

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 709 - WATERWORKS

Water Supplies - Fresh water supplies

224WF - Mainlaying between Sham Tseng and Yau Kom Tau

238WF - Mainlaying between Sham Tseng and So Kwun Tan

Members are invited to recommend to Finance Committee -

- (a) the upgrading of **224WF**, entitled "Mainlaying between Sham Tseng and Yau Kom Tau", to Category A at an estimated cost of \$91.6 million in money-of-the-day prices;
- (b) the upgrading of part of **238WF**, entitled "Mainlaying between Sham Tseng and Ka Loon Tsuen", to Category A at an estimated cost of \$66.5 million in money-of-the-day prices; and
- (c) the retention of the remainder of **238WF** in Category B.

PROBLEM

The Sham Tseng and Tuen Mun East areas¹ are served by two isolated water supply systems. In the event of a failure in either one of the systems, no alternative water supply could be arranged.

/PROPOSAL

¹ The Sham Tseng areas cover Sham Tseng, Ma Wan and Tsing Lung Tau. The Tuen Mun East areas comprise the areas from Sam Shing Estate to Tai Lam Chung.

PROPOSAL

2. The Director of Water Supplies (DWS), with the support of the Secretary for Works, proposes -

- (a) to upgrade **224WF** to Category A at an estimated cost of \$91.6 million in money-of-the-day (MOD) prices for the laying of fresh water mains in conjunction with roadworks along Castle Peak Road from Yau Kom Tau to Sham Tseng; and
- (b) to upgrade part of **238WF** to Category A at an estimated cost of \$66.5 million in MOD prices for the laying of fresh water mains in conjunction with roadworks along Castle Peak Road from Sham Tseng to Ka Loon Tsuen.

PROJECT SCOPE AND NATURE

3. The scope of **224WF** comprises the laying of about 4.7 kilometres of fresh water mains of 1 000 millimetres in diameter along Castle Peak Road from Yau Kom Tau to Sham Tseng.

4. The scope of **238WF** comprises the laying of about 10 kilometres of fresh water mains of 1 000 millimetres in diameter along Castle Peak Road from Sham Tseng via Ka Loon Tsuen to So Kwun Tan.

5. The works we now propose to upgrade to Category A comprise -

- (a) the laying of all the water mains under **224WF**; and
- (b) the laying of about 3.5 kilometres of the water mains under **238WF** from Sham Tseng to Ka Loon Tsuen.

6. To tie in with the roadworks programme under **365TH** "Castle Peak Road improvement between Area 2 and Sham Tseng, Tsuen Wan" and **553TH** "Castle Peak Road improvement between Sham Tseng and Ka Loon Tsuen, Tsuen Wan", we plan to start the proposed mainlaying works in May 2001 for completion by May 2005. The site plans showing the proposed works are at Enclosures 1 and 2.

/JUSTIFICATION

JUSTIFICATION

7. At present, the Sham Tseng areas covering a population of 23 600 are served by an isolated water supply system with water sourced from the Sham Tseng treatment works. The Tuen Mun East areas covering a population of 31 000 are served by another separate supply system with water sourced from the Tuen Mun treatment works. In case either one of the systems fails, there will be no alternative water supply to serve the respective areas.

8. To safeguard the reliability of water supply, we propose to link up the two systems and integrate them with the water supply system in Yau Kom Tau. The proposed integration will enable the transfer of water supply from Yau Kom Tau to Sham Tseng and then to Tuen Mun East (on completion of all works under **238WF**) in times of need. Similar linking up of water supply systems is also being implemented in other supply areas to ensure a reliable water supply in the territory.

9. The Director of Highways (D of Hy) will undertake roadworks projects **365TH**² and **553TH**². The mainlaying works described in paragraph 5 above will fall within the project boundaries of **365TH** and **553TH**. To avoid unnecessary repetitive road opening and interface problems arising from two contractors working on the same site, we will incorporate the proposed mainlaying works into the roadworks contracts under **365TH** and **553TH** to enable the laying of the proposed watermains in conjunction with the roadworks.

FINANCIAL IMPLICATIONS

10. We estimate the capital costs of the proposed works under **224WF** and **238WF** to be \$91.6 million and \$66.5 million respectively in MOD prices (see paragraph 11 below), made up as follows -

	224WF \$ million	238WF \$ million
(a) Pipe materials	14.7	10.9
(b) Mainlaying	51.4	36.6
(c) Consultants' fees for contract administration	0.2	0.2
(d) Resident site staff costs	7.8	5.8

/(e)

² A related paper, PWSC(2000-01)73, for the upgrading of both **365TH** and **553TH** under **Head 706** to Category A, will be considered on 13 December 2000.

	224WF \$ million	238WF \$ million	
(e) Environmental mitigation measures	1.0	1.0	
(f) Contingencies	7.5	5.5	
Sub-total	82.6	60.0	(in September 2000 prices)
(g) Provision for price adjustment	9.0	6.5	
Total	91.6	66.5	(in MOD prices)

A breakdown of the estimate for consultants' fees and resident site staff costs by man-months is at Enclosure 3.

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

Year	\$ million (Sept 2000)		Price adjustment factor	\$ million (MOD)	
	224WF	238WF		224WF	238WF
2001 – 2002	3.5	2.5	1.02550	3.6	2.6
2002 – 2003	13.8	9.4	1.05627	14.6	9.9
2003 – 2004	16.0	11.7	1.08795	17.4	12.7
2004 – 2005	34.0	25.2	1.12059	38.1	28.2
2005 – 2006	8.3	6.6	1.15421	9.6	7.6
2006 – 2007	7.0	4.6	1.18884	8.3	5.5
	82.6	60.0		91.6	66.5

/12.

12. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2001 to 2007. We will incorporate the proposed mainlaying works into D of Hy's roadworks contracts. We will tender the works under standard remeasurement contracts because the quantities of the works are subject to variation during construction to suit the actual site conditions. We will provide price adjustment in the contracts because the contract period will exceed 21 months.

13. We estimate the annually recurrent expenditure arising from **224WF** and **238WF** to be \$292,000 and \$217,000 respectively.

14. The project by itself would lead to an increase in water charges by 0.07% in real terms by 2007³.

PUBLIC CONSULTATION

15. We consulted the Environmental Affairs Committee of the Tsuen Wan Provisional District Board on 9 July 1999. The Committee supported both projects.

16. We circulated an information paper on the project to the LegCo Panel on Planning, Lands and Works on 24 November 2000. At the Panel meeting held on 4 December 2000, Members did not raise any question on the project.

ENVIRONMENTAL IMPLICATIONS

17. The Director of Environmental Protection vetted the Preliminary Environmental Reviews (PERs) conducted by DWS on **224WF** and **238WF** in November 1995 and December 1997 respectively. The PERs concluded that the projects would have no long-term environmental impact. For short term construction impact, standard pollution control measures⁴ will be implemented to mitigate the impact. We have included the costs of these mitigation measures in the project estimates (\$1.0 million in September 2000 prices for each project) and will incorporate these requirements into the works contracts for implementation.

/18.

³ The increase in water charges is calculated on the assumption that the demand remains static during the period from 2000 to 2007 and the amount of government subsidy to the waterworks operations is to be contained at the present level.

⁴ The standard pollution control measures include wheel washing facilities, de-silting traps, the use of silenced plant and other procedures recommended in the Environmental Protection Department's Recommended Pollution Control Clauses.

18. At the planning and design stages of these two projects, we have taken due consideration in designing the levels and alignments of the proposed water mains to minimize the generation of construction and demolition (C&D) materials. To further minimize the generation of C&D materials, we will encourage the contractors to use steel instead of timber in formwork and temporary works. We estimate that about 22 400 cubic metres (m³) of C&D materials will be generated by the two projects. Of these, about 15 850m³ (70.8%) will be reused on site, 6 450m³ (28.8%) will be reused as fill in public filling areas⁵ and 100m³ (0.4%) will be disposed of at landfills. We will require the contractors to submit waste management plans (WMP) with appropriate mitigation measures, including the allocation of areas for waste segregation on-site to facilitate reuse or recycling of C&D materials, for approval. We will ensure that the day-to-day operations on site comply with the approved WMP. We will implement a trip-ticket system to control the proper disposal of C&D materials and will record the reuse, recycling and disposal of C&D materials for monitoring purposes.

LAND ACQUISITION

19. The proposed mainlaying works fall within road reserves and do not require any land acquisition.

BACKGROUND INFORMATION

20. We upgraded **224WF** and **238WF** to Category B in October 1996 and September 1998 respectively. We have engaged consultants to complete the detailed design of the proposed water mains under **224WF** and **238WF** at a cost of about \$0.6 million and \$1.1 million respectively and charged the costs to the block allocation **Subhead 9100WX** "Waterworks, studies and investigation for items in Category D of the Public Works Programme".

21. DWS is continuing with the design work for the remaining sections of water mains in stages under the remaining part of **238WF** with a target to start the construction works in June 2003 for completion in late 2009 to tie in with roadworks.

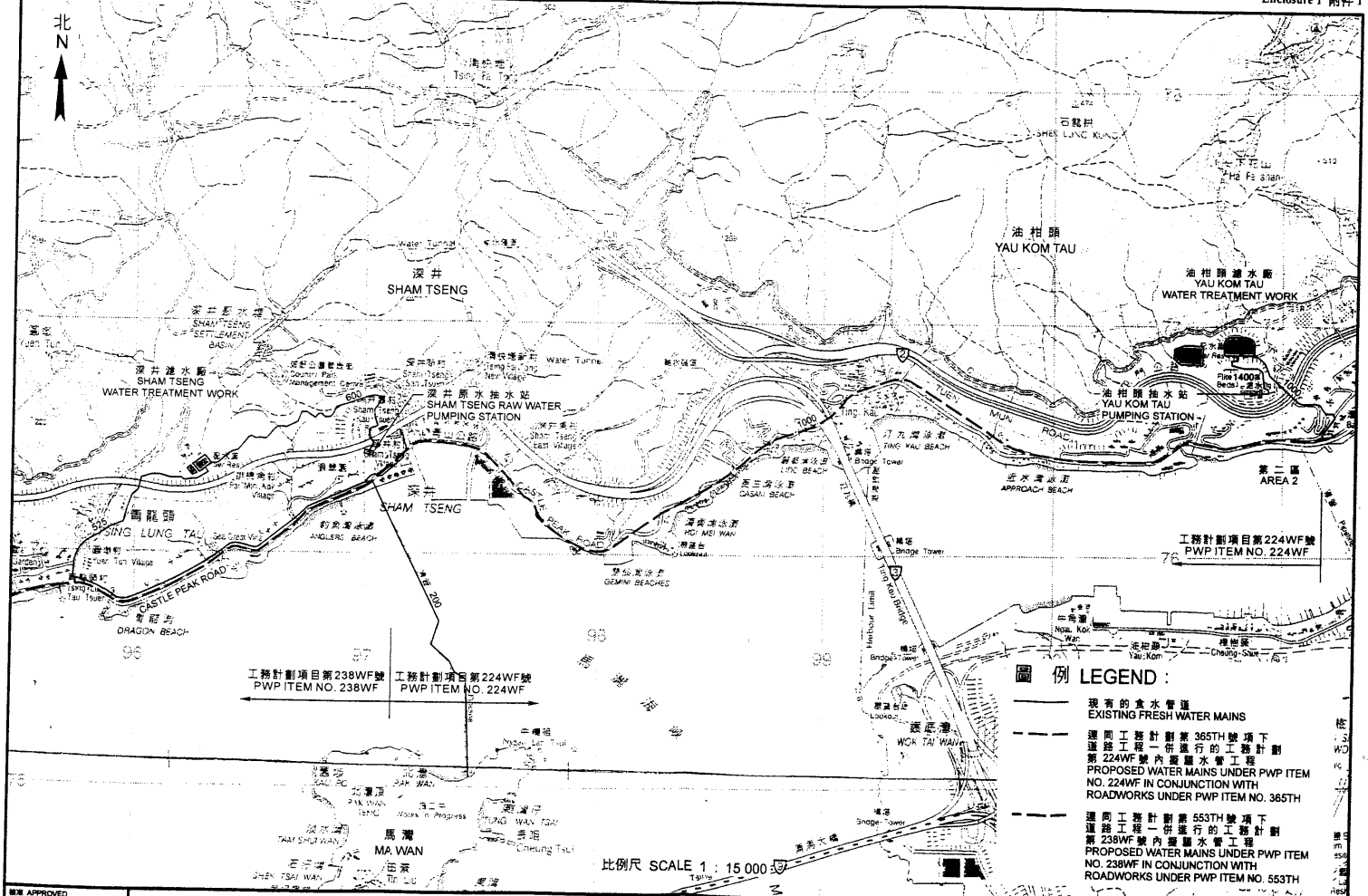
/22.

⁵ A public filling area is a designated part of a development project that accepts public fill for reclamation purpose. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

22. We estimate that the proposed works will create some 50 new jobs during the construction stage. These comprise ten professional/technical staff and 40 labourers, totalling 2 200 man-months.

Works Bureau
December 2000

(PWSC0322/WIN14)



工務計劃項目第238WF號 PWP ITEM NO. 238WF
 工務計劃項目第224WF號 PWP ITEM NO. 224WF

圖例 LEGEND:

- 現有的食水管道 EXISTING FRESH WATER MAINS
- - - 連同工務計劃第365TH號項下道路工程一併進行的工務計劃第224WF號內擬議水管工程 PROPOSED WATER MAINS UNDER PWP ITEM NO. 224WF IN CONJUNCTION WITH ROADWORKS UNDER PWP ITEM NO. 365TH
- - - 連同工務計劃第553TH號項下道路工程一併進行的工務計劃第238WF號內擬議水管工程 PROPOSED WATER MAINS UNDER PWP ITEM NO. 238WF IN CONJUNCTION WITH ROADWORKS UNDER PWP ITEM NO. 553TH

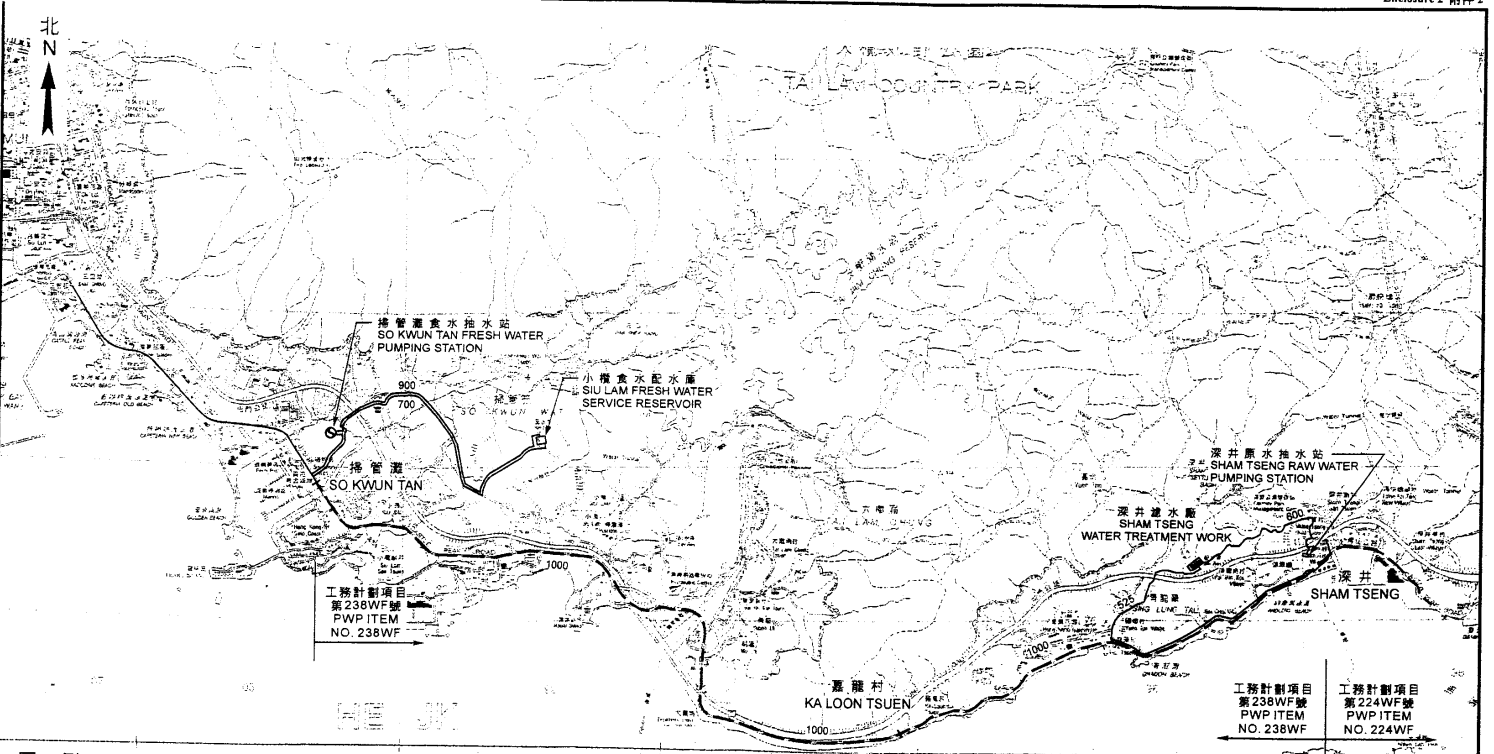
比例尺 SCALE 1 : 15 000

核准 APPROVED
 工務計劃主任 CE/DES
 30 / 1 / 2000

(申請工程)
 (CAT 'A' Submission)

工務計劃項目第224WF號 — 深井至油柑頭的水管敷設工程
 PWP NEW ITEM NO. 224WF — MAINLAYING BETWEEN SHAM TSENG AND YAU KOM TAU

水務署 WATER SUPPLIES DEPT.



圖例 LEGEND :

- 現有的食水管線
EXISTING FRESH WATER MAINS
- - - 連同工務計劃第 365TH 號項下道路工程一併進行的工務計劃第 224WF 號內擬議水管工程
PROPOSED WATER MAINS UNDER PWP ITEM NO. 224WF IN CONJUNCTION WITH ROADWORKS UNDER PWP ITEM NO. 365TH
- - - 連同工務計劃第 553TH 號項下道路工程一併進行的工務計劃第 238WF 號內擬議水管工程
PROPOSED WATER MAINS UNDER PWP ITEM NO. 238WF IN CONJUNCTION WITH ROADWORKS UNDER PWP ITEM NO. 553TH
- - - 餘下的食水管線
REMAINING FRESH WATER MAINS

比例尺 SCALE 1 : 25 000

核准 APPROVED

 30 / 11 / 2000
 (甲級工程師)
 (CAT 'A' Submittal)

工務計劃項目第 238WF 號 — 深井至掃管灘的水管敷設工程
 PWP NEW ITEM NO. 238WF — MAINLAYING BETWEEN SHAM TSENG AND SO KWUN TAN

水務署 WATER SUPPLIES DEPT.
 工程編號 SK 62000 / 122

Enclosure 3 to PWSC(2000-01)75

224WF - Mainlaying between Sham Tseng and Yau Kom Tau 238WF - Mainlaying between Sham Tseng and So Kwun Tan

Breakdown of estimates for consultants' fees

Consultants' staff costs		Estimated man-months		Average MPS* salary point	Multiplier factor	Estimated fee (\$ million)	
		224WF	238WF			224WF	238WF
		(a) Contract administration	Professional			1	1
	Technical	1	1	14	2.4	0.05	0.05
(b) Site supervision by resident site staff employed by the consultants	Professional	30	22	38	1.7	2.93	2.15
	Technical	150	112	14	1.7	4.86	3.63
Total consultants' staff costs						7.98	5.97

* MPS = Master Pay Scale

Notes

1. A multiplier factor of 2.4 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 1.7 is applied in the case of site staff supplied by the consultants. (At 1.4.2000, MPS pt. 38 = \$57,525 per month and MPS pt. 14 = \$19,055 per month).
2. The above figures are based on estimates prepared by the Director of Water Supplies. The consultancy works for these projects will be included as part of the Agreement No. CE 1/96 "Design and Construction Assignment for Castle Peak Road Improvement between Area 2 and Ka Loon Tsuen, Tsuen Wan". The assignment will only be triggered subject to Finance Committee's approval for upgrading of **224WF** and part of **238WF** to Category A as proposed.