

**ENVIRONMENTAL IMPACT ASSESSMENT ORDINANCE
(CHAPTER 499)**

SECTION 5(1)(b)

PROJECT PROFILE

FOR

**SUBMARINE CABLE LANDING INSTALLATION AT TUEN MUN FOR
HGC OPTICAL FIBRE SUBMARINE CABLE SYSTEM BETWEEN TUEN
MUN AND CHEK LAP KOK**

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PROJECT PROFILE
FOR
SUBMARINE CABLE LANDING INSTALLATION AT TUEN MUN
FOR
HGC OPTICAL FIBRE SUBMARINE CABLE SYSTEM
BETWEEN TUEN MUN AND CHEK LAP KOK

1 **BASIC INFORMATION**

1.1 **Project Title**

Submarine Cable Landing Installation at Tuen Mun for Hutchison Global Crossing Ltd. (HGC) Optical Fibre Submarine Cable System between Tuen Mun and Chek Lap Kok.

1.2 **Purpose and Nature of the Project**

Hutchison Global Crossing Limited (HGC) is planning to install a submarine optical fibre network between Tuen Mun and Chek Lap Kok across Chi Shui Men.

The purpose of this submarine optical cable project is to connect the HGC's main exchanges at Kwai Chung and Chek Lap Kok through the network along Route 3, Tai Lam Tunnel, Yuen Long, Tuen Mun and Airport. This submarine optical cable provides diversity to the Airport and Lantau Island in case of network contingencies occurred at Tsing Ma Bridge and Northern Lantau Express.

The route map of the proposed submarine optical cable is attached as Appendix 1.

Based on detailed study and site investigation, it is devised that the submarine optical cable will be landed near the west end of Butterfly Beach, Tuen Mun.

The proposed work in this Project Profile involves construction of landing structures at the cable landfalls and laying of submarine optical cables from Tuen Mun to Chek Lap Kok.

1.3 **Name of Project Proponent**

Hutchison Global Crossing Limited (HGC)

1.4 **LOCATION AND SCALE OF PROJECT AND HISTORY OF SITE**

1.4.1 **Location of Project**

The proposed work in this Project Profile involves construction of landing points at Tuen Mun and Chek Lap Kok and associated submarine optical cables landing installation. The landfall at Tuen Mun is located at west of Butterfly Beach.

The submarine cable landing point at Tuen Mun TM1, which may be a designated project under the Environmental Impact Assessment Ordinance as detailed in Section 1.5, is shown in Appendix 2.

1.4.2 Scale of Project

The scope of work under this project profile involves the following works at the submarine cable landing point TM1 constructed on a rubble-mounted seawall and seabed extending from it:

- (a) At land portion:
 - Construct an underground concrete structure as Armour Clamp Bay to fix submarine cables [Typical size: 2.4m(W) x 2.4m(L) x 2.0m(D)];
 - Construct an underground concrete manhole for jointing of submarine and land cables [Typical size: 1.6m(W) x 4.0m(L) x 2.5m(D)].
- (b) At seawall:
 - Excavate the rubble-mounted seawall to designed level;
 - Prepare bedding for laying precast cable trough;
 - Place precast units on top of bedding;
 - After laying of submarine cables, backfill the precast units;
 - Restore rubble-mounted seawall to original position.
- (c) Excavate a short underwater trench (~500m length depending on seabed profile and hardness conditions) at shallow waters near shore;
- (d) Lay submarine optical cables from a cable laying barge across Chi Shui-Men to the opposite shore at Chek Lap Kok by simultaneously laying and burying method. The cables will be buried at 3.5m (typical) below seabed.

1.4.3 History of Site

The landfall at TM1 is a rubble mounted sea-wall. A similar submarine cable landing point at 300m west of TM1 was constructed by CLP Power Hong Kong Ltd. in 1997.

1.5 Number and Type of Designated Projects to be covered by the Project Profile

This Project Profile involves a landing point at Tuen Mun (TM1) which may be classified as a Designated Project under Category C.12(a) (iii) in Schedule 2 (Part 1) of the EIA Ordinance:

Schedule 2 (Part 1)

C12 A dredging operation which:-

- (a) is less than 500m from the nearest boundary of an existing:-
 - (iii) bathing beach.

1.6 Name and Contact Persons and Correspondences

All queries regarding the project profile can be addressed to:

Manager - External Plant
Infrastructure Development Department
Hutchison Global Crossing Limited

OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

The project is led by Hutchison Global Crossing Ltd. (HGC). Planning and construction will be undertaken by the following team:

- Project Management - Associated Technical Services Ltd.
- Civil & E&M Design - Associated Technical Services Ltd.
- Landing Point Construction and Submarine Optical Cable System Installation - International Cable Supplier to be appointed.

Major project milestones are:

Application to Office of Telecom Authority (OFTA)	13 Jan 2000
Approved in-principle by OFTA	31 Jan 2000
Application to District Land Office (DLO) for Route Approval	5 Jan 2000
Issue of Wayleave of submarine cable route by DLO	31 Jan 2001 (tentative)
Commencement of Civil Work at Landing Point	1 May 2001
Submarine Optical Cable Installation	Oct-Dec 2001
Optical Cable Commissioning	31 Dec 2001

All the works at the landing point TM1 are scheduled to be completed in around 8 months within the period May-Dec 2001. Typical sections showing design of landing point is shown in Appendix 3.

The major works to be carried out at TM1 are:

- (a) Part of the rubble-mounted seawall will be temporarily removed. A ramp trench in 1:15 cut slope of approximately 50m in length and 5.0m wide will then be formed on the sea bed by conventional open excavation.
- (b) Levelling stones will be placed on the trench as bedding. A concrete trough will be installed on top of the levelling stones bedding at 1.0m under the seawall to 1.75m below ground.
- (c) A reinforced-concrete structure of typical size of 2.4m (W) x 2.4m (L) x 2.0m (D) will be built as a Armour Clamp Bay for fixing of submarine optical cables. The headroom of the clamp bay is 1.55m.
- (d) A reinforced-concrete structure of typical size of 1.6m (W) x 4.0m (L) x 2.5m (D) will be built as a manhole for jointing submarine and land optical cables. The headroom of the manhole is 2.0m.
- (e) A short underwater trench of approx. 1m (W) x 1m (D) will be excavated by dredging at the shallow water using a small powered backhoe machine on a barge up to ~500m from shore.
- (f) The cables will be paid out from a cable barge staying at deep water, floated on buoys and pulled to the landing manhole by a winch installed on land.
- (g) The optical cables will be protected by Polycon F.R.P. (or equivalent) pipes and then placed on the concrete trough. The trough will be covered up with tremie concrete.
- (h) The optical cables on the sea bed close to the concrete trough will be backfilled/protected by concrete mat (mattress) or rubble of adequate size up to the original sea bed level.
- (i) The optical cables at the landward side will be anchored inside the Armour Clamp Bay and jointed inside the Manhole to the land cables.
- (j) The rubble-mounted seawall will be restored to its original state after the completion of cable installation.

3 POSSIBLE IMPACT ON THE ENVIRONMENT

3.1 Operation Stage

The whole submarine optical cable will be buried. There is no emission of gas, dust and odour during operation. The optical cables consist of stable silicon optical fibres protected by corrosion resistance polyethylene and steel wire armours and are designed for a normal working life-time of 40 years. There is no risk of accidents which would cause pollution.

3.2 Construction Stage

The construction work at shore will only be carried out at day time. The construction noise would not exceed noise limits stipulated in Noise Control Ordinance and subsidiary legislation. Similarly, the dust control measures stipulated under the Air Pollution Control (Construction Dust) Regulation would be applied.

For work to be carried out at rubble-mounted seawall, the boulders would be reused for reinstatement. No waste material or disposal would be left causing adverse impact on the environment.

For the excavation of underwater trench near seashore, the excavated material will be dumped at designated Mud Disposal Pits arranged by Marine Fill Committee of CED. The near shore trench will be backfilled by concrete mat or boulders which will not contaminate the water.

The submarine cable laying and burying operation will not utilize any foreign substances that could contaminate the environment.

Impacts of this project to other environmental issues are considered negligible.

4 MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

4.1 Gazetted Beach

Butterfly Beach is a gazetted public bathing beach. Since the landing point TM1 is about 200m from the boundary of the beach which is constructed under control method and also the submarine optical cables are buried, there is no visual impact and inconveniences to the beach users during both construction and operation stages.

5 ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND FURTHER ENVIRONMENTAL IMPLICATIONS

5.1 Landing Point Construction and Operation

The construction of the cable landing point will take less than 5 months. Potential environmental impacts will be the dust and noise generated during the construction stage which can be controlled by observing the relevant noise and construction dust Regulations.

There is no environmental impact during operation stage of the landing point.

5.2 Submarine Cable

The total submarine cable installation work including preparation and cable protection works will take about 3 months but the actual cable laying from one seashore to the opposite seashore would take about 2 weeks time. The residual environmental impacts to the submarine cable laying activities will be localised to the immediate vicinity of the cable alignment, short duration, low severity and acceptable.

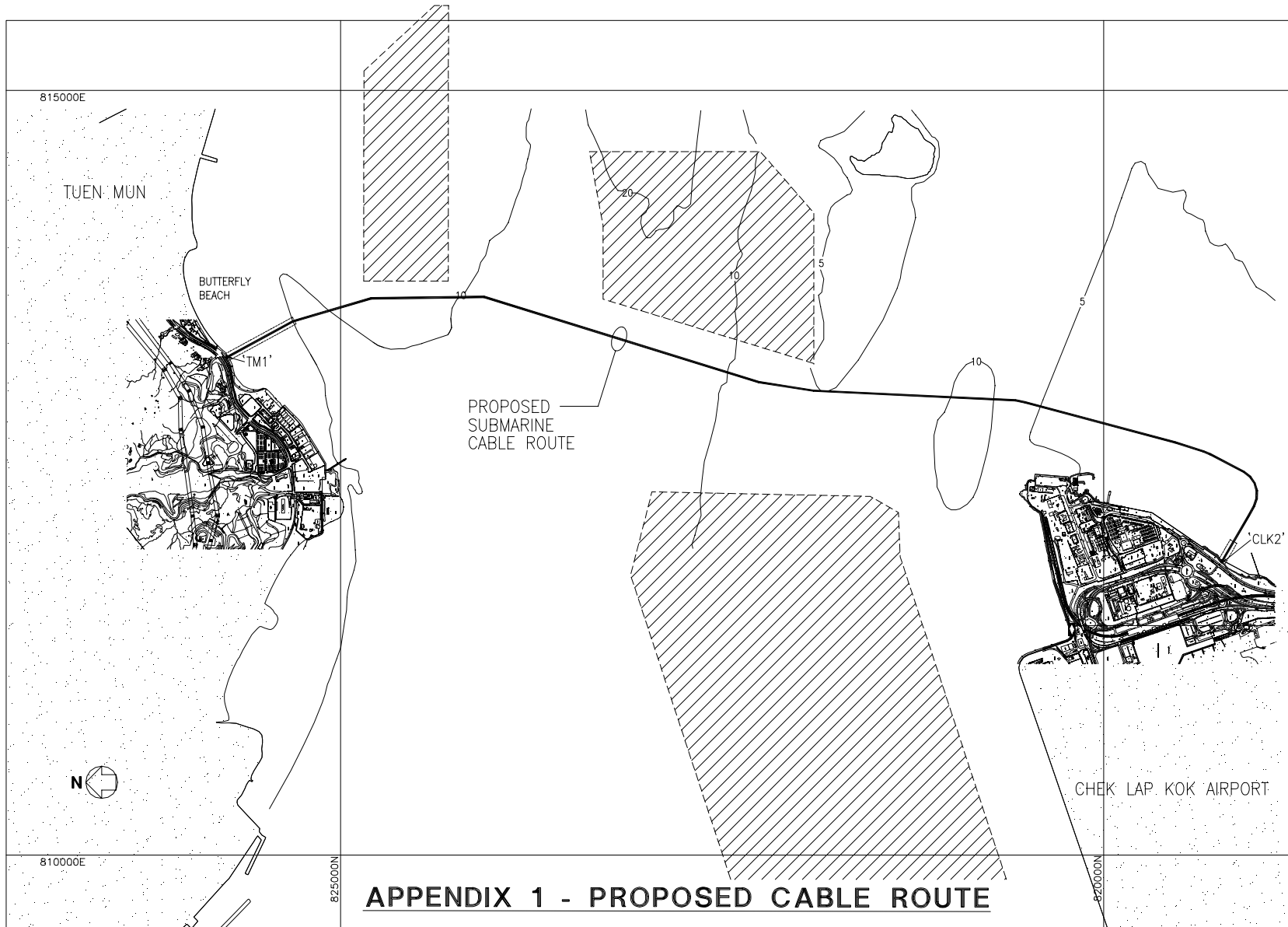
There is no environmental impact predicted during the operation of the submarine cable.

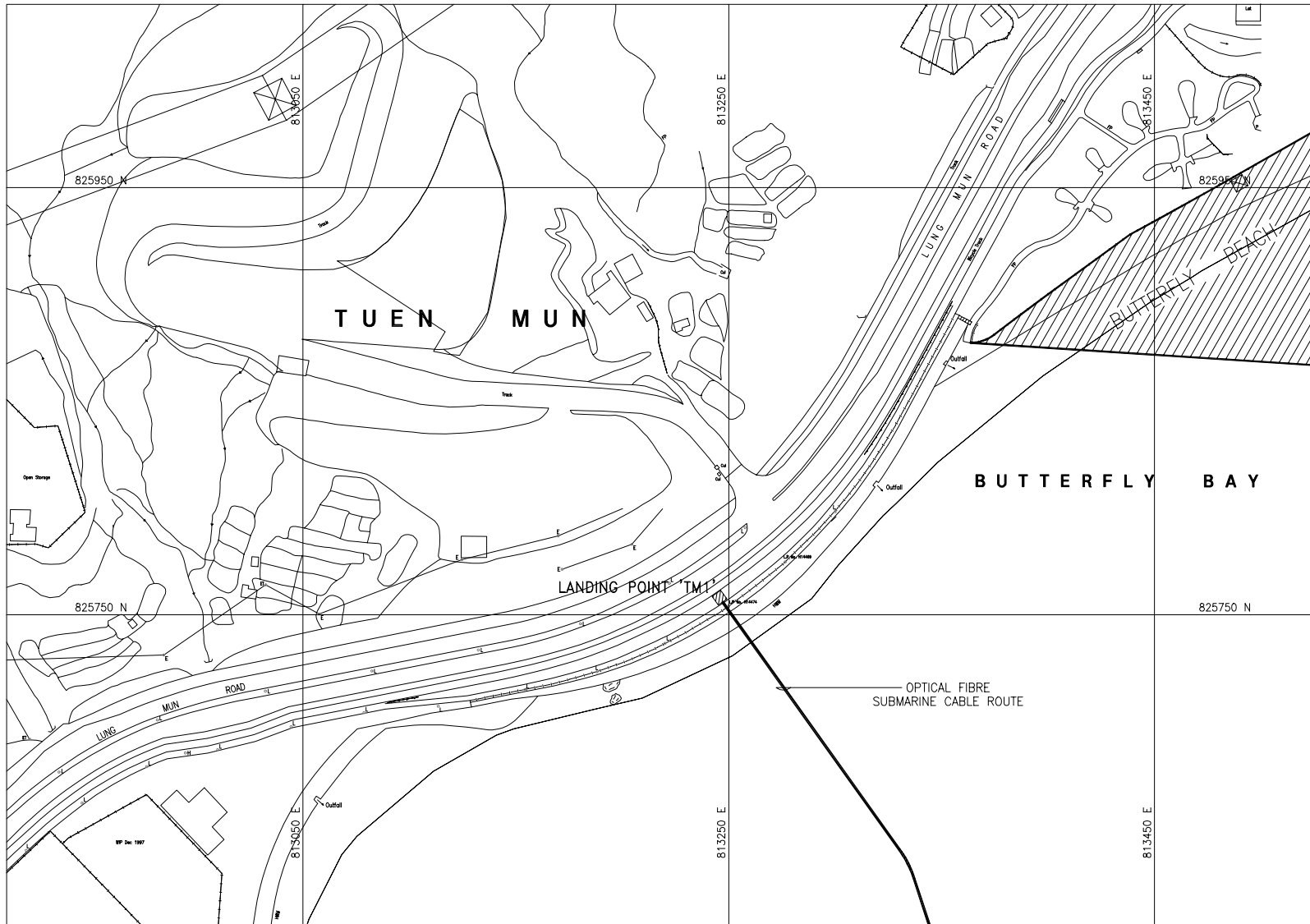
5.3 Further Implications

The geotechnical environment around the proposed landing point has been confirmed to be suitable for submarine optical cable landing by electronic surveys. The nearby site has been employed for the landing of 132kV submarine power cables belonging to CLP Power and the cables have been operated for several years without any environmental issues arisen.

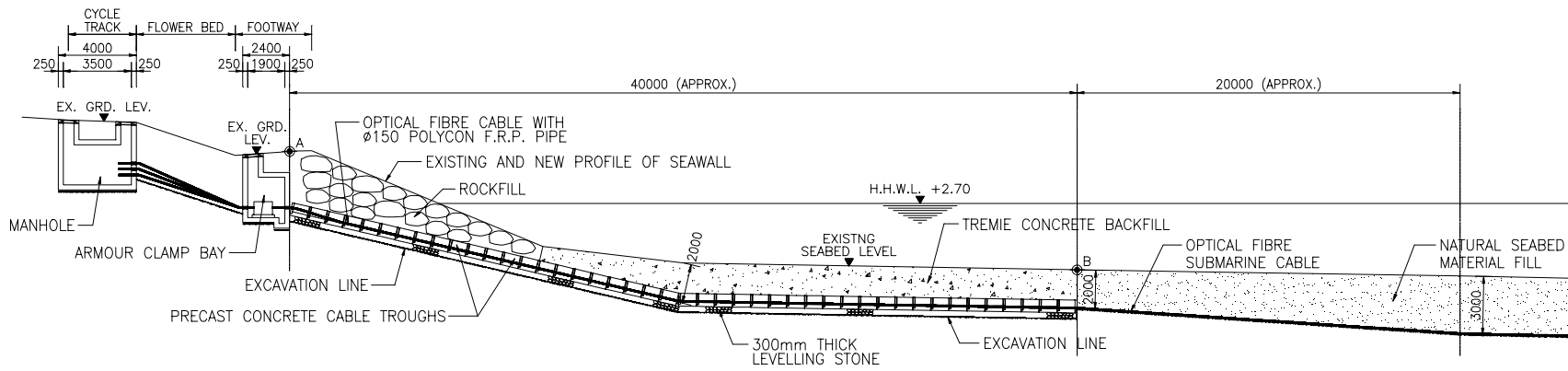
The above-mentioned construction method is a common method for the installation of submarine optical cable. It has been widely used around the world and is widely accepted to have no impact on the surrounding environment. The working period is normally very short. Also there is no waste disposal issue or no excessive noise will be generated in these operations.

- END -





APPENDIX 2 - PROPOSED TUEN MUN LANDING POINT TM1



APPENDIX 3 - TYPICAL SECTION OF LANDING POINT