

## PROJECT PROFILE

### 1.0 BASIC INFORMATION

#### 1.1 Project Title

Permanent Aviation Fuel Facility for Hong Kong International Airport (the airport).

#### 1.2 Purpose and Nature of the Project

##### Purpose

The primary objective of this project is to provide a Permanent Aviation Fuel Facility for the airport to ensure a secure means of aviation fuel supply for the operational life of the airport. A permanent site is also required in order to replace the existing temporary Aviation Fuel Receiving Facility just off Sha Chau. Once the Permanent Aviation Fuel Facility is commissioned, the facility at Sha Chau will revert to an emergency back-up.

##### Nature

The Permanent Aviation Fuel Facility is planned to be located off-airport and will consist of: -

- (a) a jetty with two berths, each able to accommodate 10,000 to 60,000 dwt vessels,
- (b) a gross aviation fuel tankage capacity of approximately 100,000 cubic metres in 2004 increasing in stages to match the anticipated growth in aviation fuel uplift to an ultimate gross tankage capacity of approximately 400,000 cubic metres,
- (c) pumps and associated facilities, and
- (d) pipelines to transfer the fuel to the aviation fuel system on the airport.

The tank farm will occupy a land area adjacent to the jetty and there will be a twin pipeline connecting the facility to the airport pipeline system, which is likely to be buried at 3m below the seabed with suitable rock-armour protection.

#### 1.3 Name of Project Proponent

Airport Authority  
1 Cheong Yip Road  
Hong Kong International Airport  
Lantau  
Hong Kong

#### **1.4 Location and Scale of Project and History of Site**

Tuen Mun Area 38 (see Figure 1)

The jetty would be constructed seaward of existing reclaimed land which has only relatively recently been reclaimed, a portion of which (approximately 6 Ha) would accommodate the aviation fuel tank farm and associated facilities. Previously the land was earmarked for other purposes namely Central Incineration and Chemical Waste Facilities.

Two options for the aviation fuel submarine pipeline route will be evaluated:

- (i) connection to the existing facility at Sha Chau, either to the subsea pipeline or near the transfer pump station in the above water pipework;
- (ii) connection directly to the existing airport "western connection".

There may be a requirement for some dredging in order to ensure that sufficient water depth is available to accommodate the draught of tankers accessing the berths.

#### **1.5 Number of Types of Designated Projects to be covered by the Project Profile**

Three classifications of Designated Project are relevant in accordance with Part 1, Schedule 2 of the Environmental Impact Assessment Ordinance. These are categories B.1, H.2 and L.4. Therefore, an Environmental Permit must be obtained prior to the commencement of construction.

#### **1.6 Name and Telephone Number of Contact Person(s)**

## **2.0 OUTLINE OF PLANNING AND IMPLEMENTATION PROGRAMME**

### **2.1 How will the Project be Planned and Implemented?**

The Airport Authority (AA) is the project proponent, however the development, operation and maintenance of the facilities will be franchised out in due course. The detailed planning, design development, construction, commissioning and operation of the Permanent Aviation Fuel Facility will be the responsibility of the franchisee who will also be responsible for obtaining an Environmental Permit. AA will however start the EIA process. The

contract for implementation of the Study Brief will be novated to the franchisee in due course.

## 2.2 What is the Project Timetable?

The planning, detailed design and construction of the facility is projected to take approximately four years, with a completion date being approximately the end of 2005. A provisional programme is included as Attachment 1.

## 2.3 Are there any Interactions with Broader Programme Requirements or other Projects, which shall be considered?

Reclamation in Tuen Mun Area 38 is ongoing but outside the area proposed for the PAFF and may still be taking place when works commence for the Permanent Aviation Fuel Facility, with the associated potential for cumulative impacts should it be found necessary to dredge for tanker access. Building work on the facilities in adjacent areas may also be underway concurrently, again with potential for cumulative impacts (refer also to section 4.2).

## 3.0 MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

### 3.1 Land Environment

The land on which the tank farm would be located has been reclaimed by Government and is zoned for industrial use. The nearest residential development comprises housing estates in Tuen Mun, at least 3 kilometres from the proposed Permanent Aviation Fuel Facility location and not visible by line-of-site.

Re-engineering of local watercourses has been undertaken in conjunction with the ongoing reclamation in the area and no areas in the vicinity are used for agricultural purposes. The Tsing Shan (Castle Peak) massif to the north of this industrial zone is the dominant natural land feature, with steep vegetated slopes descending towards the existing coastal road and part-completed reclamation. The land use proposed is expected to be fully compatible with the zoning of this area and is thus not thought likely to detract from the overall visual value of the area. In addition, the proposed land use appears to be compatible with the potential use of Tuen Mun Area 38 as the Hong Kong's 4<sup>th</sup> Industrial Estate and with other, already existing, neighbours.

### 3.2 Marine Environment

There is one public beach nearby, Butterfly beach in Tuen Mun. In addition, marine ecological sensitive receivers include the Indo-Pacific Hump-Backed Dolphin and the prawn and commercial fish spawning and nursery areas to the west of Tuen Mun Area 38, in particular around Lung Kwu Chau. The

gazetted Sha Chau and Lung Kwu Chau Marine Park has already been recognised as an area of importance from a conservation perspective.

#### 4.0 POSSIBLE IMPACTS ON THE ENVIRONMENT

The major marine activities, expected to be involved during the construction stage of the project, will include the construction of the submarine pipeline (which will also involve dredging and backfilling), the installation of piling for the vessel berths (which may entail marine bored or percussive piling) and the creation of sufficient water depth to enable tankers to access the facility. Land activities will involve general utilities construction and the phased construction of the tank farm. There are therefore likely to be impacts arising from:

(i) Noise

The use of Powered Mechanical Equipment (PME) will be required for any necessary dredging activity and also for facility construction works (e.g. crane barges to handle piles and pile-driving for jetty construction work). Use of all PME will be governed by the licensing conditions of construction noise permits issued under the Noise Control Ordinance. A construction and operational noise assessment on the development will be undertaken if required; however, it is noted that the works would take place remote from land based Noise Sensitive Receivers which at the construction stage would likely be shielded by topography. Underwater noise associated with jetty construction and operation, with pipe installation and operation and with the actual operation of the facility (e.g. vessel noise) is expected, and mitigation measures may be required.

(ii) Air Quality

Dust may arise during the construction of the land facilities on the reclamation. Dust suppressing measures will be considered.

(iii) Water Quality

Dredging required for the pipeline is dependent on which of the two pipeline options is chosen. The dredging requirement for the option connecting into existing Sha Chau pipelines will be about half that required for the pipeline option going the full distance to the airport, hence water quality impacts are likely to be significantly less for the shorter option.

(iv) Ecology

In view of the differential lengths between the two pipeline options, marine life habitat loss arising from the requirement for dredged channels for submarine pipelines would be significantly less for the shorter of the two options. Other marine ecological impacts are again dependent on the ultimate scope of marine works and a full assessment of this would be required. Potential impacts on marine ecology would be greater during the construction stage, thus, Water Quality Objectives in the vicinity would be closely monitored through the implementation of a water quality monitoring programme around dredging and back-filling works. The use of 'least impact' reclamation, dredging and backfilling techniques will also be investigated. Loss of natural coastline would not occur.

(v) Risk

A full risk assessment will be undertaken for the operational facility, however, this assessment will not cover the construction stage because there are no Potentially Hazardous Installation (PHI) implications at the construction stage.

**4.1 Existing and Planned Sensitive Receivers and Sensitive Parts of the Natural Environment:**

- Sha Chau and Lung Kwu Chau Marine Park
- Marine Ecology, including the Indo-Pacific Hump-Backed Dolphin
- Castle Peak Power Station Cooling Water Intakes
- Tuen Mun Residential areas
- Butterfly Beach

**4.2 Major Elements of the Surrounding Environment and Existing and/or Relevant Past Land Use(s) on Site which might Affect the Area in which the Project is Proposed to be Located, such as:**

The site is located in the vicinity of Castle Peak Power Station, a cement plant, a steelyard and a container handling port facility. There are therefore potential cumulative impacts including those from the proposed West Tuen Mun Port development and potential other future uses (including the planned 4th Industrial Estate, which is provisionally located on the adjacent site to the east). However, the use of this site for an aviation fuel facility does not appear to be incompatible with the adjacent land uses. One pipeline routing option would involve some works within the Sha Chau and Lung Kwu Chau Marine Park, with attendant additional statutory environmental implications and public concerns. Two pipeline options will therefore be investigated.

## 5.0 ENVIRONMENTAL PROTECTION MEASURES TO BE INCORPORATED IN THE DESIGN AND ANY FURTHER ENVIRONMENTAL IMPLICATIONS

### 5.1 Construction

- Noise - underwater noise attenuation measures will be investigated, along with other 'least impact' working methodologies.
- Air Quality - bowring of any haul roads, incorporation of relevant air pollution control measures into the contract.
- Water Quality - use of working methodologies to reduce impacts from reclamation, use of 'least impact' dredging and back-filling technology, testing and classification of sediments to enable appropriate disposal, limits on dredging volumes per day, use of a localised water quality monitoring programme to ensure compliance with TAT levels from control station averages, sensitive receiver monitoring; etc. Compliance with all Government requirements.
- Ecology/Marine Ecology - investigations into potential ecological impacts and mitigation measures will be undertaken.
- Waste - investigation into and implementation of a robust waste management programme.

### 5.2 Operations

- Water Quality - minimal. Use of state of the art fuel transfer technology, use of petrol interceptors and development of robust spill response and clean up contingencies.
- Noise - potential requirement for dedicated fuel delivery vessel noise specification.
- Air Quality - routine testing of odour and benzene levels at the fuel tank farm site boundary.
- Waste - implementation of 'zero-discharge policy' from the jetty and quay frontage as well as provision of an effective waste management programme.
- Risk - A quantitative risk assessment will be undertaken for the facility, and, if necessary, risk mitigation measures designed to reduce risks to ALARP will be incorporated with an extensive spill response capability for the facility.
- Landscaping - to be addressed. Design of the facilities, in particular the highly visible aviation fuel tanks, will need to be assessed in terms of landscaping requirements.

Other factors to be addressed will include consideration of buffer zones, the optimum siting and layout of facilities given the adjacent land use at each side.

### 5.3 Possible Severity, Distribution and Duration of Environmental Effects

An indicative programme is shown in Attachment 1. The potential environmental effects of dredging/backfilling on water quality, and secondary effects on marine ecology will be investigated and will take account of the naturally high sediment burden in the area, combined with projected dredging volumes and rates as well as the use of 'least impact' dredging techniques. A QRA will be undertaken to assess fixed installation and other risk aspects.

### 5.4 Further Implications:

AA presented an update on the site search for a Permanent Aviation Fuel Facility for the airport to ACE on 18 December 2000. At this presentation, the ACE indicated that the Council had no objection to AA continuing further exploration of potential site options bordering North Lantau waters.

The proposed development may raise a certain level of public interest. However, the Permanent Aviation Fuel Facility is intended to replace the current temporary facility at Sha Chau which is located within the Marine Park in order that this can revert to an emergency back up facility as soon as possible.

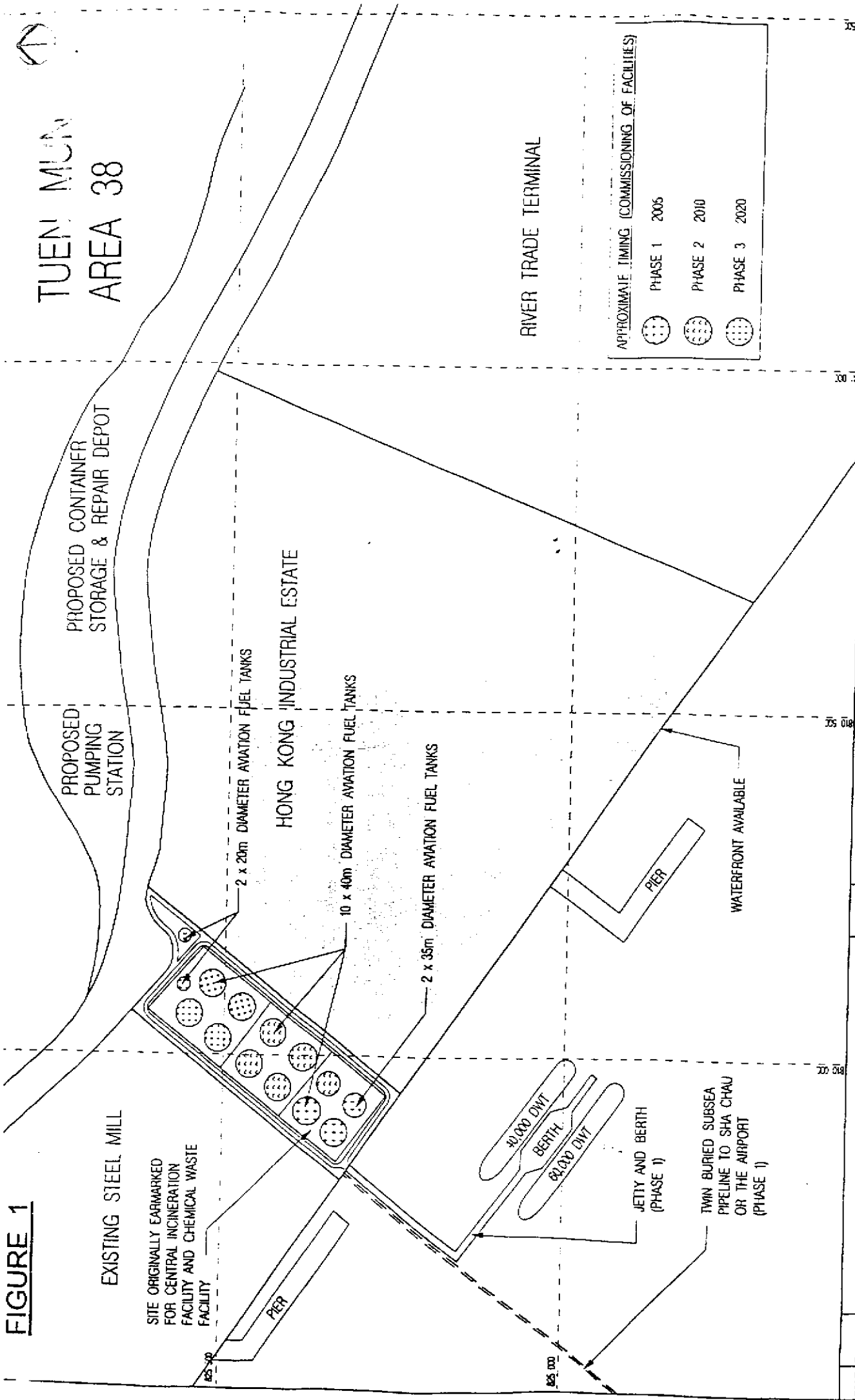
### 6.0 USE OF PREVIOUSLY APPROVED EIA REPORTS

Several previous EIA reports are relevant, including the January 1995 Proposed Aviation Fuel Receiving Facility at Sha Chau - EIA, and the subsequent Detailed Design Basis EIA for the same facility, completed in 1996. The EIA completed for the Tuen Mun Area 38 reclamation, covering developments along the New Territories coastline bordered by North Lantau waters as well as the associated infrastructure works EIAs will also be used for reference. In addition, full reference will be made to the recent Ma Wan Channel Risk Study.

The English version of this Project Profile shall prevail wherever there is a discrepancy between the English version and the Chinese version.

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**FIGURE 1**



**TUENN MUN  
AREA 38**

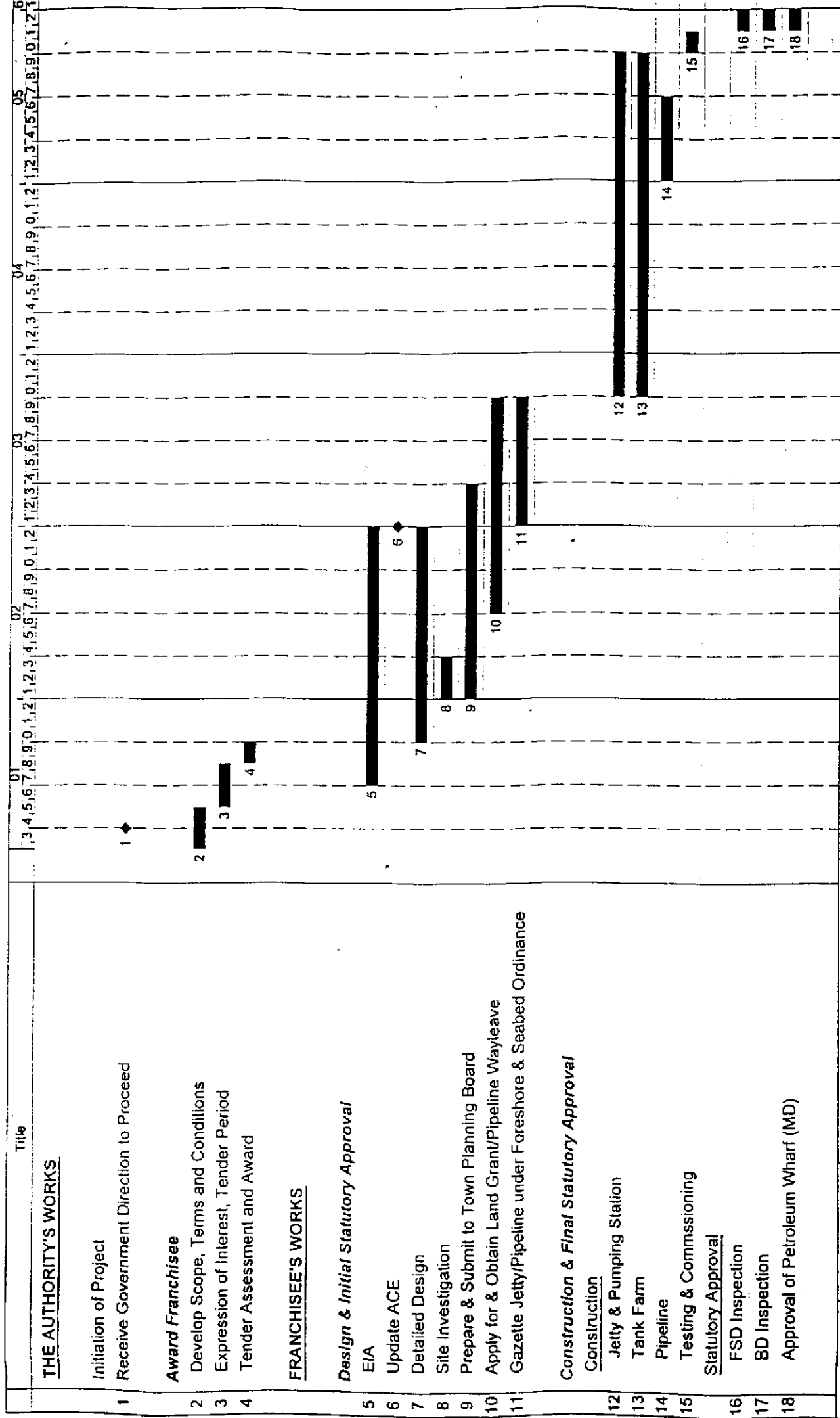
**APPROXIMATE TIMING (COMMISSIONING OF FACILITIES)**

	PHASE 1	2005
	PHASE 2	2010
	PHASE 3	2020

<p>APPROXIMATE TIMING (COMMISSIONING OF FACILITIES)</p> <table border="1"> <tr> <td></td> <td>PHASE 1</td> <td>2005</td> </tr> <tr> <td></td> <td>PHASE 2</td> <td>2010</td> </tr> <tr> <td></td> <td>PHASE 3</td> <td>2020</td> </tr> </table>			PHASE 1	2005		PHASE 2	2010		PHASE 3	2020	<p>Scale: 1 : 5000 (A3)</p> <p>Rev: B</p> <p>Plot Date: 02 APR 2001</p>
	PHASE 1	2005									
	PHASE 2	2010									
	PHASE 3	2020									
<p>Approved By: <b>SF WONG</b></p> <p>Checked: <b>B HARRIS</b></p> <p>Authorised Representative:</p>	<p>Date: 07/11/00</p> <p>Hong Kong International Airport (Planning No)</p> <p>PPM/ 000 / C/ 0001</p>	<p>File: AREA 38 - AVIATION FUEL FACILITIES CONCEPTUAL ARRANGEMENT</p>									
<p>               香港國際機場管理局              HONG KONG AIRPORT AUTHORITY         </p>											
<p>             Airport Authority Building              1 Changi Tsi Road              Hong Kong International Airport              Lantau, Hong Kong              Tel: (852) 288 8111              Fax: (852) 288 0170         </p>											
<p>BR</p> <p>BR</p> <p>Checked</p>	<p>BR</p> <p>BR</p> <p>Checked</p>	<p>             Description              B 22/03/2001 SITE RELOCATION              A 08/11/2000 FIRST ISSUE         </p>									
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**ATTACHMENT 1**



Programme No.	afs_tm
Issue / Date	2/18/03/01
Prepared By	PY
Checked By	WOWR/BAB

Print Date: 12/04/01 (11:11)

**PERMANENT AVIATION FUEL SUPPLY**  
 Indicative Programme - Tuen Mun Area 38

