

Section 1

1 INTRODUCTION

1.1 BACKGROUND

The concept of locating a port on the north coast of Lantau Island and a breakwater in the south of the Western Harbour, was originally developed as part of the Port and Airport Development Strategy (PADS) during the 1980's.

In August and September 1991, APH Consultants were commissioned to undertake the Lantau Port Peninsula and Western Harbour Development Studies respectively. The developments proposed under these two Studies are closely inter-related and inter-dependent and have therefore been carried out by a combined team, the LAPH study team. This Report focuses on the combined studies and Study Areas, unless stated otherwise and the abbreviation LAPH is used henceforth.

Consideration of possible locations for the LAPH development (notably the Container Port and Breakwater) was limited to the primary Study Area (see Section 1.4), the precise locations were not pre-set, however a number of determining factors did restrict the potential locations, these included:

- marine access requirements;
- transport and communication considerations;
- suitability of landfall topography;
- eventual provision of a landfall for the Green Island Link;
- hydraulic considerations;
- engineering feasibility and cost implications; and
- location of existing and committed residential areas.

In February 1992, an environmental baseline study was completed, which both set the environmental context of the Study Area and established a base level against which the predicted impacts associated with the LAPH developments could be assessed.

A range of possible port concepts and breakwater layouts were initially considered and by application of specific criteria (including financial, development potential, navigation and marine, onshore, existing uses and environmental

considerations) a preferred short list comprising five container port concepts and three breakwater layouts was produced and presented in the respective Alternative Concepts Report (December 1991, March 1992). A number of possible options for the North Shore Development were considered and a preferred layout selected. In June 1992, the Preferred Concept Plan Report was issued, describing the evaluation process and procedures which resulted in the selection of the Preferred Concept. This necessarily involved a comparative environmental assessment of the selected alternative options, which was presented in Working Paper No.21A. The Preferred Concept has subsequently been carried forward for further detailed assessment and is the subject of this Report.

1.2 PURPOSE OF THIS REPORT

A large number of reports and working papers have been prepared under this Study detailing engineering and design proposals for the developments. Environmental considerations have been included throughout this planning and design process and have been the subject of, or included in, the following documents:

Lantau Port Peninsula Development Study

- Inception Report, September 1991;

Western Harbour Development Study

- Inception Report, October 1991;

WP No. 8, WAHMO Modelling Coarse Screening Requirements, December 1991;

WP No.10A, Lantau Port Peninsula Development, Alternative Concepts, March 1991;

WP No.12A, Environmental Baseline, February 1992;

WP No.13, Western Harbour Development, Alternative Concepts, December 1991;

WP No.16A, Landscape Appraisal, March 1992;

WP No.21A, Environmental Assessment of the Selected Options, July 1992;

WP No. 24A, Rural Hinterland Strategy, September 1992;

WP No. 28, Interim Environmental Assessment Report, October 1992;

WP No.29A, North Shore Development Options, May 1992;

Initial Report, March 1992;

Preferred Concept Plan Report, June 1992;

Phase I Development Report, October 1992;

Environmental Surveys Data Report, October 1992;

and

Final Report Volume IV - Peng Chau Layout Plan

A full environment impact assessment (EIA) of the preferred port and breakwater concept has subsequently been completed to provide a comprehensive assessment of the potential environmental impacts arising from both the construction and operation of the preferred concept. This has necessarily involved detailed quantitative and where appropriate qualitative analysis of potential impacts.

1.3 OBJECTIVES AND APPROACH

1.3.1 Objectives

The main objectives of the EIA are threefold:

- to predict, describe and evaluate the long and short term potential environmental impacts arising from the construction and operation of the LAPH development;
- to provide recommendations for the implementation of appropriate mitigation measures at all stages of the developments; and
- to ensure effective application of control/mitigation measures to minimise impacts by means of post project monitoring and audit requirements.

1.3.2 Approach

In developing the framework for the EIA, environmental concerns associated with the LAPH development were identified and in accordance with

the Study Brief(s), comprise the following specialist subject areas:

- Air Quality;
- Noise;
- Marine Water Quality and Marine Ecology;
- Marine Water Quality Modelling (WAHMO);
- Terrestrial Ecology;
- Visual Aspects;
- Archaeology and Sites of Historic Interest;
- Waste Management; and
- Risk Appraisal.

Socio-economic aspects have been addressed in the planning studies and reported in other LAPH working papers and reports (notably Working Paper No.24A *Rural Hinterland Strategy*) and, consequently, are not included in this Report.

In contrast to many other infrastructure projects which have well defined and largely separate construction and operational phases, the Lantau Port will have ongoing construction impacts throughout the period up to the completion of the development. For example construction of the second container berth will occur while the first berth is operating and construction of the third berth will occur while the first and second berths are operating and so on. This means that the operation of the Container Port and facilities including transport links and utilities will be incremental in nature and along with the construction effectively continuous.

The assessment has therefore been conducted considering the four notional phases of development, thereby enabling identification of impacts arising from each phase of the construction and subsequent operation of the port developments. For certain specialist subjects assessment has been undertaken mainly on the basis of Phases I and IV. Assessment of Phase I enabled evaluation of significant construction works and initial operation; while assessment of Phase IV provided the opportunity to evaluate the worst case scenario, particularly in relation to the operation of the container port. Hence reduced emphasis on Phases

II and III is not considered to affect the outcome of the EIA.

The methodologies adopted in undertaking the evaluation have differed within each of the specific subject areas and are described in detail in the appropriate sections. For all areas, the report draws on information and evaluations contained in a number of working papers and reports, submitted previously as part of the LAPH study.

1.4 STUDY AREA

The boundaries of the primary Study Area are defined in the respective Lantau Port Peninsula and Western Harbour Study Briefs. The area may be defined by a line running in a south westerly direction from Ma Wan Island (approximately 2km north of the Island) via Yam O (Luk Keng) to Mui Wo. The area then extends to the eastern tip of Cheung Chau, (Figure 1.1). Due to the nature of predicted environmental impacts, it was considered that for certain specialist subjects the Study Area should be extended beyond this primary Study Area. Where such boundary extensions have been applied they are described in the relevant sections.

1.5 ORGANISATION OF THE REPORT

1.5.1 Contents of the Final Report

The Final Report consists of four volumes:

- Volume I - Main Report Text;
- Volume II - Main Report Drawings;
- Volume III - Environmental Impact Assessment; and
- Volume IV - Peng Chau Layout Plan.

In addition to the four volumes executive summaries will be produced.

1.5.2 Structure of Volume III - EIA

In addition to this introductory section, the EIA Report comprises fourteen further sections, a summary, references and appendices :-

- Section 2 Description of Proposed Developments;

- Section 3 Environmental Context of the Study Area;
- Section 4 Air Quality;
- Section 5 Noise;
- Section 6 Marine Water Quality and Marine Ecology;
- Section 7 Marine Water Quality Modelling (WAHMO);
- Section 8 Terrestrial Ecology;
- Section 9 Visual Aspects;
- Section 10 Archaeology and Sites of Historic Interest;
- Section 11 Waste Management;
- Section 12 Risk Appraisal-Lantau Port On-Shore Risks;
- Section 13 Risk Appraisal-Lamma Breakwater;
- Section 14 Environmental Monitoring and Audit Schedules; and
- Section 15 Implementation Issues.

The organisation and content of the Report are summarised as follows:

the Summary, presented at the beginning of the Report provides an overview of the background, evaluation, conclusions and recommendations of the EIA;

Section 2, introduces and describes in general terms the facilities which make up the proposed development, and provides details of the individual sub-developments;

Section 3, provides an overview of the existing environment and sets the environmental context of the Study Area;

Sections 4 to 11, cover the specialist studies in detail and includes assessment of potential environmental effects, recommendations of appropriate mitigation and post project monitoring and audit requirements;

Section 12 identifies the nature of hazards and risks associated with the operation of Lantau Port and

provides an account of experience in Hong Kong and elsewhere of the risk arising from container storage and handling.

Section 13 examines the risks associated with siting Potentially Hazardous Installations (PHIs) on the Lamma Breakwater reclamation; and

Section 14 outlines monitoring and audit requirements for the construction and operation of the LAPH development and drawing on the respective specialist sections provides monitoring schedules for air quality, noise, and water quality.

Section 15 lists the outstanding issues which will need to be resolved prior to implementation and where possible suggests a mechanism to achieve this.

1.5.3 Terminology

The following nomenclature has been used throughout this Report:

- **LAPH** refers to all port and breakwater developments within the Study Area;
- **Lantau Port** refers to the Container Port and the North Shore developments;
- **The Container Port/Container Terminal** refers to the container terminal itself plus associated back-up facilities.

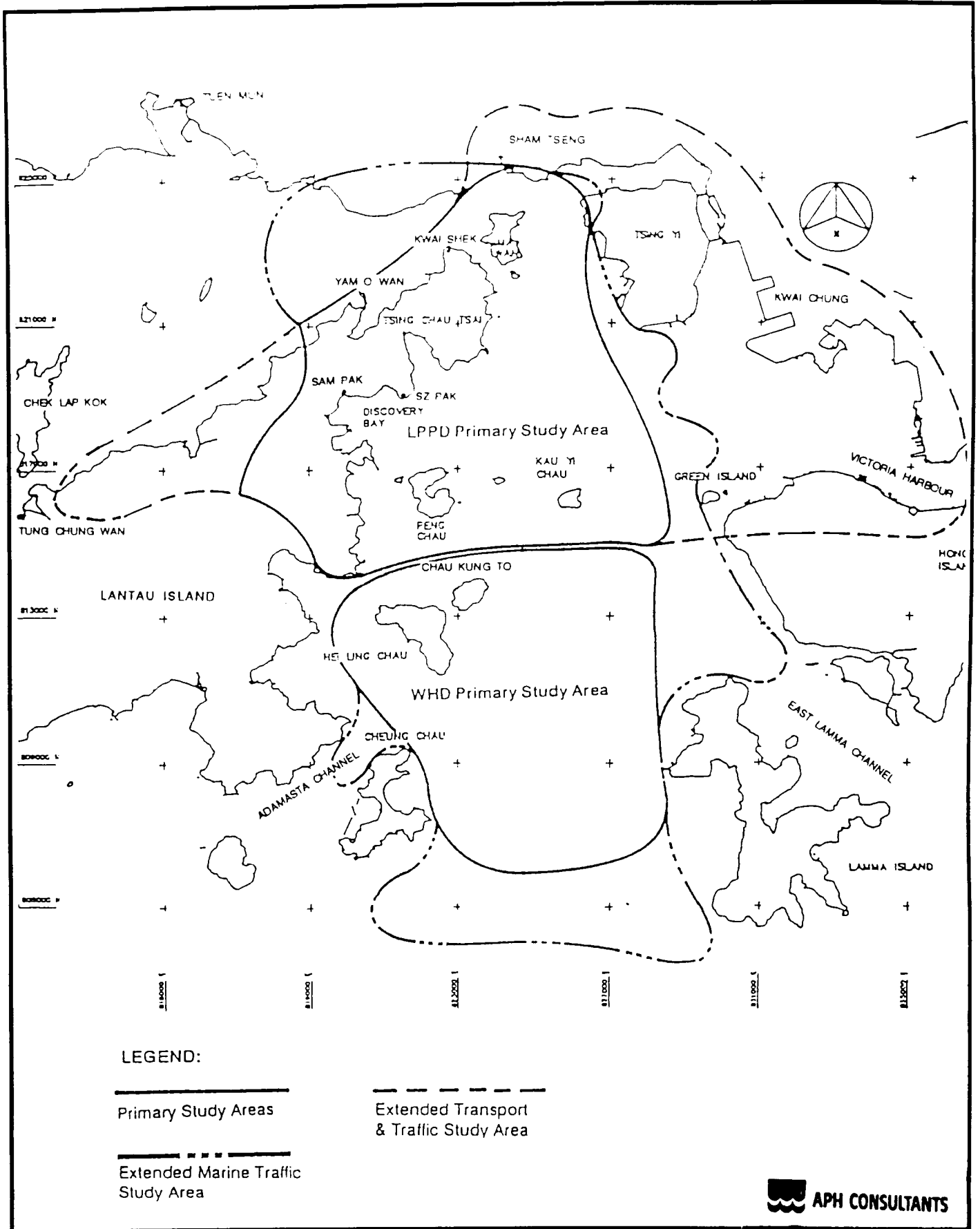


FIGURE 1.1
STUDY AREA