MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Contract 1126 – Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Final Environmental Monitoring and Audit Review Report

(September 2015)

Verified by: Fredrick Leong

Position: Independent Environmental Checker

Date: 2 September 2015

MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Final EM&A Report

Works Contract 1126 – Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

(September 2015)

Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 2nd September 2015

Kaden – Leader Joint Venture

Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool

Final Environmental Monitoring and Audit Review Report

(September 2015)

(Version 3.0)

Certified By

Dr. Priscilla Choy
(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 Final Environmental Monitoring and Audit (EM&A) Review Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1126 –Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool.** This report documents the findings of EM&A Works of the Project.

2. The major construction works for Contract 1126 commenced on 9 July 2014 and was completed on 17 May 2015. Noise and dust monitoring works would be taken up by SCL Works Contract 1123 after the completion of Contract 1126.

Summary of Construction Works undertaken in the Construction Period

3. The major site activities undertaken in the construction period include:

Wan Chai Sports Ground (WCSG)

- Construction of Fitness Room and Kiosk;
- Construction of Male Changing Room with HR Pump Room and Store Room;
- Construction of Marshall Seats;
- Construction of Weightlifting Room;
- Landscaping and external works;
- Demolition of part of the existing spectator stand; and
- Pre-drill and Instrumentation installation for Piezometer and utility settlement marker.

Public Transport Interchange (PTI) Area

- Construction of bus lay-by;
- Construction of Petrol Interception;
- Manhole construction & underground utilities connection;
- Construction of Store Room;
- Construction of ducting for street lighting.
- Construction of footing for bus shelter and signage post;
- Construction of Temporary Public Toilet;
- Soil Replacement Works;
- Construction of concrete pavement, tactile and kerb;
- Roadside gully;
- Road marking works;
- Signage installation;
- Construction of ducting work at Hung Hing Road and Convention Avenue;
- Construction of pedestrian crossing at Hung Hing Road; and
- Installation of traffic signal at Hung Hing Road.

Environmental Monitoring and Audit Works

4. A summary of the baseline and impact monitoring activities is listed below:

- Construction noise monitoring

  Noise Monitoring Station ID(1)

  - NM2 (Causeway Centre, Block A)
    - Baseline Monitoring — 8 Oct – 21 Oct 2013
  - NM2(3) (Walkway across Harbour Road / Harbour Centre)
    - Impact Monitoring — 9 Jul – 19 Aug 2014
  - NM2(3)(4) (Harbour Centre)
    - Baseline Monitoring — 1 – 14 Sep 2014
    - Impact Monitoring — 20 Aug 2014 – 17 May 2015

- Construction Dust (24-hour TSP) Monitoring

  Dust Monitoring Station ID(1)

  - AM2(2)(5) (Wan Chai Sports Ground)
    - Baseline Monitoring — 31 Aug – 13 Sep 2013
    - Impact Monitoring — 9 July 2014 – 17 May 2015
  - AM3 (Existing Harbour Road Sports Centre)
    - Baseline Monitoring — 8 Oct – 22 Oct 2013
    - Impact Monitoring — 9 Jul 2014 – 17 May 2015

Remarks:

(1) Station ID as identified in approved EM&A Manual for SCL(HUH-ADM).

(2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.

(3) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Impact noise monitoring was conducted at the proposed alternative location, Walkway across Harbour Road, which was approved by the ER and agreed with IEC only. Another proposed alternative monitoring location, Harbour Centre, was then approved by the ER and agreed by IEC and the EPD. Impact noise monitoring has been carrying out at Harbour Centre (7/F) from 20 August 2014 onwards.

(4) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) instead of 7/F from 19 December 2014 onwards.

(5) Dust monitoring at AM2 (Wan Chai Sports Ground) is carried out by Environmental Team of SCL Works Contract 1128 from April 2015 onwards.

Waste Management

5. Wastes generated from this Project include inert construction and demolition (C&D) materials and non-inert C&D materials. Details of waste management data is presented in Section 5 and **Appendix F**.

Landscape and Visual

6. Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted throughout the construction period. Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor.

Environmental Site Inspection

7. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Contractor's ET throughout the construction period. The representative of the IEC joined the site inspections once per month.

Environmental Exceedance/Non-conformance/Complaint/Summons and Successful Prosecution

8. No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the whole construction period.

9. No non-compliance event was recorded during the construction period.

10. No Project related environmental complaint and notification of summons/successful prosecutions were received in this construction period.

Conclusion

11. The EM&A programme were found to be effective in monitoring impacts arising from the Project. The findings of the environmental monitoring program suggest that no adverse impacts on sensitive receivers at the designated monitoring locations were brought about by the Project.

12. In conclusion the Project was environmentally acceptable in terms of air quality and noise impact.

1 INTRODUCTION

1.1 Cinotech Consultants Limited (Cinotech) was appointed by Kaden – Leader Joint Venture (KLJV) as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the MTR Shatin to Central Link (SCL)Works Contract 1126 –Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool (hereafter referred to as the Project).

Purpose of the Report

1.2 This is the Final Environmental Monitoring and Audit (EM&A) Review Report prepared by Cinotech Consultants Limited for **MTR Shatin to Central Link (SCL) Works Contract 1126 –Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool.** This report documents the findings of EM&A Works of the Project.

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 during the construction 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 EIA report and relevant environmental requirements.

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

Section 5: **Summary of EM&A Works** - summarises the EM&A works and results obtained in the construction period.

Section 6: **Environmental Non-conformance -** summarises any monitoring exceedance, environmental complaints and environmental summons within the construction period.

Section 7: **Comments, Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

2.1 The Shatin to Central Link – Hung Hom to Admiralty Section (hereafter referred to as SCL (HUH-ADM)) is an approximately 6km extension of the East Rail Line including a rail harbor crossing from Hung Hom across the harbor to Admiralty on Hong Kong Island. It is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO).

2.2 The Environmental Impact Assessment (EIA) Report for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, Environmental Permits (EP) (EP No: EP-436/2012) was granted on 22 March 2012 for their construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/B) was issued by Director of Environmental Protection (DEP) on 19 March 2015.

2.3 The construction of the SCL (HUH-ADM) has been divided into a series of civil construction Works Contracts and this Works Contract 1126 comprises of the Permanent Works and the Temporary Works for the re-provisioning of Harbour Road Sports Centre (HRSC) and Wan Chai Swimming Pool (WCSP). The major construction works for Contract 1126 commenced on 9 July 2014 and completed on 17 May 2015.

General Site Description

2.4 The major works of this Project that was classified as Designated Project under the EIAO include the demolition of grandstand superstructure and water pump room of WCSG, and the temporary works for the Public Transport Interchange (PTI) Area. The PTI area has been obtained in phases. The alignment and works area for the Works Contract 1126 are shown in **Figure 1**.

Construction Programme and Activities

2.5 A summary of the major construction activities undertaken in the construction period is shown as follows.

Wan Chai Sports Ground (WCSG)

- Construction of Fitness Room and Kiosk;
- Construction of Male Changing Room with HR Pump Room and Store Room;
- Construction of Marshall Seats;
- Construction of Weightlifting Room;
- Landscaping and external works;
- Demolition of part of the existing spectator stand; and
- Pre-drill and Instrumentation installation for Piezometer and utility settlement marker.

Public Transport Interchange (PTI) Area

- Construction of bus lay-by;
- Construction of Petrol Interception;
- Manhole construction & underground utilities connection;
- Construction of Store Room;
- Construction of ducting for street lighting.
- Construction of footing for bus shelter and signage post;
- Construction of Temporary Public Toilet;
- Soil Replacement Works;
- Construction of concrete pavement, tactile and kerb;
- Roadside gully;
- Road marking works;
- Signage installation;
- Construction of ducting work at Hung Hing Road and Convention Avenue;
- Construction of pedestrian crossing at Hung Hing Road; and
- Installation of traffic signal at Hung Hing Road.

Project Organisation

2.6 The project organizational chart and contact details are shown in **Figure 4.**

Summary of EM&A Requirements

2.7 The EM&A programme under Works Contract 1126 require regular dust and noise quality monitoring as well as environmental site audits. The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

2.8 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely regular dust and noise quality monitoring as well as audit works for the Project in the construction period.

3 ENVIRONMENTAL MONITORING REQUIREMENTS

Construction Noise Monitoring

3.1 In accordance with the EM&A Manual, baseline and impact monitoring of construction noise impact should be conducted at the designated monitoring stations. Since access to the original baseline monitoring location was rejected during the impact monitoring period, alternative impact monitoring location was proposed. The construction noise baseline and impact monitoring locations are listed in **Table 3.1** and shown in **Figure 2**. The locations of noise sensitive receivers are shown in **Figure 6**.

Table 3.1 Construction Noise Monitoring Location

Monitoring Location	Monitoring Period	Description	Type of Measurement
NM2 (1)	Baseline Monitoring	Causeway Centre, Block A	Façade
	Impact Monitoring	Walkway across Harbour Road (2)	
		Harbour Centre (2) (3)	

Note:
(1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Impact noise monitoring was conducted at the proposed alternative location, Walkway across Harbour Road, which was approved by the ER and agreed with IEC only. Another proposed alternative monitoring location, Harbour Centre, was then approved by the ER and agreed by IEC and the EPD. Impact noise monitoring has been carrying out at Harbour Centre (7/F) from 20 August 2014 onwards.
(3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) from 19 December 2014 onwards.

Impact Hypothesis

3.2 The impact null hypothesis for this environmental monitoring has been defined based on the predictions from the EIA regarding noise impacts from the works activities and the objectives for the EM&A.

H_0 There is no unacceptable noise impact resulting from the work activities of the Project.

Noise Monitoring Parameter and Frequency

3.3 Baseline noise monitoring at Causeway Centre, Block A and impact monitoring at alternative noise monitoring locations was conducted in accordance with the requirements stipulated in the EM&A Manual. **Table 3.2** summarises the monitoring parameters, frequency and duration of baseline and impact noise monitoring.

Table 3.2 Noise Monitoring Parameters, Frequency and Duration

Monitoring Period	Time Period	Parameters	Frequency	Duration, minute
Baseline Monitoring	Daytime: 0700-1900 hours on normal weekdays	L_{eq}, L_{10} & L_{90}	Continuously for 14 consecutive days	30 ($L_{eq\ (30min)}$)
	Evening: 1900-2300 hours on normal weekdays			15 (Average of three consecutive $L_{eq\ (5min)}$)
	General Holidays and Sundays: 0700-2300 hours			
	Night-time: 2300-0700 hours on all days			
Impact Monitoring	Daytime: 0700-1900 hours on normal weekdays		Weekly	30 ($L_{eq\ (30min)}$)

Compliance Checking for Impact Monitoring

3.4 Baseline noise monitoring at Harbour Centre was conducted between 1 and 14 September 2014. The Baseline noise monitoring results (L_{eq}(30min.) dB(A)) during the period without construction works on normal weekdays ranged from 67.1dB(A) to 73.0dB(A). Result of the monitoring (i.e. 69.6dB(A)) was used for correcting the measured noise level during the construction stage of the Project for normal weekdays by this formula:

Measured L_{eq} at the Harbour Centre – Baseline Noise Level (69.6 dB)

= Construction Noise Level at the Harbour Centre

Construction Dust Monitoring

3.5 The dust baseline and impact monitoring stations for the construction phase of the Project, as recommended in the approved EM&A Manual, are listed in **Table 3.3** and shown in **Figure 3**. The proposed locations have been agreed with the ER, EPD and IEC. The locations of air sensitive receivers are shown in **Figure 5**.

Table 3.3 Dust Monitoring Location

Regular Dust Monitoring Location	Description
AM2(1) (2) (3)	Wan Chai Sports Ground (2)
AM3(1)	Existing Harbour Road Sports Centre

Note:
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.
(3) Dust monitoring on AM2 (Wan Chai Sports Ground) is carried out by Environmental Team of SCL Works Contract 1128 from April 2015 onwards.

Impact Hypothesis

3.6 The impact null hypothesis for this environmental monitoring has been defined based on the predictions from the EIA regarding air quality impacts from the works activities and the objectives for the EM&A.

H_0 There is no unacceptable air quality impact resulting from the work activities of the Project.

Dust Monitoring Parameter and Frequency

3.7 The dust baseline and impact monitoring (in terms of Total Suspended Particulates (TSP)) was conducted at the designated monitoring stations in accordance with the requirements stipulated in the EM&A Manual. The 24-hour TSP levels were monitored at the frequency and duration stated in **Table 3.4**.

Table 3.4 Dust Monitoring Parameters and Frequency and Duration

Monitoring Period	Duration	Parameter	Frequency
Baseline Monitoring	Consecutive days of at least 2 weeks before commencement of major construction works	24-hour TSP	Daily
		1-hour TSP	Three times per day
Impact Monitoring(1)	Throughout the construction period	24-hour TSP	Once per 6 days

Note:
(1) 1- hour TSP shall be conducted when one documented valid complaint is received.

Action and Limit Levels

3.8 The action and limit levels for air quality and noise monitoring are presented in **Appendix A**.

Event and Action Plan

3.9 Should non-compliance of the criteria occur, action in accordance with the Event and Action Plan in **Appendix B** was carried out.

Landscape and Visual

3.10 In accordance with the EM&A Manual, the landscape and visual mitigation measures was implemented and a site inspection was conducted once every two weeks throughout the construction period.

4 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

4.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit, EM&A Manual and the ERR. The implementation status of the environmental mitigation measures of the construction period is summarized in **Appendix E**. Status of required submissions under the Environmental Permit (EP) of this Project is presented in **Table 4.1**.

Table 4.1 Status of Required Submissions under EP

EP Condition	Submission	Submission Date
Condition 2.1	Employment of Environmental Team	13th May 2014
Condition 2.2	Employment of Independent Environmental Checker	14th September 2012
	Replacement of Independent Environmental Checker	21st May 2013
Condition 2.5	Management Organization of Main Construction Companies	13th May 2014
Condition 2.6	Construction Programme and EP Submission Schedule	8th July 2014
Condition 2.7	Construction Noise Mitigation Measures Plan	9th June 2014
Condition 2.8	Continuous Noise Monitoring Plan	9th June 2014
Condition 2.14	Visual, Landscape, Tree Planting & Tree Protection Plan (Ver. C)	3rd December 2013
		25th February 2014
Condition 3.3	Baseline Monitoring Report (Noise and Air Quality)	3rd December 2013
Condition 3.4	Monthly EM&A Report (July 2014)	14th August 2014
	Monthly EM&A Report (August 2014)	12th September 2014
	Monthly EM&A Report (September 2014)	14th October 2014
	Monthly EM&A Report (October 2014)	14th November 2014
	Monthly EM&A Report (November 2014)	12th December 2014
	Monthly EM&A Report (December 2014)	14th January 2015
	Monthly EM&A Report (January 2015)	13th February 2015
	Monthly EM&A Report (February 2015)	12th March 2015
	Monthly EM&A Report (March 2015)	14th April 2015
	Monthly EM&A Report (April 2015)	14th May 2015
	Monthly EM&A Report (May 2015)	12th June 2015

5 SUMMARY OF EM&A WORKS

Construction Noise Monitoring

5.1 The Baseline noise monitoring was conducted by ET of SCL Works Contract 1126 between 1 and 14 September 2014 at Harbour Centre. The Baseline Noise Level has been established accordingly. Action and Limit Levels for noise is summarised in **Appendix A**.

5.2 Impact construction noise measurements were carried out at the monitoring stations during normal weekdays of the reporting period by ET of SCL Works Contract 1126.

5.3 Based on observation during the on-site monitoring, construction activities and weather condition were the major factors which might affect the monitoring result. Other than construction activities and weather condition, road traffic nearby is considered as a potential noise source that affects the monitoring results of the construction period. No other major factor which might affect the monitoring result was observed on-site.

5.4 The noise monitoring results together with their graphical presentations and statistical analysis of the trends over the course of the Project are presented in **Appendix D** and a summary of the noise monitoring results in the construction period is given in **Table 5.1**.

Table 5.1 Summary Table of Noise Impact Monitoring Results

Parameter (1)	**Location**	**Range, dB(A),** $L_{eq\ (30\ mins)}$	**Limit Level, dB(A),** $L_{eq\ (30\ mins)}$
Noise (NM2)	Walkway across Harbour Road (1/F) (3)	72.4 – 74.3	75
	Harbour Centre (4)	< Baseline – 73.8 (2)	

Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) The Range presented in the above table was baseline corrected noise level.
(3) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Impact noise monitoring was conducted at the proposed alternative location, Walkway across Harbour Road, which was approved by the ER and agreed with IEC only. Another proposed alternative monitoring location, Harbour Centre, was then approved by the ER and agreed by IEC and the EPD. Impact noise monitoring has been carrying out at Harbour Centre (7/F) from 20 August 2014 onwards.
(4) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) instead of 7/F from 19 December 2014 onwards.

5.5 With reference to the trends of monitoring parameters shown in **Appendix D**, the linear trends at the impact monitoring stations are steady (at both Walkway across Harbour Road and Harbour Centre) and in line with the baseline noise level (at Harbour Centre).

5.6 No exceedance of the Action and Limit Levels of construction noise due to the Project was recorded during the construction period. Therefore, it is considered that no adverse noise impact was brought to the nearby noise monitoring station by this Project.

Construction Dust Monitoring

5.7 Baseline dust monitoring was conducted during October 2013. Action and Limit Levels for air quality monitoring have been established accordingly and summarised in **Appendix A**.

5.8 24-hour TSP monitoring were carried out at the designated monitoring station during normal weekdays of the construction period by ET of SCL Works Contract 1126. The monitoring results together with their graphical presentations and statistical analysis of the trends over the course of the Project are presented in **Appendix C** and a summary of the dust monitoring results in the construction period is given in **Table 5.2**.

Table 5.2 Summary Table of Dust Impact Monitoring Results

Parameter	Minimum $\mu g/m^3$	Maximum $\mu g/m^3$	Average $\mu g/m^3$	Action Level, $\mu g/m^3$	Limit Level, $\mu g/m^3$
24-hr TSP (AM2[(1)(2)])	37.2	144.1	100.0	160	260
24-hr TSP (AM3[(1)])	33.2	136.6	83.8	169	260

Remarks:
(1) Station ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) Monitoring results from July 2014 to March 2015 only. Dust monitoring at AM2 (Wan Chai Sports Ground) is carried out by Environmental Team of SCL Works Contract 1128 from April 2015 onwards. The monitoring results at AM2 from April 2015 onwards with their graphical presentations are presented in Appendix G of SCL 1128 monthly EM&A Report.

5.9 The trends (linear) of the monitoring parameter at the monitoring stations are slightly increasing yet no exceedance of the Action and Limit Levels of the 24-hour TSP was recorded by the end of the construction period. Construction activities and weather condition were the major factors which might affect the monitoring result. It is considered that no adverse air quality impact was brought to the nearby air quality monitoring station by this Project.

Environmental Impact Hypothesis Test

5.10 As stated in sections 5.3 and 5.9 above, no adverse environmental impact was brought to the nearby air quality and noise sensitive receivers due to the Project. It is considered that the environmental impact hypothesis as listed above are in order generally throughout the construction stage of this Project.

Waste Management

5.11 Waste generated from this Project includes inert construction and demolition (C&D) materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse and recyclable wastes like plastics and paper/cardboard packaging materials. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials 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 construction are summarised in **Table 5.3**. Details of waste management data is presented in **Appendix F**.

Table 5.3 Quantities of Waste Generated from the Project

Whole Construction Period	Quantity					
	C&D Materials (inert) [a]	C&D Materials (non-inert) [b]				
		General Refuse	Chemical Waste	Recycled materials		
				Paper/ cardboard	Plastics	Metals
	9,363m^3	*420 m^3*	*0 kg*	*0 kg*	*0 kg*	*67,705 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 and vegetative wastes. 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.

Landscape and Visual

5.12 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted throughout the construction period. The observations and recommendations made during the audit sessions are summarized in each of the Monthly EM&A Report.

Site Audit

5.13 Site audit was carried out by representatives of the Contractor, Engineer and Contractor's ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The representative of the IEC joined the site inspections once per month.

5.14 No non-compliance was recorded during the site inspections throughout the construction period. Observations and recommendations recorded during the site inspections were summarized in each of the Monthly EM&A Reports.

5.15 According to the EIA Study Report, Environmental Permit and the EM&A Manual 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 E**.

5.16 The major findings and the corresponding recommendations given during the site audits are summarized in **Table 5.4**.

Table 5.4 Major Findings and Corresponding Recommendations given during Site Audits

Parameters	Observations / Reminders	Corresponding Recommendations
Water Quality	Tyre marks observed at the site entrance at the WCSG.	To provide wheel washing facility to the site entrance.
	To prevent leakage of wastewater from the site boundary of WCSG and PTI Area	To provide more sand bag bunds to site boundary of WCSG and PTI Area
	Gullies observed without sand bag bunds in paved area in PTI.	To provide sand bag bunds to gullies in case of rainy weather.
Noise	--	--
Landscape and Visual	Construction materials observed within the tree protection zone in WCSG	To properly maintain the tree protection zone near the site entrance of WCSG and remove the construction materials inside it
Air Quality	Unpaved or exposed area in WCSG or PTI Area was observed dry.	To provide more water spray to such works area to avoid dust generation.
	Stockpile of dusty material or cement bags observed exposed / not properly covered.	To cover the stockpile of dusty material properly by tarpaulin sheets
	Tyre marks observed at the site entrance at the WCSG.	To provide wheel washing facility to the site entrances and clear the tyre marks
	Visible or white smoke observed emitted from generator and excavator in PTI Area.	To repair the machinery properly and avoid visible smoke generation
	Improper hoardings observed for PTI Area	To provide hoardings up to a higher level for the PTI Area.
Waste/Chemical Management	Overflow of accumulated of C&D waste	To clear the construction waste regularly, sorting of construction waste should be carried out and provide waste skip to construction waste.
	Chemical containers observed without secondary containment	To provide drip tray to chemical container
	Empty chemical containers / oil stain on ground observed	To clear it properly and store it in the chemical waste storage container
	Irregularities observed in the chemical waste storage container in PTI	To provide a chemical waste storage container in compliance with the "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" (COP).
Permits/Licenses	--	--

6 ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

6.1 No exceedance of the Action and Limit Levels of regular construction noise monitoring and 24-hour TSP monitoring was recorded during the construction period.

Summary of Environmental Non-Compliance

6.2 No environmental non-compliance was recorded in the construction period.

Summary of Environmental Complaint

6.3 No environmental Project-related complaint was received in the construction period.

Summary of Environmental Summon and Successful Prosecution

6.4 There was no successful environmental prosecution or notification of summons received since the Project commencement.

7 COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

Validity of EIA Predictions

7.1 It is predicted in the EIA Report that with the implementation of the recommended mitigation measures, there would be no unacceptable or residual air quality and noise impacts arising from the Project-related construction works. The impact monitoring data obtained was in-line with the predictions as no Action/Limit Level exceedance was caused by the Project.

Comments on Overall EM&A Programme

7.2 The mitigation measures detailed in the Environmental Permit, the EM&A Manual and the EIA report were implemented throughout the whole project period. With the environmental monitoring and site inspection to directly ensure the timely implementation of mitigation measures during the Project, the environmental performance of the Project was acceptable. Analysis of all EM&A data collected throughout the construction periods also demonstrated the environmental acceptability of the Project.

7.3 The overall performance of the monitoring methodology adopted and environmental management system in this Project was effective.

Overall EM&A Data

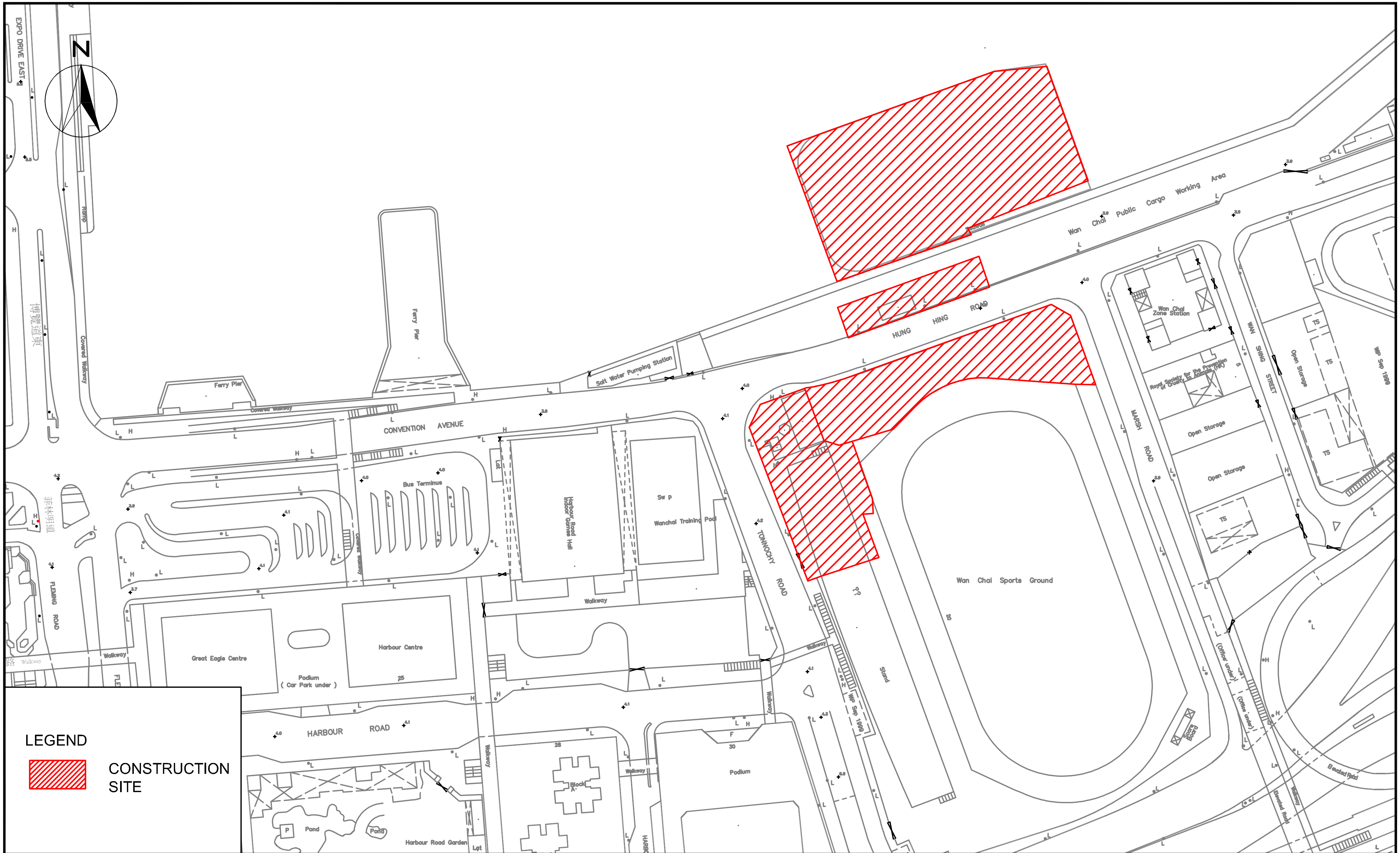
7.4 Baseline and impact air quality and noise monitoring were carried out according to the requirements in the EM&A Manual. No exceedance of the Action and Limit Levels of air quality and noise monitoring was recorded at the designated monitoring stations during the whole construction period.

Recommendations and Conclusions

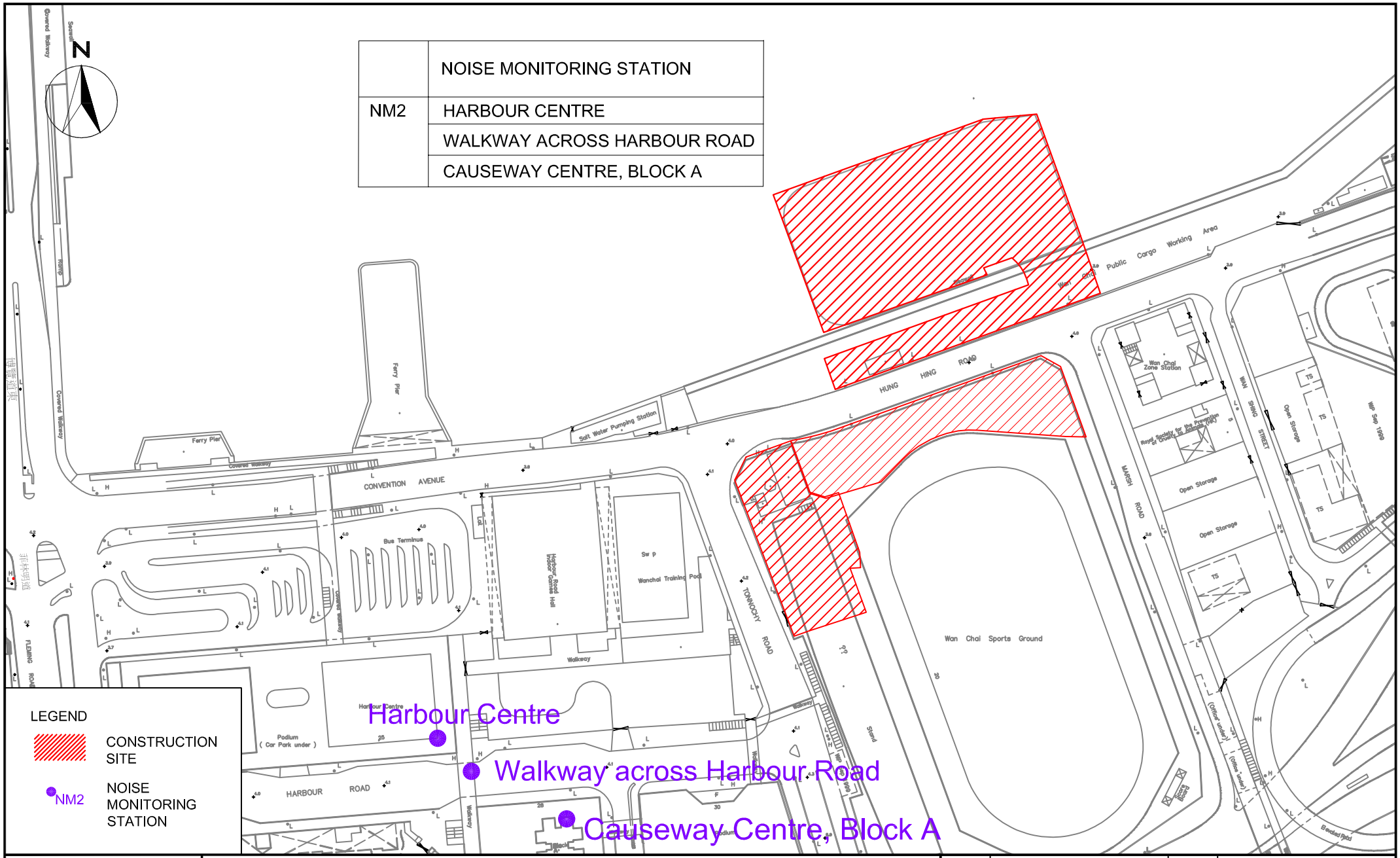
7.5 The EM&A programme was found to be effective in monitoring impacts arising from the Project. The findings of the environmental monitoring program suggest that no adverse impacts on sensitive receivers were brought about by the Project. In conclusion the Project was environmentally acceptable in terms of air quality and noise.

7.6 With the success of the overall EM&A programme, the deterioration of the environment caused by the Project was cost-effectively identified and necessary prompt effective mitigation measures were implemented to avoid any unacceptable impacts.

FIGURES



CINOTECH Cinotech Consultants Limited	MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL SITE LAYOUT PLAN	SCALE	1:2000 @ A4	DATE	NOV 2014
		CHECK	JF	DRAWN	JW
		JOB No.	MA14009	FIGURE NO. 1	REV -



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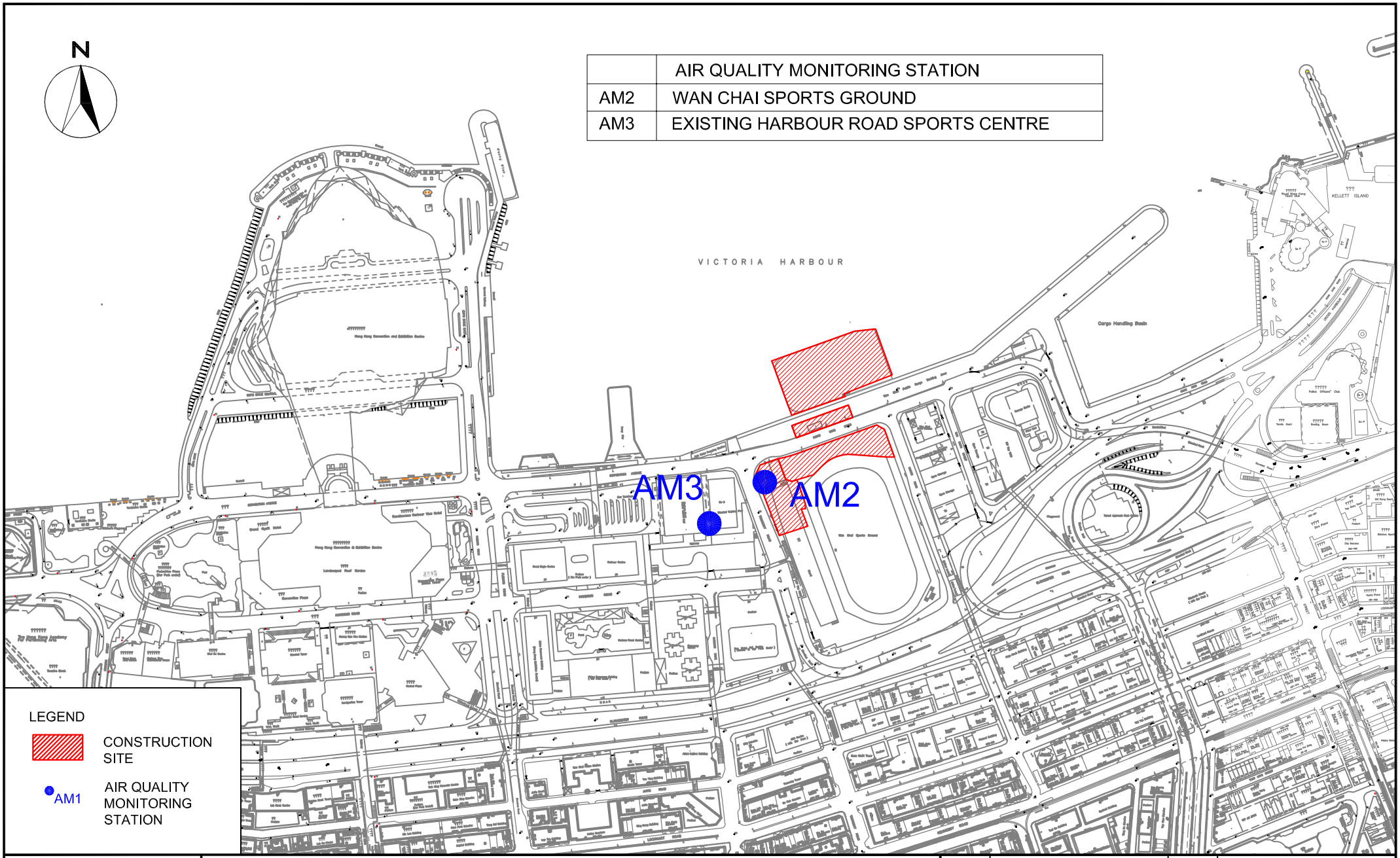
MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

LOCATION OF NOISE MONITORING STATION

SCALE	1:5000 @ A4	DATE	APR 2015
CHECK	JF	DRAWN	KC
JOB No.	MA14009	FIGURE NO. 2	REV -



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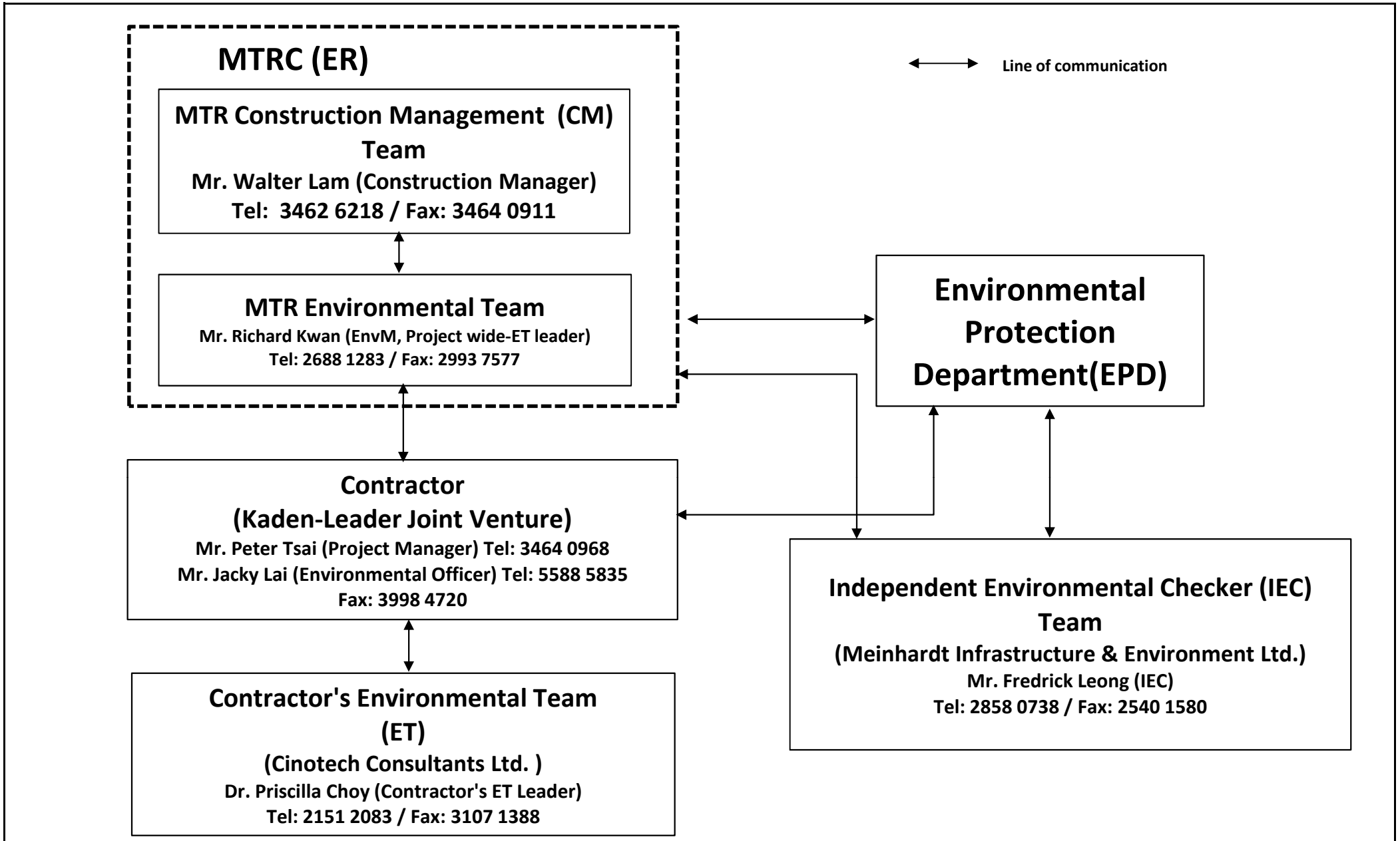
MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

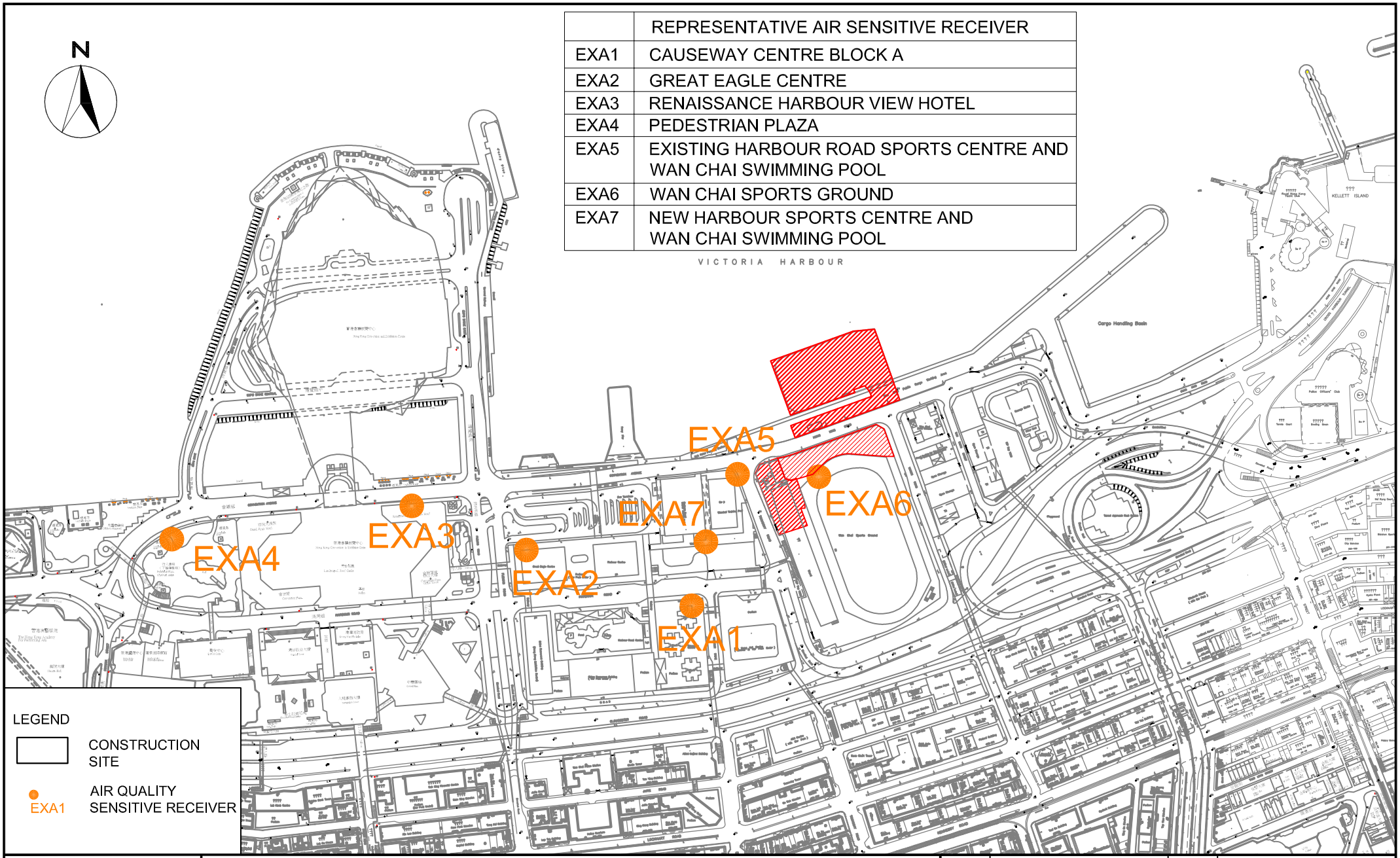
LOCATION OF AIR QUALITY MONITORING STATIONS

SCALE	1:5000 @ A4	DATE	NOV 2014
CHECK	JF	DRAWN	JW
JOB No.	MA14009	FIGURE NO. 3	REV -



Title	Scale	Proposa
SCL Contract 1126 The Shatin to Central Link - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Project Organisation for Environmental Works	N.T.S	No. MA14009
	Date Jul-14	Figure 4

CINOTECH



	REPRESENTATIVE AIR SENSITIVE RECEIVER
EXA1	CAUSEWAY CENTRE BLOCK A
EXA2	GREAT EAGLE CENTRE
EXA3	RENAISSANCE HARBOUR VIEW HOTEL
EXA4	PEDESTRIAN PLAZA
EXA5	EXISTING HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL
EXA6	WAN CHAI SPORTS GROUND
EXA7	NEW HARBOUR SPORTS CENTRE AND WAN CHAI SWIMMING POOL

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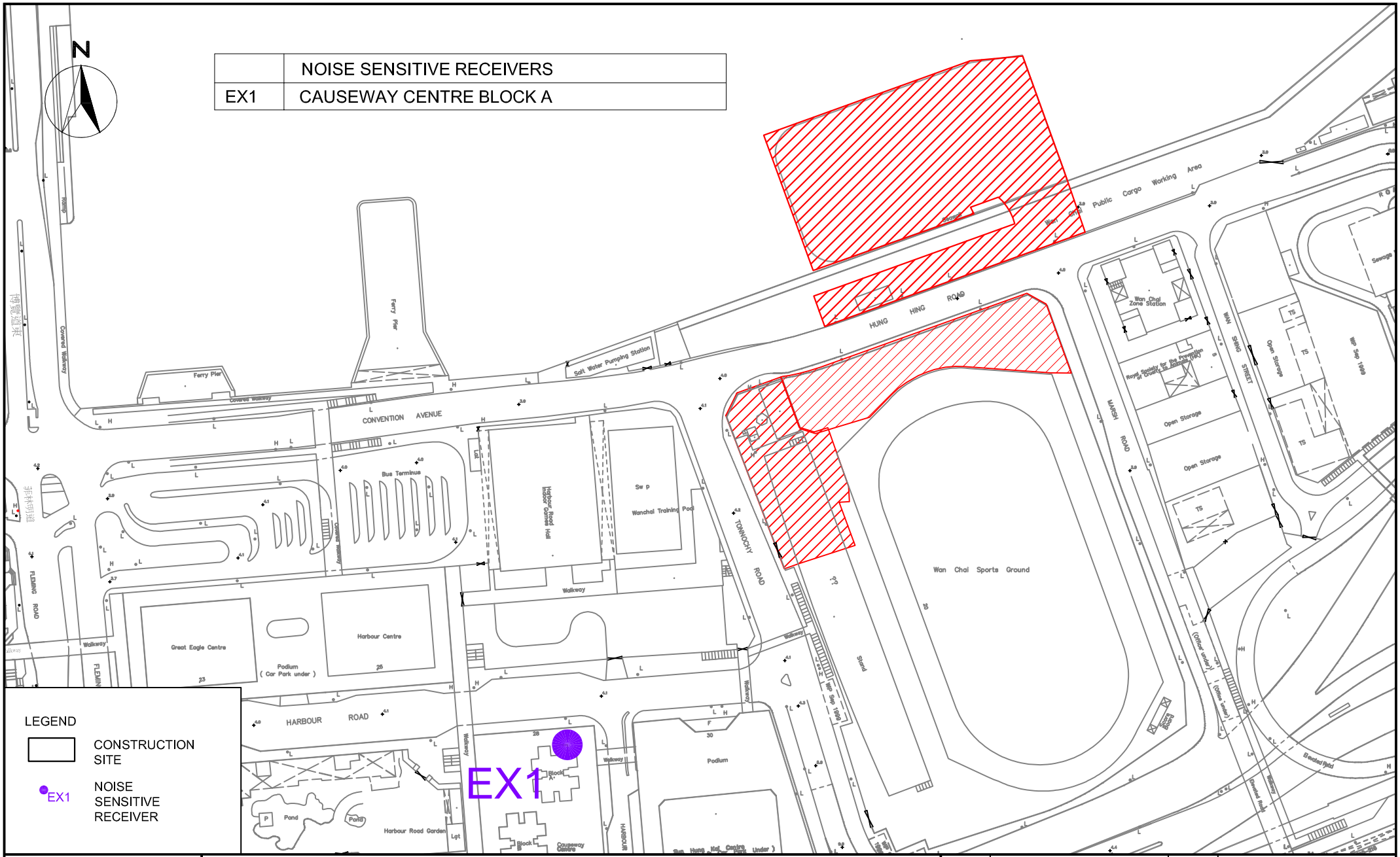
MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

AIR QUALITY SENSITIVE RECEIVERS

SCALE	1:5000 @ A4	DATE	AUG 2015
CHECK	JF	DRAWN	JW
JOB No.	MA14009	FIGURE NO. 5	REV -



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MTR 1126 REPROVISIONING OF HARBOUR ROAD SPORTS CENTRE AND WAN CHAI SWIMMING POOL

LOCATION OF NOISE SENSITIVE RECEIVERS

SCALE	1:5000 @ A4	DATE	AUG 2015
CHECK	JF	DRAWN	JW
JOB No.	MA14009	FIGURE NO. 6	REV -

APPENDIX A
ACTION AND LIMIT LEVELS

APPENDIX A – Action and Limit Levels

24-Hour TSP

Regular Dust Monitoring Location	Description	Action Level, µg/m^3	Limit Level, µg/m^3
AM2[(1)(2)]	Wan Chai Sports Ground	160	260
AM3[(1)]	Existing Harbour Road Sports Centre	169	260

Note:
(1) ASR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.

Construction Noise

Regular Construction Noise Monitoring Location[(1)]	Description	Time Period	Action Level	Limit Level
NM2	Walkway across Harbour Road (1/F) [(2)]	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)
	Harbour Centre (7/F & 8/F) [(3)]	0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A)

Note:
(1) NSR ID as identified in approved EM&A Manual / EIA Report for SCL(HUH-ADM).
(2) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring. Impact noise monitoring was conducted at the proposed alternative location, Walkway across Harbour Road, which was approved by the ER and agreed with IEC only. Another proposed alternative monitoring location, Harbour Centre, was then approved by the ER and agreed by IEC and the EPD. Impact noise monitoring has been carrying out at Harbour Centre (7/F) from 20 August 2014 onwards.
(3) Line-of-sight from Harbour Centre (7/F) to this Project is screened by the reprovision of Wan Chai Sports Centre which is currently under construction. Impact noise monitoring has been carrying out at Harbour Centre (8/F) from 19 December 2014 onwards.

APPENDIX B
EVENT AND ACTION PLANS

Appendix B - Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	1. Notify the Contractor, IEC and ER 2. Discuss with the ER and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness	1. Review the investigation results submitted by the contractor; 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 complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. 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 the ER with copy to the IEC and ET within 3 working days of notification.; and 4. Implement noise mitigation proposals.
Limit Level	1. Notify the Contractor, IEC, EPD and ER; 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, and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of	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 exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and

Appendix B - Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease additional monitoring the results.		exceedance is abated	6. Stop the relevant portion of works as determined by the ER until the exceedance is abated

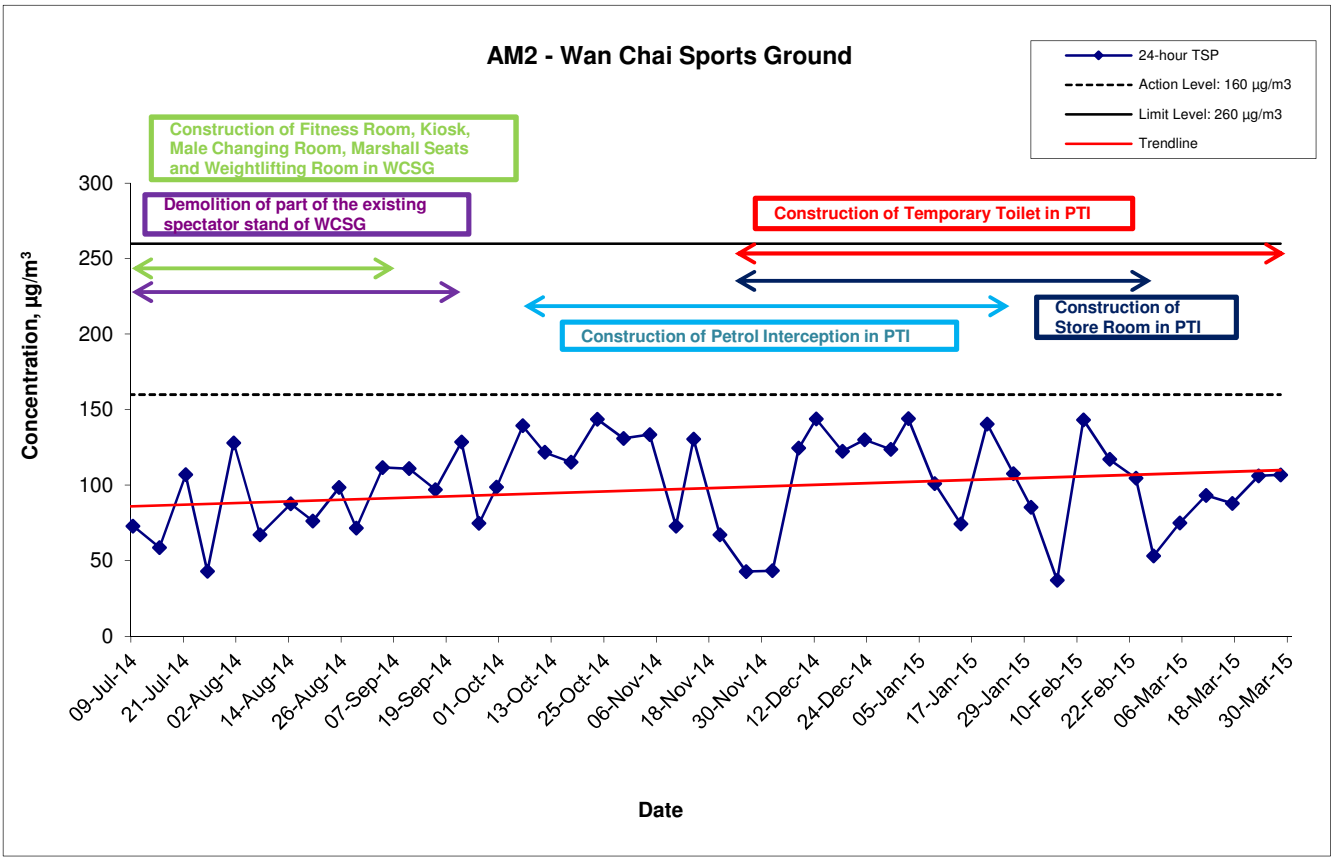
EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor on the remedial measures required; 3. Repeat measurement to confirm findings; and 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing;	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate.
2.Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; and 6. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal as appropriate.

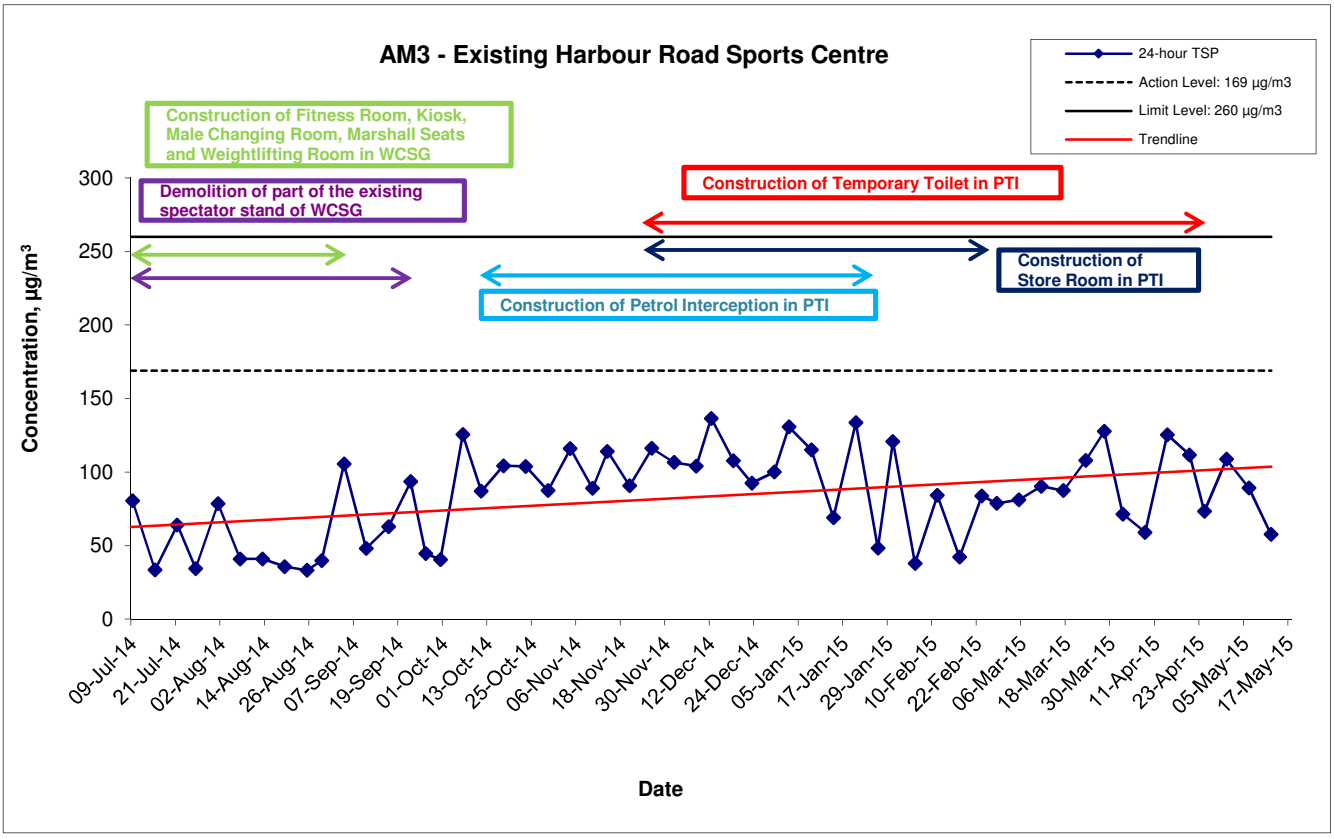
EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
LIMIT LEVEL				
1.Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; and 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
LIMIT LEVEL				
2.Exceedance for two or more consecutive samples	1. Notify Contractor, IEC EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. 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(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX C
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

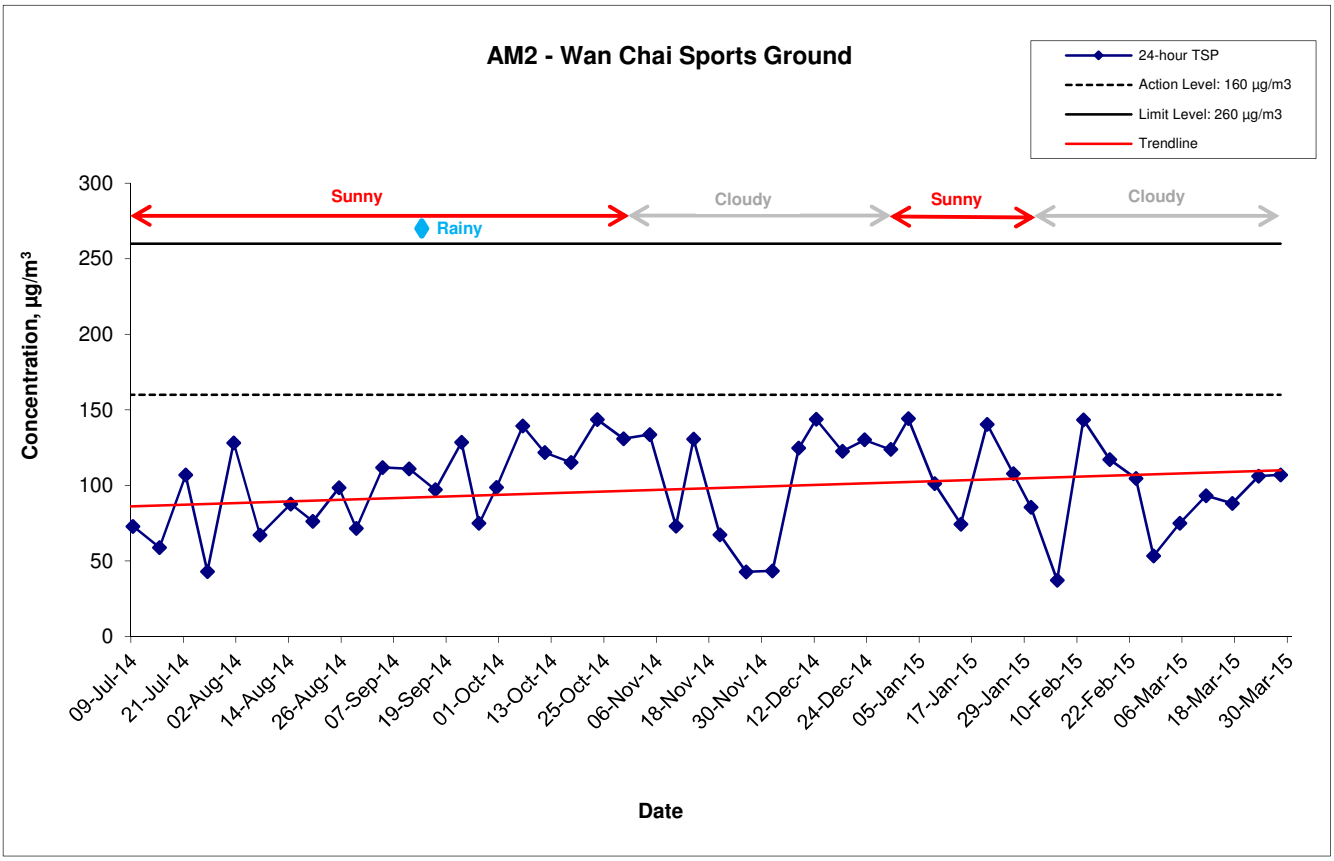
24-hour TSP Concentration Levels (against major construction activities)

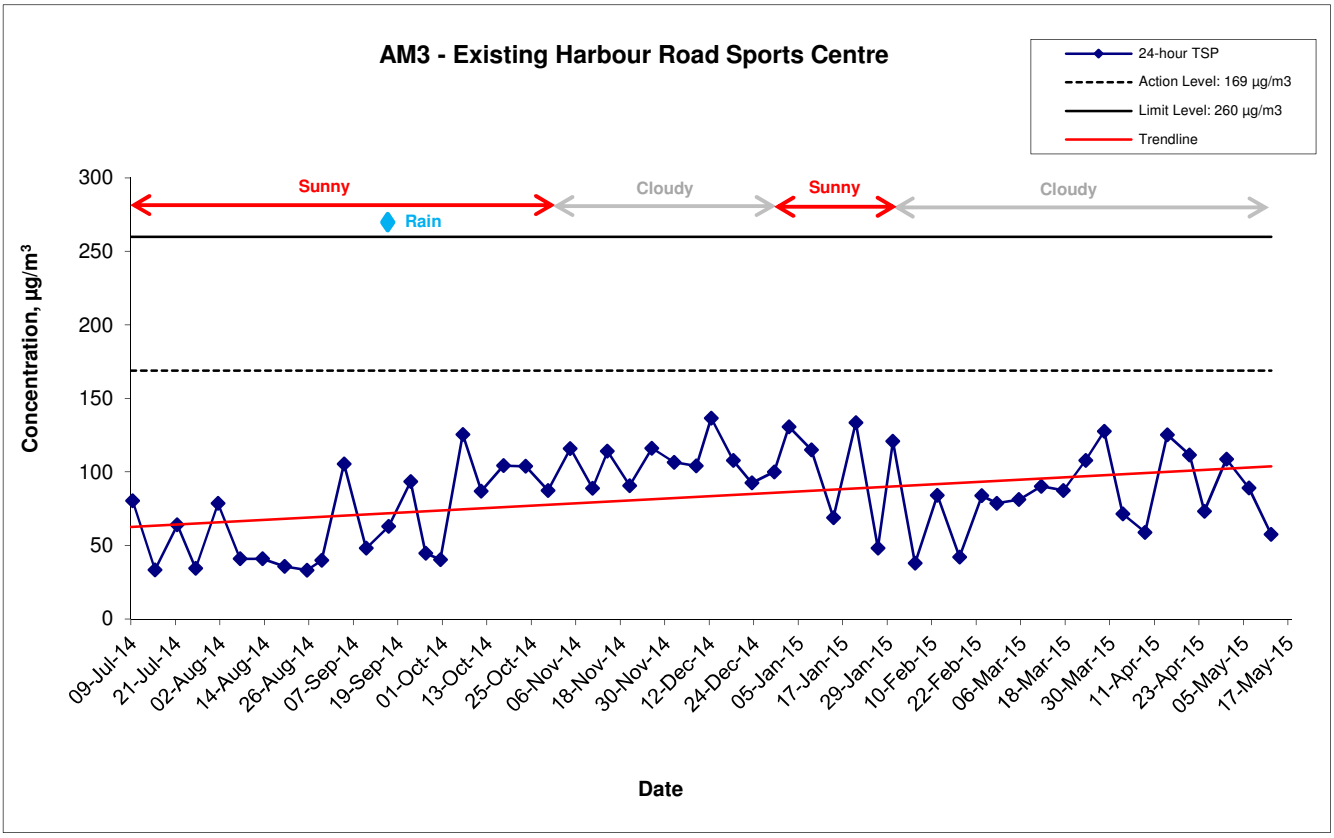




Title: Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA14009	CINOTECH
	Date: May-15	Appendix: C	

24-hour TSP Concentration Levels (against weather conditions)

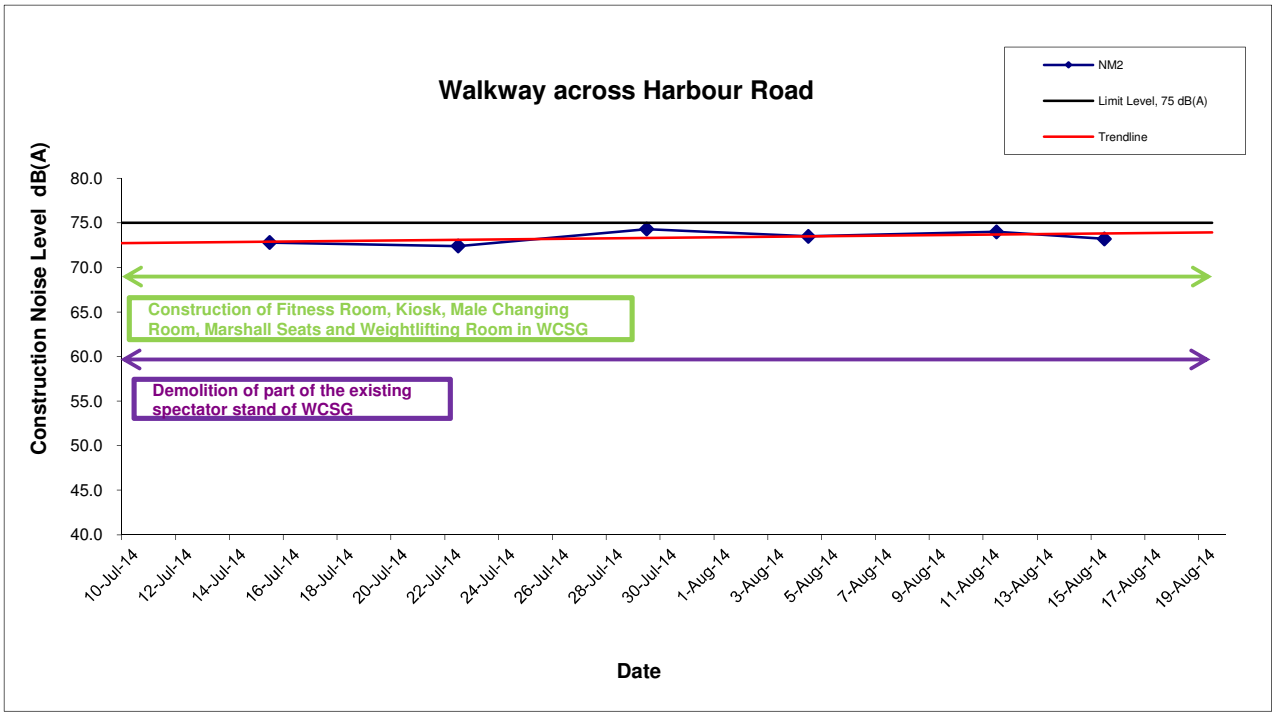


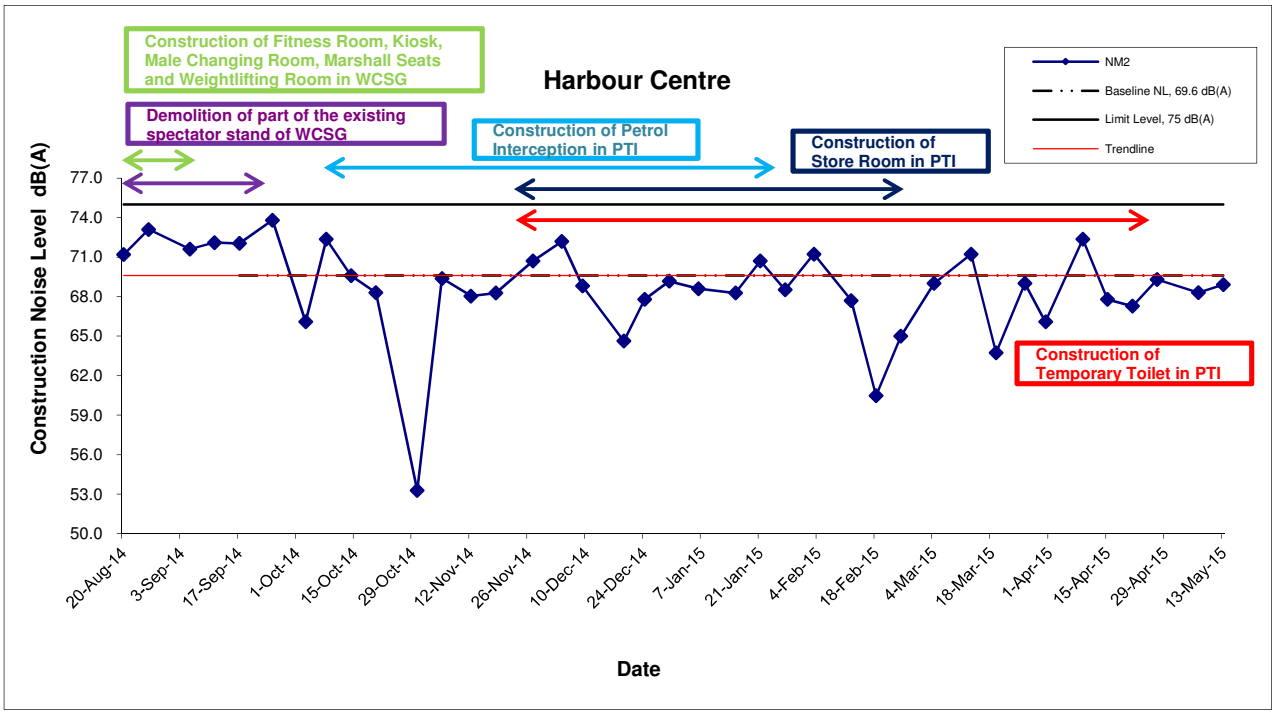


Title: Shatin to Central Link – Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Graphical Presentation of 24-hour TSP Monitoring Results	Scale: N.T.S	Project No.: MA14009	CINOTECH
	Date: May-15	Appendix: C	

APPENDIX D
NOISE MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

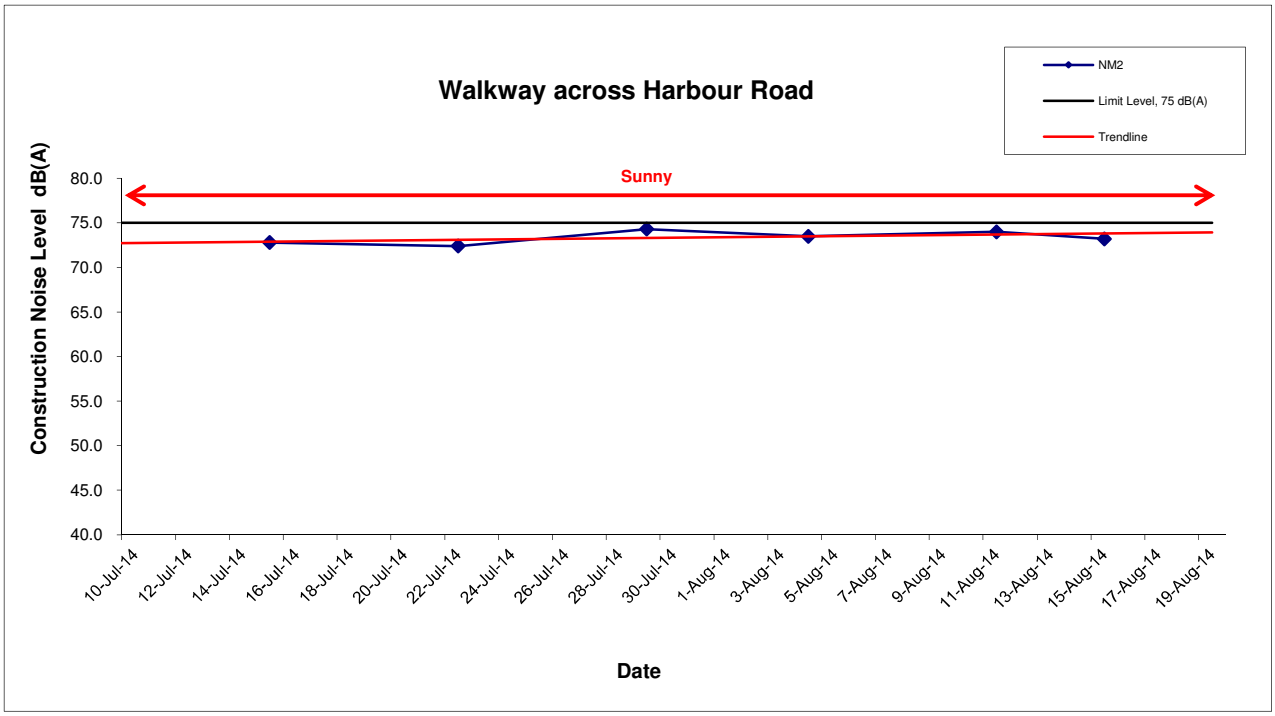
Noise Levels (against major construction activities)

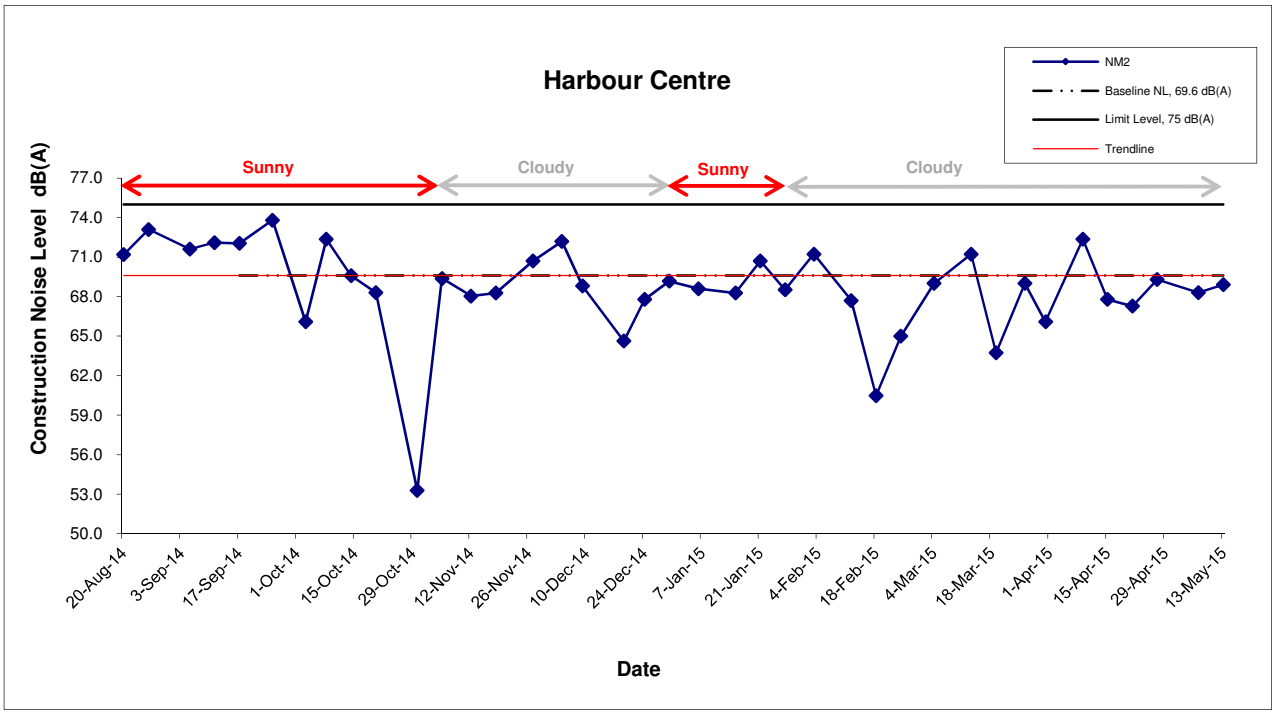




Title	Shatin to Central Link - Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S Date May-15	Project No. MA14009 Appendix D	CINOTECH

Noise Levels (against weather conditions)





Title: Shatin to Central Link - Contract 1126 Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool Graphical Presentation of Construction Noise Monitoring Results	Scale: N.T.S	Project No.: MA14009	CINOTECH
	Date: May-15	Appendix: D	

APPENDIX E
UPDATED ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Ecology (Construction Phase)							
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216and 11.219 to 11.256 of the EIA Report shall be adopted	Minimise the contamination of wastewater discharge	Contractor	All land based works areas	Construction phase	• EIAO-TM	^
Landscape & Visual (Construction Phase)							
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation	Transplanting and reuse of affected trees	MTR	All works sites	Construction phase	• EIAO-TM • ETWB TC(W) 3/2006	^
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	All works sites	Construction phase	• EIAO-TM • ETWB TC(W) 3/2006	^
	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	All works sites	Construction phase	• EIAO-TM	^

SCL Works Contract 1126 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	*
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	Control of height and deposition/arrangement of temporary facilities in works areas	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like to-like basis to the satisfaction of the relevant Government Departments	Reinstatement of temporary works areas	MTR	All works sites	Construction phase	• EIAO-TM	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S7.126	The following good site practice measures shall also be incorporated in the construction phase of the project: • Topsoil, where identified, shall be stripped and stored for re-use in the construction of the soft landscape works. • Existing trees to be retained on site shall be carefully protected during construction.	Minimize landscape and visual impact	Contractor	All works areas	Construction phase	• EIAO-TM	N/A *
Construction Dust Impact							
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m^2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0 L/m^2 for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A	Minimize dust impact	Contractor	All works areas	Construction phase	• APCO	*

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	programme as specified in the EM&A Manual.						
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in	Minimize dust impact	All works areas	Construction phase	• APCO • Air Pollution Control (Construction dust) Regulation	All works areas	* * * * ^ * ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	dry seasons/ periods. • Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise.						* ^ ^ * ^
Air Quality (Construction Phase)							
/	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)	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	• APCO	^ * ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Construction Noise (Airborne)							
S9.55	The following good site practices shall be implemented: ・Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program ・Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program ・Mobile plant, if any, shall be sited as far from NSRs as possible ・Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum ・Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs ・Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities.	Minimize construction noise impact	Contractor	All works areas	Construction phase	・ EIAO-TM	^ ^ ^ ^ ^ ^
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile • Crane, mobile • Asphalt paver	To minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	・ EIAO-TM	N/A N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Backhoe with hydraulic breaker						N/A
	• Breaker, excavator mounted (hydraulic)						N/A
	• Hydraulic breaker						N/A
	• Concrete lorry mixer						N/A
	• Poker, vibrator, hand-held						N/A
	• Concrete pump						N/A
	• Crawler crane, mobile						N/A
	• Mobile crane						N/A
	• Dump truck						N/A
	• Excavator						N/A
	• Truck						N/A
	• Rock drill						N/A
	• Lorry						N/A
	• Wheel loader						N/A
	• Roller vibratory						N/A
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric)	Minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	• EIAO-TM	 N/A N/A N/A N/A N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete						N/A N/A N/A N/A N/A N/A N/A N/A N/A
S9.60 & Table 9.17	Noise insulating fabric shall be used for • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic)	Minimize construction noise impact	Contractor	Works areas under this Contract	Construction phase	• EIAO-TM	 N/A N/A N/A N/A N/A N/A N/A N/A N/A
Water Quality (Construction Phase)							
S11.216	The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close	minimize release of construction wastes	Contractor	Construction works at or close	Construction phase	• EIAO-TM • WPCO	

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	to the seafront: ・Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. ・Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. ・Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters.	from construction works at or close to the seafront		to the seafront			^ ^ ^
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable. <u>Surface Run-off</u> ・ Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter	minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction phase	・EIAO-TM ・WPCO ・TM-DSS ・WDO ・ProPECC PN 1/94	*

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the						* ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul						N/A ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. <u>Boring and Drilling Water</u> • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. <u>Wheel Washing Water</u> • All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road shall be paved with backfall to reduce vehicle tracking of soil						^ N/A *

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	and to prevent site run-off from entering public road drains. <u>Bentonite Slurries</u> • Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. <u>Water for Testing & Sterilization of Water Retaining Structures and Water Pipes</u> • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. • Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable.						N/A N/A ^ N/A

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	Wastewater from Building Construction • Before commencing any demolition works, all sewer and drainage connections shall be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains. • Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities shall not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it shall undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary. Acid Cleaning, Etching and Pickling Wastewater • Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. Wastewater from Site Facilities • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be						^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. • Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. • Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.						^ ^
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for	minimize water quality impacts due to sewage generated from construction workforce	Contractor	All works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.						
S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps	minimize impact from discharge of uncontaminated groundwater	Contractor	All works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS	^
S11. 253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.	minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS	*

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.254	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation shall be observed and complied with for control of chemical wastes.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	*
S11.256	Disposal of chemical wastes shall be carried out in compliance with the Waste Disposal Ordinance. The “Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes” published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	* * ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	adequate space shall be allocated to the storage area.						
Waste Management (Construction Waste)							
S12.75	***Good Site Practices and Waste Reduction Measures*** - Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; - Training of site personnel in, site cleanliness, proper waste management and chemical handling procedures; - Provision of sufficient waste disposal points and regular collection of waste; - Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; - Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and - Separation of chemical wastes for special handling and appropriate treatment.	reduce waste management impacts	Contractor	All works sites	Construction phase	• Waste Disposal Ordinance (Cap. 354) • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • DEVB TCW No. 6/2010	^ ^ * ^ ^ ^
S12.76	***Good Site Practices and Waste Reduction Measures (Con't)*** - Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.);	achieve waste reduction	Contractor	All works sites	Construction phase	• Waste Disposal Ordinance (Cap. 354) • Land	*

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- 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; - Encourage collection of aluminum cans by providing separate labeled bins to enable this waste to be segregated from other general refuse generated by the workforce; - Proper storage and site practices to minimize the potential for damage or contamination of construction materials; - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and - Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.					(Miscellaneous Provisions) Ordinance (Cap. 28)	* ^ ^ ^ ^
S12.77	***Good Site Practices and Waste Reduction Measures (Con't)*** - The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWBTCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to	achieve waste reduction	Contractor	All works sites	Construction phase	・ETWB TCW No. 19/2005	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	be generated from the construction activities. Such a management plan shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.						
S12.78	C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	achieve waste reduction	Contractor	All works sites	Construction phase	・ETWB TCW No. 19/2005	^
S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and	minimize potential adverse environmental impacts arising from waste storage	Contractor	All works sites	Construction phase	- ETWB TCW No. 19/2005	^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Different locations shall be designated to stockpile each material to enhance reuse						^
S12.80	***Storage, Collection and Transportation of Waste (Con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: - Remove waste in timely manner - Waste collectors shall only collect wastes prescribed by their permits - Impacts during transportation, such as dust and odour, shall be mitigated by the use of covered trucks or in enclosed containers - Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28) - Waste shall be disposed of at licensed waste disposal facilities - Maintain records of quantities of waste generated, recycled and disposed	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	- ETWB TCW No. 19/2005	* ^ ^ ^ ^ ^
S12.81	***Storage, Collection and Transportation of Waste (Con't)***	minimize potential	Contractor	All works sites	Construction	• DEVB TCW	

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) shall be proposed	adverse environmental impacts arising from waste collection and disposal			phase	No. 6/2010	^
S12.83 – 12.86	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. - Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. - The C&D materials shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. - Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach	minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	All works sites	Construction phase	・DEVB TCW No. 6/2010 ・ETWB TCW No. 33/2002 ・ETWB TCW No. 19/2005	* * * ^
S12.97	***Containers for Storage of Chemical Waste***	register with EPD	Contractor	All works sites	Construction	・Code of	

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	The Contractor shall register with EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for storage of chemical waste shall: - Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; - Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and - Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation	as a Chemical waste producer and store chemical waste in appropriate containers			phase	Practice on the Packaging, Labelling and Storage of Chemical Wastes	* ^ *
S12.98	***Chemical Waste Storage Area*** - Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; - 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 that area, whichever is the greatest; - Have adequate ventilation;	prepare appropriate storage areas for chemical waste at works areas	Contractor	All works sites	Construction phase	• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	* ^ * *

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	- Be covered to prevent rainfall from entering; and - Be properly arranged so that incompatible materials are adequately separated.						^ ^
S12.98	***Chemical Waste*** - Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	clearly label the chemical waste at works areas	Contractor	All works sites	Construction phase	・Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	^
S12.100	***Collection and Disposal of Chemical Waste*** A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation	To monitor the generation, reuse and disposal of chemical waste	Contractor	All works sites	Construction phase	・Waste Disposal (Chemical Waste) (General) Regulation	^
S12.101	***General Refuse*** General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general	properly store and separate from other C&D materials for subsequent collection	Contractor	All works sites	Construction phase	- Public Health and Municipal Services Ordinance (Cap.	*

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	and disposal				132)	
S12.102	***General Refuse (Con't)*** The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	facilitate recycling of recyclable portions of refuse	Contractor	All works sites	Construction phase	- Public Health and Municipal Services Ordinance (Cap. 132)	^
S12.102	***General Refuse (Con't)*** The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders	raise workers' awareness on recycling issue	Contractor	All works sites	Construction phase	- Public Health and Municipal Services Ordinance (Cap. 132)	^

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

- Non-compliance but rectified by the contractor

* Observation/reminder was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

APPENDIX F
WASTE GENERATION IN THE CONSTRUCTINO PERIOD

Contract No: **MTR SCL 1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool**

Date of Report: **December, 2014**

Monthly Summary Waste Flow Table for 2014 at Wan Chai Sports Ground and Passengener Transport Interchange

Monthly	Actual Quantities of C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Remarks
	Total Quantity Generated	Hard Rocks 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 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)	
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	
Jul	0.267	0.000	0.000	0.000	0.267	0.000	3.780	0.000	0.000	0.000	0.020	
Aug	0.260	0.010	0.000	0.000	0.250	0.000	11.090	0.000	0.000	0.000	0.031	
Sept	0.163	0.009	0.000	0.000	0.154	0.000	24.550	0.000	0.000	0.000	0.023	
Oct	0.907	0.000	0.000	0.000	0.907	0.000	28.285	0.000	0.000	0.000	0.016	
Nov	1.033	0.000	0.000	0.000	1.033	0.000	0.000	0.000	0.000	0.000	0.036	
Dec	3.766	0.000	0.000	0.000	3.766	0.000	0.000	0.000	0.000	0.000	0.047	
Total	6.395	0.019	0.000	0.000	6.376	0.000	67.705	0.000	0.000	0.000	0.173	

Notes:

1) The waste flow table shall also include C&D mateials that are specified in the contract to be imported for use at the site.
2) Plastic refer to plastic bottle/ containers, plastic sheets/ foam from packaging material.
3) The general refuse with non-recyclable materials were disposed to Landfill.
   Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m^3. Assumption the densities of general refuse is 1.0 tonnes/m^3

Contract No: **MTR SCL 1126 - Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool**

Date of Report: **May, 2015**

Monthly Summary Waste Flow Table for 2015 at Public Transport Interchange

Monthly	Actual Quantities of C&D Materials Generated Monthly						Actual Quantities of Non-inert C&D Wastes Generated Monthly					Remarks
	Total Quantity Generated	Hard Rocks 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 2)	Chemical Waste	Others, e.g. general refuse (see Note 3)	
	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000m^3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m^3)	
Total 2014	6.395	0.019	0.000	0.000	6.376	0.000	67.705	0.000	0.000	0.000	0.173	Total Quatity in 2014
Jan	2.100	0.000	0.000	0.000	2.100	0.000	0.000	0.000	0.000	0.000	0.032	
Feb	0.305	0.000	0.000	0.000	0.305	0.000	0.000	0.000	0.000	0.000	0.027	
Mar	0.297	0.000	0.000	0.000	0.297	0.000	0.000	0.000	0.000	0.000	0.056	
Apr	0.116	0.000	0.000	0.000	0.116	0.000	0.000	0.000	0.000	0.000	0.075	
May	0.151	0.000	0.000	0.000	0.151	0.000	0.000	0.000	0.000	0.000	0.056	
Jun												
Sub-total	9.363	0.019	0.000	0.000	9.343	0.000	67.705	0.000	0.000	0.000	0.420	
Jul												
Aug												
Sep												
Oct												
Nov												
Dec												
Total	9.363	0.019	0.000	0.000	9.343	0.000	67.705	0.000	0.000	0.000	0.420	

Notes:

1) The waste flow table shall also include C&D mateials that are specified in the contract to be imported for use at the site.
2) Plastic refer to plastic bottle/ containers, plastic sheets/ foam from packaging material.
3) The general refuse with non-recyclable materials were disposed to Landfill.
   Assume the densities of Rock, Soil, Mix Rock and Soil, are Regular Spoil to be 2.0 tonnes/m^3. Assumption the densities of general refuse is 1.0 tonnes/m^3