Paul Y. Construction Company, Limited

MTR Works Contract 1117-
Pat Heung Depot Modification Works

Monthly Noise Monitoring Report
for
November 2014

(Version 1.0)

Certified By

Environmental Team Leader

(Dr. Priscilla Choy)

REMARKS:

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

CINOTECH accepts no responsibility for changes made to this report by third parties.

CINOTECH CONSULTANTS LTD
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong
Tel: (852) 2151 2083 Fax: (852) 3107 1388
Email: info@cinotech.com.hk

MTR Corporation Limited

West Rail

Pat Heung Modification Works

Monthly Noise Monitoring Report No. 21

[Period from 1 to 30 November 2014]

(December 2014)

Verified by: Fredrick Leong

Position: Independent Environmental Checker

Date: 10 Dec. 2014

TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

EXECUTIVE SUMMARY

Introduction

1. This is the 21st 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 November to 30 November 2014 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 and formation, site surveying;
- Auger piling, sheet-piling;
- embankment works, drainage works, manholes excavation;
- ELS works for EMU extension building;
- RC substructure works and superstructural works for EMU extension building, Ancillary E&M plant building and IMB building;
- EMU existing roof canopy demolition;
- Modification works for protected corridor in existing EMU building;
- Excavation of Train Wash Plant Basin;
- ABWF Works;
- Construction of retaining wall footing at Location 3;
- Hydroseeding.

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 4 times
  - NM2 4 times
  - NM3A 4 times
  - Environmental Site Inspection 4 times

Noise

5. 4 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 2,654 m^3 of inert C&D materials were

generated during the reporting period. Non-inert C&D includes 18 m^3 of general refuse, 245 kg of paper/cardboard packaging materials, 39 kg of metals and 6 kg of plastic waste were generated during the reporting period. The inert C&D materials generated from the Project were disposed of at TM 38 Area 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 and formation, site surveying;
- auger piling, sheet-piling;
- embankment works, drainage works, manholes excavation;
- ELS works for EMU extension building and P-way Workshop;
- RC substructure works and superstructural works for EMU extension building, Ancillary E&M plant building, IMB building;
- EMU existing roof canopy demolition;
- Modification works for protected corridor in existing EMU building;
- Excavation of Train Wash Plant Basin;

- ABWF Works;
- Upgrading of existing noise barrier;
- Construction of retaining wall footing at Location 3;
- Hydroseeding.

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 21st Monthly Noise Monitoring Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1 November to 30 November 2014 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) in1998. 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) were 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 and formation, site surveying;
- Auger piling, sheet-piling;
- embankment works, drainage works, manholes excavation;
- ELS works for EMU extension building;
- RC substructure works and superstructural works for EMU extension building, Ancillary E&M plant building and IMB building;
- EMU existing roof canopy demolition;
- Modification works for protected corridor in existing EMU building;
- Excavation of Train Wash Plant Basin;
- ABWF Works;
- Construction of retaining wall footing at Location 3;

- Hydroseeding.

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/J	21/10/2013	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-RN0272-14 **(Area D: A64-2 Local Cable Diversion)**	20/5/2014	19/11/2014	Expired
GW-RN0514-14 **(Area C: Location 4 Noise Barrier Upgrade)**	13/9/2014	12/3/2015	Valid
GW-RN0546-14 **(Area A: EMU Extension)**	20/9/2014	19/3/2015	Valid
GW-RN0622-14 **(Area C: OHL Footing near Tai Lam Tunnel)**	14/10/2014	2/4/2015	Cancelled on 11/11/2014

Permit / License No.	Valid Period		Status
	From	To	
GW-RN0691-14 **(Area C: OHL Footing near Tai Lam Tunnel)**	11/11/2014	4/5/2014	Valid
GW-RN0670-14 **(Area D: A64-2 Local Cable Diversion)**	20/11/2014	19/5/2015	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); Pulsar Instruments Model 93 (Serial no. B22195)	2
Calibrator	Pulsar Instruments Model 105 (Serial no. 64958) Pulsar Instruments Model 105 (Serial no. 60626)	2

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	$L_{eq,30\ min.}$ (1) (L_{10} and L_{90} were also recorded as supplementary information)	0700-1900 hours on normal weekdays	Once a week

Note (1): Leq, $30_{min.}$ as six consecutive $L_{eq,\ 5min}$ 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 $L_{eq,\ 5min}$ readings for a $L_{eq,\ 30\ min}$ 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 (October 2014)	12th November 2014

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 Area Fill Bank and NENT respectively. 245 kg of paper/cardboard packaging materials, 39 kg of metals and 6 kg of plastic waste 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
November 2014	2,654 m^3	18 m^3	0 *kg*	245 *kg*	6 *kg*	39 *kg*

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 4, 11, 18 and 26 November 2014 by ET. A joint site audit with the representative with IEC, ER, the Contractor and the ET was carried out on 26 November 2014. 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 made during the audit sessions are summarized in **Table 6.1**.

Table 6.1 Site Audit Observations

Parameters	Date	Observations	Follow-up
Water Quality	30 September 2014	Reminder: The Contractor should avoid accumulation of muddy water in the drainage channel (Area C, A 100).	The Contractor has reduced some of the accumulated sediment in u-channel in Area A on 14 October 2014; further rectification in Area C is still required and will be followed up in the next reporting month.
	7 October 2014	Sediment in the u-channel should be cleared frequently to avoid accumulation (Area A and C).	The Contractor has reduced some of the accumulated sediment in u-channel in Area A on 14 October 2014; further rectification in Area C is still required and will be followed up in the next reporting month.
	14 October 2014	Reminder: The Contractor should check the u-channel in Area C (A100) to ensure sand bags are provided and avoid mud accumulation.	The item was found outstanding on 26 November 2014; Follow-up status will be provided in the next reporting month.
	21 October 2014	Reminder: Sediment in the u-channels should be cleared regularly; The Contractor should monitor the discharged water and surface run-off to ensure the water quality is acceptable. (Area A and C).	The item was found outstanding on 26 November 2014; Follow-up status will be provided in the next reporting month.
	28 October 2014	Sediment retained by sand bag in the drainage channels should be cleared regularly in Area A and C; Protective covers over the u-channels should be provided to prevent sediment or muddy run-off from entering the channels.	Covers were provided over one of the u-channel in Area A on 4 November 2014; The accumulated sediment in the u-channel in Area A has been cleared on 18 November 2014. Sediment accumulation in other identified u-channels still require

Parameters	Date	Observations	Follow-up
			further rectification and will be provided in the next reporting month.
	4 November 2014	U-channels should be maintained regularly to avoid accumulation of mud and surface run-off (Area C, Location 3).	The item was found outstanding on 26 November 2014; Follow-up status will be provided in the next reporting month.
	11 November 2014	Discharged water quality form the sedimentation tanks in Area A and C should be improved; Sediment accumulation is observed in the discharging drainage channel in Area C, Location 3.	The item was found outstanding on 26 November 2014; Follow-up status will be provided in the next reporting month.
	18 November 2014	Sludge accumulation is observed in the sedimentation tank (Area A).	The item was found outstanding on 26 November 2014; Follow-up status will be provided in the next reporting month.
	26 November 2014	Reminder: Sediment accumulation was observed in the sedimentation tank (Area A) and u-channel (Area C).	Follow-up status will be provided in the next reporting month.
	26 November 2014	Reminder: The Contractor should ensure the pH level is acceptable when the AquaSed tank is operational (Area B).	Follow-up status will be provided in the next reporting month.
Noise	N/A	N/A	N/A
Tree Protection/ Landscape and Visual	N/A	N/A	N/A
Air Quality	21 October 2014	The haul road should be sprayed with water regularly (Area B).	Water has been sprayed on the road on 4 November 2014.
	28 October 2014	Reminder: Water should be sprayed on the haul road for dust suppression (Area C, Location 3).	Water has been sprayed on the road on 4 November 2014.
	18 November 2014	Smoke emission is observed from the generator in Area A and should be checked to ensure it function properly.	The item was found outstanding on 26 November 2014; Follow-up status will be provided in the next reporting month.
	26 November 2014	The generator should be maintained to avoid smoke emission (Area A).	Follow-up status will be provided in the next reporting month.
	26 November 2014	Reminder: Stockpile and haul road should be sprayed with water (Area B, C).	Follow-up status will be provided in the next reporting month.
Waste / Chemical Management	28 October 2014	Oil stain was observed near the excavator in Area D and B.	The identified oil stains has been removed on 4 November 2014.
	4 November 2014	Oil leakage is observed from the excavator in Area B	The identified oil leak has been cleared on 11 November 2014.
	4 November 2014	Reminder: Oil or chemical containers should be provided with drip trays (Area A and B).	Container in Area B was relocated to a drip tray on 11 November 2014; while the oil containers were still observed without drip tray in Area A and follow-up status will be provided

Parameters	Date	Observations	Follow-up
			in the next reporting month.
	4 November 2014	General refuse should be stored properly or cleared frequently in Area B.	The general refuse has been reduced on 11 November 2014.
	11 November 2014	Reminder: Oil or chemical containers should be provided with drip trays or treated as chemical waste if not in use (Area A).	Follow-up status will be provided in the next reporting month.
	18 November 2014	Reminder: General refuse should be stored properly and removed in a regular basis (Area D).	Identified general refuse was cleared on 26 November 2014.
	26 November 2014	Oil stain should be cleared (Area B).	Follow-up status will be provided in the next reporting month.
	26 November 2014	Oil containers should be provided with drip tray (Area C, D).	Follow-up status will be provided in the next reporting month.
	26 November 2014	General refuse should be sorted and provide with adequate containers (Area B).	Follow-up status will be provided in the next reporting month.
Permits/Licenses	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 drilling works and surface run-off;
- Dust control during loading of materials and excavation;
- 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 and bundings at the u-channel to prevent muddy run-off from directly accessing the main drainage channels.

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 and formation, site surveying;
- Auger piling, sheet-piling;
- Chiller pipe diversion;
- Embankment works, drainage works, manholes excavation;
- ELS works for EMU extension building and P-way Workshop;
- RC substructure works and superstructural works for EMU extension building, Ancillary E&M plant building, IMB building;
- EMU existing roof canopy demolition;
- Modification works for protected corridor in existing EMU building;
- Upgrading of existing noise barrier;
- Construction of retaining wall footing at Location 3; and,
- Hydroseeding.

9 CONCLUSIONS

Conclusions

9.1 This Monthly Noise Monitoring Report presents the EM&A works undertaken during the period from 1 November to 30 November 2014 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 The following recommendations were made for the next report month:

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;
- Bunding should be provided to confine the runoff in site area during rainstorm, particularly along the drainage channel; and
- U-channel should be maintained by regularly removing trapped mud and providing coverage and sediment baffles to the channel wherever possible.
- The discharge quality must meet the requirements specified in the discharge licence.

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.
- Oil stains on the floor should be treated as chemical waste and cleaned off immediately.

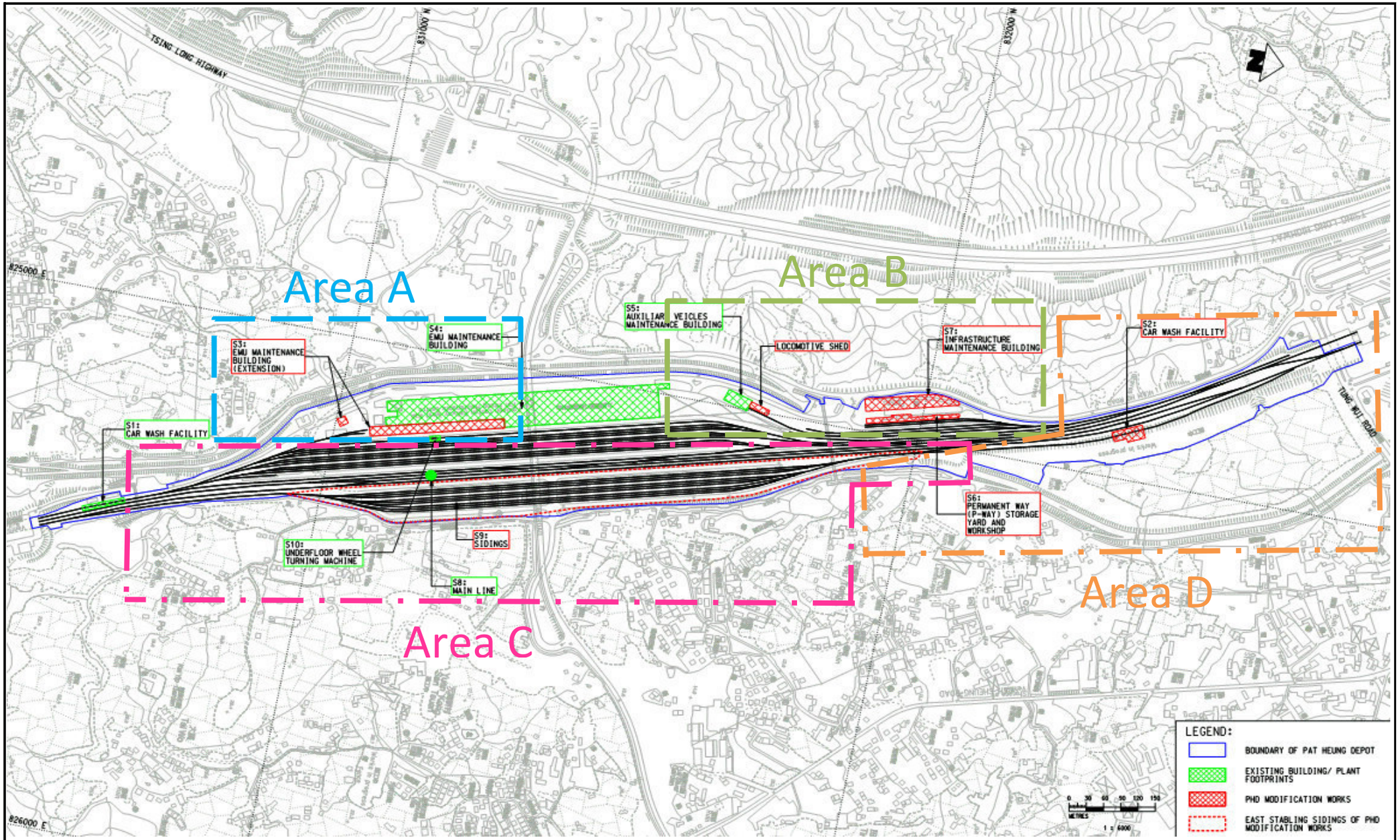
Air Quality

- Proper covering of stockpile, especially cement, should be provided to reduce dust generation; and
- Adequate water spraying should be applied on the haul roads and site entrances to reduce dust emission generated by traffic movement.

Construction Noise Impact

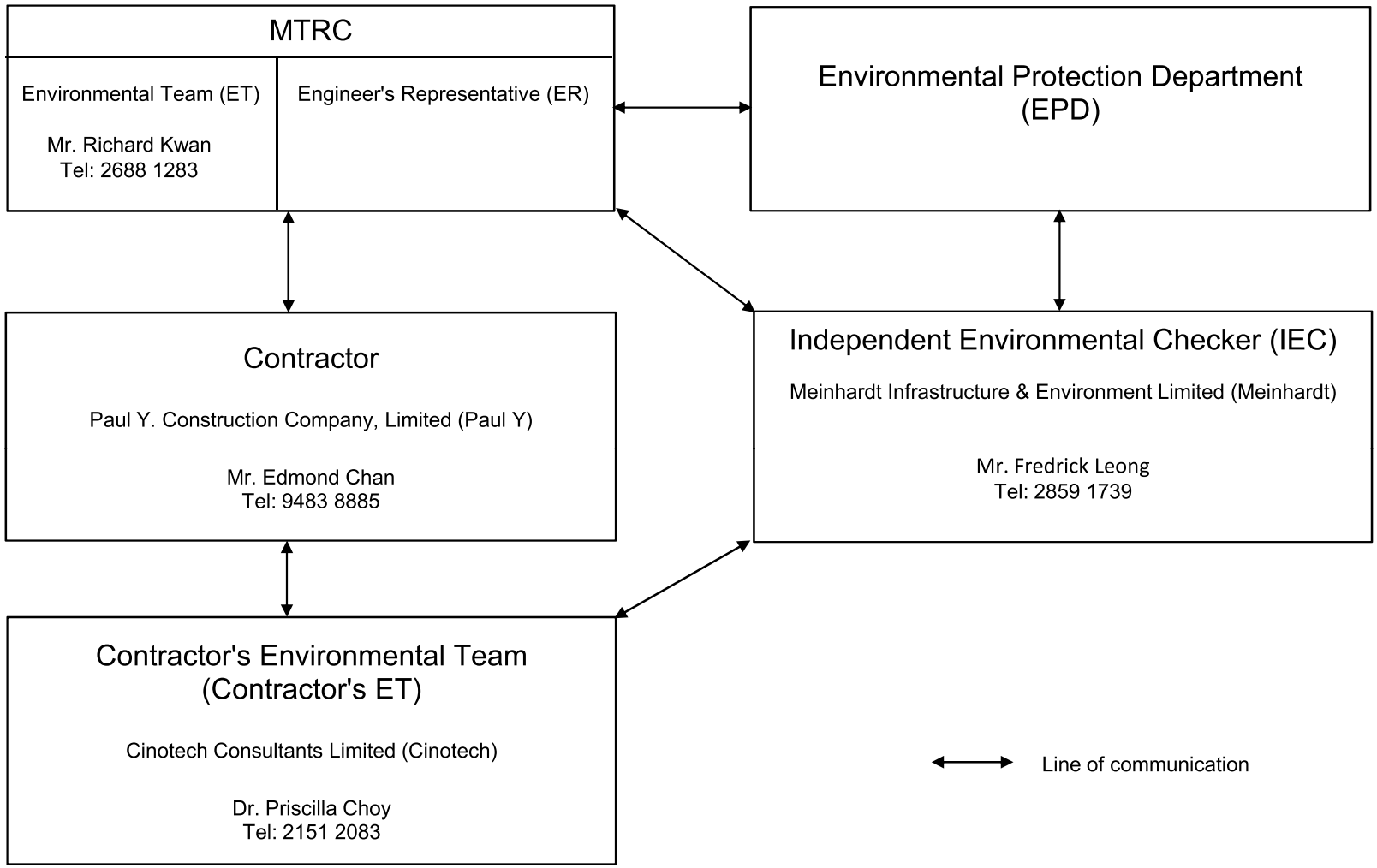
- Minimise noise nuisance to the nearby residential area by utilising noise barriers to shield off mechanical equipments.

FIGURES



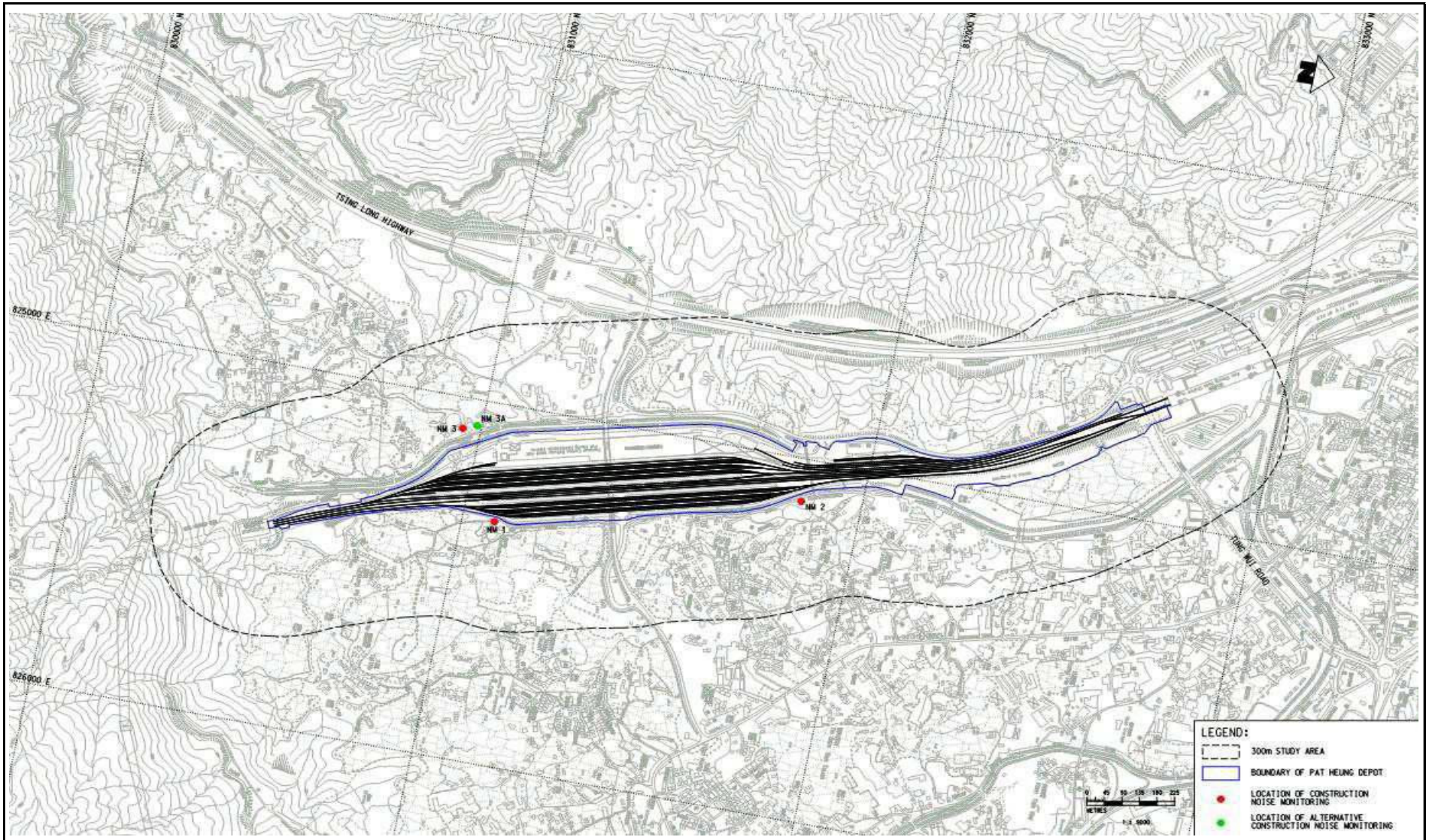
Title	SCL Contract 1117 Shatin to Central Link - Pat Heung Depot Modification Works Site Layout Plan	Scale N.T.S Date Apr-13	Proposal No. MA13003 Figure 1

CINOTECH



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	Proposa No.: MA13003 Figure: 2

CINOTECH



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

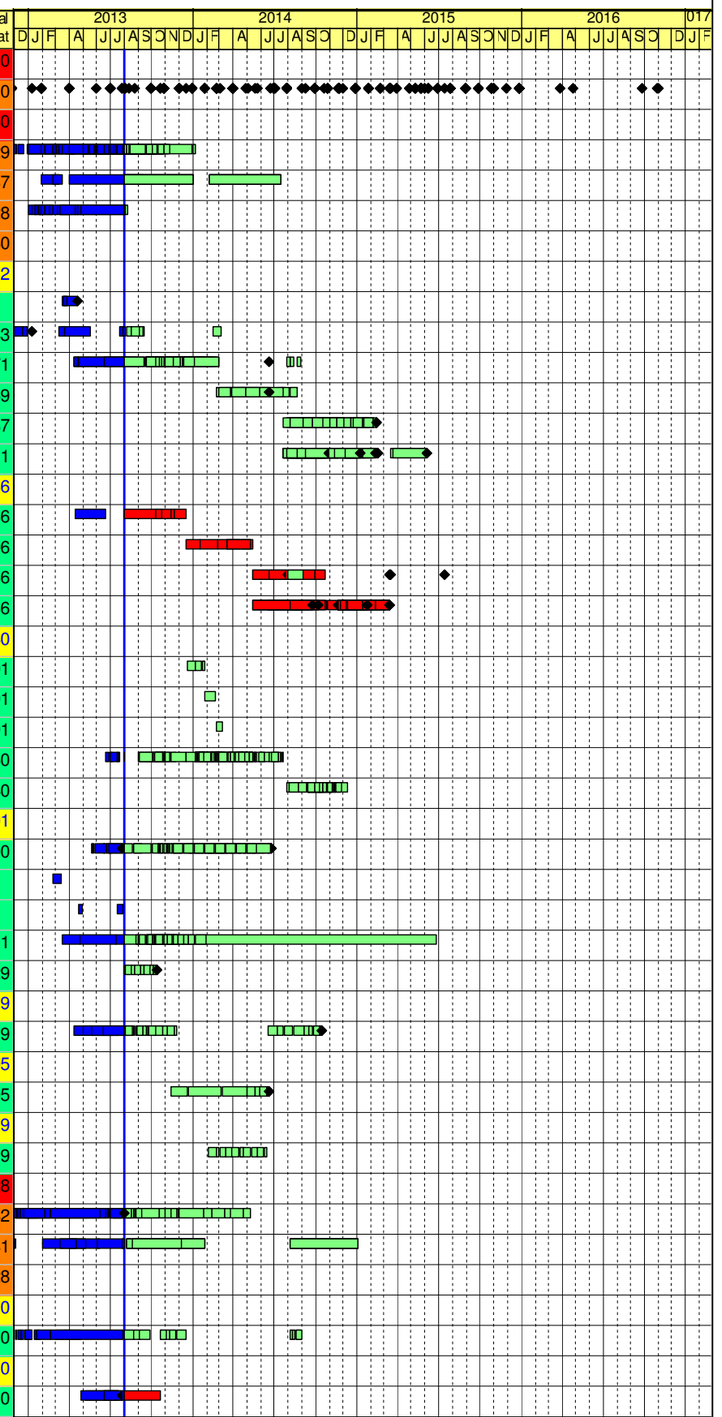
CINOTECH

APPENDIX A
TENTATIVE CONSTRUCTION PROGRAMME

SCL 1117 Pat Heung Depot Modification Works

04-Dec-13

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	Late Start	Late Finish	Total Float
	Preliminaries and General Requirements	1764	1552	22-Oct-12 A	29-Oct-17	16-Mar-13	29-Oct-17	0
	Preliminaries and General Requirements	1764	1552	22-Oct-12 A	29-Oct-17	16-Mar-13	29-Oct-17	0
	Area A - EMU Bldg Ext/Extg EMU Bldg/Noise Barrier 1/E&M Ancl Bldg	771	579	22-Oct-12 A	15-Jul-15	08-Feb-13	29-Oct-17	680
	Preliminary Works Submission (Area A)	204	130	22-Nov-12 A	06-Jan-14	16-Mar-13	29-Oct-17	1129
	Materials Procurement (Area A)	333	283	29-Jan-13 A	15-Jul-14	21-Jun-13	27-Aug-14	37
	Materials Submission (Area A)	120	9	31-Dec-12 A	09-Aug-13	24-Aug-13	17-Jan-14	128
	Site Construction Works (Area A)	771	579	22-Oct-12 A	15-Jul-15	08-Feb-13	29-Oct-17	680
	EMU Building Extension	716	547	22-Oct-12 A	05-Jun-15	03-Aug-13	29-Oct-17	712
	E0 - Geotechnical Instrumentation and Monitoring	25	0	16-Mar-13 A	19-Apr-13 A	03-Aug-13	03-Aug-13	
	E0 - General Site Clearance	345	171	22-Oct-12 A	03-Mar-14	23-Nov-13	29-Oct-17	1083
	E1 - Excavation and Foundation	371	321	10-Apr-13 A	28-Aug-14	03-Aug-13	22-Nov-14	71
	E2 - Civil & Structures Works	145	145	22-Feb-14	19-Aug-14	26-Feb-14	30-Oct-14	59
	E3 - ABWF Works	174	174	21-Jul-14	14-Feb-15	31-Jul-14	06-Jun-15	87
	E4 - BS Installation Works	260	260	21-Jul-14	05-Jun-15	31-Jul-14	06-Jun-15	1
	Ancillary E&M Plant Building	579	579	15-Apr-13 A	15-Jul-15	08-Feb-13	24-Jan-15	-136
	E1 - Excavation and Foundation	116	116	15-Apr-13 A	16-Dec-13	08-Feb-13	06-Jul-13	-136
	E2 - Civil & Structures Works	115	115	17-Dec-13	13-May-14	08-Jul-13	10-Jan-14	-96
	E3 - ABWF Works	348	348	14-May-14	15-Jul-15	10-Feb-14	24-Jan-15	-136
	E4 - BS Installation Works	251	251	14-May-14	14-Mar-15	22-Nov-13	27-Sep-14	-136
	Existing EMU Building	408	408	20-Jun-13 A	11-Dec-14	14-Feb-14	06-Jun-15	140
	Underground Drainage	30	30	20-Dec-13	27-Jan-14	14-Apr-14	23-May-14	91
	E1 - Excavation and Foundation	18	18	28-Jan-14	20-Feb-14	24-May-14	14-Jun-14	91
	E2 - Civil & Structures Works	12	12	21-Feb-14	06-Mar-14	16-Jun-14	28-Jun-14	91
	BS Works (Existing EMU Building) Phase A	288	288	20-Jun-13 A	21-Jul-14	14-Feb-14	06-Jun-15	260
	BS Works (Existing EMU Building) Phase B)	115	115	28-Jul-14	11-Dec-14	27-Aug-14	06-Jun-15	140
	Option 1 - MTR Cable Diversion Works	676	564	22-Feb-13 A	26-Jun-15	01-Aug-13	31-Oct-16	401
	Cable Containment (Area A)	302	265	20-May-13 A	23-Jun-14	06-Aug-13	31-Oct-16	700
	Demolition	18	0	22-Feb-13 A	14-Mar-13 A	03-Aug-13	03-Aug-13	
	General Site Clearance	59	0	22-Apr-13 A	29-Jul-13 A	02-Aug-13	06-Sep-13	
	Cable Diversion - Area A (A3 & A5 Drawpit Cable Diversion)	616	564	16-Mar-13 A	26-Jun-15	01-Aug-13	27-Jun-15	1
	Area A Storm Drain Diversion for A3/A5 Systemwide Cable Diversion	61	61	31-Jul-13	11-Oct-13	03-Sep-13	15-Nov-13	29
	Miscellaneous and External Works (Overhead Line)	432	358	11-Apr-13 A	15-Oct-14	02-Aug-13	25-Oct-14	9
	Overhead Line Construction	432	358	11-Apr-13 A	15-Oct-14	02-Aug-13	25-Oct-14	9
	Miscellaneous and External Works (Noise Barrier)	177	177	12-Nov-13	20-Jun-14	21-Mar-14	26-Oct-14	105
	External Works near Noise Barrier (Area A)	177	177	12-Nov-13	20-Jun-14	21-Mar-14	26-Oct-14	105
	Miscellaneous and External Works (Roadworks)	107	107	03-Feb-14	14-Jun-14	13-Feb-14	25-Jun-14	9
	Road Works & External Works	107	107	03-Feb-14	14-Jun-14	13-Feb-14	25-Jun-14	9
	Area B - New Fuel Station/Extg Fuel Station/New Loco Shed/New Training Track/IMB/P-Way Workshop	891	665	22-Oct-12 A	27-Oct-15	27-Jul-13	28-Nov-15	28
	Preliminary Works Submission (Area B)	301	227	21-Nov-12 A	08-May-14	27-Jul-13	15-Aug-14	82
	Materials Procurement (Area B)	650	419	22-Oct-12 A	02-Jan-15	27-Jul-13	15-Apr-15	81
	Site Construction Works (Area B)	743	665	03-Dec-12 A	27-Oct-15	27-Jul-13	28-Nov-15	28
	Site Preparation Works	397	323	03-Dec-12 A	30-Aug-14	31-Jul-13	12-Sep-14	10
	Works Areas W6, W6A, W6B, W6C & W6D	397	323	03-Dec-12 A	30-Aug-14	31-Jul-13	12-Sep-14	10
	Option 1 - MTR Cable Diversion Works	153	67	26-Apr-13 A	19-Oct-13	31-Jul-13	19-Oct-13	0
	Systemwide Cable Diversion (Red) (Area B)	153	67	26-Apr-13 A	19-Oct-13	31-Jul-13	19-Oct-13	0



Paul Y 保華建築有限公司
Paul Y. Construction Company, Limited

Remaining Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone

Revised Construction Programme (CP04Frev1)

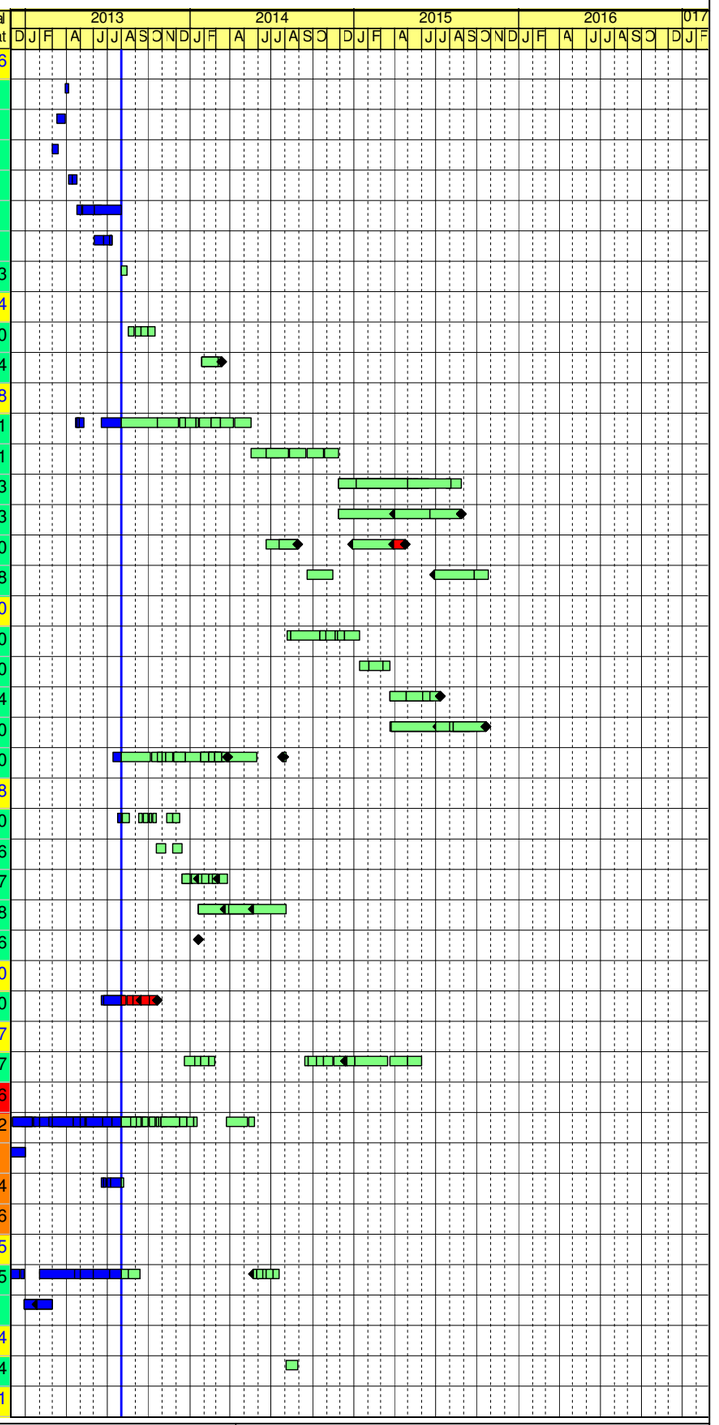
SCL 1117 Pat Heung Depot Modification Works

Date	Revision	Che...	Ap...
04-Dec-13	CP04Frev1 (updated ver...		

SCL 1117 Pat Heung Depot Modification Works

04-Dec-13

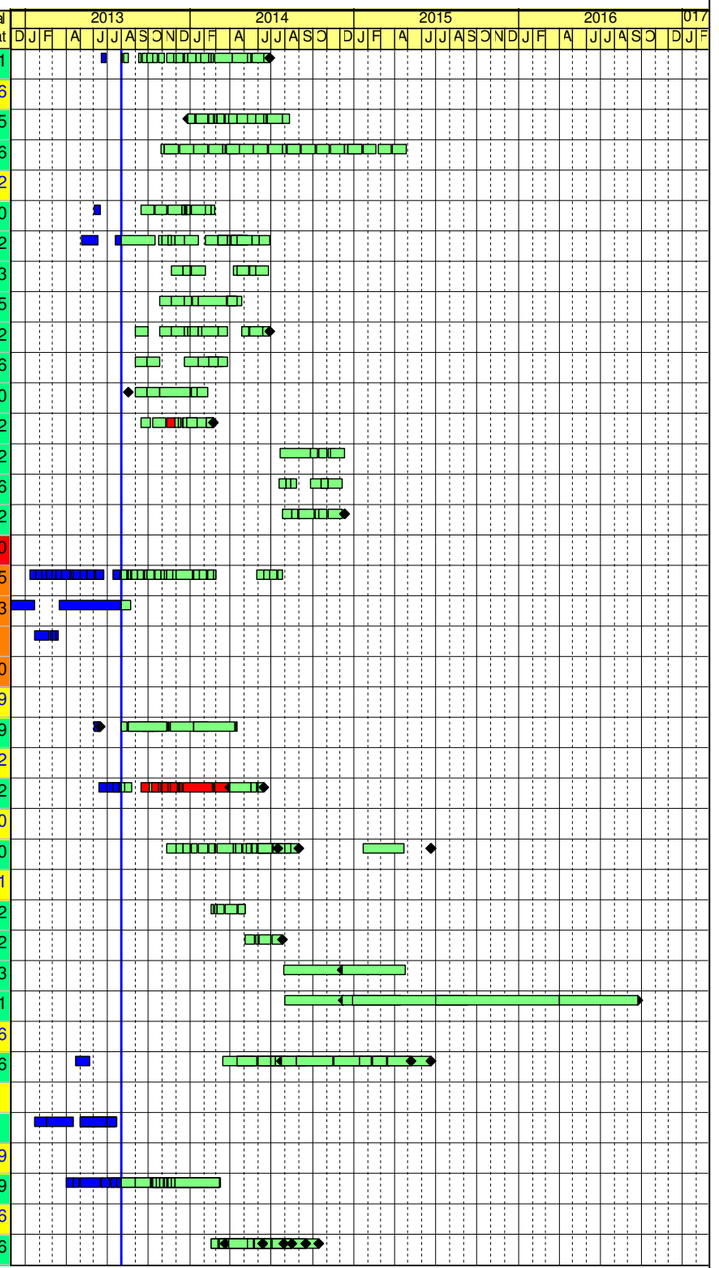
Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	Late Start	Late Finish	Total Float
	Area B - New Fuel Station - Works Area W5A	95	12	01-Mar-13 A	13-Aug-13	27-Jul-13	25-Sep-13	36
	Demolition	6	0	30-Mar-13 A	06-Apr-13 A	27-Jul-13	27-Jul-13	
	Hoarding Erection (Stage 1)	6	0	12-Mar-13 A	28-Mar-13 A	27-Jul-13	27-Jul-13	
	E0 - Geotechnical Instrumentation and Monitoring	12	0	01-Mar-13 A	14-Mar-13 A	27-Jul-13	27-Jul-13	
	E1 - Excavation and Foundation	9	0	06-Apr-13 A	23-Apr-13 A	27-Jul-13	27-Jul-13	
	E2 - Civil & Structures Works	43	0	24-Apr-13 A	31-Jul-13 A	27-Jul-13	27-Jul-13	
	E4 - BS Installation Works	40	0	01-Jun-13 A	11-Jul-13 A	27-Jul-13	27-Jul-13	
	Interfacing Coordination (Area B)	14	14	31-Jul-13	13-Aug-13	12-Sep-13	25-Sep-13	43
	Area B - AVM Building - Works Area W5B	170	170	17-Aug-13	13-Mar-14	16-Dec-13	30-Mar-14	14
	ABWF Works (AVMB Building) (Area B)	48	48	17-Aug-13	15-Oct-13	16-Dec-13	15-Feb-14	100
	BS Installation Works (AVMB Building) (Area B)	36	36	28-Jan-14	13-Mar-14	17-Feb-14	30-Mar-14	14
	Area B - Infrastructure Maintenance Building (IMB)	699	665	22-Apr-13 A	27-Oct-15	17-Sep-13	28-Nov-15	28
	E1 - Excavation and Foundation	268	234	22-Apr-13 A	16-May-14	17-Sep-13	05-Jul-14	41
	E2 - Civil & Structures Works	162	162	17-May-14	27-Nov-14	07-Jul-14	17-Jan-15	41
	E3 - ABWF Works	220	220	28-Nov-14	27-Aug-15	02-Feb-15	31-Oct-15	53
	E4 - BS Installation Works	220	220	28-Nov-14	27-Aug-15	19-Jan-15	31-Oct-15	53
	Transformer Room at IMB	252	252	20-Jun-14	25-Apr-15	17-Oct-14	26-Apr-15	0
	Lift Shaft at IMB	329	329	17-Sep-14	27-Oct-15	30-Apr-15	28-Nov-15	28
	Area B - Permanent Way (P-Way) Workshop	659	659	15-Jul-13 A	20-Oct-15	14-Aug-13	31-Oct-15	10
	E1 - Excavation and Foundation	134	134	04-Aug-14	14-Jan-15	14-Aug-14	24-Jan-15	10
	E2 - Civil & Structures Works	54	54	14-Jan-15	21-Mar-15	26-Jan-15	01-Apr-15	10
	E3 - ABWF Works	88	88	21-Mar-15	11-Jul-15	02-Apr-15	31-Oct-15	94
	E4 - BS Installation Works	172	172	21-Mar-15	20-Oct-15	16-Apr-15	31-Oct-15	10
	E5 - Associated Works	299	299	15-Jul-13 A	02-Aug-14	14-Aug-13	14-Aug-14	10
	Area B - New Loco Shed - Works Area W5C	298	298	25-Jul-13 A	01-Aug-14	17-Sep-13	27-Sep-14	48
	E1 - Excavation and Foundation	110	110	25-Jul-13 A	09-Dec-13	17-Sep-13	20-Dec-13	10
	E2 - Civil & Structures Works	48	48	19-Oct-13	13-Dec-13	26-Oct-13	20-Dec-13	6
	E3 - ABWF Works	82	82	14-Dec-13	26-Mar-14	21-Dec-13	09-Jun-14	57
	E4 - BS Installation Works	156	156	20-Jan-14	01-Aug-14	03-Feb-14	27-Sep-14	48
	Interfacing Coordination (Loco Shed)	0	0	18-Jan-14	18-Jan-14	25-Jan-14	25-Jan-14	6
	New Training Track	104	67	17-Jun-13 A	21-Oct-13	31-Jul-13	21-Oct-13	0
	New Training Track - Works Area W6A (Area B)	104	67	17-Jun-13 A	21-Oct-13	31-Jul-13	21-Oct-13	0
	Miscellaneous and External Works (Overhead Crane)	424	424	18-Dec-13	30-May-15	23-Dec-13	25-Jul-15	47
	Overhead Crane - Works Area W6/W6B/W6D	424	424	18-Dec-13	30-May-15	23-Dec-13	25-Jul-15	47
	Area C - East Stabling/Extg Loco Shed/Noise Barrier 3 & 4/Extg A100 Road	588	514	22-Oct-12 A	27-Apr-15	31-Jul-13	25-Sep-15	126
	Preliminary Works Submission (Area C)	314	240	03-Dec-12 A	23-May-14	31-Jul-13	29-Aug-14	82
	Materials Procurement (Area C)	35	0	22-Oct-12 A	31-Dec-12 A	31-Jul-13	02-Aug-13	
	Materials Submission (Area C)	24	5	17-Jun-13 A	05-Aug-13	28-Aug-13	02-Sep-13	24
	Site Construction Works (Area C)	588	514	21-Nov-12 A	27-Apr-15	31-Jul-13	25-Sep-15	126
	Site Preparation Works (Works Areas W11, W12, W13, W3a & W3b)	360	286	21-Nov-12 A	18-Jul-14	31-Jul-13	05-Aug-14	15
	Demolition	360	286	21-Nov-12 A	18-Jul-14	31-Jul-13	05-Aug-14	15
	General Site Clearance	48	0	28-Dec-12 A	27-Feb-13 A	31-Jul-13	31-Jul-13	
	Area C - Existing Loco Shed	24	24	02-Aug-14	29-Aug-14	30-Aug-14	27-Sep-14	24
	Demolition	24	24	02-Aug-14	29-Aug-14	30-Aug-14	27-Sep-14	24
	Miscellaneous and External Works (Pipe Jacking Works)	269	268	17-Jun-13 A	27-Jun-14	02-Aug-13	29-Jun-14	1



SCL 1117 Pat Heung Depot Modification Works

04-Dec-13

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	Late Start	Late Finish	Total Float
	Pipe Jacking (South) (Area C)	269	268	17-Jun-13 A	27-Jun-14	02-Aug-13	29-Jun-14	1
	Miscellaneous and External Works (Noise Barrier)	441	441	28-Oct-13	27-Apr-15	26-Mar-14	25-Sep-15	126
	Noise Barrier Location 3 (Area C)	181	181	28-Dec-13	09-Aug-14	21-May-14	27-Dec-14	115
	Noise Barrier Location 4 (Area C)	441	441	28-Oct-13	27-Apr-15	26-Mar-14	25-Sep-15	126
	Miscellaneous and External Works (Roadworks)	445	408	06-May-13 A	11-Dec-14	02-Aug-13	27-Dec-14	12
	Road Works at Works Area W3a (CH E1350-E1450) (Area C)	183	132	03-Jun-13 A	24-Feb-14	02-Aug-13	28-Jun-14	100
	Road Works at Works Area W3a (CH E1450-E1550) (Area C)	305	268	06-May-13 A	26-Jun-14	14-Aug-13	28-Jun-14	2
	Road Works at Works Area W3a (CH E1550-E1650) (Area C)	173	173	21-Nov-13	25-Jun-14	23-Nov-13	28-Jun-14	3
	Road Works at Works Area W3a (CH E1650-E1750) (Area C)	145	145	26-Oct-13	24-Apr-14	29-Oct-13	07-Jun-14	35
	Road Works at Works Area W3a (CH E1750-E1850) (Area C)	240	240	02-Sep-13	26-Jun-14	04-Sep-13	28-Jun-14	2
	Road Works at Works Area W3a (CH E1850-E1900) (Area C)	166	166	02-Sep-13	24-Mar-14	04-Sep-13	28-Jun-14	76
	Road Works at Works Area W3c (CH E1900-E2100) (Area C - North Fan Area)	144	144	15-Aug-13	10-Feb-14	17-Aug-13	28-Mar-14	40
	Road Works at Works Area W3c (CH E2100-E2250) (Area C - North Fan Area)	130	130	13-Sep-13	21-Feb-14	19-Sep-13	07-Mar-14	12
	Road Works at Works Area W3b (CH E1150) (Area C)	121	121	21-Jul-14	11-Dec-14	06-Aug-14	27-Dec-14	12
	Road Works at Works Area W3b (CH E1150-E1250) (Area C)	118	118	19-Jul-14	06-Dec-14	16-Aug-14	27-Dec-14	16
	Road Works at Works Area W3b (CH E1250-E1350) (Area C)	116	116	26-Jul-14	11-Dec-14	23-Aug-14	27-Dec-14	12
	Area D - A100 Road Extension/Train Wash Plant & Building/Noise Barrier 2 & 5	1009	935	22-Oct-12 A	23-Sep-16	02-Aug-13	31-Oct-16	30
	Preliminary Works Submission (Area D)	367	293	09-Jan-13 A	26-Jul-14	02-Aug-13	06-Jun-15	255
	Materials Procurement (Area D)	76	18	22-Oct-12 A	20-Aug-13	02-Aug-13	25-Feb-14	153
	Materials Submission (Area D	42	0	21-Jan-13 A	14-Mar-13 A	05-Feb-14	05-Feb-14	
	Site Construction Works (Area D)	1009	935	21-Jan-13 A	23-Sep-16	02-Aug-13	31-Oct-16	30
	Option 1 - MTR Cable Diversion Works (A64 Drawpit)	249	212	03-Jun-13 A	16-Apr-14	09-Nov-13	25-Jul-14	79
	Systemwide Cable Diversion - A64 Drawpit	249	212	03-Jun-13 A	16-Apr-14	09-Nov-13	25-Jul-14	79
	Miscellaneous and External Works (Pipe Jacking Works)	258	258	14-Jun-13 A	14-Jun-14	05-Sep-13	29-Jun-14	12
	Pipe Jacking (North) (Area D)	258	258	14-Jun-13 A	14-Jun-14	05-Sep-13	29-Jun-14	12
	Miscellaneous and External Works (Overhead Line)	474	474	11-Nov-13	22-Jun-15	18-Nov-13	23-Apr-16	250
	OHL Reprovision adjacent to WRL Main Line (Area D)	474	474	11-Nov-13	22-Jun-15	18-Nov-13	23-Apr-16	250
	Miscellaneous and External Works (Train Wash Facility)	772	772	17-Feb-14	23-Sep-16	19-Feb-14	25-Sep-16	1
	E1 - Excavation and Foundation	60	60	17-Feb-14	02-May-14	19-Feb-14	05-May-14	2
	E2 - Civil & Structures Works	68	68	03-May-14	24-Jul-14	07-May-14	27-Jul-14	2
	E3 - ABWF Works	220	220	28-Jul-14	24-Apr-15	16-Aug-14	24-Sep-16	423
	E4 - BS Installation Works	640	640	30-Jul-14	23-Sep-16	16-Aug-14	25-Sep-16	1
	Miscellaneous and External Works (Noise Barrier)	596	374	22-Apr-13 A	22-Jun-15	14-May-14	31-Oct-16	406
	Noise Barrier (Area D)	596	374	22-Apr-13 A	22-Jun-15	14-May-14	31-Oct-16	406
	Miscellaneous and External Works (Tree Management)	114	0	21-Jan-13 A	23-Jul-13 A	02-Aug-13	26-Nov-13	
	Tree Management (Area D)	114	0	21-Jan-13 A	23-Jul-13 A	02-Aug-13	26-Nov-13	
	Miscellaneous and External Works (Fill Embankment)	218	181	01-Apr-13 A	09-Mar-14	02-Aug-13	12-May-14	49
	Fill Embankment Works	218	181	01-Apr-13 A	09-Mar-14	02-Aug-13	12-May-14	49
	Miscellaneous and External Works (Roadworks)	196	196	17-Feb-14	15-Oct-14	25-Mar-14	31-Oct-16	606
	A100 Access Road Extension (Area D)	196	196	17-Feb-14	15-Oct-14	25-Mar-14	31-Oct-16	606



APPENDIX B
EVENT AND ACTION PLAN

Event and Action Plan for Noise Monitoring during Construction Phase

Event	Action			
	ET	IEC	ER	Contractor
Action Level	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.	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.	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.	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	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.	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.	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.	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

華南國家計量測試中心
H.K. Office: Tel: 2799 1727 Fax: 2756 5756
S/N: B22487
DATE CAL.: 26-Feb-2014
RECAL. DUE: ----------
CERT NO: SSD201400703

SCM 十量测试中心
量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

ilac-MRA CNAS 校准 CNAS L0730

校准证书
CALIBRATION CERTIFICATE

证书编号 Certificate No. SSD201400703

委托方 Client: Paul Y Construction Co. Ltd.

委托方地址 Add. of Client: 16/F, Paul Y Ctr., 51 Hung To Rd., Kwun Tong, Kowloon, H.K.

计量器具名称 Description: Sound Level Meter

型号规格 Model/Type: 93

制造厂 Manufacturer: Pulsar

出厂编号 Serial No.: B22487 设备编号 Equipment No.: ——

接收日期 Date of Receipt: 2014 年 Y 02 月 M 24 日 D

结论 Conclusion: 校准结果符合1级合格技术要求

校准日期 Date of Calibration: 2014 年 Y 02 月 M 26 日 D

批准人 Approved Signatory: 李敬江

核验 Inspected by: 杨桂城

校准 Calibrated by: 李广智

证书专用章 Stamp

本中心地址：中国广州市广园中路松柏东街30号 邮政编码：510405
电话：(8620)86594172 传真：(8620)86590743 投诉电话：(8620)26296063 E-mail：scm@scm.com.cn
Add: No.30, Songbaidong Street, Guangyuanzhong Road, Guangzhou, P. R. China
Post Code: 510405 Tel: (8620)86594172 Fax: (8620)86590743 Complaint Tel: (8620)26296063
证书真伪查询：www.scm.com.cn；www.mtpsp.com Certificate AuthenticityIdentify: www.scm.com.cn; www.mtpsp.com

说 明

证书编号 SSD201400703
Certificate No.

DIRECTIONS

1. 本中心是国家质量监督检验检疫总局在华南地区设立的国家法定计量检定机构，计量授权证书号是：（国）法计（2012）01043号、（国）法计（2012）01032号。本中心的质量管理体系符合ISO/IEC 17025标准的要求，并经中国合格评定国家认可委员会(CNAS)认可，认可证书号为：CNAS L0730.
This laboratory is the National Legal Metrological Verification Institution in southern China set up by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) under authorization certificates No.(2012)01043 & (2012)01032. This laboratory's quality management system is in accordance with ISO/IEC 17025 Standard and accredited by China National Accreditation Service for Conformity Assessment under Laboratory Accreditation Certification No. CNAS L0730.

2. 本中心所出具的数据均可溯源至国家计量基准和国际单位制(SI)。
All data issued by this laboratory are traceable to national primary standards and International System of Units (SI).

3. 本次校准的技术依据：
Reference documents for the calibration:
JJG 188-2002 声级计检定规程 V.R. of Sound Level Meters

4. 本次校准所使用的主要计量标准器具：
Major standards of measurement used in the calibration:

设备名称/型号 Name of Equipment /Model	编号 Serial No.	证书号/有效期 Certificate No. /Due Date	计量特性 Metrological Characteristic
标准传声器 Standard Microphones /4180	2488312	LSae2013-1008 /2014-04-08	声压灵敏度级:0.05dB～0.12dB(k=2) Sound pressure sensitivity level:0.05dB～0.12dB(k=2)
消音箱 Sound Reducing Enclosure /2.0 m×1.4 m×1.4 m	1	SSD201302589 /2014-05-27	允差:±1.5 dB MPE:±1.5 dB
PULSE分析仪系统 Pulse analyzer System /3560C（3110模块）	2392397	SSD201301964 /2014-04-24	电平:U_{rel}=0.1%,频率:U_{rel}=0.001%(k=2) Voltage:U_{rel}=0.1%, Frequency :U_{rel}=0.001%(k=2)

5. 校准地点、环境条件：
Place and environmental conditions of the calibration:
地点 Place 声学/振动实验室 Acoustics/Vibration Lab. 温度 Temperature (20±3) ℃ 相对湿度 R.H. (50～60) %

6. 被校准仪器限制使用条件：
Limiting condition of the instrument calibrated:

注：1. 本证书校准结果只与受校准仪器有关。
2. 未经本机构书面批准，不得部分复制此证书。
Note:1. The results relate only to the items calibrated.
2. This certificate shall not be reproduced except in full, without the written approval of our laboratory.

校 准 结 果
RESULTS OF CALIBRATION

证书编号： SSD201400703 Certification No.　　原始记录编号： 2201400703 Record No.　　第 3 页，共 8 页 Page of

1 外观： 合格

Apparent inspection: Pass

2 声级计指示声级调整：

Level Calibration

（声校准器型号：4231　　标准声压级： 94.0 dB）

Sound Level Calibrator Type　　Standard level

校准前示值：93.7 dB　　校准后示值：93.9 dB　　传声器型号/编号：PM111/210448

Indication before Calibrated　　Indication after Adjusted　　Microphone type/serial number

3 频率计权：见表1、表2、表3

Frequency weightings: Showed in table 1、table2、table 3

表1 Table 1

标称频率（Hz） Nominal frequency	实测值A计权（dB） Measured Value A-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-67.4	-∞ ～ -66.9	合格(Pass)
20	-50.8	-53.0 ～ -48.0	合格(Pass)
31.5	-39.7	-41.4 ～ -37.4	合格(Pass)
63	-26.3	-27.7 ～ -24.7	合格(Pass)
125	-16.2	-17.6 ～ -14.6	合格(Pass)
250	-8.7	-10.0 ～ -7.2	合格(Pass)
500	-3.2	-4.6 ～ -1.8	合格(Pass)
1000(ref.)	0.0	-1.1 ～ +1.1	合格(Pass)
2000	+1.2	-0.4 ～ +2.8	合格(Pass)
4000	+0.9	-0.6 ～ +2.6	合格(Pass)
8000	-1.2	-4.2 ～ +1.0	合格(Pass)
16000	-6.2	-23.6 ～ -3.1	合格(Pass)
20000	-8.7	-∞ ～ -5.3	合格(Pass)

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201400703 原始记录编号： 2201400703 第 4 页，共 8 页
Certification No. Record No. Page of

表2 Table 2

标称频率（Hz） Nominal frequency	实测值C计权（dB） Measured Value C-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-15.1	-∞ ~ -10.8	合格(Pass)
20	-6.5	-8.7 ~ -3.7	合格(Pass)
31.5	-3.3	-5.0 ~ -1.0	合格(Pass)
63	-0.9	-2.3 ~ +0.7	合格(Pass)
125	-0.2	-1.7 ~ +1.3	合格(Pass)
250	0.0	-1.4 ~ +1.4	合格(Pass)
500	+0.1	-1.4 ~ +1.4	合格(Pass)
1000(ref.)	0.0	-1.1 ~ +1.1	合格(Pass)
2000	-0.2	-1.8 ~ +1.4	合格(Pass)
4000	-0.9	-2.4 ~ +0.8	合格(Pass)
8000	-3.2	-6.1 ~ -0.9	合格(Pass)
16000	-8.4	-25.5 ~ -5.0	合格(Pass)
20000	-10.9	-∞ ~ -7.2	合格(Pass)

表3 Table 3

标称频率（Hz） Nominal frequency	实测值Z计权（dB） Measured Value Z-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-1.8	-∞ ~ +3.5	合格(Pass)
20	-0.5	-2.5 ~ +2.5	合格(Pass)
31.5	-0.2	-1.5 ~ +1.5	合格(Pass)
63	-0.1	-1.5 ~ +1.5	合格(Pass)
125	0.0	-1.5 ~ +1.5	合格(Pass)
250	0.0	-1.4 ~ +1.4	合格(Pass)
500	0.0	-1.4 ~ +1.4	合格(Pass)
1000(ref.)	0.0	-1.1 ~ +1.1	合格(Pass)
2000	0.0	-1.6 ~ +1.6	合格(Pass)
4000	0.0	-1.6 ~ +1.6	合格(Pass)
8000	+0.1	-3.1 ~ +2.1	合格(Pass)
16000	+0.2	-17.0 ~ +3.5	合格(Pass)
20000	0.0	-∞ ~ +4.0	合格(Pass)

校准结果
RESULTS OF CALIBRATION

4 级线性（参考频率 1 kHz）

Level linearity error (Reference frequency 1 kHz)

4.1 级程变化误差（量程40 dB～110 dB；参考频率：1000 Hz）：见表4

Level Change Error(Range 40 dB～110 dB; Reference frequency: 1000 Hz): Showed in table 4

表4 Table 4

标准值（dB） Reference Value	指示值（dB） Indication Value	误差（dB） Error	允差（dB） Tolerance	结论 Conclusion
40	40.6	+0.6	±0.7	合格(Pass)
50	50.5	+0.5	±0.7	合格(Pass)
60	60.3	+0.3	±0.7	合格(Pass)
70	70.2	+0.2	±0.7	合格(Pass)
80	80.1	+0.1	±0.7	合格(Pass)
90(ref.)	90.0	0.0	-----	合格(Pass)
100	100.1	+0.1	±0.7	合格(Pass)
110	110.2	+0.2	±0.7	合格(Pass)

4.2 参考级量程

Reference range

起始点指示声级：90 dB

Start point

起始点以上间隔 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB above start point

起始点以下间隔 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB below start point

4.3 其他级量程

Other range

起始点指示声级：90 dB

Start point

校 准 结 果
RESULTS OF CALIBRATION

起始点以上间隔 10 dB点的最大误差：0.2 dB

Maximum Error for each 10 dB above start point

起始点以下间隔 10 dB点的最大误差：0.4 dB

Maximum Error for each 10 dB below start point

上限以下 5 dB内的 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB within 5 dB below upper limit

下限以上 5 dB内的 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB within 5dB above lower limit

4.4 相对参考级量程的级程控制器最大误差：0.1 dB

Maximum Error for different range

以“40 dB～110 dB”为参考量程

Reference range with “40 dB～110 dB”

以90.0 dB为参考点（0 dB）转向70 dB～140 dB量程误差：0.0 dB

Error of indication from 90.0 dB reference point（0 dB）to 70 dB～140 dB another range

以70.0 dB为参考点（0 dB）转向10 dB～80 dB量程误差：-0.1 dB

Error of indication from 70.0 dB reference point（0 dB）to 10 dB～80 dB another range

5 本机噪声：

Residual noise

A计权：<20 dB 结论：合格(Pass)

A-weighting Conclusion

6 F和S时间计权：

Time weightings F/S

衰减速率： *F*： >25 dB/s（允许范围：≥25 dB/s）；

Attenuation rate Tolerance

S： 4.1 dB/s（允许范围：3.4 dB/s～5.3 dB/s）；

Tolerance

F和S差值：0.0 dB

Dispersion F/S

校 准 结 果
RESULTS OF CALIBRATION

证书编号： SSD201400703 原始记录编号： 2201400703 第 7 页，共 8 页
Certification No. Record No. Page of

7 猝发音响应（A计权）：见表5

Toneburst response (A-weighting) : Showed in table 5

表5 Table 5

单个猝发音持续时间/ms Single tone burst Last time/ms	猝发音响应/dB Tone burst response/dB					
	L_{AFmax}- L_A	允许范围 Tolerance	结论 Conclusion	L_{ASmax}- L_A	允许范围 Tolerance	结论 Conclusion
500	-0.1	+0.7～-0.9	合格(Pass)	-3.7	-3.3～-4.9	合格(Pass)
200	-0.9	-0.2～-1.8	合格(Pass)	-7.1	-6.6～-8.2	合格(Pass)
50	-4.7	-3.5～-6.1	合格(Pass)	-13.1	-11.8～-14.4	合格(Pass)
10	-11.4	-9.8～-12.4	合格(Pass)	-20.4	-18.7～-22.3	合格(Pass)

8 重复猝发音响应（A计权）：见表6

Response to repeated Toneburst (A-weighting): Showed in table 6

表6 Table 6

单个猝发音持续时间/ms Single tone burst last time/ms	相邻单个猝发音持续时间/ms Adjacent single tone burst last time/ms	猝发音响应/dB Tone burst response/dB		结论 Conclusion
		(L_{AeqT}-L_A)	允许范围 Tolerance	
500	2000	-7.0	-6.2～-7.8	合格(Pass)
200	800	-6.9	-6.2～-7.8	合格(Pass)
50	200	-6.9	-5.7～-8.3	合格(Pass)
10	40	-7.0	-5.7～-8.3	合格(Pass)

校准结果
RESULTS OF CALIBRATION

证书编号：SSD201400703　　原始记录编号：2201400703　　第 8 页，共 8 页
Certification No.　　Record No.　　Page　of

9　峰值C声压（500 Hz）：见表7

Peak C sound level: Showed in table 7

表7 Table 7

试验信号中的周期数目 Periods number in test signal	$(L_{Cpeak}-L_C)$ /dB	允差/dB MPE	结论 Conclusion
一个周期 One period	4.0	2.1～4.9	合格(Pass)
正半个周期 Positive half period	2.9	1.0～3.8	合格(Pass)
负半个周期 Minus half period	2.7	1.0～3.8	合格(Pass)

10　过载指示：

Over loading indication

误差：0.6 dB（允许范围：≤1.8 dB）　结论：合格(Pass)

Error　Tolerance　Conclusion

说明(Note)：

1　声压级测量结果扩展不确定度：

Expanded uncertainty of measurement in Sound Pressure Level Calibration:

10 Hz～200 Hz，U=0.5 dB，k=2

250 Hz～400 Hz，U=0.4 dB，k=2

500 Hz～1.25 kHz，U=0.4 dB，k=2

1.6 kHz～10 kHz，U=0.6 dB，k=2

12.5 kHz～20 kHz，U=1.0 dB，k=2

（依据JJF1059.1-2012 测量不确定度评定与表示）

(According to JJF1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

2　参考IEC 61672-1-2002标准。

Reference standard: IEC 61672-1-2002.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

Certificate No.: 13CA1129 04 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	Pulsar Instruments Ltd.
Type/Model No.:	Model 105
Serial/Equipment No.:	64958
Adaptors used:	-

Item submitted by

Curstomer:	Paul Y
Address of Customer:	-
Request No.:	QT131125
Date of receipt:	29-Nov-2013

Date of test: 02-Dec-2013

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2341427	17-Apr-2014	SCL
Preamplifier	B&K 2673	2743150	16-Apr-2014	CEPREI
Measuring amplifier	B&K 2610	2346941	24-Apr-2014	CEPREI
Signal generator	DS 360	61227	15-Apr-2014	CEPREI
Digital multi-meter	34401A	US36087050	10-Dec-2013	CEPREI
Audio analyzer	8903B	GB41300350	15-Apr-2014	CEPREI
Universal counter	53132A	MY40003662	15-Apr-2014	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	60 ± 10 %
Air pressure:	1000 ± 10 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Huang Jian Min/Feng Jun Qi **Date:** 03-Dec-2013 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument.

綜合試驗有限公司
SOILS & MATERIALS ENGINEERING CO., LTD.
G/F., 9/F., 12/F., 13/F. & 20/F., Leader Centre, 37 Wong Chuk Hang Road, Aberdeen, Hong Kong.
香港黃竹坑道37號利達中心地下，9樓，12樓，13樓及20樓
E-mail: smec@cigismec.com Website: www.cigismec.com
Tel : (852) 2873 6860
Fax : (852) 2555 7533
HOKLAS 028

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 13CA1129 04 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.17	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.002 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1000.3 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 1.2 %**

Estimated expanded uncertainty 0.7%

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 02-Dec-2013

Checked by: Lam Tze Wai **Date:** 03-Dec-2013

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

CNAS 校准 L0730

校准证书
CALIBRATION CERTIFICATE

证书编号 Certificate No. SSD201402816

委托方 Client: Paul Y General Contractors Ltd.

委托方地址 Add. of Client: ----

计量器具名称 Description: Sound Level Calibrator

型号规格 Model/Type: 105

制造厂 Manufacturer: Pulsar

出厂编号 Serial No.: 60626

设备编号 Equipment No.: ———

接收日期 Date of Receipt: 2014 年 06 月 09 日 (Y M D)

结论 Conclusion: 校准结果符合1级合格技术要求

校准日期 Date of Calibration: 2014 年 06 月 09 日 (Y M D)

批准人 Approved Signatory

核验 Inspected by

校准 Calibrated by

证书专用章 Stamp

本中心地址：中国广州市广园中路松柏东街30号 邮政编码：510405
电话：(8620)86594172 传真：(8620)86590743 投诉电话：(8620)26296063 E-mail：scm@scm.com.cn
Add: No.30, Songbaidong Street, Guangyuanzhong Road, Guangzhou, P. R. China
Post Code: 510405 Tel: (8620)86594172 Fax: (8620)86590743 Complaint Tel: (8620)26296063
证书真伪查询：www.scm.com.cn；www.mtpsp.com Certificate Authenticityldentify: www.scm.com.cn; www.mtpsp.com

说　明

证书编号 SSD201402816
Certificate No.

DIRECTIONS

1. 本中心是国家质量监督检验检疫总局在华南地区设立的国家法定计量检定机构，计量授权证书号是：（国）法计（2012）01043号、（国）法计（2012）01032号。本中心质量管理体系符合ISO/IEC 17025:2005标准的要求。

   This laboratory is the National Legal Metrological Verification Institution in southern China set up by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) under authorization certificates No.(2012)01043 & (2012)01032. The quality system is in accordance with ISO/IEC 17025:2005.

2. 本中心所出具的数据均可溯源至国家计量基准和国际单位制(SI)。

   All data issued by this laboratory are traceable to national primary standards and International System of Units (SI).

3. 本次校准的技术依据：

   Reference documents for the calibration:

   JJG 176-2005 声校准器检定规程　V.R. of Sound Calibrators

4. 本次校准所使用的主要计量标准器具：

   Major standards of measurement used in the calibration:

设备名称/型号 Name of Equipment /Model	编号 Serial No.	证书号/有效期 Certificate No. /Due Date	计量特性 Metrological Characteristic
PULSE分析仪系统 Pulse analyzer System /3560C（3110模块）	2392397	SSD201402188 /2015-04-24	电平:U_{rel}=0.1%, 频率:U_{rel}=0.001%(k=2) Voltage:U_{rel}=0.1%, Frequency :U_{rel}=0.001%(k=2)
声校准器 Sound Calibrator /4231	2713562	SSD201402647 /2015-05-26	1 级 Grade 1

5. 校准地点、环境条件：

   Place and environmental conditions of the calibration:

   地点 Place 声学/振动实验室 Acoustics/Vibration Lab.　温度 Temperature (23±3) ℃　相对湿度 R.H. (60～70) %

6. 被校准仪器限制使用条件：

   Limiting condition of the instrument calibrated:

注：1. 本证书校准结果只与受校准仪器有关。
2. 未经本机构书面批准，不得部分复制此证书。

Note:1. The results relate only to the items calibrated.
2. This certificate shall not be reproduced except in full, without the written approval of our laboratory.

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201402816 原始记录编号： 2201402816 第 3 页，共 3 页
Certification No. Record No. Page of

1 外观： 合格
Apparent inspection: Pass

2 声压级（dB）：见表1
Sound Pressure Level: Showed in table 1

表1 Table 1

标称值（dB）Nominal Value	实测值（dB）Measured Value	允差（dB）Tolerance	结论 Conclusion	稳定度（dB）Stabilization	稳定度允差（dB）Stabilization Tolerance	结论 Conclusion
94	93.85	±0.40	合格(Pass)	0.01	≤0.10	合格(Pass)

3 频率：见表2
Frequency: Showed in table 2

表2 Table 2

标称值（Hz）Nominal Value	实测值（Hz）Measured Value	允差（%）Tolerance	结论 Conclusion
1000	1000.3	±1.0	合格(Pass)

4 总失真： 见表3
Total harmonic distortion: Showed in table 3

表3 Table 3

频率（Hz）Frequency	声压级（dB）Sound Pressure Level	总失真（%）Total Harmonic Distortion	允差（%）Tolerance	结论 Conclusion
1000	94	0.1	≤4	合格(Pass)

说明(Note)：

1 测量结果扩展不确定度：
Expanded uncertainty of measurement:

声压级：U=0.15 dB，k=2
Sound Pressure Level Calibration

频率：U_{rel}=0.1 %，k=2
Frequency

失真度：U_{rel}=1.4 %，k=2
Harmonic distortion

（依据JJF1059.1-2012测量不确定度评定与表示）
(According to JJF1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

2 建议校准周期不超过1年。
The period of calibration advised within one year.

华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

CNAS 校准 CNAS L0730

校准证书
CALIBRATION CERTIFICATE

证书编号 Certificate No. SSD201402815

委托方 Client: Paul Y General Contractors Ltd.

委托方地址 Add. of Client: ----

计量器具名称 Description: Sound Level Meter

型号规格 Model/Type: 93

制造厂 Manufacturer: Pulsar

出厂编号 Serial No.: B22195

设备编号 Equipment No.: ———

接收日期 Date of Receipt: 2014年(Y) 06月(M) 09日(D)

结论 Conclusion: 校准结果符合1级合格技术要求

校准日期 Date of Calibration: 2014年(Y) 06月(M) 10日(D)

批准人 Approved Signatory: 李敏江

核验 Inspected by: 杨建邺

校准 Calibrated by: 何卓健

证书专用章 Stamp

本中心地址：中国广州市广园中路松柏东街30号 邮政编码：510405
电话：(8620)86594172 传真：(8620)86590743 投诉电话：(8620)26296063 E-mail：scm@scm.com.cn
Add: No.30, Songbaidong Street, Guangyuanzhong Road, Guangzhou, P. R. China
Post Code: 510405 Tel: (8620)86594172 Fax: (8620)86590743 Complaint Tel: (8620)26296063
证书真伪查询：www.scm.com.cn；www.mtpsp.com Certificate AuthenticityIdentify: www.scm.com.cn; www.mtpsp.com

说　明

证书编号 SSD201402815　　第 2 页，共 8 页
Certificate No.　　Page of

DIRECTIONS

1. 本中心是国家质量监督检验检疫总局在华南地区设立的国家法定计量检定机构，计量授权证书号是：（国）法计（2012）01043号、（国）法计（2012）01032号。本中心质量管理体系符合ISO/IEC 17025:2005标准的要求。

This laboratory is the National Legal Metrological Verification Institution in southern China set up by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) under authorization certificates No.(2012)01043 & (2012)01032. The quality system is in accordance with ISO/IEC 17025:2005.

2. 本中心所出具的数据均可溯源至国家计量基准和国际单位制(SI)。

All data issued by this laboratory are traceable to national primary standards and International System of Units (SI).

3. 本次校准的技术依据：

Reference documents for the calibration:

JJG 188-2002 声级计检定规程　V.R. of Sound Level Meters

4. 本次校准所使用的主要计量标准器具：

Major standards of measurement used in the calibration:

设备名称/型号 Name of Equipment /Model	编号 Serial No.	证书号/有效期 Certificate No. /Due Date	计量特性 Metrological Characteristic
标准传声器 Standard Microphones /4180	2488312	LSae2014-1017 /2015-04-13	声压灵敏度级:0.05dB～0.12dB(k=2) Sound pressure sensitivity level:0.05dB～0.12dB(k=2)
消音箱 Sound Reducing Enclosure /2.0 m×1.4 m×1.4 m	1	SSD201402646 /2015-05-26	允差:±1.5 dB MPE:±1.5 dB
PULSE分析仪系统 Pulse analyzer System /3560C（3110模块）	2392397	SSD201402188 /2015-04-24	电平:U_{rel}=0.1%,频率:U_{rel}=0.001%(k=2) Voltage:U_{rel}=0.1%, Frequency:U_{rel}=0.001%(k=2)

5. 校准地点、环境条件：

Place and environmental conditions of the calibration:

地点 Place 声学/振动实验室 Acoustics/Vibration Lab.　温度 Temperature (23±3) ℃　相对湿度 R.H. (40～50) %

6. 被校准仪器限制使用条件：

Limiting condition of the instrument calibrated:

注：1. 本证书校准结果只与受校准仪器有关。
2. 未经本机构书面批准，不得部分复制此证书。

Note:1. The results relate only to the items calibrated.
2. This certificate shall not be reproduced except in full, without the written approval of our laboratory.

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201402815 原始记录编号： 2201402815 第 3 页，共 8 页
Certification No. Record No. Page of

1 外观： 合格

Apparent inspection: Pass

2 声级计指示声级调整：

Level Calibration

（声校准器型号：4231 标准声压级： 94.0 dB）

Sound Level Calibrator Type Standard level

校准前示值：93.8 dB 校准后示值：93.8 dB 传声器型号/编号：UK224/20043876

Indication before Calibrated Indication after Adjusted Microphone type/serial number

3 频率计权：见表1、表2、表3

Frequency weightings: Showed in table 1、table2、table 3

表1 Table 1

标称频率（Hz） Nominal frequency	实测值A计权（dB） Measured Value A-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-70.7	-∞ ～ -66.9	合格(Pass)
20	-50.3	-53.0 ～ -48.0	合格(Pass)
31.5	-39.7	-41.4 ～ -37.4	合格(Pass)
63	-26.3	-27.7 ～ -24.7	合格(Pass)
125	-16.3	-17.6 ～ -14.6	合格(Pass)
250	-8.7	-10.0 ～ -7.2	合格(Pass)
500	-3.3	-4.6 ～ -1.8	合格(Pass)
1000(ref.)	0.0	-1.1 ～ +1.1	合格(Pass)
2000	+1.2	-0.4 ～ +2.8	合格(Pass)
4000	+0.9	-0.6 ～ +2.6	合格(Pass)
8000	-1.2	-4.2 ～ +1.0	合格(Pass)
16000	-6.2	-23.6 ～ -3.1	合格(Pass)
20000	-8.6	-∞ ～ -5.3	合格(Pass)

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201402815 原始记录编号： 2201402815 第 4 页，共 8 页
Certification No. Record No. Page of

表2 Table 2

标称频率（Hz） Nominal frequency	实测值C计权（dB） Measured Value C-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-15.3	-∞ ～ -10.8	合格(Pass)
20	-6.6	-8.7 ～ -3.7	合格(Pass)
31.5	-3.3	-5.0 ～ -1.0	合格(Pass)
63	-0.9	-2.3 ～ +0.7	合格(Pass)
125	-0.2	-1.7 ～ +1.3	合格(Pass)
250	0.0	-1.4 ～ +1.4	合格(Pass)
500	+0.1	-1.4 ～ +1.4	合格(Pass)
1000(ref.)	0.0	-1.1 ～ +1.1	合格(Pass)
2000	-0.2	-1.8 ～ +1.4	合格(Pass)
4000	-0.9	-2.4 ～ +0.8	合格(Pass)
8000	-3.2	-6.1 ～ -0.9	合格(Pass)
16000	-8.4	-25.5 ～ -5.0	合格(Pass)
20000	-10.8	-∞ ～ -7.2	合格(Pass)

表3 Table 3

标称频率（Hz） Nominal frequency	实测值Z计权（dB） Measured Value Z-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-1.6	-∞ ～ +3.5	合格(Pass)
20	-0.5	-2.5 ～ +2.5	合格(Pass)
31.5	-0.2	-1.5 ～ +1.5	合格(Pass)
63	-0.1	-1.5 ～ +1.5	合格(Pass)
125	0.0	-1.5 ～ +1.5	合格(Pass)
250	0.0	-1.4 ～ +1.4	合格(Pass)
500	0.0	-1.4 ～ +1.4	合格(Pass)
1000(ref.)	0.0	-1.1 ～ +1.1	合格(Pass)
2000	0.0	-1.6 ～ +1.6	合格(Pass)
4000	0.0	-1.6 ～ +1.6	合格(Pass)
8000	0.0	-3.1 ～ +2.1	合格(Pass)
16000	0.0	-17.0 ～ +3.5	合格(Pass)
20000	-0.1	-∞ ～ +4.0	合格(Pass)

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201402815 原始记录编号： 2201402815 第 5 页，共 8 页
Certification No. Record No. Page of

4 级线性（参考频率 1 kHz）

Level linearity error (Reference frequency 1 kHz)

4.1 级程变化误差（量程40 dB～110 dB；参考频率：1000 Hz）：见表4

Level Change Error(Range 40 dB～110 dB; Reference frequency: 1000 Hz): Showed in table 4

表4 Table 4

标准值（dB） Reference Value	指示值（dB） Indication Value	误差（dB） Error	允差（dB） Tolerance	结论 Conclusion
40	40.7	+0.7	±0.7	合格(Pass)
50	50.5	+0.5	±0.7	合格(Pass)
60	60.3	+0.3	±0.7	合格(Pass)
70	70.2	+0.2	±0.7	合格(Pass)
80	80.1	+0.1	±0.7	合格(Pass)
90(ref.)	90.0	0.0	-----	合格(Pass)
100	100.1	+0.1	±0.7	合格(Pass)
110	110.3	+0.3	±0.7	合格(Pass)

4.2 参考级量程

Reference range

起始点指示声级：90 dB

Start point

起始点以上间隔 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB above start point

起始点以下间隔 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB below start point

4.3 其他级量程

Other range

起始点指示声级：90 dB

Start point

校准结果
RESULTS OF CALIBRATION

起始点以上间隔 10 dB点的最大误差：0.3 dB

Maximum Error for each 10 dB above start point

起始点以下间隔 10 dB点的最大误差：0.2 dB

Maximum Error for each 10 dB below start point

上限以下 5 dB内的 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB within 5 dB below upper limit

下限以上 5 dB内的 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB within 5dB above lower limit

4.4 相对参考级量程的级程控制器最大误差：0.0 dB

Maximum Error for different range

以“40 dB～110 dB”为参考量程

Reference range with “40 dB～110 dB”

以90.0 dB为参考点（0 dB）转向60 dB～130 dB量程误差：0.0 dB

Error of indication from 90.0 dB reference point（0 dB）to 60 dB～130 dB another range

以70.0 dB为参考点（0 dB）转向20 dB～90 dB量程误差：0.0 dB

Error of indication from 70.0 dB reference point（0 dB）to 20 dB～90 dB another range

5 本机噪声：

Residual noise

A计权：<20 dB 结论：合格(Pass)

A-weighting Conclusion

6 F和S时间计权：

Time weightings F/S

衰减速率： *F*：>25 dB/s（允许范围：≥25 dB/s）；

Attenuation rate Tolerance

S： 4.3 dB/s（允许范围：3.4 dB/s～5.3 dB/s）；

Tolerance

F和S差值：0.0 dB

Dispersion F/S

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201402815 原始记录编号： 2201402815 第 7 页，共 8 页
Certification No. Record No. Page of

7 猝发音响应（A计权）：见表5

Toneburst response (A-weighting) : Showed in table 5

表5 Table 5

单个猝发音持续时间/ms Single tone burst Last time/ms	猝发音响应/dB Tone burst response/dB L_{AFmax}- L_A	允许范围 Tolerance	结论 Conclusion	L_{ASmax}- L_A	允许范围 Tolerance	结论 Conclusion
500	-0.1	+0.7～-0.9	合格(Pass)	-4.1	-3.3～-4.9	合格(Pass)
200	-0.9	-0.2～-1.8	合格(Pass)	-7.4	-6.6～-8.2	合格(Pass)
50	-4.7	-3.5～-6.1	合格(Pass)	-13.3	-11.8～-14.4	合格(Pass)
10	-11.2	-9.8～-12.4	合格(Pass)	-20.5	-18.7～-22.3	合格(Pass)

8 重复猝发音响应（A计权）：见表6

Response to repeated Toneburst (A-weighting): Showed in table 6

表6 Table 6

单个猝发音持续时间/ms Single tone burst last time/ms	相邻单个猝发音持续时间/ms Adjacent single tone burst last time/ms	猝发音响应/dB Tone burst response/dB (L_{AeqT}-L_A)	允许范围 Tolerance	结论 Conclusion
500	2000	-7.0	-6.2～-7.8	合格(Pass)
200	800	-6.9	-6.2～-7.8	合格(Pass)
50	200	-7.0	-5.7～-8.3	合格(Pass)
10	40	-7.0	-5.7～-8.3	合格(Pass)

校 准 结 果
RESULTS OF CALIBRATION

9 峰值C声压（500 Hz）：见表7

Peak C sound level: Showed in table 7

表7 Table 7

试验信号中的周期数目 Periods number in test signal	（L_{Cpeak}-L_C）/dB	允差/dB MPE	结论 Conclusion
一个周期 One period	4.3	2.1～4.9	合格(Pass)
正半个周期 Positive half period	2.9	1.0～3.8	合格(Pass)
负半个周期 Minus half period	2.8	1.0～3.8	合格(Pass)

10 过载指示：

Over loading indication

误差：0.1 dB（允许范围：≤1.8 dB） 结论：合格(Pass)

Error Tolerance Conclusion

说明(Note)：

1 声压级测量结果扩展不确定度：

Expanded uncertainty of measurement in Sound Pressure Level Calibration:

10 Hz～200 Hz ,U=0.5 dB, k=2

250 Hz～400 Hz ,U=0.4 dB, k=2

500 Hz～1.25 kHz ,U=0.4 dB, k=2

1.6 kHz～10 kHz ,U=0.6 dB, k=2

12.5 kHz～20 kHz ,U=1.0 dB, k=2

（依据JJF1059.1-2012 测量不确定度评定与表示）

(According to JJF1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

2 建议校准周期不超过1年。

The period of calibration advised within one year.

3 参考IEC 61672-1-2002标准。

Reference standard: IEC 61672-1-2002.

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
Ecology (Construction Phase)			
S7.6.2	-	<u>Tree Felling and Vegetation Clearance</u> Tree felling and compensatory planting will be implemented in accordance with the requirements of ETWB TCW No. 3/2006 as far as practicable. <u>Water Quality</u> 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: • 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.	^ ^ ^ ^ ^ ^
Landscape & Visual (Construction Phase)			
S9.11	-	The following good site practices and measures have been recommended: • 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,	^ ^ ^ ^

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

ERR[(1)] Ref.	ID No.	Recommended Mitigation Measures	Status
		• 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	Site Hoarding Erection of solid screen during construction stage to prevent undesirable views of the construction site from visually sensitive areas.	^
Table 9.7	CM2	Management of facilities on work sites 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	Construction programme 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.	^
Air Quality			
-	-	Emission from Vehicles and Plants	
		• All vehicles shall be shut down in intermittent use.	^
		• Only well-maintained plant should be operated on-site and plant should be serviced regularly to avoid emission of black smoke.	#
		• All diesel fuelled construction plant within the works areas shall be powered by ultra-low sulphur diesel fuel (ULSD)	^
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	-	• 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	^

ERR[1] Ref.	ID No.	Recommended Mitigation Measures	Status
		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 maintained throughout the construction period;	^
		• 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;	N/A[2]
		• 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.	^
Construction Airborne Noise			
S5.5.6	-	Implement the following good site practices:	
		• Louvres should be orientated away from adjacent NSRs, preferably onto the main line of WRL which are less sensitive.	N/A[2]
		• 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.	N/A[2]
		• 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.	^

ERR[1] Ref.	ID No.	Recommended Mitigation Measures	Status
		• 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.	^
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: <u>Construction Runoff and Site Drainage</u>	
		• 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 0.1m^3/s a sedimentation basin of 30m^3 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.	N/A[2]
		• 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.	N/A[2]
		• 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	#

ERR[1] Ref.	ID No.	Recommended Mitigation Measures	Status
		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.	N/A[2]
		• Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50m^{3}should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.	^
		• 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.	N/A[2]
		• 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.	N/A[2]
S12.5.1.2	-	<u>Sewage Effluent</u>	
		• 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	-	<u>Accidental Spillage</u>	
		• 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	#

ERR[1] Ref.	ID No.	Recommended Mitigation Measures	Status
		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)			
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	-	<u>C & D Material</u> • 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.	^ ^ ^ N/A[2] ^ ^ ^
S11.5.1	-	<u>C&D Waste</u> • 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	^ ^

ERR[1] Ref.	ID No.	Recommended Mitigation Measures	Status
		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.	
S11.5.1	-	General Refuse	
		• General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes. A reputable waste collector 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.	#
		• 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.	^
S11.5.1	-	Chemical Waste	
		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.	
		Chemical waste should be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes as follows.	
		Containers used for storage of chemical wastes should:	
		• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;	^
		• Have a capacity of less than 450 L unless the specification have been approved by EPD; and	N/A[2]
		• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.	^
		The storage area for chemical wastes should:	
		• 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;	^

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

ERR[(1)] Ref.	ID No.	Recommended Mitigation Measures	Status
		• 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.	^
		Disposal of chemical waste should:	
		• 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
Impact Noise Monitoring Schedule for Nov 2014

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

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 Dec 2014

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

APPENDIX F
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

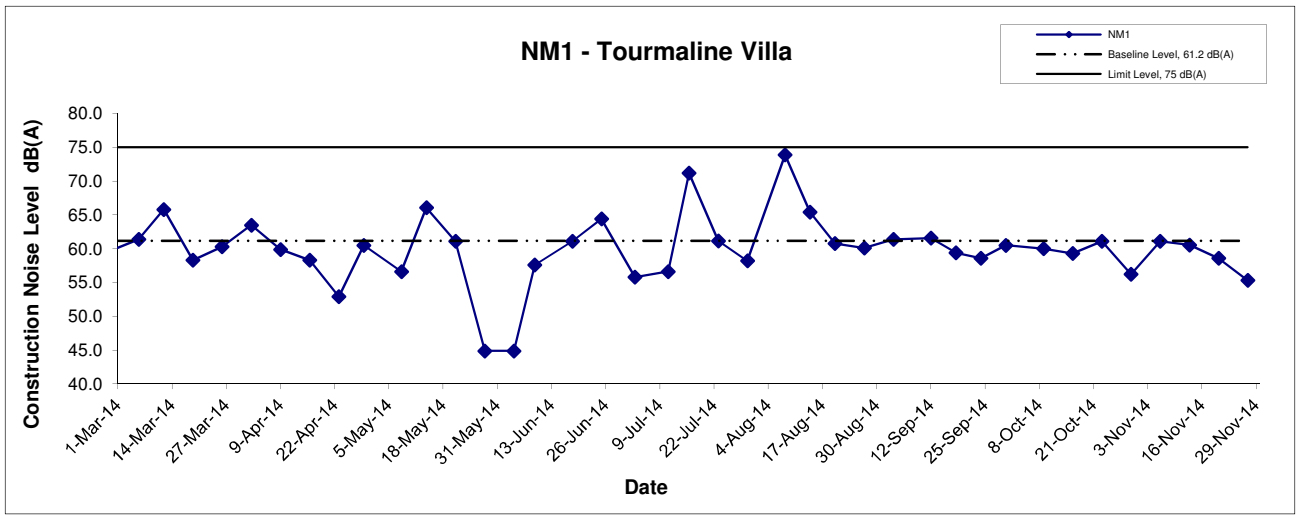
Appendix F - Noise Monitoring Results

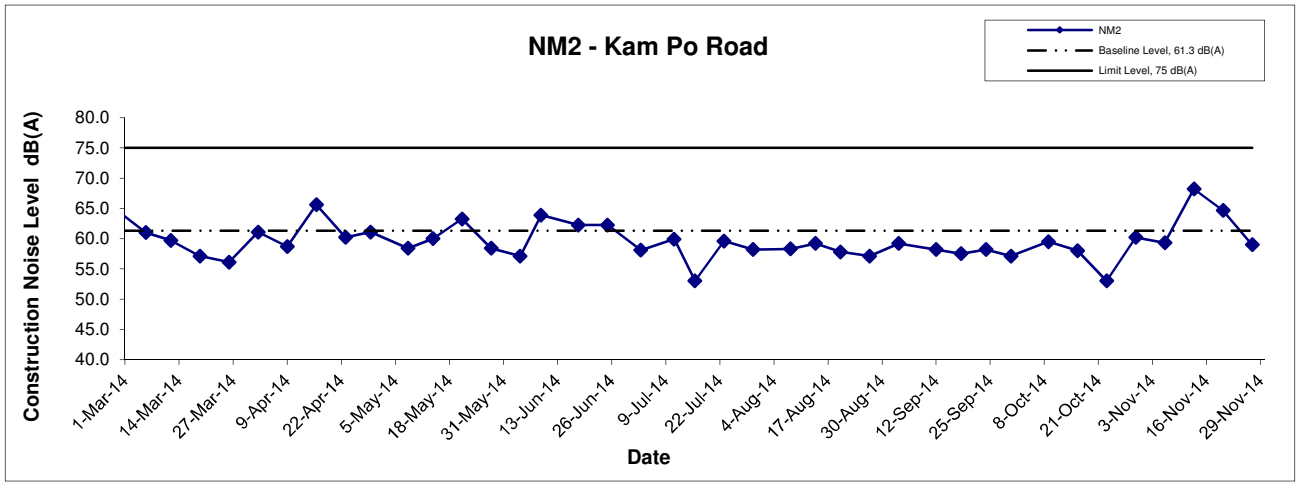
Location NM1 - Tourmaline Villa							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
6-Nov-14	10:10	Sunny	61.1	62.2	50.1	61.2	61.1 Measured ≦ Baseline
13-Nov-14	10:01	Cloudy	63.9	64.4	52.5		60.6
20-Nov-14	10:45	Sunny	63.1	64.4	51.6		58.6
27-Nov-14	10:19	Cloudy	62.2	62.8	50.5		55.3

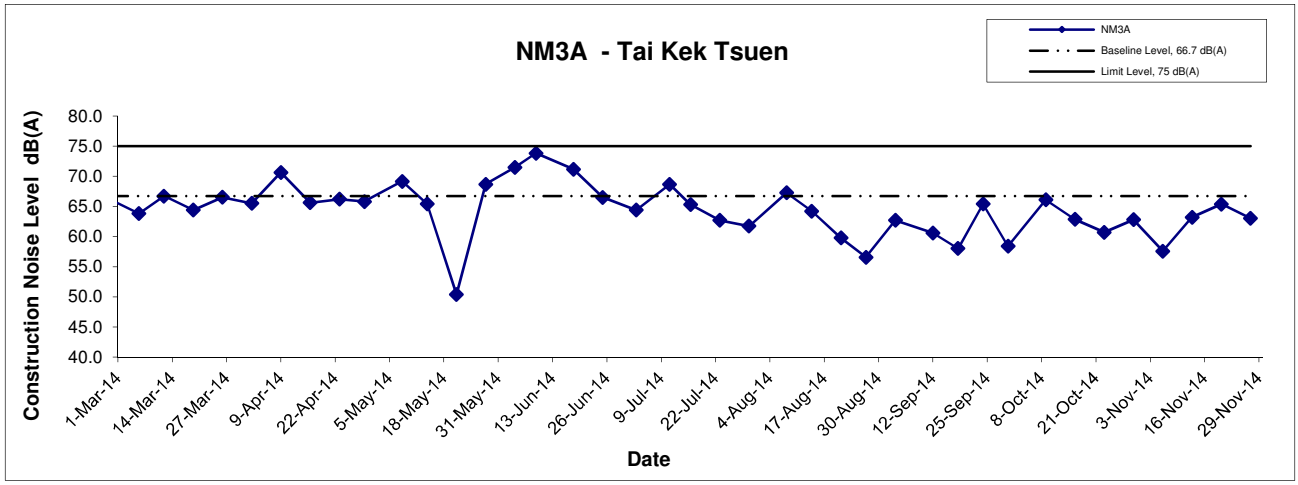
Location NM2 - Kam Po Road							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L_{eq}	L_{10}	L_{90}	L_{eq}	L_{eq}
6-Nov-14	10:46	Cloudy	59.3	57.8	45	61.3	59.3 Measured ≦ Baseline
13-Nov-14	10:37	Cloudy	69	69	48.1		68.2
20-Nov-14	11:25	Sunny	66.3	63.1	50.4		64.6
27-Nov-14	11:01	Cloudy	59	61.3	48.5		59 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}
6-Nov-14	9:34	Sunny	67.2	70.5	49.4	66.7	57.6
13-Nov-14	9:11	Cloudy	63.2	63.6	54.5		63.2 Measured ≦ Baseline
20-Nov-14	9:47	Sunny	69.1	63	55.6		65.4
27-Nov-14	9:41	Cloudy	63	62.4	55.1		63 Measured ≦ Baseline

Noise Levels







Title		Scale	Project No.
MTR Works Contract 1117 Pat Heung Depot Modification Works Graphical Presentation of Construction Noise Monitoring Results		N.T.S	MA13003
		Date: Nov-14	Appendix: F

CINOTECH

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 2014 (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 '14	11.624	-	3.871	-	-	7.753	-	-	115	-	-	0.052
Feb '14	7.361	-	-	-	0.036	7.325	-	7.25	95	230	-	0.054
Mar '14	7.064	-	-	-	0.016	7.048	-	10.34	150	-	-	0.057
Apr '14	5.309	-	-	-	0.022	5.287	-	5.46	292	-	-	0.014
May '14	7.047	-	-	-	0.008	7.039	-	16.3	305	5	-	0.026
Jun '14	5.518	-	-	-	0.056	5.462	-	27.45	155	5	-	0.003
Sub-total	43.923	-	3.871	-	0.138	39.914	-	66.800	1112	240	-	0.206
Jul '14	6.375	-	-	-	0.066	6.309	-	50.82	185	-	-	0.030
Aug '14	3.313	-	-	-	0.059	3.254	-	10.12	325	6	-	0.018
Sep '14	2.453	-	-	-	0.051	2.402	-	76.94	475	-	-	0.011
Oct '14	3.397	-	-	-	0.055	3.342	-	44.84	403	-	-	0.004
Nov '14	2.654	-	-	-	0.068	2.586	-	39.35	245	6	-	0.018
Dec '14	-	-	-	-	-	-	-	-	-	-	-	-
Total	62.115	-	3.871	-	0.436	57.808	-	288.870	2745	252	-	0.287

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

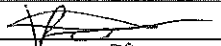
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141104
Date	4 November 2014 (Tuesday)
Time	09:00 -12:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
141104-O02	• U-channels should be maintained regularly to avoid accumulation of mud and surface run-off (Area C, Location 3).	B 1 & B 8
	Part C - Tree Management Protection / Landscape & Visual Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
141104-O01	• Oil leakage is observed from the excavator in Area B.	F 8
141104-R03	• Oil or chemical containers should be provided with drip trays (Area A and B).	F 9
141104-R04	• General refuse should be stored properly or cleared frequently in Area B.	F 1iii
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Remark	
	• Follow-up on previous audit sessions (ref: 141028): outstanding item of 141028-O01 will be followed up during the next site inspection.	

	Name	Signature	Date
Recorded by	Victor Wong		4 November 2014
Checked by	Dr. Priscilla Choy		4 November 2014

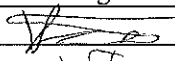
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141111
Date	11 November 2014 (Tuesday)
Time	09:00 -11:30

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
141111-O01	• Discharged water quality form the sedimentation tanks in Area A and C should be improved; Sediment accumulation is observed in the discharging drainage channel in Area C, Location 3.	B 6ii & B 6iii & B 8
	Part C - Tree Management Protection / Landscape & Visual Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
141111-R02	• Oil or chemical containers should be provided with drip trays or treated as chemical waste if not in use (Area A).	F 9
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Remark	
	• Follow-up on previous audit sessions (ref: 141104): outstanding items of 141104-O02 and 141104-R03 will be followed up during the next site inspection.	

	Name	Signature	Date
Recorded by	Victor Wong		11 November 2014
Checked by	Dr. Priscilla Choy		11 November 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141118
Date	18 November 2014 (Tuesday)
Time	09:00 -11:30

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
141118-O01	• Sludge accumulation is observed in the sedimentation tank (Area A).	B 6iii
	Part C - Tree Management Protection / Landscape & Visual Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
141118-O02	• Smoke emission is observed from the generator in Area A and should be checked to ensure it function properly.	D 17
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
141118-R03	• General refuse should be stored properly and removed in a regular basis (Area D).	F 1ii
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Remark	
	• Follow-up on previous audit sessions (ref: 141111): outstanding items of 141111-O01 and 141111-R02 will be followed up during the next site inspection.	

	Name	Signature	Date
Recorded by	Victor Wong		18 November 2014
Checked by	Dr. Priscilla Choy		18 November 2014

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	141126
Date	26 November 2014 (Wednesday)
Time	14:00 -18:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part B - Water Quality	
141126-R01	• Sediment accumulation was observed in the sedimentation tank (Area A) and u-channel (Area C).	B 6iii & B 8
141126-R02	• The Contractor should ensure the pH level is acceptable when the AquaSed tank is operational (Area B).	B 8
	Part C - Tree Management Protection / Landscape & Visual Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Air Quality	
141126-O03	• The generator should be maintained to avoid smoke emission (Area A).	D 17
141126-R03	• Stockpile and haul road should be sprayed with water (Area B, C).	D 7
	Part E – Construction Noise Impact	
	• No environmental deficiency was identified during the site inspection.	
	Part F – Waste/Chemical Management	
141126-O01	• Oil stain should be cleared (Area B).	F 8
141126-O02	• Oil containers should be provided with drip tray (Area C, D).	F 9
141126-O04	• General refuse should be sorted and provide with adequate containers (Area B).	F 1iii & F 1iv
	Part G - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Part H – Remark	
	• Follow-up on previous audit sessions (ref: 141118): outstanding items of 141118-O01, 141118-O02 and 141118-R03 will be followed up during the next site inspection.	

	Name	Signature	Date
Recorded by	Victor Wong		26 November 2014
Checked by	Dr. Priscilla Choy		26 November 2014

APPENDIX I
SUMMARY OF EXCEEDANCE

APPENIDX I – SUMMARY OF EXCEEDANCE

Reporting Month: November 2014

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
--	--	--	--	--	--