


Paul Y. Construction Company, Limited

**MTR Works Contract 1117-
Pat Heung Depot Modification Works**

**Monthly Noise Monitoring Report
for
August 2013**

(Version 1.0)

<p>Certified By</p> <div style="text-align: center;"> _____ Environmental Team Leader (Dr. Priscilla Choy)</div>
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REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

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EXECUTIVE SUMMARY

Introduction

1. This is the 6th Monthly Noise Monitoring Report prepared by Cinotech Consultants Limited for MTR Works Contract 1117 - Pat Heung Depot (PHD) Modification Works. This report documents the findings of EM&A Works conducted from 1 August to 31 August 2013 since major construction works for Contract 1117 commenced on 1 March 2013.

Summary of Construction Works undertaken during Reporting Period

2. The major site activities undertaken in the reporting period include:
 - Site clearance;
 - Site formation;
 - Site surveying,
 - Pre-drilling,
 - Bored piling,
 - Socket H-piling,
 - Demolition of existing old site offices,
 - Modification of noise barrier,
 - Import filling materials for embankment works,
 - Embankment works,
 - Cable diversion,
 - Excavating trial pits for UU and OHL,
 - Construction of temporary haul road
3. As of this reporting period, there is no record of any project changes from that originally proposed as described in the latest Environmental Review Report (ERR) for this Works Contract 1117.

Environmental Monitoring and Audit Progress

4. A summary of the monitoring activities in this reporting period is listed below:
 - Construction Noise Monitoring during normal weekdays
 - NM1 5 times
 - NM2 5 times
 - NM3A 5 times
 - Environmental Site Inspection 4 times

Noise

5. 5 sets of 30-minute construction noise measurements were carried out at each of the monitoring stations during normal weekdays of the reporting period. No exceedance was recorded during the reporting period.

Waste Management

6. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. About 1577 m³ of inert C&D materials were generated during the reporting period. Non-inert C&D includes 75m³ of general refuse, 3kg of plastic materials, 103kg of paper/cardboard packaging materials and 800kg metals were generated during the reporting period. No chemical waste was generated during the reporting period. The inert C&D materials generated from the Project were disposed of at TM 38 Area Fill Bank and TKO137 Fill Bank, while all non-inert waste was disposed of at NENT.

Environmental Site Inspection

7. A monthly joint environmental site inspection was carried out by the representatives of the Contractor, the IEC and the ET. Details of the audit findings and implementation status are presented in Section 6.

Environmental Exceedance/Non-conformance/Complaint/Summon and Prosecution

8. Summary of the events and action taken and key information in the reporting month is tabulated in **Table I** and **Table II** respectively.

Table I Summary Table for Events Recorded in the Reporting Month

Parameter	No. of Exceedance		Action Taken
	Action Level	Limit Level	
Impact Noise Monitoring	0	0	N/A

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Notifications of any summons & prosecutions	0	---	N/A	N/A	---

Future Key Issues

9. Major site activities for the coming reporting month will include:
- Site clearance;
 - Site formation,
 - Site surveying, Bored piling,
 - Socket H-piling,
 - Decommission of existing fuel tank,
 - Modification of noise barrier,

- Tree transplanting works, import filling materials for embankment works,
- Embankment works ,
- Cable diversion,
- Excavating trial pits for UU and OHL

1 INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) is commissioned by Paul Y. Construction Company, Limited as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Works Contract 1117 –Pat Heung Depot (PHD) Modification Works (hereafter referred to “the Project”).

Purpose of the Report

- 1.2 This is the 6th Monthly Noise Monitoring Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 August to 31 August 2013 since major construction works for Contract 1117 commenced on 1 March 2013.

Structure of the Report

- 1.3 The structure of the report is as follows:

Section 1: **Introduction** - details the scope and structure of the report.

Section 2: **Project Information** - summarises background and scope of the project, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: **Environmental Monitoring Requirement** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the Environmental Review Report (ERR) and relevant environmental requirements.

Section 4: **Implementation Status on Environmental Mitigation Measures** - summarises the implementation of environmental protection measures during the reporting period.

Section 5: **Monitoring Results** - summarises the monitoring results obtained in the reporting period.

Section 6: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 8: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 9: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 West Rail Line (WRL) is one of the strategic rail infrastructures in Hong Kong providing the people of Hong Kong an environmentally friendly and convenient way to travel between the western part of the New Territories and western Kowloon. Under the approved WRL Environmental Impact Assessment (EIA) Report (EIA-149/BC), it has a total length of about 30.5km with 9 stations, including Nam Cheong, Mei Foo, Tsuen Wan West, Kam Sheung Road, Yuen Long, Long Ping, Tin Shui Wai, Siu Hong, Tuen Mun and one depot at Pat Heung.
- 2.2 The EIA Report of WRL was prepared and submitted to Environmental Protection Department (EPD) prior to the enactment of the Environmental Impact Assessment Ordinance (EIAO) in 1998. Since the first Environmental Permit (EP) (EP-004/1998), there have been amendments made to the permit through a number of EP variation applications related to the main line of WRL.
- 2.3 This Works Contract 1117 covers the modification works at the existing Pat Heung Depot (PHD) of WRL to meet future operational and maintenance requirements. The PHD modification works include the construction of a new train wash plant, locomotive shed, permanent - way workshop, stabling sidings, extension of maintenance building and modification of noise barriers.
- 2.4 Since the modification works at PHD forms part of the WRL, a variation of environmental permit (VEP) was applied and a VEP (EP No. EP-004/1998/I) was subsequently granted. Moreover, a further Environmental Permit (FEP) (EP No: FEP-24/004/1998/I) on construction and operation of WRL (including the PHD modification works) was issued by Director of Environmental Protection (DEP) to the MTR Corporation Limited on 23 July 2012.

General Site Description

- 2.5 The site layout and proposed modification works are illustrated in **Figure 1**.

Construction Programme and Activities

- 2.6 A summary of the major construction activities undertaken in this reporting period is shown as follows. The tentative construction programme is presented in **Appendix A**.
- Site clearance;
 - Site formation;
 - Site surveying,
 - Pre-drilling,
 - Bored piling,
 - Socket H-piling,
 - Demolition of existing old site offices,
 - Modification of noise barrier,
 - Import filling materials for embankment works,
 - Embankment works,
 - Cable diversion,

- Excavating trial pits for UU and OHL,
- Construction of temporary haul road.

Project Organisation

- 2.7 Different parties with different levels of involvement in the project organization include:
- Engineer or Engineer’s Representative (ER)– MTR Corporation (MTRC)
 - Contractor’s Environmental Team (Contractor’s ET) – Cinotech Consultants Ltd. (Cinotech)
 - Independent Environmental Checker (IEC) –Meinhardt Infrastructure and Environment Limited (MIEL)
 - Contractor – Paul Y. Construction Company, Limited(Paul Y)
- 2.8 The responsibilities of respective parties are detailed in Section 2 of the approved EM&A Programme for PHD Modification Works.
- 2.9 The project organisation including key personnel contact names and telephone numbers is presented in **Figure 2**.

Status of Environmental Licences, Notification and Permits

- 2.10 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.1**.

Table 2.1 Status of Environmental Licenses, Notification and Permits

Permit / License No.	Valid Period		Status
	From	To	
Environmental Permit (EP)			
FEP-24/004/1998/I	23/7/2012	End of the Project	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation			
No.351534	26/10/2012	N/A	Valid
Billing Account for Construction Waste Disposal			
Account No. 7016256	2/11/2012	N/A	Valid
Registration of Chemical Waste Producer			
5218-531-P2991-02	4/12/2012	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance (WPCO)			
WT00015378-2013	26/3/2013	31/3/2018	Valid
Construction Noise Permit			
GW-RN0296-13 (Area D: A64-2 Local Cable Diversion)	30/5/2013	21/11/2013	Valid
GW-RN0364-13 (Area A: RCD)	3/7/2013	24/12/2013	Valid

Summary of EM&A Requirements

- 2.11 The EM&A programme under Works Contract 1117 require construction noise monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:
- all monitoring parameters;
 - environmental quality performance limits (Action and Limit levels);
 - Event-Action Plans;
 - Environmental mitigation measures, as recommended in the Environmental Review Report (ERR) for the VEP (EP No. FEP-24/004/1998/I); and
 - Environmental requirements in contract documents.
- 2.12 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 6 of this report.
- 2.13 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely construction noise as well as audit works for the Project in the reporting month.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Construction Noise Monitoring

Monitoring Requirements

- 3.1 Noise monitoring was conducted in accordance with the approved EM&A Programme for PHD Modification Works.
- 3.2 With reference to the baseline monitoring report for the Project, **Table 3.1** and **Table 3.2** summarises the location of noise monitoring stations and shows the established Action and Limit Levels for construction noise monitoring works respectively. Location of the monitoring stations is shown on **Figure 3**.

Table 3.1 Construction Noise Monitoring Stations

ID in the approved EM&A Programme	ID in Baseline Noise Monitoring Report	Construction Noise Monitoring Station
NM1	NM1	Tourmaline Villa
NM2	NM2	Kam Po Road
NM3	NM3A ⁽¹⁾	Tai Kek Tsuen

Note:

- (1) Since permission of access could not be obtained, an alternative location at a village house just next to the original proposed monitoring location in the EM&A Programme was adopted for the baseline noise monitoring.

Table 3.2 Criteria for Action and Limit Levels for Construction Noise

Time Period ⁽¹⁾	Noise Monitoring Station	Action Level	Limit Level, dB (A)
0700-1900 hrs of normal weekdays	Tourmaline Villa (NM1)	When one documented valid complaint is received.	75.0
	Kam Po Road (NM2)		
	Tai Kek Tsuen (NM3A)		

Note:

- (1) If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority should be followed.

- 3.3 Should non-compliance of the criteria in **Table 3.2** occur, action in accordance with the Event and Action Plan in **Appendix B** should be carried out.

Monitoring Equipment

3.4 **Table 3.3** summarizes the noise monitoring equipment model being used.

Table 3.3 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	Pulsar Instruments Model 93 (Serial no. B22487)	1
Calibrator	Pulsar Instruments Model 105 (Serial no. 64958)	1

Monitoring Parameters, Frequency and Duration

3.5 **Table 3.4** summarizes the monitoring parameters, frequency and total duration of monitoring.

Table 3.4 Noise Monitoring Parameters, Frequency and Duration

Station	Parameter	Period	Frequency
NM1, NM2 and NM3A	$L_{eq,30 \text{ min.}}^{(1)}$ (L_{10} and L_{90} were also recorded as supplementary information)	0700-1900 hours on normal weekdays	Once a week

Note (1): $L_{eq, 30 \text{ min.}}$ as six consecutive $L_{eq, 5 \text{ min}}$ readings.

Monitoring Methodology and QA/QC Procedures

Field Monitoring

3.6 The monitoring procedures are as follows:

- The microphone head of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting : A
 - Time weighting : Fast
 - Measurement time : 5 minutes (obtaining six consecutive $L_{eq, 5 \text{ min}}$ readings for a $L_{eq, 30 \text{ min.}}$ reading)
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter. Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

- Noise measurement was paused during periods of high intrusive noise if possible and observation was recorded when intrusive noise was not avoided.
- At the end of the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- A façade correction of +3dB (A) shall be made to the noise parameter obtained by free field measurement.

Maintenance and Calibration

3.7 Maintenance and Calibration procedures were as follows:

- The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator were checked and calibrated at yearly intervals. Copies of calibration certificates are attached in **Appendix C**.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the ERR, the Environmental Permit and approved EM&A Programme for PHD Modification Works. The status of submission required under the Environmental Permit is summarized in **Table 4.1**. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix D**.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 4.5	Monthly Noise Monitoring Report (July 2013)	12 th August 2013

5 MONITORING RESULTS

Noise

- 5.1 In this reporting period, noise monitoring during non-restricted hours was conducted as scheduled at the designated locations. The noise monitoring schedule is shown in **Appendix E**.
- 5.2 The details of the monitoring results and graphical presentations are shown in **Appendix F**. The weather during the monitoring sessions was mainly cloudy and sunny.
- 5.3 Based on the on-site measurement, traffic on nearby major road is considered as a noise source other than construction works of the Project that affects the monitoring results of the reporting month.
- 5.4 No Action/Limit Level exceedance for construction noise monitoring was recorded in the reporting period.

Waste Management

- 5.5 Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and dredging materials. Non-inert C&D materials are made up of general refuse, chemical waste, paper/cardboard packaging materials, plastic materials and metals. Metals generated from the project are also grouped into non-inert C&D materials as the metals were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting period are summarised in **Table 5.1**. The inert C&D materials and general refuse generated from the Project were disposed of at TM 38 Area Fill Bank, TKO 137 Fill Bank and NENT, respectively. 103 kg of paper/cardboard packaging materials, 3 kg of plastics and 800 kg of metals were generated during the reporting period. Detail of waste management data is presented in **Appendix G**.

Table 5.1 Quantities of Waste Generated from the Project

Reporting Month	Quantity					
	C&D Materials (inert) ^(a)	C&D Materials (non-inert) ^(b)				
		General Refuse	Chemical Waste	Paper/cardboard	Plastics	Metals
July 2013	1577m ³	75m ³	0 kg	103kg	3kg	800kg

Notes:
 (a) Inert C&D materials include bricks, concrete, building debris, rubble and excavated soil.
 (b) Non-inert C&D materials include steel, paper/cardboard packaging waste, plastics and other wastes such as general refuse. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

6 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 6.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix H**.
- 6.2 Site audits were conducted on 6, 16, 20 and 27 August 2013 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 16 August 2013. No site inspection was conducted by EPD during the reporting period. The details of observations during site audit can refer to **Table 6.1**.

Implementation Status of Environmental Mitigation Measures

- 6.3 According to the ERR, Environmental Permit and the approved EM&A Programme of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix D**.
- 6.4 During site inspections in the reporting period, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	30 July 2013	<u>Observation:</u> Additional sand bags should be placed along the u-channel to prevent further muddy runoff from nearby construction (Area A); silt should be cleared from the u-channel.	Follow-up status will be provided in the next reporting month.
	6 August 2013	<u>Observation:</u> Sand bags should be repaired regularly, muddy water should be prevented from entering the u-channel at Area A	Follow-up status will be provided in the next reporting month.
	16 August 2013	<u>Reminder:</u> Sand bags should be repaired regularly to prevent muddy water from entering the u-channel at Area A	Follow-up status will be provided in the next reporting month.
	20 August 2013	<u>Observation:</u> Muddy water and oil should be prevented from entering the u-channel at Area A. Sand bags should be repaired regularly and placed within the channel.	Follow-up status will be provided in the next reporting month.
	27 August 2013	<u>Observation:</u> Mud should be cleared from the u-channel at Area A.	Follow-up status will be provided in the next reporting month.

Parameters	Date	Observations and Recommendations	Follow-up
<i>Noise</i>	N/A	N/A	N/A
<i>Tree Protection/ Landscape and Visual</i>	N/A	N/A	N/A
<i>Air Quality</i>	20 August 2013	<u>Reminder:</u> The impervious cover for the mixer at Area B should be repaired regularly to prevent dust emission.	The impervious cover was replaced with a new one on 27 August 2013.
<i>Waste / Chemical Management</i>	6 August 2013	<u>Observation:</u> Drip tray should be provided to contain the chemical containers at Area A behind the worker's rest area.	The identified chemical containers were removed on 16 August 2013
	6 August 2013	<u>Reminder:</u> Drip tray should be cleared regularly to prevent accumulation of mud at Area A.	Follow-up status will be provided in the next reporting month.
	16 August 2013	<u>Observation:</u> The oil drums, air compressor and chemical containers should be contained by drip trays at Area A and B. The existing drip trays should be properly maintained and sealed off, and with the accumulated mud cleared.	The identified oil drums were removed, and the identified drip tray was sealed off at the side on 20 August 2013. The rest of the items regarding the maintenance of drip tray would be followed up in the next reporting month.
	20 August 2013	<u>Observation:</u> Drip trays should be provided to contain the air compressors at Area A.	The air compressors were provided with drip trays on 27 August 2013.
<i>Permits/Licenses</i>	N/A	N/A	N/A

7 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 7.1 No exceedance of monitoring results was recorded in the reporting period. The summary of exceedance is provided in **Appendix I**.

Summary of Environmental Non-Compliance

- 7.2 No environmental non-compliance was recorded in the reporting period.

Summary of Environmental Complaint

- 7.3 No environmental Project-related complaint was received in the reporting month. The Cumulative Complaint Log since the commencement of the Project is presented in **Appendix J**.

Summary of Environmental Summon and Successful Prosecution

- 7.4 There was no successful environmental prosecution or notification of summons received since the Project commencement. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix J**.

8 FUTURE KEY ISSUES

Key Issues in the Coming Month

8.1 Key issues to be considered in the coming month include:

- Handling of waste water arising from pre-drilling works;
- Dust control during loading of materials and excavation;
- Runoff control at the stockpiling and pilling area during rainstorm;
- Oil leakage from equipment;
- Noise nuisance generated by on-site construction and demolition works; and
- Protection of retained trees within construction site.
- Maintaining the sand bags at the u-channel to prevent muddy run-off from spillage

Monitoring Schedule for the Next Month

8.2 The tentative construction noise monitoring schedule for the next month is shown in **Appendix E**.

Construction Programme for the Next Month

8.3 A tentative construction programme is provided in **Appendix A**. The major construction activities in the coming month will include:

- Site clearance;
- Site formation,
- Site surveying, Bored piling,
- Socket H-piling,
- Decommission of existing fuel tank,
- Modification of noise barrier,
- Tree transplanting works, import filling materials for embankment works,
- Embankment works ,
- Cable diversion,
- Excavating trial pits for UU and OHL

9 CONCLUSIONS

Conclusions

- 9.1 This Monthly Noise Monitoring Report presents the EM&A works undertaken during the period from 1 August to 31 August 2013 since major construction works for Contract 1117 commenced on 1 March 2013 in accordance with approved EM&A Programme for PHD Modification Works and the requirement under FEP-24/004/1998/I.
- 9.2 As of this reporting period, there is no record of any project changes from that originally proposed as described in the latest Environmental Review Report (ERR) for this Works Contract 1117.
- 9.3 No exceedance of monitoring results was recorded in the reporting period.
- 9.4 There was no environmental complaint, prosecution or notification of summons received.
- 9.5 The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

- 9.6 According to the environmental audits performed in the reporting month, the following recommendations were made:

Water Quality

- Sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during the wet season;
- Temporary Ditches should be used for diverting runoff to treatment before disposal; and
- Bund should be provided to confine the runoff in site area during rainstorm, particularly along the drainage channel.
- U-channel should be maintained by regularly removing trapped mud and providing coverage to the channel wherever possible.

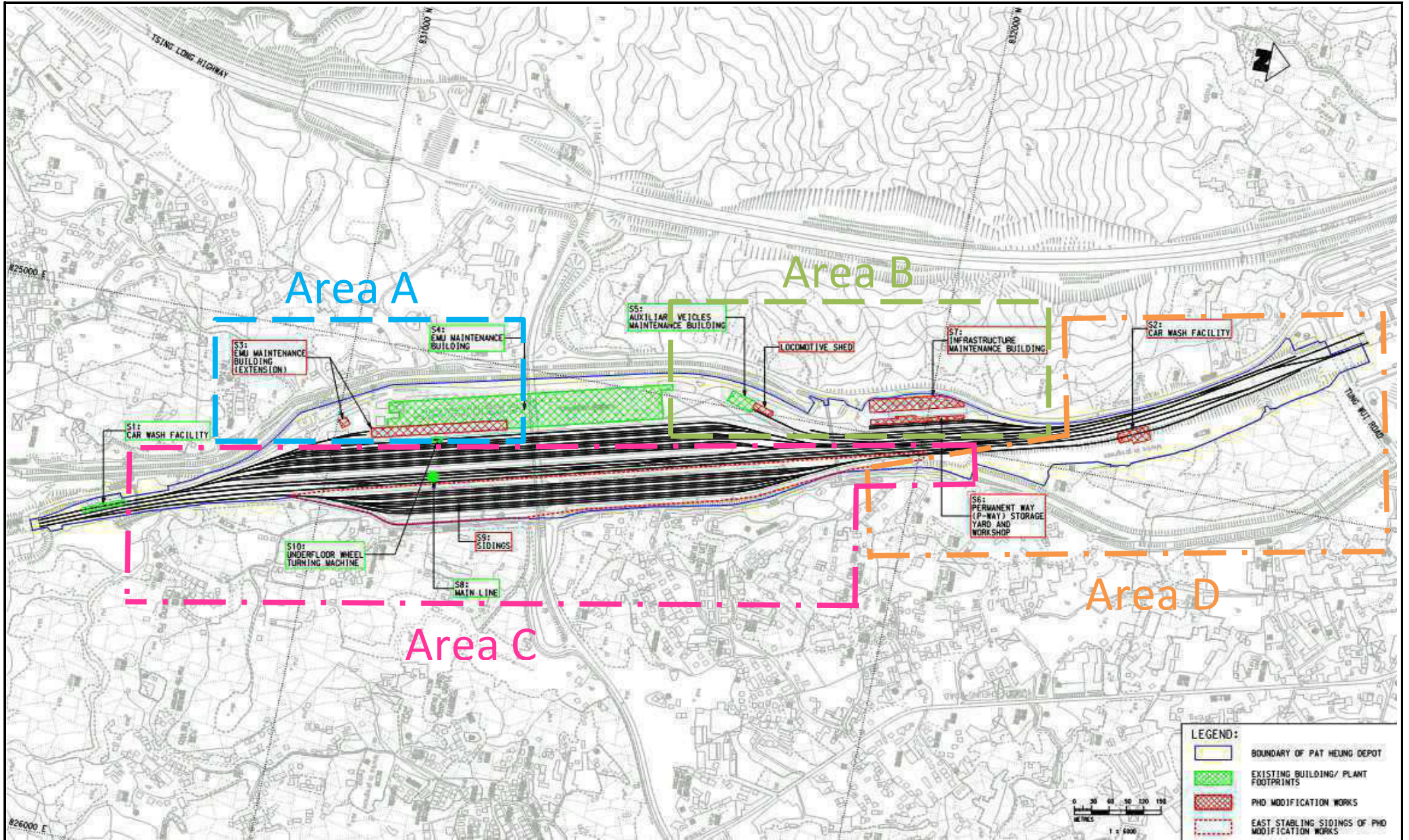
Waste/Chemical Management

- Good site practice of providing drip trays for temporary use of chemicals is recommended to sustain. Drip trays should be properly maintained; and
- Proper maintenance should be provided to equipment in site to prevent oil leakage.

Air Quality

- Proper covering of the stockpile should be provided to reduce the dust generation; and
- Adequate water spraying should be provided at haul road to reduce dust generation.

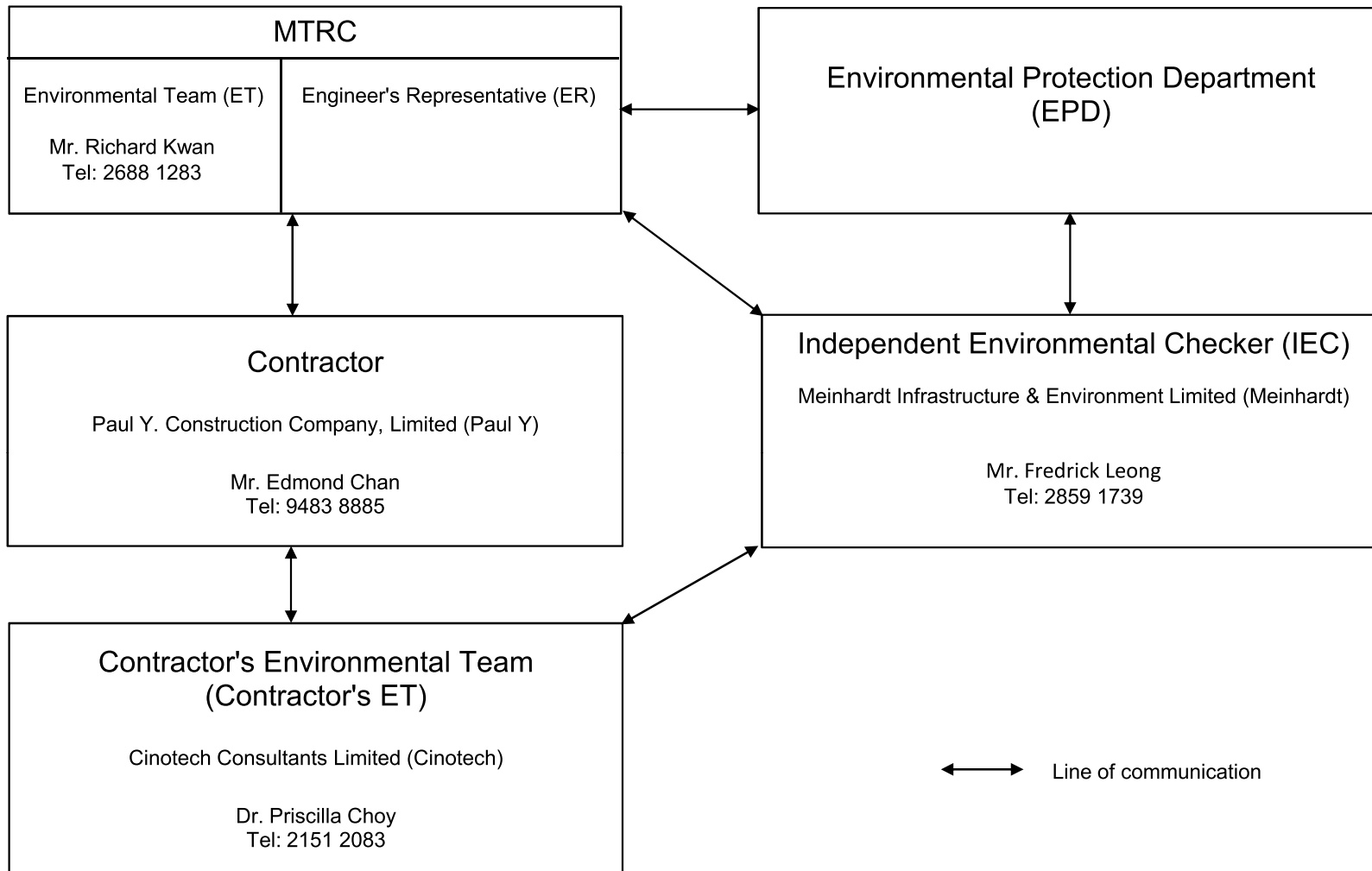
FIGURES



Title
 SCL Contract 1117
 Shatin to Central Link -
 Pat Heung Depot Modification Works
 Site Layout Plan

Scale	N.T.S	Proposal No.	MA13003
Date	Apr-13	Figure	1





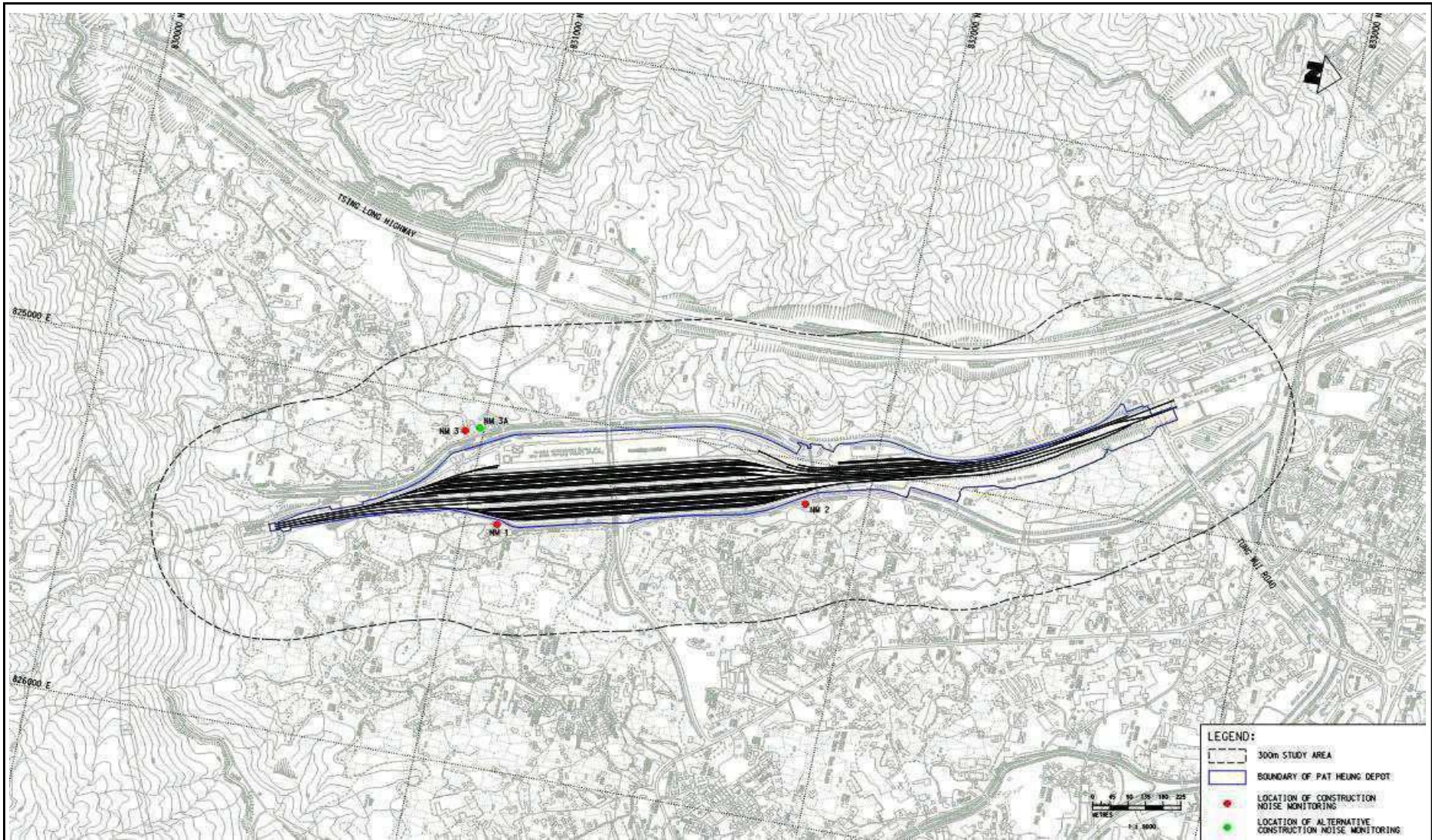
← → Line of communication

Title
 SCL Contract 1117
 Shatin to Central Link -
 Pat Heung Depot Modification Works
 Project Organisation Chart for Environmental Works

Scale
 N.T.S
 Date
 Aug-13

Propose
 No. MA13003
 Figure
 2

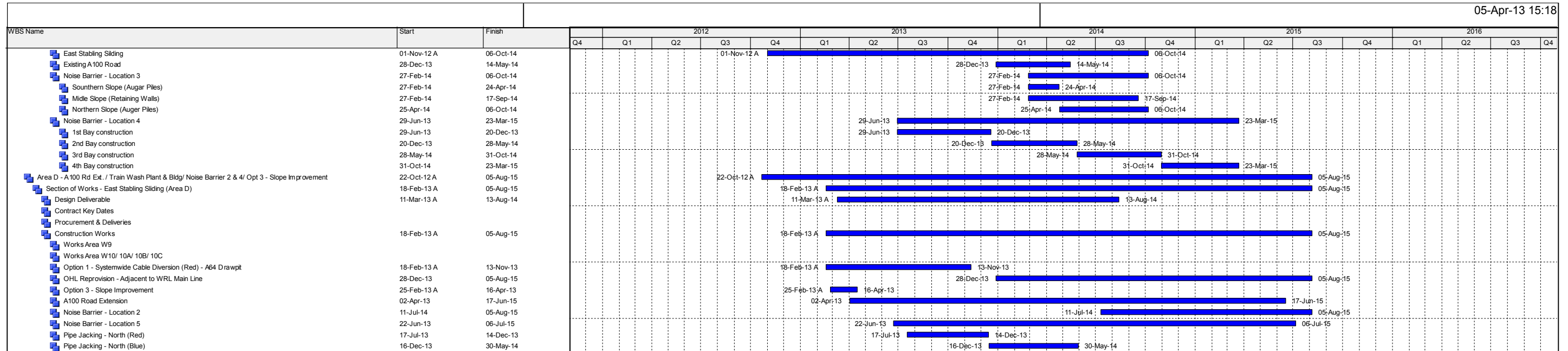
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Title	MTR Works Contract 1117 Pat Heung Depot Modification Works		Scale	N.T.S	Proposal No.	MA13003
	Location of Constrction Noise Monitoring Stations		Date	Apr-13	Figure	3



**APPENDIX A
TENTATIVE CONSTRUCTION
PROGRAMME**



APPENDIX B
EVENT AND ACTION PLAN

Event and Action Plan for Noise Monitoring during Construction Phase

Event	Action			
	ET	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC, Contactor, and ER; 2. Discuss with the ER, IEC, and Contractor on remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor, IEC and ET; 3. Review and agree on the remedial measures proposed by the Contractor; and 4. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> 1. Notify IEC, EPD and Contractor; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER, EPD the causes and actions taken for the exceedances; and 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET, and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor, IEC and ET; 3. In consultation with the ER and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; and 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with copy to IEC and ET within 3 working days; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

**APPENDIX C
COPIES OF CALIBRATION
CERTIFICATES**

Certificate of Calibration



Equipment Details

Instrument Manufacturer Pulsar Instruments plc
Instrument Type Model 93
Description Sound Level Meter
Serial Number B22487

Calibration Procedure

The instrument detailed above has been calibrated to the publish test and calibration data as detailed in the instrument hand book, using the techniques recommended in the latest revisions of the International Standards IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001, IEC 61260:1995, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983, ANSI S1.11-1986 and ANSI S1.43-1997 where applicable.

Sound Level Meters: All Calibration procedures were carried out by substituting the microphone capsule with a suitable electrical signal, apart from the final acoustic calibration.

Calibration Traceability

The equipment detailed above was calibrated against the calibration laboratory standards held by Cirrus Research plc. These are traceable to International Standards {A.0.6}. The standards are:

Microphone Type	B&K4180	Serial Number	1893453	Calibration Ref.	S 6009
Pistonphone Type	B&K4220	Serial Number	613843	Calibration Ref.	S 5964

Calibrated by

A handwritten signature in black ink, appearing to read "Calvert", written over a horizontal line.

Calibration Date

04 January 2013

Calibration Certificate Number

203044

This Calibration Certificate is valid for 12 months from the date above.

Pulsar Instruments plc, The Evron Centre, John Street, Filey, North Yorkshire, YO14 9DW

Telephone: +44 (0) 1723 518011 Fax: +44 (0) 1723 518043

Email: sales@pulsarinstruments.com

Certificate of Calibration



Equipment Details

Instrument Manufacturer Pulsar Instruments plc
Instrument Type Model 105
Description Acoustic Calibrator
Serial Number 64958

Calibration Procedure

The acoustic calibrator detailed above has been calibrated to the published data as described in the operating manual. The procedures and techniques used to follow the recommendations of the IEC standard Electroacoustics – Sound Calibrators IEC 60942:2003, IEC 60942:1997, BS EN 60942:1998 and BS EN 60942:2003 where applicable.. The calibrator's main output is 94.00 dB (1 Pa) and this was set within the 0.01 dB resolution of the test system, i.e. one hundredth of a decibel. Numbers in {parenthesis} refer to the paragraph in IEC 60942.

Calibration Traceability

The calibrator above was calibrated against the calibration laboratory standards held by Cirrus Research plc. These are traceable to International Standards {A.0.6}. The standards are:

Microphone Type	B&K4180	Serial Number	1893453	Calibration Ref.	S 6009
Pistonphone Type	B&K4220	Serial Number	613843	Calibration Ref.	S 5964

Calibration Climate Conditions

The climatic test conditions were all maintained within the permitted limits of IEC 60942:1997.

Temperature	{B.3.2}	Permitted band	15°C to 25°C
Humidity	{B.3.2}	Permitted band	30% to 90% RH
Static Pressure	{B.3.2}	Permitted band	85 kPa to 105 kPa
Ambient Noise Level	{B.3.3.6}	Max permitted level	64 dB(Z)

Measurement Results

The figures below are the Calibration Laboratory test limits for this model calibrator and have a smaller tolerance than those permitted in IEC 60942.

94 dB Output	94.00 dB	Permitted band	93.95 to 94.05dB
94 dB Output	dB	Permitted band	103.80 to 104.30dB
Frequency	1000 Hz	Permitted band	990 to 1010Hz

Uncertainty

With an uncertainty coefficient of $k=2$, i.e. a 95% confidence level, the uncertainty of each measure is

94 dB Output	± 0.13 dB	104 dB Output	± 0.14 dB
Frequency	± 0.1 Hz	Level Stability	± 0.04 dB

Calibrated by

A handwritten signature in black ink, appearing to read "C. Abbott", is written over a horizontal line.

Calibration Date

12 December 2012

Calibration Certificate Number

202725

This Calibration Certificate is valid for 12 months from the date above.

Pulsar Instruments plc, The Evron Centre, John Street, Filey, North Yorkshire, YO14 9DW
Telephone: +44 (0) 1723 518011 Fax: +44 (0) 1723 518043
Email: sales@pulsarinstruments.com

**APPENDIX D
UPDATED ENVIRONMENTAL
MITIGATION IMPLEMENTATION
SCHEDULE**

Appendix D - MTR Works Contract 1117–Summary of Environmental Mitigation Implementation Schedule

ERR ⁽¹⁾ Ref.	ID No.	Recommended Mitigation Measures	Status
<i>Ecology (Construction Phase)</i>			
S7.6.2	-	<p><u>Tree Felling and Vegetation Clearance</u></p> <p>Tree felling and compensatory planting will be implemented in accordance with the requirements of ETWB TCW No. 3/2006 as far as practicable.</p> <p><u>Water Quality</u></p> <p>Good construction site practices as required in ProPECC PN1/94 will be followed as appropriate. Implementation of some good construction practices are presented as follows:</p> <ul style="list-style-type: none"> • Containment of silt runoff within the site boundary; • Appropriate storage and disposal of chemicals and chemical waste and the provision of sanitary facilities for on-site workers; • Erection of temporary geo-textile silt or sediment fences/oil traps around any earth-moving works to trap any sediments and prevent them from entering watercourses; • Avoidance of soil storage against trees or close to water bodies; • No on-site burning of waste; and; • Waste and refuse in appropriate receptacles. 	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
<i>Landscape & Visual (Construction Phase)</i>			
S9.11	-	<p>The following good site practices and measures have been recommended:</p> <ul style="list-style-type: none"> • Re-use of Existing topsoil and fill generated from site • For soil conservation, existing topsoil shall be re-used where possible for new planting areas within the project. The construction program shall consider using the soil removed from one phase for backfilling another. Suitable storage ground, gathering ground and mixing ground may be set up on-site as necessary. • To maximise protection to existing trees, ground vegetation and the associated under storey habitats, construction contracts may designate “No-intrusion Zone” to various areas within the site boundary with rigid and durable fencing for each individual no-intrusion zone. The contractor should closely monitor and restrict the site working staff from entering the “no-intrusion zone”, even for indirect construction activities and storage of equipment. • All retained trees should be recorded photographically at the commencement of the Contract, and carefully protected during the construction period. Detailed tree protection specification shall be allowed for and included in the Contract Specification, which specifies the tree protection requirement, submission and approval system, and the tree monitoring system, 	<p>^</p> <p>^</p> <p>^</p> <p>^</p>

Appendix D - MTR Works Contract 1117–Summary of Environmental Mitigation Implementation Schedule

ERR ⁽¹⁾ Ref.	ID No.	Recommended Mitigation Measures	Status
		<ul style="list-style-type: none"> In addition, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works sites. 	^
Table 9.7	CM1	<u>Site Hoarding</u> Erection of solid screen during construction stage to prevent undesirable views of the construction site from visually sensitive areas.	^
Table 9.7	CM2	<u>Management of facilities on work sites</u> To provide proper site management of the facilities on the sites, give control on the height and disposition/ arrangement of all welfare facilities and construction plant on site to minimise landscape and visual impacts to adjacent VSRs and existing/retained site features.	^
Table 9.7	CM3	<u>Construction programme</u> Employ construction techniques which assist in streamlining construction programme, minimise the duration of plant operations. Consider prefabrication of building elements offsite to minimise on site works and construction period.	^
Construction Dust Impact			
S6.3.3	-	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation potential dust impacts. 8-time watering per day on exposed worksites is recommended during construction phase to further alleviate the potential construction dust impacts.	^
S6.3.3	-	<ul style="list-style-type: none"> Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading; Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; A stockpile of dusty material should not be extended beyond the pedestrian barriers, fencing or traffic cones. The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcore; When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided and properly maintained as far as practicable along the site boundary with provision for public crossing; Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly 	^ ^ ^ ^ ^

Appendix D - MTR Works Contract 1117–Summary of Environmental Mitigation Implementation Schedule

ERR ⁽¹⁾ Ref.	ID No.	Recommended Mitigation Measures	Status
		<p>maintained throughout the construction period;</p> <ul style="list-style-type: none"> • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies. 	<p>^</p> <p>^</p> <p>^</p> <p>N/A⁽²⁾</p> <p>^</p> <p>^</p>
Construction Airborne Noise			
S5.5.6	-	<p>Implement the following good site practices:</p> <ul style="list-style-type: none"> • Louvres should be orientated away from adjacent NSRs, preferably onto the main line of WRL which are less sensitive. • Direct noise mitigation measures including silencers, acoustic louvers and acoustic enclosures should be allowed for in the design for the maintenance buildings, plant buildings and workshops. • The façade and doors for these plant / workshops would have adequate sound insulation properties to minimise the noise emanating through the building fabric to acceptable level. • Acoustic treatments such as silencer, acoustic louvers, noise barriers and acoustic enclosures should be installed for the existing equipment where necessary to minimise the cumulative noise impacts on the NSRs. 	<p>N/A⁽²⁾</p> <p>N/A⁽²⁾</p> <p>^</p> <p>N/A⁽²⁾</p>
Water Quality (Construction Phase)			
S12.5	-	In accordance with the Practice Noise for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN1/94), construction phase mitigation measures shall include the following:	

Appendix D - MTR Works Contract 1117–Summary of Environmental Mitigation Implementation Schedule

ERR ⁽¹⁾ Ref.	ID No.	Recommended Mitigation Measures	Status
		<p><u>Construction Runoff and Site Drainage</u></p> <ul style="list-style-type: none"> • At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction. • The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. Sizes may vary depending upon the flow rate, but for a flow rate of 0.1m³/s a sedimentation basin of 30m³ would be required and for a flow rate of 0.5 m3/s the basin would be 150 m3. The detailed design of the sand/silt traps shall be undertaken by the Contractor prior to the commencement of construction. • All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. Exposed slope surfaces should be covered by tarpaulin or other means. • The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all traffic areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows. • All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. • Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m³ should be covered with tarpaulin or similar fabric during 	<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">^</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">#</p> <p style="text-align: center;">N/A⁽²⁾</p> <p style="text-align: center;">^</p>

Appendix D - MTR Works Contract 1117–Summary of Environmental Mitigation Implementation Schedule

ERR ⁽¹⁾ Ref.	ID No.	Recommended Mitigation Measures	Status
		<p>rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</p> <ul style="list-style-type: none"> • Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. 	<p>^</p> <p>N/A⁽²⁾</p> <p>^</p> <p>N/A⁽²⁾</p>
S12.5.1.2	-	<p><u>Sewage Effluent</u></p> <ul style="list-style-type: none"> • Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. 	^
S12.5.1.3	-	<p><u>Accidental Spillage</u></p> <ul style="list-style-type: none"> • In order to prevent accidental spillage of chemicals, proper storage and handling facilities should be provided. All the tanks, containers, storage area should be bunded and the locations should be locked as far as possible from the sensitive watercourse and storm water drains. The Contractor should register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities should be stored with suitable labels and warnings. Disposal of chemical wastes should be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation. 	*
Waste Management (Construction Waste)			

Appendix D - MTR Works Contract 1117–Summary of Environmental Mitigation Implementation Schedule

ERR ⁽¹⁾ Ref.	ID No.	Recommended Mitigation Measures	Status
S11.5.1	-	A trip-ticket system should be established and will comply with the Waste Disposal (Charges for Disposal of Construction Waste) Regulation to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping.	^
S11.5.1	-	<p><u>C & D Material</u></p> <ul style="list-style-type: none"> • Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement; • Carry out on-site sorting; • Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; • Adopt “Selective Demolition” technique to demolish the existing structures and facilities with a view to recovering broken concrete effectively for recycling purpose, where possible; • Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified; and • Implement an enhanced Waste Management Plan, which become a part of the Environmental Management Plan in accordance with “ETWBTC (Works) No. 19/2005 – Waste Management on Construction Site”, to encourage on-site sorting of C&D materials and to minimize their generation during the course of construction. • In addition, disposal of the C&D materials onto any sensitive locations such as agricultural lands, etc. should be avoided. The Contractor shall propose the final disposal sites to the Project Proponent and get its approval before implementation. 	<p style="margin-bottom: 5px;">^</p> <p style="margin-bottom: 5px;">^</p> <p style="margin-bottom: 5px;">^</p> <p style="margin-bottom: 5px;">N/A⁽²⁾</p> <p style="margin-bottom: 5px;">^</p> <p style="margin-bottom: 5px;">^</p> <p style="margin-bottom: 5px;">^</p>
S11.5.1	-	<p><u>C&D Waste</u></p> <ul style="list-style-type: none"> • Standard formwork or pre-fabrication should be used as far as practicable in order to minimise the arising of C&D materials. The use of more durable formwork or plastic facing for the construction works should be considered. Use of wooden hoardings should not be used, as in other projects. Metal hoarding should be used to enhance the possibility of recycling. The purchasing of construction materials will be carefully planned in order to avoid over ordering and wastage. • The Contractor should recycle as much of the C&D materials as possible on-site. Public fill and C&D waste should be segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal. Where practicable, concrete and masonry can be crushed and used as fill. Steel reinforcement bar can be used by scrap steel mills. Different areas of the sites should be considered for such segregation and storage. 	<p style="margin-bottom: 5px;">^</p> <p style="margin-bottom: 5px;">^</p>
S11.5.1	-	<p><u>General Refuse</u></p> <ul style="list-style-type: none"> • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector 	^

Appendix D - MTR Works Contract 1117–Summary of Environmental Mitigation Implementation Schedule

ERR ⁽¹⁾ Ref.	ID No.	Recommended Mitigation Measures	Status
		<p>should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.</p> <ul style="list-style-type: none"> • Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. • Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminium cans, plastic bottles etc., should be provided. 	<p>^</p> <p>^</p>
S11.5.1	-	<p><u>Chemical Waste</u></p> <p>Chemical waste producers should be registered with EPD. For those processes which generate chemical waste, the Contractor shall identify any alternatives that generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste.</p> <p>Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows.</p> <p>Containers used for storage of chemical wastes should:</p> <ul style="list-style-type: none"> • 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 specification have been approved by EPD; and • Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations. <p>The storage area for chemical wastes should:</p> <ul style="list-style-type: none"> • Be clearly labelled and used solely for the storage of chemical wastes; • 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 the area, whichever is greatest; • Have adequate ventilation; • Be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste, if necessary); and • Be arranged so that incompatible materials are adequately separated. <p>Disposal of chemical waste should:</p>	<p>^</p> <p>N/A⁽²⁾</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>

Appendix D - MTR Works Contract 1117–Summary of Environmental Mitigation Implementation Schedule

ERR ⁽¹⁾ Ref.	ID No.	Recommended Mitigation Measures	Status
		<ul style="list-style-type: none"> • Be via a licensed waste collector; and • Be to a facility licensed to receive chemical waste, such as the CWTC which also offers a chemical waste collection service and can supply the necessary storage containers; or • Be to a re-user of the waste, under approval from EPD. 	^ ^ N/A ⁽²⁾

Remarks:

(1) The latest Environmental Review Report (ERR) for Pat Heung Depot Modification Works is referred in preparation of this summary.

^ Compliance of mitigation measure X Non-compliance of mitigation measure

- Non-compliance but rectified by the contractor

- * Recommendation was made during site audit but improved/rectified by the contractor.

- # Recommendation was made during site audit but not yet improved/rectified by the contractor.

N/A⁽¹⁾ Not Applicable

N/A⁽²⁾ Not Applicable at this stage

**APPENDIX E
ENVIRONMENTAL MONITORING
SCHEDULE**

Contract No. SCL 1117
 Pat Heung Depot Modification Works
 Tentative Impact Noise Monitoring Schedule for August 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1-Aug	2-Aug	3-Aug
				<u>Noise</u> (1) at NM1, NM2 & NM3A		
4-Aug	5-Aug	6-Aug	7-Aug	8-Aug	9-Aug	10-Aug
				<u>Noise</u> (1) at NM1, NM2 & NM3A		
11-Aug	12-Aug	13-Aug	14-Aug	15-Aug	16-Aug	17-Aug
				<u>Noise</u> (1) at NM1, NM2 & NM3A		
18-Aug	19-Aug	20-Aug	21-Aug	22-Aug	23-Aug	24-Aug
				<u>Noise</u> (1) at NM1, NM2 & NM3A		
25-Aug	26-Aug	27-Aug	28-Aug	29-Aug	30-Aug	31-Aug
			<u>Noise</u> (1) at NM1, NM2 & NM3A			

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Noise Monitoring Station:

- NM1 - Tourmaline Villa
- NM2 - Kam Po Road
- NM3A - Tai Kek Tsuen

Category	Time Period
(1)	0700-1900 hrs on normal weekdays

Contract No. SCL 1117
 Pat Heung Depot Modification Works
 Tentative Impact Noise Monitoring Schedule for September 2013

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1-Sep	2-Sep	3-Sep	4-Sep	5-Sep	6-Sep	7-Sep
				Noise (1) at NM1, NM2 & NM3A		
8-Sep	9-Sep	10-Sep	11-Sep	12-Sep	13-Sep	14-Sep
				Noise (1) at NM1, NM2 & NM3A		
15-Sep	16-Sep	17-Sep	18-Sep	19-Sep	20-Sep	21-Sep
			Noise (1) at NM1, NM2 & NM3A			
22-Sep	23-Sep	24-Sep	25-Sep	26-Sep	27-Sep	28-Sep
			Noise (1) at NM1, NM2 & NM3A			
29-Sep	30-Sep					

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Noise Monitoring Station:

- NM1 - Tourmaline Villa
- NM2 - Kam Po Road
- NM3A - Tai Kek Tsuen

Category	Time Period
(1)	0700-1900 hrs on normal weekdays

**APPENDIX F
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

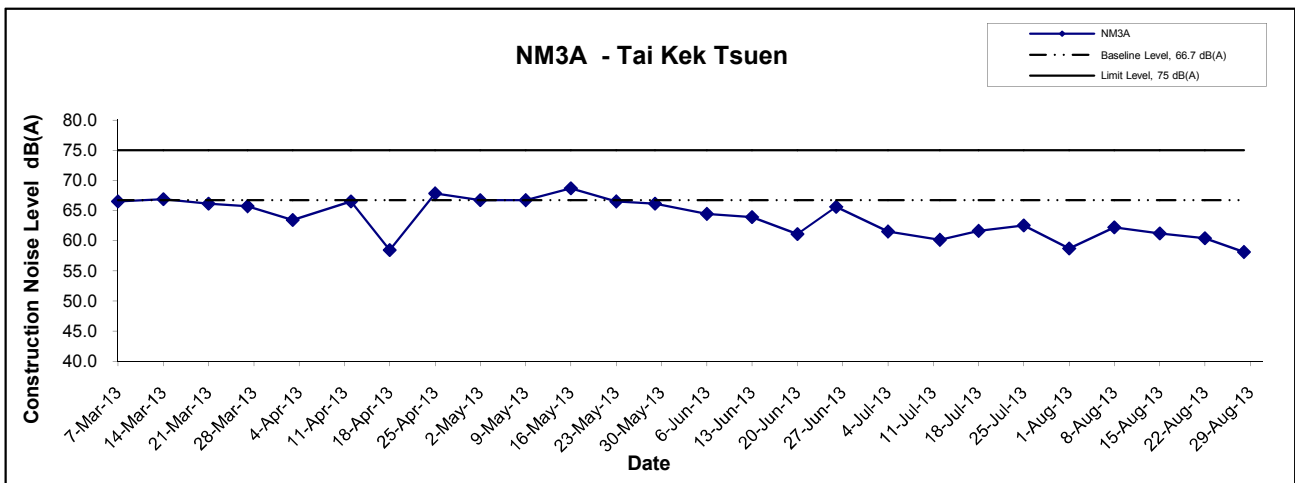
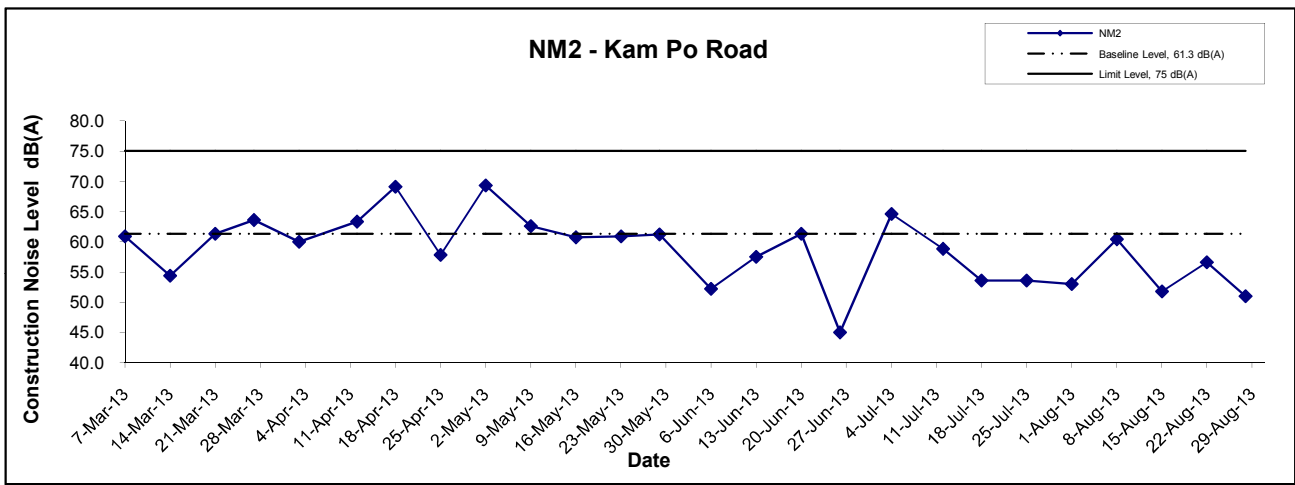
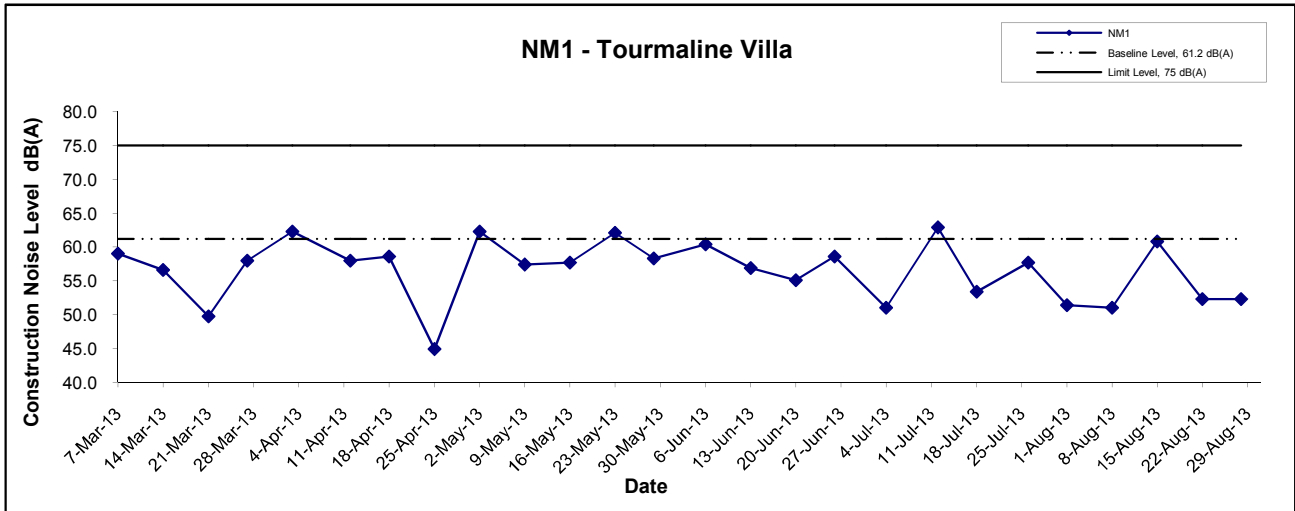
Appendix F - Noise Monitoring Results

Location NM1 - Tourmaline Villa							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
1-Aug-13	9:48	Cloudy	51.4	50.6	43.6	61.2	51.4 Measured ≤ Baseline
8-Aug-13	10:26	Sunny	51	48.9	42.9		51.0 Measured ≤ Baseline
15-Aug-13	14:43	Cloudy	60.8	55.4	46.9		60.8 Measured ≤ Baseline
22-Aug-13	9:40	Cloudy	52.3	51.5	46.9		52.3 Measured ≤ Baseline
28-Aug-13	9:40	Sunny	52.3	51.5	46.9		52.3 Measured ≤ Baseline

Location NM2 - Kam Po Road							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
1-Aug-13	10:47	Cloudy	53.0	53.4	44.3	61.3	53.0 Measured ≤ Baseline
8-Aug-13	9:46	Sunny	60.4	56.9	41.5		60.4 Measured ≤ Baseline
15-Aug-13	15:27	Cloudy	51.8	53.3	42.7		51.8 Measured ≤ Baseline
22-Aug-13	10:24	Cloudy	56.6	54.2	40.5		56.6 Measured ≤ Baseline
28-Aug-13	10:23	Sunny	51	50.4	41.1		51.0 Measured ≤ Baseline

Location NM3A - Tai Kek Tsuen							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
1-Aug-13	8:57	Cloudy	58.7	57.3	48.2	66.7	58.7 Measured ≤ Baseline
8-Aug-13	9:00	Sunny	62.2	59.1	47.6		62.2 Measured ≤ Baseline
15-Aug-13	13:52	Cloudy	61.2	56.9	47.9		61.2 Measured ≤ Baseline
22-Aug-13	9:03	Cloudy	60.4	60.7	48.5		60.4 Measured ≤ Baseline
28-Aug-13	9:03	Sunny	58.1	59.2	49.6		58.1 Measured ≤ Baseline

Noise Levels



Title MTR Works Contract 1117 Pat Heung Depot Modification Works Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA13003	
	Date Aug-13	Appendix F	

**APPENDIX G
WASTE GENERATION IN THE
REPORTING MONTH**

Paul Y. Construction Company, Limited
MTR Contract 1117
Pat Heung Depot Modification Works

Monthly Summary Waste Flow Table for 2013 (year)

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed to Sorting Facilities	Disposed to Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in kg)	(in kg)	(in kg)	(in '000m ³)
Jan '13	0.151	-	-	-	0.123	0.028	-	-	-	-	-	0.338
Feb '13	0.074	-	-	-	0.004	0.07	-	0.42	22.4	-	-	0.049
Mar '13	0.108	-	-	-	0.004	0.104	-	0.69	90	20	-	0.118
Apr '13	0.034	-	-	-	0.01	0.024	-	6.12	50	-	-	0.093
May '13	0.368	-	-	-	0.013	0.355	-	-	145	25	-	0.073
Jun '13	0.249	-	-	-	0.044	0.205	-	6.79	256	15	-	0.069
Sub-total	0.984	-	-	-	0.198	0.786	-	14.02	563.4	60	-	0.740
Jul '13	0.697	-	-	-	0.009	0.688	-	4.09	75	3	-	0.053
Aug '13	1.577	-	-	-	0.014	1.563	-	0.80	103	3	-	0.075
Sep '13	-	-	-	-	-	-	-	-	-	-	-	-
Oct '13	-	-	-	-	-	-	-	-	-	-	-	-
Nov '13	-	-	-	-	-	-	-	-	-	-	-	-
Dec '13	-	-	-	-	-	-	-	-	-	-	-	-
Total	3.258	-	-	-	0.221	3.037	-	18.91	741.4	66	-	0.8679

Note:

Assume the densities of Rock, Soil, Mix Rock and Soil are Regular Spoil to be 2.0 tonnes/m³. Assumption the densities of general refuse is 1.0 tonnes/m³

**APPENDIX H
SITE AUDIT SUMMARY**

*Shatin to Central Link -
Contract 1117 Pat Heung Depot Modification Works*



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130806
Date	6 August 2013 (Tuesday)
Time	09:00 -12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
130806-O02	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Sand bags should be repaired regularly, muddy water should be prevented from entering the u-channel in Area A <p>Part C - Tree Management Protection / Landscape & Visual Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. 	B 1 & B 8
130806-O01	<p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> Drip tray should be provided to contain the chemical containers at Area A behind the worker's rest area. 	F 9
130806-R03	<ul style="list-style-type: none"> Drip tray should be cleared regularly to prevent accumulation of mud at Area A <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:130730), item 130730-O01 was found outstanding and will be followed up in the next site inspection. This item has now remarked as 130806-O02. 	F 9

	Name	Signature	Date
Recorded by	Victor Wong		8 July 2013
Checked by	Dr. Priscilla Choy		8 July 2013

*Shatin to Central Link -
Contract 1117 Pat Heung Depot Modification Works*

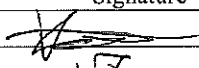

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130816
Date	16 August 2013 (Friday)
Time	14:00 -15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
130816-R02	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Sand bags should be repaired regularly to prevent muddy water from entering the u-channel at Area A 	B 8
130816-001	<p>Part C - Tree Management Protection / Landscape & Visual Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> The oil drums, air compressor and chemical containers should be contained by drip trays at Area A and B. The existing drip trays should be properly maintained and sealed off, and with the accumulated mud cleared. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:130806), items 130806-O02 and 130806-R03 were found outstanding and will be followed up in the next site inspection. The items have now remarked as 130816-R02 and 130816-O01. 	F 9

	Name	Signature	Date
Recorded by	Victor Wong		19 August 2013
Checked by	Dr. Priscilla Choy		19 August 2013

*Shatin to Central Link -
Contract 1117 Pat Heung Depot Modification Works*

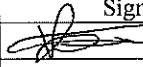

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130820
Date	20 August 2013 (Tuesday)
Time	09:00 -11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
130820-O02	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> Muddy water and oil should be prevented from entering the u-channel at Area A. Sand bags should be repaired regularly and placed within the channel. 	B 1 & B 8
130820-R03	<p>Part C - Tree Management Protection / Landscape & Visual Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> The impervious cover for the mixer at Area B should be repaired regularly to prevent dust emission. 	D 13
130820-O01	<p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> Drip trays should be provided to contain the air compressors at Area A <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> Follow-up on previous audit section (Ref. No.:130816), items 130816-O01 and 130816-R02 were found outstanding and will be followed up in the next site inspection. The items have now remarked as 130820-O01 and 130820-O02. 	F 9

	Name	Signature	Date
Recorded by	Victor Wong		21 August 2013
Checked by	Dr. Priscilla Choy		21 August 2013

*Shatin to Central Link -
Contract 1117 Pat Heung Depot Modification Works*

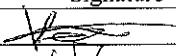

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130827
Date	27 August 2013 (Tuesday)
Time	09:00 -10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
130827-001	<p>Part B - Water Quality</p> <ul style="list-style-type: none"> • Mud should be cleared from the u-channel at Area A <p>Part C - Tree Management Protection / Landscape & Visual Impact</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part D - Air Quality</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part E - Construction Noise Impact</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part F - Waste/Chemical Management</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part G - Permit / Licenses</p> <ul style="list-style-type: none"> • No environmental deficiency was identified during the site inspection. <p>Part H - Others</p> <ul style="list-style-type: none"> • Follow-up on previous audit section (Ref. No.:130820), item 130820-002 and was found outstanding and will be followed up in the next site inspection. The item has now remarked as 130827-001. 	B 1 & B 8

	Name	Signature	Date
Recorded by	Victor Wong		28 August 2013
Checked by	Dr. Priscilla Choy		28 August 2013

APPENDIX I
SUMMARY OF EXCEEDANCE

APPENDIX I – SUMMARY OF EXCEEDANCE

Reporting Month: August 2013

a) Exceedance Report for Noise Monitoring (NIL)

**APPENDIX J
CUMULATIVE LOG FOR COMPLAINTS,
NOTIFICATIONS OF SUMMONS AND
SUCCESSFUL PROSECUTIONS**

Appendix J - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions**Cumulative Complaint Log**

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	File Closed
--	--	--	--	--	--

Cumulative Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
--	--	--	--	--	--

Cumulative Log for Successful Prosecutions

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
--	--	--	--	--	--