

JOB NO.: TCS01267/22

CONTRACT NO. EP/SP/186/21

WEST NEW TERRITORIES LANDFILL EXTENSION

**MONTHLY ENVIRONMENTAL MONITORING AND AUDIT
REPORT – FEBRUARY 2026**

PREPARED FOR

HONG KONG RESOURCES RECOVERY PARK

Date	Reference No.	Prepared By	Certified By
11 March 2026	TCS01325/23/600/R0201v1	 Ben Tam (Senior Environmental Consultant)	 Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	11 March 2026	First Submission

Our Ref: TCS01325/23/300/L0203

Hong Kong Resources Recovery Park

29/F China Overseas Building,
139 Hennessy Road, Hong Kong

Attn: Mr. Kenneth Lau

13 March 2026

By email

Dear Sir,

**Re: Contract No. EP/SP/186/21
West New Territories Landfill (WENT) Extension
EP-393/2010/A and FEP-01/393/2010/A Condition 3.5
ETL's Certification Letter for
Monthly Environmental Monitoring and Audit Report – February 2026**

With reference to the Monthly Environmental Monitoring and Audit Report – February 2026 (TCS01325/23/600/R0201v1), we hereby certify this submission in accordance with Condition 3.5 of EP-393/2010/A and FEP-01/393/2010/A.

Should you have any queries or require further information, please feel free to the undersigned at Tel: 2959-6059 or Fax: 2959-6079.

Yours sincerely,

For and on Behalf of

Action-United Environmental Services & Consulting



Tam Tak Wing
Environmental Team Leader



Environmental Protection Department
2nd floor, West Wing
Island West Transfer Station
88 Victoria Road
Kennedy Town
Hong Kong

Your reference:

Our reference: HKEPD259/50/111099

Date: 13 March 2026

Attention: Ms Kins Lo

BY EMAIL & POST
(email: wklo@epd.gov.hk)

Dear Sirs

Quotation Ref. 23-02230
Provision of Independent Environmental Checker Consultancy Services for
West New Territories Landfill Extension
Monthly Environmental Monitoring and Audit Report – February 2026

We refer to email of 13 March 2026 from Hong Kong Resources Recovery Park attaching the Monthly Environment Monitoring and Audit Report – February 2026 of the captioned.

We have no comment and hereby verify the captioned report in accordance with Clause 3.5 of the Environmental Permit (EP No.: EP-393/2010/A) and Further Environmental Permit (FEP No. FEP-01/393/2010/A).

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Ricky Lau at 2618 2831.

Yours faithfully
ANewR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/thy

EXECUTIVE SUMMARY

INTRODUCTION

- ES.01 In August 2023, Hong Kong Resources Recovery Park (hereinafter named “HKRRP” or “the Contractor”) was awarded the Design, Build and Operate (DBO) Contract of Contract No. EP/SP/186/21 West New Territories Landfill Extension (hereinafter named “the Project”). Further Environmental Permit no. FEP-01/393/2010/A (hereinafter named “the EP”) was granted to HKRRP from Environmental Protection Department (EPD) on 6 October 2023.
- ES.02 Action-United Environmental Services & Consulting (hereinafter called “AUES”) was appointed by HKRRP as the Environmental Team (the “ET”) to implement environmental monitoring and auditing (EM&A) programme for the initial phase of the Project.
- ES.03 This is the **23rd** Monthly EM&A Report presenting the monitoring results and inspection findings for the Project for the period from **1st to 28th February 2026** (hereinafter called ‘the Reporting Period).

ENVIRONMENTAL MONITORING AND AUDIT ACTIVITIES

- ES.04 Environmental monitoring activities under the EM&A programme of the Project in the Reporting Period are summarized in the following table.

Environmental Aspect	Monitoring Parameter	Monitoring Station/ Location	Date / Number of Monitoring
Air Quality	1-hour Total Suspended Particulates	AM(D)1, AM(D)2, AM(D)3, AM(D)5a, AM(D)6a, AM(D)7b	144 sessions
	24-hour Total Suspended Particulates		48 sessions
Noise	Leq(30min) Daytime	NM1	4 sessions
Water Quality (Surface water)	DO, Turbidity, pH, SS and chemical parameters etc.	WM1	1 session (6 th February 2026)
Site Inspection	Site audit for implementation of mitigation measures	Entire site	4 sessions

ACTION AND LIMIT (A/L) LEVELS EXCEEDANCE

- ES.05 In the Reporting Period no exceedances of air quality monitoring, construction noise (including Action Level for noise complaint) and surface water monitoring were recorded. The summary of exceedances recorded in the Reporting Period is shown table below.

Environmental Aspect	Monitoring Parameters	Action Level	Limit Level	Event & Action		
				NOE Issued	Investigation Result	Corrective Actions
Air Quality	1-hour TSP	0	0	0	--	--
	24-hour TSP	0	0	0	--	--
Construction Noise	Leq(30min) Daytime	0	0	0	--	--
Water Quality (Surface water)	DO	0	0	0	--	--
	Turbidity	0	0	0		
	pH	0	0	0		
	SS	0	0	0		

ES.06 The LFG monitoring was conducted for excavation work in February 2026. No exceedance of Limit Levels of LFG was recorded during the Reporting Period. Moreover, baseline LFG monitoring at landfill gas well was carried out this reporting month.

ES.07 For landscape and visual, implementation of mitigation measures during construction phase of the Project has been monitored through regular site inspection/ audit.

ES.08 The Contractor was advised to implement the waste management plan and minimise the wastes generated through recycling or reusing. All mitigation measures stipulated in the updated EM&A Manual and waste management plans shall be fully implemented.

SITE INSPECTION

ES.09 In the Reporting Period, weekly joint site inspection to evaluate the site environmental performance had been carried out by the representatives of the Service Manager (SM), ET and the Contractor. No non-compliance was noted during the site inspection. In addition, Independent Environmental Checker (IEC) carried out the joint site inspections on 5th February 2026.

ENVIRONMENTAL COMPLAINT

ES.10 In the Reporting Period, one (1) environmental complaint was received by 1823 hotline on 3 February 2026 regarding the construction dust from road works at Nim Wan Road. The investigation report (IR) has been submitted by ET and concluded that the Contractor implemented dust mitigation measures at to reduce potential dust impact during road works operation, no dust emitted from construction works at those areas during the ad-hoc and regular site inspection.

NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

ES.11 In the Reporting Period, no environmental summons and prosecutions were recorded.

REPORTING CHANGE

ES.12 There is no reporting change in the Reporting Period.

FUTURE KEY ISSUES

ES.13 Water quality mitigation measures shall be fully implemented in accordance with the Implementation Schedule for Environmental Mitigation Measures of the updated EM&A Manual.

ES.14 In addition, the Contractor should fully implement the recommended air quality mitigation measures to minimize the impact of construction dust as far as practicable.

ES.15 Construction noise would be a key environmental issue during construction work of the Project. In accordance with the EP, a noise bund of 3.5m tall has been constructed along the north eastern seafront of the existing landfill as shown in Figure 2 of the EP prior to the commencement of construction. It is reminded that the noise bund shall be properly maintained during the construction, operation and restoration of the Project.

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1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 The West New Territories Landfill Extension (WENTX) is classified as a Designated Project (DP) under Schedule 2, Part I of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). The Environmental Impact Assessment (EIA) Report (AEIAR-147/2009) of WENTX was approved in November 2009 and the respective Environmental Permit no. EP-393/2010 was granted in June 2010. For the WENTX development scheme adopted in the WENTX-EIA in 2009 (hereby referred to the Original Scheme), an area of about 188 hectares of land adjacent to the existing WENT landfill was considered that to be provided approximately 81 million m³ (Mm³) of additional landfill capacity.
- 1.1.2 In consideration of the interfacing projects, commitments and neighbourhood enhancement initiatives were proposed and in conjunction with the project, the reference design and implementation programme for the WENTX (hereby referred to the Enhanced Scheme) has been revised. Under the Enhanced Scheme, the boundary of WENTX has been reduced and the waste filling area and landfill capacity has been updated to 94 ha and 76 Mm³ respectively. Variation of Environmental Permit (application number VEP-617/2022) was applied by the project proponent and EP-393/2010/A was issued by Environmental Protection Department (EPD) on 29 July 2022 subsequently. The location plan of Enhanced Scheme of WENTX Landfill Extension is shown on *Appendix A*.
- 1.1.3 In August 2023, Hong Kong Resources Recovery Park (hereinafter named “HKRRP” or “the Contractor”) was awarded the Design, Build and Operate (DBO) Contract of WENTX (hereinafter named “the Project”). Further Environmental Permit no. FEP-01/393/2010/A (hereinafter named “the EP”) was granted to HKRRP from EPD on 6 October 2023.

1.2 DESCRIPTION OF THE PROJECT

General Description of the Project

- 1.2.1 The development of the WENT Landfill Extension will involve the following works:
- Site formation and preparation;
 - Installation of landfill infrastructures including leachate treatment plant, landfill gas management plant, power generators, workshops and site offices;
 - Installation of liner system;
 - Installation of leachate collection, treatment and disposal facilities;
 - Installation of gas collection and utilization facilities;
 - Provision of utilities and drainage;
 - Landfill operation;
 - Restoration and aftercare in subsequent stages; and
 - Implementation of measures to mitigate environmental impact as well as environmental monitoring and audit.

1.3 IMPLEMENTATION OF EM&A PROGRAMME

- 1.3.1 Action-United Environmental Services & Consulting (hereinafter called “AUES”) was appointed by HKRRP as the Environmental Team (ET) to implement environmental monitoring and auditing (EM&A) programme for the initial phase of the Project.
- 1.3.2 In accordance with EP-393/2010/A and FEP-01/393/2010/A Condition 3.1, an updated EM&A Manual has been prepared to include the latest EM&A requirement in accordance with the information and recommendation described in the EIA Report and by taking into account any specific site conditions that may be changed before the construction of the Project. It

outlines the monitoring and audit programme for the Project for the construction phase and provided systematic procedures for monitoring, auditing and minimizing environmental impacts ensure compliance with the EIA recommendations.

- 1.3.3 Baseline monitoring for air quality and background noise were conducted from 3rd January 2024 to 31st March 2024 by the ET at all the designated or any alternative monitoring locations in accordance with the updated EM&A Manual. In addition, surface water quality baseline monitoring were conducted from 20th February to 1st March 2024. During the monitoring period, no construction activities under the Project or other external influencing factors of significant concern were observed. Baseline Monitoring Report has been prepared to present the relevant baseline data and determine the set of Action and Limit Levels (A/L Levels) for the construction phase of the Project.
- 1.3.4 In view of commencement of construction work of Project on 3rd April 2024, the Construction Phase EM&A monitoring for relevant impact monitoring was commenced subsequently.
- 1.3.5 This is the **23rd** Monthly EM&A Report, presenting the monitoring results and inspection findings for the Project, for the period from **1st to 28th February 2026** (hereinafter called 'the Reporting Period').

1.4 REPORT STRUCTURE

- 1.4.1 The Monthly EM&A Report is structured into the following sections:-

Section 1	<i>Introduction</i>
Section 2	<i>Project Organization and Construction Progress</i>
Section 3	<i>Air Quality Monitoring</i>
Section 4	<i>Construction Noise Monitoring</i>
Section 5	<i>Water Quality Monitoring</i>
Section 6	<i>Ecology Monitoring</i>
Section 7	<i>Landscape and Visual Monitoring</i>
Section 8	<i>Landfill Gas Monitoring</i>
Section 9	<i>Waste Management</i>
Section 10	<i>Site Inspections</i>
Section 11	<i>Environmental Complaints and Non-Compliances</i>
Section 12	<i>Implementation Status of Mitigation Measures</i>
Section 13	<i>Conclusions and Recommendations</i>

2 CONSTRUCTION PROGRESS AND PROJECT ORGANISATION

2.1 PROJECT ORGANISATION

- 2.1.1 The project organization and the key personal contact are shown in *Appendix B*, which consists of the Project Proponent (EPD / Environmental Infrastructure Division), Contractor, ET, Independent Environmental Checker (IEC), and Service Manager (SM) etc. It should be established to take the responsibilities for environmental protection for this landfill extension project. The IEC will be appointed by the Project Proponent to conduct independent auditing of the overall EM&A programme including environmental and operation monitoring, implementation of mitigation measures, EM&A submissions, and any other submissions required under the EP. The individual responsibilities are:

Environmental Protection Department (EPD)

EPD/ Environmental Infrastructure Division is the Project Proponent of the Project.

Contractor

- Employment of an ET to carry out environmental monitoring, laboratory analysis and reporting of environmental monitoring and audit;
- Submission of proposals of mitigation measures in case of exceedances of Action and Limit (A/L) Levels in accordance with the Event and Action Plan (EAP);
- Implementation of mitigation measures to reduce the impacts where A/L Levels are exceeded; and
- Adherence to the agreed procedures for carrying out complaint investigation.

ET

- Setting up of all the required environmental monitoring stations;
- Monitoring of various environmental parameters as required;
- Analysis of monitoring and audit data and review the success of EM&A programme to cost-effectively confirm the adequacy of mitigation measures implemented and the validity of the EIA predictions and to identify any adverse environmental impacts arising;
- Carrying out site inspections to investigate and audit the Contractor's site practices, equipment and work methodologies with respect to pollution control and environmental mitigation, and take proactive actions to resolve problems;
- Auditing and preparation of audit reports on environmental monitoring data and site conditions;
- Reporting of environmental monitoring and audit results to the IEC, Contractor, SM and Project Proponent or its delegated representative;
- Recommendation of suitable mitigation measures to the Contractor in case exceedance of A/L Levels in accordance with the EAP;
- Undertaking of regular on-site audits/ inspections and reporting to the Contractor and SM of any potential non-compliance; and
- Following up and closing out of non-compliance actions.

IEC

- Review of EM&A programme by the ET (at not less than monthly intervals);
- Auditing of monitoring activities and results (at not less than monthly intervals);
- Reporting of audit results to the SM and Project Proponent in parallel;
- Reviewing of EM&A reports (monthly, quarterly and annual summary reports) submitted by the ET;
- Reviewing of proposal of mitigation measures submitted by the Contractor in accordance with the EAP;
- Checking of mitigation measures recommended in the EIA Report and EM&A Manual, and ensuring they are properly implemented in timely manner when required; and

- Reporting of findings of site inspections and other environmental performance reviews to SM and Project Proponent.
- To check the records of disposal for the different types of C&D materials, including the DRS maintained by the Contractor during the monthly environmental auditing;
- To check the disposal records kept by the SM, especially the name of the designated public fill reception facilities, sorting facilities, outlying island transfer facilities, landfills and/or alternative disposal grounds, the time and date of disposal.

SM

- Verification and checking Contractor's activities and ensure that the requirements in the EM&A Manual are fully complied with;
- Informing Contractor when action is required to reduce impacts in accordance with the EAP; and
- Ensure compliance with the agreed EAP in case any exceedance.

2.1.2 Sufficient and suitably qualified professional and technical staff should be employed by the respective parties to ensure full compliance with their duties and responsibilities, as required under the EM&A programme for the duration of the Project.

2.2 CONSTRUCTION PROGRESS

2.2.1 The 3-month rolling construction programme of the Project are shown in *Appendix C*, and the major construction activities carried out in the Reporting Period are listed below:-

Portion A1, B1a, B1c & B6

- Soft excavation
- Hard excavation
- Blasting
- 132kV substation construction
- Installation of Monitoring Wells
- Leachate Liner Installation

Portion B10

- Leachate Treatment Works & Landfill Gas Treatment Plant

Portion C1

- Construction of new haul road

Portion B2 & B9

- Box Culvert Construction
- Piling Works
- DJM Works

Portion D1

- Pipe Laying Works

Portion B5

- Maintenance Dredging

Portion F

- Rock Crushing

2.3 SUMMARY OF ENVIRONMENTAL LICENSES AND PERMITS

2.3.1 To implement the project works, summary of the relevant permits, licenses, and/or notifications on environmental protection are presented in **Table 2-1**.

Table 2-1 Status of Environmental Licenses and Permits

Item	Description	License/Permit Status		
		Ref. no.	Effective Date	Expiry Date
1	Environmental Permit	FEP-01/393/2010/A	6 Oct 2023	--
2	Waste Disposal Regulation - Billing Account for Disposal of Construction Waste	Account No. 7048594	22 Sep 2023	--
3	Chemical Waste Producer Registration	WPN: 5213-4361-1-H4441-01	18 Oct 2023	--
4	Water Pollution Control Ordinance - Discharge License	WT10002363-2023 (Portion C1)	6 May 2024	31 May 2029
		WT10002525-2023 (Portion B1a)	6 May 2024	31 May 2029
		WT00045324-2024 (Portion B2)	12 Dec 2024	31 Dec 2029
		WT00045991-2025 (Portion B10)	14 Mar 2025	31 Mar 2030
		WT00046816-2025 (Portion B9) (P)	12 Aug 2025	31 Aug 2030
		WT00047756-2025 (Portion B9) (TKS)	4 Feb 2026	28 Feb 2031
		WT00047259-2025 (Portion C7)	5 Nov 2025	30 Nov 2030
		WT00047257-2025 (Portion F)	5 Nov 2025	30 Nov 2030
5	Noise Control Ordinance – Construction Noise Permit	GW-RW0026-26 (Portion C1)	13 Jan 2026	12 Jun 2026
		GW-RW0908-25 (Portion B10)	27 Sep 2025	26 Mar 2026
		GW-RW1143-25 (Portion B1a) (Superseded)	20 Nov 2025	19 May 2026
		GW-RW0138-26 (Portion B1a)	17 Feb 2026	16 Jul 2026
		GW-RW0737-25 (Portion B2) (Superseded)	8 Aug 2025	7 Feb 2026
		GW-RW0083-26 (Portion B2)	8 Feb 2026	7 Aug 2026
		GW-RW0738-25 (Portion B4) (Superseded)	8 Aug 2025	7 Feb 2026

Item	Description	License/Permit Status		
		Ref. no.	Effective Date	Expiry Date
		GW- RW0086-26 (Portion B4)	8 Feb 2026	7 Aug 2026
		GW-RW0002-26 (Portion B9)	8 Jan 2026	6 Jun 2026
		GW-RW0826-25 (Portion D1) (Superseded)	2 Sep 2025	1 Mar 2026
		GW-RW0119-26 (Portion D1)	13 Feb 2026	12 Jul 2026
		GW-RW1288-25 (Portion F)	31 Dec 2025	30 Jun 2026
		GW-RW1021-25 (Portion G1)	15 Oct 2025	12 Apr 2026
		GW-RW1027-25 (Portion B5, D4) (Superseded)	16 Oct 2025	15 Apr 2026
		GW-RW0130-26 (Portion B5, D4)	17 Feb 2026	16 Jul 2026
		GW-RW1212-25 (Portion C7)	19 Dec 2025	18 May 2026
6	Licence for the Conduct of a Specified Process (SP License)	L-11-058(1) Mineral Works (Stone Crushing Plant)	29 Apr 2025	28 Apr 2030
7	Marine Dumping Permit	EP/MD/26-056 (Dredged Sediment Requiring Type 1 – Open Sea Disposal)	1 Feb 2026	31 Jul 2026
		EP/MD/26-057 (Dredged Sediment Requiring Type 2 – Confined Marine Disposal)	1 Feb 2026	31 Jul 2026

2.3.2 In the latest design and arrangement, six temporary piers along the Nim Wan Waterway, adjacent to the existing seawall, will be served as berthing facilities (barging points) for loading and unloading equipment, plants and construction materials. The temporary piers are expected to commence operations in early 2026 and will operate for continuously from 00:00 to 24:00. The piers will be used for WENTX Project, including potential project matching with other projects and materials delivery off site. To identify and assess the potential environmental impact of the piers operation the Environmental Review Report (ERR) had been conducted and verified by IEC which concluded that operation of piers will not constitute a material change to the environmental impact of the WENTX Project. The environmental requirements set out in the approved EIA report for WENTX (including relevant documents submitted under the Ordinance for that EIA report) remains the same. The ERR for Piers Operation is illustrated in **Appendix S**.

3 AIR QUALITY MONITORING

3.1 MONITORING REQUIREMENTS

- 3.1.1 Monitoring of the Total Suspended Particulate (TSP) levels shall be carried out by the ET to ensure that any deteriorating air quality could be readily detected and timely action be taken to rectify the situation. 1-hour and 24-hour TSP levels should be measured to indicate the impacts of construction dust on air quality. The TSP levels shall be measured by following the standard high volume sampling method as set out in the Title 40 of the Code of Federal Regulations, USA, Chapter 1 (Part 50), Appendix B. Upon approval by the IEC, 1-hour TSP levels can be measured by direct reading methods which are capable of producing comparable results as that by the high volume sampling method, to indicate short event impacts.
- 3.1.2 All relevant data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and other special phenomena and work progress of the concerned site etc. shall be recorded down in details.
- 3.1.3 The ET shall carry out impact monitoring during the course of the Works. In case of non-compliance with the dust criteria, more frequent monitoring exercise, as specified in the Action Plan, shall be conducted within 24 hours after the result is obtained. This additional monitoring shall be continued until the excessive dust emission or the deterioration in air quality is rectified.

3.2 MONITORING PARAMETER, FREQUENCY AND DURATION

- 3.2.1 In accordance with the EP requirement, for regular impact monitoring, the sampling frequency of at least twice in every six-days, shall be strictly observed at all the monitoring stations for 24-hr TSP monitoring. For 1-hr TSP monitoring, the sampling frequency of at least six times in every six-days should be undertaken when the highest dust impact occurs. The specific time to start and stop the 24-hr TSP monitoring shall be clearly defined for each location and be strictly followed by the Contractor.

3.3 MONITORING LOCATIONS

- 3.3.1 Five dust monitoring locations have been recommended in the approved Final EM&A Manual and two additional monitoring stations (AM(D)6 and AM(D)7) were suggested in VEP supporting document. Joint site visits by the Contractor and ET have been conducted at the recommended locations to verify their status and obtain agreement to install dust monitoring equipment for before the implementation of EM&A Programme.
- 3.3.2 When alternative monitoring locations are proposed, the following criteria, as far as practicable, should be followed:
- At the site boundary or such locations close to the major dust emission source;
 - Close to the sensitive receptors; and
 - Account for the prevailing meteorological conditions

Proposed Alternative Locations

AM(D)4

A formal email has been sent to Black Point Power Station on 27th December 2023 for access authorization to the premise in order to carry out dust monitoring. The corresponding team of Black Point Power Station replied that due to the safety and security reason, they rejected to provide access for dust monitoring activities in their premise. The only available location for monitoring is at the main access road of the premises, which is directly affected by traffic dust. It is unclear whether this location accurately represents the dust impact from either the traffic

or the WENTX site, therefore, this location is considered unsuitable.

After AM(D)4 (Black Point Power Station Office and Control Room) rejected the proposal of installing dust monitoring equipment within their premises, alternative locations were sought which included locations near the Lung Kwu Sheung Tan Village Supply Tank and Lung Kwu Sheung Tan Service Reservoir. Visits to the above two locations were made for 4 weeks after the rejection from Black Point Power Station on 18 January 2024. It was concluded that there was no site personnel permanently stationed at these two locations and these premises are probably visited by personnel on an ad-hoc basis. Furthermore, it was observed that these premises have no window and air conditioning equipped, no site personnel was on duty at the building during site visit. With the implementation of the dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation, adverse air quality impact is not anticipated at these two locations, and there are no other ASRs on the west side of the Project site. Thus, it was concluded that no further alternative location can be considered.

AM(D)5

During baseline monitoring conducted at AM(D)5 on 27th Jan to 9th Feb 2024, it has been observed that 9 out of 14 monitoring days recorded 24-hour TSP levels exceeding the Limit Level (260 $\mu\text{g}/\text{m}^3$). Investigation was conducted to identify cause of high baseline 24-hour TSP result, and it is considered that the frequent passage of heavy vehicles, particularly on the unpaved access road to the nearby warehouses, was the main contributing factor to the elevated 24-hour TSP levels. As the baseline level for 24-hour TSP at AM(D)5 exceeded the limit level, and the exceedances were due to the local traffic. In accordance with the updated EM&A Manual, ET had conducted a second set of baseline monitoring at new location closer to the WENTX site, which demonstrate a more representative data on dust impact associated from WENTX (hereinafter named AM(D)5a) for the parameters of 1-hour and 24-hour TSP from 16th to 31st March 2024.

AM(D)6

Site visit and meeting with T · Park was held on 15th January 2024 and it is concluded and agreed that air quality monitoring equipment should be relocated to the rooftop of T · Park workshop instead of the T · Park office, which is the best available alternative monitoring location in the facility. The distance between T · Park office and workshop is approximately 100m. They are both located to the north of the site boundary and experiencing the same prevailing meteorological conditions.

AM(D)7

Site visit was conducted at the proposed designated location on 28th December 2023, and after discussion with the management representative of the premises, access authorization to carry out dust monitoring was rejected due to unsuitable conditions.

An alternative location has been sought based on the recommended criteria. It is proposed to relocate the monitoring location (north facing) to the site boundary of Middle Tsang Tsui Ash Lagoon and at the location avoid the emission from the premises (east facing). The proposed alternative monitoring location AM(D)7a is approximately 10 meters away from the designated location AM(D)7. Both locations are situated to the north-west of the site boundary and experiencing the same prevailing meteorological conditions. The southern boundary of the Tsang Tsui Columbarium site such as the entrance area has been explored subsequently, but it is not feasible without stable electricity.

Relocation Dust Monitoring Location AM(D)7a in 29 September 2025

The current dust monitoring location AM(D)7a is situated at the boundary of Middle Tsang Tsui Ash Lagoon, however, this site will be handed back in late 2025 under the contract for development by others. It is considered the current location is no longer suitable for impact monitoring due to it falls within the site boundary of others.

An alternative location has been sought and proposed in accordance with the Final EM&A Manual Section 3.1.4. After discussions with the Contractor, the proposed alternative location (hereinafter named “AM(D)7b”) will be the southwest of boundary of Tsang Tsui Columbarium. The details of the proposed location and justification are presented below.

The alternative location AM(D)7b is situated at the southwest of boundary of Tsang Tsui Columbarium, where close to the major dust emission source from the Project. Stable electricity supply could be provided by the Contractor. In addition, it is the closest available location to the existing Air Sensitive Receiver - Tsang Tsui Columbarium, (which was AM(D)7 but setting up monitoring equipment on its premises was rejected). Both AM(D)7a and AM(D)7b are located to the northwest of WENTX, and they are experiencing similar prevailing meteorological conditions.

Considering that both AM(D)7a and AM(D)7b are located to the northwest of WENTX and are experiencing similar prevailing meteorological conditions, baseline monitoring data, as well as the Action and Limit Level of AM(D)7a, could be adopted for AM(D)7b for consistency. Since the major construction activities of the project are underway and the baseline monitoring data of AM(D)7a is adopted, baseline monitoring for AM(D)7b will not be carried out.

Proposal for Alternative Dust Monitoring Location AM(D)7a was submitted to EPD and granted EPD’s approval in late September 2025.

The updated dust monitoring locations have been included in the updated EM&A Manual. The proposed dust monitoring locations for impact monitoring are shown in **Table 3-1** and illustrated in **Appendix D**.

Table 3-1 Dust Monitoring Locations

Station ID	ASR ID	Location	Land use
AM(D)1	A1-1	Ha Pak Nai	Residential
AM(D)2	A1-2	Ha Pak Nai	Residential
AM(D)3	A1-3	Ha Pak Nai	Residential
AM(D)5a	A4-1	Lung Kwu Sheung Tan	Place of Worship
AM(D)6a	A3-1	Rooftop of T·Park workshop	Office
AM(D)7b	A5-2	Site boundary of West Tsang Tsui Ash Lagoon	Community

- 3.3.3 The status and locations of dust sensitive receivers may change from time to time. If such cases exist, the ET Leader shall propose updated monitoring locations and seek approval from SM and IEC and agreement from EPD on the proposal.

3.4 MONITORING EQUIPMENT

1-hour TSP

- 3.4.1 Portable direct reading dust meters brand named “Sibata LD-5R Laser Dust monitor Particle Mass Profiler & Counter” and “Sibata LD-3B Laser Dust monitor Particle Mass Profiler &

Counter” were used to 1-hour TSP measurement. These portable direct reading dust meters provided a real time 1-hour TSP measurement based on 90° light scattering.

- 3.4.2 The portable direct reading dust meters were used within the valid period following manufacturer’s Operation and Service Manual. It was calibrated annually and determined periodically by the calibrated High-Volume Sampler to check the validity and accuracy of the results measured by direct reading method. The proposed use of portable direct reading dust meters was submitted to the IEC and obtained agreement and stated in **Section 4.3** of the Updated EM&A Manual.
- 3.4.3 The portable direct reading dust meters used for impact air quality monitoring are listed in **Table 3-2**. The copies of calibration certificates for 1-hour TSP air quality monitoring equipment are shown in **Appendix E1**.

Table 3-2 1-hour TSP Air Quality Monitoring Equipment

Equipment	Model	Serial No.
Portable Dust Meter of Particle Mass Profiler & Counter	Sibata LD-3B Laser Dust monitor	456660 (AUES Equipment No. EQ117)
		456662 (AUES Equipment No. EQ118)
	Sibata LD-5R Laser Dust monitor	467389 (AUES Equipment No. EQ125)
		467390 (AUES Equipment No. EQ126)
		467391 (AUES Equipment No. EQ127)
		467392 (AUES Equipment No. EQ128)

24-hour TSP

- 3.4.4 The 24-hour TSP levels shall be measured by following the standard high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50), Appendix B*. The filter paper of 24-hour TSP measurement shall be provided and determined by HOKLAS accredited laboratory. Equipment used for 24- hour TSP of impact air quality monitoring is listed in **Table 3-3**.

Table 3-3 24-hour TSP Air Quality Monitoring Equipment

Equipment	Model
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
Calibration Kit	TISCH Model TE-5025A

- 3.4.5 The equipment used for 24-hour TSP measurement is a Tisch Environmental, Inc. Model TE-5170 TSP high volume air sampling system, which complied with EPA Code of Federal Regulation, Appendix B to Part 50. The High Volume Sampler (HVS) consists of the following:
- (i) An anodized aluminum shelter;
 - (ii) A 8”x10” stainless steel filter holder;
 - (iii) A blower motor assembly;
 - (iv) A continuous flow/pressure recorder;
 - (v) A motor speed-voltage control/elapsed time indicator;
 - (vi) A 7-day mechanical timer, and
 - (vii) A power supply of 220v/50 Hz
- 3.4.6 Prior to the 24-hour TSP monitoring, the HVS was calibrated in accordance with the manufacturer’s instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). Valid calibration certificate of the calibration kit with the certificate of HVS calibrated are attached in **Appendix E1**.

Wind Data Monitoring Equipment

- 3.4.7 In consideration of the safety concerns of setting up wind sensor at 10m above ground, the ETL proposed alternative method to obtain representative wind data. Meteorological information as extracted from “the Hong Kong Observatory Lau Fau Shan Station” is alternative method to obtain representative wind data. Lau Fau Shan Station is located nearby the Project site. Moreover, Lau Fau Shan station is located at 31m above mean sea level which in compliance with the general setting up requirement. This station can also provide other meteorological information include air temperature, relative humidity, wind direction, wind speed and mean sea level pressure. Adoption of meteorological information from Hong Kong Observatory is a common alternative method for a lot of EM&A projects in Hong Kong.

3.5 MONITORING PROCEDURES

1-hour TSP

- 3.5.1 The portable direct reading dust meters brand named “Sibata LD-5R Laser Dust monitor Particle Mass Profiler & Counter” and “Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter” was used for impact monitoring. It is a portable, battery-operated laser photometer and provides a real time 1-hour TSP measurement based on 90° light scattering.
- 3.5.2 The 1-hour TSP meter used is within the valid period, calibrated by the manufacturer prior to purchasing. Zero response of the instrument was checked before and after each monitoring event. Operation of the 1-hour TSP meter was follow manufacturer’s Operation and Service Manual.

24- hour TSP

- 3.5.3 Prior of 24-hour TSP monitoring, the HVS was calibrated in accordance with the manufacturer’s instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A). The 24-hour TSP Monitoring using the HVS was also processed in accordance with the manufacturer’s Operations Manual.
- 3.5.4 A filter paper of 24- hour TSP on filters of HVS collected by the ET would be delivered to ALS Technichem (HK) Pty Ltd (ALS) carry out quantifies. Also, ALS will keeps all the sampled 24-hour TSP filter papers in normal air conditioned room conditions, i.e. 70% RH (Relative Humidity) and 25°C, for six months prior to disposal.

3.6 ACTION/LIMIT LEVELS FOR AIR QUALITY

- 3.6.1 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. Following the guidelines for establishing the Action and Limit Levels for air quality monitoring, the Action and Limit Levels are presented in **Table 3-4**. Should project-related non-compliance of the environmental quality criteria occur, remedial actions will be triggered according to the Event and Action Plan which is presented in **Appendix G**.

Table 3-4 Action and Limit Levels for Air Quality Monitoring

Monitoring Station	1-hour TSP		24-hour TSP	
	Action Level ($\mu\text{g} / \text{m}^3$)	Limit Level ($\mu\text{g} / \text{m}^3$)	Action Level ($\mu\text{g} / \text{m}^3$)	Limit Level ($\mu\text{g} / \text{m}^3$)
AM(D)1	317	500	155	260
AM(D)2	313	500	156	260
AM(D)3	334	500	155	260
AM(D)5a	371	500	238	260
AM(D)6a	294	500	159	260

Monitoring Station	1-hour TSP		24-hour TSP	
	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)	Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level ($\mu\text{g}/\text{m}^3$)
AM(D)7b	331	500	215	260

3.7 AIR QUALITY MONITORING RESULTS

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

3.7.2 The monitoring results are summarized in *Tables 3-5 and Table 3-6*. The detailed 1-hour TSP and 24-hour monitoring results are provided in *Appendix I* and graphical plots of monitoring results are shown in *Appendix J*.

Table 3-5 Summary of 1-hour TSP Monitoring Results

1-hour TSP ($\mu\text{g}/\text{m}^3$)				
Monitoring Station	Average (Range)	No. of Session	Action Level	Limit Level
AM(D)1 - Village house at Ha Pak Nai	74 (21 – 144)	24	317	500
AM(D)2 - Village house at Ha Pak Nai	60 (35 – 97)	24	313	500
AM(D)3 - Village house at Ha Pak Nai	91 (30 – 177)	24	334	500
AM(D)5a - Lung Kwu Sheung Tan	191 (87 – 277)	24	371	500
AM(D)6a - Rooftop of T·Park Workshop	102 (43 – 156)	24	294	500
AM(D)7b - Site boundary of West Tsang Tsui Ash Lagoon	78 (41 – 122)	24	331	500

Table 3-6 Summary of 24-hour TSP Monitoring Results

24-hour TSP ($\mu\text{g}/\text{m}^3$)				
Monitoring Station	Average (Range)	No. of Session	Action Level	Limit Level
AM(D)1 - Village house at Ha Pak Nai	53 (23 – 87)	8	155	260
AM(D)2 - Village house at Ha Pak Nai	46 (19 – 79)	8	156	260
AM(D)3 - Village house at Ha Pak Nai	70 (23 – 123)	8	155	260
AM(D)5a - Lung Kwu Sheung Tan	172 (99 – 214)	8	238	260
AM(D)6a - Rooftop of T·Park Workshop	90 (43 – 127)	8	159	260
AM(D)7b - Site boundary of West Tsang Tsui Ash Lagoon	66 (33 – 149)	8	215	260

3.7.3 In the Reporting Period, all the 1-hour and 24-hour TSP monitoring results were below the Action/Limit Levels and no corrective action was therefore required.

4 CONSTRUCTION NOISE MONITORING

4.1 MONITORING REQUIREMENTS

- 4.1.1 Construction noise level shall be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq30min}$ shall be used as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. For all other time periods, L_{eq5min} shall be employed for comparison with the Noise Control Ordinance (NCO) criteria. As supplementary information for data auditing, statistical results such as L_{10} and L_{90} shall also be obtained for reference.
- 4.1.2 In case of non-compliance with the construction noise criteria, more frequent monitoring as specified in the Event and Action Plan shall be carried out. This additional monitoring shall be continued until the recorded noise levels are rectified or proved to be irrelevant to the construction activities.

4.2 MONITORING PARAMETER, FREQUENCY AND DURATION

- 4.2.1 During normal construction working hour (0700-1900 Monday to Saturday), monitoring of $L_{eq30min}$ noise levels (as 6 consecutive L_{eq5min} readings) shall be carried out at the designated monitoring location NM1- Ha Pak Nai once every week.

4.3 MONITORING LOCATIONS

- 4.3.1 According to the updated EM&A Manual, the ET shall carry out noise monitoring during the construction phase at the designated monitoring station as shown in **Table 4-1** and illustrated in **Appendix D**.

Table 4-1 Construction Noise Monitoring Station

Monitoring ID	EIA NSR Ref	Location	Type of Monitoring	Monitoring Parameters	Supplementary Information
NM1	NSR-1	Village house at Ha Pak Nai	Construction & Operation	30mins and or 5mins of L_{Aeq}	L_{A10} and L_{A90}

4.4 MONITORING EQUIPMENT

- 4.4.1 As referred to in the Technical Memorandum (TM) issued under the NCO, sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications were used for carrying out the noise monitoring. Immediately prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements would be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB.
- 4.4.2 Noise measurements were made in accordance with standard acoustical principles and practices in relation to weather conditions. Weather information such as wind speed and wind direction would be extracted from Lau Fau Shan weather station during the impact monitoring.
- 4.4.3 The ET was responsible for the provision, installation, operation, maintenance, dismantle of the monitoring equipment. Sufficient noise measuring equipment and associated instrumentation are available for carrying out the impact monitoring. The equipment and associated instrumentation have been clearly labelled.

4.4.4 Noise monitoring equipment used for impact monitoring is listed in **Table 4-2**.

Table 4-2 Noise Monitoring Equipment

Equipment	Model	Serial No.
Integrating Sound Level Meter	Rion NL-52A / B&K2238	00620666 / 2285722
Calibrator	Rion NC-75	34680623

4.4.5 Sound level meter listed above comply with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications, as recommended in Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), which was used for impact noise monitoring. The copies of calibration certificates of noise monitoring equipment were shown in **Appendix E2**.

4.5 MONITORING PROCEDURES

4.5.1 The microphone of the sound level meter was set at a height of about 1.5m subject to site condition and oriented pointed to the site, with the microphone facing perpendicular to the line of sight. Moreover, the microphone was positioned away from any reflective surface, and a correction of +3 dB(A) has been made for the free field measurements.

4.5.2 Prior to the noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The calibration level from before and after the noise measurement agrees to within 1.0dB.

4.5.3 $L_{eq30min}$ shall be taken as the monitoring parameter for the time period between 0700 and 1900 hours on normal weekdays. After the measurement, the data were recorded and stored automatically within the sound level meter system. At the end of the monitoring period, noise levels in term of L_{eq} , L_{90} and L_{10} were recorded.

4.5.4 All the monitoring data stored in the sound level meter system were downloaded through the computer software, and all these data were checked and reviewed on computer.

4.6 ACTION AND LIMIT LEVELS FOR CONSTRUCTION NOISE

4.6.1 Following the guidelines for establishing the Action and Limit Levels for construction noise monitoring, the Action and Limit Levels are presented in **Table 4-3**. Should project-related non-compliance of the environmental quality criteria occur, remedial actions will be triggered according to the Event and Action Plan which is presented in **Appendix G**.

Table 4-3 Action and Limit Levels for Construction Noise

Monitoring Location	Action Level	Limit Level in dB(A)
	Time Period: 0700-1900 hours on normal weekdays	
NM1	When one or more documented complaints are received	75 dB(A)
<i>Note: 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.</i>		

4.7 NOISE MONITORING RESULTS

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

4.7.2 In the Reporting Period, 4 sessions of noise measurements were carried out at designated

monitoring station NM1. The noise monitoring results are summarized in **Table 4-4**. The detailed noise monitoring data are presented in **Appendix I** and the relevant graphical plots are shown in **Appendix J**.

Table 4-4 Summary of Construction Noise Monitoring Results

Construction Noise Level ($L_{eq30min}$), dB(A)					
Station ID	Description of location	Range	No. of Sessions	Action Level	Limit Level
NM1	Village house at Ha Pak Nai	57 - 58	4	When one documented complaint is received at anytime during the construction period	75

Remarks

(*) *Noise measurements was conducted at free field condition and façade correction (+3 dB(A) was added according to acoustical principles and EPD guidelines*

- 4.7.3 As shown in **Table 4-4**, no construction noise measurement results triggered the Limit Level (75 dB(A)) in the Reporting Month. Due to the construction programme, construction works during restricted hour was commenced from 15 November 2024. According to site inspection and auditing on Contractor's record have shown that the conditions stipulated in the Construction Noise Permit (CNP) issued by the Noise Control Authority for construction works during restricted hours were followed. Thus, the stipulated requirement on noise impact control during restricted hour was achieved.
- 4.7.4 Furthermore, no valid noise complaint (which triggered Action Level exceedance) was recorded in the Reporting Period.

5 WATER QUALITY MONITORING

5.1 MONITORING REQUIREMENTS

- 5.1.1 According to the updated EM&A Manual, the Contractor shall carry out surface water monitoring from the commencement of the works until the issue of the Aftercare Certificate.
- 5.1.2 According to general water quality monitoring criteria, water sampling depth should be:
- If the water depth during sampling is exceeded 6m, three depths: 1m below water surface, 1m above river/stream bed and mid-depth.
 - If the water depth during sampling is exceeded 3m but less than 6m, two depths: 1m below water surface and 1m above river/stream bed.
 - If the water depth is less than 3m, one depth: perform at mid-depth.
- 5.1.3 Duplicate samples and repeat in-situ measurement shall be taken from each sampling depth.

5.2 MONITORING FREQUENCY AND DURATION

- 5.2.1 During the construction phase, monthly monitoring of the surface water discharges shall be carried out in order to show if contamination of surface water by leachate is occurring.

5.3 MONITORING LOCATIONS

- 5.3.1 The surface water monitoring should be carried out at the specified point WM1 in accordance with Figure 5.1 in the updated EM&A Manual, which is shown in *Appendix D*, unless otherwise agreed by IEC and approved by the SM.

5.4 ANALYSIS PARAMETERS

- 5.4.1 According to Section 5.5 of the updated EM&A Manual, the parameters of surface water monitoring included in-situ measurement and laboratory analysis are listed below.

A. In-situ measurement:

Temperature (°C), pH (unit), Salinity (ppt), Turbidity (NTU), Dissolved Oxygen (DO) (mg/L) & Dissolved Oxygen Saturation (DOS) (%), Electrical Conductivity (µS/cm), Water Flow direction (degree) / speed (m/s) and Water depth (m).

B. Laboratory Analysis (mg/L):

Alkalinity, Chemical Oxygen Demand (COD), 5-day Biochemical Oxygen Demand (BOD₅), Total Organic Carbon (TOC), Suspended Solids (SS), Ammonia Nitrogen (NH₃-N), Total kjeldahl nitrogen, Nitrate (NO₃), Sulphate & Sulphite, Phosphate, Chloride and Oil & Grease.

C. Laboratory Analysis:

Sodium (µg/L) and Coliform Count (cfu/100mL).

D. Heavy Metals Analysis(µg/L):

Magnesium (Mg), Calcium (Ca), Potassium (K), Iron (Fe), Nickel (Ni), Zinc (Zn), Manganese (Mn), Copper (Cu), Lead (Pb) and Cadmium (Cd).

5.5 MONITORING EQUIPMENT

- 5.5.1 Water quality monitoring equipment used for impact monitoring is listed in *Table 5-1*.

Table 5-1 Surface Water Monitoring Instrument

Equipment	Model	Serial No.
A Digital Global Positioning System	Garmin eTrex	N/A
Thermometer & DO meter	YSI Professional DSS Multifunctional Meter	[25K101552/17B102764]/[EQW019]

Equipment	Model	Serial No.
pH meter		
Turbidimeter		
Salinometer		
Conductivity meter		
Current Meter	Valeport Model 106 Current Meter	[60011]
Sample Container	High density polythene bottles provided by laboratory	N/A
Storage Container	'Willow' 33-liter plastic cool box with ice pad	N/A

5.5.2 All in-situ measurement instruments such as DO measuring instruments, turbidity measuring instruments, salinometer and A portable pH meter, would be calibrated by HOKLAS accredited laboratory at three-month intervals. Valid calibration certificate is attached in *Appendix E3*

5.6 LABORATORY ANALYSIS

5.6.1 A local HOKLAS-accredited laboratory (ALS Technichem (HK) Pty Ltd HOKLAS registration number: HOKLAS 066) was appointed as a testing laboratory to carry out chemical analytical. The HOKLAS accredited certificate of laboratory is shown in *Appendix E3*. The determination was started within 24 hours or recommended hold time of collection of water samples. The method of chemicals analysis is shown below *Table 5-2*.

Table 5-2 Test Method and Reporting Limit of Chemicals Analysis

Analyte Description	ALS Method Code	Method Reference	Limit of Reporting (LOR)
pH value @25°C	EA002	APHA 4500 H: B	0.1 pH Unit
Conductivity @25°C	EA010	APHA 2510 B	1µS/cm
Suspended Solids	EA025-LL**	APHA 2540 D	0.1mg/L
Total Alkalinity as CaCO ₃	ED037	APHA 4500 H: B	1mg/L
Sulphate as SO ₄	ED041K	USEPA 375.4	1mg/L
Chloride	ED045K	USEPA 325.1	0.5mg/L
Cadmium	EG020 T	USEPA 6020	0.2µg/L
Copper			1µg/L
Lead			1µg/L
Manganese			1µg/L
Nickel			1µg/L
Zinc			10µg/L
Calcium	EG032 T	USEPA 6010	50µg/L
Iron			10µg/L
Magnesium			50µg/L
Potassium			50µg/L
Sodium			50µg/L
Ammonia as N	EK055K	APHA 4500 NH ₃ G	0.01mg/L
Nitrate as N	EK058A	APHA 4500 NO ₃ : I	0.01mg/L
Total Kjeldahl Nitrogen as N	EK061A	APHA 4500 Norg: D; USEPA 1688	0.1mg/L
Reactive Phosphorus as P	EK071K	APHA 4500 P: B & F	0.01mg/L
Sulphite as SO ₃ ²⁻	EK086 **	APHA 4500 SO ₃ : B	2mg/L
Total Organic Carbon	EP005	APHA 5310 B	1mg/L
Oil and Grease	EP020	APHA 5520 B	5mg/L
Chemical Oxygen Demand	EP026C	APHA 5220 C	5mg/L

Analyte Description	ALS Method Code	Method Reference	Limit of Reporting (LOR)
(COD) (Closed Reflux method)			
Biochemical Oxygen Demand (BOD)	EP030	APHA 5210 B	2mg/L
Total Coliforms	EM003	DoE section 7.8, 7.9.4.1 & 3	1 CFU/100mL

Remarks: Except ** Item, all the methods as quoted is HOKLAS accredited

5.7 MONITORING PROCEDURES

- 5.7.1 Prior to conducting in-situ measurement and water sampling, general information such as the sampling date, time, weather conditions and the personnel responsible for the monitoring would be recorded on the field data sheet. The location of water quality monitoring station was confirmed using GPS prior to in-situ monitoring and sampling. Moreover, the water depth at the monitoring station will be measured using a portable digital global positioning system.
- 5.7.2 In order to collect sufficient impact data, surface water monitoring will be conducted at two specific tide points: one mid-ebb and one mid-flood.
- 5.7.3 Before the surface water sampling, water flow and direction would be measured by Valeport Current Meter. Moreover, water temperature, DO & DOs, pH, salinity, conductivity and turbidity were taken by YSI Professional DSS Multifunctional Meter. These measurement results would be downloaded from instruments and recorded.
- 5.7.4 As the water depth was less than 3m, in-situ measurement and water sampling was conducted at mid-depth only. Water samples were collected repeatedly using the water sampler to obtain adequate water volumes for laboratory analysis. All the obtained water volumes would be directly filling into sample container as provided by the testing laboratory. Also, sample container would be pre-labeled with date, location, tide, depth, parameters and replicate information of the sample. The water sampler would be rinsed using local marine water before it used to collect marine water sample. Container is sealed with a screw cap after completed water filling then packed in cool box (maintain 4°C without being frozen) and delivered to the laboratory on the same day of sample collection for analysis. Also, the water sample filled into container until no remaining air space and then the lid securely screwed on. Where samples are to be preserved with acid or alkalis prior to transport to the laboratory, the sample bottles would be filled to the specified level which advised by the testing laboratory.
- 5.7.5 Before each round of monitoring, the dissolved oxygen probe would be calibrated by wet bulb method; a zero check in distilled water would be performed with the turbidity and salinity probes; 4 and 10 values of the standard solution would be undertaken to check the accuracy of pH value.
- 5.7.6 Additionally, the laboratory will retain all water samples after analysis for a period of 3 months, allowing for the possibility of repeat analysis if needed.

5.8 DATA MANAGEMENT AND QUALITY ASSURANCE (QA)/QUALITY CONTROL (QC)

- 5.8.1 All monitoring data would be handled by AUES's in-house data recording and management system. The monitoring data recorded in the equipment would be downloaded directly from the equipment at the end of each monitoring day and input into a computerized database maintained by the AUES. The laboratory results would be input directly into the computerized database and checked by personnel other than those who input the data.

- 5.8.2 For monitoring parameters that require laboratory analysis, the testing laboratory would be according with the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

Action/Limit Levels for Surface Water Quality

- 5.8.3 Following above guidelines for establishing the Action and Limit Levels for surface water quality monitoring, the Action and Limit Levels of the Project are presented in **Table 5-3**.

Table 5-3 Action and Limit Levels for Surface Water Monitoring during Construction Phase

Monitoring Parameter	Action Level	Limit Level
DO mg L ⁻¹	6.4	4.0
pH, (unit)	Beyond the range of 6.5 to 8.5	Beyond the range of 6 to 9
Turbidity, NTU	23.4	34.1
SS, mg L ⁻¹	47.3	50.0

5.9 RESULTS OF SURFACE WATER QUALITY MONITORING

- 5.9.1 The monitoring schedule is presented in **Appendix H** and the monitoring results are summarized in the below sections.
- 5.9.2 Surface water quality monitoring was carried out at the designated monitoring station WM1 on **6th February 2026**. As the water depth at WM1 was less than 3m, in-situ measurement and water sample collection were conducted at mid-depth.
- 5.9.3 There are no exceedances recorded for surface water monitoring. The monitoring results including in-situ measurement and laboratory analysis are shown in **Appendix I** and the relevant graphical plots are shown in **Appendix J**.

6 ECOLOGY MONITORING

6.1 REQUIREMENTS

- 6.1.1 The EIA stipulated that ecological monitoring should be undertaken throughout the design, construction, operation, restoration and aftercare phases of WENT Landfill Extension to ensure that all mitigation measures should be fully complied with. The objectives of design audit for ecology are to ensure that the design for ecological mitigation specified in the EIA Report will be conducted to ensure that such designs are ecologically feasible and effective.
- 6.1.2 The performance of monitoring and audit from an ecological prospective should be integrated with the overall monitoring and audit plan for the project as a whole. The information on the commencement and programme of the engineering works should enable the ecological monitoring to be prepared with considerations of seasonality factors. An EMIS of the recommended mitigation measures is presented in **Appendix M**.

6.2 ECOLOGICAL MITIGATION MEASURES

- 6.2.1 Ecological mitigation measures to be implemented before commencement of relevant construction phase should include survey and transplantation of plant species of conservation interest and setting up water quality monitoring stations inside Tai Shui Hang catchment to monitor the conditions of the habitat for the rare freshwater fish, *Acrossocheilus parallens*. In addition, although potential impacts to stream loss and fish species of conservation interest are ranked as minor and insignificant and no mitigation is required, a precautionary measure – fish capture and translocation survey for the three fish species of conservation interest including *Squaliobarbus curriculus*, *Osteochilus vittatus* and *Kuhlia marginata* will also be implemented before site clearance.

6.3 MONITORING AND AUDIT FOR ECOLOGY

- 6.3.1 The ecological monitoring and audit programme in relation to construction phase would be survey and transplantation of the plant species of conservation interest and 2 years of monitoring after.
- 6.3.2 According to the EIA Report, four plant species of conservation interest were found and directly impacted by the WENT Landfill Extension in June 2009. However, during the latest field survey in January 2024, only three groups of *Nepenthes mirabilis* (Pitcher Plant) could be found, and the remaining mentioned plants were not located. For *Ixonanthes reticulata* recorded at Tsang Kok Stream from the VEP were not found during the survey in January 2024. If *Ixonanthes reticulata* is found in the future, further assessment will be carried out to review the feasibility of transplantation.
- 6.3.3 Upon completion of transplantation, monitoring should be implemented for 2 years. The health and condition of individuals of the transplanted plant species of conservation interest should be monitored during the first 2 years after transplantation. Monitoring should be conducted monthly during first 6 months, and bi-monthly in the next 18 months to ensure survival. Since die-back of current year's growth is not uncommon, new stems, leaves and/or flowers produced from the cuttings in the following years, if observed in the following season, should be marked separately but also counted as survived individuals.
- 6.3.4 Monitoring of transplanted species will be carried out after the transplantation work. No monitoring is required in the Reporting Period.
- 6.3.5 The CLP 132 kV cable will be constructed for the power supply of the permanent crushing plant at Portion A1. Therefore, the ecological study for the alignment of 132kV cable had been carried out and concluded that no adverse impact will be caused for the 132kV cable

construction. The habitat map with photo record was attached in the Project's Monthly EM&A Report July 2025.

7 LANDSCAPE AND VISUAL MONITORING

7.1 MONITORING REQUIREMENTS

7.1.1 The EIA study has recommended landscape and visual mitigation measures to be undertaken during the construction and operation phases, as well as the restoration and aftercare phases of the project. Compared with the approved WENTX EIA, two new visual sensitive receivers (VSRs) within the visual envelop from the boundary of the Project are identified. Other VSRs are the same as the EIA. This section outlines the EM&A requirements of these measures to mitigate the landscape and visual impacts. An EMIS of the recommended mitigation measures is presented in *Appendix M*.

7.1.2 Measures to mitigate the landscape and visual impacts during the construction and operation phases should be checked to ensure compliance with the intended aims of the measures. 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. The event and action plan for landscape and visual monitoring during the construction phase is summarised in *Appendix G*.

7.2 MONITORING AND OBSERVATION

7.2.1 In order to monitor the landscape and visual impact after providing mitigation measures effectively, all the specified and affected landscape character areas, landscape resources and visually sensitive receivers should be monitored. Implementation of mitigation measures during construction phase of the Project has been monitored through regular site inspection/audit. Photo record for the transplanted tree at receptor site of Portion B4 and 30m tree buffer zone are presented in *Appendix O*.

7.3 LANDSCAPE AND VISUAL RELATED SUBMISSION

7.3.1 In accordance with the requirements of the EM&A Manual, the transplantation scheme and detailed vegetation survey report for the Pitcher Plant have been submitted. The tentative Pitcher Plant transplantation is scheduled for March 2026. These documents were previously included in the Project's Monthly EM&A Report for January 2026. Moreover, the Detailed Transplantation Protocol and Monitoring Programme for Pitcher Plant prepared by HKRRP is presented in *Appendix P*.

7.3.2 Following receipt of comments from AFCD, updated versions of the transplantation scheme and have been prepared by HKRRP. The updated transplantation scheme and the original submitted detailed vegetation survey report are presented in *Appendix Q and R* respectively.

8 LANDFILL GAS MONITORING

8.1 REQUIREMENT

- 8.1.1 Landfill gas (LFG) monitoring should commence at the start of specific construction works, such as excavation and drilling for blasting, and through the operation, restoration and until completion of aftercare phases. The measured LFG results should be checked for compliance against pre-defined A/L Levels in this EM&A Manual. In case exceedance of compliance level was detected at any locations, the EAP should be triggered for necessary action to be taken.

8.2 MONITORING PARAMETERS

A suite of LFG monitoring parameters include:

Monitoring Method	Monitoring Parameters	Requirement of Monitoring
• Monitoring borehole:	Methane (CH ₄), carbon dioxide (CO ₂), oxygen (O ₂), flammable gas	If the blasting works are within the 250m consultation zone of WENT Landfill, gas monitoring shall be conducted at the nearest monitoring boreholes(#).
• Surface gas location:	CH ₄ , CO ₂ , O ₂	For excavation works between 300mm and 1m deep and deeper than 1m; and throughout the whole process of the blasting
• Gas well head:	CH ₄ , CO ₂ , O ₂ , flammable gas, volatile organic compounds (VOC)	Once the gas well(#) is set up
• Off-site location:	VOC	Once WENTX starts receiving waste

Remark: (#) Monitoring boreholes will be installed for LFG monitoring at the borehole and gas well head. The programme for borehole installation will be synchronized with the construction programme.

- 8.2.1 The existing WENT Landfill is required to conduct LFG monitoring during landfill operation from drillholes, boreholes, gas probes and piezometers around the perimeter of the Site as specified in their contract. Before setting up the monitoring boreholes for WENTX, the Contractor should refer to the monitoring data collected from the existing WENT Landfill. This data serves as a reference and provides valuable information regarding historical gas levels and trends at the site.

8.3 MONITORING EQUIPMENT

Monitoring for Construction Works

- 8.3.1 Intrinsically safe portable gas detectors should be used during excavation or when working in any confined spaces, which have the potential for presence of LFG and risk of explosion or asphyxiation. The monitoring equipment should alarm, both audibly and visually, when the concentrations of the following gases were exceeded:
- CH₄: > 10% of the Lower Explosion Limit (LEL);
 - CO₂: > 0.5% by volume; and
 - O₂: < 19% by volume

Calibration and Maintenance

- 8.3.2 All portable instrument should be calibrated and serviced according to the manufacturer's instructions. Calibration gases should be used for checking portable instrument for methane and carbon dioxide detection before and after use. Instrument for monitoring oxygen should

be calibrated against normal expected air concentrations. Any significant variations in instrument performance outside that expected through normal drift should be noted with the instrument calibration timely corrected.

- 8.3.3 Gas analyser was used for carrying out LFG monitoring for Construction Works. **Table 8-1** summarises the equipment that were used in the LFG monitoring programme and the calibration certificates are shown in *Appendix E4*.

Table 8-1 LFG Monitoring Equipment

Monitoring Parameter	Equipment	Model	Serial No.
CH ₄ , CO ₂ & O ₂	Gas Analyser	SKY3000-R5	02100C61C8003
		GEM5000	G510348

8.4 MONITORING LOCATIONS

- 8.4.1 During the construction stage, when excavation of 1m deep or more, surface LFG concentrations should be monitored at before entry and periodically during the progress of works.
- 8.4.2 The blasting work is scheduled to be carried out in 6 Phases and during Phase 1, the Contractor will utilise the existing WENT's monitoring wells for carrying out landfill gas monitoring as the WENTX landfill gas monitoring boreholes have yet to be completed. However, the Contractor is committed to complete the proposed landfill gas monitoring boreholes along the WENTX waste boundary for both Phase 1 and 2 blasting areas while Phase 1 blasting work is being carried out and so on for subsequent phases. In other words, when the blasting work is completed for Phase 1, the landfill gas monitoring boreholes for subsequent phase (i.e. Phase 2) is also complete and likewise for subsequent Phases. After Phase 1 blasting work is completed, WENT's monitoring wells will no longer be needed as the next phase proposed monitoring wells would have already been constructed. The landfill gas monitoring will be carried out in accordance with the requirement either within 250m consultation zone of the WENT Landfill or within 250m from the waste boundary of the WENT landfill extension site.

8.5 MONITORING FREQUENCY

- 8.5.1 The monitoring frequency and areas to be monitored should be set down prior to commencement of groundworks either by the Registered Safety Officer or by an appropriately qualified person. Routine monitoring should be carried out the in slope cutting by blasting, in all excavations, manholes and chambers and any other confined spaces that may have been created by, for example, the temporary storage of building materials on the site surface. All measurements in excavations should be made with the monitoring tube located not more than 10mm from the exposed ground surface.
- 8.5.2 The Contractor will maintain close liaison with WENT Landfill operator on a weekly basis and provide a two weeks tentative blast schedule at least 1 week before the blasting work. The tentative blast schedule will include the schedule blast date, location of blast works and the approximate separation distance between the blast area and existing WENT Landfill boundary.
- 8.5.3 The frequency and the locations of the LFG monitoring within the excavation area should be determined prior to commencement of the blasting works. The monitoring requirements and procedures specified in *Paragraphs 8.23 to 8.28 of the EPD's Landfill Gas Hazard Assessment Guidance Note* shall be strictly followed.

A. For blasting works on existing slope

The Contractor will perform landfill gas monitoring for all blasting works within the 250m consultation zone of the WENT Landfill (i.e. plan distance from the edge of the existing waste boundary of WENT Landfill site) at the schedule below.

- The Contractor will inform WENT Landfill operator about the selected perimeter monitoring wells along WENT's landfill boundary for landfill gas monitoring that may be required. When existing WENT's monitoring wells are proposed, permission from WENT's Landfill operator must be obtained.
- The Contractor will carry out landfill gas monitoring at the nearest monitoring wells (within 250m from WENT boundary) and the results shall be reported to the Service Manager. If the methane concentration is measured and remained to be less than 1%, drilling of blast holes can be proceeded after receiving confirmation from the Service Manager.
- Drilling of blast holes will take multiple days, thus, landfill gas monitoring shall be carried out every morning at the nearest blast hole following the same procedure as mentioned above prior to resume drilling work.

i) Surface Emission Monitoring

- a walkover survey for surface gas emission to be undertaken within the blasting area, with a portable gas measuring probe to detect the air condition at about 10 millimeters above the ground level to ensure no LFG is present.

B. For excavation works deeper than 1m

i) Measurements should be made:

- at ground surface before excavation work commences;
- immediately before any worker enters the excavation;
- at the beginning of each working day for the entire period the excavation remains open; and
- periodically through the working day whilst workers are in the excavation.

C. For excavation between 300mm and 1m deep

i) Measurements should be made:

- directly after the excavation has been completed; and
- periodically whilst the excavation remains open.

8.5.4 For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person.

8.5.5 During the construction (specific construction works) operation, restoration and until completion of aftercare phases, LFG monitoring should be conducted in monthly basis at designated monitoring locations and gas monitoring boreholes, supplemented by monthly site surveys of the surrounding environment including natural cracks and fissures, service drains and ducts, area with sign of vegetation death, and any below ground enclosed spaces. If the monitoring results indicate evidence of gas migration, the monitoring frequency should be increased accordingly, with the implementation of appropriate mitigation measures under the EAP.

8.5.6 Moreover, baseline LFG monitoring at landfill gas well was commenced in this reporting month to fulfil the EM&A Manual requirement. Separate operation baseline LFG monitoring report will be submitted after the baseline monitoring has been completed.

8.5.7 The monitoring frequency should be reviewed throughout the on-going development of WENT Landfill Extension and revised as necessary based on the LFG monitoring data.

8.6 A/L LEVELS AND EVENT ACTION PLAN

8.6.1 The A/L Levels and relevant EAP for LFG detected in excavation, utilities and enclosed onsite areas are summarised in **Table 8-2**.

Table 8-2 A/L Levels and EAP for LFG

Parameter	Level	Action
Oxygen (O ₂)	Action Level <19% O ₂	Ventilate trench/void to restore O₂ to >19%
	Limit Level <18% O ₂	- Stop works - Evacuate personnel/prohibit entry - Increase ventilation to restore O₂ to >19%
Methane (CH ₄)	Action Level >10% LEL*	- Prohibit hot works - Increase ventilation to restore CH₄ to <10% LEL
	Limit Level >20% LEL	- Stop works - Evacuate personnel/prohibit entry - Increase ventilation to restore CH₄ to <10% LEL
Carbon dioxide (CO ₂)	Action Level** >0.5%** CO ₂	Ventilate to restore CO₂ to < 0.5%
	Limit Level >1.5% CO ₂	- Stop works - Evacuate personnel / prohibit entry - Increase ventilation to restore CO₂ to <0.5%

* LEL: Lower Explosive Limit – concentrations in air below which there is not enough fuel to continue an explosion.

** This Action Level of CO₂ at 0.5% is set for reference only, assuming no CO₂ emission from a particular location. Depending on the baseline CO₂ levels, the Action Level at a particular location will be changed.

8.7 MONITORING RESULTS

8.7.1 The LFG monitoring was conducted for excavation work in **February 2026**. The LFG monitoring results are summarized in **Appendix I**.

8.7.2 No exceedance of Limit Levels of LFG was recorded during the Reporting Period.

8.7.3 No effect that arose from the other special phenomena and work progress of the concerned site was noted during the current monitoring month.

9 WASTE MANAGEMENT

9.1 GENERAL WASTE MANAGEMENT

9.1.1 Waste management was carried out in accordance with the Waste Management Plan for the Contract.

9.2 RECORDS OF WASTE QUANTITIES

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

- Inert construction & demolition (C&D) Material; and
- Non-inert C&D waste

9.2.2 The Contractor is advised to minimise the wastes generated through recycling or reusing. All mitigation measures stipulated in the updated EM&A Manual and waste management plans shall be fully implemented.

9.2.3 The quantities of waste for disposal of in this Reporting Period are summarized in **Tables 9-1** and **9-2** and they are made reference to the Waste Flow Table provide by the Contractor which shown in **Appendix K**.

Table 9-1 Summary of Quantities of Inert C&D Materials

Type of Waste	Quantity
Total generated C&D Materials (Inert) (in '000m ³)	136.328
Reused in this Contract (Inert) (in '000m ³)	136.315
Reused in other Projects (Inert) (in '000m ³)	0.013
Disposal as Public Fill (Inert) (in '000m ³)	0

Table 9-2 Summary of Quantities of Non-inert C&D Wastes

Type of Waste	Quantity
Recycled Metals (in kg)	0
Recycled Paper / Cardboard Packaging (in kg)	5.100
Recycled Plastics (in kg)	1.000
Chemical Waste (in liter)	16659.000
Chemical Waste (in '000kg)	0
Yard Waste (in tonne)	0
General Refuse (in '000m ³)	0.196

10 SITE INSPECTION

10.1 REQUIREMENTS

10.1.1 According to the updated EM&A Manual, the programme of environmental site inspection shall be formulated by ET Leader. Weekly environmental site inspections were carried out to confirm the environmental performance.

10.2 FINDINGS / DEFICIENCIES DURING THE REPORTING PERIOD

10.2.1 In the Reporting Period, joint site inspections to evaluate the site environmental performance for the Project were carried out by the representatives of the SM, ET and the Contractor on **5th, 12th, 16th and 26th February 2026**. In addition, IEC carried out the joint site inspection on **5th February 2026**. No non-compliance was noted.

10.2.2 The findings / deficiencies observed during the weekly site inspection are listed in **Table 10-1**.

Table 10-1 Site Inspection and Observations

Date	Findings / Deficiencies	Follow-Up Status
5 th February 2026	- General refuse at drainage channel should be removed. (Portion D1) - Chemical container should be placed inside drip tray. (Portion A1) - Dust emission from haul road was observed. The Contractor should increase the watering frequency to reduce dust impact. (Portion A1) - Stockpile of cement bags should be properly covered with impervious sheet. (Portion A1) - Maintenance work should be carried out for the silt curtain to ensure it is functioned properly. (Portion B9) - Part of the stockpile was not covered properly. The Contractor is requested to cover the stockpile properly. (Portion F)	- General refuse was removed. - Chemical container was removed. - Watering was provided. - Stockpile was covered with tarpaulin. - Maintenance work was carried out. - Stockpile was covered.
12 th February 2026	- Oil stain leakage on-ground should be cleaned. (Portion A1) - Housekeeping should be improved. C&D waste and general refuse scattered on-site should be cleaned. (Portion A1) - Opened bag cement and stockpile of bag cement should be covered with tarpaulin sheet. (Portion B10) - Part of the stockpile aggregate was not covered. The Contractor should cover all stockpile of loose materials with tarpaulin sheet to reduce dust impact. (Portion F)	- Oil stain was cleaned. - C&D waste and general refuse scattered on-site was cleaned. - Opened bag cement and stockpile of bag cement were covered with tarpaulin sheet. - Stockpile aggregate was covered.

16 th February 2026	- Oil stain leakage on-ground should be cleaned. Moreover, broken drip tray should be replaced. (Portion C1) - Stagnant water cumulated at the haul road should be cleaned. (Portion C1) - Gap at the silt-curtain should be sealed properly. (Portion B9)	- Oil stain leakage was cleaned. - Stagnant water was cleaned. - Silt-curtain was sealed.
26 th February 2026	- Stagnant water cumulated inside the u-channel should be cleaned. (Portion C1, B9) - Oil stain leakage on-ground should be cleaned. (Portion C1, D1, D2) - Emptied cement bag should be disposed properly. (Portion B10) - General refuse scattered on-site should be cleaned. (Portion B10) - Drip tray should be provided for chemical storage on-site. (Portion B9)	- Stagnant water cumulated inside the u-channel should be cleaned. - Oil stain was cleaned. - Cement bags was disposed. - General refuse was cleaned. - Chemical was removed.

10.2.3 General housekeeping such as site tidiness and cleanliness should be maintained for all works areas. Furthermore, the Contractor was reminded to implement the Waste Management Plan of the Contract.

11 ENVIRONMENTAL COMPLAINTS AND NON-COMPLIANCES

11.1 ENVIRONMENTAL COMPLAINTS, SUMMONS AND PROSECUTIONS

- 11.1.1 There was no environmental prosecution or notification of summons received in the Reporting Period. However, one (1) environmental complaint was received by 1823 Hotline on 3 February 2026 regarding the construction dust from road works at Nim Wan Road.
- 11.1.2 The investigation report (IR) has been submitted by ET and concluded that the Contractor implemented dust mitigation measures at to reduce potential dust impact during road works operation, no dust emitted from construction works at those areas during the ad-hoc and regular site inspection. The IR of the complaint is shown in *Appendix N*.
- 11.1.3 The statistical summary table of the environmental complaints, summons and prosecutions are presented in *Tables 11-1*. The complaint log for the Project is presented in *Appendix L*.

Table 11-1 Statistical for Environmental Complaints, Summons and Prosecutions

Reporting Period	Cumulative Statistics		
	Environmental Complaints	Environmental Summons	Environmental Prosecutions
February 2026	1	0	0
Accumulate of Project	4 + (1 [*])	0	0

Remarks: * complaint which is non-project related after investigation

11.2 OTHER ENVIRONMENTAL NON-COMPLIANCES

- 11.2.1 In addition, no emergency events related to violation of environmental legislation for illegal dumping and landfilling were received in the Reporting Period.

12 IMPLEMENTATION STATUS OF MITIGATION MEASURES

12.1 GENERAL REQUIREMENTS

- 12.1.1 The environmental mitigation measures that recommended in the EMIS in the EM&A Manual covered the issues of dust, noise, water and waste etc. and they are summarised presented in *Appendix M*.
- 12.1.2 The works under the Project shall be implementing the required environmental mitigation measures according to the EM&A Manual as subject to the site condition. Environmental mitigation measures generally implemented by the Contractor and the implementation status are shown in *Appendix M*.

12.2 TENTATIVE CONSTRUCTION ACTIVITIES IN THE COMING MONTH

- 12.2.1 According to information provided by the Contractor, the construction works under the Project in the next month are listed below:

Portion A1, B1a, B1c & B6

- Soft excavation
- Hard excavation
- Blasting
- 132kV substation construction
- Installation of Monitoring Wells
- Leachate Liner Installation

Portion B10

- Leachate Treatment Works & Landfill Gas Treatment Plant

Portion C1

- Construction of new haul road
- External Manholes Construction
- Temporary Drainage Diversion at Nullah

Portion B2 & B9

- Box Culvert Construction
- Piling Works
- DJM Works

Portion D1

- Pipe Laying Works

Portion B5 & D4

- Maintenance Dredging

Portion F

- Rock Crushing

12.3 KEY ISSUES FOR THE COMING MONTH

- 12.3.1 Key issues for the coming month include the following:
- Implementation of control measures for rainstorm / adverse weather;
 - Regular clearance of stagnant water;
 - Implementation of dust suppression measures at all times;

- Implementation of permanent/temporary drainage system and control measures for the surface runoff;
- Implementation of dust suppression measures for the dry/loose/exposure soil surface/dusty material;
- Implementation of control measures to avoid disposal of empty engine oil containers within site area;
- Ensure dust suppression measures are implemented properly;
- Regular maintenance of sediment catch-pits and silt removal facilities;
- Management of chemical wastes;
- Implementation of control measures to avoid discharge of site effluent to the nearby stream;
- Implementation of waste management; and
- Implementation of construction noise preventative control measures.

14 CONCLUSIONS AND RECOMMENDATIONS

14.1 CONCLUSIONS

- 14.1.1 This is the **23rd** Monthly EM&A Report presenting the monitoring results and inspection findings for the Project for the period from **1st to 28th February 2026**.
- 14.1.2 In this Reporting Period, no 1-hour and 24-hour TSP of air quality monitoring result that triggered the Action or Limit Levels was recorded. No corrective action was required.
- 14.1.3 In this Reporting Period, no noise complaint (which is an Action Level exceedance) was received and no construction noise measurement result triggered the Limit Level was recorded in this Reporting Month. Moreover, all construction works during restricted hours were followed the CNP requirement. Therefore, no corrective action was issued.
- 14.1.4 In this Reporting Period, no surface water quality monitoring result that triggered the Action or Limit Levels was recorded. No corrective action was required.
- 14.1.5 The LFG monitoring was conducted for excavation work in February 2026. No exceedance of Limit Levels of LFG was recorded during the reporting period. Moreover, baseline LFG monitoring at landfill gas well was carried out in this reporting month.
- 14.1.6 For landscape and visual, implementation of mitigation measures during construction phase of the Project has been monitored through regular site inspection/ audit.
- 14.1.7 In the Reporting Period, one (1) environmental complaint was received by 1823 hotline on 3 February 2026 regarding the construction dust from road works at Nim Wan Road. The investigation report (IR) has been submitted by ET and concluded that the Contractor implemented dust mitigation measures at to reduce potential dust impact during road works operation, no dust emitted from construction works at those areas during the ad-hoc and regular site inspection.
- 14.1.8 In addition, no emergency events related to violation of environmental legislation for illegal dumping and landfilling were received
- 14.1.9 In the Reporting Period, weekly joint site inspection to evaluate the site environmental performance had been carried out by the representatives of the SM, ET and the Contractor. No non-compliance was noted during the site inspection. In addition, IEC carried out the joint site inspections on 5th February 2026.

14.2 RECOMMENDATIONS

- 14.2.1 Water quality mitigation measures shall be fully implemented in accordance with the Implementation Schedule for Environmental Mitigation Measures of the updated EM&A Manual.
- 14.2.2 In addition, the Contractor should fully implement the recommended air quality mitigation measures to minimize the impact of construction dust as far as practicable.
- 14.2.3 Construction noise would be a key environmental issue during construction work of the Project. In accordance with the EP, a noise bund of 3.5m tall has been constructed along the north eastern seafront of the existing landfill as shown in Figure 2 of the EP prior to the commencement of construction. It is reminded that the noise bund shall be properly maintained during the construction, operation and restoration of the Project.

- 14.2.4 All other mitigation measures recommended in the EMIS of the EM&A Manual should be properly implemented and maintained as far as practicable.

Appendix A

Location Plan of Enhanced Scheme

of WENTX Landfill Extension



- LEGEND**
- WENT LANDFILL EXTENSION (WENTX) BOUNDARY
 - WENTX WASTE BOUNDARY
 - LANDFILL INFRASTRUCTURE FOR WENTX
 - WENT LANDFILL BOUNDARY
 - TREE PLANTING BUFFER

Project title
**Contract No. EP/SP/186/21
West New Territories
Landfill Extension**

Drawing title
**GENERAL PLAN
OF ENHANCED SCHEME**

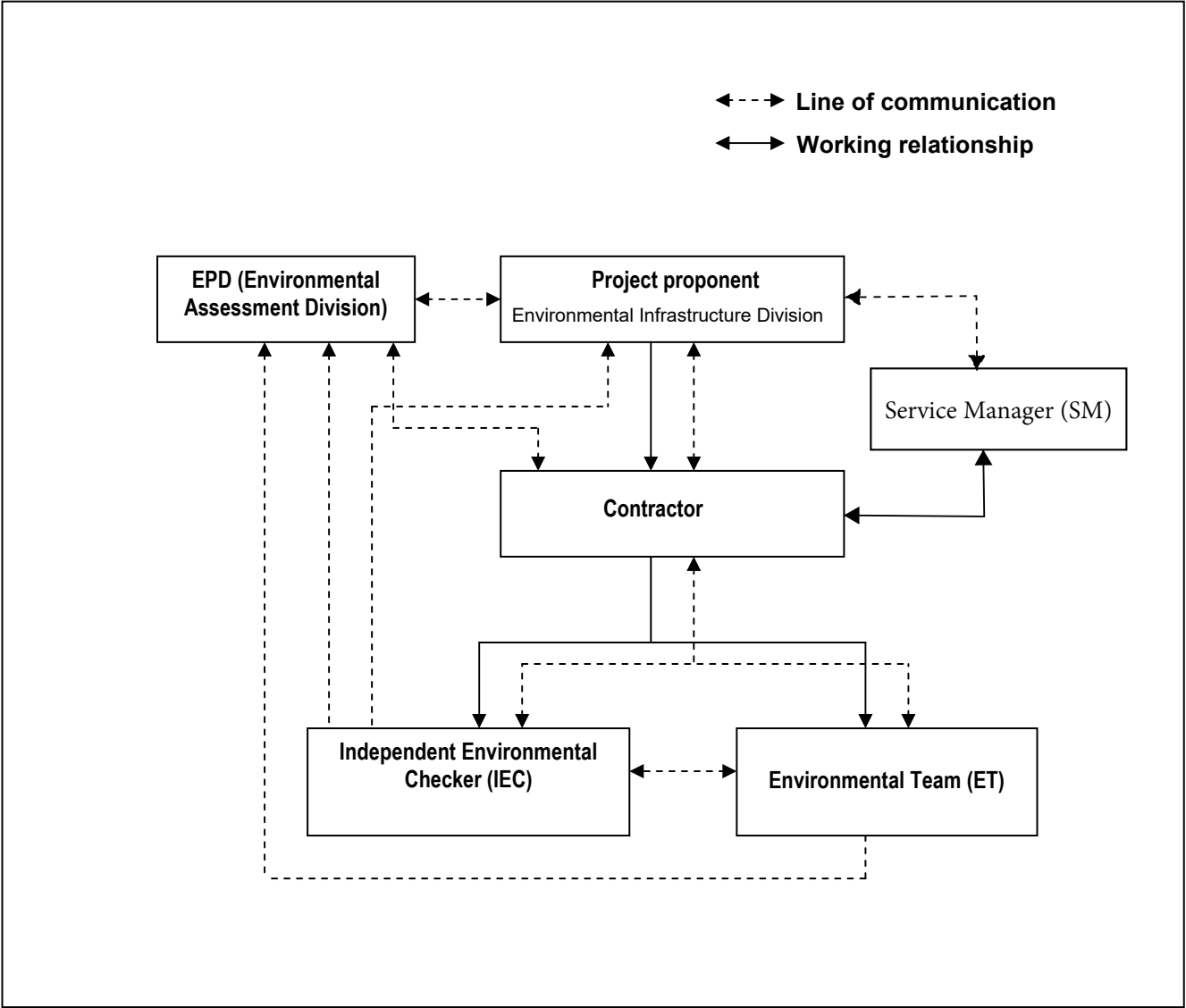
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Appendix B

Project Organization and the key personal contact

Flow chart showing Line of Communication and Working Relationship



Contact Details of Key Personnel

Organization	Project Role	Name of Key Staff	Tel No.	Fax No.
HKRRP	Project Manager	Mr. Victor Wu	2862 5013	--
HKRRP	Environmental Manager	Mr. Kenneth Lau	9315 4944	--
ANWR	Independent Environmental Checker	Mr. James Choi	2618 2831	3007 8648
AUES	Environmental Team Leader	Mr. Tam Tak Wing	2959 6059	2959 6079

Legend:

ANWR (IEC) – ANWR Consulting Limited

AUES (ET) – Action-United Environmental Services & Consulting

HKRRP - (the Contractor) – Hong Kong Resources Recovery Park

Appendix C

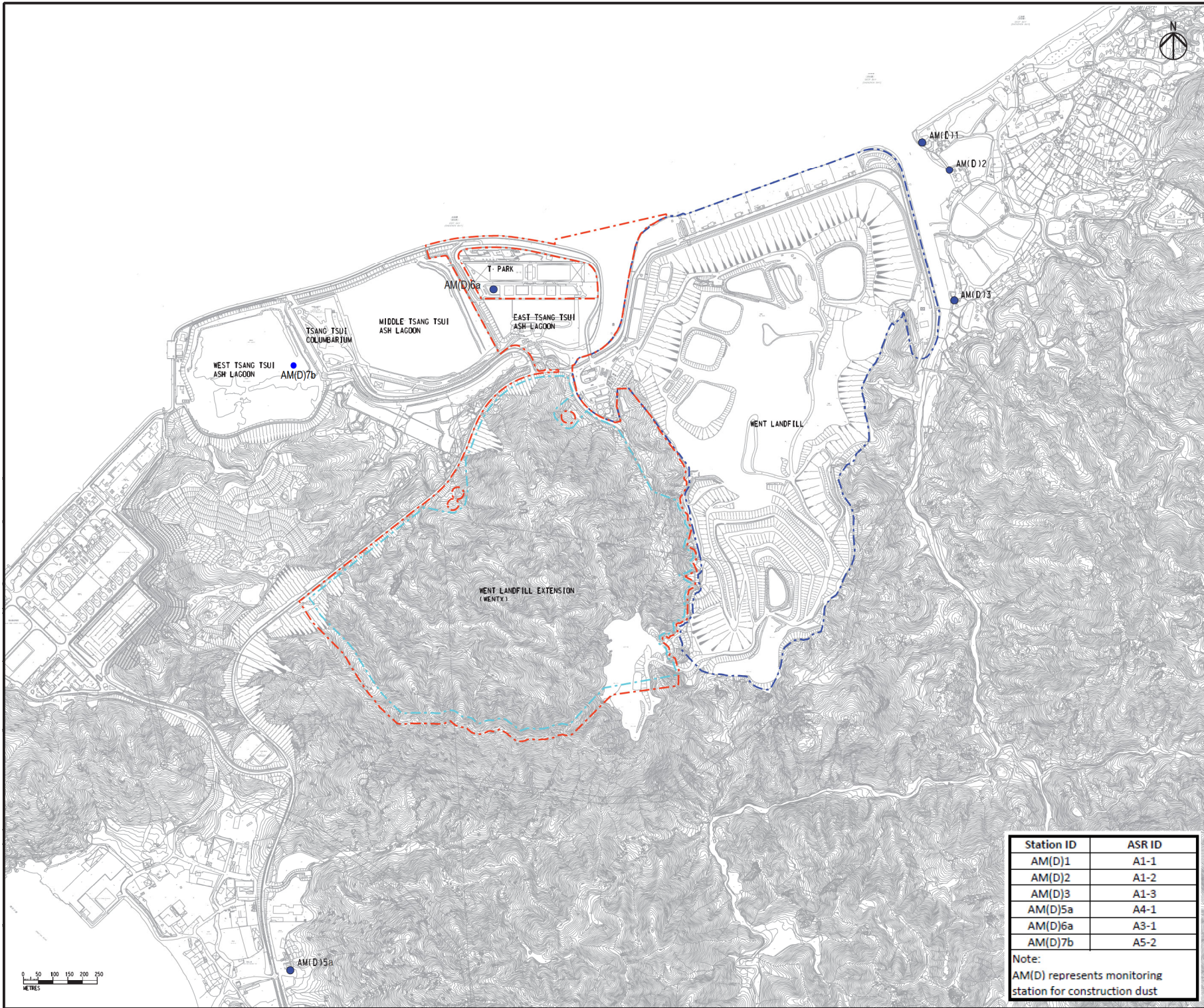
3-month Rolling Construction Programme

Construction Programme (Feb 2026 to May 2026)
West New Territories Landfill Extension (WENTX)

Construction Activities	2026			
	Feb	Mar	Apr	May
Eastern Platform - Site Formation				
- Soft Excavation				
- Rock Excavation				
- 132kV Power Substation Works				
- Blasting				
- Installation of Monitoring Wells				
- Leachate Liner Installation				
Landfill Waste Filling Area (Phase I) - Site Formation				
- Soft Excavation				
- Rock Excavation				
- Blasting				
Crusher and Conveyor Belt System				
- Rock Crushing				
- Piling Works				
Rising Main and Fresh Watermain Along Nim Wan Road				
- Pipe Laying Works				
- Consturction of Pump House				
Reclamation and Box Culverts				
- Reclamation in DCM Area				
- Box Culvert Construction				
Marine Works				
- DJM Work				
- Temporary Drainage Diversion				
- Maintenance Dredging Work				
Major Buildings in B10 (Service Bldg, Filtration Bldg, Bioreactor Bldg)				
- BS Works & E&M Installation				
- CLP Transformer Installation				
- Excavation of Footing				
Construction of C1 New Access Road				
Weight Bridge Reprovision/Modification Works				
- Drainage, Utilities, and Roadwork				

Appendix D

Monitoring Locations



- LEGEND**
- WENT LANDFILL EXTENSION (WENTX) BOUNDARY
 - WENTX WASTE BOUNDARY
 - WENT LANDFILL BOUNDARY
 - AIR QUALITY MONITORING LOCATIONS

Consultant

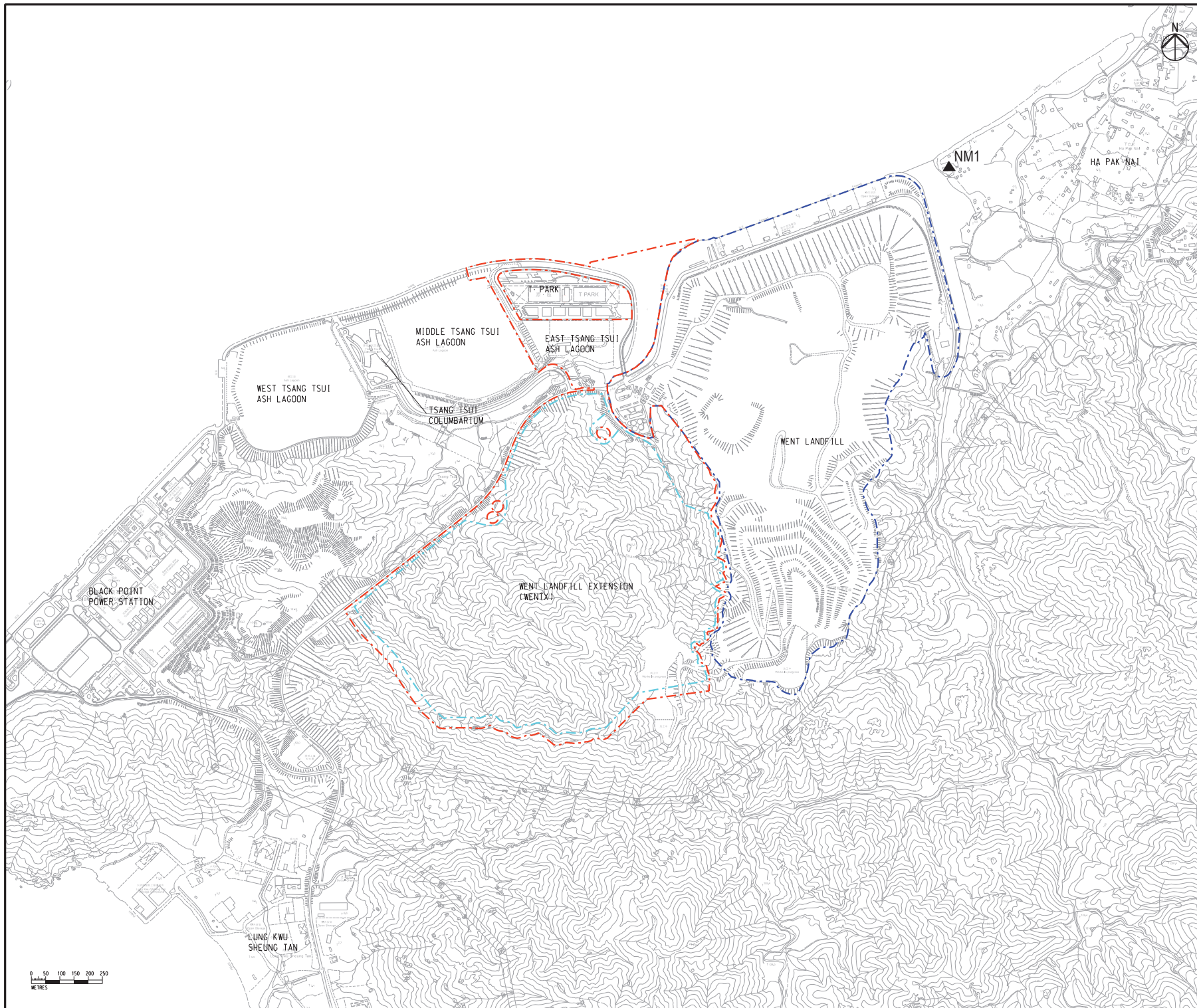
Project title
Contract No. EP/SP/186/21
West New Territories Landfill Extension

Drawing title
LOCATIONS OF AIR QUALITY MONITORING STATIONS

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Station ID	ASR ID
AM(D)1	A1-1
AM(D)2	A1-2
AM(D)3	A1-3
AM(D)5a	A4-1
AM(D)6a	A3-1
AM(D)7b	A5-2

Note:
AM(D) represents monitoring station for construction dust



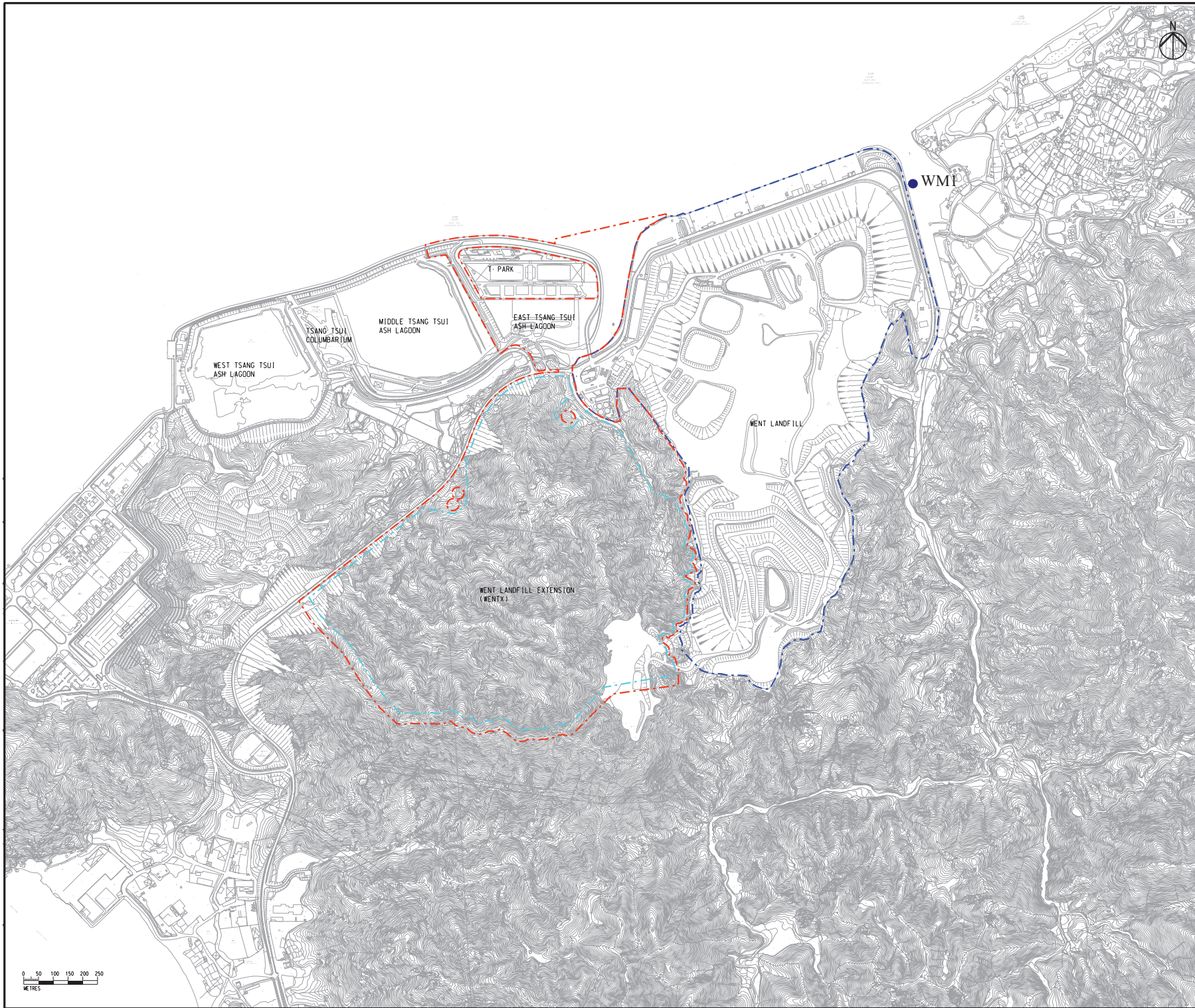
- LEGEND
- WENT LANDFILL EXTENSION (WENTX) BOUNDARY
 - WENTX WASTE BOUNDARY
 - WENT LANDFILL BOUNDARY
 - ▲ NOISE MONITORING LOCATION

Consultant

Contract No. EP/SP/186/21
West New Territories Landfill
Extension

Drawing title

NOISE MONITORING LOCATION



LEGEND

- WENT LANDFILL EXTENSION (WENTX) BOUNDARY
- WENTX WASTE BOUNDARY
- WENT LANDFILL BOUNDARY
- SURFACE WATER MONITORING STATION

Consultant

Project title

**Contract No. EP/SP/186/21
West New Territories
Landfill Extension**

Drawing title

**SURFACE WATER MONITORING
STATION**

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Appendix E

Calibration Certificates

Appendix E1

Calibration Certificates for

Air Quality Monitoring Equipment

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai

Date of Calibration: 16 Dec 25

Location ID : AM(D)1

Next Calibration Date: 16 Feb 26

Model: TISCH High Volume Air Sampler TE-5170

Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)

1019.7

Temperature (°C)

20.1

Corrected Pressure (mm Hg)

764.775

Temperature (K)

293

CALIBRATION ORIFICE

Make-> TISCH

Model-> 5025A

Serial # -> 1941

Qstd Slope ->

2.13603

Qstd Intercept ->

-0.04992

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.10	6.10	12.2	1.677	52	53.04	Slope = 28.7237
13	4.80	4.80	9.6	1.491	47	47.94	Intercept = 4.8063
10	3.60	3.60	7.2	1.294	41	41.82	Corr. coeff. = 0.9976
7	2.30	2.30	4.6	1.039	33	33.66	
5	1.60	1.60	3.2	0.870	30	30.60	

Calculations :

$$Q_{std} = 1/m[\sqrt{H_2O(P_a/P_{std})(T_{std}/T_a)} - b]$$

$$IC = I[\sqrt{P_a/P_{std}}(T_{std}/T_a)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I) [\sqrt{298/T_{av}}(P_{av}/760)] - b)$$

m = sampler slope

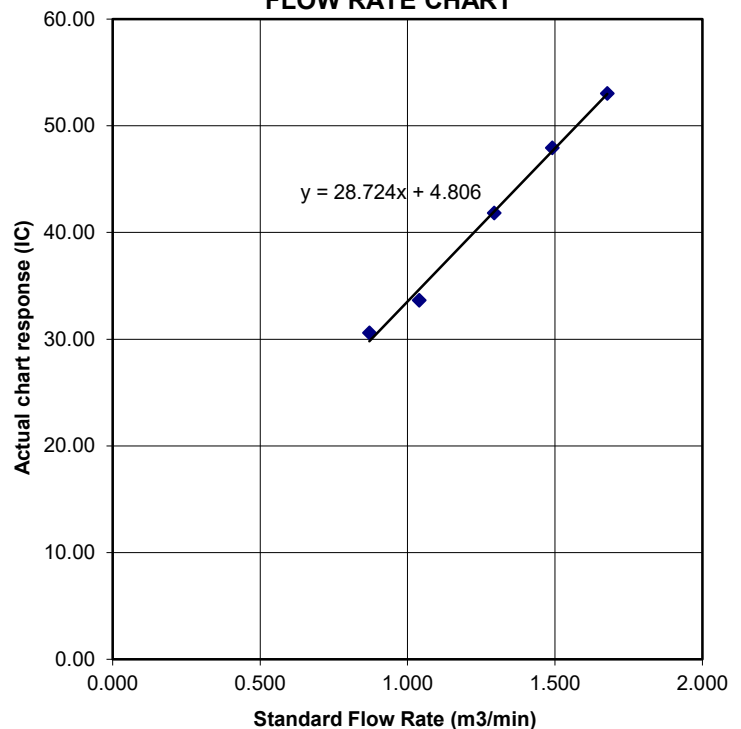
b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure

FLOW RATE CHART



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai	Date of Calibration: 16 Dec 25
Location ID : AM(D)2	Next Calibration Date: 16 Feb 26
Model: TISCH High Volume Air Sampler TE-5170	Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1019.7	Corrected Pressure (mm Hg)	764.775
Temperature (°C)	20.1	Temperature (K)	293

CALIBRATION ORIFICE

Make-> TISCH	Qstd Slope -> 2.13603
Model-> 5025A	Qstd Intercept -> -0.04992
Serial # -> 1941	

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.20	6.20	12.4	1.691	54	55.07	Slope = 35.7870
13	5.00	5.00	10.0	1.521	49	49.98	Intercept = -4.9762
10	3.70	3.70	7.4	1.312	42	42.84	Corr. coeff. = 0.9971
7	2.80	2.80	5.6	1.144	34	34.68	
5	1.60	1.60	3.2	0.870	26	26.52	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

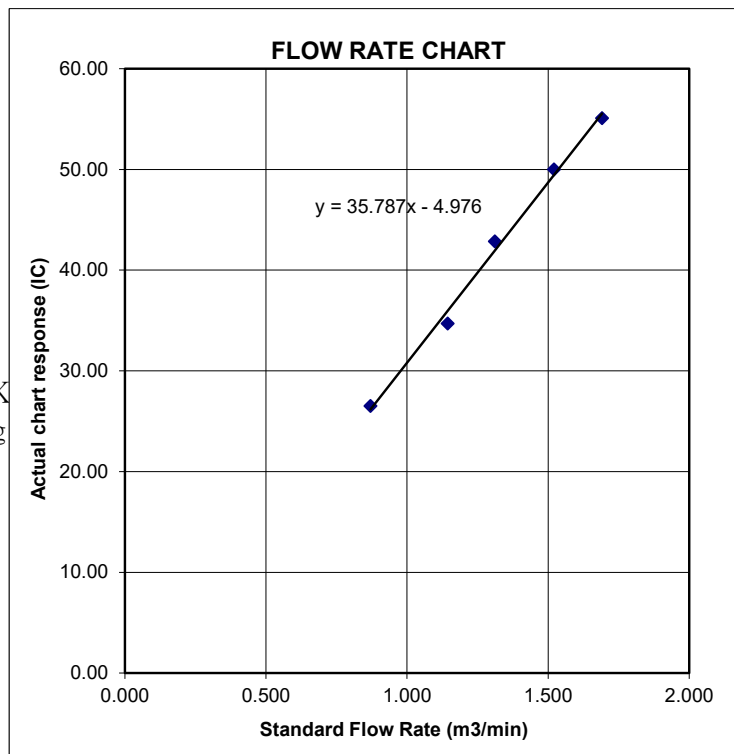
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai Date of Calibration: 16 Dec 25
 Location ID : AM(D)3 Next Calibration Date: 16 Feb 26
 Model: TISCH High Volume Air Sampler TE-5170 Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1019.7	Corrected Pressure (mm Hg)	764.775
Temperature (°C)	20.1	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13603
Model->	5025A	Qstd Intercept ->	-0.04992
Serial # ->	1941		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.40	6.40	12.8	1.718	55	56.09	Slope = 28.4148
13	5.20	5.20	10.4	1.550	49	49.98	Intercept = 6.9142
10	3.80	3.80	7.6	1.329	44	44.88	Corr. coeff. = 0.9972
7	2.70	2.70	5.4	1.124	39	39.78	
5	1.40	1.40	2.8	0.816	29	29.58	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

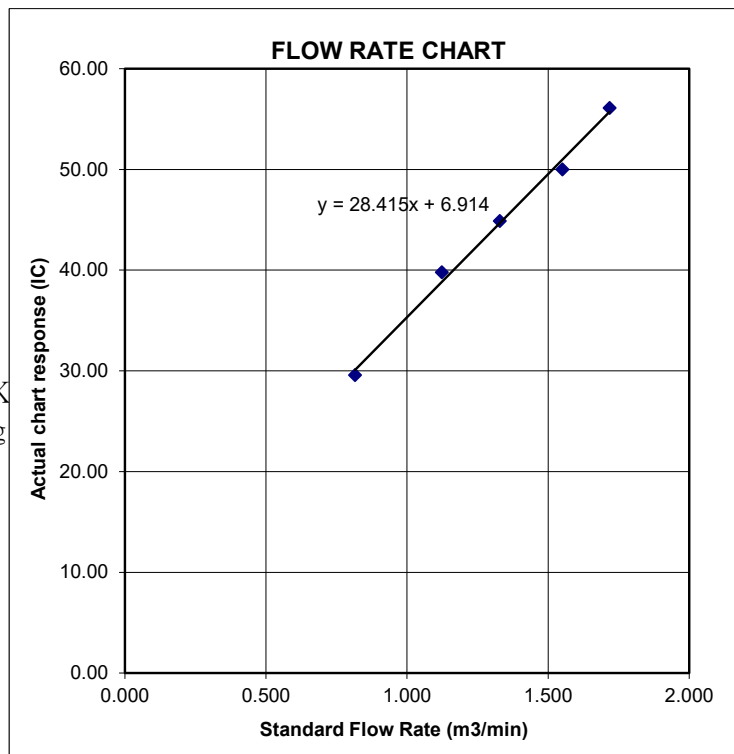
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Lung Kwu Sheung Tan

Date of Calibration: 16 Dec 25

Location ID : AM(D)5a

Next Calibration Date: 16 Feb 26

Model: TISCH High Volume Air Sampler TE-5170

Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)

1019.7

Corrected Pressure (mm Hg)

764.775

Temperature (°C)

20.1

Temperature (K)

293

CALIBRATION ORIFICE

Make-> TISCH

Qstd Slope ->

2.13603

Model-> 5025A

Qstd Intercept ->

-0.04992

Serial # -> 1941

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.20	6.20	12.4	1.691	53	54.06	Slope = 27.4612
13	4.60	4.60	9.2	1.460	47	47.94	Intercept = 8.0015
10	3.60	3.60	7.2	1.294	43	43.86	Corr. coeff. = 0.9971
7	2.50	2.50	5.0	1.082	38	38.76	
5	1.40	1.40	2.8	0.816	29	29.58	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

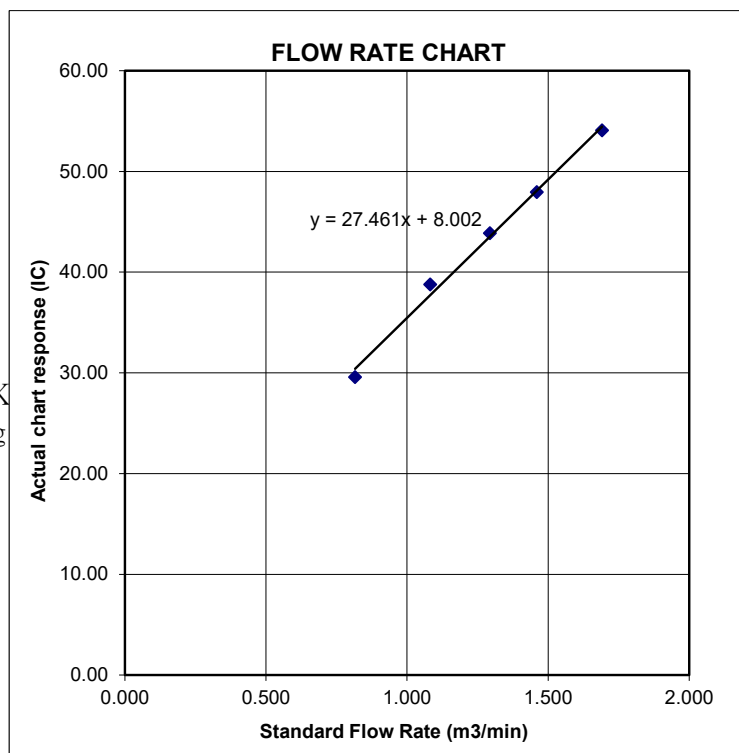
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Roof Top of T-Park Workshop	Date of Calibration: 16 Dec 25
Location ID : AM(D)6a	Next Calibration Date: 16 Feb 26
Model: TISCH High Volume Air Sampler TE-5170	Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1019.7	Corrected Pressure (mm Hg)	764.775
Temperature (°C)	20.1	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13603
Model->	5025A	Qstd Intercept ->	-0.04992
Serial # ->	1941		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.20	6.20	12.4	1.691	54	55.07	Slope = 27.7616 Intercept = 7.0566 Corr. coeff. = 0.9956
13	5.30	5.30	10.6	1.565	49	49.98	
10	4.10	4.10	8.2	1.379	44	44.88	
7	2.60	2.60	5.2	1.103	36	36.72	
5	1.40	1.40	2.8	0.816	30	30.60	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

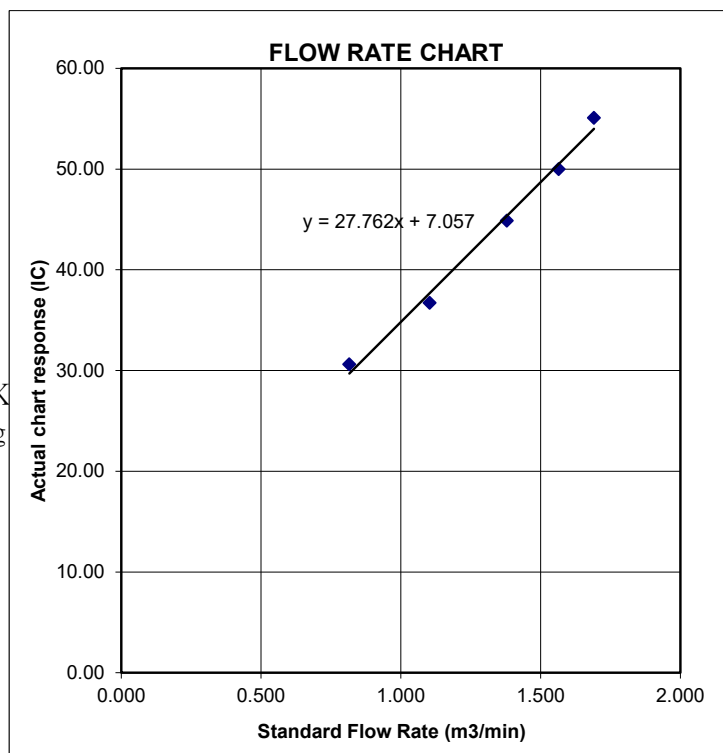
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Site Boundary of West Ash Lagoon	Date of Calibration: 16 Dec 25
Location ID : AM(D)7b	Next Calibration Date: 16 Feb 26
Model: TISCH High Volume Air Sampler TE-5170	Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1019.7	Corrected Pressure (mm Hg)	764.775
Temperature (°C)	20.1	Temperature (K)	293

CALIBRATION ORIFICE

Make-> TISCH	Qstd Slope ->
Model-> 5025A	Qstd Intercept ->
Serial # -> 1941	

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.30	6.30	12.6	1.704	52	53.04	Slope = 26.9192
13	5.00	5.00	10.0	1.521	47	47.94	Intercept = 6.9888
10	4.00	4.00	8.0	1.363	42	42.84	Corr. coeff. = 0.9972
7	2.60	2.60	5.2	1.103	37	37.74	
5	1.40	1.40	2.8	0.816	28	28.56	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

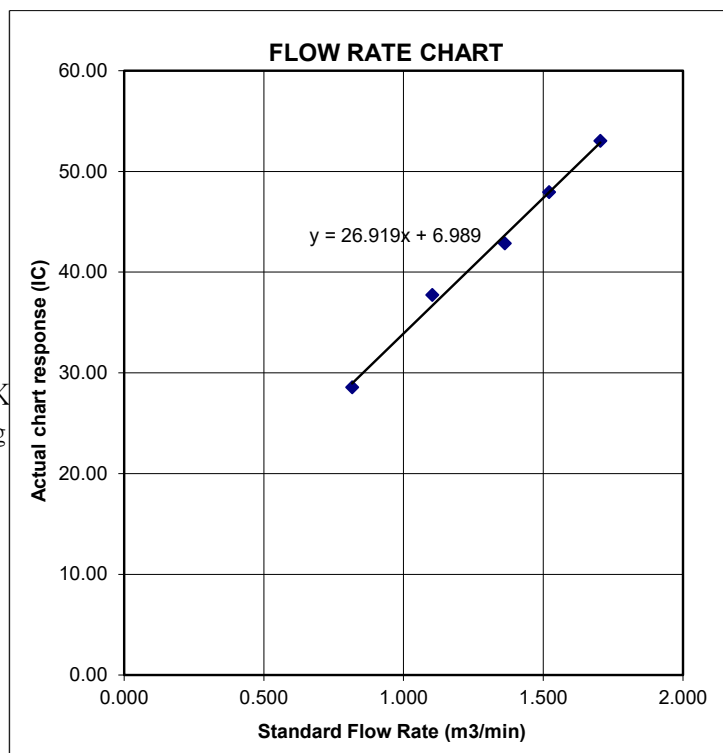
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai
 Location ID : AM(D)1
 Model: TISCH High Volume Air Sampler TE-5170

Date of Calibration: 13 Feb 26
 Next Calibration Date: 13 Apr 26
 Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1017.7	Corrected Pressure (mm Hg)	763.275
Temperature (°C)	20.2	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13603
Model->	5025A	Qstd Intercept ->	-0.04992
Serial # ->	1941		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.10	6.10	12.2	1.675	53	53.98	Slope = 29.4205
13	4.80	4.80	9.6	1.489	48	48.89	Intercept = 4.5925
10	3.60	3.60	7.2	1.293	41	41.76	Corr. coeff. = 0.9984
7	2.40	2.40	4.8	1.060	35	35.65	
5	1.60	1.60	3.2	0.869	30	30.56	

Calculations :

$$Q_{std} = 1/m[\sqrt{H_2O(P_a/P_{std})(T_{std}/T_a)} - b]$$

$$IC = I[\sqrt{P_a/P_{std}}(T_{std}/T_a)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I) [\sqrt{298/T_{av}}(P_{av}/760)] - b)$$

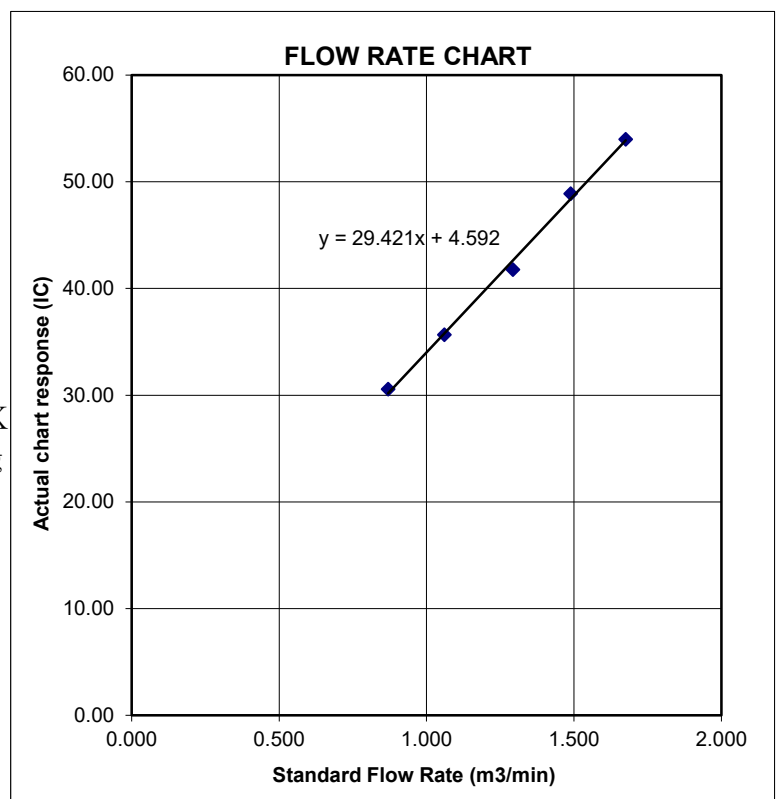
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai	Date of Calibration: 13 Feb 26
Location ID : AM(D)2	Next Calibration Date: 13 Apr 26
Model: TISCH High Volume Air Sampler TE-5170	Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1017.7	Corrected Pressure (mm Hg)	763.275
Temperature (°C)	20.2	Temperature (K)	293

CALIBRATION ORIFICE

Make-> TISCH	Qstd Slope ->
Model-> 5025A	2.13603
Serial # -> 1941	Qstd Intercept ->
	-0.04992

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.20	6.20	12.4	1.689	53	53.98	Slope = 33.2371
13	4.90	4.90	9.8	1.504	48	48.89	Intercept = -1.6180
10	3.70	3.70	7.4	1.310	42	42.78	Corr. coeff. = 0.9973
7	2.70	2.70	5.4	1.123	34	34.63	
5	1.60	1.60	3.2	0.869	27	27.50	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

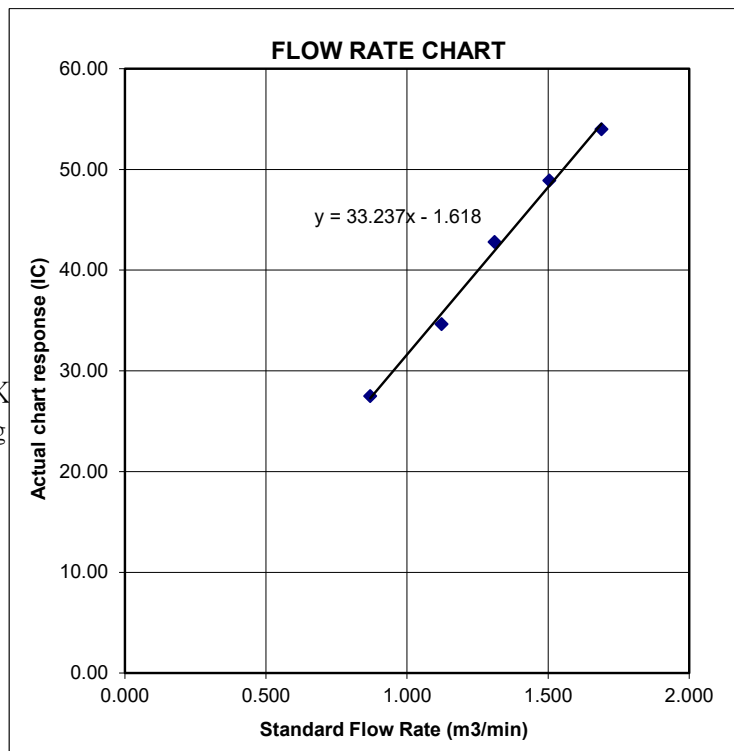
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai Date of Calibration: 13 Feb 26
 Location ID : AM(D)3 Next Calibration Date: 13 Apr 26
 Model: TISCH High Volume Air Sampler TE-5170 Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1017.7	Corrected Pressure (mm Hg)	763.275
Temperature (°C)	20.2	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13603
Model->	5025A	Qstd Intercept ->	-0.04992
Serial # ->	1941		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.30	6.30	12.6	1.702	55	56.02	Slope = 28.8418
13	5.20	5.20	10.4	1.549	49	49.91	Intercept = 6.1583
10	3.90	3.90	7.8	1.344	44	44.82	Corr. coeff. = 0.9981
7	2.70	2.70	5.4	1.123	38	38.71	
5	1.50	1.50	3.0	0.843	30	30.56	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

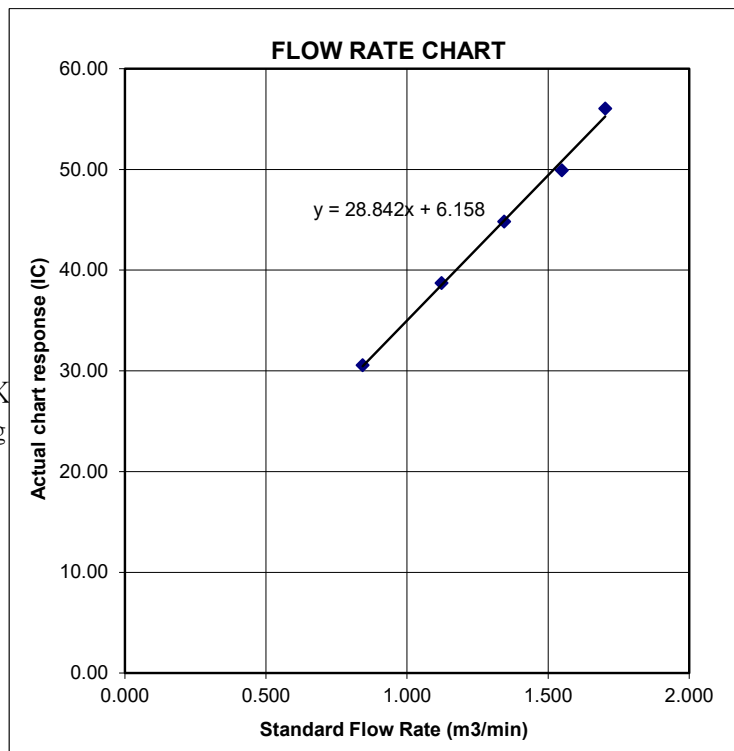
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Lung Kwu Sheung Tan

Date of Calibration: 13 Feb 26

Location ID : AM(D)5a

Next Calibration Date: 13 Apr 26

Model: TISCH High Volume Air Sampler TE-5170

Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)

1017.7

Corrected Pressure (mm Hg)

763.275

Temperature (°C)

20.2

Temperature (K)

293

CALIBRATION ORIFICE

Make-> TISCH

Qstd Slope ->

2.13603

Model-> 5025A

Qstd Intercept ->

-0.04992

Serial # -> 1941

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.20	6.20	12.4	1.689	52	52.97	Slope = 27.8929
13	4.60	4.60	9.2	1.458	47	47.87	Intercept = 6.7214
10	3.50	3.50	7.0	1.275	42	42.78	Corr. coeff. = 0.9961
7	2.50	2.50	5.0	1.081	37	37.69	
5	1.40	1.40	2.8	0.815	28	28.52	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

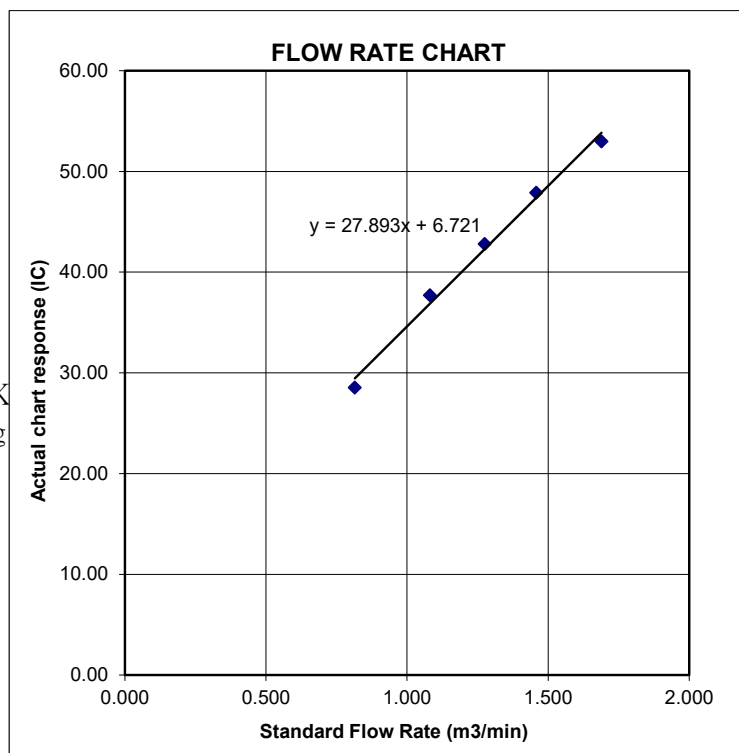
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Roof Top of T-Park Workshop	Date of Calibration: 13 Feb 26
Location ID : AM(D)6a	Next Calibration Date: 13 Apr 26
Model: TISCH High Volume Air Sampler TE-5170	Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1017.7	Corrected Pressure (mm Hg)	763.275
Temperature (°C)	20.2	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13603
Model->	5025A	Qstd Intercept ->	-0.04992
Serial # ->	1941		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.20	6.20	12.4	1.689	53	53.98	Slope = 29.1844 Intercept = 3.7513 Corr. coeff. = 0.9956
13	5.30	5.30	10.6	1.563	48	48.89	
10	4.10	4.10	8.2	1.378	43	43.80	
7	2.60	2.60	5.2	1.102	34	34.63	
5	1.40	1.40	2.8	0.815	28	28.52	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

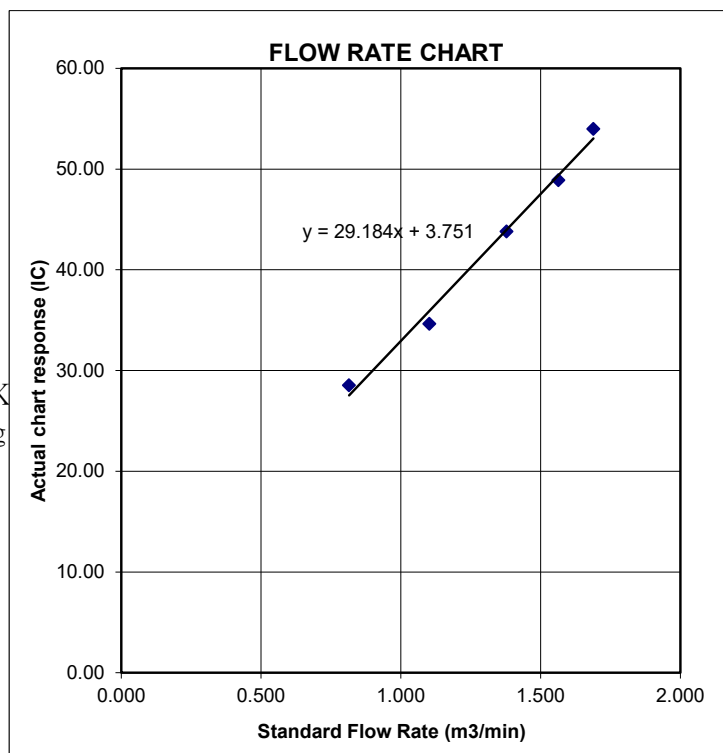
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Site Boundary of West Ash Lagoon	Date of Calibration: 13 Feb 26
Location ID : AM(D)7b	Next Calibration Date: 13 Apr 26
Model: TISCH High Volume Air Sampler TE-5170	Technician: Dicky Chan

CONDITIONS

Sea Level Pressure (hPa)	1017.7	Corrected Pressure (mm Hg)	763.275
Temperature (°C)	20.2	Temperature (K)	293

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.13603
Model->	5025A	Qstd Intercept ->	-0.04992
Serial # ->	1941		

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.30	6.30	12.6	1.702	52	52.97	Slope = 27.1094 Intercept = 6.3288 Corr. coeff. = 0.9979
13	5.10	5.10	10.2	1.534	47	47.87	
10	3.90	3.90	7.8	1.344	41	41.76	
7	2.60	2.60	5.2	1.102	36	36.67	
5	1.40	1.40	2.8	0.815	28	28.52	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K

Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

$$1/m((I)[\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

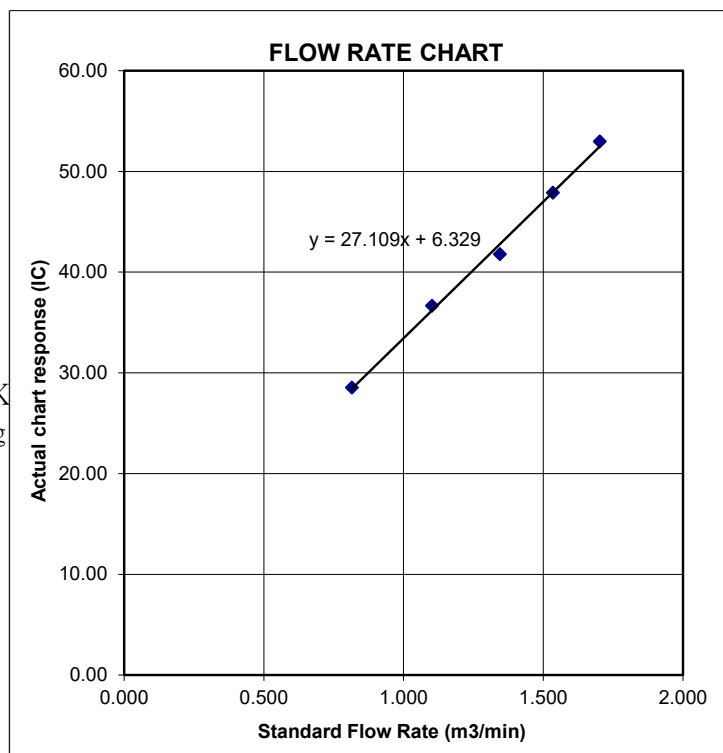
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



Certificate of Calibration

Calibration Certification Information

Cal. Date: December 8, 2025 Rootsmeter S/N: 438320 Ta: 294 °K
Operator: Jim Tisch Pa: 755.7 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 1941

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4570	3.2	2.00
2	3	4	1	1.0380	6.4	4.00
3	5	6	1	0.9290	7.9	5.00
4	7	8	1	0.8850	8.8	5.50
5	9	10	1	0.7320	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
1.0035	0.6888	1.4197	0.9958	0.6834	0.8821
0.9993	0.9627	2.0078	0.9915	0.9552	1.2475
0.9973	1.0735	2.2448	0.9895	1.0652	1.3948
0.9961	1.1255	2.3543	0.9884	1.1168	1.4628
0.9907	1.3535	2.8394	0.9831	1.3430	1.7642
QSTD	m=	2.13603	QA	m=	1.33754
	b=	-0.04992		b=	-0.03102
	r=	1.00000		r=	1.00000

Calculations

Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	Vstd/ΔTime	Qa=	Va/ΔTime
For subsequent flow rate calculations:			
Qstd=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions

Tstd: 298.15 °K
Pstd: 760 mm Hg

Key

ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2512469
CLIENT	: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 21-MAR-2025
		DATE OF ISSUE	: 1-APR-2025
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ----

General Comments

- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified. The result(s) is/are related only to the item(s) tested.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.
- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the **ALS Laboratory Group**

WORK ORDER : HK2512469
SUB-BATCH : 1
CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT : ----



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2512469-001	S/N: 456660	AIR	21-Mar-2025	S/N: 456660

----- END OF REPORT -----

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-3B
Serial No. 456660
Equipment Ref: EQ117

Standard Equipment:

Standard Equipment: Higher Volume Sampler (TSP)
Location & Location ID: AUES office (calibration room)
Equipment Ref: HVS 018
Last Calibration Date: 12 February 2025

Equipment Verification Results:

Verification Date: 11 March 2025

Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
11-Mar-25	2hr00mins	11:00 ~ 13:00	22.0	1016.6	59.7	3225	26.9
11-Mar-25	2hr09mins	13:07 ~ 13:16	22.0	1016.6	59.0	3897	30.2
11-Mar-25	2hr00mins	15:17 ~ 17:17	22.0	1018.8	67.7	3996	33.3

Sensitivity Adjustment Scale Setting (Before Calibration) 612 (CPM)

Sensitivity Adjustment Scale Setting (After Calibration) 609 (CPM)

Linear Regression of Y or X

Slope (K-factor): 2.0381 (µg/m³)/CPM

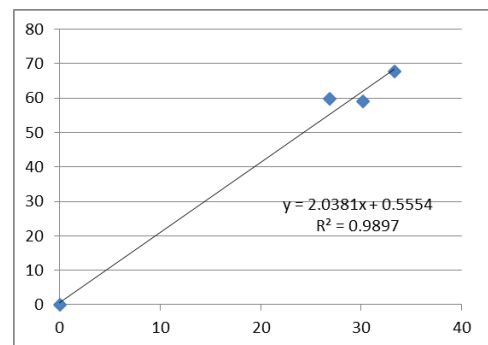
Correlation Coefficient (R) 0.9948

Date of Issue 18 March 2025

Remarks:

- Strong** Correlation ($R > 0.8$)
- Factor 2.0381 (µg/m³)/CPM should be apply for TSP monitoring

*If $R < 0.5$, repair or re-verification is required for the equipment



Operator : Jeff Ip Signature : [Signature] Date : 18 March 2025

QC Reviewer : Ben Tam Signature : [Signature] Date : 18 March 2025

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Kwai Chung Date of Calibration: 12-Feb-25
 Location ID : Calibration Room - TISCH Higher Volume Sampler (Model TE-5170) S/N:1260 Next Calibration Date: 12-May-25

CONDITIONS

Sea Level Pressure (hPa)	1017.2	Corrected Pressure (mm Hg)	762.9
Temperature (°C)	18.8	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.09671
Model->	5025A	Qstd Intercept ->	-0.01852
Calibration Date->	16-Dec-24	Expiry Date->	16-Dec-25

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.6	5.6	11.2	1.625	55	55.69	Slope = 35.3445 Intercept = -2.1779 Corr. coeff. = 0.9989
13	4.5	4.5	9.0	1.458	48	48.60	
10	3.4	3.4	6.8	1.268	42	42.52	
8	2.3	2.3	4.6	1.045	35	35.44	
5	1.2	1.2	2.4	0.757	24	24.30	

Calculations :

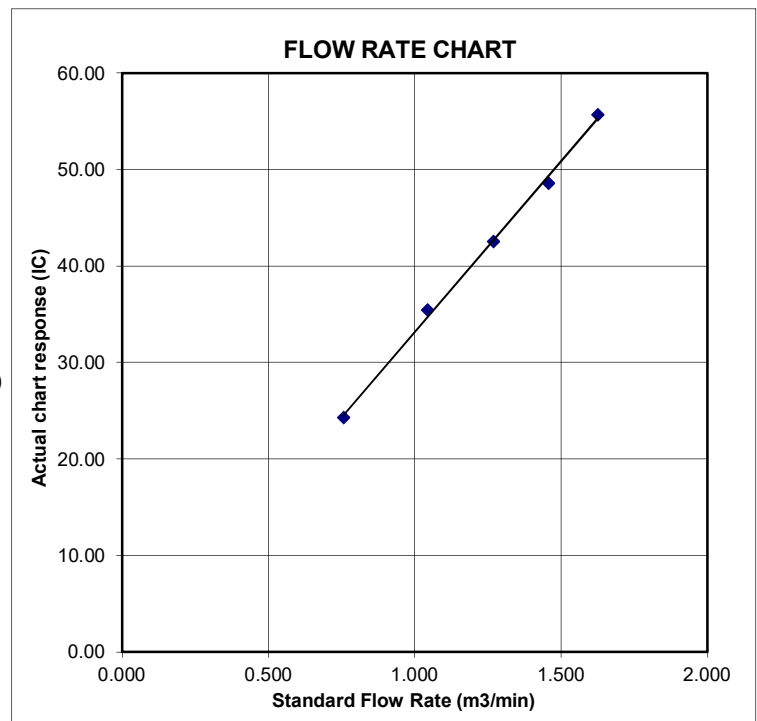
$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$
 $IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: December 16, 2024 Roots-meter S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 749.0 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 4064

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4600	3.2	2.00
2	3	4	1	1.0300	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8770	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9981	0.6836	1.4159	0.9957	0.6820	0.8845
0.9938	0.9649	2.0024	0.9915	0.9626	1.2509
0.9917	1.0756	2.2388	0.9893	1.0730	1.3985
0.9906	1.1296	2.3480	0.9883	1.1269	1.4668
0.9853	1.3590	2.8318	0.9829	1.3557	1.7690
QSTD	m=	2.09671	QA	m=	1.31292
	b=	-0.01852		b=	-0.01157
	r=	0.99999		r=	0.99999

Calculations

Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	$Vstd/\Delta Time$	Qa=	$Va/\Delta Time$
For subsequent flow rate calculations:			
Qstd=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions

Tstd: 298.15 °K
Pstd: 760 mm Hg

Key

ΔH: calibrator manometer reading (in H2O)
ΔP: roots-meter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2512470
CLIENT	: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 21-MAR-2025
		DATE OF ISSUE	: 1-APR-2025
PROJECT	: ----	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ----

General Comments

- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified. The result(s) is/are related only to the item(s) tested.
- Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the **ALS Laboratory Group**

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Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com

WORK ORDER : HK2512470
SUB-BATCH : 1
CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT : ----



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2512470-001	S/N: 456662	AIR	21-Mar-2025	S/N: 456662

----- END OF REPORT -----

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-3B
Serial No. 456662
Equipment Ref: EQ118

Standard Equipment:

Standard Equipment: Higher Volume Sampler (TSP)
Location & Location ID: AUES office (calibration room)
Equipment Ref: HVS 018
Last Calibration Date: 12 February 2025

Equipment Verification Results:

Verification Date: 11 March 2025

Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
11-Mar-25	2hr00mins	11:00 ~ 13:00	22.0	1016.6	59.7	3624	30.2
11-Mar-25	2hr09mins	13:07 ~ 13:16	22.0	1016.6	59.0	3685	28.6
11-Mar-25	2hr00mins	15:17 ~ 17:17	22.0	1018.8	67.7	3895	32.5

Sensitivity Adjustment Scale Setting (Before Calibration) 591 (CPM)

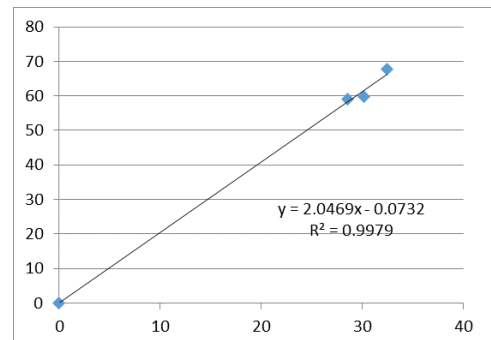
Sensitivity Adjustment Scale Setting (After Calibration) 589 (CPM)

Linear Regression of Y or X

Slope (K-factor): 2.0469 (µg/m³)/CPM

Correlation Coefficient (R) 0.9989

Date of Issue 18 March 2025



Remarks:

1. **Strong** Correlation ($R > 0.8$)
2. Factor 2.0469 (µg/m³)/CPM should be apply for TSP monitoring

*If $R < 0.5$, repair or re-verification is required for the equipment

Operator : Jeff Ip Signature : [Signature] Date : 18 March 2025

QC Reviewer : Ben Tam Signature : [Signature] Date : 18 March 2025

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Gold King Industrial Building, Kwai Chung Date of Calibration: 12-Feb-25
 Location ID : Calibration Room - TISCH Higher Volume Sampler (Model TE-5170) S/N:1260 Next Calibration Date: 12-May-25

CONDITIONS

Sea Level Pressure (hPa)	1017.2	Corrected Pressure (mm Hg)	762.9
Temperature (°C)	18.8	Temperature (K)	292

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.09671
Model->	5025A	Qstd Intercept ->	-0.01852
Calibration Date->	16-Dec-24	Expiry Date->	16-Dec-25

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.6	5.6	11.2	1.625	55	55.69	Slope = 35.3445 Intercept = -2.1779 Corr. coeff. = 0.9989
13	4.5	4.5	9.0	1.458	48	48.60	
10	3.4	3.4	6.8	1.268	42	42.52	
8	2.3	2.3	4.6	1.045	35	35.44	
5	1.2	1.2	2.4	0.757	24	24.30	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

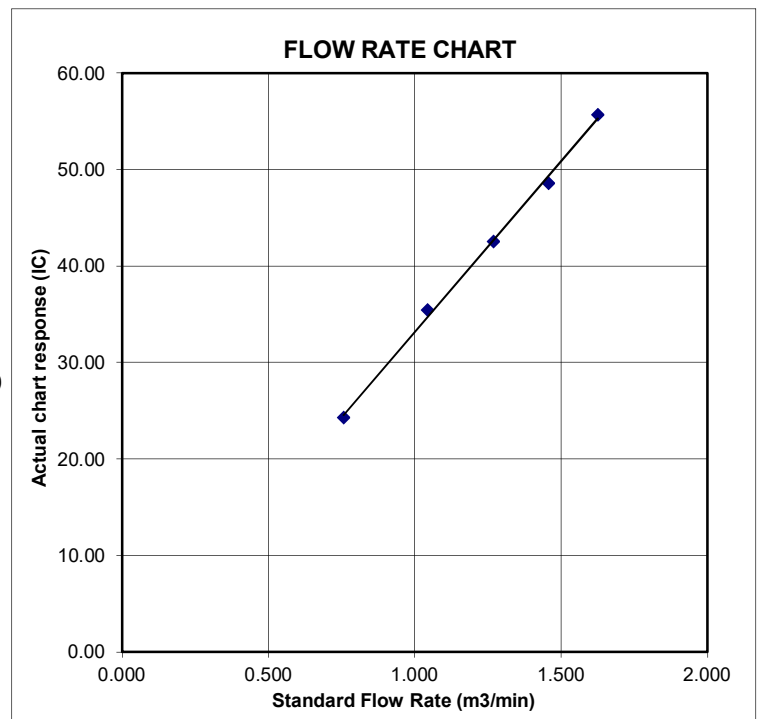
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: December 16, 2024 Rootsometer S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 749.0 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 4064

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4600	3.2	2.00
2	3	4	1	1.0300	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8770	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9981	0.6836	1.4159	0.9957	0.6820	0.8845
0.9938	0.9649	2.0024	0.9915	0.9626	1.2509
0.9917	1.0756	2.2388	0.9893	1.0730	1.3985
0.9906	1.1296	2.3480	0.9883	1.1269	1.4668
0.9853	1.3590	2.8318	0.9829	1.3557	1.7690
QSTD	m=	2.09671	QA	m=	1.31292
	b=	-0.01852		b=	-0.01157
	r=	0.99999		r=	0.99999

Calculations

Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	Vstd/ΔTime	Qa=	Va/ΔTime
For subsequent flow rate calculations:			
Qstd=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions

Tstd: 298.15 °K
Pstd: 760 mm Hg

Key

ΔH: calibrator manometer reading (in H2O)
ΔP: rootsometer manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2540548
CLIENT	: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 17-SEP-2025
		DATE OF ISSUE	: 22-SEP-2025
PROJECT	: Not Specified	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ---

General Comments

- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified. The result(s) is/are related only to the item(s) tested.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.
- No sample is received in this Work Order. The report presents non-laboratory testing data only.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the **ALS Laboratory Group**

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Tel. +852 2610 1044 Fax. +852 2610 2021 www.alsglobal.com

WORK ORDER : HK2540548

SUB-BATCH : 1

CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING

PROJECT : Not Specified



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2540548-001	S/N: 467389	AIR	17-Sep-2025	S/N: 467389

----- END OF REPORT -----

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-5R
Serial No. 467389
Equipment Ref: EQ125

Standard Equipment:

Standard Equipment: Higher Volume Sampler (TSP)
Location & Location ID: Ha Pak Nai
Equipment Ref: HVS 023
Last Calibration Date: 16 August 2025

Equipment Verification Results:

Verification Date: 3 September 2025

Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
3-Sep-25	1hr00min	11:18 ~ 12:18	30.5	1008.2	90.9	4773	79.6
3-Sep-25	1hr00min	12:23 ~ 13:23	30.5	1008.2	49.7	2326	38.8
3-Sep-25	1hr00min	13:28 ~ 14:28	30.5	1008.2	128.5	5868	97.8

Sensitivity Adjustment Scale Setting (Before Calibration) 704 (CPM)

Sensitivity Adjustment Scale Setting (After Calibration) 705 (CPM)

Linear Regression of Y or X

Slope (K-factor): 1.2561 (µg/m³)/CPM

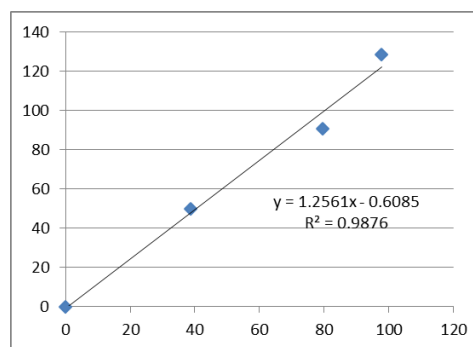
Correlation Coefficient (R) 0.9938

Date of Issue 10 September 2025

Remarks:

- Strong** Correlation ($R > 0.8$)
- Factor 1.2561 (µg/m³)/CPM should be apply for TSP monitoring

*If $R < 0.5$, repair or re-verification is required for the equipment



Operator : Gary Ng Signature : [Signature] Date : 10 September 2025

QC Reviewer : Ben Tam Signature : [Signature] Date : 10 September 2025

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai Date of Calibration: 16-Aug-25
 Location ID : AM(D)3 Next Calibration Date: 16-Oct-25
 Model: TISCH High Volume Air Sampler TE-5170

CONDITIONS

Sea Level Pressure (hPa)	1008.5	Corrected Pressure (mm Hg)	756.375
Temperature (°C)	29.3	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.09671
Model->	5025A	Qstd Intercept ->	-0.01852
Calibration Date->	16-Dec-24	Expiry Date->	16-Dec-25

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.699	54	53.10	Slope = 26.8673 Intercept = 7.0086 Corr. coeff. = 0.9983
13	5.2	5.2	10.4	1.532	49	48.19	
10	3.8	3.8	7.6	1.311	42	41.30	
8	2.6	2.6	5.2	1.086	37	36.39	
5	1.5	1.5	3.0	0.827	30	29.50	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

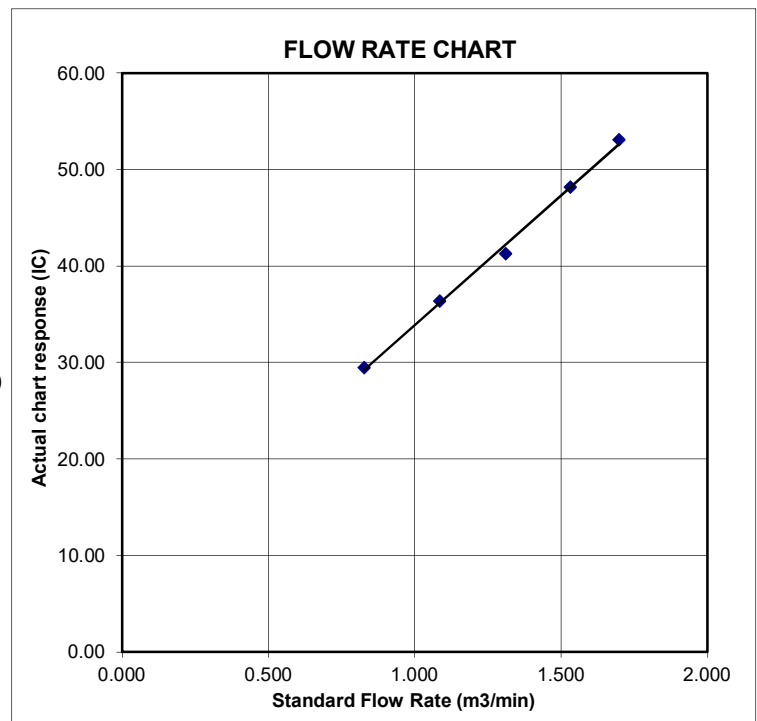
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: December 16, 2024 Roots-meter S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 749.0 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 4064

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4600	3.2	2.00
2	3	4	1	1.0300	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8770	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9981	0.6836	1.4159	0.9957	0.6820	0.8845
0.9938	0.9649	2.0024	0.9915	0.9626	1.2509
0.9917	1.0756	2.2388	0.9893	1.0730	1.3985
0.9906	1.1296	2.3480	0.9883	1.1269	1.4668
0.9853	1.3590	2.8318	0.9829	1.3557	1.7690
QSTD	m=	2.09671	QA	m=	1.31292
	b=	-0.01852		b=	-0.01157
	r=	0.99999		r=	0.99999

Calculations

Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	Vstd/ΔTime	Qa=	Va/ΔTime
For subsequent flow rate calculations:			
Qstd=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions

Tstd: 298.15 °K
Pstd: 760 mm Hg

Key

ΔH: calibrator manometer reading (in H2O)
ΔP: roots-meter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2540549
CLIENT	: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 17-SEP-2025
		DATE OF ISSUE	: 22-SEP-2025
PROJECT	: Not Specified	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ---

General Comments

- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified. The result(s) is/are related only to the item(s) tested.
- No sample is received in this Work Order. The report presents non-laboratory testing data only.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the **ALS Laboratory Group**

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WORK ORDER : HK2540549
SUB-BATCH : 1
CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT : Not Specified



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2540549-001	S/N: 467390	AIR	17-Sep-2025	S/N: 467390

----- END OF REPORT -----

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-5R
Serial No. 467390
Equipment Ref: EQ126

Standard Equipment:

Standard Equipment: Higher Volume Sampler (TSP)
Location & Location ID: Ha Pak Nai
Equipment Ref: HVS 023
Last Calibration Date: 16 August 2025

Equipment Verification Results:

Verification Date: 3 September 2025

Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
3-Sep-25	1hr00min	11:18 ~ 12:18	30.5	1008.2	90.9	4612	76.9
3-Sep-25	1hr00min	12:23 ~ 13:23	30.5	1008.2	49.7	2582	43.0
3-Sep-25	1hr00min	13:28 ~ 14:28	30.5	1008.2	128.5	5886	98.1

Sensitivity Adjustment Scale Setting (Before Calibration) 613 (CPM)

Sensitivity Adjustment Scale Setting (After Calibration) 612 (CPM)

Linear Regression of Y or X

Slope (K-factor): 1.2837 (µg/m³)/CPM

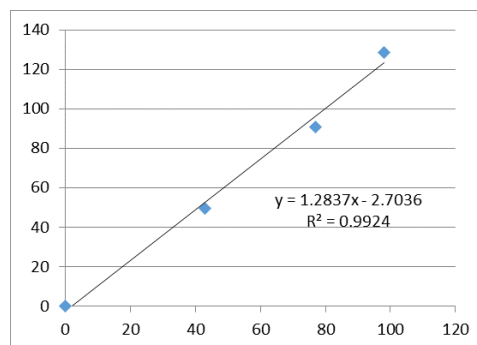
Correlation Coefficient (R) 0.9962

Date of Issue 10 September 2025

Remarks:

- Strong** Correlation ($R > 0.8$)
- Factor 1.2837 (µg/m³)/CPM should be apply for TSP monitoring

*If $R < 0.5$, repair or re-verification is required for the equipment



Operator : Gary Ng Signature : [Signature] Date : 10 September 2025

QC Reviewer : Ben Tam Signature : [Signature] Date : 10 September 2025

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai Date of Calibration: 16-Aug-25
 Location ID : AM(D)3 Next Calibration Date: 16-Oct-25
 Model: TISCH High Volume Air Sampler TE-5170

CONDITIONS

Sea Level Pressure (hPa)	1008.5	Corrected Pressure (mm Hg)	756.375
Temperature (°C)	29.3	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.09671
Model->	5025A	Qstd Intercept ->	-0.01852
Calibration Date->	16-Dec-24	Expiry Date->	16-Dec-25

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.699	54	53.10	Slope = 26.8673 Intercept = 7.0086 Corr. coeff. = 0.9983
13	5.2	5.2	10.4	1.532	49	48.19	
10	3.8	3.8	7.6	1.311	42	41.30	
8	2.6	2.6	5.2	1.086	37	36.39	
5	1.5	1.5	3.0	0.827	30	29.50	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

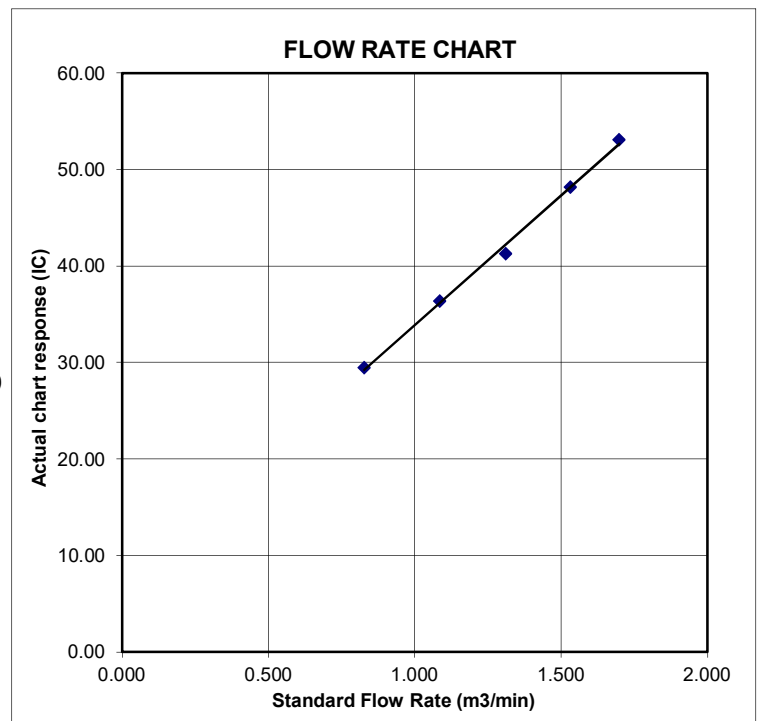
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: December 16, 2024 Roots-meter S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 749.0 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 4064

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4600	3.2	2.00
2	3	4	1	1.0300	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8770	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9981	0.6836	1.4159	0.9957	0.6820	0.8845
0.9938	0.9649	2.0024	0.9915	0.9626	1.2509
0.9917	1.0756	2.2388	0.9893	1.0730	1.3985
0.9906	1.1296	2.3480	0.9883	1.1269	1.4668
0.9853	1.3590	2.8318	0.9829	1.3557	1.7690
QSTD	m=	2.09671	QA	m=	1.31292
	b=	-0.01852		b=	-0.01157
	r=	0.99999		r=	0.99999

Calculations

Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	Vstd/ΔTime	Qa=	Va/ΔTime
For subsequent flow rate calculations:			
Qstd=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions

Tstd: 298.15 °K
Pstd: 760 mm Hg

Key

ΔH: calibrator manometer reading (in H2O)
ΔP: roots-meter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2540550
CLIENT	: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 17-SEP-2025
		DATE OF ISSUE	: 22-SEP-2025
PROJECT	: Not Specified	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ---

General Comments

- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified. The result(s) is/are related only to the item(s) tested.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.
- No sample is received in this Work Order. The report presents non-laboratory testing data only.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the **ALS Laboratory Group**

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WORK ORDER : HK2540550
SUB-BATCH : 1
CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT : Not Specified



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2540550-001	S/N: 467391	AIR	17-Sep-2025	S/N: 467391

----- END OF REPORT -----

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-5R
Serial No. 467391
Equipment Ref: EQ127

Standard Equipment:

Standard Equipment: Higher Volume Sampler (TSP)
Location & Location ID: Ha Pak Nai
Equipment Ref: HVS 023
Last Calibration Date: 16 August 2025

Equipment Verification Results:

Verification Date: 3 September 2025

Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
3-Sep-25	1hr00min	11:18 ~ 12:18	30.5	1008.2	90.9	4540	75.7
3-Sep-25	1hr00min	12:23 ~ 13:23	30.5	1008.2	49.7	2230	37.2
3-Sep-25	1hr00min	13:28 ~ 14:28	30.5	1008.2	128.5	5990	99.8

Sensitivity Adjustment Scale Setting (Before Calibration) 665 (CPM)

Sensitivity Adjustment Scale Setting (After Calibration) 665 (CPM)

Linear Regression of Y or X

Slope (K-factor): 1.2564 (µg/m³)/CPM

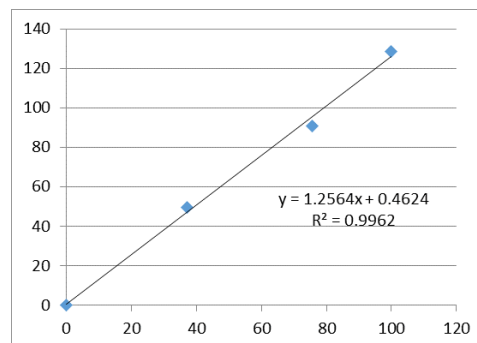
Correlation Coefficient (R) 0.9981

Date of Issue 10 September 2025

Remarks:

- Strong** Correlation ($R > 0.8$)
- Factor 1.2564 (µg/m³)/CPM should be apply for TSP monitoring

*If $R < 0.5$, repair or re-verification is required for the equipment



Operator : Gary Ng Signature : [Signature] Date : 10 September 2025

QC Reviewer : Ben Tam Signature : [Signature] Date : 10 September 2025

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai	Date of Calibration: 16-Aug-25
Location ID : AM(D)3	Next Calibration Date: 16-Oct-25
Model: TISCH High Volume Air Sampler TE-5170	

CONDITIONS

Sea Level Pressure (hPa)	1008.5	Corrected Pressure (mm Hg)	756.375
Temperature (°C)	29.3	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.09671
Model->	5025A	Qstd Intercept ->	-0.01852
Calibration Date->	16-Dec-24	Expiry Date->	16-Dec-25

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.699	54	53.10	Slope = 26.8673 Intercept = 7.0086 Corr. coeff. = 0.9983
13	5.2	5.2	10.4	1.532	49	48.19	
10	3.8	3.8	7.6	1.311	42	41.30	
8	2.6	2.6	5.2	1.086	37	36.39	
5	1.5	1.5	3.0	0.827	30	29.50	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate

IC = corrected chart responses

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

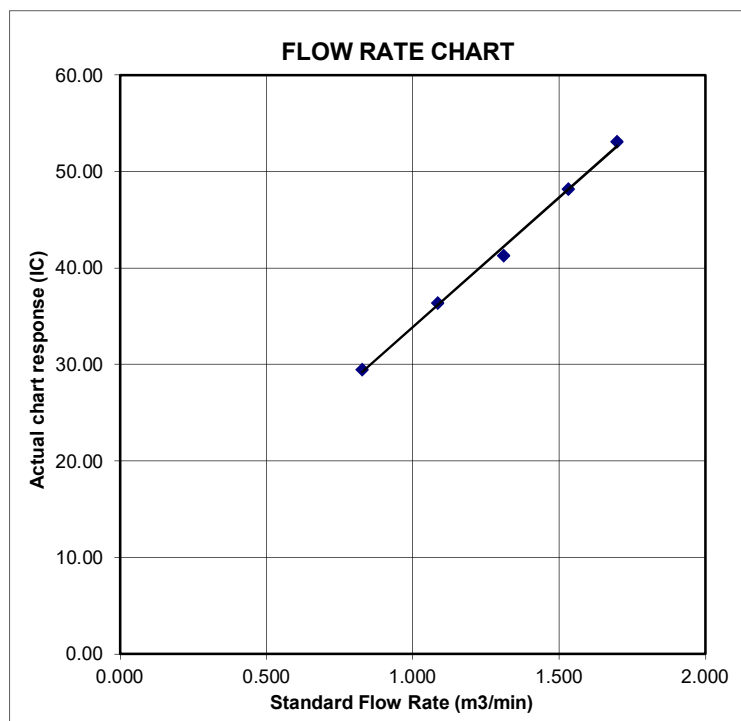
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: December 16, 2024 Rootsmer S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 749.0 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 4064

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4600	3.2	2.00
2	3	4	1	1.0300	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8770	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9981	0.6836	1.4159	0.9957	0.6820	0.8845
0.9938	0.9649	2.0024	0.9915	0.9626	1.2509
0.9917	1.0756	2.2388	0.9893	1.0730	1.3985
0.9906	1.1296	2.3480	0.9883	1.1269	1.4668
0.9853	1.3590	2.8318	0.9829	1.3557	1.7690
QSTD	m=	2.09671	QA	m=	1.31292
	b=	-0.01852		b=	-0.01157
	r=	0.99999		r=	0.99999

Calculations

Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	$Vstd/\Delta Time$	Qa=	$Va/\Delta Time$
For subsequent flow rate calculations:			
Qstd=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions

Tstd: 298.15 °K
Pstd: 760 mm Hg

Key

ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmer manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30



SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	: HK2540542
CLIENT	: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING		
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	: 1
		DATE RECEIVED	: 17-SEP-2025
		DATE OF ISSUE	: 22-SEP-2025
PROJECT	: Not Specified	NO. OF SAMPLES	: 1
		CLIENT ORDER	: ---

General Comments

- Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.
- Result(s) of sample(s) is/are reported on as received basis, unless otherwise specified. The result(s) is/are related only to the item(s) tested.
- Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.
- No sample is received in this Work Order. The report presents non-laboratory testing data only.

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories

Position

Richard Fung

Managing Director

This report supersedes any previous report(s) with the same work order number.

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the **ALS Laboratory Group**

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WORK ORDER : HK2540542
SUB-BATCH : 1
CLIENT : ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT : Not Specified



ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2540542-001	S/N: 467392	AIR	17-Sep-2025	S/N: 467392

----- END OF REPORT -----

Equipment Verification Report (TSP)

Equipment Calibrated:

Type: Laser Dust monitor
Manufacturer: Sibata LD-5R
Serial No. 467392
Equipment Ref: EQ128

Standard Equipment:

Standard Equipment: Higher Volume Sampler (TSP)
Location & Location ID: Ha Pak Nai
Equipment Ref: HVS 023
Last Calibration Date: 16 August 2025

Equipment Verification Results:

Verification Date: 3 September 2025

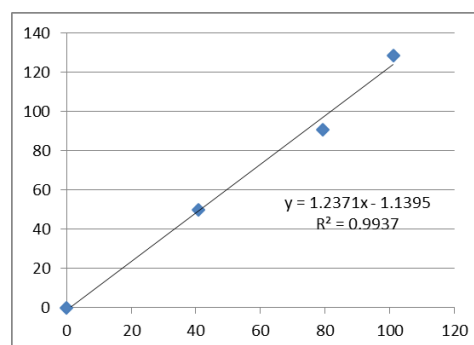
Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m ³ (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
3-Sep-25	1hr00min	11:18 ~ 12:18	30.5	1008.2	90.9	4752	79.2
3-Sep-25	1hr00min	12:23 ~ 13:23	30.5	1008.2	49.7	2453	40.9
3-Sep-25	1hr00min	13:28 ~ 14:28	30.5	1008.2	128.5	6065	101.1

Sensitivity Adjustment Scale Setting (Before Calibration) 715 (CPM)

Sensitivity Adjustment Scale Setting (After Calibration) 714 (CPM)

Linear Regression of Y or X

Slope (K-factor): 1.2371(μg/m³)/CPM
Correlation Coefficient (R) 0.9968
Date of Issue 10 September 2025



Remarks:

- Strong** Correlation ($R > 0.8$)
- Factor 1.2371(μg/m³)/CPM should be apply for TSP monitoring

*If $R < 0.5$, repair or re-verification is required for the equipment

Operator : Gary Ng Signature : [Signature] Date : 10 September 2025

QC Reviewer : Ben Tam Signature : [Signature] Date : 10 September 2025

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Ha Pak Nai Date of Calibration: 16-Aug-25
 Location ID : AM(D)3 Next Calibration Date: 16-Oct-25
 Model: TISCH High Volume Air Sampler TE-5170

CONDITIONS

Sea Level Pressure (hPa)	1008.5	Corrected Pressure (mm Hg)	756.375
Temperature (°C)	29.3	Temperature (K)	302

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.09671
Model->	5025A	Qstd Intercept ->	-0.01852
Calibration Date->	16-Dec-24	Expiry Date->	16-Dec-25

CALIBRATION

Plate No.	H2O (L) (in)	H2O (R) (in)	H2O (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.4	6.4	12.8	1.699	54	53.10	Slope = 26.8673 Intercept = 7.0086 Corr. coeff. = 0.9983
13	5.2	5.2	10.4	1.532	49	48.19	
10	3.8	3.8	7.6	1.311	42	41.30	
8	2.6	2.6	5.2	1.086	37	36.39	
5	1.5	1.5	3.0	0.827	30	29.50	

Calculations :

$$Qstd = 1/m[\text{Sqrt}(H2O(Pa/Pstd)(Tstd/Ta))-b]$$

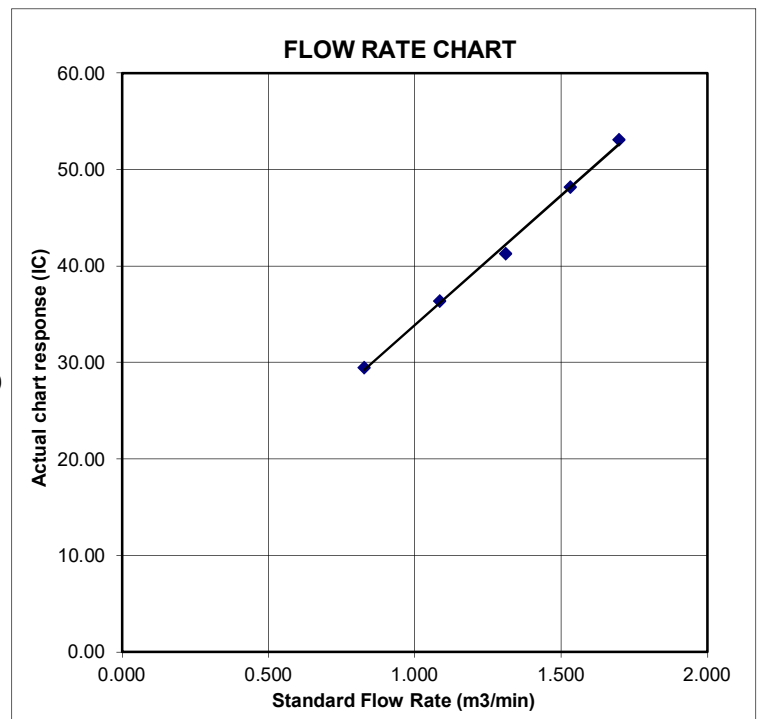
$$IC = I[\text{Sqrt}(Pa/Pstd)(Tstd/Ta)]$$

Qstd = standard flow rate
 IC = corrected chart responses
 I = actual chart response
 m = calibrator Qstd slope
 b = calibrator Qstd intercept
 Ta = actual temperature during calibration (deg K)
 Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

$$1/m((I) [\text{Sqrt}(298/Tav)(Pav/760)]-b)$$

m = sampler slope
 b = sampler intercept
 I = chart response
 Tav = daily average temperature
 Pav = daily average pressure





Certificate of Calibration

Calibration Certification Information

Cal. Date: December 16, 2024 Rootsometer S/N: 438320 Ta: 293 °K
Operator: Jim Tisch Pa: 749.0 mm Hg
Calibration Model #: TE-5025A Calibrator S/N: 4064

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4600	3.2	2.00
2	3	4	1	1.0300	6.4	4.00
3	5	6	1	0.9220	8.0	5.00
4	7	8	1	0.8770	8.8	5.50
5	9	10	1	0.7250	12.8	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis)
0.9981	0.6836	1.4159	0.9957	0.6820	0.8845
0.9938	0.9649	2.0024	0.9915	0.9626	1.2509
0.9917	1.0756	2.2388	0.9893	1.0730	1.3985
0.9906	1.1296	2.3480	0.9883	1.1269	1.4668
0.9853	1.3590	2.8318	0.9829	1.3557	1.7690
QSTD	m=	2.09671	QA	m=	1.31292
	b=	-0.01852		b=	-0.01157
	r=	0.99999		r=	0.99999

Calculations

Vstd=	$\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$	Va=	$\Delta Vol((Pa-\Delta P)/Pa)$
Qstd=	Vstd/ΔTime	Qa=	Va/ΔTime
For subsequent flow rate calculations:			
Qstd=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$	Qa=	$1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$

Standard Conditions

Tstd: 298.15 °K
Pstd: 760 mm Hg

Key

ΔH: calibrator manometer reading (in H2O)
ΔP: rootsometer manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Appendix E2

Calibration Certificates for

Noise Monitoring Equipment



新創校正服務有限公司
New Creation Calibration Service Limited

Certificate of Calibration

校正證書

Certificate No. : C252625
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC25-0908) Date of Receipt / 收件日期 : 7 November 2025

Description / 儀器名稱 : Integrating Sound Level Meter (EQ009)
Manufacturer / 製造商 : Brüel & Kjær
Model No. / 型號 : 2238
Serial No. / 編號 : 2285722
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 : $(23 \pm 3)^{\circ}\text{C}$ Relative Humidity / 相對濕度 : $(50 \pm 25)\%$
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

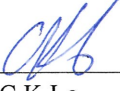
DATE OF TEST / 測試日期 : 18 November 2025

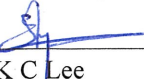
TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed specified limits.
These limits refer to manufacturer's published tolerances as requested by the customer.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :

- Hottinger Brüel & Kjær Calibration Laboratory, Denmark
- Thurlby Thandar Instruments Ltd., UK

Tested By : 
測試 : C K Lo
Project Engineer

Certified By : 
核證 : K C Lee
Senior Engineer

Date of Issue : 19 November 2025
簽發日期

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

New Creation Calibration Service Limited
Flat F & G, 11/F, Garment Centre, 576-586 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong

新創校正服務有限公司

香港九龍長沙灣青山道576-586號製衣中心11樓F及G室

Tel/電話: (852) 2736 3335

Fax/傳真: (852) 2736 3332

E-mail/電郵: callab@nccsvc.com.hk

Website/網址: www.nccsvc.com.hk



Certificate of Calibration

校正證書

Certificate No. : C252625
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 1 hour, and switched on to warm up for over 10 minutes before the commencement of the test.
- Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

Equipment ID	Description	Certificate No.
CL458	Dual Function / Arb / Pulse Generator	3001978
CL461	Sound Calibrator	CDK2502138

- Test procedure : MA101N.

- 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
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)
52 - 132	L _{AFP}	A	F	94.00	1	92.4

6.1.1.2 After Self-calibration

UUT Setting				Applied Value		UUT Reading	IEC 60651 Type 1 Limit
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)	(dB)
54 - 134	L _{AFP}	A	F	94.00	1	94.0	± 0.7

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	(dB)
54 - 134	L _{AFP}	A	F	94.00	1	94.0 (Ref.)
				104.00		104.0
				114.00		113.9

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

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。



Certificate of Calibration

校正證書

Certificate No. : C252625
證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
54 - 134	L _{AFP}	A	F	94.00	1	94.0	Ref.
	L _{ASP}		S			94.0	± 0.1
	L _{AIP}		I			94.1	± 0.1

6.2.2 Tone Burst Signal (2 kHz)

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Burst Duration		
34 - 114	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 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
54 - 134	L _{AFP}	A	F	94.00	31.5 Hz	54.7	-39.4 ± 1.5
					63 Hz	68.0	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	+1.2 ± 1.0
					4 kHz	94.9	+1.0 ± 1.0
					8 kHz	92.8	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0 ; -6.0)

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

New Creation Calibration Service Limited

Flat F & G, 11/F, Garment Centre, 576-586 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong

新創校正服務有限公司

香港九龍長沙灣青山道576-586號製衣中心11樓F及G室

Tel/電話: (852) 2736 3335

Fax/傳真: (852) 2736 3332

E-mail/電郵: callab@nccsvc.com.hk

Website/網址: www.nccsvc.com.hk



Certificate of Calibration

校正證書

Certificate No. : C252625

證書編號

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 60651 Type 1 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
54 - 134	L _{CFP}	C	F	94.00	31.5 Hz	90.9	-3.0 ± 1.5
					63 Hz	93.2	-0.8 ± 1.5
					125 Hz	93.8	-0.2 ± 1.0
					250 Hz	94.0	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	93.1	-0.8 ± 1.0
					8 kHz	90.9	-3.0 (+1.5 ; -3.0)
					12.5 kHz	87.8	-6.2 (+3.0 ; -6.0)

6.4 Time Averaging

UUT Setting				Applied Value					UUT Reading (dB)	IEC 60804 Type 1 Limit (dB)
Range (dB)	Parameter	Frequency Weighting	Integrating Time	Freq. (kHz)	Burst Duration (ms)	Burst Duty Factor	Burst Level (dB)	Equivalent Level (dB)		
34 - 114	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.8	± 0.5
						1/10 ²		90	90.0	± 0.5
			60 sec.			1/10 ³		80	79.6	± 1.0
			5 min.			1/10 ⁴		70	69.6	± 1.0

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

- Mfr's Limit : 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 :

Only the original copy or the laboratory's certified true copy is valid.

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. New Creation Calibration Service Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration is traceable to the National Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.

本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗室書面批准。

New Creation Calibration Service Limited
Flat F & G, 11/F, Garment Centre, 576-586 Castle Peak Road, Cheung Sha Wan, Kowloon, Hong Kong

新創校正服務有限公司

香港九龍長沙灣青山道576-586號製衣中心11樓F及G室

Tel/電話: (852) 2736 3335 Fax/傳真: (852) 2736 3332

E-mail/電郵: callab@nccsvc.com.hk

Website/網址: www.nccsvc.com.hk

Certificate of Calibration

for

Description: *Sound Level Meter*
Manufacturer: *RION*
Type No.: *NL-52A (Serial No.: 00620666)*
Microphone: *UC-59 (Serial No.: 27004)*
Preamplifier: *NH-25 (Serial No.: 21916)*

Submitted by:

Customer: *Action-United Environmental Services & Consulting*
Address: *Unit A, 20/F, Gold King Industrial Building*
35-41 Tai Lin Pai Road, Kwai Chung,
New Territories, Hong Kong

Upon receipt for calibration, the instrument was found to be:

☒ **Within (31.5Hz – 4kHz)**
☐ **Outside**
the allowable tolerance.

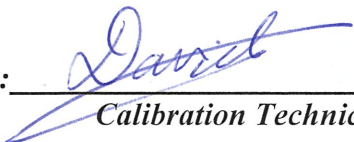
The test equipment used for calibration are traceable to National Standards via:

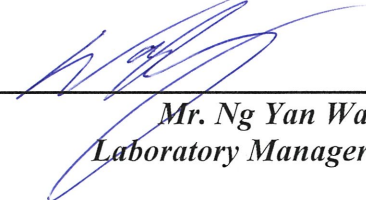
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 03 July 2025

Date of calibration: 04 July 2025

Date of NEXT calibration: 03 July 2026

Calibrated by: 
Calibration Technician

Certified by: 
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 04 July 2025

Certificate No.: APJ25-008-CC006



Page 1 of 4

1. Calibration Precaution:

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

2. Calibration Conditions:

Air Temperature: 24.7 °C

Air Pressure: 1006 hPa

Relative Humidity: 52.6 %

3. Calibration Equipment:

	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV240081	HOKLAS

4. Calibration Results

Sound Pressure Level

Reference Sound Pressure Level

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.0	±0.4

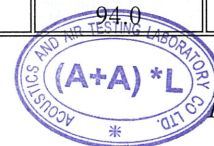
Linearity

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.0	Ref
			104		104.0	±0.3
			114		114.0	±0.3

Time Weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA SPL	Fast	94	1000	94.0	Ref
		Slow			94.0	±0.3

Certificate No.: APJ25-008-CC006



Page 2 of 4

Frequency Response

Linear Response

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dB	SPL	94	31.5	93.9	±2.0
				63	94.1	±1.5
				125	94.1	±1.5
				250	94.0	±1.4
				500	94.0	±1.4
				1000	94.0	Ref
				2000	93.6	±1.6
				4000	92.8	±1.6

A-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBA	SPL	94	31.5	54.4	-39.4 ±2.0
				63	67.9	-26.2 ±1.5
				125	78.0	-16.1 ±1.5
				250	85.4	-8.6 ±1.4
				500	90.8	-3.2 ±1.4
				1000	94.0	Ref
				2000	94.9	+1.2 ±1.6
				4000	93.9	+1.0 ±1.6

C-weighting

Setting of Unit-under-test (UUT)			Applied value		UUT Reading, dB	IEC 61672 Class 1 Specification, dB
Range, dB	Freq. Weighting	Time Weighting	Level, dB	Frequency, Hz		
30-130	dBC	SPL	94	31.5	90.9	-3.0 ±2.0
				63	93.3	-0.8 ±1.5
				125	93.9	-0.2 ±1.5
				250	94.0	-0.0 ±1.4
				500	94.0	-0.0 ±1.4
				1000	94.0	Ref
				2000	93.5	-0.2 ±1.6
				4000	92.1	-0.8 ±1.6

Certificate No.: APJ25-008-CC006



Page 3 of 4

5. *Calibration Results Applied*

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 61672 Class 1.

Uncertainties of Applied Value:

94 dB	31.5 Hz	± 0.10
	63 Hz	± 0.10
	125 Hz	± 0.05
	250 Hz	± 0.10
	500 Hz	± 0.05
	1000 Hz	± 0.05
	2000 Hz	± 0.05
	4000 Hz	± 0.05
104 dB	1000 Hz	± 0.05
114 dB	1000 Hz	± 0.05

The uncertainties are evaluated for a 95% confidence level.

Note:

The values given in this certification only related to the values measured at the time of the calibration and any uncertainties quoted will not allow for the equipment long-term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the calibration. (A+A)*L shall not be liable for any loss or damage resulting from the use of the equipment.



Certificate No.: APJ25-008-CC006

Page 4 of 4

Certificate of Calibration

for

Description: **Sound Level Calibrator**

Manufacturer: **RION**

Type No.: **NC-75**

Serial No.: **34680623**

Submitted by:

Customer: **Action-United Environmental Services & Consulting**

Address: **Unit A, 20/F, Gold King Industrial Building**

35-41 Tai Lin Pai Road, Kwai Chung,

New Territories, Hong Kong

Upon receipt for calibration, the instrument was found to be:

☒ **Within**

☐ **Outside**

the allowable tolerance.

The test equipments used for calibration are traceable to National Standards via:

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory

Date of receipt: 23 April 2025

Date of calibration: 28 April 2025

Date of NEXT calibration: 27 April 2026

Calibrated by: 
Calibration Technician

Certified by: 
Mr. Ng Yan Wa
Laboratory Manager

Date of issue: 28 April 2025

Certificate No.: APJ25-008-CC005



Page 1 of 2

1. Calibration Precautions:

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 24 hours, and switched on to warm up for over 10 minutes before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.

2. Calibration Specifications:

Calibration check

3. Calibration Conditions:

Air Temperature: 23.2 °C
Air Pressure: 1006 hPa
Relative Humidity: 50.8 %

4. Calibration Equipment:

Test Equipment	Type	Serial No.	Calibration Report Number	Traceable to
Multifunction Calibrator	B&K 4226	2288467	AV240081	HOKLAS
Sound Level Meter	RION NA-28	30721812	AV240109	HOKLAS

5. Calibration Results**5.1 Sound Pressure Level**

Nominal value dB	Accept lower level dB	Accept upper level dB	Measured value dB
94.0	93.6	94.4	94.0

6. Calibration Results Applied

The results apply to the particular unit-under-test only. All calibration points are within manufacture's specification as IEC 60942 Class 1.

Note:

The values given in this certification only related to the values measured at the time of the calibration.



Certificate No.: APJ25-008-CC005

Page 2 of 2

Appendix E3

Calibration Certificates for

Water Quality Monitoring Equipment



ALS Technichem (HK) Pty Ltd

11/F., Chung Shun Knitting Centre,
1 - 3 Wing Yip Street,
Kwai Chung, N.T., Hong Kong

T: +852 2610 1044

F: +852 2610 2021

www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR BEN TAM
CLIENT: ACTION-UNITED ENVIRONMENTAL SERVICES &
ADDRESS: RM A 20/F., GOLD KING IND BLDG,
NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.

WORK ORDER: HK2550547
SUB-BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 20-Nov-2025
DATE OF ISSUE: 01-Dec-2025

GENERAL COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principle as practised by the laboratory or quoted from relevant international standards.

The validity of equipment/ meter performance only applies to the result(s) stated in the report.

This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type: Multifunctional Meter

Service Nature: Performance Check

Scope: Conductivity, Dissolved Oxygen, pH Value, Turbidity, Salinity and Temperature

Brand Name/ Model No.: [YSI]/ [Professional DSS]

Serial No./ Equipment No.: [25K101552/17B102764]/ [EQW019]

Date of Calibration: 25-November-2025

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

This report shall not be reproduced except in full without the written approval of the laboratory.

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2550547
SUB-BATCH: 0
DATE OF ISSUE: 01-Dec-2025
CLIENT: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [Professional DSS]
Serial No./ Equipment No.: [25K101552/17B102764]/ [EQW019]
Date of Calibration: 25-November-2025 Date of Next Calibration: 25-February-2026

PARAMETERS:

Conductivity

Method Ref: APHA (23rd edition), 2510B

Expected Reading ($\mu\text{S}/\text{cm}$)	Displayed Reading ($\mu\text{S}/\text{cm}$)	Tolerance (%)
146.9	158.2	+7.7
6667	6736	+1.0
12890	13726	+6.5
58670	59469	+1.4
	Tolerance Limit (%)	± 10.0

Dissolved Oxygen

Method Ref: APHA (23rd edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.85	2.84	-0.01
4.88	4.98	+0.10
7.56	7.58	+0.02
	Tolerance Limit (mg/L)	± 0.20

pH Value

Method Ref: APHA (23rd edition), 4500H: B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	3.95	-0.05
7.0	7.09	+0.09
10.0	10.04	+0.04
	Tolerance Limit (pH unit)	± 0.20

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2550547
SUB-BATCH: 0
DATE OF ISSUE: 01-Dec-2025
CLIENT: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [Professional DSS]
Serial No./ Equipment No.: [25K101552/17B102764]/ [EQW019]
Date of Calibration: 25-November-2025 Date of Next Calibration: 25-February-2026

PARAMETERS:

Turbidity

Method Ref: APHA (23rd edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.84	--
4	4.24	+6.0
40	40.31	+0.8
80	81.32	+1.6
400	402.49	+0.6
800	813.56	+1.7
Tolerance Limit (%)		±10.0

Salinity

Method Ref: APHA (23rd edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.34	+3.4
20	21.01	+5.1
30	32.20	+7.3
Tolerance Limit (%)		±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



WORK ORDER: HK2550547
SUB-BATCH: 0
DATE OF ISSUE: 01-Dec-2025
CLIENT: ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING

Equipment Type: Multifunctional Meter
Brand Name/ Model No.: [YSI]/ [Professional DSS]
Serial No./ Equipment No.: [25K101552/17B102764]/ [EQW019]
Date of Calibration: 25-November-2025 Date of Next Calibration: 25-February-2026

PARAMETERS:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.0	11.1	+1.1
22.5	22.7	+0.2
41.0	40.3	-0.7
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Ms. Lin Wai Yu, Iris
Assistant Manager - Inorganics



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www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR BEN TAM
CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND
CONSULTING
ADDRESS: UNIT A ,20/F., GOLD KING INDUSTRIAL BUILDING,
NO. 35-41 TAI LIN PAI ROAD,
KWAI CHUNG, N.T. HONG KONG

WORK ORDER: HK2508901

SUB-BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 12-Feb-2025
DATE OF ISSUE: 06-Mar-2025

GENERAL COMMENTS

The calibration of flow rate performed by AUES staff on 07 February 2025.
The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The validity of equipment/ meter performance only applies to the result(s) stated in the report.
This report superseded any previous report(s) with same work order number.

EQUIPMENT INFORMATION

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client.

Equipment Type: Current Meter
Service Nature: Performance Check
Scope: Current
Brand Name/ Model No.: [Valeport] / [Model 106]
Serial No./ Equipment No.: [60011] / [N/A]
Date of Calibration: 07 February, 2025


Mr. Fung Lim Chee, Richard
Managing Director, Life Sciences
Hong Kong

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Page 1 of 2

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



Work Order: HK2508901
Sub-batch: 0
Date of Issue: 06-Mar-2025
Client: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Reference Equipment:

Flow Rate Model: SonTek IQ Standard
Serial Number : IQ1217004
Direction Model: Magnetic Compass

Equipment to be calibrated:

Equipment Type: Current Meter
Brand Name/ [Valeport] / [Model 106]
Model No:
Serial No./ [60011] / [N/A]
Equipment No.:
Date of Calibration: 07 February, 2025

Parameters: The calibration of current meter is verified with standard flow meter and magnetic compass on site by AUES Staff.

Flow rate

Trial	Reading of Reference Equipment (m/s) SonTek IQ Standard Serial No: IQ1217004	Reading of Equipment to be calibrated (m/s) Valeport Model 106 Serial No. 60011
1	0.22	0.20
2	0.36	0.35
3	0.54	0.53
4	0.77	0.76
5	0.94	0.93
6	1.06	1.05

Direction

Trial	Reading of Reference Equipment (Degree) Magnetic Compass	Reading of Equipment to be calibrated (Degree) Valeport Model 106 Serial No. 60011
1	045	0.45
2	090	091
3	135	136
4	180	182
5	270	271
6	355	356


Mr. Fung Lim Chee, Richard
Managing Director, Life Sciences
Hong Kong



Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

*is accredited by the Hong Kong Accreditation Service (HKAS) to ISO/IEC 17025:2017
for performing specific laboratory activities as listed in the scope of accreditation within the test category of*
獲香港認可處根據ISO/IEC 17025:2017認可
進行載於認可範圍內下述測試類別中的指定實驗所活動

Environmental Testing
環境測試

*This accreditation to ISO/IEC 17025:2017 demonstrates technical competence for a defined scope and
the implementation of a management system relevant to laboratory operation
(see joint IAF-ILAC-ISO Communiqué).*
此項 ISO/IEC 17025:2017 的認可資格證明此實驗所具備指定範疇內所須的技術能力並
實施一套與實驗所運作相關的管理體系
(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of HKAS is affixed hereto by the authority of the HKAS Executive
現經香港認可處執行機關授權在此蓋上香港認可處的印章

SHUM Wai-leung, Executive Administrator
執行幹事 沈偉良
Issue Date : 28 February 2020
簽發日期：二零二零年二月二十八日

Registration Number : **HOKLAS 066**
註冊號碼：



Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日

Appendix E4

Calibration Certificates for

LFG Monitoring Equipment



YSF

Corporation Ltd.

5A, Blk1 Kin Ho Ind. Bldg., 20-24 Au Pui Wan St., Fo Tan, Shatin, N.T., HK.
Tel: (852) 8109 8368 Fax: (852) 3007 4857 E-mail: sales@ysftool.com
www.sokkia.com.hk www.ysf.com.hk
Supply, Repair, Rental, Scanning and Calibration Service of Surveying Instruments and Accessories

Certificate No. : CAL250575

Page 1 of 1

CALIBRATION CERTIFICATE OF GAS ANALYSER

Client : China State Construction Engineering (Hong Kong) Ltd.
Address : 29/F., China Overseas Bldg., 139 Hennessy Road, Hong Kong

Unit-Under-Test (UUT) Information

Description : Gas Analyser
Manufacturer : Geotech
Model No. : GEM5000
Serial No. : G510348

Calibrator Information

Description : (1) 4 in 1 Standard gases (O₂, CH₄, H₂S, CO) (2) Std CO₂ gas (0.3%)
Serial No. : (1) C-048-09 (2) C-087-04
Cylinder No. : (1) 51104041 (2) M123850
Expired date : (1) 12/2026 (2) 12/2026

Received date : 4 Dec., 2025
Date of calibration : 10 Dec., 2025
Next calibration date : 9 Dec., 2026
Calibration location : YSF Calibration Laboratory
Environmental conditions : 19.8 - 21.2°C / 49 - 60%RH
Method used : By direct comparison

Calibration Results :

Parameters	Measured value
(1) Methane (2.50%)	2.46%
(2) Oxygen (18.0%)	18.1%
(3) Carbon dioxide (0.3%)	0.3%

Remark :

1. The equipment used in this calibration is traceable to recognized National Standards.

Tested by : Lam Man Kwong Date : 10 Dec., 2025 Certified by : So Chi Kuen Date : 10 Dec., 2025
So Chi Kuen (Lab Manager)

**** End of Certificate ****



TEST CERTIFICATE

Model NO: SKY3000-R5		Serial NO : 02100C61C8003		
			Date of issue: 2026.01.30	
version NO: V4.5			Next Calibration : 2027.01.29	
Appearance/structure/function/mark inspection				
Item	Test results			Remark
Appearance/Structure	☒ Passed	☐ Failed	☐ Other	
Function	☒ Passed	☐ Failed	☐ Other	
Mark	☒ Passed	☐ Failed	☐ Other	

Alarm Setting						
Gas	High Alarm	Low Alarm		Gas	High Alarm	Low Alarm
CO	75ppm	37ppm		O2	22%VOL	19.5%VOL
H2S	15ppm	7ppm		LEL	10%LEL	5%LEL
CO2	2000ppm	1000ppm				

Calibration						
NO	Calibration gas	Calibration gas concentration	Value before calibration	Value after calibration	Response time(T90)	Remark
1	CO	700ppm	711ppm	700ppm	<30s	
2	H2S	80ppm	83.5ppm	80ppm	<30s	
3	O2	20.9%VOL	22.3%VOL	20.9%VOL	<30s	
4	LEL	60%LEL	57%LEL	60%LEL	<30s	
5	CO2	2000ppm	2010ppm	2000ppm	<30s	

Certification	
We certified that this equipment has been checked, maintained and calibrated according to manufacturer's specification. All reported result were obtained from TISC approved sub-contractor. ☒ Test Passed ☐ Test Failed Quality Department  Tops Instruments Supplies Co. Nash Wei	

Appendix F

Meteorological Data

Date		Weather	Total Rainfall (mm)	Lau Fau Shan Station			
				Mean Air Temperature (°C)	Wind Speed (km/h)	Mean Relative Humidity (%)	Wind Direction
1-Feb-26	Sun	Mainly cloudy tonight. Light winds.	1.6	15.4	11.7	66	N/NE
2-Feb-26	Mon	Mainly cloudy tonight. Light winds.	0	16.4	13.7	64	NE
3-Feb-26	Tue	Mainly cloudy tonight. Light winds.	0	17.6	10.7	75	E
4-Feb-26	Wed	Warm with sunny periods in the afternoon	0	19	13.5	77	E
5-Feb-26	Thu	Warm with sunny periods in the afternoon	0	19.9	12.2	78.7	W/SW
6-Feb-26	Fri	Sunny periods.Light winds.	0	20.8	11.2	77.5	W/SW
7-Feb-26	Sat	Mainly cloudy. One or two light rain	Trace	21.5	12.2	69.2	E
8-Feb-26	Sun	Mainly cloudy.	0.1	17	15	53.7	E/NE
9-Feb-26	Mon	Fresh easterly winds	0	15.7	16	60	E/NE
10-Feb-26	Tue	Mainly cloudy. One or two light rain	0	19	11.7	73.5	E/NE
11-Feb-26	Wed	Moderate easterly winds. Mainly cloudy.	0	21.3	14.2	72.5	E/SE
12-Feb-26	Thu	Sunny periods.Light winds.	0	19.9	10.7	74.2	E
13-Feb-26	Fri	Mainly cloudy.	0	20.1	10.2	75.5	N
14-Feb-26	Sat	Sunny periods.Light winds.	0	20.1	11.5	76.5	SE
15-Feb-26	Sun	Sunny periods.Light winds.	0	24.6	10.5	73.7	W/SW
16-Feb-26	Mon	Mainly cloudy.	0	23.6	10.5	83	W/SW
17-Feb-26	Tue	Mainly fine.	Trace	20.2	13.2	63	E/NE
18-Feb-26	Wed	Dry and warm. Light winds.	Trace	20.6	13.2	57.5	NE
19-Feb-26	Thu	Dry and warm. Light winds.	Trace	19.2	12.5	70.2	W/SW
20-Feb-26	Fri	Mainly fine. Dry and warm	0	20.9	11.5	66.7	W/SW
21-Feb-26	Sat	Moderate easterly winds.	0	21.2	14.7	76.5	E/SE
22-Feb-26	Sun	Warm with sunny intervals. Mist.	0	22.4	9.5	71.5	W/SW
23-Feb-26	Mon	Mainly cloudy. One or two light rain	0	22.9	17.5	76.5	S/SE
24-Feb-26	Tue	Warm with sunny intervals. Mist.	0.4	22.5	10	83	E/NE
25-Feb-26	Wed	Mainly cloudy. One or two light rain	Trace	22	8.7	85.7	W/SW
26-Feb-26	Thu	Moderate easterly winds. Mainly cloudy.	0.2	23.1	11.2	77.2	E/NE
27-Feb-26	Fri	Mainly cloudy. One or two light rain	0.3	22.6	7.5	85	E/NE
28-Feb-26	Sat	Warm with sunny intervals. Mist.	39	20.7	20	90	E

Appendix G

Event and Action Plan

Event / Action Plan for Air Quality

Event	Action			
	ET	IEC	SM	Contractor
Action level exceedance for one sample	1. Identify source 2. Inform IEC, SM and Contractor 3. Repeat measurements to confirm findings. 4. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily	1. Check monitoring data and Contractor's working methods	1. Notify Contractor for the identification of cause	1. Rectify any unacceptable practice 2. Amend working methods if appropriate
Action level exceedance for two or more consecutive samples	1. Identify source 2. Notify IEC, SM and Contractor 3. Repeat measurements to confirm findings. 4. Investigate the cause of exceedance and check Contractor's working procedures 5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6. Discuss with IEC and SM on remedial actions required 7. If exceedance continues, arrange meeting with IEC and Contractor 8. If exceedance stops, cease additional monitoring.	1. Review monitoring data submitted by ET 2. Review the investigation finding submitted by ET and check the Contractor's working method 3. Review the proposed remedial measures by Contractor and advise SM accordingly 4. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing 2. Require Contractor to propose remedial measures for the analysed dust problem 3. Ensure remedial measures properly implemented.	1. Rectify any unacceptable practice 2. Amend working methods if appropriate 3. Submit proposals for remedial actions to IEC within 3 working days of notification 4. Implement the agreed proposals 5. Amend proposal if appropriate.
Limit level exceedance for one sample	1. Identify source 2. Inform IEC, SM and Contractor 3. Repeat measurements to confirm findings. 4. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SM informed of the results	1. Review monitoring data submitted by ET 2. Discuss amongst SM, ET Leader and Contractor on the potential remedial actions. 3. Supervise the implementation of remedial measures	1. Confirm receipt of notification of exceedance in writing 2. Require Contractor to propose remedial measures for the analysed dust problem 3. Ensure remedial measures properly implemented	1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IEC within 3 working days of notification 3. Implement the agreed proposals 4. Amend proposal if appropriate
Limit level exceedance for two or more consecutive samples	1. Identify source 2. Repeat measurements to confirm findings 3. Inform IEC, SM, Contractor and EPD 4. Investigate the cause of exceedance and carry out analysis of Contractor's	1. Review monitoring data submitted by ET 2. Discuss amongst SM, ET Leader and Contractor on	1. Confirm receipt of notification of exceedance in writing 2. Require Contractor to propose remedial	1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working

Event	Action			
	ET	IEC	SM	Contractor
	working procedures to determine possible mitigation to be implemented 5. If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to daily. 6. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SM informed of the results 7. If exceedance continues, arrange meeting with IEC and Contractor 8. If exceedance stops, cease additional monitoring.	the potential remedial actions. 3. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise SM accordingly 4. Supervise the implementation of remedial measures.	measures for the analysed dust problem 3. Ensure remedial measures properly implemented; 4. If exceedance continues, consider what activity of the work is responsible and instruct Contractor to stop that activity of work until the exceedance is abated	days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the SM until the exceedance is abated.

Notes:

ET – Environmental Team

IEC – Independent Environmental Checker

SM – Service Manager

Event / Action Plan for Construction Noise

Event	ET	IEC	SM	Contractor
Exceedance of Action Level	Identify source, investigate the causes of exceedance and propose remedial measures; Notify IEC and Contractor; Report the results of investigation to IEC, SM and Contractor; Discuss with Contractor and formulate remedial measures; If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency to check mitigation effectiveness.	Review the analysed results submitted by ET; Review the proposed Remedial measures by Contractor and advise SM accordingly; Supervise the implementation of remedial measures.	Confirm receipt of notification of failure in writing; Notify Contractor; Require Contractor to propose remedial measures for the analysed noise problem; Ensure remedial measures are properly implemented.	Submit noise mitigation proposals to IEC; Implement noise mitigation proposals.
Exceedance of Limit Level	Identify source; Inform IEC, SM, EPD and Contractor; Repeat measurements to confirm findings; Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; If the exceedance is confirmed to be Project related after investigation, increase monitoring frequency; Inform IEC, SM and EPD the causes and actions taken for exceedance; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and SM informed of the results; If exceedance stops, cease additional monitoring.	Discuss amongst SM, ET, and Contractor on the potential remedial actions; Review Contractor remedial actions whenever necessary to assure their effectiveness and advise SM accordingly; Supervise implementation of remedial measures.	Confirm receipt of notification of failure in writing; Notify Contractor; Require Contractor to propose remedial measures for the analysed noise problem; Ensure remedial measures properly implemented; If exceedance continues, consider what portion of the work is responsible and instruct Contractor to stop that portion of works until the exceedance is abated.	Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within 3 working days of notification; Implement the agreed proposals; Resubmit proposals if problem still not under control; Stop the relevant portion of works as determined by SM until the exceedance is abated.

Notes:

ET – Environmental Team

IEC – Independent Environmental Checker

SM – Service Manager

Event / Action Plan for Water Quality

Event	ET	IEC	SM	Contractor
Action level being exceeded by one sampling day	- Identify source(s) of impact; - Inform IEC, Contractor; Check monitoring data, all plant, equipment and Contractor's working methods.	Check monitoring data and Contractor's working methods.	- Confirm receipt of notification of non-compliance in writing; and - Notify Contractor.	- Rectify unacceptable practice; and - Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling days	- Identify source(s) of impact; - Inform IEC, Contractor; - Check monitoring data, all plant, equipment and Contractor's working methods; Ensure mitigation measures are implemented; - If the exceedance is confirmed to be Project related after investigation, increase the monitoring frequency to daily until no exceedance of Action level	- Check monitoring data and Contractor's working method; - Discuss with ET and Contractor on possible remedial actions; - Review the proposed mitigation measures; and - Supervise the implementation of mitigation measures.	- Discuss with IEC on the proposed mitigation measures; - Ensure mitigation measures are properly implemented; and - Assess the effectiveness of the implemented mitigation measures	- Rectify unacceptable practice; - Check all plant and equipment and consider changes of working methods; - Submit proposal of additional mitigation measures to IEC within 3 working days of notification; and - Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day	- Identify source(s) of impact; - Inform IEC, SM and Contractor; - Check monitoring data, all plant, equipment and Contractor's working methods; - Discuss mitigation measures with IEC, SM and Contractor; Ensure mitigation measures are implemented; and - If the exceedance is confirmed to be Project related after investigation, repeat measurement on next day of exceedance.	- Check monitoring data submitted by ET and Contractor's working method; - Discuss with ET and Contractor on possible remedial actions; - Review the proposed mitigation measures submitted by Contractor and advise the SM accordingly.	- Confirm receipt of notification of failure in writing; - Discuss with IEC, ET and Contractor on the proposed mitigation measures; - Request Contractor to review the working methods.	- Take immediate corrective actions to avoid further exceedance; - Submit proposal of mitigation measures to IEC within 3 working days; - Implement the agreed mitigation measures; - Submit further mitigation measures if problem still not under control;

Event	ET	IEC	SM	Contractor
Limit level being exceeded by two or more consecutive sampling days	- Identify source(s) of impact; - Inform IEC, SM, EPD - Check monitoring data, all plant, equipment and - Contractor's working methods; Discuss mitigation measures with IEC, SM and Contractor; - Ensure mitigation measures are implemented; - If the exceedance is confirmed to be Project related after investigation, increase the monitoring frequency to daily until no exceedance of Limit level	- Check monitoring data submitted by ET and Contractor's working method; Discuss with ET and Contractor on possible remedial actions; - Review the - Contractor's mitigation measures - whenever - necessary to assure their effectiveness; - Supervise the implementation of mitigation measures.	- Discuss with IEC, ET and Contractor on the proposed mitigation measures; - Request Contractor to critically review the working methods; - Make agreement on the mitigation measures and ensure mitigation measures are properly implemented; - Consider and instruct, if necessary, to slow down or stop that activity of work until exceedance is abated.	- Take immediate corrective actions to avoid further exceedance; - Submit proposal of mitigation measures to IEC within 3 working days; - Implement the agreed mitigation measures; Resubmit proposals if problem still not under control; - Slow down or to stop relevant activity until exceedance is abated.

Notes:

ET – Environmental Team

IEC – Independent Environmental Checker

SM – Service Manager

Event and action plan for landscape and visual monitoring during Construction

	ET	IEC	SM	Contractor
Design checking	Check final design conforms to the requirements of EP and prepare report	Check report. Recommend remedial design if necessary	Undertake remedial design if necessary	Ensure compliance with EP requirements
Exceedance on one occasion	Identify source of impact Inform IEC and SM Discuss remedial actions with IEC, SM and Contractor Monitor remedial actions until rectification has been completed	• Check monitoring report • Check Contractor's working method • Discuss with ET and Contractor on possible remedial measures • Advise SM on effectiveness of proposed remedial measures • Check implementation of remedial measures	• Notify Contractor • Ensure remedial measures are properly implemented	• Amend working methods • Rectify damage and undertake any necessary replacement
Repeated Exceedance(s)	• Identify source of impact • Inform IEC and SM • Increase monitoring frequency • Discuss remedial actions with IEC, SM and Contractor • Monitor remedial actions until rectification has been completed • If exceedance stops, cease additional monitoring	• Check monitoring report • Check Contractor's working method • Discuss with ET and Contractor on possible remedial measures • Advise SM on effectiveness of proposed remedial measures • Supervise implementation of remedial measures	• Notify Contractor • Ensure remedial measures are properly implemented	• Amend working methods • Rectify damage and undertake any necessary replacement

Notes:

ET – Environmental Team

IEC – Independent Environmental Checker

SM – Service Manager

Event Action Plan for Landfill Gas Monitoring

Event	ET Leader	IEC	SM	Contractor
Limit level being exceeded for Field monitoring at the perimeter monitoring wells	- Investigate the cause(s) of exceedance; - Check monitoring data, all plant, equipment and the Contractor's working methods; - Inform Contractor, IEC, SM and EPD (EIAO Authority) whether the cause of exceedance is due to the Project; - Discuss with Contractor and IEC for remedial measures required; - Ensure remedial measures are properly implemented; and - Increase the monitoring frequency to daily if exceedance is due to the Project for monitoring wells in the areas where there is development within 250m of the WENTX Site Boundary and to weekly for other monitoring wells, until no exceedance of limit level	- Discuss with ET and Contractor on proposed remedial measures; - Review proposals on remedial measures; and - Supervise the implementation of remedial measures	- Confirm receipt of notification in writing; - Required Contractor to propose remedial measures; - Ensure remedial measure are properly implemented.	- Repeat field measurement to confirm findings; - Check the performance of landfill gas management system; - Rectify unacceptable practice; - Discuss with the ET and IEC and submit proposals for remedial measures to IEC; - Implement the agreed proposals; and - Amend proposal if appropriate
Limit level being exceeded for Bulk gas sampling at the perimeter monitoring wells	- Check and compare the results of field monitoring and laboratory analyse of bulk samples; - If the results of field monitoring also show exceedance, the action(s) for limit level being exceeded for field monitoring would have been triggered; - If the results of field monitoring does not show exceedance, the sampling procedures should be checked and if deems necessary, to repeat the monitoring and recalibrate the portable monitoring instruments; and - Notify the above findings to Contractor and IEC	Verify the findings by ET	- Confirm receipt of notification in writing; - Required Contractor to propose remedial measures; - Ensure remedial measure are properly implemented.	Nil
Limit level being exceeded for permanent gas monitoring system	- Investigate the cause(s) of exceedance; - Check the methane gas level at the perimeter monitoring wells, manholes or utilities duct; - Check monitoring data, all plant, equipment and the Contractor's working methods; - Inform Contractor, IEC, SM and EPD (EIAO Authority) whether the cause of exceedance is due to the Project; - Discuss with Contractor and IEC for remedial measures required; and - Ensure remedial measures are properly implemented	- Discuss with ET and Contractor on proposed remedial measures; - Review proposals on remedial measures; and - Supervise the implementation of remedial measures	- Confirm receipt of notification in writing; - Required Contractor to propose remedial measures; - Ensure remedial measure are properly implemented.	- Evacuate all staff in the concerned building; - Open the doors and window of all rooms on the ground floor; - Do not allow staff to go back to the room if methane level is higher than 1% gas; - Check the performance of the landfill gas management system; - Rectify unacceptable practice;

Event	ET Leader	IEC	SM	Contractor
				• Consider changes of working methods; • Discuss with the ET and IEC and submit proposals for remedial measures to IEC; • Implement the agreed proposals; and • Amend proposal if appropriate
Limit level being exceeded for surface emission monitoring	• Repeat the measurement to confirm findings; • Investigate the cause(s) of exceedance; • Check monitoring data, all plant, equipment and the Contractor's working methods; • Inform Contractor, IEC, SM and EPD (EIAO Authority) whether the cause of exceedance is due to the Project; • Discuss with Contractor and IEC for remedial measures required; • Ensure remedial measures are properly implemented; and • Increase the monitoring frequency to monthly if exceedance is due to the Project until no exceedance of limit level	• Discuss with ET and Contractor on proposed remedial measures; • Review proposals on remedial measures; and • Supervise the implementation of remedial measures	• Confirm receipt of notification in writing; • Required Contractor to propose remedial measures; • Ensure remedial measure are properly implemented.	• Check landfill gas management system; • Rectify unacceptable practice; • Consider changes of working methods; • Discuss with the ET and IEC and submit proposals for remedial measures to IEC; • Implement the agreed proposals; and • Amend proposal if appropriate
Limit level being exceeded at the service voids, utilities pits, manholes and location of vegetation stress	• Repeat the measurement to confirm findings; • Investigate the cause(s) of exceedance; • Check monitoring data, all plant, equipment and the Contractor's working methods; • Inform Contractor, IEC, SM and EPD (EIAO Authority) whether the cause of exceedance is due to the Project; • Discuss with Contractor and IEC for remedial measures required; • Ensure remedial measures are properly implemented; and • Increase the monitoring frequency to weekly if exceedance is due to the Project until no exceedance of limit level	• Discuss with ET and Contractor on proposed remedial measures; • Review proposals on remedial measures; and • Supervise the implementation of remedial measures	• Confirm receipt of notification in writing; • Required Contractor to propose remedial measures; • Ensure remedial measure are properly implemented.	• Check landfill gas management system; • Rectify unacceptable practice; • Discuss with the ET and IEC and submit proposals for remedial measures to IEC; • Implement the agreed proposals; and • Amend proposal if appropriate

Notes:

ET – Environmental Team

IEC – Independent Environmental Checker

SM – Service Manager

Appendix H

Monitoring Schedule

Impact Monitoring Schedule for February 2026

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
	Noise	1-Hr TSP X3 24-Hr TSP		1-Hr TSP X3 24-Hr TSP	Surface Water	
8	9	10	11	12	13	14
	1-Hr TSP X3 24-Hr TSP	Noise				1-Hr TSP X3 24-Hr TSP
15	16	17	18	19	20	21
	1-Hr TSP X3 24-Hr TSP Noise				1-Hr TSP X3 24-Hr TSP	
22	23	24	25	26	27	28
		1-Hr TSP X3 24-Hr TSP	Noise	1-Hr TSP X3 24-Hr TSP		

Impact Monitoring Schedule for March 2026

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
	1-Hr TSP X3 24-Hr TSP	Noise	1-Hr TSP X3 24-Hr TSP		1-Hr TSP X3 24-Hr TSP Surface Water	
8	9	10	11	12	13	14
	Noise	1-Hr TSP X3 24-Hr TSP		1-Hr TSP X3 24-Hr TSP		
15	16	17	18	19	20	21
	1-Hr TSP X3 24-Hr TSP	Noise	1-Hr TSP X3 24-Hr TSP			1-Hr TSP X3 24-Hr TSP
22	23	24	25	26	27	28
		Noise	1-Hr TSP X3 24-Hr TSP		1-Hr TSP X3 24-Hr TSP	
29	30	31				
		1-Hr TSP X3 24-Hr TSP				

Appendix I

Detailed Monitoring Results

Construction Dust Monitoring Results

Location: AM(D)1

Date	Start Time	1-hour TSP ($\mu\text{g}/\text{m}^3$)			Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level($\mu\text{g}/\text{m}^3$)
		1 st reading	2 nd reading	3 rd reading		
3-Feb-26	11:25	108	128	95	317	500
5-Feb-26	11:29	144	138	88	317	500
9-Feb-26	11:33	53	42	66	317	500
14-Feb-26	11:30	107	138	98	317	500
16-Feb-26	11:35	42	51	58	317	500
20-Feb-26	11:30	62	41	47	317	500
24-Feb-26	11:26	44	75	53	317	500
26-Feb-26	11:35	42	21	44	317	500

Location: AM(D)2

Date	Start Time	1-hour TSP ($\mu\text{g}/\text{m}^3$)			Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level($\mu\text{g}/\text{m}^3$)
		1 st reading	2 nd reading	3 rd reading		
3-Feb-26	11:03	75	91	61	313	500
5-Feb-26	11:00	61	51	59	313	500
9-Feb-26	11:07	67	49	61	313	500
14-Feb-26	11:00	80	91	97	313	500
16-Feb-26	11:02	61	41	41	313	500
20-Feb-26	11:00	53	43	67	313	500
24-Feb-26	10:55	47	61	57	313	500
26-Feb-26	11:02	51	35	41	313	500

Location: AM(D)3

Date	Start Time	1-hour TSP ($\mu\text{g}/\text{m}^3$)			Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level($\mu\text{g}/\text{m}^3$)
		1 st reading	2 nd reading	3 rd reading		
3-Feb-26	10:30	150	160	112	334	500
5-Feb-26	10:25	162	177	134	334	500
9-Feb-26	10:33	68	80	92	334	500
14-Feb-26	10:27	80	106	97	334	500
16-Feb-26	10:33	70	60	60	334	500
20-Feb-26	10:25	72	77	82	334	500
24-Feb-26	10:31	68	80	74	334	500
26-Feb-26	10:27	40	42	30	334	500

Location: AM(D)5a

Date	Start Time	1-hour TSP ($\mu\text{g}/\text{m}^3$)			Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level($\mu\text{g}/\text{m}^3$)
		1 st reading	2 nd reading	3 rd reading		
3-Feb-26	08:45	126	143	87	371	500
5-Feb-26	08:57	185	215	263	371	500
9-Feb-26	09:00	177	161	167	371	500
14-Feb-26	08:50	201	273	262	371	500
16-Feb-26	08:30	232	259	277	371	500
20-Feb-26	08:55	143	162	155	371	500
24-Feb-26	09:00	170	193	203	371	500
26-Feb-26	08:47	184	167	177	371	500

Location: AM(D)6a

Date	Start Time	1-hour TSP ($\mu\text{g}/\text{m}^3$)			Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level($\mu\text{g}/\text{m}^3$)
		1 st reading	2 nd reading	3 rd reading		
3-Feb-26	09:27	137	96	129	294	500
5-Feb-26	09:30	106	82	132	294	500
9-Feb-26	09:28	71	90	82	294	500
14-Feb-26	09:33	136	100	156	294	500
16-Feb-26	09:30	91	83	111	294	500
20-Feb-26	09:30	91	101	84	294	500
24-Feb-26	09:26	141	133	136	294	500
26-Feb-26	9:29	43	55	51	294	500

Location: AM(D)7b

Date	Start Time	1-hour TSP ($\mu\text{g}/\text{m}^3$)			Action Level ($\mu\text{g}/\text{m}^3$)	Limit Level($\mu\text{g}/\text{m}^3$)
		1 st reading	2 nd reading	3 rd reading		
3-Feb-26	09:55	122	72	111	331	500
5-Feb-26	10:00	104	96	118	331	500
9-Feb-26	09:55	83	97	91	331	500
14-Feb-26	09:58	91	63	73	331	500
16-Feb-26	10:00	53	72	59	331	500
20-Feb-26	09:50	68	62	56	331	500
24-Feb-26	10:01	82	68	91	331	500
26-Feb-26	10:00	58	52	41	331	500

24-Hour TSP Monitoring Data for AM(D)1

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)	Action Level	Limit Level
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)			
3 Feb 26	22299	23140.55	23164.55	1440.00	36	36	36.0	17.8	1024.1	1.11	1596	2.7274	2.8655	0.1381	87	155	260
5 Feb 26	22275	23164.55	23188.55	1440.00	36	36	36.0	20.9	1016.7	1.10	1579	2.7298	2.8415	0.1117	71	155	260
9 Feb 26	22280	23188.55	23212.55	1440.00	36	36	36.0	15.5	1022.7	1.11	1602	2.7452	2.8084	0.0632	39	155	260
14 Feb 26	22283	23212.55	23236.55	1440.00	38	38	38.0	21.8	1016.2	1.14	1648	2.7232	2.8602	0.1370	83	155	260
16 Feb 26	22303	23236.55	23260.55	1440.00	40	40	40.0	24	1015.3	1.21	1738	2.7213	2.7900	0.0687	40	155	260
20 Feb 26	22291	23260.55	23284.55	1440.00	38	38	38.0	20.9	1018.7	1.15	1653	2.7230	2.7859	0.0629	38	155	260
24 Feb 26	22313	23284.55	23308.55	1440.00	38	38	38.0	22.3	1013.6	1.14	1644	2.7380	2.8133	0.0753	46	155	260
26 Feb 26	22317	23308.55	23332.55	1440.00	34	34	34.0	20.5	1012.3	1.01	1451	2.7497	2.7835	0.0338	23	155	260

24-Hour TSP Monitoring Data for AM(D)2

DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)	Action Level	Limit Level
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)			
3 Feb 26	22295	12030.55	12054.55	1440.00	36	36	36.0	17.8	1024.1	1.16	1674	2.7275	2.8382	0.1107	66	156	260
5 Feb 26	22274	12054.55	12078.55	1440.00	36	36	36.0	20.9	1016.7	1.15	1661	2.7400	2.8078	0.0678	41	156	260
9 Feb 26	22281	12078.55	12102.55	1440.00	36	36	36.0	15.5	1022.7	1.17	1679	2.7298	2.7845	0.0547	33	156	260
14 Feb 26	22286	12102.55	12126.55	1440.00	36	36	36.0	21.8	1016.2	1.15	1659	2.7382	2.8700	0.1318	79	156	260
16 Feb 26	22304	12126.55	12150.55	1440.00	34	34	34.0	24	1015.3	1.07	1547	2.7070	2.7512	0.0442	29	156	260
20 Feb 26	22301	12150.55	12174.55	1440.00	38	38	38.0	20.9	1018.7	1.20	1732	2.7298	2.8094	0.0796	46	156	260
24 Feb 26	22314	12174.55	12198.55	1440.00	38	38	38.0	22.3	1013.7	1.20	1724	2.7195	2.8150	0.0955	55	156	260
26 Feb 26	22318	12198.55	12222.55	1440.00	34	34	34.0	20.5	1012.3	1.08	1554	2.7553	2.7854	0.0301	19	156	260

24-Hour TSP Monitoring Data for AM(D)3																	
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)	Action Level	Limit Level
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)			
3 Feb 26	22260	24245.75	24269.75	1440.00	38	38	38.0	17.8	1024.1	1.12	1609	2.7504	2.9490	0.1986	123	155	260
5 Feb 26	22271	24269.75	24293.75	1440.00	40	40	40.0	20.9	1016.7	1.18	1694	2.7533	2.9460	0.1927	114	155	260
9 Feb 26	22282	24293.75	24317.75	1440.00	38	38	38.0	15.5	1022.7	1.12	1616	2.7375	2.8541	0.1166	72	155	260
14 Feb 26	22284	24317.75	24341.75	1440.00	36	36	36.0	21.8	1016.2	1.04	1502	2.7285	2.8371	0.1086	72	155	260
16 Feb 26	22305	24341.75	24365.75	1440.00	36	36	36.0	24	1015.3	1.04	1495	2.7003	2.7630	0.0627	42	155	260
20 Feb 26	22302	24365.75	24389.75	1440.00	40	40	40.0	20.9	1018.7	1.19	1709	2.7225	2.8245	0.1020	60	155	260
24 Feb 26	22308	24389.75	24413.75	1440.00	40	40	40.0	22.3	1013.7	1.18	1699	2.7517	2.8472	0.0955	56	155	260
26 Feb 26	22310	24413.55	24437.55	1440.00	34	34	34.0	20.5	1012.3	0.97	1402	2.7385	2.7711	0.0326	23	155	260

24-Hour TSP Monitoring Data for AM(D)5a																	
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)	Action Level	Limit Level
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)			
3 Feb 26	22296	5967.31	5991.31	1440.00	40	40	40.0	17.8	1024.1	1.19	1715	2.7343	3.0883	0.3540	206	238	260
5 Feb 26	22273	5991.31	6015.31	1440.00	40	40	40.0	20.9	1016.7	1.18	1696	2.7330	3.0683	0.3353	198	238	260
9 Feb 26	22276	6015.31	6039.31	1440.00	40	40	40.0	15.5	1022.7	1.20	1722	2.7314	3.0039	0.2725	158	238	260
14 Feb 26	22287	6039.31	6063.31	1440.00	38	38	38.0	21.8	1016.2	1.13	1628	2.7278	3.0245	0.2967	182	238	260
16 Feb 26	22306	6063.31	6087.31	1440.00	40	40	40.0	24	1015.3	1.20	1724	2.7529	3.1216	0.3687	214	238	260
20 Feb 26	22311	6087.31	6111.31	1440.00	38	38	38.0	20.9	1018.7	1.13	1634	2.7456	2.9074	0.1618	99	238	260
24 Feb 26	22309	6111.31	6135.31	1440.00	40	40	40.0	22.3	1013.7	1.20	1728	2.7546	3.0303	0.2757	160	238	260
26 Feb 26	22319	6135.31	6159.31	1440.00	40	40	40.0	20.5	1012.3	1.20	1733	2.7484	3.0219	0.2735	158	238	260

24-Hour TSP Monitoring Data for AM(D)6a																	
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)	Action Level	Limit Level
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)			
3 Feb 26	22297	23968.98	23992.98	1440.00	40	40	40.0	17.8	1024.1	1.21	1745	2.7202	2.9414	0.2212	127	159	260
5 Feb 26	22300	23992.98	24016.98	1440.00	40	40	40.0	20.9	1016.7	1.20	1727	2.7271	2.8961	0.1690	98	159	260
9 Feb 26	22277	24016.98	24040.98	1440.00	36	36	36.0	15.5	1022.7	1.07	1541	2.7238	2.8239	0.1001	65	159	260
14 Feb 26	22285	24040.98	24064.98	1440.00	36	36	36.0	21.8	1016.2	1.11	1603	2.7308	2.9160	0.1852	116	159	260
16 Feb 26	22289	24064.98	24088.98	1440.00	38	38	38.0	24	1015.3	1.18	1695	2.7353	2.8869	0.1516	89	159	260
20 Feb 26	22312	24088.98	24112.98	1440.00	36	36	36.0	20.9	1018.7	1.12	1608	2.7495	2.8648	0.1153	72	159	260
24 Feb 26	22315	24112.98	24136.98	1440.00	38	38	38.0	22.3	1013.7	1.18	1699	2.7347	2.9287	0.1940	114	159	260
26 Feb 26	22320	24136.98	24160.98	1440.00	34	34	34.0	20.5	1012.3	1.04	1504	2.7397	2.8037	0.0640	43	159	260

24-Hour TSP Monitoring Data for AM(D)7b																	
DATE	SAMPLE NUMBER	ELAPSED TIME			CHART READING			AVG TEMP	AVG AIR PRESS	STANDARD FLOW RATE	AIR VOLUME	FILTER WEIGHT (g)		DUST WEIGHT COLLECTED	24-hr TSP (µg/m³)	Action Level	Limit Level
		INITIAL	FINAL	(min)	MIN	MAX	AVG	(°C)	(hPa)	(m³/min)	(std m³)	INITIAL	FINAL	(g)			
3 Feb 26	22298	5607.01	5631.01	1440.00	34	34	34.0	17.8	1024.1	1.03	1477	2.7262	2.8553	0.1291	87	215	260
5 Feb 26	22272	5631.01	5655.01	1440.00	38	38	38.0	20.9	1016.7	1.16	1676	2.7419	2.8805	0.1386	83	215	260
9 Feb 26	22278	5655.01	5679.01	1440.00	38	38	38.0	15.5	1022.7	1.18	1702	2.7205	2.9742	0.2537	149	215	260
14 Feb 26	22288	5679.01	5703.01	1440.00	36	36	36.0	21.8	1016.2	1.10	1589	2.7355	2.7892	0.0537	34	215	260
16 Feb 26	22290	5703.01	5727.01	1440.00	36	36	36.0	24	1015.3	1.10	1581	2.7319	2.7868	0.0549	35	215	260
20 Feb 26	22307	5727.01	5751.01	1440.00	34	34	34.0	20.9	1018.7	1.03	1487	2.7550	2.8043	0.0493	33	215	260
24 Feb 26	22316	5751.01	5775.01	1440.00	38	38	38.0	22.3	1013.7	1.17	1692	2.7379	2.8648	0.1269	75	215	260
26 Feb 26	22324	5775.01	5799.01	1440.00	38	38	38.0	20.5	1012.3	1.18	1697	2.7339	2.7933	0.0594	35	215	260

Construction Noise Monitoring Results

Location: NM1
(Daytime Period)

Date	Start Time	1 st Leq _{5min}	L10	L90	2 nd Leq _{5min}	L10	L90	3 rd Leq _{5min}	L10	L90	4 th Leq _{5min}	L10	L90	5 th Leq _{5min}	L10	L90	6 th Leq _{5min}	L10	L90	Leq _{30min}	Façade Correction	Limit Level
2-Feb-26	10:20	54.7	56.0	51.5	54.2	55.5	50.5	54.3	55.5	50.5	54.9	56.0	51.5	55.2	56.5	52.0	54.8	56.0	51.0	55	58	75
10-Feb-26	16:10	54.6	56.0	50.5	54.5	55.5	50.5	55.2	56.0	51.0	55.8	57.5	51.0	54.4	55.5	50.0	54.5	55.5	50.5	55	58	75
16-Feb-26	16:55	54.6	55.5	50.0	54.5	55.5	50.0	55.2	56.5	50.5	54.7	56.0	50.0	54.0	55.0	49.5	54.6	55.5	50.0	55	58	75
25-Feb-26	16:05	53.7	55.0	49.0	53.9	55.0	49.5	53.9	55.0	49.5	53.8	55.0	49.5	54.0	55.0	49.5	53.8	55.0	49.5	54	57	75

Remark: façade correction +3 dB(A) was added according to acoustical principles and EPD guidelines

Surface Water Quality Monitoring Results
Location: WM1

Date	Time	Tide	Depth (m)	Speed of Water Flow (m/s)	Direction of Water Flow (degree)	Temp (°C)		DO (mg/L)		DOS (%)		Turbidity (NTU)		Salinity (ppt)		pH		Conductivity		Suspended Solids (mg/L)	
6-Feb-26	15:40	Ebb	0.80	0.168	313.90	23.1	23.1	9.81	9.9	135.7	137.2	4.83	4.8	29.24	29.24	7.82	7.8	43522	43533	6.8	7.1
						23.1		10.02		138.6		4.68		29.24		7.83		43543		7.3	
6-Feb-26	11:19	Flood	0.80	0.200	327.60	21.0	21.0	7.38	7.4	98.4	98.6	9.19	8.9	29.60	29.58	7.84	7.8	42149	42115	13.0	12.8
						21.0		7.40		98.7		8.67		29.55		7.85		42080		12.6	

Total Alkalinity (mg/L)		Sulphate (mg/L)		Chloride (mg/L)		Cadmium (µg/L)		Copper (µg/L)		Lead (µg/L)		Manganese (µg/L)		Nickel (µg/L)		Zinc (µg/L)		Calcium (µg/L)		Iron (µg/L)		Magnesium (µg/L)		Potassium (µg/L)		Sodium (µg/L)	
104	104.0	2440	2385.0	16800	16950.0	<0.2	<0.2	2.00	1.5	<1	<1	60.00	57.5	1.0	1.0	<10	<10	412000	408500	180	170	1090000	1055000	350000	340500	8910000	9060000
104		2330		17100		<0.2		1.00		<1		55.00		1.0		<10		405000		160		1020000		331000		9210000	
104	104.0	2150	2140.0	15700	15850.0	<0.2	<0.2	3.00	2.5	1.0	1.0	56.00	55.5	1.0	1.0	<10	<10	411000	410500	300	300	1050000	1045000	336000	337500	8600000	8555000
104		2130		16000		<0.2		2.00		1.0		55.00		1.0		<10		410000		300		1040000		339000		8510000	

Ammonia as N (mg/L)		Nitrate as N (mg/L)		Total Kjeldahl Nitrogen as N (mg/L)		Reactive Phosphorus as P (mg/L)		Sulphite (mg/L)		Total Organic Carbon (mg/L)		Oil and Grease (mg/L)		Chemical Oxygen Demand (COD) (mg/L)		Biochemical Oxygen (mg/L)		Total Coliform (CFU/100mL)	
0.03	0.030	0.40	0.405	0.3	0.30	0.02	0.020	<2	<2	5.0	5	<5	<5	<20	<20	<2	<2	4	3.0
0.03		0.41		0.3		0.02		<2		<5		<5		<20		<2		2	
0.08	0.085	0.49	0.490	0.4	0.35	0.03	0.030	<2	<2	<5	<5	<5	<5	<20	<20	<2	<2	27	33.0
0.09		0.49		0.3		0.03		<2		<5		<5		<20		<2		39	

Landfill Gas Monitoring - Field Measurement Recording Sheet

Contract No.: EP/SP/186/21
Name of construction site: West New Territories Landfill Extension
Month of measurement: February 2026

Sampling equipment used:	Date calibrated
GEM5000	10-Dec-25
SKY3000 Series (LEL)	30-Jan-26

Date of measurement	Sample location	Sampling time	Monitoring of Excavation						
			Weather condition	Methane (CH ₄)	Carbon dioxide (0.1%)	Oxygen (0.1%)	Flammable gas (LEL)	Temp (°C)	Remark
1-Feb-26	C1	8 : 31	Sunny	0.0%	0	20.5	0%LEL	15.8°C	
1-Feb-26	B2	8 : 45	Sunny	0.0%	0	20.5	0%LEL	15.8°C	
1-Feb-26	B9	8 : 55	Sunny	0.0%	0	20.5	0%LEL	15.8°C	
1-Feb-26	B10	9 : 9	Sunny	0.0%	0	20.5	0%LEL	15.8°C	
1-Feb-26	B1a	9 : 33	Sunny	0.0%	0	20.5	0%LEL	15.8°C	
1-Feb-26	B1c	10 : 20	Sunny	0.0%	0	20.5	0%LEL	15.8°C	
1-Feb-26	A1	10 : 43	Sunny	0.0%	0	20.5	0%LEL	15.8°C	
1-Feb-26	C1	13 : 35	Sunny	0.0%	0	20.5	0%LEL	19.7°C	
1-Feb-26	B2	13 : 59	Sunny	0.0%	0	20.5	0%LEL	19.7°C	
1-Feb-26	B9	14 : 16	Sunny	0.0%	0	20.5	0%LEL	19.7°C	
1-Feb-26	B10	14 : 34	Sunny	0.0%	0	20.5	0%LEL	19.7°C	
1-Feb-26	B1a	14 : 51	Sunny	0.0%	0	20.5	0%LEL	19.7°C	
1-Feb-26	B1c	15 : 26	Sunny	0.0%	0	20.5	0%LEL	19.7°C	
1-Feb-26	A1	15 : 39	Sunny	0.0%	0	20.5	0%LEL	19.7°C	
2-Feb-26	C1	8 : 26	Sunny	0.0%	0	20.2	0%LEL	17.5°C	
2-Feb-26	B2	8 : 50	Sunny	0.0%	0	20.2	0%LEL	17.5°C	
2-Feb-26	B9	9 : 17	Sunny	0.0%	0	20.2	0%LEL	17.5°C	
2-Feb-26	B10	9 : 34	Sunny	0.0%	0	20.2	0%LEL	17.5°C	
2-Feb-26	B1a	9 : 46	Sunny	0.0%	0	20.2	0%LEL	17.5°C	
2-Feb-26	B1a-G7	9 : 59	Sunny	0.0%	0	20.2	0%LEL	17.5°C	
2-Feb-26	B1a-G31	10 : 13	Sunny	0.0%	0	20.2	0%LEL	17.5°C	
2-Feb-26	B1c	10 : 28	Sunny	0.0%	0	20.2	0%LEL	17.5°C	
2-Feb-26	A1	10 : 46	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	C1	13 : 23	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	B2	13 : 45	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	B9	14 : 9	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	B10	14 : 48	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	B1a	15 : 17	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	B1a-G7	15 : 29	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	B1a-G31	15 : 40	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	B1c	15 : 56	Sunny	0.0%	0	20.2	0%LEL	21°C	
2-Feb-26	A1	16 : 18	Sunny	0.0%	0	20.2	0%LEL	21°C	
3-Feb-26	C1	8 : 39	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	B2	9 : 4	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	B9	9 : 21	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	B10	9 : 38	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	B1a	9 : 51	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	B1a-G7	10 : 3	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	B1a-G31	10 : 16	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	B1c	10 : 31	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	A1	10 : 52	Sunny	0.0%	0	20.3	0%LEL	17.8°C	
3-Feb-26	C1	13 : 40	Sunny	0.0%	0	20.3	0%LEL	20.2°C	
3-Feb-26	B2	13 : 59	Sunny	0.0%	0	20.3	0%LEL	20.2°C	
3-Feb-26	B9	14 : 25	Sunny	0.0%	0	20.3	0%LEL	20.2°C	
3-Feb-26	B10	14 : 39	Sunny	0.0%	0	20.3	0%LEL	20.2°C	
3-Feb-26	B1a	14 : 58	Sunny	0.0%	0	20.3	0%LEL	20.2°C	
3-Feb-26	B1a-G7	15 : 9	Sunny	0.0%	0	20.3	0%LEL	20.2°C	

Landfill Gas Monitoring - Field Measurement Recording Sheet

Contract No.: EP/SP/186/21
Name of construction site: West New Territories Landfill Extension
Month of measurement : February 2026

Sampling equipment used:	Date calibrated
GEM5000	10-Dec-25
SKY3000 Series (LEL)	30-Jan-26

Date of measurement	Sample location	Sampling time	Monitoring of Excavation						
			Weather condition	Methane (CH ₄)	Carbon dioxide (0.1%)	Oxygen (0.1%)	Flammable gas (LEL)	Temp (°C)	Remark
3-Feb-26	B1a-G31	15 : 20	Sunny	0.0%	0	20.3	0%LEL	20.2°C	
3-Feb-26	B1c	15 : 37	Sunny	0.0%	0	20.3	0%LEL	20.2°C	
3-Feb-26	A1	15 : 56	Sunny	0.0%	0	20.3	0%LEL	20.2°C	
4-Feb-26	C1	8 : 28	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	B2	8 : 46	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	B9	9 : 5	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	B10	9 : 23	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	B1a	9 : 58	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	B1a-G7	10 : 11	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	B1a-G31	10 : 22	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	B1c	10 : 35	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	A1	10 : 53	Sunny	0.0%	0	20.4	0%LEL	18.8°C	
4-Feb-26	C1	13 : 26	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
4-Feb-26	B2	13 : 47	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
4-Feb-26	B9	14 : 6	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
4-Feb-26	B10	14 : 28	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
4-Feb-26	B1a	14 : 49	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
4-Feb-26	B1a-G7	15 : 1	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
4-Feb-26	B1a-G31	15 : 13	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
4-Feb-26	B1c	15 : 27	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
4-Feb-26	A1	15 : 45	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
5-Feb-26	C1	8 : 34	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	B2	8 : 53	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	B9	9 : 18	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	B10	9 : 40	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	B1a	10 : 12	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	B1a-G31	10 : 23	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	B1a-L15	10 : 33	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	B1c	10 : 51	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	A1	11 : 10	Sunny	0.0%	0	20.2	0%LEL	20.9°C	
5-Feb-26	C1	13 : 39	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
5-Feb-26	B2	14 : 7	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
5-Feb-26	B9	14 : 22	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
5-Feb-26	B10	14 : 40	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
5-Feb-26	B1a	14 : 59	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
5-Feb-26	B1a-G31	15 : 10	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
5-Feb-26	B1a-L15	15 : 20	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
5-Feb-26	B1c	15 : 36	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
5-Feb-26	A1	15 : 58	Sunny	0.0%	0	20.2	0%LEL	25.2°C	
6-Feb-26	C1	8 : 24	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
6-Feb-26	B2	8 : 51	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
6-Feb-26	B9	9 : 18	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
6-Feb-26	B10	9 : 40	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
6-Feb-26	B1a	10 : 2	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
6-Feb-26	B1a-L15	10 : 13	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
6-Feb-26	B1c	10 : 25	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
6-Feb-26	A1	10 : 48	Sunny	0.0%	0	20.4	0%LEL	22.1°C	
6-Feb-26	C1	13 : 29	Sunny	0.0%	0	20.4	0%LEL	26.2°C	
6-Feb-26	B2	13 : 44	Sunny	0.0%	0	20.4	0%LEL	26.2°C	

Landfill Gas Monitoring - Field Measurement Recording Sheet

Contract No.: EP/SP/186/21
 Name of construction site: West New Territories Landfill Extension
 Month of measurement : February 2026

Sampling equipment used:	Date calibrated
GEM5000	10-Dec-25
SKY3000 Series (LEL)	30-Jan-26

Date of measurement	Sample location	Sampling time	Monitoring of Excavation						Remark
			Weather condition	Methane (CH ₄)	Carbon dioxide (0.1%)	Oxygen (0.1%)	Flammable gas (LEL)	Temp (°C)	
10-Feb-26	B1a-G34	10 : 8	Sunny	0.0%	0	20.2	0%LEL	17.9°C	
10-Feb-26	B1c	10 : 19	Sunny	0.0%	0	20.2	0%LEL	17.9°C	
10-Feb-26	A1	10 : 39	Sunny	0.0%	0	20.2	0%LEL	17.9°C	
10-Feb-26	C1	13 : 31	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
10-Feb-26	B2	13 : 53	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
10-Feb-26	B9	14 : 9	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
10-Feb-26	B10	14 : 27	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
10-Feb-26	B1a	14 : 49	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
10-Feb-26	B1a-G9	14 : 53	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
10-Feb-26	B1a-G34	14 : 57	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
10-Feb-26	B1c	15 : 10	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
10-Feb-26	A1	15 : 29	Sunny	0.0%	0	20.2	0%LEL	19.6°C	
11-Feb-26	C1	8 : 40	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	B2	8 : 59	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	B9	9 : 23	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	B10	9 : 35	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	B1a	10 : 1	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	B1a-G9	10 : 7	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	B1a-G34	10 : 11	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	B1c	10 : 25	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	A1	10 : 49	Sunny	0.0%	0	20.4	0%LEL	21°C	
11-Feb-26	C1	13 : 44	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
11-Feb-26	B2	14 : 2	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
11-Feb-26	B9	14 : 25	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
11-Feb-26	B10	14 : 41	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
11-Feb-26	B1a	15 : 2	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
11-Feb-26	B1a-G9	15 : 7	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
11-Feb-26	B1a-G34	15 : 13	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
11-Feb-26	B1c	15 : 29	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
11-Feb-26	A1	15 : 57	Sunny	0.0%	0	20.4	0%LEL	25.2°C	
12-Feb-26	C1	8 : 38	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	B2	8 : 55	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	B9	9 : 18	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	B10	9 : 41	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	B1a	10 : 10	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	B1a-G9	10 : 14	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	B1a-G34	10 : 20	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	B1c	10 : 33	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	A1	10 : 48	Sunny	0.0%	0	20.4	0%LEL	18.4°C	
12-Feb-26	C1	13 : 40	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
12-Feb-26	B2	14 : 2	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
12-Feb-26	B9	14 : 16	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
12-Feb-26	B10	14 : 33	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
12-Feb-26	B1a	14 : 52	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
12-Feb-26	B1a-G9	14 : 57	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
12-Feb-26	B1a-G34	15 : 1	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
12-Feb-26	B1c	15 : 7	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
12-Feb-26	A1	15 : 25	Sunny	0.0%	0	20.4	0%LEL	19.9°C	
13-Feb-26	C1	8 : 35	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	B2	8 : 56	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	B9	9 : 12	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	B10	9 : 22	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	B1a	9 : 49	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	B1a-G9	9 : 53	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	B1a-G34	9 : 59	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	B1c	10 : 12	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	A1	10 : 27	Sunny	0.0%	0	20.5	0%LEL	20.2°C	
13-Feb-26	C1	13 : 38	Sunny	0.0%	0	20.5	0%LEL	24.5°C	
13-Feb-26	B2	13 : 52	Sunny	0.0%	0	20.5	0%LEL	24.5°C	
13-Feb-26	B9	14 : 14	Sunny	0.0%	0	20.5	0%LEL	24.5°C	

Landfill Gas Monitoring - Field Measurement Recording Sheet

Contract No.: EP/SP/186/21
 Name of construction site: West New Territories Landfill Extension
 Month of measurement: February 2026

Sampling equipment used:	Date calibrated
GEM5000	10-Dec-25
SKY3000 Series (LEL)	30-Jan-26

Date of measurement	Sample location	Sampling time	Monitoring of Excavation						Remark
			Weather condition	Methane (CH ₄)	Carbon dioxide (0.1%)	Oxygen (0.1%)	Flammable gas (LEL)	Temp (°C)	
13-Feb-26	B10	14 : 37	Sunny	0.0%	0	20.5	0%LEL	24.5°C	
13-Feb-26	B1a	14 : 59	Sunny	0.0%	0	20.5	0%LEL	24.5°C	
13-Feb-26	B1a-G9	15 : 4	Sunny	0.0%	0	20.5	0%LEL	24.5°C	
13-Feb-26	B1a-G34	15 : 9	Sunny	0.0%	0	20.5	0%LEL	24.5°C	
13-Feb-26	B1c	15 : 15	Sunny	0.0%	0	20.5	0%LEL	24.5°C	
13-Feb-26	A1	15 : 35	Sunny	0.0%	0	20.5	0%LEL	24.5°C	
14-Feb-26	C1	8 : 42	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	B2	9 : 12	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	B9	9 : 30	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	B10	9 : 50	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	B1a	10 : 14	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	B1a-G9	10 : 18	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	B1a-G34	10 : 25	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	B1c	10 : 36	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	A1	10 : 51	Sunny	0.0%	0	20.2	0%LEL	21.8°C	
14-Feb-26	C1	13 : 35	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
14-Feb-26	B2	13 : 59	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
14-Feb-26	B9	14 : 14	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
14-Feb-26	B10	14 : 25	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
14-Feb-26	B1a	14 : 54	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
14-Feb-26	B1a-G9	15 : 59	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
14-Feb-26	B1a-G34	15 : 10	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
14-Feb-26	B1c	15 : 19	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
14-Feb-26	A1	15 : 39	Sunny	0.0%	0	20.2	0%LEL	25.8°C	
15-Feb-26	C1	8 : 21	Sunny	0.0%	0	20.4	0%LEL	22.9°C	
15-Feb-26	B2	8 : 48	Sunny	0.0%	0	20.4	0%LEL	22.9°C	
15-Feb-26	B9	9 : 10	Sunny	0.0%	0	20.4	0%LEL	22.9°C	
15-Feb-26	B10	9 : 30	Sunny	0.0%	0	20.4	0%LEL	22.9°C	
15-Feb-26	B1a	9 : 49	Sunny	0.0%	0	20.4	0%LEL	22.9°C	
15-Feb-26	B1c	10 : 12	Sunny	0.0%	0	20.4	0%LEL	22.9°C	
15-Feb-26	A1	10 : 27	Sunny	0.0%	0	20.4	0%LEL	22.9°C	
15-Feb-26	C1	13 : 34	Sunny	0.0%	0	20.4	0%LEL	26.9°C	
15-Feb-26	B2	13 : 47	Sunny	0.0%	0	20.4	0%LEL	26.9°C	
15-Feb-26	B9	15 : 11	Sunny	0.0%	0	20.4	0%LEL	26.9°C	
15-Feb-26	B10	15 : 29	Sunny	0.0%	0	20.4	0%LEL	26.9°C	
15-Feb-26	B1a	15 : 57	Sunny	0.0%	0	20.4	0%LEL	26.9°C	
15-Feb-26	B1c	16 : 14	Sunny	0.0%	0	20.4	0%LEL	26.9°C	
15-Feb-26	A1	16 : 32	Sunny	0.0%	0	20.4	0%LEL	26.9°C	
16-Feb-26	C1	8 : 33	Sunny	0.0%	0	20.4	0%LEL	24°C	
16-Feb-26	B2	8 : 49	Sunny	0.0%	0	20.4	0%LEL	24°C	
16-Feb-26	B9	9 : 11	Sunny	0.0%	0	20.4	0%LEL	24°C	
16-Feb-26	B10	9 : 24	Sunny	0.0%	0	20.4	0%LEL	24°C	
16-Feb-26	B1a	9 : 39	Sunny	0.0%	0	20.4	0%LEL	24°C	
16-Feb-26	B1c	9 : 53	Sunny	0.0%	0	20.4	0%LEL	24°C	
16-Feb-26	A1	10 : 12	Sunny	0.0%	0	20.4	0%LEL	24°C	
16-Feb-26	C1	13 : 26	Sunny	0.0%	0	20.4	0%LEL	27.9°C	
16-Feb-26	B2	13 : 47	Sunny	0.0%	0	20.4	0%LEL	27.9°C	
16-Feb-26	B9	14 : 5	Sunny	0.0%	0	20.4	0%LEL	27.9°C	
16-Feb-26	B10	14 : 20	Sunny	0.0%	0	20.4	0%LEL	27.9°C	
16-Feb-26	B1a	14 : 49	Sunny	0.0%	0	20.4	0%LEL	27.9°C	
16-Feb-26	B1c	15 : 10	Sunny	0.0%	0	20.4	0%LEL	27.9°C	
16-Feb-26	A1	15 : 27	Sunny	0.0%	0	20.4	0%LEL	27.9°C	
20-Feb-26	C1	8 : 33	Sunny	0.0%	0	20.4	0%LEL	20.9°C	
20-Feb-26	B2	9 : 1	Sunny	0.0%	0	20.4	0%LEL	20.9°C	
20-Feb-26	B9	9 : 26	Sunny	0.0%	0	20.4	0%LEL	20.9°C	
20-Feb-26	B10	9 : 40	Sunny	0.0%	0	20.4	0%LEL	20.9°C	
20-Feb-26	B1a	10 : 14	Sunny	0.0%	0	20.4	0%LEL	20.9°C	
20-Feb-26	B1c	10 : 35	Sunny	0.0%	0	20.4	0%LEL	20.9°C	
20-Feb-26	A1	10 : 51	Sunny	0.0%	0	20.4	0%LEL	24.6°C	
20-Feb-26	C1	13 : 39	Sunny	0.0%	0	20.4	0%LEL	24.6°C	
20-Feb-26	B2	13 : 52	Sunny	0.0%	0	20.4	0%LEL	24.6°C	
20-Feb-26	B9	14 : 23	Sunny	0.0%	0	20.4	0%LEL	24.6°C	
20-Feb-26	B10	14 : 41	Sunny	0.0%	0	20.4	0%LEL	24.6°C	

Landfill Gas Monitoring - Field Measurement Recording Sheet

Contract No.: EP/SP/186/21
Name of construction site: West New Territories Landfill Extension
Month of measurement : February 2026

Sampling equipment used:	Date calibrated
GEM5000	10-Dec-25
SKY3000 Series (LEL)	30-Jan-26

Date of measurement	Sample location	Sampling time	Monitoring of Excavation						Remark
			Weather condition	Methane (CH ₄)	Carbon dioxide (0.1%)	Oxygen (0.1%)	Flammable gas (LEL)	Temp (°C)	
20-Feb-26	B1a	15 : 1	Sunny	0.0%	0	20.4	0%LEL	24.6°C	
20-Feb-26	B1c	15 : 17	Sunny	0.0%	0	20.4	0%LEL	24.6°C	
20-Feb-26	A1	15 : 38	Sunny	0.0%	0	20.4	0%LEL	24.6°C	
21-Feb-26	C1	8 : 39	Sunny	0.0%	0	20.2	0%LEL	21°C	
21-Feb-26	B2	9 : 9	Sunny	0.0%	0	20.2	0%LEL	21°C	
21-Feb-26	B9	9 : 33	Sunny	0.0%	0	20.2	0%LEL	21°C	
21-Feb-26	B10	9 : 49	Sunny	0.0%	0	20.2	0%LEL	21°C	
21-Feb-26	B1a	10 : 14	Sunny	0.0%	0	20.2	0%LEL	21°C	
21-Feb-26	B1c	10 : 29	Sunny	0.0%	0	20.2	0%LEL	21°C	
21-Feb-26	A1	10 : 48	Sunny	0.0%	0	20.2	0%LEL	21°C	
21-Feb-26	C1	13 : 25	Sunny	0.0%	0	20.2	0%LEL	23.4°C	
21-Feb-26	B2	13 : 51	Sunny	0.0%	0	20.2	0%LEL	23.4°C	
21-Feb-26	B9	14 : 14	Sunny	0.0%	0	20.2	0%LEL	23.4°C	
21-Feb-26	B10	14 : 35	Sunny	0.0%	0	20.2	0%LEL	23.4°C	
21-Feb-26	B1a	15 : 4	Sunny	0.0%	0	20.2	0%LEL	23.4°C	
21-Feb-26	B1c	15 : 17	Sunny	0.0%	0	20.2	0%LEL	23.4°C	
21-Feb-26	A1	15 : 35	Sunny	0.0%	0	20.2	0%LEL	23.4°C	
22-Feb-26	C1	8 : 29	Sunny	0.0%	0	20.5	0%LEL	22.3°C	
22-Feb-26	B2	8 : 51	Sunny	0.0%	0	20.5	0%LEL	22.3°C	
22-Feb-26	B9	9 : 19	Sunny	0.0%	0	20.5	0%LEL	22.3°C	
22-Feb-26	B10	9 : 38	Sunny	0.0%	0	20.5	0%LEL	22.3°C	
22-Feb-26	B1a	10 : 2	Sunny	0.0%	0	20.5	0%LEL	22.3°C	
22-Feb-26	B1c	10 : 19	Sunny	0.0%	0	20.5	0%LEL	22.3°C	
22-Feb-26	A1	10 : 40	Sunny	0.0%	0	20.5	0%LEL	22.3°C	
22-Feb-26	C1	13 : 45	Sunny	0.0%	0	20.5	0%LEL	25.3°C	
22-Feb-26	B2	14 : 19	Sunny	0.0%	0	20.5	0%LEL	25.3°C	
22-Feb-26	B9	14 : 37	Sunny	0.0%	0	20.5	0%LEL	25.3°C	
22-Feb-26	B10	14 : 53	Sunny	0.0%	0	20.5	0%LEL	25.3°C	
22-Feb-26	B1a	15 : 25	Sunny	0.0%	0	20.5	0%LEL	25.3°C	
22-Feb-26	B1c	15 : 46	Sunny	0.0%	0	20.5	0%LEL	25.3°C	
22-Feb-26	A1	15 : 59	Sunny	0.0%	0	20.5	0%LEL	25.3°C	
23-Feb-26	C1	8 : 33	Sunny	0.0%	0	20.3	0%LEL	21.4°C	
23-Feb-26	B2	8 : 54	Sunny	0.0%	0	20.3	0%LEL	21.4°C	
23-Feb-26	B9	9 : 17	Sunny	0.0%	0	20.3	0%LEL	21.4°C	
23-Feb-26	B10	9 : 33	Sunny	0.0%	0	20.3	0%LEL	21.4°C	
23-Feb-26	B1a	10 : 7	Sunny	0.0%	0	20.3	0%LEL	21.4°C	
23-Feb-26	B1c	10 : 18	Sunny	0.0%	0	20.3	0%LEL	21.4°C	
23-Feb-26	A1	10 : 35	Sunny	0.0%	0	20.3	0%LEL	21.4°C	
23-Feb-26	C1	13 : 27	Sunny	0.0%	0	20.3	0%LEL	23°C	
23-Feb-26	B2	13 : 51	Sunny	0.0%	0	20.3	0%LEL	23°C	
23-Feb-26	B9	14 : 13	Sunny	0.0%	0	20.3	0%LEL	23°C	
23-Feb-26	B10	14 : 28	Sunny	0.0%	0	20.3	0%LEL	23°C	
23-Feb-26	B1a	15 : 4	Sunny	0.0%	0	20.3	0%LEL	23°C	
23-Feb-26	B1c	15 : 19	Sunny	0.0%	0	20.3	0%LEL	23°C	
23-Feb-26	A1	15 : 34	Sunny	0.0%	0	20.3	0%LEL	23°C	
24-Feb-26	C1	8 : 28	Sunny	0.0%	0	20.4	0%LEL	22.3°C	
24-Feb-26	B2	8 : 55	Sunny	0.0%	0	20.4	0%LEL	22.3°C	
24-Feb-26	B9	9 : 15	Sunny	0.0%	0	20.4	0%LEL	22.3°C	
24-Feb-26	B10	9 : 36	Sunny	0.0%	0	20.4	0%LEL	22.3°C	
24-Feb-26	B1a	9 : 52	Sunny	0.0%	0	20.4	0%LEL	22.3°C	
24-Feb-26	B1c	10 : 9	Sunny	0.0%	0	20.4	0%LEL	22.3°C	
24-Feb-26	A1	10 : 27	Sunny	0.0%	0	20.4	0%LEL	22.3°C	
24-Feb-26	C1	13 : 27	Sunny	0.0%	0	20.4	0%LEL	25.7°C	
24-Feb-26	B2	13 : 54	Sunny	0.0%	0	20.4	0%LEL	25.7°C	
24-Feb-26	B9	14 : 14	Sunny	0.0%	0	20.4	0%LEL	25.7°C	
24-Feb-26	B10	14 : 32	Sunny	0.0%	0	20.4	0%LEL	25.7°C	
24-Feb-26	B1a	14 : 54	Sunny	0.0%	0	20.4	0%LEL	25.7°C	
24-Feb-26	B1c	15 : 11	Sunny	0.0%	0	20.4	0%LEL	25.7°C	
24-Feb-26	A1	15 : 32	Sunny	0.0%	0	20.4	0%LEL	25.7°C	
25-Feb-26	C1	8 : 23	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	
25-Feb-26	B2	8 : 49	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	
25-Feb-26	B9	9 : 10	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	
25-Feb-26	B10	9 : 28	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	

Landfill Gas Monitoring - Field Measurement Recording Sheet

Contract No.: EP/SP/186/21
Name of construction site: West New Territories Landfill Extension
Month of measurement: February 2026

Sampling equipment used:	Date calibrated
GEM5000	10-Dec-25
SKY3000 Series (LEL)	30-Jan-26

Date of measurement	Sample location	Sampling time	Monitoring of Excavation						Remark
			Weather condition	Methane (CH ₄)	Carbon dioxide (0.1%)	Oxygen (0.1%)	Flammable gas (LEL)	Temp (°C)	
25-Feb-26	B10-G5	9 : 35	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	
25-Feb-26	B1a	9 : 51	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	
25-Feb-26	B1c	10 : 8	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	
25-Feb-26	A1	10 : 27	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	
25-Feb-26	A1-G10	10 : 36	Cloudy	0.0%	0	20.5	0%LEL	22.7°C	
25-Feb-26	C1	13 : 30	Cloudy	0.0%	0	20.5	0%LEL	26°C	
25-Feb-26	B2	13 : 49	Cloudy	0.0%	0	20.5	0%LEL	26°C	
25-Feb-26	B9	14 : 14	Cloudy	0.0%	0	20.5	0%LEL	26°C	
25-Feb-26	B10	14 : 32	Cloudy	0.0%	0	20.5	0%LEL	26°C	
25-Feb-26	B10-G5	14 : 36	Cloudy	0.0%	0	20.5	0%LEL	26°C	
25-Feb-26	B1a	14 : 55	Cloudy	0.0%	0	20.5	0%LEL	26°C	
25-Feb-26	B1c	15 : 18	Cloudy	0.0%	0	20.5	0%LEL	26°C	
25-Feb-26	A1	15 : 40	Cloudy	0.0%	0	20.5	0%LEL	26°C	
25-Feb-26	A1-G10	15 : 45	Cloudy	0.0%	0	20.5	0%LEL	26°C	
26-Feb-26	C1	8 : 39	Sunny	0.0%	0	20.5	0%LEL	20.5°C	
26-Feb-26	B2	9 : 13	Sunny	0.0%	0	20.5	0%LEL	20.5°C	
26-Feb-26	B9	9 : 35	Sunny	0.0%	0	20.5	0%LEL	20.5°C	
26-Feb-26	B10	9 : 50	Sunny	0.0%	0	20.5	0%LEL	20.5°C	
26-Feb-26	B10-G5	9 : 56	Sunny	0.0%	0	20.5	0%LEL	20.5°C	
26-Feb-26	B1a	10 : 18	Sunny	0.0%	0	20.5	0%LEL	20.5°C	
26-Feb-26	B1c	10 : 34	Sunny	0.0%	0	20.5	0%LEL	20.5°C	
26-Feb-26	A1	10 : 55	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	A1-G10	10 : 59	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	C1	13 : 25	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	B2	13 : 44	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	B9	13 : 59	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	B10	14 : 15	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	B10-G5	14 : 18	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	B1a	14 : 36	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	B1c	14 : 59	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	A1	15 : 18	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
26-Feb-26	A1-G10	15 : 26	Sunny	0.0%	0	20.5	0%LEL	21.9°C	
27-Feb-26	C1	8 : 34	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	B2	9 : 1	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	B9	9 : 15	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	B10	9 : 29	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	B10-G5	9 : 35	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	B1a	9 : 58	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	B1c	10 : 20	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	A1	10 : 35	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	A1-G10	10 : 42	Sunny	0.0%	0	20.4	0%LEL	21.4°C	
27-Feb-26	C1	13 : 25	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
27-Feb-26	B2	14 : 54	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
27-Feb-26	B9	14 : 14	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
27-Feb-26	B10	14 : 39	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
27-Feb-26	B10-G5	14 : 45	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
27-Feb-26	B1a	15 : 3	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
27-Feb-26	B1c	15 : 20	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
27-Feb-26	A1	15 : 35	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
27-Feb-26	A1-G10	15 : 42	Sunny	0.0%	0	20.4	0%LEL	22.8°C	
28-Feb-26	C1	8 : 30	Rainy	0.0%	0	20.5	0%LEL	20°C	
28-Feb-26	B2	8 : 56	Rainy	0.0%	0	20.5	0%LEL	20°C	
28-Feb-26	B9	9 : 15	Rainy	0.0%	0	20.5	0%LEL	20°C	
28-Feb-26	B10	9 : 39	Rainy	0.0%	0	20.5	0%LEL	20°C	
28-Feb-26	B1a	10 : 9	Rainy	0.0%	0	20.5	0%LEL	20°C	
28-Feb-26	B1a-L63	10 : 13	Rainy	0.0%	0	20.5	0%LEL	20°C	
28-Feb-26	B1c	10 : 32	Rainy	0.0%	0	20.5	0%LEL	20°C	
28-Feb-26	A1	10 : 45	Rainy	0.0%	0	20.5	0%LEL	20°C	
28-Feb-26	C1	13 : 36	Rainy	0.0%	0	20.5	0%LEL	21.8°C	
28-Feb-26	B2	13 : 59	Rainy	0.0%	0	20.5	0%LEL	21.8°C	
28-Feb-26	B9	14 : 28	Rainy	0.0%	0	20.5	0%LEL	21.8°C	
28-Feb-26	B10	14 : 47	Rainy	0.0%	0	20.5	0%LEL	21.8°C	
28-Feb-26	B1a	15 : 15	Rainy	0.0%	0	20.5	0%LEL	21.8°C	

Landfill Gas Monitoring - Field Measurement Recording Sheet

Contract No.: EP/SP/186/21

Name of construction site: West New Territories Landfill Extension

Month of measurement : February 2026

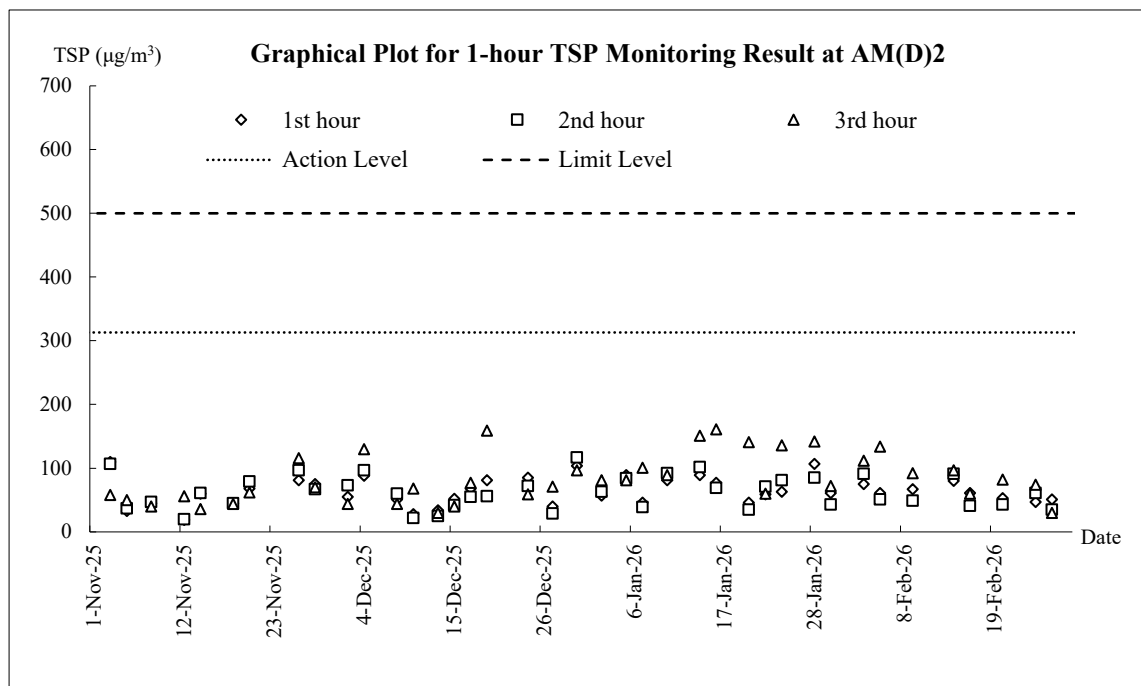
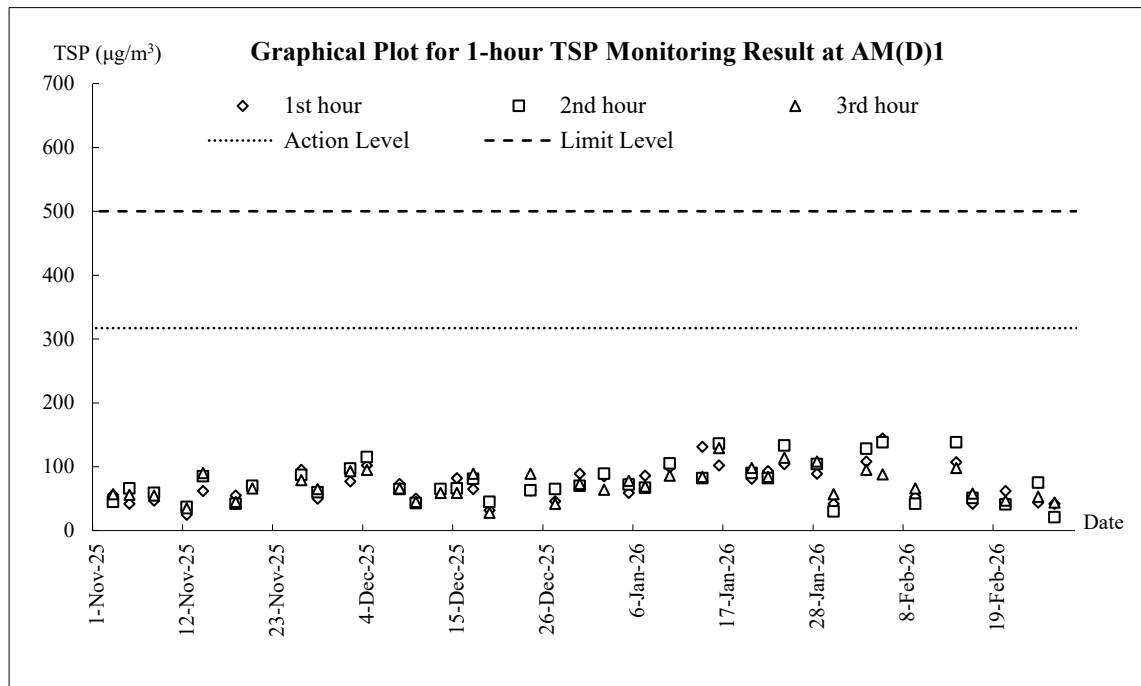
Sampling equipment used:	Date calibrated
GEM5000	10-Dec-25
SKY3000 Series (LEL)	30-Jan-26

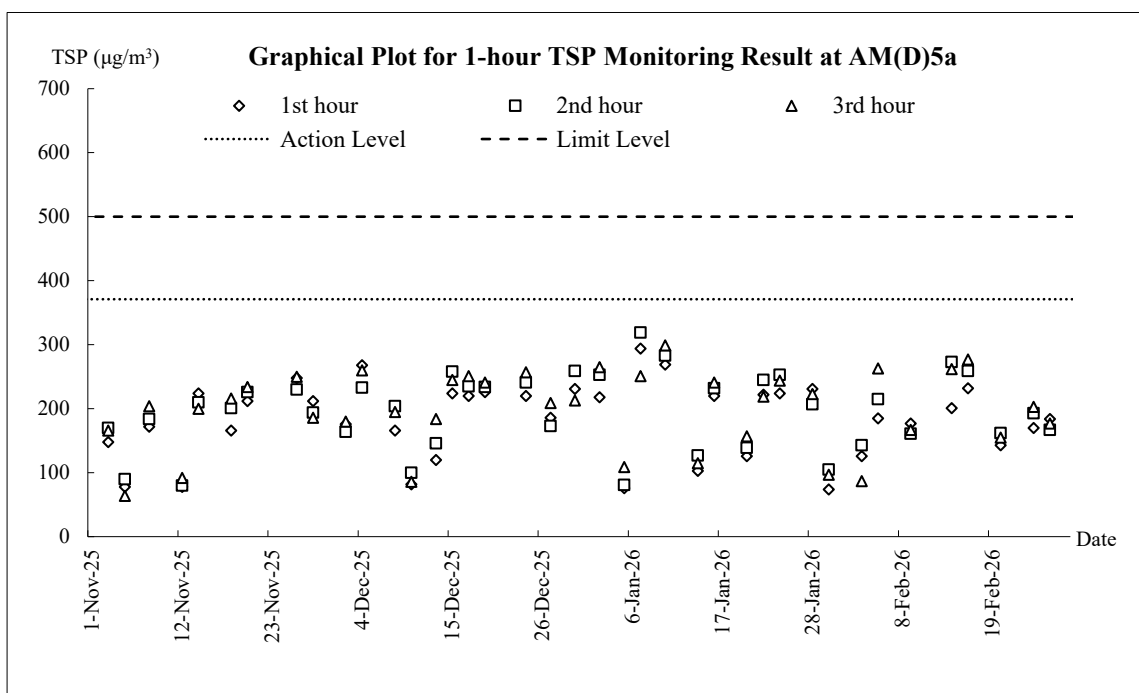
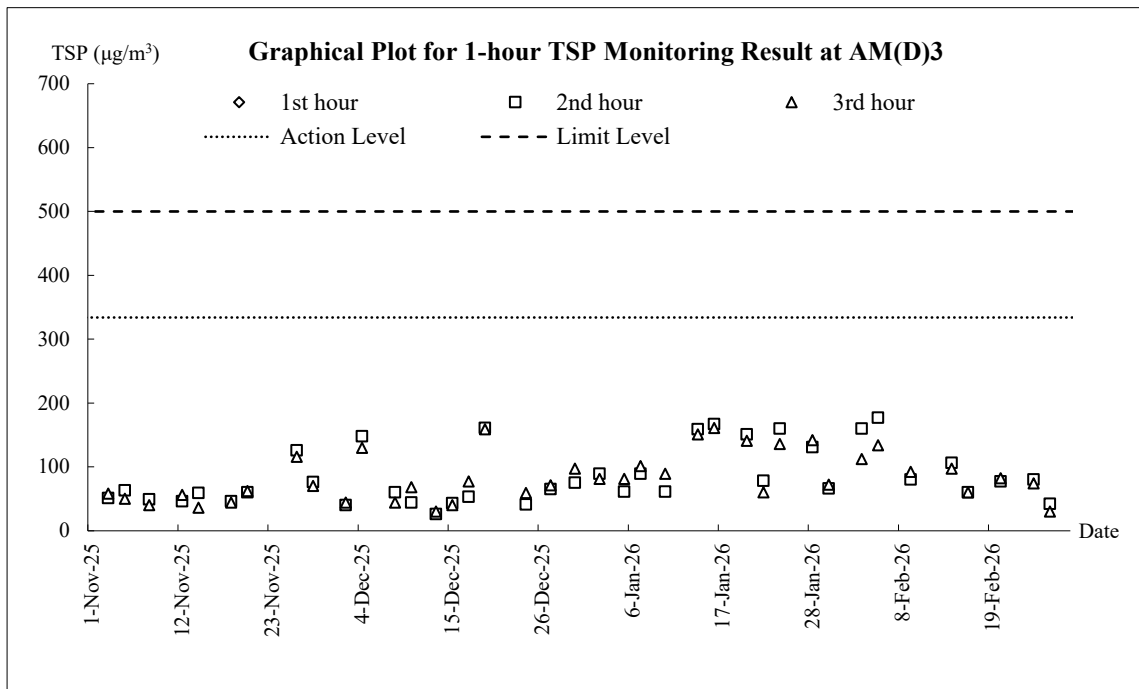
Date of measurement	Sample location	Sampling time	Monitoring of Excavation						
			Weather condition	Methane (CH ₄)	Carbon dioxide (0.1%)	Oxygen (0.1%)	Flammable gas (LEL)	Temp (°C)	Remark
28-Feb-26	B1a-L63	15 : 20	Rainy	0.0%	0	20.5	0%LEL	21.8°C	
28-Feb-26	B1c	15 : 39	Rainy	0.0%	0	20.5	0%LEL	21.8°C	
28-Feb-26	A1	15 : 58	Rainy	0.0%	0	20.5	0%LEL	21.8°C	

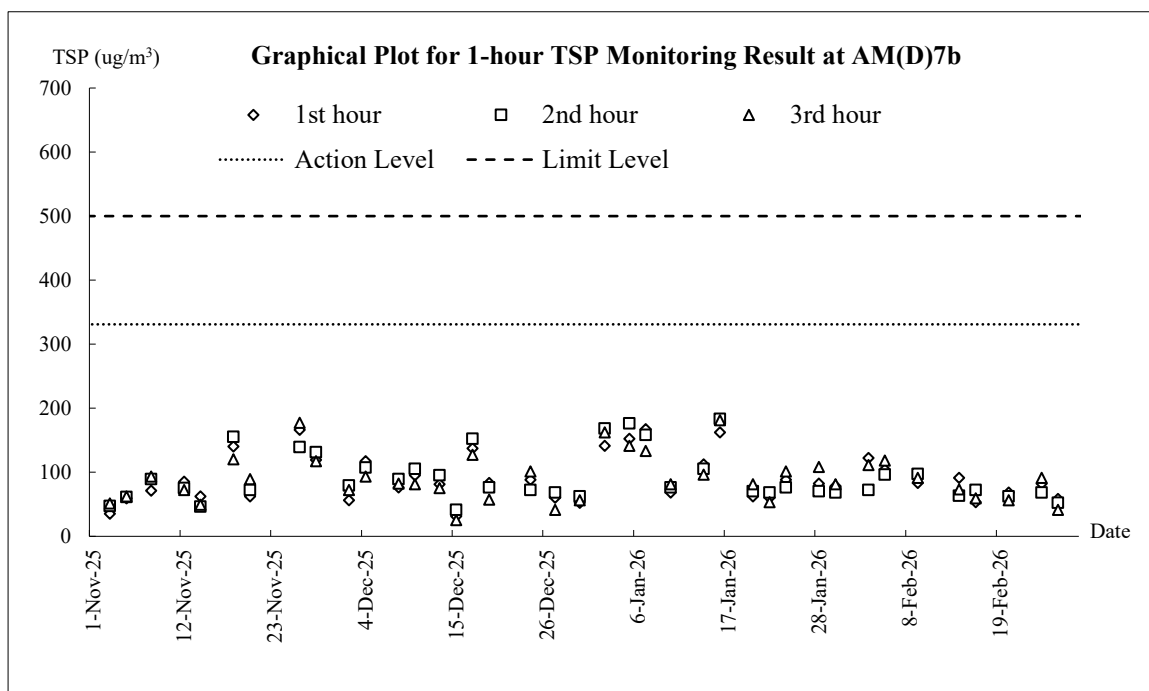
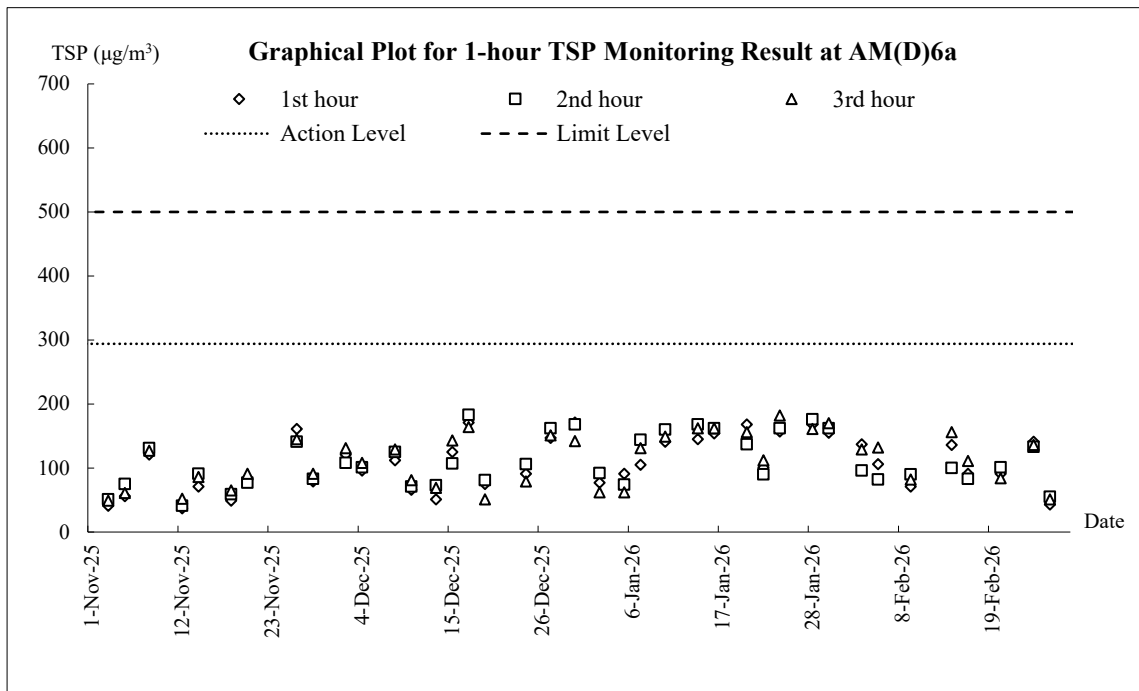
Appendix J

Graphical Plots for Monitoring Result

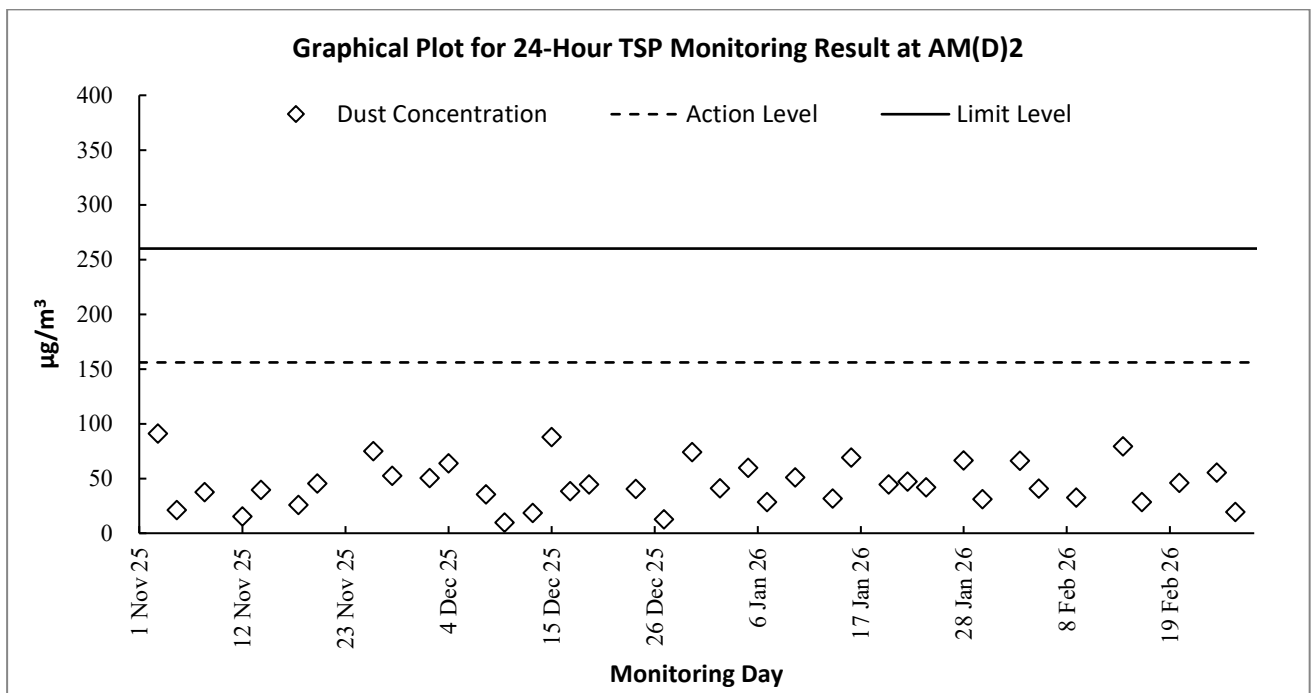
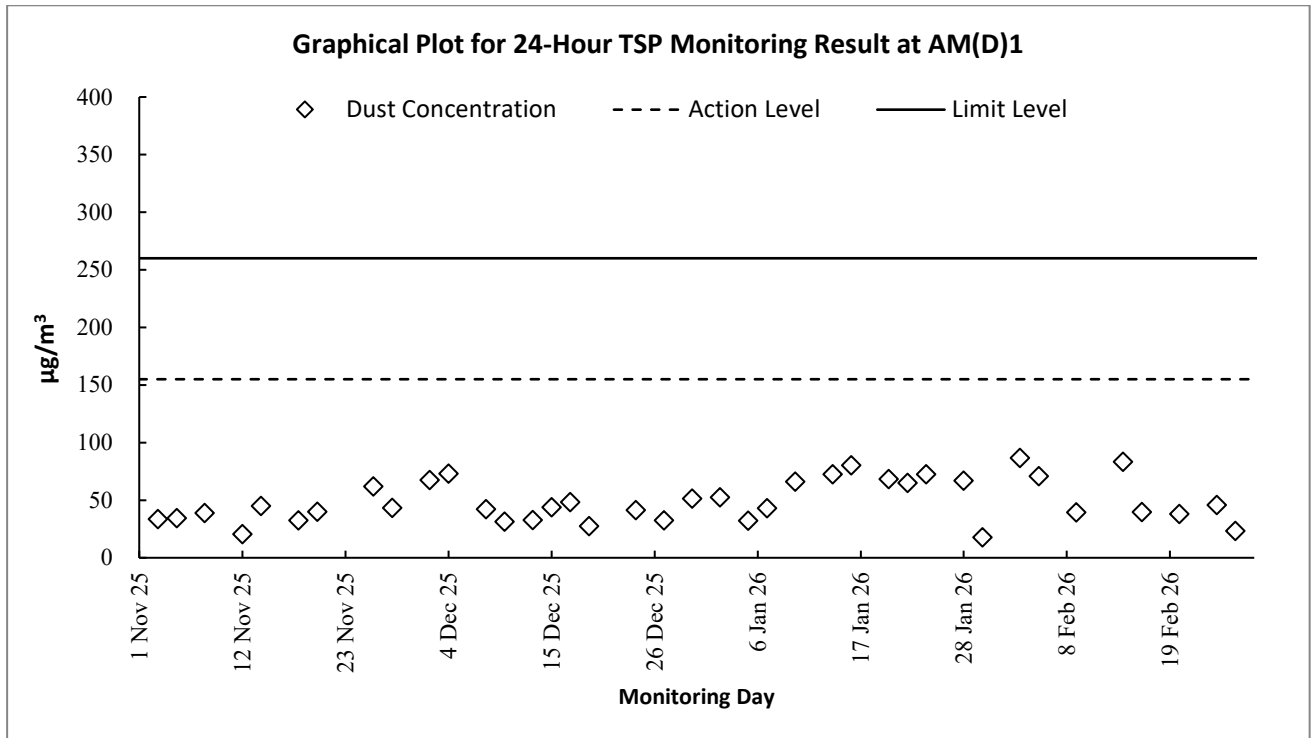
Air Quality – 1-hour TSP



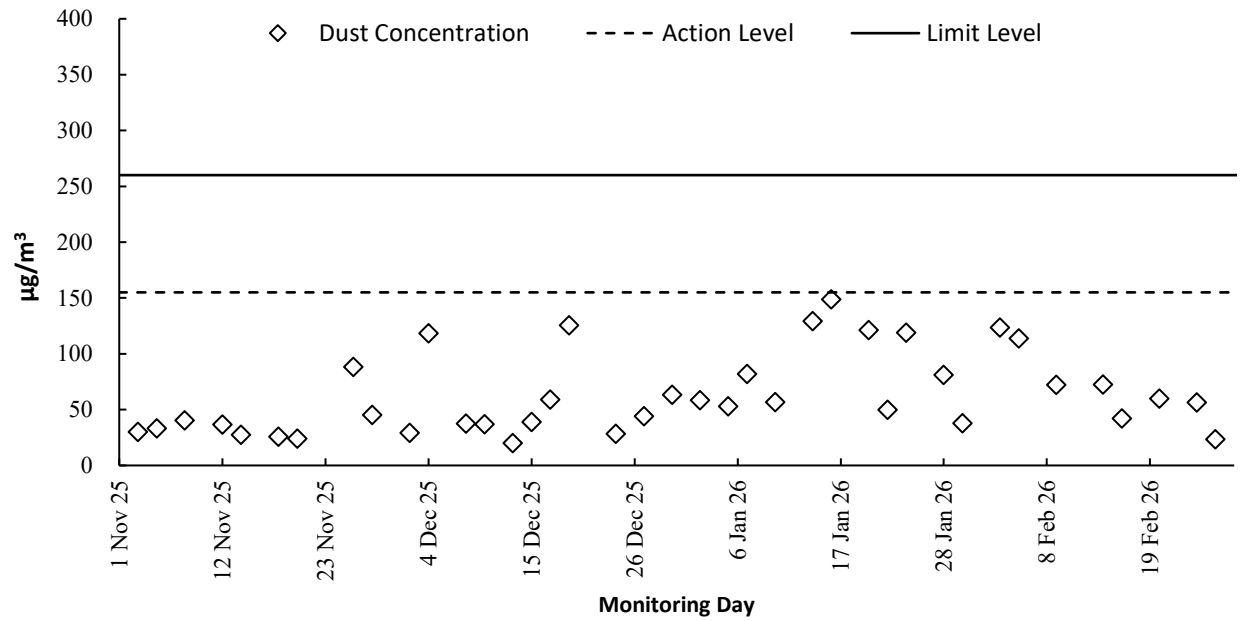




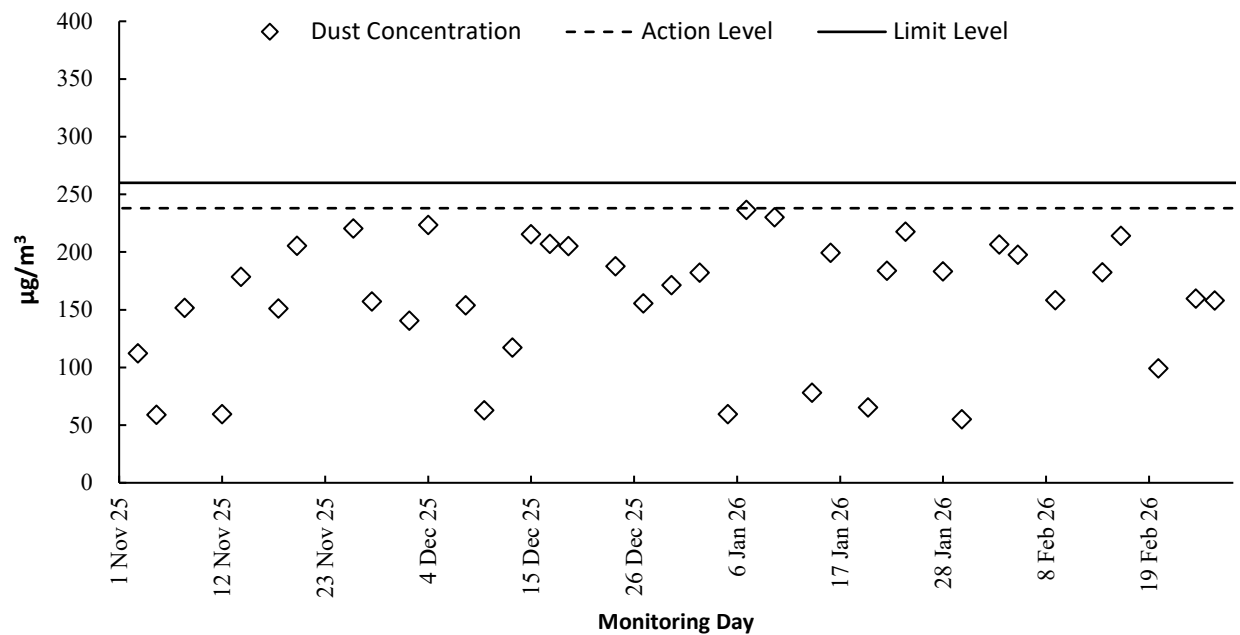
Air Quality – 24-hour TSP

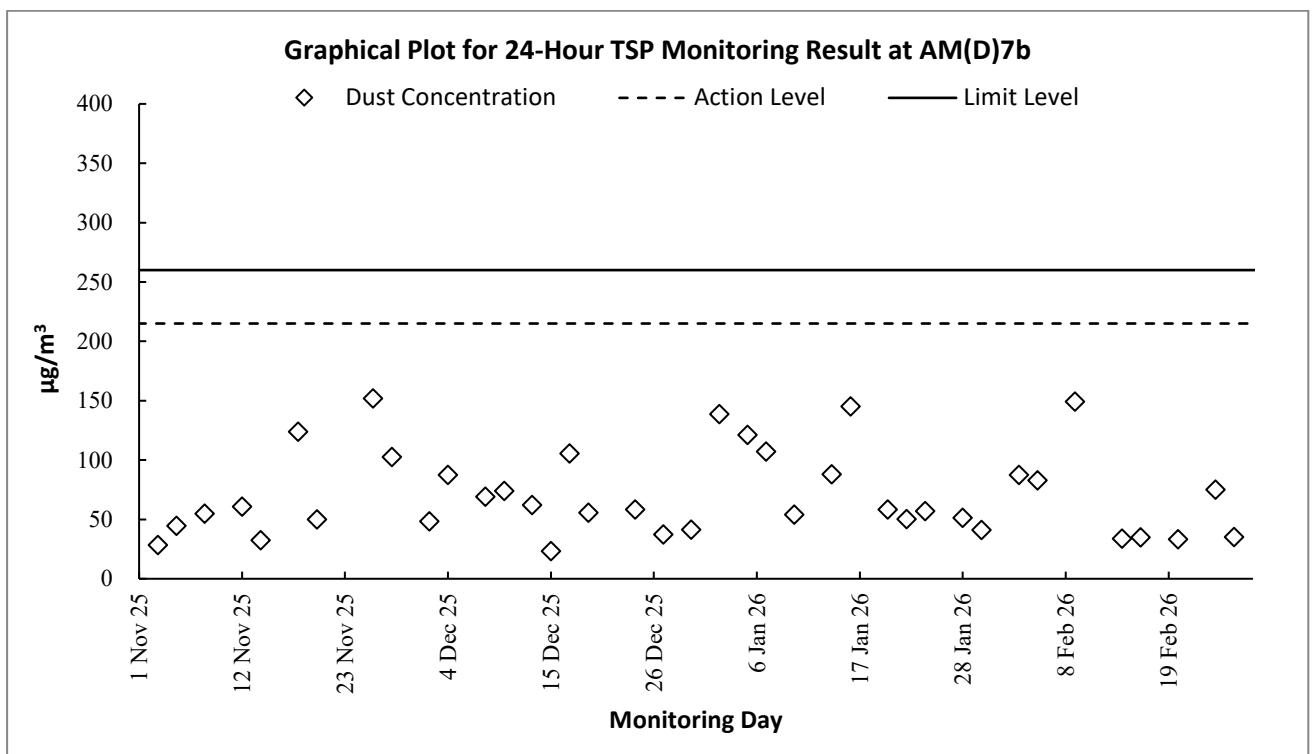
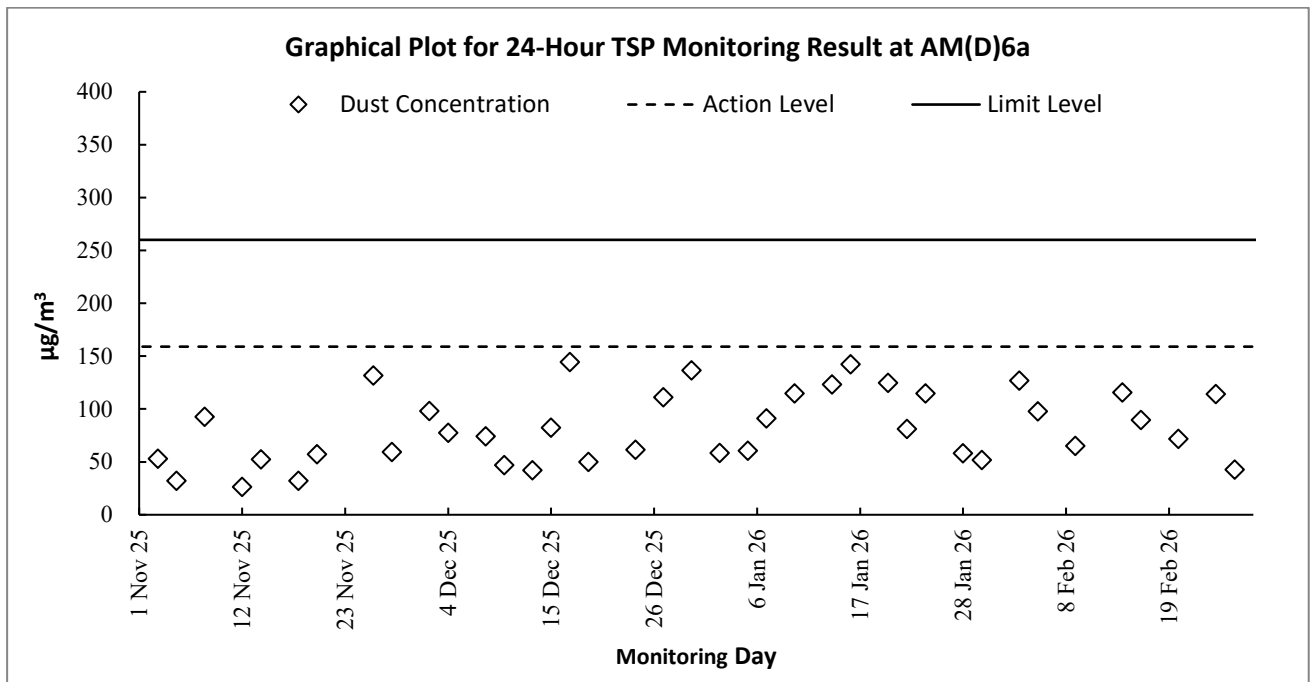


Graphical Plot for 24-Hour TSP Monitoring Result at AM(D)3

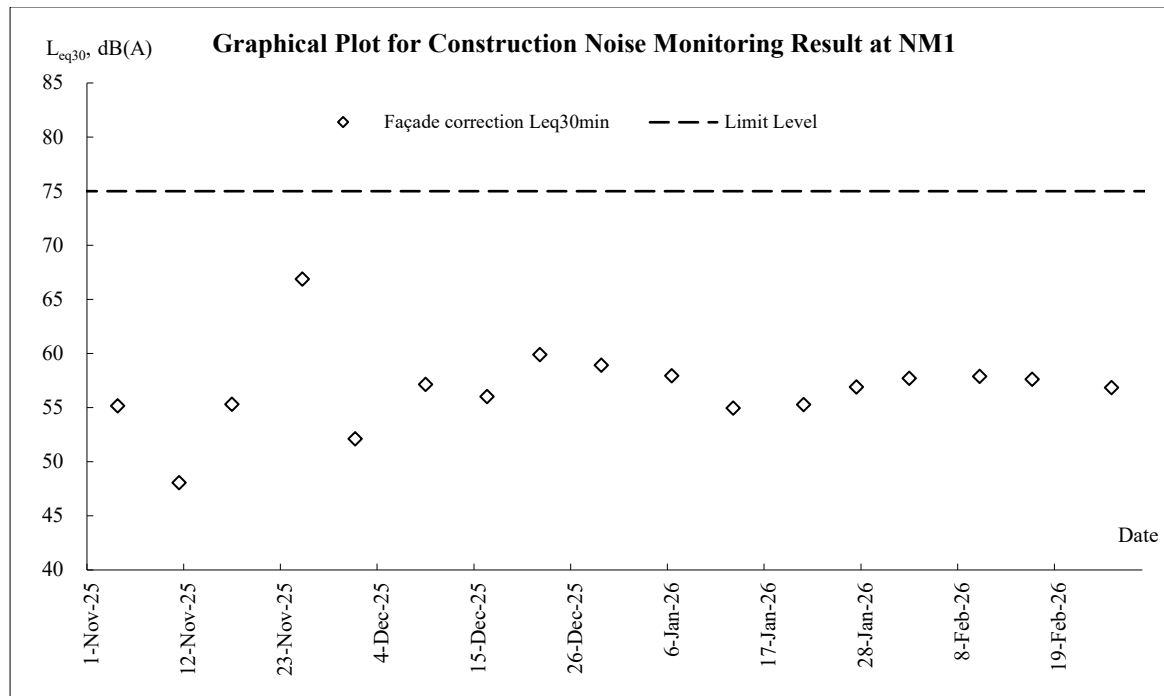


Graphical Plot for 24-Hour TSP Monitoring Result at AM(D)5a

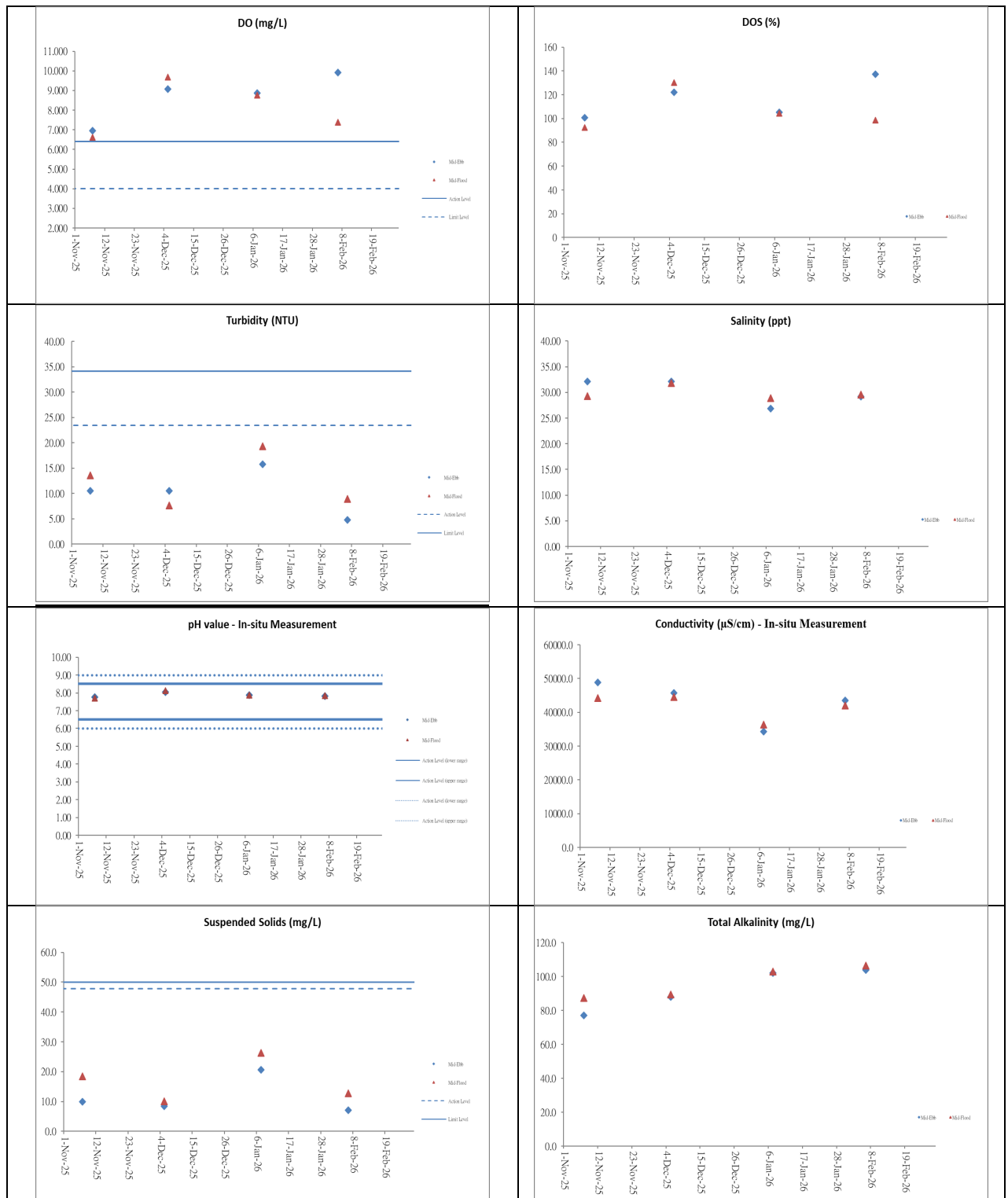


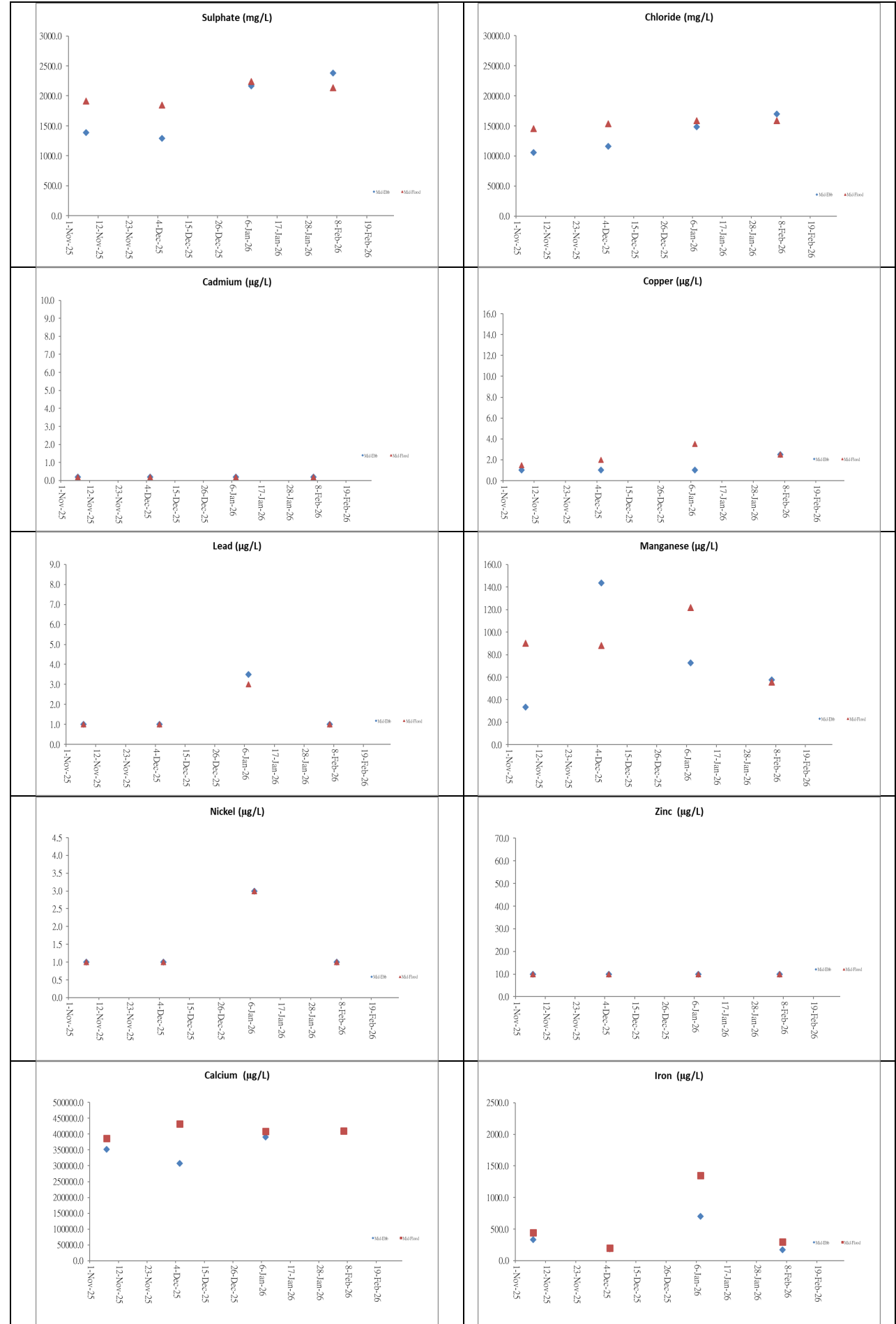


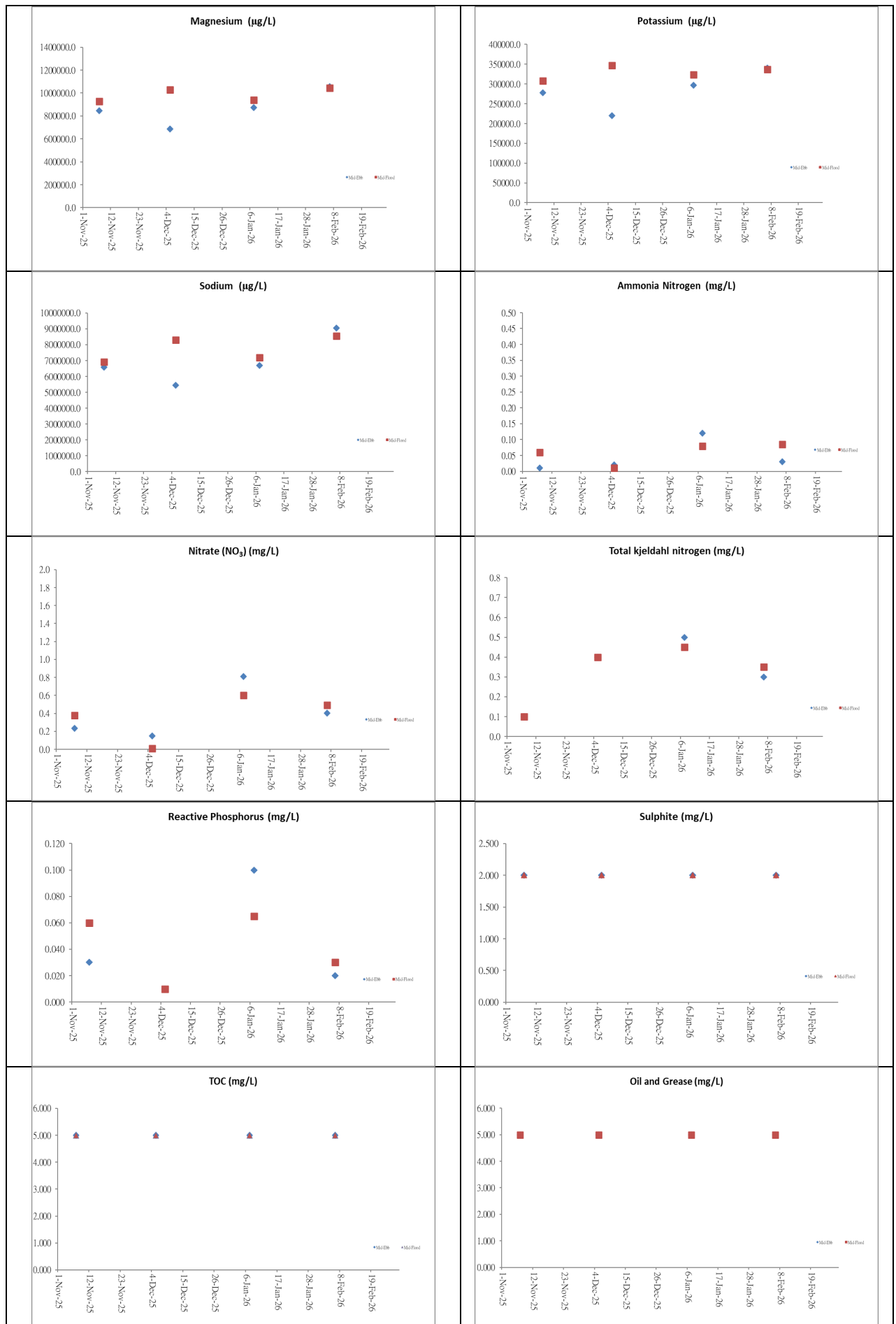
Construction Noise

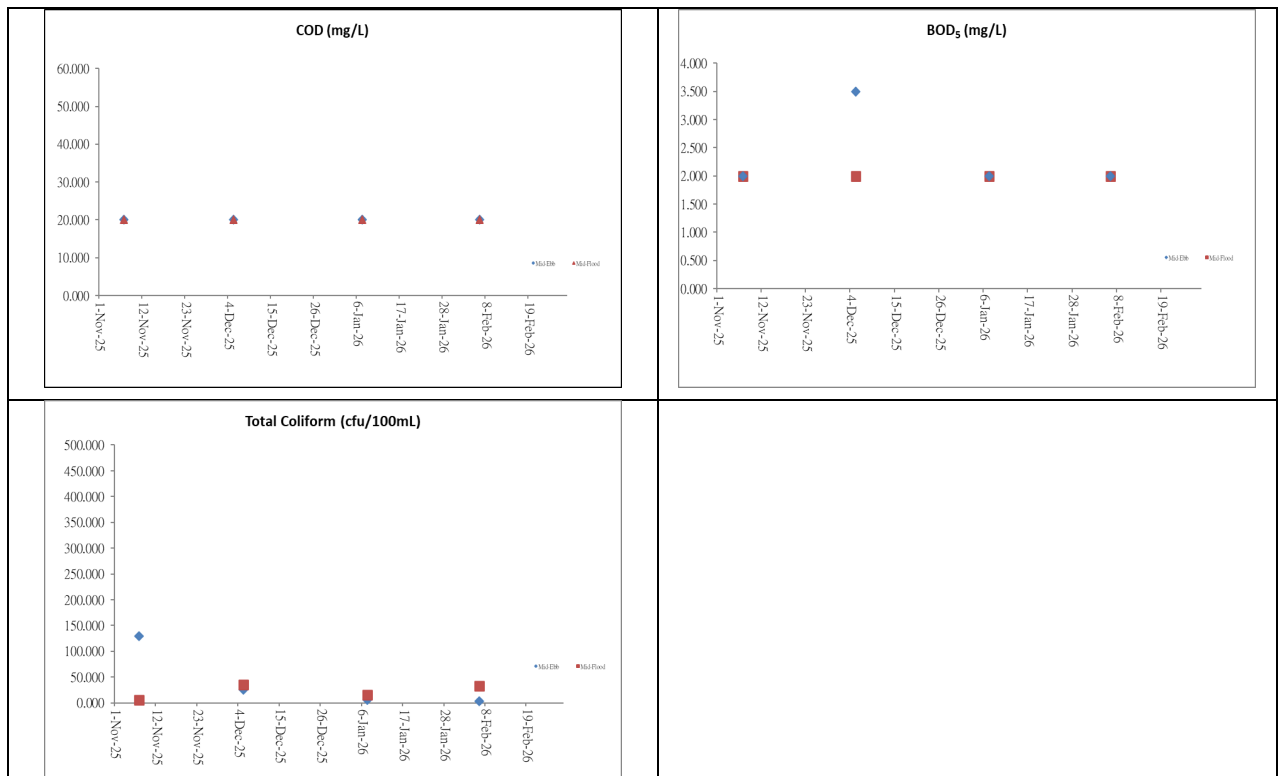


Surface Water









Appendix K

Waste Flow Table

Monthly Summary Waste Flow Table

(Specification Part A Clause 1.16.5.4 refers)

Name of Department: EPD

Contract No.: EP/SP/186/21 West New Territories Landfill Extension

Monthly Summary Waste Flow Table for 2026 (year)

Month 2023 to 2025	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Waste Generated Monthly						
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / cardboard packaging	Plastics	Chemical Waste		Yard Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in kg)	(in kg)	(in kg)	(in liter)	(in '000kg)	(in tonne)	(in '000m ³)
	1062.488	0.000	642.413	418.243	1.831	216.576	132052.400	134.500	33.200	60520.000	1.200	7241.470	13.468
Jan	18.112	0.000	18.052	0.060	0.000	0.000	2.100	22.900	5.700	0.000	0.000	0.000	0.236
Feb	136.328	0.000	136.315	0.013	0.000	0.000	0.000	5.100	1.000	16659.000	0.000	0.000	0.196
Mar													
Apr													
May													
Jun													
Sub-Total	1216.928	0.000	796.780	418.316	1.831	216.576	132054.500	162.500	39.900	77179.000	1.200	7241.470	13.900
Jul													
Aug													
Sep													
Oct													
Nov													
Dec													
Total	1216.928	0.000	796.780	418.316	1.831	216.576	132054.500	162.500	39.900	77179.000	1.200	7241.470	13.900

Note:

- (1) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials
- (2) Project Commenced in Sep 2023.
- (3) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- (4) The Contractor shall also submit the latest forecast of the total amount of C&D materials expected to be generated from the Works, together with a breakdown of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000 m³.
- (5) Density values and Bulk Factors adopted:

Hard Rock (reuse in the contract) and Large Broken Concrete:

2.5 T/m³(in-situ)

Imported Rock:

2.0 T/m³

Soil/Fill:

2.0 T/m³(in-situ)

Imported Soil / Import Public Fill:

1.8 T/m³

General Refuse:

900 Kg/m³

Imported Sand:

1.6 T/m³

- (6) Yard Waste is sent to Y Park as recyclable.

Appendix L

Cumulative Environmental Complaints Log

Environmental Complaint Log ref.	Date of Complaint Received	Date of Received by ET	Complaint nature	Channel	Investigation Summary & Conclusion	Status
WENTX – 01	25 June 2025	26 June 2025	Air Quality	Project's PR Team	The HKRRP's PR team received a complaint from the Ha Pak Nai Village Head on 25 June 2025 regarding the dust problem generated from the construction site of WENTX. A video provided by the Village Head indicated that inadequate dust suppression measures were being implemented at Portion A1. As confirmed by HKRRP, the major construction activities carried out at Portion A1 on 25 June 2025 included soft and hard excavation and blasting. Upon receipt of the complaint, an ad-hoc site inspection on Portion A1 was conducted by the ET on the morning of 30 June 2025 to evaluate the implementation of dust mitigation measures and assess the effectiveness. According to the impact air quality monitoring result on 25 June 2025 (the day of the complaint) and 28 June 2025 (additional monitoring, no exceedances of environmental performance criteria were recorded for 1-hr TSP and 24-hr TSP. This indicates that the air quality for nearby sensitive receivers were within acceptable levels. In our investigation, HKRRP implemented dust mitigation measures to reduce to potential impact to nearby ASRs, and no exceedances recorded during the concerned day. It is considered that the complaint was a one-off incident with short-term impact. HKRRP was reminded to implement the recommended Environmental Mitigation Implementation Schedule, specifically to carry out watering 8 times per day during construction phase and to implement the mitigation measures as far as practicable, as recommended in the EM&A Program.	Completed

WENTX – 02	28 August 2025	29 August 2025	Air Quality & Noise	EPD Project Team	A complaint letter was received by EPD on 28 August 2025, regarding the noise and dust impact generated near the entrance of the Hung-Shing Temple from the construction activities. As advised by HKRRP, the concerned site is located within Portion C1a and this portion of land was handed over to the HKRRP on 25 September 2024 and Hung-Shing Temple (洪聖公廟) is located adjacent to the Portion C1a boundary. Site clearance and formation of a temporary accessed road from Portion C1 to Portion F at Portion C1a was commenced in July 2025 and substantially completed on 4 August 2025. During the construction activities were being carried out at Portion C1a, mitigation measures of noise and dust were properly in place and maintained throughout the work period. Moreover, the temporary access road from Portion C1 to Portion F is idle, and no significant work was observed within approximately 100 meters from the entrance of the temple. According to the impact monitoring result in July and August 2025, no exceedances of environmental performance criteria were recorded. This indicates that the air quality and construction noise impact to the nearby sensitive receivers were within acceptable levels. In conclusion, all site activities are strictly confined within the designated site boundary, and environmental mitigation measures have been properly implemented and monitored, no adverse environmental impact near the entrance of the Hung-Shing Temple arising from the site works is anticipated. As the temporary access road is currently idle after completion of work in early August, it is considered that the complaint is unlikely valid to the works under the Project.	Completed
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WENTX – 03	10 September 2025	15 September 2025	Water Quality	EPD	A complaint was received by EPD on 10 September 2025, regarding the flooded access road observed in Portion C1. As advised by the Contractor, the flooded access road in Portion C1 was due to heavy rainfall encountered on 8 September 2025 when Tropical Cyclone Warning Signal No. 3 and No. 8 was in force. Upon observed the accumulation of surface runoff, mitigation measures such as additional submersible pumps and vacuum truck were provided by the Contractor to remove the accumulated surface runoff. Since the access road is within the site area, no untreated surface runoff was discharged out of site boundary. It is considered that the flooded access road caused by heavy rainfall was a one-off incident with short-term impact. HKRRP was reminded to implement the recommended Environmental Mitigation Implementation Schedule, specifically to ensure all surface runoff generated from work areas are diverted to wastewater treatment facilities prior discharge during construction phase and to implement the mitigation measures as far as practicable, as recommended in the EM&A Program.	Completed
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WENTX – 04	29 January 2026	30 January 2026	Air Quality	1823 Hotline	A complaint was referred from 1823 on 29 January 2026, regarding the construction dust from Nim Wan Road. As advised by the Contractor, the work carried out near the complaint location on 29 January 2026 included excavation work at Portion A1 and asphalt paving work at Portion B1a. In addition, rock breaking work was carried out at Portion D1 (i.e. Temporary Traffic Arrangement (TTA) at Nim Wan Road near Yung Long Road) on 29 January 2026. Upon receipt of the complaint, joint site inspection were conducted by HKRRP and ET on 30 January 2026 to evaluate the implementation of dust mitigation measures and assess the effectiveness. In addition, EM&A programme has been executed by the ET to monitor the potential environmental impact arising from the Project and to take prompt action in response to any deficiencies found on Site. The closest air quality monitoring station from the complaint location is AM(D)6a which is located at the rooftop of T·PARK workshop. According to the impact monitoring result in 28 and 30 January 2026, no exceedances of environmental performance criteria were recorded for 1-hr TSP monitoring. In our investigation, HKRRP implemented dust mitigation measures at to reduce potential dust impact to nearby environment, and no dust monitoring exceedances were recorded on 28 and 30 January 2026. Nevertheless, HKRRP was reminded to implement the recommended Environmental Mitigation Implementation Schedule, and to implement the mitigation measures as far as practicable, as recommended in the EM&A Program.	Completed
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WENTX – 05	3 February 2026	6 February 2026	Air Quality	1823 Hotline	A complaint was referred from 1823 on 3 February 2026, regarding the construction dust from road work at Nim Wan Road. As advised by the Contractor, rock breaking work was carried out at Portion D1 (i.e. Temporary Traffic Arrangement (TTA) at Nim Wan Road near Yung Long Road) on 3 February 2026. Upon receipt of the complaint, joint site inspection were conducted by HKRRP and ET on 6 February 2026 to evaluate the implementation of dust mitigation measures and assess the effectiveness. In addition, EM&A programme has been executed by the ET to monitor the potential environmental impact arising from the Project and to take prompt action in response to any deficiencies found on Site. The closest air quality monitoring station from the rock breaking work at Portion D1 is AM(D)5a which is located at Lung Kwu Sheung Tan. According to the impact monitoring result on 3 February 2026, no exceedance of environmental performance criteria was recorded for 1-hr TSP monitoring. In our investigation, HKRRP implemented dust mitigation measures at to reduce potential dust impact to nearby environment, and no dust monitoring exceedance was recorded on 3 February 2026. Nevertheless, HKRRP was reminded to implement the recommended Environmental Mitigation Implementation Schedule, and to implement the mitigation measures as far as practicable, as recommended in the EM&A Program.	Completed
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Appendix M

Environmental Mitigation Implementation Schedule

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

Appendix B1 – Air Quality

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
<i>Air Quality</i>							
S3.8.1	A1	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation. - Dust emission from construction vehicle movement is confined within the worksites area. - Watering facilities will be provided at every designated vehicular exit point. - Watering will be carried out 8 times per day during construction phase.	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	Entire WENT Landfill Extension site	Construction and Restoration phases	To control the dust impact to within the EM&A criteria (Ref. 1-hr and 24-hr TSP levels are $500\mu\text{gm}^{-3}$ and $260\mu\text{gm}^{-3}$, respectively)
S3.8.2	A2	The following measures shall be exercised for stack discharge from Ammonia Stripping Plant (ASP), Flare and LFG Power Generator: - The maximum allowable discharge limit and pollutant removal efficiency for ASP, flare and LFG power generator should be specified in the design specification. - Owing to the requirement for the installation of stack, the design requirement shall be submitted to IEC and SM for vetting by the Contractor. - Subject to the subsequent EPD's requirement on chimney installation, regular stack monitoring of air pollutants, including NO_x, SO₂, RSP, NMOCs, vinyl chloride, and benzene shall be carried out at a quarterly interval (i.e. once every 3 months), and the operating conditions, including exhaust gas temperature and velocity shall be monitored continuously in order to demonstrate compliance during the operations. - A monthly monitoring report should be prepared by ET and submitted to IEC and SM for approval.	Minimize the release of harmful air pollutant to the atmosphere	Contractor	Flare, ASP and LFG Power Generator of WENT Landfill Extension	Design, Operation and Restoration phases	TM-EIA, Annex 4

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
S3.8.2	A3	The following measures shall be exercised for the VOC surface emission: - The arrangement of the landfill gas collection system and surface covering material for inactive tipping area shall be reviewed by Contractor every 5 years to identify any modern technology/arrangement (covering material, LFG well spacing and locations). A working team shall be formulated to review all processes, control practice and extraction system in order to maximize the efficiency of the system. A review report should be prepared by the Contractor for the submission to SM and IEC on the implementation/arrangement of LFG extraction system. The first review report should be submitted to SM and IEC for agreement before commencement. With a good system to collect LFG (high extraction efficiency), surface release of VOC to the nearby environment can be much reduced or utilised. - Maintain a slightly negative pressure within the entire tipping area (by suction). Minimise any potential leakage of LFG to the surrounding by increase the number of gas-extraction wells. Improve the extraction efficiency by checking/reinstate gas wells with abnormally low extraction rate due to blockage/soil movement or sedimentation. - Increase the coverage of inactive tipping phases with HDPE/plastic sheet which can enhance the anaerobic decomposition (reduce air getting in and VOC leaking out). - EM&A will be conducted at ASR to establish the future VOC ambient level. This monitoring work should be carried out in a frequency once every 3 months. By comparing the monitoring data at the boundary and at ASR, the cause of VOC and the general downwind dispersion effect (dilution effect) from the boundary to the ASR can be identified. The findings of the monitoring should be incorporated into the landfill gas collection system review report as mentioned above.	Minimize the release of harmful VOC to the environment	Contractor	Active, Inactive and Restored Tipping areas	Design, Before commencement of Operation, Operation and Restoration phases	• TM-EIA, Annex 4

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
S3.8.2	A4	The following design options shall be considered in the future leachate treatment plants: - Adopted updated treatment method such as Sequencing Batch Reactor for future leachate treatment. Provision of ventilated cover for the leachate storage lagoons / tanks and emissions extracted to suitable odour removal filters with odour removal efficiency of 99%. - Ferric nitrate or sodium hypochlorite can be added to oxidise the odourous chemical in the leachate. The pH value of leachate can be controlled to a suitable value from future onsite experiment such that the generation of any odourous H₂S and ammonia can be optimised. - The locations of discharge points and discharge heights should be in accordance with the assumptions adopted in the EIA Report and VEP supporting document. If the future locations / heights of the stacks deviate from the assumptions adopted in the EIA Study VEP supporting document, reassessment of the air quality impact should be conducted. - The overall arrangement should be investigated in details by the Contractor and agreed with IEC and EPD.	Environmental Enhancement to improve the air quality and visual impact to nearby sensitive receivers	Contractor	Leachate treatment plants	Design, Operation and Restoration phases	• Environmental Enhancement
S3.8.2	A5	The following are some odour precautionary measures that shall be considered by EPD and FEHD: - As an improvement measure to enhance to environmental standard for waste transfer, EPD could take the initiative to recommend others to use enclosed type RCV in the long run (dominantly government and sludge types). - Clearing / watering of the surface and clearing of the waste water receptor of government RCV is recommended before leaving refuse transfer station or government Refuse Collection Point (FEHD).	Environmental Enhancement to improve the odour impact during the transit of waste	EPD, FEHD	Government RCV from RTS and RCP	Operation phase	• Environmental Initiative

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
S3.8.2	A6	The Contract shall exercise adequate precautionary measures to minimize any potential odour nuisance from tipping activities: - Planting rows of trees along the northern side of WENT Landfill Extension (ie slope toe) and along Nim Wan Road. - Providing a vehicle washing facility before the exit of the landfill and providing sufficient signage to remind Refuse Collection Vehicles (RCV) drivers to pass through the facility before leaving the landfill. - Reminding the RCV drivers to empty the liquor collection sump and close the valve before leaving the tipping face. - Washing down the area where spillage of RCV liquor is discovered promptly. - Reminding operators to properly maintain their RCVs properly and that liquor does not leak from the vehicles. - Installation of vertical and/or horizontal LFG extraction system to enhance extraction of LFG from the waste mass and hence minimise odour associated with fugitive LFG emissions. - Progressive / temporary restoration of the areas which reach the finished profile (a final capping system including an impermeable liner will be put in place) and installation of a permanent LFG extraction system. - Daily cover the compacted waste with 150mm of soil. - Covering the non-active phase with 300mm to 600mm of soil / an impermeable liner (on top of the intermediate cover), which will not only prevent odour emissions from landfilled waste but also enhance LFG extraction by the LFG extraction system. - Providing deodoriser for the LTP. - Enclosing all the leachate storage and treatment tanks and diverting the exhaust air from these tanks to a deodoriser to avoid potential odour emissions from the LTP. - As an improvement measure to enhance to environmental standard for waste transfer, EPD could take the initiative to recommend others to use enclosed type RCVs (dominantly government vehicles and sludge vehicles).	Minimize the potential odour impact for tipping area to nearby sensitive receivers	Contractor	Tipping areas	Operation and Restoration phases	- TM-EIA, Annex 4 - Odour patrol with 2 Odour Level or below at ASR without causing potential odour nuisance

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
		• Cleaning / watering of the surface and clearing of the waste water receptor of government RCV is recommended before leaving refuse transfer station or government Refuse Collection Point (FEHD). • The trench for special waste shall be covered with soil immediately upon the disposal of special waste to reduce the odour emission. • For Waste requiring co-disposal (e.g., special waste) by trench, the open trench shall be covered with a mobile de-odouriser cover when the trench is not in use for waste disposal, including the time interval between two consecutive disposal operations. • The use of alternative daily cover (less permeable layer) instead of inert material should be considered under worst-case weather condition, subject to EM&A Programme. • The use of immediate daily cover for odorous waste such as animal waste etc. under critical condition should also be considered, subject to EM&A Programme. • In accordance with some reference from New Zealand, odour from active tipping area can be much reduced if the waste is covered by sandwich covering material such that it is confined in a solid/semi solid condition. Such covering material will be acted as sandwich protective layers to block the interaction of waste. Only diffusion mode (small scale) will be present. These would be applied during very hot and stable weather condition. Twice daily covering (mid day and close of business) can be arranged in case odour patrol identify potential odour nuisance, subject to EM&A Programme. • Posi-shell and/or other suitable materials will be applied to cover the active tipping face at the end of each operation day according to the Enhanced Scheme. • There will also be immediate cover of 300 mm thick soil on the special trench for special wastes.					

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
S3.8.2	A6 (Con't)	- Continue to maintain the integrity of the capping system. - Provision of vertical and/or horizontal LFG extraction system to enhance extraction of LFG from the waste mass and hence minimise odour associated with fugitive LFG emissions. - Enclosing all the leachate storage and treatment tanks and diverting the exhaust air from these tanks to a deodoriser to avoid potential odour emissions from the LTP.	Minimize the potential odour impact for tipping area to nearby sensitive receivers	Contractor	Entire WENT Landfill Extension Site	Aftercare phase	- TM-EIA, Annex 4 - Odour patrol with 2 Odour Level or below at ASR without causing potential odour nuisance
Specific measure from VEP							
		- Regular watering on construction / restoration workfronts, haul roads, stockpiling areas etc (at least once per hour). - The quantity of explosive used at each time and spacing of shot holes shall be carefully designed. Blast nets, screens and other protective covers shall be adopted to prevent any fly rocks resulting from blasting activities. - The areas within 30 m from the blasting area will be wetted with water prior to blasting, - Blasting shall not be carried out when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted. Water spraying shall be conducted immediately after each blasting to avoid dispersion of dust. - For marine emissions, on-shore power supply shall be provided where practicable for the construction barges and marine vessels to power the cranes and other machinery on the barges / vessels at the berths to avoid emission from idling at the berth. - The crushers, including the inlets and outlets will be enclosed and ducted to a dust extraction and collection system such as fabric filter in accordance with “A Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plants) (BPM 11/1(95))”. - All transfer points and conveyor belts will also be enclosed. - Water spraying system will be installed at all feeding and outlet areas to	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the relevant criteria.	Contractor	Entire WENT Landfill Extension site	Construction and Restoration phases	To control the dust impact to within the EM&A criteria (Ref. 1-hr and 24-hr TSP levels are 500µgm⁻³ and 260µgm⁻³, respectively)

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
		further suppress dust emission. The contractor shall also apply and obtain the license from EPD for operation of the rock crushing plants under the Air Pollution Control Ordinance and ensure the rock crushing plants designed and operated in accordance with BPM 11/1(95). • Posi-shell and/or other suitable materials will be applied to cover the active tipping face at the end of each operation day according to the Enhanced Scheme. • There will also be immediate cover of 300 mm thick soil on the special trench for special wastes.					

Notes :

Entire WENT Landfill Extension site includes Office, Waste Reception Area, Leachate Treatment Works, LFG Treatment Works, Active, Inactive and Restored Tipping Areas.

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

Appendix B2 – Noise

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
Construction Noise							
S4.4.3.1	N1	Use of good site practices to limit noise emissions by considering the following: - only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; - machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; - plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; - silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; - mobile plant should be sited as far away from NSRs as possible and practicable; - material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise by means of good site practices	Contractor	Entire site construction	Construction phase	• Noise Control Ordinance
S4.4.3.2	N2	Select “Quiet plants” which comply with the BS 5228 Part 1 or TM standards.	Reduce the noise levels of plant items	Contractor	Entire site construction	Construction phase	• Noise Control Ordinance & its TM • Annex 5, TM-EIA
Operation Noise							
S4.6.2	N3	Select “Quiet plants” which comply with the BS 5228 Part 1 or TM standards.	Reduce the noise levels of plant items	Contractor	Entire site construction	Operation and Restoration phases	• Noise Control Ordinance & its TM • Annex 5, TM-EIA
S4.6.2	N4	Build a noise bund of about 3.5m tall along the north eastern seafront of the existing WENT Landfill to provide a screening effect of at least 5dB(A) from the berths.	Reduce the noise levels of barges	Contractor	Existing Landfill WENT	Construction, operation and restoration phases	• Noise Control Ordinance & its TM • Annex 5, TM-EIA

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

Appendix B3 – Water Quality

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
Construction Water Quality							
S5.6.7	W1	<u>Construction Runoff</u> - 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 (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. - The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. - The design of efficient silt removal facilities should be based on the guidelines in ProPECC PN 2/23, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. - Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means. - 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 following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. - Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities. - Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50 m³ should be covered with tarpaulin or similar	Control construction runoff and erosion from site surface, drainage channel, stockpiles, barging facility, wheel washing facilities, etc to minimize water quality during construction stage	Contractor	Entire site	Construction phase	- ProPECC PN 2/23 - Water Pollution Control Ordinance

Environmental Mitigation Implementation Schedule
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EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
		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 always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. • Precautions to be taken at any time of year when rainstorms are likely, actions to 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 PN 2/23. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. • 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 bay should be provided at every construction site exit. Wash-water should have sand and silt settled out and removed at least on a weekly basis 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. • Oil interceptors should be provided in the site drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. Requirements for solid waste management are detailed in Section 6 of this Report. • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.					

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S5.6.7	W2	<u>Sewage Effluent from Workforce</u> - Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance. - Notices will be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. - Regular environmental audit on the construction site can provide an effective control of any malpractices and can achieve continual improvement of environmental performance on site.	Control sewage effluent arising from the sanitary facilities provided for the onsite construction workforce	Contractor	On-site sanitary facilities	Construction phase	- ProPECC PN 2/23 - Water Pollution Control Ordinance - Waste Disposal Ordinance
S5.6.7	W3	<u>Accidental Spillage of Chemical</u> Any service workshop and maintenance facilities shall be located within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of equipment involving activities with potential for leakage and spillage will only be undertaken within the areas.	Control of chemical leakage	Contractor	Service workshop and maintenance facilities	Construction phase	- ProPECC PN 2/23 - Water Pollution Control Ordinance - Waste Disposal Ordinance

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EIA Ref	EM&A Log Ref	Recommended / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
Operation Water Quality							
S5.7.8	W4	<u>Erosion Control Measures</u> a. Preserve Natural Vegetation This Best Management Practices will involve preserving natural vegetation to the greatest extent possible during the construction process, and after construction where appropriate. Maintaining natural vegetation is the most effective and inexpensive form of erosion prevention control. b. Provision of Buffer Zone A buffer zone consists of an undisturbed area or strip of natural vegetation or an established suitable planting adjacent to a disturbed area that reduces erosion and runoff. The rooted vegetation holds soils acts as a wind break and filters runoff that may leave the site. c. Seeding (Temporary/Permanent) A well-established vegetative cover is one of the most effective methods of reducing erosion. Vegetation should be established on construction sites as the slopes are finished, rather than waiting until all the grading is complete. Besides, Hydroseeding will be applied on the surface of stockpiled soil and on temporary soil covers for inactive tipping areas to prevent soil erosion during rainy season. d. Ground Cover Ground Cover is a protective layer of straw or other suitable material applied to the soil surface. Straw mulch and/or hydromulch are also used in conjunction with seeding of critical areas for the establishment of temporary or permanent vegetation. Ground cover provides immediate temporary protection from erosion. Mulch also enhances plant establishment by conserving moisture, holding fertilizer, seed, and topsoil in place, and moderating soil temperatures. e. Hydraulic Application Hydraulic application is a mechanical method of applying erosion control materials to bare soil in order to establish erosion-resistant vegetation on disturbed areas and critical slopes. By using hydraulic equipment, soil amendments, mulch, tackifying agents, Bonded Fiber Matrix (BFM) and liquid co-polymers can be uniformly broadcast, as homogenous slurry, onto the soil. These erosion and dust control materials can often be applied in one operation.	Erosion control	Contractor	Drainage system	Construction, Operation, Restoration and Aftercare phases	• ProPECC PN 2/23 • Water Pollution Control Ordinance

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		f. Sod Establishes permanent turf for immediate erosion protection and stabilizes rainageways. g. Matting There are numerous erosion control products available that can be described in various ways, such as matting, blankets, fabric and nets. These products are referred as matting. A wide range of materials and combination of materials are used to produce matting including, but not limited to: straw, jute, wood fiber, coir (coconut fiber), plastic netting, and Bonded Fiber Matrix. The selection of matting materials for a site can make a significant difference in the effectiveness of the Best Management Practices. h. Plastic Sheeting Plastic Sheeting will provide immediate protection to slopes and stockpiles. However, it has been known to transfer erosion problems because water will sheet flow off the plastic at high velocity. This is usually attributable to poor application, installation and maintenance. i. Dust Control Dust Control is one preventative measure to minimize the wind transport of soil, prevent traffic hazards and reduce sediment transported by wind and deposited in water resources.					
S5.7.8	W5	Temporary surface water drainage system will be provided to manage runoff during construction and operation. This system will consist of channels as constructed around the perimeter of the site area. This system will collect surface water from the areas of higher elevations to those of lower elevations and ultimately to the point of discharge. Erosion will therefore be minimised. The temporary surface water drainage system will include the use of a silt fence around the soil stockpile areas to prevent sediment from entering the system. Regular cleaning will be carried out to prevent blockage of the passage of water flow in silt fence. Intermediate drainage system will be installed for filled cell/phase. The major purpose of the intermediate drainage system is to prevent the clean surface water run-off from the filled phases coming into contact with the waste mass in active cell and to prevent excessive surface water infiltration through the intermediate cover, thus contribute to increasing volume of leachate. The intermediate drainage system will collect the clean surface water run-off and	Surface Water Management / Control run off	Contractor	Surface water system	Construction, Operation, Restoration and Aftercare phases	• Water Pollution Control Ordinance • TM-water

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		divert it to the permanent discharge channels connected to the public drainage system. In addition, surface flow from the haul road (especially near the wheel washing facility) will be collected to a dry weather flow interceptor and conveyed to the on-site leachate treatment plant for further treatment.					
S5.7.8	W6	Monitoring of the surface water discharges and groundwater discharge under the environmental monitoring programme.	Control run off and underground water leakage	Contractor	Surface and underground water system	Operation, Restoration and Aftercare phases	• Water Pollution Control Ordinance • TM-water
S5.7.8	W7	Formulate contingency Plan on Accidental Leakage of Leachate • Design Contingency Plan for Groundwater Contamination • Design Contingency Plan for Surface Water Contamination	Control contamination to surface and ground water	Contractor	Drainage system	Operation, Restoration and Aftercare phases	• TM-water • Water Pollution Control Ordinance

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WENT Landfill Extension

Appendix B4 – Waste Management

EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
Waste Management							
S6.5	WM1	<u>C&D Materials</u> Implement proper waste management measures during construction phase as stipulated in the Environmental Management Plan (EMP) in accordance with the ETWB TC(W) No. 19/2005 Environmental Management in Construction Sites. Implement a trip-ticket system to ensure that the movement of C&D materials are properly documented and verified in accordance with TCW No. 6/2010. Copies/counterfoils from trip-tickets (with quantities of C&D Materials off-site) should be kept for record purposes. Appropriate waste management should be implemented in accordance with the ETWB TC(W) No 19/2005. Make provisions in Contract documents to allow and promote the use of recycled aggregates where appropriate. Careful design, planning and good site management to minimise overordering and waste materials such as concrete, mortars and cement grouts. The design of formwork should maximise the use of standard wooden panels so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic fencing should be considered to increase the potential for reuse. The Contractor should recycle as much as possible the C&D waste on-site through proper waste segregation on-site. Concrete and masonry should be used as general fill and steel reinforcement bars can be used by scrap steel mills. Proper areas should be designated for waste segregation and storage wherever site conditions permit. Maximise the use of reusable steel formwork to reduce the amount of C&D material. Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. On-site sorting and segregation facility of all type of wastes is considered as one of the best practice in waste management and hence, should be implemented in all projects generating construction waste. The sorted public fill and C&D waste should be properly reused. Excavated slope, stockpiled material and bund walls should be covered by tarpaulin until used in order to prevent wind-blown dust during dry weather, and to reduce muddy runoff during wet weather. Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers. If any topsoil-like materials need to be stockpiled for any length of time,	Good site practice to minimise C&D waste generation and reuse/recycle all C&D on-site as far as possible	Contractor	Entire site construction	Construction phase	Waste Disposal Ordinance ETWB TC(W) No.19/2005 TCW No. 6/2010

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EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
		consideration should be given to hydroseeding of the topsoil on the stockpile to improve its visual appearance and prevent soil erosion. Nomination of approved personnel to be responsible for good site practices and making arrangements for collection of all wastes generated on-site and effective disposal. Training of site personnel for cleanliness, proper waste management procedures including chemical waste handling, and waste reduction, reuse and recycling concepts. Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. Prior to disposal of C&D waste, wood, steel and other metals should be separated for re-use and/or recycling to minimise the quantity of waste to be disposed of to landfill. Proper storage and site practices should be implemented to minimise the potential for damage or contamination of construction materials. Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. Minimise excessive ordering of concrete, mortars and cement grout by doing careful check before ordering.					
S6.5	WM2	<u>Chemical Waste</u> Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Plant/equipment maintenance schedule should be designed to optimise maintenance effectiveness and to minimise the generation of chemical wastes. Where possible, chemical wastes (e.g. waste lube oil) should be recycled by licensed treatment facilities Containers used for storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD. Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulation. The storage area for chemical wastes should be clearly labelled and used solely for storage of chemical waste, enclosed with at least 3 sides, having an	Ensure proper disposal of chemical waste generated on-site to minimise the associated hazards on human health and environment	Contractor	Entire construction site	Construction, Operation, Restoration and Aftercare phases	Waste Disposal (Chemical Waste) (General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste

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EIA Ref	EM&A Log Ref	Recommended Precautionary / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?
		impermeable floor and bund of sufficient capacity to accommodate 110% of volume of the largest container or 20 % of total volume of waste stored in that area, whichever is the greatest, having adequate ventilation, being covered to prevent rainfall entering, and being arranged so that incompatible materials are adequately separated. Chemical waste should be collected by licensed waste collectors and disposed of at licensed facility, e.g. Chemical Waste Treatment Centre.					
S6.5	WM3	<u>General Refuse</u> General refuse generated on-site should be properly stored in enclosed bins or compaction units separately from construction and chemical wastes. All recyclable materials (separated from the general waste) should be stored on-site in appropriate containers with cover prior to collection by a local recycler for subsequent reuse and recycling. Residual, nonrecyclable, general waste should be stored in appropriate containers to avoid odour. Regular collection should be arranged by an approved waste collector in purpose-built vehicles that minimise environmental impacts during transportation Reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law. Aluminum cans should be separated from general waste stream and collected by recyclers. Proper collection bins should be provided on-site to facilitate the waste sorting. Office waste paper should be recycled if the volume warrant collection by recyclers. Participation in community waste paper recycling programme should be considered by the Contractor, including waste paper, aluminum cans, plastic bottles, waste batteries, etc.	Minimise generation of general refuse to avoid odour, pest and visual nuisance	Contractor	Entire construction site	Construction, Operation, Restoration and Aftercare phases	Waste Disposal Ordinance
S6.5	WM4	<u>Sludge from Leachate Treatment Works</u> Sludge should be collected by a licensed collector at regular intervals, to suit the operation schedule of the leachate treatment plant. The use of purpose-built sludge tankers can minimise the potential of environmental impacts during transportation.	Proper management of sludge arising from leachate treatment works to minimise the associated hazards on human health and environment	Contractor	Leachate Treatment Works	Construction, Operation, Restoration and Aftercare phases	Waste Disposal Ordinance

Environmental Mitigation Implementation Schedule

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Appendix B5 – Landfill Gas

EIA Ref	EM&A Log Ref	Recommended / Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	What requirements or standards for the measures to achieve?	
LFG								
Within WENT Landfill Extension								
S7.6.1	LFG1	Special LFG precautions should be taken due to close proximity of WENT Landfill Extension site to existing landfill to avoid potential hazards of LFG exposure (ignition, explosion, asphyxiation, toxicity).	To minimise the risk of LFG hazards to personnel in construction site	Contractor	Entire Landfill site	WENT Extension	Construction phase	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97) Factories and Industrial Undertakings (F&IU) (Confined Spaces) Regulations Code of Practice on Safety and Health at Work in Confined Spaces
S7.6.1	LFG2	Prominent safety warning signs should be erected on-site to alert all personnel and visitors of LFG hazards during excavation works.						
S7.6.1	LFG3	No smoking or burning should be permitted on-site.						
S7.6.1	LFG4	Prominent ‘No smoking’ and ‘No Naked Flames’ signs should be erected on-site.						
S7.6.1	LFG5	No worker should be allowed to work alone at any time in excavated trenches or confined areas on-site.						
S7.6.1	LFG6	Adequate fire fighting equipment should be provided on-site.						
S7.6.1	LFG7	Construction equipment should be equipped with vertical exhaust at least 0.6m above ground installed with spark arrestors.						
S7.6.1	LFG8	Electrical motors and extension cords should be explosion-proof and intrinsically safe for use on-site.						
S7.6.1	LFG9	‘Permit to Work’ system should be implemented.						
S7.6.1	LFG10	Welding, flame-cutting or other hot works should be conducted only under ‘Permit to Work’ system following clear safety requirements, gas monitoring procedures and presence of qualified persons to supervise the works.						
S7.6.1	LFG11	For piping assembly or conduit construction, all valves and seals should be closed immediately after installation to avoid accumulation and migration of LFG. If installation of large diameter pipes (diameter >600mm) is required, the pipe ends should be sealed on one side during installation. Forced ventilation is required prior to operation of installed pipeline. Forced ventilation should also be required for works inside trenches deeper than 1m.						

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S7.6.1	LFG12	Frequency and location of LFG monitoring within excavation area should be determined prior to commencement of works. LFG monitoring in excavations should be conducted at no more than 10mm from exposed ground surface.	To minimise the risk of LFG hazards to personnel in construction site	Contractor	Entire WENT Landfill Extension site	Construction phase	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
S7.6.1	LFG13	For excavation works deeper than 1m, LFG monitoring should be conducted (1) at ground surface prior to excavation, (2) immediately before workers entering excavations, (3) at the beginning of each working day for the entire period of excavation remains open, and (4) periodically throughout the working day when workers are in the excavation.					Factories and Industrial Undertakings (F&IU) (Confined Spaces) Regulations
S7.6.1	LFG14	Any cracks on ground level encountered on-site should be monitored for LFG periodically. Appropriate action should be taken in accordance with the action plan in Table 7.8 of EIA Report.					Code of Practice on Safety and Health at Work in Confined Spaces
S7.6.1	LFG15	LFG precautionary measures involved in excavation and piping works should be provided in accordance with LFG Guidance Note and included in Safety Plan of construction phase. Temporary offices or buildings should be located where free LFG has been proven or raised clear of ground at a separation distance of at least 500mm.					
S7.6.1	LFG16	For large development such as WENT Landfill Extension, a Safety Officer trained in the use of gas detection equipment and LFG-related hazards should be present on-site throughout the groundwork phase. The Safety Officer should be provided with an intrinsically safe portable instrument appropriately calibrated and capable of measuring the following gases: - CH₄: 0-100% LEL and 0-100% v/v - CO₂: 0-100% v/v - O₂: 0-21% v/v					

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S7.6.1	LFG17	Periodically during groundwork construction, the works area should be monitored for CH ₄ , CO ₂ and O ₂ using appropriately calibrated portable gas detection equipment. The monitoring frequency and areas should be established prior to commencement of groundwork either by Safety Officer or appropriately qualified person. Routine monitoring should be carried out in all excavations, manholes, chambers and any other confined spaces that may have been created by temporary storage of building materials on-site. All measurements in excavations should be made with monitoring tube located not more than 10mm from exposed ground surface.	To minimise the risk of LFG hazards to personnel in construction site	Contractor	Entire WENT Landfill Extension site	Construction phase	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
S7.6.1	LFG18	For excavations deeper than 1m, measurements should be conducted: - At ground surface before excavation commences; - Immediately before any worker enters the excavation; - At the beginning of each working day for entire period the excavation remains open; and - Periodically throughout the working day whilst workers are in excavation.					Factories and Industrial Undertakings (F&IU) (Confined Spaces) Regulations
S7.6.1	LFG19	For excavations between 300mm and 1m, measurements should be conducted: - Directly after excavation has been completed; and - Periodically whilst excavation remains open.					Code of Practice on Safety and Health at Work in Confined Spaces
S7.6.1	LFG20	For excavations less than 300mm, monitoring may be omitted at the discretion of Safety Officer or appropriately qualified person.					
S7.6.1	LFG21	Where any service voids, manholes and inspection chambers within WENT Landfill Extension site are entered for maintenance and LFG monitoring, all safety requirements should be followed.	To minimise the risk of LFG hazards to personnel in landfill site	Contractor	Entire WENT Landfill Extension site	Construction, Operation, Restoration and Aftercare phases	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97)
S7.6.1	LFG22	Buildings onsite should be incorporated with passive system relying on natural air movement to prevent gas build-up and active system requiring energy input to mechanically move air to protect against LFG build-up. Design measures for sub-surface building services should include generic measures e.g. gas barriers, gas vents and strategic routing of any service utilities away from potential LFG migration pathways.					Factories and Industrial Undertakings (F&IU) (Confined Spaces) Regulations
							Code of Practice on Safety and Health at Work in Confined Spaces

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S7.6.1	LFG23	Any new-built permanent building structures within the WENT Landfill Extension site, forced ventilation and gas detection system with audible alarm should be installed. When the internal atmosphere is detected with >10% of CH ₄ , forced ventilation should be triggered automatically. No person should be allowed to enter or remain in any confined areas when CO ₂ levels >1.5% v/v or O ₂ levels <18% v/v were detected. Access to confined spaces in the WENT Landfill Extension site should be controlled to only authorised persons.	To minimise the risk of LFG hazards to personnel in landfill site	Contractor	Entire WENT Landfill Extension site	Construction, Operation, Restoration and Aftercare phases	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97) Factories and Industrial Undertakings (F&IU) (Confined Spaces) Regulations Code of Practice on Safety and Health at Work in Confined Spaces
S7.6.1	LFG24	Specific gas protection measures which can be applied to building services have been in Appendix 7.4 of EIA Report. They generally include gas barriers, gas vents, location of service entries above ground, and service conduits passing through Consultation Zone.					
S7.6.3	LFG25	The design of the landfill gas protection measures to be adopted onsite, e.g. utilities, buildings, LFG cut-off trench barrier, monitoring wells and facilities related to the WENT Landfill Extension project will be performed by a landfill gas specialist consultant appointed by the Contractor. Moreover, the landfill gas protection measures will be checked and certified by a qualified independent consultant. The contractor shall ensure that the required protective measures are implemented and constructed in accordance with the design and shall establish a maintenance and monitoring programme for ensuring the continual performance of the implemented protection measures. The above requirements shall be included in the tender documents of WENT Landfill Extension project. When the detailed design is available, the Contractor is required to undertake further landfill gas hazard assessment to take account of the more readily available detailed information to finalise the design of the landfill gas protection measures recommended in this report. During the future detailed design stage, a review of the preliminary qualitative LFG hazard assessment presented in the report will be carried out, a detailed qualitative LFG hazard assessment will be prepared and all the report together with the detailed design of gas protection measures will be submitted to EPD for vetting.	To ensure that the design of the landfill gas protection measures is in order and appropriate.	The Project Proponent, Contractor	Entire WENT Landfill Extension site	Detailed Design stage	

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Outside WENT Landfill Extension							
S7.6.2	LFG26	Setting up a LFG cut-off trench barrier is one of the mitigation measures for preventing gas entering an area. Since there are no "design equations" for cut-off barrier specifications, it is therefore essential to seek expert recommendation before finalising the design detail of any cut-off barrier. LFG cut-off trench barrier should be built along the site boundary of the WENT Landfill Extension to prevent gas from entering an area, which is keyed into low permeability strata or extends at least 1m below the lowest groundwater level. To relieve the potential build up of gas, it may be necessary to install additional measures for venting the gas such as trenches filled with no-fines, granular material, e.g. gravel, connected to venting pipes which will provide a preferential pathway for the release of gas to atmosphere.	To cut off any gas migration from WENT Landfill Extension to the middle lagoon and T Park which falls into the 250m LFG consultation zone of WENT Landfill and its Extension.	Contractor	Outside WENT Landfill Extension site	Construction phase	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97) Factories and Industrial Undertakings (F&IU) (Confined Spaces) Regulations Code of Practice on Safety and Health at Work in Confined Spaces
S7.6.2	LFG27	Sealing of fault line ends by grouting will be implemented. In the event that investigation works during the detailed design stage identify the presence of laterally persistent faults running beneath the landfill site, and leading towards sensitive receivers, the following works could be carried out: - Sealing of any surface exposures of the 'fault' feature exposed during the site formation works. This could be carried out through the application of a shotcrete cover prior to the placement of the landfill liner, which also acts as a barrier to landfill gas migration. - Ground treatment at the landfill boundary, comprising pressurized injection of grout within a series of inclined drillholes formed to intersect the fault at various depths. These would effectively form an impermeable barrier against the lateral migration of landfill gas along the fault line. - Adequate venting of landfill gases such that insufficient pressures develop to result in lateral or downward migration of gas.	To prevent gas migration through the fault line in particular to the existing Black Point Power Station.	Contractor	Outside WENT Landfill Extension site	Construction phase	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97) Factories and Industrial Undertakings (F&IU) (Confined Spaces) Regulations Code of Practice on Safety and Health at Work in Confined Spaces
S7.6.2	LFG28	LFG monitoring wells will be installed in the ground on the development side of the cut-off trench barrier to measure the concentration of methane and carbon dioxide. Setting up a LFG cut-off trench barrier is one of the mitigation measures for preventing gas entering an area. Since there are no "design equations" for cut-off barrier specifications, it is therefore	To determine the effectiveness of the cut-off trench barrier in preventing LFG migration.	Contractor	Outside WENT Landfill Extension site	Construction, Operation, Restoration and Aftercare phases	Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97).

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

		essential to seek expert recommendation before finalising the design detail of any cut-off barrier.					
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Environmental Mitigation Implementation Schedule WENT Landfill Extension

Appendix B6 – Landscape and Visual Impact

EIA Ref	EM&A Log Ref	Recommended Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives Recommended Measures & Main Concerns to Address	Who to Implement Measures?	Location of Measures	When to Implement Measures?	What Requirements or Standards for Measures to Achieve?
Landscape and Visual Impact							
S8.7	LV1	Advanced screening tree planting (mitigation measures – MM1) - Early planting using fast growing trees and tall shrubs at strategic locations within site to block major view corridors to the site from the VSRs, and to locally screen haul roads, excavation works and site preparation works. - Tree planting in standard tree size along the slope toe of WENT Landfill Extension.	To minimise the impact on existing vegetation retained by personnel in construction site To provide initiation on permanent landscape and visual mitigation measures	Contractor	Entire construction site	Construction and Operation phases	DEVB TC(W) No. 4/2020 – Tree Preservation ETWB TC(W) No. 6/2015 – Maintenance of Vegetation and Hard Landscape Features WBTC No. 6/2011 – Maintenance of Man-made Slopes and Emergency Repair on Stability of Land
S8.7	LV2	Boundary Green Belt planting (mitigation measures – MM2) Considerable planting belts proposed around the site perimeter and the construction of temporary soil bunds would screen the landfill operations to a certain degree. Fast growing and fire resistant plant species will be used.					
S8.7	LV3	Temporary landscape treatment as green surface cover (mitigation measures – MM3) For certain areas where landfilling operations would have to be suspended temporarily for a certain period of time, simple temporary landscape treatment such as temporary green colour slope cover should be considered. The period of temporary suspended operation should be sufficiently explicit in order to undertake appropriate temporary landscape treatment. During construction and operation phases, synthetic covering material of green colour should also be used as a temporary slope cover where applicable. Given the extensive area of the proposed extension, development of the site should be divided into phases to minimize the visual impact.					
S8.7	LV4	Existing tree preservation (mitigation measures – MM4) No trees should be felled or transplanted unless they are inevitably affected by the Project. Affected trees should be transplanted under circumstances where technically feasible. A tree survey report should be prepared and a tree felling application should be submitted to government during the detailed design stage for approval before site formation works commence. The numbers, locations, species and sizes of the trees to be transplanted or felled should be clearly addressed.					

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of Recommended Measures & Main Concerns to Address	Who to Implement Measures?	Location of Measures	When to Implement Measures?	What Requirements or Standards for Measures to Achieve?
S8.7	LV5	Sensible final contour grading (mitigation measures – MM5) The final landfill will provide a structurally stable and visually interesting landform, which is visually compatible with surrounding landscape and contoured to simulate adjacent undeveloped area. Introduction and continuation of natural features such as spurs, ridges and valleys will be considered where appropriate.	To minimise the visual impact on landfill.	Contractor	Entire construction site	Restoration and Aftercare phases	DEVB TC(W) No. 4/2020 – Tree Preservation ETWB TC(W) No. 6/2015 – Maintenance of Vegetation and Hard Landscape Features WBTC No. 6/2011 – Maintenance of Man-made Slopes and Emergency Repair on Stability of Land
S8.7	LV6	Sufficient cover soil of landfill final capping (mitigation measures – MM6) Sufficient cover soil of landfill final capping will be placed above the low-permeable layer and drainage layer, so as to sustain the proposed planting. The cover soil layer should be a minimum of 500mm in thickness for grassland, a minimum of 700mm for shrubland and 1000mm for woodland. Immediately after the completion of localized earthworks for the cover soil layer, the soil surface should be stabilized and greened by grass hydroseeding prior to subsequent landscape planting.	To provide site preparation for compensatory planting under the requirements of mitigation measures.	Contractor	Entire construction site	Restoration and Aftercare phases	
S8.7	LV7	Landscape planting and maintenance (mitigation measures – MM7) - Planting and maintenance to allow vegetation establishment to match the natural vegetation of the surroundings. - Seedlings of native tree species will be planted in the second phase. - Reprovision of mangroves in some suitable locations inside the project boundary for compensation. - Planting layout to establish a coherent pattern of woodland, shrubland and grassland vegetation. - In the approved WENTX EIA, 21 ha of woodland compensatory planting to be planted after restoration phase. The Enhanced Scheme would largely minimize encroachment onto the woodland resulting in a small area of loss only, i.e. 0.12 ha. In line with the same principle as the approved WENTX EIA (ratio = 5:1 in terms of area), the total compensatory woodland planting area should be around 0.60 ha.	To minimise the landscape and visual impact on the affected planting areas and provide permanent landscape planting under the mitigation measures	Contractor	Entire construction site	Restoration and Aftercare phases	

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of Recommended Measures & Main Concerns to Address	Who to Implement Measures?	Location of Measures	When to Implement Measures?	What Requirements or Standards for Measures to Achieve?
S8.7	LV8	Woodland vegetation management (mitigation measures – MM8) - Thinning of pioneer trees to be carried out in the period of 5-8 years after the establishment period for each phase of works. - It includes the selective removal of pioneer trees to provide more light and space between trees that is beneficial for growth and natural regeneration of native trees in the woodland planting mix. - Proper maintenance and management for woodland planting is required to provide good quality of compensatory planting. During establishment period of the woodland planting, proper inspection of the death rate of each species in terms of quantity shall be provided and stated in Environmental Permit that forms part of DBO contract.	To maintain the compensatory woodland planting effectively for mitigation measures.	Contractor	Entire construction site	Restoration and Aftercare phases	

Environmental Mitigation Implementation Schedule

WENT Landfill Extension

Appendix C7 – Cultural Heritage

EIA Ref	EM&A Log Ref	Recommended Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of Recommended Measures & Main Concerns to Address	Who to Implement Measures?	Location of Measures	When to Implement Measures?	What Requirements or Standards for Measures to Achieve?
Cultural Heritage Impact							
Construction and Operation Phases							
Under the Enhanced Scheme, the revised boundary will totally avoid encroachment onto the Tsang Tsui Site of Archaeological Interest, graves and temple. No potential cultural heritage impact due to the Project is anticipated, and thus no mitigation measures are required for the Enhanced Scheme.							

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

Appendix C8 – Ecology

EIA Ref	EM&A Log Ref	Recommended Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives Recommended Measures & Main Concerns to Address	Who to Implement Measures?	Location Measures	When to Implement Measures?	What Requirements or Standards for Measures to Achieve?
Ecology							
General Protection Measures:							
S10	E1	Restriction of construction activities to the work areas that would be clearly demarcated.	To minimise environmental impacts and therefore potential ecological impacts within and near the construction site	Contractor	Entire construction site	Construction Phase	Practice Note for Professional Persons (ProPECC), Construction Site Drainage (PN2/23) Code of Practice on the Packaging, Labeling and Storage of Chemical Wastes, EPD (2022) ETWB TC(W)) No. 33/2002 Management of Construction and Demolition Material Including Rock TCW No. 6/2010 Trip Ticket System for Disposal of Construction and Demolition Materials ETWB TC(W) No. 15/2003 Waste Management on Construction Sites WBTC No.12/2002, Specifications Facilitating the Use of Recycled Aggregates WBTC Nos. 25/99, 25/99A and 25/99C. Incorporation of Information on Construction and Demolition Material Management in Public Works Subcommittee Papers
S10	E2	Reinstatement of the work areas immediately after completion of the works.					
S10	E3	Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme.					
S10	E4	Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.					
S10	E5	Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs.					
S10	E6	Silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works.					
S10	E7	Mobile plant should be sited as far away from NSRs as possible and practicable.					
S10	E8	Material stockpiles, site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.					
S10	E9	Use of “quiet” plant and working methods.					
S10	E10	Construction phase mitigation measures in the Practice Note for Professional Persons on Construction Site Drainage.					
S10	E11	Design and set up of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.					
S10	E12	Design and incorporation of silt/sediment traps in the permanent drainage channels to enhance deposition rates and regular removal of deposited silt and grit.					

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

EIA Ref	EM&A Log Ref	Recommended Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives Recommended Measures & Main Concerns to Address	Who to Implement Measures?	Location Measures	When to Implement Measures?	What Requirements or Standards for Measures to Achieve?
S10	E13	Minimization of surface excavation works during the rainy seasons (April to September), and in particular, control of silty surface runoff during storm events, especially for areas located near steep slopes.					
S10	E14	Regular inspection and maintenance of all drainage facilities and erosion and sediment control structures to ensure proper and efficient operation at all times and particularly following rainstorms.					
S10	E15	Provision of oil interceptors in the drainage system downstream of any oil/fuel pollution sources.					
Specific Mitigation Measures:							
S10	E17	Survey and transplantation plant species of conservation concern before site clearance, and 2 years of monitoring after transplantation. During the latest field survey in January 2024 and the Transplantation and Management Plan, only three groups of Nepenthes mirabilis (Pitcher Plant) were found and feasible to be transplanted.	To minimise loss of plant species of conservation concern	Contractor	Within and construction site	Before commencement of construction phase	N/A
S10	E18	0.60 ha of woodland compensatory planting after restoration phase. 10-year ecological monitoring of compensatory woodland planting during the after-care phases	To mitigate loss of woodland habitat	Contractor	Entire construction site	Restoration and Aftercare phase	N/A
S10	E20	Survey and translocation of the three fish species of conservation interest before site clearance, including Squaliobarbus curriculus, Osteochilus vittatus and Kuhlia marginata	To provide precautionary measure for fish species of conservation concern	Contractor	Within and near Construction site	Before commencement of construction phase	
S10	E21	Set up water quality monitoring station at Tai Shui Hang Stream	To provide precautionary measure for fish species of conservation concern	Contractor	Tai Shui Hang Stream	Before commencement of construction phase	

Environmental Mitigation Implementation Schedule
WENT Landfill Extension

Appendix B9 – Pulverized Fuel Ash Impact

EIA Ref	EM&A Log Ref	Recommended Mitigation Measures (to be implemented when the trigger level is exceeded, where necessary)	Objectives of Recommended Measures Main Concerns to Address	Who to Implement Measures?	Location of	When to Implement Measures?	What Requirements or Standards for Measures to Achieve?
Pulverized Fuel Ash Impact							
Construction and Operation Phases							
S11.5	PF1	Recommended measures/ good practices are to be considered	To control radon health risk	Contractor	Entire WENT Landfill Extension site	Construction and Operation phases	ProPECC Note PN 1/99 Control of Radon Concentration in New Buildings

Appendix N

Investigation Report

Service Contract No. EP/SP/186/21
West New Territories Landfill Extension (WENTX)

Investigation Report on Environmental Complaint / Enquires

Complaint Log No.	WENTX – 05
Received Date by ET	6 February 2026
Complaint Details	The complainant complained about the construction dust from road work at Nim Wan Road, Tuen Mun, New Territories
Complaint Location	Nim Wan Road
Date of Complaint	3 February 2026
Environmental Aspect	Construction Dust
Complainant	Unwilling to disclose
Complaint Route	Referred from 1823
Investigation Result	1. A complaint was referred from 1823 on 3 February 2026, regarding the construction dust from road work at Nim Wan Road. The case was then referred to ET for investigation. 2. As advised by the Contractor, rock breaking work was carried out at Portion D1 (i.e. Temporary Traffic Arrangement (TTA) at Nim Wan Road near Yung Long Road) on 3 February 2026. 3. Upon receipt of the complaint, joint site inspection were conducted by HKRRP and ET on 6 February 2026 to evaluate the implementation of dust mitigation measures and assess the effectiveness. The observations during the site inspection are summarized as follows: (a) No observable dust impact was noticed from the TTA at Nim Wan Road near Yung Long Road. (Photo 1) (b) Water spraying was provided for rock breaking work at Portion D1 (Photo 2). 4. In addition, EM&A programme has been executed by the ET to monitor the potential environmental impact arising from the Project and to take prompt action in response to any deficiencies found on Site. The closest air quality monitoring station from the rock breaking work at Portion D1 is AM(D)5a which is located at Lung Kwu Sheung Tan. According to the impact monitoring result on 3 February 2026, no exceedance of environmental performance criteria was recorded for 1-hr TSP monitoring. This indicates that the air quality impact to the nearby sensitive receiver was within acceptable level. The location of air quality monitoring station AM(D)5a is shown in Figure 1 and the monitoring data is provided in Annex A. 5. In our investigation, HKRRP implemented dust mitigation measures at to reduce potential dust impact to nearby environment, and no dust monitoring exceedance was recorded on 3 February 2026. Nevertheless, HKRRP was reminded to implement the recommended Environmental Mitigation Implementation Schedule, and to implement the mitigation measures as far as practicable, as recommended in the EM&A Program.

Figure 1 Location of Air Quality Monitoring Stations

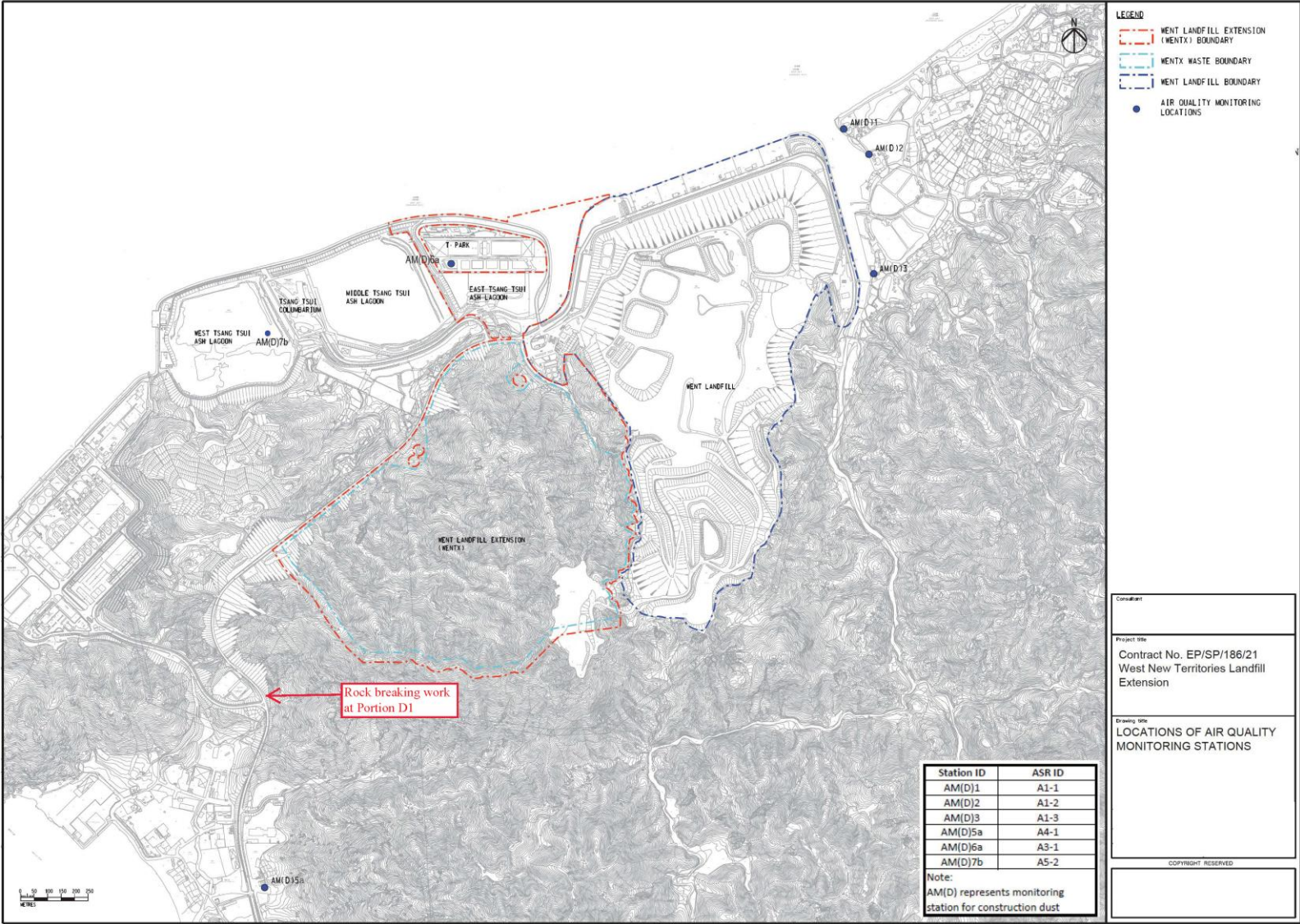


Photo Record



Photo 1

No observable dust impact was noticed from the TTA at Nim Wan Road near Yung Long Road



Photo 2

Water spraying for rock breaking work at Portion D1.

Annex A

Table 1 Summary of 1-hour TSP Monitoring Results

1-hour TSP ($\mu\text{g}/\text{m}^3$)							
Station	Date	Start Time	1st reading	2nd reading	3rd reading	Action Level	Limit Level
AM(D)5a	3-Feb-26	08:45	126	143	87	371	500

Appendix O

Photo Record of Tree Receptor Site of Portion B4 and 30m Tree Buffer Zone

Portion B4





30m Tree Buffer Zone





Appendix P

Detailed Transplantation Protocol and Monitoring Programme for Pitcher Plant

本署檔號
OUR REF: Ax(1) EP2/N4/G/86
來函檔號
YOUR REF:
電話
TEL. NO.: 2835 1600
圖文傳真
FAX NO.: 2591 0558
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E-MAIL: tiffanyytchan@epd.gov.hk
網址
HOMEPAGE: <http://www.epd.gov.hk>

**Environmental Protection Department
Branch Office**
28th Floor, Southorn Centre,
130 Hennessy Road,
Wan Chai, Hong Kong.



環境保護署分處
香港灣仔
軒尼詩道
一百三十號
修頓中心廿八樓

27 February 2026
By Post & Fax: 2872 0376

2/F, West Wing,
Island West Transfer Station,
88 Victoria Road, Kennedy Town, H.K.
(Attn: Miss LO Wan-ka, E[LD]51)

Dear Miss. Lo,

Environmental Impact Assessment (EIA) Ordinance, Cap. 499
Project Title: West New Territories (WENT) Landfill Extensions
Environmental Permits (EP) No. EP-393/2010/A, FEP-01/393/2010/A
Detailed Transplantation Protocol and Monitoring Programme

We refer to the Detailed Transplantation Protocol and Monitoring Programme (protocol) submitted on 26 February 2026 (Your ref.: WETNX/ACS/LT/ER3/03250) under Section 10.3 of the approved EM&A Manual, as reproduced below.

10.3: A detailed transplantation protocol and monitoring programme should be prepared by a suitably qualified ecologist or botanist appointed by the DBO contractor and submitted to AFCD for review and comments and EPD for approval prior to commencement of work.

2. The subject protocol has been vetted by the ET Leader and the IEC before submission to us, and the proposed transplantation would be inspected by the qualified ecologists / botanists as recommended in the protocol. We also note that the transplantation methodology in the subject protocol is in alignment with the methodology in the Transplantation and Management Plan approved under Condition 2.6 of the EP on 20 October 2025. Furthermore, we have consulted AFCD and AFCD also has no comment on the subject protocol. Therefore, we advise that the subject protocol is hereby accepted and approved.

Yours sincerely,

(Tiffany CHAN)
Environmental Protection Officer
for Director of Environmental Protection

c.c.
AFCD

(Attn: Mr. CHAN Chung Ming, Andrew

Fax: 2377 4427)



Environmental Protection Department
2nd floor, West Wing
Island West Transfer Station
88 Victoria Road
Kennedy Town
Hong Kong

Your reference:

Our reference: HKEPD259/50/111068

Date: 26 February 2026

Attention: Ms Kins Lo

BY EMAIL & POST
(email: wklo@epd.gov.hk)

Dear Sirs

Quotation Ref. 23-02230
Provision of Independent Environmental Checker Consultancy Services for
West New Territories Landfill Extension
Detailed Transplantation Protocol and Monitoring Programme

We refer to email of 26 February 2026 from Hong Kong Resources Recovery Park attaching the Detailed Transplantation Protocol and Monitoring Programme of the captioned.

We have no comment and hereby verify the captioned plan.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Ricky Lau at 2618 2831.

Yours faithfully
ANewR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/thy

Our Ref: TCS01325/23/300/L0177b

Hong Kong Resources Recovery Park
29/F China Overseas Building,
139 Hennessy Road, Hong Kong

Attn: Mr. Kenneth Lau

26 February 2026
By email

Dear Sir,

Re: Contract No. EP/SP/186/21
West New Territories Landfill Extension (WENTX)
ETL's certification letter for Detailed Transportation Protocol and Monitoring
Programme_R2

We refer to email on today from HKRRP attaching the Detailed Transportation Protocol and Monitoring Programme_R2. We have no comment for the above submission and the submitted protocol fulfil the approved Transplantation and Management Plan requirements.

Should you have any queries or require further information, please feel free to the undersigned at Tel: 2959-6059 or Fax: 2959-6079.

Yours sincerely,
For and on Behalf of
Action-United Environmental Services & Consulting



Tam Tak Wing
Environmental Team Leader

cc

ANewR (IEC)

Mr. James Choi

By e-mail

West New Territories (WENT) Landfill Extension

Detailed Transplantation Protocol and Monitoring Programme

Feb 2026

PREPARED BY:

OTHERLAND LIMITED

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- P.2 Existing Location of Plant Species of Conservation Interest to be Transplanted
- P.3 Transplantation Method of Pitcher Plant
- P.4 Post-transplantation Maintenance

APPENDIXES & ANNEXES:

- Appendix A1 Location of Plant Species of Conservation Interest to be Transplanted & Location of Receptor Site for Pitcher Plant
- Appendix A2 Photos of Location of Receptor Site for Pitcher Plant & Temporary Nursery Area
- Appendix A3 Photos of *Nepenthes mirabilis* next to the Proposed Receptor Site along Stream B
- Appendix B Location of Pitcher Plant, Photographic Record of Individual Pitcher Plant
- Appendix C Tentative Transplantation Programme
- Appendix D Plant Schedule
- Appendix E Maintenance Schedule
- Appendix F Basic Information on Equipment and Facilities of Temporary Nursery
- Appendix G Disposal Method for Green Waste Generated during Transplantation Operations
- Appendix H Project Background and Role Relationships under WENTX Project of EPD

Detailed Transplantation Protocol and Monitoring Programme

P.1 General

P.1.1 Pursuant to Condition 2.6 under the EP No: EP-393/2010/A (EP) and FEP-01/393/2010/A (FEP), a submission of the Transplantation and Management Plan (TMP) was submitted to the Service Manager and the EPD with the AFCD consulted and was subsequently approved by the EPD on 20 October 2025. The feasibility and suitability of transplanting the affected plant species of conservation interest is reviewed and suitable receptor sites is identified by the TMP. Besides, the associated application of transplantation permit to the Pitcher Plant was approved on 30 September 2025 by the AFCD.

P.1.2 Following these approvals, and in accordance with the recommendations outlined in Section 10.8.2 of the EIA Report, as well as Section 10.3 of the Monitoring and Audit for Ecology within the Final Environmental Monitoring & Audit Manual (EM&A Manual) Rpt Ref. 059-01, the objective of this document is to develop a transplantation protocol and monitoring programme for the Pitcher Plant that will be straightforwardly prepared in alignment with the TMP by a suitably qualified ecologist. This protocol and monitoring program will likewise delineate the transplantation details, including the transplanting location and procedures for plants of conservation interest to be affected by the Project.

P.1.3 Due to the influences by recent site developments which include site formation works and pipeline constructions etc., the scheduled transplantation operations, associated routing and the tentative transplantation programme have been reviewed to reflect the actual site conditions. This review aims to provide the transplantation protocol concurrently in parallel with an updated transplantation monitoring program, aligned with a feasible timeframe during the upcoming wet season from March 2026 to September 2026.

P.2 Existing Location of Plant Species of Conservation Interest to be Transplanted

P.2.1 According to the EIA Report, four plant species of conservation interest within the Project were found and directly impacted by the WENT Landfill Extension in June 2009. However, during the latest field survey in January 2024, only three groups of *Nepenthes mirabilis* (Pitcher Plant) could be found, and the remaining mentioned plants were not located. The locations of the plant clusters of Pitcher Plant are demonstrated in **Appendix A1**. The photo records are shown in **Appendix B**. Plant schedule for each tagged plant is found in **Appendix D**. For *Ixonanthes reticulata* recorded at Tsang Kok Stream from the above mentioned VEP were not found during the survey in Jan 2024. . If *Ixonanthes reticulata* is found in the future / other plants of conservation interest will be identified during the landscape survey to be conducted for the separate Landscape Plan and will be affected by the Project, further assessment will be carried out to review the feasibility of transplantation.

Nepenthes mirabilis					
Location	Tag No.	Spread (m)	Health condition	Suitability for transplantation	Note
			Good/Average/Poor	High/Medium/Low	
Bunch 1	PP01	0.5	Average	Medium	at/near permanent watershed
	PP02	0.5	Average	Medium	at/near permanent watershed
	PP03	0.5	Average	Medium	at/near permanent watershed
	PP04	0.5	Average	Medium	at/near permanent watershed
	PP05	0.5	Average	Medium	at/near permanent watershed
	PP06	0.5	Average	Medium	at/near permanent watershed
	PP07	0.5	Average	Medium	at/near permanent watershed
	PP08	0.5	Average	Medium	at/near permanent watershed
	PP09	0.5	Average	Medium	at/near permanent watershed
	PP10	0.5	Average	Medium	at/near permanent watershed
	PP11	0.5	Average	Medium	at/near permanent watershed
	PP12	0.5	Average	Medium	at/near permanent watershed
	PP13	0.5	Average	Medium	at/near permanent watershed
	PP14	0.5	Average	Medium	at/near permanent watershed
	PP15	0.5	Average	Medium	at/near permanent watershed
	PP16	0.5	Average	Medium	at/near permanent watershed
	PP17	0.5	Average	Medium	at/near permanent watershed
Bunch 2	PP18	1.0	Average	Medium	at/near permanent watershed
	PP19	1.0	Average	Medium	at/near permanent watershed
	PP20	1.5	Average	Medium	at/near permanent watershed
	PP21	1.0	Average	Medium	at/near permanent watershed
Bunch 3	PP22	3.0	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP23	3.0	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP24	2.0	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP25	2.5	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP26	2.5	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP27	2.5	Average	Medium	Located in mixed shrubland, at/near permanent watershed

P.2.2 Meanwhile, according to the VEP document, *Aquilaria sinensis* and Bamboo Orchid were no longer found within the Enhanced Scheme. *Gnetum luofuense* and *Diospyros vaccinioides* were newly recorded in the current review. However, *Gnetum luofuense* is a woody climber that is not feasible for transplantation. Regarding *Diospyros vaccinioides*, based on the subsequent site inspection, it was observed that these shrubs grow among the boulders of the stream, making it impractical to form a proper root ball for transplanting. Therefore, it is recommended not to transplant both *Gnetum luofuense* and *Diospyros vaccinioides*. Regarding the loss of *Gnetum luofuense* and *Diospyros vaccinioides* which had been surveyed in Tsang Kok Stream, additional whips will be planted to compensate the loss. 20 nos. of *D. vaccinioides* whips will be planted at Stream B next to the receptor site of *Nepenthes mirabilis*.

P.2.3 Since only the Pitcher Plant could be found and feasible to be transplanted, the report only includes the transplantation method for the Pitcher Plant.

P.3 Transplantation Method of Pitcher Plant

- P.3.1 Local successful experience of *Nepenthes mirabilis* (Weatherhead, undated), including site selection and propagation and transplantation methods were reviewed and shall be followed. A suitably qualified botanist/ecologist with at least 3 years of experience in successful transplanting of rare, protected species, shall supervise the whole transplanting process. Their qualification and prior project experiences will be submitted to AFCD for review and comments and to EPD for approval before the commencement of the transplanting works.
- P.3.2 Monthly monitoring reports shall be prepared by the appointed qualified botanist/ecologist for the Pitcher Plants at the temporary nursery and receptor site and submitted to AFCD for record. The reports shall include but not be limited to the general weather and nursery condition, physical (height & spread) and health conditions (e.g. vigour of foliage, any pest & disease etc.) of the Pitcher Plants, maintenance records, and recommendations/ contingency measures implemented/to be implemented (if any). All maintenance activities, site conditions and all individual plants shall be photographed and recorded in the monitoring reports. The tentative transplantation programme is shown in **Appendix C**.
- P.3.3 The recipient site chosen for the transplantation shall closely resemble the original habitat in terms of its range and nature, which includes being in the NWNT (Natural Woodland and Grassland Type), characterized by granitic rock formations and proximity to a permanent stream. It is important to ensure that the associated plant species present in the shrubland and grassland of the recipient site are similar to those found in the original habitat. There is also an existing colony of Pitcher Plants adjacent to the receptor site, indicating the site conditions are likely suitable for Pitcher Plants. One potential location identified for the transplantation is indicated in **Appendix A1 and Appendix A2**. The three bunches of *Nepenthes mirabilis* were located in open areas which were generally flat and near the watershed. The identified receptor site at Stream B demonstrated similar characteristics as the donor sites in terms of sun exposure, landform, altitude, and vicinity to all-season water bodies. In addition, next to the proposed receptor site, another existing colony of *Nepenthes mirabilis* was found which proved the area was suitable for the natural growth of *Nepenthes mirabilis* without the need for artificial maintenance. The photo references of *Nepenthes mirabilis* next to the proposed receptor site along stream B is shown in **Appendix A3**.
- P.3.4 The Pitcher Plants will be transplanted through root ball transplantation. Node cutting method will only be adapted as contingency plan.
- P.3.5 Prior to commencing transplantation activities, it is necessary to obtain permission from the AFCD in accordance with the Forestry Countryside Ordinance (Cap. 96). Cutting and shaping the rootball shall be performed manually. As part of the process, a trial planting of approximately 5-10% of the total number of Pitcher Plants to be transplanted will be carried out to assess the survival rate in the receptor site before proceeding with planting the remaining individuals. It is recommended that the monitoring period for the trials shall be about 6 months, which covers / partly covers both the wet and dry seasons. During the trial planting, monthly inspection by a qualified botanist/ ecologist shall be conducted to monitor the health condition of the trial planting and its adaptation to the receptor site.
- P.3.6 Care shall be taken when moving the plants to the final location. The ideal timeframe for conducting the transplantation to the plant receptor site is between March and July. Measures, such as carefully wrapping the foliage and branches, shall be considered to minimize potential drying and wind damage during the transportation process. Pitcher plants will be watered one day prior to transplanting. Due to the proposed monitoring program that schedules the transplantation operation outside of the ideal timeframe but prior to September, additional mitigation measures shall be considered to implement for mainly maintaining the plant survival rates. These measures include thoroughly watering the rootball, providing fully coverage of the delivery container, selecting cloudy weather, and avoiding

extreme high temperatures, when the plant transpiration to the receptor site. Such precautions are ensured to maintain sufficient water of the plant tissues and minimize water loss of transpiration throughout the transplant process. Furthermore, operations shall be avoided during adverse weather conditions typically associated with the wet season such as heavy rainfall, strong winds and storms, to prevent potential damage to the plants. Appropriate staking, for example using bamboo poles, shall be provided to ensure the stability of the transplanting plants.

- P.3.7 Prior to the transplantation process, it is essential to prepare the receptor site in advance. To minimize potential disruptions to the receptor site, appropriate fencing shall be installed to prevent unnecessary human interference or damage at least one month before transplantation. Qualified ecologists/botanists shall inspect the receptor sites before any clearance activities. If flora species of conservation importance are identified at the receptor site, they shall be clearly labelled and fenced off to ensure their protection before any site clearance takes place. Vegetation clearance shall only be carried out to the bare minimum if deemed necessary. It is crucial to avoid the use of heavy machinery during the removal of detrimental materials and vegetation to prevent disturbances to the natural environment. Any existing topsoil that is ploughed during the digging process shall be carefully stripped and set aside for potential reuse. This helps prevent a distinct boundary between the planting pit and the surrounding soil.
- P.3.8 The width and depth of the planting hole shall be determined by the depth and firmness of the rootball and other characteristics of the receptor site. The depth of the planting hole shall not exceed the depth of the rootball. The width of the planting hole shall be two to three times the width of the rootball at the surface. The soil directly beneath the rootball shall be undistributed or prepared to prevent settling. In addition, soil must be kept as much as possible to avoid damaging the roots as far as practicable when digging out the Pitcher plants from the donor site.
- P.3.9 The plant shall be placed in the same orientation from which it originated. All rootball supporting materials shall be removed from the planting hole before final backfilling. Any branches damaged during transit shall be properly pruned back to the nearest branch bark ridge.
- P.3.10 When the rootball is set into the planting pit, the top surface of the rootball shall not be below the surrounding soil. The backfill soil shall be reinstated and settled in layered sections to limit future settling and prevent air pockets. It shall not be compacted to a density that inhibits root growth.
- P.3.11 The backfill soil shall be tamped lightly. Water shall be added to the rootball and the backfill to bring the rootball to field capacity. Where appropriate, a soil saucer can be formed on the soil surface around the edge of the rootball circumference to permit rain and irrigation water to be retained and slowly infiltrate into the rootball perimeter.
- P.3.12 The disposal method for green waste generated during transplantation operations shall be referred to **Appendix G**.
- P.3.13 The transplantation process shall be completed before the end of September, within the same wet season, to maximize the chances of plant survival. The tentative transplantation programme is shown in **Appendix C**.
- P.3.14 The following are the pre-planting preparation works that shall be conducted:
- All tools for cutting the plant / root ball shall be sharp and be cleaned and sterilized before use.
 - On-site temporary nursery shall be set up before transplantation as shown in **Appendix A**. Sufficient area shall be provided to accommodate the individual plants. Suitable temperature, moist content, air flow and light intensity shall be provided whenever necessary by the use of

sun screening, lighting, fan, humidifier or air-conditioner. Basic information of these equipment and facilities can be found in **Appendix F**. The Pitcher Plants transplanted from the donor site will be kept and properly maintained in the temporary nursery for at least one month or until their auxiliary roots have been established before transplanting to the receptor site. The maintenance schedule for the temporary nursery is shown in **Appendix E**.

- c. Location of the receptor for each transplanted individual shall be identified and marked before transplantation. Sufficient spacing between transplanted individuals shall be provided to allow healthy growth of the plants. Receptor sites with similar content to the donor site in terms of sun exposure, soil moist content and soil texture shall be selected.
- d. Weeds, rubbish, litter and all deleterious material shall be removed from the surface of the ground in the destined receptors. Vegetation that will shade the transplanted individuals might be cleared without using herbicide. Vegetation clearance will be kept to the bare minimum when deemed necessary. To preserve the natural environment, the use of heavy machinery shall be avoided when removing harmful materials and conducting vegetation clearance.
- e. Existing soil in the donor / receptor site shall be used directly for transplanted individuals if it is not contaminated. Compost or organic mulching shall be added when considering the existing soil has low organic content.
- f. Ground that is contaminated by oil, chemicals or other substances, which may affect plant growth adversely, shall not be deemed an appropriate receptor site. A suitable alternative receptor site shall be found.
- g. Scarifying shall be carried out by loosening the soil to a depth of between 10 mm and 20 mm using a pronged implement such as a rake but without turning the soil.
- h. Prepared ground shall be protected from compaction, erosion and siltation and shall not be used by construction plants, other vehicles or pedestrian traffic. The area shall be cordoned off to restrict unnecessary access and construction activities. Signage boards shall be erected to notify any by-passer or workers for site protection. If soil erosion or siltation is noted, mitigation measures shall be conducted as assessed and suggested by the engineer.
- i. For root ball digging method, only hand tools such as hand trowel and spades will be used for digging out the individual root ball of each Pitcher Plant. The root ball shall contain the root system of each plant as much as possible. To avoid drying of the root ball soil, all the individuals will be uplifted and transported to the temporary nursery on the same day, and the newly created root ball shall be kept moist and shaded during the entire transplanting process.
- j. In the temporary nursery, each uplifted plant shall be planted in a container pot of not less than 200mm depth and 200mm diameter. Existing soil from the donor/receptor site shall be used as far as possible.
- k. The potted plants will be transplanted to the permanent receptor site only when the supervising qualified botanist/ecologist considers that the plant health and root system are in good condition. 5-10% of individuals in good condition will be selected for trial transplantation to the permanent receptor site to review the adaptability to the new environment.
- l. A new hole 2-3 times wider than the root ball shall be prepared at the receptor site before transplanting the Pitcher Plants from the temporary nursery. The plants shall be placed in the hole properly and backfilled with the original soil, tamping down gently to remove air pockets, and lastly, water thoroughly and monitor the health as scheduled.

- P.3.15 The location of the temporary nursery is shown in **Appendix A1 & Appendix A2**.
- P.3.16 In the temporary nursery, the potted Pitcher Plants from the donor site shall have a proper watering programme as part of the daily maintenance work. Care shall be taken to ensure that roots will not grow kinked or girdled. The nursery shall be properly fenced off with appropriate signage at clear locations to ensure minimal disturbance at the nursery. The Pitcher plants kept at the temporary nursery will be monitored monthly by the qualified botanist/ ecologist and monitoring reports will be submitted to AFCD for record.

Contingency Plan for Unsuccessful Rootball Preparation

- P.3.17 The Pitcher Plants will be transplanted from the donor site to the temporary nursery using root ball transplantation. However, if any plants are entangled with other vegetation, rocks, or if unforeseen underground conditions make root ball digging impractical, the nodal cutting method will be used instead subject to the site conditions. The transplantation method must be conducted under the supervision of a qualified botanist or ecologist.

Contingency Plan for Low Survival Rate in Trial Transplantation

- P.3.18 If the trial transplantation in the permanent receptor is observed to have a low survival rate due to uncontrollable factors such as extreme weather conditions etc., the contingency plan will be implemented. This contingency plan aims to adopt the node cutting method to the multi-stemmed Pitcher Plants to increase the number of Pitcher Plants individuals to be transplanted and hence to increase the general amount of surviving individuals. The selection of plants for node cutting will depend on their condition while in the temporary nursery and will be guided by the recommendations of a botanist or ecologist. Each multi-stemmed Pitcher Plant can produce two to three new individuals through this method, which increases the base number of individuals available for planting at the receptor site. Additionally, to enhance survival rates during their time in the transit nursery, it is recommended that only the leader stem of Pitcher Plants with at least three stems be preserved, while the other stems shall be cut to create new individuals.

Nodal Cutting Method in Contingency Plans

- P.3.19 Each cutting shall have at least three nodes, with leaves and pitchers trimmed. The cuttings shall be placed immediately into moist peat moss or soil conditioner inside polythene bags. For node-cutting individuals, the Pitcher Plants shall be planted in the pot which is placed in the temporary nursery, for a minimum of 3 months to allow root re-growth. They shall have a proper watering programme as part of the daily maintenance work. Care shall be taken to ensure that roots will not grow kinked or girdled. The nursery shall be properly fenced off with appropriate signage at clear locations to ensure minimal disturbance at the nursery. The Pitcher Plants kept at the temporary nursery will be monitored monthly by the qualified botanist/ ecologist and monitoring reports will be submitted to AFCD for record.
- P.3.20 It is crucial to maintain a consistently moist environment for the cuttings during the initial two to three weeks, until at least two leaves have developed, and auxiliary roots have established. If necessary, a fungicide shall be applied to the cutting surfaces to prevent decay, and rooting hormone may be used as needed to stimulate root growth (*Pietropaolo and Pietropaolo 1986*). These cuttings will then be transplanted into the receptor site.
- P.3.21 A qualified botanist/ecologist shall also carefully review the soil condition, maintenance plan, planting location, plant health and condition, etc., to determine the causes of the transplanting failure. The botanist/ecologist shall submit a summary statement regarding the plant survival rate and individual plant size, and with a detailed contingency plan, if required, to AFCD for consideration before the transplantation of the remaining Pitcher Plants to a permanent receptor.

P.4 Post -transplantation Maintenance

Monitoring

- P.4.1 Upon completion of transplantation, monitoring shall be implemented for 2 years and shall be conducted monthly during the first 12 months, and bi-monthly in the next 12 months to ensure survival. The monitoring report shall include all measures necessary to establish and maintain the transplanted pitcher plants in an acceptable vigorous and healthy growing condition and shall be prepared by a qualified ecologist/botanist and submitted to AFCD for record. Inspections and reporting by the appointed qualified botanist/ecologist will be conducted after adverse weather (e.g. typhoon signal no. 8 or above, black rainstorm signal) to check any damage to the transplanted Pitcher Plants with appropriate remedial actions proposed.

Watering

- P.4.2 After planting, it is essential to ensure that the receptor sites are adequately watered. During the establishment period, diligent monitoring of the soil moisture levels is necessary to prevent excessive drying out. Watering shall be conducted in the early morning or late afternoon. The transplanted individuals shall receive appropriate and sufficient watering, and if necessary, daily watering may be required during the initial three months and the first dry season following transplantation.
- P.4.3 Subsequently, the frequency of watering shall be reduced to at least twice a week until the end of the establishment period. It is crucial to adjust the watering frequency as needed to maintain a moist soil environment while avoiding saturation. While keeping the soil consistently moist without overwatering the plants.

Mulching

- P.4.4 The use of mulches aids in moisture conservation, moderates soil temperature and assists in weed control around plants. For this purpose, it is recommended to apply organic mulches like thoroughly dried grass clippings or small wood chips directly onto the soil surface, specifically covering the area above the plant's root system.

Not recommended to be Pruned

- P.4.5 Given that die-back of the current year's growth is a common occurrence, any new stems, leaves, or flowers that emerge from the cuttings in subsequent years shall be noted separately but still considered as surviving individuals if observed in the following season. These regrowth instances shall be marked individually and included in the overall count of surviving individuals.

Integrated Pest Management (IPM)

- P.4.6 Apply a holistic IPM approach to pest control that aims to minimize the use of chemical pesticides while effectively managing pest populations. Pests shall be identified and appropriate mitigation measures recommendations shall be recorded in the monthly monitoring report. Consider biological control or mechanical control to manage pests first before using targeted pesticides as a last resort. Using pesticides with low toxicity to non-target organisms, natural and biodegradable is recommended. They shall be applied selectively, following the manufacturer's instructions.

Firming Up

- P.4.7 After the weekly inspection and after heavy rain or wind, plants shall be firmed up if necessary.

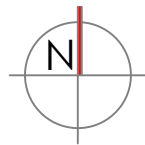
Forking

- P.4.8 Forking shall be conducted immediately after fertilizing and prior to the application of mulch. This shall be conducted manually to a depth of 100mm to aerate the soil.

Implementation during Construction / Operation / Restoration / Aftercare Phases

- P.4.9 In accordance with EM&A Manual Section 10.3, during construction, operation, restoration and aftercare phases, routine site inspection shall be conducted on a weekly basis to audit the mitigation measures for disturbance on habitats adjacent to the work areas. Monitoring of transplantation shall be audited as part of the site audit programme.
- P.4.10 A temporary shelter shall be provided to maintain the moisture and temperature as necessary if the receptor site is found to be too windy during the dry season. Therefore, to provide the most suitable environment for the Pitcher plants to survive.

- End -



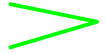
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(ENHANCED BAY)

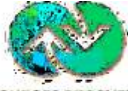
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DEEP BAY
(ENHANCED BAY)

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DEEP BAY
(ENHANCED BAY)

LEGEND

-  FEP/EP WENTX PROJECT BOUNDARY
-  PITCHER PLANT
-  STREAM B
-  RECEPTOR SITE FOR PITCHER PLANT (~254sqm)
-  ON-SITE TRANSIT NURSERY
-  PHOTO TAKING ANGLE (REFER TO APPENDIX A2)

Rev	Description	By	Date
Employer			
 環境保護署 Environmental Protection Department			
Service Manager's Representative			
			
Design Checker			
			
Contractor			
 HK RESOURCES RECOVERY PARK			
Designer			
 binnies In Association With ATKINS Member of the SNC-Lavalin Group			
Project title			
CONTRACT NO. EP/SP/186/21 WEST NEW TERRITORIES LANDFILL EXTENSION			
Drawing title			
APPENDIX A1 – LOCATION OF PLANT SPECIES OF CONSERVATION INTEREST TO BE TRANSPLANTED & LOCATION OF RECEPTOR SITE FOR PITCHER PLANT			
Drawing no.			Rev.
APPENDIX A1			A
Author	OY	Date	July 25
Checker	Approver		
Scale	1:10,000 @ A3		
Status	DETAIL DESIGN SUBMISSION		
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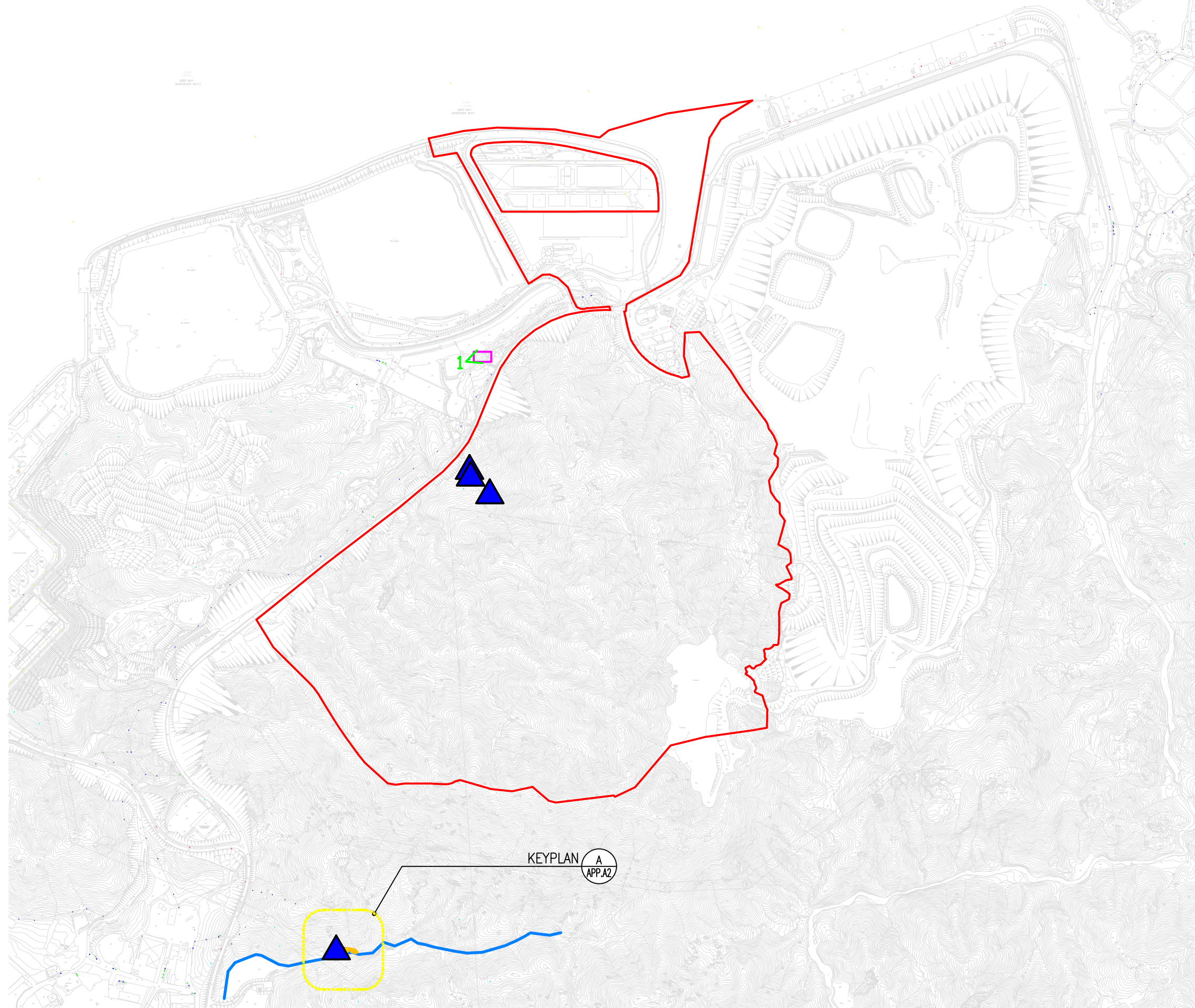




PHOTO 1 - TEMPORARY NURSERY



PHOTO 1 - CLOSE-UP VIEW



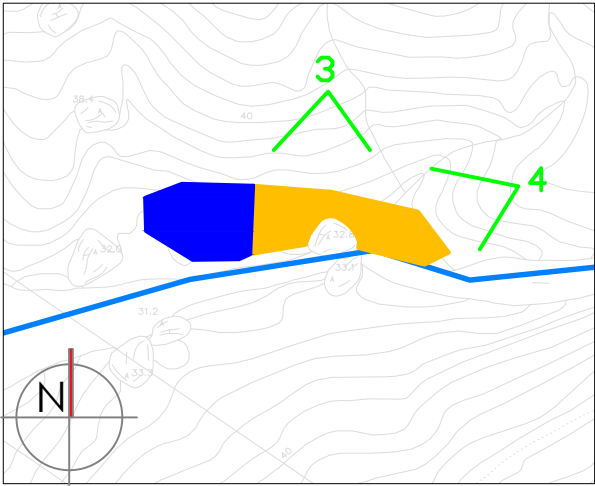
PHOTO 3 - PHOTO OF RECEPTOR SITE



PHOTO 2 - AERIAL PHOTO OF RECEPTOR SITE

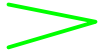


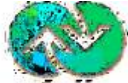
PHOTO 4 - PHOTO OF RECEPTOR SITE



A KEYPLAN
- SCALE: NTS

LEGEND

-  PHOTO TAKING ANGLE
-  PITCHER PLANT
-  STREAM B
-  RECEPTOR SITE FOR PITCHER PLANT (~254sqm)

Rev	Description	By	Date
Employer			
 環境保護署 Environmental Protection Department			
Service Manager's Representative			
			
Design Checker			
			
Contractor			
 HK RESOURCES RECOVERY PARK			
Designer			
 binnies In Association With ATKINS Member of the SNC-Lavalin Group			
Project title			
CONTRACT NO. EP/SP/186/21 WEST NEW TERRITORIES LANDFILL EXTENSION			
Drawing title			
APPENDIX A2 – PHOTOS OF LOCATION OF RECEPTOR SITE FOR PITCHER PLANT & TEMPORARY NURSERY AREA			
Drawing no.			Rev.
APPENDIX A2			–
Author	OY	Date	Checker
		MAR 24	Approver
Scale	1:10,000 @ A3		Status
			DETAIL DESIGN SUBMISSION
© COPYRIGHT RESERVED			

Appendix A3 - Photos of *Nepenthes mirabilis* next to the Proposed Receptor Site along Stream B



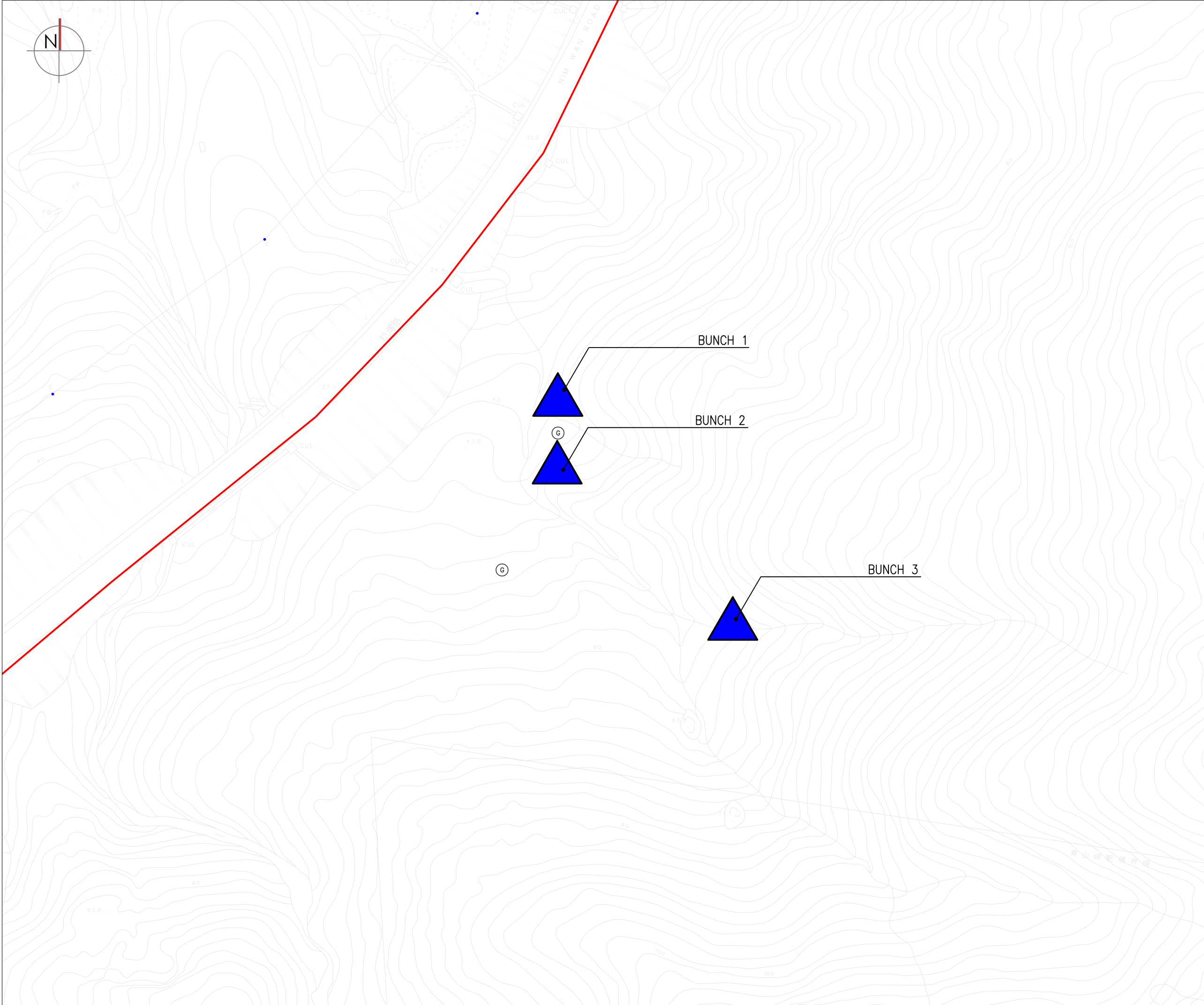
Receptor Site Overview - Existing Stream next to Pitcher Plants



Close-Up View (A) - Existing Pitcher Plants and Existing Vegetation



Close-Up View (B) - Existing Pitcher Plants and Existing Vegetation



LEGEND

FEP/EP WENTX PROJECT BOUNDARY

PITCHER PLANT

Rev	Description	By	Date
Employer			
環境保護署 Environmental Protection Department			
Service Manager's Representative			
ARUP			
Design Checker			
wsp			
Contractor			
HK RESOURCES RECOVERY PARK			
Designer			
binnies In Association With ATKINS Member of the SNC-Lavalin Group			
Project title			
CONTRACT NO. EP/SP/186/21 WEST NEW TERRITORIES LANDFILL EXTENSION			
Drawing title			
APPENDIX B – LOCATION OF PITCHER PLANT			
Drawing no.			Rev.
APPENDIX B			—
Author	OY	Date	MAR 24
Checker		Approver	
Scale	1:100		● A3
Status		DETAIL DESIGN SUBMISSION	

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Bunch 1 - Overall



Bunch 1 (left) & 2 (right) Aerial Photo



Bunch 1 PP01 (1)



Bunch 1 PP01 (2)



Bunch 1 PP02 (1)



Bunch 1 PP02 (2)



Bunch 1 PP03 (1)



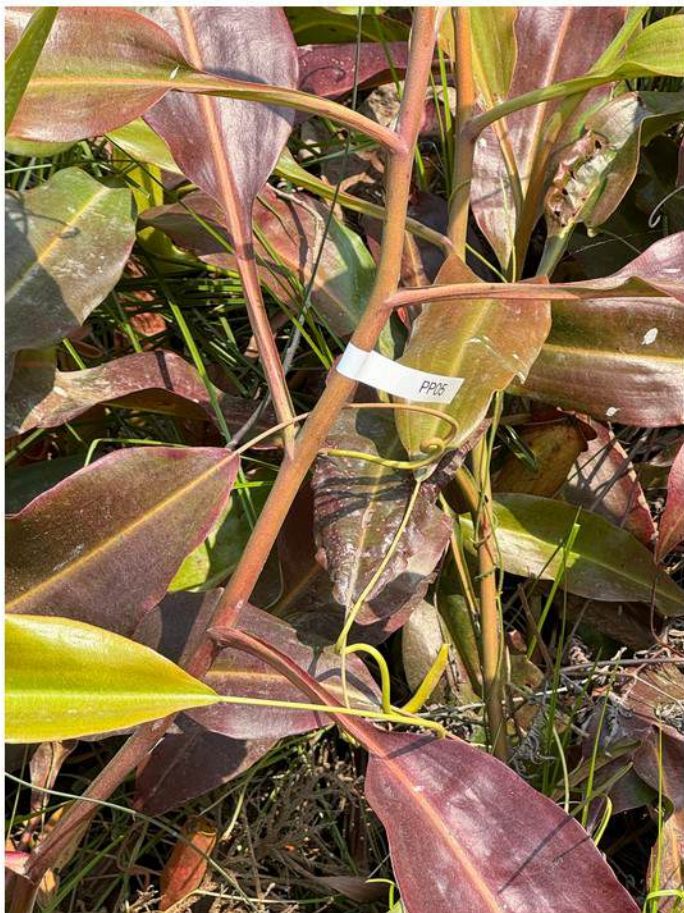
Bunch 1 PP03 (2)



Bunch 1 PP04 (1)



Bunch 1 PP04 (2)



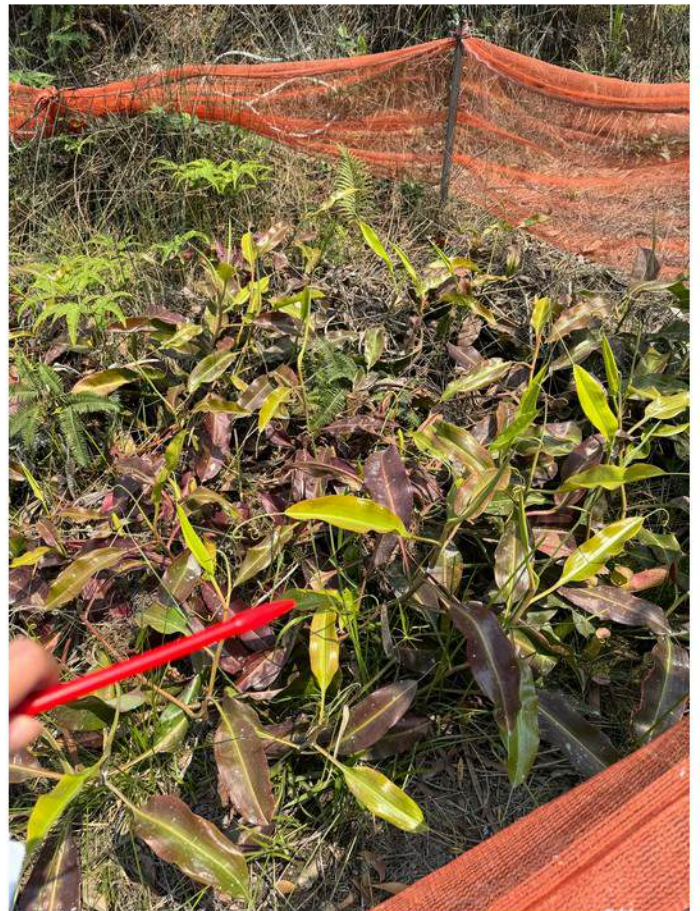
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Bunch 1 PP05 (2)



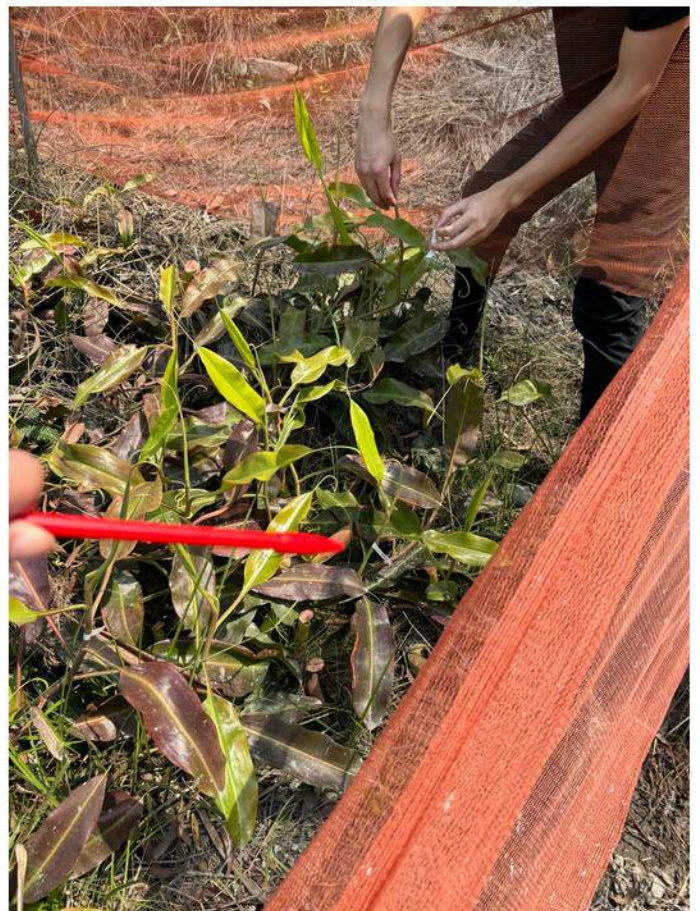
Bunch 1 PP06 (1)



Bunch 1 PP06 (2)



Bunch 1 PP07 (1)



Bunch 1 PP07 (2)



Bunch 1 PP08 (1)



Bunch 1 PP08 (2)



Bunch 1 PP09 (1)



Bunch 1 PP09 (2)



Bunch 1 PP10 (1)



Bunch 1 PP10 (2)



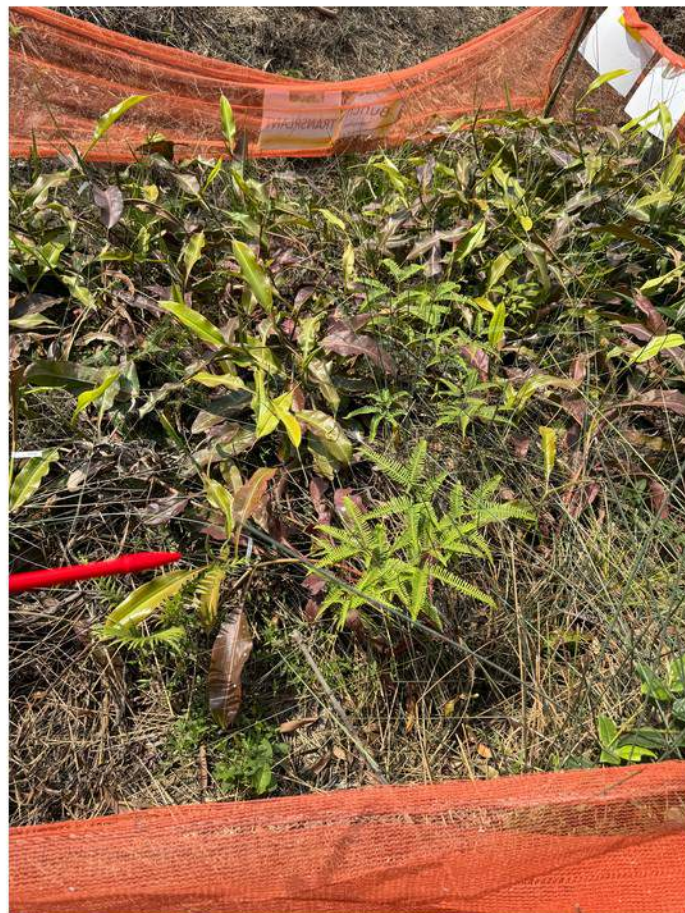
Bunch 1 PP11 (1)



Bunch 1 PP11 (2)



Bunch 1 PP12 (1)



Bunch 1 PP12 (2)



Bunch 1 PP13 (1)



Bunch 1 PP13 (2)



Bunch 1 PP14 (1)



Bunch 1 PP14 (2)



Bunch 1 PP15 (1)



Bunch 1 PP15 (2)



Bunch 1 PP16 (1)



Bunch 1 PP16 (2)



Bunch 1 PP17 (1)



Bunch 1 PP17 (2)



Bunch 2 - Overall



Bunch 2 PP18 (1)



Bunch 2 PP18 (2)



Bunch 2 PP19 (1)



Bunch 2 PP19 (2)



Bunch 2 PP20 (1)



Bunch 2 PP20 (2)



Bunch 2 PP21 (1)



Bunch 2 PP21 (2)



Bunch 3 Aerial Photo



Bunch 3 PP22 (1)



Bunch 3 PP22 (2)



Bunch 3 PP23 (1)



Bunch 3 PP23 (2)



Bunch 3 PP24 (1)



Bunch 3 PP24 (3)



Bunch 3 PP24 (4)



Bunch 3 PP25 (1)



Bunch 3 PP25 (2)



Bunch 3 PP26 (1)



Bunch 3 PP26 (2)



Bunch 3 PP27 (1)



Bunch 3 PP27 (2)

APPENDIX C - TENTATIVE TRANSPLANTATION PROGRAMME

Activities	Year 2025				Year 2026												Year 2027												Year 2028												Year 2029		Remarks									
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb										
Erection of Protective Fencing	O											O																																			To be removed when plants are established					
Obtain Permission From AFCD	O																																														Minimum 1 month processing period					
Routine Site Inspection	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W						
Monitoring Report								O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		BO		BO		BO		BO		BO		BO		BO		BO									
Transplanting Procedure																																																				
Transplant to Temporary Nursery by rootball							O																																										Plants shall be kept within the nursery for at least one month or until their auxiliary roots are in well-establishment			
Watering for Root Ball							W	W/IN	W/IN	W/IN	W/IN	W/IN	W/IN																																					Additional watering to be provided if necessary		
Fertilizer							IN	IN	IN	IN	IN	IN	IN																																				Only when necessary			
Pesticide/Fungicide							IN	IN	IN	IN	IN	IN	IN																																				Apply appropriate fertilizer as specified amount as per manufacturer's instruction			
Trial Transplant 5-10% Plants to Final Receptor Site								O																																												
Monitoring to Trial Transplanted Plants								O	O	O	O	O	O	O																																				Trial transplanting to be monitored closely for 6 months		
Transplant Remaining Plants to Final Receptor Site													O																																				Transplant remaining plants if the 5-10% plants have a good survival rate at the receptor site.			
Preparation of Receptor Site							O					O																																								
Contingency Plan for Unsuccessful Rootball Preparation (if required)																																																				
Nodal Cutting							IN																																												Nodal cutting to multi-stem plants	
Maintenance to Nodal Cutting in Temporary Nursery							IN	IN	IN	IN	IN	IN	IN																																				Nurturing in transit nursery for 3 months			
Contingency Plan for Low Survival Rate in Trial Transplantation (if required)																																																				
Nodal Cutting													IN																																						Nodal cutting to multi-stem plants	
Maintenance to Nodal Cutting in Transit Nursery														IN	IN	IN																																		Nurturing in transit nursery for 3 months		
Preparation of Receptor Site																IN																																				
Transplant Nodal Cutting Plants to Final Receptor Site																IN																																				
Post-Transplanting Maintenance																																																				

Remarks: O - Once a month, BO - Bi-monthly, D - Daily, W - Weekly, BW - Bi-weekly, IN - Only if necessary

Appendix D - Plant Schedule

<i>Aquilaria sinensis</i>						
Location	No.		Health	Suitability for transplantation		Note
			Good/Average/ Poor	High/Medium/Low	Remark	
Near brackish water	-		-	-	-	located near brackish water, the subject individual was not found and considered to be lost due to natural cost

<i>Arundina graminifolia</i>						
Location	No.		Health condition	Suitability for transplantation		Note
			Good/Average/ Poor	High/Medium/Low	Remark	
Near Tsang Kok Stream	-		-	-	-	the original location was occupied by invasive climber(<i>Mikania micrantha</i>), the subject individual was not found and considered to be lost due to natural cost

<i>Nepenthes mirabilis</i>						
Location	Tag No.	Spread (m)	Health condition	Suitability for transplantation		Note
			Good/Average/ Poor	High/Medium/Low	Remark	
Bunch 1	PP01	0.5	Average	Medium	-	at/near permanent watershed
	PP02	0.5	Average	Medium	-	at/near permanent watershed
	PP03	0.5	Average	Medium	-	at/near permanent watershed
	PP04	0.5	Average	Medium	-	at/near permanent watershed
	PP05	0.5	Average	Medium	-	at/near permanent watershed
	PP06	0.5	Average	Medium	-	at/near permanent watershed
	PP07	0.5	Average	Medium	-	at/near permanent watershed
	PP08	0.5	Average	Medium	-	at/near permanent watershed
	PP09	0.5	Average	Medium	-	at/near permanent watershed
	PP10	0.5	Average	Medium	-	at/near permanent watershed
	PP11	0.5	Average	Medium	-	at/near permanent watershed
	PP12	0.5	Average	Medium	-	at/near permanent watershed
	PP13	0.5	Average	Medium	-	at/near permanent watershed
	PP14	0.5	Average	Medium	-	at/near permanent watershed
	PP15	0.5	Average	Medium	-	at/near permanent watershed
	PP16	0.5	Average	Medium	-	at/near permanent watershed
	PP17	0.5	Average	Medium	-	at/near permanent watershed
Bunch 2	PP18	1.0	Average	Medium	-	at/near permanent watershed
	PP19	1.0	Average	Medium	-	at/near permanent watershed
	PP20	1.5	Average	Medium	-	at/near permanent watershed
	PP21	1.0	Average	Medium	-	at/near permanent watershed
Bunch 3	PP22	3.0	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP23	3.0	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP24	2.0	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP25	2.5	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP26	2.5	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP27	2.5	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed

Appendix E – Maintenance Schedule

The proposed maintenance schedule at the temporary nurseery is as follow :

Maintenance Works	Mar 2026*	Remarks
Support Inspection & Adjustment	W	If necessary
Fertilization	As necessary	
Watering	D	The watering amount depends on the daily weather
Mulch Topping-up	As necessary	Visual inspection is to be conducted weekly at the temporary nurseery to decide if topping up is necessary
Pruning	As necessary	
Thinning	As necessary	
Litter Collection	W	
Weeding	As necessary	
Inspection after Exceptional Weather (E.g. Typhoon)	As necessary	
Maintenance Inspection	W	

*Note :

D – Daily

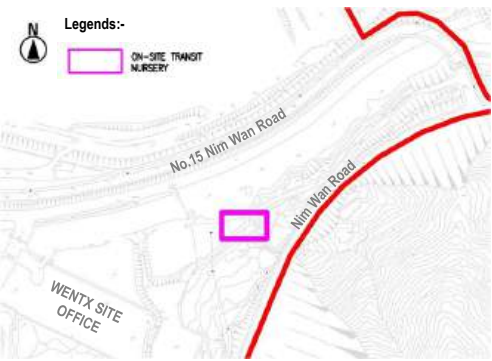
W – Weekly

O – Once a year

M – Monthly

The schedule of maintenance shall be reviewed and revised as necessary.

Appendix F -Basic Information on Equipment and Facilities of Temporary Nursery



Location Plan of Temporary Nursery
(KEY PLAN Refers to Appendix A1)



Horticultural Tools



Lighting Facility (or equivalent)



Fan Facility (or equivalent)



Thermometer and Hygrometer



Planting Pot



Indicative Layout Plan of Temporary Nursery Establishment



~2.1m(H) x 2.1m(W) x 4.6m(L)
Sun Screening mounted at Metal Scaffolding (or equivalent)



Fencing Off Nursery Area by 1.8m High Water Filled Barrier with Lockable Entry to Protect Pitcher Plant and Prohibit Unauthorized Access

Appendix G - Disposal Method for Green Waste Generated during Transplantation Operations

1. Green waste generated from the transplantation works shall be collected and disposed off site. However, in accordance with the contract requirements for yard waste reduction and treatment specified in the contractual specification, green waste shall be also collected and sorted for 3-Bin Composting System on Site as shown in Figure 1. The compost produced shall be used on site.
2. Pursuant to the contract requirements for yard waste reduction and treatment outlined in the contractual specification, yard waste is recyclable materials which shall be sorted on site for the purpose of recycling and shall not be considered as waste for disposal except for the diseased parts of plants. Thereby, green wastes generated from the transplantation works are requested for disposal at designated upcycling facilities, Eco Park and Y-PARK as priority. The upcycling requirements shall be followed and indicated in Figure 2.
3. If unaccepted by upcycling facilities, the final disposal of green waste shall be directed at designated sites for dumping, such as designated landfill sites, site for organic waste conversion.
4. Yard waste reduction and treatment shall be referred to in the DEVB's "Guidelines on Yard Waste Reduction and Treatment".



Figure 1. 3-Bin Composting System and Operation on Site



Figure 2. Disposal Requirements of Green Waste



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The Government of the Hong Kong Special Administrative Region

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West New Territories Landfill Extension (Awarded in August 2023)

Award of Contract

West New Territories Landfill Extension (Awarded in August 2023)

Contract Number	Tendering Procedure	Subject	Contractor(s) and Address(es)	Awarded Quantity	Awarded Sum (HK\$)
EP/SP/186/21	Selective	West New Territories Landfill Extension	Hong Kong Resources Recovery Park 29/F, China Overseas Building, 139 Hennessy Road, Wan Chai, Hong Kong	Not applicable	\$61,100,000,000.00

Remark: As this contract adopts the New Engineering Contract (NEC) form, the awarded sum refers to "Forecast Total of the Prices".



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2025 © Environmental Protection Department Last revision date : 25 August 2023

EPD signs WENT Landfill Extension Contract (with photos) ▼

GO

EPD signs WENT Landfill Extension Contract (with photos)

The Environmental Protection Department (EPD) today (September 26) signed the West New Territories (WENT) Landfill Extension contract with Hong Kong Resources Recovery Park (joint venture).

Hong Kong Resources Recovery Park (joint venture) will be responsible for carrying out the design, build and operation of the WENT Landfill Extension. Led by Alchmex International Construction Limited, Hong Kong Resources Recovery Park (joint venture) is also formed with China State Construction Engineering (Hong Kong) Limited and Veolia Hong Kong Holdings Limited. Both Alchmex International Construction Limited and China State Construction Engineering (Hong Kong) Limited are wholly owned subsidiaries of China State Construction International Holdings Limited.

"The joint venture has a strong team for the multidisciplinary expertise required for the landfill project and also possesses rich experience in infrastructure construction. We expect that this contract could bring new technologies to the landfill extension and provide a safe and reliable waste disposal service. At the same time, it could provide the necessary landfill capacity for Hong Kong during the transition period before the completion of developing sufficient modern waste-to-energy incinerators to fully handle the municipal solid waste, and also for disposal of the waste that is non-combustible and cannot be recycled," the Director of Environmental Protection, Dr Samuel Chui, said at the contract signing ceremony.

The New Engineering Contract (NEC) form has been adopted in the contract to design, build and operate the WENT Landfill Extension, making it the first landfill contract in Hong Kong adopting the NEC form. The NEC form embraces a collaborative culture and, through contractual mechanisms, fosters the development of a mutual assistance and trust partnering relationship between the contracting parties. It also facilitates joint risk management, thereby enhancing project management performance and cost-effectiveness.

Ends/Tuesday, September 26, 2023

Issued at HKT 15:35

NNNN

Photo



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Contract No. EP/SP/186/21
West New Territories (WENT) Landfill Extension

Client
The Environmental Protection Department



Service Manager
Ove Arup & Partners Hong Kong Ltd



HKRRP Management Board



JV Leader

China State Construction
Engineering (Hong Kong)
Limited



Alchmex International
Construction Limited



Veolia Hong Kong
Holding Limited

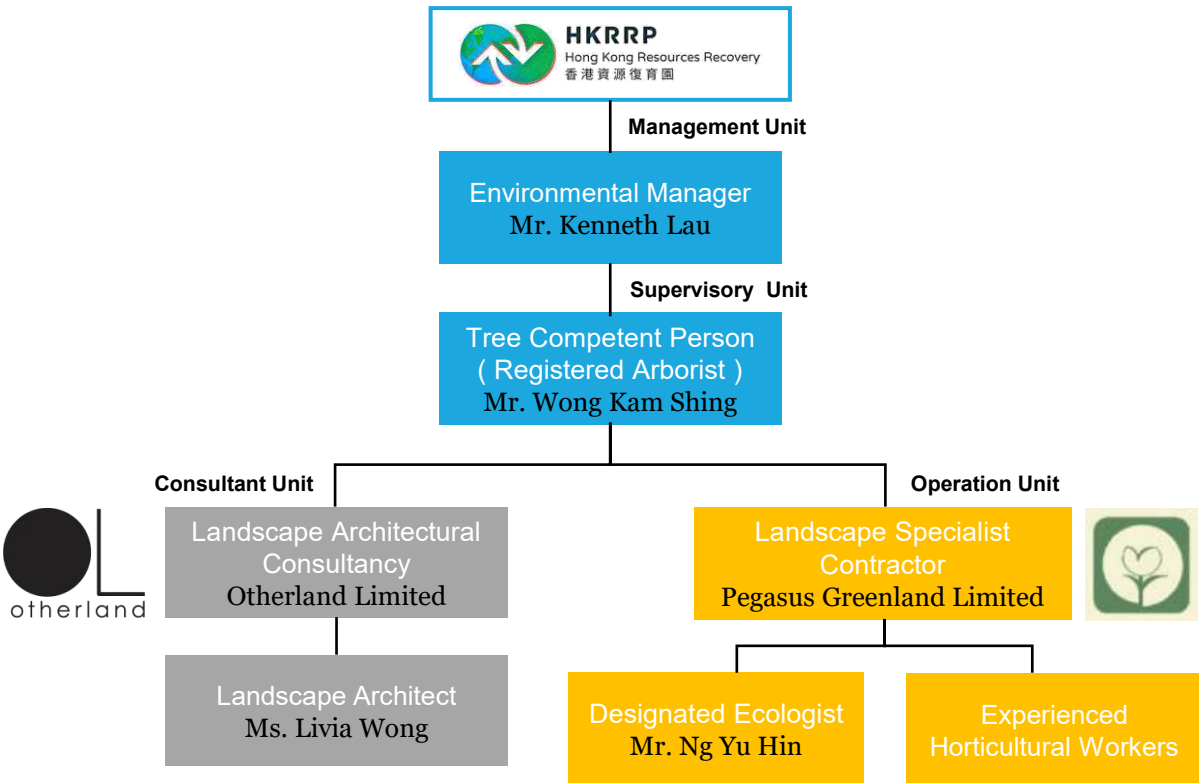


HKRRP Joint Venture Structure

Hong Kong Resources Recovery Park is an unincorporated integrated joint venture, with Alchmex International Construction Limited acting as the lead participant and China State Construction Engineering (Hong Kong) Ltd being a participant. The parent company of both is China State Construction International Holdings Limited.

Veolia Hong Kong Holding Limited - an industry leading international environmental services and waste management specialist – is also a participant of this joint venture.

**Organizational Chart of Main Contractor
(Works Team for Pitcher Plant Transplantation)**



Appendix Q

Transplantation Scheme for Pitcher Plant

West New Territories (WENT) Landfill Extension

DETAILED TRANSPLANTATION SCHEME FOR PITCHER PLANT

Mar 2026
PREPARED BY:

OTHERLAND LIMITED

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Detailed Transplantation Scheme for Pitcher Plant

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- Appendix A1 Location of Plant Species of Conservation Interest to be Transplanted & Location of Receptor Site for Pitcher Plan
- Appendix A2 Photos of Location of Receptor Site for Pitcher Plant & Temporary Nursery Area
- Appendix A3 Photos of *Nepenthes mirabilis* next to the Proposed Receptor Site along Stream B
- Appendix B Location of Pitcher Plant, Photographic Record of Individual Pitcher Plant
- Appendix C Tentative Transplantation Programme
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- Appendix F Basic Information on Equipment and Facilities of Temporary Nursery
- Appendix G Disposal Method for Green Waste Generated during Transplantation Operations
- Appendix H Project Background and Role Relationships under WENTX Project of EPD

1. Introduction

1.1 Background

- 1.1.1 The West New Territories Landfill Extension (WENTX) comprises the development of a municipal solid waste landfill that covers a landfilling area of about 94 ha with an estimated void space (landfill capacity) of 76M m³, including the site formation and phased development of the landfill; provision of landfill infrastructure and facilities for landfilling operation; provision of leachate management system; provision of LFG management system; restoration of the landfill, aftercare of the landfill facilities for a period of 30 years following the completion of restoration works.
- 1.1.2 Environmental Protection Department (EPD) commissioned Hong Kong Resources Recovery Park (HKRRP) in August 2023 to carry out design, construction and operation of Contract No. EP/SP/186/21 – West New Territories Landfill Extension (WENTX). Relevant background information and an organizational chart presenting the relationships between the roles in this project are provided in **Appendix H**.

1.2 Objective

- 1.2.1 WENTX is a designated project under the Environmental Impact Assessment Ordinance (EIAO). The Environmental Impact Assessment (EIA) Report (Registration. No. AEIAR-147/2009) was approved under the Environmental Impact Assessment Ordinance (EIAO) on 20th November 2009. The Environmental Permit (EP) for WENTX was granted on 3rd June 2010 (Permit No. EP-393/2010). Variation of an Environmental Permit (VEP) was applied under the EIAO on 8th July 2022 due to enhancement of the WENTX scheme recommended after the EIA stage. The VEP (EP No: EP-393/2010/A) was subsequently granted on 29th July 2022. The Further Environmental Permit (FEP) (FEP no.: FEP-01/393/2010/A) was granted to HKRRP on 6th October 2023.
- 1.2.2 A Transplantation and Management Plan (TMP) is to fulfil the Condition 2.6 under the EP No: EP-393/2010/A (EP) and FEP-01/393/2010/A (FEP), and was already submitted for approval to the Director at least 1 month before the commencement of construction of the Project.
- 1.2.3 In accordance with the Condition 2.6 under the EP No: EP-393/2010/A (EP) and FEP-01/393/2010/A (FEP), the first submission of the Transplantation and Management Plan - TMP (Sep 2025) was submitted to the Service Manager and the EPD with the AFCD consulted and was subsequently approved by the EPD on 20 October 2025. The feasibility and suitability of transplanting the affected plant species of conservation interest is reviewed and suitable receptor sites are identified by the TMP. Besides, the associated application of transplantation permit to the Pitcher Plant was approved on 30 September 2025 by the AFCD.
- 1.2.4 In accordance with the recommendations outlined in Section 10.8.2 of the EIA Report, as well as Section 10.3 of the Monitoring and Audit for Ecology within the Final Environmental Monitoring & Audit Manual (EM&A Manual) Rpt Ref. 059-01, the primary objective of this document is aimed that a suitably qualified ecologist develops a Detailed Transplantation Scheme for the Pitcher Plant. This Scheme is formulated in strict accordance with the transplantation protocol approved on 27 March 2026. The Scheme is intended to finalize and comprehensively outline transplantation details, encompassing the transplanting methodology, the updated monitoring program with the proposed

practical timeline during the upcoming wet season from March 2026 to September 2026, and the transplanting location and procedures for plants of conservation interest to be affected by the Project.

1.3 Statutory and Technical Guidelines

1.3.1 In preparation of the Report, reference has been made to the following practice notes, publications, and technical circulars:

- Forests and Countryside Ordinance (Cap. 96);
- Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586);
- Development Bureau (DEVB) Technical Circular (Works) No. 6/2015 – Maintenance of Vegetation and Hand Landscape Features;
- Agriculture, Fisheries & Conservation Department (AFCD) Nature Conservation Practice Note No. 02 (Rev. Jun 2006) – Measurement of Diameter at Breast Height (DBH);
- Agriculture, Fisheries & Conservation Department (AFCD) Publication – 'Rare and Precious Plants of Hong Kong' (2004);
- Agriculture, Fisheries & Conservation Department (AFCD) Publication – 'Check List of Hong Kong Plants' (2004);
- General Guidelines on Tree Pruning, Dos and Don'ts in Pruning, Tree Care during construction, and other relevant information promulgated by DEVB;
- Guidelines for Tree Transplanting promulgated by DEVB;
- Guidelines for Tree Risk Assessment and Management promulgated by DEVB;
- Proper Planting Practices promulgated by DEVB;
- Standing Interdepartmental Landscape Technical Group (SILTECH) Publication – 'Tree Planting and Maintenance in Hong Kong' (Webb, 1991);
- General Specification for Civil Engineering Works, 2006 Edition, Environment, Transport and Works Bureau Technical Circular (Works) No. 11/2004 – Cyber Manual for Greening.

2. Methodology

2.1 General

2.1.1 As recommended in EM&A Manual Section 10.3, the feasibility and suitability of transplanting the affected plant species of conservation interest will be carefully studied and suitable receptor sites will be identified by the transplantation scheme, and the site selection and propagation and transplantation methods shall be reviewed and followed. The transplantation works shall be conducted by a qualified botanist/ecologist.

2.2 Existing Location of Plant Species of Conservation Interest to be Transplanted

- 2.2.1 According to the EIA Report, four plant species of conservation interest within the Project were found and directly impacted by the WENT Landfill Extension in June 2009. However, during the latest field survey in January 2024, only three groups of *Nepenthes mirabilis* (Pitcher Plant) could be found, and the remaining mentioned plants were not located. The locations of the plant clusters of Pitcher Plant are demonstrated in **Appendix A1**. The photo records are shown in **Appendix B**. Plant schedule for each tagged plant is found in **Appendix D**. For *Ixonanthes reticulata* recorded at Tsang Kok Stream from the above mentioned VEP were not found during the survey in Jan 2024. . If *Ixonanthes reticulata* is found in the future / other plants of conservation interest will be identified during the landscape survey to be conducted for the separate Landscape Plan and will be affected by the Project, further assessment will be carried out to review the feasibility of transplantation.

Nepenthes mirabilis					
Location	Tag No.	Spread (m)	Health condition	Suitability for transplantation	Note
			Good/Average/Poor	High/Medium/Low	
Bunch 1	PP01	0.5	Average	Medium	at/near permanent watershed
	PP02	0.5	Average	Medium	at/near permanent watershed
	PP03	0.5	Average	Medium	at/near permanent watershed
	PP04	0.5	Average	Medium	at/near permanent watershed
	PP05	0.5	Average	Medium	at/near permanent watershed
	PP06	0.5	Average	Medium	at/near permanent watershed
	PP07	0.5	Average	Medium	at/near permanent watershed
	PP08	0.5	Average	Medium	at/near permanent watershed
	PP09	0.5	Average	Medium	at/near permanent watershed
	PP10	0.5	Average	Medium	at/near permanent watershed
	PP11	0.5	Average	Medium	at/near permanent watershed
	PP12	0.5	Average	Medium	at/near permanent watershed
	PP13	0.5	Average	Medium	at/near permanent watershed
	PP14	0.5	Average	Medium	at/near permanent watershed
	PP15	0.5	Average	Medium	at/near permanent watershed
	PP16	0.5	Average	Medium	at/near permanent watershed
	PP17	0.5	Average	Medium	at/near permanent watershed
Bunch 2	PP18	1.0	Average	Medium	at/near permanent watershed
	PP19	1.0	Average	Medium	at/near permanent watershed
	PP20	1.5	Average	Medium	at/near permanent watershed
	PP21	1.0	Average	Medium	at/near permanent watershed
Bunch 3	PP22	3.0	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP23	3.0	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP24	2.0	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP25	2.5	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP26	2.5	Average	Medium	Located in mixed shrubland, at/near permanent watershed
	PP27	2.5	Average	Medium	Located in mixed shrubland, at/near permanent watershed

- 2.2.2 Meanwhile, according to the VEP document, *Aquilaria sinensis* and Bamboo Orchid were no longer found within the Enhanced Scheme. *Gnetum luofuense* and *Diospyros vaccinioides* were newly recorded in the current review. However, *Gnetum luofuense* is a woody climber that is not feasible for transplantation. Regarding *Diospyros vaccinioides*, based on the subsequent site inspection, it was observed that these shrubs grow among the boulders of the stream, making it impractical to form a proper root ball for transplanting. Therefore, it is recommended not to transplant both *Gnetum luofuense* and *Diospyros vaccinioides*. Regarding the loss of *Gnetum luofuense* and *Diospyros vaccinioides* which had been surveyed in Tsang Kok Stream, additional whips will be planted to compensate the loss. 20 nos. of *D. vaccinioides* whips will be planted at Stream B next to the receptor site of *Nepenthes mirabilis*.
- 2.2.3 Since only the Pitcher Plant could be found and feasible to be transplanted, the report only includes the transplantation method for the Pitcher Plant.

2.3 Transplantation Method of Pitcher Plant

- 2.3.1 Local successful experience of *Nepenthes mirabilis* (Weatherhead, undated), including site selection and propagation and transplantation methods were reviewed and shall be followed. A suitably qualified botanist/ecologist with at least 3 years of experience in successful transplanting of rare, protected species, shall supervise the whole transplanting process. Their qualification and prior project experiences will be submitted to AFCD for review and comments and to EPD for approval before the commencement of the transplanting works.
- 2.3.2 Monthly monitoring reports shall be prepared by the appointed qualified botanist/ecologist for the Pitcher Plants at the temporary nursery and receptor site and submitted to AFCD for record. The reports shall include but not be limited to the general weather and nursery condition, physical (height & spread) and health conditions (e.g. vigour of foliage, any pest & disease etc.) of the Pitcher Plants, maintenance records, and recommendations/ contingency measures implemented/to be implemented (if any). All maintenance activities, site conditions and all individual plants shall be photographed and recorded in the monitoring reports. The tentative transplantation programme is shown in **Appendix C**.
- 2.3.3 The recipient site chosen for the transplantation shall closely resemble the original habitat in terms of its range and nature, which includes being in the NWNT (Natural Woodland and Grassland Type), characterized by granitic rock formations and proximity to a permanent stream. It is important to ensure that the associated plant species present in the shrubland and grassland of the recipient site are similar to those found in the original habitat. There is also an existing colony of Pitcher Plants adjacent to the receptor site, indicating the site conditions are likely suitable for Pitcher Plants. One potential location identified for the transplantation is indicated in **Appendix A1 and Appendix A2**. The three bunches of *Nepenthes mirabilis* were located in open areas which were generally flat and near the watershed. The identified receptor site at Stream B demonstrated similar characteristics as the donor sites in terms of sun exposure, landform, altitude, and vicinity to all-season water bodies. In addition, next to the proposed receptor site, another existing colony of *Nepenthes mirabilis* was found which proved the area was suitable for the natural growth of *Nepenthes mirabilis* without the need for artificial maintenance. The photo references of *Nepenthes mirabilis* next to the proposed receptor site along stream B is shown in **Appendix A3**.
- 2.3.4 The Pitcher Plants will be transplanted through root ball transplantation. Node cutting method will only be adapted as contingency plan.

- 2.3.5 Prior to commencing transplantation activities, it is necessary to obtain permission from the AFCD in accordance with the Forestry Countryside Ordinance (Cap. 96). Cutting and shaping the rootball shall be performed manually. As part of the process, a trial planting of approximately 5-10% of the total number of Pitcher Plants to be transplanted will be carried out to assess the survival rate in the receptor site before proceeding with planting the remaining individuals. It is recommended that the monitoring period for the trials shall be about 6 months, which covers / partly covers both the wet and dry seasons. During the trial planting, monthly inspection by a qualified botanist/ ecologist shall be conducted to monitor the health condition of the trial planting and its adaptation to the receptor site.
- 2.3.6 Care shall be taken when moving the plants to the final location. The ideal timeframe for conducting the transplantation to the plant receptor site is between March and July. Measures, such as carefully wrapping the foliage and branches, shall be considered to minimize potential drying and wind damage during the transportation process. Pitcher plants will be watered one day prior to transplanting. Due to the proposed monitoring program that schedules the transplantation operation outside of the ideal timeframe but prior to September, additional mitigation measures shall be considered implementing for mainly maintaining the plant survival rates. These measures include thoroughly watering the rootball, providing full coverage of the delivery container, selecting cloudy weather, and avoiding extreme high temperatures, when the plant transplantation to the receptor site. Such precautions are ensured to maintain sufficient water of the plant tissues and minimize water loss of transpiration throughout the transplant process. Furthermore, operations shall be avoided during adverse weather conditions typically associated with the wet season such as heavy rainfall, strong winds and storms, to prevent potential damage to the plants. Appropriate staking, for example using bamboo poles, shall be provided to ensure the stability of the transplanting plants.
- 2.3.7 Prior to the transplantation process, it is essential to prepare the receptor site in advance. To minimize potential disruptions to the receptor site, appropriate fencing shall be installed to prevent unnecessary human interference or damage at least one month before transplantation. Qualified ecologists/botanists shall inspect the receptor sites before any clearance activities. If flora species of conservation importance are identified at the receptor site, they shall be clearly labelled and fenced off to ensure their protection before any site clearance takes place. Vegetation clearance shall only be carried out to the bare minimum if deemed necessary. It is crucial to avoid the use of heavy machinery during the removal of detrimental materials and vegetation to prevent disturbances to the natural environment. Any existing topsoil that is ploughed during the digging process shall be carefully stripped and set aside for potential reuse. This helps prevent a distinct boundary between the planting pit and the surrounding soil.
- 2.3.8 The width and depth of the planting hole shall be determined by the depth and firmness of the rootball and other characteristics of the receptor site. The depth of the planting hole shall not exceed the depth of the rootball. The width of the planting hole shall be two to three times the width of the rootball at the surface. The soil directly beneath the rootball shall be undistributed or prepared to prevent settling. In addition, soil must be kept as much as possible to avoid damaging the roots as far as practicable when digging out the Pitcher plants from the donor site.
- 2.3.9 The plant shall be placed in the same orientation from which it originated. All rootball supporting materials shall be removed from the planting hole before final backfilling. Any branches damaged during transit shall be properly pruned back to the nearest branch bark ridge.
- 2.3.10 When the rootball is set into the planting pit, the top surface of the rootball shall not be below the surrounding soil. The backfill soil shall be reinstated and settled in layered sections to limit future settling and prevent air pockets. It shall not be compacted to a density that inhibits root growth.
- 2.3.11 The backfill soil shall be tamped lightly. Water shall be added to the rootball and the backfill to bring the rootball to field capacity. Where appropriate, a soil saucer can be formed on the soil surface around the edge of the rootball circumference to permit rain and irrigation water to be retained and slowly infiltrate into the rootball perimeter.

- 2.3.12 The disposal method for green waste generated during transplantation operations shall be referred to **Appendix G**.
- 2.3.13 The transplantation process shall be completed before the end of September, within the same wet season, to maximize the chances of plant survival. The tentative transplantation programme is shown in **Appendix C**.
- 2.3.14 The following are the pre-planting preparation works that shall be conducted:
- a. All tools for cutting the plant / root ball shall be sharp and be cleaned and sterilized before use.
 - b. On-site temporary nursery shall be set up before transplantation as shown in **Appendix A**. Sufficient area shall be provided to accommodate the individual plants. Suitable temperature, moist content, air flow and light intensity shall be provided whenever necessary by the use of sun screening, lighting, fan, humidifier or air-conditioner. Basic information of these equipment and facilities can be found in **Appendix F**. The Pitcher Plants transplanted from the donor site will be kept and properly maintained in the temporary nursery for at least one month or until their auxiliary roots have been established before transplanting to the receptor site. The maintenance schedule for the temporary nursery is shown in **Appendix E**.
 - c. Location of the receptor for each transplanted individual shall be identified and marked before transplantation. Sufficient spacing between transplanted individuals shall be provided to allow healthy growth of the plants. Receptor sites with similar content to the donor site in terms of sun exposure, soil moist content and soil texture shall be selected.
 - d. Weeds, rubbish, litter and all deleterious material shall be removed from the surface of the ground in the destined receptors. Vegetation that will shade the transplanted individuals might be cleared without using herbicide. Vegetation clearance will be kept to the bare minimum when deemed necessary. To preserve the natural environment, the use of heavy machinery shall be avoided when removing harmful materials and conducting vegetation clearance.
 - e. Existing soil in the donor / receptor site shall be used directly for transplanted individuals if it is not contaminated. Compost or organic mulching shall be added when considering the existing soil has low organic content.
 - f. Ground that is contaminated by oil, chemicals or other substances, which may affect plant growth adversely, shall not be deemed an appropriate receptor site. A suitable alternative receptor site shall be found.
 - g. Scarifying shall be carried out by loosening the soil to a depth of between 10 mm and 20 mm using a pronged implement such as a rake but without turning the soil.
 - h. Prepared ground shall be protected from compaction, erosion and siltation and shall not be used by construction plants, other vehicles or pedestrian traffic. The area shall be cordoned off to restrict unnecessary access and construction activities. Signage boards shall be erected to notify any by-passer or workers for site protection. If soil erosion or siltation is noted, mitigation measures shall be conducted as assessed and suggested by the engineer.
 - i. For root ball digging method, only hand tools such as hand trowel and spades will be used for digging out the individual root ball of each Pitcher Plant. The root ball shall contain the root system of each plant as much as possible. To avoid drying of the root ball soil, all the individuals will be uplifted and transported to the temporary nursery on the same day, and the newly created root ball shall be kept moist and shaded during the entire transplanting process.
 - j. In the temporary nursery, each uplifted plant shall be planted in a container pot of not less than 200mm depth and 200mm diameter. Existing soil from the donor/receptor site shall be used as far as possible.

- k. The potted plants will be transplanted to the permanent receptor site only when the supervising qualified botanist/ecologist considers that the plant health and root system are in good condition. 5-10% of individuals in good condition will be selected for trial transplantation to the permanent receptor site to review the adaptability to the new environment.
- l. A new hole 2-3 times wider than the root ball shall be prepared at the receptor site before transplanting the Pitcher Plants from the temporary nursery. The plants shall be placed in the hole properly and backfilled with the original soil, tamping down gently to remove air pockets, and lastly, water thoroughly and monitor the health as scheduled.

2.3.15 The location of the temporary nursery is shown in **Appendix A1 & Appendix A2**.

2.3.16 In the temporary nursery, the potted Pitcher Plants from the donor site shall have a proper watering programme as part of the daily maintenance work. Care shall be taken to ensure that roots will not grow kinked or girdled. The nursery shall be properly fenced off with appropriate signage at clear locations to ensure minimal disturbance at the nursery. The Pitcher plants kept at the temporary nursery will be monitored monthly by the qualified botanist/ ecologist and monitoring reports will be submitted to AFCD for record.

Contingency Plan for Unsuccessful Rootball Preparation

2.3.17 The Pitcher Plants will be transplanted from the donor site to the temporary nursery using root ball transplantation. However, if any plants are entangled with other vegetation, rocks, or if unforeseen underground conditions make root ball digging impractical, the nodal cutting method will be used instead subject to the site conditions. The transplantation method must be conducted under the supervision of a qualified botanist or ecologist.

Contingency Plan for Low Survival Rate in Trial Transplantation

2.3.18 If the trial transplantation in the permanent receptor is observed to have a low survival rate due to uncontrollable factors such as extreme weather conditions etc., the contingency plan will be implemented. This contingency plan aims to adopt the node cutting method to the multi-stemmed Pitcher Plants to increase the number of Pitcher Plants individuals to be transplanted and hence to increase the general amount of surviving individuals. The selection of plants for node cutting will depend on their condition while in the temporary nursery and will be guided by the recommendations of a botanist or ecologist. Each multi-stemmed Pitcher Plant can produce two to three new individuals through this method, which increases the base number of individuals available for planting at the receptor site. Additionally, to enhance survival rates during their time in the transit nursery, it is recommended that only the leader stem of Pitcher Plants with at least three stems be preserved, while the other stems shall be cut to create new individuals.

Nodal Cutting Method in Contingency Plans

2.3.19 Each cutting shall have at least three nodes, with leaves and pitchers trimmed. The cuttings shall be placed immediately into moist peat moss or soil conditioner inside polythene bags. For node-cutting individuals, the Pitcher Plants shall be planted in the pot which is placed in the temporary nursery, for a minimum of 3 months to allow root re-growth. They shall have a proper watering programme as part of the daily maintenance work. Care shall be taken to ensure that roots will not grow kinked or girdled. The nursery shall be properly fenced off with appropriate signage at clear locations to ensure minimal disturbance at the nursery. The Pitcher Plants kept at the temporary nursery will be monitored monthly by the qualified botanist/ ecologist and monitoring reports will be submitted to AFCD for record.

2.3.20 It is crucial to maintain a consistently moist environment for the cuttings during the initial two to three weeks, until at least two leaves have developed, and auxiliary roots have established. If necessary, a fungicide shall be applied to the cutting surfaces to prevent decay, and rooting hormone may be

used as needed to stimulate root growth (*Pietropaolo and Pietropaolo 1986*). These cuttings will then be transplanted into the receptor site.

- 2.3.21 A qualified botanist/ecologist shall also carefully review the soil condition, maintenance plan, planting location, plant health and condition, etc., to determine the causes of the transplanting failure. The botanist/ecologist shall submit a summary statement regarding the plant survival rate and individual plant size, and with a detailed contingency plan, if required, to AFCD for consideration before the transplantation of the remaining Pitcher Plants to a permanent receptor.

2.4 Post -Transplantation Maintenance

Monitoring

- 2.4.1 Upon completion of transplantation, monitoring shall be implemented for 2 years and shall be conducted monthly during the first 12 months, and bi-monthly in the next 12 months to ensure survival. The monitoring report shall include all measures necessary to establish and maintain the transplanted pitcher plants in an acceptable vigorous and healthy growing condition and shall be prepared by a qualified ecologist/botanist and submitted to AFCD for record. Inspections and reporting by the appointed qualified botanist/ecologist will be conducted after adverse weather (e.g. typhoon signal no. 8 or above, black rainstorm signal) to check any damage to the transplanted Pitcher Plants with appropriate remedial actions proposed.

Watering

- 2.4.2 After planting, it is essential to ensure that the receptor sites are adequately watered. During the establishment period, diligent monitoring of the soil moisture levels is necessary to prevent excessive drying out. Watering shall be conducted in the early morning or late afternoon. The transplanted individuals shall receive appropriate and sufficient watering, and if necessary, daily watering may be required during the initial three months and the first dry season following transplantation.
- 2.4.3 Subsequently, the frequency of watering shall be reduced to at least twice a week until the end of the establishment period. It is crucial to adjust the watering frequency as needed to maintain a moist soil environment while avoiding saturation. While keeping the soil consistently moist without overwatering the plants.

Mulching

- 2.4.4 The use of mulches aids in moisture conservation, moderates soil temperature and assists in weed control around plants. For this purpose, it is recommended to apply organic mulches like thoroughly dried grass clippings or small wood chips directly onto the soil surface, specifically covering the area above the plant's root system.

Not recommended to be Pruned

- 2.4.5 Given that die-back of the current year's growth is a common occurrence, any new stems, leaves, or flowers that emerge from the cuttings in subsequent years shall be noted separately but still considered as surviving individuals if observed in the following season. These regrowth instances shall be marked individually and included in the overall count of surviving individuals.

Integrated Pest Management (IPM)

- 2.4.6 Apply a holistic IPM approach to pest control that aims to minimize the use of chemical pesticides while effectively managing pest populations. Pests shall be identified and appropriate mitigation measures recommendations shall be recorded in the monthly monitoring report. Consider biological

control or mechanical control to manage pests first before using targeted pesticides as a last resort. Using pesticides with low toxicity to non-target organisms, natural and biodegradable is recommended. They shall be applied selectively, following the manufacturer's instructions.

Firming Up

- 2.4.7 After the weekly inspection and after heavy rain or wind, plants shall be firmed up if necessary.

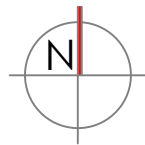
Forking

- 2.4.8 Forking shall be conducted immediately after fertilizing and prior to the application of mulch. This shall be conducted manually to a depth of 100mm to aerate the soil.

Implementation during Construction / Operation / Restoration / Aftercare Phases

- 2.4.9 In accordance with EM&A Manual Section 10.3, during construction, operation, restoration and aftercare phases, routine site inspection shall be conducted on a weekly basis to audit the mitigation measures for disturbance on habitats adjacent to the work areas. Monitoring of transplantation shall be audited as part of the site audit programme.
- 2.4.10 A temporary shelter shall be provided to maintain the moisture and temperature as necessary if the receptor site is found to be too windy during the dry season. Therefore, to provide the most suitable environment for the Pitcher plants to survive.

- End -



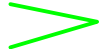
0.00m
DEEP BAY
(ELEVATION BAY)

0.00m
DEEP BAY
(ELEVATION BAY)

0.00m
DEEP BAY
(ELEVATION BAY)

0.00m
DEEP BAY
(ELEVATION BAY)

LEGEND

-  FEP/EP WENTX PROJECT BOUNDARY
-  PITCHER PLANT
-  STREAM B
-  RECEPTOR SITE FOR PITCHER PLANT (~254sqm)
-  ON-SITE TRANSIT NURSERY
-  PHOTO TAKING ANGLE (REFER TO APPENDIX A2)

Rev	Description	By	Date
Employer			
			
Service Manager's Representative			
			
Design Checker			
			
Contractor			
			
Designer			
			
Project title			
CONTRACT NO. EP/SP/186/21 WEST NEW TERRITORIES LANDFILL EXTENSION			
Drawing title			
APPENDIX A1 – LOCATION OF PLANT SPECIES OF CONSERVATION INTEREST TO BE TRANSPLANTED & LOCATION OF RECEPTOR SITE FOR PITCHER PLANT			
Drawing no.			Rev.
APPENDIX A1			A
Author	Date	Checker	Approver
OY	July 25		
Scale	1:10,000 @ A3	Status	
			DETAIL DESIGN SUBMISSION
© COPYRIGHT RESERVED			

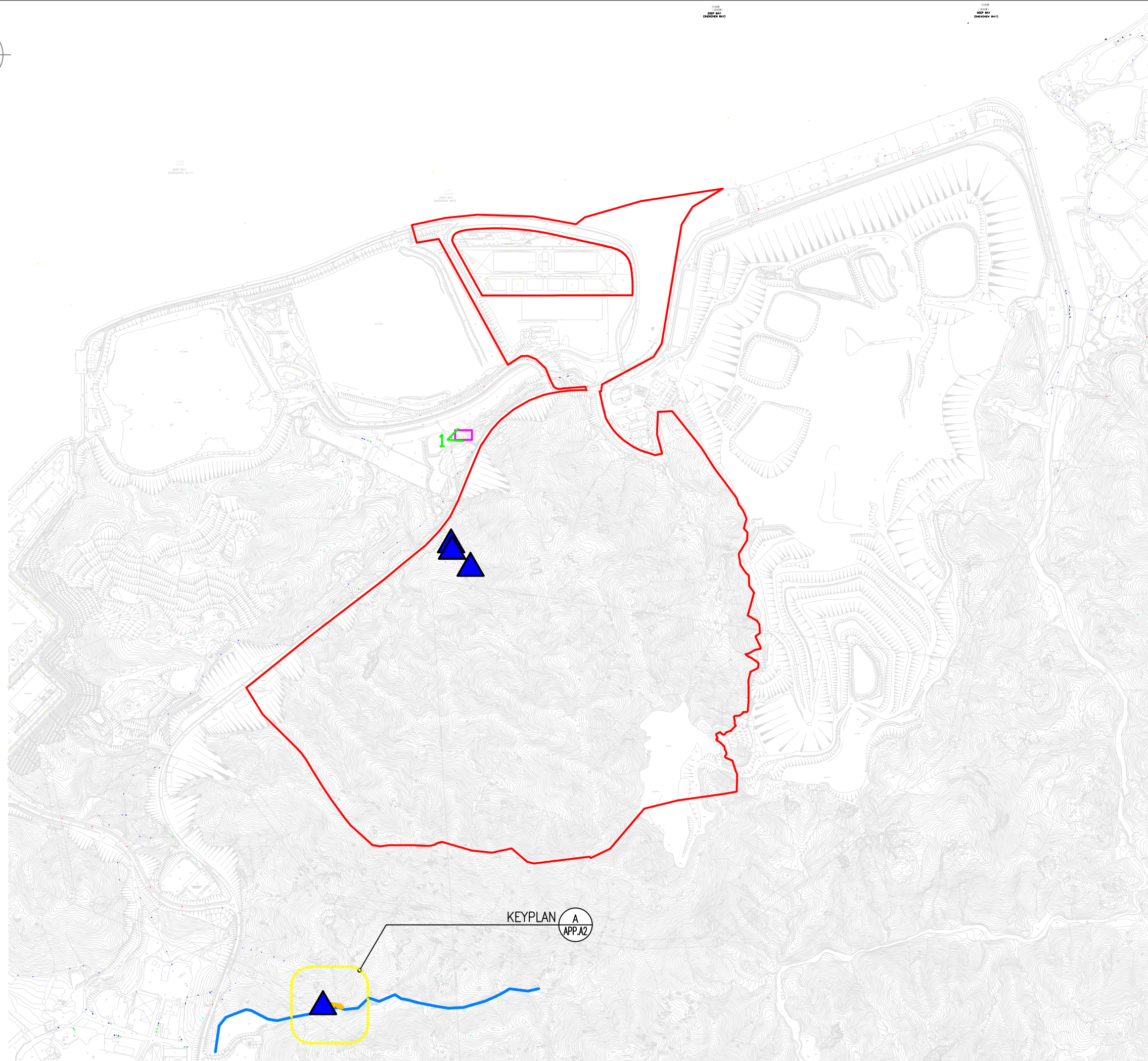




PHOTO 1 - TEMPORARY NURSERY



PHOTO 1 - CLOSE-UP VIEW



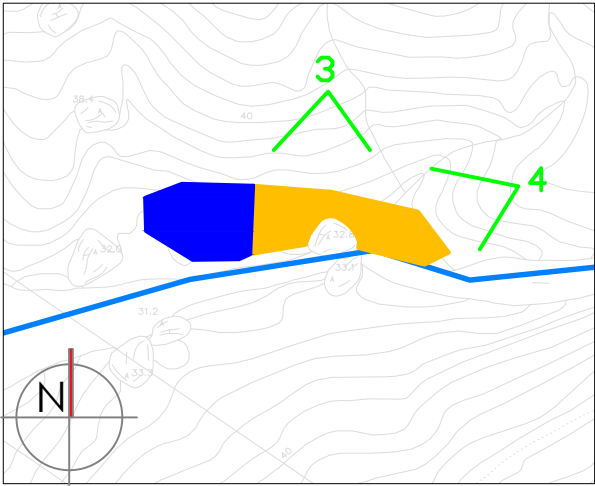
PHOTO 3 - PHOTO OF RECEPTOR SITE



PHOTO 2 - AERIAL PHOTO OF RECEPTOR SITE



PHOTO 4 - PHOTO OF RECEPTOR SITE



A KEYPLAN
- SCALE: NTS

- LEGEND
- PHOTO TAKING ANGLE
 - PITCHER PLANT
 - STREAM B
 - RECEPTOR SITE FOR PITCHER PLANT (~254sqm)

Rev	Description	By	Date
Employer			
 環境保護署 Environmental Protection Department			
Service Manager's Representative			
			
Design Checker			
			
Contractor			
 HK RESOURCES RECOVERY PARK			
Designer			
 binnies In Association With ATKINS Member of the SNC-Lavalin Group			
Project title			
CONTRACT NO. EP/SP/186/21 WEST NEW TERRITORIES LANDFILL EXTENSION			
Drawing title			
APPENDIX A2 – PHOTOS OF LOCATION OF RECEPTOR SITE FOR PITCHER PLANT & TEMPORARY NURSERY AREA			
Drawing no.			Rev.
APPENDIX A2			–
Author	OY	Date	Checker
		MAR 24	Approver
Scale	1:10,000 @ A3		Status
			DETAIL DESIGN SUBMISSION
© COPYRIGHT RESERVED			

Appendix A3 - Photos of *Nepenthes mirabilis* next to the Proposed Receptor Site along Stream B



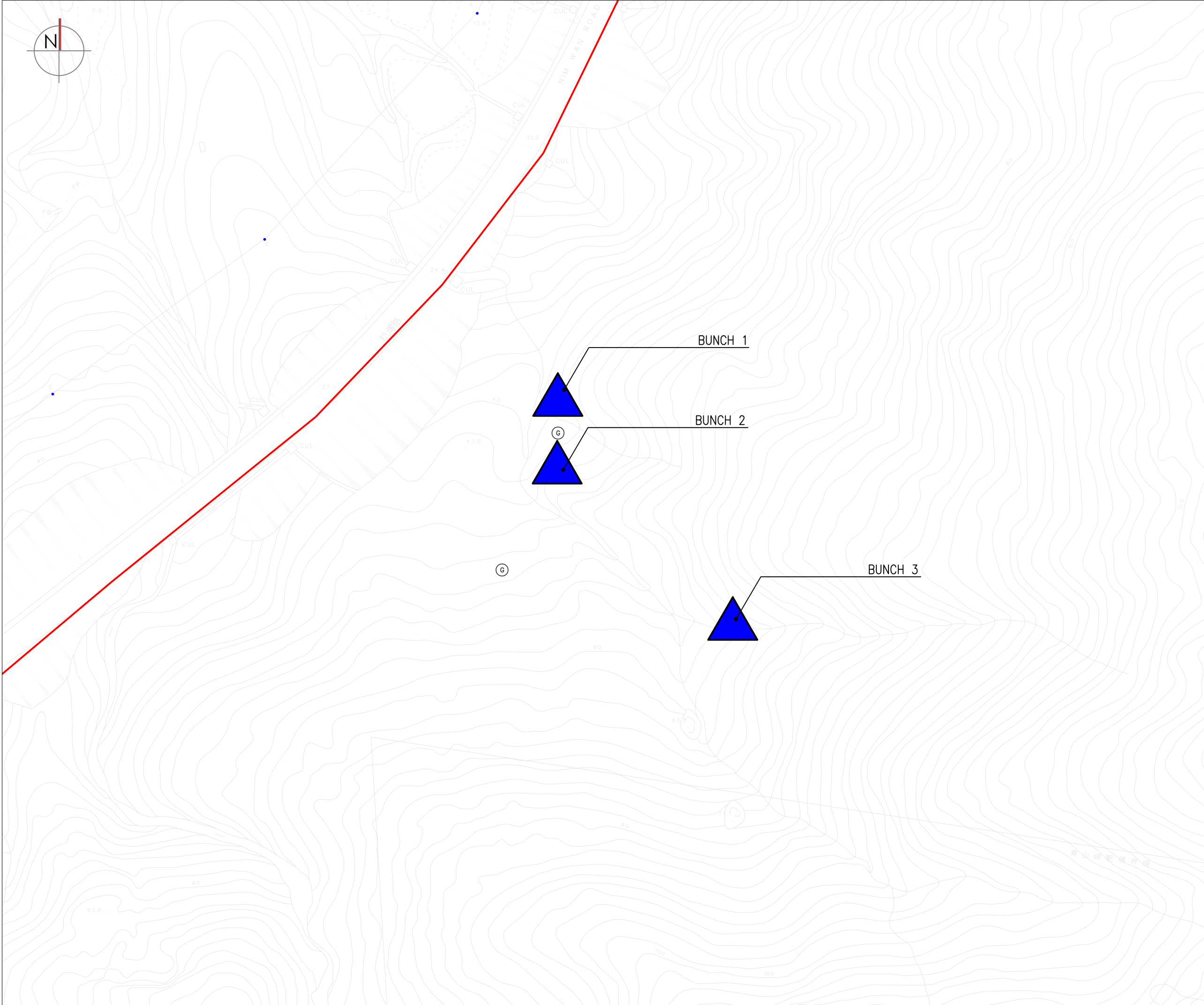
Receptor Site Overview - Existing Stream next to Pitcher Plants



Close-Up View (A) - Existing Pitcher Plants and Existing Vegetation



Close-Up View (B) - Existing Pitcher Plants and Existing Vegetation



LEGEND

FEP/EP WENTX PROJECT BOUNDARY

PITCHER PLANT

Rev	Description	By	Date
Employer			
環境保護署 Environmental Protection Department			
Service Manager's Representative			
ARUP			
Design Checker			
wsp			
Contractor			
HK RESOURCES RECOVERY PARK			
Designer			
binnies In Association With ATKINS Member of the SNC-Lavalin Group			
Project title			
CONTRACT NO. EP/SP/186/21 WEST NEW TERRITORIES LANDFILL EXTENSION			
Drawing title			
APPENDIX B – LOCATION OF PITCHER PLANT			
Drawing no.			Rev.
APPENDIX B			–
Author	OY	Date	MAR 24
Checker		Approver	
Scale	1:100		● A3
Status		DETAIL DESIGN SUBMISSION	
© COPYRIGHT RESERVED			



Bunch 1 - Overall



Bunch 1 (left) & 2 (right) Aerial Photo



Bunch 1 PP01 (1)



Bunch 1 PP01 (2)



Bunch 1 PP02 (1)



Bunch 1 PP02 (2)



Bunch 1 PP03 (1)



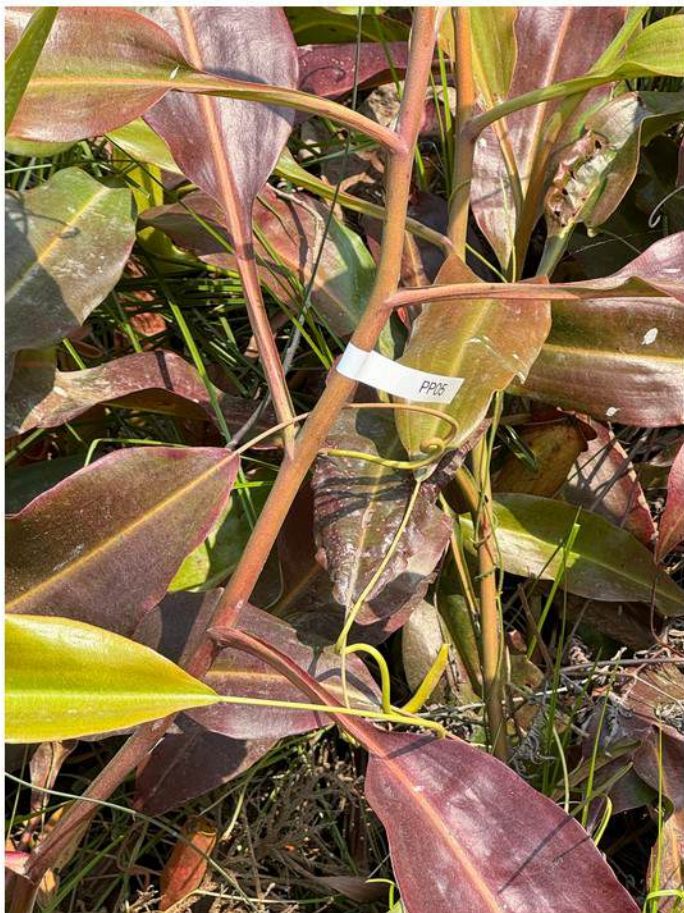
Bunch 1 PP03 (2)



Bunch 1 PP04 (1)



Bunch 1 PP04 (2)



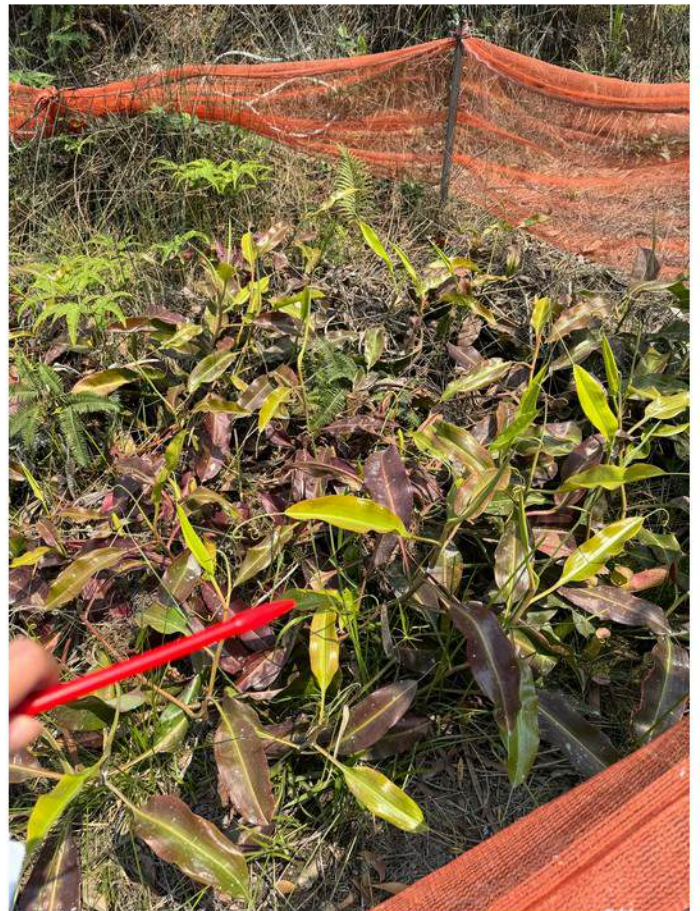
Bunch 1 PP05 (1)



Bunch 1 PP05 (2)



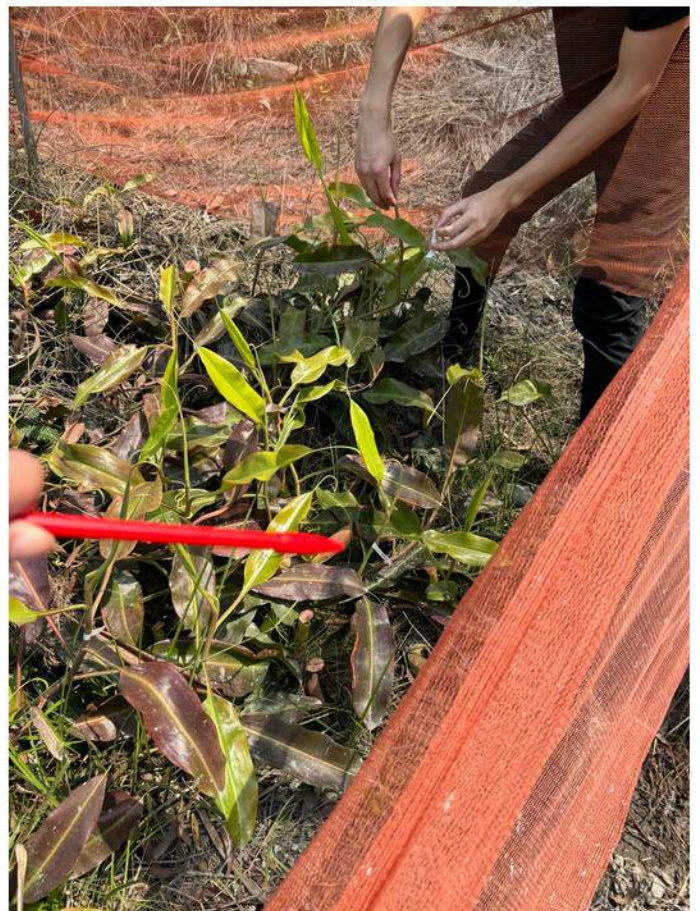
Bunch 1 PP06 (1)



Bunch 1 PP06 (2)



Bunch 1 PP07 (1)



Bunch 1 PP07 (2)



Bunch 1 PP08 (1)



Bunch 1 PP08 (2)



Bunch 1 PP09 (1)



Bunch 1 PP09 (2)



Bunch 1 PP10 (1)



Bunch 1 PP10 (2)



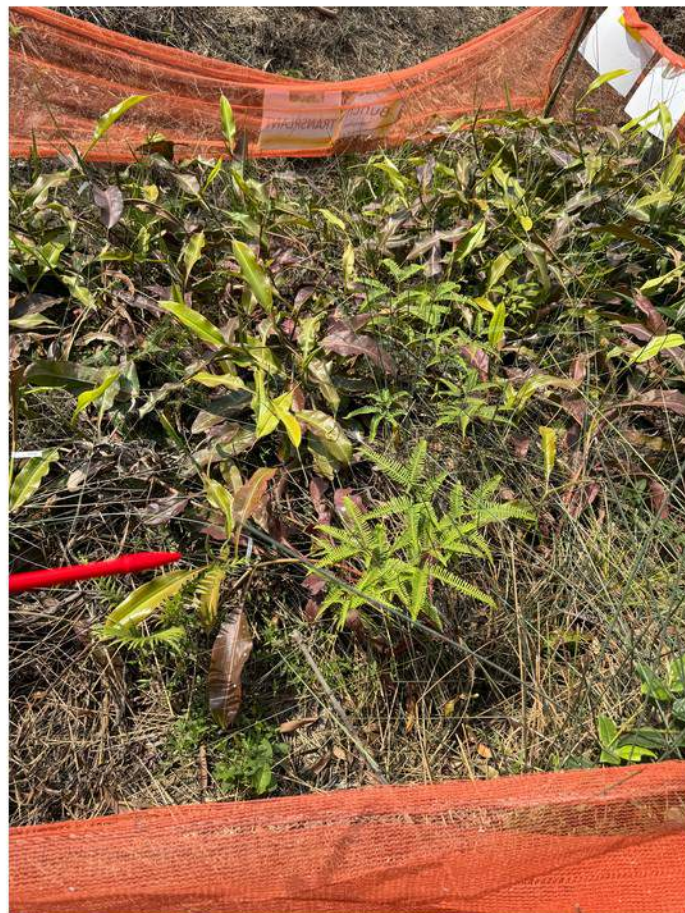
Bunch 1 PP11 (1)



Bunch 1 PP11 (2)



Bunch 1 PP12 (1)



Bunch 1 PP12 (2)



Bunch 1 PP13 (1)



Bunch 1 PP13 (2)



Bunch 1 PP14 (1)



Bunch 1 PP14 (2)



Bunch 1 PP15 (1)



Bunch 1 PP15 (2)



Bunch 1 PP16 (1)



Bunch 1 PP16 (2)



Bunch 1 PP17 (1)



Bunch 1 PP17 (2)



Bunch 2 - Overall



Bunch 2 PP18 (1)



Bunch 2 PP18 (2)



Bunch 2 PP19 (1)



Bunch 2 PP19 (2)



Bunch 2 PP20 (1)



Bunch 2 PP20 (2)



Bunch 2 PP21 (1)



Bunch 2 PP21 (2)



Bunch 3 Aerial Photo



Bunch 3 PP22 (1)



Bunch 3 PP22 (2)



Bunch 3 PP23 (1)



Bunch 3 PP23 (2)



Bunch 3 PP24 (1)



Bunch 3 PP24 (3)



Bunch 3 PP24 (4)



Bunch 3 PP25 (1)



Bunch 3 PP25 (2)



Bunch 3 PP26 (1)



Bunch 3 PP26 (2)



Bunch 3 PP27 (1)



Bunch 3 PP27 (2)

APPENDIX C - TENTATIVE TRANSPLANTATION PROGRAMME

Activities	Year 2025				Year 2026												Year 2027												Year 2028												Year 2029		Remarks										
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb											
Erection of Protective Fencing	O											O																																			To be removed when plants are established						
Obtain Permission From AFCD	O																																														Minimum 1 month processing period						
Routine Site Inspection	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W	W							
Monitoring Report								O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O	O		BO		BO		BO		BO		BO		BO		BO		BO										
Transplanting Procedure																																																					
Transplant to Temporary Nursery by rootball							O																																										Plants shall be kept within the nursery for at least one month or until their auxiliary roots are in well-establishment				
Watering for Root Ball							W	W/IN	W/IN	W/IN	W/IN	W/IN	W/IN																																					Additional watering to be provided if necessary			
Fertilizer							IN	IN	IN	IN	IN	IN	IN																																				Only when necessary				
Pesticide/Fungicide							IN	IN	IN	IN	IN	IN	IN																																					Apply appropriate fertilizer as specified amount as per manufacturer's instruction			
Trial Transplant 5-10% Plants to Final Receptor Site								O																																													
Monitoring to Trial Transplanted Plants								O	O	O	O	O	O	O																																				Trial transplanting to be monitored closely for 6 months			
Transplant Remaining Plants to Final Receptor Site													O																																				Transplant remaining plants if the 5-10% plants have a good survival rate at the receptor site.				
Preparation of Receptor Site							O					O																																									
Contingency Plan for Unsuccessful Rootball Preparation (if required)																																																					
Nodal Cutting							IN																																													Nodal cutting to multi-stem plants	
Maintenance to Nodal Cutting in Temporary Nursery							IN	IN	IN	IN	IN	IN	IN																																								Nurturing in transit nursery for 3 months
Contingency Plan for Low Survival Rate in Trial Transplantation (if required)																																																					
Nodal Cutting													IN																																							Nodal cutting to multi-stem plants	
Maintenance to Nodal Cutting in Transit Nursery														IN	IN	IN																																			Nurturing in transit nursery for 3 months		
Preparation of Receptor Site																IN																																					
Transplant Nodal Cutting Plants to Final Receptor Site																	IN																																				
Post-Transplanting Maintenance																																																					

Remarks: O - Once a month, BO - Bi-monthly, D - Daily, W - Weekly, BW - Bi-weekly, IN - Only if necessary

Appendix D - Plant Schedule

<i>Aquilaria sinensis</i>						
Location	No.		Health	Suitability for transplantation		Note
			Good/Average/ Poor	High/Medium/Low	Remark	
Near brackish water	-		-	-	-	located near brackish water, the subject individual was not found and considered to be lost due to natural cost

<i>Arundina graminifolia</i>						
Location	No.		Health condition	Suitability for transplantation		Note
			Good/Average/ Poor	High/Medium/Low	Remark	
Near Tsang Kok Stream	-		-	-	-	the original location was occupied by invasive climber(<i>Mikania micrantha</i>), the subject individual was not found and considered to be lost due to natural cost

<i>Nepenthes mirabilis</i>						
Location	Tag No.	Spread (m)	Health condition	Suitability for transplantation		Note
			Good/Average/ Poor	High/Medium/Low	Remark	
Bunch 1	PP01	0.5	Average	Medium	-	at/near permanent watershed
	PP02	0.5	Average	Medium	-	at/near permanent watershed
	PP03	0.5	Average	Medium	-	at/near permanent watershed
	PP04	0.5	Average	Medium	-	at/near permanent watershed
	PP05	0.5	Average	Medium	-	at/near permanent watershed
	PP06	0.5	Average	Medium	-	at/near permanent watershed
	PP07	0.5	Average	Medium	-	at/near permanent watershed
	PP08	0.5	Average	Medium	-	at/near permanent watershed
	PP09	0.5	Average	Medium	-	at/near permanent watershed
	PP10	0.5	Average	Medium	-	at/near permanent watershed
	PP11	0.5	Average	Medium	-	at/near permanent watershed
	PP12	0.5	Average	Medium	-	at/near permanent watershed
	PP13	0.5	Average	Medium	-	at/near permanent watershed
	PP14	0.5	Average	Medium	-	at/near permanent watershed
	PP15	0.5	Average	Medium	-	at/near permanent watershed
	PP16	0.5	Average	Medium	-	at/near permanent watershed
	PP17	0.5	Average	Medium	-	at/near permanent watershed
Bunch 2	PP18	1.0	Average	Medium	-	at/near permanent watershed
	PP19	1.0	Average	Medium	-	at/near permanent watershed
	PP20	1.5	Average	Medium	-	at/near permanent watershed
	PP21	1.0	Average	Medium	-	at/near permanent watershed
Bunch 3	PP22	3.0	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP23	3.0	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP24	2.0	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP25	2.5	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP26	2.5	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed
	PP27	2.5	Average	Medium	-	Located in mixed shrubland, at/near permanent watershed

Appendix E – Maintenance Schedule

The proposed maintenance schedule at the temporary nurseery is as follow :

Maintenance Works	Mar 2026*	Remarks
Support Inspection & Adjustment	W	If necessary
Fertilization	As necessary	
Watering	D	The watering amount depends on the daily weather
Mulch Topping-up	As necessary	Visual inspection is to be conducted weekly at the temporary nurseery to decide if topping up is necessary
Pruning	As necessary	
Thinning	As necessary	
Litter Collection	W	
Weeding	As necessary	
Inspection after Exceptional Weather (E.g. Typhoon)	As necessary	
Maintenance Inspection	W	

*Note :

D – Daily

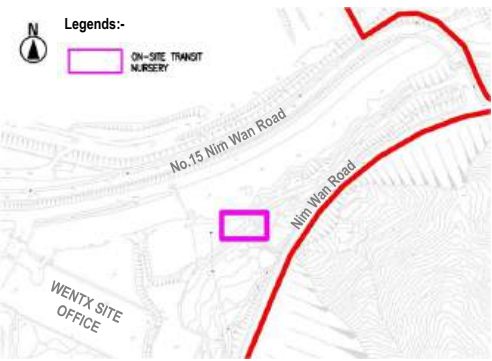
W – Weekly

O – Once a year

M – Monthly

The schedule of maintenance shall be reviewed and revised as necessary.

Appendix F -Basic Information on Equipment and Facilities of Temporary Nursery



Location Plan of Temporary Nursery
(KEY PLAN Refers to Appendix A1)



Horticultural Tools



Lighting Facility (or equivalent)



Fan Facility (or equivalent)



Thermometer and Hygrometer



Planting Pot



Indicative Layout Plan of Temporary Nursery Establishment



~2.1m(H) x 2.1m(W) x 4.6m(L)
Sun Screening mounted at Metal Scaffolding (or equivalent)



Fencing Off Nursery Area by 1.8m High Water Filled Barrier with Lockable Entry to Protect Pitcher Plant and Prohibit Unauthorized Access

Appendix G - Disposal Method for Green Waste Generated during Transplantation Operations

1. Green waste generated from the transplantation works shall be collected and disposed off site. However, in accordance with the contract requirements for yard waste reduction and treatment specified in the contractual specification, green waste shall be also collected and sorted for 3-Bin Composting System on Site as shown in Figure 1. The compost produced shall be used on site.
2. Pursuant to the contract requirements for yard waste reduction and treatment outlined in the contractual specification, yard waste is recyclable materials which shall be sorted on site for the purpose of recycling and shall not be considered as waste for disposal except for the diseased parts of plants. Thereby, green wastes generated from the transplantation works are requested for disposal at designated upcycling facilities, Eco Park and Y-PARK as priority. The upcycling requirements shall be followed and indicated in Figure 2.
3. If unaccepted by upcycling facilities, the final disposal of green waste shall be directed at designated sites for dumping, such as designated landfill sites, site for organic waste conversion.
4. Yard waste reduction and treatment shall be referred to in the DEVB's "Guidelines on Yard Waste Reduction and Treatment".



Figure 1. 3-Bin Composting System and Operation on Site



Figure 2. Disposal Requirements of Green Waste



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The Government of the Hong Kong Special Administrative Region

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West New Territories Landfill Extension (Awarded in August 2023)

Award of Contract

West New Territories Landfill Extension (Awarded in August 2023)

Contract Number	Tendering Procedure	Subject	Contractor(s) and Address(es)	Awarded Quantity	Awarded Sum (HK\$)
EP/SP/186/21	Selective	West New Territories Landfill Extension	Hong Kong Resources Recovery Park 29/F, China Overseas Building, 139 Hennessy Road, Wan Chai, Hong Kong	Not applicable	\$61,100,000,000.00

Remark: As this contract adopts the New Engineering Contract (NEC) form, the awarded sum refers to "Forecast Total of the Prices".



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2025 © Environmental Protection Department Last revision date : 25 August 2023

EPD signs WENT Landfill Extension Contract (with photos) ▼

GO

EPD signs WENT Landfill Extension Contract (with photos)

The Environmental Protection Department (EPD) today (September 26) signed the West New Territories (WENT) Landfill Extension contract with Hong Kong Resources Recovery Park (joint venture).

Hong Kong Resources Recovery Park (joint venture) will be responsible for carrying out the design, build and operation of the WENT Landfill Extension. Led by Alchmex International Construction Limited, Hong Kong Resources Recovery Park (joint venture) is also formed with China State Construction Engineering (Hong Kong) Limited and Veolia Hong Kong Holdings Limited. Both Alchmex International Construction Limited and China State Construction Engineering (Hong Kong) Limited are wholly owned subsidiaries of China State Construction International Holdings Limited.

"The joint venture has a strong team for the multidisciplinary expertise required for the landfill project and also possesses rich experience in infrastructure construction. We expect that this contract could bring new technologies to the landfill extension and provide a safe and reliable waste disposal service. At the same time, it could provide the necessary landfill capacity for Hong Kong during the transition period before the completion of developing sufficient modern waste-to-energy incinerators to fully handle the municipal solid waste, and also for disposal of the waste that is non-combustible and cannot be recycled," the Director of Environmental Protection, Dr Samuel Chui, said at the contract signing ceremony.

The New Engineering Contract (NEC) form has been adopted in the contract to design, build and operate the WENT Landfill Extension, making it the first landfill contract in Hong Kong adopting the NEC form. The NEC form embraces a collaborative culture and, through contractual mechanisms, fosters the development of a mutual assistance and trust partnering relationship between the contracting parties. It also facilitates joint risk management, thereby enhancing project management performance and cost-effectiveness.

Ends/Tuesday, September 26, 2023

Issued at HKT 15:35

NNNN

Photo[Archives](#)[Yesterday's Press Releases](#)[Back to Index Page](#)[Back to top](#)[Today's Press Releases](#)

Contract No. EP/SP/186/21
West New Territories (WENT) Landfill Extension

Client
The Environmental Protection Department



Service Manager
Ove Arup & Partners Hong Kong Ltd



HKRRP Management Board



JV Leader

China State Construction
Engineering (Hong Kong)
Limited



Alchmex International
Construction Limited



Veolia Hong Kong
Holding Limited

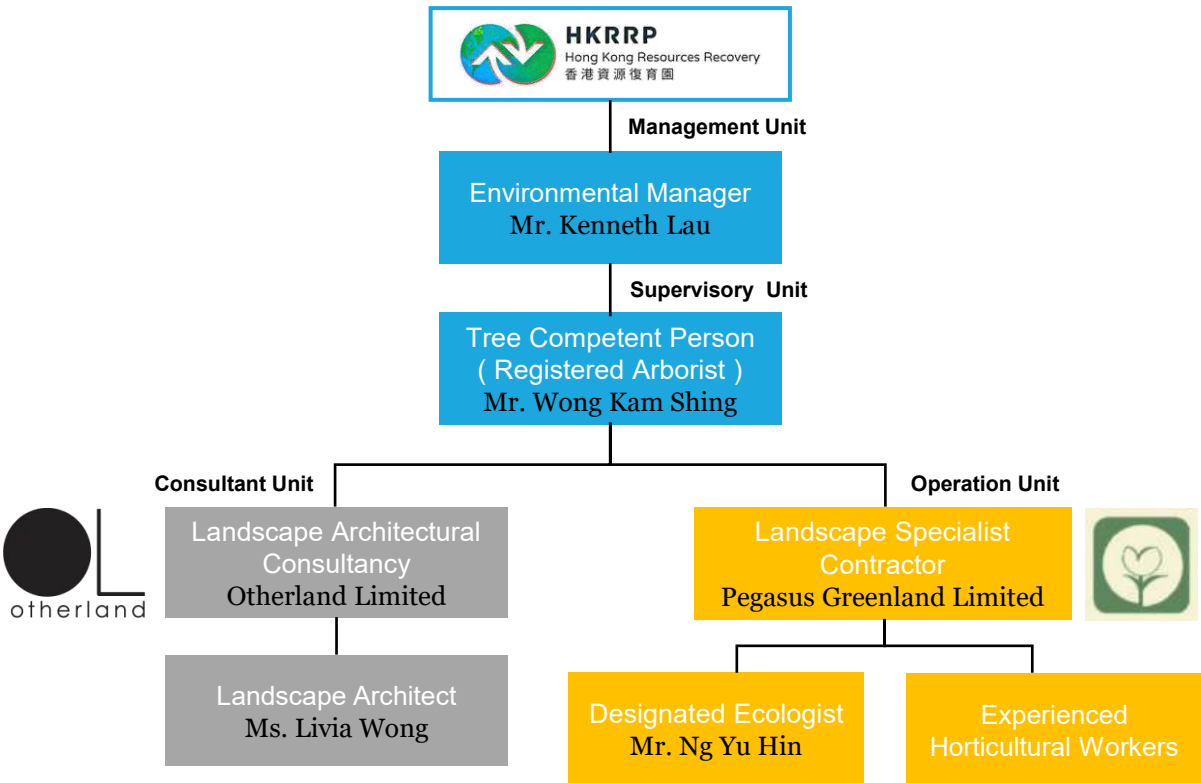


HKRRP Joint Venture Structure

Hong Kong Resources Recovery Park is an unincorporated integrated joint venture, with Alchmex International Construction Limited acting as the lead participant and China State Construction Engineering (Hong Kong) Ltd being a participant. The parent company of both is China State Construction International Holdings Limited.

Veolia Hong Kong Holding Limited - an industry leading international environmental services and waste management specialist – is also a participant of this joint venture.

Organizational Chart of Main Contractor
(Works Team for Pitcher Plant Transplantation)



Appendix R

Detailed Vegetation Survey Report for Pitcher Plant



千里馬綠化有限公司
PEGASUS GREENLAND LTD.

Project:

Contract No. EP/SP/186/21
West New Territories Landfill Extension

Client:

Hong Kong Resources Recovery Park

Document Ref. No.:

HS-	24714	-	VS	-	IN	-	001	A
Project Code		Type of Document			Submission No.		Revision	

Document Title:

**Vegetation Survey Report
for Pitcher Plant Transplantation**

	PREPARED BY
NAME	Ng Yu Hin
POSITION	Qualified Ecologist
DATE	31 st December, 2025
SIGNATURE	<i>Hincent NG</i>

Date of First Submission: 29th December, 2025

Document Status: ☐ For Information ☒ For Comment ☐ For Use



千里馬綠化有限公司
PEGASUS GREENLAND LTD.

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Detailed Vegetation Survey Report

REVISION HISTORY

Version	Submission Date	Description
-	29/12/2025	First submission
A	31/12/2025	Addressed comments made on 30/12/2025 by HKRRP



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APPENDICES

Appendix A – Permits from EPD and AFCD

Appendix B – Location Plan

Appendix C – Survey Photographs



1. INTRODUCTION

1.1. Background and Objectives

- 1.1.1 In order to maintain the continuity of landfill capacity for disposal of wastes, the Director of Environmental Protection commissioned a study CE45/99 “Extension of Existing Landfills and Identification of Potential New Waste Disposal Sites” in 2000. The study (CE45/99) was completed in early 2003 and proposed a Strategic Plan for the development of landfill extensions and new sites for the disposal of solid wastes in the next 50 years. The WENT Landfill Extension (WENTX) is an integral part in the Strategic Plan in maintaining the continuity of landfill capacity in the WEST New Territories. The project is to develop the WENT Landfill Extension (about 200 hectares with capacity of 81Mm³) next to the existing WENT Landfill at Nim Wan.
- 1.1.2 This Project is a designated project under Schedule 2, G.1, of the Environmental Impact Assessment Ordinance (EIAO): “A landfill for waste as defined in the Waste Disposal Ordinance (Cap. 354)”. An application (No. ESB-117/2004) for an Environmental Impact Assessment Study Brief (EIA SB) under section 5(1)(a) of the EIAO was submitted by the Applicant (ie the Waste Facilities Group of EPD) on 28 Apr 2004 with a project profile (No. PP-214/2004). Pursuant to section 5(7)(a) of the EIAO, the Director of Environmental Protection issued an EIA SB (ref: EIA Study Brief No: ESB-117/2004 dated 10 Jun 2004) to the Project Proponent, the EIA was carried out and completed on June 2009.
- 1.1.3 According to Section 10.3 of the EIA Report, one of the key ecological issues involve with the habitat of Pitcher Plant (*Nepenthes mirabilis*) which were found were found in this habitat along the ravines. This species is protected under Forestry Regulations (Cap. 96A) and is listed under Category LR/lc of the IUCN Red Plant Data List (i.e. taxa which do not qualify for Conservation Dependent or Near Threatened) and CITES Appendix III. It is common in Hong Kong. However, the development project may have direct impacts on its population.



-
- 1.1.4 The assessment of impacts on flora and fauna species of conservation concern indicates that both the construction and operational phases of the project are anticipated to directly affect the population of Pitcher Plant (*Nepenthes mirabilis*), particularly affecting a major colony located in Tsang Kok Valley, which falls within the site formation area. Despite this, the species is widely distributed in NWNT and considered locally common with large colonies observed in other locations.
- 1.1.5 As a mitigation measure required in the EIA Report, the transplantation of affected individuals has been proposed. And the report further recommends that a detailed vegetation survey covered the affected habitats would be conducted by the qualified botanist / ecologist to identify and record the affected individuals in order to provide details for the transplantation scheme prior to the commencement of site clearance works. The requirements of detailed vegetation survey will be specified in the WENT Landfill Extension Contract..
- 1.1.6 The WENT Landfill is the largest landfill in Hong Kong and the only one that can receive waste transported by sea, is expected to be exhausted in 2026. As the development of west-to-energy/resources facilities takes time, EPD have to extend the WENT Landfill especially to meet the waste disposal needs of Hong Kong in the short to medium term. The detailed vegetation survey would be conducted by the qualified botanist / ecologist to identify and record the affected individuals in order to provide details for the transplantation scheme prior to the commencement of site clearance works. The requirements of detailed vegetation survey will be specified in the WENT Landfill Extension Contract.
- 1.1.7 The WENTX contract was awarded to Hong Kong Resources Recovery Park (HKRRP) on 25 August 2023 and formation of the WENTX site for waste intake in 2026 to dovetail the anticipated closure of the WENT Landfill by then.



1.1.8 Pegasus Greenland Limited (Pegasus) is appointed by Hong Kong Resources Recovery Park (“the main contractor”) to conduct an initial vegetation survey for the project “West New Territories Landfill Extension”. According to the Transplantation and Management Plan (TMP) approved on 20 October, 2025, three donor sites (named Bunch 1, 2 and 3) and one receptor site were selected for the transplanting of pitcher plants (*Nepenthes mirabilis*). The purpose of this survey is to identify and record the plants in these habitats, which will be affected by the upcoming transplantation. If there are concerned species that will be disturbed by the operation, conservation measures will be proposed. The survey was conducted on 2nd December, 2025 by the qualified ecologist, Ng Yu Hin, and his associates.



1.2. Site Topography Description

The eastern portion of the site is situated within Tsang Kok Valley, which characterizes a hilly terrain site sparsely vegetated with grass and limited patched of shrubs. The eastern ridge forms a boundary adjacent to the existing landfill. To the north, the site is bordered by the CLP Tsang Tsui Ash Lagoons and the former BBC Relay Station. The southern boundary is defined by the natural topographical features, with ridgelines rising southward from the coastline to converge with a prominent east-west trending ridgeline at approximately +290mPD. Additionally, the southern portion of the site extends into the Tsing Shan Firing Range. The location plan of the WENT Landfill Extension site is presented in Figure 1.

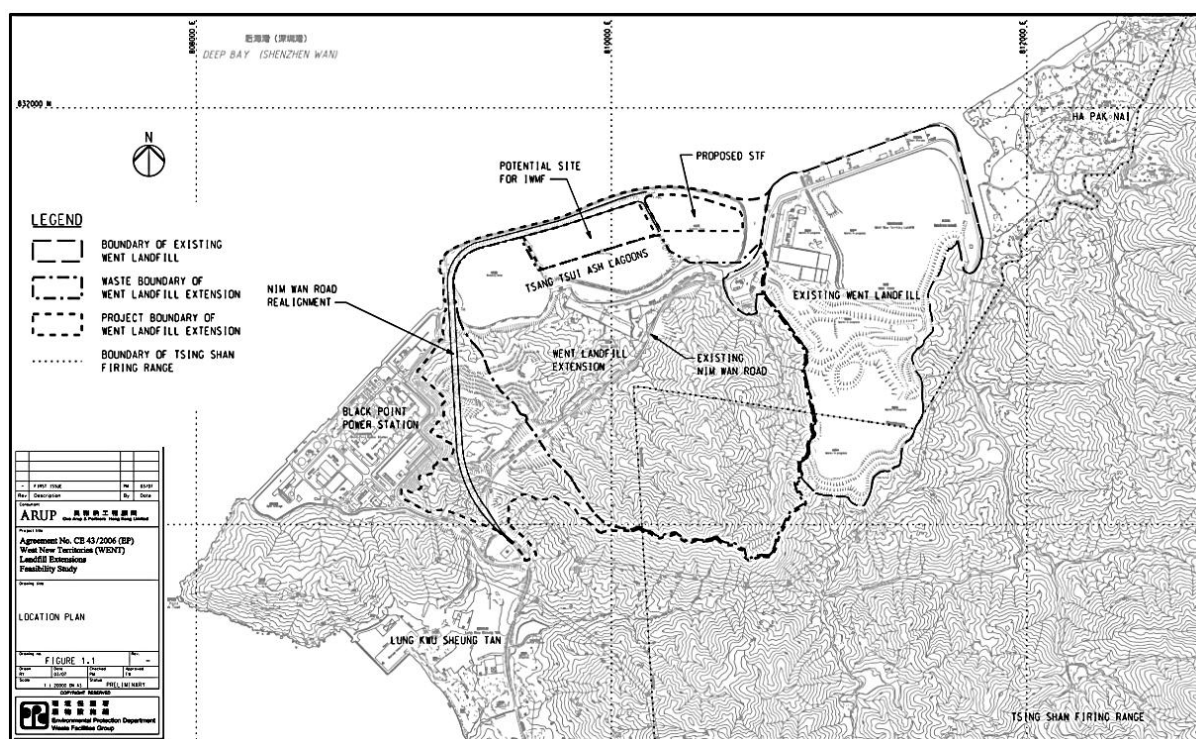


Figure 1. Location Plan of the WENT Landfill Extension (WENTX) Site



1.3. Project Element

The Project comprises the development, management, operation, restoration and aftercare of the WENT Landfill Extensions. The development of the WENTX will primarily involve the following works:

- Developing 2 extension sites (Sites A and B totalling about 240 hectares) with a total filling capacity of about 71 million cubic metres on the western side of the existing WENT Landfill.
- Carrying out site formation and preparation; installation of liner system; installation of leachate collection; treatment and disposal facilities; relocation of existing landfill infrastructures including leachate treatment plant; utilities provisions; Nim Wan road diversion; design and operation of landfill; restoration and aftercare in subsequent stages; measures to mitigate environmental impacts as well as environmental monitoring and auditing to be implemented.

1.4. Objectives of the Vegetation Survey Report

1.4.1. WENTX is a designated project under the Environmental Impact Assessment Ordinance (EIAO). The Environmental Impact Assessment (EIA) Report (Registration. No. AEIAR-147/2009) was approved under the Environmental Impact Assessment Ordinance (EIAO) on 20th November 2009. The Environmental Permit (EP) for WENTX was granted on 3rd June 2010 (Permit No. EP-393/2010). Variation of an Environmental Permit (VEP) was applied under the EIAO on 8th July 2022 due to enhancement of the WENTX scheme recommended after the EIA stage. The VEP (EP No: EP- 393/2010/A) was subsequently granted on 29th July 2022. The Further Environmental Permit (FEP) (FEP no.: FEP-01/393/2010/A) was granted to HKRRP on 6th October 2023.



-
- 1.4.2. Pursuant to the Condition 2.6 under the EP No: EP-393/2010/A (EP) and FEP-01/393/2010/A (FEP), at least 1 month before the commencement of construction of the Project, 3 hardcopies and 1 electronic copy of the TMP shall be submitted to the Director for approval. The TMP shall contain at least the details of transplantation, including transplanting locations and procedures, of Pitcher Plant (*Nepenthes mirabilis*) and other plants of conservation interest to be affected by the Project shall be included.
- 1.4.3. For preparing the TMP, the Director of Agriculture, Fisheries and Conservation shall be consulted. Before submission to the Director, the TMP shall be certified by the ET Leader and verified by the IEC as conforming to the information and recommendations contained in the approved EIA report (Register No. AEIAR-147/2009). All measures recommended in the approved TMP shall be fully and properly implemented and thereafter maintained.
- 1.4.4. According to the requirements outlined in Section 10.8.2 of the EIA Report and, a detailed transplantation protocol and monitoring programme for Pitcher Plant should be prepared by a suitably qualified ecologist or botanist appointed by the contractor and submitted to AFCD for review and comments and EPD for approval prior to commencement of work. Furthermore, a detailed vegetation survey covered the affected habitats would be conducted by the qualified botanist / ecologist to identify and record the affected individuals in order to provide details for the transplantation scheme prior to the commencement of site clearance works. The requirements of detailed vegetation survey will be specified in the WENT Landfill Extension Contract.
- 1.4.5. The application of transplantation permit to the Pitcher Plant was approved on 30 September 2025 following the review of the TMP for the Pitcher Plant by the AFCD. The TMP was submitted to the Service Manager and the EPD, granting the approval on 20 October 2025. The copies of the relevant correspondence are provided in Appendix A.



- 1.4.6. Following the preparation of the TMP related to the detailed transplantation protocol and monitoring programme for Pitcher Plant, the detailed vegetation survey was subsequently conducted by the qualified ecologist to identify and document the affected individuals and its habitats. This report presents the findings of the survey, if any which may be caused by the proposed transplantation works for the plant species of conservation importance as identified in the survey.
- 1.4.7. This Vegetation Survey Report for Pitcher Plant Transplantation (hereinafter referred to as "the Report") outlines the survey methodology and presents the findings from the survey conducted in December 2025, prior to the transplantation operation. Based on the survey findings, the Report enumerates the vegetation exist within the habitats affected by transplantation at both the donor and the receptor sites.
- 1.4.8. The Report provides necessary protection and mitigation measures, if any potential impacts may be arised from the proposed transplantation operation, conservsing the recorded plant species of conservation importance identified during the vegetation survey, if needed.
- 1.4.9. The mitigation measures required in the approved Vegetation Survey Report shall be thoroughly and properly implemented on site throughout the construction stage. No site clearance works related to the transplantation operation shall commence prior to the approvals of the Vegetation Survey Report, as well as the submission and approvals of the transplantation protocol and monitoring programme for the Pitcher Plant.



1.5. Structure of the Report

The report is organized in the following structure :

- SECTION 1 Provides an introduction to the project background and outlines the objectives of the Detailed Vegetation Survey.
- SECTION 2 Describes the methodology employed for conducting the vegetation survey at both the existing donor site and the proposed receptor site.
- SECTION 3 Presents the findings obtained from the vegetation survey.
- SECTION 4 Offers recommendations for mitigation measures if any recorded plant species of conservation importance during the survey.
- SECTION 5 Provide an update and review on transplantation scheme based on the transplantation management plan.



2. SURVEY METHOD

This survey records: (1) species identification, (2) conservation status and (3) coverage. Within the surveyed site locations, all living plants were identified based on morphological characteristics to the species level, or, in cases where precise identification was challenging, to the genus level. The conservation status indicates whether a species is legally protected under the Forest and Countryside Ordinance (Cap. 96), the Protection and Endangered Species of Animals and Plants Ordinance (Cap. 586), or listed in Rare and Precious Plants of Hong Kong by AFCD, Hong Kong. If the survey found a tree that is a registered Old and Valuable Tree (OVT), fulfills the criteria of a mature tree, or has a high visual impact to the locality (e.g. landmark tree), it will be described independently. The coverage of each species distributed in the existing woodland, expressed in percentage, was determined visually based on the approximate area (or range) it occupied within the surveyed location. Additionally, general sitescapes of the three donor locations and the receptor location, as well as specimens of surveyed species, were photographed during the survey.

The findings of the survey details are presented in Section 3. The location plans are attached in Appendix B, and the survey photographs are compiled in Appendix C.



3. FINDINGS

With reference to the comprehensive on-site vegetation survey carried out by the qualified ecologist and documented by his assistants, which encompassed Bunch 1, Bunch 2 and Bunch 3 of the affected donor sites, as well as the designated planting zone of the proposed receptor site on 02 December 2025, the plant species verified during the survey accurately presented below. These species are organized in descending order according to their coverage distribution, from highest to lowest.

Bunch 1 (Donor Site) at Portion A1

Scientific Name	Chinese Name	Conservation Status	Coverage
<i>Nepenthes mirabilis</i>	豬籠草	Listed in Cap. 96, 586; Listed as "Vulnerable" under <i>Rare and Precious Plants of Hong Kong</i> ;	>90%
<i>Blechnum orientale</i>	烏毛蕨	Nil	>5%
<i>Rhodomyrtus tomentosa</i>	桃金娘	Nil	<2%
<i>Dicranopteris pedata</i>	芒萁	Nil	<2%
<i>Melastoma sanguineum</i>	毛荃	Nil	<2%
<i>Lepidosperma chinense</i>	鱗子莎	Nil	<1%
<i>Gonocarpus chinensis</i>	黃花小二仙草	Nil	<1%
<i>Fuirena umbellata</i>	芙蘭草	Nil	<1%

Bunch 2 (Donor Site) at Portion A1

Scientific Name	Chinese Name	Conservation Status	Coverage
<i>Scleria terrestris</i>	高桿珍珠茅	Nil	>30%
<i>Nepenthes mirabilis</i>	豬籠草	Listed in Cap. 96, 586; Listed as "Vulnerable" under <i>Rare and Precious Plants of Hong Kong</i> ;	>20%
<i>Dicranopteris pedata</i>	芒萁	Nil	<20%
<i>Rhodomyrtus tomentosa</i>	桃金娘	Nil	<2%
<i>Melastoma sanguineum</i>	毛荃	Nil	<2%
<i>Rhaphiolepis indica</i>	車輪梅	Nil	<2%
<i>Palhinhaea cernua</i>	鋪地蜈蚣	Nil	<2%
<i>Sapium discolor</i>	山烏柏	Nil	<1%



Bunch 3 (Donor Site) at Portion A1

Scientific Name	Chinese Name	Conservation Status	Coverage
<i>Polyspora axillaris</i>	大頭茶	Nil	>50%
<i>Baeckea frutescens</i>	崗松	Nil	<20%
<i>Nepenthes mirabilis</i>	豬籠草	Listed in Cap. 96, 586; Listed as "Vulnerable" under <i>Rare and Precious Plants of Hong Kong</i> ;	<15%
<i>Dicranopteris pedata</i>	芒萁	Nil	<15%
<i>Rhodomirtus tomentosa</i>	桃金娘	Nil	<10%
<i>Pentaphylax euryoides</i>	五列木	Nil	<5%
<i>Palhinhaea cernua</i>	鋪地蜈蚣	Nil	<2%
<i>Litsea rotundifolia</i> var. <i>oblongifolia</i>	豺皮樟	Nil	<2%
<i>Mussaenda</i> sp.	玉葉金花屬	Nil	<2%

Planting Zone (Receptor Site) at Portion C6

Scientific Name	Chinese Name	Conservation Status	Coverage
<i>Dicranopteris pedata</i>	芒萁	Nil	>50%
<i>Baeckea frutescens</i>	崗松	Nil	>30%
<i>Nepenthes mirabilis</i>	豬籠草	Listed in Cap. 96, 586; Listed as "Vulnerable" under <i>Rare and Precious Plants of Hong Kong</i> ;	<15%
<i>Rhodomirtus tomentosa</i>	桃金娘	Nil	<5%
<i>Lepidosperma chinense</i>	鱗子莎	Nil	<2%
<i>Palhinhaea cernua</i>	鋪地蜈蚣	Nil	<2%



4. CONSERVATION MEASURES

With the exception of *Nepenthes mirabilis*, which will be transplanted in accordance with the requirements stipulated in the Contract, no species of conservation importance were identified in this vegetation survey. Therefore, it is considered that no additional conservation measures and arrangements are necessary. Nonetheless, to minimize the disturbance to the affected habitats, the transplantation operation shall be conducted in strict compliance with the approved transplantation protocol, the protective measures, and the associated monitoring program specified in the relevant contract documents and the transplantation scheme.

5. REVIEW OF TRANSPLANTATION SCHEME

In compliance with the requirements of the EIA Report, a detailed vegetation survey (this report) was performed by the qualified ecologist prior to the commencement of the site clearance activities associated with the transplantation of Pitcher Plants. This survey identified and documented the affected individuals across the pertinent habitats, encompassing three locations in Portion A1 which is as the existing donor sites, as well as one location in Portion C6 which is served as the final receptor site for the transplantation of the Pitcher Plants.

At the affected habitats of the current donor site at Portion A1, a total of eight plant species were respectively identified in both Bunch 1 and Bunch 2. As for Bunch 3, total nine plant species were identified within the affected habitat. Regarding the affected habitat of the proposed receptor site at Portion C6, the survey identified a total of six plant species distributed across the assessed planting zone that was determined on site by the ecologist. In summary, aside from *Nepenthes mirabilis*, no additional plant species of conservation interest were identified when referenced with the Rare and Precious Plants of Hong Kong, the 27 kinds of plants listed in Appendix 2 of the Forests and Countryside Ordinance (Cap. 96), as well as some native plant



species of Hong Kong included in the schedule of Appendix 3 of the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586).

The findings presented in Section 4 indicate that the qualified ecologist has not advised the implementation of additional conservation measures and arrangements, given the absence of additional species of conservation importance distribute within the affected habitats. It is highlighted that certain existing Pitcher Plants were mainly observed in close proximity to the boundary edge of the designated planting zone at the final receptor site. This observation demonstrates that the selected habitat condition can provide right suitability and available quality, which closely resemble those of the original donor site. In particular, the receptor site exhibits comparable characteristics with the original donor site in terms of watershed, natural woodland and grassland types, as well as similar characteristics related to sun exposure, landform, altitude, and vicinity to all-season water bodies, as illustrated in the Figure 2.

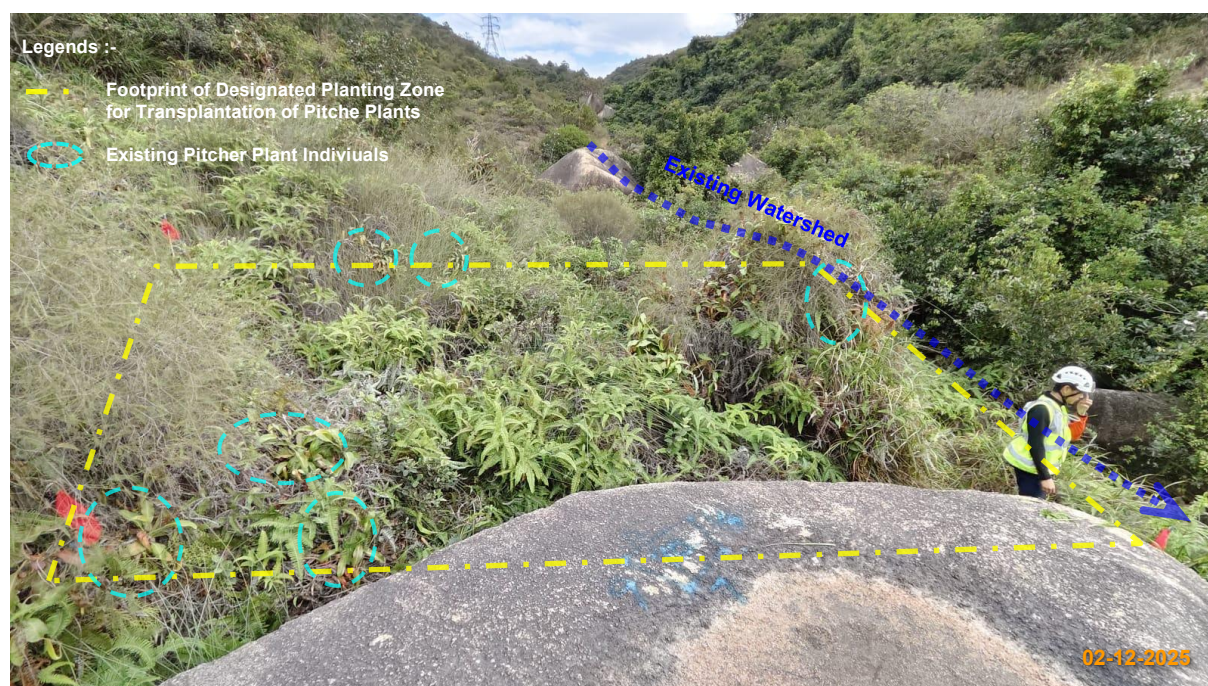


Figure 2. Pitcher Plant Condition found at the Designated Planting Zone of the Receptor Site



In accordance with the recommended treatments specified in the approved Transplantation Scheme (TMP), the following protocols shall be rigorously adhered to in order to minimize potential disturbances at the receptor site:

- Appropriate fencing shall be installed to prevent unnecessary human interference or damage at least one month before transplantation.
- Identified Pitcher Plants at the receptor site shall be clearly labeled and fenced off to ensure their protection before any site clearance commence.
- Vegetation that will shade the transplanted individuals might be cleared without using herbicide. The vegetation clearance within the designated planting zone shall only be carried out to the bare minimum if deemed necessary.
- The use of heavy machinery is to be avoided during the removal of harmful materials and vegetation to prevent disruption to the natural environment.

In conclusion, the results and analysis derived from this vegetation survey of the affected habitats substantiate the proposed methodological consistency, appropriateness and alignment with the stated objectives. It is considered both reliable and feasible within the framework of the current ecological and environmental variables relevant to the proposed transplantation scheme. Consequently, the transplantation protocol and monitoring programme are deemed to be not necessarily require further review, as they remain consistent with the core principles established in the approved TMP.

本署檔號
OUR REF: Ax(1) EP2/N4/G/86
來函檔號
YOUR REF:
電話
TEL. NO.: 2835 1751
圖文傳真
FAX NO.: 2591 0558
電子郵件
E-MAIL: keith_lam@epd.gov.hk
網址
HOMEPAGE: <http://www.epd.gov.hk>

Environmental Protection Department
Branch Office
28th Floor, Southorn Centre,
130 Hennessy Road,
Wan Chai, Hong Kong.



環境保護署分處
香港灣仔
軒尼詩道
一百三十號
修頓中心廿八樓

20 October 2025
By Post & Fax: 2872 0376

2/F, West Wing,
Island West Transfer Station,
88 Victoria Road, Kennedy Town, H.K.
(Attn: Mr. LAM Tsun Yin, Christopher, S(LD)5)

Dear Mr. Lam,

Environmental Impact Assessment (EIA) Ordinance, Cap. 499
Project Title: West New Territories (WENT) Landfill Extensions
Environmental Permits (EP) No. EP-393/2010/A, FEP-01/393/2010/A

EP Condition 2.6 – Submission of Transplantation and Management Plan

I refer to the Transplantation and Management Plan (TMP) dated 29 Sep 2025 (Your ref.: WETNX/ACS/LT/ER3/02543) for submission pursuant to Condition 2.6 of the Environmental Permits No. EP-393/2010/A and FEP-01/393/2010/A.

It is noted that the TMP has incorporated the information as required under Condition 2.6 of the EP and FEP. Procedurally, as per the EP and the FEP require, the TMP has been certified by the ET Leader and verified by the IEC before submission to us. Having consulted AFCD, we herewith **approve the TMP under Condition 2.6 of the EP and FEP.**

We will arrange to place a copy of the TMP on the Environmental Impact Assessment Ordinance Register and will also upload the TMP to the EIA Ordinance Website for public information.

Yours sincerely,

(Keith LAM)
Senior Environmental Protection Officer
for Director of Environmental Protection

c.c.
AFCD

(Attn: Mr. WONG Yung Hing, Eric

Fax: 2377 4427)

Internal
S(RW)1

漁農自然護理署
長沙灣道三〇三號
長沙灣政府合署七樓



AGRICULTURE, FISHERIES AND
CONSERVATION DEPARTMENT
7/F, Cheung Sha Wan Government Offices
303 Cheung Sha Wan Road
Kowloon, Hong Kong

本處檔號 Our Ref.: (37) in AFCD 120-CON-011-002-003-P001

來函檔號 Your Ref.:

電話 Tel. No.: 2150 6912

圖文傳真 Faxline No.: 2376 3749

30 September 2025

Mr. WONG Kam Shing
Senior Civil Engineer
Hong Kong Resources Recovery Park
29/F, China Overseas Building
139 Hennessy Road
Wan Chai, Hong Kong

Dear Mr. WONG,

**Permission to Transplant *Nepenthes mirabilis* for the Project
EP/SP/186/21 - West New Territories Landfill Extension**

I refer to your emails dated 10.9.2025 and 24.9.2025 regarding the application of Permission to Transplant *Nepenthes mirabilis* for the Project EP/SP/186/21 - West New Territories Landfill Extension.

Enclosed please find the subject permit for your use. While in the field and at the temporary nursery, you and each accredited assistant under your charge should carry an identification document issued by the relevant company with a copy of the permit.

Please be advised that the permit allows the collection of *Nepenthes mirabilis* for the above captioned work only and does not cover the collection of other protected plants listed under the Forestry Regulations (Cap. 96A), scheduled plant species listed under the Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586), and the species listed in the publication *Rare and Precious Plants of Hong Kong*.

Please contact the undersigned if you have any enquiry.

Yours sincerely,

(Michelle LUK)

for Director of Agriculture, Fisheries and Conservation

Encl.

覆函請寄交「漁農自然護理署署長」

Please address all replies to Director of Agriculture, Fisheries & Conservation

漁農自然護理署
九龍長沙灣道三〇三號
長沙灣政府合署七樓



AGRICULTURE, FISHERIES &
CONSERVATION DEPARTMENT
7/F, Cheung Sha Wan Government Offices
303 Cheung Sha Wan Road
Kowloon, Hong Kong

本處檔號 Our Ref.: (37) in AFCD 120-CON-011-002-003-P001

來函檔號 Your Ref.:

電話 Tel. No.: For enquiries: 2150 6912

30 September 2025

Permission to Transplant *Nepenthes mirabilis* for the Project
EP/SP/186/21 - West New Territories Landfill Extension

Permission is given to

Mr. WONG Kam Shing, Hong Kong Resources Recovery Park, and his accredited assistants to collect and transplant *Nepenthes mirabilis* for the project **EP/SP/186/21 - West New Territories Landfill Extension**, subject to the conditions on the reverse of this permit.

The permission is given in accordance with Section 23 of the Forests and Countryside Ordinance (Cap. 96).

The term "accredited assistant" is defined as a bona fide worker of Hong Kong Resources Recovery Park or the contractor of Hong Kong Resources Recovery Park for the project **EP/SP/186/21 - West New Territories Landfill Extension** to assist in the collection and transplantation of the mentioned flora species.

This permit is valid from 30 September 2025 to 31 May 2026.

(Eric K. Y. LIU)
for Director of Agriculture, Fisheries & Conservation

(Conditions of transplantation on the reverse of this permit)

覆函請寄交「漁農自然護理署署長」
Please address all replies to Director of Agriculture, Fisheries & Conservation

Conditions of Permission to Transplant *Nepenthes mirabilis* for the Project
EP/SP/186/21 - West New Territories Landfill Extension

1. This permission shall be limited to the collection, possession and transplantation of *Nepenthes mirabilis*, including the propagated individuals, from the donor sites to the receptor site according to the Transplantation and Management Plan for the project EP/SP/186/21 - West New Territories Landfill Extension as proposed to this Department on 10 September 2025 and 24 September 2025.
2. This permission does not exempt the permit holders from having to acquire any other necessary permission under the Laws of Hong Kong.
3. This permission does not authorize the entry to any leased land or licensed area or the disturbance of the flora or fauna therein, in which case the prior approval of the lessees or the licence holder would be necessary.
4. The collection areas shall be left clean and tidy.
5. Any disturbance to vegetation and stream courses required for the collection and transplantation of *Nepenthes mirabilis* shall be kept to the absolute minimum.
6. The materials collected and their derived materials shall be submitted for inspection by any officer of this Department upon request.
7. All residual / unused plant materials of *Nepenthes mirabilis* shall be properly disposed.
8. The permit holders shall produce a copy of this permit and an identification document issued by the relevant company for inspection on demand by any officer of this Department or police officer.
9. The permit holders shall not offer the plants collected and their derived materials to any other organization or person for other purposes.
10. The permit holders shall provide a report on the quantity and condition of the plants collected and their derived materials to this Department upon request.
11. The permit holders shall provide one copy of each of publications produced as a result of this project to this department for record.
12. This permit expires on 31 May 2026 and the Director of Agriculture, Fisheries and Conservation reserves the right to recall or cancel this permission at any time.

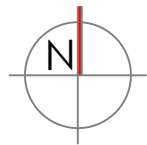
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千里馬綠化有限公司
PEGASUS GREENLAND LTD.

Appendix B

Location Plans



0.00m
DEEP BAY
(ENHANCED BAY)

0.00m
DEEP BAY
(ENHANCED BAY)

0.00m
DEEP BAY
(ENHANCED BAY)

0.00m
DEEP BAY
(ENHANCED BAY)

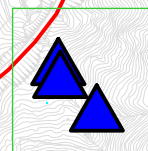
LEGEND

-  FEP/EP WENTX PROJECT BOUNDARY
-  PITCHER PLANT
-  STREAM B
-  RECEPTOR SITE FOR PITCHER PLANT (~254sqm)
-  ON-SITE TRANSIT NURSERY
-  DONOR SITES

Rev	Description	By	Date
Employer			
 環境保護署 Environmental Protection Department			
Service Manager's Representative			
			
Design Checker			
			
Contractor			
 HK RESOURCES RECOVERY PARK			
Designer			
 binnies In Association With ATKINS Member of the SNC-Lavalin Group			
Project title			
CONTRACT NO. EP/SP/186/21 WEST NEW TERRITORIES LANDFILL EXTENSION			
Drawing title			
TRANSPLANTING OF PITCHER PLANTS: DONOR & RECEPTOR SITES			
Drawing no.			Rev.
APPENDIX A1			A
Author	Date	Checker	Approver
OY	July 25		
Scale	1:10,000	Status	
	A3	DETAIL DESIGN SUBMISSION	

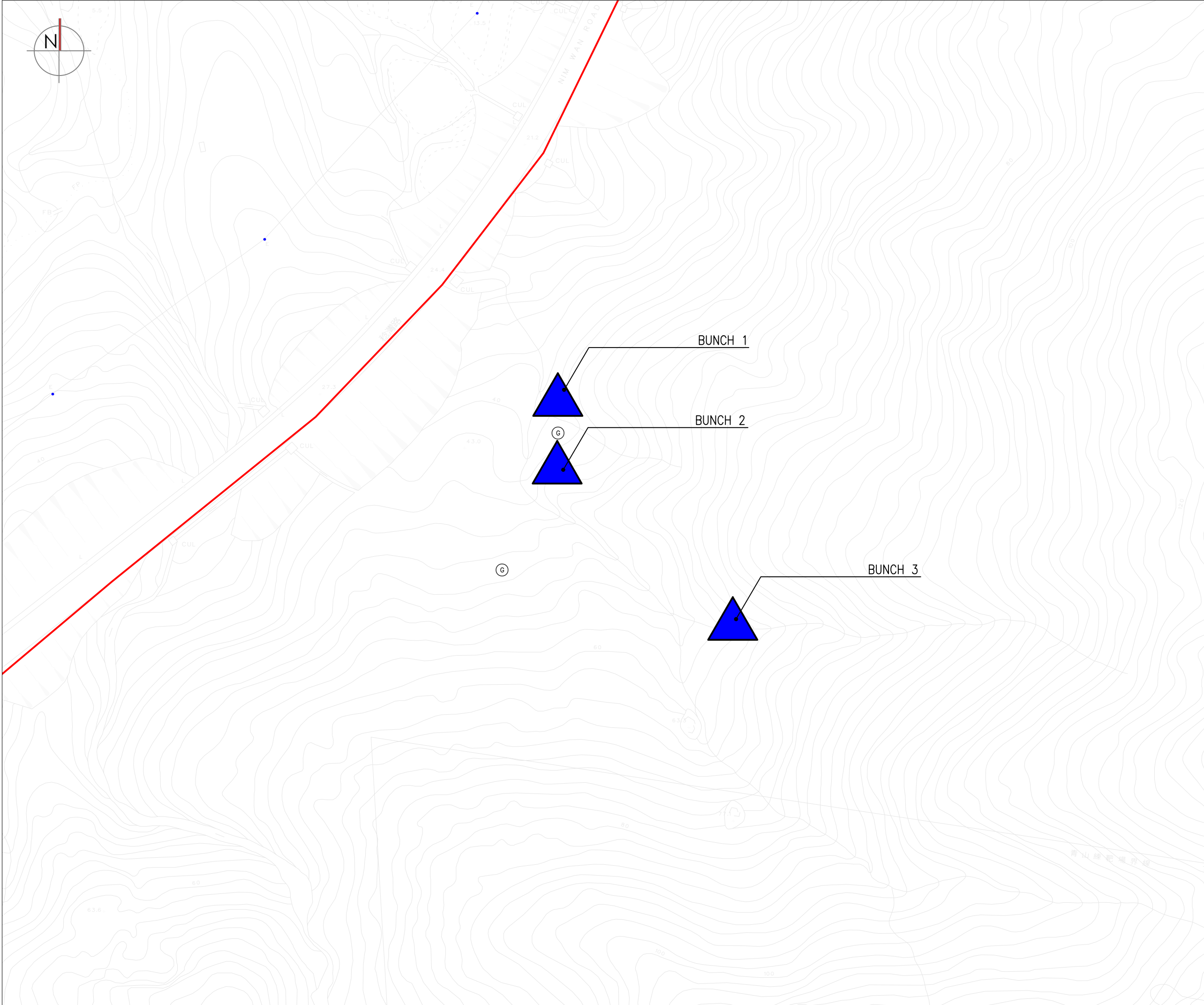
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14



KEYPLAN
A
APP.A2





LEGEND

FEP/EP WENTX PROJECT BOUNDARY

PITCHER PLANT

Rev	Description	By	Date
Employer			
環境保護署 Environmental Protection Department			
Service Manager's Representative			
ARUP			
Design Checker			
wsp			
Contractor			
HK RESOURCES RECOVERY PARK			
Designer			
binnies In Association With ATKINS Member of the SNC-Lavalin Group			
Project title			
CONTRACT NO. EP/SP/186/21 WEST NEW TERRITORIES LANDFILL EXTENSION			
Drawing title			
TRANSPLANTING OF PITCHER PLANTS: DONOR SITES			
Drawing no.			Rev.
APPENDIX B			—
Author	OY	Date	MAR 24
Checker		Approver	
Scale	1:100		Status
A3		DETAIL DESIGN SUBMISSION	

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PEGASUS GREENLAND LTD.

Appendix C

Survey Photographs

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Sitescapes)



Bunch 1 sitescape (1)



Bunch 1 sitescape (2)

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Sitescapes)



Bunch 2 sitescape (1)



Bunch 2 sitescape (2)

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Sitescapes)



Bunch 3 sitescape (1)



Bunch 3 sitescape (2)

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Sitescapes)



Receptor site sitescape (1)



Receptor site sitescape (2)

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Plant Species)



Baeckea frutescens 崗松



Blechnum orientale 烏毛蕨



Dicranopteris pedata 芒萁



Fuirena umbellata 芙蘭草

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Plant Species)



Gonocarpus chinensis 黄花小二仙草



Lepidosperma chinense 鱗子莎



Litsea rotundifolia var. *oblongifolia* 豺皮樟



Melastoma sanguineum 毛萼

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Plant Species)



Mussaenda sp. 玉葉金花屬



Nepenthes mirabilis 豬籠草



Palhinhaea cernua 鋪地蜈蚣



Pentaphylax euryoides 五列木

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Plant Species)



Polyspora axillaris 大頭茶



Rhaphiolepis indica 車輪梅



Rhodomyrtus tomentosa 桃金娘



Sapium discolor 山烏柏

Contract No. EP/SP/186/21
West New Territories Landfill Extension
Initial Vegetation Survey Report
Survey Photographs (Plant Species)



Scleria terrestris 高桿珍珠茅

Appendix S

Environmental Review Report for Piers Operation



Environmental Protection Department
2nd floor, West Wing
Island West Transfer Station
88 Victoria Road
Kennedy Town
Hong Kong

Your reference:

Our reference: HKEPD259/50/111026

Date: 28 January 2026

Attention: Ms Kins Lo

BY EMAIL & POST
(email: wklo@epd.gov.hk)

Dear Sirs

Quotation Ref. 23-02230
Provision of Independent Environmental Checker Consultancy Services for
West New Territories Landfill Extension
Environmental Review Report for Piers Operation

We refer to email of 27 January 2026 from Hong Kong Resources Recovery Park attaching the plan of the captioned.

We have no comment and hereby verify the captioned plan in accordance with Clause 1.9 of the Environmental Permit (EP No.: EP-393/2010/A) and Further Environmental Permit (FEP No. FEP-01/393/2010/A).

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Ricky Lau on 2618 2831.

Yours faithfully
ANewR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/thy

Our Ref: TCS01325/23/300/L0184

Hong Kong Resources Recovery Park

29/F China Overseas Building,
139 Hennessy Road, Hong Kong

Attn: Mr. Kenneth Lau

29 January 2026

By email

Dear Sir,

Re: Contract No. EP/SP/186/21

West New Territories (WENT) Landfill Extension

ETL's Certification letter for Environmental Review Report for Pier Operation

With reference to the Environmental Review Report for Pier Operation dated 27 January 2026, we hereby certify this submission in accordance with Condition 1.9 of Environmental Permit EP-393/2010/A and Further Environmental Permit FEP-01/393/2010/A.

Should you have any queries or require further information, please feel free to the undersigned at Tel: 2959-6059 or Fax: 2959-6079.

Yours sincerely,

For and on Behalf of

Action-United Environmental Services & Consulting



Tam Tak Wing
Environmental Team Leader

JOB No.: TCS01325/23

CONTRACT NO. EP/SP/186/21

WEST NEW TERRITORIES LANDFILL EXTENSION

**ENVIRONMENTAL REVIEW REPORT FOR PIERS
OPERATION**

**PREPARED FOR
HONG KONG RESOURCES RECOVERY PARK**

Date	Reference No.	Certified By
27 January 2026	TCS01325/23/600/R0171v1	 Tam Tak Wing (Environmental Team Leader)

Version	Date	Remarks
1	27 January 2026	First Submission

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1 INTRODUCTION

1.1 BACKGROUND

- 1.1.1 The West New Territories Landfill Extension (WENTX) is classified as a Designated Project (DP) under Schedule 2, Part I of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). The Environmental Impact Assessment (EIA) Report (AEIAR-147/2009) of WENTX was approved in November 2009 and the respective Environmental Permit no. EP-393/2010 was granted in June 2010.
- 1.1.2 In consideration of the interfacing projects, commitments, and neighbourhood enhancement initiatives, a revised reference design and implementation program for WENTX (hereafter referred to as the Enhanced Scheme) has been proposed. Under the Enhanced Scheme, the boundary of WENTX has been reduced, and the waste filling area and landfill capacity has been updated to 94 ha and 76 Mm³ respectively. The Variation of Environmental Permit (VEP) (application number VEP-617/2022) was applied by the project proponent, and EP-393/2010/A was subsequently issued by Environmental Protection Department (EPD) on 29 July 2022.
- 1.1.3 In August 2023, Hong Kong Resources Recovery Park (hereinafter named “HKRRP”) was awarded the Design, Build and Operate (DBO) Contract of WENTX (hereinafter named “the Project”). Further Environmental Permit (FEP-01/393/2010/A) was granted by HKRRP from EPD on 6 October 2023.
- 1.1.4 In the latest design and arrangement, six temporary piers along the Nim Wan Waterway, adjacent to the existing seawall, will be served as berthing facilities (barging points) for loading and unloading equipment, plants and construction materials. Among the six piers, three are existing, while three others will need to be constructed for temporary use. The assessment for construction of three piers is covered in the separate ERR.
- 1.1.5 The temporary piers are expected to commence operations in early 2026 and will operate for continuously from 00:00 to 24:00. The piers will be used for WENTX Project, including potential project matching with other projects and materials delivery off site. They will be designated solely for construction use, with no waste exporting via the piers.

1.2 PURPOSE AND SCOPE OF THE ENVIRONMENTAL REVIEW REPORT

- 1.2.1 In accordance to the 2022 VEP supporting document, barging facilities will be included in the Enhanced Scheme. The assessment for the associated dust emissions from material unloading activities and marine emissions from construction barges / explosive delivery vessel manoeuvring from / to and idling at the proposed barging points were considered and assessed. With the available of the detailed design by the DBO contractor, this ERR is prepared to review and assess the potential environmental impact during the operation of the temporary barging facilities.

1.3 STRUCTURE OF REPORT

- 1.3.1 Apart from the introductory section, there will be other sections in this Report as follows:
- Section 2 – Description of the proposed Pier Operation;
 - Section 3 – Review on Air Quality Impacts;
 - Section 4 – Review on Noise Impacts;
 - Section 5 – Review on Water Quality Impacts;
 - Section 6 – Review on Other Environmental Impact;
 - Section 7 – Conclusion

2 DESCRIPTION OF THE PROPOSED PIER OPERATION

- 2.1.1 The crushed materials from the rock crushing plant, stored at a temporary stockpile area on-site, will be transported to the barging point facility by dump truck and / or conveyor belt system, and subsequently loaded onto barges for reuse in other projects, including but not limited to project matching with Government public works projects, such as reclamation projects (if any). In addition, some construction materials, such as precast and prefabricated units and plant equipment, will be imported by vessels due to constraint on land transport and to reduce the environmental impact from land transportation.
- 2.1.2 In the latest design and arrangement, six temporary piers along the Nim Wan Waterway, adjacent to the existing seawall, will be served as barging points for loading and unloading equipment, plants and construction materials. The materials will be delivered to piers by dump truck or conveyor belt. The maximum number of barge movement will be 5 trips per day at early stage and the most 15 trips per day when full operation trips per day. The locations of the temporary piers are shown in *Appendix A*.
- 2.1.3 Among the six piers, three are existing, while three others will need to be constructed. The piers will be used for WENTX Project, including potential project matching with other projects and materials delivery off site. They will be designated solely for construction use, with no waste exporting via the pier.
- 2.1.4 All construction vessels associated with the WENTX project should adhere to designated travel routes to ensure structured navigation, minimize interference with adjacent areas, and avoid unauthorized zones. A summary of vessels to be deployed for this Project is summarized in *Table 2-1*.

Table 2- 1 Summary of Construction Vessels

Purpose	Types of Work	Berth	Frequency
Import Construction Material	Deliver precast element and Plant Equipment (Ammonia Stripping Plant and rock crusher)	Berth 5 & 6	3 trips per day
Daily Operation	Export of Excavation Materials	Berth 1, 2, 3, 4 & 6	5 trips per day at early stage and the most 15 trips per day when full operation

- 2.1.5 The temporary piers are expected to commence operations in early 2026 and will operate for continuously from 00:00 to 24:00. The piers will be used for WENTX Project, including potential project matching with other projects and materials delivery off site. They will be designated solely for construction use, with no waste exporting via the pier.
- 2.1.6 The operation of the temporary piers may result in potential impacts related to air quality, noise, and water quality. Sections 3 to 5 will assess the nature and extent of the key environmental impacts arising from the pier operations.

3 REIVEW ON AIR QUALITY IMPACT

3.1 GENERAL

- 3.1.1 This section reviews and addresses potential air quality impact induced from the proposed pier operation.

3.2 POLLUTION SOURCES AND MITIGATION MEASURES

- 3.2.1 The operation of temporary piers might have potential air quality impact as follows: -
- Vehicle emission from dump trucks from the site to the piers;
 - Dust emissions from material unloading activities; and
 - Marine emissions from construction vessels
- 3.2.2 The crushed materials from the rock crushing plants will be stored at a temporary stockpile area on-site. These materials will subsequently be transported to the barging points by dump trucks or conveyor belt system. Emissions from these vehicles typically include nitrogen oxides (NO_x), carbon monoxide (CO), and particulate matter (PM), which can affect local air quality, particularly during peak transport times. To minimise the impact of vehicle emissions, conveyor belts will be provided for continuous haulage of the materials along the route near the pier. In addition, haul roads within the barging point would be all paved and water spraying would be provided to keep wet condition.
- 3.2.3 The unloading of materials at the temporary piers will generate dust emissions, especially when handling dry materials or during windy conditions. To minimise the impact from unloading activities, the design of the tipping halls would be constructed 3-sided enclosure with a top cover. In addition, water spraying and dust screen would be installed at the unloading points (from barging point to the barges) to further control dust emissions.
- 3.2.4 Construction vessels operating at the temporary piers will contribute to air pollution through marine emissions. These emissions include sulfur oxides (SO_x), nitrogen oxides (NO_x), and particulate matter. It is advisable to optimize operational schedules and to reduce the idle time and fuel consumption, thereby minimizing emissions. On-shore power supply would be provided for the construction barges and marine vessels to power the cranes and other machinery on the barges / vessels at the berths to avoid emission idling at the berth as far as possible. In addition, wheel wash / vehicle washing machines will be provided at the exit to clean mud and debris from wheel and prevent tracking onto public roads.
- 3.2.5 The environmental review report (ERR) for handling of construction materials has assessed the emissions anticipated from the mobile crushing plant and associated facilities, including stockpiling area, conveyor belt and access road. Appropriate dust suppression measures, such as regular watering of rocks to be processed and the stockpiling area, will be implemented to minimize potential dust emission arising from the handling and storage of the rocks and aggregates. Mobile crushers, screens, excavators, loaders, generators and conveyor system will be equipped with diesel-fuel power generators. Consequently, gaseous emissions of nitrogen oxides (NO_x), sulfur dioxide (SO₂) and particulates due to fuel combustion of these mobile machines are not anticipated from the mobile crushing plant. In addition, water truck will be regularly utilized on the access road for dust suppression.
- 3.2.6 Besides, the temporary piers are not used for waste transfer and will not arise any potential odour impact to the representative air sensitive receivers (ASRs) during the operation phase. Further odour assessment is not required.

- 3.2.7 In conclusion, the piers can minimize the number of dump trucks needed to transport materials and equipment to and from construction sites, and this reduce the road traffic emissions, the potential air quality impact due to the pier operation is considered insignificant. With the implementation of good site practices and appropriate mitigation measures, no adverse residual air quality impacts during the operation of piers are anticipated.

3.3 MONITORING AND AUDIT

- 3.3.1 The study area for the air quality assessment was defined as a distance of 500m from the boundary of the piers and it is shown in **Appendix A**. The representative ASRs identified from the pier operation include T · PARK office, Tsang Tsui Columbarium and Black Point Power Station. There are no new ASRs since the approval of VEP-617/2022.
- 3.3.2 The air quality monitoring stations at the representative ASRs, namely the rooftop of T · PARK and Tsang Tsui Columbarium), are the designated air quality monitoring locations under WENTX (AM(D)6a and AM(D)7b). Although AM(D)7b has been relocated to the West Tsang Tsui Ash Lagoon, it is now closer to the Berth 1 and dust source from the crushing plant. Besides, the corresponding team of Black Point Power Station has rejected requests to provide access for dust monitoring activities in their premise due to the safety and security concerns, making monitoring infeasible in that location. In conclusion, the existing EM&A program in the approved EM&A Manual is considered effective in ensuring the overall environmental performance of WENTX.
- 3.3.3 The EM&A requirements recommended in the approved WENTX EIA Report are considered still valid and no additional EM&A requirements will be required.

4 REIVEW ON NOISE IMPACT

4.1 GENERAL

- 4.1.1 This section reviews and addresses potential noise impact induced from the operation of piers.

4.2 POLLUTION SOURCES AND MITIGATION MEASURES

- 4.2.1 The operation of pier might have potential noise impact as follows: -
- Traffic noise from transport vehicles from the site to the piers;
 - Noise generated during loading and unloading activities at the pier; and
 - Noise generated by the engine of construction vessels operating at the piers
- 4.2.2 The transport of crushed materials away from the site to the barging points via dump trucks will contribute to road traffic noise. However, the transportation route will be confined within the site area. To further mitigate noise impacts on road traffic, enclosed conveyor belts will be implemented for continuous haulage of materials along the route near the pier.
- 4.2.3 The movement of equipment and materials on and off the barges would generate noise, particularly from machinery and manual handling. To mitigate this noise impact, it is advisable to optimize the scheduling of loading and unloading activities to specified hours, and to avoid operations during sensitive times. In addition, the design of the tipping halls would be constructed 3-sided enclosure with a top cover, acting as a noise screen to further reduce impact on surrounding areas.
- 4.2.4 The operation of construction vessels and their engines can generate noise, particularly during arrival and departure from the barging points. To minimize noise disturbance, it is advisable to schedule operations during less sensitive times.
- 4.2.5 In view of the nature of the piers, the noise impact is considered negligible. With the implementation of the mitigation measures and best practical means to minimize construction noise from all the concurrent projects, cumulative noise impact during operation of the proposed pier operation is not expected.

4.3 MONITORING AND AUDIT

- 4.3.1 The study area for noise impact assessment was defined as a distance of 300m away from the boundary of the piers and it is shown in *Appendix A*. The offices of T·PARK, Tsang Tsui Columbarium and Black Point Power Station are provided with central air conditioning and so are not considered as NSR. The nearest NSR is located over 300m from the proposed site. There are no new NSR since the approval of VEP-617/2022.
- 4.3.1 Considering that the large separation distance, there is also no adverse residual noise impact arising from operation stage of the temporary piers. Nevertheless, as a step-up mitigation measure, the 3.5 m high noise bund along the existing eastern seawall of the existing WENT Landfill will be maintained throughout the operation of the barging facilities.
- 4.3.2 The EM&A requirements recommended in the approved WENTX EIA Report are considered still valid and no additional EM&A requirements will be required.

5 REIVEW ON WATER QUALITY IMPACT

5.1 GENERAL

- 5.1.1 This section reviews and addresses potential water quality impact induced from the proposed crushing plants.

5.2 POLLUTION SOURCES AND MITIGATION MEASURES

- 5.2.1 During the operational phase of the barging facilities, the pier will be cleaned by natural cleaning mechanism such as rain without the use of detergents or chemicals. Surface runoff from the pier will not be polluted. Thus, water quality impact from the spillage of detergents or chemicals are not anticipated. The potential source of water quality impact during pier operation are expected from accidental spillage of chemicals and pollutant.
- 5.2.2 The runoff from the barging points will be collected and treated on-site to meet the effluent discharge standards as stipulated in the discharge licence prior to discharge. The Contractor is required to apply to EPD for a discharge license for discharge of effluent from construction site under the WPCO.
- 5.2.3 The Contractor must register as a chemical waste producer if chemical wastes would be produced from the 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. Any service shop and maintenance facilities should be located on hardstanding within a bunded area and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.
- 5.2.4 The following good practice shall apply for the barging facilities operations:
- All barges should be fitted with tight bottom seals to prevent leakage of materials during transport;
 - Barges or hoppers should not be filled to a level that will cause overflow of materials or polluted water during loading or transportation;
 - All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; and
 - Loading of barges and hoppers should be controlled to prevent splashing of material into the surrounding water.
- 5.2.5 Given the limited activities associated with the barging operation, the potential water quality impact is considered insignificant. With the implementation of good site practices and appropriate mitigation measures, it is anticipated that there will be no adverse residual water quality impacts during the operation of the temporary piers.
- 5.2.6 The EM&A requirements recommended in the approved WENTX EIA Report are considered still valid and no additional EM&A requirements will be required.

6 REIVEW ON OTHER ENVIRONMETNAL IMPACT

6.1 WASTE MANAGEMENT

- 6.1.1 The types of waste arising from the operation of pier would include chemical waste and general refuse.
- 6.1.2 A small amount of chemical waste is expected to be generated from spills or leaks from construction vessels. Provided that these chemical wastes are handled and disposed of in accordance with the mitigation and control requirements, adverse environmental impacts would not be anticipated.
- 6.1.3 General refuse comprising of food scraps, wastepaper, empty containers, etc. are expected to be generated from construction workers working on-site. Considering the nature of pier operation and small size of workforce, minimal construction waste is expected. As such, adverse environmental impacts arising from the storage, handling, and transportation of general refuse would not be anticipated.

6.2 ECOLOGY

- 6.2.1 Due to the nature of pier operation, no adverse ecological impacts from the operation of the temporary piers are anticipated.

6.3 LANDSCAPE AND VISUAL

- 6.3.1 The piers are temporary operation, and the area will be reinstated in accordance with the Landscape plan, no adverse landscape and visual impacts from the operation of the temporary piers are anticipated.

7 CONCLUSION

- 7.1.1 In the latest design and arrangement, six temporary piers along the Nim Wan Waterway, adjacent to the existing seawall, will be served as barging points for loading and unloading equipment, plants and construction materials. The temporary piers are expected to commence operations in early 2026 and will operate for continuously from 00:00 to 24:00.
- 7.1.2 The piers will be used for WENTX Project, including potential project matching with other projects and materials delivery off site. They will be designated solely for construction use, with no waste exporting via the pier.
- 7.1.3 The potential environmental impacts associated with the operation of temporary piers have been reviewed. The piers can minimize the number of dump trucks needed to transport materials and equipment to and from construction sites, and this reduce the road traffic emissions. Consequently, the potential air quality impact due to the pier operation is considered insignificant.
- 7.1.4 In view of the nature of the piers, the noise impact is considered negligible. With the implementation of the mitigation measures and best practical means to minimize construction noise from all the concurrent projects, cumulative noise impact during operation of the proposed pier operation is not expected.
- 7.1.5 In conclusion, the operation of pier will not constitute a material change to the environmental impact of the WENTX Project. With the implementation of good site practices and mitigation measures in place, there will be no adverse environmental impact on the water quality, waste, ecology and other environmental impacts during the operation of piers. The environmental requirements set out in the approved EIA report for WENTX (including relevant documents submitted under the Ordinance for that EIA report) remains the same. It is recommended that weekly inspection should be undertaken by relevant parties, including ET and IEC, to ensure compliance with environmental standards and to monitor the effectiveness of the mitigation measures.
- 7.1.6 The operation of the proposed temporary berths will not conflict with the existing operations of marine reception areas at WENT Landfill, and no adverse impact was expected. In addition, the marine traffic routes for construction vessels under the WENTX project will be coordinated with the operators of the existing piers to ensure safe and efficient navigation.

Appendix A

The Locations of the Temporary Piers and Assessment Area of Dust and Noise



Legend

 HKRRP Berth

R300m Noise Assessment Area

R500m Air Assessment Area

