

**For information**

**Legislative Council Panel on Development**

**237WF – Mainlaying along Fanling Highway and  
near She Shan Tsuen – Stage 2**

**PURPOSE**

This paper briefs Members on the proposal to upgrade the remaining part of **237WF** to Category A, entitled “Mainlaying along Fanling Highway and near She Shan Tsuen – Stage 2” at an estimated cost of \$225.5 million in money-of-the-day (MOD) prices for implementation of mainlaying works to improve the reliability of fresh water supply in Fanling, Sheung Shui and Tai Po East.

**PROPOSAL**

2. The proposed upgrading of the remaining part of **237WF** to Category A comprises –

- (a) laying of about 2.3 kilometres (km) of fresh water mains of 1 200 millimetres (mm) in diameter along Fanling Highway; and
- (b) laying of about 1.4 km of fresh water mains ranging from 900 mm to 1 400 mm in diameter along Tai Po Road – Tai Wo and near She Shan Tsuen.

———— Site plans showing the proposed works are at **Enclosure**.

3. Subject to the approval of the Finance Committee (FC), we plan to start the construction of the proposed works in April 2012 for completion in phases by December 2017.

**JUSTIFICATION**

4. Currently, the Fanling, Sheung Shui and Tai Po East areas with a population of about 330 000 receive fresh water supply from the Sheung Shui water treatment works (WTW). In the event of a breakdown in the Sheung Shui WTW, only around 127 000 people in Fanling town centre, Sheung Shui town

centre and Tai Po East areas will be able to receive back-up water supply from the Tai Po WTW. Full back-up supply is not available due to the constraint of the capacity of the existing water mains linking the two WTWs. There is a risk of a widespread suspension of fresh water supply affecting a population of about 203 000 if the Sheung Shui WTW breaks down.

5. To improve the reliability of the fresh water supply to the areas, we propose to lay additional water mains to enable the transfer of fresh water from the Tai Po WTW to the supply zones of the Sheung Shui WTW. We have already commenced construction of the Stage 1 works (i.e. laying of about 1 km of fresh water mains of 1 200 mm in diameter along Fanling Highway and Tai Wo Service Road West) by incorporating the works into an anticipated road widening project, which is scheduled for completion by 2013. We need to take forward the remaining works to fully upgrade the integration between Sheung Shui and Tai Po WTWs and achieve full back-up supply when needed.

6. The proposed works along Fanling Highway described in paragraph 2(a) above fall within the project boundary of **720TH** – “Widening of Tolo Highway/ Fanling Highway between Island House Interchange and Fanling”, which the Highways Department (HyD) intends to seek funding support from the FC in mid 2012. In order to avoid repeated road openings and interface problems arising from two contractors working on the same site, we will entrust the mainlaying works to the HyD for constructing the proposed water mains in conjunction with the roadworks under **720TH**. As regards the proposed works described in paragraph 2(b) above, we will implement them under separate contracts.

## FINANCIAL IMPLICATIONS

7. We estimate the cost of the proposed works to be \$225.5 million in MOD prices, made up as follows –

	<b>\$ million</b>
(a) Mainlaying by	149.3
(i) conventional method <sup>1</sup>	141.5

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<sup>1</sup> Mainlaying by conventional method refers to laying of new water mains in trench. It involves opening up road surface for the whole lengths of the pipelines. For budgetary purpose, we have assumed that around 98% of water mains will be laid by conventional method. The actual percentage will depend on site conditions.

(ii) trenchless methods <sup>2</sup>	7.8	
(b) Environmental mitigation measures		2.2
(c) Consultants' fee for		1.1 <sup>3</sup>
(i) contract administration	0.8	
(ii) management of resident site staff	0.3	
(d) Remuneration of resident site staff		7.1
(e) Contingencies		15.9
	Sub-total	175.6 (in September 2011 prices)
(f) Provision for price adjustment		49.9
	Total	225.5 <sup>4</sup> (in MOD prices)

8. The proposed works will give rise to additional annual recurrent expenditure of \$230,000.

## PUBLIC CONSULTATION

9. We have separately consulted the village representatives of Tai Po Tau Shui Wai, Mui Shue Hang, She Shan, Tai Hang, Tai Wo, Yuen Leng Lei Uk, Yuen Leng Yip Uk, Nam Wa Po, Kau Lung Hang, as well as the concerned District Council members on the proposed works through Home Affairs Department during the period from June 2008 to May 2009. They had no objection to the proposed works.

10. We also consulted the Traffic and Transport Committee of the North

<sup>2</sup> Mainlaying by trenchless methods (sometimes referred to as 'minimum dig' or 'reduced dig' methods) refers to the use of pipe jacking, micro-tunnelling or boring techniques to construct underground pipelines without opening up road surface for the whole lengths of the pipelines. For budgetary purpose, we have assumed that around 2% of water mains will be laid by trenchless methods. The actual percentage will depend on site conditions.

<sup>3</sup> Consultants' fee will only be incurred for the works to be entrusted to HyD under **720TH**. The remaining works to be carried out by WSD will be supervised by in-house resources.

<sup>4</sup> The total project cost has included the estimated cost for mainlaying works for construction in conjunction with the road works (\$135 million in MOD prices) to be implemented under **720TH**.

District Council in April 2009. No objection to the proposed works had been received.

## ENVIRONMENTAL IMPLICATIONS

11. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We have completed the Preliminary Environmental Review for the proposed works, which concludes that the works would not have any long-term environmental impact. We have included in paragraph 7(b) above a sum of \$2.2 million (in September 2011 prices) in the project estimates for the implementation of standard pollution control measures to mitigate short-term environmental impacts during construction stage. These measures include the use of movable noise barriers and silenced construction plant for noisy construction activities, frequent cleaning and watering of the site and the provision of wheel-washing facilities to prevent dust nuisance.

12. At the planning and design stages, we have considered the alignment of the water mains 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 minimise the disposal of inert construction waste at public fill reception facilities<sup>5</sup>. We will encourage the contractors to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimise the generation of construction waste.

13. 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 and 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.

14. We estimate that the proposed works will generate in total about 41 000 tonnes of construction waste. Of these, we will reuse about 31 100

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<sup>5</sup> 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.

tonnes (76%) of inert construction waste on site and deliver 8 900 tonnes (22%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 1 000 tonnes (2%) 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 \$365,300 for this project (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne<sup>6</sup> at landfills).

## **HERITAGE IMPLICATIONS**

15. The proposed works 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.

## **TRAFFIC IMPLICATIONS**

16. To avoid repeated road openings and interface problems arising from two contractors working on the same site, we will incorporate the proposed works along Fanling Highway into **720TH** so that they would be carried out in conjunction with the roadworks contracts. Trenchless methods will be used for laying of watermains across busy road junctions. The remaining proposed works will have minimal traffic impact to the surrounding road network.

17. During construction, we will maintain smooth traffic flow through implementing temporary traffic management measures and will display notice boards on site to explain the reasons of temporary traffic arrangements and indicate the expected completion dates of the concerned sections of works. In addition, we will set up telephone hotlines for public enquiries or complaints. We will carry out construction works in busy road sections during non-peak hours, with reopening of these road sections during peak hours.

## **LAND ACQUISITION**

18. The proposed works do not require any land acquisition.

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<sup>6</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 per m<sup>3</sup>), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

## BACKGROUND INFORMATION

19. We included **237WF** in Category B in October 1999. The full scope comprises laying of about 4.7 km long fresh water mains ranging from 900 mm to 1 400 mm in diameter.

20. We engaged a consultant, entrusted to **720TH**, in 2001 to undertake the site investigation and design for the mainlaying works along Fanling Highway at a total cost of about \$2.3 million. We charged this amount to block allocation under Subhead **9100WX** – “Waterworks, studies and investigations for items in Category D of the Public Works Programme”. The consultant has substantially completed the design. For other proposed works, we have substantially completed the design by in-house resources.

21. In February 2009, Finance Committee approved the upgrading of part of **237WF** to Category A as **338WF** – “Mainlaying along Fanling Highway and near She Shan Tsuen – Stage 1” at an approved project estimate of \$52.6 million in MOD prices for the laying of about 1 km of 1 200 mm diameter fresh water main along Fanling Highway and Tai Wo Service Road West. The construction works have been entrusted to Highways Department under **843TH** – “Widening of Tolo Highway/Fanling Highway between Island House Interchange and Tai Hang”, which was part-upgraded from **720TH** to Category A in February 2009, which are anticipated to complete in 2013.

22. Of the 491 trees within the project boundary, it is expected that 432 trees will be preserved. The proposed works will involve the felling of 59 trees, none of which are important trees<sup>7</sup>. The majority of the trees to be felled are either invasive weedy species or in poor health or form. We will incorporate planting proposals as part of the project, including planting of about 59 trees.

23. We estimate that the proposed works will create about 58 jobs (49 for labourers and another 9 for professional/technical staff) providing a total employment of 2 400 man-months.

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<sup>7</sup> “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.

**WAY FORWARD**

24. We plan to seek the support of the Public Works Sub-committee for the proposed upgrading of **237WF** to Category A in February 2012 with a view to seeking funding approval from the FC in April 2012.

**Development Bureau  
Water Supplies Department  
January 2012**