



翠谷工程有限公司 Green Valley Landfill, Limited

# South East New Territories (SENT) Landfill Extension

Monthly Environmental Monitoring & Audit Report No.11 for November 2019

April 2020

ERM

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# 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.11 for November 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.

Frank Wan, Environmental Team Leader: (ERM Hong-Kong, Limited)

Warchitty.

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 May 2020

# South East New Territories (SENT) Landfill Extension

# Monthly Environmental Monitoring & Audit Report for November 2019

#### Environmental Resources Management

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Client:		Projec	t No:		
Green V	alley Landfill Ltd.	0465	169		
Summary:		Date:			
		28 A	pril 2020		
		Appro	ved by:		
This document presents the Monthly EM&A Report No.11 for November 2019 for <i>South East New Territories (SENT) Landfill</i> Extension		Warch-HJ.			
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1	Monthly EM&A Report No.11 (for November 2019) (Annex G revised)	AL	FW	FW	28 Apr 20
0	Monthly EM&A Report No.11 (for November 2019)	AL	FW	FW	12 Dec 19
Revision	Description	Ву	Checked	Approved	Date
This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms		Distrib	oution		BSI
	act with the client, incorporating our General Terms and Conditions of Business account of the resources devoted to it by agreement with the client.		Internal	Ce	OHSAS 18001:2007 rtificate No. OHS 515956
We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.		$\bowtie$	Public		BSI
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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 1 to 30 November 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 for construction air quality monitoring was recorded in the reporting period.

# Exceedance of Action and Limit Levels for Noise

No exceedance of Action and Limit Levels for construction noise monitoring was recorded 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 upcoming construction activities in the next reporting period of December 2019 are mainly associated with dust emission from the exposed area and loading and uploading operation of dusty materials.

#### 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).

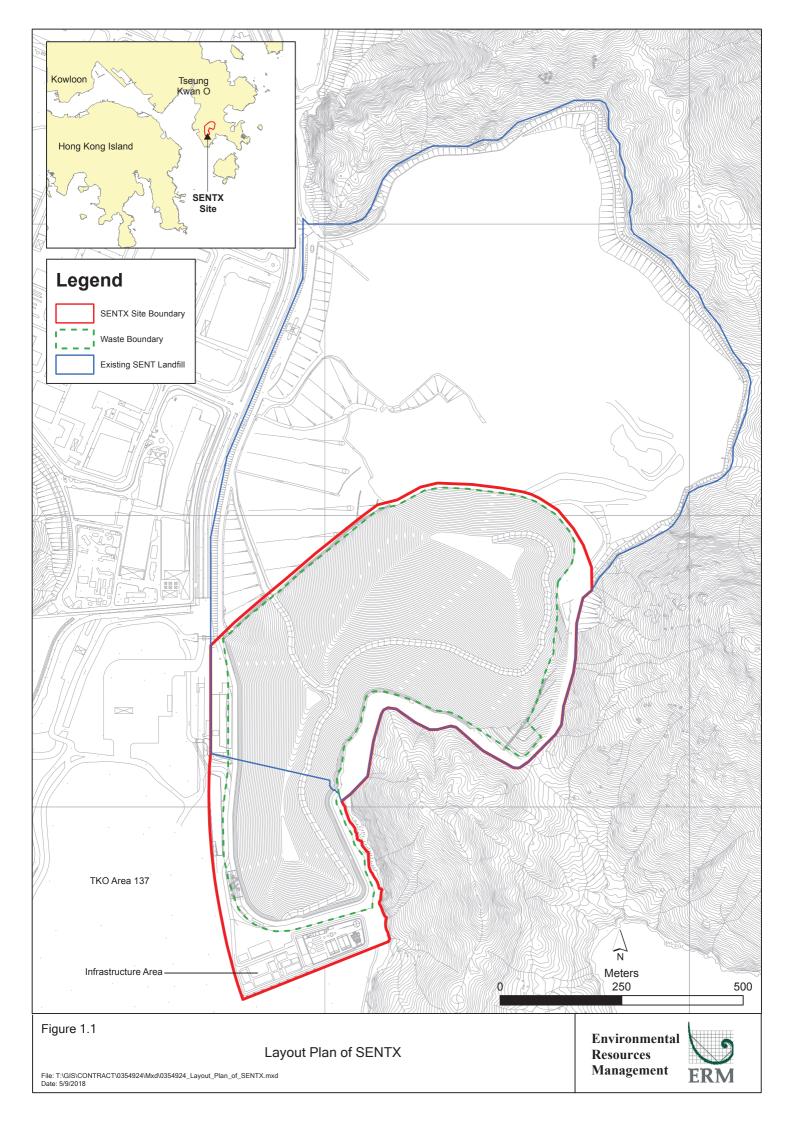
ERM-Hong Kong, Limited (ERM) and Meinhardt Infrastructure and Environment Limited (Meinhardt) are commissioned to undertake the roles of Environmental Team (ET) and the Independent Environmental Checker (IEC), respectively, to undertake the EM&A activities for the Project in accordance with the requirements specified in the EP, updated EM&A Manual <sup>(1)</sup>, approved EIA Report <sup>(2)</sup> 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 Mm<sup>3</sup> 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
- (2) ERM (2007). South East New Territories (SENT) Landfill Extension Feasibility Study: Environmental Impact Assessment Report



# Table 1.1Estimated 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.

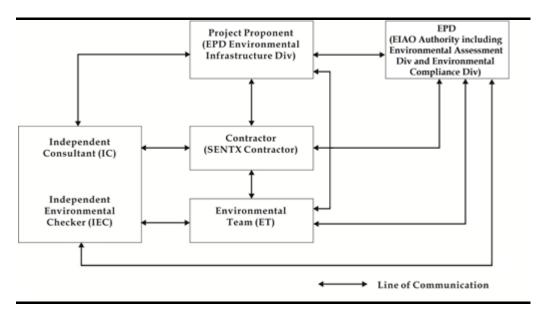
#### 1.3 SCOPE OF THE EM&A REPORT

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 1 to 30 November 2019 for the construction works.

#### 1.4 **PROJECT ORGANISATION**

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

# Figure 1.2 Organisation Chart



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

Table 1.2Contact 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)		Ũ	
(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, the major works carried out in this reporting period include:

- Rebar fixing, concreting and formwork erection for the plinth and the fitout work for the control building of Landfill Gas Plant area and placing of landfill gas generator;
- Excavating, removing and replacing unsuitable fill materials;
- Sediment trap remedial works;
- Construction of drop inlet shaft and last bay of outlet box culvert;

- Rebar fixing, formwork and concreting to the plinth of tanks at Leachate Treatment Plant (LTP) and construction of superstructure of Bioplant buildings;
- Rebar, formwork and concreting to the substructure of infrastructure buildings (EPD, GVL and laboratory buildings);
- Backfilling works around the raft foundation of maintenance building;
- Installation of ammonia stripping plant, equalization tank, sequencing batch reactor tank and treated effluent tank at LTP area;
- Construction of perimeter bund for Cell 1X and 2X;
- Maintenance and improvement of the temporary surface water drainage;
- Shotcreting and mass concrete for Buttress Wall;
- Installing groundwater pipe works from East to West in Cell 2X;
- CLP trench works;
- Liner installation at Cell 1X; and
- Construction of X9B channel.

The implementation schedule of the mitigation measured recommended in the Updated EM&A Manual 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 1.3Summary of Status for the Environmental Aspects under the Updated EM&AManual

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
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
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
Waste Management	
Waste Monitoring	On-going
E	

ENVIRONMENTAL RESOURCES MANAGEMENT

Parameters	Status
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
Site Environmental Audit	
Regular Site Inspection	On-going
Complaint Hotline and Email	On-going
Channel	
Environmental Log Book	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 summarised as below:

- One environmental management meeting was held with the Contractor, ER, ET, IEC and EPD on 13 November 2019; and
- Environmental toolbox trainings on Waste Reduction in Construction Industry and Good Practice of Wastewater Management in Construction Sites were provided on 7 November and 26 November 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 1.4Status of Submissions required under the EP and Implementation Status of<br/>Mitigation Measures

EP	Submission / Implementation Status	Status
Condition		
2.3	Management Organisation of Main	Submitted and 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	Submitted and accepted by EPD on 10
	Hazard Assessment Report	January 2019.
2.6	Submission of Restoration and Ecological	Submitted to EPD on 28 June 2019.
	Enhancement Plan	
2.7	Setting up of Trial Nursery	Trial Nursery works was commenced
		on 28 August 2019.

EP	Submission / Implementation Status	Status
Condition		
2.8	Advance Screen Planting	Advance Screen Planting works were
		completed on 28 June 2019.
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 EP, *Water Pollution Control Ordinance* (WPCO) discharge license, registration as a chemical waste producer, and construction noise permit) that are valid in the reporting period are presented in *Table 1.5*. No non-compliance with environmental statutory requirements was identified.

# Table 1.5Status of Statutory Environmental Requirements

Description	Ref No.	Status
Environmental Permit	EP-308/2008	Granted on 5 August 2008
Variation of Environmental Permit	EP-308/2008/A	Granted on 6 January 2012
	EP-308/2008/B	Granted on 20 January 2017
Further Environmental Permit	FEP-01/308/2008/B	Granted on 16 May 2018
Water Discharge License under	Licence No.: WT00033525-	Validity from 27 March
WPCO (Permit Holder: Chun Wo)	2019	2019 to 31 March 2024
Billing Account for Disposal of	Chit Account Number:	Approved on 28 December
Construction Waste	5001692	2005
Desistantian en a Chaminal Masta	E012 820 C2E07 10	Januard an 22 August 2019
Registration as a Chemical Waste	5213-839-C3507-10	Issued on 23 August 2018
Producer (Permit Holder: Chun Wo)	EE18 820 D2280 0/	Januard and 24 Oataban 2010
Registration as a Chemical Waste	5518-839-R2289-06	Issued on 24 October 2019
Producer (Permit Holder: REC)		
Construction Noise Permit (Permit	GW-RE0695-19	Validity from 9 September
Holder: Chun Wo)		2019 to 3 March 2020
Construction Noise Permit (Permit	GW-RE0831-19	Validity from 17 October
Holder: REC)		2019 to 30 December 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 summarised 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 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 2.1Action 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- <sup>3</sup>	260 µg m- <sup>3</sup>
DM-2A -Combined Reception and Exit Office (CREO) of TKO Area 137 Fill Bank	193 μg m- <sup>3</sup>	260 μg m- <sup>3</sup>

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 24hour 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.

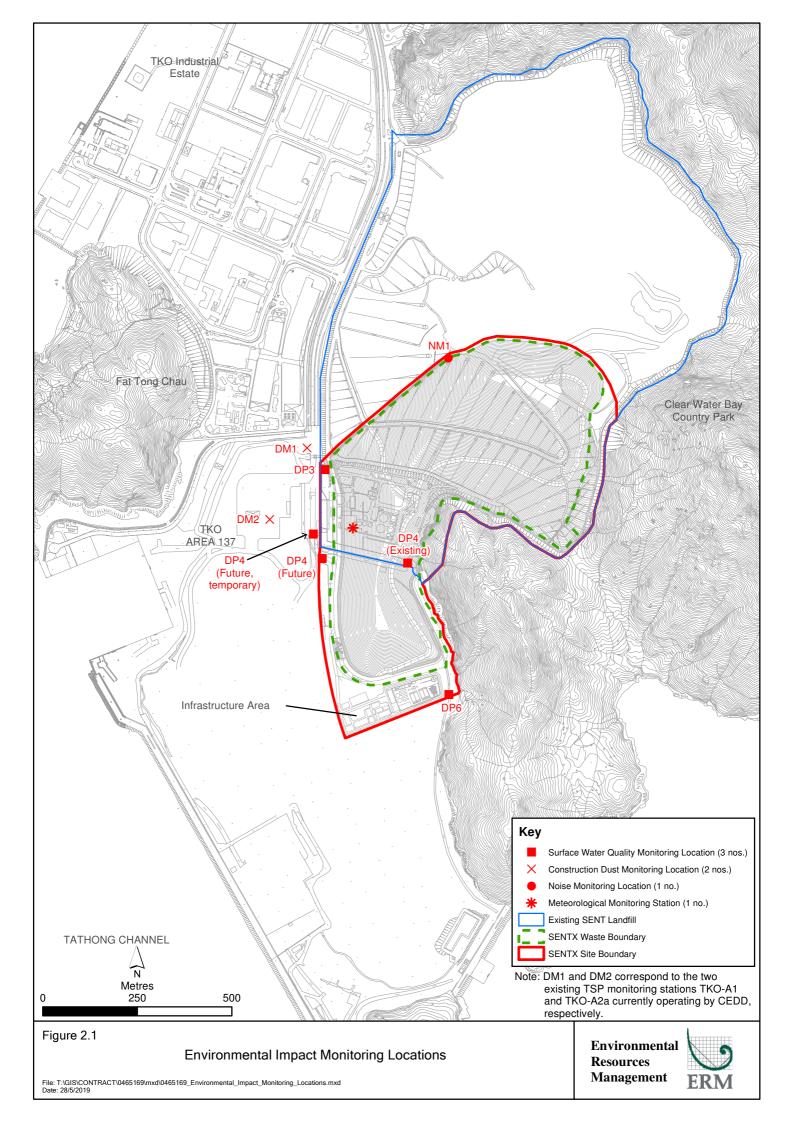
The equipment used in the impact air quality monitoring programme and monitoring locations are summarised in *Table 2.2* and illustrated in *Figure 2.1* respectively. Copies of the calibration certificates for the equipment are presented in *Annex D1*.

#### Table 2.2Dust Monitoring Details

Monitoring Station	Location	Parameter	Frequency and Duration	Monitoring Dates	Equipment
DM1	Site Egress of TKO Area 137 Fill Bank		Once every 6 days during the construction		HVS Greasby 105 (S/N: 9795 (ET/EA/003/18))

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GREEN VALLEY LANDFILL LTD.



Monitoring Station	Location	Parameter	Frequency and Duration	Monitoring Dates	Equipment
DM2	Combined Reception and Exit Office (CREO) of TKO Area 137 Fill Bank		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 summarised 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 2.3Summary of 24-hour TSP Monitoring Results in the Reporting Period

Monitoring Station	Average 24-hr TSP Concentration (μg m <sup>-3</sup> ) (Range in bracket)	Action Level (µg/m³)	Limit Level (µg/m³)
DM-1 – Site Egress of TKO Area 137 Fill Bank	95 (84 - 106)	204	260
DM-2A -Combined Reception and Exit Office (CREO) of TKO Area 137 Fill Bank	100 (88 - 106)	193	260

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 D*3.

# 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 Levels for construction noise of the Project are provided in *Table 2.4* below.

Tim	e Period	Action Level <sup>(a)</sup>	Limit Level <sup>(b)</sup>
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	
Note	es:	station	
(a)		oout 100m from the SENTX site boundary v	was set as the Action
(b)	Limits specified in the C	GW-TM and IND-TM for construction and	operational noise,

# Table 2.4Action and Limit Levels for Construction Noise

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 2.5Noise Monitoring Details

respectively.

Monitoring Station <sup>(1)</sup>	Location	Parameter	Frequency and Duration	Monitoring Dates	Equipment
NM1	SENTX Site Boundary (North)	L <sub>eq (30 min)</sub> measurement between 07:00	Once per week for 30 mins during	7, 15, 21, 28 November 2019	Sound Level Meter: B&K 2238 (S/N:
		and 19:00 hours on normal weekdays (Monday to Saturday)	the construction period of the Project		2285762) Acoustic Calibrator: Rion NC-75 (S/N: 34680623)
					Rion NC-74 (S/N: 34657231)

# 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

A total of 4 impact noise monitoring events were scheduled during the reporting period. Results for noise monitoring are summarised in *Table 2.6*. The monitoring results and the graphical presentation of the data are provided in *Annex E2*.

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

Monitoring Station	Measured Noise Level Leq (30 min), dB(A)		
_	Average	Range	Action and Limit Level
NM1	54.0	52.1 - 57.0	75

Major noise sources identified 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 E*3.

# 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. Temporary relocation of surface water discharge point DP4 to DP4 (Future, temporary) as an interim arrangement due to site constraints and construction sequence was approved by EPD on 14 May 2019. Surface water quality monitoring was carried out at DP4 (Future, temporary) (i.e. DP4T) from the monitoring event on 16 May 2019. In addition, 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.

Dissolved Oxygen (DO) and pH value were measured in-situ whereas the level of suspended solids (SS) were determined by ALS Technichem (HK) Pty Ltd. (HOKLAS Registration No. 066).

The Action and Limit Levels of the surface water quality impact monitoring are provided in *Table 2.7*.

# Table 2.7Action 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 for 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 2.8Impact Surface Water Quality Monitoring Details

Monitoring Station	Location	Frequency	Monitoring Dates	Parameter	Equipment	
DP4	Surface water	Weekly	7, 15, 21, 28	•pH	YSI Professional DSS	
(Future,	discharge point		November	DO	(S/N: 15H102620)	
temporary)	DP4		2019	•DO		
DP6	Surface water	-		•SS		
	discharge point					
	DP6					
Notes:						
(a) DP4 wa	(a) DP4 was temporary relocated to DP4 (Future, temporary) (i.e. DP4T) as an interim					
discharge point from the monitoring event on 16 May 2019.						
(b) Impact	surface water qua	lity monitori	ng at DP3 was	suspended fr	om the monitoring	

(b) 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 surface water quality monitoring during the reporting period is provided in *Annex C*.

# 2.3.3 Results and Observations

A total of 4 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 26 November 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 updated 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 maintain the advance screen planting works as soon as possible to ensure effective screening of views of project works from the High Junk Peak Trail. . The Contractor shall consider the mitigation measures during the design phase, including the preparation of the Construction Drawings and Detailed Landscape Design Drawings.

#### 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, 4 site inspections were carried out on 7, 13, 21 and 28 November 2019.

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

# Table 2.9Key Observations Identified during the Site Inspection in this Reporting<br/>Month

Inspection Date	Environmental Observations and Recommendations		
7 November 2019	-		
13 November 2019	<ul> <li>The Contractor shall clear and dispose of the general refuse at DP4T channel to reduce pest and odour issues.</li> <li>The Contractor shall replace the NRMM labels on the roller and excavator near DP4T to ensure all NRMM labels displayed on site are clearly visible and in correct size as specified in the APCO.</li> </ul>		

Inspection Date	Environmental Observations and Recommendations
21 November 2019	<ul> <li>The Contractor shall enhance watering to the site, especially around areas with loading and unloading activities.</li> <li>The Contractor shall clear the oil spillage at the roller near DP4T and handle the clean-up materials as chemical waste.</li> <li>The Contractor shall avoid accumulation of liquid in the drip</li> </ul>
	tray near buttress wall and shall treat the clean-up materials as chemical waste.
	• The Contractor shall store the general refuse near sediment trap properly in a refuse skip and dispose of the waste regularly to reduce pest and odour issues.
28 November 2019	• The Contractor shall increase watering frequency and enhance watering to the site, especially to the main haul road and around works areas in Cell 2X.
	• The Contractor shall avoid accumulation of stagnant water and remove the waste disposed at X9B culvert.
	• The Contractor shall dispose of the chemical waste in the refuse skip near buttress wall separately in the chemical waste cabinet.
	• The Contractor shall dispose of the general refuse accumulated near EPD building and bioplant building regularly to reduce odour and pest issues.

The Contractor has rectified all of the observations identified during environmental site inspections in the reporting period. Key environmental deficiencies identified and the corresponding rectification actions are presented in *Table 2.10*.

Table 2.10Summary of Environmental Deficiencies Identified and Corresponding<br/>Rectification Actions

Deficiencies	Rec	tifications Implemented		posed Additional Control asures
Surface Water				
Intercepting channels	•	Reviewed drainage plan.	•	Addition of channels.
& drainage system			•	Expedite the construction of permanent sediment trap and discharge culverts.

Deficiencies	<b>Rectifications Implemented</b>	Proposed Additional Control
		Measures
DP channels (design & regular silt removal)	<ul> <li>Carried out regular maintenance and cleaning of channels.</li> <li>DP4 channel: Area near the channel was paved with concrete and a bund was built.</li> <li>DP6 channel: Gravel piles on the channel were covered with concrete which serve as blocks for running water and to divide the channel into several sections. A pump was placed in the water zone in the upstream section to pump water to the Wetsep for treatment prior to the discharge to the last section before the weir plate.</li> <li>DP6: Pipes through the gravel piles between different channel sections were covered with geotextiles to block debris and silt.</li> </ul>	N.A.
Stockpiles & exposed soil	• Installed silt fencing near surface water channel along DP6 channel.	<ul><li>Improve soil covering.</li><li>Compaction and cover for stockpiles and soil slopes.</li></ul>
Wetsep (treatment capacity & number)	<ul> <li>Reviewed Wetsep capacity.</li> <li>Chemicals dosage of the Wetsep was increased to enhance the efficiency.</li> </ul>	• Install additional Wetsep.
Backflow / ponding during heavy rainfall	Raised with EPD (LDG)     and CEDD.	N.A.

#### 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 2.11*.

# Table 2.11 Quantities of Different Waste Generated and Imported Fill Materials

Month/ Year	Inert C&D	Impoi (in '00	ted Fill 0kg)	Inert Construction	Non-inert Construction	Recyclable Materials <sup>(c)</sup>	Chemical Wastes
	Materials	(		Waste Re- used	Waste <sup>(b)</sup> (in '000m <sup>3</sup> )	(in '000kg)	(in '000kg)
	(in '000m³)	Rock	Soil	(in '000m <sup>3</sup> )	(in otom)		
1 - 30	0.410	0	17130.00	0	0.077	0	0
Novembe	er						
19							
Notes:							
(a) Ine	rt constructio	n waste	es include	hard rock and	large broken c	oncrete, and n	naterials
disj	posed as publ	lic fill.	Density a	ssumption: 1.6	6 (kg/L) for pu	blic fill.	
(b) Not	n-inert constr	uction	wastes inc	lude general re	efuse disposed	at landfill. De	ensity

(b) Non-inert construction wastes include general refuse disposed at landfill. Density assumption: 0.9 (kg/L) for general refuse.

(c) 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

The 24-hour TSP monitoring results and construction noise monitoring results complied with the Action and Limit Levels in the reporting period. 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 G*.

# 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 December 2019 will be:

- Site clearance, preparation and formation of Area X1 and X2;
- Excavation and removal of unsuitable fill materials;
- Remaining site formation works at Area X1;
- Filling of perimeter bund for Cell 1X and Cell 2X;
- Construction of buttress wall;
- Construction of perimeter wall and plinths at LTP area and substructure of bioplant;
- Installation of ammonia stripping plant and pipe work at LTP area;
- Construction of discharge box culvert;
- Construction of superstructure of new infrastructure buildings;
- Completing the remaining plinths and superstructure of Landfill Gas Plant area;
- Fitting out work inside the CLP room and Landfill Gas Plant room;
- Construction of X9B channels and apron channel along the toe of eastern perimeter bund;
- Construction of groundwater pipe from south to north at Cell 2, 3 and 4;
- Construction of superstructure at maintenance building;
- Installation of equalization and sequencing batch reactor tanks and other equipment at LTP area;
- Installation of settlement cells;
- Installation of monitoring wells; and
- Liner installation.

#### 3.2 KEY ISSUES FOR THE COMING MONTH

Potential environmental impacts arising from the above upcoming construction activities in the next reporting period of December 2019 are mainly associated with dust emission from the exposed area and loading and uploading operation of dusty materials. 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 December 2019 are provided in *Annex H*.

#### CONCLUSION AND RECOMMENDATION

4

This EM&A Report presents the findings of the EM&A activities undertaken during the period from 1 to 30 November 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.

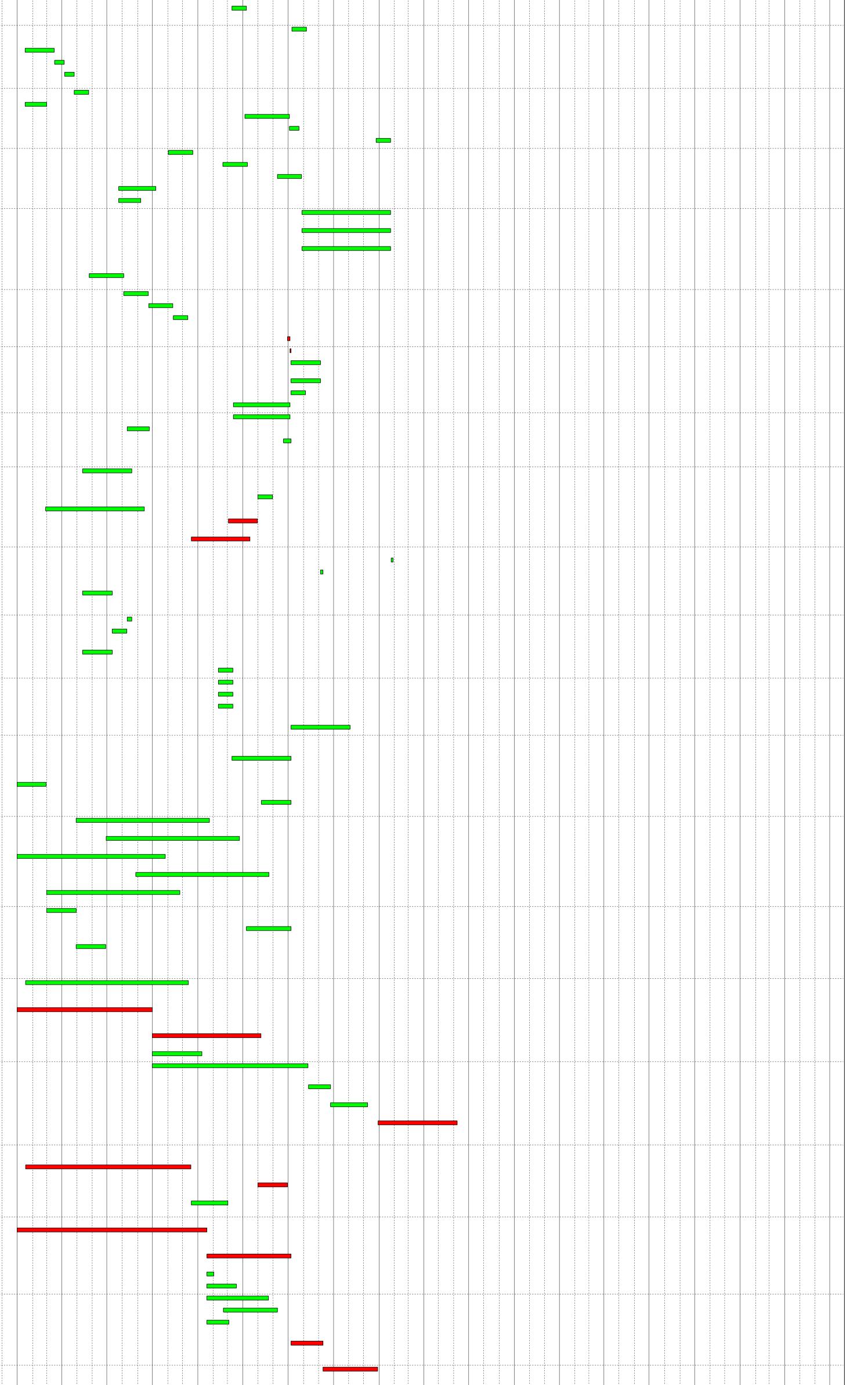
Environmental site inspections were carried out during the reporting period. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site inspections.

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

# WE	/BS Path Activity Activity Name	Dur Start Finish Total Predecessor Details Successor Details Float	<u>2018</u> 2020 2022 2023
336 337		Float	Q2 Q3 Q4 Q1 Q2 Q3
338 339			
340 341 342			
342 343 344 345			
345 346 347			
348 349			
350 351			
352 353	SA2.5 Construction (Initial Works) SA2.5.02 Advance Works & Site Establishment SA2.5.02.01 Site Establishment & Mobilization	1153     12-Apr-18     07-Jun-21     705       1148     12-Apr-18     02-Jun-21     35       222     40 Apr-40     40 Apr-40     800	
355 356	SA2.3.02.01         Site Establishment & Mobilization           5.02.01         52-1000         Site Mobilization for Parts X1 & X2           5.02.01         52-1100         Site Mobilization for Parts X3, X4 & X5	333         12-Apr-18         10-Mar-19         820         Control           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           30         12-Apr-18         11-May-18         1083         11-1300: FS, 11-1400: FS, 11-1500: FS         52-1300: FS, M 3. 1: FF	
357 358	5.02.0152-1200Temporary Office for Employer / ER / IC5.02.0152-1300Hoarding and Fencing Works	60         10-Oct-18         08-Dec-18         0         23-1300: FS         11-1700: SS, M 3. 1: FS           40         30-Jan-19         10-Mar-19         820         52-1000: FS, 52-1100: FS         32-1500: FS, M10. 1: FS -26, M10. 2: FS	S -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         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         52-1600: FS           25         25-Jan-19         18-Feb-19         840         52-1500: FS, 52-1400: 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         52-1900: FS           20         12-Apr-18         01-May-18         1108         11-1300: FS, 11-1400: FS, 11-1500: FS         52-1900: FS	
366 367	5.02.03       52-1900       Site inspection, Review of Condition Survey Report         SA2.5.02.04       Environmental Monitoring	25       07-May-18       31-May-18       1103       52-1700: FS, 52-1800: FS       32-1500: FS         975       02-Oct-18       02-Jun-21       35       35	
368 369	5.02.04       52-2000       Installation of Monitoring Stations & Wells (GP & GW)         5.02.04       52-2100       Installation of Monitoring Stations & Wells (GP & GW) on Buttress Wall         5.02.04       52-2100       Installation of Monitoring Stations & Wells (GP & GW) on Buttress Wall	120         02-Oct-18         29-Jan-19         0         23-1600: FS         52-2200: SS 60           120         02-Oct-18         29-Jan-19         0         23-1600: FS         52-2200: SS 60           30         01-Dec-18         30-Dec-18         0         52-2000: SS 60, 52-2100: SS 60         11-1100: FS	
370 371 372	5.02.04       52-2200       Conduct Baseline Monitoring for Construction (one month)         5.02.04       52-2300       Conduct Baseline Monitoring for Operation (one year)         SA2.5.03       Civil Engineering Works	30       01-Dec-18       30-Dec-18       0       52-2000: SS 60, 52-2100: SS 60       11-1100: FS         365       03-Jun-20       02-Jun-21       35       32-1500: FS -400, 53-4500: FS       12-1400: FS         748       13-Jan-19       29-Jan-21       834       64	
373 374	SA2.5.03.0         Buttress Wall           5.03.0         53-1000         Section adj. SENT	475         02-Mar-19         18-Jun-20         83         53           300         13-Apr-19         06-Feb-20         96         11-1300: FS, 23-2500: FS, 53-3000: FS, 31-1200: FS, 53-1100: FS, 53-1300: FS, 53-3100: FS, 53-5100: FS, 53-5100: FS, 53-5100: FS,	5, M 3. 5: FS -150, M 3.
375 376	5.03.0         53-1100         Diversion of SENT Landfill Gas Pipe           5.03.0         53-1200         Section at Cell 4	45         07-Feb-20         22-Mar-20         96         23-2500: FS, 53-1000: FS         53-1300: FS, 54-4000: FS, M 3. 3: FS           400         02-Mar-19         04-Apr-20         83         11-1300: FS, 23-2500: FS, 53-3000: FS, 11-1400: FS         53-1300: FS, 53-3100: FS, M 3. 7: FS, M	
377	5.03.0 53-1300 Install Landfill Gas Pipe on Buttress Wall	75         05-Apr-20         18-Jun-20         83         41-1500: FS, 53-1100: FS, 53-1200: FS, 53-1000: FS         54-4000: FS	
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         90         04-Aug-19         01-Nov-19         9         11-1100: FS, 23-2500: FS, 53-4200: FS, 53-2800: FS         53-2000: FS, 53-2300: FS, 53-3400: FS, 6           63-1100: FS, 63-1200: FS, 63-1300: FS, 6         63-1100: FS, 63-1200: FS, 63-1300: FS, 6         63-1100: FS, 63-1200: FS, 63-1300: FS, 6	
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, 53-2300: FS, 53-2300: FS, 53-3800: FS	
381 382	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       53-1900: FS, 53-2000: FS, 53-2200: FS, 53-2200: FS, 53-2200: FS, 53-2200: FS, 53-2200: FS, 53-2000: FS, 53-2000: FS, 53-2000: FS, 53-2000: FS, 53-2000: FS         75       13-Jan-19       28-Mar-19       432       11-1100: FS, 23-2500: FS       53-2000: FS	53-3800: FS
383	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         53-1900: FS, 63-1100: FS, 63-1200: FS, 73-1200: FS, 73-1200: FS, 73-1200: FS, 73-1200: FS, 7	
385	5.03.1         53-2000         Lining Works	135         02-Nov-19*         15-Mar-20         214         41-1500: FS, 53-1400: FS, 53-1500: FS, 53-1600: FS, 53-2100: FS         53-2100: FS	
386 387	5.03.1     53-2100     Protective Stone Laying & Leachate Collection Pipe       5.03.1     53-2200     Install Leachate Force Main	75         16-Mar-20         29-May-20         214         53-2000: FS, 41-1500: FS, 53-1900: FS         32-1500: FS, 54-2800: FS, M 4. 3: FS           75         25-Jul-19         07-Oct-19         449         53-1500: FS, 53-1600: FS, 41-1500: FS, 53-1900: FS         54-2800: FS	
388 389	5.03.1       53-2300       Install Landfill Gas Pipe on earth bund         5.03.1       53-2400       Leachate Pipe Connection (Cell 1 to LTP)	55         02-Nov-19         26-Dec-19         258         41-1500: FS, 53-1400: FS, 53-1500: FS         54-4000: FS           30         09-Mar-20         07-Apr-20         266         23-2500: FS, 54-1000: SS         54-2800: FS	
390 391	SA2.5.03.4       Landfill Cell 4         5.03.4       53-2500       Provide Temporary Leachate Pipe on Cell 4 Area         SA2.5.03.5       Drainage - Surface Run-Off	30         09-Jul-20         07-Aug-20         144         4           30         09-Jul-20         07-Aug-20         144         23-2500: FS, 63-2600: SS -90         54-2800: FS, M 3. 3: FS           740         16-Jan-19         24-Jan-21         839         54-2800: FS, M 3. 3: FS	
393 394	5.03.5         53-2600         Construct Cut-Off Channel 12A           5.03.5         53-2700         Connect Cut-Off Channel 12A to DP6	60         16-Jan-19         16-Mar-19         9         11-1100: FS, 23-2800: FS         53-2700: FS           20         17-Mar-19         05-Apr-19         9         53-2600: FS, 31-1400: FS, 23-1900: FS         53-2800: FS	
395 396	5.03.5       53-2800       Diversion from Existing Trapezoidal Channel into Channel 12A         5.03.5       53-2900       Removal of Existing Trapezoidal Channel along Eastern Bund	20         06-Apr-19         25-Apr-19         9         53-2700: FS         53-1400: FS, 53-1500: FS, 53-2900: FS, 6 63-1900: FS, M 3. 3: FS           30         26-Apr-19         25-May-19         9         53-2800: FS         53-4200: FS	5, 63-100: FS,
397 398	5.03.5       53-2900       Reinoval of Existing Trapezoldal Channel along Eastern bund         5.03.5       53-3000       Cut-Off Channel C4 Diversion to Cut-Off Channel 17-2         5.03.5       53-3100       Cut-Off Channel X5 on Buttress Wall, Cell 4, Cell 3	30         26-Api-19         23-May-19         9         53-2000. FS         53-4200. FS           45         16-Jan-19         01-Mar-19         83         11-1300: FS, 23-2800: FS         53-1000: FS, 53-1200: FS           90         05-Apr-20         03-Jul-20         289         53-1000: FS, 53-1200: FS         53-3200: FS	
399 400	5.03.553-3200Temporary Diversion Cut-Off Channel X5 to 12A5.03.553-3300Culvert X5 (5m long) & Perm Connection of Cut-Off Channel X5	20       04-Jul-20       23-Jul-20       289       53-3100: FS, 23-1900: FS       53-3300: FS, M 3. 4: FS         30       26-Dec-20       24-Jan-21       134       53-4100: FF, 63-1900: FS, 53-3200: FS       32-1500: FS	
401 402	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         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         53-3500: FS           50         20-Feb-20         09-Apr-20         189         63-1000: FS, 53-3400: FS         53-3600: FS           50         20-km 20         09-Apr-20         189         63-1000: FS, 53-3400: FS         53-3600: FS	
403 404	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 (V9R) at Cell 1 Southern Bund	50         09-Jun-20         28-Jul-20         129         63-1900: FS, 53-3500: FS         53-3900: FS           75         25-Jul-19         07-Oct-19         1314         53-1500: FS         53-1500: FS           45         25-Jul 19         07-Sop 19         1344         53-1500: FS         53-1500: FS	
405	5.03.5       53-3800       Perimeter Channel (X9B) at Cell 1 Southern & Western Bund         5.03.5       53-3900       Drop Inlet & Culvert (X9) - 21m long	45         25-Jul-19         07-Sep-19         1344         53-1500: FS, 53-1600: FS           180         29-Jul-20         24-Jan-21         129         11-1100: FS, 23-1900: FS, 53-3600: FS         53-4000: FF, 53-4100: FF, 53-6000: FS, N           2: FS         FS         53-4000: FF, 53-4100: FF, 53-6000: FS, N         53-4000: FF, 53-4100: FF, 53-6000: FS, N	, M 9. 1: FS -90, M 9.
407	5.03.5         53-4000         Sediment Trap (ST)           5.03.5         53-4100         Dual Culvert 74m long (connect to DP4)	180       29-Jul-20       24-Jan-21       129       11-1100: FS, 23-1900: FS, 11-1200: FS, 53-3900: FF       53-6000: FS, M 9. 3: FS -90, M 9. 4: FS         180       29-Jul-20       24-Jan-21       129       11-1100: FS, 11-1200: FS, 23-1900: FS, 53-3900: FF       53-3000: FF, 53-6000: FS, M 9. 1: FS -90	
409	5.03.5       53-4100       Dual Culvert 74m long (connect to DP4)         SA2.5.03.6       Drainage - Ground Water         5.03.6       53-4200       Construct Groundwater Collection Pipe along Cells X1 & X2 Eastern Bund	180       29-Jul-20       24-Jan-21       129       11-1100: FS, 11-1200: FS, 23-1900: FS, 53-3900: FF       53-3300: FF, 53-6000: FS, M 9. 1: FS -90         200       26-May-19       11-Dec-19       209       6000000000000000000000000000000000000	
411	5.03.6 53-4300 Construct Groundwater Collection Pipe along Cell X3 Eastern Bund	50         04-Aug-19         22-Sep-19         159         53-4200: FS         53-4400: FS, 63-1900: FS	
412 413 414	5.03.6       53-4400       Construct Groundwater Collection Pipe along Intercell Bund X2/X3         5.03.6       53-4500       Construct Manhole MH-X1         SA2.5.03.7       Utilities - Distribution within New Infrastructure Area	50       23-Sep-19       11-Nov-19       209       53-4300: FS       53-4500: FS, 63-1200: FS         30       12-Nov-19       11-Dec-19       209       53-4400: FS       52-2300: FS, M 9. 5: FS         391       11-Aug-19       04-Sep-20       276       276       276	
415 416	5.03.753-4600Power Supply HV Works (Transformer & HV switchgear)5.03.753-4700Power Distribution, LV Power Supply Works	5       30-Jun-20       04-Jul-20       0       54-3000: FS       12-1200: FS         2       05-Jul-20       06-Jul-20       0       54-3100: FS, 12-1200: FS       12-1000: FS	
417	5.03.7     53-4800     Sewerage (Collection to LTP)       5.03.7     53-4900     Sewerage (Discharge to Site Boundary)	60         07-Jul-20         04-Sep-20         271         54-1000: FS, 54-3100: FS, 54-3300: FS, 54-4100: FS         12-1100: FS, 53-6100: FS           60         07-Jul-20         04-Sep-20         271         54-1000: FS, 54-4100: FS, 54-4600: FS         12-1100: FS, 53-6100: FS	
419 420	5.03.7     53-5000     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         12-1100: FS, 53-6100: FS           30         07-Jul-20         05-Aug-20         6         54-1000: FS, 54-4100: FS, 54-4600: FS         12-1100: FS, 32-2100: FS           115         12-Mar-20         04-Jul-20         2         53-6800: FS         12-1000: FS	
421 422	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       12-1100: FS         45       11-Aug-19       24-Sep-19       622       53-6400: 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       54-2800: FS         703       27-Feb-19       29-Jan-21       129       6       6         459       27-Feb-19       30-May-20       43       43       6	
426	5.03.8.U1 53-5500 Excavate Trench for CLP Cable	100         13-May-19         20-Aug-19         194         23-2900: FS         53-5800: FS, 54-1000: SS, 54-4100: SS, 54-5100: SS,	
427 428	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 H)/ Switchroom)	30         01-May-20         30-May-20         43         53-5800: FS         54-1000: FF, 54-4100: FF, 54-4600: FF           200         27-Feb-19         14-Sep-19         229         32-2400: FS         54-3000: FS         54-3000: FS           60         02-Mar-20         30-Apr-20         0         53-5500: FS         53-5500: FS         53-5600: FS         54-3000: FS	
429 430	5.03.8.U1       53-5800       CLP Cable Laying (from Site Boundary to HV Switchroom)         5.03.8.U1       53-5900       CLP HV associated equipment installation	60         02-Mar-20         30-Apr-20         0         53-5500: FS, 54-2900: FS, 32-2400: FS, 53-5900: FF 15         53-5600: FS, 54-3000: FS           120         18-Dec-19         15-Apr-20         0         54-2900: FS, 32-2400: FS         53-5800: FF 15         53-5800: FF 15	
431 432	SA2.5.03.8.U2         DSD           5.03.8.U2         53-6000         Connection to Storm Drain System           5.03.8.U2         53-6100         Connection to Equil Drain System	147       05-Sep-20       29-Jan-21       129         5       25-Jan-21       29-Jan-21       129         5       25-Jan-21       129       53-4100: FS, 53-4000: FS, 53-3900: FS       32-1500: FS	
433 434 435	5.03.8.U2     53-6100     Connection to Foul Drain System       SA2.5.03.8.U3     Telecom       5.03.8.U3     53-6200     Excavate Trench for PCCW	5         05-Sep-20         09-Sep-20         271         53-4800: FS, 53-4900: FS         32-1500: FS           100         13-May-19         20-Aug-19         327         53-6400: FS, 54-1000: SS, 54-4100: SS, 54-5100: SS, 54-5100: SS, 54-5100: SS, 54-5100: SS, 54-5100: SS, 5	5, 54-4600: SS, M10.
436	5.03.8.U3     53-6300     Backfill Trench after PCCW Cable Laying	10         11-Aug-19         20-Aug-19         327         53-6400: FS         54-1000: FF, 54-4100: FF, 54-4600: FF	
437 438	5.03.8.U3 53-6400 Laying Cables & Connection SA2.5.03.8.U4 WSD	30         12-Jul-19         10-Aug-19         327         53-6200: FS         53-5300: FS, 53-6300: FS           304         13-May-19         11-Mar-20         338         53-5300: FS         53-5300: FS	
439 440	5.03.8.U4       53-6500       Install Watermain & Piping for Water Supplies         5.03.8.U4       53-6600       Connection for Fresh Water & Meter Installation	60       13-May-19       11-Jul-19       216       23-2900: FS       53-6600: FS, 53-6700: FS, 53-6800: FS, 53         30       11-Feb-20       11-Mar-20       338       53-6500: FS, 32-2300: FS       53-5200: FS	, 53-6900: FS
441 442	5.03.8.U4       53-6700       Connection for Salt Water         5.03.8.U4       53-6800       Connection for Fire Services         5.03.8.U4       53-6800       Connection for Fire Services	30         11-Feb-20         11-Mar-20         338         53-6500: FS, 32-2300: FS         53-5200: FS           30         11-Feb-20         11-Mar-20         2         53-6500: FS, 32-2300: FS         53-5100: FS           30         11-Feb-20         11-Mar-20         2         53-6500: FS, 32-2300: FS         53-5100: FS           30         11-Feb-20         11-Mar-20         2         53-6500: FS, 32-2300: 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         54-2700: FS, 54-3900: FS           120         07-Jul-20         03-Nov-20         216	
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         06-Jul-20         36         23-1300: FS, 53-5500: SS, 53-5600: FF, 53-6200: SS,         32-2100: FS, 53-2400: SS, 53-4800: FS, 53	
449	5.04.A     54-1000     General Area & Access Road       5.04.A     54-1100     Carpark & Supporting Area	120         09-Mar-20         06-Jul-20         6         23-1300: FS, 53-5500: SS, 53-5600: FF, 53-6200: SS, 53-62	, 68-1700: FS
450	5.04.A     54-1200     Carpark & Supporting Area       5.04.A     54-1200     Diesel Fuel Tanks	60         31-Dec-16         26+eb-19         64         23-1300: FS, 11-1100: FS         32-1500: FS, M 5.11: FS - 30, M 5.12: FS, 54-1800: FS           60         08-May-20         06-Jul-20         36         23-1300: FS, 23-5200: FS, 12-1000: FF, 11-1100: FS         32-2200: FS	
451	5.04.A         54-1300         EPD Building           5.04.A         54-1400         Fire Service Tank	270         30-Apr-19         24-Jan-20         44         23-1300: FS, 23-5200: FS, 11-1100: FS, 54-1700: SS 60         32-2100: FS, M 5. 4: FS -135, M 5. 5: FS, 54-1400: SS 60           270         29-Jun-19         24-Mar-20         44         23-1300: FS, 23-5200: FS, 11-1100: FS, 54-1300: SS 60         32-2100: FS, M 5. 10: FS, 12-1000: FS, 54-1400: SS 60	
453	5.04.A         54-1400         Fire Service Tank           5.04.A         54-1500         GVL Building	270       29-Jun-19       24-Mar-20       44       23-1300: FS, 23-5200: FS, 11-1100: FS, 54-1300: SS 60       32-2100: FS, M 5.10: FS, 12-1000: FS, 54         300       31-Dec-18       26-Oct-19       44       23-1300: FS, 23-5200: FS, 11-1100: FS       32-2100: FS, M 5.1: SF 30, M 5.2: SF 15         54-1700: SS 60       32-2100: FS, M 5.1: SF 30, M 5.2: SF 15       54-1700: SS 60	
454	5.04.A     54-1600     Laboratory Building       5.04.A     54-1700     Maintenance Building & Area	270         28-Aug-19         23-May-20         44         23-1300: FS, 23-5200: FS, 11-1100: FS, 54-1400: SS 60         32-2100: FS, M 5. 6: FS -135, M 5. 7: FS, 32-2200: FS	
455 456	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, 54-1500: SS 60         32-2100: FS, M 5. 8: FS -135, M 5. 9: FS, 54-1300: SS 60           60         01-Mar-19         29-Apr-19         64         23-1300: FS, 11-1100: FS, 54-1100: FS         32-1500: FS, M 5.11: FS -30, M 5.12: FS, 54-2000: 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, 11-1100: FS         32-2200: FS	
458	5.04.A 54-2000 Water Service House SA2.5.04.B Part X1 Area B SA2.5.04 B 1 BioPlant Building	60       30-Apr-19       28-Jun-19       64       23-1300: FS, 23-5200: FS, 11-1100: FS, 54-1800: FS       32-2100: FS, M 5.10: FS, 12-1000: FS, 54         890       31-Dec-18       07-Jun-21       0       230       17. Jap 19       13. Dag 19       243	
460 461	SA2.5.04.B.1     BioPlant Building       5.04.B.1     54-2100     LTP BioPlant Building	330         17-Jan-19         12-Dec-19         243           330         17-Jan-19         12-Dec-19         243         23-1300: FS, 23-5200: FS, 23-3200: FS, 11-1100: FS, 32-2200: FS, 32-2200: FS, M 6. 2: FS -16           500         24 Dec 49         40 Apr 90         24	165, M 6. 3: FS
462 463	SA2.5.04.B.2         Leachate Treatment Plant           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, 64-2500: FS, 64-25	
464	5.04.B.2 54-2300 MEP Installation	220         01-Oct-19         07-May-20         0         41-2100: FS, 41-1800: FS, 22-2100: FS, 54-2200: FS, 12-1000: FS 60, 32-1900: FS, 54-2600: FS, 11-1100: FS           4100         04.0pt 40         08.4pp 20         236         44.2400: FS         54.2200: FS, 54-2200: FS, 12-1000: FS, 32-2200: FS	FS, M 6. 8: FS -110,
465 466 467	5.04.B.2         54-2400         SBR Tanks           5.04.B.2         54-2500         Ammonia Stripper           SA2.5.04.B.3         LTP - Test & Commission	100         01-Oct-19         08-Jan-20         236         41-2400: FS, 54-2200: FS         54-2600: FS, M 6. 6: FS           315         01-Oct-19         10-Aug-20         21         41-3000: FS, 54-2200: FS         54-2600: FS, M 6. 8: FS - 150, M 6. 9: FS           301         11-Aug-20         07-Jun-21         0         54-2600: FS, M 6. 8: FS - 150, M 6. 9: FS	
468	5.04.B.3 54-2600 Dry testing	45 11-Aug-20 24-Sep-20 21 54-2300: FS, 54-2400: FS, 54-2500: FS 23-6600: FS -150, 23-6900: SS, 54-2700:	0: FS, M11. 1: FS
409 470	5.04.B.3         54-2700         Wet testing           5.04.B.3         54-2800         Operational testing	75         25-Sep-20         08-Dec-20         21         54-2600: FS, 12-1200: FS, 53-6900: FS, 31-2200: FS, 31-22	
471	SA2.5.04.C Part X1 Area C	730         31-Dec-18         29-Dec-20         0         53-2200: FS, 63-2600: FS, 53-5400: FS, 53-5400: FS, 53-5400: FS, 54-4000: FS	
472 473	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, 31-1000: FS         53-5800: FS, 53-5900: FS, 54-3000: FS, 55	
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, 53-5700: FS         53-4600: FS, M 7. 4: FS -30, M 7. 5: FS, M           75         18-Dec-19         01-Mar-20         125         54-2900: FS         32-1400: FS, 32-2100: FS, 53-4700: FS, 53-4700: FS, 53-4700: FS, 53-4700: FS, 53-4700: FS, 54-2900: FS	
476	S.04.C.1       S4-3100       MEP Installation, with Factor         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         FS -30, M 7. 5: FS           384         31-Dec-18         18-Jan-20         0         23-3500: FS, 11-1100: FS         54-3300: FS, 54-3400: FS, 54-3500: FS, 54	54-3600: FS,
478	5.04.C.2 54-3200 Main Plant Area included Civil Works 5.04.C.2 54-3300 MEP Installation	384       31-Dec-18       18-Jan-20       0       23-3500: FS, 11-1100: FS       54-3300: FS, 54-3400: FS, 54-3400: FS, 54-3500: FS, 54-3700; FS, 54-3800: FS, M 7. 1: SF 30, 7. 3: FS         170       19-Jan-20       06-Jul-20       0       54-3200: FS, 12-1000: FF       32-2000: FS, 53-4800: FS, 54-3900: FS, N 7. 1: SF 300; 7. 3: FS	0, M 7. 2: FS -200, M
479	5.04.C.2 54-3400 GHS600 Blower 601 A&B Relocation	Image: 15         19-Jan-20         02-Feb-20         155         23-5800: FS, 54-3200: FS         54-3900: FS, M 7. 4: FS -8, M 7. 5: FS	
480	5.04.C.2       54-3500       Pre-treatment         5.04.C.2       54-3600       Flares (incl. PLC control, interlink to Towngas PF & LTP)         5.04.C.2       54-3700       LEG Engine (incl. on-grid protection, PLC control, turning)	60         19-Jan-20         18-Mar-20         110         41-3900: FS, 54-3200: FS         54-3900: FS, M 7. 4: FS -30, M 7. 5: FS           125         19-Jan-20         22-May-20         45         41-3300: FS, 54-3200: FS         54-3900: FS, M 7. 4: FS -60, M 7. 5: FS           110         21-Feb-20         09-Jun-20         27         41-3600: FS         54-3200: FS         54-3900: FS M 7. 4: FS -60	
482 483 484	5.04.C.2       54-3700       LFG Engine (incl. on-grid protection, PLC control, turning)         5.04.C.2       54-3800       Cooling System         SA2.5.04.C.3 LFG - Test & Commission	110       21-Feb-20       09-Jun-20       27       41-3600: FS, 54-3200: FS       54-3900: FS, M 7. 4: FS -60         45       19-Jan-20       03-Mar-20       125       22-1500: FS, 54-3200: FS       54-3900: FS, M 7. 4: FS -25, M 7. 5: FS         176       07-Jul-20       29-Dec-20       0       0	
485	5.04.C.3 54-3900 MEP Testing	170         07-301-20         23-506-20         0         54-3400: FS, 54-3500: FS, 54-3600: FS, 54-3700: FS, 54-3700: FS, 54-3700: SS, 54-4000: S4-3800: FS, 12-1200: FS, 53-6900: FS, 31-2200: FS, 51-200: FS, 54-3000: SS, 54-4000: S4-3800: FS           65         07-Jul-20         09-Sep-20         0         54-3400: FS, 54-3600: FS, 54-3700: FS, 54-3700: FS, 54-3700: FS, 54-3700: FS, 54-3800: FS, 54-3800: FS, 54-3800: FS, 31-2200: FS, 51-2200: FS, 51-	0: FS, M11. 1: FS -30,
486	5.04.C.3 54-4000 Operational Testing	111         10-Sep-20         29-Dec-20         0         53-1300: FS, 63-2700: FS, 63-1800: FS, 53-2300: FS, 53-2300: FS, 53-2300: FS, 53-2300: FS, 54-2800: FS, 63-4800: FF, 63-4600: FS, M11. 3: FS, M11. 4: FS	, 63-4900: FS,
487	SA2.5.04.D Part X1 Area D	374 29-Jun-19 06-Jul-20 6	



/lilestone	5		
	ical Remaining Work	Page : 3 of 4	
<b>—</b> F	Remaining Work		South-East N
500 0		00 29-JUI-21 26-5ep	-21 339 32-1300. FS, 12-1300. FS, 23-2200. FS 63-3000: FS, 63-4300: FS, M12. 4: FS -30, M12. 5: F
	6.02.9 62-1200 Existing SENT LFG		-21         339         32-1500: FS, 12-1300: FS, 23-2200: FS         63-3000: FS, 63-4500: FS, M12. 4: FS -30, M12. 5: FI
507	5.02.9 62-1100 Existing SENT LTP	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: F
<b>506</b> 6	6.02.9 62-1000 Existing SENT General Infrastructure	acility & Building 60 09-Jul-21 06-Sep	239         32-2100: FS, 12-1300: FS         23-2000: SS -90, 63-2800: FS, 63-2900: FS, 63-3000           63-4300: FS, M12. 4: FS -30, M12. 5: FS
	A2.6.02.9 Demolition of SENT Infrastructure Area	80 09-Jul-21 26-Sep	
	A2.6.02 Advance Works	80 09-Jul-21 26-Sep	-21 339
503 <b>SA</b>	2.6 Construction (Remaining Works)	1474 01-Apr-19 13-Apr	-23 30
502 E	5.08.S 58-1300 Establishment of Screen Planting	270 01-Apr-19* 26-Dec	-19 529 58-1200: SS 32-1500: FS
	5.08.S 58-1200 Advance Screen Planting		-19 529 23-7900: FS, 31-1100: FS, 11-1500: FS 58-1300: SS, M 3. 2: FS
	A2.5.08.S Area S	270 01-Apr-19 26-Dec	-19 529
<b>499</b> F	5.08.N 58-1100 Establishment of Screen Planting	270 01-Apr-19* 26-Dec	-19 529 58-1000: SS, 14-1800: FS 32-1500: FS
<b>98</b> 5	5.08.N 58-1000 Advance Screen Planting	90 01-Apr-19* 29-Jun	-19 529 23-7900: FS, 31-1100: FS, 11-1500: FS 14-1800: SS -60, 58-1100: SS, 68-1600: SS 30, M 3.
	A2.5.08.N Area N	270 01-Apr-19 26-Dec	
96 <b>S</b> A	A2.5.08 Landscape Works - Advance Screen Planti	g in CWB Country Park 270 01-Apr-19 26-Dec	-19 529
1 <b>95</b> 55	5.04.E 54-4700 Guard House & Entrance Gate	100 26-Jan-20 04-May	-20 63 23-1300: FS, 23-5200: FS, 11-1100: FS, 11-1200: FS, 32-2100: FS, M 8. 2: FS, 12-1000: FS 54-4500: SS 30
			12-1000: FF, 11-1100: FS, 11-1200: FS
	5.04.E 54-4600 General Area & Access Road		-20 6 53-5500: SS, 53-5600: FF, 53-6200: SS, 53-6300: FF, 32-2100: FS, 53-4900: FS, 53-5000: FS, 53-7000: FS
193	A2.5.04.E Part X1 Area E & Part X2	163 26-Jan-20 06-Jul	
<b>92</b> 5	5.04.D 54-4500 Wheel Wash Bath	75 27-Dec-19 10-Mar	-20 63 23-1300: FS, 23-5200: FS, 41-4500: FS, 11-1100: FS, 32-2100: FS, M 8. 3: FS, 12-1000: FS, 54-4700: SS 3 54-4200: SS 60
<b>491</b> 5	5.04.D 54-4400 Weighmaster House	120 29-Jun-19 26-Oct	-19 64 23-1300: FS, 23-5200: FS, 11-1100: FS, 54-2000: FS 32-2100: FS, M 8. 1: FS, 12-1000: FS, 54-4300: SS 6
<b>490</b> 5	5.04.D 54-4300 Weighbridge	75 29-Aug-19 11-Nov	-19         63         41-4200: FS, 23-1300: FS, 23-5200: FS, 11-1100: FS, 54-4200: FS, M 8. 6: FS -40, M 8. 7: FS, 54-4200: SS 54-4400: SS 60
<b>89</b> 5	5.04.D 54-4200 VWF Building	120 28-Oct-19 24-Feb	-20 63 23-1300: FS, 23-5200: FS, 41-4500: FS, 11-1100: FS, 54-4300: SS 60 32-2100: FS, M 8. 4: FS, M 8. 6: FS -60, M 8. 7: FS, 11-1100: FS, 54-4500: SS 60
<b>.</b>	J.04.D 544 100 General Alea & Access Road		53-6300: FF, 12-1000: FF, 11-1100: FS 53-7000: FS, M 8. 5: FS
	A2.5.04.D         Part X1 Area D           5.04.D         54-4100         General Area & Access Road	374 29-Jun-19 06-Jul	-20 6

# WBS Path Activity Activity Name	Dur Start Finish Total Predecessor Details	Successor Details		2018		21	010		2	120		2021			202	22		2023
	Float		Q2	Q3	Q4 Q1	Q2	Q3	Q4 Q1	1 Q2	Q3	Q4 Q1	Q2	Q3 Q4	Q1	Q2	Q3	Q4	Q1 Q2 G
509 SA2.6.03 Civil Engineering Works	1259 02-Nov-19 13-Apr-23 30																	
510         SA2.6.03.2         Landfill Cell 2           511         6.03.2         63-1000         Earth bund (Eastern)	449         02-Nov-19         23-Jan-21         810           110         02-Nov-19         19-Feb-20         9         11-1100: FS, 23-2500: FS, 53-4200: FS, 53-1400: FS,	53-3500; FS, 63-1500; FS, 63-1800; FS, 63-1900; FS,																
	53-2800: FS	63-2000: FS, 63-2100: FS, 63-2200: FS, M12. 1: FS -50, M12.																
		2: FS, 63-1100: FS																
<b>512</b> 6.03.2 63-1100 Earth bund (Western)	110 20-Feb-20 08-Jun-20 84 11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS,	63-1400; FS. 63-1500; FS. 63-1700; FS. 63-3500; FS.																
	63-1000: FS	63-3600: FS, 63-1200: FS																
513 6.03.2 63-1200 Intercell bund (Cell 2/3)	90 09-Jun-20 06-Sep-20 734 11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS,	63-1500: FS																
	53-4400: FS, 63-1100: FS																	
<b>514</b> 6.03.2 63-1300 Site Formation	75 02-Nov-19 15-Jan-20 14 11-1100: FS, 23-2500: FS, 53-1800: FS, 53-1400: FS	63-1400: FS, 63-4200: FS																
515 6.03.2 63-1400 Pump Station (PS#2X)	45 09-Jun-20 23-Jul-20 84 63-1300: FS, 63-1100: FS	63-1600: FS, 63-1700: FS																
516 6.03.2 63-1500 Lining Works	90 01-Oct-20* 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 6.03.2 63-1600 Protective Stone Laying & Leachate Collection Pipe	25 30-Dec-20 23-Jan-21 810 63-1500: FS, 41-1500: FS, 63-1400: FS	32-1600: FS, M12. 3: FS																
518 6.03.2 63-1700 Install Leachate Force Main	75 24-Jul-20 06-Oct-20 84 63-1100: FS, 41-1500: FS, 63-1400: FS	54-2800: FS, M12. 3: FS																
519 6.03.2 63-1800 Install Landfill Gas Pipe on earth bund	35 20-Feb-20 25-Mar-20 168 41-1500: FS, 63-1000: FS	54-4000: FS, M12. 3: FS																
520 SA2.6.03.3 Landfill Cell 3	714 20-Feb-20 02-Feb-22 435																	
<b>521</b> 6.03.3 63-1900 Earth bund (Eastern)	110         20-Feb-20         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																
	55-2000. FS, 05-4200. FS	F3 -30, W12. 2. F3, 03-2000. F3 -43, 00-2200. F3																
522 6.03.3 63-2000 Earth bund (Western)	110 25-Apr-20 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,																
		63-2100: FS -45																
<b>523</b> 6.03.3 63-2100 Intercell bund (Cell 3/4)	105 29-Jun-20 11-Oct-20 789 11-1100: FS, 63-1000: FS, 63-4200: FS, 63-2000: FS 45	63-2400: FS																
<b>524</b> 6.03.3 63-2200 Site Formation	75 09-Jun-20 22-Aug-20 9 11-1100: FS, 63-1000: FS, 63-1900: FS	63-2300: FS																
<b>525</b> 6.03.3 63-2300 Pump Station (PS#3X)	45 23-Aug-20 06-Oct-20 9 63-2200: FS 63-2000: FS	63-2500: FS, 63-2600: FS																
<b>526</b> 6.03.3 63-2400 Lining Works	100 01-Oct-21* 08-Jan-22 435 41-1500: FS, 63-2000: FS, 63-2100: FS,	63-2500: FS, M12. 3: FS																
	63-1500: FS																	
527         6.03.3         63-2500         Protective Stone Laying & Leachate Collection Pipe	25 09-Jan-22 02-Feb-22 435 63-2400: FS, 41-1500: FS, 63-2300: FS	32-1700: FS, M12. 3: FS																
528 6.03.3 63-2600 Install Leachate Force Main	75 07-Oct-20 20-Dec-20 9 63-2000: FS, 41-1500: FS, 63-2300: FS	53-2500: SS -90, 54-2800: FS, M12. 3: FS																
529 6.03.3 63-2700 Install Landfill Gas Pipe on earth bund	35 09-Jun-20 13-Jul-20 58 41-1500: FS, 63-1900: FS	54-4000: FS, M12. 3: FS																
530 SA2.6.03.4 Landfill Cell 4	584 07-Sep-21 13-Apr-23 30																	
531 6.03.4 63-2800 Remaining Portion of Buttress Wall	120 07-Sep-21 04-Jan-22 494 62-1000: FS																	
532 6.03.4 63-2900 Earth bund (Western) incl. MSE Wall	120 07-Sep-21 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 6.03.4 63-3000 Site Formation	120 05-Jan-22 04-May-22 239 62-1000: FS, 62-1100: FS, 62-1200: FS, 63-2900: FS,	63-3100: FS																
<b>524</b> 0.02.4 0.2.2400 Dump Chatter (DO#4V)	63-4100: FS	63-3300: FS, 63-3400: FS																
<b>534</b> 6.03.4 63-3100 Pump Station (PS#4X)	45 05-May-22 18-Jun-22 239 63-3000: FS, 63-2900: FS																	
<b>535</b> 6.03.4 63-3200 Lining Works	135 01-Oct-22* 12-Feb-23 0 41-1500: FS, 63-2900: FS	63-3300: FS, M12. 6: FS																
536 6.03.4 63-3300 Protective Stone Laying & Leachate Collection Pipe	60         13-Feb-23         13-Apr-23         0         41-1500: FS, 63-3200: FS, 63-3100: FS	12-1900: FS, 32-1800: FS, M12. 6: FS																
537 6.03.4 63-3400 Install Leachate Force Main & Remove Temporary Leachate Pipe	30 19-Jun-22 18-Jul-22 269 41-1500: FS, 63-2900: FS, 63-3100: FS	12-1900: FS, 32-1800: FS, M12. 6: FS																
538         SA2.6.03.5         Drainage - Surface Run-Off           539         6.03.5         63-3500         Perimeter Channel (X9A) at Cell 2 Western Bund	750         16-Jan-20         03-Feb-22         464           15         09-Jun-20         23-Jun-20         1054         63-1100: FS	12-1900: FS																
		63-4000: FS																
540 6.03.5 63-3600 Perimeter Channel (X10A) at Cell 2 Western Bund	30 09-Jun-20 08-Jul-20 1029 63-1100: FS									<b></b>								
541 6.03.5 63-3700 Perimeter Channel (X10A) at Cell 3 Western Bund	30 13-Aug-20 11-Sep-20 964 63-2000: FS	63-4000: FS																
542         6.03.5         63-3800         Perimeter Channel (X10A) at Cell 4 Western Bund	20 05-Jan-22 24-Jan-22 464 63-2900: FS	63-4000: FS																
543 6.03.5 63-3900 Perimeter Channel (X10C) at Cell 4 Western Bund	15 05-Jan-22 19-Jan-22 469 63-2900: FS	63-4000: FS																
544   6.03.5   63-4000   Connection to Existing DP3	10 25-Jan-22 03-Feb-22 464 63-3900: FS, 63-3600: FS, 63-3700: FS, 63-3800: FS	12-1900: FS																
545 6.03.5 63-4100 Remove Cut-Off Channel C-7 at bottom of Buttress Wall	30 09-Jun-21 08-Jul-21 419 63-2900: SS -90	63-3000: FS																
546     6.03.5     63-4200     Temporary Channel (X7T) at SENT Infrastructure Area	30 16-Jan-20 14-Feb-20 14 63-1300: FS	63-1900: FS, 63-2100: FS																·
547 SA2.6.03.6 Drainage - Ground Water	85 07-Sep-21 30-Nov-21 529																	
548         6.03.6         63-4300         Construct Temporary Channel (TC-1), from MH-1 to Existing UC-825	50         07-Sep-21         26-Oct-21         529         23-1900: FS, 11-1300: FS, 62-1000: FS	63-4400: FS																
549 6.03.6 63-4400 Divert GW at MH-1 to TC-1	5 27-Oct-21 31-Oct-21 529 63-4300: FS	63-4500: FS, M 9. 9: FS																
550 6.03.6 63-4500 Reconnection of GWCP across Cell 4	30 01-Nov-21 30-Nov-21 529 62-1100: FS, 62-1200: FS, 63-4400: FS	12-1900: FS																
551 SA2.6.03.8 Utilities - Works Associated with Utilities Undertakers	255 15-Nov-20 27-Jul-21 655																	
552 SA2.6.03.8.U1 CLP	210 30-Dec-20 27-Jul-21 655																	
553 6.03.8.U1 63-4600 LFG Generator On-grid Testing	180         30-Dec-20         27-Jun-21         655         32-2500: FS, 12-1200: FS, 54-4000: FS	63-4700: FS																
554 6.03.8.U1 63-4700 LFG Generator On-grid Inspection & Verify	30 28-Jun-21 27-Jul-21 655 63-4600: FS	12-1900: FS																
555 <u>SA2.6.03.8.U6 TownGas</u>	55 15-Nov-20 08-Jan-21 855	00.4000.50											·					·
556 6.03.8.U6 63-4800 Laying Gas Mains (from LFG to Town Gas PF)	45 15-Nov-20 29-Dec-20 855 54-4000: FF	63-4900: FS																
557 6.03.8.U6 63-4900 Gas Meter Relocation & Connection at LFG	10 30-Dec-20 08-Jan-21 855 63-4800: FS, 54-4000: FS	12-1900: FS																
558 SA2.6.04 Building & E&M Works	661 01-Oct-19 22-Jul-21 660																	
559         SA2.6.04.C Part X1 Area C           560         SA2.6.04.C.02 LFG Treatment Plant	661         01-Oct-19         22-Jul-21         660           661         01-Oct-19         22-Jul-21         660																	
561         6.04.C.02         64-1000         GHS600 Blower 601 C Relocation	15 08-Jul-21 22-Jul-21 660 32-1500: FS	12-1900: FS																
562 6.04.C.02 64-1100 Absorption Chiller (Optional)	90 01-Oct-19 29-Dec-19 1231 54-2200: FS	12-1900: FS																
563 SA2.6.08 Landscape Works	613 01-Apr-19 03-Dec-20 891																	
564 SA2.6.08.1 SENT Area - Tree Removal & Transplanting	240 01-Apr-19 26-Nov-19 1264																	
565         6.08.1         68-1000         Access trees condition and select for transplanting	30 01-Apr-19* 30-Apr-19 1264 14-1300: FS	68-1100: FS, 68-1200: FS, 68-1400: FS																
566     6.08.1     68-1100     Prepare new site to receive trees	90 01-May-19 29-Jul-19 1264 68-1000: FS	68-1200: SS																
567 6.08.1 68-1200 Transplant selected trees	120 01-May-19 28-Aug-19 1264 68-1000: FS, 68-1100: SS	68-1300: FS																
568 6.08.1 68-1300 Prune trees prior to removal from Cell 4	90 29-Aug-19 26-Nov-19 1264 68-1200: FS	12-1900: FS																
569 6.08.1 68-1400 Tree Felling - Part X3	90 01-May-19 29-Jul-19 1384 23-8200: FS, 31-1600: FS, 68-1000: FS	12-1900: FS																
570 SA2.6.08.2 SENTX Area - Trial Nursery & Tree Planting	583 01-May-19 03-Dec-20 891																	
571         6.08.2         68-1600         Trial Nursery	300         01-May-19         24-Feb-20         1174         14-1800: FS, 58-1000: SS 30	12-1900: FS, M 3. 2: FS					· · · · · · · · · · · · · · · · · · ·	+										-
572 6.08.2 68-1700 Landscaping in New Infrastructure Area	150 07-Jul-20 03-Dec-20 891 54-1000: FS, 23-7600: FS	12-1900: FS																

Remaining Work		South-East New Territories Land Fill Extension (SA2-SENTX)	Date	Revision	Checked	Approved
	Page : 4 of 4		11-May-18	SENTX-GVL-W-PB-ZZ-0001 Rev. I01		
<ul> <li>Milestone</li> </ul>		Baseline Programme	20-Jul-18	SENTX-GVL-W-PB-ZZ-0001 Rev. I02 (Detailed)		

Annex B

# Environmental Mitigation Implementation Schedule

#### EIA Ref. EM&A Environmental Protection Measures/ Objectives of the Who to When to implement What requirements Implementation Location of Ref **Mitigation Measures** Recommended the measure? (1) or standards for the Status and Remarks the Measures implement Measure & Main the measure? D С O/R A measure to achieve? **Concerns to address** Air Quality - Construction Phase ~ Air Pollution Control Not applicable. 4.8.1AO1 To minimise potential Blasting area SENTX Blasting (Construction Dust) Blasting is not required and 30m of dust nuisance Contractor • The area within 30m of the blasting Regulations blasting area in the latest landfill area will be wetted prior to blasting. design Blasting will not be carried out when ٠ 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. loose material and stones in the Site ٠ 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 SENTX Air Pollution Control Not applicable. Rock 4.8.1 Rock Drilling To minimise potential Rock drilling $\checkmark$ AO<sub>2</sub> (Construction Dust) drilling is not required dust nuisance area Contractor Watering will be carried out at the • Regulations in the latest landfill rock drilling activities to avoid design fugitive dust emissions.

#### Annex B Environmental Mitigation Implementation Schedule

(1) D=Design; C=Construction; 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?	the n		impleme ure? <sup>(1)</sup> O/R		What requirements or standards for the measure to achieve?	Implementation Status and Remarks
			Concerns to address		the measure:	D	C	0/ K	. 1	incustre to achieve:	
4.8.1	AQ3	Site Access Road	To minimise potential		SENTX		✓			Air Pollution Control	Deficiency of
		• The main haul road will be kept clear of dusty materials or sprayed with	dust nuisance	road	Contractor					(Construction Dust) Regulations	mitigation measures but rectified by the Contractor
		water.								HKAQO and EIAO- TM Annex 4	
		<ul> <li>The main haul road will be paved with aggregate or gravel.</li> </ul>								IIVI I milex I	
		• Vehicle speed will be limited to 10kph.									
4.8.1	AQ4	Stockpiling of Dusty Materials	1		SENTX		✓			Air Pollution Control	Reminder was given to
		• Any stockpile of dusty materials will be covered entirely by impervious	dust nuisance	construction works area	Contractor					(Construction Dust) Regulations	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)	Deficiency of mitigation measures
		All dusty materials will be sprayed		works area						Regulations	but rectified by the
		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	Contractor
4.8.1	AQ6	Site Boundary and Entrance	To minimise potential				✓			Air Pollution Control	Implemented
		• Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of	dust nuisance	and entrance	Contractor				(Construction Dust) Regulations		
		height not less than 2.4m from								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?	the r		implem ure? <sup>(1)</sup> O/R	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.							TM Annex 4	
4.8.1	AQ7	<ul> <li>Excavation Works</li> <li>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.</li> </ul>	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	AQ8	<ul> <li>Building Demolition</li> <li>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.</li> <li>Any dusty materials remaining after a stockpile is removed will be wetted with water and cleared from the surface of roads or street.</li> </ul>	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	<ul> <li><u>Construction of the Superstructure of Building</u></li> <li>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.</li> </ul>	To minimise potential dust nuisance	All construction works area	SENTX Contractor		•		Air Pollution Control (Construction Dust) Regulations HKAQO and EIAO- TM Annex 4	Implemented

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement	When to implement the measure? <sup>(1)</sup>				or standards for the	Implementation Status and Remarks
			Measure & Main Concerns to address		the measure?	D	С	O/R	А	measure to achieve?	
4.8.1	AQ10	Should a stone crushing plant be needed on site, the control measures recommended in the <i>Best Practicable</i> <i>Means Requirement for Mineral Works</i> ( <i>Stone Crushing Plants</i> ) <i>BPM</i> 11/1 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

Noise – Construction Phase

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?	meas	impler sure? <sup>(1)</sup> O/R	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
5.7.1	N1	Adopt good site practice listed below:	To minimise potential construction noise	All construction	SENTX Contractor	✓		Noise Control Ordinance (NCO) and	Implemented
		• Only well-maintained plant will be operated on-site and plant should be serviced regularly during the construction program;	nuisance.	works area				EIAO-TM Annex 5	
		• 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	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement			implemen sure? <sup>(1)</sup>	What requirements or standards for the	Implementation Status and Remarks
	Kei	ivitigation ivicasures	Measure & Main Concerns to address	the measures	the measure?	D	С	O/R A	measure to achieve?	Status and Kemarks
5.8	N2	Weekly noise monitoring	Ensure noise generated from the project meets the criteria	At monitoring locations shown in <i>Figure 6.4a</i>	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	Implemented
		to reduce the contamination of runoff and erosion.	water quality impacts arising from the construction works	construction works area	Contractor				EIAO-TM Annex 6	
5.8.1	WQ2	• Perimeter channels will be	To minimise potential	All	SENTX	✓	$\checkmark$		ProPECC PN 1/94	Implemented
		constructed in advance of site formation works and earthworks and intercepting channels will be provided	water quality impacts arising from the construction works	construction works area	Contractor				Water Pollution Control Ordinance (WPCO)	
		for example along the edge of excavation.							EIAO-TM Annex 6	
5.8.1	WQ3	• Silt removal facilities, channels and	To minimise potential	All	SENTX		✓		ProPECC PN 1/94	Implemented
		manholes will be maintained and the deposited silt and grit should be	water quality impacts arising from the	construction works area	Contractor				WPCO	
		removed regularly to ensure they are functioning properly at all times.	construction works	works area					EIAO-TM Annex 6	
5.8.1	WQ4	• Temporary covers such as tarpaulin	To minimise potential		SENTX		✓		ProPECC PN 1/94	Implemented
		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	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?		to impleme asure? <sup>(1)</sup> O/R	or standards for the	Status and Remarks
		and grease will pass through the oil interceptors.	water quality impacts arising from the	construction works area	Contractor			WPCO	
		interceptors.	construction works	works area				EIAO-TM Annex 6	
6.8.1	WQ6	• All sewer and drains will be sealed to	To minimise potential	Infrastructure		$\checkmark$		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		$\checkmark$		ProPECC PN 1/94	Not applicable.
		twin drainage tunnels, the recycle water for cooling the cutter head of	water quality impacts arising from the	sites	Contractor	or		WPCO	Excavation of drainage tunnels is not required
		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.	tunnel works					EIAO-TM Annex 6	in the latest landfill design.
6.8.1	WQ8	• The fuel and waste lubricant oil from	To minimise potential	SENTX Site	SENTX	$\checkmark$		ProPECC PN 1/94	Implemented
		the on-site maintenance of machinery and equipment will be collected by a	water quality impacts arising from improper		Contractor			WPCO	
		licensed chemical waste collector.	handling of fuel and oil					Waste Disposal Ordinance (WDO)	
6.8.1	WQ9	Implementation of excavation	To minimise	All	SENTX	$\checkmark$		ProPECC PN 1/94	Implemented
		schedules, lining and covering of excavated stockpiles	contaminated stormwater run-off	construction works	Contractor			WPCO	
		excuvated stockpiles	from the SENTX Site					EIAO-TM Annex 6	
6.13	WQ10	• Monitoring of surface water quality	To minimise potential	SENTX Site	SENTX	$\checkmark$		WPCO	Implemented
		will be conducted on a regular basis as stated in the EM&A Manual.	water quality impacts on surface water arising from the construction works		Contractor			Water-TM	

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?			o implemer sure? <sup>(1)</sup> O/R A	or standards for the	Implementation Status and Remarks
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	To minimise potential	SENTX Site	SENTX		✓		WPCO	Implemented
		employed to clean the chemical toilets on a regular basis.	water quality impacts arising from the sewage effluents		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.	-	Before construction works commence	SENTX Contractor	✓	•		WDO	Implemented
7.6.1	WM2	Management of Waste Disposal								
		The construction contractor will open a	To ensure that	SENTX Site	SENTX		✓		WDO	Implemented
		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,	adverse environmental impacts are prevented		Contractor				Waste Disposal (Charges for Disposal of Construction Waste) Regulation;	
		landfills will required a valid "chit" which contains the information of the account holder to facilitate waste							Works Bureau Technical Circular No.31/2004; and	

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Recommended the Measures im Measure & Main th Concerns to address				to implement asure? <sup>(1)</sup> O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
		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	<u>Measures for the Reduction of</u> <u>Construction Waste Generation</u>							
		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	Chemical Waste	-			,			
		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</i> <i>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

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?		to implement easure? <sup>(1)</sup> C O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
		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	V	, ,	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	Deficiency of mitigation measures but rectified by the Contractor	
		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	V	<b>,</b>		Implemented

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?	When to implement the measure? <sup>(1)</sup> D C O/R A	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
7.8	WM8	<ul> <li>waste reduction, reuse and recycling.</li> <li><u>Environmental Monitoring &amp; Audit</u> <u>Requirements</u></li> <li>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.</li> </ul>	To ensure that adverse environmental impacts are prevented	SENTX Site	SENTX Contractor	✓	WDO	Implemented
Landfill G 8.6.2 and SENTX latest design	Gas Hazar	ds – Design and Construction Phase 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	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended Measure & Main	Location of the Measures	Who to implement the measure?			o imple sure? (1) O/R	)	What requirements or standards for the measure to achieve?	Status and Remarks
			Concerns to address			D	C	0/10	11		
		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	Implemented
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

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures	Objectives of the Recommended	Location of the Measures	Who to implement			imples sure? <sup>(1)</sup>	What requirements or standards for the	Implementation Status and Remarks
	Kei	winigation weasures	Measure & Main Concerns to address	the weasures	the measure?	D	С	O/R	measure to achieve?	Status and Kemarks
		between the waste and the new infrastructure area to monitor the migration of landfill gas, if any.								
Ecology –	Construct	tion Phase								
9.10.2	EC1	Measures to control construction runoff:	To minimise potential		SENTX		✓		EIAO-TM Annex 16	Implemented
		• Exposed soil areas will be	water quality impacts affecting ecological	construction works area	Contractor				ProPECC PN 1/94	
		minimised to reduce the contamination of runoff and erosion;	resources						Water Pollution Control Ordinance (WPCO)	
									EIAO-TM Annex 6	
		• To prevent stormwater runoff from 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;							-	Implemented
		• 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;							-	Implemented

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?		to imple asure? ( O/F		What requirements or standards for the measure to achieve?	Implementation 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.							-	Implemented
9.10.2 and SENTX latest design	EC2	<ul> <li>Good Construction Practice:</li> <li>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.</li> </ul>	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.								
9.12.1	EC9	Environmental Monitoring & Audit Requirements 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	SENTX	SENTX Contractor	~	√	~	EIAO-TM Annex 16	Implemented

EIA Ref.	EM&A Ref	Environmental Protection Measures/ Mitigation Measures construction period.	Objectives of the Recommended Measure & Main Concerns to address	Location of the Measures	Who to implement the measure?			implen sure? <sup>(1)</sup> O/R	What requirements or standards for the measure to achieve?	Implementation Status and Remarks
		· · · · · · · · · · · · · · · · · · ·								
Landscape	e and Visu	al - 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	Implemented
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

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 measure? <sup>(1)</sup>		What requirements or standards for the measure to achieve?	Implementation Status and Remarks
		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	Reminder was given to Contractor
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 implement			impleme ure? <sup>(1)</sup>	nt	What requirements or standards for the	e 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</i> <i>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

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	2
3	4	5	6	7	8	9
			Dust Monitoring	Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
10	11	12	13	14	15	16
		Dust Monitoring			Surface Water Monitoring (pm)	
					Noise Monitoring (pm)	
17	18	19	20	21	22	23
	Dust Monitoring			Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
24	25	26	27	28	29	30
Dust Monitoring				Surface Water Monitoring (pm)		Dust Monitoring
				Noise Monitoring (pm)		

November 2019

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



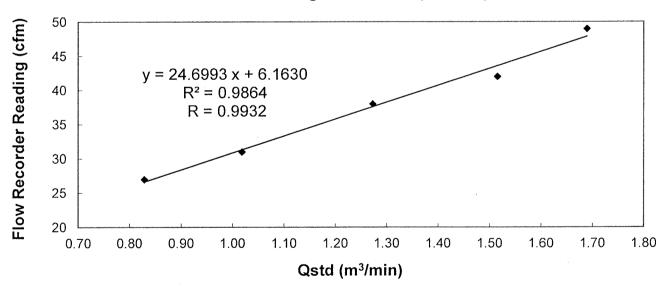
# 東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

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

### Calibration Report

of <u>High Volume Air Sampler</u>								
Manufacturer       :       Graseby 105       Date of Calibration       :       23 October 2						tober 2019		
Serial No.	: 9795 (ET / EA / 003 / 18 ) Calibration D			e Date	•	22 De	ecember 20	19
Method	:	Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual						
Results	:	Flow recorder reading (cfm)	49	42		38	31	27
		Qstd (Actual flow rate, m <sup>3</sup> /min)	1.69	1.51		1.27	1.02	0.83
		Pressure : 760.56 mm Hg		Temp. :		299	К	

### 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 1	
		lai

MAK, Kei Wai (Assistant Supervisor) Checked by

LAU, Chi Leung

(Environmental Team Leader)

- END OF REPORT -



# 東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

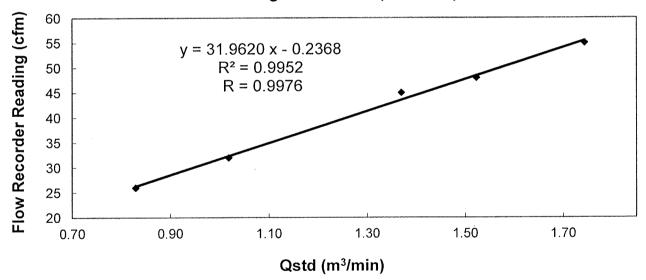
8/F Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fo Tan, Hong Kong

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

### **Calibration Report**

of <u>High Volume Air Sampler</u>								
Manufacturer	anufacturer : Andersen G1051 Date of Calibration : 23 October 2019							
Serial No.	: <u>1176 (ET / EA / 003 / 05 )</u> Calibration Due Date :			22 December 2019				
Method	:	Based on Operations Manual for the 5-point calibration using standard calibration kit manufactured by Tisch TE-5025 A						
Results	:	Flow recorder reading (cfm)	55	48		45	32	26
		Qstd (Actual flow rate, m <sup>3</sup> /min)	ate, m <sup>3</sup> /min) 1.74			1.37	1.02	0.83
		Pressure : 760.56 mm	Hg	Temp. :		299	К	

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)

	9	
Checked by	: 7	
	LAU, Ch	i Leung

(Environmental Team Leader)

- END OF REPORT -

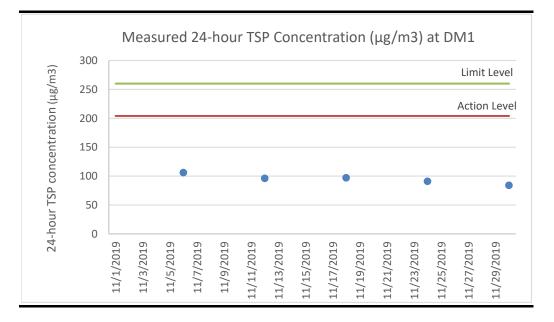
# 24-hour TSP Monitoring Results

Start Date	Start Time	Finish Date	Finish Time	Weather	24-hour TSP (µg/m3)
6 Nov 19	8:30	7 Nov 19	8:30	Fine	106
12 Nov 19	8:30	13 Nov 19	8:30	Cloudy	96
18 Nov 19	12:30	19 Nov 19	12:30	Fine	97
24 Nov 19	8:00	25 Nov 19	8:00	Fine	91
30 Nov 19	8:00	1 Dec 19	8:00	Cloudy	84
				Average	95
				Min	84
				Max	106
Note:					
DM1 corres	ponds to the	existing TSP 1	nonitoring stat	ion TKO-A1 c	urrently operating by

### Table D2.124-hour TSP Monitoring Results at DM1

CEDD.

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

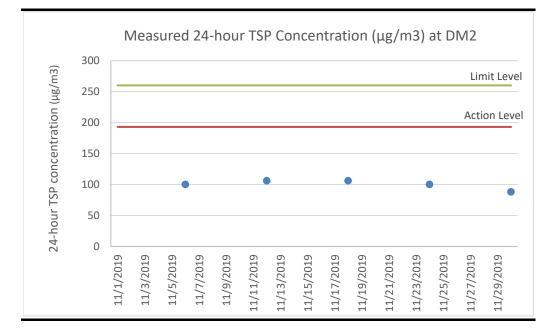


### Table D2.224-hour TSP Monitoring Results at DM2

Start Date	Start Time	Finish Date	Finish Time	Weather	24-hour TSP (µg/m3)
6 Nov 19	8:35	7 Nov 19	8:35	Fine	100
12 Nov 19	8:30	13 Nov 19	8:30	Cloudy	106
18 Nov 19	12:35	19 Nov 19	12:35	Fine	106
24 Nov 19	8:00	25 Nov 19	8:00	Fine	100
30 Nov 19	8:00	1 Dec 19	8:00	Cloudy	88
				Average	100
				Min	88
				Max	106

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



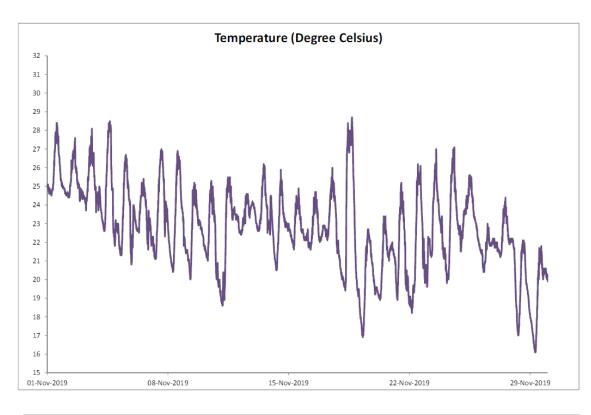
# Event and Action Plan for Dust Monitoring

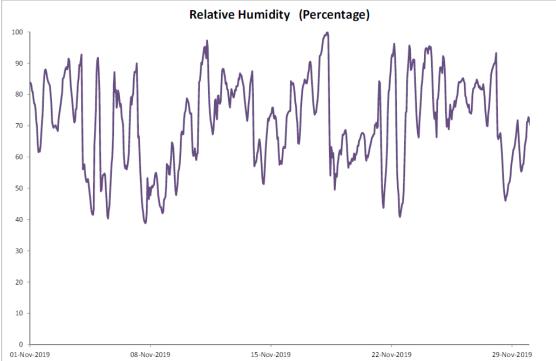
		Action	
Event	ET	IEC	Contractor
Action Level			
Exceedance for one sample	<ul> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due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

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

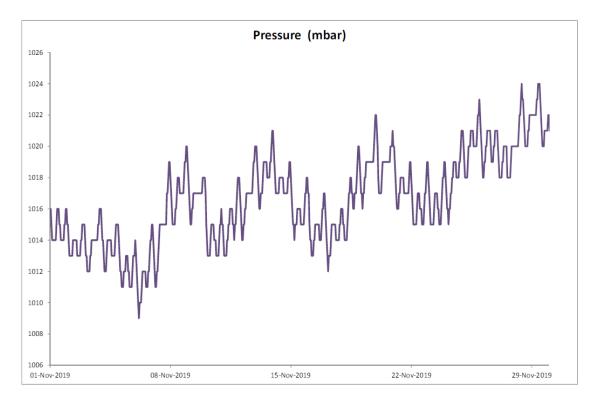
		Action	
Event	ET	IEC	Contractor
Limit Level			
Exceedance for one sample	<ul> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC, Project Proponent and EPD whether the cause of exceedance is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

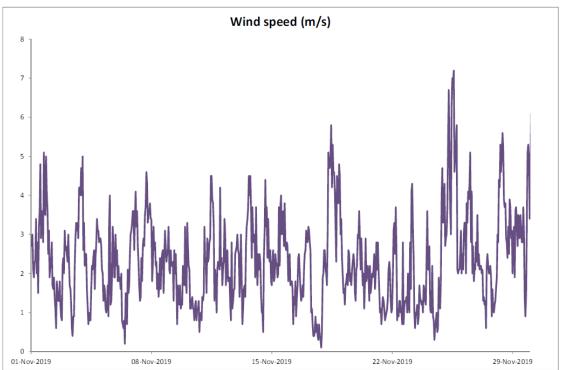
# Meteorological Data

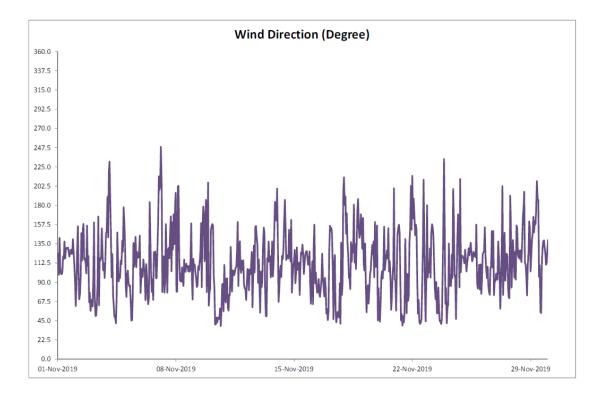


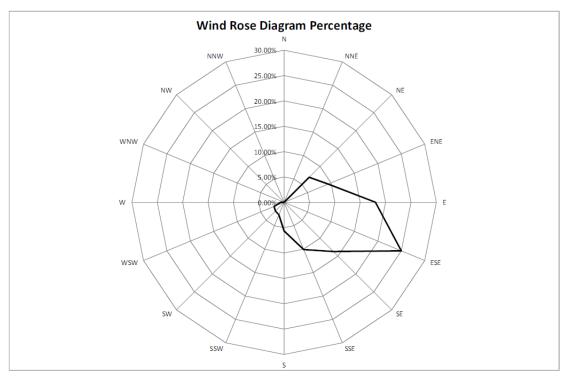


#### ENVIRONMENTAL RESOURCES MANAGEMENT









### Manual Rain Gauge Readings

#### November 2019

Date	Rainfall
	(mm)
1-Nov-19	0.0
2-Nov-19	0.0
3-Nov-19	0.0
4-Nov-19	0.0
5-Nov-19	0.0
6-Nov-19	0.0
7-Nov-19	0.0
8-Nov-19	0.0
9-Nov-19	0.0
10-Nov-19	0.0
11-Nov-19	0.0
12-Nov-19	0.0
13-Nov-19	0.0
14-Nov-19	0.0
15-Nov-19	0.0
16-Nov-19	0.0
17-Nov-19	0.0
18-Nov-19	0.0
19-Nov-19	0.0
20-Nov-19	0.0
21-Nov-19	0.0
22-Nov-19	0.0
23-Nov-19	0.0
24-Nov-19	0.0
25-Nov-19	0.0
26-Nov-19	0.0
27-Nov-19	0.0
28-Nov-19	0.0
29-Nov-19	0.0
30-Nov-19	0.0
TOTAL RAINFALL	0.0

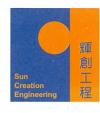
#### ENVIRONMENTAL RESOURCES MANAGEMENT

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. : C193753 證書編號

ITEM TESTED / 送檢項目	(Job No. / 序引編號:IC19-1098)	Date of Receipt / 收件日期: 5 July 2019
Description / 儀器名稱 :	Integrating Sound Level Meter (EQ006)	
Manufacturer / 製造商 :	Brüel & Kjær	
Model No. / 型號 :	2238	
Serial No. / 編號 :	2285762	
Supplied By / 委託者 :	Action-United Environmental Services and C	onsulting
	Unit A, 20/F., Gold King Industrial Building,	
	35-41 Tai Lin Pai Road, Kwai Chung, N.T.	

### TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Line Voltage / 電壓 : --- Relative Humidity / 相對濕度 : (50±25)%

#### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 16 July 2019

#### 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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試

K P Cheuk Assistant Engineer

K C Lee Engineer

Certified By 核證

Date of Issue 簽發日期

:

22 July 2019

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 Website/網址: www.suncreation.com Pa



# Certificate of Calibration 校正證書

Certificate No. : C193753 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	C190176
CL281	Multifunction Acoustic Calibrator	CDK1806821

- 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 <sub>AFP</sub>	А	F	94.00	1	94.4

#### 6.1.1.2 After Self-calibration

	UUT Setting				Applied Value		IEC 60651
Range	Parameter	Frequency	Time	Level	Freq.	Reading	Type 1 Spec.
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)	(dB)
50 - 130	L <sub>AFP</sub>	А	F	94.00	1	94.1	$\pm 0.7$

#### 6.1.2 Linearity

	UUT	Γ Setting	Applie	d Value	UUT	
Range	Parameter	Frequency	Time	Level	Freq.	Reading
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)
50 - 130	$L_{AFP}$	А	F	94.00	1	94.1 (Ref.)
				104.00		104.1
				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.

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Sun Creation Engineering Limited

Calibration & Testing Laboratory

# Certificate of Calibration 校正證書

Certificate No. : C193753 證書編號

### 6.2 Time Weighting

### 6.2.1 Continuous Signal

	UUT	Setting		Applied Value		UUT	IEC 60651
Range	Parameter	Frequency	Time	Level	Freq.	Reading	Type 1 Spec.
(dB)		Weighting	Weighting	(dB)	(kHz)	(dB)	(dB)
50 - 130	L <sub>AFP</sub>	А	F	94.00	1	94.1	Ref.
	L <sub>ASP</sub>		S			94.1	± 0.1
	L <sub>AIP</sub>		Ι			94.2	± 0.1

### 6.2.2 Tone Burst Signal (2 kHz)

	UUT Setting				Applied Value		IEC 60651
Range	Parameter	Frequency	Time	Level	Level Burst		Type 1 Spec.
(dB)		Weighting	Weighting	(dB)	Duration	(dB)	(dB)
30 - 110	L <sub>AFP</sub>	А	F	106.0 Continuous		106.0	Ref.
	L <sub>AFMax</sub>				200 ms		$-1.0 \pm 1.0$
	L <sub>ASP</sub>		S	Continuous		106.0	Ref.
	L <sub>ASMax</sub>				500 ms	102.0	$-4.1 \pm 1.0$

#### 6.3 Frequency Weighting

#### 6.3.1 A-Weighting

	UUT	Setting		Appl	ied Value	UUT	IEC 60651
Range	Parameter	Frequency	Time	Level	Freq.	Reading	Type 1 Spec.
(dB)		Weighting	Weighting	(dB)		(dB)	(dB)
50 - 130	L <sub>AFP</sub>	А	F	94.00	31.5 Hz	55.2	$-39.4 \pm 1.5$
					63 Hz	68.1	$-26.2 \pm 1.5$
					125 Hz	78.0	$-16.1 \pm 1.0$
					250 Hz	85.4	$-8.6 \pm 1.0$
					500 Hz	90.8	$-3.2 \pm 1.0$
					1 kHz	94.1	Ref.
					2 kHz	95.3	$+1.2 \pm 1.0$
					4 kHz	95.1	$+1.0 \pm 1.0$
					8 kHz	93.0	-1.1 (+1.5 ; -3.0)
					12.5 kHz	89.9	-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. : C193753 證書編號

#### 6.3.2 C-Weighting

C-weighting	weighting							
	UUT	Setting		Appl	ied Value	UUT	IEC 60651	
Range	Parameter	Frequency	Time	Level	Freq.	Reading	Type 1 Spec.	
(dB)		Weighting	Weighting	(dB)	-	(dB)	(dB)	
50 - 130	L <sub>CFP</sub>	С	F	94.00	31.5 Hz	91.5	$-3.0 \pm 1.5$	
					63 Hz	93.4	$-0.8 \pm 1.5$	
					125 Hz	93.9	$-0.2 \pm 1.0$	
					250 Hz	94.1	$0.0 \pm 1.0$	
					500 Hz	94.1	$0.0 \pm 1.0$	
					1 kHz	94.1	Ref.	
					2 kHz	93.9	$-0.2 \pm 1.0$	
					4 kHz	93.3	$-0.8 \pm 1.0$	
					8 kHz	91.1	-3.0 (+1.5 ; -3.0)	
					12.5 kHz	88.0	-6.2 (+3.0 ; -6.0)	

#### 6.4

Time Averaging

1 mile 1 iv										
	UUI	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 <sub>Aeq</sub>	A	10 sec.	4	1	1/10	110.0	100	100.0	± 0.5
						$1/10^{2}$		90	90.0	± 0.5
			60 sec.			1/10 <sup>3</sup>		80	79.2	± 1.0
			5 min.			1/104		70	69.2	± 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 250 Hz - 500 Hz 1 kHz 2 kHz - 4 kHz 8 kHz 12.5 kHz 104 dB : 1 kHz 114 dB : 1 kHz Burst equivalent level	: $\pm 0.30 \text{ dB}$ : $\pm 0.20 \text{ dB}$ : $\pm 0.35 \text{ dB}$ : $\pm 0.45 \text{ dB}$ : $\pm 0.70 \text{ dB}$ : $\pm 0.10 \text{ dB}$ (Ref. 94 dB) : $\pm 0.10 \text{ dB}$ (Ref. 94 dB) : $\pm 0.2 \text{ dB}$ (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.

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Sun Creation Engineering Limited Calibration & Testing Laboratory

# Certificate of Calibration 校正證書

Certificate No. : C186448 證書編號

ITEM TESTED / 送檢項目	(Job No. / 序引編號: IC18-0867) Date of Receipt / 收件日期: 8 November 2018
Description / 儀器名稱 :	Sound Calibrator (EQ089)
Manufacturer / 製造商 :	Rion
Model No. / 型號 :	NC-75
Serial No. / 編號 :	34680623
Supplied By / 委託者 :	Action-United Environmental Services and Consulting
	Unit A, 20/F., Gold King Industrial Building,
	35-41 Tai Lin Pai Road, Kwai Chung, N.T.

### TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Line Voltage / 電壓 : --- Relative Humidity / 相對濕度 : (50 ± 25)%

#### TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 24 November 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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies

•

- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試

-	17
 000	10.
ΗТ	Wong

Technical Officer

K C Lee Engineer

Certified By 核證 Date of Issue 簽發日期 :

27 November 2018

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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# Certificate of Calibration 校正證書

Certificate No. : C186448 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- 2. The results presented are the mean of 3 measurements at each calibration point.
- 3. Test equipment :

Equipment ID CL130 CL281 TST150A Description Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier <u>Certificate No.</u> C183775 CDK1806821 C181288

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

UUT	Measured Value	Mfr's Spec.	Uncertainty of Measured Value
Nominal Value	(dB)	(dB)	(dB)
94 dB, 1 kHz	94.0	± 0.25	$\pm 0.2$

#### 5.2 Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's	Uncertainty of Measured Value
(kHz)	(kHz)	Spec.	(Hz)
1	1.000 0	$1 \text{ kHz} \pm 0.1 \%$	$\pm 0.1$

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.

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輝創工程有限公司

Sun Creation Engineering Limited

**Calibration & Testing Laboratory** 

# Certificate of Calibration 校正證書

Certificate No. : C194819 證書編號

ITEM TESTED / 送檢項	目月	(Job No. / 序引編號:IC19-1098)	Date of Receipt / 收件日期: 27 August 2019
Description / 儀器名稱	:	Sound Calibrator (EQ087)	
Manufacturer / 製造商	:	Rion	
Model No. / 型號	:	NC-74	
Serial No. / 編號	:	34657231	
Supplied By / 委託者	:	Action-United Environmental Services and	d Consulting
		Unit A, 20/F., Gold King Industrial Building	ng,
		35-41 Tai Lin Pai Road, Kwai Chung, N.T	

### TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Line Voltage / 電壓 : --- Relative Humidity / 相對濕度 : (50 ± 25)%

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 7 September 2019

### 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
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Fluke Everett Service Center, USA

Tested By 測試	:H T Wong Technical Officer		
Certified By	K C Lee	Date of Issue :	10 September 2019
核證	Engineer	簽發日期	

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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Calibration & Testing Laboratory

# Certificate of Calibration 校正證書

Certificate No. : C194819 證書編號

- 1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- 2. The results presented are the mean of 3 measurements at each calibration point.
- 3. Test equipment :

Equipment ID CL130 CL281 TST150A

Description Universal Counter Multifunction Acoustic Calibrator Measuring Amplifier <u>Certificate No.</u> C193756 CDK1806821 C181288

- 4. Test procedure : MA100N.
- 5. Results :
- 5.1 Sound Level Accuracy

UUT	Measured Value	Mfr's Spec.	Uncertainty of Measured Value
Nominal Value	(dB)	(dB)	(dB)
94 dB, 1 kHz	94.1	± 0.3	± 0.2

5.2 Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's	Uncertainty of Measured Value
(kHz)	(kHz)	Spec.	(Hz)
1	1.001	1 kHz ± 1 %	± 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.

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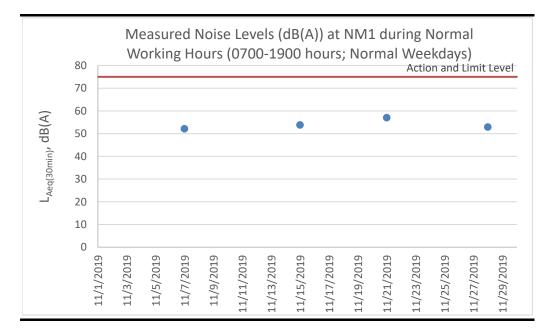
Annex E2

Noise Monitoring Results

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

Date	Start Time	Finish Time	Weather	L <sub>10 (30min)</sub>	L90 (30min)	Leq (30min)
7 Nov 19	14:37	15:07	Sunny	53.5	50.0	52.1
15 Nov 19	15:01	15:31	Sunny	56.0	48.0	53.8
21 Nov 19	14:34	15:04	Sunny	58.5	54.5	57.0
28 Nov 19	14:39	15:09	Sunny	54.0	51.0	52.9
					Average	<b>e</b> 54.0
					Mir	<b>52.1</b>
					Max	<b>x</b> 57.0
Note:						
Correction of $+3  dB(A)$ was made for free field measurements.						

## *Figure E2.1 Graphical Presentation for Noise Monitoring at NM1*



Annex E3

# Event and Action Plan for Noise Monitoring

Event		Action	
	ET	IEC	Contractor
Action Level	and complaint	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Discuss with ET and Contractor on proposed remedial measures</li> <li>Review proposals on remedial measures</li> <li>Audit the implementation of the remedial measures</li> <li>Audit the effectiveness of the implemented remedial measures</li> </ul>	<ul><li>Submit proposals for remedial measures to IEC</li><li>Implement the agreed proposals</li></ul>
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	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Discuss with ET and Contractor on proposed remedial measures</li> <li>Review proposals on remedial measures</li> <li>Audit the implementation of the remedial measures</li> <li>Audit the effectiveness of the implemented remedial measures</li> </ul>	<ul> <li>Take immediate measures to avoid further exceedance</li> <li>Submit proposals for remedial measures to IEC within 3 working days of notification</li> <li>Implement the agreed proposals</li> <li>Resubmit proposals if problem still not under control</li> <li>Stop the relevant activity of works as determined by the Project Proponent until the exceedance is abated</li> </ul>

## Annex E3 Event and Action Plan for Construction Noise

# 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: CLIENT:	MR BEN TAM ACTION UNITED ENVIRONMENT SERVICES AND CONSULTING	WORK ORDER:	HK1936450
ADDRESS:	RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T. HONG KONG	SUB-BATCH: LABORATORY: DATE RECEIVED: DATE OF ISSUE:	0 HONG KONG 26-Aug-2019 02-Sep-2019

## <u>COMMENTS</u>

Equipment information (Brand name, Model No., Serial No. and Equipment No.) is provided by client. 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 TemperatureEquipment Type:Multifunctional MeterBrand Name/ Model No.:YSI Professional DSSSerial No./ Equipment No.:15H102620/ 15H103928 (EQW018)

NOTES

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

30-Aug-2019

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

Ma Ani

Mr Chan Siu Ming, Vico Manager - Inorganic

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Date of Calibration:

## REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER:	HK1936450			
SUB-BATCH: DATE OF ISSUE: CLIENT:	0 02-Sep-2019 ACTION UNITED ENVIRONMEN	IT SERVICES AND CONSULTING		
Equipment Type:	Multifunctional Meter			
Brand Name/ Model No.:	YSI Professional DSS			
Serial No./ Equipment No.:	15H102620/ 15H103928 (EQ	W018)		
Date of Calibration:	30-Aug-2019	Date of Next Calibration:	30-Nov-2019	

## PARAMETERS:

Conductivity

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

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)		
146.9	160.7	+9.4		
6667	6485	-2.7		
12890	12380	-4.0		
58670	55669	-5.1		
	Tolerance Limit (%)	±10.0		

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

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
7.43	7.41	-0.02
4.06	4.07	+0.01
2.05	2.20	+0.15
	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	4.15	+0.15		
7.0	7.07	+0.07		
10.0	9.90	-0.10		
	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.

Ma Alin

Mr Chan Siu Ming, Vico Manager - Inorganic

## REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER:	HK1936450			AL
SUB-BATCH: DATE OF ISSUE: CLIENT:	0 02-Sep-2019 ACTION UNITED ENVIRONMEN	T SERVICES AND CONSULTING		
Equipment Type:	Multifunctional Meter			
Brand Name/ Model No.:	YSI Professional DSS			
Serial No./ Equipment No.:	15H102620/ 15H103928 (EQ	W018)		
Date of Calibration:	30-Aug-2019	Date of Next Calibration:	30-Nov-2019	

### PARAMETERS: Turbidity

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

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)			
0	0.02				
4	3.76	-6.0			
40	37.23	-6.9			
80	73.56	-8.1			
400	401.38	+0.3			
800	780.12	-2.5			
	Tolerance Limit (%)	±10.0			

Salinity

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

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	
10	10.30	+3.0
20	20.32	+1.6
30	31.32	+ 4.4
	Tolerance Limit (%)	±10.0

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

Ma Li

Mr Chan Siu Ming, Vico Manager - Inorganic

## REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

WORK ORDER:	HK1936450			ALS
SUB-BATCH: DATE OF ISSUE: CLIENT:	0 02-Sep-2019 ACTION UNITED ENVIRONMEN	T SERVICES AND CONSULTING		
Equipment Type:	Multifunctional Meter			
Brand Name/ Model No.:	YSI Professional DSS			
Serial No./ Equipment No.:	15H102620/ 15H103928 (EQ)	V018)		
Date of Calibration:	30-Aug-2019	Date of Next Calibration:	30-Nov-2019	
PARAMETERS: Temperature	Method Ref <sup>.</sup> Section 6 of Intern	ational Accreditation New Zealand	Technical	
remperature	Method Ker. Section 0 of Interne		i comiticar	

Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.Expected Reading (°C)Displayed Reading (°C)Tolerance (°C)10.09.9-0.120.018.9-1.138.036.4-1.6Tolerance Limit (°C)±2.0

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

Ma Sin

Mr Chan Siu Ming, Vico Manager - Inorganic

# Surface Water Quality Monitoring Results

Date	Time	Weather Condition	Water Appearance	Water Condition	Water Temperature (ºC)	Dissolved Oxygen (DO) (mg/L)	рН	Suspended Solids (SS) (mg/L)
7 Nov 19	14:12	Sunny		Unable	to collect water same	ble due to insufficient	flow	(mg/2)
15 Nov 19	14:10	Sunny			-	ble due to insufficient		
21 Nov 19	14:23	Sunny		Unable to collect water sample due to insufficient flow				
28 Nov 19	14:26	Sunny		Unable	to collect water samp	ble due to insufficient	flow	
		-			Average	-	-	-
					Min	-	-	-
					Max	-	-	-

## Table F2.2Surface Water Quality Monitoring Results at DP6

Date	Time	Weather Condition	Water Appearance	Water Condition	Water Temperature (ºC)	Dissolved Oxygen (DO) (mg/L)	рН	Suspended Solids (SS) (mg/L)
7 Nov 19	14:20	Sunny		Unable	o collect water samp	ole due to insufficient f	flow	
15 Nov 19	14:21	Sunny	Unable to collect water sample due to insufficient flow				flow	
21 Nov 19	14:08	Sunny	Unable to collect water sample due to insufficient flow				flow	
28 Nov 19	14:12	Sunny		Unable	o collect water samp	ole due to insufficient f	flow	
					Average	-	-	-
					Min	-	-	-
					Max	-	-	-

Event and Action Plan for Surface Water Quality Monitoring

Event		Action	
	ET	IEC	Contractor
Action Level being exceeded by one sampling day	<ul> <li>Repeat <i>in situ</i> measurement to confirm findings</li> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project</li> <li>Repeat measurement on the next day of exceedance if exceedance is due to the Project</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Check Contractor's working methods</li> </ul>	<ul> <li>Rectify any unacceptable practice</li> <li>Amend working methods if appropriate</li> </ul>
Action Level being exceeded by two onsecutive ampling days	<ul> <li>Repeat <i>in situ</i> measurement to confirm findings</li> <li>Identify the source(s) and investigate the cause(s) of exceedance</li> <li>Prepare Notification of Exceedance within 24 hours</li> <li>Inform Contractor, IEC and Project Proponent whether the cause of exceedance is due to the Project</li> <li>Discuss with Contractor and IEC for remedial measures required</li> <li>Ensure remedial measures are properly implemented</li> <li>Increase the monitoring frequency to daily if exceedance of Action Level</li> </ul>	<ul> <li>Verify the Notification of Exceedance</li> <li>Check monitoring data submitted by ET</li> <li>Check Contractor's working methods</li> <li>Discuss with ET Leader and Contractor on proposed remedial measures</li> <li>Review proposals on remedial measures</li> <li>Audit the implementation of the remedial measures</li> <li>Audit the effectiveness of the implemented remedial measures</li> </ul>	<ul> <li>Submit proposals for remedial measures to IEC</li> <li>Implement the agreed proposals</li> <li>Amend proposal if appropriate</li> </ul>

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

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

Annex G

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

## Table G1Cumulative 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	32

# Table G2Cumulative Statistics on Complaints, Notifications of Summons and<br/>Successful Prosecutions

<b>Reporting Period</b>		<b>Cumulative Statistics</b>	
_	Complaints	Notifications of Summons	Prosecutions
This Reporting Period (1 – 30 November 2019)	0	0	0
Total no. received since project commencement	1	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

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	1	5	6	7
1	2	5	+	Surface Water Monitoring (pm)	Dust Monitoring	7
				Noise Monitoring (pm)	Dust monitoring	
				Noise Monitoring (pin)		
8	9	10	11	12	13	14
				Dust Monitoring		
				Surface Water Monitoring (pm)		
				Noise Monitoring (pm)		
15	16	17	18	19	20	21
			Dust Monitoring			
			Surface Water Monitoring (pm)			
			Noise Monitoring (pm)			
22	23	24	25	26	27	28
		Dust Monitoring			Surface Water Monitoring (pm)	
					Noise Monitoring (pm)	
29	30	31				
	Dust Monitoring					

December 2019

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.