

## Highways Department

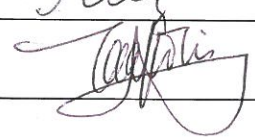
Agreement No. CE 20/2009 (EP)

### Environmental Team for the Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling

(Stage 1)  
Between Island House Interchange and  
Tai Hang - Investigation

Quarterly EM&A Summary Report  
for November 2011 – January 2012

[02/2012]

	Name	Signature
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<p><b>Disclaimer</b></p> <p>This report is prepared for Highways Department and is given for its sole benefit in relation to and pursuant to Environmental Team for the Widening of Tolo Highway/Fanling Highway between Island House Interchange and Fanling (Stage 1) Between Island House Interchange and Tai Hang - Investigation and may not be disclosed to, quoted to or relied upon by any person other than Highways Department without our prior written consent. No person (other than Highways Department) into whose possession a copy of this report comes may rely on this report without our express written consent and Highways Department may not rely on it for any purpose other than as described above.</p>		

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28 February 2012  
By Fax (2805 5028) and Post

**Attn.: Mr. Tony Wong**

Dear Sir,

**Widening of Tolo Highway between  
Island House Interchange and Tai Hang  
Environmental Permit No.: EP-324/2008/A  
Condition 3.3 – Submission of Quarterly EM&A Summary Report for November 2011 to  
January 2012 (Stage 1)**

We refer to the Quarterly EM&A Summary Report for November 2011 to January 2012 for the captioned Project submitted by ET via email on 22, 24 and 27 February 2012. We confirm we have no comment.

Yours faithfully  
for MOTT MACDONALD HONG KONG LIMITED

A handwritten signature in black ink, appearing to read 'Terence Kong'.

Terence Kong  
Independent Environmental Checker

c.c. HyD – Mr. Raymond T W Kong / Mr. Dennis Wong /Mr. William Chiang  
ETL, AECOM – Mr. Y T Tang

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## EXECUTIVE SUMMARY

The proposed widening of Tolo Highway and Fanling Highway between Island House Interchange and Fanling (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, EPD issued a Variation of Environmental Permit (EP-324/2008/A) (VEP) on 31 January 2012.

The Project aims to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the current traffic congestion problems and to cope with the increasing transport demands to and from the urban areas and also cross boundary traffic.

The construction works for this Project will be 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). The construction works of Stage 1 were commenced on 23 November 2009 and will tentatively be completed in December 2013; while construction programme of Stage 2 is currently under review. This report focuses on Stage 1 of the Project only.

The construction phase of Stage 1 under the EPs and the Environmental Monitoring and Audit (EM&A) programme for Stage 1 of the Project commenced on 23 November 2009. The impact environmental monitoring and audit includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 November 2011 and 31 January 2012. As informed by the Contract 1 Contractor (CSHK), construction activities in the reporting period were:-

- Site investigation;
- Temporary shoring, sheetpiling and excavation;
- Bored piling;
- Pre-bored H-piles construction;
- Pipe pile wall construction;
- Pile cap construction;
- Bridge construction;
- Bridge jacking;
- Tree felling & transplantation;
- At-grade road construction;
- Demolition of central dividers;
- Retaining wall construction;
- Slope works;
- Soil nails works;
- Noise barrier footing construction and panel installation;
- Road paving; and
- Drainage works.

The construction works carried out by the Contract 2 Contractor (GCL) in the reporting period were:-

- Condition survey of existing structures;
- Excavation of trial trenches to locate existing utilities;
- Ground investigation and predrilling;
- Construction of haul road;
- Extension of box culvert and subway;
- Piling and structural works of bridges;
- Construction of pilecap / spread footing of noise barrier / semi noise enclosure;
- Slope works, including installation of soil nails;
- Retaining wall construction;
- Noise barrier construction;
- Modification of existing bridge structures;
- Entrusted watermains works; and
- Sewer Installation.

### **Environmental Monitoring Works**

A summary of monitoring and audit activities conducted in the reporting quarter is listed below:-

24-hour TSP monitoring	17 sessions
1-hour TSP monitoring	51 sessions
Daytime Noise monitoring	14 regular sessions
Environmental Site inspection	13 sessions (Contract 1) / 13 sessions (Contract 2)

### **Breaches of Action and Limit Levels for Air Quality**

No exceedance of Action and Limit Level was recorded for both 1-hour and 24-hour TSP monitoring in the reporting quarter.

### **Breaches of Action and Limit Levels for Noise**

No Limit Level exceedance of construction noise was recorded in the reporting quarter.

There was one (1) noise related complaint followed up by Environmental Team in the reporting quarter. Investigation was carried out. The findings, proposed mitigation measures and follow-up site visit findings were submitted to all relevant parties. One (1) Action Level exceedance of construction noise was recorded in the reporting quarter. Summary of investigation is described in Section 8.3.

### **Complaint, Notification of Summons and Successful Prosecution**

There were two (2) air quality and one (1) noise related complaints followed up by Environmental Team in the reporting quarter. Investigation was carried out. The findings, proposed mitigation measures and follow-up site visit findings were submitted to all relevant parties. Summary of investigation is described in Section 8.3.

No notification of summons and successful prosecution was received in the reporting quarter.

## 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 Hong Kong Island to Shenzhen. At present, this section of Route 9 is dual 3-lane carriageway. However, at several major interchanges along this section of Route 9, the highway is only dual-2 lane. Severe congestion is a frequent occurrence during peak periods, particularly in the Kowloon bound direction.
- 1.2. The objective of the Project “Widening of Tolo Highway / Fanling Highway between Island House Interchange and Fanling” is to widen Tolo Highway and Fanling Highway to dual 4-lane carriageway in order to alleviate the current 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 and is governed by an Environmental Permit (EP-324/2008)(EP) issued by EPD on 23 December 2008. Subsequently, EPD issued a Variation of Environmental Permit (EP-324/2008/A) (VEP) on 31 January 2012.
- 1.4. The scope of the Project comprises mainly:
  - (i) Widening of a 5.7 km section of Tolo Highway and 3.0 km section of Fanling Highway between Island House Interchange and Wo Hop Shek Interchange from the existing dual 3-lane to dual 4-lane, including construction of new vehicular bridges;
  - (ii) Widening of interchange sections at Island House Interchange, Tai Po North Interchange, and Lam Kam Road Interchange from dual 2-lane to dual 3-lane, except Sha Tin bound carriageway at Tai Po North Interchange, which is widened from 3-lane to 4-lane, including realignment of various slip roads;
  - (iii) Modification and reconstruction of highways, vehicular bridges, underpasses and footbridges.
- 1.5. The construction works for this Project will be 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). The construction works of Stage 1 commenced on 23 November 2009 and will tentatively be completed in December 2013; while construction programme of Stage 2 is currently under review. This report focuses on Stage 1 of the Project only.
- 1.6. The construction works for Stage 1 of the Project will be implemented under 2 works contracts (Contract 1 and Contract 2). Contract 1 covers the section of Tolo Highway between Island House Interchange and Ma Wo, Contract 2 covers the section of Tolo Highway between Ma Wo and Tai Hang.
- 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 the Tolo project under Agreement No. CE 58/2000 Supplementary Agreement No. 3 (SA3) (i.e. the Engineer for the Contracts).
- 1.8. China State Construction Engineering (Hong Kong) Ltd. (CSHK) was commissioned as the Contractor of Contract 1 of Stage 1 of the Project, while Gammon Construction Limited (GCL) was commissioned as the Contractor of Contract 2 of Stage 1 of the Project.
- 1.9. AECOM Asia Co. Ltd. was employed by Highways Department as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) works for Stage 1 of the Project and Mott MacDonald Hong Kong Ltd. acts as the Independent Environmental Checker (IEC) for the Contracts.
- 1.10. The construction phase of Stage 1 under the EPs commenced on 23 November 2009.
- 1.11. According to the updated EM&A Manual of Stage 1 of the Project, there is a need of an EM&A programme including air quality and noise monitoring. The EM&A programme for Stage 1 of the Project commenced on 23 November 2009.

### Scope of Report

- 1.12. This is the ninth Quarterly EM&A Summary Report under the Agreement No. CE 20/2009 (EP) - Widening of Tolo Highway between Island House Interchange and Tai Hang – Investigation. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for Stage 1 of the Project from 1 November 2011 to 31 January 2012.

### Project Organization

- 1.13. The project organization structure is shown in Appendix A. The key personnel contact names and numbers are summarized in Table 1.1.

**Table 1.1 Contact Information of Key Personnel**

Party	Position	Name	Telephone	Fax
ER of Stage 1, Contract 1 (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer /TOLO1	James Tsang	9038 8797	2667 4000
ER of Stage 1, Contract 2 (Hyder-Arup-Black & Veatch Joint Venture)	Chief Resident Engineer /TOLO2	Paul Appleton	9097 5833	2653 2348
IEC of Stage 1 (Mott MacDonald Hong Kong Limited)	Independent Environmental Checker	Terence Kong	2828 5919	2827 1823
Contractor of Stage 1, Contract 1 (China State Construction Engineering (Hong Kong) Limited)	Site Agent	S Y Tse	9078 0458	2667 5666
	Environmental Officer	Michael Tsang	9277 4956	2667 5666
Contractor of Stage 1, Contract 2 (Gammon Construction Limited)	Site Agent	Edmond Chan	9483 8885	2559 3410
	Environmental Officer	Ir Thomson Chang	9213 6569	2559 3410
ET of Stage 1 (AECOM Asia Company Limited)	ET Leader	Y T Tang	3922 9393	2371 7609

### Summary of Construction Works

- 1.14. The construction phase of Stage 1 under the EPs commenced on 23 November 2009. Details of the construction works carried out by the Contract 1 Contractor (CSHK) in this reporting period are listed below:-
- Site investigation;
  - Temporary shoring, sheetpiling and excavation;
  - Bored piling;
  - Pre-bored H-piles construction;
  - Pipe pile wall construction;
  - Pile cap construction;
  - Bridge construction;
  - Bridge jacking;
  - Tree felling & transplantation;
  - At-grade road construction;
  - Demolition of central dividers;
  - Retaining wall construction;
  - Slope works;
  - Soil nails works;
  - Noise barrier footing construction and panel installation;
  - Road paving; and
  - Drainage works.
- 1.15. The construction works carried out by the Contract 2 Contractor (GCL) in the reporting period were:-
- Condition survey of existing structures;
  - Excavation of trial trenches to locate existing utilities;
  - Ground investigation and predrilling;
  - Construction of haul road;
  - Extension of box culvert and subway;
  - Piling and structural works of bridges;
  - Construction of pilecap / spread footing of noise barrier / semi noise enclosure;
  - Slope works, including installation of soil nails;
  - Retaining wall construction;
  - Noise barrier construction;
  - Modification of existing bridge structures;
  - Entrusted watermains works; and
  - Sewer Installation.
- 1.16. The Construction Programmes are shown in Appendix B.
- 1.17. The general layout plan of the Project site showing the contract areas is shown in Figure 1.1.
- 1.18. The environmental mitigation measures implementation schedule are presented in Appendix C.



## 2 ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

### Monitoring Parameters

- 2.1. The updated EM&A Manual designated 4 air quality monitoring stations and 7 noise monitoring stations to monitor environmental impacts on air quality and noise due to Stage 1 of the Project.
- 2.2. For air quality, monitoring locations AM2 (Shan Tong New Village) and AM3 (Riverain Bayside) were set up at the proposed locations in accordance with updated EM&A Manual. However, for monitoring locations: Dynasty View and Tai Po Garden, proposed in the updated EM&A Manual, as approval could not be obtained from the owner's corporation of the premises, impact air quality monitoring was conducted at alternative monitoring locations: AM1 (Ha Wun Yiu) and AM4 (Tai Kwong Secondary School). The monitoring station at 13 Ha Wun Yiu (AM1) was relocated to Fan Sin Temple, 3 Sheung Wun Yiu (AM1A) in February 2010.
- 2.3. For noise, monitoring stations NM3 (Wong Shiu Chi Middle School), NM6 (PLK Tin Ka Ping Primary School) and NM7 (Riverain Bayside) were set up at the proposed locations in accordance with updated EM&A Manual. However, for monitoring locations: Tai Po Garden, Dynasty View, Hong Kong Teachers' Association Lee Heng Kwei Secondary School and Grand Palisades, proposed in the updated EM&A Manual, as approval of access could not be obtained from the owner's corporation of the premises or the principal of the education institutes, impact noise monitoring was conducted at alternative monitoring locations: NM1 (Tai Kwong Secondary School), NM2 (Ha Wun Yiu), NM4 (Uptown Plaza) and NM5 (The Paragon).
- 2.4. As Tai Kwong Secondary School was closed down with effect from 1 September 2011, air quality (AM4) and noise (NM1) monitoring stations were relocated to 168 Shek Kwu Lung Village, naming AM4A and NM1A respectively, starting from 1 September 2011. The same air quality Action and Limit of AM4 were adopted for AM4A. For the measured construction noise level, the same noise Action Level of NM1 was adopted for NM1A, whereas Limit Level for residential noise sensitive receiver was adopted for NM1A.
- 2.5. The monitoring locations used during the reporting period are depicted in Figure 2.1.
- 2.6. The updated EM&A Manual also required environmental site inspections for air quality, noise, water quality, chemical, waste management, ecology and landscape and visual impact.

### Environmental Quality Performance Limits (Action/Limit Levels)

- 2.7. The environmental quality performance limits (i.e. Action/Limit Levels) of air quality monitoring were derived from the baseline air quality monitoring results at the respective monitoring stations (AM1, AM2, AM3 and AM4), while the environmental quality performance limits of noise monitoring were defined in the EM&A Manual.
- 2.8. The environmental quality performance limits of air quality and noise monitoring and are given in Appendix D.

### Environmental Mitigation Measures

- 2.9. Relevant environmental mitigation measures were stipulated in the Particular Specification and EPs (EP-324/2008 and EP-324/2008/A) for the Contractor to adopt. A list of environmental mitigation measures and their implementation statuses are given in Appendix C.

### 3 AIR QUALITY MONITORING

- 3.1. Air quality monitoring, including 1-hour and 24-hour TSP, was conducted at least 3 times every 6 days and at least once every 6 days respectively at the 4 monitoring stations (AM1A, AM2, AM3 and AM4A), in accordance with the updated EM&A Manual.
- 3.2. The weather was mostly sunny, with several cloudy in the reporting quarter. The major dust source in the reporting period included construction activities from Stage 1 of the Project, as well as nearby traffic emissions.
- 3.3. The number of monitoring events and exceedances recorded in each month of the reporting quarter are presented in Table 3.1 and Table 3.2 respectively.

**Table 3.1 Summary of Number of Monitoring Events for 1-hr & 24-hr TSP Concentration**

Monitoring Parameter	Location	No. of monitoring events		
		Nov 11	Dec 11	Jan 12
1-hr TSP	AM1A	15	18	18
	AM2	15	18	18
	AM3	15	18	18
	AM4A	15	18	18
24-hr TSP	AM1A	5	6	6
	AM2	5	6	6
	AM3	5	6	6
	AM4A	5	6	6

**Table 3.2 Summary of Number of Exceedances for 1-hr & 24-hr TSP Monitoring**

Monitoring Parameter	Location	Level of Exceedance	Level of Exceedance		
			Nov 11	Dec 11	Jan 12
1-hr TSP	AM1A	Action	0	0	0
		Limit	0	0	0
	AM2	Action	0	0	0
		Limit	0	0	0
	AM3	Action	0	0	0
		Limit	0	0	0
	AM4A	Action	0	0	0
		Limit	0	0	0
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>
	24-hr TSP	AM1A	Action	0	0
Limit			0	0	0
AM2		Action	0	0	0
		Limit	0	0	0
AM3		Action	0	0	0
		Limit	0	0	0
AM4A		Action	0	0	0
		Limit	0	0	0
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

- 3.4. All 1-hour and 24-hour TSP results were below the Action and Limit Level at all monitoring locations in the reporting quarter.
- 3.5. The graphical plots of the impact air quality monitoring results are provided in Appendix E.

#### 4 CONSTRUCTION NOISE MONITORING

- 4.1. Construction noise monitoring was conducted at the 7 monitoring stations (NM1A, NM2, NM3, NM4, NM5, NM6 and NM7) for at least once per week during 07:00 – 19:00 in the reporting quarter.
- 4.2. The major noise sources during the noise monitoring included construction activities of Stage 1 of the Project and nearby traffic noise. In addition, for NM3 and NM6, general school activities are also a major noise source during the noise monitoring.
- 4.3. The number of construction noise monitoring events and exceedances are summarized in Table 4.1 and Table 4.2 respectively.

**Table 4.1 Summary of Number of Monitoring Events for Construction Noise**

Monitoring Parameter	Location	No. of monitoring events		
		Nov 11	Dec 11	Jan 12
	NM1A	4	5	5
	NM2	4	5	5
	NM3	4	5	5
	NM4	4	5	5
	NM5	4	5	5
	NM6	4	5	5
	NM7	4	5	5

**Table 4.2 Summary of Number of Monitoring Exceedances for Construction Noise**

Monitoring Parameter	Location	Level of Exceedance	Level of Exceedance		
			Nov 11	Dec 11	Jan 12
	NM1A		0	0	0
	NM2		0	0	0
	NM3		0	0	0
	NM4		0	0	0
	NM5		0	0	0
	NM6		0	0	0
	NM7		0	0	0
		<b>Total</b>	<b>0</b>	<b>0</b>	<b>0</b>

- 4.4. All measured construction noise levels were below the Limit level and the graphical plots of the trends of the monitoring results are provided in Appendix F. One (1) Action Level exceedance of construction noise was recorded in the reporting quarter
- 4.5. There was one (1) noise related complaint followed up by Environmental Team in the reporting quarter. Investigation was carried out. The findings, proposed mitigation measures and follow-up site visit findings were submitted to all relevant parties. Summary of investigation is described in Section 8.3.

## **5 ENVIRONMENTAL SITE INSPECTION AND AUDIT**

- 5.1. Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for Stage 1 of the Project. In the reporting quarter, 13 site inspections were carried out for each of Contract 1 and Contract 2 of the Project.
- 5.2. Particular observations and reminder during the site inspections for Contract 1 are described below:-

### ***Air Quality***

- 5.2.1. Soil stockpile and exposed slope was found covered up incompletely at central divider works area at NB2 and abutment NBSA. The Contractor was reminded to cover the soil stockpile and exposed slope completely.
- 5.2.2. Exposed slope was dry and bunding was found missing along the site boundary at W25. The Contractor was reminded to provide dust suppression measures to minimize fugitive dust generation and provide sand bag/bunds to intercept the surface run-off from works area.

### ***Noise***

- 5.2.3. Noise Emission Label (NEL) was found missing for the air compressor at NB16. The Contractor was reminded to affix NEL to the air compressor.

### ***Water Quality***

- 5.2.4. Silty water and waste was found accumulated along the site boundary at W4-7. The Contractor was reminded to drain off the silty water and clear the waste.

### ***Chemical and Waste Management***

- 5.2.5. An oil drum and two chemical containers were found placed on ground without drip tray at NB14-18 and Bridge 10A. The Contractor was reminded to provide drip tray to oil drum and chemical containers on site.
- 5.2.6. Oil mixing with water was found on ground at site entrance no.3. The Contractor was reminded to clear the oil mixture.

### ***Landscape and Visual Impact***

- 5.2.7. Metal wires were found tied onto the retained tree near NB16. The Contractor was reminded to remove the metal wires and do not use the retained tree as a physical support.

### ***Miscellaneous***

- 5.2.8. Stagnant water was found accumulated in the precast gully at NB14-18 and trench at NB27. The Contractor was reminded to clear the stagnant water and provide mitigation measures to prevent mosquito breeding.

- 5.3. Particular observations during the site inspections for Contract 2 are described below:-

### ***Air Quality***

- 5.3.1. Access roads near RW71 and exposed slope near Gate 30 were observed dry. The Contractor was reminded to spray water more frequently during the dry season.
- 5.3.2. Smoke was observed emitting from the roller at W72. The Contractor was requested to repair and maintain the plant on site properly.

- 5.3.3. Mud trails were found on ground at the exit point near NLKP 9. The Contractor was reminded to clear up the mud trails and provide measure to ensure the vehicles bodies and wheels were kept clean of deposited silt before leaving the site.
- 5.3.4. Exposed soil surfaces/slopes were found at W66 and works area near Gate no. 29. The Contractor was reminded to provide regular water spraying or tarpaulin sheet coverage to the exposed soil surfaces/slopes to minimize dust impacts.
- 5.3.5. The Contractor was reminded to maintain and review the dust suppression measure at W45-W46 and S37. (Reminder)

#### **Noise**

- 5.3.6. Absorptive material wrapping at the breaking tip at W38 works area should be improved. The Contractor should wrap the breaking tip of the breaker completely before carry out rock breaking works.

#### **Water Quality**

- 5.3.7. Muddy water was found on ground near Gate 30 and NLKP 9. The Contractor was reminded to clear the muddy runoff; cover the slope with tarpaulin sheet or provide shotcreting to the slope. Proper bunding should be provided along the boundary to intercept surface runoff from flowing into the nearby public drainage.
- 5.3.8. Cement and C&D waste was found accumulated inside the u-channel and plastic bag was found blocking the entrance of the pipe at Link Bridge 1. The Contractor was reminded to clear the cement and C&D waste and provide traps to intercept the silt and debris before discharge.

#### **Chemical and Waste Management**

- 5.3.9. Waste was observed at material storage area near RW71. The Contractor was advised to store the wastes in designated storage area. Waste should be disposed of regularly and sorted properly. Waste inside the waste skip near RW71 was found mixing with some recyclable waste, like woods and papers. The Contractor was reminded to clear the waste and implement the waste sorting system properly.
- 5.3.10. Oil mixing with water was observed on ground near NB42 and underneath the vehicle at Bridge 18. The Contractor was reminded to clear the oily mixture and treat the oily mixture as chemical waste.
- 5.3.11. Empty cement bags were found accumulated near NLK Pier 9. The Contractor was reminded to clear up the empty cement bag.
- 5.3.12. Deposited silt was observed inside the water recycling tank at NLK Pier 9. The Contractor was reminded to clear the deposited silt.
- 5.3.13. The drain hole of a drip tray at work area TW1 was unplugged. The Contractor was reminded to seal up the hole to prevent chemical oil leakage from the equipment.
- 5.3.14. C&D materials, vegetation and excavated materials waste were found accumulated on ground at Bridge 18 north abatement. The Contractor should clear up the C&D materials, vegetation and excavated materials waste and sort out the recyclable waste to keep the site in a tidy condition.
- 5.3.15. Oil stain was found on ground underneath the air compressor and compressed air tank near NLKP 9. The Contractor was reminded to clear the oil stain and check potential leakage from containers and machineries.
- 5.3.16. Plants were found stored up on bare ground at W65b. The Contractor was reminded to clear the plants or place them on tarpaulin sheet to avoid oil leakage to the bare ground.
- 5.3.17. Construction debris was found accumulated on bridge deck and inside the waste skip at NLKP 3. The Contractor was reminded to clear the construction debris on site. (Reminder)

### ***Landscape and Visual Impact***

5.3.18. No adverse observation was identified in the reporting quarter.

#### ***Miscellaneous***

5.3.19. Stagnant water was accumulated on ground under Bridge 15 and inside the u-channel along the site boundary near W38 works area and the drip tray near W49. The Contractor was reminded to clear the stagnant water to prevent mosquito breeding.

## **6 ADVICE ON THE SOLID AND LIQUID WASTE MANAGEMENT STATUS**

6.1.1 The Contract 1 Contractor (CSHK) and the Contract 2 Contractor (GCL) are registered as chemical waste producers for Stage 1 of the Project. C&D material sorting was carried out on site. Sufficient numbers of receptacles were available for general refuse collection.

6.1.2 As advised by the Contract 1 Contractor (CSHK), 68m<sup>3</sup> of inert C&D material was disposed as public fill to Tuen Mun 38 (of which 42m<sup>3</sup> was broken concrete), while 618m<sup>3</sup> of general refuse were disposed at NENT landfill. 28kg of metal, 431kg of paper/cardboard and 2,361kg of plastic were collected by recycling contractor in the reporting quarter. 18,503m<sup>3</sup> and 14,700m<sup>3</sup> of inert C&D materials were reused on site and in NENT for backfilling respectively. 1,000kg of chemical waste was collected by licensed contractor in the reporting period.

6.1.3 As advised by the Contract 2 Contractor (GCL), 620m<sup>3</sup> of inert C&D material were disposed to Tuen Mun 38 and 400m<sup>3</sup> of general refuse was disposed to NENT landfill in the reporting period.

6.1.4 The Contract 1 Contractor (CSHK) and the Contract 2 Contractor (GCL) are advised to maintain on site waste sorting and recording system and maximize reuse / recycle of C&D wastes.

## **7 SUMMARY OF NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY**

7.1. There was no 1-hour TSP and 24-hour TSP monitoring exceedance recorded in the reporting quarter.

7.2. One (1) Action Level and no Limit Level exceedance of construction noise was recorded in the reporting quarter.

7.3. There was one (1) noise related complaint followed up by Environmental Team in the reporting period.

## **8 ENVIRONMENTAL COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS**

8.1. A 24-hour complaint hotline at 6628 8366 has been established for Stage 1 (both Contract 1 and Contract 2) of the Project. Also a 24-hour hotline at 8201 6669 is established for Contract 1 of the Project. The hotline numbers are displayed at the site entrances, fencings and project signboards, as well as printed on publications for the public, such as newsletters.

8.2. No notification of summons and prosecution was received in the reporting quarter.

8.3. There were two (2) air quality and one (1) noise related complaints followed up by Environmental Team in the reporting quarter.

EPD referred a complaint about dust emission from construction site of the Tolo Highway widening works near Ma Wo on 22 December 2011. Subsequently, the complainant made another call on 29 December 2011 regarding the same issue. As informed by the Contract 2 (HY2009/08 - Between Ma Wo and Tai Hang) Contractor, Gammon Construction Ltd, of Stage 1 of the Project and confirmed by the Engineer of the Project, demolition of haul road and slope excavation were being carried out on 22 and 29 December 2011 respectively at the work area nearby the residential flat of the complainant. Mitigation measures, including watering of haul road by nominated direct labour and erection of the barrier as a dust screen, were taken by the Contractor on the concerned days. With reference to the monitoring results recorded on days near to the day of complaint at the nearest monitoring station

(AM1A- Sheung Wan Yiu) , the 24-hour TSP level on 19 December 2011 and 24 December 2011 was found to be 59.1ug/m<sup>3</sup> and 107.9 ug/m<sup>3</sup> respectively, which were below the action level of 176.6 ug/m<sup>3</sup>. Despite that the 24-hour TSP levels were below the action level, the Contractor was recommended to carry out enhanced mitigation measures, like providing dust net, extension of coverage of sprinkler system, informing the complainant in advance of any dusty activities to be carried out and regularly review the adequacy and effectiveness of dust suppression measure to suit the construction progress.

A noise related complaint was referred from HyD on 5 January 2012, the complainant (Mr. Che) expressed that noise was generated from the construction site of Widening of Tolo Highway near Ma Wo Tsuen on 23 December 2011. As informed by Contract 2 (HY2009/08 - Between Ma Wo and Tai Hang) Contractor, Gammon Construction Ltd, of Stage 1 of the Project and confirmed by the Engineer of the Project, rock breaking work was being carried out at the retaining wall W49 near Ma Wo Tsuen on the concerned day. The noise was likely generated from the rock breaking process. The Contractor provided mobile noise barrier at W49 and carried on the rock breaking work. The complainant made another call regarding the same issue on 31 December 2011. The rock breaking operation was suspended and all the rocks were removed at the concerned area. The Contractor will erect additional mobile noise barrier along W49 after the removal of rocks and prior to the rock breaking operation. The Contractor was reminded to ensure the following noise mitigation measures were implemented properly: provision of noise screening measures at rock breaking works areas, e.g. erection of temporary noise barriers; review the effectiveness of the noise mitigation measure to reduce the noise level; and better scheduling of noisy construction activities to minimize disturbance to nearby residents.

EPD referred a complaint about insufficient dust suppression measure was provided in the construction site of the Tolo Highway widening works near Ma Wo on 30 January 2012. As informed by the Contractor (Gammon Construction Ltd) and confirmed by the Engineer of the Project, no substantial dusty construction activity was being carried out on 30 January 2012 at the work area nearby the residential flat of the complaint. During our weekly environmental site inspection on 27 January 2012, water spraying was carried out to keep the slope and haul road wet; dust net was erected along the site boundary and tarpaulin sheet coverage and shotcreting was provided at W45-W46; vehicles were washed by the wheel washing facilities at gate no. 2 before leaving construction site. The complaint was considered as project related. Nevertheless, additional mitigation measures will be undertaken by the Contractor, including installation of

- 1 set of “water spray nozzle” at 4m above the existing catchpit adjacent to the villager’s footway at the crest of the slope.
- 1 set of “water spray nozzle” on top of existing dust screen, facing to the site haul road;
- 2 sets of “water spray nozzles” on top of site container offices, facing to the site haul road;
- 4 sets of “water spray nozzles” at 4m above ground, along “rock fall fence” / haul road opposite to RW W38; and
- “Mist spray nozzles” on top of existing dust screen along villager’s footway, at entrance of Subways at up-stream.

All the above nozzles will be installed with “Auto timer”. Water will spray in every 30 minutes and will be turn-off after 7:00pm. “Water spray nozzles” were installing along the haul road and the slope from W45 to W47 during environmental site inspection on 2 February 2012. With reference to the monitoring results recorded on days near to the day of complaint at the nearest monitoring station (AM1A-Sheung Wan Yiu), the 24-hour TSP level on 26 January 2012 was found to be 58.7ug/m<sup>3</sup>, which was below the action level of 176.6 ug/m<sup>3</sup>. Despite that the 24-hour TSP levels were below the action level, the Contractor was recommended and agreed that regularly review the adequacy and effectiveness of dust suppression measure to suit the construction progress. Follow-up site visit was conducted on 9 February 2012 to confirm the implementation of mitigation measure. Mist spray nozzles were installed on the top of the dust net. Water spraying was carrying out to keep the slope and haul road wet. No fugitive dust was observed arising from the construction works at the area.

- 8.4. Cumulative statistics on complaints, notifications of summons and successful prosecutions are summarized in Appendix G.

## 9 COMMENTS, RECOMMENDATIONS AND CONCLUSIONS

### Comments on Mitigation Measures

9.1. According to the environmental site inspections performed in the reporting quarter, the following recommendations were provided:-

#### ***Air Quality Impact***

- All plants on site should be properly maintained to avoid dark smoke emission.
- All vehicles should be washed to remove any dusty materials before leaving the site.
- Haul roads should be sufficiently dampened to minimize fugitive dust generation.
- Wheel washing facilities should be properly maintained to ensure properly functioning.
- Temporary exposed slopes and open stockpiles should be properly covered.
- Enclosure should be erected for cement mixing operations.
- Provide water spraying to suppress fugitive dust for any dusty construction activity.

#### ***Construction Noise Impact***

- Properly erect the temporary noise barriers in accordance with the Environmental Permit requirement.
- Noise barriers should be closely packed and properly aligned to ensure effective noise reduction.
- Noisy operations should be oriented to a direction away from sensitive receivers as far as possible.
- Sound insulation materials shall be wrapped at the breaker tip for concrete breaking works.
- Noise Emission Label (NEL) shall be affixed to the air compressor and hand-held breaker operating within works area.
- Better scheduling of construction works to minimize noise nuisance.

#### ***Water Quality Impact***

- Silt, debris and leaves accumulated at public drains, wheel washing bays and perimeter u-channels and desilting facilities should be cleaned up regularly.
- Silty effluent should be treated/desilted before discharged. Untreated effluent should be prevented from entering public drain channel.
- Proper drainage channels/bunds should be provided at the site boundaries to collect/intercept the surface run-off from works areas.
- Exposed slopes and stockpiles should be covered up properly during rainstorm.
- Stagnant water accumulated within works area should be removed.

#### ***Chemical and Waste Management***

- C&D materials and wastes should be sorted, recycled/treated and removed timely.
- All chemical containers and oil drums should be properly stored.
- All plants and vehicles on site should be properly maintained to prevent oil leakage.
- All drain holes of the drip trays utilized within works areas should be properly plugged to avoid any oil leakage.



- Oil stains on soil surface and empty chemical containers should be cleared and disposed of as chemical waste.

#### ***Landscape and Visual Impact***

- All retained trees should be properly fenced off at the works area.

#### **Recommendations on EM&A Programme**

- 9.2. The impact air quality and noise monitoring programme ensured that any deterioration in environmental condition was readily detected and timely actions taken to rectify any non-compliance. Assessment and analysis of monitoring results collected demonstrated the environmental acceptability of Stage 1 of the Project. The weekly environmental site inspections ensured that all the environmental mitigation measures recommended in the ERR were effectively implemented.
- 9.3. The EM&A programme effectively monitored the environmental impacts from the construction activities and no particular recommendation was advised for the improvement of the programme.

#### **Conclusions**

- 9.4. The construction phase and EM&A programme of Stage 1 of the Project commenced on 23 November 2009.
- 9.5. Air quality and noise monitoring, weekly site inspections were carried out in the reporting quarter, in accordance with the updated EM&A manual.
- 9.6. All 1-hour and 24-hour TSP monitoring results complied with the Action / Limit Level in the reporting quarter.
- 9.7. There was one (1) noise related complaint followed up by Environmental Team in the reporting quarter. One (1) Action Level and no Limit Level exceedance of construction noise was recorded in the reporting quarter.
- 9.8. There were two (2) air quality and one (1) noise related complaints followed up by Environmental Team in the reporting quarter. Investigation was carried out. The findings, proposed mitigation measures and follow-up site visit findings were submitted to all relevant parties.
- 9.9. No notification of summons and prosecution was received in the reporting quarter.