## Kwan On Construction Co., Ltd.

EP-344/2009 – New Sewage Pumping Stations Serving KTD and EP-337/2009 – New Distributor Roads Serving the Planned KTD

Contract No. KL/2012/03 Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area

Quarterly EM&A Summary Report

June 2014 - August 2014

(Version 1.0)

Approved By	Chu h. (Environmental Team Leader)
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

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## EXECUTIVE SUMMARY

## Introduction

1. This is the 3<sup>rd</sup> Quarterly Environmental Monitoring and Audit Report prepared by Cinotech Consultants Ltd. for "Contract No. KL/2012/03 - Kai Tak Development –Stage 4 Infrastructure at Former North Apron Area" (Hereafter referred to as "the Project"). This summary report presents the EM&A works performed in the period between June 2014 and August 2014.

## **Environmental Monitoring Works**

- 2. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
- 3. Summary of the non-compliance in the reporting quarter for the Project is tabulated in Table I.

Parameter	No. of Excee	Action				
Parameter	Action Level	Limit Level	Taken			
June 2014						
1-hr TSP	0	0	N/A			
24-hr TSP	0	0	N/A			
Noise	0	0	N/A			
July 2014						
1-hr TSP	0	0	N/A			
24-hr TSP	0	0	N/A			
Noise	1	0	N/A			
August 2014	August 2014					
1-hr TSP	0	0	N/A			
24-hr TSP	0	0	N/A			
Noise	0	0	N/A			

#### Table I Non-compliance Record for the Project in the Reporting Quarter

4. One Action Level exceedance in Noise Monitoring was recorded due to the complaint on construction noise received on 21<sup>st</sup> July 2014.

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## Key Information in the Reporting Quarter

5. Summary of key information in the reporting quarter is tabulated in Table II.

Event	]	Event Details	Action Taken	Status	Remark
	Number	Nature			
Complaint received	1	Construction noise at Kwei Chow Street	<ul> <li>The Contractor has suspended the works by sheet pile vibrator immediately since received the complaint.</li> <li>The Contractor has also applied hydraulic operated equipment for sheet pile installation to further reduce construction noise and vibration nuisance.</li> </ul>	Closed	The complaint was received on 21 <sup>st</sup> July 2014.
Reporting Changes	0		N/A	N/A	
Notifications of any summons & prosecutions received	0		N/A	N/A	

Table II	Summary	<b>Table for</b>	Key Inf	formation	in the	<b>Reporting Quarter</b>
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6. Environmental monitoring works for the Project are considered effective and are generating data to categorically identify the environmental impacts from the works and influencing factors in the vicinity of monitoring stations.

## 1. INTRODUCTION

## Background

- 1.1 The Kai Tak Development (KTD) is located in the south-eastern part of Kowloon Peninsula, comprising the apron and runway areas of the former Kai Tak Airport and existing waterfront areas at To Kwa Wan, Ma Tau Kok, Kowloon Bay, Kwun Tong and Cha Kwo Ling. It covers a land area of about 328 hectares. Stage 4 Infrastructure at Former North Apron Area is one of the construction stages of KTD. The general layout of the Project is shown in **Figure 1**.
- 1.2 The construction activities undertaken in the reporting quarter were:
  - Daily Clearance;
  - Sheet Piling installation for PS2;
  - Base slab construction of Box culvert B5;
  - Jacking pit construction at CH A630;
  - Excavation for PS2 and PS NPS at Portion 4;
  - Excavation of trench for sewer in D2 CHA1200-1250 and DN750 along Site 1K/2.
  - Road widening works for Sun Wong Tai Road;
  - Trench excavation of box culvert B5;

- Wall and roof slab construction for B5;
- Strut and waling of NPS; and
- Installation of DN750 drainage pipe at L19.
- 1.3 Cinotech Consultants Limited (Cinotech) was commissioned by Kwan On Construction Co., Ltd. (the Contractor) to undertake the role of the Environmental Team (ET) for the Contract No. KL/2012/03 - Stage 4 Infrastructure at Former North Apron Area. The construction work under KL/2012/03 comprises the construction of Road D2 & Sewage Pumping Station PS2 and PS NPS which forms a part of the works under two EPs (EP-337/2009 and EP-344/2009).
- 1.4 The construction commencement of this Contract was on 1<sup>st</sup> December 2013 for Road D2, Sewage Pumping Station PS2 and PS NPS. This summary report presents the EM&A works performed in the period between June 2014 and August 2014.

## **Project Organizations**

- 1.5 Different parties with different levels of involvement in the project organization include:
  - Project Proponent Civil Engineering and Development Department (CEDD).
  - The Engineer and the Engineer's Representative (ER) AECOM.
  - Environmental Team (ET) Cinotech Consultants Limited (CCL).
  - Independent Environmental Checker (IEC) Hyder Consultants Ltd. (Hyder).
  - Contractor –Kwan On Construction Co., Ltd. (Kwan On).
- 1.6 The key contacts of the Project are shown in **Table 1.1**.

Party	Role	Contact Person	Position	Phone No.	Fax No.
CEDD	Project Proponent	Mr. K Y SHIN	Engineer	2301 1461	2301 1277
AECOM	Engineer's	Mr. Vincent Lee	SRE	27980771	3013 8864
ALCOM	Representative	Mr. Mickey Lee	RE		
	Environmentel	Dr. Priscilla Choy	Environmental Team Leader	2151 2089	
Cinotech	Environmental Team	Ms. Ivy Tam	Project Coordinator and Audit Team Leader	2151 2090	3107 1388
Hyder	Independent Environmental Checker	Mr. Wong Fu Nam	Independent Environmental Checker	2911 2744	2805 5028
Kwan On	Contractor	Mr. Terry Yu	Site Agent	3689 7752 6146 676 telephone nur	× *

Table 1.1Key Project Contacts

## 2. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

## **Monitoring Parameters and Monitoring Locations**

2.1 The EM&A Manual designates locations for the ET to monitor environmental impacts in terms of air quality, noise, landscape and visual due to the Project. The Project area and monitoring locations are depicted in Figures 2 and 3. Appendix A gives details of monitoring requirements.

## **Environmental Quality Performance Limits (Action and Limit Levels)**

2.2 The environmental quality performance limits, i.e. Action and Limit Levels were derived from the baseline monitoring results. Should the measured environmental quality parameters exceed the Action/Limit Levels, the respective action plans would be implemented. The Action/Limit Levels for each environmental parameter are given in **Appendix B**.

#### **Implementation Status of Environmental Mitigation Measures**

2.3 Relevant mitigation measures as recommended in the project EIA report have been stipulated in the EM&A Manual for the Contractor to implement. The implementation status of environmental mitigation measures (EMIS) is given in **Appendix E**.

#### Site Audit Summary

2.4 During site inspections in the reporting period, no non-conformance was identified. The observations and recommendations made during the reporting period are summarized in **Appendix F**.

## Status of Waste Management

2.5 The amount of wastes generated by the major site activities of this Project during the reporting quarter is shown in **Appendix G**.

## 3. MONITORING RESULTS AND NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS (ACTION AND LIMIT LEVELS)

3.1 Environmental monitoring works were performed in the reporting period and all monitoring results were checked and reviewed. A summary of exceedances is attached in **Appendix H**.

#### Weather Conditions

3.2 The weather during monitoring sessions was summarized in Table 3.1.

#### Table 3.1 Summary of Weather Conditions in the Reporting Period

Reporting Month	General Weather Conditions
June 2014	Sunny and Rainy
July 2014	Sunny and Rainy
August 2014	Sunny

3.3 The detail of weather conditions for each individual monitoring session was presented in monthly EM&A report.

## Air Quality

### 1-hour TSP Monitoring

3.4 1-hour TSP monitoring at 4 monitoring stations - AM2, AM3(A), AM4(A), AM5(A), was conducted as schedule in the reporting period. No Action/Limit Level exceedance was recorded for 1-hr TSP monitoring in the reporting quarter.

## 24-hour TSP Monitoring

- 3.5 24-hr TSP monitoring at 4 monitoring stations, AM2, AM3(A), AM4(A) and AM5(A), was also conducted as schedule in the reporting period. No Action/Limit Level exceedance was recorded for 24-hr TSP monitoring in the reporting quarter.
- 3.6 The graphical presentations of the air quality monitoring results are shown in **Appendix C**.

#### **Construction Noise**

- 3.7 Noise monitoring at the 4 monitoring stations M6, M7, M8 and M9, was conducted as schedule in the reporting period. One Action Level exceedance was recorded due to the complaint on construction noise received on 21<sup>st</sup> July 2014 in the reporting quarter.
- 3.8 The graphical presentations of the noise monitoring results are shown in **Appendix D**.

#### Landscape and Visual

3.9 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures of this project. No non-compliance of the landscape and visual impact was recorded in the reporting quarter.

## **Influencing Factors on the Monitoring Results**

3.10 During the reporting period, the major dust and noise sources identified at the designated monitoring stations are as follows:

#### Table 3.2 Major Dust Sources in the Reporting Period

Station	Major Dust Source
AM2 – Lee Kau Yan Memorial School	Road Traffic Dust
	Exposed site area and open stockpiles
	Site vehicle movement
AM3(A) – Holy Trinity Bradbury	Road Traffic Dust
Centre	Exposed site area
	Excavation works
	Site vehicle movement
AM4(A) – EMSD Workshops	Recycling Company
	Site vehicle movement
AM5(A) – Po Leung Kuk Ngan Po	Road Traffic Dust
Ling College	Excavation works at the site (Contract No.:
	1/WSD/08(K)) facing Po Leung Kuk Ngan Po

Ling College

#### Table 3.3 Major Noise Sources during the Monitoring in the Reporting Period

Monitoring Stations	Locations	Major Noise Source
M6	Holy Carpenter Primary School	Road and marine traffic Noise
M7	CCC Kei To Secondary School	Road and marine traffic Noise
M8	Po Leung Kuk Ngan Po Ling College	Excavation works at the site (Contract No.: 1/WSD/08(K)) facing Po Leung Kuk Ngan Po Ling College
M9	Tak Long Estate	Road paving and asphalt paving works

#### Comparison of EM&A results with EIA predictions

- 3.11 According to Section 16.7.1 (viii) of the EM&A Manual, the EM&A data are compared with the EIA predictions and summarized in **Annex I**.
- 3.12 The 1-hour and 24-hour average TSP concentrations in the reporting period were generally well below the prediction in the approved Environmental Impact Assessment (EIA) Report. No Action/Limit Level exceedance was recorded.
- 3.13 The noise monitoring results in the reporting period was also within the range of predicted mitigated construction noise levels in the EIA report.

## 4. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

#### Review of the Reasons for and the Implications of Non-compliance

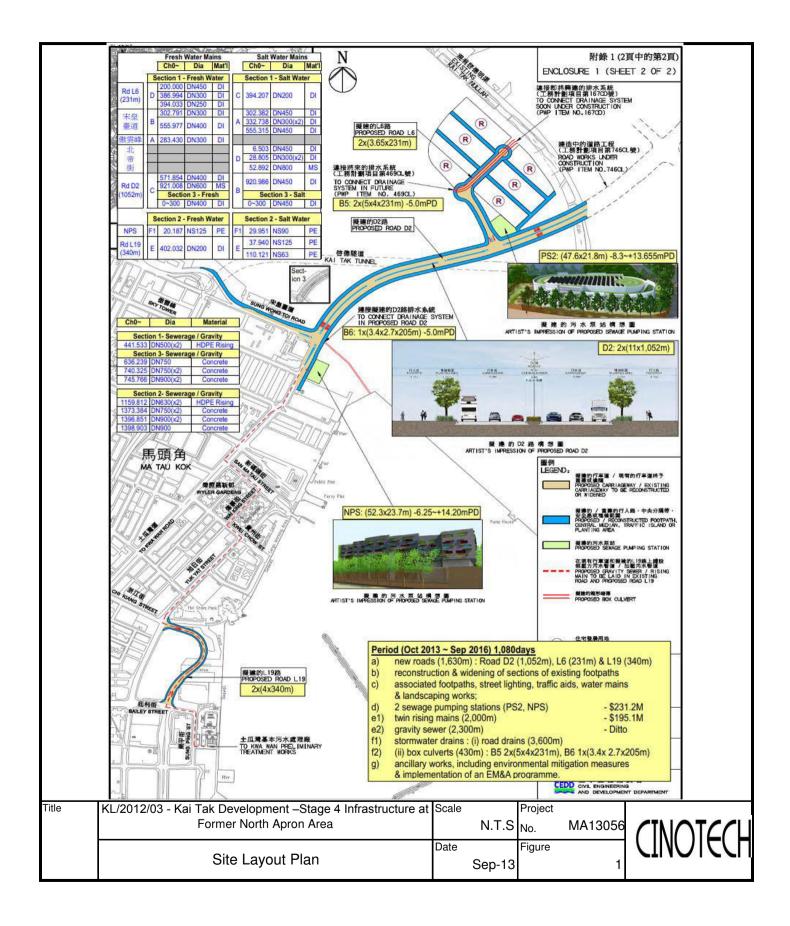
4.1 No Action/Limit Level exceedance was recorded at any air quality monitoring station in the reporting quarter. One Action Level exceedance in noise monitoring was recorded due to the complaint on construction noise received on 21<sup>st</sup> July 2014 in the reporting quarter.

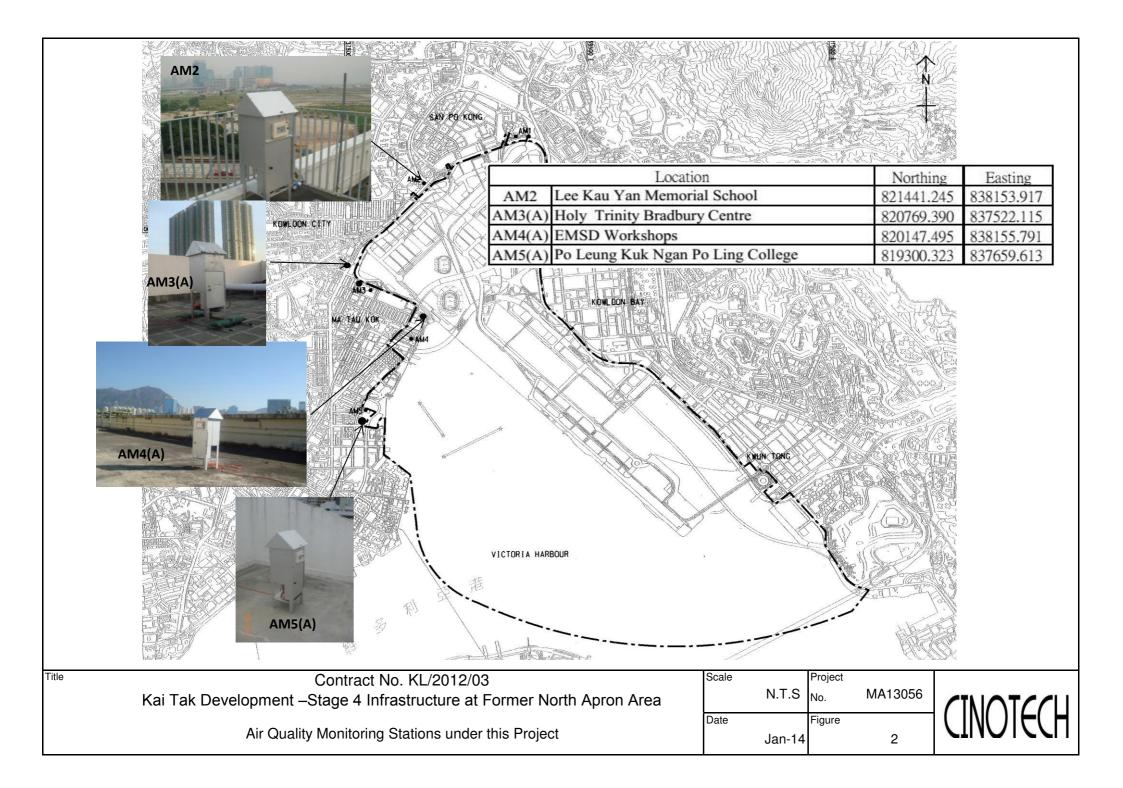
#### **Effectiveness of Mitigation Measures**

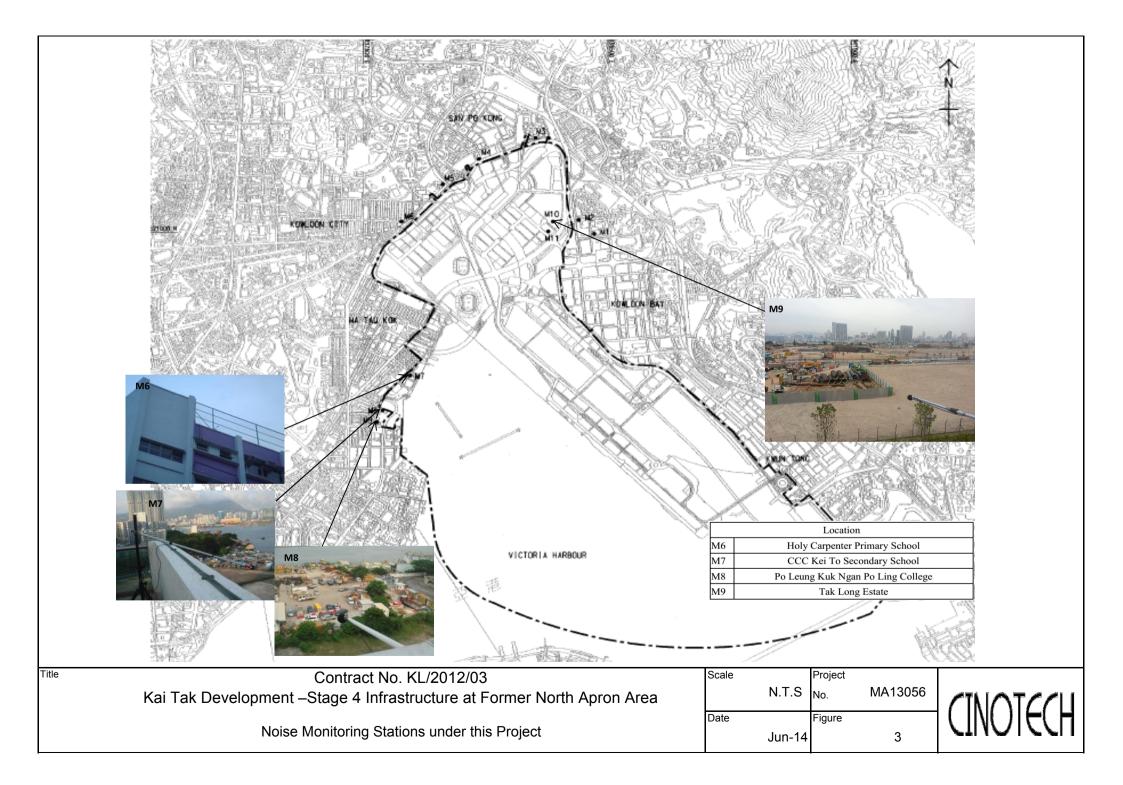
- 4.2 The mitigation measures recommended in the EIA report are considered effective in minimizing environmental impacts.
- 4.3 The Contractor has implemented the recommended mitigation measures except those mitigation measures not applicable at this stage.
- 4.4 Environmental monitoring works performed in the reporting quarter and all monitoring results were checked and reviewed. No non-compliance (exceedances) of Action/Limit Level was recorded.
- 4.5 One environmental complaint in noise and environmental prosecution were received in the reporting quarter. Investigation of the complaint of the cause of the complaint was carried out and the Contractor has taken the following mitigation measures and to avoid recurrence of noise complaint:

- Site hoardings was erected along the site boundary of Pit No. 6 at Kwei Chow Street to shield occupants of premise nearby from noisy works;
- Noisy sheetpile driving works are carried out intermittently and the sheet pile vibrator was shut down between work periods or throttled down to a minimum;
- The cover panel of the power unit of the sheet pile vibrator was closed during operation of the vibrator to further reduce noise nuisance; and
- Adopt Hydraulic operated equipment as alternative construction methods for sheet driving works to reduce construction noise and vibration nuisance.
- 4.6 No complaint in noise was received again since the implementation of the above mitigation measures.
- 4.7 The effectiveness of environmental management is satisfactory given that the recommendations given in the site inspections performed in the reporting period (as shown in **Appendix F**) are met.

FIGURES







APPENDIX A MONITORING REQUIREMENTS

## **Appendix A - Environmental Impact Monitoring Requirements**

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
	1 hour TSP	Three times / 6 days		
Air Quality	24 hour TSP	Once / 6 days	<ul> <li>AM2 – Lee Kau Yan Memorial School</li> <li>AM3(A) – Holy Trinity Bradbury Centre</li> <li>AM4(A) – EMSD Workshop</li> <li>AM5(A) – Po Leung Kuk Ngan Po Ling College</li> <li>#AM6 – PA 15</li> </ul>	<ul> <li>AM2 – Rooftop (about 8/F) Area</li> <li>AM3(A) - Rooftop (about 8/F) Area</li> <li>AM4(A) - Rooftop (about 6/F) Area</li> <li>AM5(A) - Rooftop (about 10/F) Area</li> <li>#AM6 – Site 1B4 (Planned)</li> </ul>

Remarks: # The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

Type of Monitoring	Parameter	Frequency	Location	Measurement Conditions
Construction Noise	L <sub>eq</sub> , L <sub>90</sub> & L <sub>10</sub> at 30 minute intervals during (0700 to 1900 on normal weekdays)	Once per week	<ul> <li>M6 – Holy Carpenter Primary School</li> <li>M7 – CCC Kei To Secondary School</li> <li>M8 – Po Leung Kuk Ngan Po Ling College</li> <li>M9 – Tak Long Estate (from April 2014 onward)</li> <li>#M10 (Site 1B4 (Planned))</li> </ul>	<ul> <li>M6 - Facade measurement at Rooftop (about 7/F) Area</li> <li>M7 - Facade measurement at Rooftop (about 8/F) Area</li> <li>M8 - Facade measurement at Staircase Area (about 9/F)</li> <li>M9 - Façade measurement at 2/F Podium</li> <li>#M10 (Site 1B4 (Planned))</li> </ul>

Remarks: # The impact monitoring at these locations will only be carried out until existence of the sensitive receiver at the building.

APPENDIX B ACTION AND LIMIT LEVELS FOR AIR QUALITY AND NOISE

## **Appendix B - Action and Limit Levels**

Location	Action Level, μg/m <sup>3</sup>	Limit Level, µg/m <sup>3</sup>
AM2	346	
AM3(A)	351	500
AM4(A)	371	- 500
AM5(A)	345	

Table B-1Action and Limit Levels for 1-Hour TSP

Table B-2	Action and Limit Levels for 24-Hour TSP

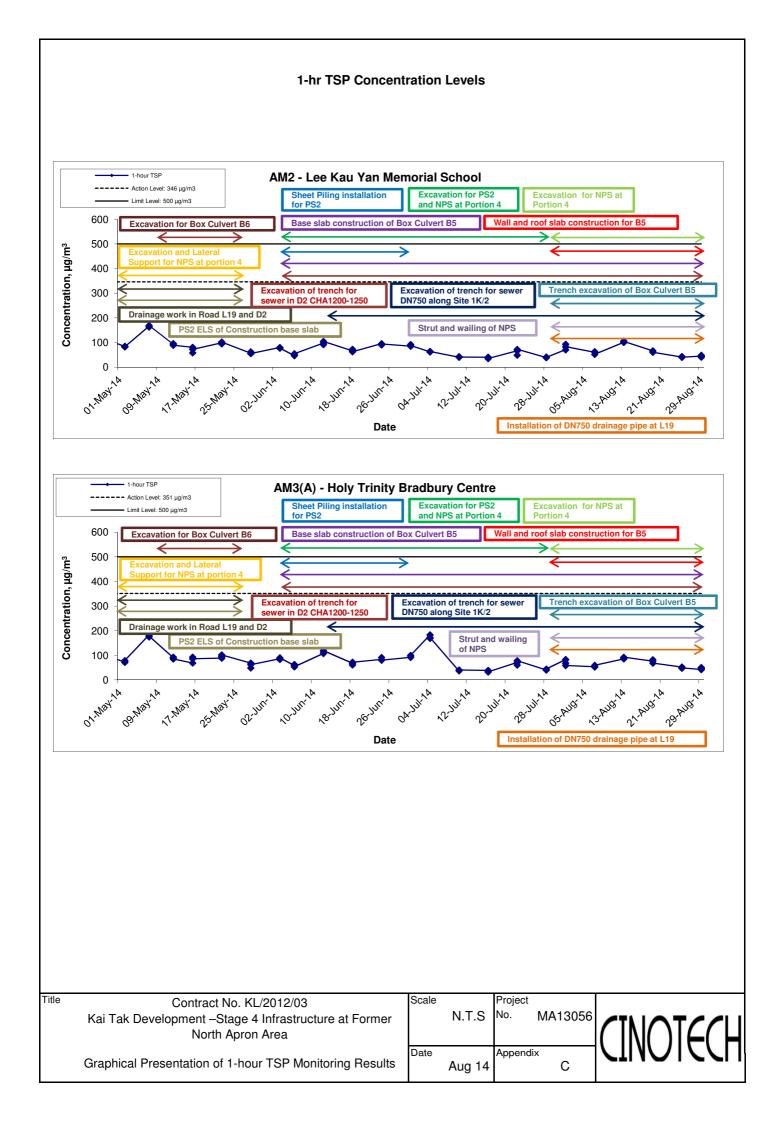
Location	Action Level, μg/m <sup>3</sup>	Limit Level, µg/m <sup>3</sup>
AM2	157	
AM3(A)	167	260
AM4(A)	187	- 260
AM5(A)	156	

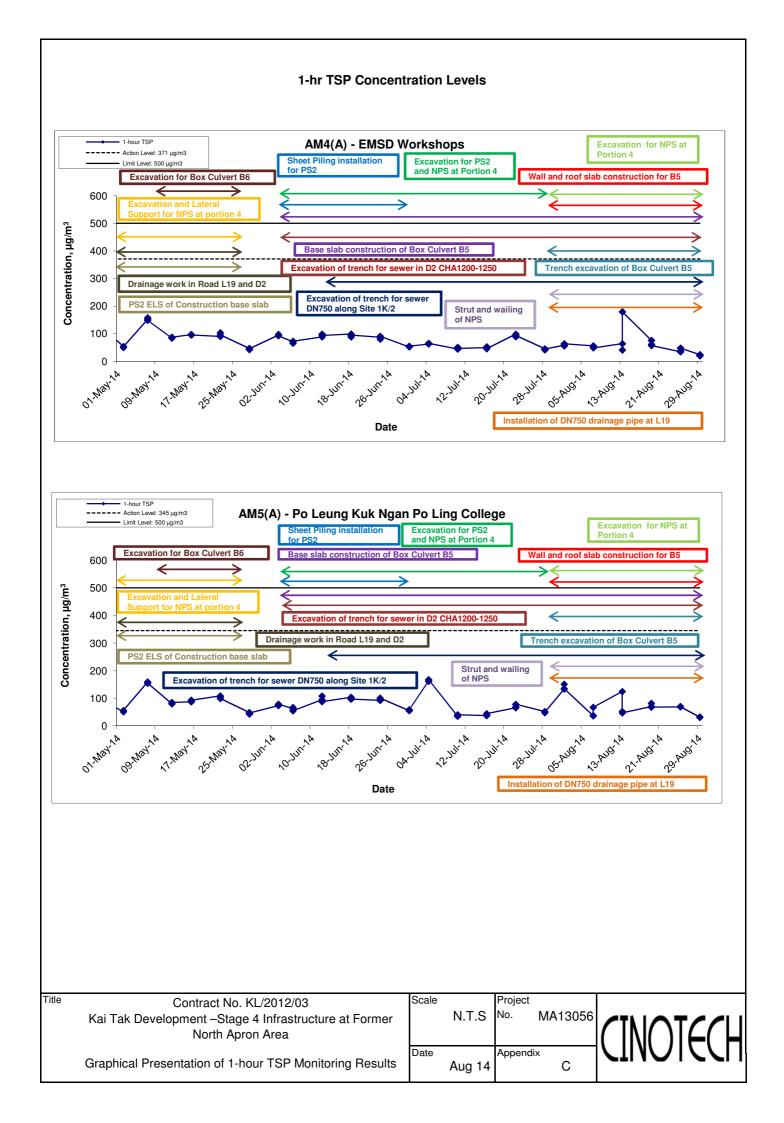
## Table B-3 Action and Limit Levels for Construction Noise

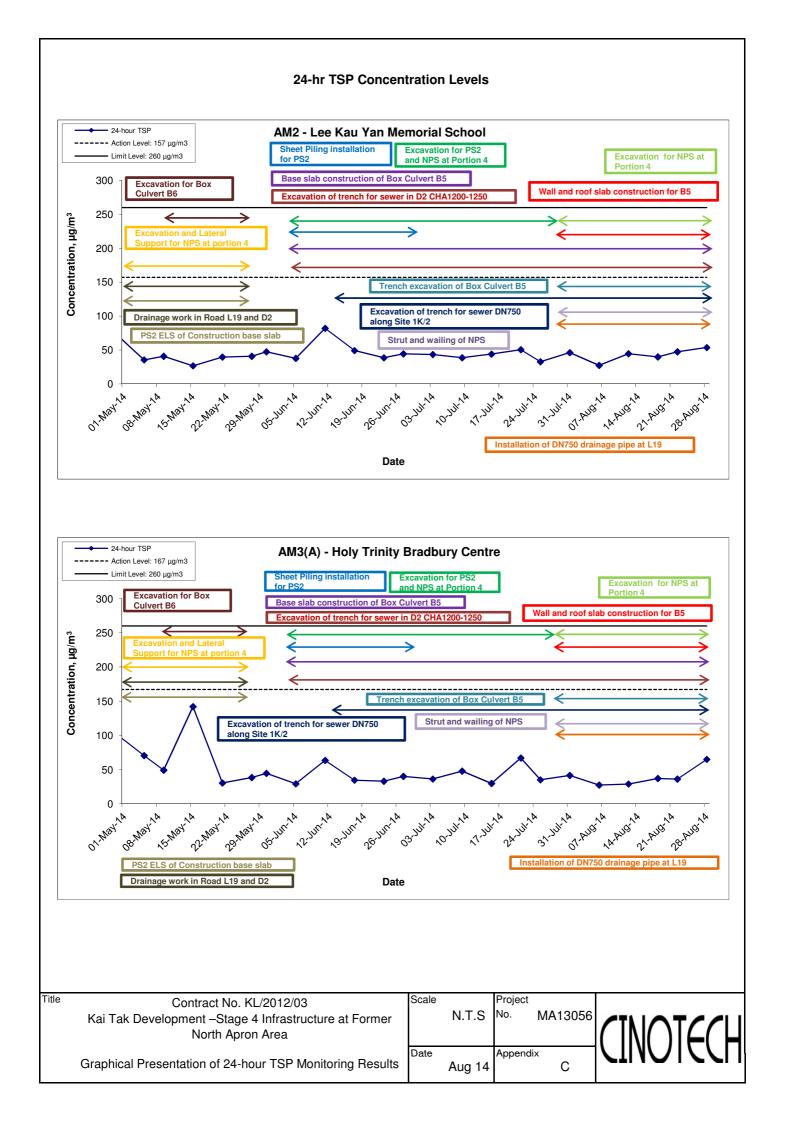
Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) 70dB(A)/65dB(A)*

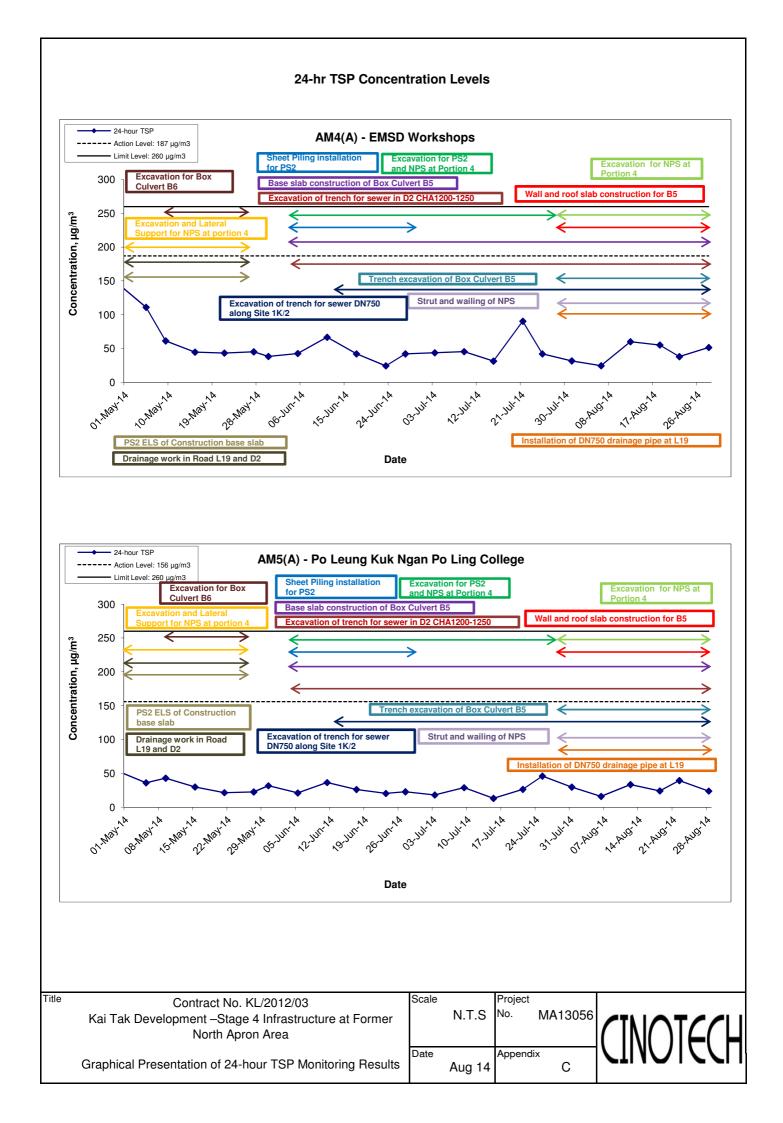
Remarks: If works are to be carried out during restricted hours, the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority have to be followed. \*70dB(A) and 65dB(A) for schools during normal teaching periods and school examination periods, respectively.

APPENDIX C GRAPHICAL PRESENTATION OF AIR QUALITY MONITORING RESULTS

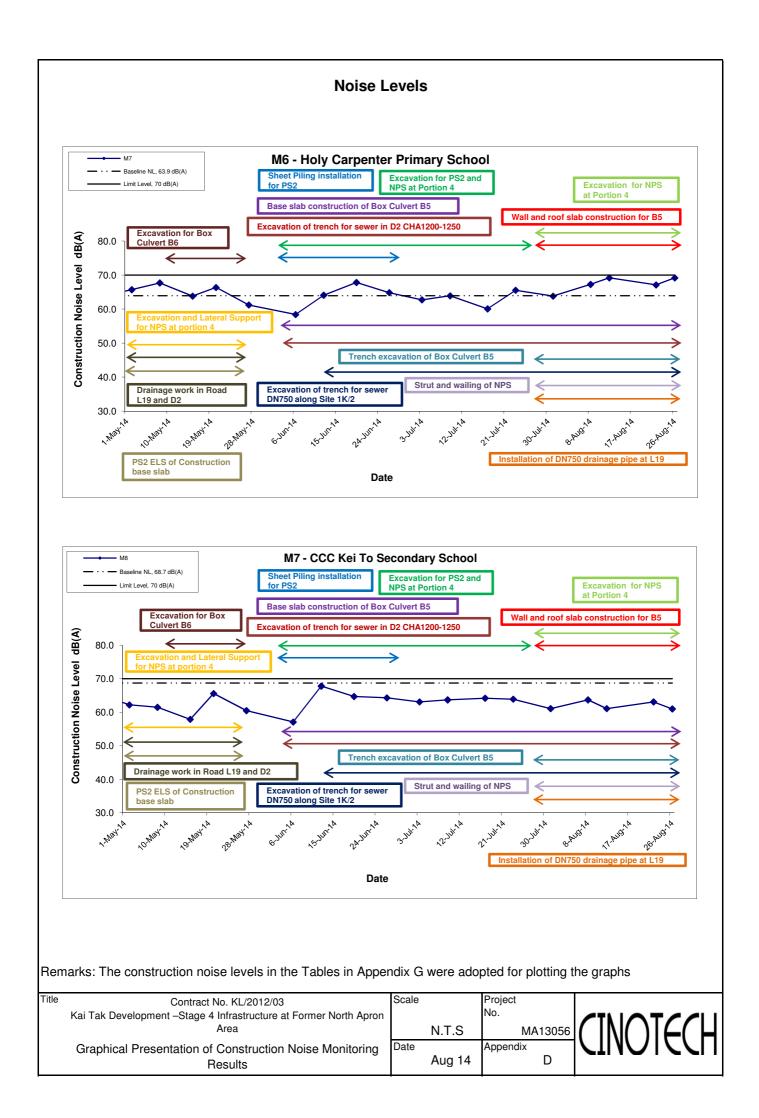


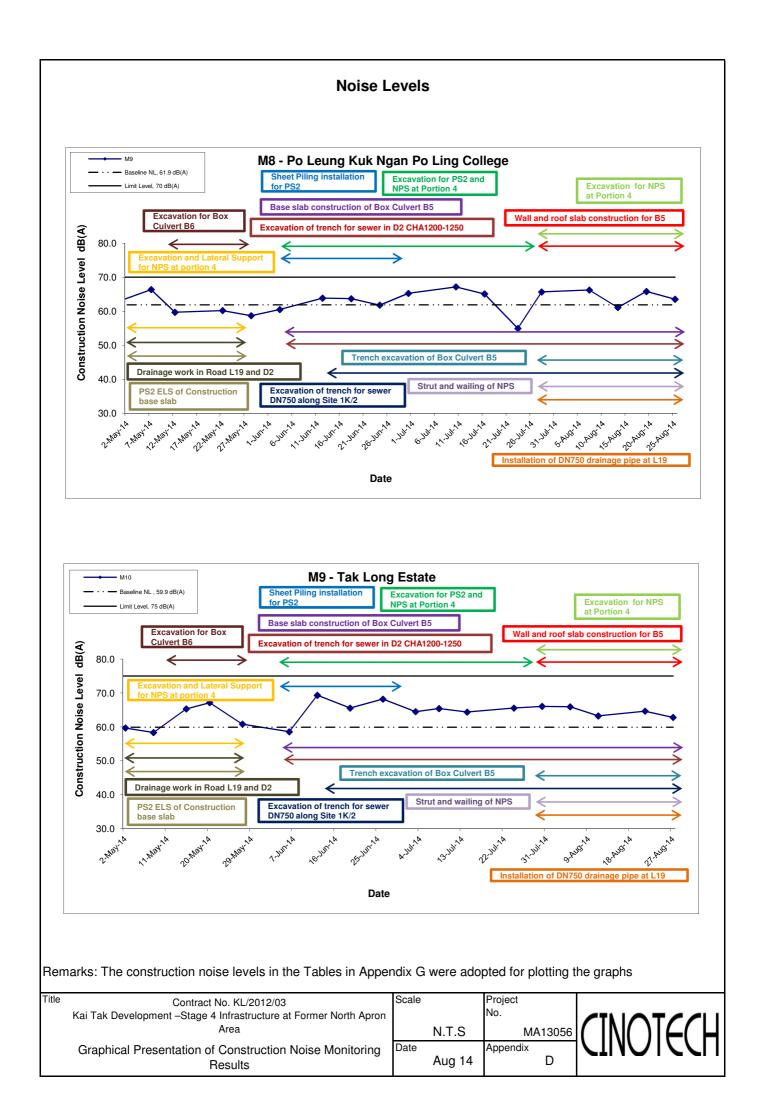






APPENDIX D GRAPHICAL PRESENTATION OF NOISE MONITORING RESULTS





APPENDIX E ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

Types of Impacts	Mitigation Measures	Status
	8 times daily watering of the work site with active dust emitting activities.	^
	Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation. The following mitigation measures, good site practices and a comprehensive dust monitoring and audit programme are recommended to minimize cumulative dust impacts.	
	<ul> <li>Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be fully covered by impermeable sheeting to reduce dust emission.</li> </ul>	*
	<ul> <li>Misting for the dusty material should be carried out before being loaded into the vehicle.</li> </ul>	^
	<ul> <li>Any vehicle with an open load carrying area should have properly fitted side and tail boards.</li> </ul>	^
Construction Dust	<ul> <li>Material having the potential to create dust should not be loaded from a level higher than the side and tail boards and should be dampened and covered by a clean tarpaulin.</li> </ul>	^
	<ul> <li>The tarpaulin should be properly secured and should extent at least 300 mm over the edges of the sides and tailboards. The material should also be dampened if necessary before transportation.</li> </ul>	^
	<ul> <li>The vehicles should be restricted to maximum speed of 10 km per hour and confined haulage and delivery vehicle to designated roadways insider the site. On- site unpaved roads should be compacted and kept free</li> </ul>	^
	<ul> <li>of lose materials.</li> <li>Vehicle washing facilities should be provided at every</li> </ul>	^

# Appendix E - Summary of Implementation Schedule of Mitigation Measures for Construction Phase

<ul> <li>vehicle exit point.</li> <li>The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.</li> <li>Every main haul road should be scaled with concrete and kept clear of dusty materials or sprayed with water so as to maintain the entire road surface wet.</li> <li>Every stock of more than 20 bags of cement should be covered entirely by impervious sheeting placed in an area sheltered on the top and the three sides.</li> <li>Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites.</li> </ul>	

	Use of quiet PME, movable barriers barrier for Asphalt Paver, Breaker, Excavator and Hand-held breaker and full enclosure for Air Compressor, Bar Bender, Concrete Pump, Generator and Water Pump	^
Construction Noise	<ul> <li>Good Site Practice:</li> <li>Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program.</li> <li>Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program.</li> <li>Mobile plant, if any, should be sited as far away from NSRs as possible.</li> <li>Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.</li> <li>Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.</li> <li>Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities.</li> </ul>	^ N/A(1) ^ ^ ^
	Examination Period (i) Provision of low noise surfacing in a section of Road L2; and	^ N/A
	(ii) Provision of structural fins	N/A

<ul> <li>(i) Avoid the sensitive façade of class room facing Road</li> <li>L2 and L4; and</li> </ul>	N/A
<ul><li>(ii) Provision of low noise surfacing in a section of Road L2</li><li>&amp; L4</li></ul>	N/A
(i) Provision of low noise surfacing in a section of Road L4 before occupation of Site 1I1; and	N/A
(ii) Setback of building about 5m from site boundary.	N/A
Setback of building about 35m to the northwest direction at 1L3 and 5m at Site 1L2.	N/A
<ul> <li>avoid any sensitive façades with openable window facing the existing Kowloon City Road network; and</li> </ul>	N/A
<ul> <li>(ii) for the sensitive facades facing the To Kwa Wan direction, either setback the facades by about 5m to the northeast direction or do not provide the facades with openable window.</li> </ul>	N/A
<ul> <li>avoid any sensitive facades with openable window facing the existing To Kwa Wan Road or</li> <li>provision of 17.5m high noise tolerant building</li> </ul>	N/A
fronting To Kwa Wan Road and restrict the height of the residential block(s) located at less than 55m away from To Kwa Wan Road to no more than 25m above ground.	N/A
<ul> <li>avoid any sensitive facades with openable window facing the slip road connecting Prince Edward Road East and San Po Kong or other alternative mitigation measures and at-source mitigation</li> </ul>	N/A
measures for the surrounding new local roads to minimise the potential traffic noise impacts from the slip road	

All the ventilation fans installed in provided with silencers or acoustics tre (i) SPS (ii) ESS (iii) Tunnel Ventilation Shaft (iv) EFTS depot	
Installation of retractable roof o measures	r other equivalent N/A

	The following mitigation measures are proposed to be incorporated in the design of the SPS at KTD, including:	
	<ul> <li>Dual power supply or emergency generator should be provided at all the SPSs to secure electrical power supply;</li> </ul>	N/A
	<ul> <li>Standby pumps should be provided at all SPSs to ensure smooth operation of the SPS during maintenance of the duty pumps;</li> </ul>	N/A
	<ul> <li>An alarm should be installed to signal emergency high water level in the wet well at all SPSs; and</li> <li>For all unmanned SPSs, a remote monitor system</li> </ul>	N/A
	connecting SPSs with the control station through telemetry system should be provided so that swift actions could be taken in case of malfunction of	N/A
Construction Water Quality	unmanned facilities.	
		Λ

#### Land-based Construction

#### Construction Runoff

Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:

- use of sediment traps
- adequate maintenance of drainage systems to prevent flooding and overflow

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Construction site should be provided with adequately designed perimeter channel and pre-treatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles 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.

Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Λ
Sediment tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m <sup>3</sup> capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	۸
Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50 m <sup>3</sup> 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.	٨
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.	Λ

Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, 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.	^
Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	^
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 located wheel washing bay should be provided at every site exit, and 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.	^
Drainage It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There should be no direct discharge of effluent from the site into the sea.	٨

All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Λ
All fuel tanks and storage areas should be provided with locks and be located on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank, to prevent spilled fuel oils from reaching the coastal waters of the Victoria Harbour WCZ.	Λ
Sewage Effluent	
Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets should be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor should also be responsible for waste disposal and maintenance practices.	٨
Stormwater Discharges	
Minimum distances of 100 m should be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes	N/A

	Debris and Litter	
	In order to maintain water quality in acceptable conditions with regard to aesthetic quality, contractors should be required, under conditions of contract, to ensure that site management is optimised and that disposal of any solid materials. litter or wastes to marine waters does not occur	^
	Construction Works at or in Close Proximity of Storm Culvert or Seafront	
	The proposed works should preferably be carried out within the dry season where the flow in the drainage channel /storm culvert/ nullah is low.	^
	The use of less or smaller construction plants may be specified to reduce the disturbance to the bottom sediment at the drainage channel /storm culvert / nullah.	^
Waste/Chemical Management	Temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction materials should be located well away from any water courses during carrying out of the construction works.	^
	Stockpiling of construction materials and dusty materials should be covered and located away from any water courses.	^
	Construction debris and spoil should be covered up and/or disposed of as soon as possible to avoid being washed into the nearby water receivers.	^
	Construction activities, which generate large amount of wastewater, should be carried out in a distance away from the waterfront, where practicable.	^

Mitigation measures to control site runoff from entering the nearby water environment should be implemented to minimize water quality impacts. Surface channels should be provided along the edge of the waterfront within the work sites to intercept the runoff.	۸
Construction effluent, site run-off and sewage should be properly collected and/or treated. Any works site inside the storm water courses should be	۸
temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props to prevent adverse impact on the storm water quality.	٨
Silt curtain may be installed around the construction activities at the seafront to minimize the potential impacts due to accidental spillage of construction materials.	۸
Proper shoring may need to be erected in order to prevent soil/mud from slipping into the storm culvert/drainage channel/sea.	۸
Supervisory staff should be assigned to station on site to closely supervise and monitor the works Marine water quality monitoring and audit programme	۸
shall be implemented for the proposed sediment treatment operation.	۸

	Over 1 Otto Description	
	Good Site Practices	
	It is not anticipated that adverse waste management	
	related impacts would arise, provided that good site	
	practices are adhered to. Recommendations for good site	
	practices during construction activities include:	
	<ul> <li>Nomination of an approved person, such as a site</li> </ul>	
	manager, to be responsible for good site practices,	
		٨
	arrangements for collection and effective disposal	X
	to an appropriate facility, of all wastes generated at	
	the site	
	<ul> <li>Training of site personnel in proper waste</li> </ul>	
	management and chemical waste handling	
	procedures	٨
	<ul> <li>Provision of sufficient waste disposal points and</li> </ul>	
	regular collection for disposal	٨
	<ul> <li>Appropriate measures to minimise windblown litter</li> </ul>	
	and dust during transportation of waste by either	
	covering trucks or by transporting wastes in	^
	enclosed containers	
	<ul> <li>A recording system for the amount of wastes</li> </ul>	
	generated, recycled and disposed of (including the	
	disposal sites)	Λ
	uisposai sites)	
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	<ul> <li>Waste Reduction Measures</li> <li>Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</li> <li>Sort C&amp;D waste from demolition of the remaining structures to recover recyclable portions such as metals</li> <li>Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal</li> <li>Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force</li> <li>Any unused chemicals or those with remaining functional capacity should be recycled</li> <li>Proper storage and site practices to minimise the potential for damage or contamination of construction materials</li> </ul>	
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Construction and Demolition Material Mitigation measures and good site practices should be incorporated into contract document to control potential environmental impact from handling and transportation of C&D material. The mitigation measures include: • Where it is unavoidable to have transient	ounstruction and Demonstruction waterial	
Image: Solution of the second the second of the second of the second of the second	<ul> <li>incorporated into contract document to control potential environmental impact from handling and transportation of C&amp;D material. The mitigation measures include: <ul> <li>Where it is unavoidable to have transient stockpiles of C&amp;D material within the Project work site pending collection for disposal, the transient stockpiles should be located away from waterfront or storm drains as far as possible</li> <li>Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric</li> <li>Skip hoist for material transport should be totally enclosed by impervious sheeting</li> <li>Every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site</li> <li>The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials of not leak from the vehicle</li> <li>All dusty materials should be sprayed with water prior to any loading, unloading or transfer operations oa sto maintain the dusty materials wet</li> </ul> </li> </ul>	

When delivering inert C&D material to public fill reception facilities, the material should consist entirely of inert construction waste and of size less than 250mm or other sizes as agreed with the Secretary of the Public Fill Committee. In order to monitor the disposal of the surplus C&D material at the designed public fill reception facility and to control fly tipping, a trip-ticket system as stipulated in the ETWB TCW No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Materials" should be included as one of the contractual requirements and implemented by an Environmental Team undertaking the Environmental Monitoring and Audit work. An Independent Environmental Checker should be responsible for auditing the results of the system.

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#### **Chemical Waste**

After use, chemical wastes (for example, cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Spent chemicals should be collected by a licensed collector for disposal at the CWTF or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation

#### General Refuse

General refuse should be stored in enclosed bins or compaction units separate from C&D material. A licensed waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Effective collection and storage methods (including enclosed and covered area) of site wastes would be required to prevent waste materials from being blown around by wind, wastewater discharge by flushing or leaching into the marine environment, or creating odour nuisance or pest and vermin problem

CM1 All existing trees should be carefully protected during construction.	*
CM2 Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.	N/A
CM3 Control of night-time lighting.	^
CM4 Erection of decorative screen hoarding.	^
	<ul> <li>during construction.</li> <li>CM2 Trees unavoidably affected by the works should be transplanted where practical. Detailed transplanting proposal will be submitted to relevant government departments for approval in accordance with ETWBC 2/2004 and 3/2006. Final locations of transplanted trees should be agreed prior to commencement of the work.</li> <li>CM3 Control of night-time lighting.</li> </ul>

Remarks:	<ul> <li>Compliance of mitigation measure;</li> </ul>	X Non-compliance of mitigation measure;
	<ul><li>N/A Not Applicable at this stage;</li><li>N/A(1) Not observed;</li></ul>	•Non-compliance but rectified by the contractor;
	* Recommendation was made during site audit but improved/rectified by the contractor.	

APPENDIX F SITE AUDIT SUMMARY

# Appendix F Summary of Observation and Recommendation Made during Site Inspection

Summary of Observation and Recommendation Made during Site Inspection in June 2014

Parameters	Date	<b>Observations and Recommendations</b>	Follow-up
Water Quality			
Air Quality	12 June 2014	Provide frequent water-spray to haul road at Road D2 to avoid dust generation.	Water spray provided to Road D2.
Noise			
Waste/Chemical Management			
Landscape and Visual			
Permits /Licences			

**Observations and Recommendations of Site Inspections for EP-337/2009** 

#### **Observations and Recommendations of Site Inspections for EP-344/2009**

Parameters	Date	<b>Observations and Recommendations</b>	Follow-up
Water Quality			
Air Quality	18 June 2014	Properly cover the stockpile of dusty material by impervious material near pumping station PS2.	The dusty material near pumping station PS2 has been covered by impervious sheet.
Noise			
	6 June 2014	Clear the oil stain on unpaved area near pumping station PS2	The oil stain on unpaved area near pumping station PS2 was cleared.
	12 June 2014	Provide drip tray to chemical container near pumping station PS2.	Drip tray was provided to chemical containers near pumping station PS2.
Waste/Chemical Management	18 June 2014	Provide drip tray to chemical container near pumping station PS NPS.	Chemical container near pumping station PS NPS was removed.
	18 June 2014	Clear the oil stain on the ground near pumping station PS NPS.	The oil stain on the ground near pumping station PS NPS has been cleared.
	26 June 2014	Chemical containers should be provided with drip tray to prevent chemical leakage at Box Culvert B5.	Chemical containers were provided with drip tray to prevent chemical leakage.
Landscape and Visual	12 June 2014	Construction material and waste observed within the tree protection area near pumping station PS2. The contractor is reminded to remove the material near the trees.	Construction material and waste near the tree was removed.
Permits /Licences			

## Summary of Observation and Recommendation Made during Site Inspection in July 2014

Parameters	Date	Observations and Recommendations	Follow-up
Water Quality	25 July 2014	Remove the litter on the gully and provide sand bags around the gully.	The litter near the gully was removed and sand bag bund was provided.
Air Quality			
Noise			
Waste/Chemical Management			
Landscape and Visual			
Permits /Licences			

<b>Observations and Recommendations of Site Inspections for EP-3</b>	37/2009
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## **Observations and Recommendations of Site Inspections for EP-344/2009**

Parameters	Date	<b>Observations and Recommendations</b>	Follow-up
Water Quality			
Air Quality	10 July 2014	Properly cover the stockpile of dusty material near pumping station PS2	The stockpile of dusty material was covered properly.
Noise			
	4 July 2014	Provide drip tray for chemical containers on unpaved ground near the generator near pumping station PS2	The chemical containers near pumping station PS2 had been removed.
Waste/Chemical Management	16 July 2014	Clear the general refuse deposited on site near pumping station PS2.	The general refuse was removed.
16 July 2014		Remove the stagnant water in the drip try near Box Culvert B5.	The stagnant water in the drip tray was removed.
Landscape and Visual	10 July 2014	Remove the construction materials within the tree protection area near Box Culvert B5	Construction materials inside the tree protection area were removed.
Permits /Licences			

## Summary of Observation and Recommendation Made during Site Inspection in August 2014

Parameters	Date	<b>Observations and Recommendations</b>	Follow-up	
Water Quality				
1 August 2014		Cover the dusty material by impervious sheets properly near Road L19.	The dusty material near Road L19 had been removed to prevent dust generation.	
Air Quality	29 August 2014	Provide water spray to unpaved area at Road L19 to prevent dust generation	Water spray was provided to unpaved haul road at Road L19.	
Noise				
Waste/Chemical Management	1 August 2014	Provide drip tray to chemical containers near Road L19	The chemical containers near Road L19 had been removed.	
Landscape and Visual				
Permits /Licences				

#### **Observations and Recommendations of Site Inspections for EP-337/2009**

## **Observations and Recommendations of Site Inspections for EP-344/2009**

Parameters	Date	<b>Observations and Recommendations</b>	Follow-up		
Water Quality					
	8 August 2014	To properly cover the stockpile of dusty material by impervious sheets near Box Culvert B5.	The dusty stockpile near Box Culvert B5 was being covered by the impervious sheets to prevent dust generation.		
Air Quality	20 August 2014	Dusty stockpile near Box Culvert B5 should be properly covered by impervious sheet to prevent dust generation	The item remarked as a new item and follow up action was needed to be reviewed.		
	29 August 2014	Cover the dusty stockpile by impervious material near Box culvert B5 to avoid dust generation.	Stockpile of dusty material near the site entrance is covered by tarpaulin sheets.		
Noise					
Waste/Chemical Management	15 August 2014	Provide drip tray to chemical containers near Box Culvert B5.	The chemical containers had been removed.		
Landscape and Visual	15 August 2014	Properly remove the construction material from the tree protection area near Box Culvert B5.	The construction material inside the tree protection zone had been removed.		
Permits /Licences					

APPENDIX G WASTE GENERATED QUANTITY

#### Monthly Summary Waste Flow Table

(PS Clause 1.86)

Name of Department: CEDD

Contract No. : <u>KL/2012/03</u>

#### Monthly Summary Waste Flow Table for August 2014(year)

		Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly			
Month	Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemicals Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Oct 2013	0.011	0	0	0	0	0	0	0	0	0	0.011
Nov 2013	0.177	0	0	0	0	0	0	0	0	0	0.177
Dec 2013	0.176	0	0	0	0	0	0	0	0	0	0.176
Sub-Total	0.364	0	0	0	0	0	0	0	0	0	0.364
Jan 2014	0	0	0	0	0	0.302	0	0	0	0	0
Feb 2014	0	0	0	0	0	0.238	0	0	0	0	0
Mar 2014	0	0	0	0	0	0.180	0	0	0	0	0
Apr 2014	0.002	0	0	0	0	0	0	0	0	0	0.002
May 2014	0.005	0	0	0	0	0	0	0	0	0	0.005
June 2014	0	0	0	0	0	0	0	0	0	0	0
July2014	0.094	0	0	0	0.094	0	0	0	0	0	0
Aug 2014	0.045	0	0	0	0.045	0	0	0	0	0	0
Total	0.874	0	0	0	0.138	0.72	0	0	0	0	0.735

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APPENDIX H SUMMARY OF EXCEEDANCES

# Contract No. KL/2012/03 Kai Tak Development – Stage 4 Infrastructure at Former North Apron Area

## **Appendix H – Summary of Exceedance**

Exceedance Report for Contract No. KL/2012/03

- (A) Exceedance Report for Air Quality (NIL in the reporting period)
- (B) Exceedance Report for Construction Noise (One Action Level exceedance was recorded due to the complaint on construction noise received on 21<sup>st</sup> July 2014. No Limit Level exceedance was recorded.)
- (C) Exceedance Report for Landscape and Visual (NIL in the reporting period)

ANNEX I COMPARISON OF EM&A DATA AND EIA PREDICTIONS

# Annex I – Comparison of EM&A Data and EIA Predictions

Comparison of 1-hr TSP data with EIA predictions

Station		Predicted 1-hr TSP conc.								
	Scenario1 (Mid	Scenario2Reporting Month(Jur(Mid 2013)14), μg/m³			Reporting Mo	onth (Jul 14), ¢/m <sup>3</sup>	Reporting Month (Aug 14), μg/m <sup>3</sup>			
	2009 to Mid 2013), μg/m <sup>3</sup>	to Late 2016), μg/m <sup>3</sup>	Average	Range	Average	Range	Average	Range		
AM2 – Lee Kau Yan Memorial School	290	312	79.0	46.8 - 104.4	48.8	34.8 - 72.3	65.6	39.8 - 105.8		
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	217	247	84.3	53.2 - 119.2	72.2	32.7 - 182.9	64.3	42.2 - 92.2		
AM4(A) – EMSD Workshops (Alternative station for Grand Waterfront)	246	258	82.0	52.2 - 98.8	59.6	41.6 - 98.7	55.6	20.1 - 179.5		
AM5(A) – Po Leung Kuk Ngan Po Ling College (Alternative station for CCC Kei To Secondary School)	159	221	54.2	80.6 - 107.8	72.0	34.4 - 167.3	72.2	30.5 - 150.5		

Station		Predicted 24-hr TSP conc.								
	Scenario1 (Mid	Scenario2 (Mid 2013	Reporting Month (Jun 14), μg/m <sup>3</sup>		Reporting Month (Jul 14), μg/m <sup>3</sup>		Reporting Month (Aug 14), μg/m <sup>3</sup>			
	2009 to Mid 2013), μg/m <sup>3</sup>	to Late 2016), μg/m <sup>3</sup>	Average	Range	Average	Range	Average	Range		
AM2 – Lee Kau Yan Memorial School	145	169	50.4	37.7 - 82.0	42.6	32.8 - 50.5	42.6	27.4 - 53.7		
AM3(A) - Holy Trinity Bradbury Centre (Alternative station for Sky Tower)	106	138	40.1	29.2 - 63.5	42.9	29.8 - 67.0	38.9	27.5 - 65.0		
AM4(A) – EMSD Workshops (Alternative station for Grand Waterfront)	143	152	43.6	24.4 - 66.7	47.5	31.4 - 90.4	45.9	24.5 - 60.1		
AM5(A) – Po Leung Kuk Ngan Po Ling College (Alternative station for CCC Kei To Secondary School)	103	128	25.3	20.3 - 36.4	27.0	13.0 - 46.0	27.3	16.0 – 39.4		

# Comparison of Noise Monitoring Data with EIA predictions

Stations	Predicted Mitigated Construction Noise Levels during Normal Working Hour (L <sub>eq (30min)</sub> dB(A))	Reporting Month (Jun 14), L <sub>eq</sub> <sub>(30min)</sub> dB(A)	Reporting Month (Jul 14), L <sub>eq</sub> <sub>(30min)</sub> dB(A)	Reporting Month (Aug 14), L <sub>eq</sub> (30min) dB(A)
M6 - Holy Carpenter PriJuny School	47 – 86	58.4 - 67.8	60.1 - 65.5	67.1 – 69.2
M7 - CCC Kei To Secondary School	45 - 68	57.1 - 64.3	61.1 - 64.2	61.0 - 63.7
M8 - Po Leung Kuk Ngan Po Ling College	44 – 70	60.5 - 65.2	55.0 - 67.2	61.1 - 66.2
M9 - Tak Long Estate	Not predicted in EIA Report	58.6 - 69.3	64.4 - 66.1	62.8 - 65.9