommended mitigation measures are implemented properly. The recommended noise monitoring locations are indicated in *Table 10.3a*.

Table 10.3a Noise Monitoring Stations for Construction Phase

Monitoring Station	Description
KMYLS1	Kwong Ming Ying Loi School
JCCAH1	Jockey Club Care & Attention Home

The status and location of NSRs may change in time and the location of the noise monitoring stations may need to be adjusted accordingly. In the event of such changes, the monitoring location should be updated for agreement with EPD.

When alternative monitoring location is proposed, the following criteria should be followed as far as practicable:

- close to the major site activities which are likely to have noise impacts; and
- close to the NSRs.

The monitoring station should normally be at a point 1 m from the exterior of the NSR building façade and at a height of approximately 1.2 m above ground or at the height that has the least obstructed view of the construction activities in relation to the NSR. If access to the normal monitoring position cannot be obtained, an alternative position should be chosen and a correction to the measurements should be made, if appropriate. For instance, a correction of +3 dB(A) should be made to free field measurements. Once the positions for the monitoring stations are chosen, the baseline monitoring and the impact monitoring should be carried out at the same positions.

10.3.2 Operational Phase

Upon the commissioning of the Project, traffic noise monitoring should be carried out at the NSRs in the vicinity of the Project for one year. The purpose of the monitoring is to confirm results of the traffic noise impact assessment and to ensure that compliance with the relevant noise criteria is achieved.

A monitoring plan should be prepared and agreed with EPD at least 6 months before the operation of the works under the Project for the purpose of assessing the accuracy of traffic noise predictions by comparing the noise impact predictions with the actual impacts. The monitoring plan should provide information on monitoring locations, monitoring schedules, methodology of noise monitoring including noise measurement procedures, traffic counts and speed checks, and methodology of comparison with the predicted levels. Monitoring details and results including the comparison between the measured noise levels and the predicted levels should be recorded in a report to be deposited with EPD within one month of the completion of the monitoring.

The traffic noise levels should be measured twice at 6-month intervals within the first year upon completion of the Project. Measurements should be made in terms of the A-weighted L_{10} over 3 half hour periods during the peak traffic hour; other parameter including L_{eq} should also be taken for reference.

The two monitoring stations selected for operational traffic noise monitoring are indicated in *Table 10.3b*.

Table 10.3b Traffic Noise Monitoring Stations for Operational Phase

Monitoring Station	Description
KMYLS1	Kwong Ming Ying Loi School
JCCAH1	Jockey Club Care & Attention Home

In choosing the specific monitoring locations, the following criteria should be observed:

- they should be located at NSRs in the vicinity of the recommended direct technical remedies;
- one high floor and one medium floor monitoring points should be chosen at each location as far as practicable; and
- the selected monitoring locations should allow monitoring to be done twice within one year after implementation of the mitigation measures during operation of the Project.

Similar to the case for the construction phase monitoring, the status and locations of NSRs may change in time and the monitoring locations may need to be adjusted accordingly. In such event, agreement should be obtained from EPD for alternative monitoring locations.

The operational noise monitoring should be carried out at a distance of 1 m from the openable window and 1.2 m above the floor level of the NSRs identified. Any necessary corrections to be adopted should be agreed with EPD before the commencement of the monitoring programme. Specific measurements to be obtained include:

- one set of measurements during the morning traffic peak hour on a normal weekday;
- one set of measurements during the evening traffic peak hour on a normal weekday;
- a concurrent census of traffic flow and percentage heavy vehicles conducted for the far-side and near-side of the road and the existing road network in the vicinity of each measurement point;
- average vehicle speed estimated for far-side and near-side of the road and the existing road network in the vicinity of each measuring point.

The measured/ monitored noise levels should be compared with the predicted results and the predicted traffic flow conditions (calculated noise levels based on concurrent traffic census obtained). Where discrepancies are observed, an attempt should be made to identify the cause of such discrepancies.

10.4 WATER QUALITY

10.4.1 Construction Phase

The water quality assessment has concluded that the identified water quality impacts could be minimised by implementing the recommended mitigation measures for the construction works, such as control measures on runoff and drainage from the Site to minimise construction run-off and proper site management and good housekeeping practices. No unacceptable residual water quality impact is expected. Any effluent discharges from the Site will be required to comply with the terms and conditions of a discharge licence issued by EPD under the *WPCO*.

It is recommended that regular site inspections be undertaken to inspect the construction activities and works areas to ensure that the recommended mitigation measures are properly implemented.

10.4.2 Operational Phase

No residual impact is anticipated during the operational stage of the Project, EM&A requirement is considered not necessary.

10.5 WASTE MANAGEMENT

The Contractor will be responsible to ensure that all wastes produced during the construction of the Project are handled, stored, reused and disposed of in accordance with the recommended good waste management practices and EPD's regulations and requirements. The mitigation measures recommended in *Section 7* should form the basis of the Construction Waste Management Plan to be developed by the Contractor before the commencement of the construction.

It is recommended that the waste arisings generated by the construction activities should be audited periodically to determine if wastes are being managed in accordance with approved procedures and the Construction Waste Management Plan. Routine site audits should look at all aspects of waste management including waste generation, storage, reuse, transport and disposal and should check the implementation of the recommended good site practices and other waste management mitigation measures.

10.6 LANDSCAPE AND VISUAL

The EIA has recommended landscape and visual mitigation measures to be implemented during construction and operation phases of the Project. EM&A is required to ensure that the proposed mitigation measures are effectively implemented.

Baseline monitoring is required to record baseline conditions of the Site, in particular, changes of each landscape resource, landscape character area and the view conditions of each visually sensitive receiver. Parameters used to describe changes in each of the above should be the same as in *Section 8* of this report. The baseline monitoring should be conducted as a one-off site survey prior to the commencement of any construction works.

During the construction phase, all mitigation measures proposed in the EIA should be implemented by the Contractor and audited by a landscape auditor of the Environment Team, on a regular basis to ensure compliance with the intended aims of the measures. Site inspections should be undertaken at least once every two weeks throughout the construction period.

The landscape auditor should also audit the operational phase mitigation measures proposed in *Section 8* and as depicted in the landscape mitigation plan to ensure that they are fully implemented during the Project design and construction stages.

11 CONCLUSIONS

11.1 INTRODUCTION

This *Section* presents the conclusions of the assessments undertaken for of the potential environment impacts associated with the construction and operation of the Project.

11.2 NOISE IMPACT

This assessment has predicted the construction noise impacts of the Project during normal daytime working hours. With the use of quiet PME, movable noise barriers and scheduling of PMEs/construction activities, the predicted construction noise levels arising from the Project at all representative NSRs will comply with the *EIAO-TM* construction noise criteria.

A construction noise EM&A programme is recommended to check the compliance with the noise criteria.

The potential road traffic noise impacts have been assessed based on the worst year traffic forecast for Year 2026. With the provision of a 2.5m high vertical noise barrier for the planned school, no adverse noise impacts are predicted at the NSRs during the operational phase of the Project as a result of the limited traffic flow at the road sections within the meaning of Item A.1 of Schedule 2 under the *EIAO*. The traffic noise impact is considered insignificant as the traffic noise level with the Project is not greater than that without the Project at the design year by 1.0dB(A) and the mitigated noise levels due to the road sections within the meaning of Item A.1 of Schedule 2 under the *EIAO* complied with the noise criteria as stipulated in the *EIAO-TM*.

Monitoring of road traffic noise is recommended to confirm the results of the traffic noise impact assessment during the first year after the operation of the Project.

11.3 AIR QUALITY IMPACT

In view of limited scale of construction area, adverse dust impact at the ASRs is not expected from the Project. Appropriate dust control and suppression measures as stipulated in the *Air Pollution Control (Construction Dust) Regulation* will be implemented to minimize any potential dust impact.

During operation, the vehicular emission sources within the Study Area are dominated by road traffic on the proposed new road sections and the existing road network including POR, Castle Peak Road and YLH. An assessment was conducted to predict the vehicle emissions from open road networks and the implementation of noise barriers and the proposed planters and concrete

parapet wall for the flyover. No mitigation measures are required as no exceedances of the relevant air quality criteria are predicted.

11.4 WATER QUALITY IMPACTS

Water quality impacts due to land-based construction, including road works, minor slope modification works and construction of noise barriers, are mainly associated with the surface runoff, effluent discharge from the site, and sewage from on-site construction workers. Impacts can be controlled to comply with *WPCO-TM* standards by implementing the recommended mitigation measures. No unacceptable residual impacts on water quality are anticipated.

It is considered that impacts resulting from the operation of the Project, in terms of water quality, will be minimal given that the Project will be designed with adequate drainage systems.

11.5 WASTE MANAGEMENT IMPLICATIONS

Wastes generated by the construction activities are likely to include C&D material, general refuse from the workforce and chemical waste from the maintenance of construction plant and equipment. Provided that these identified waste arisings are handled, transported and disposed of using approved methods and that the recommended good site practices are strictly followed, adverse environmental impacts are not expected during the construction phase.

11.6 LANDSCAPE AND VISUAL IMPACT

Three Landscape Character Areas (LCAs) , LCA1 Miscellaneous Rural Fringe Landscape, LCA2 Miscellaneous Urban Fringe Landscape, and LCA 3 Urban Peripheral Village Landscapes, were identified. The residual impacts on all three LCAs will be negligible.

A total of seven Landscape Resources (LRs) , LR1 Roads, LR2 Agricultural Land, LR3 Roadside Plantation, LR4 Developed Area, LR5 Disturbed Area, LR6 Nullah and LR7 Village, were identified. LR3 Roadside Plantation will experience moderate adverse and slight adverse residual impacts during construction and operation respectively. However, there will be *negligible* residual impacts on all other Landscape Resources.

Four Visually Sensitive Receivers (VSRs) , VSR1 Sun Yuen Long Centre, VSR2 Pok Oi Hospital, VSR3 Kwong Ming Ying Loi School and VSR4 Yeung Uk Tsuen, were identified. There will be negligible residual impacts (impact at year 10) on all four VSRs.

According to *Annex 10* of the *EIAO-TM*, the landscape and visual impacts are considered acceptable with mitigation.

11.7 OVERALL CONCLUSION

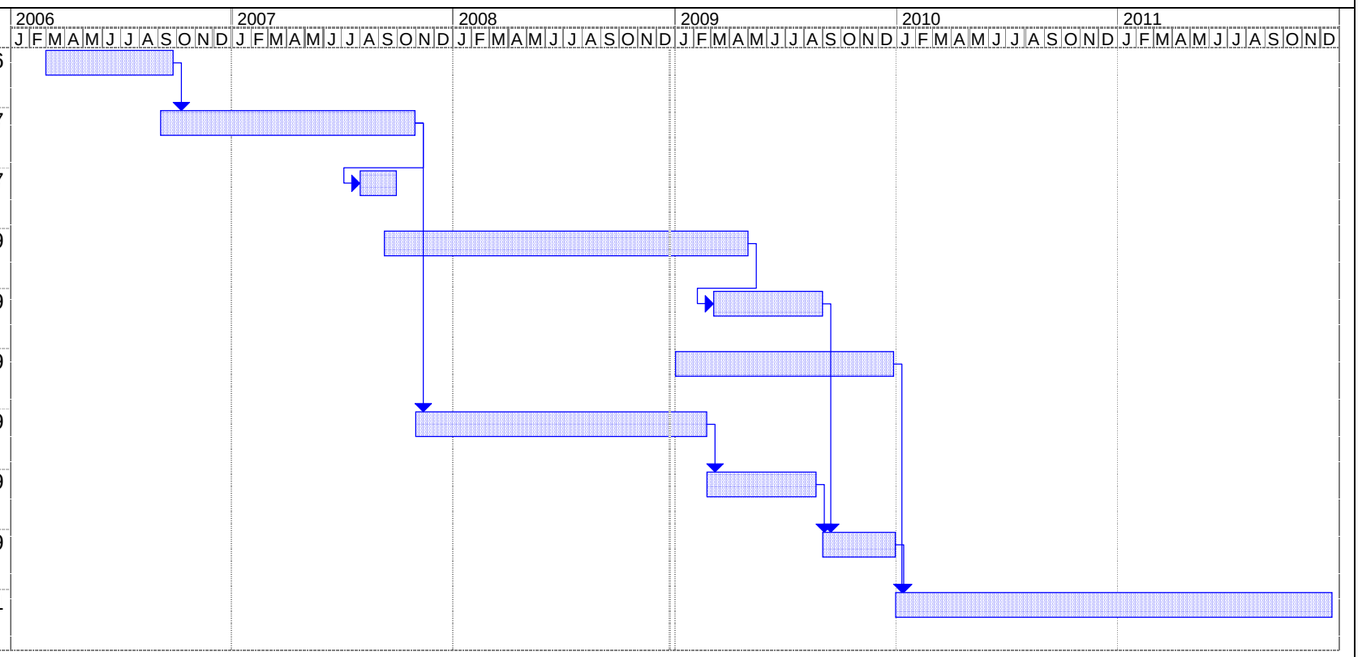
The environmental impact assessment has concluded that no unacceptable environmental impacts are envisaged as a result of the construction and operation of the Project, provided that the recommended mitigation measures are implemented.

Annex A

Outline Implementation Programme of the Project

PWP ITEM NO. 798TH - Improvement to Pok Oi Interchange

ID	Task Name	Duration	Start	Finish
1	Ground Investigation Works	7 months	1 Mar '06	26 Sep '06
2	TIA and Alignment Design Study	14 months	6 Sep '06	30 Oct '07
3	Public Consultation	2 months	1 Aug '07	29 Sep '07
4	EIA Study and Statutory Procedures under EIAO	20 months	10 Sep '07	1 May '09
5	Gazetting under Roads (W,C&U) Ordinance	6 months	6 Mar '09	1 Sep '09
6	Land Clearance	12 months	2 Jan '09	27 Dec '09
7	Detailed Design	16 months	1 Nov '07	22 Feb '09
8	Tender Documentation	6 months	23 Feb '09	21 Aug '09
9	Tendering	4 months	2 Sep '09	30 Dec '09
10	Construction	24 months	31 Dec '09	20 Dec '11



Project: Improvement to Pok Oi Interchange
Date: 22 Dec '08

Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary

Annex B

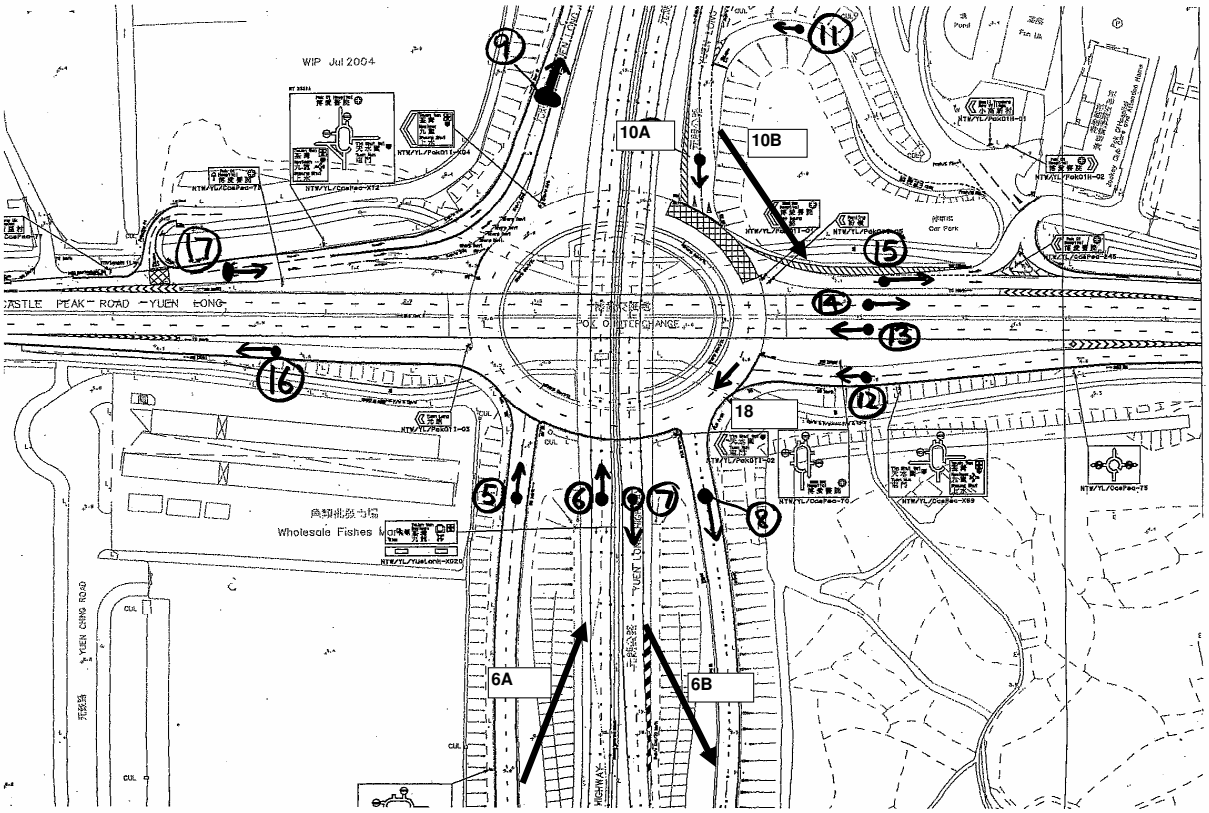
Traffic Forecast for Year 2026, Relevant Information on Road Surface and Speed Limits, and Memo from Transport Department

Annex B

Traffic Forecast for Year 2026, Relevant Information on Road Surface and Speed Limits, and Memo from Transport Department

Annex B1

Index Plan for Traffic Forecast



Annex B2

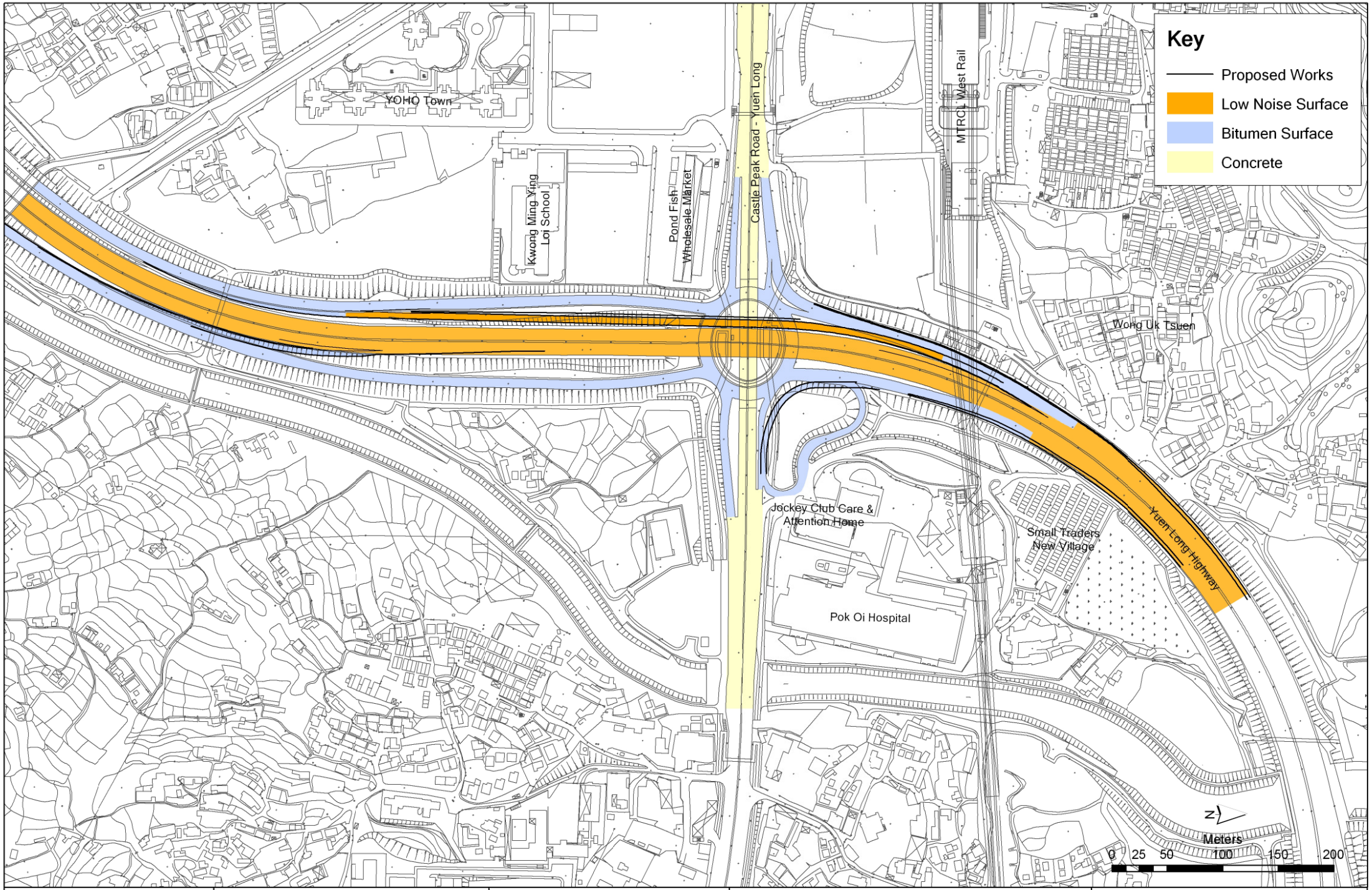
Traffic Forecast at Year 2026 AM Peak - Without the Project

No. as shown in Annex B1	Road Sections	Vehicle Types (veh/hr)									Road Surface Type	Speed Limit (kph)
		MC	PV	TAXI	PLB	LGV	HGV/ CONTAINER	COACH/ BUS	TOTAL	%HGV		
5	Slip road NB @ S of POI	23	582	35	0	199	332	45	1216	47%	BIT	50
6	YLH NB @ POI	17	1190	130	103	352	1038	294	3124	57%	LNS	80
6A	New YLH NB @ POI	-	-	-	-	-	-	-	-	-	-	-
6B	New YLH SB @ POI	-	-	-	-	-	-	-	-	-	-	-
7	YLH SB @ POI	17	718	56	112	118	955	145	2121	63%	LNS	80
8	Slip road SB @ S of POI	11	334	47	0	116	215	22	745	47%	BIT	50
9	Slip road NB @ N of POI	16	769	84	30	246	436	228	1809	52%	BIT	50
10A	Slip road SB @ N of POI	9	588	44	20	133	233	177	1204	47%	BIT	50
10B	New Left-turn Lane SB @ N of POI	-	-	-	-	-	-	-	-	-	-	-
11	Svc road from PO Hospital	0	0	0	0	0	0	55	55	100%	BIT	50
12	Slip road WB @ E of POI	8	210	40	0	106	160	56	580	56%	BIT	50
13	CPR WB @ POI	29	583	281	252	188	85	100	1518	41%	CON	50
14	CPR EB @ POI	10	407	158	207	171	120	36	1109	48%	CON	50
15	Slip road EB @ E of POI	16	348	52	8	176	96	124	820	49%	BIT	50
16	Slip road WB @ W of POI	8	633	48	26	152	213	147	1227	44%	BIT	50
17	Slip road EB @ W of POI	10	534	109	31	207	276	200	1367	52%	BIT	50
18	Roundabout	25	957	114	26	323	501	239	2184	50%	BIT	50

Traffic Forecast at Year 2026 AM Peak - With the Project

No. as shown in Annex B1	Road Sections	Vehicle Types (veh/hr)									Road Surface Type	Speed Limit (kph)
		MC	PV	TAXI	PLB	LGV	HGV/ CONTAINER	COACH/ BUS	TOTAL	%HGV		
5	Slip road NB @ S of POI	11	289	17	0	99	166	22	604	48%	BIT	50
6	YLH NB @ POI	16	1111	120	96	328	969	273	2913	57%	LNS	80
6A	New YLH NB @ POI	0	360	21	0	7	228	14	630	40%	LNS	70
6B	New YLH SB @ POI	0	328	50	0	0	50	50	478	21%	BIT	50
7	YLH SB @ POI	19	828	64	128	136	1102	168	2445	63%	LNS	80
8	Slip road SB @ S of POI	8	232	33	0	81	150	15	519	47%	BIT	50
9	Slip road NB @ N of POI	11	527	57	21	169	300	156	1241	52%	BIT	50
10A	Slip road SB @ N of POI	7	432	33	14	98	171	129	884	47%	BIT	50
10B	New Left-turn Lane SB @ N of POI	1	31	3	1	9	10	9	64	45%	BIT	50
11	Svc road from PO Hospital	0	0	0	0	0	0	55	55	100%	BIT	50
12	Slip road WB @ E of POI	8	201	37	0	102	154	54	556	56%	BIT	50
13	CPR WB @ POI	33	670	323	290	217	97	115	1745	41%	CON	50
14	CPR EB @ POI	11	471	182	240	198	138	42	1282	48%	CON	50
15	Slip road EB @ E of POI	15	329	50	8	165	91	117	775	49%	BIT	50
16	Slip road WB @ W of POI	7	580	43	23	140	195	134	1122	44%	BIT	50
17	Slip road EB @ W of POI	10	557	114	32	217	289	209	1428	52%	BIT	50
18	Roundabout	18	740	101	23	258	390	207	1736	51%	BIT	50

Remarks:
BIT - Bitumen
LNS - Low noise surface
CON - Concrete



Highways Department
The Government of the Hong Kong Special Administrative Region

Consultant
Environmental Resources Managment
ERM
Halcrow
Halcrow China Ltd.
As Engineering Sub-consultant

Agreement No. : WD 6/2007

Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study

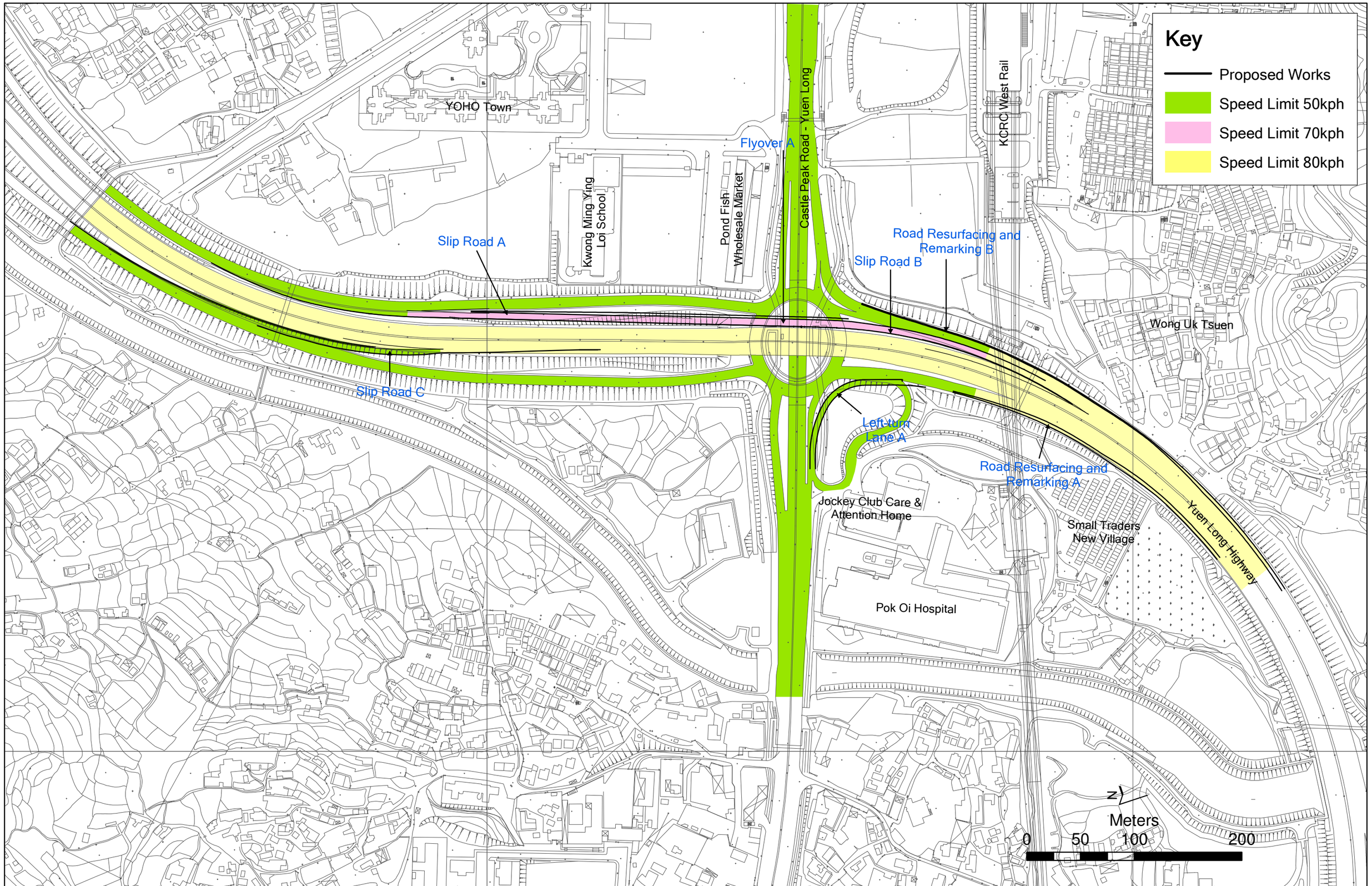
Environmental Impact Assessment Report

Figure Title: ROAD SURFACE TYPE

Annex B3

Checked	Scale	Rev.
PS	-	
Designed	Drawn	Date
TF	AM	1/11/2007

0072252_Road_Surface.mxd



Highways Department The Government of the Hong Kong Special Administrative Region	Consultant Environmental Resources Managment (ERM) Halcrow China Ltd. As Engineering Sub-consultant	Agreement No. : WD 6/2007	Environmental Impact Assessment Report	Annex B4
		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: SPEED LIMITS	Checked: PS; Scale: -; Rev.: ; Designed: TF; Drawn: AM; Date: 01/07/2008

0072252_Speed_Limit_revised.mxd

By fax

MEMO

From TE/NTW, Transport Department
Ref. _____ in NR171/200-217
Tel. No. 2399 2565
Fax. No. 2381 3799
Date 13 June 2008

To CHE/Works, HyD
(Attn.: Mr C K Wan)
Your Ref. (CE3R) in HCW/798TH/D
dated 4.6.08 Fax. No. 3188 3418
Total Pages 1

PWP Item No. 798TH
Improvement to Pok Oi Interchange

Traffic Data for Environmental Impact Assessment

I refer to your above memo.

2. This is to confirm that the proposed traffic data is acceptable.

(S W Lam)
for Assistant Commissioner
for Transport/NT

Annex C

Supporting Information for Noise Assessment

Annex C1

Supporting Information for Identification of Noise Sensitive Receivers (NSRs)

新界西醫院聯網
New Territories West Cluster

博愛醫院 Pok Oi Hospital
Au Tau, Yuen Long, New Territories, Hong Kong Tel: (852) 2486 8000 Fax: (852) 2443 9593
香港新界元朗坳頭 電話：(852)2486 8000 傳真：(852)2443 9593

13 October 2008

Environmental Resources Management
21/F Lincoln House
979 King's Road
Taikoo Place
Island East
Hong Kong

(Attn: Ms Natalie NG)

Dear Ms Ng,

Agreement No. WD 6/2007
Improvement to Pok Oi Interchange –
Environmental Impact Assessment Study
Use of Central Air-conditioning System

I refer to your fax dated 10 October 2008 (Ref/Project number 0072252_Fax Pok Oi Hospital_20081010.doc).

2. We would like to confirm that central air-conditioning system is provided for Pok Oi Hospital and that we are not relying on openable windows for ventilation.

3. Should you have any queries, please feel free to contact me at 2486 8906 or Ms Gina WAI at 2486 8913.

(Mr Antony LUI)
Senior Hospital Manager (Administrative Services)
Pok Oi Hospital

AL/GW/lyl

MEMO

By fax

From:	DLCS	*To:*	Chief Highway Engineer/ Works, HyD
		Attn.:	Mr. C K WAN
Ref:	(59) *in* LCS 1/HQ 752/04(9)	*Yr Ref:*	*in* HCW/798TH/EIA
Tel No:	2601 8685 *Fax No:* 2695 3886	*Dated:*	9.10.2008 *Fax No.* 3188 3418
Date:	15 October, 2008	*Total Pages:*	1

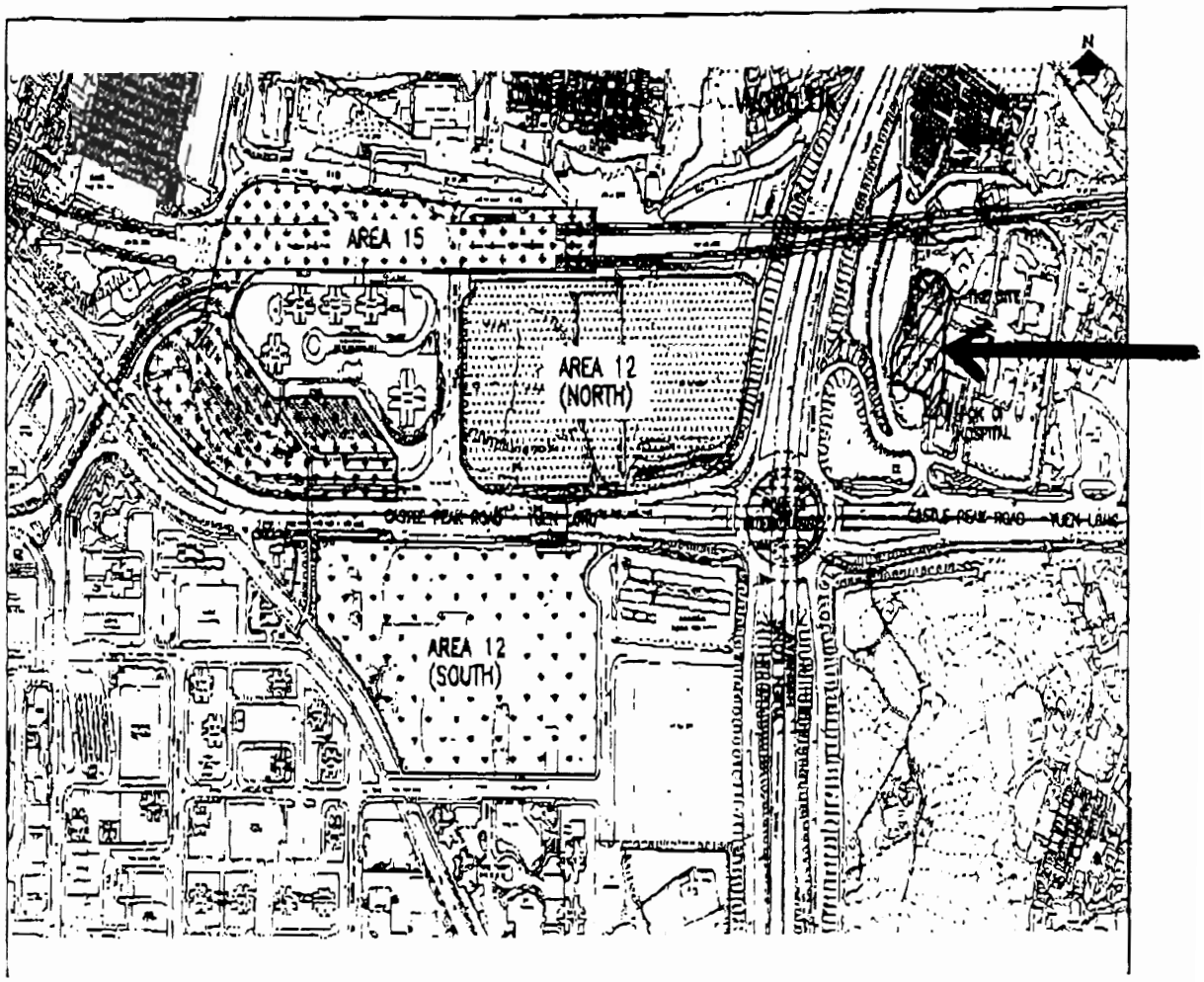
PWP Item No. 798TH
Improvement to Pok Oi Interchange
Typical Arrangement of Indoor Recreation Centre

I refer to your memo under reference.

2. Please note that the said site has not been accorded high priority for development by Yuen Long District Council and there is no development programme for the site at present. Furthermore, the sports centre in Tin Shui Wai which is now under construction and the sports centres in Area 3, Yuen Long and Area 101, Tin Shui Wai which are now under active planning will be equipped with centralised air-conditioning system and fixing glazing.

(Ms Caroline HO)
for Director of Leisure and Cultural Services

Figure 2 **Site Context**



*** Not to Scale**

Table 2 Schedule of Accommodation

	[redacted]	Previously Approved Scheme 1996	Third Scheme	Second Scheme	First Scheme
Application Site Area		3,600m²	3,660m²	3,660m²	3,168m²
Proposed Domestic Plot Ratio (excluding Pun Uk)		2.66	2.66	3.0	5
Proposed Domestic Site Coverage (excluding Pun Uk)		16.69%	16.69%	29.9%	29.7%
Proposed Total GFA		9,735.5m²	9,735.5m²	10,965m²	15,837m²
Proposed Building Height (main roof)		58.5mPD	58.5mPD	44.4mPD	63.1mPD
Proposed Number of Flats		95	95	118	187
Average Flat Size		102.5m²	102.5m²	71.4m²	84.63m²
Design Population		238 persons	295 persons	295 persons	468 persons
Proposed Number of Carparking Spaces		84	38	118	172
Proposed Number of Residential Blocks		3	3	5	4

Proposed Number of Storeys (excluding podium and basement)		12-15	12-15	10-11	7
Proposed Number of Basement Levels		2	1	1	1
Public Open Space (including Pun Uk)		1400m² Approx.	1400m² Approx.	169m² Approx.	Nil

Master Layout Plan

5.3 The Master Layout Plan is shown in Figure 5, which is essentially the same as of the previously approved scheme. The proposed development comprises a total of three residential blocks on top of 2 podium levels and 1 level of basement. The heights of these blocks vary from 12 to 15 storeys. The podium and basement levels are mainly allocated for carparking facilities (Figures 6 and 8). An area of about 190m² located to the south of Pun Uk is proposed for children's play area, landscaped open space and a buffer to Pun Uk (Figure 8). Typical floor plan and diagrammatic section of the proposal are shown on Figures 10.

5.4 To ease the technical issues of protecting the structural stability of the adjacent historical building (i.e. Pun Uk) during construction, the present scheme proposes deletion of one level of basement carpark. A total of 59 carparking spaces (i.e. 1 carparking space per 1.6 flats) is provided, in compliance with the current parking standard.

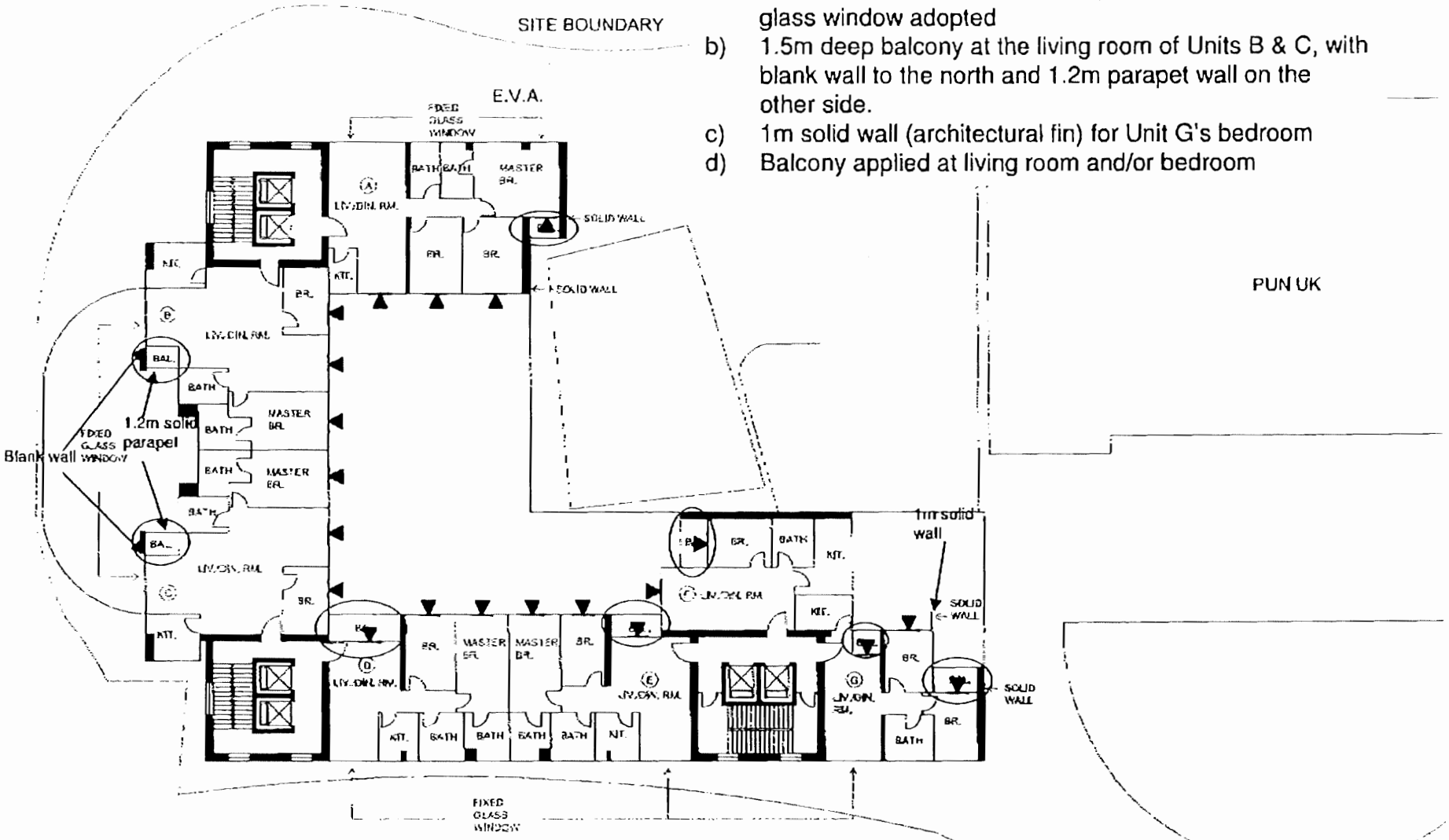
5.5 To mitigate the potential noise impact from Castle Peak Road, Yuen Long Highway and the West Rail, a "Self Protective" building design is adopted. The facades of building facing the said roads and the rail will adopt appropriate noise mitigation measures, such as the use of black facade, fixed window and non habitable window, balconies with acoustic treatment and architectural fins, and the building blocks are oriented in such a manner that all noise sensitive areas within a flat will be inward facing, i.e. towards the landscaped podium and Pok Oi Hospital.

a) Single aspect building design adopted – no openable window for habitable room on N, E and W sides. Fixed glass window adopted

b) 1.5m deep balcony at the living room of Units B & C, with blank wall to the north and 1.2m parapet wall on the other side.

c) 1m solid wall (architectural fin) for Unit G's bedroom

d) Balcony applied at living room and/or bedroom



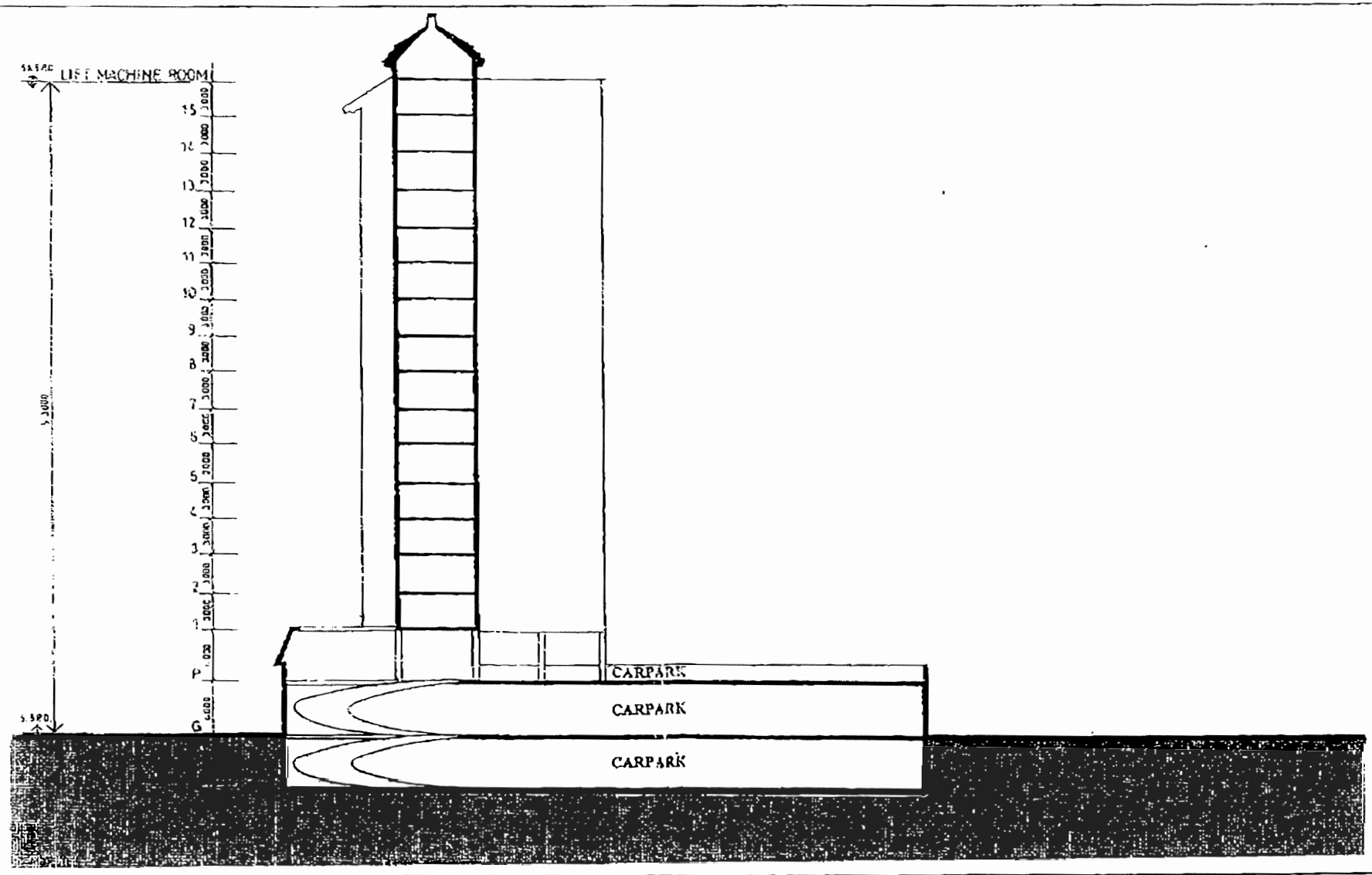


Figure 10: Diagrammatic Section

Scale: NA
Date: Nov 2007

當代規劃發展有限公司
Planning Team Limited
香港上環德輔利街2號東華大廈20樓2002-05室
Rm 2002-05, 20/F, Tung Wing Building, No. 2 Hillier Street, Sheung Wan, Hong Kong
Tel: (852) 2166 8321 Fax: (852) 2570 0321 E-Mail:
Website: http://www.ptl.com.hk

By Fax

MEMO

From Secretary for Education	*To* Chief Highway Engineer/Works, HyD
Ref ( ) *in* EDB(SB) 32/7029/06	*(Attn:* Mr. C K WAN *)*
Tel No. 2892 5928	*Your ref* (C607) in HCW/798TH/EIA
Fax. No. 3104 0224	*Dated* 13.3.2008 *Fax No.* 3188 3418
Date 25 March 2008	*No. of pages* 1

Ex-Yuen Long Small Traders New Village Public School
at Small Traders New Village, DD115, Yuen Long

Your MUR refers.

2. Please be advised that the subject premises is planned for non-school educational use and the necessary planning application is planned to be submitted in mid-2008, tentatively.

3. Should you require further information, please feel free to contact me at 2892 5928.

(Jackey HO)
for Secretary for Education

Annex C2

Proposed Construction Plant Inventory

Annex C2-1

Construction Plant Inventory (Without Mitigation)
(Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

No.	Activities	Plant	CNP /BS 5228 ref.	No. of PME	On-time %	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[3]
DESIGNATED PROJECT								
Improvement to Pok Oi Interchange								
1	**Site clearance**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**113**
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	105	
2	**Site formation**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**114**
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	105	
		Roller, vibratory	CNP 186	1	100%	108	108	
3	**Piling**	Continuous Flight Auger	CNP 167	1	100%	114	114	**115**
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%	105	105	
4	**Road drainage, utilities & water mains works**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**116**
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	105	
		Crane, mobile/barge mounted (diesel)	CNP 048	1	100%	112	112	
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%	108	108	
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%	102	102	
5	**Construct retaining walls, abutments and embankment**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**118**
		Road roller	CNP 185	1	100%	108	108	
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%	100	100	
		Water pump (electric)	CNP 281	1	100%	88	88	
		Poker, vibratory, hand-held	CNP 170	1	100%	113	113	
		Silent Piler	[2]	1	100%	100	100	
		Concrete lorry mixer	CNP 044	1	100%	109	109	
		Crane, mobile/barge mounted (diesel)	CNP 048	1	100%	112	112	
6	**Demolish existing structures**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**114**
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%	108	108	
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%	102	102	
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	105	
7	**Extend subway**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**118**
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%	108	108	
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%	102	102	
		Poker, vibratory, hand-held	CNP 170	1	100%	113	113	
		Saw, circular, wood	CNP 201	1	100%	108	108	
		Bar bender and cutter (electric)	CNP 021	1	100%	90	90	
		Concrete lorry mixer	CNP 044	1	100%	109	109	
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	105	
8	**Construct pilecaps and piers**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**118**
		Saw, circular, wood	CNP 201	1	100%	108	108	
		Bar bender and cutter (electric)	CNP 021	1	100%	90	90	
		Drill/grinder, hand-held (electric)	CNP 065	1	100%	98	98	
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%	100	100	
		Poker, vibratory, hand-held	CNP 170	1	100%	113	113	
		Concrete lorry mixer	CNP 044	1	100%	109	109	
		Concrete pump, stationary/lorry mounted	CNP 047	1	100%	109	109	
9	**Construct flyover**	Crane, mobile/barge mounted (diesel)	CNP 048	1	100%	112	112	**114**
		Concrete pump, stationary/lorry mounted	CNP 047	1	100%	109	109	
		Lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-d]	1	100%	105	105	

Annex C2-1

Construction Plant Inventory (Without Mitigation)
(Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

No.	Activities	Plant	CNP /BS 5228 ref.	No. of PME	On-time %	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[3]
10	**Install concrete parapets and planters**	Crane, mobile/barge mounted (diesel)	CNP 048	1	100%	112	112	**113**
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%	105	105	
11	**Road resurfacing and remarking**	Road planer or miller	CNP 184	1	100%	111	111	**115**
		Road roller	CNP 185	1	100%	108	108	
		Asphalt paver	CNP 004	1	100%	109	109	
		Paint line marker	CNP 161	1	100%	90	90	
		Paint line remover	[1-c]	1	100%	104	104	
12	**Install noise barriers**	Crane, mobile/barge mounted (diesel)	CNP 048	1	100%	112	112	**113**
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%	105	105	
13	**Pavement construction**	Asphalt paver	CNP 004	1	100%	109	109	**112**
		Road roller	CNP 185	1	100%	108	108	
CONCURRENT PROJECTS								
1	**Site formation**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**113**
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	105	
2	**Box culvert**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**116**
		Saw, circular, wood	CNP 201	1	100%	108	108	
		Bar bender and cutter (electric)	CNP 021	1	100%	90	90	
		Drill/grinder, hand-held (electric)	CNP 065	1	100%	98	98	
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%	100	100	
		Water pump (electric)	CNP 281	1	100%	88	88	
		Poker, vibratory, hand-held	CNP 170	1	100%	113	113	
3	**Retaining wall construction & associated works**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**117**
		Roller, vibratory	CNP 186	1	100%	108	108	
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%	100	100	
		Water pump (electric)	CNP 281	1	100%	88	88	
		Poker, vibratory, hand-held	CNP 170	1	100%	113	113	
		Concrete lorry mixer	CNP 044	1	100%	109	109	
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%	105	105	
4	**Road embankment**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**113**
		Roller, vibratory	CNP 186	1	100%	108	108	
5	**Road drainage, utilities & water mains works**	Excavator/loader, wheeled/tracked	CNP 081	1	100%	112	112	**114**
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%	105	105	
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%	108	108	
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%	102	102	
6	**Pavement construction**	Asphalt paver	CNP 004	1	100%	109	109	**112**
		Road roller	CNP 185	1	100%	108	108	

Notes:

[1] SWLs of the following plant items refer to the document prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf)

[1-a] Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne

[1-b] Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne

[1-c] Paint line remover

[2] Reference was made to "Project Profile for Prince Edward Station Pedestrian Subway Extension and Entrance Modification Works (Register No. PP-253/2005)"

[3] The figures are rounded-up to a whole number.

Annex C2-2

Construction Plant Inventory (Without Mitigation)
(Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

No.	Activities	Plant	CNP /BS 5228 ref.	No. of PME	On-time %	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[3]
DESIGNATED PROJECT								
Improvement to Pok Oi Interchange								
9	**Construct flyover**	Lorry, 5.5 tonne < gross vehicle weight < 38	[1-d]	1	100%	105	105	**119**
		Bar bender and cutter (electric)	CNP 021	1	100%	90	90	
		Drill/grinder, hand-held (electric)	CNP 065	2	100%	98	101	
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%	100	100	
		Concrete lorry mixer	CNP 044	1	100%	109	109	
		Concrete pump, stationary/lorry mounted	CNP 047	1	100%	109	109	
		Poker, vibratory, hand-held	CNP 170	2	100%	113	116	
		Crane, mobile/barge mounted (diesel)	CNP 048	1	100%	112	112	

Notes:

[1] SWLs of the following plant items refer to the document prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf)

[1-a] Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne

[1-b] Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne

[1-c] Paint line remover

[2] Reference was made to "Project Profile for Prince Edward Station Pedestrian Subway Extension and Entrance Modification Works (Register No. PP-253/2005)"

[3] The figures are rounded-up to a whole number.

Annex C3

Proposed Construction Programme

Annex C3-1

Preliminary Summarised Construction Programme (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

No.	Activity Description	2009	2010												2011											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
DESIGNATED PROJECT																										
Improvement to Pok Oi Interchange																										
I	**Flyover A**																									
1	Site clearance	Y	Y	Y																						
3	Piling				Y	Y	Y	Y	Y	Y																
4	Road drainage, utilities & water mains works										Y	Y														
8	Construct pilecaps and piers												Y	Y	Y	Y	Y									
9	Construct flyover																	Y	Y	Y						
10	Install concrete parapets and planters																				Y	Y				
13	Pavement construction																						Y	Y		
II	**Slip Road A**																									
1	Site clearance										Y	Y														
2	Site formation												Y	Y	Y											
4	Road drainage, utilities & water mains works															Y	Y									
5	Construct retaining walls, abutments and embankment																	Y	Y	Y	Y	Y				
13	Pavement construction																						Y	Y		
III	**Slip Road B**																									
1	Site clearance										Y	Y														
2	Site formation												Y	Y	Y											
4	Road drainage, utilities & water mains works															Y	Y									
5	Construct retaining walls, abutments and embankment																	Y	Y	Y	Y	Y				
13	Pavement construction																						Y	Y		
IV	**Slip Road C**																									
1	Site clearance	Y	Y	Y																						
2	Site formation				Y	Y	Y																			
4	Road drainage, utilities & water mains works							Y	Y																	
5	Construct retaining walls, abutments and embankment									Y	Y	Y	Y	Y	Y											
13	Pavement construction															Y	Y									
V	**Left-turn Lane A**																									
1	Site clearance	Y	Y	Y																						
2	Site formation				Y	Y																				
4	Road drainage, utilities & water mains works						Y	Y																		
5	Construct retaining walls, abutments and embankment								Y	Y	Y															
7	Extend subway											Y	Y													
10	Install concrete parapets and planters													Y												
6	Demolish existing structures														Y											
13	Pavement construction															Y	Y									
VI	**Road Resurfacing and Remarking A**																									
11	Road resurfacing and remarking															Y	Y									
VII	**Road Resurfacing and Remarking B**																									
11	Road resurfacing and remarking																						Y	Y	Y	Y
CONCURRENT PROJECTS																										
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																										
1	Site formation																									
2	Box culvert																									
3	Retaining wall construction & associated works																									
4	Road embankment	Y	Y	Y	Y																					
5	Road drainage, utilities & water mains works					Y	Y	Y	Y	Y	Y															
6	Pavement construction											Y	Y	Y	Y	Y	Y									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																										
1	Site formation		Y	Y	Y																					
5	Road drainage, utilities & water mains works					Y	Y	Y																		
6	Pavement construction								Y	Y	Y	Y														

Notes:

[1] Activity 1 to 3 (i.e. site formation, box culvert and retaining wall construction & associated works) shall tentatively be completed before December 2009.

Annex C3-2

Preliminary Summarised Construction Programmen (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

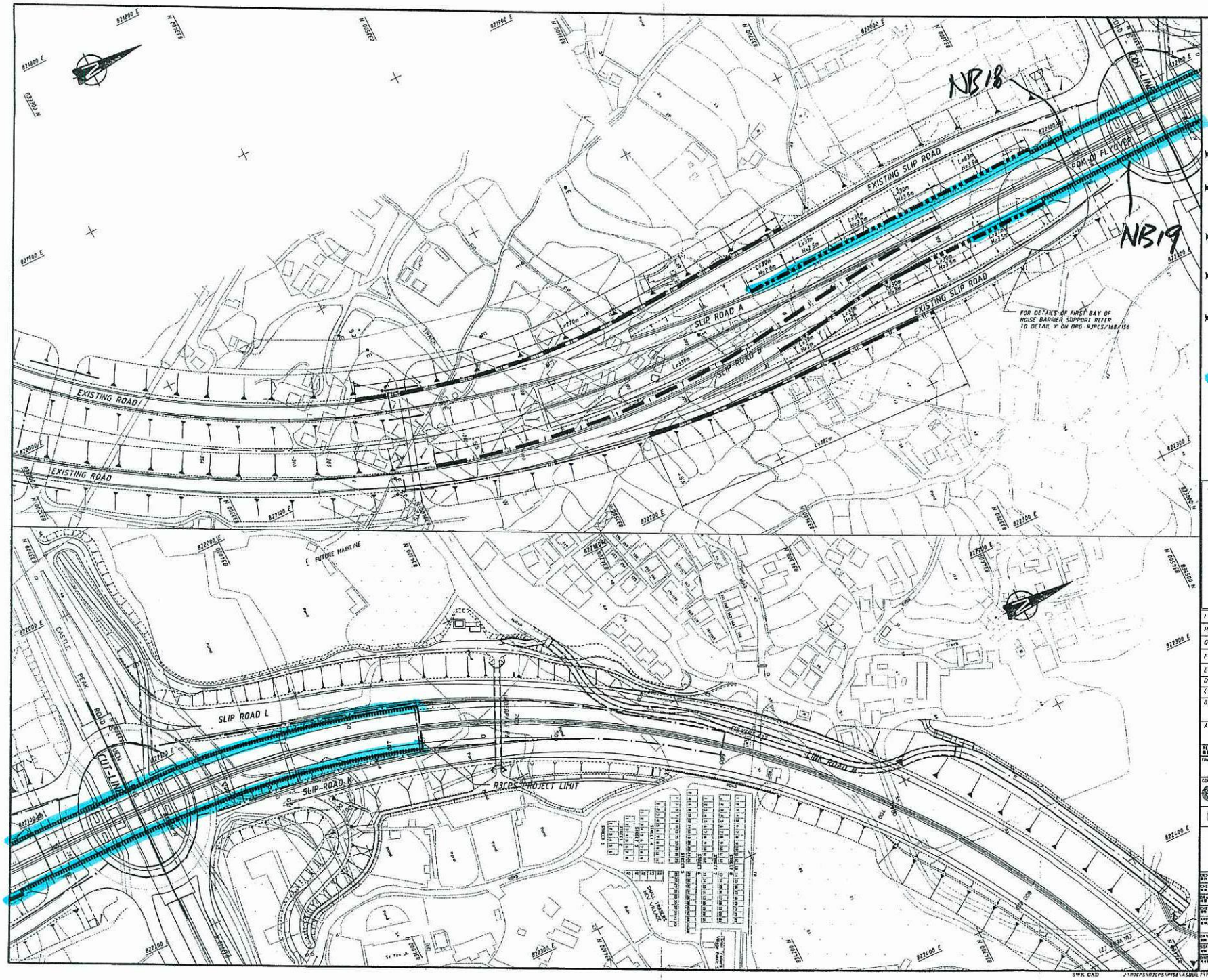
No.	Activity Description	2009	2010												2011											
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
DESIGNATED PROJECT																										
Improvement to Pok Oi Interchange																										
I	**Flyover A**																									
1	Site clearance	Y	Y	Y																						
3	Piling				Y	Y	Y	Y	Y	Y																
4	Road drainage, utilities & water mains works										Y	Y														
8	Construct pilecaps and piers												Y	Y	Y	Y	Y									
9	Construct flyover																	Y	Y	Y	Y	Y				
10	Install concrete parapets and planters																							Y	Y	
13	Pavement construction																								Y	Y
II	**Slip Road A**																									
1	Site clearance										Y	Y														
2	Site formation												Y	Y	Y											
4	Road drainage, utilities & water mains works															Y	Y									
5	Construct retaining walls, abutments and embankment																	Y	Y	Y	Y	Y				
13	Pavement construction																							Y	Y	
III	**Slip Road B**																									
1	Site clearance										Y	Y														
2	Site formation												Y	Y	Y											
4	Road drainage, utilities & water mains works															Y	Y									
5	Construct retaining walls, abutments and embankment																	Y	Y	Y	Y	Y				
13	Pavement construction																							Y	Y	
IV	**Slip Road C**																									
1	Site clearance	Y	Y	Y																						
2	Site formation				Y	Y	Y																			
4	Road drainage, utilities & water mains works							Y	Y																	
5	Construct retaining walls, abutments and embankment									Y	Y	Y	Y	Y	Y											
13	Pavement construction															Y	Y									
V	**Left-turn Lane A**																									
1	Site clearance	Y	Y	Y																						
2	Site formation				Y	Y																				
4	Road drainage, utilities & water mains works						Y	Y																		
5	Construct retaining walls, abutments and embankment								Y	Y	Y															
7	Extend subway											Y	Y													
10	Install concrete parapets and planters													Y												
6	Demolish existing structures														Y											
13	Pavement construction															Y	Y									
VI	**Road Resurfacing and Remarking A**																									
11	Road resurfacing and remarking															Y	Y									
VII	**Road Resurfacing and Remarking B**																									
11	Road resurfacing and remarking																							Y	Y	Y	Y
CONCURRENT PROJECTS																										
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																										
1	Site formation																									
2	Box culvert																									
3	Retaining wall construction & associated works																									
4	Road embankment	Y	Y	Y	Y																					
5	Road drainage, utilities & water mains works					Y	Y	Y	Y	Y	Y															
6	Pavement construction											Y	Y	Y	Y	Y	Y									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																										
1	Site formation		Y	Y	Y																					
5	Road drainage, utilities & water mains works					Y	Y	Y																		
6	Pavement construction								Y	Y	Y	Y														

Notes:

[1] Activity 1 to 3 (i.e. site formation, box culvert and retaining wall construction & associated works) shall tentatively be completed before December 2009.

Annex C4

As-built Drawings of Existing Noise Barriers



NOTES:

1. THE HORIZONTAL CLEARANCE BETWEEN NOISE BARRIERS AND CARRIAGEWAY SHALL CONFORM TO TPDM REQUIREMENTS
2. THE FOUNDATION OF NOISE BARRIERS SHALL ALLOW FOR PASSAGE AND MAINTANANCE OF UNDERGROUND UTILITIES AND DRAINAGE INSTALLATIONS

3 LEGEND -

- PERMANENT 2.4m HIGH ABSORPTIVE NOISE BARRIER ON TOP OF 1.1m CONCRETE PARAPET COVERED IN PACKAGE 168(116)
- PERMANENT ABSORPTIVE NOISE BARRIER ON OF TOP 1.8m CONCRETE FOOTING AT EDGE OF VERGE COVERED IN PACKAGE 168(116) OVERALL HEIGHTS AS SHOWN
- REFLECTIVE TEMPORARY NOISE BARRIER (OVERALL HEIGHT BETWEEN 2.0m AND 3.0m)
- 0.8m HIGH CONCRETE PROFILE NOISE BARRIER
  NOTE CONCRETE PROFILE BARRIER LOCATION ON MAINLINE STUB CARRIAGEWAY HAS HEIGHT OF 1.05m
- 0.6m HIGH CONCRETE PROFILE NOISE BARRIER REPLACING EXISTING CORRUGATED SAFETY FENCE

original barriers retained

ROUTE 3
COUNTRY PARK SECTION

AS BUILT DRAWING
ENDORSED AS A TRUE RECORD OF CONSTRUCTION

Signed by : _____ (for and on behalf of the Franchisee)

Signed by : _____ (for the Works Checker)

REV	DESCRIPTION	DATE	CHECKED
I	BACKGROUND INFORMATION ADDED	14.10.99	LCYC
H	AS BUILT INFORMATION DRAWING	31.8.99	IM
G	DETAILX CALLED ON PLAN	25.9.98	IM
F	PERMANENT NOISE BARRIER ADDED	12.6.98	IM
E	LEGEND AMENDED	3.4.98	IM
D	TEMPORARY NOISE BARRIER REVISED	19.2.98	IM
C	TEMPORARY NOISE BARRIER ADDED	14.1.98	DJI
B	SITE BOUNDARY AMENDED LEGEND AMENDED EXTENT OF NOISE BARRIER ALTERED	5.11.97	IM
A	BARRIER TYPE REVISED TO ABSORPTIVE EXTENT OF BARRIER REVISED	24.7.97	DJI

FRANCHISEE: ROUTE 3 (CPS) CO. LTD.

CONTRACTOR: ROUTE 3 CONTRACTORS CONSORTIUM — NISHIMATSU - DRAGAGES

ROUTE 3 COUNTRY PARK SECTION

YUEN LONG APPROACH
POK OI FLYOVER
NOISE BARRIER
PLAN

NB 18, 19

DESIGNED BY	PH	CONSULTANTS	MAUNSELL SCOTT WILSON J.V.
CHECKED BY	GET		
DRAWN BY	CAD	DRG.NO.	R3CPS/168/155
CHECKED BY	SB		REV. NO. 1
APPROVED FOR ISSUE BY	RHR	DESIGNER/SUB-DESIGNER	SWK
DATE OF ISSUE	14.10.99		
DATE	11.3.98	STATUS	AS BUILT DRAWING
SCALE	1:1000		
DIMENSIONS ARE IN	METRES	© COPYRIGHT RESERVED	

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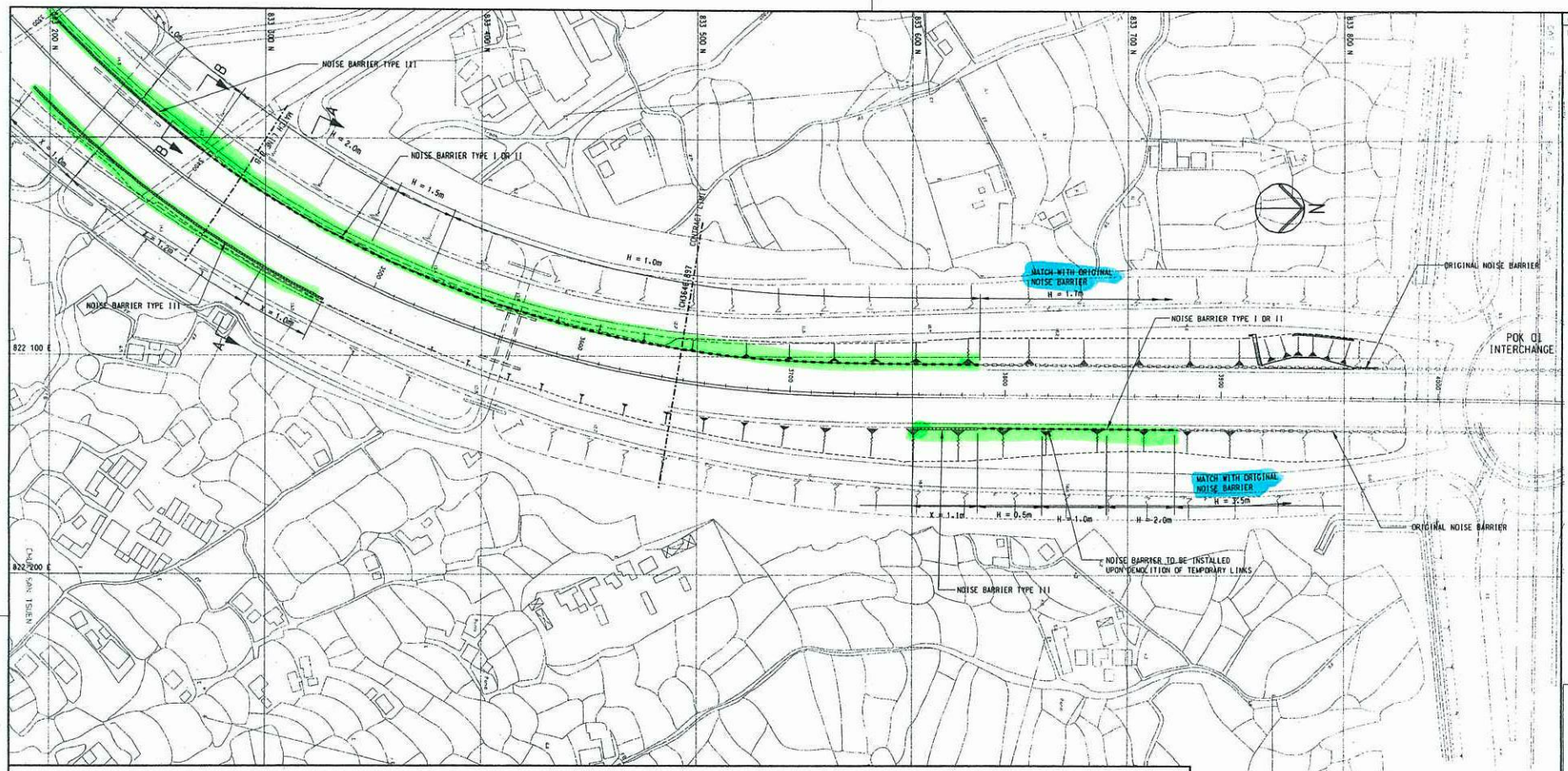
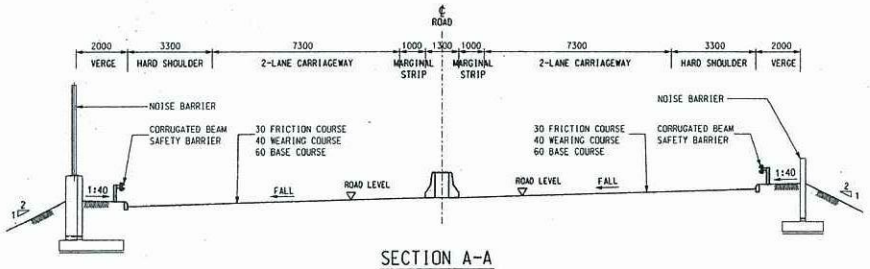
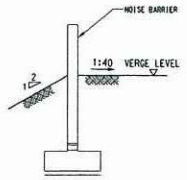




SECTION A-A
SCALE 1 : 100



SECTION B-B
1 : 50

NOTES:
1. FOR NOTES AND LEGEND, REFERRED TO NHHY9901-GA0603Z.

barriers completed in 2003

WORK AS EXECUTED

DATE OF COMPLETION

18 JULY 2003

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	-	-	PL	PS
Date		-	JULY/03	JULY/03
Approved				

Contract No. HY/99/01

Project
HIGHWAY BETWEEN SHAP PAT HEUNG INTERCHANGE AND POK OI INTERCHANGE - REMAINING WORKS

Drawing Title
GENERAL LAYOUT OF NOISE BARRIER (SHEET 3 OF 3)

Drawing No. NHHY9901-GA0603Z

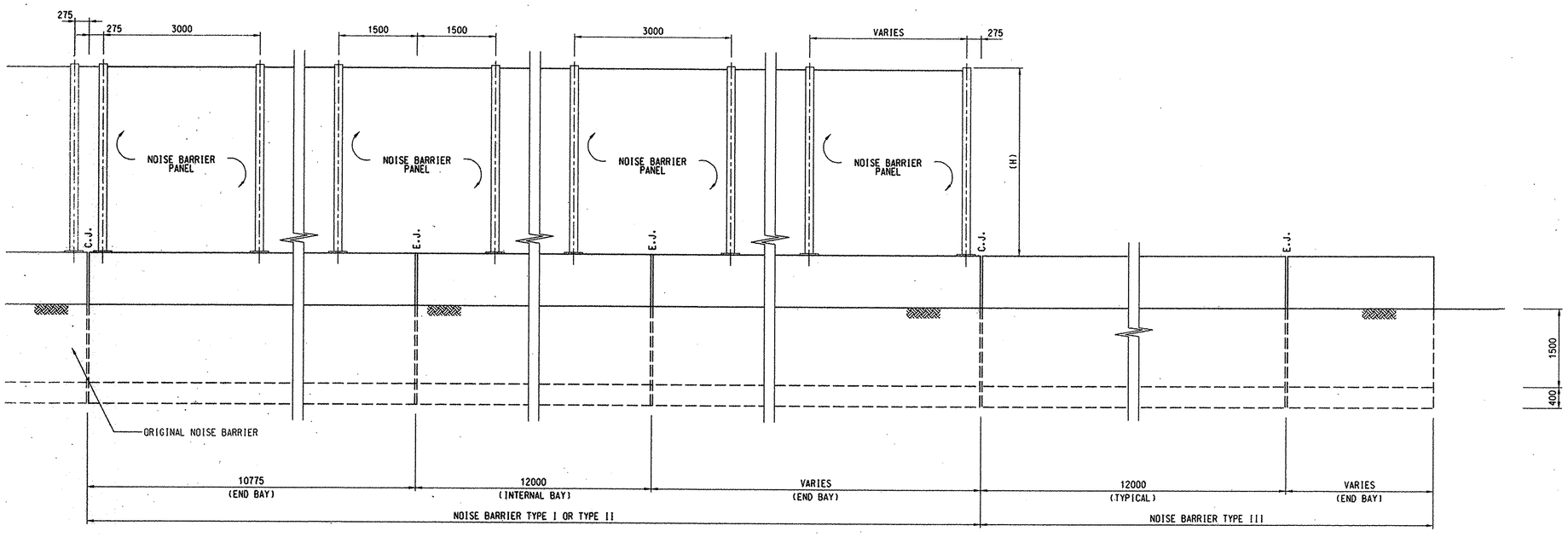
Scale 1 : 1000

BLACK & VEATCH HONG KONG LIMITED
柏威工程顧問有限公司

HIGHWAYS / N.T. REGION

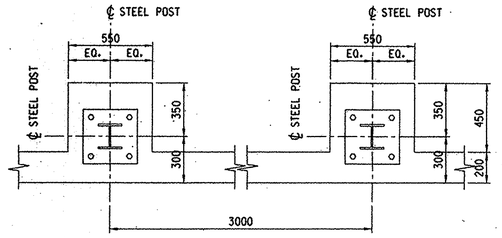
HIGHWAYS DEPARTMENT HONG KONG

File : NHHY9901-GA0603.dgn



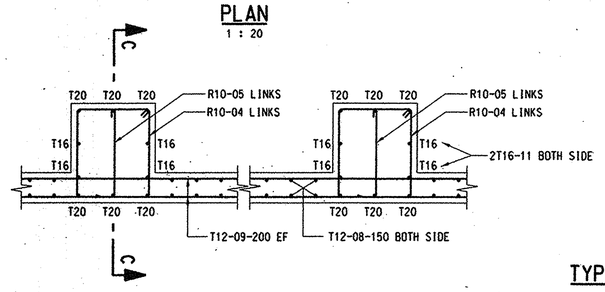
TYPICAL ELEVATION OF NOISE BARRIER IN VERGE

1 : 50



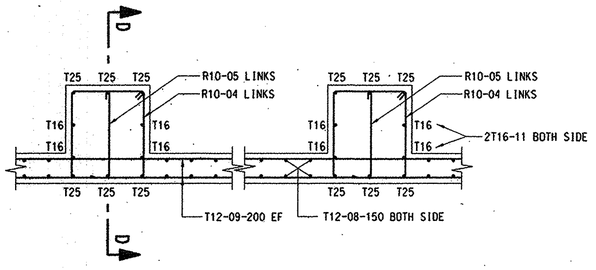
PLAN

1 : 20



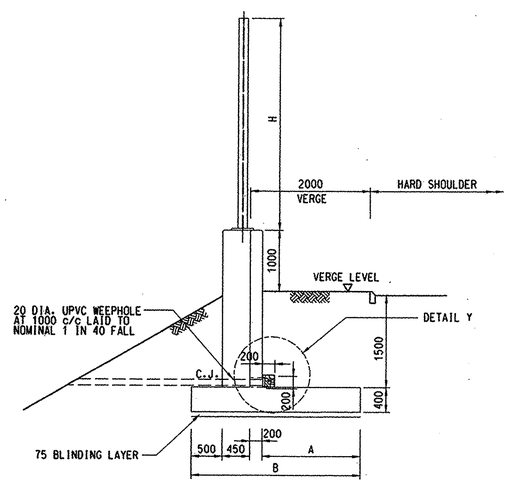
REINFORCEMENT DETAILS FOR NOISE BARRIER TYPE I

1 : 20



REINFORCEMENT DETAILS FOR NOISE BARRIER TYPE II

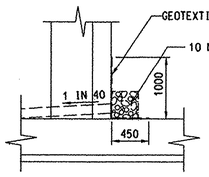
1 : 20



TYPICAL SECTION FOR NOISE BARRIER TYPE I AND II

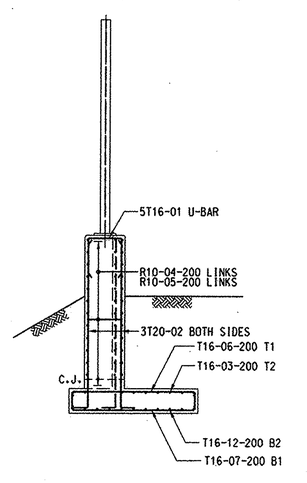
1 : 50

HEIGHT OF BARRIER (H) (m)	NOISE BARRIER TYPE	A	B
$0 < H \leqslant 1$	I	1350	2500
$1 < H \leqslant 2.5$	II	1850	3000



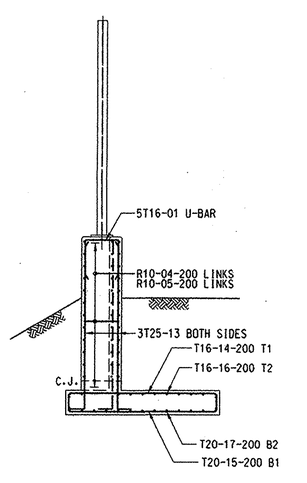
DETAIL Y

N.T.S.



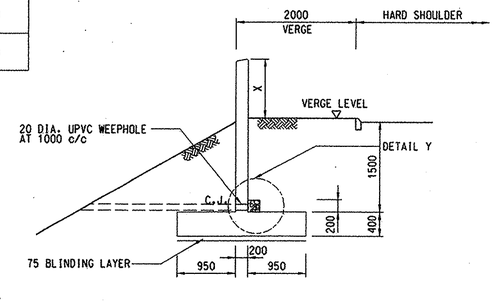
SECTION C-C

1 : 50



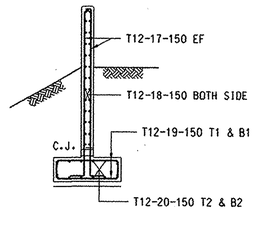
SECTION D-D

1 : 50



TYPICAL SECTION FOR NOISE BARRIER TYPE III

1 : 50



REINFORCEMENT DETAILS FOR NOISE BARRIER TYPE III

1 : 50

NOTES:

1. DIMENSIONS WERE IN MILLIMETERS UNLESS OTHERWISE STATED.
2. LEVELS WERE IN METERS AND REFERRED TO PRINCIPAL DATUM (P.D.)
3. ALL EXPOSED EXTERNAL ARISES OF 90° OR LESS WERE TO HAVE A 20x20 CHAMFER UNLESS OTHERWISE STATED.
4. NON-WOVEN POLYPYLENE GEOTEXTILE FILTER WERE PROVIDED AND FIXED ON WALL BACK.
5. GRADE OF CONCRETE:

   WALL & FOOTING 40/20
   BLINDING 10/20
6. COVER TO REINFORCEMENT :

   FOOTING 50mm
   WALL 50mm
7. STEEL WERE GRADE 43A WELDABLE STRUCTURAL STEEL COMPLYING WITH BS 4360.
8. STEELWORK WERE HOT DIP GALVANISED TO BS 729 AFTER FABRICATION.
9. WELDING WERE IN ACCORDANCE WITH BS 5135 AND ELECTRODES WERE IN ACCORDANCE WITH BS 639.
10. STEEL REINFORCEMENT WERE COMPLIED WITH THE REQUIREMENTS OF CS2 AND WERE IN ACCORDANCE WITH BS 4466.
11. REINFORCEMENT BAR MARK SYSTEM WAS READ THUS:

    57 T32 - 19 - 150 T (V)
    - 57 — NOS. OF BAR
    - T — DIAMETER OF BAR
    - 32 — BAR MARK
    - 19 — SPACING OF BAR
    - 150 — LOCATION
12. UNLESS OTHERWISE STATED, MINIMUM LAP LENGTH WAS 46 TIMES THE DIAMETER OF THE SMALLER BAR
13. CONCRETE FINISHES :

    FORMED SURFACE

    (i) EXPOSED SURFACE
    (ii) UNEXPOSED SURFACE

    UNFORMED SURFACE

    (i) EXPOSED SURFACE
    (ii) UNEXPOSED SURFACE
14. FOOTINGS WERE FOUNDED ON MATERIAL WITH MINIMUM ALLOWABLE BEARING CAPACITY OF 150KPa.
15. THIS DRAWING WAS READ IN CONJUNCTION WITH DRC. NOS. NHHY9901-GA0601Z TO GA0603Z.
16. STAINLESS STEEL WERE COMPLIED WITH BS1449.
19. ALL GALVANISED STRUCTURAL STEELWORKS WERE PAINTED IN ACCORDANCE WITH PAINTING SYSTEM F OF THE P.S. CLAUSE 18.62.
20. NOISE BARRIER AND FIXING COMPLIED A PROPRIETORY SYSTEM (MONT BANC).

LEGEND :

T	DENOTED TOP
B	DENOTED BOTTOM
NF	DENOTED NEAR FACE
EF	DENOTED EACH FACE
FF	DENOTED FAR FACE
(V)	DENOTED LENGTH VARIES
E.J.	DENOTED EXPANSION JOINT
C.J.	DENOTED CONSTRUCTION JOINT

WORK AS EXECUTED

DATE OF COMPLETION

18 JULY 2003

Revision	Date	Description		Initial
	Designed	Checked	Drawn	Checked
Initial	-	-	PL	PS
Date		-	JULY/03	JULY/03

Approved

Contract No. HY/99/01

Project
HIGHWAY BETWEEN SHAP PAT HEUNG INTERCHANGE AND POK OI INTERCHANGE - REMAINING WORKS

Drawing Title
NOISE BARRIER DETAILS (SHEET 1 OF 5)

Drawing No. NHHY9901-GA0604Z

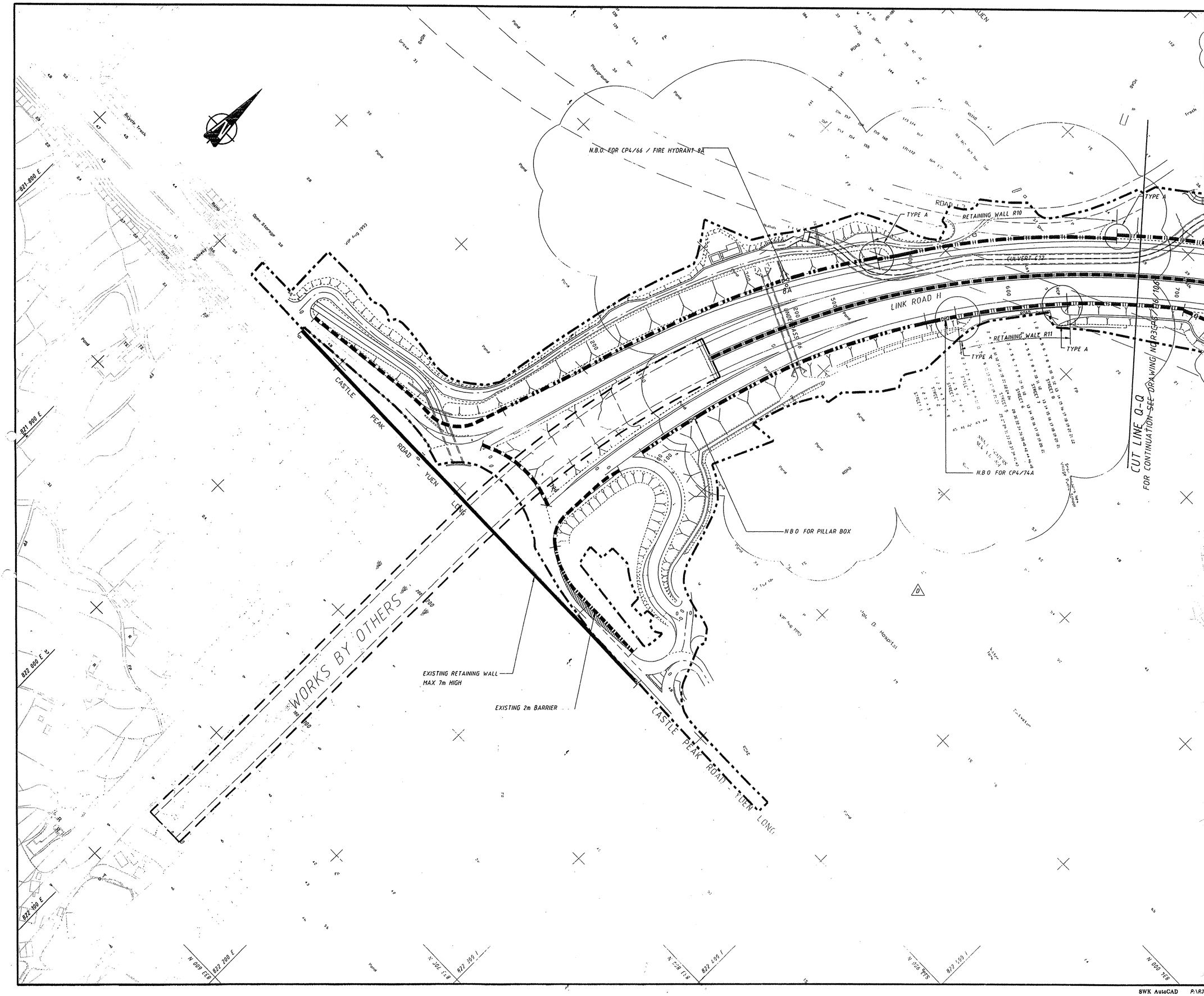
Scale AS SHOWN

BLACK & VEATCH HONG KONG LIMITED
柏威工程顧問有限公司

HIGHWAYS / N.T. REGION

HIGHWAYS DEPARTMENT HONG KONG

File : NHHY9901GA0604.dgn



NOTE:-

1. NOISE BARRIER CONNECTION DETAILS OF TYPE A, B & C REFER TO DRG. NO. R3CPS/116/125.
2. NOISE BARRIER OPENING DETAILS SHOULD REFER TO DRAWING NO. R3CPS/116/117.

△D

LEGEND :-

- 0.8m HEIGHT NOISE BARRIER (NOISE BARRIERS DUPLICATED ON RELEVANT ROADWORKS AND BRIDGE DRAWINGS)
- 1.25m HEIGHT NOISE BARRIER (NOISE BARRIERS DUPLICATED ON RELEVANT BRIDGE DRAWINGS)
- 2.0m HEIGHT NOISE BARRIER
- 3.0m HEIGHT NOISE BARRIER
- 4.0m HEIGHT NOISE BARRIER
- E E 2.0m HEIGHT EARTH BUND
- b b 2.0m HEIGHT NOISE BARRIER ON TOP OF 2.0m HEIGHT EARTH BUND
- ⋈ N.B.O. - NOISE BARRIER OPENING

△D

ROUTE 3
COUNTRY PARK SECTION

AS BUILT DRAWING

ENDORSED AS A TRUE RECORD OF CONSTRUCTION

Signed by _____ (for R3CC on behalf of the Franchisee)

Signed by _____ (for the Works Checker)

REV. 修訂	DESCRIPTION 內容摘要	DATE 日期	CHECKED 核核
D	NOTE 1 ADDED. LOCATION OF NOISE BARRIER OPENING ADDED. LEGEND "NBO" ADDED. NOISE BARRIER CONNECTION DETAIL TYPE A ADDED	4.8.97	LCYC
C	BARRIERS AND LEGEND REVISED.	14.10.96	JYKF
B	ALIGNMENT REVISED. LEGEND ADDED.	1.5.96	JYKF
A	HEIGHT OF EXISTING BARRIER AMENDED.	7.3.96	JYKF

FRANCHISEE
ROUTE 3 (CPS) CO. LTD.

CONTRACTOR
ROUTE 3 CONTRACTORS CONSORTIUM
NISHIMATSU - DRAGAGES

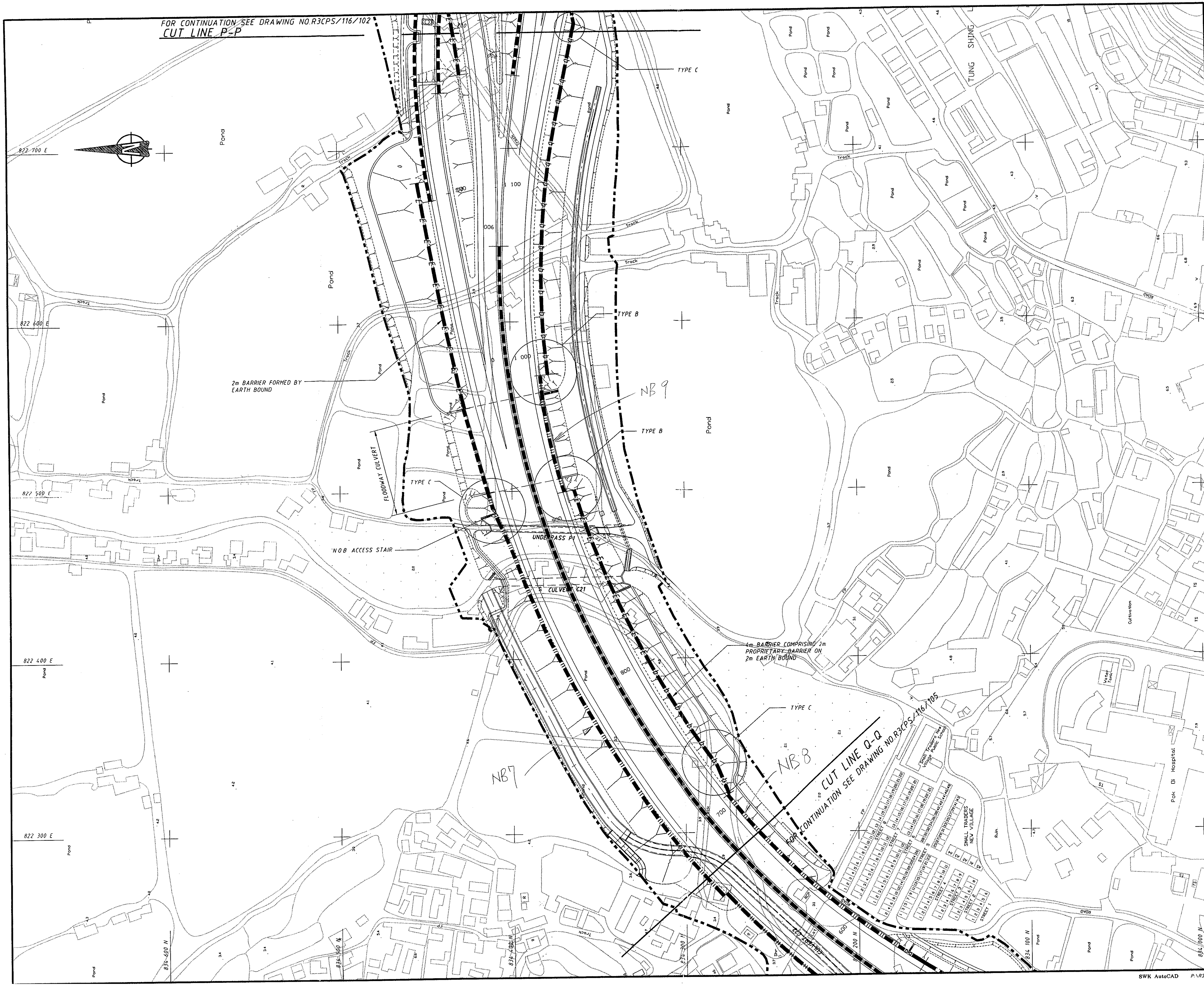
ROUTE 3 COUNTRY PARK SECTION

YUEN LONG APPROACH
NOISE BARRIERS

PLAN

SHEET 5 OF 8

DESIGNED 設計	PH	CONSULTANTS	MAUNSELL SCOTT WILSON J.V.
CHECKED 核核	-		
DRAWN 繪圖	CAD	DRG.NO. 圖紙編號	R3CPS/116/105
CHECKED 核核	PH	REV. 修訂	D
APPROVED FOR ISSUE 批准人	GET	DESIGNER/SUB-DESIGNER 設計	SWK
DATE 日期	18.1.96	DATE OF ISSUE 發放日期	6.11.98
SCALE 比例	1 : 1000	STATUS	AS BUILT DRAWING
DIMENSIONS ARE IN 尺寸單位	METRES		



NOTE :

1. NOISE BARRIER CONNECTION DETAILS OF TYPE A, B & C REFER TO DRG. NO. R3CPS/116/125
2. NOISE BARRIER OPENING DETAILS SHOULD REFER TO DRAWING NO R3CPS/116/117

LEGEND :-

- 0.8m HEIGHT NOISE BARRIER (NOISE BARRIERS DUPLICATED ON RELEVANT ROADWORKS AND BRIDGE DRAWINGS)
- 1.25m HEIGHT NOISE BARRIER (NOISE BARRIERS DUPLICATED ON RELEVANT BRIDGE DRAWINGS)
- 2.0m HEIGHT NOISE BARRIER
- 3.0m HEIGHT NOISE BARRIER
- 4.0m HEIGHT NOISE BARRIER
- E—E 2.0m HEIGHT EARTH BUND
- b—b 2.0m HEIGHT NOISE BARRIER ON TOP OF 2.0m HEIGHT EARTH BUND
- ⋈ N.B.O. - NOISE BARRIER OPENING

ROUTE 3
COUNTRY PARK SECTION

AS BUILT DRAWING

ENDORSED AS A TRUE RECORD OF CONSTRUCTION

Signed by : (for R3CC on behalf of the Franchisee)

Signed by : (for the Works Checker)

REV. 修訂	DESCRIPTION 內容摘要	DATE 日期	CHECKED 複核
D	AS BUILT INFORMATION ADDED	29.9.99	LCYC
C	NOTE 1 AND 2 ADDED. LOCATION OF NOISE BARRIER OPENING ADDED. LEGEND "NBO" ADDED. NOISE BARRIER CONNECTION DETAILS TYPE A, B & C ADDED	4.8.97	LCYC
B	BARRIERS AND LEGEND REVISED	14.10.96	JYKF
A	ALIGNMENT REVISED. LEGEND ADDED	1.5.96	JYKF

FRANCHISEE
ROUTE 3 (CPS) CO. LTD.

CONTRACTOR
ROUTE 3 CONTRACTORS CONSORTIUM
NISHIMATSU - DRAGAGES

ROUTE 3 COUNTRY PARK SECTION

YUEN LONG APPROACH
NOISE BARRIERS

PLAN

NB7,8,9

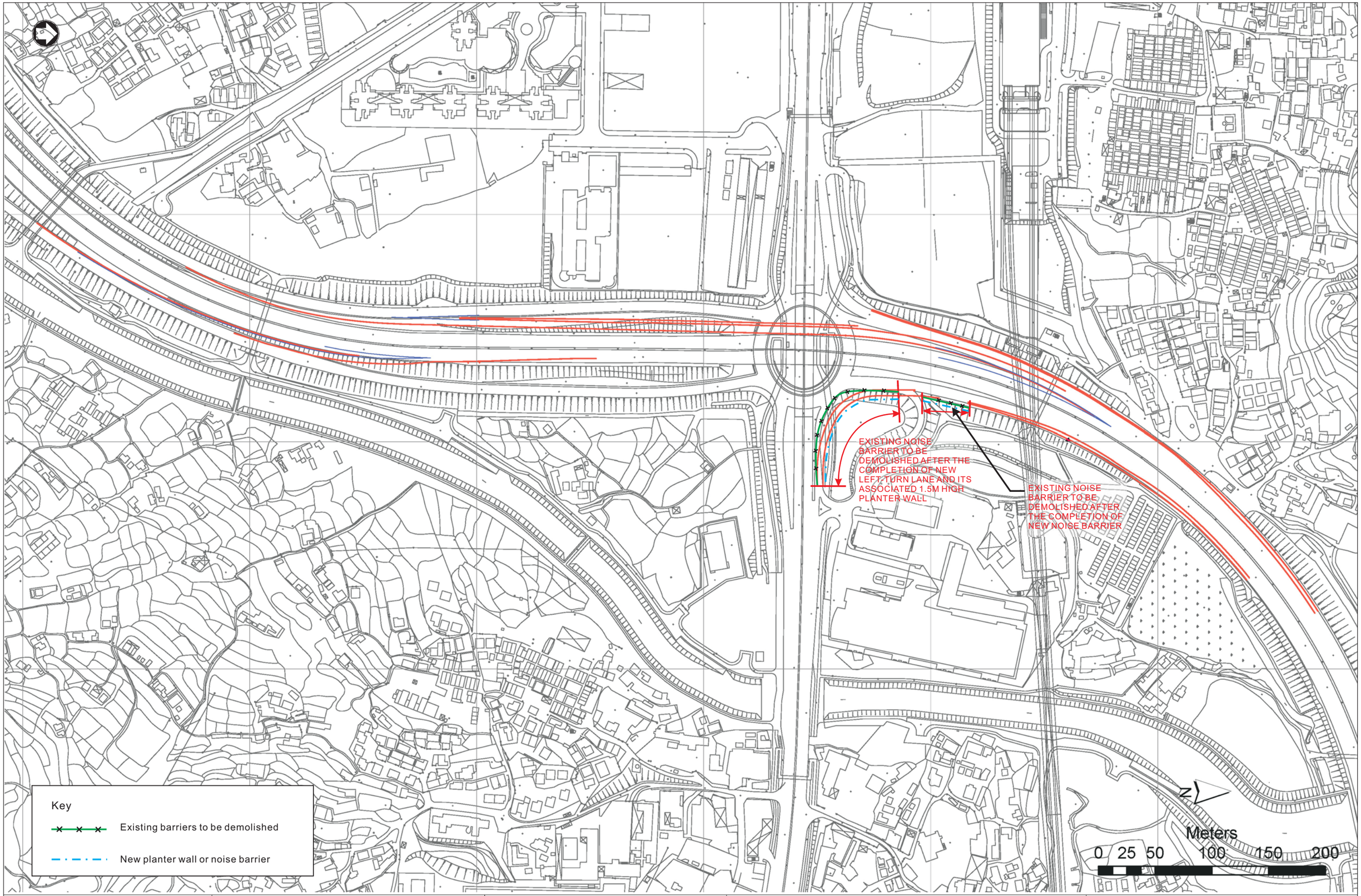
SHEET 6 OF 8

DESIGNED 設計	PH	CONSULTANTS	MAUNSELL SCOTT WILSON J.V.
CHECKED 複核	-		
DRAWN 繪圖	CAD	DRG.NO. 圖紙編號	R3CPS/116/106 (REV 修訂 D)
CHECKED 複核	PH		
APPROVED FOR ISSUE 批准人	GET	DESIGNER/SUB-DESIGNER 設計: SWK	DATE OF ISSUE 簽發日期: 29.9.99
DATE 日期	18.1.96	STATUS	AS BUILT DRAWING
SCALE 比例	1 : 1000		
DIMENSIONS ARE IN 尺寸單位	MILLIMETRES		

SWK AutoCAD P:\R3CPS\P116\P116106B Wed 02 Apr 1997-11:18am Scale 1 : 1.00 841x594

Annex C5

Existing Noise Barriers To Be Demolished



Highways Department
The Government of the Hong Kong Special Administrative Region

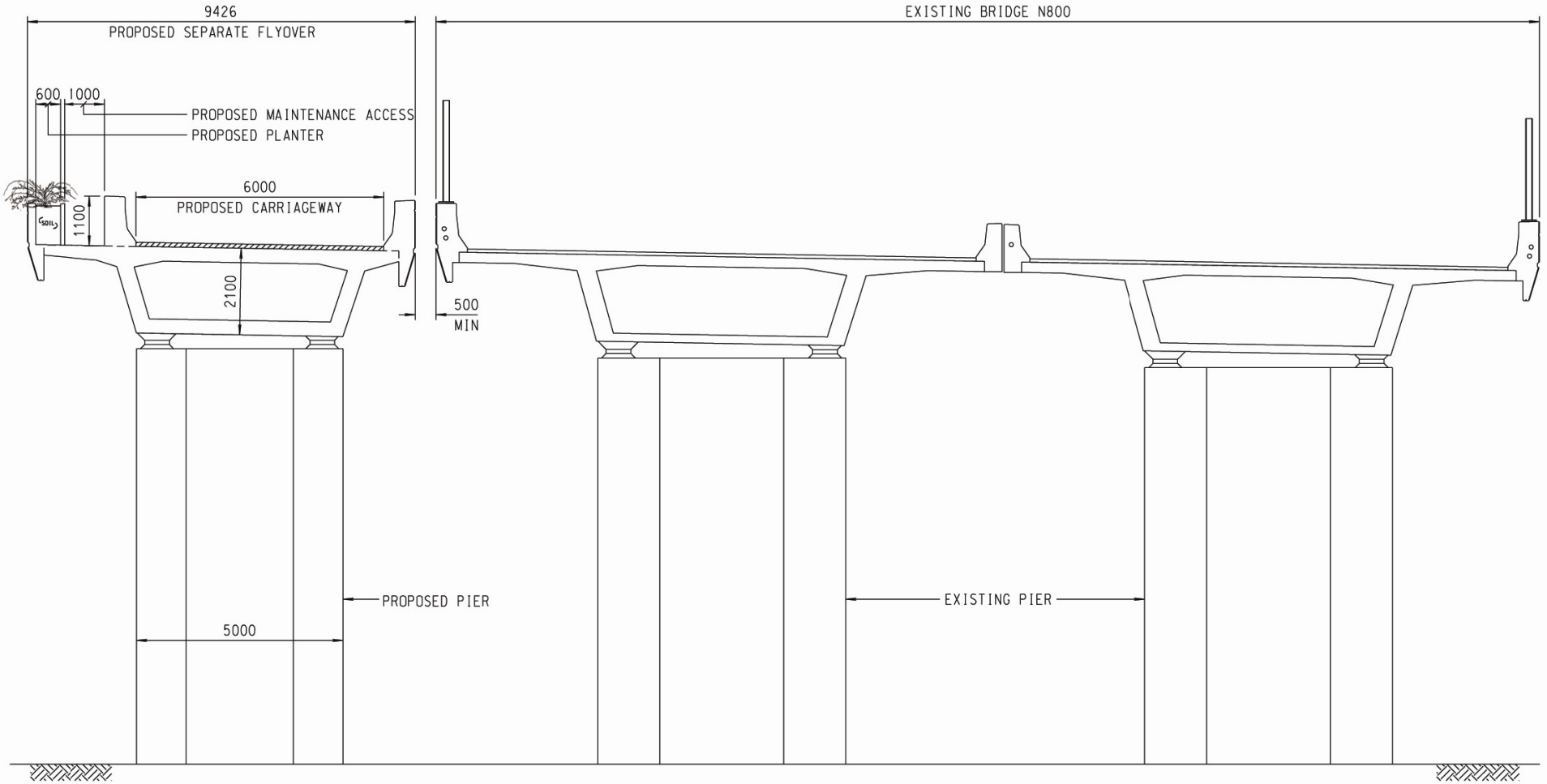
Consultant
Environmental Resources Management
ERM
Halcrow
Halcrow China Ltd.
As Engineering Sub-consultant

Agreement No. : WD 6/2007	Environmental Impact Assessment Report	ANNEX C5	
Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: EXISTING NOISE BARRIERS TO BE DEMOLISHED	Checked: PS	Scale: - / Rev.: 0
		Designed: TF	Drawn: - / Date: 02/07/2008

FILE: 0072252e

Annex C6

Sections of Concrete Parapet Wall and Planter Wall for the New Flyover and New Segregated Left-turn Lane



0 10 20 30 40 50 mm
1 : 1 SCALE BAR

sketch title

IMPROVEMENT TO POK OI INTERCHANGE
- TYPICAL SECTION OF NEW FLYOVER

rev	date	description	initial

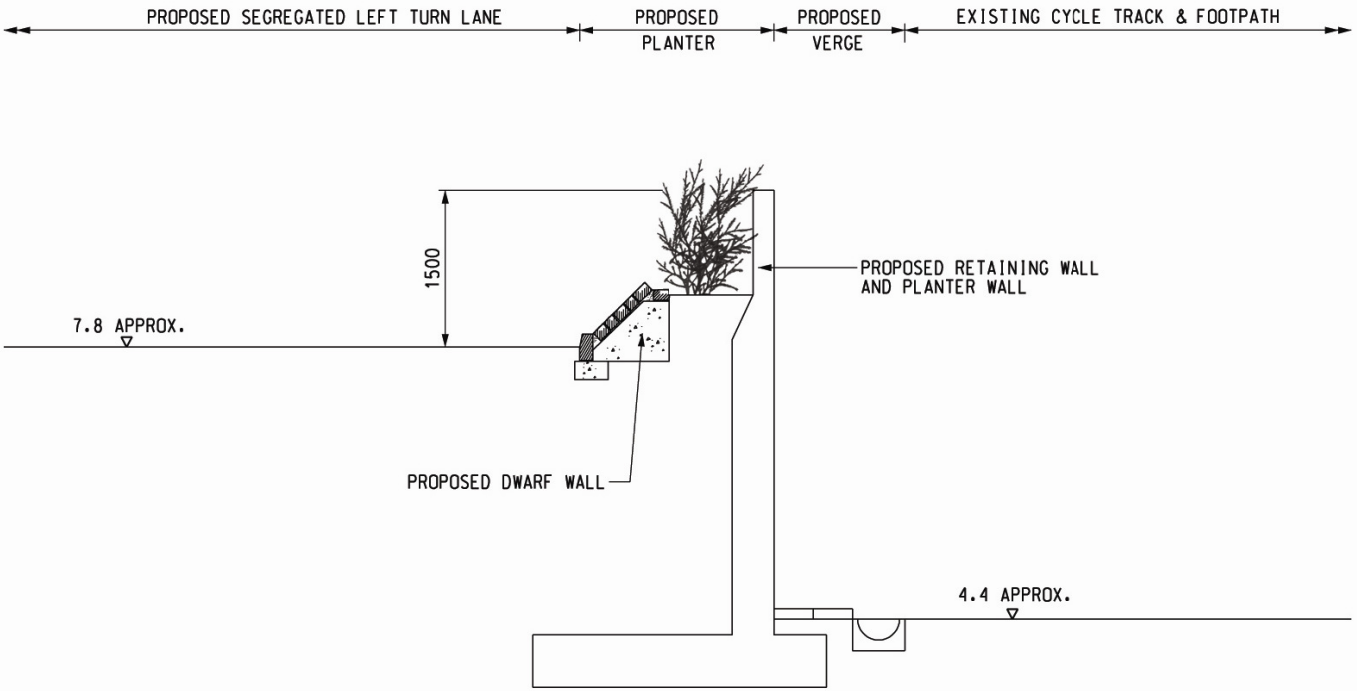
BRIDGES AND STRUCTURES DIVISION
HIGHWAYS DEPARTMENT
香港特別行政區政府 路務署 橋樑結構部

date	scale	sketch no.
10/09/2008	1 : 100	HSTS38401-SK0013-B

A3 Size 420x297mm PLOT ON: $DATE$ $TIME$

NOTES :

1. ALL DEMENISIONS ARE IN MILLIMETERS.
2. ALL LEVELS ARE IN METERS AND ABOVE H.K.P.D.



TYPICAL SECTION OF SEGREGATED LEFT TURN LANE

drawing title: TYPICAL SECTION OF SEGREGATED LEFT TURN LANE	project title: IMPROVEMENT TO POK OI INTERCHANGE	COPYRIGHT RESERVED / scale N.T.S. / A3	drawing no. HWDYL051A-SK0014
		office: WORKS DIVISION	HIGHWAYS DEPARTMENT HONG KONG

0 10 20 30 40 50mm SCALE 1 : 1

\STO_1\YL051A\HWDYL051A-SK0014.dgn

A3 420x297

Annex C7

Construction Noise Impact Assessment (Without Mitigation)

Annex C7-1 Summary of Predicted Noise Levels during Daytime Period (Without Mitigation)
(Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

		Predicted Construction Noise Level (dB(A))																								Max. CNL
		2009	2010												2011											
	NSR Location	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	72	72	72	73	73	75	75	77	77	77	77	77	74	75	75	75	72	72	72	72	72	69	69	65	65	77
JCCAH2	Jockey Club Care & Attention Home – southern facade	72	72	72	73	73	75	75	77	77	77	77	77	73	74	73	73	69	69	69	69	69	65	65	54	54	77
KMYLS1	Kwong Ming Ying Loi School	68	68	68	70	70	70	70	71	71	78	78	79	79	79	81	81	82	82	82	82	82	76	76	62	62	82
KMYLS2	Kwong Ming Ying Loi School	67	67	67	69	69	69	71	71	73	78	78	78	78	78	80	80	81	81	81	81	81	75	75	51	51	81
STNV1	Small Traders New Village	65	65	65	66	66	68	68	70	70	70	70	70	68	68	78	78	65	65	65	65	65	67	67	66	66	78
V1	Village house facing slip road (south bound) of Yuen Long Highway -	68	68	68	69	69	70	71	71	72	74	74	74	74	74	73	73	73	73	73	73	73	68	68	60	60	74
V2	Village house facing slip road (south bound) of Yuen Long Highway -	69	69	69	70	70	71	72	72	73	75	75	76	75	76	75	75	75	75	75	75	75	70	70	60	60	76
V3	Village house at Chuk San Tsuen	70	70	70	71	71	71	73	74	75	76	76	76	76	76	69	69	62	62	62	62	62	57	57	43	43	76
V6	Village house at Hoover Garden	64	64	64	65	65	65	67	67	69	70	70	70	70	70	68	68	69	69	69	69	69	63	63	54	54	70
WUT1	178 Wong Uk Tsuen	65	65	65	67	67	68	68	70	70	71	70	71	68	69	70	70	66	66	66	66	66	78	78	78	78	78
YT1	Block 2, YOHO Town	63	63	63	65	65	65	66	67	68	69	69	70	70	70	70	70	70	70	70	70	70	65	65	59	59	70

Annex C7-2 Summary of Predicted Cumulative Noise Levels during Daytime Period (Without Mitigation)
(Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

		Predicted Cumulative Construction Noise Level (dB(A))																								Max. CNL
		2009	2010												2011											
	NSR Location	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	72	73	73	74	74	76	76	77	77	78	77	77	74	75	75	75	72	72	72	72	72	69	69	65	65	78
JCCAH2	Jockey Club Care & Attention Home – southern facade	72	73	73	74	74	76	76	77	77	77	77	77	74	74	73	73	69	69	69	69	69	65	65	54	54	77
KMYLS1	Kwong Ming Ying Loi School	69	73	73	73	74	75	75	71	72	78	78	79	79	79	81	81	82	82	82	82	82	76	76	62	62	82
KMYLS2	Kwong Ming Ying Loi School	67	68	68	69	69	69	71	71	73	78	78	78	78	78	80	80	81	81	81	81	81	75	75	51	51	81
STNV1	Small Traders New Village	71	71	71	71	73	73	73	74	74	74	72	72	71	71	79	79	65	65	65	65	65	67	67	66	66	79
V1	Village house facing slip road (south bound) of Yuen Long Highway -	68	69	69	70	71	71	72	72	72	74	74	74	74	74	73	73	73	73	73	73	73	68	68	60	60	74
V2	Village house facing slip road (south bound) of Yuen Long Highway -	71	72	72	72	73	74	74	74	75	76	76	76	76	76	76	76	75	75	75	75	75	70	70	60	60	76
V3	Village house at Chuk San Tsuen	70	70	70	71	71	71	74	74	75	76	76	76	76	76	69	69	62	62	62	62	62	57	57	43	43	76
V6	Village house at Hoover Garden	64	65	65	66	66	66	68	67	69	70	70	70	70	70	69	69	69	69	69	69	69	63	63	54	54	70
WUT1	178 Wong Uk Tsuen	78	79	79	79	80	81	81	81	81	81	77	77	77	77	77	77	66	66	66	66	66	78	78	78	78	81
YT1	Block 2, YOHO Town	64	66	66	67	67	68	68	67	68	70	70	70	70	70	70	70	70	70	70	70	70	65	65	59	59	70

Annex C7-3

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: JCCAH1 Jockey Club Care & Attention Home – western facade

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	165	-52	0	3	63	63	63																						
3	Piling	115	165	-52	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	116	165	-52	0	3										67	67														
8	Construct pilecaps and piers	118	165	-52	0	3												68	68	68	68	68									
9	Construct flyover	114	165	-52	0	3																	65	65	65						
10	Install concrete parapets and planters	113	165	-52	0	3																				63	63				
13	Pavement construction	112	165	-52	0	3																						62	62		
II	**Slip Road A**																														
1	Site clearance	113	215	-55	0	3										61	61														
2	Site formation	114	215	-55	0	3												62	62	62											
4	Road drainage, utilities & water mains works	116	215	-55	0	3															65	65									
5	Construct retaining walls, abutments and embankment	118	215	-55	0	3																	67	67	67	67	67				
13	Pavement construction	112	215	-55	0	3																						60	60		
III	**Slip Road B**																														
1	Site clearance	113	160	-52	0	3										64	64														
2	Site formation	114	160	-52	0	3												65	65	65											
4	Road drainage, utilities & water mains works	116	160	-52	0	3															67	67									
5	Construct retaining walls, abutments and embankment	118	160	-52	0	3																	69	69	69	69	69				
13	Pavement construction	112	160	-52	0	3																						62	62		
IV	**Slip Road C**																														
1	Site clearance	113	415	-60	0	3	55	55	55																						
2	Site formation	114	415	-60	0	3				57	57	57																			
4	Road drainage, utilities & water mains works	116	415	-60	0	3							59	59																	
5	Construct retaining walls, abutments and embankment	118	415	-60	0	3									61	61	61	61	61	61											
13	Pavement construction	112	415	-60	0	3															54	54									
V	**Left-turn Lane A**																														
1	Site clearance	113	70	-45	0	3	71	71	71																						
2	Site formation	114	70	-45	0	3				72	72																				
4	Road drainage, utilities & water mains works	116	70	-45	0	3						74	74																		
5	Construct retaining walls, abutments and embankment	118	70	-45	0	3								76	76	76															
7	Extend subway	118	70	-45	0	3											76	76													
10	Install concrete parapets and planters	113	70	-45	0	3													71												
6	Demolish existing structures	114	70	-45	0	3														72											
13	Pavement construction	112	70	-45	0	3															70	70									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	140	-51	0	3															67	67									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	180	-53	0	3																						65	65	65	65
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	250	-56	0	3																									
2	Box culvert	114	250	-56	0	3																									
3	Retaining wall construction & associated works	115	250	-56	0	3																									
4	Road embankment	116	250	-56	0	3	63	63	63	63																					
5	Road drainage, utilities & water mains works	118	250	-56	0	3					65	65	65	65	65	65															
6	Pavement construction	114	250	-56	0	3											61	61	61	61	61	61									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	210	-54	0	3		61	61	61																					
5	Road drainage, utilities & water mains works	114	210	-54	0	3					63	63	63																		
6	Pavement construction	112	210	-54	0	3								60	60	60	60														
	Predicted Noise Level during Daytime Period, dB(A)						72	72	72	73	73	75	75	77	77	77	77	77	74	75	75	75	72	72	72	72	72	69	69	65	65	77
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						72	73	73	74	74	76	76	77	77	78	77	77	74	75	75	75	72	72	72	72	72	69	69	65	65	78

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-4

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: JCCAH2 Jockey Club Care & Attention Home – southern facade

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	175	-53	0	3	63	63	63																						
3	Piling	115	175	-53	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	116	175	-53	0	3										66	66														
8	Construct pilecaps and piers	118	175	-53	0	3												68	68	68	68	68									
9	Construct flyover	114	175	-53	0	3																	64	64	64						
10	Install concrete parapets and planters	113	175	-53	0	3																				63	63				
13	Pavement construction	112	175	-53	0	3																						62	62		
II	**Slip Road A**																														
1	Site clearance	113	220	-55	0	3										61	61														
2	Site formation	114	220	-55	0	3												62	62	62											
4	Road drainage, utilities & water mains works	116	220	-55	0	3															64	64									
5	Construct retaining walls, abutments and embankment	118	220	-55	0	3																	66	66	66	66	66				
13	Pavement construction	112	220	-55	0	3																						60	60		
III	**Slip Road B**																														
1	Site clearance	113	170	-53	-10	3										53	53														
2	Site formation	114	170	-53	-10	3												54	54	54											
4	Road drainage, utilities & water mains works	116	170	-53	-10	3															57	57									
5	Construct retaining walls, abutments and embankment	118	170	-53	-10	3																	59	59	59	59	59				
13	Pavement construction	112	170	-53	-10	3																						52	52		
IV	**Slip Road C**																														
1	Site clearance	113	405	-60	0	3	56	56	56																						
2	Site formation	114	405	-60	0	3				57	57	57																			
4	Road drainage, utilities & water mains works	116	405	-60	0	3							59	59																	
5	Construct retaining walls, abutments and embankment	118	405	-60	0	3									61	61	61	61	61	61											
13	Pavement construction	112	405	-60	0	3															54	54									
V	**Left-turn Lane A**																														
1	Site clearance	113	70	-45	0	3	71	71	71																						
2	Site formation	114	70	-45	0	3				72	72																				
4	Road drainage, utilities & water mains works	116	70	-45	0	3						74	74																		
5	Construct retaining walls, abutments and embankment	118	70	-45	0	3								76	76	76															
7	Extend subway	118	70	-45	0	3											76	76													
10	Install concrete parapets and planters	113	70	-45	0	3													71												
6	Demolish existing structures	114	70	-45	0	3														72											
13	Pavement construction	112	70	-45	0	3															70	70									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	150	-52	-10	3															56	56									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	190	-54	-10	3																						54	54	54	54
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	260	-56	0	3																									
2	Box culvert	114	260	-56	0	3																									
3	Retaining wall construction & associated works	115	260	-56	0	3																									
4	Road embankment	116	260	-56	0	3	63	63	63	63																					
5	Road drainage, utilities & water mains works	118	260	-56	0	3					65	65	65	65	65	65															
6	Pavement construction	114	260	-56	0	3											61	61	61	61	61	61									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	215	-55	0	3		61	61	61																					
5	Road drainage, utilities & water mains works	114	215	-55	0	3					63	63	63																		
6	Pavement construction	112	215	-55	0	3								60	60	60	60														
	Predicted Noise Level during Daytime Period, dB(A)						72	72	72	73	73	75	75	77	77	77	77	77	73	74	73	73	69	69	69	69	69	65	65	54	54	77
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						72	73	73	74	74	76	76	77	77	77	77	77	74	74	73	73	69	69	69	69	69	65	65	54	54	77

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-5

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: KMYLS1 Kwong Ming Ying Loi School

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	115	-49	0	3	67	67	67																						
3	Piling	115	115	-49	0	3				68	68	68	68	68	68																
4	Road drainage, utilities & water mains works	116	115	-49	0	3										70	70														
8	Construct pilecaps and piers	118	115	-49	0	3												72	72	72	72	72									
9	Construct flyover	114	115	-49	0	3																	68	68	68						
10	Install concrete parapets and planters	113	115	-49	0	3																				67	67				
13	Pavement construction	112	115	-49	0	3																						65	65		
II	**Slip Road A**																														
1	Site clearance	113	38	-40	0	3										76	76														
2	Site formation	114	38	-40	0	3												77	77	77											
4	Road drainage, utilities & water mains works	116	38	-40	0	3															80	80									
5	Construct retaining walls, abutments and embankment	118	38	-40	0	3																	82	82	82	82	82				
13	Pavement construction	112	38	-40	0	3																						75	75		
III	**Slip Road B**																														
1	Site clearance	113	255	-56	0	3										60	60														
2	Site formation	114	255	-56	0	3												61	61	61											
4	Road drainage, utilities & water mains works	116	255	-56	0	3															63	63									
5	Construct retaining walls, abutments and embankment	118	255	-56	0	3																	65	65	65	65	65				
13	Pavement construction	112	255	-56	0	3																						58	58		
IV	**Slip Road C**																														
1	Site clearance	113	130	-50	-10	3	56	56	56																						
2	Site formation	114	130	-50	-10	3				57	57	57																			
4	Road drainage, utilities & water mains works	116	130	-50	-10	3							59	59																	
5	Construct retaining walls, abutments and embankment	118	130	-50	-10	3									61	61	61	61	61	61											
13	Pavement construction	112	130	-50	-10	3															54	54									
V	**Left-turn Lane A**																														
1	Site clearance	113	220	-55	0	3	61	61	61																						
2	Site formation	114	220	-55	0	3				62	62																				
4	Road drainage, utilities & water mains works	116	220	-55	0	3						64	64																		
5	Construct retaining walls, abutments and embankment	118	220	-55	0	3								66	66	66															
7	Extend subway	118	220	-55	0	3											66	66													
10	Install concrete parapets and planters	113	220	-55	0	3													61												
6	Demolish existing structures	114	220	-55	0	3														62											
13	Pavement construction	112	220	-55	0	3															60	60									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	330	-58	0	3															59	59									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	250	-56	0	3																						62	62	62	62
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	360	-59	0	3																									
2	Box culvert	114	360	-59	0	3																									
3	Retaining wall construction & associated works	115	360	-59	0	3																									
4	Road embankment	116	360	-59	0	3	60	60	60	60																					
5	Road drainage, utilities & water mains works	118	360	-59	0	3					62	62	62	62	62	62															
6	Pavement construction	114	360	-59	0	3											58	58	58	58	58	58									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	70	-45	0	3		71	71	71																					
5	Road drainage, utilities & water mains works	114	70	-45	0	3					72	72	72																		
6	Pavement construction	112	70	-45	0	3								70	70	70	70														
	Predicted Noise Level during Daytime Period, dB(A)						68	68	68	70	70	70	70	71	71	78	78	79	79	79	81	81	82	82	82	82	82	76	76	62	62	82
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						69	73	73	73	74	75	75	71	72	78	78	79	79	79	81	81	82	82	82	82	82	76	76	62	62	82

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-6

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: KMYLS2 Kwong Ming Ying Loi School

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	135	-51	-10	3	55	55	55																						
3	Piling	115	135	-51	-10	3				57	57	57	57	57	57																
4	Road drainage, utilities & water mains works	116	135	-51	-10	3										59	59														
8	Construct pilecaps and piers	118	135	-51	-10	3												60	60	60	60	60									
9	Construct flyover	114	135	-51	-10	3																	57	57	57						
10	Install concrete parapets and planters	113	135	-51	-10	3																				55	55				
13	Pavement construction	112	135	-51	-10	3																						54	54		
II	**Slip Road A**																														
1	Site clearance	113	40	-40	0	3										76	76														
2	Site formation	114	40	-40	0	3												77	77	77											
4	Road drainage, utilities & water mains works	116	40	-40	0	3															79	79									
5	Construct retaining walls, abutments and embankment	118	40	-40	0	3																	81	81	81	81	81				
13	Pavement construction	112	40	-40	0	3																						75	75		
III	**Slip Road B**																														
1	Site clearance	113	270	-57	-10	3										49	49														
2	Site formation	114	270	-57	-10	3												50	50	50											
4	Road drainage, utilities & water mains works	116	270	-57	-10	3															53	53									
5	Construct retaining walls, abutments and embankment	118	270	-57	-10	3																	55	55	55	55	55				
13	Pavement construction	112	270	-57	-10	3																						48	48		
IV	**Slip Road C**																														
1	Site clearance	113	110	-49	0	3	67	67	67																						
2	Site formation	114	110	-49	0	3				68	68	68																			
4	Road drainage, utilities & water mains works	116	110	-49	0	3							71	71																	
5	Construct retaining walls, abutments and embankment	118	110	-49	0	3									73	73	73	73	73	73											
13	Pavement construction	112	110	-49	0	3															66	66									
V	**Left-turn Lane A**																														
1	Site clearance	113	250	-56	-10	3	50	50	50																						
2	Site formation	114	250	-56	-10	3				51	51																				
4	Road drainage, utilities & water mains works	116	250	-56	-10	3						53	53																		
5	Construct retaining walls, abutments and embankment	118	250	-56	-10	3								55	55	55															
7	Extend subway	118	250	-56	-10	3											55	55													
10	Install concrete parapets and planters	113	250	-56	-10	3													50												
6	Demolish existing structures	114	250	-56	-10	3														51											
13	Pavement construction	112	250	-56	-10	3															49	49									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	350	-59	-10	3															49	49									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	280	-57	-10	3																						51	51	51	51
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	400	-60	-10	3																									
2	Box culvert	114	400	-60	-10	3																									
3	Retaining wall construction & associated works	115	400	-60	-10	3																									
4	Road embankment	116	400	-60	-10	3	49	49	49	49																					
5	Road drainage, utilities & water mains works	118	400	-60	-10	3					51	51	51	51	51	51															
6	Pavement construction	114	400	-60	-10	3											47	47	47	47	47	47									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	100	-48	-10	3		58	58	58																					
5	Road drainage, utilities & water mains works	114	100	-48	-10	3					59	59	59																		
6	Pavement construction	112	100	-48	-10	3								57	57	57	57														
	Predicted Noise Level during Daytime Period, dB(A)						67	67	67	69	69	69	71	71	73	78	78	78	78	78	80	80	81	81	81	81	81	75	75	51	51	81
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						67	68	68	69	69	69	71	71	73	78	78	78	78	78	80	80	81	81	81	81	81	75	75	51	51	81

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-7

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: STNV1 Small Traders New Village

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	270	-57	0	3	59	59	59																						
3	Piling	115	270	-57	0	3				61	61	61	61	61	61																
4	Road drainage, utilities & water mains works	116	270	-57	0	3										63	63														
8	Construct pilecaps and piers	118	270	-57	0	3												64	64	64	64	64									
9	Construct flyover	114	270	-57	0	3																	61	61	61						
10	Install concrete parapets and planters	113	270	-57	0	3																				59	59				
13	Pavement construction	112	270	-57	0	3																						58	58		
II	**Slip Road A**																														
1	Site clearance	113	400	-60	0	3										56	56														
2	Site formation	114	400	-60	0	3												57	57	57											
4	Road drainage, utilities & water mains works	116	400	-60	0	3															59	59									
5	Construct retaining walls, abutments and embankment	118	400	-60	0	3																	61	61	61	61	61				
13	Pavement construction	112	400	-60	0	3																						55	55		
III	**Slip Road B**																														
1	Site clearance	113	155	-52	-10	3										54	54														
2	Site formation	114	155	-52	-10	3												55	55	55											
4	Road drainage, utilities & water mains works	116	155	-52	-10	3															58	58									
5	Construct retaining walls, abutments and embankment	118	155	-52	-10	3																	60	60	60	60	60				
13	Pavement construction	112	155	-52	-10	3																						53	53		
IV	**Slip Road C**																														
1	Site clearance	113	640	-64	0	3	52	52	52																						
2	Site formation	114	640	-64	0	3				53	53	53																			
4	Road drainage, utilities & water mains works	116	640	-64	0	3							55	55																	
5	Construct retaining walls, abutments and embankment	118	640	-64	0	3									57	57	57	57	57	57											
13	Pavement construction	112	640	-64	0	3															50	50									
V	**Left-turn Lane A**																														
1	Site clearance	113	170	-53	0	3	63	63	63																						
2	Site formation	114	170	-53	0	3				64	64																				
4	Road drainage, utilities & water mains works	116	170	-53	0	3						67	67																		
5	Construct retaining walls, abutments and embankment	118	170	-53	0	3								69	69	69															
7	Extend subway	118	170	-53	0	3											68	68													
10	Install concrete parapets and planters	113	170	-53	0	3													63												
6	Demolish existing structures	114	170	-53	0	3														65											
13	Pavement construction	112	170	-53	0	3															62	62									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	12	-30	-10	3															78	78									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	50	-42	-10	3																						66	66	66	66
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	120	-50	0	3																									
2	Box culvert	114	120	-50	0	3																									
3	Retaining wall construction & associated works	115	120	-50	0	3																									
4	Road embankment	116	120	-50	0	3	70	70	70	70																					
5	Road drainage, utilities & water mains works	118	120	-50	0	3					72	72	72	72	72	72															
6	Pavement construction	114	120	-50	0	3											68	68	68	68	68	68									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	365	-59	0	3		57	57	57																					
5	Road drainage, utilities & water mains works	114	365	-59	0	3					58	58	58																		
6	Pavement construction	112	365	-59	0	3								55	55	55	55														
	Predicted Noise Level during Daytime Period, dB(A)						65	65	65	66	66	68	68	70	70	70	70	70	68	68	78	78	65	65	65	65	65	67	67	66	66	78
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						71	71	71	71	73	73	73	74	74	74	72	72	71	71	79	79	65	65	65	65	65	67	67	66	66	79

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-8

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: V1 Village house facing slip road (south bound) of Yuen Long Highway - south of POI

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	170	-53	0	3	63	63	63																						
3	Piling	115	170	-53	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	116	170	-53	0	3										67	67														
8	Construct pilecaps and piers	118	170	-53	0	3												68	68	68	68	68										
9	Construct flyover	114	170	-53	0	3																	65	65	65							
10	Install concrete parapets and planters	113	170	-53	0	3																				63	63					
13	Pavement construction	112	170	-53	0	3																						62	62			
II	**Slip Road A**																														
1	Site clearance	113	120	-50	0	3										66	66														
2	Site formation	114	120	-50	0	3												67	67	67											
4	Road drainage, utilities & water mains works	116	120	-50	0	3															70	70									
5	Construct retaining walls, abutments and embankment	118	120	-50	0	3																	72	72	72	72	72				
13	Pavement construction	112	120	-50	0	3																						65	65			
III	**Slip Road B**																														
1	Site clearance	113	290	-57	0	3										59	59														
2	Site formation	114	290	-57	0	3												60	60	60											
4	Road drainage, utilities & water mains works	116	290	-57	0	3															62	62									
5	Construct retaining walls, abutments and embankment	118	290	-57	0	3																	64	64	64	64	64				
13	Pavement construction	112	290	-57	0	3																						57	57			
IV	**Slip Road C**																														
1	Site clearance	113	160	-52	0	3	64	64	64																						
2	Site formation	114	160	-52	0	3				65	65	65																			
4	Road drainage, utilities & water mains works	116	160	-52	0	3							67	67																	
5	Construct retaining walls, abutments and embankment	118	160	-52	0	3									69	69	69	69	69	69											
13	Pavement construction	112	160	-52	0	3															62	62									
V	**Left-turn Lane A**																														
1	Site clearance	113	210	-54	0	3	61	61	61																						
2	Site formation	114	210	-54	0	3				63	63																				
4	Road drainage, utilities & water mains works	116	210	-54	0	3						65	65																		
5	Construct retaining walls, abutments and embankment	118	210	-54	0	3								67	67	67															
7	Extend subway	118	210	-54	0	3											66	66													
10	Install concrete parapets and planters	113	210	-54	0	3													61												
6	Demolish existing structures	114	210	-54	0	3														63											
13	Pavement construction	112	210	-54	0	3															60	60									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	345	-59	0	3															59	59									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	300	-58	0	3																						60	60	60	60	
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	450	-61	0	3																									
2	Box culvert	114	450	-61	0	3																									
3	Retaining wall construction & associated works	115	450	-61	0	3																									
4	Road embankment	116	450	-61	0	3	58	58	58	58																					
5	Road drainage, utilities & water mains works	118	450	-61	0	3					60	60	60	60	60	60															
6	Pavement construction	114	450	-61	0	3											56	56	56	56	56	56									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	170	-53	0	3		63	63	63																					
5	Road drainage, utilities & water mains works	114	170	-53	0	3					65	65	65																		
6	Pavement construction	112	170	-53	0	3								62	62	62	62														
	Predicted Noise Level during Daytime Period, dB(A)						68	68	68	69	69	70	71	71	72	74	74	74	74	74	73	73	73	73	73	73	73	68	68	60	60	74
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						68	69	69	70	71	71	72	72	72	74	74	74	74	74	73	73	73	73	73	73	73	68	68	60	60	74

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-9

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: V2 Village house facing slip road (south bound) of Yuen Long Highway - south of POI

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	165	-52	0	3	63	63	63																						
3	Piling	115	165	-52	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	116	165	-52	0	3										67	67														
8	Construct pilecaps and piers	118	165	-52	0	3												68	68	68	68	68									
9	Construct flyover	114	165	-52	0	3																	65	65	65						
10	Install concrete parapets and planters	113	165	-52	0	3																				63	63				
13	Pavement construction	112	165	-52	0	3																						62	62		
II	**Slip Road A**																														
1	Site clearance	113	85	-47	0	3										69	69														
2	Site formation	114	85	-47	0	3												70	70	70											
4	Road drainage, utilities & water mains works	116	85	-47	0	3															73	73									
5	Construct retaining walls, abutments and embankment	118	85	-47	0	3																	75	75	75	75	75				
13	Pavement construction	112	85	-47	0	3																						68	68		
III	**Slip Road B**																														
1	Site clearance	113	300	-58	0	3										58	58														
2	Site formation	114	300	-58	0	3												60	60	60											
4	Road drainage, utilities & water mains works	116	300	-58	0	3															62	62									
5	Construct retaining walls, abutments and embankment	118	300	-58	0	3																	64	64	64	64	64				
13	Pavement construction	112	300	-58	0	3																						57	57		
IV	**Slip Road C**																														
1	Site clearance	113	120	-50	0	3	66	66	66																						
2	Site formation	114	120	-50	0	3				67	67	67																			
4	Road drainage, utilities & water mains works	116	120	-50	0	3							70	70																	
5	Construct retaining walls, abutments and embankment	118	120	-50	0	3									72	72	72	72	72	72											
13	Pavement construction	112	120	-50	0	3															65	65									
V	**Left-turn Lane A**																														
1	Site clearance	113	235	-55	0	3	60	60	60																						
2	Site formation	114	235	-55	0	3				62	62																				
4	Road drainage, utilities & water mains works	116	235	-55	0	3						64	64																		
5	Construct retaining walls, abutments and embankment	118	235	-55	0	3								66	66	66															
7	Extend subway	118	235	-55	0	3											65	65													
10	Install concrete parapets and planters	113	235	-55	0	3													60												
6	Demolish existing structures	114	235	-55	0	3														62											
13	Pavement construction	112	235	-55	0	3															59	59									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	370	-59	0	3															58	58									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	300	-58	0	3																						60	60	60	60
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	150	-52	0	3																									
2	Box culvert	114	150	-52	0	3																									
3	Retaining wall construction & associated works	115	150	-52	0	3																									
4	Road embankment	116	150	-52	0	3	68	68	68	68																					
5	Road drainage, utilities & water mains works	118	150	-52	0	3					70	70	70	70	70	70															
6	Pavement construction	114	150	-52	0	3											66	66	66	66	66	66									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	210	-54	0	3		61	61	61																					
5	Road drainage, utilities & water mains works	114	210	-54	0	3					63	63	63																		
6	Pavement construction	112	210	-54	0	3								60	60	60	60														
	Predicted Noise Level during Daytime Period, dB(A)						69	69	69	70	70	71	72	72	73	75	75	76	75	76	75	75	75	75	75	75	75	70	70	60	60	76
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						71	72	72	72	73	74	74	74	75	76	76	76	76	76	76	76	75	75	75	75	75	70	70	60	60	76

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-10

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: V3 Village house at Chuk San Tsuen

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	530	-62	0	3	53	53	53																						
3	Piling	115	530	-62	0	3				55	55	55	55	55	55																
4	Road drainage, utilities & water mains works	116	530	-62	0	3										57	57														
8	Construct pilecaps and piers	118	530	-62	0	3												58	58	58	58	58									
9	Construct flyover	114	530	-62	0	3																	55	55	55						
10	Install concrete parapets and planters	113	530	-62	0	3																				53	53				
13	Pavement construction	112	530	-62	0	3																						52	52		
II	**Slip Road A**																														
1	Site clearance	113	130	-50	-10	3										56	56														
2	Site formation	114	130	-50	-10	3												57	57	57											
4	Road drainage, utilities & water mains works	116	130	-50	-10	3															59	59									
5	Construct retaining walls, abutments and embankment	118	130	-50	-10	3																	61	61	61	61	61				
13	Pavement construction	112	130	-50	-10	3																						54	54		
III	**Slip Road B**																														
1	Site clearance	113	680	-65	-10	3										41	41														
2	Site formation	114	680	-65	-10	3												42	42	42											
4	Road drainage, utilities & water mains works	116	680	-65	-10	3															45	45									
5	Construct retaining walls, abutments and embankment	118	680	-65	-10	3																	47	47	47	47	47				
13	Pavement construction	112	680	-65	-10	3																						40	40		
IV	**Slip Road C**																														
1	Site clearance	113	25	-36	-10	3	70	70	70																						
2	Site formation	114	25	-36	-10	3				71	71	71																			
4	Road drainage, utilities & water mains works	116	25	-36	-10	3							73	73																	
5	Construct retaining walls, abutments and embankment	118	25	-36	-10	3									75	75	75	75	75	75											
13	Pavement construction	112	25	-36	-10	3															69	69									
V	**Left-turn Lane A**																														
1	Site clearance	113	635	-64	0	3	52	52	52																						
2	Site formation	114	635	-64	0	3				53	53																				
4	Road drainage, utilities & water mains works	116	635	-64	0	3						55	55																		
5	Construct retaining walls, abutments and embankment	118	635	-64	0	3								57	57	57															
7	Extend subway	118	635	-64	0	3											57	57													
10	Install concrete parapets and planters	113	635	-64	0	3													52												
6	Demolish existing structures	114	635	-64	0	3														53											
13	Pavement construction	112	635	-64	0	3															51	51									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	760	-66	-10	3															42	42									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	670	-65	-10	3																						43	43	43	43
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	820	-66	-10	3																									
2	Box culvert	114	820	-66	-10	3																									
3	Retaining wall construction & associated works	115	820	-66	-10	3																									
4	Road embankment	116	820	-66	-10	3	43	43	43	43																					
5	Road drainage, utilities & water mains works	118	820	-66	-10	3					45	45	45	45	45	45															
6	Pavement construction	114	820	-66	-10	3											41	41	41	41	41	41									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	490	-62	-10	3		44	44	44																					
5	Road drainage, utilities & water mains works	114	490	-62	-10	3					46	46	46																		
6	Pavement construction	112	490	-62	-10	3								43	43	43	43														
	Predicted Noise Level during Daytime Period, dB(A)						70	70	70	71	71	71	73	74	75	76	76	76	76	76	69	69	62	62	62	62	62	57	57	43	43	76
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						70	70	70	71	71	71	74	74	75	76	76	76	76	76	69	69	62	62	62	62	62	57	57	43	43	76

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-11

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: V6 Village house at Hoover Garden

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	480	-62	0	3	54	54	54																						
3	Piling	115	480	-62	0	3				56	56	56	56	56	56																
4	Road drainage, utilities & water mains works	116	480	-62	0	3										58	58														
8	Construct pilecaps and piers	118	480	-62	0	3												59	59	59	59	59									
9	Construct flyover	114	480	-62	0	3																	56	56	56						
10	Install concrete parapets and planters	113	480	-62	0	3																				54	54				
13	Pavement construction	112	480	-62	0	3																						53	53		
II	**Slip Road A**																														
1	Site clearance	113	180	-53	0	3										63	63														
2	Site formation	114	180	-53	0	3												64	64	64											
4	Road drainage, utilities & water mains works	116	180	-53	0	3															66	66									
5	Construct retaining walls, abutments and embankment	118	180	-53	0	3																	68	68	68	68	68				
13	Pavement construction	112	180	-53	0	3																						61	61		
III	**Slip Road B**																														
1	Site clearance	113	620	-64	0	3										52	52														
2	Site formation	114	620	-64	0	3												53	53	53											
4	Road drainage, utilities & water mains works	116	620	-64	0	3															55	55									
5	Construct retaining walls, abutments and embankment	118	620	-64	0	3																	57	57	57	57	57				
13	Pavement construction	112	620	-64	0	3																						51	51		
IV	**Slip Road C**																														
1	Site clearance	113	180	-53	0	3	63	63	63																						
2	Site formation	114	180	-53	0	3				64	64	64																			
4	Road drainage, utilities & water mains works	116	180	-53	0	3							66	66																	
5	Construct retaining walls, abutments and embankment	118	180	-53	0	3									68	68	68	68	68	68											
13	Pavement construction	112	180	-53	0	3															61	61									
V	**Left-turn Lane A**																														
1	Site clearance	113	600	-64	0	3	52	52	52																						
2	Site formation	114	600	-64	0	3				53	53																				
4	Road drainage, utilities & water mains works	116	600	-64	0	3						56	56																		
5	Construct retaining walls, abutments and embankment	118	600	-64	0	3								58	58	58															
7	Extend subway	118	600	-64	0	3											57	57													
10	Install concrete parapets and planters	113	600	-64	0	3													52												
6	Demolish existing structures	114	600	-64	0	3														54											
13	Pavement construction	112	600	-64	0	3															51	51									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	710	-65	0	3															53	53									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	600	-64	0	3																						54	54	54	54
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	810	-66	0	3																									
2	Box culvert	114	810	-66	0	3																									
3	Retaining wall construction & associated works	115	810	-66	0	3																									
4	Road embankment	116	810	-66	0	3	53	53	53	53																					
5	Road drainage, utilities & water mains works	118	810	-66	0	3					55	55	55	55	55	55															
6	Pavement construction	114	810	-66	0	3											51	51	51	51	51	51									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	425	-61	0	3		55	55	55																					
5	Road drainage, utilities & water mains works	114	425	-61	0	3					57	57	57																		
6	Pavement construction	112	425	-61	0	3								54	54	54	54														
	Predicted Noise Level during Daytime Period, dB(A)						64	64	64	65	65	65	67	67	69	70	70	70	70	70	68	68	69	69	69	69	69	63	63	54	54	70
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						64	65	65	66	66	66	68	67	69	70	70	70	70	70	69	69	69	69	69	69	69	63	63	54	54	70

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-12

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: WUT1 178 Wong Uk Tsuen

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	250	-56	0	3	60	60	60																						
3	Piling	115	250	-56	0	3				62	62	62	62	62	62																
4	Road drainage, utilities & water mains works	116	250	-56	0	3										63	63														
8	Construct pilecaps and piers	118	250	-56	0	3												65	65	65	65	65									
9	Construct flyover	114	250	-56	0	3																	61	61	61						
10	Install concrete parapets and planters	113	250	-56	0	3																				60	60				
13	Pavement construction	112	250	-56	0	3																						59	59		
II	**Slip Road A**																														
1	Site clearance	113	390	-60	0	3										56	56														
2	Site formation	114	390	-60	0	3												57	57	57											
4	Road drainage, utilities & water mains works	116	390	-60	0	3															60	60									
5	Construct retaining walls, abutments and embankment	118	390	-60	0	3																	62	62	62	62	62				
13	Pavement construction	112	390	-60	0	3																						55	55		
III	**Slip Road B**																														
1	Site clearance	113	120	-50	-10	3										56	56														
2	Site formation	114	120	-50	-10	3												57	57	57											
4	Road drainage, utilities & water mains works	116	120	-50	-10	3															60	60									
5	Construct retaining walls, abutments and embankment	118	120	-50	-10	3																	62	62	62	62	62				
13	Pavement construction	112	120	-50	-10	3																						55	55		
IV	**Slip Road C**																														
1	Site clearance	113	635	-64	0	3	52	52	52																						
2	Site formation	114	635	-64	0	3				53	53	53																			
4	Road drainage, utilities & water mains works	116	635	-64	0	3							55	55																	
5	Construct retaining walls, abutments and embankment	118	635	-64	0	3									57	57	57	57	57	57											
13	Pavement construction	112	635	-64	0	3															51	51									
V	**Left-turn Lane A**																														
1	Site clearance	113	165	-52	0	3	63	63	63																						
2	Site formation	114	165	-52	0	3				65	65																				
4	Road drainage, utilities & water mains works	116	165	-52	0	3						67	67																		
5	Construct retaining walls, abutments and embankment	118	165	-52	0	3								69	69	69															
7	Extend subway	118	165	-52	0	3											69	69													
10	Install concrete parapets and planters	113	165	-52	0	3													63												
6	Demolish existing structures	114	165	-52	0	3														65											
13	Pavement construction	112	165	-52	0	3															62	62									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	50	-42	-10	3															66	66									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	12	-30	-10	3																						78	78	78	78
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	45	-41	0	3																									
2	Box culvert	114	45	-41	0	3																									
3	Retaining wall construction & associated works	115	45	-41	0	3																									
4	Road embankment	116	45	-41	0	3	78	78	78	78																					
5	Road drainage, utilities & water mains works	118	45	-41	0	3					80	80	80	80	80	80															
6	Pavement construction	114	45	-41	0	3											76	76	76	76	76	76									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	350	-59	0	3		57	57	57																					
5	Road drainage, utilities & water mains works	114	350	-59	0	3					58	58	58																		
6	Pavement construction	112	350	-59	0	3								56	56	56	56														
	Predicted Noise Level during Daytime Period, dB(A)						65	65	65	67	67	68	68	70	70	71	70	71	68	69	70	70	66	66	66	66	66	78	78	78	78	78
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						78	79	79	79	80	81	81	81	81	81	77	77	77	77	77	77	66	66	66	66	66	78	78	78	78	81

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-13

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: YT1 Block 2, YOHO Town

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	250	-56	0	3	60	60	60																						
3	Piling	115	250	-56	0	3				62	62	62	62	62	62																
4	Road drainage, utilities & water mains works	116	250	-56	0	3										63	63														
8	Construct pilecaps and piers	118	250	-56	0	3												65	65	65	65	65									
9	Construct flyover	114	250	-56	0	3																	61	61	61						
10	Install concrete parapets and planters	113	250	-56	0	3																				60	60				
13	Pavement construction	112	250	-56	0	3																						59	59		
II	**Slip Road A**																														
1	Site clearance	113	175	-53	0	3										63	63														
2	Site formation	114	175	-53	0	3												64	64	64											
4	Road drainage, utilities & water mains works	116	175	-53	0	3															66	66									
5	Construct retaining walls, abutments and embankment	118	175	-53	0	3																	68	68	68	68	68				
13	Pavement construction	112	175	-53	0	3																						62	62		
III	**Slip Road B**																														
1	Site clearance	113	365	-59	0	3										57	57														
2	Site formation	114	365	-59	0	3												58	58	58											
4	Road drainage, utilities & water mains works	116	365	-59	0	3															60	60									
5	Construct retaining walls, abutments and embankment	118	365	-59	0	3																	62	62	62	62	62				
13	Pavement construction	112	365	-59	0	3																						55	55		
IV	**Slip Road C**																														
1	Site clearance	113	280	-57	0	3	59	59	59																						
2	Site formation	114	280	-57	0	3				60	60	60																			
4	Road drainage, utilities & water mains works	116	280	-57	0	3							62	62																	
5	Construct retaining walls, abutments and embankment	118	280	-57	0	3									64	64	64	64	64	64											
13	Pavement construction	112	280	-57	0	3															58	58									
V	**Left-turn Lane A**																														
1	Site clearance	113	375	-59	0	3	56	56	56																						
2	Site formation	114	375	-59	0	3				58	58																				
4	Road drainage, utilities & water mains works	116	375	-59	0	3						60	60																		
5	Construct retaining walls, abutments and embankment	118	375	-59	0	3								62	62	62															
7	Extend subway	118	375	-59	0	3											61	61													
10	Install concrete parapets and planters	113	375	-59	0	3													56												
6	Demolish existing structures	114	375	-59	0	3														58											
13	Pavement construction	112	375	-59	0	3															55	55									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	460	-61	0	3															56	56									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	345	-59	0	3																						59	59	59	59
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	530	-62	0	3																									
2	Box culvert	114	530	-62	0	3																									
3	Retaining wall construction & associated works	115	530	-62	0	3																									
4	Road embankment	116	530	-62	0	3	57	57	57	57																					
5	Road drainage, utilities & water mains works	118	530	-62	0	3					59	59	59	59	59	59															
6	Pavement construction	114	530	-62	0	3											55	55	55	55	55	55									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	220	-55	0	3		61	61	61																					
5	Road drainage, utilities & water mains works	114	220	-55	0	3					62	62	62																		
6	Pavement construction	112	220	-55	0	3								60	60	60	60														
	Predicted Noise Level during Daytime Period, dB(A)						63	63	63	65	65	65	66	67	68	69	69	70	70	70	70	70	70	70	70	70	70	65	65	59	59	70
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						64	66	66	67	67	68	68	67	68	70	70	70	70	70	70	70	70	70	70	70	70	65	65	59	59	70

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-14 Summary of Predicted Noise Levels during Daytime Period (Without Mitigation)
(Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

		Predicted Construction Noise Level (dB(A))																								Max. CNL
		2009	2010												2011											
	NSR Location	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	72	72	72	73	73	75	75	77	77	77	77	77	74	75	75	75	73	73	73	73	73	69	69	67	67	77
JCCAH2	Jockey Club Care & Attention Home – southern facade	72	72	72	73	73	75	75	77	77	77	77	77	73	74	73	73	71	71	71	71	71	65	65	62	62	77
KMYLS1	Kwong Ming Ying Loi School	68	68	68	70	70	70	70	71	71	78	78	79	79	79	81	81	82	82	82	82	82	76	76	67	67	82
KMYLS2	Kwong Ming Ying Loi School	67	67	67	69	69	69	71	71	73	78	78	78	78	78	80	80	81	81	81	81	81	75	75	56	56	81
STNV1	Small Traders New Village	65	65	65	66	66	68	68	70	70	70	70	70	68	68	78	78	67	67	67	67	67	67	67	66	66	78
V1	Village house facing slip road (south bound) of Yuen Long Highway -	68	68	68	69	69	70	71	71	72	74	74	74	74	74	73	73	74	74	74	74	74	68	68	64	64	74
V2	Village house facing slip road (south bound) of Yuen Long Highway -	69	69	69	70	70	71	72	72	73	75	75	76	75	76	75	75	76	76	76	76	76	70	70	64	64	76
V3	Village house at Chuk San Tsuen	70	70	70	71	71	71	73	74	75	76	76	76	76	76	69	69	63	63	63	63	63	57	57	53	53	76
V6	Village house at Hoover Garden	64	64	64	65	65	65	67	67	69	70	70	70	70	70	68	68	69	69	69	69	69	63	63	57	57	70
WUT1	178 Wong Uk Tsuen	65	65	65	67	67	68	68	70	70	71	70	71	68	69	70	70	68	68	68	68	68	78	78	78	78	78
YT1	Block 2, YOHO Town	63	63	63	65	65	65	66	67	68	69	69	70	70	70	70	70	71	71	71	71	71	66	66	62	62	71

Annex C7-15 Summary of Predicted Cumulative Noise Levels during Daytime Period (Without Mitigation)
(Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

		Predicted Cumulative Construction Noise Level (dB(A))																								Max. CNL
		2009	2010												2011											
	NSR Location	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	72	73	73	74	74	76	76	77	77	78	77	77	74	75	75	75	73	73	73	73	73	69	69	67	67	78
JCCAH2	Jockey Club Care & Attention Home – southern facade	72	73	73	74	74	76	76	77	77	77	77	77	74	74	73	73	71	71	71	71	71	65	65	62	62	77
KMYLS1	Kwong Ming Ying Loi School	69	73	73	73	74	75	75	71	72	78	78	79	79	79	81	81	82	82	82	82	82	76	76	67	67	82
KMYLS2	Kwong Ming Ying Loi School	67	68	68	69	69	69	71	71	73	78	78	78	78	78	80	80	81	81	81	81	81	75	75	56	56	81
STNV1	Small Traders New Village	71	71	71	71	73	73	73	74	74	74	72	72	71	71	79	79	67	67	67	67	67	67	67	66	66	79
V1	Village house facing slip road (south bound) of Yuen Long Highway -	68	69	69	70	71	71	72	72	72	74	74	74	74	74	73	73	74	74	74	74	74	68	68	64	64	74
V2	Village house facing slip road (south bound) of Yuen Long Highway -	71	72	72	72	73	74	74	74	75	76	76	76	76	76	76	76	76	76	76	76	76	70	70	64	64	76
V3	Village house at Chuk San Tsuen	70	70	70	71	71	71	74	74	75	76	76	76	76	76	69	69	63	63	63	63	63	57	57	53	53	76
V6	Village house at Hoover Garden	64	65	65	66	66	66	68	67	69	70	70	70	70	70	69	69	69	69	69	69	69	63	63	57	57	70
WUT1	178 Wong Uk Tsuen	78	79	79	79	80	81	81	81	81	81	77	77	77	77	77	77	68	68	68	68	68	78	78	78	78	81
YT1	Block 2, YOHO Town	64	66	66	67	67	68	68	67	68	70	70	70	70	70	70	70	71	71	71	71	71	66	66	62	62	71

Annex C7-16

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: JCCAH1 Jockey Club Care & Attention Home – western facade

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	165	-52	0	3	63	63	63																						
3	Piling	115	165	-52	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	116	165	-52	0	3										67	67														
8	Construct pilecaps and piers	118	165	-52	0	3												68	68	68	68	68									
9	Construct flyover	119	165	-52	0	3																	70	70	70	70	70				
10	Install concrete parapets and planters	113	165	-52	0	3																						63	63		
13	Pavement construction	112	165	-52	0	3																								62	62
II	**Slip Road A**																														
1	Site clearance	113	215	-55	0	3										61	61														
2	Site formation	114	215	-55	0	3												62	62	62											
4	Road drainage, utilities & water mains works	116	215	-55	0	3															65	65									
5	Construct retaining walls, abutments and embankment	118	215	-55	0	3																	67	67	67	67	67				
13	Pavement construction	112	215	-55	0	3																						60	60		
III	**Slip Road B**																														
1	Site clearance	113	160	-52	0	3										64	64														
2	Site formation	114	160	-52	0	3												65	65	65											
4	Road drainage, utilities & water mains works	116	160	-52	0	3															67	67									
5	Construct retaining walls, abutments and embankment	118	160	-52	0	3																	69	69	69	69	69				
13	Pavement construction	112	160	-52	0	3																						62	62		
IV	**Slip Road C**																														
1	Site clearance	113	415	-60	0	3	55	55	55																						
2	Site formation	114	415	-60	0	3				57	57	57																			
4	Road drainage, utilities & water mains works	116	415	-60	0	3							59	59																	
5	Construct retaining walls, abutments and embankment	118	415	-60	0	3									61	61	61	61	61	61											
13	Pavement construction	112	415	-60	0	3															54	54									
V	**Left-turn Lane A**																														
1	Site clearance	113	70	-45	0	3	71	71	71																						
2	Site formation	114	70	-45	0	3				72	72																				
4	Road drainage, utilities & water mains works	116	70	-45	0	3						74	74																		
5	Construct retaining walls, abutments and embankment	118	70	-45	0	3								76	76	76															
7	Extend subway	118	70	-45	0	3											76	76													
10	Install concrete parapets and planters	113	70	-45	0	3													71												
6	Demolish existing structures	114	70	-45	0	3														72											
13	Pavement construction	112	70	-45	0	3															70	70									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	140	-51	0	3															67	67									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	180	-53	0	3																						65	65	65	65
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	250	-56	0	3																									
2	Box culvert	114	250	-56	0	3																									
3	Retaining wall construction & associated works	115	250	-56	0	3																									
4	Road embankment	116	250	-56	0	3	63	63	63	63																					
5	Road drainage, utilities & water mains works	118	250	-56	0	3					65	65	65	65	65	65															
6	Pavement construction	114	250	-56	0	3											61	61	61	61	61	61									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	210	-54	0	3		61	61	61																					
5	Road drainage, utilities & water mains works	114	210	-54	0	3					63	63	63																		
6	Pavement construction	112	210	-54	0	3								60	60	60	60														
	Predicted Noise Level during Daytime Period, dB(A)						72	72	72	73	73	75	75	77	77	77	77	77	74	75	75	75	73	73	73	73	73	69	69	67	67	77
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						72	73	73	74	74	76	76	77	77	78	77	77	74	75	75	75	73	73	73	73	73	69	69	67	67	78

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-17

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: JCCAH2 Jockey Club Care & Attention Home – southern facade

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	175	-53	0	3	63	63	63																						
3	Piling	115	175	-53	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	116	175	-53	0	3										66	66														
8	Construct pilecaps and piers	118	175	-53	0	3												68	68	68	68	68									
9	Construct flyover	119	175	-53	0	3																	69	69	69	69	69				
10	Install concrete parapets and planters	113	175	-53	0	3																						63	63		
13	Pavement construction	112	175	-53	0	3																								62	62
II	**Slip Road A**																														
1	Site clearance	113	220	-55	0	3										61	61														
2	Site formation	114	220	-55	0	3												62	62	62											
4	Road drainage, utilities & water mains works	116	220	-55	0	3															64	64									
5	Construct retaining walls, abutments and embankment	118	220	-55	0	3																	66	66	66	66	66				
13	Pavement construction	112	220	-55	0	3																						60	60		
III	**Slip Road B**																														
1	Site clearance	113	170	-53	-10	3										53	53														
2	Site formation	114	170	-53	-10	3												54	54	54											
4	Road drainage, utilities & water mains works	116	170	-53	-10	3															57	57									
5	Construct retaining walls, abutments and embankment	118	170	-53	-10	3																	59	59	59	59	59				
13	Pavement construction	112	170	-53	-10	3																						52	52		
IV	**Slip Road C**																														
1	Site clearance	113	405	-60	0	3	56	56	56																						
2	Site formation	114	405	-60	0	3				57	57	57																			
4	Road drainage, utilities & water mains works	116	405	-60	0	3							59	59																	
5	Construct retaining walls, abutments and embankment	118	405	-60	0	3									61	61	61	61	61	61											
13	Pavement construction	112	405	-60	0	3															54	54									
V	**Left-turn Lane A**																														
1	Site clearance	113	70	-45	0	3	71	71	71																						
2	Site formation	114	70	-45	0	3				72	72																				
4	Road drainage, utilities & water mains works	116	70	-45	0	3						74	74																		
5	Construct retaining walls, abutments and embankment	118	70	-45	0	3								76	76	76															
7	Extend subway	118	70	-45	0	3											76	76													
10	Install concrete parapets and planters	113	70	-45	0	3													71												
6	Demolish existing structures	114	70	-45	0	3														72											
13	Pavement construction	112	70	-45	0	3															70	70									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	150	-52	-10	3															56	56									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	190	-54	-10	3																						54	54	54	54
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	260	-56	0	3																									
2	Box culvert	114	260	-56	0	3																									
3	Retaining wall construction & associated works	115	260	-56	0	3																									
4	Road embankment	116	260	-56	0	3	63	63	63	63																					
5	Road drainage, utilities & water mains works	118	260	-56	0	3					65	65	65	65	65	65															
6	Pavement construction	114	260	-56	0	3											61	61	61	61	61	61									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	215	-55	0	3		61	61	61																					
5	Road drainage, utilities & water mains works	114	215	-55	0	3					63	63	63																		
6	Pavement construction	112	215	-55	0	3								60	60	60	60														
	Predicted Noise Level during Daytime Period, dB(A)						72	72	72	73	73	75	75	77	77	77	77	77	73	74	73	73	71	71	71	71	71	65	65	62	62	77
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						72	73	73	74	74	76	76	77	77	77	77	77	74	74	73	73	71	71	71	71	71	65	65	62	62	77

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-18

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: KMYLS1 Kwong Ming Ying Loi School

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	115	-49	0	3	67	67	67																						
3	Piling	115	115	-49	0	3				68	68	68	68	68	68																
4	Road drainage, utilities & water mains works	116	115	-49	0	3										70	70														
8	Construct pilecaps and piers	118	115	-49	0	3												72	72	72	72	72									
9	Construct flyover	119	115	-49	0	3																	73	73	73	73	73				
10	Install concrete parapets and planters	113	115	-49	0	3																						67	67		
13	Pavement construction	112	115	-49	0	3																								65	65
II	**Slip Road A**																														
1	Site clearance	113	38	-40	0	3										76	76														
2	Site formation	114	38	-40	0	3												77	77	77											
4	Road drainage, utilities & water mains works	116	38	-40	0	3															80	80									
5	Construct retaining walls, abutments and embankment	118	38	-40	0	3																	82	82	82	82	82				
13	Pavement construction	112	38	-40	0	3																						75	75		
III	**Slip Road B**																														
1	Site clearance	113	255	-56	0	3										60	60														
2	Site formation	114	255	-56	0	3												61	61	61											
4	Road drainage, utilities & water mains works	116	255	-56	0	3															63	63									
5	Construct retaining walls, abutments and embankment	118	255	-56	0	3																	65	65	65	65	65				
13	Pavement construction	112	255	-56	0	3																						58	58		
IV	**Slip Road C**																														
1	Site clearance	113	130	-50	-10	3	56	56	56																						
2	Site formation	114	130	-50	-10	3				57	57	57																			
4	Road drainage, utilities & water mains works	116	130	-50	-10	3							59	59																	
5	Construct retaining walls, abutments and embankment	118	130	-50	-10	3									61	61	61	61	61	61											
13	Pavement construction	112	130	-50	-10	3															54	54									
V	**Left-turn Lane A**																														
1	Site clearance	113	220	-55	0	3	61	61	61																						
2	Site formation	114	220	-55	0	3				62	62																				
4	Road drainage, utilities & water mains works	116	220	-55	0	3						64	64																		
5	Construct retaining walls, abutments and embankment	118	220	-55	0	3								66	66	66															
7	Extend subway	118	220	-55	0	3											66	66													
10	Install concrete parapets and planters	113	220	-55	0	3													61												
6	Demolish existing structures	114	220	-55	0	3														62											
13	Pavement construction	112	220	-55	0	3															60	60									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	330	-58	0	3															59	59									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	250	-56	0	3																						62	62	62	62
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	360	-59	0	3																									
2	Box culvert	114	360	-59	0	3																									
3	Retaining wall construction & associated works	115	360	-59	0	3																									
4	Road embankment	116	360	-59	0	3	60	60	60	60																					
5	Road drainage, utilities & water mains works	118	360	-59	0	3					62	62	62	62	62	62															
6	Pavement construction	114	360	-59	0	3											58	58	58	58	58	58									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	70	-45	0	3		71	71	71																					
5	Road drainage, utilities & water mains works	114	70	-45	0	3					72	72	72																		
6	Pavement construction	112	70	-45	0	3								70	70	70	70														
	Predicted Noise Level during Daytime Period, dB(A)						68	68	68	70	70	70	70	71	71	78	78	79	79	79	81	81	82	82	82	82	82	76	76	67	67	82
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						69	73	73	73	74	75	75	71	72	78	78	79	79	79	81	81	82	82	82	82	82	76	76	67	67	82

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-19

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: KMYLS2 Kwong Ming Ying Loi School

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	135	-51	-10	3	55	55	55																						
3	Piling	115	135	-51	-10	3				57	57	57	57	57	57																
4	Road drainage, utilities & water mains works	116	135	-51	-10	3										59	59														
8	Construct pilecaps and piers	118	135	-51	-10	3												60	60	60	60	60									
9	Construct flyover	119	135	-51	-10	3																	61	61	61	61	61				
10	Install concrete parapets and planters	113	135	-51	-10	3																						55	55		
13	Pavement construction	112	135	-51	-10	3																								54	54
II	**Slip Road A**																														
1	Site clearance	113	40	-40	0	3										76	76														
2	Site formation	114	40	-40	0	3												77	77	77											
4	Road drainage, utilities & water mains works	116	40	-40	0	3															79	79									
5	Construct retaining walls, abutments and embankment	118	40	-40	0	3																	81	81	81	81	81				
13	Pavement construction	112	40	-40	0	3																						75	75		
III	**Slip Road B**																														
1	Site clearance	113	270	-57	-10	3										49	49														
2	Site formation	114	270	-57	-10	3												50	50	50											
4	Road drainage, utilities & water mains works	116	270	-57	-10	3															53	53									
5	Construct retaining walls, abutments and embankment	118	270	-57	-10	3																	55	55	55	55	55				
13	Pavement construction	112	270	-57	-10	3																						48	48		
IV	**Slip Road C**																														
1	Site clearance	113	110	-49	0	3	67	67	67																						
2	Site formation	114	110	-49	0	3				68	68	68																			
4	Road drainage, utilities & water mains works	116	110	-49	0	3							71	71																	
5	Construct retaining walls, abutments and embankment	118	110	-49	0	3									73	73	73	73	73	73											
13	Pavement construction	112	110	-49	0	3															66	66									
V	**Left-turn Lane A**																														
1	Site clearance	113	250	-56	-10	3	50	50	50																						
2	Site formation	114	250	-56	-10	3				51	51																				
4	Road drainage, utilities & water mains works	116	250	-56	-10	3						53	53																		
5	Construct retaining walls, abutments and embankment	118	250	-56	-10	3								55	55	55															
7	Extend subway	118	250	-56	-10	3											55	55													
10	Install concrete parapets and planters	113	250	-56	-10	3													50												
6	Demolish existing structures	114	250	-56	-10	3														51											
13	Pavement construction	112	250	-56	-10	3															49	49									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	350	-59	-10	3															49	49									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	280	-57	-10	3																						51	51	51	51
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	400	-60	-10	3																									
2	Box culvert	114	400	-60	-10	3																									
3	Retaining wall construction & associated works	115	400	-60	-10	3																									
4	Road embankment	116	400	-60	-10	3	49	49	49	49																					
5	Road drainage, utilities & water mains works	118	400	-60	-10	3					51	51	51	51	51	51															
6	Pavement construction	114	400	-60	-10	3											47	47	47	47	47	47									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	100	-48	-10	3		58	58	58																					
5	Road drainage, utilities & water mains works	114	100	-48	-10	3					59	59	59																		
6	Pavement construction	112	100	-48	-10	3								57	57	57	57														
	Predicted Noise Level during Daytime Period, dB(A)						67	67	67	69	69	69	71	71	73	78	78	78	78	78	80	80	81	81	81	81	81	75	75	56	56	81
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						67	68	68	69	69	69	71	71	73	78	78	78	78	78	80	80	81	81	81	81	81	75	75	56	56	81

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-20

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: STNV1 Small Traders New Village

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	270	-57	0	3	59	59	59																						
3	Piling	115	270	-57	0	3				61	61	61	61	61	61																
4	Road drainage, utilities & water mains works	116	270	-57	0	3										63	63														
8	Construct pilecaps and piers	118	270	-57	0	3												64	64	64	64	64									
9	Construct flyover	119	270	-57	0	3																	65	65	65	65	65				
10	Install concrete parapets and planters	113	270	-57	0	3																						59	59		
13	Pavement construction	112	270	-57	0	3																								58	58
II	**Slip Road A**																														
1	Site clearance	113	400	-60	0	3										56	56														
2	Site formation	114	400	-60	0	3												57	57	57											
4	Road drainage, utilities & water mains works	116	400	-60	0	3															59	59									
5	Construct retaining walls, abutments and embankment	118	400	-60	0	3																	61	61	61	61	61				
13	Pavement construction	112	400	-60	0	3																						55	55		
III	**Slip Road B**																														
1	Site clearance	113	155	-52	-10	3										54	54														
2	Site formation	114	155	-52	-10	3												55	55	55											
4	Road drainage, utilities & water mains works	116	155	-52	-10	3															58	58									
5	Construct retaining walls, abutments and embankment	118	155	-52	-10	3																	60	60	60	60	60				
13	Pavement construction	112	155	-52	-10	3																						53	53		
IV	**Slip Road C**																														
1	Site clearance	113	640	-64	0	3	52	52	52																						
2	Site formation	114	640	-64	0	3				53	53	53																			
4	Road drainage, utilities & water mains works	116	640	-64	0	3							55	55																	
5	Construct retaining walls, abutments and embankment	118	640	-64	0	3									57	57	57	57	57	57											
13	Pavement construction	112	640	-64	0	3															50	50									
V	**Left-turn Lane A**																														
1	Site clearance	113	170	-53	0	3	63	63	63																						
2	Site formation	114	170	-53	0	3				64	64																				
4	Road drainage, utilities & water mains works	116	170	-53	0	3						67	67																		
5	Construct retaining walls, abutments and embankment	118	170	-53	0	3								69	69	69															
7	Extend subway	118	170	-53	0	3											68	68													
10	Install concrete parapets and planters	113	170	-53	0	3													63												
6	Demolish existing structures	114	170	-53	0	3														65											
13	Pavement construction	112	170	-53	0	3															62	62									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	12	-30	-10	3															78	78									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	50	-42	-10	3																						66	66	66	66
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	120	-50	0	3																									
2	Box culvert	114	120	-50	0	3																									
3	Retaining wall construction & associated works	115	120	-50	0	3																									
4	Road embankment	116	120	-50	0	3	70	70	70	70																					
5	Road drainage, utilities & water mains works	118	120	-50	0	3					72	72	72	72	72	72															
6	Pavement construction	114	120	-50	0	3											68	68	68	68	68	68									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	365	-59	0	3		57	57	57																					
5	Road drainage, utilities & water mains works	114	365	-59	0	3					58	58	58																		
6	Pavement construction	112	365	-59	0	3								55	55	55	55														
	Predicted Noise Level during Daytime Period, dB(A)						65	65	65	66	66	68	68	70	70	70	70	70	68	68	78	78	67	67	67	67	67	67	67	66	66	78
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						71	71	71	71	73	73	73	74	74	74	72	72	71	71	79	79	67	67	67	67	67	67	67	66	66	79

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-21

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: V1 Village house facing slip road (south bound) of Yuen Long Highway - south of POI

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	170	-53	0	3	63	63	63																						
3	Piling	115	170	-53	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	116	170	-53	0	3										67	67														
8	Construct pilecaps and piers	118	170	-53	0	3												68	68	68	68	68										
9	Construct flyover	119	170	-53	0	3																	69	69	69	69	69					
10	Install concrete parapets and planters	113	170	-53	0	3																						63	63			
13	Pavement construction	112	170	-53	0	3																								62	62	
II	**Slip Road A**																														
1	Site clearance	113	120	-50	0	3										66	66														
2	Site formation	114	120	-50	0	3												67	67	67											
4	Road drainage, utilities & water mains works	116	120	-50	0	3															70	70									
5	Construct retaining walls, abutments and embankment	118	120	-50	0	3																	72	72	72	72	72				
13	Pavement construction	112	120	-50	0	3																						65	65			
III	**Slip Road B**																														
1	Site clearance	113	290	-57	0	3										59	59														
2	Site formation	114	290	-57	0	3												60	60	60											
4	Road drainage, utilities & water mains works	116	290	-57	0	3															62	62									
5	Construct retaining walls, abutments and embankment	118	290	-57	0	3																	64	64	64	64	64				
13	Pavement construction	112	290	-57	0	3																						57	57			
IV	**Slip Road C**																														
1	Site clearance	113	160	-52	0	3	64	64	64																						
2	Site formation	114	160	-52	0	3				65	65	65																			
4	Road drainage, utilities & water mains works	116	160	-52	0	3							67	67																	
5	Construct retaining walls, abutments and embankment	118	160	-52	0	3									69	69	69	69	69	69											
13	Pavement construction	112	160	-52	0	3															62	62									
V	**Left-turn Lane A**																														
1	Site clearance	113	210	-54	0	3	61	61	61																						
2	Site formation	114	210	-54	0	3				63	63																				
4	Road drainage, utilities & water mains works	116	210	-54	0	3						65	65																		
5	Construct retaining walls, abutments and embankment	118	210	-54	0	3								67	67	67															
7	Extend subway	118	210	-54	0	3											66	66													
10	Install concrete parapets and planters	113	210	-54	0	3													61												
6	Demolish existing structures	114	210	-54	0	3														63											
13	Pavement construction	112	210	-54	0	3															60	60									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	345	-59	0	3															59	59									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	300	-58	0	3																						60	60	60	60	
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	450	-61	0	3																									
2	Box culvert	114	450	-61	0	3																									
3	Retaining wall construction & associated works	115	450	-61	0	3																									
4	Road embankment	116	450	-61	0	3	58	58	58	58																					
5	Road drainage, utilities & water mains works	118	450	-61	0	3					60	60	60	60	60	60															
6	Pavement construction	114	450	-61	0	3											56	56	56	56	56	56									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	170	-53	0	3		63	63	63																					
5	Road drainage, utilities & water mains works	114	170	-53	0	3					65	65	65																		
6	Pavement construction	112	170	-53	0	3								62	62	62	62														
	Predicted Noise Level during Daytime Period, dB(A)						68	68	68	69	69	70	71	71	72	74	74	74	74	74	73	73	74	74	74	74	74	68	68	64	64	74
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						68	69	69	70	71	71	72	72	72	74	74	74	74	74	73	73	74	74	74	74	74	68	68	64	64	74

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-22

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: V2 Village house facing slip road (south bound) of Yuen Long Highway - south of POI

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	165	-52	0	3	63	63	63																						
3	Piling	115	165	-52	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	116	165	-52	0	3										67	67														
8	Construct pilecaps and piers	118	165	-52	0	3												68	68	68	68	68									
9	Construct flyover	119	165	-52	0	3																	70	70	70	70	70				
10	Install concrete parapets and planters	113	165	-52	0	3																						63	63		
13	Pavement construction	112	165	-52	0	3																								62	62
II	**Slip Road A**																														
1	Site clearance	113	85	-47	0	3										69	69														
2	Site formation	114	85	-47	0	3												70	70	70											
4	Road drainage, utilities & water mains works	116	85	-47	0	3															73	73									
5	Construct retaining walls, abutments and embankment	118	85	-47	0	3																	75	75	75	75	75				
13	Pavement construction	112	85	-47	0	3																						68	68		
III	**Slip Road B**																														
1	Site clearance	113	300	-58	0	3										58	58														
2	Site formation	114	300	-58	0	3												60	60	60											
4	Road drainage, utilities & water mains works	116	300	-58	0	3															62	62									
5	Construct retaining walls, abutments and embankment	118	300	-58	0	3																	64	64	64	64	64				
13	Pavement construction	112	300	-58	0	3																						57	57		
IV	**Slip Road C**																														
1	Site clearance	113	120	-50	0	3	66	66	66																						
2	Site formation	114	120	-50	0	3				67	67	67																			
4	Road drainage, utilities & water mains works	116	120	-50	0	3							70	70																	
5	Construct retaining walls, abutments and embankment	118	120	-50	0	3									72	72	72	72	72	72											
13	Pavement construction	112	120	-50	0	3															65	65									
V	**Left-turn Lane A**																														
1	Site clearance	113	235	-55	0	3	60	60	60																						
2	Site formation	114	235	-55	0	3				62	62																				
4	Road drainage, utilities & water mains works	116	235	-55	0	3						64	64																		
5	Construct retaining walls, abutments and embankment	118	235	-55	0	3								66	66	66															
7	Extend subway	118	235	-55	0	3											65	65													
10	Install concrete parapets and planters	113	235	-55	0	3													60												
6	Demolish existing structures	114	235	-55	0	3														62											
13	Pavement construction	112	235	-55	0	3															59	59									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	370	-59	0	3															58	58									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	300	-58	0	3																						60	60	60	60
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	150	-52	0	3																									
2	Box culvert	114	150	-52	0	3																									
3	Retaining wall construction & associated works	115	150	-52	0	3																									
4	Road embankment	116	150	-52	0	3	68	68	68	68																					
5	Road drainage, utilities & water mains works	118	150	-52	0	3					70	70	70	70	70	70															
6	Pavement construction	114	150	-52	0	3											66	66	66	66	66	66									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	210	-54	0	3		61	61	61																					
5	Road drainage, utilities & water mains works	114	210	-54	0	3					63	63	63																		
6	Pavement construction	112	210	-54	0	3								60	60	60	60														
	Predicted Noise Level during Daytime Period, dB(A)						69	69	69	70	70	71	72	72	73	75	75	76	75	76	75	75	76	76	76	76	76	70	70	64	64	76
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						71	72	72	72	73	74	74	74	75	76	76	76	76	76	76	76	76	76	76	76	76	70	70	64	64	76

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-23

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: V3 Village house at Chuk San Tsuen

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	530	-62	0	3	53	53	53																						
3	Piling	115	530	-62	0	3				55	55	55	55	55	55																
4	Road drainage, utilities & water mains works	116	530	-62	0	3										57	57														
8	Construct pilecaps and piers	118	530	-62	0	3												58	58	58	58	58									
9	Construct flyover	119	530	-62	0	3																	59	59	59	59	59				
10	Install concrete parapets and planters	113	530	-62	0	3																						53	53		
13	Pavement construction	112	530	-62	0	3																								52	52
II	**Slip Road A**																														
1	Site clearance	113	130	-50	-10	3										56	56														
2	Site formation	114	130	-50	-10	3												57	57	57											
4	Road drainage, utilities & water mains works	116	130	-50	-10	3															59	59									
5	Construct retaining walls, abutments and embankment	118	130	-50	-10	3																	61	61	61	61	61				
13	Pavement construction	112	130	-50	-10	3																						54	54		
III	**Slip Road B**																														
1	Site clearance	113	680	-65	-10	3										41	41														
2	Site formation	114	680	-65	-10	3												42	42	42											
4	Road drainage, utilities & water mains works	116	680	-65	-10	3															45	45									
5	Construct retaining walls, abutments and embankment	118	680	-65	-10	3																	47	47	47	47	47				
13	Pavement construction	112	680	-65	-10	3																						40	40		
IV	**Slip Road C**																														
1	Site clearance	113	25	-36	-10	3	70	70	70																						
2	Site formation	114	25	-36	-10	3				71	71	71																			
4	Road drainage, utilities & water mains works	116	25	-36	-10	3							73	73																	
5	Construct retaining walls, abutments and embankment	118	25	-36	-10	3									75	75	75	75	75	75											
13	Pavement construction	112	25	-36	-10	3															69	69									
V	**Left-turn Lane A**																														
1	Site clearance	113	635	-64	0	3	52	52	52																						
2	Site formation	114	635	-64	0	3				53	53																				
4	Road drainage, utilities & water mains works	116	635	-64	0	3						55	55																		
5	Construct retaining walls, abutments and embankment	118	635	-64	0	3								57	57	57															
7	Extend subway	118	635	-64	0	3											57	57													
10	Install concrete parapets and planters	113	635	-64	0	3													52												
6	Demolish existing structures	114	635	-64	0	3														53											
13	Pavement construction	112	635	-64	0	3															51	51									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	760	-66	-10	3															42	42									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	670	-65	-10	3																						43	43	43	43
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	820	-66	-10	3																									
2	Box culvert	114	820	-66	-10	3																									
3	Retaining wall construction & associated works	115	820	-66	-10	3																									
4	Road embankment	116	820	-66	-10	3	43	43	43	43																					
5	Road drainage, utilities & water mains works	118	820	-66	-10	3					45	45	45	45	45	45															
6	Pavement construction	114	820	-66	-10	3											41	41	41	41	41	41									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	490	-62	-10	3		44	44	44																					
5	Road drainage, utilities & water mains works	114	490	-62	-10	3					46	46	46																		
6	Pavement construction	112	490	-62	-10	3								43	43	43	43														
	Predicted Noise Level during Daytime Period, dB(A)						70	70	70	71	71	71	73	74	75	76	76	76	76	76	69	69	63	63	63	63	63	57	57	53	53	76
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						70	70	70	71	71	71	74	74	75	76	76	76	76	76	69	69	63	63	63	63	63	57	57	53	53	76

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-24

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: V6 Village house at Hoover Garden

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	480	-62	0	3	54	54	54																						
3	Piling	115	480	-62	0	3				56	56	56	56	56	56																
4	Road drainage, utilities & water mains works	116	480	-62	0	3										58	58														
8	Construct pilecaps and piers	118	480	-62	0	3												59	59	59	59	59									
9	Construct flyover	119	480	-62	0	3																	60	60	60	60	60				
10	Install concrete parapets and planters	113	480	-62	0	3																						54	54		
13	Pavement construction	112	480	-62	0	3																								53	53
II	**Slip Road A**																														
1	Site clearance	113	180	-53	0	3										63	63														
2	Site formation	114	180	-53	0	3												64	64	64											
4	Road drainage, utilities & water mains works	116	180	-53	0	3															66	66									
5	Construct retaining walls, abutments and embankment	118	180	-53	0	3																	68	68	68	68	68				
13	Pavement construction	112	180	-53	0	3																						61	61		
III	**Slip Road B**																														
1	Site clearance	113	620	-64	0	3										52	52														
2	Site formation	114	620	-64	0	3												53	53	53											
4	Road drainage, utilities & water mains works	116	620	-64	0	3															55	55									
5	Construct retaining walls, abutments and embankment	118	620	-64	0	3																	57	57	57	57	57				
13	Pavement construction	112	620	-64	0	3																						51	51		
IV	**Slip Road C**																														
1	Site clearance	113	180	-53	0	3	63	63	63																						
2	Site formation	114	180	-53	0	3				64	64	64																			
4	Road drainage, utilities & water mains works	116	180	-53	0	3							66	66																	
5	Construct retaining walls, abutments and embankment	118	180	-53	0	3									68	68	68	68	68	68											
13	Pavement construction	112	180	-53	0	3															61	61									
V	**Left-turn Lane A**																														
1	Site clearance	113	600	-64	0	3	52	52	52																						
2	Site formation	114	600	-64	0	3				53	53																				
4	Road drainage, utilities & water mains works	116	600	-64	0	3						56	56																		
5	Construct retaining walls, abutments and embankment	118	600	-64	0	3								58	58	58															
7	Extend subway	118	600	-64	0	3											57	57													
10	Install concrete parapets and planters	113	600	-64	0	3													52												
6	Demolish existing structures	114	600	-64	0	3														54											
13	Pavement construction	112	600	-64	0	3															51	51									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	710	-65	0	3															53	53									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	600	-64	0	3																						54	54	54	54
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	810	-66	0	3																									
2	Box culvert	114	810	-66	0	3																									
3	Retaining wall construction & associated works	115	810	-66	0	3																									
4	Road embankment	116	810	-66	0	3	53	53	53	53																					
5	Road drainage, utilities & water mains works	118	810	-66	0	3					55	55	55	55	55	55															
6	Pavement construction	114	810	-66	0	3											51	51	51	51	51	51									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	425	-61	0	3		55	55	55																					
5	Road drainage, utilities & water mains works	114	425	-61	0	3					57	57	57																		
6	Pavement construction	112	425	-61	0	3								54	54	54	54														
	Predicted Noise Level during Daytime Period, dB(A)						64	64	64	65	65	65	67	67	69	70	70	70	70	70	68	68	69	69	69	69	69	63	63	57	57	70
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						64	65	65	66	66	66	68	67	69	70	70	70	70	70	69	69	69	69	69	69	69	63	63	57	57	70

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-25

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: WUT1 178 Wong Uk Tsuen

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	250	-56	0	3	60	60	60																						
3	Piling	115	250	-56	0	3				62	62	62	62	62	62																
4	Road drainage, utilities & water mains works	116	250	-56	0	3										63	63														
8	Construct pilecaps and piers	118	250	-56	0	3												65	65	65	65	65									
9	Construct flyover	119	250	-56	0	3																	66	66	66	66	66				
10	Install concrete parapets and planters	113	250	-56	0	3																						60	60		
13	Pavement construction	112	250	-56	0	3																								59	59
II	**Slip Road A**																														
1	Site clearance	113	390	-60	0	3										56	56														
2	Site formation	114	390	-60	0	3												57	57	57											
4	Road drainage, utilities & water mains works	116	390	-60	0	3															60	60									
5	Construct retaining walls, abutments and embankment	118	390	-60	0	3																	62	62	62	62	62				
13	Pavement construction	112	390	-60	0	3																						55	55		
III	**Slip Road B**																														
1	Site clearance	113	120	-50	-10	3										56	56														
2	Site formation	114	120	-50	-10	3												57	57	57											
4	Road drainage, utilities & water mains works	116	120	-50	-10	3															60	60									
5	Construct retaining walls, abutments and embankment	118	120	-50	-10	3																	62	62	62	62	62				
13	Pavement construction	112	120	-50	-10	3																						55	55		
IV	**Slip Road C**																														
1	Site clearance	113	635	-64	0	3	52	52	52																						
2	Site formation	114	635	-64	0	3				53	53	53																			
4	Road drainage, utilities & water mains works	116	635	-64	0	3							55	55																	
5	Construct retaining walls, abutments and embankment	118	635	-64	0	3									57	57	57	57	57	57											
13	Pavement construction	112	635	-64	0	3															51	51									
V	**Left-turn Lane A**																														
1	Site clearance	113	165	-52	0	3	63	63	63																						
2	Site formation	114	165	-52	0	3				65	65																				
4	Road drainage, utilities & water mains works	116	165	-52	0	3						67	67																		
5	Construct retaining walls, abutments and embankment	118	165	-52	0	3								69	69	69															
7	Extend subway	118	165	-52	0	3											69	69													
10	Install concrete parapets and planters	113	165	-52	0	3													63												
6	Demolish existing structures	114	165	-52	0	3														65											
13	Pavement construction	112	165	-52	0	3															62	62									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	50	-42	-10	3															66	66									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	12	-30	-10	3																						78	78	78	78
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	45	-41	0	3																									
2	Box culvert	114	45	-41	0	3																									
3	Retaining wall construction & associated works	115	45	-41	0	3																									
4	Road embankment	116	45	-41	0	3	78	78	78	78																					
5	Road drainage, utilities & water mains works	118	45	-41	0	3					80	80	80	80	80	80															
6	Pavement construction	114	45	-41	0	3											76	76	76	76	76	76									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	350	-59	0	3		57	57	57																					
5	Road drainage, utilities & water mains works	114	350	-59	0	3					58	58	58																		
6	Pavement construction	112	350	-59	0	3								56	56	56	56														
	Predicted Noise Level during Daytime Period, dB(A)						65	65	65	67	67	68	68	70	70	71	70	71	68	69	70	70	68	68	68	68	68	78	78	78	78	78
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						78	79	79	79	80	81	81	81	81	81	77	77	77	77	77	77	68	68	68	68	68	78	78	78	78	81

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C7-26

Construction Noise Assessment (Without Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: YT1 Block 2, YOHO Town

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	113	250	-56	0	3	60	60	60																						
3	Piling	115	250	-56	0	3				62	62	62	62	62	62																
4	Road drainage, utilities & water mains works	116	250	-56	0	3										63	63														
8	Construct pilecaps and piers	118	250	-56	0	3												65	65	65	65	65									
9	Construct flyover	119	250	-56	0	3																	66	66	66	66	66				
10	Install concrete parapets and planters	113	250	-56	0	3																						60	60		
13	Pavement construction	112	250	-56	0	3																								59	59
II	**Slip Road A**																														
1	Site clearance	113	175	-53	0	3										63	63														
2	Site formation	114	175	-53	0	3												64	64	64											
4	Road drainage, utilities & water mains works	116	175	-53	0	3															66	66									
5	Construct retaining walls, abutments and embankment	118	175	-53	0	3																	68	68	68	68	68				
13	Pavement construction	112	175	-53	0	3																						62	62		
III	**Slip Road B**																														
1	Site clearance	113	365	-59	0	3										57	57														
2	Site formation	114	365	-59	0	3												58	58	58											
4	Road drainage, utilities & water mains works	116	365	-59	0	3															60	60									
5	Construct retaining walls, abutments and embankment	118	365	-59	0	3																	62	62	62	62	62				
13	Pavement construction	112	365	-59	0	3																						55	55		
IV	**Slip Road C**																														
1	Site clearance	113	280	-57	0	3	59	59	59																						
2	Site formation	114	280	-57	0	3				60	60	60																			
4	Road drainage, utilities & water mains works	116	280	-57	0	3							62	62																	
5	Construct retaining walls, abutments and embankment	118	280	-57	0	3									64	64	64	64	64	64											
13	Pavement construction	112	280	-57	0	3															58	58									
V	**Left-turn Lane A**																														
1	Site clearance	113	375	-59	0	3	56	56	56																						
2	Site formation	114	375	-59	0	3				58	58																				
4	Road drainage, utilities & water mains works	116	375	-59	0	3						60	60																		
5	Construct retaining walls, abutments and embankment	118	375	-59	0	3								62	62	62															
7	Extend subway	118	375	-59	0	3											61	61													
10	Install concrete parapets and planters	113	375	-59	0	3													56												
6	Demolish existing structures	114	375	-59	0	3														58											
13	Pavement construction	112	375	-59	0	3															55	55									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	115	460	-61	0	3															56	56									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	115	345	-59	0	3																						59	59	59	59
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3 [1]																															
1	Site formation	113	530	-62	0	3																									
2	Box culvert	114	530	-62	0	3																									
3	Retaining wall construction & associated works	115	530	-62	0	3																									
4	Road embankment	116	530	-62	0	3	57	57	57	57																					
5	Road drainage, utilities & water mains works	118	530	-62	0	3					59	59	59	59	59	59															
6	Pavement construction	114	530	-62	0	3											55	55	55	55	55	55									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	113	220	-55	0	3		61	61	61																					
5	Road drainage, utilities & water mains works	114	220	-55	0	3					62	62	62																		
6	Pavement construction	112	220	-55	0	3								60	60	60	60														
	Predicted Noise Level during Daytime Period, dB(A)						63	63	63	65	65	65	66	67	68	69	69	70	70	70	70	70	71	71	71	71	71	66	66	62	62	71
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						64	66	66	67	67	68	68	67	68	70	70	70	70	70	70	70	71	71	71	71	71	66	66	62	62	71

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C8

Designated Project Analysis

Annex C8

Designated Project Analysis

Predicted Road Traffic Noise Levels With and Without the Project for Year 2026

NSR	Floor	Assessment Level in mPD	Noise Criteria, dB(A)	Predicted Façade Noise Levels, $L_{10,\ 1\ hour}$, dB(A)				Noise Contribution due to the Project Without Mitigation [a], dB(A)
				Without the Project	With the Project (Without Mitigation)			
					New Roads	Existing Roads	Overall	
WUT1	G/F	5.4	70	66.5	42.1	66.4	66.5	0.0
	1/F	8.2	70	69.1	45.3	69.0	69.0	-0.1
	2/F	11	70	**73.5**	51.6	**73.2**	**73.3**	-0.2
STNV1	G/F	5.4	70	67.0	43.6	66.9	66.9	-0.1
	1/F	8.2	70	**70.5**	46.7	70.3	70.4	-0.1
JCCAH1	G/F [b]	6.4	-	-	-	-	-	-
	1/F	9.4	55	**72.4**	51.1	**73.1**	**73.2**	0.8
	2/F	12.4	55	**73.3**	51.6	**74.0**	**74.0**	0.7
	3/F	15.4	55	**74.2**	52.3	**74.8**	**74.9**	0.7
	4/F	18.4	55	**74.9**	52.9	**75.6**	**75.7**	0.8
	5/F	21.4	55	**75.5**	53.4	**76.2**	**76.2**	0.7
JCCAH2	G/F [b]	6.4	-	-	-	-	-	-
	1/F	9.4	55	**76.9**	50.2	**77.4**	**77.3**	0.4
	2/F	12.4	55	**77.7**	50.9	**78.2**	**78.2**	0.5
	3/F	15.4	55	**78.3**	51.4	**78.9**	**78.9**	0.6
	4/F	18.4	55	**78.8**	52.0	**79.4**	**79.3**	0.5
	5/F	21.4	55	**79.0**	52.5	**79.6**	**79.5**	0.5
V1	G/F	6.1	70	68.6	53.5	68.3	68.4	-0.2
	1/F	8.6	70	69.7	54.9	69.4	69.5	-0.2
V2	G/F	5.7	70	69.9	48.9	69.2	69.3	-0.6
	1/F	8.2	70	**71.2**	49.7	70.4	70.5	-0.7
V3	G/F	8.1	70	68.1	51.1	68.0	68.1	0.0
	1/F	10.6	70	**71.0**	54.4	**70.9**	**71.0**	0.0
V4	G/F	8.9	70	69.4	55.5	69.2	69.4	0.0
	1/F	11.4	70	**70.5**	56.4	70.3	**70.5**	0.0
V5	G/F	9.3	70	69.0	55.9	68.9	69.1	0.1
	1/F	11.8	70	70.0	56.8	70.0	70.1	0.1
	2/F	14.3	70	**71.0**	57.7	**70.9**	**71.1**	0.1
	3/F	16.8	70	**71.9**	58.3	**71.8**	**71.9**	0.0
V6	G/F	6.8	70	67.3	55.6	66.8	67.1	-0.2
	1/F	9.3	70	67.8	56.0	67.4	67.7	-0.1
	2/F	11.8	70	68.3	56.5	67.9	68.2	-0.1
YT1	G/F	11.5	70	66.5	57.6	65.9	66.5	0.0
	5/F	26.5	70	69.1	59.9	68.5	69.0	-0.1
	10/F	41.5	70	**71.7**	61.4	**71.3**	**71.7**	-0.1
	15/F	56.5	70	**73.2**	62.5	**72.9**	**73.3**	0.0
	20/F	71.5	70	**74.2**	63.1	**73.9**	**74.3**	0.0
	25/F	86.5	70	**74.7**	63.5	**74.5**	**74.8**	0.1
	30/F	101.5	70	**75.0**	63.7	**74.8**	**75.0**	0.0
	35/F	116.5	70	**75.1**	63.7	**74.9**	**75.3**	0.1
YT2	G/F	11.5	70	66.7	58.4	66.0	66.7	0.0
	5/F	26.5	70	69.0	60.9	68.3	69.0	0.0
	10/F	41.5	70	**71.2**	62.1	**70.7**	**71.3**	0.1
	15/F	56.5	70	**72.9**	63.0	**72.5**	**72.9**	0.0
	20/F	71.5	70	**74.0**	63.5	**73.6**	**74.0**	0.0
	25/F	86.5	70	**74.5**	63.7	**74.2**	**74.5**	0.0
	30/F	101.5	70	**74.8**	63.8	**74.5**	**74.8**	0.0
	35/F	116.5	70	**74.9**	63.8	**74.6**	**75.0**	0.0
YT3	G/F	11.5	70	67.4	58.7	66.7	67.3	-0.1
	5/F	26.5	70	69.7	61.3	69.1	69.7	0.0
	10/F	41.5	70	**71.7**	62.4	**71.2**	**71.8**	0.1
	15/F	56.5	70	**73.2**	63.1	**72.8**	**73.3**	0.1
	20/F	71.5	70	**74.2**	63.5	**73.8**	**74.2**	0.0
	25/F	86.5	70	**74.7**	63.6	**74.4**	**74.8**	0.0
	30/F	101.5	70	**75.0**	63.7	**74.6**	**75.0**	0.0
	35/F	116.5	70	**75.1**	63.6	**74.7**	**75.1**	0.0
KMYLS1	G/F	6.8	65	**69.4**	56.4	**67.6**	**67.9**	-1.5
	1/F	9.8	65	**72.0**	57.7	**69.9**	**70.1**	-1.8
	2/F	12.8	65	**73.7**	58.9	**71.5**	**71.7**	-1.9
	3/F	15.8	65	**74.4**	60.1	**72.2**	**72.4**	-1.9
	4/F	18.8	65	**74.6**	62.1	**72.7**	**73.1**	-1.5
KMYLS2	G/F	6.8	65	**67.5**	58.0	**66.5**	**67.0**	-0.5
	1/F	9.8	65	**69.3**	59.9	**68.1**	**68.7**	-0.6
	2/F	12.8	65	**71.0**	62.0	**69.7**	**70.4**	-0.6
	3/F	15.8	65	**71.8**	63.1	**70.6**	**71.3**	-0.5
	4/F	18.8	65	**72.4**	64.1	**71.2**	**72.0**	-0.4

Annex C8

Designated Project Analysis

Predicted Road Traffic Noise Levels With and Without the Project for Year 2026

NSR	Floor	Assessment Level in mPD	Noise Criteria, dB(A)	Predicted Façade Noise Levels, $L_{10,\ 1\ hour}$, dB(A)				Noise Contribution due to the Project Without Mitigation [(a)], dB(A)
				Without the Project	With the Project (Without Mitigation)			
					New Roads	Existing Roads	Overall	
ND1	1/F	41.6	70	**76.1**	59.8	**76.1**	**76.1**	0.0
	6/F	56.6	70	**76.4**	61.9	**76.3**	**76.5**	0.1
	11/F	71.6	70	**76.6**	62.8	**76.6**	**76.7**	0.1
	16/F	86.6	70	**76.6**	63.2	**76.6**	**76.8**	0.2
	21/F	101.6	70	**76.7**	63.4	**76.6**	**76.8**	0.1
	26/F	116.6	70	**76.6**	63.3	**76.5**	**76.7**	0.2
	31/F	131.6	70	**76.5**	63.3	**76.4**	**76.6**	0.1
	36/F	146.6	70	**76.3**	63.2	**76.2**	**76.4**	0.1
	41/F	161.6	70	**76.2**	63.0	**76.0**	**76.3**	0.1
	46/F	176.6	70	**76.0**	62.8	**75.9**	**76.1**	0.1
ND2	1/F	37.6	70	**82.5**	70.3	**82.1**	**82.4**	0.0
	6/F	52.6	70	**82.2**	69.6	**82.1**	**82.3**	0.0
	11/F	67.6	70	**81.7**	68.7	**81.5**	**81.7**	0.0
	16/F	82.6	70	**81.1**	67.8	**80.9**	**81.2**	0.0
	21/F	97.6	70	**80.5**	67.1	**80.4**	**80.6**	0.0
	26/F	112.6	70	**80.0**	66.5	**79.9**	**80.0**	0.0
	31/F	127.6	70	**79.6**	65.9	**79.4**	**79.6**	0.0
	36/F	142.6	70	**79.2**	65.4	**79.0**	**79.2**	0.0
	41/F	157.6	70	**78.8**	65.0	**78.6**	**78.8**	0.0
	46/F	172.6	70	**78.4**	64.6	**78.2**	**78.4**	0.0
ND3	1/F	37.6	70	**82.2**	68.8	**82.1**	**82.3**	0.1
	6/F	52.6	70	**82.2**	68.6	**82.1**	**82.3**	0.1
	11/F	67.6	70	**81.6**	67.9	**81.6**	**81.8**	0.2
	16/F	82.6	70	**81.1**	67.3	**81.0**	**81.2**	0.1
	21/F	97.6	70	**80.5**	66.7	**80.5**	**80.6**	0.1
	26/F	112.6	70	**80.1**	66.1	**80.0**	**80.2**	0.1
	31/F	127.6	70	**79.6**	65.6	**79.6**	**79.7**	0.1
	36/F	142.6	70	**79.2**	65.1	**79.2**	**79.3**	0.1
	41/F	157.6	70	**78.8**	64.6	**78.8**	**78.9**	0.1
	46/F	172.6	70	**78.4**	64.2	**78.4**	**78.6**	0.2
PS1	G/F	6.7	65	**68.7**	61.2	**67.4**	**68.4**	-0.3
	1/F	9.7	65	**69.7**	62.5	**68.4**	**69.4**	-0.3
	2/F	12.7	65	**70.9**	64.2	**69.6**	**70.7**	-0.2
	3/F	15.7	65	**71.8**	65.3	**70.5**	**71.6**	-0.2
	4/F	18.7	65	**72.5**	**66.1**	**71.2**	**72.4**	-0.1
	5/F	21.7	65	**73.2**	**66.7**	**72.0**	**73.1**	-0.1
	6/F	24.7	65	**73.7**	**66.9**	**72.7**	**73.7**	0.0
Pun Uk	G/F	6.5	70	60.1	41.4	59.6	59.7	-0.4
	1/F	9.5	70	63.3	42.3	62.5	62.5	-0.7
	2/F	12.5	70	64.8	42.7	64.3	64.4	-0.4
	3/F	15.5	70	66.1	43.1	65.8	65.8	-0.4
	4/F	18.5	70	66.9	43.5	66.7	66.7	-0.2
	5/F	21.5	70	67.5	43.9	67.4	67.5	0.0
	6/F	24.5	70	67.9	44.5	68.0	67.9	0.0
	7/F	27.5	70	68.2	45.1	68.3	68.3	0.2
	8/F	30.5	70	68.4	45.5	68.6	68.7	0.2
	9/F	33.5	70	68.7	45.8	68.9	68.9	0.2
	10/F	36.5	70	68.9	46.1	69.1	69.2	0.3
	11/F	39.5	70	69.1	46.6	69.4	69.4	0.3
	12/F	42.5	70	69.4	47.1	69.5	69.6	0.2
	13/F	45.5	70	69.6	47.5	69.8	69.8	0.2
	14/F	48.5	70	69.8	47.8	69.9	70.0	0.2
	15/F	51.5	70	70.0	48.2	70.1	70.1	0.1
	16/F	54.5	70	70.0	48.2	70.1	70.1	0.1
ExSTNVPS1	G/F	5.4	65	64.1	44.0	63.8	63.9	-0.2

Notes:

72.8 Predicted noise level exceeded the corresponding criteria.

(a) Noise Contribution due to the Project is calculated by subtracting the noise level without the Project from the overall noise level with the Project.

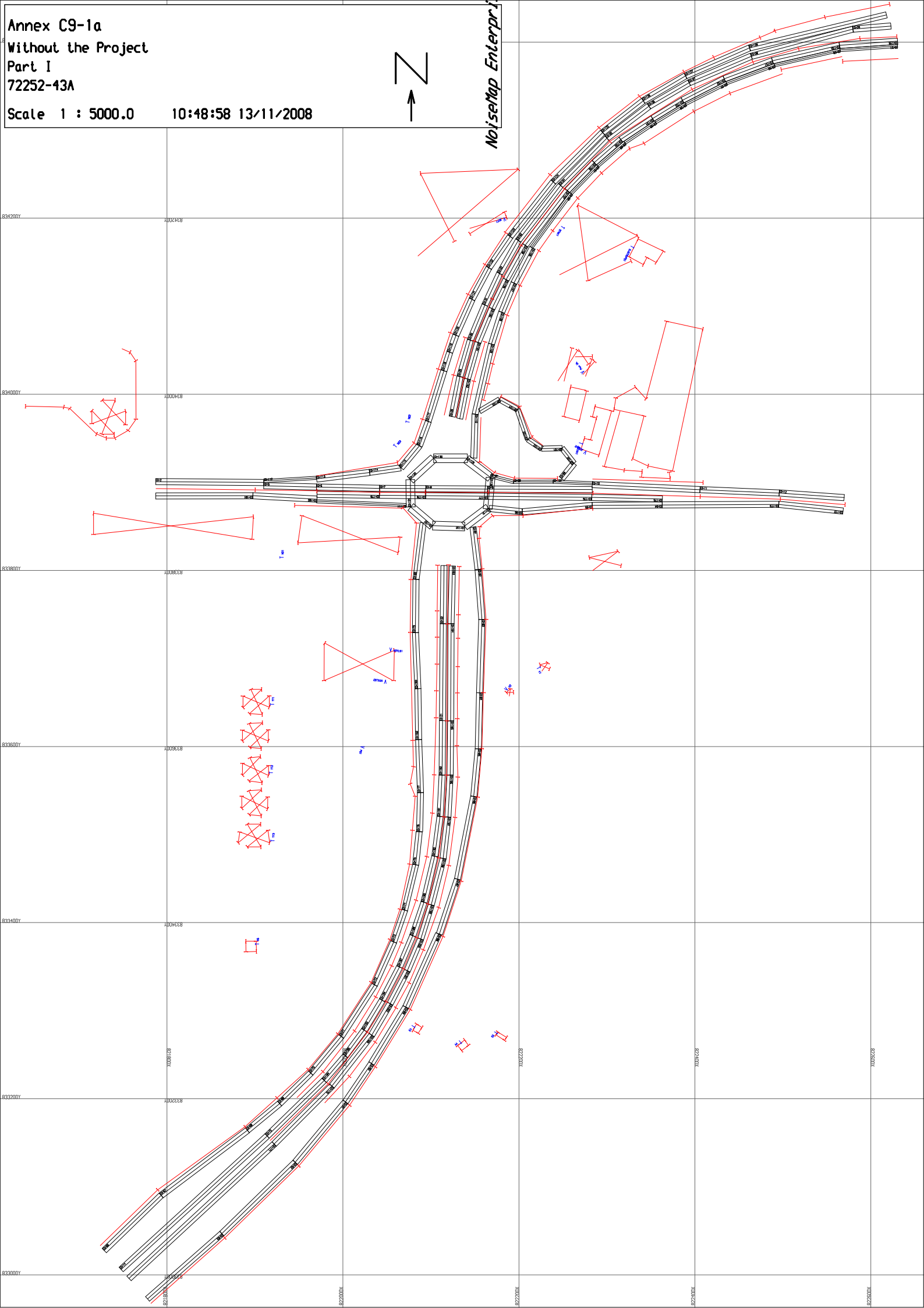
(b) Ground floor level of JCCAH1 is plant room and lobby. Therefore, it is not considered as noise sensitive.

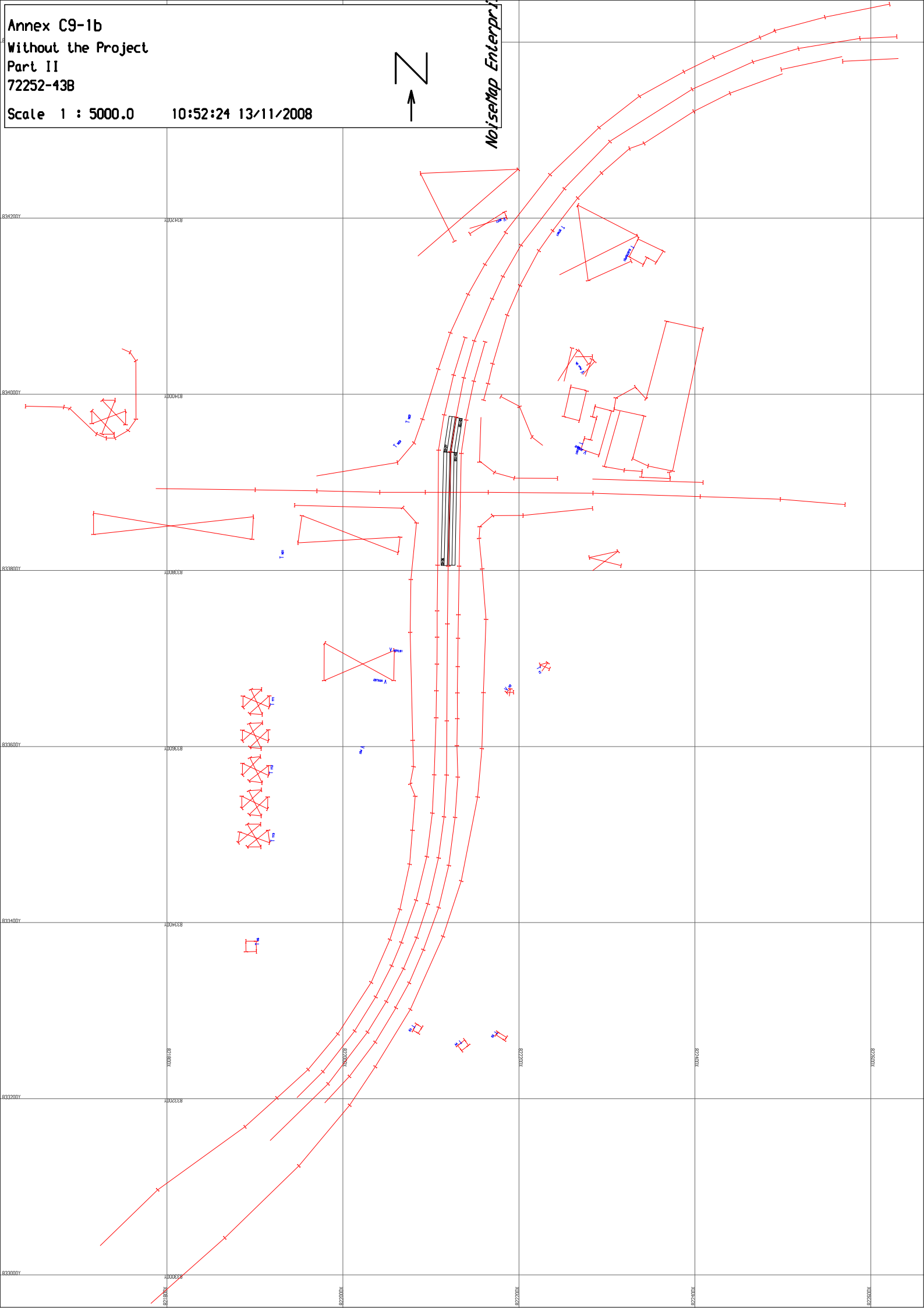
Annex C9

Road Traffic Noise Impact Assessment (Without Mitigation)

Annex C9-1a
Without the Project
Part I
72252-43A

Scale 1 : 5000.0 10:48:58 13/11/2008




Annex C9-1b
Without the Project
Part II
72252-43B
Scale 1 : 5000.0
10:52:24 13/11/2008
N
NoiseMap Enterpri
834200N
834000N
833800N
833600N
833400N
833200N
833000N
821800N
822000N
822200N
822400N
822600N

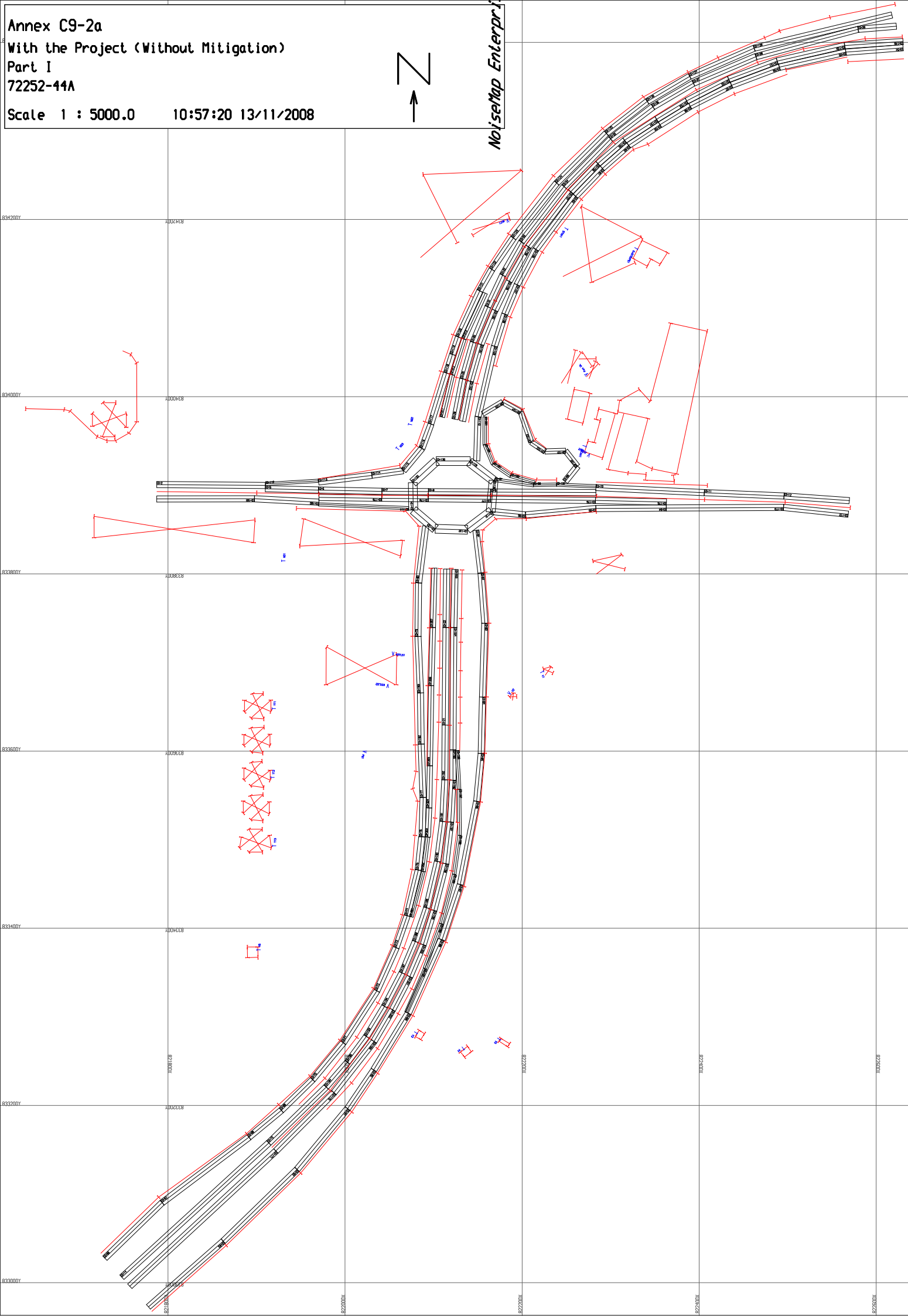
Annex C9-2a

With the Project (Without Mitigation)

Part I

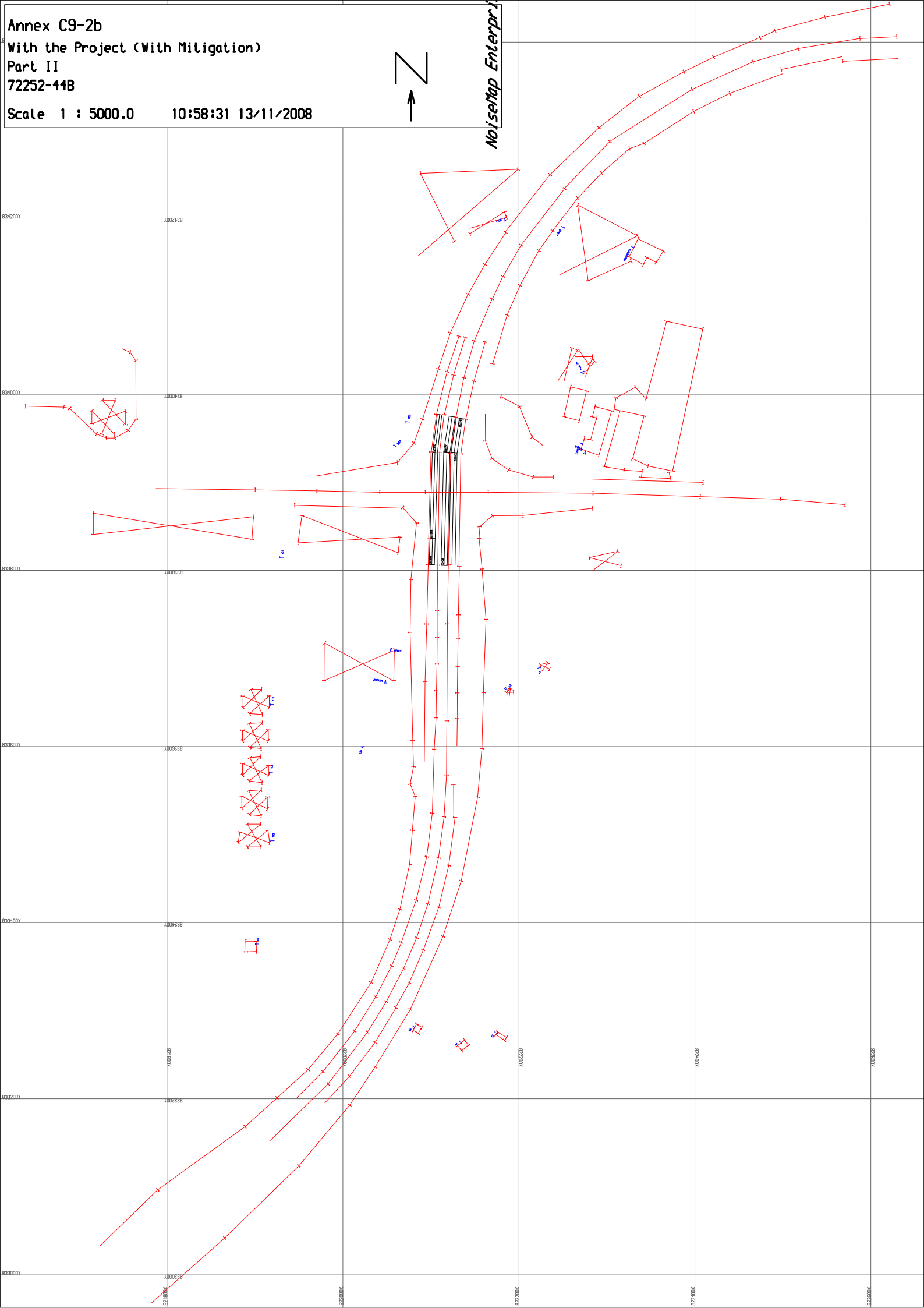
72252-44A

Scale 1 : 5000.0 10:57:20 13/11/2008



Annex C9-2b
With the Project (With Mitigation)
Part II
72252-44B

Scale 1 : 5000.0 10:58:31 13/11/2008



Annex C9-3

Sample Model Input Files for Road Traffic Noise Assessment

Without the Project

```
TEXT


TEXT
Option to set calc method as L10
OPT=2.0

COA=     1.0COD=  1000.0COR=    10.0

READ
72252-1.FLO
READ
72252-1.SEG
READ
72252-1.BAR

LINK
All
1,2,3,4,
LINK
YLH - N
1,
LINK
YLH - S
2,
LINK
CPR - W
3,
LINK
CPR - E
4,

READ
72252-1.REC

END

TEXT
TRAFFIC FORECAST AT YEAR 2026 AM (WITHOUT PROJECT)

TIM=    18.0

TEXT
CP Rd EB @ E of POI
FLO= -1929.0PHV=    49.0SPD=    50.0BAS=     2.0FNO=
1.0

TEXT
CP Rd EB under POI
FLO= -1109.0PHV=    48.0SPD=    50.0FNO=     2.0

TEXT
CP Rd WB @ E of POI
FLO= -2098.0PHV=    45.0SPD=    50.0FNO=     3.0

TEXT
YLH NB
FLO= -3124.0PHV=    57.0SPD=    80.0FNO=     4.0

TEXT
Slip Rd NB @ S of POI
FLO= -1216.0PHV=    47.0SPD=    50.0FNO=     5.0

TEXT
Slip Rd SB @ S of POI
FLO=  -745.0PHV=    47.0SPD=    50.0FNO=     6.0

TEXT
Roundabout
FLO= -2184.0PHV=    50.0SPD=    50.0FNO=     7.0

TEXT
Slip Rd WB @ W of POI
FLO= -1227.0PHV=    44.0SPD=    50.0FNO=     8.0

TEXT
Slip Rd NB @ N of POI
FLO= -1809.0PHV=    52.0SPD=    50.0FNO=    11.0

TEXT
Slip Rd SB @ N of new left-turn lane
FLO= -1204.0PHV=    47.0SPD=    50.0FNO=    12.0

TEXT
Slip Rd EB @ E of POI
FLO=  -820.0PHV=    49.0SPD=    50.0FNO=    13.0

TEXT
Slip Rd WB @ E of POI
FLO=  -580.0PHV=    56.0SPD=    50.0FNO=    14.0

TEXT
Svc Rd from POH
FLO=   -55.0PHV=   100.0SPD=    50.0FNO=    15.0

TEXT
Slip Rd EB @ W of POI
FLO= -1367.0PHV=    52.0SPD=    50.0FNO=    16.0

TEXT
YLH NB @ N of POI (Combined)
FLO= -4933.0PHV=    55.0SPD=    80.0FNO=    17.0

TEXT
YLH NB @ N of POI (to Route 3)
FLO= -1480.0PHV=    55.0SPD=    80.0FNO=    18.0

TEXT
YLH NB @ N of POI (to Sheung Shui)
FLO= -3453.0PHV=    55.0SPD=    80.0FNO=    19.0

TEXT
Slip Rd SB @ N of POI
FLO= -1204.0PHV=    47.0SPD=    50.0FNO=    25.0

TEXT
Slip Rd EB @ E of New Left-turn Lane A
FLO=  -820.0PHV=    49.0SPD=    50.0FNO=    26.0

TEXT
Slip Rd NB @ N of POI (80kph)
FLO= -1809.0PHV=    52.0SPD=    80.0FNO=    28.0

TEXT
Slip Rd SB @ N of new left-turn lane (80kph)
FLO= -1204.0PHV=    47.0SPD=    80.0FNO=    30.0

TEXT
CP Rd WB under POI
FLO= -1518.0PHV=    41.0SPD=    50.0FNO=    31.0

TEXT
YLH SB
FLO= -2121.0PHV=    63.0SPD=    80.0FNO=    32.0

TEXT
CP Rd EB @ W of POI
FLO= -2476.0PHV=    50.0SPD=    50.0FNO=    33.0

TEXT
CP Rd WB @ W of POI
FLO= -2745.0PHV=    42.0SPD=    50.0FNO=    34.0


RETN     0.0
```

```
TEXT


TEXT
1    WUT1
HRA=     5.4HRG=     1.5OPX=822183.6OPY=834198.6AN1=
80.0AN2=   235.7
REF=     1.0GO        .0
HPF=     2.8RPT=     2.0

TEXT
2    STNV1
HRA=     5.4OPX=822249.9OPY=834189.7AN1=   210.0AN2=
30.0
GO        .0
RPT=     1.0

TEXT
3    JCCAH1
HRA=     6.4OPX=822270.4OPY=833944.3AN1=   198.0AN2=
18.0
GO        .0
HPF=     3.0RPT=     5.0

TEXT
4    JCCAH2
HRA=     6.4OPX=822275.3OPY=833933.9AN1=   128.4AN2=
289.2
GO        .0
RPT=     5.0

TEXT
5    V1
HRA=     6.1OPX=822222.5OPY=833689.3AN1=   155.7AN2=
335.7
GO        .0
HPF=     2.5RPT=     1.0

TEXT
6    V2
HRA=     5.7OPX=822185.6OPY=833665.3AN1=   226.5AN2=
34.0
GO        .0
RPT=     1.0

TEXT
7    V3
HRA=     8.1OPX=822080.0OPY=833282.1AN1=   212.0AN2=
32.0
GO        .0
RPT=     1.0

TEXT
8    V4
HRA=     8.9OPX=822133.3OPY=833264.5AN1=   232.0AN2=
52.0
GO        .0
RPT=     1.0

TEXT
9   V5
HRA=     9.3OPX=822173.9OPY=833275.0AN1=   214.0AN2=
34.0
GO        .0
RPT=     3.0

TEXT
10   V6
HRA=     6.8OPX=821902.4OPY=833375.7AN1=     0.0AN2=
180.0
GO        .0
RPT=     2.0

TEXT
11    YT1
HRA=    11.5HRG=     6.5OPX=821919.5OPY=833648.0AN1=
1.0AN2=   181.0
GO        .0
HPF=    15.0RPT=     7.0

TEXT
12   YT2
HRA=    11.5OPX=821918.1OPY=833570.4AN1=     1.0AN2=
181.0
GO        .0
RPT=     7.0

TEXT
13   YT3
HRA=    11.5OPX=821919.9OPY=833493.1AN1=     1.0AN2=
181.0
GO        .0
RPT=     7.0

TEXT
14   KMYLS1
HRA=     6.8HRG=     1.5OPX=822054.3OPY=833710.0AN1=
275.9AN2=    90.0
GO        .0
HPF=     3.0RPT=     4.0

TEXT
15   KMYLS2
HRA=     6.8OPX=822048.2OPY=833673.5AN1=   100.1AN2=
270.0
GO        .0
RPT=     4.0

TEXT
16   ND1
HRA=    41.6HRG=    36.6OPX=821930.4OPY=833814.8AN1=
0.0AN2=   180.0
GO        .0
HPF=    15.0RPT=     9.0

TEXT
17   ND2
HRA=    37.6HRG=    32.1OPX=822073.5OPY=833968.7AN1=
10.0AN2=   190.0
GO        .0
RPT=     9.0

TEXT
18   ND3
HRA=    37.6OPX=822059.3OPY=833941.4AN1=    40.0AN2=
220.0
GO        .0
RPT=     9.0

TEXT
19   PS1
HRA=     6.7HRG=     1.5OPX=822022.3OPY=833599.4AN1=
25.0AN2=   180.0
GO        .0
HPF=     3.0RPT=     6.0

TEXT
20   Pun Uk
HRA=     6.5OPX=822272.4OPY=834025.0AN1=   219.0AN2=
245.0
GO        .0
RPT=    16.0

TEXT
21   ExSTNVPS1
HRA=     5.4OPX=822328.8OPY=834167.3AN1=   207.0AN2=
27.0
GO        .0


RETN     0.0

TEXT



TEXT
EXISTING BARRIER ALONG YLH
NBA=     3.0BSX=822115.2BSY=833976.3HBS=    18.7FOA=
0.0WBA=     0.0
            ABA=     0.0
            BEX=822125.7BEY=834021.8HBE=    16.4
NBA=     4.0
BEX=822138.9BEY=834064.6HBE=    15.0

TEXT

NBA=     7.0BSX=822139.5BSY=833970.8HBS=    18.7
            BEX=822148.8BEY=834014.8HBE=    16.4
NBA=     8.0
```

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BEX=822161.6BEY=834059.6HBE=    15.0

TEXT
YOHO TOWN PHASE 2 (UNDER CONSTRUCTION)
NBA=    31.0BSX=821716.4BSY=833864.9HBS=    28.4
            BEX=821716.4BEY=833840.8HBE=    28.4
TEXT

NBA=    32.0
BEX=821898.1BEY=833861.0HBE=    28.4
NBA=    33.0
BEX=821896.6BEY=833835.3HBE=    28.4
NBA=    34.0
BEX=821716.4BEY=833864.9HBE=    28.4

TEXT
POND FISH WHOLESALE MARKET
NBA=    35.0BSX=821954.2BSY=833862.0HBS=    12.6
            BEX=822062.7BEY=833820.1HBE=    12.6
TEXT

NBA=    36.0
BEX=822064.9BEY=833837.8HBE=    12.6
NBA=    37.0
BEX=821948.8BEY=833831.4HBE=    12.6
NBA=    38.0
BEX=821953.4BEY=833862.1HBE=    12.6

TEXT
KWONG MING YING LOI SCHOOL
NBA=    39.0BSX=821978.6BSY=833717.1HBS=    26.7
            BEX=821978.5BEY=833674.8HBE=    26.7
TEXT

NBA=    40.0
BEX=822058.4BEY=833709.2HBE=    26.7
NBA=    41.0
BEX=822057.6BEY=833674.8HBE=    26.7

TEXT

NBA=    42.0BSX=822056.4BSY=833675.1HBS=    26.7
            BEX=821979.4BEY=833717.4HBE=    26.7

TEXT
YOHO TOWN PHASE 1 (BLOCK 1)
NBA=    43.0BSX=821894.8BSY=833664.8HBS=   135.0
            BEX=821907.5BEY=833664.8HBE=   135.0
TEXT

NBA=    44.0
BEX=821886.4BEY=833644.2HBE=   135.0
NBA=    45.0
BEX=821886.3BEY=833657.4HBE=   135.0
NBA=    46.0
BEX=821916.2BEY=833644.6HBE=   135.0
NBA=    47.0
BEX=821916.2BEY=833657.5HBE=   135.0
NBA=    48.0
BEX=821893.8BEY=833637.3HBE=   135.0
NBA=    49.0
BEX=821908.3BEY=833636.3HBE=   135.0
NBA=    50.0
BEX=821895.3BEY=833664.8HBE=   135.0

TEXT
YOHO TOWN PHASE 1 (BLOCK 2)
NBA=    51.0BSX=821893.7BSY=833626.1HBS=   131.5
            BEX=821908.5BEY=833627.0HBE=   131.5
TEXT

NBA=    52.0
BEX=821885.6BEY=833606.4HBE=   131.5
NBA=    53.0
BEX=821885.6BEY=833618.6HBE=   131.5
NBA=    54.0
BEX=821915.1BEY=833606.4HBE=   131.5
NBA=    55.0
BEX=821915.1BEY=833619.0HBE=   131.5
NBA=    56.0
BEX=821894.1BEY=833599.0HBE=   131.5
NBA=    57.0
BEX=821907.2BEY=833597.7HBE=   131.5
NBA=    58.0
BEX=821893.4BEY=833626.2HBE=   131.5

TEXT
YOHO TOWN PHASE 1 (BLOCK 3)
NBA=    59.0BSX=821894.1BSY=833587.3HBS=   131.5
            BEX=821906.2BEY=833588.5HBE=   131.5
TEXT

NBA=    60.0
BEX=821885.8BEY=833567.4HBE=   131.5
NBA=    61.0
BEX=821885.8BEY=833580.9HBE=   131.5
NBA=    62.0
BEX=821915.3BEY=833567.1HBE=   131.5
NBA=    63.0
BEX=821915.3BEY=833578.3HBE=   131.5
NBA=    64.0
BEX=821893.2BEY=833560.9HBE=   131.5
NBA=    65.0
BEX=821908.0BEY=833558.9HBE=   131.5
NBA=    66.0
BEX=821894.2BEY=833587.3HBE=   131.5

TEXT
YOHO TOWN PHASE 1 (BLOCK 5)
NBA=    67.0BSX=821892.8BSY=833549.7HBS=   128.0
            BEX=821907.3BEY=833550.9HBE=   128.0
TEXT

NBA=    68.0
BEX=821885.0BEY=833529.8HBE=   128.0
NBA=    69.0
BEX=821884.9BEY=833543.6HBE=   128.0
NBA=    70.0
BEX=821914.3BEY=833529.1HBE=   128.0
NBA=    71.0
BEX=821914.5BEY=833542.7HBE=   128.0
NBA=    72.0
BEX=821893.4BEY=833522.6HBE=   128.0
NBA=    73.0
BEX=821907.2BEY=833521.2HBE=   128.0
NBA=    74.0
BEX=821893.0BEY=833549.8HBE=   128.0

TEXT
YOHO TOWN PHASE 1 (BLOCK 6)
NBA=    75.0BSX=821891.2BSY=833511.8HBS=   124.0
            BEX=821906.4BEY=833511.8HBE=   124.0
TEXT

NBA=    76.0
BEX=821880.9BEY=833490.6HBE=   124.0
NBA=    77.0
BEX=821882.7BEY=833502.9HBE=   124.0
NBA=    78.0
BEX=821916.7BEY=833490.6HBE=   124.0
NBA=    79.0
BEX=821914.8BEY=833504.8HBE=   124.0
NBA=    80.0
BEX=821891.1BEY=833486.1HBE=   124.0
NBA=    81.0
BEX=821906.7BEY=833486.0HBE=   124.0
NBA=    82.0
BEX=821891.2BEY=833511.8HBE=   124.0

TEXT
SUN YUEN LONG CENTRE (BLOCK 5)
NBA=    83.0BSX=821726.1BSY=833993.3HBS=   117.0
            BEX=821741.0BEY=833993.3HBE=   117.0
TEXT

NBA=    84.0
BEX=821725.8BEY=833954.8HBE=   117.0
NBA=    85.0
BEX=821740.0BEY=833954.8HBE=   117.0
NBA=    86.0
BEX=821714.5BEY=833981.3HBE=   117.0
NBA=    87.0
BEX=821714.5BEY=833966.6HBE=   117.0
NBA=    88.0
BEX=821752.9BEY=833980.9HBE=   117.0
NBA=    89.0
BEX=821752.9BEY=833965.4HBE=   117.0
NBA=    90.0
BEX=821726.3BEY=833993.3HBE=   117.0
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TEXT
SUN YUEN LONG CENTRE (PODIUM)
NBA=    91.0BSX=821748.9BSY=834051.7HBS=    22.5
           BEX=821758.0BEY=834047.7HBE=    22.5
TEXT

NBA=    92.0
BEX=821764.5BEY=834038.0HBE=    22.5
NBA=    93.0
BEX=821764.7BEY=833971.7HBE=    22.5
NBA=    94.0
BEX=821755.8BEY=833958.9HBE=    22.5
NBA=    95.0
BEX=821740.7BEY=833950.4HBE=    22.5
NBA=    96.0
BEX=821731.0BEY=833950.2HBE=    22.5
NBA=    97.0
BEX=821719.9BEY=833954.9HBE=    22.5
NBA=    98.0
BEX=821689.4BEY=833983.9HBE=    22.5
NBA=    99.0
BEX=821682.7BEY=833985.5HBE=    22.5
NBA=   100.0
BEX=821639.1BEY=833986.4HBE=    22.5

TEXT
DSD PUMPING STATION
NBA=   101.0BSX=822283.7BSY=833799.7HBS=    14.4
           BEX=822312.7BEY=833821.7HBE=    14.4
TEXT

NBA=   102.0
BEX=822280.0BEY=833814.6HBE=    14.4
NBA=   103.0
BEX=822316.1BEY=833805.4HBE=    14.4

TEXT
POK OI HOSTIPAL JOCKEY CLUB CARE & ATTENTION HOUSE
NBA=   104.0BSX=822287.0BSY=833987.3HBS=    29.5
           BEX=822283.5BEY=833974.4HBE=    29.5
TEXT

NBA=   105.0
BEX=822288.2BEY=833973.2HBE=    29.5
NBA=   106.0
BEX=822281.3BEY=833948.2HBE=    29.5
NBA=   107.0
BEX=822274.3BEY=833949.9HBE=    29.5
NBA=   108.0
BEX=822270.6BEY=833937.7HBE=    29.5
NBA=   109.0
BEX=822291.0BEY=833930.8HBE=    29.5
NBA=   110.0
BEX=822305.3BEY=833981.1HBE=    29.5
NBA=   111.0
BEX=822286.3BEY=833986.1HBE=    29.5

TEXT
POK OI HOSPITAL
NBA=   112.0BSX=822367.5BSY=834083.0HBS=    43.5
           BEX=822409.0BEY=834073.9HBE=    43.5
TEXT

NBA=   113.0
BEX=822374.6BEY=833912.8HBE=    43.5
NBA=   114.0
BEX=822346.8BEY=833918.6HBE=    43.5
NBA=   115.0
BEX=822329.2BEY=833926.8HBE=    43.5
NBA=   116.0
BEX=822342.2BEY=833975.4HBE=    43.5
NBA=   117.0
BEX=822308.1BEY=833982.8HBE=    43.5
NBA=   118.0
BEX=822310.1BEY=833995.8HBE=    43.5
NBA=   119.0
BEX=822332.5BEY=834008.1HBE=    43.5
NBA=   120.0
BEX=822344.5BEY=833994.8HBE=    43.5
NBA=   121.0
BEX=822367.8BEY=834083.0HBE=    43.5

TEXT
EXISTING BARRIER ALONG YLH
NBA=   122.0BSX=822105.9BSY=833632.6HBS=    16.5
                BEX=822106.1BEY=833663.3HBE=    16.8
TEXT

NBA=   126.0BSX=822107.0BSY=833754.6HBS=    19.0
                BEX=822107.6BEY=833805.9HBE=    20.9

TEXT

NBA=   125.0BSX=822107.0BSY=833724.1HBS=    18.8
                BEX=822107.0BEY=833754.1HBE=    19.0

TEXT

NBA=   124.0BSX=822106.8BSY=833693.6HBS=    18.0
                BEX=822107.0BEY=833724.1HBE=    18.3

TEXT

NBA=   123.0BSX=822106.1BSY=833663.3HBS=    17.3
                BEX=822106.8BEY=833693.6HBE=    17.5

TEXT

NBA=   127.0BSX=822129.5BSY=833600.9HBS=    15.4
                BEX=822129.9BEY=833631.6HBE=    15.6

TEXT

NBA=   128.0BSX=822130.1BSY=833631.8HBS=    16.0
                BEX=822130.0BEY=833660.9HBE=    16.2

TEXT

NBA=   129.0BSX=822130.0BSY=833660.9HBS=    16.7
                BEX=822130.4BEY=833690.7HBE=    17.0

TEXT

NBA=   130.0BSX=822130.4BSY=833690.7HBS=    18.0
                BEX=822130.8BEY=833722.9HBE=    18.3

TEXT

NBA=   131.0BSX=822130.8BSY=833722.9HBS=    18.8
                BEX=822131.1BEY=833749.6HBE=    19.0
NBA=   132.0
BEX=822132.2BEY=833804.5HBE=    20.3

TEXT

NBA=   133.0BSX=821947.9BSY=833201.3HBS=    14.3
                BEX=821977.2BEY=833230.8HBE=    14.4
TEXT

NBA=   134.0
BEX=822013.3BEY=833276.9HBE=    14.6

TEXT

NBA=   135.0BSX=822013.3BSY=833277.2HBS=    16.6
                BEX=822037.1BEY=833315.6HBE=    16.6
TEXT

NBA=   136.0
BEX=822055.3BEY=833351.1HBE=    16.7

TEXT

NBA=   138.0BSX=822066.1BSY=833377.1HBS=    15.9
                BEX=822083.1BEY=833425.5HBE=    16.3
NBA=   139.0
BEX=822095.3BEY=833474.9HBE=    16.0
NBA=   140.0
BEX=822101.6BEY=833524.4HBE=    15.6

TEXT

NBA=   137.0BSX=822054.9BSY=833350.2HBS=    16.2
                BEX=822066.4BEY=833377.4HBE=    16.4

TEXT

NBA=   143.0BSX=822007.7BSY=833225.8HBS=    14.7
                BEX=822036.6BEY=833264.1HBE=    14.8
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TEXT

NBA=   144.0
BEX=822060.3BEY=833303.3HBE=    14.8

TEXT

NBA=   145.0BSX=822059.6BSY=833303.3HBS=    14.6
            BEX=822075.3BEY=833331.6HBE=    14.7

TEXT

NBA=   142.0BSX=821979.3BSY=833195.4HBS=    14.3
            BEX=822007.4BEY=833225.4HBE=    14.5

TEXT
SLOPE & EXISTING BARRIER
NBA=   150.0BSX=822156.9BSY=833973.7HBS=    10.7
            BEX=822155.2BEY=833922.9HBE=     9.5

TEXT

NBA=   151.0BSX=822155.2BSY=833924.3HBS=    10.7
            BEX=822172.2BEY=833911.1HBE=    10.6
NBA=   152.0
BEX=822194.7BEY=833904.7HBE=     9.1
NBA=   153.0
BEX=822243.8BEY=833904.5HBE=     7.3

TEXT
Existing barriers (0.8m)
NBA=   154.0BSX=821970.1BSY=833907.4HBS=     5.0
            BEX=822061.9BEY=833922.5HBE=     9.1
TEXT

NBA=   155.0
BEX=822080.9BEY=833944.8HBE=     9.7
NBA=   156.0
BEX=822090.4BEY=833971.7HBE=    10.8

TEXT
Existing barriers (3m)
NBA=   157.0BSX=822090.4BSY=833971.2HBS=    13.0
            BEX=822108.3BEY=834028.6HBE=    14.2
NBA=   158.0
BEX=822122.1BEY=834069.8HBE=    14.1
NBA=   159.0
BEX=822142.1BEY=834113.4HBE=    14.0
NBA=   160.0
BEX=822161.4BEY=834147.4HBE=    12.4
NBA=   161.0
BEX=822185.1BEY=834183.6HBE=    10.7

TEXT
Existing barriers (4m)
NBA=   162.0BSX=822184.1BSY=834184.0HBS=    11.7
            BEX=822235.3BEY=834249.3HBE=    11.0
NBA=   163.0
BEX=822290.9BEY=834302.8HBE=    10.9
NBA=   164.0
BEX=822336.9BEY=834338.5HBE=    10.8

TEXT
SLOPE
NBA=   168.0BSX=821781.7BSY=832967.7HBS=    16.7
            BEX=821865.7BEY=833042.0HBE=    16.7
NBA=   169.0
BEX=821949.9BEY=833123.8HBE=    15.5
NBA=   170.0
BEX=822007.6BEY=833192.6HBE=    14.8
NBA=   171.0
BEX=822036.7BEY=833236.4HBE=    14.1
NBA=   172.0
BEX=822076.6BEY=833301.4HBE=    13.5
TEXT

NBA=   173.0
BEX=822113.6BEY=833384.3HBE=    12.8
NBA=   174.0
BEX=822134.5BEY=833447.4HBE=    12.1
NBA=   175.0
BEX=822153.1BEY=833542.6HBE=    11.4
NBA=   176.0
BEX=822157.9BEY=833597.6HBE=    10.7
NBA=   177.0
BEX=822159.7BEY=833661.2HBE=    10.0
NBA=   178.0
BEX=822162.6BEY=833744.4HBE=     9.5
NBA=   179.0
BEX=822158.2BEY=833801.7HBE=     8.6
NBA=   180.0
BEX=822154.8BEY=833836.3HBE=     8.5
NBA=   181.0
BEX=822155.5BEY=833849.6HBE=     8.5
NBA=   182.0
BEX=822170.0BEY=833862.3HBE=     8.5
NBA=   183.0
BEX=822204.7BEY=833862.4HBE=     7.8
NBA=   184.0
BEX=822283.7BEY=833870.4HBE=     5.3

TEXT
SLOPE
NBA=   185.0BSX=821724.1BSY=833033.3HBS=    17.4
            BEX=821789.4BEY=833096.6HBE=    17.0
NBA=   186.0
BEX=821888.6BEY=833168.2HBE=    15.2
TEXT

NBA=   187.0
BEX=821924.9BEY=833200.9HBE=    14.9
NBA=   188.0
BEX=821960.3BEY=833233.1HBE=    14.5
NBA=   189.0
BEX=821994.2BEY=833273.6HBE=    14.2
NBA=   190.0
BEX=822032.0BEY=833332.1HBE=    13.8
NBA=   191.0
BEX=822053.4BEY=833380.7HBE=    13.4
NBA=   192.0
BEX=822064.8BEY=833415.1HBE=    13.0
NBA=   193.0
BEX=822075.8BEY=833466.3HBE=    12.4
NBA=   194.0
BEX=822079.0BEY=833504.9HBE=    12.0
NBA=   195.0
BEX=822082.1BEY=833543.5HBE=    11.6
NBA=   196.0
BEX=822076.4BEY=833557.6HBE=    11.6
NBA=   197.0
BEX=822080.2BEY=833577.1HBE=    11.6
NBA=   198.0
BEX=822079.3BEY=833607.0HBE=    10.9
NBA=   199.0
BEX=822076.4BEY=833729.6HBE=     9.5

TEXT

NBA=   200.0BSX=822076.4BSY=833729.7HBS=     9.5
            BEX=822077.1BEY=833789.6HBE=     9.0
NBA=   201.0
BEX=822083.6BEY=833853.9HBE=     8.4
NBA=   202.0
BEX=822067.8BEY=833871.4HBE=     8.5

NBA=   203.0BSX=822068.8BSY=833870.6HBS=     8.5
            BEX=821945.0BEY=833873.9HBE=     4.2

TEXT

NBA=   204.0BSX=822182.0BSY=834134.0HBS=    10.2
            BEX=822202.3BEY=834169.3HBE=     8.5
NBA=   205.0
BEX=822251.7BEY=834233.4HBE=     7.8

NBA=   206.0BSX=822251.2BSY=834233.4HBS=     7.8
            BEX=822303.5BEY=834287.0HBE=     7.7

TEXT
Small Traders New Village
NBA=   207.0BSX=822246.3BSY=834135.7HBS=     9.5
            BEX=822334.8BEY=834179.9HBE=     9.5
TEXT

NBA=   208.0
BEX=822266.8BEY=834214.9HBE=     9.5
NBA=   209.0
BEX=822278.7BEY=834129.1HBE=     9.5
NBA=   210.0
BEX=822327.5BEY=834151.2HBE=     9.5
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TEXT
Wong Uk Tsuen
NBA=   211.0BSX=822144.1BSY=834188.4HBS=    12.3
           BEX=822185.9BEY=834200.9HBE=    12.3
TEXT

NBA=   212.0
BEX=822183.6BEY=834207.1HBE=    12.3
TEXT

NBA=   213.0
BEX=822144.1BEY=834182.3HBE=    12.3

TEXT

NBA=   214.0BSX=822085.3BSY=834157.1HBS=    12.3
           BEX=822199.3BEY=834255.5HBE=    12.3
NBA=   215.0
BEX=822088.0BEY=834250.9HBE=    12.3
NBA=   216.0
BEX=822126.8BEY=834173.6HBE=    12.3

TEXT
Existing Barriers (4m)
NBA=   217.0BSX=822631.2BSY=834381.3HBS=    10.1
           BEX=822568.0BEY=834378.1HBE=     9.6

NBA=   218.0BSX=822499.6BSY=834363.9HBS=     8.2
           BEX=822439.9BEY=834341.8HBE=     8.2
TEXT
Existing Barriers (4m)
NBA=   219.0
BEX=822398.6BEY=834321.2HBE=     8.2

TEXT
Existing Barriers (4m)
NBA=   220.0BSX=822398.6BSY=834321.2HBS=    10.2
           BEX=822342.1BEY=834284.9HBE=    10.2
NBA=   221.0
BEX=822325.6BEY=834279.1HBE=    10.2
NBA=   222.0
BEX=822293.8BEY=834251.4HBE=    10.3
NBA=   223.0
BEX=822266.8BEY=834222.8HBE=    10.3
NBA=   224.0
BEX=822238.3BEY=834185.8HBE=    11.6

TEXT
Existing Barriers (4m)
NBA=   217.0BSX=822567.2BSY=834383.3HBS=     9.6
           BEX=822498.1BEY=834368.9HBE=    10.2

TEXT
Existing Barriers (3m)
NBA=   249.0BSX=822170.4BSY=834035.0HBS=    13.5
           BEX=822164.9BEY=834012.1HBE=    13.2
TEXT
Existing Barriers (3m)
NBA=   250.0
BEX=822159.8BEY=833993.3HBE=    13.0

TEXT
Existing Barriers (3m)
NBA=   225.0BSX=822239.7BSY=834187.3HBS=    10.6
           BEX=822222.6BEY=834163.1HBE=    10.2
TEXT

NBA=   226.0
BEX=822201.3BEY=834123.6HBE=    10.6
NBA=   227.0
BEX=822186.5BEY=834089.9HBE=    13.2
NBA=   228.0
BEX=822170.1BEY=834034.6HBE=    13.5

TEXT
Pun Uk
NBA=   229.0BSX=822276.3BSY=834004.4HBS=     9.4
           BEX=822258.8BEY=834008.4HBE=     9.4
TEXT

NBA=   230.0
BEX=822251.1BEY=833974.6HBE=     9.4
NBA=   231.0
BEX=822268.6BEY=833969.9HBE=     9.4
NBA=   232.0
BEX=822276.8BEY=834003.8HBE=     9.4

TEXT
Pok Oi Hospital
NBA=   233.0BSX=822314.8BSY=833980.8HBS=     8.9
           BEX=822297.1BEY=833917.8HBE=     8.9
TEXT

NBA=   234.0
BEX=822319.7BEY=833913.8HBE=     8.9
NBA=   235.0
BEX=822340.0BEY=833912.3HBE=     8.9
NBA=   236.0
BEX=822339.3BEY=833905.9HBE=     8.9
NBA=   237.0
BEX=822371.9BEY=833904.4HBE=     8.9
NBA=   238.0
BEX=822370.9BEY=833911.5HBE=     8.9

TEXT

NBA=   239.0BSX=822283.8BSY=833903.7HBS=     6.3
           BEX=822409.3BEY=833899.8HBE=     8.0

TEXT
Roadkerb
NBA=   240.0BSX=822227.0BSY=833942.0HBS=     6.3
           BEX=822214.8BEY=833951.3HBE=     7.4
TEXT

NBA=   241.0
BEX=822200.6BEY=833985.8HBE=     8.0

TEXT

NBA=   242.0BSX=822200.6BSY=833986.3HBS=     8.0
           BEX=822179.4BEY=833997.5HBE=     9.0

TEXT
Village house
NBA=   243.0BSX=822189.1BSY=833657.3HBS=     9.2
           BEX=822190.3BEY=833665.5HBE=     9.2
TEXT

NBA=   244.0
BEX=822185.6BEY=833661.3HBE=     9.2
NBA=   245.0
BEX=822193.9BEY=833661.6HBE=     9.2

TEXT

NBA=   246.0BSX=822226.1BSY=833685.7HBS=     9.6
           BEX=822232.8BEY=833695.1HBE=     9.6
NBA=   247.0
BEX=822223.9BEY=833692.9HBE=     9.6

NBA=   248.0BSX=822223.9BSY=833692.9HBS=     9.6
           BEX=822234.8BEY=833688.1HBE=     9.6

TEXT
SLOPE
NBA=   260.0BSX=822120.3BSY=833464.8HBS=    14.0
           BEX=822127.4BEY=833519.5HBE=    13.6

TEXT
Ex-Small Traders New Village Public School
NBA=   262.0BSX=822335.4BSY=834176.2HBS=     9.0
           BEX=822325.2BEY=834156.1HBE=     9.0
TEXT

NBA=   263.0
BEX=822341.4BEY=834147.3HBE=     9.0
NBA=   264.0
BEX=822345.6BEY=834155.4HBE=     9.0
NBA=   265.0
BEX=822356.0BEY=834149.6HBE=     9.0
NBA=   266.0
BEX=822364.2BEY=834162.7HBE=     9.0
NBA=   267.0
BEX=822335.4BEY=834176.4HBE=     9.0

TEXT
Central divider for Castle Peak Road
NBA=   268.0BSX=821787.4BSY=833892.9HBS=     5.5
```

```
           BEX=821900.2BEY=833891.5HBE=     4.9
TEXT

NBA=   269.0
BEX=821970.4BEY=833890.3HBE=     5.0
NBA=   270.0
BEX=822041.8BEY=833888.7HBE=     3.7
NBA=   271.0
BEX=822093.6BEY=833888.7HBE=     2.1
NBA=   272.0
BEX=822165.1BEY=833888.7HBE=     2.4
NBA=   273.0
BEX=822284.2BEY=833887.7HBE=     6.1
NBA=   274.0
BEX=822406.1BEY=833883.9HBE=     7.8
NBA=   275.0
BEX=822497.1BEY=833880.8HBE=     9.6
NBA=   276.0
BEX=822570.8BEY=833874.7HBE=    10.4

TEXT
Central divider for existing Yuen Long Highway
NBA=   277.0BSX=821917.4BSY=833152.7HBS=    13.9
           BEX=821983.1BEY=833216.9HBE=    14.2
NBA=   278.0
BEX=822027.8BEY=833275.6HBE=    14.4

TEXT

NBA=   283.0BSX=822118.0BSY=833629.1HBS=    15.3
           BEX=822118.6BEY=833739.3HBE=    16.3
TEXT

NBA=   284.0
BEX=822119.8BEY=833806.3HBE=    18.2

TEXT

NBA=   288.0BSX=822169.8BSY=834108.0HBS=    11.8
           BEX=822181.7BEY=834133.8HBE=    10.2

TEXT

NBA=   285.0BSX=822128.4BSY=833973.8HBS=    16.0
           BEX=822137.3BEY=834018.6HBE=    13.7
NBA=   286.0
BEX=822149.2BEY=834060.6HBE=    12.3

NBA=   287.0BSX=822149.2BSY=834060.6HBS=    12.3
           BEX=822169.5BEY=834108.4HBE=    11.8

TEXT
Village house
NBA=   285.0BSX=822079.6BSY=833278.3HBS=    12.0
           BEX=822083.9BEY=833284.9HBE=    12.0
TEXT

NBA=   286.0
BEX=822089.8BEY=833281.0HBE=    12.0
NBA=   287.0
BEX=822085.5BEY=833274.4HBE=    12.0

TEXT

NBA=   288.0BSX=822085.5BSY=833274.4HBS=    12.0
           BEX=822079.6BEY=833277.8HBE=    12.0

TEXT
Village house
NBA=   289.0BSX=822135.0BSY=833254.7HBS=    12.4
           BEX=822130.4BEY=833260.4HBE=    12.4
TEXT

NBA=   290.0
BEX=822138.3BEY=833266.8HBE=    12.4
NBA=   291.0
BEX=822142.7BEY=833260.6HBE=    12.4

TEXT

NBA=   292.0BSX=822142.7BSY=833260.6HBS=    12.4
           BEX=822134.8BEY=833254.7HBE=    12.4

TEXT

NBA=   293.0BSX=822337.3BSY=834338.6HBS=    10.8
           BEX=822387.5BEY=834366.3HBE=    10.8
NBA=   294.0
BEX=822421.3BEY=834382.8HBE=    10.8
NBA=   295.0
BEX=822474.0BEY=834405.1HBE=    10.8
TEXT

NBA=   296.0
BEX=822491.1BEY=834412.7HBE=    10.8

TEXT

NBA=   298.0BSX=822547.8BSY=834428.3HBS=     9.5
           BEX=822621.3BEY=834443.1HBE=     9.5

TEXT

NBA=   299.0BSX=822304.1BSY=834287.6HBS=     7.7
           BEX=822396.8BEY=834346.3HBE=     7.6
NBA=   300.0
BEX=822465.8BEY=834377.5HBE=     7.6
NBA=   301.0
BEX=822517.8BEY=834392.6HBE=     7.1
NBA=   302.0
BEX=822587.6BEY=834404.1HBE=     8.3

TEXT

NBA=   303.0BSX=822587.4BSY=834403.9HBS=     8.3
           BEX=822629.5BEY=834406.1HBE=     8.3

TEXT

NBA=   304.0BSX=822114.8BSY=833520.1HBS=    14.4
           BEX=822117.7BEY=833567.6HBE=    14.8
NBA=   305.0
BEX=822118.0BEY=833629.1HBE=    15.3

TEXT

NBA=   306.0BSX=822096.5BSY=833421.3HBS=    15.1
           BEX=822108.6BEY=833473.5HBE=    14.8
NBA=   307.0
BEX=822114.8BEY=833520.1HBE=    14.4

TEXT

NBA=   308.0BSX=822068.8BSY=833347.7HBS=    14.5
           BEX=822083.8BEY=833382.9HBE=    14.8
NBA=   309.0
BEX=822096.5BEY=833421.3HBE=    15.1

TEXT

NBA=   310.0BSX=822127.4BSY=833519.5HBS=    13.6
           BEX=822130.5BEY=833565.3HBE=    14.0
NBA=   311.0
BEX=822129.5BEY=833600.9HBE=    14.3

TEXT

NBA=   312.0BSX=822075.3BSY=833331.6HBS=    13.7
           BEX=822091.3BEY=833369.1HBE=    14.0
NBA=   313.0
BEX=822108.9BEY=833417.1HBE=    14.3

TEXT

NBA=   314.0BSX=822108.9BSY=833417.1HBS=    14.3
           BEX=822120.3BEY=833464.8HBE=    14.0

TEXT

NBA=   315.0BSX=822027.8BSY=833275.6HBS=    14.4
           BEX=822049.2BEY=833310.3HBE=    14.4
NBA=   316.0
BEX=822068.8BEY=833347.7HBE=    14.5

TEXT

NBA=   317.0BSX=822489.1BSY=834412.7HBS=     7.6
           BEX=822547.8BEY=834428.3HBE=     8.3

TEXT
```

```
NBA=   318.0BSX=822244.3BSY=834015.2HBS=    56.0
            BEX=822266.6BEY=834049.9HBE=    56.0

TEXT

NBA=   319.0BSX=822251.3BSY=834014.8HBS=    56.0
            BEX=822260.3BEY=834052.5HBE=    56.0

TEXT

NBA=   320.0BSX=822264.1BSY=834042.6HBS=    56.0
            BEX=822283.5BEY=834042.9HBE=    56.0

TEXT

NBA=   321.0BSX=822267.7BSY=834051.3HBS=    56.0
            BEX=822279.0BEY=834034.2HBE=    56.0

TEXT

NBA=   322.0BSX=822272.6BSY=834022.5HBS=    56.0
            BEX=822286.1BEY=834037.4HBE=    56.0

TEXT

NBA=   323.0BSX=822275.6BSY=834020.4HBS=    56.0
            BEX=822282.9BEY=834039.7HBE=    56.0

TEXT

NBA=   324.0BSX=822173.8BSY=833272.7HBS=    17.8
            BEX=822176.0BEY=833275.8HBE=    17.8
NBA=   325.0
BEX=822185.9BEY=833269.6HBE=    17.8
NBA=   326.0
BEX=822183.5BEY=833266.3HBE=    17.8

NBA=   327.0BSX=822183.5BSY=833266.3HBS=    17.8
            BEX=822173.8BEY=833272.7HBE=    17.8

TEXT

NBA=   328.0BSX=821889.4BSY=833366.9HBS=    15.3
            BEX=821901.6BEY=833367.2HBE=    15.3
NBA=   329.0
BEX=821901.3BEY=833378.9HBE=    15.3
NBA=   330.0
BEX=821889.6BEY=833378.9HBE=    15.3
NBA=   331.0
BEX=821889.7BEY=833366.9HBE=    15.3

TEXT

NBA=   332.0BSX=822101.6BSY=833524.4HBS=    15.6
            BEX=822103.7BEY=833567.8HBE=    16.0

NBA=   333.0BSX=822103.7BSY=833567.8HBS=    16.0
            BEX=822105.9BEY=833632.6HBE=    16.5


RETN     0.0

TEXT


TEXT
1    WUT1
HRA=     5.4HRG=     1.5OPX=822183.6OPY=834198.6AN1=
80.0AN2=   235.7
REF=     1.0GO        .0
HPF=     2.8RPT=     2.0

TEXT
2    STNV1
HRA=     5.4OPX=822249.9OPY=834189.7AN1=   210.0AN2=
30.0
GO        .0
RPT=     1.0

TEXT
3    JCCAH1
HRA=     6.4OPX=822270.4OPY=833944.3AN1=   198.0AN2=
18.0
GO        .0
HPF=     3.0RPT=     5.0

TEXT
4    JCCAH2
HRA=     6.4OPX=822275.3OPY=833933.9AN1=   128.4AN2=
289.2
GO        .0
RPT=     5.0

TEXT
5    V1
HRA=     6.1OPX=822222.5OPY=833689.3AN1=   155.7AN2=
335.7
GO        .0
HPF=     2.5RPT=     1.0

TEXT
6    V2
HRA=     5.7OPX=822185.6OPY=833665.3AN1=   226.5AN2=
34.0
GO        .0
RPT=     1.0

TEXT
7    V3
HRA=     8.1OPX=822080.0OPY=833282.1AN1=   212.0AN2=
32.0
GO        .0
RPT=     1.0

TEXT
8    V4
HRA=     8.9OPX=822133.3OPY=833264.5AN1=   232.0AN2=
52.0
GO        .0
RPT=     1.0

TEXT
9   V5
HRA=     9.3OPX=822173.9OPY=833275.0AN1=   214.0AN2=
34.0
GO        .0
RPT=     3.0

TEXT
10   V6
HRA=     6.8OPX=821902.4OPY=833375.7AN1=     0.0AN2=
180.0
GO        .0
RPT=     2.0

TEXT
11    YT1
HRA=    11.5HRG=     6.5OPX=821919.5OPY=833648.0AN1=
1.0AN2=   181.0
GO        .0
HPF=    15.0RPT=     7.0

TEXT
12   YT2
HRA=    11.5OPX=821918.1OPY=833570.4AN1=     1.0AN2=
181.0
GO        .0
RPT=     7.0

TEXT
13   YT3
HRA=    11.5OPX=821919.9OPY=833493.1AN1=     1.0AN2=
181.0
GO        .0
RPT=     7.0

TEXT
14   KMYLS1
HRA=     6.8HRG=     1.5OPX=822054.3OPY=833710.0AN1=
275.9AN2=    90.0
GO        .0
HPF=     3.0RPT=     4.0

TEXT
15   KMYLS2
HRA=     6.8OPX=822048.2OPY=833673.5AN1=   100.1AN2=
270.0
GO        .0
RPT=     4.0
```

```
TEXT
16   ND1
HRA=    41.6HRG=    36.6OPX=821930.4OPY=833814.8AN1=
0.0AN2=   180.0
GO        .0
HPF=    15.0RPT=     9.0

TEXT
17   ND2
HRA=    37.6HRG=    32.1OPX=822073.5OPY=833968.7AN1=
10.0AN2=   190.0
GO        .0
RPT=     9.0

TEXT
18   ND3
HRA=    37.6OPX=822059.3OPY=833941.4AN1=    40.0AN2=
220.0
GO        .0
RPT=     9.0

TEXT
19   PS1
HRA=     6.7HRG=     1.5OPX=822022.3OPY=833599.4AN1=
25.0AN2=   180.0
GO        .0
HPF=     3.0RPT=     6.0

TEXT
20   Pun Uk
HRA=     6.5OPX=822272.4OPY=834025.0AN1=   219.0AN2=
245.0
GO        .0
RPT=    16.0

TEXT
21   ExSTNVPS1
HRA=     5.4OPX=822328.8OPY=834167.3AN1=   207.0AN2=
27.0
GO        .0


RETN     0.0
```

Annex C9-4

Sample Model Input Files for Road Traffic Noise Assessment

With the Project (Without Mitigation)

```
TEXT


TEXT
Option to set calc method as L10
OPT=2.0

COA=     1.0COD=  1000.0COR=    10.0

READ
72252-1.FLO
READ
72252-1.SEG
READ
72252-1.BAR

LINK
All
1,2,3,4,5,
LINK
YLH - N
1,
LINK
YLH - S
2,
LINK
CPR - W
3,
LINK
CPR - E
4,
LINK
New Roads
5,

READ
72252-1.REC

END

TEXT
TRAFFIC FORECAST AT YEAR 2026 AM (WITH PROJECT)

TIM=    18.0

TEXT
CP Rd EB @ E of POI
FLO= -2057.0PHV=    49.0SPD=    50.0BAS=     2.0FNO=
1.0

TEXT
CP Rd EB under POI
FLO= -1282.0PHV=    48.0SPD=    50.0FNO=     2.0

TEXT
CP Rd WB @ E of POI
FLO= -2301.0PHV=    45.0SPD=    50.0FNO=     3.0

TEXT
YLH NB
FLO= -2913.0PHV=    57.0SPD=    80.0FNO=     4.0

TEXT
Slip Rd NB @ S of POI
FLO=  -604.0PHV=    48.0SPD=    50.0FNO=     5.0

TEXT
Slip Rd SB @ S of POI
FLO=  -519.0PHV=    47.0SPD=    50.0FNO=     6.0

TEXT
Roundabout
FLO= -1736.0PHV=    51.0SPD=    50.0FNO=     7.0

TEXT
Slip Rd WB @ W of POI
FLO= -1122.0PHV=    44.0SPD=    50.0FNO=     8.0

TEXT
New Flyover NB (50kph)
FLO=  -630.0PHV=    40.0SPD=    50.0FNO=     9.0

TEXT
New Slip Rd C
FLO=  -478.0PHV=    21.0SPD=    50.0FNO=    10.0

TEXT
Slip Rd NB @ N of POI
FLO= -1241.0PHV=    52.0SPD=    50.0FNO=    11.0

TEXT
Slip Rd SB @ N of new left-turn lane
FLO=  -948.0PHV=    47.0SPD=    50.0FNO=    12.0

TEXT
Slip Rd EB @ E of POI
FLO=  -711.0PHV=    50.0SPD=    50.0FNO=    13.0

TEXT
Slip Rd WB @ E of POI
FLO=  -556.0PHV=    56.0SPD=    50.0FNO=    14.0

TEXT
Svc Rd from POH
FLO=   -55.0PHV=   100.0SPD=    50.0FNO=    15.0

TEXT
Slip Rd EB @ W of POI
FLO= -1428.0PHV=    52.0SPD=    50.0FNO=    16.0

TEXT
YLH NB @ N of POI (Combined)
FLO= -4784.0PHV=    54.0SPD=    80.0FNO=    17.0

TEXT
YLH NB @ N of POI (to Route 3)
FLO= -1435.0PHV=    54.0SPD=    80.0FNO=    18.0

TEXT
YLH NB @ N of POI (to Sheung Shui)
FLO= -3349.0PHV=    54.0SPD=    80.0FNO=    19.0

TEXT
New Left-turn Lane A
FLO=   -64.0PHV=    45.0SPD=    50.0FNO=    21.0

TEXT
YLH SB @ S of New Slip Rd C
FLO= -1967.0PHV=    73.0SPD=    80.0FNO=    22.0

TEXT
Slip Rd NB @ S New Slip Rd A
FLO= -1234.0PHV=    43.0SPD=    50.0FNO=    23.0

TEXT
Slip Rd SB @ S New Slip Rd C
FLO=  -997.0PHV=    35.0SPD=    50.0FNO=    24.0

TEXT
Slip Rd SB @ N of POI
FLO=  -884.0PHV=    47.0SPD=    50.0FNO=    25.0

TEXT
Slip Rd EB @ E of New Left-turn Lane A
FLO=  -775.0PHV=    49.0SPD=    50.0FNO=    26.0

TEXT
New Flyover NB (70kph)
FLO=  -630.0PHV=    40.0SPD=    70.0FNO=    27.0

TEXT
Slip Rd NB @ N of POI (80kph)
FLO= -1241.0PHV=    52.0SPD=    80.0FNO=    28.0
```

```
TEXT
New Flyover NB (80kph)
FLO=  -630.0PHV=    40.0SPD=    80.0FNO=    29.0

TEXT
Slip Rd SB @ N of new left-turn lane (80kph)
FLO=  -948.0PHV=    47.0SPD=    80.0FNO=    30.0

TEXT
CP Rd WB under POI
FLO= -1745.0PHV=    41.0SPD=    50.0FNO=    31.0

TEXT
YLH SB
FLO= -2445.0PHV=    63.0SPD=    80.0FNO=    32.0

TEXT
CP Rd EB @ W of POI
FLO= -2710.0PHV=    50.0SPD=    50.0FNO=    33.0

TEXT
CP Rd WB @ W of POI
FLO= -2867.0PHV=    42.0SPD=    50.0FNO=    34.0


RETN     0.0

TEXT
CASTLE PEAK RD - YL

TEXT
CP RD EB
UFN=    33.0CAT=     3.0RSX=821787.2RSY=833900.8HCS=
4.7HCG=     0.0
SEG=     2.0NCY=     1.0WCY=     3.5DCY=     0.0HCY=
0.0
RST=     1.0RTD=     1.2GND=     0.0NBA=    -1.0RCT=
0.0
REX=821909.9REY=833899.8HCE=     4.1SEND      .0

TEXT

UFN=     2.0RSX=821909.9RSY=833896.2HCS=     4.1
SEG=     5.0
RCT=     1.0
ABS=     0.0BCL=     4.0TCL=     4.0AGL=     0.0DEL=
0.6
BCR=     4.0TCR=     4.0AGR=     0.0DER=     0.8
REX=821969.8REY=833894.6HCE=     4.2SEND      .0
REX=822041.6REY=833893.2HCE=     2.9SEND      .0
DEL=     4.3
REX=822094.2REY=833892.8HCE=     1.3SEND      .0
CAT=     4.0
DEL=     7.0
REX=822164.4REY=833892.3HCE=     1.6SEND      .0
DEL=     3.0
REX=822283.4REY=833891.8HCE=     5.3SEND      .0

TEXT

UFN=     1.0RSX=822283.4RSY=833897.4HCS=     5.3
RCT=     0.0
REX=822405.8REY=833891.7HCE=     7.0SEND      .0
REX=822495.9REY=833887.9HCE=     8.8SEND      .0
REX=822569.6REY=833882.7HCE=     9.6SEND      .0

TEXT
YLH NB
UFN=     4.0CAT=     2.0RSX=821747.8RSY=833006.2HCS=
11.7
SEG=    14.0
RST=     2.0RTD=    10.0
REX=821913.8REY=833157.7HCE=    13.1SEND      .0
TEXT

REX=821978.7REY=833220.9HCE=    13.4SEND      .0

TEXT

RSX=822113.1RSY=833629.3HCS=    14.5
SEG=    21.0
REX=822114.0REY=833739.5HCE=    15.5SEND      .0
REX=822114.9REY=833805.5HCE=    17.4SEND      .0

TEXT

CAT=     1.0RSX=822124.1RSY=833974.6HCS=    15.2
SEG=    28.0
REX=822133.0REY=834020.1HCE=    12.9SEND      .0
REX=822144.7REY=834061.4HCE=    11.5SEND      .0
REX=822161.3REY=834101.4HCE=    11.0SEND      .0
REX=822178.0REY=834137.1HCE=     9.4SEND      .0
REX=822199.3REY=834174.7HCE=     7.7SEND      .0
TEXT
YLH - NB (to Sheung Shui)
UFN=    19.0
REX=822247.4REY=834237.1HCE=     7.0SEND      .0
TEXT

REX=822300.1REY=834290.8HCE=     6.9SEND      .0
REX=822347.8REY=834327.2HCE=     6.8SEND      .0
REX=822393.5REY=834353.8HCE=     6.8SEND      .0
REX=822464.1REY=834383.9HCE=     6.8SEND      .0
REX=822579.6REY=834414.6HCE=     7.5SEND      .0
REX=822622.8REY=834418.1HCE=     7.5SEND      .0

TEXT

UFN=    30.0RSX=822630.4RSY=834393.8HCS=     6.1
SEG=    54.0
REX=822565.7REY=834388.9HCE=     5.6SEND      .0
REX=822490.7REY=834371.9HCE=     6.2SEND      .0
REX=822436.6REY=834351.5HCE=     6.2SEND      .0
REX=822389.9REY=834327.8HCE=     6.2SEND      .0
REX=822355.8REY=834306.9HCE=     6.2SEND      .0
REX=822320.3REY=834283.7HCE=     6.2SEND      .0
REX=822290.6REY=834257.7HCE=     6.3SEND      .0
REX=822260.4REY=834226.4HCE=     6.3SEND      .0
REX=822215.5REY=834166.3HCE=     7.0SEND      .0

TEXT

UFN=    23.0CAT=     2.0RSX=821728.6RSY=833027.6HCS=
17.4
SEG=    66.0
RST=     0.0RTD=     1.2
REX=821793.3REY=833090.3HCE=    17.0SEND      .0
REX=821891.4REY=833164.2HCE=    15.2SEND      .0
REX=821928.0REY=833194.5HCE=    14.9SEND      .0
REX=821963.4REY=833229.1HCE=    14.5SEND      .0
REX=821998.0REY=833270.8HCE=    14.2SEND      .0
REX=822036.0REY=833329.4HCE=    13.8SEND      .0
REX=822057.6REY=833378.1HCE=    13.4SEND      .0
REX=822070.1REY=833414.2HCE=    13.0SEND      .0
UFN=     5.0
REX=822082.6REY=833465.7HCE=    12.4SEND      .0
REX=822086.6REY=833503.1HCE=    12.0SEND      .0

TEXT

RSX=822087.1RSY=833503.4HCS=    12.0
REX=822088.1REY=833547.6HCE=    11.6SEND      .0
TEXT

REX=822086.0REY=833607.9HCE=    10.9SEND      .0

TEXT

RSX=822082.3RSY=833729.4HCS=     9.5
SEG=    79.0
REX=822083.0REY=833789.9HCE=     9.0SEND      .0
REX=822091.0REY=833853.9HCE=     8.4SEND      .0

TEXT

UFN=     6.0RSX=822147.8RSY=833849.2HCS=     8.5
REX=822153.6REY=833801.1HCE=     8.6SEND      .0
REX=822157.9REY=833744.3HCE=     9.5SEND      .0
REX=822155.3REY=833661.0HCE=    10.0SEND      .0
REX=822153.8REY=833597.4HCE=    10.7SEND      .0
REX=822148.6REY=833543.3HCE=    11.4SEND      .0
REX=822130.1REY=833449.4HCE=    12.1SEND      .0
REX=822109.6REY=833387.1HCE=    12.8SEND      .0

TEXT

RSX=822108.6RSY=833387.1HCS=    12.8
REX=822071.4REY=833304.1HCE=    13.5SEND      .0
UFN=    24.0
```

```
REX=822032.4REY=833240.1HCE=    14.1SEND      .0
REX=822002.8REY=833196.5HCE=    14.8SEND      .0
REX=821945.7REY=833127.8HCE=    15.5SEND      .0
REX=821862.3REY=833046.9HCE=    16.7SEND      .0
REX=821777.8REY=832972.7HCE=    16.7SEND      .0

TEXT
SLIP RD (CP RD TO ROUNDABOUT)
UFN=    14.0CAT=     4.0RSX=822362.9RSY=833874.3HCS=
7.0
REX=822283.4REY=833873.8HCE=     5.3SEND      .0
REX=822203.9REY=833866.6HCE=     7.8SEND      .0
TEXT

REX=822166.4REY=833870.3HCE=     8.5SEND      .0

TEXT
SLIP RD (ROUNDABOUT TO POK OI & YL HIGHWAY)
UFN=    13.0RSX=822169.1RSY=833906.2HCS=     8.6
WCY=     2.0
REX=822212.9REY=833900.2HCE=     7.1SEND      .0
TEXT

UFN=    26.0
WCY=     1.8
REX=822239.0REY=833900.8HCE=     5.3SEND      .0

TEXT

UFN=    15.0CAT=     1.0RSX=822248.5RSY=833904.2HCS=
5.3
WCY=     3.5
REX=822262.5REY=833921.6HCE=     5.2SEND      .0
WCY=     3.0
REX=822249.0REY=833938.8HCE=     5.2SEND      .0
REX=822225.9REY=833938.2HCE=     6.3SEND      .0
REX=822210.3REY=833948.7HCE=     7.4SEND      .0
REX=822198.4REY=833982.8HCE=     8.0SEND      .0
REX=822177.8REY=833994.1HCE=     9.0SEND      .0
REX=822155.4REY=833980.7HCE=     9.9SEND      .0

TEXT
SLIP RD (YL HIGHWAY TO ROUNDABOUT)
UFN=    30.0RSX=822215.3RSY=834166.3HCS=     7.2
WCY=     3.5
REX=822194.4REY=834126.3HCE=     7.6SEND      .0
REX=822180.4REY=834093.2HCE=    10.2SEND      .0
REX=822168.8REY=834057.0HCE=    10.5SEND      .0
TEXT

UFN=    12.0
REX=822150.3REY=833977.4HCE=     9.9SEND      .0

TEXT

UFN=    25.0RSX=822150.2RSY=833977.4HCS=     9.9
REX=822148.6REY=833927.6HCE=     8.7SEND      .0

TEXT
SLIP RD (ROUNDABOUT TO CP RD)
UFN=     8.0CAT=     3.0RSX=822071.9RSY=833874.1HCS=
8.5
WCY=     1.8
REX=821970.1REY=833878.5HCE=     4.2SEND      .0

TEXT
SLIP RD (CP RD TO YL HIGHWAY)
UFN=    16.0RSX=821910.1RSY=833901.5HCS=     4.1
REX=821969.6REY=833905.0HCE=     4.2SEND      .0

TEXT
SLIP RD (CP RD TO YL HIGHWAY)
RSX=821970.0RSY=833903.8HCS=     4.2
WCY=     3.5
REX=822030.1REY=833911.2HCE=     4.2SEND      .0

TEXT

RSX=822030.3RSY=833911.3HCS=     7.2
REX=822065.6REY=833916.4HCE=     8.3SEND      .0

TEXT

CAT=     1.0RSX=822066.1RSY=833916.5HCS=     8.3
REX=822086.9REY=833941.6HCE=     8.9SEND      .0
UFN=    11.0
REX=822097.1REY=833969.2HCE=    10.0SEND      .0

TEXT

RSX=822096.9RSY=833969.1HCS=    10.0
REX=822114.7REY=834026.6HCE=    11.2SEND      .0
REX=822121.4REY=834047.7HCE=    11.1SEND      .0
REX=822128.1REY=834067.3HCE=    11.1SEND      .0
UFN=    28.0
REX=822152.1REY=834119.4HCE=    11.0SEND      .0
UFN=    18.0
REX=822165.8REY=834143.6HCE=     9.4SEND      .0
REX=822190.1REY=834179.1HCE=     7.7SEND      .0
TEXT
YLH - NB (to Kowloon)
RST=     2.0RTD=    10.0
REX=822239.1REY=834241.1HCE=     7.0SEND      .0
TEXT

REX=822295.1REY=834297.3HCE=     6.9SEND      .0
REX=822341.3REY=834333.3HCE=     6.8SEND      .0
REX=822389.4REY=834361.6HCE=     6.8SEND      .0
REX=822462.1REY=834393.4HCE=     6.8SEND      .0
REX=822617.8REY=834430.8HCE=     7.5SEND      .0

TEXT
ROUNDABOUT
UFN=     7.0CAT=     4.0RSX=822140.2RSY=833926.4HCS=
8.7
WCY=     5.0
RST=     0.0RTD=     1.2
REX=822167.8REY=833905.3HCE=     8.6SEND      .0
TEXT

HCG=     6.0
REX=822164.5REY=833869.9HCE=     8.5SEND      .0

TEXT

RSX=822165.3RSY=833870.9HCS=     8.5HCG=     0.0
REX=822138.1REY=833850.3HCE=     8.5SEND      .0

TEXT

CAT=     3.0RSX=822138.4RSY=833849.8HCS=     8.5
REX=822101.9REY=833850.8HCE=     8.4SEND      .0
REX=822077.0REY=833872.0HCE=     8.5SEND      .0
HCG=     5.6
REX=822076.5REY=833903.0HCE=     8.5SEND      .0
HCG=     0.0
REX=822103.1REY=833927.4HCE=     8.3SEND      .0
CAT=     4.0
REX=822141.3REY=833927.4HCE=     8.7SEND      .0

TEXT

UFN=    26.0RSX=822238.9RSY=833900.6HCS=     5.3
WCY=     1.8
REX=822283.8REY=833898.9HCE=     5.3SEND      .0

TEXT
YLH - SB (to flyover)
UFN=    32.0CAT=     1.0RSX=822630.4RSY=834400.9HCS=
6.1
SEG=   149.0WCY=     3.5
RST=     2.0RTD=    10.0
REX=822564.4REY=834396.3HCE=     5.6SEND      .0
TEXT

REX=822488.1REY=834378.8HCE=     6.2SEND      .0
REX=822433.4REY=834358.3HCE=     6.2SEND      .0
REX=822385.9REY=834333.9HCE=     6.2SEND      .0
REX=822351.9REY=834313.1HCE=     6.2SEND      .0
REX=822315.8REY=834289.3HCE=     6.2SEND      .0
REX=822285.6REY=834263.1HCE=     6.3SEND      .0
REX=822254.9REY=834231.3HCE=     6.3SEND      .0
REX=822207.1REY=834169.1HCE=     7.2SEND      .0
TEXT
YLH Flyover - SB
REX=822185.4REY=834130.3HCE=     7.6SEND      .0
TEXT

REX=822169.4REY=834097.4HCE=    10.2SEND      .0
TEXT
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REX=822153.4REY=834058.9HCE=    11.5SEND      .0
TEXT

REX=822141.5REY=834017.4HCE=    12.9SEND      .0
REX=822132.7REY=833972.4HCE=    15.2SEND      .0

TEXT

CAT=     2.0RSX=822124.4RSY=833805.0HCS=    17.4
REX=822122.9REY=833739.5HCE=    15.5SEND      .0
REX=822121.9REY=833601.4HCE=    14.3SEND      .0

TEXT

UFN=    22.0RSX=822032.6RSY=833272.3HCS=    13.6
SEG=   169.0
REX=821987.4REY=833214.4HCE=    13.4SEND      .0
REX=821921.8REY=833148.6HCE=    13.1SEND      .0
REX=821756.8REY=832996.0HCE=    11.7SEND      .0

TEXT
CP RD WB
UFN=     3.0CAT=     4.0RSX=822568.4RSY=833867.4HCS=
9.6
RST=     1.0RTD=     1.2
REX=822495.4REY=833875.0HCE=     8.8SEND      .0
TEXT

REX=822362.8REY=833874.4HCE=     7.0SEND      .0

TEXT

UFN=    31.0RSX=822363.1RSY=833881.1HCS=     7.0
SEG=   175.0
RCT=     1.0
REX=822282.8REY=833882.9HCE=     5.3SEND      .0
REX=822164.3REY=833884.1HCE=     1.6SEND      .0
DEL=     7.0
REX=822094.0REY=833884.8HCE=     1.3SEND      .0
CAT=     3.0
DEL=     4.3
REX=822041.4REY=833885.3HCE=     2.9SEND      .0
DEL=     0.6
REX=821970.4REY=833886.3HCE=     4.2SEND      .0

TEXT

UFN=    34.0RSX=821970.4RSY=833880.9HCS=     4.2
RCT=     0.0
REX=821897.6REY=833884.8HCE=     4.1SEND      .0
REX=821787.1REY=833884.6HCE=     4.7SEND      .0

TEXT

UFN=     5.0RSX=822086.0RSY=833607.9HCS=    10.9
RST=     0.0
REX=822085.1REY=833665.6HCE=    10.2SEND      .0
REX=822082.3REY=833729.4HCE=     9.5SEND      .0

TEXT

UFN=     4.0RSX=821978.7RSY=833220.9HCS=    13.4
RST=     2.0RTD=    10.0
REX=822002.7REY=833248.8HCE=    13.5SEND      .0
TEXT

REX=822024.1REY=833277.9HCE=    13.6SEND      .0

TEXT

RSX=822064.3RSY=833349.6HCS=    13.7
SEG=   187.0
REX=822079.3REY=833385.1HCE=    14.0SEND      .0
REX=822092.1REY=833423.2HCE=    14.3SEND      .0
REX=822104.4REY=833475.4HCE=    14.0SEND      .0
REX=822110.3REY=833520.6HCE=    13.6SEND      .0
REX=822112.6REY=833567.6HCE=    14.0SEND      .0
REX=822113.1REY=833629.3HCE=    14.5SEND      .0

TEXT

RSX=822024.1RSY=833277.9HCS=    13.6
REX=822044.6REY=833311.8HCE=    13.6SEND      .0
REX=822064.3REY=833349.6HCE=    13.7SEND      .0
TEXT

UFN=    22.0RSX=822121.9RSY=833601.4HCS=    14.3
REX=822121.8REY=833567.2HCE=    14.0SEND      .0
REX=822119.3REY=833519.9HCE=    13.6SEND      .0
REX=822113.8REY=833472.9HCE=    14.0SEND      .0
REX=822100.4REY=833420.1HCE=    14.3SEND      .0
REX=822088.4REY=833381.4HCE=    14.0SEND      .0
REX=822073.1REY=833345.4HCE=    13.7SEND      .0
REX=822053.6REY=833308.0HCE=    13.6SEND      .0
REX=822032.6REY=833272.3HCE=    13.6SEND      .0

TEXT

UFN=    21.0CAT=     5.0RSX=822157.8RSY=833977.2HCS=
9.9
SEG=   201.0WCY=     2.0
RST=     0.0RTD=     1.2
REX=822157.9REY=833945.9HCE=     9.0SEND      .0
TEXT

SEG=   183.0
REX=822167.0REY=833924.2HCE=     8.7SEND      .0
REX=822186.9REY=833910.7HCE=     8.4SEND      .0
REX=822214.1REY=833902.9HCE=     7.1SEND      .0

TEXT
New Slip Road C
UFN=    10.0RSX=822126.4RSY=833600.6HCS=    14.3
REX=822128.9REY=833556.8HCE=    12.8SEND      .0
TEXT

REX=822129.5REY=833504.8HCE=    13.7SEND      .0
REX=822123.4REY=833460.9HCE=    13.1SEND      .0
REX=822108.5REY=833405.1HCE=    12.6SEND      .0
REX=822090.1REY=833354.6HCE=    13.1SEND      .0
WCY=     1.5
REX=822068.9REY=833305.4HCE=    13.5SEND      .0

TEXT
New Flyover
UFN=     9.0RSX=822075.3RSY=833412.8HCS=    13.0
SEG=   301.0WCY=     1.8
REX=822088.5REY=833464.1HCE=    12.4SEND      .0
TEXT

WCY=     2.2
REX=822093.5REY=833502.9HCE=    12.0SEND      .0
WCY=     3.0
REX=822094.9REY=833535.9HCE=    11.9SEND      .0
UFN=    27.0
REX=822095.8REY=833583.4HCE=    11.8SEND      .0
HCG=     1.7
RST=     2.0RTD=    10.0
REX=822097.4REY=833673.8HCE=    13.4SEND      .0
HCG=     4.5
REX=822099.1REY=833739.5HCE=    14.5SEND      .0
TEXT

HCG=     6.2
REX=822101.0REY=833806.5HCE=    15.8SEND      .0

TEXT

RSX=822109.8RSY=833976.9HCS=    14.6HCG=     3.7
SEG=   311.0WCY=     2.6
REX=822121.2REY=834024.8HCE=    12.8SEND      .0
HCG=     1.1
REX=822134.3REY=834065.1HCE=    11.8SEND      .0
UFN=    29.0HCG=     0.4
REX=822158.3REY=834116.9HCE=     9.6SEND      .0


RETN     0.0

TEXT


TEXT
EXISTING BARRIER ALONG YLH
NBA=     3.0BSX=822115.2BSY=833976.3HBS=    18.7FOA=
0.0WBA=     0.0
            ABA=     0.0
            BEX=822125.7BEY=834021.8HBE=    16.4
```

```
NBA=     4.0
BEX=822138.9BEY=834064.6HBE=    15.0

TEXT

NBA=     7.0BSX=822139.5BSY=833970.8HBS=    18.7
            BEX=822148.8BEY=834014.8HBE=    16.4
NBA=     8.0
BEX=822161.6BEY=834059.6HBE=    15.0

TEXT
YOHO TOWN PHASE 2 (UNDER CONSTRUCTION)
NBA=    31.0BSX=821716.4BSY=833864.9HBS=    28.4
            BEX=821716.4BEY=833840.8HBE=    28.4
TEXT

NBA=    32.0
BEX=821898.1BEY=833861.0HBE=    28.4
NBA=    33.0
BEX=821896.6BEY=833835.3HBE=    28.4
NBA=    34.0
BEX=821716.4BEY=833864.9HBE=    28.4

TEXT
POND FISH WHOLESALE MARKET
NBA=    35.0BSX=821954.2BSY=833862.0HBS=    12.6
            BEX=822062.7BEY=833820.1HBE=    12.6
TEXT

NBA=    36.0
BEX=822064.9BEY=833837.8HBE=    12.6
NBA=    37.0
BEX=821948.8BEY=833831.4HBE=    12.6
NBA=    38.0
BEX=821953.4BEY=833862.1HBE=    12.6

TEXT
KWONG MING YING LOI SCHOOL
NBA=    39.0BSX=821978.6BSY=833717.1HBS=    26.7
            BEX=821978.5BEY=833674.8HBE=    26.7
TEXT

NBA=    40.0
BEX=822058.4BEY=833709.2HBE=    26.7
NBA=    41.0
BEX=822057.6BEY=833674.8HBE=    26.7

TEXT

NBA=    42.0BSX=822056.4BSY=833675.1HBS=    26.7
            BEX=821979.4BEY=833717.4HBE=    26.7

TEXT
YOHO TOWN PHASE 1 (BLOCK 1)
NBA=    43.0BSX=821894.8BSY=833664.8HBS=   135.0
            BEX=821907.5BEY=833664.8HBE=   135.0
TEXT

NBA=    44.0
BEX=821886.4BEY=833644.2HBE=   135.0
NBA=    45.0
BEX=821886.3BEY=833657.4HBE=   135.0
NBA=    46.0
BEX=821916.2BEY=833644.6HBE=   135.0
NBA=    47.0
BEX=821916.2BEY=833657.5HBE=   135.0
NBA=    48.0
BEX=821893.8BEY=833637.3HBE=   135.0
NBA=    49.0
BEX=821908.3BEY=833636.3HBE=   135.0
NBA=    50.0
BEX=821895.3BEY=833664.8HBE=   135.0

TEXT
YOHO TOWN PHASE 1 (BLOCK 2)
NBA=    51.0BSX=821893.7BSY=833626.1HBS=   131.5
            BEX=821908.5BEY=833627.0HBE=   131.5
TEXT

NBA=    52.0
BEX=821885.6BEY=833606.4HBE=   131.5
NBA=    53.0
BEX=821885.6BEY=833618.6HBE=   131.5
NBA=    54.0
BEX=821915.1BEY=833606.4HBE=   131.5
NBA=    55.0
BEX=821915.1BEY=833619.0HBE=   131.5
NBA=    56.0
BEX=821894.1BEY=833599.0HBE=   131.5
NBA=    57.0
BEX=821907.2BEY=833597.7HBE=   131.5
NBA=    58.0
BEX=821893.4BEY=833626.2HBE=   131.5

TEXT
YOHO TOWN PHASE 1 (BLOCK 3)
NBA=    59.0BSX=821894.1BSY=833587.3HBS=   131.5
            BEX=821906.2BEY=833588.5HBE=   131.5
TEXT

NBA=    60.0
BEX=821885.8BEY=833567.4HBE=   131.5
NBA=    61.0
BEX=821885.8BEY=833580.9HBE=   131.5
NBA=    62.0
BEX=821915.3BEY=833567.1HBE=   131.5
NBA=    63.0
BEX=821915.3BEY=833578.3HBE=   131.5
NBA=    64.0
BEX=821893.2BEY=833560.9HBE=   131.5
NBA=    65.0
BEX=821908.0BEY=833558.9HBE=   131.5
NBA=    66.0
BEX=821894.2BEY=833587.3HBE=   131.5

TEXT
YOHO TOWN PHASE 1 (BLOCK 5)
NBA=    67.0BSX=821892.8BSY=833549.7HBS=   128.0
            BEX=821907.3BEY=833550.9HBE=   128.0
TEXT

NBA=    68.0
BEX=821885.0BEY=833529.8HBE=   128.0
NBA=    69.0
BEX=821884.9BEY=833543.6HBE=   128.0
NBA=    70.0
BEX=821914.3BEY=833529.1HBE=   128.0
NBA=    71.0
BEX=821914.5BEY=833542.7HBE=   128.0
NBA=    72.0
BEX=821893.4BEY=833522.6HBE=   128.0
NBA=    73.0
BEX=821907.2BEY=833521.2HBE=   128.0
NBA=    74.0
BEX=821893.0BEY=833549.8HBE=   128.0

TEXT
YOHO TOWN PHASE 1 (BLOCK 6)
NBA=    75.0BSX=821891.2BSY=833511.8HBS=   124.0
            BEX=821906.4BEY=833511.8HBE=   124.0
TEXT

NBA=    76.0
BEX=821880.9BEY=833490.6HBE=   124.0
NBA=    77.0
BEX=821882.7BEY=833502.9HBE=   124.0
NBA=    78.0
BEX=821916.7BEY=833490.6HBE=   124.0
NBA=    79.0
BEX=821914.8BEY=833504.8HBE=   124.0
NBA=    80.0
BEX=821891.1BEY=833486.1HBE=   124.0
NBA=    81.0
BEX=821906.7BEY=833486.0HBE=   124.0
NBA=    82.0
BEX=821891.2BEY=833511.8HBE=   124.0

TEXT
SUN YUEN LONG CENTRE (BLOCK 5)
NBA=    83.0BSX=821726.1BSY=833993.3HBS=   117.0
            BEX=821741.0BEY=833993.3HBE=   117.0
TEXT

NBA=    84.0
BEX=821725.8BEY=833954.8HBE=   117.0
NBA=    85.0
BEX=821740.0BEY=833954.8HBE=   117.0
NBA=    86.0
BEX=821714.5BEY=833981.3HBE=   117.0
NBA=    87.0
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BEX=821714.5BEY=833966.6HBE=   117.0
NBA=    88.0
BEX=821752.9BEY=833980.9HBE=   117.0
NBA=    89.0
BEX=821752.9BEY=833965.4HBE=   117.0
NBA=    90.0
BEX=821726.3BEY=833993.3HBE=   117.0

TEXT
SUN YUEN LONG CENTRE (PODIUM)
NBA=    91.0BSX=821748.9BSY=834051.7HBS=    22.5
            BEX=821758.0BEY=834047.7HBE=    22.5
TEXT

NBA=    92.0
BEX=821764.5BEY=834038.0HBE=    22.5
NBA=    93.0
BEX=821764.7BEY=833971.7HBE=    22.5
NBA=    94.0
BEX=821755.8BEY=833958.9HBE=    22.5
NBA=    95.0
BEX=821740.7BEY=833950.4HBE=    22.5
NBA=    96.0
BEX=821731.0BEY=833950.2HBE=    22.5
NBA=    97.0
BEX=821719.9BEY=833954.9HBE=    22.5
NBA=    98.0
BEX=821689.4BEY=833983.9HBE=    22.5
NBA=    99.0
BEX=821682.7BEY=833985.5HBE=    22.5
NBA=   100.0
BEX=821639.1BEY=833986.4HBE=    22.5

TEXT
DSD PUMPING STATION
NBA=   101.0BSX=822283.7BSY=833799.7HBS=    14.4
            BEX=822312.7BEY=833821.7HBE=    14.4
TEXT

NBA=   102.0
BEX=822280.0BEY=833814.6HBE=    14.4
NBA=   103.0
BEX=822316.1BEY=833805.4HBE=    14.4

TEXT
POK OI HOSTIPAL JOCKEY CLUB CARE & ATTENTION HOUSE
NBA=   104.0BSX=822287.0BSY=833987.3HBS=    29.5
            BEX=822283.5BEY=833974.4HBE=    29.5
TEXT

NBA=   105.0
BEX=822288.2BEY=833973.2HBE=    29.5
NBA=   106.0
BEX=822281.3BEY=833948.2HBE=    29.5
NBA=   107.0
BEX=822274.3BEY=833949.9HBE=    29.5
NBA=   108.0
BEX=822270.6BEY=833937.7HBE=    29.5
NBA=   109.0
BEX=822291.0BEY=833930.8HBE=    29.5
NBA=   110.0
BEX=822305.3BEY=833981.1HBE=    29.5
NBA=   111.0
BEX=822286.3BEY=833986.1HBE=    29.5

TEXT
POK OI HOSPITAL
NBA=   112.0BSX=822367.5BSY=834083.0HBS=    43.5
            BEX=822409.0BEY=834073.9HBE=    43.5
TEXT

NBA=   113.0
BEX=822374.6BEY=833912.8HBE=    43.5
NBA=   114.0
BEX=822346.8BEY=833918.6HBE=    43.5
NBA=   115.0
BEX=822329.2BEY=833926.8HBE=    43.5
NBA=   116.0
BEX=822342.2BEY=833975.4HBE=    43.5
NBA=   117.0
BEX=822308.1BEY=833982.8HBE=    43.5
NBA=   118.0
BEX=822310.1BEY=833995.8HBE=    43.5
NBA=   119.0
BEX=822332.5BEY=834008.1HBE=    43.5
NBA=   120.0
BEX=822344.5BEY=833994.8HBE=    43.5
NBA=   121.0
BEX=822367.8BEY=834083.0HBE=    43.5

TEXT
EXISTING BARRIER ALONG YLH
NBA=   122.0BSX=822105.9BSY=833632.6HBS=    16.5
            BEX=822106.1BEY=833663.3HBE=    16.8
TEXT

NBA=   126.0BSX=822107.0BSY=833754.6HBS=    19.0
            BEX=822107.6BEY=833805.9HBE=    20.9

TEXT

NBA=   125.0BSX=822107.0BSY=833724.1HBS=    18.8
            BEX=822107.0BEY=833754.1HBE=    19.0

TEXT

NBA=   124.0BSX=822106.8BSY=833693.6HBS=    18.0
            BEX=822107.0BEY=833724.1HBE=    18.3

TEXT

NBA=   123.0BSX=822106.1BSY=833663.3HBS=    17.3
            BEX=822106.8BEY=833693.6HBE=    17.5

TEXT

NBA=   127.0BSX=822129.5BSY=833600.9HBS=    15.4
            BEX=822129.9BEY=833631.6HBE=    15.6
TEXT

NBA=   128.0BSX=822130.1BSY=833631.8HBS=    16.0
            BEX=822130.0BEY=833660.9HBE=    16.2

TEXT

NBA=   129.0BSX=822130.0BSY=833660.9HBS=    16.7
            BEX=822130.4BEY=833690.7HBE=    17.0

TEXT

NBA=   130.0BSX=822130.4BSY=833690.7HBS=    18.0
            BEX=822130.8BEY=833722.9HBE=    18.3

TEXT

NBA=   131.0BSX=822130.8BSY=833722.9HBS=    18.8
            BEX=822131.1BEY=833749.6HBE=    19.0
NBA=   132.0
BEX=822132.2BEY=833804.5HBE=    20.3

TEXT

NBA=   133.0BSX=821947.9BSY=833201.3HBS=    14.3
            BEX=821977.2BEY=833230.8HBE=    14.4
TEXT

NBA=   134.0
BEX=822013.3BEY=833276.9HBE=    14.6

TEXT

NBA=   135.0BSX=822013.3BSY=833277.2HBS=    16.6
            BEX=822037.1BEY=833315.6HBE=    16.6
TEXT

NBA=   136.0
BEX=822055.3BEY=833351.1HBE=    16.7

TEXT

NBA=   138.0BSX=822066.1BSY=833377.1HBS=    15.9
            BEX=822083.1BEY=833425.5HBE=    16.3
NBA=   139.0
BEX=822095.3BEY=833474.9HBE=    16.0
NBA=   140.0
BEX=822101.6BEY=833524.4HBE=    15.6

TEXT
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NBA=   137.0BSX=822054.9BSY=833350.2HBS=    16.2
           BEX=822066.4BEY=833377.4HBE=    16.4
TEXT

NBA=   143.0BSX=822007.7BSY=833225.8HBS=    14.7
           BEX=822036.6BEY=833264.1HBE=    14.8
TEXT

NBA=   144.0
BEX=822060.3BEY=833303.3HBE=    14.8

TEXT

NBA=   145.0BSX=822059.6BSY=833303.3HBS=    14.6
           BEX=822075.3BEY=833331.6HBE=    14.7

TEXT

NBA=   142.0BSX=821979.3BSY=833195.4HBS=    14.3
           BEX=822007.4BEY=833225.4HBE=    14.5

TEXT
Existing barriers (0.8m)
NBA=   154.0BSX=821970.1BSY=833907.4HBS=     5.0
           BEX=822061.9BEY=833922.5HBE=     9.1
TEXT

NBA=   155.0
BEX=822080.9BEY=833944.8HBE=     9.7
NBA=   156.0
BEX=822090.4BEY=833971.7HBE=    10.8

TEXT
Existing barriers (3m)
NBA=   157.0BSX=822090.4BSY=833971.2HBS=    13.0
           BEX=822108.3BEY=834028.6HBE=    14.2
NBA=   158.0
BEX=822122.1BEY=834069.8HBE=    14.1
NBA=   159.0
BEX=822142.1BEY=834113.4HBE=    14.0
NBA=   160.0
BEX=822161.4BEY=834147.4HBE=    12.4
NBA=   161.0
BEX=822185.1BEY=834183.6HBE=    10.7

TEXT
Existing barriers (4m)
NBA=   162.0BSX=822184.1BSY=834184.0HBS=    11.7
           BEX=822235.3BEY=834249.3HBE=    11.0
NBA=   163.0
BEX=822290.9BEY=834302.8HBE=    10.9
NBA=   164.0
BEX=822336.9BEY=834338.5HBE=    10.8

TEXT
SLOPE
NBA=   168.0BSX=821781.7BSY=832967.7HBS=    16.7
           BEX=821865.7BEY=833042.0HBE=    16.7
NBA=   169.0
BEX=821949.9BEY=833123.8HBE=    15.5
NBA=   170.0
BEX=822007.6BEY=833192.6HBE=    14.8
NBA=   171.0
BEX=822036.7BEY=833236.4HBE=    14.1
NBA=   172.0
BEX=822076.6BEY=833301.4HBE=    13.5
TEXT

NBA=   173.0
BEX=822113.6BEY=833384.3HBE=    12.8
NBA=   174.0
BEX=822134.5BEY=833447.4HBE=    12.1
NBA=   175.0
BEX=822153.1BEY=833542.6HBE=    11.4
NBA=   176.0
BEX=822157.9BEY=833597.6HBE=    10.7
NBA=   177.0
BEX=822159.7BEY=833661.2HBE=    10.0
NBA=   178.0
BEX=822162.6BEY=833744.4HBE=     9.5
NBA=   179.0
BEX=822158.2BEY=833801.7HBE=     8.6
NBA=   180.0
BEX=822154.8BEY=833836.3HBE=     8.5
NBA=   181.0
BEX=822155.5BEY=833849.6HBE=     8.5
NBA=   182.0
BEX=822170.0BEY=833862.3HBE=     8.5
NBA=   183.0
BEX=822204.7BEY=833862.4HBE=     7.8
NBA=   184.0
BEX=822283.7BEY=833870.4HBE=     5.3

TEXT
SLOPE
NBA=   185.0BSX=821724.1BSY=833033.3HBS=    17.4
           BEX=821789.4BEY=833096.6HBE=    17.0
NBA=   186.0
BEX=821888.6BEY=833168.2HBE=    15.2
TEXT

NBA=   187.0
BEX=821924.9BEY=833200.9HBE=    14.9
NBA=   188.0
BEX=821960.3BEY=833233.1HBE=    14.5
NBA=   189.0
BEX=821994.2BEY=833273.6HBE=    14.2
NBA=   190.0
BEX=822032.0BEY=833332.1HBE=    13.8
NBA=   191.0
BEX=822053.4BEY=833380.7HBE=    13.4
NBA=   192.0
BEX=822064.8BEY=833415.1HBE=    13.0
NBA=   193.0
BEX=822075.8BEY=833466.3HBE=    12.4
NBA=   194.0
BEX=822079.0BEY=833504.9HBE=    12.0
NBA=   195.0
BEX=822082.1BEY=833543.5HBE=    11.6
NBA=   196.0
BEX=822076.4BEY=833557.6HBE=    11.6
NBA=   197.0
BEX=822080.2BEY=833577.1HBE=    11.6
NBA=   198.0
BEX=822079.3BEY=833607.0HBE=    10.9
NBA=   199.0
BEX=822076.4BEY=833729.6HBE=     9.5

TEXT

NBA=   200.0BSX=822076.4BSY=833729.7HBS=     9.5
           BEX=822077.1BEY=833789.6HBE=     9.0
NBA=   201.0
BEX=822083.6BEY=833853.9HBE=     8.4
NBA=   202.0
BEX=822067.8BEY=833871.4HBE=     8.5

NBA=   203.0BSX=822068.8BSY=833870.6HBS=     8.5
           BEX=821945.0BEY=833873.9HBE=     4.2

TEXT

NBA=   204.0BSX=822182.0BSY=834134.0HBS=    10.2
           BEX=822202.3BEY=834169.3HBE=     8.5
NBA=   205.0
BEX=822251.7BEY=834233.4HBE=     7.8

NBA=   206.0BSX=822251.2BSY=834233.4HBS=     7.8
           BEX=822303.5BEY=834287.0HBE=     7.7

TEXT
Small Traders New Village
NBA=   207.0BSX=822246.3BSY=834135.7HBS=     9.5
           BEX=822334.8BEY=834179.9HBE=     9.5
TEXT

NBA=   208.0
BEX=822266.8BEY=834214.9HBE=     9.5
NBA=   209.0
BEX=822278.7BEY=834129.1HBE=     9.5
NBA=   210.0
BEX=822327.5BEY=834151.2HBE=     9.5

TEXT
Wong Uk Tsuen
NBA=   211.0BSX=822144.1BSY=834188.4HBS=    12.3
           BEX=822185.9BEY=834200.9HBE=    12.3
TEXT
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NBA=   212.0
BEX=822183.6BEY=834207.1HBE=    12.3
TEXT

NBA=   213.0
BEX=822144.1BEY=834182.3HBE=    12.3

TEXT

NBA=   214.0BSX=822085.3BSY=834157.1HBS=    12.3
            BEX=822199.3BEY=834255.5HBE=    12.3
NBA=   215.0
BEX=822088.0BEY=834250.9HBE=    12.3
NBA=   216.0
BEX=822126.8BEY=834173.6HBE=    12.3

TEXT
Existing Barriers (4m)
NBA=   217.0BSX=822631.2BSY=834381.3HBS=    10.1
            BEX=822568.0BEY=834378.1HBE=     9.6

NBA=   218.0BSX=822499.6BSY=834363.9HBS=     8.2
            BEX=822439.9BEY=834341.8HBE=     8.2
TEXT
Existing Barriers (4m)
NBA=   219.0
BEX=822398.6BEY=834321.2HBE=     8.2

TEXT
Existing Barriers (4m)
NBA=   220.0BSX=822398.6BSY=834321.2HBS=    10.2
            BEX=822342.1BEY=834284.9HBE=    10.2
NBA=   221.0
BEX=822325.6BEY=834279.1HBE=    10.2
NBA=   222.0
BEX=822293.8BEY=834251.4HBE=    10.3
NBA=   223.0
BEX=822266.8BEY=834222.8HBE=    10.3
NBA=   224.0
BEX=822238.3BEY=834185.8HBE=    11.6

TEXT
Existing Barriers (4m)
NBA=   217.0BSX=822567.2BSY=834383.3HBS=     9.6
            BEX=822498.1BEY=834368.9HBE=    10.2

TEXT
Existing Barriers (3m)
NBA=   225.0BSX=822239.7BSY=834187.3HBS=    10.6
            BEX=822222.6BEY=834163.1HBE=    10.2
TEXT

NBA=   226.0
BEX=822201.3BEY=834123.6HBE=    10.6
NBA=   227.0
BEX=822186.5BEY=834089.9HBE=    13.2
NBA=   228.0
BEX=822170.1BEY=834034.6HBE=    13.5

TEXT
Pun Uk
NBA=   229.0BSX=822276.3BSY=834004.4HBS=     9.4
            BEX=822258.8BEY=834008.4HBE=     9.4
TEXT

NBA=   230.0
BEX=822251.1BEY=833974.6HBE=     9.4
NBA=   231.0
BEX=822268.6BEY=833969.9HBE=     9.4
NBA=   232.0
BEX=822276.8BEY=834003.8HBE=     9.4

TEXT
Pok Oi Hospital
NBA=   233.0BSX=822314.8BSY=833980.8HBS=     8.9
            BEX=822297.1BEY=833917.8HBE=     8.9
TEXT

NBA=   234.0
BEX=822319.7BEY=833913.8HBE=     8.9
NBA=   235.0
BEX=822340.0BEY=833912.3HBE=     8.9
NBA=   236.0
BEX=822339.3BEY=833905.9HBE=     8.9
NBA=   237.0
BEX=822371.9BEY=833904.4HBE=     8.9
NBA=   238.0
BEX=822370.9BEY=833911.5HBE=     8.9

TEXT

NBA=   239.0BSX=822283.8BSY=833903.7HBS=     6.3
            BEX=822409.3BEY=833899.8HBE=     8.0

TEXT
Roadkerb
NBA=   240.0BSX=822227.0BSY=833942.0HBS=     6.3
            BEX=822214.8BEY=833951.3HBE=     7.4
TEXT

NBA=   241.0
BEX=822200.6BEY=833985.8HBE=     8.0

TEXT

NBA=   242.0BSX=822200.6BSY=833986.3HBS=     8.0
            BEX=822179.4BEY=833997.5HBE=     9.0

TEXT
Village house
NBA=   243.0BSX=822189.1BSY=833657.3HBS=     9.2
            BEX=822190.3BEY=833665.5HBE=     9.2
TEXT

NBA=   244.0
BEX=822185.6BEY=833661.3HBE=     9.2
NBA=   245.0
BEX=822193.9BEY=833661.6HBE=     9.2

TEXT

NBA=   246.0BSX=822226.1BSY=833685.7HBS=     9.6
            BEX=822232.8BEY=833695.1HBE=     9.6
NBA=   247.0
BEX=822223.9BEY=833692.9HBE=     9.6

NBA=   248.0BSX=822223.9BSY=833692.9HBS=     9.6
            BEX=822234.8BEY=833688.1HBE=     9.6

TEXT
SLOPE
NBA=   260.0BSX=822120.3BSY=833464.8HBS=    14.0
            BEX=822127.4BEY=833519.5HBE=    13.6

TEXT
Ex-Small Traders New Village Public School
NBA=   262.0BSX=822335.4BSY=834176.2HBS=     9.0
            BEX=822325.2BEY=834156.1HBE=     9.0
TEXT

NBA=   263.0
BEX=822341.4BEY=834147.3HBE=     9.0
NBA=   264.0
BEX=822345.6BEY=834155.4HBE=     9.0
NBA=   265.0
BEX=822356.0BEY=834149.6HBE=     9.0
NBA=   266.0
BEX=822364.2BEY=834162.7HBE=     9.0
NBA=   267.0
BEX=822335.4BEY=834176.4HBE=     9.0

TEXT
Central divider for Castle Peak Road
NBA=   268.0BSX=821787.4BSY=833892.9HBS=     5.5
            BEX=821900.2BEY=833891.5HBE=     4.9
TEXT

NBA=   269.0
BEX=821970.4BEY=833890.3HBE=     5.0
NBA=   270.0
BEX=822041.8BEY=833888.7HBE=     3.7
NBA=   271.0
BEX=822093.6BEY=833888.7HBE=     2.1
NBA=   272.0
BEX=822165.1BEY=833888.7HBE=     2.4
NBA=   273.0
BEX=822284.2BEY=833887.7HBE=     6.1
NBA=   274.0
BEX=822406.1BEY=833883.9HBE=     7.8
```

```
NBA=   275.0
BEX=822497.1BEY=833880.8HBE=     9.6
NBA=   276.0
BEX=822570.8BEY=833874.7HBE=    10.4

TEXT
Central divider for existing Yuen Long Highway
NBA=   277.0BSX=821917.4BSY=833152.7HBS=    13.9
           BEX=821983.1BEY=833216.9HBE=    14.2
NBA=   278.0
BEX=822027.8BEY=833275.6HBE=    14.4

TEXT

NBA=   283.0BSX=822118.0BSY=833629.1HBS=    15.3
           BEX=822118.6BEY=833739.3HBE=    16.3
TEXT

NBA=   284.0
BEX=822119.8BEY=833806.3HBE=    18.2

TEXT

NBA=   288.0BSX=822169.8BSY=834108.0HBS=    11.8
           BEX=822181.7BEY=834133.8HBE=    10.2

TEXT

NBA=   285.0BSX=822128.4BSY=833973.8HBS=    16.0
           BEX=822137.3BEY=834018.6HBE=    13.7
NBA=   286.0
BEX=822149.2BEY=834060.6HBE=    12.3

NBA=   287.0BSX=822149.2BSY=834060.6HBS=    12.3
           BEX=822169.5BEY=834108.4HBE=    11.8

TEXT
Village house
NBA=   285.0BSX=822079.6BSY=833278.3HBS=    12.0
           BEX=822083.9BEY=833284.9HBE=    12.0
TEXT

NBA=   286.0
BEX=822089.8BEY=833281.0HBE=    12.0
NBA=   287.0
BEX=822085.5BEY=833274.4HBE=    12.0

TEXT

NBA=   288.0BSX=822085.5BSY=833274.4HBS=    12.0
           BEX=822079.6BEY=833277.8HBE=    12.0

TEXT
Village house
NBA=   289.0BSX=822135.0BSY=833254.7HBS=    12.4
           BEX=822130.4BEY=833260.4HBE=    12.4
TEXT

NBA=   290.0
BEX=822138.3BEY=833266.8HBE=    12.4
NBA=   291.0
BEX=822142.7BEY=833260.6HBE=    12.4

TEXT

NBA=   292.0BSX=822142.7BSY=833260.6HBS=    12.4
           BEX=822134.8BEY=833254.7HBE=    12.4

TEXT

NBA=   293.0BSX=822337.3BSY=834338.6HBS=    10.8
           BEX=822387.5BEY=834366.3HBE=    10.8
NBA=   294.0
BEX=822421.3BEY=834382.8HBE=    10.8
NBA=   295.0
BEX=822474.0BEY=834405.1HBE=    10.8
TEXT

NBA=   296.0
BEX=822491.1BEY=834412.7HBE=    10.8

TEXT

NBA=   298.0BSX=822547.8BSY=834428.3HBS=     9.5
           BEX=822621.3BEY=834443.1HBE=     9.5
TEXT

NBA=   299.0BSX=822304.1BSY=834287.6HBS=     7.7
           BEX=822396.8BEY=834346.3HBE=     7.6
NBA=   300.0
BEX=822465.8BEY=834377.5HBE=     7.6
NBA=   301.0
BEX=822517.8BEY=834392.6HBE=     7.1
NBA=   302.0
BEX=822587.6BEY=834404.1HBE=     8.3

TEXT

NBA=   303.0BSX=822587.4BSY=834403.9HBS=     8.3
           BEX=822629.5BEY=834406.1HBE=     8.3

TEXT

NBA=   304.0BSX=822114.8BSY=833520.1HBS=    14.4
           BEX=822117.7BEY=833567.6HBE=    14.8
NBA=   305.0
BEX=822118.0BEY=833629.1HBE=    15.3

TEXT

NBA=   306.0BSX=822096.5BSY=833421.3HBS=    15.1
           BEX=822108.6BEY=833473.5HBE=    14.8
NBA=   307.0
BEX=822114.8BEY=833520.1HBE=    14.4

TEXT

NBA=   308.0BSX=822068.8BSY=833347.7HBS=    14.5
           BEX=822083.8BEY=833382.9HBE=    14.8
NBA=   309.0
BEX=822096.5BEY=833421.3HBE=    15.1

TEXT

NBA=   312.0BSX=822075.3BSY=833331.6HBS=    13.7
           BEX=822091.3BEY=833369.1HBE=    14.0
NBA=   313.0
BEX=822108.9BEY=833417.1HBE=    14.3

TEXT

NBA=   314.0BSX=822108.9BSY=833417.1HBS=    14.3
           BEX=822120.3BEY=833464.8HBE=    14.0

TEXT

NBA=   315.0BSX=822027.8BSY=833275.6HBS=    14.4
           BEX=822049.2BEY=833310.3HBE=    14.4
NBA=   316.0
BEX=822068.8BEY=833347.7HBE=    14.5

TEXT

NBA=   317.0BSX=822489.1BSY=834412.7HBS=     7.6
           BEX=822547.8BEY=834428.3HBE=     8.3

TEXT

NBA=   318.0BSX=822244.3BSY=834015.2HBS=    56.0
           BEX=822266.6BEY=834049.9HBE=    56.0

TEXT

NBA=   319.0BSX=822251.3BSY=834014.8HBS=    56.0
           BEX=822260.3BEY=834052.5HBE=    56.0

TEXT

NBA=   320.0BSX=822264.1BSY=834042.6HBS=    56.0
           BEX=822283.5BEY=834042.9HBE=    56.0

TEXT

NBA=   321.0BSX=822267.7BSY=834051.3HBS=    56.0
           BEX=822279.0BEY=834034.2HBE=    56.0

TEXT

NBA=   322.0BSX=822272.6BSY=834022.5HBS=    56.0
```

```
            BEX=822286.1BEY=834037.4HBE=    56.0

TEXT

NBA=   323.0BSX=822275.6BSY=834020.4HBS=    56.0
            BEX=822282.9BEY=834039.7HBE=    56.0

TEXT

NBA=   324.0BSX=822173.8BSY=833272.7HBS=    17.8
            BEX=822176.0BEY=833275.8HBE=    17.8
NBA=   325.0
BEX=822185.9BEY=833269.6HBE=    17.8
NBA=   326.0
BEX=822183.5BEY=833266.3HBE=    17.8

NBA=   327.0BSX=822183.5BSY=833266.3HBS=    17.8
            BEX=822173.8BEY=833272.7HBE=    17.8

TEXT

NBA=   261.0BSX=822126.0BSY=833519.7HBS=    13.6
            BEX=822125.6BEY=833556.8HBE=    12.8

TEXT
1.1m high planter wall along new left-turn lane
NBA=   297.0BSX=822161.8BSY=833977.3HBS=    11.4
            BEX=822161.9BEY=833946.9HBE=    10.5
TEXT

NBA=   298.0
BEX=822169.6BEY=833926.8HBE=    10.2
NBA=   299.0
BEX=822188.3BEY=833914.1HBE=     9.9
NBA=   300.0
BEX=822216.2BEY=833906.1HBE=     8.6

TEXT

NBA=   301.0BSX=822216.2BSY=833906.1HBS=     8.6
            BEX=822239.0BEY=833906.1HBE=     6.8

TEXT
1.1m Planter wall along new flyover
NBA=   302.0BSX=822092.4BSY=833583.0HBS=    12.9
            BEX=822093.4BEY=833673.9HBE=    14.5
TEXT

NBA=   303.0
BEX=822095.1BEY=833739.1HBE=    15.6
NBA=   304.0
BEX=822096.8BEY=833806.4HBE=    16.9

TEXT

NBA=   308.0BSX=822106.2BSY=833977.0HBS=    15.7
            BEX=822118.4BEY=834025.5HBE=    13.9

TEXT

NBA=   309.0BSX=822118.4BSY=834025.5HBS=    13.9
            BEX=822131.8BEY=834066.0HBE=    12.9

TEXT

NBA=   328.0BSX=822101.6BSY=833524.4HBS=    15.6
            BEX=822103.7BEY=833567.8HBE=    16.0
NBA=   329.0
BEX=822105.9BEY=833632.6HBE=    16.5

TEXT

NBA=   330.0BSX=821889.7BSY=833366.9HBS=    15.3
            BEX=821901.6BEY=833367.2HBE=    15.3
NBA=   331.0
BEX=821901.3BEY=833378.9HBE=    15.3
NBA=   332.0
BEX=821889.6BEY=833378.9HBE=    15.3

NBA=   333.0BSX=821889.6BSY=833378.9HBS=    15.3
            BEX=821889.7BEY=833366.9HBE=    15.3


RETN     0.0

TEXT


TEXT
1    WUT1
HRA=     5.4HRG=     1.5OPX=822183.6OPY=834198.6AN1=
80.0AN2=   235.7
REF=     1.0GO        .0
HPF=     2.8RPT=     2.0

TEXT
2    STNV1
HRA=     5.4OPX=822249.9OPY=834189.7AN1=   210.0AN2=
30.0
GO        .0
RPT=     1.0

TEXT
3    JCCAH1
HRA=     6.4OPX=822270.4OPY=833944.3AN1=   198.0AN2=
18.0
GO        .0
HPF=     3.0RPT=     5.0

TEXT
4    JCCAH2
HRA=     6.4OPX=822275.3OPY=833933.9AN1=   128.4AN2=
289.2
GO        .0
RPT=     5.0

TEXT
5    V1
HRA=     6.1OPX=822222.5OPY=833689.3AN1=   155.7AN2=
335.7
GO        .0
HPF=     2.5RPT=     1.0

TEXT
6    V2
HRA=     5.7OPX=822185.6OPY=833665.3AN1=   226.5AN2=
34.0
GO        .0
RPT=     1.0

TEXT
7    V3
HRA=     8.1OPX=822080.0OPY=833282.1AN1=   212.0AN2=
32.0
GO        .0
RPT=     1.0

TEXT
8    V4
HRA=     8.9OPX=822133.3OPY=833264.5AN1=   232.0AN2=
52.0
GO        .0
RPT=     1.0

TEXT
9   V5
HRA=     9.3OPX=822173.9OPY=833275.0AN1=   214.0AN2=
34.0
GO        .0
RPT=     3.0

TEXT
10   V6
HRA=     6.8OPX=821902.4OPY=833375.7AN1=     0.0AN2=
180.0
GO        .0
RPT=     2.0

TEXT
11    YT1
HRA=    11.5HRG=     6.5OPX=821919.5OPY=833648.0AN1=
1.0AN2=   181.0
GO        .0
HPF=    15.0RPT=     7.0

TEXT
12   YT2
HRA=    11.5OPX=821918.1OPY=833570.4AN1=     1.0AN2=
181.0
GO        .0
```

```
RPT=     7.0

TEXT
13   YT3
HRA=    11.5OPX=821919.9OPY=833493.1AN1=     1.0AN2=
181.0
GO        .0
RPT=     7.0

TEXT
14   KMYLS1
HRA=     6.8HRG=     1.5OPX=822054.3OPY=833710.0AN1=
275.9AN2=    90.0
GO        .0
HPF=     3.0RPT=     4.0

TEXT
15   KMYLS2
HRA=     6.8OPX=822048.2OPY=833673.5AN1=   100.1AN2=
270.0
GO        .0
RPT=     4.0

TEXT
16   ND1
HRA=    41.6HRG=    36.6OPX=821930.4OPY=833814.8AN1=
0.0AN2=   180.0
GO        .0
HPF=    15.0RPT=     9.0

TEXT
17   ND2
HRA=    37.6HRG=    32.1OPX=822073.5OPY=833968.7AN1=
10.0AN2=   190.0
GO        .0
RPT=     9.0

TEXT
18   ND3
HRA=    37.6OPX=822059.3OPY=833941.4AN1=    40.0AN2=
220.0
GO        .0
RPT=     9.0

TEXT
19   PS1
HRA=     6.7HRG=     1.5OPX=822022.3OPY=833599.4AN1=
25.0AN2=   180.0
GO        .0
HPF=     3.0RPT=     6.0

TEXT
20   Pun Uk
HRA=     6.5OPX=822272.4OPY=834025.0AN1=   219.0AN2=
245.0
GO        .0
RPT=    16.0

TEXT
21   ExSTNVPS1
HRA=     5.4OPX=822328.8OPY=834167.3AN1=   207.0AN2=
27.0
GO        .0


RETN     0.0
```

Annex C10

Construction Noise Impact Assessment (With Mitigation)

Annex C10-1

Construction Plant Inventory (With Mitigation)
(Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

No.	Activities	Plant	CNP /BS 5228 /QPME ref.	No. of PME	On-time %	Barrier / Enclosure dB(A) [3]	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[4]	Group[5]
DESIGNATED PROJECT										
Improvement to Pok Oi Interchange										
1	**Site clearance**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**108**	
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%		105	105		
2	**Site formation**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**109**	
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%		105	105		
		Vibratory roller	C3/115	1	100%		102	102		
3	**Piling**	Continuous Flight Auger	CNP 167	1	100%		114	114	**115**	
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%		105	105		
4	**Road drainage, utilities & water mains works**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**110**	
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%		105	105		
		Mobile crane	C7/114	1	100%		101	101		
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%	-5	108	103		
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%		102	102		
5	**Construct retaining walls, abutments and embankment**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**110**	
		Road roller	C8/30	1	100%		101	101		
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%		100	100		
		Water pump (electric)	CNP 281	1	100%		88	88		
		Poker, vibratory, hand-held	C6/40	1	100%		98	98		
		Silent Piler	[2]	1	100%		100	100		
		Concrete truck	C6/23	1	100%		100	100		
		Mobile crane	C7/114	1	100%		101	101		
6	**Demolish existing structures**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**112**	
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%		108	108		
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%		102	102		
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%		105	105		
7	**Extend subway**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**113**	
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%		108	108		
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%		102	102		
		Poker, vibratory, hand-held	C6/40	1	100%		98	98		
		Saw, circular, wood	CNP 201	1	100%		108	108		
		Bar bender and cutter (electric)	CNP 021	1	100%		90	90		
		Concrete truck	C6/23	1	100%		100	100		
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%		105	105		
8	**Construct pilecaps and**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**111**	
		Saw, circular, wood	CNP 201	1	100%	-5	108	103		
		Bar bender and cutter (electric)	CNP 021	1	100%		90	90		
		Drill/grinder, hand-held (electric)	CNP 065	1	100%		98	98		
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%		100	100		
		Water pump (electric)	CNP 281	1	100%		88	88		
		Silent Piler	[2]	1	100%		100	100		
		Poker, vibratory, hand-held	C6/40	1	100%		98	98		
		Concrete truck	C6/23	1	100%		100	100		
		Concrete pump, stationary/lorry mounted	C6/36	1	100%		106	106		
9	**Construct flyover**	Mobile crane	C7/114	1	100%		101	101	**109**	
		Concrete pump, stationary/lorry mounted	C6/36	1	100%		106	106		
		Lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-d]	1	100%		105	105		

Annex C10-1

Construction Plant Inventory (With Mitigation)
(Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

No.	Activities	Plant	CNP /BS 5228 /QPME ref.	No. of PME	On-time %	Barrier / Enclosure dB(A) [3]	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[4]	Group[5]	
10	**Install concrete parapets and planters**	Mobile crane	C7/114	1	100%		101	101	**106**		
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%		105	105			
11	**Road resurfacing and**	Road planer or miller	CNP 184	1	100%		111	111	**112**	A	**111**
		Road roller	C8/30	1	100%		101	101		B	**107**
		Asphalt paver	C8/24	1	100%		101	101		B	
		Paint line marker	CNP 161	1	100%		90	90		B	
		Paint line remover	[1-c]	1	100%		104	104		B	
					100%						
12	**Install noise barriers**	Mobile crane	C7/114	1	100%		101	101	**106**		
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%		105	105			
					100%						
13	**Pavement construction**	Asphalt paver	C8/24	1	100%		101	101	**104**		
		Road roller	C8/30	1	100%		101	101			
CONCURRENT PROJECTS											
1	**Site formation**	Excavator, wheeled / tracked, Kobelco	EPD 00057	1	100%		103	103	**107**		
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%		105	105			
2	**Box culvert**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**111**		
		Saw, circular, wood	CNP 201	1	100%		108	108			
		Bar bender and cutter (electric)	CNP 021	1	100%		90	90			
		Drill/grinder, hand-held (electric)	CNP 065	1	100%		98	98			
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%		100	100			
		Water pump (electric)	CNP 281	1	100%		88	88			
		Poker, vibratory, hand-held	C6/40	1	100%		98	98			
3	**Retaining wall construction & associated works**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**113**		
		Roller, vibratory	CNP 186	1	100%		108	108			
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%		100	100			
		Water pump (electric)	CNP 281	1	100%		88	88			
		Poker, vibratory, hand-held	C6/40	1	100%		98	98			
		Concrete lorry mixer	CNP 044	1	100%		109	109			
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%		105	105			
4	**Road embankment**	Excavator/loader, wheeled/tracked	C3/97	1	100%		105	105	**110**		
		Roller, vibratory	CNP 186	1	100%		108	108			
5	**Road drainage, utilities & water mains works**	Excavator/loader, wheeled/tracked	C3/97	1	100%	-5	105	100	**107**		
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%	-5	105	100			
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%	-5	108	103			
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%	-5	102	97			
6	**Pavement construction**	Asphalt paver	C8/24	1	100%		101	101	**104**		
		Road roller	C8/30	1	100%		101	101			

Notes:

[1] SWL refer to the document prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf)

[1-a] Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne

[1-b] Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne

[1-c] Paint line remover

[2] Reference was made to "Project Profile for Prince Edward Station Pedestrian Subway Extension and Entrance Modification Works (Register No. PP-253/2005)"

[3] A 5dB(A) reduction provided by the use of movable noise barrier or acoustic enclosure.

[4] The figures are rounded-up to a whole number.

[5] Maximun total SWL from different groups was adopted for calculation.

Annex C10-2

Construction Plant Inventory (With Mitigation)
(Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

No.	Activities	Plant	CNP /BS 5228 /QPME ref.	No. of PME	On-time %	Barrier / Enclosure dB(A) [3]	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[4]	Group[5]
DESIGNATED PROJECT										
Improvement to Pok Oi Interchange										
9	**Construct flyover**	Lorry, 5.5 tonne < gross vehicle weight < 38	[1-d]	1	100%		105	105	**111**	
		Bar bender and cutter (electric)	CNP 021	1	100%		90	90		
		Drill/grinder, hand-held (electric)	CNP 065	2	100%		98	101		
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%		100	100		
		Concrete truck	C6/23	1	100%		100	100		
		Concrete pump, stationary/lorry mounted	C6/36	1	100%		106	106		
		Poker, vibratory, hand-held	C6/40	2	100%		98	101		
		Mobile crane	C7/114	1	100%		101	101		

Notes:

[1] SWL refer to the document prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf)

[1-a] Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne

[1-b] Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne

[1-c] Paint line remover

[2] Reference was made to "Project Profile for Prince Edward Station Pedestrian Subway Extension and Entrance Modification Works (Register No. PP-253/2005)"

[3] A 5dB(A) reduction provided by the use of movable noise barrier or acoustic enclosure.

[4] The figures are rounded-up to a whole number.

[5] Maximun total SWL from different groups was adopted for calculation.

Annex C10-3

Proposed Mitigation Measures for Slip Road A facing Kwong Ming Ying Loi School

No.	Activities	Plant	CNP /BS 5228 ref.	No. of PME	On-time %	Unit SWL, dB(A)	Barrier, dB(A) [3]	Mitigated SWL, dB(A)	Total SWL, dB(A)[4]	Group[5]	
1	**Site clearance**	Excavator/loader, wheeled/tracked	C3/97	1	100%	105	-5	100	**103**		
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	-5	100			
2	**Site formation**	Excavator/loader, wheeled/tracked	C3/97	1	100%	105	-5	100	**104**		
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	-5	100			
		Vibratory roller	C3/115	1	100%	102	-5	97			
4	**Road drainage, utilities & water mains works**	Excavator/loader, wheeled/tracked	C3/97	1	100%	105	-5	100	**107**	**A**	**104**
		Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne	[1-a]	1	100%	105	-5	100		**A**	
		Mobile crane	C7/114	1	100%	101	-5	96		**A**	
		Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	100%	108	-5	103		**B**	**104**
		Air Compressor, air flow > 10m3/min and < 30m3/min	CNP 002	1	100%	102	-5	97		**B**	
5	**Construct retaining walls, abutments and embankment**	Excavator/loader, wheeled/tracked	C3/97	1	100%	105	-5	100	**106**		
		Road roller	C8/30	1	100%	101	-5	96			
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%	100	-5	95			
		Water pump (electric)	CNP 281	1	100%	88	-5	83			
		Poker, vibratory, hand-held	C6/40	1	100%	98	-5	93			
		Silent Piler	[2]	1	100%	100		100			
		Concrete truck	C6/23	1	100%	100	-5	95			
		Mobile crane	C7/114	1	100%	101	-5	96			

Notes:

[1] SWLs of the following plant items refer to the document prepared by the Noise Control Authority (http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf)

[1-a] Dump truck, 5.5 tonne < gross vehicle weight < 38 tonne

[2] Reference was made to "Project Profile for Prince Edward Station Pedestrian Subway Extension and Entrance Modification Works (Register No. PP-253/2005)"

[3] A 5dB(A) reduction provided by the use of movable noise barrier.

[4] The figures are rounded-up to a whole number.

[5] Maximun total SWL from different groups was adopted for calculation.

Annex C10-4 Summary of Predicted Noise Levels during Daytime Period (With Mitigation)
(Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

		Predicted Construction Noise Level (dB(A))																								Max. CNL
		2009	2010												2011											
	NSR Location	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	67	67	67	69	69	70	70	70	70	69	72	72	68	71	69	69	64	64	64	64	64	63	63	61	61	72
JCCAH2	Jockey Club Care & Attention Home – southern facade	67	67	67	69	69	70	70	70	70	69	72	72	67	71	66	66	62	62	62	61	61	58	58	50	50	72
KMYLS1	Kwong Ming Ying Loi School	63	63	63	69	69	69	69	69	69	69	69	70	70	70	70	70	70	70	70	69	69	69	69	58	58	70
KMYLS2	Kwong Ming Ying Loi School	63	63	63	64	64	64	65	65	65	68	68	69	69	69	68	68	69	69	69	69	69	69	69	47	47	69
STNV1	Small Traders New Village	60	60	60	63	63	64	64	64	64	63	65	65	61	64	75	75	58	58	58	57	57	63	63	62	62	75
V1	Village house facing slip road (south bound) of Yuen Long Highway -	63	63	63	67	67	67	67	67	67	67	68	68	67	68	67	67	65	65	65	65	65	61	61	56	56	68
V2	Village house facing slip road (south bound) of Yuen Long Highway -	64	64	64	67	67	68	68	68	68	68	69	69	69	69	69	69	67	67	67	67	67	63	63	56	56	69
V3	Village house at Chuk San Tsuen	65	65	65	66	66	66	68	68	67	67	67	67	67	67	62	62	54	54	54	54	54	49	49	39	39	68
V6	Village house at Hoover Garden	59	59	59	61	61	61	62	62	61	63	63	63	63	63	62	62	60	60	60	60	60	56	56	50	50	63
WUT1	178 Wong Uk Tsuen	60	60	60	64	64	64	65	64	64	63	65	66	62	64	65	65	59	59	59	58	58	74	74	74	74	74
YT1	Block 2, YOHO Town	59	59	59	63	63	63	63	63	63	63	64	64	63	64	64	64	62	62	62	62	62	59	59	55	55	64

Annex C10-5 Summary of Predicted Cumulative Noise Levels during Daytime Period (With Mitigation)
(Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

		Predicted Cumulative Construction Noise Level (dB(A))																								Max. CNL dB(A)
		2009	2010												2011											
	NSR Location	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
JCCAH1	Jockey Club Care & Attention Home – western facade	67	68	68	70	70	71	71	70	70	70	73	73	68	71	69	69	64	64	64	64	64	63	63	61	61	73
JCCAH2	Jockey Club Care & Attention Home – southern facade	67	68	68	70	70	70	70	70	70	69	72	72	68	71	67	67	62	62	62	61	61	58	58	50	50	72
KMYLS1	Kwong Ming Ying Loi School	64	68	68	70	70	70	70	69	69	69	70	70	70	70	70	70	70	70	70	69	69	69	69	58	58	70
KMYLS2	Kwong Ming Ying Loi School	63	63	63	64	64	64	66	65	65	68	68	69	69	69	68	68	69	69	69	69	69	69	69	47	47	69
STNV1	Small Traders New Village	65	66	66	67	66	67	67	66	66	66	68	68	67	67	75	75	58	58	58	57	57	63	63	62	62	75
V1	Village house facing slip road (south bound) of Yuen Long Highway -	63	64	64	67	67	67	68	67	67	67	68	68	67	68	67	67	65	65	65	65	65	61	61	56	56	68
V2	Village house facing slip road (south bound) of Yuen Long Highway -	66	66	66	69	69	69	69	69	69	69	70	70	70	70	70	70	67	67	67	67	67	63	63	56	56	70
V3	Village house at Chuk San Tsuen	65	65	65	66	66	66	68	68	67	67	67	67	67	67	62	62	54	54	54	54	54	49	49	39	39	68
V6	Village house at Hoover Garden	59	60	60	61	61	61	62	62	62	63	63	63	63	63	63	63	60	60	60	60	60	56	56	50	50	63
WUT1	178 Wong Uk Tsuen	73	73	73	73	72	72	72	72	72	72	74	74	74	74	74	74	59	59	59	58	58	74	74	74	74	74
YT1	Block 2, YOHO Town	59	61	61	64	64	64	64	63	63	63	64	64	64	64	64	64	62	62	62	62	62	59	59	55	55	64

Annex C10-6

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: JCCAH1 Jockey Club Care & Attention Home – western facade

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	165	-52	0	3	59	59	59																						
3	Piling	115	165	-52	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	110	165	-52	0	3										61	61														
8	Construct pilecaps and piers	111	165	-52	0	3												62	62	62	62	62									
9	Construct flyover	109	165	-52	0	3																	60	60	60						
10	Install concrete parapets and planters	106	165	-52	0	3																				57	57				
13	Pavement construction	104	165	-52	0	3																						55	55		
II	**Slip Road A**																														
1	Site clearance	108	215	-55	0	3										56	56														
2	Site formation	109	215	-55	0	3												57	57	57											
4	Road drainage, utilities & water mains works	110	215	-55	0	3															59	59									
5	Construct retaining walls, abutments and embankment	110	215	-55	0	3																	58	58	58	58	58				
13	Pavement construction	104	215	-55	0	3																						52	52		
III	**Slip Road B**																														
1	Site clearance	108	160	-52	0	3										59	59														
2	Site formation	109	160	-52	0	3												60	60	60											
4	Road drainage, utilities & water mains works	110	160	-52	0	3															61	61									
5	Construct retaining walls, abutments and embankment	110	160	-52	0	3																	61	61	61	61	61				
13	Pavement construction	104	160	-52	0	3																						55	55		
IV	**Slip Road C**																														
1	Site clearance	108	415	-60	0	3	51	51	51																						
2	Site formation	109	415	-60	0	3				52	52	52																			
4	Road drainage, utilities & water mains works	110	415	-60	0	3							53	53																	
5	Construct retaining walls, abutments and embankment	110	415	-60	0	3									52	52	52	52	52	52											
13	Pavement construction	104	415	-60	0	3															47	47									
V	**Left-turn Lane A**																														
1	Site clearance	108	70	-45	0	3	66	66	66																						
2	Site formation	109	70	-45	0	3				67	67																				
4	Road drainage, utilities & water mains works	110	70	-45	0	3						69	69																		
5	Construct retaining walls, abutments and embankment	110	70	-45	0	3								68	68	68															
7	Extend subway	113	70	-45	0	3											72	72													
10	Install concrete parapets and planters	106	70	-45	0	3													65												
6	Demolish existing structures	112	70	-45	0	3														70											
13	Pavement construction	104	70	-45	0	3															62	62									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	140	-51	0	3															63	63									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	180	-53	0	3																						61	61	61	61
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	250	-56	0	3																									
2	Box culvert	109	250	-56	0	3																									
3	Retaining wall construction & associated works	115	250	-56	0	3																									
4	Road embankment	110	250	-56	0	3	58	58	58	58																					
5	Road drainage, utilities & water mains works	110	250	-56	0	3					57	57	57	57	57	57															
6	Pavement construction	112	250	-56	0	3											59	59	59	59	59	59									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	210	-54	0	3		56	56	56																					
5	Road drainage, utilities & water mains works	107	210	-54	0	3					55	55	55																		
6	Pavement construction	104	210	-54	0	3								53	53	53	53														
	Predicted Noise Level during Daytime Period, dB(A)						67	67	67	69	69	70	70	70	70	69	72	72	68	71	69	69	64	64	64	64	64	63	63	61	61	72
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						67	68	68	70	70	71	71	70	70	70	73	73	68	71	69	69	64	64	64	64	64	63	63	61	61	73

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-7

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: JCCAH2 Jockey Club Care & Attention Home – southern facade

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	175	-53	0	3	58	58	58																						
3	Piling	115	175	-53	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	110	175	-53	0	3										61	61														
8	Construct pilecaps and piers	111	175	-53	0	3												61	61	61	61	61									
9	Construct flyover	109	175	-53	0	3																	59	59	59						
10	Install concrete parapets and planters	106	175	-53	0	3																				57	57				
13	Pavement construction	104	175	-53	0	3																						54	54		
II	**Slip Road A**																														
1	Site clearance	108	220	-55	0	3										56	56														
2	Site formation	109	220	-55	0	3												57	57	57											
4	Road drainage, utilities & water mains works	110	220	-55	0	3															59	59									
5	Construct retaining walls, abutments and embankment	110	220	-55	0	3																	58	58	58	58	58				
13	Pavement construction	104	220	-55	0	3																						52	52		
III	**Slip Road B**																														
1	Site clearance	108	170	-53	-10	3										48	48														
2	Site formation	109	170	-53	-10	3												49	49	49											
4	Road drainage, utilities & water mains works	110	170	-53	-10	3															51	51									
5	Construct retaining walls, abutments and embankment	110	170	-53	-10	3																	50	50	50	50	50				
13	Pavement construction	104	170	-53	-10	3																						44	44		
IV	**Slip Road C**																														
1	Site clearance	108	405	-60	0	3	51	51	51																						
2	Site formation	109	405	-60	0	3				52	52	52																			
4	Road drainage, utilities & water mains works	110	405	-60	0	3							53	53																	
5	Construct retaining walls, abutments and embankment	110	405	-60	0	3									53	53	53	53	53	53											
13	Pavement construction	104	405	-60	0	3															47	47									
V	**Left-turn Lane A**																														
1	Site clearance	108	70	-45	0	3	66	66	66																						
2	Site formation	109	70	-45	0	3				67	67																				
4	Road drainage, utilities & water mains works	110	70	-45	0	3						69	69																		
5	Construct retaining walls, abutments and embankment	110	70	-45	0	3								68	68	68															
7	Extend subway	113	70	-45	0	3											72	72													
10	Install concrete parapets and planters	106	70	-45	0	3													65												
6	Demolish existing structures	112	70	-45	0	3														70											
13	Pavement construction	104	70	-45	0	3															62	62									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	150	-52	-10	3															52	52									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	190	-54	-10	3																						50	50	50	50
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	260	-56	0	3																									
2	Box culvert	109	260	-56	0	3																									
3	Retaining wall construction & associated works	115	260	-56	0	3																									
4	Road embankment	110	260	-56	0	3	57	57	57	57																					
5	Road drainage, utilities & water mains works	110	260	-56	0	3					56	56	56	56	56	56															
6	Pavement construction	112	260	-56	0	3											58	58	58	58	58	58									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	215	-55	0	3		55	55	55																					
5	Road drainage, utilities & water mains works	107	215	-55	0	3					55	55	55																		
6	Pavement construction	104	215	-55	0	3								52	52	52	52														
	Predicted Noise Level during Daytime Period, dB(A)						67	67	67	69	69	70	70	70	70	69	72	72	67	71	66	66	62	62	62	61	61	58	58	50	50	72
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						67	68	68	70	70	70	70	70	70	69	72	72	68	71	67	67	62	62	62	61	61	58	58	50	50	72

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-8

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: KMYLS1 Kwong Ming Ying Loi School

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	115	-49	0	3	62	62	62																						
3	Piling	115	115	-49	0	3				68	68	68	68	68	68																
4	Road drainage, utilities & water mains works	110	115	-49	0	3										64	64														
8	Construct pilecaps and piers	111	115	-49	0	3												65	65	65	65	65									
9	Construct flyover	109	115	-49	0	3																	63	63	63						
10	Install concrete parapets and planters	106	115	-49	0	3																				60	60				
13	Pavement construction	104	115	-49	0	3																						58	58		
II	**Slip Road A**																														
1	Site clearance	103	40	-40	0	3										66	66														
2	Site formation	104	40	-40	0	3												67	67	67											
4	Road drainage, utilities & water mains works	104	40	-40	0	3															67	67									
5	Construct retaining walls, abutments and embankment	106	40	-40	0	3																	69	69	69	69	69				
13	Pavement construction	106	40	-40	0	3																						69	69		
III	**Slip Road B**																														
1	Site clearance	108	255	-56	0	3										55	55														
2	Site formation	109	255	-56	0	3												56	56	56											
4	Road drainage, utilities & water mains works	110	255	-56	0	3															57	57									
5	Construct retaining walls, abutments and embankment	110	255	-56	0	3																	57	57	57	57	57				
13	Pavement construction	104	255	-56	0	3																						51	51		
IV	**Slip Road C**																														
1	Site clearance	108	130	-50	-10	3	51	51	51																						
2	Site formation	109	130	-50	-10	3				52	52	52																			
4	Road drainage, utilities & water mains works	110	130	-50	-10	3							53	53																	
5	Construct retaining walls, abutments and embankment	110	130	-50	-10	3									52	52	52	52	52	52											
13	Pavement construction	104	130	-50	-10	3															47	47									
V	**Left-turn Lane A**																														
1	Site clearance	108	220	-55	0	3	56	56	56																						
2	Site formation	109	220	-55	0	3				57	57																				
4	Road drainage, utilities & water mains works	110	220	-55	0	3						59	59																		
5	Construct retaining walls, abutments and embankment	110	220	-55	0	3								58	58	58															
7	Extend subway	113	220	-55	0	3											62	62													
10	Install concrete parapets and planters	106	220	-55	0	3													55												
6	Demolish existing structures	112	220	-55	0	3														60											
13	Pavement construction	104	220	-55	0	3															52	52									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	330	-58	0	3															56	56									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	250	-56	0	3																						58	58	58	58
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	360	-59	0	3																									
2	Box culvert	109	360	-59	0	3																									
3	Retaining wall construction & associated works	115	360	-59	0	3																									
4	Road embankment	110	360	-59	0	3	54	54	54	54																					
5	Road drainage, utilities & water mains works	110	360	-59	0	3					54	54	54	54	54	54															
6	Pavement construction	112	360	-59	0	3											55	55	55	55	55	55									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	70	-45	0	3		65	65	65																					
5	Road drainage, utilities & water mains works	107	70	-45	0	3					65	65	65																		
6	Pavement construction	104	70	-45	0	3								62	62	62	62														
	Predicted Noise Level during Daytime Period, dB(A)						63	63	63	69	69	69	69	69	69	69	69	70	70	70	70	70	70	70	70	69	69	69	69	58	58	70
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						64	68	68	70	70	70	70	69	69	69	70	70	70	70	70	70	70	70	70	69	69	69	69	58	58	70

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-9

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: KMYLS2 Kwong Ming Ying Loi School

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	135	-51	-10	3	50	50	50																						
3	Piling	115	135	-51	-10	3				57	57	57	57	57	57																
4	Road drainage, utilities & water mains works	110	135	-51	-10	3										53	53														
8	Construct pilecaps and piers	111	135	-51	-10	3												54	54	54	54	54									
9	Construct flyover	109	135	-51	-10	3																	52	52	52						
10	Install concrete parapets and planters	106	135	-51	-10	3																				49	49				
13	Pavement construction	104	135	-51	-10	3																						46	46		
II	**Slip Road A**																														
1	Site clearance	103	40	-40	0	3										66	66														
2	Site formation	104	40	-40	0	3												67	67	67											
4	Road drainage, utilities & water mains works	104	40	-40	0	3															67	67									
5	Construct retaining walls, abutments and embankment	106	40	-40	0	3																	69	69	69	69	69				
13	Pavement construction	106	40	-40	0	3																						69	69		
III	**Slip Road B**																														
1	Site clearance	108	270	-57	-10	3										44	44														
2	Site formation	109	270	-57	-10	3												45	45	45											
4	Road drainage, utilities & water mains works	110	270	-57	-10	3															47	47									
5	Construct retaining walls, abutments and embankment	110	270	-57	-10	3																	46	46	46	46	46				
13	Pavement construction	104	270	-57	-10	3																						40	40		
IV	**Slip Road C**																														
1	Site clearance	108	110	-49	0	3	62	62	62																						
2	Site formation	109	110	-49	0	3				63	63	63																			
4	Road drainage, utilities & water mains works	110	110	-49	0	3							65	65																	
5	Construct retaining walls, abutments and embankment	110	110	-49	0	3									64	64	64	64	64	64											
13	Pavement construction	104	110	-49	0	3															58	58									
V	**Left-turn Lane A**																														
1	Site clearance	108	250	-56	-10	3	45	45	45																						
2	Site formation	109	250	-56	-10	3				46	46																				
4	Road drainage, utilities & water mains works	110	250	-56	-10	3						48	48																		
5	Construct retaining walls, abutments and embankment	110	250	-56	-10	3								47	47	47															
7	Extend subway	113	250	-56	-10	3											51	51													
10	Install concrete parapets and planters	106	250	-56	-10	3													44												
6	Demolish existing structures	112	250	-56	-10	3														49											
13	Pavement construction	104	250	-56	-10	3															41	41									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	350	-59	-10	3															45	45									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	280	-57	-10	3																						47	47	47	47
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	400	-60	-10	3																									
2	Box culvert	109	400	-60	-10	3																									
3	Retaining wall construction & associated works	115	400	-60	-10	3																									
4	Road embankment	110	400	-60	-10	3	43	43	43	43																					
5	Road drainage, utilities & water mains works	110	400	-60	-10	3					43	43	43	43	43	43															
6	Pavement construction	112	400	-60	-10	3											45	45	45	45	45	45									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	100	-48	-10	3		52	52	52																					
5	Road drainage, utilities & water mains works	107	100	-48	-10	3					52	52	52																		
6	Pavement construction	104	100	-48	-10	3								49	49	49	49														
	Predicted Noise Level during Daytime Period, dB(A)						63	63	63	64	64	64	65	65	65	68	68	69	69	69	68	68	69	69	69	69	69	69	69	47	47	69
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						63	63	63	64	64	64	66	65	65	68	68	69	69	69	68	68	69	69	69	69	69	69	69	47	47	69

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-10

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: STNV1 Small Traders New Village

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	270	-57	0	3	54	54	54																						
3	Piling	115	270	-57	0	3				61	61	61	61	61	61																
4	Road drainage, utilities & water mains works	110	270	-57	0	3										57	57														
8	Construct pilecaps and piers	111	270	-57	0	3												58	58	58	58	58									
9	Construct flyover	109	270	-57	0	3																	56	56	56						
10	Install concrete parapets and planters	106	270	-57	0	3																				53	53				
13	Pavement construction	104	270	-57	0	3																						50	50		
II	**Slip Road A**																														
1	Site clearance	108	400	-60	0	3										51	51														
2	Site formation	109	400	-60	0	3												52	52	52											
4	Road drainage, utilities & water mains works	110	400	-60	0	3															53	53									
5	Construct retaining walls, abutments and embankment	110	400	-60	0	3																	53	53	53	53	53				
13	Pavement construction	104	400	-60	0	3																						47	47		
III	**Slip Road B**																														
1	Site clearance	108	155	-52	-10	3										49	49														
2	Site formation	109	155	-52	-10	3												50	50	50											
4	Road drainage, utilities & water mains works	110	155	-52	-10	3															52	52									
5	Construct retaining walls, abutments and embankment	110	155	-52	-10	3																	51	51	51	51	51				
13	Pavement construction	104	155	-52	-10	3																						45	45		
IV	**Slip Road C**																														
1	Site clearance	108	640	-64	0	3	47	47	47																						
2	Site formation	109	640	-64	0	3				48	48	48																			
4	Road drainage, utilities & water mains works	110	640	-64	0	3							49	49																	
5	Construct retaining walls, abutments and embankment	110	640	-64	0	3									49	49	49	49	49	49											
13	Pavement construction	104	640	-64	0	3															43	43									
V	**Left-turn Lane A**																														
1	Site clearance	108	170	-53	0	3	58	58	58																						
2	Site formation	109	170	-53	0	3				59	59																				
4	Road drainage, utilities & water mains works	110	170	-53	0	3						61	61																		
5	Construct retaining walls, abutments and embankment	110	170	-53	0	3								60	60	60															
7	Extend subway	113	170	-53	0	3											64	64													
10	Install concrete parapets and planters	106	170	-53	0	3													57												
6	Demolish existing structures	112	170	-53	0	3														62											
13	Pavement construction	104	170	-53	0	3															54	54									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	12	-30	-10	3															74	74									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	50	-42	-10	3																						62	62	62	62
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	120	-50	0	3																									
2	Box culvert	109	120	-50	0	3																									
3	Retaining wall construction & associated works	115	120	-50	0	3																									
4	Road embankment	110	120	-50	0	3	64	64	64	64																					
5	Road drainage, utilities & water mains works	110	120	-50	0	3					63	63	63	63	63	63															
6	Pavement construction	112	120	-50	0	3											65	65	65	65	65	65									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	365	-59	0	3		51	51	51																					
5	Road drainage, utilities & water mains works	107	365	-59	0	3					50	50	50																		
6	Pavement construction	104	365	-59	0	3								48	48	48	48														
	Predicted Noise Level during Daytime Period, dB(A)						60	60	60	63	63	64	64	64	64	63	65	65	61	64	75	75	58	58	58	57	57	63	63	62	62	75
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						65	66	66	67	66	67	67	66	66	66	68	68	67	67	75	75	58	58	58	57	57	63	63	62	62	75

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-11

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: V1 Village house facing slip road (south bound) of Yuen Long Highway - south of POI

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	170	-53	0	3	58	58	58																						
3	Piling	115	170	-53	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	110	170	-53	0	3										61	61														
8	Construct pilecaps and piers	111	170	-53	0	3												62	62	62	62	62									
9	Construct flyover	109	170	-53	0	3																	60	60	60						
10	Install concrete parapets and planters	106	170	-53	0	3																				57	57				
13	Pavement construction	104	170	-53	0	3																						54	54		
II	**Slip Road A**																														
1	Site clearance	108	120	-50	0	3										61	61														
2	Site formation	109	120	-50	0	3												62	62	62											
4	Road drainage, utilities & water mains works	110	120	-50	0	3															64	64									
5	Construct retaining walls, abutments and embankment	110	120	-50	0	3																	63	63	63	63	63				
13	Pavement construction	104	120	-50	0	3																						57	57		
III	**Slip Road B**																														
1	Site clearance	108	290	-57	0	3										54	54														
2	Site formation	109	290	-57	0	3												55	55	55											
4	Road drainage, utilities & water mains works	110	290	-57	0	3															56	56									
5	Construct retaining walls, abutments and embankment	110	290	-57	0	3																	55	55	55	55	55				
13	Pavement construction	104	290	-57	0	3																						50	50		
IV	**Slip Road C**																														
1	Site clearance	108	160	-52	0	3	59	59	59																						
2	Site formation	109	160	-52	0	3				60	60	60																			
4	Road drainage, utilities & water mains works	110	160	-52	0	3							61	61																	
5	Construct retaining walls, abutments and embankment	110	160	-52	0	3									61	61	61	61	61	61											
13	Pavement construction	104	160	-52	0	3															55	55									
V	**Left-turn Lane A**																														
1	Site clearance	108	210	-54	0	3	57	57	57																						
2	Site formation	109	210	-54	0	3				58	58																				
4	Road drainage, utilities & water mains works	110	210	-54	0	3						59	59																		
5	Construct retaining walls, abutments and embankment	110	210	-54	0	3								58	58	58															
7	Extend subway	113	210	-54	0	3											62	62													
10	Install concrete parapets and planters	106	210	-54	0	3													55												
6	Demolish existing structures	112	210	-54	0	3														60											
13	Pavement construction	104	210	-54	0	3															53	53									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	345	-59	0	3															55	55									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	300	-58	0	3																						56	56	56	56
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	450	-61	0	3																									
2	Box culvert	109	450	-61	0	3																									
3	Retaining wall construction & associated works	115	450	-61	0	3																									
4	Road embankment	110	450	-61	0	3	52	52	52	52																					
5	Road drainage, utilities & water mains works	110	450	-61	0	3					52	52	52	52	52	52															
6	Pavement construction	112	450	-61	0	3											53	53	53	53	53	53									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	170	-53	0	3		58	58	58																					
5	Road drainage, utilities & water mains works	107	170	-53	0	3					57	57	57																		
6	Pavement construction	104	170	-53	0	3								54	54	54	54														
	Predicted Noise Level during Daytime Period, dB(A)						63	63	63	67	67	67	67	67	67	67	68	68	67	68	67	67	65	65	65	65	65	61	61	56	56	68
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						63	64	64	67	67	67	68	67	67	67	68	68	67	68	67	67	65	65	65	65	65	61	61	56	56	68

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-12

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: V2 Village house facing slip road (south bound) of Yuen Long Highway - south of POI

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	165	-52	0	3	59	59	59																						
3	Piling	115	165	-52	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	110	165	-52	0	3										61	61														
8	Construct pilecaps and piers	111	165	-52	0	3												62	62	62	62	62									
9	Construct flyover	109	165	-52	0	3																	60	60	60						
10	Install concrete parapets and planters	106	165	-52	0	3																				57	57				
13	Pavement construction	104	165	-52	0	3																						55	55		
II	**Slip Road A**																														
1	Site clearance	108	85	-47	0	3										64	64														
2	Site formation	109	85	-47	0	3												65	65	65											
4	Road drainage, utilities & water mains works	110	85	-47	0	3															67	67									
5	Construct retaining walls, abutments and embankment	110	85	-47	0	3																	66	66	66	66	66				
13	Pavement construction	104	85	-47	0	3																						60	60		
III	**Slip Road B**																														
1	Site clearance	108	300	-58	0	3										53	53														
2	Site formation	109	300	-58	0	3												54	54	54											
4	Road drainage, utilities & water mains works	110	300	-58	0	3															56	56									
5	Construct retaining walls, abutments and embankment	110	300	-58	0	3																	55	55	55	55	55				
13	Pavement construction	104	300	-58	0	3																						49	49		
IV	**Slip Road C**																														
1	Site clearance	108	120	-50	0	3	61	61	61																						
2	Site formation	109	120	-50	0	3				62	62	62																			
4	Road drainage, utilities & water mains works	110	120	-50	0	3							64	64																	
5	Construct retaining walls, abutments and embankment	110	120	-50	0	3									63	63	63	63	63	63											
13	Pavement construction	104	120	-50	0	3															57	57									
V	**Left-turn Lane A**																														
1	Site clearance	108	235	-55	0	3	56	56	56																						
2	Site formation	109	235	-55	0	3				57	57																				
4	Road drainage, utilities & water mains works	110	235	-55	0	3						58	58																		
5	Construct retaining walls, abutments and embankment	110	235	-55	0	3								57	57	57															
7	Extend subway	113	235	-55	0	3											61	61													
10	Install concrete parapets and planters	106	235	-55	0	3													54												
6	Demolish existing structures	112	235	-55	0	3														59											
13	Pavement construction	104	235	-55	0	3															52	52									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	370	-59	0	3															55	55									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	300	-58	0	3																						56	56	56	56
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	150	-52	0	3																									
2	Box culvert	109	150	-52	0	3																									
3	Retaining wall construction & associated works	115	150	-52	0	3																									
4	Road embankment	110	150	-52	0	3	62	62	62	62																					
5	Road drainage, utilities & water mains works	110	150	-52	0	3					61	61	61	61	61	61															
6	Pavement construction	112	150	-52	0	3											63	63	63	63	63	63									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	210	-54	0	3		56	56	56																					
5	Road drainage, utilities & water mains works	107	210	-54	0	3					55	55	55																		
6	Pavement construction	104	210	-54	0	3								53	53	53	53														
	Predicted Noise Level during Daytime Period, dB(A)						64	64	64	67	67	68	68	68	68	68	69	69	69	69	69	69	67	67	67	67	67	63	63	56	56	69
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						66	66	66	69	69	69	69	69	69	69	70	70	70	70	70	70	67	67	67	67	67	63	63	56	56	70

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-13

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: V3 Village house at Chuk San Tsuen

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	530	-62	0	3	49	49	49																						
3	Piling	115	530	-62	0	3				55	55	55	55	55	55																
4	Road drainage, utilities & water mains works	110	530	-62	0	3										51	51														
8	Construct pilecaps and piers	111	530	-62	0	3												52	52	52	52	52									
9	Construct flyover	109	530	-62	0	3																	50	50	50						
10	Install concrete parapets and planters	106	530	-62	0	3																				47	47				
13	Pavement construction	104	530	-62	0	3																						45	45		
II	**Slip Road A**																														
1	Site clearance	108	130	-50	-10	3										51	51														
2	Site formation	109	130	-50	-10	3												52	52	52											
4	Road drainage, utilities & water mains works	110	130	-50	-10	3															53	53									
5	Construct retaining walls, abutments and embankment	110	130	-50	-10	3																	52	52	52	52	52				
13	Pavement construction	104	130	-50	-10	3																						47	47		
III	**Slip Road B**																														
1	Site clearance	108	680	-65	-10	3										36	36														
2	Site formation	109	680	-65	-10	3												37	37	37											
4	Road drainage, utilities & water mains works	110	680	-65	-10	3															39	39									
5	Construct retaining walls, abutments and embankment	110	680	-65	-10	3																	38	38	38	38	38				
13	Pavement construction	104	680	-65	-10	3																						32	32		
IV	**Slip Road C**																														
1	Site clearance	108	25	-36	-10	3	65	65	65																						
2	Site formation	109	25	-36	-10	3				66	66	66																			
4	Road drainage, utilities & water mains works	110	25	-36	-10	3							68	68																	
5	Construct retaining walls, abutments and embankment	110	25	-36	-10	3									67	67	67	67	67	67											
13	Pavement construction	104	25	-36	-10	3															61	61									
V	**Left-turn Lane A**																														
1	Site clearance	108	635	-64	0	3	47	47	47																						
2	Site formation	109	635	-64	0	3				48	48																				
4	Road drainage, utilities & water mains works	110	635	-64	0	3						49	49																		
5	Construct retaining walls, abutments and embankment	110	635	-64	0	3								49	49	49															
7	Extend subway	113	635	-64	0	3											52	52													
10	Install concrete parapets and planters	106	635	-64	0	3													45												
6	Demolish existing structures	112	635	-64	0	3														50											
13	Pavement construction	104	635	-64	0	3															43	43									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	760	-66	-10	3															38	38									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	670	-65	-10	3																						39	39	39	39
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	820	-66	-10	3																									
2	Box culvert	109	820	-66	-10	3																									
3	Retaining wall construction & associated works	115	820	-66	-10	3																									
4	Road embankment	110	820	-66	-10	3	37	37	37	37																					
5	Road drainage, utilities & water mains works	110	820	-66	-10	3					36	36	36	36	36	36															
6	Pavement construction	112	820	-66	-10	3											38	38	38	38	38	38									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	490	-62	-10	3		38	38	38																					
5	Road drainage, utilities & water mains works	107	490	-62	-10	3					38	38	38																		
6	Pavement construction	104	490	-62	-10	3								35	35	35	35														
	Predicted Noise Level during Daytime Period, dB(A)						65	65	65	66	66	66	68	68	67	67	67	67	67	67	62	62	54	54	54	54	54	49	49	39	39	68
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						65	65	65	66	66	66	68	68	67	67	67	67	67	67	62	62	54	54	54	54	54	49	49	39	39	68

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-14

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: V6 Village house at Hoover Garden

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	480	-62	0	3	49	49	49																						
3	Piling	115	480	-62	0	3				56	56	56	56	56	56																
4	Road drainage, utilities & water mains works	110	480	-62	0	3										52	52														
8	Construct pilecaps and piers	111	480	-62	0	3												53	53	53	53	53									
9	Construct flyover	109	480	-62	0	3																	51	51	51						
10	Install concrete parapets and planters	106	480	-62	0	3																				48	48				
13	Pavement construction	104	480	-62	0	3																						45	45		
II	**Slip Road A**																														
1	Site clearance	108	180	-53	0	3										58	58														
2	Site formation	109	180	-53	0	3												59	59	59											
4	Road drainage, utilities & water mains works	110	180	-53	0	3															60	60									
5	Construct retaining walls, abutments and embankment	110	180	-53	0	3																	60	60	60	60	60				
13	Pavement construction	104	180	-53	0	3																						54	54		
III	**Slip Road B**																														
1	Site clearance	108	620	-64	0	3										47	47														
2	Site formation	109	620	-64	0	3												48	48	48											
4	Road drainage, utilities & water mains works	110	620	-64	0	3															50	50									
5	Construct retaining walls, abutments and embankment	110	620	-64	0	3																	49	49	49	49	49				
13	Pavement construction	104	620	-64	0	3																						43	43		
IV	**Slip Road C**																														
1	Site clearance	108	180	-53	0	3	58	58	58																						
2	Site formation	109	180	-53	0	3				59	59	59																			
4	Road drainage, utilities & water mains works	110	180	-53	0	3							60	60																	
5	Construct retaining walls, abutments and embankment	110	180	-53	0	3									60	60	60	60	60	60											
13	Pavement construction	104	180	-53	0	3															54	54									
V	**Left-turn Lane A**																														
1	Site clearance	108	600	-64	0	3	47	47	47																						
2	Site formation	109	600	-64	0	3				48	48																				
4	Road drainage, utilities & water mains works	110	600	-64	0	3						50	50																		
5	Construct retaining walls, abutments and embankment	110	600	-64	0	3								49	49	49															
7	Extend subway	113	600	-64	0	3											53	53													
10	Install concrete parapets and planters	106	600	-64	0	3													46												
6	Demolish existing structures	112	600	-64	0	3														51											
13	Pavement construction	104	600	-64	0	3															43	43									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	710	-65	0	3															49	49									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	600	-64	0	3																						50	50	50	50
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	810	-66	0	3																									
2	Box culvert	109	810	-66	0	3																									
3	Retaining wall construction & associated works	115	810	-66	0	3																									
4	Road embankment	110	810	-66	0	3	47	47	47	47																					
5	Road drainage, utilities & water mains works	110	810	-66	0	3					47	47	47	47	47	47															
6	Pavement construction	112	810	-66	0	3											48	48	48	48	48	48									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	425	-61	0	3		50	50	50																					
5	Road drainage, utilities & water mains works	107	425	-61	0	3					49	49	49																		
6	Pavement construction	104	425	-61	0	3								46	46	46	46														
	Predicted Noise Level during Daytime Period, dB(A)						59	59	59	61	61	61	62	62	61	63	63	63	63	63	62	62	60	60	60	60	60	56	56	50	50	63
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						59	60	60	61	61	61	62	62	62	63	63	63	63	63	63	63	60	60	60	60	60	56	56	50	50	63

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-15

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: WUT1 178 Wong Uk Tsuen

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	250	-56	0	3	55	55	55																						
3	Piling	115	250	-56	0	3				62	62	62	62	62	62																
4	Road drainage, utilities & water mains works	110	250	-56	0	3										58	58														
8	Construct pilecaps and piers	111	250	-56	0	3												58	58	58	58	58									
9	Construct flyover	109	250	-56	0	3																	56	56	56						
10	Install concrete parapets and planters	106	250	-56	0	3																				54	54				
13	Pavement construction	104	250	-56	0	3																						51	51		
II	**Slip Road A**																														
1	Site clearance	108	390	-60	0	3										51	51														
2	Site formation	109	390	-60	0	3												52	52	52											
4	Road drainage, utilities & water mains works	110	390	-60	0	3															54	54									
5	Construct retaining walls, abutments and embankment	110	390	-60	0	3																	53	53	53	53	53				
13	Pavement construction	104	390	-60	0	3																						47	47		
III	**Slip Road B**																														
1	Site clearance	108	120	-50	-10	3										51	51														
2	Site formation	109	120	-50	-10	3												52	52	52											
4	Road drainage, utilities & water mains works	110	120	-50	-10	3															54	54									
5	Construct retaining walls, abutments and embankment	110	120	-50	-10	3																	53	53	53	53	53				
13	Pavement construction	104	120	-50	-10	3																						47	47		
IV	**Slip Road C**																														
1	Site clearance	108	635	-64	0	3	47	47	47																						
2	Site formation	109	635	-64	0	3				48	48	48																			
4	Road drainage, utilities & water mains works	110	635	-64	0	3							49	49																	
5	Construct retaining walls, abutments and embankment	110	635	-64	0	3									49	49	49	49	49	49											
13	Pavement construction	104	635	-64	0	3															43	43									
V	**Left-turn Lane A**																														
1	Site clearance	108	165	-52	0	3	59	59	59																						
2	Site formation	109	165	-52	0	3				60	60																				
4	Road drainage, utilities & water mains works	110	165	-52	0	3						61	61																		
5	Construct retaining walls, abutments and embankment	110	165	-52	0	3								60	60	60															
7	Extend subway	113	165	-52	0	3											64	64													
10	Install concrete parapets and planters	106	165	-52	0	3													57												
6	Demolish existing structures	112	165	-52	0	3														62											
13	Pavement construction	104	165	-52	0	3															55	55									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	50	-42	-10	3															62	62									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	12	-30	-10	3																						74	74	74	74
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	45	-41	0	3																									
2	Box culvert	109	45	-41	0	3																									
3	Retaining wall construction & associated works	115	45	-41	0	3																									
4	Road embankment	110	45	-41	0	3	72	72	72	72																					
5	Road drainage, utilities & water mains works	110	45	-41	0	3					72	72	72	72	72	72															
6	Pavement construction	112	45	-41	0	3											73	73	73	73	73	73									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	350	-59	0	3		51	51	51																					
5	Road drainage, utilities & water mains works	107	350	-59	0	3					51	51	51																		
6	Pavement construction	104	350	-59	0	3								48	48	48	48														
	Predicted Noise Level during Daytime Period, dB(A)						60	60	60	64	64	64	65	64	64	63	65	66	62	64	65	65	59	59	59	58	58	74	74	74	74	74
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						73	73	73	73	72	72	72	72	72	72	74	74	74	74	74	74	59	59	59	58	58	74	74	74	74	74

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-16

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 1 - Precast Segmental Balanced Cantilever Box Girder)

NSR: YT1 Block 2, YOHO Town

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	250	-56	0	3	55	55	55																						
3	Piling	115	250	-56	0	3				62	62	62	62	62	62																
4	Road drainage, utilities & water mains works	110	250	-56	0	3										58	58														
8	Construct pilecaps and piers	111	250	-56	0	3												58	58	58	58	58									
9	Construct flyover	109	250	-56	0	3																	56	56	56						
10	Install concrete parapets and planters	106	250	-56	0	3																				54	54				
13	Pavement construction	104	250	-56	0	3																						51	51		
II	**Slip Road A**																														
1	Site clearance	108	175	-53	0	3										58	58														
2	Site formation	109	175	-53	0	3												59	59	59											
4	Road drainage, utilities & water mains works	110	175	-53	0	3															61	61									
5	Construct retaining walls, abutments and embankment	110	175	-53	0	3																	60	60	60	60	60				
13	Pavement construction	104	175	-53	0	3																						54	54		
III	**Slip Road B**																														
1	Site clearance	108	365	-59	0	3										52	52														
2	Site formation	109	365	-59	0	3												53	53	53											
4	Road drainage, utilities & water mains works	110	365	-59	0	3															54	54									
5	Construct retaining walls, abutments and embankment	110	365	-59	0	3																	53	53	53	53	53				
13	Pavement construction	104	365	-59	0	3																						48	48		
IV	**Slip Road C**																														
1	Site clearance	108	280	-57	0	3	54	54	54																						
2	Site formation	109	280	-57	0	3				55	55	55																			
4	Road drainage, utilities & water mains works	110	280	-57	0	3							57	57																	
5	Construct retaining walls, abutments and embankment	110	280	-57	0	3									56	56	56	56	56	56											
13	Pavement construction	104	280	-57	0	3															50	50									
V	**Left-turn Lane A**																														
1	Site clearance	108	375	-59	0	3	52	52	52																						
2	Site formation	109	375	-59	0	3				53	53																				
4	Road drainage, utilities & water mains works	110	375	-59	0	3						54	54																		
5	Construct retaining walls, abutments and embankment	110	375	-59	0	3								53	53	53															
7	Extend subway	113	375	-59	0	3											57	57													
10	Install concrete parapets and planters	106	375	-59	0	3													50												
6	Demolish existing structures	112	375	-59	0	3														55											
13	Pavement construction	104	375	-59	0	3															48	48									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	460	-61	0	3															53	53									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	345	-59	0	3																						55	55	55	55
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	530	-62	0	3																									
2	Box culvert	109	530	-62	0	3																									
3	Retaining wall construction & associated works	115	530	-62	0	3																									
4	Road embankment	110	530	-62	0	3	51	51	51	51																					
5	Road drainage, utilities & water mains works	110	530	-62	0	3					50	50	50	50	50	50															
6	Pavement construction	112	530	-62	0	3											52	52	52	52	52	52									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	220	-55	0	3		55	55	55																					
5	Road drainage, utilities & water mains works	107	220	-55	0	3					55	55	55																		
6	Pavement construction	104	220	-55	0	3								52	52	52	52														
	Predicted Noise Level during Daytime Period, dB(A)						59	59	59	63	63	63	63	63	63	63	64	64	63	64	64	64	62	62	62	62	62	59	59	55	55	64
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						59	61	61	64	64	64	64	63	63	63	64	64	64	64	64	64	62	62	62	62	62	59	59	55	55	64

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-17 Summary of Predicted Noise Levels during Daytime Period (With Mitigation)
(Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

		Predicted Construction Noise Level (dB(A))																								Max. CNL dB(A)
		2009	2010												2011											
	NSR Location	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
JCCAH1	Jockey Club Care & Attention Home – western facade	67	67	67	69	69	70	70	70	70	69	72	72	68	71	69	69	65	65	65	65	65	63	63	62	62	72
JCCAH2	Jockey Club Care & Attention Home – southern facade	67	67	67	69	69	70	70	70	70	69	72	72	67	71	66	66	63	63	63	63	63	59	59	56	56	72
KMYLS1	Kwong Ming Ying Loi School	63	63	63	69	69	69	69	69	69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	61	61	70
KMYLS2	Kwong Ming Ying Loi School	63	63	63	64	64	64	65	65	65	68	68	69	69	69	68	68	69	69	69	69	69	69	69	50	50	69
STNV1	Small Traders New Village	60	60	60	63	63	64	64	64	64	63	65	65	61	64	75	75	59	59	59	59	59	63	63	62	62	75
V1	Village house facing slip road (south bound) of Yuen Long Highway -	63	63	63	67	67	67	67	67	67	67	68	68	67	68	67	67	66	66	66	66	66	62	62	59	59	68
V2	Village house facing slip road (south bound) of Yuen Long Highway -	64	64	64	67	67	68	68	68	68	68	69	69	69	69	69	69	68	68	68	68	68	63	63	59	59	69
V3	Village house at Chuk San Tsuen	65	65	65	66	66	66	68	68	67	67	67	67	67	67	62	62	55	55	55	55	55	50	50	46	46	68
V6	Village house at Hoover Garden	59	59	59	61	61	61	62	62	61	63	63	63	63	63	62	62	61	61	61	61	61	56	56	52	52	63
WUT1	178 Wong Uk Tsuen	60	60	60	64	64	64	65	64	64	63	65	66	62	64	65	65	60	60	60	60	60	74	74	74	74	74
YT1	Block 2, YOHO Town	59	59	59	63	63	63	63	63	63	63	64	64	63	64	64	64	63	63	63	63	63	59	59	57	57	64

Annex C10-18 Summary of Predicted Cumulative Noise Levels during Daytime Period (With Mitigation)
(Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

		Predicted Cumulative Construction Noise Level (dB(A))																								Max. CNL
		2009	2010												2011											
	NSR Location	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	dB(A)
JCCAH1	Jockey Club Care & Attention Home – western facade	67	68	68	70	70	71	71	70	70	70	73	73	68	71	69	69	65	65	65	65	65	63	63	62	62	73
JCCAH2	Jockey Club Care & Attention Home – southern facade	67	68	68	70	70	70	70	70	70	69	72	72	68	71	67	67	63	63	63	63	63	59	59	56	56	72
KMYLS1	Kwong Ming Ying Loi School	64	68	68	70	70	70	70	69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	61	61	70
KMYLS2	Kwong Ming Ying Loi School	63	63	63	64	64	64	66	65	65	68	68	69	69	69	68	68	69	69	69	69	69	69	69	50	50	69
STNV1	Small Traders New Village	65	66	66	67	66	67	67	66	66	66	68	68	67	67	75	75	59	59	59	59	59	63	63	62	62	75
V1	Village house facing slip road (south bound) of Yuen Long Highway -	63	64	64	67	67	67	68	67	67	67	68	68	67	68	67	67	66	66	66	66	66	62	62	59	59	68
V2	Village house facing slip road (south bound) of Yuen Long Highway -	66	66	66	69	69	69	69	69	69	69	70	70	70	70	70	70	68	68	68	68	68	63	63	59	59	70
V3	Village house at Chuk San Tsuen	65	65	65	66	66	66	68	68	67	67	67	67	67	67	62	62	55	55	55	55	55	50	50	46	46	68
V6	Village house at Hoover Garden	59	60	60	61	61	61	62	62	62	63	63	63	63	63	63	63	61	61	61	61	61	56	56	52	52	63
WUT1	178 Wong Uk Tsuen	73	73	73	73	72	72	72	72	72	72	74	74	74	74	74	74	60	60	60	60	60	74	74	74	74	74
YT1	Block 2, YOHO Town	59	61	61	64	64	64	64	63	63	63	64	64	64	64	64	64	63	63	63	63	63	59	59	57	57	64

Annex C10-19

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: JCCAH1 Jockey Club Care & Attention Home – western facade

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																							Max. CNL dB(A)
							2009	2010											2011											
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	165	-52	0	3	59	59	59																						
3	Piling	115	165	-52	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	110	165	-52	0	3										61	61														
8	Construct pilecaps and piers	111	165	-52	0	3												62	62	62	62	62									
9	Construct flyover	111	165	-52	0	3																	62	62	62	62	62				
10	Install concrete parapets and planters	106	165	-52	0	3																						57	57		
13	Pavement construction	104	165	-52	0	3																								55	55
II	**Slip Road A**																														
1	Site clearance	108	215	-55	0	3										56	56														
2	Site formation	109	215	-55	0	3												57	57	57											
4	Road drainage, utilities & water mains works	110	215	-55	0	3															59	59									
5	Construct retaining walls, abutments and embankment	110	215	-55	0	3																	58	58	58	58	58				
13	Pavement construction	104	215	-55	0	3																						52	52		
III	**Slip Road B**																														
1	Site clearance	108	160	-52	0	3										59	59														
2	Site formation	109	160	-52	0	3												60	60	60											
4	Road drainage, utilities & water mains works	110	160	-52	0	3															61	61									
5	Construct retaining walls, abutments and embankment	110	160	-52	0	3																	61	61	61	61	61				
13	Pavement construction	104	160	-52	0	3																						55	55		
IV	**Slip Road C**																														
1	Site clearance	108	415	-60	0	3	51	51	51																						
2	Site formation	109	415	-60	0	3				52	52	52																			
4	Road drainage, utilities & water mains works	110	415	-60	0	3							53	53																	
5	Construct retaining walls, abutments and embankment	110	415	-60	0	3									52	52	52	52	52	52											
13	Pavement construction	104	415	-60	0	3															47	47									
V	**Left-turn Lane A**																														
1	Site clearance	108	70	-45	0	3	66	66	66																						
2	Site formation	109	70	-45	0	3				67	67																				
4	Road drainage, utilities & water mains works	110	70	-45	0	3						69	69																		
5	Construct retaining walls, abutments and embankment	110	70	-45	0	3								68	68	68															
7	Extend subway	113	70	-45	0	3											72	72													
10	Install concrete parapets and planters	106	70	-45	0	3													65												
6	Demolish existing structures	112	70	-45	0	3														70											
13	Pavement construction	104	70	-45	0	3															62	62									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	140	-51	0	3															63	63									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	180	-53	0	3																						61	61	61	61
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	250	-56	0	3																									
2	Box culvert	109	250	-56	0	3																									
3	Retaining wall construction & associated works	115	250	-56	0	3																									
4	Road embankment	110	250	-56	0	3	58	58	58	58																					
5	Road drainage, utilities & water mains works	110	250	-56	0	3					57	57	57	57	57	57															
6	Pavement construction	112	250	-56	0	3											59	59	59	59	59	59									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	210	-54	0	3		56	56	56																					
5	Road drainage, utilities & water mains works	107	210	-54	0	3					55	55	55																		
6	Pavement construction	104	210	-54	0	3								53	53	53	53														
	Predicted Noise Level during Daytime Period, dB(A)						67	67	67	69	69	70	70	70	70	69	72	72	68	71	69	69	65	65	65	65	65	63	63	62	62	72
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						67	68	68	70	70	71	71	70	70	70	73	73	68	71	69	69	65	65	65	65	65	63	63	62	62	73

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-20

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: JCCAH2 Jockey Club Care & Attention Home – southern facade

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	175	-53	0	3	58	58	58																						
3	Piling	115	175	-53	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	110	175	-53	0	3										61	61														
8	Construct pilecaps and piers	111	175	-53	0	3												61	61	61	61	61									
9	Construct flyover	111	175	-53	0	3																	61	61	61	61	61				
10	Install concrete parapets and planters	106	175	-53	0	3																						57	57		
13	Pavement construction	104	175	-53	0	3																								54	54
II	**Slip Road A**																														
1	Site clearance	108	220	-55	0	3										56	56														
2	Site formation	109	220	-55	0	3												57	57	57											
4	Road drainage, utilities & water mains works	110	220	-55	0	3															59	59									
5	Construct retaining walls, abutments and embankment	110	220	-55	0	3																	58	58	58	58	58				
13	Pavement construction	104	220	-55	0	3																						52	52		
III	**Slip Road B**																														
1	Site clearance	108	170	-53	-10	3										48	48														
2	Site formation	109	170	-53	-10	3												49	49	49											
4	Road drainage, utilities & water mains works	110	170	-53	-10	3															51	51									
5	Construct retaining walls, abutments and embankment	110	170	-53	-10	3																	50	50	50	50	50				
13	Pavement construction	104	170	-53	-10	3																						44	44		
IV	**Slip Road C**																														
1	Site clearance	108	405	-60	0	3	51	51	51																						
2	Site formation	109	405	-60	0	3				52	52	52																			
4	Road drainage, utilities & water mains works	110	405	-60	0	3							53	53																	
5	Construct retaining walls, abutments and embankment	110	405	-60	0	3									53	53	53	53	53	53											
13	Pavement construction	104	405	-60	0	3															47	47									
V	**Left-turn Lane A**																														
1	Site clearance	108	70	-45	0	3	66	66	66																						
2	Site formation	109	70	-45	0	3				67	67																				
4	Road drainage, utilities & water mains works	110	70	-45	0	3						69	69																		
5	Construct retaining walls, abutments and embankment	110	70	-45	0	3								68	68	68															
7	Extend subway	113	70	-45	0	3											72	72													
10	Install concrete parapets and planters	106	70	-45	0	3													65												
6	Demolish existing structures	112	70	-45	0	3														70											
13	Pavement construction	104	70	-45	0	3															62	62									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	150	-52	-10	3															52	52									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	190	-54	-10	3																						50	50	50	50
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	260	-56	0	3																									
2	Box culvert	109	260	-56	0	3																									
3	Retaining wall construction & associated works	115	260	-56	0	3																									
4	Road embankment	110	260	-56	0	3	57	57	57	57																					
5	Road drainage, utilities & water mains works	110	260	-56	0	3					56	56	56	56	56	56															
6	Pavement construction	112	260	-56	0	3											58	58	58	58	58	58									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	215	-55	0	3		55	55	55																					
5	Road drainage, utilities & water mains works	107	215	-55	0	3					55	55	55																		
6	Pavement construction	104	215	-55	0	3								52	52	52	52														
	Predicted Noise Level during Daytime Period, dB(A)						67	67	67	69	69	70	70	70	70	69	72	72	67	71	66	66	63	63	63	63	63	59	59	56	56	72
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						67	68	68	70	70	70	70	70	70	69	72	72	68	71	67	67	63	63	63	63	63	59	59	56	56	72

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-21

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: KMYLS1 Kwong Ming Ying Loi School

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	115	-49	0	3	62	62	62																						
3	Piling	115	115	-49	0	3				68	68	68	68	68	68																
4	Road drainage, utilities & water mains works	110	115	-49	0	3										64	64														
8	Construct pilecaps and piers	111	115	-49	0	3												65	65	65	65	65									
9	Construct flyover	111	115	-49	0	3																	65	65	65	65	65				
10	Install concrete parapets and planters	106	115	-49	0	3																						60	60		
13	Pavement construction	104	115	-49	0	3																								58	58
II	**Slip Road A**																														
1	Site clearance	103	40	-40	0	3										66	66														
2	Site formation	104	40	-40	0	3												67	67	67											
4	Road drainage, utilities & water mains works	104	40	-40	0	3															67	67									
5	Construct retaining walls, abutments and embankment	106	40	-40	0	3																	69	69	69	69	69				
13	Pavement construction	106	40	-40	0	3																						69	69		
III	**Slip Road B**																														
1	Site clearance	108	255	-56	0	3										55	55														
2	Site formation	109	255	-56	0	3												56	56	56											
4	Road drainage, utilities & water mains works	110	255	-56	0	3															57	57									
5	Construct retaining walls, abutments and embankment	110	255	-56	0	3																	57	57	57	57	57				
13	Pavement construction	104	255	-56	0	3																						51	51		
IV	**Slip Road C**																														
1	Site clearance	108	130	-50	-10	3	51	51	51																						
2	Site formation	109	130	-50	-10	3				52	52	52																			
4	Road drainage, utilities & water mains works	110	130	-50	-10	3							53	53																	
5	Construct retaining walls, abutments and embankment	110	130	-50	-10	3									52	52	52	52	52	52											
13	Pavement construction	104	130	-50	-10	3															47	47									
V	**Left-turn Lane A**																														
1	Site clearance	108	220	-55	0	3	56	56	56																						
2	Site formation	109	220	-55	0	3				57	57																				
4	Road drainage, utilities & water mains works	110	220	-55	0	3						59	59																		
5	Construct retaining walls, abutments and embankment	110	220	-55	0	3								58	58	58															
7	Extend subway	113	220	-55	0	3											62	62													
10	Install concrete parapets and planters	106	220	-55	0	3													55												
6	Demolish existing structures	112	220	-55	0	3														60											
13	Pavement construction	104	220	-55	0	3															52	52									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	330	-58	0	3															56	56									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	250	-56	0	3																						58	58	58	58
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	360	-59	0	3																									
2	Box culvert	109	360	-59	0	3																									
3	Retaining wall construction & associated works	115	360	-59	0	3																									
4	Road embankment	110	360	-59	0	3	54	54	54	54																					
5	Road drainage, utilities & water mains works	110	360	-59	0	3					54	54	54	54	54	54															
6	Pavement construction	112	360	-59	0	3											55	55	55	55	55	55									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	70	-45	0	3		65	65	65																					
5	Road drainage, utilities & water mains works	107	70	-45	0	3					65	65	65																		
6	Pavement construction	104	70	-45	0	3								62	62	62	62														
	Predicted Noise Level during Daytime Period, dB(A)						63	63	63	69	69	69	69	69	69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	61	61	70
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						64	68	68	70	70	70	70	69	69	69	70	70	70	70	70	70	70	70	70	70	70	70	70	61	61	70

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-22

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: KMYLS2 Kwong Ming Ying Loi School

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	135	-51	-10	3	50	50	50																						
3	Piling	115	135	-51	-10	3				57	57	57	57	57	57																
4	Road drainage, utilities & water mains works	110	135	-51	-10	3										53	53														
8	Construct pilecaps and piers	111	135	-51	-10	3												54	54	54	54	54									
9	Construct flyover	111	135	-51	-10	3																	54	54	54	54	54				
10	Install concrete parapets and planters	106	135	-51	-10	3																						49	49		
13	Pavement construction	104	135	-51	-10	3																								46	46
II	**Slip Road A**																														
1	Site clearance	103	40	-40	0	3										66	66														
2	Site formation	104	40	-40	0	3												67	67	67											
4	Road drainage, utilities & water mains works	104	40	-40	0	3															67	67									
5	Construct retaining walls, abutments and embankment	106	40	-40	0	3																	69	69	69	69	69				
13	Pavement construction	106	40	-40	0	3																						69	69		
III	**Slip Road B**																														
1	Site clearance	108	270	-57	-10	3										44	44														
2	Site formation	109	270	-57	-10	3												45	45	45											
4	Road drainage, utilities & water mains works	110	270	-57	-10	3															47	47									
5	Construct retaining walls, abutments and embankment	110	270	-57	-10	3																	46	46	46	46	46				
13	Pavement construction	104	270	-57	-10	3																						40	40		
IV	**Slip Road C**																														
1	Site clearance	108	110	-49	0	3	62	62	62																						
2	Site formation	109	110	-49	0	3				63	63	63																			
4	Road drainage, utilities & water mains works	110	110	-49	0	3							65	65																	
5	Construct retaining walls, abutments and embankment	110	110	-49	0	3									64	64	64	64	64	64											
13	Pavement construction	104	110	-49	0	3															58	58									
V	**Left-turn Lane A**																														
1	Site clearance	108	250	-56	-10	3	45	45	45																						
2	Site formation	109	250	-56	-10	3				46	46																				
4	Road drainage, utilities & water mains works	110	250	-56	-10	3						48	48																		
5	Construct retaining walls, abutments and embankment	110	250	-56	-10	3								47	47	47															
7	Extend subway	113	250	-56	-10	3											51	51													
10	Install concrete parapets and planters	106	250	-56	-10	3													44												
6	Demolish existing structures	112	250	-56	-10	3														49											
13	Pavement construction	104	250	-56	-10	3															41	41									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	350	-59	-10	3															45	45									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	280	-57	-10	3																						47	47	47	47
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	400	-60	-10	3																									
2	Box culvert	109	400	-60	-10	3																									
3	Retaining wall construction & associated works	115	400	-60	-10	3																									
4	Road embankment	110	400	-60	-10	3	43	43	43	43																					
5	Road drainage, utilities & water mains works	110	400	-60	-10	3					43	43	43	43	43	43															
6	Pavement construction	112	400	-60	-10	3											45	45	45	45	45	45									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	100	-48	-10	3		52	52	52																					
5	Road drainage, utilities & water mains works	107	100	-48	-10	3					52	52	52																		
6	Pavement construction	104	100	-48	-10	3								49	49	49	49														
	Predicted Noise Level during Daytime Period, dB(A)						63	63	63	64	64	64	65	65	65	68	68	69	69	69	68	68	69	69	69	69	69	69	69	50	50	69
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						63	63	63	64	64	64	66	65	65	68	68	69	69	69	68	68	69	69	69	69	69	69	69	50	50	69

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-23

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: STNV1 Small Traders New Village

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	270	-57	0	3	54	54	54																						
3	Piling	115	270	-57	0	3				61	61	61	61	61	61																
4	Road drainage, utilities & water mains works	110	270	-57	0	3										57	57														
8	Construct pilecaps and piers	111	270	-57	0	3												58	58	58	58	58									
9	Construct flyover	111	270	-57	0	3																	58	58	58	58	58				
10	Install concrete parapets and planters	106	270	-57	0	3																						53	53		
13	Pavement construction	104	270	-57	0	3																								50	50
II	**Slip Road A**																														
1	Site clearance	108	400	-60	0	3										51	51														
2	Site formation	109	400	-60	0	3												52	52	52											
4	Road drainage, utilities & water mains works	110	400	-60	0	3															53	53									
5	Construct retaining walls, abutments and embankment	110	400	-60	0	3																	53	53	53	53	53				
13	Pavement construction	104	400	-60	0	3																						47	47		
III	**Slip Road B**																														
1	Site clearance	108	155	-52	-10	3										49	49														
2	Site formation	109	155	-52	-10	3												50	50	50											
4	Road drainage, utilities & water mains works	110	155	-52	-10	3															52	52									
5	Construct retaining walls, abutments and embankment	110	155	-52	-10	3																	51	51	51	51	51				
13	Pavement construction	104	155	-52	-10	3																						45	45		
IV	**Slip Road C**																														
1	Site clearance	108	640	-64	0	3	47	47	47																						
2	Site formation	109	640	-64	0	3				48	48	48																			
4	Road drainage, utilities & water mains works	110	640	-64	0	3							49	49																	
5	Construct retaining walls, abutments and embankment	110	640	-64	0	3									49	49	49	49	49	49											
13	Pavement construction	104	640	-64	0	3															43	43									
V	**Left-turn Lane A**																														
1	Site clearance	108	170	-53	0	3	58	58	58																						
2	Site formation	109	170	-53	0	3				59	59																				
4	Road drainage, utilities & water mains works	110	170	-53	0	3						61	61																		
5	Construct retaining walls, abutments and embankment	110	170	-53	0	3								60	60	60															
7	Extend subway	113	170	-53	0	3											64	64													
10	Install concrete parapets and planters	106	170	-53	0	3													57												
6	Demolish existing structures	112	170	-53	0	3														62											
13	Pavement construction	104	170	-53	0	3															54	54									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	12	-30	-10	3															74	74									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	50	-42	-10	3																						62	62	62	62
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	120	-50	0	3																									
2	Box culvert	109	120	-50	0	3																									
3	Retaining wall construction & associated works	115	120	-50	0	3																									
4	Road embankment	110	120	-50	0	3	64	64	64	64																					
5	Road drainage, utilities & water mains works	110	120	-50	0	3					63	63	63	63	63	63															
6	Pavement construction	112	120	-50	0	3											65	65	65	65	65	65									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	365	-59	0	3		51	51	51																					
5	Road drainage, utilities & water mains works	107	365	-59	0	3					50	50	50																		
6	Pavement construction	104	365	-59	0	3								48	48	48	48														
	Predicted Noise Level during Daytime Period, dB(A)						60	60	60	63	63	64	64	64	64	63	65	65	61	64	75	75	59	59	59	59	59	63	63	62	62	75
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						65	66	66	67	66	67	67	66	66	66	68	68	67	67	75	75	59	59	59	59	59	63	63	62	62	75

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-24

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: V1 Village house facing slip road (south bound) of Yuen Long Highway - south of POI

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	170	-53	0	3	58	58	58																						
3	Piling	115	170	-53	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	110	170	-53	0	3										61	61														
8	Construct pilecaps and piers	111	170	-53	0	3												62	62	62	62	62									
9	Construct flyover	111	170	-53	0	3																	62	62	62	62	62				
10	Install concrete parapets and planters	106	170	-53	0	3																						57	57		
13	Pavement construction	104	170	-53	0	3																								54	54
II	**Slip Road A**																														
1	Site clearance	108	120	-50	0	3										61	61														
2	Site formation	109	120	-50	0	3												62	62	62											
4	Road drainage, utilities & water mains works	110	120	-50	0	3															64	64									
5	Construct retaining walls, abutments and embankment	110	120	-50	0	3																	63	63	63	63	63				
13	Pavement construction	104	120	-50	0	3																						57	57		
III	**Slip Road B**																														
1	Site clearance	108	290	-57	0	3										54	54														
2	Site formation	109	290	-57	0	3												55	55	55											
4	Road drainage, utilities & water mains works	110	290	-57	0	3															56	56									
5	Construct retaining walls, abutments and embankment	110	290	-57	0	3																	55	55	55	55	55				
13	Pavement construction	104	290	-57	0	3																						50	50		
IV	**Slip Road C**																														
1	Site clearance	108	160	-52	0	3	59	59	59																						
2	Site formation	109	160	-52	0	3				60	60	60																			
4	Road drainage, utilities & water mains works	110	160	-52	0	3							61	61																	
5	Construct retaining walls, abutments and embankment	110	160	-52	0	3									61	61	61	61	61	61											
13	Pavement construction	104	160	-52	0	3															55	55									
V	**Left-turn Lane A**																														
1	Site clearance	108	210	-54	0	3	57	57	57																						
2	Site formation	109	210	-54	0	3				58	58																				
4	Road drainage, utilities & water mains works	110	210	-54	0	3						59	59																		
5	Construct retaining walls, abutments and embankment	110	210	-54	0	3								58	58	58															
7	Extend subway	113	210	-54	0	3											62	62													
10	Install concrete parapets and planters	106	210	-54	0	3													55												
6	Demolish existing structures	112	210	-54	0	3														60											
13	Pavement construction	104	210	-54	0	3															53	53									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	345	-59	0	3															55	55									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	300	-58	0	3																						56	56	56	56
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	450	-61	0	3																									
2	Box culvert	109	450	-61	0	3																									
3	Retaining wall construction & associated works	115	450	-61	0	3																									
4	Road embankment	110	450	-61	0	3	52	52	52	52																					
5	Road drainage, utilities & water mains works	110	450	-61	0	3					52	52	52	52	52	52															
6	Pavement construction	112	450	-61	0	3											53	53	53	53	53	53									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	170	-53	0	3		58	58	58																					
5	Road drainage, utilities & water mains works	107	170	-53	0	3					57	57	57																		
6	Pavement construction	104	170	-53	0	3								54	54	54	54														
	Predicted Noise Level during Daytime Period, dB(A)						63	63	63	67	67	67	67	67	67	67	68	68	67	68	67	67	66	66	66	66	66	62	62	59	59	68
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						63	64	64	67	67	67	68	67	67	67	68	68	67	68	67	67	66	66	66	66	66	62	62	59	59	68

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-25

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: V2 Village house facing slip road (south bound) of Yuen Long Highway - south of POI

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	165	-52	0	3	59	59	59																						
3	Piling	115	165	-52	0	3				65	65	65	65	65	65																
4	Road drainage, utilities & water mains works	110	165	-52	0	3										61	61														
8	Construct pilecaps and piers	111	165	-52	0	3												62	62	62	62	62									
9	Construct flyover	111	165	-52	0	3																	62	62	62	62	62				
10	Install concrete parapets and planters	106	165	-52	0	3																						57	57		
13	Pavement construction	104	165	-52	0	3																								55	55
II	**Slip Road A**																														
1	Site clearance	108	85	-47	0	3										64	64														
2	Site formation	109	85	-47	0	3												65	65	65											
4	Road drainage, utilities & water mains works	110	85	-47	0	3															67	67									
5	Construct retaining walls, abutments and embankment	110	85	-47	0	3																	66	66	66	66	66				
13	Pavement construction	104	85	-47	0	3																						60	60		
III	**Slip Road B**																														
1	Site clearance	108	300	-58	0	3										53	53														
2	Site formation	109	300	-58	0	3												54	54	54											
4	Road drainage, utilities & water mains works	110	300	-58	0	3															56	56									
5	Construct retaining walls, abutments and embankment	110	300	-58	0	3																	55	55	55	55	55				
13	Pavement construction	104	300	-58	0	3																						49	49		
IV	**Slip Road C**																														
1	Site clearance	108	120	-50	0	3	61	61	61																						
2	Site formation	109	120	-50	0	3				62	62	62																			
4	Road drainage, utilities & water mains works	110	120	-50	0	3							64	64																	
5	Construct retaining walls, abutments and embankment	110	120	-50	0	3									63	63	63	63	63	63											
13	Pavement construction	104	120	-50	0	3															57	57									
V	**Left-turn Lane A**																														
1	Site clearance	108	235	-55	0	3	56	56	56																						
2	Site formation	109	235	-55	0	3				57	57																				
4	Road drainage, utilities & water mains works	110	235	-55	0	3						58	58																		
5	Construct retaining walls, abutments and embankment	110	235	-55	0	3								57	57	57															
7	Extend subway	113	235	-55	0	3											61	61													
10	Install concrete parapets and planters	106	235	-55	0	3													54												
6	Demolish existing structures	112	235	-55	0	3														59											
13	Pavement construction	104	235	-55	0	3															52	52									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	370	-59	0	3															55	55									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	300	-58	0	3																						56	56	56	56
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	150	-52	0	3																									
2	Box culvert	109	150	-52	0	3																									
3	Retaining wall construction & associated works	115	150	-52	0	3																									
4	Road embankment	110	150	-52	0	3	62	62	62	62																					
5	Road drainage, utilities & water mains works	110	150	-52	0	3					61	61	61	61	61	61															
6	Pavement construction	112	150	-52	0	3											63	63	63	63	63	63									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	210	-54	0	3		56	56	56																					
5	Road drainage, utilities & water mains works	107	210	-54	0	3					55	55	55																		
6	Pavement construction	104	210	-54	0	3								53	53	53	53														
	Predicted Noise Level during Daytime Period, dB(A)						64	64	64	67	67	68	68	68	68	68	69	69	69	69	69	69	68	68	68	68	68	63	63	59	59	69
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						66	66	66	69	69	69	69	69	69	69	70	70	70	70	70	70	68	68	68	68	68	63	63	59	59	70

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-26

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: V3 Village house at Chuk San Tsuen

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	530	-62	0	3	49	49	49																						
3	Piling	115	530	-62	0	3				55	55	55	55	55	55																
4	Road drainage, utilities & water mains works	110	530	-62	0	3										51	51														
8	Construct pilecaps and piers	111	530	-62	0	3												52	52	52	52	52									
9	Construct flyover	111	530	-62	0	3																	52	52	52	52	52				
10	Install concrete parapets and planters	106	530	-62	0	3																						47	47		
13	Pavement construction	104	530	-62	0	3																								45	45
II	**Slip Road A**																														
1	Site clearance	108	130	-50	-10	3										51	51														
2	Site formation	109	130	-50	-10	3												52	52	52											
4	Road drainage, utilities & water mains works	110	130	-50	-10	3															53	53									
5	Construct retaining walls, abutments and embankment	110	130	-50	-10	3																	52	52	52	52	52				
13	Pavement construction	104	130	-50	-10	3																						47	47		
III	**Slip Road B**																														
1	Site clearance	108	680	-65	-10	3										36	36														
2	Site formation	109	680	-65	-10	3												37	37	37											
4	Road drainage, utilities & water mains works	110	680	-65	-10	3															39	39									
5	Construct retaining walls, abutments and embankment	110	680	-65	-10	3																	38	38	38	38	38				
13	Pavement construction	104	680	-65	-10	3																						32	32		
IV	**Slip Road C**																														
1	Site clearance	108	25	-36	-10	3	65	65	65																						
2	Site formation	109	25	-36	-10	3				66	66	66																			
4	Road drainage, utilities & water mains works	110	25	-36	-10	3							68	68																	
5	Construct retaining walls, abutments and embankment	110	25	-36	-10	3									67	67	67	67	67	67											
13	Pavement construction	104	25	-36	-10	3															61	61									
V	**Left-turn Lane A**																														
1	Site clearance	108	635	-64	0	3	47	47	47																						
2	Site formation	109	635	-64	0	3				48	48																				
4	Road drainage, utilities & water mains works	110	635	-64	0	3						49	49																		
5	Construct retaining walls, abutments and embankment	110	635	-64	0	3								49	49	49															
7	Extend subway	113	635	-64	0	3											52	52													
10	Install concrete parapets and planters	106	635	-64	0	3													45												
6	Demolish existing structures	112	635	-64	0	3														50											
13	Pavement construction	104	635	-64	0	3															43	43									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	760	-66	-10	3															38	38									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	670	-65	-10	3																						39	39	39	39
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	820	-66	-10	3																									
2	Box culvert	109	820	-66	-10	3																									
3	Retaining wall construction & associated works	115	820	-66	-10	3																									
4	Road embankment	110	820	-66	-10	3	37	37	37	37																					
5	Road drainage, utilities & water mains works	110	820	-66	-10	3					36	36	36	36	36	36															
6	Pavement construction	112	820	-66	-10	3											38	38	38	38	38	38									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	490	-62	-10	3		38	38	38																					
5	Road drainage, utilities & water mains works	107	490	-62	-10	3					38	38	38																		
6	Pavement construction	104	490	-62	-10	3								35	35	35	35														
	Predicted Noise Level during Daytime Period, dB(A)						65	65	65	66	66	66	68	68	67	67	67	67	67	67	62	62	55	55	55	55	55	50	50	46	46	68
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						65	65	65	66	66	66	68	68	67	67	67	67	67	67	62	62	55	55	55	55	55	50	50	46	46	68

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-27

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: V6 Village house at Hoover Garden

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	480	-62	0	3	49	49	49																						
3	Piling	115	480	-62	0	3				56	56	56	56	56	56																
4	Road drainage, utilities & water mains works	110	480	-62	0	3										52	52														
8	Construct pilecaps and piers	111	480	-62	0	3												53	53	53	53	53									
9	Construct flyover	111	480	-62	0	3																	53	53	53	53	53				
10	Install concrete parapets and planters	106	480	-62	0	3																						48	48		
13	Pavement construction	104	480	-62	0	3																								45	45
II	**Slip Road A**																														
1	Site clearance	108	180	-53	0	3										58	58														
2	Site formation	109	180	-53	0	3												59	59	59											
4	Road drainage, utilities & water mains works	110	180	-53	0	3															60	60									
5	Construct retaining walls, abutments and embankment	110	180	-53	0	3																	60	60	60	60	60				
13	Pavement construction	104	180	-53	0	3																						54	54		
III	**Slip Road B**																														
1	Site clearance	108	620	-64	0	3										47	47														
2	Site formation	109	620	-64	0	3												48	48	48											
4	Road drainage, utilities & water mains works	110	620	-64	0	3															50	50									
5	Construct retaining walls, abutments and embankment	110	620	-64	0	3																	49	49	49	49	49				
13	Pavement construction	104	620	-64	0	3																						43	43		
IV	**Slip Road C**																														
1	Site clearance	108	180	-53	0	3	58	58	58																						
2	Site formation	109	180	-53	0	3				59	59	59																			
4	Road drainage, utilities & water mains works	110	180	-53	0	3							60	60																	
5	Construct retaining walls, abutments and embankment	110	180	-53	0	3									60	60	60	60	60	60											
13	Pavement construction	104	180	-53	0	3															54	54									
V	**Left-turn Lane A**																														
1	Site clearance	108	600	-64	0	3	47	47	47																						
2	Site formation	109	600	-64	0	3				48	48																				
4	Road drainage, utilities & water mains works	110	600	-64	0	3						50	50																		
5	Construct retaining walls, abutments and embankment	110	600	-64	0	3								49	49	49															
7	Extend subway	113	600	-64	0	3											53	53													
10	Install concrete parapets and planters	106	600	-64	0	3													46												
6	Demolish existing structures	112	600	-64	0	3														51											
13	Pavement construction	104	600	-64	0	3															43	43									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	710	-65	0	3															49	49									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	600	-64	0	3																						50	50	50	50
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	810	-66	0	3																									
2	Box culvert	109	810	-66	0	3																									
3	Retaining wall construction & associated works	115	810	-66	0	3																									
4	Road embankment	110	810	-66	0	3	47	47	47	47																					
5	Road drainage, utilities & water mains works	110	810	-66	0	3					47	47	47	47	47	47															
6	Pavement construction	112	810	-66	0	3											48	48	48	48	48	48									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	425	-61	0	3		50	50	50																					
5	Road drainage, utilities & water mains works	107	425	-61	0	3					49	49	49																		
6	Pavement construction	104	425	-61	0	3								46	46	46	46														
	Predicted Noise Level during Daytime Period, dB(A)						59	59	59	61	61	61	62	62	61	63	63	63	63	63	62	62	61	61	61	61	61	56	56	52	52	63
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						59	60	60	61	61	61	62	62	62	63	63	63	63	63	63	63	61	61	61	61	61	56	56	52	52	63

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-28

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: WUT1 178 Wong Uk Tsuen

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011													
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	250	-56	0	3	55	55	55																						
3	Piling	115	250	-56	0	3				62	62	62	62	62	62																
4	Road drainage, utilities & water mains works	110	250	-56	0	3										58	58														
8	Construct pilecaps and piers	111	250	-56	0	3												58	58	58	58	58									
9	Construct flyover	111	250	-56	0	3																	58	58	58	58	58				
10	Install concrete parapets and planters	106	250	-56	0	3																						54	54		
13	Pavement construction	104	250	-56	0	3																								51	51
II	**Slip Road A**																														
1	Site clearance	108	390	-60	0	3										51	51														
2	Site formation	109	390	-60	0	3												52	52	52											
4	Road drainage, utilities & water mains works	110	390	-60	0	3															54	54									
5	Construct retaining walls, abutments and embankment	110	390	-60	0	3																	53	53	53	53	53				
13	Pavement construction	104	390	-60	0	3																						47	47		
III	**Slip Road B**																														
1	Site clearance	108	120	-50	-10	3										51	51														
2	Site formation	109	120	-50	-10	3												52	52	52											
4	Road drainage, utilities & water mains works	110	120	-50	-10	3															54	54									
5	Construct retaining walls, abutments and embankment	110	120	-50	-10	3																	53	53	53	53	53				
13	Pavement construction	104	120	-50	-10	3																						47	47		
IV	**Slip Road C**																														
1	Site clearance	108	635	-64	0	3	47	47	47																						
2	Site formation	109	635	-64	0	3				48	48	48																			
4	Road drainage, utilities & water mains works	110	635	-64	0	3							49	49																	
5	Construct retaining walls, abutments and embankment	110	635	-64	0	3									49	49	49	49	49	49											
13	Pavement construction	104	635	-64	0	3															43	43									
V	**Left-turn Lane A**																														
1	Site clearance	108	165	-52	0	3	59	59	59																						
2	Site formation	109	165	-52	0	3				60	60																				
4	Road drainage, utilities & water mains works	110	165	-52	0	3						61	61																		
5	Construct retaining walls, abutments and embankment	110	165	-52	0	3								60	60	60															
7	Extend subway	113	165	-52	0	3											64	64													
10	Install concrete parapets and planters	106	165	-52	0	3													57												
6	Demolish existing structures	112	165	-52	0	3														62											
13	Pavement construction	104	165	-52	0	3															55	55									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	50	-42	-10	3															62	62									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	12	-30	-10	3																						74	74	74	74
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	45	-41	0	3																									
2	Box culvert	109	45	-41	0	3																									
3	Retaining wall construction & associated works	115	45	-41	0	3																									
4	Road embankment	110	45	-41	0	3	72	72	72	72																					
5	Road drainage, utilities & water mains works	110	45	-41	0	3					72	72	72	72	72	72															
6	Pavement construction	112	45	-41	0	3											73	73	73	73	73	73									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	350	-59	0	3		51	51	51																					
5	Road drainage, utilities & water mains works	107	350	-59	0	3					51	51	51																		
6	Pavement construction	104	350	-59	0	3								48	48	48	48														
	Predicted Noise Level during Daytime Period, dB(A)						60	60	60	64	64	64	65	64	64	63	65	66	62	64	65	65	60	60	60	60	60	74	74	74	74	74
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						73	73	73	73	72	72	72	72	72	72	74	74	74	74	74	74	60	60	60	60	60	74	74	74	74	74

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-29

Construction Noise Assessment (With Mitigation) (Construction Method for Flyover A : Option 2 : Cast In-situ Deck with Conventional Temporary Works)

NSR: YT1 Block 2, YOHO Town

No.	Activity Description	SWL dB(A)[2]	Distance m	Corr. For Distance dB(A)[1][2]	Corr. For Topo dB(A)[3]	Corr. For façade dB(A)	Predicted Construction Noise Level (dB(A))[2]																								Max. CNL dB(A)
							2009	2010											2011												
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
DESIGNATED PROJECT																															
Improvement to Pok Oi Interchange																															
I	**Flyover A**																														
1	Site clearance	108	250	-56	0	3	55	55	55																						
3	Piling	115	250	-56	0	3				62	62	62	62	62	62																
4	Road drainage, utilities & water mains works	110	250	-56	0	3										58	58														
8	Construct pilecaps and piers	111	250	-56	0	3												58	58	58	58	58									
9	Construct flyover	111	250	-56	0	3																	58	58	58	58	58				
10	Install concrete parapets and planters	106	250	-56	0	3																						54	54		
13	Pavement construction	104	250	-56	0	3																								51	51
II	**Slip Road A**																														
1	Site clearance	108	175	-53	0	3										58	58														
2	Site formation	109	175	-53	0	3												59	59	59											
4	Road drainage, utilities & water mains works	110	175	-53	0	3															61	61									
5	Construct retaining walls, abutments and embankment	110	175	-53	0	3																	60	60	60	60	60				
13	Pavement construction	104	175	-53	0	3																						54	54		
III	**Slip Road B**																														
1	Site clearance	108	365	-59	0	3										52	52														
2	Site formation	109	365	-59	0	3												53	53	53											
4	Road drainage, utilities & water mains works	110	365	-59	0	3															54	54									
5	Construct retaining walls, abutments and embankment	110	365	-59	0	3																	53	53	53	53	53				
13	Pavement construction	104	365	-59	0	3																						48	48		
IV	**Slip Road C**																														
1	Site clearance	108	280	-57	0	3	54	54	54																						
2	Site formation	109	280	-57	0	3				55	55	55																			
4	Road drainage, utilities & water mains works	110	280	-57	0	3							57	57																	
5	Construct retaining walls, abutments and embankment	110	280	-57	0	3									56	56	56	56	56	56											
13	Pavement construction	104	280	-57	0	3															50	50									
V	**Left-turn Lane A**																														
1	Site clearance	108	375	-59	0	3	52	52	52																						
2	Site formation	109	375	-59	0	3				53	53																				
4	Road drainage, utilities & water mains works	110	375	-59	0	3						54	54																		
5	Construct retaining walls, abutments and embankment	110	375	-59	0	3								53	53	53															
7	Extend subway	113	375	-59	0	3											57	57													
10	Install concrete parapets and planters	106	375	-59	0	3													50												
6	Demolish existing structures	112	375	-59	0	3														55											
13	Pavement construction	104	375	-59	0	3															48	48									
VI	**Road Resurfacing and Remarking A**																														
11	Road resurfacing and remarking	111	460	-61	0	3															53	53									
VII	**Road Resurfacing and Remarking B**																														
11	Road resurfacing and remarking	111	345	-59	0	3																						55	55	55	55
CONCURRENT PROJECTS																															
Kau Hui Development - Engineering Works in Area 16, Yuen Long Phase 2 - Extension of Road L3																															
1	Site formation	108	530	-62	0	3																									
2	Box culvert	109	530	-62	0	3																									
3	Retaining wall construction & associated works	115	530	-62	0	3																									
4	Road embankment	110	530	-62	0	3	51	51	51	51																					
5	Road drainage, utilities & water mains works	110	530	-62	0	3					50	50	50	50	50	50															
6	Pavement construction	112	530	-62	0	3											52	52	52	52	52	52									
Proposed Left Turn Lane at POI for the Development at YOHO Town Phase II																															
1	Site formation	107	220	-55	0	3		55	55	55																					
5	Road drainage, utilities & water mains works	107	220	-55	0	3					55	55	55																		
6	Pavement construction	104	220	-55	0	3								52	52	52	52														
	Predicted Noise Level during Daytime Period, dB(A)						59	59	59	63	63	63	63	63	63	63	64	64	63	64	64	64	63	63	63	63	63	59	59	57	57	64
	Predicted Cumulative Noise Level during Daytime Period, dB(A)						59	61	61	64	64	64	64	63	63	63	64	64	64	64	64	64	63	63	63	63	63	59	59	57	57	64

Note:

[1] Distance Correction for PMEs = $10*\log(2*PI*r^2)$

[2] The figures are rounded-up to a whole number.

[3] Correction of 10 dB(A) provided where there is no direct line of sight from the NSR to the work site

Annex C10-30

Construction Noise Assessment for the Proposed Noise Barrier for the Planned Schools (With Mitigation)

No.	Activities	Plant	CNP /BS 5228 ref.	No. of PME	On-time %	Corr. For Barrier dB(A)	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[1]	Group[2]	
8	**Construct pilecaps and piers**	Excavator/loader, wheeled/tracked	C3/97	1	100%	0	105	105	**112**	**A**	**110**
		Saw, circular, wood	CNP 201	1	100%	0	108	108		**A**	
		Bar bender and cutter (electric)	CNP 021	1	100%	0	90	90		**A**	
		Drill/grinder, hand-held (electric)	CNP 065	1	100%	0	98	98		**A**	
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%	0	100	100		**A**	
		Poker, vibratory, hand-held	C6/40	1	100%	0	98	98		**B**	**107**
		Concrete truck	C6/23	1	100%	0	100	100		**B**	
		Concrete pump, stationary/lorry mounte	C6/36	1	100%	0	106	106		**B**	
12	**Install noise barriers**	Mobile crane	C7/114	1	100%	0	101	101	**106**		
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%	0	105	105			

Proposed Mitigation Measures for the Proposed Noise Barrier facing Kwong Ming Ying Loi School

No.	Activities	Plant	CNP /BS 5228 ref.	No. of PME	On-time %	Corr. For Barrier dB(A)[3]	Unit SWL, dB(A)	SWL, dB(A)	Total SWL, dB(A)[1]	Group[2]	
8	**Construct pilecaps and piers**	Excavator/loader, wheeled/tracked	C3/97	1	100%	-5	105	100	**107**	**A**	**105**
		Saw, circular, wood	CNP 201	1	100%	-5	108	103		**A**	
		Bar bender and cutter (electric)	CNP 021	1	100%	-5	90	85		**A**	
		Drill/grinder, hand-held (electric)	CNP 065	1	100%	-5	98	93		**A**	
		Generator, silenced, 75dB(A) at 7m	CNP 102	1	100%	-5	100	95		**A**	
		Poker, vibratory, hand-held	C6/40	1	100%	-5	98	93		**B**	**102**
		Concrete truck	C6/23	1	100%	-5	100	95		**B**	
		Concrete pump, stationary/lorry mounte	C6/36	1	100%	-5	106	101		**B**	
12	**Install noise barriers**	Mobile crane	C7/114	1	100%	-5	101	96	**101**		
		Crane lorry, 5.5 tonne < gross vehicle weight < 38 tonne	[1-b]	1	100%	-5	105	100			

No. [1]	NSRs		Activities No. (Group)	SWL dB(A)	Distance m	Corr. For		Predicted Construction Noise Level (dB(A)) [1][4]
						Distance dB(A)	façade dB(A)	
1	KMYLS1	Kwong Ming Ying Loi School	8(A)	105	46	-41	3	67
			8(B)	102	46	-41	3	64
			12	101	46	-41	3	63
2	KMYLS2	Kwong Ming Ying Loi School	8(A)	105	32	-38	3	70
			8(B)	102	32	-38	3	67
			12	101	32	-38	3	66
3	YT1	Block 2, YOHO Town	8(A)	110	160	-52	3	61
			8(B)	107	160	-52	3	58
			12	106	160	-52	3	57

Note:

[1] The figures are rounded-up to a whole number.

[2] Maximun total SWL from different groups was adopted for calculation.

[3] A 5 dB(A) reduction provided by the use of movable noise barriers.

[4] The predicted construction noise level complied with the daytime EIAO-TM noise criteria for residential premises and education institutions during normal teaching period. All construction works should be suspended during the examination period.

Annex C11

Road Traffic Noise Impact Assessment (With Mitigation)

Annex C11-1

Predicted Road Traffic Noise Levels With and Without the Project for Year 2026

NSR	Floor	Assessment Level in mPD	Noise Criteria, dB(A)	Predicted Façade Noise Levels, $L_{10,\ 1\ hour}$, dB(A)							Noise Contribution due to the Project Without Mitigation [(b)], dB(A)	Noise Contribution due to the Project With Mitigation [(b)], dB(A)
				Without the Project	With the Project (Without Mitigation)			With the Project (With Mitigation) [(a)]				
					New Roads	Existing Roads	Overall	New Roads	Existing Roads	Overall		
WUT1	G/F	5.4	70	66.5	42.1	66.4	66.5	42.1	66.4	66.5	0.0	0.0
	1/F	8.2	70	69.1	45.3	69.0	69.0	45.3	69.0	69.0	-0.1	-0.1
	2/F	11	70	**73.5**	51.6	**73.2**	**73.3**	51.6	73.2	73.3	-0.2	-0.2
STNV1	G/F	5.4	70	67.0	43.6	66.9	66.9	43.6	66.9	66.9	-0.1	-0.1
	1/F	8.2	70	**70.5**	46.7	70.3	70.4	46.7	70.3	70.4	-0.1	-0.1
JCCAH1	G/F [(c)]	6.4	-	-	-	-	-	-	-	-	-	-
	1/F	9.4	55	**72.4**	51.1	**73.1**	**73.2**	51.1	**73.0**	**73.0**	0.8	0.6
	2/F	12.4	55	**73.3**	51.6	**74.0**	**74.0**	51.6	**73.8**	**73.9**	0.7	0.6
	3/F	15.4	55	**74.2**	52.3	**74.8**	**74.9**	52.3	**74.7**	**74.8**	0.7	0.6
	4/F	18.4	55	**74.9**	52.9	**75.6**	**75.7**	52.9	**75.5**	**75.6**	0.8	0.7
	5/F	21.4	55	**75.5**	53.4	**76.2**	**76.2**	53.4	**76.1**	**76.1**	0.7	0.6
JCCAH2	G/F [(c)]	6.4	-	-	-	-	-	-	-	-	-	-
	1/F	9.4	55	**76.9**	50.2	**77.4**	**77.3**	50.2	**77.4**	**77.3**	0.4	0.4
	2/F	12.4	55	**77.7**	50.9	**78.2**	**78.2**	50.9	**78.2**	**78.2**	0.5	0.5
	3/F	15.4	55	**78.3**	51.4	**78.9**	**78.9**	51.4	**78.9**	**78.9**	0.6	0.6
	4/F	18.4	55	**78.8**	52.0	**79.4**	**79.3**	52.0	**79.4**	**79.3**	0.5	0.5
	5/F	21.4	55	**79.0**	52.5	**79.6**	**79.5**	52.5	**79.6**	**79.5**	0.5	0.5
V1	G/F	6.1	70	68.6	53.5	68.3	68.4	53.5	68.3	68.4	-0.2	-0.2
	1/F	8.6	70	69.7	54.9	69.4	69.5	54.9	69.4	69.5	-0.2	-0.2
V2	G/F	5.7	70	69.9	48.9	69.2	69.3	48.9	69.2	69.3	-0.6	-0.6
	1/F	8.2	70	**71.2**	49.7	70.4	70.5	49.7	70.4	70.4	-0.7	-0.8
V3	G/F	8.1	70	68.1	51.1	68.0	68.1	51.1	68.0	68.1	0.0	0.0
	1/F	10.6	70	**71.0**	54.4	**70.9**	**71.0**	54.4	**70.9**	**71.0**	0.0	0.0
V4	G/F	8.9	70	69.4	55.5	69.2	69.4	55.5	69.2	69.4	0.0	0.0
	1/F	11.4	70	**70.5**	56.4	70.3	**70.5**	56.4	70.3	**70.5**	0.0	0.0
V5	G/F	9.3	70	69.0	55.9	68.9	69.1	55.9	68.9	69.1	0.1	0.1
	1/F	11.8	70	70.0	56.8	70.0	70.1	56.8	69.9	70.1	0.1	0.1
	2/F	14.3	70	**71.0**	57.7	**70.9**	**71.1**	57.7	**70.9**	**71.1**	0.1	0.1
	3/F	16.8	70	**71.9**	58.3	**71.8**	**71.9**	58.3	**71.8**	**71.9**	0.0	0.0
V6	G/F	6.8	70	67.3	55.6	66.8	67.1	53.6	66.7	66.8	-0.2	-0.5
	1/F	9.3	70	67.8	56.0	67.4	67.7	54.0	67.1	67.4	-0.1	-0.4
	2/F	11.8	70	68.3	56.5	67.9	68.2	54.4	67.7	67.9	-0.1	-0.4
YT1	G/F	11.5	70	66.5	57.6	65.9	66.5	54.6	65.2	65.5	0.0	-0.9
	5/F	26.5	70	69.1	59.9	68.5	69.0	57.3	68.0	68.4	-0.1	-0.7
	10/F	41.5	70	**71.7**	61.4	**71.3**	**71.7**	60.1	**71.0**	**71.3**	-0.1	-0.4
	15/F	56.5	70	**73.2**	62.5	**72.9**	**73.3**	62.0	**72.7**	**73.0**	0.0	-0.2
	20/F	71.5	70	**74.2**	63.1	**73.9**	**74.3**	63.0	**73.8**	**74.2**	0.0	0.0
	25/F	86.5	70	**74.7**	63.5	**74.5**	**74.8**	63.5	**74.4**	**74.7**	0.1	0.0
	30/F	101.5	70	**75.0**	63.7	**74.8**	**75.0**	63.7	**74.7**	**75.0**	0.0	0.0
	35/F	116.5	70	**75.1**	63.7	**74.9**	**75.3**	63.7	**74.9**	**75.3**	0.1	0.1
YT2	G/F	11.5	70	66.7	58.4	66.0	66.7	55.1	65.3	65.6	0.0	-1.1
	5/F	26.5	70	69.0	60.9	68.3	69.0	58.0	67.6	68.1	0.0	-0.9
	10/F	41.5	70	**71.2**	62.1	**70.7**	**71.3**	60.7	**70.3**	**70.7**	0.1	-0.5
	15/F	56.5	70	**72.9**	63.0	**72.5**	**72.9**	62.5	**72.3**	**72.7**	0.0	-0.2
	20/F	71.5	70	**74.0**	63.5	**73.6**	**74.0**	63.3	**73.4**	**73.9**	0.0	-0.1
	25/F	86.5	70	**74.5**	63.7	**74.2**	**74.5**	63.7	**74.1**	**74.5**	0.0	0.0
	30/F	101.5	70	**74.8**	63.8	**74.5**	**74.8**	63.8	**74.4**	**74.8**	0.0	0.0
	35/F	116.5	70	**74.9**	63.8	**74.6**	**75.0**	63.8	**74.6**	**75.0**	0.0	0.0
YT3	G/F	11.5	70	67.4	58.7	66.7	67.3	55.8	66.2	66.6	-0.1	-0.8
	5/F	26.5	70	69.7	61.3	69.1	69.7	58.7	68.6	69.0	0.0	-0.7
	10/F	41.5	70	**71.7**	62.4	**71.2**	**71.8**	61.1	**70.9**	**71.3**	0.1	-0.4
	15/F	56.5	70	**73.2**	63.1	**72.8**	**73.3**	62.7	**72.6**	**73.0**	0.1	-0.2
	20/F	71.5	70	**74.2**	63.5	**73.8**	**74.2**	63.4	**73.7**	**74.1**	0.0	-0.1
	25/F	86.5	70	**74.7**	63.6	**74.4**	**74.8**	63.6	**74.3**	**74.7**	0.0	-0.1
	30/F	101.5	70	**75.0**	63.7	**74.6**	**75.0**	63.7	**74.6**	**75.0**	0.0	0.0
	35/F	116.5	70	**75.1**	63.6	**74.7**	**75.1**	63.6	**74.7**	**75.1**	0.0	0.0
KMYLS1	G/F	6.8	65	**69.4**	56.4	**67.6**	**67.9**	56.4	**67.6**	**67.9**	-1.5	-1.5
	1/F	9.8	65	**72.0**	57.7	**69.9**	**70.1**	57.7	**69.9**	**70.1**	-1.8	-1.8
	2/F	12.8	65	**73.7**	58.9	**71.5**	**71.7**	58.9	**71.5**	**71.7**	-1.9	-1.9
	3/F	15.8	65	**74.4**	60.1	**72.2**	**72.4**	60.1	**72.2**	**72.4**	-1.9	-1.9
	4/F	18.8	65	**74.6**	62.1	**72.7**	**73.1**	62.1	**72.7**	**73.1**	-1.5	-1.5
KMYLS2	G/F	6.8	65	**67.5**	58.0	**66.5**	**67.0**	55.3	**64.0**	**64.5**	-0.5	-3.0
	1/F	9.8	65	**69.3**	59.9	**68.1**	**68.7**	56.8	**65.0**	**65.6**	-0.6	-3.7
	2/F	12.8	65	**71.0**	62.0	**69.7**	**70.4**	58.5	**66.1**	**66.8**	-0.6	-4.2
	3/F	15.8	65	**71.8**	63.1	**70.6**	**71.3**	60.5	**67.3**	**68.1**	-0.5	-3.7
	4/F	18.8	65	**72.4**	64.1	**71.2**	**72.0**	62.7	**68.6**	**69.6**	-0.4	-2.8

Annex C11-1

Predicted Road Traffic Noise Levels With and Without the Project for Year 2026

NSR	Floor	Assessment Level in mPD	Noise Criteria, dB(A)	Predicted Façade Noise Levels, $L_{10,\ 1\ hour}$, dB(A)							Noise Contribution due to the Project Without Mitigation [(b)], dB(A)	Noise Contribution due to the Project With Mitigation [(b)], dB(A)
				Without the Project	With the Project (Without Mitigation)			With the Project (With Mitigation) [(a)]				
					New Roads	Existing Roads	Overall	New Roads	Existing Roads	Overall		
ND1	1/F	41.6	70	**76.1**	59.8	**76.1**	**76.1**	59.5	**76.0**	**76.1**	0.0	0.0
	6/F	56.6	70	**76.4**	61.9	**76.3**	**76.5**	61.8	**76.3**	**76.4**	0.1	0.0
	11/F	71.6	70	**76.6**	62.8	**76.6**	**76.7**	62.8	**76.5**	**76.7**	0.1	0.1
	16/F	86.6	70	**76.6**	63.2	**76.6**	**76.8**	63.2	**76.6**	**76.8**	0.2	0.2
	21/F	101.6	70	**76.7**	63.4	**76.6**	**76.8**	63.4	**76.6**	**76.8**	0.1	0.1
	26/F	116.6	70	**76.6**	63.3	**76.5**	**76.7**	63.3	**76.5**	**76.7**	0.2	0.2
	31/F	131.6	70	**76.5**	63.3	**76.4**	**76.6**	63.3	**76.4**	**76.6**	0.1	0.1
	36/F	146.6	70	**76.3**	63.2	**76.2**	**76.4**	63.2	**76.2**	**76.4**	0.1	0.1
	41/F	161.6	70	**76.2**	63.0	**76.0**	**76.3**	63.0	**76.0**	**76.3**	0.1	0.1
	46/F	176.6	70	**76.0**	62.8	**75.9**	**76.1**	62.8	**75.9**	**76.1**	0.1	0.1
ND2	1/F	37.6	70	**82.5**	70.3	**82.1**	**82.4**	70.3	**82.1**	**82.4**	0.0	0.0
	6/F	52.6	70	**82.2**	69.6	**82.1**	**82.3**	69.6	**82.1**	**82.3**	0.0	0.0
	11/F	67.6	70	**81.7**	68.7	**81.5**	**81.7**	68.7	**81.5**	**81.7**	0.0	0.0
	16/F	82.6	70	**81.1**	67.8	**80.9**	**81.2**	67.8	**80.9**	**81.2**	0.0	0.0
	21/F	97.6	70	**80.5**	67.1	**80.4**	**80.6**	67.1	**80.4**	**80.6**	0.0	0.1
	26/F	112.6	70	**80.0**	66.5	**79.9**	**80.0**	66.5	**79.9**	**80.1**	0.0	0.1
	31/F	127.6	70	**79.6**	65.9	**79.4**	**79.6**	65.9	**79.4**	**79.6**	0.0	0.0
	36/F	142.6	70	**79.2**	65.4	**79.0**	**79.2**	65.4	**79.0**	**79.2**	0.0	0.0
	41/F	157.6	70	**78.8**	65.0	**78.6**	**78.8**	65.0	**78.6**	**78.8**	0.0	0.0
	46/F	172.6	70	**78.4**	64.6	**78.2**	**78.4**	64.6	**78.3**	**78.4**	0.0	0.0
ND3	1/F	37.6	70	**82.2**	68.8	**82.1**	**82.3**	68.8	**82.1**	**82.3**	0.1	0.1
	6/F	52.6	70	**82.2**	68.6	**82.1**	**82.3**	68.6	**82.1**	**82.3**	0.1	0.1
	11/F	67.6	70	**81.6**	67.9	**81.6**	**81.8**	67.9	**81.6**	**81.8**	0.2	0.2
	16/F	82.6	70	**81.1**	67.3	**81.0**	**81.2**	67.3	**81.0**	**81.2**	0.1	0.1
	21/F	97.6	70	**80.5**	66.7	**80.5**	**80.6**	66.7	**80.5**	**80.7**	0.1	0.2
	26/F	112.6	70	**80.1**	66.1	**80.0**	**80.2**	66.1	**80.0**	**80.2**	0.1	0.1
	31/F	127.6	70	**79.6**	65.6	**79.6**	**79.7**	65.6	**79.6**	**79.7**	0.1	0.1
	36/F	142.6	70	**79.2**	65.1	**79.2**	**79.3**	65.1	**79.2**	**79.3**	0.1	0.1
	41/F	157.6	70	**78.8**	64.6	**78.8**	**78.9**	64.6	**78.8**	**78.9**	0.1	0.1
	46/F	172.6	70	**78.4**	64.2	**78.4**	**78.6**	64.2	**78.4**	**78.6**	0.2	0.2
PS1	G/F	6.7	65	**68.7**	61.2	**67.4**	**68.4**	57.9	**65.5**	**66.3**	-0.3	-2.4
	1/F	9.7	65	**69.7**	62.5	**68.4**	**69.4**	58.9	**66.5**	**67.2**	-0.3	-2.5
	2/F	12.7	65	**70.9**	64.2	**69.6**	**70.7**	60.1	**67.4**	**68.2**	-0.2	-2.7
	3/F	15.7	65	**71.8**	65.3	**70.5**	**71.6**	61.3	**68.3**	**69.1**	-0.2	-2.7
	4/F	18.7	65	**72.5**	**66.1**	**71.2**	**72.4**	62.7	**69.3**	**70.1**	-0.1	-2.4
	5/F	21.7	65	**73.2**	**66.7**	**72.0**	**73.1**	64.2	**70.4**	**71.3**	-0.1	-1.9
	6/F	24.7	65	**73.7**	**66.9**	**72.7**	**73.7**	65.2	**71.2**	**72.2**	0.0	-1.5
Pun Uk	G/F	6.5	70	60.1	41.4	59.6	59.7	41.4	59.6	59.7	-0.4	-0.4
	1/F	9.5	70	61.6	41.8	60.9	61.1	41.8	60.9	61.1	-0.5	-0.5
	2/F	12.5	70	63.3	42.3	62.5	62.5	42.3	62.5	62.5	-0.7	-0.7
	3/F	15.5	70	64.8	42.7	64.3	64.4	42.7	64.3	64.4	-0.4	-0.4
	4/F	18.5	70	66.1	43.1	65.8	65.8	43.1	65.8	65.8	-0.4	-0.4
	5/F	21.5	70	66.9	43.5	66.7	66.7	43.5	66.7	66.7	-0.2	-0.2
	6/F	24.5	70	67.5	43.9	67.4	67.5	43.9	67.4	67.5	0.0	0.0
	7/F	27.5	70	67.9	44.5	68.0	67.9	44.5	68.0	67.9	0.0	0.0
	8/F	30.5	70	68.2	45.1	68.3	68.3	45.1	68.3	68.3	0.2	0.2
	9/F	33.5	70	68.4	45.5	68.6	68.7	45.5	68.6	68.7	0.2	0.2
	10/F	36.5	70	68.7	45.8	68.9	68.9	45.8	68.9	68.9	0.2	0.2
	11/F	39.5	70	68.9	46.1	69.1	69.2	46.1	69.1	69.2	0.3	0.3
	12/F	42.5	70	69.1	46.6	69.4	69.4	46.6	69.4	69.4	0.3	0.3
	13/F	45.5	70	69.4	47.1	69.5	69.6	47.1	69.5	69.6	0.2	0.2
	14/F	48.5	70	69.6	47.5	69.8	69.8	47.5	69.8	69.8	0.2	0.2
	15/F	51.5	70	69.8	47.8	69.9	70.0	47.8	69.9	70.0	0.2	0.2
	16/F	54.5	70	70.0	48.2	70.1	70.1	48.2	70.1	70.1	0.1	0.1
ExSTNVPS1	G/F	5.4	65	64.1	44.0	63.8	63.9	44.0	63.8	63.9	-0.2	-0.2

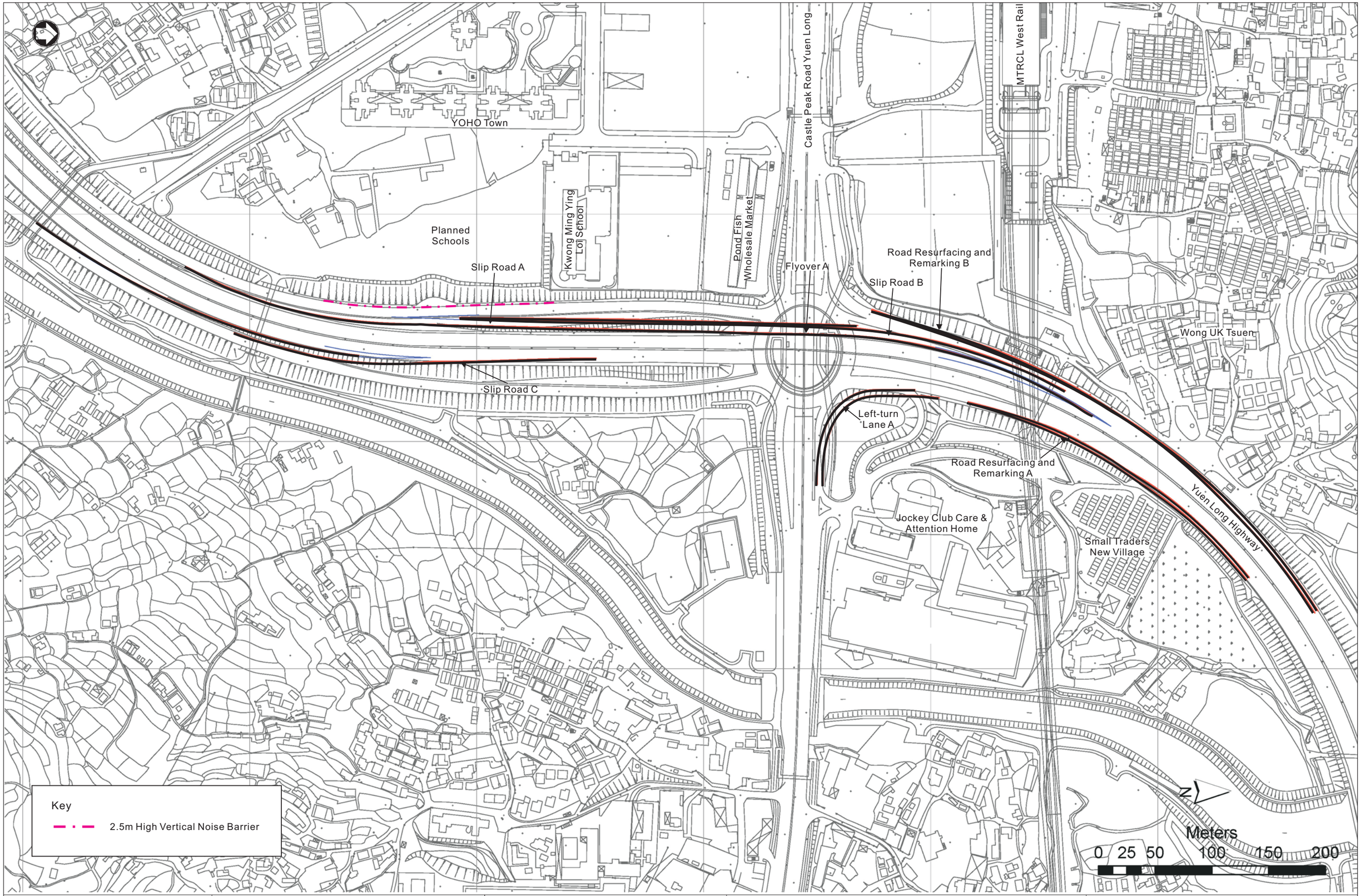
Notes:

72.8 Predicted noise level exceeded the corresponding criteria.

(a) Proposed Noise Mitigation Measures: 1m high vertical noise barrier for Planned Schools & 2m setback of noise barrier for bus sight-line

(b) Noise Contribution due to the Project is calculated by subtracting the noise level without the Project from the overall noise level with the Project.

(c) Ground floor level of JCCAH1 is plant room and lobby. Therefore, it is not considered as noise sensitive.



Highways Department, The Government of the Hong Kong Special Administrative Region	Consultant: Environmental Resources Management (ERM); Halcrow China Ltd. As Engineering Sub-consultant	Agreement No.: WD 6/2007	Environmental Impact Assessment Report
		Project Title: Improvement to Pok Oi Interchange - Environmental Impact Assessment Study	Figure Title: PROPOSED NOISE MITIGATION MEASURES

ANNEX C11-2

Checked	Scale	Rev.
PS	-	0
Designed	Drawn	Date
TF	-	02/07/2008

FILE: 0072252h

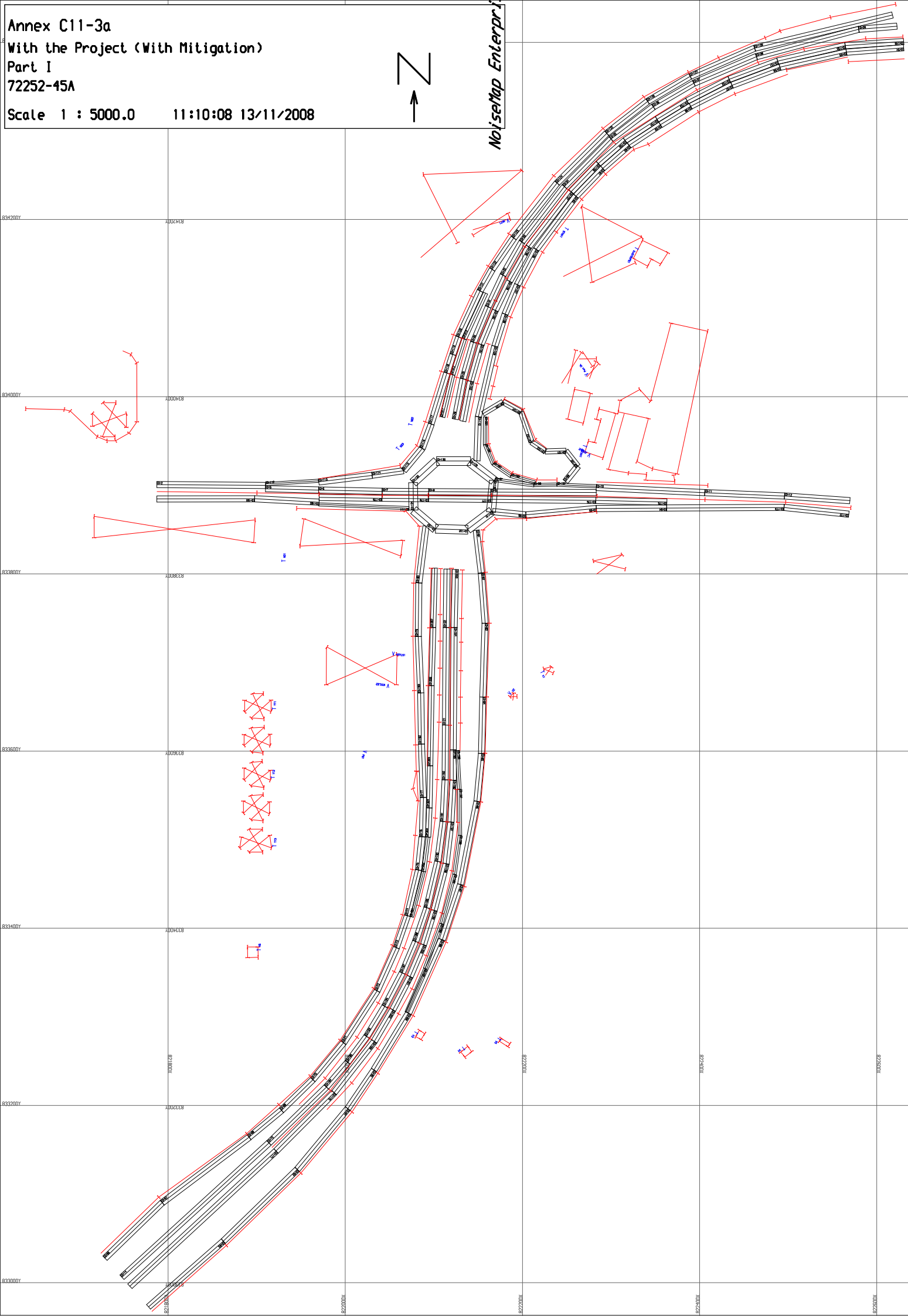
Annex C11-3a

With the Project (With Mitigation)

Part I

72252-45A

Scale 1 : 5000.0 11:10:08 13/11/2008



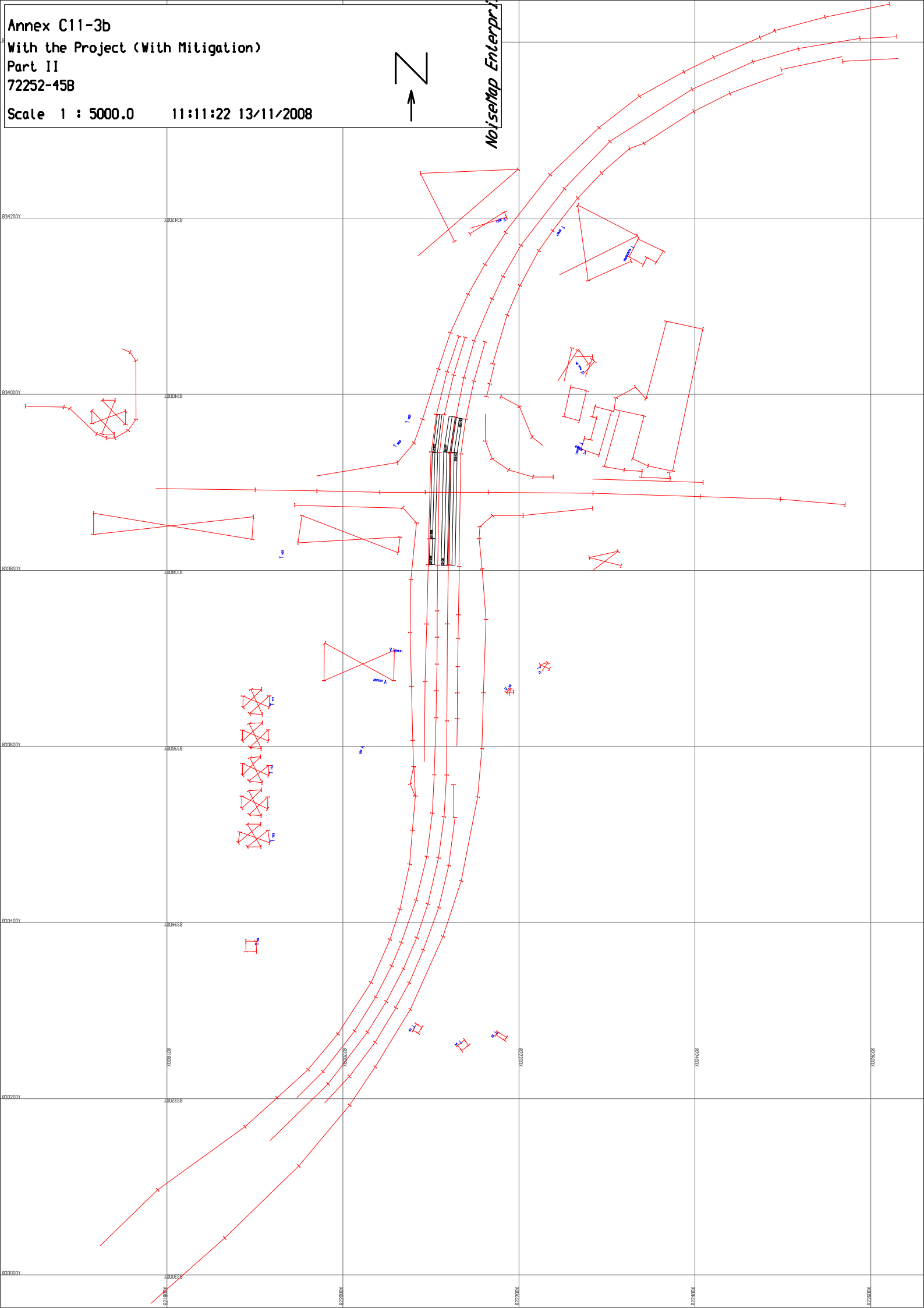
Annex C11-3b

With the Project (With Mitigation)

Part II

72252-45B

Scale 1 : 5000.0 11:11:22 13/11/2008



Annex C11-4

Sample Model Input Files for Road Traffic Noise Assessment

With the Project (With Mitigation)

```
TEXT


TEXT
Option to set calc method as L10
OPT=2.0

COA=     1.0COD=  1000.0COR=    10.0

READ
72252-1.FLO
READ
72252-1.SEG
READ
72252-1.BAR

LINK
All
1,2,3,4,5,
LINK
YLH - N
1,
LINK
YLH - S
2,
LINK
CPR - W
3,
LINK
CPR - E
4,
LINK
New Roads
5,

READ
72252-1.REC

END

TEXT
TRAFFIC FORECAST AT YEAR 2026 AM (WITH PROJECT)

TIM=    18.0

TEXT
CP Rd EB @ E of POI
FLO= -2057.0PHV=    49.0SPD=    50.0BAS=     2.0FNO=
1.0

TEXT
CP Rd EB under POI
FLO= -1282.0PHV=    48.0SPD=    50.0FNO=     2.0

TEXT
CP Rd WB @ E of POI
FLO= -2301.0PHV=    45.0SPD=    50.0FNO=     3.0

TEXT
YLH NB
FLO= -2913.0PHV=    57.0SPD=    80.0FNO=     4.0

TEXT
Slip Rd NB @ S of POI
FLO=  -604.0PHV=    48.0SPD=    50.0FNO=     5.0

TEXT
Slip Rd SB @ S of POI
FLO=  -519.0PHV=    47.0SPD=    50.0FNO=     6.0

TEXT
Roundabout
FLO= -1736.0PHV=    51.0SPD=    50.0FNO=     7.0

TEXT
Slip Rd WB @ W of POI
FLO= -1122.0PHV=    44.0SPD=    50.0FNO=     8.0

TEXT
New Flyover NB (50kph)
FLO=  -630.0PHV=    40.0SPD=    50.0FNO=     9.0

TEXT
New Slip Rd C
FLO=  -478.0PHV=    21.0SPD=    50.0FNO=    10.0

TEXT
Slip Rd NB @ N of POI
FLO= -1241.0PHV=    52.0SPD=    50.0FNO=    11.0

TEXT
Slip Rd SB @ N of new left-turn lane
FLO=  -948.0PHV=    47.0SPD=    50.0FNO=    12.0

TEXT
Slip Rd EB @ E of POI
FLO=  -711.0PHV=    50.0SPD=    50.0FNO=    13.0

TEXT
Slip Rd WB @ E of POI
FLO=  -556.0PHV=    56.0SPD=    50.0FNO=    14.0

TEXT
Svc Rd from POH
FLO=   -55.0PHV=   100.0SPD=    50.0FNO=    15.0

TEXT
Slip Rd EB @ W of POI
FLO= -1428.0PHV=    52.0SPD=    50.0FNO=    16.0

TEXT
YLH NB @ N of POI (Combined)
FLO= -4784.0PHV=    54.0SPD=    80.0FNO=    17.0

TEXT
YLH NB @ N of POI (to Route 3)
FLO= -1435.0PHV=    54.0SPD=    80.0FNO=    18.0

TEXT
YLH NB @ N of POI (to Sheung Shui)
FLO= -3349.0PHV=    54.0SPD=    80.0FNO=    19.0

TEXT
New Left-turn Lane A
FLO=   -64.0PHV=    45.0SPD=    50.0FNO=    21.0

TEXT
YLH SB @ S of New Slip Rd C
FLO= -1967.0PHV=    73.0SPD=    80.0FNO=    22.0

TEXT
Slip Rd NB @ S New Slip Rd A
FLO= -1234.0PHV=    43.0SPD=    50.0FNO=    23.0

TEXT
Slip Rd SB @ S New Slip Rd C
FLO=  -997.0PHV=    35.0SPD=    50.0FNO=    24.0

TEXT
Slip Rd SB @ N of POI
FLO=  -884.0PHV=    47.0SPD=    50.0FNO=    25.0

TEXT
Slip Rd EB @ E of New Left-turn Lane A
FLO=  -775.0PHV=    49.0SPD=    50.0FNO=    26.0

TEXT
New Flyover NB (70kph)
FLO=  -630.0PHV=    40.0SPD=    70.0FNO=    27.0

TEXT
Slip Rd NB @ N of POI (80kph)
FLO= -1241.0PHV=    52.0SPD=    80.0FNO=    28.0
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TEXT
New Flyover NB (80kph)
FLO=  -630.0PHV=    40.0SPD=    80.0FNO=    29.0

TEXT
Slip Rd SB @ N of new left-turn lane (80kph)
FLO=  -948.0PHV=    47.0SPD=    80.0FNO=    30.0

TEXT
CP Rd WB under POI
FLO= -1745.0PHV=    41.0SPD=    50.0FNO=    31.0

TEXT
YLH SB
FLO= -2445.0PHV=    63.0SPD=    80.0FNO=    32.0

TEXT
CP Rd EB @ W of POI
FLO= -2710.0PHV=    50.0SPD=    50.0FNO=    33.0

TEXT
CP Rd WB @ W of POI
FLO= -2867.0PHV=    42.0SPD=    50.0FNO=    34.0


RETN     0.0

TEXT
CASTLE PEAK RD - YL

TEXT
CP RD EB
UFN=    33.0CAT=     3.0RSX=821787.2RSY=833900.8HCS=
4.7HCG=     0.0
SEG=     2.0NCY=     1.0WCY=     3.5DCY=     0.0HCY=
0.0
RST=     1.0RTD=     1.2GND=     0.0NBA=    -1.0RCT=
0.0
REX=821909.9REY=833899.8HCE=     4.1SEND      .0

TEXT

UFN=     2.0RSX=821909.9RSY=833896.2HCS=     4.1
SEG=     5.0
RCT=     1.0
ABS=     0.0BCL=     4.0TCL=     4.0AGL=     0.0DEL=
0.6
BCR=     4.0TCR=     4.0AGR=     0.0DER=     0.8
REX=821969.8REY=833894.6HCE=     4.2SEND      .0
REX=822041.6REY=833893.2HCE=     2.9SEND      .0
DEL=     4.3
REX=822094.2REY=833892.8HCE=     1.3SEND      .0
CAT=     4.0
DEL=     7.0
REX=822164.4REY=833892.3HCE=     1.6SEND      .0
DEL=     3.0
REX=822283.4REY=833891.8HCE=     5.3SEND      .0

TEXT

UFN=     1.0RSX=822283.4RSY=833897.4HCS=     5.3
RCT=     0.0
REX=822405.8REY=833891.7HCE=     7.0SEND      .0
REX=822495.9REY=833887.9HCE=     8.8SEND      .0
REX=822569.6REY=833882.7HCE=     9.6SEND      .0

TEXT
YLH NB
UFN=     4.0CAT=     2.0RSX=821747.8RSY=833006.2HCS=
11.7
SEG=    14.0
RST=     2.0RTD=    10.0
REX=821913.8REY=833157.7HCE=    13.1SEND      .0
TEXT

REX=821978.7REY=833220.9HCE=    13.4SEND      .0

TEXT

RSX=822113.1RSY=833629.3HCS=    14.5
SEG=    21.0
REX=822114.0REY=833739.5HCE=    15.5SEND      .0
REX=822114.9REY=833805.5HCE=    17.4SEND      .0

TEXT

CAT=     1.0RSX=822124.1RSY=833974.6HCS=    15.2
SEG=    28.0
REX=822133.0REY=834020.1HCE=    12.9SEND      .0
REX=822144.7REY=834061.4HCE=    11.5SEND      .0
REX=822161.3REY=834101.4HCE=    11.0SEND      .0
REX=822178.0REY=834137.1HCE=     9.4SEND      .0
REX=822199.3REY=834174.7HCE=     7.7SEND      .0
TEXT
YLH - NB (to Sheung Shui)
UFN=    19.0
REX=822247.4REY=834237.1HCE=     7.0SEND      .0
TEXT

REX=822300.1REY=834290.8HCE=     6.9SEND      .0
REX=822347.8REY=834327.2HCE=     6.8SEND      .0
REX=822393.5REY=834353.8HCE=     6.8SEND      .0
REX=822464.1REY=834383.9HCE=     6.8SEND      .0
REX=822579.6REY=834414.6HCE=     7.5SEND      .0
REX=822622.8REY=834418.1HCE=     7.5SEND      .0

TEXT

UFN=    30.0RSX=822630.4RSY=834393.8HCS=     6.1
SEG=    54.0
REX=822565.7REY=834388.9HCE=     5.6SEND      .0
REX=822490.7REY=834371.9HCE=     6.2SEND      .0
REX=822436.6REY=834351.5HCE=     6.2SEND      .0
REX=822389.9REY=834327.8HCE=     6.2SEND      .0
REX=822355.8REY=834306.9HCE=     6.2SEND      .0
REX=822320.3REY=834283.7HCE=     6.2SEND      .0
REX=822290.6REY=834257.7HCE=     6.3SEND      .0
REX=822260.4REY=834226.4HCE=     6.3SEND      .0
REX=822215.5REY=834166.3HCE=     7.0SEND      .0

TEXT

UFN=    23.0CAT=     2.0RSX=821728.6RSY=833027.6HCS=
17.4
SEG=    66.0
RST=     0.0RTD=     1.2
REX=821793.3REY=833090.3HCE=    17.0SEND      .0
REX=821891.4REY=833164.2HCE=    15.2SEND      .0
REX=821928.0REY=833194.5HCE=    14.9SEND      .0
REX=821963.4REY=833229.1HCE=    14.5SEND      .0
REX=821998.0REY=833270.8HCE=    14.2SEND      .0
REX=822036.0REY=833329.4HCE=    13.8SEND      .0
REX=822057.6REY=833378.1HCE=    13.4SEND      .0
REX=822070.1REY=833414.2HCE=    13.0SEND      .0
UFN=     5.0
REX=822082.6REY=833465.7HCE=    12.4SEND      .0
REX=822086.6REY=833503.1HCE=    12.0SEND      .0

TEXT

RSX=822087.1RSY=833503.4HCS=    12.0
REX=822088.1REY=833547.6HCE=    11.6SEND      .0
TEXT

REX=822086.0REY=833607.9HCE=    10.9SEND      .0

TEXT

RSX=822082.3RSY=833729.4HCS=     9.5
SEG=    79.0
REX=822083.0REY=833789.9HCE=     9.0SEND      .0
REX=822091.0REY=833853.9HCE=     8.4SEND      .0

TEXT

UFN=     6.0RSX=822147.8RSY=833849.2HCS=     8.5
REX=822153.6REY=833801.1HCE=     8.6SEND      .0
REX=822157.9REY=833744.3HCE=     9.5SEND      .0
REX=822155.3REY=833661.0HCE=    10.0SEND      .0
REX=822153.8REY=833597.4HCE=    10.7SEND      .0
REX=822148.6REY=833543.3HCE=    11.4SEND      .0
REX=822130.1REY=833449.4HCE=    12.1SEND      .0
REX=822109.6REY=833387.1HCE=    12.8SEND      .0

TEXT

RSX=822108.6RSY=833387.1HCS=    12.8
REX=822071.4REY=833304.1HCE=    13.5SEND      .0
UFN=    24.0
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REX=822032.4REY=833240.1HCE=    14.1SEND      .0
REX=822002.8REY=833196.5HCE=    14.8SEND      .0
REX=821945.7REY=833127.8HCE=    15.5SEND      .0
REX=821862.3REY=833046.9HCE=    16.7SEND      .0
REX=821777.8REY=832972.7HCE=    16.7SEND      .0

TEXT
SLIP RD (CP RD TO ROUNDABOUT)
UFN=    14.0CAT=     4.0RSX=822362.9RSY=833874.3HCS=
7.0
REX=822283.4REY=833873.8HCE=     5.3SEND      .0
REX=822203.9REY=833866.6HCE=     7.8SEND      .0
TEXT

REX=822166.4REY=833870.3HCE=     8.5SEND      .0

TEXT
SLIP RD (ROUNDABOUT TO POK OI & YL HIGHWAY)
UFN=    13.0RSX=822169.1RSY=833906.2HCS=     8.6
WCY=     2.0
REX=822212.9REY=833900.2HCE=     7.1SEND      .0
TEXT

UFN=    26.0
WCY=     1.8
REX=822239.0REY=833900.8HCE=     5.3SEND      .0

TEXT

UFN=    15.0CAT=     1.0RSX=822248.5RSY=833904.2HCS=
5.3
WCY=     3.5
REX=822262.5REY=833921.6HCE=     5.2SEND      .0
WCY=     3.0
REX=822249.0REY=833938.8HCE=     5.2SEND      .0
REX=822225.9REY=833938.2HCE=     6.3SEND      .0
REX=822210.3REY=833948.7HCE=     7.4SEND      .0
REX=822198.4REY=833982.8HCE=     8.0SEND      .0
REX=822177.8REY=833994.1HCE=     9.0SEND      .0
REX=822155.4REY=833980.7HCE=     9.9SEND      .0

TEXT
SLIP RD (YL HIGHWAY TO ROUNDABOUT)
UFN=    30.0RSX=822215.3RSY=834166.3HCS=     7.2
WCY=     3.5
REX=822194.4REY=834126.3HCE=     7.6SEND      .0
REX=822180.4REY=834093.2HCE=    10.2SEND      .0
REX=822168.8REY=834057.0HCE=    10.5SEND      .0
TEXT

UFN=    12.0
REX=822150.3REY=833977.4HCE=     9.9SEND      .0

TEXT

UFN=    25.0RSX=822150.2RSY=833977.4HCS=     9.9
REX=822148.6REY=833927.6HCE=     8.7SEND      .0

TEXT
SLIP RD (ROUNDABOUT TO CP RD)
UFN=     8.0CAT=     3.0RSX=822071.9RSY=833874.1HCS=
8.5
WCY=     1.8
REX=821970.1REY=833878.5HCE=     4.2SEND      .0

TEXT
SLIP RD (CP RD TO YL HIGHWAY)
UFN=    16.0RSX=821910.1RSY=833901.5HCS=     4.1
REX=821969.6REY=833905.0HCE=     4.2SEND      .0

TEXT
SLIP RD (CP RD TO YL HIGHWAY)
RSX=821970.0RSY=833903.8HCS=     4.2
WCY=     3.5
REX=822030.1REY=833911.2HCE=     4.2SEND      .0

TEXT

RSX=822030.3RSY=833911.3HCS=     7.2
REX=822065.6REY=833916.4HCE=     8.3SEND      .0

TEXT

CAT=     1.0RSX=822066.1RSY=833916.5HCS=     8.3
REX=822086.9REY=833941.6HCE=     8.9SEND      .0
UFN=    11.0
REX=822097.1REY=833969.2HCE=    10.0SEND      .0

TEXT

RSX=822096.9RSY=833969.1HCS=    10.0
REX=822114.7REY=834026.6HCE=    11.2SEND      .0
REX=822121.4REY=834047.7HCE=    11.1SEND      .0
REX=822128.1REY=834067.3HCE=    11.1SEND      .0
UFN=    28.0
REX=822152.1REY=834119.4HCE=    11.0SEND      .0
UFN=    18.0
REX=822165.8REY=834143.6HCE=     9.4SEND      .0
REX=822190.1REY=834179.1HCE=     7.7SEND      .0
TEXT
YLH - NB (to Kowloon)
RST=     2.0RTD=    10.0
REX=822239.1REY=834241.1HCE=     7.0SEND      .0
TEXT

REX=822295.1REY=834297.3HCE=     6.9SEND      .0
REX=822341.3REY=834333.3HCE=     6.8SEND      .0
REX=822389.4REY=834361.6HCE=     6.8SEND      .0
REX=822462.1REY=834393.4HCE=     6.8SEND      .0
REX=822617.8REY=834430.8HCE=     7.5SEND      .0

TEXT
ROUNDABOUT
UFN=     7.0CAT=     4.0RSX=822140.2RSY=833926.4HCS=
8.7
WCY=     5.0
RST=     0.0RTD=     1.2
REX=822167.8REY=833905.3HCE=     8.6SEND      .0
TEXT

HCG=     6.0
REX=822164.5REY=833869.9HCE=     8.5SEND      .0

TEXT

RSX=822165.3RSY=833870.9HCS=     8.5HCG=     0.0
REX=822138.1REY=833850.3HCE=     8.5SEND      .0

TEXT

CAT=     3.0RSX=822138.4RSY=833849.8HCS=     8.5
REX=822101.9REY=833850.8HCE=     8.4SEND      .0
REX=822077.0REY=833872.0HCE=     8.5SEND      .0
HCG=     5.6
REX=822076.5REY=833903.0HCE=     8.5SEND      .0
HCG=     0.0
REX=822103.1REY=833927.4HCE=     8.3SEND      .0
CAT=     4.0
REX=822141.3REY=833927.4HCE=     8.7SEND      .0

TEXT

UFN=    26.0RSX=822238.9RSY=833900.6HCS=     5.3
WCY=     1.8
REX=822283.8REY=833898.9HCE=     5.3SEND      .0

TEXT
YLH - SB (to flyover)
UFN=    32.0CAT=     1.0RSX=822630.4RSY=834400.9HCS=
6.1
SEG=   149.0WCY=     3.5
RST=     2.0RTD=    10.0
REX=822564.4REY=834396.3HCE=     5.6SEND      .0
TEXT

REX=822488.1REY=834378.8HCE=     6.2SEND      .0
REX=822433.4REY=834358.3HCE=     6.2SEND      .0
REX=822385.9REY=834333.9HCE=     6.2SEND      .0
REX=822351.9REY=834313.1HCE=     6.2SEND      .0
REX=822315.8REY=834289.3HCE=     6.2SEND      .0
REX=822285.6REY=834263.1HCE=     6.3SEND      .0
REX=822254.9REY=834231.3HCE=     6.3SEND      .0
REX=822207.1REY=834169.1HCE=     7.2SEND      .0
TEXT
YLH Flyover - SB
REX=822185.4REY=834130.3HCE=     7.6SEND      .0
TEXT

REX=822169.4REY=834097.4HCE=    10.2SEND      .0
TEXT
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REX=822153.4REY=834058.9HCE=    11.5SEND      .0
TEXT

REX=822141.5REY=834017.4HCE=    12.9SEND      .0
REX=822132.7REY=833972.4HCE=    15.2SEND      .0

TEXT

CAT=     2.0RSX=822124.4RSY=833805.0HCS=    17.4
REX=822122.9REY=833739.5HCE=    15.5SEND      .0
REX=822121.9REY=833601.4HCE=    14.3SEND      .0

TEXT

UFN=    22.0RSX=822032.6RSY=833272.3HCS=    13.6
SEG=   169.0
REX=821987.4REY=833214.4HCE=    13.4SEND      .0
REX=821921.8REY=833148.6HCE=    13.1SEND      .0
REX=821756.8REY=832996.0HCE=    11.7SEND      .0

TEXT
CP RD WB
UFN=     3.0CAT=     4.0RSX=822568.4RSY=833867.4HCS=
9.6
RST=     1.0RTD=     1.2
REX=822495.4REY=833875.0HCE=     8.8SEND      .0
TEXT

REX=822362.8REY=833874.4HCE=     7.0SEND      .0

TEXT

UFN=    31.0RSX=822363.1RSY=833881.1HCS=     7.0
SEG=   175.0
RCT=     1.0
REX=822282.8REY=833882.9HCE=     5.3SEND      .0
REX=822164.3REY=833884.1HCE=     1.6SEND      .0
DEL=     7.0
REX=822094.0REY=833884.8HCE=     1.3SEND      .0
CAT=     3.0
DEL=     4.3
REX=822041.4REY=833885.3HCE=     2.9SEND      .0
DEL=     0.6
REX=821970.4REY=833886.3HCE=     4.2SEND      .0

TEXT

UFN=    34.0RSX=821970.4RSY=833880.9HCS=     4.2
RCT=     0.0
REX=821897.6REY=833884.8HCE=     4.1SEND      .0
REX=821787.1REY=833884.6HCE=     4.7SEND      .0

TEXT

UFN=     5.0RSX=822086.0RSY=833607.9HCS=    10.9
RST=     0.0
REX=822085.1REY=833665.6HCE=    10.2SEND      .0
REX=822082.3REY=833729.4HCE=     9.5SEND      .0

TEXT

UFN=     4.0RSX=821978.7RSY=833220.9HCS=    13.4
RST=     2.0RTD=    10.0
REX=822002.7REY=833248.8HCE=    13.5SEND      .0
TEXT

REX=822024.1REY=833277.9HCE=    13.6SEND      .0

TEXT

RSX=822064.3RSY=833349.6HCS=    13.7
SEG=   187.0
REX=822079.3REY=833385.1HCE=    14.0SEND      .0
REX=822092.1REY=833423.2HCE=    14.3SEND      .0
REX=822104.4REY=833475.4HCE=    14.0SEND      .0
REX=822110.3REY=833520.6HCE=    13.6SEND      .0
REX=822112.6REY=833567.6HCE=    14.0SEND      .0
REX=822113.1REY=833629.3HCE=    14.5SEND      .0

TEXT

RSX=822024.1RSY=833277.9HCS=    13.6
REX=822044.6REY=833311.8HCE=    13.6SEND      .0
REX=822064.3REY=833349.6HCE=    13.7SEND      .0
TEXT

UFN=    22.0RSX=822121.9RSY=833601.4HCS=    14.3
REX=822121.8REY=833567.2HCE=    14.0SEND      .0
REX=822119.3REY=833519.9HCE=    13.6SEND      .0
REX=822113.8REY=833472.9HCE=    14.0SEND      .0
REX=822100.4REY=833420.1HCE=    14.3SEND      .0
REX=822088.4REY=833381.4HCE=    14.0SEND      .0
REX=822073.1REY=833345.4HCE=    13.7SEND      .0
REX=822053.6REY=833308.0HCE=    13.6SEND      .0
REX=822032.6REY=833272.3HCE=    13.6SEND      .0

TEXT

UFN=    21.0CAT=     5.0RSX=822157.8RSY=833977.2HCS=
9.9
SEG=   201.0WCY=     2.0
RST=     0.0RTD=     1.2
REX=822157.9REY=833945.9HCE=     9.0SEND      .0
TEXT

SEG=   183.0
REX=822167.0REY=833924.2HCE=     8.7SEND      .0
REX=822186.9REY=833910.7HCE=     8.4SEND      .0
REX=822214.1REY=833902.9HCE=     7.1SEND      .0

TEXT
New Slip Road C
UFN=    10.0RSX=822126.4RSY=833600.6HCS=    14.3
REX=822128.9REY=833556.8HCE=    12.8SEND      .0
TEXT

REX=822129.5REY=833504.8HCE=    13.7SEND      .0
REX=822123.4REY=833460.9HCE=    13.1SEND      .0
REX=822108.5REY=833405.1HCE=    12.6SEND      .0
REX=822090.1REY=833354.6HCE=    13.1SEND      .0
WCY=     1.5
REX=822068.9REY=833305.4HCE=    13.5SEND      .0

TEXT
New Flyover
UFN=     9.0RSX=822075.3RSY=833412.8HCS=    13.0
SEG=   301.0WCY=     1.8
REX=822088.5REY=833464.1HCE=    12.4SEND      .0
TEXT

WCY=     2.2
REX=822093.5REY=833502.9HCE=    12.0SEND      .0
WCY=     3.0
REX=822094.9REY=833535.9HCE=    11.9SEND      .0
UFN=    27.0
REX=822095.8REY=833583.4HCE=    11.8SEND      .0
HCG=     1.7
RST=     2.0RTD=    10.0
REX=822097.4REY=833673.8HCE=    13.4SEND      .0
HCG=     4.5
REX=822099.1REY=833739.5HCE=    14.5SEND      .0
TEXT

HCG=     6.2
REX=822101.0REY=833806.5HCE=    15.8SEND      .0

TEXT

RSX=822109.8RSY=833976.9HCS=    14.6HCG=     3.7
SEG=   311.0WCY=     2.6
REX=822121.2REY=834024.8HCE=    12.8SEND      .0
HCG=     1.1
REX=822134.3REY=834065.1HCE=    11.8SEND      .0
UFN=    29.0HCG=     0.4
REX=822158.3REY=834116.9HCE=     9.6SEND      .0


RETN     0.0

TEXT


TEXT
EXISTING BARRIER ALONG YLH
NBA=     3.0BSX=822115.2BSY=833976.3HBS=    18.7FOA=
0.0WBA=     0.0
            ABA=     0.0
            BEX=822125.7BEY=834021.8HBE=    16.4
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NBA=     4.0
BEX=822138.9BEY=834064.6HBE=    15.0

TEXT

NBA=     7.0BSX=822139.5BSY=833970.8HBS=    18.7
            BEX=822148.8BEY=834014.8HBE=    16.4
NBA=     8.0
BEX=822161.6BEY=834059.6HBE=    15.0

TEXT
YOHO TOWN PHASE 2 (UNDER CONSTRUCTION)
NBA=    31.0BSX=821716.4BSY=833864.9HBS=    28.4
            BEX=821716.4BEY=833840.8HBE=    28.4
TEXT

NBA=    32.0
BEX=821898.1BEY=833861.0HBE=    28.4
NBA=    33.0
BEX=821896.6BEY=833835.3HBE=    28.4
NBA=    34.0
BEX=821716.4BEY=833864.9HBE=    28.4

TEXT
POND FISH WHOLESALE MARKET
NBA=    35.0BSX=821954.2BSY=833862.0HBS=    12.6
            BEX=822062.7BEY=833820.1HBE=    12.6
TEXT

NBA=    36.0
BEX=822064.9BEY=833837.8HBE=    12.6
NBA=    37.0
BEX=821948.8BEY=833831.4HBE=    12.6
NBA=    38.0
BEX=821953.4BEY=833862.1HBE=    12.6

TEXT
KWONG MING YING LOI SCHOOL
NBA=    39.0BSX=821978.6BSY=833717.1HBS=    26.7
            BEX=821978.5BEY=833674.8HBE=    26.7
TEXT

NBA=    40.0
BEX=822058.4BEY=833709.2HBE=    26.7
NBA=    41.0
BEX=822057.6BEY=833674.8HBE=    26.7

TEXT

NBA=    42.0BSX=822056.4BSY=833675.1HBS=    26.7
            BEX=821979.4BEY=833717.4HBE=    26.7

TEXT
YOHO TOWN PHASE 1 (BLOCK 1)
NBA=    43.0BSX=821894.8BSY=833664.8HBS=   135.0
            BEX=821907.5BEY=833664.8HBE=   135.0
TEXT

NBA=    44.0
BEX=821886.4BEY=833644.2HBE=   135.0
NBA=    45.0
BEX=821886.3BEY=833657.4HBE=   135.0
NBA=    46.0
BEX=821916.2BEY=833644.6HBE=   135.0
NBA=    47.0
BEX=821916.2BEY=833657.5HBE=   135.0
NBA=    48.0
BEX=821893.8BEY=833637.3HBE=   135.0
NBA=    49.0
BEX=821908.3BEY=833636.3HBE=   135.0
NBA=    50.0
BEX=821895.3BEY=833664.8HBE=   135.0

TEXT
YOHO TOWN PHASE 1 (BLOCK 2)
NBA=    51.0BSX=821893.7BSY=833626.1HBS=   131.5
            BEX=821908.5BEY=833627.0HBE=   131.5
TEXT

NBA=    52.0
BEX=821885.6BEY=833606.4HBE=   131.5
NBA=    53.0
BEX=821885.6BEY=833618.6HBE=   131.5
NBA=    54.0
BEX=821915.1BEY=833606.4HBE=   131.5
NBA=    55.0
BEX=821915.1BEY=833619.0HBE=   131.5
NBA=    56.0
BEX=821894.1BEY=833599.0HBE=   131.5
NBA=    57.0
BEX=821907.2BEY=833597.7HBE=   131.5
NBA=    58.0
BEX=821893.4BEY=833626.2HBE=   131.5

TEXT
YOHO TOWN PHASE 1 (BLOCK 3)
NBA=    59.0BSX=821894.1BSY=833587.3HBS=   131.5
            BEX=821906.2BEY=833588.5HBE=   131.5
TEXT

NBA=    60.0
BEX=821885.8BEY=833567.4HBE=   131.5
NBA=    61.0
BEX=821885.8BEY=833580.9HBE=   131.5
NBA=    62.0
BEX=821915.3BEY=833567.1HBE=   131.5
NBA=    63.0
BEX=821915.3BEY=833578.3HBE=   131.5
NBA=    64.0
BEX=821893.2BEY=833560.9HBE=   131.5
NBA=    65.0
BEX=821908.0BEY=833558.9HBE=   131.5
NBA=    66.0
BEX=821894.2BEY=833587.3HBE=   131.5

TEXT
YOHO TOWN PHASE 1 (BLOCK 5)
NBA=    67.0BSX=821892.8BSY=833549.7HBS=   128.0
            BEX=821907.3BEY=833550.9HBE=   128.0
TEXT

NBA=    68.0
BEX=821885.0BEY=833529.8HBE=   128.0
NBA=    69.0
BEX=821884.9BEY=833543.6HBE=   128.0
NBA=    70.0
BEX=821914.3BEY=833529.1HBE=   128.0
NBA=    71.0
BEX=821914.5BEY=833542.7HBE=   128.0
NBA=    72.0
BEX=821893.4BEY=833522.6HBE=   128.0
NBA=    73.0
BEX=821907.2BEY=833521.2HBE=   128.0
NBA=    74.0
BEX=821893.0BEY=833549.8HBE=   128.0

TEXT
YOHO TOWN PHASE 1 (BLOCK 6)
NBA=    75.0BSX=821891.2BSY=833511.8HBS=   124.0
            BEX=821906.4BEY=833511.8HBE=   124.0
TEXT

NBA=    76.0
BEX=821880.9BEY=833490.6HBE=   124.0
NBA=    77.0
BEX=821882.7BEY=833502.9HBE=   124.0
NBA=    78.0
BEX=821916.7BEY=833490.6HBE=   124.0
NBA=    79.0
BEX=821914.8BEY=833504.8HBE=   124.0
NBA=    80.0
BEX=821891.1BEY=833486.1HBE=   124.0
NBA=    81.0
BEX=821906.7BEY=833486.0HBE=   124.0
NBA=    82.0
BEX=821891.2BEY=833511.8HBE=   124.0

TEXT
SUN YUEN LONG CENTRE (BLOCK 5)
NBA=    83.0BSX=821726.1BSY=833993.3HBS=   117.0
            BEX=821741.0BEY=833993.3HBE=   117.0
TEXT

NBA=    84.0
BEX=821725.8BEY=833954.8HBE=   117.0
NBA=    85.0
BEX=821740.0BEY=833954.8HBE=   117.0
NBA=    86.0
BEX=821714.5BEY=833981.3HBE=   117.0
NBA=    87.0
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BEX=821714.5BEY=833966.6HBE=   117.0
NBA=    88.0
BEX=821752.9BEY=833980.9HBE=   117.0
NBA=    89.0
BEX=821752.9BEY=833965.4HBE=   117.0
NBA=    90.0
BEX=821726.3BEY=833993.3HBE=   117.0

TEXT
SUN YUEN LONG CENTRE (PODIUM)
NBA=    91.0BSX=821748.9BSY=834051.7HBS=    22.5
            BEX=821758.0BEY=834047.7HBE=    22.5
TEXT

NBA=    92.0
BEX=821764.5BEY=834038.0HBE=    22.5
NBA=    93.0
BEX=821764.7BEY=833971.7HBE=    22.5
NBA=    94.0
BEX=821755.8BEY=833958.9HBE=    22.5
NBA=    95.0
BEX=821740.7BEY=833950.4HBE=    22.5
NBA=    96.0
BEX=821731.0BEY=833950.2HBE=    22.5
NBA=    97.0
BEX=821719.9BEY=833954.9HBE=    22.5
NBA=    98.0
BEX=821689.4BEY=833983.9HBE=    22.5
NBA=    99.0
BEX=821682.7BEY=833985.5HBE=    22.5
NBA=   100.0
BEX=821639.1BEY=833986.4HBE=    22.5

TEXT
DSD PUMPING STATION
NBA=   101.0BSX=822283.7BSY=833799.7HBS=    14.4
            BEX=822312.7BEY=833821.7HBE=    14.4
TEXT

NBA=   102.0
BEX=822280.0BEY=833814.6HBE=    14.4
NBA=   103.0
BEX=822316.1BEY=833805.4HBE=    14.4

TEXT
POK OI HOSTIPAL JOCKEY CLUB CARE & ATTENTION HOUSE
NBA=   104.0BSX=822287.0BSY=833987.3HBS=    29.5
            BEX=822283.5BEY=833974.4HBE=    29.5
TEXT

NBA=   105.0
BEX=822288.2BEY=833973.2HBE=    29.5
NBA=   106.0
BEX=822281.3BEY=833948.2HBE=    29.5
NBA=   107.0
BEX=822274.3BEY=833949.9HBE=    29.5
NBA=   108.0
BEX=822270.6BEY=833937.7HBE=    29.5
NBA=   109.0
BEX=822291.0BEY=833930.8HBE=    29.5
NBA=   110.0
BEX=822305.3BEY=833981.1HBE=    29.5
NBA=   111.0
BEX=822286.3BEY=833986.1HBE=    29.5

TEXT
POK OI HOSPITAL
NBA=   112.0BSX=822367.5BSY=834083.0HBS=    43.5
            BEX=822409.0BEY=834073.9HBE=    43.5
TEXT

NBA=   113.0
BEX=822374.6BEY=833912.8HBE=    43.5
NBA=   114.0
BEX=822346.8BEY=833918.6HBE=    43.5
NBA=   115.0
BEX=822329.2BEY=833926.8HBE=    43.5
NBA=   116.0
BEX=822342.2BEY=833975.4HBE=    43.5
NBA=   117.0
BEX=822308.1BEY=833982.8HBE=    43.5
NBA=   118.0
BEX=822310.1BEY=833995.8HBE=    43.5
NBA=   119.0
BEX=822332.5BEY=834008.1HBE=    43.5
NBA=   120.0
BEX=822344.5BEY=833994.8HBE=    43.5
NBA=   121.0
BEX=822367.8BEY=834083.0HBE=    43.5

TEXT
EXISTING BARRIER ALONG YLH
NBA=   122.0BSX=822105.9BSY=833632.6HBS=    16.5
            BEX=822106.1BEY=833663.3HBE=    16.8
TEXT

NBA=   126.0BSX=822107.0BSY=833754.6HBS=    19.0
            BEX=822107.6BEY=833805.9HBE=    20.9

TEXT

NBA=   125.0BSX=822107.0BSY=833724.1HBS=    18.8
            BEX=822107.0BEY=833754.1HBE=    19.0

TEXT

NBA=   124.0BSX=822106.8BSY=833693.6HBS=    18.0
            BEX=822107.0BEY=833724.1HBE=    18.3

TEXT

NBA=   123.0BSX=822106.1BSY=833663.3HBS=    17.3
            BEX=822106.8BEY=833693.6HBE=    17.5

TEXT

NBA=   127.0BSX=822129.5BSY=833600.9HBS=    15.4
            BEX=822129.9BEY=833631.6HBE=    15.6
TEXT

NBA=   128.0BSX=822130.1BSY=833631.8HBS=    16.0
            BEX=822130.0BEY=833660.9HBE=    16.2

TEXT

NBA=   129.0BSX=822130.0BSY=833660.9HBS=    16.7
            BEX=822130.4BEY=833690.7HBE=    17.0

TEXT

NBA=   130.0BSX=822130.4BSY=833690.7HBS=    18.0
            BEX=822130.8BEY=833722.9HBE=    18.3

TEXT

NBA=   131.0BSX=822130.8BSY=833722.9HBS=    18.8
            BEX=822131.1BEY=833749.6HBE=    19.0
NBA=   132.0
BEX=822132.2BEY=833804.5HBE=    20.3

TEXT

NBA=   133.0BSX=821947.9BSY=833201.3HBS=    14.3
            BEX=821977.2BEY=833230.8HBE=    14.4
TEXT

NBA=   134.0
BEX=822013.3BEY=833276.9HBE=    14.6

TEXT

NBA=   135.0BSX=822013.3BSY=833277.2HBS=    16.6
            BEX=822037.1BEY=833315.6HBE=    16.6
TEXT

NBA=   136.0
BEX=822055.3BEY=833351.1HBE=    16.7

TEXT

NBA=   138.0BSX=822066.1BSY=833377.1HBS=    15.9
            BEX=822083.1BEY=833425.5HBE=    16.3
NBA=   139.0
BEX=822095.3BEY=833474.9HBE=    16.0
NBA=   140.0
BEX=822101.6BEY=833524.4HBE=    15.6

TEXT
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NBA=   137.0BSX=822054.9BSY=833350.2HBS=    16.2
           BEX=822066.4BEY=833377.4HBE=    16.4
TEXT

NBA=   143.0BSX=822007.7BSY=833225.8HBS=    14.7
           BEX=822036.6BEY=833264.1HBE=    14.8
TEXT

NBA=   144.0
BEX=822060.3BEY=833303.3HBE=    14.8

TEXT

NBA=   145.0BSX=822059.6BSY=833303.3HBS=    14.6
           BEX=822075.3BEY=833331.6HBE=    14.7

TEXT

NBA=   142.0BSX=821979.3BSY=833195.4HBS=    14.3
           BEX=822007.4BEY=833225.4HBE=    14.5

TEXT
Existing barriers (0.8m)
NBA=   154.0BSX=821970.1BSY=833907.4HBS=     5.0
           BEX=822061.9BEY=833922.5HBE=     9.1
TEXT

NBA=   155.0
BEX=822080.9BEY=833944.8HBE=     9.7
NBA=   156.0
BEX=822090.4BEY=833971.7HBE=    10.8

TEXT
Existing barriers (3m)
NBA=   157.0BSX=822090.4BSY=833971.2HBS=    13.0
           BEX=822108.3BEY=834028.6HBE=    14.2
NBA=   158.0
BEX=822122.1BEY=834069.8HBE=    14.1
NBA=   159.0
BEX=822142.1BEY=834113.4HBE=    14.0
NBA=   160.0
BEX=822161.4BEY=834147.4HBE=    12.4
NBA=   161.0
BEX=822185.1BEY=834183.6HBE=    10.7

TEXT
Existing barriers (4m)
NBA=   162.0BSX=822184.1BSY=834184.0HBS=    11.7
           BEX=822235.3BEY=834249.3HBE=    11.0
NBA=   163.0
BEX=822290.9BEY=834302.8HBE=    10.9
NBA=   164.0
BEX=822336.9BEY=834338.5HBE=    10.8

TEXT
SLOPE
NBA=   168.0BSX=821781.7BSY=832967.7HBS=    16.7
           BEX=821865.7BEY=833042.0HBE=    16.7
NBA=   169.0
BEX=821949.9BEY=833123.8HBE=    15.5
NBA=   170.0
BEX=822007.6BEY=833192.6HBE=    14.8
NBA=   171.0
BEX=822036.7BEY=833236.4HBE=    14.1
NBA=   172.0
BEX=822076.6BEY=833301.4HBE=    13.5
TEXT

NBA=   173.0
BEX=822113.6BEY=833384.3HBE=    12.8
NBA=   174.0
BEX=822134.5BEY=833447.4HBE=    12.1
NBA=   175.0
BEX=822153.1BEY=833542.6HBE=    11.4
NBA=   176.0
BEX=822157.9BEY=833597.6HBE=    10.7
NBA=   177.0
BEX=822159.7BEY=833661.2HBE=    10.0
NBA=   178.0
BEX=822162.6BEY=833744.4HBE=     9.5
NBA=   179.0
BEX=822158.2BEY=833801.7HBE=     8.6
NBA=   180.0
BEX=822154.8BEY=833836.3HBE=     8.5
NBA=   181.0
BEX=822155.5BEY=833849.6HBE=     8.5
NBA=   182.0
BEX=822170.0BEY=833862.3HBE=     8.5
NBA=   183.0
BEX=822204.7BEY=833862.4HBE=     7.8
NBA=   184.0
BEX=822283.7BEY=833870.4HBE=     5.3

TEXT
SLOPE
NBA=   185.0BSX=821724.1BSY=833033.3HBS=    17.4
           BEX=821789.4BEY=833096.6HBE=    17.0
NBA=   186.0
BEX=821888.6BEY=833168.2HBE=    15.2
TEXT

NBA=   187.0
BEX=821924.9BEY=833200.9HBE=    14.9
NBA=   188.0
BEX=821960.3BEY=833233.1HBE=    14.5
NBA=   189.0
BEX=821994.2BEY=833273.6HBE=    14.2
NBA=   190.0
BEX=822032.0BEY=833332.1HBE=    13.8
NBA=   191.0
BEX=822053.4BEY=833380.7HBE=    13.4
NBA=   192.0
BEX=822064.8BEY=833415.1HBE=    13.0
NBA=   193.0
BEX=822075.8BEY=833466.3HBE=    12.4

TEXT

NBA=   194.0BSX=822075.8BSY=833466.3HBS=    14.9
           BEX=822079.0BEY=833504.9HBE=    14.5
NBA=   195.0
BEX=822082.3BEY=833543.9HBE=    14.1
NBA=   196.0
BEX=822080.6BEY=833577.3HBE=    14.1

NBA=   197.0BSX=822082.1BSY=833543.5HBS=    11.6
           BEX=822076.4BEY=833557.6HBE=    11.6
NBA=   198.0
BEX=822080.2BEY=833577.1HBE=    11.6

NBA=   199.0BSX=822080.2BSY=833577.1HBS=    14.1
           BEX=822079.3BEY=833607.0HBE=    13.4
NBA=   199.0
BEX=822077.9BEY=833668.3HBE=    12.7

NBA=   199.0BSX=822077.9BSY=833668.3HBS=    10.2
           BEX=822076.4BEY=833729.6HBE=     9.5

TEXT

NBA=   200.0BSX=822076.4BSY=833729.7HBS=     9.5
           BEX=822077.1BEY=833789.6HBE=     9.0
NBA=   201.0
BEX=822083.6BEY=833853.9HBE=     8.4
NBA=   202.0
BEX=822067.8BEY=833871.4HBE=     8.5

NBA=   203.0BSX=822068.8BSY=833870.6HBS=     8.5
           BEX=821945.0BEY=833873.9HBE=     4.2

TEXT

NBA=   204.0BSX=822182.0BSY=834134.0HBS=    10.2
           BEX=822202.3BEY=834169.3HBE=     8.5
NBA=   205.0
BEX=822251.7BEY=834233.4HBE=     7.8

NBA=   206.0BSX=822251.2BSY=834233.4HBS=     7.8
           BEX=822303.5BEY=834287.0HBE=     7.7

TEXT
Small Traders New Village
NBA=   207.0BSX=822246.3BSY=834135.7HBS=     9.5
           BEX=822334.8BEY=834179.9HBE=     9.5
TEXT

NBA=   208.0
BEX=822266.8BEY=834214.9HBE=     9.5
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NBA=   209.0
BEX=822278.7BEY=834129.1HBE=     9.5
NBA=   210.0
BEX=822327.5BEY=834151.2HBE=     9.5

TEXT
Wong Uk Tsuen
NBA=   211.0BSX=822144.1BSY=834188.4HBS=    12.3
            BEX=822185.9BEY=834200.9HBE=    12.3
TEXT

NBA=   212.0
BEX=822183.6BEY=834207.1HBE=    12.3
TEXT

NBA=   213.0
BEX=822144.1BEY=834182.3HBE=    12.3

TEXT

NBA=   214.0BSX=822085.3BSY=834157.1HBS=    12.3
            BEX=822199.3BEY=834255.5HBE=    12.3
NBA=   215.0
BEX=822088.0BEY=834250.9HBE=    12.3
NBA=   216.0
BEX=822126.8BEY=834173.6HBE=    12.3

TEXT
Existing Barriers (4m)
NBA=   217.0BSX=822631.2BSY=834381.3HBS=    10.1
            BEX=822568.0BEY=834378.1HBE=     9.6

NBA=   218.0BSX=822499.6BSY=834363.9HBS=     8.2
            BEX=822439.9BEY=834341.8HBE=     8.2
TEXT
Existing Barriers (4m)
NBA=   219.0
BEX=822398.6BEY=834321.2HBE=     8.2

TEXT
Existing Barriers (4m)
NBA=   220.0BSX=822398.6BSY=834321.2HBS=    10.2
            BEX=822342.1BEY=834284.9HBE=    10.2
NBA=   221.0
BEX=822325.6BEY=834279.1HBE=    10.2
NBA=   222.0
BEX=822293.8BEY=834251.4HBE=    10.3
NBA=   223.0
BEX=822266.8BEY=834222.8HBE=    10.3
NBA=   224.0
BEX=822238.3BEY=834185.8HBE=    11.6

TEXT
Existing Barriers (4m)
NBA=   217.0BSX=822567.2BSY=834383.3HBS=     9.6
            BEX=822498.1BEY=834368.9HBE=    10.2

TEXT
Existing Barriers (3m)
NBA=   225.0BSX=822239.7BSY=834187.3HBS=    10.6
            BEX=822222.6BEY=834163.1HBE=    10.2
TEXT

NBA=   226.0
BEX=822201.3BEY=834123.6HBE=    10.6
NBA=   227.0
BEX=822186.5BEY=834089.9HBE=    13.2
NBA=   228.0
BEX=822170.1BEY=834034.6HBE=    13.5

TEXT
Pun Uk
NBA=   229.0BSX=822276.3BSY=834004.4HBS=     9.4
            BEX=822258.8BEY=834008.4HBE=     9.4
TEXT

NBA=   230.0
BEX=822251.1BEY=833974.6HBE=     9.4
NBA=   231.0
BEX=822268.6BEY=833969.9HBE=     9.4
NBA=   232.0
BEX=822276.8BEY=834003.8HBE=     9.4

TEXT
Pok Oi Hospital
NBA=   233.0BSX=822314.8BSY=833980.8HBS=     8.9
            BEX=822297.1BEY=833917.8HBE=     8.9
TEXT

NBA=   234.0
BEX=822319.7BEY=833913.8HBE=     8.9
NBA=   235.0
BEX=822340.0BEY=833912.3HBE=     8.9
NBA=   236.0
BEX=822339.3BEY=833905.9HBE=     8.9
NBA=   237.0
BEX=822371.9BEY=833904.4HBE=     8.9
NBA=   238.0
BEX=822370.9BEY=833911.5HBE=     8.9

TEXT

NBA=   239.0BSX=822283.8BSY=833903.7HBS=     6.3
            BEX=822409.3BEY=833899.8HBE=     8.0

TEXT
Roadkerb
NBA=   240.0BSX=822227.0BSY=833942.0HBS=     6.3
            BEX=822214.8BEY=833951.3HBE=     7.4
TEXT

NBA=   241.0
BEX=822200.6BEY=833985.8HBE=     8.0

TEXT

NBA=   242.0BSX=822200.6BSY=833986.3HBS=     8.0
            BEX=822179.4BEY=833997.5HBE=     9.0

TEXT
Village house
NBA=   243.0BSX=822189.1BSY=833657.3HBS=     9.2
            BEX=822190.3BEY=833665.5HBE=     9.2
TEXT

NBA=   244.0
BEX=822185.6BEY=833661.3HBE=     9.2
NBA=   245.0
BEX=822193.9BEY=833661.6HBE=     9.2

TEXT

NBA=   246.0BSX=822226.1BSY=833685.7HBS=     9.6
            BEX=822232.8BEY=833695.1HBE=     9.6
NBA=   247.0
BEX=822223.9BEY=833692.9HBE=     9.6

NBA=   248.0BSX=822223.9BSY=833692.9HBS=     9.6
            BEX=822234.8BEY=833688.1HBE=     9.6

TEXT
SLOPE
NBA=   260.0BSX=822120.3BSY=833464.8HBS=    14.0
            BEX=822127.4BEY=833519.5HBE=    13.6

TEXT
Ex-Small Traders New Village Public School
NBA=   262.0BSX=822335.4BSY=834176.2HBS=     9.0
            BEX=822325.2BEY=834156.1HBE=     9.0
TEXT

NBA=   263.0
BEX=822341.4BEY=834147.3HBE=     9.0
NBA=   264.0
BEX=822345.6BEY=834155.4HBE=     9.0
NBA=   265.0
BEX=822356.0BEY=834149.6HBE=     9.0
NBA=   266.0
BEX=822364.2BEY=834162.7HBE=     9.0
NBA=   267.0
BEX=822335.4BEY=834176.4HBE=     9.0

TEXT
Central divider for Castle Peak Road
NBA=   268.0BSX=821787.4BSY=833892.9HBS=     5.5
            BEX=821900.2BEY=833891.5HBE=     4.9
TEXT

NBA=   269.0
BEX=821970.4BEY=833890.3HBE=     5.0
```

```
NBA=   270.0
BEX=822041.8BEY=833888.7HBE=     3.7
NBA=   271.0
BEX=822093.6BEY=833888.7HBE=     2.1
NBA=   272.0
BEX=822165.1BEY=833888.7HBE=     2.4
NBA=   273.0
BEX=822284.2BEY=833887.7HBE=     6.1
NBA=   274.0
BEX=822406.1BEY=833883.9HBE=     7.8
NBA=   275.0
BEX=822497.1BEY=833880.8HBE=     9.6
NBA=   276.0
BEX=822570.8BEY=833874.7HBE=    10.4

TEXT
Central divider for existing Yuen Long Highway
NBA=   277.0BSX=821917.4BSY=833152.7HBS=    13.9
           BEX=821983.1BEY=833216.9HBE=    14.2
NBA=   278.0
BEX=822027.8BEY=833275.6HBE=    14.4

TEXT

NBA=   283.0BSX=822118.0BSY=833629.1HBS=    15.3
           BEX=822118.6BEY=833739.3HBE=    16.3
TEXT

NBA=   284.0
BEX=822119.8BEY=833806.3HBE=    18.2

TEXT

NBA=   288.0BSX=822169.8BSY=834108.0HBS=    11.8
           BEX=822181.7BEY=834133.8HBE=    10.2

TEXT

NBA=   285.0BSX=822128.4BSY=833973.8HBS=    16.0
           BEX=822137.3BEY=834018.6HBE=    13.7
NBA=   286.0
BEX=822149.2BEY=834060.6HBE=    12.3

NBA=   287.0BSX=822149.2BSY=834060.6HBS=    12.3
           BEX=822169.5BEY=834108.4HBE=    11.8

TEXT
Village house
NBA=   285.0BSX=822079.6BSY=833278.3HBS=    12.0
           BEX=822083.9BEY=833284.9HBE=    12.0
TEXT

NBA=   286.0
BEX=822089.8BEY=833281.0HBE=    12.0
NBA=   287.0
BEX=822085.5BEY=833274.4HBE=    12.0

TEXT

NBA=   288.0BSX=822085.5BSY=833274.4HBS=    12.0
           BEX=822079.6BEY=833277.8HBE=    12.0

TEXT
Village house
NBA=   289.0BSX=822135.0BSY=833254.7HBS=    12.4
           BEX=822130.4BEY=833260.4HBE=    12.4
TEXT

NBA=   290.0
BEX=822138.3BEY=833266.8HBE=    12.4
NBA=   291.0
BEX=822142.7BEY=833260.6HBE=    12.4

TEXT

NBA=   292.0BSX=822142.7BSY=833260.6HBS=    12.4
           BEX=822134.8BEY=833254.7HBE=    12.4

TEXT

NBA=   293.0BSX=822337.3BSY=834338.6HBS=    10.8
           BEX=822387.5BEY=834366.3HBE=    10.8
NBA=   294.0
BEX=822421.3BEY=834382.8HBE=    10.8
NBA=   295.0
BEX=822474.0BEY=834405.1HBE=    10.8
TEXT

NBA=   296.0
BEX=822491.1BEY=834412.7HBE=    10.8

TEXT

NBA=   298.0BSX=822547.8BSY=834428.3HBS=     9.5
           BEX=822621.3BEY=834443.1HBE=     9.5

TEXT

NBA=   299.0BSX=822304.1BSY=834287.6HBS=     7.7
           BEX=822396.8BEY=834346.3HBE=     7.6
NBA=   300.0
BEX=822465.8BEY=834377.5HBE=     7.6
NBA=   301.0
BEX=822517.8BEY=834392.6HBE=     7.1
NBA=   302.0
BEX=822587.6BEY=834404.1HBE=     8.3

TEXT

NBA=   303.0BSX=822587.4BSY=834403.9HBS=     8.3
           BEX=822629.5BEY=834406.1HBE=     8.3

TEXT

NBA=   304.0BSX=822114.8BSY=833520.1HBS=    14.4
           BEX=822117.7BEY=833567.6HBE=    14.8
NBA=   305.0
BEX=822118.0BEY=833629.1HBE=    15.3

TEXT

NBA=   306.0BSX=822096.5BSY=833421.3HBS=    15.1
           BEX=822108.6BEY=833473.5HBE=    14.8
NBA=   307.0
BEX=822114.8BEY=833520.1HBE=    14.4

TEXT

NBA=   308.0BSX=822068.8BSY=833347.7HBS=    14.5
           BEX=822083.8BEY=833382.9HBE=    14.8
NBA=   309.0
BEX=822096.5BEY=833421.3HBE=    15.1

TEXT

NBA=   312.0BSX=822075.3BSY=833331.6HBS=    13.7
           BEX=822091.3BEY=833369.1HBE=    14.0
NBA=   313.0
BEX=822108.9BEY=833417.1HBE=    14.3

TEXT

NBA=   314.0BSX=822108.9BSY=833417.1HBS=    14.3
           BEX=822120.3BEY=833464.8HBE=    14.0

TEXT

NBA=   315.0BSX=822027.8BSY=833275.6HBS=    14.4
           BEX=822049.2BEY=833310.3HBE=    14.4
NBA=   316.0
BEX=822068.8BEY=833347.7HBE=    14.5

TEXT

NBA=   317.0BSX=822489.1BSY=834412.7HBS=     7.6
           BEX=822547.8BEY=834428.3HBE=     8.3

TEXT

NBA=   318.0BSX=822244.3BSY=834015.2HBS=    56.0
           BEX=822266.6BEY=834049.9HBE=    56.0

TEXT

NBA=   319.0BSX=822251.3BSY=834014.8HBS=    56.0
           BEX=822260.3BEY=834052.5HBE=    56.0

TEXT

NBA=   320.0BSX=822264.1BSY=834042.6HBS=    56.0
```

```
            BEX=822283.5BEY=834042.9HBE=    56.0
TEXT

NBA=   321.0BSX=822267.7BSY=834051.3HBS=    56.0
            BEX=822279.0BEY=834034.2HBE=    56.0
TEXT

NBA=   322.0BSX=822272.6BSY=834022.5HBS=    56.0
            BEX=822286.1BEY=834037.4HBE=    56.0
TEXT

NBA=   323.0BSX=822275.6BSY=834020.4HBS=    56.0
            BEX=822282.9BEY=834039.7HBE=    56.0

TEXT

NBA=   324.0BSX=822173.8BSY=833272.7HBS=    17.8
            BEX=822176.0BEY=833275.8HBE=    17.8
NBA=   325.0
BEX=822185.9BEY=833269.6HBE=    17.8
NBA=   326.0
BEX=822183.5BEY=833266.3HBE=    17.8

NBA=   327.0BSX=822183.5BSY=833266.3HBS=    17.8
            BEX=822173.8BEY=833272.7HBE=    17.8

TEXT
Existing Barriers (3m) (set back)
NBA=   251.0BSX=822172.4BSY=834034.8HBS=    13.5
            BEX=822166.9BEY=834011.9HBE=    13.2
TEXT
Existing Barriers (3m) (set back)
NBA=   252.0
BEX=822163.2BEY=833997.4HBE=    13.0

TEXT

NBA=   261.0BSX=822126.0BSY=833519.7HBS=    13.6
            BEX=822125.6BEY=833556.8HBE=    12.8

TEXT
0.8m high planter wall along new left-turn lane
NBA=   297.0BSX=822161.8BSY=833977.3HBS=    11.4
            BEX=822161.9BEY=833946.9HBE=    10.5
TEXT

NBA=   298.0
BEX=822169.6BEY=833926.8HBE=    10.2
NBA=   299.0
BEX=822188.3BEY=833914.1HBE=     9.9
NBA=   300.0
BEX=822216.2BEY=833906.1HBE=     8.6

TEXT

NBA=   301.0BSX=822216.2BSY=833906.1HBS=     8.6
            BEX=822239.0BEY=833906.1HBE=     6.8

TEXT
0.8m Planter wall along new flyover
NBA=   302.0BSX=822092.4BSY=833583.0HBS=    12.9
            BEX=822093.4BEY=833673.9HBE=    14.5
TEXT

NBA=   303.0
BEX=822095.1BEY=833739.1HBE=    15.6
NBA=   304.0
BEX=822096.8BEY=833806.4HBE=    16.9

TEXT

NBA=   308.0BSX=822106.2BSY=833977.0HBS=    15.7
            BEX=822118.4BEY=834025.5HBE=    13.9

TEXT

NBA=   309.0BSX=822118.4BSY=834025.5HBS=    13.9
            BEX=822131.8BEY=834066.0HBE=    12.9

TEXT

NBA=   328.0BSX=822101.6BSY=833524.4HBS=    15.6
            BEX=822103.7BEY=833567.8HBE=    16.0
NBA=   329.0
BEX=822105.9BEY=833632.6HBE=    16.5

TEXT

NBA=   330.0BSX=821889.7BSY=833366.9HBS=    15.3
            BEX=821901.6BEY=833367.2HBE=    15.3
NBA=   331.0
BEX=821901.3BEY=833378.9HBE=    15.3
NBA=   332.0
BEX=821889.6BEY=833378.9HBE=    15.3

NBA=   333.0BSX=821889.6BSY=833378.9HBS=    15.3
            BEX=821889.7BEY=833366.9HBE=    15.3


RETN     0.0

TEXT



TEXT
1    WUT1
HRA=     5.4HRG=     1.5OPX=822183.6OPY=834198.6AN1=
80.0AN2=   235.7
REF=     1.0GO        .0
HPF=     2.8RPT=     2.0

TEXT
2    STNV1
HRA=     5.4OPX=822249.9OPY=834189.7AN1=   210.0AN2=
30.0
GO        .0
RPT=     1.0

TEXT
3    JCCAH1
HRA=     6.4OPX=822270.4OPY=833944.3AN1=   198.0AN2=
18.0
GO        .0
HPF=     3.0RPT=     5.0

TEXT
4    JCCAH2
HRA=     6.4OPX=822275.3OPY=833933.9AN1=   128.4AN2=
289.2
GO        .0
RPT=     5.0

TEXT
5    V1
HRA=     6.1OPX=822222.5OPY=833689.3AN1=   155.7AN2=
335.7
GO        .0
HPF=     2.5RPT=     1.0

TEXT
6    V2
HRA=     5.7OPX=822185.6OPY=833665.3AN1=   226.5AN2=
34.0
GO        .0
RPT=     1.0

TEXT
7    V3
HRA=     8.1OPX=822080.0OPY=833282.1AN1=   212.0AN2=
32.0
GO        .0
RPT=     1.0

TEXT
8    V4
HRA=     8.9OPX=822133.3OPY=833264.5AN1=   232.0AN2=
52.0
GO        .0
RPT=     1.0

TEXT
9   V5
HRA=     9.3OPX=822173.9OPY=833275.0AN1=   214.0AN2=
34.0
GO        .0
RPT=     3.0
```

```
TEXT
10   V6
HRA=     6.8OPX=821902.4OPY=833375.7AN1=     0.0AN2=
180.0
GO        .0
RPT=     2.0

TEXT
11    YT1
HRA=    11.5HRG=     6.5OPX=821919.5OPY=833648.0AN1=
1.0AN2=   181.0
GO        .0
HPF=    15.0RPT=     7.0

TEXT
12   YT2
HRA=    11.5OPX=821918.1OPY=833570.4AN1=     1.0AN2=
181.0
GO        .0
RPT=     7.0

TEXT
13   YT3
HRA=    11.5OPX=821919.9OPY=833493.1AN1=     1.0AN2=
181.0
GO        .0
RPT=     7.0

TEXT
14   KMYLS1
HRA=     6.8HRG=     1.5OPX=822054.3OPY=833710.0AN1=
275.9AN2=    90.0
GO        .0
HPF=     3.0RPT=     4.0

TEXT
15   KMYLS2
HRA=     6.8OPX=822048.2OPY=833673.5AN1=   100.1AN2=
270.0
GO        .0
RPT=     4.0

TEXT
16   ND1
HRA=    41.6HRG=    36.6OPX=821930.4OPY=833814.8AN1=
0.0AN2=   180.0
GO        .0
HPF=    15.0RPT=     9.0

TEXT
17   ND2
HRA=    37.6HRG=    32.1OPX=822073.5OPY=833968.7AN1=
10.0AN2=   190.0
GO        .0
RPT=     9.0

TEXT
18   ND3
HRA=    37.6OPX=822059.3OPY=833941.4AN1=    40.0AN2=
220.0
GO        .0
RPT=     9.0

TEXT
19   PS1
HRA=     6.7HRG=     1.5OPX=822022.3OPY=833599.4AN1=
25.0AN2=   180.0
GO        .0
HPF=     3.0RPT=     6.0

TEXT
20   Pun Uk
HRA=     6.5OPX=822272.4OPY=834025.0AN1=   219.0AN2=
245.0
GO        .0
RPT=    16.0

TEXT
21   ExSTNVPS1
HRA=     5.4OPX=822328.8OPY=834167.3AN1=   207.0AN2=
27.0
GO        .0


RETN     0.0
```

Annex D

Supporting Information for Air Quality Impact Assessment

Annex D1

Technology Group
Fractions

Annex D1-1 - Technology Group Fractions

	12/31/2003																															
		HGV(7)		HGV(8)			LGV(4)					LGV(6)		NFB(6)		NFB(7)		NFB(8)			PrLB(4)					PrLB(5)			
		DIESEL		DIESEL			DIESEL					DIESEL		DIESEL		DIESEL		DIESEL			DIESEL					DIESEL			LPG
FirstRegYear		DOC	nil	DOC	nil		DOC	trap	nil			DOC	nil	DOC	nil	DOC	nil	DOC	nil		DOC	trap	nil			DOC	trap	nil	
1965																													
1966																													
1967																													
1968																													
1969																													
1970																													
1971			100%		100%				100%				100%	100%	0%		100%		100%				100%					100%	
1972			100%		100%				100%				100%		100%		100%	100%	0%				100%					100%	
1973			100%		100%				100%				100%		100%		100%		100%				100%					100%	
1974			100%		100%				100%				100%		100%		100%		100%				100%					100%	
1975			100%		100%				100%				100%		100%		100%		100%				100%					100%	
1976			100%	100%	0%				100%				100%		100%		100%		100%				100%					100%	
1977			100%	100%	0%				100%				100%		100%		100%		100%				100%					100%	
1978			100%	100%	0%			100%	0%				100%		100%		100%	100%	0%				100%					100%	
1979			100%	100%	0%				100%				100%		100%	100%	0%		100%				100%					100%	
1980			100%	73.3333%	26.6667%				100%				100%		100%	33.3333%	66.6667%		100%				100%					100%	
1981		66.6667%	33.3333%	72.7273%	27.2727%				100%			100%	0%		100%	50.0000%	50.0000%		100%				100%					100%	
1982		100.0000%	0.0000%	50.0000%	50.0000%				100%			100%	0%		100%	100%	0%		100%				100%					100%	
1983		50.0000%	50.0000%	87.5000%	12.5000%				100%			66.6667%	33.3333%		100%	100%	0%		100%				100%					100%	
1984		72.0000%	28.0000%	58.3333%	41.6667%			100%	0%			66.6667%	33.3333%		100%	100%	0%	11.1111%	88.8889%			100%	0%					100%	
1985		73.3333%	26.6667%	68.7285%	31.2715%			100%	0%			76.9231%	23.0769%		100%	100%	0%		100%				100.0000%			18.1818%	81.8182%	0%	
1986		79.7872%	20.2128%	69.3227%	30.6773%		12.5000%	87.5000%	0%			74.1379%	25.8621%	100%	0%	100%	0%	0%	100%			75.0000%	25.0000%				100%	0%	
1987		77.6119%	22.3881%	67.2154%	32.7846%		5.5556%	72.2222%	22.2222%			79.2049%	20.7951%		100%	90.9091%	9.0909%	25.0000%	75.0000%				100.0000%			22.2222%	48.1481%	29.6296%	
1988		82.8571%	17.1429%	64.2534%	35.7466%		7.5000%	70.0000%	22.5000%			79.5082%	20.4918%	90.9091%	9.0909%	96.6667%	3.3333%	23.0769%	76.9231%		0.0000%	66.6667%	33.3333%			20.6897%	65.5172%	13.7931%	
1989		83.5260%	16.4740%	74.5567%	25.4433%		11.3208%	66.5094%	22.1698%			83.7427%	16.2573%	87.5000%	12.5000%	87.1795%	12.8205%	83.3333%	16.6667%		25.0000%	50.0000%	25.0000%			20.0000%	60.0000%	20.0000%	
1990		84.3496%	15.6504%	81.9653%	18.0347%		9.3429%	66.0164%	24.6407%			80.7590%	19.2410%		100%	84.6774%	15.3226%		100%				100%			14.8148%	66.6667%	18.5185%	
1991		84.3581%	15.6419%	84.1786%	15.8214%		9.0699%	60.5688%	30.3613%			82.9316%	17.0684%	80.0000%	20.0000%	75.0000%	25.0000%		100%				100%			19.7802%	69.2308%	10.9890%	
1992		66.3609%	33.6391%	39.2181%	60.7819%		12.2888%	61.9410%	25.7701%			80.3092%	19.6908%	91.9540%	8.0460%	89.9522%	10.0478%	92.5926%	7.4074%		35.7143%	45.2381%	19.0476%			30.4348%	57.9710%	11.5942%	
1993		2.9170%	97.0830%	2.2764%	97.7236%		14.4899%	56.7877%	28.7225%			6.6877%	93.3123%	8.6331%	91.3669%	4.2683%	95.7317%	0.0000%	100.0000%		31.5789%	52.6316%	15.7895%			31.5789%	47.3684%	19.2982%	1.7544%
1994		2.2843%	97.7157%	1.4248%	98.5752%		18.9985%	50.7732%	30.2283%			5.0591%	94.9409%	8.1395%	91.8605%	3.2520%	96.7480%	6.6667%	93.3333%		27.1429%	55.7143%	17.1429%			54.8387%	29.5699%	15.5914%	
1995		0.1862%	99.8138%	0.1549%	99.8451%		5.3435%	13.8836%	80.7729%			1.3395%	98.6605%	1.1538%	98.8462%	0.2950%	99.7050%		100%		3.1746%	7.9365%	88.8889%			9.1892%	2.7027%	88.1081%	
1996			100%		100%				100%				100%		100%		100%		100%				100%					100%	
1997			100%		100%				100%				100%		100%		100%		100%				100%					98.9362%	1.0638%
1998			100%		100%				100%				100%		100%		100%		100%				100%					100.0000%	
1999			100%		100%				100%				100%		100%		100%		100%				100%					98.6301%	1.3699%
2000			100%		100%				100%				100%		100%		100%		100%				100%					97.2222%	2.7778%
2001			100%		100%				100%				100%		100%		100%		100%				100%					95.1613%	4.8387%
2002			100%		100%				100%				100%		100%		100%		100%				100%					39.2857%	60.7143%
2003			100%		100%				100%				100%		100%		100%		100%				100%					50.0000%	50.0000%

	HGV(7)		HGV(8)		LGV(4)			LGV(6)		NFB(6)		NFB(7)		NFB(8)		PrLB(4)			PrLB(5)			
	DIESEL		DIESEL		DIESEL			DIESEL		DIESEL		DIESEL		DIESEL		DIESEL			DIESEL			LPG
FirstRegYear	Euro Std				Euro Std			Euro Std								Euro Std			FirstRegYear	Euro Std		
		nil		nil			nil		nil		nil		nil		nil			nil				
1995	pre-Euro	29.7952%	29.6089%	27.3103%	27.1554%	1995	pre-Euro	28.2443%	9.0172%	1995	pre-Euro	28.8876%	27.5480%	15.0579%	13.9041%	24.9258%	24.6308%	51.2821%	51.2821%	1995	pre-Euro	20.6349%	9.5238%	1995	pre-Euro	15.2174%	3.3255%	
1995	Euro I	70.2048%		72.6897%		1995	Euro I	71.7557%		1995	Euro I	71.1124%		84.9421%		75.0742%		48.7179%		1995	Euro I	79.3651%		1995	Euro I	84.7826%		
1996	Euro I	100.0000%		100.0000%		1996	Euro I	100.0000%		1996	Euro I	100.0000%		100.0000%						1996-1998	Euro I	100.0000%		1996	Euro I	100.0000%		
1997	Euro I	21.9780%		22.2447%		1997	Euro I	100.0000%		1997	Euro I	22.3560%		24.6862%		28.8390%		25.4902%		1999	Euro I	33.3333%		1997	Euro I	98.9632%		
1997	Euro II	78.0220%		77.7553%		1997	Euro II	-		1997	Euro II	77.6440%		75.3138%		71.1610%		74.5098%		1999	Euro II	66.6667%		1998	Euro I	82.1918%		
2001	Euro II	75.2500%		84.2345%		1998	Euro I	100.0000%		1998-2000	Euro II	100.0000%		100.00%		100.00%		100.00%		2000-2001	Euro II	100.0000%		1998	Euro II	17.8082%		
2001	Euro III	24.7500%		15.7655%		1998	Euro III	-		2001	Euro II	79.1990%		82.5472%		81.5287%		67.7632%		2002-2006	Euro III	100.0000%		2003	Euro II	21.0526%		
2002-2005	Euro III	100.0000%		100.0000%		1999	Euro I	47.2756%		2001	Euro III	20.8010%		17.4528%		18.4713%		32.2368%		2007-2026	Euro IV	100.0000%		2003	Euro III	28.9474%		
2006	Euro III	75.0000%		75.0000%		1999	Euro II	52.7244%		2002-2005	Euro III	100.0000%		100.0000%		100.0000%		100.0000%						2004	Euro III	50.0000%		50.0000%
2006	Euro IV	25.0000%		25.0000%		2000-2001	Euro II	100.0000%		2006	Euro III	75.0000%		75.0000%		75.0000%		75.0000%						2005	Euro III	50.0000%		50.0000%
2007-2008	Euro IV	100.0000%		100.0000%		2002-2006	Euro III	100.0000%		2006	Euro IV	25.0000%		25.0000%		25.0000%		25.0000%						2006	Euro III	37.5000%		37.5000%
2009	Euro IV	75.0000%		75.0000%		2007-2026	Euro IV	100.0000%		2007-2026	Euro IV	100.0000%		100.0000%		100.0000%		100.0000%						2006	Euro IV	12.5000%		12.5000%
2009	Euro V	25.0000%		25.0000%										75.0000%		75.0000%		75.0000%						2007-2026	Euro IV	50.0000%		50.0000%
2010-2026	Euro V	100.0000%		100.0000%										25.0000%		25.0000%		25.0000%										
														100.0000%		100.0000%		100.0000%										

raw data - end 2003

Pre-Euro Buses			Euro I Buses			Euro II Buses		Euro III Buses					Total
Pre-Euro engine : total	To be scrapped in 2004	FITTED with CAT	Euro I engine : total	FITTED with CAT	FITTED with CRT/DPX	Euro II engine : total	FITTED with CRT/DPX	Euro II engine : total	FITTED with VEC* system and upgraded	Euro III engine : total	FITTED with CRT/DPX	To be fitted with CRT/DPX	Subtotal	
1314	337	1314	1338	1323	15	2744	181	424	424	359	33	0	783	6179

end 2003	PRE	I	II	III	
FB	pre95	95-97	97-01	01-06	07+
wo DOC/ CRT	0	0	2,563	326	
DOC	1,314	1,323	0	0	
CRT	0	15	181	33	
VEC	0	0	424	0	
wo DOC/ CRT	0%	0%	80.9028%	90.8078%	100%
DOC	100%	98.8789%	0%	0%	
CRT	0%	1.1211%	5.7134%	9.1922%	
VEC	0%	0%	13.3838%	0%	

not used

FBDD							**FBSD**						
FirstRegYear	**Euro Std**	**DIESEL**	**dieselwo**	**DOC**	**CRT**	**VEC**	**FirstRegYear**	**Euro Std**	**DIESEL**	**dieselwo**	**DOC**	**CRT**	**VEC**
1995	pre-Euro	23.51%	0.0000%	23.5135%			1995	pre-Euro	100.00%	0.0000%	100.0000%		
1995	Euro I	76.49%	0.0000%	75.6290%	0.8575%		1995	Euro I		0.0000%	0.0000%	0.0000%	
1997	Euro I	31.42%	0.0000%	31.0649%	0.3522%		1997	Euro I	30.77%	0.0000%	30.4243%	0.3449%	
1997	Euro II	68.58%	55.4855%	0.0000%	3.9184%	9.1790%	1997	Euro II	69.23%	56.0096%	0.0000%	3.9554%	9.2657%
2001	Euro II	80.50%	65.1279%	0.0000%	4.5994%	10.7742%	2001	Euro II	100.00%	80.9028%	0.0000%	5.7134%	13.3838%
2001	Euro III	19.50%	17.7063%	0.0000%	1.7924%	0.0000%	2001	Euro III		0.0000%	0.0000%	0.0000%	0.0000%
2002-2005	Euro III	100.00%	90.8078%	0.0000%	9.1922%	0.0000%	2002-2005	Euro II		80.9028%	0.0000%	5.7134%	13.3838%
2006	Euro III	75%	68.1058%	0.0000%	6.8942%	0.0000%	2006	Euro II		80.9028%	0.0000%	5.7134%	13.3838%
2006	Euro IV	25%	25.0000%	-	-	-	2006	Euro IV		-	-	-	-
2007-2008	Euro IV	100.00%	100.0000%	-	-	-	2007-2008	Euro IV		100.0000%	-	-	-
2009	Euro IV	75%	75.0000%	-	-	-	2009	Euro IV		75.0000%	-	-	-
2009	Euro V	25%	25.0000%	-	-	-	2009	Euro V		25.0000%	-	-	-
2010-2026	Euro V	100.00%	100.0000%	-	-	-	2010-2026	Euro V		100.0000%	-	-	-

Annex D1-1 - Technology Group Fractions

	PLB				taxi				PC+LGV(1) PETROL				PC+LGV(3) DIESEL							
	DIESEL			LPG	DIESEL			LPG	PC	LGV(3)	LGV(4)		PC				LGV(3)			
FirstRegYe	DOC	trap	nil	nil	DOC	trap	nil	nil	All	All	All		All	DOC	trap	nil	All	DOC	trap	nil
1965									100%											
1966									100%											
1967									100%											
1968									100%											
1969									100%											
1970									100%											
1971			100%				100%		100%											
1972			100%				100%		100%											
1973			100%				100%		100%											
1974			100%				100%		100%											
1975			100%				100%		100%				100%			100%				0%
1976			100%				100%		100%				100%		100%	0%				0%
1977			100%				100%		100%				100%	50.0000%		50.0000%				0%
1978			100%				100%		100%				100%	62.5000%	25.0000%	12.5000%				0%
1979			100%				100%		100%				100%	40.0000%	40.0000%	20.0000%				0%
1980			100%				100%		100%				83.3333%	33.3333%	33.3333%	16.6667%	16.6667%		16.6667%	0%
1981			100%				100%		100%				100%	40.0000%	53.3333%	6.6667%				0%
1982			100%				100%		98.8235%	1.1765%			100%	42.8571%	57.1429%	0%				0%
1983			100%				100%		100%				78.5714%	28.5714%	7.1429%	42.8571%	21.4286%		14.2857%	7.1429%
1984			100%				100%		99.0566%	0.9434%			88.8889%	22.2222%	33.3333%	33.3333%	11.1111%		11.1111%	0.0000%
1985	100%		0%				100%		99.1837%	0.8163%			65.3846%	23.0769%	34.6154%	7.6923%	34.6154%	11.5385%	11.5385%	11.5385%
1986			100%				100%		95.0980%	4.9020%			40.0000%	4.1667%	20.8333%	15.0000%	60.0000%	5.0000%	39.1667%	15.8333%
1987		100%	0%				100%		93.4337%	6.2927%	0.2736%		19.3277%	4.6218%	7.5630%	7.1429%	80.6723%	7.5630%	56.3025%	16.8067%
1988	31.9149%	61.7021%	6.3830%				100%		95.5947%	4.1850%	0.2203%		27.0073%	4.3796%	13.1387%	9.4891%	72.9927%	4.3796%	56.2044%	12.4088%
1989	47.1861%	44.1558%	8.6580%				100%		96.9660%	3.0340%			31.2121%	5.4545%	16.9697%	8.7879%	68.7879%	6.6667%	46.6667%	15.4545%
1990	47.9021%	39.1608%	12.9371%				100%		97.6756%	1.9819%	0.3425%		30.0640%	5.5437%	17.0576%	7.4627%	69.9360%	8.5288%	43.4968%	17.9104%
1991	49.3404%	38.5224%	12.1372%				100%		98.9893%	0.7324%	0.2783%		44.1176%	10.5392%	22.5490%	11.0294%	55.8824%	9.5588%	30.6373%	15.6863%
1992	43.7055%	43.9430%	12.3515%			100%	0%		99.4800%	0.3671%	0.1529%		20.3571%	5.7143%	8.0357%	6.6071%	79.6429%	13.2143%	36.9643%	29.4643%
1993	33.9468%	52.7607%	13.2924%			100%	0%		99.4362%	0.3788%	0.1850%		27.6623%	8.3117%	9.8701%	9.4805%	72.3377%	14.9351%	32.9870%	24.4156%
1994	46.8750%	39.2045%	13.9205%			28.5714%	71.4286%		99.5365%	0.2376%	0.2259%		33.3841%	11.2805%	9.2988%	12.8049%	66.6159%	14.6341%	31.5549%	20.4268%
1995	11.0619%	5.7522%	83.1858%		50.0000%		50.0000%		99.1478%	0.6587%	0.1934%		55.8036%	3.7946%	3.3482%	48.6607%	44.1964%	6.2500%	8.9286%	29.0179%
1996			100%				100%		99.7440%	0.1506%	0.1054%		62.5000%			62.5000%	37.5000%			37.5000%
1997			100%				41.1765%	58.8235%	99.8657%	0.0517%	0.0827%		74.4949%			74.4949%	25.5051%			25.5051%
1998			100%				100%		99.5535%	0.0546%	0.3919%		57.7586%			57.7586%	42.2414%			42.2414%
1999			100%				15.8845%	84.1155%	98.8155%	0.0323%	1.1522%		1.3699%			1.3699%	98.6301%			98.6301%
2000			100%				0.4115%	99.5885%	98.0571%	0.0299%	1.9130%					0%	100%			100%
2001			89.8876%	10.1124%			0%	100%	98.2545%	0.0500%	1.6955%					0%	100%			100%
2002			13.2132%	86.7868%			0%	100%	99.5521%	0.0808%	0.3671%		4.5455%			4.5455%	95.4545%			95.4545%
2003			28.4188%	71.5812%			0%	100%	99.7133%	0.0265%	0.2602%		50.0000%			50.0000%	50.0000%			50.0000%

		PLB		
		DIESEL		LPG
			nil	nil
1995	pre-Euro	20.3540%	3.5398%	
1995	Euro I	79.6460%		
1996	Euro I	100.0000%		
1997	Euro I	100.0000%		
1998	Euro I	75.7225%		
1998	Euro II	24.2775%		
1999-2000	Euro II	100.0000%		
2001	Euro II	89.8876%		
2002	Euro II	13.2132%		86.7868%
2003	Euro II	5.7692%		
2003	Euro III	22.6496%		71.5812%
2004-2005	Euro III	28.4188%		71.5812%
2006-2007	Euro III	21.3141%		53.6862%
2006-2007	Euro IV	7.1047%		17.8954%
2007-2026	Euro IV	28.4188%		71.5812%

Taxi			
FirstRegYear	Euro Std	DIESEL	LPG
1999	Euro I	6.8592%	
1999	Euro II	9.0253%	
2003	Euro II		64.4578%
2003	Euro III		35.5422%
2004-2005	Euro III		100.0000%
2006-2026	Euro IV		100.0000%

PC+LGV(1)				
FirstRegYear	Euro Std	PC	LGV(3)	LGV(4)
1995	pre-Euro	38.3731%	0.0784%	0.1830%
1995	Euro I	60.7748%	0.5803%	0.0105%
1996	Euro I	99.7440%	0.1506%	0.1054%
1997	Euro I	19.7551%		
1997	Euro II	80.1106%		
1998	Euro II	99.5535%		
1998	Euro I		0.0546%	0.3919%
1999	Euro I		0.0036%	0.3195%
1999	Euro II	98.8155%	0.0287%	0.8327%
2000	Euro II	98.0571%	0.0299%	1.9130%
2001	Euro III	98.2545%	0.0500%	1.6955%
2002	Euro III	99.5521%	0.0808%	0.3671%
2003-2005	Euro III	99.7133%	0.0265%	0.2602%
2006-2026	Euro IV	99.7133%	0.0265%	0.2602%

PC+LGV(3)			
FirstRegYear	Euro Std	PC	LGV(3)
		nil	nil
1995	pre-Euro	5.1339%	6.9196%
1995	Euro I	43.5268%	22.0982%
1996	Euro I	62.5000%	37.5000%
1997	Euro I	74.4949%	25.5051%
1998	Euro I	57.7586%	42.2414%
1999	Euro I		52.0548%
1999	Euro II		46.5753%
1999	Euro III	1.3699%	
2000	Euro II		100.0000%
2001	Euro II		100.0000%
2002	Euro III		95.4545%
2002	Euro IV	4.5455%	
2003	Euro III		50.0000%
2003	Euro IV	50.0000%	
2004-2006	Euro III		100.0000%
2007-2026	Euro IV		100.0000%

MC		
FirstRegYear	Euro Std	PETROL
1999	pre-Euro	73.1777%
1999	Euro I	26.8223%

Annex D1-2 - Summary of Applied Technology Fractions

PC+LGV(1)	PC+LGV(1)					PC+LGV(3+4)				
	pre-Euro	Euro I	Euro II	Euro III	Euro IV	pre-Euro	Euro I	Euro II	Euro III	Euro IV
Tech Index #	1	10	13	23	24	1	9	15	18	28
Year										
1964-1981	100.00%									
1982	98.82%					1.1765%				
1983	100.00%					0.0000%				
1984	99.06%					0.9434%				
1985	99.18%					0.8163%				
1986	95.10%					4.9020%				
1987	93.43%					6.5663%				
1988	95.59%					4.4053%				
1989	96.97%					3.0340%				
1990	97.68%					2.3244%				
1991	98.99%					1.0107%				
1992	99.48%					0.5200%				
1993	99.4362%					0.5638%				
1994	99.5365%					0.4635%				
1995	38.3731%	60.7748%				0.2614%	0.5908%			
1996		99.7440%					0.2560%			
1997		19.7551%	80.1106%				0.1343%			
1998			99.5535%				0.4465%			
1999			98.8155%				0.3231%	0.8614%		
2000			98.0571%					1.9429%		
2001				98.2545%					1.7455%	
2002				99.5521%					0.4479%	
2003-2005				99.7133%					0.2867%	
2006-2026					99.7133%					0.2867%

Notes:

Value is sum of pre-Euro from LGV(3) and LGV(4) under PC+LGV(1)

Annex D1-2 - Summary of Applied Technology Fractions

PC+LGV(3)	PC						PC+LGV(3)						
	pre-Euro	pre-Euro w trap	pre-Euro w DOC	Euro I	Euro III	Euro IV	pre-Euro	pre-Euro w traps	pre-Euro w	Euro I	Euro II	Euro III	Euro IV
Tech Index #	170	171	172	173	175	176	178	179	180	181	182	183	184
Year													
1965-1975	100%												
1976	0%	100%											
1977	50.0000%		50.0000%										
1978	12.5000%	25.0000%	62.5000%										
1979	20.0000%	40.0000%	40.0000%										
1980	16.6667%	33.3333%	33.3333%					16.6667%					
1981	6.6667%	53.3333%	40.0000%										
1982	0%	57.1429%	42.8571%										
1983	42.8571%	7.1429%	28.5714%				7.1429%	14.2857%					
1984	33.3333%	33.3333%	22.2222%				0.0000%	11.1111%					
1985	7.6923%	34.6154%	23.0769%				11.5385%	11.5385%	11.5385%				
1986	15.0000%	20.8333%	4.1667%				15.8333%	39.1667%	5.0000%				
1987	7.1429%	7.5630%	4.6218%				16.8067%	56.3025%	7.5630%				
1988	9.4891%	13.1387%	4.3796%				12.4088%	56.2044%	4.3796%				
1989	8.7879%	16.9697%	5.4545%				15.4545%	46.6667%	6.6667%				
1990	7.4627%	17.0576%	5.5437%				17.9104%	43.4968%	8.5288%				
1991	11.0294%	22.5490%	10.5392%				15.6863%	30.6373%	9.5588%				
1992	6.6071%	8.0357%	5.7143%				29.4643%	36.9643%	13.2143%				
1993	9.4805%	9.8701%	8.3117%				24.4156%	32.9870%	14.9351%				
1994	12.8049%	9.2988%	11.2805%				20.4268%	31.5549%	14.6341%				
1995	5.1339%	3.3482%	3.7946%	43.5268%			6.9196%	8.9286%	6.2500%	22.0982%			
1996				62.5000%						37.5000%			
1997				74.4949%						25.5051%			
1998				57.7586%						42.2414%			
1999					1.3699%					52.0548%	46.5753%		
2000-2001											100.0000%		
2002						4.5455%						95.4545%	
2003						50.0000%						50.0000%	
2004-2006												100.0000%	
2007-2026													100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

PC+LGV(4)							
	pre-Euro	pre-Euro w trap	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV
Tech Index #	178	179	180	181	182	183	184
Year							
1966-1983	100.0000%						
1984		100.0000%					
1985		100.0000%					
1986		87.5000%	12.5000%				
1987	22.2222%	72.2222%	5.5556%				
1988	22.5000%	70.0000%	7.5000%				
1989	22.1698%	66.5094%	11.3208%				
1990	24.6407%	66.0164%	9.3429%				
1991	30.3613%	60.5688%	9.0699%				
1992	25.7701%	61.9410%	12.2888%				
1993	28.7225%	56.7877%	14.4899%				
1994	30.2283%	50.7732%	18.9985%				
1995	9.0172%	13.8836%	5.3435%	71.7557%			
1996-1998				100.0000%			
1999				47.2756%	52.7244%		
2000-2001					100.0000%		
2002-2006						100.0000%	
2007-2026							100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

PLB	Diesel							LPG	
	pre-Euro	pre-Euro w Trap	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV	Euro III	Euro IV
Tech Index #	186	187	188	189	190	191	192	18	28
Year									
1966-1984	100.0000%								
1985			100.0000%						
1986	100.0000%								
1987		100.0000%							
1988	6.3830%	61.7021%	31.9149%						
1989	8.6580%	44.1558%	47.1861%						
1990	12.9371%	39.1608%	47.9021%						
1991	12.1372%	38.5224%	49.3404%						
1992	12.3515%	43.9430%	43.7055%						
1993	13.2924%	52.7607%	33.9468%						
1994	13.9205%	39.2045%	46.8750%						
1995	3.5398%	5.7522%	11.0619%	79.6460%					
1996				100.0000%					
1997				100.0000%					
1998				75.7225%	24.2775%				
1999					100.0000%				
2000					100.0000%				
2001					89.8876%			10.1124%	
2002					13.2132%			86.7868%	
2003					5.7692%	22.6496%		71.5812%	
2004						28.4188%		71.5812%	
2005						28.4188%		71.5812%	
2006						21.3141%	7.1047%	53.6862%	17.8954%
2007-2026							28.4188%		71.5812%

Annex D1-2 - Summary of Applied Technology Fractions

LGV(6)	Diesel					
	pre-Euro	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV
Tech Index #	120	121	122	127	128	132
Year						
1966-1980	100.0000%					
1981-1982		100%				
1983-1984	33.3333%	66.6667%				
1985	23.0769%	76.9231%				
1986	25.8621%	74.1379%				
1987	20.7951%	79.2049%				
1988	20.4918%	79.5082%				
1989	16.2573%	83.7427%				
1990	19.2410%	80.7590%				
1991	17.0684%	82.9316%				
1992	19.6908%	80.3092%				
1993	93.3123%	6.6877%				
1994	94.9409%	5.0591%				
1995	27.5480%	1.3395%	71.1124%			
1996			100.0000%			
1997			22.3560%	77.6440%		
1998-2000				100.0000%		
2001				79.1990%	20.8010%	
2002-2005					100.0000%	
2006					75.0000%	25.0000%
2007-2026						100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

HGV < 15t	Diesel						
	pre-Euro	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV	Euro V
Tech Index #	123	124	125	126	129	130	131
Year							
1966-1980	100.0000%						
1981	33.3333%	66.6667%					
1982	0.0000%	100.0000%					
1983	50.0000%	50.0000%					
1984	28.0000%	72.0000%					
1985	26.6667%	73.3333%					
1986	20.2128%	79.7872%					
1987	22.3881%	77.6119%					
1988	17.1429%	82.8571%					
1989	16.4740%	83.5260%					
1990	15.6504%	84.3496%					
1991	15.6419%	84.3581%					
1992	33.6391%	66.3609%					
1993	97.0830%	2.9170%					
1994	97.7157%	2.2843%					
1995	29.6089%	0.1862%	70.2048%				
1996			100.0000%				
1997			21.9780%	78.0220%			
1998-2000				100.0000%			
2001				75.2500%	24.7500%		
2002-2005					100.0000%		
2006					75.0000%	25.0000%	
2007-2008						100.0000%	
2009						75.0000%	25.0000%
2010-2026							100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

HGV > 15t	Diesel						
	pre-Euro	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV	Euro V
Tech Index #	153	155	154	157	159	160	161
Year							
1966-1975	100.0000%						
1976-1979		100.0000%					
1980	26.6667%	73.3333%					
1981	27.2727%	72.7273%					
1982	50.0000%	50.0000%					
1983	12.5000%	87.5000%					
1984	41.6667%	58.3333%					
1985	31.2715%	68.7285%					
1986	30.6773%	69.3227%					
1987	32.7846%	67.2154%					
1988	35.7466%	64.2534%					
1989	25.4433%	74.5567%					
1990	18.0347%	81.9653%					
1991	15.8214%	84.1786%					
1992	60.7819%	39.2181%					
1993	97.7236%	2.2764%					
1994	98.5752%	1.4248%					
1995	27.1554%	0.1549%	72.6897%				
1996			100.0000%				
1997			22.2447%	77.7553%			
1998-2000				100.0000%			
2001				84.2345%	15.7655%		
2002-2005					100.0000%		
2006					75.0000%	25.0000%	
2007-2008						100.0000%	
2009						75.0000%	25.0000%
2010-2026							100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

FBDD		Diesel									
	pre-Euro	pre-Euro w DOC	Euro I w DOC	Euro I w CRT	Euro II	Euro II w CRT	Euro II w VEC	Euro III	Euro III w CRT	Euro IV	Euro V
Tech Index #	216	217	219	225	220	221	227	222	223	224	226
Year											
1966-1994	100.0000%										
1995-1996		23.5135%	75.6290%	0.8575%							
1997-2000*	1.0000%		31.0649%	0.3522%	54.4855%	3.9184%	9.1790%				
2001					65.1279%	4.5994%	10.7742%	17.7063%	1.7924%		
2002-2005								90.8078%	9.1922%		
2006								68.1058%	6.8942%	25.0000%	
2007-2008										100.0000%	
2009										75.0000%	25.0000%
2010-2026											100.0000%

* Original data sum up to 99% only. The missing 1% of vehicles was added to Euro I for conservative considerations

Annex D1-2 - Summary of Applied Technology Fractions

MC	Petrol	
	pre-Euro	Euro I
Tech Index #	263	266
Year		
1966-1998	100.0000%	
1999	73.1777%	26.8223%
2000-2026		100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

Taxi	Diesel					LPG		
	pre-Euro	pre-Euro w Trap	pre-Euro w DOC	Euro I	Euro II	Euro II	Euro III	Euro IV
Tech Index #	170	171	172	173	174	13	23	24
Year								
1966-1991	100.0000%							
1992		100.0000%						
1993		100.0000%						
1994	71.4286%	28.5714%						
1995	50.0000%		50.0000%					
1996				100.0000%				
1997				41.1765%		58.8235%		
1998				100.0000%				
1999				6.8592%	9.0253%	84.1155%		
2000					0.4115%	99.5885%		
2001-2002						100.0000%		
2003						64.4578%	35.5422%	
2004-2005							100.0000%	
2006-2026								100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

PrLB < 3.5t	Diesel						
	pre-Euro	pre-Euro w Trap	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV
Tech Index #	178	179	180	181	182	183	184
Year							
1966-1983	100.0000%						
1984		100.0000%					
1985	100.0000%						
1986	25.0000%	75.0000%					
1987	100.0000%						
1988	33.3333%	66.6667%	0.0000%				
1989	25.0000%	50.0000%	25.0000%				
1990	100.0000%						
1991	100.0000%						
1992	19.0476%	45.2381%	35.7143%				
1993	15.7895%	52.6316%	31.5789%				
1994	17.1429%	55.7143%	27.1429%				
1995	9.5238%	7.9365%	3.1746%	79.3651%			
1996-1998				100.0000%			
1999				33.3333%	66.6666%		
2000-2001					100.0000%		
2002-2006						100.0000%	
2007-2026							100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

PrLB > 3.5t	Diesel							LPG	
	pre-Euro	pre-Euro w Trap	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV	Euro III	Euro IV
Tech Index #	186	187	188	189	190	191	192	18	28
Year									
1966-1984	100.0000%								
1985	0.0000%	81.8182%	18.1818%						
1986	0.0000%	100.0000%							
1987	29.6296%	48.1481%	22.2222%						
1988	13.7931%	65.5172%	20.6897%						
1989	20.0000%	60.0000%	20.0000%						
1990	18.5185%	66.6667%	14.8148%						
1991	10.9890%	69.2308%	19.7802%						
1992	11.5942%	57.9710%	30.4348%						
1993	19.2982%	47.3684%	31.5789%					1.7544%	
1994	15.5914%	29.5699%	54.8387%						
1995	3.3255%	2.7027%	9.1892%	84.7826%					
1996				100.0000%					
1997				98.9632%				1.3699%	
1998				82.1918%	17.8082%				
1999					98.6301%			1.3699%	
2000					97.2222%			2.7778%	
2001					95.1613%			4.8387%	
2002					39.2857%			60.7143%	
2003					21.0526%	28.9474%		50.0000%	
2004-2005						50.0000%		50.0000%	
2006						37.5000%	12.5000%	37.5000%	12.5000%
2007-2026							50.0000%		50.0000%

Annex D1-2 - Summary of Applied Technology Fractions

NFB (6)		Diesel					
	pre-Euro	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV	Euro V
Tech Index #	120	121	122	127	128	132	133
Year							
1966-1971		100.0000%					
1972-1985	100.0000%						
1986		100.0000%					
1987	100.0000%						
1988	9.0909%	90.9091%					
1989	12.5000%	87.5000%					
1990	100.0000%						
1991	20.0000%	80.0000%					
1992	8.0460%	91.9540%					
1993	91.3669%	8.6331%					
1994	91.8605%	8.1395%					
1995	13.9041%	1.1538%	84.9421%				
1996			100.0000%				
1997			24.6862%	75.3138%			
1998-2000				100.0000%			
2001				82.5472%	17.4528%		
2002-2005					100.0000%		
2006					75.0000%	25.0000%	
2007-2008						100.0000%	
2009						75.0000%	25.0000%
2010-2026							100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

NFB (7)	Diesel						
	pre-Euro	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV	Euro V
Tech Index #	123	124	125	126	129	130	131
Year							
1966-1978	100.0000%						
1979		100.0000%					
1980	66.6666%	33.3334%					
1981	50.0000%	50.0000%					
1982-1986		100.0000%					
1987	9.0909%	90.9091%					
1988	3.3333%	96.6667%					
1989	12.8205%	87.1795%					
1990	15.3226%	84.6774%					
1991	25.0000%	75.0000%					
1992	10.0478%	89.9522%					
1993	95.7317%	4.2683%					
1994	96.7480%	3.2520%					
1995	24.6308%	0.2950%	75.0742%				
1996			100.0000%				
1997			28.8390%	71.1610%			
1998-2000				100.0000%			
2001				81.5287%	18.4713%		
2002-2005					100.0000%		
2006					75.0000%	25.0000%	
2007-2008						100.0000%	
2009						75.0000%	25.0000%
2010-2026							100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

NFB (8)	Diesel						
	pre-Euro	pre-Euro w DOC	Euro I	Euro II	Euro III	Euro IV	Euro V
Tech Index #	153	155	154	157	159	160	161
Year							
1966-1971	100.0000%						
1972		100.0000%					
1973-1977	100.0000%						
1978		100.0000%					
1979-1983	100.0000%						
1984	88.8889%	11.1111%					
1985-1986	100.0000%						
1987	75.0000%	25.0000%					
1988	76.9231%	23.0769%					
1989	16.6667%	83.3333%					
1990-1991	100.0000%						
1992	7.4074%	92.5926%					
1993	100.0000%	0.0000%					
1994	93.3333%	6.6667%					
1995	51.2821%		48.7179%				
1996			100.0000%				
1997			25.4902%	74.5098%			
1998-2000				100.0000%			
2001				67.7632%	32.2368%		
2002-2005					100.0000%		
2006					75.0000%	25.0000%	
2007-2008						100.0000%	
2009						75.0000%	25.0000%
2010-2026							100.0000%

Annex D1-2 - Summary of Applied Technology Fractions

FBSD	Diesel								
	pre-Euro	pre-Euro w DOC	Euro I w DOC	Euro I w CRT	Euro II	Euro II w CRT	Euro II w VEC	Euro IV	Euro V
Tech Index #	216	217	219	225	220	221	227	224	226
Year									
1966-1994	100.0000%								
1995-1996		100.0000%							
1997-2000			30.4243%	0.3449%	56.0096%	3.9554%	9.2657%		
2001-2006					80.9028%	5.7134%	13.3838%		
2007-2008								100.0000%	
2009								75.0000%	25.0000%
2010-2026									100.0000%

Annex D2

Vehicle Populations

Annex D2 **Vehicle Population**

2011		MC	taxi		PLB		PrLB(4)	PrLB(5)		PC+LGV(1)	Updated PC+LGV(1)	PC+LGV(3)	Updated PC+LGV(3)	LGV(4)	Updated LGV(4)	LGV(6)	HGV(7)	HGV(8)	NFB(6)	NFB(7)	NFB(8)	FBSD	FBDD
FirstRegY	Age	PETROL	LPG	DIESEL	LPG	DIESEL	DIESEL	LPG	DIESEL	PETROL	PETROL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL	DIESEL
2011	1	4,479	1,494		335	133	19	19	19	22,671	22,607	2	7	1,620	1,679	1,065	340	1,380	321	122	173		200
2010	2	4,268	2,653		289	44	33	34	22	29,696	29,564	22	45	1,811	1,920	1,332	377	1,544	368	133	168		401
2009	3	3,860	9,847		18	160	25	3	59	34,031	33,437	126	143	2,091	2,668	1,548	400	1,535	424	157	152	1	359
2008	4	3,058	3,888			139	29	2	70	33,403	32,754	103	113	2,473	3,112	1,799	475	2,350	300	158	89	5	400
2007	5	2,785	277			177	45	1	72	27,860	27,531	73	81	2,496	2,817	1,345	448	1,424	274	134	37	37	538
2006	6	2,305	16			173	55		73	31,133	31,128	232	115	3,456	3,578	1,486	395	1,472	211	202	134	56	974
2005	7	2,546	17			227	47	1	93	38,709	38,952	396	121	4,007	4,039	2,326	637	2,468	243	271	104	13	750
2004	8	1,931	3			215	41		93	19,924	20,068	312	147	2,233	2,254	1,906	459	2,100	326	386	89	13	378
2003	9	1,510	2			226	63		185	19,128	19,215	448	324	2,096	2,133	1,717	537	1,937	260	339	39	20	372
2002	10	1,112	7			352	70		186	25,672	25,772	656	498	2,716	2,774	2,115	788	2,246	172	246	30	35	306
2001	11	693	1			489	57	2	112	22,703	22,788	770	643	3,499	3,541	2,856	1,097	2,504	139	164	1	50	239
2000	12	489	2			421	42		69	16,346	16,375	560	506	3,019	3,044	3,169	1,308	3,223	87	209	54	57	121
1999	13	314	2			379			91	6,827	6,938	408	278	1,301	1,320	1,535	927	2,307	30	180			243
1998	14	216				286			54	4,087	4,133	469	409	974	988	1,133	492	1,730		124			91
1997	15	198				231	12		40	2,439	2,468	330	301	212	212	855	346	1,297	8	39	24		154
1996	16	98				47	3		29	1,362	1,376	274	257	40	43	610	315	1,105	11	30	13		87
1995	17	47				1			27	731	729	238	238	18	20	327	201	729		11	36		269
1994	18	22					8		2	510	533	120	97	8	8	116	94	251	1	4	2		1
1993	19	7				1			11	245	260	26	11	3	3	26	45	291		4			
1992	20	10					3			106	113	9	2	1	1	6	25	48		2	18		
1991	21	12								75	86	14	3		0	3	2	16		1	10		
1990	22	24								170	175	7	2		0	2	3	24		3			
1989	23	28								175	190	15	0		0	4	3	11		6			
1988	24	18								122	127	6	1		0			15		3			
1987	25	10								68	73	5	0		0			1		4			
1986	26	5								53	61	8	0	1	1			1			2		
1985	27	2								55	57	2	0		0			1					
1984	28	3								38	39	1	0		0			2					
1983	29	2								26	27	1	0		0								
1982	30	3								42	42		0		0								
1981	31	11								67	67		0		0								
1980	32	7								37	37		0		0						4		
1979	33	5								24	24		0		0				1				
1978	34	2								31	31		0		0								
1977	35	2								16	16		0		0								
1976	36	1								5	5		0		0								
1975	37									6	6		0		0								
1974	38									3	3		0		0								
1973	39	1								6	6		0		0								
1972	40									1	1												
1971	41									2	2												
1970	42									2	2												
1969	43									3	3												
1968	44									2	2												
1967	>44									6	6								1				

Notes:
Calculation Example for Year 2011

Updated PC+LGV (1) = [PC+LGV (1) in 2011 {Annex D2}] + [Tech. Frac. PC+LGV (3) PC All in 2003 {Annex D1-1}] x [PC+LGV(3) in 2011 {Annex D2}]
- [Tech. Frac. LGV(3) under PC+LGV(1) in 2003 {Annex D1-1}] x [PC+LGV(1) in 2011 {Annex D2}]
- [Tech. Frac. LGV(4) under PC+LGV(1) in 2003 {Annex D1-1}] x [PC+LGV(1) in 2011 {Annex D2}]

i.e. 22607 = [22671 + (50% x 2) - (0.0265% x 22671) - (0.2602% x 22671)]

Updated PC+LGV (3) = [PC+LGV (3) in 2011 {Annex D2}] - [Tech. Frac. PC All under PC+LGV (3) in 2003 {Annex D1-1}] x [PC+LGV(3) in 2011 {Annex D2}]
+ [Tech. Frac. LGV(3) under PC+LGV(1) in 2003 {Annex D1-1}] x [PC+LGV (1) in 2011 {Annex D2}]

i.e. 7 = [2 - (50% x 2) + (0.0265% x 22671)]

Updated PC+LGV (4) = [PC+LGV (4) in 2011 {Annex D1-1}] + [Tech. Frac. LGV(4) under PC+LGV(1) in 2003 {Annex D1-1}] x [PC+LGV (1) in 2011 {Annex D2}]

i.e. 1679 = 1620 + (0.2602% x 22671)

Annex D3

Hourly Traffic Flow Data

Annex D3-1 AM & PM Peak Hourly Traffic Flow and Breakdown of 16 Vehicle Classes

HyD Link No.	AM Peak Traffic Flow (veh/hr)	Car		Taxi	SPB					LGV			HGV		PT			Total
		Motor Cycles	Petrol PC &LGV	Taxi	Non-franchised Buses <6.4t	Non-franchised Buses 6.4-15t	Non-franchised Buses >15t	Public Light Buses <3.5t	Public Light Buses >3.5t	Diesel PC&LGV <2.5t	Diesel LGV 2.5-3.5t	Diesel LGV >3.5t	HGV<15t	HGV>15t	Single Deck Franchised Buses	Double Deck Franchised Buses	Public Light Buses	
1	1254	23	601	36	0	5	0	0	0	21	102	82	316	28	2	38	0	1254
		2%	48%	3%	0%	0%	0%	0%	0%	2%	8%	7%	25%	2%	0%	3%	0%	100%
2	2913	16	1111	120	0	27	0	0	29	33	164	131	891	78	12	234	67	2913
		1%	38%	4%	0%	1%	0%	0%	1%	1%	6%	4%	31%	3%	0%	8%	2%	100%
3	2073	16	702	55	0	14	0	0	33	12	57	46	859	75	6	122	76	2073
		1%	34%	3%	0%	1%	0%	0%	2%	1%	3%	2%	41%	4%	0%	6%	4%	100%
4	966	15	431	62	0	3	0	0	0	15	76	60	256	22	1	25	0	966
		2%	45%	6%	0%	0%	0%	0%	0%	2%	8%	6%	27%	2%	0%	3%	0%	100%
5	604	11	289	17	0	2	0	0	0	10	49	40	153	13	1	19	0	604
		2%	48%	3%	0%	0%	0%	0%	0%	2%	8%	7%	25%	2%	0%	3%	0%	100%
6	2913	16	1111	120	0	27	0	0	29	33	164	131	891	78	12	234	67	2913
		1%	38%	4%	0%	1%	0%	0%	1%	1%	6%	4%	31%	3%	0%	8%	2%	100%
		0%	69%	10%	0%	1%	0%	0%	0%	0%	0%	0%	10%	1%	0%	9%	0%	100%
7	2445	19	828	64	0	17	0	0	38	14	68	54	1014	88	8	143	90	2445
		1%	34%	3%	0%	1%	0%	0%	2%	1%	3%	2%	41%	4%	0%	6%	4%	100%
8	519	8	232	33	0	2	0	0	0	8	41	32	138	12	1	12	0	519
		2%	45%	6%	0%	0%	0%	0%	0%	2%	8%	6%	27%	2%	0%	2%	0%	100%
9	1241	11	527	57	0	16	0	0	6	17	84	68	276	24	7	133	15	1241
		1%	42%	5%	0%	1%	0%	0%	0%	1%	7%	5%	22%	2%	1%	11%	1%	100%
10	884	7	432	33	0	13	0	0	4	10	49	39	157	14	6	110	10	884
		1%	35%	3%	0%	1%	0%	0%	0%	1%	4%	3%	13%	1%	0%	9%	1%	71%
		2%	48%	5%	0%	2%	0%	0%	0%	2%	6%	6%	14%	2%	0%	13%	2%	100%
11	55	0	0	0	0	6	0	0	0	0	0	0	0	0	2	47	0	55
		0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	0%	0%	4%	85%	0%	100%
12	556	8	201	37	0	5	0	0	0	10	51	41	142	12	2	47	0	556
		1%	36%	7%	0%	1%	0%	0%	0%	2%	9%	7%	26%	2%	0%	8%	0%	100%
13	1745	33	670	323	0	12	0	0	87	22	108	87	89	8	5	98	203	1745
		2%	38%	19%	0%	1%	0%	0%	5%	1%	6%	5%	5%	0%	0%	6%	12%	100%
14	1282	11	471	182	0	4	0	0	72	20	99	79	127	11	2	36	168	1282
		1%	37%	14%	0%	0%	0%	0%	6%	2%	8%	6%	10%	1%	0%	3%	13%	100%
15	775	15	329	50	0	12	0	0	2	17	82	66	84	7	5	100	6	775
		2%	42%	6%	0%	2%	0%	0%	0%	2%	11%	9%	11%	1%	1%	13%	1%	100%
16	1122	7	580	43	0	13	0	0	7	14	70	56	179	16	6	115	16	1122
		1%	52%	4%	0%	1%	0%	0%	1%	1%	6%	5%	16%	1%	1%	10%	1%	100%
17	1428	10	557	114	0	21	0	0	10	22	108	87	266	23	9	179	22	1428
		1%	39%	8%	0%	1%	0%	0%	1%	2%	8%	6%	19%	2%	1%	13%	2%	100%
6A	630	0	360	21	0	1	0	0	0	1	3	3	210	18	1	12	0	630
		0%	57%	3%	0%	0%	0%	0%	0%	0%	0%	0%	33%	3%	0%	2%	0%	100%
6B	478	0	328	50	0	5	0	0	0	0	0	0	46	4	2	43	0	478
		0%	69%	10%	0%	1%	0%	0%	0%	0%	0%	0%	10%	1%	0%	9%	0%	100%
10A	808	6	395	30	0	12	0	0	4	9	44	36	144	13	5	101	9	808
		1%	49%	4%	0%	1%	0%	0%	0%	1%	5%	4%	18%	2%	1%	13%	1%	100%
10B	64	1	31	3	0	1	0	0	0	1	4	4	9	1	0	8	1	64
		2%	48%	5%	0%	2%	0%	0%	0%	2%	6%	6%	14%	2%	0%	13%	2%	100%

HyD Link No.	PM Peak Traffic Flow (veh/hr)	Car		Taxi	SPB					LGV			HGV		PT			Total
		Motor Cycles	Petrol PC &LGV	Taxi	Non-franchised Buses <6.4t	Non-franchised Buses 6.4-15t	Non-franchised Buses >15t	Public Light Buses <3.5t	Public Light Buses >3.5t	Diesel PC&LGV <2.5t	Diesel LGV 2.5-3.5t	Diesel LGV >3.5t	HGV<15t	HGV>15t	Single Deck Franchised Buses	Double Deck Franchised Buses	Public Light Buses	
1	1129	23	618	31	0	2	0	0	1	18	88	70	238	21	1	17	1	1129
		2%	55%	3%	0%	0%	0%	0%	0%	2%	8%	6%	21%	2%	0%	2%	0%	100%
2	2423	15	977	98	0	16	0	0	26	26	130	104	757	66	7	140	61	2423
		1%	40%	4%	0%	1%	0%	0%	1%	1%	5%	4%	31%	3%	0%	6%	3%	100%
3	2063	24	790	60	0	16	0	0	23	21	104	83	685	60	7	136	54	2063
		1%	38%	3%	0%	1%	0%	0%	1%	1%	5%	4%	33%	3%	0%	7%	3%	100%
4	1227	26	645	29	0	3	0	0	0	21	102	82	272	24	1	22	0	1227
		2%	53%	2%	0%	0%	0%	0%	0%	2%	8%	7%	22%	2%	0%	2%	0%	100%
5	488	10	267	13	0	1	0	0	0	8	38	30	103	9	0	8	1	488
		2%	55%	3%	0%	0%	0%	0%	0%	2%	8%	6%	21%	2%	0%	2%	0%	100%
6	2425	15	977	98	0	16	0	0	26	26	130	104	759	66	7	140	61	2425
		1%	40%	4%	0%	1%	0%	0%	1%	1%	5%	4%	31%	3%	0%	6%	3%	100%
		0%	57%	3%	0%	0%	0%	0%	0%	0%	1%	0%	33%	3%	0%	2%	0%	100%
7	2543	29	973	74	0	20	0	0	29	26	128	103	845	74	9	167	66	2543
		1%	38%	3%	0%	1%	0%	0%	1%	1%	5%	4%	33%	3%	0%	7%	3%	100%
8	663	14	348	16	0	1	0	0	0	11	56	44	147	13	1	12	0	663
		2%	52%	2%	0%	0%	0%	0%	0%	2%	8%	7%	22%	2%	0%	2%	0%	100%
9	739	11	404	52	0	5	0	0	4	9	44	36	109	10	2	45	8	739
		1%	55%	7%	0%	1%	0%	0%	1%	1%	6%	5%	15%	1%	0%	6%	1%	100%
10	1325	15	609	35	0	15	0	0	7	22	108	86	249	22	7	132	17	1324
		1%	46%	3%	0%	1%	0%	0%	1%	2%	8%	6%	19%	2%	1%	10%	1%	100%
		1%	45%	4%	0%	1%	0%	0%	1%	2%	9%	7%	17%	1%	1%	12%	1%	100%
11	59	0	0	0	0	6	0	0	0	0	0	0	0	0	3	50	0	59
		0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	5%	85%	0%	100%
12	689	17	346	25	0	6	0	0	0	10	52	42	127	11	3	50	0	689
		2%	50%	4%	0%	1%	0%	0%	0%	1%	8%	6%	18%	2%	0%	7%	0%	100%
13	1451	22	699	160	0	7	0	0	47	21	107	85	118	10	3	62	110	1451
		2%	48%	11%	0%	0%	0%	0%	3%	1%	7%	6%	8%	1%	0%	4%	8%	100%
14	1321	36	598	133	0	8	0	0	65	17	87	70	82	7	3	64	151	1321
		3%	45%	10%	0%	1%	0%	0%	5%	1%	7%	5%	6%	1%	0%	5%	11%	100%
15	785	18	278	62	0	16	0	0	2	17	87	69	78	7	7	141	3	785
		2%	35%	8%	0%	2%	0%	0%	0%	2%	11%	9%	10%	1%	1%	18%	0%	100%
16	1482	24	708	57	0	15	0	0	10	22	110	88	266	23	7	128	24	1482
		2%	48%	4%	0%	1%	0%	0%	1%	1%	7%	6%	18%	2%	0%	9%	2%	100%
17	981	18	509	73	0	9	0	0	5	12	59	47	140	12	4	80	13	981
		2%	52%	7%	0%	1%	0%	0%	1%	1%	6%	5%	14%	1%	0%	8%	1%	100%
6A	617	0	422	65	0	7	0	0	0	0	0	0	60	5	3	55	0	617
		0%	68%	11%	0%	1%	0%	0%	0%	0%	0%	0%	10%	1%	0%	9%	0%	100%
6B	520	0	297	17	0	1	0	0	0	1	3	2	174	15	0	10	0	520
		0%	57%	3%	0%	0%	0%	0%	0%	0%	1%	0%	33%	3%	0%	2%	0%	100%
10A	1210	13	556	32	0	14	0	0	7	20	99	79	228	20	6	121	15	1210
		1%	46%	3%	0%	1%	0%	0%	1%	2%	8%	7%	19%	2%	0%	10%	1%	100%
10B	103	1	46	4	0	1	0	0	1	2	9	7	17	1	1	12	1	103
		1%	45%	4%	0%	1%	0%	0%	1%	2%	9%	7%	17%	1%	1%	12%	1%	100%

Annex D3-2 Hourly Traffic Flow and Breakdown

Total Vehicle Flow in Each Hour (2026 Scheme Vehicles)

15 years after Operation Year

HyD Link No.	0000-0100	0100-0200	0200-0300	0300-0400	0400-0500	0500-0600	0600-0700	0700-0800	0800-0900	0900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	2200-2300	2300-0000
	1.92	1.47	1.01	0.83	0.83	1.10	2.19	5.01	6.19	6.10	5.74	5.74	5.83	6.01	6.05	6.01	6.10	6.37	6.74	5.56	4.28	3.46	2.92	2.46
1	389	298	205	168	168	223	444	1015	1254	1236	1163	1163	977	1007	1013	1007	1022	1067	1129	931	717	580	489	412
2	904	692	475	391	391	518	1031	2358	2913	2871	2701	2701	2096	2161	2175	2161	2193	2290	2423	1999	1539	1244	1050	884
3	643	492	338	278	278	368	733	1678	2073	2043	1922	1922	1784	1840	1852	1840	1867	1950	2063	1702	1310	1059	894	753
4	300	229	158	130	130	172	342	782	966	952	896	896	1061	1094	1101	1094	1110	1160	1227	1012	779	630	532	448
5	187	143	99	81	81	107	214	489	604	595	560	560	422	435	438	435	442	461	488	403	310	251	211	178
6	904	692	475	391	391	518	1031	2358	2913	2871	2701	2701	2098	2162	2177	2162	2195	2292	2425	2000	1540	1245	1051	885
6A	195	150	103	84	84	112	223	510	630	621	584	584	534	550	554	550	558	583	617	509	392	317	267	225
6B	148	114	78	64	64	85	169	387	478	471	443	443	450	464	467	464	471	491	520	429	330	267	225	190
7	758	581	399	328	328	434	865	1979	2445	2409	2267	2267	2200	2268	2283	2268	2302	2403	2543	2098	1615	1305	1102	928
8	161	123	85	70	70	92	184	420	519	511	481	481	573	591	595	591	600	627	663	547	421	340	287	242
9	385	295	202	166	166	221	439	1004	1241	1223	1151	1151	639	659	663	659	669	698	739	610	469	379	320	270
10	274	210	144	119	119	157	313	715	884	871	820	820	1146	1181	1189	1181	1199	1252	1325	1093	841	680	574	484
10A	251	192	132	108	108	144	286	654	808	796	749	749	1047	1079	1086	1079	1095	1144	1210	998	768	621	524	442
10B	20	15	10	9	9	11	23	52	64	63	59	59	89	92	92	92	93	97	103	85	65	53	45	38
11	17	13	9	7	7	10	19	45	55	54	51	51	51	53	53	53	53	56	59	49	37	30	26	22
12	172	132	91	75	75	99	197	450	556	548	516	516	596	614	618	614	624	651	689	568	438	354	298	251
13	541	414	285	234	234	310	617	1412	1745	1720	1618	1618	1255	1294	1302	1294	1313	1371	1451	1197	921	745	629	530
14	398	304	209	172	172	228	454	1038	1282	1263	1189	1189	1143	1178	1186	1178	1196	1248	1321	1090	839	678	572	482
15	240	184	126	104	104	138	274	627	775	764	719	719	679	700	705	700	710	742	785	648	498	403	340	287
16	348	266	183	150	150	199	397	908	1122	1106	1040	1040	1282	1321	1330	1321	1341	1401	1482	1223	941	761	642	541
17	443	339	233	191	191	254	505	1156	1428	1407	1324	1324	849	875	881	875	888	927	981	809	623	504	425	358

Note: The vehicle flow in each hour is derived from the hourly variation partern in the nearly core station no. 5019 - Castle Peak Road - Yuen Long in Annual Traffic Census 2006.
Link No. 1-4 are outside of 500m Study Boundary and therefore not used in the current assessment.

Annex D4

Summary of Calculated VMTs for All Vehicle Classes

Annex D4 - Summary of Calculated VMTs for All Vehicle Classes

Vehicle Class	Road Speed		0000-0100	0100-0200	0200-0300	0300-0400	0400-0500	0500-0600	0600-0700	0700-0800	0800-0900	0900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	2200-2300	2300-0000
Petrol PC & LGV	80kph (non-stop)	Total VMT	974080.66	745780.51	512407.02	421086.95	421086.95	558067.05	1111060.8	2541741.7	3140395.5	3094735.4	2912095.3	2912095.3	2792023.5	2878226.6	2897382.9	2878226.6	2921328.2	3050632.9	3227828.2	2662718.8	2049718.8	1657015.7	1398406.3	1178109.4
		VMT (Petrol)	974080.66	745780.51	512407.02	421086.95	421086.95	558067.05	1111060.8	2541741.7	3140395.5	3094735.4	2912095.3	2912095.3	2792023.5	2878226.6	2897382.9	2878226.6	2921328.2	3050632.9	3227828.2	2662718.8	2049718.8	1657015.7	1398406.3	1178109.4
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	48728.164	37307.501	25633.045	21064.779	21064.779	27917.177	55580.562	127150.05	157097.57	154813.44	145676.91	145676.91	159289.84	164207.88	165300.78	164207.88	166666.9	174043.96	184153.26	151912.78	116940.05	94535.651	79781.532	67213.209
		VMT (Petrol)	48728.164	37307.501	25633.045	21064.779	21064.779	27917.177	55580.562	127150.05	157097.57	154813.44	145676.91	145676.91	159289.84	164207.88	165300.78	164207.88	166666.9	174043.96	184153.26	151912.78	116940.05	94535.651	79781.532	67213.209
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	698755	534984.3	367574.24	302065.96	302065.96	400328.38	797017.42	1823313.8	2252757	2220002.9	2088986.3	2088986.3	2148527.4	2214862.7	2229603.9	2214862.7	2248030.4	2347533.4	2483889.3	2049024.4	1577306.6	1275112.3	1076106.3	906582.75
		VMT (Petrol)	698755	534984.3	367574.24	302065.96	302065.96	400328.38	797017.42	1823313.8	2252757	2220002.9	2088986.3	2088986.3	2148527.4	2214862.7	2229603.9	2214862.7	2248030.4	2347533.4	2483889.3	2049024.4	1577306.6	1275112.3	1076106.3	906582.75
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	9343.8998	7153.9233	4915.2806	4039.29	4039.29	5353.2759	10657.886	24381.739	30124.344	29686.348	27934.367	27934.367	33144.343	34167.668	34395.073	34167.668	34679.33	36214.317	38317.817	31609.356	24332.382	19670.571	16600.597	13985.435
		VMT (Petrol)	9343.8998	7153.9233	4915.2806	4039.29	4039.29	5353.2759	10657.886	24381.739	30124.344	29686.348	27934.367	27934.367	33144.343	34167.668	34395.073	34167.668	34679.33	36214.317	38317.817	31609.356	24332.382	19670.571	16600.597	13985.435
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	668.40851	511.75027	351.61073	288.94743	288.94743	382.94238	762.40346	1744.1285	2154.9212	2123.5895	1998.2629	1998.2629	2370.9545	2444.1572	2460.4245	2444.1572	2480.7585	2590.5626	2741.0349	2261.1504	1740.5978	1407.1188	1187.5106	1000.4371
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			1730907.7	1325226.2	910529.58	748256.99	748256.99	991665.88	1974316.6	4516587.3	5580374.4	5499238.1	5174692.9	5174692.9	5132985.1	5291464.9	5326682.6	5291464.9	5370704.8	5608424.5	5934188.6	4895265.4	3768297.8	3046334.2	2570894.8	2165890.8
Hourly VMT Diesel			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PC & LGV <2.5t	80kph (non-stop)	Total VMT	24418.301	18695.262	12845.044	10555.828	10555.828	13989.652	27852.124	63716.504	78723.585	77578.977	73000.545	73000.545	74837.677	77148.274	77661.74	77148.274	78303.573	81769.469	86519.03	71371.781	54940.867	44414.813	37483.022	31578.162
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	24418.301	18695.262	12845.044	10555.828	10555.828	13989.652	27852.124	63716.504	78723.585	77578.977	73000.545	73000.545	74837.677	77148.274	77661.74	77148.274	78303.573	81769.469	86519.03	71371.781	54940.867	44414.813	37483.022	31578.162
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	135.35601	103.63195	71.202902	58.513276	58.513276	77.547715	154.39045	353.19459	436.38214	430.03733	404.65807	404.65807	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	135.35601	103.63195	71.202902	58.513276	58.513276	77.547715	154.39045	353.19459	436.38214	430.03733	404.65807	404.65807	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	21785.03	16679.164	11459.834	9417.4871	9417.4871	12481.007	24848.55	56845.314	70234.03	69212.857	65128.164	65128.164	58030.593	59822.275	60220.426	59822.275	60718.116	63405.639	67088.541	55343.07	42602.219	34440.112	29065.065	24486.322
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	21785.03	16679.164	11459.834	9417.4871	9417.4871	12481.007	24848.55	56845.314	70234.03	69212.857	65128.164	65128.164	58030.593	59822.275	60220.426	59822.275	60718.116	63405.639	67088.541	55343.07	42602.219	34440.112	29065.065	24486.322
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	296.3384	226.88409	155.88635	128.10462	128.10462	169.77721	338.01099	773.25802	955.38267	941.49181	885.92836	885.92836	1092.3172	1126.0422	1133.5367	1126.0422	1142.9048	1193.4924	1262.8161	1041.7296	801.90695	648.27057	547.0954	460.90914
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	296.3384	226.88409	155.88635	128.10462	128.10462	169.77721	338.01099	773.25802	955.38267	941.49181	885.92836	885.92836	1092.3172	1126.0422	1133.5367	1126.0422	1142.9048	1193.4924	1262.8161	1041.7296	801.90695	648.27057	547.0954	460.90914
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			46635.026	35704.942	24531.967	20159.933	20159.933	26717.983	53193.076	121688.27	150349.38	148163.36	139419.3	139419.3	133960.59	138096.59	139015.7	138096.59	140164.59	146368.6	154870.39	127756.58	98344.993	79503.196	67095.182	56525.393
LGV 2.5-3.5t	80kph (non-stop)	Total VMT	120028.25	91896.629	63139.861	51887.212	51887.212	68766.185	136907.22	313198.72	386966.08	381339.75	358834.46	358834.46	371462.88	382931.72	385480.35	382931.72	388666.14	405869.39	429444.22	354259.63	272703.45	220456.53	186050.02	156740.77
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	120028.25	91896.629	63139.861	51887.212	51887.212	68766.185	136907.22	313198.72	386966.08	381339.75	358834.46	358834.46	371462.88	382931.72	385480.35	382931.72	388666.14	405869.39	429444.22	354259.63	272703.45	220456.53	186050.02	156740.77
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	406.06803	310.89584	213.6087	175.53983	175.53983	232.64314	463.17135	1059.5838	1309.1464	1290.112	1213.9742	1213.9742	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	406.06803	310.89584	213.6087	175.53983	175.53983	232.64314	463.17135	1059.5838	1309.1464	1290.112	1213.9742	1213.9742	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	107444.93	82262.528	56520.513	46447.55	46447.55	61556.994	122554.38	280364.13	346397.99	341361.51	321215.59	321215.59	291715.77	300722.43	302723.91	300722.43	305225.76	318735.75	337249.44	278205.77	214158.4	173128.05	146108.07	123091.04
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	107444.93	82262.528	56520.513	46447.55	46447.55	61556.994	122554.38	280364.13	346397.99	341361.51	321215.59	321215.59	291715.77	300722.43	302723.91	300722.43	305225.76	318735.75	337249.44	278205.77	214158.4	173128.05	146108.07	123091.04
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	1460.6339	1118.2978	768.35428	631.41986	631.41986	836.8215	1666.0355	3811.3415	4709.0228	4640.5556	4366.6867	4366.6867	5388.4455	5554.8126	5591.7831	5554.8126	5637.9962	5887.5468	6229.5236	5138.8949	3955.8399	3197.9454	2698.8441	2273.6837
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	1460.6339	1118.2978	768.35428	631.41986	631.41986	836.8215	1666.0355	3811.3415	4709.0228	4640.5556	4366.6867	4366.6867	5388.4455	5554.8126	5591.7831	5554.8126	5637.9962	5887.5468	6229.5236	5138.8949	3955.8399	3197.9454	2698.8441	2273.6837
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			229339.89	175588.35	120642.34	99141.722	99141.722	131392.64	261590.81	598433.77	739382.24	728631.93	685630.7	685630.7	668567.09	689208.96	693796.04	689208.96	699529.89	730492.69	772923.19	637604.29	490817.69	396782.53	334856.93	282105.5
Taxi	80kph (non-stop)	Total VMT	87097.635	66684.127	45816.985	37651.582	37651.582	49899.687	99345.74	227270.39	280799.15	276716.44	260385.64	260385.64	262743.96	270856.12	272658.83	270856.12	274912.2	287080.45	303755.45	250575.71	192889.22	155933.81	131597.32	110866.23
		VMT (Petrol)	87097.635	66684.127	45816.985	37651.582	37651.582	49899.687	99345.74	227270.39	280799.15	276716.44	260385.64	260385.64	262743.96	270856.12	272658.83	270856.12	274912.2	287080.45	303755.45	250575.71	192889.22	155933.81	131597.32	110866.23
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	2842.4762	2176.2709	1495.2609	1228.7788	1228.7788	1628.502	3242.1995	7417.0864	9164.0249	9030.7839	8497.8196	8497.8196	24535.165	25292.683	25461.02	25292.683	25671.442	26807.719	28364.839	23398.888	18012.094	14561.179	12288.625	10352.745
		VMT (Petrol)	2842.4762	2176.2709	1495.2609	1228.7788	1228.7788	1628.502	3242.1995	7417.0864	9164.0249	9030.7839	8497.8196	8497.8196	24535.165	25292.683	25461.02	25292.683	25671.442	26807.719	28364.839	23398.888	18012.094	14561.179	12288.625	10352.745
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	167005.77	127863.79	87851.993	72195.202	72195.202	95680.389	190490.96	435780.68	538419.64	530591.25	499277.66	499277.66	309501.56	319057.36	321180.87	319057.36	323835.25	338168.94	357811.41	295167.87	227215.55	183683.6	155016.22	130595.86
		VMT (Petrol)	167005.77	127863.79	87851.993	72195.202	72195.202	95680.389	190490.96	435780.68	538419.64	530591.25	499277.66	499277.66	309501.56	319057.36	321180.87	319057.36	323835.25	338168.94	357811.41	295167.87	227215.55	183683.6	155016.22	130595.86
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	809.52775	619.79468	425.84533	349.9521	349.9521	463.79194	923.36759	2112.3615	2609.8837	2571.9371	2420.1507	2420.1507	1949.1299	2009.3089	2022.682	2009.3089	2039.3984	2129.6668	2253.3681	1858.8615	1430.9221	1156.7735	976.2366	822.44591
		VMT (Petrol)	809.52775	619.79468	425.84533	349.9521	349.9521	463.79194	923.36759	2112.3615	2609.8837	2571.9371	2420.1507	2420.1507	1949.1299	2009.3089	2022.682	2009.3089	2039.3984	2129.6668	2253.3681	1858.8615	1430.9221	1156.7735	976.2366	822.44591
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			257755.41	197343.98	135590.08	111425.51	111425.51	147672.37	294002.26	672580.52	830992.7	818910.41	770581.27	770581.27	598729.82	617215.47	621323.39	617215.47	626458.3	654186.78	692185.07	571001.33	439547.79	355335.36	299878.4	252637.28
Hourly VMT Diesel			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Annex D4 - Summary of Calculated VMTs for All Vehicle Classes

Vehicle Class	Road Speed		0000-0100	0100-0200	0200-0300	0300-0400	0400-0500	0500-0600	0600-0700	0700-0800	0800-0900	0900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	2200-2300	2300-0000
LGV>3.5t	80kph (non-stop)	Total VMT	96248.56	73690.304	50630.753	41607.451	41607.451	55142.404	109783.51	251148.59	310301.35	305789.7	287743.09	287743.09	298235.62	307443.58	309489.8	307443.58	312047.56	325859.5	344786.98	284423.68	218944.85	176997.47	149373.59	125842.13
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	96248.56	73690.304	50630.753	41607.451	41607.451	55142.404	109783.51	251148.59	310301.35	305789.7	287743.09	287743.09	298235.62	307443.58	309489.8	307443.58	312047.56	325859.5	344786.98	284423.68	218944.85	176997.47	149373.59	125842.13
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	406.06803	310.89584	213.6087	175.53983	175.53983	232.64314	463.17135	1059.5838	1309.1464	1290.112	1213.9742	1213.9742	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	406.06803	310.89584	213.6087	175.53983	175.53983	232.64314	463.17135	1059.5838	1309.1464	1290.112	1213.9742	1213.9742	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	86348.616	66110.659	45422.97	37327.787	37327.787	49470.561	98491.39	225315.92	278384.34	274336.75	258146.38	258146.38	232228.24	239398.24	240991.57	239398.24	242983.24	253738.23	268476.56	221473.25	170486.6	137823.28	116313.29	97989.962
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	86348.616	66110.659	45422.97	37327.787	37327.787	49470.561	98491.39	225315.92	278384.34	274336.75	258146.38	258146.38	232228.24	239398.24	240991.57	239398.24	242983.24	253738.23	268476.56	221473.25	170486.6	137823.28	116313.29	97989.962
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	1192.6178	913.09804	627.36668	515.55876	515.55876	683.27064	1360.3297	3111.9872	3844.9502	3789.0463	3565.4304	3565.4304	4296.1283	4428.7704	4458.2464	4428.7704	4495.0914	4694.0545	4966.7075	4097.1653	3153.933	2549.6748	2151.7487	1812.7746
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	1192.6178	913.09804	627.36668	515.55876	515.55876	683.27064	1360.3297	3111.9872	3844.9502	3789.0463	3565.4304	3565.4304	4296.1283	4428.7704	4458.2464	4428.7704	4495.0914	4694.0545	4966.7075	4097.1653	3153.933	2549.6748	2151.7487	1812.7746
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			184195.86	141024.96	96894.698	79626.336	79626.336	105528.88	210098.41	480636.08	593839.79	585205.6	550668.88	550668.88	534759.99	551270.59	554939.61	551270.59	559525.89	584291.79	618230.25	509994.09	392585.38	317370.42	267838.62	225644.87
HGV<15t	80kph (non-stop)	Total VMT	899755.2	688875.07	473308.72	388956.67	388956.67	515484.75	1026283.3	2347798.7	2900773.3	2858597.2	2689893.1	2689893.1	1995090.5	2056688.5	2070376.9	2056688.5	2087487.5	2179884.5	2306502.6	1902693.5	1464663.4	1184050.3	999256.31	841839.22
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	899755.2	688875.07	473308.72	388956.67	388956.67	515484.75	1026283.3	2347798.7	2900773.3	2858597.2	2689893.1	2689893.1	1995090.5	2056688.5	2070376.9	2056688.5	2087487.5	2179884.5	2306502.6	1902693.5	1464663.4	1184050.3	999256.31	841839.22
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	28424.762	21762.709	14952.609	12287.788	12287.788	16285.02	32421.995	74170.864	91640.249	90307.839	84978.196	84978.196	22647.845	23347.092	23502.48	23347.092	23696.716	24745.587	26182.928	21598.974	16626.548	13441.088	11343.346	9556.3804
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	28424.762	21762.709	14952.609	12287.788	12287.788	16285.02	32421.995	74170.864	91640.249	90307.839	84978.196	84978.196	22647.845	23347.092	23502.48	23347.092	23696.716	24745.587	26182.928	21598.974	16626.548	13441.088	11343.346	9556.3804
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	243571.59	186484.5	128128.81	105293.97	105293.97	139546.22	277823.85	635569.62	785264.66	773847.24	728177.57	728177.57	614833.27	633816.12	638034.53	633816.12	643307.54	671781.81	710802.1	586359	451369.88	364892.47	307943.94	259432.22
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	243571.59	186484.5	128128.81	105293.97	105293.97	139546.22	277823.85	635569.62	785264.66	773847.24	728177.57	728177.57	614833.27	633816.12	638034.53	633816.12	643307.54	671781.81	710802.1	586359	451369.88	364892.47	307943.94	259432.22
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	4485.4382	3434.1636	2359.5274	1939.0176	1939.0176	2569.7823	5116.203	11704.19	14460.866	14250.611	13409.591	13409.591	13036.684	13439.189	13528.635	13439.189	13640.442	14244.199	15071.57	12432.927	9570.6706	7737.0374	6529.5229	5500.8994
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	4485.4382	3434.1636	2359.5274	1939.0176	1939.0176	2569.7823	5116.203	11704.19	14460.866	14250.611	13409.591	13409.591	13036.684	13439.189	13528.635	13439.189	13640.442	14244.199	15071.57	12432.927	9570.6706	7737.0374	6529.5229	5500.8994
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			1176237	900556.45	618749.67	508477.45	508477.45	673885.78	1341645.3	3069243.4	3792139	3737002.9	3516458.5	3516458.5	2645608.3	2727290.9	2745442.6	2727290.9	2768132.2	2890656.1	3058559.2	2523084.4	1942230.5	1570120.9	1325073.1	1116328.7
HGV>15t	80kph (non-stop)	Total VMT	78460.997	60071.701	41273.754	33918.035	33918.035	44951.613	89494.575	204734.16	252954.99	249277.13	234565.69	234565.69	174156.18	179533.21	180728.11	179533.21	182221.73	190287.28	201340.08	166090.63	127853.94	103358.56	87227.452	73486.141
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	78460.997	60071.701	41273.754	33918.035	33918.035	44951.613	89494.575	204734.16	252954.99	249277.13	234565.69	234565.69	174156.18	179533.21	180728.11	179533.21	182221.73	190287.28	201340.08	166090.63	127853.94	103358.56	87227.452	73486.141
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	2436.4082	1865.375	1281.6522	1053.239	1053.239	1395.8589	2779.0281	6357.5026	7854.8785	7740.6719	7283.8453	7283.8453	1887.3204	1945.591	1958.54	1945.591	1974.7263	2062.1322	2181.9107	1799.9145	1385.5457	1120.0907	945.27882	796.36503
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	2436.4082	1865.375	1281.6522	1053.239	1053.239	1395.8589	2779.0281	6357.5026	7854.8785	7740.6719	7283.8453	7283.8453	1887.3204	1945.591	1958.54	1945.591	1974.7263	2062.1322	2181.9107	1799.9145	1385.5457	1120.0907	945.27882	796.36503
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	21091.619	16148.271	11095.07	9117.7312	9117.7312	12083.74	24057.628	55035.944	67998.501	67009.832	63055.153	63055.153	53240.955	54884.758	55250.048	54884.758	55706.659	58172.364	61551.293	50775.25	39085.984	31597.548	26666.139	22465.309
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	21091.619	16148.271	11095.07	9117.7312	9117.7312	12083.74	24057.628	55035.944	67998.501	67009.832	63055.153	63055.153	53240.955	54884.758	55250.048	54884.758	55706.659	58172.364	61551.293	50775.25	39085.984	31597.548	26666.139	22465.309
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	389.90315	298.5196	205.1053	168.55188	168.55188	223.38201	444.73328	1017.4035	1257.0315	1238.7548	1165.648	1165.648	1132.0365	1166.9879	1174.7549	1166.9879	1184.4636	1236.8907	1308.7352	1079.6095	831.06627	671.8433	566.98914	477.66893
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	389.90315	298.5196	205.1053	168.55188	168.55188	223.38201	444.73328	1017.4035	1257.0315	1238.7548	1165.648	1165.648	1132.0365	1166.9879	1174.7549	1166.9879	1184.4636	1236.8907	1308.7352	1079.6095	831.06627	671.8433	566.98914	477.66893
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			102378.93	78383.866	53855.582	44257.557	44257.557	58654.594	116775.96	267145.01	330065.4	325266.38	306070.34	306070.34	230416.49	237530.55	239111.45	237530.55	241087.58	251758.67	266382.02	219745.4	169156.53	136748.04	115405.86	97225.483
FBDD	80kph (non-stop)	Total VMT	193020.54	147781.35	101536.85	83441.171	83441.171	110584.68	220164.05	503662.97	622290.18	613242.34	577050.99	577050.99	461559.4	475809.94	478976.73	475809.94	482935.22	504311.04	533603.83	440183.58	338846.35	273927.19	231175.55	194757.48
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	193020.54	147781.35	101536.85	83441.171	83441.171	110584.68	220164.05	503662.97	622290.18	613242.34	577050.99	577050.99	461559.4	475809.94	478976.73	475809.94	482935.22	504311.04	533603.83	440183.58	338846.35	273927.19	231175.55	194757.48
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	1624.2721	1243.5834	854.43482	702.15931	702.15931	930.57258	1852.6854	4238.3351	5236.5857	5160.4479	4855.8969	4855.8969	20760.524	21401.501	21543.94	21401.501	21721.989	22683.454	24001.018	19799.059	15241.002	12320.997	10398.067	8760.0154
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	1624.2721	1243.5834	854.43482	702.15931	702.15931	930.57258	1852.6854	4238.3351	5236.5857	5160.4479	4855.8969	4855.8969	20760.524	21401.501	21543.94	21401.501	21721.989	22683.454	24001.018	19799.059	15241.002	12320.997	10398.067	8760.0154
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	106634.65	81642.152	56094.268	46097.27	46097.27	61092.767	121630.15	278249.78	343785.66	338787.16	318793.17	318793.17	261390.11	269460.47	271253.88	269460.47	273495.65	285601.2	302190.28	249284.56	191895.31	155130.32	130919.23	110294.97
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	106634.65	81642.152	56094.268	46097.27	46097.27	61092.767	121630.15	278249.78	343785.66	338787.16	318793.17	318793.17	261390.11	269460.47	271253.88	269460.47	273495.65	285601.2	302190.28	249284.56	191895.31	155130.32	130919.23	110294.97
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	1675.1102	1282.5062	881.17774	724.13616	724.13616	959.69853	1910.6725	4370.9906	5400.4853	5321.9645	5007.8814	5007.8814	4993.4786	5147.6512	5181.9117	5147.6512	5224.7374	5455.9963	5772.9066	4762.2197	3665.8814	2963.5396	2501.0219	2107.0253
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	1675.1102	1282.5062	881.17774	724.13616	724.13616	959.69853	1910.6725	4370.9906	5400.4853	5321.9645	5007.8814	5007.8814	4993.4786	5147.6512	5181.9117	5147.6512	5224.7374	5455.9963	5772.9066	4762.2197	3665.8814	2963.5396	2501.0219	2107.0253
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			302954.57	231949.59	159366.73	130964.74	130964.74	173567.72	345557.56	790522.08	976712.91	962511.92	905707.93	905707.93	748703.51	771819.57	776956.47	771819.57	783377.6	818051.69	865568.03	714029.42	549648.54	444342.05	374993.87	315919.49

Annex D4 - Summary of Calculated VMTs for All Vehicle Classes

Vehicle Class	Road Speed		0000-0100	0100-0200	0200-0300	0300-0400	0400-0500	0500-0600	0600-0700	0700-0800	0800-0900	0900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	2200-2300	2300-0000
MC	80kph (non-stop)	Total VMT	17679.21	13535.645	9300.0011	7642.5751	7642.5751	10128.714	20165.349	46131.688	56997.036	56168.323	52853.471	52853.471	63001.873	64947.042	65379.302	64947.042	65919.627	68837.381	72835.784	60084.119	46251.804	37390.477	31554.969	26583.981
		VMT (Petrol)	17679.21	13535.645	9300.0011	7642.5751	7642.5751	10128.714	20165.349	46131.688	56997.036	56168.323	52853.471	52853.471	63001.873	64947.042	65379.302	64947.042	65919.627	68837.381	72835.784	60084.119	46251.804	37390.477	31554.969	26583.981
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	19359.656	14822.236	10183.985	8369.0178	8369.0178	11091.469	22082.107	50516.601	62414.723	61507.239	57877.304	57877.304	77972.712	80380.103	80915.078	80380.103	81583.798	85194.884	90143.41	74361.626	57242.403	46275.4	39053.228	32901.007
		VMT (Petrol)	19359.656	14822.236	10183.985	8369.0178	8369.0178	11091.469	22082.107	50516.601	62414.723	61507.239	57877.304	57877.304	77972.712	80380.103	80915.078	80380.103	81583.798	85194.884	90143.41	74361.626	57242.403	46275.4	39053.228	32901.007
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	262.94233	201.31522	138.31862	113.66778	113.66778	150.64404	299.9186	686.11515	847.71512	835.3897	786.08801	786.08801	1084.5806	1118.0668	1125.5082	1118.0668	1134.8099	1185.0392	1253.872	1034.3513	796.22729	643.67907	543.22049	457.64466
		VMT (Petrol)	262.94233	201.31522	138.31862	113.66778	113.66778	150.64404	299.9186	686.11515	847.71512	835.3897	786.08801	786.08801	1084.5806	1118.0668	1125.5082	1118.0668	1134.8099	1185.0392	1253.872	1034.3513	796.22729	643.67907	543.22049	457.64466
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	116.94668	89.537304	61.518828	50.555077	50.555077	67.000704	133.39231	305.15775	377.03123	371.54936	349.62185	349.62185	482.37995	497.27332	500.58296	497.27332	504.72001	527.06008	557.67424	460.03988	354.13142	286.28381	241.60368	203.54283
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			37301.808	28559.197	19622.305	16125.261	16125.261	21370.827	42547.375	97334.405	120259.47	118510.95	111516.86	111516.86	142059.17	146445.21	147419.89	146445.21	148638.23	155217.3	164233.07	135480.1	104290.43	84309.556	71151.417	59942.632
Hourly VMT Diesel			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PLB	80kph (non-stop)	Total VMT *	70407.337	53905.618	37037.193	30436.505	30436.505	40337.537	80308.369	183719.15	226990.32	223689.98	210488.6	210488.6	160713.93	165675.94	166778.61	165675.94	168156.94	175599.96	185799.64	153270.92	117985.53	95380.824	80494.8	67814.112
		VMT (Petrol)	40836.256	31265.258	21481.572	17653.173	17653.173	23395.771	46578.854	106557.1	131654.39	129740.19	122083.39	122083.39	93214.081	96092.045	96731.593	96092.045	97531.028	101847.97	107763.79	88897.133	68431.606	55320.878	46686.984	39332.185
		VMT (Diesel)	29571.082	22640.359	15555.621	12783.332	12783.332	16941.766	33729.515	77162.041	95335.935	93949.791	88405.213	88405.213	67499.851	69583.895	70047.016	69583.895	70625.917	73751.982	78035.849	64373.786	49553.922	40059.946	33807.816	28481.927
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT *	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT *	88234.688	67554.683	46415.122	38143.12	38143.12	50551.123	100642.69	230237.39	284464.96	280328.96	263784.95	263784.95	176537.14	181987.69	183198.92	181987.69	184712.96	192888.78	204092.68	168361.32	129601.88	104771.61	88419.974	74490.8
		VMT (Petrol)	51176.119	39181.716	26920.771	22123.01	22123.01	29319.651	58372.761	133537.69	164989.68	162590.79	152995.27	152995.27	102391.54	105552.86	106255.37	105552.86	107133.52	111875.49	118373.75	97649.566	75169.091	60767.536	51283.585	43204.664
		VMT (Diesel)	37058.569	28372.967	19494.351	16020.111	16020.111	21231.472	42269.93	96699.703	119475.28	117738.16	110789.68	110789.68	74145.599	76434.829	76943.546	76434.829	77579.443	81013.288	85718.926	70711.755	54432.79	44004.078	37136.389	31286.136
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT *	99.35888	76.071642	52.266911	42.952016	42.952016	56.924358	113.33122	259.26458	320.32889	315.67144	297.04165	297.04165	486.33195	501.34735	504.6841	501.34735	508.85504	531.37814	562.24312	463.80886	357.03272	288.62925	243.58307	205.2104
		VMT (Petrol)	57.62815	44.121553	30.314808	24.912169	24.912169	33.016128	65.732109	150.37345	185.79076	183.08944	172.28416	172.28416	282.07253	290.78146	292.71678	290.78146	295.13593	308.19932	326.10101	269.00914	207.07898	167.40497	141.27818	119.02203
		VMT (Diesel)	41.73073	31.95009	21.952103	18.039847	18.039847	23.90823	47.599113	108.89112	134.53813	132.58201	124.75749	124.75749	204.25942	210.56589	211.96732	210.56589	213.71912	223.17882	236.14211	194.79972	149.95374	121.22429	102.30489	86.188366
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			92070.003	70491.096	48432.658	39801.095	39801.095	52748.439	105017.35	240245.16	296829.85	292514.07	275250.95	275250.95	195887.69	201935.69	203279.68	201935.69	204959.68	214031.67	226463.65	186815.71	143807.78	116255.82	98111.847	82655.871
Hourly VMT Diesel			66671.381	51045.276	35071.924	28821.483	28821.483	38197.145	76047.044	173970.64	214945.76	211820.53	199319.65	199319.65	141849.71	146229.29	147202.53	146229.29	148419.08	154988.45	163990.92	135280.34	104136.67	84185.248	71046.51	59854.252
PrLB<3.5t	80kph (non-stop)	Total VMT #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PrLB>3.5t	80kph (non-stop)	Total VMT #	0	0	0	0	0	0	0	78131.48	96533.705	95130.145	89515.907	89515.907	70312.121	72482.992	72965.408	72482.992	73568.428	76824.736	81287.083	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	10157.092	12549.382	12366.919	11637.068	11637.068	9140.5757	9422.789	9485.5031	9422.789	9563.8957	9987.2156	8128.7083	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	67974.388	83984.323	82763.227	77878.839	77878.839	61171.545	63060.203	63479.905	63060.203	64004.533	66837.52	73158.375	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT #	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT #	0	0	0	0	0	0	0	98686.276	121929.75	120156.94	113065.71	113065.71	75560.764	77893.687	78412.114	77893.687	79060.148	82559.531	87354.983	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	12829.216	15850.868	15620.403	14698.543	14698.543	9822.8993	10126.179	10193.575	10126.179	10277.819	10732.739	11356.148	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	85857.06	106078.88	104536.54	98367.171	98367.171	65737.865	67767.507	68218.539	67767.507	68782.329	71826.792	75998.835	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT #	0	0	0	0	0	0	0	108.90257	134.55228	132.59595	124.77061	124.77061	218.88687	225.64496	227.14676	225.64496	229.024	239.16113	253.05275	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	14.157334	17.491796	17.237473	16.22018	16.22018	28.455293	29.333845	29.529078	29.333845	29.77312	31.090947	32.896857	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	94.745238	117.06048	115.35847	108.55043	108.55043	190.43158	196.31111	197.61768	196.31111	199.25088	208.07018	220.15589	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	23000.466	28417.741	28004.559	26351.831	26351.831	18991.93	19578.302	19708.607	19578.302	19871.488	20751.046	19517.753	0	0	0	0	0
Hourly VMT Diesel			0	0	0	0	0	0	0	153926.19	190180.27	187415.13	176354.56	176354.56	127099.84	131024.02	131896.06	131024.02	132986.11	138872.38	149377.37	0	0	0	0	0

Annex D4 - Summary of Calculated VMTs for All Vehicle Classes

Vehicle Class	Road Speed		0000-0100	0100-0200	0200-0300	0300-0400	0400-0500	0500-0600	0600-0700	0700-0800	0800-0900	0900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	2200-2300	2300-0000
NFB<6.4t	80kph (non-stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
NFB6.4-15t	80kph (non-stop)	Total VMT	22586.092	17292.477	11881.225	9763.7792	9763.7792	12939.948	25762.261	58935.583	72816.619	71757.896	67523.003	67523.003	54050.079	55718.863	56089.704	55718.863	56553.256	59056.433	62486.712	51546.902	39679.989	32077.748	27071.394	22806.723
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	22586.092	17292.477	11881.225	9763.7792	9763.7792	12939.948	25762.261	58935.583	72816.619	71757.896	67523.003	67523.003	54050.079	55718.863	56089.704	55718.863	56553.256	59056.433	62486.712	51546.902	39679.989	32077.748	27071.394	22806.723
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	135.35601	103.63195	71.202902	58.513276	58.513276	77.547715	154.39045	353.19459	436.38214	430.03733	404.65807	404.65807	2642.2485	2723.8274	2741.956	2723.8274	2764.6168	2886.9851	3054.675	2519.8802	1939.7639	1568.1269	1323.3903	1114.911
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	135.35601	103.63195	71.202902	58.513276	58.513276	77.547715	154.39045	353.19459	436.38214	430.03733	404.65807	404.65807	2642.2485	2723.8274	2741.956	2723.8274	2764.6168	2886.9851	3054.675	2519.8802	1939.7639	1568.1269	1323.3903	1114.911
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	12543.941	9603.9546	6598.6354	5422.641	5422.641	7186.6327	14307.932	32731.845	40441.142	39853.145	37501.156	37501.156	30387.05	31325.243	31533.731	31325.243	31794.34	33201.631	35130.14	28979.759	22308.16	18034.167	15219.586	12821.98
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	12543.941	9603.9546	6598.6354	5422.641	5422.641	7186.6327	14307.932	32731.845	40441.142	39853.145	37501.156	37501.156	30387.05	31325.243	31533.731	31325.243	31794.34	33201.631	35130.14	28979.759	22308.16	18034.167	15219.586	12821.98
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	191.84881	146.88425	100.92047	82.934642	82.934642	109.91338	218.82755	500.60549	618.51257	609.51966	573.54801	573.54801	578.78101	596.65075	600.62181	596.65075	605.58562	632.39023	669.12248	551.97641	424.9027	343.49611	289.88689	244.21978
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	191.84881	146.88425	100.92047	82.934642	82.934642	109.91338	218.82755	500.60549	618.51257	609.51966	573.54801	573.54801	578.78101	596.65075	600.62181	596.65075	605.58562	632.39023	669.12248	551.97641	424.9027	343.49611	289.88689	244.21978
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			35457.237	27146.947	18651.984	15327.868	15327.868	20314.042	40443.411	92521.228	114312.66	112650.6	106002.37	106002.37	87658.158	90364.585	90966.013	90364.585	91717.798	95777.438	101340.65	83598.518	64352.816	52023.538	43904.257	36987.833
NFB>15t	80kph (non-stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
FBSD	80kph (non-stop)	Total VMT	10207.081	7814.7966	5369.35	4412.4362	4412.4362	5847.807	11642.452	26634.103	32907.205	32428.748	30514.92	30514.92	23334.082	24054.517	24214.614	24054.517	24414.734	25495.387	26976.28	22253.43	17130.338	13848.358	11687.053	9845.9421
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	10207.081	7814.7966	5369.35	4412.4362	4412.4362	5847.807	11642.452	26634.103	32907.205	32428.748	30514.92	30514.92	23334.082	24054.517	24214.614	24054.517	24414.734	25495.387	26976.28	22253.43	17130.338	13848.358	11687.053	9845.9421
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	70kph (non-stop)	Total VMT	135.35601	103.63195	71.202902	58.513276	58.513276	77.547715	154.39045	353.19459	436.38214	430.03733	404.65807	404.65807	1132.3922	1167.3546	1175.124	1167.3546	1184.8358	1237.2793	1309.1464	1079.9487	831.3274	672.05439	567.16729	477.81902
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	135.35601	103.63195	71.202902	58.513276	58.513276	77.547715	154.39045	353.19459	436.38214	430.03733	404.65807	404.65807	1132.3922	1167.3546	1175.124	1167.3546	1184.8358	1237.2793	1309.1464	1079.9487	831.3274	672.05439	567.16729	477.81902
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (non-stop)	Total VMT	5501.4761	4212.0676	2894.0056	2378.2423	2378.2423	3151.8873	6275.1212	14355.414	17736.53	17478.648	16447.121	16447.121	12923.45	13322.459	13411.127	13322.459	13521.963	14120.476	14940.661	12324.937	9487.5413	7669.8348	6472.8085	5453.1195
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	5501.4761	4212.0676	2894.0056	2378.2423	2378.2423	3151.8873	6275.1212	14355.414	17736.53	17478.648	16447.121	16447.121	12923.45	13322.459	13411.127	13322.459	13521.963	14120.476	14940.661	12324.937	9487.5413	7669.8348	6472.8085	5453.1195
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	50kph (stop)	Total VMT	79.131079	60.584732	41.626244	34.207706	34.207706	45.335514	90.258887	206.48266	255.1153	251.40603	236.56895	236.56895	206.2549	212.62298	214.03811	212.62298	215.80702	225.35913	238.44907	196.70279	151.41869	122.40857	103.30434	87.030371
		VMT (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		VMT (Diesel)	79.131079	60.584732	41.626244	34.207706	34.207706	45.335514	90.258887	206.48266	255.1153	251.40603	236.56895	236.56895	206.2549	212.62298	214.03811	212.62298	215.80702	225.35913	238.44907	196.70279	151.41869	122.40857	103.30434	87.030371
		Trips (Petrol)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Trips (Diesel)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Petrol			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hourly VMT Diesel			15923.044	12191.081	8376.1848	6883.3994	6883.3994	9122.5775	18162.223	41549.194	51335.232	50588.839	47603.268	47603.268	37596.179	38756.953	39014.903	38756.953	39337.34	41078.501	43464.537	35855.018	27600.626	22312.655	18830.333	15863.911
Total VMT			2159792.9	1442499.9	991105.4	814472.75	814472.75	1079421.7	2149030.5	4939275.8	6102618.2	6013888.6	5658970.6	5658970.6	4607847.4	4750113.7	4781728.5	4750113.7	4821246.9	5034646.3	5324644	4376335.6	3368833.9	2723403.1	2298363.3	1936292.4

Annex D4 - Summary of Calculated VMTs for All Vehicle Classes

Vehicle Class	Road Speed		0000-0100	0100-0200	0200-0300	0300-0400	0400-0500	0500-0600	0600-0700	0700-0800	0800-0900	0900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	2200-2300	2300-0000

Notes:

1 PC&LGV - Petrol Private Cars & Light Goods Vehicles
2 PC&LGV - <2.5t - Diesel Private Cars & Light Goods Vehicles <2.5t
3 LGV2.5-3.5t - Diesel Private Cars & Light Goods Vehicles 2.5-3.5t
4 Public Light Bus
5 LGV>3.5t - Light Goods Vehicles>3.5t
6 HGV<15t - Medium & Heavy Goods Vehicles with GVW 5.5-15t
7 HGV>15t - Medium & Heavy Goods Vehicles with GVW >=15t
8 FBDD - Double Deck Franchised Buses
9 MC - Motor Cycles
10 Taxi - Taxi (LPG)
11 PrLB<3.5t - Private Light Buses <3.5t
12 PrLB>3.5t - Private Light Buses >3.5t
13 NFB<6.4t - Non-franchised Buses <6.4t
14 NFB6.4-15t - Non-franchised Buses 6.4-15t
15 NFB>15t - Non-franchised Buses>15t
16 FBSD - Single Deck Franchised Buses

The calculated VMTs are multiplied by 1000 for the subsequent use of EMFACHK emission factor calculations

* Ratio of LPG and diesel PLB was determined with reference to Table 4.4 in the Monthly Transport Digest (Apr 2008). (ie. Ratio of LPG vs Diesel PLB = Licensed LPG PLB/Total Licensed PLB : Licensed Diesel PLB/Total Licensed PLB = 2551/4349 : 1798/4349 = 58:42)

Ratio of LPG and diesel PrLB was determined with reference to Table 4.4 in the Monthly Transport Digest (Apr 2008). (ie. Ratio of LPG vs Diesel PLB = Licensed LPG PrLB/Total Licensed PrLB : Licensed Diesel PrLB/Total Licensed PrLB = (250+4)/1909: 1655/1909 = 13:87)

Annex D5

Total Daily Emission in Year 2011 to 2026

Annex D5 - Total Daily Emission in Year 2011 to 2026

Total Daily NOx emissions (ton/day) by 16 vehicle classes in Year 2011 to 2026 **(80kph)**

Vehicle Classes	Yr 2011	Yr 2012	Yr 2013	Yr 2014	Yr 2015	Yr 2016	Yr 2017	Yr 2018	Yr 2019	Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	Yr 2025	Yr 2026
PC&LGV	0.00869	0.00760	0.00703	0.00659	0.00613	0.00571	0.00538	0.00520	0.00507	0.00499	0.00494	0.00490	0.00487	0.00485	0.00482	0.00480
PC&LGV - <2.5t	0.00101	0.00087	0.00076	0.00069	0.00060	0.00052	0.00046	0.00041	0.00039	0.00037	0.00036	0.00035	0.00034	0.00033	0.00033	0.00033
LGV 2.5-3.5t	0.00293	0.00253	0.00219	0.00204	0.00193	0.00185	0.00176	0.00169	0.00165	0.00163	0.00163	0.00163	0.00163	0.00163	0.00163	0.00163
Public Light Bus	0.00100	0.00089	0.00078	0.00068	0.00060	0.00053	0.00046	0.00042	0.00040	0.00038	0.00037	0.00037	0.00037	0.00037	0.00037	0.00037
LGV>3.5t	0.01855	0.01757	0.01654	0.01591	0.01538	0.01484	0.01426	0.01378	0.01355	0.01338	0.01327	0.01319	0.01315	0.01314	0.01313	0.01313
HGV<15t	0.26172	0.24021	0.21853	0.20310	0.19107	0.17790	0.16471	0.15140	0.13941	0.12800	0.11708	0.10950	0.10520	0.10230	0.10005	0.09871
HGV>15t	0.02858	0.02632	0.02386	0.02218	0.02067	0.01914	0.01774	0.01642	0.01532	0.01425	0.01326	0.01253	0.01201	0.01165	0.01136	0.01121
FBDD	0.04163	0.03807	0.03418	0.03137	0.02816	0.02567	0.02368	0.02205	0.02101	0.02034	0.01973	0.01902	0.01839	0.01807	0.01777	0.01731
MC	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00115	0.00114	0.00114	0.00114	0.00114	0.00114	0.00114
Taxi - Taxi (LPG)	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00100	0.00101
PrLB<3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00100
PrLB>3.5t	0.00057	0.00049	0.00043	0.00038	0.00034	0.00030	0.00027	0.00026	0.00025	0.00023	0.00023	0.00022	0.00022	0.00022	0.00022	0.00000
NFB<6.4t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00022
NFB6.4-15t	0.00587	0.00547	0.00505	0.00463	0.00424	0.00391	0.00358	0.00328	0.00306	0.00290	0.00276	0.00266	0.00259	0.00257	0.00255	0.00000
NFB>15t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00254
FBSD	0.00211	0.00185	0.00178	0.00166	0.00151	0.00137	0.00116	0.00092	0.00085	0.00076	0.00068	0.00068	0.00068	0.00068	0.00068	0.00000
Total Emissions	0.37480	0.34401	0.31326	0.29138	0.27278	0.25387	0.23560	0.21795	0.20310	0.18938	0.17644	0.16717	0.16158	0.15794	0.15505	0.15339

Total Daily NOx emissions (ton/day) by 16 vehicle classes in Year 2011 to 2026 **(70kph)**

Vehicle Classes	Yr 2011	Yr 2012	Yr 2013	Yr 2014	Yr 2015	Yr 2016	Yr 2017	Yr 2018	Yr 2019	Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	Yr 2025	Yr 2026
PC&LGV	0.00048	0.00042	0.00039	0.00037	0.00034	0.00032	0.00030	0.00029	0.00028	0.00028	0.00028	0.00027	0.00027	0.00027	0.00027	0.00027
PC&LGV - <2.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LGV 2.5-3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Public Light Bus	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
LGV>3.5t	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
HGV<15t	0.00541	0.00496	0.00451	0.00420	0.00395	0.00367	0.00340	0.00313	0.00288	0.00264	0.00242	0.00226	0.00217	0.00211	0.00207	0.00204
HGV>15t	0.00058	0.00053	0.00048	0.00045	0.00042	0.00039	0.00036	0.00033	0.00031	0.00029	0.00027	0.00025	0.00024	0.00023	0.00023	0.00023
FBDD	0.00120	0.00110	0.00099	0.00091	0.00081	0.00074	0.00068	0.00064	0.00061	0.00059	0.00057	0.00055	0.00053	0.00052	0.00051	0.00050
MC	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Taxi - Taxi (LPG)	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
PrLB<3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
PrLB>3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB<6.4t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB6.4-15t	0.00018	0.00017	0.00015	0.00014	0.00013	0.00012	0.00011	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008	0.00008	0.00008
NFB>15t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
FBSD	0.00007	0.00006	0.00006	0.00006	0.00005	0.00005	0.00004	0.00003	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
Total Emissions	0.00803	0.00736	0.00670	0.00623	0.00581	0.00540	0.00500	0.00463	0.00431	0.00402	0.00375	0.00355	0.00343	0.00335	0.00329	0.00325

Annex D5 - Total Daily Emission in Year 2011 to 2026

Total Daily NOx emissions (ton/day) by 16 vehicle classes in Year 2011 to 2026 **(50kph)**

Vehicle Classes	Yr 2011	Yr 2012	Yr 2013	Yr 2014	Yr 2015	Yr 2016	Yr 2017	Yr 2018	Yr 2019	Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	Yr 2025	Yr 2026
PC&LGV	0.00855	0.00756	0.00705	0.00664	0.00618	0.00577	0.00547	0.00531	0.00521	0.00514	0.00510	0.00507	0.00504	0.00503	0.00501	0.00500
PC&LGV - <2.5t	0.00088	0.00075	0.00065	0.00060	0.00052	0.00045	0.00040	0.00035	0.00033	0.00032	0.00031	0.00030	0.00029	0.00029	0.00029	0.00029
LGV 2.5-3.5t	0.00271	0.00234	0.00203	0.00189	0.00178	0.00171	0.00163	0.00156	0.00153	0.00151	0.00150	0.00150	0.00150	0.00150	0.00150	0.00150
Public Light Bus	0.00123	0.00110	0.00095	0.00084	0.00074	0.00065	0.00056	0.00052	0.00049	0.00047	0.00045	0.00045	0.00045	0.00045	0.00045	0.00045
LGV>3.5t	0.01615	0.01529	0.01440	0.01385	0.01338	0.01292	0.01242	0.01200	0.01179	0.01165	0.01155	0.01148	0.01145	0.01143	0.01143	0.01143
HGV<15t	0.08627	0.07918	0.07203	0.06695	0.06298	0.05864	0.05429	0.04990	0.04595	0.04219	0.03859	0.03609	0.03468	0.03372	0.03298	0.03254
HGV>15t	0.00945	0.00870	0.00789	0.00733	0.00683	0.00633	0.00586	0.00543	0.00506	0.00471	0.00438	0.00414	0.00397	0.00385	0.00376	0.00371
FBDD	0.02891	0.02644	0.02374	0.02179	0.01956	0.01783	0.01645	0.01531	0.01459	0.01413	0.01371	0.01321	0.01277	0.01255	0.01235	0.01203
MC	0.00111	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110	0.00110
Taxi - Taxi (LPG)	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201	0.00201
PrLB<3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
PrLB>3.5t	0.00075	0.00065	0.00057	0.00051	0.00045	0.00040	0.00036	0.00034	0.00032	0.00031	0.00030	0.00029	0.00029	0.00029	0.00029	0.00029
NFB<6.4t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB6.4-15t	0.00379	0.00353	0.00326	0.00298	0.00274	0.00253	0.00231	0.00212	0.00197	0.00187	0.00178	0.00171	0.00167	0.00166	0.00164	0.00164
NFB>15t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
FBSD	0.00144	0.00126	0.00122	0.00114	0.00103	0.00093	0.00080	0.00063	0.00058	0.00052	0.00047	0.00047	0.00047	0.00047	0.00047	0.00047
Total Emissions	0.16324	0.14992	0.13689	0.12761	0.11930	0.11125	0.10364	0.09657	0.09093	0.08591	0.08124	0.07782	0.07568	0.07434	0.07326	0.07243

Total Daily NOx emissions (ton/day) by 16 vehicle classes in Year 2011 to 2026 **(50kph with stops)**

Vehicle Classes	Yr 2011	Yr 2012	Yr 2013	Yr 2014	Yr 2015	Yr 2016	Yr 2017	Yr 2018	Yr 2019	Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	Yr 2025	Yr 2026
PC&LGV	0.00018	0.00017	0.00016	0.00015	0.00014	0.00013	0.00012	0.00012	0.00012	0.00012	0.00012	0.00012	0.00027	0.00012	0.00012	0.00012
PC&LGV - <2.5t	0.00002	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00000	0.00001	0.00001	0.00001
LGV 2.5-3.5t	0.00006	0.00005	0.00005	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00000	0.00004	0.00004	0.00004
Public Light Bus	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00002	0.00000	0.00000	0.00000
LGV>3.5t	0.00040	0.00038	0.00036	0.00034	0.00033	0.00032	0.00031	0.00030	0.00029	0.00029	0.00029	0.00028	0.00002	0.00028	0.00028	0.00028
HGV<15t	0.00260	0.00239	0.00217	0.00202	0.00190	0.00177	0.00164	0.00151	0.00139	0.00127	0.00116	0.00109	0.00217	0.00102	0.00100	0.00098
HGV>15t	0.00028	0.00026	0.00024	0.00022	0.00021	0.00019	0.00018	0.00016	0.00015	0.00014	0.00013	0.00012	0.00024	0.00012	0.00011	0.00011
FBDD	0.00091	0.00083	0.00075	0.00068	0.00061	0.00056	0.00052	0.00048	0.00046	0.00044	0.00043	0.00041	0.00053	0.00039	0.00039	0.00038
MC	0.00001	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00000	0.00002	0.00002	0.00002
Taxi - Taxi (LPG)	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
PrLB<3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
PrLB>3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB<6.4t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB6.4-15t	0.00010	0.00009	0.00009	0.00008	0.00007	0.00007	0.00006	0.00006	0.00005	0.00005	0.00005	0.00005	0.00004	0.00004	0.00004	0.00004
NFB>15t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
FBSD	0.00004	0.00003	0.00003	0.00003	0.00003	0.00003	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
Total Emissions	0.00463	0.00426	0.00389	0.00362	0.00338	0.00315	0.00293	0.00272	0.00255	0.00240	0.00226	0.00216	0.00333	0.00206	0.00203	0.00200

Annex D5 - Total Daily Emission in Year 2011 to 2026

Total Daily RSP emissions (ton/day) by 16 vehicle classes in Year 2011 to 2026 **(80kph)**

Vehicle Classes	Yr 2011	Yr 2012	Yr 2013	Yr 2014	Yr 2015	Yr 2016	Yr 2017	Yr 2018	Yr 2019	Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	Yr 2025	Yr 2026
PC&LGV	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017
PC&LGV - <2.5t	0.00022	0.00019	0.00017	0.00015	0.00013	0.00011	0.00010	0.00009	0.00009	0.00008	0.00008	0.00008	0.00008	0.00007	0.00007	0.00007
LGV 2.5-3.5t	0.00059	0.00050	0.00043	0.00040	0.00037	0.00036	0.00034	0.00033	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032	0.00032
Public Light Bus	0.00054	0.00048	0.00041	0.00035	0.00030	0.00025	0.00022	0.00020	0.00019	0.00018	0.00017	0.00017	0.00017	0.00017	0.00017	0.00017
LGV>3.5t	0.00121	0.00105	0.00088	0.00078	0.00069	0.00059	0.00048	0.00039	0.00034	0.00030	0.00027	0.00025	0.00024	0.00024	0.00024	0.00024
HGV<15t	0.01899	0.01626	0.01338	0.01137	0.00995	0.00850	0.00685	0.00532	0.00433	0.00379	0.00340	0.00308	0.00288	0.00278	0.00273	0.00271
HGV>15t	0.00171	0.00145	0.00117	0.00096	0.00080	0.00066	0.00053	0.00042	0.00035	0.00030	0.00027	0.00025	0.00023	0.00022	0.00022	0.00022
FBDD	0.00131	0.00110	0.00092	0.00080	0.00071	0.00063	0.00054	0.00047	0.00043	0.00041	0.00038	0.00035	0.00031	0.00031	0.00031	0.00031
MC	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004	0.00004
Taxi - Taxi (LPG)	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
PrLB<3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
PrLB>3.5t	0.00027	0.00023	0.00021	0.00019	0.00016	0.00014	0.00013	0.00012	0.00011	0.00011	0.00010	0.00010	0.00010	0.00010	0.00010	0.00010
NFB<6.4t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB6.4-15t	0.00035	0.00031	0.00025	0.00020	0.00015	0.00013	0.00011	0.00010	0.00008	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00006
NFB>15t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
FBSD	0.00012	0.00009	0.00009	0.00008	0.00008	0.00006	0.00004	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
Total Emissions	0.02556	0.02195	0.01817	0.01555	0.01362	0.01172	0.00963	0.00771	0.00652	0.00584	0.00534	0.00495	0.00467	0.00456	0.00451	0.00449

Total Daily RSP emissions (ton/day) by 16 vehicle classes in Year 2011 to 2026 **(70kph)**

Vehicle Classes	Yr 2011	Yr 2012	Yr 2013	Yr 2014	Yr 2015	Yr 2016	Yr 2017	Yr 2018	Yr 2019	Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	Yr 2025	Yr 2026
PC&LGV	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
PC&LGV - <2.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LGV 2.5-3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Public Light Bus	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
LGV>3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
HGV<15t	0.00039	0.00034	0.00028	0.00023	0.00021	0.00018	0.00014	0.00011	0.00009	0.00008	0.00007	0.00006	0.00006	0.00006	0.00006	0.00006
HGV>15t	0.00003	0.00003	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000
FBDD	0.00004	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
MC	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Taxi - Taxi (LPG)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
PrLB<3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
PrLB>3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB<6.4t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB6.4-15t	0.00001	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB>15t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
FBSD	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total Emissions	0.00057	0.00050	0.00043	0.00038	0.00034	0.00030	0.00026	0.00022	0.00020	0.00019	0.00018	0.00017	0.00016	0.00016	0.00016	0.00016

Annex D5 - Total Daily Emission in Year 2011 to 2026

Total Daily RSP emissions (ton/day) by 16 vehicle classes in Year 2011 to 2026 **(50kph)**

Vehicle Classes	Yr 2011	Yr 2012	Yr 2013	Yr 2014	Yr 2015	Yr 2016	Yr 2017	Yr 2018	Yr 2019	Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	Yr 2025	Yr 2026
PC&LGV	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034	0.00034
PC&LGV - <2.5t	0.00036	0.00032	0.00028	0.00025	0.00022	0.00019	0.00017	0.00015	0.00014	0.00014	0.00013	0.00013	0.00013	0.00012	0.00012	0.00012
LGV 2.5-3.5t	0.00105	0.00090	0.00077	0.00071	0.00067	0.00064	0.00061	0.00058	0.00057	0.00057	0.00056	0.00056	0.00056	0.00056	0.00056	0.00056
Public Light Bus	0.00126	0.00113	0.00096	0.00081	0.00069	0.00059	0.00050	0.00045	0.00042	0.00041	0.00039	0.00039	0.00039	0.00039	0.00039	0.00039
LGV>3.5t	0.00203	0.00176	0.00148	0.00131	0.00116	0.00100	0.00082	0.00065	0.00056	0.00050	0.00045	0.00042	0.00040	0.00040	0.00040	0.00040
HGV<15t	0.01013	0.00867	0.00713	0.00606	0.00531	0.00453	0.00366	0.00284	0.00231	0.00202	0.00181	0.00164	0.00153	0.00148	0.00146	0.00145
HGV>15t	0.00091	0.00078	0.00062	0.00051	0.00043	0.00035	0.00028	0.00022	0.00019	0.00016	0.00014	0.00013	0.00012	0.00012	0.00012	0.00012
FBDD	0.00151	0.00128	0.00106	0.00093	0.00082	0.00072	0.00063	0.00054	0.00049	0.00047	0.00044	0.00040	0.00035	0.00035	0.00035	0.00036
MC	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006	0.00006
Taxi - Taxi (LPG)	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027	0.00027
PrLB<3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
PrLB>3.5t	0.00063	0.00055	0.00049	0.00044	0.00039	0.00034	0.00031	0.00028	0.00026	0.00025	0.00024	0.00023	0.00023	0.00023	0.00023	0.00023
NFB<6.4t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB6.4-15t	0.00037	0.00032	0.00026	0.00020	0.00016	0.00014	0.00012	0.00010	0.00009	0.00008	0.00007	0.00007	0.00007	0.00007	0.00007	0.00007
NFB>15t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
FBSD	0.00013	0.00011	0.00010	0.00010	0.00009	0.00007	0.00005	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002
Total Emissions	0.01905	0.01647	0.01381	0.01199	0.01059	0.00923	0.00779	0.00650	0.00572	0.00526	0.00493	0.00466	0.00447	0.00441	0.00438	0.00437

Total Daily RSP emissions (ton/day) by 16 vehicle classes in Year 2011 to 2026 **(50kph with stops)**

Vehicle Classes	Yr 2011	Yr 2012	Yr 2013	Yr 2014	Yr 2015	Yr 2016	Yr 2017	Yr 2018	Yr 2019	Yr 2020	Yr 2021	Yr 2022	Yr 2023	Yr 2024	Yr 2025	Yr 2026
PC&LGV	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00001	0.00002	0.00002	0.00002
PC&LGV - <2.5t	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
LGV 2.5-3.5t	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00000	0.00002	0.00002	0.00002
Public Light Bus	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00007	0.00000	0.00000	0.00000
LGV>3.5t	0.00006	0.00005	0.00004	0.00004	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002	0.00001	0.00001	0.00000	0.00001	0.00001	0.00001
HGV<15t	0.00036	0.00031	0.00025	0.00022	0.00019	0.00016	0.00013	0.00010	0.00008	0.00007	0.00006	0.00006	0.00005	0.00005	0.00005	0.00005
HGV>15t	0.00003	0.00003	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000
FBDD	0.00006	0.00005	0.00004	0.00003	0.00003	0.00003	0.00002	0.00002	0.00002	0.00002	0.00002	0.00002	0.00001	0.00001	0.00001	0.00001
MC	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Taxi - Taxi (LPG)	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
PrLB<3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
PrLB>3.5t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB<6.4t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB6.4-15t	0.00001	0.00001	0.00001	0.00001	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
NFB>15t	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
FBSD	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Total Emissions	0.00059	0.00051	0.00043	0.00037	0.00033	0.00029	0.00024	0.00020	0.00017	0.00016	0.00015	0.00014	0.00016	0.00013	0.00013	0.00013

Annex D6

Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Annex D6 - Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Vehicular Emission Factors in 2011 (NOx @ 80kph)		PC&LGV-TOT	PC&LGV<2.5t-TOT	LGV2.5-3.5t-TOT	PLB-TOT	LGV>3.5t-TOT	HGV<15t-TOT	HGV>15t-TOT	FBDD-TOT	MC-TOT	taxi-TOT	PrLB<3.5t-TOT	PrLB>3.5t-TOT	NFB<6.4t-TOT	NFB6.4-15t-TOT	NFB>15t-TOT	FBSD-TOT
	VKT/1000 (km-vehicle) (1000X)	1567.0000	39.0000	193.0000	113.0000	155.0000	1448.0000	126.0000	311.0000	28.0000	140.0000	0.0000	0.0000	0.0000	36.0000	0.0000	16.0000
	Total Ex (ton/hr) (1000X)	0.1750	0.0190	0.0550	0.0230	0.3500	6.0000	0.6550	0.9150	0.0200	0.0190	0.0000	0.0000	0.0000	0.1290	0.0000	0.0480
0 hr result	Total Ex/VMT (g/mile-vehicle)	0.1797	0.7839	0.4585	0.3275	3.6332	6.6671	8.3642	4.7339	1.1493	0.2184	0.0000	0.0000	0.0000	5.7656	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	1200.0000	30.0000	148.0000	87.0000	119.0000	1108.0000	97.0000	238.0000	22.0000	107.0000	0.0000	0.0000	0.0000	28.0000	0.0000	13.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.1340	0.0150	0.0420	0.0170	0.2680	4.5990	0.5020	0.7020	0.0150	0.0150	0.0000	0.0000	0.0000	0.0990	0.0000	0.0370
1 hr result	Total Ex/VMT (g/mile-vehicle)	0.1797	0.8045	0.4566	0.3144	3.6236	6.6785	8.3270	4.7459	1.0970	0.2256	0.0000	0.0000	0.0000	5.6890	0.0000	4.5795
	VKT/1000 (km-vehicle) (1000X)	824.0000	21.0000	102.0000	60.0000	81.0000	762.0000	66.0000	163.0000	15.0000	73.0000	0.0000	0.0000	0.0000	19.0000	0.0000	9.0000
	Total Ex (ton/hr) (1000X)	0.0930	0.0100	0.0290	0.0120	0.1850	3.1650	0.3450	0.4830	0.0110	0.0100	0.0000	0.0000	0.0000	0.0680	0.0000	0.0250
2 hr result	Total Ex/VMT (g/mile-vehicle)	0.1816	0.7662	0.4575	0.3218	3.6749	6.6831	8.4107	4.7678	1.1799	0.2204	0.0000	0.0000	0.0000	5.7585	0.0000	4.4694
	VKT/1000 (km-vehicle) (1000X)	678.0000	17.0000	83.0000	49.0000	67.0000	626.0000	55.0000	134.0000	12.0000	60.0000	0.0000	0.0000	0.0000	16.0000	0.0000	7.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0760	0.0080	0.0240	0.0100	0.1520	2.6060	0.2840	0.3980	0.0090	0.0080	0.0000	0.0000	0.0000	0.0560	0.0000	0.0210
3 hr result	Total Ex/VMT (g/mile-vehicle)	0.1804	0.7572	0.4653	0.3284	3.6503	6.6982	8.3083	4.7790	1.2068	0.2145	0.0000	0.0000	0.0000	5.6315	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	678.0000	17.0000	83.0000	49.0000	67.0000	626.0000	55.0000	134.0000	12.0000	60.0000	0.0000	0.0000	0.0000	16.0000	0.0000	7.0000
	Total Ex (ton/hr) (1000X)	0.0770	0.0080	0.0240	0.0100	0.1520	2.6120	0.2850	0.3990	0.0090	0.0080	0.0000	0.0000	0.0000	0.0560	0.0000	0.0210
4 hr result	Total Ex/VMT (g/mile-vehicle)	0.1827	0.7572	0.4653	0.3284	3.6503	6.7136	8.3375	4.7910	1.2068	0.2145	0.0000	0.0000	0.0000	5.6315	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	898.0000	23.0000	111.0000	65.0000	89.0000	829.0000	72.0000	178.0000	16.0000	80.0000	0.0000	0.0000	0.0000	21.0000	0.0000	9.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.1020	0.0110	0.0320	0.0130	0.2020	3.4680	0.3790	0.5290	0.0120	0.0110	0.0000	0.0000	0.0000	0.0750	0.0000	0.0280
5 hr result	Total Ex/VMT (g/mile-vehicle)	0.1828	0.7695	0.4639	0.3218	3.6519	6.7310	8.4696	4.7818	1.2068	0.2212	0.0000	0.0000	0.0000	5.7464	0.0000	5.0058
	VKT/1000 (km-vehicle) (1000X)	179.0000	45.0000	220.0000	129.0000	177.0000	1651.0000	144.0000	354.0000	32.0000	159.0000	0.0000	0.0000	0.0000	41.0000	0.0000	19.0000
	Total Ex (ton/hr) (1000X)	0.0200	0.0220	0.0640	0.0260	0.4030	6.9010	0.7530	1.0530	0.0230	0.0220	0.0000	0.0000	0.0000	0.1490	0.0000	0.0550
6 hr result	Total Ex/VMT (g/mile-vehicle)	0.1798	0.7866	0.4681	0.3243	3.6634	6.7254	8.4137	4.7861	1.1565	0.2226	0.0000	0.0000	0.0000	5.8473	0.0000	4.6576
	VKT/1000 (km-vehicle) (1000X)	4090.0000	103.0000	504.0000	296.0000	404.0000	3778.0000	329.0000	810.0000	74.0000	364.0000	0.0000	126.0000	0.0000	94.0000	0.0000	43.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.4660	0.0500	0.1450	0.0590	0.9210	15.7810	1.7230	2.4080	0.0530	0.0510	0.0000	0.0000	0.0000	0.3400	0.0000	0.1250
7 hr result	Total Ex/VMT (g/mile-vehicle)	0.1833	0.7811	0.4629	0.3207	3.6680	6.7209	8.4265	4.7833	1.1524	0.2254	0.0000	0.0000	0.0000	5.8198	0.0000	4.6773
	VKT/1000 (km-vehicle) (1000X)	5053.0000	127.0000	623.0000	365.0000	499.0000	4667.0000	407.0000	1001.0000	92.0000	450.0000	0.0000	155.0000	0.0000	116.0000	0.0000	53.0000
	Total Ex (ton/hr) (1000X)	0.5750	0.0630	0.1800	0.0740	1.1400	19.5380	2.1330	2.9810	0.0660	0.0630	0.0000	0.0610	0.0000	0.4210	0.0000	0.1550
8 hr result	Total Ex/VMT (g/mile-vehicle)	0.1831	0.7982	0.4649	0.3262	3.6759	6.7359	8.4324	4.7916	1.1543	0.2253	0.0000	0.6332	0.0000	5.8396	0.0000	4.7056
	VKT/1000 (km-vehicle) (1000X)	4979.0000	125.0000	614.0000	360.0000	492.0000	4599.0000	401.0000	987.0000	90.0000	443.0000	0.0000	153.0000	0.0000	115.0000	0.0000	52.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5670	0.0620	0.1780	0.0730	1.1250	19.2840	2.1050	2.9420	0.0640	0.0620	0.0000	0.0600	0.0000	0.4150	0.0000	0.1530
9 hr result	Total Ex/VMT (g/mile-vehicle)	0.1832	0.7981	0.4665	0.3263	3.6791	6.7467	8.4462	4.7960	1.1442	0.2252	0.0000	0.6310	0.0000	5.8064	0.0000	4.7342
	VKT/1000 (km-vehicle) (1000X)	4686.0000	117.0000	577.0000	339.0000	463.0000	4328.0000	377.0000	928.0000	85.0000	417.0000	0.0000	144.0000	0.0000	108.0000	0.0000	49.0000
	Total Ex (ton/hr) (1000X)	0.5340	0.0580	0.1670	0.0680	1.0590	18.1500	1.9810	2.7690	0.0600	0.0580	0.0000	0.0570	0.0000	0.3910	0.0000	0.1440
10 hr result	Total Ex/VMT (g/mile-vehicle)	0.1834	0.7976	0.4657	0.3227	3.6802	6.7475	8.4547	4.8010	1.1358	0.2238	0.0000	0.6369	0.0000	5.8252	0.0000	4.7285
	VKT/1000 (km-vehicle) (1000X)	4686.0000	117.0000	577.0000	339.0000	463.0000	4328.0000	377.0000	928.0000	85.0000	417.0000	0.0000	144.0000	0.0000	108.0000	0.0000	49.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5350	0.0580	0.1670	0.0680	1.0600	18.1580	1.9820	2.7710	0.0600	0.0580	0.0000	0.0570	0.0000	0.3910	0.0000	0.1440
11 hr result	Total Ex/VMT (g/mile-vehicle)	0.1837	0.7976	0.4657	0.3227	3.6837	6.7505	8.4590	4.8045	1.1358	0.2238	0.0000	0.6369	0.0000	5.8252	0.0000	4.7285
	VKT/1000 (km-vehicle) (1000X)	4492.0000	120.0000	598.0000	259.0000	480.0000	3210.0000	280.0000	743.0000	101.0000	421.0000	0.0000	113.0000	0.0000	86.0000	0.0000	37.0000
	Total Ex (ton/hr) (1000X)	0.5120	0.0590	0.1730	0.0520	1.0960	13.4430	1.4690	2.2120	0.0710	0.0590	0.0000	0.0450	0.0000	0.3120	0.0000	0.1100
12 hr result	Total Ex/VMT (g/mile-vehicle)	0.1834	0.7911	0.4655	0.3230	3.6739	6.7383	8.4415	4.7902	1.1311	0.2255	0.0000	0.6408	0.0000	5.8373	0.0000	4.7835
	VKT/1000 (km-vehicle) (1000X)	4631.0000	124.0000	616.0000	267.0000	495.0000	3309.0000	289.0000	766.0000	104.0000	434.0000	0.0000	117.0000	0.0000	89.0000	0.0000	38.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5270	0.0610	0.1780	0.0540	1.1290	13.8410	1.5120	2.2770	0.0730	0.0600	0.0000	0.0460	0.0000	0.3210	0.0000	0.1130
13 hr result	Total Ex/VMT (g/mile-vehicle)	0.1831	0.7915	0.4649	0.3254	3.6698	6.7302	8.4180	4.7829	1.1294	0.2224	0.0000	0.6326	0.0000	5.8032	0.0000	4.7847
	VKT/1000 (km-vehicle) (1000X)	4662.0000	125.0000	620.0000	268.0000	498.0000	3331.0000	291.0000	771.0000	105.0000	437.0000	0.0000	117.0000	0.0000	89.0000	0.0000	39.0000
	Total Ex (ton/hr) (1000X)	0.5280	0.0620	0.1790	0.0540	1.1340	13.9120	1.5200	2.2890	0.0730	0.0610	0.0000	0.0460	0.0000	0.3230	0.0000	0.1140
14 hr result	Total Ex/VMT (g/mile-vehicle)	0.1822	0.7981	0.4645	0.3242	3.6639	6.7200	8.4044	4.7769	1.1186	0.2246	0.0000	0.6326	0.0000	5.8394	0.0000	4.7032
	VKT/1000 (km-vehicle) (1000X)	4631.0000	124.0000	616.0000	267.0000	495.0000	3309.0000	289.0000	766.0000	104.0000	434.0000	0.0000	117.0000	0.0000	89.0000	0.0000	38.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5220	0.0610	0.1770	0.0530	1.1240	13.7860	1.5060	2.2680	0.0730	0.0600	0.0000	0.0460	0.0000	0.3200	0.0000	0.1130
15 hr result	Total Ex/VMT (g/mile-vehicle)	0.1814	0.7915	0.4623	0.3194	3.6536	6.7034	8.3846	4.7640	1.1294	0.2224	0.0000	0.6326	0.0000	5.7852	0.0000	4.7847
	VKT/1000 (km-vehicle) (1000X)	4700.0000	126.0000	625.0000	271.0000	502.0000	3359.0000	293.0000	777.0000	106.0000	440.0000	0.0000	118.0000	0.0000	90.0000	0.0000	39.0000
	Total Ex (ton/hr) (1000X)	0.5280	0.0620	0.1800	0.0540	1.1400	13.9840	1.5280	2.3010	0.0740	0.0610	0.0000	0.0460	0.0000	0.3240	0.0000	0.1140
16 hr result	Total Ex/VMT (g/mile-vehicle)	0.1808	0.7917	0.4634	0.3206	3.6539	6.6985	8.3910	4.7649	1.1233	0.2231	0.0000	0.6272	0.0000	5.7924	0.0000	4.7032
	VKT/1000 (km-vehicle) (1000X)	4908.0000	132.0000	653.0000	283.0000	524.0000	3507.0000	306.0000	811.0000	111.0000	460.0000	0.0000	124.0000	0.0000	94.0000	0.0000	41.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5470	0.0640	0.1870	0.0560	1.1870	14.5570	1.5910	2.3950	0.0770	0.0630	0.0000	0.0480	0.0000	0.3370	0.0000	0.1190
17 hr result	Total Ex/VMT (g/mile-vehicle)	0.1793	0.7801	0.4608	0.3184	3.6448	6.6787	8.3657	4.7516	1.1162	0.2204	0.0000	0.6228	0.0000	5.7684	0.0000	4.6700
	VKT/1000 (km-vehicle) (1000X)	5194.0000	139.0000	691.0000	299.0000	555.0000	3711.0000	324.0000	859.0000	117.0000	487.0000	0.0000	131.0000	0.0000	100.0000	0.0000	43.0000
	Total Ex (ton/hr) (1000X)	0.5760	0.0680	0.1980	0.0600	1.2530	15.3700	1.6790	2.5290	0.0820	0.0660	0.0000	0.0530	0.0000	0.3560	0.0000	0.1260
18 hr result	Total Ex/VMT (g/mile-vehicle)	0.1784	0.7871	0.4610	0.3229	3.6326	6.6641	8.3380	4.7371	1.1277	0.2181	0.0000	0.6510	0.0000	5.7280	0.0000	4.7147
	VKT/1000 (km-vehicle) (1000X)	4284.0000	115.0000	570.0000	247.0000	458.0000	3061.0000	267.0000	708.0000	97.0000	401.0000	0.0000	0.0000	0.0000	82.0000	0.0000	36.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.4740	0.0560	0.1630	0.0490	1.0320	12.6620	1.3830	2.0830	0.0680	0.0540	0.0000	0.0000	0.0000	0.2940	0.0000	0.1030
19 hr result	Total Ex/VMT (g/mile-vehicle)	0.1780	0.7835	0.4601	0.3192	3.6255	6.6557	8.3343	4.7338	1.1280	0.2167	0.0000	0.0000	0.0000	5.7689	0.0000	4.6035
	VKT/1000 (km-vehicle) (1000X)	3298.0000	88.0000	439.0000	190.0000	352.0000	2357.0000	206.0000	545.0000	74.0000	309.0000	0.0000	0.0000	0.0000	63.0000	0.0000	27.0000
	Total Ex (ton/hr) (1000X)	0.3660	0.0430	0.1250	0.0380	0.7950	9.7500	1.0650	1.6040	0.0520	0.0420	0.0000	0.0000	0.0000	0.2260	0.0000	0.0800
20 hr result	Total Ex/VMT (g/mile-vehicle)	0.1796	0.7862	0.4581	0.3218	3.6340	6.6558	8.3184	4.7355	1.1306	0.2187	0.0000	0.0000	0.0000	5.7720	0.0000	4.7674
	VKT/1000 (km-vehicle) (1000X)	2666.0000	71.0000	355.0000	153.0000	285.0000	1905.0000	166.0000	441.0000	60.0000	250.0000	0.0000	0.0000	0.0000	51.0000	0.0000	22.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.2960	0.0350	0.1010	0.0310	0.6430	7.8810	0.8610	1.2970	0.0420	0.0340	0.0000	0.0000	0.0000	0.1830	0.0000	0.0640
21 hr result	Total Ex/VMT (g/mile-vehicle)	0.1786	0.7932	0.4578	0.3260	3.6301	6.6564	8.3455	4.7321	1.1263	0.2188	0.0000	0.0000	0.0000	5.7735	0.0000	4.6807
	VKT/1000 (km-vehicle) (1000X)	2250.0000	60.0000	299.0000	130.0000	240.0000	1608.0000	140.0000	372.0000	51.0000	211.0000	0.0000	0.0000	0.0000	43.0000	0.0000	19.0000
	Total Ex (ton/hr) (1000X)	0.2510	0.0290	0.0860	0.0260	0.5430	6.6570	0.7270	1.0950	0.0360	0.0290	0.0000	0.0000	0.0000	0.1540	0.0000	0.0540
22 hr result	Total Ex/VMT (g/mile-vehicle)	0.1795	0.7777	0.4628	0.3218	3.6404	6.6611	8.3553	4.7362	1.1358	0.2211	0.0000	0.0000	0.0000	5.7625	0.0000	4.5729
	VKT/1000 (km-vehicle) (1000X)	1896.0000	51.0000	252.0000	109.0000	202.0000	1355.0000	118.0000	313.0000	43.0000	178.0000	0.0000	0.0000	0.0000	36.0000	0.0000	16.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.2110	0.0250	0.0720	0.0220	0.4570	5.6100	0.6130	0.9230	0.0300	0.0240	0.0000	0.0000	0.0000	0.1300	0.0000	0.0460
23 hr result	Total Ex/VMT (g/mile-vehicle)	0.1791	0.7887	0.4597	0.3248	3.6402	6.6616	8.3586	4.7448	1.1226	0.2169	0.0000	0.0000	0.0000	5.8103	0.0000	4.6259
Max Emission		0.1837	0.8045	0.4681	0.3284	3.6837	6.7505	8.4696	4.8045	1.2068	0.2256	0.0000	0.6510	0.0000	5.8473	0.0000	5.0058

Annex D6 - Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Vehicular Emission Factors in 2011 (NOx @ 70kph)		PC&LGV-TOT	PC&LGV<2.5t-TOT	LGV2.5-3.5t-TOT	PLB-TOT	LGV>3.5t-TOT	HGV<15t-TOT	HGV>15t-TOT	FBDD-TOT	MC-TOT	taxi-TOT	PrLB<3.5t-TOT	PrLB>3.5t-TOT	NFB<6.4t-TOT	NFB6.4-15t-TOT	NFB>15t-TOT	FBSD-TOT
	VKT/1000 (km-vehicle) (1000X)	78.0000	0.0000	1.0000	277.0000	1.0000	46.0000	4.0000	3.0000	0.0000	5.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0090	0.0000	0.0000	0.0000	0.0010	0.1900	0.0200	0.0080	0.0000	0.0010	0.0000	0.0000	0.0000	0.0010	0.0000	0.0010
0 hr result	Total Ex/VMT (g/mile-vehicle)	0.1857	0.0000	0.0000	0.0000	1.6090	6.6459	8.0450	4.2907	0.0000	0.3218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	60.0000	0.0000	1.0000	212.0000	1.0000	35.0000	3.0000	2.0000	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0070	0.0000	0.0000	0.0000	0.0010	0.1450	0.0160	0.0060	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
1 hr result	Total Ex/VMT (g/mile-vehicle)	0.1877	0.0000	0.0000	0.0000	1.6090	6.6659	8.5813	4.8270	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	41.0000	0.0000	0.0000	146.0000	0.0000	24.0000	2.0000	1.0000	0.0000	2.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0050	0.0000	0.0000	0.0000	0.0010	0.1000	0.0110	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2 hr result	Total Ex/VMT (g/mile-vehicle)	0.1962	0.0000	0.0000	0.0000	0.0000	6.7042	8.8495	6.4360	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	34.0000	0.0000	0.0000	120.0000	0.0000	20.0000	2.0000	1.0000	0.0000	2.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0040	0.0000	0.0000	0.0000	0.0010	0.0820	0.0090	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3 hr result	Total Ex/VMT (g/mile-vehicle)	0.1893	0.0000	0.0000	0.0000	0.0000	6.5969	7.2405	4.8270	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	34.0000	0.0000	0.0000	120.0000	0.0000	20.0000	2.0000	1.0000	0.0000	2.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0040	0.0000	0.0000	0.0000	0.0010	0.0830	0.0090	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4 hr result	Total Ex/VMT (g/mile-vehicle)	0.1893	0.0000	0.0000	0.0000	0.0000	6.6774	7.2405	4.8270	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	45.0000	0.0000	0.0000	159.0000	0.0000	26.0000	2.0000	1.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0050	0.0000	0.0000	0.0000	0.0010	0.1100	0.0120	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5 hr result	Total Ex/VMT (g/mile-vehicle)	0.1788	0.0000	0.0000	0.0000	0.0000	6.8073	9.6540	6.4360	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	89.0000	0.0000	1.0000	316.0000	1.0000	52.0000	4.0000	3.0000	0.0000	5.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0100	0.0000	0.0000	0.0010	0.0020	0.2180	0.0230	0.0090	0.0000	0.0010	0.0000	0.0000	0.0000	0.0010	0.0000	0.0010
6 hr result	Total Ex/VMT (g/mile-vehicle)	0.1808	0.0000	0.0000	0.0051	3.2180	6.7454	9.2518	4.8270	0.0000	0.3218	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	205.0000	1.0000	2.0000	724.0000	2.0000	119.0000	10.0000	7.0000	0.0000	12.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0230	0.0000	0.0000	0.0010	0.0040	0.4990	0.0530	0.0200	0.0000	0.0020	0.0000	0.0000	0.0000	0.0020	0.0000	0.0020
7 hr result	Total Ex/VMT (g/mile-vehicle)	0.1805	0.0000	0.0000	0.0022	3.2180	6.7470	8.5277	4.5971	0.0000	0.2682	0.0000	0.0000	0.0000	3.2180	0.0000	3.2180
	VKT/1000 (km-vehicle) (1000X)	253.0000	1.0000	2.0000	894.0000	2.0000	147.0000	13.0000	8.0000	0.0000	15.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (ton/hr) (1000X)	0.0290	0.0000	0.0010	0.0010	0.0040	0.6170	0.0660	0.0250	0.0000	0.0020	0.0000	0.0000	0.0000	0.0030	0.0000	0.0020
8 hr result	Total Ex/VMT (g/mile-vehicle)	0.1844	0.0000	0.8045	0.0018	3.2180	6.7534	8.1688	5.0281	0.0000	0.2145	0.0000	0.0000	0.0000	4.8270	0.0000	3.2180
	VKT/1000 (km-vehicle) (1000X)	249.0000	1.0000	2.0000	881.0000	2.0000	145.0000	12.0000	8.0000	0.0000	15.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0280	0.0000	0.0010	0.0010	0.0040	0.6090	0.0650	0.0250	0.0000	0.0020	0.0000	0.0000	0.0000	0.0030	0.0000	0.0020
9 hr result	Total Ex/VMT (g/mile-vehicle)	0.1809	0.0000	0.8045	0.0018	3.2180	6.7578	8.7154	5.0281	0.0000	0.2145	0.0000	0.0000	0.0000	4.8270	0.0000	3.2180
	VKT/1000 (km-vehicle) (1000X)	234.0000	1.0000	2.0000	829.0000	2.0000	137.0000	12.0000	8.0000	0.0000	14.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (ton/hr) (1000X)	0.0270	0.0000	0.0010	0.0010	0.0040	0.5730	0.0620	0.0230	0.0000	0.0020	0.0000	0.0000	0.0000	0.0020	0.0000	0.0020
10 hr result	Total Ex/VMT (g/mile-vehicle)	0.1857	0.0000	0.8045	0.0019	3.2180	6.7296	8.3132	4.6259	0.0000	0.2299	0.0000	0.0000	0.0000	3.2180	0.0000	3.2180
	VKT/1000 (km-vehicle) (1000X)	234.0000	1.0000	2.0000	829.0000	2.0000	137.0000	12.0000	8.0000	0.0000	14.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0270	0.0000	0.0010	0.0010	0.0040	0.5740	0.0620	0.0230	0.0000	0.0020	0.0000	0.0000	0.0000	0.0020	0.0000	0.0020
11 hr result	Total Ex/VMT (g/mile-vehicle)	0.1857	0.0000	0.8045	0.0019	3.2180	6.7414	8.3132	4.6259	0.0000	0.2299	0.0000	0.0000	0.0000	3.2180	0.0000	3.2180
	VKT/1000 (km-vehicle) (1000X)	256.0000	0.0000	0.0000	603.0000	0.0000	36.0000	3.0000	33.0000	0.0000	39.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (ton/hr) (1000X)	0.0290	0.0000	0.0000	0.0010	0.0000	0.1530	0.0160	0.0990	0.0000	0.0060	0.0000	0.0000	0.0000	0.0150	0.0000	0.0050
12 hr result	Total Ex/VMT (g/mile-vehicle)	0.1823	0.0000	0.0000	0.0027	0.0000	6.8383	8.5813	4.8270	0.0000	0.2475	0.0000	0.0000	0.0000	6.0338	0.0000	4.0225
	VKT/1000 (km-vehicle) (1000X)	264.0000	0.0000	0.0000	621.0000	0.0000	38.0000	3.0000	34.0000	0.0000	41.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0300	0.0000	0.0000	0.0010	0.0000	0.1570	0.0160	0.1020	0.0000	0.0060	0.0000	0.0000	0.0000	0.0160	0.0000	0.0060
13 hr result	Total Ex/VMT (g/mile-vehicle)	0.1828	0.0000	0.0000	0.0026	0.0000	6.6477	8.5813	4.8270	0.0000	0.2355	0.0000	0.0000	0.0000	6.4360	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	266.0000	0.0000	0.0000	625.0000	0.0000	38.0000	3.0000	35.0000	0.0000	41.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (ton/hr) (1000X)	0.0300	0.0000	0.0000	0.0010	0.0000	0.1580	0.0160	0.1030	0.0000	0.0060	0.0000	0.0000	0.0000	0.0160	0.0000	0.0060
14 hr result	Total Ex/VMT (g/mile-vehicle)	0.1815	0.0000	0.0000	0.0026	0.0000	6.6901	8.5813	4.7351	0.0000	0.2355	0.0000	0.0000	0.0000	6.4360	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	264.0000	0.0000	0.0000	621.0000	0.0000	38.0000	3.0000	34.0000	0.0000	41.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0300	0.0000	0.0000	0.0010	0.0000	0.1560	0.0160	0.1020	0.0000	0.0060	0.0000	0.0000	0.0000	0.0160	0.0000	0.0060
15 hr result	Total Ex/VMT (g/mile-vehicle)	0.1828	0.0000	0.0000	0.0026	0.0000	6.6054	8.5813	4.8270	0.0000	0.2355	0.0000	0.0000	0.0000	6.4360	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	268.0000	0.0000	0.0000	631.0000	0.0000	38.0000	3.0000	35.0000	0.0000	41.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (ton/hr) (1000X)	0.0300	0.0000	0.0000	0.0010	0.0000	0.1590	0.0170	0.1040	0.0000	0.0060	0.0000	0.0000	0.0000	0.0160	0.0000	0.0060
16 hr result	Total Ex/VMT (g/mile-vehicle)	0.1801	0.0000	0.0000	0.0025	0.0000	6.7324	9.1177	4.7810	0.0000	0.2355	0.0000	0.0000	0.0000	6.4360	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	280.0000	0.0000	0.0000	658.0000	0.0000	40.0000	3.0000	36.0000	0.0000	43.0000	0.0000	0.0000	0.0000	5.0000	0.0000	2.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0310	0.0000	0.0000	0.0010	0.0000	0.1650	0.0170	0.1080	0.0000	0.0060	0.0000	0.0000	0.0000	0.0170	0.0000	0.0060
17 hr result	Total Ex/VMT (g/mile-vehicle)	0.1781	0.0000	0.0000	0.0024	0.0000	6.6371	9.1177	4.8270	0.0000	0.2245	0.0000	0.0000	0.0000	5.4706	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	296.0000	0.0000	0.0000	697.0000	0.0000	42.0000	4.0000	39.0000	0.0000	46.0000	0.0000	0.0000	0.0000	5.0000	0.0000	2.0000
	Total Ex (ton/hr) (1000X)	0.0330	0.0000	0.0000	0.0010	0.0000	0.1740	0.0180	0.1140	0.0000	0.0060	0.0000	0.0000	0.0000	0.0180	0.0000	0.0060
18 hr result	Total Ex/VMT (g/mile-vehicle)	0.1794	0.0000	0.0000	0.0023	0.0000	6.6659	7.2405	4.7032	0.0000	0.2099	0.0000	0.0000	0.0000	5.7924	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	244.0000	0.0000	0.0000	575.0000	0.0000	35.0000	3.0000	32.0000	0.0000	38.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0270	0.0000	0.0000	0.0010	0.0000	0.1440	0.0150	0.0940	0.0000	0.0050	0.0000	0.0000	0.0000	0.0140	0.0000	0.0050
19 hr result	Total Ex/VMT (g/mile-vehicle)	0.1780	0.0000	0.0000	0.0028	0.0000	6.6199	8.0450	4.7264	0.0000	0.2117	0.0000	0.0000	0.0000	5.6315	0.0000	4.0225
	VKT/1000 (km-vehicle) (1000X)	188.0000	0.0000	0.0000	442.0000	0.0000	27.0000	2.0000	25.0000	0.0000	29.0000	0.0000	0.0000	0.0000	3.0000	0.0000	1.0000
	Total Ex (ton/hr) (1000X)	0.0210	0.0000	0.0000	0.0010	0.0000	0.1110	0.0120	0.0720	0.0000	0.0040	0.0000	0.0000	0.0000	0.0110	0.0000	0.0040
20 hr result	Total Ex/VMT (g/mile-vehicle)	0.1797	0.0000	0.0000	0.0036	0.0000	6.6148	9.6540	4.6339	0.0000	0.2219	0.0000	0.0000	0.0000	5.8997	0.0000	6.4360
	VKT/1000 (km-vehicle) (1000X)	152.0000	0.0000	0.0000	358.0000	0.0000	22.0000	2.0000	20.0000	0.0000	23.0000	0.0000	0.0000	0.0000	3.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0170	0.0000	0.0000	0.0010	0.0000	0.0890	0.0090	0.0580	0.0000	0.0030	0.0000	0.0000	0.0000	0.0090	0.0000	0.0030
21 hr result	Total Ex/VMT (g/mile-vehicle)	0.1800	0.0000	0.0000	0.0045	0.0000	6.5091	7.2405	4.6661	0.0000	0.2099	0.0000	0.0000	0.0000	4.8270	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	128.0000	0.0000	0.0000	302.0000	0.0000	18.0000	2.0000	17.0000	0.0000	20.0000	0.0000	0.0000	0.0000	2.0000	0.0000	1.0000
	Total Ex (ton/hr) (1000X)	0.0140	0.0000	0.0000	0.0000	0.0000	0.0760	0.0080	0.0490	0.0000	0.0030	0.0000	0.0000	0.0000	0.0080	0.0000	0.0030
22 hr result	Total Ex/VMT (g/mile-vehicle)	0.1760	0.0000	0.0000	0.0000	0.0000	6.7936	6.4360	4.6377	0.0000	0.2414	0.0000	0.0000	0.0000	6.4360	0.0000	4.8270
	VKT/1000 (km-vehicle) (1000X)	108.0000	0.0000	0.0000	254.0000	0.0000	15.0000	1.0000	14.0000	0.0000	17.0000	0.0000	0.0000	0.0000	2.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0120	0.0000	0.0000	0.0000	0.0000	0.0640	0.0070	0.0420	0.0000	0.0020	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
23 hr result	Total Ex/VMT (g/mile-vehicle)	0.1788	0.0000	0.0000	0.0000	0.0000	6.8651	11.2630	4.8270	0.0000	0.1893	0.0000	0.0000	0.0000	4.8270	0.0000	3.2180
Max Emission		0.1962	0.0000	0.8045	0.0051	3.2180	6.8651	11.2630	6.4360	0.0000	0.3218	0.0000	0.0000	0.0000	6.4360	0.0000	6.4360

Annex D6 - Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Vehicular Emission Factors in 2011 (NOx @ 50kph)		PC&LGV-TOT	PC&LGV<2.5t-TOT	LGV2.5-3.5t-TOT	PLB-TOT	LGV>3.5t-TOT	HGV<15t-TOT	HGV>15t-TOT	FBDD-TOT	MC-TOT	taxi-TOT	PrLB<3.5t-TOT	PrLB>3.5t-TOT	NFB<6.4t-TOT	NFB6.4-15t-TOT	NFB>15t-TOT	FBSD-TOT
	VKT/1000 (km-vehicle) (1000X)	1124.0000	35.0000	173.0000	142.0000	139.0000	392.0000	34.0000	172.0000	31.0000	269.0000	0.0000	0.0000	0.0000	20.0000	0.0000	9.0000
	Total Ex (ton/hr) (1000X)	0.1620	0.0180	0.0520	0.0300	0.3320	1.8590	0.2010	0.6270	0.0180	0.0500	0.0000	0.0000	0.0000	0.0830	0.0000	0.0320
0 hr result	Total Ex/VMT (g/mile-vehicle)	0.2319	0.8275	0.4836	0.3399	3.8431	7.6304	9.5120	5.8654	0.9343	0.2991	0.0000	0.0000	0.0000	6.6774	0.0000	5.7209
	VKT/1000 (km-vehicle) (1000X)	861.0000	27.0000	132.0000	109.0000	106.0000	300.0000	26.0000	131.0000	24.0000	206.0000	0.0000	0.0000	0.0000	15.0000	0.0000	7.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.1240	0.0140	0.0400	0.0230	0.2550	1.4250	0.1540	0.4810	0.0140	0.0390	0.0000	0.0000	0.0000	0.0630	0.0000	0.0250
1 hr result	Total Ex/VMT (g/mile-vehicle)	0.2317	0.8343	0.4876	0.3395	3.8707	7.6428	9.5302	5.9079	0.9386	0.3046	0.0000	0.0000	0.0000	6.7578	0.0000	5.7464
	VKT/1000 (km-vehicle) (1000X)	591.0000	18.0000	91.0000	75.0000	73.0000	20.0000	18.0000	90.0000	16.0000	141.0000	0.0000	0.0000	0.0000	11.0000	0.0000	5.0000
	Total Ex (ton/hr) (1000X)	0.0860	0.0100	0.0280	0.0160	0.1750	0.0930	0.1060	0.3310	0.0100	0.0270	0.0000	0.0000	0.0000	0.0440	0.0000	0.0170
2 hr result	Total Ex/VMT (g/mile-vehicle)	0.2341	0.8939	0.4951	0.3433	3.8572	7.4819	9.4752	5.9175	1.0056	0.3081	0.0000	0.0000	0.0000	6.4360	0.0000	5.4706
	VKT/1000 (km-vehicle) (1000X)	486.0000	15.0000	75.0000	61.0000	60.0000	169.0000	15.0000	74.0000	13.0000	116.0000	0.0000	0.0000	0.0000	9.0000	0.0000	4.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0710	0.0080	0.0230	0.0130	0.1440	0.8080	0.0880	0.2720	0.0080	0.0220	0.0000	0.0000	0.0000	0.0360	0.0000	0.0140
3 hr result	Total Ex/VMT (g/mile-vehicle)	0.2351	0.8581	0.4934	0.3429	3.8616	7.6927	9.4395	5.9142	0.9902	0.3052	0.0000	0.0000	0.0000	6.4360	0.0000	5.6315
	VKT/1000 (km-vehicle) (1000X)	486.0000	15.0000	75.0000	61.0000	60.0000	169.0000	15.0000	74.0000	13.0000	116.0000	0.0000	0.0000	0.0000	9.0000	0.0000	4.0000
	Total Ex (ton/hr) (1000X)	0.0710	0.0080	0.0230	0.0130	0.1450	0.8090	0.0880	0.2730	0.0080	0.0220	0.0000	0.0000	0.0000	0.0360	0.0000	0.0140
4 hr result	Total Ex/VMT (g/mile-vehicle)	0.2351	0.8581	0.4934	0.3429	3.8884	7.7023	9.4395	5.9359	0.9902	0.3052	0.0000	0.0000	0.0000	6.4360	0.0000	5.6315
	VKT/1000 (km-vehicle) (1000X)	644.0000	20.0000	99.0000	81.0000	80.0000	225.0000	19.0000	98.0000	18.0000	154.0000	0.0000	0.0000	0.0000	12.0000	0.0000	5.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0940	0.0100	0.0300	0.0170	0.1920	1.0740	0.1160	0.3620	0.0110	0.0290	0.0000	0.0000	0.0000	0.0480	0.0000	0.0180
5 hr result	Total Ex/VMT (g/mile-vehicle)	0.2349	0.8045	0.4876	0.3377	3.8616	7.6803	9.8234	5.9434	0.9833	0.3030	0.0000	0.0000	0.0000	6.4360	0.0000	5.7924
	VKT/1000 (km-vehicle) (1000X)	1282.0000	40.0000	197.0000	162.0000	158.0000	447.0000	39.0000	196.0000	36.0000	306.0000	0.0000	0.0000	0.0000	23.0000	0.0000	10.0000
	Total Ex (ton/hr) (1000X)	0.1890	0.0210	0.0600	0.0340	0.3820	2.1380	0.2320	0.7210	0.0210	0.0590	0.0000	0.0000	0.0000	0.0950	0.0000	0.0370
6 hr result	Total Ex/VMT (g/mile-vehicle)	0.2372	0.8447	0.4901	0.3377	3.8901	7.6958	9.5715	5.9188	0.9386	0.3102	0.0000	0.0000	0.0000	6.6459	0.0000	5.9533
	VKT/1000 (km-vehicle) (1000X)	2934.0000	91.0000	451.0000	370.0000	363.0000	1023.0000	89.0000	448.0000	81.0000	701.0000	0.0000	159.0000	0.0000	53.0000	0.0000	23.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.4300	0.0480	0.1380	0.0780	0.8730	4.8890	0.5300	1.6490	0.0480	0.1340	0.0000	0.0660	0.0000	0.2170	0.0000	0.0840
7 hr result	Total Ex/VMT (g/mile-vehicle)	0.2358	0.8487	0.4923	0.3392	3.8696	7.6895	9.5817	5.9224	0.9535	0.3076	0.0000	0.6679	0.0000	6.5878	0.0000	5.8763
	VKT/1000 (km-vehicle) (1000X)	3625.0000	113.0000	557.0000	458.0000	448.0000	1263.0000	109.0000	553.0000	84.0000	866.0000	0.0000	196.0000	0.0000	65.0000	0.0000	29.0000
	Total Ex (ton/hr) (1000X)	0.5310	0.0590	0.1700	0.0970	1.0810	6.0540	0.6560	2.0420	0.0490	0.1650	0.0000	0.0820	0.0000	0.2690	0.0000	0.1040
8 hr result	Total Ex/VMT (g/mile-vehicle)	0.2357	0.8401	0.4911	0.3408	3.8824	7.7125	9.6835	5.9414	0.9386	0.3066	0.0000	0.6732	0.0000	6.6588	0.0000	5.7702
	VKT/1000 (km-vehicle) (1000X)	3572.0000	111.0000	1032.0000	451.0000	441.0000	1245.0000	108.0000	545.0000	99.0000	854.0000	0.0000	193.0000	0.0000	64.0000	0.0000	28.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5230	0.0580	0.3160	0.0960	1.0670	5.9750	0.6480	2.0150	0.0570	0.1630	0.0000	0.0810	0.0000	0.2660	0.0000	0.1030
9 hr result	Total Ex/VMT (g/mile-vehicle)	0.2356	0.8407	0.4927	0.3425	3.8930	7.7219	9.6540	5.9489	0.9264	0.3071	0.0000	0.6753	0.0000	6.6874	0.0000	5.9188
	VKT/1000 (km-vehicle) (1000X)	3361.0000	105.0000	517.0000	424.0000	415.0000	1172.0000	101.0000	513.0000	93.0000	803.0000	0.0000	182.0000	0.0000	60.0000	0.0000	26.0000
	Total Ex (ton/hr) (1000X)	0.4930	0.0550	0.1580	0.0900	1.0040	5.6240	0.6100	1.8970	0.0540	0.1540	0.0000	0.0760	0.0000	0.2500	0.0000	0.0970
10 hr result	Total Ex/VMT (g/mile-vehicle)	0.2360	0.8428	0.4917	0.3415	3.8926	7.7210	9.7177	5.9498	0.9343	0.3086	0.0000	0.6719	0.0000	6.7042	0.0000	6.0028
	VKT/1000 (km-vehicle) (1000X)	3361.0000	105.0000	517.0000	424.0000	415.0000	1172.0000	101.0000	513.0000	93.0000	803.0000	0.0000	182.0000	0.0000	60.0000	0.0000	26.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.4940	0.0550	0.1580	0.0900	1.0050	5.6260	0.6100	1.8980	0.0530	0.1540	0.0000	0.0760	0.0000	0.2500	0.0000	0.0970
11 hr result	Total Ex/VMT (g/mile-vehicle)	0.2365	0.8428	0.4917	0.3415	3.8965	7.7237	9.7177	5.9530	0.9170	0.3086	0.0000	0.6719	0.0000	6.7042	0.0000	6.0028
	VKT/1000 (km-vehicle) (1000X)	3457.0000	93.0000	469.0000	284.0000	374.0000	989.0000	86.0000	421.0000	125.0000	498.0000	0.0000	122.0000	0.0000	49.0000	0.0000	21.0000
	Total Ex (ton/hr) (1000X)	0.5070	0.0490	0.1430	0.0600	0.9020	4.7410	0.5140	1.5530	0.0720	0.0950	0.0000	0.0510	0.0000	0.2020	0.0000	0.0760
12 hr result	Total Ex/VMT (g/mile-vehicle)	0.2360	0.8478	0.4906	0.3399	3.8805	7.7131	9.6166	5.9353	0.9268	0.3069	0.0000	0.6726	0.0000	6.6330	0.0000	5.8230
	VKT/1000 (km-vehicle) (1000X)	3564.0000	96.0000	484.0000	293.0000	385.0000	1020.0000	88.0000	434.0000	129.0000	513.0000	0.0000	125.0000	0.0000	50.0000	0.0000	21.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5220	0.0500	0.1480	0.0620	0.9290	4.8820	0.5290	1.5990	0.0740	0.0980	0.0000	0.0520	0.0000	0.2080	0.0000	0.0780
13 hr result	Total Ex/VMT (g/mile-vehicle)	0.2357	0.8380	0.4920	0.3405	3.8825	7.7011	9.6723	5.9281	0.9230	0.3074	0.0000	0.6693	0.0000	6.6934	0.0000	5.9763
	VKT/1000 (km-vehicle) (1000X)	3587.0000	97.0000	487.0000	295.0000	388.0000	1027.0000	89.0000	436.0000	130.0000	517.0000	0.0000	126.0000	0.0000	51.0000	0.0000	22.0000
	Total Ex (ton/hr) (1000X)	0.5230	0.0500	0.1480	0.0620	0.9340	4.9070	0.5320	1.6070	0.0740	0.0980	0.0000	0.0520	0.0000	0.2090	0.0000	0.0790
14 hr result	Total Ex/VMT (g/mile-vehicle)	0.2346	0.8294	0.4890	0.3382	3.8732	7.6878	9.6178	5.9304	0.9159	0.3050	0.0000	0.6640	0.0000	6.5937	0.0000	5.7778
	VKT/1000 (km-vehicle) (1000X)	3564.0000	96.0000	484.0000	293.0000	385.0000	1020.0000	88.0000	434.0000	129.0000	513.0000	0.0000	125.0000	0.0000	50.0000	0.0000	21.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5170	0.0500	0.1470	0.0620	0.9250	4.8620	0.5270	1.5930	0.0730	0.0970	0.0000	0.0520	0.0000	0.2070	0.0000	0.0780
15 hr result	Total Ex/VMT (g/mile-vehicle)	0.2334	0.8380	0.4887	0.3405	3.8658	7.6696	9.6357	5.9058	0.9105	0.3042	0.0000	0.6693	0.0000	6.6613	0.0000	5.9763
	VKT/1000 (km-vehicle) (1000X)	3617.0000	98.0000	491.0000	297.0000	391.0000	1035.0000	90.0000	440.0000	131.0000	521.0000	0.0000	127.0000	0.0000	51.0000	0.0000	22.0000
	Total Ex (ton/hr) (1000X)	0.5230	0.0510	0.1490	0.0630	0.9390	4.9330	0.5350	1.6160	0.0740	0.0980	0.0000	0.0530	0.0000	0.2100	0.0000	0.0790
16 hr result	Total Ex/VMT (g/mile-vehicle)	0.2327	0.8373	0.4883	0.3413	3.8641	7.6688	9.5646	5.9094	0.9089	0.3027	0.0000	0.6715	0.0000	6.6253	0.0000	5.7778
	VKT/1000 (km-vehicle) (1000X)	3777.0000	102.0000	513.0000	310.0000	408.0000	1081.0000	94.0000	460.0000	137.0000	544.0000	0.0000	133.0000	0.0000	53.0000	0.0000	23.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.5420	0.0530	0.1550	0.0650	0.9770	5.1350	0.5570	1.6820	0.0780	0.1020	0.0000	0.0550	0.0000	0.2190	0.0000	0.0820
17 hr result	Total Ex/VMT (g/mile-vehicle)	0.2309	0.8360	0.4862	0.3374	3.8529	7.6431	9.5342	5.8833	0.9161	0.3017	0.0000	0.6654	0.0000	6.6485	0.0000	5.7364
	VKT/1000 (km-vehicle) (1000X)	3997.0000	108.0000	543.0000	328.0000	432.0000	1144.0000	99.0000	486.0000	145.0000	576.0000	0.0000	141.0000	0.0000	57.0000	0.0000	24.0000
	Total Ex (ton/hr) (1000X)	0.5700	0.0560	0.1640	0.0690	1.0320	5.4210	0.5880	1.7760	0.0820	0.1070	0.0000	0.0580	0.0000	0.2310	0.0000	0.0870
18 hr result	Total Ex/VMT (g/mile-vehicle)	0.2295	0.8343	0.4860	0.3385	3.8437	7.6245	9.5565	5.8798	0.9099	0.2989	0.0000	0.6619	0.0000	6.5207	0.0000	5.8326
	VKT/1000 (km-vehicle) (1000X)	3297.0000	89.0000	448.0000	271.0000	356.0000	943.0000	82.0000	401.0000	120.0000	475.0000	0.0000	0.0000	0.0000	47.0000	0.0000	20.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.4700	0.0460	0.1350	0.0570	0.8500	4.4660	0.4840	1.4630	0.0680	0.0880	0.0000	0.0000	0.0000	0.1910	0.0000	0.0720
19 hr result	Total Ex/VMT (g/mile-vehicle)	0.2294	0.8316	0.4849	0.3384	3.8417	7.6201	9.4970	5.8702	0.9118	0.2981	0.0000	0.0000	0.0000	6.5387	0.0000	5.7924
	VKT/1000 (km-vehicle) (1000X)	2538.0000	69.0000	345.0000	209.0000	274.0000	726.0000	63.0000	309.0000	92.0000	366.0000	0.0000	0.0000	0.0000	36.0000	0.0000	15.0000
	Total Ex (ton/hr) (1000X)	0.3620	0.0350	0.1040	0.0440	0.6540	3.4390	0.3730	1.1260	0.0530	0.0680	0.0000	0.0000	0.0000	0.1470	0.0000	0.0550
20 hr result	Total Ex/VMT (g/mile-vehicle)	0.2295	0.8162	0.4850	0.3387	3.8405	7.6217	9.5263	5.8632	0.9269	0.2989	0.0000	0.0000	0.0000	6.5701	0.0000	5.8997
	VKT/1000 (km-vehicle) (1000X)	2052.0000	55.0000	279.0000	169.0000	222.0000	587.0000	51.0000	250.0000	74.0000	296.0000	0.0000	0.0000	0.0000	29.0000	0.0000	12.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.2930	0.0290	0.0840	0.0350	0.5290	2.7800	0.3010	0.9110	0.0430	0.0550	0.0000	0.0000	0.0000	0.1190	0.0000	0.0450
21 hr result	Total Ex/VMT (g/mile-vehicle)	0.2297	0.8484	0.4844	0.3332	3.8341	7.6201	9.4963	5.8632	0.9350	0.2990	0.0000	0.0000	0.0000	6.6024	0.0000	6.0338
	VKT/1000 (km-vehicle) (1000X)	1731.0000	47.0000	235.0000	142.0000	187.0000	495.0000	43.0000	211.0000	63.0000	249.0000	0.0000	0.0000	0.0000	24.0000	0.0000	10.0000
	Total Ex (ton/hr) (1000X)	0.2480	0.0240	0.0710	0.0300	0.4470	2.3480	0.2550	0.7690	0.0360	0.0470	0.0000	0.0000	0.0000	0.1000	0.0000	0.0380
22 hr result	Total Ex/VMT (g/mile-vehicle)	0.2305	0.8216	0.4861	0.3399	3.8461	7.6322	9.5417	5.8641	0.9194	0.3037	0.0000	0.0000	0.0000	6.7042	0.0000	6.1142
	VKT/1000 (km-vehicle) (1000X)	1459.0000	39.0000	198.0000	120.0000	158.0000	417.0000	36.0000	177.0000	53.0000	210.0000	0.0000	0.0000	0.0000	21.0000	0.0000	9.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.2090	0.0200	0.0600	0.0250	0.3770	1.9790	0.2140	0.6480	0.0300	0.0390	0.0000	0.0000	0.0000	0.0840	0.0000	0.0320
23 hr result	Total Ex/VMT (g/mile-vehicle)	0.2305	0.8251	0.4876	0.3352	3.8392	7.6360	9.5646	5.8906	0.9108	0.2988	0.0000	0.0000	0.0000	6.4360	0.0000	5.7209
Max Emission		0.2372	0.8939	0.4951	0.3433	3.8965	7.7237	9.8234	5.9530	1.0056	0.3102	0.0000	0.6753	0.0000	6.7578	0.0000	6.1142

Annex D6 - Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Vehicular Emission Factors in 2011 (NOx @ s50kph)		PC&LGV-TOT	PC&LGV<2.5t-TOT	LGV2.5-3.5t-TOT	PLB-TOT	LGV>3.5t-TOT	HGV<15t-TOT	HGV>15t-TOT	FBDD-TOT	MC-TOT	taxi-TOT	PrLB<3.5t-TOT	PrLB>3.5t-TOT	NFB<6.4t-TOT	NFB6.4-15t-TOT	NFB>15t-TOT	FBSD-TOT
	VKT/1000 (km-vehicle) (1000X)	15.0000	0.0000	2.0000	0.0000	2.0000	7.0000	1.0000	3.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0030	0.0000	0.0010	0.0000	0.0070	0.0510	0.0060	0.0180	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0010
0 hr result	Total Ex/VMT (g/mile-vehicle)	0.3218	0.0000	0.8045	0.0000	5.6315	11.7227	9.6540	9.6540	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	12.0000	0.0000	2.0000	0.0000	1.0000	6.0000	0.0000	2.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0030	0.0000	0.0010	0.0000	0.0050	0.0390	0.0040	0.0130	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0010
1 hr result	Total Ex/VMT (g/mile-vehicle)	0.4023	0.0000	0.8045	0.0000	8.0450	10.4585	0.0000	10.4585	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	8.0000	0.0000	1.0000	0.0000	1.0000	4.0000	0.0000	1.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0020	0.0000	0.0010	0.0000	0.0040	0.0270	0.0030	0.0090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
2 hr result	Total Ex/VMT (g/mile-vehicle)	0.4023	0.0000	1.6090	0.0000	6.4360	10.8608	0.0000	14.4810	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	6.0000	0.0000	1.0000	0.0000	1.0000	3.0000	0.0000	1.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0000	0.0030	0.0220	0.0020	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
3 hr result	Total Ex/VMT (g/mile-vehicle)	0.2682	0.0000	0.0000	0.0000	4.8270	11.7993	0.0000	12.8720	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	6.0000	0.0000	1.0000	0.0000	1.0000	3.0000	0.0000	1.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0000	0.0030	0.0220	0.0020	0.0080	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
4 hr result	Total Ex/VMT (g/mile-vehicle)	0.2682	0.0000	0.0000	0.0000	4.8270	11.7993	0.0000	12.8720	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	9.0000	0.0000	1.0000	0.0000	1.0000	4.0000	0.0000	2.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0020	0.0000	0.0010	0.0000	0.0040	0.0300	0.0030	0.0100	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
5 hr result	Total Ex/VMT (g/mile-vehicle)	0.3576	0.0000	1.6090	0.0000	6.4360	12.0675	0.0000	8.0450	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	17.0000	1.0000	3.0000	0.0000	2.0000	8.0000	1.0000	3.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0040	0.0000	0.0010	0.0000	0.0080	0.0590	0.0060	0.0200	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0010
6 hr result	Total Ex/VMT (g/mile-vehicle)	0.3786	0.0000	0.5363	0.0000	6.4360	11.8664	9.6540	10.7267	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	39.0000	1.0000	6.0000	0.0000	5.0000	19.0000	2.0000	7.0000	1.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0090	0.0010	0.0030	0.0000	0.0180	0.1340	0.0150	0.0460	0.0010	0.0010	0.0000	0.0000	0.0000	0.0050	0.0000	0.0020
7 hr result	Total Ex/VMT (g/mile-vehicle)	0.3713	1.6090	0.8045	0.0000	5.7924	11.3477	12.0675	10.5734	1.6090	0.5363	0.0000	0.0000	0.0000	8.0450	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	48.0000	2.0000	8.0000	1.0000	6.0000	23.0000	2.0000	9.0000	1.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0110	0.0010	0.0030	0.0000	0.0220	0.1660	0.0180	0.0570	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0030
8 hr result	Total Ex/VMT (g/mile-vehicle)	0.3687	0.8045	0.6034	0.0000	5.8997	11.6128	14.4810	10.1903	1.6090	0.4023	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	48.0000	2.0000	7.0000	1.0000	6.0000	23.0000	2.0000	9.0000	1.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0110	0.0010	0.0030	0.0000	0.0220	0.1640	0.0180	0.0560	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0030
9 hr result	Total Ex/VMT (g/mile-vehicle)	0.3687	0.8045	0.6896	0.0000	5.8997	11.4729	14.4810	10.0116	1.6090	0.4023	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	45.0000	1.0000	7.0000	0.0000	6.0000	22.0000	2.0000	8.0000	1.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0100	0.0010	0.0030	0.0000	0.0210	0.1550	0.0170	0.0530	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
10 hr result	Total Ex/VMT (g/mile-vehicle)	0.3576	1.6090	0.6896	0.0000	5.6315	11.3361	13.6765	10.6596	1.6090	0.4023	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	45.0000	1.0000	7.0000	0.0000	6.0000	22.0000	2.0000	8.0000	1.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0100	0.0010	0.0030	0.0000	0.0210	0.1550	0.0170	0.0530	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
11 hr result	Total Ex/VMT (g/mile-vehicle)	0.3576	1.6090	0.6896	0.0000	5.6315	11.3361	13.6765	10.6596	1.6090	0.4023	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	53.0000	2.0000	9.0000	1.0000	7.0000	21.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0120	0.0010	0.0040	0.0000	0.0250	0.1500	0.0160	0.0530	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
12 hr result	Total Ex/VMT (g/mile-vehicle)	0.3643	0.8045	0.7151	0.0000	5.7464	11.4929	12.8720	10.6596	0.8045	0.5363	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	55.0000	2.0000	9.0000	1.0000	7.0000	22.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0120	0.0010	0.0040	0.0000	0.0260	0.1540	0.0170	0.0540	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
13 hr result	Total Ex/VMT (g/mile-vehicle)	0.3511	0.8045	0.7151	0.0000	5.9763	11.2630	13.6765	10.8608	0.8045	0.5363	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	55.0000	2.0000	9.0000	1.0000	7.0000	22.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0120	0.0010	0.0040	0.0000	0.0260	0.1550	0.0170	0.0550	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
14 hr result	Total Ex/VMT (g/mile-vehicle)	0.3511	0.8045	0.7151	0.0000	5.9763	11.3361	13.6765	11.0619	0.8045	0.5363	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	55.0000	2.0000	9.0000	1.0000	7.0000	22.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0120	0.0010	0.0040	0.0000	0.0260	0.1540	0.0170	0.0540	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
15 hr result	Total Ex/VMT (g/mile-vehicle)	0.3511	0.8045	0.7151	0.0000	5.9763	11.2630	13.6765	10.8608	0.8045	0.5363	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	56.0000	2.0000	9.0000	1.0000	7.0000	22.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0120	0.0010	0.0040	0.0000	0.0260	0.1560	0.0170	0.0550	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
16 hr result	Total Ex/VMT (g/mile-vehicle)	0.3448	0.8045	0.7151	0.0000	5.9763	11.4093	13.6765	11.0619	0.8045	0.5363	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	58.0000	2.0000	9.0000	1.0000	8.0000	23.0000	2.0000	9.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0130	0.0010	0.0040	0.0000	0.0270	0.1620	0.0180	0.0570	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
17 hr result	Total Ex/VMT (g/mile-vehicle)	0.3606	0.8045	0.7151	0.0000	5.4304	11.3330	14.4810	10.1903	0.8045	0.5363	0.0000	0.0000	0.0000	9.6540	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	62.0000	2.0000	10.0000	1.0000	8.0000	24.0000	2.0000	9.0000	2.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0130	0.0020	0.0050	0.0000	0.0280	0.1720	0.0190	0.0600	0.0010	0.0010	0.0000	0.0000	0.0000	0.0070	0.0000	0.0020
18 hr result	Total Ex/VMT (g/mile-vehicle)	0.3374	1.6090	0.8045	0.0000	5.6315	11.5312	15.2855	10.7267	0.8045	0.4023	0.0000	0.0000	0.0000	11.2630	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	51.0000	2.0000	8.0000	1.0000	7.0000	20.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0110	0.0010	0.0040	0.0000	0.0230	0.1410	0.0150	0.0500	0.0010	0.0010	0.0000	0.0000	0.0000	0.0050	0.0000	0.0020
19 hr result	Total Ex/VMT (g/mile-vehicle)	0.3470	0.8045	0.8045	0.0000	5.2867	11.3435	12.0675	10.0563	0.8045	0.5363	0.0000	0.0000	0.0000	8.0450	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	39.0000	1.0000	6.0000	1.0000	5.0000	15.0000	1.0000	6.0000	1.0000	2.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0090	0.0010	0.0030	0.0000	0.0180	0.1090	0.0120	0.0380	0.0010	0.0010	0.0000	0.0000	0.0000	0.0040	0.0000	0.0020
20 hr result	Total Ex/VMT (g/mile-vehicle)	0.3713	1.6090	0.8045	0.0000	5.7924	11.6921	19.3080	10.1903	1.6090	0.8045	0.0000	0.0000	0.0000	6.4360	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	32.0000	1.0000	5.0000	0.0000	4.0000	12.0000	1.0000	5.0000	1.0000	2.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0070	0.0010	0.0020	0.0000	0.0150	0.0880	0.0100	0.0310	0.0010	0.0010	0.0000	0.0000	0.0000	0.0030	0.0000	0.0010
21 hr result	Total Ex/VMT (g/mile-vehicle)	0.3520	1.6090	0.6436	0.0000	6.0338	11.7993	16.0900	9.9758	1.6090	0.8045	0.0000	0.0000	0.0000	4.8270	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	27.0000	1.0000	4.0000	0.0000	3.0000	11.0000	1.0000	4.0000	1.0000	2.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0060	0.0010	0.0020	0.0000	0.0120	0.0740	0.0080	0.0260	0.0010	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0010
22 hr result	Total Ex/VMT (g/mile-vehicle)	0.3576	1.6090	0.8045	0.0000	6.4360	10.8242	12.8720	10.4585	1.6090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	23.0000	1.0000	4.0000	0.0000	3.0000	9.0000	1.0000	3.0000	1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0050	0.0010	0.0020	0.0000	0.0100	0.0630	0.0070	0.0220	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0000	0.0010
23 hr result	Total Ex/VMT (g/mile-vehicle)	0.3498	1.6090	0.8045	0.0000	5.3633	11.2630	11.2630	11.7993	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Max Emission		0.4023	1.6090	1.6090	0.0000	8.0450	12.0675	19.3080	14.4810	1.6090	0.8045	0.0000	0.0000	0.0000	11.2630	0.0000	0.0000

Annex D6 - Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Vehicular Emission Factors in 2011 (RSP @ 80kph)		PC&LGV-TOT	PC&LGV<2.5t-TOT	LGV2.5-3.5t-TOT	PLB-TOT	LGV>3.5t-TOT	HGV<15t-TOT	HGV>15t-TOT	FBDD-TOT	MC-TOT	taxi-TOT	PrLB<3.5t-TOT	PrLB>3.5t-TOT	NFB<6.4t-TOT	NFB6.4-15t-TOT	NFB>15t-TOT	FBSD-TOT
	VKT/1000 (km-vehicle) (1000X)	1567.0000	39.0000	193.0000	113.0000	155.0000	1448.0000	126.0000	311.0000	28.0000	140.0000	0.0000	0.0000	0.0000	36.0000	0.0000	16.0000
	Total Ex (ton/hr) (1000X)	0.0030	0.0040	0.0110	0.0120	0.0230	0.4380	0.0390	0.0290	0.0010	0.0010	0.0000	0.0000	0.0000	0.0080	0.0000	0.0030
0 hr result	Total Ex/VMT (g/mile-vehicle)	0.0031	0.1650	0.0917	0.1709	0.2388	0.4867	0.4980	0.1500	0.0575	0.0115	0.0000	0.0000	0.0000	0.3576	0.0000	0.3017
	VKT/1000 (km-vehicle) (1000X)	1200.0000	30.0000	148.0000	87.0000	119.0000	1108.0000	97.0000	238.0000	22.0000	107.0000	0.0000	0.0000	0.0000	28.0000	0.0000	13.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0030	0.0030	0.0090	0.0090	0.0180	0.3350	0.0300	0.0220	0.0010	0.0010	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
1 hr result	Total Ex/VMT (g/mile-vehicle)	0.0040	0.1609	0.0978	0.1664	0.2434	0.4865	0.4976	0.1487	0.0731	0.0150	0.0000	0.0000	0.0000	0.3448	0.0000	0.2475
	VKT/1000 (km-vehicle) (1000X)	824.0000	21.0000	102.0000	60.0000	81.0000	762.0000	66.0000	163.0000	15.0000	73.0000	0.0000	0.0000	0.0000	19.0000	0.0000	9.0000
	Total Ex (ton/hr) (1000X)	0.0020	0.0020	0.0060	0.0060	0.0120	0.2300	0.0210	0.0150	0.0000	0.0010	0.0000	0.0000	0.0000	0.0040	0.0000	0.0010
2 hr result	Total Ex/VMT (g/mile-vehicle)	0.0039	0.1532	0.0946	0.1609	0.2384	0.4857	0.5120	0.1481	0.0000	0.0220	0.0000	0.0000	0.0000	0.3387	0.0000	0.1788
	VKT/1000 (km-vehicle) (1000X)	678.0000	17.0000	83.0000	49.0000	67.0000	626.0000	55.0000	134.0000	12.0000	60.0000	0.0000	0.0000	0.0000	16.0000	0.0000	7.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0020	0.0050	0.0050	0.0100	0.1890	0.0170	0.0120	0.0000	0.0010	0.0000	0.0000	0.0000	0.0030	0.0000	0.0010
3 hr result	Total Ex/VMT (g/mile-vehicle)	0.0024	0.1893	0.0969	0.1642	0.2401	0.4858	0.4973	0.1441	0.0000	0.0268	0.0000	0.0000	0.0000	0.3017	0.0000	0.2299
	VKT/1000 (km-vehicle) (1000X)	678.0000	17.0000	83.0000	49.0000	67.0000	626.0000	55.0000	134.0000	12.0000	60.0000	0.0000	0.0000	0.0000	16.0000	0.0000	7.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0020	0.0050	0.0050	0.0100	0.1890	0.0170	0.0120	0.0000	0.0010	0.0000	0.0000	0.0000	0.0030	0.0000	0.0010
4 hr result	Total Ex/VMT (g/mile-vehicle)	0.0024	0.1893	0.0969	0.1642	0.2401	0.4858	0.4973	0.1441	0.0000	0.0268	0.0000	0.0000	0.0000	0.3017	0.0000	0.2299
	VKT/1000 (km-vehicle) (1000X)	898.0000	23.0000	111.0000	65.0000	89.0000	829.0000	72.0000	178.0000	16.0000	80.0000	0.0000	0.0000	0.0000	21.0000	0.0000	9.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0020	0.0020	0.0060	0.0070	0.0130	0.2510	0.0230	0.0170	0.0000	0.0010	0.0000	0.0000	0.0000	0.0040	0.0000	0.0010
5 hr result	Total Ex/VMT (g/mile-vehicle)	0.0036	0.1399	0.0870	0.1733	0.2350	0.4872	0.5140	0.1537	0.0000	0.0201	0.0000	0.0000	0.0000	0.3065	0.0000	0.1788
	VKT/1000 (km-vehicle) (1000X)	179.0000	45.0000	220.0000	129.0000	177.0000	1651.0000	144.0000	354.0000	32.0000	159.0000	0.0000	0.0000	0.0000	41.0000	0.0000	19.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0050	0.0130	0.0140	0.0260	0.5000	0.0450	0.0330	0.0010	0.0020	0.0000	0.0000	0.0000	0.0090	0.0000	0.0030
6 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.1788	0.0951	0.1746	0.2364	0.4873	0.5028	0.1500	0.0503	0.0202	0.0000	0.0000	0.0000	0.3532	0.0000	0.2541
	VKT/1000 (km-vehicle) (1000X)	4090.0000	103.0000	504.0000	296.0000	404.0000	3778.0000	329.0000	810.0000	74.0000	364.0000	0.0000	126.0000	0.0000	94.0000	0.0000	43.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0090	0.0110	0.0290	0.0320	0.0600	1.1430	0.1030	0.0750	0.0020	0.0030	0.0000	0.0210	0.0000	0.0200	0.0000	0.0070
7 hr result	Total Ex/VMT (g/mile-vehicle)	0.0035	0.1718	0.0926	0.1739	0.2390	0.4868	0.5037	0.1490	0.0435	0.0133	0.0000	0.2682	0.0000	0.3423	0.0000	0.2619
	VKT/1000 (km-vehicle) (1000X)	5053.0000	127.0000	623.0000	365.0000	499.0000	4667.0000	407.0000	1001.0000	92.0000	450.0000	0.0000	155.0000	0.0000	116.0000	0.0000	53.0000
	Total Ex (ton/hr) (1000X)	0.0110	0.0130	0.0360	0.0390	0.0740	1.4120	0.1270	0.0930	0.0020	0.0040	0.0000	0.0260	0.0000	0.0250	0.0000	0.0080
8 hr result	Total Ex/VMT (g/mile-vehicle)	0.0035	0.1647	0.0930	0.1719	0.2386	0.4868	0.5021	0.1495	0.0350	0.0143	0.0000	0.2699	0.0000	0.3468	0.0000	0.2429
	VKT/1000 (km-vehicle) (1000X)	4979.0000	125.0000	614.0000	360.0000	492.0000	4599.0000	401.0000	987.0000	90.0000	443.0000	0.0000	153.0000	0.0000	115.0000	0.0000	52.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0110	0.0130	0.0360	0.0390	0.0730	1.3910	0.1250	0.0920	0.0020	0.0040	0.0000	0.0260	0.0000	0.0250	0.0000	0.0080
9 hr result	Total Ex/VMT (g/mile-vehicle)	0.0036	0.1673	0.0943	0.1743	0.2387	0.4867	0.5016	0.1500	0.0358	0.0145	0.0000	0.2734	0.0000	0.3498	0.0000	0.2475
	VKT/1000 (km-vehicle) (1000X)	4686.0000	117.0000	577.0000	339.0000	463.0000	4328.0000	377.0000	928.0000	85.0000	417.0000	0.0000	144.0000	0.0000	108.0000	0.0000	49.0000
	Total Ex (ton/hr) (1000X)	0.0100	0.0120	0.0330	0.0370	0.0680	1.3090	0.1180	0.0860	0.0020	0.0040	0.0000	0.0240	0.0000	0.0230	0.0000	0.0080
10 hr result	Total Ex/VMT (g/mile-vehicle)	0.0034	0.1650	0.0920	0.1756	0.2363	0.4866	0.5036	0.1491	0.0379	0.0154	0.0000	0.2682	0.0000	0.3427	0.0000	0.2627
	VKT/1000 (km-vehicle) (1000X)	4686.0000	117.0000	577.0000	339.0000	463.0000	4328.0000	377.0000	928.0000	85.0000	417.0000	0.0000	144.0000	0.0000	108.0000	0.0000	49.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0100	0.0120	0.0330	0.0370	0.0680	1.3090	0.1180	0.0860	0.0020	0.0040	0.0000	0.0240	0.0000	0.0230	0.0000	0.0080
11 hr result	Total Ex/VMT (g/mile-vehicle)	0.0034	0.1650	0.0920	0.1756	0.2363	0.4866	0.5036	0.1491	0.0379	0.0154	0.0000	0.2682	0.0000	0.3427	0.0000	0.2627
	VKT/1000 (km-vehicle) (1000X)	4492.0000	120.0000	598.0000	259.0000	480.0000	3210.0000	280.0000	743.0000	101.0000	421.0000	0.0000	113.0000	0.0000	86.0000	0.0000	37.0000
	Total Ex (ton/hr) (1000X)	0.0100	0.0130	0.0350	0.0280	0.0710	0.9710	0.0870	0.0690	0.0020	0.0040	0.0000	0.0190	0.0000	0.0190	0.0000	0.0060
12 hr result	Total Ex/VMT (g/mile-vehicle)	0.0036	0.1743	0.0942	0.1739	0.2380	0.4867	0.4999	0.1494	0.0319	0.0153	0.0000	0.2705	0.0000	0.3555	0.0000	0.2609
	VKT/1000 (km-vehicle) (1000X)	4631.0000	124.0000	616.0000	267.0000	495.0000	3309.0000	289.0000	766.0000	104.0000	434.0000	0.0000	117.0000	0.0000	89.0000	0.0000	38.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0100	0.0130	0.0360	0.0290	0.0730	1.0010	0.0900	0.0710	0.0030	0.0040	0.0000	0.0200	0.0000	0.0190	0.0000	0.0060
13 hr result	Total Ex/VMT (g/mile-vehicle)	0.0035	0.1687	0.0940	0.1748	0.2373	0.4867	0.5011	0.1491	0.0464	0.0148	0.0000	0.2750	0.0000	0.3435	0.0000	0.2541
	VKT/1000 (km-vehicle) (1000X)	4662.0000	125.0000	620.0000	268.0000	498.0000	3331.0000	291.0000	771.0000	105.0000	437.0000	0.0000	117.0000	0.0000	89.0000	0.0000	39.0000
	Total Ex (ton/hr) (1000X)	0.0100	0.0130	0.0360	0.0290	0.0740	1.0080	0.0910	0.0720	0.0030	0.0040	0.0000	0.0200	0.0000	0.0190	0.0000	0.0060
14 hr result	Total Ex/VMT (g/mile-vehicle)	0.0035	0.1673	0.0934	0.1741	0.2391	0.4869	0.5032	0.1503	0.0460	0.0147	0.0000	0.2750	0.0000	0.3435	0.0000	0.2475
	VKT/1000 (km-vehicle) (1000X)	4631.0000	124.0000	616.0000	267.0000	495.0000	3309.0000	289.0000	766.0000	104.0000	434.0000	0.0000	117.0000	0.0000	89.0000	0.0000	38.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0100	0.0130	0.0360	0.0290	0.0730	1.0010	0.0900	0.0710	0.0030	0.0040	0.0000	0.0200	0.0000	0.0190	0.0000	0.0060
15 hr result	Total Ex/VMT (g/mile-vehicle)	0.0035	0.1687	0.0940	0.1748	0.2373	0.4867	0.5011	0.1491	0.0464	0.0148	0.0000	0.2750	0.0000	0.3435	0.0000	0.2541
	VKT/1000 (km-vehicle) (1000X)	4700.0000	126.0000	625.0000	271.0000	502.0000	3359.0000	293.0000	777.0000	106.0000	440.0000	0.0000	118.0000	0.0000	90.0000	0.0000	39.0000
	Total Ex (ton/hr) (1000X)	0.0100	0.0130	0.0360	0.0290	0.0740	1.0160	0.0910	0.0720	0.0030	0.0040	0.0000	0.0200	0.0000	0.0200	0.0000	0.0060
16 hr result	Total Ex/VMT (g/mile-vehicle)	0.0034	0.1660	0.0927	0.1722	0.2372	0.4867	0.4997	0.1491	0.0455	0.0146	0.0000	0.2727	0.0000	0.3576	0.0000	0.2475
	VKT/1000 (km-vehicle) (1000X)	4908.0000	132.0000	653.0000	283.0000	524.0000	3507.0000	306.0000	811.0000	111.0000	460.0000	0.0000	124.0000	0.0000	94.0000	0.0000	41.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0110	0.0140	0.0380	0.0300	0.0770	1.0610	0.0950	0.0760	0.0030	0.0040	0.0000	0.0210	0.0000	0.0200	0.0000	0.0060
17 hr result	Total Ex/VMT (g/mile-vehicle)	0.0036	0.1707	0.0936	0.1706	0.2364	0.4868	0.4995	0.1508	0.0435	0.0140	0.0000	0.2725	0.0000	0.3423	0.0000	0.2355
	VKT/1000 (km-vehicle) (1000X)	5194.0000	139.0000	691.0000	299.0000	555.0000	3711.0000	324.0000	859.0000	117.0000	487.0000	0.0000	131.0000	0.0000	100.0000	0.0000	43.0000
	Total Ex (ton/hr) (1000X)	0.0110	0.0150	0.0400	0.0320	0.0820	1.1230	0.1010	0.0800	0.0030	0.0050	0.0000	0.0230	0.0000	0.0220	0.0000	0.0070
18 hr result	Total Ex/VMT (g/mile-vehicle)	0.0034	0.1736	0.0931	0.1722	0.2377	0.4869	0.5016	0.1498	0.0413	0.0165	0.0000	0.2825	0.0000	0.3540	0.0000	0.2619
	VKT/1000 (km-vehicle) (1000X)	4284.0000	115.0000	570.0000	247.0000	458.0000	3061.0000	267.0000	708.0000	97.0000	401.0000	0.0000	0.0000	0.0000	82.0000	0.0000	36.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0090	0.0120	0.0330	0.0270	0.0680	0.9260	0.0830	0.0660	0.0020	0.0040	0.0000	0.0000	0.0000	0.0180	0.0000	0.0060
19 hr result	Total Ex/VMT (g/mile-vehicle)	0.0034	0.1679	0.0932	0.1759	0.2389	0.4867	0.5002	0.1500	0.0332	0.0160	0.0000	0.0000	0.0000	0.3532	0.0000	0.2682
	VKT/1000 (km-vehicle) (1000X)	3298.0000	88.0000	439.0000	190.0000	352.0000	2357.0000	206.0000	545.0000	74.0000	309.0000	0.0000	0.0000	0.0000	63.0000	0.0000	27.0000
	Total Ex (ton/hr) (1000X)	0.0070	0.0090	0.0250	0.0200	0.0520	0.7130	0.0640	0.0510	0.0020	0.0030	0.0000	0.0000	0.0000	0.0140	0.0000	0.0040
20 hr result	Total Ex/VMT (g/mile-vehicle)	0.0034	0.1646	0.0916	0.1694	0.2377	0.4867	0.4999	0.1506	0.0435	0.0156	0.0000	0.0000	0.0000	0.3576	0.0000	0.2384
	VKT/1000 (km-vehicle) (1000X)	2666.0000	71.0000	355.0000	153.0000	285.0000	1905.0000	166.0000	441.0000	60.0000	250.0000	0.0000	0.0000	0.0000	51.0000	0.0000	22.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0060	0.0080	0.0210	0.0170	0.0420	0.5760	0.0520	0.0410	0.0010	0.0020	0.0000	0.0000	0.0000	0.0110	0.0000	0.0040
21 hr result	Total Ex/VMT (g/mile-vehicle)	0.0036	0.1813	0.0952	0.1788	0.2371	0.4865	0.5040	0.1496	0.0268	0.0129	0.0000	0.0000	0.0000	0.3470	0.0000	0.2925
	VKT/1000 (km-vehicle) (1000X)	2250.0000	60.0000	299.0000	130.0000	240.0000	1608.0000	140.0000	372.0000	51.0000	211.0000	0.0000	0.0000	0.0000	43.0000	0.0000	19.0000
	Total Ex (ton/hr) (1000X)	0.0050	0.0060	0.0170	0.0140	0.0350	0.4860	0.0440	0.0350	0.0010	0.0020	0.0000	0.0000	0.0000	0.0090	0.0000	0.0030
22 hr result	Total Ex/VMT (g/mile-vehicle)	0.0036	0.1609	0.0915	0.1733	0.2346	0.4863	0.5057	0.1514	0.0315	0.0153	0.0000	0.0000	0.0000	0.3368	0.0000	0.2541
	VKT/1000 (km-vehicle) (1000X)	1896.0000	51.0000	252.0000	109.0000	202.0000	1355.0000	118.0000	313.0000	43.0000	178.0000	0.0000	0.0000	0.0000	36.0000	0.0000	16.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0040	0.0050	0.0150	0.0120	0.0300	0.4100	0.0370	0.0290	0.0010	0.0020	0.0000	0.0000	0.0000	0.0080	0.0000	0.0030
23 hr result	Total Ex/VMT (g/mile-vehicle)	0.0034	0.1577	0.0958	0.1771	0.2390	0.4869	0.5045	0.1491	0.0374	0.0181	0.0000	0.0000	0.0000	0.3576	0.0000	0.3017
Max Emission		0.0040	0.1893	0.0978	0.1788	0.2434	0.4873	0.5140	0.1537	0.0731	0.0268	0.0000	0.2825	0.0000	0.3576	0.0000	0.3017

Annex D6 - Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Vehicular Emission Factors in 2011 (RSP @ 70kph)		PC&LGV-TOT	PC&LGV<2.5t-TOT	LGV2.5-3.5t-TOT	PLB-TOT	LGV>3.5t-TOT	HGV<15t-TOT	HGV>15t-TOT	FBDD-TOT	MC-TOT	taxi-TOT	PrLB<3.5t-TOT	PrLB>3.5t-TOT	NFB<6.4t-TOT	NFB6.4-15t-TOT	NFB>15t-TOT	FBSD-TOT
	VKT/1000 (km-vehicle) (1000X)	78.0000	0.0000	1.0000	277.0000	1.0000	46.0000	4.0000	3.0000	0.0000	5.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0020	0.0000	0.0140	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0116	0.0000	0.4897	0.4023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	60.0000	0.0000	1.0000	212.0000	1.0000	35.0000	3.0000	2.0000	0.0000	4.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0010	0.0000	0.0110	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0076	0.0000	0.5057	0.5363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	41.0000	0.0000	0.0000	146.0000	0.0000	24.0000	2.0000	1.0000	0.0000	2.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0010	0.0000	0.0070	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0110	0.0000	0.4693	0.8045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	34.0000	0.0000	0.0000	120.0000	0.0000	20.0000	2.0000	1.0000	0.0000	2.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0010	0.0000	0.0060	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0134	0.0000	0.4827	0.8045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	34.0000	0.0000	0.0000	120.0000	0.0000	20.0000	2.0000	1.0000	0.0000	2.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0010	0.0000	0.0060	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0134	0.0000	0.4827	0.8045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	45.0000	0.0000	0.0000	159.0000	0.0000	26.0000	2.0000	1.0000	0.0000	3.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0010	0.0000	0.0080	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0101	0.0000	0.4951	0.8045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	89.0000	0.0000	1.0000	316.0000	1.0000	52.0000	4.0000	3.0000	0.0000	5.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0020	0.0000	0.0160	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0102	0.0000	0.4951	0.4023	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	205.0000	1.0000	2.0000	724.0000	2.0000	119.0000	10.0000	7.0000	0.0000	12.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0040	0.0000	0.0360	0.0030	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
7 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0089	0.0000	0.4868	0.4827	0.2299	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	253.0000	1.0000	2.0000	894.0000	2.0000	147.0000	13.0000	8.0000	0.0000	15.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0050	0.0000	0.0450	0.0040	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
8 hr result	Total Ex/VMT (g/mile-vehicle)	0.0064	0.0000	0.0000	0.0090	0.0000	0.4926	0.4951	0.2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	249.0000	1.0000	2.0000	881.0000	2.0000	145.0000	12.0000	8.0000	0.0000	15.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0050	0.0000	0.0440	0.0040	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
9 hr result	Total Ex/VMT (g/mile-vehicle)	0.0065	0.0000	0.0000	0.0091	0.0000	0.4882	0.5363	0.2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	234.0000	1.0000	2.0000	829.0000	2.0000	137.0000	12.0000	8.0000	0.0000	14.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0050	0.0000	0.0410	0.0040	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
10 hr result	Total Ex/VMT (g/mile-vehicle)	0.0069	0.0000	0.0000	0.0097	0.0000	0.4815	0.5363	0.2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	234.0000	1.0000	2.0000	829.0000	2.0000	137.0000	12.0000	8.0000	0.0000	14.0000	0.0000	0.0000	0.0000	1.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0050	0.0000	0.0410	0.0040	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
11 hr result	Total Ex/VMT (g/mile-vehicle)	0.0069	0.0000	0.0000	0.0097	0.0000	0.4815	0.5363	0.2011	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	256.0000	0.0000	0.0000	603.0000	0.0000	36.0000	3.0000	33.0000	0.0000	39.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0040	0.0000	0.0110	0.0010	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
12 hr result	Total Ex/VMT (g/mile-vehicle)	0.0063	0.0000	0.0000	0.0107	0.0000	0.4916	0.5363	0.1463	0.0000	0.0000	0.0000	0.0000	0.0000	0.4023	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	264.0000	0.0000	0.0000	621.0000	0.0000	38.0000	3.0000	34.0000	0.0000	41.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0040	0.0000	0.0110	0.0010	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
13 hr result	Total Ex/VMT (g/mile-vehicle)	0.0061	0.0000	0.0000	0.0104	0.0000	0.4658	0.5363	0.1420	0.0000	0.0000	0.0000	0.0000	0.0000	0.4023	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	266.0000	0.0000	0.0000	625.0000	0.0000	38.0000	3.0000	35.0000	0.0000	41.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0040	0.0000	0.0110	0.0010	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
14 hr result	Total Ex/VMT (g/mile-vehicle)	0.0060	0.0000	0.0000	0.0103	0.0000	0.4658	0.5363	0.1379	0.0000	0.0000	0.0000	0.0000	0.0000	0.4023	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	264.0000	0.0000	0.0000	621.0000	0.0000	38.0000	3.0000	34.0000	0.0000	41.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0040	0.0000	0.0110	0.0010	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
15 hr result	Total Ex/VMT (g/mile-vehicle)	0.0061	0.0000	0.0000	0.0104	0.0000	0.4658	0.5363	0.1420	0.0000	0.0000	0.0000	0.0000	0.0000	0.4023	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	268.0000	0.0000	0.0000	631.0000	0.0000	38.0000	3.0000	35.0000	0.0000	41.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0040	0.0000	0.0120	0.0010	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
16 hr result	Total Ex/VMT (g/mile-vehicle)	0.0060	0.0000	0.0000	0.0102	0.0000	0.5081	0.5363	0.1379	0.0000	0.0000	0.0000	0.0000	0.0000	0.4023	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	280.0000	0.0000	0.0000	658.0000	0.0000	40.0000	3.0000	36.0000	0.0000	43.0000	0.0000	0.0000	0.0000	5.0000	0.0000	2.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0040	0.0000	0.0120	0.0010	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
17 hr result	Total Ex/VMT (g/mile-vehicle)	0.0057	0.0000	0.0000	0.0098	0.0000	0.4827	0.5363	0.1341	0.0000	0.0000	0.0000	0.0000	0.0000	0.3218	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	296.0000	0.0000	0.0000	697.0000	0.0000	42.0000	4.0000	39.0000	0.0000	46.0000	0.0000	0.0000	0.0000	5.0000	0.0000	2.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0040	0.0000	0.0130	0.0010	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
18 hr result	Total Ex/VMT (g/mile-vehicle)	0.0054	0.0000	0.0000	0.0092	0.0000	0.4980	0.4023	0.1650	0.0000	0.0000	0.0000	0.0000	0.0000	0.3218	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	244.0000	0.0000	0.0000	575.0000	0.0000	35.0000	3.0000	32.0000	0.0000	38.0000	0.0000	0.0000	0.0000	4.0000	0.0000	2.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0000	0.0040	0.0000	0.0110	0.0010	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
19 hr result	Total Ex/VMT (g/mile-vehicle)	0.0066	0.0000	0.0000	0.0112	0.0000	0.5057	0.5363	0.1508	0.0000	0.0000	0.0000	0.0000	0.0000	0.4023	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	188.0000	0.0000	0.0000	442.0000	0.0000	27.0000	2.0000	25.0000	0.0000	29.0000	0.0000	0.0000	0.0000	3.0000	0.0000	1.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0030	0.0000	0.0080	0.0010	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
20 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0109	0.0000	0.4767	0.8045	0.1287	0.0000	0.0000	0.0000	0.0000	0.0000	0.5363	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	152.0000	0.0000	0.0000	358.0000	0.0000	22.0000	2.0000	20.0000	0.0000	23.0000	0.0000	0.0000	0.0000	3.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0020	0.0000	0.0070	0.0010	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
21 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0090	0.0000	0.5120	0.8045	0.1609	0.0000	0.0000	0.0000	0.0000	0.0000	0.5363	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	128.0000	0.0000	0.0000	302.0000	0.0000	18.0000	2.0000	17.0000	0.0000	20.0000	0.0000	0.0000	0.0000	2.0000	0.0000	1.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0020	0.0000	0.0060	0.0000	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0107	0.0000	0.5363	0.0000	0.1893	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	108.0000	0.0000	0.0000	254.0000	0.0000	15.0000	1.0000	14.0000	0.0000	17.0000	0.0000	0.0000	0.0000	2.0000	0.0000	1.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0020	0.0000	0.0050	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0127	0.0000	0.5363	0.0000	0.1149	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Max Emission		0.0069	0.0000	0.0000	0.0134	0.0000	0.5363	0.8045	0.2299	0.0000	0.0000	0.0000	0.0000	0.0000	0.5363	0.0000	0.0000

Annex D6 - Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Vehicular Emission Factors in 2011 (RSP @ 50kph)		PC&LGV-TOT	PC&LGV<2.5t-TOT	LGV2.5-3.5t-TOT	PLB-TOT	LGV>3.5t-TOT	HGV<15t-TOT	HGV>15t-TOT	FBDD-TOT	MC-TOT	taxi-TOT	PrLB<3.5t-TOT	PrLB>3.5t-TOT	NFB<6.4t-TOT	NFB6.4-15t-TOT	NFB>15t-TOT	FBSD-TOT
	VKT/1000 (km-vehicle) (1000X)	1124.0000	35.0000	173.0000	142.0000	139.0000	392.0000	34.0000	172.0000	31.0000	269.0000	0.0000	0.0000	0.0000	20.0000	0.0000	9.0000
	Total Ex (ton/hr) (1000X)	0.0060	0.0080	0.0200	0.0310	0.0420	0.2200	0.0200	0.0330	0.0010	0.0070	0.0000	0.0000	0.0000	0.0080	0.0000	0.0030
0 hr result	Total Ex/VMT (g/mile-vehicle)	0.0086	0.3678	0.1860	0.3513	0.4862	0.9030	0.9465	0.3087	0.0519	0.0419	0.0000	0.0000	0.0000	0.6436	0.0000	0.5363
	VKT/1000 (km-vehicle) (1000X)	861.0000	27.0000	132.0000	109.0000	106.0000	300.0000	26.0000	131.0000	24.0000	206.0000	0.0000	0.0000	0.0000	15.0000	0.0000	7.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0050	0.0060	0.0160	0.0240	0.0320	0.1680	0.0150	0.0250	0.0010	0.0050	0.0000	0.0000	0.0000	0.0060	0.0000	0.0020
1 hr result	Total Ex/VMT (g/mile-vehicle)	0.0093	0.3576	0.1950	0.3543	0.4857	0.9010	0.9283	0.3071	0.0670	0.0391	0.0000	0.0000	0.0000	0.6436	0.0000	0.4597
	VKT/1000 (km-vehicle) (1000X)	591.0000	18.0000	91.0000	75.0000	73.0000	20.0000	18.0000	90.0000	16.0000	141.0000	0.0000	0.0000	0.0000	11.0000	0.0000	5.0000
	Total Ex (ton/hr) (1000X)	0.0030	0.0040	0.0110	0.0160	0.0220	0.0110	0.0100	0.0170	0.0000	0.0040	0.0000	0.0000	0.0000	0.0040	0.0000	0.0020
2 hr result	Total Ex/VMT (g/mile-vehicle)	0.0082	0.3576	0.1945	0.3433	0.4849	0.8850	0.8939	0.3039	0.0000	0.0456	0.0000	0.0000	0.0000	0.5851	0.0000	0.6436
	VKT/1000 (km-vehicle) (1000X)	486.0000	15.0000	75.0000	61.0000	60.0000	169.0000	15.0000	74.0000	13.0000	116.0000	0.0000	0.0000	0.0000	9.0000	0.0000	4.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0030	0.0030	0.0090	0.0130	0.0180	0.0950	0.0080	0.0140	0.0000	0.0030	0.0000	0.0000	0.0000	0.0030	0.0000	0.0010
3 hr result	Total Ex/VMT (g/mile-vehicle)	0.0099	0.3218	0.1931	0.3429	0.4827	0.9045	0.8581	0.3044	0.0000	0.0416	0.0000	0.0000	0.0000	0.5363	0.0000	0.4023
	VKT/1000 (km-vehicle) (1000X)	486.0000	15.0000	75.0000	61.0000	60.0000	169.0000	15.0000	74.0000	13.0000	116.0000	0.0000	0.0000	0.0000	9.0000	0.0000	4.0000
	Total Ex (ton/hr) (1000X)	0.0030	0.0030	0.0090	0.0130	0.0180	0.0950	0.0080	0.0140	0.0000	0.0030	0.0000	0.0000	0.0000	0.0030	0.0000	0.0010
4 hr result	Total Ex/VMT (g/mile-vehicle)	0.0099	0.3218	0.1931	0.3429	0.4827	0.9045	0.8581	0.3044	0.0000	0.0416	0.0000	0.0000	0.0000	0.5363	0.0000	0.4023
	VKT/1000 (km-vehicle) (1000X)	644.0000	20.0000	99.0000	81.0000	80.0000	225.0000	19.0000	98.0000	18.0000	154.0000	0.0000	0.0000	0.0000	12.0000	0.0000	5.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0040	0.0040	0.0120	0.0180	0.0240	0.1260	0.0110	0.0190	0.0010	0.0040	0.0000	0.0000	0.0000	0.0050	0.0000	0.0020
5 hr result	Total Ex/VMT (g/mile-vehicle)	0.0100	0.3218	0.1950	0.3576	0.4827	0.9010	0.9315	0.3119	0.0894	0.0418	0.0000	0.0000	0.0000	0.6704	0.0000	0.6436
	VKT/1000 (km-vehicle) (1000X)	1282.0000	40.0000	197.0000	162.0000	158.0000	447.0000	39.0000	196.0000	36.0000	306.0000	0.0000	0.0000	0.0000	23.0000	0.0000	10.0000
	Total Ex (ton/hr) (1000X)	0.0070	0.0090	0.0230	0.0350	0.0480	0.2500	0.0220	0.0380	0.0010	0.0080	0.0000	0.0000	0.0000	0.0090	0.0000	0.0030
6 hr result	Total Ex/VMT (g/mile-vehicle)	0.0088	0.3620	0.1879	0.3476	0.4888	0.8999	0.9076	0.3119	0.0447	0.0421	0.0000	0.0000	0.0000	0.6296	0.0000	0.4827
	VKT/1000 (km-vehicle) (1000X)	2934.0000	91.0000	451.0000	370.0000	363.0000	1023.0000	89.0000	448.0000	81.0000	701.0000	0.0000	159.0000	0.0000	53.0000	0.0000	23.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0170	0.0200	0.0530	0.0800	0.1090	0.5730	0.0510	0.0860	0.0020	0.0180	0.0000	0.0550	0.0000	0.0210	0.0000	0.0080
7 hr result	Total Ex/VMT (g/mile-vehicle)	0.0093	0.3536	0.1891	0.3479	0.4831	0.9012	0.9220	0.3089	0.0397	0.0413	0.0000	0.5566	0.0000	0.6375	0.0000	0.5597
	VKT/1000 (km-vehicle) (1000X)	3625.0000	113.0000	557.0000	458.0000	448.0000	1263.0000	109.0000	553.0000	84.0000	866.0000	0.0000	196.0000	0.0000	65.0000	0.0000	29.0000
	Total Ex (ton/hr) (1000X)	0.0210	0.0240	0.0660	0.0990	0.1350	0.7080	0.0630	0.1060	0.0030	0.0220	0.0000	0.0680	0.0000	0.0260	0.0000	0.0090
8 hr result	Total Ex/VMT (g/mile-vehicle)	0.0093	0.3417	0.1907	0.3478	0.4849	0.9020	0.9300	0.3084	0.0575	0.0409	0.0000	0.5582	0.0000	0.6436	0.0000	0.4993
	VKT/1000 (km-vehicle) (1000X)	3572.0000	111.0000	1032.0000	451.0000	441.0000	1245.0000	108.0000	545.0000	99.0000	854.0000	0.0000	193.0000	0.0000	64.0000	0.0000	28.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0210	0.0240	0.1220	0.0980	0.1330	0.6970	0.0620	0.1050	0.0030	0.0220	0.0000	0.0670	0.0000	0.0260	0.0000	0.0090
9 hr result	Total Ex/VMT (g/mile-vehicle)	0.0095	0.3479	0.1902	0.3496	0.4853	0.9008	0.9237	0.3100	0.0488	0.0414	0.0000	0.5586	0.0000	0.6537	0.0000	0.5172
	VKT/1000 (km-vehicle) (1000X)	3361.0000	105.0000	517.0000	424.0000	415.0000	1172.0000	101.0000	513.0000	93.0000	803.0000	0.0000	182.0000	0.0000	60.0000	0.0000	26.0000
	Total Ex (ton/hr) (1000X)	0.0190	0.0230	0.0610	0.0920	0.1250	0.6560	0.0580	0.0980	0.0030	0.0200	0.0000	0.0630	0.0000	0.0240	0.0000	0.0090
10 hr result	Total Ex/VMT (g/mile-vehicle)	0.0091	0.3524	0.1898	0.3491	0.4846	0.9006	0.9240	0.3074	0.0519	0.0401	0.0000	0.5570	0.0000	0.6436	0.0000	0.5570
	VKT/1000 (km-vehicle) (1000X)	3361.0000	105.0000	517.0000	424.0000	415.0000	1172.0000	101.0000	513.0000	93.0000	803.0000	0.0000	182.0000	0.0000	60.0000	0.0000	26.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0190	0.0230	0.0610	0.0920	0.1250	0.6560	0.0580	0.0980	0.0030	0.0200	0.0000	0.0630	0.0000	0.0240	0.0000	0.0090
11 hr result	Total Ex/VMT (g/mile-vehicle)	0.0091	0.3524	0.1898	0.3491	0.4846	0.9006	0.9240	0.3074	0.0519	0.0401	0.0000	0.5570	0.0000	0.6436	0.0000	0.5570
	VKT/1000 (km-vehicle) (1000X)	3457.0000	93.0000	469.0000	284.0000	374.0000	989.0000	86.0000	421.0000	125.0000	498.0000	0.0000	122.0000	0.0000	49.0000	0.0000	21.0000
	Total Ex (ton/hr) (1000X)	0.0200	0.0200	0.0560	0.0620	0.1130	0.5540	0.0490	0.0810	0.0040	0.0130	0.0000	0.0420	0.0000	0.0200	0.0000	0.0070
12 hr result	Total Ex/VMT (g/mile-vehicle)	0.0093	0.3460	0.1921	0.3513	0.4861	0.9013	0.9168	0.3096	0.0515	0.0420	0.0000	0.5539	0.0000	0.6567	0.0000	0.5363
	VKT/1000 (km-vehicle) (1000X)	3564.0000	96.0000	484.0000	293.0000	385.0000	1020.0000	88.0000	434.0000	129.0000	513.0000	0.0000	125.0000	0.0000	50.0000	0.0000	21.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0200	0.0210	0.0570	0.0630	0.1160	0.5710	0.0510	0.0830	0.0040	0.0130	0.0000	0.0430	0.0000	0.0200	0.0000	0.0070
13 hr result	Total Ex/VMT (g/mile-vehicle)	0.0090	0.3520	0.1895	0.3460	0.4848	0.9007	0.9325	0.3077	0.0499	0.0408	0.0000	0.5535	0.0000	0.6436	0.0000	0.5363
	VKT/1000 (km-vehicle) (1000X)	3587.0000	97.0000	487.0000	295.0000	388.0000	1027.0000	89.0000	436.0000	130.0000	517.0000	0.0000	126.0000	0.0000	51.0000	0.0000	22.0000
	Total Ex (ton/hr) (1000X)	0.0210	0.0210	0.0580	0.0640	0.1170	0.5750	0.0510	0.0840	0.0040	0.0130	0.0000	0.0440	0.0000	0.0200	0.0000	0.0070
14 hr result	Total Ex/VMT (g/mile-vehicle)	0.0094	0.3483	0.1916	0.3491	0.4852	0.9009	0.9220	0.3100	0.0495	0.0405	0.0000	0.5619	0.0000	0.6310	0.0000	0.5120
	VKT/1000 (km-vehicle) (1000X)	3564.0000	96.0000	484.0000	293.0000	385.0000	1020.0000	88.0000	434.0000	129.0000	513.0000	0.0000	125.0000	0.0000	50.0000	0.0000	21.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0200	0.0210	0.0570	0.0630	0.1160	0.5710	0.0510	0.0830	0.0040	0.0130	0.0000	0.0430	0.0000	0.0200	0.0000	0.0070
15 hr result	Total Ex/VMT (g/mile-vehicle)	0.0090	0.3520	0.1895	0.3460	0.4848	0.9007	0.9325	0.3077	0.0499	0.0408	0.0000	0.5535	0.0000	0.6436	0.0000	0.5363
	VKT/1000 (km-vehicle) (1000X)	3617.0000	98.0000	491.0000	297.0000	391.0000	1035.0000	90.0000	440.0000	131.0000	521.0000	0.0000	127.0000	0.0000	51.0000	0.0000	22.0000
	Total Ex (ton/hr) (1000X)	0.0210	0.0210	0.0580	0.0640	0.1180	0.5800	0.0520	0.0840	0.0040	0.0130	0.0000	0.0440	0.0000	0.0200	0.0000	0.0070
16 hr result	Total Ex/VMT (g/mile-vehicle)	0.0093	0.3448	0.1901	0.3467	0.4856	0.9017	0.9296	0.3072	0.0491	0.0401	0.0000	0.5574	0.0000	0.6310	0.0000	0.5120
	VKT/1000 (km-vehicle) (1000X)	3777.0000	102.0000	513.0000	310.0000	408.0000	1081.0000	94.0000	460.0000	137.0000	544.0000	0.0000	133.0000	0.0000	53.0000	0.0000	23.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0220	0.0220	0.0610	0.0670	0.1230	0.6050	0.0540	0.0880	0.0040	0.0140	0.0000	0.0460	0.0000	0.0210	0.0000	0.0070
17 hr result	Total Ex/VMT (g/mile-vehicle)	0.0094	0.3470	0.1913	0.3478	0.4851	0.9005	0.9243	0.3078	0.0470	0.0414	0.0000	0.5565	0.0000	0.6375	0.0000	0.4897
	VKT/1000 (km-vehicle) (1000X)	3997.0000	108.0000	543.0000	328.0000	432.0000	1144.0000	99.0000	486.0000	145.0000	576.0000	0.0000	141.0000	0.0000	57.0000	0.0000	24.0000
	Total Ex (ton/hr) (1000X)	0.0230	0.0230	0.0640	0.0710	0.1300	0.6410	0.0570	0.0930	0.0040	0.0150	0.0000	0.0490	0.0000	0.0230	0.0000	0.0080
18 hr result	Total Ex/VMT (g/mile-vehicle)	0.0093	0.3427	0.1896	0.3483	0.4842	0.9015	0.9264	0.3079	0.0444	0.0419	0.0000	0.5592	0.0000	0.6492	0.0000	0.5363
	VKT/1000 (km-vehicle) (1000X)	3297.0000	89.0000	448.0000	271.0000	356.0000	943.0000	82.0000	401.0000	120.0000	475.0000	0.0000	0.0000	0.0000	47.0000	0.0000	20.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0190	0.0190	0.0530	0.0590	0.1080	0.5280	0.0470	0.0770	0.0040	0.0120	0.0000	0.0000	0.0000	0.0190	0.0000	0.0070
19 hr result	Total Ex/VMT (g/mile-vehicle)	0.0093	0.3435	0.1904	0.3503	0.4881	0.9009	0.9222	0.3090	0.0536	0.0406	0.0000	0.0000	0.0000	0.6504	0.0000	0.5632
	VKT/1000 (km-vehicle) (1000X)	2538.0000	69.0000	345.0000	209.0000	274.0000	726.0000	63.0000	309.0000	92.0000	366.0000	0.0000	0.0000	0.0000	36.0000	0.0000	15.0000
	Total Ex (ton/hr) (1000X)	0.0150	0.0150	0.0410	0.0450	0.0830	0.4070	0.0360	0.0590	0.0030	0.0090	0.0000	0.0000	0.0000	0.0140	0.0000	0.0050
20 hr result	Total Ex/VMT (g/mile-vehicle)	0.0095	0.3498	0.1912	0.3464	0.4874	0.9020	0.9194	0.3072	0.0525	0.0396	0.0000	0.0000	0.0000	0.6257	0.0000	0.5363
	VKT/1000 (km-vehicle) (1000X)	2052.0000	55.0000	279.0000	169.0000	222.0000	587.0000	51.0000	250.0000	74.0000	296.0000	0.0000	0.0000	0.0000	29.0000	0.0000	12.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0120	0.0120	0.0330	0.0370	0.0670	0.3290	0.0290	0.0480	0.0020	0.0070	0.0000	0.0000	0.0000	0.0120	0.0000	0.0040
21 hr result	Total Ex/VMT (g/mile-vehicle)	0.0094	0.3511	0.1903	0.3523	0.4856	0.9018	0.9149	0.3089	0.0435	0.0381	0.0000	0.0000	0.0000	0.6658	0.0000	0.5363
	VKT/1000 (km-vehicle) (1000X)	1731.0000	47.0000	235.0000	142.0000	187.0000	495.0000	43.0000	211.0000	63.0000	249.0000	0.0000	0.0000	0.0000	24.0000	0.0000	10.0000
	Total Ex (ton/hr) (1000X)	0.0100	0.0100	0.0280	0.0310	0.0560	0.2780	0.0250	0.0400	0.0020	0.0060	0.0000	0.0000	0.0000	0.0100	0.0000	0.0030
22 hr result	Total Ex/VMT (g/mile-vehicle)	0.0093	0.3423	0.1917	0.3513	0.4818	0.9036	0.9355	0.3050	0.0511	0.0388	0.0000	0.0000	0.0000	0.6704	0.0000	0.4827
	VKT/1000 (km-vehicle) (1000X)	1459.0000	39.0000	198.0000	120.0000	158.0000	417.0000	36.0000	177.0000	53.0000	210.0000	0.0000	0.0000	0.0000	21.0000	0.0000	9.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0080	0.0090	0.0230	0.0260	0.0480	0.2340	0.0210	0.0340	0.0020	0.0050	0.0000	0.0000	0.0000	0.0080	0.0000	0.0030
23 hr result	Total Ex/VMT (g/mile-vehicle)	0.0088	0.3713	0.1869	0.3486	0.4888	0.9029	0.9386	0.3091	0.0607	0.0383	0.0000	0.0000	0.0000	0.6130	0.0000	0.5363
Max Emission		0.0100	0.3713	0.1950	0.3576	0.4888	0.9045	0.9465	0.3119	0.0894	0.0456	0.0000	0.5619	0.0000	0.6704	0.0000	0.6436

Annex D6 - Hourly Emission Factors for All Vehicle Classes on Road Links of Different Road Speeds

Vehicular Emission Factors in 2011 (RSP @ s50kph)		PC&LGV-TOT	PC&LGV<2.5t-TOT	LGV2.5-3.5t-TOT	PLB-TOT	LGV>3.5t-TOT	HGV<15t-TOT	HGV>15t-TOT	FBDD-TOT	MC-TOT	taxi-TOT	PrLB<3.5t-TOT	PrLB>3.5t-TOT	NFB<6.4t-TOT	NFB6.4-15t-TOT	NFB>15t-TOT	FBSD-TOT
	VKT/1000 (km-vehicle) (1000X)	15.0000	0.0000	2.0000	0.0000	2.0000	7.0000	1.0000	3.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0000	0.0010	0.0070	0.0010	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0000	0.8045	1.6090	1.6090	0.5363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	12.0000	0.0000	2.0000	0.0000	1.0000	6.0000	0.0000	2.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0000	0.0010	0.0050	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
1 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0000	1.6090	1.3408	0.0000	0.8045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	8.0000	0.0000	1.0000	0.0000	1.0000	4.0000	0.0000	1.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0000	0.0010	0.0040	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
2 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0000	1.6090	1.6090	0.0000	1.6090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	6.0000	0.0000	1.0000	0.0000	1.0000	3.0000	0.0000	1.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
3 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	6.0000	0.0000	1.0000	0.0000	1.0000	3.0000	0.0000	1.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	9.0000	0.0000	1.0000	0.0000	1.0000	4.0000	0.0000	2.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0000	0.0000	0.0010	0.0040	0.0000	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
5 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.0000	0.0000	1.6090	1.6090	0.0000	0.8045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	17.0000	1.0000	3.0000	0.0000	2.0000	8.0000	1.0000	3.0000	0.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0000	0.0000	0.0010	0.0000	0.0010	0.0080	0.0010	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
6 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.5363	0.0000	0.8045	1.6090	1.6090	0.5363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	39.0000	1.0000	6.0000	0.0000	5.0000	19.0000	2.0000	7.0000	1.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0010	0.0000	0.0030	0.0190	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
7 hr result	Total Ex/VMT (g/mile-vehicle)	0.0413	0.0000	0.2682	0.0000	0.9654	1.6090	1.6090	0.6896	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	48.0000	2.0000	8.0000	1.0000	6.0000	23.0000	2.0000	9.0000	1.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0030	0.0230	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
8 hr result	Total Ex/VMT (g/mile-vehicle)	0.0335	0.8045	0.4023	0.0000	0.8045	1.6090	1.6090	0.5363	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	48.0000	2.0000	7.0000	1.0000	6.0000	23.0000	2.0000	9.0000	1.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0030	0.0230	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
9 hr result	Total Ex/VMT (g/mile-vehicle)	0.0335	0.8045	0.4597	0.0000	0.8045	1.6090	1.6090	0.5363	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	45.0000	1.0000	7.0000	0.0000	6.0000	22.0000	2.0000	8.0000	1.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0010	0.0010	0.0000	0.0030	0.0210	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
10 hr result	Total Ex/VMT (g/mile-vehicle)	0.0358	1.6090	0.2299	0.0000	0.8045	1.5359	1.6090	0.6034	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	45.0000	1.0000	7.0000	0.0000	6.0000	22.0000	2.0000	8.0000	1.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0010	0.0010	0.0000	0.0030	0.0210	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
11 hr result	Total Ex/VMT (g/mile-vehicle)	0.0358	1.6090	0.2299	0.0000	0.8045	1.5359	1.6090	0.6034	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	53.0000	2.0000	9.0000	1.0000	7.0000	21.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0040	0.0210	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
12 hr result	Total Ex/VMT (g/mile-vehicle)	0.0304	0.8045	0.3576	0.0000	0.9194	1.6090	1.6090	0.6034	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	55.0000	2.0000	9.0000	1.0000	7.0000	22.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0040	0.0210	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
13 hr result	Total Ex/VMT (g/mile-vehicle)	0.0293	0.8045	0.3576	0.0000	0.9194	1.5359	1.6090	0.6034	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	55.0000	2.0000	9.0000	1.0000	7.0000	22.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0040	0.0210	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
14 hr result	Total Ex/VMT (g/mile-vehicle)	0.0293	0.8045	0.3576	0.0000	0.9194	1.5359	1.6090	0.6034	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	55.0000	2.0000	9.0000	1.0000	7.0000	22.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0040	0.0210	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
15 hr result	Total Ex/VMT (g/mile-vehicle)	0.0293	0.8045	0.3576	0.0000	0.9194	1.5359	1.6090	0.6034	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	56.0000	2.0000	9.0000	1.0000	7.0000	22.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0040	0.0220	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
16 hr result	Total Ex/VMT (g/mile-vehicle)	0.0287	0.8045	0.3576	0.0000	0.9194	1.6090	1.6090	0.6034	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	58.0000	2.0000	9.0000	1.0000	8.0000	23.0000	2.0000	9.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0040	0.0230	0.0020	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
17 hr result	Total Ex/VMT (g/mile-vehicle)	0.0277	0.8045	0.3576	0.0000	0.8045	1.6090	1.6090	0.7151	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	62.0000	2.0000	10.0000	1.0000	8.0000	24.0000	2.0000	9.0000	2.0000	4.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0040	0.0240	0.0020	0.0040	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
18 hr result	Total Ex/VMT (g/mile-vehicle)	0.0260	0.8045	0.3218	0.0000	0.8045	1.6090	1.6090	0.7151	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	51.0000	2.0000	8.0000	1.0000	7.0000	20.0000	2.0000	8.0000	2.0000	3.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0010	0.0020	0.0000	0.0030	0.0200	0.0020	0.0030	0.0000	0.0000	0.0000	0.0000	0.0000	0.0010	0.0000	0.0000
19 hr result	Total Ex/VMT (g/mile-vehicle)	0.0315	0.8045	0.4023	0.0000	0.6896	1.6090	1.6090	0.6034	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	39.0000	1.0000	6.0000	1.0000	5.0000	15.0000	1.0000	6.0000	1.0000	2.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0010	0.0000	0.0030	0.0150	0.0010	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
20 hr result	Total Ex/VMT (g/mile-vehicle)	0.0413	0.0000	0.2682	0.0000	0.9654	1.6090	1.6090	0.5363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	32.0000	1.0000	5.0000	0.0000	4.0000	12.0000	1.0000	5.0000	1.0000	2.0000	0.0000	0.0000	0.0000	1.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0010	0.0000	0.0010	0.0000	0.0020	0.0120	0.0010	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
21 hr result	Total Ex/VMT (g/mile-vehicle)	0.0503	0.0000	0.3218	0.0000	0.8045	1.6090	1.6090	0.6436	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	27.0000	1.0000	4.0000	0.0000	3.0000	11.0000	1.0000	4.0000	1.0000	2.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (ton/hr) (1000X)	0.0010	0.0000	0.0010	0.0000	0.0020	0.0100	0.0010	0.0020	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
22 hr result	Total Ex/VMT (g/mile-vehicle)	0.0596	0.0000	0.4023	0.0000	1.0727	1.4627	1.6090	0.8045	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	VKT/1000 (km-vehicle) (1000X)	23.0000	1.0000	4.0000	0.0000	3.0000	9.0000	1.0000	3.0000	1.0000	1.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
	Total Ex (1000X) (ton/hr) (1000X)	0.0000	0.0000	0.0010	0.0000	0.0020	0.0090	0.0010	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
23 hr result	Total Ex/VMT (g/mile-vehicle)	0.0000	0.0000	0.4023	0.0000	1.0727	1.6090	1.6090	0.5363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Max Emission		0.0596	1.6090	0.5363	0.0000	1.6090	1.6090	1.6090	1.6090	0.0000	0.0000	0.0000	0.0000	0.0000	1.6090	0.0000	0.0000

Annex D7

Sensitivity Test of Emission Factors from AM and Peak Hour Traffic Flows

Annex D7 - Sensitivity Test of Emission Factors from AM and PM Peak Hour Traffic Flow

UFN	Road Link	Road Name	NOx E.F (g/mile-veh) (AM peak hour)	NOx E.F (g/mile-veh) (PM peak hour)	RSP E.F (g/mile-veh) (AM peak hour)	RSP E.F (g/mile-veh) (PM peak hour)
3	1	CASTLE PEAK RD - YL	2.013	1.898	0.250	0.231
2	2	CASTLE PEAK RD - YL	1.419	1.427	0.221	0.204
2	3	CASTLE PEAK RD - YL	1.419	1.427	0.221	0.204
2	4	CASTLE PEAK RD - YL	1.419	1.427	0.221	0.204
2	5	CASTLE PEAK RD - YL	1.419	1.427	0.221	0.204
1	6	CASTLE PEAK RD - YL	1.824	1.837	0.242	0.225
1	7	CASTLE PEAK RD - YL	1.824	1.837	0.242	0.225
22	8	Existing YL Highway Flyover	4.455	3.377	0.322	0.238
22	9	Existing YL Highway Flyover	4.455	3.377	0.322	0.238
22	10	Existing YL Highway Flyover	4.455	3.377	0.322	0.238
22	11	Existing YL Highway Flyover	4.455	3.377	0.322	0.238
22	12	Existing YL Highway Flyover	4.455	3.377	0.322	0.238
22	13	Existing YL Highway Flyover	4.455	3.377	0.322	0.238
22	14	Existing YL Highway Flyover	4.455	3.377	0.322	0.238
22	15	Existing YL Highway Flyover	4.455	3.377	0.322	0.238
4	16	Existing YL Highway Flyover (before Slip Rd C)	3.322	3.066	0.230	0.213
4	17	Existing YL Highway Flyover (before Slip Rd C)	3.322	3.066	0.230	0.213
4	18	Existing YL Highway Flyover (before Slip Rd C)	3.322	3.066	0.230	0.213
4	19	Existing YL Highway Flyover (before Slip Rd C)	3.322	3.066	0.230	0.213
4	20	Existing YL Highway Flyover (before Slip Rd C)	3.322	3.066	0.230	0.213
4	21	Existing YL Highway Flyover (before Slip Rd C)	3.322	3.066	0.230	0.213
4	22	Existing YL Highway Flyover (before Slip Rd C)	3.322	3.066	0.230	0.213
17	23	YL Highway - NB (near STNV)	2.903	2.488	0.196	0.169
17	24	YL Highway - NB (near STNV)	2.903	2.488	0.196	0.169
17	25	YL Highway - NB (near STNV)	2.903	2.488	0.196	0.169
17	26	YL Highway - NB (near STNV)	2.903	2.488	0.196	0.169
17	27	YL Highway - NB (near STNV)	2.903	2.488	0.196	0.169
17	28	YL Highway - NB (near STNV)	2.903	2.488	0.196	0.169
17	29	YL Highway - NB (near STNV)	2.903	2.488	0.196	0.169
17	30	YL Highway - NB (near STNV)	2.903	2.488	0.196	0.169
18	31	YL Highway (north end)	3.194	2.479	0.217	0.168
18	32	YL Highway (north end)	3.194	2.479	0.217	0.168
20	33	YL Highway (north end)	3.194	2.479	0.217	0.168
20	34	YL Highway (north end)	3.194	2.479	0.217	0.168
19	35	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	36	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	37	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	38	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	39	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	40	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	41	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	42	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	43	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
19	44	YL Highway - SB (near STNV)	3.276	2.989	0.221	0.202
23	45	Before Slip Road A	0.250	1.977	0.011	0.203
23	46	Before Slip Road A	0.250	1.977	0.011	0.203
23	47	Before Slip Road A	0.250	1.977	0.011	0.203
23	48	Before Slip Road A	0.250	1.977	0.011	0.203
23	49	Before Slip Road A	0.250	1.977	0.011	0.203
23	50	Before Slip Road A	0.250	1.977	0.011	0.203
23	51	Before Slip Road A	0.250	1.977	0.011	0.203
5	52	After Slip Road A	2.841	2.375	0.325	0.275
5	53	After Slip Road A	2.841	2.375	0.325	0.275
5	54	After Slip Road A	2.841	2.375	0.325	0.275
5	55	After Slip Road A	2.841	2.375	0.325	0.275
5	56	After Slip Road A	2.841	2.375	0.325	0.275
5	57	After Slip Road A	2.841	2.375	0.325	0.275
5	58	After Slip Road A	4.900	4.084	0.703	0.599
6	59	Before Slip Road C	2.891	2.501	0.333	0.290
6	60	Before Slip Road C	2.891	2.501	0.333	0.290

Annex D7 - Sensitivity Test of Emission Factors from AM and PM Peak Hour Traffic Flow

UFN	Road Link	Road Name	NOx E.F (g/mile-veh) (AM peak hour)	NOx E.F (g/mile-veh) (PM peak hour)	RSP E.F (g/mile-veh) (AM peak hour)	RSP E.F (g/mile-veh) (PM peak hour)
6	61	Before Slip Road C	2.891	2.501	0.333	0.290
6	62	Before Slip Road C	2.891	2.501	0.333	0.290
6	63	Before Slip Road C	2.891	2.501	0.333	0.290
6	64	Before Slip Road C	2.891	2.501	0.333	0.290
6	65	Before Slip Road C	2.891	2.501	0.333	0.290
24	66	Combined Slip Road C	1.841	3.021	0.173	0.336
24	67	Combined Slip Road C	1.841	3.021	0.173	0.336
24	68	Combined Slip Road C	1.841	3.021	0.173	0.336
24	69	Combined Slip Road C	1.841	3.021	0.173	0.336
24	70	Combined Slip Road C	1.841	3.021	0.173	0.336
14	71	SLIP RD (CP RD TO ROUNDABOUT)	3.240	2.541	0.355	0.272
14	72	SLIP RD (CP RD TO ROUNDABOUT)	5.095	3.969	0.705	0.551
13	73	LIP RD (ROUNDABOUT TO POK OI & YL HIGHWA	0.432	0.256	0.048	0.013
26	74	LIP RD (ROUNDABOUT TO POK OI & YL HIGHWA	2.386	2.386	0.245	0.245
15	75	Slip Road near PO Hospital	6.047	6.043	0.363	0.365
15	76	Slip Road near PO Hospital	6.047	6.043	0.363	0.365
15	77	Slip Road near PO Hospital	6.047	6.043	0.363	0.365
15	78	Slip Road near PO Hospital	6.047	6.043	0.363	0.365
15	79	Slip Road near PO Hospital	6.047	6.043	0.363	0.365
15	80	Slip Road near PO Hospital	6.047	6.043	0.363	0.365
15	81	Slip Road near PO Hospital	6.047	6.043	0.363	0.365
12	82	SLIP RD (YL HIGHWAY TO ROUNDABOUT)	2.935	2.897	0.197	0.199
12	83	SLIP RD (YL HIGHWAY TO ROUNDABOUT)	3.218	3.182	0.329	0.340
25	84	SLIP RD (YL HIGHWAY TO ROUNDABOUT)	4.063	3.351	0.522	0.463
8	85	SLIP RD (ROUNDABOUT TO CP RD)	2.480	2.583	0.258	0.280
16	86	SLIP RD (CP RD TO YL HIGHWAY)	2.904	2.195	0.305	0.232
16	87	SLIP RD (CP RD TO YL HIGHWAY)	2.904	2.195	0.305	0.232
16	88	SLIP RD (CP RD TO YL HIGHWAY)	2.904	2.195	0.305	0.232
11	89	Slip Road (CP Rd to YL H)	3.058	2.101	0.324	0.228
11	90	Slip Road (CP Rd to YL H)	3.058	2.101	0.324	0.228
11	91	Slip Road (CP Rd to YL H)	3.058	2.101	0.324	0.228
11	92	Slip Road (CP Rd to YL H)	3.058	2.101	0.324	0.228
7	93	ROUNDABOUT	2.899	2.298	0.307	0.248
7	94	ROUNDABOUT	2.899	2.298	0.307	0.248
7	95	ROUNDABOUT	2.899	2.298	0.307	0.248
7	96	ROUNDABOUT	2.899	2.298	0.307	0.248
7	97	ROUNDABOUT	2.899	2.298	0.307	0.248
7	98	ROUNDABOUT	2.899	2.298	0.307	0.248
7	99	ROUNDABOUT	2.899	2.298	0.307	0.248
7	100	ROUNDABOUT	2.899	2.298	0.307	0.248
26	101	Slip Road to RA	2.386	2.668	0.245	0.258
21	102	New Left-turn Lane	4.349	4.378	0.454	0.471
21	103	New Left-turn Lane	4.349	4.378	0.454	0.471
21	104	New Left-turn Lane	4.349	4.378	0.454	0.471
21	105	New Left-turn Lane	6.381	6.551	0.845	0.900
10	106	New Slip Road C	1.654	3.163	0.145	0.349
10	107	New Slip Road C	1.654	3.163	0.145	0.349
10	108	New Slip Road C	1.654	3.163	0.145	0.349
10	109	New Slip Road C	1.654	3.163	0.145	0.349
10	110	New Slip Road C	1.654	3.163	0.145	0.349
10	111	New Slip Road C	1.654	3.163	0.145	0.349
9	112	New Flyover	2.886	1.562	0.212	0.097
9	113	New Flyover	2.886	1.562	0.212	0.097
9	114	New Flyover	2.886	1.562	0.212	0.097
9	115	New Flyover	2.886	1.562	0.212	0.097
9	116	New Flyover	2.886	1.562	0.212	0.097
9	117	New Flyover	2.886	1.562	0.212	0.097
9	118	New Flyover	2.886	1.562	0.212	0.097
9	119	New Flyover	2.886	1.562	0.212	0.097
9	120	New Flyover	2.886	1.562	0.212	0.097
9	121	New Flyover	2.886	1.562	0.212	0.097
9	122	New Flyover	2.886	1.562	0.212	0.097
9	123	New Flyover	2.886	1.562	0.212	0.097
9	124	New Flyover	2.886	1.562	0.212	0.097

Annex D8

Peak Hourly Traffic Flow, Vehicle Mix and Air Pollutant Emission Rates

Annex D8 - AM Peak Hourly Traffic Flow, Vehicle Mix and Air Pollutant Emission Rates

	Emission Factor for RSP (gm/mile-veh)															
	MC	PC&LGV	Taxi	NFB<6.4t	NFB6.4-15t	NFB>15t	PrLB<3.5t	PrLB>3.5t	PC&LGV<2.5	LGV2.5-3.5t	LGV>3.5t	HGV<15t	HGV>15t	FBSD	FBDD	PLB
Road Links at 80kph	0.0731	0.0040	0.0268	0.0000	0.3576	0.0000	0.0000	0.2825	0.1893	0.0978	0.2434	0.4873	0.5140	0.3017	0.1537	0.1788
	MC	PC&LGV	Taxi	NFB<6.4t	NFB6.4-15t	NFB>15t	PrLB<3.5t	PrLB>3.5t	PC&LGV<2.5	LGV2.5-3.5t	LGV>3.5t	HGV<15t	HGV>15t	FBSD	FBDD	PLB
Road Links at 70kph	0.0000	0.0069	0.0000	0.0000	0.5363	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.5363	0.8045	0.0000	0.2299	0.0134
	MC	PC&LGV	Taxi	NFB<6.4t	NFB6.4-15t	NFB>15t	PrLB<3.5t	PrLB>3.5t	PC&LGV<2.5	LGV2.5-3.5t	LGV>3.5t	HGV<15t	HGV>15t	FBSD	FBDD	PLB
Road Links at 50kph	0.0894	0.0100	0.0456	0.0000	0.6704	0.0000	0.0000	0.5619	0.3713	0.1950	0.4888	0.9045	0.9465	0.6436	0.3119	0.3576
	MC	PC&LGV	Taxi	NFB<6.4t	NFB6.4-15t	NFB>15t	PrLB<3.5t	PrLB>3.5t	PC&LGV<2.5	LGV2.5-3.5t	LGV>3.5t	HGV<15t	HGV>15t	FBSD	FBDD	PLB
Road Links at 50kph (with stops)	0.0000	0.0596	0.0000	0.0000	1.6090	0.0000	0.0000	0.0000	1.6090	0.5363	1.6090	1.6090	1.6090	0.0000	1.6090	0.0000

	Emission Factor for NOx (gm/mile-veh)															
	MC	PC&LGV	Taxi	NFB<6.4t	NFB6.4-15t	NFB>15t	PrLB<3.5t	PrLB>3.5t	PC&LGV<2.5t	LGV2.5-3.5t	LGV>3.5t	HGV<15t	HGV>15t	FBSD	FBDD	PLB
Road Links at 80kph	1.2068	0.1837	0.2256	0.0000	5.8473	0.0000	0.0000	0.6510	0.8045	0.4681	3.6837	6.7505	8.4696	5.0058	4.8045	0.3284
	MC	PC&LGV	Taxi	NFB<6.4t	NFB6.4-15t	NFB>15t	PrLB<3.5t	PrLB>3.5t	PC&LGV<2.5t	LGV2.5-3.5t	LGV>3.5t	HGV<15t	HGV>15t	FBSD	FBDD	PLB
Road Links at 70kph	0.0000	0.1962	0.3218	0.0000	6.4360	0.0000	0.0000	0.0000	0.0000	0.8045	3.2180	6.8651	11.2630	6.4360	6.4360	0.0051
	MC	PC&LGV	Taxi	NFB<6.4t	NFB6.4-15t	NFB>15t	PrLB<3.5t	PrLB>3.5t	PC&LGV<2.5t	LGV2.5-3.5t	LGV>3.5t	HGV<15t	HGV>15t	FBSD	FBDD	PLB
Road Links at 50kph	1.0056	0.2372	0.3102	0.0000	6.7578	0.0000	0.0000	0.6753	0.8939	0.4951	3.8965	7.7237	9.8234	6.1142	5.9530	0.3433
	MC	PC&LGV	Taxi	NFB<6.4t	NFB6.4-15t	NFB>15t	PrLB<3.5t	PrLB>3.5t	PC&LGV<2.5t	LGV2.5-3.5t	LGV>3.5t	HGV<15t	HGV>15t	FBSD	FBDD	PLB
Road Links at 50kph (with stops)	1.6090	0.4023	0.8045	0.0000	11.2630	0.0000	0.0000	0.0000	1.6090	1.6090	8.0450	12.0675	19.3080	0.0000	14.4810	0.0000

UFN	Road Link	Road Name	Speed Limit (kph)	AM Peak Hourly Flow	Motor Cycles	Petrol PC &LGV	Taxi	Non-franchised Buses <6.4t	Non-franchised Buses 6.4-15t	Non-franchised Buses >15t	Private Light Buses <3.5t	Private Light Buses >3.5t	Diesel PC&LGV <2.5t	Diesel LGV 2.5-3.5t	Diesel LGV >3.5t	HGV<15t	HGV>15t	Single Deck Franchised Buses	Double Deck Franchised Buses	Public Light Buses	Motor Cycles	Petrol PC &LGV	Taxi	Non-franchised Buses <6.4t	Non-franchised Buses 6.4-15t	Non-franchised Buses >15t	Private Light Buses <3.5t	Private Light Buses >3.5t	Diesel PC&LGV <2.5t	Diesel LGV 2.5-3.5t	Diesel LGV >3.5t	HGV<15t	HGV>15t	Single Deck Franchised Buses	Double Deck Franchised Buses	Public Light Buses	NOx E.F (g/mile-veh)	RSP E.F (g/mile-veh)
3	1	CASTLE PEAK RD - YL	50	5577	1.09%	40.85%	11.87%	0.00%	0.90%	0.00%	0.00%	3.16%	1.40%	6.90%	5.54%	11.85%	1.04%	0.39%	7.67%	7.33%	61.343	540.360	205.374	0.000	337.890	0.000	0.000	118.849	69.723	190.605	1204.017	5105.398	569.755	134.512	2547.878	140.391	2.013	0.250
2	2	CASTLE PEAK RD - YL	50	3027	1.45%	37.69%	16.68%	0.00%	0.53%	0.00%	0.00%	5.25%	1.39%	6.84%	5.48%	7.14%	0.63%	0.23%	4.43%	12.26%	44.248	270.655	156.667	0.000	108.125	0.000	0.000	107.369	37.543	102.481	646.818	1668.330	186.644	42.799	797.700	127.347	1.419	0.221
2	3	CASTLE PEAK RD - YL	50	3027	1.45%	37.69%	16.68%	0.00%	0.53%	0.00%	0.00%	5.25%	1.39%	6.84%	5.48%	7.14%	0.63%	0.23%	4.43%	12.26%	44.248	270.655	156.667	0.000	108.125	0.000	0.000	107.369	37.543	102.481	646.818	1668.330	186.644	42.799	797.700	127.347	1.419	0.221
2	4	CASTLE PEAK RD - YL	50	3027	1.45%	37.69%	16.68%	0.00%	0.53%	0.00%	0.00%	5.25%	1.39%	6.84%	5.48%	7.14%	0.63%	0.23%	4.43%	12.26%	44.248	270.655	156.667	0.000	108.125	0.000	0.000	107.369	37.543	102.481	646.818	1668.330	186.644	42.799	797.700	127.347	1.419	0.221
2	5	CASTLE PEAK RD - YL	50	3027	1.45%	37.69%	16.68%	0.00%	0.53%	0.00%	0.00%	5.25%	1.39%	6.84%	5.48%	7.14%	0.63%	0.23%	4.43%	12.26%	44.248	270.655	156.667	0.000	108.125	0.000	0.000	107.369	37.543	102.481	646.818	1668.330	186.644	42.799	797.700	127.347	1.419	0.221
1	6	CASTLE PEAK RD - YL	50	4358	1.54%	38.34%	13.58%	0.00%	0.76%	0.00%	0.00%	3.69%	1.58%	7.80%	6.26%	10.14%	0.87%	0.32%	6.45%	8.65%	67.377	396.375	183.657	0.000	223.007	0.000	0.000	108.720	61.678	168.326	1063.743	3413.897	373.288	85.599	1672.789	129.407	1.824	0.242
1	7	CASTLE PEAK RD - YL	50	4358	1.54%	38.34%	13.58%	0.00%	0.76%	0.00%	0.00%	3.69%	1.58%	7.80%	6.26%	10.14%	0.87%	0.32%	6.45%	8.65%	67.377	396.375	183.657	0.000	223.007	0.000	0.000	108.720	61.678	168.326	1063.743	3413.897	373.288	85.599	1672.789	129.407	1.824	0.242
22	8	Existing YL Highway Flyover	80	2625	1.57%	10.12%	0.00%	0.00%	0.88%	0.00%	0.00%	2.43%	1.91%	9.49%	7.59%	48.17%	4.22%	0.40%	7.55%	5.66%	49.870	48.817	0.000	0.000	134.589	0.000	0.000	41.545	40.401	116.552	734.183	8535.169	939.285	52.372	952.538	48.784	4.455	0.322
22	9	Existing YL Highway Flyover	80	2625	1.57%	10.12%	0.00%	0.00%	0.88%	0.00%	0.00%	2.43%	1.91%	9.49%	7.59%	48.17%	4.22%	0.40%	7.55%	5.66%	49.870	48.817	0.000	0.000	134.589	0.000	0.000	41.545	40.401	116.552	734.183	8535.169	939.285	52.372	952.538	48.784	4.455	0.322
22	10	Existing YL Highway Flyover	80	2625	1.57%	10.12%	0.00%	0.00%	0.88%	0.00%	0.00%	2.43%	1.91%	9.49%	7.59%	48.17%	4.22%	0.40%	7.55%	5.66%	49.870	48.817	0.000	0.000	134.589	0.000	0.000	41.545	40.401	116.552	734.183	8535.169	939.285	52.372	952.538	48.784	4.455	0.322
22	11	Existing YL Highway Flyover	80	2625	1.57%	10.12%	0.00%	0.00%	0.88%	0.00%	0.00%	2.43%	1.91%	9.49%	7.59%	48.17%	4.22%	0.40%	7.55%	5.66%	49.870	48.817	0.000	0.000	134.589	0.000	0.000	41.545	40.401	116.552	734.183	8535.169	939.285	52.372	952.538	48.784	4.455	0.322
22	12	Existing YL Highway Flyover	80	2625	1.57%	10.12%	0.00%	0.00%	0.88%	0.00%	0.00%	2.43%	1.91%	9.49%	7.59%	48.17%	4.22%	0.40%	7.55%	5.66%	49.870	48.817	0.000	0.000	134.589	0.000	0.000	41.545	40.401	116.552	734.183	8535.169	939.285	52.372	952.538	48.784	4.455	0.322
22	13	Existing YL Highway Flyover	80	2625	1.57%	10.12%	0.00%	0.00%	0.88%	0.00%	0.00%	2.43%	1.91%	9.49%	7.59%	48.17%	4.22%	0.40%	7.55%	5.66%	49.870	48.817	0.000	0.000	134.589	0.000	0.000	41.545	40.401	116.552	734.183	8535.169	939.285	52.372	952.538	48.784	4.455	0.322
22	14	Existing YL Highway Flyover	80	2625	1.57%	10.12%	0.00%	0.00%	0.88%	0.00%	0.00%	2.43%	1.91%	9.49%	7.59%	48.17%	4.22%	0.40%	7.55%	5.66%	49.870	48.817	0.000	0.000	134.589	0.000	0.000	41.545	40.401	116.552	734.183	8535.169	939.285	52.372	952.538	48.784	4.455	0.322
22	15	Existing YL Highway Flyover	80	2625	1.57%	10.12%	0.00%	0.00%	0.88%	0.00%	0.00%	2.43%	1.91%	9.49%	7.59%	48.17%	4.22%	0.40%	7.55%	5.66%	49.870	48.817	0.000	0.000	134.589	0.000	0.000	41.545	40.401	116.552	734.183	8535.169	939.285	52.372	952.538	48.784	4.455	0.322
4	16	Existing YL Highway Flyover (before Slip Rd C)	80	5358	0.65%	36.19%	3.43%	0.00%	0.82%	0.00%	0.00%	1.25%	0.88%	4.33%	3.45%	35.55%	3.10%	0.37%	7.04%	2.93%	42.236	356.193	41.503	0.000	257.283	0.000	0.000	43.615	37.812	108.593	681.479	12859.728	1405.953	100.116	1811.281	51.554	3.322	0.230
4	17	Existing YL Highway Flyover (before Slip Rd C)	80	5358	0.65%	36.19%	3.43%	0.00%	0.82%	0.00%	0.00%	1.25%	0.88%	4.33%	3.45%	35.55%	3.10%	0.37%	7.04%	2.93%	42.236	356.193	41.503	0.000	257.283	0.000	0.000	43.615	37.812	108.593	681.479	12859.728	1405.953	100.116	1811.281	51.554	3.322	0.230
4	18	Existing YL Highway Flyover (before Slip Rd C)	80	5358	0.65%	36.19%	3.43%	0.00%	0.82%	0.00%	0.00%	1.25%	0.88%	4.33%	3.45%	35.55%	3.10%	0.37%	7.04%	2.93%	42.236	356.193	41.503	0.000	257.283	0.000	0.000	43.615	37.812	108.593	681.479	12859.728	1405.953	100.116	1811.281	51.554	3.322	0.230
4	19	Existing YL Highway Flyover (before Slip Rd C)	80	5358	0.65%	36.19%	3.43%	0.00%	0.82%	0.00%	0.00%	1.25%	0.88%	4.33%	3.45%	35.55%	3.10%	0.37%	7.04%	2.93%	42.236	356.193	41.503	0.000	257.283	0.000	0.000	43.615	37.812	108.593	681.479	12859.728	1405.953	100.116	1811.281	51.554	3.322	0.230
4	20	Existing YL Highway Flyover (before Slip Rd C)	80	5358	0.65%	36.19%	3.43%	0.00%	0.82%	0.00%	0.00%	1.25%	0.88%	4.33%	3.45%	35.55%	3.10%	0.37%	7.04%	2.93%	42.236	356.193	41.503	0.000	257.283	0.000	0.000	43.615	37.812	108.593	681.479	12859.728	1405.953	100.116	1811.281	51.554	3.322	0.230
4	21	Existing YL Highway Flyover (before Slip Rd C)	80	5358	0.65%	36.19%	3.43%	0.00%	0.82%	0.00%	0.00%	1.25%	0.88%	4.33%	3.45%	35.55%	3.10%	0.37%	7.04%	2.93%	42.236	356.193	41.503	0.000	257.283	0.000	0.000	43.615	37.812	108.593	681.479	12859.728	1405.953	100.116	1811.281	51.554	3.322	0.230
4	22	Existing YL Highway Flyover (before Slip Rd C)	80	5358	0.65%	36.19%	3.43%	0.00%	0.82%	0.00%	0.00%	1.25%	0.88%	4.33%	3.45%	35.55%	3.10%	0.37%	7.04%	2.93%	42.236	356.193	41.503	0.000	257.283	0.000	0.000	43.615	37.812	108.593	681.479	12859.728	1405.953	100.116	1811.281	51.554	3.322	0.230
17	23	YL Highway - NB (near STNV)	80	4784	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	32.582	367.031	44.661	0.000	257.283	0.000	0.000	22.784	41.030	117.486	744.102	9295.457	1016.352	100.116	1820.890	26.926	2.903	0.196
17	24	YL Highway - NB (near STNV)	80	4784	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	32.582	367.031	44.661	0.000	257.283	0.000	0.000	22.784	41.030	117.486	744.102	9295.457	1016.352	100.116	1820.890	26.926	2.903	0.196
17	25	YL Highway - NB (near STNV)	80	4784	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	32.582	367.031	44.661	0.000	257.283	0.000	0.000	22.784	41.030	117.486	744.102	9295.457	1016.352	100.116	1820.890	26.926	2.903	0.196
17	26	YL Highway - NB (near STNV)	80	4784	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	32.582	367.031	44.661	0.000	257.283	0.000	0.000	22.784	41.030	117.486	744.102	9295.457	1016.352	100.116	1820.890	26.926	2.903	0.196
17	27	YL Highway - NB (near STNV)	80	4784	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	32.582	367.031	44.661	0.000	257.283	0.000	0.000	22.784	41.030	117.486	744.102	9295.457	1016.352	100.116	1820.890	26.926	2.903	0.196
17	28	YL Highway - NB (near STNV)	80	4784	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	32.582	367.031	44.661	0.000	257.283	0.000	0.000	22.784	41.030	117.486	744.102	9295.457	1016.352	100.116	1820.890	26.926	2.903	0.196
17	29	YL Highway - NB (near STNV)	80	4784	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	32.582	367.031	44.661	0.000	257.283	0.000	0.000	22.784	41.030	117.486	744.102	9295.457	1016.352	100.116	1820.890	26.926	2.903	0.196
17	30	YL Highway - NB (near STNV)	80	4784	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	32.582	367.031	44.661	0.000	257.283	0.000	0.000	22.784	41.030	117.486	744.102	9295.457	1016.352	100.116	1820.890	26.926	2.903	0.196
18	31	YL Highway (north end)	80	1435	0.62%	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	1.488	135.201	0.000	0.000	0.000	0.000	0.000	8.447	7.162	277.380	409.081	3498.791	180.208	28.827	37.335	3.194	0.217
18	32	YL Highway (north end)	80	1435	0.62%	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	1.488	135.201	0.000	0.000	0.000	0.000	0.000	8.447	7.162	277.380	409.081	3498.791	180.208	28.827	37.335	3.194	0.217
20	33	YL Highway (north end)	80	3349	0.62%	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	3.472	315.469	0.000	0.000	0.000	0.000	0.000	19.710	16.710	647.221	954.523	8163.845	420.485	67.262	87.116	3.194	0.217
20	34	YL Highway (north end)	80	3349	0.62%	0.56%	41.76%	4.14%	0.00%	0.92%	0.00%	0.00%	0.73%	1.07%	5.25%	4.22%	28.78%	2.51%	0.42%	7.92%	1.71%	3.472	315.469	0.000	0.000	0.000	0.000	0.000	19.710	16.710	647.221	954.523	8163.845	420.485	67.262	87.116	3.194	0.217
19	35	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	36	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	37	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	38	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	39	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	40	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	41	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	42	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	43	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
19	44	YL Highway - SB (near STNV)	80	4178	1.01%	35.09%	3.61%	0.00%	1.15%	0.00%	0.00%	1.15%	0.98%	4.76%	3.78%	32.67%	2.82%	0.53%	9.72%	2.73%	50.684	269.303	34.060	0.000	280.672	0.000	0.000	31.247	32.985	93.146	582.020	9214.451	999.412	110.127	1950.611	37.434	3.276	0.221
23	45	Before Slip Road A	50	1508	1.72%	98.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.146	351.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.011
23	46	Before Slip Road A	50	1508	1.72%	98.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.146	351.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.011
23	47	Before Slip Road A	50	1508	1.72%	98.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.146	351.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.011
23	48	Before Slip Road A	50	1508	1.72%	98.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.146	351.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.011
23	49	Before Slip Road A	50	1508	1.72%	98.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.146	351.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.011
23	50	Before Slip Road A	50	1508	1.72%	98.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.146	351.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.011
23	51	Before Slip Road A	50	1508	1.72%	98.28%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	26.146	351.543	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.250	0.011
5	52	After Slip Road A	50	604	1.82%	47.85%	2.81%	0.00%	0.33%	0.00%	0.00%	0.00%	1.66%	8.11%	6.62%	25.33%	2.15%	0.17%	3.15%	0.00%	11.062	68.553	5.274	0.000	13.516	0.000	0.000	0.000	8.939	24.259	155.860	1181.734	127.704	6.114	113.107	0.000	2.841	0.325
5	53	After Slip Road A	50	604	1.82%	47.85%	2.81%	0.00%	0.33%	0.00%	0.00%	0.00%	1.66%	8.11%	6.62%	25.33%	2.15%	0.17%	3.15%	0.00%	11.062	68.553	5.274	0.000	13.516	0.000	0.000	0.000	8.939	24.259	155.860	1181.734	127.704	6.114	113.107	0.000	2.841	0.325
5	54	After Slip Road A	50	604	1.82%	47.85%	2.81%	0.00%	0.33%	0.00%	0.00%	0.00%	1.66%	8.11%	6.62%	25.33%	2.15%	0.17%	3.15%	0.00%	11.062	68.553	5.274	0.000	13.516	0.000	0.000	0.000	8.939	24.259	155.860	1181.734	127.704	6.114	113.107	0.000	2.841	0.325
5	55	After Slip Road A	50	604	1.82%	47.85%	2.81%	0.00%	0.33%	0.00%	0.00%	0.00%	1.66%	8.11%	6.62%	25.33%	2.15%	0.17%	3.15%	0.00%	11.062	68.553	5.274	0.000	13.516	0.000	0.000	0.000	8.939	24.259	155.860	1181.734	127.704	6.114	113.107	0.000	2.841	0.325
5	56	After Slip Road A	50	604	1.82%	47.85%	2.81%	0.00%	0.33%	0.00%	0.00%	0.00%	1.66%	8.11%	6.62%	25.33%	2.15%	0.17%	3.15%	0.00%	11.062	68.553	5.274	0.000	13.516	0.000	0.000	0.000	8.939	24.259	155.860	1181.734	127.704	6.114	113.107	0.000	2.841	0.325
5	57	After Slip Road A	50	604	1.82%	47.85%	2.81%	0.00%	0.33%	0.00%	0.00%	0.00%	1.66%	8.11%	6.62%	25.33%	2.15%	0.17%	3.15%	0.00%	11.062	68.553	5.274	0.000	13.516	0.000	0.000	0.000	8.939	24.259	155.860	1181.734	127.704	6.114	113.107	0.000	2.841	0.325
5	58	After Slip Road A	50	604	1.82%	47.85%	2.81%	0.00%	0.33%	0.00%	0.00%	0.00%	1.66%	8.11%	6.62%	25.33%	2.15%	0.17%	3.15%	0.00%	17.699	116.250	13.677	0.000	22.526	0.000	0.000	0.000	16.090	78.841	321.800	1846.328	251.004	0.000	275.139	0.000	4.900	0.703
6	59	Before Slip Road C	50	519	1.54%	44.70%	6.36%	0.00%	0.39%	0.00%	0.00%	0.00%	1.54%	7.90%	6.17%	26.59%	2.31%	0.19%	2.31%	0.00%	8.045	55.032	10.238	0.000	13.516	0.000	0.000	0.000	7.151	20.298	124.688	1065.877	117.880	6.114	71.436	0.000	2.891	0.333
6	60	Before Slip Road C	50	519	1.54%	44.70%	6.36%	0.00%	0.39%	0.00%	0.00%	0.00%	1.54%	7.90%	6.17%	26.59%	2.31%	0.19%	2.31%	0.00%	8.045	55.032	10.238	0.000	13.516	0.000	0.000	0.000	7.151	20.298	124.688	1065.877	117.880	6.114	71.436	0.000	2.891	0.333
6	61	Before Slip Road C	50	519	1.54%	44.70%	6.36%	0.00%	0.39%	0.00%	0.00%	0.00%	1.54%	7.90%	6.17%	26.59%	2.31%	0.19%	2.31%	0.00%	8.045	55.032	10.238	0.000	13.516	0.000	0.000	0.000	7.151	20.298	124.688	1065.877	117.880	6.114	71.436	0.000	2.891	0.333
6	62	Before Slip Road C	50	519	1.54%	44.70%	6.36%	0.00%	0.39%	0.00%	0.00%	0.00%	1.54%	7.90%	6.17%	26.59%	2.31%	0.19%	2.31%	0.00%	8.045	55.032	10.238	0.000	13.516	0.000	0.000	0.000	7.151	20.298	124.688	1065.877	117.880	6.114	71.436	0.000	2.891	0.333
6	63	Before Slip Road C	50	519	1.54%	44.70%	6.36%	0.00%	0.39%	0.00%	0.00%	0.00%	1.54%	7.90%	6.17%	26.59%	2.31%	0.19%	2.31%	0.00%	8.045	55.032	10.238	0.000	13.516	0.000	0.000	0.000	7.151	20.298	124.688	1065.877	117.880	6.114	71.436	0.000	2.891	0.333
6	64	Before Slip Road C	50	519	1.54%	44.70%	6.36%	0.00%	0.39%	0.00%	0.00%	0.00%	1.54%	7.90%	6.17%	26.59%	2.31%	0.19%	2.31%	0.00%	8.045	55.032	10.238	0.000	13.516	0.000	0.000	0.000	7.151	20.298	124.688	1065.877	117.880	6.114	71.436	0.000	2.891	0.333
6	65	Before Slip Road C	50	519	1.54%	44.70%	6.36%	0.00%	0.39%	0.00%	0.00%	0.00%	1.54%	7.90%	6.17%	26.59%	2.31%	0.19%	2.31%	0.00%	8.045	55.032	10.238	0.000	13.516	0.000	0.000	0.000	7.151	20.298	124.688	1065.877	117.880	6.114	71.436	0.000	2.891	0.333
24	66	Combined Slip Road C	50	3431	0.23%	64.97%	9.85%	0.00%	0.96%	0.00%	0.00%	0.00%	0.23%	1.19%	0.93%	12.21%	1.05%	0.44%	7.93%	0.00%	8.045	528.737	104.858	0.000	223.007	0.000	0.000	0.000	7.151	20.298	124.688	3236.251	353.641	91.713	1619.212	0.000	1.841	0.173
24	67	Combined Slip Road C	50	3431	0.23%	64.97%	9.85%	0.00%	0.96%	0.00%	0.00%	0.00%	0.23%	1.19%	0.93%	12.21%	1.05%	0.44%	7.93%	0.00%	8.045	528.737	104.858	0.000	223.007	0.000	0.000	0.000	7.151	20.298	124.688	3236.251	353.641	91.713	1619.212	0.000	1.841	0.173
24	68	Combined Slip Road C	50	3431	0.23%	64.97%	9.85%	0.00%	0.96%	0.00%	0.00%	0.00%	0.23%	1.19%	0.93%	12.21%	1.05%	0.44%	7.93%	0.00%	8.045	528.737	104.858	0.000	223.007	0.000	0.000	0.000	7.151	20.298	124.688	3236.251	353.641	91.713	1619.212	0.000	1.841	0.173
24	69	Combined Slip Road C	50	3431	0.23%	64.97%	9.85%	0.00%	0.96%	0.00%	0.00%	0.00%	0.23%	1.19%	0.93%	12.21%	1.05%	0.44%	7.93%	0.00%	8.045	528.737	104.858	0.000	223.007	0.000	0.000	0.000	7.151	20.298	124.688	3236.251	353.641	91.713	1619.212	0.000	1.841	0.173
24	70	Combined Slip Road C	50	3431	0.23%	64.97%	9.85%	0.00%	0.96%	0.00%	0.00%	0.00%	0.23%	1.19%	0.93%	12.21%	1.05%	0.44%	7.93%	0.00%	8.045	528.737	104.858	0.000	223.007	0.000	0.000	0.000	7.151	20.298	124.688	3236.251	353.641	91.713	1619.212	0.000	1.841	0.173
14	71	SLIP RD (CP RD TO ROUNDABOUT)	50	556	1.44%	36.15%	6.65%	0.00%	0.90%	0.00%	0.00%	0.00%	1.80%	9.17%	7.37%	25.54%	2.16%	0.36%	8.45%	0.00%	8.045	47.679	11.479	0.000	33.789	0.000	0.000	0.000	8.939	25.249	159.756	1096.772	117.880	12.228	279.790	0.000	3.240	0.355
14	72	SLIP RD (CP RD TO ROUNDABOUT)	50	556	1.44%	36.15%	6.65%	0.00%	0.90%	0.00%	0.00%	0.00%	1.80%	9.17%	7.37%	25.54%	2.16%	0.36%	8.45%	0.00%	12.872	80.852	29.767	0.000	56.315	0.000	0.000	0.000	16.090	82.059	329.845	1713.585	231.696	0.000	279.790	0.000	5.095	0.705
13	73	P RD (ROUNDABOUT TO POK OI & YL HIGHW	50	346	0.29%	86.13%	2.31%	0.00%	0.00%	0.00%	0.00%	0.00%	1.16%	5.49%	4.62%	0.00%	0.00%	0.00%	0.00%	0.00%	1.006	70.688	2.482	0.000	0.000	0.000	0.000	0.000	3.576	9.406	62.344	0.000	0.000	0.000	0.000	0.000	0.432	0.048
26	74	P RD (ROUNDABOUT TO POK OI & YL HIGHW	50	775	1.94%	42.45%	6.45%	0.00%	1.55%	0.00%	0.00%	0.26%	2.19%	10.58%	8.52%	10.84%	0.90%	0.65%	12.90%	0.77%	15.084	78.042	15.512	0.000	81.094	0.000	0.000	1.351	15.196	40.596	257.169	648.795	68.764	30.571	595.299	2.060	2.386	0.245
15	75	Slip Road near PO Hospital	50	55	0.00%	0.00%	0.00%	0.00%	10.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.64%	85.45%	0.00%	0.000	0.000	0.000	0.000	40.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.228	279.790	0.000	6.047	0.363
15	76	Slip Road near PO Hospital	50	55	0.00%	0.00%	0.00%	0.00%	10.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.64%	85.45%	0.00%	0.000	0.000	0.000	0.000	40.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.228	279.790	0.000	6.047	0.363
15	77	Slip Road near PO Hospital	50	55	0.00%	0.00%	0.00%	0.00%	10.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.64%	85.45%	0.00%	0.000	0.000	0.000	0.000	40.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.228	279.790	0.000	6.047	0.363
15	78	Slip Road near PO Hospital	50	55	0.00%	0.00%	0.00%	0.00%	10.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.64%	85.45%	0.00%	0.000	0.000	0.000	0.000	40.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.228	279.790	0.000	6.047	0.363
15	79	Slip Road near PO Hospital	50	55	0.00%	0.00%	0.00%	0.00%	10.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.64%	85.45%	0.00%	0.000	0.000	0.000	0.000	40.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.228	279.790	0.000	6.047	0.363
15	80	Slip Road near PO Hospital	50	55	0.00%	0.00%	0.00%	0.00%	10.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.64%	85.45%	0.00%	0.000	0.000	0.000	0.000	40.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.228	279.790	0.000	6.047	0.363
15	81	Slip Road near PO Hospital	50	55	0.00%	0.00%	0.00%	0.00%	10.91%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.64%	85.45%	0.00%	0.000	0.000	0.000	0.000	40.547	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	12.228	279.790	0.000	6.047	0.363
12	82	SLIP RD (YL HIGHWAY TO ROUNDABOUT)	80	1733	1.33%	36.81%	5.02%	0.00%	1.79%	0.00%	0.00%	0.58%	1.56%	7.56%	6.00%	20.25%	1.73%	0.81%	15.18%	1.38%	27.755	117.200	19.624	0.000	181.268	0.000	0.000	6.510	21.722	61.318	383.102	2369.430	254.088	70.081	1565.635	7.881	2.935	0.197
12	83	SLIP RD (YL HIGHWAY TO ROUNDABOUT)	50	1733	1.33%	36.81%	5.02%	0.00%	1.79%	0.00%	0.00%	0.58%	1.56%	7.56%	6.00%	20.25%	1.73%	0.81%	15.18%	1.38%	23.129	151.339	26.990	0.000	209.492	0.000	0.000	6.753	24.135	64.855	405.235	2711.036	294.701	85.599	1565.635	8.238	3.218	0.329
25	84	SLIP RD (YL HIGHWAY TO ROUNDABOUT)	50	1240	0.73%	48.95%	3.63%	0.00%	1.45%	0.00%	0.00%	0.48%	1.13%	5.48%	4.35%	17.90%	1.53%	0.65%	12.58%	1.13%	14.481	244.166	36.203	0.000	202.734	0.000	0.000	0.000	22.526	109.412	434.430	2678.985	366.852	0.000	928.666	0.000	4.063	0.522
8	85	SLIP RD (ROUNDABOUT TO CP RD)	50	1122	0.62%	51.69%	3.83%	0.00%	1.16%	0.00%	0.00%	0.62%	1.25%	6.24%	4.99%	15.95%	1.43%	0.53%	10.25%	1.43%	7.039	137.581	13.340	0.000	87.851	0.000	0.000	4.727	12.514	34.655	218.204	1382.551	157.174	36.685	684.593	5.492	2.480	0.258
16	86	SLIP RD (CP RD TO YL HIGHWAY)	50	1428	0.70%	39.01%	7.98%	0.00%	1.47%	0.00%	0.00%	0.70%	1.54%	7.56%	6.09%	18.63%	1.61%	0.63%	12.54%	1.54%	10.056	132.125	35.366	0.000	141.914	0.000	0.000	6.753	19.666	53.468	338.995	2054.517	225.937	55.028	1065.585	7.552	2.904	0.305
16	87	SLIP RD (CP RD TO YL HIGHWAY)	50	1428	0.70%	39.01%	7.98%	0.00%	1.47%	0.00%	0.00%	0.70%	1.54%	7.56%	6.09%	18.63%	1.61%	0.63%	12.54%	1.54%	10.056	132.125	35.366	0.000	141.914	0.000	0.000	6.753	19.666	53.468	338.995	2054.517	225.937	55.028	1065.585	7.552	2.904	0.305
16	88	SLIP RD (CP RD TO YL HIGHWAY)	50	1428	0.70%	39.01%	7.98%	0.00%	1.47%	0.00%	0.00%	0.70%	1.54%	7.56%	6.09%	18.63%	1.61%	0.63%	12.54%	1.54%	10.056	132.125	35.366	0.000	141.914	0.000	0.000	6.753	19.666	53.468	338.995	2054.517	225.937	55.028	1065.585	7.552	2.904	0.305
11	89	Slip Road (CP Rd to YL H)	50	1241	0.89%	42.47%	4.59%	0.00%	1.29%	0.00%	0.00%	0.48%	1.37%	6.77%	5.48%	22.24%	1.93%	0.56%	10.72%	1.21%	11.062	125.009	17.683	0.000	108.125	0.000	0.000	4.052	15.196	41.586	264.962	2131.755	235.761	42.799	791.747	5.149	3.058	0.324
11	90	Slip Road (CP Rd to YL H)	50	1241	0.89%	42.47%	4.59%	0.00%	1.29%	0.00%	0.00%	0.48%	1.37%	6.77%	5.48%	22.24%	1.93%	0.56%	10.72%	1.21%	11.062	125.009	17.683	0.000	108.125	0.000	0.000	4.052	15.196	41.586	264.962	2131.755	235.761	42.799	791.747	5.149	3.058	0.324
11	91	Slip Road (CP Rd to YL H)	50	1241	0.89%	42.47%	4.59%	0.00%	1.29%	0.00%	0.00%	0.48%	1.37%	6.77%	5.48%	22.24%	1.93%	0.56%	10.72%	1.21%	11.062	125.009	17.683	0.000	108.125	0.000	0.000	4.052	15.196	41.586	264.962	2131.755	235.761	42.799	791.747	5.149	3.058	0.324
11	92	Slip Road (CP Rd to YL H)	50	1241	0.89%	42.47%	4.59%	0.00%	1.29%	0.00%	0.00%	0.48%	1.37%	6.77%	5.48%	22.24%	1.93%	0.56%	10.72%	1.21%	11.062	125.009	17.683	0.000	108.125	0.000	0.000	4.052	15.196	41.586	264.962	2131.755	235.761	42.799	791.747	5.149	3.058	0.324
7	93	ROUNDABOUT	50	1914	0.99%	43.21%	5.56%	0.00%	1.20%	0.00%	0.00%	0.42%	1.46%	7.21%	5.80%	20.45%	1.75%	0.52%	10.48%	0.94%	19.107	196.171	33.040	0.000	155.429	0.000	0.000	5.402	25.029	68.321	432.511	3023.848	329.083	61.142	1193.574	6.179	2.899	0.307
7	94	ROUNDABOUT	50	1914	0.99%	43.21%	5.56%	0.00%	1.20%	0.00%	0.00%	0.42%	1.46%	7.21%	5.80%	20.45%	1.75%	0.52%	10.48%	0.94%	19.107	196.171	33.040	0.000	155.429	0.000	0.000	5.402	25.029	68.321	432.511	3023.848	329.083	61.142	1193.574	6.179	2.899	0.307
7	95	ROUNDABOUT	50	1914	0.99%	43.21%	5.56%	0.00%	1.20%	0.00%	0.00%	0.42%	1.46%	7.21%	5.80%	20.45%	1.75%	0.52%	10.48%	0.94%	19.107	196.171	33.040	0.000	155.429	0.000	0.000	5.402	25.029	68.321	432.511	3023.848	329.083	61.142	1193.574	6.179	2.899	0.307
7	96	ROUNDABOUT	50	1914	0.99%	43.21%	5.56%	0.00%	1.20%	0.00%	0.00%	0.42%	1.46%	7.21%	5.80%	20.45%	1.75%	0.52%	10.48%	0.94%	19.107	196.171	33.040	0.000	155.429	0.000	0.000	5.402	25.029	68.321	432.511	3023.848	329.083	61.142	1193.574	6.179	2.899	0.307
7	97	ROUNDABOUT	50	1914	0.99%	43.21%	5.56%	0.00%	1.20%	0.00%	0.00%	0.42%	1.46%	7.21%	5.80%	20.45%	1.75%	0.52%	10.48%	0.94%	19.107	196.171	33.040	0.000	155.429	0.000	0.000	5.402	25.029	68.321	432.511	3023.848	329.083	61.142	1193.574	6.179	2.899	0.307
7	98	ROUNDABOUT	50	1914	0.99%	43.21%	5.56%	0.00%	1.20%	0.00%	0.00%	0.42%	1.46%	7.21%	5.80%	20.45%	1.75%	0.52%	10.48%	0.94%	19.107	196.171	33.040	0.000	155.429	0.000	0.000	5.402	25.029	68.321	432.511	3023.848	329.083	61.142	1193.574	6.179	2.899	0.307
7	99	ROUNDABOUT	50	1914	0.99%	43.21%	5.56%	0.00%	1.20%	0.00%	0.00%	0.42%	1.46%	7.21%	5.80%	20.45%	1.75%	0.52%	10.48%	0.94%	19.107	196.171	33.040	0.000	155.429	0.000	0.000	5.402	25.029	68.321	432.511	3023.848	329.083	61.142	1193.574	6.179	2.899	0.307
7	100	ROUNDABOUT	50	1914	0.99%	43.21%	5.56%	0.00%	1.20%	0.00%	0.00%	0.42%	1.46%	7.21%	5.80%	20.45%	1.75%	0.52%	10.48%	0.94%	19.107	196.171	33.040	0.000	155.429	0.000	0.000	5.402	25.029	68.321	432.511	3023.848	329.083	61.142	1193.574	6.179	2.899	0.307
26	101	Slip Road to RA	50	775	1.94%	42.45%	6.45%	0.00%	1.55%	0.00%	0.00%	0.26%	2.19%	10.58%	8.52%	10.84%	0.90%	0.65%	12.90%	0.77%	15.084	78.042	15.512	0.000	81.094	0.000	0.000	1.351	15.196	40.596	257.169	648.795	68.764	30.571	595.299	2.060	2.386	0.245
21	102	New Left-turn Lane	50	493	2.84%	6.29%	8.52%	0.00%	2.64%	0.00%	0.00%	0.81%	2.64%	12.78%	10.14%	26.17%	2.23%	1.22%	21.70%	2.03%	14.079	7.353	13.030	0.000	87.851	0.000	0.000	2.701	11.621	31.190	194.825	996.364	108.057	36.685	636.970	3.433	4.349	0.454
21	103	New Left-turn Lane	50	493	2.84%	6.29%	8.52%	0.00%	2.64%	0.00%	0.00%	0.81%	2.64%	12.78%	10.14%	26.17%	2.23%	1.22%	21.70%	2.03%	14.079	7.353	13.030	0.000	87.851	0.000	0.000	2.701	11.621	31.190	194.825	996.364	108.057	36.685	636.970	3.433	4.349	0.454
21	104	New Left-turn Lane	50	493	2.84%	6.29%	8.52%	0.00%	2.64%	0.00%	0.00%	0.81%	2.64%	12.78%	10.14%	26.17%	2.23%	1.22%	21.70%	2.03%	14.079	7.353	13.030	0.000	87.851	0.000	0.000	2.701	11.621	31.190	194.825	996.364	108.057	36.685	636.970	3.433	4.349	0.454
21	105	New Left-turn Lane	50	493	2.84%	6.29%	8.52%	0.00%	2.64%	0.00%	0.00%	0.81%	2.64%	12.78%	10.14%	26.17%	2.23%	1.22%	21.70%	2.03%	22.526	12.470	33.789	0.000	146.419	0.000	0.000	0.000	20.917	101.367	402.250	1556.708	212.388	0.000	636.970	0.000	6.381	0.845
10	106	New Slip Road C	50	2912	0.00%	68.58%	10.47%	0.00%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.65%	0.82%	0.48%	8.93%	0.00%	0.000	473.705	94.621	0.000	209.492	0.000	0.000	0.000	0.000	0.000	0.000	2170.374	235.761	85.599	1547.776	0.000	1.654	0.145
10	107	New Slip Road C	50	2912	0.00%	68.58%	10.47%	0.00%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.65%	0.82%	0.48%	8.93%	0.00%	0.000	473.705	94.621	0.000	209.492	0.000	0.000	0.000	0.000	0.000	0.000	2170.374	235.761	85.599	1547.776	0.000	1.654	0.145
10	108	New Slip Road C	50	2912	0.00%	68.58%	10.47%	0.00%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.65%	0.82%	0.48%	8.93%	0.00%	0.000	473.705	94.621	0.000	209.492	0.000	0.000	0.000	0.000	0.000	0.000	2170.374	235.761	85.599	1547.776	0.000	1.654	0.145
10	109	New Slip Road C	50	2912	0.00%	68.58%	10.47%	0.00%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.65%	0.82%	0.48%	8.93%	0.00%	0.000	473.705	94.621	0.000	209.492	0.000	0.000	0.000	0.000	0.000	0.000	2170.374	235.761	85.599	1547.776	0.000	1.654	0.145
10	110	New Slip Road C	50	2912	0.00%	68.58%	10.47%	0.00%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.65%	0.82%	0.48%	8.93%	0.00%	0.000	473.705	94.621	0.000	209.492	0.000	0.000	0.000	0.000	0.000	0.000	2170.374	235.761	85.599	1547.776	0.000	1.654	0.145
10	111	New Slip Road C	50	2912	0.00%	68.58%	10.47%	0.00%	1.06%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	9.65%	0.82%	0.48%	8.93%	0.00%	0.000	473.705	94.621	0.000	209.492	0.000	0.000	0.000	0.000	0.000	0.000	2170.374	235.761	85.599	1547.776	0.000	1.654	0.145
9	112	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	113	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	114	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	115	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	116	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	117	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	118	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	119	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	120	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	121	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	122	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	123	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212
9	124	New Flyover	70	630	0.00%	57.14%	3.33%	0.00%	0.16%	0.00%	0.00%	0.00%	0.16%	0.48%	0.48%	33.33%	2.86%	0.16%	1.90%	0.00%	0.000	70.639	6.758	0.000	6.436	0.000	0.000	0.000	0.000	2.414	9.654	1441.664	202.734	6.436	71.436	0.000	2.886	0.212

Annex E

Tree Survey Information

Annex E1

Tree Survey Schedule

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
306	Casuarina equisetifolia	木麻黃	HyD	6.0	3.0	0.10	P	P	L			L					Seriously leaning, suppressed	TS0003B
307	Acacia mangium	大葉相思	HyD	12.0	3.0	0.18	F	F	L			L					Leaning, asymmetric crown with some branches died back	TS0003B
308	Acacia mangium	大葉相思	HyD	18.0	5.0	0.40	F	F	L			L					Forked trunk, asymmetric crown with some branches died back	TS0003B
309	Acacia mangium	大葉相思	HyD	15.0	3.0	0.16	P	P	L			L					Crooked trunk, asymmetric crown, most branches died back	TS0003B
310	Casuarina equisetifolia	木麻黃	HyD	11.0	6.0	0.23	F	F	L			L					Asymmetric crown, lower branches died back	TS0003B
311	Casuarina equisetifolia	木麻黃	HyD	11.0	7.0	0.34	F	F	L			L					Crooked trunk, asymmetric crown, lower branches died back	TS0003B
312	Acacia mangium	大葉相思	HyD	21.0	5.0	0.22	F	F	L			L					Leaning, asymmetric crown with some branches died back	TS0003B
313	Acacia mangium	大葉相思	HyD	11.0	4.0	0.16	F	F	L			L					Asymmetric crown with some branches died back	TS0003B
314	Acacia mangium	大葉相思	HyD	20.0	6.0	0.20	F	F	L			L					Asymmetric crown with some branches died back	TS0003B
315	Acacia mangium	大葉相思	HyD	12.0	6.0	0.21	F	F	L			L					Asymmetric crown with some branches died back	TS0003B
323	Leucaena leucocephala	銀合歡	HyD	11.0	7.0	0.30	F	P	L			L					Seriously leaning with some branches broken and died back	TS0003B
324	Macaranga tanarius	血桐	HyD	6.0	4.5	0.13	P	P	L			L					Crooked trunk with many decaying wounds & broken branches	TS0003B
325	Macaranga tanarius	血桐	HyD	6.0	3.0	0.13	P	P	L			L					Crooked trunk with many decaying wounds & broken branches	TS0003B
326	Leucaena leucocephala	銀合歡	HyD	6.0	3.5	0.10	F	F	L			L					Leaning with some broken branches	TS0003B
327	Macaranga tanarius	血桐	HyD	3.0	2.0	0.10	P	P	L			L					Topped trunk with decaying wounds	TS0003B
328	Macaranga tanarius	血桐	HyD	4.0	3.0	0.10	P	P	L			L					Crooked trunk with many decaying wounds & broken branches	TS0003B
329	Casuarina equisetifolia	木麻黃	HyD	15.0	4.0	0.15	F	F	L			L					Asymmetric crown, lower branches died back	TS0003B
330	Casuarina equisetifolia	木麻黃	HyD	11.0	2.5	0.15	F	F	L			L					Crooked trunk, asymmetric crown, lower branches died back	TS0003B
331	Ficus hispida	對葉榕	HyD	4.0	3.0	0.10	G	G	L		M						Minor improper pruning wounds	TS0003B
332	Casuarina equisetifolia	木麻黃	HyD	20.0	4.0	0.20	F	F	L			L					Asymmetric crown, lower branches died back	TS0003B
337	Bauhinia purpurea	紅花羊蹄甲	HyD	7.5	5.5	0.10	F	F	L		M						Slender trunk, sparse foliage	TS0003B
338	Bauhinia purpurea	紅花羊蹄甲	HyD	3.5	5.0	0.10	F	F	L		M						Sparse foliage, some branches broken	TS0003B
348	Bauhinia purpurea	紅花羊蹄甲	HyD	6.5	4.5	0.08	F	F	L		M						Slender & leaning trunk, sparse foliage	TS0003B
349	Bauhinia purpurea	紅花羊蹄甲	HyD	4.0	5.0	0.08	F	F	L		M						Sparse foliage, some broken branches & improper pruning cuts	TS0003B
355	Bauhinia purpurea	紅花羊蹄甲	HyD	6.0	4.0	0.08	F	P	L			L					Twin trunk twisted together, some branches died back	TS0003B
437	Leucaena leucocephala	銀合歡	LCSD	6.0	8.0	0.40	F	F	L			L					Multi-trunk with included bark, some branches died back & broken	TS0003B
438	Koelreuteria bipinnata	複羽葉欒樹	LCSD	6.0	8.0	0.40	F	F	L			L					Crooked & forked trunk, improper pruning cuts	TS0003B
439	Koelreuteria bipinnata	複羽葉欒樹	LCSD	6.0	8.0	0.20	P	P	L			L					Twisted trunk with wire-netted fence embedded, asymmetric crown	TS0003B
440	Bombax ceiba	木棉	LCSD	8.0	6.0	0.30	F	F	L		M						Asymmetric crown, improper pruning cuts	TS0003B
442	Leucaena leucocephala	銀合歡	HyD	4.5	4.0	0.06	F	F	L			L					Damaged bark, asymmetric crown	TS0003B
469	Leucaena leucocephala	銀合歡	HyD	7.0	7.0	0.20	F	F	L			L					Multi-trunk, leaning, asymmetric crown with some branches died back	TS0004
470	Celtis sinensis	朴樹	HyD	4.0	3.0	0.08	F	F	L		M						Crooked trunk, improper pruning cuts	TS0004
471	Phyllanthus emblica	餘甘子	HyD	4.0	3.0	0.09	F	F	L		M						Asymmetric crown, some branches died back	TS0004
472	Phyllanthus emblica	餘甘子	HyD	5.0	3.5	0.10	G	G	L		M						Small quantity of died back branches	TS0004
473	Phyllanthus emblica	餘甘子	HyD	5.5	3.0	0.11	G	G	L		M							TS0004
474	Acacia auriculiformis	耳果相思	HyD	7.0	4.0	0.18	G	F	L			L					Crooked trunk, asymmetric crown	TS0002B
475	Acacia auriculiformis	耳果相思	HyD	6.0	2.0	0.10	G	F	L			L					Slender trunk with small crown	TS0002B
476	Acacia confusa	台灣相思	HyD	8.0	10.0	0.38	F	F	L			L					Some branches died back & broken	TS0002B
477	Acacia confusa	台灣相思	HyD	7.0	5.0	0.32	F	F	L			L					Asymmetric crown, some branches died back & broken	TS0002B
478	Macaranga tanarius	血桐	HyD	4.5	7.0	0.20	F	F	L			L					Leaning, some branches died back & broken	TS0002B
479	Acacia confusa	台灣相思	HyD	6.5	6.0	0.30	F	F	L			L					Leaning, some branches died back & broken	TS0002B
480	Acacia auriculiformis	耳果相思	HyD	7.0	3.0	0.18	F	F	L			L					Some branches broken & fallen, damaged bark	TS0002B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
481	Leucaena leucocephala	銀合歡	HyD	7.5	4.0	0.19	F	F	L			L					Leaning, some branches died back & broken	TS0002B
482	Acacia auriculiformis	耳果相思	HyD	6.0	5.0	0.14	F	F	L			L					Leaning, one branch torn off leaving a large wound	TS0004
496	Lagerstroemia speciosa	大花紫薇	LCSD	4.5	3.0	0.08	G	G	M		M						Minor died back branches	TS0002B
497	Lagerstroemia speciosa	大花紫薇	LCSD	4.5	4.0	0.08	G	G	M		M						Minor died back branches	TS0002B
498	Lagerstroemia speciosa	大花紫薇	LCSD	4.5	3.8	0.10	G	G	M		M						Minor died back branches	TS0002B
499	Lagerstroemia speciosa	大花紫薇	LCSD	5.0	4.0	0.12	G	G	M		M						Minor died back branches	TS0002B
500	Lagerstroemia speciosa	大花紫薇	LCSD	4.0	3.0	0.08	G	G	M		M						Minor died back branches	TS0002B
501	Lagerstroemia speciosa	大花紫薇	LCSD	4.0	2.5	0.10	G	G	M		M						Minor died back branches	TS0002B
502	Lagerstroemia speciosa	大花紫薇	LCSD	4.5	3.8	0.15	G	G	M		M						Minor died back branches	TS0002B
503	Lagerstroemia speciosa	大花紫薇	LCSD	4.0	3.0	0.07	G	G	M		M						Slightly leaning, minor died back branches	TS0002B
504	Lagerstroemia speciosa	大花紫薇	LCSD	4.0	3.5	0.12	G	G	M		M						Slightly leaning, minor died back branches	TS0002B
505	Lagerstroemia speciosa	大花紫薇	LCSD	4.8	3.8	0.10	G	G	M		M						Slightly leaning, minor died back branches	TS0002B
506	Lagerstroemia speciosa	大花紫薇	LCSD	5.0	4.0	0.15	G	G	M		M						Minor died back branches	TS0002B
507	Lagerstroemia speciosa	大花紫薇	LCSD	5.0	4.8	0.15	G	G	M		M						Minor died back branches	TS0002B
508	Lagerstroemia speciosa	大花紫薇	LCSD	5.2	5.0	0.16	G	G	M		M						Minor died back branches	TS0002B
524	Morus alba	桑	HyD	5.6	4.5	0.14	P	F	L			L					Multi-trunk, damaged bark, died back branches, infested with pest	TS0003B
525	Melia azedarach	森樹	HyD	7.0	8.0	0.28	G	F	L			L					Multi-trunk, leaning, asymmetric crown, growing adjacent to a retaining wall	TS0003B
526	Lagerstroemia speciosa	大花紫薇	LCSD	5.0	4.0	0.10	G	G	M		M						Minor died back branches	TS0002B
527	Lagerstroemia speciosa	大花紫薇	LCSD	5.3	4.0	0.08	G	G	M		M						Minor died back branches	TS0002B
528	Lagerstroemia speciosa	大花紫薇	LCSD	5.2	4.5	0.10	G	G	M		M						Minor died back branches	TS0002B
529	Lagerstroemia speciosa	大花紫薇	LCSD	5.2	3.8	0.09	G	G	M		M						Minor died back branches	TS0002B
530	Lagerstroemia speciosa	大花紫薇	LCSD	5.5	4.2	0.09	G	G	M		M						Minor died back branches	TS0002B
531	Lagerstroemia speciosa	大花紫薇	LCSD	4.2	4.0	0.08	G	G	M		M						Minor died back branches	TS0002B
532	Lagerstroemia speciosa	大花紫薇	LCSD	5.0	4.2	0.09	G	G	M		M						Minor died back branches	TS0002B
533	Lagerstroemia speciosa	大花紫薇	LCSD	5.0	3.8	0.09	G	G	M		M						Minor died back branches	TS0002B
534	Lagerstroemia speciosa	大花紫薇	LCSD	4.8	3.0	0.08	G	G	M		M						Minor died back branches	TS0002B
535	Lagerstroemia speciosa	大花紫薇	LCSD	5.5	6.0	0.07	G	G	M		M						Minor died back branches	TS0002B
536	Koelreuteria bipinnata	複羽葉欒樹	LCSD	7.0	9.0	0.31	F	F	M			L					Multi-trunk, leaning, damaged bark, broken branches	TS0002B
537	Lagerstroemia speciosa	大花紫薇	LCSD	5.2	3.0	0.07	G	G	M		M						Minor died back branches	TS0002B
538	Lagerstroemia speciosa	大花紫薇	LCSD	5.0	3.5	0.08	G	G	M		M						Minor died back branches	TS0002B
539	Lagerstroemia speciosa	大花紫薇	LCSD	5.0	3.8	0.07	G	G	M		M						Minor died back branches	TS0002B
540	Lagerstroemia speciosa	大花紫薇	LCSD	4.2	3.6	0.08	G	G	M		M						Minor died back branches	TS0002B
541	Lagerstroemia speciosa	大花紫薇	LCSD	5.2	4.0	0.10	G	G	M		M						Minor died back branches	TS0002B
542	Lagerstroemia speciosa	大花紫薇	LCSD	4.0	3.2	0.09	G	G	M		M						Minor died back branches	TS0002B
543	Leucaena leucocephala	銀合歡	HyD	9.0	6.0	0.25	F	P	L			L					Multi-trunk, leaning, asymmetric crown, broken branches	TS0004
544	Leucaena leucocephala	銀合歡	HyD	8.0	4.5	0.15	P	P	L			L					Collapsed, topped	TS0004
545	Leucaena leucocephala	銀合歡	HyD	9.0	6.0	0.20	P	P	L			L					Collapsed, topped	TS0004
546	Leucaena leucocephala	銀合歡	HyD	9.0	8.0	0.45	F	F	L			L					Asymmetric crown, some branches being cut & broken	TS0004
547	Tree removed		HyD	9.0	6.5	0.25											Only tree stump left on site	TS0004
548	Acacia confusa	台灣相思	HyD	7.5	10.0	0.25	F	F	L			L					Multi-trunk, died back & broken branches	TS0004
549	Ficus hispida	對葉榕	HyD	5.0	3.0	0.10	F	F	L		M						Crooked trunk, asymmetric crown, died back branches	TS0004
550	Bauhinia purpurea	紅花羊蹄甲	HyD	6.5	6.0	0.20	F	F	L		M						Some branches being cut leaving open wounds, asymmetric crown	TS0004

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
551	Bauhinia purpurea	紅花羊蹄甲	HyD	7.0	5.0	0.15	P	P	L			L					Cracked bark, infested with pest, died back branches, sparse foliage	TS0004
552	Bauhinia purpurea	紅花羊蹄甲	HyD	6.5	4.5	0.10	F	F	L		M						Asymmetric crown, broken & died back branches	TS0004
553	Acacia confusa	台灣相思	HyD	10.0	13.0	0.60	F	F	L			L					Multi-trunk, leaning, broken & died back branches	TS0004
554	Ficus hispida	對葉榕	HyD	4.5	4.0	0.15	F	F	L		M						Leaning, lower branches died back	TS0004
555	Ficus hispida	對葉榕	HyD	4.5	3.0	0.15	F	F	L		M						Leaning, lower branches died back	TS0004
556	Bauhinia purpurea	紅花羊蹄甲	HyD	3.5	4.0	0.15	G	F	L		M						Slightly leaning, asymmetric crown	TS0004
557	Bauhinia purpurea	紅花羊蹄甲	HyD	5.5	6.0	0.20	F	P	L			L					Serious leaning, root partially exposed, asymmetric crown	TS0004
558	Bauhinia purpurea	紅花羊蹄甲	HyD	4.0	3.0	0.10	P	P	L			L					Leaning, large wound on trunk, asymmetric crown, died back branches	TS0004
581	Bombax ceiba	木棉	HyD	8.0	5.0	0.26	L	G	G		M						Young tree	TS0003C
582	Melaleuca quinquenervia	白千層	HyD	7.0	2.5	0.14	L	G	G		M						Young tree	TS0003C
583	Melaleuca quinquenervia	白千層	HyD	5.0	2.5	0.13	L	G	G		M						Young tree	TS0003C
584	Melaleuca quinquenervia	白千層	HyD	6.0	2.5	0.14	L	G	G		M						Young tree	TS0003C
585	Melaleuca quinquenervia	白千層	HyD	5.0	2.5	0.12	L	G	G		M						Young tree	TS0003C
586	Bauhinia blakeana	洋紫荊	HyD	3.0	2.5	0.12	L	F	F			L					Crooked trunk, dieback branches, imbalanced crown	TS0003C
587	Bauhinia blakeana	洋紫荊	HyD	4.0	3.0	0.13	L	F	F			L					Crooked trunk, dieback branches, imbalanced crown	TS0003C
588	Bauhinia blakeana	洋紫荊	HyD	3.0	2.5	0.12	L	F	F			L					Crooked trunk, dieback branches, imbalanced crown	TS0003C
589	Sterculia lanceolata	假蘋婆	HyD	3.0	2.5	0.1	L	F	G		M						Young tree with multi-trunk	TS0003C
590	Sterculia lanceolata	假蘋婆	HyD	3.0	2.5	0.12	L	F	G		M						Young tree with imbalanced crown	TS0003C
591	Lagerstroemia speciosa	大花紫薇	HyD	3.5	3.0	0.08	L	F	G		M						Young tree with crooked trunk	TS0003C
592	Bauhinia blakeana	洋紫荊	HyD	3.5	3.0	0.08	L	F	F			L					Leaning trunk, many branches dieback & broken	TS0003C
593	Bauhinia blakeana	洋紫荊	HyD	3.0	2.5	0.09	L	F	F			L					Main trunk decaying, many branches dieback & broken	TS0003C
594	Melaleuca quinquenervia	白千層	HyD	4.5	2.5	0.08	L	F	G		M						Young tree with imbalanced crown	TS0003C
595	Melaleuca quinquenervia	白千層	HyD	4.5	2.5	0.08	L	F	G		M						Young tree with imbalanced crown	TS0003C
596	Melaleuca quinquenervia	白千層	HyD	4.5	2.5	0.09	L	F	G		M						Young tree with imbalanced crown	TS0003C
597	Melaleuca quinquenervia	白千層	HyD	4.0	2.0	0.1	L	F	G		M						Young tree with imbalanced crown	TS0003C
598	Melaleuca quinquenervia	白千層	HyD	4.0	2.5	0.11	L	F	G		M						Young tree with imbalanced crown	TS0003C
599	Melaleuca quinquenervia	白千層	HyD	5.0	4.5	0.18	L	P	P			L					Multi-trunk, broken & dieback branches, sparse foliage	TS0003C
600	Bauhinia blakeana	洋紫荊	HyD	3.0	3.5	0.11	L	P	F			L					Multi-trunk, one trunk broken, imbalanced crown	TS0003C
601	Bauhinia blakeana	洋紫荊	HyD	3.0	3.5	0.12	L	F	F			L					Multi-trunk, dieback & broken branches, imbalanced crown	TS0003C
602	Bauhinia blakeana	洋紫荊	HyD	3.0	3.5	0.1	L	F	F			L					Multi-trunk, one trunk decaying, crooked trunk	TS0003C
603	Bauhinia blakeana	洋紫荊	HyD	3.0	3.5	0.13	L	F	F			L					Multi-trunk, one trunk decaying, crooked trunk	TS0003C
604	Acacia auriculaeformis	耳葉相思	HyD	8.0	5.0	0.16	L	F	G		M						Young tree with crooked trunk	TS0003C
605	Lagerstroemia speciosa	大花紫薇	HyD	4.0	3.5	0.08	L	F	G		M						Young tree with crooked trunk	TS0003C
606	Melaleuca quinquenervia	白千層	HyD	5.5	3.0	0.12	L	G	G		M						Young tree	TS0003C
607	Melaleuca quinquenervia	白千層	HyD	5.5	3.0	0.12	L	F	G		M						Young tree with crooked trunk	TS0003C
608	Melaleuca quinquenervia	白千層	HyD	5.5	3.0	0.11	L	G	G		M						Young tree	TS0003C
609	Bauhinia blakeana	洋紫荊	HyD	5.5	3.0	0.1	L	P	P			L					Multi-trunk, dieback & broken branches, imbalanced crown	TS0003C
610	Lagerstroemia speciosa	大花紫薇	HyD	3.0	2.5	0.07	L	F	F			L					Crooked trunk, stripped bark, dieback branches	TS0003C
611	Melaleuca quinquenervia	白千層	HyD	4.5	2.5	0.07	L	F	G		M						Young tree with crooked trunk	TS0003C

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
612	Melaleuca quinquenervia	白千層	HyD	5.0	2.5	0.11	L	G	G		M						Young tree	TS0003C
613	Bauhinia blakeana	洋紫荊	HyD	4.5	4.0	0.11	L	P	P			L					Fungal attack, trunk decaying, broken & dieback branches	TS0003C
614	Melaleuca quinquenervia	白千層	HyD	4.5	2.5	0.1	L	G	G		M						Young tree	TS0003C
615	Bauhinia blakeana	洋紫荊	HyD	3.0	2.0	0.07	L	P	P			L					Leaning trunk, trunk decaying, stripped bark	TS0003C
616	Bauhinia blakeana	洋紫荊	HyD	3.5	2.5	0.08	L	P	P			L					Fungal attack, trunk decaying, broken & dieback branches	TS0003C
617	Bauhinia blakeana	洋紫荊	HyD	3.0	2.0	0.1	L	P	P			L					Fungal attack, trunk decaying, broken & dieback branches	TS0003C
618	Bauhinia blakeana	洋紫荊	HyD	3.5	3.0	0.11	L	P	P			L					Fungal attack, trunk decaying, broken & dieback branches	TS0003C
619	Melaleuca quinquenervia	白千層	HyD	4.5	2.5	0.08	L	F	G		M						Young tree with crooked trunk	TS0003C
620	Lagerstroemia speciosa	大花紫薇	HyD	3.5	2.5	0.08	L	P	P			L					Fungal attack, trunk decaying, stripped bark	TS0003C
621	Melaleuca quinquenervia	白千層	HyD	4.5	2.5	0.08	L	F	G		M						Young tree with crooked trunk	TS0003C
622	Eucalyptus robusta	大葉桉	HyD	5.5	2.5	0.08	L	F	G		M						Young tree with crooked trunk	TS0003C
623	Eucalyptus torelliana	毛葉桉	HyD	7.0	3.5	0.11	L	F	F			L					Growing near T624	TS0003C
624	Melaleuca leucadendron	白千層	HyD	6.5	2.5	0.11	L	F	F			L					Growing near T623	TS0003C
625	Melaleuca leucadendron	白千層	HyD	4.0	2.5	0.08	L	F	F		M						Young tree	TS0003C
626	Lagerstroemia speciosa	大花紫薇	HyD	3.0	2.5	0.07	L	F	P			L					Tree bark damaged, forked trunk	TS0003C
627	Eucalyptus torelliana	毛葉桉	HyD	5.0	3.5	0.09	L	F	F			L					Young tree	TS0003C
628	Lagerstroemia speciosa	大花紫薇	HyD	3.5	3.0	0.07	L	P	F			L					Young tree, imbalanced crown	TS0003C
629	Eucalyptus torelliana	毛葉桉	HyD	5.5	3.5	0.09	L	F	F			L					Exposed root	TS0003C
630	Lagerstroemia speciosa	大花紫薇	HyD	3.5	2.5	0.06	L	F	F		M						Young tree, imbalanced crown	TS0003C
631	Eucalyptus torelliana	毛葉桉	HyD	5.0	3.5	0.16	L	F	F			L					Multi-trunk	TS0003C
632	Bauhinia variegata	宮粉羊蹄甲	HyD	3.0	2.5	0.06	L	P	P			L					Young tree, leading branch broken	TS0003C
633	Bauhinia variegata	宮粉羊蹄甲	HyD	3.0	2.5	0.07	L	P	P			L					Young tree, leading branch broken	TS0003C
634	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.0	0.09	L	F	F			L					Imbalance form, also marked with plate No. 443	TS0003C
635	Lagerstroemia speciosa	大花紫薇	HyD	3.0	2.5	0.06	L	F	F		M						Young tree	TS0003C
636	Lagerstroemia speciosa	大花紫薇	HyD	3.5	2.5	0.07	L	F	F			L					Young tree, imbalance form	TS0003C
637	Melaleuca leucadendron	白千層	HyD	5.5	2.5	0.07	L	P	F			L					Young tree, imbalance form	TS0003C
638	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	2.5	0.08	L	P	F			L					Imbalance form, tree bark damaged	TS0003C
639	Eucalyptus torelliana	毛葉桉	HyD	4.5	3.0	0.09	L	P	F			L					Young tree, slanting	TS0003C
640	Melaleuca leucadendron	白千層	HyD	6.0	2.0	0.08	L	F	F		M						Young tree, crook	TS0003C
641	Eucalyptus torelliana	毛葉桉	HyD	7.0	2.5	0.07	L	P	F			L					Young tree, imbalance form	TS0003C
642	Eucalyptus torelliana	毛葉桉	HyD	6.0	2.5	0.06	L	P	F			L					Young tree, exposed root, forked trunk	TS0003C
643	Eucalyptus torelliana	毛葉桉	HyD	5.0	3.0	0.07	L	P	P			L					Young tree, slanting seriously	TS0003C
644	Lagerstroemia speciosa	大花紫薇	HyD	3.5	2.5	0.06	L	P	P			L					Young tree, tree bark damaged, affected by insects	TS0003C
645	Eucalyptus torelliana	毛葉桉	HyD	7.0	3.5	0.1	L	F	F			L					Forked trunk	TS0003C
646	Lagerstroemia speciosa	大花紫薇	HyD	3.5	2.5	0.06	L	P	F			L					Young tree, imbalance form	TS0003C
647	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.5	0.06	L	P	F			L					Young tree, multi trunk, leading shoot damaged	TS0003C
648	Leucaena leucocephala	銀合歡	HyD	9.0	7.0	0.38	L	P	P			L					Already felled, only tree stump left on site	TS0004A
649	Leucaena leucocephala	銀合歡	HyD	10.0	6.0	0.29	L	P	F			L					Multi-trunk, leaning, imbalanced crown, damaged bark	TS0004A
650	Leucaena leucocephala	銀合歡	HyD	10.0	6.0	0.19	L	P	F			L					Leaning, imbalanced crown, damaged bark, broken branches	TS0004A

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
651	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.09	L	G	G		M						Young tree	TS0001B
652	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.0	0.12	L	G	G		M						Young tree with a few cut branches	TS0001B
653	Acacia auriculiformis	耳果相思	HyD	5.5	5.0	0.12	L	F	F			L					A few branches torn off from the trunk	TS0001B
654	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.5	0.11	L	G	G		M						Young tree	TS0001B
655	Ficus hispida	對葉榕	HyD	3.0	2.5	0.07	L	F	G		M						Young tree with leaning trunk	TS0001B
656	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	4.0	0.13	L	G	G		M						Young tree	TS0001B
657	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.07	L	G	G		M						Young tree	TS0001B
658	Leucaena leucocephala	銀合歡	HyD	5.0	3.5	0.11	L	F	F			L					Multi-trunk, imbalanced crown	TS0001B
659	Ficus hispida	對葉榕	HyD	4.0	3.0	0.07	L	F	F		M						Young tree with crooked trunk, imbalanced crown, broken branches	TS0001B
660	Ficus hispida	對葉榕	HyD	3.0	3.0	0.1	L	F	G		M						Multi-trunk	TS0001B
661	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.07	L	F	G		M						Young tree with twin-trunk	TS0001B
662	Ficus hispida	對葉榕	HyD	4.0	3.0	0.08	L	G	G		M						Young tree	TS0001B
663	Celtis sinensis	朴樹	HyD	4.0	2.5	0.1	L	F	G		M						Young tree with V-shaped trunk	TS0001B
664	Bauhinia variegata	宮粉羊蹄甲	HyD	3.0	2.0	0.06	L	F	G		M						Young tree with multi-trunk	TS0001B
665	Bauhinia purpurea	紅花羊蹄甲	HyD	5.0	3.0	0.07	L	P	P			L					Collapsed with root exposed	TS0001B
666	Bombax ceiba	木棉	HyD	4.5	2.5	0.1	L	G	G		M						Young tree	TS0001B
667	Celtis sinensis	朴樹	HyD	4.0	2.5	0.08	L	F	G		M						Young tree with crooked trunk	TS0001B
668	Celtis sinensis	朴樹	HyD	4.0	3.5	0.08	L	F	G		M						Young tree with crooked trunk	TS0001B
669	Ficus hispida	對葉榕	HyD	3.0	3.5	0.08	L	F	G		M						Young tree with multi-trunk	TS0001B
670	Ficus hispida	對葉榕	HyD	3.0	3.5	0.08	L	F	G		M						Young tree with multi-trunk	TS0001B
671	Bauhinia variegata	宮粉羊蹄甲	HyD	3.0	2.5	0.09	L	P	F			L					Serious leaning, imbalanced crown	TS0001B
672	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.08	L	G	G		M						Young tree	TS0001B
673	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	3.5	0.09	L	F	G		M						Young tree with twin-trunk	TS0001B
674	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	4.0	0.09	L	G	G		M						Young tree	TS0001B
675	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.12	L	G	G		M						Young tree	TS0001B
676	Ficus hispida	對葉榕	HyD	3.5	3.0	0.09	L	F	G		M						Young tree with multi-trunk	TS0001B
677	Callistemon viminalis	串錢柳	HyD	5.0	3.0	0.13	L	F	F		M						Multi-trunk, broken branches, sparse foliage	TS0001B
678	Callistemon viminalis	串錢柳	HyD	3.5	2.5	0.1	L	F	F		M						Leaning, multi-trunk, broken branches, sparse foliage	TS0001B
679	Callistemon viminalis	串錢柳	HyD	3.5	2.5	0.11	L	F	F		M						Multi-trunk, broken branches, sparse foliage	TS0001B
680	Callistemon viminalis	串錢柳	HyD	3.5	2.5	0.07	L	F	F		M						Leaning, multi-trunk, broken branches, sparse foliage	TS0001B
681	Acacia confusa	台灣相思	HyD	6.0	3.5	0.1	L	P	F			L					Leaning, multi-trunk, broken branches, imbalanced crown	TS0001B
682	Acacia confusa	台灣相思	HyD	8.0	4.0	0.16	L	P	F			L					Multi-trunk with several no. topped, damaged bark	TS0001B
683	Callistemon viminalis	串錢柳	HyD	5.0	3.5	0.13	L	F	F		M						Multi-trunk, broken branches, sparse foliage	TS0001B
684	Cinnamomum camphora	樟樹	HyD	4.0	2.5	0.08	L	P	P			L					Suppressed, many branches died back & broken	TS0001B
685	Leucaena leucocephala	銀合歡	HyD	8.0	5.0	0.22	L	F	F			L					Broken branches, imbalanced crown	TS0001B
686	Acacia confusa	台灣相思	HyD	9.0	5.0	0.14	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B
687	Acacia confusa	台灣相思	HyD	8.0	5.0	0.16	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B
688	Acacia confusa	台灣相思	HyD	9.0	5.0	0.13	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B
689	Acacia confusa	台灣相思	HyD	8.0	5.0	0.19	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
690	Acacia confusa	台灣相思	HyD	9.0	4.0	0.24	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B
691	Acacia confusa	台灣相思	HyD	9.0	5.0	0.25	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B
692	Acacia confusa	台灣相思	HyD	9.0	4.0	0.14	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B
693	Acacia confusa	台灣相思	HyD	9.0	5.0	0.16	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B
694	Acacia confusa	台灣相思	HyD	9.0	4.0	0.18	L	P	F			L					Multi-trunk with some topped or broken, imbalanced crown	TS0001B
695	Eucalyptus exserta	窿緣桉	HyD	11.0	7.0	0.35	L	F	F			L					Broken branches, imbalanced crown, bark infested with termites	TS0001B
696	Eucalyptus exserta	窿緣桉	HyD	9.0	5.0	0.25	L	F	F			L					Broken branches, imbalanced crown, bark infested with termites	TS0001B
697	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.5	0.07	L	G	G		M						Young tree	TS0002C
698	Celtis sinensis	朴樹	HyD	3.5	3.0	0.1	L	F	G		M						Young tree with V-shaped trunk	TS0002C
699	Celtis sinensis	朴樹	HyD	3.5	2.5	0.08	L	F	G		M						Young tree with crooked trunk	TS0002C
700	Celtis sinensis	朴樹	HyD	4.0	2.5	0.08	L	F	G		M						Young tree with crooked trunk	TS0002C
701	Phyllanthus emblica	餘甘子	HyD	3.5	2.5	0.07	L	F	F		M						Died back branches, imbalanced crown	TS0002C
702	Phyllanthus emblica	餘甘子	HyD	3.5	3.0	0.07	L	F	F		M						Died back branches, imbalanced crown	TS0002C
703	Celtis sinensis	朴樹	HyD	5.0	4.0	0.1	L	G	G		M						Young tree	TS0002C
704	Celtis sinensis	朴樹	HyD	5.0	2.5	0.08	L	F	G		M						Young tree with imbalanced crown	TS0002C
705	Celtis sinensis	朴樹	HyD	5.0	3.5	0.11	L	F	G		M						Young tree with imbalanced crown	TS0002C
706	Celtis sinensis	朴樹	HyD	5.0	3.0	0.12	L	F	G		M						Young tree with imbalanced crown	TS0002C
707	Celtis sinensis	朴樹	HyD	5.0	3.0	0.11	L	F	G		M						Young tree with imbalanced crown	TS0002C
708	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.09	L	F	G		M						Young tree with imbalanced crown	TS0002C
709	Sapium discolor	山烏桕	HyD	4.5	2.5	0.12	L	P	P			L					Leaning, many branches died back & broken	TS0002C
710	Celtis sinensis	朴樹	HyD	5.0	3.0	0.08	L	F	G		M						Young tree with imbalanced crown	TS0002C
711	Celtis sinensis	朴樹	HyD	5.5	4.0	0.16	L	F	F			L					Exposed roots, died back branches	TS0002C
712	Celtis sinensis	朴樹	HyD	6.0	4.0	0.17	L	F	F			L					Exposed roots, died back branches	TS0002C
713	Celtis sinensis	朴樹	HyD	5.0	3.5	0.14	L	G	G		M						Young tree	TS0002C
714	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.5	0.07	L	F	G		M						Young tree with multi-trunk	TS0002C
715	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.06	L	F	G		M						Young tree with multi-trunk	TS0002C
716	Sapium discolor	山烏桕	HyD	5.5	3.5	0.1	L	F	F			L					Crooked trunk, died back branches, imbalanced crown	TS0002C
717	Celtis sinensis	朴樹	HyD	6.0	4.0	0.13	L	F	G		M						Young tree with crooked trunk	TS0002C
718	Celtis sinensis	朴樹	HyD	6.0	4.0	0.22	L	F	G		M						Young tree with crooked trunk	TS0002C
719	Celtis sinensis	朴樹	HyD	6.0	3.0	0.1	L	F	G		M						Young tree with crooked trunk	TS0002C
720	Celtis sinensis	朴樹	HyD	6.0	3.5	0.14	L	F	G		M						Young tree with crooked trunk	TS0002C
721	Celtis sinensis	朴樹	HyD	6.0	2.5	0.1	L	F	G		M						Young tree with crooked trunk	TS0002C
722	Sapium discolor	山烏桕	HyD	6.0	4.0	0.1	L	F	G		M						Leaning trunk	TS0002C
723	Celtis sinensis	朴樹	HyD	6.0	4.5	0.15	L	F	G		M						Forked trunk, topped branches	TS0002C
724	Celtis sinensis	朴樹	HyD	6.0	3.5	0.15	L	F	G		M						Forked trunk, topped branches	TS0002C
725	Celtis sinensis	朴樹	HyD	6.0	3.0	0.08	L	F	G		M						Young tree with crooked trunk	TS0002C
726	Celtis sinensis	朴樹	HyD	6.0	4.5	0.13	L	F	G		M						Multi-trunk	TS0002C
727	Schima superba	木荷	HyD	4.0	2.5	0.08	L	F	G		M						Crooked trunk, imbalanced crown	TS0002C
728	Leucaena leucocephala	銀合歡	HyD	6.5	3.5	0.11	L	F	G			L					Crooked trunk, imbalanced crown	TS0002C

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
729	Leucaena leucocephala	銀合歡	HyD	7.0	4.5	0.19	L	F	F			L					Forked trunk, broken branches	TS0002C
730	Leucaena leucocephala	銀合歡	HyD	6.5	3.5	0.13	L	P	F			L					Serious leaning, broken branches	TS0002C
731	Leucaena leucocephala	銀合歡	HyD	7.5	3.5	0.15	L	P	F			L					Serious leaning, broken branches	TS0002C
732	Leucaena leucocephala	銀合歡	HyD	7.0	3.0	0.1	L	F	F			L					Broken branches, imbalanced crown	TS0002C
733	Leucaena leucocephala	銀合歡	HyD	4.5	3.5	0.11	L	P	F			L					Serious leaning, imbalanced crown	TS0002C
734	Celtis sinensis	朴樹	HyD	4.0	3.0	0.08	L	P	P			L					Young tree, crook, imbalanceed crown	TS0002C
735	Celtis sinensis	朴樹	HyD	5.0	3.5	0.13	L	F	F		M						Forked trunk	TS0002C
736	Sapium discolor	山烏桕	HyD	4.0	3.5	0.09	L	F	F		M						Crooked trunk, imbalanced crown	TS0002C
737	Celtis sinensis	朴樹	HyD	4.5	3.5	0.08	L	F	F		M						Imbalanced crown	TS0002C
738	Phyllanthus emblica	餘甘子	HyD	3.5	3.0	0.11	L	F	F		M						Forked trunk	TS0002C
739	Celtis sinensis	朴樹	HyD	5.0	3.5	0.09	L	P	F			L					Young tree, exposed root, slanting	TS0002C
740	Liquidambar formosana	楓香	HyD	4.0	3.0	0.08	L	F	F		M						Young tree, crook	TS0002C
741	Liquidambar formosana	楓香	HyD	5.0	2.5	0.08	L	F	F		M						Young tree	TS0002C
742	Sapium discolor	山烏桕	HyD	4.5	3.0	0.09	L	F	F		M						Young tree, forked trunk	TS0002C
743	Phyllanthus emblica	餘甘子	HyD	3.5	2.5	0.08	L	P	F			L					Young tree, leading branch damaged	TS0002C
744	Phyllanthus emblica	餘甘子	HyD	4.0	2.5	0.08	L	P	F			L					Yong tree, forked trunk, bark damaged	TS0002C
745	Phyllanthus emblica	餘甘子	HyD	3.5	2.0	0.07	L	P	F			L					Young tree, leading branch damaged	TS0002C
746	Phyllanthus emblica	餘甘子	HyD	3.5	2.5	0.08	L	F	F		M						Young tree, multi-trunk	TS0002C
747	Sapium discolor	山烏桕	HyD	4.0	2.5	0.08	L	P	F			L					Young tree, crooked trunk, imbalanced crown	TS0002C
748	Celtis sinensis	朴樹	HyD	5.0	4.0	0.15	L	F	F		M						Forked trunk, crook	TS0002C
749	Liquidambar formosana	楓香	HyD	5.5	3.0	0.08	L	P	F		M						Young tree	TS0002C
750	Celtis sinensis	朴樹	HyD	5.0	2.5	0.07	L	F	F		M						Young tree, forked trunk	TS0002C
751	Celtis sinensis	朴樹	HyD	6.0	2.5	0.07	L	P	F			L					Young tree, imbalanced crown	TS0002C
752	Liquidambar formosana	楓香	HyD	6.0	4.0	0.11	L	F	F		M						Multi-trunk	TS0002C
753	Celtis sinensis	朴樹	HyD	6.0	3.0	0.12	L	F	F		M						Forked trunk	TS0002C
754	Celtis sinensis	朴樹	HyD	6.0	3.0	0.1	L	F	F		M						Crooked trunk, imbalanced crown	TS0002C
755	Celtis sinensis	朴樹	HyD	5.0	2.5	0.1	L	F	F		M						Exposed root, slanting	TS0002C
756	Sapium discolor	山烏桕	HyD	3.5	2.5	0.07	L	P	F			L					Slanting, imbalanced crown	TS0002C
757	Celtis sinensis	朴樹	HyD	5.0	3.5	0.13	L	P	F			L					Multi-trunk, imbalanced crown	TS0002C
758	Phyllanthus emblica	餘甘子	HyD	4.0	2.5	0.09	L	P	F			L					Multi stem leading branch broken	TS0002C
759	Sapium discolor	山烏桕	HyD	3.5	2.5	0.07	L	P	F			L					slanting, imbalanced rown	TS0002C
760	Phyllanthus emblica	餘甘子	HyD	4.0	2.5	0.11	L	P	F			L					Multi-trunk, crossing branches, imbalanced crown	TS0002C
761	Celtis sinensis	朴樹	HyD	4.5	2.5	0.08	L	F	F		M						Young tree, exposed root, crook	TS0002C
762	Celtis sinensis	朴樹	HyD	4.5	3.0	0.12	L	P	F			L					Exposed root, crook, growing near to concrete block	TS0002C
763	Celtis sinensis	朴樹	HyD	5.5	3.5	0.1	L	F	F		M						Multi-trunk	TS0002C
764	Celtis sinensis	朴樹	HyD	5.0	2.5	0.08	L	F	F		M						Young tree, multi-trunk	TS0002C
765	Litsea glutinosa	潺槁	HyD	5.0	2.5	0.09	L	F	F		M						Young tree with narrow crown	TS0002C
766	Celtis sinensis	朴樹	HyD	6.0	4.0	0.15	L	P	F			L					Exposed root, multi-trunk. Crook, close to T767	TS0002C
767	Liquidambar formosana	楓香	HyD	6.5	3.5	0.11	L	P	F			L					Multi-trunk, close to T766	TS0002C

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
768	Litsea glutinosa	潺槁	HyD	6.0	3.5	0.11	L	F	F		M						Young tree	TS0002C
769	Celtis sinensis	朴樹	HyD	4.5	2.5	0.1	L	P	P			L					Exposed root, multi-trunk, close to T771	TS0002C
770	Celtis sinensis	朴樹	HyD	5.0	3.5	0.14	L	P	P			L					Exposed root, multi-trunk	TS0002C
771	Celtis sinensis	朴樹	HyD	5.5	2.5	0.08	L	P	F			L					Young tree, low branches, close to T769	TS0002C
772	Phyllanthus emblica	餘甘子	HyD	5.0	3.5	0.13	L	P	F		M						Forked trunk	TS0002C
773	Liquidambar formosana	楓香	HyD	5.0	3.0	0.07	L	P	P			L					Young tree, crook	TS0002C
774	Sapium discolor	山烏桕	HyD	4.5	3.0	0.13	L	P	F			L					Imbalanced crown, tree bark damaged, close to T769	TS0002C
775	Celtis sinensis	朴樹	HyD	3.5	2.5	0.08	L	F	F		M						Young tree, crooked trunk	TS0002C
776	Phyllanthus emblica	餘甘子	HyD	3.5	2.5	0.1	L	F	F		M						Multi-trunk	TS0002C
777	Phyllanthus emblica	餘甘子	HyD	3.5	2.5	0.08	L	P	F			L					Young tree, crooked trunk, forked crown	TS0002C
778	Phyllanthus emblica	餘甘子	HyD	4.0	2.5	0.1	L	P	P			L					Imbalanced crown, close to T777	TS0002C
779	Celtis sinensis	朴樹	HyD	5.0	4.0	0.2	L	F	F		M						Forked trunk, slanting	TS0002C
780	Celtis sinensis	朴樹	HyD	4.0	2.5	0.08	L	P	F			L					Young tree, crooked trunk, forked crown	TS0002C
781	Celtis sinensis	朴樹	HyD	4.0	2.5	0.08	L	F	F		M						Young tree, crooked trunk	TS0002C
782	Liquidambar formosana	楓香	HyD	5.0	2.5	0.1	L	F	F		M						Multi-trunk, crook	TS0002C
783	Celtis sinensis	朴樹	HyD	4.5	2.5	0.11	L	P	F			L					Exposed root,	TS0002C
784	Litsea glutinosa	潺槁	HyD	4.0	3.0	0.08	L	P	F			L					Young tree, forked trunk, slanting	TS0002C
785	Liquidambar formosana	楓香	HyD	5.0	3.5	0.11	L	F	F		M						Multi-trunk	TS0002C
786	Liquidambar formosana	楓香	HyD	5.0	2.5	0.1	L	P	F			L					Crooked trunk, slanting	TS0002C
787	Celtis sinensis	朴樹	HyD	5.0	3.0	0.1	L	F	F		M						Multi-trunk	TS0002C
788	Celtis sinensis	朴樹	HyD	4.5	3.0	0.08	L	F	F		M						Young tree, multi-trunk	TS0002C
789	Celtis sinensis	朴樹	HyD	4.0	2.5	0.1	L	F	F		M						Young tree, multi-trunk	TS0002C
790	Celtis sinensis	朴樹	HyD	5.0	2.5	0.09	L	F	F		M						Young tree, multi-trunk	TS0002C
791	Phyllanthus emblica	餘甘子	HyD	3.5	2.5	0.12	L	P	F			L					Multi-trunk	TS0002C
792	Celtis sinensis	朴樹	HyD	5.0	3.0	0.09	L	F	F		M						Young tree, multi-trunk	TS0002C
793	Litsea glutinosa	潺槁	HyD	3.5	2.5	0.12	L	P	P			L					Forked-trunk, multi-trunk	TS0002C
794	Litsea glutinosa	潺槁	HyD	5.0	2.5	0.09	L	F	F		M						Young tree, forked trunk, slanting	TS0002C
795	Celtis sinensis	朴樹	HyD	4.5	2.5	0.08	L	F	F		M						Young tree, forked trunk	TS0002C
796	Leucaena leucocephala	銀合歡	HyD	9.0	5.0	0.18	L	P	P			L					Slanting	TS0002C
797	Leucaena leucocephala	銀合歡	HyD	9.0	5.0	0.23	L	P	P			L					Forked-trunk, growing at edge of concrete kerb	TS0002C
798	Leucaena leucocephala	銀合歡	HyD	9.0	4.5	0.19	L	P	P			L					Forked-trunk, growing at edge of concrete kerb	TS0002C
799	Leucaena leucocephala	銀合歡	HyD	9.0	4.5	0.16	L	P	P			L					Slanting, growing at edge of building	TS0002C
800	Leucaena leucocephala	銀合歡	HyD	9.0	3.5	0.17	L	P	P			L					Slanting, growing at edge of concrete kerb	TS0002C
801	Leucaena leucocephala	銀合歡	HyD	9.0	5.0	0.17	L	P	P			L					Slanting	TS0002C
802	Leucaena leucocephala	銀合歡	HyD	9.0	4.5	0.17	L	P	P			L					Growing at edge of structure	TS0002C
803	Leucaena leucocephala	銀合歡	HyD	8.5	3.5	0.16	L	P	P			L					Growing at edge of structure	TS0002C
804	Bombax ceiba	木棉	HyD	9.0	4.5	0.2	L	F	F		M						Growing near edge of structure	TS0002C
805	Leucaena leucocephala	銀合歡	HyD	9.0	5.0	0.25	L	P	P			L					Forked-trunk, slanting, growing at edge of kerb	TS0002C
806	Celtis sinensis	朴樹	HyD	3.5	3.0	0.1	L	P	F			L					Without leading branch	TS0002C

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
807	Celtis sinensis	朴樹	HyD	4.5	3.5	0.17	L	F	F		M						Multi-trunk	TS0002C
808	Celtis sinensis	朴樹	HyD	5.0	2.5	0.11	L	F	F		M						Crooked trunk	TS0002C
809	Celtis sinensis	朴樹	HyD	5.0	3.5	0.12	L	F	F		M						Crooked trunk, multi-trunk	TS0002C
810	Leucaena leucocephala	銀合歡	HyD	9.0	5.0	0.22	L	P	P			L					Slanting, growing at edge of culvert	TS0002C
811	Liquidambar formosana	楓香	HyD	4.5	3.0	0.09	L	F	F		M						Multi-trunk, slanting	TS0002C
812	Bauhinia variegata	宮粉羊蹄甲	HyD	8.0	3.5	0.13	L	F	F		M						Forked-trunk	TS0002C
813	Celtis sinensis	朴樹	HyD	5.0	3.0	0.09	L	F	F		M						Multi-trunk, crook	TS0002C
814	Celtis sinensis	朴樹	HyD	5.0	3.0	0.1	L	F	F		M						Multi-trunk, crook	TS0002C
815	Celtis sinensis	朴樹	HyD	5.0	3.0	0.09	L	F	F		M						Multi-trunk, crook	TS0002C
816	Bauhinia variegata	宮粉羊蹄甲	HyD	7.0	3.0	0.13	L	P	F			L					Multi-trunk, forked trunk	TS0002C
817	Leucaena leucocephala	銀合歡	HyD	8.0	3.5	0.17	L	P	P			L					Slanting	TS0002C
818	Leucaena leucocephala	銀合歡	HyD	11.0	6.0	0.18	L	P	P			L					Forked-trunk, growing at edge of culvert	TS0002C
819	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.0	0.08	L	F	F		M						Young tree, multi-trunk	TS0002C
820	Celtis sinensis	朴樹	HyD	4.0	2.0	0.07	L	F	F		M						Young tree, forked-trunk	TS0002C
821	Leucaena leucocephala	銀合歡	HyD	3.0	2.0	0.18	L	P	P			L					Leading branch broken	TS0002C
822	Celtis sinensis	朴樹	HyD	4.0	3.0	0.07	L	P	F			L					Slanting, exposed root	TS0002C
823	Phyllanthus emblica	餘甘子	HyD	5.0	3.0	0.11	L	F	F		M						Forked-trunk	TS0002C
824	Phyllanthus emblica	餘甘子	HyD	5.0	3.0	0.08	L	F	F		M						Forked-trunk	TS0002C
825	Celtis sinensis	朴樹	HyD	5.0	3.0	0.07	L	P	F			L					Crooked trunk, multi-trunk	TS0002C
826	Celtis sinensis	朴樹	HyD	5.0	3.0	0.08	L	F	F		M						Young tree, multi-trunk	TS0002C
827	Liquidambar formosana	楓香	HyD	5.0	3.0	0.07	L	F	F		M						Young tree, multi-trunk	TS0002C
828	Liquidambar formosana	楓香	HyD	6.0	3.0	0.1	L	P	F			L					Crooked trunk, slanting	TS0002C
829	Litsea glutinosa	潺槁	HyD	4.5	2.5	0.07	L	P	F			L					Young tree, forked-trunk	TS0002C
830	Liquidambar formosana	楓香	HyD	5.0	3.0	0.11	L	F	F		M						Multi-trunk	TS0002C
831	Liquidambar formosana	楓香	HyD	5.0	2.5	0.12	L	F	F		M						Multi-trunk	TS0002C
832	Litsea glutinosa	潺槁	HyD	5.0	3.0	0.09	L	F	F		M						Forked-trunk	TS0002C
833	Celtis sinensis	朴樹	HyD	5.0	3.5	0.14	L	F	F		M						Forked-trunk	TS0002C
834	Celtis sinensis	朴樹	HyD	5.0	3.5	0.13	L	P	F			L					Growing at edge of kerb	TS0002C
835	Celtis sinensis	朴樹	HyD	4.5	3.5	0.16	L	P	F			L					Growing at edge of kerb	TS0002C
836	Phyllanthus emblica	餘甘子	HyD	4.0	2.5	0.07	L	F	F		M						Young tree	TS0002C
837	Ficus hispida	對葉榕	HyD	4.0	2.5	0.07	L	F	F		M						Young tree	TS0002C
838	Liquidambar formosana	楓香	HyD	4.5	2.5	0.1	L	F	F		M						Young tree	TS0002C
839	Liquidambar formosana	楓香	HyD	5.0	3.0	0.12	L	F	F		M						Multi-trunk	TS0002C
840	Bombax ceiba	木棉	HyD	5.5	3.5	0.15	L	P	P			L					Growing beside kerb	TS0002C
841	Liquidambar formosana	楓香	HyD	6.0	3.5	0.11	L	P	P			L					Growing beside kerb	TS0002C
842	Liquidambar formosana	楓香	HyD	6.0	2.5	0.09	L	P	F			L					Multi-trunk	TS0002C
843	Liquidambar formosana	楓香	HyD	4.5	2.5	0.08	L	P	F		M						Young tree	TS0002C
844	Phyllanthus emblica	餘甘子	HyD	5.0	3.0	0.12	L	P	F			L					Grwoing close to T845	TS0002C
845	Phyllanthus emblica	餘甘子	HyD	5.0	3.5	0.11	L	P	F			L					Growing close to T844	TS0002C

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
846	Celtis sinensis	朴樹	HyD	4.5	2.5	0.08	L	F	F		M						Young tree	TS0002C
847	Liquidambar formosana	楓香	HyD	4.5	2.5	0.07	L	F	F		M						Young tree	TS0002C
848	Phyllanthus emblica	餘甘子	HyD	4.0	2.5	0.09	L	P	P			L					Tree bark damaged	TS0002C
849	Celtis sinensis	朴樹	HyD	4.0	2.5	0.08	L	F	F		M						Young tree	TS0002C
850	Liquidambar formosana	楓香	HyD	6.0	3.0	0.1	L	F	F		M						Multi-trunk	TS0002C
851	Leucaena leucocephala	銀合歡	HyD	5.5	3.5	0.08	L	P	P			L					Forked-trunk	TS0002C
852	Litsea glutinosa	潺槁	HyD	5.0	3.0	0.08	L	P	F			L					Young tree, forked trunk	TS0002C
853	Phyllanthus emblica	餘甘子	HyD	4.0	3.0	0.1	L	F	F		M						Multi-trunk	TS0002C
854	Phyllanthus emblica	餘甘子	HyD	4.0	3.0	0.09	L	F	F		M						Young tree	TS0002C
855	Liquidambar formosana	楓香	HyD	5.0	3.0	0.08	L	F	F		M						Young tree	TS0002C
856	Phyllanthus emblica	餘甘子	HyD	2.5	2.5	0.08	L	F	F		M						Young tree	TS0002C
857	Phyllanthus emblica	餘甘子	HyD	4.5	3.0	0.07	L	F	F		M						Young tree	TS0002C
858	Celtis sinensis	朴樹	HyD	4.5	3.0	0.09	L	F	F		M						Young trer	TS0002C
859	Celtis sinensis	朴樹	HyD	4.0	2.5	0.1	L	P	F		M						Growing cloee to T860	TS0002C
860	Celtis sinensis	朴樹	HyD	4.0	3.0	0.1	L	P	F		M						Growing close to T859	TS0002C
861	Celtis sinensis	朴樹	HyD	4.5	3.0	0.08	L	F	F		M						Young tree	TS0002C
862	Phyllanthus emblica	餘甘子	HyD	4.5	3.0	0.1	L	F	F		M						Multi-trunk	TS0002C
863	Liquidambar formosana	楓香	HyD	5.0	3.0	0.16	L	F	F		M						Multi-trunk, slanting	TS0002C
864	Acacia auriculiformis	耳果相思	HyD	9.0	4.5	0.22	L	P	F			L					Growing on kerb of structure	TS0002C
865	Celtis sinensis	朴樹	HyD	4.5	3.5	0.12	L	F	F		M						Multi-trunk	TS0002C
866	Phyllanthus emblica	餘甘子	HyD	5.0	3.5	0.12	L	F	F		M						Multi-trunk	TS0002C
867	Celtis sinensis	朴樹	HyD	3.5	3.0	0.11	L	P	F			L					Forked-trunk, slanting	TS0002C
868	Phyllanthus emblica	餘甘子	HyD	4.0	3.5	0.11	L	F	F		M						Forked-trunk	TS0002C
869	Phyllanthus emblica	餘甘子	HyD	5.0	4.0	0.15	L	P	F			L					Forked-trunk, tree bark damaged	TS0002C
870	Liquidambar formosana	楓香	HyD	4.5	3.5	0.12	L	F	F		M						Crook, imbalanced trunk	TS0002C
871	Liquidambar formosana	楓香	HyD	6.0	3.5	0.11	L	F	F		M						Multi-trunk	TS0002C
872	Liquidambar formosana	楓香	HyD	5.0	3.5	0.1	L	F	F		M						Multi-trunk	TS0002C
873	Phyllanthus emblica	餘甘子	HyD	4.0	3.0	0.08	L	F	F		M						Young tree	TS0002C
874	Celtis sinensis	朴樹	HyD	5.0	3.5	0.08	L	P	F			L					Young tree, close to T875	TS0002C
875	Celtis sinensis	朴樹	HyD	5.0	3.5	0.09	L	P	F			L					Young tree, close to T874	TS0002C
876	Litsea glutinosa	潺槁	HyD	4.5	3.5	0.11	L	P	F			L					Growing at edge of culvert	TS0002C
877	Liquidambar formosana	楓香	HyD	5.0	3.5	0.1	L	F	F		M						Young tree	TS0002C
878	Celtis sinensis	朴樹	HyD	3.5	2.5	0.08	L	F	F		M						Young tree	TS0002C
879	Celtis sinensis	朴樹	HyD	3.5	2.5	0.08	L	F	F		M						Young tree, slanting	TS0002C
880	Litsea glutinosa	潺槁	HyD	4.0	3.0	0.08	L	F	F		M						Young tree	TS0002C
881	Celtis sinensis	朴樹	HyD	5.0	3.5	0.11	L	F	F		M						Imblanced from	TS0002C
882	Phyllanthus emblica	餘甘子	HyD	4.0	3.0	0.12	L	F	F		M						Forked-trunk	TS0002C
883	Macaranga tanarius	血桐	HyD	4.0	4.0	0.1	L	F	F		M						Multi-trunk	TS0002C
884	Macaranga tanarius	血桐	HyD	6.0	8.0	0.25	L	F	P			L					Growing near footing of Highway, exposed root	TS0002C

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
885	Phyllanthus emblica	餘甘子	HyD	5.5	3.5	0.13	L	F	P			L					Growing near footing of Highway	TS0002C
886	Phyllanthus emblica	餘甘子	HyD	4.0	2.5	0.09	L	F	P			L					Tree bark broken, imbalanced trunk	TS0002C
887	Celtis sinensis	朴樹	HyD	6.0	3.5	0.1	L	G	G		M						Young tree	TS0002C
888	Celtis sinensis	朴樹	HyD	5.5	3.0	0.11	L	G	G		M						Young tree	TS0002C
889	Phyllanthus emblica	餘甘子	HyD	3.0	2.5	0.09	L	P	P			L					Suppressed, distorted form	TS0002C
890	Phyllanthus emblica	餘甘子	HyD	3.5	3.0	0.13	L	F	G		M						Forked trunk	TS0002C
891	Eucalyptus exserta	窿緣桉	HyD	8.0	1.0	0.09	L	F	F			L					Young tree with slender trunk & sparse foliage	TS0002C
892	Eucalyptus exserta	窿緣桉	HyD	4.5	1.0	0.09	L	P	P			L					Topped & broken trunk	TS0002C
893	Eucalyptus exserta	窿緣桉	HyD	11.0	2.0	0.14	L	F	F			L					Crooked & leaning trunk, imbalanced crown	TS0002C
894	Eucalyptus exserta	窿緣桉	HyD	6.0	2.5	0.08	L	P	P			L					Broken trunk with large open wound	TS0002C
895	Syzygium cumini	海南蒲桃	HyD	5.5	2.0	0.09	L	P	P			L					Broken trunk with large open wound, imbalanced crown	TS0002C
896	Syzygium cumini	海南蒲桃	HyD	5.0	2.5	0.08	L	F	F			L					Broken branches, imbalanced crown	TS0002C
897	Eucalyptus exserta	窿緣桉	HyD	13.0	4.0	0.31	L	F	F			L					Twin-trunk with included bark	TS0002C
898	Eucalyptus exserta	窿緣桉	HyD	9.0	3.0	0.13	L	F	F			L					Imbalanced crown, sparse foliage	TS0002C
899	Eucalyptus exserta	窿緣桉	HyD	12.0	4.5	0.19	L	P	P			L					Main trunk broken & collapsed, only stump left	TS0002C
900	Syzygium cumini	海南蒲桃	HyD	2.5	1.0	0.09	L	P	P			L					Topped trunk, died back & broken branches	TS0002C
901	Acacia confusa	台灣相思	HyD	9.0	3.0	0.19	L	P	F			L					One large branch topped, damaged bark, imbalanced crown	TS0002C
902	Acacia confusa	台灣相思	HyD	10.0	2.0	0.21	L	P	P			L					Multi-trunk, several branches topped, died back branches, sparse foliage	TS0002C
903	Eucalyptus exserta	窿緣桉	HyD	8.0	3.0	0.19	L	P	F			L					Multi-trunk, one of them crooked & another one topped	TS0002C
904	Eucalyptus exserta	窿緣桉	HyD	15.0	4.0	0.23	L	P	F			L					Multi-trunk, one of them leaning & died back	TS0002C
905	Acacia confusa	台灣相思	HyD	7.0	5.0	0.17	L	P	F			L					Multi-trunk with included bark, plenty of broken branches	TS0002C
906	Eucalyptus exserta	窿緣桉	HyD	13.0	5.0	0.19	L	F	F			L					Imbalanced crown, broken branches	TS0002C
907	Eucalyptus exserta	窿緣桉	HyD	11.0	5.0	0.22	L	P	P			L					Trunk terminal broken & torn off, imbalanced crown	TS0002C
908	Acacia confusa	台灣相思	HyD	3.5	3.0	0.1	L	P	P			L					Suppressed, many branches topped	TS0002C
909	Acacia confusa	台灣相思	HyD	10.0	6.0	0.21	L	P	P			L					Multi-trunk, several branches topped & broken	TS0002C
910	Acacia confusa	台灣相思	HyD	9.0	8.0	0.26	L	P	P			L					Multi-trunk, several branches topped & broken	TS0002C
911	Acacia confusa	台灣相思	HyD	3.5	3.0	0.13	L	P	P			L					Multi-trunk, several branches topped & broken	TS0002C
912	Acacia confusa	台灣相思	HyD	10.0	7.0	0.2	L	P	P			L					Multi-trunk, several branches topped & broken	TS0002C
913	Eucalyptus exserta	窿緣桉	HyD	11.0	4.0	0.15	L	F	F			L					Crooked upper trunk, imbalanced crown	TS0001B
914	Eucalyptus exserta	窿緣桉	HyD	14.0	5.0	0.21	L	F	F			L					Crooked trunk, imbalanced crown	TS0001B
915	Eucalyptus exserta	窿緣桉	HyD	15.0	8.0	0.25	L	P	P			L					Trunk terminal broken & torn off, imbalanced crown	TS0001B
916	Callistemon viminalis	串錢柳	HyD	5.5	4.0	0.16	L	P	P			L					Multi-trunk, many branches topped, imbalanced crown	TS0001B
917	Callistemon viminalis	串錢柳	HyD	1.5	2.0	0.1	L	P	P			L					Topped trunk, suppressed	TS0001B
918	Callistemon viminalis	串錢柳	HyD	1.5	2.0	0.09	L	P	P			L					Topped trunk, suppressed	TS0001B
919	Vernicia montana	木油桐	HyD	5.0	6.0	0.14	L	F	G		M						Forked trunk	TS0001B
920	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	4.0	0.12	L	G	G		M						Minor died back branches	TS0001B
921	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	4.0	0.12	L	G	G		M						Minor died back branches	TS0001B
922	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.08	L	G	G		M						Minor died back branches	TS0001B
923	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	5.0	0.1	L	G	G		M						Minor died back branches	TS0001B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
924	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	6.0	0.13	L	G	G		M						Minor died back branches	TS0001B
925	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	7.0	0.14	L	G	G		M						Minor died back branches	TS0001B
926	Dead tree		HyD	2.5	2.5	0.13	L											TS0001B
927	Ficus hispida	對葉榕	HyD	2.5	3.0	0.12	L	F	F		M						Forked trunk, died back branches	TS0001B
928	Ficus hispida	對葉榕	HyD	3.0	2.0	0.08	L	F	F		M						Forked & crooked trunk, died back branches	TS0001B
929	Ficus hispida	對葉榕	HyD	4.0	6.0	0.14	L	F	F		M						Forked trunk, died back branches	TS0001B
930	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	5.5	0.12	L	G	G		M						Minor died back branches	TS0001B
931	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.12	L	G	G		M						Minor died back branches	TS0001B
932	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.5	0.11	L	G	G		M						Minor died back branches	TS0001B
933	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	5.0	0.14	L	G	G		M						Minor died back branches	TS0001B
934	Ficus hispida	對葉榕	HyD	4.0	7.0	0.12	L	F	F		M						Forked trunk, died back branches	TS0001B
935	Ficus hispida	對葉榕	HyD	5.0	6.0	0.15	L	F	F		M						Forked trunk, died back branches	TS0001B
936	Ficus hispida	對葉榕	HyD	5.0	4.0	0.16	L	G	F		M						Minor died back branches	TS0001B
937	Ficus hispida	對葉榕	HyD	5.0	3.5	0.16	L	F	F		M						Forked trunk, died back branches	TS0001B
938	Liquidambar formosana	楓香	HyD	5.0	3.5	0.1	L	F	G		M						Young tree with crooked trunk	TS0001B
939	Liquidambar formosana	楓香	HyD	5.0	4.0	0.1	L	F	G		M						Young tree with crooked trunk	TS0001B
940	Liquidambar formosana	楓香	HyD	5.0	3.5	0.11	L	G	G		M						Young tree	TS0001B
941	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	5.0	0.16	L	F	F		M						Forked & twisted trunk with included bark, minor broken branches	TS0001B
942	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	5.0	0.13	L	G	G		M						Minor died back branches	TS0001B
943	Ficus hispida	對葉榕	HyD	5.5	6.0	0.21	L	F	F		M						Forked trunk, died back branches	TS0001B
944	Ficus hispida	對葉榕	HyD	5.0	6.0	0.12	L	F	F		M						Forked trunk, died back branches	TS0001B
945	Ficus hispida	對葉榕	HyD	5.0	6.0	0.16	L	F	F		M						Forked trunk, died back branches	TS0001B
946	Ficus hispida	對葉榕	HyD	5.0	3.0	0.11	L	F	F		M						Forked trunk, died back branches	TS0001B
947	Liquidambar formosana	楓香	HyD	5.0	3.5	0.11	L	G	G		M						Young tree	TS0001B
948	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	5.0	0.17	L	F	G		M						Forked trunk	TS0001B
949	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.5	0.11	L	F	G		M						Young tree with crooked trunk	TS0001B
950	Mallotus paniculatus	白楸	HyD	3.0	3.5	0.09	L	P	P			L					Serious leaning, broken branches, infested with pest	TS0001B
951	Ficus hispida	對葉榕	HyD	4.0	5.5	0.13	L	F	F		M						Forked trunk, died back branches	TS0001B
952	Ficus hispida	對葉榕	HyD	4.0	5.0	0.12	L	F	F		M						Broken & died back branches	TS0001B
953	Ficus hispida	對葉榕	HyD	5.0	4.5	0.12	L	F	F		M						Broken & died back branches	TS0001B
954	Liquidambar formosana	楓香	HyD	4.5	4.0	0.08	L	P	F			L					V-shaped trunk with one serious leaning & topped	TS0001B
955	Vernicia montana	木油桐	HyD	5.0	3.5	0.07	L	F	F		M						V-shaped trunk, imbalanced crown	TS0001B
956	Vernicia montana	木油桐	HyD	7.0	6.5	0.13	L	F	G		M						Imbalanced crown	TS0001B
957	Vernicia montana	木油桐	HyD	6.5	6.0	0.09	L	F	G		M						Imbalanced crown	TS0001B
958	Vernicia montana	木油桐	HyD	7.0	5.5	0.11	L	F	G		M						Imbalanced crown	TS0001B
959	Ficus hispida	對葉榕	HyD	7.0	6.0	0.16	L	F	F		M						Forked trunk, died back branches	TS0001B
960	Ficus hispida	對葉榕	HyD	4.0	4.5	0.09	L	F	F		M						Forked trunk, died back branches	TS0001B
961	Ficus hispida	對葉榕	HyD	7.0	5.0	0.1	L	F	F		M						Forked trunk, died back branches	TS0001B
962	Ficus hispida	對葉榕	HyD	6.0	6.5	0.1	L	F	F		M						Forked trunk, died back branches	TS0001B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
963	Ficus hispida	對葉榕	HyD	6.0	5.0	0.13	L	F	F		M						Forked trunk, died back branches	TS0001B
964	Ficus hispida	對葉榕	HyD	7.0	6.0	0.13	L	F	F		M						Forked trunk, died back branches	TS0001B
965	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	3.0	0.1	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
966	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	3.0	0.1	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
967	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	3.0	0.1	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
968	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	3.0	0.1	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
969	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	3.0	0.11	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
970	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.5	0.09	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
971	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.5	0.11	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
972	Vernicia montana	木油桐	HyD	5.0	3.0	0.11	L	P	F			L					Seriously crooked trunk, imbalanced crown	TS0001B
973	Vernicia montana	木油桐	HyD	5.5	3.0	0.1	L	F	F		M						Forked trunk, died back branches	TS0001B
974	Dead tree		HyD	5.0	3.0	0.09	L											TS0001B
975	Ficus hispida	對葉榕	HyD	6.0	5.0	0.13	L	F	F		M						Imbalanced crown, died back branches	TS0001B
976	Ficus hispida	對葉榕	HyD	5.0	4.0	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
977	Ficus hispida	對葉榕	HyD	5.0	4.0	0.08	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
978	Ficus hispida	對葉榕	HyD	5.0	4.0	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
979	Ficus hispida	對葉榕	HyD	5.0	4.0	0.13	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
980	Ficus hispida	對葉榕	HyD	5.0	4.0	0.14	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
981	Ficus hispida	對葉榕	HyD	5.0	7.0	0.17	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
982	Ficus hispida	對葉榕	HyD	2.5	2.5	0.07	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
983	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.5	0.1	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
984	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	4.0	0.12	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
985	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	4.0	0.12	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
986	Bauhinia variegata	宮粉羊蹄甲	HyD	6.5	5.0	0.11	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
987	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.0	0.1	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
988	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.09	L	F	G		M						Young tree with narrow crown, minor died back branches	TS0001B
989	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	5.0	0.16	L	F	G		M						Forked trunkwith narrow crown	TS0001B
990	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.09	L	F	G		M						Young tree with narrow & imbalanced crown	TS0001B
991	Ficus hispida	對葉榕	HyD	6.0	7.0	0.16	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
992	Ficus hispida	對葉榕	HyD	5.0	3.0	0.11	L	F	F		M						Leaning, imbalanced crown	TS0001B
993	Ficus hispida	對葉榕	HyD	5.5	5.0	0.16	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
994	Ficus hispida	對葉榕	HyD	6.0	5.0	0.12	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
995	Ficus hispida	對葉榕	HyD	6.0	4.0	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
996	Ficus hispida	對葉榕	HyD	6.0	4.5	0.12	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
997	Ficus hispida	對葉榕	HyD	7.0	6.0	0.14	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
998	Vernicia montana	木油桐	HyD	7.0	5.5	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
999	Vernicia montana	木油桐	HyD	7.0	5.0	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1000	Vernicia montana	木油桐	HyD	7.0	5.0	0.13	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1001	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.1	L	F	G		M						Young tree with narrow crown	TS0001B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
1002	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	5.0	0.11	L	F	G		M						Young tree with narrow crown	TS0001B
1003	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	5.0	0.14	L	F	G		M						Young tree with narrow crown	TS0001B
1004	Bauhinia variegata	宮粉羊蹄甲	HyD	7.0	6.0	0.11	L	F	G		M						Young tree with forked trunk, minor died back branches	TS0001B
1005	Bauhinia variegata	宮粉羊蹄甲	HyD	7.0	4.0	0.12	L	F	G		M						Young tree with narrow crown	TS0001B
1006	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.09	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1007	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	4.0	0.09	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1008	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.08	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1009	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	4.0	0.09	L	F	G		M						Young tree with narrow crown	TS0001B
1010	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.09	L	F	G		M						Young tree with narrow crown	TS0001B
1011	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	3.5	0.1	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1012	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	4.5	0.13	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1013	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	3.0	0.12	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1014	Ficus hispida	對葉榕	HyD	5.0	4.0	0.1	L	F	F		M						Forked trunk, died back branches	TS0001B
1015	Ficus hispida	對葉榕	HyD	5.0	6.0	0.14	L	F	F		M						Forked trunk, died back branches	TS0001B
1016	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.09	L	F	G		M						Young tree with narrow crown	TS0001B
1017	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	5.0	0.1	L	F	G		M						Young tree with narrow crown	TS0001B
1018	Ficus hispida	對葉榕	HyD	5.0	3.0	0.09	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1019	Ficus hispida	對葉榕	HyD	6.0	6.0	0.14	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1020	Ficus hispida	對葉榕	HyD	6.0	5.5	0.13	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1021	Ficus hispida	對葉榕	HyD	4.5	4.0	0.08	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1022	Ficus hispida	對葉榕	HyD	5.0	4.5	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1023	Ficus hispida	對葉榕	HyD	5.0	4.5	0.06	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1024	Ficus hispida	對葉榕	HyD	5.0	5.0	0.12	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1025	Ficus hispida	對葉榕	HyD	4.5	6.0	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1026	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.1	L	F	G		M						Young tree with narrow crown	TS0001B
1027	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	5.0	0.14	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1028	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	4.0	0.11	L	F	G		M						Young tree with narrow crown	TS0001B
1029	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.1	L	F	G		M						Young tree with crooked trunk & imbalanced crown	TS0001B
1030	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	4.0	0.09	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1031	Ficus hispida	對葉榕	HyD	6.0	5.0	0.13	L	F	F		M						Forked trunk, died back branches	TS0001B
1032	Ficus hispida	對葉榕	HyD	6.0	5.5	0.07	L	F	F		M						Forked trunk, died back branches	TS0001B
1033	Ficus hispida	對葉榕	HyD	5.0	5.0	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1034	Ficus hispida	對葉榕	HyD	5.0	4.0	0.09	L	F	F		M						Forked trunk, died back branches	TS0001B
1035	Ficus hispida	對葉榕	HyD	6.0	4.0	0.13	L	F	F		M						Forked trunk, died back branches	TS0001B
1036	Vernicia montana	木油桐	HyD	7.0	4.5	0.1	L	F	F		M						Young tree with narrow crown, died back branches	TS0001B
1037	Vernicia montana	木油桐	HyD	5.5	4.0	0.1	L	F	F		M						Young tree with narrow crown, died back branches	TS0001B
1038	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.11	L	F	G		M						Young tree with narrow crown	TS0001B
1039	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.09	L	F	G		M						Young tree with narrow crown	TS0001B
1040	Ficus hispida	對葉榕	HyD	4.0	5.0	0.08	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
1041	Ficus hispida	對葉榕	HyD	6.0	4.0	0.12	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1042	Ficus hispida	對葉榕	HyD	5.0	6.0	0.09	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1043	Ficus hispida	對葉榕	HyD	5.0	4.0	0.11	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1044	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	4.0	0.09	L	F	F		M						Young tree with narrow crown, damaged bark	TS0001B
1045	Ficus hispida	對葉榕	HyD	5.0	6.0	0.13	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1046	Vernicia montana	木油桐	HyD	5.5	4.5	0.12	L	F	P			L					Cavity in trunk, broken branches, imbalanced crown	TS0001B
1047	Vernicia montana	木油桐	HyD	6.0	5.0	0.11	L	F	F		M						Imbalanced crown, died back branches	TS0001B
1048	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	5.0	0.1	L	F	G		M						Young tree with narrow crown	TS0001B
1049	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	4.0	0.11	L	F	G		M						Young tree with narrow crown	TS0001B
1050	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	4.0	0.1	L	F	G		M						Young tree with narrow crown	TS0001B
1051	Ficus hispida	對葉榕	HyD	5.5	6.0	0.27	L	F	G		M						Imbalanced crown, minor died back branches	TS0001B
1052	Ficus hispida	對葉榕	HyD	4.0	4.0	0.06	L	F	G		M						Forked trunk with minor died back branches	TS0001B
1053	Ficus hispida	對葉榕	HyD	4.5	4.0	0.07	L	F	G		M						Forked trunk with minor died back branches	TS0001B
1054	Ficus hispida	對葉榕	HyD	5.0	6.0	0.15	L	F	G		M						Forked trunk with minor died back branches	TS0001B
1055	Ficus hispida	對葉榕	HyD	5.0	4.0	0.18	L	F	G		M						Forked trunk with minor died back branches	TS0001B
1056	Ficus hispida	對葉榕	HyD	4.0	4.0	0.19	L	F	G		M						Forked trunk with minor died back branches	TS0001B
1057	Ficus hispida	對葉榕	HyD	5.0	4.0	0.24	L	F	G		M						Forked trunk with minor died back branches	TS0001B
1058	Ficus hispida	對葉榕	HyD	4.0	3.0	0.16	L	F	G		M						Forked trunk with minor died back branches	TS0001B
1059	Ficus hispida	對葉榕	HyD	5.0	6.0	0.14	L	F	G		M						Forked trunk with minor died back branches	TS0001B
1060	Liquidambar formosana	楓香	HyD	5.0	5.0	0.11	L	F	G		M						Crooked trunk, imbalanced crown	TS0001B
1061	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	3.0	0.09	L	F	G		M						Young tree with narrow crown	TS0001B
1062	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.11	L	F	G		M						Young tree with narrow crown	TS0001B
1063	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.0	0.1	L	F	G		M						Young tree with narrow crown	TS0001B
1064	Ficus hispida	對葉榕	HyD	4.0	4.0	0.12	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1065	Vernicia montana	木油桐	HyD	5.5	5.0	0.1	L	G	G		M						Minor died back branches	TS0001B
1066	Ficus hispida	對葉榕	HyD	6.0	5.0	0.12	L	F	F		M						Imbalanced crown, died back branches	TS0001B
1067	Ficus hispida	對葉榕	HyD	5.5	5.0	0.1	L	F	F		M						Imbalanced crown, died back branches	TS0001B
1068	Ficus hispida	對葉榕	HyD	3.0	5.0	0.14	L	F	F		M						Forked trunk, imbalanced crown, died back branches	TS0001B
1069	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	3.5	0.12	L	F	G		M						Young tree with narrow crown	TS0001B
1070	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	2.5	0.11	L	F	G		M						Young tree with forked trunk & narrow crown	TS0001B
1071	Ficus hispida	對葉榕	HyD	4.0	3.0	0.11	L	P	F		M						Slanting, imbalanced crown	TS0001B
1072	Ficus hispida	對葉榕	HyD	3.0	2.5	0.07	L	F	F		M						Young tree with narrow crown	TS0001B
1073	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.1	L	F	F		M						Included bark	TS0001B
1074	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	4.0	0.14	L	F	F		M						Included bark, multi-trunk	TS0001B
1075	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.11	L	P	F		M						Included bark, imbalanced crown	TS0001B
1076	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.08	L	F	F		M						Young tree, forked trunk, included bark	TS0001B
1077	Bauhinia variegata	宮粉羊蹄甲	HyD	6.0	3.0	0.14	L	F	F		M						Incleded bark, forked trunk	TS0001B
1078	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.5	0.09	L	P	F		M						Young tree, multi-trunk, crossing branches	TS0001B
1079	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.1	L	P	F		M						Incleded bark, forked trunk	TS0001B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
1080	Albizia lebbek	大葉合歡	HyD	6.5	6.0	0.25	L	P	P			L					Slanting seriously, imbalanced crown	TS0001B
1081	Ficus hispida	對葉榕	HyD	5.0	4.0	0.16	L	P	F			L					Multi-trunk	TS0001B
1082	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	2.5	0.09	L	F	F		M						Forked trunk	TS0001B
1083	Acacia confusa	台灣相思	HyD	6.0	5.0	0.18	L	P	P			L					Forked trunk, died back branches	TS0001B
1084	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.0	0.1	L	P	F		M						Imbalanced crown	TS0001B
1085	Ficus hispida	對葉榕	HyD	4.0	4.5	0.13	L	P	F		M						Imbalanced crown, forked trunk	TS0001B
1086	Acacia confusa	台灣相思	HyD	5.5	3.0	0.13	L	P	P			L					Forked trunk	TS0001B
1087	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.0	0.11	L	F	F		M						Multi-trunk	TS0001B
1088	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.0	0.11	L	F	F		M						Multi-trunk	TS0001B
1089	Ficus hispida	對葉榕	HyD	3.5	4.0	0.1	L	P	F		M						Imbalanced crown, multi-trunk	TS0001B
1090	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	3.0	0.09	L	F	F		M						Young tree, multi-trunk	TS0001B
1091	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	3.0	0.11	L	P	F		M						Slanting, imbalanced crown	TS0001B
1092	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	3.0	0.09	L	F	F		M						Young tree, forked trunk, imbalanced crown	TS0001B
1093	Ficus hispida	對葉榕	HyD	4.5	3.0	0.14	L	P	F		M						Multi-trunk, exposed root	TS0001B
1094	Ficus hispida	對葉榕	HyD	4.5	3.0	0.14	L	F	F		M						Multi-trunk, exposed root	TS0001B
1095	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.13	L	P	P			L					Included bark, tree bark damaged	TS0001B
1096	Acacia confusa	台灣相思	HyD	6.0	3.5	0.11	L	P	P			L					Slanting, imbalanced crown	TS0001B
1097	Acacia confusa	台灣相思	HyD	6.0	5.0	0.16	L	P	P			L					Included bark, slanting	TS0001B
1098	Acacia confusa	台灣相思	HyD	6.0	3.0	0.09	L	P	P			L					Slanting, imbalanced crown	TS0001B
1099	Acacia confusa	台灣相思	HyD	6.0	4.0	0.11	L	P	P			L					Included bark	TS0001B
1100	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.0	0.11	L	P	F		M						Multi-trunk, tree bark damaged	TS0001B
1101	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.5	0.2	L	F	F		M						Multi-trunk	TS0001B
1102	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.5	0.14	L	P	P			L					Multi-trunk	TS0001B
1103	Liquidambar formosana	楓香	HyD	2.0	2.0	0.1	L	P	F			L					Crooked trunk, multi-trunk	TS0001B
1104	Liquidambar formosana	楓香	HyD	4.0	3.0	0.1	L	P	F			L					Crooked trunk, included bark	TS0001B
1105	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	3.0	0.14	L	F	F		M						Included trunk	TS0001B
1106	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	3.0	0.1	L	F	F		M						Forked trunk, crossing branches	TS0001B
1107	Ficus hispida	對葉榕	HyD	4.0	2.5	0.12	L	P	P			L					Forked trunk with minor died back branches	TS0001B
1108	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.0	0.1	L	F	F		M						Forked trunk	TS0001B
1109	Bauhinia variegata	宮粉羊蹄甲	HyD	5.0	2.0	0.1	L	P	f		M						Forked trunk	TS0001B
1110	Leucaena leucocephala	銀合歡	HyD	4.5	2.0	0.07	L	P	P			L					Slanting, imbalanced crown	TS0001B
1111	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	2.0	0.1	L	F	F		M						Multi-trunk	TS0001B
1112	Liquidambar formosana	楓香	HyD	5.0	2.5	0.1	L	F	F		M						Young tree	TS0001B
1113	Vernicia montana	木油桐	HyD	4.5	4.0	0.11	L	G	F		M						Deciduous tree	TS0001B
1114	Acacia confusa	台灣相思	HyD	5.0	4.5	0.12	L	P	P			L					Crooked trunk	TS0001B
1115	Acacia confusa	台灣相思	HyD	6.0	4.0	0.16	L	P	P			L					Forked trunk, included bark	TS0001B
1116	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	3.0	0.11	L	P	F			L					Slanting, tree bark damaged	TS0001B
1117	Bauhinia variegata	宮粉羊蹄甲	HyD	5.5	3.0	0.12	L	F	F		M						Slanting, imbalanced crown	TS0001B
1118	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.11	L	P	F		M						Imbalnced crown	TS0001B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
1119	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	3.0	0.12	L	P	P			L					Forked trunk, tree bark damaged	TS0001B
1120	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	2.5	0.09	L	F	F		M						Young tree, crooked trunk	TS0001B
1121	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.5	0.16	L	F	F		M						Forked trunk	TS0001B
1122	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.0	0.12	L	F	F		M						Forked trunk, imbalanced crown	TS0001B
1123	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.1	L	F	F		M						Forked trunk, included bark	TS0001B
1124	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	2.0	0.1	L	F	F		M						Multi-trunk	TS0001B
1125	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	2.0	0.1	L	F	F		M						Included bark, crossing branches	TS0001B
1126	Leucaena leucocephala	銀合歡	HyD	4.0	3.0	0.1	L	P	P			L					Crooked trunk	TS0001B
1127	Leucaena leucocephala	銀合歡	HyD	4.0	4.0	0.12	L	P	P			L					Slanting	TS0001B
1128	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.0	0.13	L	P	F		M						Included trunk, crossing branches	TS0001B
1129	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	2.5	0.1	L	P	F			L					Forked trunk, included bark	TS0001B
1130	Acacia confusa	台灣相思	HyD	4.0	3.0	0.1	L	P	F			L					Forked trunk, included bark	TS0001B
1131	Acacia confusa	台灣相思	HyD	5.0	3.5	0.13	L	P	F			L					Forked trunk	TS0001B
1132	Bauhinia variegata	宮粉羊蹄甲	HyD	2.5	2.0	0.1	L	P	F			L					Slanting, forked trunk	TS0001B
1133	Acacia confusa	台灣相思	HyD	5.0	4.0	0.12	L	P	P			L					Forked trunk	TS0001B
1134	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	3.0	0.1	L	P	P		M						Multi-trunk	TS0001B
1135	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	3.0	0.09	L	F	F		M						Forked trunk	TS0001B
1136	Acacia confusa	台灣相思	HyD	5.0	3.5	0.14	L	P	F			L					Forked trunk	TS0001B
1137	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.5	0.14	L	F	F		M						Included bark	TS0001B
1138	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.0	0.09	L	F	F		M						Forked trunk	TS0001B
1139	Acacia confusa	台灣相思	HyD	4.0	4.0	0.2	L	P	F			L					Forked trunk	TS0001B
1140	Bauhinia variegata	宮粉羊蹄甲	HyD	3.0	2.0	0.12	L	P	F		M						Included bark, forked trunk	TS0001B
1141	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	2.0	0.1	L	F	F		M						Slanting, multi-trunk	TS0001B
1142	Bauhinia variegata	宮粉羊蹄甲	HyD	3.0	2.5	0.12	L	P	F		M						Slanting, multi-trunk	TS0001B
1143	Acacia confusa	台灣相思	HyD	3.0	4.0	0.19	L	P	F			L					Slanting, multi-trunk	TS0001B
1144	Acacia confusa	台灣相思	HyD	3.5	2.5	0.12	L	P	F			L					Forked trunk	TS0001B
1145	Ficus hispida	對葉榕	HyD	2.5	2.0	0.1	L	P	F		M						Slanting, multi-trunk	TS0001B
1146	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.5	0.15	L	F	F		M						Included bark	TS0001B
1147	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	2.5	0.1	L	F	F		M						Forked trunk	TS0001B
1148	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.0	0.12	L	F	F		M						Multi-trunk	TS0001B
1149	Ficus hispida	對葉榕	HyD	3.5	3.0	0.15	L	P	F		M						Multi-trunk	TS0001B
1150	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	4.0	0.16	L	F	F		M						Forked trunk	TS0001B
1151	Bauhinia variegata	宮粉羊蹄甲	HyD	4.0	3.0	0.1	L	F	F		M						Multi-trunk	TS0001B
1152	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	4.0	0.16	L	F	F		M						Multi-trunk	TS0001B
1153	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	2.5	0.11	L	F	F		M						Forked trunk	TS0001B
1154	Bauhinia variegata	宮粉羊蹄甲	HyD	4.5	3.0	0.16	L	F	P			L					Growing near man-hole	TS0001B
1155	Bauhinia variegata	宮粉羊蹄甲	HyD	3.5	3.0	0.17	L	F	F		M						Forked trunk	TS0001B

(Improvement to Pok Oi Interchange)
Tree Assessment Schedule

Drawing No. **HSDWU2518-TS0001B~TS0004A**

Tree no.	Tree Species (Botanical name)	Chinese Name (Hong Kong)	Tree Maintenance Dept.	Tree Size			Amenity Value	Form	Health	Survial Rate after Transplanting			Recommendation				Remarks[2]	Ref Drawing
				Height (m)	Avergae crown spread (m)	Trunk[1] (diameter) (m)	High Medium Low	Good Fair Poor	Good Fair Poor	High	Medium	Low	Transplant	Retain	Fell	Pruning		
1156	Leucaena leucocephala	銀合歡	HyD	8.0	6.0	0.29	L	F	F			L					Multi-trunk, broken branches	TS0001B

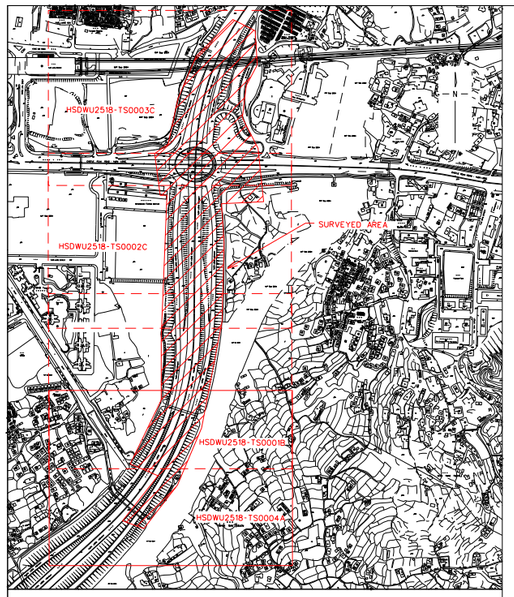
Notes:

1. Trunk diameter of a tree refers to its diameter at breast height (i.e. measured at 1.3m above ground level) as per *ETWB TCW No. 3/2006* .

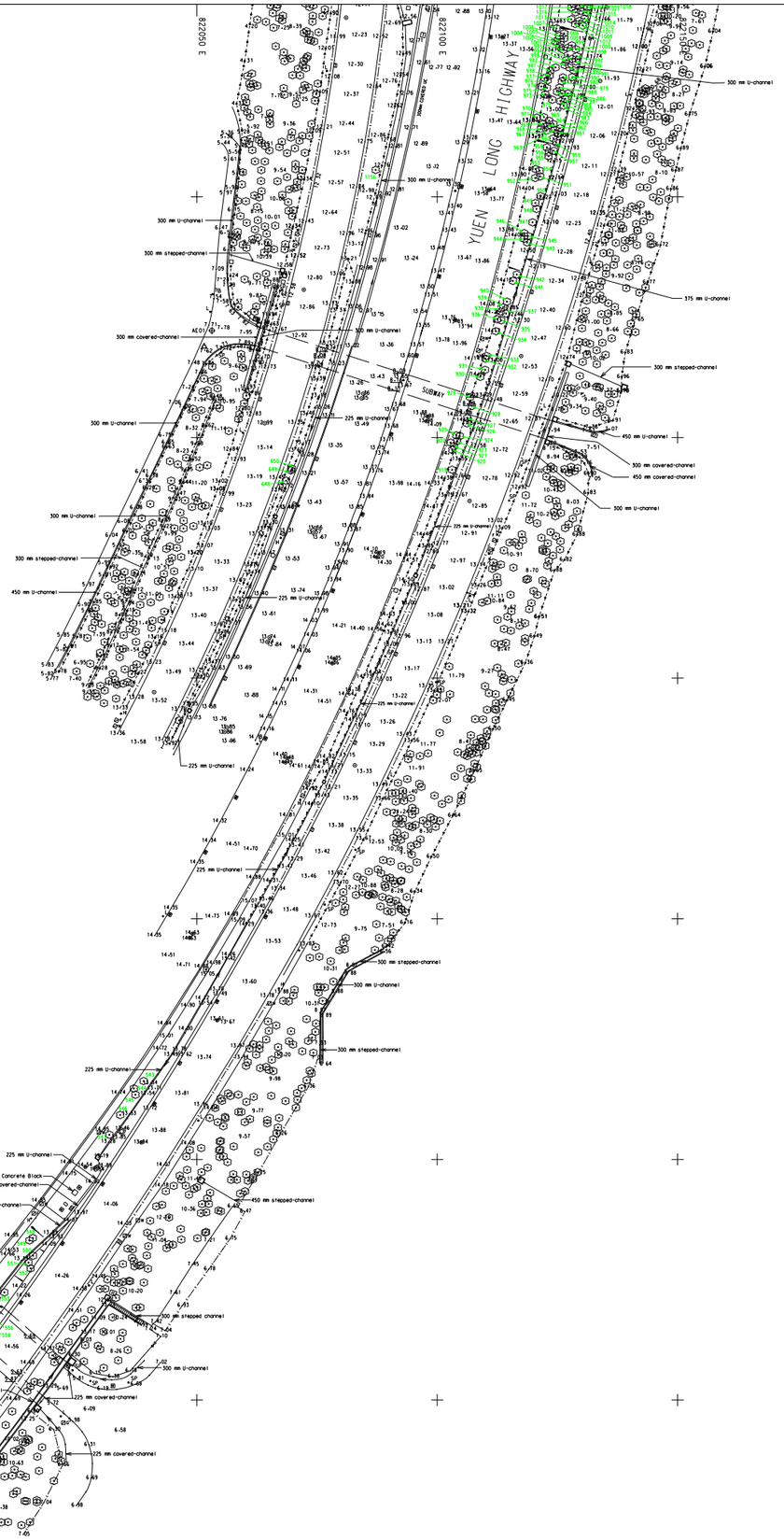
2. Special features such as Old and Valuable Trees, ecological, cultural, historical significance or large/ old trees and defects as identified.

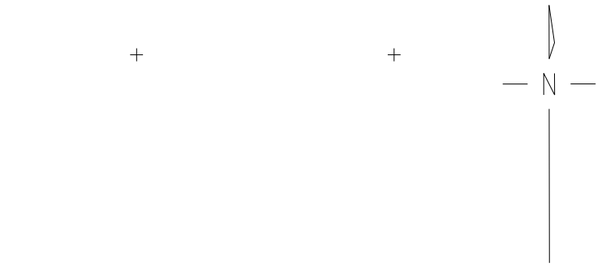
Annex E2

Tree Survey Plans



KEY PLAN SCALE 1:5000





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Metres 10 8 6 4 2 0 10 20 30 40 50 60 70 80 90 100 Metres

822050 E 822100 E 822150 E 822200 E 822250 E 822300 E

833450 N 833400 N 833350 N 833300 N 833250 N 833200 N

NOTES :

1. ALL LEVELS ARE IN METRES ABOVE H.K.P.D.
2. CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.
3. CO-ORDINATES OF LOWER LEFT SHEET CORNER: N: 833150; E: 821906; ROT. ANGLE : 0
4. MODEL : HSDWU2518-P-BS0001C-E.DGN
5. DRAWING FILE : HSDWU2518-TS0004A.DGN
6. JOB NO. : WU/0226/08
7. COMP. FOLDER : WU2518 III
8. THIS DRAWING SUPERSEDES HSDWU2518-TS0004 AND SHOULD BE READ IN CONJUNCTION WITH HSDWU2518-TS0001B, HSDWU2518-TS0002C & HSDWU2518-TS0003C.
9. 8.41 DENOTES LEVEL SHOWN UNDERNEATH THE FLYOVER AND SUBWAY.

LEGEND

Big sign board		Bench	
Bollard		Bench mark	
Bus shelter		Column	
Catch pit		Electric pole	
Elect. transformer		Fence/Railing	
Fire hydrant		Gate	
Gas pipe	GP	Grating	
Gully		Grove	
Hoarding	HG	Hedge	
High water mark	HWM	Inspection chamber	IC
Letter box	LB	Lamp post	
Milestone		Manhole storm water	
Manhole foul water		Manhole	
Monument/Sculpture		Manhole telephone	
Manhole waterworks		Piezometer	PZ
Step channel		Soil nail	SN
Sign pole	SP	Stream	
Small shrine	SH	Septic tank	
Tree		Traffic light control box	TB
Traffic light	TL	Telephone kiosk	TK
Valve		Telephone pole	
Valve fire	F	Urn	
Valve waterworks	W	Valve gas	G
Wall retaining		Well	
Water main	W	Wall	
Control station		Slope	
Street Name Plate			

no.	date	description	initial
A		Additional Tree Survey on 23-09-2008	

REVISION

	name	date
surveyed	C W.SUEN (SIGNED)	Jun-08
designed		
drawn	C.W.SUEN (SIGNED)	Jun-08
traced		
checked	W.M.LING (SIGNED)	27-06-08
approved	(SIGNED) 27-06-08 T.M.LEUNG LS/ W(HK & K)	

contract no.

file no.

project no.

contract

IMPROVEMENT TO POK OI INTERCHANGE

drawing title

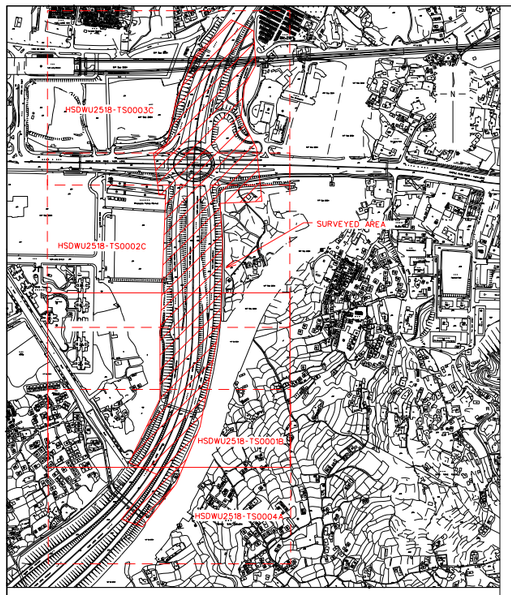
TREE SURVEY

drawing no.	scale
HSDWU2518-TS0004A (SHEET 1 OF 4)	1:500

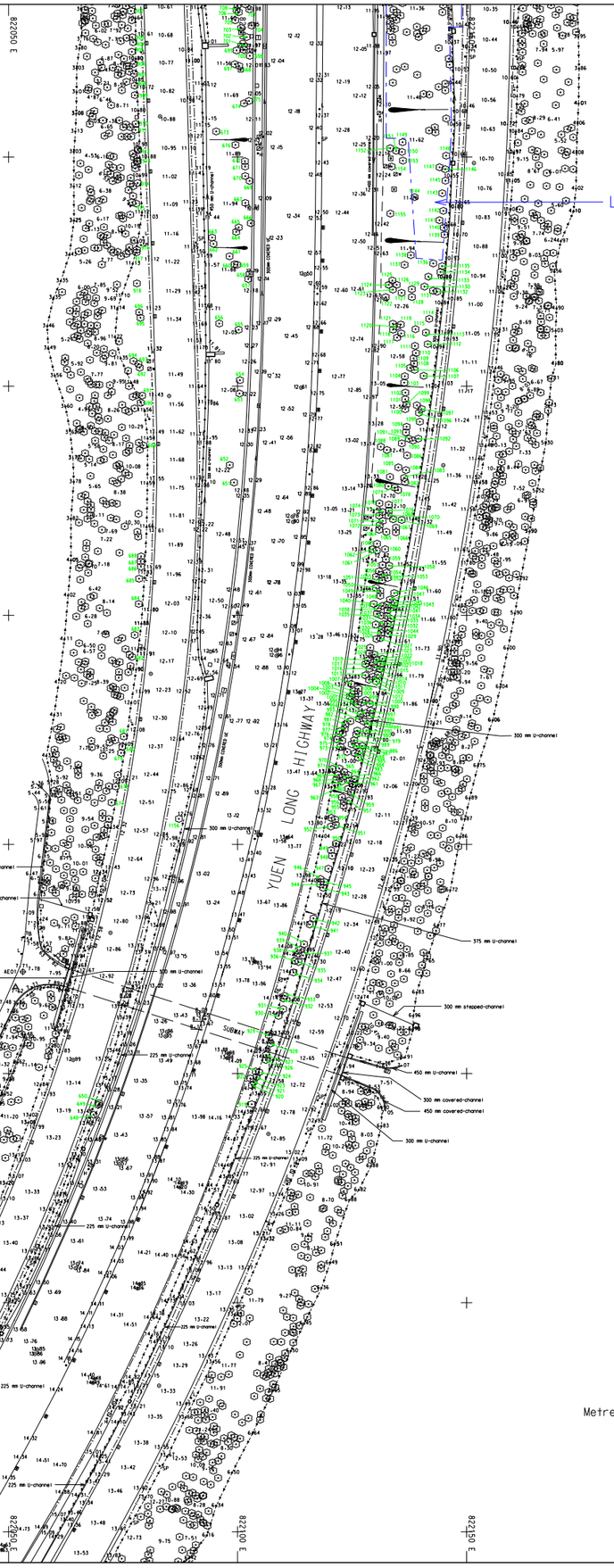
office

SURVEY SECTION / W(HK & K)

HIGHWAYS DEPARTMENT HONG KONG



KEY PLAN SCALE 1:5000



N

Scale 1 : 500

Metres 10 8 6 4 2 0 10 20 30 40 50 60 70 80 90 100 Metres

NOTES :

1. ALL LEVELS ARE IN METRES ABOVE H.K.P.D.
2. CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.
3. CO-ORDINATES OF LOWER LEFT SHEET CORNER: N: 833293; E: 821906; ROT. ANGLE : 0
4. MODEL : HSD-WU2518-P-BS01C-E.DGN
5. DRAWING FILE : HSDWU2518-TS0001B.DGN
6. JOB NO. : WU/0226/08
7. COMP. FOLDER : WU2518III
8. THIS DRAWING SUPERSEDES HSDWU2518-TS0001A AND SHOULD BE READ IN CONJUNCTION WITH HSDWU2518-TS0002C, HSDWU2518-TS0003C & HSDWU2518-TS0004A.
9. 8.16 DENOTES LEVEL SHOWN UNDERNEATH THE SUBWAY.

LEGEND

Big sign board		Bench	
Bollard		Bench mark	
Bus shelter		Cable duct	— CD —
Catch pit		Electric pole	E
Elect. transformer		Fence/Railing	
Fire hydrant		Gate	
Gas pipe	— GP —	Grating	
Gully		Grove	
Hoarding		Hedge	
High water mark		Inspection chamber	IC
Letter box	LB	Lamp post	
Milestone		Manhole storm water	
Manhole foul water		Manhole	
Monument/Sculpture		Manhole telephone	
Manhole waterworks		Piezometer	
Step channel		Soil nail	
Sign pole	SP	Stream	
Small shrine	SH	Septic tank	
Tree		Traffic light control box	TB
Traffic light	TL	Telephone kiosk	
Valve		Telephone pole	
Valve fire		Urn	
Valve waterworks		Valve gas	
Wall retaining		Well	
Water main		Wall	
Control station		Slope	
Street Name Plate			

no.	date	description	initial
B		Additional Tree Survey on 23-09-2008	T.M.LEUNG LS/W (HK & K)
A	27-06-08	Additional Tree Survey at Southward Portion of Yuen Long Highway	(SIGNED) T.M.LEUNG LS/W (HK & K)

REVISION

	name	date
surveyed	K.L.CHENG & W.Y.KAN (SIGNED)	Jul-07
designed		
drawn	K.L.CHENG (SIGNED)	Sep-07
traced		
checked	W.M.LING (SIGNED)	14-09-07

approved

(SIGNED) 14-09-07
T.M.LEUNG LS / W (HK & K)

contract no.

file no.

project no.

contract

IMPROVEMENT TO POK OI INTERCHANGE

drawing title

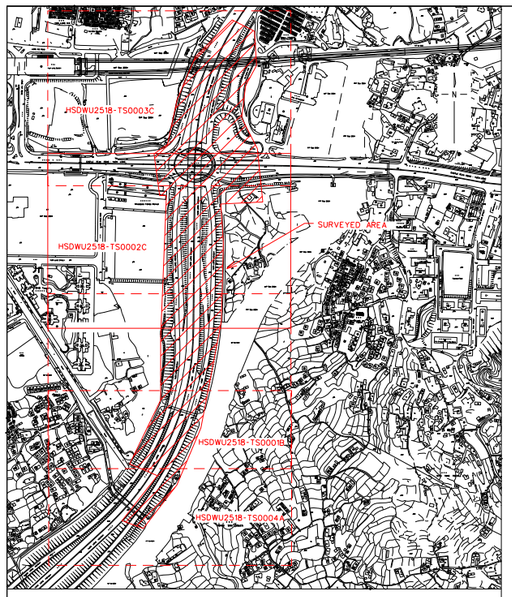
TREE SURVEY

drawing no.
HSDWU2518-TS0001B
(SHEET 2 OF 4)

scale
1:500

office
SURVEY SECTION / W(HK & K)

HIGHWAYS DEPARTMENT HONG KONG



KEY PLAN SCALE 1:5000

CASTLE PEAK ROAD - YUEN LONG

POK OI INTERCHANGE

CAR PARK

CASTLE PEAK ROAD - YUEN LONG

TO AU TAU

YUEN LONG HIGHWAY

Location for trees transplant

Scale 1 : 500

Metres 10 8 6 4 2 0 10 20 30 40 50 60 70 80 90 100 Metres

NOTES :

1. ALL LEVELS ARE IN METRES ABOVE H.K.P.D.
2. CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.
3. CO-ORDINATES OF LOWER LEFT SHEET CORNER: N: 833600; E: 821906; ROT. ANGLE : 0
4. MODEL : HSD-WU2518-P-B501C-E.DGN
5. DRAWING FILE : HSDWU2518-TS0002C.DGN
6. JOB NO. : WU/0226/08
7. COMP. FOLDER : WU2518 [1]
8. THIS DRAWING SUPERSEDES HSDWU2518-TS0002B AND SHOULD BE READ IN CONJUNCTION WITH HSDWU2518-TS0001B, HSDWU2518-TS0003C & HSDWU2518-TS0004A.
9. 8.16 DENOTES LEVEL SHOWN UNDERNEATH THE SUBWAY.

LEGEND

Big sign board		Bench	
Bollard		Bench mark	
Bus shelter		Cable duct	
Catch pit		Electric pole	
Elect. transformer		Fence/Railing	
Fire hydrant		Gate	
Gas pipe		Grating	
Gully		Grove	
Hoarding		Hedge	
High water mark		Inspection chamber	
Letter box		Lamp post	
Milestone		Manhole storm water	
Manhole foul water		Manhole	
Monument/Sculpture		Manhole telephone	
Manhole waterworks		Piezometer	
Step channel		Soil nail	
Sign pole		Stream	
Small shrine		Septic tank	
Tree		Traffic light control box	
Traffic light		Telephone kiosk	
Valve		Telephone pole	
Valve fire		Urn	
Valve waterworks		Valve gas	
Wall retaining		Well	
Water main		Wall	
Control station		Slope	
Street Name Plate			

no.	date	description	initial
C		Additional Tree Survey on 23-09-2008	T.M.LEUNG LS/W (HK & K)
B	27-06-08	Additional Tree Survey at Southward Portion of Yuen Long Highway	(SIGNED) T.M.LEUNG LS/W (HK & K)
A	14-02-08	Additional Tree Survey at Interchange	(SIGNED) T.M.LEUNG LS/W (HK & K)

REVISION

	name	date
surveyed	K.L.CHENG & W.Y.KAN (SIGNED)	Jul-07
designed		
drawn	K.L.CHENG (SIGNED)	Sep-07
traced		
checked	W.M.LING (SIGNED)	14-09-07

approved

(SIGNED) 14-09-07
T.M.LEUNG LS / W (HK & K)

contract no.

file no.

project no.

contract

IMPROVEMENT TO POK OI INTERCHANGE

drawing title

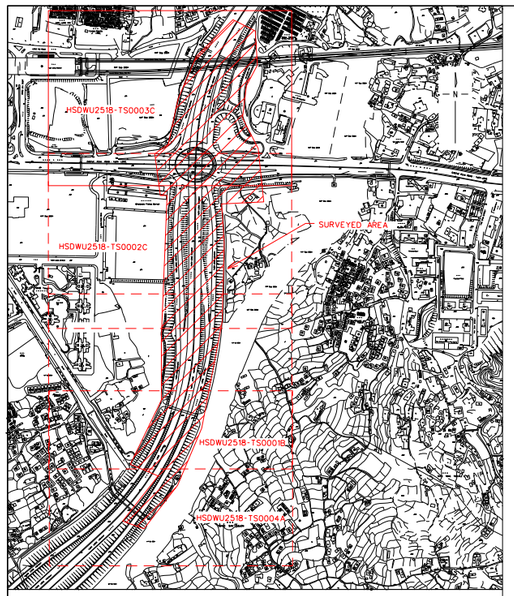
TREE SURVEY

drawing no.
HSDWU2518-TS0002C
(SHEET 3 OF 4)

scale
1:500

office
SURVEY SECTION / W(HK & K)

HIGHWAYS DEPARTMENT HONG KONG



KEY PLAN SCALE 1:5000

822050 E 822100 E 822150 E 822200 E 822250 E 822300 E

834200 N 834150 N 834100 N 834050 N 834000 N 833950 N

— N —

Scale 1 : 500

Metres 10 8 6 4 2 0 10 20 30 40 50 60 70 80 90 100 Metres

NOTES :

1. ALL LEVELS ARE IN METRES ABOVE H.K.P.D.
2. CO-ORDINATES ARE OF HONG KONG 1980 GRID SYSTEM.
3. CO-ORDINATES OF LOWER LEFT SHEET CORNER: N: 833900± E: 821906± ROT. ANGLE : 0
4. MODEL : HSD-WU2518-P-BS01C-E.DGN
5. DRAWING FILE : HSDWU2518-TS0003C.DGN
6. JOB NO. : WU/0226/08
7. COMP. FOLDER : WU2518 III
8. THIS DRAWING SUPERSEDES HSDWU2518-TS0003B AND SHOULD BE READ IN CONJUNCTION WITH HSDWU2518-TS0001B, HSDWU2518-TS0002C & HSDWU2518-TS0004A.
9. 8.16 DENOTES LEVEL SHOWN UNDERNEATH THE SUBWAY.

LEGEND

Big sign board		Bench	
Bollard		Bench mark	
Bus shelter		Cable duct	
Catch pit		Electric pole	
Elect. transformer		Fence/Railing	
Fire hydrant		Gate	
Gas pipe		Grating	
Gully		Grove	
Hoarding		Hedge	
High water mark		Inspection chamber	
Letter box		Lamp post	
Milestone		Manhole storm water	
Manhole foul water		Manhole	
Monument/Sculpture		Manhole telephone	
Manhole waterworks		Piezometer	
Step channel		Soil nail	
Sign pole		Stream	
Small shrine		Septic tank	
Tree		Traffic light control box	
Traffic light		Telephone kiosk	
Valve		Telephone pole	
Valve fire		Urn	
Valve waterworks		Valve gas	
Wall retaining		Wall	
Water main		Wall	
Control station		Slope	
Street Name Plate			

no.	date	description	initial
C		Additional Tree Survey on 23-09-2008	T.M.LEUNG LS/W (HK & K)
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REVISION

	name	date
surveyed	K.L.CHENG & W.Y.KAN (SIGNED)	Jul-07
designed		
drawn	K.L.CHENG (SIGNED)	Sep-07
traced		
checked	W.M.LING (SIGNED)	14-09-07

approved

(SIGNED) 14-09-07
T.M.LEUNG LS / W (HK & K)

contract no.

file no.

project no.

contract

IMPROVEMENT TO POK OI INTERCHANGE

drawing title

TREE SURVEY

drawing no.
HSDWU2518-TS0003C
(SHEET 4 OF 4)

scale
1:500

office
SURVEY SECTION / W(HK & K)

HIGHWAYS DEPARTMENT HONG KONG

Annex F

Implementation Schedule

F1 IMPLEMENTATION SCHEDULE

F1.1 INTRODUCTION

This *Annex* summarises all the mitigation measures recommended in the *EIA Study* and presents them in the form of an Implementation Schedule in accordance with the requirements of Section 3.4.7.3 of the *EIA Study Brief No. ESB-166/2007*.

The Implementation Schedule has the following column headings:

EIA Ref

This denotes the section number or reference from the EIA Report Main text.

EM&A Ref

This denotes the sequential number of each of the recommended mitigation measures specified in the Implementation Schedule.

Recommended Mitigation Measures

This denotes the recommended mitigation measures, courses of action or subsequent deliverables that are to be adopted, undertaken or delivered to avoid, reduce or ameliorate predicted environmental impacts.

Objectives of the Recommended Measure and Main Concerns to be Addressed

This denotes the objectives of the recommended mitigation measures and main concerns to address.

Location

This indicates the spatial area in which the recommended mitigation measures are to be implemented together with details of the programming or timing of their implementation.

Who to Implement the Measure

This denotes where the responsibility lies for the implementation of the recommended mitigation measures.

When to Implement the Measure

This denotes the stage at which the recommended mitigation measures are to be implemented either during the Design, Construction or Operation phases.

What Requirements or Standards for the Measure to Achieve

This defines the controlling legislation that is required to be complied with.

Table F1.1a Implementation Schedule

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1) D C O	What requirements or standards for the measure to achieve?
Noise – Construction Phase							
4.7.1	N1	Adopt good site practice listed below: • Only well-maintained plant will be operated on-site and plant should be serviced regularly during the construction program; • Silencers or mufflers on construction equipment should be utilized and will be properly maintained during the construction program; • Mobile plant, if any, will be sited as far from NSRs as possible; • Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities. • Noisy construction activities, including piling,	To minimise potential construction noise nuisance.	All construction work areas	Contractor	✓	*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*

(1) D=Design; C=Construction; and O=Operation

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1) D	C	O	What requirements or standards for the measure to achieve?
		excavation and earth-breaking works, will be carried out outside the examination periods of Kwong Ming Ying Loi School.							
4.7.1	N2	Use of quiet powered mechanical equipment	To minimise potential construction noise nuisance.	All construction work areas	Contractor		✓		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
4.7.1	N3	Use of acoustic enclosure	To minimise potential construction noise nuisance.	All construction work areas	Contractor		✓		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
4.7.1	N4	Adoption of Movable Noise Barriers. The barrier material shall have a surface mass of not less than 7 kg/m^2 on skid footing.	To minimise potential construction noise nuisance.	At locations shown in *Figure 4.7* of the *EIA Report*	Contractor		✓		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
4.9.1	N5	Weekly noise monitoring	Ensure noise generated from the Project meets the criteria	At monitoring locations shown in *Figure 4.1* of the *EM&A Manual*	ET		✓		*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
Noise – Operation Phase									
4.9.2	N6	Traffic noise monitoring – twice at 6-month intervals within the first year upon completion of the Project.	Ensure noise generated from the Project meets the criteria	At monitoring locations shown in *Figure 4.1* of the *EM&A Manual*	ET			✓	*Noise Control Ordinance (NCO) and EIAO-TM Annex 5*
Air Quality – Construction Phase									
5.7.1	AQ1	Adopt good site practices and dust control measures	To minimise potential	All construction work	Contractor		✓		*Air Pollution Control*

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		listed below: • Any stockpile of dusty material will be covered entirely with impervious sheeting or sprayed with water so as to maintain the entire surface wet; • Where a site boundary adjoins a road, or other area accessible to the public, hoarding shall be provided a long the entire length of that portion of the site boundary; • All dusty materials will be sprayed with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet; • Where a vehicle leaving the works site is carrying a load of dusty materials, the load will be covered entirely with clean impervious sheeting to ensure that the dusty materials do not leak from the vehicles; • The working area of any demolition, excavation or earth moving operation will be sprayed with water or dust suppression chemicals immediately after the operation so as to maintain the entire surface wet; • The construction plants will be regularly maintained to avoid the emissions of black smoke; and • The construction plants will be switched off when not in use to avoid gaseous emissions.	dust nuisance	areas			*(Construction Dust) Regulations* *HKAQO and EIAO-TM Annex 4*
Water Quality – Construction Phase							

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6.6.1	WQ1	<u>Construction Site Run-off and Drainage</u>					
		• Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from runoff to meet the requirements of the WPCO-TM standard. The design of silt removal facilities should be based on the guidelines provided in *ProPECC PN 1/94*. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms.	To minimise potential water quality impacts arising from the construction works	All construction work areas	Contractor	✓	*ProPECC PN 1/94* *Water Pollution Control Ordinance (WPCO)* *EIAO-TM Annex 6*
		• Careful programming of the works to minimise surface excavations for the Project during the wet season. If excavation of soil cannot be avoided during the wet season, exposed slope surfaces should be covered by tarpaulin or other means. Other measures that need to be implemented before, during, and after rainstorms are summarised in *ProPECC PN 1/94*. • Exposed soil surfaces should be protected by paving or fill material as soon as possible to reduce the potential of soil erosion. • Open stockpiles of construction materials or construction wastes on-site of more than 50m3 should be covered with tarpaulin or similar fabric during rainstorms. These materials should not be placed near water courses. • A Drainage Management Plan (DMP) should be					

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		prepared by the Contractor and submitted to EPD before the commencement of any construction works to detail the procedures for control of construction site runoff. No site run-off or drainage should be allowed enter the nearby WSRs.					
6.6.1	WQ2	<u>General Construction Activities</u>					
		• Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering the nearby WSRs. Stockpiles of cement and other construction materials should be kept covered when not being used.	To minimise potential water quality impacts arising from the construction works	All construction work areas	Contractor	✓	*ProPECC PN 1/94* *Water Pollution Control Ordinance (WPCO)* *EIAO-TM Annex 6*
		• Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest. The bund should be drained of rainwater after a rain event.					
6.6.1	WQ3	<u>Sewage generated from On-site Workforce</u>	To minimise potential water quality impacts arising from the construction works	All construction work areas	Contractor	✓	*ProPECC PN 1/94* *Water Pollution Control Ordinance (WPCO)* *EIAO-TM Annex 6*
		• Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site. A licensed contractor would be responsible for appropriate disposal and regular maintenance of these facilities.					
6.6.1	WQ4	<u>Piling Activities</u>					
			To minimise potential	All construction work			*ProPECC PN 1/94*

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		• Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from groundwater to meet the requirements of the *WPCO-TM* standard. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected and maintained on a regular basis to ensure proper and efficient operation at all times and particularly during rainstorms.	water quality impacts arising from the construction works	areas	Contractor		✓		*Water Pollution Control Ordinance (WPCO)* *EIAO-TM Annex 6*
Water Quality – Operation Phase									
6.6.2	WQ5	Standard HyD road gullies will be installed along the road drainage system to trap any silt and grit in the first flush of runoff.	To minimise potential water quality impacts on surface water.	All construction work areas	HyD/ Contractor	✓	✓	✓	*WPCO* *Technical Memorandum Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Inshore Waters (Water-TM)* *EIAO-TM Annex 6*
Waste Management – Construction Phase									
7.5.1	WM1	All the necessary waste disposal permits are obtained prior to the commencement of construction work.	To ensure compliance with relevant statutory requirements	Before construction works commence	Contractor	✓	✓		*WDO*
7.5.1	WM2	<u>Management of Waste Disposal</u> The construction contractor will open a billing account	To ensure that adverse	All construction work	Contractor		✓		*WDO*

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		with the EPD. Every construction waste or public fill load to be transferred to the Government waste disposal facilities such as public fill reception facilities, sorting facilities, landfills will required a valid "chit" which contains the information of the account holder to facilitate waste transaction recording and billing to the waste producer. A trip-ticket system will also be established to monitor the disposal of construction waste at the Landfill and to control fly-tipping. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor. A recording system for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established.	environmental impacts are prevented	areas					*Waste Disposal (Charges for Disposal of Construction Waste) Regulation;* *Works Bureau Technical Circular No.31/2004; and* *Annex 5 and Annex 6 of Appendix G of ETWBTC No. 19/2005)*
7.5.1	WM3	<u>Measures for the Reduction of Construction Waste Generation</u>							
		Inert and non-inert construction waste will be segregated and stored in different containers or skips to facilitate reuse or recycling of the inert waste and proper disposal of the non-inert construction waste. Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.	To reduce construction waste generation	All construction work areas	Contractor		✓		*WDO* *EIAO-TM Annex 7*
7.5.2	WM4	<u>Management of Waste Disposal</u>							
		The construction contractor will open a billing account with the EPD. Every construction waste or public fill load to be transferred to the Tuen Mun Area 38 Public Filling Area or other approved designated public fill	To reduce construction waste generation	All construction work areas	Contractor		✓		*WDO* *Waste Disposal (Charges for Disposal of Construction*

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1) D	C	O	What requirements or standards for the measure to achieve?
		facilities will require a valid "chit". A trip-ticket system will also be established to monitor the disposal of construction waste at the Tuen Mun Area 38 Public Filling Area or other approved designated public fill facilities, and to control fly-tipping.							*Waste) Regulation & Works Bureau Technical Circular No.31/2004*
7.5.3	WM5	<u>Chemical Waste</u>							
		The construction contractor will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the *Code of Practice on the Packaging, Handling and Storage of Chemical Wastes.*	To ensure proper handling of chemical waste	All construction work areas	Contractor		✓		*WDO* *Code of Practice on the Packaging, Handling and Storage of Chemical Wastes*
7.5.4	WM6	<u>Staff Training</u>							
		At the commencement of the construction works, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including waste reduction, reuse and recycling.	To ensure that adverse environmental impacts are prevented	All construction work areas	ET		✓		-
7.8	WM7	<u>Environmental Monitoring & Audit Requirements</u>							
		Monthly audits of the waste management practices will be carried out during the construction phase to determine if wastes are being managed in accordance with the good site practices described in this *EIA Report*. The audits examine all aspects of waste management including waste generation, storage, recycling, transport and disposal.	To ensure that adverse environmental impacts are prevented	All construction work areas	Contractor		✓		*WDO*
Landscape and Visual – Construction Phase									

EIA Ref.	EM&A Ref	Environmental Protection Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)			What requirements or standards for the measure to achieve?
						D	C	O	
8.7.11	LV1	*LMM 5 – Early Planting Works.* Where technically feasible, new plantings are to be installed as early as possible during the construction works.	To reduce construction impacts on Landscape	Where technically feasible	Contractor	✓	✓		*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*
8.7.11	LV2	*LMM 6 – Site hoardings to be compatible with the surrounding environment.* Where possible site hoardings to be coloured to complement the surrounding areas. Colours such as green and light brown are recommended.	To reduce construction impacts on Landscape	All construction work areas	Contractor		✓		*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*
Landscape and Visual –Operation Phase									
8.7.11	LV3	*Cultivation of areas compacted during construction.* Areas compacted during the construction phase that are not required during the operation phase, are to be cultivated to a depth of up to 300mm in accordance with the future Landscape Specification.	To assist in establishment of vegetation to reduce landscape impacts	All construction work areas where new plantings are to be installed	Contractor/ HyD	✓	✓	✓	*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*
8.7.11	LV4	*Soil stabilisation and planting.* During the design phase, a soil stabilisation and embankment planting strategy will be developed to ensure that land affected by slope excavation can be replanted. Soil preparation and the selection and provision of suitable growing medium is to be completed in accordance with the relevant best practice guidelines.	To reduce landscape impacts	All construction work areas in slope areas	Contractor/ HyD	✓	✓	✓	*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*
8.7.11	LV5	*Tree and Shrub Planting.* All planting of trees and shrubs is to be carried out in accordance with the relevant best practice guidelines. Plant densities are to be provided in future detailed design documents and are to be selected so as to achieve a finished landscape that matches the surrounding, undisturbed, equivalent landscape types.	To reduce landscape impacts	All available following construction	Contractor/ HyD	✓	✓	✓	*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*

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						D	C	O	
8.7.11	LV6	*LMM 4 - Relocation.* Landscape Resources of value to be re-located where practically feasible.	To reduce landscape impacts and retain valuable LRs	As required	Contractor/ HyD	✓	✓	✓	*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*
8.8.9	LV7	*Design of Structures.* Built structures, in particular noise barriers that will be setback and reprovisioned will be utilise appropriate designs to complement the surrounding landscape. Materials and finishes will also be considered during detailed design.	To reduce visual impacts	Noise barriers	Contractor/ HyD	✓	✓	✓	*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*
8.8.9	LV8	*Design of noise barriers*. The 2.5m high vertical noise barrier for the planned schools will be in the form of concrete structure installed with barrier panels to align with the existing provision in the vicinity and to integrate into the landscape.	To reduce visual impacts	Noise barriers	Contractor/ HyD	✓	✓	✓	*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*
8.8.9	LV9	*Plantings* In addition to the landscape mitigation plantings proposed, appropriate new plantings will be installed as appropriate to help integrate the new structures into the surrounding landscape.	To reduce visual impacts	All construction work areas	Contractor/ HyD	✓	✓	✓	*EIAO-TM Annexes 10, 18, ETWB TCW 2/2004, ETWB TCW 3/2006*