



South East New Territories (SENT) Landfill Extension

Monthly Environmental Monitoring & Audit Report No.1 for January 2019

April 2020

ERM

2507, 25/F One Harbourfront 18 Tak Fung Street Hunghom, Kowloon Hong Kong T: 2271 3000 F: 2723 5660 www.erm.com





South East New Territories (SENT) Landfill Extension

Environmental Certification Sheet EP-308/2008/B and FEP-01/308/2008/B

Reference Document/Plan

Document/Plan to be Certified/Verified:

Monthly Environmental Monitoring & Audit Report No.1

for January 2019 for South East New Territories (SENT)

Landfill Extension

Date of Report:

28 April 2020

Reference EP Condition

EP Condition:

Condition No. 3.4

Four hard copies and one electronic copy of monthly EM&A Report shall be submitted to the Director within 10 working days after the end of the reporting month. The EM&A Reports shall include a summary of all non-compliance (exceedances) of the environmental quality performance limits (Action and Limit Levels). The submissions shall be verified by the IEC. Additional copies of the submission shall be provided to the Director upon request by the Director.

ET Certification

I hereby certify that the above referenced document/plan complies with the above referenced condition of EP-308/2008/B and FEP-01/308/2008/B.

Wardway.

Frank Wan,

Environmental Team Leader:

(ERM Hong-Kong, Limited)

Date:

28 April 2020

IEC Verification

I hereby verify that the above referenced document/plan complies with the above referenced condition of EP-308/2008/B and FEP-01/308/2008/B.

W.K. Chiu,

Independent Environmental Checker:

(Meinhardt Infrastructure and

Environment Limited)

Date: 4 Mey 7020

South East New Territories (SENT) Landfill Extension

Monthly Environmental Monitoring & Audit Report for January 2019

Environmental Resources Management

2507, 25/F, One Harbourfront 18 Tak Fung Street Hunghom, Kowloon Hong Kong

Telephone: (852) 2271 3000 Facsimile: (852) 2723 5660 E-mail: post.hk@erm.com http://www.erm.com

Client:			t No:			
Green Valley Landfill Ltd.			0465169			
Summary		Date:				
			oril 2020			
This document presents the Monthly EM&A Report No.1 for January 2019 for South East New Territories (SENT) Landfill Extension			Approved by: Auchit			
		Frank Wan Partner				
1	Monthly EM&A Report No.1 (for January 2019) (Section 2.3.1, Table 2.7 & 2.8, Annex F2 revised)	AL	FW	FW	28 Apr 20	
0	Monthly EM&A Report No.1 (for January 2019)	AL	TS	FW	19 Feb 19	
Revision	Description	Ву	Checked	Approved	Date	
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EXECUTIVE SUMMARY

The SENT Landfill Extension (SENTX) forms an integral part in the Strategic Plan in maintaining the continuity of landfill capacity in the Hong Kong for the cost-effective and environmentally satisfactory disposal of waste. ERM-Hong Kong, Limited (ERM) is commissioned to undertake the role of Environmental Team (ET) for the construction, operation/restoration and aftercare of SENTX Project ("the Project") in accordance with the requirements specified in the Environmental Permit (EP), updated Environmental Monitoring and Audit (EM&A) Manual, the approved Environmental Impact Assessment (EIA) Report of the Project taking account of the latest design and other relevant statutory requirements. The construction (not including works related to site clearance and preparation) of the Project commenced on 2 January 2019.

This Monthly EM&A report presents the EM&A works carried out during the period from 2 to 31 January 2019 for the Project in accordance with the updated EM&A Manual.

Exceedance of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Levels was recorded for construction air quality monitoring in the reporting period.

Exceedance of Action and Limit Levels for Noise

No exceedance of Action and Limit Levels was recorded for construction noise monitoring in the reporting period.

Exceedance of Action and Limit Levels for Surface Water Quality

Sampling could not be carried out for all the scheduled impact surface water quality monitoring events during the reporting period due to insufficient flow.

Environmental Complaints, Summons and Prosecutions

There were no complaints, notification of summons or prosecution recorded in the reporting period.

Reporting Change

There was no reporting change in the reporting period.

Future Key Issues

Potential environmental impacts arising from the above upcoming construction activities in the next reporting period of February 2019 are mainly associated with dust emission from the construction works and from the exposed area.

1 INTRODUCTION

1.1 BACKGROUND

The SENT Landfill Extension (SENTX) forms an integral part in the Strategic Plan in maintaining the continuity of landfill capacity in the Hong Kong for the cost-effective and environmentally satisfactory disposal of waste. The *Environmental Impact Assessment (EIA) Report* and the associated *Environmental Monitoring and Audit (EM&A) Manual* for the construction, operation, restoration and aftercare of the SENTX (hereafter referred to as "the Project") have been approved under the *Environmental Impact Assessment Ordinance (EIAO)* in May 2008 (Register No.: AEIAR-117/2008) (hereafter referred to as the approved EIA Report) and an Environmental Permit (EP-308/2008) (EP) was granted by the Director of Environmental Protection (DEP) on 5 August 2008.

Since then, applications for Variation of an Environmental Permit (No. VEP-531/2017) were submitted to EPD and the Variation of Environmental Permits (EP-308/2008/A and EP-308/2008/B) were granted on 6 January 2012 and 20 January 2017, respectively, as the Hong Kong SAR Government has decided to reduce the scale of the design scheme of SENTX assessed in the approved EIA Report and SENTX will only receive construction waste. In May 2018, a Further Environmental Permit (FEP) (FEP-01/308/2008/B) was granted to the SENTX's contractor, Green Valley Landfill, Limited (GVL).

ERM-Hong Kong, Limited (ERM) and Meinhardt Infrastructure and Environment Limited (Meinhardt) are commissioned to undertake the roles of Environmental Team (ET) and the Independent Environmental Checker (IEC), respectively, to undertake the EM&A activities for the Project in accordance with the requirements specified in the EP, updated EM&A Manual (1), approved EIA Report (2) taking account of the latest design and other relevant statutory requirements.

1.2 PROJECT DESCRIPTION

The SENTX is a piggyback landfill, occupying the southern part of the existing SENT Landfill (including its infrastructure area) and 13 ha of Tseung Kwan O (TKO) Area 137. A layout plan of the SENTX is shown in *Figure 1.1*. Under the latest design, the SENTX has a net void capacity of about 6.5 Mm³ and provides an additional lifespan of about 6 years, commencing operation upon exhaustion of the SENT Landfill. The SENTX will receive construction waste only.

The key implementation milestones of the Project are indicatively summarised in *Table 1.1*. The construction works of the Project commenced on 2 January 2019.

⁽¹⁾ ERM (2018). South East New Territories (SENT) Landfill Extension: Environmental Monitoring & Audit Manual

ERM (2007). South East New Territories (SENT) Landfill Extension – Feasibility Study: Environmental Impact Assessment Report

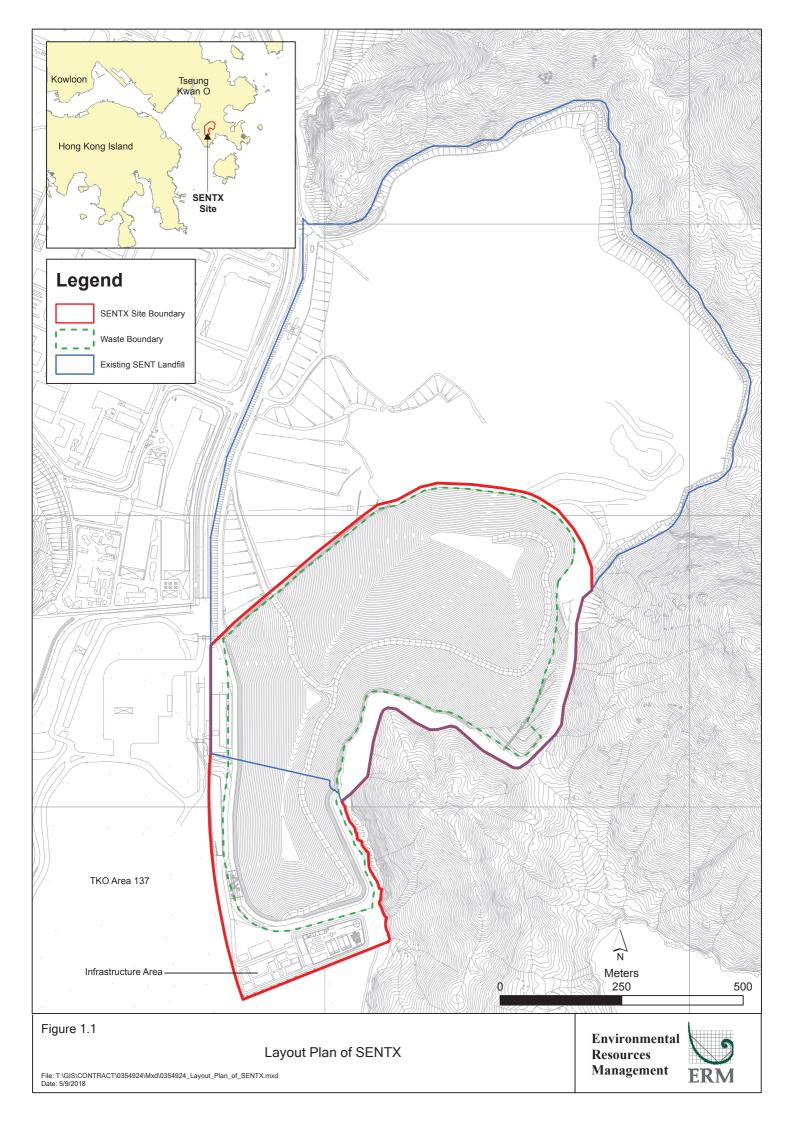


Table 1.1 Estimated Key Dates of Implementation Programme

Key Stage of the Project	Indicative Date
Start construction	2 January 2019
Commissioning of new infrastructure facilities	2020
Demolition of existing infrastructure facilities	2021
Start waste intake at SENTX	2021 or upon exhaustion of SENT Landfill
Estimated exhaustion date of SENTX	2027
End of aftercare for SENTX	2057

The major construction works of the SENTX includes:

- Site formation at the TKO Area 137 and the existing infrastructure area at SENT Landfill;
- Construction of surface and groundwater drainage systems;
- Construction of the leachate containment and collection systems;
- Construction of new leachate and landfill gas treatment facilities, site offices, maintenance yards at the new infrastructure area;
- Construction of new pipelines to transfer the leachate and landfill gas
 collected from the existing SENT Landfill to the treatment facilities at
 the new infrastructure area;
- Construction of the site access and new waste reception facilities; and
- Demolition of the facilities at the existing SENT Landfill infrastructure area.

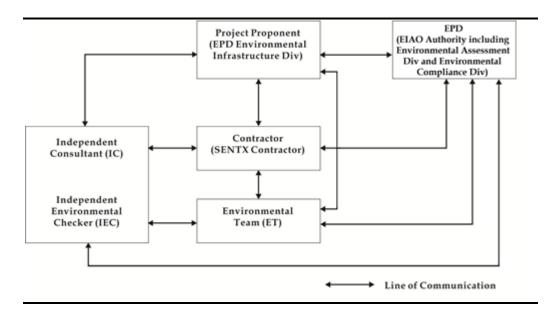
1.3 SCOPE OF THE EM&A REPORT

This is the Monthly EM&A Report for the Project which summarises the key findings of the EM&A programme during the reporting period from 2 to 31 January 2019 for the construction works.

1.4 PROJECT ORGANISATION

The organization structure of the Project is presented in *Figure 1.2*.

Figure 1.2 Organisation Chart



Contact details of the key personnel are summarized in *Table 1.2* below.

Table 1.2 Contact Information of Key Personnel

Party	Position	Name	Telephone
Contractor	Project Manager	Gary Barnicott	2706 8827
(Green Valley Landfill			
Limited)			
Environmental Team (ET)	ET Leader	Frank Wan	2271 3152
(ERM-Hong Kong, Limited)			
Independent Environmental	IEC	Fredrick Leong	2859 1739
Checker (IEC)			
(Meinhardt Infrastructure			
and Environment Limited)			

1.5 SUMMARY OF CONSTRUCTION WORKS

The programme of the construction is shown in *Annex A*. As informed by the Contractor, details of the major works carried out in this reporting period are listed below:

- Site entrance establishment;
- Installation of chain link fence;
- Site formation of landfill Cell 1 & 2;
- Site clearance of landfill Cell 1 & 2 and sediment pit;
- Site formation of infrastructure area; and
- Construction of perimeter bund.

The environmental mitigation implementation schedule is presented in *Annex B*.

1.6 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

The status for all environmental aspects are presented in *Table 1.3*. The EM&A requirements remained unchanged during the reporting period.

Table 1.3 Summary of Status for the Environmental Aspects under the Updated EM&A Manual

Parameters	Status
Air Quality	
Baseline Monitoring	The results of baseline air quality monitoring were reported in
	Baseline Monitoring Report and submitted to EPD under EP
	Condition 3.3
Impact Monitoring	On-going On-going
Noise	
Baseline Monitoring	The results of baseline noise monitoring were reported in
	Baseline Monitoring Report and submitted to EPD under EP
	Condition 3.3
Impact Monitoring	On-going On-going
Surface Water Quality	
Baseline Monitoring	The results of baseline surface water quality monitoring were
	reported in Baseline Monitoring Report and submitted to EPD
	under EP Condition 3.3
Impact Monitoring	On-going On-going
Waste Management	
Waste Monitoring	On-going On-going
Landscape and Visual	
Baseline Monitoring	The results of baseline landscape and visual monitoring were
	reported in Baseline Monitoring Report and submitted to EPD
	under EP Condition 3.3
Construction Phase Audit	On-going On-going
Site Environmental Audit	
Regular Site Inspection	On-going On-going
Complaint Hotline and Email	On-going On-going
Channel	
Environmental Log Book	On-going On-going

Taking into account the construction works, impact monitoring of air quality, noise, surface water quality and waste management were carried out in the reporting period. The monitoring schedule of air quality, noise and surface water quality monitoring are provided in *Annex C*.

The EM&A programme also involved environmental site inspections and related auditing conducted by the ET for checking the implementation of the required environmental mitigation measures recommended in the approved EIA Report and relevant EP submissions. To promote the environmental awareness and enhance the environmental performance of the contractors, environmental trainings and regular environmental management meetings were conducted during the reporting period, which are summarized as below:

 One environmental management meeting was held with the Contractor, ER, ET, IEC and EPD on 17 January 2019; and • Environmental toolbox trainings on Dark Smoke and Air Pollution Control (NRMM) (Emission) Regulation were provided on 11 and 25 January 2019 respectively by the Contractor to the workers.

1.7 STATUS OF STATUTORY ENVIRONMENTAL COMPLIANCE WITH THE ENVIRONMENTAL PERMIT

The status of statutory environmental compliance with the EP conditions under the EIAO, submission status under the EP and implementation status of mitigation measures are presented in *Table 1.4*.

Table 1.4 Status of Submissions and Implementation Status of Mitigation Measures under EP

EP	Submission/Implementation Status	Status
Condition	-	
2.3	Management Organisation of Main	Accepted by EPD.
	Construction Companies	
2.4	Setting up of Community Liaison Group	Community Liaison Group was set up.
2.5	Submission of Detailed Landfill Gas	Revised Detailed Landfill Gas Hazard
	Hazard Assessment Report	Assessment Report was submitted to
		EPD on 19 December 2018.
2.6	Submission of Restoration and Ecological	To be prepared within 6 months after
	Enhancement Plan	the commencement of construction of
		the Project.
2.7	Setting up of Trial Nursery	To be set up during construction
		phase.
2.8	Advance Screen Planting	To be completed within 9 months of
	-	taking procession of the Project Site.
2.9	Provision of Multi-layer Composite Liner	Under implementation.
	System	_

1.8 STATUS OF OTHER STATUTORY ENVIRONMENTAL REQUIREMENTS

The environmental licenses and permits, including environmental permit, water discharge license, registration as chemical waste producer and construction noise permit, which are valid in the reporting period are presented in *Table 1.5*. No non-compliance with environmental statutory requirements was recorded.

Table 1.5 Status of Statutory Environmental Requirements

Ref No.	Status
EP-308/2008	Granted on 5 August 2008
EP-308/2008/A	Granted on 6 January 2012
EP-308/2008/B	Granted on 20 January 2017
FEP-01/308/2008/B	Granted on 16 May 2018
-	Application submitted on
	19 June 2018
Chit Account Number:	Approved on 28 December
5001692	2005
	EP-308/2008 EP-308/2008/A EP-308/2008/B FEP-01/308/2008/B

Description	Ref No.	Status
Registration as Chemical Waste	5213-839-C3507-10	Issued on 23 August 2018
Producer (Permit Holder: Chun Wo)		
Construction Noise Permit (Permit	GW-RE0002-19	Validity from 8 January
Holder: Chun Wo)		2019 to 1 July 2019

2 EM&A RESULTS

The EM&A programme for the Project required environmental monitoring for air quality, noise and surface water quality as well as environmental site inspections for air quality, noise, surface water quality, waste management, and landscape and visual impacts. The EM&A requirements and related findings for each component are summarized in the following sections.

2.1 AIR QUALITY MONITORING

2.1.1 Monitoring Requirements and Equipment

According to the updated EM&A Manual of the Project, impact air quality monitoring (dust, in term of Total Suspended Particulates (TSP)) was be carried out at the two designated monitoring locations (i.e. DM1 and DM2) at a 6-day interval. As there are two existing TSP monitoring stations (i.e. TKO-A1 and TKO-A2a) currently operating by the Civil Engineering and Development Department (CEDD) to monitor the 24-hour TSP levels at the proposed dust monitoring stations for the SENTX, it is considered that the CEDD monitoring data can represent the dust condition of the SENTX during the construction phase.

The Action and Limit Levels of the air quality monitoring is provided in *Table 2.1* below.

Table 2.1 Action and Limit Levels for 24-hour TSP

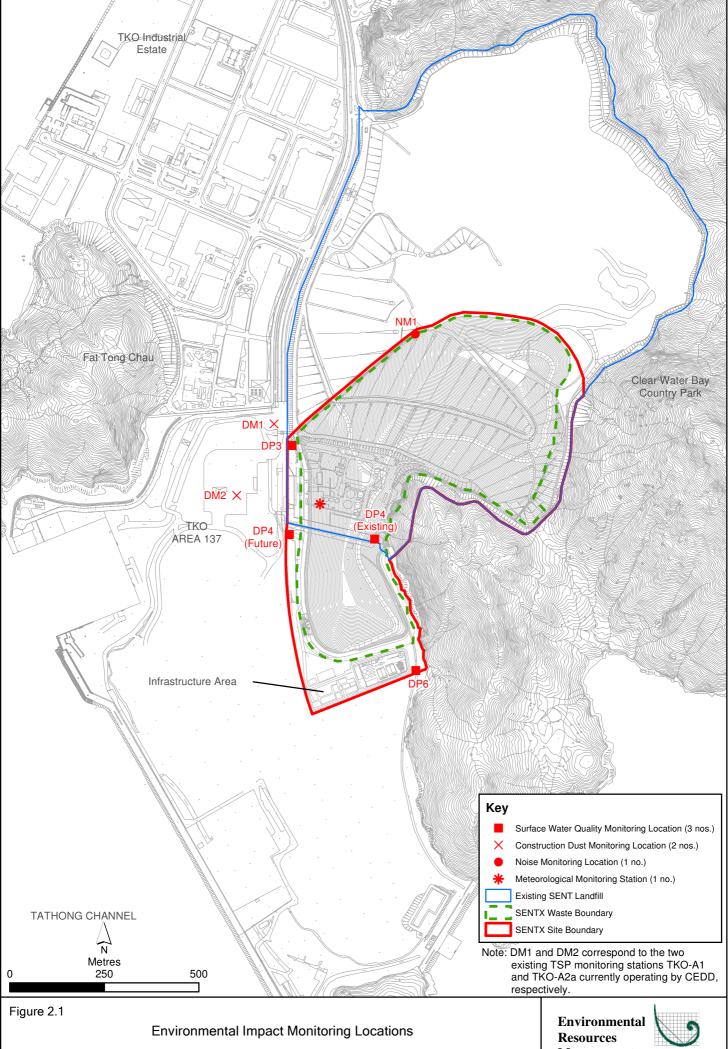
Monitoring Station	Action Level	Limit Level
DM-1 - Site Egress of TKO Area 137 Fill Bank	204 μg m- ³	260 μg m- ³
DM-2A -Combined Reception and Exit Office (CREO) of TKO Area 137 Fill Bank	193 μg m- ³	260 μg m- ³

High volume air samplers (HVSs) in compliance with the specifications listed under Section 3.2.2 of the updated EM&A Manual were used to measure 24-hour TSP levels at the CEDD dust monitoring stations. The HVSs were calibrated upon installation and thereafter at bi-monthly intervals to check the validity and accuracy of the results.

The equipment used in the impact air quality monitoring programme and monitoring locations are summarized in *Table 2.2* and illustrated in *Figure 2.1* respectively. Copies of the calibration certificates for the equipment are presented in *Annex D1*.

Table 2.2 Dust Monitoring Details

Monitoring Station	Location	Parameter	Frequency and Duration	U	Equipment
DM1	Site Egress of TKO Area 137 Fill Bank		Once every 6 days during the	4, 10, 16, 22, 28 January 2019	HVS Greasby 105 (S/N: 9795 (ET/EA/003/18))



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Management



Monitoring Station	Location	Parameter	Frequency and Duration	Monitoring Dates	Equipment
DM2	Combined Reception and Exit Office (CREO) of TKO Area 137 Fill Bank		construction phase of the Project		HVS Andersen G1051 (S/N: 1176 (ET/EA/003/05))

2.1.2 Monitoring Schedule for the Reporting Month

The schedule for air quality monitoring during the reporting period is provided in *Annex C*.

2.1.3 Results and Observations

The monitoring results for 24-hour TSP are summarized in *Table 2.3*. The detailed monitoring results and the graphical presentation of the 24-hour TSP results at each monitoring location are provided in *Annex D2*.

Table 2.3 Summary of 24-hour TSP Monitoring Results in the Reporting Period

Monitoring Station	Average 24-hr TSP Concentration (μg m ⁻³) (Range in bracket)	Action Level (μg/m³)	Limit Level (μg/m³)
DM-1 - Site Egress of TKO Area 137 Fill Bank	110 (79 - 146)	204 μg m- ³	260 μg m- ³
DM-2A -Combined Reception and Exit Office (CREO) of TKO Area 137 Fill Bank	113 (84 - 161)	193 μg m- ³	260 μg m- ³

The major dust sources in the reporting period included fugitive dust emission from exposed area in SENTX, as well as nearby operations of the existing SENT landfill and the TKO Area 137 Fill Bank.

All the 24-hour TSP results were below the Action and Limit Levels at the monitoring locations in the reporting period. No action is thus required to be undertaken in accordance with the Event and Action Plan presented in *Annex D3*.

2.1.4 Meteorological Data

Meteorological data obtained from the on-site meteorological monitoring station at the existing SENT landfill (see *Figure 2.1*) were used for the dust monitoring and are shown in *Annex D4*. The meteorological station will be relocated to a new position for SENTX as per the updated EM&A Manual after the new infrastructure area at the SENTX is constructed. It is considered that meteorological data obtained at the existing the on-site meteorological monitoring station are representative of the Project area and could be used for the construction phase dust monitoring programme for the Project.

2.2 Noise Monitoring

2.2.1 Monitoring Requirements and Equipment

According to the updated EM&A Manual of the Project, impact noise monitoring was conducted weekly at the monitoring location (i.e. NM1) to obtain one set of 30 minutes measurement between 07:00 and 19:00 hours on normal weekdays.

The Action and Limit Level for construction noise of the Project is provided in *Table 2.4* below.

Table 2.4 Action and Limit Levels for Construction Noise

Time Period	Action Level (a)	Limit Level (b)
07:00 – 19:00 hrs on normal weekdays	When one documented complaint is received from any one of the noise sensitive receivers (NSRs)	75 dB(A) at NSRs
	or	
	75 dB(A) recorded at the monitoring station	

Notes:

- (a) 75dB(A) along and at about 100m from the SENTX site boundary was set as the Action Level.
- (b) Limits specified in the GW-TM and IND-TM for construction and operational noise, respectively.

Noise monitoring was performed by ALS Technichem (HK) Pty Ltd. (HOKLAS Registration No. 066) using sound level meter at the designated monitoring station NM1 (see *Figure 2.1*) in accordance with the requirements stipulated in the updated EM&A Manual. Acoustic calibrator was deployed to check the sound level meter at a known sound pressure level. Details of the deployed equipment are provided in *Table 2.5*. Copies of the calibration certificates for the equipment are presented in *Annex E1*.

Table 2.5 Noise Monitoring Details

Monitoring Station (1)	Location	Parameter	Frequency and Duration	Monitoring Dates	Equipment
NM1	SENTX Site Boundary (North)	L _{eq (30 min)} measurement between 07:00 and 19:00 hours on normal weekdays (Monday to Saturday)	Once per week for 30 mins during the construction period of the Project	3, 10, 17, 24, 31 January 2019	Sound Level Meter: B&K 2238 (S/N: 2285722) Acoustic Calibrator: Quest QC-20 (S/N: QO9090006)

2.2.2 Monitoring Schedule for the Reporting Month

The schedule for noise monitoring during the reporting period is provided in *Annex C*.

2.2.3 Results and Observations

Results for noise monitoring are summarized in *Table 2.6*. The monitoring results and the graphical presentation of the data are provided in *Annex E2*.

Table 2.6 Summary of Construction Noise Monitoring Results in the Reporting Period

Monitoring Station	Measured Noise Level L _{eq (30 min)} , dB(A)						
	Average	Range	Action and Limit Level				
NM1	52	48.9 - 53.6	75				

Major noise sources during the noise monitoring included noise from operations of the existing SENT landfill and the TKO Area 137 Fill Bank, aircrafts and insects.

No Action and Limit Levels exceedance was recorded for construction noise monitoring in the reporting period. No action is thus required to be undertaken in accordance with the Event and Action Plan presented in *Annex E3*.

2.3 SURFACE WATER QUALITY MONITORING

2.3.1 Monitoring Requirements and Equipment

According to the updated EM&A Manual of the Project, impact surface water quality monitoring were carried out at the three designated surface water discharge points (i.e. DP3, DP4 and DP6) weekly to ensure that the SENTX will not cause adverse water quality impact. The Action and Limit Levels of the surface water quality impact monitoring are provided in *Table 2.7*. Suspension of impact surface water quality monitoring at DP3 was approved under the Baseline Monitoring Report by EPD on 24 July 2019 until the actual commencement of construction works affecting DP3 in 2021.

Table 2.7 Action and Limit Levels for Surface Water Quality

Parameters	Action Level	Limit Level	
	DP4 & DP6		
DO	< 5.80 mg/L	< 5.42 mg/L	
SS	> 11.7 mg/L	> 12.7 mg/L	
pН	> 8.39	> 8.40	

The locations of the monitoring stations under the Project are shown in *Figure* 2.1. All *in situ* monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the surface water quality monitoring programme. Calibration for a DO meter was carried out before measurement according to the instruction manual of the equipment model. Details of the equipment used in the impact surface water quality monitoring works are provided in *Table* 2.8. Copies of the calibration certificates for the equipment are presented in *Annex F1*.

Table 2.8 Impact Surface Water Quality Monitoring Details

Monitoring Station	g Location	Frequency	Monitoring Dates	Parameter	Equipment
DP4	Surface water discharge point DP4	Weekly	3, 10, 17, 24, 31 January 2019	•pH •DO	YSI Professional DSS (S/N:
DP6	Surface water discharge point DP6	 -		•SS	15H102620/ 15H103928)

Notes:

Impact surface water quality monitoring at DP3 was suspended from the monitoring event on 25 July 2019 until the actual commencement of construction works affecting DP3 in 2021.

2.3.2 Monitoring Schedule for the Reporting Month

The schedule for water quality monitoring during the reporting period is provided in *Annex C*.

2.3.3 Results and Observations

A total of 5 monitoring events for impact surface water quality monitoring were scheduled at all designated monitoring stations during the reporting period. However, sampling could not be carried out for all the scheduled events during the reporting period due to insufficient flow. Details of impact water quality monitoring events are provided in *Annex F2*. No action is thus required to be undertaken in accordance with the Event and Action Plan presented in *Annex F3*.

2.4 LANDSCAPE AND VISUAL MONITORING

2.4.1 Monitoring Requirements

According to the updated EM&A Manual of the Project, the monthly landscape and visual audit was conducted on 17 January 2019 to monitor the implementation of the landscape and visual mitigation measures during construction phase.

All relevant environmental mitigation measures listed in the approved EIA Report and the EM&A Manual and their implementation status are summarised in *Annex B*.

2.4.2 Results and Observations

The Contractor has implemented environmental mitigation measures as stated in the approved EIA Report and the EM&A Manual.

Regarding the landscape and visual audit, the Contractor was reminded to identify the topsoil to be generated from the construction works and plan for the storage and re-use of the topsoil where practical. The Contractor shall consider the mitigation measures during the design phase, including the preparation of the Construction Drawings and Detailed Landscape Design

Drawings. In addition, the Contractor was reminded to complete the advance screen planting works within 9 months of taking possession of the SENT Site (i.e. by September 2019).

2.5 EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis with the Contractor, IEC and ER to monitor the implementation of proper environmental pollution control and mitigation measures for air quality, noise, surface water quality and waste management under the Project. In the reporting period, 5 site inspections were carried out on 3, 10, 17, 24 and 31 January 2019. Monthly site inspection for landscape and visual impact was carried out on 17 January 2019 and reminders were provided to the Contractor.

Key observations during the site inspections are summarized in *Table 2.9*.

Table 2.9 Key Observations Identified during the Site Inspection in this Reporting Month

Inspection Date	Environmental Observations and Recommendations
3 January 2019	The Contractor shall display a NRMM label to the excavator at Cell 1 Area.
	 Sandbags shall be placed on the netting next to the buttress wall.
	 A proper drip tray shall be provided near the Chun Wo's vehicle entrance.
	A temporary wheel washing facility at the Chun Wo's vehicle
	entrance/ exit shall be provided.
10 January 2019	The Contractor shall clean up the oil stain near the Chun Wo's
	vehicle entrance and dispose of it as chemical waste.
17 January 2019	The Cell 1 and Cell 2 areas were generally observed dry despite
	regular watering by water trucks was provided. Fugitive dust
	emission was observed when vehicles passed by. The Contractor
	shall enhance watering to the Site, especially the working areas such as the excavation works.
	• The Contractor shall display a NRMM label to the roller at Cell 1
	area.
24 January 2019	The Site was generally observed dry despite regular watering by
	water trucks on the main haul road was provided. Fugitive dust
	emission was observed under strong winds. The Contractor shall
	enhance watering to the Site (e.g. increase the frequency of watering
	or install sprinklers), especially the working areas.
	A proper drip tray shall be provided at X1 area.
31 January 2019	The Contractor shall cover or water any stockpile of dusty materials
	to ensure the entire surface is wet.

The Contractor has rectified all of the observations identified during environmental site inspections in the reporting period.

2.6 WASTE MANAGEMENT STATUS

The Contractor has registered as chemical waste producer under the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.

As informed by the Contractor, waste generated during this reporting period include mainly inert C&D materials. Reference has been made to the waste flow table prepared by the Contractor. The quantities of different types of wastes and imported fill materials are summarised in *Table 2.10*.

Table 2.10 Quantities of Different Waste Generated and Imported Fill Materials

Month/ Year	Inert C&D Materials (a) (in '000m ³)			Non-inert Construction Waste (c) (in '000m³)	Recyclable Materials ^(d) (in '000kg)	Wastes
2 to 31 Jan 19	0.061	0	0	0	0	0

Notes:

- (a) Inert construction wastes include hard rock and large broken concrete, and materials disposed as public fill. Density assumption: 1.6 (kg/L) for public fill.
- (b) Imported fill materials include sand and public fill.
- (c) Non-inert construction wastes include general refuse disposed at landfill.
- (d) Recyclable materials include metals, paper, cardboard, plastics and others.

2.7 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

A summary of the Environmental Mitigation Implementation Schedule is presented in *Annex B*. The necessary mitigation measures were implemented properly for the Project.

2.8 SUMMARY OF EXCEEDANCES OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

Results for air quality monitoring (24-hour TSP) complied with the Action and Limit Levels in the reporting period. No Action and Limit Levels exceedances were recorded for construction noise monitoring. Impact surface water quality monitoring could not be carried out for all the scheduled events during the reporting period due to insufficient flow.

Cumulative statistics on exceedances is provided in *Annex F*.

2.9 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

There were no complaints, notification of summons or prosecution recorded in the reporting period.

Statistics on complaints, notifications of summons, successful prosecutions are summarised in *Annex G*.

3 FUTURE KEY ISSUES

3.1 CONSTRUCTION PROGRAMME FOR THE COMING MONTH

As informed by the Contractor, the major works for the Project in February 2019 will be:

- Site entrance establishment;
- Installation of chain link fence;
- Site formation of landfill Cell 1 & 2;
- Site clearance of landfill Cell 1 & 2 and sediment pit;
- Site formation of infrastructure area;
- Construction of perimeter bund; and
- Construction of sediment trap.

3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting period of February 2019 are mainly associated with dust emission from the construction works and in the exposed area. The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

3.3 MONITORING SCHEDULE FOR THE COMING MONTH

The tentative schedules for environmental monitoring in February 2019 are provided in *Annex H*.

4 CONCLUSION AND RECOMMENDATION

This EM&A Report presents the findings of the EM&A activities undertaken during the period from 2 to 31 January 2019 in accordance with the updated EM&A Manual and the requirements of the Environmental Permit (*EP*-308/2008/B).

Air quality (24-hour TSP), noise and water quality (DO, pH and SS) monitoring were carried out in the reporting period. Results for air quality monitoring (24-hour TSP) complied with the Action and Limit Levels in the reporting period. No Action and Limit Levels exceedances were recorded for construction noise monitoring. Impact surface water quality monitoring could not be carried out for all the scheduled events during the reporting period due to insufficient flow.

Environmental site inspections were carried out during the reporting period. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site inspections.

There were no complaints, notification of summons or prosecution recorded in the reporting period.

The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Annex A

Work Programme

336	BS Path Activity Name	Dur Start Finish Total Predecessor Details Float	Successor Details	2018 Q2 Q3 Q4 Q1	2019 2020 Q2 Q3 Q4 Q1 Q2	Q4 Q1	2021 Q2 Q3 Q4 Q1	2022 2023 Q2 Q3 Q4 Q1 Q2 Q3
337 338 339								
338 339 340 341 342 343 344 345 346 347 348 349 350								
343 344 345								
345 346 347								
348 349 350								
351	SA2.5 Construction (Initial Works)	1153 12-Apr-18 07-Jun-21 705						
353 354 355	SA2.5.02 Advance Works & Site Establishment SA2.5.02.01 Site Establishment & Mobilization 5.02.01 Site Mobilization for Parts X1 & X2	1148 12-Apr-18 02-Jun-21 35 333 12-Apr-18 10-Mar-19 820 30 31-Dec-18 29-Jan-19 820 11-1100: FS, 11-1200: FS	52-1300: FS, M 3. 1: FS, M 3. 2: FS					
356 357 358	5.02.01 52-1100 Site Mobilization for Parts X3, X4 & X5 5.02.01 52-1200 Temporary Office for Employer / ER / IC 5.02.01 52-1300 Hoarding and Fencing Works	30 12-Apr-18 11-May-18 1083 11-1300: FS, 11-1400: FS, 11-1500: FS 60 10-Oct-18 08-Dec-18 0 23-1300: FS 40 30-Jan-19 10-Mar-19 820 52-1000: FS, 52-1100: FS	52-1300: FS, M 3. 1: FF 11-1700: SS, M 3. 1: FS 32-1500: FS, M10. 1: FS -26, M10. 2: FS -13, M10. 3: FS					
359 360	SA2.5.02.02 Site Survey & Investigation Works for Parts X1 & X2 5.02.02 52-1400 Condition Survey	50 31-Dec-18 18-Feb-19 840 25 31-Dec-18 24-Jan-19 840 11-1100: FS, 11-1200: FS	52-1600: FS					
361 362	5.02.02 52-1500 Topographic Survey 5.02.02 52-1600 Site inspection, Review of Condition Survey Report	20 31-Dec-18 19-Jan-19 845 11-1100: FS, 11-1200: FS 25 25-Jan-19 18-Feb-19 840 52-1500: FS, 52-1400: FS	52-1600: FS 32-1500: FS					
363 364 365	SA2.5.02.03 Site Survey & Investigation Works for Parts X3, X4 & X5 5.02.03 52-1700 Condition Survey 5.02.03 52-1800 Topographic Survey	50 12-Apr-18 31-May-18 1103 25 12-Apr-18 06-May-18 1103 11-1300: FS, 11-1400: FS, 11-1500: FS 20 12-Apr-18 01-May-18 1108 11-1300: FS, 11-1400: FS, 11-1500: FS	52-1900: FS 52-1900: FS					
366 367 368	5.02.03 52-1900 Site inspection, Review of Condition Survey Report SA2.5.02.04 Environmental Monitoring 5.02.04 52-2000 Installation of Monitoring Stations & Wells (GP & GW)	25 07-May-18 31-May-18 1103 52-1700: FS, 52-1800: FS 975 02-Oct-18 02-Jun-21 35 120 02-Oct-18 29-Jan-19 0 23-1600: FS	32-1500: FS 52-2200: SS 60					
369 370	5.02.04 52-2100 Installation of Monitoring Stations & Wells (GP & GW) on Buttress Wall 5.02.04 52-2200 Conduct Baseline Monitoring for Construction (one month)	120 02-Oct-18 29-Jan-19 0 23-1600: FS 30 01-Dec-18 30-Dec-18 0 52-2000: SS 60, 52-2100: SS 60	52-2200: SS 60 11-1100: FS					
371 372 373	5.02.04 52-2300 Conduct Baseline Monitoring for Operation (one year) SA2.5.03 Civil Engineering Works SA2.5.03.0 Buttress Wall	365 03-Jun-20 02-Jun-21 35 32-1500: FS -400, 53-4500: FS 748 13-Jan-19 29-Jan-21 834 475 02-Mar-19 18-Jun-20 83	12-1400: FS					
374	5.03.0 53-1000 Section adj. SENT 5.03.0 53-1100 Diversion of SENT Landfill Gas Pipe	300 13-Apr-19 06-Feb-20 96 11-1300: FS, 23-2500: FS, 53-3000: FS, 3 11-1400: FS 45 07-Feb-20 22-Mar-20 96 23-2500: FS, 53-1000: FS	1-1200: FS, 53-1100: FS, 53-1300: FS, 53-3100: FS, M 3. 5: FS -150, M 7: FS 53-1300: FS, 54-4000: FS, M 3. 3: FS	3.				
376	5.03.0 53-1200 Section at Cell 4 5.03.0 53-1300 Install Landfill Gas Pipe on Buttress Wall	400 02-Mar-19 04-Apr-20 83 11-1300: FS, 23-2500: FS, 53-3000: FS, 1 75 05-Apr-20 18-Jun-20 83 41-1500: FS, 53-1100: FS, 53-1200: FS, 5						
378 379	SA2.5.03.1 Landfill Cell 1 5.03.1 53-1400 Earth bund (Eastern)	503 13-Jan-19 29-May-20 214 90 04-Aug-19 01-Nov-19 9 11-1100: FS, 23-2500: FS, 53-4200: FS, 5	3-2800: FS 53-2000: FS, 53-2300: FS, 53-3400: FS, 63-1000: FS, 63-1100: FS, 63-1200: FS, 63-1300: FS, M 4. 2: FS					
380	5.03.1 53-1500 Earth bund (Southern)	90 26-Apr-19 24-Jul-19 314 11-1100: FS, 23-2500: FS, 53-2800: FS	53-2000: FS, 53-2200: FS, 53-2300: FS, 53-3400: FS, 53-3700: FS, 53-3800: FS					
381	5.03.1 53-1600 Earth bund (Western) 5.03.1 53-1700 Intercell bund (Cell 1/2)	90 13-Jan-19 12-Apr-19 417 11-1100: FS, 23-2500: FS 75 13-Jan-19 28-Mar-19 432 11-1100: FS, 23-2500: FS	53-1900: FS, 53-2000: FS, 53-2200: FS, 53-3800: FS 53-2000: FS					
383	5.03.1 53-1800 Site Formation 5.03.1 53-1900 Pump Station (PS#1X)	90 13-Jan-19 12-Apr-19 217 11-1100: FS, 23-2500: FS, 31-1300: FS 45 13-Apr-19 27-May-19 507 53-1800: FS, 53-1600: FS	53-1900: FS, 63-1100: FS, 63-1200: FS, 63-1300: FS, M 4. 7 FS -45 53-2100: FS, 53-2200: FS					
385	5.03.1 53-2000 Lining Works 5.03.1 53-2100 Protective Stone Laying & Leachate Collection Pipe	135 02-Nov-19* 15-Mar-20 214 41-1500: FS, 53-1400: FS, 53-1500: FS, 5 53-1700: FS 75 16-Mar-20 29-May-20 214 53-2000: FS, 41-1500: FS, 53-1900: FS	<u> </u>					
387	5.03.1 53-2200 Install Leachate Force Main 5.03.1 53-2300 Install Landfill Gas Pipe on earth bund	75 25-Jul-19 07-Oct-19 449 53-1500: FS, 53-1600: FS, 41-1500: FS, 5 55 02-Nov-19 26-Dec-19 258 41-1500: FS, 53-1400: FS, 53-1500: FS						
388 389 390	5.03.1 53-2400 Leachate Pipe Connection (Cell 1 to LTP) SA2.5.03.4 Landfill Cell 4	30 09-Mar-20 07-Apr-20 266 23-2500: FS, 54-1000: SS 30 09-Jul-20 07-Aug-20 144	54-2800: FS					
391 392 393	5.03.4 53-2500 Provide Temporary Leachate Pipe on Cell 4 Area SA2.5.03.5 Drainage - Surface Run-Off 5.03.5 53-2600 Construct Cut-Off Channel 12A	30 09-Jul-20 07-Aug-20 144 23-2500: FS, 63-2600: SS -90 740 16-Jan-19 24-Jan-21 839 60 16-Jan-19 16-Mar-19 9 11-1100: FS, 23-2800: FS	54-2800: FS, M 3. 3: FS 53-2700: FS					
394	5.03.5 53-2700 Connect Cut-Off Channel 12A to DP6 5.03.5 53-2800 Diversion from Existing Trapezoidal Channel into Channel 12A	20 17-Mar-19 05-Apr-19 9 53-2600: FS, 31-1400: FS, 23-1900: FS 20 06-Apr-19 25-Apr-19 9 53-2700: FS	53-2800: FS 53-1400: FS, 53-1500: FS, 53-2900: FS, 63-1000: FS, 63-1900: FS, M 3. 3: FS					
396 397	5.03.5 53-2900 Removal of Existing Trapezoidal Channel along Eastern Bund 5.03.5 53-3000 Cut-Off Channel C4 Diversion to Cut-Off Channel 17-2	30 26-Apr-19 25-May-19 9 53-2800: FS 45 16-Jan-19 01-Mar-19 83 11-1300: FS, 23-2800: FS	53-4200: FS 53-1000: FS, 53-1200: FS					
398 399 400	5.03.5 53-3100 Cut-Off Channel X5 on Buttress Wall, Cell 4, Cell 3 5.03.5 53-3200 Temporary Diversion Cut-Off Channel X5 to 12A 5.03.5 53-3300 Culvert X5 (5m long) & Perm Connection of Cut-Off Channel X5	90 05-Apr-20 03-Jul-20 289 53-1000: FS, 53-1200: FS 20 04-Jul-20 23-Jul-20 289 53-3100: FS, 23-1900: FS 30 26-Dec-20 24-Jan-21 134 53-4100: FF, 63-1900: FS, 53-3200: FS	53-3200: FS 53-3300: FS, M 3. 4: FS 32-1500: FS					
401	5.03.5 53-3400 Construct Perimeter Channel X6 on Eastern Bund & Southern Bund of Cell 1 5.03.5 53-3500 Construct Perimeter Channel X6 on Eastern Bund of Cell 2	50 02-Nov-19 21-Dec-19 249 53-1400: FS, 53-1500: FS 50 20-Feb-20 09-Apr-20 189 63-1000: FS, 53-3400: FS	53-3500: FS 53-3600: FS					
403 404 405	5.03.5 53-3600 Construct Perimeter Channel X6 Eastern Bund of Cell 3 5.03.5 53-3700 Culvert X6 (25m long) at Cell 1 Southern Bund 5.03.5 53-3800 Perimeter Channel (X9B) at Cell 1 Southern & Western Bund	50 09-Jun-20 28-Jul-20 129 63-1900: FS, 53-3500: FS 75 25-Jul-19 07-Oct-19 1314 53-1500: FS 45 25-Jul-19 07-Sep-19 1344 53-1500: FS, 53-1600: FS	53-3900: FS					
406	5.03.5 53-3900 Drop Inlet & Culvert (X9) - 21m long 5.03.5 53-4000 Sediment Trap (ST)	180 29-Jul-20 24-Jan-21 129 11-1100: FS, 23-1900: FS, 53-3600: FS 180 29-Jul-20 24-Jan-21 129 11-1100: FS, 23-1900: FS, 11-1200: FS, 5	53-4000: FF, 53-4100: FF, 53-6000: FS, M 9. 1: FS -90, M 9. 2: FS 53-6000: FS, M 9. 3: FS -90, M 9. 4: FS					
408	5.03.5 53-4100 Dual Culvert 74m long (connect to DP4)	180 29-Jul-20 24-Jan-21 129 11-1100: FS, 11-1200: FS, 23-1900: FS, 5						
409	SA2.5.03.6 Drainage - Ground Water 5.03.6 53-4200 Construct Groundwater Collection Pipe along Cells X1 & X2 Eastern Bund 5.03.6 53-4300 Construct Groundwater Collection Pipe along Cell X3 Eastern Bund	200 26-May-19 11-Dec-19 209 70 26-May-19 03-Aug-19 9 11-1100: FS, 23-1600: FS, 53-2900: FS 50 04-Aug-19 22-Sep-19 159 53-4200: FS	53-1400: FS, 53-4300: FS, 63-1000: FS, 63-1900: FS					
412	5.03.6 53-4300 Construct Groundwater Collection Pipe along Cell X3 Eastern Bund 5.03.6 53-4400 Construct Groundwater Collection Pipe along Intercell Bund X2/X3 5.03.6 53-4500 Construct Manhole MH-X1	50 04-Aug-19 22-Sep-19 159 53-4200: FS 50 23-Sep-19 11-Nov-19 209 53-4300: FS 30 12-Nov-19 11-Dec-19 209 53-4400: FS	53-4400: FS, 63-1900: FS 53-4500: FS, 63-1200: FS 52-2300: FS, M 9. 5: FS					
414 415 416	SA2.5.03.7 Utilities - Distribution within New Infrastructure Area 5.03.7 53-4600 Power Supply HV Works (Transformer & HV switchgear) 5.03.7 53-4700 Power Distribution, LV Power Supply Works	391 11-Aug-19 04-Sep-20 276 5 30-Jun-20 04-Jul-20 0 54-3000: FS 2 05-Jul-20 06-Jul-20 0 54-3100: FS, 12-1200: FS	12-1200: FS 12-1000: FS					
417	5.03.7 53-4800 Sewerage (Collection to LTP)	60 07-Jul-20 04-Sep-20 271 54-1000: FS, 54-3100: FS, 54-3300: FS, 5	1-4100: FS 12-1100: FS, 53-6100: FS					
419	5.03.7 53-4900 Sewerage (Discharge to Site Boundary) 5.03.7 53-5000 Lighting Provision 5.03.7 53-5100 Fire Services	60 07-Jul-20 04-Sep-20 271 54-1000: FS, 54-4100: FS, 54-4600: FS 30 07-Jul-20 05-Aug-20 6 54-1000: FS, 54-4100: FS, 54-4600: FS 115 12-Mar-20 04-Jul-20 2 53-6800: FS	12-1100: FS, 53-6100: FS 12-1100: FS, 32-2100: FS 12-1000: FS					
421	5.03.7 53-5200 Water Supply (Fresh & Salt) 5.03.7 53-5300 Telecom & Network	115 12-Mar-20 04-Jul-20 338 53-6600: FS, 53-6700: FS 45 11-Aug-19 24-Sep-19 622 53-6400: FS	12-1100: FS 12-1100: FS					
423 424 425	5.03.7 53-5400 Gas Network (LFG to LTP) SA2.5.03.8 Utilities - Works Associated with Utilities Undertakers SA2.5.03.8.U1 CLP	15 22-Jun-20 06-Jul-20 176 54-1000: FF 703 27-Feb-19 29-Jan-21 129 459 27-Feb-19 30-May-20 43	54-2800: FS					
426	5.03.8.U1 53-5500 Excavate Trench for CLP Cable 5.03.8.U1 53-5600 Backfill Trench after CLP Cable Laying	100 13-May-19 20-Aug-19 194 23-2900: FS 30 01-May-20 30-May-20 43 53-5800: FS	53-5800: FS, 54-1000: SS, 54-4100: SS, 54-4600: SS, M10. 1: FS -60, M10. 2: FS -30, M10. 3: FS 54-1000: FF, 54-4100: FF, 54-4600: FF					
428	5.03.8.U1 53-5600 Backfill Trench after CLP Cable Laying 5.03.8.U1 53-5700 CLP Cable Laying (from CLP Substation to Site Boundary) 5.03.8.U1 53-5800 CLP Cable Laying (from Site Boundary to HV Switchroom)	200 27-Feb-19 14-Sep-19 229 32-2400: FS 60 02-Mar-20 30-Apr-20 0 53-5500: FS, 54-2900: FS, 32-2400: FS, 5	54-3000: FS					
430	5.03.8.U1 53-5900 CLP HV associated equipment installation SA2.5.03.8.U2 DSD 5.03.8.U2 DSD	120 18-Dec-19 15-Apr-20 0 54-2900: FS, 32-2400: FS 147 05-Sep-20 29-Jan-21 129	53-5800: FF 15					
432 433 434	5.03.8.U2 53-6000 Connection to Storm Drain System 5.03.8.U2 53-6100 Connection to Foul Drain System SA2.5.03.8.U3 Telecom	5 25-Jan-21 29-Jan-21 129 53-4100: FS, 53-4000: FS, 53-3900: FS 5 05-Sep-20 09-Sep-20 271 53-4800: FS, 53-4900: FS 100 13-May-19 20-Aug-19 327	32-1500: FS 32-1500: FS					
434	5.03.8.U3 53-6200 Excavate Trench for PCCW	60 13-May-19 11-Jul-19 307 23-2900: FS	53-6400: FS, 54-1000: SS, 54-4100: SS, 54-4600: SS, M10. 1: FS -40, M10. 2: FS -20, M10. 3: FS					
436 437 438	5.03.8.U3 53-6300 Backfill Trench after PCCW Cable Laying 5.03.8.U3 53-6400 Laying Cables & Connection SA2.5.03.8.U4 WSD	10 11-Aug-19 20-Aug-19 327 53-6400: FS 30 12-Jul-19 10-Aug-19 327 53-6200: FS 304 13-May-19 11-Mar-20 338	54-1000: FF, 54-4100: FF, 54-4600: FF 53-5300: FS, 53-6300: FS					
438 439 440	SA2.5.03.8.U4 WSD 5.03.8.U4 53-6500 Install Watermain & Piping for Water Supplies 5.03.8.U4 53-6600 Connection for Fresh Water & Meter Installation	304 13-May-19 11-Mar-20 338 60 13-May-19 11-Jul-19 216 23-2900: FS 30 11-Feb-20 11-Mar-20 338 53-6500: FS, 32-2300: FS	53-6600: FS, 53-6700: FS, 53-6800: FS, 53-6900: FS 53-5200: FS					
441	5.03.8.U4 53-6700 Connection for Salt Water 5.03.8.U4 53-6800 Connection for Fire Services	30 11-Feb-20 11-Mar-20 338 53-6500: FS, 32-2300: FS 30 11-Feb-20 11-Mar-20 2 53-6500: FS, 32-2300: FS	53-5200: FS 53-5100: FS					
443 444 445	5.03.8.U4 53-6900 Connection for Cooling Tower & Meter Installation SA2.5.03.8.U5 HyD Lighting 5.03.8.U5 53-7000 Installation of Public Street Lighting / Handover	30 11-Feb-20 11-Mar-20 117 53-6500: FS, 32-2300: FS 120 07-Jul-20 03-Nov-20 216 120 07-Jul-20 03-Nov-20 216 54-4100: FS, 54-4600: FS, 54-1000: FS	54-2700: FS, 54-3900: FS 32-1500: FS					
446 447 448	SA2.5.04 Building Construction, incl. E&M and System Installation, and T&C SA2.5.04.A Part X1 Area A 5.04.A 54-1000 General Area & Access Road	890 31-Dec-18 07-Jun-21 0 554 31-Dec-18 06-Jul-20 36 120 09-Mar-20 06-Jul-20 6 23-1300: FS, 53-5500: SS, 53-5600: FF, 5						
449	5.04.A 54-1100 Carpark & Supporting Area	53-6300: FF, 12-1000: FF, 11-1100: FS, 5-54-1800: FF 60 31-Dec-18 28-Feb-19 64 23-1300: FS, 11-1100: FS	32-1500: FS, 53-5400: FF, 53-7000: FS, 68-1700: FS 32-1500: FS, M 5.11: FS -30, M 5.12: FS, 54-1000: FF, 54-1800: FS					
450	5.04.A 54-1200 Diesel Fuel Tanks 5.04.A 54-1300 EPD Building	60 08-May-20 06-Jul-20 36 23-1300: FS, 23-5200: FS, 12-1000: FF, 1 270 30-Apr-19 24-Jan-20 44 23-1300: FS, 23-5200: FS, 11-1100: FS, 5	I-1100: FS 32-2200: FS					
452	5.04.A 54-1400 Fire Service Tank	270 29-Jun-19 24-Mar-20 44 23-1300: FS, 23-5200: FS, 11-1100: FS, 5	54-1400: SS 60					
453	5.04.A 54-1500 GVL Building 5.04.A 54-1600 Laboratory Building	300 31-Dec-18 26-Oct-19 44 23-1300: FS, 23-5200: FS, 11-1100: FS 270 28-Aug-19 23-May-20 44 23-1300: FS, 23-5200: FS, 11-1100: FS, 5	32-2100: FS, M 5. 1: SF 30, M 5. 2: SF 150, M 5. 3: FS, 54-1700: SS 60 32-2100: FS, M 5. 6: FS -135, M 5. 7: FS, 12-1000: FS, 32-2200: FS					
455	5.04.A 54-1700 Maintenance Building & Area 5.04.A 54-1800 Storage Facility & Area	270 01-Mar-19 25-Nov-19 44 23-1300: FS, 23-5200: FS, 11-1100: FS, 5 60 01-Mar-19 29-Apr-19 64 23-1300: FS, 11-1100: FS, 54-1100: FS						
457	5.04.A 54-1900 Waste Oil Tanks	90 08-Apr-20 06-Jul-20 36 23-1300: FS, 23-5200: FS, 12-1000: FF, 1	54-2000: FS					
458	5.04.A 54-2000 Water Service House SA2.5.04.B Part X1 Area B	60 30-Apr-19 28-Jun-19 64 23-1300: FS, 23-5200: FS, 11-1100: FS, 5	4-1800: FS 32-2100: FS, M 5.10: FS, 12-1000: FS, 54-4400: FS					
460 461	SA2.5.04.B.1 BioPlant Building 5.04.B.1 54-2100 LTP BioPlant Building SA2.5.04.B.2 Leachate Treatment Plant	330 17-Jan-19 12-Dec-19 243 23-1300: FS, 23-5200: FS, 23-3200: FS, 1 31-1000: FS 31-Dec-18 10-Aug-20 21	I-1100: FS, 32-2100: FS, 32-2200: FS, M 6. 2: FS -165, M 6. 3: FS					
463	5.04.B.2 54-2200 Main Plant Area included Civil works	589 31-Dec-18 10-Aug-20 21 274 31-Dec-18 30-Sep-19 0 23-1300: FS, 23-3200: FS, 11-1100: FS	54-2300: FS, 54-2400: FS, 54-2500: FS, 64-1100: FS, M 6. 1 SF 30, M 6. 4: FS -137, M 6. 5: FS					
464	5.04.B.2 54-2300 MEP Installation 5.04.B.2 54-2400 SBR Tanks	220 01-Oct-19 07-May-20 0 41-2100: FS, 41-1800: FS, 22-2100: FS, 5 11-1100: FS 100 01-Oct-19 08-Jan-20 236 41-2400: FS, 54-2200: FS	M 6. 9: FS, 32-2200: FS 54-2600: FS, M 6. 6: FS					
466 467 468	5.04.B.2 54-2500 Ammonia Stripper SA2.5.04.B.3 LTP - Test & Commission 5.04.B.3 54-2600 Dry testing	315 01-Oct-19 10-Aug-20 21 41-3000: FS, 54-2200: FS 301 11-Aug-20 07-Jun-21 0 45 11-Aug-20 24-Sep-20 21 54-2300: FS, 54-2400: FS, 54-2500: FS	54-2600: FS, M 6. 8: FS -150, M 6. 9: FS 23-6600: FS -150, 23-6900: SS, 54-2700: FS, M11. 1: FS					
469	5.04.B.3 54-2700 Wet testing	75 25-Sep-20 08-Dec-20 21 54-2600: FS, 12-1200: FS, 53-6900: FS, 3 23-6800: FS	I-2200: FS, 54-2800: FS, M11. 2: FS					
470	5.04.B.3 54-2800 Operational testing SA2.5.04.C Part X1 Area C	160 30-Dec-20 07-Jun-21 0 54-2700: FS, 53-2400: FS, 53-2500: FS, 5 53-2200: FS, 63-1700: FS, 63-2600: FS, 5 54-4000: FS 730 31-Dec-18 29-Dec-20 0						
472	SA2.5.04.C.1 LFG - Power Supply Building 5.04.C.1 54-2900 LFG Building (with Transformer Room)	530 17-Jan-19 29-Jun-20 5 335 17-Jan-19 17-Dec-19 0 23-1300: FS, 23-3500: FS, 11-1100: FS, 3	FS	6:				
474	5.04.C.1 54-3000 Transformer & HV Swtichgear Installation 5.04.C.1 54-3100 MEP Installation, with T&C	60 01-May-20 29-Jun-20 0 54-2900: FS, 41-1200: FS, 53-5800: FS, 5 75 18-Dec-19 01-Mar-20 125 54-2900: FS	32-1400: FS, 32-2100: FS, 53-4700: FS, 53-4800: FS, M 7. 4	4:				
476	SA2.5.04.C.2 LFG Treatment Plant 5.04.C.2 54-3200 Main Plant Area included Civil Works	554 31-Dec-18 06-Jul-20 0 384 31-Dec-18 18-Jan-20 0 23-3500: FS, 11-1100: FS	FS -30, M 7. 5: FS 54-3300: FS, 54-3400: FS, 54-3500: FS, 54-3600: FS, 54-3700: FS, 54-3800: FS, M 7. 1: SF 30, M 7. 2: FS -200, M	<u></u>				
478	5.04.C.2 54-3300 MEP Installation	170 19-Jan-20 06-Jul-20 0 54-3200: FS, 12-1000: FF	7. 3: FS 32-2000: FS, 53-4800: FS, 54-3900: FS, M 7. 4: FS -80, M 7. 5: FS					
480	5.04.C.2 54-3400 GHS600 Blower 601 A&B Relocation 5.04.C.2 54-3500 Pre-treatment 5.04.C.2 54-3600 Flares (incl. PLC control, interlink to Towngas PF & LTP)	15 19-Jan-20 02-Feb-20 155 23-5800: FS, 54-3200: FS 60 19-Jan-20 18-Mar-20 110 41-3900: FS, 54-3200: FS 125 19-Jan-20 22-May-20 45 41-3300: FS, 54-3200: FS	54-3900: FS, M 7. 4: FS -8, M 7. 5: FS 54-3900: FS, M 7. 4: FS -30, M 7. 5: FS 54-3900: FS, M 7. 4: FS -60, M 7. 5: FS					
482	5.04.C.2 54-3700 LFG Engine (incl. on-grid protection, PLC control, turning) 5.04.C.2 54-3800 Cooling System	125 19-Jan-20 22-May-20 45 41-3300: FS, 54-3200: FS 110 21-Feb-20 09-Jun-20 27 41-3600: FS, 54-3200: FS 45 19-Jan-20 03-Mar-20 125 22-1500: FS, 54-3200: FS	54-3900: FS, M 7. 4: FS -60, M 7. 5: FS 54-3900: FS, M 7. 4: FS -60 54-3900: FS, M 7. 4: FS -25, M 7. 5: FS					
484	SA2.5.04.C.3 LFG - Test & Commission 5.04.C.3 54-3900 MEP Testing	176 07-Jul-20 29-Dec-20 0 65 07-Jul-20 09-Sep-20 0 54-3400: FS, 54-3500: FS, 54-3600: FS, 5 54-3800: FS, 12-1200: FS, 53-6900: FS, 3 54-3300: FS		0,				
486	5.04.C.3 54-4000 Operational Testing	54-3300: FS 111 10-Sep-20 29-Dec-20 0 53-1300: FS, 63-2700: FS, 63-1800: FS, 5 53-1100: FS, 54-3900: FS, 23-7200: FS	32-1500: FS, 54-2800: FS, 63-4800: FF, 63-4900: FS, 63-4600: FS, M11. 3: FS, M11. 4: FS					
487	SA2.5.04.D Part X1 Area D 5.04.D 54-4100 General Area & Access Road	374 29-Jun-19 06-Jul-20 6 120 09-Mar-20 06-Jul-20 6 23-1300: FS, 53-5500: SS, 53-5600: FF, 5 53-6300: FF, 12-1000: FF, 11-1100: FS	3-6200: SS, 32-2100: FS, 53-4800: FS, 53-4900: FS, 53-5000: FS, 53-7000: FS, M 8. 5: FS					
489	5.04.D 54-4200 VWF Building	120 28-Oct-19 24-Feb-20 63 23-1300: FS, 23-5200: FS, 41-4500: FS, 1 54-4300: SS 60	1-1100: FS, 32-2100: FS, M 8. 4: FS, M 8. 6: FS -60, M 8. 7: FS, 12-1000 FS, 54-4500: SS 60	0:				
490	5.04.D 54-4300 Weighbridge 5.04.D 54-4400 Weighmaster House	75 29-Aug-19 11-Nov-19 63 41-4200: FS, 23-1300: FS, 23-5200: FS, 1 54-4400: SS 60 120 29-Jun-19 26-Oct-19 64 23-1300: FS, 23-5200: FS, 11-1100: FS, 5						
492	5.04.D 54-4500 Wheel Wash Bath SA2.5.04.E Part X1 Area E & Part X2	75 27-Dec-19 10-Mar-20 63 23-1300: FS, 23-5200: FS, 41-4500: FS, 1 54-4200: SS 60	I-1100: FS, 32-2100: FS, M 8. 3: FS, 12-1000: FS, 54-4700: SS 30					
494	5.04.E 54-4600 General Area & Access Road	120 09-Mar-20 06-Jul-20 6 53-5500: SS, 53-5600: FF, 53-6200: SS, 5 12-1000: FF, 11-1100: FS, 11-1200: FS						
495	5.04.E 54-4700 Guard House & Entrance Gate SA2.5.08 Landscape Works - Advance Screen Planting in CWB Country Park	100 26-Jan-20 04-May-20 63 23-1300: FS, 23-5200: FS, 11-1100: FS, 1 54-4500: SS 30 270 01-Apr-19 26-Dec-19 529	1-1200: FS, 32-2100: FS, M 8. 2: FS, 12-1000: FS					
497	SA2.5.08.N Area N 5.08.N 58-1000 Advance Screen Planting 5.08.N 58-1100 Establishment of Screen Planting	270 01-Apr-19 26-Dec-19 529 90 01-Apr-19* 29-Jun-19 529 23-7900: FS, 31-1100: FS, 11-1500: FS 270 01-Apr-19* 26-Dec-19 529 58-1000: SS 14-1800: FS	14-1800: SS -60, 58-1100: SS, 68-1600: SS 30, M 3. 2: FS					
500 501	5.08.N 58-1100 Establishment of Screen Planting SA2.5.08.S Area S 5.08.S 58-1200 Advance Screen Planting	270 01-Apr-19* 26-Dec-19 529 58-1000: SS, 14-1800: FS 270 01-Apr-19 26-Dec-19 529 90 01-Apr-19* 29-Jun-19 529 23-7900: FS, 31-1100: FS, 11-1500: FS	32-1500: FS 58-1300: SS, M 3. 2: FS					
502 503 504	5.08.S 58-1300 Establishment of Screen Planting SA2.6 Construction (Remaining Works) SA2.6.02 Advance Works	270 01-Apr-19* 26-Dec-19 529 58-1200: SS 1474 01-Apr-19 13-Apr-23 30 80 09-Jul-21 26-Sep-21 339	32-1500: FS					
505 506	SA2.6.02.9 Demolition of SENT Infrastructure Area 6.02.9 62-1000 Existing SENT General Infrastructure Facility & Building	80 09-Jul-21 26-Sep-21 339 80 09-Jul-21 26-Sep-21 339 60 09-Jul-21 06-Sep-21 239 32-2100: FS, 12-1300: FS	23-2000: SS -90, 63-2800: FS, 63-2900: FS, 63-3000: FS, 63-4300: FS, M12. 4: FS -30, M12. 5: FS					
507	6.02.9 62-1100 Existing SENT LTP 6.02.9 62-1200 Existing SENT LEG	60 29-Jul-21 26-Sep-21 339 32-1500: FS, 12-1300: FS, 23-2200: FS	63-3000: FS, 63-4500: FS, M12. 4: FS -30, M12. 5: FS					
308	6.02.9 62-1200 Existing SENT LFG	60 29-Jul-21 26-Sep-21 339 32-1500: FS, 12-1300: FS, 23-2200: FS	63-3000: FS, 63-4500: FS, M12. 4: FS -30, M12. 5: FS	T	TV)		Date	Revision Checked Approved
	5111561 1 to 111611 111 19 11 611 1	Page: 3 of 4	South-East New	Territories Land Fill Extension (SA2-SENT Baseline Programme	IX)	GREEN VALLEY LANDFILL, LIMITED	11-May-18 SENTX-GVL-W-PB-ZZ-	0001 Rev. I01
•	◆ Milestone					- POSSE		<u> </u>

			Activity			-			
#	WBS Path		ID ´	Activity Name	Dur	Sta		Total Predecessor Details Float	Successor Details
509 510		<mark>.6.03 Civ</mark> 2.6.03.2 L		ineering Works Cell 2			9 13-Apr-23 9 23-Jan-21		
511				Earth bund (Eastern)				9 11-1100: FS, 23-2500: FS, 53-4200: FS, 53-1400: FS	
	l							53-2800: FS	63-2000: FS, 63-2100: FS, 63-2200: FS, M12. 1: FS -50, M12. 2: FS, 63-1100: FS
512	6.03	3.2	63-110	Earth bund (Western)	110	20-Feb-2	0 08-Jun-20	84 11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS	S, 63-1400: FS, 63-1500: FS, 63-1700: FS, 63-3500: FS,
540				, , ,				63-1000: FS	63-3600: FS, 63-1200: FS
513	6.03	2	63-120	Intercell bund (Cell 2/3)	90	09-Jun-2	0 06-Sep-20	734 11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS 53-4400: FS, 63-1100: FS	63-1500: FS
514	6.03	3.2	63-130	O Site Formation	75	02-Nov-1	9 15-Jan-20	14 11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS	63-1400: FS, 63-4200: FS
515	6.03	3.2	63-140	Pump Station (PS#2X)	45	09-Jun-2	0 23-Jul-20	84 63-1300: FS, 63-1100: FS	63-1600: FS, 63-1700: FS
516	6.03	3.2	63-150	Lining Works	90	01-Oct-2)* 29-Dec-20	710 41-1500: FS, 63-1000: FS, 63-1100: FS, 63-1200: FS	63-1600: FS, M12. 3: FS, 63-2400: FS
517	6.03	3.2	63-160	Protective Stone Laying & Leachate Collection Pipe	25	30-Dec-2	0 23-Jan-21	810 63-1500: FS, 41-1500: FS, 63-1400: FS	32-1600: FS, M12. 3: FS
518				Install Leachate Force Main				84 63-1100: FS, 41-1500: FS, 63-1400: FS	54-2800: FS, M12. 3: FS
519	6.03	3.2	63-180	Install Landfill Gas Pipe on earth bund	35	20-Feb-2	0 25-Mar-20	168 41-1500: FS, 63-1000: FS	54-4000: FS, M12. 3: FS
520		2.6.03.3 L					0 02-Feb-22		50 0000 F0 F0 0000 F0 00 0400 F0 00 0700 F0 1440 4
521	6.03	3	63-190	Earth bund (Eastern)	110	20-Feb-2	0 08-Jun-20	9 11-1100: FS, 53-4200: FS, 63-1000: FS, 53-4300: FS 53-2800: FS, 63-4200: FS	53-3300: FS, 53-3600: FS, 63-2400: FS, 63-2700: FS, M12. 1: FS -50, M12. 2: FS, 63-2000: FS -45, 63-2200: FS
522	6.03	2 2	62 200	D Earth bund (Western)	110	25 Apr (0 12 Aug 20	19 11-1100: FS, 63-1000: FS, 63-1900: FS -45	63-2300; FS. 63-2400; FS. 63-2600; FS. 63-3700; FS.
	6.03	.3	03-200	Earth bund (western)	110	25-Apr-2	0 12-Aug-20	19 11-1100: F5, 63-1000: F5, 63-1900: F5 -45	63-2300: FS, 63-2400: FS, 63-2600: FS, 63-3700: FS, 63-2100: FS,
523	6.03	3.3	63-210	Intercell bund (Cell 3/4)	105	29-Jun-2	0 11-Oct-20	789 11-1100: FS, 63-1000: FS, 63-4200: FS, 63-2000: FS	63-2400: FS
524	6.03	3.3	63-220) Site Formation	75	09-Jun-2	0 22-Aug-20	9 11-1100: FS, 63-1000: FS, 63-1900: FS	63-2300: FS
525	6.03	3.3	63-230	Pump Station (PS#3X)				9 63-2200: FS, 63-2000: FS	63-2500: FS, 63-2600: FS
526	6.03	3.3	63-240	Lining Works	100	01-Oct-2	* 08-Jan-22	435 41-1500: FS, 63-1900: FS, 63-2000: FS, 63-2100: FS	63-2500: FS, M12. 3: FS
527	6.03	3 3	63 250	Protective Stone Laying & Leachate Collection Pipe	25	00 lan 1	2 02 Eab 22	63-1500: FS 435 63-2400: FS, 41-1500: FS, 63-2300: FS	32-1700: FS, M12. 3: FS
528				Install Leachate Force Main				9 63-2000: FS, 41-1500: FS, 63-2300: FS	53-2500: SS -90, 54-2800: FS, M12. 3: FS
529				Install Landfill Gas Pipe on earth bund				58 41-1500: FS, 63-1900: FS	54-4000: FS, M12. 3: FS
530		2.6.03.4 L		· · · · · · · · · · · · · · · · · · ·			1 13-Apr-23		
531				Remaining Portion of Buttress Wall	120	07-Sep-2	1 04-Jan-22	494 62-1000: FS	
532	6.03	5.4	63-290	D Earth bund (Western) incl. MSE Wall	120	07-Sep-2	1 04-Jan-22	239 62-1000: FS	63-3000: FS, 63-3100: FS, 63-3200: FS, 63-3400: FS, 63-3800: FS, 63-3900: FS, 63-4100: SS -90, M 9. 6: FS -60,
									M 9. 7: FS -30, M 9. 8: FS
533	6.03	3.4	63-300) Site Formation	120	05-lan (2 ()4-May-22	239 62-1000: FS, 62-1100: FS, 62-1200: FS, 63-2900: FS	S, 63-3100: FS
							•	63-4100: FS	
534				Pump Station (PS#4X)				239 63-3000: FS, 63-2900: FS	63-3300: FS, 63-3400: FS
535				Lining Works				0 41-1500: FS, 63-2900: FS	63-3300: FS, M12. 6: FS
536				Protective Stone Laying & Leachate Collection Pipe				0 41-1500: FS, 63-3200: FS, 63-3100: FS	12-1900: FS, 32-1800: FS, M12. 6: FS
537				Install Leachate Force Main & Remove Temporary Leachate Pipe - Surface Run-Off			2 18-Jul-22 0 03-Feb-22	269 41-1500: FS, 63-2900: FS, 63-3100: FS	12-1900: FS, 32-1800: FS, M12. 6: FS
539				Perimeter Channel (X9A) at Cell 2 Western Bund				1054 63-1100: FS	12-1900: FS
540				Perimeter Channel (X10A) at Cell 2 Western Bund				1029 63-1100: FS	63-4000: FS
541	6.03	3.5	63-370	Perimeter Channel (X10A) at Cell 3 Western Bund	30	13-Aug-2	0 11-Sep-20	964 63-2000: FS	63-4000: FS
542				Perimeter Channel (X10A) at Cell 4 Western Bund				464 63-2900: FS	63-4000: FS
543				Perimeter Channel (X10C) at Cell 4 Western Bund				469 63-2900: FS	63-4000: FS
544	6.03	<i>.</i> .5	63-400	Connection to Existing DP3	10	25-Jan-2	2 03-Feb-22	464 63-3900: FS, 63-3600: FS, 63-3700: FS, 63-3800: FS	12-1900: FS
545	6.03	3.5	63-410	Remove Cut-Off Channel C-7 at bottom of Buttress Wall	30	09-Jun-2	1 08-Jul-21	419 63-2900: SS -90	63-3000: FS
546	6.03	3.5	63-420	Temporary Channel (X7T) at SENT Infrastructure Area	30	16-Jan-2	0 14-Feb-20	14 63-1300: FS	63-1900: FS, 63-2100: FS
547			_	e - Ground Water			1 30-Nov-21		02.4400.50
548				Construct Temporary Channel (TC-1), from MH-1 to Existing UC-825 Divert GW at MH-1 to TC-1		· .		529 23-1900: FS, 11-1300: FS, 62-1000: FS	63-4400: FS
550				Divert GW at MH-1 to TC-1 Reconnection of GWCP across Cell 4				529 63-4300: FS 529 62-1100: FS, 62-1200: FS, 63-4400: FS	63-4500: FS, M 9. 9: FS 12-1900: FS
551				- Works Associated with Utilities Undertakers			0 27-Jul-21		12-1000.10
552	SA2	2.6.03.8.L	J1 CLF		210	30-Dec-2	0 27-Jul-21	655	
553				LFG Generator On-grid Testing				655 32-2500: FS, 12-1200: FS, 54-4000: FS	63-4700: FS
554				LFG Generator On-grid Inspection & Verify				655 63-4600: FS	12-1900: FS
556		2.6.03.8. 03.8.U6		mGas D Laying Gas Mains (from LFG to Town Gas PF)	45	15-Nov-2 15-Nov-2	0 08-Jan-21 0 29-Dec-20	855 855 54-4000: FF	63-4900: FS
557	6.0			Gas Meter Relocation & Connection at LFG				855 63-4800: FS, 54-4000: FS	12-1900: FS
558			_	& E&M Works			9 22-Jul-21		
559		2.6.04.C F	Part X1	Area C Treatment Plant			9 22-Jul-21		
561		16040	02 1 50	GHS600 Blower 601 C Relocation			9 22-Jul-21 1 22-Jul-21	660 32-1500: FS	12-1900: FS
								1231 54-2200: FS	12-1900: FS
562	6.0	04.C.02	64-100	Absorption Chiller (Optional)	90			891	
562 563	6.0 6.0 SA2.	04.C.02 04.C.02 .6.08 La	64-100 64-110 <mark>ndsca</mark>	pe Works	613		9 03-Dec-20		
562 563 564	6.0 6.0 SA2. (SA2.	04.C.02 04.C.02 .6.08 Lac 2.6.08.1 S	64-100 64-110 <mark>ndsca</mark> ENT A	pe Works rea - Tree Removal & Transplanting	613 240	01-Apr-1	9 26-Nov-19	1264	68.1100; EQ 68.1200; EQ 69.1400; EQ
562 563 564 565	6.0 6.0 SA2. SA2. 6.08	04.C.02 04.C.02 .6.08 Lar 2.6.08.1 S	64-100 64-110 ndsca ENT A 68-100	pe Works rea - Tree Removal & Transplanting Access trees condition and select for transplanting	613 240 30	01-Apr-1	9 26-Nov-19 * 30-Apr-19	1264 1264 14-1300: FS	68-1100: FS, 68-1200: FS, 68-1400: FS 68-1200: SS
562 563 564 565 566 567	6.0 6.0 SA2. SA2. 6.08	04.C.02 04.C.02 .6.08 La 2.6.08.1 S 8.1	64-100 64-110 ndsca ENT A 68-100 68-110	pe Works rea - Tree Removal & Transplanting Access trees condition and select for transplanting Prepare new site to receive trees	613 240 30 90	01-Apr-1 01-Apr-1 01-May-1	9 26-Nov-19 30-Apr-19 9 29-Jul-19	1264 1264 14-1300: FS 1264 68-1000: FS	68-1100: FS, 68-1200: FS, 68-1400: FS 68-1200: SS 68-1300: FS
562 563 564 565 566 567	6.0 6.0 SA2. SA2. 6.08 6.08	04.C.02 04.C.02 .6.08 Lar 2.6.08.1 S 8.1 8.1	64-100 64-110 ndsca SENT A 68-100 68-110 68-120	pe Works rea - Tree Removal & Transplanting Access trees condition and select for transplanting	613 240 30 90 120	01-Apr-1 01-Apr-1 01-May-1 01-May-1	9 26-Nov-19 1 30-Apr-19 9 29-Jul-19 9 28-Aug-19	1264 1264 14-1300: FS	68-1200: SS
562 563 564 565 566 567 568 569	6.0 6.0 SA2. SA2. 6.08 6.08 6.08	04.C.02 04.C.02 .6.08 Lan 2.6.08.1 S 8.1 8.1 8.1	64-100 64-110 ndsca SENT A 68-100 68-110 68-120	pe Works rea - Tree Removal & Transplanting Decrease Access trees condition and select for transplanting Decrease Prepare new site to receive trees Transplant selected trees	613 240 30 90 120 90	01-Apr-1 01-Apr-1 01-May-1 01-May-1 29-Aug-1	9 26-Nov-19 30-Apr-19 9 29-Jul-19 9 28-Aug-19 9 26-Nov-19	1264	68-1200: SS 68-1300: FS
562 563 564 565 566 567 568 569	6.0 SA2.4 SA2. 6.08 6.08 6.08 6.08 SA2. SA2.	04.C.02 04.C.02 04.C.02 04.C.02 04.C.02 0.6.08 Lar 0.6.08.1 S S S S S S S S S	64-100 64-110 ndsca EENT A 68-100 68-110 68-120 68-130 68-140	pe Works rea - Tree Removal & Transplanting Access trees condition and select for transplanting Prepare new site to receive trees Transplant selected trees Prune trees prior to removal from Cell 4 Tree Felling - Part X3 Area - Trial Nursery & Tree Planting	90 90 90 90 583	01-Apr-1 01-Apr-1 01-May-1 01-May-1 29-Aug-1 01-May-1	9 26-Nov-19 30-Apr-19 9 29-Jul-19 9 28-Aug-19 9 26-Nov-19 9 29-Jul-19 9 03-Dec-20	1264	68-1200: SS 68-1300: FS 12-1900: FS 12-1900: FS
562 563 564 565 566 567 568 569 570	6.0 SA2. (SA2. 6.08 6.08 6.08 SA2. 6.08	04.C.02 04.C.02 .6.08 Lan 2.6.08.1 S 8.1 8.1 8.1 8.1 8.1 8.1 8.1	64-100 64-110 ndsca EENT A 68-100 68-120 68-120 68-140 68-140 68-160	pe Works rea - Tree Removal & Transplanting Decrease Access trees condition and select for transplanting Decrease Prepare new site to receive trees Transplant selected trees Decrease Prune trees prior to removal from Cell 4 Decrease Transplant Selected trees Transplant selected trees	90 90 90 90 90 90 90 90	01-Apr-1 01-Apr-1 01-May-1 01-May-1 29-Aug-1 01-May-1 01-May-1	9 26-Nov-19 30-Apr-19 9 29-Jul-19 9 28-Aug-19 9 26-Nov-19 9 29-Jul-19 9 03-Dec-20 9 24-Feb-20	1264	68-1200: SS 68-1300: FS 12-1900: FS

Annex B

Environmental Mitigation Implementation Schedule

Annex B Environmental Mitigation Implementation Schedule

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?	the n	neasu	mplement ire? ⁽¹⁾ O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
Air Quali	ty - Cons	truction Phase								
4.8.1	AQ1	Blasting	To minimise potential	Blasting area	SENTX		✓		Air Pollution Control	Not applicable.
		• The area within 30m of the blasting area will be wetted prior to blasting.	dust nuisance	and 30m of blasting area	Contractor				(Construction Dust) Regulations	Blasting is not required in the latest landfill design
		 Blasting will not be carried out when the strong wind signal or tropical cyclone warning signal No. 3 or higher is hoisted, unless this is with the express prior permission of the Commissioner of Mines. 	rong wind signal or tropical ne warning signal No. 3 or r is hoisted, unless this is with rpress prior permission of the nissioner of Mines. material and stones in the Site e removed prior to the blast							
		 loose material and stones in the Site will be removed prior to the blast operation 								
		 During blasting, blast nets, screens and other protective covers will be used to prevent the projection of flying fragments and material resulting from blasting 								
4.8.1	AQ2	Rock Drilling	To minimise potential	Rock drilling	SENTX		✓		Air Pollution Control	Not applicable. Rock
		Watering will be carried out at the rock drilling activities to avoid fugitive dust emissions. dust nuisance area	area	Contractor				(Construction Dust) Regulations	drilling is not required in the latest landfill design	
(1) D=Desig	gn; C=Const	ruction; O/R=Operation/Restoration; A=Aftercare								

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main	Location of the Measures	Who to implement the measure?		implement ure? ⁽¹⁾ O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
			Concerns to address			 	<i>2,1</i> , 11		
4.8.1	AQ3	Site Access Road	To minimise potential		SENTX	✓		Air Pollution Control	Implemented
		The main haul road will be kept clear of dusty materials or sprayed with water.	dust nuisance	road	Contractor			(Construction Dust) Regulations	
								HKAQO and EIAO- TM Annex 4	
		 The main haul road will be paved with aggregate or gravel. 							
		 Vehicle speed will be limited to 10kph. 							
4.8.1	AQ4	Stockpiling of Dusty Materials	To minimise potential	All	SENTX	✓		Air Pollution Control	Deficiency of
		Any stockpile of dusty materials will be covered entirely by impervious		construction works area	Contractor			(Construction Dust) Regulations	mitigation measures but rectified by the Contractor
		sheeting or placed in an area sheltered on the top and three sides or sprayed with water so as to ensure that the entire surface is wet.						HKAQO and EIAO- TM Annex 4	
4.8.1	AQ5	Loading, unloading or transfer of dusty materials	To minimise potential dust nuisance	All construction	SENTX Contractor	✓		Air Pollution Control (Construction Dust)	Not applicable
		All dusty materials will be sprayed		works area				Regulations	
		with water immediately prior to any loading, unloading or transfer operation so as to maintain the dusty material wet.						HKAQO and EIAO- TM Annex 4	
4.8.1	AQ6	Site Boundary and Entrance	To minimise potential	Site boundary	SENTX	✓		Air Pollution Control	Not applicable
		Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of height not less than 2.4m from	dust nuisance	and entrance	Contractor			(Construction Dust) Regulations	
								HKAQO and EIAO-	

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?		implement ture? ⁽¹⁾ O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
		ground level will be provided along the entire length of that portion of the site boundary except for the site entrance or exit.		al All				TM Annex 4	
4.8.1	AQ7	 Excavation Works Working area of any excavation or earth moving operation will be sprayed with water immediately before, during and immediately after the operation so as to ensure that the entire surface is wet. 	To minimise potential dust nuisance	All construction works area	SENTX Contractor	✓		Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO- TM Annex 4	Deficiency of mitigation measures but rectified by the Contractor
4.8.1	AQ8	 Building Demolition The area where the demolition works are planned to take place will be sprayed with water immediately prior to, during and immediately after the demolition activities. Any dusty materials remaining after a stockpile is removed will be wetted with water and cleared from the surface of roads or street. 	To minimise potential dust nuisance	All construction works area	SENTX Contractor	✓		Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO- TM Annex 4	Not applicable
4.8.1	AQ9	Construction of the Superstructure of Building • Effective dust screens, sheeting or netting will be provided to enclose the scaffolding from the ground level up to the highest level of the scaffolding.	To minimise potential dust nuisance	All construction works area	SENTX Contractor	✓		Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO- TM Annex 4	Not applicable

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4.8.1	AQ10	Should a stone crushing plant be needed on site, the control measures recommended in the <i>Best Practicable Means Requirement for Mineral Works</i> (<i>Stone Crushing Plants</i>) <i>BPM 11/1</i> should be implemented.	To minimise potential dust nuisance	Stone crushing plant/ construction phase	SENTX Contractor	✓			Best Practicable Means Requirement for Mineral Works (Stone Crushing Plants) BPM 11/1	Not applicable. Stone crushing plant is not required in the latest landfill design
4.8.1	AQ11	Good site practices such as regular maintenance and checking of the diesel powered mechanical equipment will be adopted to avoid any black smoke emissions and to minimize gaseous emissions.	To minimise potential dust nuisance	All construction works area	SENTX Contractor	✓			HKAQO and EIAO- TM Annex 4	Implemented
4.10.1	AQ12	Dust monitoring once every 6 days	Ensure the dust generated from the project meets the air quality requirement	At monitoring locations shown in <i>Figure 3.2a</i>	SENTX Contractor	✓			HKAQO and EIAO- TM Annex 4	Implemented
4.10.2	AQ41	Monitoring of ambient TSP once every 6 days	Ensure the dust emission from the project meets the dust requirement	At monitoring locations shown in <i>Figure 11.3a</i>	SENTX Contractor	✓	✓		HKAQO and EIAO- TM Annex 4	Implemented
4.10.2	AQ46	Monitoring of meteorological station, continuously	Collect site specific meteorological data	At meteorologica l station shown in <i>Figure 11.3a</i>	SENTX Contractor	✓	✓	✓	-	Implemented

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5.7.1	N1	Adopt good site practice listed below: Only well-maintained plant will be operated on-site and plant should be serviced regularly during the construction program;	To minimise potential construction noise nuisance.	All construction works area	SENTX Contractor	✓			Noise Control Ordinance (NCO) and EIAO-TM Annex 5	Implemented
		Silencers or mufflers on construction equipment should be utilized and will be properly maintained during the construction program;								
		• Mobile plant, if any, will be sited as far from NSRs as possible;								
		Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or should be throttled down to a minimum;								
		Plant known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and								
		 Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities. 								

EIA Ref.	EM&A Ref	A Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement			o implement sure? (1)	What requirements or standards for the	Implementation Status and Remarks
	1101			1110 171 0 10	the measure?	D	С	O/R A	measure to achieve?	
5.8	N2	Weekly noise monitoring	Ensure noise generated from the project meets the criteria	At monitoring locations shown in Figure 6.4a	SENTX Contractor		✓		Noise Control Ordinance (NCO) and EIAO-TM Annex 5	Implemented
Water Qu	ality - Co	nstruction Phase								
6.8.1	WQ1	Construction Runoff								
		Exposed soil areas will be minimised	To minimise potential		SENTX		✓		ProPECC PN 1/94	Reminder was given to
		to reduce the contamination of runoff and erosion.	water quality impacts arising from the construction works	construction works area	Contractor				EIAO-TM Annex 6	Contractor
6.8.1	WQ2	constructed in advance of site formation works and earthworks and intercepting channels will be provided	To minimise potential water quality impacts arising from the construction works		SENTX Contractor	✓	✓		ProPECC PN 1/94	Implemented
									Water Pollution Control Ordinance (WPCO)	
		for example along the edge of excavation.							EIAO-TM Annex 6	
6.8.1	WQ3	Silt removal facilities, channels and	To minimise potential water quality impacts arising from the construction works		SENTX Contractor		✓		ProPECC PN 1/94	Implemented
		manholes will be maintained and the deposited silt and grit should be removed regularly to ensure they are functioning properly at all times.							WPCO	
									EIAO-TM Annex 6	
6.8.1	WQ4	Temporary covers such as tarpaulin	To minimise potential		SENTX		✓		ProPECC PN 1/94	Deficiency of mitigation measures but rectified by the Contractor
		will also be provided to minimise the generation of high SS runoff.	water quality impacts arising from the construction works	construction works area	Contractor				WPCO	
6.8.1	WQ5	The surface runoff contained any oil	To minimise potential	All	SENTX		✓		ProPECC PN 1/94	Not applicable

EIA Ref.	EM&A Ref	A Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement the measure?	When to implement the measure? (1)				What requirements or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address			D	С	O/R	A	measure to achieve?	
		and grease will pass through the oil	water quality impacts	construction	Contractor					WPCO	
		interceptors.	arising from the construction works	works area						EIAO-TM Annex 6	
6.8.1	WQ6	• All sewer and drains will be sealed to	To minimise potential				✓			ProPECC PN 1/94	Not applicable
		prevent building debris, soil etc from entering public sewers/drains before	water quality impacts arising from the	area at existing SENT	Contractor					WPCO	
		commencing any demolition works	demolition works	Landfill						EIAO-TM Annex 6	
6.8.1	WQ7	During the excavation works for the	To minimise potential	Tunnel boring			✓			ProPECC PN 1/94	Not applicable.
		twin drainage tunnels, the recycle water for cooling the cutter head of the TBM will be conveyed to the sedimentation tanks for treatment and most of the treated water will be reused, where applicable and as much as possible, in the boring operations.		sites	Contractor					WPCO	Excavation of drainage tunnels is not required
										EIAO-TM Annex 6	in the latest landfill design.
6.8.1	WQ8	• The fuel and waste lubricant oil from the on-site maintenance of machinery and equipment will be collected by a licensed chemical waste collector.	To minimise potential water quality impacts arising from improper handling of fuel and oil		SENTX Contractor		✓			ProPECC PN 1/94	Not applicable
										WPCO	
										Waste Disposal Ordinance (WDO)	
6.8.1	WQ9	Implementation of excavation	To minimise	All	SENTX		✓			ProPECC PN 1/94	Not applicable
		schedules, lining and covering of excavated stockpiles	contaminated stormwater run-off	construction works	Contractor					WPCO	
			from the SENTX Site	Wolks						EIAO-TM Annex 6	
6.13	WQ10		To minimise potential	SENTX Site	SENTX		✓	(WPCO	Implemented
			water quality impacts on surface water arising from the construction works		Contractor					Water-TM	

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			Concerns to address		the measure.			O/ IC 71	measure to active.	
6.8.2	WQ11	Sewage Effluents								
		• Sufficient chemical toilets will be provided for the construction workforce.	To minimise potential water quality impacts arising from the sewage effluents	SENTX Site	SENTX Contractor		✓		WPCO	Implemented
6.8.2	WQ12	• Untreated sewage will not be allowed	To minimise potential	SENTX Site	SENTX		✓		WPCO	Implemented
		to discharge into the surrounding water body.	water quality impacts arising from the sewage effluents		Contractor				WDO	
6.8.2	WQ13	A licensed waste collector will be employed to clean the chemical toilets on a regular basis.	*		SENTX		✓		WPCO	Implemented
					Contractor				WDO	
Waste Ma	nagement	- Construction Phase								
7.6.1	WM1	All the necessary waste disposal permits are obtained prior to the commencement of construction work.	To ensure compliance with relevant statutory requirements	Before construction works commence	SENTX Contractor	✓	✓		WDO	Implemented
7.6.1	WM2	Management of Waste Disposal								
		The construction contractor will open a billing account with the EPD. Every construction waste or public fill load to be transferred to the Government waste disposal facilities such as public fill reception facilities, sorting facilities, landfills will required a valid "chit" which contains the information of the account holder to facilitate waste	To ensure that	SENTX Site	SENTX		✓		WDO	Implemented
			adverse environmental impacts are prevented		Contractor				Waste Disposal (Charges for Disposal of Construction Waste) Regulation;	
									Works Bureau Technical Circular No.31/2004; and	

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		transaction recording and billing to the waste producer. A trip-ticket system will also be established to monitor the disposal of construction waste at the SENT Landfill and to control fly-tipping. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor.						Annex 5 and Annex 6 of Appendix G of ETWBTC No. 19/2005)	
		A recording system for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established.							
7.6.1	WM3	Measures for the Reduction of Construction Waste Generation							
		Inert and non-inert construction waste will be segregated and stored in different containers or skips to facilitate reuse or recycling of the inert waste and proper disposal of the non-inert construction waste. Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.	To reduce construction waste generation	SENTX Site	SENTX Contractor	√		WDO EIAO-TM Annex 7	Implemented
7.6.1	WM4	<u>Chemical Waste</u>	_					LUTD Q	
		The construction contractor will register as a chemical waste producer with the EPD. Chemical waste will be handled in accordance with the <i>Code of Practice on the Packaging, Handling and Storage of</i>	To ensure proper handling of chemical waste	SENTX Site	SENTX Contractor	✓		WDO Code of Practice on the Packaging, Handling and Storage of Chemical Wastes	Implemented

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		Chemical Wastes.								
7.6.1	WM5	<u>Sewage</u>								
		An adequate number of portable toilets will be provided at the site to ensure that sewage from site staff is properly collected. The portable toilets will be desludged and maintained regularly by a specialist contractor.	To ensure proper handling of sewage	SENTX Site	SENTX Contractor		✓		WDO EIAO-TM Annex 7	Implemented
7.6.1 and	WM6	General Refuse								
SENTX latest design		General refuse will be stored in enclosed bins separately from construction and chemical wastes. The general refuse will be delivered to a transfer station or other landfill, separately from construction and chemical wastes, on a daily basis to reduce odour, pest and litter impacts.	To ensure proper handling of general refuse	SENTX Site	SENTX Contractor		✓		WDO EIAO-TM Annex 7	Reminder was given to Contractor
7.61	VA/N 477	Recycling bins will be provided at strategic locations to facilitate recovery of aluminium can and waste paper from the SENTX Site. Materials recovered will be sold for recycling.								
7.6.1	WM7	Staff Training At the commencement of the construction works, training will be provided to workers on the concepts of site cleanliness and on appropriate waste management procedures, including	To ensure that adverse environmental impacts are prevented	SENTX Site	SENTX Contractor		✓			Implemented

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		waste reduction, reuse and recycling.								
7.8	WM8	Environmental Monitoring & Audit Requirements Weekly audits of the waste management practices will be carried out during the construction phase. The audits examine all aspects of waste management including waste generation, storage, recycling, transport and disposal.	To ensure that adverse environmental impacts are prevented	SENTX Site	SENTX Contractor		✓		WDO	Implemented
Landfill G	as Hazar	ds - Design and Construction Phase								
8.6.2 and SENTX latest design	LFG1	Precautionary measures to be adopted by the contractors at the Project site and the adjacent development site within the landfill consultation zone are outlined in Paragraphs 8.3 to 8.49 of EPD's Landfill Gas Hazard Assessment Guidance Notes (the Guidance Note). Those precautionary measures applicable to the SENTX will be confirmed in the detailed Qualitative Landfill Gas Hazard Assessment to be submitted by the contractor.	-	All construction works area	SENTX Contractor		✓		Paragraphs 8.3 to 8.49 of EPD's Landfill Gas Hazards Assessment Guidance Note EIAO-TM Annex 7	Implemented
8.6.2	LFG2	Monitoring will be undertaken when construction works are carried out in confined space within the consultation zone with reference to the monitoring requirements and procedures specified in Paragraphs 8.23 to 8.28 of EPD's <i>Guidance Note</i> will be followed.	To protect workers from landfill gas risk	Confined space within the construction works area	SENTX Contractor		✓			Not applicable

EIA Ref.	EM&A Ref	•	Objectives of the Recommended	Location of the Measures	Who to implement			imple		t What requirements or standards for the	Implementation Status and Remarks
	itei	Trinigation freusures	Measure & Main Concerns to address	the Measures	the measure?		С	O/R		measure to achieve?	Status and Remarks
		In the event of the trigger levels being exceeded, it is recommended that a person, such as the Safety Officer, is nominated, with deputies, to be responsible for dealing with any emergency which may occur due to landfill gas. In an emergency situation, the nominated person, or his deputies, shall have the necessary authority and shall ensure that the confined space is evacuated and the necessary works implemented for reducing the concentrations of gas. The appropriate organisations shall be contact.									
8.6.3	LFG4	Implementation of engineering measures according to Contract Specification requirements. These measures will include the placement of liner and installation of landfill gas management system to contain, manage and control landfill gas.	To protect workers from landfill gas risk	SENTX Site	SENTX Contractor	✓	✓	√	√	EIAO-TM Annex 7	Not applicable
8.6.3	LFG5	Engineering measures to significant engineering measures will be required in the design of the SENTX to protect the staff working in the infrastructure area. These measures include a combination of passive and active systems (examples are recommended in EPD's <i>Guidance Notes</i>). Landfill gas monitoring boreholes will be installed at the edge of the waste slope	To protect workers from landfill gas risk	Infrastructure Area	SENTX Contractor	✓	✓			EPD's Landfill Gas Hazards Assessment Guidance Note EIAO-TM Annex 7	Not applicable

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		between the waste and the new infrastructure area to monitor the migration of landfill gas, if any.							
Ecology -	Construc	tion Phase							
9.10.2	EC1	Exposed soil areas will be minimised to reduce the contamination of runoff and erosion; To prevent stormwater runoff from	To minimise potential water quality impacts affecting ecological resources		SENTX Contractor	~		EIAO-TM Annex 16 ProPECC PN 1/94 Water Pollution Control Ordinance (WPCO) EIAO-TM Annex 6	Reminder was given to Contractor
		washing across exposed soil surfaces, perimeter channels will be constructed in advance of site formation works and earthworks and intercepting channels will be provided for example along the edge of excavation;							•
		 Silt removal facilities, channels and manholes will be maintained and the deposited silt and grit will be removed regularly to ensure they are functioning properly at all times; 						-	Implemented
		 Temporary covers such as tarpaulin will also be provided to minimise the generation of high suspended solids runoff; 						-	Deficiency of mitigation measures but rectified by the Contractor

	Mitigation Measures R	Recommended the Measures implem			-				or standards for the	Implementation Status and Remarks
1101	Thinguist Headures	Measure & Main Concerns to address	the Weastres	the measure?				A	measure to achieve?	Status and Remarks
	The surface runoff contained any oil and grease will pass through the oil interceptors; and,								-	Not applicable
	 Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site. 								-	Not applicable
EC2	Good Construction Practice:									
	 Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas. 	To minimise potential ecological impacts arising from the Project	SENTX Site	SENTX Contractor		✓			EIAO-TM Annex 16	Implemented
	 The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas. 									
EC9	Environmental Monitoring & Audit Requirements	T	CENTEN.	OED HED		,	,	,	FIAO TM A 16	
	The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring and audit procedures during the	To ensure that adverse ecological impacts are prevented	SEN1X	SENTX Contractor		•	V	•	EIAU-INI Annex 16	Implemented
	Ref EC2	The surface runoff contained any oil and grease will pass through the oil interceptors; and, Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site. EC2 Good Construction Practice: Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas. The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas. EC9 Environmental Monitoring & Audit Requirements The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring	Ref Mitigation Measures Recommended Measure & Main Concerns to address - The surface runoff contained any oil and grease will pass through the oil interceptors; and, - Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site. EC2 Good Construction Practice: - Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas. EC9 Environmental Monitoring & Audit Requirements The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring	Ref Mitigation Measures Recommended Measure & Main Concerns to address * The surface runoff contained any oil and grease will pass through the oil interceptors; and, * Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site. * Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas. * The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas. * EC9 * Environmental Monitoring & Audit Requirements The implementation of the ecological mitigation measures should be checked as part of the environmental monitoring	Recommended Measures Ex Main Concerns to address * The surface runoff contained any oil and grease will pass through the oil interceptors; and, * Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site. **Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas. * The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas. **Fences** **To minimise potential ecological impacts arising from the Project** **Forject** **To minimise potential ecological impacts arising from the Project** **To minimise potential ecological impacts arising from the Project** **To ensure that they are not breached and that damage does not occur to surrounding areas. **Forject** **To ensure that adverse ecological impacts are prevented as part of the environmental monitoring and everse ecological impacts are prevented and everse e	Recommended Measures implement the measure? Discription of the surface runoff contained any oil and grease will pass through the oil interceptors; and, • Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site. EC2 Good Construction Practice: • Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas. • The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas. EC9 Environmental Monitoring & Audit Requirements To ensure that adverse ecological impacts are prevented and provided and the measure's blond and provided and the provided and the provided and the provided and the measure's blond be checked and mitigation measures should be checked and part of the environmental monitoring area as part of the environmental monitoring area are prevented as a development and the province and the province area and the province and the province area and the province area and the province and the province area and the province and the province area and the province area and the province area and the province and the province area and the province area and the province and the province area and the province area and the province and the pr	Recommended Measures implement the measures implement the measure? Do Commended Measure & Main Concerns to address • The surface runoff contained any oil and grease will pass through the oil interceptors; and, • Control measures, including implementation of excavation schedules, lining and covering of excavated stockpiles will be implemented to minimise contaminated stormwater run-off from the SENTX site. EC2 Good Construction Practice: • Fences along the boundary of the SENTX Site will be erected before the commencement of works to prevent vehicle movements, and encroachment of personnel, onto adjacent areas. • The work site boundaries will be regularly checked to ensure that they are not breached and that damage does not occur to surrounding areas. EC9 Environmental Monitoring & Audit Requirements To ensure that adverse ecological impacts are prevented in macutes and entitigation measures should be checked and mitigation measures should be checked and part of the environmental monitoring area as part of the environmental monitoring and corrected measures and entities. To ensure that adverse ecological impacts are prevented and that adverse ecological impacts are prevented and that admage does not occur to surrounding areas.	Recommended Measures Recommended Measures Implement the measure? IV Measure & Main Concerns to address IV Measure & Measure & Main Concerns to address IV Measure & IV M	Recommended Measures Measure & Main Concerns to address To minimise potential ecological impacts arising from the SENTX Site will be erected before the commencement of orprevent vehicle movements, and encroachment of personnel, onto adjacent areas. Project Proje	Recommended Measures Main Concerns to address **Influence of the Measure & Main Concerns to address** **Influence of the SENTX Site will be erected before the commencement of works to adjacent areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that damage does not occur to surrounding areas. **Property effected to ensure that they are not breached and that d

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		construction period.								
Landscape	e and Visi	ual – Construction Phase								
10.6.5	LV1	CM1 - The construction area and area allowed for the contractor's office, leachate treatment plant and laboratory areas will be minimised to a practical minimum, to avoid impacts on adjacent landscape.	To minimise the landscape and visual impacts	SENTX Site	SENTX Contractor		✓		EIAO-TM Annex 18 and ETWBC 3/2006	Not applicable
10.6.5	LV2	CM2 - Topsoil, where identified, will be stripped and stored for re-use in the construction of the soft landscape works, where practical. The Contract Specification will include storage and reuse of topsoil as appropriate.	To minimise the landscape and visual impacts	All construction works area	SENTX Contractor		✓		EIAO-TM Annex 18	Implemented
10.6.5	LV3	CM3 - All existing trees at the edges of the landfill will be carefully protected during construction. Detailed Tree Protection Specification will be provided in the Contract Specification. Under this Specification, the Contractor will be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in Contractor's works areas.	To minimise the landscape and visual impacts	Potential impacted area	SENTX Contractor		✓		EIAO-TM Annex 18 and ETWBC 3/2006	Implemented
10.6.5	LV4	CM4 - Trees unavoidably affected by the works will be transplanted, where necessary and practical. A detailed Tree	landscape and visual	Potential impacted area	SENTX Contractor	✓	✓		EIAO-TM Annex 18 and ETWBC 3/2006	Not applicable

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			Concerns to address		tne measure?	D	С	O/R	А	measure to achieve?	
		Transplanting Specification will be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods will be allowed in the project programme.									
10.6.5 and SENTX latest design	LV5	CM5 - Within 3 months of taking possession of the SENTX Site, the Contractor will plant advance screen planting of native species at Light Standard size at 1.5m centres along the High Junk Peak Trail so as to screen views of the Works from the trail. Tree planting locations will be agreed with AFCD. Works will be completed within 9 months of taking possession of the SENTX Site.	To minimise the landscape and visual impacts	At High Junk Peak Hiking Trail	SENTX Contractor		✓			EIAO-TM Annex 18	Implemented
10.6.5	LV6	CM6 - The Contractor's office, leachate treatment plant and laboratory will be given an aesthetic treatment in earth tones to reduce their visual impact and albedo and blend them into the surrounding landscape.	To minimise the landscape and visual impacts	Infrastructure area	SENTX Contractor	√	✓			EIAO-TM Annex 18	Not applicable
10.6.5	LV7	CM7 - The Contractor's office, leachate treatment plant and laboratory will be surrounded by a minimum of 5m wide and 0.75m high earth bund on the west and south sides planted with a dense screen of tree and shrub vegetation. Additional tree planting will be provided in unused spaces with thin infrastructure	To minimise the landscape and visual impacts	Infrastructure area	SENTX Contractor	✓	✓			EIAO-TM Annex 18 and ETWBC 7/2002	Not applicable

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to When to implement s implement the measure? (1)		-	What requirements or standards for the	Implementation Status and Remarks	
			Measure & Main Concerns to address		the measure?	D	С	O/R A	measure to achieve?	
		site, along access roads and in and around car parks. This will be supplemented with shrub planting, where appropriate.								
10.6.5	LV8	CM8 - Planting trials will be carried out in an on-site nursery prior to implementation of the first phase of restoration to establish the best planting matrix and management intensity of the recommended plant materials for the restoration.	To minimise the landscape and visual impacts	SENTX Site	SENTX Contractor		✓		EIAO-TM Annex 18	Not applicable
11.4.1 and SENTX latest design	LV9	During the preparation of the detailed landscape design plan, the design submission will be audited against the recommendation proposed in the <i>ER Report</i> by the Registered Landscape Architect from the ET.	To ensure the implementation of mitigation measures proposed in this EIA Report	SENTX Site	SENTX Contractor/E T	✓	✓		EIAO-TM Annex 18	Implemented

Annex C

Monitoring Schedule for This Reporting Period

South East New Territories (SENT) Landfill Extension EM&A Impact Monitoring Schedule during Construction Phase

January 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1	2	3 Surface Water Monitoring Noise Monitoring	4 Dust Monitoring	5
6	7	8	9	Surface Water Monitoring Noise Monitoring Dust Monitoring	11	12
13	14	15	Dust Monitoring	17 Surface Water Monitoring Noise Monitoring	18	19
20	21	Dust Monitoring	23	24 Surface Water Monitoring Noise Monitoring	25	26
27	28 Dust Monitoring	29	30	31 Surface Water Monitoring Noise Monitoring		

Note:

Impact dust monitoring will be conducted at two monitoring stations (DM1 and DM2) under the on-going EM&A programme TKO Area 137 Fill Bank and the results will be shared with SENTX.

Air Quality

Calibration Certificates for Dust Monitoring Equipment



東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

8/F Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fo Tan, Hong Kong

T: +852 2695 8318 F: +852 2695 3944 E: etl@ets-testconsult.com W: www.ets-testconsult.com

Calibration Report of High Volume Air Sampler

Manufacturer

Graseby 105

Date of Calibration

19 December 2018

Serial No.

: 9795 (ET/EA/003/18)

Calibration Due Date

18 February 2019

Method

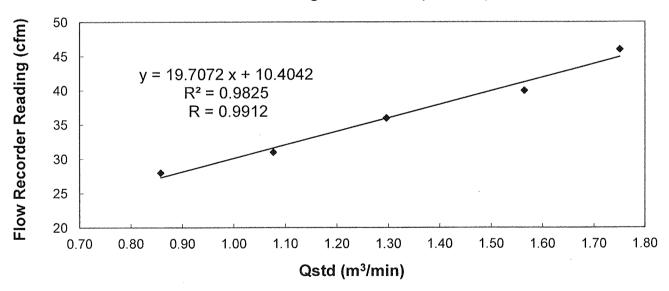
Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the

Operations Manual

Results

Flow recorder rea	ding (cfm)	46	40	36	31	28
Qstd (Actual flow	rate, m³/min)	1.75	1.56	1.30	1.08	0.86
Pressure :	762.06 mm Hg		Temp. :	293	Κ .	

Sampler 9795 Calibration Curve Site: Tseung Kwan O 137 (TKO-A1)



Acceptance Criteria: Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable*/ unacceptable* for use.

Calibrated by :

MAK Kei Wai

(Assistant Supervisor)

Checked by :

LĂU, Chi Leung

(Environmental Team Leader)



東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

8/F Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fo Tan, Hong Kong

T: +852 2695 8318 F: +852 2695 3944 E: eti@ets-testconsult.com W: www.ets-testconsult.com

Calibration Report of High Volume Air Sampler

Manufacturer

Andersen G1051

Date of Calibration

19 December 2018

Serial No.

1176 (ET/EA/003/05)

Calibration Due Date

18 February 2019

Method

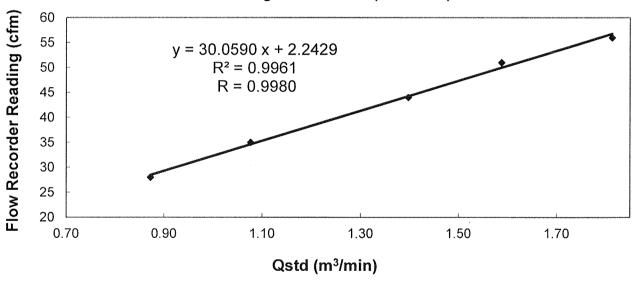
Based on Operations Manual for the 5-point calibration using standard calibration kit

manufactured by Tisch TE-5025 A

Results

Flow recorder read	ling (cfm)	56	51	44	35	28
Qstd (Actual flow r	ate, m³/min)	1.81	1.59	1.40	1.08	0.87
Pressure :	762.06 mm Hg		Temp. :	293	K	

Sampler 1176 Calibration Curve Site: Tseung Kwan O 137 (TKO-A2a)



Acceptance Criteria: Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable* / unacceptable * for use.

Calibrated by:

MAK, Kei Wai

(Assistant Supervisor)

Checked by

LAU, Chi Leung

(Environmental Team Leader)

24-hour TSP Monitoring Results

Table D2.1 24-hour TSP Monitoring Results at DM1

Start Date	Start Time	Finish Date	Finish Time	Weather	24-hour TSP (μg/m3)
4 Jan 2019	15:00	5 Jan 2019	15:00	Fine	109
10 Jan 2019	8:00	11 Jan 2019	8:00	Fine	92
16 Jan 2019	15:00	17 Jan 2019	15:00	Fine	79
22 Jan 2019	8:00	23 Jan 2019	8:00	Sunny	146
28 Jan 2019	9:55	29 Jan 2019	9:55	Fine	123
				Average	110
				Min	79
				Max	146

Note:

 $\,$ DM1 corresponds to the existing TSP monitoring station TKO-A1 currently operating by CEDD.

Figure D2.1 Graphical Presentation for 24-hr TSP Monitoring at DM1

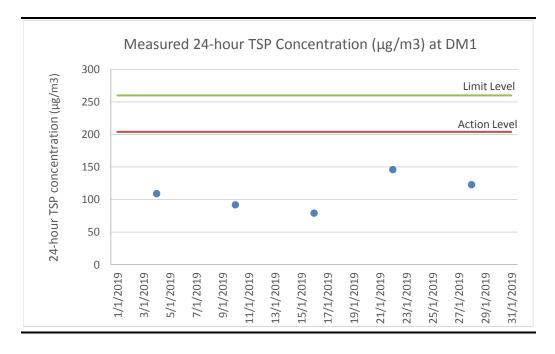


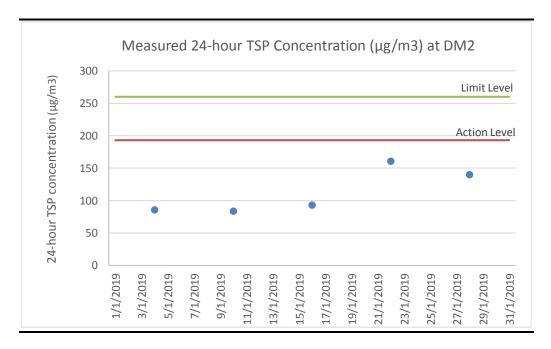
Table D2.2 24-hour TSP Monitoring Results at DM2

Start Date	Start Time	Finish Date	Finish Time	Weather	24-hour TSP (μg/m3)
4 Jan 2019	15:00	5 Jan 2019	15:00	Fine	86
10 Jan 2019	8:00	11 Jan 2019	8:00	Fine	84
16 Jan 2019	15:00	17 Jan 2019	15:00	Fine	93
22 Jan 2019	8:00	23 Jan 2019	8:00	Sunny	161
28 Jan 2019	10:00	29 Jan 2019	10:00	Fine	140
				Average	113
				Min	84
				Max	161

Note:

DM2 corresponds to the existing TSP monitoring station TKO-A2a currently operating by CEDD.

Figure D2.2 Graphical Presentation for 24-hr TSP Monitoring at DM2



Event and Action Plan for Dust Monitoring

Annex D3 Event and Action Plan for Dust Monitoring During Construction Phase

		Action	
Event	ET	IEC	Contractor
Action Level			
Exceedance for one sample	 Identify the source(s) and investigate the cause(s) of exceedance Prepare Notification of Exceedance within 24 hours Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project Repeat measurement to confirm finding if exceedance is due to the Project Increase monitoring frequency to daily if exceedance is due to the Project and continue until the monitoring results reduce to below action level 	 Verify the Notification of Exceedance Check monitoring data submitted by ET Check Contractor's working methods 	 Rectify any unacceptable practice Amend working methods if appropriate
Exceedance for two or more consecutive samples	 Identify the source(s) and investigate the cause(s) of exceedance Prepare Notification of Exceedance within 24 hours Inform Contractor, IEC and Project Proponent 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 If exceedance continues, arrange meeting with Contractor & IEC Continue monitoring at daily intervals if exceedance is due to the Project If no exceedance for 3 consecutive days, cease additional monitoring 	 Check monitoring data submitted by ET 	 Submit proposals for remedial measures to IEC Implement the agreed proposals Amend proposal if appropriate

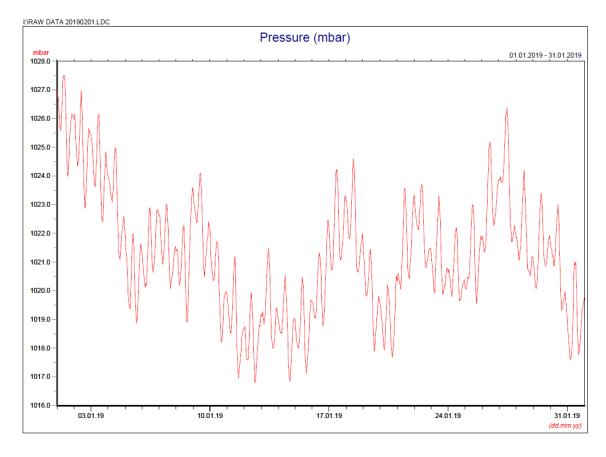
		Action	
Event	ET	IEC	Contractor
Limit Level			
Exceedance for one sample	 Identify the source(s) and investigate the cause(s) of exceedance Prepare Notification of Exceedance within 24 hours Inform Contractor, IEC, Project Proponent and EPD whether the cause of exceedance is due to the Project Discuss with Contractor and IEC for remedial measures required Ensure remedial measures are properly implemented Repeat measurement to confirm finding if exceedance is due to the Project Increase monitoring frequency to daily if exceedance is due to the Project and continue until the monitoring results reduce to below limit level 	Check monitoring data submitted by ETCheck Contractor's working methods	 Take immediate action to avoid further exceedance Submit proposals for remedial measures to IEC Implement the agreed proposals Amend proposal if appropriate
Exceedance for two or more consecutive samples	 Identify source(s) and investigate the cause(s) of exceedance Prepare Notification of Exceedance within 24 hours Inform Contractor, IEC, Project Proponent and EPD the causes & actions taken for the exceedances Discuss with Contractor and IEC for remedial measures required Ensure remedial measures are properly implemented Continue monitoring at daily intervals if exceedance is due to the Project If no exceedance for 3 consecutive days, cease additional monitoring If exceedance due to the Project continues, consider what portion of the work is responsible and stop that portion of work until the exceedance is abated 		 Take immediate action to avoid further exceedance Submit proposals for remedial measures to IEC Implement the agreed proposals Resubmit proposals if problem still not under control

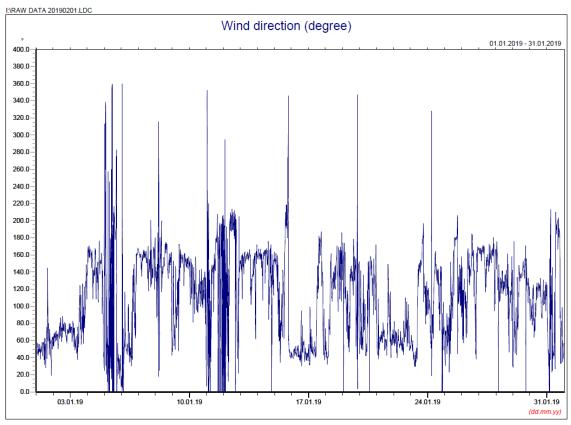
ENVIRONMENTAL RESOURCES MANAGEMENT

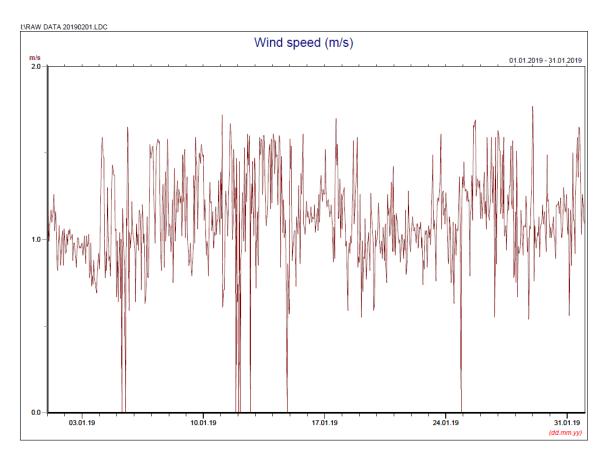
GREEN VALLEY LANDFILL LTD.

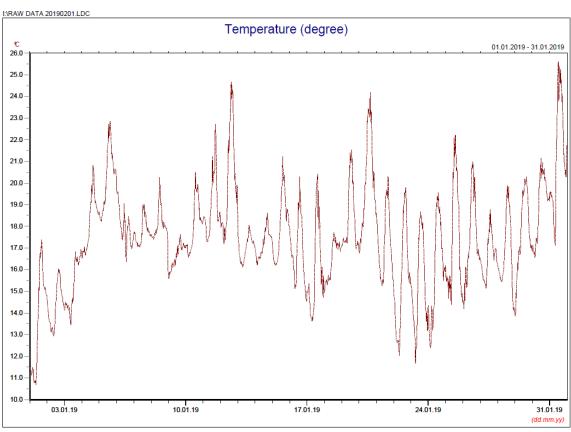
Meteorological Data

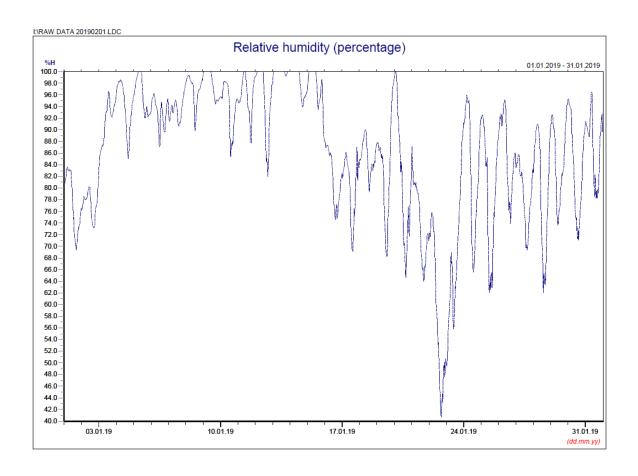
Annex D4 Meteorological Data











Manual Rain Gauge Readings

January 2019

Date	Rainfall
	(mm)
1 Jan 19	0.0
2 Jan 19	0.0
3 Jan 19	0.3
4 Jan 19	0.1
5 Jan 19	0.0
6 Jan 19	0.0
7 Jan 19	0.0
8 Jan 19	1.2
9 Jan 19	0.4
10 Jan 19	0.0
11 Jan 19	0.0
12 Jan 19	1.6
13 Jan 19	0.6
14 Jan 19	1.6
15 Jan 19	0.1
16 Jan 19	0.0
17 Jan 19	0.0
18 Jan 19	0.0
19 Jan 19	0.4
20 Jan 19	0.0
21 Jan 19	0.0
22 Jan 19	0.0
23 Jan 19	0.0
24 Jan 19	0.0
25 Jan 19	0.0
26 Jan 19	0.0
27 Jan 19	0.0
28 Jan 19	0.0
29 Jan 19	0.0
30 Jan 19	0.0
31 Jan 19	0.0
TOTAL RAINFALL	6.3

Annex E

Noise

Annex E1

Calibration Certificates for Noise Monitoring Equipment



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.:

Date of Receipt / 收件日期: 29 May 2018

C183086

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號: IC18-0867)

Description / 儀器名稱

Integrating Sound Level Meter (EQ009)

Manufacturer / 製造商

Brüel & Kjær

Model No. / 型號 Serial No. / 編號

2238 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 / 温度 :

Relative Humidity / 相對濕度 :

 $(50 \pm 25)\%$

Line Voltage / 電壓 :

TEST SPECIFICATIONS / 測試規節

Calibration check

DATE OF TEST / 測試日期

10 June 2018

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

The results do not exceed manufacturer's specification.

The results are detailed in the subsequent page(s).

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

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試

K C Lee Engineer

Certified By 核證

H C Chan

Date of Issue 簽發日期

11 June 2018

Engineer

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

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c/o 香港新界屯門興安里一號四樓

Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986

E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Page 1 of 4



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.:

C183086

證書編號

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

- 2. Self-calibration using laboratory acoustic calibrator was performed before the test from 6.1.1.2 to 6.4.
- 3. The results presented are the mean of 3 measurements at each calibration point.
- 4. Test equipment:

Equipment ID

Description

Certificate No.

CL280

40 MHz Arbitrary Waveform Generator

C180024

CL281

Multifunction Acoustic Calibrator

PA160023

- 5. Test procedure: MA101N.
- 6. Results:
- 6.1 Sound Pressure Level
- 6.1.1 Reference Sound Pressure Level

6.1.1.1 Before Self-calibration

	UUT S	Setting	Applied	Value	UUT	
Range	Parameter	Frequency	Time	Level	Freq.	Reading
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)
50 - 130	L_{AFP}	A	94.00	1	94.1	

6.1.1.2 After Self-calibration

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

6.1.2 Linearity

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

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

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

Website/網址: www.suncreation.com

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Sun Creation Engineering Limited – Calibration & Testing Laboratory c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 輝創工程有限公司 — 校正及檢測實驗所



Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration

校正證書

Certificate No.: C183086

證書編號

6.2 Time Weighting

6.2.1 Continuous Signal

Continuous	Solitina da Signar										
	UUT	Setting		Applied Value		UUT	IEC 60651				
Range	Parameter Frequency Time				Freq.	Reading	Type 1 Spec.				
(dB)	(dB) Weighting Weighting				(kHz)	(dB)	(dB)				
50 - 130	L_{AFP}	A	F	94.00	1	94.0	Ref.				
	L_{ASP}		S			94.1	± 0.1				
	L_{AIP}		I			94.1	± 0.1				

6.2.2 Tone Burst Signal (2 kHz)

	UUT	Setting		App	lied Value	UUT	IEC 60651
Range	Parameter	Frequency	Time	Level	Burst	Reading	Type 1 Spec.
(dB)		Weighting	Weighting	(dB)	Duration	(dB)	(dB)
30 - 110	L_{AFP}	A	F	106.0	Continuous	106.0	Ref.
	L _{AFMax}				200 ms	104.9	-1.0 ± 1.0
	L_{ASP}		S	Continuou		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	IEC 60651
Range	Parameter	Frequency	Time	Level	Freq.	Reading	Type 1 Spec.
(dB)		Weighting	Weighting	(dB)		(dB)	(dB)
50 - 130	L_{AFP}	A	F	94.00	31.5 Hz	54.5	-39.4 ± 1.5
					63 Hz	67.8	-26.2 ± 1.5
					125 Hz	77.8	-16.1 ± 1.0
					250 Hz	85.3	-8.6 ± 1.0
					500 Hz	90.8	-3.2 ± 1.0
					1 kHz	94.0	Ref.
					2 kHz	95.2	$+1.2 \pm 1.0$
					4 kHz	95.0	$+1.0 \pm 1.0$
					8 kHz	92.8	-1.1 (+1.5; -3.0)
					12.5 kHz	89.7	-4.3 (+3.0; -6.0)

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Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration

校正證書

Certificate No.: C183086

證書編號

6.3.2 C-Weighting

		Setting		Applie	ed Value	UUT	IEC 60651
Range	Parameter	Frequency	Time	Level	Freq.	Reading	Type 1 Spec.
(dB)		Weighting	Weighting	(dB)	_	(dB)	(dB)
50 - 130	L_{CFP}	С	F	94.00	31.5 Hz	90.9	-3.0 ± 1.5
					63 Hz	93.1	-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	87.7	-6.2 (+3.0; -6.0)

6.4 Time Averaging

I IIII I I I I I	into 7 trotagnia										
	UUT Setting			Applied Value					UUT	IEC 60804	
Range	Parameter	Frequency	Integrating	Frequency	Burst	Burst	Burst	Equivalent	Reading	Type 1	
(dB)		Weighting	Time	(kHz)	Duration	Duty	Level	Level	(dB)	Spec.	
					(ms)	Factor	(dB)	(dB)		(dB)	
30 - 110	L _{Aeq}	A	10 sec.	4	1	1/10	110.0	100	99.9	± 0.5	
						$1/10^{2}$		90	90.0	± 0.5	
			60 sec.			1/103		80	79.0	± 1.0	
			5 min.			1/104		70	69.1	± 1.0	

Remarks: - UUT Microphone Model No.: 4188 & S/N: 2658547

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

- Uncertainties of Applied Value : 94 dB : 31.5 Hz - 125 Hz : \pm 0.35 dB

250 Hz - 500 Hz : \pm 0.30 dB 1 kHz $:\pm 0.20~dB$ 2 kHz - 4 kHz $: \pm 0.35 \text{ dB}$ 8 kHz $: \pm 0.45 \text{ dB}$

12.5 kHz $: \pm 0.70 \text{ dB}$ 104 dB: 1 kHz $: \pm 0.10 \text{ dB (Ref. 94 dB)}$

114 dB: 1 kHz $: \pm 0.10 \text{ dB (Ref. 94 dB)}$ Burst equivalent level $: \pm 0.2 \text{ dB}$ (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. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

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

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Sun Creation Engineering Limited

Calibration & Testing Laboratory

Certificate of Calibration 校正證書

Certificate No.:

Date of Receipt / 收件日期: 26 April 2018

C182469

證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號: IC18-0867)

Description / 儀器名稱

Sound Level Calibrator (EQ088)

Manufacturer / 製造商

Quest

Model No. / 型號

QC-20

Serial No. / 編號

OO9090006

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 / 温度 :

 $(23 \pm 2)^{\circ}$ C

Relative Humidity / 相對濕度 :

 $(50 \pm 25)\%$

Line Voltage / 電壓 :

TEST SPECIFICATIONS / 測試規節

Calibration check

DATE OF TEST / 測試日期

12 May 2018

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.

The results do not exceed manufacturer's specification.

The results are detailed in the subsequent page(s).

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

- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By

測試

H T Wong

Technical Officer

Certified By

K C Lee Engineer Date of Issue 簽發日期

15 May 2018

核證

The test equipment used for calibration are traceable to the Nation 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。

Sun Creation Engineering Limited - Calibration & Testing Laboratory c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 輝創工程有限公司 一 校正及檢測實驗所

c/o 香港新界屯門興安里一號四樓

Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com

Website/網址: www.suncreation.com

Page 1 of 2

Certificate of Calibration 校正證書

Certificate No.: C182469

證書編號

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

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

3. Test equipment:

TST150A

Equipment ID CL130 CL281

Description

Universal Counter

Multifunction Acoustic Calibrator Measuring Amplifier

Certificate No. C173864

PA160023 C181288

4. Test procedure: MA100N.

5. Results:

Sound Level Accuracy 5.1

Sound Bever Recurdey						
UUT	Measured Value	Mfr's Spec.	Uncertainty of Measured Value			
Nominal Value	(dB)	(dB)	(dB)			
94 dB, 1 kHz	94.2	± 0.3	± 0.2			
114 dB, 1 kHz	114.2					

5 2 Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's	Uncertainty of Measured Value
(kHz)	(kHz)	Spec.	(Hz)
1	0.994	± 2 %	± 1

Remark: - 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. Sun Creation Engineering Limited shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to the Nation 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。

Sun Creation Engineering Limited - Calibration & Testing Laboratory c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong 輝創工程有限公司 — 校正及檢測實驗所 c/o 香港新界屯門興安里一號四樓 Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com

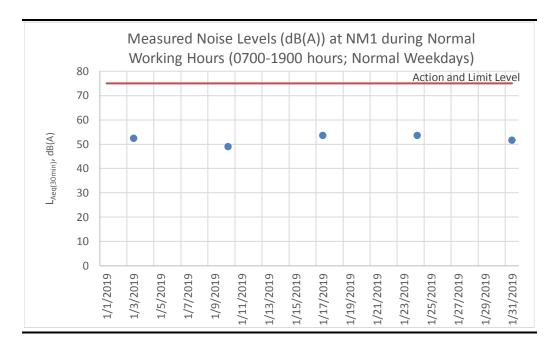
Annex E2

Noise Monitoring Results

Table E2.1 Measured Noise Levels (dB(A)) at NM1 during Normal Working Hours (0700-1900 hours; Normal Weekdays)

Date	Weather	Start Time	Finish Time	L _{10 (30min)}	L _{90 (30min)}	Leq (30min)
3 Jan 2019	Cloudy	16:15	16:45	54.0	50.5	52.4
10 Jan 2019	Cloudy	15:25	15:55	50.5	46.5	48.9
17 Jan 2019	Sunny	9:43	10:13	55.5	50.5	53.5
24 Jan 2019	Sunny	14:17	14:47	55.0	49.5	53.6
31 Jan 2019	Sunny	14:14	14:44	52.5	50.0	51.6
					Average	e 52
					Miı	1 48.9
					Max	x 53.6

Figure E2.1 Graphical Presentation for Noise Monitoring at NM1



Annex E3

Event and Action Plan for Noise Monitoring

Annex E3 Event and Action Plan for Construction Noise

Event	Action						
	ET	IEC	Contractor				
Action Level	 Identify the source(s) and investigate the cause(s) of exceedance and complaint Prepare Notification of Exceedance within 24 hours Inform Contractor, IEC and Project Proponent 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 Have additional monitoring if exceedance is due to the Project. If exceedance stops, cease additional monitoring 	 Verify the Notification of Exceedance Check monitoring data submitted by ET Discuss with ET and Contractor on proposed remedial measures Review proposals on remedial measures Audit the implementation of the remedial measures Audit the effectiveness of the implemented remedial measures 	 Submit proposals for remedial measures to IEC Implement the agreed proposals 				
Limit Level	 Identify the source(s) and investigate the cause(s) of exceedance and complaint Prepare Notification of Exceedance within 24 hours Inform Contractor, IEC, Project Proponent and EPD whether the cause of exceedance is due to the Project Analyse the operation of SENTX and investigate the causes of exceedance Provide interim report to Contractor, IEC, Project Proponent and EPD the causes of the exceedances Discuss with Contractor and IEC for remedial measures required Ensure remedial measures are properly implemented Report the remedial measures implemented and the additional monitoring results to Contactor, IEC, Project Proponent and EPD Have additional monitoring if exceedance is due to the Project. If exceedance stops, cease additional monitoring 	 Verify the Notification of Exceedance Check monitoring data submitted by ET Discuss with ET and Contractor on proposed remedial measures Review proposals on remedial measures Audit the implementation of the remedial measures Audit the effectiveness of the implemented remedial measures 	 Take immediate measures to avoid further exceedance Submit proposals for remedial measures to IEC within 3 working days of notification Implement the agreed proposals Resubmit proposals if problem still not under control Stop the relevant activity of works as determined by the Project Proponent until the exceedance is abated 				

Surface Water Quality

Calibration Certificates for Surface 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

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR BEN TAM WORK ORDER: HK1860886

CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND

CONSULTING

ADDRESS: RM A 20/F., GOLD KING IND BLDG, SUB-BATCH: C

NO. 35-41 TAI LIN PAI ROAD, LABORATORY: HONG KONG KWAI CHUNG, DATE RECEIVED: 21-Nov-2018 N.T., HONG KONG. DATE OF ISSUE: 27-Dec-2018

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 ALS Hong Kong laboratory or quoted from relevant international standards.

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

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

Equipment Type: Multifunctional Meter

Brand Name: YSI

Model No.: Professional DSS

Serial No.: 15H102620/15H103928

Equipment No.: EQW018

Date of Calibration: 28 November, 2018

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr Chan Siu Ming, Vico Manager - Inorganic

Ma Si

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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1860886

SUB-BATCH: C

DATE OF ISSUE: 27-Dec-2018

CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter

Brand Name: YSI

Model No.: Professional DSS

Serial No.: 15H102620/ 15H103928

Equipment No.: EQW018

Date of Calibration: 28 November, 2018 Date of Next Calibration: 28 February, 2019

PARAMETERS:

Conductivity Method Ref: APHA (21st edition), 2510B

Expected Reading (µS/cm)	Displayed Reading (μS/cm)	Tolerance (%)	
146.9	159.8	+8.8	
6667	6492	-2.6	
12890	12526	-2.8	
58670	55801	-4.9	
	Tolerance Limit (%)	±10.0	

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500-O: G

Expected Reading (mg/L)	pected Reading (mg/L) Displayed Reading (mg/L)	
3.17	3.05	-0.12
5.95	5.92	-0.03
8.19	8.29	+0.10
	Tolerance Limit (mg/L)	±0.20

pH Value Method Ref: APHA (21st edition), 4500H:B

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.0	4.10	+0.10
7.0	7.13	+0.13
10.0	9.99	-0.01
	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.

Mr Chan Siu Ming, Vico Manager - Inorganic

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1860886

SUB-BATCH: 0

DATE OF ISSUE: 27-Dec-2018

CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter

Brand Name: YSI

Model No.: Professional DSS

Serial No.: 15H102620/ 15H103928

Equipment No.: EQW018

Date of Calibration: 28 November, 2018 Date of Next Calibration: 28 February, 2019

PARAMETERS:

Salinity Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.01	
10	10.23	+2.3
20	21.02	+5.1
30	29.83	-0.6
	Tolerance Limit (%)	±10.0

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	11.2	+1.2
22.0	21.7	-0.3
41.0	40.8	-0.2
	Tolerance Limit (°C)	±2.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless

of equipment precision or significant figures.

Mr Chan Siu Ming, Vico Manager - Inorganic

Ma Ay

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER: HK1860886

SUB-BATCH: 0

DATE OF ISSUE: 27-Dec-2018

CLIENT: ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING

Equipment Type: Multifunctional Meter

Brand Name: YSI

Model No.: Professional DSS

Serial No.: 15H102620/ 15H103928

Equipment No.: EQW018

Date of Calibration: 05 December, 2018 Date of Next Calibration: 05 March, 2019

PARAMETERS:

Turbidity Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.14	
4	3.60	-10.0
40	41.49	+3.7
80	74.42	-7.O
400	426.8	+6.7
800	803.89	+0.5
	Tolerance Limit (%)	±10.0

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

Mr Chan Siu Ming, Vico Manager - Inorganic

Surface Water Quality Monitoring Results

Table F2.1 Surface Water Quality Monitoring Results at DP4

Date	Time	Weather Condition	Water Appearance	Water Condition	Water Temperature (°C)	Dissolved Oxygen (DO) (mg/L)	рН	Suspended Solids (SS) (mg/L)
3 Jan 2019	15:26	Cloudy		Unable	to collect water samp	ole due to insufficient	flow	
10 Jan 2019	15:06	Cloudy		Unable	to collect water samp	ole due to insufficient	flow	
17 Jan 2019	9:32	Sunny		Unable to collect water sample due to insufficient flow				
24 Jan 2019	11:32	Sunny		Unable	to collect water samp	ole due to insufficient	flow	
31 Jan 2019	9:55	Sunny		Unable	to collect water samp	ole due to insufficient	flow	
					Average	-	-	-
					Min	. -	-	-
					Max	-	-	-

Table F2.2 Surface Water Quality Monitoring Results at DP6

Date	Time	Weather Condition	Water Appearance	Water Condition	Water Temperature (°C)	Dissolved Oxygen (DO) (mg/L)	pН	Suspended Solids (SS) (mg/L)
3 Jan 2019	15:51	Cloudy		Unable	to collect water samp	ole due to insufficient f	low	
10 Jan 2019	11:19	Cloudy		Unable	to collect water samp	ole due to insufficient f	low	
17 Jan 2019	11:47	Sunny	Unable to collect water sample due to insufficient flow					
24 Jan 2019	11:05	Sunny		Unable	to collect water samp	ole due to insufficient f	low	
31 Jan 2019	11:01	Sunny		Unable	to collect water samp	ole due to insufficient f	low	
					Average	-	-	-
					Min	-	-	-
					Max	-	-	-

ENVIRONMENTAL RESOURCES MANAGEMENT GREEN VALLEY LANDFILL LTD.

Event and Action Plan for Surface Water Quality Monitoring

Annex F3 Event and Action Plan for Surface Water Quality During Construction Phase

Event	Action				
	ET	IEC	Contractor		
Action Level being exceeded by one sampling day	 Repeat <i>in situ</i> measurement to confirm findings Identify the source(s) and investigate the cause(s) of exceedance Prepare Notification of Exceedance within 24 hours Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project Repeat measurement on the next day of exceedance if exceedance is due to the Project 	 Verify the Notification of Exceedance Check monitoring data submitted by ET Check Contractor's working methods 	 Rectify any unacceptable practice Amend working methods if appropriate 		
Action Level being exceeded by two consecutive sampling days	 Repeat <i>in situ</i> measurement to confirm findings Identify the source(s) and investigate the cause(s) of exceedance Prepare Notification of Exceedance within 24 hours Inform Contractor, IEC and Project Proponent 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 Increase the monitoring frequency to daily if exceedance is due to the Project and continue until no exceedance of Action Level 	 Verify the Notification of Exceedance Check monitoring data submitted by ET Check Contractor's working methods Discuss with ET Leader and Contractor on proposed remedial measures Review proposals on remedial measures Audit the implementation of the remedial measures Audit the effectiveness of the implemented remedial measures 	 Submit proposals for remedial measures to IEC Implement the agreed proposals Amend proposal if appropriate 		

Event	Action				
	ET	IEC	Contractor		
Limit Level being exceeded by two consecutive sampling days	 Repeat <i>in situ</i> measurement to confirm findings Identify source(s) of impact and cause(s) of exceedance Prepare the Notification of Exceedance within 24 hours Inform Contractor, IEC, Project Proponent and EPD 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 Increase the monitoring frequency to daily if exceedance is due to the Project until no exceedance of Limit Level 	 Verify the Notification of Exceedance Check monitoring data submitted by ET Check Contractor's working methods Discuss with ET and Contractor on proposed remedial measures Review proposals on remedial measures Audit the implementation of the remedial measures Audit the effectiveness of the implemented remedial measures 	 Critically review the working methods Rectify unacceptable practice Check all plant and equipment Consider changes of working methods Discuss with the ET and IEC and propose mitigation measures to the IEC Implement the agreed mitigation measures Increase 		
Limit Level being exceeded by more than two consecutive sampling days	 Repeat <i>in situ</i> measurement to confirm findings Identify source(s) of impact and cause(s) of exceedance Prepare the Notification of Exceedance within 24 hours Inform Contractor, IEC, Project Proponent and EPD whether the cause of exceedance is due to the Project Check monitoring data, all plant, equipment and Contractor's working methods Discuss with Contractor and IEC for remedial measures required Ensure mitigation measures are implemented Increase the monitoring frequency to daily if exceedance is due to the Project until no exceedance of Limit Level for two consecutive days 	 Verify the Notification of Exceedance Check monitoring data submitted by ET Check Contractor's working methods Discuss with ET and Contractor on proposed remedial measures Review proposals on remedial measures Audit the implementation of the remedial measures Audit the effectiveness of the implemented remedial measures 	 Critically review the working methods Rectify unacceptable practice Check all plant and equipment Consider changes of working methods Discuss with the ET and IEC and propose mitigation measures Implement the agreed mitigation measure As directed by the Project Proponent, slow down or stop all or part of the construction activities 		

ENVIRONMENTAL RESOURCES MANAGEMENT

GREEN VALLEY LANDFILL LTD.

Annex G

Cumulative Statistics on Exceedances, Environmental Complaints, Notification of Summons and Status of Prosecutions

Table G1 Cumulative Statistics on Exceedances

		Total No. recorded in this reporting period	Total No. recorded since project commencement
Air Quality (24-hr TSP)	Action	0	0
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Surface Water Quality	Action	0	0
·	Limit	0	0

Exceedances, which are not project related, are not shown in this table.

Table G2 Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

Reporting Period	Cumulative Statistics					
_	Complaints	Notifications of Summons	Prosecutions			
This Reporting Period (2-31 January 2019)	0	0	0			
Total no. received since project commencement	0	0	0			

Annex H

Monitoring Schedule for the Next Reporting Period

South East New Territories (SENT) Landfill Extension EM&A Impact Monitoring Schedule during Construction Phase

February 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
Dust Monitoring					Surface Water Monitoring	Dust Monitoring
					Noise Monitoring	
10	11	12	13			16
			Surface Water Monitoring		Dust Monitoring	
			Noise Monitoring			
17	18	19	20	21	22	23
17	18	19	Surface Water Monitoring	Dust Monitoring	22	23
			Noise Monitoring	Dust Monitoring		
			Troise Wontoring			
24	25	26	27	28		
			Surface Water Monitoring			
			Noise Monitoring			
			Dust Monitoring			

Note:

Impact dust monitoring will be conducted at two monitoring stations (DM1 and DM2) under the on-going EM&A programme TKO Area 137 Fill Bank and the results will be shared with SENTX.