

CONTENTS

1	BASIC INFORMATION	1
1.1	PROJECT TITLE	1
1.2	PURPOSE AND NATURE OF THE PROJECT	1
1.3	NAME OF PROJECT PROPONENT	1
1.4	LOCATION AND SCALE OF PROJECT	1
1.5	DESIGNATED PROJECTS TO BE COVERED BY THE PROJECT PROFILE	2
1.6	NAME AND TELEPHONE NUMBER OF CONTACT PERSON	2
2	OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME	3
2.1	PROJECT PLANNING AND IMPLEMENTATION	3
2.2	PROJECT PROGRAMME	5
3	MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT	6
3.1	LAND & SEA ACTIVITIES	6
3.2	SITES OF SPECIAL SCIENTIFIC INTEREST	6
3.3	SITES OF CULTURAL HERITAGE	6
3.4	GAZETTED BATHING BEACHES	6
3.5	MARINE PARK OR MARINE RESERVES/ SITES OF ECOLOGICAL INTEREST	6
3.6	FISH CULTURE ZONE	7
3.7	PROTECTION AND CONSERVATION AREAS	7
3.8	SEAWATER INTAKE POINTS	7
4	POSSIBLE IMPACTS ON THE ENVIRONMENT	8
4.1	SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS	8
4.2	DUST	7
4.3	NOISE	7
4.4	WATER QUALITY	9
4.5	WASTE MANAGEMENT	9
4.6	DISRUPTION OF WATER MOVEMENT OR BOTTOM SEDIMENT	10
4.7	LANDSCAPE AND VISUAL	10
4.8	CULTURAL AND HERITAGE	10
4.9	TERRESTRIAL ECOLOGY	10
4.10	MARINE ECOLOGY	10
4.11	FISHERIES	11
4.12	OTHERS	11
5	PROTECTION MEASURES AND ANY FURTHER IMPLICATIONS	12
5.1	POSSIBLE SEVERITY, DISTRIBUTION AND DURATION OF ENVIRONMENTAL EFFECTS	12
5.2	FURTHER IMPLICATIONS	12
5.3	USE OF PREVIOUSLY APPROVED EIA REPORTS	12
5.4	ENVIRONMENTAL MONITORING & AUDIT	13

1 BASIC INFORMATION

1.1 PROJECT TITLE

East Asian Crossing (EAC) Cable System.

1.2 PURPOSE AND NATURE OF THE PROJECT

Asia Global Crossing Limited (AGC) propose to install two international submarine fibre-optic telecommunication cables that will enter eastern waters in the Hong Kong Special Administrative Region (HKSAR) and ultimately connect to a Landing Station at the Tseung Kwan O (TKO) Industrial Estate. The proposed fibre-optic cables will allow network connection to Taiwan, Korea, Japan, and ultimately the Mainland of China (see *Figure 1.2a*), and will provide broadband facilities for accessing internet service providers, content providers and e-commerce providers in the HKSAR, ultimately enhancing the HKSAR's capability as a communications and service centre in Asia.

This Project Profile includes an assessment of the potential environmental impacts associated with the installation of the submarine telecommunications cable system. The assessment has been based on information compiled by Global Marine Systems Ltd and EGS (Asia) Ltd on the expected construction activities. Once installed, the cable will not result in any impact to the environment during its operation.

A Letter of Intent ("LOI") has been issued by the Telecommunications Authority to AGC pursuant to which AGC will be granted an external Fixed Telecommunications Network System licence in due course. The submarine cable system is of great strategic importance to AGC and to the telecommunications network infrastructure of Hong Kong.

1.3 NAME OF PROJECT PROPONENT

Asia Global Crossing Limited (AGC)
Cheung Kong Centre
46/F, 2 Queens Road
Central
HONG KONG

1.4 LOCATION AND SCALE OF PROJECT

1.4.1 Location

The location of the two EAC cable alignments and common landing site are depicted on *Figures 1.4a* and *1.4b*. The proposed cables would enter the

HKSAR via the eastern waters and traverse westward, between the Ninepin Islands Group and Waglan Island, then travel north, through the Tathong Channel to a landing site at the TKO Industrial Estate.

1.4.2 *Conditions of the Area*

There are several existing submarine cables that are situated along the proposed EAC cable route, from its entrance into the HKSAR through the eastern and southern waters. The seabed in the general vicinity of the proposed EAC cables within the Tathong Channel up to the landing site has been generally disturbed from previous use as designated Marine Borrow Areas. The EAC landing site is situated within the TKO Industrial Estate, behind a rubble mound sea wall, on reclaimed land.

1.4.3 *Scale of Project*

The project involves the laying of two international submarine fibre optic telecommunications cable in HKSAR waters to a single landing site and manhole location in the TKO Industrial Estate. The project will ultimately connect with a Landing Station in the TKO Industrial Estate which is presently under construction and has been approved by the Building Department (1 April 2000, BD 2/9016/00(P)). The landing station is scheduled for completion in January 2001.

The cable laying process will only result in minor works within the marine environment which will not affect water quality or the marine ecology of the area. Only small scale construction works are required at the TKO cable landing site to enable the cable to enter the manhole system.

1.5 *DESIGNATED PROJECTS TO BE COVERED BY THE PROJECT PROFILE*

The project is classified as a Designated Project under the *Technical Memorandum on Environmental Impact Assessment Process (TM EIAO)*:

Schedule 2 (Part I), C.12 - A dredging operation which ---

- (a) is less than 500 m from the nearest boundary of an existing or planned---
- (ii) site of cultural heritage.

1.6 *NAME AND TELEPHONE NUMBER OF CONTACT PERSON*

All queries regarding the project can be addressed to:

Asia Global Crossing Limited (AGC)
Cheung Kong Centre
46/F, 2 Queen's Road
Central
HONG KONG
Phone: 2121 2828

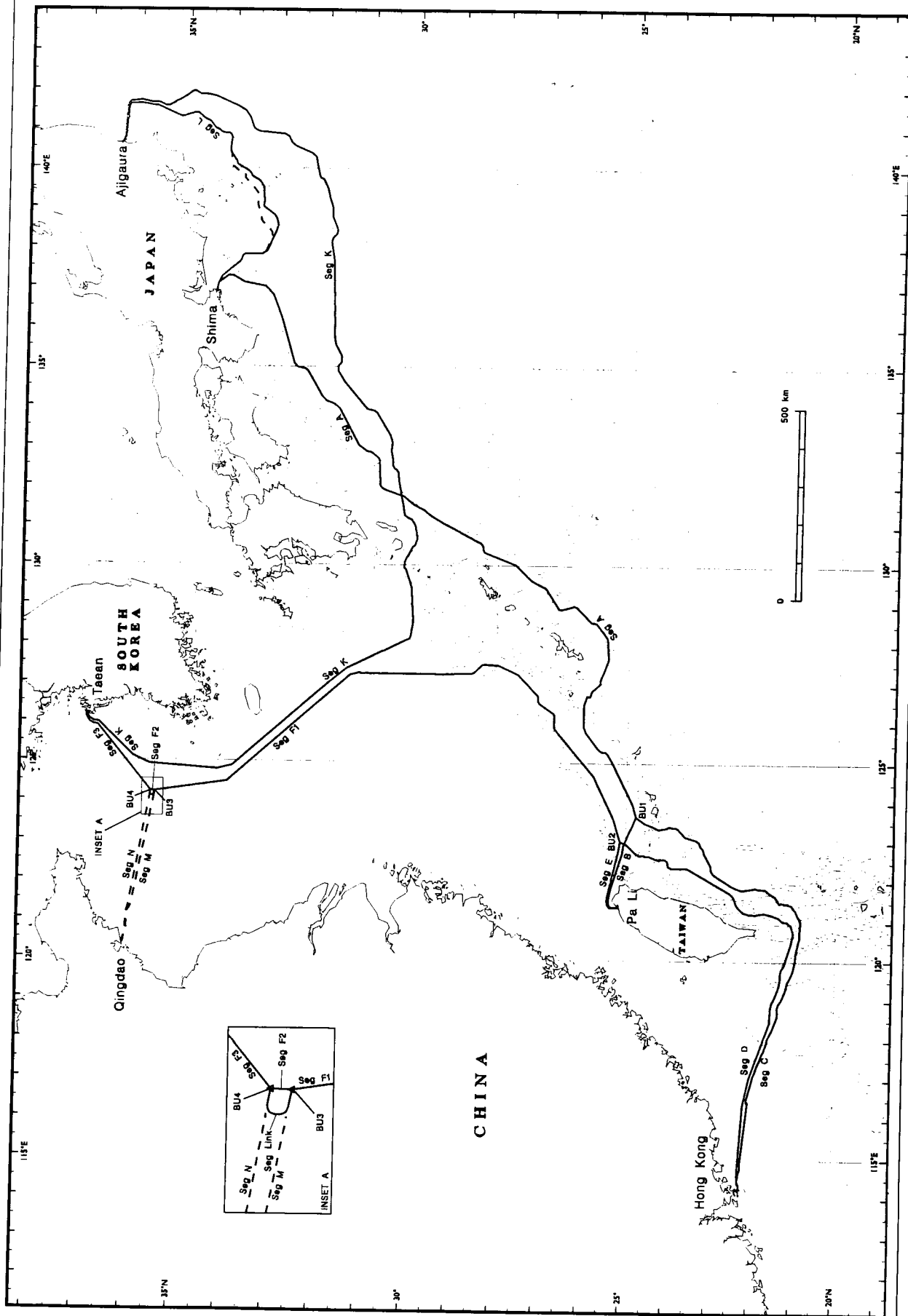


FIGURE 1.2a EAST ASIAN CROSSING ROUTE OVERVIEW

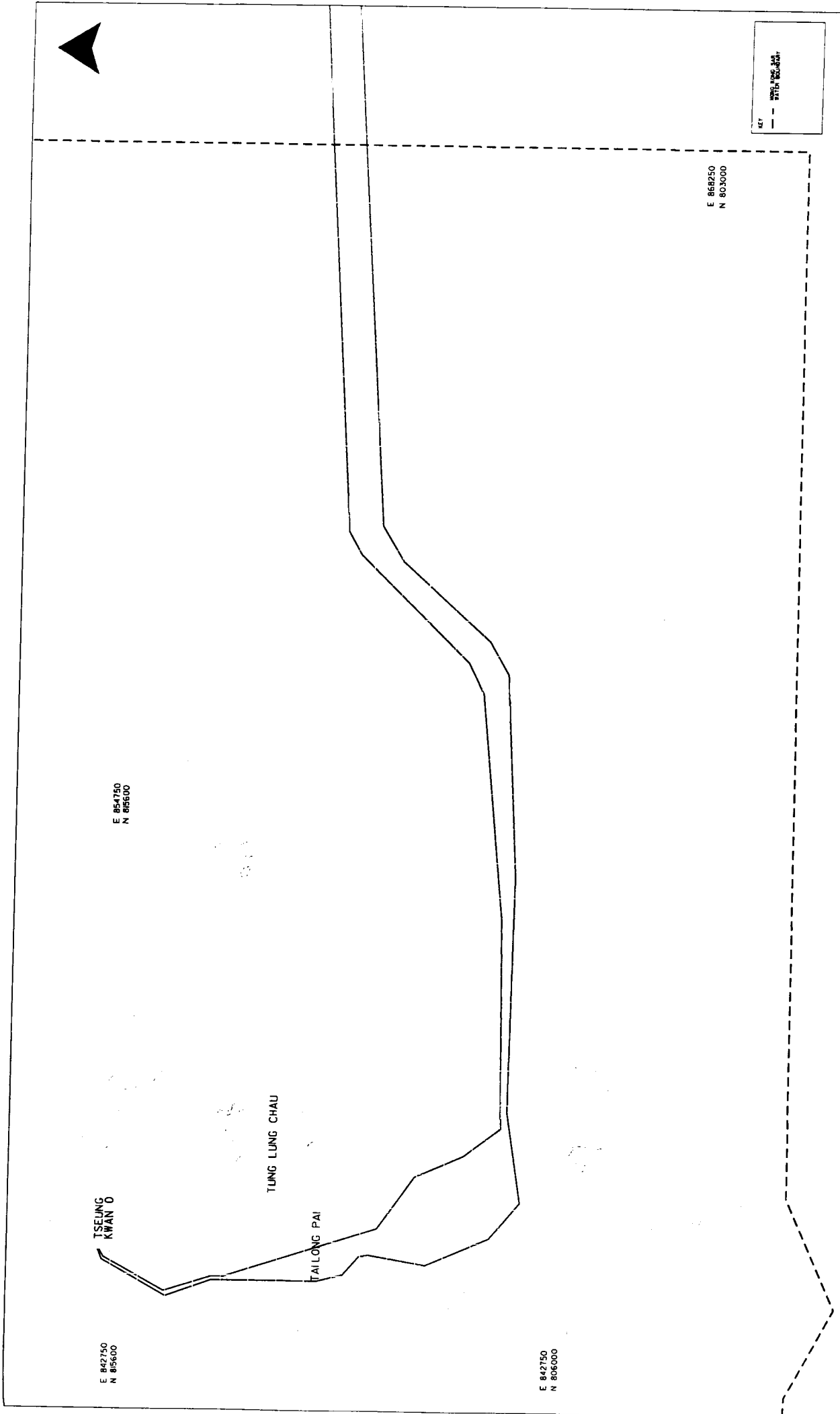


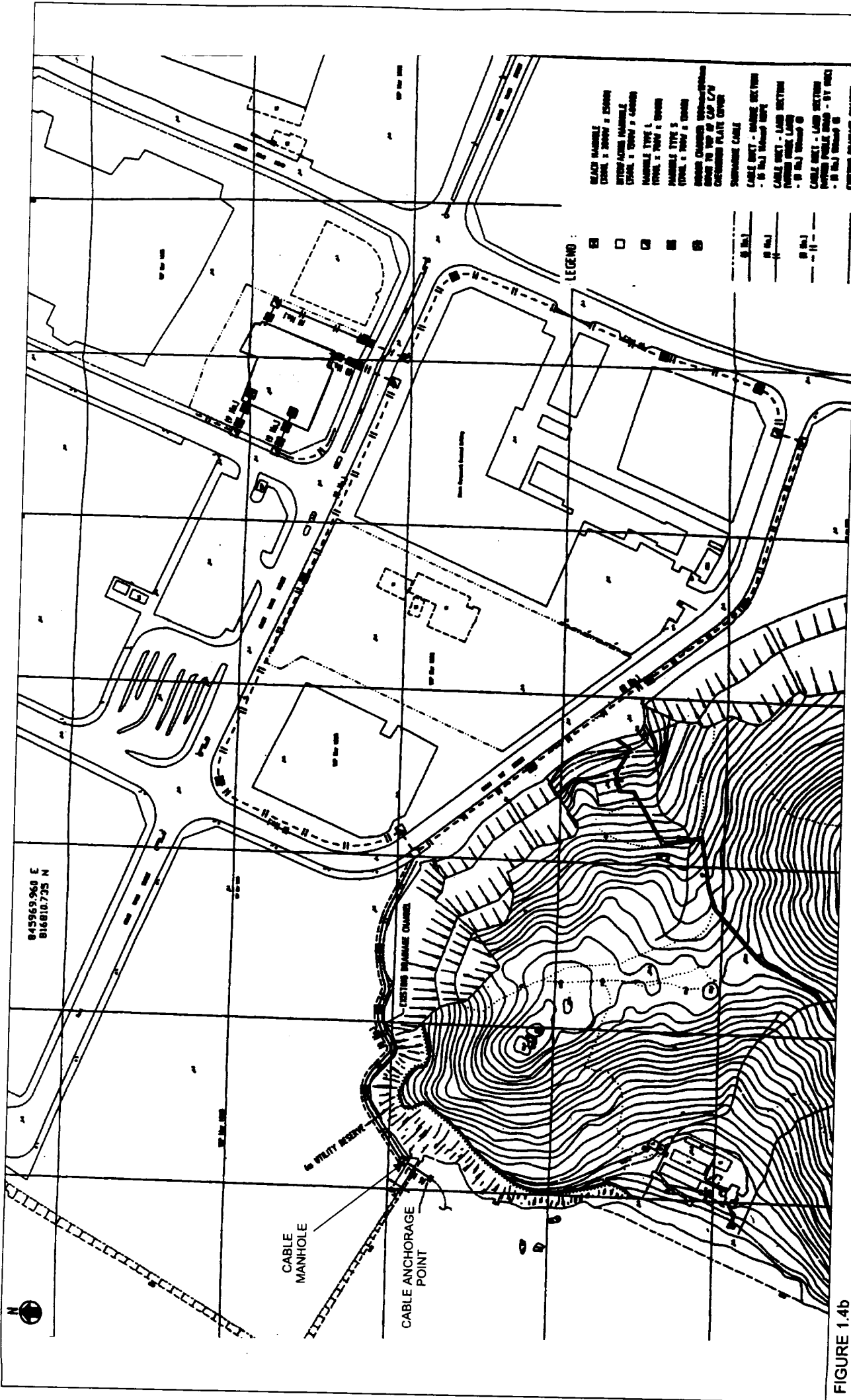
FIGURE 1.40

EAC CABLE ALIGNMENT

SCALE 1:10,000

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Management





CABLE LANDING POINT AND CABLE LANDING STATION

FIGURE 1.4b

Fax: 2121 2929
Attn: Mr. Nigel Taylor, Project Co-ordinator

Correspondence should be copied to the following organisations:

Environmental Resources Management (ERM)
6th Floor Hecny Tower
9 Chatham Road
Tsimshatsui
Kowloon
HONG KONG
Phone: 2271 3000
Fax: 2723 5660
Attn: Ms Susana Bezy

KDD-SCS
KDD Building
3-2, Nishi-Shinjuku 2 Chrome
Shinjuku-ku
Tokyo
163-8525
JAPAN
Phone: 813 33478069
Fax: 813 33477237
Attn: Mr Yoshihide Kosa

Koo and Partners
22nd Floor, Bank of China Tower
1 Garden Road
Hong Kong
Phone: 2867 9077
Fax: 2868 1017
Attn: Mr. Anthony Chan

2 OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME

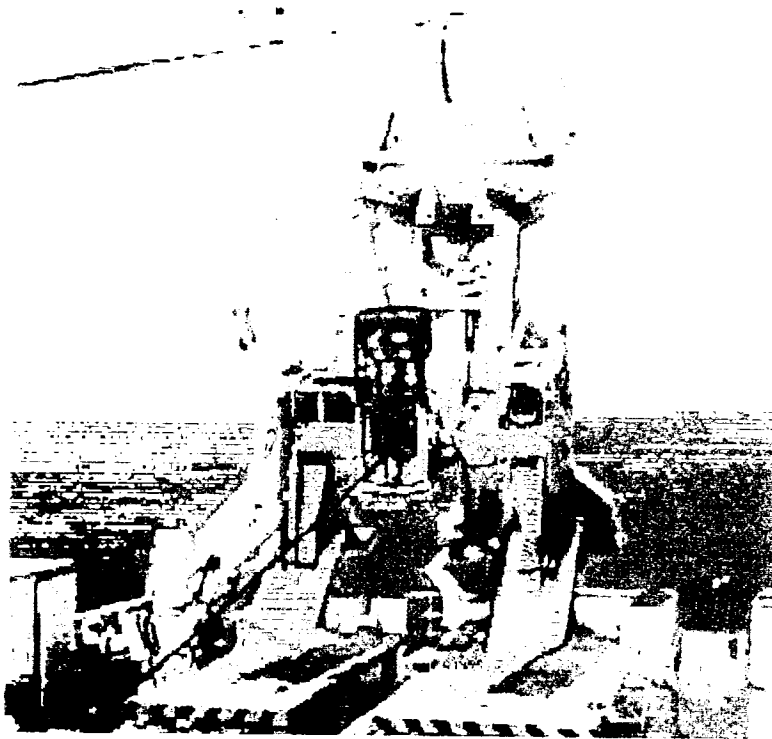
2.1 PROJECT PLANNING AND IMPLEMENTATION

The project will be constructed through the following activities:

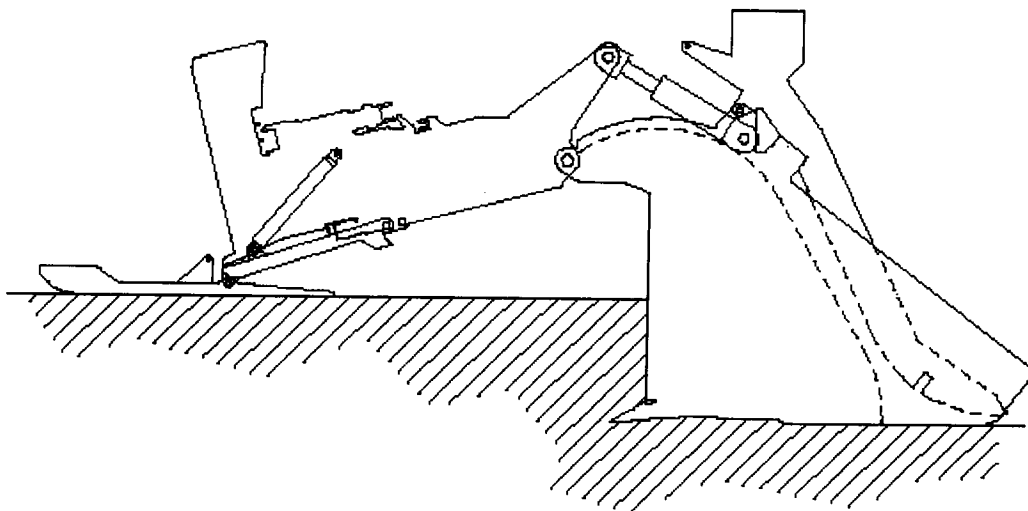
- *Preparation of TKO Landing Site* - The seawall at the TKO landing site will be opened to allow installation of a bundled package of conduits (8 in total) between the new manhole (approximately 5 m inland of the seawall) and the seabed at the foot of the seawall. Upon completion of these civil works, the working area will be backfilled and reinstated to its original condition. No materials will be dredged as part of the construction works and all excavated materials will be balanced on site.

- *Landing the EAC Cables* - Each cable segment (cable size of 60 mm in diameter) will be directly laid ashore (via a floated shore-end operation) from the main lay vessel holding position at a distance around 350 m (15 m water depth) from the seawall. The cable end will be hauled ashore and anchored off, before allowing the main lay vessel to commence lay operations offshore).
- *Cable Laying to HKSAR Boundary* - After completion of the landing and anchoring off of the cable segment, the main lay vessel will commence cable laying while simultaneously using the plough for the burial operations. The operations will take place from the landing site to the HKSAR Boundary, a distance of approximately 25 km. Plough operations will bury the cable in a narrow trench (0.3 m width) to a depth of 1 m in most areas and up to 1.5 m in certain locations. A typical example of the type of plough that will be used is depicted in *Figure 2.1a* and a typical example of the cable laying vessel is depicted in *Figure 2.1b*. It should be noted that no materials will be physically dredged as part of the cable installation process, rather, displaced sediments will backfill naturally in the trench. Further, plough share design is such that it will leave the seabed virtually undisturbed upon installation of the cable.
- *Post Lay Protection at TKO Landing Site* - Articulated piping (diameter 100 mm) will be applied over a distance of 50 m from the conduit exit at the base of the seawall offshore. This will ensure that the cable is protected from anticipated debris at the foot of the seawall. The post lay operations will be guided by divers and will not result in environmental impacts to the marine environment.
- *Final Inspection* - A final inspection of the whole installed route will be performed after completion of main cable laying operations using an ROV.

At this stage of the project, all nearshore and onshore construction works are expected to only be undertaken during normal working hours.



THE NEW MULTI DEPTH PLOUGH IN SERVICE WITH NTT WEM



BURIAL AT 1m USING THE MULTI DEPTH PLOUGH

FIGURE 2.1a

MULTI DEPTH PLOUGH

FILE: C2067a
DATE: 13/06/00

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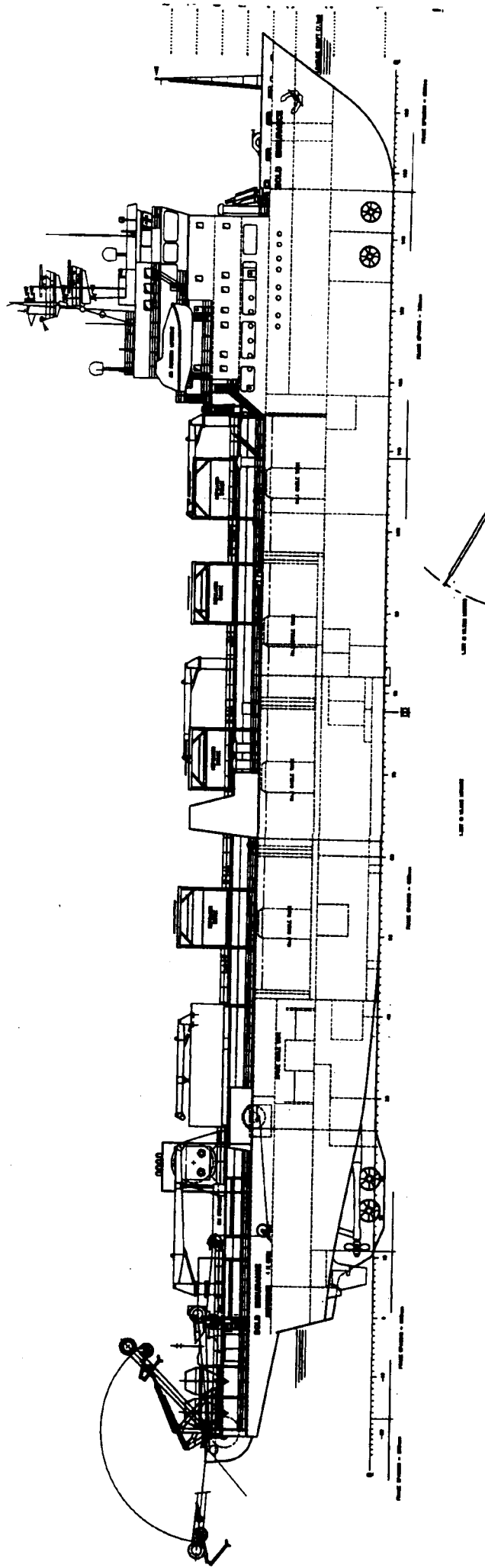


FIGURE 2.1b

CABLE LAYING VESSEL AND PLAN

2.2

PROJECT PROGRAMME

The EAC submarine cable system is scheduled to be landed and installed at the TKO landing site from September through November 2000. The expected schedule is as follows:

• TKO Landing Site (including backfill and reinstatement of seawall)	30 days
• Cable Landing	1 day
• Cable Installation to HKSAR Boundary	2 days
• Post Lay Protection at TKO Landing Site	10 days
• Final Inspection	1 day
Total Duration	44 days

The locations of the various major elements of the area surrounding the site are shown in *Figure 3.0a*.

3.1 LAND & SEA ACTIVITIES

The seabed within the TKO section of the EAC cable alignment has been disturbed in several areas due to the designation of Marine Borrow Areas and from extensive reclamation works that have been undertaken in TKO.

The Tathong Channel is classified as a principal fairway for marine vessel traffic through Victoria Harbour.

The land uses within and around the TKO Industrial Estate include various industrial premises and the TKO and South East New Territories (SENT) Strategic Landfill. The landing site and manhole for the cable are outside the landfill consultation zone boundary.

3.2 SITES OF SPECIAL SCIENTIFIC INTEREST

The closest Site of Special Scientific Interest (SSSI) is the Shek O Headland SSSI, approximately 800 m from the closest cable segment, and the Cape d' Aguilar SSSI situated approximately 800 m from the closest cable segment.

3.3 SITES OF CULTURAL HERITAGE

The closest designated site of cultural heritage is the relics of the “World Chinese Customs Post” on Fat Tong Chau (Junk Island), which is approximately 200 m from the nearest cable segment.

3.4 GAZETTED BATHING BEACHES

The closest Gazetted Bathing Beaches are Big Wave Bay, Rocky Bay and Shek O, which are over 1 km, 900 m, and 1.5 km, respectively, from the closest segment of the proposed cable.

3.5 MARINE PARK OR MARINE RESERVES/SITES OF ECOLOGICAL INTEREST

The Cape d' Aguilar Marine Reserve is approximately 800 m from the closest proposed cable segment. Coral communities near the cable segments have also been identified along Cape Collinson (150 m), Tai Long Pai (150 m) and Bokhara Rocks (150 m).

3.6 *FISH CULTURE ZONE*

The Tung Lung Chau Fish Culture Zone is situated approximately 2 km from the closest cable segment.

3.7 *PROTECTION AND CONSERVATION AREAS*

There are no designated protection or conservation land uses within 500 m of the project site. A small strip of land along Hong Kong Island and Fat Tong Chau (Junk Island), within 500 m of the cable alignment is designated as 綠帶 "Green Belt". This classification does not represent a conservation designated area.

The EAC cable landing site and manhole location at the TKO Industrial Estate is zoned for 其他用途 "Other Uses" on the TKO Land Use Plan which, according to Column 1 of the Explanatory Statement of Plan No. S/TKO/5, allows for 電訊、電訊電子微波中繼器、電視和/或無線電發射機安裝 "Telecommunication Electronic Microwave Repeater, Television and/or Radio Transmitter Installation".

3.8 *SEAWATER INTAKE POINTS*

There is a Water Services Department (WSD) intake in the inner part of Junk Bay, over 1 km to the north of the closest segment of the cables.

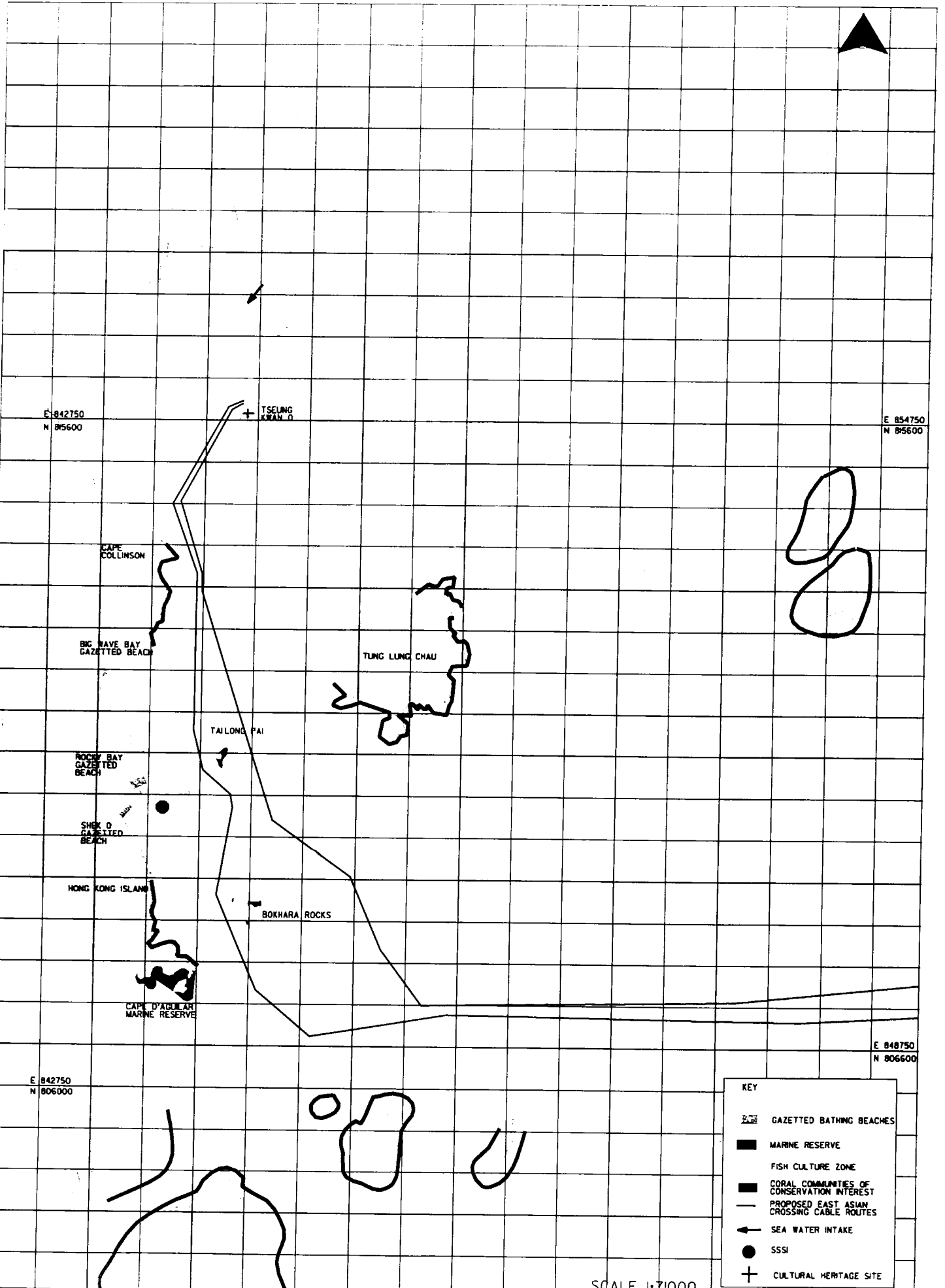


FIGURE 3.0a

LOCATION OF THE CABLE ROUTES AND SENSITIVE RECEIVERS (EIAO)

SCALE 1:71000

Environmental Resources Management



4.1 SUMMARY OF POTENTIAL ENVIRONMENTAL IMPACTS

The following assessment is based on information compiled by Global Marine Systems Ltd and EGS (Asia) Ltd for the conceptual layout plans and the expected construction activities required for installation of the EAC cables.

The construction impacts associated with the submarine cables are summarised in *Table 4.1a* and are described in further detail in the following sections. There are no environmental impacts that are expected to occur during the operation of the submarine cable.

Table 4.1a *Potential Sources of Environmental Impacts*

Potential Impact	
• Dust	✘
• Noise	✘
• Liquid Effluents, Discharges, or Contaminated Runoff	✓
• Generation of Waste or By-products	✘
• Disruption of Water Movement or Bottom Sediment	✓
• Unsightly Visual Appearance	✘
• Cultural & Heritage	✘
• Ecological Impacts:	
- Terrestrial	✘
- Marine	✓
- Fisheries	✓
• Gaseous Emissions	✘
• Odour	✘
• Night-time Operations	✘
• Traffic Generation	✘
• Manufacturing, Storage, Use, Handling, Transport, or Disposal of Dangerous Goods	✘
• Hazardous Materials or Wastes	✘
• Risk of Accidents Which Result in Pollution or Hazard	✘
• Disposal of Spoil Material, Including Potentially Contaminated Materials	✘
Notes: ✓ = Potential to result in adverse impacts, ✘ = Not expected to result in adverse impacts	

4.2 DUST

The only dust generating activities that will occur at the project site are construction works at the cable landing site. The construction works will be small in scale and no significant dust impacts will result from these works.

4.3

NOISE

There are no Noise Sensitive Receivers in the TKO Industrial Estate and thus noise generated during construction of the cable landing site and manhole will not result in noise impacts.

During the cable laying process, only minimal noise will be generated from the barge and cable laying equipment which would be similar to that of existing marine traffic in the area and will not impact Noise Sensitive Receivers. Therefore no direct or indirect adverse noise impacts will result from this project.

4.4

WATER QUALITY

The marine based construction activities relate to burying the cables 1 m to 1.5 m below the existing sea bed levels. The cables will be laid using a ploughing method of construction which is considered less disruptive to seabed sediments than the other type of commonly used cable installation methods, such as the jetting method. The ploughing will disturb only a 0.3 m area in width. No adverse impacts to water quality will occur during the marine works and following measures will be incorporated during the land based construction activities to prevent any adverse impacts to water quality:

- Care will be taken during removal of the section of the seawall to avoid spillage of material to the adjacent marine waters;
- Surface run-off from the construction site will be directed into storm drains via adequately designed sand/silt removal facilities;
- Any water pumped from the excavated trenches will pass through silt removal facilities prior to discharge to storm drains;
- Silt removal facilities, channels and manholes will be maintained regularly, at the onset of and after each rainstorm; and
- Stockpiles of materials will be covered with tarpaulin or similar fabric.

The above measures will be sufficient to prevent adverse impacts to water quality during the land based construction activities. Therefore, there are no predicted adverse impacts (either direct or indirect) to water quality from cable installation and construction of the cable landing site and manhole.

4.5

WASTE MANAGEMENT

During the cable landing work, no waste material will be generated at the site, other than general construction waste materials which will be handled and disposed of in accordance with the Waste Disposal Ordinance. There will be no dredged materials and all excavated material will be balanced on site. Therefore, no adverse waste impacts (either direct or indirect) will be generated from cable installation and construction of the cable landing site or manhole.

4.6 *DISRUPTION OF WATER MOVEMENT OR BOTTOM SEDIMENT*

There will be temporary displacement of bottom sediment during the cable laying process. However, once the cables are installed, the bottom sediment will naturally resettle. Therefore, no long term disruption of bottom sediment will occur and no disruptions to water movement will result from this project.

4.7 *LANDSCAPE AND VISUAL*

Since the cable conduit will be underground and the submarine cables are buried in the seabed, no visual obstruction or inconvenience to the public are expected to occur.

4.8 *CULTURAL AND HERITAGE*

The closest cultural heritage site, the Old Chinese Customs Station, is over 200 m from the cable routes and will not be impacted by the project as it is based on land and cable laying is a marine operation. No impact to terrestrial archaeological resources are anticipated.

The proposed cable laying method will only have a minimal impact on the top 1 to 1.5 m of seabed sediments with a width of disturbance of 0.3 m. The underwater geophysical survey along the cable route did not review any features other than the seabed sediments. Therefore, due to the small area of disturbance and lack of debris identified in the geophysical surveys, no impacts to marine archaeological resources are expected.

4.9 *TERRESTRIAL ECOLOGY*

The cable landing site is situated on reclamation which holds no important terrestrial ecological resources. No impacts to terrestrial ecology will arise from this project.

4.10 *MARINE ECOLOGY*

A review of the existing information on the marine ecological resources surrounding the cable routing has identified the area as supporting benthic fauna which are similar in nature to other areas of Hong Kong. Subtidal hard surface habitats have been reported as supporting coral assemblages of ecological interest. The coral assemblages are located at sufficient distance from the alignment of the cables to indicate that impacts will not occur. Similarly, no adverse impacts to the Cape 吐養 (Tung) Marine Reserves are expected to occur as only small scale, localised impacts to water quality are predicted.

Subtidal soft bottom assemblages that will be disturbed during the construction of the cable routing are commonly recorded elsewhere in Hong Kong waters, therefore, the short term loss of benthic organisms directly along the cable routes is not considered to represent an unacceptable ecological impact. The rapid reinstatement of the seabed will result in the area being available for prompt recolonisation, and hence, no permanent impacts are likely to occur.

4.11 *FISHERIES*

The majority of the catches reported by fishermen operating in the waters are low value bottom dwelling crustaceans or small fast growing pelagic species of low commercial value. The proposed cable routes pass through seasonal spawning grounds for two commercial species. One Fish Culture Zone (FCZ) lies within close proximity to the proposed cable routes, namely at Tung Lung Chau, which is the 8th largest FCZ in Hong Kong.

Any potential disturbances to the seabed are likely to be minimal, localised and of a short duration. Consequently, no unacceptable impacts have been predicted to occur to fisheries resources or fishing operations as a result of the proposed cable deployment and installation.

4.12 *OTHERS*

Gaseous Emissions: Only a small amount of gaseous emissions (SO₂ and NO_x) from diesel-powered equipment would be generated during construction of the cable landing site at the TKO Industrial Estate seawall. These emissions will not impact Air Sensitive Receivers.

Odour: No odour impacts are expected to occur as a result of this project.

Traffic Generation: Only minimal traffic is expected to be generated as a result of the project and this will not generate significant noise or gaseous emissions.

Dangerous Goods: No dangerous goods will be involved in this project.

Night-time Operations: It is expected that all cable laying and burial work will be performed within the inshore area during normal working hours.

Hazardous Materials or Wastes: No hazardous materials or wastes will be generated by this project.

Risk of Accidents Resulting in Pollution or Hazard: No pollution or hazard generating accidents will result from this project.

Disposal of Spoil or Contaminated Material: There will be no disposal of spoil or contaminated materials, hence no impacts are expected to result from this project.

5 *PROTECTION MEASURES AND ANY FURTHER IMPLICATIONS*

5.1 *POSSIBLE SEVERITY, DISTRIBUTION AND DURATION OF ENVIRONMENTAL EFFECTS*

The construction of the portion of submarine cable system in Hong Kong waters is expected to take approximately 44 days. The residual environmental impacts of the works activities are predicted to be localised to the immediate vicinity of the cable alignment and of low severity and, hence are considered to be acceptable.

No environmental impacts are predicted during the operation of the submarine cable.

5.2 *FURTHER IMPLICATIONS*

The geotechnical environment of the proposed landing point has been confirmed to be suitable for submarine cable landing by electronic surveys.

The methods used for burying the EAC Submarine Cable System, as described in *Section 2.1*, have been used around the world for more than one century and are widely accepted to have no impact on the surrounding environment. The working period is normally very short and no waste or contaminant disposal issues or excessive noise will be generated by such an operation.

5.3 *USE OF PREVIOUSLY APPROVED EIA REPORTS*

Similar recent projects that are being/have been conducted in the HKSAR include the following:

- *Submarine Cable Landing Installation in Tong Fuk Lantau for Asia Pacific Cable Network 2 (APCN 2) Fibre Optic Submarine Cable System, EGS.* The Project Profile for this study was submitted to the EPD in May 2000 and is currently being processed.
- *Telecommunication Installation at Lot 591SA in DD 328, Tong Fuk, South Lantau Coast and the Associated Cable Landing Work in Tong Fuk, South Lantau for the north Asia Cable (NAC) Fibre Optic Submarine Cable System.* The Project Profile for this study was submitted to the EPD in March 2000 (AEP-064/2000). The study concluded that there would be no adverse long

term or cumulative effects/impacts to the environment and the Environmental Permit was granted in June 2000 (EP-064/2000).

- *Cable Landing Work in Deep Water Bay for SEA-ME-WE 3 Fibre Optic Submarine Cable System, Hong Kong Telecom.* The Project Profile for this study was submitted to the EPD in May 1998 (AEP-001/1998). The study concluded that there would be no adverse long term or cumulative effects/impacts to the environment. The Environmental Permit was granted July 1998 (EP-001/1998).

5.4

ENVIRONMENTAL MONITORING & AUDIT

No environmental monitoring and audit measures have been recommended for this project.