

# Submarine Cable for the Development of the Integrated Waste Management Facilities Phase 1 Monthly EM&A Report No.1 (for October 2023)

#### PREPARED FOR



CLP Power Hong Kong Limited

DATE 13 November 2023

REFERENCE 0691230





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# Submarine Cable for the Development of the Integrated Waste Management Facilities Phase 1 Environmental Certification Sheet FEP-02/429/2012/B

#### **Reference Document/Plan**

Document/Plan to be Certified/ Verified:	EM&A Report (for October 2023)
Date of Report:	13 November 2023
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EP Condition:

Section 3.4

Content: Monthly EM&A Report

The ET Leader should prepare and submit EM&A Reports for construction stage of the Project within 2 weeks after the end of the reporting month.

#### ET Certification

I hereby certify that the above referenced document/<del>plan</del> complies with the above referenced condition of FEP-02/429/2012/B.

Ms Mandy TO, Environmental Team Leader:

Mandy 20.

Date:

Date:

13 November 2023

#### **IEC Verification**

I hereby verify that the above referenced document/ $\frac{\text{plan}}{\text{plan}}$  complies with the above referenced condition of FEP-02/429/2012/B.

Ms Lemon LAM, Independent Environmental Checker: gne

14 November 2023

# Submarine Cable for the Development of the Integrated Waste Management Facilities Phase 1

Monthly EM&A Report No.1 (for October 2023) 0691230

Terence Fong Partner

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# EXECUTIVE SUMMARY

The associated works for installation of the Submarine Cable for the Development of the Integrated Waste Management Facilities Phase 1 under the Further Environmental Permit (FEP-02/429/2012/B) commenced on 3 October 2023. This is the 1<sup>st</sup> monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 3 to 31 October 2023 in accordance with the approved Updated EM&A Manual and FEP-02/429/2012/B.

# SUMMARY OF THE CONSTRUCTION ACTIVITIES UNDERTAKEN DURING THE REPORTING PERIOD

The major construction activities undertaken during the reporting period include:

#### Land-based Works

- Boulder removal
- Trench for precast concrete trough installation at Upper Cheung Sha Beach

#### **Marine-based Works**

• Inspection and access clearance to the cable conduits in Shek Kwu Chau

#### ENVIRONMENTAL SITE INSPECTION

Joint weekly site inspections were conducted by representatives of the Contractor, CLP and Environmental Team (ET) on 3, 10, 17, 24, and 31 October 2023. Details of the audit findings are presented in **Section 2.1**.

#### WATER QUALITY MONITORING

As there was no marine work for cable installation / laying conducted during the reporting period, water quality monitoring was not conducted during the reporting period.

#### MARINE MAMMAL EXCLUSION ZONE MONITORING

As there was no marine work for cable installation / laying conducted during the reporting period, marine mammal exclusion zone monitoring was not conducted during the reporting period.

# ENVIRONMENTAL EXCEEDANCE / NON-CONFORMANCE / COMPLAINT / SUMMONS AND PROSECUTION

As there was no marine work for cable installation / laying conducted during the reporting period requiring water quality monitoring and marine mammal observation in accordance with the Updated EM&A Manual, thus no exceedance of the Action and Limit Levels was recorded during the reporting period.

No non-compliance event was recorded during the reporting period.

No environmental complaint was received during the reporting period.

No summon/ successful prosecution was received during the reporting period.



#### REPORTING CHANGES

There was no reporting change in the reporting period.

#### FUTURE KEY ISSUES AND UPCOMING WORKS FOR THE NEXT REPORTING PERIOD

The major construction activities to be undertaken in the next reporting period include:

#### Land-based Works

- Precast concrete trough installation
- Preparation works for cable landing
- Cable and materials unloading at Upper Cheung Sha Beach

#### **Marine-based Works**

- Preparation for cable pulling in Shek Kwu Chau
- Cable and materials unloading at Shek Kwu Chau

Marine works are expected to commence on 13 November 2023. Water quality monitoring and marine mammal exclusion zone monitoring will be carried out in the next reporting period.



# 1. INTRODUCTION

# 1.1 BACKGROUND

The Environmental Protection Department (EPD) of the Government of the Hong Kong Special Administrative Region (HKSAR) proposed to construct the Integrated Waste Management Facilities (IWMF) Phase 1 on an artificial island near Shek Kwu Chau, south of Lantau Island for the purpose of treating municipal solid waste and generating electricity from the waste treatment process for its own use and export surplus electricity, if any, to the power grid.

The EIA Report (EIA-201/2011) was approved by the EPD on 17 January 2012 with the Environmental Permit (EP) of the Project issued on 19 January 2012 (EP-429/2012) and a variation of the EP on 14 October 2016 (EP-429/2012/A). A Further EP (FEP-01/429/2012/A) was granted to Keppel Seghers-Zhen Hua Joint Venture for the reclamation works and construction of the IWMF on 27 December 2017. Another latest Further EP (FEP-02/429/2012/B) was granted to CLP Power for the installation of the 132kV submarine cable circuits connecting Cheung Sha, South Lantau and Shek Kwu Chau Artificial Island on 25 May 2020. The proposed cable would land at the landing portal at Upper Cheung Sha Beach (UCSB). The alignment of the submarine cable route is shown in **Appendix A**. An Environmental Review Report (ERR) was prepared and approved to support the application of FEP-02/429/2012/B.

The Environmental Monitoring and Audit (EM&A) programme during the cable installation of the Project has been performed during the reporting period in accordance with the relevant EM&A requirements stipulated in the Updated EM&A Manual under FEP-02/429/2012/B. The construction of the Project commenced on 3 October 2023.

ERM-Hong Kong Limited (ERM) was appointed by the Permit Holder, CLP Power Hong Kong Limited (CLP Power) to undertake the Environmental Monitoring and Audit (EM&A) programme during the installation and repair operation of the submarine cable for the Development of the Integrated Waste Management Facilities Phase 1 (hereafter referred as the "Project").

# 1.2 SCOPE OF THE EM&A REPORT

This is the 1<sup>st</sup> EM&A report which summarises the key findings of the EM&A programme during the reporting period from **3** to **31 October 2023** for the construction works in accordance with the Updated EM&A Manual and the requirements of FEP-02/429/2012/B.

# 1.3 ORGANISATION STRUCTURE

The organization structure for the construction works under FEP-02/429/2012/B and contact details are shown in **Appendix B**.

## 1.4 SUMMARY OF CONSTRUCTION PROGRAMME AND ACTIVITIES

A summary of the construction programme is presented in **Table 1.1**.



### TABLE 1.1 SUMMARY OF CONSTRUCTION PROGRAMME

Construction Works	Period
Pre-lay preparation works at Shek Kwu Chau and Upper Cheung Sha Beach	3 October 2023 – 7 November 2023
Marine works for cable installation / laying	14 November 2023 – 24 December 2023
Hand jetting works conducted by diver within the gazette boundary of Upper Cheung Sha Beach	5 December 2023 – 21 December 2023
Reinstatement of Upper Cheung Sha Beach	20 December 2023 – 29 December 2023

A summary of major construction activities undertaken during the reporting period include:

#### Land-based Works

- Boulder removal
- Trench for precast concrete trough installation at UCSB

#### Marine-based Works

• Inspection and access clearance to the cable conduits in Shek Kwu Chau

### 1.5 SUMMARY OF EM&A PROGRAMME REQUIREMENTS

A summary of the status of EM&A Programme for all environmental aspects required under the Updated EM&A Manual and FEP-02/429/2012/B are presented in **Table 1.2**. As there was no marine works for cable installation / laying conducted during the reporting period, relevant environmental monitoring, i.e. water quality monitoring and marine mammal observation, were not required to be carried out in accordance with the Updated EM&A Manual. Hence, no Action/Limit Levels were triggered in the reporting period and the actions as specified in the respective Event and Action Plans were not required to be taken.

TABLE 1.2 SUMMARY OF STATUS FOR THE EM&A PROGRAMME UNDER THE UPDATED EM&A MANUAL AND FEP-02/429/2012/B

EM&A Programme Requirements	Status			
Environmental Site Inspection				
Regular Site Inspection	On-going			
Water Quality				
Baseline Monitoring	Completed. The Baseline Water Quality Monitoring Report was submitted on 24 August 2023 and EPD's approval was obtained on 19 October 2023.			
Construction Phase Monitoring	To be implemented upon commencement of marine works for cable installation / laying. (Tentatively scheduled to commence on 14 November 2023)			
Post-construction Monitoring	To be implemented upon completion of construction works under FEP-02/429/2012/B.			



#### Ecology

Marine Mammal Exclusion Zone Monitoring	To be implemented upon commencement of marine works for cable installation / laying. (Tentatively scheduled to commence on 13 November 2023)
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## 1.6 STATUS OF OTHER STATUTORY ENVIRONMENTAL REQUIREMENTS

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

# TABLE 1.3 SUMMARY OF THE STATUS OF VALID ENVIRONMENTAL LICENCE, NOTIFICATION, PERMIT AND DOCUMENTATIONS

Permit/ Licences/ Notificaiton	Reference No.	Validity Period	Remarks
Environmental Permit	EP-429/2012/A	Throughout the Contract	Permit granted on 19 January 2012
Further Environmental Permit	FEP-02/429/2012/B	Throughout the Contract	Permit granted on 17 January 2020
Notification Construction Works under the Air Pollution Control (Construction Dust) Regulation	497060	Throughout the Contract	-
Construction Noise Permit	GW-RS0516-23	1 July 2023 – 31 December 2023	-
Billing Account for Disposal of Construction Waste	7045590	Throughout the Contract	-
Chemical Waste Producer Licence	WPN5213-933-C4619- 02	Throughout the Contract	-



# 2. EM&A RESULTS

# 2.1 ENVIRONMENTAL SITE INSPECTION

Joint weekly site inspections were conducted by representatives of the Contractor, CLP and ET on 3, 10, 17, 24 and 31 October 2023 at the landing point at UCSB. No non-compliance was recorded during the site inspections. Overall observations of the site condition are as below:

 Trenching works were observed during the site audit. Consent from LCSD was obtained by CLP for the proposed trenching works on UCSB. Relevant environmental mitigation measures have been implemented by CLP and the Contractor on UCSB in accordance with the EP, FEP, approved EIA, approved Updated EM&A Manual and ERR. CLP and the Contractor are reminded to implement the conditions for trenching works issued by LCSD accordingly.

Key findings and recommendations for the site inspections in this reporting month are summarised in **Table 2.1**.

Site Inspection Date	Findings and recommendations	Contractor's Follow-up Action(s) Taken
3 October 2023	There was no major observation during the site inspection.	N/A
10 October 2023	There was no major observation during the site inspection.	N/A
17 October 2023	<ul> <li>Enclosed bins for general refuse should be provided on-site.</li> <li>As a general reminder, the contractor was reminded that oil absorbent materials should be readily provided on-site.</li> </ul>	<ul> <li>Enclosed bin for general refuse has been provided on-site. (Date of Rectification: 18 October 2023)</li> <li>The oil absorbent material has been provided on-site. (Date of Rectification: 18 October 2023)</li> </ul>
24 October 2023	There was no major observation during the site inspection.	N/A
31 October 2023	<ul> <li>Drip tray shall be for provided chemical container and the container shall be labelled clearly.</li> <li>As a general reminder, the environmental permit shall be clearly displayed for public inspection.</li> </ul>	<ul> <li>Chemical containers were removed from the beach area and clearly labelled. (Date of Rectification: 1 November 2023)</li> <li>Environmental Permit was clearly displayed for public inspection. (Date of Rectification: 1 November 2023)</li> </ul>

# TABLE 2.1 KEY FINDINGS AND RECOMMENDATIONS FROM SITE INSPECTIONS AND CONTRACTOR'S FOLLOW-UP ACTIONS

All follow-up actions requested by ET during the site inspections were undertaken as reported by the Contractor.

# 2.2 WASTE MANAGEMENT STATUS

The quantities of different types of waste generated are summarized in **Table 2.1**. The excavated sand material will be backfilled on site. No waste was generated during the reporting period. Detailed waste flow table is presented in **Appendix C**.



#### TABLE 2.2 QUANTITIES OF WASTE GENERATED UNDER FEP-02/429/2012/B

			Qua	ntity		
Reporting Period (in `000 kg)		Non-inert C&D Materials				
	Inert C&D			<b>Recycled Materials</b>		
	(in `000	Chemical Waste (in `000 kg <sup>3</sup>	General Refuse (in `000 kg)	Paper/ Cardboard Packaging (in `000 kg <sup>3</sup> )	Plastics (in `000 kg³)	Metals (in `000 kg³)
Oct 2023	0	0	0	0	0	0

## 2.3 WATER QUALITY MONITORING

## 2.3.1 MONITORING LOCATION

The proposed water quality monitoring location of the Project, as recommended on the approved Updated EM&A Manual, are listed in **Table 2.2** and shown in **Appendix D**.

#### TABLE 2.3 WATER QUALITY MONITORING LOCATIONS

Station	Description	Easting	Northing					
Regular N	Regular Monitoring Stations							
C1A	Control Station	812823	806300					
C2A	Control Station	818869	806808					
S1A	Submarine Cable Landing Site	813430	809962					
S2A	Submarine Cable	814808	808515					
S3A	Submarine Cable Landing Site	816203	805178					
Beach Water Quality Monitoring Stations								
I1	Impact Station within gazetted boundary of Upper Cheung Sha Beach – East of Diver Enclosed Silt Curtain	Varies	Varies					
I2	Impact Station within gazetted boundary of Upper Cheung Sha Beach – West of Diver Enclosed Silt Curtain	Varies	Varies					

## 2.3.2 MONITORING PARAMETER AND FREQUENCY

During marine works for cable installation/ laying (including by diver hand jetting near the northern end or by jetting machine for the rest of the cable alignment), monitoring should be undertaken three days per week, at mid-flood and mid-ebb tides, with sampling / measurement at the designated monitoring stations as shown in **Table 2.3**. The interval between two sets of monitoring should not be less than 36 hours. A summary of the monitoring parameters are presented in **Table 2.3**.

Other relevant data should also be recorded, including monitoring location / position, time, water depth, sampling depth, tidal stages, weather conditions and any special phenomena or



work underway around the monitoring and works area that may influence the monitoring results.

TABLE 2.4 WATER	TER QUALITY MONITORING FREQUENCY AND PARAMETERS					
Activities	Monitoring Stations	Depth	Key Parameters	Monitoring Frequency		
During marine works for installation of submarine cables outside the gazetted boundary of UCSB	C1A, C2A, S1A, S2A, S3A,	3 water depths: 1 m below sea surface, mid- depth and 1 m above seabed. If the water depth is less than 3 m, mid-depth sampling only. If water depth is less than 6 m, mid-depth may be omitted.	<ul> <li>Temperature (°C)</li> <li>pH</li> <li>Salinity (ppt)</li> <li>Dissolved Oxygen (DO) (mg/L and % saturation)</li> <li>Turbidity (NTU)</li> <li>Suspended Solids (SS) (mg/L)</li> </ul>	Three days per week, at mid- flood and mid- ebb tides Two (2) replicates in-situ measurements and water samples		
During hand jetting works conducted by diver within the gazetted boundary of UCSB	C1A, C2A, I1, I2	3 water depths: 1 m below sea surface, mid- depth and 1 m above seabed. If the water depth is less than 3 m, mid-depth sampling only. If water depth is less than 6 m, mid-depth may be omitted.	<ul> <li>Temperature (°C)</li> <li>pH</li> <li>Salinity (ppt)</li> <li>Dissolved Oxygen (DO) (mg/L and % saturation)</li> <li>Turbidity (NTU)</li> <li>Suspended Solids (SS) (mg/L)</li> </ul>	Three days per week, at mid- flood and mid- ebb tides Two (2) replicates in-situ measurements and water samples		

#### TABLE 2.4 WATER QUALITY MONITORING FREQUENCY AND PARAMETERS

## 2.3.3 MONITORING METHODOLOGY

Levels of dissolved oxygen (DO), pH value, salinity, temperature and turbidity should be measured *in situ*. Level of suspended solids (SS) should be determined by a HOKLAS accredited laboratory. The detailed methodology is presented in the approved Updated EM&A Manual.

## 2.3.4 MONITORING EQUIPMENT

All *in situ* monitoring equipment for the measurement of dissolved oxygen (DO), pH value, salinity, temperature and turbidity should be checked, calibrated and certified by a laboratory accredited under HOKLAS before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of water quality monitoring programme. *In situ* checking for the monitoring equipment, including responses of sensors and electrodes, should be performed with certified standard solutions before each use. Wet bulb calibration for a dissolved oxygen meter should be carried out before commencement of monitoring and after completion of all measurements each day.



## 2.3.5 ACTION AND LIMIT LEVELS

The action and limit levels have been established based on the baseline monitoring results and are presented in **Table 2.4**. The Event / Action Plan for water quality monitoring is presented in **Appendix E**.

#### TABLE 2.5 ACTION AND LIMIT LEVELS FOR MARINE WATER QUALITY

Parameters	Action Level	Limit Level				
Construction Phase Impact Monitoring						
DO in mg/L $\leq 2.1$		≤ 1.5				
SS in mg/L $\geq$ 6 or 120% of control station's SS at the same tide of the same day of measurement		≥ 8 or 130% of control station's SS at the same tide of the same day of measurement				
Turbidity in NTU $\geq 10.7$ or 120% of control stati turbidity at the same tide of the same day of measurement		≥ 13.1 or 130% of control station's turbidity at the same tide of the same day of measurement				

Note:

<sup>a</sup> For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

<sup>b</sup> For SS and turbidity, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

<sup>c</sup> In view of the relatively low measured DO level in the baseline monitoring exercise, the pre-determined limit level of 4 mg/L is not applicable. The first percentile (1 %-ile) value of baseline data (i.e. 1.5 mg/L) is adopted as the limit level for DO.

### 2.3.6 RESULTS OF WATER QUALITY MONITORING

As there was no marine work for cable installation / laying conducted during the reporting period, water quality monitoring was not conducted during the reporting period.

## 2.4 MARINE MAMMAL EXCLUSION ZONE MONITORING

### 2.4.1 MONITORING REQUIREMENTS

During submarine cable installation works (outside of the gazette boundary of the UCSB using vessel and jetting machine) taking place in daylight hours along the landing sites between Shek Kwu Chau and UCSB, a marine mammal exclusion zone of 250 m radius from the cable installation/ repair vessel is recommended to be implemented as a precautionary measure to reduce disturbance to marine mammals, especially the Finless Porpoise. The exclusion zone should be closely monitored by an experienced marine mammal observer at least 30 minutes before the start of cable installation works using vessel and jetting machine. If a marine mammal is noted within the exclusion zone, all marine works should stop immediately and remain idle for 30 minutes, or until the exclusion zone is free from marine mammals. During cable installation using vessel and jetting machine, if marine mammals are spotted within the exclusion zone, cable installation works will cease and will not resume until the observer confirms that the zone has been continuously clear of marine mammals for a period of 30 minutes. The detailed methodology is presented in the approved Updated EM&A Manual.



## 2.4.2 RESULTS OF MARINE MAMMAL EXCLUSION ZONE MONITORING

As there was no marine work for cable installation / laying conducted during the reporting period, marine mammal exclusion zone monitoring was not conducted during the reporting period.

## 2.5 REVIEW OF OPERATING SPEEDS OF WORKING VESSELS

The operating speeds of working vessels for construction works under FEP-02/429/2012/B within the reporting period were checked and reviewed. 2 working vessel /barge including a self-propelled tugboat (Richardo), and non-self-propelled flat top barge (MM Wonder) were used for the preparation works under FEP-02/429/2012/B during the reporting period between 25 and 31 October 2023. The self-propelled work vessel was operated at a speed lower than 10 knots when moving within the works areas. No non-compliance on the operating speeds of working vessels was identified. Records of operating speeds of the self-propelled working vessel(s) for the construction works provided by the Contractor are presented in **Appendix F**.

## 2.6 IMPLEMENTATION STATUS OF THE ENVIRONMENTAL PROTECTION REQUIREMENTS

The Contractor has implemented all the environmental mitigation measures and requirements as stated in the approved EIA Report, ERR, approved Updated EM&A Manual and FEP-02/429/2012/B. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix G**. The status of the required submission under FEP-02/429/2012/B during this reporting period is presented in **Table 2.5**.

# TABLE 2.6 STATUS OF REQUIRED SUBMISSION UNDER FEP-02/429/2012/B DURING THE REPORTING PERIOD

EP Condition	Submission	Submission Date		
Nil	Nil	Nil		

# 2.7 SUMMARY OF EXCEEDANCE OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMIT

As there was no marine work for cable installation / laying conducted during the reporting period requiring water quality monitoring and marine mammal observation in accordance with the Updated EM&A Manual, thus no exceedance of the Action and Limit Levels was recorded during the reporting period.

## 2.8 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE, ENVIRONMENTAL COMPLAINT, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTION

No non-compliance event was recorded during the reporting period.

No environmental complaint was received during the reporting period. The cumulative environmental complaint log is presented in **Appendix H**.



No summons/ successful prosecution was received during the reporting period. The cumulative summon/ prosecution log is presented in Appendix H.



# 3. UPCOMING WORKS FOR THE NEXT REPORTING PERIOD

## 3.1 CONSTRUCTION ACTIVITIES FOR THE NEXT REPORTING PERIOD

Works to be undertaken in the next reporting period include:

#### Land-based Works

- Precast concrete trough installation
- Preparation works for cable landing
- Cable and materials unloading at Upper Cheung Sha Beach

#### Marine-based Works

- Preparation for cable pulling in Shek Kwu Chau
- Cable and materials unloading at Shek Kwu Chau

## 3.2 MONITORING SCHEDULE FOR THE NEXT REPORTING PERIOD

Marine works are expected to be commenced on 13 November 2023. The tentative schedule of water quality monitoring in the next reporting period is presented in **Appendix I**. Marine mammal exclusion zone monitoring will also be carried out accordingly.



# 4. CONCLUSION

This is the 1<sup>st</sup> Monthly EM&A Report presenting the key findings of the EM&A works undertaken during the reporting period from 3 to 31 October 2023 in accordance with the approved Updated EM&A Manual and the requirements of Further Environmental Permit FEP-02/429/2012/B. Weekly environmental site inspections of the construction works and audit of the implementation of environmental mitigation measures were conducted by the ET during the reporting period.

As there was no marine work for cable installation / laying conducted during the reporting period requiring water quality monitoring and marine mammal observation in accordance with the Updated EM&A Manual, thus no exceedance of the Action and Limit Levels was recorded during the reporting period.

There were no non-compliance event, environmental complaint and summon/ successful prosecution recorded during the reporting period.

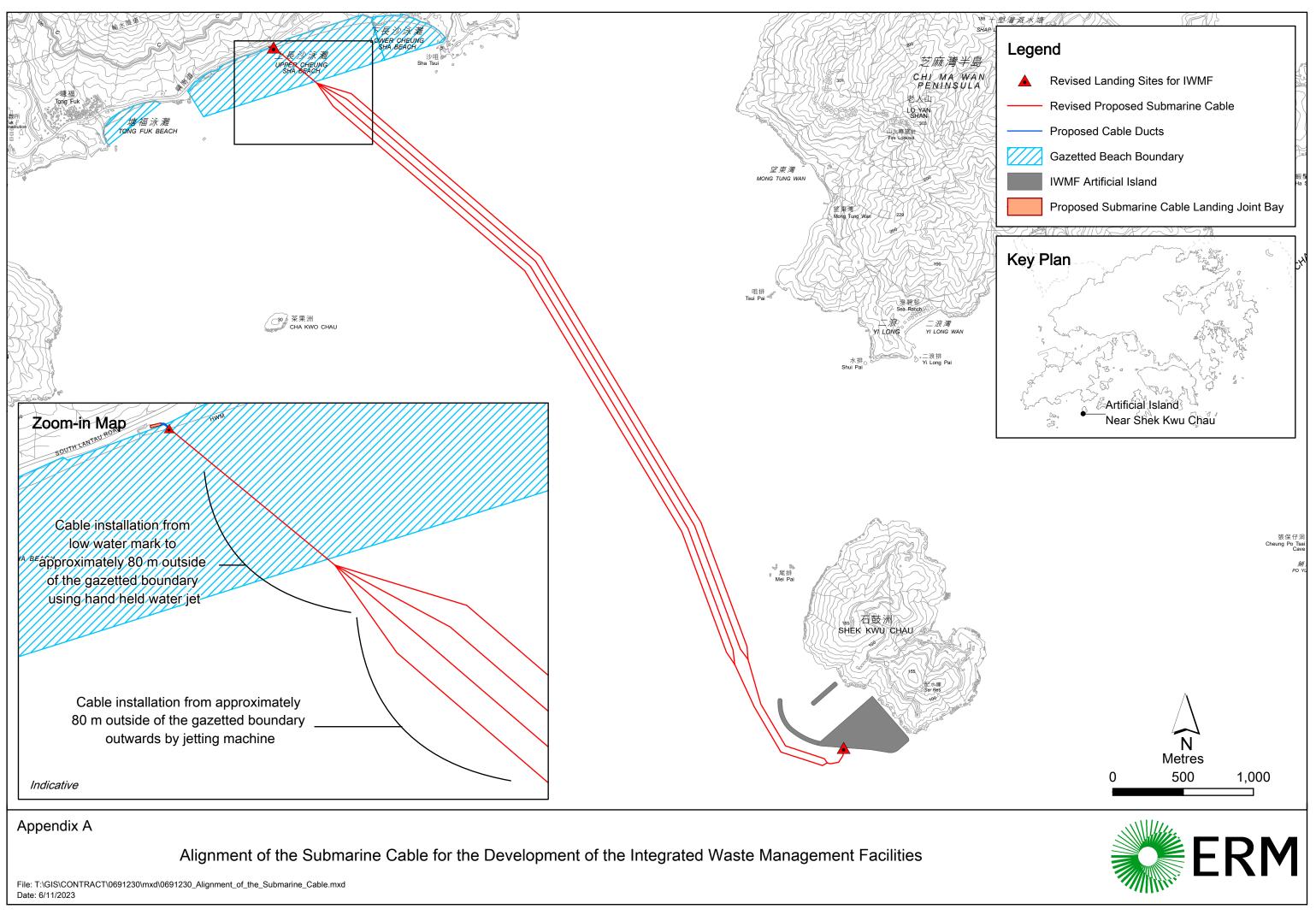
The Contractor has implemented possible and feasible mitigation measures to mitigate the potential environmental impacts. The ET will continue to keep track of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.





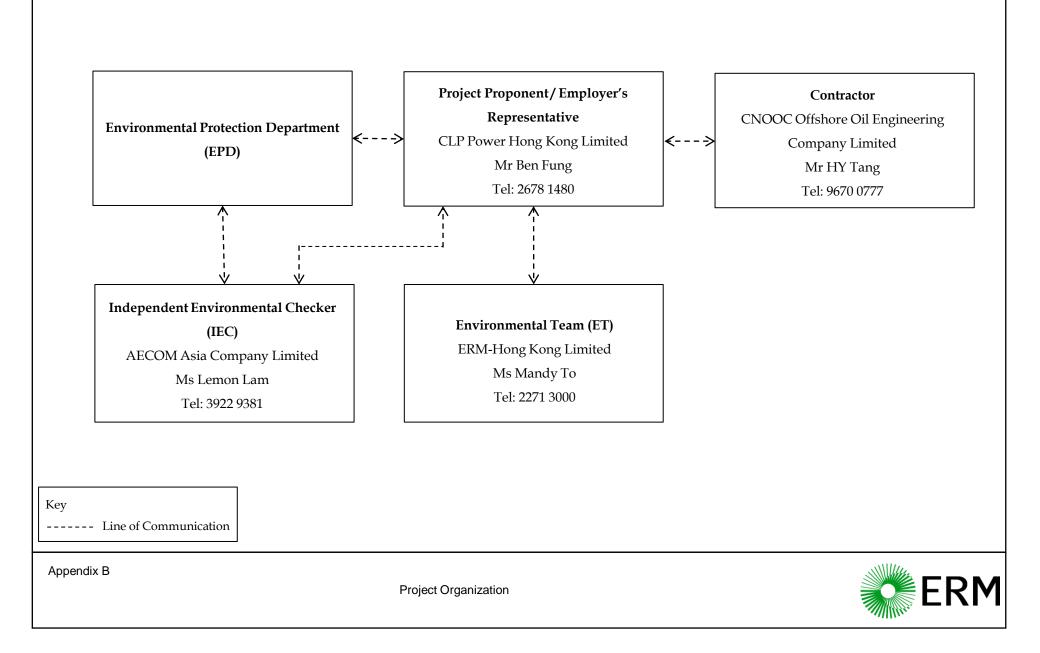
# APPENDIX A

ALIGNMENT OF THE SUBMARINE CABLE FOR THE DEVELOPMENT OF THE INTERGRATED WASTE MANAGEMEMET FACILITIES





# APPENDIX B PROJECT ORGANISATION





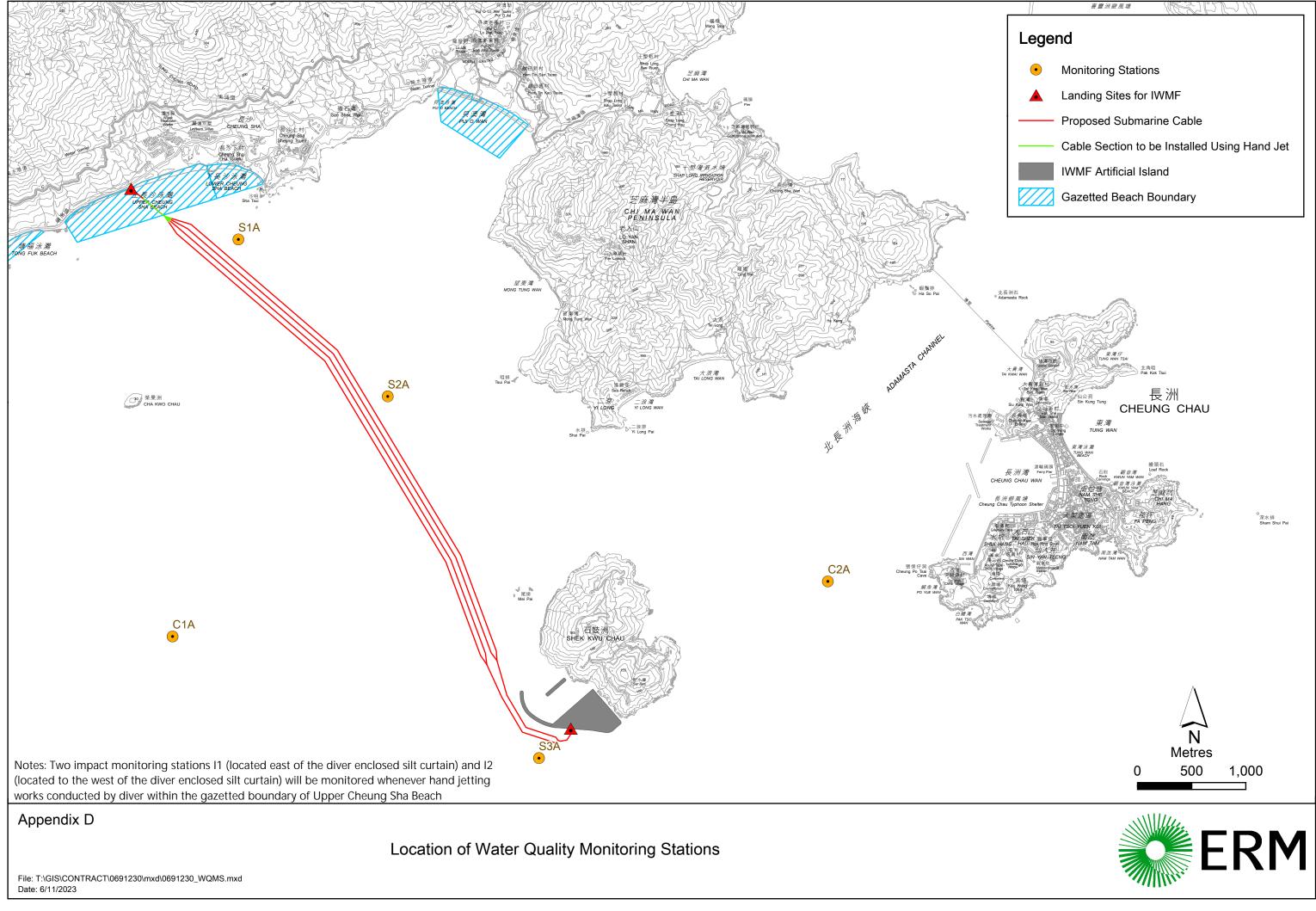
# APPENDIX C WASTE FLOW TABLE

## APPENDIX C – WASTE FLOW TABLE

Month	Actual Quantities of Inert C&D Materials Generated				Actual Quantities of C&D Wastes Generated							
	Total Quantity Generated (in `000kg)	ty and Large t ed Broken Concrete	Reused in the Contract	tract other Pu Projects	Disposed as Public Fill	Fill	Metals (in `000kg)	Paper / Cardboard Packaging (in `000kg)	Plastics (in `000kg)	Chemical Waste		Other (e.g. general refuse)
			(in `000kg) (i		(in <b>`000kg</b> )					(in <b>`000kg</b> )	(in `000L)	(in <b>`000kg</b> )
2023												
Jan to Sep	/	/	/	/	/	/	/	/	/	/	/	/
Oct	0	0	0	0	0	0	0	0	0	0	0	0
Nov												
Dec												
Grand Total	0	0	0	0	0	0	0	0	0	0	0	0



# APPENDIX D LOCATIONS OF WATER QUALITY MONITORING





# APPENDIX E EVENT / ACTION PLAN FOR CONSTRUCTION PHASE WATER QUALITY

## APPENDIX E - EVENT AND ACTION PLAN FOR CONSTRUCTION PHASE WATER QUALITY

EVENT	ACTION		
	ET	IEC	ER
Action level being exceeded by one sampling day	<ul> <li>Repeat in-situ measurement to confirm findings;</li> <li>Identify source(s) of impact;</li> <li>Inform IEC and Contractor;</li> <li>Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>Discuss mitigation measures with IEC and Contractor;</li> <li>(The above actions should be taken within 1 working day after the exceedance is identified)</li> <li>Repeat measurement on next day of exceedance.</li> </ul>	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented. (The above actions should be taken within 1 working day after the exceedance is identified)
Action level being exceeded by more than one consecutive sampling days	Identify source(s) of impact; Inform IEC and Contractor; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC and Contractor; Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; (The above actions should be taken within 1 working day after the exceedance is identified) Repeat measurement on next working day of exceedance.	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)
Limit level being exceeded by one sampling day	Repeat in situ measurement to confirm findings; Check monitoring data, plant, equipment and Contractor's working methods; Identify source(s) of impact and record in notification of exceedance;	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures.	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented;

## CONTRACTOR

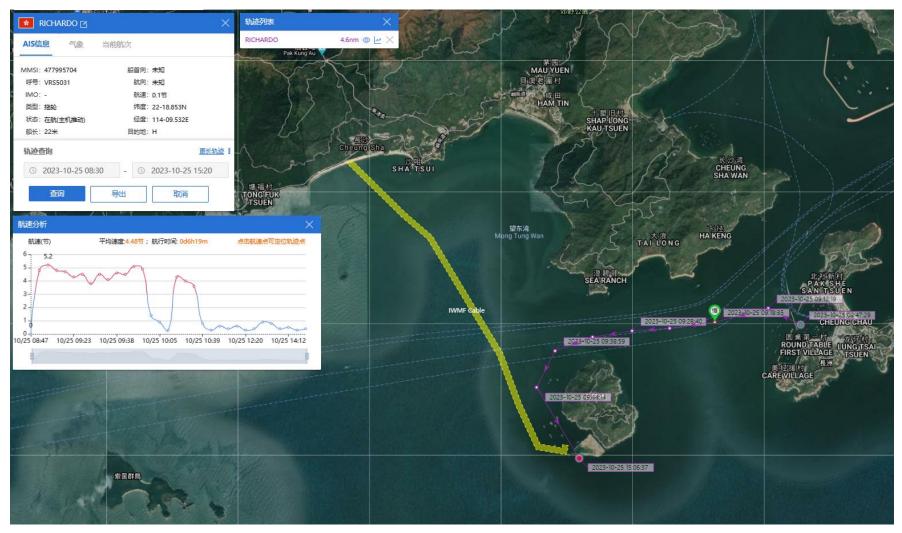
Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)
Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)
Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods;

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	Inform IEC, Contractor and EPD; Discuss mitigation measure with IEC, ER and Contractor; (The above actions should be taken within 1 working day after the exceedance is identified) Repeat measurement on next day of exceedance.	(The above actions should be taken within 1 working day after the exceedance is identified)	Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)
Limit level being exceeded by more than one consecutive sampling days	Identify source(s) of impact; Inform IEC, contractor and EPD; Check monitoring data, all plant, equipment and Contractor's working methods; Discuss mitigation measures with IEC, ER and Contractor; Ensure mitigation measures are implemented; Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with ET and Contractor on the mitigation measures; Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. (The above actions should be taken within 1 working day after the exceedance is identified)	Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Make agreement on the mitigation measures to be implemented; Assess the effectiveness of the implemented mitigation measures; Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level. (The above actions should be taken within 1 working day after the exceedance is identified)	Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Consider changes of working methods; Discuss with ET , IEC and ER and propose mitigation measures to IEC and ER within 3 working days; Implement the agreed mitigation measures; As directed by the ER, to slow down or to stop all or part of the marine work or construction activities. (The above actions should be taken within 1 working day after the exceedance is identified)

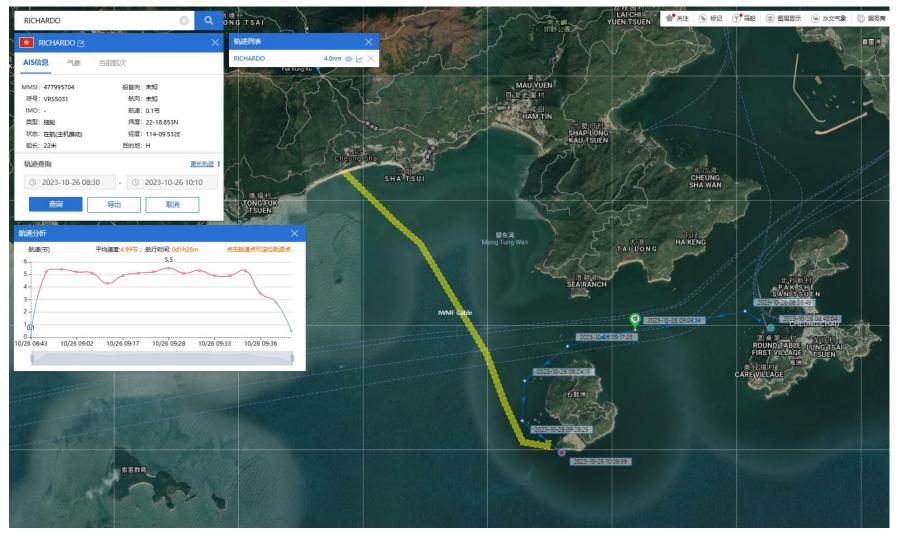


# APPENDIX F RECORD OF OPERATNG SPEEDS AND MARINE TRAVEL WORKING VESSELS

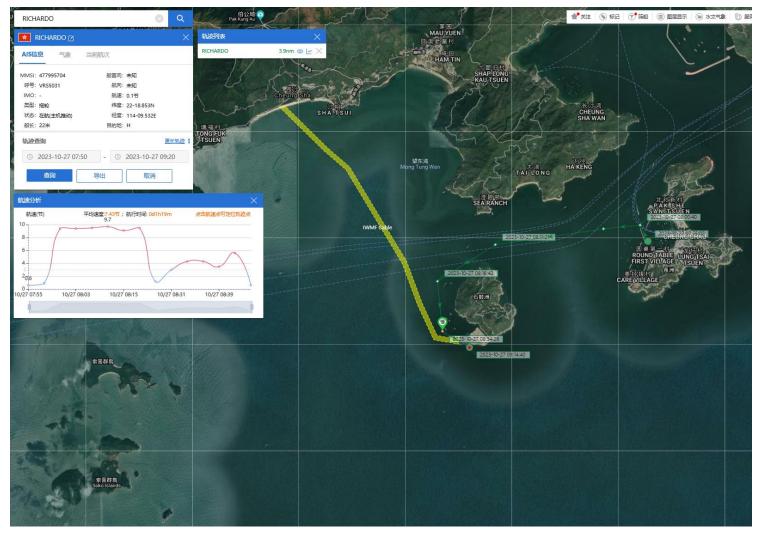
25 Oct 2023 (Working Hours: 0830-1520, Data Source: ShipXY)



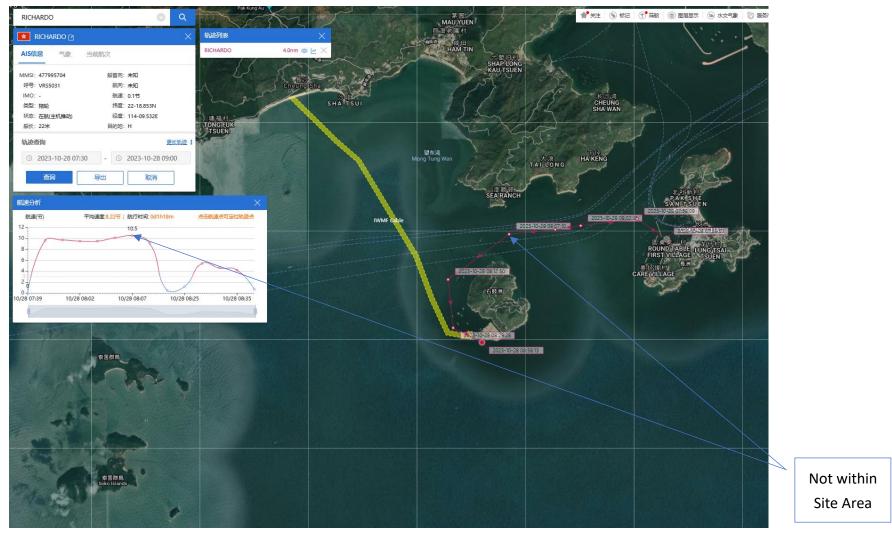
### 26 Oct 2023 (Working Hours: 0830-1010, Data Source: ShipXY)



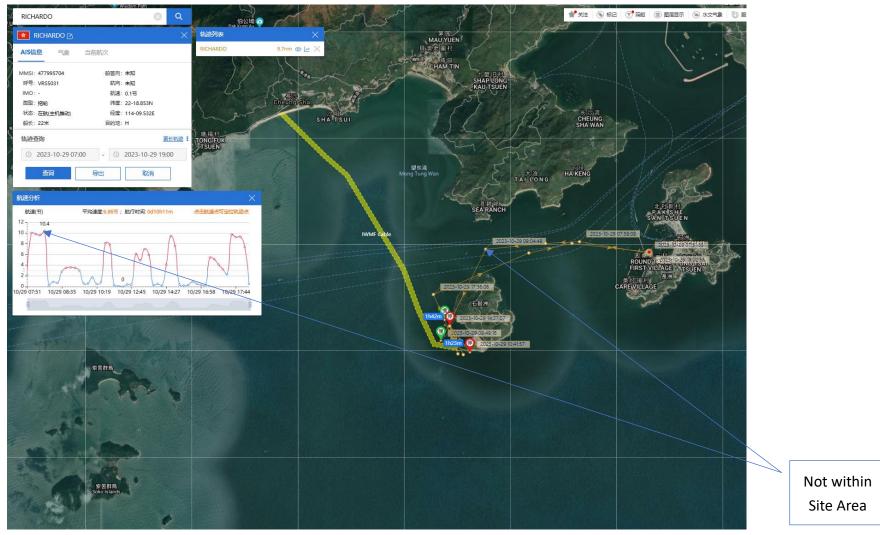
27 Oct 2023 (Working Hours: 0750-0920, Data Source: ShipXY)



28 Oct 2023 (Working Hours: 0730-0900, Data Source: ShipXY)

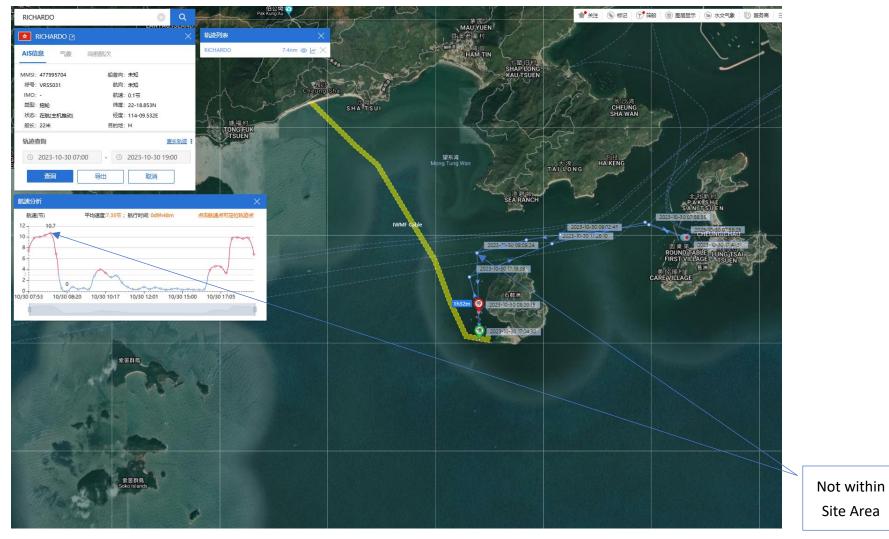


29 Oct 2023 (Working Hours: 0700-1900, Data Source: ShipXY)



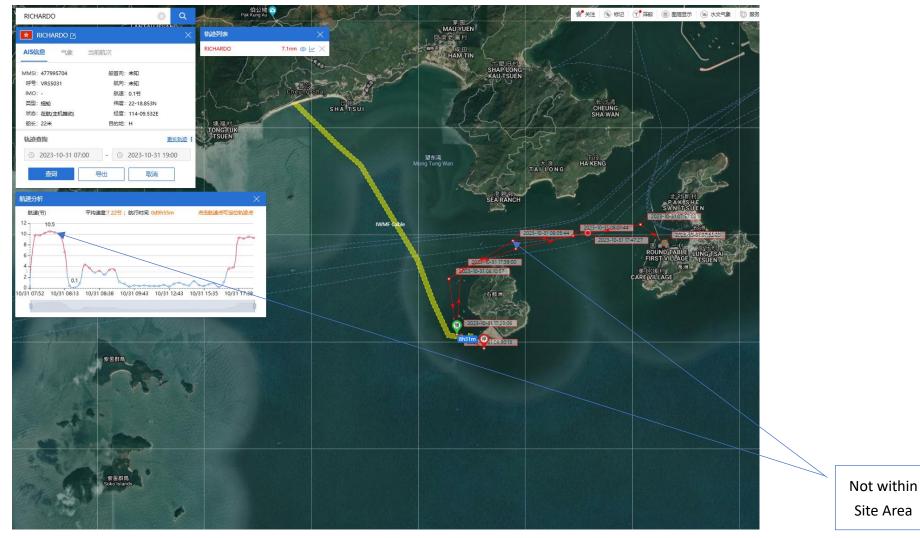
## Richardo (Tug Boat) Historical Data Records (25 Oct - 31 Oct 2023)

30 Oct 2023 (Working Hours: 0700-1900, Data Source: ShipXY)



## Richardo (Tug Boat) Historical Data Records (25 Oct - 31 Oct 2023)

31 Oct 2023 (Working Hours: 0700-1900, Data Source: ShipXY)





# APPENDIX G

SUMMARY OF IMPLEMENTATION SCHEDULE AND STATUS OF ENVIRONEMENTAL MITIGATION MEASURES FOR THE INSTALLATION OF SUBMARINE CABLE

#### Note:

- Des Design, C Construction, O Operation, and Dec Decommissioning \*
- Compliance of Mitigation Measures  $\sqrt{}$
- Compliance of Mitigation but need improvement <>
- Non-compliance of Mitigation Measures Х
- Non-compliance of Mitigation Measures but rectified by the Contractor
- Deficiency of Mitigation Measures but rectified by the Contractor  $\Delta$
- Not Applicable in Reporting Period N/A

EIA / ERR Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implen Stages	
				Des	С
EIA S5b.8.1.1	<ul> <li>Drainage and Construction Site Runoff</li> <li>The site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. These practices include the following items:</li> <li>At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</li> <li>Boundaries of earthworks should be surrounded by dykes or embankments for flood protection, as necessary.</li> <li>Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM-DSS. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. The detailed design of the sand/silt traps shall be undertaken by the contractor prior to the commencement of construction.</li> <li>Measures should be taken to minimize the ingress of site runoff and drainage into excavations. Drainage water pumped out from excavations should be discharged into storm drains via silt removal facilities.</li> <li>Runoff and drainage into excavations. Drainage water pumped out from excavations should be discharged into storm drains via silt removal facilities.</li> <li>During rainstorms, exposed slope/soil surfaces should be covered by a tarpaulin or other means, as far as practicable. Other measures that need to</li> </ul>	Work site / During the construction period	Contractor		

Implementation mentation Status 0 Dec С N/A  $\checkmark$ 

EIA / ERR Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages				Implementation Status
				Des	С	ο	Dec	
	<ul> <li>be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94.</li> <li>Exposed soil areas should be minimized to reduce potential for increased siltation and contamination of runoff.</li> <li>Earthwork final surfaces should be well compacted and subsequent permanent work or surface protection should be immediately performed.</li> <li>Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms.</li> </ul>							
EIA S5b.8.1.2	<u>General Construction Activities</u> Construction solid waste should be collected, handled and disposed of properly to avoid entering to the nearby watercourses and public drainage system. Rubbish and litter from construction sites should also be collected to prevent spreading of rubbish and litter from the site area. It is recommended to clean the construction sites on a regular basis.	Work site / During the construction period	Contractor		✓ 			N/A
EIA S5b.8.1.4	Accidental Spillage Contractor must register as a chemical waste producer if chemical wastes would be produced from construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Work site / During the construction period	Contractor		✓ ✓			√
EIA S5b.8.1.5	Maintenance of vehicles and equipments involving activities with potential for leakage and spillage should only be undertaken within the areas which appropriately equipped to control these discharges.	Work site / During the construction period	Contractor		√			N/A
EIA S5b.8.1.6	Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. All fuel tanks and storage areas should be sited on sealed areas in order to prevent spillage of fuels and solvents to the nearby watercourses. All waste oils and fuels should be collected in designated tanks prior to disposal.	Work site / During the construction period	Contractor		~			Δ

EIA / ERR Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Impler Stages	
				Des	С
EIA S5b.8.1.7	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:	Work site / During the construction period	Contractor		✓
	<ul> <li>Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.</li> <li>Chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents.</li> </ul>				
ERR	Works within the Gazetted Boundary of Upper Cheung Sha Beach (UCSB)	Work site / During	Contractor		$\checkmark$
S3.1.1.1	<ul> <li>No construction work would be conducted in the bathing season of April to October.</li> </ul>	the construction period			
	• Section of cable from low water mark to 80 m outside of the gazetted boundary would be installed by diver using hand held water jet.	-			
	• The machinery employed will be inspected prior to work commencing on the beach then at least daily thereafter to ensure the waters and beach will not be polluted with oil/ grease/ fuel. No machinery maintenance will be carried out onsite.				
	• Oil absorbent materials will be readily placed on site and will be applied immediately should any oil leakage incidents occur, to ensure the swimming zone would not be affected.	-			
	• The section of cable between low water mark and 80m outside the boundary of the UCSB shall be installed by divers using hand held water jet.	-			
	• Silt curtains shall be deployed to fully enclose the hand held jetting works within the boundary of the UCSB and be deployed at the water line surrounding the works area to prevent runoff from land-based works on the UCSB.				
	• The forward speed of the cable installation barge will be limited to a maximum of 1 km hr <sup>-1</sup> .				

Imple Stage		tatio	Implementation Status				
Des	С	0	Dec				
	✓			N/A			
	√			N/A			
				N/A			
				$\checkmark$			
				<>			
				N/A			
				N/A			
				N/A			

# APPENDIX G.2 - IMPLEMENTATION SCHEDULE AND STATUS FOR ENVIRONMENTAL MITIGATION FOR THE INSTALLATION OF SUBMARINE CABLE (WASTE IMPLICATION MANAGEMENT)

#### NOTE:

- \* Des Design, C Construction, O Operation, and Dec Decommissioning
- $\sqrt{}$  Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by the Contractor
- Δ Deficiency of Mitigation Measures but rectified by the Contractor
- N/A Not Applicable in Reporting Period

EIA / ERR Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementa Stages		ntatio	on	Implementation Status
				Des	С	0	Dec	-
EIA 6b.5.1.2	Good Site Practices         Adverse environmental impacts in relation to waste management are not expected, provided that good site practices are strictly followed.         Recommendations for good site practices during the construction activities would include:         • Obtain relevant waste disposal permits from appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354) and subsidiary Regulations and the Land (Miscellaneous Provisions) Ordinance (Cap. 28);         • Provide staff training for proper waste management and chemical handling procedures;         • Provide sufficient waste disposal points and regular waste collection;         • Provide appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and         • Carry out regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;         • Separate chemical wastes for special handling and disposed of to licensed facility for treatment; and         • Employ licensed waste collector to collect waste.	Work Site/ During Construction Period	Contractor					√ ✓ ✓ N/A N/A N/A

EIA / ERR Ref	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages			Implementation Status	
				Des	С	0	Dec	
EIA 6b.5.1.13	<u>Chemical Wastes</u> Should chemical wastes be produced at the construction site, the Contractor would be required to register with EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste (such as explosive, flammable, oxidizing, irritant, toxic, harmful, or corrosive). The Contractor should employ a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	Work Site/ During Design & Construction Period	Contractor		✓			N/A
EIA 6b.5.1.14	General Refuse General refuse should be stored in enclosed bins or compaction units separate from Construction & Demolition (C&D) materials. A licensed waste collector should be employed by the Contractor to remove general refuse from the site, separately from C&D materials. Preferably an enclosed and covered area should be provided to reduce the occurrence of `wind blown' light material.	Work Site/ During Construction Period	Contractor		✓			Δ

#### APPENDIX G.3 - IMPLEMENTATION SCHEDULE AND STATUS FOR ENVIRONMENTAL MITIGATION MEASURES FOR THE INSTALLATION OF SUBMARINE CABLE (ECOLOGICAL)

#### Note:

- \* Des Design, C Construction, O Operation, and Dec Decommissioning
- $\sqrt{}$  Compliance of Mitigation Measures
- <> Compliance of Mitigation but need improvement
- x Non-compliance of Mitigation Measures
- ▲ Non-compliance of Mitigation Measures but rectified by the Contractor
- Δ Deficiency of Mitigation Measures but rectified by the Contractor
- N/A Not Applicable in Reporting Period

EIA / ERR Ref		Location / Timing	Implementation Agent	Impl Stage		ntatio	Implementation Status	
				Des	С	Ο	Dec	
EIA 7b.8.3.16	Measures to minimise disturbance on Finless Porpoise	Work site, marine traffic route	Contractor		√			
- 7b.8.3.30	<ul> <li>Monitored exclusion zones</li> <li>During submarine cable installation/ repair operation works, a monitored marine mammal exclusion zone of 250 m radius from the cable installation/ repair vessel should be implemented. The exclusion zone should be closely monitored by an experienced marine mammal observer at least 30 minutes before the start of cable installation/ repair works. If a marine mammal is noted within the exclusion zone, all marine works should stop immediately and remain idle for 30 minutes, or until the exclusion zone is free from marine mammals.</li> <li>The experienced marine mammal observer should be well trained to detect marine mammals. Binoculars should be used to search the exclusion zone from an elevated platform with unobstructed visibility. The observer should also be independent from the project proponent and has the power to call-off construction activities.</li> <li>In addition, as marine mammals cannot be effectively monitored within the proposed monitored exclusion zone at night, or during adverse weather conditions (i.e. Beaufort 5 or above, visibility of 300 meters or below), marine works should be avoided under weather conditions with low visibility.</li> </ul>							N/A
	<ul> <li>Vessel speed limit</li> <li>The frequent vessel traffic in the vicinity of works area may increase the chance of mammal mammals being killed or seriously injured by vessel collision. A speed limit of ten knots should be strictly enforced within areas with high density of Finless Porpoise.</li> </ul>	Work site, marine traffic route	Contractor		~			$\checkmark$



### APPENDIX H ENVIRONMENTAL COMPLAINT, ENVIRONMENTAL SUMMON AND PROSECUTION LOG

#### APPENDIX H - ENVIRONMENTAL COMPLAINT, ENVIRONMENTAL SUMMON AND PROSECUTION LOG

Reporting Period	Number of Complaints in Reporting Period	Number of Summons/Prosecutions in Reporting Period
3 – 31 October 2023	0	0



## APPENDIX I MONITORING SCHEDULE OF THE NEXT REPORTING MONTH

#### APPENDIX I - MONITORING SCHEDULE FOR THE UPCOMING REPORTING PERIOD

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1	2	3	4	5
6	7	8	9	10	11	12
		ebb tide 11:40 - 15:10 flood tide 6:18 - 9:48		ebb tide 13:44 - 15:56 flood tide 8:11 - 11:41		
ebb tide 3:15 - 6:45 flood tide 15:56 - 19:26	14	15           ebb tide         5:39         -         9:09           flood tide         13:10         -         16:40	16	17           ebb tide         7:55         -         11:25           flood tide         14:17         -         17:47	18	19
20	21	22	23	24	25	26
ebb tide 10:21 - 13:51 flood tide 15:32 - 19:02 27	28	ebb tide 11:51 - 14:30 flood tide 6:31 - 10:01 29	30			
				1	IWMF Cable Water Qual Novemb	



# ERM HAS OVER 160 OFFICES ACROSS THE FOLLOWING COUNTRIES AND TERRITORIES WORLDWIDE

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China	Puerto Rico	F: +852 3015 8052
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Ghana	South Africa	
Guyana	South Korea	
Hong Kong	Spain	
India	Switzerland	
Indonesia	Taiwan	
Ireland	Tanzania	
Italy	Thailand	
Japan	UAE	
Kazakhstan	UK	
Kenya	US	
Malaysia	Vietnam	
Mexico		
Mozambique		