AUES

Peng Chau Cable System

Post-Installation Coral Survey Report

ECO-ENVIRO CONSULTANTS COMPANY

Dec 2023

Our Ref: TCS01273/22/300/L0011

Hong Kong Telecommunications (HKT) Limited
8/F, Lai Chi Kok Engineering Centre II
4 Yuet Lun Street
Lai Chi Kok
Kowloon

Attn: Mr. Cliff Ko

2 February 2024
By email only

Dear Sir,

Re: Peng Chau Cable System
Environmental Permit No. EP-610/2022
Certification of Post-Installation Coral Survey Report

With reference to the Post-Installation Coral Survey Report for Peng Chau Cable System, we herewith certify the report has conformed to the requirement as set out under Conditions 3.2 and 3.3 of the captioned Environmental Permit.

Should you have any queries, please feel free to contact the undersigned at Tel: 2959-6059 or Fax: 2959-6079 or Email: twtam@fordbusiness.com.

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

Tam Tak Wing
Environmental Team Leader

Member of the Surbana Jurong Group

local people
global experience

Our ref: 7076911/L30581/AG/TK/rw

2 February 2024

Hong Kong Telecommunications (HKT) Limited
8/F, Lai Chi Kok Engineering Centre II,
4 Yuet Lun Street,
Lai Chi Kok,
Kowloon,
Hong Kong

By Email and Post
(cliff.mk.ko@pccw.com)

Attention: Mr Cliff KO

Dear Sir

Independent Environmental Checker ("IEC") for Environmental Monitoring Work for Peng Chau Submarine Cable System
Verification of Post-installation Coral Survey Report

With reference to the enclosed Post-installation Coral Survey Report sent by ET to IEC via email on 2 February 2024, we have no adverse comment, and hereby approve the Schedule in accordance with Section 3.3 (b) of the Environmental Permit No. EP-610/2022.

Thank you for your attention. Should you have questions please do not hesitate to contact the undersigned at tel. 3995-8120 or by email to alex.gbaguidi@smec.com.

Yours faithfully

Alex GBAGUIDI
Independent Environmental Checker

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Summary

- The Post-installation Spot Dive Survey was carried out at the shore of Nim Shue Wan and Tai Lei on 3rd November 2023.
- A total of five hard coral colonies and one gorgonian coral were recorded during the spot dive survey and located at least 20 m away from the cable alignment.
- Except the uncommon coral *Platygyra ryukyuensis*, all other corals recorded in the survey area are common species in Hong Kong water.
- All coral colonies recorded during the post-project coral survey showed the same health condition as the pre-installation coral survey. No bleaching, increased sediment and increased partial mortality were recorded during the survey after the cable laying work.
- As a conclusion, there is no adverse impact on the recorded coral colonies due to the cable installation work.

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1. Introduction

1.1 In support of the Government's policy initiative, the Office of the Communications Authority ("OFCA") has implemented the "Subsidy Scheme to Extension Fibre-based Networks to Villages in Remote Areas" ("the Scheme"). The Scheme comprises six projects and Hong Kong Telecommunications (HKT) Limited ("HKT") has been awarded "Project 6", which includes the Peng Chau Cable System ("the Project"). The Project will provide a submarine fibre-optic telecommunications cable from Nim Shue Wan ("NSW)" at the eastern side of Lantau Island to Tai Lei ("TL") at northwestern Peng Chau.

1.2 The Project includes the offshore and shore-end sections of a cable, approx. 1.5km in length with a diameter of 60mm buried below the seabed that lands at NSW on Lantau Island and at TL on Peng Chau. Installation is scheduled to be completed in the fourth quarter of 2022 and the Cable System is planned to be in service by the fourth quarter of 2022.

1.3 Direct impact on coral communities caused by cable laying works during the construction and operation is not likely. However, coral colonies were recorded in the near shore area of NSW and TL, as a precautionary measure a Pre-installation Coral Survey and a Post-project Coral Survey shall be carried out.

1.4 The Pre-installation Coral Survey aims to identify the locations of any corals in the near shore area of NSW and TL that are in proximity to the proposed cable alignment and to identify a cable alignment that avoid direct impact to the coral colonies as far as possible. This report presents the findings of the Pre-installation Coral Survey conducted in the near shore area of NSW and TL.

1.5 The Pre-installation Coral Survey was carried out at the shore of NSW and TL on 10th October 2022 before commencement of the Project. It has identified the locations of the corals in the near shore area of NSW and TL that were in proximity to the proposed cable alignment and the cable alignment that avoided direct impact to the coral colonies as far as possible. The Pre-installation Coral Survey Report was submitted to EPD on 28th October 2022 pursuant to Condition 3.3 of the Environmental Permit No. EP-610/2022.

1.6 After the cable laying work, a post-installation survey was conducted on 3rd November 2023 to verify the health condition of the recorded nearby coral colonies. This is the post-installation coral survey report to present the findings of the Post-installation Coral Survey conducted in the near shore area of NSW and TL. The Post-installation Coral Survey Report shall be submitted to EPD within one month after completion of post-installation coral survey pursuant to Condition 3.3 of the Environmental Permit No. EP-610/2022.

2. Methodology

2.1 One subtidal spot dive survey will be carried out in the near shore area of NSW and TL in proximity to the proposed cable alignment (Figure 1 and Figure 2) prior to the installation of the proposed cable. For each coral colony found, the following data should be recorded:

- GPS location
- Species identification to genus or species level, as far as practicable
- sizes (e.g. maximum diameter) and health of identified corals (e.g. degree of sedimentation, partial mortality, sign of bleaching)
- Photographic record
- Survey date and time
- Underwater visibility
- Atmospheric, sea and tidal conditions

3. Result

3.1 The Post-installation Coral Survey was carried out on 3rd November 2023 and the weather conditions were summarized in ***Table 1***.

Table 1 Weather Condition for the spot dive survey on 3rd November 2023

Date	Condition	Average Underwater Visibility
3rd November 2023	- North force 6 - Sunny period - Tidal level 0.86m	Less than 10 cm

Nim Shue Wan

3.2 Spot dive survey were carried out from 08:00 to 11:30 on 3rd November 2023 in NSW (Figure 1). The average depth during the dive survey was about 2 m.

3.3 The survey area is mainly composed of sandy bottom with scattered boulders and rocks along the shore area of NSW. Some abandoned nets were found in the survey area. Because of the strong winter monsoon, the sea condition was so rough and the average visibility along the survey area was less than 10 cm during the dive survey.

3.4 Similar to pre-installation dive survey, no soft coral or gorgonian coral was recorded in NSW during the spot check survey. Five hard coral colonies with four species were recorded (**at least 20 m away from the cable alignment**) during the spot dive survey including two colonies of *Platygyra ryukyuensis*, one colony of *Coelastrea aspera*, one colony of *Favites pentagona* and one colony of *Goniopora columna.* Their GPS coordinates, size and health condition were recorded in **Table 2**. Photos of each coral colony were shown in **Photo Plate A**. Besides the uncommon coral *Platygyra ryukyuensis*, all other corals recorded in the survey area are common species in Hong Kong water.

Table 2 GPS Coordinates, Size and Health Condition of Recorded Coral Colonies in NSW during Spot Dive Survey

No.	Coral species	Size (cm)	% Bleaching	Partial Mortality	% Sediment	GPS Coordinates	
1	*Platygyra ryukyuensis*	46	0	0	0	22°17'32.39N	114°01'11.54E
2	*Platygyra ryukyuensis*	57	0	0	0	22°17'32.37N	114°01'11.63E
3	*Coelastrea aspera*	27	0	0	0	22°17'32.29N	114°01'12.24E
4	*Favites pentagona*	42	0	0	0	22°17'32.27N	114°01'12.82E

No.	Coral species	Size (cm)	% Bleaching	Partial Mortality	% Sediment	GPS Coordinates	
5	*Goniopora columna*	21	0	0	0	22°17'32.37N	114°01'13.05E

Tai Lei

3.5 Spot dive survey were carried out from 14:00 to 16:30 on 3rd November 2023 in TL (Figure 2). The average depth during the dive survey was about 8 m.

3.3 The survey area is mainly composed of muddy bottom with scattered boulders and rocks along the survey area of TL. Because of the strong winter monsoon, the sea condition was so rough and the average visibility along the survey area was less than 10 cm during the dive survey.

3.5 No hard coral was recorded in TL and only one gorgonian coral *Menella* sp. was recorded (at least 20 m away from the cable alignment) near the cable alignment. Photos of each coral colony were shown in **Photo Plate B**. The recorded coral colony in the survey area is common gorgonian species in Hong Kong water.

Table 3 GPS Coordinates, Size and Health Condition of Recorded Coral Colonies in TL during Spot Dive Survey

No.	Coral species	Size (cm)	% Bleaching	Partial Mortality	% Sediment	GPS Coordinates	
1	*Menella* sp.	32	0	0	0	22°17'20.71N	114°01'52.38E

4. Discussion

4.1 The hard substrates in NSW were mainly composed of sandy bottom with scattered boulders and rocks; the bottom substrates in TL were mainly composed of sandy and mud. Similar to pre-installation dive survey, a total of 5 hard coral colonies were recorded in NSW and one gorgonian coral was recorded in TL during the spot dive survey. All coral recorded during the survey are in good health condition and at least 20 m away from the cable alignment. No rare animals were recorded. Except the uncommon coral *Platygyra ryukyuensis*, all other corals recorded in the survey area are common species and found in very low abundance and diversity.

4.2 All coral colonies recorded during the post-project coral survey showed the same health condition as the pre-installation coral survey. No bleaching, increased sediment and increased partial mortality were recorded during the survey after the cable laying work. As a conclusion, there is no adverse impact on the recorded coral colonies due to the cable installation work.

5. References

Brian Morton and John Morton. 1983. *The Sea Shore Ecology of Hong Kong*. Hong Kong University Press.

Binnie Consultants Limited. 1995. Marine Ecology of Hong Kong: Report on Underwater Dive Surveys. Volume I. Civil Engineering Department Geotechnical Engineering Office

Chan A.L.K., Choi, C.L.S., McCorry D., Chan K.K., Lee, M.W., and Put, A. Jr. 2005. *Field Guide to Hard Corals of Hong Kong*. AFCD.

END

Figure 1 Post-installation Coral Survey Location at NSW

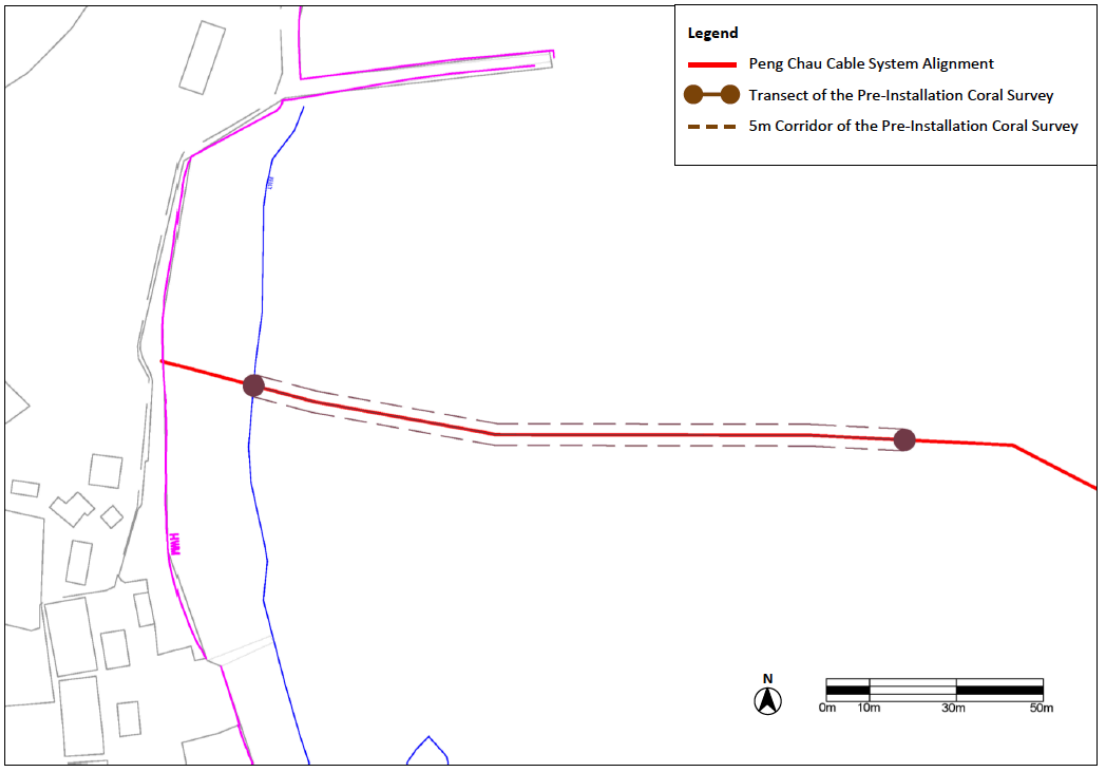


Figure 2 Post-installation Coral Survey Location at TL

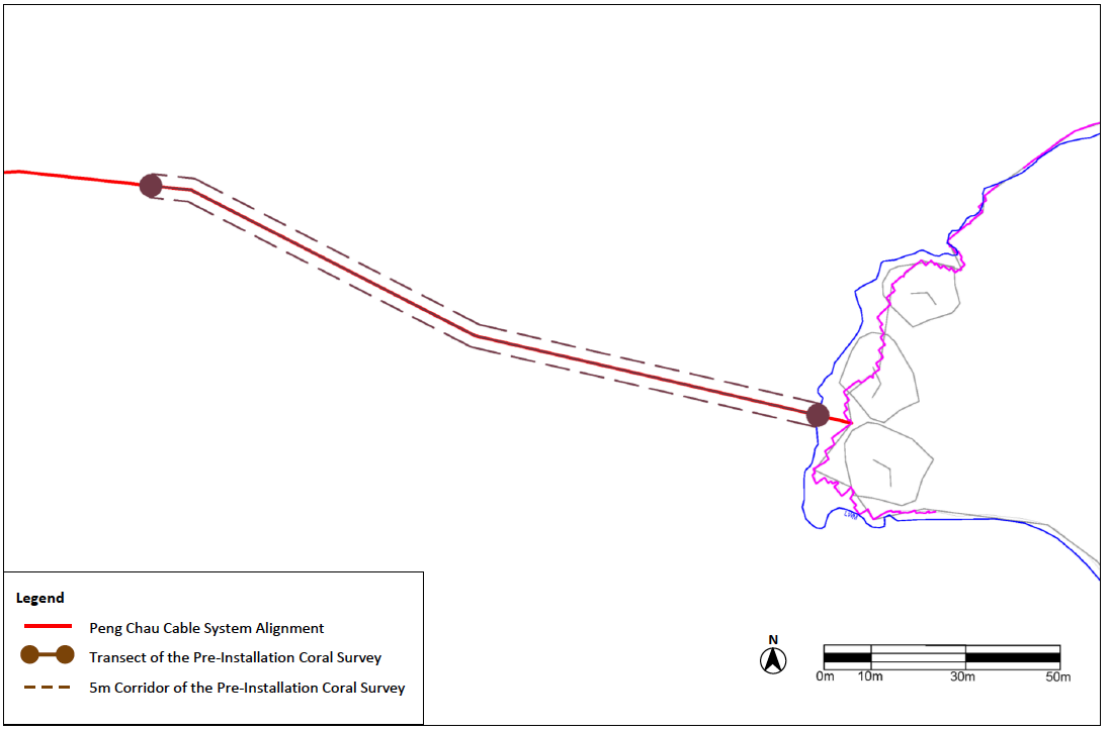


PHOTO PLATE A

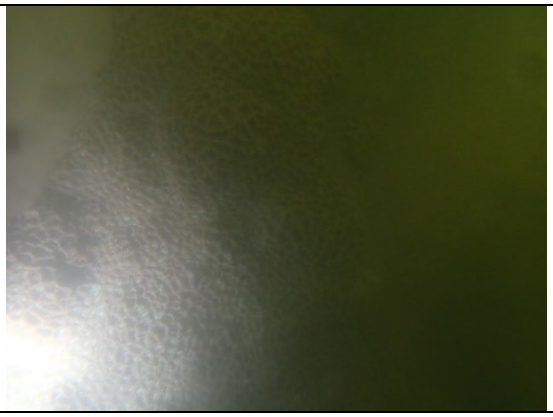
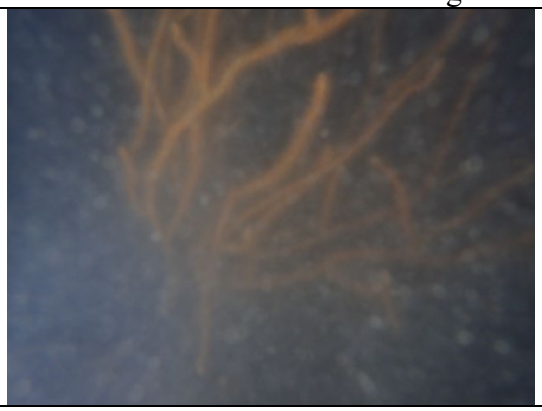
<table>
<tr><td colspan="2">Hard Coral Record in NSW</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Coral #1 Platygyra ryukyuensis</td><td>Coral #2 Platygyra ryukyuensis</td></tr>
<tr><td>  </td><td>  </td></tr>
<tr><td>Coral #3 Coelastrea aspera</td><td>Coral #4 Favites pentagona</td></tr>
<tr><td>  </td><td></td></tr>
<tr><td>Coral #5 Goniopora columna</td><td></td></tr>
</table>

PHOTO PLATE B

Gorgonian Record in TL	
	
Coral #1 *Menella* sp.	