



NATURE & TECHNOLOGIES (HK) LIMITED
科技環保(香港)有限公司

Unit 2 & 3, 4/F., Wellborne Commercial Centre, 8 Java Road, North Point, Hong Kong.
香港北角渣華道8號威邦商業中心4樓2及3室 Tel電話 : (852) 2877 3122 Fax傳真 : (852) 2511 0922
Email電郵: enquiry@nt.com.hk Web page網址 : http://www.nt.com.hk

**Development at Former Marine Police
Headquarters KIL 11161
Quarterly Environmental Monitoring & Audit
Report for March – May 2007**

(Ref No. 3.12/003/2004)

June 2007

**Report Certified by the
Environmental Team
Leader:**

**Report Verified by the
Independent
Environmental
Checker:**

Content

EXECUTIVE SUMMARY

1. Introduction
2. Project Information and Progress
3. Monitoring Results
4. Waste Management
5. Summary of Non-compliance, Complaints, Notification of Summons and Successful Prosecutions, Environmental Licensing and Permitting
6. Conclusion

Appendices

- Appendix A: The construction programme with milestones of environmental protection/mitigation activities
- Appendix B: Implementation schedule for recommended mitigation measures
- Appendix C: Graphical presentations of the air impact monitoring results
- Appendix D: Summary of exceedances
- Appendix E: Graphical presentations of the noise impact monitoring results

EXECUTIVE SUMMARY

This is the twelfth Quarterly Environmental Monitoring & Audit Report prepared by Nature & Technologies (HK) Ltd. for the development of the former Marine Police Headquarter. This report documents the impact environmental monitoring and audit work in the period from March 2007 to May 2007. Site audit inspections were performed by Environmental Team at least once per week and by the Independent Environmental Checker at least once per month.

Hien Lee Engineering Co., Ltd ["HL"] has taken over the site operation commencing May 2007 for remaining excavation, building foundation and infrastructure & furnishing works.

Due to change of contractor, EM&A Manual and Waste Management Plan ["WMP"] have been revised accordingly and are being submitted to EPD for approval in May 2007.

Contact person for Independent Environmental Checker ["IEC"] has been changed to Mr Billy Yu commencing in April 2007.

Piling was completed in March 2007 and excavation was then the major construction activities carried out within the Project site for the reporting period.

Air and noise monitoring have been carried out in accordance with the EM&A Manual. Monument settlement measurement data and tree photographic survey are also provided in Appendices of the Monthly EM&A Reports for March 2007 to May 2007.

Due to piling work in March ground-borne noise measurements were conducted inside Hong Kong Space Museum but not in Hong Kong Cultural Centre as there was no available time slot for noise measurement at HKCC.

Bi-monthly water quality sampling was conducted in April 2007 and result showed compliance of WPCO.

Summary of non-compliance of reporting period is tabulated in Table I.

Table I Summary table for non-compliance recorded from March 2007 to May 2007

	No. of Exceedance(s)					
	Action Level			Limit Level		
	March	April	May	March	April	May
1-hr TSP	0	0	0	0	0	0
24-hr TSP	0	0	0	0	0	0
Noise	3	1	1	7	3	4
Water	0	0	0	0	0	0

There were five complaints on noise and one complaint on dust received in these reporting months, and fourteen Limit Level exceedances on noise. These were resolved by work scheduling and installation of noise mats. The complaint on dust was resolved by better site management. There were no other notifications of summons, prosecutions or other non-compliance.

Other than the complaints, the site was generally satisfactory and some improvement measures are recommended for further pursuit. These include the improvement of the

noise mats, proper record keeping, improvement of general site cleanliness, use of drip tray for oil containers and continuing protection of preserved historical building and trees.

1. **Introduction**

- 1.1 Konwall Construction and Engineering Co. Ltd. ["KCE"] is contracted to carry out the site formation work for the development of the Former Marine Police Headquarters ["FMPHQ"]. KCE in turn has commissioned Nature & Technologies (HK) Ltd. ["N&T"] to conduct the environmental monitoring and audit ["EM&A"] work for the project.
- 1.2 In May 2007, Hien Lee Engineering Co., Ltd. ["HL"] has taken over the site to carry out the remaining excavation work, building foundation and superstructure & furnishing for the development of FMPHQ. HL in turn has commissioned N&T to continue with the EM&A work for the project from May 2007 onwards.
- 1.1 Pursuant to Clauses 2.3 of the Environmental Permit ["EP"] EP-184/2004 of the project, the draft EM&A Manual was submitted on 29 April 2004 and the revised EM&A Manual was approved on 26 July 2004. Due to project changes, the EM&A Manual was revised in May 2006. Further revision of the EM&A Manual to cater for the present phase of the construction works has been submitted in May 2007 to EPD.
- 1.3 This report documents the quarterly EM&A work and summarizes its findings for the quarterly period from March 2007 to May 2007. This is the twelfth quarterly report documenting the EM&A work since the commencement of the construction work.

2. Project Information and Progress

Environmental Status

- 2.1 The location, site layout, historic buildings and structures to be preserved of the Project are shown in Figure 2.1.
- 2.2 The project organization, management structure and general lines of communication with respect to environmental protection works are shown in Figure 2.2 and the present key contacts are given in Table 2.1. Environmental Protection Department ["EPD"] is the control authority and may contact any party where necessary for their statutory duties.

Table 2.1 Key Contacts of the Project Team

Party	Company	Contact Person	Phone
Permit Holder	Flying Snow Ltd.	Mr H S Chan	2112 2634
Project Architect	A + T Design Ltd.	Mr Daniel Lin	2858 4778
Contractor (up to April 2007)	Konwall Construction & Eng. Co., Ltd.	Mr Eric Kwok	2563 1233
Contractor (commencing May 2007)	Hien Lee Engineering Co., Ltd.	Mr Howard Lui	9108 3955
Independent Environmental Checker	CH2M HILL Hong Kong Limited	Mr David Yeung (up to March 2007) Mr. Billy Yu (Effective from April 2007)	2872 2934 2872 2949
Environmental Team ["ET"] Leader	Nature & Technologies (HK) Ltd.	Ir Dr Gabriel C K Lam	2877 3122

Construction Programme, Works Undertaken & Status

- 2.3 The updated construction programme with milestones of environmental protection / mitigation activities annotated is given in Appendix A.
- 2.4 Piling, excavation, welding and metal works were the main activities carried out within the project site in the reporting period.

Monitoring Locations

- 2.5 Designated air quality and noise monitoring locations were selected for impact monitoring based on the EM&A Manual Section 3.8. They are shown in Figure 2.3. Air quality monitoring locations are briefly described below:
- A1 is located on the rooftop of the Consumer Council office east of the construction site, estimated to be about 11m above ground.
 - A2 is at the Cultural Centre Studio Theatre podium level south of the construction site, estimated to be about 5m above ground. Monitoring at this location has not yet commenced at the time of preparation of this report as permission to carry out monitoring there has not been received.

- A2a is at south boundary of the construction site facing the Cultural Centre Studio Theatre selected as an alternative location to A2 in consultation with the IEC, estimated to be about 6m above ground. This is needed since permission from the Cultural Centre for monitoring there is not yet received and in order to reduce the delay to the construction programme by the permission.
- A3 is at the west site boundary of the construction site on top of the existing hoarding, estimated to be about 5m above ground. This position is slightly different to that originally proposed in the Project Profile due to the inability to obtain permission to gain access to the building at Star House or Marco Polo Hongkong Hotel for measurement and that the present revised position will provide a more conservative measurement for environmental protection
- A4 is at the site boundary north of the construction site on top of the existing hoarding, estimated to be about 13m above ground.

2.6 The noise monitoring locations, namely CN1a (on the roof of Po Yip Building) & CN2a (on the 4/F YMCA), were selected for the impact noise monitoring. These locations are made up for the locations at CN1 & CN2 (podium of Hankow Centre east of the construction site) carried out for the baseline noise monitoring as Hankow Centre no longer permit to enter the premises for noise measurement since 28 May 2004. These locations are also shown in Figure 2.3 and are located on the roof of Po Yip Building and 4/F YMCA facing the east of the site.

2.7 The other monitoring locations are indoor of Hong Kong Cultural Centre ["HKCC"] (4/F Studio Theatre End Stage, 1/F Concert Hall & 1/F Grand Theatre) and Hong Kong Space Museum ["HKSM"] (G/F Lecture Room, 1/F Recording Studio & 1/F Sky Theatre) for ground-borne noise monitoring purpose.

Summary of EM&A Requirements

2.8 The environmental monitoring requirements given in this manual can be summarised as follows:

Table 2.2 Environmental Monitoring Summary Requirements

1.	Air monitoring for 24-hour Total Suspended Particulates ["TSP"] with high volume samplers at four locations <ul style="list-style-type: none"> • Baseline – continuously for 14 consecutive days • Impact – once every six-days
2.	Air monitoring for 1-hour TSP with portable equipment at four locations <ul style="list-style-type: none"> • Baseline – 3 times per day for 14 days • Impact – 3 times per day, one day for every six-days
3.	Noise measurement at two noise sensitive receiver locations ($L_{eq,30\text{ min}}$, $L_{eq,5\text{ min}}$, L_{10} and L_{90}) <ul style="list-style-type: none"> • Baseline – daily between 0700-1900 for 2 weeks • Impact – weekly between 0700-1900 hours on a normal weekday
4.	Ground-borne noise measurement inside HKSM and HKCC ($L_{eq,30\text{ min}}$ / $L_{eq,5\text{ min}}$) <ul style="list-style-type: none"> • Baseline – one time before commencement of piling works • Impact – once per month on a normal weekday
5.	Building Settlement Marker <ul style="list-style-type: none"> • Baseline – one time before commencement of piling works • Impact – once per two days on a normal weekday

6.	Ground Settlement Marker <ul style="list-style-type: none"> Baseline – one time before commencement of piling works Impact – once per two days on a normal weekday
7.	Crack Monitoring (Tell-Tale Device) <ul style="list-style-type: none"> Baseline – one time before commencement of piling works Impact – once per two days on a normal weekday

2.9 Site inspection by the ET should be carried out at least once per week and IEC at least once per month to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. Report submissions should include Baseline Monitoring Report, Monthly, Quarterly and Final EM&A Reports. These reports should include photographic records for landscape and tree preservation, and monument structure monitoring records for heritage protection.

Environmental Quality Performance Limits

2.10 The calculation of the Action and Limit ["AL"] Levels for dust and noise were based on the baseline monitoring results. The AL levels for dust are set in Table 2.3.

Table 2.3 AL levels for 1-hour and 24-hr TSP

Location	1-hour TSP		24-hour TSP	
	Action	Limit	Action	Limit
A1	382	500	191	260
A2a	394	500	193	260
A3	389	500	182	260
A4	384	500	187	260

2.11 As per requirements of the EM&A Manual, the AL Levels for noise were established as in Table 2.4 AL levels.

Table 2.4 AL levels for impact noise monitoring locations

Time Period	Action	Limit
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)
0700-2300 hrs on holidays; and 1900-2300 hrs on all other days		65** dB(A)
2300-0700 hrs of next day		50** dB(A)

* reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

** Based on Area Sensitivity Rating 'B'.

2.12 The corresponding AL levels for ground borne noise indoor of HKCC and HKSM are as per Table 2.5.

Table 2.5 AL levels for HKCC and HKSM

Location	Action	Limit
HKCC	When one documented complaint is received	60 dB(A)
HKSM Recording Studio (1/F)		60 dB(A)
HKSM Sky Theatre (1/F)		60 dB(A)
HKSM Lecture Room (G/F)		60 dB(A)

2.13 For monitoring of the monument structure during construction works, the AL levels given in Table 2.6 are adopted.

Table 2.6 AL levels of monument structural monitoring

Instrument	Unit	Alert	Alarm	Action
Ground Settlement Markers	mm	10	15	20
Building Settlement Markers	mm	5	8	10
Building tilting & settlement	-	1:2000	1:1500	1:1000
Tell-tales	mm	5	8	10

Implementation Status

- 2.14 The construction and operational phase impacts of the project have been assessed and presented in the Project Profile submitted in November 2003. The Project Profile also specified the recommended environmental mitigation measures to minimize the potential adverse environmental impacts identified. An implementation schedule of the recommended environmental mitigation measures is prepared as part of the Project Profile is contained in Appendix B.
- 2.15 Site environmental audits were carried out by ET on a weekly basis and by IEC, at least once per month to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. Site audit checklist reports and recommendations are given in Appendices of the Monthly EM&A Reports for March 2007 to May 2007.
- 2.16 The conditions of the site and the implementation of various environmental protection measures have been generally satisfactory. Piling, Excavation, welding and metal works were the major construction activities in the reporting quarter. The followings were noted for this quarterly period:
- Noise mats installed on the eastern boundary of the site needed improvement.
 - Proper record keeping for environmental management have to be enforced. For instance, dust suppression water sprays, updated waste disposal records should be readily made available for close monitoring. Waste recycling should be more actively promoted.
 - Drip tray should be used for every oil container on site.
 - Valid noise emission labels for all air compressors must be ensured.
 - Proper storage and cover of refuse should be made.
 - Water poundings found on site should be removed immediately.
 - Continual protection and closer monitoring of the trees and historical buildings.
- 2.17 The summary status of the submission under the EP is given in Table 2.7.

Table 2.7(continued) Status of submission under EP up to 28 February 2007

Item No.	Description	Submission Date to EPD
48.	Monthly EM&A Report for June 2006	11/8/2006
49.	Quarterly EM&A Report for March 2006 to May 2006	11/8/2006
50.	Monthly EM&A Report for July 2006	14/9/2006
51.	Monthly EM&A Report for August 2006	11/10/2006
52.	Quarterly EM&A Report for June 2006 to August 2006	28/10/2006
53.	Monthly EM&A Report for September 2006	6/11/2006
54.	Monthly EM&A Report for October 2006	15/12/2006
55.	Monthly EM&A Report for November 2006	6/1/2007
56.	Monthly EM&A Report for December 2006	2/3/2007
57.	Monthly EM&A Report for January 2007	16/3/2007
58.	Monthly EM&A Report for February 2007	17/4/2007
59.	Monthly EM&A Report for March 2007	4/5/2007
60.	Quarterly EM&A Report for December 2006 to February 2007	4/5/2007

Historic Buildings/Structures To be Preserved

- ① Main Building
- ② Stable Block
- ③ Signal Tower (Round House)
- ④ Top (Timber) Portion of The Flag Post
- ⑤ Accommodation Block of The Former Fire Station
- ⑥ Main Building of The Former Fire Station
- ⑦, ⑧, ⑨ Gas Lamp Posts (3 Items)

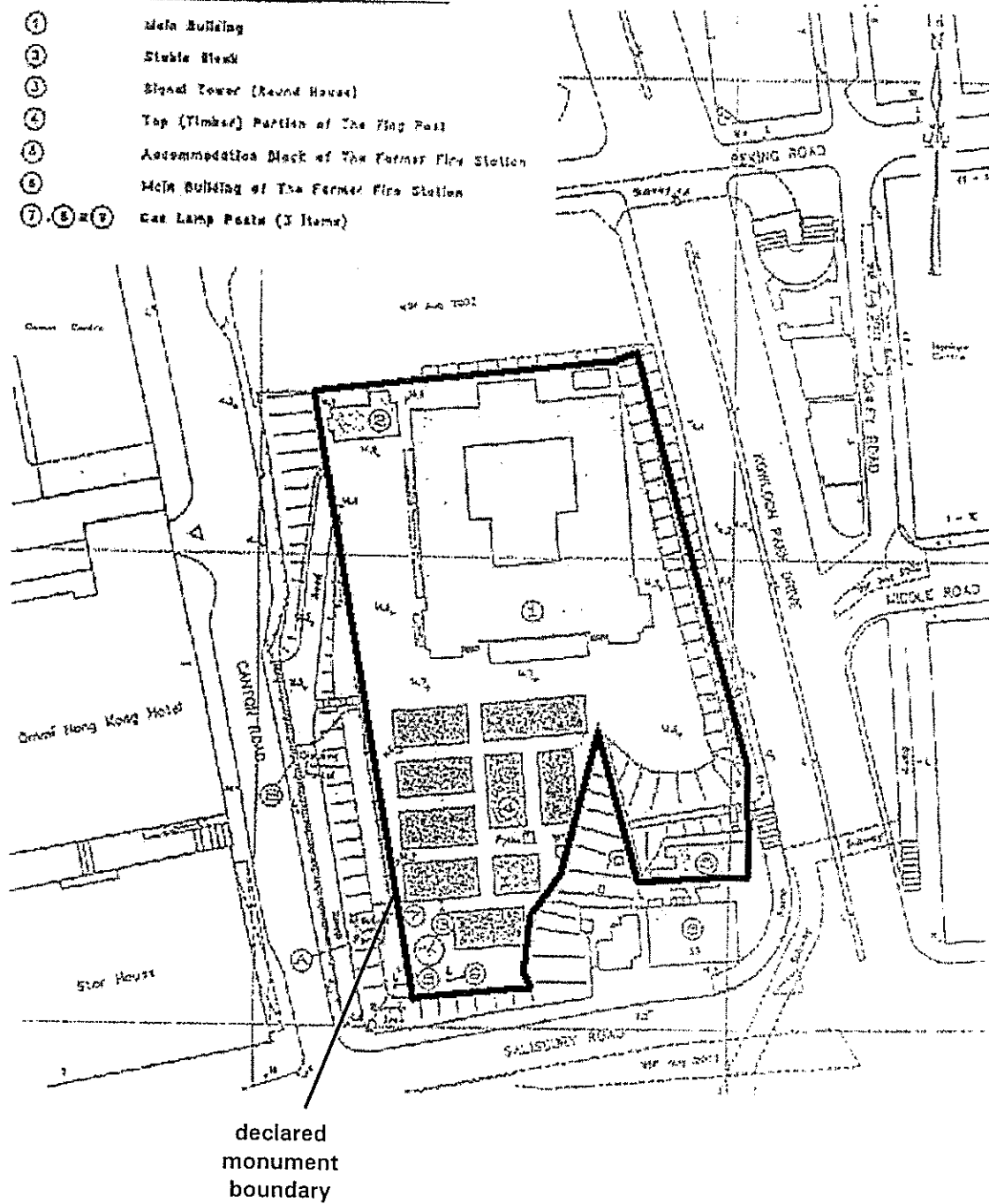
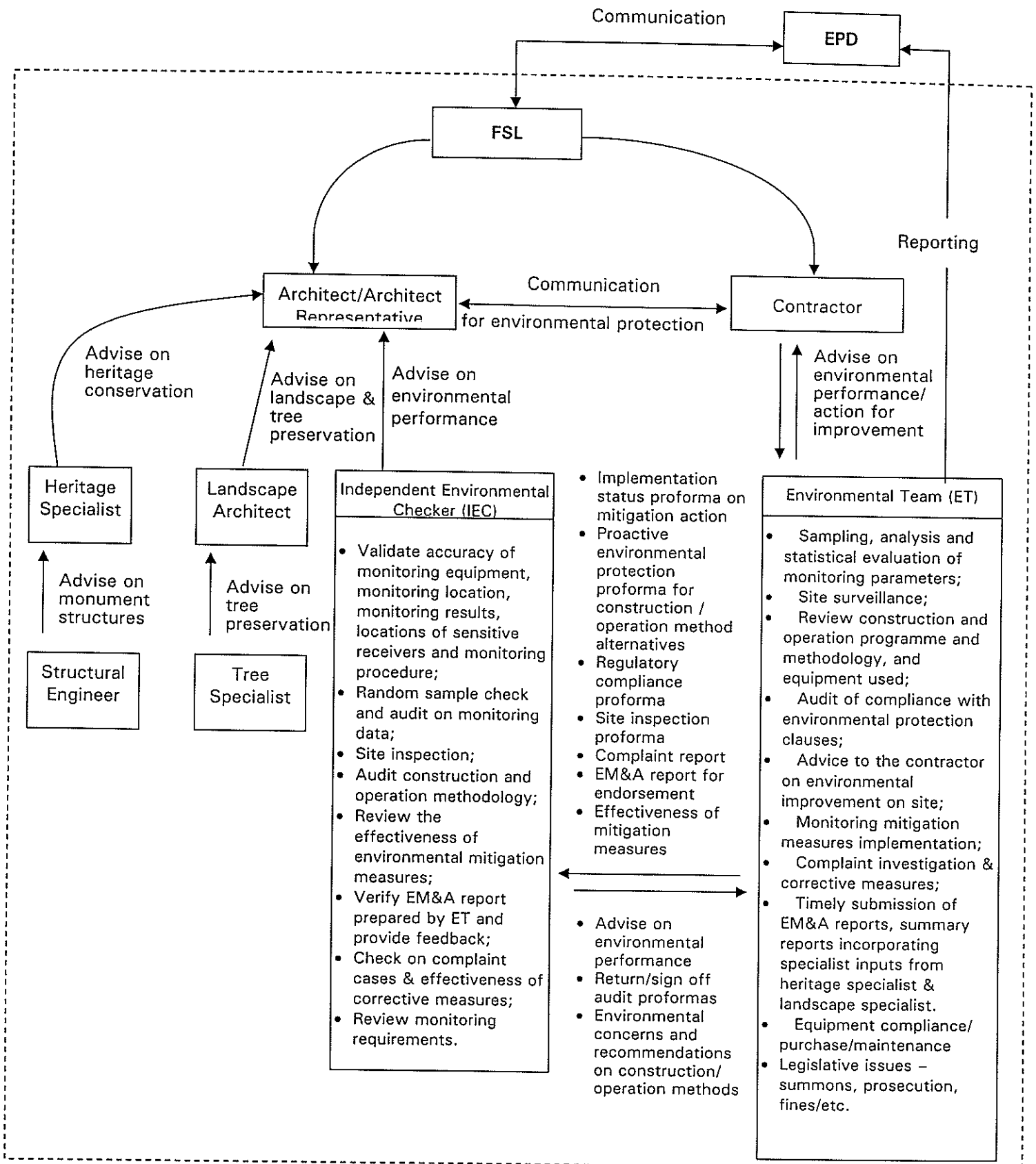


Figure 2.1 Location, site layout, historic buildings and structures to be preserved

Scale: N.T.S



NOTE: according to Section 2 and Section 6.5 of the approved Landscape Mitigation and Tree Preservation Proposal, the Landscape Architect and the Third Party Tree Specialist are responsible to carry out their duties on monitoring landscape and tree preservation aspects for the above project during the construction and the establishment period.

Figure 2.2 Project Organisation, Management & Lines of Communication

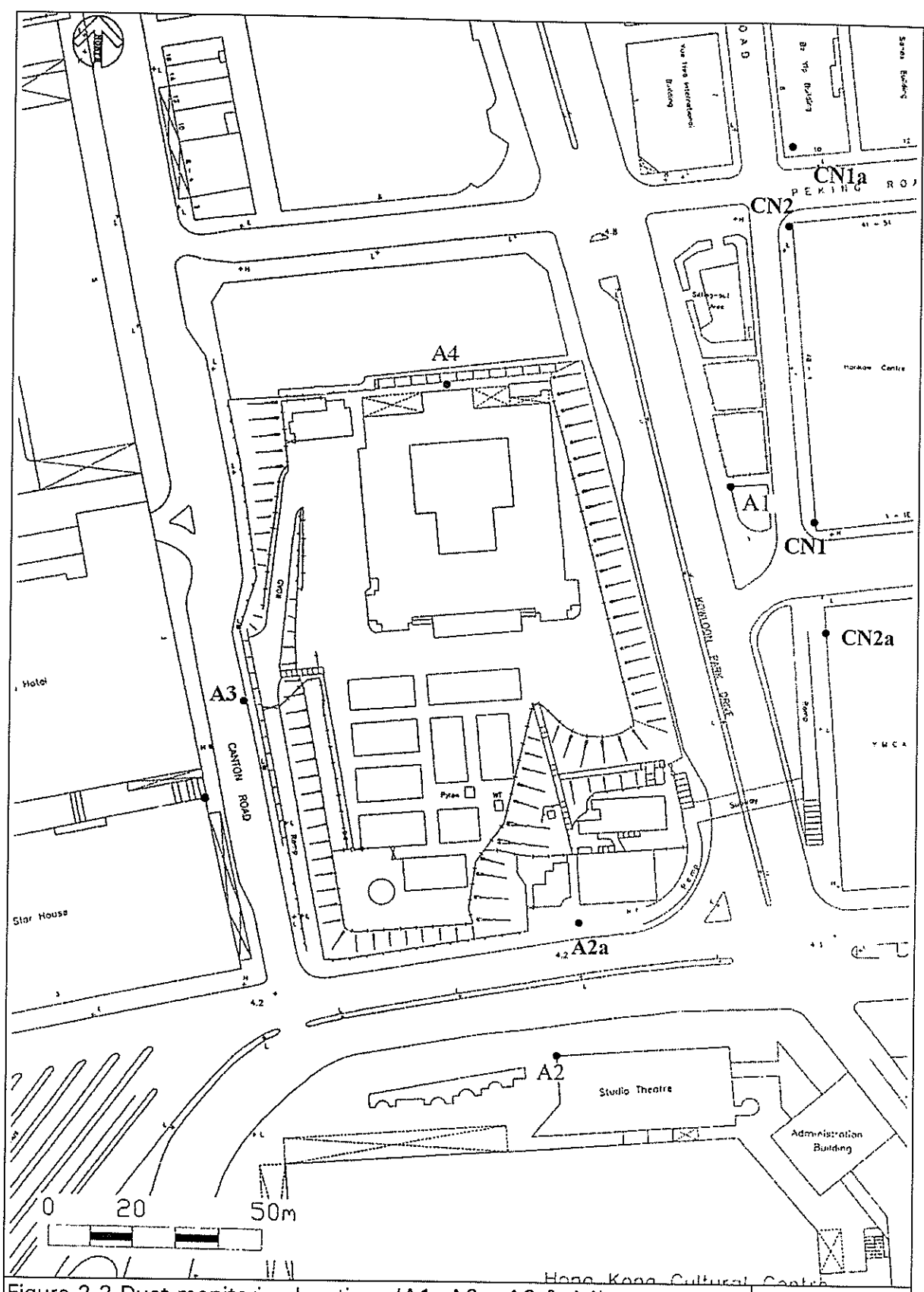


Figure 2.3 Dust monitoring locations (A1, A2a, A3 & A4), proposed noise monitoring locations (CN1 and CN2) and alternative noise monitoring locations (CN1a and CN2a).

Scale: N.T.S

3. Monitoring Results

Weather Condition

- 3.1 The weather during monitoring sessions varied from sunny to cloudy. The weather conditions for each individual monitoring session were presented in the field record sheets.

Air Quality

- 3.2 The monitoring data of 1-hour and 24-hour TSP levels are attached in Appendices of the Monthly EM&A Reports for March 2007 to May 2007. The graphical presentations of the monitoring results are shown in Appendix C.
- 3.3 The summary of the air quality exceedances is attached in Appendix D.
- 3.4 All 1-hour and 24-hour TSP monitoring were conducted as scheduled in this reporting period. No AL Levels exceedance for 1-hour and one Action Levels exceedance for 24-hour TSP was recorded in this reporting period. The TSP level was returned to normal immediately after improved site management.

Noise

- 3.5 All noise monitoring for CN1a & CN2a were conducted as scheduled in this reporting period. Noise monitoring data are attached in Appendices of the Monthly EM&A Reports for March 2007 to May 2007. The graphical presentations of the monitoring results are shown in Appendix E. Ground-borne noise measurements were conducted inside Hong Kong Science Museum for the whole reporting period and in Hong Kong Cultural Centre (HKCC) only in January due to unavailability of time slot.
- 3.6 There were five noise complaints constituting to exceedance of the Action Level. Also, fourteen Limit Level exceedance was recorded during March 2007 to May 2007. Summary of the noise exceedances is attached in Appendix D.

Water Quality

- 3.7 Wastewater was treated on-site by a sedimentation system and discharged at the designated discharge point specified in the License. Bi-monthly water quality sampling required by the Wastewater Discharge License was made in ??? and the result showed compliance with the discharge license requirement.

Cultural Heritage and Landscape

- 3.8 The monitoring results of monument structure in the period from March 2007 to May 2007 are presented in Appendices of the Monthly EM&A Reports for the corresponding month. No adverse comments on the structural integrity of the protected monuments have been received from the Heritage Specialist.
- 3.9 Subsequent to the insecticide treatment to T10 carried out in February 2007, tree canopy was recovered and close monitoring is being carried out.

- 3.10 Due to insect infestation, T96 was treated with insecticide with close monitoring to be carried out.
- 3.11 Close monitoring was also being carried out for T120 and T122 after pruning of decayed branches and termite treatment for T122.
- 3.12 Detailed on-site and off-site tree matters are being covered in the separate submissions to Planning Department under the approved landscape Mitigation and Tree Preservation Proposal.

4. Waste Management

4.1 According to the Waste Management Plan, all Construction & Demolition materials were recorded in the period from March 2007 to May 2007.

4.2 Types, quantities and disposal location of all surplus excavated materials and wastes arising from the site are summarised in Table 4.1 based on information from the Contractor. There were only general refuse and excavated soil disposal in the reporting period.

Table 4.1 Summary of the wastes arising from the site from March 2007 to May 2007

Date	Quantity (tonnes)		Quantity (tonnes)	
	Soil	Disposal Location	General Refuse	Disposal Location
March 2007	12036	TKO137, Quarry Bay	24.67	TKO137
April 2007	10584	TKO137, Quarry Bay	141.18	TKO137
May 2007	9,881	SENT	220	TKO

Note: SENT – South East New Territories Landfill Site
SYP – Public filling barging point at Sai Ying Pun (Public Filling Facility)
TKO – Fill Bank at Tseung Kwan O Area 137 (Public Filling Facility)
QB – Quarry Bay Barging Point
TM – Fill Bank at Tuen Mun Area 38
MW – Ma Wan Development –VDA Phase 3

4.3 There is need for the Contractor to obtain disposal records from the Authority as soon as the wastes are disposed at the Public Filling Facility and/or Landfill to check against the estimated quantities removed off site.

4.4 There was no timber consumption for the construction activities in this reporting period.

4.5 There is need to improve coverage for general refuse together with improvement of general site cleanliness.

5. **Summary of Non-compliance, Complaints, Notification of Summons and Successful Prosecutions, Environmental Licensing and Permitting**

5.1 No environmental prosecution was received in the reporting period.

5.2 Status of environmental licensing and permitting are summarized as follows:

Description	Permit / Licence No.	Status	Permit Holder
Environmental Permit	EP-184/2004	Remain valid since 9 February 2004	Flying Snow Ltd.
Construction Noise Permit	GW-RE5149-05	Expired on 9 February 2007 Hien Lee is renewing the licence	Konwall Construction & Engineering Company Limited
WPCO Discharge Licence	EP482/211/0863/I	Application made on 18 May 2004 and licence was granted on 7 July 2004 and terminated as KCE left the site Hien Lee is renewing the licence	Konwall Construction & Engineering Co. Ltd.

5.3 A total of six complaints, five on noise and one on dust were recorded in the reporting period.

5.4 Four of the noise complaints were from YMCA on 3, 15, 20 March, and 3 April 2007 concerning noise nuisance to their residents. Noise measurements showed that the Limit Level exceeded 75dB(A). Meeting and liaisons with YMCA were made and HL agreed to enhance the noise screening. Meanwhile, excavation would be limited to between 10:30am to 5:00pm.

5.5 One complaint from HKCC on 5 May 2007 on disturbance to the matinee performance in their studio. HKCC was likely to be affected by the ground-borne noise. Understanding with HKCC had been reached that they would give early advice of their sensitive performances so that proper work scheduling can be arranged.

5.6 One dust complaint was received on 16 March 2007 concerning the construction dust affecting pedestrians at Salisbury Road and Canton Road. As exceedance of the 1-hr and 24-hr TSP Action Limit level was not recorded. The complaint was closed and the dust nuisance returned to normal following the strengthening of proper site management.

- 5.7 Fourteen exceedences on noise Limit Level were recorded on 5, 6, 9, 12, 14, 16, 20 March 2007 and 3, 10, 19 April 2007 and 8, 14, 23, 29 May 2007. Noise screen are to be enhanced and scheduling of excavation work will be carried out to reduce noise nuisance to neighbouring parties.

6. Conclusion

- 6.1 EM&A work for March 2007 to May 2007 has been successfully completed.
- 6.2 Bi-monthly sampling and analysis of wastewater discharged from wastewater treatment plant had been carried out in April 2007.
- 6.3 Five noise complaints were recorded in the reporting period. One noise complaints from HKCC about the noise disturbances to their matinee performance at their Studio Theatre were resolved after agreeing to work scheduling with advance notice of sensitive performance from HKCC. Four noise complaints from YMCA due to rock excavation were being handled by better noise screen and scheduling of rock excavation.
- 6.4 Fourteen Limit Level exceedances on noise were found due to rock excavation as mentioned in paragraph 6.3. One Action Level exceedance was also found for 24-hour TSP. The TSP level was immediately reduced to acceptable level following improved site management.
- 6.5 There were no notification of summons and prosecutions. Proper environmental licence and permits are in place.
- 6.6 Monitoring of the monument structure and trees was also made.
- 6.7 Site audits were carried out by ET on a weekly basis and by IEC at least once per month. The following improvements are to be further pursued:
- Noise mats installed on the eastern boundary of the site needed to be improved.
 - Proper record keeping for environmental management have to be enforced. For instance, dust suppression water sprays, updated waste disposal records should be readily made available for close monitoring. Waste recycling should be more actively promoted.
 - Drip tray should be used for every oil container on site.
 - Valid noise emission labels for all air compressors must be ensured.
 - Proper storage and cover of refuse should be made.
 - Water poundings found on site should be removed immediately.
 - Continual protection and closer monitoring of the trees and historical buildings.

Appendix A: The construction programme with milestones of environmental protection/mitigation activities

Appendix B: Implementation schedule for recommended mitigation measures

Implementation Schedule
Redevelopment of Former Marine Police Headquarters, KIL11161

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	Fugitive Dust Impact on the Surrounding Sensitive Uses					
4.1.2.10	To erect site hoarding of at least 2.4m high along the boundaries of the Project Site (particularly along the northern boundary adjacent to No. 1, Peking Road) except at the site entrance/ exit	Site (site boundary)	Site Formation Contractor (for maintenance or improvement as the hoarding was already erected by the Hoarding Contractor earlier)	Construction Phase (prior to construction)	TM-EIA, APC(CD)R & AQO in APCO	To control fugitive dust emissions in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation in principle; Provide shielding against dispersion of fugitive dust
	To control truck speed to within 8 km/hr and that dusty vehicle loads transported to and from the work location should be covered by tarpaulin sheets and should not be overloaded	Site	Site Formation Contractor	Construction Phase	TM-EIA, APC(CD)R & AQO in APCO	To control fugitive dust emissions in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation in principle; Reduce fugitive emission wherever possible
	To provide vehicle wheel washing facilities including high pressure water jets at designated vehicle exit points	Site	Site Formation Contractor	Construction Phase	TM-EIA, APC(CD)R & AQO in APCO	To control fugitive dust emissions in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation in principle; Reduce fugitive emission wherever possible
	To use impervious sheeting where practicable for side enclosure and covering of any aggregate or other dusty material storage piles, to place stockpiles in an area sheltered on the top and the three sides, and/or to spray with water	Site	Site Formation Contractor	Construction Phase	TM-EIA, APC(CD)R & AQO in APCO	To control fugitive dust emissions in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation in principle; Reduce fugitive emission wherever possible

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	To cover the demolished items by impervious sheeting or to place in area sheltered on the top and the three sides within a day of demolition.	Site	Site Formation Contractor	Construction Phase	TM-EIA, APC(CD)R & AQO in APCO	To control fugitive dust emissions in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation in principle; Reduce fugitive emission wherever possible
	To spray all dusty material with water prior to loading, unloading or transfer so as to maintain the C&D material wet	Site	Site Formation Contractor	Construction Phase	TM-EIA, APC(CD)R & AQO in APCO	To control fugitive dust emissions in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation in principle; Reduce fugitive emission wherever possible
	To apply wet suppression at least four times per day at the worksites with active dusty operations and to water all dust emission sources when necessary. The frequency shall be increased when the weather is dry	Site	Site Formation Contractor	Construction Phase	TM-EIA, APC(CD)R & AQO in APCO	To control fugitive dust emissions in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation in principle; Reduce fugitive emission wherever possible
	To control the drop height of excavated materials to a minimum to limit fugitive dust generation from unloading as far as practicable	Site	Site Formation Contractor	Construction Phase	TM-EIA, APC(CD)R & AQO in APCO	To control fugitive dust emissions in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation in principle; Reduce fugitive emission wherever possible
5.2.1.3	To carry out EM&A programme	Site	Site Formation Contractor & Superstructure Contractor	Pre-Construction and Construction Phase	TM-EIA & AQO in APCO	To proactively monitor fugitive dust impact and take necessary action against any unacceptable impact

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	Construction Noise Impact on the Surrounding Sensitive Uses					
4.2.1.5	To restrict operation to within non-restricted hours only	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	NCO	To avoid generation of noise during restricted hours under NCO
4.2.1.11	To use quiet PME with lower sound power level	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	TM-EIA	To reduce noise generation and in turn the construction noise impact
	To provide site hoarding of 4m to 6m high along the eastern boundary with sufficient surface density (10 to 15 kg/m ²), use of noise curtain or other mitigation measures for noise abatement as soon as Action Level is exceeded and confirmed to be due to the construction works	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	TM-EIA	To provide noise shielding or equivalent measures to reduce construction noise impact as per @ or equivalent subject to IEC/ AR's agreement.
	To adopt noise enclosure and temporary noise barriers with sufficient surface density (10 to 15 kg/m ²) (vertical and cantilevered types)	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	TM-EIA	To provide noise shielding to reduce construction noise impact or equivalent measures subject to IEC/ AR's agreement.
	To make use of the topography by carrying out excavation from west to east so that the original platform can act as effective noise barrier	Site	Site Formation Contractor	Construction	TM-EIA	To provide noise shielding to reduce construction noise impact or equivalent measures subject to IEC/ AR's agreement.

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
4.2.1.12	<p>To implement good site practice and noise management</p> <ul style="list-style-type: none"> ▪ To submit to the Engineer for approval the method of working, equipment and sound-reducing measures intended to be used at the site before the commencement of any work ▪ To allow only well-maintained plants to operate on-site; ▪ To service the plants regularly during the construction program; ▪ To shut down or throttle down machines that may be in intermittent use to a minimum between work periods; ▪ To utilize and maintain silencer and mufflers on construction equipment during the construction program; ▪ To schedule noisy activities to minimise exposure of nearby NSRs to high levels of construction noise. For example, noisy activities can be scheduled for midday or at times coinciding with periods of high background noise (such as during peak traffic hours); ▪ To site noisy equipment such as emergency generators as far away as possible from NSRs; ▪ To site mobile plants as far away from NSRs as possible; and ▪ To utilize material stockpiles and other structures as noise barrier, where practicable. 	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	NCO & TM-EIA	To reduce noise generation and its impact in accordance with NCO and its subsidiary regulations

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
4.2.1.23	No percussive piling	Site	Site Formation Contractor	Construction Phase	TM-EIA & NCO	To eliminate possibility of generating any significant ground borne noise impact
4.2.1.81	To avoid concurrent pipe piles driving near the tree ring and the Main Building when the pipes near the Main Building is about to penetrate the bedrock	Site	Site Formation Contractor	Construction Phase	TM-EIA & NCO	To avoid adverse cumulative ground borne noise impact
	To conduct on-site noise measurement at the HKCC and the HKSM when the works at the FMPH commences to verify the level of transmitted ground-borne noise	Site	Site Formation Contractor	Construction Phase	TM-EIA & NCO	To avoid adverse cumulative ground borne noise impact
	To establish a communication channel with HKCC and HKSM to stagger, if necessary, the ground-borne noise causing construction activities to avoid clashing with hours of performance at both venues	Site	Site Formation Contractor	Construction Phase	TM-EIA & NCO	To avoid adverse cumulative ground borne noise impact
5.2.1.3	To carry out EM&A program	Site	Site Formation Contractor & Superstructure Contractor	Pre-Construction and Construction Phase	TM-EIA	To proactively monitor construction noise impact and take necessary action against any unacceptable impact

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	Construction Phase Water Quality Impact					
4.3.1.7	To carry out the Works in such a manner as to minimize adverse impacts on the water quality during execution of the works. In particular he shall arrange his method of working to minimize the effects on the water quality within and outside the Site, on the transport routes and at the loading, dredging and dumping areas.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WPCO	To comply with the Water Pollution Control Ordinance and its subsidiary regulation.
	To follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures as specified in the Professional Persons Environmental Consultative Committee Practice Note (ProPECC PN) 1/94 "Construction Site Drainage" issued by the Director of Environmental Protection. The design of the mitigation measures shall be submitted by the Contractor to the Engineer for approval.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	ProPECC PN1/94 & WPCO	To comply with the Water Pollution Control Ordinance and its subsidiary regulation.
	To contain within the Site all surface runoff generated from foundation works, dust control and vehicle washing, etc.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WPCO	To comply with the Water Pollution Control Ordinance and its subsidiary regulation.

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	Construction Phase Water Quality Impact					
4.3.1.7	To carry out the Works in such a manner as to minimize adverse impacts on the water quality during execution of the works. In particular he shall arrange his method of working to minimize the effects on the water quality within and outside the Site, on the transport routes and at the loading, dredging and dumping areas.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WPCO	To comply with the Water Pollution Control Ordinance and its subsidiary regulation.
	To follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures as specified in the Professional Persons Environmental Consultative Committee Practice Note (ProPECC PN) 1/94 "Construction Site Drainage" issued by the Director of Environmental Protection. The design of the mitigation measures shall be submitted by the Contractor to the Engineer for approval.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	ProPECC PN1/94 & WPCO	To comply with the Water Pollution Control Ordinance and its subsidiary regulation.
	To contain within the Site all surface runoff generated from foundation works, dust control and vehicle washing, etc.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WPCO	To comply with the Water Pollution Control Ordinance and its subsidiary regulation.

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	To avoid discharge directly or indirectly or cause or permit or suffer to be discharged into any public sewer, stormwater drain, channel, stream-course or sea any trade effluent or foul or contaminated water or cooling or hot water without the prior written consent of the Engineer in consultation with the Director of Environmental Protection and Director of Water Supplies, who may as a condition of granting his consent require the Contractor to provide, operate and maintain at the Contractor's own expense to the satisfaction of the Engineer suitable works for the treatment and disposal of such trade effluent or foul or contaminated or cooling or hot water. [The design of such treatment works shall be submitted to the Engineer for approval not less than one month before the commencement of the relevant works.]	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WPCO	To comply with the Water Pollution Control Ordinance and its subsidiary regulation.
	To direct foul water effluent to a foul sewer or to a sewage treatment and disposal facility either directly or indirectly by means of pumping or other means approved by the Engineer if any office, site canteen or toilet facilities is erected	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WPCO	To comply with the Water Pollution Control Ordinance and its subsidiary regulation.

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	Operational Phase Water Quality Impact					
4.3.2.1	To discharge sewage/wastewater generated from the Project to the nearby public sewers	Site	Project Proponent/Operator	Design / Operational Phase	WPCO	To meet the requirement as stipulated in the Technical Memorandum on Water Pollution Control Ordinance
	Waste Management					
4.5.1.7	To minimize the production of construction waste through careful design, planning, good site management, and control of ordering procedures, segregation and reuse of materials; To arrange for private contractors to collect used formwork materials for reuse.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WDO	To follow relevant regulations (Waste Disposal Ordinance) in all circumstances.
4.5.1.8	To dispose of any chemical wastes such as lubricating oil or solvent in strict accordance with the Waste Disposal (Chemical Waste) (General) Regulation	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WDO	To follow relevant regulations (Waste Disposal Ordinance) in all circumstances.
4.5.1.9	To assign a reliable waste collector to collect general refuse generated from the construction site on a daily basis to minimise the potential odour, pest and litter impacts.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	WDO	To follow relevant regulations (Waste Disposal Ordinance) in all circumstances.
4.5.2.1	To identify requirements on proper waste management for implementation during the operation of the Project	Site	Operator	Operational Phase	WDO	To follow relevant regulations (Waste Disposal Ordinance) in all circumstances.

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	Construction Phase Landscape and Visual Impact					
4.6.2.2	To screen the works area during the construction phase through the use of decorative hoarding along the site boundary with unified edge treatment and interface	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	A&MO, TM-EIA, Project Profile ["PP"], Landscape Mitigation and Tree Preservation Proposal ["LMTPP"] & WBTC No. 14/2002	Interim measures designed to ensure acceptable landscape and visual impact on completion. Implementation of the LMTPP to the mature trees during the construction period.
4.6.2.11	Creation of precautionary area (Cordon Area) around trees to be retained equal to the spread of the trees canopy diameter. Precautionary area to be fenced. Following the completion of the piling the Cordon Area would be based on the retained rootball.	Site	Specialist Landscape Contractor	Construction Phase	A&MO, TM-EIA, PP, LMTPP & WBTC No. 14/2002	Interim measures designed to ensure acceptable landscape and visual impact on completion. Implementation of the LMTPP to the mature trees during the construction period.
	Prohibition of the storage of materials including fuel, the movement of construction vehicles, and the refuelling and washing of equipment including concrete mixers within the Cordon Area.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	A&MO, TM-EIA, PP, LMTPP & WBTC No. 14/2002	Interim measures designed to ensure acceptable landscape and visual impact on completion. Implementation of the LMTPP to the mature trees during the construction period.

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	<p>Phased segmental root pruning for trees to be retained over a six-month period prior to or site formation works, which affect the existing rootball of trees identified for retention. The extent of the pruning shall be based on a minimum half canopy and has been determined on a tree by tree basis.</p> <p>Phased segmental root pruning over a three-month period prior to lifting the trees identified for transplantation.</p>	Site	Specialist Landscape Contractor	Construction Phase	A&MO, TM-EIA, PP, LMTTP & WBTC No. 14/2002	Interim measures designed to ensure acceptable landscape and visual impact on completion. Implementation of the LMTTP to the mature trees during the construction period.
	Pruning of the branches of existing trees identified for transplantation and retention to be based on the principle of crown thinning maintaining their form and amenity value	Site	Specialist Landscape Contractor	Construction Phase	A&MO, TM-EIA, PP, LMTTP & WBTC No. 14/2002	Interim measures designed to ensure acceptable landscape and visual impact on completion. Implementation of the LMTTP to the mature trees during the construction period.
	The watering of existing vegetation particularly during periods of excavation when the water table beneath the existing vegetation is lowered.	Site	Specialist Landscape Contractor	Construction Phase	A&MO, TM-EIA, PP, LMTTP & WBTC No. 14/2002	Interim measures designed to ensure acceptable landscape and visual impact on completion. Implementation of the LMTTP to the mature trees during the construction period.
	The rectification and repair of damaged vegetation following the construction phase to it's original condition prior to the commencement of the works or replacement using specimens of the same species, size and form where appropriate to the design intention of the area affected	Site	Specialist Landscape Contractor	Construction Phase	A&MO, TM-EIA, PP, LMTTP & WBTC No. 14/2002	Interim measures designed to ensure acceptable landscape and visual impact on completion. Implementation of the LMTTP to the mature trees during the construction period.
	All works affecting the trees identified for retention and transplantation will be carefully monitored. This includes the key stages in the preparation of the trees, the implementation of protection measures and health monitoring through out the construction period	Site	Specialist Landscape Contractor	Construction Phase	A&MO, TM-EIA, PP, LMTTP & WBTC No. 14/2002	Interim measures designed to ensure acceptable landscape and visual impact on completion. Implementation of the LMTTP to the mature trees during the construction period.

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
	Cultural Heritage Impact					
4.7.1.1	All monuments within the site will be preserved to an extent given according to the in the tender requirement	Site	Project Proponent	Design, Construction and Operational Phase	Tender Document	To preserve the monument
4.7.4.1	To prepare and submit a detailed study report comprising the historic archives, measured drawings, photographic records and full bibliography in support of the historic evidence prepared by experts in cultural heritage for their approval under the Antiquities and Monuments Ordinance (Cap. 53)	Site	Project Proponent	Design Phase	A&MO	To observed principles in the Charter of Venice (ICOMOS) and the Burra Charter (ICOMOS Australia) and requirement of A&MO
4.7.4.2	To submit detailed descriptions, plans for building and mitigation works and implementation programme to AMO for their approval and monitoring before commencement of works.	Site	Project Proponent	Design Phase	A&MO	To observed principles in the Charter of Venice (ICOMOS) and the Burra Charter (ICOMOS Australia) and requirement of A&MO
4.7.4.3	To preserve the Historic Buildings to meet international standard. Relevant legislations, standards, Charters and planning guidelines will be observed.	Site	Project Proponent	Design, Construction & Operational Phase	A&MO	To observed principles in the Charter of Venice (ICOMOS) and the Burra Charter (ICOMOS Australia) and requirement of A&MO
4.7.4.4	To allow only alteration or addition works to the Historic Buildings, which are reversible except those, considered to be minor by AMO.	Site	Superstructure Contractor	Construction Phase	A&MO	To observed principles in the Charter of Venice (ICOMOS) and the Burra Charter (ICOMOS Australia) and requirement of A&MO
4.7.4.5	To take necessary precautions during construction and excavation work to prevent any damage to the Historic Buildings. Structural monitoring system will be designed and supervised by a Registered Structural Engineer during the whole of construction works on the site.	Site	Site Formation Contractor & Superstructure Contractor	Construction Phase	A&MO	To prevent any damage to the historic buildings and structures during the site formation.

Project Profile Ref.:	Recommended Mitigation Measures	Location of the measure	Who to implement the measure	When to implement the measures	What requirements or standards for the measure to achieve*	Objectives of the Recommended Measure & Main Concern to address
4.7.4.8	A comprehensive management plan including a heritage building maintenance guideline for the operation of FMPHQ would be prepared by conservation experts.	Site	Agent appointed by Project Proponent	Prior to Operational Phase	A&MO	To maintain the historic site and buildings in a proper manner
4.7.4.9	Periodic site inspection to heritage buildings on external areas, interior decoration and covered-up areas to ensure a constant monitoring of building condition is conducted.	Site	Agent appointed by Project Proponent	Operational Phase	A&MO	To maintain the historic site and buildings in a proper manner
4.7.4.10	The Permit on routine maintenance would be applied to AMO under the A & M Ordinance.	Site	Agent appointed by Project Proponent	Operational Phase	A&MO	To maintain the historic site and buildings in a proper manner

***Abbreviation**

TM-EIA – Technical Memorandum on Environmental Impact Assessment Process

AQO – Air Quality Objectives

APCO – Air Pollution Control Ordinance

APC(CD)R - Air Pollution Control (Construction Dust) Regulation

HKPSG – Hong Kong Planning Standards and Guidelines

TPO – Town Planning Ordinance

NCO – Noise Control Ordinance

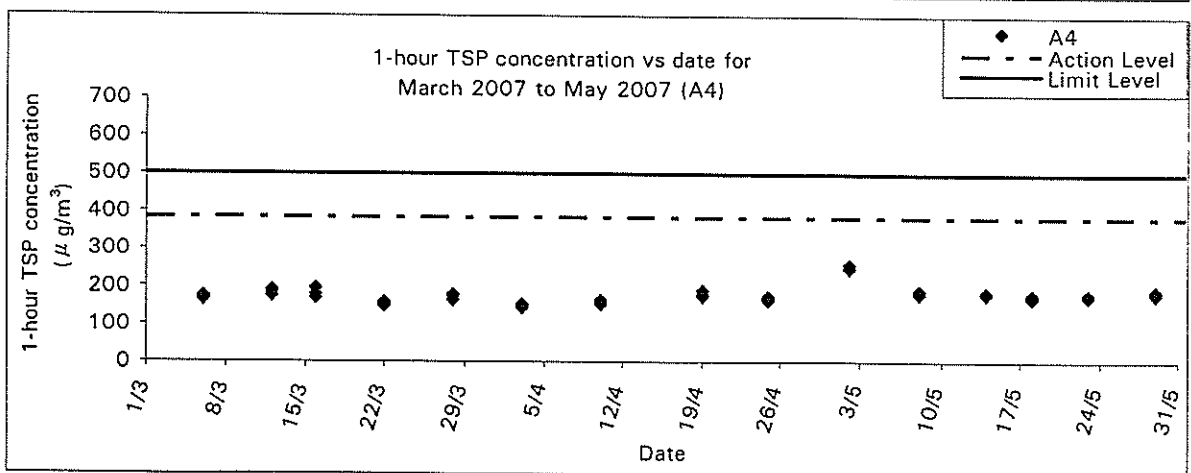
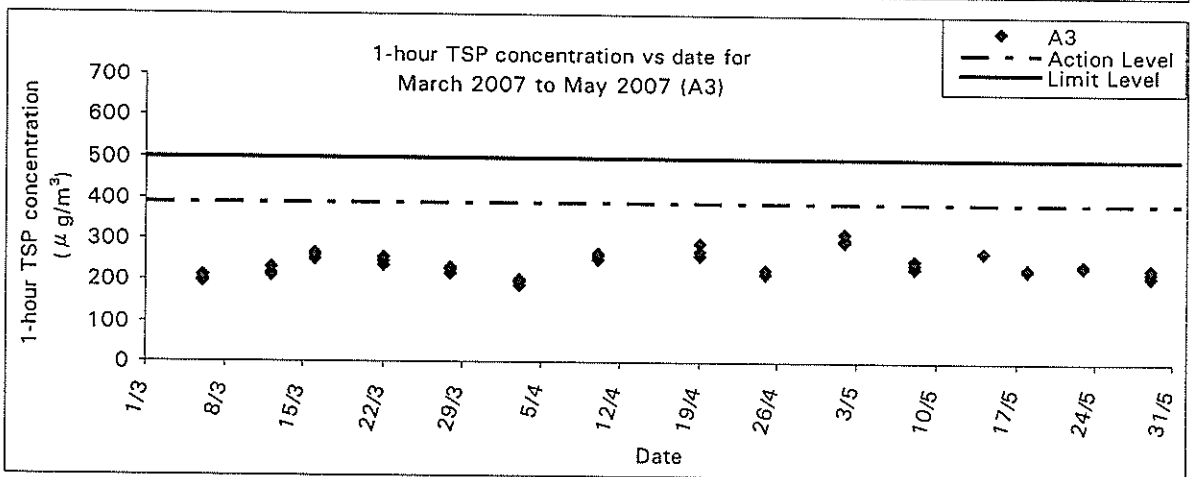
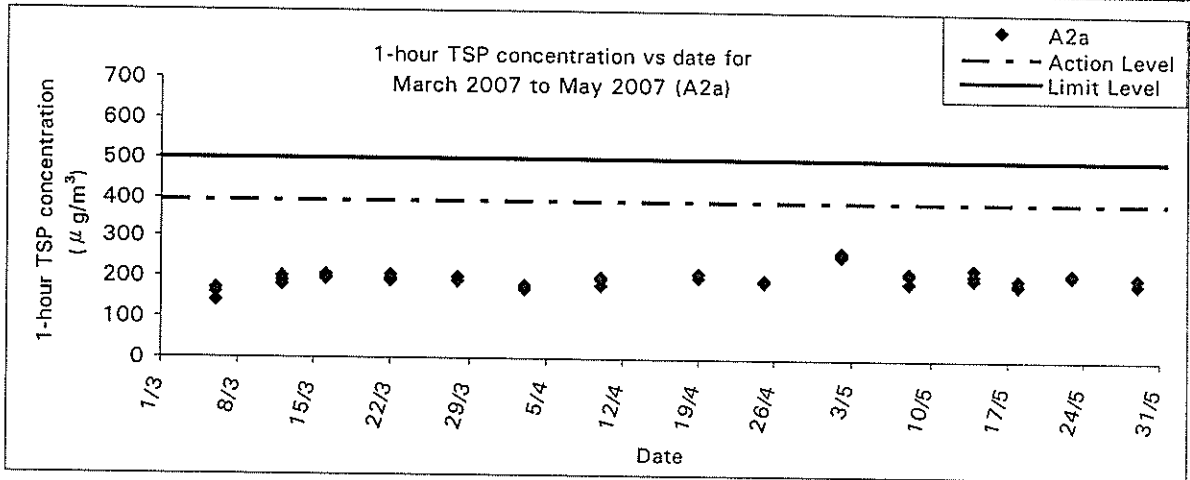
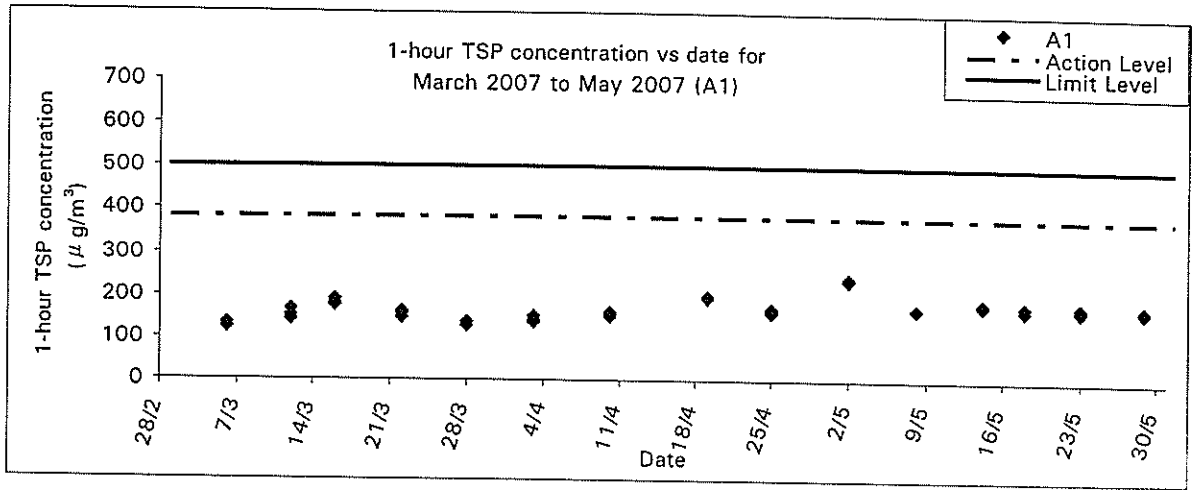
WPCO – Water Pollution Control Ordinance

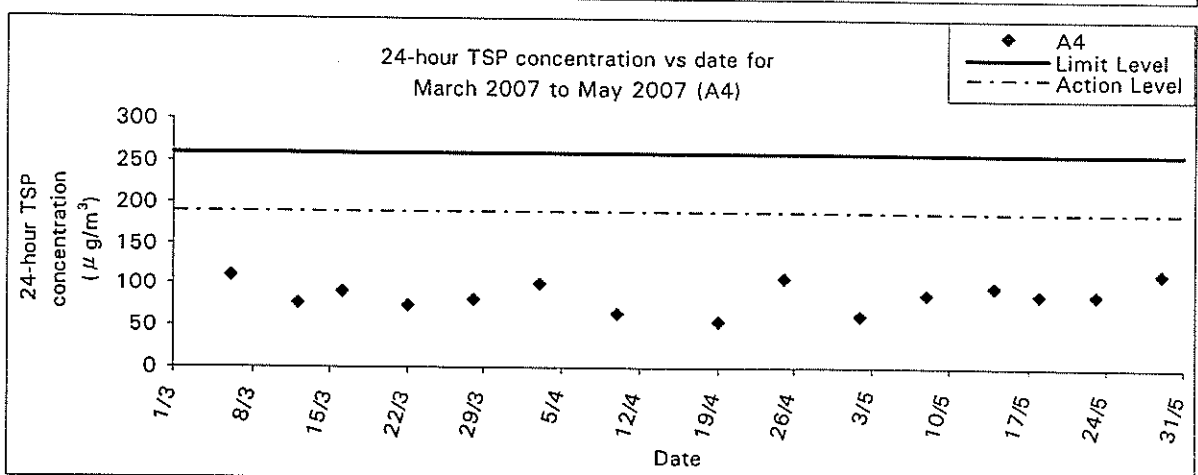
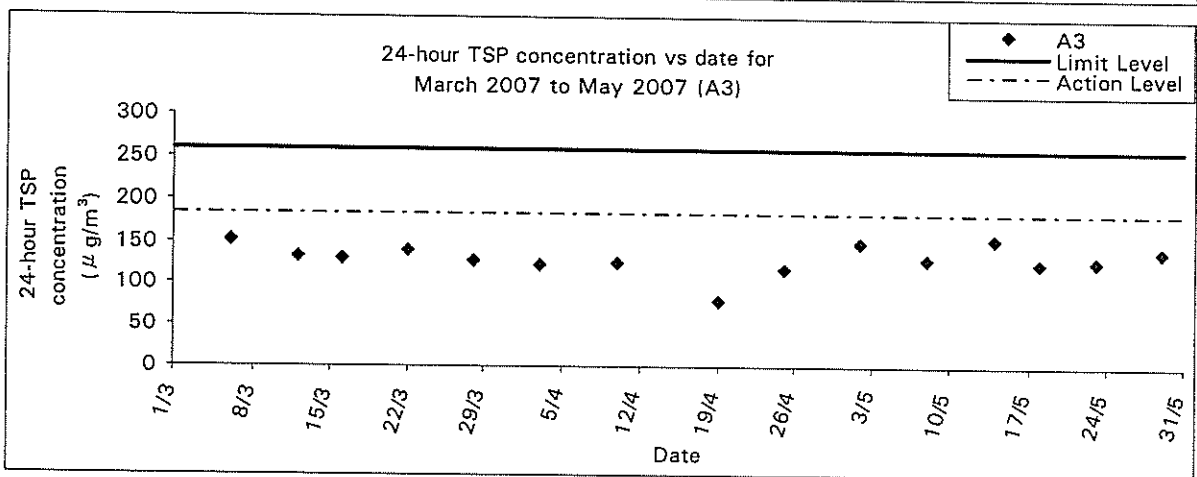
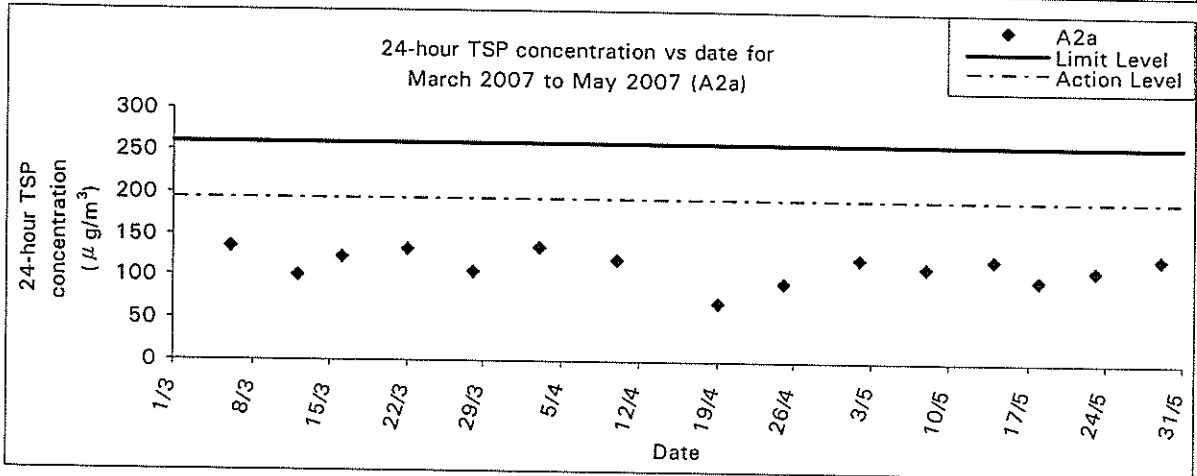
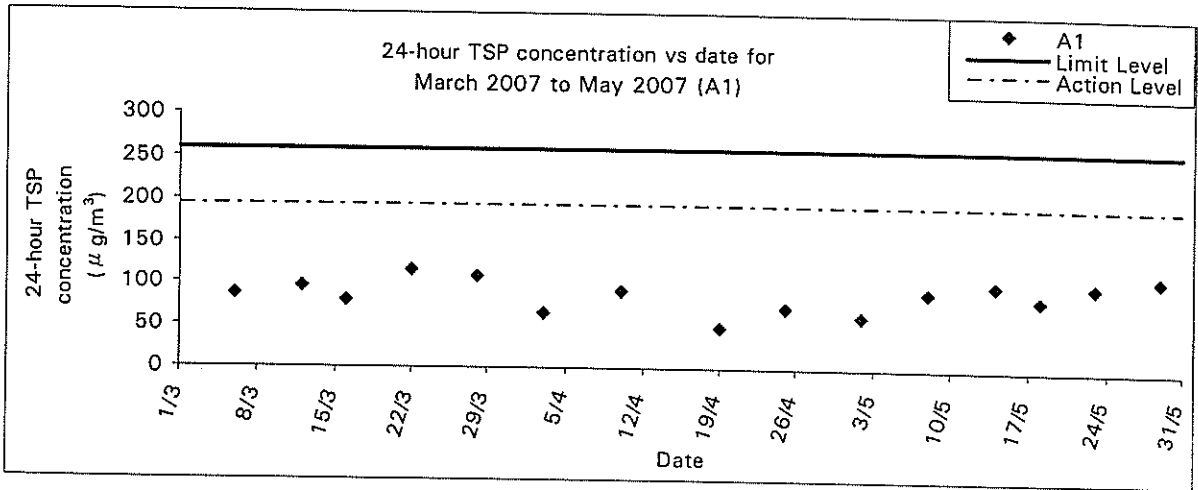
PN1/94 - Professional Persons Environmental Consultative Committee Practice Note (ProPECC PN) 1/94 "Construction Site Drainage"

WDO – Waste Disposal Ordinance

A&MO - Antiquities and Monuments Ordinance

Appendix C: Graphical presentations of the air impact monitoring results





Appendix D: Summary of exceedances

Parameter	Location	Monitoring Period	No. of Exceedance(s)	
			Action Level	Limit Level
Air (1-hour TSP)	A1	01/03/2007 – 31/05/2007	0	0
	A2a	01/03/2007 – 31/05/2007	0	0
	A3	01/03/2007 – 31/05/2007	0	0
	A4	01/03/2007 – 31/05/2007	0	0
Air (24-hour TSP)	A1	01/03/2007 – 31/05/2007	0	0
	A2a	01/03/2007 – 31/05/2007	0	0
	A3	01/03/2007 – 31/05/2007	0	0
	A4	01/03/2007 – 31/05/2007	0	0
Noise	CN1a	01/03/2007 – 31/05/2007	0	0
	CN2a	01/03/2007 – 31/05/2007	5	14
	Lecture Room	01/03/2007 – 31/05/2007	0	0
	Sky Theatre	01/03/2007 – 31/05/2007	0	0
	Recording Studio	01/03/2007 – 31/05/2007	0	0
Water	Outlet of treatment facility	01/03/2007 – 31/05/2007	0	0

Appendix E: Graphical presentations of the noise impact monitoring results

