

## Legislative Council Panel on Development

### **327WF – Laying of western cross harbour main and associated land mains from West Kowloon to Sai Ying Pun**

#### **PURPOSE**

This paper briefs Members on the proposal to upgrade **327WF** “Laying of western cross harbour main and associated land mains from West Kowloon to Sai Ying Pun” to Category A, at an estimated cost of \$354.5 million in money-of-the-day (MOD) prices, to provide a new cross-harbour water main across the western part of the harbour.

#### **PROJECT SCOPE**

2. The scope of works under **327WF** comprises -
  - (a) laying of about 2.1 kilometres (km) of 1 200 millimetres (mm) diameter new submarine pipeline from West Kowloon to Sai Ying Pun; and
  - (b) laying of about 2.2 km of 1 200 mm diameter land mains.

We plan to commence the proposed works in December 2008 for completion in December 2011. A site plan and a typical section of the proposed submarine pipeline are at **Enclosure 1**.

#### **JUSTIFICATION**

3. At present, about 90 percent of the fresh water demand for Hong Kong Island is met by supplies conveyed from Kowloon and Lantau Island via four groups of cross-harbour mains. They include the Eastern cross-harbour main, the Central cross-harbour mains, the Silver Mine Bay submarine mains and the North Point cross-harbour main. Their respective diameters are 1 400mm, 1 000mm (twin pipes), 750mm (twin pipes) and 1 000mm. They have already been in use for 19, 26, 45 and 46 years respectively. The locations of these four groups of cross-harbour mains are also shown in **Enclosure 1**.

4. The last two groups of the existing cross-harbour mains, namely the Silver Mine Bay submarine mains and the North Point cross-harbour main, will reach their design life of 50 years by 2012 and 2013 respectively. Together they provide about 32% of the total water supply to Hong Kong Island. There is an increasing risk of major disruption to the fresh water supply to Hong Kong Island as the conditions of these two groups of aged water mains are unknown.

5. At present, Water Supplies Department (WSD) cannot shut down any one of these two groups of aged water mains to conduct a detailed survey of its existing conditions because during the shut down period any unexpected interruption of supply at the remaining water mains will result in serious disruption of water supply to Hong Kong Island. It is therefore necessary to lay a new cross-harbour main to ensure security of water supply before the two groups of aged water mains are taken out of service in turns for examination.

6. We propose to lay a new cross-harbour main of 1 200 mm diameter on the western part of the harbour from West Kowloon to Sai Ying Pun. Upon completion of the proposed new cross-harbour main, we will carry out the necessary surveys to ascertain the conditions of the aged water mains and investigate the feasibility of their rehabilitation.

7. West Kowloon and Sai Ying Pun are the preferred landing points of the proposed cross-harbour main in light of the existing water supply networks and the land availability on either side of the harbour.

## FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the proposed works to be \$354.5 million in MOD prices made up as follows –

	<b>\$ million</b>
(a) Laying of submarine pipeline	183.2
(i) mainlaying works	84.3

(ii) dredging and backfilling works	98.9	
(b) Laying of land mains	77.9	
(c) Environmental mitigation measures	8.6	
(d) Consultants' fees	29.9	
(i) contract administration	1.0	
(ii) site supervision	26.8	
(iii) environmental monitoring and audit (EM&A) programme	2.1	
(e) Contingencies	26.5	
		(in September 2007 prices)
Sub-total	326.1	
(f) Provision for price adjustment	28.4	
Total	354.5	(in MOD prices)

## PUBLIC CONSULTATION

9. We consulted the Traffic and Transport Committee (TTC) of Yau Tsim Mong District Council (YTMDC) and the Food, Environment, Hygiene & Works Committee (FEHWC) of the Central and Western District Council (C&WDC) on the proposed works on 6 March 2008 and 13 March 2008 respectively. The YTMDC TTC supported the proposed works. The C&WDC FEHWC supported the proposed works in-principle, and requested the Government to carefully handle any possible adverse traffic and environmental impacts arising from the proposed works. We will implement temporary traffic management schemes and the recommendations of the Environmental Impact Assessment (EIA) study to mitigate the traffic and environmental impacts respectively.

10. We gazetted the proposed works under the Foreshore and Seabed (Reclamations) Ordinance on 8 June 2007 and did not receive any objection during the objection period. The proposed works was subsequently authorized on 24 August 2007.

## ENVIRONMENTAL IMPLICATIONS

11. The submarine pipeline portion is a designated project under Schedule 2 of the EIA Ordinance and an environmental permit (EP) is required for the construction and operation of the proposed submarine pipeline. We have completed an EIA report which concluded that the environmental impacts of the proposed works could be mitigated and controlled to comply with the requirements of the EIA Ordinance. The EIA report was approved by the Director of Environmental Protection and the EP for the proposed works was granted in July 2007. We will implement the recommendations of the EIA study in the construction and operation stages of the project.

12. For short-term impacts during construction, we will control noise, dust and site run-off to levels within established standards and guidelines through the implementation of mitigation measures and good construction practices. We will also conduct a comprehensive environmental monitoring and audit programme during the construction stage to ensure compliance with the EP requirements. We have included a sum of \$8.6 million (in September 2007 prices) in the project estimate for implementing the environmental mitigation measures.

13. We have considered the alignment of the water main in the planning and design stages 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 to public fill reception facilities<sup>1</sup>. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

14. We will also 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

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<sup>1</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.

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

15. We estimate that the project will generate in total about 55 830 tonnes of construction waste. Of these, we will reuse about 41 200 tonnes (74%) of inert construction waste on site and deliver 13 510 tonnes (24%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 1 120 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 about \$0.5 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne at landfills<sup>2</sup>).

16. We estimate that some 543 000 m<sup>3</sup> of marine sediments will be generated from the project. We will follow the recommendations and implement measures of the approved EIA report for handling these sediments with an aim to minimizing disruption to the surrounding marine environment. We will dispose of these sediments at the designated facilities within Hong Kong according to the legal requirements.

## **TRAFFIC IMPACT**

17. We have completed the traffic impact assessment (TIA) for the proposed works. The TIA has concluded that the proposed works will not cause significant traffic impact through implementation of temporary traffic management schemes. At locations where traffic is heavy, we will employ trenchless construction method for the proposed land mains where site conditions permit.

18. We have also carried out a marine traffic impact assessment (MTIA) for the proposed submarine pipeline. The MTIA has concluded that laying of the submarine pipeline will not cause significant impact on marine activities through implementation of mitigation measures. For example, we will require the contractor to carry out the submarine pipeline dredging works in phases and to avoid constructing temporary works around the waters near the landing points concurrently with the dredging works to reduce cumulative impact on marine traffic.

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<sup>2</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.

## 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 do not require any land acquisition.

## BACKGROUND INFORMATION

21. We included **327WF** “Laying of western cross harbour main and associated land mains from West Kowloon to Sai Ying Pun” in Category B in October 2004.

22. In February 2006, we engaged consultant to undertake the investigation study for the proposed works at a cost of 2.8 million in MOD prices. In September 2007, we engaged consultant to undertake the detailed design for the proposed works at a cost of 1.95 million in MOD prices. We have charged these amounts to block allocation **Subhead 9100WX** “Waterworks, studies and investigations for items in Category D of the Public Works Programme”. The design of the proposed works will be completed by end of May 2008.

23. Of the 30 trees within the project boundary, 4 trees will be preserved. The proposed works will involve the removal of 26 trees including 1 tree to be felled and 25 trees to be replanted within the project site. All trees to be removed are not important trees<sup>3</sup>. We have adjusted the alignment of the proposed land mains to keep the felling of trees to a minimum. We will incorporate the planting of 5 trees as part of the project.

24. We estimate that the proposed works will create about 242 jobs (174 for

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<sup>3</sup> “Important trees” refer 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 tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (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 to or exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal to or exceeding 25 m.

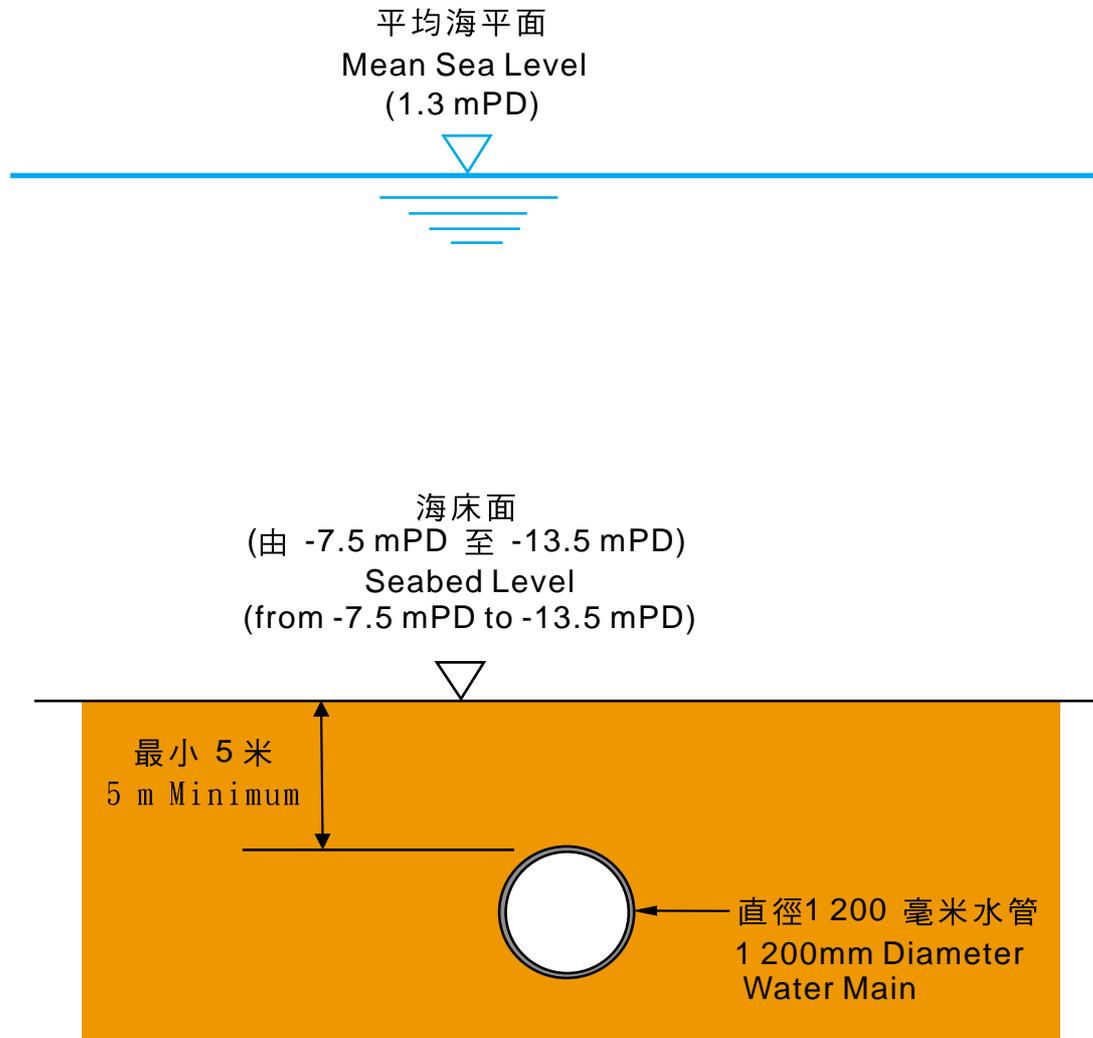
labourers and another 68 for professional/technical staff) providing a total employment of 6500 man-months.

## **WAY FORWARD**

25. Members are invited to support the proposed upgrading of **327WF** to Category A for consideration by the Public Works Sub-committee in June 2008 and for funding approval by the Finance Committee in July 2008.

**Development Bureau**  
**May 2008**





海底水管的典型切面圖

TYPICAL SECTION OF SUBMARINE PIPELINE

核准 APPROVED  
  
 總工程師/顧問工程管理 ENGINEER-IN-CHIEF/CM  
 19/5/2008

工務計劃項目第 9327WF 號 —  
 敷設由西九龍至西營盤之西區過海海底水管及與其相關的地下喉管  
 P.W.P. ITEM NO. 9327WF — LAYING OF  
 WESTERN CROSS HARBOUR MAIN AND  
 ASSOCIATED LAND MAINS FROM WEST KOWLOON TO SAI YING PUN

 水務署  
 WATER SUPPLIES DEPT.  
 草圖編號 SKETCH NO. SK 62008 / 500