



Contract No. 13/WSD/16

Mainlaying in Tseung Kwan O

**24th Quarterly EM&A Report
For May 2024 to July 2024**

(Rev. 1.0)

	Prepared by:	Reviewed and Certified by:
Name	Toby Wan	Jacky Leung
Position	Environmental Team Member	Environmental Team Leader
Signature		
Date:	7 November 2024	7 November 2024



Water Supplies Department
New Works Branch
Construction Division
11 Tai Yip Lane
Kowloon Bay
Kowloon
Hong Kong

Your reference:

Our reference: HKWSD201/50/110110

Date: 8 November 2024

Attention: Mr Henry Chan

BY POST

Dear Sirs

Quotation No.: WQ/17/A071
Independent Environmental Checker for Water Supplies Department
-Proposed Desalination Plant in TKO Area 137 for Contract No. 13/WSD/16
Verification of 24th Quarterly EM&A Report for May 2024 to July 2024

We refer to the email of 7 November 2024 attaching 24th Quarterly EM&A Report for May 2024 to July 2024 for the captioned project prepared by the ET.

We have no comment and hereby verify the captioned report in accordance with Clause 3.5 of the Environmental Permit no. EP-503/2015/A.

Should you have any queries regarding the above, please do not hesitate to contact the undersigned or our Mr Louis Kwan on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/KSYL/thy

Revision History

Rev.	DESCRIPTION OF MODIFICATION	DATE
1.0	1 st Submission	7/11/2024

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EXECUTIVE SUMMARY

- A1. Penta-Ocean - Concentric Joint Venture (POCJV) is contracted to carry out the Mainlaying in Tseung Kwan O under Contract No. 13/WSD/16 (hereinafter known as “the Project”).
- A2. In accordance with the Environmental Monitoring and Audit (EM&A) Manual for the Project, EM&A works should be carried out by Environmental Team (ET), Acuity Sustainability Consulting Limited (ASCL), during the construction phase of the Project.
- A3. The construction works of Mainlaying in Tseung Kwan O were commenced on 30 August 2018. This is the 24th quarterly Environmental Monitoring and Audit (EM&A) summary Report prepared by ASCL. This report presents the EM&A works carried out during the period of 1 May 2024 to 31 July 2024.
- A4. All the environmental monitoring works were conducted in accordance with the EM&A Manual. The monitoring results were checked and reviewed. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handing procedures were also checked.
- A5. A summary of the monitoring activities undertaken in this reporting period is listed below:

Monitoring Activities	Frequency
Daytime Noise monitoring	12 times
Landfill Gas Monitoring	0 times
Environmental Site Inspection	13 times

- A6. All construction noise monitoring was conducted as scheduled in the reporting quarter. No Action or Limit Level exceedance for construction noise monitoring was recorded in the reporting quarter.
- A7. No landfill gas monitoring was carried out since Feb 2024, all pits or trenches were backfilled and undergo reinstatement.
- A8. No (0) environmental complaint was received in the reporting quarter. No notification of summons and prosecution was received in the reporting quarter. The Complaint Log is presented in **Appendix E**.
- A9. There were no changes to be reported that may affect the on-going EM&A programme.

1. BASIC PROJECT INFORMATION

1.1. Background

- 1.1.1. The proposed Desalination Plant at Tseung Kwan O (DPTKO) will produce potable water with an initial capacity of 135 million litres per day (MLD), expandable to an ultimate capacity of 270 MLD in the future to provide a secure and alternative freshwater resource complying with the World Health Organization (WHO) standards. The plant will adopt the Seawater Reverse Osmosis (SWRO) technology, which dominates the market due to its reliability and progressive reduction in cost as the technology advances.
- 1.1.2. Pursuant to the Environmental Impact Assessment Ordinance (EIAO), the Director of Environmental Protection granted the Variation of Environmental Permit (No. EP-503/2015/A) to Water Supplies Department (WSD) for the Project on 26 January 2018.
- 1.1.3. The scope of the Contract may be considered in brief, to consist of the laying of about 10km long 1200mm diameter freshwater mains and the associated works along the alignment of the Project as shown with the overall view in **Appendix B**.

1.2. The Reporting Scope

- 1.2.1. This is the 24th Quarterly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 May 2024 to 31 July 2024.
- 1.2.2. Contact details of the key personnel are presented in **Table 1.1** below:

Table 1.1 Contract Details of Key Personnel

Party	Position	Name	Telephone no.
Penta-Ocean-Concentric Joint Venture	Environmental Officer	Calvin Chik	9863-5630
Acuity Sustainability Consulting Limited	Environmental Team Leader	Jacky Leung	2698-6833
ANewR Consulting Limited	Independent Environmental Checker	James Choi	2618-2831

1.3. Summary of Construction Works

- 1.3.1. Details of the major construction works undertaken in this reporting quarter are shown in **Table 1.2**. The construction programme is presented in **Appendix A**.

Table 1.2 Summary of Construction Works Undertaken in the Reporting Quarter

Location	Construction activities carried in the reporting month
Wan Po Road and TKO Area 137	<ul style="list-style-type: none"> Remains work for Chamber Road Reinstatement
TKO Promenade (Stage 1 Landfill) & Po Yap Road Roundabout	<ul style="list-style-type: none"> Remains work for Chamber Road Reinstatement

HK Velodrome	<ul style="list-style-type: none"> • Remains work for Chamber • Road Reinstatement
Po Lam Road South / Ling Hong Road	<ul style="list-style-type: none"> • Remains work for Chamber • Road Reinstatement
Tsui Lam Road / Abandoned Road	<ul style="list-style-type: none"> • Remains work for Chamber • Road Reinstatement

1.4. Summary of Construction Works

1.4.1. A summary of the valid permits, licences, and /or notifications on environmental protection for this Project is presented in **Table 1.3**.

Table 1.3 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations

Reference No.	Valid Period		Status	Remark
	From	To		
Variation of Environmental Permit				
EP-503/2015/B	--	--	Valid	N/A
FEP-01/503/2015/B	--	--	Valid	N/A
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation				
423775	--	--	Valid	N/A
Chemical Waste Producer Registration				
5213-839-P3287-01	--	--	Valid	N/A
Billing Account for Disposal of Construction Waste				
A/C no.: 7029491	--	--	Valid	N/A
Water Discharge Licence				
WT0002035-2023	16 Feb 2024	31 Dec 2024	Valid	N/A
Construction Noise Permit (CNP)				
--	--	--	--	--

1.4.2. The status for all environmental aspects is presented **Table 1.4**.

Table 1.4 Summary of Status for Key Environmental Aspects under the EM&A Manual

Parameters	Status
Noise	
Baseline Monitoring	The baseline noise monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under VEP Condition 3.4
Impact Monitoring	On-going
Water	
Impact Monitoring of Disinfection Procedure	Completed
Waste Management	

Parameters	Status
Mitigation Measures in Waste Management Plan	On-going
Landfill Gas Monitoring	
Monitoring	Ceased since February 2024
Environmental Audit	
Site Inspection	On-going

- 1.4.3. Other than the EM&A works by ET, regular environmental management meetings were conducted in order to enhance environmental awareness and closely monitor the environmental performance of the contractors.
- 1.4.4. The EM&A programme has been implemented in accordance with the recommendations presented in the approved EIA Report and the EM&A Manual. A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix C**.

2. NOISE MONITORING

2.1. Monitoring Requirements

2.1.1. To ensure no adverse noise impact, noise monitoring is recommended to be carried out within 300m radius from the nearby sensitive receivers (NSRs) during construction phase. Referring to the EM&A Manual Section 4.1.2, the impact noise monitoring should be carried out at all designated monitoring stations when there are project-related construction activities undertaken within a radius of 300m from the monitoring stations.

2.2. Monitoring Parameter

2.2.1. Impact noise monitoring was conducted weekly in the reporting quarter between 0700-1900 on normal weekdays. Construction noise level was measured in terms of the A-weighted equivalent continuous sound pressure level (L_{Aeq}). $L_{eq\ 30min}$ was used as the monitoring parameter for the time period between 0700 and 1900 on normal weekdays. **Table 2.1** summarizes the monitoring parameters, frequency, and duration of the impact noise monitoring.

Table 2.1 Noise Monitoring Parameters, Time, Frequency and Duration

Time	Frequency	Duration	Parameters
Daytime 0700 – 1900	Once per week	Continuously in Leq 5min/Leq 30min (average of 6 consecutive Leq 5min)	L_{eq} , L_{10} & L_{90}

2.2.2. The monitoring methodology and QA/QC procedure could be referring to Section 2.4 of the Monthly EM&A Report.

2.3. Monitoring Location

2.3.1. According to the environmental findings detailed in the EIA report and Baseline Monitoring Report, the designated locations for the construction noise monitoring are listed in **Table 2.2** and shown in **Figure 2.1 – 2.3**.

Table 2.2 Designated Noise Monitoring Station

NSR ID	Noise Sensitive Receivers	Monitoring Location	Position
NSR4	Creative Secondary School	Roof Floor	1m from Façade
NSR24	PLK Laws Foundation College	Pedestrian Road on Ground Floor	Free-Field
NSR31	School of Continuing and Professional Studies - CUHK	Roof Floor	1m from Façade



Figure 2.1 NSR4 Creative Secondary School

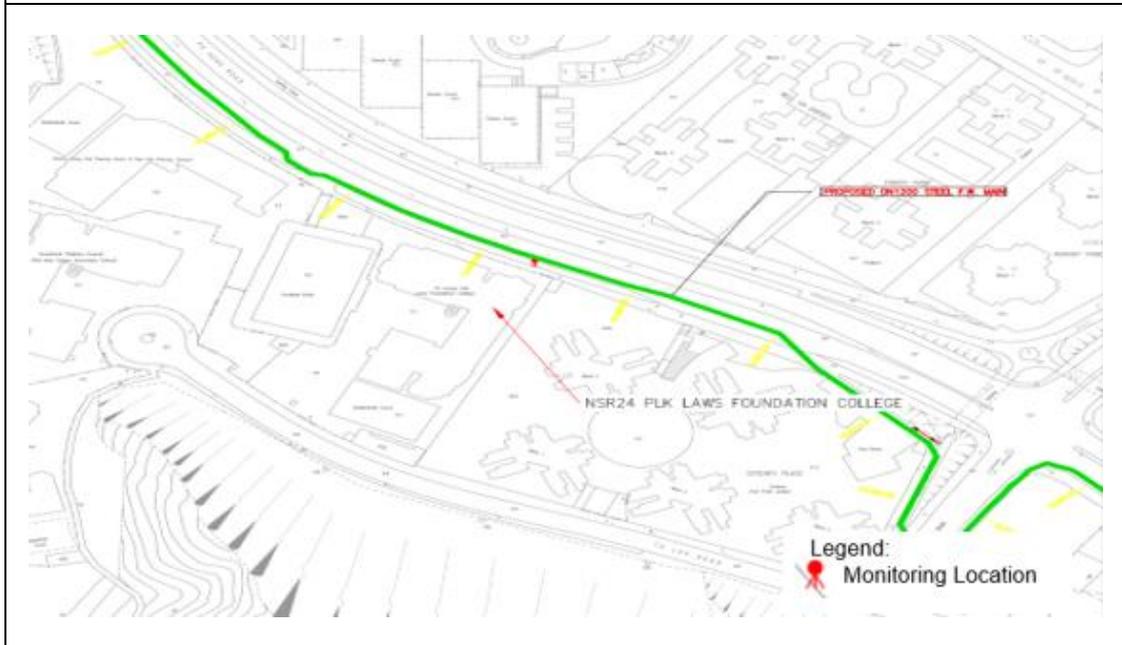
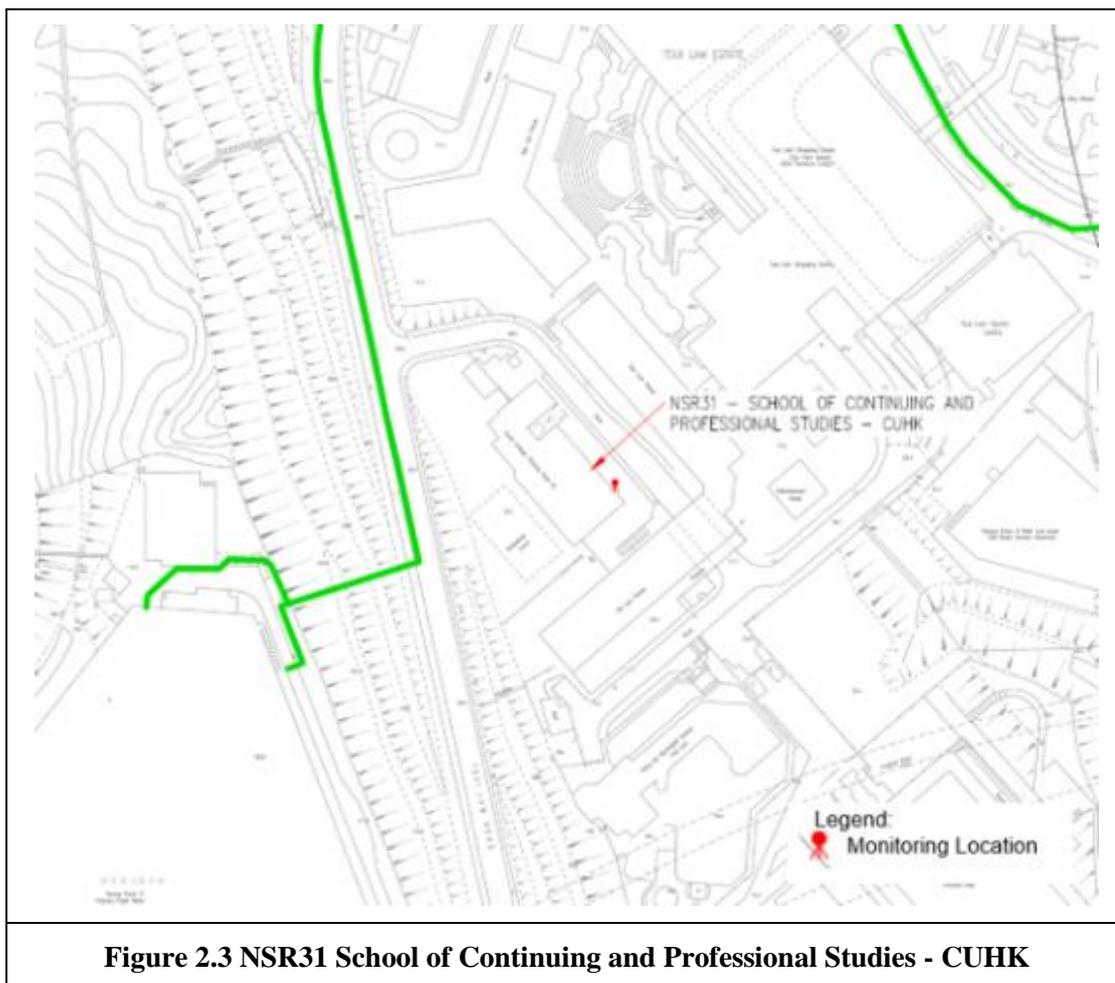


Figure 2.2 NSR24 PLK Laws Foundation College



2.4. Action and Limit Level

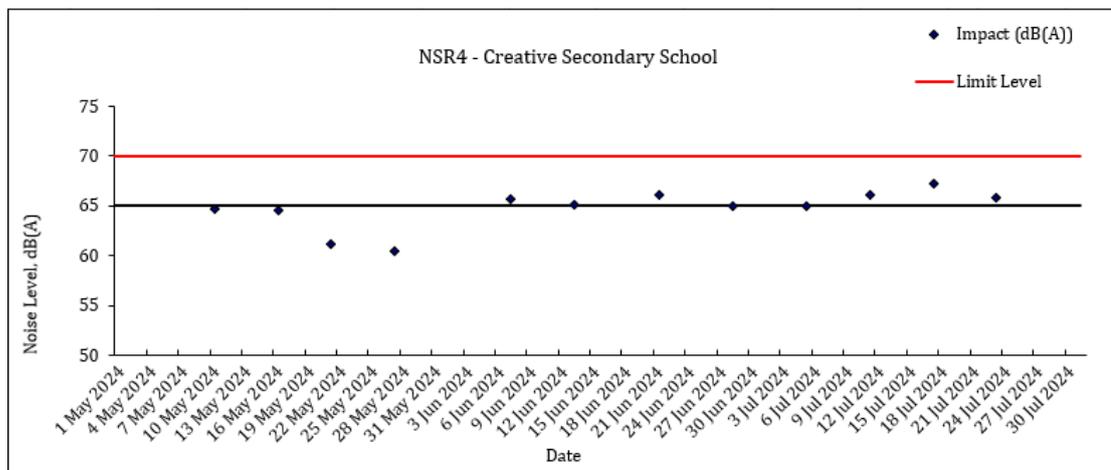
- 2.4.1. The Action/Limit Levels are in line with the criteria of Practice Note for Professional Persons (ProPECC PN 2/93) “Noise from Construction Activities – Non-statutory Controls” and Technical Memorandum on Environmental Impact Assessment Process issued by HKSAR Environmental Protection Department [“EPD”] under the Environmental Impact Assessment Ordinance, Cap 499, S.16 are presented in **Table 2.3**.

Table 2.3 Action and Limit Level for Construction Noise Monitoring

Time Period	Action Level	Limit Level
0700 – 1900 on normal weekdays	When one documented complaint is received from any one of the noise sensitive receivers	<ul style="list-style-type: none"> • 70 dB(A) for school and • 65 dB(A) during examination period
Notes: (a) Limits specified in the GW-TM and IND-TM for construction and operation noise, respectively.		

2.5. Monitoring Results and Observation

- 2.5.1. 12 times of noise impact monitoring were conducted as schedule in the reporting quarter at NSR4 Creative Secondary School since projected-related construction activities were undertaken within a radius of 300m from the monitoring location.
- 2.5.2. No construction works were conducted within 300m radius of NSR24 and NSR31. Thus, no construction noise monitoring was carried out at NSR24 and NSR31 in the reporting quarter.
- 2.5.3. The Graphical presentation of the construction noise monitoring results was shown in **Figure 2.4**.



Remark: The Hong Kong Diploma of Secondary Education was held from 6 May 2024 to 17 May 2024 and 20 May to 30 May 2024, the limit level during the period would be 65dB(A).

Figure 2.4 Graphical presentation of the construction noise monitoring at NSR4

- 2.5.4. No action or limit level exceedance of construction noise monitoring was recorded in the reporting quarter. Summary of exceedance could be referring to **Appendix D**.
- 2.5.5. If non-compliance occurred, actions as stated in **Appendix F** will be undertaken.
- 2.5.6. The major noise sources identified at the designated noise monitoring station were vehicle movement near the Creative Secondary School.

3. WASTE MANAGEMENT

- 3.1. Mitigation measure on waste management have been implemented in accordance with the requirements of the EM&A Manual. Suitable C&D materials were reused on-site, while the remaining C&D materials and non-inert wastes were disposed at the public filling reception facilities and the landfills respectively. The quantities disposed in the reporting quarter could be referring to **Appendix G**.

4. SUMMARY OF EXCEEDANCE, COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTIONS

- 4.1. All construction noise monitoring was conducted as schedule in the reporting quarter. No Action or Limit Level exceedance was recorded in the reporting quarter.
- 4.2. No landfill gas monitoring was carried out since Feb 2024, all pits or trenches were backfilled and undergo reinstatement.
- 4.3. No (0) environmental complaint was received in the reporting quarter. No notification of summons and prosecution was received in the reporting quarter.

5. EM&A SITE INSPECTION

- 5.1. Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. Three joint site inspections with IEC were carried out on **30 May 2024, 20 June 2024 and 18 July 2024**.
- 5.2. Minor deficiencies were observed during weekly site inspection. Key observations during the site inspections are summarized in **Table 5.1 – 5.3**.

Table 5.1 Site Observations (February 2024)

Date	Environmental Observations	Follow-up Status
02 May 2024	No major environmental deficiency was observed during site inspection.	N.A.
09 May 2024	No major environmental deficiency was observed during site inspection.	N.A.
16 May 2024	No major environmental deficiency was observed during site inspection.	N.A.
21 May 2024	No major environmental deficiency was observed during site inspection.	N.A.
30 May 2024	Gully should be covered by tarpaulins and sandbags to prevent soil water running into the gully.	Sandbag is provided.

Table 5.2 Site Observations (June 2024)

Date	Environmental Observations	Follow-up Status
07 June 2024	No major environmental deficiency was observed during site inspection.	N.A.
14 June 2024	No major environmental deficiency was observed during site inspection.	N.A.
20 June 2024	No major environmental deficiency was observed during site inspection.	N.A.
27 June 2024	No major environmental deficiency was observed during site inspection.	N.A.

Table 5.3 Site Observations (July 2024)

Date	Environmental Observations	Follow-up Status
04 July 2024	At area A, no NRMM label was posted in the power generator.	NRMM label posted on power generator accordingly.
11 July 2024	No major environmental deficiency was observed during site inspection.	N.A.
18 July 2024	The construction waste should be cleared regularly. (Area A)	Waste was cleared.
25 July 2024	Chemical containers should be stored properly. Drip Tray should be provided to prevent chemical leakage. (near HK Velodrome)	Chemical containers were removed.

- 5.3. According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents should be implemented as much as practical. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in **Appendix C**.

6. LANDFILL GAS MONITORING

6.1. Monitoring Requirements

6.1.1. In accordance with Section 11 of the EM&A Manual, monitoring of landfill gas is required for construction works within the 250m Consultation Zone. Part of the desalination plant and the indicative area of natural slope mitigation works fall within the SENT Landfill Extension Consultation Zone; and part of the 1,200 mm diameter freshwater mains along Wan Po Road falls within the SENT Landfill and SENT Landfill Extension Consultation Zones, TKO Stage II/III Restored Landfill and TKO Stage I Restored Landfill Consultation Zones.

6.2. Monitoring Location

6.2.1. Monitoring of oxygen, methane, carbon dioxide and barometric pressure was performed for excavations at 1m depth or more within the Consultation Zone.

6.2.2. During construction of works within the consultation zones, excavations of 1m depth or more was monitored:

- At the ground surface before excavation commences;
- Immediately before any worker enters the excavation;
- At the beginning of each working day for the entire period when the excavation remains open; and
- Periodically through the working day whilst workers are in the excavation.

6.2.3. For excavations between 300mm and 1m deep, measurements should be carried out:

- Directly after the excavation has been completed; and
- Periodically whilst the excavation remains open.

6.3. Monitoring Parameter

6.3.1. Landfill Gas monitoring was carried out to identify any migration between the landfill and the Project and to ensure the safety of the construction, operation and maintenance personnel working on-site, visitors and any other person within the Project area.

6.3.2. The following parameters were monitored:

- Oxygen;
- Carbon Dioxide;
- Barometric Pressure
- Methane;

6.3.3. The monitoring methodology and equipment could be referring to Section 4.5 of the Monthly Report.

6.4. Action and Limit Level

6.4.1. Action and Limit Level for landfill gas monitoring are presented in **Table 6.1**.

Table 6.1 Action and Limit Level for Landfill Gas Monitoring

Parameters	Action Level	Limit Level
Oxygen (O ₂)	<19% O ₂	<19% O ₂
Methane (CH ₄)	>10% LEL	>20% LEL
Carbon Dioxide (CO ₂)	>0.5% CO ₂	>1.5% CO ₂

6.5. Monitoring Result

6.5.1. In the reporting quarter, landfill gas monitoring was carried out by the Registered Safety Officer of the Contractor at the excavation locations for 0 times. Since Feb 2024, all pits or trenches were backfilled and undergo reinstatement. The landfill gas monitoring results could be referring to Appendix J of the Monthly EM&A Report.

7. CONCLUSION AND RECOMMENDATIONS

- 7.1. This is the 24th quarterly Environmental Monitoring and Audit (EM&A) Summary Report prepared by ASCL. This report presents the EM&A works carried out during the period of 1 May 2024 to 31 July 2024 in accordance with the EM&A Manual and the requirement under EP-503/2015/A.
- 7.2. 12 times of noise impact monitoring were conducted in the reporting quarter at NSR4 Creative Secondary School since projected-related construction activities were undertaken within a radius of 300m from the monitoring location.
- 7.3. No Action or Limit Level exceedance of construction noise was recorded during the reporting quarter.
- 7.4. No landfill gas monitoring was carried out since Feb 2024, all pits or trenches were backfilled and undergo reinstatement.
- 7.5. Weekly environmental site inspection was conducted during the reporting quarter. Minor deficiencies were observed during site inspection and were rectified. The environmental performance of the Project was therefore considered satisfactory.
- 7.6. According to the environmental site inspections performed in the reporting quarter, the Contractor is reminded to pay attention on proper storage of chemical and maintaining site tidiness. The Contractor is also reminded to consider the treatment of wastewater from the construction site area.
- 7.7. No (0) environmental complaint was received in the reporting quarter, which concerning suspected illegal discharge of wastewater from the construction site Pit C. The contractor reminded to follow the discharge license (license no. WT0032336-2018) issued by Environmental Protection Department under Water Control Ordinance. The muddy water should be treated before discharge and the water quality should fulfil the requirements of the discharge license.
- 7.8. No notification of summons and prosecution was received in the reporting quarter.
- 7.9. The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.
- 7.10. Statistics on complaints and regulatory compliance are summarized in **Appendix E**.

Appendix A

Master Programme

Penta Ocean – Concentric JV	
<i>Contract No. 13/WSD/16 Mainlaying in Tseung Kwan O</i>	
Narrative for Project Programme (Rev. 17)	Date: 19 January 2024
	Page: 20

Full Project Programme

Contract No. 13/WSD/16 - Mainlaying in Tseung Kwan O

Original Contract due Date: 18/5/2021 Dividing Date: 14/4/2022 CE57(Section II) Planned Completion (WPR A-D): 10/11/2023

Table with columns: ID, Task Name, Duration, Start, Finish, Task Calendar, Predecessors, Successors, Free Slack, Total Slack, Duration, % Complete, Actual Start, Actual Finish. Includes a Gantt chart on the right side.

Legend for task types and statuses: Project Programme As of 14/4/2022, Task Split, Milestone Summary, Project Summary, Inactive Milestone, Inactive Summary, Duration-only, Manual Task, Manual Summary, Manual Summary R/Ep, Start-only, Finish-only, External Task, External Milestone, Critical, Milestone Progress, Manual Progress.

Contract No. 13/WSD/16 - Mainlaying in Tseung Kwan O

Original Contract due Date: 18/5/2021
 Dividing Date: 14/4/2022
 CE57(Section II) Planned Completion: 6/10/2022
 CE67(Section II): 27/7/2023

ID	ID	Task Name	Duration	Start	Finish	Task Calendar	Predecessors	Successors	Free Slack	Total Slack	Duration	% Complete	Actual Start	Actual Finish	Gantt Chart (2018-2023)																																															
196	196	Issue CE No. 19 - Change in Design of Gate Valve Chamber at Wan Po Road near CH.A12+40	1 day	22/8/19	22/8/19	Calendar Day	31		0 days	0 days 1 day	100%		22/8/19	22/8/19	[Gantt Chart]																																															
197	197	EWN No.23 (Covered by CNE No.16 & CE No. 18) - Unforeseen Ground Conditions at Open Trench of Mainlaying at Wan Po Road between CH.A12+89 and CH.A13+04	1 day	4/12/18	4/12/18	Calendar Day			0 days	0 days 1 day	100%		4/12/18	4/12/18	[Gantt Chart]																																															
198	198	CH.A12+50 - 12+95 OC	125 days	19/9/18	21/2/19	HK Working Day			0 days	0 days 125 days	100%		19/9/18	21/2/19	[Gantt Chart]																																															
199	199	CH.A12+95 - 13+13 OC	84 days	9/11/18	21/2/19	HK Working Day		200	0 days	0 days 84 days	100%		9/11/18	21/2/19	[Gantt Chart]																																															
200	200	CH.A13+13 - 13+40 OC + DN150 DAV	65 days	30/11/22	20/2/23	HK Working Day	199,201		181 days	181 days 65 days	0%	NA	NA	NA	[Gantt Chart]																																															
201	201	CH.A13+40 - 13+60 OC (Pit AD)	40 days	14/10/22	29/11/22	HK Working Day	376		0 days	181 days 40 days	0%	NA	NA	NA	[Gantt Chart]																																															
202	202	Wan Po Road Nightwork Section (CH.A22+67.5 - CH.A12+10)	774 days	25/8/15	17/4/21	HK Working Day			0 days	0 days 774 days	100%		25/8/15	17/4/21	[Gantt Chart]																																															
203	203	Suspension of Nightwork Section due to Restriction with Railway Protection Zone, TMLG requirements and failure of application for CNP	1 day	3/8/20	3/8/20	Calendar Day			0 days	0 days 1 day	100%		3/8/20	3/8/20	[Gantt Chart]																																															
204	204	CE05 - Feasibility Study of Realignment of Pipeline at TKO Stage 1 Landfill	188 days	23/8/18	26/2/19	Calendar Day	15		0 days	0 days 188 days	100%		23/8/18	26/2/19	[Gantt Chart]																																															
205	205	CE10 - Contractor Design of The Realignment - at the Junction of Wan Po Road and Pung Loi Avenue	249 days	28/2/19	3/11/19	Calendar Day	20		0 days	0 days 249 days	100%		28/2/19	3/11/19	[Gantt Chart]																																															
206	206	CE35 - Feasibility Study on the Alternative Alignment by Trenchless method beneath MTR's Tunnels in the Wan Po Road /o Lohas Park Road	270 days	31/12/19	25/9/20	Calendar Day	38		0 days	0 days 270 days	100%		31/12/19	25/9/20	[Gantt Chart]																																															
207	207	CE65 - Landscape Survey near Po Yap Road and Pung Loi Road	1 day	11/6/20	11/6/20	Calendar Day	60		0 days	0 days 1 day	100%		11/6/20	11/6/20	[Gantt Chart]																																															
208	208	CE87 - Affected Trees near Pung Loi Road, Po Yap Road and Wan Po Road	1 day	22/12/20	22/12/20	Calendar Day	61	209	0 days	0 days 1 day	100%		22/12/20	22/12/20	[Gantt Chart]																																															
209	209	TRPP Submission and Approval	60 days	22/12/20	8/3/21	HK Working Day	208	210	0 days	0 days 60 days	100%		22/12/20	8/3/21	[Gantt Chart]																																															
210	210	Site Possession and Tree Removal Works	21 days	9/3/21	1/4/21	HK Working Day	209	222,223	0 days	0 days 21 days	100%		9/3/21	1/4/21	[Gantt Chart]																																															
211	211	CE No. 60 - Realignment of Water Main near Pung Loi Road	390 days	27/5/21	20/6/22	Calendar Day		837	79 days	465 days 390 days	91%		27/5/21	NA	[Gantt Chart]																																															
212	212	Nightwork Section (CH.A36+00 - CH.A39+00) Superseded by CE60	1 day	27/5/21	27/5/21	Calendar Day	62	213	0 days	0 days 1 day	100%		27/5/21	27/5/21	[Gantt Chart]																																															
213	213	Tender Process and Tender Award	60 days	27/5/21	25/7/21	Calendar Day	212	214	0 days	0 days 60 days	100%		27/5/21	25/7/21	[Gantt Chart]																																															
214	214	Design & Method Statement Submission and Approval; Preparation Works	30 days	26/7/21	24/8/21	Calendar Day	213	215,219	0 days	0 days 30 days	100%		26/7/21	24/8/21	[Gantt Chart]																																															
215	215	TTA preparation, SLG meetings and obtain RA	30 days	25/8/21	23/9/21	Calendar Day	214	222,223	0 days	0 days 30 days	100%		25/8/21	23/9/21	[Gantt Chart]																																															
216	216	Open Trench underneath Pung Loi Avenue	88 days	13/1/22	0/5/22	HK Working Day			0 days	0 days 88 days	100%		13/1/22	0/5/22	[Gantt Chart]																																															
217	217	Obtain Access from EPD (TKO Landfill Stage 1 Area B)	14 days	13/1/22	28/1/22	HK Working Day	328	219,218	0 days	0 days 14 days	100%		13/1/22	28/1/22	[Gantt Chart]																																															
218	218	3 Inspection pit excavations under existing flyover	14 days	29/1/22	17/2/22	HK Working Day	217	219	0 days	0 days 14 days	100%		29/1/22	17/2/22	[Gantt Chart]																																															
219	219	CH.FD0+00 - CH.FD0+65 OC	30 days	18/2/22	24/3/22	HK Working Day	214,217,218	220	0 days	0 days 30 days	100%		18/2/22	24/3/22	[Gantt Chart]																																															
220	220	Construction DN900 SV Chamber at CH.FD0+25	30 days	25/3/22	4/5/22	HK Working Day	219		0 days	0 days 30 days	100%		25/3/22	4/5/22	[Gantt Chart]																																															
221	221	Exposed Pipe From CH.FD0+65 to FD2+00	135 days	24/9/21	9/3/22	HK Working Day			0 days	0 days 135 days	100%		24/9/21	9/3/22	[Gantt Chart]																																															
222	222	Excavation In Slope Toe; Construction of Flooding Protection Wall with U-Channel, Length = 135m, @12m per 12days	135 days	24/9/21	9/3/22	HK Working Day	210,215		0 days	0 days 135 days	100%		24/9/21	9/3/22	[Gantt Chart]																																															
223	223	Exposed Pipe, Length = 173m, with concrete saddle Supports	42 days	24/9/21	13/11/21	HK Working Day	210,215	224	0 days	0 days 42 days	100%		24/9/21	13/11/21	[Gantt Chart]																																															
224	224	DN1200 Pipe Laying on Concrete Support with Concrete Hunching	14 days	15/11/21	30/11/21	HK Working Day	223	225,227	0 days	0 days 14 days	100%		15/11/21	30/11/21	[Gantt Chart]																																															
225	225	Apply top coating of aliphatic polyurethane on site	30 days	1/12/21	7/1/22	HK Working Day	224	229	0 days	0 days 30 days	100%		1/12/21	7/1/22	[Gantt Chart]																																															
226	226	Open Trench Connecting Trenchless and Exposed Pipe	160 days	1/12/21	20/6/22	HK Working Day			381 days	381 days 160 days	88%		1/12/21	NA	[Gantt Chart]																																															
227	227	CH.FD2+00 to CH.FD3+15 OC	50 days	1/12/21	31/1/22	HK Working Day	224	228,229	0 days	0 days 50 days	100%		1/12/21	31/1/22	[Gantt Chart]																																															
228	228	CH.FD3+15 to CH.FD3+51 OC with DN900 Valve Chamber and By-pass Pipe and Connection to Pit WPR1	50 days	4/2/22	2/4/22	HK Working Day	227	229,254	0 days	0 days 50 days	100%		4/2/22	2/4/22	[Gantt Chart]																																															
229	229	Make Good Slope Toe and Landscape Work	60 days	4/4/22	20/6/22	HK Working Day	225,227,228		381 days	381 days 60 days	15%		4/4/22	NA	[Gantt Chart]																																															
230	230	CE59 - Water Mains near Pung Loi Road and Po Yap Road (CH.FE0+00 - CH.A3+58)	608 days	20/8/20	17/9/22	HK Working Day		837	0 days	314 days 608 days	87%		20/8/20	NA	[Gantt Chart]																																															
231	231	Inspection Pit at Working Pit WPR1	7 days	20/8/20	27/8/20	HK Working Day			0 days	0 days 7 days	100%		20/8/20	27/8/20	[Gantt Chart]																																															
232	232	Inspection Pit at Working Pit G1A	7 days	2/11/20	9/11/20	HK Working Day			0 days	0 days 7 days	100%		2/11/20	9/11/20	[Gantt Chart]																																															
233	233	CE59 - Realignment of Water Main near Pung Loi Road and Po Yap Road	1 day	13/11/20	13/11/20	HK Working Day	63	234,238	0 days	0 days 1 day	100%		13/11/20	13/11/20	[Gantt Chart]																																															
234	234	Tender Process and Tender Award for CE No. 59	60 days	13/11/20	25/1/21	HK Working Day	233	235,236,237	0 days	0 days 60 days	100%		13/11/20	25/1/21	[Gantt Chart]																																															
235	235	Design & Method Statement Submission and Approval; Preparation Works for Pit J1A	30 days	26/1/21	4/3/21	HK Working Day	234	245	0 days	0 days 30 days	100%		26/1/21	4/3/21	[Gantt Chart]																																															
236	236	Design & Method Statement Submission and Approval; Preparation Works for Pit G1A	30 days	26/1/21	4/3/21	HK Working Day	234		0 days	0 days 30 days	100%		26/1/21	4/3/21	[Gantt Chart]																																															
237	237	Design & Method Statement Submission and Approval; Preparation Works for Pit WPR1	30 days	26/1/21	4/3/21	HK Working Day	234	242	0 days	0 days 30 days	100%		26/1/21	4/3/21	[Gantt Chart]																																															
238	238	TTA preparation, SLG meetings and obtain RA	60 days	13/11/20	25/1/21	HK Working Day	233	240,243,241	0 days	0 days 60 days	100%		13/11/20	25/1/21	[Gantt Chart]																																															
239	239	Construction of Pits for Mainlaying by Pipe Jacking Method	275 days	25/1/21	29/12/21	HK Working Day			0 days	0 days 275 days	100%		25/1/21	29/12/21	[Gantt Chart]																																															
240	240	Obtain consent for vehicular access construction for WPR1	1 day	25/1/21	25/1/21	HK Working Day	238		0 days	0 days 1 day	100%		25/1/21	25/1/21	[Gantt Chart]																																															
241	241	Tree Trimming at WPR1	2 days	3/11/21	4/11/21	HK Working Day	238	242	0 days	0 days 2 days	100%		3/11/21	4/11/21	[Gantt Chart]																																															
242	242	Jacking Pit WPR1 (Near Pung Loi Road)	45 days	5/11/21	29/12/21	HK Working Day	241,237	247	0 days	0 days 45 days	100%		5/11/21	29/12/21	[Gantt Chart]																																															
243	243	Planter Removal and Access Formation to pit G1A	7 days	26/1/21	2/2/21	HK Working Day	238	244	0 days	0 days 7 days	100%		26/1/21	2/2/21	[Gantt Chart]																																															
244	244	Receiving Pit G1A (Near Po Yap Road)	45 days	3/2/21	30/3/21	HK Working Day	243	250,260	0 days	0 days 45 days	100%		3/2/21	30/3/21	[Gantt Chart]																																															
245	245	Construction of Jacking Pit J1A	30 days	5/3/21	13/4/21	HK Working Day	235	257	0 days	0 days 30 days	100%		5/3/21	13/4/21	[Gantt Chart]																																															
246	246	Trenchless between Pit WPR1 and Pit G1A and Pipe Installation	204 days	30/12/21	1/9/22	HK Working Day			314 days	314 days 204 days	42%		30/12/21	NA	[Gantt Chart]																																															
247	247	TBM Establishment at Pit WPR1	14 days	30/12/21	15/1/22	HK Working Day	242	248	0 days	0 days 14 days	100%		30/12/21	15/1/22	[Gantt Chart]																																															
248	248	Jacking DN1600 Precast Concrete Sleeve Pipe (224m; 3.0m/day)	75 days	17/1/22	21/4/22	HK Working Day	247	249	0 days	314 days 75 days	96%		17/1/22	NA	[Gantt Chart]																																															
249	249	Remove setup including Thrust Wall at Pit WPR1	14 days	22/4/22	10/5/22	HK Working Day	248	250	0 days	314 days 14 days	0%	NA	NA	NA	[Gantt Chart]																																															
250	250	Setup for Pipe Laying inside Jacking Pit WPR1	6 days	11/5/22	17/5/22	HK Working Day	249,244	251	0 days	314 days 6 days	0%	NA	NA	NA	[Gantt Chart]																																															
251	251	DN1200 MS Pipe Laying inside Jacking Pipe (224m) [2 days per 8m]	56 days	18/5/22	23/7/22	HK Working Day	250	252	0 days	314 days 56 days	0%	NA	NA	NA	[Gantt Chart]																																															
252	252	Formwork & Setup for Grouting the gap between pipe and Sleeve	3 days	25/7/22	27/7/22	HK Working Day	251	253	0 days	314 days 3 days	0%	NA	NA	NA	[Gantt Chart]																																															
253	253	Grouting Works (30m per day)	8 days	28/7/22	5/8/22	HK Working Day	252	254	0 days	314 days 8 days	0%	NA	NA	NA	[Gantt Chart]																																															
254	254	Pipe Connection inside Working Pit WPR1 and Concrete Thrust Block	14 days	6/8/22	22/8/22	HK Working Day	253,228	255	0 days	314 days 14 days	0%	NA	NA	NA	[Gantt Chart]																																															
255	255	Remove ELS including extracting sheet piles at Pit WPR1; Reinstatement	14 days	23/8/22	7/9/22	HK Working Day	254		314 days	314 days 14 days	0%	NA	NA	NA	[Gantt Chart]																																															
256	256	Trenchless between Pit G1A and Pit J1A and Pipe Installation	233 days	16/4/21	21/1/22	HK Working Day			0 days	0 days 233 days	100%		16/4/21	21/1/22	[Gantt Chart]																																															
257	257	Establishment at Pit J1A	16 days	14/4/21	3/5/21	HK Working Day	245	258	0 days	0 days 16 days	100%		14/4/21	3/5/21	[Gantt Chart]																																															
258	258	Hand shield tunnelling (I.D. 1600 segment pipe), 0.65m/day	101 days	4/5/21	1/9/21	HK Working Day	257	259	0 days	0 days 101 days	100%		4/5/21	1/9/21	[Gantt Chart]																																															
259	259	Remove Setup at Pit J1A	6 days	2/9/21	8/9/21	HK Working Day	258	260	0 days	0 days 6 days	100%		2/9/21	8/9/21	[Gantt Chart]																																															
260	260	Setup for Pipe Laying inside Jacking Pit J1A	14 days	9/9/21	25/9/21	HK Working Day	259,244	261	0 days	0 days 14 days	100%		9/9/21	25/9/21	[Gantt Chart]																																															
261	261	DN1200 MS Pipe Laying inside Jacking pipe (~70m) (3 days per 4m)	42 days	27/9/21	16/11/21	HK Working Day	260	262	0 days	0 days 42 days	100%		27/9/21	16/11/21	[Gantt Chart]																																															
262	262	Formwork & Setup for Grouting the gap between pipe and Sleeve	8 days	17/11/21	25/11/21	HK Working Day	261	263	0 days	0 days 8 days	100%																																																			

Contract No. 13/WSD/16 - Mainlaying in Tseung Kwan O

Original Contract due Date: 18/5/2021
Dividing Date: 14/4/2022
CE51: 6/10/2022
CE57(Section II): 7/2/2023
Planned Completion (WFR A-D): 10/11/2023

Table with columns: ID, Task Name, Duration, Start, Finish, Task Calendar, Predecessors, Successors, Free Slack, Total Slack, Duration, % Complete, Actual Start, Actual Finish. Includes a Gantt chart on the right side.

Project Programme As of 14/4/2022. Legend for task types: Milestone, Inactive Milestone, Manual Task, Manual Summary, Manual Summary Re-Up, Start-only, Finish-only, External Task, External Milestone, Deadline, Critical Split, Manual Progress.

Contract No. 13/WSD/16 - Mainlaying in Tseung Kwan O

Original Contract due Date: 18/5/2021
 Dividing Date: 14/4/2022
 CE28: 20/5/2022
 CE67(Section II): 27/7/2023
 CE51: 6/10/2022
 CE57(Section II): 7/2/2023
 Planned Completion (WPA-D): 10/11/2023

ID	ID	Task Name	Duration	Start	Finish	Task Calendar	Predecessors	Successors	Free Slack	Total Slack	Duration	% Complete	Actual Start	Actual Finish
396	396	Pipe Connection Works and Concrete Thrust Block at Pit D1	30 days	2/11/22	6/12/22	HK Working Day	391		240 days	240 days	30 days	0%	NA	NA
397	397	Pipe Connection Works and construction of Washout Chamber at Pit D	30 days	18/11/22	2/12/22	HK Working Day	408,441	409	0 days	208 days	30 days	0%	NA	NA
398	398	TBM Pipe Jacking (Pit B to Pit C) and Pipe Installation	202 days	8/11/21	16/7/22	HK Working Day			359 days	359 days	202 days	64%	8/11/21	NA
399	399	TBM Establishment at Pit B with additional ground treatment for stopping water ingress	112 days	8/11/21	24/3/22	HK Working Day	365	400	0 days	0 days	112 days	100%	8/11/21	24/3/22
400	400	Jacking DN1600 Precast Concrete Sleeve Pipe From Pit B to Pit C (L=326m; 2.5m/day)	30 days	25/3/22	4/5/22	HK Working Day	399	401	0 days	359 days	30 days	57%	25/3/22	NA
401	401	Extracting TBM and remove TBM from Pit B	15 days	5/5/22	23/5/22	HK Working Day	400	402	0 days	359 days	15 days	0%	NA	NA
402	402	ELS Removal and Reinstatement of Road works, Planter and Gullies' drains	45 days	24/5/22	16/7/22	HK Working Day	401		0 days	359 days	45 days	0%	NA	NA
403	403	Pipe Jacking from Pit D to Pit C and Pipe Installation	341 days	22/11/21	16/1/23	HK Working Day			208 days	208 days	341 days	61%	22/11/21	NA
404	404	TBM Establishment at Pit D	47 days	22/11/21	18/1/22	HK Working Day	367	405	0 days	0 days	47 days	100%	22/11/21	18/1/22
405	405	DN1920 Steel Jacked Pipe (Pit D - Pit C) (CH.A19+26 to CH.A22+80) in Soil (370m; 2.5m/day)	51 days	19/1/22	22/3/22	HK Working Day	404		0 days	0 days	51 days	100%	19/1/22	22/3/22
406	406	Pipe Jacking stopped on 23/3/2022	1 day	23/3/22	23/3/22	HK Working Day			0 days	0 days	1 day	100%	23/3/22	23/3/22
407	407	Abandoned MTBM and Filling the Installed Sleeve Pipe with Grout	15 days	15/9/22	3/10/22	HK Working Day		408	0 days	216 days	15 days	0%	NA	NA
408	408	Backfilling Pit D to formation level of washout pump pit	30 days	5/10/22	8/11/22	HK Working Day	407	397	8 days	216 days	30 days	0%	NA	NA
409	409	ELS Removal and Reinstatement of Road works	18 days	23/12/22	16/1/23	HK Working Day	397		208 days	208 days	18 days	0%	NA	NA
410	410	CE67 - Wan Ro Road (From Shek Kwok Road to Lohas Park Road)	1126 days	27/9/19	19/7/23	HK Working Day		835	0 days	68 days	1126 days	63%	27/9/19	NA
411	411	Suspension of Nightwork Section (CH.A22+70 to 24+00) due to Restriction with Railway Protection Zone and TMLG requirements	1 day	3/8/20	3/8/20	Calendar Day			0 days	0 days	1 day	100%	3/8/20	3/8/20
412	412	CE24 - Tender List Prepare & Approval, Tendering Process and PM's Approval	70 days	27/9/19	5/12/19	Calendar Day	33	413	0 days	0 days	70 days	100%	27/9/19	5/12/19
413	413	Coordination with MTR for Ground Investigation Works under MTR Tunnels	55 days	6/12/19	14/2/20	HK Working Day	412	414	0 days	0 days	55 days	100%	6/12/19	14/2/20
414	414	Mobilization and Establishment of GI equipment	4 days	15/2/20	19/2/20	HK Working Day	413	415	0 days	0 days	4 days	100%	15/2/20	19/2/20
415	415	Ground Investigation GI No. 3	30 days	20/2/20	25/3/20	HK Working Day	414	416	0 days	0 days	30 days	100%	20/2/20	25/3/20
416	416	PM review the Alignment and Profiles and Obtain Consent from MTR for the decision of realignment	60 days	26/3/20	10/6/20	HK Working Day	415		0 days	0 days	60 days	100%	26/3/20	10/6/20
417	417	Issue CE No. 77 - Design of Water Main Structure and Modification Works to the Affected Geotechnical Features in Wan Po Road and Lohas Park Road	1 day	21/10/20	21/10/20	HK Working Day	64	418	0 days	0 days	1 day	100%	21/10/20	21/10/20
418	418	Quotation Submission and Acceptance for CE No. 77	161 days	21/10/20	10/5/21	HK Working Day	417	419	0 days	0 days	161 days	100%	21/10/20	10/5/21
419	419	CE No. 77 - Submission of Geotechnical Assessment Report	42 days	11/5/21	30/6/21	HK Working Day	418	420	0 days	0 days	42 days	100%	11/5/21	30/6/21
420	420	CE No. 77 - Design Submission	72 days	2/7/21	24/9/21	HK Working Day	419	421	0 days	0 days	72 days	100%	2/7/21	24/9/21
421	421	CE No. 77 - Approval of Design Submission	1 day	24/9/21	24/9/21	HK Working Day	420	423	0 days	0 days	1 day	100%	24/9/21	24/9/21
422	422	Issue CE No. 67 - Realignment of Water Main near Wan Po Road and Lohas Park Road	1 day	11/8/21	11/8/21	HK Working Day	65	424,425	0 days	0 days	1 day	100%	11/8/21	11/8/21
423	423	Obtain MTR's approval on the alignment and construction method about MTR's tunnels	91 days	25/9/21	14/1/22	HK Working Day	421		0 days	0 days	91 days	100%	25/9/21	14/1/22
424	424	Tender Process and Tender Award for CE No. 67	77 days	11/8/21	11/11/21	HK Working Day	422	466	0 days	0 days	77 days	100%	11/8/21	11/11/21
425	425	TTA approval and Implement for CE No. 67	125 days	11/8/21	10/1/22	HK Working Day	422	430,431,450,451,452	0 days	0 days	125 days	100%	11/8/21	10/1/22
426	426	Hand Shield Crossing Wan Po Road (CH.FA0+15 to CH.FA0+50)	834 days	18/1/21	17/1/22	HK Working Day			208 days	208 days	834 days	86%	18/1/21	NA
427	427	Issue CE No. 98 - Tree Felling at Lohas Park Road	1 day	18/1/21	18/1/21	HK Working Day	66	428	0 days	0 days	1 day	100%	18/1/21	18/1/21
428	428	TPRP Submission and Approval for Tree at Slope Feature 125W-A/FR102	121 days	18/1/21	18/6/21	HK Working Day	427	429	0 days	0 days	121 days	100%	18/1/21	18/6/21
429	429	Tree Felling and Tree Works at Slope Feature 125W-A/FR102	7 days	19/6/21	26/6/21	HK Working Day	428	430	0 days	0 days	7 days	100%	19/6/21	26/6/21
430	430	Strengthen Works at Feature 125W-A/R27	90 days	11/1/22	4/5/22	HK Working Day	429,425	432	0 days	194 days	90 days	86%	11/1/22	NA
431	431	Strengthen Works at Feature 125W-A/R28	90 days	11/1/22	4/5/22	HK Working Day	425	433	0 days	194 days	90 days	86%	11/1/22	NA
432	432	Concrete Coring and forming an opening on retaining wall (R27)	30 days	5/5/22	10/6/22	HK Working Day	430	434	0 days	194 days	30 days	0%	NA	NA
433	433	Concrete Coring and forming an opening on retaining wall (R28)	30 days	5/5/22	10/6/22	HK Working Day	431	434	0 days	194 days	30 days	0%	NA	NA
434	434	Handshield Establishment	14 days	11/6/22	27/6/22	HK Working Day	432,433	435	0 days	194 days	14 days	0%	NA	NA
435	435	Mild Steel Segment Rings in Soil Mix (35m; 0.4m/day)	58 days	28/6/22	3/9/22	HK Working Day	434	436	0 days	194 days	58 days	0%	NA	NA
436	436	Remove establishment	6 days	5/9/22	10/9/22	HK Working Day	435	437	0 days	194 days	6 days	0%	NA	NA
437	437	Setup for Pipe Laying inside jacking	6 days	13/9/22	19/9/22	HK Working Day	436	438	0 days	194 days	6 days	0%	NA	NA
438	438	DN900 MS Pipe Laying inside jacking pipe (35m) (say 3 days per 8m)	15 days	20/9/22	8/10/22	HK Working Day	437	439	0 days	194 days	15 days	0%	NA	NA
439	439	Formwork & Setup for Grouting the gap between pipe and Sleeve	6 days	10/10/22	15/10/22	HK Working Day	438	440	0 days	194 days	6 days	0%	NA	NA
440	440	Grouting Works (30 meter/day)	4 days	17/10/22	20/10/22	HK Working Day	439	441,443	0 days	194 days	4 days	0%	NA	NA
441	441	Pipe laying Works From Pit D to CH.FA0+15	24 days	21/10/22	17/11/22	HK Working Day	440	397	0 days	208 days	24 days	0%	NA	NA
442	442	Vertical Pipes, Exposed Pipes & Buried Pipes above MTR Tunnels (CH.FA0+50 to CH.FA0+85)	316 days	23/10/22	15/7/23	HK Working Day			71 days	71 days	316 days	0%	NA	NA
443	443	Vertical pipes with Concrete Surround	33 days	21/10/22	28/11/22	HK Working Day	440	444	0 days	194 days	33 days	0%	NA	NA
444	444	Exposed pipes with concrete surround	30 days	29/11/22	5/1/23	HK Working Day	443	445	123 days	194 days	30 days	0%	NA	NA
445	445	Open cut pipe laying with concrete surround	30 days	9/6/23	15/7/23	HK Working Day	444,462		71 days	71 days	30 days	0%	NA	NA
446	446	Hand Shield Pipe Jacking crossing Lohas Park Road	834 days	19/5/22	8/6/23	HK Working Day			79 days	79 days	834 days	0%	NA	NA
447	447	MTR Consent for Construction of Pit E	0 days	19/5/22	19/5/22	Calendar Day		450	0 days	436 days	0 days	0%	NA	NA
448	448	MTR Consent for Construction of Pit F	0 days	1/6/22	1/6/22	Calendar Day		451	0 days	82 days	0 days	0%	NA	NA
449	449	MTR Consent for Construction of Pit G	0 days	6/6/22	6/6/22	Calendar Day		452	0 days	418 days	0 days	0%	NA	NA
450	450	Construction of Receiving Pit E	60 days	19/5/22	29/7/22	HK Working Day	423,425,447		355 days	355 days	60 days	0%	NA	NA
451	451	Construction of Receiving Pit F	60 days	1/6/22	11/8/22	HK Working Day	423,425,448	453	0 days	68 days	60 days	0%	NA	NA
452	452	Construction of Receiving Pit G	60 days	6/6/22	15/8/22	HK Working Day	423,425,449		341 days	341 days	60 days	0%	NA	NA
453	453	Establishment at Pit F	12 days	12/8/22	25/8/22	HK Working Day	451	454	0 days	68 days	12 days	0%	NA	NA
454	454	Mild Steel Segment Rings (Pit F - Pit E) in Soil Mix (40m; 0.4m/day)	100 days	26/8/22	23/12/22	HK Working Day	453	455	0 days	68 days	100 days	0%	NA	NA
455	455	Mild Steel Segment Rings (Pit F - Pit G) in Soil Mix (20m; 0.4m/day)	50 days	24/12/22	27/2/23	HK Working Day	454	456	0 days	68 days	50 days	0%	NA	NA
456	456	Remove setup including Thrust Wall at Pit F	12 days	28/2/23	13/3/23	HK Working Day	455	457	0 days	68 days	12 days	0%	NA	NA
457	457	Setup for Pipe Laying inside jacking Pit F	12 days	14/3/23	27/3/23	HK Working Day	456	458	0 days	68 days	12 days	0%	NA	NA
458	458	DN900 MS Pipe Laying from Pit F to Pit E (40m) (say 3 days per 4m)	30 days	28/3/23	6/5/23	HK Working Day	457	459	0 days	68 days	30 days	0%	NA	NA
459	459	Modify Setup for Pipe Laying inside jacking Pit F	6 days	8/5/23	13/5/23	HK Working Day	458	460	0 days	68 days	6 days	0%	NA	NA
460	460	DN900 MS Pipe Laying from Pit F to Pit G (20m) (say 3 days per 4m)	15 days	15/5/23	1/6/23	HK Working Day	459	461	0 days	68 days	15 days	0%	NA	NA
461	461	Formwork & Setup for Grouting the gap between pipe and Sleeve	3 days	2/6/23	5/6/23	HK Working Day	460	462	0 days	68 days	3 days	0%	NA	NA
462	462	Grouting Works (20 meter/day)	3 days	6/6/23	8/6/23	HK Working Day	461	445,464	0 days	68 days	3 days	0%	NA	NA
463	463	Vertical Pipes, Exposed Pipes & Buried Pipes above MTR Tunnels (CH.FA1+50 to CH.FA2+17)	836 days	12/11/21	19/7/23	HK Working Day			88 days	88 days	836 days	83%	12/11/21	NA
464	464	Vertical pipes with Concrete Surround	33 days	9/6/23	19/7/23	HK Working Day	462		68 days	68 days	33 days	0%	NA	NA
465	465	Exposed pipes with concrete surround	60 days	26/2/22	13/5/22	HK Working Day	469		419 days	419 days	60 days	67%	26/2/22	NA
466	466	Site Clearance at Storage Yard	3 days	12/11/21	15/11/21	HK Working Day	424	467,469	0 days	0 days	3 days	100%	12/11/21	15/11/21
467	467	Plate Load Tests for Tower P2	34 days	16/11/21	24/12/21	HK Working Day	466	468	0 days	0 days	34 days	100%	16/11/21	24/12/21
468	468	Construction footing of Tower P2 at CH.FA1+76	72 days	28/12/21	25/3/22	HK Working Day	467		0 days	0 days	72 days	100%	28/12/21	25/3/22
469	469	Open cut pipe laying with concrete surround (CH.FA1+76 to CH.FA2+04)	82 days	16/11/21	25/2/22	HK Working Day	466	465,470	0 days	0 days	82 days	100%	16/11/21	25/2/22
470	470	Open cut pipe laying from CH.FA2+04 to CH.FB0+03 & Connect to DN900SV Chamber	42 days	26/2/22	20/4/22	HK Working Day	469		437 days	437 days	42 days	95%	26/2/22</	

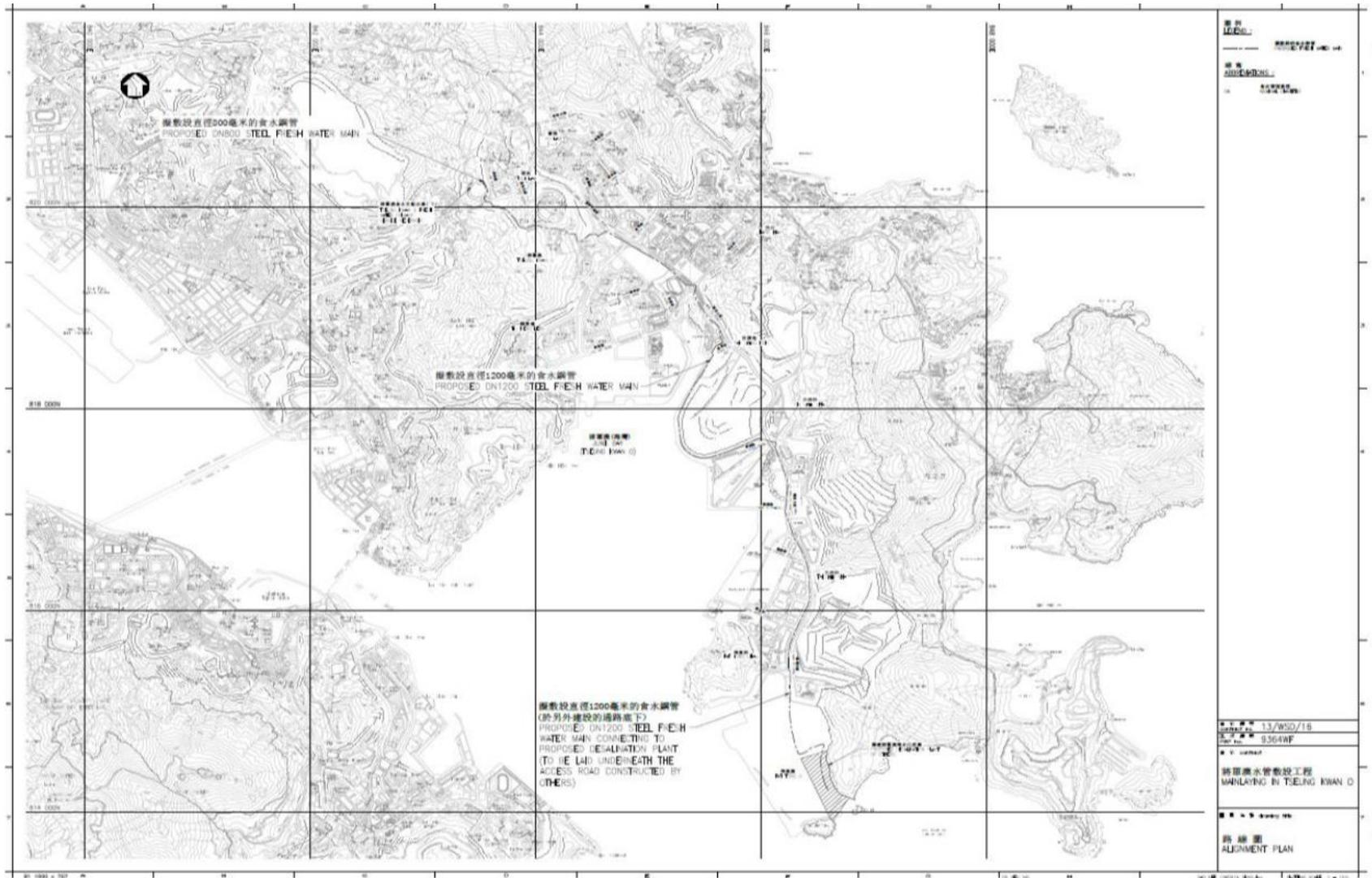
Contract No. 13/WSD/16 - Mainlaying in Tseung Kwan O

Original Contract due Date: 18/5/2021
 Dividing Date: 14/4/2022
 CE28: 20/5/2022
 CE51: 6/10/2022
 CE57(Section II): 7/2/2023
 CE67(Section II): 27/7/2023
 Planned Completion: IWPR A-D: 10/11/2023

ID	ID	Task Name	Duration	Start	Finish	Task Calendar	Predecessors	Successors	Free Slack	Total Slack	Duration	% Complete	Actual Start	Actual Finish	Gantt Chart (Q1 2018 to Q4 2023)																																															
868	868	Backfill at T23+64 after completion of Water Sampling Test	1 day	15/5/19	15/5/19	HK Working Day	867	869	0 days	0 days 1 day	100%	15/5/19	15/5/19	[Gantt bar for task 868]																																																
869	869	Handover Portion J to WSD Region	1 day	15/5/19	15/5/19	HK Working Day	868		0 days	0 days 1 day	100%	15/5/19	15/5/19	[Gantt bar for task 869]																																																

Appendix B

Overview of Mainlaying in Tseung Kwan O



Overview of Mainlaying in Tseung Kwan O

Appendix C

Summary of Implementation Status of Environmental Mitigation Measures (EMIS)

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Air Quality								
S4.8.1	Impervious dust screen or sheeting will be provided to enclose scaffolding from the ground floor level of building for construction of superstructure of the new buildings.	Land site/ During Construction	Contractor(s)		✓		N/A	Air Pollution Control (Construction Dust)
S4.8.1	Impervious sheet will be provided for skip hoist for material transport.	Land site/ During Construction, particularly dry season	Contractor(s)		✓		N/A	-
S4.8.1	The area where dusty work takes place should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after dusty activities as far as practicable.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	All dusty materials should be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	Dropping heights for excavated materials should be controlled to a practical height to minimize the fugitive dust arising from unloading.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	During transportation by truck, materials should not be loaded to a level higher than the side and tail boards, and should be dampened or covered before transport.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	Wheel washing device should be provided at the exits of the work sites. Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty material from its body and wheels as far as practicable.	Land site/ During Construction	Contractor(s)		✓		Implemented	-
S4.8.1	Road sections between vehicle-wash areas and vehicular entrance will be paved.	Land site/ During Construction	Contractor(s)		✓		N/A	-
S4.8.1	Hoarding of not less than 2.4m high from ground level will be provided along the length of the Project Site boundary.	Land site/ During construction	Contractor(s)	✓	✓		Implemented	-
S4.8.1	Haul roads will be kept clear of dusty materials and will be sprayed with water so as to maintain the entire road surface wet at all times.	Land site/ During construction	Contractor(s)		✓		Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S4.8.1	Temporary stockpiles of dusty materials will be either covered entirely by impervious sheets or sprayed with water to maintain the entire surface wet all the time.	Land site/ During construction	Contractor(s)		✓		Implemented after observation	-
S4.8.1	Stockpiles of more than 20 bags of cement, dry pulverised fuel ash and dusty construction materials will be covered entirely by impervious sheeting sheltered on top and 3-sides.	Land site/ During construction	Contractor(s)		✓		Implemented after observation	-
S4.8.1	All exposed areas will be kept wet always to minimize dust emission.	Land site/ During construction	Contractor(s)		✓		Implemented	-
S4.8.1	Ultra-low-sulphur diesel (ULSD) will be used for all construction plant on-site, as defined as diesel fuel containing not more than 0.005% sulphur by weight) as stipulated in Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites.	Land site/ During construction/ During Operation	Contractor(s)		✓	✓	Implemented	Environment, Transport and Works Bureau Technical Circular (ETWB-TC(W)) No 19/2005 on Environmental Management on Construction Sites
S4.8.1	The engine of the construction equipment during idling will be switched off.	Land site/ During construction	Contractor(s)		✓		Implemented	-
S4.8.1	Concrete batching plant will be required on site. control measures recommended in the Guidance Note on a Best Practicable Means for Cement Works (Concrete Batching Plant) (BPM 3/2 (93)) will be implemented. The control measures recommended in the Guidance Note on a Best Practicable Means for Cement Works (Concrete Batching Plant) (BPM 3/2 (93)) will be implemented.	Land site/ During construction	Contractor(s)		✓		N/A	Guidance Note on a Best
S4.8.1	Regular maintenance of construction equipment deployed on-site will be conducted to prevent black smoke emission.	Land site/ During construction	Contractor(s)		✓		Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S4.10	To ensure proper implementation of the recommended dust mitigation measures and good construction site practices during the construction phase, environmental site audits on weekly basis is recommended throughout the construction period.	Land site/ During construction	Contractor(s)/ Environmental Team (ET) & Independent Environmental Checker (IEC)		✓		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Noise								
S5.7	Only well-maintained plant will be operated on-site, and plant will be serviced regularly during the construction phase.	All area/ During construction	Contractor(s)		✓		Implemented	A Practical Guide for the Reduction of Noise from Construction Works,
S5.7	Silencers or mufflers on construction equipment will be utilised and will be properly maintained during the construction phase.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	Mobile plant, if any, will be sited as far away from NSRs as possible.	Noise control/ During construction	Contractor(s)		✓		Implemented	
S5.7	Machines and plant (such as trucks) that may be in intermittent use will be shut down between work periods or will be throttled down to a minimum.	Noise control/ During construction	Contractor(s)		✓		Implemented	
S5.7	Plants known to emit noise strongly in one direction will, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	Noise control/ During construction	Contractor(s)		✓		Implemented	
S5.7	Material stockpiles and other structures will be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	Use of Quite Powered Mechanical Equipment (QPME).	Noise control/ During construction	Contractor(s)		✓		Implemented	
S5.7	Movable noise barriers of 3m in height with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers. The length of the barrier should be at least five times greater than its height. The noise barrier material should have a superficial surface density of at least 7 kg m ⁻² and have no openings or gaps.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	The noise insulating sheet should be deployed such that there would be no opening or gaps on the joints.	Noise control/ During construction	Contractor(s)		✓		N/A	
S5.7	Construction activities (e.g., excavation/shoring, reinstatement (asphalt), and pipe jacking) will be planned and carried out in sequence, such that items of PME proposed for these activities will not be operated simultaneously.	Noise control/ During construction	Contractor(s)		✓		Implemented	

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S5.7	PMEs will not be used at the works areas near educational institutions with residual impact (i.e. the "influence area" within a radius of 40m) during school hours in order to reduce impact to the educational institutions.	Noise control / During construction	Contractor(s)		✓		Implemented	-
S5.7	Noise enclosures or acoustic sheds would be used to cover stationary PME such as generators. Portable/Movable noise enclosure made of material with superficial surface density of at least 7 kg m ⁻² may be used for screening the noise from operation of the saw/groover, concrete.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		N/A	-
S5.9	Sawcutting pavement, breaking up of pavement, excavation /shoring, pipe laying, backfilling, reinstatement (concrete) and pipe jacking shall be scheduled outside the examination period.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		Implemented	-
S5.9	In view the duration of noise exceedance at Creative Secondary School, PLK Laws Foundation College, TKO Kei Tak Primary School and School of Continuing and Professional Studies-CUHK is limited to 8 weeks, the construction work in the influence areas near the four schools shall be scheduled during long school holidays (e.g. summer holiday, Easter holiday or Christmas holiday, etc.) as far as practicable. Scheduling the construction work for the four schools.	Noise control/ Pre-construction/ During construction	Contractor(s)	✓	✓		Implemented	-
S5.10	A noise monitoring programme shall be implemented for the construction phase.	Designated monitoring stations as defined in EM&A Manual/ During construction phase	ET		✓		Implemented	-
S5.10	The effectiveness of on-site control measures could also be evaluated through the regular site audits.	All facilities/ During construction	Contractor(s)/ ET & IEC		✓		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
Water Quality								
S6.9	Silt removal facilities such as silt traps or sedimentation facilities will be provided to remove silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities will be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures will be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit will be removed regularly.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented after observation	ProPECC PN 1/94 TM Standard under the WPCO
S6.9	Earthworks to form the final surfaces will be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9	Appropriate surface drainage will be designed and provided where necessary.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9	The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	ProPECC PN 1/94
S6.9	Oil interceptors will be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-
S6.9	Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge, if any, will be adequately designed for the controlled release of storm flows.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-
S6.9	The temporary diverted drainage, if any, will be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	Land site & drainage/ During construction	Contractor(s)		✓		N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation status	Relevant Legislation & Guidelines
				D	C	O		
S6.9	Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment.	Land site & drainage/ During construction	Contractor(s)		✓		Implemented	-
S6.9 and S6.12	The sterilization water should be dechlorinated with total residual chlorine (TRC) level below 1 mg/L before discharge to public sewer. In situ testing of TRC should also be conducted for the discharge of chlorinated water for pipeline disinfection to ensure sufficient dechlorination before discharge to public sewer.	Sterilization of water mains prior to commissioning	Contractor(s)		✓	✓	Implemented	Technical Memorandum for Effluents Discharged into Drainage and Sewerage Systems Inland and Coastal Waters
S6.9	The cleaning and flushing water should also be treated and desilted to the relevant discharge requirement stipulated in TM-DSS before discharging.	Sterilization of water mains prior to commissioning	Contractor(s)		✓	✓	N/A	
S6.9	Site drainage should be well maintained, and good construction practices should be observed to ensure that oil, fuels, solvents and other chemicals are managed, stored and handled properly and do not enter the nearby water streams.	Land site & drainage/ During construction/ During operation	Contractor(s)		✓	✓	Implemented after observation	-
S6.12	Regular site inspections will be carried out in order to confirm that regulatory requirements are being met and that contractors are implementing the standard site practice and mitigation measures as proposed to reduce potential impacts to water quality.	During construction	Contractor(s)/ ET & IEC		✓		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Waste Management								
S8.5	Nomination of approved personnel to be responsible for standard site practices, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site.	Contract mobilization/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Training of site personnel in proper waste management and chemical handling procedures. Training will be provided to workers on the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling at the beginning of the construction works.	Contract mobilization/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Provision of sufficient waste disposal points and regular collection for disposal.	All area/ During construction/ During operation	Contractor(s)		✓	✓	Implemented	DEVB TC(W) No. 8/2010, Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	Appropriate measures to reduce windblown litter and dust transportation of waste by either covering trucks or by transporting wastes in enclosed containers.	All area/ During construction	Contractor(s)		✓		Implemented	
S8.5	A waste management plan (WMP) as stated in the "ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites" for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established and implemented during the construction phase as part of the Environmental Management Plan (EMP). The Contractor will be required to prepare the EMP and submits it to the Architect/ Engineer under the Contract for approval prior to implementation.	All area/ During construction	Contractor(s)		✓		Implemented	ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites
S8.5	Separation of chemical wastes for special handling and appropriate treatment at the Chemical Waste Treatment Centre at Tsing Yi.	All area/ During construction	Contractor(s)		✓		N/A.	Chapters 2 & 3 Code of Practice on the Packaging, Labelling & Storage of Chemical Wastes published under the Waste Disposal Ordinance (Cap 354), Section 35
S8.5	Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors.	Land site/ During construction	Contractor(s)		✓		Implemented	Waste Disposal Ordinance (Cap 354)

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	A recording system for the amount of wastes generated/ recycled and disposal sites. The trip-ticket system will be included as one of the contractual requirements and implemented by the contractor(s).	Land site/ During construction	Contractor(s)		✓		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of material and their proper disposal.	Land site/ During construction/ During operation	Contractor(s)		✓		Implemented	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site
S8.5	Encourage collection of aluminium cans and wastepaper by individual collectors during construction with separate labelled bins provided to segregate these wastes from other general refuse by the workforce.	Land site/ During construction	Contractor(s)		✓		Implemented	ETWB TCW No. 33/2002, Management of Construction and Demolition Material Including Rock
S8.5	Any unused chemicals and those with remaining functional capacity will be recycled as far as possible.	Land site/ During construction	Contractor(s)		✓		N/A	-
S8.5	Use of reusable non-timber formwork to reduce the amount of C&D materials.	All areas/ During construction	Contractor(s)		✓		N/A	WBTC 32/92, The Use of Tropical Hard Wood on Construction Site
S8.5	Prior to disposal of construction waste, wood, steel and other metals will be separated to the extent practical, for re-use and/or recycling to reduce the quantity of waste to be disposed of to landfill.	All areas/ During construction	Contractor(s)		✓		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	Proper storage and site practices to reduce the potential for damage or contamination of construction materials.	All areas/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Plan and stock construction materials carefully to reduce amount of waste generated and avoid unnecessary generation of waste.	All areas/ During construction	Contractor(s)		✓		Implemented	-
S8.5	The management of dredged/ excavated sediment management requirement from <i>ETWB TC(W) No. 34/2002</i> will be incorporated in the Specification of the Contract Documents.	Marine works/ During construction	WSD/ Contractor(s)		✓		Implemented	ETWB TC(W) No. 34/2002 and Dumping at Sea Ordinance (DASO)
S8.5	The contractor will open a billing account with EPD in accordance with the Waste Disposal (Charges for Disposal of Construction Waste) Regulation for the payment of disposal charges.	Contract mobilisation/ During construction	Contractor(s)		✓		Implemented	Cap 354N Waste Disposal (Charges for Disposal of Construction Waste) Regulation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	A trip-ticket system will be established in accordance with DEVB TC(W) No. 6/2010 to monitor the reuse of surplus excavated materials off-site and disposal of construction waste and general refuse at transfer facilities/ landfills, and to control fly-tipping.	Contract mobilisation/ During construction	Contractor(s)		✓		Implemented	DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials
S8.5	The project proponent will also conduct regular inspection of the waste management measures implemented on site as described in the Waste Management Plan.	All area/ During construction	Contractor(s)/ ET & IEC		✓		Implemented	ETWB TC(W) No. 19/2005, Environmental Management on Construction Sites
S8.5	A recording system (similar to summary table as shown in Annex 5 and Annex 6 of Appendix G of ETWB TC(W) No. 19/2005) for the amount of waste generated, recycled and disposed of (including the disposal sites) will be established during the construction phase.	All area/ During construction	Contractor(s)		✓		Implemented	Annex 5 and Annex 6 of Appendix G of ETWB TC(W) No. 19/2005
S8.5	Inert C&D materials (public fill) will be reused within the Project as far as practicable.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Public fill and construction waste shall be segregated and stored in different containers or skips to facilitate reuse or recycling of materials and their proper disposal.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	Specific areas of the work site will be designated for such segregation and storage if immediate use is not practicable.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	To reduce the potential dust and water quality impacts of site formation works, C&D materials will be wetted as quickly as possible to the extent practice after filling.	All area/ During construction	Contractor(s)		✓		Implemented	Air Pollution Control (Construction Dust) Regulation (Cap 311R); WPCO (Cap 358)
S8.5	Open stockpiles of excavated/ fill materials or construction wastes on-site should be covered with tarpaulin or similar fabric.	Land site/ During Construction, particularly dry season	Contractor(s)		✓		Implemented	Air Pollution Control (Construction Dust) Regulation (Cap 311R)
S8.5	Chemical waste container shall be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented after observation	Waste Disposal (Chemical Waste) (General) Regulation; Code of Practice on the Packaging, Handling and Storage of Chemical

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines	
				D	C	O			
S8.5	Chemical waste container shall have a capacity of less than 450 L unless the specifications have been approved by the EPD.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented after observation	Wastes	
S8.5	A label in English and Chinese shall be displayed on the chemical container in accordance with instructions prescribed in Schedule 2 of the Regulations.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented		
S8.5	Storage areas for chemical waste shall be enclosed on at least 3 sides.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented		
S8.5	Storage areas for chemical waste shall have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest.	All area/ During construction/ During operation	Contractor(s) / WSD		✓	✓	Implemented		
S8.5	Storage areas for chemical waste shall have adequate ventilation.	All area/ During construction/ During operation	Contractor(s) / WSD		✓	✓	Implemented		
S8.5	Storage areas for chemical waste shall be covered to prevent rainfall entering (water collected within the bund must be tested and disposed of as chemical waste, if necessary).	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented		
S8.5	Storage areas for chemical waste shall be arranged so that incompatible materials are appropriately separated.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented		
S8.5	General refuse will be stored in enclosed bins or compaction units separately from construction and chemical wastes.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented after reminder		
S8.5	Adequate number of waste containers will be provided to avoid over-spillage of waste.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented		DEVB TC(W) No. 8/2010 Enhanced Specification for Site Cleanliness and Tidiness.
S8.5	A reputable waste collector will be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented		-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S8.5	Recycling bins will be provided at strategic locations within the Site to facilitate recovery of recyclable materials (including aluminum can, wastepaper, glass bottles and plastic bottles) from the Site. Materials recovered will be sold for recycling.	All area/ During construction/ During operation	Contractor(s)/ WSD		✓	✓	Implemented	-
S8.5	To avoid any odour and litter impact, accurate number of portable toilets will be provided for workers on-site.	All area/ During construction	Contractor(s)		✓		Implemented	-
S8.5	The burning of refuse on construction sites is prohibited by law.	All area/ During construction	Contractor(s)		✓		Implemented	Air Pollution Control Ordinance (Cap 311)
S8.7	To facilitate monitoring and control over the contractors' performance on waste management, a waste inspection and audit programme will be implemented throughout the construction phase.	All facilities/ During construction	ET/ IEC		✓		Implemented	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Ecology								
S9.7	Erect fences along the boundary of the works area before the commencement of works to prevent vehicle movements and encroachment of personnel onto adjacent areas.	All area/ During construction	Contractor(s)		✓		Implemented	-
S9.7	Regularly check the work site boundaries to ensure that they are not breached and that damage does not occur to surrounding areas.	All area/ During construction	Contractor(s)/ ET		✓		Implemented	-
S9.7	Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the surrounding habitats through proper management of waste disposal.	All area/ During construction	Contractor(s)		✓		Implemented	-
S9.7	Reinstate temporarily affected areas, particularly the habitats of plantation and shrubland-grassland immediately after completion of construction works, through on-site tree/shrub planting. The tree/shrub species will be chosen with reference to those in the surrounding area.	All area/ During construction	Contractor(s)		✓		N/A	-

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Landscape & Visual								
S11.10 & 11.11	The construction area and area allowed for temporary structures, such as the contractor's office, will be minimized to a practical minimum. (MM1)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	N/A	N/A	N/A	Not applicable for this project	-
S11.10 & 11.11	At the detailed design stage, the design team will seek to minimize the landscape footprint of the Project and above ground facilities, while satisfying all other requirements. (MM2)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	N/A	N/A	N/A	Not applicable for this project	-
S11.10 & 11.11	Design principles will be adopted to take into account the surrounding area, particularly Clear Water Bay Country Park behind and the nearby waterfront, with due consideration given to: - green roofs where practical (i.e., without equipment on the roof); - roadside planting; - aesthetic treatment of all structures; - vertical greening; - screen planting along application site; and - landscape enhancement with amenity planting where practical including planting along the edge (site boundary) fence with native shrubs where feasible to reduce their visual impact and blend them into the surrounding landscape.(MM3)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	N/A	N/A	N/A	Not applicable for this project	-
S11.10 & 11.11	All trees within the Project Site or the potential slope mitigation works area will be carefully protected during construction according to DEVB TCW No. 10/2013 – Tree Preservation (MM4)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	✓	✓	✓	Implemented after reminder	ETWB TCW No. 3/2006 - Tree Preservation.

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S11.10 & 11.11	No tree within the Country Park will be felled. Trees within the Site unavoidably affected by the works will be transplanted where necessary and practical. For trees that need to be felled, compensatory planting will be provided to the satisfaction of relevant Government departments. A compensatory tree planting proposal including locations of tree compensation will be submitted to seek relevant government department's approval, in accordance with DEVB TC(W) No. 10/2013. (MM5)	All area/ Detailed design/ During construction/ During operation	WSD/ Contractor(s)	N/A	N/A	N/A	Not applicable for this project	DEVB TC(W) No. 10/2013

Note: D – Design stage C – Construction O – Operation

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
Landfill Gas Hazard								
S12.7	During all works, safety procedures should be implemented to minimise the risks of fires and explosions, asphyxiation of workers and toxicity effects resulting from contact with contaminated soil and groundwater.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	During trenching and excavation as well as creation of confined spaces at near to or below ground level, precautions should be clearly laid down and rigidly Gas detection equipment and appropriate breathing apparatus should be available and used when entering confined spaces or trenches deeper than 1 meter.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	The Contractor should make the workers are aware of potential hazards of working in confined spaces (any chamber, manhole or culvert which is large enough to permit access to personnel). Such work in confined spaces is controlled by the Factories and Industrial Undertakings (Confined Spaces) Regulations of the Factories and Industrial Undertakings Ordinance. Following the Safety Guide to Working in Confined Spaces ensures compliance with the above regulations.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Safety officers, specifically trained with regard to landfill gas and leachate related hazards and the appropriate actions to take in adverse circumstances, should be present on the site throughout the works, in particular, when works are undertaken below grade.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	All personnel who work on site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of the works, the possible presence of contaminated water and the need to avoid physical contact with it.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Monitoring for landfill gas should be undertaken in all excavations, manholes, chambers (particularly during pipe jacking) and any confined spaces through the use of an intrinsically safe portable	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
	instrument, appropriately calibrated and capable of measuring the concentrations of methane, carbon dioxide and oxygen.							
S12.7	Monitoring frequency and areas to be monitored should be specified prior to commencement of groundwork, either by the Safety Officer, or by an appropriately qualified person. All measurements should be recorded and documented.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Proceed drilling with adequate care and precautions against the potential hazards which may be encountered.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Prior to the commencement of the site works, the drilling contractor should devise a 'method-of-working' statement covering all normal and emergency procedures (including but not limited to number of operatives, experience and special skills of operatives, normal method of operations, emergency procedures, supervisors' responsibilities, storage and use of safety equipment, safety procedures and signs, barriers and guarding). The site supervisor and all operatives must be familiar with this statement.	All area/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	Where below ground service entries are necessary to the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II), the entry point should be sealed to prevent gas entry. In addition, any below grade cable trenches entering the Incoming Switchgear Room and 132 kV Substation can become the pathway for landfill gas and hence grilled metal covers should be used.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	N/A	-
S12.7	It is recommended regular landfill gas monitoring should be carried out at the Incoming Switchgear Room, 132 kV Substation and Chlorine Store (I) and (II). The monitoring frequency will be monthly for the first year of operation. If the monitoring results show no sign of landfill gas migration, reduce the monitoring frequency to once every six months.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	N/A	-

EIA Reference	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Implementation Agent	Implementation Stage			Implementation Status	Relevant Legislation & Guidelines
				D	C	O		
S12.7	The manholes and utility pits within the Project Site and along the freshwater mains. Each manhole/ utility pit should be monitored with two measurements (at mid depth and base). Each measurement should be monitored for a minimum of 10 minutes. A steady reading and peak reading should be recorded at each manhole/ utility pit and for each measurement. The need for venting the manhole/ utility pit and further monitoring will be reviewed after the initial monitoring.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-
S12.7	All construction, operation and maintenance personnel working on-site as well as visitors should be made aware of the hazards of landfill gas and its possible presence on-site. This should be achieved through a combination of posting warning signs in prominent places and also by access to detailed information on landfill gas hazards and the designs and procedural means by which these hazards are being minimized on-site.	All area/ Detailed design/ During construction/ During operation	Contractor(s)	✓	✓	✓	Implemented	-

Note: D – Design stage C – Construction O – Operation

Appendix D

Summary of Exceedance

Summary of Exceedance

Environmental Monitoring	Parameter	No. of non-Project related exceedance in the reporting period		Total No. of non-Project related exceedance in the reporting period	No. of Project related exceedance in the reporting period		Total No. of Project related exceedance in the reporting period
		AL	LL		AL	LL	
Noise	Leq (30min)	0	0	0	0	0	0
Landfill Gas	O ₂	-	-	-	-	-	-
	CH ₄	-	-	-	-	-	-
	CO ₂	-	-	-	-	-	-

Appendix E

Complaint Log

Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Complaint Nature
1 May 2024 - 31 July 2024	0	5	N/A

Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Details
1 May 2024 - 31 July 2024	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Details
1 May 2024 - 31 July 2024	0	0	N/A

Appendix F

Event / Action Plan for Noise and Landfill Gas

Event / Action Plan for Construction Noise Monitoring

Event	Action			Contractor
	ET	IEC	ER	
Action Level	<ol style="list-style-type: none"> Carry out investigation to identify the source and cause of the complaint/exceedance(s) Notify IEC, ER, and Contractor and report the results of investigation to the Contractor, ER and the IEC Discuss with the Contractor and IEC for remedial measures required If the complaint is related to the Project, conduct additional monitoring for checking mitigation effectiveness and report the findings and results to the IEC, ER and the Contractor 	<ol style="list-style-type: none"> Review the analysed results submitted by the ET Review the proposed remedial measures by the Contractor and advise the ER accordingly Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> Confirm receipt of Notification of Exceedance in writing Require Contractor to propose remedial measures for the analysed noise problem Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> Submit noise mitigation proposals, if required, to the IEC and ER Implement noise mitigation proposals.
Limit Level	<ol style="list-style-type: none"> Carry out investigation to identify the source and cause of the exceedance Notify IEC, ER, Project Proponent, EPD and Contractor Repeat measurements to confirm findings Provide investigation report to IEC, ER, EPD and Contractor he causes of the exceedances If the exceedance is related to the Project, assess effectiveness by additional monitoring. Report the remedial action implemented and the additional monitoring results to IEC, EPD, ER and Contractor If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> Review the analysed results submitted by the ET Discuss the potential remedial measures with ER, ET Leader, and Contractor Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> Confirm receipt of Notification of Exceedance in writing Require the Contractor to propose remedial measures for the analysed noise problem Ensure remedial measures are properly implemented If exceedance continues, consider what activity of the work is responsible and instruct the Contractor, in agreement with the Project Proponent, to stop that activity of work until the exceedance is abated 	<ol style="list-style-type: none"> Take immediate action to avoid further exceedance Submit proposals for remedial actions to IEC and ER within 3 working days of notification Implement the agreed proposals Resubmit proposals if problem still not under control Stop the relevant activity of works as determined by the Project Proponent until the exceedance is abated

Action and Level and Event/ Action Plan for Landfill Gas Monitoring

Parameters	Level	Action
Oxygen (O ₂)	Action Level < 19% O ₂	Ventilate trench/void to restore O ₂ to > 19%
	Limit Level < 19% O ₂	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore O ₂ to > 19%
Methane (CH ₄)	Action Level >10% LEL	Post "No Smoking" signs Prohibit hot works Increase ventilation to restore CH ₄ to <10% LEL
	Limit Level >20% LEL	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CH ₄ to <10% LEL
Carbon Dioxide (CO ₂)	Action Level >0.5% CO ₂	Ventilate to restore CO ₂ to < 0.5%
	Limit Level >1.5% CO ₂	Stop works Evacuate personnel / prohibit entry Increase ventilation to restore CO ₂ to <0.5%

Appendix H – Waste Flow Table

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Project	Disposed as Public Fill	Imported Fill	Metals	Paper / Cardboard packaging	Plastics	Chemical Waste	Other, e.g., general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in'000kg)	(in'000kg)	(in'000kg)	(in'000kg)	(in '000m ³)
Jan 2024	0.280	0.000	0.264	--	0.016	0.029	--	0.061	--	--	0.003
Feb 2024	0.135	0.000	0.135	--	0.000	0.010	--	0.042	--	--	0.002
Mar 2024	0.313	0.000	0.020	--	0.293	0.000	--	0.023	--	--	0.001
Apr 2024	0.119	0.000	0.030	--	0.089	0.028	--	0.031	--	--	0.002
May 2024	0.099	0.000	0.021	--	0.078	0.015	--	0.025	--	--	0.003
Jun 2024	0.462	0.000	0.035	--	0.427	0.030	--	0.041	--	--	0.004
Sub-total	1.408	0.000	0.505	0.000	0.903	0.112	0.000	0.223	0.000	0.000	0.015
Jul 2024	0.029	0.029	0.000	--	0.000	0.000	--	0.021	--	--	0.005
Aug 2024											
Sep 2024											
Oct 2024											
Nov 2024											
Dec 2024											
Total	1.437	0.029	0.505	0.000	0.903	0.112	0.000	0.244	0.000	0.000	0.020

- 1) Total quantity Generated only refers to the actual Quantitates of inert C&D materials generated monthly excluding those that will be recycled (Hard rock & large broken concrete, reused in contract and reused in another contract). Imported fill will not be included in total quantity generated as those C&D materials are not generated from this project.
- 2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
- 3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging materials.