Section 2

2 DESCRIPTION OF PROPOSED DEVELOPMENTS

2.1 INTRODUCTION

The Preferred Concept Plan (PCP) for the LAPH development was endorsed by the Project Steering Group in June 1992. The plan is centred on the adoption of a West Facing Island layout for Lantau Port as shown in Figure 2.1. Due to the large scale and complex nature of the LAPH proposals, the development has been split into individual elements, each of which have been considered in the EIA. The elements comprise:

- The Container Port and Associated Facilities;
- Lamma Breakwater and Reclamation;
- The North Shore Development;
- Hei Ling Chau Typhoon Shelter;
- The Marine Support Services Area;
- Shipyard and Repair Facility;
- Serviced Land; and
- The Transport Network.

As indicated in Section 1, the LAPH development will continue over many years and for planning purposes has been divided into four phases. Corresponding planning horizons have been identified and are shown in Table 2.1, together with a description of planned developments for each phase.

Outline engineering designs, layout plans and environmental implications have been presented for the Phase I development, (Phase I Development Report, July 1992). Phases II, III and IV (Figures 2.2 - 2.5) have been dealt with in more general terms in the PCP Report.

This Section provides a description of each of the elements comprising the LAPH development. The timing and phasing of construction and operation has been indicated where appropriate. In addition, there are a number of specific construction operations and support facilities which will be crucial to the creation of the proposed developments. These are discussed under the following headings:

- Fill Requirements;
- Dredging and Excavation; and
- Utilities.

2.2 THE CONTAINER PORT AND ASSOCIATED FACILITIES

The West Facing Island port design in its ultimate stage includes two basins which are aligned in a SW to NW direction. These northern and southern basins are approximately 2.6 and 2.2km long and 800-1200m and 800m wide respectively. The southern basin is closed at the eastern end by a causeway, however, a bridged structure is proposed for the northern basin which would make this basin open at both the eastern and western ends. The mouths of the basins face west towards the relatively shallow waters of Discovery Bay, consequently substantial amounts of dredging will be required to create the deepwater access channel, anticipated to be approximately 13km in length.

The Container Port will contain a total of seventeen berths which are to be constructed progressively over the four phases. It is anticipated that one berth will be completed approximately every year such that the first three phases of the development will each provide four berths with the last phase providing five berths. Two local breakwaters will be constructed in Phase I and IV respectively, both structures will subsequently be incorporated into later stages of the development.

Associated with the Container Port will be various facilities such as the back-up land which provides areas for container stacking, workshops and godowns. These facilities will be constructed progressively in line with the construction of the container berths.

2.3 LAMMA BREAKWATER AND RECLAMATION

LAPH studies have revealed no definite demand for the creation of the Lamma Breakwater and its associated reclamation in the near future. The deferment of the Breakwater is largely due to the policy decision that the Western Harbour will not be used for mid stream cargo handling operations.

TABLE 2.1

PHASED DEVELOPMENT OF THE LAPH PRIMARY FACILITIES

ITEM	UNIT	PHASE I (2000)		PHASE II (2003)		PHASE III (2007)		PHASE IV (2011)		REMARKS
		INCREASE	TOTAL	INCREASE	TOTAL	INCREASE	TOTAL	INCREASE	TOTAL	
PORT FACILITIES										
Container terminal:										
- berths	No.	4	4	4	8	4	12	5	17	
- terminal area	ha land area	80	80	80	160	80	240	100	340	20ha per Berth
- back-up area	ha land area	40	40	40	80	40	120	50	170	10ha per Berth
River trade transhipment wharves										
- quay face	m	400	400	300	700	600	1300	700	2000	
- back-up area	ha land area	7	7	5	12	10	22	12	34	
Marine Services support area:										
- quay face	m	400	400	0	400	400	800	0	800	
- back-up area	ha	2	2	0	2	2	4	0	4	
Floating dock & related shore facilities:										
- sea area	ha water area	135	135	45	180	0	180	0	180	45ha per floating dock, a total of 4 docks
- quay face	m	1150	1150	385	1535	0	1535	0	1535	
- back-up area	ha land area	15	15	5	20	0	20	0	20	5ha back-up land per dock
- typhoon moorings	No.	6	6	2	8	0	8	0	8	

TABLE 2.1 cont'd

ITEM	UNIT	PHASE I (2000)		PHASE II (2003)		PHASE III (2007)		PHASE IV (2011)		REMARKS
		INCREASE	TOTAL	INCREASE	TOTAL	INCREASE	TOTAL	INCREASE	TOTAL	
Ship repair yards:										
- quay face	m	0	0	1400	1400	0	1400	0	1400	
- back-up area	ha	0	0	9	9	0	9	0	9	
Anchorages	ha water area	1169	1169	810	1979	1116	3095	0	3095	
Typhoon shelters	ha water area	50	50	0	50	0	50	0	50	Hei Ling Chau T.S.
TRANSPORT INFRASTRUCTURE RESERVES:										
Sham Tseng Link	m	30	30	0	30	0	30	0	30	Construction occurs during Phase III
Port Expressway	m	30	30	0	30	0	30	0	30	Layout dependent
MTR reserve (width)	m	12	12	0	12	0	12	0	12	RDS dependent Layout dependent
Freight rail										RDS dependent Construction will occur post Phase III
- track reserve (width)	m	11.5	11.5	0	11.5	0	11.5	0	11.5	Layout dependent
- refuge siding (length/width)	m/m	1000/50	1000/50	0	1000/50	0	1000/50	0	1000/50	Layout dependent
SERVICED LAND & RELATED INFRASTRUCTURE:										
Business Park/Spice Office	ha land area	10	10	10	20	20	40	0	40	SPICE Study dependent
Residential	ha land area	0	0	25	25	0	25	0	25	Discovery Bay & environment only
General industrial	ha land area	13	13	5.1	18.1	5.1	23.2	7.8	31	Supply driven and layout dependent
G/IC (police, fire, health, recreation & open space)	ha land area	1.92	1.92	0	1.92	0	1.92	1.98	3.9	From HKPSG requirements

This is consistent with the agreed introduction of Port Mix C. (Port Mix C comprises the shore based container handling facilities which provides the most optimum and economic configuration). In addition, the preferred concept for Lantau Port has been arranged to provide shelter to its berths through the configuration of the phased reclamations. Any short comings in this respect have been eliminated through the adoption of local breakwaters, as discussed in Section 2.2. The evaluation of the Lamma Breakwater has thus been re-directed to identify its preferred location and configuration should there be a reversal in policy which would lead to its implementation. A similar approach has also been adopted for the associated reclamation.

The identified location and configuration of the Lamma Breakwater is shown in Figure 2.1 and comprises a single berm type breakwater structure some 5km long formed from 0.5 to 4.0 tonne blocks of rock armour. In the absence of any identified demand for the reclamation a notional total reclamation area of 400ha has been adopted for evaluation purposes. It is envisaged that the reclamation would provide a suitable location for various PHIs and industry which would normally be unacceptable in urban areas. This Report therefore provides (where possible) tentative planning guidelines for the reclamation, based on a consideration of environmental criteria.

2.4 THE NORTH SHORE DEVELOPMENT

The North Shore Development comprises River Trade Transhipment Wharves (RTTWs), Floating Docks and related shore facilities, located on the north shore of Lantau Island north east of the Yam O interchange, (Figure 2.6). The layout allows for up to 2,000m of quay face for RTTWs, four floating docks and some 1,535m of quay face for the floating dock support area (located to the east of the RTTW).

The floating docks, which are aligned in a NW to SE direction, are moored immediately off-shore from the back-up areas, away from the main shipping channels.

RTTWs will be developed so that each phase will provide 300-500m of new quay face and back-up area. In addition, expansion of the RTTWs to the east will be possible should the dock support area be only partly developed.

2.5 HEI LING CHAU TYPHOON SHELTER

At present there is a shortfall of typhoon shelter capacity in Hong Kong and the construction of a typhoon shelter at Hei Ling Chau would reduce this shortfall by some 50ha. The proposed typhoon shelter (which is located off the south west of Hei Ling Chau, Figure 2.7) will be constructed in one phase.

The Correctional Services Department (CSD), have a number of installations on the island and have requested that for security reasons no land based services are provided for the shelter, and that a security cordon of at least 100m width exists between the coastline and the typhoon shelter area.

The shelter has been designed so that sufficient water flushing and wave protection are provided. It is understood that there are no existing outfall structures within the confines of the proposed shelter which would adversely affect water quality. Natural tidal exchange and retention of water quality within the shelter have therefore been allowed for and incorporated into the design.

2.6 THE MARINE SUPPORT SERVICES AREA

Provision has been made for a Marine Services Support Area (MSSA) on the eastern side of the TCT Peninsula (Figure 2.8). The area will provide on-shore support facilities in the form of workshops, offices and storage as a service for support vessels such as pilot boats, tugs and work boats. The layout of the MSSA comprises an area of reclamation and berthing face with a separate northern breakwater.

The development of the MSSA is anticipated to be in Phases I and III. Phase I will provide a sheltered anchorage area with at least 400m of quay face and 2ha of on-shore back-up area. In Phase III this capacity will be approximately doubled.

2.7 SHIPYARD AND REPAIR FACILITY

Originally the Ship Repair Yards were proposed to be located on the North Shore of Lantau as in WP No. 29A, since this time the Ship Repair Yards have been relocated to the south coast of Lantau, adjacent to the MSSA.

The siting of a ship repair yard satisfies the reprovisioning requirements of the existing shipyards of N.W. Kowloon which are to be displaced by the West Kowloon reclamation.

The shipyard will provide:

- 9ha of land area;
- 6ha of water area; and
- a berthing length of 1,400m.

At present it is proposed that the ship repair yards will be constructed and become operational during Phase II of the LAPH development.

2.8 SERVICED LAND

In order to take advantage of development opportunities within the Study Area provisions have been made for a business park and industrial area mainly within Penny's Bay (Figure 2.9). This area which is approximately 40ha in size will subsequently comprise the highest worker density in the Study Area.

The business park which will be self contained, will provide premises for a mixture of light industrial, commercial, storage and manufacturing uses. The Phase I allocation for the park (approximately 10ha) is located on the western side of Penny's Bay where it will be able to expand in a southerly direction towards Sz Pak Tsui.

Industrial land has been located on the north eastern side of Penny's Bay, occupying part of the Cheoy Lee Shipyard site (which will be reprovisioned or resumed) and part of the proposed reclamation land. Potential industrial activities will include container storage and repair, packing and crating services and some offices associated with container shipment.

The Cheoy Lee shipyard will provide a reserve for an access road, haul road and necessary safety barrier for the development and operation of TCT borrow area.

Additional service facilities have been located together with the business park and industrial area, and these include a health centre, police, fire and ambulance stations, bus terminals and an expressway service area.

2.9 THE TRANSPORT NETWORK

2.9.1 General

The transport components of the LAPH development up to the year 2011 comprise external and internal road network development and public transport operations in the form of bus services. Rail links are not planned to be developed until after 2011 (although it is possible that construction might commence before then). Given the timing of the freight rail operation it is not possible to consider impacts on potential SRs such as Fa Peng. However, it is important that new SRs are not sited along the preferred route. In general, it is considered that transportation of freight by rail as opposed to road transport, is favoured in environmental terms.

2.9.2 Road Network

The road network has been categorized according to road type and includes:

- expressways;
- port distributor roads;
- principal access roads; and
- local access roads.

The expressways provide Hong Kong with strategic links, and serve to connect the port development to the external road network. Three expressways will be completed as part of the LAPH development and comprise the Port Expressway, the Sham Tseng Link (STL) and the Green Island Link (GIL), (Figure 2.10). In general the expressways will comprise dual two lane carriageways, although some provision has been made for three lanes in each direction.

The Port Expressway connects Lantau Port with the North Lantau Expressway, and will be completed as part of the Phase I development and will subsequently form part of the GIL. The STL provides a connection to Sham Tseng and is expected to be constructed during Phase III and become operational by 2006. Finally the GIL connects the development to Hong Kong Island via Green Island and is planned to be completed during Phase IV of the development.

The port distributor roads are part of the internal road network and connect the expressways to all developments (Figure 2.10). The remainder of the

road network is the local distributor system comprising the principal and local access roads.

The principal access roads are four lane single carriageways providing connections between container terminals and the port distributor roads. Located centrally down the spine of the container berths (Figure 2.10) these access roads allow for vehicle overtaking, loading and unloading.

The local access roads comprise two lane single carriageways and connect traffic from the strategic network to port developments including container terminals, industrial areas, North Shore Development and the Discovery Bay residential area.

2.9.3 Public Transport

By the year 2011 It is anticipated that the public transport access to Lantau Port will be provided by bus services. The service pattern will evolve to serve the need of travellers and is likely to provide the following routes:

- feeder services - Airport Railway to Discovery Bay and Container Port to Yam O Wan;
- Tung Chung New Town to Container Port and Discovery Bay; and
- external routes, as below;
  - Container Port via the Lantau Fixed Crossing, (LFC), to Kwai Fong/Tsuen Wan,
  - Container Port via LFC to urban Kowloon,
  - Container Port via GIL to Central/Admiralty, and
  - Container Port via STL to NWNT (Yuen Long).

There will also be services passing through the Container Port peninsula from Tung Chung/and the Airport to access Hong Kong Island via the GIL. The airport express routes will generally be routed via the expressway but local services from Tung Chung could be routed on the service roads to provide access to the Container Port.

A transport interchange is also included in the LAPH development. This includes a bus terminus with 4-5 bays inclusive of some spare capacity for future expansion and pick up/set down facilities for taxis and private cars. The interchange is located adjoining the business park which will be most convenient to the majority of users. Bus routings can be arranged to serve the major components of the Phase I development. Access and egress to the bus terminus should be via the port distributor road to avoid unnecessary disruption caused by container vehicles and heavy lorries on the local road network.

2.10 FILL REQUIREMENTS

2.10.1 Source of Fill

Approximately 202Mm^3 of fill material will be required as backfill for foundation trenches and as general fill for reclamation. Estimated quantities of materials for land formation and marine structures up to the completion of Phase IV are given in Table 2.2. The type of material which is suitable varies according to the proposed use. Potential sources of fill material which are being considered for the LAPH development are described below.

TABLE 2.2

FILL REQUIREMENTS
(Mm^3)

Fill Type	PHASE I	PHASE II	PHASE III	PHASE IV	TOTAL
Marine Sand	2.5	1.9	4.3	3.7	12.4
General Fill	44.2	40.2	38.1	44.5	167.0
Small Rock	3.9	1.8	1.4	7.9	15.0
Armour Rock	1.4	0.5	0.6	4.9	7.4

Note: Phase IV includes Lamma Breakwater

'Conventional' dredged granular fill

Although sand from marine borrow areas is suitable for reclamation, a significant quantity will be required. However, the availability of this source of fill is limited and therefore its availability for the LAPH development is uncertain.

Land sourced borrow material

A large part of the fill requirement is likely to be sourced from the TCT Peninsula. Due to the scale

and nature of such an excavation this possibility is discussed in more detail below.

Ash from power stations and construction waste/public dumped material

Pulverized fuel ash (PFA) from the power stations and processed construction waste/public dumped material could be considered for fill material, however volumes available are too small to be easily programmed into a large scale filling operation. In addition, there is some concern about possible leachate from PFA fill and resulting environmental effects.

LAPH related construction will also generate some 1.7Mm^3 of excavation materials which are also available for use as general fill.

Dredged marine mud from the Western Harbour

Considering the high cost and inherent problems of dredged mud disposal, it would be beneficial if dredged mud could be used as fill material. In principle, this is considered to be possible, however, the overall feasibility of this proposal requires further investigation.

Alternative Sources

Marine and Land-based sources of filling materials from outside the Territory of Hong Kong could also be used for the development.

2.10.2 Tsing Chau Tsai Peninsula Borrow Area

Material required for general filling will be sourced from the TCT Borrow Area, Figure 2.11. This operation will also generate quarry run and the smaller and larger rocks needed for the construction of shore protection and breakwaters. The likely scale and nature of excavation make it essential that the potential environmental impacts are addressed. A summary of the potential environmental impacts associated with the TCT Borrow Area is given below and discussed in more detail in Appendix A1.

At present, demand arising from port related activities is seen as the primary 'trigger' for beginning excavation. The potential operating methodology has not been confirmed, however it is likely that large scale production will be undertaken by a specialist operator. Possible methods of excavation include the 'glory hole' and open quarrying. The latter would be undertaken progressively from west to east, fill material is anticipated to be removed by barge.

Glory hole excavation would involve initial excavation of fill material using conventional large scale quarry methods such as drilling and/or blasting. The quarry would then be worked by sinking a deep shaft which connects to a horizontal tunnel and conveyer belt. The blasted rock is transported through the tunnel and conveyed to the barge collection point. The quarry when developed will resemble a crater with only the upper most reaches visible from a distance.

It is assumed open quarrying excavation would involve the progressive removal of material from an open working face and the formation of a gradual flat land platform. Depending on the quantity of fill material required and the rate it is required, the quarrying activities could be limited to a small number of individual extraction cells, which, after quarrying is completed, would be landscaped.

2.11 DREDGING AND EXCAVATION

2.11.1 Dredging

Dredging is required for the construction of shipping channels, and foundation trenches located at the container quays and the sea walls at the edges of reclamation areas. The total volume to be dredged up to the year 2011 is estimated to be 117Mm^3. This volume represents the dredging required for the channels and for the trenches at the location of quays and sea walls at the edges of the reclamation areas. The quantities are summarised in Table 2.3 below. This is discussed further in Section 11, Waste Management. (Dredging will also be required to remove marine mud from the surface of marine fill areas however this has not been quantified.)

There are a number of possible dredging equipment/techniques which could be employed for the LAPH development, these include:

- trailing suction hopper dredger;
- deep suction dredging;
- dustpan dredger;
- grab dredger;
- bucket dredger; and

TABLE 2.3

DREDGING VOLUMES
(Mm^3)

PHASE I	11.6
PHASE II	9.7
PHASE III	80.1
PHASE IV	16.0
TOTAL	**117.4**

- cutter suction dredger.

All of the above dredging equipment/techniques have various operational constraints. As a consequence of this and the type of dredging required for the LAPH development, it is likely that the majority of dredging will be proposed to be carried out using a combination of trailing suction hopper dredgers and grab dredgers.

A proportion of the dredged mud will comprise contaminated spoil, requiring special procedures for minimisation of loss of material to the marine environment during dredging and disposal. The most effective way of achieving this would be the use of grab dredgers fitted with closed grabs and operating within silt screens. The total quantity of contaminated sediments is estimated at $0.6Mm^3$ for the development to 2011. At least one area of redundant marine borrow pit will need to be made available for the disposal of this contaminated mud from the project.

2.11.2 Excavation

On-shore Excavation

Excavation is required for cutting slopes for road construction and the Container Port formation. Smaller quantities will also be excavated for building foundations and trenches for utilities. Estimates of the volume of excavated material are in the region of $3Mm^3$ these are summarised in Table 2.4. Methods of excavation will vary according to the nature of the specific development being constructed but will generally comprise standard large scale excavators and earthmoving equipment.

TABLE 2.4

ESTIMATE OF EXCAVATION REQUIREMENTS

DEVELOPMENT	VOLUME OF EXCAVATION REQUIRED $m^3 \times 10^3$
Container Port	1,093
MSSA	10
External Links	1,719
TOTAL	**2,822**

Off-shore Excavation blasting

To reduce the risk of ships grounding consideration has been given for two areas of submarine rock outcrop, namely Lamma Patch and Adamasta Rock to be removed. Both outcrops are located inside main shipping channels, (Figure 2.12). The amount of dredging required in these two areas would be in the order of about $0.6Mm^3$
Due to the nature of the outcrops it may be necessary to use explosives during initial stages of the removal process. This would be necessary to fragment the rock present prior to dredging by either grab or cutter suction dredgers. Careful selection of blasting methods would be required so that the impacts on the marine environment could be minimised. However, this removal is no longer proposed.

2.12 UTILITIES

2.12.1 Sewage System

The Preferred Concept Plan proposes that all sewage produced within the Study Area is directed to the proposed Siu Ho Wan Sewage Treatment Works (STW), located on the north coast of Lantau. The increased flows arising from the LAPH development has been allowed for in the design of the STW.

It is proposed that separate gravity sewer reticulation systems be constructed to serve both the North Shore Development and Lantau Port developments. Localised pumping stations are required to collect sewage from each sub-catchment in the Study Area, avoiding the construction of an otherwise relatively deep gravity system within reclamation areas. Sewage from isolated areas

such as the MSSA could be pumped to a pumping station within the Container Port area.

Augmentation for future phases will require appropriate staging of pumping station capacities by installation of larger pumps or expansion of pumpwell capacity and the addition of further pumping equipment. Similarly, provision should be made for future upgrading of rising mains by the suitable allocation of space within services reserves.

Sewage from the existing Discovery Bay development, its extensions, the LAPH support community and Peng Chau could also be directed to the Siu Ho Wan STW via the Container Port's sewerage system, this would remove a significant pollutant loading from the relatively sheltered waters west of the Container Port but would require an increase of the design capacity of the STW.

Sewage may also be expected to arise from the Lamma Breakwater reclamation. Should this be implemented at some future date.

2.12.2 Water Supply System

Preliminary planning has identified that a pumping station at Siu Ho Wan receiving fresh water from the treatment plant, will supply the Lantau Port Development. Water Supplies Department ultimately envisages fresh water supply zones at both Yam O Tuk to serve the North Shore development and at Sz Pak for the Container Port and related industry. Consumption of fresh water during the initial phases of the Container Port development however, would require only construction of the Yam O Tuk fresh water reservoir; this would supply fresh water to both the North Shore development and the Container Port and associated facilities via a distribution main.

The demand for flushing water will be minimal during early phases of the LAPH development and it is proposed that this be met from the fresh water supply. Salt water reservoir sites will ultimately be required adjacent to or near the proposed fresh water service reservoir sites at Yam O Tuk and Sz Pak, with salt water pumping stations located at suitable foreshore sites in newly reclaimed areas.

Fresh water would also be supplied to the Lamma Breakwater reclamation. The method of supply however has not yet been determined.

2.12.3 Drainage System

There are a number of local water catchment areas within the Study Area and for those affected by the LAPH development it will be necessary to install a drainage system to provide for surface run-off from both the surrounding land and the LAPH development.

Each berth development will have a dedicated drainage system which will provide sufficient drainage for that area. The system should also incorporate interceptors and separators which would remove any oil/grease, from spillages, from the surface water run-off before discharging to sea. To minimise the effects on water quality of the area, the discharge points would be on the eastern side of the LAPH development where possible, so that discharges into the waters of Discovery Bay are minimized.

The remainder of the LAPH development will be served by a number of small systems which drain specific catchments. The majority of the trunk drainage system will (where possible) be laid under roadways and will discharge to the east of the Container Port.

2.12.4 Electricity Supply System

Power supply to the Phase I development will be from the Penny's Bay Power (gas turbine) Station. External transmission lines will be required and the proposed distribution networks necessitate three reserves (each to accommodate 10-12, 11kv cable circuits) to the developments in Penny's Bay west, the North Shore and to the Phase I Container Port and marine services harbour.

With the development of subsequent phases three additional primary substations will be required, and together with the need to interconnect the Penny's Bay Power Station with other bulk infeed stations the following 132kv circuits are required:

- four cable circuits to the three future primary substations (located south of Penny's Bay Power Station);
- three cable circuits to the mainland via STL; and
- two cable circuits to Sham Shui Kok via the utility reserve at the north of the Lantau Expressway.

2.12.5 Telecommunications Network

A permanent telephone exchange will be constructed in the Penny's Bay reclamation, which will meet demands arising from the LAPH development. In addition a scheme to lay three submarine fibre-optic cables between Hong Kong Island and Lantau (via Hei Ling Chau) was gazetted in October 1991 and the works are expected to commence in mid 1992.

2.12.6 Gas Supply

At present there is no piped gas supply to the Study Area. However the Hong Kong and China Gas Company Ltd (HKCG) propose to provide a piped gas supply via a twin high pressure submarine main with a pigging station located at Ta Pang Po. It is understood from HKCG that a supply plan has been drawn up for the LAPH development.

2.12.7 Terminal Lighting

It is anticipated that the container terminal lighting scheme will involve an average of nine 30m high light towers per berth. These will be arranged in order to provide a minimum of 30 lux intensity lighting at the pavement level in the container yard. Lighting attached to the underside of the quay and yard gantries will provide a minimum of 80 lux at pavement level under the cranes.

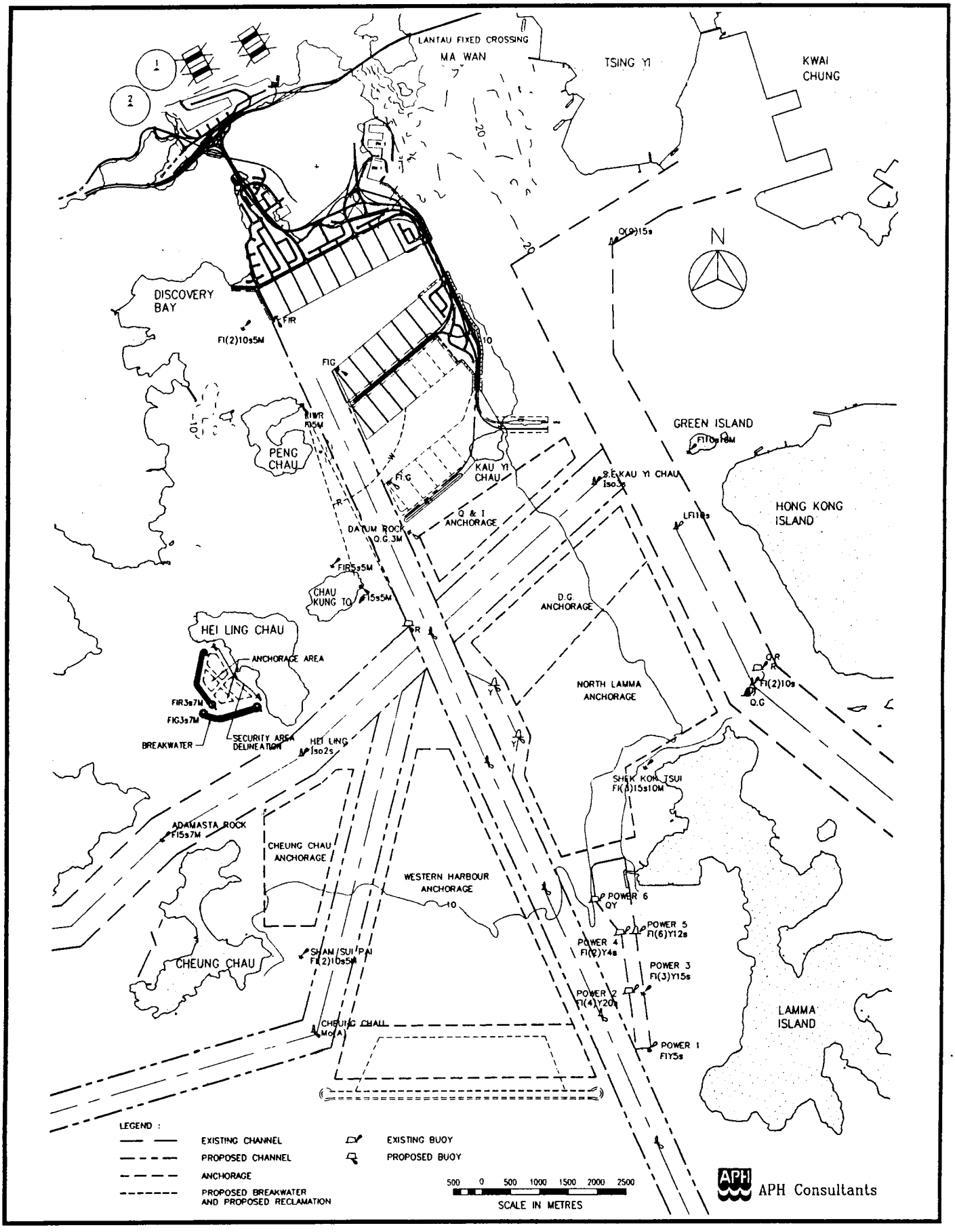


FIGURE 2.1

THE PREFERRED CONCEPT – ULTIMATE PHASE

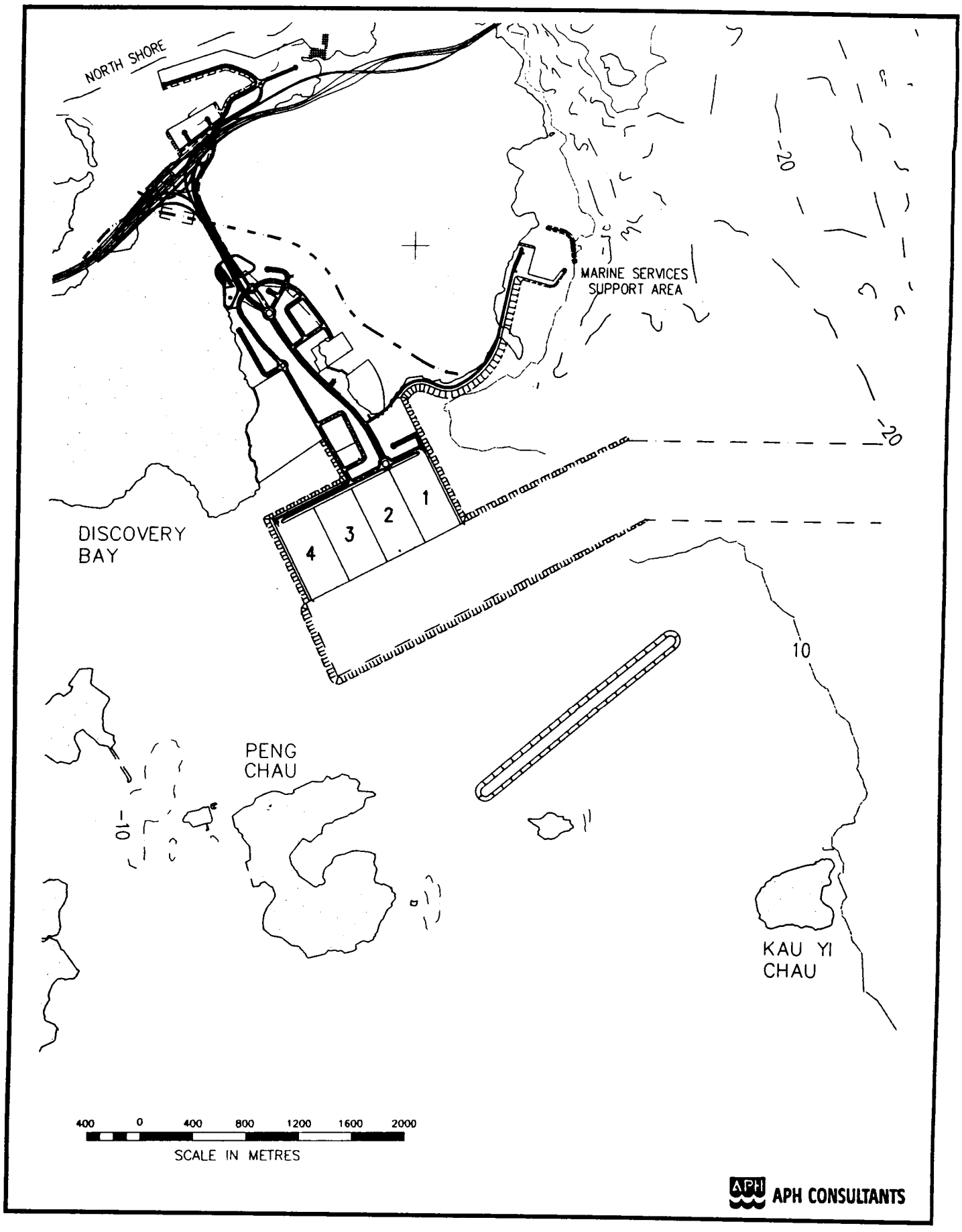


FIGURE 2.2

LANTAU PORT DEVELOPMENT – PHASE 1

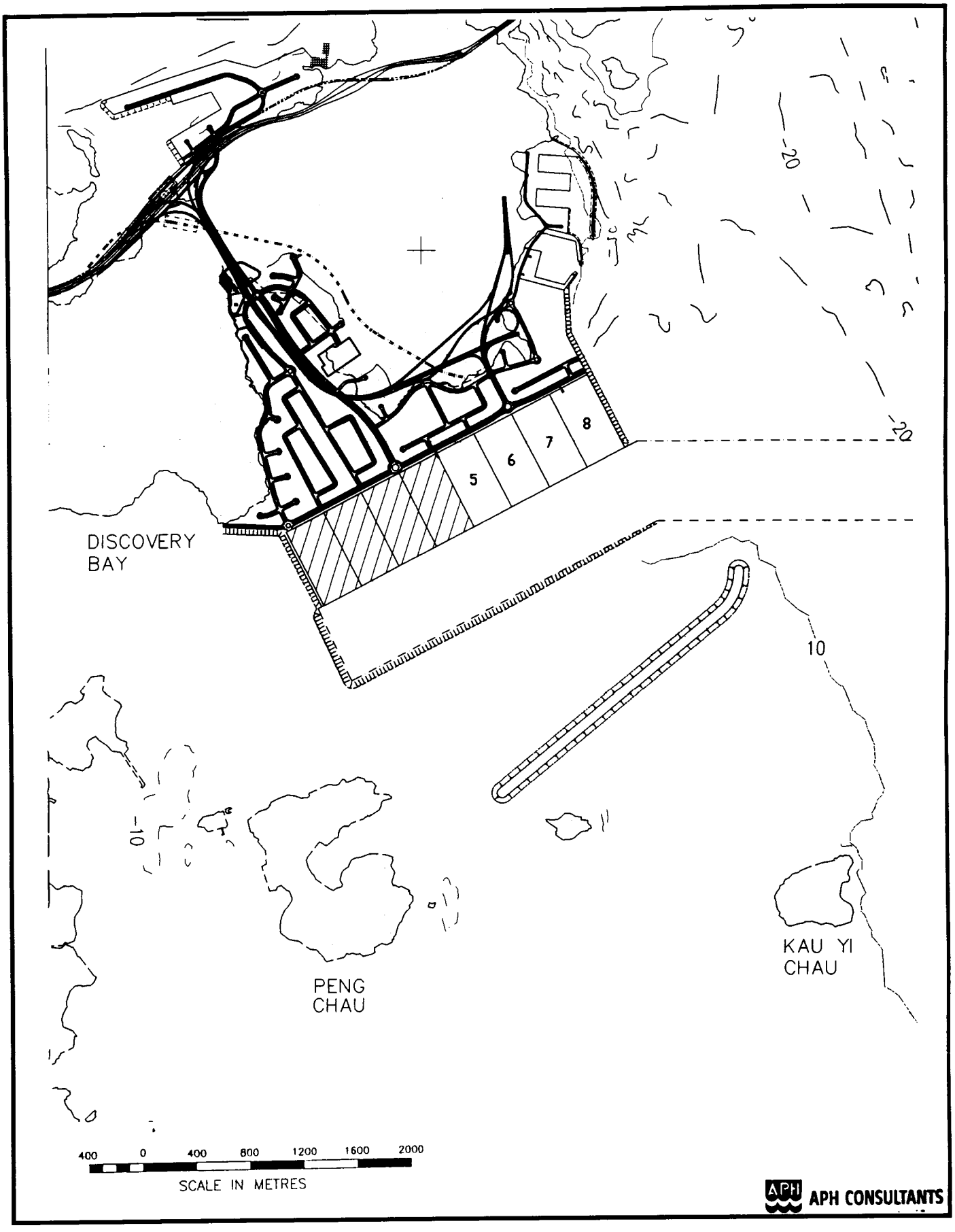


FIGURE 2.3

LANTAU PORT DEVELOPMENT – PHASE II

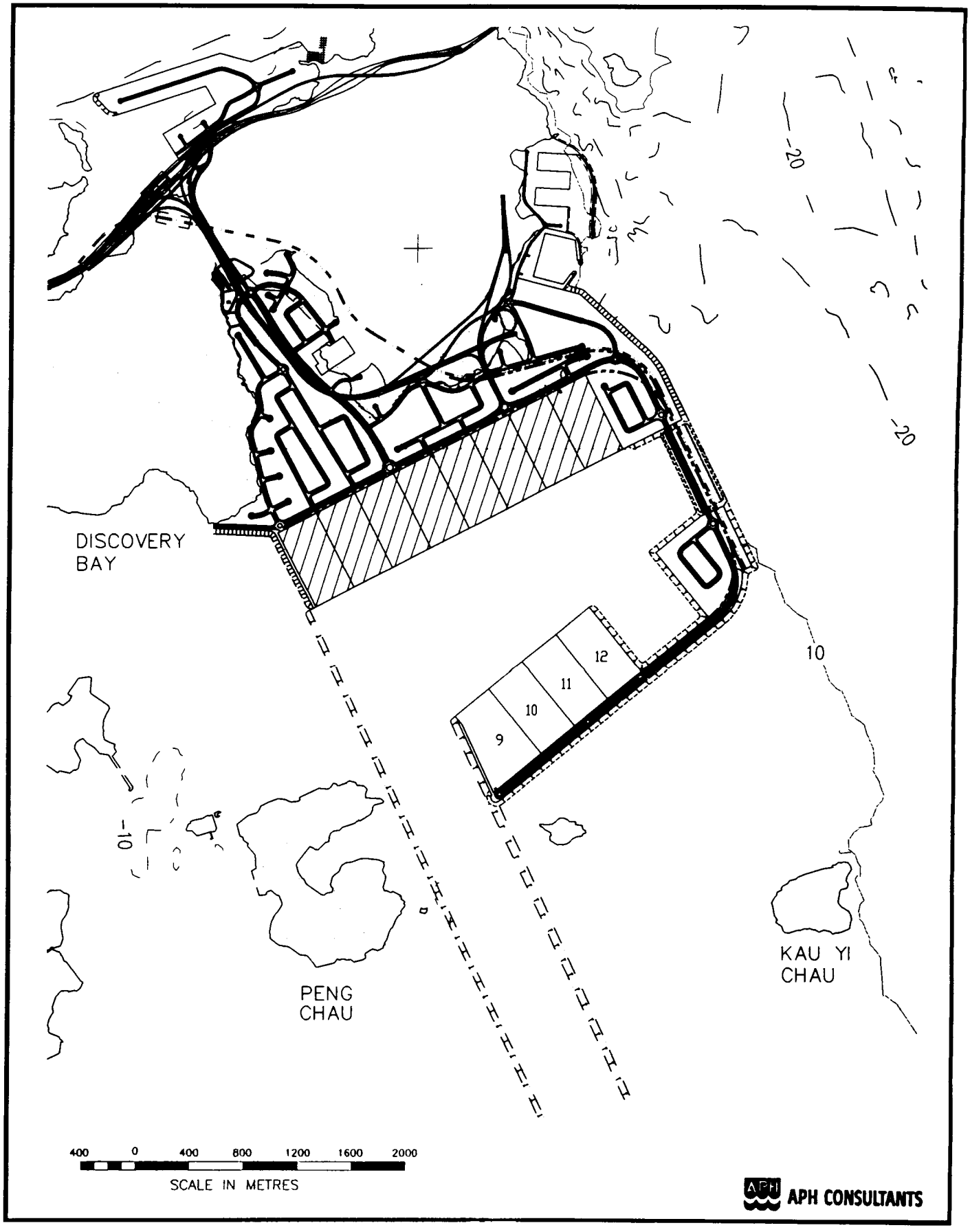


FIGURE 2.4

LANTAU PORT DEVELOPMENT – PHASE III

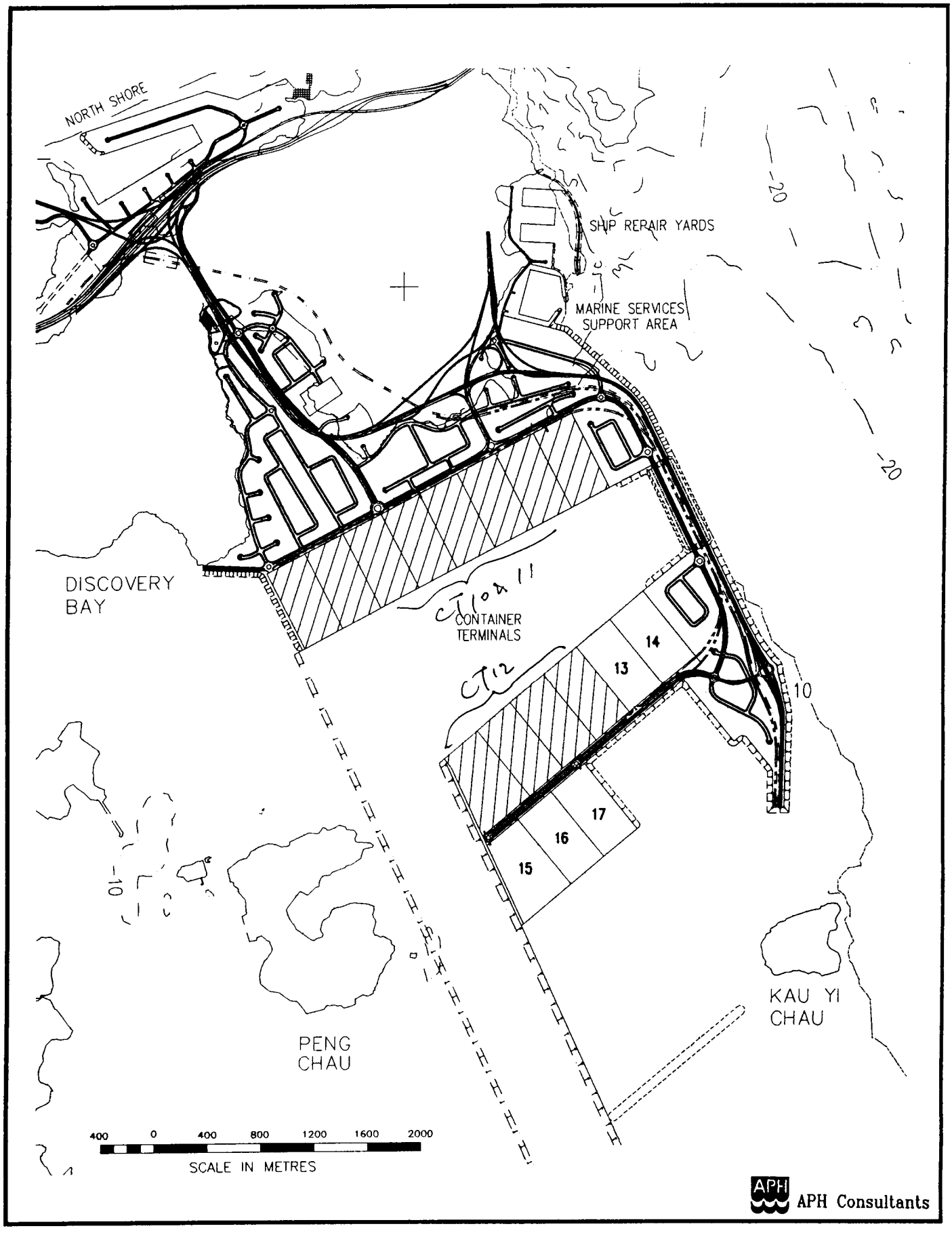


FIGURE 2.5

LANTAU PORT DEVELOPMENT – PHASE IV

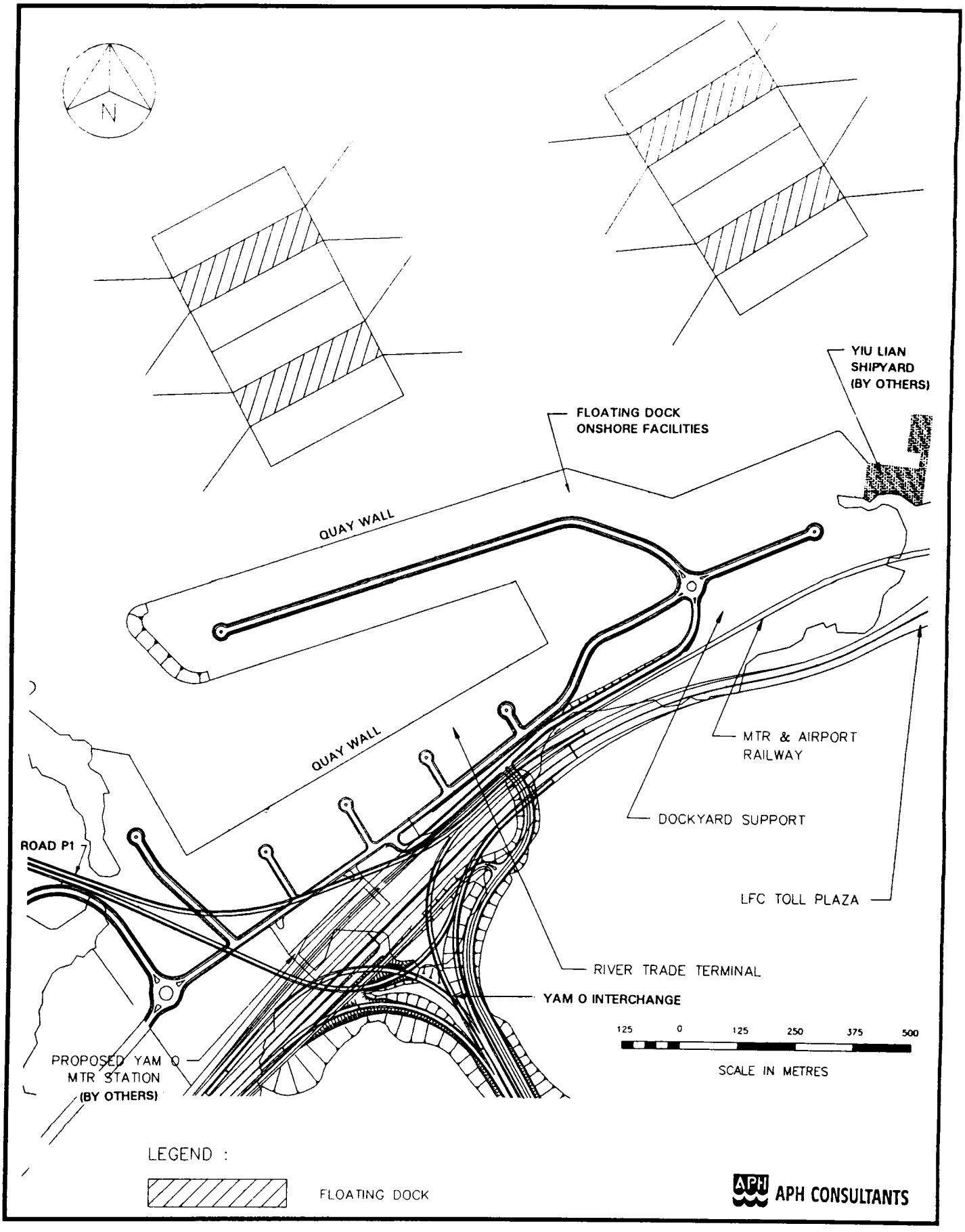


FIGURE 2.6

NORTH SHORE DEVELOPMENT

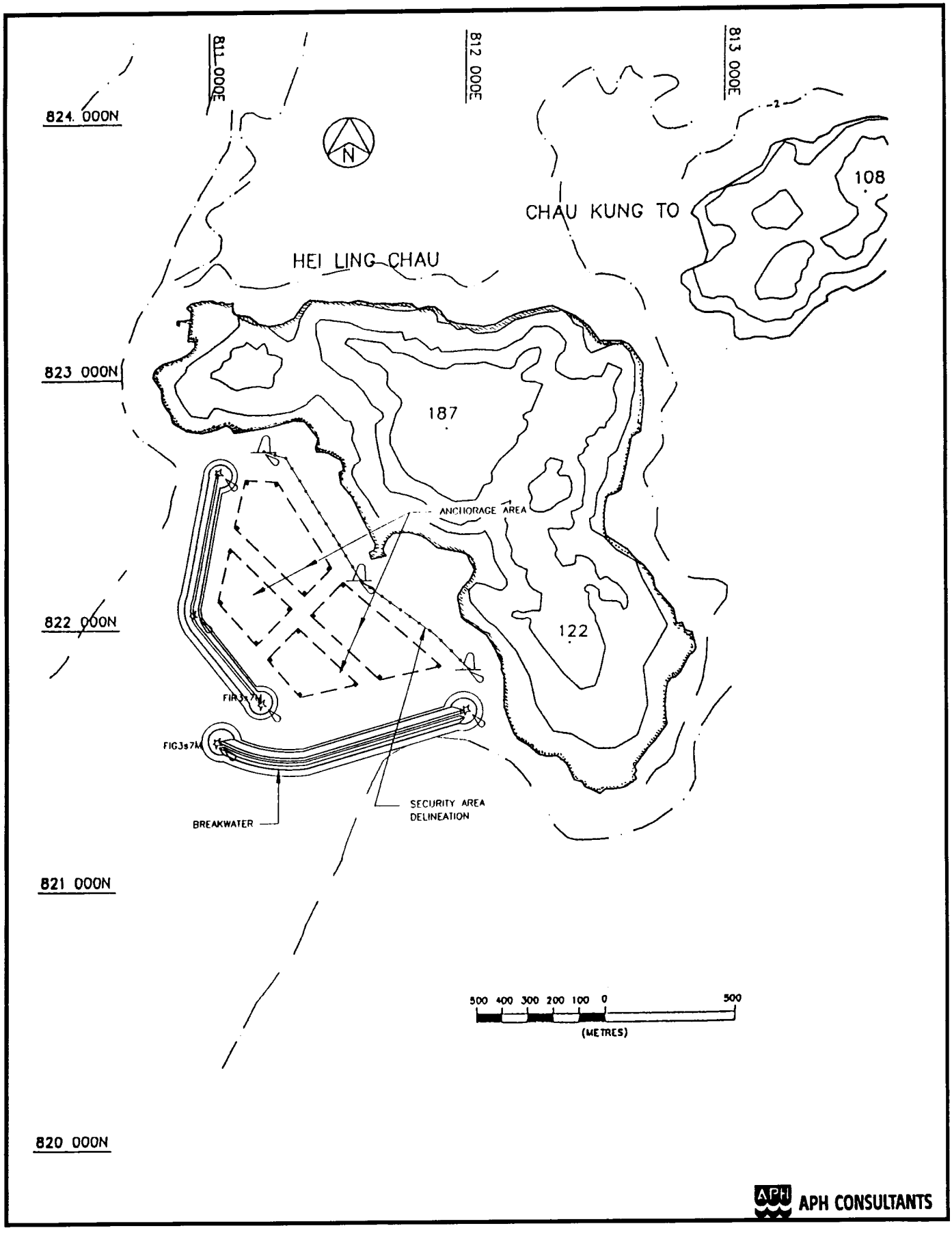


FIGURE 2.7

HEI LING CHAU TYPHOON SHELTER

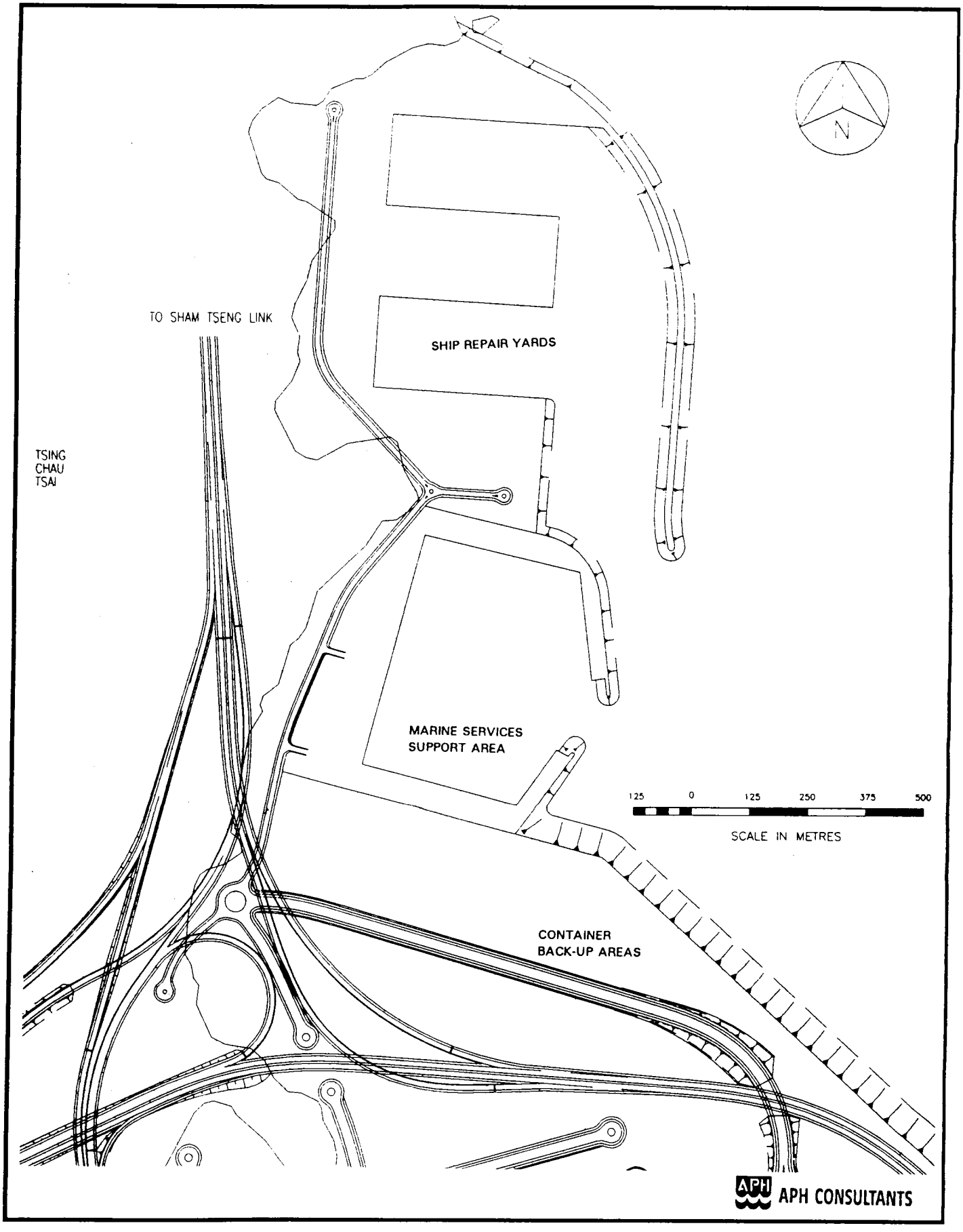


FIGURE 2.8

MARINE SERVICES SUPPORT AREA

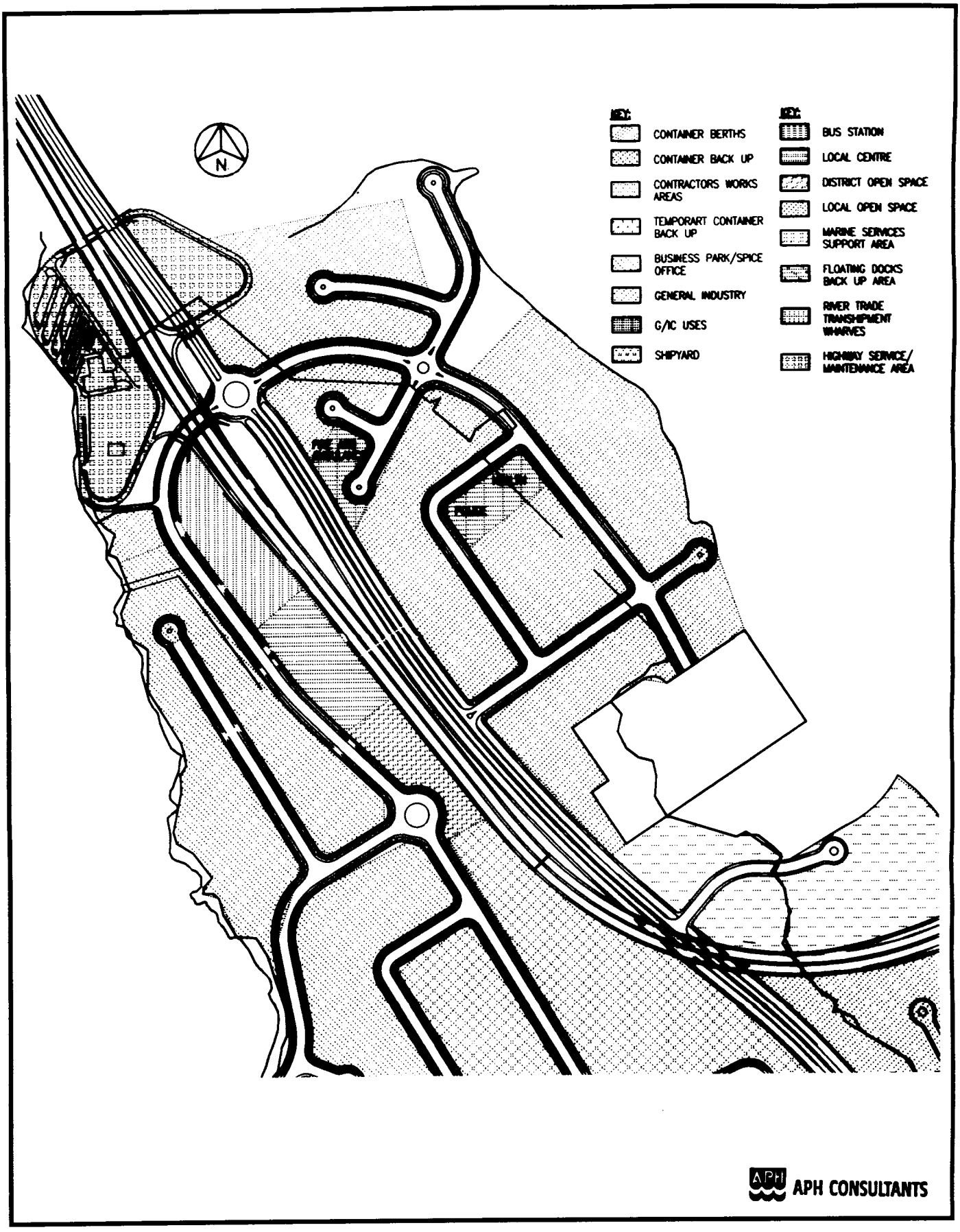


FIGURE 2.9

SERVICED LAND

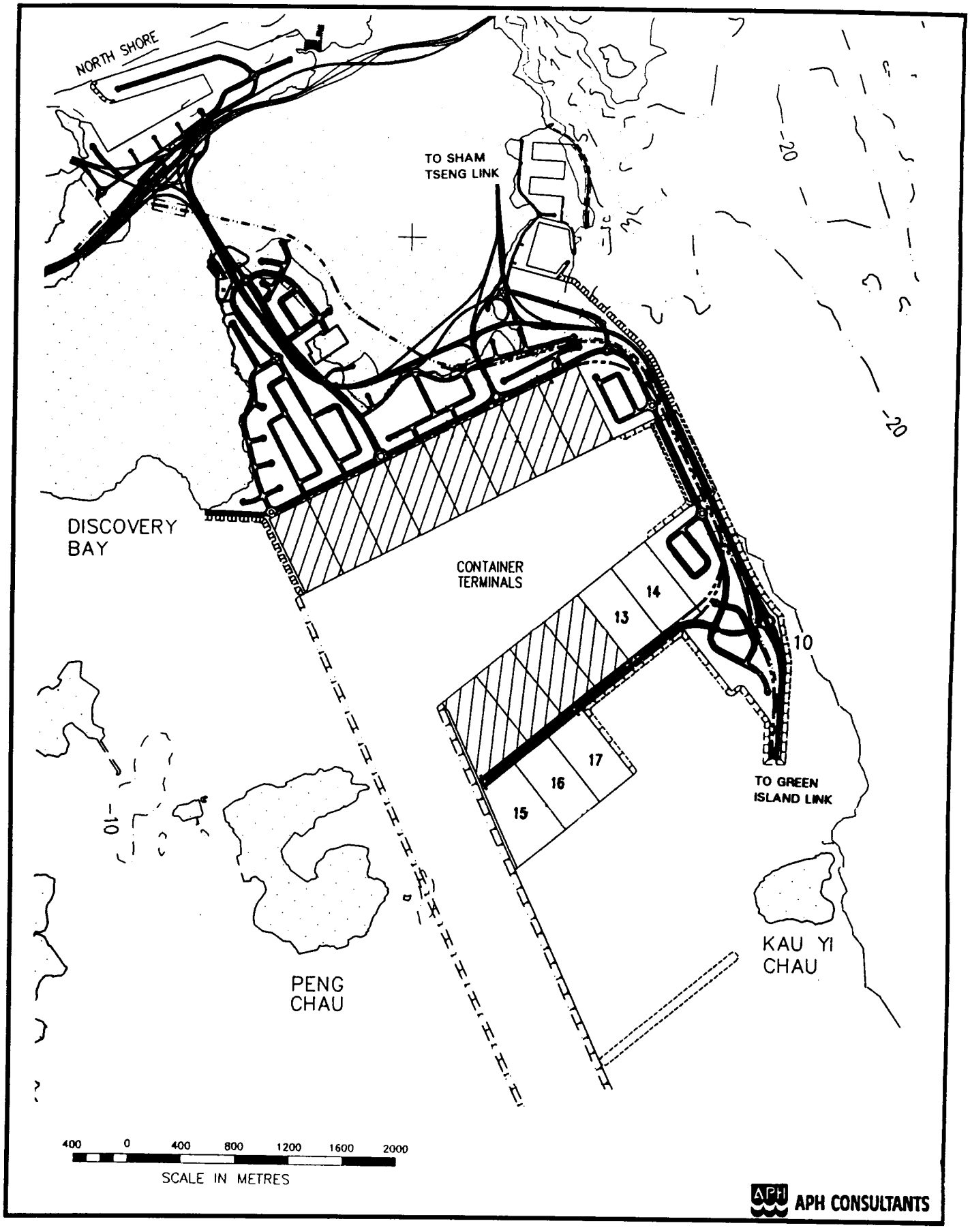
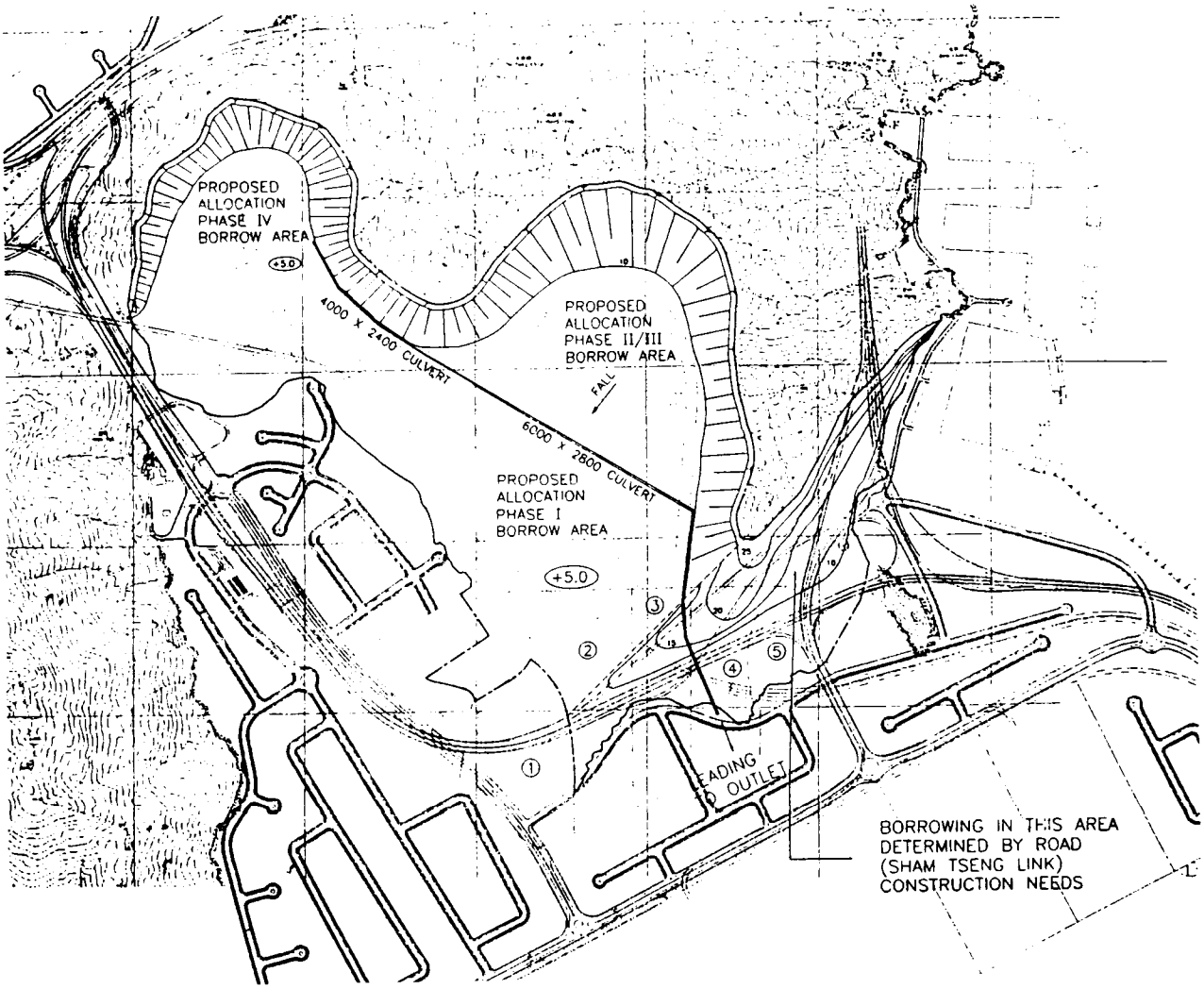


FIGURE 2.10

LANTAU PORT – PHASE IV ROAD NETWORK



LEGEND

① BORROW AREA ALLOCATED BY FMC,CIVIL ENGINEERING DEPT.

250 0 250 500 750 1000

SCALE IN METRES

APH CONSULTANTS

FIGURE 2.11

TSING CHAU TSAI BORROW AREA

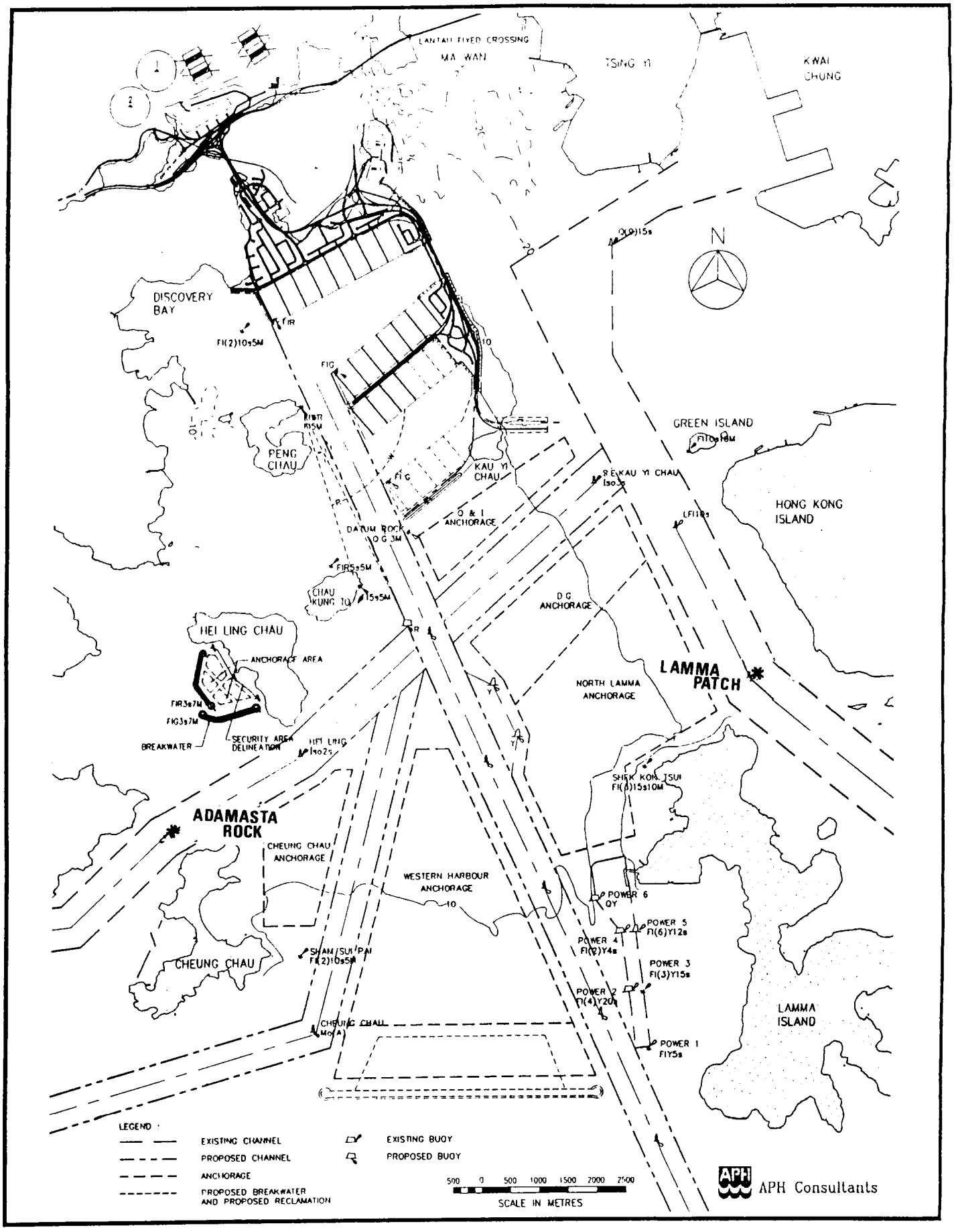


FIGURE 2.12

LOCATION OF ADAMASTA ROCK AND LAMMA PATCH