

**ITEM FOR PUBLIC WORKS
SUBCOMMITTEE
OF FINANCE COMMITTEE**

HEAD 709 - WATERWORKS

Water Supplies - Combined fresh/salt water supplies

58WC - Water supply to West Kowloon reclamation, stage 2

Members are invited to recommend to Finance Committee -

- (a) the upgrading of part of **58WC**, entitled “Water supply to West Kowloon reclamation, stage 2 - main works”, to Category A at an estimated cost of \$ 162.19 million in money-of-the-day prices; and
- (b) the retention of the remainder of **58WC**, retitled “Water supply to West Kowloon reclamation, stage 2 - remaining works” in Category B.

PROBLEM

We forecast that the stage 1 water supply system being constructed

/under

under **62WC**¹ “Water supply to West Kowloon reclamation - stage 1” together with the existing water supply facilities serving West Kowloon will not be able to cope with the additional fresh and salt water demands generated from the planned developments on the West Kowloon Reclamation (WKR) after 2001.

PROPOSAL

2. The Director of Water Supplies (DWS), with the support of the Secretary for Works, proposes to upgrade part of **58WC** to Category A at an estimated cost of \$162.19 million in money-of-the-day (MOD) prices for the construction of the Shek Kip Mei No. 3 fresh water service reservoir, uprating of the Yau Ma Tei salt water pumping station and the laying of associated fresh and salt water distribution mains in conjunction with roadworks along the Austin Road Extension and new roads SR7, D13 and L5 on the WKR.

PROJECT SCOPE AND NATURE

3. The scope of works under **58WC** comprises -

- (a) construction of the Shek Kip Mei No. 3 fresh water service reservoir and associated works to provide an additional storage capacity of 50 000 cubic meters;
- (b) uprating of the existing Yau Ma Tei salt water pumping station from the existing capacity of 50 000 cubic metres per day to 66 000 cubic metres per day; and
- (c) laying of about 18 kilometres of associated fresh and salt water distribution mains of diameter ranging from 150 to 800 millimetres on the WKR.

4. The part of **58WC** we now propose to upgrade to Category A

/comprises

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In April 1993, Finance Committee (FC) approved the upgrading of **62WC** to Category A at an estimated cost of \$237.5 million at October 1992 prices. The project scope comprises the construction of the Shek Kip Mei No. 2 fresh water service reservoir, modification to the Yau Ma Tei salt water service reservoir and laying of about 44 kilometres of fresh and salt water mains. The works are in progress for completion by February 1999.

comprises the works in paragraphs 3(a) and 3(b) above, and the laying of about 4.5 kilometres of fresh water and salt water distribution mains along the Austin Road Extension and new roads SR7, D13 and L5 under the works in paragraph 3(c) above.

JUSTIFICATION

5. We plan to implement the water supply systems for the WKR in stages to cater for a population of about 71 000 in 2001, 131 000 in 2005 and 176 000 upon completion of all proposed developments in 2011. DWS forecasts that these population intake and proposed developments on the WKR will generate a daily fresh water demand of 47 000 cubic metres by 2001, which will increase to 105 000 cubic metres by 2005 and to 125 000 cubic metres by 2011. The corresponding daily salt water demand by 2001 is 12 000 cubic metres, and will increase to 26 500 cubic metres by 2005 and to 31 500 cubic metres by 2011.

6. In accordance with the planned development programme, the stage 1 water supply system for the WKR together with the existing water supply facilities will only be able to cope with the anticipated daily fresh water and salt water demands of about 47 000 cubic metres and 12 000 cubic metres respectively on the WKR up to 2001. To meet the additional daily fresh and salt water demands of 58 000 cubic metres and 14 500 cubic metres, respectively, up to 2005, we propose to construct the Shek Kip Mei No. 3 fresh water service reservoir² and to uprate the existing Yau Ma Tei salt water pumping station³ as detailed in paragraph 3(a) and 3(b) above.

7. As part of the distribution network to supply fresh and salt water from the respective supply sources to planned developments on the WKR, we need to lay fresh and salt water mains as detailed in paragraph 3(c) above.

/Among

² The additional storage capacity of the new fresh water reservoir described in paragraph 3(a), i.e. 50 000 cubic metres, is generally lower than the additional daily fresh water demand, i.e. 58 000 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.

³ The additional pumping capacity of the salt water pump described in paragraph 3(b), i.e. 16 000 cubic metres per day, is generally higher than the additional daily salt water demand, i.e. 14 500 cubic metres, because it has to cater for the peak demands during the day.

Among the laying of 18 kilometres of fresh and salt water distribution mains, about 0.3 kilometres will fall within the project boundaries of a Highways Department's (HyD) project **126TB**⁴ "Pedestrian subway at junction of Austin Road/Canton Road". In addition, about 4.2 kilometres of the proposed mainlaying work will fall within the project boundaries of a Territory Development Department's (TDD) project **332CL**⁵ "West Kowloon reclamation - main works (remainder)". To avoid interface problems arising from two contractors working on the same site and to reduce costs, we propose to lay the above distribution mains in conjunction with the roadworks under **126TB** and **332CL**, respectively.

FINANCIAL IMPLICATIONS

8. We estimate the capital cost of **58WC** to be \$162.19 million in MOD prices (see paragraph 10 below), made up as follows -

	\$ million
(a) Construction of Shek Kip Mei No. 3 fresh water service reservoir and associated works	75.89
(b) Upgrading and improvement works of Yau Ma Tei salt water pumping station	2.97
(i) supply and installation of one electrical pump	2.47

/(ii)

⁴ On 4 September 1998, PWSC endorsed the upgrading of **126TB** under Head 706 to Category A. FC will consider PWSC's recommendations at its meeting on 18 September 1998.

⁵ A related paper, PWSC(98-99)17, for the upgrading of part of **332CL** under Head 707 to Category A is also submitted for Members' endorsement at this meeting.

(ii)	supply and installation of associated pipe works, monitoring and control equipment	0.20	
(iii)	provision of assessories such as pump plinth and pipe supports	0.30	
(c)	Laying of water mains	27.50	
(i)	Pipe materials	6.36	
(ii)	Construction of pipelines	21.14	
(d)	Consultants' fees for	3.11	
(i)	Construction stage	0.37	
(ii)	Resident site staff expenses	2.74	
(e)	Contingencies	10.94	
	Sub-total	120.41	(at December 1997 prices)
(f)	Inflation allowance	41.78	
	Total	162.19	(in MOD prices)

9. A breakdown by man months of the estimate for consultants' fees including resident site staff expenses is at the Enclosure.

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

Year	\$ million (Dec 1997)	Price adjustment factor	\$ million (MOD)
1999 - 2000	12.92	1.14878	14.84
2000 - 01	23.40	1.24642	29.17
2001 - 02	55.01	1.35237	74.39
2002 - 03	20.09	1.46732	29.48
2003 - 04	8.99	1.59204	14.31
	120.41		162.19

11. We derived the MOD estimates on the basis of the Government's forecasts of trend labour and construction prices for the period from 1999 to 2004. We will invite tenders for the construction works of the Shek Kip Mei No. 3 fresh water service reservoir and its associated works under a lump sum contract because we have firm quantities for the majority of the works. We will invite tenders for the supply of the new pump under a lump sum contract and will carry out the installation work by utilising in-house resources. We will incorporate the mainlaying works into the respective roadworks contracts of HyD and TDD on a standard remeasurement basis because the quantities of works may vary with actual ground conditions. We will provide for adjustments due to inflation in the contracts because the construction period will be longer than 21 months.

12. We estimate the additional annually recurrent expenditure arising from this project to be \$2.611 million.

/13.

13. This project by itself will lead to an increase in water charges by a maximum of 0.13% in real terms by 2004⁶.

PUBLIC CONSULTATION

14. We consulted the Environmental Committee (EC) of the Sham Shui Po Provisional District Board (SSPPDB) on 7 May 1998 on the construction of the Shek Kip Mei No. 3 fresh water service reservoir. The EC of the SSPPDB supported the project.

15. HyD and TDD also consulted the Traffic and Transport Committees of the Yau Tsim Mong District Board and the Yau Tsim Mong Provisional District Board on the proposed road works on 16 July 1995 and 25 September 1997, respectively. The two committees supported the proposal. Since the mainlaying works will be carried out in conjunction with the roadworks, we have not carried out additional public consultation on the proposed mainlaying works.

ENVIRONMENTAL IMPLICATIONS

16. The Director of Environmental Protection completed an environmental review in June 1995 and concluded that the proposed works would have no long term adverse environmental impact and no environmental impact assessment would be necessary. We will control noise, dust and site run-off nuisance during construction to comply with established standards and guidelines through the implementation of mitigation measures in the relevant works contracts.

LAND ACQUISITION

17. This project does not require land acquisition.

/BACKGROUND

⁶ The increase in water charges is calculated on the assumption that the water demand remains static during the period from 1998 to 2004 and the amount of Government subsidy in the waterworks operations is to be contained at the present level.

BACKGROUND INFORMATION

18. We upgraded **58WC** to Category B in September 1995. To enable the mainlaying works along new roads NR1, NR11 and D12A on the WKR to be carried out in conjunction with TDD's road works contract under **472CL** "West Kowloon reclamation - remaining roadworks, stage 1", the Secretary of Treasury approved under delegated authority the inclusion of a Category D item **9A13WC** under the block allocation **Subhead 9100WX** at an estimated cost of 12.2 million for the advance mainlaying works. We commenced the mainlaying works along these roads in January 1997 for completion by December 1998.

19. As regards the works which we now propose to upgrade to Category A, we have engaged consultants to complete the detailed design for the mainlaying works at a total cost of \$0.41 million. We have charged this amount to the block allocation **Subhead 9100WX**. The mainlaying works will commence in early 1999 for completion in December 2001. We have also substantially completed the detailed design for the Shek Kip Mei No. 3 fresh water service reservoir and the uprating of the Yau Ma Tei salt water pumping station by using in-house staff resources. The related construction works will commence in September 1999 for completion by the end of 2001.

20. DWS is continuing with the design of the remaining mainlaying works along the future new roads on the WKR. We will seek Members' approval to upgrade the remaining part of **58WC** to Category A to tie in with the future roadworks projects on the WKR.

21. We will continue to plan and implement further enhancement under future projects to cope with the water demands on the WKR beyond 2005.

Works Bureau
September 1998

(PWSC0003/WIN1)

58WC - Water supply to West Kowloon reclamation - stage 2**DETAILS OF CONSULTANTS' FEES****Breakdown of estimates for consultants' fees for the construction stage**

Consultants' staff costs			Estimated man-months	Average MPS* salary point	Multiplier factor	Estimated fee (\$ million)
(a)	Consultants' fee for works in construction stage	Professional	1.2	40	3.0	0.21
		Technical	2.7	16	3.0	0.16
						—
					Sub-total	0.37
						—
(b)	Site supervision by resident site staff employed by the consultants	Professional	12.0	40	2.1	1.49
		Technical	30.0	16	2.1	1.25
						—
					Sub-total	2.74
						—
Total consultants' staff costs						3.11

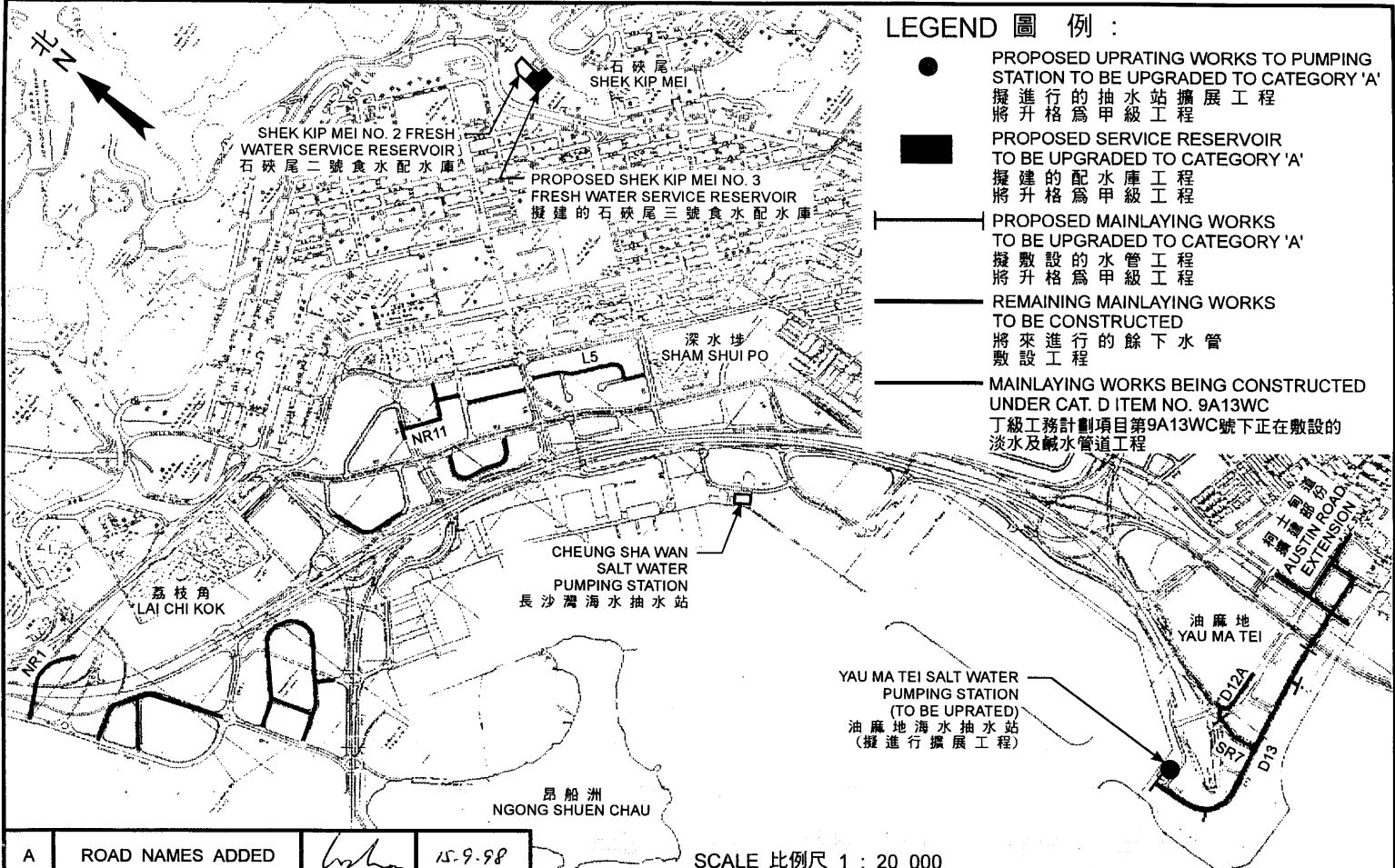
*MPS = Master Pay Scale

Notes

1. A multiplier factor of 3.0 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultants' offices. A multiplier factor of 2.1 is applied to the average MPS point in the case of resident site staff supplied by the consultants. (At 1.4.97, MPS 40 = \$59,210 p.m. and MPS 16 = \$19,860 p.m.).

2. The figures given above are based on estimates prepared by the Director of Water Supplies. The consultancy works for the mainlaying works along the Austin Road Extension and roads SR7, D13 and L5 have been included as part of the consultancy agreements CE4/88 "Road improvement and pedestrian schemes in the Salisbury Road, Canton Road and Austin Road corridors" and CE12/90 "West Kowloon reclamation". We will know the actual consultants' fees upon finalisation of the account of the works contracts.

(PWSC0003/WIN1)



A	ROAD NAMES ADDED	<i>15-9-98</i>	SCALE 比例尺 1 : 20 000
APPROVED <i>[Signature]</i> CE / Des 15/7/98		P.W.P. ITEM NO. 058WC — WATER SUPPLY TO WEST KOWLOON RECLAMATION - STAGE 2 工務計劃項目第058WC號 — 西九龍填海供水計劃 - 第二階段 (CAT 'A' SUBMISSION) (甲級工程)	
		WATER SUPPLIES DEPT. HONG KONG SKETCH NO. 03798 / 099A	