

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 709 – WATERWORKS

Water Supplies – Combined fresh/salt water supplies

99WC – Water supply to Northwestern Tuen Mun

Members are invited to recommend to the Finance Committee –

- (a) the upgrading of part of **99WC**, entitled “Water supply to Northwestern Tuen Mun, stage 1”, to Category A at an estimated cost of \$30.3 million in money-of-the-day prices; and
- (b) the retention of the remainder of **99WC** in Category B.

PROBLEM

There is currently no fresh or salt water supply to serve the new developments in Area 54, Tuen Mun.

PROPOSAL

2. The Director of Water Supplies, with the support of the Secretary for Development, proposes to upgrade part of **99WC** to Category A at an estimated cost of \$30.3 million in money-of-the-day (MOD) prices for laying water mains to provide fresh and salt water supplies to the new developments in Area 54, Tuen Mun.

/PROJECT

PROJECT SCOPE AND NATURE

3. The part of **99WC** which we propose to upgrade to Category A comprises –

- (a) laying of about 700 metres (m) long fresh water mains ranging from 150 millimetres (mm) to 300 mm in diameter along San Fuk Road and near Kei Lun Wai; and
- (b) laying of about 700 m long salt water mains ranging from 100 mm to 150 mm in diameter alongside the proposed fresh water mains mentioned in (a) above.

———— A layout plan showing the proposed works is at Enclosure.

4. Subject to the funding approval of the Finance Committee (FC), we plan to commence construction of the proposed works in October 2012 for completion in March 2016.

5. We will retain the remainder of **99WC** in Category B, which comprises the laying of about 7 100 m long fresh and salt water mains ranging from 100 mm to 600 mm in diameter in Tuen Mun Area 54. Funding for the remainder of **99WC** will be sought at a later stage.

JUSTIFICATION

6. Tuen Mun Area 54 is being developed into mainly a public rental housing (PRH) area equipped with school and Government, Institution or Community (GIC) facilities. We propose to provide fresh and salt water supplies to the new developments in Tuen Mun Area 54 through extension of the existing fresh and salt water mains at San Fuk Road. The first PRH site being developed in Area 54 will produce about 5 000 PRH flats. Population intake of that PRH development is expected by mid 2016. Hence, the proposed water mains laying works are required to be completed before mid 2016.

7. The proposed water mains laying works fall within the project boundary of **681CL** “Formation, roads and drains in Area 54, Tuen Mun – phase 2”. The Civil Engineering and Development Department (CEDD) will make a separate funding application to the FC in May 2012 to upgrade part of **681CL** to Category A, which is to construct the Tuen Mun Area 54 sewage pumping station

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and associated sewerage works (PWSC(2012-13)9). To avoid interface problems arising from two contractors working on the same site and repeated road openings, we plan to entrust the construction of the proposed works to CEDD for implementation in conjunction with the works under **681CL**.

FINANCIAL IMPLICATIONS

8. We estimate the cost of the proposed works to be \$30.3 million in MOD prices (please see paragraph 9 below), broken down as follows –

		\$ million
(a)	Laying of fresh water mains	12.7
(i)	conventional method ¹	10.7
(ii)	trenchless method ²	2.0
(b)	Laying of salt water mains	10.2
(i)	conventional method ¹	8.4
(ii)	trenchless method ²	1.8
(c)	Environmental mitigation measures	0.6
(d)	Contingencies	2.2
	Sub-total	25.7 (in September 2011 prices)
(e)	Provision for price adjustment	4.6
	Total	30.3 (in MOD prices)

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¹ Conventional method refers to laying of new water mains in trench. It involves opening up the road surface for the whole lengths of the pipelines. We have assumed that around 86% of fresh water mains as well as salt water mains will be laid by conventional method. The actual percentage will depend on site conditions.

² Trenchless method (sometimes referred to as 'minimum dig' or 'reduced dig' method) refers to the use of pipe jacking, micro-tunnelling or boring techniques to construct underground pipelines without opening up the road surface for the whole lengths of the pipelines. We have assumed that around 14% of fresh water mains as well as salt water mains will be laid by trenchless method. The actual percentage will depend on site conditions.

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

Year	\$ million (Sept 2011)	Price adjustment factor	\$ million (MOD)
2012 – 2013	0.5	1.05325	0.5
2013 – 2014	7.7	1.11118	8.6
2014 – 2015	10.0	1.17229	11.7
2015 – 2016	5.0	1.23677	6.2
2016 – 2017	2.5	1.30479	3.3
	25.7		30.3

10. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2012 to 2017. As mentioned in paragraph 7 above, the works will be entrusted to CEDD to be carried out under **681CL**. CEDD will deliver the works under a re-measurement contract because the quantities of works are subject to variation during construction to suit the actual site conditions. The contract will provide for price adjustments.

11. We estimate the additional annual recurrent expenditure arising from this project to be \$20,000.

12. The project by itself will lead to an increase in the production cost of water by 0.01% in real terms by 2017³.

PUBLIC CONSULTATION

13. We consulted the Environment, Hygiene and District Development Committee of the Tuen Mun District Council by circulation of an information paper in February 2012. No objection to the proposed works was received.

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³ 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 2012 to 2017.

14. We circulated an information paper to the Legislative Council Panel on Development on the proposed works on 14 March 2012. No objection to the proposed works was received.

ENVIRONMENTAL IMPLICATIONS

15. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap 499). The works will not have any long-term environmental impact. We have included in paragraph 8(c) above a sum of \$0.6 million (in September 2011 prices) in the project estimate for the implementation of standard pollution control measures to mitigate short-term environmental impacts during the construction stage. These measures include frequent watering of the site, provision of wheel-washing facilities, covering of materials on trucks and use of silenced construction plant.

16. At the planning and design stages, we have considered the design of the proposed works and the construction sequence to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste at public fill reception facilities⁴. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

17. At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

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⁴ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public filling reception facilities requires a licence issued by the Director of Civil Engineering and Development.

18. We estimate that the project will generate in total about 4 200 tonnes of construction waste. Of these, we will reuse about 1 000 tonnes (24%) of inert construction waste on site and deliver 3 000 tonnes (71%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 200 tonnes (5%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$106,000 for this project (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne⁵ at landfills).

HERITAGE IMPLICATIONS

19. The project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

20. The proposed works will be implemented within the project boundary of **681CL**. All necessary land resumption and clearance of the affected private land were completed in October 2011.

BACKGROUND

21. **99WC** was included in Category B in February 2000.

22. We have substantially completed the detailed design of the proposed works using in-house resources.

23. The CEDD manages the project **681CL**, which comprises formation of land for PRH, school and GIC developments, construction of roads, drainage, sewerage, slopes and landscaping works, provision of noise mitigation measures and other ancillary works in Tuen Mun Area 54.

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⁵ 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 per m³), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled.

24. The CEDD will seek FC's approval in May 2012 for upgrading part of **681CL** to Category A for the phase 2 stage 2 works comprising the construction of a sewage pumping station and associated sewerage works in Tuen Mun Area 54.

25. The proposed works will not involve any tree removal or planting proposals.

26. We estimate that the proposed works will create about ten jobs (nine for labourers and another one for professional/technical staff) providing a total employment of 355 man-months.

Development Bureau
April 2012