For discussion
on 15 March 2016

Legislative Council Panel on Development

350WF - Improvement of water supply to Sheung Shui and Fanling

PURPOSE

This paper seeks Members views on our proposal to upgrade **350WF**, entitled "**Improvement of water supply to Sheung Shui and Fanling**" to Category A at an estimated cost of $522.0 million in money-of-the-day (MOD) prices for constructing a new service reservoir and laying associated water mains to improve the water supply to Sheung Shui and Fanling.

PROJECT SCOPE

2. The scope of the proposed works under **350WF** comprises –

(a) Constructing a 24 000 cubic metres (m^3) service reservoir at Table Hill;

(b) Laying of two trunk mains of about 1 000 metres (m) in total, with a diameter of 700 millimetres (mm) and 600 mm respectively, connecting the existing Sheung Shui Water Treatment works and Table Hill Fresh Water Service Reservoir with the new service reservoir; and

(c) Laying of about 1 700 m twin distribution mains of 600 mm in diameter connecting the new service reservoir with the existing fresh water distribution network at Tin Ping Road.

3. The layout plan showing the proposed improvement works is at **Enclosure 1.**

4. Subject to the funding approval of the Finance Committee (FC), we plan to commence the construction of the proposed works in end 2016 for completion in early 2020.

JUSTIFICATION

5. The existing fresh water service reservoirs supplying to Sheung Shui and Fanling (SSF) supply zone have a total capacity of 88 000 m^3. In order to cope with the increasing water demand arising from the planned new housing developments within the supply zone and to enhance the reliability of water supply to SSF supply zone, it is necessary to improve the water supply system by constructing a new service reservoir of a capacity of 24 000 m^3 with associated water mains. When the improved system is commissioned, the total capacity of the fresh water service reservoirs within the supply zone can meet the projected daily demand of 145 million litres per day.

6. Sheung Shui and Fanling are presently using fresh water for flushing. The proposed service reservoir and twin mains system will be designed with flexibility for conversion in stages to a flushing water system using other flushing medium in the future.

FINANCIAL IMPLICATIONS

7. We estimate the cost of the proposed works to be $522.0 million in MOD prices, broken down as follows –

			$ million
(a)	Construction of service reservoir		181.1
(b)	Laying of fresh water mains		193.6
	(i) by conventional method[1]	137.0	
	(ii) by trenchless method[2]	56.6	
(c)	Environmental mitigation measures		4.2
(d)	Advisory services for New Engineering Contract (NEC)[3]		4.9

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[1] Conventional method refers to laying pipelines in trench. It involves opening up the road surface for laying of pipelines. We estimate that around 87% of the fresh water mains under this project will be laid by conventional method. The actual percentage will depend on the 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 laying of pipelines. This method will be employed when the conventional method is not feasible due to site constraints such as presences of river or traffic conditions. We estimate that around 13% of the fresh water mains under this project will be laid by trenchless method. The actual percentage will depend on the site conditions.

[3] NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasises cooperation, mutual trust and collaborative risk management between contracting parties.

		$ million	
	Administration		
(e)	Contingencies	38.4	
	Sub-total	422.2	(in September 2015 prices)
(f)	Provision for price adjustment	99.8	
	Total	522.0	(in MOD prices)

8. While the construction of the proposed works will be supervised by in-house staff, we plan to engage consultants to provide advisory services for NEC administration for the project.

PUBLIC CONSULTATION

9. We consulted the District Minor Works and Environmental Improvement Committee of the North District Council on 14 September 2015. The Committee supported the proposed works.

ENVIRONMENTAL IMPLICATIONS

10. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap 499). We have carried out a Preliminary Environmental Review which concluded that the proposed works would not cause long-term environmental impact. We have included in paragraph 7(c) above a sum of $4.2 million (in September 2015 prices) in the project estimate for the implementation of standard pollution control measures to mitigate short term environmental impacts during construction. These measures include frequent watering of the site, provision of wheel-washing facilities, covering of materials on trucks and use of silenced construction plant.

11. At the planning and design stages, we have optimised the design and layouts to reduce the generation of construction waste. In addition, we will require the contractor to reuse inert construction waste (e.g. demolished concrete and excavated soil and rock) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities[4]. 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.

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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 fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

12. 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 and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

13. We estimate that the proposed works will generate in total 142 840 tonnes of construction waste. Of these, we will reuse 9 220 tonnes (6%) of inert construction waste on site and deliver 132 750 tonnes (93%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 870 tonnes (1%) 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 $3.7 million for this project (based on a unit charge rate of $27 per tonne for disposal at public fill reception facilities and $125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

HERITAGE IMPLICATIONS

14. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

15. The proposed works do not involve resumption of private land, but clearance of about 64,900 m^2 Government land is required. The clearance cost estimated at $0.1 million will be charged to Head 701 – Land Acquisition.

TRAFFIC IMPLICATIONS

16. We have carried out a Traffic Impact Assessment (TIA) for the proposed works. The TIA concluded that the construction of the proposed service reservoir and mainlaying works through implementation of appropriate temporary traffic management schemes would not cause any significant impact on the traffic.

BACKGROUND

17. We upgraded **350WF** to Category B in September 2013.

18. In January 2015, we included an item under block allocation of Subhead **9100WX** "Waterworks, studies and investigations for items in Category D of the Public Works Programme" at an estimated cost of $11.08 million for carrying out site investigation, engagement of consultants to undertake the traffic impact assessment, plant survey, and advisory services for preparation of NEC for the project. We have substantially completed the detailed design of the proposed works.

19. Of the 217 trees within the project boundary of the proposed works, 124 trees will be preserved and 93 trees will be felled. All trees to be removed are not important trees[5].

20. We will incorporate planting proposal as part of the project, including estimated quantities of 93 trees and 3 400 square metres of grassed area.

21. We estimate that the proposed works will create about 150 jobs (130 for labourers and 20 for professional or technical staff) providing a total employment of 5 000 man-months.

WAY FORWARD

22. We plan to seek the support of the Public Works Sub-committee for the proposed upgrading of **350WF** to Category A in April 2016 with a view to seeking funding approval from the FC subsequently.

Development Bureau
Water Supplies Department
March 2016

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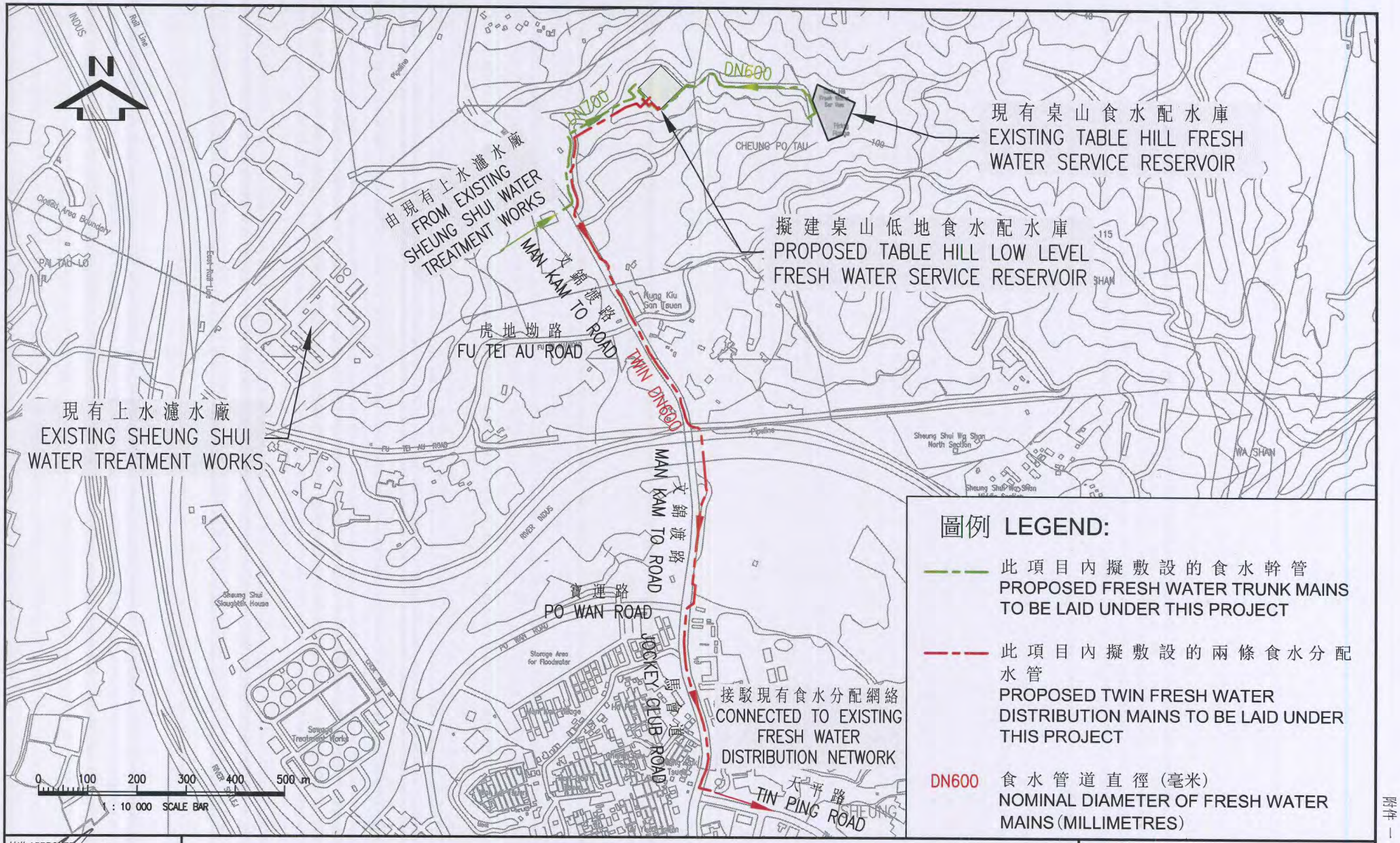
[5] "Important trees" refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria-

(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui trees, trees as landmark of monastery or heritage monument, and trees in memory of important persons or events;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
(e) trees with trunk diameter equal or exceeding 1.0 metre (m) (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

A common tree refers to trees not classified as "important tree".



核准 APPROVED

總工程師/設計 CE/Des

29/2/2016

工務計劃項目第350WF號 --- 上水及粉嶺供水改善計劃
PWP ITEM NO. 350WF --- Improvement of water supply to Sheung Shui and Fanling

水務署
WATER SUPPLIES DEPARTMENT

草圖編號 SKETCH NO. SK 62015 / 049

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附件一 ENCLOSURE 1