

## **Project Profile**

### **Project Title**

Construction of an international theme park in Penny's Bay of North Lantau together with its essential associated infrastructures

### **Purpose and Nature of the Project**

It is proposed to construct a large-scale international theme park together with its related development on reclaimed land in Penny's Bay, North Lantau. The proposed theme park will become a core tourism attraction in Northeast Lantau, which is oriented for tourism and recreational development.

In order to enable the commissioning of the proposed theme park, essential associated infrastructures including related theme park development, road works, water supplies, sewage, stormwater drains, railway, a water recreation centre with a multi-purposed lake, various utilities, etc. need to be completed in time.

### **Name of Project Proponent**

Civil Engineering Department

### **Location and Scale of Project**

The proposed project site is located in and adjacent to Penny's Bay on North Lantau. To the north of the project site is Yam O Wan. The North Lantau Highway is running through the northern portion of the site. To the south across the bay is the sparsely inhabited Peng Chau Island. To the west is Discovery Bay, a residential community on Lantau Island. Both Peng Chau and Discovery Bay are over two kilometers away from the project site. The Chek Lap Kok Airport is approximately 11 kilometers to the west. The central of Hong Kong is approximately 15 kilometers to the east.

Details of the proposed international theme park in Penny's Bay of North Lantau together with its essential associated infrastructures are as follows:

- (a) reclamation of about 290 ha of land using marine sand fills and public filling materials, and the construction of about 3.5 km of vertical and sloping seawall to retain the fills;
- (b) theme park and its related development with an area of about 180 ha including hotels of up to 7,000 rooms, retail, dining and entertainment, and any Dangerous Goods (DG) storage;
- (c) two piers;
- (d) road works comprising:

- (i) a section of Chok Ko Wan Link Road (Expressway Standard) from the existing Yam O Interchange to the valley near the existing power station of China Light & Power (CLP). This 1.5 km long section of road will be dual three lanes with a roundabout adjacent to the existing CLP station;
- (ii) Road P2 (Primary Distributor) together with an access road at Yam O to connect the proposed Yam O rail station to the theme park. The proposed Road P2 will be dual 2/dual 3 lanes and of about 4 km long with two roundabouts. A reclamation of size about 10 ha is required at Yam O to accommodate part of the proposed road works;
- (iii) a 3.5 km long resort road (District Distributor) around the proposed theme park; and
- (iv) a central pedestrian walkway in the middle of the park of length about 800 m.
- (e) a water recreation centre with a lake of size about 23 ha for irrigation and water sport recreation activities, together with de-silting and pumping facilities;
- (f) a stormwater drainage system consisting of an open channel of width about 50 m and length about 1.2 km, and box culverts and pipelines of various widths and lengths;
- (g) a sewerage network to convey sewage to the existing Siu Ho Wan Sewage Treatment Plant. Works include pumping stations, chambers and wells together with the associated gravity sewers and pumping mains;
- (h) essential facilities for the operation of the theme park including:
  - (i) two public parking areas in Penny's Bay;
  - (ii) a Public Transport Interchange near the proposed Penny's Bay rail station and a temporary PTI at Yam O rail station; and
  - (iii) pipelines for fresh, salt and irrigation water supply, and utilities.
- (i) a new rail line from the Tung Chung Line at Yam O to Penny's Bay, comprising stations at Yam O and at the theme park, and a 3.5 km long railway, partly in tunnel (the rail company will provide inputs for the environmental assessment of these works);
- (j) road side buffers, berms and landscaping works; and
- (k) slope stabilization works.

Plan No. PD2007-009D - Proposed Theme Park Development and Its Associated Infrastructures is attached.

### **History of Site**

The proposed site and its general environment are undeveloped with little to no residential units within a two-kilometer radius to the center of the site. However, the area has been subject to a number of planning and engineering studies. The main studies include:

- (a) Port and Airport Development Strategy (PADS) (1989);
- (b) Lantau Port and Western Harbour Development (LAPH) Studies (1993);
- (c) Lantau Port Development Stage 1 CT10 and CT11 Preliminary Design Study (1995);
- (d) Lantau Port Development Stage 1 - Design of Reclamation and Edge Structures for Container Terminals 10 and 11 and Back-up Areas (1995);
- (e) Lantau Port Development Stage 1 - Container Terminals 10 & 11 Ancillary Works (Design) (1995); and
- (f) Northshore Lantau Development Feasibility Study (on-going).

Based on the findings of the above studies (a) to (e), part of the site was once planned for container terminal developments and its related uses. However, the land use of the project site has now been changed to theme park and related resort development in accordance with the draft Outline Zoning Plan for Northeast Lantau gazetted in August 1999.

An existing shipyard is occupying part of the site at the inner Penny's Bay. The main operations of the shipyard are constructing and repairing glass reinforced plastic yachts and boats, and steel ships. The shipyard site occupies an area of about 19 ha of land. A separate EIA study will be carried out at more appropriate time for the decommissioning works of the existing shipyard.

Adjacent to the site, there is an existing CLP Gas Turbine station which constitutes to part of the power supply network system.

There are two known archaeological sites within the proposed project boundary. They are the Ta Shui Wan – Wan Tuk and Chok Ko Wan sites. The former of the site has previously been substantially modified by the construction of the Cheoy Lee Shipyard and the advance works for the Chok Ko Wan Link Road built at the time the North Lantau Highway was constructed. The latter site has been modified by the construction of the CLP station. It is worth to note that there is an adjacent archaeological site at Pa Tau Kwu which, however, will not be directly affected by this project.

### **Number and Types of Designated Projects to be Covered by the Project Profile**

This project profile will cover the following designated projects:

- (a) the reclamation of about 290 ha of land using marine sand fills and public filling materials, and the construction of about 3.5 km of vertical and sloping seawall to retain the fills (under Item C1, C2, C11 & C12, Part I of Schedule 2 to EIAO) ;
- (b) the reclamation of about 10 ha of land at Yam O, and the construction of about

- 0.7km seawall to retain the fills (under Item C1 & C12, Part I of Schedule 2 to EIAO);
- (c) the theme park development with an area of about 180 ha including hotels, retail, dining and entertainment elements, and any DG storage (under Item O8, Part I of Schedule 2 to EIAO) ;
  - (d) the road works comprising (under Item A1 & A8, Part I of Schedule 2 to EIAO) :
    - (i) the section of Chok Ko Wan Link Road from the existing Yam O Interchange to the valley near the existing CLP station. Works include the necessary site formation by cut and fill;
    - (ii) Road P2 to connect the proposed Yam O rail station to the theme park;
    - (iii) the resort road around the proposed theme park; and
    - (iv) the central pedestrian walkway.
  - (e) the water recreation centre with a lake of size about 23 ha for water sport recreation activities, together with de-silting and pumping facilities. The lake will also serve as a source of water for irrigation. (under Item I2, Part I of Schedule 2 & Item O8, Part I of Schedule 2 to EIAO);
  - (f) the eastern stormwater drainage culvert which will discharge water within 300 m to the existing Pau Tau Kau archaeology site (under Item I1(b), Part I of Schedule 2 to EIAO); and
  - (g) a new rail line from the Tung Chung Line at Yam O to Penny's Bay, partly in tunnel, including stations at Yam O and at the theme park (the rail company will carry out an EIA for these works separately) (under Item A2 & A4, Part I of Schedule 2 to EIAO).
  - (h) the waste disposal facility/activity for refuse (under Item G4, Part I of Schedule 2 to EIAO)

The exact number and details of designated projects to be implemented will be ascertained in the course of the detailed EIA study.

### **Name and Telephone Number of Contact Person**

### **Outline of Planning and Implementation Programme**

The proposed theme park together with its essential associated infrastructures are developed based on the interim findings of the on-going Northshore Lantau Development Feasibility Study (NSLDFS) and the negotiations between HKSAR and the theme park operator.

The theme park will be constructed in phases on reclaimed land. Once reclamation is

complete, the superstructures of the theme park, hotels, retail, dining and entertainment elements together with its associated infrastructures will be constructed.

Civil Engineering Department will be the project coordinator for this project. Because of lack of in-house staff resources, consultants will be commissioned to carry out most of the works. However, all the railway works will be carried out by a rail operator which may be the MTRC whilst the design and construction of the theme park, hotels, retail, dining and entertainment elements will be carried out by the future theme park operator.

The key events for the project implementation are as follows:

(a) Preliminary design	Mar 1999 - mid 2000
(b) Detailed design for reclamation in Penny's Bay	Oct 1999 - Dec 1999
(c) Tendering for reclamation works in Penny's Bay	Jan 2000 - Apr 2000
(d) Commencement of reclamation works in Penny's Bay	Apr 2000
(e) Appointment of Consultants for all remaining works	early 2000
(f) Detailed design for all remaining works	early 2000 - late 2002
(g) Construction of all remaining works in phases 2005	late 2001 - mid 2005
(h) Commissioning of the theme park	mid 2005

### **Possible Impact on the Environment**

The various environmental impacts or issues that may arise during the construction and operation of the project will be addressed in the detailed EIA study. Initial assessments on various impacts are as follows:

(a) Noise

The project site is remote. There are not many nearby potential Noise Sensitive Receivers (NSRs). Current contributing noise sources include the CLP Gas Turbine Plant located adjacent to the site, aircraft from the airport, and ferryboats and other ships in the area. There are no existing roads within Penny's Bay while at the Yam O area, the road traffic noise will be generated mainly from the North Lantau Highway.

Due to the remote nature of the project site, noise impacts from the project are anticipated to be less than significant. Currently, the identified NSRs are residential developments at Discovery Bay and Peng Chau, the surrounding existing villages and the CLP station. Noise impacts to all appropriate identified NSRs will be analyzed in the EIA.

The theme park will likely be the primary noise generator within the project site due to the operation of attractions, rides, amplified music, parades, and fireworks shows. Although 9m high berms surrounding the theme park will mitigate most potential noise impacts, the EIA will analyze all appropriate sound generated within the project site. Noise from the theme park related infrastructures during construction and operation will also be analyzed on a cumulative basis in the EIA.

(b) Air Quality

Due to the remote nature of the site, localized air quality impacts are not anticipated. Impacts to Air Sensitive Receivers (ASRs), similar to the NSRs will be analyzed in the EIA.

The air quality analysis will identify potential impacts from:

- The CLP Gas Turbine station
- Vehicular traffic and the coach/automobile parking areas
- Fireworks and other effects
- Cumulative construction dust
- Other theme park operations that create air emissions of concern

(c) Water Quality

With the associated land reclamation at Penny's Bay and Yam O Bay, it will alter run-off paths and require the construction of a drainage network to address storm run-off. Proper design features will likely reduce impacts during construction and operation. Nevertheless, the EIA will analyze the following issues and identify appropriate mitigation measures if necessary:

- Site run-off during construction
- Sewage collection and disposal facilities
- Surface run-off discharging into sensitive or embayed areas
- Water quality in the water recreation centre to support both landscape irrigation and secondary contact recreation purposes
- The design of the water recreation centre taking into account the potential water quality impacts due to contaminated land at the shipyard

(d) Natural Habitat/ Ecology and Cultural Heritage

There are no existing or proposed Country Parks, Sites of Special Scientific Interest or Special Areas within the project site. Nevertheless, the EIA will analyze any potential impacts on the natural environment and recommend appropriate mitigation

measures, if appropriate.

Cultural Heritage impacts will also be analyzed due to the construction of the projects. The EIA will analyze potential impacts and recommend mitigation measures, if appropriate.

(e) Waste Management

Waste from the theme park together with its essential associated infrastructures construction may occur. The EIA will analyze any potential impacts from waste generation during the construction process and identify potential mitigation measures, if appropriate.

Waste generation from normal operation of the theme park will also be analyzed based on capacity and facilities planned for the site and Hong Kong system.

(f) Utilities

As the Penny's Bay area is currently undeveloped and needs to be reclaimed, there are no existing utilities or public services provided on site. The theme park and transportation improvements will necessitate the installation of the utility network to provide water, electricity, gas and telecommunications to the area. Gas is expected to be supplied by Town Gas. The EIA will analyze the impacts from the installation of these utilities.

(g) Hazards

Due to the unique operational needs of a theme park, hazardous materials may be required for attraction and show operation and maintenance. Risks anticipated are the storage of approximately 8.0 metric tonnes of fireworks in two bunkers on site together with its handling; and the storage and handling of materials designated as dangerous goods. Although used in small quantities, the five most frequently used hazardous materials in a theme park include Methane (compressed natural gas), Petroleum Distillates and Hydrocarbons (including diesel fuel and unleaded gas, respectively), Propane – Dimethyl Methane (propane), Carbon Dioxide (refrigerated liquid) and Helium. Additional materials may be used but in smaller amounts. Chlorine will be used in ornamental waterways and fountains for disinfection and algae control purposes. Chlorine will be delivered in liquid form (sodium hypochlorite) and approximately 1000 litres will be stored on site in special containment areas. The EIA will identify those potentially hazardous materials/dangerous goods to be used with their potential risks and recommend

appropriate mitigation measures.

(h) Visual Quality, Glare and Landscape

Outdoor lighting and attractions may increase light and glare to the general vicinity. Laser show might have impacts to the adjacent environments. Since the project site is so remote significant impacts are not anticipated. The EIA will analyze any potential impacts from the theme park operations and identify potential mitigation measures, if appropriate.

A key component of the theme park experience is the elimination of external visual intrusions. A 9m high berm surrounding the theme park will eliminate most intrusions. The berm network will also minimize any potential light or glare impacts to the surrounding area of Lantau Island. However, since not all of the theme park will be separated by berms, some buildings inside the theme park may have visual impacts on the surrounding environments. Therefore, any potential impact from the operation of the theme park to sensitive receivers will be analyzed in the EIA. Sensitive receivers may include fauna within Northeast Lantau, aircraft pilots, shipmasters and other residential areas in the vicinity.

A significant thematic element of the theme park will be a high-quality and visually appealing landscape. Although the berms serve a visual intrusion requirement, they also provide a significant landscape opportunity. Other landscape opportunities include areas in the theme park and adjacent to the hotels and the road network. The EIA will analyze any impact from this landscaping program to the overall visual quality of the project area.

(i) Transportation

The EIA will analyze any impacts from traffic demand to the project area and identify mitigation measures, if appropriate.

### **Major Elements of the Surrounding Environment**

Various sensitive receivers have been discussed in the previous section. In short, it can be summarized that the existing sensitive receivers and sensitive parts of the natural environment, which might be affected directly or indirectly by the proposed project, are:

- (a) residential development at Discovery Bay which is approximately 2 km west of the project area;
- (b) residential development at Peng Chau which is about 2 km south of the project area;
- (c) existing villages such as at Luk Keng, Pa Tau Kwu and Fa Peng;



- (d) archeological sites namely, Ta Shui Wan-Wan Tuk, Chok Ko Wan and Pa Tau Kwu;  
and
- (e) CLP Gas Turbine Power station

The planned sensitive receivers and sensitive parts of the natural environment, which might be affected directly or indirectly by the proposed project, are:

- (a) residential development and possible village development at Tsing Chau Tsai East, if any (subject to the final recommendation under NSLDFS); and
- (b) extension of the Lantau North Country Park to the west of Penny's Bay.

The existing land uses that might affect the project are the Cheoy Lee Shipyard of which all will be resumed for the proposed project and the CLP Gas Turbine Power station.

### **Environmental Protection Measures to be Incorporated in the Design and Any Further Environmental Implications**

To be addressed in the detailed EIA study

### **Use of Previous Approved EIA Reports**

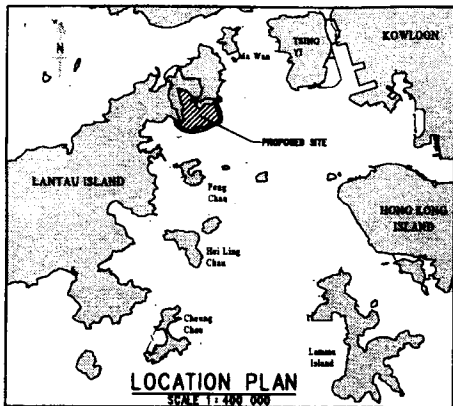
During the course of the detailed EIA study, reference will be made to the EIA reports of the following previous studies.

- (a) Port and Airport Development Strategy (PADS) (1989);
- (b) Lantau Port and Western Harbour Development (LAPH) Studies (1993);
- (c) Lantau Port Development Stage 1 CT10 and CT11 Preliminary Design Study (1995);
- (d) Lantau Port Development Stage 1 - Design of Reclamation and Edge Structures for Container Terminals 10 and 11 and Back-up Areas (1995); and
- (e) Lantau Port Development Stage 1 - Container Terminals 10 & 11 Ancillary Works (Design) (1995)
- (f) East Lamma Channel Final Assessment Report
- (g) East Lamma Channel Borrow Area – Scoped Environmental Assessment, Final Report
- (h) East Lamma Channel Borrow Area Scoped Environmental Assessment Supplementary Water Quality Modelling
- (i) Backfilling of South Tsing Yi and North of Lantau Marine Borrow Areas: Final Environmental Impact Assessment Final Report
- (j) Backfilling of Marine Borrow Pits, North Lantau and South Tsing Yi: Feasibility Study/EIA
- (k) Environmental Impact Assessment of Backing Marine Borrow Areas at East Tung

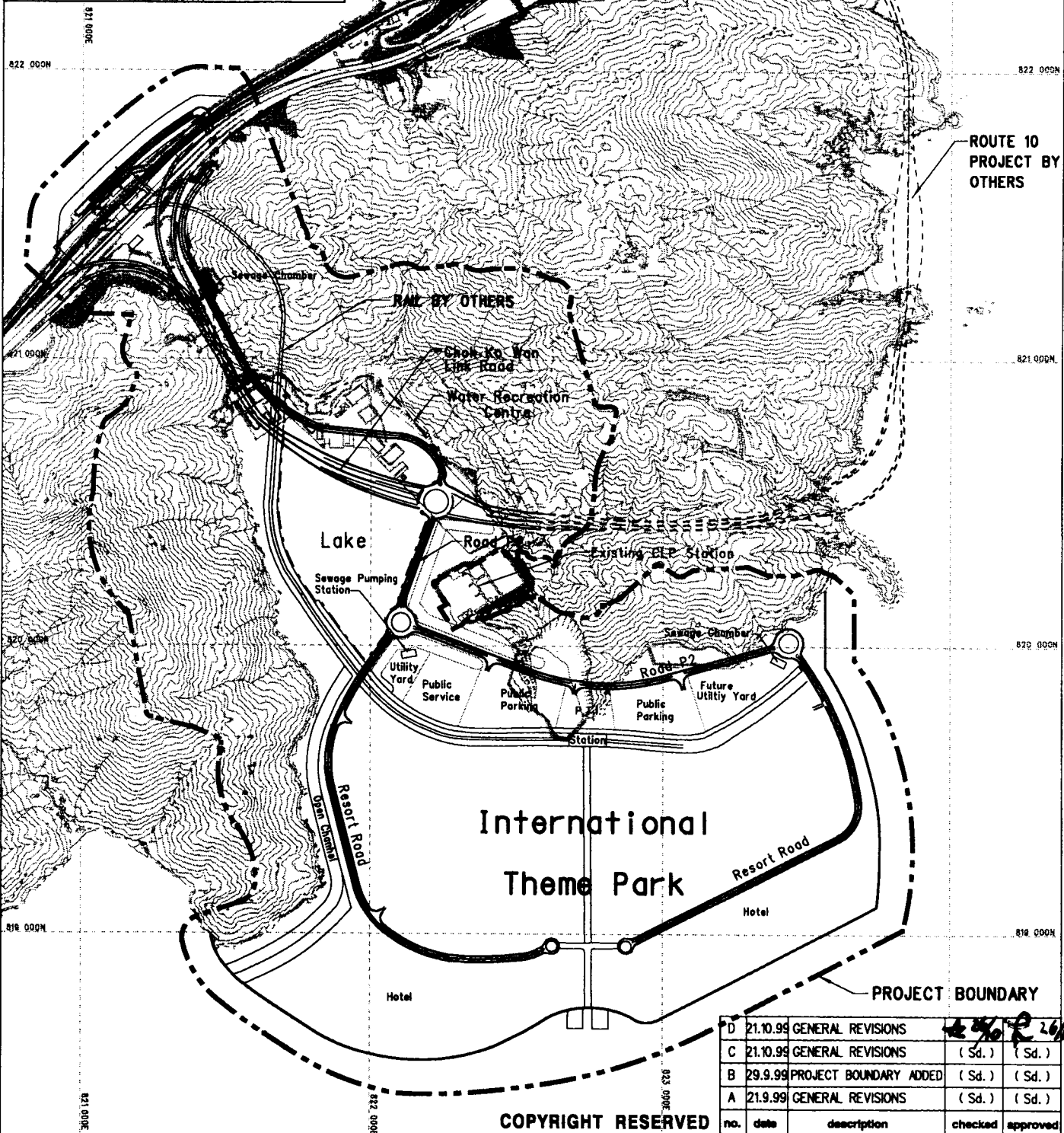
Lung Chau – Final Report

- (l) Tang Lung Chau Dangerous Anchorage EIA
- (m) South-East Tsing Yi Port Development Planning and Engineering Feasibility Study for Container Terminal No. 9 – Final Report and Appendices, August 1991

Port Development Division  
Civil Engineering Department  
November 1999



R10  
(Tsing Lung Bridge)



International  
Theme Park

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D	21.10.99	GENERAL REVISIONS		
C	21.10.99	GENERAL REVISIONS	( Sd. )	( Sd. )
B	29.9.99	PROJECT BOUNDARY ADDED	( Sd. )	( Sd. )
A	21.9.99	GENERAL REVISIONS	( Sd. )	( Sd. )
no.	date	description	checked	approved

**title**  
PROPOSED THEME PARK  
DEVELOPMENT AND ITS  
ASSOCIATED INFRASTRUCTURES

	name	initial	date
<b>designed</b>			
<b>drawn</b>	L. S. TSE	( Sd. )	31.8.99
<b>checked</b>	C. S. LEUNG	( Sd. )	31.8.99
<b>approved</b>	M. Y. TANG	( Sd. )	31.8.99
<b>office</b>	PORT DEVELOPMENT DIVISION CIVIL ENGINEERING OFFICE		

**drawing no.**  
PD2007-009D

**scale**  
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DEPARTMENT  
HONG KONG**

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