MTR Corporation Limited

Tsim Sha Tsui Station Northern Subway

Monthly Environmental Monitoring and Audit Report

May 2014

Certified By:

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Environmental Team Leader

Date:

1 1 JUN 2014

MTR Corporation Limited

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Verified By:

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Date: 1 2 JUN 2014

EXECUTIVE SUMMARY

The Tsim Sha Tsui Northern Subway Project (TNS) was awarded to the respective contractor in late Dec 2012. The EM&A programme for (TNS) Project commenced on 8 Feb 2013, the commencement date of construction of the Project. This is the sixteenth monthly Environmental Monitoring and Audit (EM&A) Report for TNS Project. The Report presents the results of EM&A works for the project works undertaken during the period of May 2014.

The impact monitoring for air quality and noise were conducted for the weeks of May 2014. Both noise and dust monitoring results were below action limits. No environmental notification of summon, prosecution and valid complaint were received in the reporting period.

Regular joint site inspections, led by the ER with the presence with representatives from the Contractor and Environmental Team, were conducted on weekly basis to monitor Contractors' performance on environmental management and implementation of environmental pollution control and mitigation measures for the Project.

The Environmental Permit (EP-317/2009/A), which is a variation to the original permit and issued on 6 January 2014, is being used for the TNS Project.

In the reporting period, no non-conformance was identified and no reporting change of circumstances which may affect the compliance with the recommendations of the EIA Report.

In next reporting period, the key issues are installation of pipe piles and excavation and erection of lift shaft.

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1 INTRODUCTION

1.1 Project Background

MTR Corporation Limited (MTRCL) proposes to construct Tsim Sha Tsui Station Northern Subway, otherwise referred 'TNS'. This EM&A report is for the phase 1 of the TNS, which is the modification of existing Tsim Sha Tsui Station Entrance A1. The scope of this phase 1 work is to upgrade the Entrance A1 to replace the existing concrete structure with a new transparent box reconstructed on the same site with improved access to the station with new disable lift serving Tsim Sha Tsui concourse level, street and Kowloon Park; and escalators serving street and the existing Entrance A1 Adit. The remaining subway running from the north end of Tsim Sha Tsui Station to the new satellite concourse at The One shopping (previous Tung Ying Building) and then to Miramar Shopping Centre will be grouped at the phase 2 of the TNS project. The phase 2 is still under planning stage and the status will be updated later.

1.2 Project Programme

The TNS Project Phase 1 contract with contract number C6564-11C was awarded to the Goldfield N&W Construction Company Limited (GNW) in late Dec 2012. The commencement of construction was on 8 Feb 2013. The commencement of operation of the Project is scheduled to be in 2015. Contractors' tentative programme for the construction is presented below.

Activities	2012						20						Т						14											201:	_				
	D	J	F	M	A	М	J	J	A	S	O	N	D	J	F N	I A	M	J	J	A	S	0	Ν	D	J	F	М	A	М	J J	J A	S	О	N	D
Contract Award	•	Т										П	Т		Т												П	Т			Т	Т		П	
Site Clearance		+	+	\rightarrow	-							П	1		Т	П	Т								П		П	Т	T		Т	Т	Т	П	
Construction of Temperory Entrance		1	1	+	H	_	Н	=	\dashv	-	>	T	1							П					П		П	T			Т	\top		Т	Г
Construction Commencement		T	+										1														\Box	\Box			\top				
Construction of Temperory Ramp		T	+	H	-							T	1		T		T			П							\Box	\Box			\perp				
Installation of Sheet Piles & Pipe Piles		Т	Т		4		Н	→	П	\neg		T	1		T			Г		П					П		П	П	T		Т	Т	Т	П	Г
Construct Temperory Entrance		Т	Т	Г				4	\dashv	→			1		Т		Т			П							П	Т			Т	Т		П	
E&M Installation		Т								•	+		1												П		П	T	1		Т	\top		Т	
ABWF		T									+		1												П		П	T			Т	\top		П	
Construction of New Entrance		T					П					←	4	_	_	_	-				_	_	_	-	П		=	→			Т	Т		П	
Demolition Existing A1 Entrance	1	T	T	Т			П		П	T	7	4	4	7	+	Ŧ	\rightarrow	-		П			\exists		П		T	T	T		\top	\top	Т	Т	
Installation of Pipe Piles		T	T	Т			П		П	T		4	4	4	+	+	٠,	-		П					П		T	Т	T		Т	\top		Т	Г
Excavation & Erecting Lift Shaft		1		T			П						1			+	+			-					П		T	T	1		Т	Т		Т	
Construction of New Lift and Entrance		T										T	1		T						←			-	Е		→	Т			Т	Т	Т		
ABWF Works & E&M Works		Т										T	1		T		T							1	Н	=	=	→	1		\top	\top		Т	
Demolition of Temporary Entrance & Reinstate	ment	Т	Т		Г		П		П	\neg		Т	1	\neg	T	Т		Г		П			\neg		П		T	4	\leftarrow	-	\Rightarrow	_	Т	Т	Г

1.3 Coverage of the EM&A Report

The EM&A programme for the TNS Project commenced on 8 Feb 2013. This is the sixteenth Monthly Environmental Monitoring and Audit (EM&A) Report for the Project. The Report presents the results of EM&A works and the impact monitoring for the construction works undertaken by the Contractor during the period of May 2014.

2 PROJECT INFORMATION

2.1 Project Management Organization and Contact Details

The TNS Project organization chart is presented in Figure 1. Contacts of key environmental personnel of the Project are shown in Tables 1a and 1b respectively.

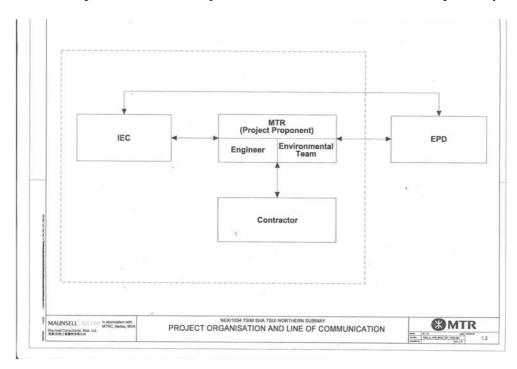


Figure 1. Project Organization

Table 1a Contact List of Key Personnel for Project Management

Organization	Name	Telephone
Engineer's Representative		
Construction Manager	PH Tang	3547 0001
Senior Construction Engineer	Stephen Tai	3547 0086
Construction Engineer	KM Wong	3547 0003
Independent Environmental Checker		
Consultant – Arup	Coleman Ng	2268 3097
Environmental Team		
Environmental Team Leader	Richard Kwan	2688 1179

Table 1b Contact List of Environmental Authority

Organization	Name	Telephone		
Environmental Protection I	Department			
Assistant Environmental (Regional East) 61	Protection	Officer	Arthur Lee	2150 8021

2.2 Project Works Sites and Areas and Environmental Monitoring Locations

- The TNS Project work site and areas are summarized in Table 2 below and shown in Appendix A Figures 1.
- The locations of environmental monitoring stations are indicated in Appendix A Figures 2.
- Table 3 shows the details of the active monitoring stations as reported in Sections 3.1 and 3.2.

 Table 2
 Summary of TNS Project Works Sites and Areas

Contract C6564-11C Works Site and Area							
Works Site	Tsim Sha Tsui Entrance A						

Table 3 Summary of impact air quality and noise monitoring stations

ID	Monitoring Station
Air	
D1	Hai Phong Road
Noise	
M1	Hai Phong Mansion
M2	Comfort Building
M3	Burlington Arcade

2.3 Summary of EM&A Requirements

The EM&A programme mainly requires environmental monitoring for air quality, noise, landscape & visual, water quality, built heritage and waste management as specified in the EM&A Manual.

A summary of impact EM&A requirements as applicable to this EM&A Report is presented in Table 4 below.

Table 4 Summary of impact EM&A Requirements

Parameters	Descriptions	Locations	Monitoring	Duration
			Frequencies	
Air Quality	24-hr TSP	Shown in Table 3	Once a week	Construction stage
Noise	L _{eq(30min)}	Shown in Table 3	Once a week	Construction stage
Landscape and visual	On-Site Audit	Active Works Sites	Bi-weekly	Construction stage
Built Heritage	On-Site Audit	Active Works Sites	Bi-weekly	Construction stage
Waste	On-Site Audit	Active Works Sites	Weekly	Construction stage
General Site Conditions	Environmental Site Inspection	Active Works Sites	Weekly	Construction stage

Environmental Quality Performance Limits for air quality and noise are shown in **Appendix B**.

The Event Action Plans for air quality and noise are shown in **Appendix C**.

2.4 Implementation of Environmental Mitigation Measures

The TNS Civil Works Contractors are required to implement the mitigation measures as specified in the EP, EIA Report and EM&A Manual. During the regular environmental site inspections, the Contractors' implementation of mitigation measures were inspected and reviewed. A schedule of the implementation of mitigation measures identified in the TNS EM&A Manual is given in **Appendix D**.

2.5 Construction Activities in the Reporting Month

Major construction activities carried out by the respective TNS Civil Works Contractors during the reporting period include:

Works Sites and Areas

Works Site (Tsim Sha Tsui Entrance A)

- Installation of Pipe Piles
- Excavation and Erection of Lift Shaft

2.6 Construction Activities in the Coming Month

- Installation of Pipe Piles
- Excavation and Erection of Lift Shaft

3 IMPACT MONITORING

3.1 Air Quality

24-Hour TSP Levels Monitoring

The TSP was measured by Andersen High Volume Sampler, model G25A. The sampling procedure follows that described in the App. B of Pt 50 in 40CFR Ch.1 (U.S. Environmental Protection Agency). TSP is sampled by drawing air through a conditioned, pre-weighed filter paper inside the high volume sampler at a controlled rate. After 24-hour sampling the filter paper with retained particles is collected and returned to the laboratory for drying in a desiccator followed by weighing. TSP levels are calculated from the ratio of the mass of particulate retained on the filter paper to the total volume of air sampled.

The samplers should be properly maintained. Prior to dust monitoring commencing, appropriate checks should be made to ensure that all equipment and necessary power supply are in good working condition.

Calibration Requirements

The flow rate of the high volume sampler with mass flow controller will be calibrated using an orifice calibrator. Initial calibration (five points) will be conducted upon installation and prior to commissioning. Calibration will be carried out every six months. Calibration certificates are attached in **Appendix E**.

To examine the construction dust levels, 24-hour TSP monitoring was undertaken according to the EM&A Manual. The dust monitoring location is shown in the Section 2.2 above. The monitoring location is subjected to construction dust impact from Works Site, is available to check the environmental performance of the work site and assess the effectiveness of the mitigation measures.

Monitoring results are presented in the following table and **Appendix F** for graphical plot. The 24-hour TSP monitoring results in the range from 71 to $162 \,\mu\text{g/m}^3$ recorded in the monitoring period shows that the dust levels generated by the active construction activities were within the Action Levels.

D 4	.	TO I	D 1
DI	Hai	Phong	Koad

Date	TSP (µg/m3)	Action Level (µg/m3)	Limit Level (µg/m3)	Compliance to limit level	Weather Condition
7 May 14	77	226	260	Yes	Occasional Rainy
13 May 14	71	226	260	Yes	Occasional Rainy
20 May 14	102	226	260	Yes	Occasional Rainy
27 May 14	162	226	260	Yes	Sunny

3.2 Noise

B&K 2238/2250 sound level meters which complied with the International Electrotechnical Commission Publication 651:1979 (Type 1) and 804:1985 (Type 1), specification as referred to in the Technical Memoranda to the NCO were used for the construction noise impact monitoring. The B&K sound level meters and B&K 4231 calibrator are verified by the certified laboratory or manufacturer once every two years to ensure they perform to the same level of accuracy as stated in the manufacturer's specifications. In this reporting period, all relevant calibration certificates are attached in **Appendix E**.

Immediately prior to and following each set of measurements at any NSR, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. If the calibration levels before and after the measurement differs by more than 1.0dB the measurement shall be repeated to obtain a reliable result. Periods of prolonged or repeated overloading of the sound level meter detector were avoided by setting the meter with adequate headroom prior to commencing measurements. Measurements were recorded to the nearest whole dB, with values of 0.5 or more being rounded up.

Impact noise monitoring of $L_{Aeq(30min)}$ was undertaken to measure construction noise levels in accordance with the EM&A Manual. The noise monitoring locations are shown in Section 2.2 above.

The monitoring results in the range from 63.8 to 68.2 dBA are presented in the following table and **Appendix F** for graphical plot.

M1- Hai Phong Mansion

Date	Time	Measured	Baseline	Limit	Exceedance	Weather Condition	Wind
		Leq(dBA)	Leq	Level	of Limit		Speed
			(dBA)	(dBA)	Level		(m/s)
8 May 14	15:20	66.6	71	75	No	Occasional Rain*	<2
14 May 14	11:00	66.3	71	75	No	Overcast	<2
23 May 14	10:00	65.1	71	75	No	Occasional Rain*	<2
27 May 14	9:00	65.7	71	75	No	Sunny	<2

^{*} Noise monitoring was carried out during non-raining section.

M2- Comfort Building

1/12 Common Duna	····8						
Date	Time	Measured	Baseline	Limit	Exceedance	Weather	Wind
		Leq(dBA)	Leq	Level	of Limit	Condition	Speed
			(dBA)	(dBA)	Level		(m/s)
8 May 14	14:10	68.1	70	75	No	Occasional Rain*	<2
14 May 14	9:30	67.9	70	75	No	Overcast	<2
23 May 14	10:40	68.2	70	75	No	Occasional Rain*	<2
27 May 14	9:30	68.2	70	75	No	Sunny	<2

^{*} Noise monitoring was carried out during non-raining section.

M3- Burlington Arcade

Date	Time	Measured	Baseline	Limit	Exceedance	Weather	Wind
		Leq(dBA)	Leq	Level	of Limit	Condition	Speed
			(dBA)	(dBA)	Level		(m/s)
8 May 14	14:40	63.8	68	75	No	Occasional Rain*	<2
14 May 14	10:00	63.8	68	75	No	Overcast	<2
23 May 14	11:10	65.5	68	75	No	Occasional Rain*	<2
27 May 14	10:00	66.2	68	75	No	Sunny	<2

^{*} Noise monitoring was carried out during non-raining section.

3.3 Action taken in Event of Exceedance

There was no exceedance in air quality and noise monitoring for the monitoring locations in the reporting period.

4 LANDSCAPE AND VISUAL

4.1 Monitoring Requirements

Monitoring of the implementation of the landscape and visual mitigation measures during construction phase was conducted in accordance with the requirements as stipulated in the EM&A Manual.

The landscape and visual monitoring and audit will be conducted once every two weeks throughout the construction stage.

4.2 Audit Results

Monitoring and audit was undertaken in accordance with the EM&A Manual.

OVT T30 and T31 had fallen due to non-project related causes since the EIA Report, other OVTs were in good health.

The transplantation of the two *Elaeocarpus balansae* in front of Entrance A1 was carried out in May 2013, to sites within Kowloon Park as pre-agreed with LCSD.

T69, T70 and T71 (all Delonix Regia) at Hai Phong Road were removed on 14 September 2013 as approved under the Tree Removal Applications.

Bi-weekly inspection

The Registered Landscape Architect of Environmental Team or his representatives conducted inspections and audits and the tree protection works were implemented by the respective contractor. No non-conformance was identified in the reporting period.

4.3 Action Taken in Event of Non-Conformance

No actions on landscape and visual were required to be taken in this reporting period.

5 WASTE MANAGEMENT

The quantities disposed in the reporting period are summarized in the following table:

Amount of Constructi	on Wastes Disp	osed		
Reporting Period	Inert C&D	Inert C&D	Non-inert	Chemical Waste
	Materials to	Materials	Waste to	to designated
	Public Fill	Reused (m ³)	Landfill (m ³)	treatment facility
	(m^3)			(trips)
Year 2013	715	0	92	0
Jan 2014	30	0	6	0
Feb 2014	96	0	0	0
Mar 2014	196	0	0	0
Apr 2014	12	0	0	0
May 2014	18	0	0	0
Total	1,067	0	98	0

6 WATER QUALITY

An effluent discharge license was granted in November 2013. Discharge mainly arose from vehicle washing and dewatering process in the reporting month. Weekly site inspection was conducted to ensure the recommended mitigation measures are properly implemented and license conditions are observed.

7 BUILT HERITAGE

There are two built heritage resources have been identified in the close proximity to the work site. The two built heritage resources, the retaining wall and the Block S4 of former Whitfield Barracks were inspected visually. They were well kept and no observable impact due to the project was identified. The two granite columns previously relocated to Kowloon Park is in good condition.

8 RECORD OF ENVIRONMENTAL COMPLAINTS

There was no complaint received during the reporting month.

9 RECORD OF NON-COMPLIANCES

There was no non-compliance identified in the reporting period.

10 NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

No summon or prosecution related to environmental issue was recorded in the reporting period. A summary of environmental prosecution since commencement of construction

is shown below:-

Reporting Period	Frequency	Cumulative	Nature	Status
May 2014	0	0	N/A	N/A
Cumulative	0	0	N/A	N/A

11 STATUS OF STATUTORY SUBMISSIONS

11.1 Submissions required under Environmental Permit

A summary of the status of the clauses required under the TNS Environmental Permit as of April 2014 is shown below:

EP-317/2009 Clause No.		Description	Status
1.11	1	Notification of commencement of construction	Construction commenced on 8 Feb 2013
2.1	2	Establishment of ET with ET Leader	ET set up since Oct 2012
2.2	4	Employment of IEC	IEC set up since Oct 2012
2.3	5	Notification of the management organization of main construction companies and/or any form of JV	Set up in Dec 2012
2.4	6	Submission of Waste Management Plan	Comments received and RTC is being prepared. The WMP is being revised accordingly
5.4	7	Submission of Baseline Monitoring Report	Submitted
5.7	8	Notification of setting up A community liaison procedure and channel	Established since Jan 2013
6.2	9	Notification of Internet address to place EM&A data	Established on 7 March 2013
5.5	10	Monitoring Report for March 2014	Submitted

11.2 Statutory Permits and Licenses

A summary of the status of all relevant environmental permits and licenses as of 30 April 2014 is shown below:

Description	License/ Permit Reference	Issue Date	Expired Date
Environmental Permit for Tsim	EP-317/2009/A	6 January 2014	NA
Sha Tsui Station Northern			
Subway Project			
Wastewater Discharge License	WT00017459-2013	1 November 2013	30 Jun 2018
Registration as a Chemical	Waste Producer Number:	12 March 2013	NA
Waste Producer	5213-214-G2417-05		
Disposal of Construction Waste	Billing Account no.	27 Dec 2012	NA
	7016610 activated		

A variation to the Environmental Permit has been granted by EPD on 6 January 2014. The variation concerns works near OVT 73 and demolition existing exit.

12 SITE INSPECTIONS

12.1 Observations

Regular site inspections led by the Engineer's Representative and anticipated by ET and respective Contractors were undertaken in accordance with the EM&A Manual in the reporting period. The contractors' performance on environmental matters were assessed and found in an acceptable manner. The inspection findings and the associated recommendations on improvement to the environmental protection and pollution control works were raised to the contractors for reference and/ or action.

Observations against the implementation of the mitigation measures recommended in the EP/EIA are summarized as follows:

Item	Description	Follow-up Status
	<u>Contract C6564-11C</u>	
1	The contractor was reminded that the noise and dust mitigation requirements stated in the EP shall be strictly followed.	On going
2	The contractor was reminded to pay special attention to the Heritage Built and the OVT protection.	On going
3	The contractor was reminded to monitor closely effluent discharge standards and have wastewater treatment ready for rainy season.	On going
4	The contractor was reminded to store unused chemicals in the designated storage area.	On-going
5	The contractor was reminded to provide effective noise barrier / enclosure for various equipment to minimise noise nuisance.	On-going
6	The contractor was reminded to provide bunding to prevent water sipping out of the work site onto adjacent pavement.	On-going

The respective contractors have followed most of concerned items raised during the inspections for rectification in a responsible manner.

12.2 Other Notable Events

IEC Site Inspections

The IEC conducted site inspections for Works Areas on 20 May 2014. Some observations listed in section 12.1 were noted during the site inspections and the respective Contractors had followed up the issues as identified in the site inspections in a responsible manner.

EPD Inspection

EPD inspection was not recorded in this reporting period.

13 FUTURE KEY ISSUES

13.1 Key Issues for the Coming Month

Future key issues envisaged in the coming month include the followings:

- Installation of Pipe Piles
- Excavation and Erection of Lift Shaft

13.2 Effectiveness and Efficiency of Mitigation Measures

Based on the environmental monitoring results of the reporting period, the effectiveness and efficiency of the mitigation measures implemented were found to be satisfactory. The respective contractors were reminded to carry out their future construction activities to comply with the requirements of the EP and the relevant contract requirements.

14 CONCLUSIONS

The Report presents the results of EM&A works and the impact monitoring for the construction works undertaken during May 2014. The major construction activities in the reporting period were:

- Installation of Pipe Piles
- Excavation and Erection of Lift Shaft

No exceedance on noise and dust action level and no complaint received

No notification of summon and prosecution were received in the reporting period.

Regular site inspections led by the Engineer's Representative and anticipated by the representatives from ET and the respective Contractors' Team were conducted on a weekly basis to monitor the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance to the environmental requirements was identified by the Environmental Team in the reporting period. The performances of the respective contractors on site environmental management were found in a responsible manner in this reporting period.

It is concluded from the environmental monitoring and audit works for the Tsim Sha Tsui Northern Subway Project were undertaken in a responsible manner. The environmental protection and pollution control measures provided by the contractor were generally acceptable.

Appendix A

Figures

Figure 1. TNS Project Works Area

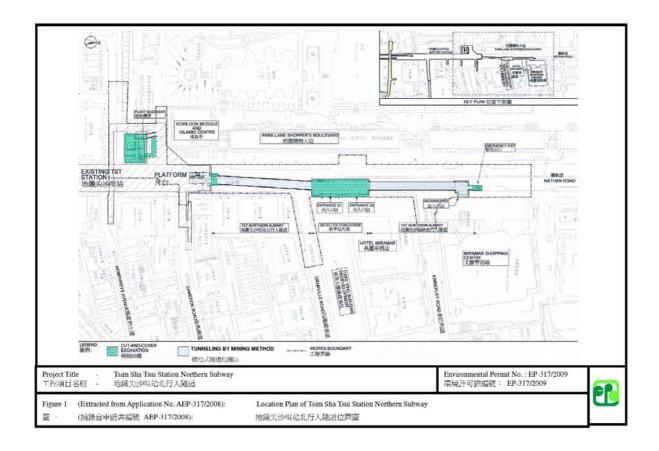
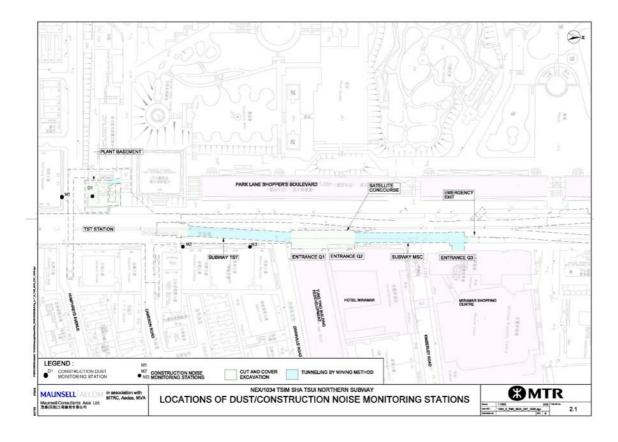


Figure 2. TNS Project Dust and Noise Monitoring Location Plan



Appendix B

Environmental Quality Performance Limits

Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level (µg/m3)	Limit Level (µg/m3)
D1	171	260

Action and Limit Levels for 1-hour TSP for Complaint Handling

Monitoring Station	Action Level (µg/m3)	Limit Level (µg/m3)
D1	310	500

Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level (dB(A)), Leq(30min)
0700-1900 hr on normal weekdays	When one documented complaint is received	75

Appendix C

Event Action Plans

Event / Action Plan for Air Quality (Dust)

Action Level 1. Cobeing me exceeded 2. Ide the	1. Conduct additional measurement to confirm finding. 2. Identify source and investigate the causes of exceedance, if caused by MTRCL's work. 3. Inform IEC, ER and Contractor. 4. Discuss with IEC, ER and Contractor on remedial actions		1. Confirm receipt of notification of exceedance. 2. Notify Contractor. 3. Check Contractor's working methods. 4. Agree with the Contractor	1. Check Contractor's working method. 2. Advise T on the effectiveness of the proposed remedial measures.
Level	onduct additional leasurement to confirm rading. Inding. entify source and investigate e causes of exceedance, if aused by MTRCL's work. from IEC, ER and Contractor. iscuss with IEC, ER and contractor.	Discuss with ET on proper remedial actions. Submit proposals for remedial actions to ER within 3 working days of notification. Amend proposal if appropriate.	Confirm receipt of notification of exceedance. Notify Contractor. Check Contractor's working methods. Agree with the Contractor.	Check Contractor's working method. Advise ET on the effectiveness of the proposed remedial measures.
qeq	reasurement to confirm rading. lentify source and investigate e causes of exceedance, if aused by MTRCL's work. form IEC, ER and Contractor. iscuss with IEC, ER and contractor on remedial actions.	2. Submit proposals for remedial actions to ER within 3 working days of notification. 3. Amend proposal if appropriate.	notification of exceedance. 2. Notify Contractor. 3. Check Contractor's working methods.	working method. 2. Advise ET on the effectiveness of the proposed remedial measures.
580	nding. lentify source and investigate e causes of exceedance, if aused by MTRCL's work. form IEC, ER and Contractor. iscuss with IEC, ER and outractor on remedial actions		exceedance. 2. Notify Contractor. 3. Check Contractor's working methods. 4. Agree with the Contractor	2. Advise ET on the effectiveness of the proposed remedial measures.
2. Ide the	entify source and investigate e causes of exceedance, if aused by MTRCL's work. form IEC, ER and Contractor. iscuss with IEC, ER and contractor on remedial actions.		 Notify Contractor. Check Contractor's working methods. Agree with the Contractor 	effectiveness of the proposed remedial measures.
the	le causes of exceedance, if aused by MTRCL's work. form IEC, ER and Contractor. iscuss with IEC, ER and ontractor on remedial actions.		Check Contractor's working methods. Agree with the Contractor	proposed remedial measures.
cai	aused by MTRCL's work. form IEC, ER and Contractor. iscuss with IEC, ER and ontractor on remedial actions		working methods. 4. Agree with the Contractor	measures.
9/11/2019	form IEC, ER and Contractor. iscuss with IEC, ER and outractor on remedial actions		4. Agree with the Contractor	
3. Info	iscuss with IEC, ER and			
4. Dis	ontractor on remedial actions		on the remedial measures	
රි	;	4. Implement the agreed	to be implemented.	
red	required.	proposals.	5. Ensure proper	
5. If n	5. If necessary, conduct additional	5. Liaise with ER to optimize	implementation of	
om	monitoring to assess the	the effectiveness of the	remedial measures.	
effe	effectiveness of Contractor's	agreed mitigation.	Assess the efficiency of	
ren	remedial actions.		remedial actions and keep	•
6. If e	If exceedance continues,		the Contractor informed.	
arr	arrange meeting with IEC and			
ER	ER to review implementation			
and	and identify further appropriate			
mit	mitigation measures.			
7. If e	If exceedance stops, cease	<		
adc	additional monitoring.	5.		

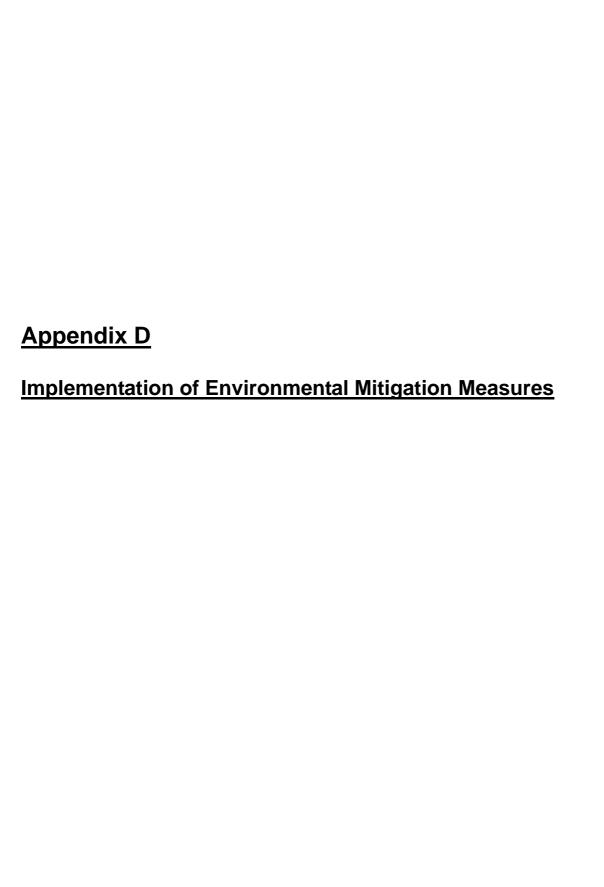
	EC	1. Check Contractor's working method. 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly.
		Confirm receipt of notification of exceedance. Notify Contractor. Check Contractors working methods. Agree with the Contractor on the remedial measures to be implementation of remedial measures. Ensure proper implementation of remedial measures. Ensure proper implementation of remedial actions and keep the Contractor informed.
Action	Contractor	1. Take immediate action to avoid further exceedance. 2. Discuss with ET and ER on proper remedial actions. 3. Submit proposals for remedial actions to ER within 3 working days of notification. 4. Implement the agreed proposals. 5. Liaise with ER to optimize the effectiveness of the agreed mitigation.
	ET	1. Conduct additional measurement to confirm findings. 2. Identify source and investigate the causes of exceedance; 3. Notify EPD, IEC, ER and Contractor. 4. Check Contractor's working procedures. 5. Discuss with IEC, ER and Contractor on remedial actions required. 6. If necessary, conduct additional monitoring to assess effectiveness of Contractor's remedial actions. 7. Keep EPD, IEC and ER 'informed of the monitoring results. 8. If exceedance continues, arrange meeting with IEC and ER to review implementation and identify further appropriate mitigation measures. 9. If exceedance stops, cease additional monitoring.
Event		Limit level being exceeded exceeded

Event and Action Plan for Construction Noise

Charles Charles		Action	oo	
Event	ET	Contractor	ER	IEC
Action Level being exceeded	1. Undertake measurement to establish validity of complaint. 2. Identify source(s) of complaint. 3. Notify IEC, ER and Contractor. 4. Discuss with the IEC, ER and Contractor on remedial measures required. 5. Increase monitoring frequency to check mitigation effectiveness. 6. If excedance continues, arrange meeting with IEC and ER to review implementation and identify further appropriate mitigation measures. 7. If exceedance stops, cease additional monitoring.	Submit noise mitigation proposals to ER within three working days of notification. Amend proposal if appropriate. Implement noise mitigation proposals. Liaise with ER to optimize the effectiveness of the agreed mitigation.	Confirm receipt of notification of complaint. Notify Contractor. Check Contractor's working methods. Agree with the Contractor on the remedial measures to be implemented. Ensure proper implementation of remedial measures. Assess the efficiency of remedial actions and keep the Contractor informed. Inform complainant of actions taken.	Check Contractor's working methods. Review the proposed remedial measures by the Contractor and advise the ET accordingly.

3-4

		T	
	IEC	Check Contractor's working methods. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly.	
	ER	Confirm receipt of notification of exceedance. Notify Contractor. Check Contractor's working methods. Agree with the Contractor on the remedial measures to be implemented. Ensure proper implementation of remedial measures. Assess the efficiency of remedial actions and keep the Contractor informed.	
tion			
Action	Contractor	Take immediate action to avoid further exceedance. Submit proposals for remedial actions to ER within 3 working days of notification. Implement the agreed proposals. Liaise with ER to optimize the effectiveness of the agreed mitigation.	
	EL	1. Repeat measurement to confirm findings. 2. Identify source and investigate the cause of exceedance. 3. Inform EPD, IEC, ER and Contractor. 4. Check Contractor's working procedures. 5. Discuss with the IEC, Contractor and ER on remedial measures required. 6. Increase monitoring frequency to assess effectiveness of Contractor's mitigation actions and keep EPD, IEC and ER informed the results. 7. If exceedance continues, arrange meeting with IEC and ER to review implementation and identify further appropriate mitigation measures. 8. If exceedance stops, cease additional monitoring.	
Event		Limit Level being exceeded	



IMPLEMENTATION SCHEDULE OF THE PROPOSED MITIGATION MEASURES

EIA Dof	ENG A		Mistiantian Management	Immigration	193		Dalaman
j C C	Ref.		necolline de Minganon Measures	Agent	the Measure	wnen to implement	Legislation and Guidelines
Constructi	Construction Air Quality Impact	ality Impac	TK.				
3.10.1	2.9.2	• wa	watering of active construction works area twice a day	Contractor	Works Area	Construction	EIAO-TM
		• ski	skip hoist for material transport shall be totally enclosed by impervious sheeting			Phase	Air Pollution Control
(a)		evi me	every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving a construction site	8			(Construction Dust) Regulation
No. of the last of	770 H-007	• the see	the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point shall be paved with concrete, bituminous materials or hardcores			10	
		• wh acs hig	where a site boundary adjoins a road, streets or other accessible to the public, hoarding of not less than 2.4m high from ground level shall be provided along the entire length except for a site entrance or exit		0	,	
		• ev	every stack of more than 20 bags of cement shall be covered entirely by impervious sheeting places in an area sheltered on the top and the 3 sides			•	
		• all	all dusty materials shall be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet				
		• the	the height from which excavated materials are dropped shall be controlled to a minimum practical height to limit fugitive dust generation from unloading	9	V.		
		• stc	stockpile of excavated or dusty materials shall be covered entirely by clean impervious sheeting		V		
		the col	the load of dusty materials carried by vehicle leaving a construction site shall be covered entirely by clean				
		fo in	impervious sheeting to ensure dust materials do not leak from the vehicle				,
		• ins	instigation of an environmental monitoring and auditing				

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EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation and Guidelines
		program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise				
Construction Noise Impact	on Noise	mpact				
4.9.2-	3.8.1	Adoption of Quieter PME	Contractor	Works Area	Construction	EIAO-TM
4.9.3					Phase	Noise Control Ordinance
4.9.4	3.8.1	Use of Movable Noise Barrier	Contractor	Works Area	Construction	EIAO-TM
		5 dB(A) reduction for movable PME and 10 dB(A) for			Phase	Noise Control
		stationally riving can be achieved depending on the actual design of movable noise barrier				Ordinance
		 Barrier material of surface mass in excess of 7 kg/m² is recommended to achieve the predicted screening effect 			Þ	
4.9.5	3.8.1	Use of Noise Enclosure/Acoustic Shed	Contractor	Works Area	Construction	EIAO-TM
		 Noise Enclosure or Acoustic Shed is to cover stationary PME such as air compressor and concrete pump 			Phase	Noise Control
		With the education of the relice and an arrangement				Oldinalion
		 Will the adoption of the hoise enclosure, the PIME could be completely screened, and noise reduction of 15 dB(A) can be achieved according to the GW-TM 				
4.9.6	3.8.1	Use of Silencer	Contractor	Works Area	Construction	FIAO-TM
		Silencers are recommended to be used in fan ventilation			Phase	Noise Control
		system to attenuate noise generated during fan				Ordinance
		operation to achieve a noise reduction of 15dB(A). The				
		Contractor shall be responsible for selection of appropriate silencers for the ventilation fans.				
4.9.7	3.8.1	Use of Noise Insulating Fabric	Contractor	Works Area	Construction	EIAO-TM
		 Noise insulating fabric (the Fabric) can be adopted for certain PME (e.g. drill rig. pilling auger etc) 			Phase	Noise Control
		The Fabric should be lapped such that no opening or				
		states that by using the Fabric, a noise reduction of over 10 dB(A) can be achieved on noise level (Reference was				

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation and Guidelines
		made from Modifications to MTRC Tsim Sha Tsui Station Variation of Environmental Permit EP-113/2001/C). As an conservative approach, a noise reduction of 10 dB(A) for the PME lapped with the Fabric was assumed.				
4.6.6	3.8.1	Decking over the excavation areas at the Entrance A1 and satellite concourse	Contractor	Works Area	Construction Phase	EIAO-TM Noise Control Ordinance
4.10.8	3.8.1	Good Site Practices	Contractor	Works Area	Construction Phase	EIAO-TM Noise Control
		 Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program. 	7			Ordinance
		 Silencers or mufflers on construction equipment shall be utilised and shall be properly maintained during the construction program. 				
		 Mobile plant, if any, shall be sited as far away from NSRs as possible. 			4	
		 Machines and plant (such as trucks) that may be in intermittent use shall be shut down between works periods or shall be throttled down to a minimum. 			4.	Ý
		 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 utilised, wherever practicable, in screening noise from on-site construction activities. 				-
Operation Noise Impact	Noise Imp	bact				
Table 4.8	Table 3.4	The maximum Sound Power Levels (SWLs) for the ventilation shaft openings shall be complied with during the selection of ventilation fans and mitigation measures.	Designer	Station, ventilation shafts and E&M plant items	Design Phase	EIAO-TM

CVIL	4 6 2 2 2 2					
EIA HeT.	EM&A Ref.	Recommended Mitigation Measures	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation and
4.9.10	3.9.2	 Choose quieter plant such as those which have been effectively silenced. 	Designer /	Station,	Design /	EIAO-TM
		 Include noise levels specification when ordering new plant (including chillier and E/M equipment). 	Collitacior	shafts and E&M plant	Operational Phase	Noise Control Ordinance
		 Locate fixed plant/louver away from any NSRs as far as practicable. 				
		 Locate fixed plant in walled plant rooms or in specially designed enclosures. 		4		
		 Locate noisy machines in a basement or a completely separate building. 		4		
		 Install direct noise mitigation measures including silencers, acoustic louvers and acoustic enclosure where necessary. 				
į.		Develop and implement a regularly scheduled plant maintenance programme so that equipment is properly			ř	X
		operated and serviced in order to maintain controlled level of noise. The programme should be implemented by properly trained account.			4.	
Constructi	on Water (Construction Water Quality Impact				
5 13 2	432	Construction rimoff and aits dusing				
5	1	minimized in accordance with the guidelines stipulated in ProPECC PN 1/94 "Construction Site Drainage". The specified mitigation measures and practices in practices in the fall of the fall of the specified mitigation measures and practices in the specified mitigation measures and practices in the fall of the fall of the specified measures and practices in the fall of the specified measures and practices in the specified measures and practices and practices in the specified measures and practices and practices in the specified measures and practices are also in the specified measures and practices and practices are also in the specified measures and practices are also in the specified measurements.	Contractor	Works Area	Construction Phase	ProPECC PN 1/94 Construction Site Drainage
		Provision of perimeter drains to intercept off-site water				EIAO-TM
		around the site with internal drainage works and erosion and sedimentation control facilities implemented. These				Water Pollution
		shall be constructed in advances of site formation works and earthworks. Earth hinds or sand had barrious shall		à .		Ordinance Waste Disposal
		be provided on-site to direct storm water to silt removal				Ordinance
		radilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the				
		commencement of construction. • All drainage facilities and construction.				
		and additional land sediment control				

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation and Guidelines
		structures shall be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit shall be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are			,	×
		d by tarpa ential of				
		モランゼの				
		 Open stockpiles of construction materials (e.g. aggregates, sand and fill material) or construction wastes on-site shall be covered with tarpaulin or similar fabric during rainstorms. 				
		 Construction works shall be programmed to minimise surface excavation works during the rainy seasons (April to September). All exposed earth areas shall be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed surfaces shall be covered 			•	
		 by tarpaulin or other means. Manholes shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. 		(¢		
			x			

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation and
		rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequate designed and sited wheel washing facilities shall be provided at every construction site exit, where practicable. Wash-water shall have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road shall be payed with sufficient				
		backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. Oil interceptors shall be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors shall be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillane.				
		bypass shall be provided for the oil interceptors to prevent flushing during heaving rain. Construction solid waste, debris and rubbish on site shall be collected, handled and disposed of properly to avoid water quality impacts.				
5.13.4-	4.3.3 -	Underground Work	Contractor	Works Area	Construction	ProPECC PN 1/94 Construction
		 Underground works shall be conducted sequentially to limit the amount of construction runoff generated from exposed areas during the wet season (April to September). 				Site Drainage EIAO-TM Water Pollution
		 Uncontaminated discharge shall pass through settlement tanks prior to off-site discharge. The wastewater including surface runoff and ingressive 				Control

EIA Ref.	EM&A Ref.	EIA Ref. EM&A Recommended Mitigation Measures Ref.	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation and Guidelines
		water in underground area with a high concentration of SS shall be treated (e.g. by settlement in tanks with sufficient retention time) before discharge. Oil interceptors would also be installed to remove the oil, lubricants and grease from the wastewater.				
5.13.7	4.3.6	Sewage Effluent Temporary sanitary facilities, such as portable chemical toilets, shall be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal of waste matter and maintenance of these facilities.	Contractor	Works Area	Construction Phase	ProPECC PN 1/94 Construction Site Drainage EIAO-TM Water Pollution Control Ordinance
5.14.2	4.3.8	General Construction Site Activities Debris and rubbish generated on-site shall be collected, handled and disposed of properly to avoid being flushed or blown by wind into the drainage culvert. Stockpiles of cement and other construction materials should be kept covered when not being used. Oils and fuels shall only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents, all fuel tanks and storage areas shall be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund shall be drained of rainwater after a rain event.			*	
Waste Management 6.7.1 5.2.3	5.2.3	Good Site Practices Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	Contractor	Works Area	Construction Phase	EIAO-TM Waste Disposal Ordinance ETWB TCW No.

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation a	and
		 Training of site personnel in proper waste management and chemical waste handling procedures. 				Sallies	1
		 Provision of sufficient waste disposal points and regular collection for disposal. 					
		 Appropriate measures to minimise 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. 					
		 A Waste Management Plan should be prepared and submitted to the Engineer for approval. One may make reference to ETWB TCW No. 19/2005 for details. 	*		de .		
		 A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. 					
6.7.2	5.2.4	In order to monitor the disposal of C&D materials at public fill reception facilities, as appropriate, and to control fly tipping, a trip-ticket system should be included as one of the contractual requirements.					
6.7.3	5.2.5	Waste Reduction Measures	Contractor	Works Area	Construction	EIAO-TM	
		 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. 			Phase		
		 Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force. 		à			
		 Any unused chemicals or those with remaining functional capacity shall be recycled. 					
		 Proper storage and site practices to minimise the potential for damage or contamination of construction materials. 		,			9

EIA Ref.	EM&A Ref.	Recommended Mitigation Measures	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation and Guidelines
	-	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.			7	
6.7.6 & 6.7.7	5.2.7 -	Construction and Demolition Material	Contractor	Works Area	Construction	ETWB TCW No.
		Within stockpile areas, the following measures shall be taken to control potential environmental impacts or nuisance:				ETWB TCW No.
		 covering stockpile of C&D material entirely by clean impervious sheet to reduce potential dust impact. 				
		 locating stockpiles to minimise potential visual impacts. 				
		 minimizing land intake of stockpile areas as far as possible. 				
		When disposing C&D material at a public fill reception				
		facility, the material shall only consist of soil, rock, concrete, brick, cement plaster/mortar, inert building	¥			
	41	debris, aggregates and asphalt.				
		 The material shall be free from marine mud, household 			*	
		plastic, metals, industrial and c				ugana a k
		considered to be unsuitable by the Filling Supervisor.				
6.7.8	5.2.9	Chemical Wastes	Contractor	Works Area	Construction	EIAO-TM
		After use, chemical wastes (for example, cleaning fluids,			- Idod	(Chemical Waste)
		solvents, lubrication oil and fuel) should be handled				(General)
	i	Labelling and Storage of Chemical Wastes.				Hegulation
		· Spent chemicals should be collected by a licensed		is in		
		collector for disposal at the CWTC or other licensed facility.				
6.7.9	5.2.10	1	Contractor	Works Area	Construction	Public Health and
		 General refuse snall be stored in enclosed bins or compaction units separate from C&D material. 			Phase	Municipal Services
		A licensed waste collector shall be employed by the				
				A CONTRACTOR OF THE PROPERTY O		

	Ref.	necollillended Miligation Measures	Implementation Agent	Location of the Measure	When to implement	Relevant Legislation and
	/	contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area shall be provided to reduce the occurrence of 'wind blown' light material.				Guidelines
Landscape	Landscape and Visual Impact	al Impact				N.
Table 7.5	6.3.1	CM1: Existing traps including OVTs to be set in the set of th				
		maintained on site should be carefully protected during construction. Encroachment of any works close to the drip line of OVTs should be avoided.	Contractor	Works Area	Construction Phase	EIAO-TM
		CM2: Trees of high amenity and survival rate after				
		should be transplanted when should be transplanted when				
The state of		CM3: Control of night – time lighting.				
		CM4: Erection of decorative screen hoarding compatible				
Table 7.6	63.1	OM1. Acathotic designation of the control of the co				
	- :	building bulk and adoption of transparent materials and	Contractor	Works Area	Operation	EIAO-TM
		Emergency Exit			Phase	
		OM2: Reinstatement of Entrance to Kowloon Park OM3: Planting of 4 nos. of Delonix renia or energies as	1			
		agreed with LCSD along Haiphong Road				
Built Heritage Impact	ge Impact			4 to (1) do		
8.7.4	7.1.1	Temporary removal of the two granite columns (east of brick wall of modern extension of Block S4) and will be	Contractor	Works Area	Construction	EIAO-TM
		stored securely during construction period, and reinstated back to its original location after completion of			Phase	
		works.		3		
8.8.1	7.2.1 – 7.2.4	Precautions shall be taken throughout the construction stage to prevent any damage to the historical building	Contractor	Works Area	Construction	EIAO-TM:
		Structural monitoring system, including preconstruction			Phase	Building
		Survey shall be designed and implemented by a				Ordinance
		ance.				
		Consult AMO on any other mitigation measures that		X		

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IA Ref.	EM&A Ref.	EIA Ref. EM&A Recommended Mitigation Measures Ref.	Implementation Location of When to Relevant Agent the Measure implement Legislation	Location of When to Relevant the Measure implement Legislation	When to implement	Relevant Legislation and
		المرابع المراب		ш	i v	Guidelines
		would be required administratively of under Antiquities				
		and Monuments Ordinance. Implement these				
		requirements from AMO during the construction period.				
		 use of sensibly designed hoardings to minimize the 				
		temporary visual impact during construction phase				

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Appendix E

Calibration Details

ANDERSEN INSTRUMENTS INC.

G5231	o Senes	Sampier	Calibration
	(Dickso	n Record	der)

	(Dicksoff Recorder)							
	Customer ->	> MTRC		SITE	Certificate ->	20140301		
Location -> TNS				Date -> 8-Mar-14				
Sampler -> 1294-1096				Tech -> Chan Kin Fung				
CONDITIONS								
Se	a Level Pressure	(hpa)	1018,8		Sampler Eleva	ation (feet)	50	
Se	a Level Pressure	(in Hg)	30.09		Corrected Pres	ssure (mm Hg)	762,84	
Te	emperature	(deg C)	16.2		Temperature	(deg K)	289.20	
Se	asonal SL Pressure	(in Hg)	30.09		Corrected Sea	sonal (mm Hg)	762.84	
Se	asonal Temperature	(deg C)	16.20		Seasonal Tem	perature(deg K)	289.20	
•••••			CALIBR	RATION (ORIFICE			
	Make ->	Anderse	n Instruments	Inc.		Qstd Slope ->	2,0075	
	Model ->	G25A				Qstd Intercept ->	-0.038138	
	Serial# ->	157N				Date Certified ->		
CALIBRATION								
	Plate or	H_2O	Qstd	I	IC	LINEAR		
	Test#	(in)	(M³/min)	(chart)	(corrected)	REGRESSION		
••••	1 18	12.8	1,831	61	62,037	Slope =	33,1656	
	2 13	10.2	1.637	56	56,952	Intercept =	2.2195	
	3 10	7.9	1.443	50	50,850	Corr. Coeff. =	0.9977	
	4 7	5.2	1.174	41	41.697			
	5 5	3.3	0.939	32	32,544			
••••	Calculations							

Calculations

Qstd = 1/m [Sqrt (H₂O (Pa/Pstd) (Tstd/Ta)) - b]

IC = I [Sqrt (Pa/Pstd) (Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart response

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pa = actual pressure during calibration (mm Hg)

Tstd = 298 deg K

Pstd = 760 mm Hg

For subsequent calculation of sampler flow:

1/m ((I) [Sqrt (298/Tav) (Pav/760)] - b)

m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

This is to certify that the above equipment has been calibrated in accordance with manufacturer's procedure.





CALIBRATION CERTIFICATE

Certificate Information

Date of Issue 14th December, 2012 Certificate Number

MLCN121428S

Customer Information

Company Name Address

MTR Corporation Limited 8/F, Fo Tan Railway House, No.9 Lok King Street,

Fo Tan, N.T. Hong Kong

Unit Under Test (UUT)

Description

Integrating Sound Level Meter

Manufacturer Model Number Brüel & Kjær 2238

Serial Number Equipment Number 2456919

Calibration Result

- * All calibration results were within IEC 60651 Type 1 specification.
- * Calibration data are detailed on the attached sheet(s).

Approved By

Laboratory Manager

- Calibration equipment used for this calibration are traceable to national / international standards.

 The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the UUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement. MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the UUT. The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited.

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CALIBRATION CERTIFICATE

Certificate Information

Date of Issue 14th December, 2012 Certificate Number MLCN121428S

Calibration Status 14th December, 2012 Date of Calibration Calibration Equipment Used 4231 (MLTE008)/ DC120076/ 29th Mar 2014 Calibration Procedure MLCG00 & MLCG15. Calibration Uncertainty ±0.2 dB Calibration Condition Lab Temperature 23 °C ± 5 °C 55% ± 25% Over 3 hours Relative Humidity Stabilizing Time Warm-up Time Supply Voltage UUT 10 minutes Internal battery

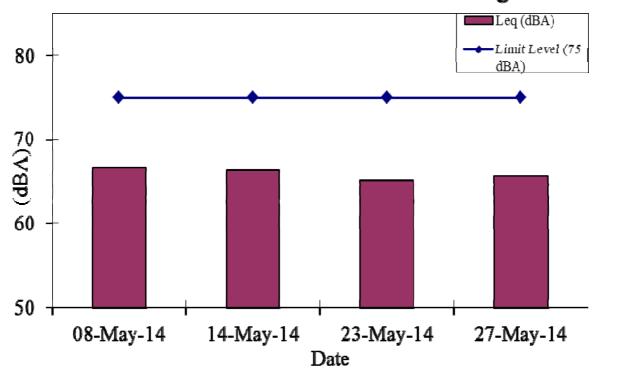
UUT Setting										
Detector	Frequency Wt.	Time Wt.	Range (dB)	UUT Rdg		Std Rdg		UUT Error		UUT Error Limit
RMS	A (1 kHz Input)	F	20 - 100	93.9	dB	94	dB	-0.1	dB	0.7 dE
		S		93.9	dB	94	dB	-0.1	dB	0.7 dE
		I		93.9	dB	94	dB	-0.1	dB	0.7 dE
	C (1 kHz Input)	F	20 - 100	93.9	dB	94	dB	-0.1	dB	0.7 dB
		S		93.9	dB	94	dB	-0.1	dB	0.7 dB
		1		93.9	dB	94	dB	-0.1	dB	0.7 dB
	L	F	20 - 100	93.9	dB	94	dB	-0.1	dB	0.7 dB
	(1 kHz Input)	S		93.9	dB	94	dB	-0.1	dB	0.7 dB
		I		93.9	dB	94	dB	-0.1	dB	0.7 dB
	A	F	40 - 120	113.8	dB	114	dB	-0.2	dB	0.7 dB
	(1 kHz Input)	S		113.9	dB	114	dB	-0.1	dB	0.7 dB
		I		113.9	dB	114	dB	-0.1	dB	0.7 dB
	С	F	40 - 120	113.8	dB	114	dB	-0.2	dB	0.7 dB
	(1 kHz Input)	S		113.8	dB	114	dB	-0.2	dB	0.7 dB
		I		113.8	dB	114	dB	-0.2	dB	0.7 dB
	L	F	40 - 120	113.8	dB	114	dB	-0.2	dB	0.7 dB
	(1 kHz Input)	S		113.8	dB	114	dB	-0.2	dB	0.7 dB
		I		113.8	dB	114	dB	-0.2	dB	0.7 dB

Appendix F

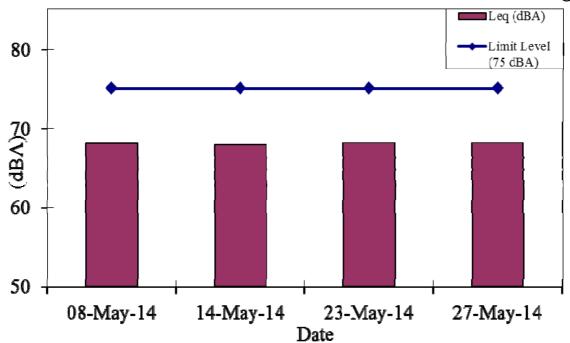
Impact Monitoring Graphical Plots

TNS 24 Hrs TSP Level at D1 Site Boundary at Hai ■TSP Phong Road (ug/m3) 300 250 24Hrs TSP (ug/m3) 200 150 100 50 0 13-May-14 Date 08-May-14 27-May-14 20-May-14

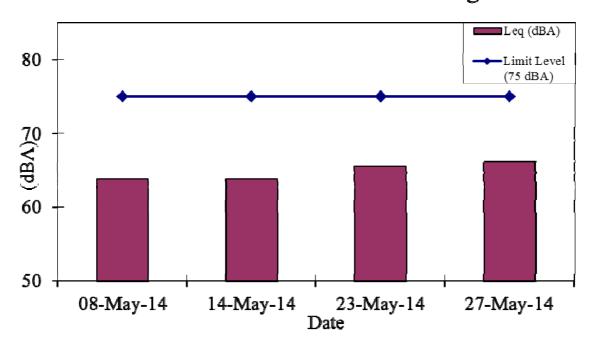
Noise Level at M1 Hai Phong Mansion



Noise Level at M2 Comfort Building



Noise Level at M3 Burlington Arcade



Appendix G

Monitoring Schedule for the Present and Next Reporting Period

Dust Monitoring Schedule for April 2014							
Dust	Noise						
D1	M1	M2	M3				
7 May 2014	8 May 2014	8 May 2014	8 May 2014				
13 May 2014	14 May 2014	14 May 2014	14 May 2014				
20 May 2014	23 May 2014	23 May 2014	23 May 2014				
27 May 2014	27 May 2014	27 May 2014	27 May 2014				

Dust Monitoring Schedule for April 2014								
Dust	Noise							
D1	M1	M2	M3					
3 June 2014	4 June 2014	4 June 2014	4 June 2014					
10 June 2014	11 June 2014	11 June 2014	11 June 2014					
17 June 2014	18 June 2014	18 June 2014	18 June 2014					
24 June 2014	25 June 2014	25 June 2014	25 June 2014					

Remarks:

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