



**ENVIRONMENTAL PERMIT NO.
EP-286/2007/B AND EP-01/286/2007/A**

**EXPANSION OF HELIPORT FACILITIES
AT MACAU FERRY TERMINAL
Final EM&A Report for Construction Phase**

Prepared for:
Hip Hing Construction Company Limited

Prepared by:
ENVIRON Hong Kong Limited

Date: January 2010

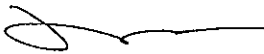
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**EXPANSION OF HELIPORT FACILITIES
AT MACAU FERRY TERMINAL**

Final Monthly EM&A Report for Construction Phase

Certified by:



David Yeung
Environmental Team Leader

Verified by:



Anne F Kerr
Independent Environmental Checker

Date: 5 January 2010

Pursuant to Condition 1.9 of the Environmental Permits EP-286/2007/B and EP-01/286/2007/A, this Final EM&A Report has been reviewed and certified by the Environmental Team Leader and verified by the Independent Environmental Checker.

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EXECUTIVE SUMMARY

The Expansion of Heliport Facilities at Macau Ferry Terminal (hereinafter referred to as “The Project”) has been awarded to Hip Hing Construction Company Limited by Sky Shuttle Helicopters Limited (formerly known as Heli Express Limited). The construction works under this Contract has commenced on 10 April 2008 and completed on 5 December 2009.

ENVIRON Hong Kong Limited has been appointed by Hip Hing Construction Company Limited (hereinafter referred to as “The Contractor”) as the Environmental Team (hereinafter referred to as “ET”) to implement the Environmental Monitoring and Audit (hereinafter referred to as “EM&A”) programme as identified in the EIA Report and the Final EM&A Manual for the Project (EIA Register No.: AEIAR-095/2006) approved by EPD on 8 February 2006.

This is the Final EM&A report for the construction phase of the Project which summarizes the EM&A works performed during the whole EM&A programme period from 10 April 2008 to 5 December 2009. This report documents the environmental monitoring and audit works, results and findings, list of activities, and environmental mitigation measures implemented in the whole period.

Air Quality

As according to the EM&A Manual for the Project, no impact monitoring of air quality was required to carry out during the construction phase. Site inspection was carried out on a weekly basis to monitor proper implementation of environmental mitigation measures throughout the construction phase.

Construction Noise

As according to the EM&A Manual for the Project, no impact monitoring of construction noise was required to carry out during the construction phase. Site inspection was carried out on a weekly basis to monitor proper implementation of environmental mitigation measures throughout the construction phase.

Water Quality

As according to the EM&A Manual for the Project, no impact monitoring of water quality was required to carry out during the construction phase. Site inspection was carried out on a weekly basis to monitor proper implementation of environmental mitigation measures and water pollution control throughout the construction phase.

Compliance audit by means of monitoring of the quality of effluent was conducted on quarterly basis during the construction phase. A total 5 times of effluent sampling were conducted and no breach of the discharge limits was identified.

Waste Disposal

A total of 29.7m³ of inert C&D material were disposed of at Public Fill during the construction period.

A total of 181,380kg of metal wastes had been collected by the recycle company and 20 drums (4,000L) of spent lube oil had been collected by the licensed chemical waste collector during the construction period.

Environmental Complaints and Prosecutions

No environmental complaints were received in the reporting period.

No summons or prosecutions related to environmental issues was made against the Project in the reporting period.

One yellow form was issued by EPD on 16 July 2008 regarding the improper design of the chemical storage cabinet and no appropriate label was affixed to the chemicals stored in the cabinet during EPD's site inspection. The Contractor properly rectified the deficiency addressed in yellow form on 21 July 2008 and provided further improvement on 4 September 2008.

1 INTRODUCTION

1.1 Basic Project Information

1.1.1 This Project – “Expansion of Heliport Facilities at Macau Ferry Terminal” (hereinafter referred as “MFT”) is categorized as a Designated Project under the EIA Ordinance. Environmental Permit is required to construct and operate the Project. An Environmental Permit (EP No. EP-286/2007) was issued to Heli Express Limited by EPD on 27 September 2007. This Contract for the construction of the project has been awarded to the Contractor – Hip Hing Construction Company Limited. A Further Environmental Permit (EP No. FEP-01/286/2007) was issued to Hip Hing Construction Company Limited by EPD on 20 February 2008. These two Environmental Permits were subsequently varied as EP-286/2007/A and EP-01/286/2007/A respectively (hereinafter referred to as “EP”) and were granted by EPD on 31 March 2008. A varied Environmental Permit (EP No. EP-286/2007/B) was issued to Sky Shuttle Helicopters Limited (formerly known as Heli Express Limited) by EPD on 5 March 2009.

1.1.2 An Environmental Permit (EP No. EP-01/286/2007/A) was surrendered to EPD on 7 December 2009.

1.1.3 In accordance with Condition 1.11 of the EP, the Contractor has notified EPD in writing the commencement date of the Project to be on 10 April 2008. According to Special Condition 2.1 of the EP and the contract requirement, the Contractor has appointed ENVIRON Hong Kong Limited as the Environmental Team (ET) of the Project to implement the EM&A programme as identified in the approved EIA report for the Project. Mott MacDonald Hong Kong Limited (formerly known as Mott Connell Limited), on the other hand, has been appointed as the Independent Environmental Checker (IEC).

1.1.4 At present, there is an elevated landing/take-off helipad located at the rooftop of the Inner Pier of MFT which can accommodate Class 1 performance helicopters up to the 12-passenger S76C+. Civil Aviation Department (CAD) commissioned a consultancy study on Helicopter Traffic Demand and Heliport Development in Hong Kong in 2001. This study concluded that expansion works for the existing heliport at MFT should be carried out as soon as possible to meet the anticipated growth in cross-boundary helicopter services.

1.1.5 The Project therefore aims to expand the existing cross-boundary heliport at the rooftop of the MFT by adding one landing/take-off pad and a new taxiway to connect the existing and proposed new helipads connecting taxiway to the existing helipad. Upon completion of the Project, there will be two helipads operating at the MFT.

1.1.6 The development and operation of the Project comprises the following major items:

- Construction of a new elevated landing/take-off helipad of size of about 42m x 42m to the east of the existing helipad;
- Construction of a taxiway to connect the existing and proposed new helipads;
- Renovation, extension and re-location of the existing heliport supporting facilities, e.g. passenger lounge, crew office and flight control room;

- Provision of additional means of access, e.g. escalators and access to/from the helipads; and
- Expansion of the existing helipad from size of about 29.75m x 29.75m to about 32m x 32m.

1.1.7 The layout of the Project site, with the locations of the existing and proposed landing/take-off helipads and the proposed taxiway are shown in Figure 1.

1.2 Coverage of this EM&A Report

1.2.1 The EM&A programme commenced with the construction of the Project on 10 April 2008. This report is the Final EM&A report for the construction phase of the Project which summarizes the EM&A works performed during the whole EM&A programme period from 10 April 2008 to 5 December 2009 inclusive. This report documents the environmental monitoring and audit works, results and findings, list of activities, and environmental mitigation measures implemented in the whole period.

2. PROJECT CHARACTERISTICS

2.1 Project Organization and Management Structure

2.1.1 The Project organization chart is presented in Appendix A. The different project parties with their contact details are tabulated below in .

Table 1 Key Personnel Contact Details of Different Project Parties

Designation	Company	Name	Telephone Number
Project Proponent	Sky Shuttle Helicopters Limited	Mr. Harris Ho	2108 9947
Project Manager	Mott MacDonald Hong Kong Limited	Mr. David Ho	2828 5865
The Contractor	Hip Hing Construction Company Limited	Mr. Simon Heo	2525 9251
Environmental Team (ET) Leader	ENVIRON Hong Kong Limited	Mr. David Yeung	3743 0717
Independent Environmental Checker (IEC)	Mott MacDonald Hong Kong Limited	Dr. Anne F Kerr	2828 5793

2.2 Construction Programme

2.2.1 The construction period of the Project was 20 months from April 2008 to December 2009.

2.2.2 The construction programme showing the major construction activities is given in Appendix B.

2.3 Construction Activities of the Project

2.3.1 The major components of this Project are listed below:

Phase 1 Work:

- Off site fabrication;
- Structural frame erection;
- Durasteel slab installation;
- E&M fixing;
- Curtain wall installation;
- Al cladding installation;
- Helipad installation;
- Interior Fitting out; and
- Lift and escalators installation.

Phase 2 Work:

- Demolition of existing helipad;
- Structural frame erection;
- New helipad installation;
- Demolish of existing lounge & office;
- Structural strengthening work;
- TX room installation;
- HEC inspection; and
- Energization.

2.3.2 A layout plan of the Project is provided in Figure 1.

3. EM&A REQUIREMENTS

3.1 Summary of Construction Phase EM&A Requirements

3.1.1 The EM&A programme requires environmental audit for air quality, noise, water quality and waste management during construction phase of the Project as specified in the Final EM&A Manual. The EM&A requirements are presented below.

Air Quality

3.1.2 Site audits are required to ensure that the dust control measures presented in the EIA Report are properly implemented. Environmental audit of dust generation from the site should be carried out by the ET to ensure that any deteriorating air quality could be readily detected and timely action taken to rectify the situation. The objectives of the site audit of air quality impacts shall be:

- to identify the extent of any construction dust impacts on sensitive receivers;
- to determine the effectiveness of mitigation measures to control fugitive dust emission from activities during construction phase;
- to audit the compliance of the Contractor with regard to dust control and contract conditions;
- to recommend further mitigation measures if found to be necessary.

3.1.3 The air quality mitigation measures recommended in the EIA report and stipulated in the Air Pollution Control (Construction Dust) Regulation should be implemented to control potential dust emission from the construction site. The major dust control measures are listed below:

- every stock of more than 20 bags of cement should be covered entirely by impervious sheeting and placed in an area sheltered on the top and the 3 sides;
- all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;
- the load of dusty materials leaving the construction site should be covered entirely by clean impervious sheeting to ensure no leakage of the dusty materials;
- the contractor shall not burn debris or other materials on the work areas.

Construction Noise

3.1.4 In accordance with the EIA of the Project, insignificant construction noise impact would be anticipated, therefore noise monitoring during construction phase of the Project is not required. The only construction activities for the Project which could be a potential source of construction noise would be:

- Piling for support the steel framework structure for proposed new helipad;

- Reinforcement works for the proposed new helipad and the minor expansion of existing helipad.
- 3.1.5 In view of the limited scale of the project works and screening effect from Shun Tak Centre, significant construction noise impact on the nearest NSRs, would not be expected. However, environmental site audit was recommended to monitor the implementation of good site practices during construction phase of the Project.
- 3.1.6 As detailed in the EIA report, the following mitigation measures and site practices are recommended during the construction phase of the Project.
- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;
 - Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction programme;
 - Mobile plant, if any, should be sited as far away from NSRs as possible;
 - Machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;
 - Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.

Water Quality

- 3.1.7 The construction phase water quality impact was anticipated to be temporary and localized during construction, no unacceptable residual water quality impacts were expected during the construction phase of the Project, provided that all the mitigation measures recommended in the EIA and Final EM&A Manual are properly implemented.
- 3.1.8 According to the Final EM&A Manual, implementation of regular site audits was recommended to ensure that the recommended mitigation measures are properly implemented during the construction phase of the Project. It also helps to provide an effective control of any malpractices and therefore achieve continual improvement of the environmental performance on site. Site audits shall include site inspections and compliance audits.
- 3.1.9 Site inspections shall be carried out by the ET and shall be based on the mitigation measures for water pollution control recommended in the Final EM&A Manual and presented in Section below. In the event that the recommended mitigation measures are not fully or properly implemented, deficiency shall be recorded and reported to the site management. Suitable actions are to be carried out to:
- Investigate the problems and the causes;
 - Issue action notes to the Contractor who is responsible for the works;
 - Implement remedial and corrective actions immediately;

- Re-inspect the site conditions upon completion of the remedial and corrective actions;
- Record the event and discuss with the Contractor for preventive actions.

3.1.10 Compliance audit by means of monitoring of the quality of effluent from the Works Areas, if any, is required during the construction phase of the Project. The monitoring shall be carried out at the pre-determined discharge point. Compliance audits are to be undertaken to ensure that a valid discharge license has been issued by EPD prior to any discharge of effluent from the Project site. The monitoring frequency and parameters specified in the discharge license shall be fully considered during the monitoring. All monitoring requirements shall be approved by EPD. The audit results reflect whether the effluent quality is in compliance with the discharge license requirements. The audit results are summarized in Appendix F. In case of non-compliance, suitable actions shall be undertaken to:

- Notify the site management for the non-compliance;
- Identify the sources of pollution;
- Check the implementation status of the recommended mitigation measures;
- Investigate the operating conditions of the on-site treatment systems;
- Implement corrective and remedial actions to improve the effluent quality;
- Increase monitoring frequency until the effluent quality is in compliance with the discharge licence requirements;
- Record the non-compliance and propose preventive measures.

3.1.11 Mitigation measures for water quality control during construction phase of the Project were recommended in the EIA report to minimize the adverse impacts on water quality arising from the construction works of the Project. The Contractor is responsible for the design and implementation of these mitigation measures.

3.1.12 The water quality control and mitigation measures recommended in the EIA report are presented below:

Construction Site Runoff and General Construction Activities

3.1.13 The practices outlined in *ProPECC PN 1/94 Construction Site Drainage* should be adopted where applicable, to minimise the potential water quality impacts from construction site runoff and various construction activities.

3.1.14 There is a need to apply to EPD for a discharge licence for discharging effluent from the construction site, if any. The discharge quality is required to meet the requirements specified in the discharge licence. Any wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the *Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS)*.

3.1.15 Good site practices should be adopted to collect the rubbish and litter on the construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.

Sewage from Workforce

3.1.16 The presence of construction workers generates sewage. The construction workers can make use of the existing toilet facilities within the MFT, as necessary. If required, sufficient portable chemical toilets should be provided in the works areas, and a licensed collector should be deployed for appropriate disposal and maintenance of the toilets on a regular basis.

3.1.17 Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project.

Accidental Spillage of Chemicals

3.1.18 Any service shop and maintenance facilities should be located within a bunded area, and sumps and oil interceptors should be provided. Maintenance of equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.

Waste Management

3.1.19 Waste materials generated during construction activities are recommended to be audited at regular intervals to ensure that proper storage, transportation and disposal practices are being implemented. The monitoring of waste management practices would ensure that solid wastes generated during construction are not disposed of into the nearby marine waters. The Contractor shall be responsible for the implementation of any mitigation measures to minimize waste or redress problems arising from the waste materials.

3.1.20 Mitigation measures for waste management recommended in the EIA report are summarized below. With the appropriate handling, storage and removal of waste during the construction works as defined below, the potential to cause adverse environmental impacts could be minimized. During the site inspections, the ET shall pay special attention to the issues relating to waste management and check whether the Contractor has implemented the recommended good site practices and other mitigation measures.

Good Site Practices

3.1.21 Recommendations for good site practices during the construction activities include:

- nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;

- training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;
- provision of sufficient waste disposal points and regular collection for disposal;
- appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;
- regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.

General Refuse

3.1.22 General refuse should be stored in enclosed bins or compaction units. A reputable waste collector should be employed by the contractor to remove general refuse from the site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.

Chemical Wastes

3.1.23 If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations, in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.

3.1.24 Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:

- Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport;
- Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents;
- Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area.

3.2 Implementation of Environmental Mitigation Measures

3.2.1 Relevant environmental mitigation measures as recommended in the Project EIA Report had been stipulated in the Final EM&A Manual for the Contractor to adopt. A copy of the implementation schedule of recommended mitigation measures are presented in Appendix C.

4. MONITORING AND AUDIT RESULTS

4.1 Impact Monitoring and Audit during the EM&A Programme Period

4.1.1 A summary of EM&A exercises conducted are summarized in Table 2 below:

Table 2 Summary of Impact Monitoring and Audit

Event	Total
1-hour TSP monitoring	N.A.
24-hour TSP monitoring	N.A.
Daytime noise monitoring	N.A.
Water quality monitoring	N.A.
Environmental site inspection	87 sessions
Effluent Sampling	5 sessions

N.A. – no impact monitoring was required during the construction phase

- 4.1.2 No impact monitoring for air quality, construction noise and water quality were conducted as they are not required during the construction phase of the project in accordance with the Final EM&A Manual.
- 4.1.3 No significant impact on air quality was identified during the construction period. The overall performance of air quality was satisfactory.
- 4.1.4 No noise complaints and noise nuisance from the public were received during the construction period. The overall noise performance was acceptable.
- 4.1.5 No significant impact on water quality was identified during the construction period. As part of the compliance audit, self monitoring for effluent discharge was conducted by collecting effluent samples at the designated discharge point. All effluent samples were tested within the discharge standard in accordance with the Wastewater Discharge Licence (No. EP880/W10/XX0318).
- 4.1.6 A total 87 weekly site inspections were conducted throughout the construction phase. Most of the environmental deficiencies observed in the site inspections were promptly rectified by the Contractor. No non-conformity was recorded during the site inspections.

4.2 Weather Condition

4.2.1 The weather was mostly fine but rain occasionally during the construction period. According to the Hong Kong Observatory record, the mean temperature range was 15.3°C to 29.4°C and the mean relative humidity was 63% to 88% during the month April 2008 to December 2009. The typhoon season in 2008 and 2009 started in April and June respectively. A total of 14 Tropical Cyclones recorded during the construction period. The monthly rainfall recorded particular high in June 2008. The monthly total of 1346.1 millimetres was recorded during June 2008.

4.2.2 Weather information extracted from the Hong Kong Observatory is provided in Appendix D.

4.3 Other Factor Might Affect during the EM&A Programme Period

4.3.1 There is no other major construction work and marine work being carried out near the construction site during the construction phase.

4.4 Implementation Status of Environmental Mitigation Measures

4.4.1 The Contractor implemented the relevant environmental mitigation measures as stated in the EP, EM&A manual and EIA Report to minimize the environmental impacts and to prevent any non-compliance throughout the construction period.

4.4.2 All environmental defects were rectified by the Contractor after the site inspections. No non-compliances were identified.

4.4.3 A copy of the implementation schedule of recommended mitigation measures are presented in Appendix C.

4.5 Status of Environmental Permits and Licenses

4.5.1 All the environmental permits, licenses and/or notifications to EPD for the Project were in place and valid during the construction phase. A summary status of permits and licences is presented in below.

Table 3 Summary of Status Environmental Permits and Licenses for the Project

Permit Type	Licenses / Permit No.	Date of Issuance by EPD	Expiry Date	Status
Environmental Permit	EP-01/286/2007/A	31 Mar 2008	N/A	Surrendered on 7.12.09
Environmental Permit	EP-286/2007/B	5 Mar 2009	N/A	Valid
Notification pursuant to Section 3(1) of the Air Pollution Control Ordinance (Construction Dust) Regulation	Legislative requirement	4 Feb 2008	N/A	Valid

Permit Type	Licenses / Permit No.	Date of Issuance by EPD	Expiry Date	Status
Application for Wastewater Discharge License under Water Pollution Control Ordinance (WPCO)	EP880/W10/XX0318	8 Jul 2008	31 Jul 2013	Valid
Register as a Waste Producer under Waste Disposal Ordinance	WPN: 5213-121-H2652-83	11 Jun 2008	N/A	Valid
Construction Noise Permit Application under Noise Control Ordinance (NCO)	CNP No. GW-RS0205-08	3 Apr 2008	17 Apr 2008	Invalid
	CNP No. GW-RS0305-08	19 May 2008	10 Jul 2008	
	CNP No. GW-RS0468-08	8 Jul 2008	10 Oct 2008	
	CNP No. GW-RS0660-08	19 Sep 2008	10 May 2009	
	CNP No. GW-RS0280-09	11 May 2009	10 Nov 2009	

4.6 Waste Management Status

4.6.1 The quantity of waste generated throughout the construction phase is summarized in Table 4 below. The summary of waste flow table is given in Appendix E.

Table 4 Summary of Waste Generated throughout the Construction Phase

Waste Generated	Quantity
Inert C&D Material Generated to Public Fill (m ³)	29.7
Metals Generated (kg)	181,380
Chemical Waste (L)	4,000
General Refuse (m ³)	56.5
Paper / Cardboard Packaging (kg)	0

4.6.2 All inert C&D material had been disposed of at public fill during the construction period.

4.6.3 All metal wastes inert C&D material had been collected by the recycle company during the construction period.

4.6.4 All chemical wastes, 4000 liter of spent lube oil, had been collected by the licensed chemical waste collector during the construction period.

4.6.5 All general refuses had been regularly collected by the licensed waste contractor during the construction period.

5. NON-COMPLIANCE (EXCEEDANCES) OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

5.1 Summary of Exceedance

- 5.1.1 No exceedance was recorded for air quality, construction noise and water quality since no impact monitoring are required for the project.
- 5.1.2 As part of compliance audit, all effluent samples were tested within the discharge standards in accordance with the Wastewater Discharge licence (No. EP880/W10/XX0318).
- 5.1.3 The test report of effluent samples is given in Appendix F.

5.2 Review of the Reasons for and the Implications of Non-Compliance

- 5.2.1 As no exceedance and no non-compliance regard as environmental issues were recorded, no action was required.
- 5.2.2 EM&A programme and all relevant environmental mitigation measures were continually reviewed and improved during the construction period.

5.3 Summary of Actions Taken

- 5.3.1 The Contractor generally implemented all required mitigation measures to minimize the environmental impact causing from construction works of the project.

5.4 Environmental Complaints

- 5.4.1 No environmental complaints were received in the reporting period.
- 5.4.2 The complaint investigation procedures, complaint log, flow diagram and details of the Community Liaison Office are shown in Appendix G.

5.5 Notification of Summons and Successful Prosecutions

- 5.5.1 No summons and prosecutions related to environmental issues were made against the project in the reporting period.
- 5.5.2 One yellow form issued by EPD on 16 July 2008 regarding the improper design of the chemical storage cabinet and no appropriate label was affixed to the chemicals stored in the cabinet. The Contractor properly rectified the deficiency addressed in yellow form on 21 July 2008 and provided further improvement on 4 September 2008.
- 5.5.3 The Contractor registered the details of yellow form and provided an appropriate improvement measures after receiving the yellow form.

- 5.5.4 Follow-up actions were conducted by the Contractor including provision of vent holes at the top and bottom of side panels of the Chemical Waste Storage Cabinet, affixing the proper warning signs/labels at the Chemical Waste Storage Cabinet and labelling all chemical wastes in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.
- 5.5.5 The above rectification works were completed and notified to EPD on 21 July 2008.
- 5.5.6 In addition, the further improvement work for provision of a steel drip tray of the Chemical Waste Storage Container was rectified by the Contractor and notified to EPD on 4 September 2008.
- 5.5.7 A summary of EPD's site inspection record is provided in Appendix H.

6. COMPARISON OF EM&A DATA WITH EIA PREDICTION

6.1 Comparison with EIA Prediction

6.1.1 The environmental impacts caused during the construction period were generally in line with the prediction of Environmental Impact Assessment Report as no significant environmental impacts were expected due to limited scale of works as stipulated in the EIA report.

6.2 Review of Environmental Monitoring methodology and EM&A Programme

6.2.1 The environmental monitoring methodologies and procedures were regularly reviewed by the Environmental Team. No modification to the existing monitoring methodology was made during the construction period.

6.2.2 The EM&A programme and the effectiveness and efficiency of the mitigation measures were successful during the construction period.

6.3 Environmental Acceptability of the Project

6.3.1 The environmental performance indicated that the construction activities in general complied with the relevant environmental requirements and were environmentally acceptable.

7. Conclusion

7.1 Conclusion

- 7.1.1 The construction works for expansion of heliport facilities at Macau Ferry Terminal has commenced on 10 April 2008 and completed on 5 December 2009.
- 7.1.2 This is the Final EM&A report for construction phase of the project. EM&A monitoring performed during the whole EM&A programme period from 10 April 2008 to 5 December 2009.
- 7.1.3 As construction works for the project would not cause significant environmental impacts during construction phase due to limited scale of works. Hence, air quality, construction noise and water quality were not required to carry out throughout the construction period according to the Final EM&A Manual.
- 7.1.4 A total 87 weekly site inspections were conducted throughout the construction phase. Most of the environmental deficiencies observed in the site inspections were promptly rectified by the Contractor. No non-conformity was recorded during the site inspections.
- 7.1.5 As part of the compliance audit, a total of 5 times (on quarterly basis) of self monitoring for effluent discharge were conducted by collecting effluent samples at the designated discharge point. All effluent samples were tested within the discharge standard in accordance with the Wastewater Discharge Licence (No. EP880/W10/XX0318).
- 7.1.6 A total of 29.7m³ of inert C&D material were disposed of at Public Fill during the construction period.
- 7.1.7 A total of 181,380kg of metal wastes had been collected by the recycle company and 20 drums (4,000L) of spent lube oil had been collected by the licensed chemical waste collector during the construction period.
- 7.1.8 No environmental complaints were received in the reporting period
- 7.1.9 No summons and prosecutions related to environmental issues were made against the project in the reporting period
- 7.1.10 One yellow form issued by EPD on 16 July 2008 regarding the improper design of the chemical storage cabinet and no appropriate label was affixed to the chemicals stored in the cabinet. The Contractor properly rectified the deficiency addressed in yellow form on 21 July 2008 and provided further improvement on 4 September 2008.
- 7.1.11 The Contractor registered the details of yellow form and provided an appropriate improvement measures after receiving the yellow form.

7.1.12 Follow-up actions were conducted by the Contractor including provision of vent holes at the top and bottom of side panels of the Chemical Waste Storage Cabinet, affixing the proper warning signs/labels at the Chemical Waste Storage Cabinet and labelling all chemical wastes in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

7.1.13 The above rectification works were completed and notified to EPD on 21 July 2008.

7.1.14 In addition, the further improvement work for provision of a steel drip tray of the Chemical Waste Storage Container was rectified by the Contractor and notified to EPD on 4 September 2008.

7.1.15 The overall environmental performance of the project demonstrated that the implemented EM&A programme is effectiveness and efficiency.

FIGURE

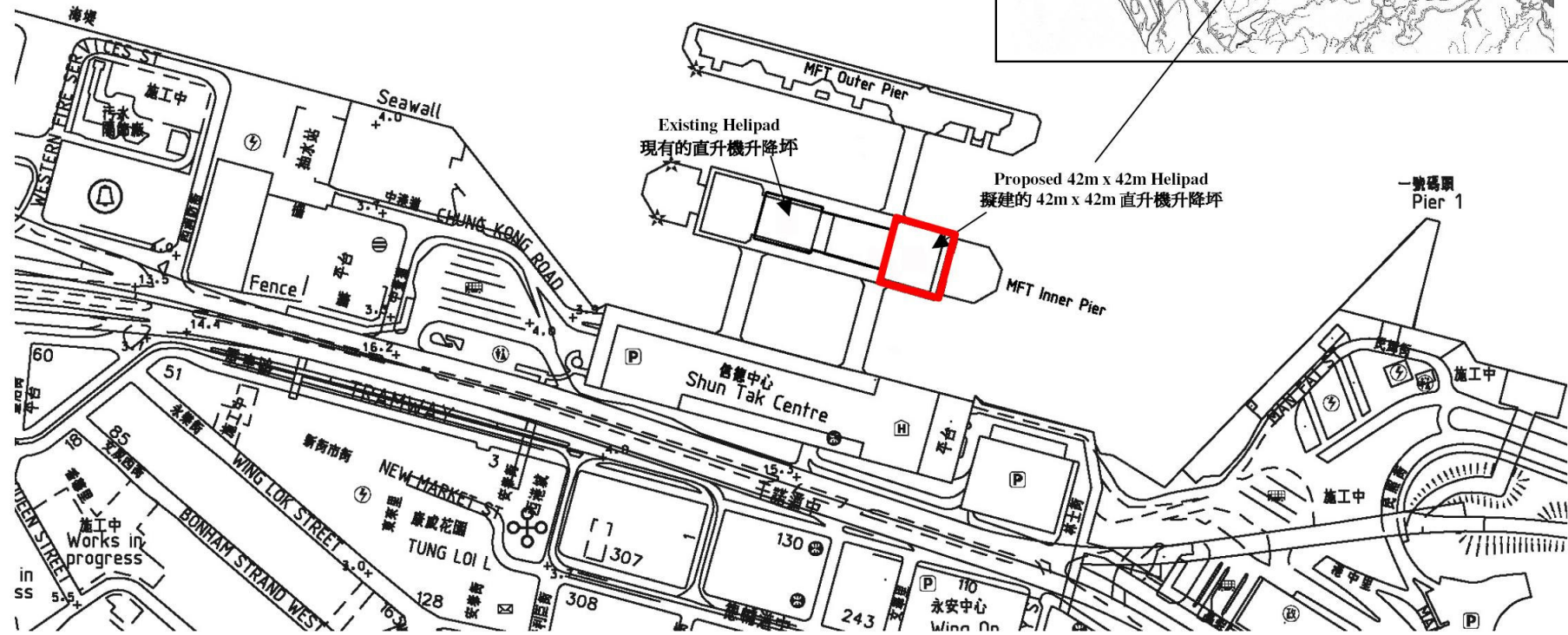
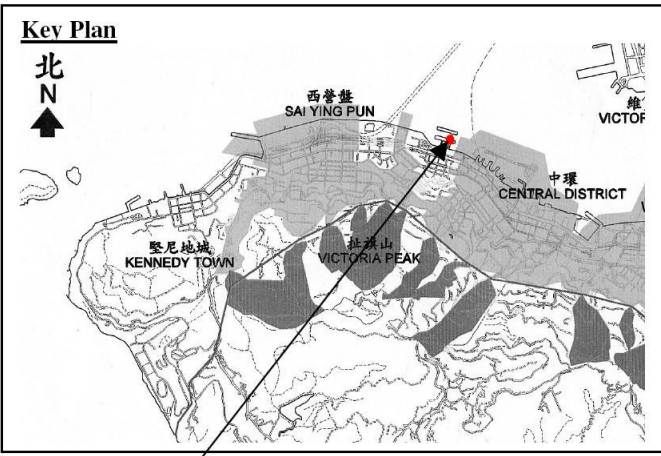
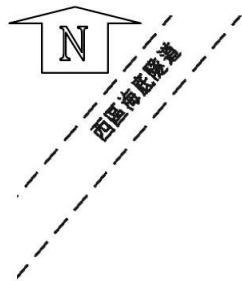


Figure: 1

Title: The Location of the Project

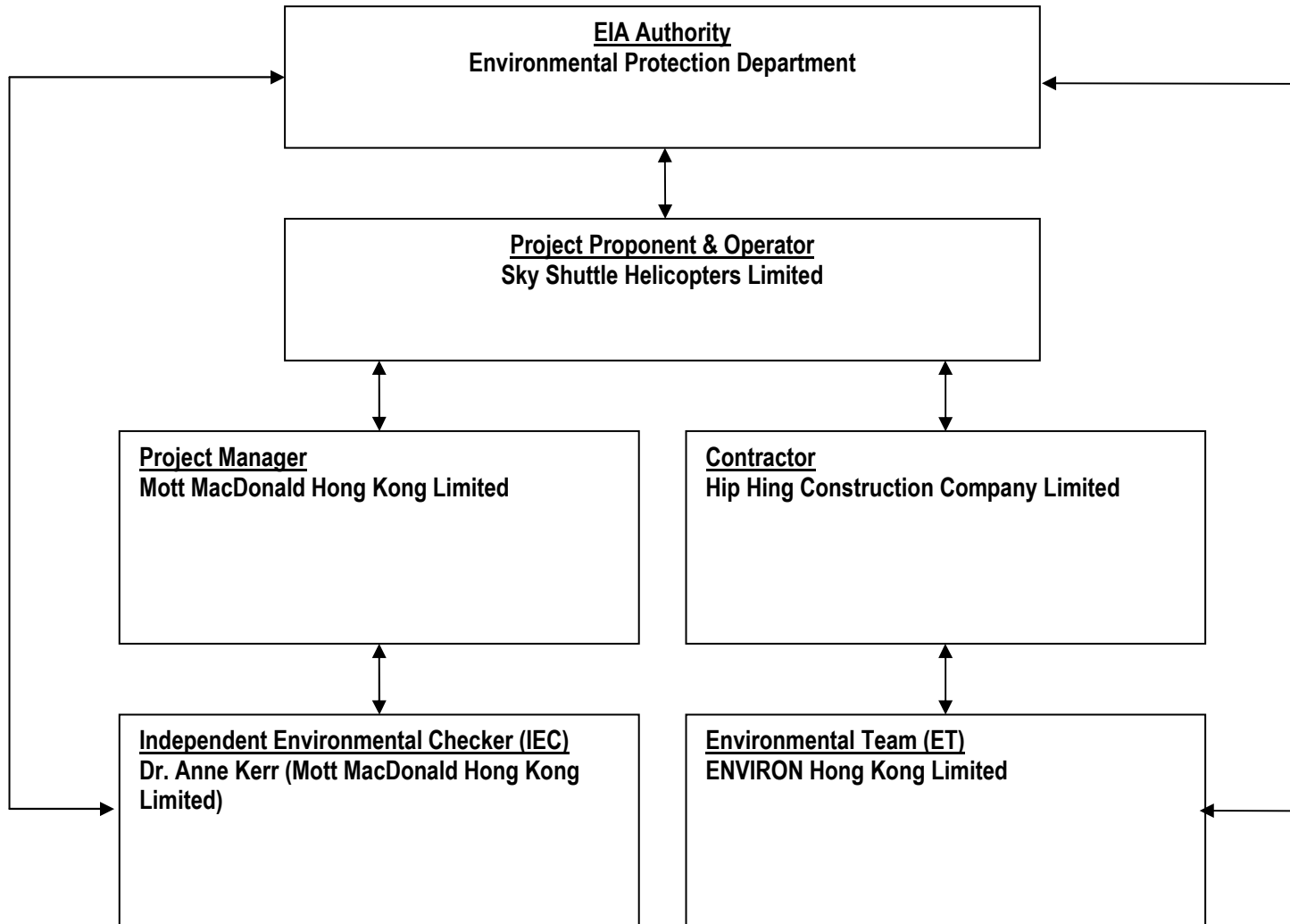
Project: Expansion of Heliport Facilities at Macau Ferry Terminal

ENVIRON	
Drawn by:	JL
Checked by:	CC
Rev.:	1.0
Date:	Dec 2009

APPENDIX A

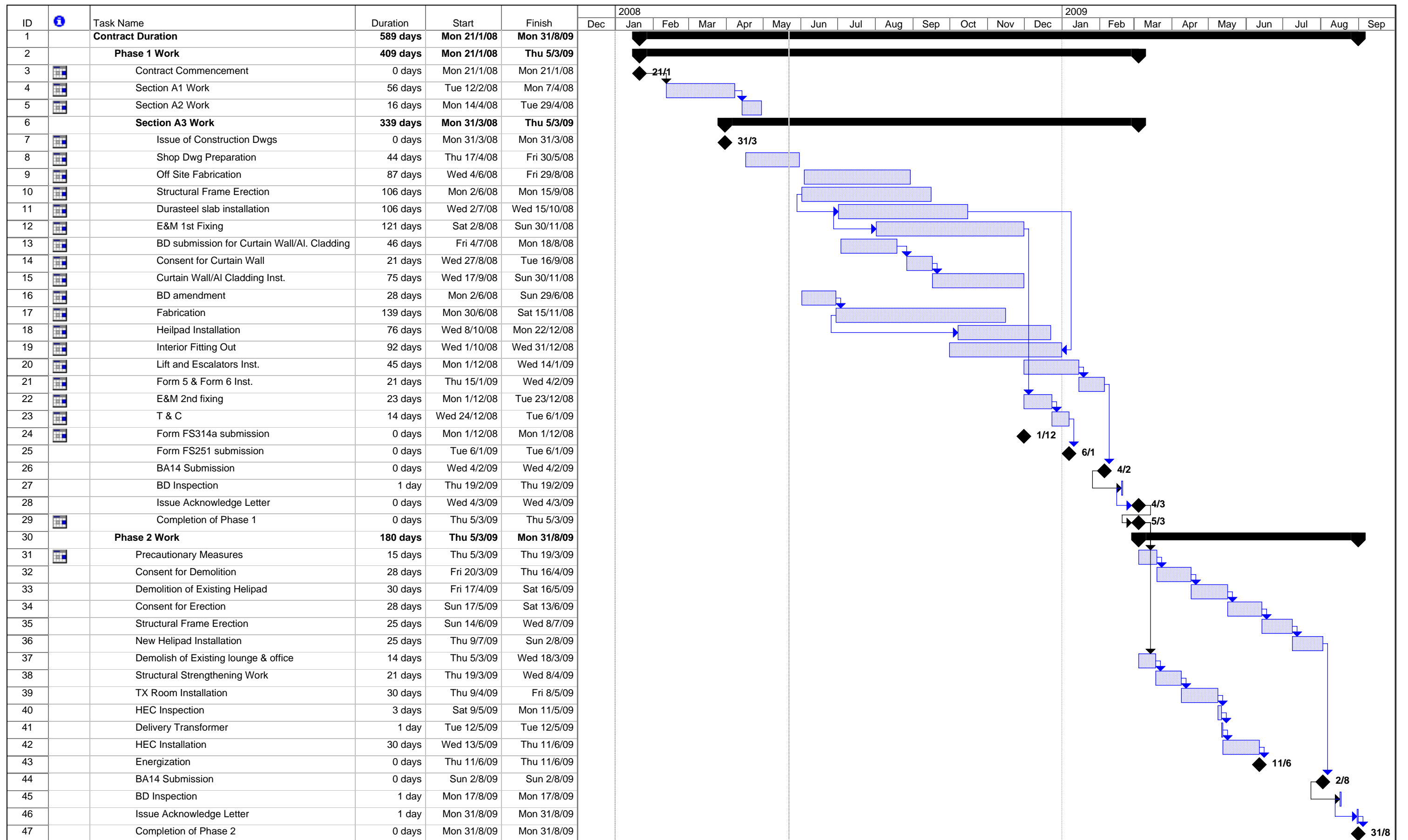
Project Organization Chart

Environmental Permit No. EP-286/2007/B and EP-01/286/2007/A – Expansion of Heliport Facilities at Macau Ferry Terminal



APPENDIX B

Construction Programme of the Project



Project: Outline Programme
Date: Thu 22/5/08

Task Progress
Split Milestone

Summary
Project Summary

External Tasks
External Milestone

Deadline

APPENDIX C

Implementation Schedule of Recommended Mitigation Measures

Table C.1 Implementation Schedule for Noise Control

EIA Ref#	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation and Guidelines
				D	C	O	
Construction Phase							
3.78	<p>The following good site practices shall be implemented:</p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme • Silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction programme • Mobile plant, if any, should be sited as far away from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities. 	Work site / during construction period	Contractor		√		Noise Control Ordinance
Operation Phase							
3.83	The maximum allowable flight number to be operated at both existing and proposed helipad should be controlled so as to ensure same noise performance found in the EIA Report.	Operation phase	Heliport/ Helicopter Operator			√	EIAO-TM
3.82	The helicopter type of S76C+ or other helicopter types with lower noise emission level than S76C+ should be used at proposed helipad.	Operation phase	Heliport/ Helicopter Operator			√	EIAO-TM
3.88	Helicopter noise monitoring is recommended at three Noise Sensitive Receivers during the first six years of operation of the new proposed helipad. The detail EM&A requirement for noise monitoring refer to standalone EM&A Manual.	First six years of operation	Heliport/ Helicopter Operator			√	EIAO-TM

All recommendations and requirements resulted during the course of EIA / EA Process, including ACE and / or accepted public comment to the proposed Project.
 * D = Design, C = Construction and O = Operation

Table C.2 Implementation Schedule for Water Quality Control

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation and Guidelines
				D	C	O	
Construction Phase							
S4.18 – S4.20	<p><i>Construction Site Runoff and General Construction Activities</i></p> <ul style="list-style-type: none"> The practices outlined in ProPECC PN 1/94 Construction Site Drainage should be adopted where applicable, to minimise the potential water quality impacts from construction site runoff and various construction activities. There is a need to apply to EPD for a discharge licence for discharging effluent from the construction site, if any. The discharge quality is required to meet the requirements specified in the discharge licence. Any wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. It is anticipated that the wastewater generated from the works areas, if any, would be of small quantity. Good site practices should be adopted to collect the rubbish and litter on the construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. Scavenging service for collecting any materials/ waste loss from the site into the sea should be provided on a need basis. 	Work site / during construction period	Contractor		√		ProPECC PN 1/94; WPCO

All recommendations and requirements resulted during the course of EIA / EA Process, including ACE and / or accepted public comment to the proposed Project.
 * D = Design, C = Construction and O = Operation

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation and Guidelines
				D	C	O	
S4.21 – S4.22	<p><i>Sewage from Workforce</i></p> <ul style="list-style-type: none"> The presence of construction workers generates sewage. The construction workers can make use of the existing toilet facilities within the MFT, as necessary. If required, sufficient portable chemical toilets should be provided in the works areas, and a licensed collector should be deployed for appropriate disposal and maintenance of the toilets on a regular basis. Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the Project would not cause water pollution problem after undertaking all required measures. 	Work site / during construction period	Contractor		√		ProPECC PN 1/94; WPCO
S4.23	<p><i>Accidental Spillage of Chemicals</i></p> <p>Any service shop and maintenance facilities should be located within a bunded area, and sumps and oil interceptors should be provided. Maintenance of equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.</p>	Work site / during construction period	Contractor		√		WPCO
Operation Phase							
S4.24	<p><i>Handling of Site Drainage and Effluent</i></p> <p>For operational stage effluent handling, treatment and disposal, the practices outlined in ProPECC PN 5/93 should be adopted where applicable.</p>	Project site/ during design stage and operational phase	Project proponent	√		√	WPCO, Building Regulations, Waste Disposal Ordinance

All recommendations and requirements resulted during the course of EIA / EA Process, including ACE and / or accepted public comment to the proposed Project.

* D = Design, C = Construction and O = Operation

Table C.3 Implementation Schedule for Air Quality Control

EIA Ref #	Environmental Protection Measures	Location / Timing	Implementation Agent	Implementation Stages *			Relevant Legislation and Guidelines
				D	C	O	
Construction Phase							
S5.26	Dust mitigation measures stipulated in the <i>Air Pollution Control (Construction Dust) Regulation</i> shall be incorporated to control dust emission. Major control measures relevant to this Project are listed below: <ul style="list-style-type: none"> • skip hoist for material transport should be totally enclosed by impervious sheeting; • any furnace, boiler or other plant or equipment or use any fuel that might in any circumstance produce smoker should not be installed; • the contractor shall not burn debris or other materials on the work areas. 	Work site / during construction period	Contractor		√		Air Pollution Control (Construction Dust) Regulation
Operation Phase							
N/A	N/A	N/A	N/A				

All recommendations and requirements resulted during the course of EIA / EA Process, including ACE and / or accepted public comment to the proposed Project.

* D = Design, C = Construction and O = Operation

N/A Not applicable

Table C.4 Implementation Schedule for Waste Management

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages *				Relevant Legislation and Guidelines
				Des	C	O	Dec	
S6.20	<p><i>Good Site Practices</i> Good site practices during the construction activities include:</p> <ul style="list-style-type: none"> • Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. • Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling. • Provision of sufficient waste disposal points and regular collection for disposal. • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. • A Waste Management Plan shall be prepared in accordance with ETWB TCW No. 15/2003 and submitted to the Engineer for approval. 	Work site / During the construction period	Contractor		√			Waste Disposal Ordinance (Cap.54), ETWB TCW No. 15/2003
S6.21	<p><i>General Refuse</i> General refuse shall be stored in enclosed bins or compaction units. A reputable waste collector shall be employed by the contractor to remove general refuse from the site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material.</p>	Work site / During the construction period	Contractor		√			Public Health and Municipal Services Ordinance (Cap. 132)
S6.22 – S6.23	<p><i>Chemical Wastes</i> If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations, in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either</p>	Work site / During the construction period	Contractor		√			

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages *				Relevant Legislation and Guidelines
				Des	C	O	Dec	
	<p>the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p> <p>Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:</p> <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 							

All recommendations and requirements resulted during the course of EIA / EA Process, including ACE and / or accepted public comment to the proposed Project.
* Des = Design, C = Construction, O = Operation and Dec = Decommissioning

APPENDIX D

Weather Information Extracted From The Hong Kong Observatory

Appendix D – Weather Information for the Year 2008 and 2009

Year	Month	Air Temperature			Mean	Total
		Maximum	Mean	Minimum	Relative Humidity	Rainfall
		°C			(%)	(mm)
2008	01	18.3	15.9	14.0	75	33.3
2008	02	16.0	13.3	11.3	72	27.5
2008	03	23.4	20.0	17.8	76	57.2
2008	04	25.5	23.1	21.5	85	255
2008	05	28.1	25.3	23.3	83	191.9
2008	06	28.9	26.7	24.8	88	1346.1
2008	07	31.0	28.4	26.5	82	471.1
2008	08	31.3	28.4	26.5	79	317
2008	09	32.0	29.0	26.8	75	159.2
2008	10	29.1	26.5	24.9	77	144.6
2008	11	24.5	21.9	19.8	65	54.3
2008	12	21.0	18.4	16.2	63	9
2009	01	18.3	15.3	13.0	64	Trace
2009	02	23.7	20.5	18.6	81	1.1
2009	03	22.1	19.7	17.9	83	120.7
2009	04	24.8	22.0	20.2	77	108.7
2009	05	28.8	25.5	23.5	78	245.2
2009	06	30.7	28.1	26.2	81	341.8
2009	07	31.9	29.1	27.0	81	389.4
2009	08	32.2	29.4	27.7	80	334.1
2009	09	31.9	28.8	26.9	78	486.3
2009	10	28.9	26.2	24.3	73	44.4
2009	11	23.2	20.5	18.3	72	60.4
2009	12	19.3	17.3	15.6	78	50.2

Remark: Information extracted from the Hong Kong Observatory

APPENDIX E

Waste Flow Table

Appendix E - Monthly Summary Waste Flow Table for 2008

Month	Actual Quantities of Inert C&D Materials Generated Monthly										Actual Quantities of C&D Wastes Generated Monthly									
	Total Quantity Generated		Broken Concrete (see Note 3)		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/ cardboard packaging		Plastics (see Note 2)		Chemical Waste		Others, e.g. general refuse	
	(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000 kg)		(in '000kg)		(in '000kg)		(in 'L)		(in '000m ³)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
Jan																				
Feb																				
Mar																				
Apr	0.0070	0.0057	0	0	0	0	0	0	0.0070	0.0057	0.8	0.91	0	0	0	0	0	0	0.0030	0.0020
May	0.0070	0.0038	0	0	0	0	0	0	0.0070	0.0038	0.8	0	0	0	0	0	0	0	0.0030	0.0020
June	0.0070	0.0036	0	0	0	0	0	0	0.0070	0.0036	0	3.35	0	0	0	0	0	0	0.0030	0.0025
Sub-total	0.0210	0.0131	0	0	0	0	0	0	0.0210	0.0131	1.6	4.26	0	0	0	0	0	0	0.0090	0.0065
July	0.0040	0.0105	0	0	0	0	0	0	0.0040	0.0105	2.0	0	0	0	0	0	0	0	0.0030	0.0030
Aug	0.0070	0.0026	0	0	0	0	0	0	0.0070	0.0026	1.0	0	0	0	0	0	0	0	0.0030	0.0030
Sept	0.0040	0.0000	0	0	0	0	0	0	0.0040	0.0000	1.0	0	0	0	0	0	0	0	0.0030	0.0030
Oct	0.0020	0.0035	0	0	0	0	0	0	0.0020	0.0035	0	0	0	0	0	0	0	0	0.0030	0.0030
Nov	0.0030	0.0000	0	0	0	0	0	0	0.0030	0.0000	0	0	0	0	0	0	0	0	0.0030	0.0030
Dec	0.0000	0.0000	0	0	0	0	0	0	0.0000	0.0000	0	1.65	0	0	0	0	0	0	0.0030	0.0030
Total	0.0410	0.0297	0	0	0	0	0	0	0.0410	0.0297	5.6	5.91	0	0	0	0	0	0	0.027	0.0245

Notes:

- 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
- 3) Broken concrete for recycling into aggregates

Appendix E - Monthly Summary Waste Flow Table for 2009

Month	Actual Quantities of Inert C&D Materials Generated Monthly										Actual Quantities of C&D Wastes Generated Monthly										
	Total Quantity Generated		Broken Concrete (see Note 3)		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/ cardboard packaging		Plastics (see Note 2)		Chemical Waste		Others, e.g. general refuse		
	(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000m ³)		(in '000 kg)		(in '000kg)		(in '000kg)		(in 'L)		(in '000m ³)		
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	
Jan	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.00	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030
Feb	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.00	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030
Mar	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.32	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030
Apr	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030
May	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	30.00	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	2000.0	0.0030	0.0030
June	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	30.00	77.21	0.0000	0.0000	0.0000	0.0000	1000.0	2000.0	0.0030	0.0030
Sub-total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	62.00	77.53	0.0000	0.0000	0.0000	0.0000	1000.0	4000.0	0.0180	0.0180
July	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	20.00	0.000	0.0000	0.0000	0.0000	0.0000	3000.0	0.0000	0.0030	0.0030
Aug	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	10.00	97.94	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030
Sept	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	140.00	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030
Oct	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0030	0.0030
Nov	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0020	0.0020
Dec																					
Total	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	232.00	175.4	0.0000	0.0000	0.0000	0.0000	4000.0	4000.0	0.0320	0.0320

Notes:

- 1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
- 3) Broken concrete for recycling into aggregates

APPENDIX F

Test Reports of Effluent Sample



ENVIRO LABS LIMITED

環境化驗有限公司

TEST REPORT

JOB NO. : 808263

DATE OF ISSUE : 5 September 2008

PAGE : 1 of 1

1. Customer

Hip Hing Construction Co. Ltd.
5/F, 38 Sheung On Street, Chai Wan, Hong Kong
Attn.: Mr. Ken Leung

2. Sample Identification

Sample Description : One batch of water samples said to be wastewater were received in cool condition
Quantity of Sample : 1 x 1L in plastic bottle (for TSS) and 1 x 250mL in plastic bottle (for COD)
Sampling : Conducted by the staff of Enviro Labs Ltd.
Sampling Point : Outlet of Wastewater Treatment Facility (Macau Ferry Terminal, H200802)
Preservation : Stored under refrigerated condition, COD: conc. H₂SO₄ was added to pH < 2
Sampling Date : 19 Aug 2008
Received Date : 19 Aug 2008
Testing Period : 19 – 27 Aug 2008

3. Test Method

Parameter	Reference Method
(i) pH	Phenol Red Method
(ii) Total Suspended Solids (TSS) Dried at 103-105°C	APHA ¹ 17e 2540 D
(iii) Chemical Oxygen Demand (COD)	APHA ¹ 20e 5220 C

1. APHA Standard Methods for the Examination of Water and Wastewater

4. Test Result*

Label marked by customer	Test Parameter	Sample No.	Test Result	Discharge Limit **	Unit
Macau Ferry Terminal H200802	pH	808263-1	7.4	6 – 10	--
	TSS	808263-1	7.5	≤30	mg/L
	COD	808263-2	< 50	≤80	mgO ₂ /L

* Test results relate only to the items received.

** Information provided by the Customer. (It is not a test result, information for reference only).

--- END OF REPORT ---



APPROVED SIGNATORY :

Kenneth Kar Kin LAM
(Laboratory Manager)



ENVIRO LABS LIMITED

環境化驗有限公司

TEST REPORT

JOB NO. : 811061
DATE OF ISSUE : 13 November 2008 PAGE : 1 of 1

1. Customer

Hip Hing Construction Co. Ltd.
5/F, 38 Sheung On Street, Chai Wan, Hong Kong
Attn.: Mr. Ken Leung

2. Sample Identification

Sample Description : One batch of water samples said to be wastewater were received in cool condition
Quantity of Sample : 1 x 1L in plastic bottle (for TSS) and 1 x 250mL in plastic bottle (for COD)
Sampling : Conducted by the staff of Enviro Labs Ltd.
Sampling Point : Outlet of Wastewater Treatment Facility (Macau Ferry Terminal, H200802)
Preservation : Stored under refrigerated condition, COD: conc. H₂SO₄ was added to pH < 2
Sampling Date : 7 Nov 2008
Received Date : 7 Nov 2008
Testing Period : 7 - 11 Nov 2008

3. Test Method

Parameter	Reference Method
(i) pH	APHA ¹ 20e 4500 H ⁺ B
(ii) Total Suspended Solids (TSS) Dried at 103-105°C	APHA ¹ 17e 2540 D
(iii) Chemical Oxygen Demand (COD)	APHA ¹ 20e 5220 C

1. APHA Standard Methods for the Examination of Water and Wastewater

4. Test Result*

Label marked by customer	Test Parameter	Sample No.	Test Result	Discharge Limit **	Unit
Macau Ferry Terminal H200802	pH(27°C)	811061-1	7.2	6 - 9	--
	TSS	811061-1	8.0	≤50	mg/L
	COD	811061-2	< 50	≤100	mgO ₂ /L

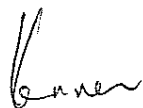
* Test results relate only to the items received.

** Information provided by the Customer. (It is not a test result, information for reference only).

--- END OF REPORT ---



APPROVED SIGNATORY :


Kenneth Kar Kin LAM
(Laboratory Manager)



ENVIRO LABS LIMITED

環境化驗有限公司

TEST REPORT

JOB NO. : 902130
DATE OF ISSUE : 23 February 2009 PAGE : 1 of 1

1. Customer

Hip Hing Construction Co. Ltd.
5/F, 38 Sheung On Street, Chai Wan, Hong Kong
Attn.: Mr. Ken Leung

2. Sample Identification

Sample Description : One batch of water samples said to be wastewater were received in cool condition
Quantity of Sample : 1 x 1L in plastic bottle (for pH and TSS analyses) and
1 x 250mL in plastic bottle (for COD analysis)
Sampling : Conducted by the staff of Enviro Labs Ltd.
Sampling Point : Outlet of Wastewater Treatment Facility
(Macau Ferry Terminal, H200802)
Preservation : According to APHA 20e 1060:1
Sampling Date : 12 Feb 2009
Received Date : 12 Feb 2009
Testing Period : 12 – 16 Feb 2009

3. Test Method

Parameter	Reference Method
(i) pH	APHA ¹ 20e 4500 H ¹ B
(ii) Total Suspended Solids (TSS) Dried at 103-105°C	APHA ¹ 17e 2540 D
(iii) Chemical Oxygen Demand (COD)	APHA ¹ 20e 5220 C

1. APHA Standard Methods for the Examination of Water and Wastewater

4. Test Result*

Label marked by customer	Test Parameter	Sample No.	Test Result	Discharge Limit **	Unit
Macau Ferry Terminal (H200802)	pH(23°C)	902130-1	9.0	6-9	--
	TSS	902130-1	9.5	≤50	mg/L
	COD	902130-2	54	≤100	mgO ₂ /L

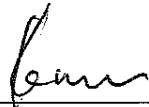
* Test results relate only to the items received.

** Information provided by the Customer. (It is not a test result, information for reference only).

--- END OF REPORT ---



APPROVED SIGNATORY :


Kenneth Kar Kin LAM
(Laboratory Manager)



ENVIRO LABS LIMITED

環境化驗有限公司

TEST REPORT

JOB NO. : 905127
DATE OF ISSUE : 21 May 2009
PAGE : 1 of 1

1. Customer

Hip Hing Construction Co. Ltd.
5/F, 38 Sheung On Street, Chai Wan, Hong Kong
Attn.: Mr. Ken Leung

2. Sample Identification

Sample Description : One batch of water samples said to be wastewater were received in cool condition
Sampling : Conducted by the staff of Enviro Labs Ltd.
Sampling Point : Outlet of Wastewater Treatment Facility
(Macau Ferry Terminal, H200802)
Sampling Date : 14 May 2009
Received Date : 14 May 2009
Testing Period : 14 – 20 May 2009

3. Test Methods

Parameters	Reference Methods
(i) pH	APHA ¹ 20e 4500 H ¹ B
(ii) Total Suspended Solids (TSS) Dried at 103-105°C	APHA ¹ 17e 2540 D
(iii) Chemical Oxygen Demand (COD)	APHA ¹ 20e 5220 C

1. APHA Standard Methods for the Examination of Water and Wastewater

4. Test Results*

Sample I.D. marked by customer	Test Parameters	Sample No.	Test Results	Discharge Limits **	Units
Macau Ferry Terminal (H200802)	pH(27°C)	905127-1	6.8	6 – 9	--
	TSS	905127-1	4.6	≤50	mg/L
	COD	905127-2	< 50	≤100	mgO ₂ /L

* Test results relate only to the items received.

** Information provided by the Customer. (It is not a test result, information for reference only).

--- END OF REPORT ---



APPROVED SIGNATORY :

Kenneth Kar Kin LAM
(Laboratory Manager)



ENVIRO LABS LIMITED

環境化驗有限公司

TEST REPORT

JOB NO. : 908156
DATE OF ISSUE : 20 August 2009
PAGE : 1 of 1

1. Customer

Hip Hing Construction Co. Ltd.
5/F, 38 Sheung On Street, Chai Wan, Hong Kong
Attn.: Mr. Ken Leung

2. Sample Identification

Sample Description : One batch of water samples said to be wastewater were received in cool condition
Sampling : Conducted by the staff of Enviro Labs Ltd.
Sampling Point : Outlet of Wastewater Treatment Facility
(Macau Ferry Terminal, H200802)
Sampling Date : 13 Aug 2009
Received Date : 13 Aug 2009
Testing Period : 13 – 17 Aug 2009

3. Test Methods

Parameters	Reference Methods
(i) pH	APHA ¹ 20e 4500 H*B
(ii) Total Suspended Solids (TSS) Dried at 103-105°C	APHA ¹ 17e 2540 D
(iii) Chemical Oxygen Demand (COD)	APHA ¹ 20e 5220 C

1. APHA Standard Methods for the Examination of Water and Wastewater

4. Test Results*

Sample I.D. marked by customer	Test Parameters	Sample No.	Test Results	Discharge Limits **	Units
Macau Ferry Terminal (H200802)	pH(26°C)	908156-1	8.8	6 – 9	--
	TSS	908156-1	6.9	50	mg/L
	COD	908156-2	< 50	100	mgO ₂ /L


* Test results relate only to the items received.

** Information provided by the Customer. (It is not a test result, information for reference only).

--- END OF REPORT ---



APPROVED SIGNATORY :


Kenneth Kar Kin LAM
(Laboratory Manager)

APPENDIX G

Complaint Investigation Procedures, Complaint Log, Flow Diagram and Details of Community Liaison Office

Complaint Investigation Procedures

A Community Liaison Office shall be set up and operated throughout the construction of the Project to receive and respond to complaints or enquires on environmental nuisances or pollution caused by the Project and to implement remedial mitigation measures.

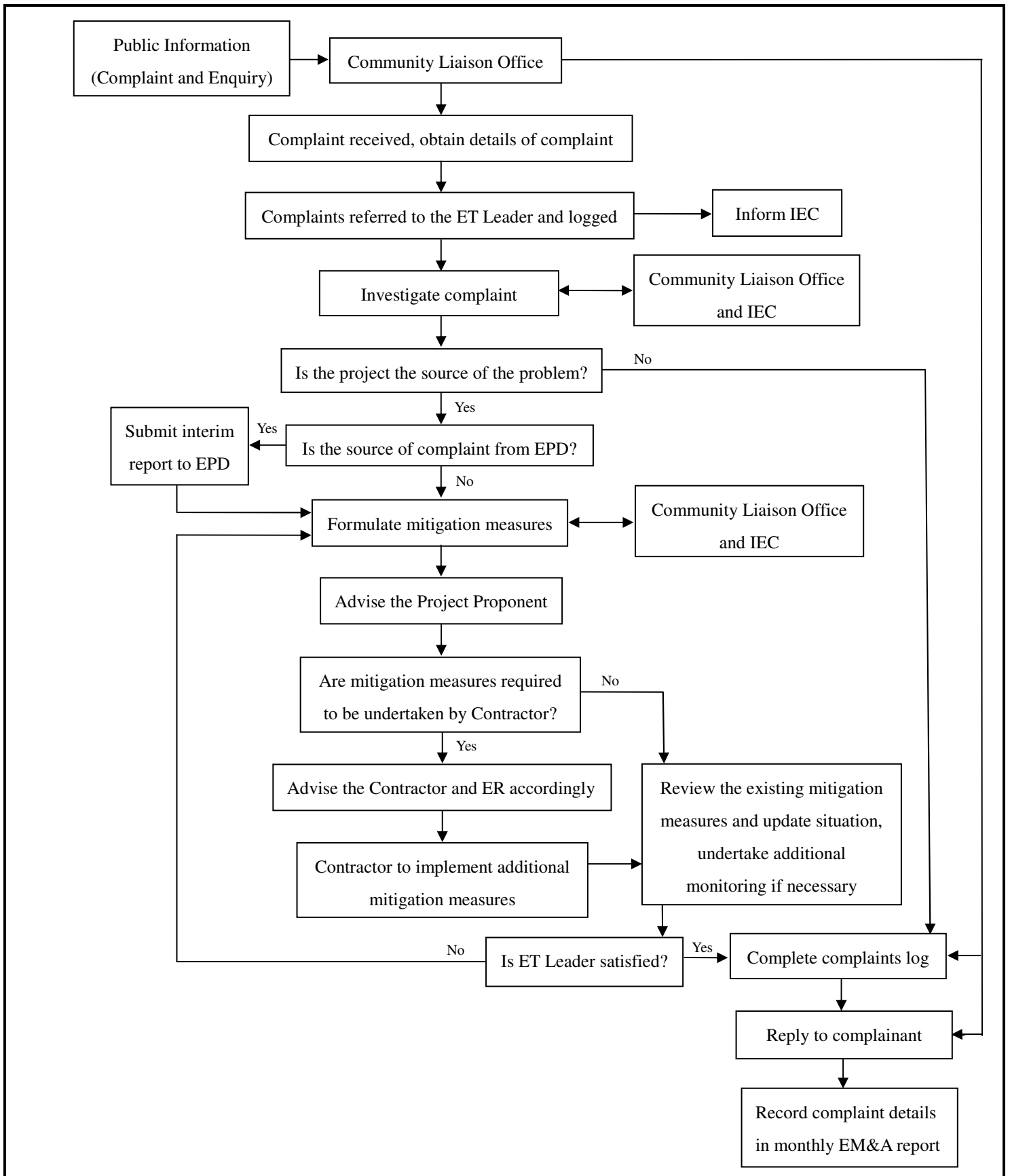
All complaints should be referred to the ET Leader for action. The ET Leader shall undertake the following procedures upon receipt of any complaint:

- (i) log complaint and date of receipt onto the complaint database and inform the IC(E) immediately;
- (ii) investigate the complaint to determine its validity, and assess whether the source of the problem is due to works activities;
- (iii) identify mitigation measures in consultation with the IC(E) if a complaint is valid and due to works;
- (iv) advise the Contractor if mitigation measures are required;
- (v) review the Contractor's response to identified mitigation measures, and the updated situation;
- (vi) if the complaint is transferred from the EPD, submit interim report to the EPD on status of the complaint investigation and follow-up action within the time frame assigned by the EPD;
- (vii) undertake additional monitoring and audit to verify the situation if necessary, and review that circumstances leading to the complaint do not recur;
- (viii) report investigation results and subsequent actions to complainant (if the source of complaint is transferred from EPD, the results should be reported within the timeframe assigned by the EPD);
- (ix) record the complaint, investigation, the subsequent actions and the results in the monthly EM&A reports.

During the complaint investigation work, the Contractor, ER and Community Liaison Office shall cooperate with the ET Leader in providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified in the investigation, the Contractor shall promptly carry out the mitigation. The ER shall ensure that the measures have been carried out by the Contractor.

After the complaint is settled, the Community Liaison Office should respond to the complainant and close the complaint.

A complaint log form is shown in Annex A while an environmental complaint flow diagram is shown in Annex B. Details of the Community Liaison Office is shown in Annex C.



Annex: B		ENVIRON	
Title:	Environmental Complaint Flow Diagram	Drawn by:	JL
		Checked by:	CC
Project:	Expansion of Heliport Facilities at Macau Ferry Terminal	Rev.:	1.0
		Date:	Dec 2009

Community Liaison Office

Sky Shuttle Helicopters Limited
Room 1603, China Merchants Tower,
Shun Tak Centre, 200 Connaught Road,
Central, Hong Kong.

Hotline and Contact Person

Hotline : 2108-9947
Fax : 2108-9938
Contact Person : Mr. Ivan Fong

Annex: C	ENVIRON
Title: Details of the Community Liaison Office	Drawn by: JL
	Checked by: CC
Project: Expansion of Heliport Facilities at Macau Ferry Terminal	Rev.: 1.0
	Date: Dec 2009

APPENDIX H

EPD's Site Inspection Record



檔案編號：EP 880/121/7225

公司/負責人姓名：協興建築有限公司/許志光先生

執事先生：

廢物處置條例(第354章)
廢物處置(化學廢物)(一般)規例
巡查記錄

本署職員於 16.7.2008 在 上環港澳碼頭地盤
巡查時，發現貴處所可能有以下問題(在□內有✓者)：

- 化學廢物經由未領有牌照的收集者棄置。
- 沒有合適的化學廢物存放地方--沒有鐵桶結構/圍牆/警告牌/其他 設計不當
- 化學廢物並沒有適當的存放/包裝/標識*(詳情見附頁)*。
- 沒有保存最近12個月的運載記錄以供檢查。
- 產生化學廢物但並未有登記為廢物產生者。
- 不符合廢物處置牌照內的條款。
- 其他：_____



2. 你必須採取一切所需的措施去防止以上問題發生，以免觸犯法例。否則，我們將會根據廢物處置條例採取法律行動。

3. 你亦需要：_____

4. 如有任何查詢，請致電 25161827 與 鄧慧康先生 聯絡。
25161870 王志榮先生

備註：此表須與附頁一併閱讀，該頁有環保署及公司/負責人的代表簽名，和關於這表的注釋。

巡查記錄

條例/規例	附上的表格 (有✓者)	
	粉紅色	黃色
空氣污染管制條例 / 空氣污染管制規例		
噪音管制條例		
廢物處置條例 / 廢物處置 (化學廢物) (一般) 規例		
廢物處置條例 / 廢物處置 (禽畜廢物) 規例		✓
水污染管制條例		
發件人	姓名: <u>TAN Ho-ai Wong</u> 職級及職位: <u>Senior Env. Protection Inspector</u> 電話號碼: <u>25161827</u> 簽名:  日期: <u>16.7.2008</u>	
收件人 (見備註)	姓名: <u>HEO CHI KWONG</u> 職位: <u>Project Manager</u> 電話號碼: <u>4876 5145</u> 簽名:  日期: <u>16.7.2008</u>	
公司印鑑		

備註:

1. 附表為記錄環保署職員在現場所提供的建議及採取的行動。
2. 收件人應獲授權為公司/負責人代收巡查記錄。
3. 收件人須盡快把記錄轉交負責人, 讓其知道污染問題/違例情況/可能的法律行動, 並即時採取所有需要的措施以防止污染問題/更正違例情況。
4. 本署會因應違例情況而向有關的公司/負責人採取法律行動。