

2 ENVIRONMENTAL CONTEXT

2.1 General

CT10 and CT11 will be located on reclaimed land formed off the southern side of the Tsing Chau Tsai (TCT) peninsula of Lantau Island. Later phases of the terminal, CT12 and CT13, will be formed on linked island reclamations south of CT10 & CT11 in Discovery Bay. CT12 and CT13 will be connected to Lantau Island by a bridge structure on the east side of the terminals.

Existing developments in Penny's Bay are located on reclaimed land along the north and east shore of the Bay. Cheoy Lee shipyard covers an area between Mong Tung Hang and Wan Tuk and the China Light and Power (CLP) Station is situated north of the Pa Tau Kwu headland at Chok Ko Wan Tsui. Quarry activity has removed the western tip of Pa Tau Kwu headland at the mouth of Penny's Bay.

The main concentrations of population are residential areas at Discovery Bay and Peng Chau which are to the south west and south of the Terminal developments respectively. The closest Sensitive Receivers (SR) are isolated villages on the east of the TCT peninsular, which are shielded by topography from CT10 & 11. Residential areas on the island of Ma Wan are over 3 km northeast of the Terminal site and shielded by the TCT peninsular and local topography.

2.2 Environmental Baseline

During the LAPH and Stage I studies an environmental baseline was established to define the existing site conditions. Where relevant the findings are reported in the chapter pertaining to a particular environmental indicator area. The remoteness of the site, general absence of industry and motor vehicles gives the area good air quality, a generally quiet noise background and reasonable water quality. In the following sections the broad findings are presented to outline the environmental conditions in the area prior to development.

2.2.1 Water Quality

Marine water quality around the peninsula is dominated by the effects of the Pearl River which forms a major source of sediment, nutrients and industrial effluent in the area. The residential areas at Discovery Bay and Central Peng Chau discharge preliminary treated sewage into Discovery Bay. Cheoy Lee Shipyard discharges wastes into Penny's Bay and CLP station discharges sewage after secondary treatment. Other sources of water quality impact are generated by industrial and domestic discharges from Hong Kong, Kowloon and Tsing Yi. Marine ecology was assessed in the LAPH studies by a review of existing data and sampling at selected sites. Mariculture is carried out at Ma Wan Island to the north east of the TCT peninsular and there is local fishing activity south of Penny's Bay. As part of the Stage I studies a short ecological survey was conducted to investigate the Chinese White Dolphin.

2.2.2 Air Quality

Monitoring of air quality in the study area at Discovery Bay and Peng Chau showed low levels of air pollutants indicating that air quality in the area was good. This assessment was based on comparison with the Air Quality Objectives (AQO).

Meteorological conditions have a significant influence on the movement of pollutants in the air. Prevailing winds experienced by Hong Kong are predominantly from the Northeast, the main concentration of sensitive uses are southwest and are therefore downwind of the construction area.

2.2.3 Noise

Noise monitoring was carried out at Penny's Bay, Discovery Bay and Peng Chau in the LAPH studies. The monitoring indicated that the noise environment is characteristic of a predominantly rural area. This has important implications in assessing construction noise impact. Limited industry including Cheoy Lee Shipyard, shipping, and CLP station are sources of existing noise impact which add to the community noise generated at Discovery Bay and Peng Chau residential areas.

2.3 Land Based Sensitive Receivers

In this section sensitive receivers with potential to be affected by construction of Terminals CT10 & 11 are identified. They are indicated in Figure 2.1 : Sensitive Receivers. The port site and adjacent area are essentially rural in character and support scenic and amenity areas, fishing activity, marine recreation, residential communities, and limited industry. Development of the Port will change the predominantly rural nature of the area into one with a commercial-industrial character.

The LAPH Study and the recently completed Lantau Port Stage I preliminary and ancillary works design indicated that residents of Discovery Bay and central Peng Chau would be the Noise Sensitive Receivers (NSRs) most susceptible to adverse impact. Assessment impacts at Hei Ling Chau and on Hong Kong Island indicated that these receivers will be adequately protected by distance from excessive port noise and they will not be considered further here. LAPH and the Stage I studies identified scattered retreat homes on the northern headland of Peng Chau that could be severely affected by port noise as would isolated village developments at Fa Peng and Tso Wan, on the eastern side of the Tsing Chau Tsai (TCT) peninsula. The LAPH and Stage I studies suggested that for the small number of receivers in these exposed positions path and source mitigation would be impractical and mitigation at the receiver was deemed the most appropriate. A field trip has been undertaken as part of this study¹ to confirm the presence, status and assess effectiveness of topographic shielding and is discussed in later sections. For air quality the CLP Power Station has been selected as an indicator point within Pennys Bay to assess impact.

2.3.1 Discovery Bay

Discovery Bay is a major residential development on Lantau Island lying 2.5 km west of the western terminal CT11. Access to Discovery Bay is by boat, there is no vehicular access to other areas on Lantau Island and only limited vehicle usage within the community. The development is a mix of high, medium and low rise housing with associated commercial development. Closest sensitive receivers to the terminal are sited on a promontory south of the Ferry Terminal, called Peninsula Village. The closest sensitive receivers are located in a 17 storey high rise block at the eastern end of this promontory, Cherish Court on Capeland Drive. In addition there are new medium rise

¹ Field visit to Fa Peng, Tso Wan and north headland Peng Chau on 17th February 1995, attended by CED, PDB and the Consultants.

blocks being constructed north of Cherish Court at the eastern end of Caperidge Drive. At this point there is no topographic shielding between Terminal and Sensitive Receiver.

Peninsula Village represents the southern boundary of the Discovery Bay development, other residential areas occupy bays and lower slopes of hillsides to the north. In the future there is further development planned at Yi Pak Bay on the northern side of Discovery Bay. There are no suitable Yi Pak Development Plans available for use in this study and two notional receivers have been identified to represent high rise blocks on the hillside at the rear of the development and low rise on new reclamation within Yi Pak Bay. This development style is in keeping with the present property mix adopted in Discovery Bay. The Sz Pak Tsui headland, immediately to the west of Penny's Bay provides some topographic shielding of the terminal to the planned development at Yi Pak. However, there is no topographic shielding to the established areas of Discovery Bay.

2.3.2 Peng Chau

Peng Chau is an island off the east coast of Lantau. The population is concentrated in low and medium rise residential areas in the centre of the island, though there are isolated NSR on the headland which forms the northern part of the island. Topographic screening is provided by the northern promontory of Peng Chau which blocks the direct line of sight to the terminals from the central residential area. Two indicative receivers are identified in the main residential area. A single, representative, receiver on the promontory was identified in the previous studies. This representative receiver was the transmitter station, chosen to represent all receivers on the headland. However, the majority of the receivers on the headland are single storey dwellings located south of the headland ridge. To accurately determine impact a detailed survey and assessment of individual properties has been carried out during a site visit in February 1995. The site visit confirmed that topography would adequately shield these isolated receivers.

2.3.3 Ma Wan

Ma Wan Island sustains two small communities on the west side of the island, and one of the 26 gazetted fish culture zones in the Territory. In the future it is noted that there is major residential development proposed for the island. The residential areas of Ma Wan are approximately 3 km north of the Terminal site. There is topographic shielding between the CT and sensitive receiver provided by the TCT Peninsula and the southern uplands of Ma Wan.

2.3.4 Tsing Chau Tsai Peninsula Settlements

Fa Peng and Tso Wan represent two small, isolated villages on the east side of the TCT peninsula, immediately to the north of the Terminals. They were identified as SR in the LAPH and Stage I studies. As part of this study site visits have been conducted to investigate the status and location of individual properties. There is significant screening of activity in the western Terminal and it is only the construction activity in the eastern terminal that could affect these SRs. The village of Fa Peng is deserted with dwellings derelict, many in a very poor state of repair. The buildings are sited on the south side of a river valley and the hillside to the south will shield dwellings from Terminal activity. Tso Wan is still occupied and there is evidence of ongoing agricultural activity. Topography will again provide shielding to Terminal activity. The buildings in Tso Wan are a mix of traditional single storey village design with direct access into the main living space.

2.3.5 Penny's Bay

Penny's Bay is immediately north of the Terminals and will be subject to the full impact of Terminal development. There are two existing users within Penny's Bay, Cheoy Lee Shipyard and the Penny's Bay Power Station, operated by CLP. The Cheoy Lee Shipyard will need to close prior to completion of the reclamation of Penny's Bay. Air intakes and the indoor air quality at the Penny's Bay Power station may be affected by elevated levels of dust generated by reclamation works and, the station has been selected as an air quality sensitive receiver. Penny's Bay will be reclaimed as part of the LPD projects and commercial/industrial development will be encouraged.

2.4 Marine Water Sensitive Uses

Marine water quality around the Tsing Chau Tsai peninsula is dominated by the effects of the Pearl River which forms a major source of sediment, nutrients and industrial effluent in the area. Discovery Bay itself is a relatively shallow bay with low water velocities.

Residential developments at Discovery Bay and Peng Chau discharge domestic effluent into Discovery Bay and Cheoy Lee Shipyard and the CLP station discharge into Penny's Bay.

Tung Wan Beach on Ma Wan Island is a gazetted bathing beach and Discovery Bay beach is used for recreation and is monitored as an un-gazetted beach.

Mariculture is carried out at Ma Wan Island to the north east of the TCT peninsula and there is local fishing activity south of Penny's Bay.

The Chinese White Dolphin (*Sousa chinensis*) has been sighted in the study area

Figure No 2.1 : Sensitive Receivers

