

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

### **HEAD 709 -WATERWORKS**

#### **Water Supplies – Fresh water supplies**

#### **325WF – Integration of Mount Davis fresh water primary service reservoir with Central and Western low level fresh water supply system**

Members are invited to recommend to Finance Committee the upgrading of **325WF** to Category A at an estimated cost of \$32.8 million in money-of-the-day prices for improving the reliability of fresh water supply to the low level areas of Central and Western district.

### **PROBLEM**

Fresh water supply to the low level areas of Central and Western district will be disrupted in case there is interruption or significant reduction in the inflow of water to the service reservoirs serving these areas.

### **PROPOSAL**

2. The Director of Water Supplies (DWS), with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade **325WF** to Category A at an estimated cost of \$32.8 million in money-of-the-day (MOD) prices for improving the reliability of fresh water supply to the low level areas of Central and Western district.

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## PROJECT SCOPE AND NATURE

3. The scope of the proposed works under **325WF** comprises the laying of about 2 kilometres (km) of fresh water main of diameter of 800 millimetres (mm) in Victoria Road and Mount Davis Path for linking up Mount Davis fresh water primary service reservoir with the existing fresh water distribution system of the low level areas of Central and Western district. The alignment of the water main is shown in the site plan at Enclosure 1.

4. We plan to commence the proposed works in November 2006 for completion in June 2009. We will supervise the proposed works using in-house staff.

## JUSTIFICATION

5. The three fresh water service reservoirs, namely the Kennedy Town, Western and Gardens fresh water service reservoirs, make up the core service reservoirs in the Central and Western low level fresh water supply system. They receive water from the Sha Tin water treatment works via primary service reservoirs, trunk mains and pumping stations. In the event that the inflow of water to any one of these service reservoirs is interrupted or significantly reduced due to power failure of the pumping stations or emergency repair of the trunk mains between the water treatment works and the fresh water service reservoirs, water supply to the low level areas of Central and Western district will be disrupted.

6. To enhance the reliability of the supply system, we plan to integrate the Mount Davis fresh water primary service reservoir, which is supplied by the Silver Mine Bay water treatment works, with the Central and Western low level fresh water supply system. Upon completion of the proposed works, the reliability of fresh water supply to the low level areas of Central and Western district will be improved as fresh water can be supplied to the areas from Silver Mine Bay water treatment works via Mount Davis fresh water primary service reservoir at times of need.

## FINANCIAL IMPLICATIONS

7. We estimate the cost of the proposed works to be \$32.8 million in MOD prices (see paragraph 8 below), made up as follows –

/(a) .....

	<b>\$ million</b>	
(a) Mainlaying	28.1	
(b) Environmental mitigation measures	0.3	
(c) Contingencies	2.8	
	Sub-total	31.2 (in September 2005 prices)
(d) Provision for price adjustment	1.6	
	Total	32.8 (in MOD prices)

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

<b>Year</b>	<b>\$ million (Sept 2005)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2006 – 2007	0.3	1.01500	0.3
2007 – 2008	9.4	1.03023	9.7
2008 – 2009	14.6	1.04568	15.3
2009 – 2010	2.2	1.06136	2.3
2010 – 2011	2.2	1.07728	2.4
2011 – 2012	2.5	1.10152	2.8
	<hr/> 31.2 <hr/>		<hr/> 32.8 <hr/>

9. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output from 2006 to 2012. We will implement the mainlaying works under a re-measurement contract because the quantities of works are subject to variation to suit the actual underground conditions. The contract will provide for price adjustment as the contract period will exceed 21 months.

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10. We estimate the annual recurrent expenditure arising from this project to be \$113,000.

11. The project by itself would lead to an increase in production cost of water by 0.01% in real terms by 2012<sup>1</sup>.

## **PUBLIC CONSULTATION**

12. We consulted the Food, Environment, Hygiene and Works Committee of the Central and Western District Council on 9 February 2006. The Committee supported the proposed works.

13. We consulted the Legislative Council Panel on Planning, Lands and Works on the proposed works by circulation of an information paper on 15 May 2006. Members had no objection to the proposal.

## **ENVIRONMENTAL IMPLICATIONS**

14. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The project would have no long-term environmental impact. We will control short-term construction impacts through the implementation of standard pollution control measures. We have included \$300,000 (in September 2005 prices) in the project estimates for the implementation of these mitigation measures and will incorporate these requirements in the works contract.

15. We have considered the alignment and level of the proposed water main in the planning and design stages to reduce the generation of construction and demolition (C&D) materials where possible. In addition, we will require the contractor to reuse inert C&D materials (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of C&D materials to public fill reception facilities<sup>2</sup>. We will encourage the contractor to maximise the use of recycled or recyclable C&D materials, as well as the use of non-timber formwork to further minimise the generation of construction waste.

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<sup>1</sup> The increase in production cost of water is calculated at the present price level and on the assumption that the water demand remains static during the period from 2006 to 2012.

<sup>2</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

16. We will also require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will ensure that the day-to-day operations on site comply with the approved WMP. We will control the disposal of public fill and C&D waste to public fill reception facilities and landfills respectively through a trip-ticket system. We will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

17. We estimate that the project will generate about 18 100 tonnes of C&D materials. Of these, we will reuse about 8 200 tonnes (45.3%) on site, deliver 9 400 tonnes (51.9%) to public fill reception facilities for subsequent reuse and will dispose of 500 tonnes (2.8%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be \$316,300 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne<sup>3</sup> at landfills).

## **TRAFFIC IMPLICATIONS**

18. We have carried out traffic impact assessments for the proposed works which concluded that the proposed works would not cause unacceptable traffic impact. We will closely liaise with the Transport Department, the Hong Kong Police Force, the Highways Department, and the Central and Western District Office, and implement temporary traffic management schemes to minimise impacts on traffic during construction. We will display notice boards on site to explain the reason of temporary traffic arrangements and to show the expected completion date of the concerned section of works. In addition, we will set up telephone hotlines for public enquiries or complaints.

## **LAND ACQUISITION**

19. The project does not require any land acquisition.

## **BACKGROUND INFORMATION**

20. We upgraded **325WF** to Category B in October 2004.

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<sup>3</sup> This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m<sup>3</sup>), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

21. We have substantially completed the detailed design for the proposed works using in-house resources.

22. The proposed works will not involve any tree removal or planting proposal.

23. We estimate that the proposed works will create 24 jobs (20 for labourers and another four for professional/technical staff) providing a total employment of 520 man-months.

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Environment, Transport and Works Bureau  
May 2006





青洲  
KITTLE  
堅尼地城  
KENNEDY TOWN

硫磺海峽  
SULPHUR CHANNEL  
域多利道  
VICTORIA ROAD

接駁至現有配水系統  
TO BE CONNECTED TO THE EXISTING  
DISTRIBUTION SYSTEM

摩星嶺  
MOUNT DAVIS

西區食水配水庫  
WESTERN FRESH WATER  
SERVICE RESERVOIR

堅尼地城食水配水庫  
KENNEDY TOWN FRESH WATER  
SERVICE RESERVOIR

動植物公園食水  
配水庫  
GARDENS FRESH WATER  
SERVICE RESERVOIR

摩星嶺食水主配水庫  
MOUNT DAVIS FRESH WATER  
PRIMARY SERVICE RESERVOIR

來自銀鑛灣濾水廠的  
海底水管  
SUBMARINE PIPELINE FROM  
SILVER MINE BAY WATER  
TREATMENT WORKS

圖例 LEGEND :

-  中西區低地食水供應系統  
CENTRAL AND WESTERN LOW  
LEVEL FRESH WATER SUPPLY ZONE
-  擬敷設直徑 800 毫米的食水管  
PROPOSED DN 800 MILLIMETRES DIAMETER  
FRESH WATER MAIN

比例尺 SCALE 1 : 20 000

核准 APPROVED  
  
總工程師/設計 CE / Des

工務計劃項目第 9325WF 號 — 連接摩星嶺食水主配水庫及中西區  
低地食水供應系統的合併工程

 水務署  
WATER SUPPLIES DEPT.

(甲級工程)  
(CAT 'A' Submission)

P.W.P. Item no. 9325WF — Integration of Mount Davis fresh water primary service reservoir with  
Central and Western low level fresh water supply system

草圖編號 SK 62005 / 196  
SKETCH NO.

3 / 4 / 2006

附件 1 ENCLOSURE 1