JOB NO.: TCS00744/14

TSW-C004 – OCEAN PARK TAI SHUE WAN DEVELOPMENT
SITE FORMATION AND FOUNDATION WORKS

MONTHLY ENVIRONMENTAL MONITORING AND AUDIT REPORT (NO.1) – 17 JULY 2015 TO 16 AUGUST 2015

PREPARED FOR OCEAN PARK CORPORATION

Date	Reference No.	Prepared By	Certified By
28 August 2015	TCS00744/14/600/R0015		
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Version	Date	Remarks
1	21 August 2015	First Submission
2	26 August 2015	Amended against the IEC's comments on 24 August 2015
3	28 August 2015	Amended against the IEC's further comments on 27 August 2015

Pursuant to Condition 3.4 of Environmental Permit No. EP-487/2014, the "Monthly Environmental Monitoring and Audit (EM&A) Report (no.1) – 17 July 2015 to 16 August 2015" was certified by the Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC).

Certified by:

Tam Tak Wing

Environmental Team Leader (ETL)
Action-United Environmental Services and Consulting (AUES)

Date 2nd August 2015

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Coleman Ng

Independent Environmental Checker (IEC)
Ove Arup and Partners Hong Kong Limited

Date 2nd August 2015

EXECUTIVE SUMMARY

ES01 Ocean Park Corporation is the Project Proponent and the Permit Holder of the *Ocean Park Tai Shue Wan Development* (hereinafter "the Project"), which is a Designated Project to be implemented under Environmental Permit number EP-487/2014 (hereinafter referred as "the EP-487/2014" or "the EP").

ES02 The site formation and foundation Works as part of the Project, is awarded to Paul Y. Construction Company, Limited (hereinafter called "the Contractor") on ***17 July 2015***. Under Environmental Impact Assessment Ordinance (EIAO) to perform relevant Environmental Monitoring and Audit (EM&A) programme, Action-United Environmental Services & Consulting (AUES) has appointed as the Environmental Team for the Project (hereinafter referred as "the ET").

ES03 According to the Approved EM&A Manual, noise, ecological and landscape & visual monitoring are required during the construction phase of the Project; moreover, site inspection of the implementation of other mitigation measures, including air, water and waste, are also required.

ES04 The baseline monitoring has already carried out by the Ocean Park Corporation in 2014. During the period of 24 October to 10 December 2014, baseline noise monitoring was conducted at the designated monitoring station NM2 and alternative monitoring location NM1A; the landscape & visual baseline review was conducted on 21 October 2014; the ardeid inspection has been undertaken on 8 August 2014 and 5 September 2014. After the baseline monitoring completed, Ocean Park Corporation has been established the baseline levels of noise, updated Landscape Resources (LRs) and ecological condition. In December 2014, the Baseline Report was submitted to Environmental Protection Department **(**EPD) for endorsement.

ES05 Although the Ocean Park Corporation has already notified EPD that the Project Works will be commenced on ***17 July 2015***, the project was awarded to the Contractor on 17 July 2015. So, this is the First (**1st**) monthly EM&A report to presenting the monitoring results and inspection findings for the reporting period from **17 July 2015** to **16 August 2015** (hereinafter 'the Reporting Period').

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

ES06 Environmental monitoring activities under the EM&A programme in the Reporting Period are summarized in the following table.

Environmental Aspect	Environmental Monitoring Parameters / Inspection	Total Event
Construction Noise	$L_{eq(30min)}$ Daytime	**8**
Ecology	Site Inspection	**1**
landscape and Visual	Inspection of the mitigation measures implementation situation	**2**
Site Inspection / Audit	ET, the Contractor and PMR joint site Inspection and Auditing	**4**
	IEC site visit	**1**

BREACH OF ACTION AND LIMIT (A/L) LEVELS

ES07 No exceedance of construction noise and complaint (i.e. Action Level) were registered and received in the Reporting Period. No Notifications of Exceedances (NOEs) was issued to the PMR, IEC and the Contractor. The statistics of environmental exceedance, NOE issued and investigation of exceedance are summarized in the following table.

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation	Corrective Actions
Construction Noise	$L_{eq(30min)}$ Daytime	0	0	0	0	0

ENVIRONMENTAL COMPLAINT

ES08 No public complaints were received by either the Ocean Park Corporation or the Contractor in the Reporting Period.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES09 No environmental summons or successful prosecutions were recorded in the Reporting Period.

REPORTING CHANGE

ES10 As this is the first Monthly EM&A Report, no reporting changes were made in the Reporting Period.

SITE INSPECTION

ES11 In the Reporting Period, joint site inspections dated on **20 & 27 July 2015** and **3 & 10 August 2015** are undertaken by the PMR, ET and the Contractor. No non-compliance was observed during the site inspections. Furthermore, site visit by IEC was conducted on **13 August 2015.**

FUTURE KEY ISSUES

ES12 Construction noise would be a key environmental issue during construction work of the Project. Noise mitigation measures such as using quiet plants should be implemented in accordance with the EM&A requirement.

ES13 In addition, the potential water quality impacted on marine water should be highly alerted especially during rainy season from April to October. The Contractor should prevent muddy water and other water pollutants via site surface runoff drained into the sea and ensure the water quality mitigation measures should be properly implemented.

ES14 Moreover, the Contractor should fully implement mitigation measures to avoid construction dust emission impact on the surrounding environment.

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1 Ocean Park Corporation is the Project Proponent and the Permit Holder of the *Ocean Park Tai Shue Wan Development* (hereinafter "the Project"), which is a Designated Project to be implemented under Environmental Permit number EP-487/2014 (hereinafter referred as "the EP-487/2014" or "the EP"). The Project will redevelop the existing theme park areas at Tai Shue Wan into a Water Park to enhance the attractiveness of Ocean Park into a world-class theme park and provide a must-see destination to visitors. Layout plan of the Project is shown in ***Appendix A***.

1.1.2 17 July 2015, Paul Y. Construction Company, Limited (hereinafter called "the Contractor") is commissioned to carry out site formation and foundation works as part of the Project. Under the Environmental Permit requirements, Action-United Environmental Services & Consulting (AUES) has appointed by the Contractor as the Environmental Team (hereinafter referred as "the ET") to perform relevant Environmental Monitoring and Audit (EM&A) programme.

1.1.3 As part of the EM&A program, baseline monitoring for the required parameters including background noise, landscape & visual baseline review and baseline ardeid inspection were carried out between 24 October 2014 and 10 December 2014 by the environmental consultants of Ocean Park Corporation. The Baseline Monitoring Report summarized the key findings and the rationale behind determining a set of Action and Limit Levels (A/L Levels) from the baseline data. Also, the Project baseline monitoring report which verified by the previous IEC, was submitted in **December 2014** for EPD endorsement. The major site formation and foundation works of the Project is planned to be commenced in early September 2015.

1.1.4 This is the First (**1st**) monthly EM&A report to presenting the monitoring results and inspection findings for reporting period from **17 July** to **16 August 2015**.

1.2 REPORT STRUCTURE

1.2.1 The Monthly Environmental Monitoring and Audit (EM&A) Report is structured into the following sections:-

Section 1 *Introduction*
Section 2 *Project Organization and Construction Progress*
Section 3 *Summary of Impact Monitoring Requirements*
Section 4 *Construction Noise*
Section 5 *Ecology*
Section 6 *Landscape & Visual*
Section 7 *Waste Management*
Section 8 *Site Inspections*
Section 9 *Environmental Complaints and Non-Compliance*
Section 10 *Implementation Status of Mitigation Measures*
Section 11 *Conclusions and Recommendations*

2 PROJECT ORGANIZATION AND CONSTRUCTION PROGRESS

2.1 PROJECT ORGANIZATION

2.1.1 The project organization is shown in ***Appendix B***. The responsibilities of respective parties are:

Ocean Park Corporation

2.1.2 Ocean Park Corporation is the Project Proponent and the Permit Holder of the EP of the development of the Project and will assume overall responsibility for the project. An Independent Environmental Checker (IEC) shall be employed by Ocean Park Corporation to audit the results of the EM&A works carried out by the ET.

Environmental Protection Department (EPD)

2.1.3 EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

Project Management Representative (PMR) of Ocean Park Corporation

2.1.4 The PMR is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the ER with respect to EM&A are:

- Monitor the Contractors' compliance with contract specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness
- Monitor Contractors's, ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual
- Facilitate ET's implementation of the EM&A programme
- Participate in joint site inspection by the ET and IEC
- Oversee the implementation of the agreed Event / Action Plan in the event of any exceedance
- Adhere to the procedures for carrying out complaint investigation
- Liaison with the related government departments, ET, IEC, the Contractor and the other Contractors of the Project discussing regarding the cumulative impact issues.

The Contractor

2.1.5 The duties and responsibilities of the Contractor are:

- Comply with the relevant contract conditions and specifications on environmental protection
- Employ an Environmental Team (ET) to undertake monitoring, laboratory analysis and reporting of EM &A Facilitate ET's monitoring and site inspection activities
- Participate in the site inspections by the ET and IEC, and undertake any corrective actions
- Provide information / advice to the ET regarding works programme and activities which may contribute to the generation of adverse environmental impacts
- Submit proposals on mitigation measures in case of exceedances of Action and Limit levels in accordance with the Event / Action Plans
- Implement measures to reduce impact where Action and Limit levels are exceeded
- Adhere to the procedures for carrying out complaint investigation

Environmental Team (ET)

2.1.6 The ET should be employed by the Contractor to conduct the EM&A programme. The ET should be managed by the ET Leader. ET Leader should have relevant professional qualifications in environmental control and possess at least 7 years' experience in EM&A. Suitably qualified professional and technical staff should be included in the ET, and resources for the implementation of the EM&A programme should be allocated in the time under the Contract, to enable fulfilment of the Project's EM&A requirements as specified in the EM&A Manual during construction of the Project. The ET shall include qualified botanist/ecologist for the ecological service and a Registered Landscape Architect for review of implementation of landscape and

visual mitigation measures. The ET should report to the OPC and the duties should include:

- to monitor and audit various environmental parameters as required in the Approved EM&A Manual;
- to analyse the EM&A data, review the success of EM&A programme and the adequacy of mitigation measures implemented, confirm the validity of the EIA predictions and identify any adverse environmental impacts arising;
- to monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations and contract specifications;
- to audit environmental conditions on site;
- to report on the EM&A results to EPD, the ER, the IEC and Contractor or their delegated representatives;
- to recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plans;
- to liaise with the IEC on all environmental performance matters, and ensure timely submission of all relevant EM&A pro forma for IEC's approval;
- to provide advice to the Contractor on environmental improvement, awareness and enhancement matters, etc on site;
- to adhere to the procedures for carrying out complaint investigation;
- to prepare reports on the environmental monitoring data and the site environmental conditions;
- to submit the EM&A report to Director of Environmental Protection (DEP) timely;
- to review proposals of mitigation measures from the Contractor in case of exceedance of Action and Limit levels, in accordance with the Event and Action Plan; and
- to carry out site inspection to investigate and audit the Contractor's site practice, equipment and work methodologies with respect to pollution control and mitigation measures.

Independent Environmental Checker (IEC)

2.1.7 The IEC is empowered to audit the environmental performance of construction, but is independent from the management of construction works. As such, the IEC should not be in any way an associated body of the Contractor or the ET for the Project. The IEC should be employed by OPC prior to the commencement of the construction of the Project. The IEC should be a person who has relevant professional qualifications in environmental control and at least 7 years' experience in EM&A and environmental management. The duties and responsibilities of the IEC are:

- to provide proactive advice to the ER and OPC on EM&A matters related to the project;
- to review and verify the monitoring data and all submissions in connection with the EP and EM&A Manual submitted by the ET;
- to arrange and conduct regular, at least monthly site inspections of the works during the construction phase, and to carry out ad hoc inspections if significant environmental problems are identified;
- to check compliance with the agreed Event and Action Plan in the event of any exceedance;
- to check compliance with the procedures for carrying out complaint investigation;
- to check the effectiveness of corrective measures;
- to feedback audit results to the ET by signing off relevant EM&A pro forma;
- to check that mitigation measures are effectively implemented;
- to report the works conducted, and the findings, recommendations and improvements of the site inspections, after reviewing ET's and Contractor's works, the ER and OPC on a monthly basis;
- to verify the investigation result of the environmental complaint cases and the effectiveness of corrective measures;
- to verify EM&A report that has been certified by ET leader; and
- to audit EIA recommendations and requirements against the status of implementation of environmental mitigation measures on site.

2.2 CONSTRUCTION PROGRESS

2.2.1 In the Reporting Period, the major construction activity conducted under the Contract is summarized in below. Moreover, the master construction program is enclosed in ***Appendix C***.

- Set up of Contractor's site office
- Site surveying
- Underground utilities detection
- Erection of site hoarding
- Site clearance at the northern part of the site
- Set up tree protection fencing for retained trees

2.3 SUMMARY OF ENVIRONMENTAL SUBMISSIONS

2.3.1 Summaries of the relevant permits, licenses, and/or notifications on environmental protection for the Project are presented in ***Table 2-1***.

Table 2-1 Status of Environmental Licenses and Permits of the Project

No.	Type of Permit/ License	Submission Date	Reference/ License No.	Date of Issue	Date of Expiry
1	Air pollution Control (Construction Dust) Regulation	Submitted to EPD on 27/07/2015	N/A	NA	N/A
2	Chemical Waste Producer Registration - Waste Producers Number	4-08-2015	391900	13/08/2015	N/A
3	Water Pollution Control Ordinance - Discharge License	Still yet Application	N/A	NA	N/A
4	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	22-07-2015	7022926	06-08-2015	N/A

2.3.2 To according with the EP stipulation, the required documents has submitted to EPD for retention as listed below:

- Project Layout Plans
- Management Organization of Main Construction Companies
- Detailed Vegetation Survey Report
- Woodland Compensation Plan
- Ardeid Inspection Report
- Short-nosed Fruit Bat Inspection Report
- Baseline Monitoring Report Revision A of the Project

3 SUMMARY OF IMPACT MONITORING REQUIREMENTS

3.1 GENERAL

3.1.1 The Environmental Monitoring and Audit requirements are set out in the Approved EM&A Manual. During the construction phase of the Project, construction noise is identified a key Environmental issue. Moreover, Landscape & Visual and Ecology monitoring are also required during the construction phase in accordance with the Approved EM&A Manual.

3.1.2 A summary of construction phase EM&A requirements are presented in the sub-sections below.

3.2 MONITORING PARAMETERS

3.2.1 The EM&A program of construction phase monitoring shall cover the following environmental issues:

- Construction noise;
- Landscape & Visual; and
- Ecology

3.2.2 A summary of the monitoring parameters is presented in ***Table 3-1.***

Table 3-1 Summary of EM&A Requirements

Environmental Issue	Parameters
Noise	• $L_{eq(30min)}$ in normal working days (Monday to Saturday) 07:00-19:00 except public holiday; • 3 sets of consecutive $L_{eq(5min)}$ on restricted hours i.e. 19:00 to 07:00 next day, and whole day of public holiday or Sunday when applicable, and • Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.
Landscape & Visual	• Site inspection, monitoring and Audit
Ecology	• Site inspection and monitoring

3.3 MONITORING LOCATIONS

3.3.1 The designated noise monitoring locations as recommended in the *EM&A Manual* is shown in ***Appendix D***. During baseline monitoring, the designated monitoring location NM1 was denied by the owner, so the previous ETL proposed alternative location NM1A. The proposal was verified by the previous IEC and agreed by EPD. ***Table 3-2*** and ***Appendix E*** respectively lists and shows the construction noise monitoring locations for the Project.

Table 3-2 Impact Monitoring Stations - Construction Noise

Station ID	Description
NM1A	Slope near Victoria Shanghai Academy (VSA) to replace NM1 of the VSA
NM2	Hong Kong Juvenile Care Centre (HKJCC)

3.4 MONITORING FREQUENCY AND PERIOD

3.4.1 One set of $L_{eq(30min)}$ as 6 consecutive $L_{eq(5min)}$ between 0700-1900 hours on normal weekdays and once every week during course of works. If construction work necessary to carry out at other time periods, i.e. restricted time period (19:00 to 07:00 the next morning and whole day on public holidays) (hereinafter referred as "the restricted hours"), 3 consecutive $L_{eq(5min)}$ measurement will depended CNP requirements to undertake. Supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.

3.5 MONITORING EQUIPMENT

3.5.1 Sound level meter in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring. The sound level meter shall be checked using an acoustic calibrator. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m s^{-1}.

3.5.2 Noise monitoring equipment to be used for monitoring is listed in ***Table 3-3***.

Table 3-3 Construction Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Pulsar Model 93 or B&K Type 2238
Calibrator	Pulsar Model 105 / B&K Type 4231
Portable Wind Speed Indicator	Testo Anemometer

3.5.3 Sound level meters listed above comply with the *International Electrotechnical Commission Publications 651: 1979 (Type 1)* and *804: 1985 (Type 1)* specifications, as recommended in TM issued under the NCO. The acoustic calibrator and sound level meter to be used in the impact monitoring will be calibrated yearly.

3.6 MONITORING METHODOLOGY

3.6.1 Noise measurements were taken in terms of the A-weighted equivalent sound pressure level (L_{eq}) measured in decibels (dB). Supplementary statistical results (L_{10} and L_{90}) were also obtained for reference.

3.6.2 During the monitoring, all noise measurements would be performed with the meter set to FAST response and on the A-weighted equivalent continuous sound pressure level (L_{eq}). $Leq_{(30min)}$ in six consecutive $Leq_{(5min)}$ measurements will use as the monitoring parameter for the time period between 0700-1900 hours on weekdays; and also $Leq_{(15min)}$ in three consecutive $Leq_{(5min)}$ measurements would be used as monitoring parameter for other time periods (e.g. during restricted hours), if necessary.

3.6.3 Prior of noise measurement, the accuracy of the sound level meter is checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The checking is performed before and after the noise measurement.

3.7 EQUIPMENT CALIBRATION

3.7.1 The sound level meter and calibrator are calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme at yearly basis.

3.7.2 The calibration certificates of sound level meter and calibrator used for impact monitoring program in the Reporting Period are attached in ***Appendix F***.

3.8 METEOROLOGICAL INFORMATION

3.8.1 Meteorological information was extracted from “the Hong Kong Observatory Wong Chuk Hang Station”. For Wong Chuk Hang Station, it is situated nearby the Project site and can provide the humidity, rainfall, and air pressure and temperature etc. meteorological information.

3.9 DERIVATION OF ACTION/LIMIT (A/L) LEVELS

3.9.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. According to the approved Environmental Monitoring and Audit Manual with baseline monitoring results, construction noise criterion, namely Action and Limit levels proposed are listed in ***Table 3-4***.

Table 3-4 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
NM1A and NM2	When one or more documented complaints are received	70 dB(A)[Note 1 and Note 2]

Note 1: Acceptable Noise Levels for school should be reduced to 65 dB(A) during examination period
Note 2: If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the NCA have to be followed.

3.9.2 Should non-compliance of the environmental quality criteria occurs, remedial actions will be triggered according to the Event and Action Plan which presented in ***Appendix G.***

3.10 DATA MANAGEMENT AND DATA QA/QC CONTROL

3.10.1 All monitoring data will be handled by the ET's in-house data recording and management system. The monitoring data recorded in the equipment will be downloaded directly from the equipment at the end of each monitoring day. The downloaded monitoring data will input into a computerized database properly maintained by the ET.

4 CONSTRUCTION NOISE MONITORING

4.1 GENERAL

4.1.1 In the Reporting Period, the construction works under the project is still yet started and predicted to be commenced in early September 2015. Total 8 occasions of noise monitoring were carried out at the two (2) locations.

4.1.2 The noise monitoring schedule is presented in ***Appendix H*** and the monitoring results are summarized in the following sub-sections.

4.2 NOISE MONITORING RESULTS IN REPORTING MONTH

4.2.1 The noise monitoring results measured at the designated locations are summarized in ***Table 4-1.*** The detailed noise monitoring data are presented in ***Appendix I*** and the relevant graphical plots are shown in ***Appendix J***.

Table 4-1 Summary of Construction Noise Monitoring Results

Date	Time		(*)NM1A		Time		NM2 ($L_{eq30min}$)
	Start	Finish	($L_{eq30min}$)	Correction	Start	Finish	
21 Jul 2015	10:55	11:25	57	60	14:10	14:40	57
29 Jul 2015	14:30	15:00	59	62	15:45	16:15	59
6 Aug 2015	10:20	10:50	57	60	11:15	11:45	60
12 Aug 2016	15:00	15:30	59	62	16:30	17:00	57
Limit Level	**70dB(A)**						

Remarks:

(*) *Sound level meter set at NM1A is made free-field measurement, façade correction (+3dB(A)) is therefore added according to acoustical principles and EPD guidelines.*

4.2.2 As shown in ***Table 4-1***, all noise monitoring results are recorded below 70dB(A). Furthermore, there were no noise complaints (Action Level exceedance) received by the PMR, Contractor or EPD in the Reporting Period. Therefore, no Action Level exceedance was triggered and no corrective action was therefore required.

4.2.3 The meteorological data during the impact monitoring days are summarized in ***Appendix K***.

5 ECOLOGY MONITORING

5.1 GENERAL

5.1.1 As required under the **Section 8.3.2** of the approved EM&A Manual, the implementation of ecological mitigation measures as detailed in the Section 15 of the EIA report and **Appendix C** of the approved EM&A Manual shall be routinely audited during the routine environmental audit; and any observations and recommendations shall be reported in periodic EM&A reports.

5.1.2 Among those mitigation measures recommended to avoid or minimize the disturbance to any plants of conservation interest (EM&A reference 8.3.1.1), nested ardeids (EM&A reference 8.3.1.2) and roosted short-nosed fruit bat (EM&A reference 8.3.1.3), the required inspection has already been undertaken in August/September 2014 with the results presented in the submitted respective baseline report. Therefore, the following sections only address those applicable to this stage of the project, i.e., Section 8.3.2 of the approved EM&A Manual.

5.2 MONITORING REQUIREMENT

Monitoring of Plants of Conservation Interest (Platycondon grandiflorus)

5.2.1 The Detailed Vegetation Survey Report (DVSR) has located two groups of the protected *Platycodon grandiflorus* and recommended that the plants should be protected with temporary protective fencing to avoid potential impact from construction activities (such as material storage), and monitor the identified *Platycodon grandiflorus* on a monthly basis throughout the construction phase to make sure that they are not affected by the construction works of the Project. Accordingly, the following monitoring parameters will be undertaken on a monthly basis during the construction period.

i. Effective implementation of the protection measures as recommended in the Section 4.1 of the DVSR
ii. Monitoring of the two groups of *Platycodon grandiflorus* identified during the detailed vegetation survey to make sure that they are not affected by the construction works

Monitoring of Nesting Activities of Ardeids in Breeding Season

5.2.2 The project area should be checked monthly in breeding season (April to July) for any potential breeding and nesting activities, and if required suitably sized buffer area will be recommended to avoid human or machinery disturbance until the nest is abandoned.

Monitoring of Roosting Activities of Ardeids in Peak Wintering Season

5.2.3 The existing ardeid night roost within the project area should be monitored monthly during peak wintering season (November to March) during the construction phase using direct observation from a vantage point (i.e., point count method) at evening time from an hour before sunset, and last until the nightfall.

Compensation for Ardeid roosting Site

5.2.4 An enhancement area provided as an alternative roosting site for ardeids should be developed during the first phase of the construction.

Compensation of Woodland Habitat

5.2.5 Mitigation measures recommended in the approved Woodland Compensation Plan should be fully and properly implemented, including but not limited to the creation of 0.84 ha woodland compensation on-site and 0.78 ha on-site woodland reinstatement, to mitigate for permanent loss of woodland habitat.

5.3 INSPECTION FINDINGS

5.3.1 The ecological inspection was undertaken on 16th August 2015 by the qualified ecologist. The inspection findings are presented below.

Plants of Conservation Interest (Platycondon grandiflorus)

5.3.2 Two groups of the protected *Platycodon grandiflorus* were identified *at the southern periphery of the Project area* in the Detailed Vegetation Survey Report, with one group contained 8 stems (Group 1) and the other group contained 1 stem (Group 2) upslope to the south of the group one. The location of Group 2 is updated based on the most recent site inspection where shown in the *Figure 1* of ***Appendix L***.

5.3.3 *Platycodon grandiflorus* is a perennial herbs and often appear in thicket in sunny habitats; its stem ranged from 20 to 120m in height and rarely branched above. A total of eleven stems of the *Platycodon grandiflorus* were counted in Group 1 and one single stem was found in Group 2 within the fenced area, and except one they are all in flowering or fruiting during the site inspection (see ***Photos 1*** *and* ***2*** of ***Appendix L*** of this report).

5.3.4 Neither construction activities nor signs of health deterioration/disturbance of the recorded *Platycodon grandiflorus* from the on-going activities within the Project Area were noted; and the preventive mitigation measures, i.e., erecting of temporary protective fencing, is considered effectively implemented (see ***Photo*** *3* of ***Appendix L*** of this report).

Nesting Activities of Ardeids in Breeding Season

5.3.5 No nesting/breeding activities of ardeids were noted based on the site inspection conducted in July 2015.

Roosting Activities of Ardeids in Peak Wintering Season

5.3.6 Not Applicable for the reporting period as "Peak Wintering Season" is defined as 1st November to 31st March in the Environmental Permit.

Compensation for Ardeid roosting Site

5.3.7 To be implemented.

Compensation of Woodland Habitat

5.3.8 To be implemented.

5.4 CONCLUSION

5.4.1 The implementation of the mitigation measures for the plant species of conservation interest, i.e., the *Platycondon grandiflorus*, was found to be effectively implemented during the reporting period; and the plant was appeared healthy within the fenced area and no signs of health deterioration/disturbance caused by the activities within the Project Area were noted.

6 LANDSCAPE & VISUAL MONITORING

6.1 GENERAL

6.1.1 According to the EM&A Manual requirements, a Registered Landscape Architect (RLA) would be responsible for monitoring the implementation of landscape and visual mitigation measures during the construction.

6.1.2 Landscape and visual mitigation measures for the construction phase are listed in the Approved EM&A Manual ***Table 9.1***.

6.1.3 The design, implementation and maintenance of landscape and visual mitigation measures shall be checked bi-weekly to ensure that they are fully realized during the construction phase. The scope of the site audit during construction shall be included the following:

a) The extent of the agreed works areas should be regularly checked. No construction activities or storage shall be undertaken outside the limit of the works;
b) The progress of the engineering works should be regularly reviewed on site to identify the earliest practical opportunities for the landscape works to be undertaken;
c) All landscaping works are carried out in accordance with the specifications; and
d) All new planting are carried out properly and within the right season.

6.1.4 Any potential conflicts between the proposed landscape and visual mitigation measures and any other project works or operational requirements shall be recorded for the Contractor to resolve in an early stage, without compromising the intention of the mitigation measures.

6.2 INSPECTION FINDINGS

6.2.1 In the Reporting Period, two occasions of landscape and visual site inspection were conducted on 22 July 2015 and 7 August 2015.

6.2.2 According to two occasions of site inspection observed that the Contractor is compliance with the intended aims of the mitigation measures such as outside of the working site boundary no construction activities or materials storage.

7 WASTE MANAGEMENT

7.1 GENERAL WASTE MANAGEMENT

7.1.1 Waste management was carried out by an on-site Environmental Officer or an Environmental Supervisor from time to time.

7.2 RECORDS OF WASTE QUANTITIES

7.2.1 All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil.

7.2.2 The quantities of waste for disposal in this Reporting Period are summarized in ***Tables 7-1*** and ***7-2***.

Table 7-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity	Disposal Location
C&D Materials (Inert) (tons)	0	-
Reused in this Contract (Inert) (tons)	0	-
Reused in other Projects (Inert) (tons)	0	-
Disposal as Public Fill (Inert) (tons)	0	-

Table 7-2 Summary of Quantities of C&D Wastes

Type of Waste	Quantity	Disposal Location
Recycled Metal (tons)	0	-
Recycled Paper / Cardboard Packing (tons)	0.137	Licensed collector
Recycled Plastic (tons)	0	-
Chemical Wastes (tons)	0	-
General Refuses (tons)	0	-

7.2.3 The Monthly Summary Waste Flow Table is shown in ***Appendix M***. Whenever possible, materials were reused on-site as far as practicable.

8 SITE INSPECTION

8.1 REQUIREMENTS

8.1.1 According to the approved EM&A Manual, the environmental site inspection shall be formulation by ET Leader. Weekly environmental site inspections should carry out to confirm the environmental performance.

8.2 FINDINGS / DEFICIENCIES DURING THE REPORTING MONTH

8.2.1 In the Reporting Period, joint site inspection to evaluate site environmental performance has been carried out by the PMR, ET and the Contractor on **20 & 27 July 2015** and **3 & 10 August 2015**. No non-compliance was noted.

8.2.2 The findings / deficiencies of the Project that observed during the weekly site inspection are listed in ***Table 8-1***.

Table 8-1 Site Observations of the Project

Date	Findings / Deficiencies	Follow-Up Status
20 July 2015 27 July 2015 3 August 2015 10 August 2015	• No environmental issue was observed during site inspection. • Since discharge license is still yet obtained, the Contractor reminded no wastewater can be to discharge from the Project site. • Temporary drainage system and desilting facilities shall be provided on site for turbid water discharge if received the relevant discharge license.	• NA • Only reminder • Only reminder

8.2.3 In this reporting month, IEC visited the project site on **13 August 2015**. No any environmental problem was pointed out. As remind that no wastewater can be to discharge until received the related discharge license.

9 ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

9.1 ENVIRONMENTAL COMPLAINT, SUMMONS AND PROSECUTION

9.1.1 No environmental complaint, summons and prosecution was received in the Reporting Period. The statistical summary table of environmental complaint is presented in ***Tables 9-1, 9-2*** and ***9-3***.

Table 9-1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
17 July – 16 August 2015	0	0	NA

Table 9-2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Complaint Nature
17 July – 16 August 2015	0	0	NA

Table 9-3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Complaint Nature
17 July – 16 August 2015	0	0	NA

10 IMPLEMENTATION STATUS OF MITIGATION MEASURES

10.1 GENERAL REQUIREMENTS

10.1.1 The environmental mitigation measures that recommended in the Implementation Schedule for Environmental Mitigation Measures (ISEMM) in the approved EM&A Manual covered the issues of dust, noise, water and waste and they are summarized presented in ***Appendix N.***

10.1.2 The Project shall be implementing the required environmental mitigation measures according to the approved EM&A Manual as subject to the site condition. Environmental mitigation measures generally implemented by the Contractor in this Reporting Month are summarized in ***Table 10-1***.

Table 10-1 Environmental Mitigation Measures

Issues	Environmental Mitigation Measures
Construction Noise	• No Powered Mechanical Equipment (PME) is used for site clearance • Shut down construction equipment when not in used
Ecology	• Wire fencing provided for temporary protect the identified flora species of conservation concern • Undertake site inspection of the flora species of conservation and the Ardeid of breeding and nesting activities
Landscape & Visual	• Good site management
Air Quality	• Good site management to reduce air quality impact • Main temporary access road paved with concrete • Prior to any loading or transfer operation, all dusty materials has sprayed with water to keep its wet • Any debris has covered entirely by impervious sheeting • Before debris dumped into a chute, water has sprayed onto the debris to make its wet • Vehicles has covered with tarpaulin during transporting dusty materials • When vehicles leaving the construction site, any vehicles loaded dusty materials covered with clean impervious sheeting as prevent fugitive dusty materials emission • The speed of the trucks passing site areas was controlled to below 10 km/hour
Water Quality	• Portable chemical toilets has provided on site • A licensed collector has employed to collect effluent and off-site dispose.
Waste and Chemical Management	• A temporary container which located far away from sea shore and drainage channel, has provided for chemical materials and waste storage • Drip tray is provided for chemical materials which use on the working areas • Has provided a waste skip for general refuse disposal
General	• The site was generally kept tidy and clean

10.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

10.2.1 Construction activities as undertaken in the coming month for the Project lists below:

- Set up of Contractor's site office
- Site surveying
- Underground utilities detection
- Erection of site hoarding and gate
- Set up tree protection fencing for retained trees
- Set up of PMR's site office
- Site clearance at the northern part of the site
- Ground investigation works
- Plant mobilization
- Construction of temporary haul road at northern of the site near existing substation once consent for site formation is available

10.3 KEY ISSUES FOR THE COMING MONTH

10.3.1 Based on construction activities as undertaken in the coming month, key environment issues consider to be included:

- Implementation of dust suppression measures at all times;
- Potential water quality impact due to surface runoff;
- Potential fugitive dust impact due to the dry/loose/exposure soil surface/dusty material;
- Ensure noise and dust mitigation measures are implemented properly;
- Sediment catch-pits and silt removal facilities should be regularly maintained;
- Management of chemical wastes;
- Until discharge license issued, site effluent discharge is prohibited;
- Follow-up of improvement on general waste management issues; and
- Implementation of construction noise preventative control measures

11 CONCLUSIONS AND RECOMMENDATIONS

11.1 CONCLUSIONS

11.1.1 This is the First (**1st**) monthly EM&A report to presenting the monitoring results and inspection findings for the Reporting Period from **17 July 2015** (the awarded date) to **16 August 2015** (the agreed cut-off date of the reporting month).

11.1.2 Construction activities of the Project still yet commenced. Nevertheless, eight (8) occasions noise monitoring were conducted in the Reporting Period. All noise monitoring results were below 70dB(A). Furthermore, no noise complaint (which is an Action Level exceedance) was received by the EPD, PMR and the Contractor. No NOEs or the associated corrective actions were therefore issued.

11.1.3 The ecological inspection was undertaken on 16th August 2015 and the implementation of the mitigation measures for the plant species of conservation interest, i.e., the *Platycondon grandifloras,* was found to be effective and the plant was appeared healthy within the fenced area and no signs of health deterioration/disturbance caused by the activities within the Project Area were noted.

11.1.4 Two occasions of landscape and visual site inspection were conducted in the Reporting Period. According to two occasions of site inspection observed that the Contractor is compliance with the intended aims of the mitigation measures.

11.1.5 No documented complaint, notification of summons or successful prosecution was received by Ocean Park Corporation and the Contractor.

11.1.6 Joint site inspection by the PMR, ET and the Contractor was carried out on **20 & 27 July 2015** and **3 & 10 August 2015**. No non-compliance observed during the site inspections. During rainy season, site surface water runoff get into the sea body and public area should be avoided and mitigation measures for water quality should be properly implemented. In addition, it was reminded that good housekeeping practice should be maintained. Furthermore, IEC performed site visit on **13 August 2015** and no non-compliance or environmental issue was pointed out. The Project environmental performance was therefore considered satisfactory.

11.2 RECOMMENDATIONS

11.2.1 During rainy season, muddy water and other water quality pollutants via site surface water runoff get into the sea body or to public areas should be avoided. Mitigation measures for water quality should be properly implemented.

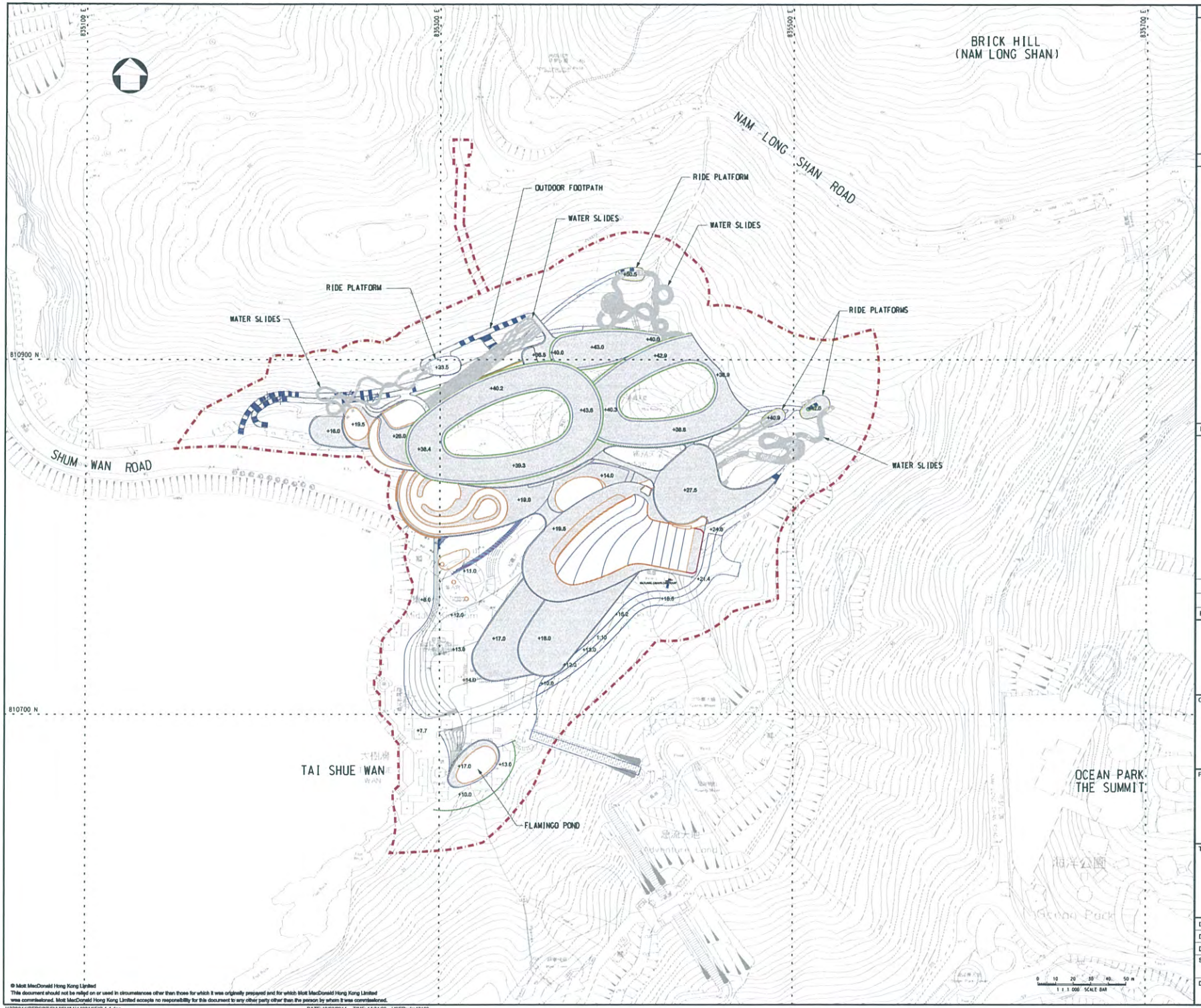
11.2.2 Construction noise should be a key environmental impact during the works. The noise mitigation measures such as use of quiet plants or temporary noise barrier installation at the construction noise predominate area should be implemented as accordance with the EM&A requirement.

11.2.3 Moreover, potential construction dust emission should be paid attention, since the construction site are adjacent the residential and trip zones. The Contractor should fully implement the construction dust mitigation measures properly.

11.2.4 Mosquito control measures should be continued to prevent mosquito breeding on site.

Appendix A

Layout Plan of the Project



Notes

Key to symbols

PROJECT BOUNDARY

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P2	MAR 14	MING	GENERAL REVISION	HY	AFK
P1	FEB 14	MING	FIRST ISSUE	HY	AFK

Mott MacDonald

20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

Client

Ocean Park Hong Kong

Project

TAI SHUE WAN DEVELOPMENT AT OCEAN PARK

Title

PROJECT LAYOUT PLAN

Designed	HY		Eng check	FW	
Drawn	MING		Coordination	FW	
Dwg check	HY		Approved	AFK	
Scale at A1 1:1000		Status PRE		Rev P2	

Drawing Number

FIGURE 1.1

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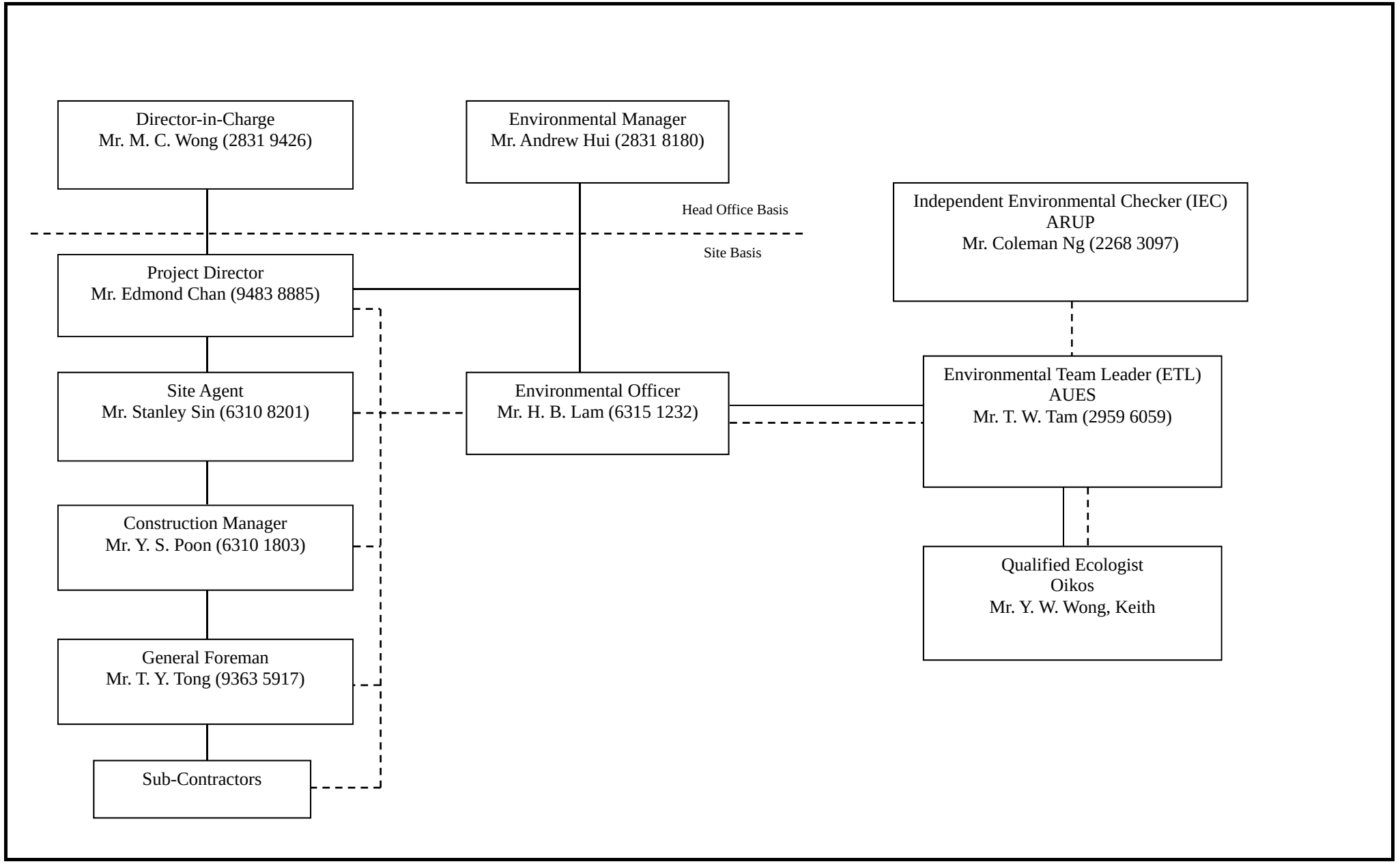
Appendix B

Organization Chart


Director-in-Charge
Mr. M. C. Wong (2831 9426)
Environmental Manager
Mr. Andrew Hui (2831 8180)
Head Office Basis
Site Basis
Independent Environmental Checker (IEC)
ARUP
Mr. Coleman Ng (2268 3097)
Project Director
Mr. Edmond Chan (9483 8885)
Site Agent
Mr. Stanley Sin (6310 8201)
Environmental Officer
Mr. H. B. Lam (6315 1232)
Environmental Team Leader (ETL)
AUES
Mr. T. W. Tam (2959 6059)
Construction Manager
Mr. Y. S. Poon (6310 1803)
Qualified Ecologist
Oikos
Mr. Y. W. Wong, Keith
General Foreman
Mr. T. Y. Tong (9363 5917)
Sub-Contractors

Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
Project Proponent : Ocean Park Corporation				
OPC	Project Management Representative	Mr. Ivan Wan	2910 3102	2814 0179
OPC	Resident Engineer (Planning)	Mr. Tsoi Mau Chui	2910 3113	2814 0179
Arup	Independent Environmental Checker	Mr. Coleman Ng	2528 3031	2268 3950
Paul Y	Project Director of Contractor	Mr. Edmond Chan	9483 8885	2833 5604
Paul Y	Site Agent of Contractor	Mr. Stanley S.C. Sin	2831 8282	2833 5604
Paul Y	Construction Manager of Contractor	Mr. Y. S. Poon	6310 1803	2833 5604
Paul Y	Environmental Officer of Contractor	Mr. Lam Ho Ben	2831 8282	2833 5604
AUES	Environmental Team Leader	Mr. T. W. Tam	2959 6059	2959 6079
AUES	Environmental Consultant	Ms. Nicola Hon	2959 6059	2959 6079
AUES	Environmental Consultant	Mr. Ben Tam	2959 6059	2959 6079
Oikos	Qualified Ecologist	Dr. Keith Wong	9421 2016	2542 3411

Legend:

OPC – Ocean Park Corporation

Arup – Ove Arup & Partners Hong Kong Ltd

Paul Y – Paul Y. Construction Company, Limited

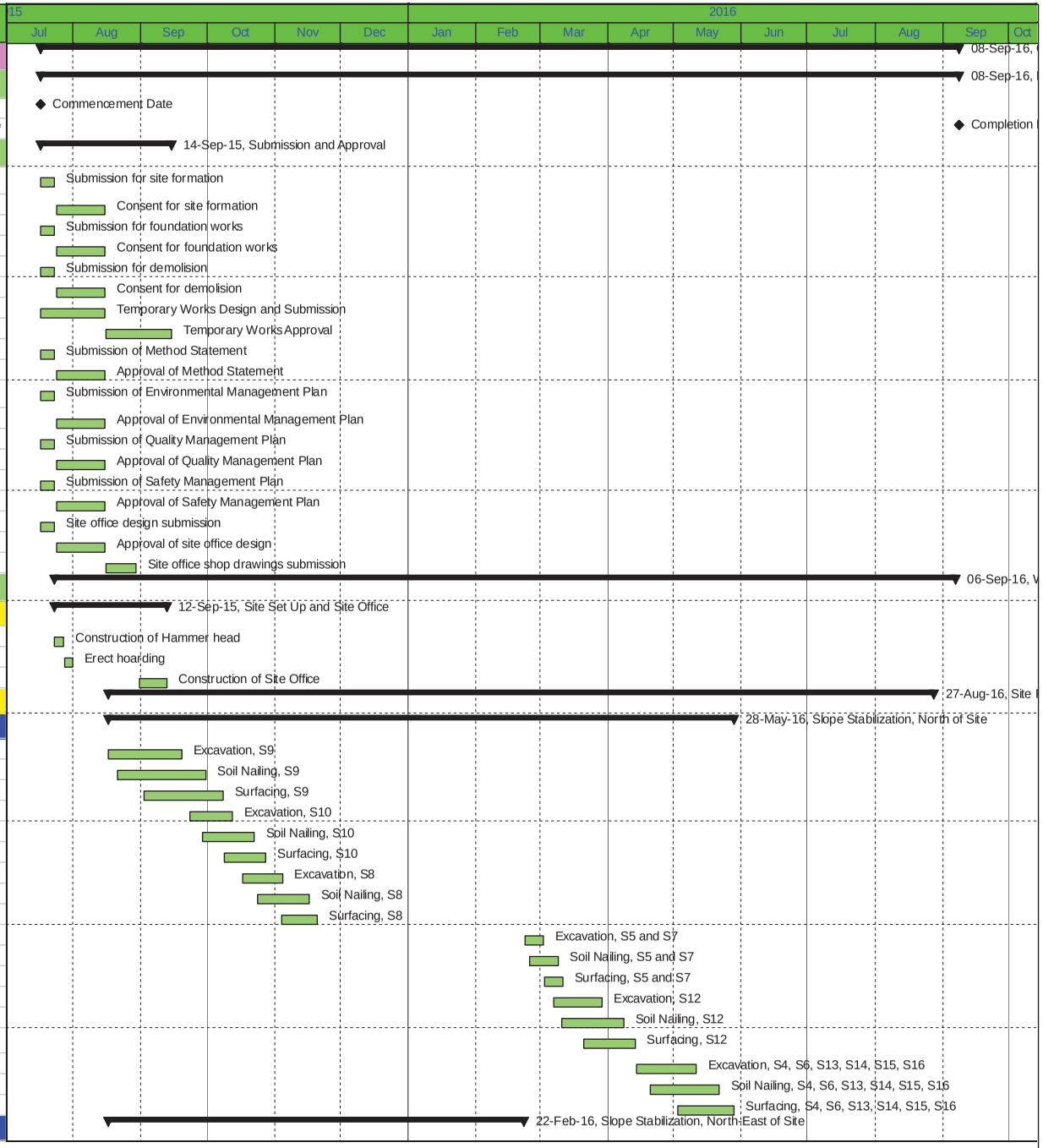
AUES – Action-United Environmental Services & Consulting

Oikos – Oikos Consulting Limited

Appendix C

Master Construction Programme – Formation and Foundation Works

Activity ID	Activity Name	Duration	Start	Finish
Ocean Park Site Formation and Foundation Construction		347d	17-Jul-15	08-Sep-16
Key Dates		419d	17-Jul-15	08-Sep-16
B10010	Commencement Date	0d	17-Jul-15*	
B10020	Completion Date	0d		08-Sep-16*
Submission and Approval		60d	17-Jul-15	14-Sep-15
B10031	Submission for site formation	7d	17-Jul-15	23-Jul-15
B10032	Consent for site formation	23d	24-Jul-15	15-Aug-15
B10040	Submission for foundation works	7d	17-Jul-15	23-Jul-15
B10041	Consent for foundation works	23d	24-Jul-15	15-Aug-15
B10050	Submission for demolision	7d	17-Jul-15	23-Jul-15
B10051	Consent for demolision	23d	24-Jul-15	15-Aug-15
B10061	Temporary Works Design and Submission	30d	17-Jul-15	15-Aug-15
B10062	Temporary Works Approval	30d	16-Aug-15	14-Sep-15
B10102	Submission of Method Statement	7d	17-Jul-15	23-Jul-15
B10112	Approval of Method Statement	23d	24-Jul-15	15-Aug-15
B10122	Submission of Environmental Management Plan	7d	17-Jul-15	23-Jul-15
B10132	Approval of Environmental Management Plan	23d	24-Jul-15	15-Aug-15
B10142	Submission of Quality Management Plan	7d	17-Jul-15	23-Jul-15
B10152	Approval of Quality Management Plan	23d	24-Jul-15	15-Aug-15
B10162	Submission of Safety Management Plan	7d	17-Jul-15	23-Jul-15
B10172	Approval of Safety Management Plan	23d	24-Jul-15	15-Aug-15
B10182	Site office design submission	7d	17-Jul-15	23-Jul-15
B10192	Approval of site office design	23d	24-Jul-15	15-Aug-15
B10202	Site office shop drawings submission	14d	16-Aug-15	29-Aug-15
Work		341d	23-Jul-15	06-Sep-16
Site Set Up and Site Office		45d	23-Jul-15	12-Sep-15
A10000	Construction of Hammer head	4d	23-Jul-15	27-Jul-15
A10010	Erect hoarding	4d	28-Jul-15	31-Jul-15
A10020	Construction of Site Office	12d	31-Aug-15	12-Sep-15
Site Formation Work		312d	17-Aug-15	27-Aug-16
Slope Stabilization, North of Site		236d	17-Aug-15	28-May-16
B10070	Excavation, S9	30d	17-Aug-15	19-Sep-15
B10071	Soil Nailing, S9	34d	21-Aug-15	30-Sep-15
B10072	Surfacing, S9	30d	02-Sep-15	08-Oct-15
B10080	Excavation, S10	15d	23-Sep-15	12-Oct-15
B10081	Soil Nailing, S10	19d	29-Sep-15	22-Oct-15
B10082	Surfacing, S10	15d	09-Oct-15	27-Oct-15
B10091	Excavation, S8	15d	17-Oct-15	04-Nov-15
B10092	Soil Nailing, S8	20d	24-Oct-15	16-Nov-15
B10093	Surfacing, S8	15d	04-Nov-15	20-Nov-15
B10500	Excavation, S5 and S7	8d	23-Feb-16	02-Mar-16
B10501	Soil Nailing, S5 and S7	12d	25-Feb-16	09-Mar-16
B10502	Surfacing, S5 and S7	8d	03-Mar-16	11-Mar-16
B10508	Excavation, S12	20d	07-Mar-16	29-Mar-16
B10509	Soil Nailing, S12	24d	11-Mar-16	08-Apr-16
B10510	Surfacing, S12	20d	21-Mar-16	13-Apr-16
B10518	Excavation, S4, S6, S13, S14, S15, S16	23d	14-Apr-16	11-May-16
B10519	Soil Nailing, S4, S6, S13, S14, S15, S16	27d	20-Apr-16	21-May-16
B10520	Surfacing, S4, S6, S13, S14, S15, S16	23d	03-May-16	28-May-16
Slope Stabilization, North-East of Site		155d	17-Aug-15	22-Feb-16



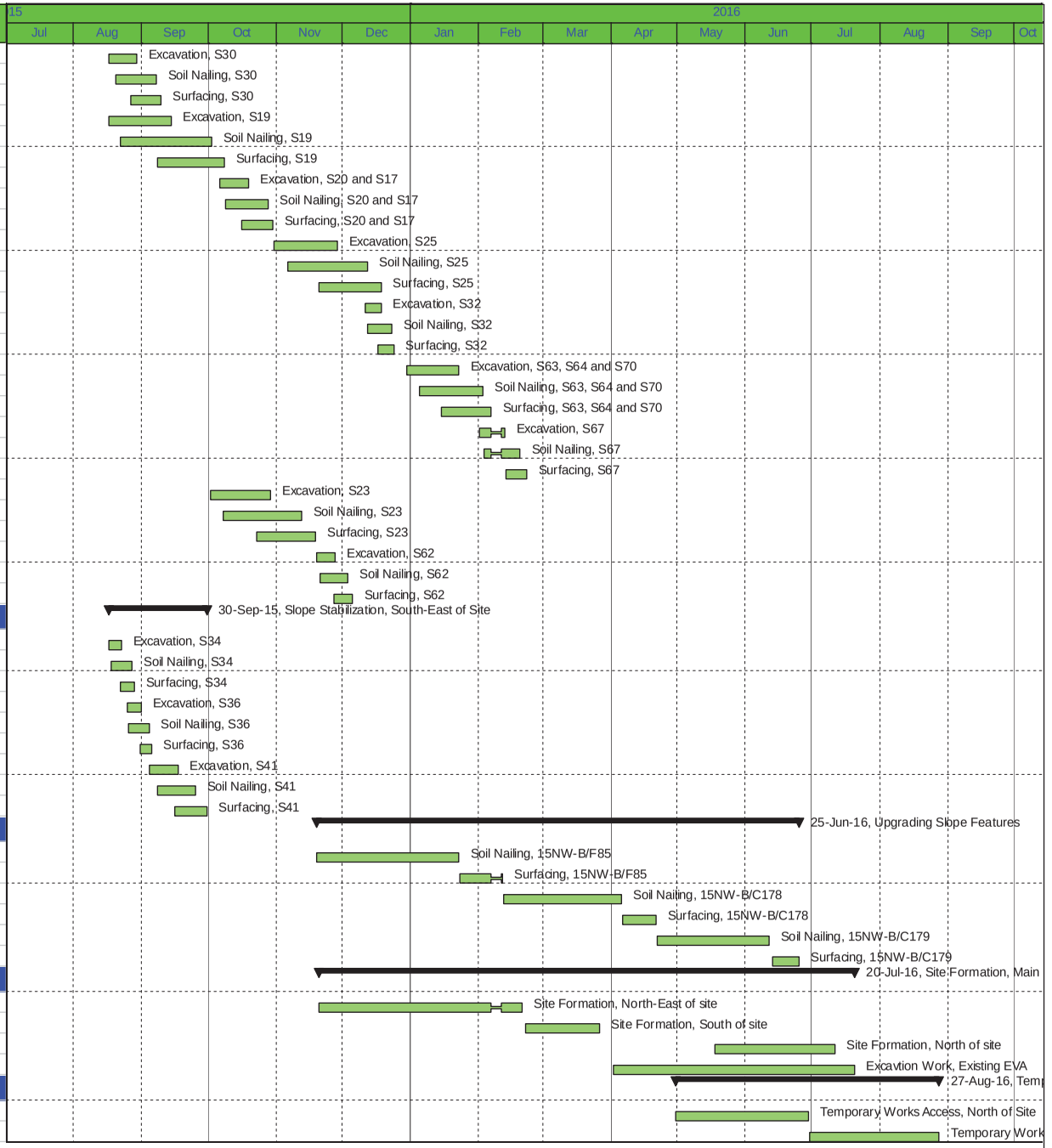
Ocean Park Hong Kong

保華建築有限公司
Paul Y. Construction Company, Limited

Duration of Works
Summary
Critical Works
Milestone

TSW-C004
Site Formation and Foundation Works - Tender Programme

Activity ID	Activity Name	Duration	Start	Finish
B10095	Excavation, S30	12d	17-Aug-15	29-Aug-15
B10096	Soil Nailing, S30	16d	20-Aug-15	07-Sep-15
B10100	Surfacing, S30	12d	27-Aug-15	09-Sep-15
B10285	Excavation, S19	25d	17-Aug-15	14-Sep-15
B10286	Soil Nailing, S19	34d	22-Aug-15	02-Oct-15
B10290	Surfacing, S19	25d	08-Sep-15	08-Oct-15
B10296	Excavation, S20 and S17	12d	06-Oct-15	19-Oct-15
B10297	Soil Nailing, S20 and S17	16d	09-Oct-15	28-Oct-15
B10300	Surfacing, S20 and S17	12d	16-Oct-15	30-Oct-15
B10305	Excavation, S25	25d	31-Oct-15	28-Nov-15
B10306	Soil Nailing, S25	32d	06-Nov-15	12-Dec-15
B10310	Surfacing, S25	25d	20-Nov-15	18-Dec-15
B10315	Excavation, S32	7d	11-Dec-15	18-Dec-15
B10316	Soil Nailing, S32	10d	12-Dec-15	23-Dec-15
B10320	Surfacing, S32	7d	17-Dec-15	24-Dec-15
B10325	Excavation, S63, S64 and S70	20d	30-Dec-15	22-Jan-16
B10326	Soil Nailing, S63, S64 and S70	25d	05-Jan-16	02-Feb-16
B10330	Surfacing, S63, S64 and S70	20d	15-Jan-16	06-Feb-16
B10335	Excavation, S67	8d	01-Feb-16	12-Feb-16
B10336	Soil Nailing, S67	12d	03-Feb-16	19-Feb-16
B10340	Surfacing, S67	8d	13-Feb-16	22-Feb-16
B10345	Excavation, S23	23d	02-Oct-15	29-Oct-15
B10346	Soil Nailing, S23	30d	08-Oct-15	12-Nov-15
B10350	Surfacing, S23	23d	23-Oct-15	18-Nov-15
B10355	Excavation, S62	8d	19-Nov-15	27-Nov-15
B10356	Soil Nailing, S62	11d	21-Nov-15	03-Dec-15
B10360	Surfacing, S62	8d	27-Nov-15	05-Dec-15
Slope Stabilization, South-East of Site		38d	17-Aug-15	30-Sep-15
B10120	Excavation, S34	6d	17-Aug-15	22-Aug-15
B10140	Soil Nailing, S34	9d	18-Aug-15	27-Aug-15
B11010	Surfacing, S34	6d	22-Aug-15	28-Aug-15
B11020	Excavation, S36	6d	25-Aug-15	31-Aug-15
B11030	Soil Nailing, S36	9d	26-Aug-15	04-Sep-15
B11040	Surfacing, S36	6d	31-Aug-15	05-Sep-15
B11050	Excavation, S41	12d	04-Sep-15	17-Sep-15
B11060	Soil Nailing, S41	16d	08-Sep-15	25-Sep-15
B11061	Surfacing, S41	12d	16-Sep-15	30-Sep-15
Upgrading Slope Features		181d	19-Nov-15	25-Jun-16
B10110	Soil Nailing, 15NW-B/F85	54d	19-Nov-15	22-Jan-16
B10130	Surfacing, 15NW-B/F85	14d	23-Jan-16	11-Feb-16
B10160	Soil Nailing, 15NW-B/C178	45d	12-Feb-16	05-Apr-16
B11071	Surfacing, 15NW-B/C178	14d	06-Apr-16	21-Apr-16
B11081	Soil Nailing, 15NW-B/C179	42d	22-Apr-16	11-Jun-16
B11091	Surfacing, 15NW-B/C179	12d	13-Jun-16	25-Jun-16
Site Formation, Main Site Area		200d	20-Nov-15	20-Jul-16
B10535	Site Formation, North-East of site	75d	20-Nov-15	20-Feb-16
B10540	Site Formation, South of site	30d	22-Feb-16	26-Mar-16
B10545	Site Formation, North of site	45d	18-May-16	11-Jul-16
B10820	Excavtion Work, Existing EVA	90d	02-Apr-16	20-Jul-16
Temporary Works Access		100d	30-Apr-16	27-Aug-16
B10270	Temporary Works Access, North of Site	50d	30-Apr-16	29-Jun-16
B10850	Temporary Works Access, North East of Site	50d	30-Jun-16	27-Aug-16

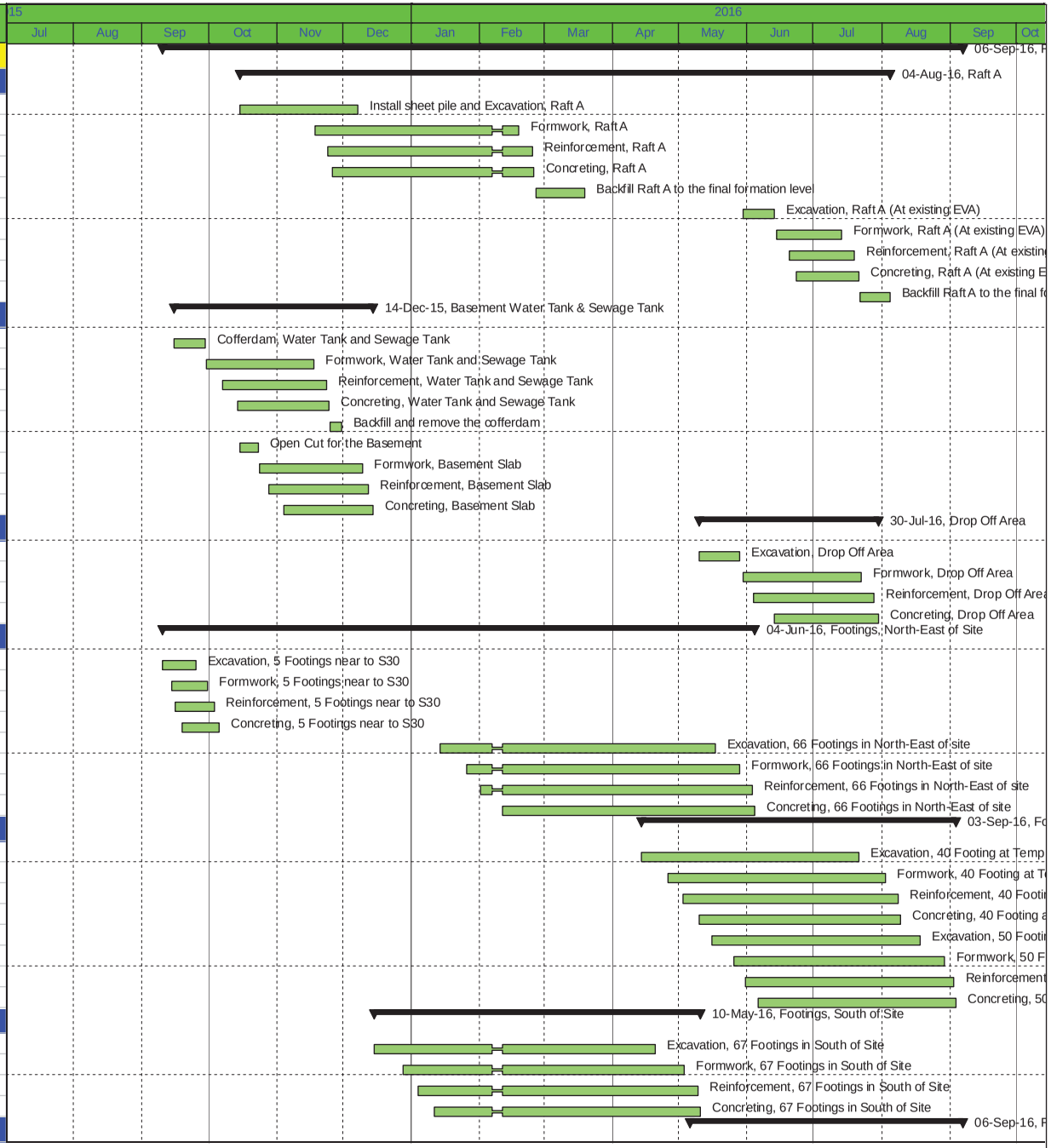


Duration of Works
Summary
Critical Works
Milestone

TSW-C004
Site Formation and Foundation Works - Tender Programme

保華建築有限公司
Paul Y. Construction Company, Limited

Activity ID	Activity Name	Duration	Start	Finish
Foundations		299d	10-Sep-15	06-Sep-16
Raft A		243d	15-Oct-15	04-Aug-16
B10490	Install sheet pile and Excavation, Raft A	45d	15-Oct-15	07-Dec-15
B10690	Formwork, Raft A	75d	18-Nov-15	18-Feb-16
B10691	Reinforcement, Raft A	75d	24-Nov-15	24-Feb-16
B10692	Concreting, Raft A	74d	26-Nov-15	25-Feb-16
B10700	Backfill Raft A to the final formation level	20d	26-Feb-16	19-Mar-16
B10720	Excavation, Raft A (At existing EVA)	12d	30-May-16	13-Jun-16
B10721	Formwork, Raft A (At existing EVA)	25d	14-Jun-16	13-Jul-16
B10722	Reinforcement, Raft A (At existing EVA)	25d	20-Jun-16	19-Jul-16
B10723	Concreting, Raft A (At existing EVA)	24d	23-Jun-16	21-Jul-16
B10740	Backfill Raft A to the final formation level (At existing EVA)	12d	22-Jul-16	04-Aug-16
Basement Water Tank & Sewage Tank		75d	15-Sep-15	14-Dec-15
B10710	Cofferdam, Water Tank and Sewage Tank	12d	15-Sep-15	29-Sep-15
B10731	Formwork, Water Tank and Sewage Tank	40d	30-Sep-15	17-Nov-15
B10732	Reinforcement, Water Tank and Sewage Tank	40d	07-Oct-15	23-Nov-15
B10733	Concreting, Water Tank and Sewage Tank	35d	14-Oct-15	24-Nov-15
B10760	Backfill and remove the cofferdam	5d	25-Nov-15	30-Nov-15
B10770	Open Cut for the Basement	7d	15-Oct-15	23-Oct-15
B10778	Formwork, Basement Slab	40d	24-Oct-15	09-Dec-15
B10779	Reinforcement, Basement Slab	40d	28-Oct-15	12-Dec-15
B10780	Concreting, Basement Slab	35d	04-Nov-15	14-Dec-15
Drop Off Area		69d	10-May-16	30-Jul-16
B10980	Excavation, Drop Off Area	17d	10-May-16	28-May-16
B11101	Formwork, Drop Off Area	45d	30-May-16	22-Jul-16
B11111	Reinforcement, Drop Off Area	45d	04-Jun-16	28-Jul-16
B11121	Concreting, Drop Off Area	41d	13-Jun-16	30-Jul-16
Footings, North-East of Site		221d	10-Sep-15	04-Jun-16
B11131	Excavation, 5 Footings near to S30	14d	10-Sep-15	25-Sep-15
B11141	Formwork, 5 Footings near to S30	14d	14-Sep-15	30-Sep-15
B11151	Reinforcement, 5 Footings near to S30	14d	16-Sep-15	03-Oct-15
B11161	Concreting, 5 Footings near to S30	12d	19-Sep-15	05-Oct-15
B11171	Excavation, 66 Footings in North-East of site	102d	14-Jan-16	17-May-16
B11181	Formwork, 66 Footings in North-East of site	102d	26-Jan-16	28-May-16
B11191	Reinforcement, 66 Footings in North-East of site	102d	01-Feb-16	03-Jun-16
B11201	Concreting, 66 Footings in North-East of site	97d	11-Feb-16	04-Jun-16
Footings, North of Site		120d	14-Apr-16	03-Sep-16
B11211	Excavation, 40 Footing at Temp Hual Road	82d	14-Apr-16	21-Jul-16
B11221	Formwork, 40 Footing at Temp Hual Road	82d	26-Apr-16	02-Aug-16
B11231	Reinforcement, 40 Footing at Temp Hual Road	82d	03-May-16	08-Aug-16
B11241	Concreting, 40 Footing at Temp Hual Road	77d	10-May-16	09-Aug-16
B11251	Excavation, 50 Footings at S4,S6,S13,S14,S15	80d	16-May-16	18-Aug-16
B11261	Formwork, 50 Footings at S4,S6,S13,S14,S15	80d	26-May-16	29-Aug-16
B11271	Reinforcement, 50 Footings at S4,S6,S13,S14,S15	80d	31-May-16	02-Sep-16
B11281	Concreting, 50 Footings at S4,S6,S13,S14,S15	76d	06-Jun-16	03-Sep-16
Footings, South of Site		120d	15-Dec-15	10-May-16
B10900	Excavation, 67 Footings in South of Site	104d	15-Dec-15	20-Apr-16
B11301	Formwork, 67 Footings in South of Site	104d	28-Dec-15	03-May-16
B11311	Reinforcement, 67 Footings in South of Site	104d	04-Jan-16	09-May-16
B11321	Concreting, 67 Footings in South of Site	99d	11-Jan-16	10-May-16
Footings, Main Site Area		104d	06-May-16	06-Sep-16

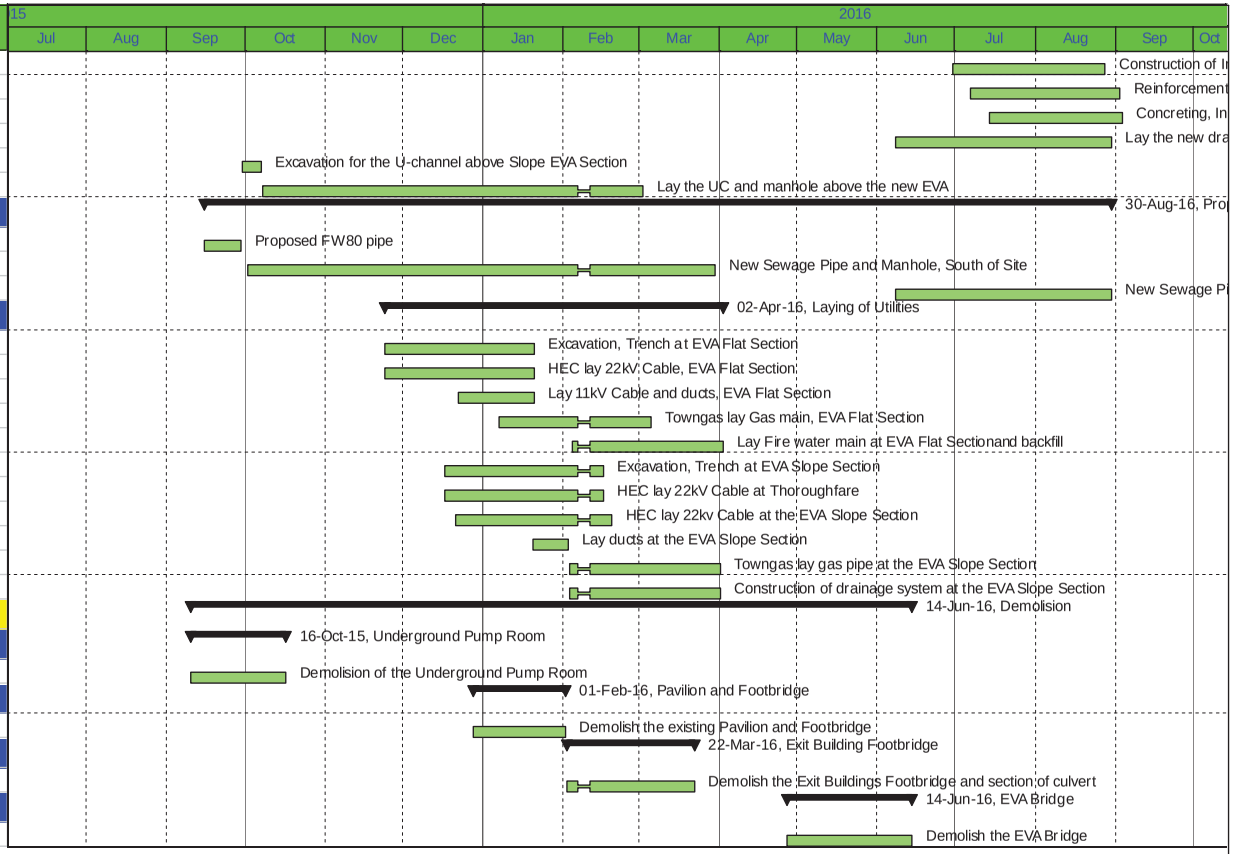


Duration of Works
Critical Works
Milestone
Summary

TSW-C004
Site Formation and Foundation Works - Tender Programme

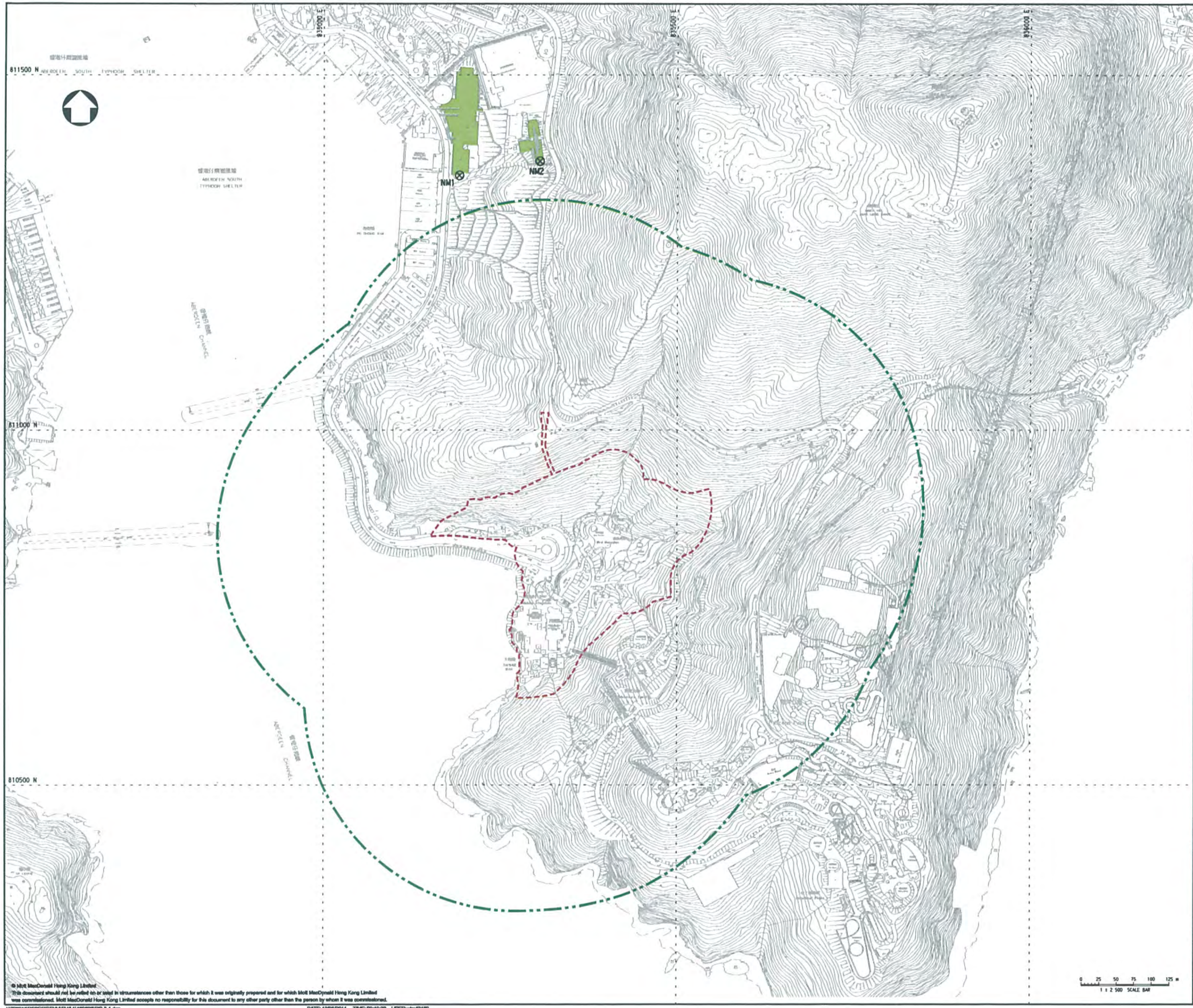
Activity ID	Activity Name	Duration	Start	Finish
B10930	Excavation, 24 Footings Near to the existing stream	46d	06-May-16	29-Jun-16
B10931	Formwork, 24 Footings Near to the existing stream	46d	12-May-16	06-Jul-16
B10932	Reinforcement, 24 Footings Near to the existing stream	46d	16-May-16	09-Jul-16
B10933	Concreting, 24 Footings Near to the existing stream	43d	20-May-16	11-Jul-16
B10960	Excavation, 44 Footings at existing EVA	85d	10-May-16	18-Aug-16
B11361	Formwork, 44 Footings at existing EVA	85d	21-May-16	30-Aug-16
B11371	Reinforcement, 44 Footings at existing EVA	85d	27-May-16	05-Sep-16
B11381	Concreting, 44 Footings at existing EVA	80d	03-Jun-16	06-Sep-16
Thoroughfare and Temporary Hual Road		82d	23-Sep-15	31-Dec-15
B10370	Hual Road for 22kV Cable laying	60d	23-Sep-15	21-Nov-15
B10380	Rock excavation for Thoroughfare	44d	16-Oct-15	07-Dec-15
B10390	Rock Trench for 22kV Cable in the Thoroughfare	40d	24-Oct-15	09-Dec-15
B10400	Construct Cable Trough and joint bay	24d	03-Dec-15	31-Dec-15
Construction of New EVA		177d	15-Sep-15	18-Apr-16
Covered EVA Structure and EVA Flat Section		177d	15-Sep-15	18-Apr-16
B10640	Excavation, Covered EVA Structure	12d	15-Sep-15	29-Sep-15
B10751	Formwork, Covered EVA Structure	55d	30-Sep-15	04-Dec-15
B10752	Reinforcement, Covered EVA Structure	55d	06-Oct-15	09-Dec-15
B10753	Concreting, Covered EVA Structure	5d	05-Dec-15	10-Dec-15
B10790	Backfill, Covered EVA Structure	5d	11-Dec-15	16-Dec-15
B10799	Form road level for EVA Flat Secation	18d	03-Nov-15	23-Nov-15
B10809	Pavement of Flat EVA Section	12d	05-Apr-16	18-Apr-16
EVA Slope Section		73d	02-Oct-15	28-Dec-15
B10460	Temporary Diversion, existing EVA	24d	06-Oct-15	03-Nov-15
B10470	Excavation,Retaining Wall	29d	02-Oct-15	05-Nov-15
B10481	Formwork, Retaining Wall	50d	14-Oct-15	11-Dec-15
B10482	Reinforcement, Retaining Wall	50d	19-Oct-15	16-Dec-15
B10483	Concreting, Retaining Wall	46d	26-Oct-15	17-Dec-15
B10484	Backfill, Covered EVA Structure	8d	18-Dec-15	28-Dec-15
B10530	Mass Concrete, Bays 15, 16	14d	24-Oct-15	09-Nov-15
B10570	ELS, Bays 16, 17 and 18	12d	10-Nov-15	23-Nov-15
Undergound Utilities		293d	15-Sep-15	03-Sep-16
Protection and Temp Diversion Work for Existing Utilities		48d	15-Sep-15	12-Nov-15
B10630	Temporary support, 11kV and 22kV	48d	15-Sep-15	12-Nov-15
B10650	Installation, Temporary Sewage Pipe	18d	15-Sep-15	07-Oct-15
B10651	Diversion, existing Sewage	6d	08-Oct-15	14-Oct-15
B10660	Installation, Temporary diversion pipe of the FS200X2	6d	30-Sep-15	07-Oct-15
B10661	Diversion, FS200X2	2d	08-Oct-15	09-Oct-15
Drainage Works		293d	15-Sep-15	03-Sep-16
Temporary Drainage Diversion		115d	15-Sep-15	01-Feb-16
B10170	Temporary diversion, intake Culvert at hill	75d	15-Sep-15	14-Dec-15
B10180	Temporary diversion, existing stream	30d	21-Nov-15	26-Dec-15
B10190	Stream diversion near to Exit Building Footbridge	30d	28-Dec-15	01-Feb-16
Drainage Construction		281d	30-Sep-15	03-Sep-16
B10220	New Drainage Pipe and Manhole, South of Site	76d	02-Feb-16	05-May-16
B10240	Demolish of the existing culvert, North-East of Site	12d	15-Dec-15	29-Dec-15
B10250	Excavation to the Formation Level of Intake2	95d	07-Dec-15	31-Mar-16
B10260	Construction of Intake 2	50d	30-Apr-16	29-Jun-16
B10262	Reinforcement, Intake2	50d	07-May-16	06-Jul-16
B10263	Concreting, Intake2	45d	14-May-16	07-Jul-16
B10830	Rock Excavation to the Formation Level of Intake 3	117d	11-Feb-16	29-Jun-16

Activity ID	Activity Name	Duration	Start	Finish
B10840	Construction of Intake 3	50d	30-Jun-16	27-Aug-16
B10841	Reinforcement, Intake 3	50d	07-Jul-16	02-Sep-16
B10842	Concreting, Intake 3	45d	14-Jul-16	03-Sep-16
B10860	Lay the new drainage pipe and manhole under the existing EVA	70d	08-Jun-16	30-Aug-16
B10870	Excavation for the U-channel above Slope EVA Section	6d	30-Sep-15	07-Oct-15
B10890	Lay the UC and manhole above the new EVA	120d	08-Oct-15	02-Mar-16
Proposed FW80 and Sewage		289d	15-Sep-15	30-Aug-16
B10610	Proposed FW80 pipe	12d	15-Sep-15	29-Sep-15
B10680	New Sewage Pipe and Manhole, South of Site	149d	02-Oct-15	30-Mar-16
B10730	New Sewage Pipe and Manhole, North of Site	70d	08-Jun-16	30-Aug-16
Laying of Utilities		108d	24-Nov-15	02-Apr-16
B10409	Excavation, Trench at EVA Flat Section	48d	24-Nov-15	20-Jan-16
B10410	HEC lay 22kV Cable, EVA Flat Section	48d	24-Nov-15	20-Jan-16
B10420	Lay 11kV Cable and ducts, EVA Flat Section	24d	22-Dec-15	20-Jan-16
B10430	Towngas lay Gas main, EVA Flat Section	48d	07-Jan-16	05-Mar-16
B10440	Lay Fire water main at EVA Flat Sectionand backfill	48d	04-Feb-16	02-Apr-16
B10449	Excavation, Trench at EVA Slope Section	48d	17-Dec-15	16-Feb-16
B10450	HEC lay 22kV Cable at Thoroughfare	48d	17-Dec-15	16-Feb-16
B10590	HEC lay 22kv Cable at the EVA Slope Section	48d	21-Dec-15	19-Feb-16
B10600	Lay ducts at the EVA Slope Section	12d	20-Jan-16	02-Feb-16
B10620	Towngas lay gas pipe at the EVA Slope Section	48d	03-Feb-16	01-Apr-16
B10670	Construction of drainage system at the EVA Slope Section	48d	03-Feb-16	01-Apr-16
Demolision		228d	10-Sep-15	14-Jun-16
Underground Pump Room		30d	10-Sep-15	16-Oct-15
B11000	Demolision of the Underground Pump Room	30d	10-Sep-15	16-Oct-15
Pavilion and Footbridge		30d	28-Dec-15	01-Feb-16
B10200	Demolish the existing Pavilion and Footbridge	30d	28-Dec-15	01-Feb-16
Exit Building Footbridge		40d	02-Feb-16	22-Mar-16
B10210	Demolish the Exit Buildings Footbridge and section of culvert	40d	02-Feb-16	22-Mar-16
EVA Bridge		40d	27-Apr-16	14-Jun-16
B10280	Demolish the EVA Bridge	40d	27-Apr-16	14-Jun-16



Appendix D

Designated Monitoring Locations as Recommended in the Approved EM&A Manual



Notes

Key to symbols

- 300m ASSESSMENT AREA
- PROJECT BOUNDARY
- ⊗ CONSTRUCTION NOISE MONITORING STATION

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P3	MAY 14	MING	GENERAL REVISION	FX	AFK
P2	MAR 14	MING	GENERAL REVISION	AM	AFK
P1	FEB 14	MING	FIRST ISSUE	AM	AFK

Mott MacDonald
20/F Two Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

Client

Ocean Park Hong Kong

Project

TAI SHUE WAN DEVELOPMENT AT OCEAN PARK

Title

PROPOSED LOCATIONS OF CONSTRUCTION NOISE MONITORING STATIONS

Designed	AM		Eng check	FW
Drawn	MING		Coordination	FW
Dwg check	AM		Approved	AFK

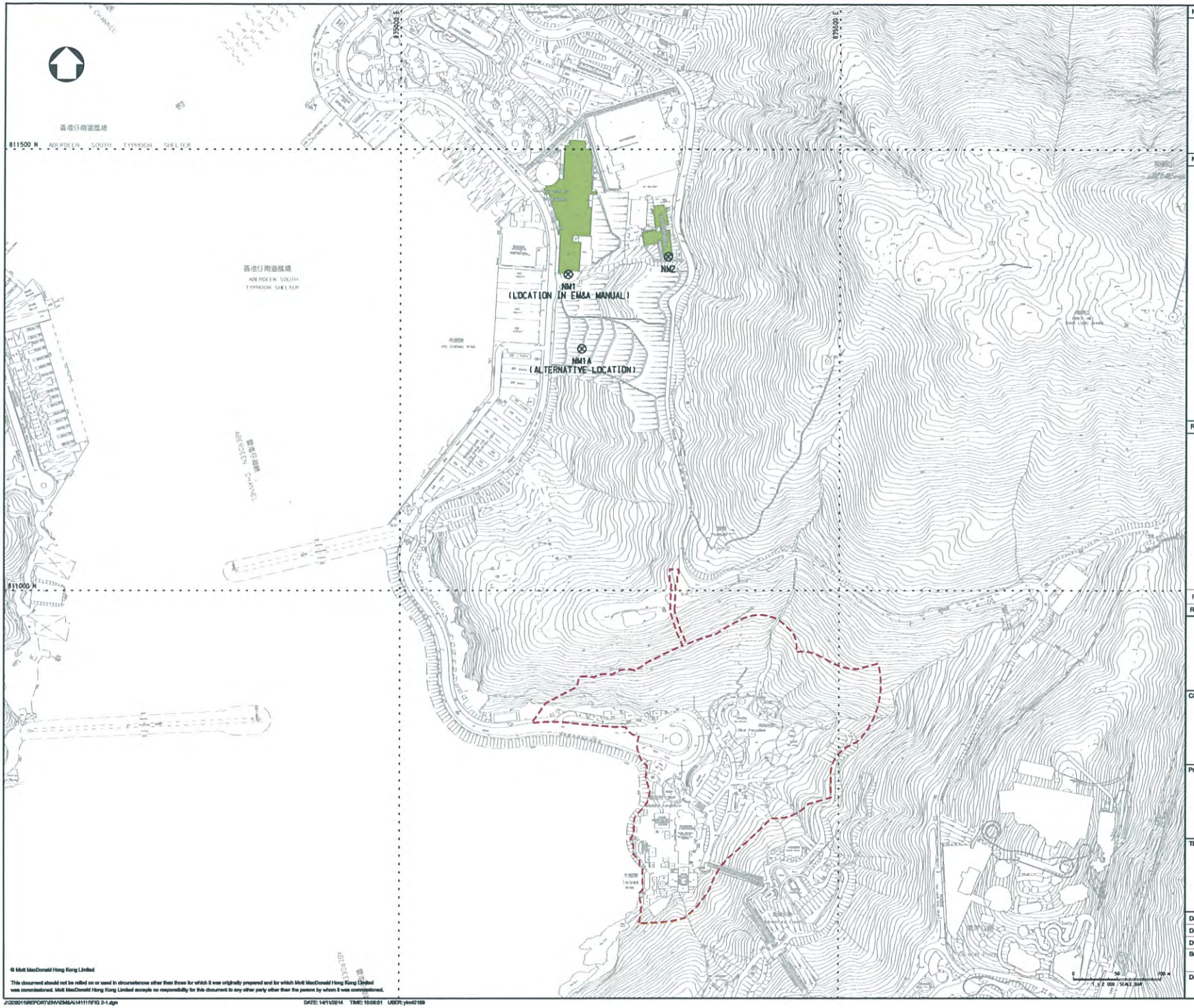
Scale at A1	Status	Rev
1:2500	PRE	P3

Drawing Number

FIGURE 3.1

Appendix E

Actual Locations of Impact Monitoring



Notes

Key to symbols

PROJECT BOUNDARY

CONSTRUCTION NOISE MONITORING STATION

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd
P1	NOV 14	MING	FIRST ISSUE	BW	AFK

Mott MacDonald
28/F AIA Kowloon Tower
Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

Client

Ocean Park Hong Kong

Project

TAI SHUE WAN DEVELOPMENT AT OCEAN PARK

Title

LOCATIONS OF CONSTRUCTION NOISE MONITORING STATIONS

Designed	BW		Eng check	FW	
Drawn	MING		Coordination	FW	
Dwg check	BW		Approved	AFK	
Scale at A1	1:2000	Status	PRE	Rev	P1

Drawing Number

FIGURE 2.1

J:\320501\REPORT\EM\EM&A\141111\FIG 2-1.dgn DATE: 14/11/2014 TIME: 10:08:01 USER: ylee42189

Appendix F

Calibration Certificate of Monitoring Equipment

华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

CNAS 校准 CNAS L0730

校准证书
CALIBRATION CERTIFICATE

证书编号 Certificate No. SSD201406950

委托方 Client: Paul Y Construction Co. Ltd

委托方地址 Add. of Client: ------

计量器具名称 Description: Sound Level Meter

型号规格 Model/Type: 93

制造厂 Manufacturer: Pulsar

出厂编号 Serial No.: B22369

设备编号 Equipment No.: ———

接收日期 Date of Receipt: 2014 年 12 月 15 日 (Y M D)

结论 Conclusion: 符合JJG 188-2002中1级技术要求

校准日期 Date of Calibration: 2014 年 12 月 17 日 (Y M D)

批准人 Approved Signatory

核验 Inspected by

校准 Calibrated by

证书专用章 Stamp

本中心地址：中国广州市广园中路松柏东街30号 邮政编码：510405
电话：(8620)86594172 传真：(8620)86590743 投诉电话：(8620)26296063 E-mail：scm@scm.com.cn
Add: No.30, Songbaidong Street, Guangyuanzhong Road, Guangzhou, P. R. China
Post Code: 510405 Tel: (8620)86594172 Fax: (8620)86590743 Complaint Tel: (8620)26296063
证书真伪查询：www.scm.com.cn；www.mtpsp.com Certificate Authenticityldentify: www.scm.com.cn; www.mtpsp.com

说　明

证书编号 SSD201406950
Certificate No.

DIRECTIONS

1. 本中心是国家质量监督检验检疫总局在华南地区设立的国家法定计量检定机构，计量授权证书号是：（国）法计（2012）01043号、（国）法计（2012）01032号。本中心质量管理体系符合ISO/IEC 17025:2005标准的要求。
This laboratory is the National Legal Metrological Verification Institution in southern China set up by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) under authorization certificates No.(2012)01043 & (2012)01032. The quality system is in accordance with ISO/IEC 17025:2005.

2. 本中心所出具的数据均可溯源至国家计量基准和国际单位制(SI)。
All data issued by this laboratory are traceable to national primary standards and International System of Units (SI).

3. 本次校准的技术依据：
Reference documents for the calibration:
JJG 188-2002 声级计检定规程　V.R. of Sound Level Meters

4. 本次校准所使用的主要计量标准器具：
Major standards of measurement used in the calibration:

设备名称/型号 Name of Equipment /Model	编号 Serial No.	证书号/有效期 Certificate No. /Due Date	计量特性 Metrological Characteristic
标准传声器 Standard Microphones /4180	2488312	LSae2014-1017 /2015-04-13	声压灵敏度级:0.05dB～0.12dB(k=2) Sound pressure sensitivity level:0.05dB～0.12dB(k=2)
消音箱 Sound Reducing Enclosure /2.0 m×1.4 m×1.4 m	1	SSD201402646 /2015-05-26	允差:±1.5 dB MPE:±1.5 dB
PULSE分析系统 Pulse analyzer System /3560C（3110模块）	2392397	SSD201402188 /2015-04-24	电平:U_{rel}=0.1%, 频率:U_{rel}=0.001%(k=2) Voltage:U_{rel}=0.1%, Frequency :U_{rel}=0.001%(k=2)

5. 校准地点、环境条件：
Place and environmental conditions of the calibration:
地点 Place 声学/振动实验室 Acoustics/Vibration Lab.　温度 Temperature (23±3) ℃　相对湿度 R.H. (40～50) %

6. 被校准仪器限制使用条件：
Limiting condition of the instrument calibrated:

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201406950 原始记录编号： 2201406950 第 3 页，共 6 页
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1 外观： 合格

Apparent inspection: Pass

2 声级计指示声级调整：

Level Calibration

（声校准器型号：4231 标准声压级： 94.0 dB）

Sound Level Calibrator Type Standard level

校准前示值：93.7 dB 校准后示值：94.0 dB 传声器型号/编号：UK224/20042221

Indication before Calibrated Indication after Adjusted Microphone type/serial number

3 频率计权：见表1、表2、表3

Frequency weightings: Showed in table 1、table2、table 3

表1 Table 1

标称频率（Hz） Nominal frequency	实测值A计权（dB） Measured Value A-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-67.5	-∞ ～ -66.9	合格(Pass)
20	-50.2	-53.0 ～ -48.0	合格(Pass)
31.5	-39.6	-41.4 ～ -37.4	合格(Pass)
63	-26.4	-27.7 ～ -24.7	合格(Pass)
125	-15.9	-17.6 ～ -14.6	合格(Pass)
250	-8.5	-10.0 ～ -7.2	合格(Pass)
500	-3.2	-4.6 ～ -1.8	合格(Pass)
1000(ref.)	0.0	-1.1 ～ +1.1	合格(Pass)
2000	+1.2	-0.4 ～ +2.8	合格(Pass)
4000	+0.9	-0.6 ～ +2.6	合格(Pass)
8000	-1.2	-4.2 ～ +1.0	合格(Pass)
16000	-6.1	-23.6 ～ -3.1	合格(Pass)
20000	-8.5	-∞ ～ -5.3	合格(Pass)

校准结果
RESULTS OF CALIBRATION

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表2 Table 2

标称频率（Hz） Nominal frequency	实测值C计权（dB） Measured Value C-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-14.5	-∞ ～ -10.8	合格(Pass)
20	-6.3	-8.7 ～ -3.7	合格(Pass)
31.5	-3.1	-5.0 ～ -1.0	合格(Pass)
63	-0.9	-2.3 ～ +0.7	合格(Pass)
125	-0.2	-1.7 ～ +1.3	合格(Pass)
250	0.0	-1.4 ～ +1.4	合格(Pass)
500	0.0	-1.4 ～ +1.4	合格(Pass)
1000(ref.)	0.0	-1.1 ～ +1.1	合格(Pass)
2000	-0.2	-1.8 ～ +1.4	合格(Pass)
4000	-1.0	-2.4 ～ +0.8	合格(Pass)
8000	-3.2	-6.1 ～ -0.9	合格(Pass)
16000	-8.3	-25.5 ～ -5.0	合格(Pass)
20000	-10.7	-∞ ～ -7.2	合格(Pass)

表3 Table 3

标称频率（Hz） Nominal frequency	实测值Z计权（dB） Measured Value Z-weighting	允许范围（dB） Tolerance	结论 Conclusion
10	-1.4	-∞ ～ +3.5	合格(Pass)
20	-0.4	-2.5 ～ +2.5	合格(Pass)
31.5	-0.2	-1.5 ～ +1.5	合格(Pass)
63	-0.1	-1.5 ～ +1.5	合格(Pass)
125	0.0	-1.5 ～ +1.5	合格(Pass)
250	0.0	-1.4 ～ +1.4	合格(Pass)
500	0.0	-1.4 ～ +1.4	合格(Pass)
1000(ref.)	0.0	-1.1 ～ +1.1	合格(Pass)
2000	0.0	-1.6 ～ +1.6	合格(Pass)
4000	0.0	-1.6 ～ +1.6	合格(Pass)
8000	0.0	-3.1 ～ +2.1	合格(Pass)
16000	+0.1	-17.0 ～ +3.5	合格(Pass)
20000	0.0	-∞ ～ +4.0	合格(Pass)

校准结果
RESULTS OF CALIBRATION

4 级线性（参考频率 1 kHz）

Level linearity error (Reference frequency 1 kHz)

4.1 级程变化误差（参考频率：1000 Hz）：见表4

Level Change Error(Reference frequency: 1000 Hz): Showed in table 4

表4 Table 4

标准值（dB） Reference Value	指示值（dB） Indication Value	误差（dB） Error	允差（dB） Tolerance	结论 Conclusion
20	19.4	-0.6	±0.7	合格(Pass)
30	30.2	+0.2	±0.7	合格(Pass)
40	40.4	+0.4	±0.7	合格(Pass)
50	50.2	+0.2	±0.7	合格(Pass)
60	60.1	+0.1	±0.7	合格(Pass)
70	70.1	+0.1	±0.7	合格(Pass)
80	80.1	+0.1	±0.7	合格(Pass)
90(ref.)	90.0	0.0	-----	合格(Pass)
100	100.1	+0.1	±0.7	合格(Pass)
110	110.1	+0.1	±0.7	合格(Pass)
120	120.1	+0.1	±0.7	合格(Pass)
130	130.0	0.0	±0.7	合格(Pass)

4.2 参考级量程

Reference range

起始点指示声级：90 dB

Start point

起始点以上间隔 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB above start point

起始点以下间隔 1 dB点的最大误差：0.1 dB

Maximum Error for each 1 dB below start point

校准结果
RESULTS OF CALIBRATION

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5 本机噪声：

Residual noise

A计权：<20 dB　结论：合格(Pass)

A-weighting　Conclusion

6 F和S时间计权：

Time weightings F/S

衰减速率：　*F*：>25 dB/s（允许范围：≥25 dB/s）；

Attenuation rate　Tolerance

S：4.5 dB/s（允许范围：3.4 dB/s～5.3 dB/s）；

Tolerance

F和S差值：0.0 dB

Dispersion F/S

7 过载指示：

Over loading indication

误差：1.3 dB（允许范围：≤1.8 dB）　结论：合格(Pass)

Error　Tolerance　Conclusion

说明(Note)：

1 声压级测量结果扩展不确定度：

Expanded uncertainty of measurement in Sound Pressure Level Calibration:

10 Hz～200 Hz ,U=0.5 dB, k=2

250 Hz～400 Hz ,U=0.4 dB, k=2

500 Hz～1.25 kHz ,U=0.4 dB, k=2

1.6 kHz～10 kHz ,U=0.6 dB, k=2

12.5 kHz～20 kHz ,U=1.0 dB, k=2

（依据JJF 1059.1-2012 测量不确定度评定与表示）

(According to JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

2 参考IEC 61672-1-2002标准。

Reference standard: IEC 61672-1-2002.

3 建议校准周期不超过1年。

The period of calibration advised within one year.

华南国家计量测试中心
广东省计量科学研究院
SOUTH CHINA NATIONAL CENTER OF METROLOGY
GUANGDONG INSTITUTE OF METROLOGY

CNAS 校准 L0730

校准证书
CALIBRATION CERTIFICATE

证书编号 Certificate No. SSD201406951

委托方 Client: Paul Y Construction Co. Ltd

委托方地址 Add. of Client: ------

计量器具名称 Description: Sound Level Calibrator

型号规格 Model/Type: 105

制造厂 Manufacturer: Pulsar

出厂编号 Serial No.: 60220

设备编号 Equipment No.: ———

接收日期 Date of Receipt: 2014年(Y) 12月(M) 15日(D)

结论 Conclusion: 符合JJG 176-2005中1级技术要求

校准日期 Date of Calibration: 2014年(Y) 12月(M) 17日(D)

批准人 Approved Signatory

核验 Inspected by

校准 Calibrated by

证书专用章 Stamp

本中心地址：中国广州市广园中路松柏东街30号 邮政编码：510405
电话：(8620) 86594172 传真：(8620) 86590743 投诉电话：(8620) 26296063 E-mail：scm@scm.com.cn
Add: No.30, Songbaidong Street, Guangyuanzhong Road, Guangzhou, P. R. China
Post Code: 510405 Tel: (8620)86594172 Fax: (8620)86590743 Complaint Tel: (8620)26296063
证书真伪查询：www.scm.com.cn；www.mtpsp.com Certificate Authenticityldentify: www.scm.com.cn; www.mtpsp.com

说　明

证书编号 SSD201406951
Certificate No.

DIRECTIONS

1. 本中心是国家质量监督检验检疫总局在华南地区设立的国家法定计量检定机构，计量授权证书号是：（国）法计（2012）01043号、（国）法计（2012）01032号。本中心质量管理体系符合ISO/IEC 17025:2005标准的要求。

   This laboratory is the National Legal Metrological Verification Institution in southern China set up by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China (AQSIQ) under authorization certificates No.(2012)01043 & (2012)01032. The quality system is in accordance with ISO/IEC 17025:2005.

2. 本中心所出具的数据均可溯源至国家计量基准和国际单位制(SI)。

   All data issued by this laboratory are traceable to national primary standards and International System of Units (SI).

3. 本次校准的技术依据：

   Reference documents for the calibration:

   JJG 176-2005 声校准器检定规程　V.R. of Sound Calibrators

4. 本次校准所使用的主要计量标准器具：

   Major standards of measurement used in the calibration:

设备名称/型号 Name of Equipment /Model	编号 Serial No.	证书号/有效期 Certificate No. /Due Date	计量特性 Metrological Characteristic
PULSE分析系统 Pulse analyzer System /3560C（3110模块）	2392397	SSD201402188 /2015-04-24	电平:U_{rel}=0.1%, 频率:U_{rel}=0.001%(k=2) Voltage:U_{rel}=0.1%, Frequency :U_{rel}=0.001%(k=2)
声校准器 Sound Calibrator /4231	2713562	SSD201402647 /2015-05-26	1 级 Grade 1

5. 校准地点、环境条件：

   Place and environmental conditions of the calibration:

   地点 Place 声学/振动实验室 Acoustics/Vibration Lab.　温度 Temperature (23±3) ℃　相对湿度 R.H. (30～40) %

6. 被校准仪器限制使用条件：

   Limiting condition of the instrument calibrated:

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201406951 原始记录编号： 2201406951 第 3 页，共 4 页
Certification No. Record No. Page of

1 外观： 合格

Apparent inspection: Pass

2 声压级（dB）：见表1

Sound Pressure Level: Showed in table 1

表1 Table 1

标称值（dB）Nominal Value	实测值（dB）Measured Value	允差（dB）Tolerance	结论 Conclusion	稳定度（dB）Stabilization	稳定度允差（dB）Stabilization Tolerance	结论 Conclusion
94	93.81	±0.40	合格(Pass)	0.01	≤0.10	合格(Pass)

3 频率：见表2

Frequency: Showed in table 2

表2 Table 2

标称值（Hz）Nominal Value	实测值（Hz）Measured Value	允差（%）Tolerance	结论 Conclusion
1000	1000.30	±1.0	合格(Pass)

4 总失真： 见表3

Total harmonic distortion: Showed in table 3

表3 Table 3

频率（Hz）Frequency	声压级（dB）Sound Pressure Level	总失真（%）Total Harmonic Distortion	允差（%）Tolerance	结论 Conclusion
1000	94	0.1	≤3	合格(Pass)

校准结果
RESULTS OF CALIBRATION

证书编号： SSD201406951　　原始记录编号： 2201406951　　第 4 页，共 4 页
Certification No.　　Record No.　　Page　of

说明(Note)：

1 测量结果扩展不确定度：

Expanded uncertainty of measurement:

声压级：U=0.15 dB，k=2

Sound Pressure Level Calibration

频率：U_{rel}=0.1 %，k=2

Frequency

失真度：U_{rel}=1.4 %，k=2

Harmonic distortion

（依据JJF 1059.1-2012测量不确定度评定与表示）

(According to JJF 1059.1-2012 Evaluation and Expression of Uncertainty in Measurement)

2 建议校准周期不超过1年。

The period of calibration advised within one year.

輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C152550
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 16 April 2015

Description / 儀器名稱 : Acoustical Calibrator (EQ081)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 4231
Serial No. / 編號 : 2326408
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 7 May 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : K C Lee
Project Engineer

Certified By 核證 : K M Wu
Engineer

Date of Issue 簽發日期 : 12 May 2015

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Certificate of Calibration
校正證書

Certificate No. : C152550
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C143868
CL281	Multifunction Acoustic Calibrator	DC130171
TST150A	Measuring Amplifier	C141558

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.2	± 0.2
114 dB, 1 kHz	114.0		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 0.1 %	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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輝創工程有限公司
Sun Creation Engineering Limited
Calibration and Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C153053
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC15-0720) Date of Receipt / 收件日期 : 15 May 2015

Description / 儀器名稱 : Integrating Sound Level Meter (EQ008)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2285690
Supplied By / 委託者 : Action-United Environmental Services and Consulting
Unit A, 20/F., Gold King Industrial Building,
35-41 Tai Lin Pai Road, Kwai Chung, N.T.

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (55 ± 20)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 4 June 2015

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
All results are within manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : K C Lee
Project Engineer

Certified By 核證 : K M Wu
Engineer

Date of Issue 簽發日期 : 5 June 2015

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, Tsing Shan Wan Exchange Building, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 – 校正及檢測實驗所
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Certificate of Calibration
校正證書

Certificate No. : C153053
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C150014
CL281	Multifunction Acoustic Calibrator	DC130171

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	93.5

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
50 - 130	L_{AFP}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		114.0

IEC 60651 Type 1 Spec. : ± 0.4 dB per 10 dB step and ± 0.7 dB for overall different.

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Certificate of Calibration
校正證書

Certificate No. : C153053
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6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
50 - 130	L_{AFP}	A	F	94.00	1	94.0	Ref.
	L_{ASP}		S			94.0	± 0.1
	L_{AIP}		I			94.0	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L_{AFMax}				200 ms	105.0	-1.0 ± 1.0
	L_{ASP}		S		Continuous	106.0	Ref.
	L_{ASMax}				500 ms	102.0	-4.1 ± 1.0

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	54.7	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.7	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	95.0	+1.0 ± 1.0
					8 kHz	92.9	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.8	-4.3 (+3.0 ; -6.0)

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6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
50 - 130	L_{CFP}	C	F	94.00	31.5 Hz	91.0	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	93.9	0.0 ± 1.0
					500 Hz	94.0	0.0 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	93.8	-0.2 ± 1.0
					4 kHz	93.2	-0.8 ± 1.0
					8 kHz	91.0	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.9	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Spec. (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Frequency (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
30 - 110	L_{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5
						$1/10^2$		90	89.7	± 0.5
			60 sec.			$1/10^3$		80	79.9	± 1.0
			5 min.			$1/10^4$		70	69.7	± 1.0

Remarks : - UUT Microphone Model No. : 4188 & S/N : 2812706

- Mfr's Spec. : IEC 60651 Type 1 & IEC 60804 Type 1

- Uncertainties of Applied Value :

94 dB	: 31.5 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB : 1 kHz		: ± 0.10 dB (Ref. 94 dB)
114 dB : 1 kHz		: ± 0.10 dB (Ref. 94 dB)
Burst equivalent level		: ± 0.2 dB (Ref. 110 dB continuous sound level)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
The values given in this Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

Appendix G

Event and Action Plan

Event and Action Plan for Construction Noise

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
Action Level	1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures.	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals.
Limit Level	1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated.	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

Event and Action Plan for Landscape and Visual Impact during Construction Phase

Action Level	Environmental Team Leader (ETL)	Independent Environmental Checker (IEC)	Engineer's Representative (ER)	Contractor
Non-conformity On one occasion	1. Identify source 2. Inform the IEC and the ER 3. Discuss remedial actions with the IEC, the ER and the Contractor 4. Monitor remedial action until rectification has been completed	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement
Repeated Non-conformity	1. Identify source 2. Inform the IEC and the ER 3. Increase monitoring (site audit) frequency 4. Discuss remedial actions with the IEC, the ER and the Contractor 5. Monitor remedial actions until rectification has been completed 6. If exceedance stops, cease additional monitoring (site audit)	1. Check report 2. Check the Contractor's working method 3. Discuss with the ER and the Contractor on possible remedial measures 4. Advise the ER on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures	1. Notify the Contractor 2. Ensure remedial measures are properly implemented	1. Amend working methods 2. Rectify damage and undertake remedial measures or any necessary replacement

Appendix H

Impact Monitoring Schedule

A. Impact Monitoring Schedule for the Reporting Month

Date		Noise Monitoring	Ecology Inspection	Landscape & Visual Inspection
Fri	17-Jul-15			
Sat	18-Jul-15			
Sun	19-Jul-15			
Mon	20-Jul-15			
Tue	21-Jul-15	✓		
Wed	22-Jul-15		✓	✓
Thu	23-Jul-15			
Fri	24-Jul-15			
Sat	25-Jul-15			
Sun	26-Jul-15			
Mon	27-Jul-15			
Tue	28-Jul-15			
Wed	29-Jul-15	✓		
Thu	30-Jul-15			
Fri	31-Jul-15			
Sat	1-Aug-15			
Sun	2-Aug-15			
Mon	3-Aug-15			
Tue	4-Aug-15			
Wed	5-Aug-15			
Thu	6-Aug-15	✓		
Fri	7-Aug-15			✓
Sat	8-Aug-15			
Sun	9-Aug-15			
Mon	10-Aug-15			
Tue	11-Aug-15			
Wed	12-Aug-15	✓		
Thu	13-Aug-15			
Fri	14-Aug-15			
Sat	15-Aug-15		Cancelled (1)	
Sun	16-Aug-15		✓	

Notes:

1) Due to bad weather, Ecology inspection was cancelled and rescheduled as conducted on 16 August 2015

	Sunday or Public Holiday

B. Predicted Impact Monitoring Schedule for next Reporting Month

Date		Noise Monitoring	Ecology Inspection	Landscape & Visual Inspection
Mon	17-Aug-15			
Tue	18-Aug-15			✓
Wed	19-Aug-15			
Thu	20-Aug-15			
Fri	21-Aug-15			
Sat	22-Aug-15	✓		
Sun	23-Aug-15			
Mon	24-Aug-15			
Tue	25-Aug-15			
Wed	26-Aug-15			
Thu	27-Aug-15	✓		
Fri	28-Aug-15			
Sat	29-Aug-15			
Sun	30-Aug-15			
Mon	31-Aug-15			
Tue	1-Sep-15	✓		
Wed	2-Sep-15			✓
Thu	3-Sep-15			
Fri	4-Sep-15			
Sat	5-Sep-15			
Sun	6-Sep-15			
Mon	7-Sep-15			
Tue	8-Sep-15			
Wed	9-Sep-15			
Thu	10-Sep-15	✓		
Fri	11-Sep-15		✓	
Sat	12-Sep-15			
Sun	13-Sep-15			
Mon	14-Sep-15			
Tue	15-Sep-15	✓		
Wed	16-Sep-15			

	Sunday or Public Holiday

Appendix I

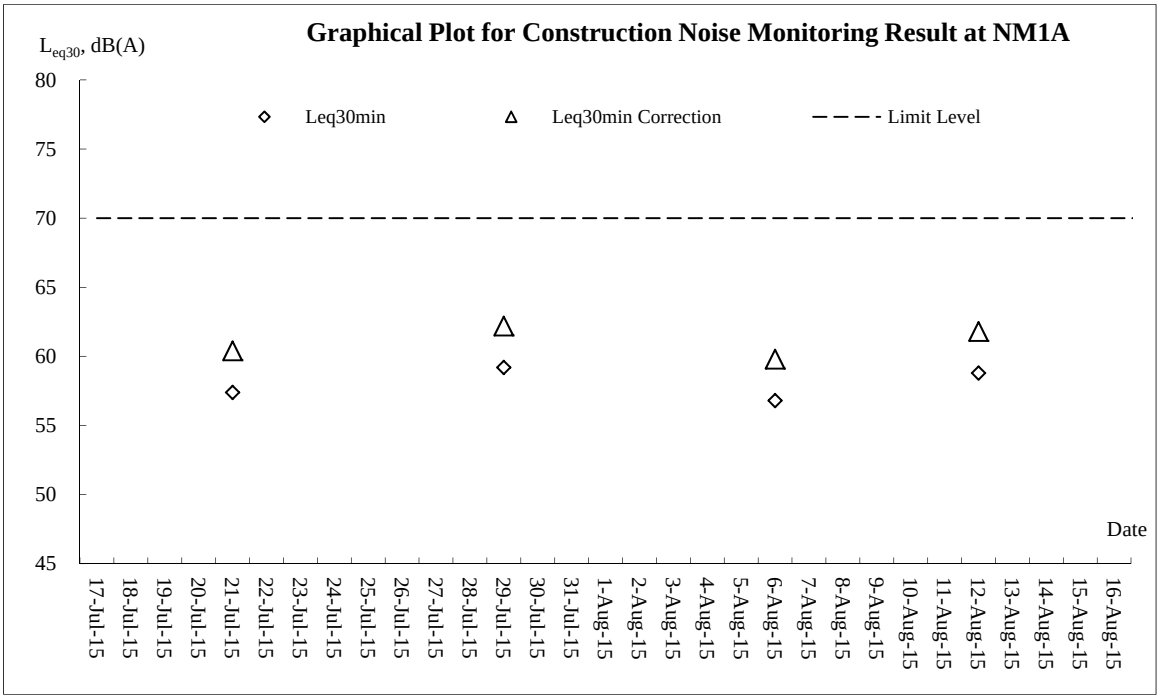
Database of Monitoring Result

Noise Measurement Results (dB) of NM1A																					
Date	**Start Time**	**1st Leq_{5min}**	**L10**	**L90**	**2nd Leq_{5min}**	**L10**	**L90**	**3rd Leq_{5min}**	**L10**	**L90**	**4th Leq_{5min}**	**L10**	**L90**	**5th Leq_{5min}**	**L10**	**L90**	**6th Leq_{5min}**	**L10**	**L90**	**Leq30**	**L_{10} of 30mins**	**L_{90} of 30mins**
21-Jul-15	10:55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	59	56
29-Jul-15	14:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	59	63	57
6-Aug-15	10:20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	58	54
12-Aug-15	15:00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	59	61	56

Noise Measurement Results (dB) of NM2																					
Date	**Start Time**	**1st Leq_{5min}**	**L10**	**L90**	**2nd Leq_{5min}**	**L10**	**L90**	**3rd Leq_{5min}**	**L10**	**L90**	**4th Leq_{5min}**	**L10**	**L90**	**5th Leq_{5min}**	**L10**	**L90**	**6th Leq_{5min}**	**L10**	**L90**	**Leq30**	**L_{10} of 30mins**	**L_{90} of 30mins**
21-Jul-15	14:10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	60	57
29-Jul-15	15:45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	59	62	55
6-Aug-15	11:15	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60	62	59
12-Aug-15	16:30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	57	60	56

Appendix J

Graphical Plots for Monitoring Result


Graphical Plot for Construction Noise Monitoring Result at NM1A
L_{eq30}, dB(A)
Leq30min
Leq30min Correction
Limit Level
80
75
70
65
60
55
50
45
Date
17-Jul-15
18-Jul-15
19-Jul-15
20-Jul-15
21-Jul-15
22-Jul-15
23-Jul-15
24-Jul-15
25-Jul-15
26-Jul-15
27-Jul-15
28-Jul-15
29-Jul-15
30-Jul-15
31-Jul-15
1-Aug-15
2-Aug-15
3-Aug-15
4-Aug-15
5-Aug-15
6-Aug-15
7-Aug-15
8-Aug-15
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12-Aug-15
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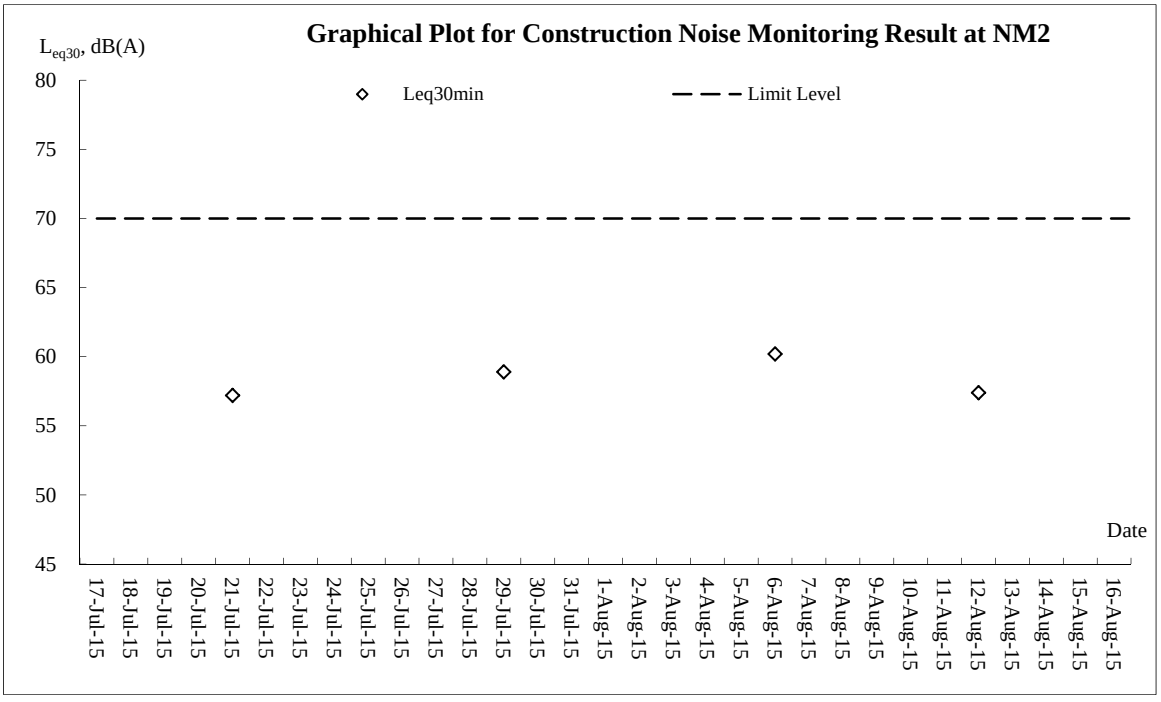
14-Aug-15
15-Aug-15
16-Aug-15


Graphical Plot for Construction Noise Monitoring Result at NM2
L_{eq30}, dB(A)
Leq30min
Limit Level
80
75
70
65
60
55
50
45
Date
17-Jul-15
18-Jul-15
19-Jul-15
20-Jul-15
21-Jul-15
22-Jul-15
23-Jul-15
24-Jul-15
25-Jul-15
26-Jul-15
27-Jul-15
28-Jul-15
29-Jul-15
30-Jul-15
31-Jul-15
1-Aug-15
2-Aug-15
3-Aug-15
4-Aug-15
5-Aug-15
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8-Aug-15
9-Aug-15
10-Aug-15
11-Aug-15
12-Aug-15
13-Aug-15
14-Aug-15
15-Aug-15
16-Aug-15

Appendix K

Meteorological Data

Date		Total Rainfall (mm)	Wong Chuk Hang Station			
			Mean Air Temp. (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
Fri	17-Jul-15	0.2	29.7	10.1	78.2	E/SE
Sat	18-Jul-15	Trace	31.1	15.7	66	E
Sun	19-Jul-15	46.2	27.4	8.4	86.2	E/NE
Mon	20-Jul-15	51.2	26.5	13.5	87.5	W/NW
Tue	21-Jul-15	19.3	26.3	10.5	92.5	NW
Wed	22-Jul-15	45	26.7	8.2	89.7	N/NE
Thu	23-Jul-15	5.7	27.9	9.3	89.2	N/NE
Fri	24-Jul-15	9.6	28	9.5	86	N/NW
Sat	25-Jul-15	24.9	27.7	8.5	83.7	N
Sun	26-Jul-15	0.3	28.6	9	81.7	N/NW
Mon	27-Jul-15	Trace	28.6	8.5	75	SE
Tue	28-Jul-15	3.7	28	10	77	SE
Wed	29-Jul-15	0.6	27.9	12	80	E/SE
Thu	30-Jul-15	0	27.6	8.5	63	S/SE
Fri	31-Jul-15	12	28.9	6.5	79.7	W/SW
Sat	1-Aug-15	0	28.4	8.9	75.5	SE
Sun	2-Aug-15	0	28.2	7.2	77	S/SE
Mon	3-Aug-15	0	28.6	8.2	78	S/SE
Tue	4-Aug-15	0	28.5	7.5	77	S/SE
Wed	5-Aug-15	0	28.6	6.8	80	SW
Thu	6-Aug-15	0	29.1	8	75.5	S/SE
Fri	7-Aug-15	0	30.6	7.5	69.5	W/SW
Sat	8-Aug-15	0	31.9	11.3	41.2	W/NW
Sun	9-Aug-15	11.6	30.1	9.1	74.7	W/NW
Mon	10-Aug-15	23.5	27.1	8.9	85.7	W/SW
Tue	11-Aug-15	16.8	28.3	6.5	82.5	SW
Wed	12-Aug-15	Trace	29.2	9	83.5	SE
Thu	13-Aug-15	27.5	27.2	7.5	89.7	S/SW
Fri	14-Aug-15	18.9	26.2	6.2	93.2	SE
Sat	15-Aug-15	24.6	26.2	8.2	86	W/SW
Sun	16-Aug-15	0.1	28.6	6.5	89	W/SW

Appendix L

Ecological Inspection Records

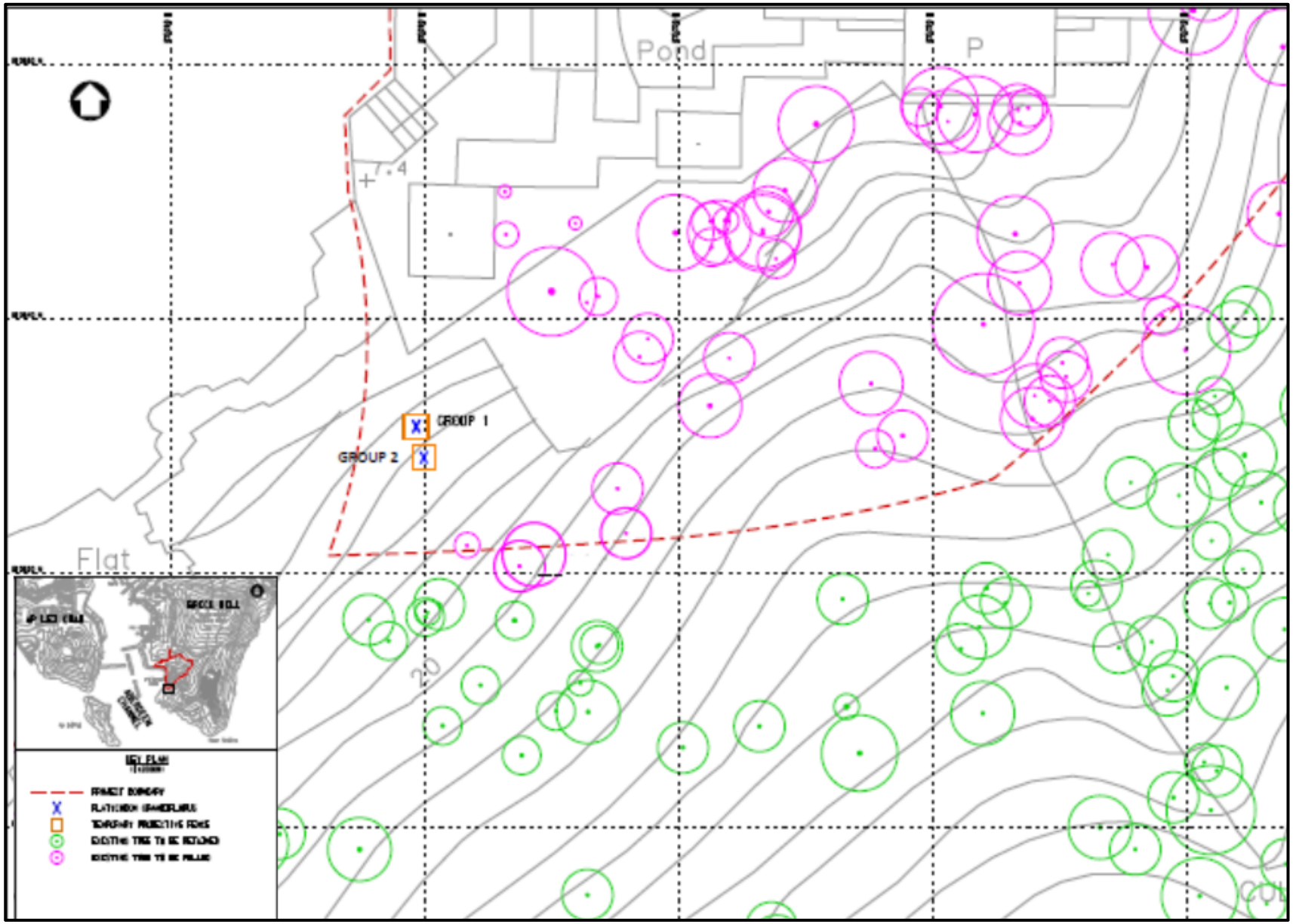

Figure 1 - Location of the two groups of Platycondon grandifloras

Photo 1 – Group 1 of *Platycondon grandiflorus*

Photo 2 – Group 2 *Platycondon grandiflorus*

Photo 3 – Temporary Protective Fencing

Appendix M

Waste Flow Table

WASTE FLOW TABLE

Month	Inert waste (tons)			Non-inert waste (tons)				Chemical Waste (L)
	Reused in the contract	Reused in other Projects	Waste disposed to public fill	Metals	Paper/ Cardboard packaging	Plastics	Waste disposed to landfill	Chemical Waste Collector
Jul-15	0	0	0	0	0.137	0	0	0
Aug-15								
Sep-15								
Oct-15								
Nov-15								
Dec-15								
Jan-16								
Feb-16								
Mar-16								
Apr-16								
May-16								
Jun-16								
Jul-16								
Aug-16								
Sep-16								

Appendix N

Implementation Schedule for Environmental Mitigation Measures

Appendix C. Implementation Schedule for Environmental Mitigation Measures

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1]				Relevant Legislation & Guidelines
					Des	Con	Op	Dec	
Cat.1 Key/specific proposed mitigation measure									
Noise Impact (Construction)									
5.7	3.2	**Selecting Quiet Plant** The actual SWL of quiet plant is less than the value specified in GW-TM for the same piece of equipment. It should be noted that the silenced PME taken from EPD's Quality Powered Mechanical Equipment (QPME) Inventory.	Within Project area / Duration of the construction phase / Prior to commencement of operation	Contractor appointed by OPC		✓			EIAO and Noise Control Ordinance
5.7	3.2	**Use of Movable Barriers** Movable noise barriers can be very effective in screening noise from particular items of plant when constructing the Project. Noise barriers located along the active works area close to the noise generating component of a PME could produce at least 10 dB(A) screening for stationary plant and 5 dB(A) for mobile plant provided that the direct line of sight between the PME and the NSRs is blocked.	Within Project area / Duration of the construction phase / Prior to commencement of operation	Contractor appointed by OPC		✓			EIAO and Noise Control Ordinance
Ecological Impact									
10.7	8.3	**Inspection of Active Ardeid Nest** Prior to site clearance works at the planting area abandoned for ardeid breeding, the area around the boundary of the ardeids roosting site as indicatively shown in Figure 8.1 should be inspected to confirm no active ardeid nest is present. If any active ardeid nest is observed, suitably sized buffer area should be established to avoid human or machinery disturbance until the nest is abandoned.	Indicative boundary of the ardeids roosting site within Project construction site (location indicated in Figure 8.1) / For once / Before site clearance	Qualified ecologist appointed by OPC	✓				EIAO-TM; HK Ordinance Cap. 170
10.7	8.3	**Inspection of Short-nosed Fruit Bat** As precautionary measure, prior to any proposed arboricultural works of the trees (particularly the Chinese Fan-palms), daytime	Project construction site / For once / Before arboricultural works of	ET appointed by OPC	✓	✓			EIAO-TM; HK Ordinance Cap. 170

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1]				Relevant Legislation & Guidelines
					Des	Con	Op	Dec	
		inspection should be carried out to confirm no Short-nosed Fruit Bat is present. If any Short-nosed Fruit Bat is observed roosting, suitably sized buffer area should be established around the tree to minimise human or machinery disturbance until the bat has left.	the trees						
10.7	8.3	**In-situ Preservation of Plant Species of Conservation Interest** During construction phase, protective fence for the identified flora species of conservation concern shall be erected and maintained.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			EIAO-TM
10.7	8.3	**Inspection of Ardeid Nest during breeding season** After commencement of construction phase, the Site should be monitored monthly in breeding season (April to July) to check for any potential breeding and nesting activities.	Project construction site / Throughout construction stage / Until completion of all construction activities	Qualified ecologist appointed by OPC		✓			EIAO-TM
10.7	8.2	**Timing of site clearance and tree felling works** Site clearance and tree felling works at the existing ardeid night roost location as shown in Figure 8.1 should be avoided during the peak wintering season of ardeids, i.e. between November and March.	Indicative boundary of the ardeids roosting site within Project construction site (location indicated in Figure 8.1) / Throughout construction stage / Until completion of site clearance and tree felling works within the boundary	Contractor appointed by OPC		✓			EIAO-TM
10.7	8.3	**Compensation for Ardeid Roosting Site** An enhancement area with following features should be provided as an alternative roosting site for ardeids. ▪ The location is at southern part of the Project area (location indicated in Figure 8.1) ▪ The enhancement area shall include a Flamingo Pond ▪ Native tree species *Macaranga tanarius* and *Celtis sinensis* and tree species which was used by ardeids for roosting *Mallotus paniculatus, Ficus hispida* and *Cratoxylum cochinchinense* shall be considered in the plan. ▪ Heavy standard sized trees shall be considered for planting to allow early establishment of the trees around the Flamingo	Southern part of Project construction site (location indicated in Figure 8.1) / Before and throughout construction stage / Until completion of Flamingo Pond construction and tree planting activities at that area	Qualified ecologist and Contractor appointed by OPC	✓	✓	✓		EIAO-TM

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		Pond.							
10.7	8.3	**Compensation for Woodland Habitat** ▪ Provision of a Woodland Area of about 1.62 ha, which includes 0.84 ha woodland compensation on-site and 0.78 ha on-site woodland reinstatement, to mitigate for permanent loss of woodland habitat. ▪ In the woodland compensation area, whips should be planted with predominately native tree species similar to the affected woodland, such as *Celtis sinensis*, *Cratoxylum cochinchinense*, *Polyspora axillaris* and *Sterculia lanceolata*.	Location of Woodland Compensation Area indicated in Figure 8.2/ Before and throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓	✓		EIAO-TM
Landscape and Visual Impact (Construction)									
Table 12.13 (CP07)	Table 9.1 (CP07)	**Temporary Tree Nurseries** Temporary tree nurseries may be set up within the Project area at an early stage to allow small trees to grow during the construction period. By the time these trees are needed for landscape planting at the end of the construction phase, they will have grown larger, require minimal pruning and suffer much less damage during transplanting, as the moving distance from an on-site rather than off-site nursery will be much smaller. The temporary tree nurseries can also temporarily hold the existing trees to be transplanted if direct transplantation from their original locations to the final recipient location is impracticable. The locations of the temporary tree nurseries should be carefully selected so that the trees can also act as screen planting to block the views of the Project area from the VSRs during the construction phase, if practicable.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓			EIAO-TM
Table 12.13 (CP08)	Table 9.1 (CP08)	**Advance Planting** Advance planting should be undertaken at the earliest possible stage of the construction phase of the project. Plant species, preferably native ones, should be carefully selected to blend in with the existing preserved vegetation. Landscape planting in movable planters should also be considered as a temporary greening measure for the Project area.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓			EIAO-TM
Landscape and Visual Impact (Operation)									
Table 12.14 (OP04)	Table 9.2 (OP04)	**Green Roofs and Vertical Greening** Green Roofs and Vertical Greening should be provided where feasible and appropriate to screen and soften the hard edges of	Project building rooftops / During design stage / Throughout operation	Design Architect / Contractor appointed by OPC	✓		✓		EIAO-TM

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		building structures.	phase						
Table 12.14 (OP05)	Table 9.2 (OP05)	**Reprovision of Flamingo Pond** A pond is recommended to replace the demolished Flamingo Pond as compensation for the loss of semi-natural ponds, where wildlife, such as birds, can utilise.	Project area / During design stage / Throughout operation phase	Design Architect / Contractor appointed by OPC	✓		✓		EIAO-TM
Table 12.14 (OP07)	Table 9.2 (OP07)	**Woodland Compensation** 1.53ha of affected woodland is recommended to be reinstated / compensated by 1.62ha of whip tree planting adjacent to the existing unaffected woodland and tall shrubland. Native species should be proposed as far as practicable to re-create a native landscape, restore the ecological habitats and blend in with the existing native vegetation.	Project area / During design stage / Throughout operation phase	Design Architect / Contractor appointed by OPC	✓		✓		EIAO-TM
Cat. 2 Submission required post EIA stage									
Sewerage and Sewage Treatment Implications									
7.7	5.2	**Detailed Sewerage Design Report** In order to prevent septicity problems during operation phase, a detailed sewerage design report should be submitted to DSD for approval prior to installation of the rising mains.	Rising mains site / During design stage	Design Engineer	✓				Sewerage Manual Part 1
Ecological Impact (Construction)									
10.7	8.3	**Vegetation Survey for Plant Species of Conservation Interest** For precautionary purposes and to further ensure no flora species of conservation interest to be affected, a detailed vegetation survey need to conduct to the exact locations, number and condition of individuals of *Platycodon grandiflorus*.	Project construction site / For once / Before site clearance	Qualified botanist/ecologist of the ET appointed by OPC	✓				EIAO-TM; Hong Kong Ordinance Cap. 96
10.7	8.3	**Woodland Compensation Plan** A Woodland Compensation Plan shall be prepared and submitted to AFCD for approval no later than one month prior to commencement of site clearance. The plan shall include but not limited to the following: ▪ Timing of planting works ▪ Planting location ▪ Species, size and number of trees ▪ Monitoring methodology	Location of Woodland Compensation Area indicated in Figure 8.2/ Before construction stage / No later than one month prior to commencement of site clearance	Qualified botanist/ecologist of the ET appointed by OPC	✓				EIAO-TM

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		▪ Action Plan							
Landscape and Visual Impact (Construction)									
Table 12.13 (CP05)	Table 9.1 (CP05)	**Transplantation of Existing Trees** Trees which are in direct conflict with the development proposals and suitable for transplantation should be transplanted as far as practicable. A tree transplantation proposal should be submitted together with the tree removal application. Trees proposed to be transplanted should preferably be transplanted from their original locations directly to their final recipient locations in one go. If this is infeasible, the trees should be held in a temporary tree nursery, preferably within the Project area, where the trees will be properly maintained.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓			EIAO-TM; LAO PN No. 07/2007
Landscape and Visual Impact (Operation)									
Table 12.14 (OP02)	Table 9.2 (OP02)	**Compensatory Tree Planting** Existing trees to be felled should be compensated as far as practicable. Native species should be proposed as far as practicable to re-create a native landscape, restore the ecological habitats and blend in with the existing native vegetation. A compensatory tree planting proposal should be submitted together with the tree removal application for approval by relevant authorities in accordance with LAO Practice Note No. 7/2007. It is recommended that approximately 608 heavy standard trees and approximately 18,202 whip trees could be planted on-site. The availability of off-site compensatory tree planting area is still subject to further investigation and agreement with relevant authorities.	Project area / During design stage / Throughout operation phase	Design Architect / Contractor appointed by OPC	✓		✓		EIAO-TM; LAO PN No. 07/2007
Cat. 3 Good site practice/housekeeping measures under EM&A mechanism									
Air Quality Impact (Construction)									
3.9.1	2.2	**Dust Control Measures** To achieve compliance with the FSP, RSP and TSP criteria during the construction phase, good practices for dust control should be implemented to reduce dust impacts. The dust control measures are detailed as follows: ▪ Use of regular water spraying (once every 2.5 hours or 4 times per day) to reduce dust emissions from heavy construction activities (including ground excavation, earth moving, etc.) at all active works area exposed site surfaces and unpaved	Project construction site / Duration of the construction phase / Prior to commencement of operation	Contractor appointed by OPC		✓			EIA Recommendation and Air Pollution Control (Construction Dust) Regulation

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		roads, particularly during dry weather. ▪ Covering 80% of stockpiling area by impervious sheets and spraying all dusty material with water immediately prior to any loading transfer operations to keep the dusty materials wet during material handling at the stockpile areas Relevant dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted: Good Site Management ▪ Good site management is important to help reduce potential air quality impact down to an acceptable level. As a general guide, the Contractor should maintain high standards of housekeeping to prevent emissions of fugitive dust. Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimise the release of visible dust emission. Any piles of materials accumulated on or around the work areas should be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimising generation of fugitive dust emissions. The material should be handled properly to prevent fugitive dust emission before cleaning. Disturbed Parts of the Roads ▪ Main temporary access points should be paved with concrete, bituminous hardcore materials or metal plates and be kept clear of dusty materials; or ▪ Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet. Exposed Earth ▪ Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies. Loading, Unloading or Transfer of Dusty Materials ▪ All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as							

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		to keep the dusty material wet. Debris Handling ▪ Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides. ▪ Before debris is dumped into a chute, water should be sprayed onto the debris so that it remains wet when it is dumped. Transport of Dusty Materials ▪ Vehicles used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards. Wheel washing ▪ Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. Use of vehicles ▪ The speed of the trucks within the site should be controlled to about 10 km/hour in order to reduce adverse dust impacts and secure the safe movement around the site. ▪ Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels. ▪ Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle. Site hoarding ▪ Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4 m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit							
Noise Impact (Construction)									

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
5.7	3.2	**Good Site Practice** Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. ▪ only well-maintained plant to be operated on-site and plant should be serviced regularly during the construction works; ▪ machines and plant that may be in intermittent use to be shut down between work periods or should be throttled down to a minimum; ▪ plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from the NSRs; ▪ mobile plant should be sited as far away from NSRs as possible; and ▪ material stockpiles and other structures to be effectively utilised, where practicable, to screen noise from on-site construction activities.	Project construction site / Duration of the construction phase / Prior to commencement of operation	Contractor appointed by OPC		✓			EIAO and Noise Control Ordinance
Noise Impact (Operation)									
5.7	3.3.2	**Fixed Plant Noise** With the adoption of the proposed maximum allowable SWLs, all representative NSRs is expected to comply with the relevant noise criteria for the daytime and evening time periods. No adverse fixed plant noise impact is anticipated. It is also recommended that the following noise reduction measures should be considered as far as practicable during design stage: ▪ choose quiet plant such as those which have been effectively silenced; ▪ include noise levels specification when ordering new plant (including chiller and E&M equipment); ▪ locate fixed plant / louvre away from any NSRs as far as practicable; ▪ locate fixed plant in walled plant rooms or in specially designed enclosures; ▪ locate noisy machine in a basement or a completely separate building;	Within Project area / Prior to operation phase / Duration of the operation phase / Throughout operation phase	Design Architect / Contractor appointed by OPC	✓	✓	✓		EIAO and Noise Control Ordinance

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		▪ install direct noise mitigation measures including silencers, acoustic louvres and acoustic enclosure where necessary; and ▪ develop and implement a regularly scheduled plant maintenance programme so that equipment is properly operated and serviced in order to maintain a controlled level of noise. Prior to the operation of the Project, noise commissioning tests for all major fixed noise sources should be conducted.							
5.7	3.3.2	**Open Air Entertainment Noise** With the adoption of the proposed maximum allowable SWLs, all representative NSRs is expected to comply with the relevant noise criteria for the daytime and evening periods, the following measures should be considered as far as practicable during stage: ▪ use small clusters of small power loudspeakers rather than a few large power loudspeakers; and ▪ loudspeakers should be pointed away from nearby NSRs.	Within Project area / Duration of the operation phase / Throughout operation phase	Design Architect / Contractor appointed by OPC	✓	✓			EIAO and Noise Control Ordinance
Water Quality Impact (Construction)									
6.7	4.2	**Construction Site Runoff** The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and erosion. The following measures are recommended to protect water quality of the inland areas: ▪ At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels, earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site drainage system should be undertaken by the Contractors prior to the commencement of construction; ▪ Sand/ silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM standards under the WPCO. The design of efficient silt removal facilities should be based on the guidelines in	Project construction site / Duration of the construction phase	Contractor appointed by OPC		✓			EIAO-TM; ProPECC Note PN 1/94; WPCO; TM-DSS

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the Contractors prior to the commencement of construction; ▪ All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times; ▪ Measures should be taken to minimise the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from site formation excavations should be discharged into storm drains via silt removal facilities; ▪ All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exit where practicable. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains; ▪ Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system; ▪ Manholes (including newly constructed ones) should be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and stormwater runoff being directed into foul sewers; ▪ Precautions should be taken at any time of the year when								

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		rainstorms are likely. Actions should be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC Note PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes; and, ▪ Bentonite slurries used on site should be reconditioned and reused wherever practicable. Temporary enclosed storage locations should be provided on site for any unused bentonite that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries. The Contractor would be required to obtain a license from EPD under the WPCO for discharge to the public drainage system or the marine environment. Construction site discharge should be collected by the temporary drainage system installed by the Contractor and treated or desilted on-site to fulfil the WPCO discharge license requirements before discharge.							
6.7	4.2	**General Construction Activities** Best Management Practices (BMPs) should be implemented at the construction site, including proper handling, sorting and storage of construction solid waste, debris and refuse generated on-site prior to disposal. Stockpiles of cement and other construction materials should be kept covered when not being used. The Contractor should also follow the guidelines set in the "Pesticides Used for Outdoor Mosquito Control", published by AFCD in 2010, for mosquito control on site.	Project construction site / Duration of the construction phase	Contractor appointed by OPC		✓			EIAO-TM; ProPECC Note PN 1/94
6.7	4.2	**Expansion of Existing Storm U-Channel** Guidelines and measures summarised in ProPECC PN 1/94 for trenching activities should be implemented.	Project construction site / Duration of the construction phase	Contractor appointed by OPC		✓			ProPECC Note PN 1/94
6.7	4.2	**Interception of Natural Streams** Guidelines and measures summarised in ProPECC PN 1/94 for excavation and stockpiling activities should be implemented.	Project construction site / Duration of the construction phase	Contractor appointed by OPC		✓			ProPECC Note PN 1/94
6.7	4.2	**Site Formation Works** The construction programme should be properly planned to minimise excavation works during the wet season (April to September), temporarily exposed slope/soil surfaces should be	Project construction site / Duration of the construction phase	Contractor appointed by OPC		✓			ProPECC Note PN 1/94

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		covered by a tarpaulin or other means, as far as practicable. Interception channels should be provided (e.g. along the crest/edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Measures will be taken to minimise water ingress into the excavation. Diverting any water from the excavated areas to on-site wastewater treatment facilities for treatment prior to discharge should also be performed. Other measures that need to be implemented before, during and after rainstorms are summarised in ProPECC PN 1/94.							
6.7	4.2	**Construction of Sewage Sump Pit and Rising Mains** Measures for excavation works summarised for site formation works should also be implemented during construction of the sewage sump pit. During the laying of rising mains, guidelines and measures summarised in ProPECC PN 1/94 for trenching activities should be performed. Concrete water generated from the construction of the concrete support should be collected and treated with the wastewater treatment facilities prior to discharge.	Project construction site / Duration of the construction phase	Contractor appointed by OPC		✓			ProPECC Note PN 1/94
6.7	4.2	**Accidental Spillage** The Contractor should register as a chemical waste producer if chemical wastes are produced from construction activities. 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. This will prevent contamination of top soil and water pollution due to construction site runoff. Maintenance of vehicles and equipment, involving activities with potential for leakage and spillage, should only be undertaken within areas appropriately equipped to control these discharges. Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.	Project construction site / Duration of the construction phase	Contractor appointed by OPC		✓			ProPECC Note PN 1/94; Waste Disposal Ordinance (Cap 354); Waste Disposal (Chemical Waste) (General) Regulation

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		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.							
6.7	4.2	**Sewage Effluent from the Construction Workforce** The Contractor should provide temporary sanitary facilities, such as portable chemical toilets within the construction site to handle sewage from the workforce. The Contractor has the responsibility to ensure that chemical toilets are used and properly maintained, and that licensed Contractors are employed to collect and dispose of the waste off-site at approved locations.	Project construction site / Duration of the construction phase	Contractor appointed by OPC		✓			ProPECC Note PN 1/94
Water Quality Impact (Operation)									
6.7	4.2	**Runoff from Road Surfaces** Road drainage system design has already included silt traps in the gully inlets to remove silt and grit before the runoff enters the public storm water drainage system. Silt traps should be regularly checked and maintained to ensure efficient operation.	Within Project area / During operation phase	OPC/Operator appointed by OPC			✓		EIAO-TM; WPCO
6.7	4.2	**Runoff from On-site Planting Area** Watering of plants on site should always be performed before application of pesticides, herbicides and fertilizers. Regular training should also be provided to frontline staff on the appropriate treatment and disposal of pesticides, herbicides and fertilizers.	Within Project area / During operation phase	OPC/Operator appointed by OPC			✓		EIAO-TM; WPCO; TM-DSS
Waste Management Implications (Construction)									
8.5.1.1	6.2	**Good Site Practice**	Project construction site / Throughout construction	Contractor		✓			Waste Disposal Ordinance; Waste

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		Recommendations for good site practices during the construction activities include: ▪ Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site ▪ Training of site personnel in proper waste management and chemical handling procedures ▪ Provision of sufficient waste disposal points and regular collection of waste ▪ Appropriate measures to minimise windblown litter and dust/ odour during transportation of waste by either covering trucks or by transporting wastes in enclosed containers ▪ Stockpiles of C&D materials should be kept covered by impervious sheets to avoid wind-blown dust ▪ All dusty materials including C&D materials should be sprayed with water immediately prior to any loading transfer operation so as to keep the dusty material wet during material handling at the stockpile areas ▪ Provision of wheel washing facilities before the trucks leaving the works area so as to minimise dust introduction to public roads ▪ Well planned delivery programme for offsite disposal such that adverse environmental impact from transporting the inert or non-inert C&D materials is not anticipated	stage / Until completion of all construction activities	appointed by OPC					Disposal (Chemical Wastes) (General) Regulation; and ETWB Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site
8.5.1.2	6.2	**Waste Reduction Measures** Good management and control can prevent the generation of a significant amount of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include: ▪ Sort inert C&D materials to recover any recyclable portions such as metals ▪ Segregation and storage of different types of waste in different containers or skips to enhance reuse or recycling of	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			Waste Disposal Ordinance

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		materials and their proper disposal ▪ Encourage collection of recyclable waste such as waste paper and aluminium cans by providing separate labelled bins to enable such waste to be segregated from other general refuse generated by the work force ▪ Proper site practices to minimise the potential for damage or contamination of inert C&D materials ▪ Plan the use of construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste							
8.5.1.3	6.2	**Inert and Non-inert C&D materials** In order to minimise impacts resulting from collection and transportation of inert C&D materials for off-site disposal, the inert C&D materials should be reused on-site as fill material as far as practicable. In addition, inert C&D materials generated from excavation works could be reused as fill materials in local projects that require public fill for reclamation. The surplus inert C&D materials will be disposed of at the Government's PFRFs for beneficial use by other projects in Hong Kong. The C&D materials generated from general site clearance should be sorted on site to segregate any inert materials for reuse or disposal of at PFRFs whereas the non-inert materials will be disposed of at the designated landfill site. In order to monitor the disposal of inert and non-inert C&D materials at respectively PFRFs and the designated landfill site, and to control fly-tipping, it is recommended that the Contractor should follow the DEVB Technical Circular (Works) No.6/2010 for Trip Ticket System for Disposal of Construction & Demolition Materials issued by Development Bureau. In addition, it is also recommended that the Contractor should prepare and implement a Waste Management Plan detailing their various waste arising and waste management practices in accordance with the relevant requirements of the ETWB Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			Waste Disposal Ordinance ; DEVB Technical Circular (Works) No.6/2010 for Trip Ticket System for Disposal of Construction & Demolition Materials; and ETWB Technical Circular (Works) No. 19/2005 Environmental Management on Construction Site
8.5.1.4	6.2	**Chemical Waste** If chemical wastes are produced at the construction site, the	Project construction site / Throughout construction	Contractor appointed by OPC		✓			Code of Practice on the Packaging

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		Contractor will 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". Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. The Contractor should use a licensed collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. Potential environmental impacts arising from the handling activities (including storage, collection, transportation and disposal of chemical waste) are expected to be minimal with the implementation of appropriate mitigation measures as recommended.	stage / Until completion of all construction activities						Labelling and Storage of Chemical Wastes; Waste Disposal (Chemical Waste) (General) Regulation
8.5.1.5	6.2	**General Refuse** General refuse should be stored in enclosed bins or compaction units separated from inert C&D materials. A reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from inert C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			Waste Disposal Ordinance and Public Health and Municipal Services Ordinance - Public Cleansing and Prevention of Nuisances Regulation
8.5.1.6	6.2	**Floating Refuse** Provide general refuse collection points on site can minimise the refuse contaminate the marine environment. The construction contractors will be required to regularly check and clean any refuse trapped or accumulated along the artificial seawall. Such refuse will then be stored and disposed of together with the general refuse.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			Waste Disposal Ordinance
Waste Management Implications (Operation)									
8.5.2.1	6.2	**General Refuse** General refuse should be collected on daily basis and delivered	Project area / On a regular basis /	Contractor appointed by OPC			✓		Waste Disposal Ordinance

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		to the refuse collection point accordingly. A reputable waste collector should be employed to remove general refuse regularly to avoid odour nuisance or pest/vermin problem. Sufficient recycling containers are recommended to be provided at suitable locations of the Project to encourage recycling of such waste as aluminium cans, plastics and waste paper.	Throughout operation stage						
8.5.2.2	6.2	**Chemical Waste** If chemical wastes are expected to be produced during the operation phase, the Project Proponent should register with the EPD as a chemical waste producer and follow the guidelines stated in the "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes". Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidising, irritant, toxic, harmful, corrosive, etc. Licensed collector should be deployed to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Project area / On a regular basis / Throughout operation stage	Contractor appointed by OPC			✓		Code of Practice on the Packaging Labelling and Storage of Chemical Wastes; Waste Disposal (Chemical Waste) (General) Regulation
8.5.2.3	6.2	**Floating Refuse** Regular inspection should be carried out along the artificial seawall of the Project boundary for any entrapment or accumulation of floating refuse. Where an appreciable amount of floating refuse is found on the artificial seawall during the inspection, the locations of such refuse will be recorded and arrangements with the project proponent will immediately be made to collect and clear the refuse from the seawall.	Project area / On a regular basis / Throughout operation stage	Contractor appointed by OPC			✓		Waste Disposal Ordinance
Land Contamination (Construction)									
9.6	7.2	In any case where contaminated soil is identified after the commencement of works, a Contamination Assessment Plan (CAP) is required to be prepared for EPD's endorsement prior to	Project construction site / Before construction stage	Contractor appointed by OPC	✓				Guidance Note for Contaminated Land Assessment and Remediation

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		the site investigation. The Contamination Assessment Report (CAR) and/ or Remediation Action Plan (RAP) should be prepared for EPD's approval after the site investigation. If land contamination is confirmed, remediation works should be carried out according to the approved RAP. A Remediation Report (RR) should also be prepared for EPD's endorsement to demonstrate that the clean-up of the contaminated land is completed. No construction work or development of site should be carried out before the approval of the RR.							Guidance Manual for Use of Risk-based Remediation Goals for Contaminated Land Management Practice Guide for Investigation and Remediation of Contaminated Land
9.6	7.2	If contaminated soil is identified, the following mitigation measures are for the excavation and transportation of contaminated materials (if any): ▪ To minimise the incidents of construction workers coming in contact with any contaminated materials, bulk earth-moving excavation equipment should be employed; ▪ Contact with contaminated materials can be minimised by wearing appropriate clothing and personal protective equipment such as gloves and masks (especially when working directly with contaminated material), provision of washing facilities and prohibition of smoking and eating on site; ▪ Stockpiling of contaminated excavated materials on site should be avoided as far as possible; ▪ The use of any contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out; ▪ Vehicles containing any excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater; ▪ Truck bodies and tailgates should be sealed to prevent any discharge; ▪ Only licensed waste haulers should be used to collect and transport contaminated material to treatment/disposal site and should be equipped with tracking system to avoid fly	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			Waste Disposal Ordinance (Cap 354) Waste Disposal (Chemical Waste) (General) Regulation (Cap 354)

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		tipping; ▪ Speed control for trucks carrying contaminated materials should be exercised. ▪ Observe all relevant regulations in relation to waste handling, such as Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and obtain all necessary permits where required; and ▪ Maintain records of waste generation and disposal quantities and disposal arrangements.							
Landscape and Visual Impact (Construction)									
Table 12.13 (CP01)	Table 9.1 (CP01)	**Minimisation of Construction Period** The construction programme should be carefully designed to minimise the length of the construction period.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓			EIAO-TM
Table 12.13 (CP02)	Table 9.1 (CP02)	**Minimisation of Works Areas** The footprint of the proposed hard structures as well as the extent of temporary works areas should be minimised as far as practicable.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓			EIAO-TM
Table 12.13 (CP03)	Table 9.1 (CP03)	**Construction Site Controls** Construction site controls should be enforced, where possible, to ensure that the landscape and visual impacts arising from the construction phase activities, such as the storage of materials, the location and appearance of site accommodation, etc. are minimised.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓			EIAO-TM
Table 12.13 (CP04)	Table 9.1 (CP04)	**Preservation of Existing Vegetation** The development proposal should avoid disturbance to existing vegetation as far as practicable. A formal tree removal application should be submitted for approval by relevant authorities in accordance with LAO PN No. 07/2007 "Tree Preservation and Tree Removal Application for Building Development in Private Projects" during the detailed design phase of the Project. Where possible, all trees which are not in direct conflict with the development proposals should be retained *in situ*.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓			EIAO-TM; LAO PN No. 07/2007
Table	Table	**No Intrusion Zones**	Project construction site /	Contractor	✓	✓			EIAO-TM

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
12.13 (CP06)	9.1 (CP06)	Where practicable, "no intrusion zones" should be designated within the Project area for protection of existing vegetation. Durable boundary fences should be erected to clearly demarcate these "no intrusion zones". No construction activities, storage of materials and vehicular access will be allowed within the "no intrusion zones" to prevent potential damage to canopies and root zones of vegetation.	Throughout construction stage / Until completion of all construction activities	appointed by OPC					
Table 12.13 (CP09)	Table 9.1 (CP09)	**Construction Site Hoardings** Two types of hoardings should be considered. One is used for areas in close contact with visitors and for areas where visual intrusion is a key concern. It should be graphical and thematic, and visually 'impermeable' to block the views of construction activities from the VSRs. The other is used for areas to be viewed at a distance. It should be subtle and camouflaged so that it blends in with the surrounding landscape.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC	✓	✓			EIAO-TM
Table 12.13 (CP10)	Table 9.1 (CP10)	**Dust and Erosion Control for Exposed Soil** Exposed soil shall be covered or "camouflaged" and watered frequently. Areas that are expected to be left with bare soil for a long period of time should be hydroseeded and / or covered with suitable protective fabrics.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			EIAO-TM
Table 12.13 (CP11)	Table 9.1 (CP11)	**Appearance of Construction Plant / Machinery** To minimise the visual intrusion of construction activities to visitors and other VSRs, a suitable colour scheme of construction machines and plants should be adopted where possible.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			EIAO-TM
Table 12.13 (CP12)	Table 9.1 (CP12)	**Construction Lighting Control** All security floodlights for construction sites should be equipped with adjustable shield, frosted diffusers and reflective covers, and be carefully controlled to minimise light pollution and night-time glare to the VSRs.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			EIAO-TM
Table 12.13 (CP13)	Table 9.1 (CP13)	**Appearance of Construction Workers** To protect Ocean Park's image, construction workers should be required to enter the park areas with their helmets and safety vests properly stored or carried in non-transparent bags. They should also dress properly and cleanly.	Project construction site / Throughout construction stage / Until completion of all construction activities	Contractor appointed by OPC		✓			EIAO-TM
Landscape and Visual Impact (Operation)									

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
Table 12.14 (OP01)	Table 9.2 (OP01)	**Sensitive Design and Disposition** All proposed hard structures should be sensitively designed in a manner that responds to the existing and planned landscape context, and minimises potential adverse landscape and visual impacts. The structural design should seek to reduce the apparent visual mass through the use of natural materials such as wooden frame and semi-transparent panels. Subdued tones should be considered for the colour palette with non-reflective finishes to reduce glare effect. Site specific measures, such as the disposition of the key structures closer to the northern slopes, the design of building forms as extension along the existing slope topography, the use of concave roof form and the location of ride platforms on or near the slopes to minimise structural support, should also be considered for better integration with the surroundings and minimisation of potential visual impacts.	Project buildings / During design stage / Throughout operation phase	Design Architect / Contractor appointed by OPC	✓		✓		EIAO-TM
Table 12.14 (OP03)	Table 9.2 (OP03)	**Enhancement Planting** Other than compensatory tree planting, additional trees, shrubs, groundcovers and lawn should also be considered to maximise greening within the redevelopment area.	Project area / During design stage / Throughout operation phase	Design Architect / Contractor appointed by OPC	✓		✓		EIAO-TM
Table 12.14 (OP06)	Table 9.2 (OP06)	**Responsive Lighting Design** Overall lighting design would carefully consider a reasonable level of functional and thematic lighting with due consideration of possible light pollution and night-time glare to the surroundings. Consideration shall be made by the lighting designers to the following measures: ▪ Lighting shall be designed with due consideration of mounting height and direction of light fixtures so as not to point directly towards any sensitive receiver. ▪ Lighting shall be arranged with due consideration of reflectance so as to avoid glare effect. ▪ Lighting shall be regularly monitored during operation. ▪ Lights located adjacent or in proximity to neighbours shall be carefully designed to prevent possible light intrusion. ▪ Lighting operation schedule shall specify only lights necessary for security to be left on after business hours. ▪ Paving materials should be selected as necessary to reduce	Project area / During design stage / Throughout operation phase	Design Architect / Contractor appointed by OPC	✓		✓		EIAO-TM

EIA Ref.	EM&A Log Ref.	Environmental Protection Measures	Location / Duration of measures / Timing of completion of measures	Implementation Agent	Implementation Stage[1] Des	Con	Op	Dec	Relevant Legislation & Guidelines
		potential glare from surface reflectance. ▪ Particular attention should be paid to the use of lighting having a high intensity or harsher tone (e.g. metal halide lamps). ▪ Lights shall generally be models having precise cut-off range (such as full cut-off optics where available and practicable) and if necessary be fitted with adjustable anti-glare shields.							

Remarks:
1. Des – Design Stage, Con – Construction Stage, Op – Operation, Dec - Decommissioning