

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 709 - WATERWORKS

#### Water Supplies - Combined fresh/salt water supply

#### 91WC - Water supply to new developments in Yau Tong area

Members are invited to recommend to Finance Committee the upgrading of **91WC** to Category A at an estimated cost of \$377.6 million in money-of-the-day prices.

### PROBLEM

By 2002, the existing water supply facilities serving Yau Tong, Cha Kwo Ling and Lei Yue Mun will be unable to cope with the anticipated increase in water demand arising from the planned developments<sup>1</sup> in the areas.

### PROPOSAL

2. The Director of Water Supplies (DWS), with the support of the Secretary for Works, proposes to upgrade **91WC** to Category A at an estimated cost of \$377.6 million in money-of-the-day (MOD) prices for the provision of additional waterworks facilities to extend fresh and salt water supplies to the new developments in Yau Tong, Cha Kwo Ling and Lei Yue Mun.

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<sup>1</sup> The types of planned developments in the concerned areas include redevelopment of existing old-type public housing estates, public and private housing developments and commercial developments.

## PROJECT SCOPE AND NATURE

3. The scope of the project comprises:-
- (a) the construction of Yau Tong No. 2 fresh water service reservoir with a capacity of 48 000 cubic metres;
  - (b) the laying of about 5 kilometres of 800 millimetres diameter fresh water trunk mains from the existing trunk main at Tseung Kwan O Road to the proposed Yau Tong No. 2 fresh water service reservoir;
  - (c) the laying of about 5 kilometres of fresh water distribution mains of diameter ranging from 150 millimetres to 1 000 millimetres from the proposed Yau Tong No. 2 fresh water service reservoir to Sai Tso Wan; and
  - (d) the laying of about 2 kilometres of salt water mains of diameter ranging from 450 millimetres to 600 millimetres between the existing Yau Tong salt water service reservoir and Yau Tong salt water pumping station with connections to existing mains at Ko Chiu Road and Cha Kwo Ling Road.

## JUSTIFICATIONS

4. The existing Yau Tong No. 1 fresh water service reservoir is the primary source of water supply for Yau Tong, Cha Kwo Ling and Lei Yue Mun areas. It has a storage capacity of 22 799 cubic metres<sup>2</sup> and is capable of meeting a mean daily fresh water demand of about 27 000 cubic metres. In view of the proposed public housing development<sup>3</sup> in Lei Yue Mun and the re-developments

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<sup>2</sup> The storage capacity of a fresh water service reservoir (i.e. 22 799 cubic metres) is generally lower than the mean daily fresh water demand (i.e. 27 000 cubic metres) because replenishment will come from the primary service reservoir supply source as the stock in the reservoir is depleted during the course of the day.

<sup>3</sup> The proposed public housing development in Lei Yue Mun and the re-developments of Yau Tong Estate, Lei Yue Mun Road Estate and Ko Chiu Road Estate will be completed in 2002.

of Yau Tong Estate, Lei Yue Mun Road Estate and Ko Chiu Road Estate, we envisage that the population in areas currently served by the Yau Tong No. 1 fresh water service reservoir will increase from 50 000 in 1999 to 100 000 in 2002. Upon the completion of housing developments<sup>4</sup> in Cha Kwo Ling, Yau Tong Bay and the Eastern Harbour Crossing site, we anticipate that the population will further increase to 160 000 in 2004 and to 213 000 in 2008.

5. Together with the demand arising from other planned commercial developments, we envisage that the daily fresh water demand will increase from the current level of 27 000 cubic metres to 42 000 cubic metres in 2002, to 57 000 cubic metres in 2004 and to 81 000 cubic metres in 2008. In addition, the proposed developments and redevelopments will generate an additional daily salt water demand of 3 800 cubic metres in 2002, 7 800 cubic metres in 2004 and 10 200 cubic metres in 2008. To meet the projected growth in water demand up to 2008, we plan to provide additional fresh water supply facilities and to extend the salt water supply to the areas as detailed in paragraph 3 (a) to (d) above.

## FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be \$377.6 million in MOD prices (see paragraph 7 below), made up as follows:-

	<b>\$ million</b>
(a) Construction of Yau Tong No. 2 fresh water service reservoir	
(i) civil works	177.8
(ii) mechanical and electrical works	1.2
(b) Mainlaying works	131.8

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<sup>4</sup> The planned public housing development in Cha Kwo Ling and the Eastern Harbour Crossing Site Phase I will be completed in 2004 and those in the Eastern Harbour Crossing Site Phase II will be completed in 2006. The planned private housing development in Yau Tong Bay reclamation will be completed in 2006.

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	<b>\$ million</b>	
(c) Contingencies	31.0	
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Sub-total	341.8	(at December 1998 prices)
(d) Provision for price adjustment	35.8	
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Total	377.6	(in MOD prices)
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7. Subject to approval, we will phase the expenditure as follows -

<b>Year</b>	<b>\$ million (Dec 1998)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
1999 - 2000	4.7	1.02625	4.8
2000 - 01	103.7	1.06217	110.2
2001 - 02	127.9	1.09934	140.6
2002 - 03	67.2	1.13782	76.5
2003 - 04	29.2	1.17765	34.3
2004 - 05	7.1	1.21886	8.7
2005 - 06	2.0	1.26152	2.5
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	341.8		377.6
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8. We derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 1999 to 2006. We will tender the works under standard re-measurement contracts because most of the works are underground and hence it is not possible to ascertain the exact quantities of works in advance of construction. We will provide for price adjustment in the contracts because the construction period will exceed 21 months.



9. We estimate the additional annually recurrent expenditure to be \$1.11 million.

10. The project by itself would lead to an increase in water charges by a maximum of 0.18% in real terms by 2006<sup>5</sup>.

## **PUBLIC CONSULTATION**

11. We consulted the Environmental Improvement Committee of the Kwun Tong Provisional District Board on 4 January 1999 and the Committee supported the proposal.

## **ENVIRONMENTAL IMPLICATIONS**

12. We completed a Preliminary Environmental Review (PER) of this project in February 1998 and concluded that the project would have no long term adverse environmental impact. The Director of Environmental Protection vetted the PER and agreed that an Environmental Impact Assessment would not be necessary in view of the nature and scope of the project. For short term impacts, DWS will control noise, dust and site run-off nuisances during construction to comply with established standards and guidelines through the implementation of standard environmental pollution control clauses in the works contracts.

13. We will implement the findings and recommendations of the Feasibility Study on Cleaning and Disinfection of Service Reservoirs and Disposal of the Effluent completed in July 1998 in the handling, treatment and disposal of washwater in the regular cleansing of the proposed fresh water service reservoir.

## **LAND ACQUISITION**

14. The project does not require land acquisition.

**/BACKGROUND .....**

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<sup>5</sup> The water charges are calculated on the assumption that the demand remains static during the period from 1998 to 2006 and the amount of Government subsidy to the waterworks operations is to be contained at the present level.

**BACKGROUND INFORMATION**

15. We upgraded **91WC** to Category B in September 1998. We have substantially completed the detailed design work for **91WC** using in-house resources. We plan to start the mainlaying works in November 1999 for completion in April 2002. We also plan to construct the Yau Tong No. 2 fresh water service reservoir under a two-stage arrangement. The first stage for the provision of a storage capacity of 25 000 cubic metres will commence in December 1999 for completion in April 2002 to meet the growth of demand in 2002. The final stage for the provision of an additional storage capacity of 23 000 cubic metres will commence in early 2002 for completion in March 2004 to meet the further growth of demand beyond 2004.

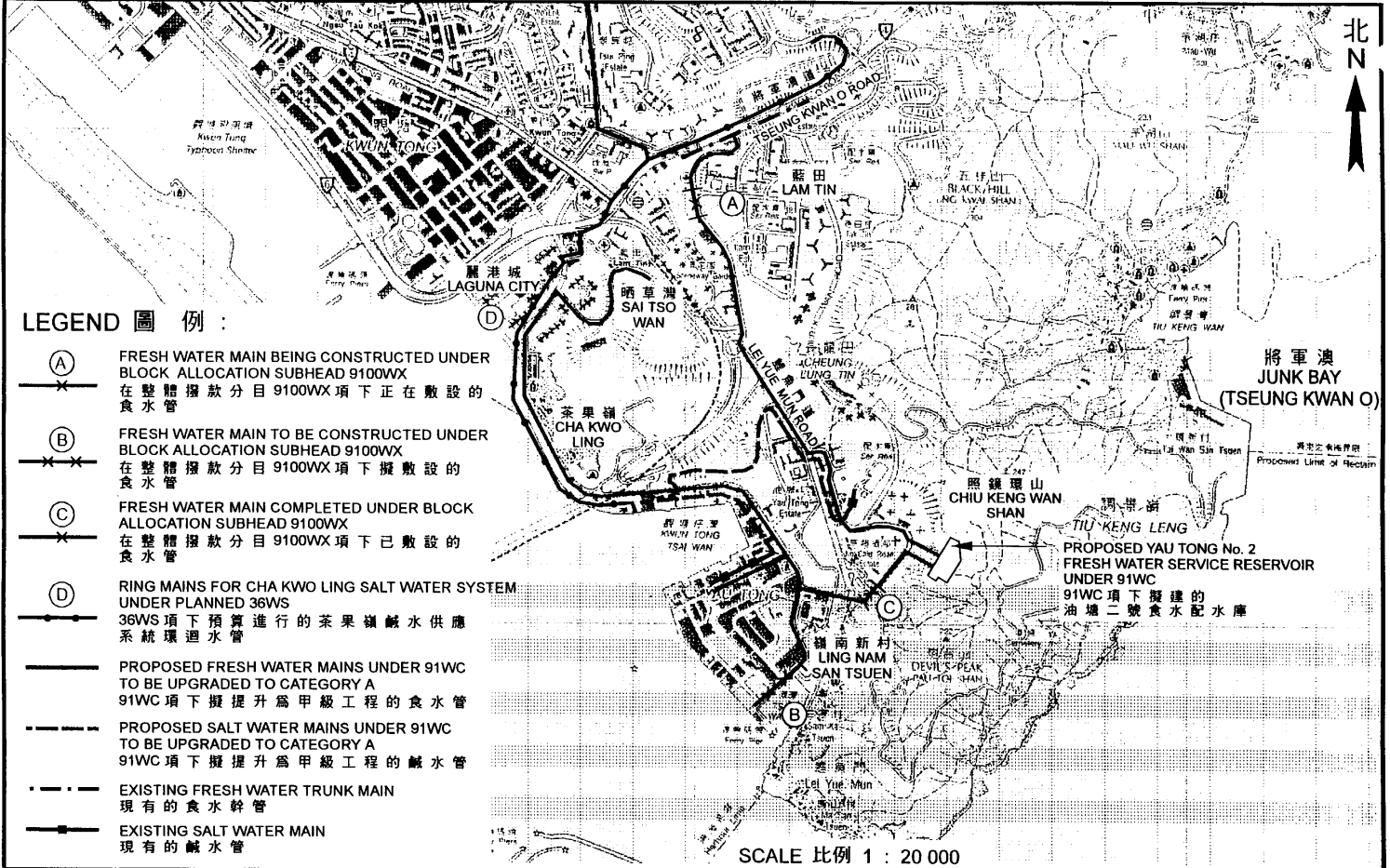
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Works Bureau  
May 1999

(PWSC0094/WIN4)



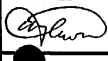
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LEGEND 圖例：

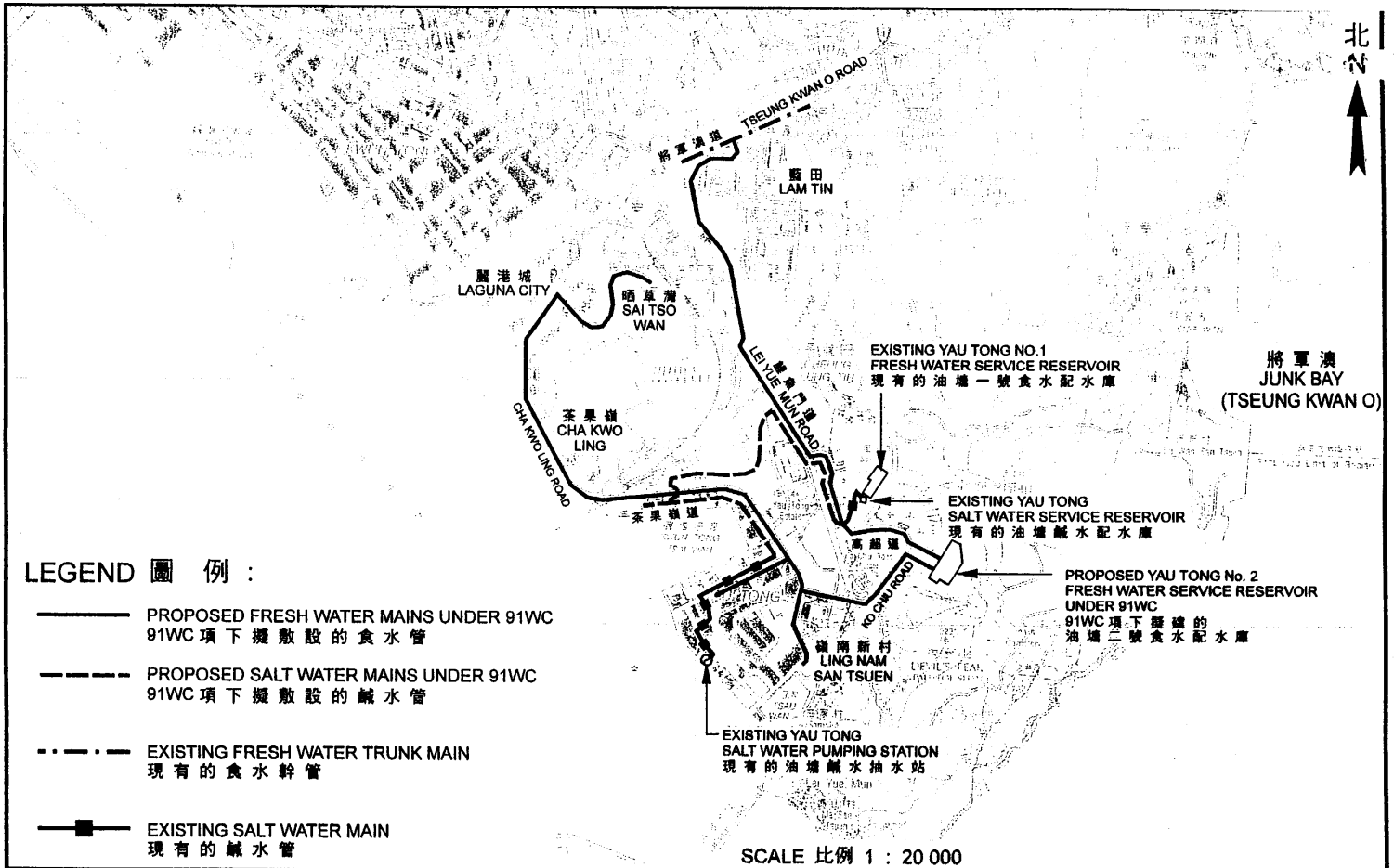
- (A) FRESH WATER MAIN BEING CONSTRUCTED UNDER BLOCK ALLOCATION SUBHEAD 9100WX  
在整體撥款分目9100WX項下正在敷設的食水管
- (B) FRESH WATER MAIN TO BE CONSTRUCTED UNDER BLOCK ALLOCATION SUBHEAD 9100WX  
在整體撥款分目9100WX項下擬敷設的食水管
- (C) FRESH WATER MAIN COMPLETED UNDER BLOCK ALLOCATION SUBHEAD 9100WX  
在整體撥款分目9100WX項下已敷設的食水管
- (D) RING MAINS FOR CHA KWO LING SALT WATER SYSTEM UNDER PLANNED 36WS  
36WS項下預算進行的茶果嶺鹹水供應系統環迴水管
- PROPOSED FRESH WATER MAINS UNDER 91WC TO BE UPGRADED TO CATEGORY A  
91WC項下擬提升為甲級工程的食水管
- PROPOSED SALT WATER MAINS UNDER 91WC TO BE UPGRADED TO CATEGORY A  
91WC項下擬提升為甲級工程的鹹水管
- EXISTING FRESH WATER TRUNK MAIN  
現有的食水幹管
- EXISTING SALT WATER MAIN  
現有的鹹水管

SCALE 比例 1 : 20 000

APPROVED  
  
 CE / Des  
 2 / 99

PLANNED NEW WATERWORKS FACILITIES IN YAU TONG AREA  
 油塘區已計劃的新供水設施

WATER SUPPLIES DEPT.  
 HONG KONG  
 SKETCH NO. 03799 / 016



**LEGEND 圖例：**

- PROPOSED FRESH WATER MAINS UNDER 91WC  
91WC項下擬敷設的食水管
- - - - PROPOSED SALT WATER MAINS UNDER 91WC  
91WC項下擬敷設的鹹水管
- . - . - . EXISTING FRESH WATER TRUNK MAIN  
現有的食水幹管
- EXISTING SALT WATER MAIN  
現有的鹹水管

SCALE 比例 1 : 20 000

APPROVED  
*[Signature]*  
CE / Des  
1 / 3 / 99

P.W.P. 91WC — WATER SUPPLY TO NEW DEVELOPMENTS IN YAU TONG AREA  
工務計劃項目第91WC號 — 油塘新發展區供水計劃

WATER SUPPLIES DEPT.  
HONG KONG  
SKETCH NO. 03799 / 017