

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 709 - WATERWORKS

Water Supplies - Fresh water supplies

240WF - Replacement of mechanical and electrical equipment and improvement of operation facilities in Sandy Bay pumping station

Members are invited to recommend to Finance Committee the upgrading of **240WF** to Category A at an estimated cost of \$64.03 million in money-of-the-day prices for the replacement of mechanical and electrical equipment and improvement of operation facilities in the Sandy Bay pumping station.

PROBLEM

The mechanical and electrical equipment in the Sandy Bay pumping station has been in service for about 35 years. Due largely to ageing, they are generally in very poor condition and are beyond economical repair. We need to replace them to ensure the reliable operation of the pumping station.

PROPOSAL

2. The Director of Water Supplies (DWS), with the support of the Secretary for Works, proposes to upgrade **240WF** to Category A at an estimated cost of \$64.03 million in money-of-the-day (MOD) prices for the replacement of mechanical and electrical equipment and improvement of operation facilities in the Sandy Bay pumping station.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of the project comprises –
- (a) replacement of nine electric pumpsets and the associated accessories;
 - (b) replacement of the existing power supply and control equipment;
 - (c) provision of control valves for the inlet water mains;
 - (d) the civil modification works required for the implementation of the works mentioned in (a), (b) and (c) above; and
 - (e) renovation of the Sandy Bay pumping station building.

JUSTIFICATIONS

4. The existing Sandy Bay pumping station was put into service in 1964. It is equipped with nine electric pumpsets for pumping treated water from Silvermine Bay treatment works via two submarine pipes to the Mount Davis, the Kennedy Town and the Elliot Fresh Water Service Reservoirs for fresh water supply to Pok Fu Lam, Wong Chuk Hang, Aberdeen, Ap Lei Chau and the Lamma Island.

5. Having been in service for about 35 years, many items of the mechanical and electrical equipment including pumpsets, power supply and control equipment in the pumping station have reached the end of their serviceable life. They are currently in very poor condition. The deficiencies of the pumping station have led to high operating and maintenance costs. We have encountered difficulties in obtaining some of the necessary spare parts from the suppliers on some occasions. We expect this situation to deteriorate in the coming years which will adversely affect the normal operation of the pumping station. To ensure the reliability of fresh water supply to the southern part of the Hong Kong Island and Lamma Island, we propose to replace the mechanical and electrical equipment in the pumping station.

/6.

6. At present, the control of the water inflow to the Sandy Bay pumping station from the Silvermine Bay treatment works relies on the operation of two manual valves, one on the shore at Mui Wo and the other on Chau Kung Island. When there is a need to regulate the water inflow to the pumping station, we need to arrange staff to go to these locations to operate the manual valves. In emergency situations, extra effort is required to shut down the manual valves to avoid damage to the pumping facilities. We consider that the existing practice is inefficient and not cost-effective. We consider it necessary to install two remote control valves on the landside of the two submarine pipes near the Sandy Bay pumping station with a view to providing instantaneous control of water inflow to the pumping station.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of this project to be \$64.03 million in MOD prices (see paragraph 8 below), made up as follows –

	\$ million	
(a) Replacement of nine electric pumpsets and associated accessories	23.41	
(b) Replacement of power supply and control equipment	21.56	
(c) Provision of control valves	0.30	
(d) Civil modification works	7.36	
(e) Renovation of the Sandy Bay pumping station building	0.40	
(f) Contingencies	5.30	
Sub-total	58.33	(at December 1998 prices)
(g) Provision for price adjustment	5.70	
Total	64.03	(in MOD prices)

/8.

8. Subject to approval, we will phase the expenditure as follows

Year	\$ million (Dec 1998)	Price adjustment factor	\$ million (MOD)
2000 - 2001	13.20	1.06217	14.02
2001 - 2002	35.00	1.09934	38.48
2002 - 2003	10.13	1.13782	11.53
	58.33		64.03

9. We have derived the MOD estimates on the basis of the Government 億 latest forecast of trend labour and construction prices for the period 2000 to 2003. We will tender the supply and installation of the mechanical and electrical plant as a lump sum contract without provision for price adjustment. We will carry out the civil works under a term contract, on a re-measurement basis with provision for price adjustment as the construction period will exceed 21 months.

10. We estimate that this project will give rise to an annual saving of \$660,000 in energy and maintenance costs.

11. This project by itself would lead to an increase in water charges by 0.03% in real terms by 2003¹.

PUBLIC CONSULTATION

12. We consider that public consultation is unnecessary as the proposed project only involves replacement and modification of existing plant and equipment within the existing pumping station.

¹ The increase in water charges is calculated on the assumption that the water demand remains static during the period from 1998 to 2003 and the amount of Government subsidy to the waterworks operations is to be contained at the present level.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

13. The Director of Environmental Protection completed an Environmental Review in April 1999 of the project and concluded the works will have no long term environmental impact. For short term impact during construction, we will implement standard pollution measures in the relevant contracts.

LAND ACQUISITION

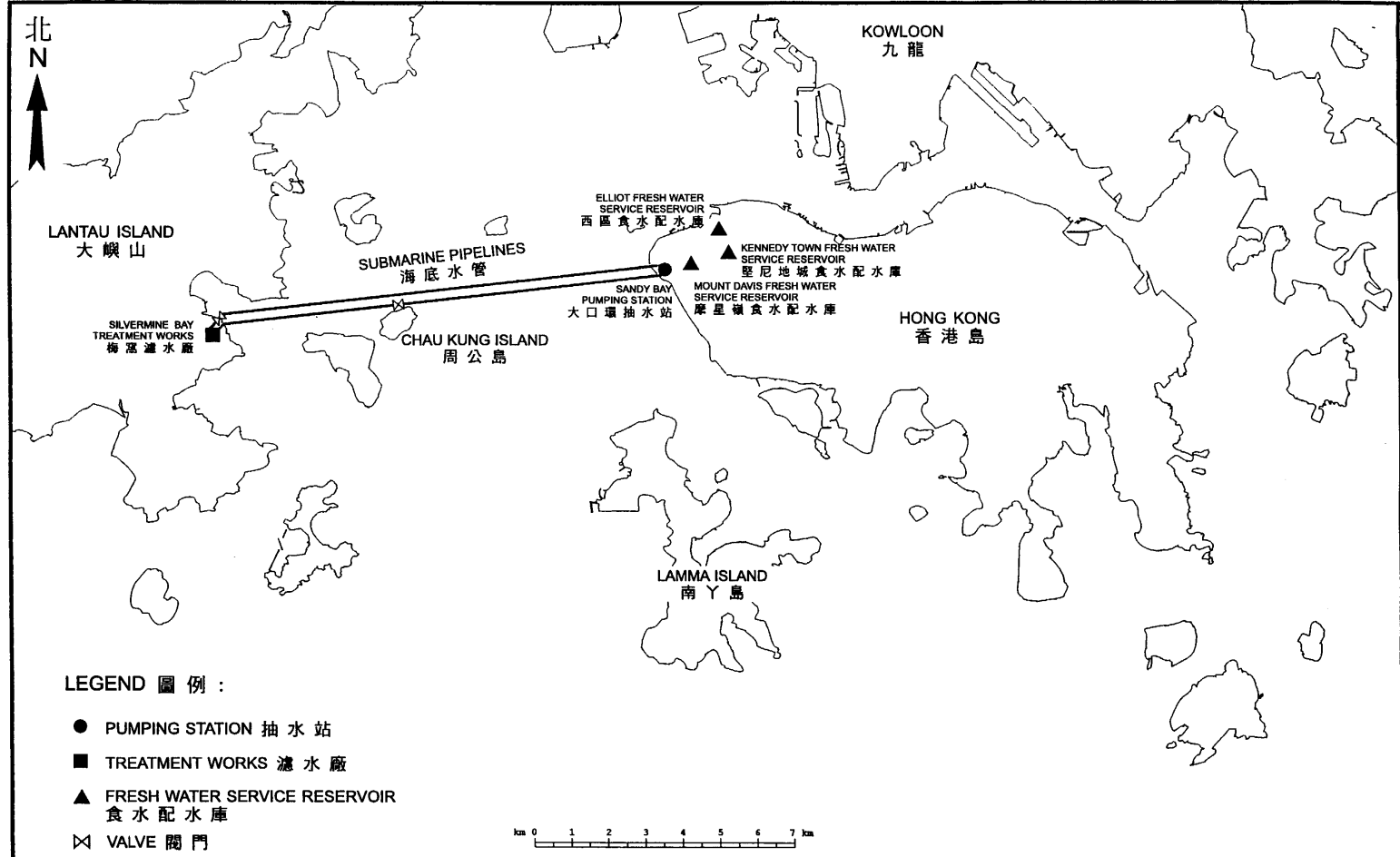
14. The project does not require land acquisition.

BACKGROUND INFORMATION

15. We upgraded **240WF** to Category B in September 1998.

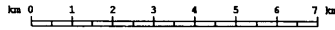
16. We have substantially completed the detailed design work for **240WF** using in-house resources. We plan to start the proposed works in January 2000 for completion in June 2002.

Works Bureau
May 1999



LEGEND 圖例：

- PUMPING STATION 抽水站
- TREATMENT WORKS 濾水廠
- ▲ FRESH WATER SERVICE RESERVOIR 食水配水庫
- ⊗ VALVE 閘門



APPROVED
[Signature]
 AD / M&E (g.)

P.W.P. ITEM NO. 240WF — REPLACEMENT OF M & E EQUIPMENT AND IMPROVEMENT OF OPERATION FACILITIES IN SANDY BAY PUMPING STATION
 工務計劃項目240WF號 — 更換大口環抽水站機電設備和改善運作設施

WATER SUPPLIES DEPT.
 HONG KONG

25/ 5/ 98 (CAT 'A' SUBMISSION)
 (甲級工程)

SKETCH NO. 03799 / 087