

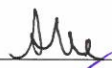
**Environmental Protection Department**

EP-324/2008/E

**Widening of Fanling Highway / Faling Highway  
Between Island House Interchange and Fanling  
Stage 2  
(between Tai Hang and Wo Hop Shek Interchange)**

**Operational Phase  
Noise Monitoring Proposal**

[11/2020]

	Name	Signature
Prepared & Checked:	Alex Chan	
Reviewed & Approved:	Y W Fung	

Version:	Rev. 4	Date: 16 November 2020
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**Disclaimer**

This proposal is prepared for Environmental Protection Department and is given for its sole benefit in relation to and pursuant to Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange and may not be disclosed to, quoted to or relied upon by any person other than Environmental Protection Department without our prior written consent. No person (other than Environmental Protection Department) into whose possession a copy of this report comes may rely on this report without our express written consent and Environmental Protection Department may not rely on it for any purpose other than as described above.

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Attn: **Mr. James Penny**

**Your Reference**

**Our Reference**  
AFK/EC/ST/cy/T329380/2  
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**Environmental Monitoring and Audit (EM&A) for Widening of Tolo  
Highway/Fanling Highway between Island House Interchange and Fanling  
Stage 2 (between Tai Hang to Wo Hop Shek Interchange)  
Environmental Permit No. EP-324/2008/E  
Operational Phase Noise Monitoring Proposal for the portion of Stage 2**

16 November 2020  
By Fax (2805 5028) & Hand

We refer to the revised Operational Phase Noise Monitoring Proposal received on 16  
November 2020 submitted by ET via email. We confirm we have no comment.

Yours faithfully  
for MOTT MACDONALD HONG KONG LIMITED



Steven Tang  
Independent Environmental Checker

c.c.  
HyD  
AECOM

Mr. Ricky Yeung  
Mr. Y W Fung

By Fax (2714 5198)  
By Fax (3922 9797)

**Hyder-Arup-Black & Veatch Joint Venture**

23 October 2020

**By Hand**

Our Ref: (HY/2012/06)/M45/100/(24)  
Your Ref:

AECOM  
12/F, Grand Central Plaza, Tower 2,  
138 Shatin Rural Committee Road,  
Shatin,  
Hong Kong

For the attention of Mr. Y W Fung (Environmental Team Leader)

Dear Sirs,

**Contract No. HY/2012/06**  
**Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange**  
**Operational Phase Noise Monitoring Proposal for the Portion**  
**of Stage 2 Works under Contract No. HY/2012/06**

In accordance with the updated EM&A Manual Clause 9.5.2, I agreed on your Operational Phase Noise Monitoring Proposal Rev. 3 submitted through email dated 22 October 2020.

Yours faithfully  
For and on behalf of Hyder-Arup-Black & Veatch Joint Venture



Edwin K F Chung  
Engineer's Representative

cc	HyD/MW	Mr. Ricky Yeung
	HABVJV –	The Engineer – Mr. W J Searle
	HABVJV – Arup	Mr. K Y Leung
	HABVJV – Hyder	Mr. James Penny / Mr. James Kwok / Mr. Kelvin Au
	IEC	Mr. Steven Tang
	CSHK	Mr. Kenny Poon

EC/RH/BE/kp  
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(File: HY/2012/06/O-10343)

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## 1. INTRODUCTION

### Background

- 1.1. Tolo Highway and Fanling Highway are expressways in the North East New Territories connecting Sha Tin, Tai Po and Fanling. These highways form a vital part of the strategic Route 9, which links other major strategic routes to Shenzhen. Before 2009, this section of Route 9 was dual 3-lane carriageway. However, at several major interchanges along this section of Route 9, the highway was only dual-2 lane. Severe congestion was a frequent occurrence during peak periods, particularly in the Kowloon bound direction.
- 1.2. The objective of “Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling” (the Project) is to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic.
- 1.3. The Project is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is governed by an Environmental Permit (EP-324/2008)(EP) issued by EPD on 23 December 2008. Subsequently, the EPD issued Variation of Environmental Permits of EP-324/2008/A, EP-324/2008/B, EP-324/2008/C and EP-324/2008/D on 31 January 2012, 17 March 2014, 27 March 2015 and 27 August 2015 respectively. The current valid VEP was applied on 29 December 2016 and the VEP (EP-324/2008/E) was subsequently granted on 26 January 2017.
- 1.4. The construction works for this Project are delivered in 2 stages i.e. Stage 1 (between Island House Interchange and Tai Hang) and Stage 2 (between Tai Hang and Wo Hop Shek Interchange), geographical area of which is all under EP-324/2008/E:

### Stage 1

- 1.5. The construction works for Stage 1 of the Project were implemented under two works contracts. Contract 1 covered the section of Tolo Highway between Island House Interchange and Ma Wo. Contract 2 covered the section of Tolo Highway between Ma Wo and Tai Hang. The construction works of Stage 1 were commenced on 23 November 2009 and substantially completed on 30 September 2014.

### Stage 2

- 1.6. The construction works for Stage 2 of the Project were implemented under three works contracts, including (i) Contract No. HY/2012/06 “Widening of Fanling Highway – Tai Hang to Wo Hop Shek Interchange”, (ii) Contract No. CV/2012/09, which is a portion entrusted to Civil Engineering and Development Department (CEDD) under “Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works – Contract 3”, and (iii) Contract No. 02/HY/2015 “Provision of Bus-Bus Interchange on Fanling Highway Kowloon Bound”, which is an additional contract works for carrying the management and maintenance of roads in Tai Po and North Districts under the Project.
- 1.7. Hyder-Arup-Black and Veatch Joint Venture (HABVJV) are appointed by Highways Department (HyD) as the consultants for the design and construction assignment for Contract No. HY/2012/06 and Contactor No. 02/HY/2015. China State Construction Engineering (Hong Kong) Ltd. (CSHK) and Chiu Hing Construction & Transportation Company Limited (Chiu Hing) were commissioned as the Contractors of Contract No. HY/2012/06 and Contract No. 02/HY/2015 respectively. The construction works of Works Order Nos. CB128520-5 and CB128519-0 under Contract No. 02/HY/2015 have been completed on 23 May 2018.
- 1.8. Contract No. CV/2012/09, a portion of Stage 2 works of Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling is entrusted to CEDD under the project Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Works. AECOM Asia Co Ltd was appointed by the CEDD as the consultant for the design and construction assignment for the Contract No. CV/2012/09. Chun Wo Construction & Engineering Co Ltd was commissioned by CEDD as the Contractor of Contract CV/2012/09.

- 1.9. AECOM Asia Co. Ltd. was commissioned as the Environmental Teams (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for the Contract No. 02/HY/2015 and Contract No. HY/2012/06. Meinhardt Infrastructure & Environment Ltd. was commissioned as the ET to undertake the EM&A works for the Contract No. CV/2012/09. Mott MacDonald Hong Kong Ltd. acts as the Independent Environmental Checker (IEC) for both three contracts of the Project. Highways Department agreed that AECOM Asia Co. Ltd. as ET of HY/2012/06 would carry out the Operational Phase Noise Monitoring for the Project.

## 2 PURPOSE OF OPERATIONAL PHASE NOISE MONITORING

- 2.1 According to the Section 9.2.1 of the updated Environmental Monitoring and Audit Manual (the updated EM&A Manual) approved in October 2013, an operational phase noise monitoring shall be carried out during operational phase of Stage2 of the Project. The purpose of the operational phase noise monitoring is to verify traffic noise prediction and effectiveness of the proposed noise mitigation measure in Environmental Review Report (ERR) approved in November 2008.

### Stage 1

- 2.2 Noise monitoring during the operational phase of Stage 1 of the Project was proposed in January 2016 and carried in March 2016. The measured operational phase noise levels were compared with ERR predicted noise level in year 2028. All of the measured noise level and predicted noise level in Stage 1 were within the criterion of 70 dB(A). The measured noise level and the predicted noise level for each of the NSRs were considered comparable with a reasonable deviation. Therefore, the noise mitigation measures for the Project under Stage 1 were considered implemented effectively.

### Stage 2

- 2.3 Noise monitoring during the operational phase of Stage 2 of the Project shall be carried out at NSRs which are located along Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling and in the vicinity of the recommended direct technical remedies.
- 2.4 This is the Operational Phase Noise Monitoring Proposal prepared by AECOM Asia Co. Ltd. (the ET) for Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling (Stage 2), as covered by three contracts, namely Contact No. HY/2012/06, CV/2012/09 and 02/HY/2015. This report outlines methodology, equipment, monitoring locations, criteria and protocols of the operational phase noise monitoring.

### **3 REQUIREMENT OF OPERATIONAL PHASE NOISE MONITORING**

#### **Introduction**

- 3.1 According to Section 9.2.1 of updated EM&A Manual, the operational phase noise shall be conducted during operational phase of Stage2 of the Project.
- 3.2 The traffic flow, vehicle speed and percentage of heavy vehicles obtained during the traffic noise measurement will be applied to the Road Noise model adopted in the ERR to obtain the predicted traffic noise level in the current situation for comparison with the measured noise levels.
- 3.3 According to the updated EM&A Manual, this monitoring shall verify the traffic noise prediction and effectiveness of the proposed noise mitigation measures of the manual.

#### **Monitoring Frequency, Parameter and Duration**

- 3.4 Noise level will be measured in terms of  $L_{10}$  (1.5 hours) for the morning and evening peak traffic flows on normal weekdays as required by the updated EM&A Manual.

#### **Monitoring Equipment**

- 3.5 According to the updated EM&A Manual, monitoring equipment to be used in operational phase noise monitoring shall be the same as that specified in Section 3.3 of the updated EM&A Manual. Integrating Sound Level Meters will be used for noise monitoring. They are Type 1 sound level meters capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level ( $L_{eq}$ ) and percentile sound pressure level ( $L_x$ ). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Also, a portable electronic wind speed indicator capable of measuring wind speed in m/s will be used to check the wind speed.
- 3.6 The ET Leader is responsible for the provision and maintenance of the monitoring equipment. The ET Leader will ensure that sufficient noise measuring equipment and associated instrumentation are available for carrying out the operational phase monitoring. All the equipment and associated instrumentation shall be clearly labelled, calibrated and well operated during operational phase noise monitoring.
- 3.7 Valid calibration certificates of the sound level meter and acoustic calibrator will be provided in operation phase noise monitoring report, which will be submitted to EPD one month after the monitoring event.

#### **Monitoring Time**

- 3.8 As stipulated in the updated EM&A manual, noise levels shall be measured at morning and evening traffic peak hour on normal weekdays. According to the latest publication on traffic flow produced by Transport Department, The Annual Traffic Census 2019, peak hours on normal weekdays were 0700-0800 and 1800-1900 for the south bound; 0800-0900 and 1800-1900 for the north bound. The Annual Traffic Census 2019 are provided in Appendix B.

**Monitoring Date**

- 3.9 Highways Department will notify the EPD in writing at least one month before the date of commencement of the operational phase, tentative in December 2020. The operational phase noise monitoring will be performed within one month after the commencement of the operational phase.
- 3.10 After the construction phase, most of construction works will be finished with some outstanding works to be completed within the maintenance period (expected to be completed by March 2021). The remaining outstanding works are included landscape works, installation of direction signs, traffic signs and street furniture, catchment drainage system, resurfacing works and defect rectification. All the outstanding works are agreed by the Engineer's Representative (ER). All outstanding works are not in the vicinity of the operational phase noise monitoring station. The closest distance between any remaining outstanding work and the operational phase noise monitoring location is that between demolition works at Hong Lok Yuen and SR20(House No. 10A, 18<sup>th</sup> Street, Hong Lok Yuen), which is 310m apart.
- 3.11 Reviewed the outstanding works in the maintenance period, some works may require the use of Powered Mechanical Equipment (PME) for carrying the construction works. However, all carried construction works and used PMEs shall be complied with the requirement of Construction Noise Permits (CNP) for minimizing the noise impact. The contractor shall also comply with the Noise Control Ordinance (NCO) (Cap.400) during the maintenance period for ensuring no significant construction noise generated from the works. All outstanding works are considered as an insignificant environmental nuisance, no significant construction noise shall be expected after termination of the EM&A programme.
- 3.12 Based on the situation of maintenance period mentioned above, there will not have any construction work carried near the monitoring location on the monitoring day, and there would not have any significant construction noise is expected during the operational phase noise monitoring. Considering the distance between the remaining outstanding works and operational phase noise monitoring location, which is 310m, the construction noise is not expected to bring about significant impact to operational phase noise monitoring.
- 3.13 Two sets of monitoring will be performed during weekday of operational phase. The first monitoring will be performed from 07:30 to 09:00 (traffic peak hour in the morning) and the second monitoring will be performed from 18:00 to 19:30 (traffic peak hour in the evening).



### Monitoring Location

- 3.14 Monitoring location SR20 is set up as the proposed locations in accordance with the updated EM&A Manual. Noise Monitoring for both north-bound and south-bound of Fanling Highway will be conducted at the proposed monitoring location. Table 3.1 describes the details of the proposed monitoring location.

**Table 3.1 Noise Monitoring Location**

Location	Sensitive Receiver	Description	Monitoring Floor
House No. 10A, 18th Street, Hong Lok Yuen, near to south bound of Fanling Highway	SR20	Residential	2/F <sup>(1)(2)(3)</sup>

Note:

- (1) The operational phase noise levels at ground floor and second floor of Hong Lok Yuen 2, SR20 were predicted in Table 5.9 of ERR. The measured operational phase noise level will be compared to the noise level predicted in ERR. The operational phase noise monitoring shall be carried at either ground floor or second floor of SR20.
  - (2) After liaising with the management staff of Hong Lok Yuen, the ET is only allowed to enter the periphery of Hong Lok Yuen (outside the fence) to conduct the monitoring. In order to reduce the deviation due to the difference between the proposed location and the original location, the sound level meter will be installed at a height of 6 meters from ground, the height of sound level meter installed will be same as second floor.
  - (3) The original noise measurement location should be conducted in the façade condition, and the proposed noise monitoring will be conducted in the free field condition. For correcting measurement conditions difference between façade condition and free field condition, a façade effect correction (+2.5dB(A)) factor will be adopted to the measured noise level during noise level calculation.
- 3.15 The proposed equipment installation location and the detailed set-up of equipment are shown in Figure 1 and Figure 2 of Appendix A respectively.

### Monitoring Methodology

- 3.16 Noise measurements will be made in accordance with Section III of the “Calculation of Road Traffic Noise (CRTN), 1998”.
- 3.17 Noise level will be measured in terms of L10. Statistical results such as  $L_{eq}$  and  $L_{90}$  will also be obtained for reference.
- 3.18 According to Section 3.3.1 of the updated EM&A Manual, immediately prior to and following noise measurement at each monitoring location the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements will be accepted as valid only if the calibration level from before and after the noise measurement agree to within 1.0dB(A).
- 3.19 Major noise sources measured for 1.5 hours noise measurements will be recorded in the monitoring log sheet.
- 3.20 Noise monitoring will be cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.
- 3.21 1.5 hours road traffic count will be conducted during traffic noise monitoring. Road traffic data including average vehicle speeds, number of vehicles per hour and percentage of heavy vehicles for both north-bound and south-bound of Fanling Highway will be recorded at the time of noise measurement for the monitoring location. The road traffic count location and other details are summarized and shown in Table 3.2.

**Table 3.2 Road Traffic Count Details**

Noise Monitoring Location	Location where Road Traffic Count is carried out
House No. 10A, 18th Street, Hong Lok Yuen	Footbridge near Tai Hang Fu Sha Wai*

\*Remark: The locations where road traffic count will be carried out are not within the sensitive receivers. The proposed road traffic count map locations for these sensitive receivers are annexed in Appendix A.

3.22 As shown in Figure 3 of Appendix A, there is no slip road throughout the blue highlighted road section, so it should not have vehicle from sourced other roads. The traffic flow from Hong Lok Yuen to the Footbridge near Tai Hang Fu Sha Wai will not change during road traffic count. Thus, the road traffic data obtained from the Footbridge can also be used for Hong Lok Yuen.

3.23 Observations will be recorded when intrusive noise is unavoidable.

### Projected Noise Levels

3.24 The measured noise levels will be compared with the predicted noise levels by the application of appropriate corrections to normalise the predicted traffic conditions of a future year, which are the predicted levels proposed design with Traffic Forecast in year 2028.

3.25 The correction factor will be calculation as follows:

$$\text{Correction Factor} = 10\text{Log}\left(\frac{Q'}{Q}\right) + 33\text{Log}\left(\frac{V'+40+500/V'}{V+40+500/V}\right) + 10\text{Log}\left(\frac{1+5p'/V'}{1+5p/V}\right)$$

Where Q' is predicted traffic flow using the CRTN noise model

V' is predicted traffic speed using the CRTN noise model

p' is predicted percentage of heavy vehicle using the CRTN noise model

Q is measured traffic flow during the traffic noise monitoring event

V is measured traffic speed during the traffic noise monitoring event

p is measured percentage of heavy vehicle during the traffic noise monitoring event

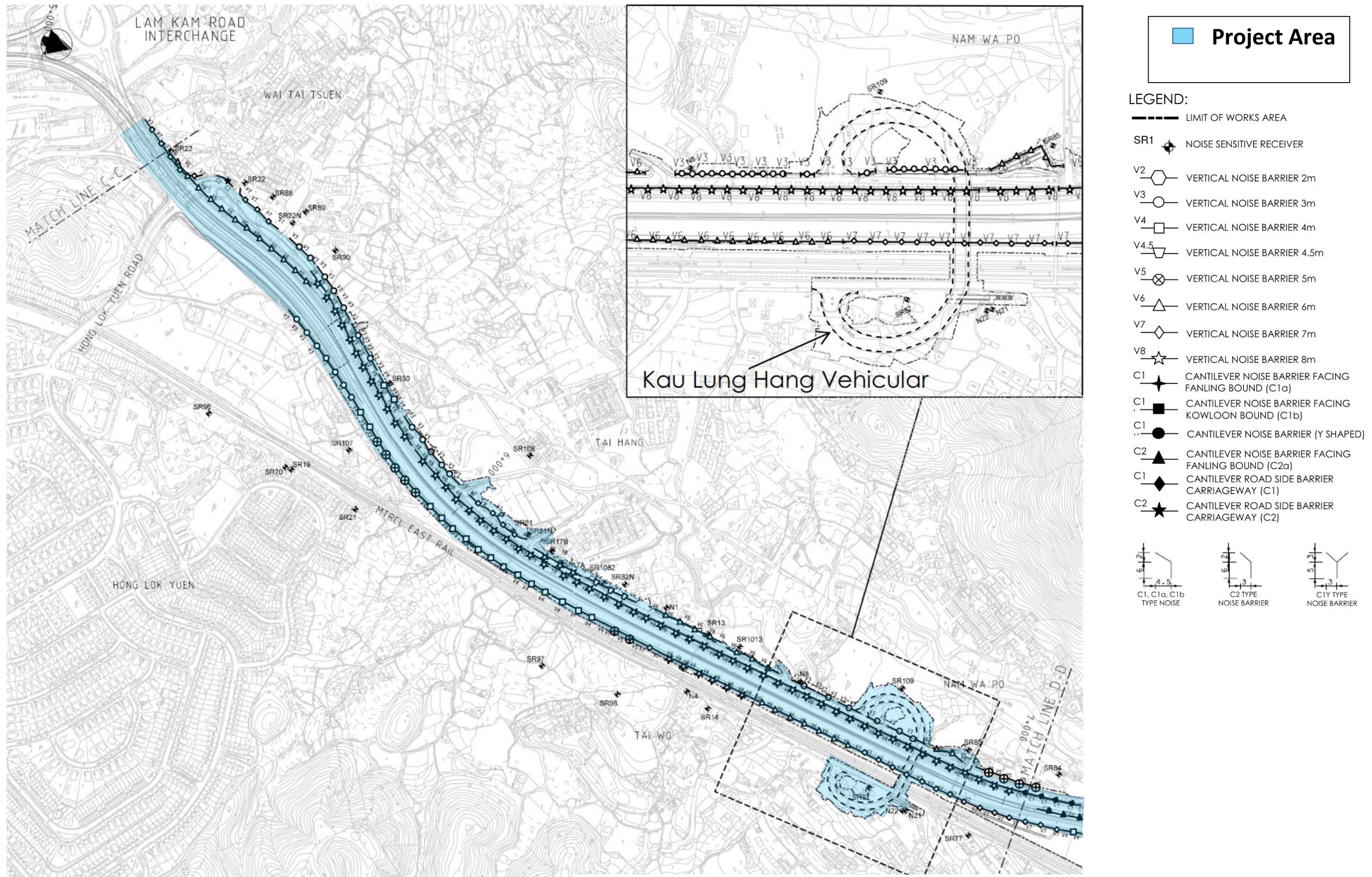
3.26 The monitoring result, analysis and the discrepancy (if any) will be reported to EPD one month after the operational phase noise monitoring event.

3.27 The traffic noise prediction and effectiveness of the proposed noise mitigation measures will be verified by this monitoring.

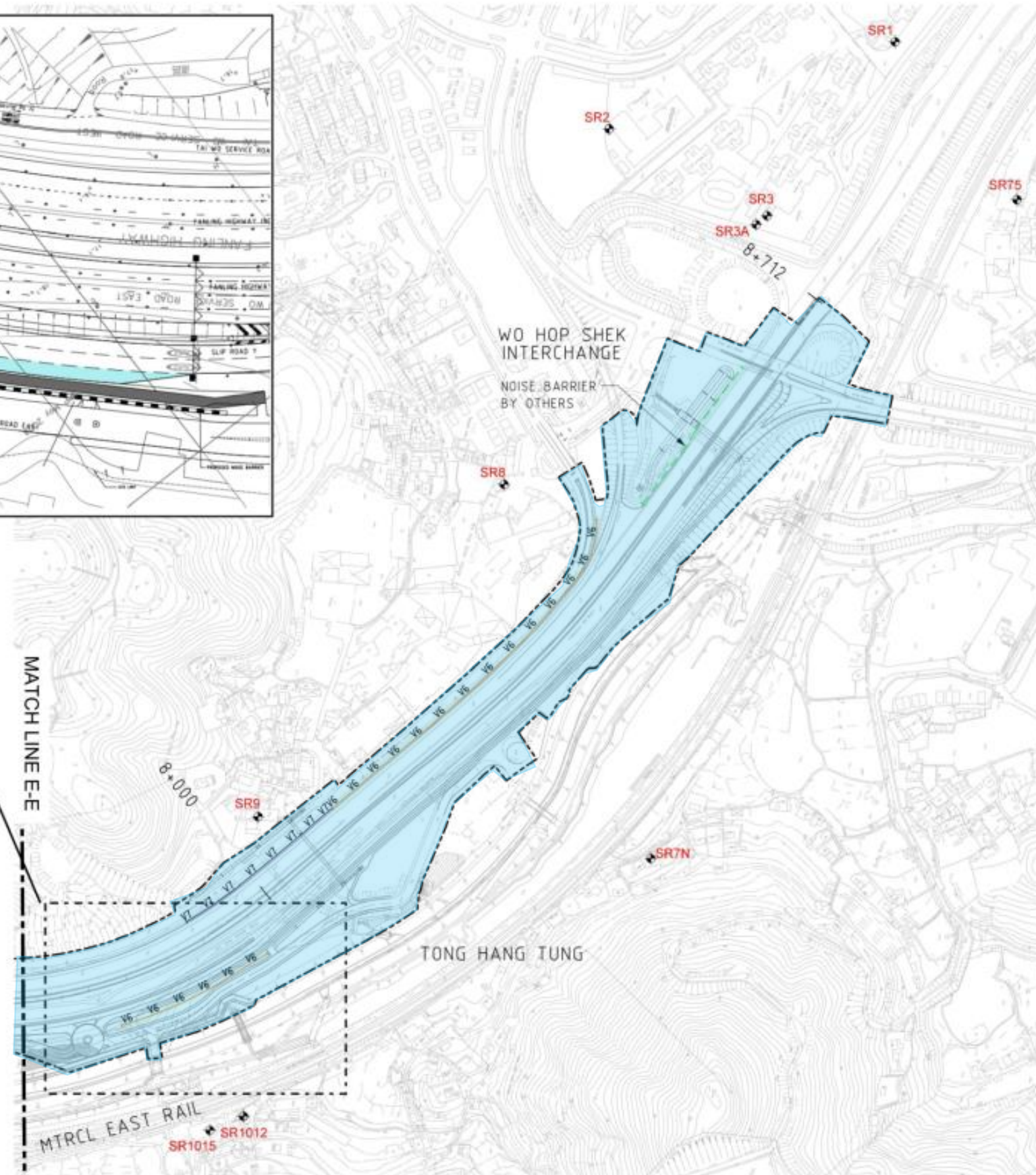
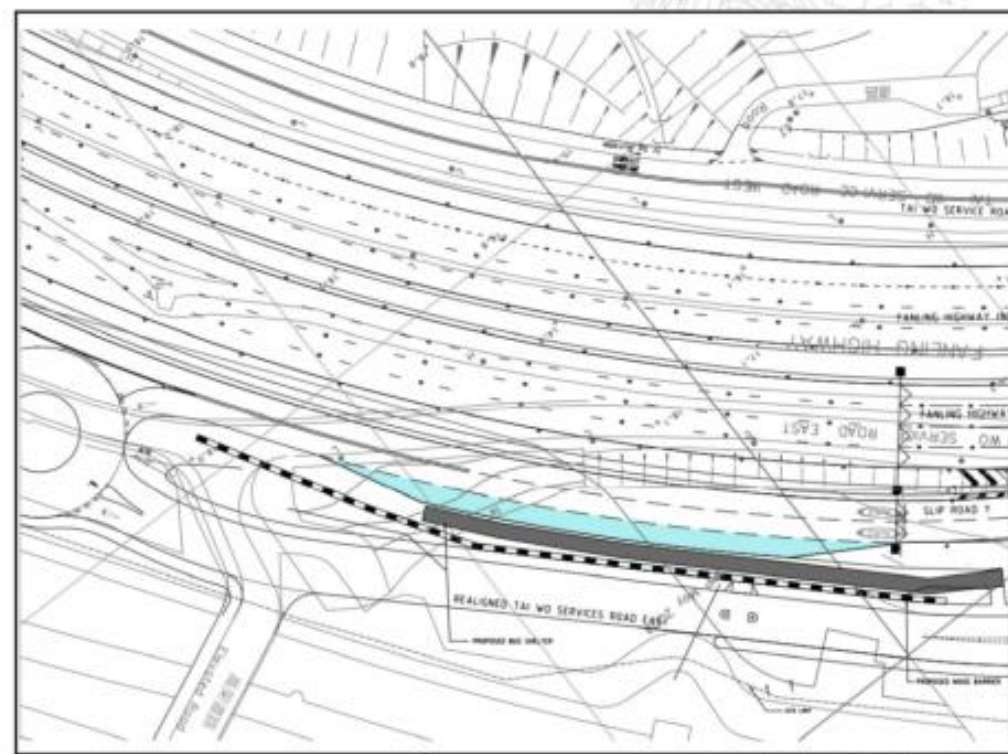
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**Figure**

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**Figure 1** Widening of to Tolo Highway / Fanling Highway between Island House Interchange and Fanling (Stage2)  
 Project Section from Tai Hang to Kowloon Hang Bridge



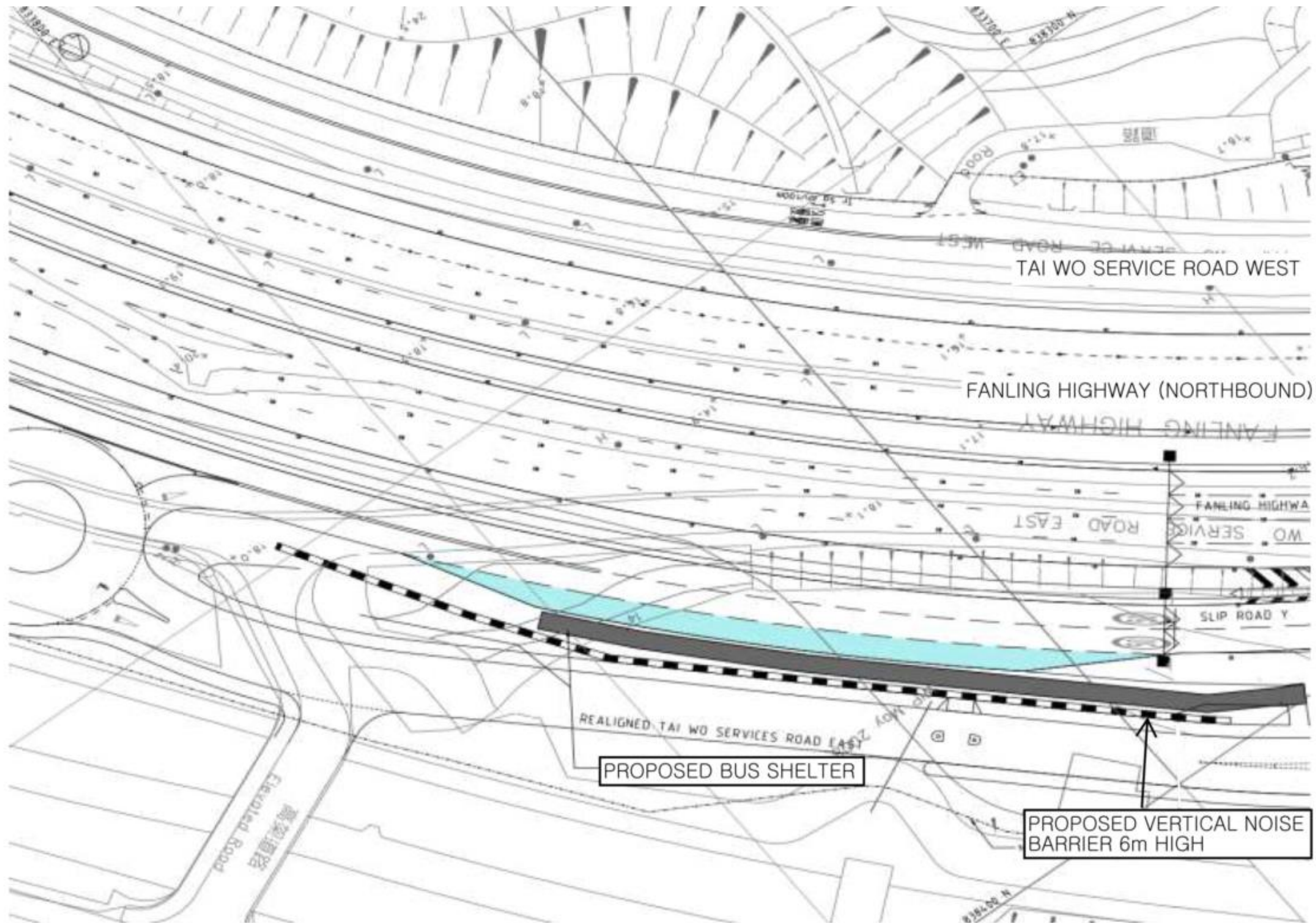
■ Project Area

- LEGEND :**
- LIMIT OF WORKS AREA
  - SR1 NOISE SENSITIVE RECEIVER
  - V2  PROPOSED VERTICAL NOISE BARRIER 2m HIGH
  - V3  PROPOSED VERTICAL NOISE BARRIER 3m HIGH
  - V4  PROPOSED VERTICAL NOISE BARRIER 4m HIGH
  - V5  PROPOSED VERTICAL NOISE BARRIER 5m HIGH
  - V6  PROPOSED VERTICAL NOISE BARRIER 6m HIGH
  - V7  PROPOSED VERTICAL NOISE BARRIER 7m HIGH
  - V8  PROPOSED VERTICAL NOISE BARRIER 8m HIGH
  - C1a  PROPOSED C1 NOISE BARRIER FACING FANLING BOUND
  - C1b  PROPOSED C1 NOISE BARRIER FACING KOWLOON BOUND
  - C1Y  PROPOSED C1 NOISE BARRIER (Y SHAPED)
  - C2a  PROPOSED C2 NOISE BARRIER FACING FANLING BOUND
  - C1  PROPOSED C1 ROAD SIDE BARRIER CARRIAGEWAY
  - C2  PROPOSED C2 ROAD SIDE BARRIER CARRIAGEWAY
- C1, C1a, C1b TYPE NOISE BARRIER

C2 NOISE BARRIER

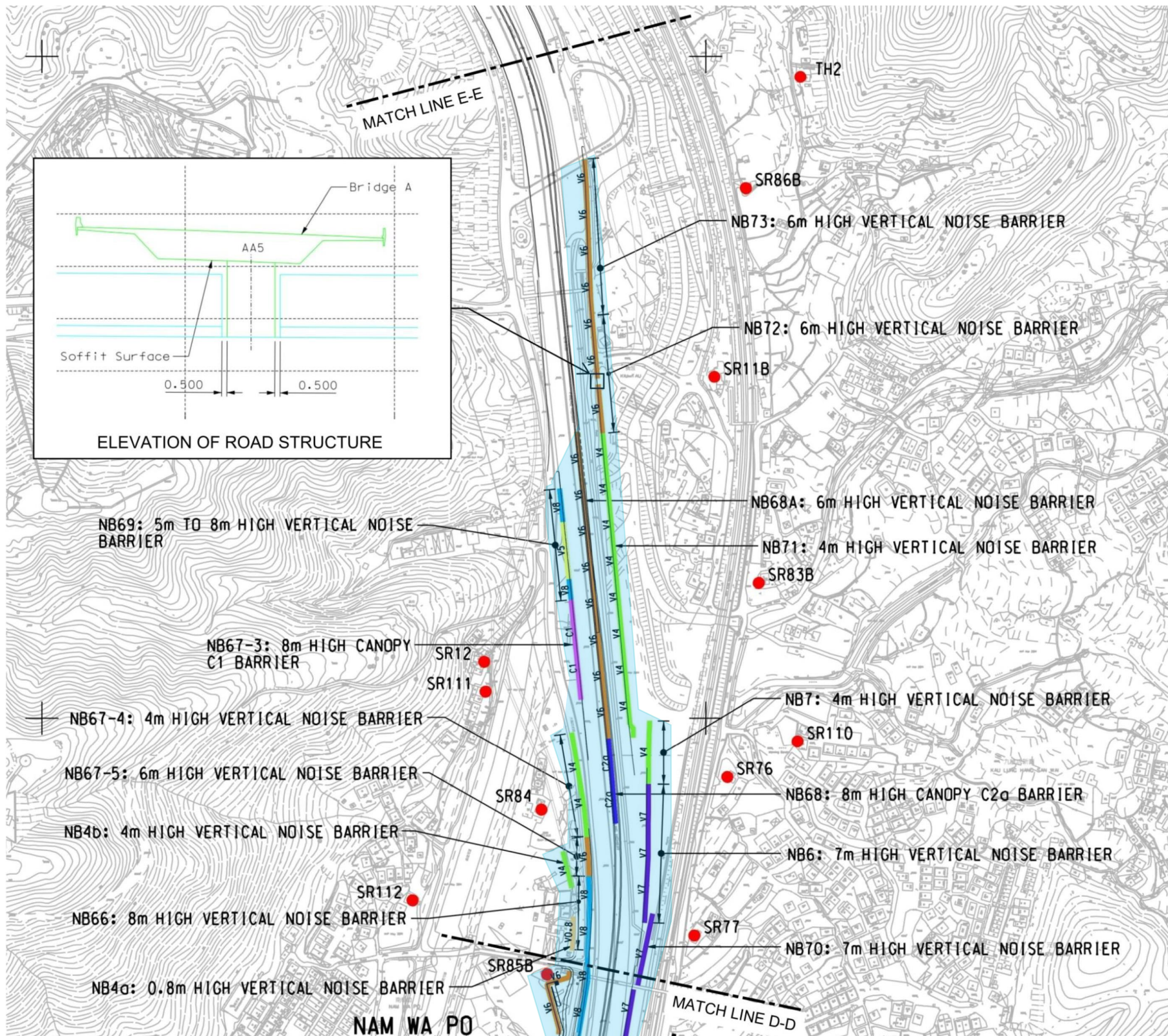
C1Y NOISE BARRIER

**Figure 2** Widening of to Tolo Highway / Fanling Highway between Island House Interchange and Fanling (Stage2) Project Section from Kiu Tai to Wo Hop Shek Interchange.



Project  
 Road Section

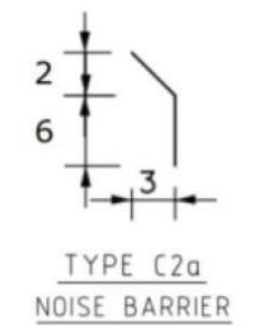
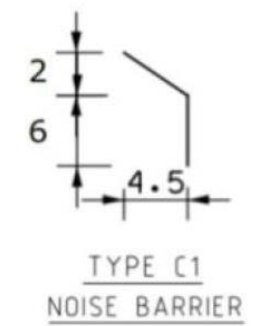
**Figure 3** Widening of to Tolo Highway / Fanling Highway between Island House Interchange and Fanling (Stage2) Bus-Bus Interchange station.



■ **Project Area**

**LEGEND:**

- **SR111** NOISE SENSITIVE RECEIVERS
- **V0.8** VERTICAL NOISE BARRIER 0.8m HIGH
- **V3** VERTICAL NOISE BARRIER 3m HIGH
- **V4** VERTICAL NOISE BARRIER 4m HIGH
- **V5** VERTICAL NOISE BARRIER 5m HIGH
- **V6** VERTICAL NOISE BARRIER 6m HIGH
- **V7** VERTICAL NOISE BARRIER 7m HIGH
- **V8** VERTICAL NOISE BARRIER 8m HIGH
- **C2a** C2a NOISE BARRIER FACING FANLING BOUND
- **C1** C1 NOISE BARRIER FACING FANLING BOUND



**Figure 4** Widening of to Tolo Highway / Fanling Highway between Island House Interchange and Fanling (Stage2) Liantang/Heung Yuen Wai Boundary Control Point Site Formation and Infrastructure Woks

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**APPENDIX A**

**Proposed Equipment Installation Locations and Detailed  
Set-ups of Equipment**

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**Hong Lok Yuen SR20**

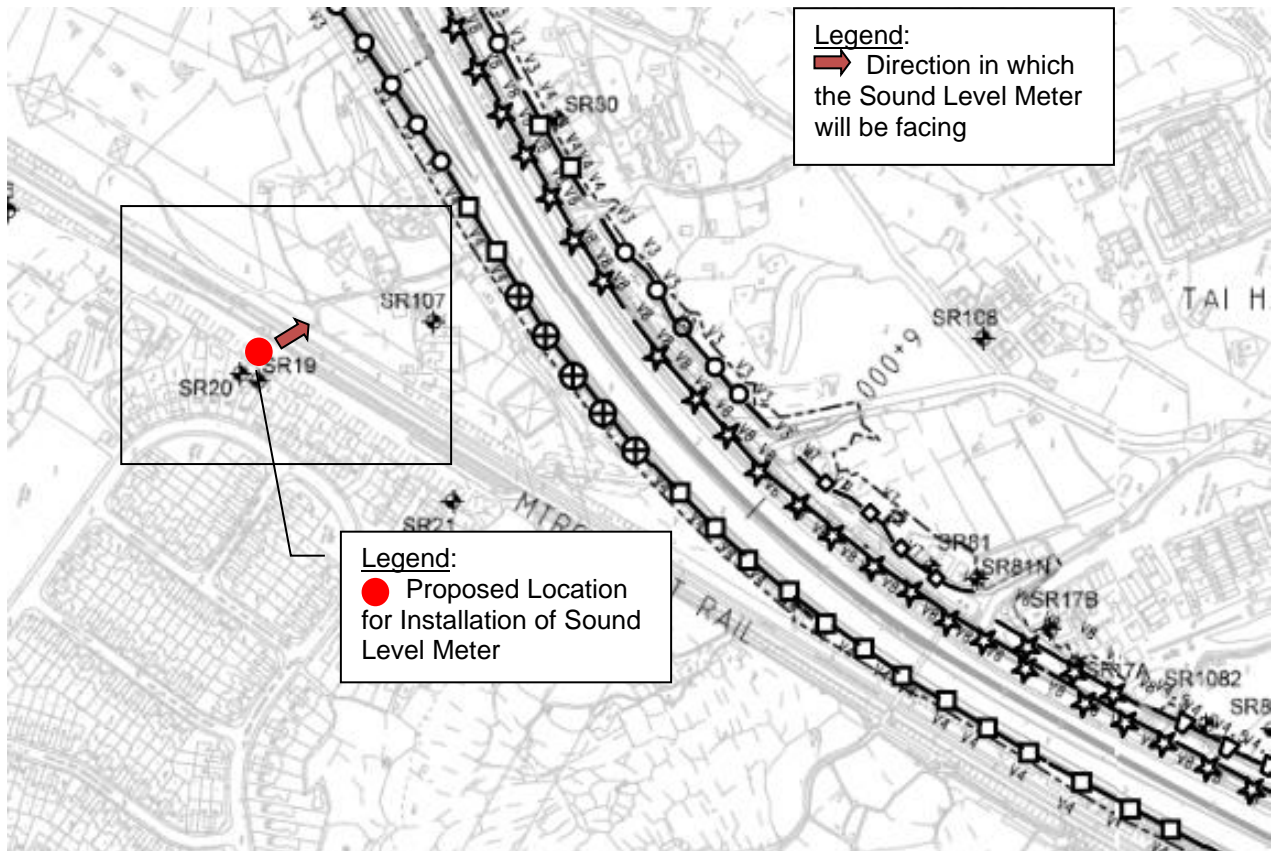


Figure 1a - Proposed Operational Phase Noise Monitoring Location near House No. 10A, 18<sup>th</sup> Street, Hong Lok Yuen



Figure 1b - Detail location for equipment installation

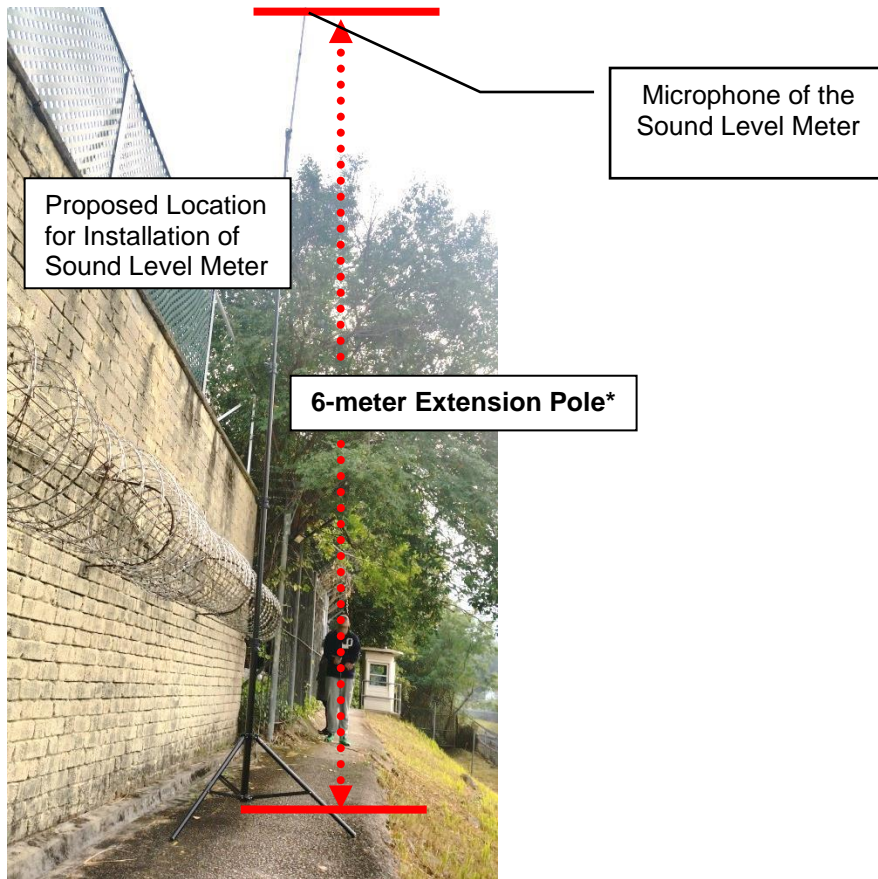


Figure 2 Detailed Set-up of Equipment near House No. 10A, 18<sup>th</sup> Street, Hong Lok Yuen\* Remark: In order to reduce the deviation between the proposed location and the original location, the sound level meter will be installed at a height of 6 meters from ground.



Figure 3 Proposed Road Traffic Count Map Location for Footbridge near Tai Hang Fu Sha Wai

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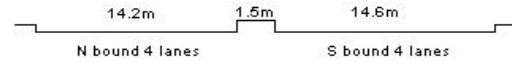
**APPENDIX B**

**Traffic data of Tolo Highway extracted  
from the Annual Traffic Census 2019**

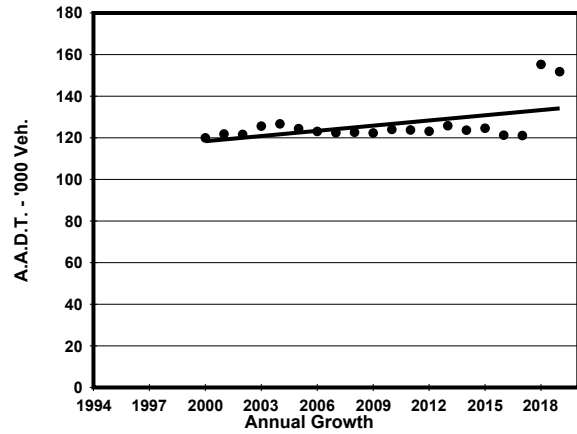
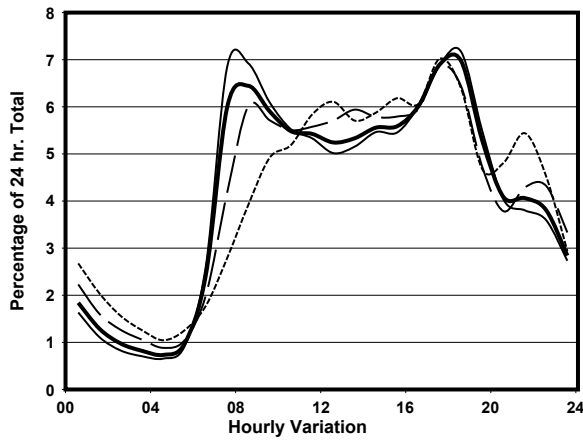
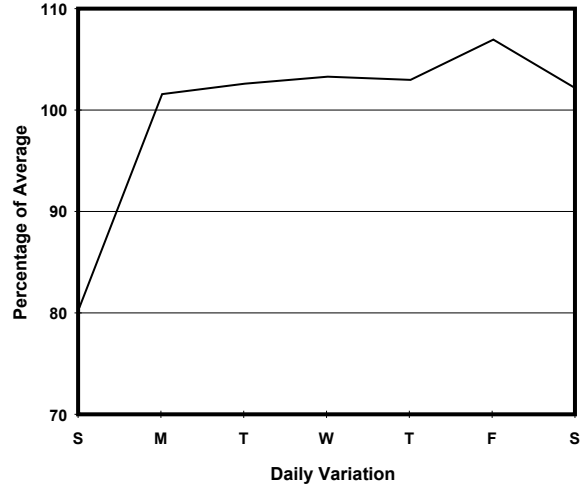
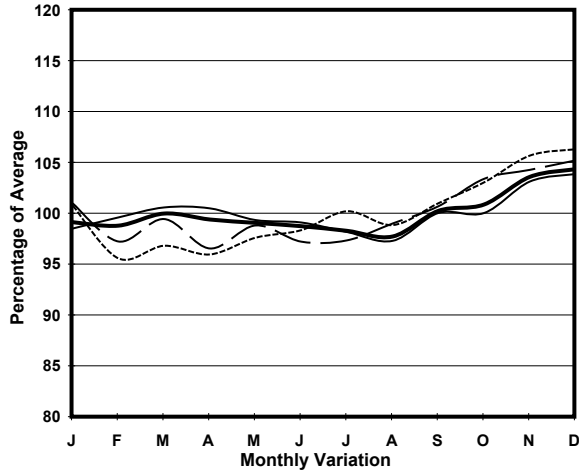
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YEAR 2019  
 CORE STATION 5013  
 ROAD NETWORK MAJOR  
 ROAD TYPE EXPRESSWAY

LINK TOLO HIGHWAY (from NORTH OF MA LIU SHUI INT to YUEN SHIN RD INT)



1. TRAFFIC FLOW VARIATION AND GROWTH



Legend: — All day, — Mon.- Fri., ..... Sat., - - - - Sun.

2. TRAFFIC CHARACTERISTICS (BY DIRECTION)

Parameter	All - Day	Mon. - Fri.	Sat.	Sun.
<b>SOUTH BOUND</b>				
A.A.D.T.	73930	77660	75100	59670
R 12 / 24 - %	74.6	75.7	72.8	69.7
R 16 / 24 - %	88.7	89.1	87.9	87
AM Peak Hour	0700-0800	0700-0800	0800-0900	0900-1000
One-way flow at AM peak hour	5610	6840	5610	3230
T - % (AM)	-	9.7	-	-
PM Peak Hour	1700-1800	1800-1900	1700-1800	1700-1800
One-way flow at PM peak hour	5040	5240	5140	4660
T - % (PM)	-	9.4	-	-
Prop.of commercial vehicles - 16 hr.	-	14.2	-	-
<b>NORTH BOUND</b>				
A.A.D.T.	77850	81080	81690	63650
R 12 / 24 - %	67.3	68.3	66.5	62.6
R 16 / 24 - %	87.6	88.6	85.4	84
AM Peak Hour	0800-0900	0800-0900	0900-1000	0900-1000
One-way flow at AM peak hour	4500	5140	4070	2830
T - % (AM)	-	12.9	-	-
PM Peak Hour	1800-1900	1800-1900	1700-1800	1700-1800
One-way flow at PM peak hour	5650	6140	5620	4000
T - % (PM)	-	8.7	-	-
Prop.of commercial vehicles - 16 hr.	-	15	-	-

3. OTHER INFORMATION AND COMMENT

**4. Vehicle classification and occupancy - Monday to Friday**

Time		Class of vehicle									
		Motor Cycle	Private Car	Taxi	Private LB	PLB	Goods veh.		Non Fr. Bus	Fr. Bus	
							Light	M & H		SD	DD
0700-0800	Pro	2.4	57.8	9.1	1.0	0.3	16.5	7.5	3.1	0.0	2.3
	Ocp	1.0	1.3	2.1	5.9	12.3	1.2	1.0	13.0	0.0	60.0
0800-0900	Pro	1.6	58.3	7.5	0.7	0.3	19.4	8.3	2.4	0.0	1.6
	Ocp	1.0	1.2	2.0	3.1	11.2	1.5	1.1	13.4	0.0	62.3
0900-1000	Pro	1.1	49.3	8.8	0.7	0.5	23.0	11.5	2.9	0.1	2.2
	Ocp	1.0	1.2	1.9	3.0	10.8	1.3	1.1	10.8	1.0	31.3
1000-1100	Pro	0.9	44.4	8.0	0.6	0.4	25.9	14.9	2.9	0.1	1.9
	Ocp	1.0	1.3	1.9	2.0	7.0	1.3	1.1	12.6	1.0	27.9
1100-1200	Pro	1.3	45.8	6.5	0.6	0.4	25.6	15.4	2.5	0.1	1.8
	Ocp	1.0	1.3	2.0	2.1	7.0	1.2	1.1	16.6	1.0	31.2
1200-1300	Pro	1.3	46.2	5.1	0.9	0.4	25.9	15.8	2.6	0.0	1.7
	Ocp	1.1	1.4	2.2	6.9	11.6	1.3	1.2	13.1	0.0	35.5
1300-1400	Pro	0.8	45.1	7.0	0.9	0.5	26.7	15.6	1.7	0.0	1.7
	Ocp	1.1	1.3	1.9	1.6	7.4	1.3	1.1	9.5	0.0	37.6
1400-1500	Pro	1.5	43.7	5.9	0.8	0.5	29.1	14.7	2.1	0.1	1.7
	Ocp	1.0	1.3	1.9	1.4	9.6	1.2	1.1	13.1	1.0	37.1
1500-1600	Pro	1.8	48.2	5.9	0.7	0.3	27.1	13.0	1.4	0.1	1.5
	Ocp	1.1	1.2	1.9	4.3	9.8	1.3	1.1	12.5	1.0	32.3
1600-1700	Pro	1.7	49.3	6.3	1.0	0.3	24.3	12.7	2.6	0.0	1.8
	Ocp	1.1	1.3	1.7	4.1	11.7	1.3	1.1	11.0	0.0	35.1
1700-1800	Pro	3.3	53.4	8.5	0.8	0.3	21.8	8.3	1.5	0.0	2.0
	Ocp	1.1	1.2	1.8	2.2	11.0	1.3	1.0	15.5	0.0	48.4
1800-1900 Peak hour	Pro	2.6	71.6	5.2	0.3	0.3	11.0	4.4	2.7	0.0	1.9
	Ocp	1.1	1.2	1.9	2.3	16.7	1.0	1.0	23.8	0.0	68.0
1900-2000	Pro	1.4	70.6	6.5	0.1	0.3	11.4	4.8	2.6	0.0	2.3
	Ocp	1.1	1.2	1.9	1.3	11.0	1.1	1.0	11.0	0.0	59.6
2000-2100	Pro	1.6	66.7	11.2	0.1	0.3	10.0	5.5	1.8	0.0	2.9
	Ocp	1.0	1.2	1.8	1.5	15.5	1.2	1.1	10.4	0.0	43.3
2100-2200	Pro	2.0	64.1	11.4	0.4	0.4	10.9	6.8	1.3	0.1	2.7
	Ocp	1.2	1.2	1.8	2.0	7.6	1.1	1.0	9.3	1.0	40.1
2200-2300	Pro	2.6	65.3	14.0	0.1	0.4	9.5	4.3	1.1	0.1	2.7
	Ocp	1.1	1.1	1.9	1.5	6.8	1.0	1.0	10.1	14.3	37.1
16 hours	Pro	1.8	54.8	7.7	0.6	0.4	20.3	10.3	2.3	0.1	2.0
	Ocp	1.1	1.2	1.9	3.3	10.3	1.3	1.1	13.4	4.6	44.3

**Legend: Pro.** Proportion of vehicles in % (Sum may not add up to 100% due to figure rounding)\*

**Ocp.** Average occupancy of vehicles including both driver and passengers\*

**M&H** Medium and Heavy

\* All traffic data are collected from combined bounds