



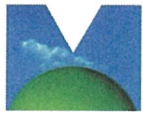
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Maeda Corporation

MTRCL Contract C3840-13C

Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

QUARTERLY EM&A REPORT (September to November 2016)



MAEDA

Maeda Corporation

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Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works

QUARTERLY EM&A REPORT (September to November 2016)

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Report No EB001340R00462

Date 21 February 2017

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By Email and Post

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Attn.: Mr. Kenneth Chow / Environmental Engineer II

3 March 2017

Dear Sirs

**Consultancy Agreement A130-13
Independent Environmental Checker for CRS and LTS
CRS - Verification for 11th Quarterly Environmental Monitoring and Audit (EM&A) Report
(September 2016 to November 2016) (Report No.: EB001340R00462)**

We refer to the 11th Quarterly EM&A Report (September to November 2016) received under cover of the email from the Environmental Team, Arcadis Design & Engineering Limited, dated on 1 March 2017.

We have no comment and have verified the captioned report (Report No.: EB001340R00462).

Should you have any queries, please feel free to contact the undersigned at 3922 9366.

Yours faithfully
AECOM Consulting Services Ltd



Y. W. Fung
Independent Environmental Checker

LLMC/wwsc

cc Arcadis Design & Engineering Limited
Maeda Corporation

(Attn.: Mr. F. N. Wong) via email
(Attn.: Ms. Cecilia Lee) via email

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EXECUTIVE SUMMARY

Breaches of Action and Limit Levels

- ES01 No Notice of Exceedance (NOE) and the associated investigation and follow-up actions were required as the environmental monitoring results registered no exceedances of Action/ Limit Levels of air quality and construction noise during the Reporting Period.
- ES02 No corrective actions were required as the site inspection and environmental audit during the Reporting Period recorded no deficiencies, non-compliance or adverse environmental impacts within the site of the Project and on the sensitive receivers environed with the site;

Environmental Complaints

- ES03 No environmental complaint was recorded during the Reporting Period.

Notification of Summons & Successful Prosecutions

- ES04 No notification of summons and successful prosecutions were recorded during the Reporting Period.

Reporting Changes

- ES05 No major reporting changes were made during the Reporting Period.

Future Key Issues

General

- ES06 Full implementation of the environmental mitigation measures, which are required in the EM&A Plan and summarized in Implementation Schedule, are recommended. Whenever necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.

Construction Noise

- ES07 Particular attention should be paid to construction noise mitigation measures, especially during piling works during the coming construction period to ensure full compliance with statutory and non-statutory requirements and guidelines. Proactive review of working methods, careful selection and arrangement of the noisy equipment as well as effective noise mitigation measures are strongly recommended.

Water Quality

- ES08 In addition, compliance with water quality mitigation measures remains one of the key environmental issues within the construction period, especially when water usage is high.

Air quality

- ES09 Furthermore, implying of construction dust suppression measures are recommended during dusty activities under dry and windy conditions.
- ES10 Construction dust suppression measures including decking over the excavation areas, watering of exposed site surface and covering of all excavated and stockpiles of dusty material by impervious sheeting or similar materials are reminded.

1 INTRODUCTION

1.1 Project Background

- 1.1.1 In order to improve the appearance of Carnarvon Road Entrance D1 and D2 of Tsim Sha Tsui (hereafter referred as 'TST') Station and to provide a more comfortable walking environment nearby, MTR Corporation Limited (hereafter referred as 'MTRC' or 'the Corporation') has commissioned Maeda Corporation (hereinafter referred as 'MC') the contract ***MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works*** (hereafter referred as 'the Project'). The Project is proposed to rebuild the existing Entrance D1 and D2 and construct a new Entrance D3 at the basement B2 level of the K11 Art Mall to connect to the TST station by a subway, which extends from the Entrance D1 and D2 and runs approximately 80m along Carnarvon Road and across the Bristol Avenue to the Entrance D3. The project was commenced in March 2014 and is anticipated to be completed in September 2017.
- 1.1.2 The existing TST Station had been in operation before the Environmental Impact Assessment Ordinance (hereafter referred as 'EIAO') came into effect on 1 April 1998. It constitutes an exempted Designated Project (hereinafter referred as 'DP') according to Section 9(2) (g) of the EIAO (Cap. 499). As the Project involves a material change to an exempted DP which may have potential environmental impacts, an environmental permit is required prior to the commencement of the modification works. The Project Profile has been developed to provide information for direct application of an environmental permit. The EP has been granted since 18 July 2012, where the Project Profile and the associated EM&A Plan are registered.
- 1.1.3 Site map, works area and locations of the environmental monitoring under the Project are illustrated in Figure 1.1 Site Location Plan of ***Appendix A***.
- 1.1.4 Management structure of the Project, including organization chart, lines of communication and contact names and telephone numbers of key personnel, is demonstrated in ***Appendix B***.
- 1.1.5 Construction programme is shown in ***Appendix C***, whereas implementation schedule for the recommended environmental mitigation measures (hereinafter referred as 'the Implementation Schedule') is summarized in ***Appendix D***, which fine tunes construction activities and shows inter-relationship with environmental protection / mitigation measures for the construction period.
- 1.1.6 This is the 11th quarterly EM&A report (hereinafter referred as 'This Report') covering construction period from 1st September to 30th November 2016 (hereinafter referred as 'the Reporting Period').
- 1.1.7 This Report has been written in accordance with the Environmental Monitoring and Audit Plan (hereinafter referred as 'the EM&A Plan') enclosed in the Project Profile – MTR Tsim Sha Tsui Station Carnarvon Road Subway and Entrances Modification Works, which is registered in the Environmental Permit No. EP-440/2012 (hereinafter referred as 'the EP') (Register No.: PP-462/2012).

1.2 Environmental Status

- 1.2.1 As required in the EP, AECOM Consulting Services Limited (formerly known as "URS Hong Kong Limited") has been appointed as the Independent Environmental Checker under the Project (hereinafter referred as 'the IEC'), whereas Arcadis Design & Engineering Limited (hereinafter referred as 'Arcadis') (formerly Hyder Consulting Limited) has been appointed as the Environmental Team under the Project (hereinafter referred as 'the ET').
- 1.2.2 According to the EP Condition 3.2 (a) under Environmental Monitoring and Audit (EM&A) during the Construction Period, baseline monitoring has been completed and the required Baseline Monitoring Report has been submitted to EPD on 14 February 2014 prior to commencement of the works under the Project.
- 1.2.3 Status of relevant environmental permits, licences, and/or notifications on environmental protection for the Project is summarized in ***Table 1-3-1***. They are detailed in ***Appendix E***.

Table 1-3-1 Summary of Status of Environmental Licenses and Permits

Item	Description	License/Permit Status
1	Air Pollution Control (Construction Dust)	Notification Ref. 403252 dated 02 Jun 2016 has superseded Notification Ref. 365953 acknowledged on 21 Oct 2013.
2	Water Pollution Control Ordinance (Discharge License)	The discharge license Ref No. WT0019722-2014 granted on 01 Sep 2014 has superseded the discharge license Ref No. WT00018229-2014.
3	Billing Account for Disposal of Construction Waste	A/C Ref. 7018523 granted on 25 Oct 2013
4	Chemical Waste Producer Registration	Registration Ref. 5213-2214-M2446-16 granted on 4 Mar 2014
5	Construction Noise Permit	CNP No. GW-RE0804-16 approved on 4 August 2016 for operation of 4 submersible water pumps (electric) from 15 August 2016 to 14 February 2017.

1.3 Construction Activities

1.3.1 Construction activities undertaken during the Reporting Period are summarized in **Table 1-4-1**:

Table 1-4-1 Construction Activities Undertaken during the Reporting Period

Item	Description
1	Excavation for UU identification and support tailoring at G1-6
2	Excavation of the mined tunnel
3	Horizontal pipe piling and grouting of the mined tunnel
4	Vertical pipe piling and grouting of the C&C tunnel (stage II)
5	Demolition of the existing subway
6	Demolition the top slab of existing subway
7	Demolition of the underground section of entrance D2
8	Realignment of the hoarding at south side
9	Water inflow test of the mined tunnel
10	Portal frame and steel rib installation for the mined tunnel
11	Erection framework for vertical blinding
12	Water pumping test for C&C tunnel
13	Installation of strut and waling for C&C tunnel

2 EM&A REQUIREMENTS

2.1 Air Quality

2.1.1 Monitoring of 24-Hour Total Suspended Particulates (hereinafter referred as '24-Hr TSP') is required to be conducted on a weekly basis during construction period of the Project.

2.1.2 Monitoring of 1-Hour Total Suspended Particulates (hereinafter referred as '1-Hr TSP') is required to be conducted on a weekly basis when exceedances of 24-Hr TSP were recorded, following the Event and Action Plan presented in **Appendix F**.

Action and Limit Levels

2.1.3 The Action and Limit levels (hereinafter referred as 'the A/L Levels) at K11 have been established in the Baseline Monitoring Report in accordance with the derivation criteria specified in Section 3.7 of the EM&A Plan, which are summarized in **Table 2-1-1** as follows:

Table 2-1-1 Derivation of Action and Limit Levels for Air Quality at K11, $\mu\text{g}/\text{m}^3$

Parameter	Action Level	Limit Level
24-Hr TSP	For baseline level $\leq 200 \mu\text{g}/\text{m}^3$, Action level = (130% of baseline level + Limit level)/2	260
	For baseline level $> 200 \mu\text{g}/\text{m}^3$, Action level = Limit level	
1-Hr TSP	For baseline level $\leq 384 \mu\text{g}/\text{m}^3$, Action level = (130% of baseline level + Limit level)/2	500
	For baseline level $> 384 \mu\text{g}/\text{m}^3$, Action level = Limit level	

2.1.4 The established A/L Levels for 24-Hr and 1-Hr TSP are summarized in Table 2-1-2 as follows:

Table 2-1-2 Action & Limit Levels for Air Quality at K11, $\mu\text{g}/\text{m}^3$

Parameter	Action Level	Limit Level
24-Hr TSP	222	260
1-Hr TSP	373	500

Event and Action Plan

2.1.5 In case exceedances of Action and/or Limit levels for air quality occur, Event and Action Plan for Air Quality enclosed in Appendix F will be implemented.

Environmental Mitigation Measures for Air Quality

2.1.6 Although most of the construction works would be carried out underground, appropriate dust mitigation measures as stipulated in the EP, Project Profile, related environmental regulation including Air Pollution Control (Construction Dust) Regulation as well as those recommended in the Implementation Schedule should be implemented to control fugitive dust emission. The following key dust suppression measures are recommended:

- a) Decking over the excavation areas;
- b) Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather;
- c) Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers;
- d) Cover all excavated or stockpiles of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet;
- e) Provision of vehicle washing facilities at the exit points of the site; and

2.1.7 Provision of tarpaulin covering for any dusty materials on a vehicle leaving the site. Details of the implementation schedule for the required environmental mitigation measures are presented in **Appendix D**.

2.2 Construction Noise

Monitoring Parameters and Frequency

2.2.1 **Table 2-2-1** summarizes the monitoring parameters and frequency for construction noise.

Table 2-2-1 Noise Monitoring Parameters and Frequency

<u>Parameters</u>	<u>Frequency</u>
Leq in 30 minutes	Once a week

Action and Limit Levels

2.2.2 The Action and Limit levels (hereinafter referred as 'the A/L Levels) at K11 have been established in the Baseline Monitoring Report. They are summarized in Table 2-2-2 as follows:

Table 2-2-2 Action and Limit Levels for Construction Noise

<u>Time Period</u>	<u>Action Level</u>	<u>Limit Level</u>
0700-1900 hours on normal weekdays	When one valid documented complaint is received.	75

Event and Action Plan

2.2.3 In case exceedances of Action and/or Limit levels for construction noise occur, the Event and Action Plan enclosed in **Appendix F** will be implemented.

Mitigation Measures for Construction Noise

2.2.5 Although no residual noise impact would be generated after the proposed mitigation measures are in place, the general construction noise control measures stipulated in the EP, Project Profile as well as those recommended in the Implementation Schedule should be fully implemented in order to minimize noise impacts during the construction phase. They are summarized as follows:

- a) The Code of Practice on Good Management Practice to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted;
- a) The statutory and non-statutory requirements and guidelines shall be complied with;
- b) Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work;
- c) Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training;
- d) Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical;

- e) Unused equipment shall be turned off;
- f) PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;
- g) All plant and equipment shall be maintained regularly;
- h) Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable; and
- i) Enclosure of Entrance D2 with acoustic mat during demolition.

2.2.4 Details of the implementation schedule for the mitigation measures are presented in **Appendix D**.

2.3 Monitoring Schedules

2.3.1 Monitoring schedules for 24-Hr TSP and construction noise for the Reporting Period and the next Reporting Period are prepared and submitted to MTRC, IEC and MC prior to implementation via e-mail and/ or facsimile for ease of necessary inspection. Where amendment is necessary under ad hoc conditions, including actual and broadcast adverse weather, accidental instrument failures, etc., advanced notification is given at least 24 hours prior to implementation or as practical as possible.

3 MONITORING RESULTS

3.1 Air Quality

Monitoring Results

- 3.1.1 24-Hr TSP monitoring during the Reporting Period was conducted following the agreed monitoring schedule.
- 3.1.2 24-Hr TSP results of the Reporting Period are summarized in the following **Table 3-1-1**. Graphical plots of the parameter are illustrated in **Appendix H**.

Table 3-1-1 Summary of 24-Hr TSP Monitoring Results, µg/m³

Monitoring Date	24-Hr TSP	A/L Levels	
5-Sep-16	32.9		
12-Sep-16	31.7		
19-Sep-16	46.0		
26-Sep-16	145.2		
3-Oct-16	37.1		
11-Oct-16	34.1		
17-Oct-16	41.7	Action Level: 222	Limit Level: 260
24-Oct-16	31.0		
01-Nov-16	77.2		
07-Nov-16	67.2		
14-Nov-16	97.6		
21-Nov-16	39.0		
28-Nov-16	62.2		
Mean (Min – Max)		57.1 (31.0 – 145.2)	

Discussion

- 3.1.3 **Table 3-1-1** demonstrates that all 24-Hr TSP results of the Reporting Period were fluctuated below the A/L Level, there were no Action Level or Limit Level exceedances recorded during the Reporting Period.
- 3.1.4 No Notice of Exceedances (thereinafter referred as 'NOE') and the associated NOE Investigation and remedial actions were required during the Reporting Period.

3.2 Construction Noise

Monitoring Results

- 3.2.1 Construction noise monitoring during the Reporting Period was conducted following the agreed monitoring schedule.
- 3.2.2 Construction noise monitoring results of the Reporting Period are summarized in the following **Table 3-2-1**. Graphical plots of the parameter are illustrated in **Appendix H**.
- 3.2.3 Weather condition, including wind speeds and directions, during the monitoring period are recorded and shown in **Appendix G**.

Table 3-2-1 Summary of Construction Noise Monitoring Results at K11, dB(A)

Monitoring Date	Leq (30 min)	A/L Levels
6-Sep-16	73.4	Action Level: Any documented complaint against construction noise.
13-Sep-16	67.9	
20-Sep-16	72.1	
27-Sep-16	67.2	
4-Oct-16	67.9	Limit Level: 75 dB(A)
11-Oct-16	70.6	
20-Oct-16	72.9	
25-Oct-16	71.2	
01-Nov-16	68.8	
08-Nov-16	68.7	
15-Nov-16	70.5	
22-Nov-16	69.8	
29-Nov-16	73.2	
Mean (Min – Max)	70.8 (67.2 – 73.4)	

Discussion

- 3.2.4 No environmental complaint against construction noise was registered during the Reporting Period, whereas **Table 3-2-1** demonstrates that all construction noise results of the Reporting Period fell below the Limit Level of the parameter.
- 3.2.5 Neither NOE nor NOE investigation and the associated remedial actions were required during the Reporting Period.
- 3.2.6 The Contractor was reminded to pay extra attention to noisy construction activities within the Reporting Month and the coming month. The ET will liaise closely with the Contractor on any unusual level of noise recorded in the upcoming month.
- 3.2.7 It is re-instated that adequate mitigation measures should be implemented during the noisy construction activities in order to alleviate noise nuisance generated from the Project related construction activities.

Weather Conditions

- 3.2.8 No weather conditions and any other factors were identified to have significant effects on the monitoring results of air quality and construction noise during the Reporting Period.
- 3.2.9 Weather information during the Reporting Period which is extracted from Hong Kong Observatory King's Park Weather Station is enclosed for reference in Appendix G.

3.3 Conclusions and Recommendations

Conclusions

- 3.3.1 No exceedances of A/L Levels of air quality and no exceedances of Action Level of construction noise were registered during the Reporting Period.
- 3.3.2 No air quality related complaint was recorded during the Reporting Period.

Recommendations

- 3.3.3 Full implementation of the environmental mitigation measures, which are required in the EM&A Plan and summarized in Implementation Schedule of Appendix D, is recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.
- 3.3.4 Construction dust shall be suppressed during dusty construction activities under dry and windy conditions.
- 3.3.5 Construction noise shall be eliminated to avoid adverse impacts on the nearby sensitive receivers.

4 ENVIRONMENTAL AUDIT

4.1 Site Inspection

- 4.1.1 Weekly site inspections during the Reporting Period are conducted by MTRC, MC and ET, whereas monthly site inspections of the Reporting Period were jointly conducted by the IEC, MTRC, MC and ET. The site inspection follows strictly the agreed Site Inspection Checklist, which covers all the site audit requirements stipulated in the EM&A Plan, PS and all relevant environmental laws.
- 4.1.2 The completed Site Inspection Checklists are distributed to all relevant parties upon completion of the site inspection for agreement and signature of the relevant parties and, where appropriate, for implementation of the recommended corrected actions to promptly rectify the situation.
- 4.1.3 There were 13 site inspections conducted within the Reporting Period. Deficiencies or findings of the site audits and the associated follow up actions are summarized in **Table 4-1-1**:
- 4.1.4 As shown in **Table 4-1-1**, no deficiencies or non-compliance of environmental mitigation measures or adverse environmental impacts were observed during the Reporting Period.

Table 4-1-1 Summary of Findings and Follow-Up Actions of the Site Inspection

Date	Deficiencies or findings	Follow-Up Action
6 Sep 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
13 Sep 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
20 Sep 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
27 Sep 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
4 Oct 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
11 Oct 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
18 Oct 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
25 Oct 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
1 Nov 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
8 Nov 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
15 Nov 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
22 Nov 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.
29 Nov 2016	No follow-up item.	Not required.
	No deficiency was observed on site.	Not required.

4.2 Compliance with Legal/ Contractual Requirements

- 4.2.1 Construction activities under the Project must comply with all environmental protection and pollution control laws in Hong Kong, as well as the contractual requirements of the Project. **Table 4-2-1** summarizes breaches of legal and contractual requirements.

Table 4-2-1 Summary of Breaches of Legal and Contractual Requirements

Month	No. of Breaches	Cumulative no. of Breaches
Sep 2016	0	0
Oct 2016	0	0
Nov 2016	0	0

4.3 Environmental Complaints

- 4.3.1 Environmental complaints are handled following closely the flow chart of complaint response procedure which is enclosed in **Appendix I**.
- 4.3.2 No complaint was received during the Reporting Period.
- 4.3.3 Environmental complaints registered during the Reporting Period and cumulative statistics of environmental complaints are summarized in **Table 4-3-1** below:

Table 4-3-1 Summary of Complaint

Month	No. of Complaint	Cumulative no. from March 2014 to the Reporting Period
Sep 2016	0	5
Oct 2016	0	5
Nov 2016	0	5

4.4 Notification of Summons/Successful Prosecutions

- 4.4.1 Notification of summons and successful prosecutions registered during the Reporting Period are summarized in **Table 4-4-1** below:

Table 4-4-1 Summary of Summon and Successful Prosecutions

Month	Number of Issue	Cumulative no. from March 2014 to the Reporting Period
Sep 2016	0	0
Oct 2016	0	0
Nov 2016	0	0

5 WASTE MANAGEMENT

5.1 Waste Management

- 5.1.1 Despite small scale of the Project and the amount of C&D material that needs to be hauled off site and disposed of is anticipated not to be significant, 3-R waste management i.e. Reduce, Reuse and Recycle, is adopted in order to minimize adverse environmental impacts to be generated from construction of the Project.
- 5.1.2 Waste management under the Project is performed in accordance with the Waste Management Plan, which has been prepared for implementation of the construction waste mitigation measures in compliance with the requirements stipulated in the EM&A Plan, PS, Waste Disposal Ordinance and the associated subsidiary regulations.

5.2 Waste Management Record

- 5.2.1 Updated waste management status is detailed in **Appendix J**, where the 3-R status of the construction waste generated from construction of the Project during the Reporting Period is presented.

6 FUTURE ENVIRONMENTAL ISSUES

6.1 Key Environmental Issues

- 6.1.1 Future key environmental issues include:
- 1) Air quality in particular construction dust during dusty construction activities on site, e.g. demolition of the Entrance D2 and excavation works, under dry and windy conditions;
 - 2) Construction noise during noisy activities; and
 - 3) Site surface water run-off and construction wastewater discharge.

6.2 Mitigation Measures

- 6.2.1 To avoid potential adverse environmental impacts of the future key environmental issues stated above, full implementation of the mitigation measures as stipulated in the Implementation Schedule shown in **Appendix D** is required.
- 6.2.2 Mitigation measures for air quality, construction noise and water quality implemented to date shall be properly maintained.
- 6.2.3 Where appropriate, improvement of the implemented mitigation measures is reminded to ensure effectiveness of the mitigation measures.

7 COMMENTS AND RECOMMENDATIONS

7.1 Conclusion

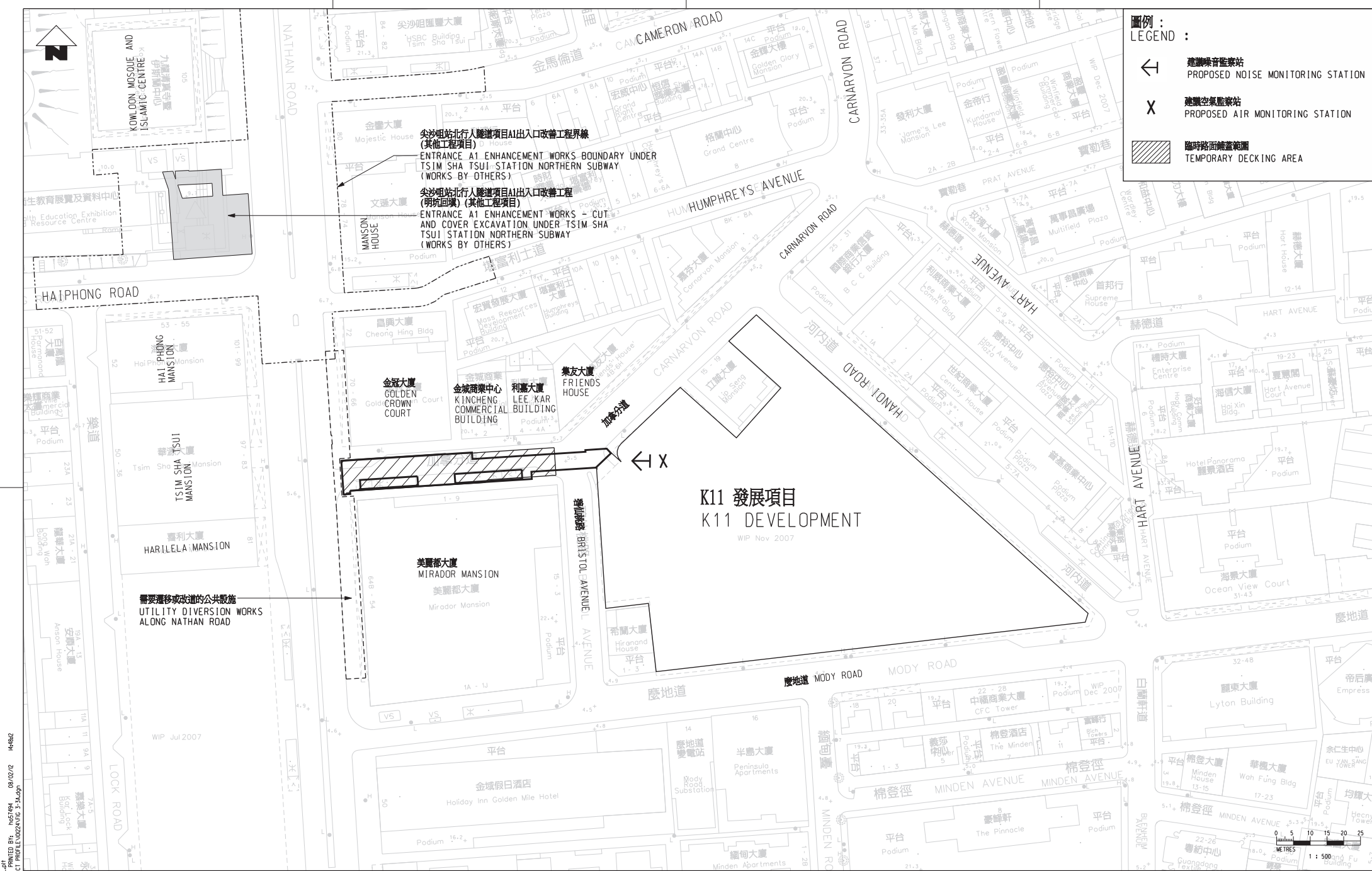
- 7.1.1 Neither NOE & the associated NOE investigation nor follow-up actions were required as the environmental monitoring results registered no exceedances of A/L Levels of air quality and construction noise during the Reporting Period.
- 7.1.2 In addition, no remedial actions were required as no notification of summons and successful prosecutions were reported during the Reporting Period.

7.2 Recommendations

- 7.2.1 Full implementation of the environmental mitigation measures stipulated in the EM&A Plan and summarized in **Implementation Schedule** of **Appendix D**, are recommended. Where necessary, proper maintenance and improvement of the implemented mitigation measures are reminded.
- 7.2.2 As noisy construction activities such as piling works were being conducted during the Reporting Period, adequate mitigation measures should be implemented in order to alleviate noise nuisance.
- 7.2.3 In addition, suppression of construction dust is required during dusty construction activities, especially under the upcoming dry season.
- 7.2.4 Furthermore, monitoring of site water runoff is reminded to prevent any direct water discharge off site, especially when water usage is high during the construction period. When necessary, the Contractor is reminded to apply additional precautionary measures to prevent any possible environmental deficiency.

Appendix A

Site Location Plan



圖例：
LEGEND :

- ← 建議噪音監察站
PROPOSED NOISE MONITORING STATION
- X 建議空氣監察站
PROPOSED AIR MONITORING STATION
- ▨ 臨時路面鋪蓋範圍
TEMPORARY DECKING AREA

尖沙咀站北行人隧道項目A1出入口改善工程界線
(其他工程項目)
ENTRANCE A1 ENHANCEMENT WORKS BOUNDARY UNDER
TSM SHA TSUI STATION NORTHERN SUBWAY
(WORKS BY OTHERS)

尖沙咀站北行人隧道項目A1出入口改善工程
(明坑回城) (其他工程項目)
ENTRANCE A1 ENHANCEMENT WORKS - CUT
AND COVER EXCAVATION UNDER TSM SHA
TSUI STATION NORTHERN SUBWAY
(WORKS BY OTHERS)

需要遷移或改道的公共設施
UTILITY DIVERSION WORKS
ALONG NATHAN ROAD

K11 發展項目
K11 DEVELOPMENT
WIP Nov 2007

G:\MTR_A3.BW.COL.dwg 6/15/2007 14:46:02 44682
 PLOT 10/11/07
 FILENAME: A3270984-KV-PROJECT_PROFILE-02245103_3-1.dwg

REV	DESCRIPTION	BY	DATE	APPROVED	REV	DESCRIPTION	BY	DATE	APPROVED
A	PROJECT PROFILE				HO				

DRAWN	HO
DESIGNED	--
CHECKED	--
APPROVED	--
DATE	--

MTR

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CADD REF.

TITLE

CONSULTANCY AGREEMENT NO. NEX/1049
DETAILED DESIGN FOR CARNARVON ROAD SUBWAY
AIR AND NOISE MONITORING LOCATIONS
空氣及噪音監察站位置圖

SCALE: 1:500 (A1)

DRAWING NO. **APPENDIX B**

REV. **A**



APPENDIX B

MANAGEMENT STRUCTURE

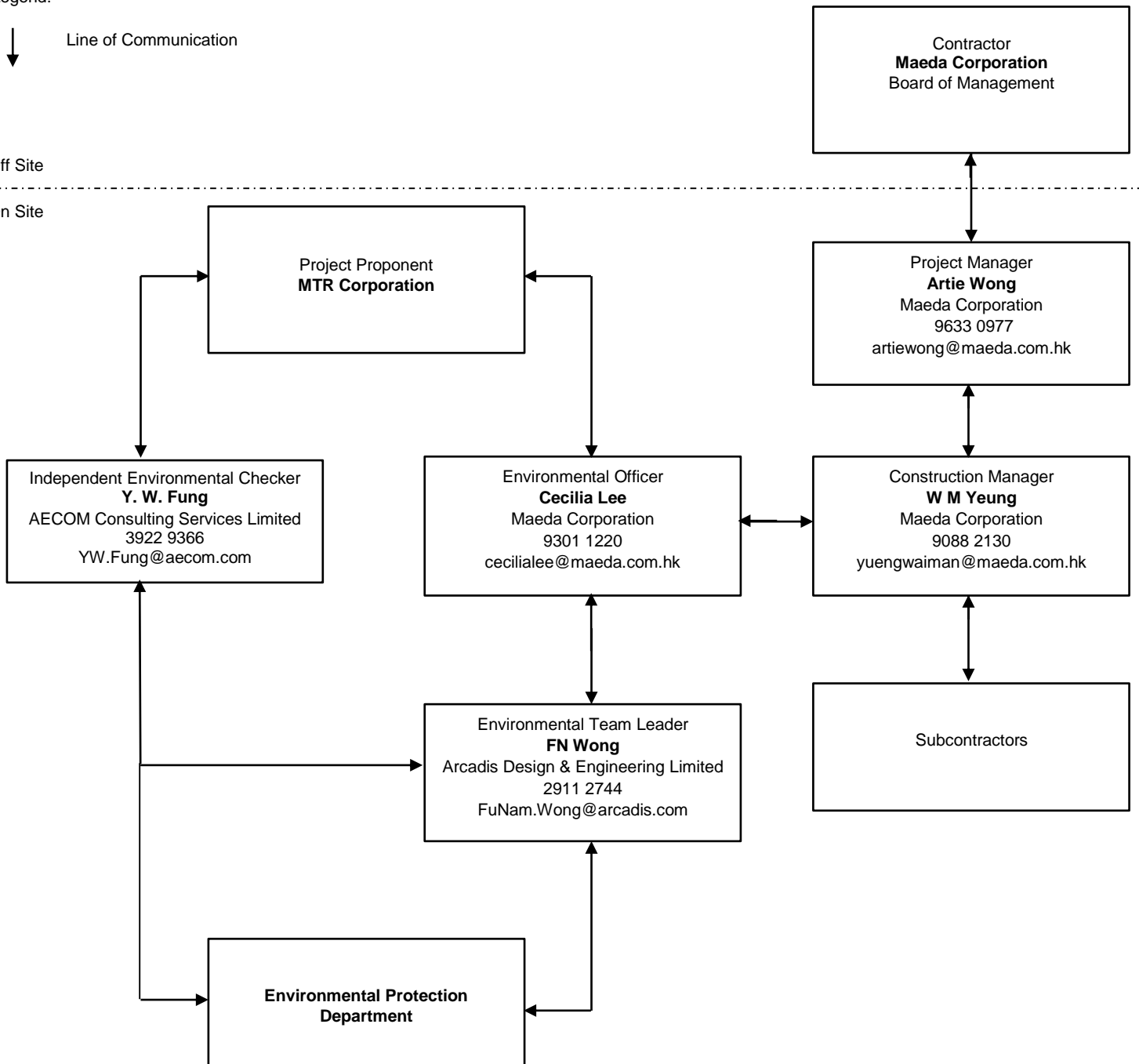
Project Organization Chart in Environmental Management (Rev.04)

Legend:

↓ Line of Communication

Off Site

On Site



Note: In Compliance with

i) Clause.1.3 of Environmental Monitoring and Audit Manual (Appendix VII of Project Profile PP462/2012)

Appendix C

Construction Programme

Appendix D

Implementation Schedule

Appendix VIII

Implementation Schedule

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	Noise Impact					
S.3.1	Use of quieter plant	To minimise construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control Ordinance
S.3.1	Use of noise enclosure and movable barrier <ul style="list-style-type: none"> • movable barrier can achieve a 5 dB(A) reduction for movable PME and 10 dB(A) reduction for stationary PME; • noise enclosure can achieve 15dB(A) reduction for PME; • A typical design barrier with a steel frame of vertical / cantilever type would be adopted and located close to the noise generating part of PME; • Barrier material of surface mass in excess of 7kg/m² shall be required to achieve the maximum screening effect (and minimum 10kg/m² for noise enclosure); • The length of barrier should generally be at least five times greater than its height and the minimum height of a barrier should be such that no part of the noise source will be visible from the noise sensitive receiver being protected. 	To minimize construction noise emissions	Contractor	Work site	Construction Stage	ProPECC PN2/93, Noise Control Ordinance and EIAO Guidance Note NO. 9/2010
S.3.1	General Construction Noise Control Measures <ul style="list-style-type: none"> • The Code of Practice on Good Management Practice 	To minimize construction noise	Contractor	Work site	Construction Stage	ProPECC PN2/93 and Noise Control

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	<p>to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD shall be adopted;</p> <ul style="list-style-type: none"> • The statutory and non-statutory requirements and guidelines shall be complied with; • Approval for the method of working, equipment and noise mitigation measures intended to be used at the site shall be granted from the Project Engineer before commencing any work; • Working methods to minimize the noise impact on the surrounding NSRs shall be formulated and executed, and the implementation of these methods shall be monitored by experienced personnel with suitable training; • Noisy equipment and noisy activities shall be located as far away from the NSRs as is practical; • Unused equipment shall be turned off; • PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided; • All plant and equipment shall be maintained regularly; and • Material stockpiles and other structures shall be effectively utilized as noise barriers, whenever practicable. 	emissions				Ordinance
	Air Quality Impact					
S.3.2	<p>Construction Dust Control Measures</p> <ul style="list-style-type: none"> • Decking will be provided subsequent to the completion of surface excavation works. The duration 	To minimise the dust impacts arising from the	Contractor	Work site	Construction Stage	Air Pollution Control (Construction

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	<p>of decking is around 13 months after surface excavation works;</p> <ul style="list-style-type: none"> • Regular watering to reduce dust emissions from all exposed site surface, particularly during dry weather; • Frequent watering for particularly dusty construction areas and areas close to air sensitive receivers; • Cover all excavated or stockpile of dusty material by impervious sheeting or spraying with water to maintain the entire surface wet; • Provision of vehicle washing facilities at the exit points of the site; and • Provision of tarpaulin covering of any dusty materials on a vehicle leaving the site. 	construction works				Dust) Regulation
	Water Quality Impact					
S.3.3	<p>Construction Water Quality Impact Measures</p> <ul style="list-style-type: none"> • The Contractor should design and implement all the mitigation measures and practices specified in the ProPECC PN 1/94 “Construction Site Drainage” and “Recommended Pollution Control Clauses for Construction Contracts” issued by EPD. • All runoffs arising from the construction site should be properly collected and treated to ensure the discharge standards as stipulated in WPCO are met. Silt trap and oil interceptor should be provided to remove the oil, lubricants, grease, silt, grit and debris from the wastewater before being pumped to the public stormwater drainage system. The silt traps and oil interceptors should be cleaned and maintained regularly. 	To reduce water quality impact induced by the construction work	Contractor	Work Site	Construction Stage	ProPECC PN1/94; Water Pollution Control Ordinance

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	<ul style="list-style-type: none"> Any foul effluent should not be discharged into any public sewer and stormwater drain, unless an effluent discharge permit is obtained under the WPCO by the Contractor. Site toilet facilities, if needed, should be chemical toilets or should have the foul water effluent directed to a foul sewer. 					
Waste Management						
S.3.4	<p>Construction Waste Management Measures</p> <ul style="list-style-type: none"> Excavated material should be reused on site as far as possible to minimise off-site disposal. Scrap metals or abandoned equipment should be recycled if possible. Waste arising should be kept to a minimum and be handled, transported and disposed of in a suitable manner. The Contractor should adopt a trip ticket system for the disposal of C&D materials to any designated public filling facility and/or landfill. Independent audits of the Contractor and resident site staff will be undertaken to ensure that the correct procedures are being followed. Chemical waste shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes. All general refuse should be segregated and stored in enclosed bins or compaction units and waste separation facilities for paper, aluminium cans, plastic bottles etc. should be provided to facilitate reuse or 	To adopt waste management measures in the way of avoiding, minimising, reusing and recycling so as to reduce waste generation	Contractor	Work Site	Construction Stage	Waste Disposal Ordinance (Cap. 54); Waste Disposal (Chemical Waste) (General) Regulation; ETWB TCW No. 31/2004; ETWB TCW No. 19/2005.

Project Profile Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Implementation Parties	Location of the measure	When to implement the measure	Relevant requirements or standards for the measure to achieve
	recycling of materials and their proper disposal.					
	Landscape and Visual Impact					
S.3.5	Landscape and Visual Measures <ul style="list-style-type: none"> • Screening of construction works by hoardings/noise barriers around works area with visually unobtrusive colours 	To reduce visual impact by construction works.	Contractor	Temporary Storage Area at Salisbury Road	Construction Stage	EIAO
S.3.5	<ul style="list-style-type: none"> • Reinstating the affected amenity planting area at Salisbury Road after the completion of works 	To prevent loss of planter after construction	Contractor	Temporary Storage Area at Salisbury Road	Operation Stage	ETWB TCW No. 2/2004

APPENDIX E

STATUS OF ENVIRONMENTAL LICENSES AND PERMITS



Maeda Corporation

Contract No. C3840-13C

Tsim Sha Tsui Station Carnarvon Road Subway

Last Update: 16-August-2016

Licence Summary

Item No.	Our Ref.	Govt. Ord.	Type? (License / Permit / Account / Notification / Registration & etc.)	Description	Submission	Ref. No	Date of Submission (to EPD) (DD-MM-YYYY)	Date of Approval / Receipt (from EPD) (DD-MM-YYYY)	Date of Activation (DD-MM-YYYY)	Date of Expiry (DD-MM-YYYY) Green = expire next mth; Yellow = expire this wk; Red = Expired	Description	Remarks
000	000	EIAO	Permit	Environmental Permit	N/A	AEP-440/2012	N/A	N/A	18 - 07 - 2012	N/A	Baseline, Air & Noise Impact Monitoring	
001	APCO #002	APCO	Notification	Construction Dust Notification	Form NB – Notification S3(3) of APCO (Construction Dust)	403252	27 - 05 - 2016	02 - 06 - 2016	01 - 02 - 2014	31 - 10 - 2017	Demolition of a Building	Change of anticipated date of completed is notified
001	APCO #002	APCO	Notification	Construction Dust Notification	Form NB – Notification S3(3) of APCO (Construction Dust)	403252	27 - 05 - 2016	02 - 06 - 2016	01 - 08 - 2014	31 - 08 - 2018	Work carried out in any part of a tunnel that is within 100m of any exit to the open air	Change of anticipated date of completed is notified
001	APCO #002	APCO	Notification	Construction Dust Notification	Form NB – Notification S3(3) of APCO (Construction Dust)	403252	27 - 05 - 2016	02 - 06 - 2016	01 - 01 - 2016	31 - 08 - 2018	Construction of the Superstructure of a Building	Change of anticipated date of completed is notified
001	APCO #002	APCO	Notification	Construction Dust Notification	Form NB – Notification S3(3) of APCO (Construction Dust)	403252	27 - 05 - 2016	02 - 06 - 2016	01 - 11 - 2016	28 - 02 - 2019	Road Construction Work	Change of anticipated date of completed is notified
002	APCO #002	WDO	Account	Construction Waste Billing Account	EPD-211 (Form 1) Application for a Billing Account for Disposal of Construction Waste	7018523	18 - 10 - 2013	25 - 10 - 2013	25 - 10 - 2013	N/A	Disposal of C&D Waste	Application No. WFG12765
003	WPCO #002	WPCO	Licence	Water Discharge Licence	EPD-117 (Form A) Application for a Licence of Water Discharge	WT00019722-2014	24 - 07 - 2014	01 - 09 - 2014	01 - 09 - 2014	31 - 03 - 2019	Quarterly Report FlowRate 25m3/d, pH 6-9, SS 30mg/L, COD 80mg/L	
004	CWP #001	WDO	Registration	Chemical Waste Producer	EPD-129 Application for Registration as a Chemical Waste Producer	5213-2214-M2446-16	15 - 01 - 2014	04 - 03 - 2014	04 - 03 - 2014	N/A	Surplus paint, spent lubricating oil, spent battery	
005	CNP#006	NCO	Permit	Construction Noise Permit	EPD74A(s) Form 1 - Application for a Construction Noise Permit	Application: 405344 Permit: GW-RE0804-16	22 - 07 - 2016	04 - 08 - 2016	15 - 08 - 2016	14 - 02 - 2017	Apply for 4nos Submersible Water pump (Electric) w/ whole site area	

Appendix F

Event and Action Plan

Event and Action Plan for Air Quality

In case the Action and Limit Levels are not complied during construction stage, the Event and Action Plan shown below should be followed.

Event / Action	ET	IEC	ER	Contractor
Action Level				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source; 2. If valid, inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. 	<ol style="list-style-type: none"> 1. Notify Contractor 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate
Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and EPD; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial action required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measure properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial action to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.
Limit Level				
Exceedance for one sample	<ol style="list-style-type: none"> 1. Identify source; 2. Inform ER and EPD; 3. Repeat measurement to confirm finding; 4. Increase 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC

Event / Action	ET	IEC	ER	Contractor
	<p>monitoring frequency to daily;</p> <p>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</p>	<p>method;</p> <p>4. Discuss with ET and the Contractor on possible remedial measures;</p> <p>5. Advise the ER on the effectiveness of the proposed remedial measures;</p> <p>6. Supervise implementation of remedial measures.</p>	<p>measures properly implemented.</p>	<p>within 3 working days of notification;</p> <p>3. Implement the agreed proposals;</p> <p>4. Amend proposal if appropriate.</p>
Exceedance for two or more consecutive samples	<p>1. Notify IEC, ER, Contractor and EPD;</p> <p>2. Identify sources;</p> <p>3. Repeat measurement to confirm findings;</p> <p>4. Increase monitoring frequency to daily;</p> <p>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</p> <p>6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</p> <p>7. Assess the effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the</p>	<p>1. Discuss amongst ER, ET and Contractor on the potential remedial actions;</p> <p>2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly.</p> <p>3. Supervise the implementation of remedial measures.</p>	<p>1. Confirm receipt of notification of failure in writing;</p> <p>2. Notify Contractor;</p> <p>3. In consultation with IEC, agree with the Contractor on the remedial measures to be implemented;</p> <p>4. Ensure remedial measures properly implemented;</p> <p>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p>	<p>1. Take immediate action to avoid further exceedance;</p> <p>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</p> <p>3. Implement the agreed proposals;</p> <p>4. Resubmit proposals if problem still not under control;</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

Event / Action	ET	IEC	ER	Contractor
	results; 8. If exceedance stops, cease additional monitoring.			

Event and Action Plan for Construction Noise

In case the Action and Limit Levels are not complied during the construction stage, the Event and Action Plan shown below should be followed.

Event / Action	ET	IEC	ER	Contractor
Action Level	<ol style="list-style-type: none"> 1. Notify IEC and Contractor. 2. Carry out investigation. 3. Report the results of investigation to the IEC and Contractor. 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the analyzed result submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Notify IEC, ER, EPD and Contractor, and follow other actions 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Check Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances 7. Assess effectiveness of Contractor's 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ET accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedances 2. Notify Contractor 3. Require Contractor to propose remedial measures 4. Ensure remedial measures are properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notifications 3. Implement the agreed proposals 4. Revise and resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Event / Action	ET	IEC	ER	Contractor
	remedial actions and keep IEC, EPD, ER informed of the results 8. If exceedance stops, cease additional monitoring			

APPENDIX G

WEATHER INFORMATION EXTRACTED FROM HK OBSERVATORY

**EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG
SEPTEMBER 2016**

Date September	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)				
1	1003.3	30.0	27.9	25.2	88	68.9	230	23.5
2	1002.0	31.0	28.7	27.5	86	6.1	230	19.7
3	1002.7	31.2	28.1	25.7	87	7.0	230	10.9
4	1005.2	30.1	28.2	27.0	84	Trace	070	28.1
5	1006.1	29.2	27.1	25.8	89	75.3	050	30.0
6	1006.7	27.7	26.7	25.7	90	10.8	050	7.3
7	1007.5	28.0	26.5	25.4	90	20.4	230	16.1
8	1008.0	28.4	27.1	25.5	90	2.8	230	8.8
9	1008.4	29.4	27.0	25.5	88	16.3	230	11.3
10	1007.8	27.7	26.3	24.5	93	53.2	050	11.0
11	1008.4	31.6	28.1	25.9	87	6.6	030	7.1
12	1010.2	32.7	28.7	26.0	83	-	030	15.2
13	1010.2	30.9	28.2	26.0	84	8.5	080	18.7
14	1004.5	32.6	29.6	26.9	69	-	340	17.3
15	1002.9	31.9	29.4	28.0	68	0.7	280	15.0
16	1004.9	31.3	29.0	27.3	70	-	010	15.3
17	1005.7	31.6	29.3	27.3	66	-	010	19.4
18	1006.9	31.5	28.6	26.3	66	Trace	010	12.7
19	1008.0	32.6	28.6	25.5	73	3.8	010	21.6
20	1012.1	29.5	25.5	22.8	87	39.6	350	32.0
21	1014.4	30.6	27.1	24.7	77	2.4	070	35.7
22	1013.6	28.9	27.2	26.1	76	-	070	34.9
23	1012.0	29.9	27.7	26.5	78	Trace	080	30.6
24	1010.5	30.5	27.9	26.6	78	Trace	080	27.6
25	1009.8	30.5	28.1	26.9	80	-	080	20.1
26	1007.7	31.1	28.5	27.0	81	Trace	230	15.0
27	1002.6	34.9	31.1	27.7	68	-	290	11.3
28	999.5	32.2	30.4	28.9	58	-	300	25.5
29	1003.9	28.9	26.5	24.9	70	0.7	010	18.2
30	1007.7	26.4	25.1	24.1	78	-	010	7.5
Mean/Total	1007.1	30.4	27.9	26.1	79	323.1	080	18.9
Normal*	1008.9	30.1	27.7	25.8	78	327.6	090	22.6
Station	Hong Kong Observatory						Waglan Island^	

^ In case the data are not available from Waglan Island, observations of Cheung Chau or other nearby weather stations will be incorporated in computing the Prevailing Wind Direction and Mean Wind Speed.

Note: Shaded rows denote monitoring days

**EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG
OCTOBER 2016**

Date September	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)				
1	1009.9	29.4	26.6	24.0	89	95.5	090	16.2
2	1009.0	29.8	27.6	26.2	82	Trace	060	17.8
3	1007.8	28.3	27.5	26.6	82	0.2	050	28.5
4	1008.1	29.5	27.5	26.5	83	0.0	050	17.5
5	1008.9	31.9	28.6	26.9	78	Trace	070	18.7
6	1009.1	32.4	28.5	25.9	75	16.7	010	19.3
7	1007.1	29.3	27.7	25.5	79	17.3	010	23.6
8	1006.8	29.9	28.1	27.0	71	Trace	360	35.2
9	1008.9	28.8	26.5	24.9	69	0.0	010	33.0
10	1010.2	28.1	25.3	23.5	70	0.0	020	28.0
11	1010.7	26.8	24.5	22.0	79	0.1	010	29.8
12	1012.5	25.8	24.6	23.0	84	0.9	060	39.7
13	1013.5	29.3	26.0	24.2	77	Trace	080	39.5
14	1013.2	29.9	26.7	25.0	76	Trace	080	34.6
15	1012.6	30.3	27.2	24.6	72	0.0	050	20.3
16	1010.9	30.8	28.0	25.9	71	0.0	020	20.3
17	1009.1	28.8	26.6	24.1	81	16.7	070	43.5
18	1008.1	25.5	24.8	23.9	96	178.7	090	57.5
19	1008.7	25.9	25.1	24.4	96	223.4	100	36.0
20	1004.6	29.5	27.3	24.7	82	0.0	010	15.8
21	997.1	28.0	26.1	24.4	86	72.5	220	60.8
22	1007.8	29.4	27.5	26.1	84	1.9	220	18.2
23	1010.0	29.1	27.1	25.8	88	0.0	100	6.0
24	1011.3	29.1	27.3	26.1	88	Trace	120	13.8
25	1013.3	29.8	27.3	26.1	87	Trace	090	16.5
26	1015.6	30.0	27.1	25.7	84	0.0	070	17.1
27	1016.0	30.9	27.5	25.4	79	0.0	060	11.1
28	1014.9	31.5	28.2	26.3	75	0.0	020	8.6
29	1017.2	29.0	26.7	24.3	79	0.5	080	31.5
30	1019.8	26.6	24.4	22.9	74	0.0	020	32.3
31	1019.1	28.7	25.5	23.1	70	0.0	070	24.0
Mean/Total	1010.7	29.1	26.8	25.0	80	624.4	070	26.3
Normal*	1014.1	27.8	25.5	23.7	73	100.9	080	27.4
Station	Hong Kong Observatory						Waglan Island^	

^ In case the data are not available from Waglan Island, observations of Cheung Chau or other nearby weather stations will be incorporated in computing the Prevailing Wind Direction and Mean Wind Speed.

Note: Monitoring days

**EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG
NOVEMBER 2016**

Date November	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)				
1	1019.7	25.3	23.9	22.5	1	1019.7	020	31.2
2	1020.3	24.8	22.8	21.0	2	1020.3	020	31.0
3	1019.3	24.8	21.8	20.1	3	1019.3	010	28.2
4	1015.2	25.3	22.4	19.6	4	1015.2	010	13.3
5	1013.0	26.9	23.8	21.7	5	1013.0	100	13.4
6	1015.1	26.9	24.2	22.4	6	1015.1	080	19.5
7	1016.6	28.4	25.3	23.4	7	1016.6	070	21.6
8	1017.4	28.1	24.6	22.1	8	1017.4	070	19.5
9	1019.5	22.1	20.7	19.0	9	1019.5	020	33.0
10	1020.1	19.0	17.7	17.0	10	1020.1	010	28.5
11	1018.8	22.3	20.0	17.1	11	1018.8	020	20.6
12	1017.9	25.1	23.3	21.6	12	1017.9	070	27.4
13	1016.9	26.9	24.7	23.8	13	1016.9	070	19.3
14	1015.4	28.1	25.4	23.3	14	1015.4	060	9.1
15	1015.8	29.2	25.7	23.8	15	1015.8	080	13.8
16	1017.2	26.1	24.6	23.9	16	1017.2	080	33.1
17	1016.6	27.5	24.8	23.6	17	1016.6	070	26.7
18	1014.2	26.8	24.8	23.5	18	1014.2	070	26.2
19	1013.1	28.0	25.8	24.0	19	1013.1	060	24.4
20	1012.9	26.8	25.6	25.0	20	1012.9	070	32.6
21	1012.9	25.3	24.7	24.0	21	1012.9	080	36.7
22	1013.3	24.5	22.7	21.6	22	1013.3	070	40.3
23	1016.2	21.6	20.5	16.7	23	1016.2	050	42.1
24	1018.6	19.8	17.3	15.0	24	1018.6	020	35.5
25	1016.4	22.3	20.0	17.4	25	1016.4	050	35.1
26	1015.9	21.1	17.6	13.3	26	1015.9	360	36.5
27	1016.9	19.9	16.2	12.8	27	1016.9	360	27.5
28	1020.9	20.1	18.1	16.1	28	1020.9	010	31.9
29	1022.3	20.5	19.2	17.5	29	1022.3	020	27.0
30	1022.3	22.0	19.7	17.4	30	1022.3	020	25.8
Mean/Total	1017.0	24.5	22.3	20.3	79	131.3	070	27.0
Normal	1017.7	24.1	21.8	19.8	71	37.6	080	27.0
Station	Hong Kong Observatory						Waglan Island^	

^ In case the data are not available from Waglan Island, observations of Cheung Chau or other nearby weather stations will be incorporated in computing the Prevailing Wind Direction and Mean Wind Speed.

Note: Monitoring days

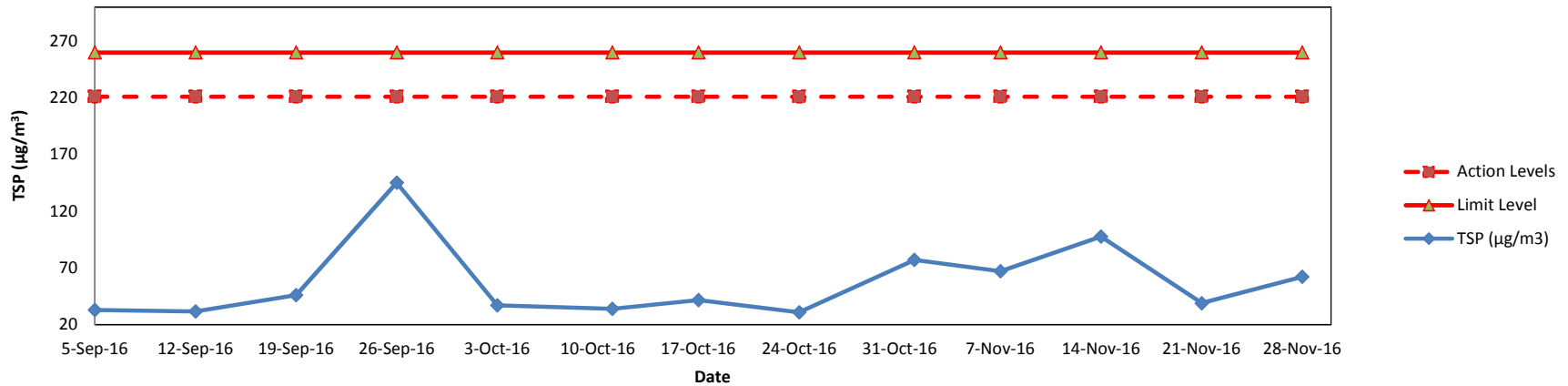
APPENDIX H

MONITORING RESULTS AND PLOTS

Impact Air Quality Monitoring Results : 24-Hour TSP at K11

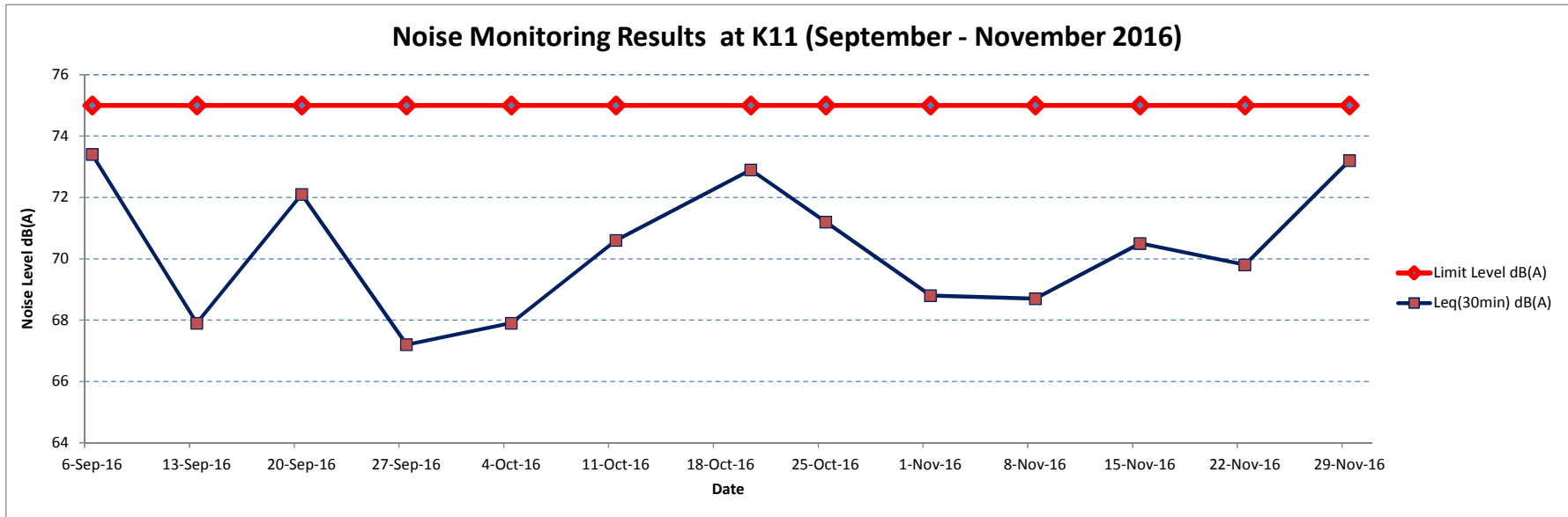
Location	Monitoring Date	Limit Level	Weather Conditions	Temperature	Elapse Time		Flow Rate (CFM)			Average Flow Rate	TSP ($\mu\text{g}/\text{m}^3$)	Action Levels
					Initial	Final	Sampling Hours	Initial	Final			
K11 Art Mall	5-Sep-16	260.00	Rainy	27.1	713818	716236	24	34	34	34	32.9	221
	12-Sep-16	260.00	Sunny	28.7	716236	718695	25	34	34	34	31.7	221
	19-Sep-16	260.00	Overcast	28.6	718695	721135	24	34	34	34	46.0	221
	26-Sep-16	260.00	Sunny	28.5	721135	723575	24	33	33	33	145.2	221
	3-Oct-16	260.00	Sunny	26.5	723575	726014	24	36	36	36	37.1	221
	11-Oct-16	260.00	Sunny	26.2	726019	728499	25	36	36	36	34.1	221
	17-Oct-16	260.00	Overcast	25.6	728499	731018	25	33	33	33	41.7	221
	24-Oct-16	260.00	Fine	24.6	731018	733524	25	33	33	33	31.0	221
	1-Nov-16	260.00	Sunny	23.4	737168	739897	27	34	34	34	77.2	221
	7-Nov-16	260.00	Overcast	23.3	739897	742341	24	33	33	33	67.2	221
	14-Nov-16	260.00	Overcast	22.2	742341	744779	24	33	34	34	97.6	221
	21-Nov-16	260.00	Overcast	22.6	744779	747214	24	33	33	33	39.0	221
28-Nov-16	260.00	Fine	22.6	747214	749651	24	33	33	33	62.2	221	

24-Hours TSP Monitoring Results (Sep to Nov 2016)



Construction Noise Monitoring Results at K11

Monitoring Locations	Date	Weather Conditions	Wind Speed (m/s)	Start Time	End Time	Background Level dB(A)	Limit Level dB(A)	Leq(30min) dB(A)	L10(30min) dB(A)	L90(30min) dB(A)
K11 Art Mall	6-Sep-16	Drizzle	0.1	13:59	14:29	65.3	75	73.4	76.5	68.5
	13-Sep-16	Sunny	0.4	13:35	14:05	65.3	75	67.9	68.5	66.0
	20-Sep-16	Sunny	0.8	13:12	13:42	65.3	75	72.1	70.5	68.5
	27-Sep-16	Fine	1.0	11:25	11:55	65.3	75	67.2	69.0	64.5
	4-Oct-16	Sunny	0	13:07	13:37	65.3	75	67.9	69.5	64
	11-Oct-16	Sunny	0.9	11:30	12:00	65.3	75	70.6	73.5	64.5
	20-Oct-16	Sunny	0.2	10:14	10:44	65.3	75	72.9	74.5	70.5
	25-Oct-16	Fine	1	14:00	14:30	65.3	75	71.2	75.3	69.4
	1-Nov-16	Sunny	3.9	11:28	11:58	65.3	75	68.8	69.6	67.7
	8-Nov-16	Overcast	0.2	10:13	10:43	65.3	75	68.7	69.9	66.0
	15-Nov-16	Sunny	0.0	9:51	10:21	65.3	75	70.5	71.7	68.3
	22-Nov-16	Cloudy	0.9	9:25	9:55	65.3	75	69.8	70.5	68.0
	29-Nov-16	Sunny	1.0	9:00	9:30	65.3	75	73.2	74.0	69.0



Appendix I

Flow Chart for Handling Environmental Complaints

Complaint Response Procedure

