



Environmental Permit (No. EP-537/2017)

18 March 2022

The EIA Ordinance Register Office,  
Environmental Protection Department,  
27th floor, Southorn Centre,  
130 Hennessy Road,  
Wanchai, Hong Kong

**By Hand & Fax**  
(fax no. 2591 0558)

Attn: Director of Environmental Protection

Dear Sir/ Madam,

**Expansion of Research and Residential Facilities for  
The Swire Institute of Marine Science, Faculty of Science,  
The University of Hong Kong at Cape d' Aguilar, Shek O, Hong Kong  
Submission of Monthly Environmental Monitoring and Audit Report No.53**

Refer to the Environmental Permit No. EP-537/2017 under Environmental Impact Assessment Ordinance (Chapter 499) Section 10.

We are pleased to submit three hard copies and three electronic copies of the monthly environmental monitoring report certified by the IEC in responded to the Specific Conditions 2.3 of the Environmental Permit (No. EP-537/2017).

Should you have any queries, please feel free to contact our Mr Cliff Ip at 2957 9611.

Thank you for your attention.

Yours faithfully  
For and on behalf of  
Percy Thomas Partnership (HK) Ltd.

Choong Yin Lee  
Authorized Person (Acting AP)

Vetus T C Lau  
Authorized Person (Original)

VL/CI/ 31122(1)31.3/ Z001228

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Encl.

cc

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## **MONTHLY ENVIRONMENTAL MONITORING AND AUDIT (EM&A) REPORT (NO. 53)**

**FOR**



**Expansion of Research and Residential Facilities for the Swire Institute of  
Marine Science, The University of Hong Kong at Cape D'Aguiar, Shek O**

**(Rev. 0)**

**MONTHLY ENVIRONMENTAL  
MONITORING AND AUDIT  
(EM&A) REPORT (NO.51) -**

**FOR**

**EXPANSION OF RESEARCH AND RESIDENTIAL  
FACILITIES FOR THE SWIRE INSTITUTE OF  
MARINE SCIENCE**

	<b>Name</b>	<b>Signature</b>
<b>Prepared By</b>	Mr. Tandy TSE	
<b>Approved By</b>	Mr. Kevin LI Independent Environment Checker	

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## EXECUTIVE SUMMARY

- A.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (“DEP”) granted the Environmental Permit (No. EP- 537/2017) to The University of Hong Kong (“HKU”) to construct and operate the designated project for “Extension of Academic Block, The Swire Institute of Marine Science, Faculty of Science, The University of Hong Kong, Cape D’Aguilar Road, Shek O” (“The Project”).
- A.2 Tysan Building Construction Company Limited (“TYSAN”) was commissioned by HKU to undertake the construction of the extension works while Percy Thomas Partnership (HK) Limited (“PTP”) was appointed by HKU as the Architect. For implementation of the environmental monitoring and audit (EM&A) requirement under the Project Profile, Acuity Sustainability Consulting Limited (“ASC”) was appointed by PTP as the Independent Environmental Checker (IEC).
- A.3 The construction phase of the Contract resumed on 8 October 2019. The environmental site inspections of the EM&A programme continued.
- A.4 This is the 53<sup>rd</sup> monthly Environmental Monitoring and Audit Report for this Contract covering the period from 6 January 2022 to 5 February 2022 (the Reporting Period). The contract with SBC was terminated on 9 February 2018 and resumed on 8 October 2019 by TYSAN.
- A.5 IEC Monthly Environmental Site Audit under the EM&A requirement in this reporting period was conducted on 23 February 2022.
- A.6 No environmental complaint was received via EPD in this reporting period.
- A.7 No notification of any summons and successful prosecutions was received in this reporting period.
- A.8 No reporting change was made in this reporting period.
- A.9 As informed by the Contractor, the major works for the Project in the reporting period are listed as follows:
- Site B drainage work
  - Site C drainage work
  - Site F preparation work for superstructure
- A.10 EM&A monitoring for the 53<sup>rd</sup> reporting period has been completed. The 54<sup>th</sup> monthly EM&A report will cover the period from 6 March 2022 to 5 April 2022.

## 1. INTRODUCTION

### 1.1. PROJECT BACKGROUND

- 1.1.1. Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (“DEP”) granted the Environmental Permit (No. EP- 537/2017) to The University of Hong Kong (“HKU”) to construct and operate the designated project for “Extension of Academic Block, The Swire Institute of Marine Science, Faculty of Science, The University of Hong Kong, Cape D’Aguilar Road, Shek O” (“The Project”).
- 1.1.2. Tysan Building Construction Company Limited (“TYSAN”) was commissioned by HKU to undertake the construction of the extension works while Percy Thomas Partnership (HK) Limited (“PTP”) was appointed by HKU as the Architect. For implementation of the environmental monitoring and audit (EM&A) requirement under the Project Profile, Acuity Sustainability Consulting Limited was appointed by PTP as the Independent Environmental Checker (IEC).
- 1.1.3. The construction phase of the Contract resumed on 8 October 2019. The general layout plan of the Contract components is presented in Appendix A.

### 1.2. ORGANIZATION STRUCTURE

- 1.2.1. The organization structure of the Contract is shown in Appendix B. Contact details of key personnel are summarized in below table:

**Table 1-1: Key Personnel Contact for Environmental Works**

<b>Party</b>	<b>Position</b>	<b>Name</b>	<b>Telephone</b>
The University of Hong Kong	Assistant Director	John Sung	2816 8208
Tysan Building Construction Company Limited	Project Manager	Ken Chan	2131 9110
Percy Thomas Partnership (HK) Ltd	Senior Architect	Cliff Ip	2957 9611
Acuity Sustainability Consulting Limited	Independent Environmental Checker (IEC)	Li, Kevin, W. M.	2698 6833

### **1.3. SCOPE OF REPORT**

- 1.3.1. This is the 53<sup>rd</sup> monthly IEC Report for “Extension of Academic Block, The Swire Institute of Marine Science, Faculty of Science, The University of Hong Kong, Cape D’Aguilar Road, Shek O” covering the period from 6 February 2022 to 5 March 2022 (the reporting period).
- 1.3.2. The EM&A requirements for impact monitoring are set out in the approved Project Profile (Register No. PP-548/2017). All mitigation measures recommended in the Project Profile such as the construction air quality, noise, water quality, waste management, landscape and visual, cultural heritage and ecology were identified as the key issues during the construction phase of the Project.

### **1.4. SUMMARY OF CONSTRUCTION WORKS**

- 1.4.1. The construction phase of the Contract with TYSAN was commenced on 8 October 2019.
- 1.4.2. As informed by the Contractor, details of the major works carried out in this reporting month are listed below:
- Site B drainage work
  - Site C drainage work
  - Site F preparation work for superstructure
- 1.4.3. The locations of the construction activities are shown in Appendix A.

## **2. EM&A RESULTS**

### **2.1. EM&A BACKGROUND**

- 2.1.1. The Environmental Permit (No. EP-537/2017) required Independent Environmental Checker (IEC) to certify the implementation status of mitigation measures in a monthly audit report during the construction of the Project. Environmental site inspection for air quality, noise, water quality, waste management and ecology mitigation measures were conducted on 23 February 2022. A summary of mitigation measure is presented in Table 2-2.
- 2.1.2. The monitoring checklist is shown in Appendix D.

### **2.2. ENVIRONMENTAL LICENSES AND PERMITS**

- 2.2.1. The status of environmental license and permit is summarized in Table 2-1 below:

**Table 2-1: Summary of Environmental License and Permit**

License / Permit	License / Permit No.	Date of Issue	Date of Expiry	License / Permit Holder	Remark
Environmental Permit	EP-537/2017	18/05/2017	N/A	HKU	
Billing Account	Account No. 7035688	08/11/2019	-	TYSAN	
Waste Water Discharge License	Ref. No. 451661	-	-	-	Under Application
Air Pollution Control Ordinance	Ref. No. 450333	23/10/2019	-	TYSAN	-
Chemical Waste Producer	-	-	-	-	N/A
Construction Noise Permit	-	-	-	-	N/A

### 2.3. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

2.3.1. In response to the Project Profile (Register No. PP-548/2017). The status of the environmental mitigation measures implemented by the Contractor in this Reporting Period was audit on 23 February 2022 and the checklist is showed in Appendix D.

2.3.2. The environmental mitigation measures that recommended in the project profile and environmental permit covered the issues of dust, noise, air quality, water, ecology, landscape and visual, cultural heritage and waste management and they are showed Table 2-2.



**Table 2-2: Environmental Mitigation Measures**

Issues	Environmental Mitigation Measures
Air Quality	<ul style="list-style-type: none"> <li>- Erection of hoarding of not less than 2.4m high from ground level along the works area that adjoins a road or other area accessible to the public, where appropriate;</li> <li>- The works area of any excavation or earth moving operation shall be sprayed with water to maintain the entire surface wet;</li> <li>- All dusty materials shall be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;</li> <li>- Cover stockpile of dusty materials by impervious sheeting or sprayed with water so as to maintain the entire surface wet or removed or backfilled within 24 hours of the excavation or unloading;</li> <li>- Any debris shall be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the 3 sides;</li> <li>- Ultra Low Sulphur Diesel (ULSD i.e. Sulphur content not more than 0.005%) should be used for all the onsite PME;</li> <li>- Every vehicle shall be washed to remove any dusty materials from its body and wheels;</li> <li>- Where a vehicle leaving the construction works area is carrying a load of dusty materials, the load shall be covered by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> <li>- Unpaved road shall be regularly compacted and the road surface shall be kept clear of loose materials;</li> <li>- The speed of all vehicles moving within the Site shall be restricted to minimize fugitive dust emission;</li> <li>- All on-site PME shall be well-maintained and operated in a good manner that no black smoke will be emitted; and</li> <li>- No PME in operation that any black smoke is emitted for more than 6 minutes in any period of 4 hours or for more than 3 minutes continuously at any one time.</li> </ul>
Noise	<ul style="list-style-type: none"> <li>- Care in the placement and orientation of noisy plants away from the NSRs and effective utilization of material stockpiles and other structures in screening noise from the on-site construction activities;</li> <li>- Careful planning of construction sequence;</li> <li>- The operation time of noisy PME should be kept at minimum;</li> <li>- Hoarding will be erected along the site boundary for noise screening purpose;</li> <li>- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program;</li> <li>- All hoods, cover panels and inspection hatches of power mechanical plant such as generator, air compressor etc. should be closed during operation;</li> <li>- Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>- Utilization of silencers or mufflers on the construction equipment to reduce noise without impairing machine efficiency,</li> </ul>
Water	<ul style="list-style-type: none"> <li>- Contractor shall obtain construction site discharge license from the EPD under WPCO;</li> <li>- To prevent sewage from entering the inland water and inshore water, hoardings will be erected along the site boundary. Surface run-off from construction site shall be treated via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation tank or</li> </ul>

Issues	Environmental Mitigation Measures
	<p>STP first to prevent sewage from entering the inland water and inshore water, and then collected by licensed collector and discharged off site;</p> <ul style="list-style-type: none"> <li>- The vehicle washing bay shall be located on paved area and away from the sensitive receivers and provided with a suitable backfill to prevent the site run-off from entering the public roads;</li> <li>- All water used on site shall be re-circulated and re-used for beneficial uses as dust suppression, wheel washing and general cleaning;</li> <li>- Online standby water sump pumps of sufficient capacity and with automatic devices shall be provided to prevent overflow of sewage from any water recycling system;</li> <li>- Open stockpiles of construction materials on site or exposed earth surface shall be avoided as far as practicable or, where unavoidable, should be covered with impervious sheet such as tarpaulin sheet or similar fabric during rainstorms;</li> <li>- Stagnant water shall be removed every day. Extra pumps shall be used to pump the water into sedimentation tank during rainy days when necessary;</li> <li>- Earth bund or sand bag barriers shall be provided onsite to properly direct storm water to the silt removal facilities such as sedimentation tank provided;</li> <li>- Good site practices shall be adopted to remove rubbish and litter from construction site to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis;</li> <li>- Sufficient chemical toilets shall be provided in the works area and a licensed waste collector should be deployed to clean the chemical toilets on a regular basis;</li> <li>- Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or sewage into the nearby environment; and</li> <li>- It is recommend that the Contractor include the sewage control measures during their onsite toolbox talk to increase the awareness of all workers.</li> </ul>
<p>Waste Management</p>	<ul style="list-style-type: none"> <li>- Construction works shall be carefully planned to minimize the amount of wastes generated and avoid unnecessary generation of wastes;</li> <li>- Sufficient waste disposal points and regular collection of wastes shall be provided;</li> <li>- Different types of wastes shall be segregated and stored properly to promote reuse or recycling;</li> <li>- Dump truck leaving the Site shall be covered properly with impervious sheeting;</li> <li>- Contractor shall register as a Chemical Waste Producer if chemical wastes such as spent lubricants are generated onsite. All chemical waste shall be properly handled, stored, labeled, packaged and collected in accordance with the requirements of the Waste Disposal (Chemical Waste) (General) Regulation;</li> <li>- Surplus C&amp;D materials (inert and non-inert) generated from the proposed works requiring disposal shall be properly transported to the designated disposal facilities managed by CEDD and EPD. A trip-ticket system shall be implemented by the Contractor and monitored as a standard item in the relevant technical audit, in accordance with the requirements specified in DEVB TC(W) No. 6/2010 Trip Ticket System for Disposal of Construction &amp; Demolition Materials;</li> <li>- Waste Management Plan shall be prepared in accordance with the requirement specified in Building Departments Practice Note for</li> </ul>

Issues	Environmental Mitigation Measures
	<p>Authorized Persons and Registered Structural Engineers – Construction and Demolition Waste (ADV-19);</p> <ul style="list-style-type: none"> <li>- Toolbox talks shall be arranged to workers on relevant topics including site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.</li> </ul>
Ecology	<ul style="list-style-type: none"> <li>- Access route and placement of equipment and stockpile in works area shall be selected at existing developed area and disturbed land to minimize disturbance on vegetation. The chosen temporary storage or stockpiling area and access routes shall be far away from any identified plant species of conservation importance;</li> <li>- Construction activities will be restricted to the clearly defined works area;</li> <li>- Temporary works area will be reinstated immediately after completion of the construction works;</li> <li>- Disposal and treatment of waste shall be carried out in a timely and proper manner</li> <li>- Open fires will be strictly prohibited to prevent any risk of wildfire;</li> <li>- Fire-fighting equipment should be provided in the works area before the commencement of works and</li> <li>- Resident site personnel shall ensure the Implementation of the mitigation measures</li> </ul>
Landscape and Visual	<ul style="list-style-type: none"> <li>- Design with minimum vegetation clearance</li> <li>- Compensatory planting of native trees and shrubs</li> <li>- Retain and preserve all plant species of conservation importance on site</li> <li>- Amenity value improved by compensatory planting and natural regeneration of plants</li> <li>- Erection of hoarding with colour compatible to the surrounding around works areas</li> </ul>
Cultural Heritage	<ul style="list-style-type: none"> <li>- No-entry zone will be fenced off by eye-catching net at the Cape D' Aguilar Lighthouse</li> <li>- Placement of equipment and stockpile at the road section close to the Lighthouse are prohibited</li> <li>- Using manual gear for trenching work near the Lighthouse</li> <li>- Monitor the vibration near the Lighthouse</li> </ul>




2.3.3. The necessary mitigation measures were implemented properly for this Contract in the reporting period.

#### 2.4. EM&A SITE INSPECTION

2.4.1. Site inspection was carried out on monthly basis to monitor the implementation of mitigation measures under the Contract. In the reporting period, site inspection was carried out on 23 February 2022.

2.4.2. Minor deficiencies were observed during site inspection. Key observations during the site inspections are summarized in Table 2-3.

Table 2-3: Site Observations

<b>Observation - Item 2</b>	
<b>Observed 23 February 2022</b>	<b>Rectified by the Contractor on 28 Feb 2022</b>
<i>At access road to Site A, rubbish should be removed such that the protective species are not disturbed.</i>	<i>Rubbish is removed from area near the protected species.</i>
	
	
<b>Observation - Item 3</b>	
<b>Observed 23 February 2022</b>	<b>Rectified by the Contractor on 28 Feb 2022</b>
<i>At Site G, the protective species <i>Lysimachia mauritiana</i> should be properly fenced off by orange nets.</i>	<i>Orange net is repaired.</i>



2.4.3. Ecology and landscape and visual monitoring had been conducted on 25 February 2022. As reported by the Qualified Ecologist, observations and recommendations are summarised as below.

2.4.4. There is no change in form, health & structural condition and amenity value for all six recorded plant species of conservation importance.

2.4.5. Severe damage caused by Typhoon Mangkhut in September 2018 to the coastal vegetation remained. No *Lysimachia mauritiana* (濱海珍珠菜) could be observed in one of the protection zone near Academic Block (Site A) over 41 months. The original plants in this zone have certified as dead. However, a new healthy individual was observed nearby. In contrast, A few individuals of *Lysimachia mauritiana* are observed within current protection zone (Plate 1).

- 2.4.6. *Pittosporum tobira* (海桐) has shown slight dieback of twigs, with regeneration of young leaves. Invasive *Leucaena leucocephala* and *Lantana camara* within protection zone have been cleared but emerged again with other overgrown climbers.
- 2.4.7. Invasive species *Bidens alba* within protection zone of *Elaeagnus tutcheri* (香港胡頹子) has been cleared together with other overgrown climbers.
- 2.4.8. Leaves of the deciduous *Vitis bryoniifolia* (蘗蘗) is not observable yet..
- 2.4.9. For the three retained trees, there is no change in overall condition of T5, T6 and TA, despite a small branch of T6 was blown down under adverse weather on 7th July 2021, as reported by the Contractor. Another branch of T6 was broken, probably due to the 2 Typhoons Kompas & Lionrock in October 2021. Several broken stubs on TA were also observed during last monitoring. These stubs due to the typhoon damage have been pruned. Alignment of pipes passing through among aerial roots of TA has been adjusted with minimum pruning of small, non supportive aerial roots. Soil excavation at the core root zone has been avoided. Since TA (*Ficus elastica*) is a species with extensive aerial root system, such minimum pruning without tearing wounds would be acceptable and unlikely results in significant impact to the tree. Corresponding photographic records T5, T6 and TA are illustrated in Plate 2.
- 2.4.10. Compensatory planting is in progress. Five *Hibiscus tiliaceus* (黃槿) trees have been planted at new tree pits outside the Academic Block (Plate 3).
- 2.4.11. Seedlings and saplings of the exotic and highly invasive tree *Leucaena leucocephala* (銀合歡), shrub *Lantana camara* (馬櫻丹), herb *Bidens alba* (白花鬼針草) and climber *Mikania micrantha* (薇甘菊) were observed near the Works Area, with an expanding trend. It is known that soils opening (e.g., due to vegetation clearance during construction phase) results in higher heat stress and loss in soil moisture to the site, and consequently more susceptible to invasion of exotic or undesirable weed species. They should be cleared and removed as recommended in the next section in order to avoid/ reduce negative impacts to local native plant community, especially the survival of plant species of conservation important.

## 2.5. SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

2.5.1. The Environmental Complaint Handling Procedure is shown in below table:

Table 2-4: Environmental Complaint Handling Procedure

Complaint Received via Liaison Officer	Complaint Received via 1823 or from other government departments
Contractor notify PTP, HKU and IEC	Contractor notify PTP ,HKU, and IEC
Register of the complaint. Contractor to conduct investigation of complaint and report to HKU,PTP and IEC the investigation results	
If complaint is considered not valid	If complaint is found valid
HKU or Contractor to reply the complainant if necessary	Contractor to implement necessary improvement measures in consultation with the IEC, HKU and PTP. HKU to check and inspect if the situation is improved. IEC to conduct further inspection as necessary.
	HKU to report the follow up actions done by Contractor and reply to complainant is necessary. If the complaint is referred by the EPD, Contractor to prepare interim report on the status of the complaint investigation and follow-up action
Contractor prepare complaint report for submission to EPD and to record the complaint case in monthly EM&A report	

2.5.2. No environmental complaint was received in the reporting period.

2.5.3. No notification of summons and prosecution was received in the reporting period.

### **3. FUTURE KEY ISSUES**

#### **3.1. CONSTRUCTION PROGRAMME FOR THE COMING MONTHS**

3.1.1. In order to minimize visual impacts to various visually sensitive receivers, hoarding with colour compatible to the surrounding will be erected around the works area. Design has been adopted to minimize the magnitude of change in landscape of hillside woodland, coastal shrubland and grassland. The landscape proposal as shown in Project Profile had been approved and hence Environmental Permit (No.EP-537/2017) had been issued on 12 June 2017. Upon design development and further technical advice from Tree Unit of District Lands Office. Due to site condition, the original landscape proposal to compensate 14 nos. of trees at Site F is technically not feasible and not recommended according to “Technical Guidelines on Landscape Treatment and Bio-engineering for Man-made Slopes Retaining Walls – GEO Publication No.1/2011”. Hence, the updated Landscape Tree Preservation Proposal “LTPP” is proposed which considered not inferior to the original approved LTPP had been submitted for relevant departmental review and comment.

3.1.2. Planning Department’s Approval on Tree Preservation and Landscape Proposal on 15 Nov 2018 refers. The updated LTPP including planting shrubs at existing slope and installation of vertical greenery system at Site F which is considered not inferior to the approved LTPP was accepted. District Lands Office’s deemed approval streamlined submission procedure for Tree Works regarding the Tree Preservation and Landscape Proposal on 17 Feb 2020 refers. The Tree Removal Application and the captioned updated LTPP was acknowledged. Reference to above design development and relevant Departmental approvals had been granted, main contractor will strictly follow and proceed the approved updated LTPP at Site A and Site F. Certificate of Compliance certified by Registered Landscape Architect will be submitted during the completion stage of this project.

3.1.3. The construction phase of the Contract commenced on 8 October 2019. The major works for this project in the next reporting period (6 March 2021 to 5 April 2021) will be:

- Site B drainage work
- Site C drainage work
- Site F superstructure

#### **3.2. KEY ISSUES FOR COMING MONTH**

3.2.1. Potential environmental impacts arising from the upcoming activities in the next reporting period are mainly associated with air quality, noise, water quality, waste management and ecology issues.



## 4. CONCLUSIONS AND RECOMMENDATIONS

### 4.1. SUMMARY

- 4.1.1. Inspection was carried out on 23 February 2022. Minor deficiencies were observed during site inspection. The Contractor rectified the deficiencies within the timeline and was reminded to keep close checking on protective fencing for those protected plants on site. Some mitigation measures were not applicable for the current construction stage, the mitigation measures were implemented properly in general. The environmental performance of the Project was therefore considered satisfactory.
- 4.1.2. TYSAN is also reminded to implement the recommended environmental mitigation measures according to the Project profile and Environmental Permit.
- 4.1.3. There is no change in form, health & structural condition and amenity value for all six recorded plant species of conservation importance.
- 4.1.4. Coastal vegetation had been wholly destroyed and removed by the Typhoon Mangkhut in September 2018, including most *Lysimachia mauritiana* (濱海珍珠菜). No individual was observed in one of the protection zones that near Academic Block (Site A) over 41 months. The original plants in this zone have certified as dead. However re establishment of *Lysimachia mauritiana* (濱海珍珠菜) is on going. A few individuals of *Lysimachia mauritiana* are observed within current protection zone. Building up additional assurance colonies by collecting seeds may still be feasible..
- 4.1.5. No human disturbance on the protected plants was detected or reported. However, Wild Boar is observed foraging at the site where protected plants may be disturbed. Staff on site shall keep reminding hikers/ visitors not to enter/ disturb all fenced area/ plant protection zones and wildlife..
- 4.1.6. Protection zone has been provided in accordance with Condition 2.6 of the Environmental Permit. Any damage of the protection zone (e.g., due to coastal weather condition or disturbance of hikers and visitors) should be repaired promptly. Warning sign should be maintained at prominent positions within the works area to encourage hikers and visitors keeping away from any no entry area or protection zone.
- 4.1.7. A small branch of T6 was blown down under adverse weather on 7th July 2021, as reported by the Contractor. Another branch of T6 was broken, probably by the two recent typhoons in October 2021, but overall condition of T6 is not affected. These broken branches, together with those stubs observed in the retained tree TA, have been pruned. Any further appropriate tree treatment on the retained trees is subjected to a Tree Risk Assessment appointment.

Good written and photographic records should be made before, during and after any actions of treatment for the assessed tree.

- 4.1.8. Construction works should be optimized to avoid encroaching into the protection zones as far as possible. Any works inevitably conducted in the protection zone of the three retained trees (e.g., removing made concrete surface of a path) shall be minimized its impact to the root system and avoid any damage to the anchor roots. Alignment of pipes passing through among aerial roots of TA has been adjusted with minimum pruning of small, non supportive aerial roots. Soil excavation at the core root zone has been avoided. Since TA (*Ficus elastica*) is a species with extensive aerial root system, such minimum pruning without tearing wounds would be acceptable and unlikely results in significant impact to the tree.
- 4.1.9. The 15 trees applied for felling have been felled. Good written and photographic records should be made right before, during and after the tree removal works. Compensatory planting is in progress. Five *Hibiscus tiliaceus* (黃槿) have been planted at new tree pits outside the Academic Block.
- 4.1.10. To avoid/ reduce potential negative impacts to local native plant community and survival of plant species of conservation important, exotic and highly invasive tree *Leucaena leucocephala* (銀合歡), shrub *Lantana camara* (馬櫻丹), herb *Bidens alba* (白花鬼針草) and climber *Mikania micrantha* (薇甘菊) should be cleared and removed in whole, including the roots, whenever encountered throughout the construction phase, and packed properly before disposed as waste to prevent regrowth and dispersal of pollens and seeds. Invasive species and other overgrown climbers observed within protection zones of *Pittosporum tobira* (海桐) and *Elaeagnus tutcheri* (香港胡頹子) have been cleared but emerged again as observed in this monitoring.
- 4.1.11. Main contract of the project between TYSAN and HKU was commenced on 8 October 2019.
- 4.1.12. No environmental complaint was received in the reporting period.
- 4.1.13. No notification of summons or prosecution was received since commencement of the Contract.
- 4.1.14. TYSAN will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

**Plate 1.** Photographic records of the six recorded plants species of conservation importance with protection zone.



*Lysimachia mauritiana* 濱海珍珠菜 (biennial)



*Pavetta hongkongensis* 香港大沙葉

**Plate 1 (cont'd).**



*Millettia oraria* 香港崖豆藤



*Elaeagnus tutcheri* 香港胡頹子

Invasive weeds *Bidens alba* (白花鬼針草) in/around the protection zone shall be cleared, including roots, flowers and seeds (red dotted line)





*Pittosporum tobira* 海桐



*Vitis bryoniifolia* 嬰菓 (deciduous)

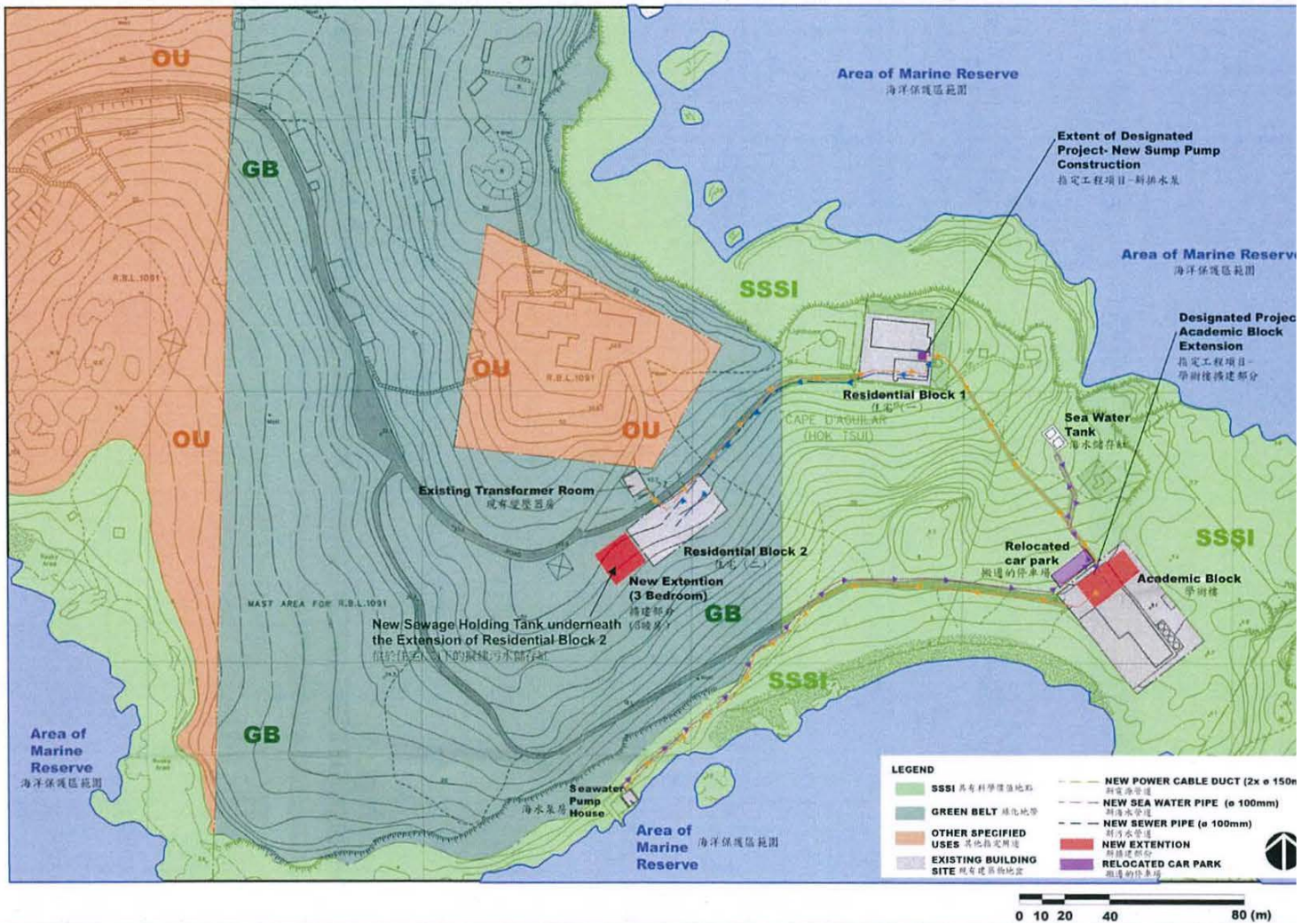


**Plate 2.** Photographic updates of the three retained trees that close to construction activities.

 <p>A tall, slender tree with green foliage stands against a clear blue sky. In the foreground, a grey corrugated metal fence is visible. A date stamp '25/2/2022' is located in the bottom right corner of the image.</p>	 <p>A large, dense tree with thick branches and green leaves. In the background, a red and white construction barrier is visible. A date stamp '25/2/2022' is located in the bottom right corner of the image.</p>
<p>No change in condition of T5 from previous monitoring.</p>	<p>No change in condition of TA</p>
 <p>A tree with a thick, gnarled trunk and green foliage. In the foreground, a grey corrugated metal fence is visible. A date stamp '25/2/2022' is located in the bottom right corner of the image.</p>	<p>BLANK</p>
<p>No change in condition of T6 from previous monitoring.</p>	

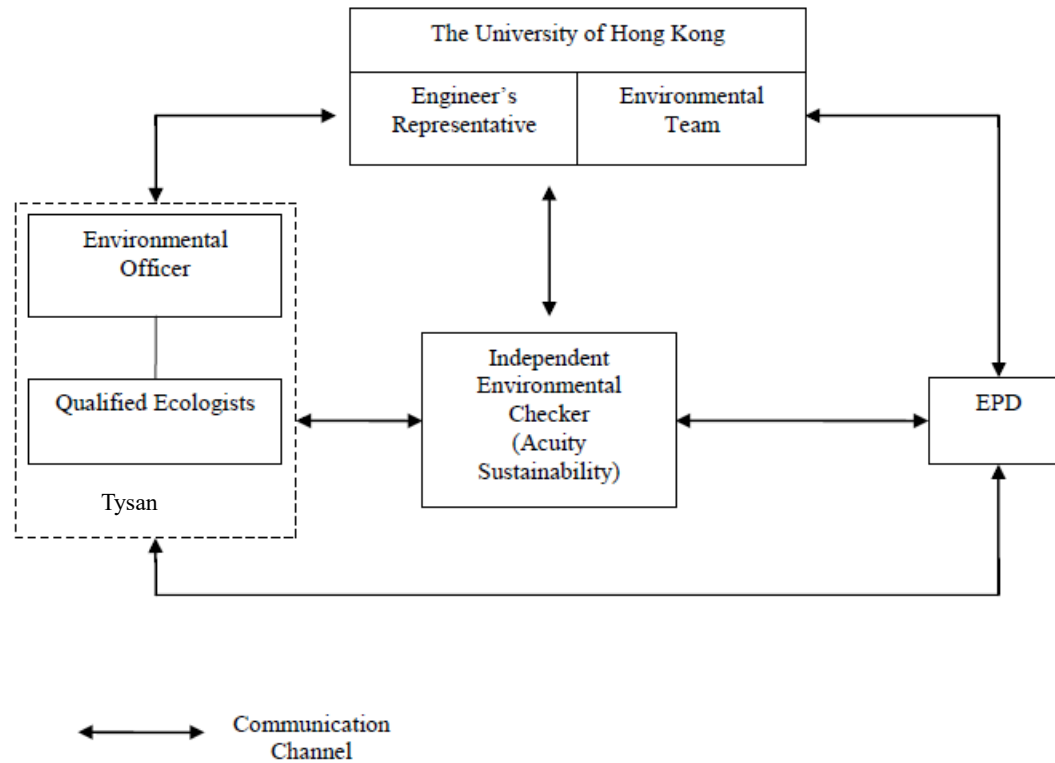
**Plate 3.** Five compensatory *Hibiscus tiliaceus* trees have been planted outside Academic Block.





## **Appendix B: Project Organization**





## **Appendix C: Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions**

### Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
6 Feb 2020-5 Jan 2022	0	1	N/A

### Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
6 Feb 2020-5 Jan 2022	0	0	N/A

### Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
6 Feb 2020-5 Jan 2022	0	0	N/A

## **Appendix D: Environmental Monitoring Checklist**

**In-situ Provisioning of Proposed Extension of Academic Block,  
The Swire Institute of Marine Science,  
Faculty of Science, The University of Hong Kong,  
Cape D'Aguilar Road, Shek O**

Inspection Date:	23-2-2022
Inspected by:	Kelvin Lau
Inspection Time:	14:57
Weather Condition:	Fine
Temperature:	16.3°C
Wind:	Calm

		N/A	Yes	No	Remarks
<b>1. Noise</b>					
1.1	Is the placement and orientation of noisy plants away from the NSRs in screening noise from the on-site construction activities?		✓		
1.2	Is the construction sequence carefully planned?		✓		
1.3	Is the operation time of noisy PME keep at minimum?		✓		
1.4	Are the hoarding erected along the site boundary for noise screening purpose?		✓		
1.5	Do all plants operate on-site are well-maintained?		✓		
1.6	Do all plants service regularly during the construction program?		✓		
1.7	Do all hoods, cover panels and inspection hatches of power mechanical plant close during operation?		✓		
1.8	Are the machines and plant shut down between work periods or throttled down to a minimum?		✓		
<b>2. Air Quality</b>					
2.1	Is the erection of hoarding not less than 2.4m high from ground level along the works area?		✓		
2.2	Is the hoarding not adjoined a road or other area accessible to the public?		✓		

**In-situ Provisioning of Proposed Extension of Academic Block,  
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 Cape D'Aguiar Road, Shek O**

		N/A	Yes	No	Remarks
2.3	Is the excavation or earth moving operation in the site sprayed with water to maintain the entire surface wet?	✓			
2.4	Are all dusty materials sprayed with water prior to any loading, unloading or transfer operation to maintain the dusty materials wet?	✓			
2.5	Are the stockpile of dusty materials covered by impervious sheeting or sprayed with water to maintain the entire surface wet or removed or backfilled within 24 hours of the excavation or unloading?		✓		
2.6	Are debris covered entirely by impervious sheeting, placed in an area sheltered on the top and 3 sides?		✓		
2.7	Is Ultra Low Sulphur Diesel used for all PME onsite?		✓		
2.8	Do the site vehicles use the wheel wash at the site exits?	✓			
2.9	Are materials transported on trucks covered?	✓			
2.10	Are all trucks loaded to a level within the side and tail boards?	✓			
2.11	Is all operation less than 6 minutes in any period of 4 hours or for less than 3 minutes continuously at any one time?		✓		
2.12	Is the unpaved road compacted regularly?	✓			
2.13	Is the road surface kept clear of loose materials?		✓		
2.14	Is the speed restricted for all vehicles moving within the site to minimize fugitive dust emission?		✓		
2.15	Are PME operated in a good manner and no black smoke emitted? (If yes, skip to part 3)		✓		
2.16	Are PME in operation not emitted for more than 6 minutes in any period of 4 hours or for more than 3 minutes continuously at any one time?				

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 Cape D'Aguilar Road, Shek O**

		N/A	Yes	No	Remarks
<b>3. Water Quality</b>					
3.1	Does the discharge licence obtain from EPD under WPCO by contractor?	✓			
3.2	Is the waste water prevented from entering the inland water and inshore water, and collected by licensed collector and discharged off site?		✓		
3.3	Is the surface run-off from construction site treated via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation tank		✓		
3.4	Is the STP first to prevent sewage from entering the inland water and inshore water, and then collected by licensed collector and discharged off site?		✓		
3.5	Is the vehicle washing bay located on a paved area and away from the sensitive receivers?	✓			
3.6	Is the contractor provide with a suitable backfill to prevent the site run-off from entering the public roads	✓			
3.7	Is that all water used on site re-circulated and re-used as dust suppression, wheel washing and general cleaning?	✓			
3.8	Are the online standby water sump pumps of sufficient capacity and with automatic devices provided on site?		✓		
3.9	Are the open stockpiles of construction materials on site or exposed earth surface avoided as far as practicable?(If yes, answer 3.11)		✓		
3.10	Are the open stockpiles covered with impervious sheet such as tarpaulin sheet or similar fabric during rainstorms?		✓		
3.11	Is the site clear from stagnant water?		✓		

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 Cape D'Aguiar Road, Shek O**

		N/A	Yes	No	Remarks
3.12	Are the extra pumps used to pump the water into sedimentation tank during rainy days?	✓			
3.13	Is the Earth bund or sand bag barriers provided onsite to properly direct storm water to the silt removal facilities?	✓			
3.14	Is the construction sites cleaned on a regular basis?		✓		
3.15	Are the good site practices adopted to remove rubbish and litter from construction site		✓		
3.16	Are there sufficient chemical toilets provided in the works area?		✓		
3.17	Is a licensed waste collector deployed to clean the chemical toilets on a regular basis?		✓		
3.18	Are there notices posted at conspicuous locations to remind the workers not to discharge any sewage or sewage into the nearby environment?	✓			
3.19	Does the contractor include the sewage control measures during their onsite toolbox talk to increase the awareness of all workers?		✓		
<b>4. Waste Management</b>					
4.1	Did the construction works carefully plan to minimize the amount of wastes generated and avoid unnecessary generation of wastes?		✓		
4.2	Are the sufficient waste disposal points and regular collection of wastes provided?		✓		
4.3	Does the contractor segregate and store different types of waste properly?	✓			
4.4	Are the dump trucks covered properly with impervious sheeting when leaving the site?	✓			
4.5	Do the Contractor register as a Chemical Waste Producer?	✓			




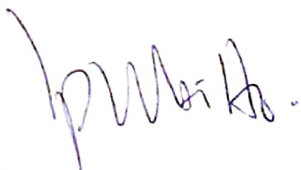
**In-situ Provisioning of Proposed Extension of Academic Block,  
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 Cape D'Aguilar Road, Shek O**

		N/A	Yes	No	Remarks
4.6	Do all chemical waste properly handled, stored, labeled, packaged and collected in accordance with the requirements of the Waste Disposal (Chemical Waste) (General) Regulation?	✓			
4.7	Do all C&D wastes be transported to the designated disposal facilities managed by CEDD and EPD?	✓			
4.8	Did the contractor prepare Waste Management Plan?		✓		
4.9	Did the toolbox talks include the specific topics?		✓		
<b>5. Ecology</b>					
5.1	Is the access route and placement of equipment and stockpile in work area selected at existing developed area and disturbed land to minimize disturbance on vegetation?		✓		
5.2	Is the chosen temporary storage or stockpiling area and access routes far away from any identified plant species of conservation importance?		✓		
5.3	Are the construction activities restricted to the clearly defined works area?		✓		
5.4	Are the temporary works area reinstated immediately after completion of the construction works?		✓		
5.5	Are the disposal and treatment of waste carried out in a timely and proper manner		✓		
5.6	Are the open fires strictly prohibited to prevent any risk of wildfire?		✓		
5.7	Are the firefighting equipments prohibited in the works area before the commencement of works?		✓		
5.8	Is there proper implementation of the mitigation measures ensured by the resident site personnel?		✓		

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 Cape D'Aguilar Road, Shek O**

		N/A	Yes	No	Remarks
5.9	Do the peripheral plant individuals have a setback of at least 1.5m in the protection zones?	✓			
5.10	Are the protection zones set up by contractor to fence off 6 plant species during construction with orange nets of at least 1m in height?		✓		
<b>6. Landscape and Visual</b>					
6.1	Do LR1,LR2,LCA1 and LCA2 compensated with planting of native trees and shrubs?	✓			
6.2	Do LR1,LR2,LCA1 and LCA2 designed with minimum vegetation clearance?	✓			
6.3	Do LR1,LR2,LCA1 and LCA2 retain and preserve all plant species of conservation importance on site?	✓			
6.4	Do LR3 improve its amenity value by compensatory planting and natural regeneration of plants	✓			
6.5	Do VSR1,VSR2 and VSR3 erect hoarding with colour compatible to the surrounding around works area?	✓			
<b>7. Cultural Heritage</b>					
7.1	Is the no-entry zone at the Cape D' Aguilar Lighthouse not fenced off by eye-catching orange net?		✓		
7.2	Is the road section close to the Lighthouse clear?		✓		
7.3	Is there no excavator used at the road section close to the Lighthouse?		✓		
7.4	Is the manual gear used for trenching work near the Lighthouse?	✓			
7.5	Do they monitor the vibration near the Lighthouse?	✓			
<b>8. Others</b>					
8.1	Are the mitigation measures properly implement in general?		✓		

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<p>Observation:</p> <p>① At Site B, drip tray should be provided for chemical containers and retaining trees should be free from construction materials <del>disturbance</del> disturbance.</p> <p>② At Site G, orange nets should be maintained properly for protective species protection.</p>		
<p>Signatures:</p>		
<p>IEC's Representative/ Designated Staff</p> <p></p> <p>(Name: Kelvin Lau )</p>	<p>Main Contractor's Representative/ Designated Staff</p> <p>(Name: )</p>	<p>Architect's Representative/ Designated Staff</p> <p></p> <p>(Name: IP Wai Ho )</p>

23-2-2022