

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

### **HEAD 704 – DRAINAGE**

#### **Environmental Protection – Sewerage and Sewage Treatment**

#### **204DS – Wan Chai East and North Point sewerage, remaining works**

Members are invited to recommend to Finance Committee the upgrading of the remainder of **204DS** to Category A at an estimated cost of \$221.7 million in money-of-the-day prices for the construction and rehabilitation of sewers in Wan Chai East and North Point.

### **PROBLEM**

Some existing sewers in Wan Chai East and North Point do not have adequate capacity to handle the increasing volume of sewage generated in these areas.

### **PROPOSAL**

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade the remainder of **204DS** to Category A at an estimated cost of \$221.7 million in money-of-the-day (MOD) prices for the construction and rehabilitation of sewers in Wan Chai East and North Point.

### **PROJECT SCOPE AND NATURE**

3. The scope of the proposed works comprises –

/(a) .....

- (a) construction of 8.5 kilometres (km) of branch sewers with diameters ranging from 225 millimetres (mm) to 1 350 mm in Wan Chai East and North Point;
- (b) rehabilitation of 1.1 km of existing sewers with diameters ranging from 825 mm to 1 350 mm in North Point; and
- (c) rectification of expedient connections in Wan Chai East and North Point.

4. We plan to start construction in September 2005 for completion in November 2009. A site plan showing the locations of the proposed works is at Enclosure 1.

## JUSTIFICATION

5. The majority of the existing sewers in Wan Chai East and North Point were built 30 years ago. Some of them are not able to cope with the increased sewage flows arising from population increase and new developments such as those at Mount Butler, former Government Supplies Department's Oil Street Depot, and Electrical and Mechanical Services Department's depot at Caroline Hill Road. If we do not implement the proposed works, sewage generated from Wan Chai East and North Point may overflow during peak flow conditions.

6. Taking into account the dense developments and problems arising from heavy traffic and narrow roads in these areas, we need to phase the construction works to avoid creating severe disruption to residents and traffic. With the progressive completion of the new trunk sewer systems<sup>1</sup>, we are now proceeding to the last package of the sewerage improvement works to upgrade the existing branch sewers and to rehabilitate old sewers with structural problems in the Wan Chai East and North Point areas.

## FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be \$221.7 million in MOD prices (see paragraph 8 below), made up as follows –

/(a) .....

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<sup>1</sup> The new trunk sewer systems under **212DS** "Wan Chai East and North Point sewerage – stage 1 works" and **225DS** "Wan Chai East and North Point sewerage – stage 2 works" are being constructed for completion by 2007 to 2008.

		<b>\$ million</b>	
(a)	Construction of about 8.5 km of sewers	151.3	
	(i) by trenchless method <sup>2</sup> (about 0.2 km)	8.9	
	(ii) by conventional method (about 8.3 km)	142.4	
(b)	Rehabilitation of about 1.1 km of sewers	19.0	
(c)	Rectification of expedient connections	0.1	
(d)	Consultants' fees for	26.6	
	(i) contract administration	1.1	
	(ii) site supervision	25.5	
(e)	Environmental mitigation measures	2.4	
(f)	Contingencies	19.9	
	Sub-total	219.3	(in September 2004 prices)
(g)	Provision for price adjustment	2.4	
	Total	221.7	(in MOD prices)

/A .....

<sup>2</sup> Trenchless method refers to the use of micro-tunnelling or boring techniques to construct underground sewers and drain pipes without opening up the road surface along the alignment of the sewers and drains. Although the method in general is more expensive than the conventional method, the former method, if feasible, is preferred for carrying out works at busy road sections since it will greatly reduce the need for road opening and thus minimise disruption to traffic during the construction phase.

A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 2.

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

<b>Year</b>	<b>\$ million (Sept 2004)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2005 - 2006	10.0	1.00450	10.0
2006 - 2007	35.0	1.00576	35.2
2007 - 2008	50.0	1.00576	50.3
2008 -2009	49.0	1.00576	49.3
2009 - 2010	40.4	1.00953	40.8
2010 - 2011	22.0	1.02593	22.6
2011 - 2012	12.9	1.04645	13.5
	219.3		221.7

9. We have derived the MOD estimate on the basis of the Government's latest forecast of the trend rate of change in the prices of the public sector building and construction output for the period from 2005 to 2012. We will tender the proposed works under a re-measurement contract because of uncertainties of underground utilities such as electricity cables, telephone cables and water pipes. The contract will provide for price adjustments because the contract period will exceed 21 months.

10. The proposed works will not give rise to any additional recurrent expenditure.

/PUBLIC .....

## **PUBLIC CONSULTATION**

11. We consulted the Planning, Transport and Environmental Protection Committee of the Wan Chai District Council on 25 January 2005, and the Works and Development Committee of the Eastern District Council on 3 February 2005. Members of the Committees supported the implementation of the proposed works.

12. We consulted the Legislative Council Panel on Environmental Affairs on the proposed works on 24 March 2005. Members supported the implementation of the proposed works and requested detailed information on the proposed measures for minimising disruption to traffic due to road excavation works. The supplementary information is set out in paragraphs 16 to 19.

## **ENVIRONMENTAL IMPLICATIONS**

13. We completed an Environmental Impact Assessment study in September 1996. The study has concluded that the proposed works would not give rise to long term adverse environmental impacts. For short term impacts during construction, we will control noise, dust and site run-off within established standards and guidelines through the implementation of mitigation measures. They include the use of temporary noise barriers and silenced construction plants to reduce noise generation, water-spraying to reduce emission of fugitive dust and strict control on diversion of sewage flows in the works contract. We will incorporate relevant clauses into the works contract to require the contractor to carry out the recommended environmental mitigation measures to control pollution in accordance with the relevant regulations during construction. We have included \$2.4 million in September 2004 prices in the project estimate for implementation of the environmental mitigation measures.

14. We have given due consideration to the need to minimise construction and demolition (C&D) materials in the planning and design stages of the proposed works. We will 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 designated public filling 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.

15. We estimate that the project will generate about 28 400 cubic metres (m<sup>3</sup>) of C&D materials. Of these, we will reuse about 8 520 m<sup>3</sup> (30%) on site, reuse about 19 030 m<sup>3</sup> (67%) as fill in public filling areas<sup>3</sup> and dispose of about 850 m<sup>3</sup> (3%) at landfills. The notional cost of accommodating C&D wastes at landfill sites is estimated to be \$106,250 for this project (based on a notional unit cost<sup>4</sup> of \$125/m<sup>3</sup>).

## TRAFFIC IMPLICATIONS

16. We have completed a traffic impact assessment and worked out mitigation measures to minimise possible disruption to traffic during construction of the sewers. To minimise the traffic impacts, works will be divided into a number of sections, each generally not exceeding 40 to 50 metres. Each section will normally require the closure of one traffic lane. We will maintain smooth traffic flow through temporary traffic management measures. We will also display notice boards on site to explain the reason for the temporary traffic arrangements and give the expected completion date of the concerned section. In addition, a telephone hotline will be set up for the public to make enquiries or lodge complaints. Construction works in busy road sections will be carried out in non-peak hours. To expedite works progress without inducing unacceptable nuisance to the public, we will use the trenchless method to construct sewers at critical locations such as the junction of Hing Fat Street and Lau Li Street and the junction of King's Road and Tin Chiu Street. When special events are to be held in the areas, we will coordinate with the organisations concerned, and control and restrict the construction activities within the areas to ensure the smooth running of the events and minimise disturbance to the public.

17. A Traffic Management Liaison Group (TMLG) will be established to discuss, scrutinise and agree on the proposed temporary traffic arrangements. The relevant District Council members, and representatives from Transport Department, Hong Kong Police Force, Highways Department, District Offices and various public transport operators will be invited to attend the TMLG meetings. Every

/temporary .....

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<sup>3</sup> A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a license issued by the Director of Civil Engineering and Development.

<sup>4</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 are likely to be more expensive) when existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

temporary traffic arrangement will be agreed by the TMLG before implementation. In vetting the temporary traffic arrangements, the TMLG will also take into account all relevant factors such as site restrictions, existing and future traffic conditions, pedestrian safety, access to buildings/shop-fronts and provision of emergency vehicular access.

18. Prior to the commencement of any major temporary traffic arrangements, we will visit and distribute leaflets to the relevant shop operators and building management companies/committees. We will also brief them on the nature and the expected duration of the works and the mitigation measures to be taken. We will modify the corresponding arrangements to accommodate suggestions from the public, the affected shop operators and the relevant District Councils as far as practicable.

19. To further control the sequence, number and extent of road openings, we will also adopt the works order form of contract with payment on re-measurement basis. We will issue works order for each section of the works only when the contractor has the labour and plant ready for the works and the related temporary traffic arrangement has been agreed by the TMLG.

## **LAND ACQUISITION**

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

## **BACKGROUND INFORMATION**

21. The Wan Chai East and North Point sewerage master plan study was completed in August 1994 under **141DS** “Wan Chai East and North Point sewerage master plan study – consultants’ fees and investigations”. The study identified improvement works for the proper collection of sewage to treatment facilities in the area.

22. In June 1995, the Finance Committee approved the upgrading of part of **204DS** to Category A as **195DS** “Wan Chai East and North Point sewerage – consultants’ fees and investigations” for employing consultants to carry out detailed design, investigation, environmental and traffic impact assessments for the whole project. The design work commenced in June 1995 for completion in June 2005.

23. In April 1997, the Finance Committee approved the upgrading of part of **204DS** to Category A as **212DS** “Wan Chai East and North Point sewerage – stage 1 works” to construct trunk sewers in Wan Chai East and branch sewers in Wan Chai East and North Point. The construction works commenced in April 1998 for completion in June 2008.

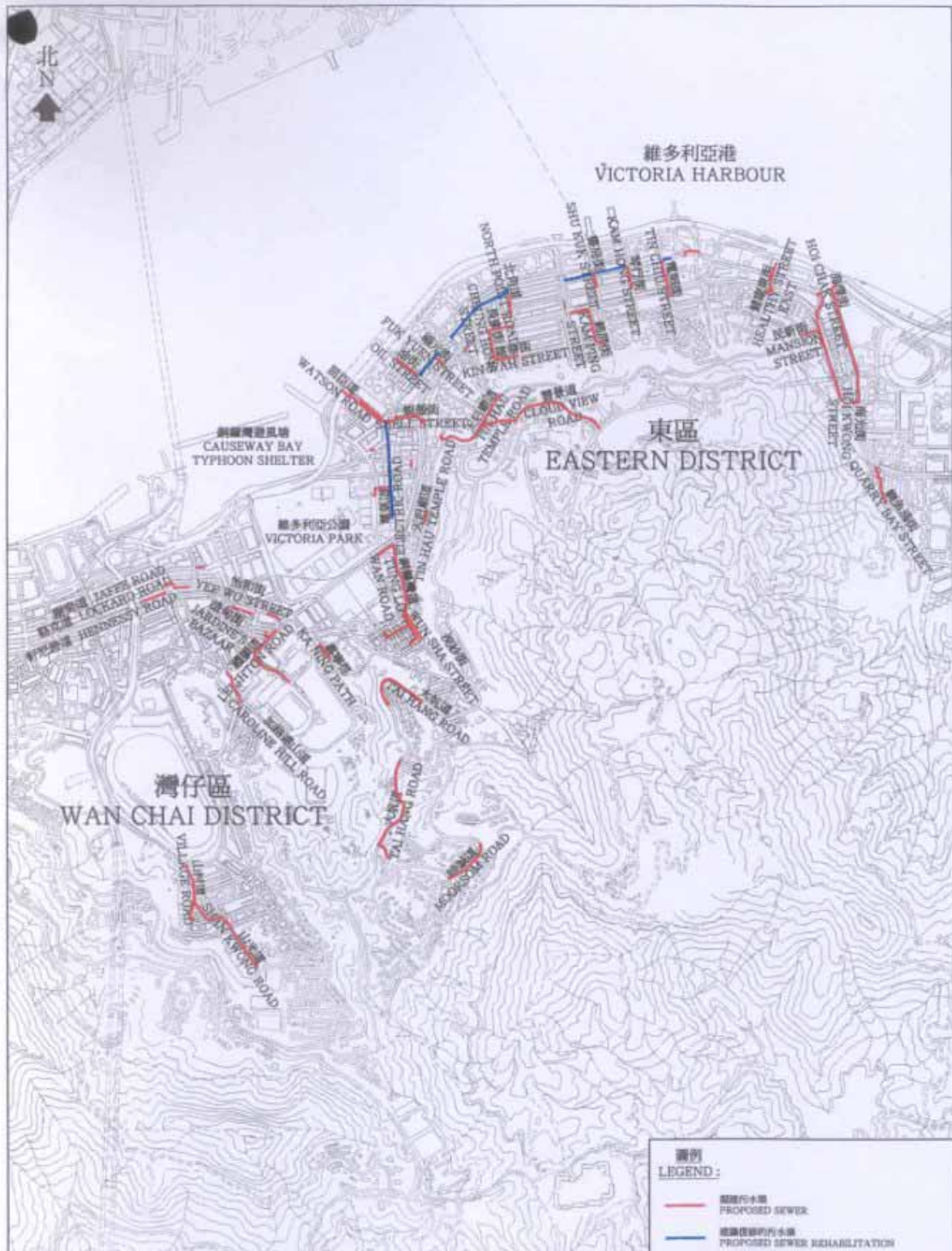
24. In June 2000, the Finance Committee further approved the upgrading of part of **204DS** to Category A as **225DS** “Wan Chai East and North Point sewerage – stage 2 works” to construct trunk sewers in North Point and to reconstruct the inlet pumping station in the existing North Point sewage screening plant. The construction works commenced in December 2000 for completion in early 2007.

25. The proposed sewerage improvement works will not involve any tree removal or planting proposal.

26. We estimate that the proposed works will create about 93 jobs (75 for labourers and another 18 for professional/technical staff) providing a total employment of 3 764 man-months.

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**圖例**  
**LEGEND:**

- 擬議污水渠  
PROPOSED SEWER
- 擬議改善的污水渠  
PROPOSED SEWER REHABILITATION

圖則名稱 drawing title  
 工務計劃項目第4204DS號  
 灣仔東部及北角  
 污水收集系統-餘下工程  
 PWP ITEM NO. 4204DS  
 WAN CHAI EAST AND  
 NORTH POINT SEWERAGE  
 - REMAINING WORKS

繪圖 drawn	C. M. CHAN	日期 date	21-03-2005
核對 checked	K. M. MAK	日期 date	21-03-2005
批核 approved	M. K. HO	日期 date	21-03-2005
部門 office	顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION		

圖則編號 drawing no.	比例 scale
DCM/2005/011	N. T. S.
保留版權 COPYRIGHT RESERVED	
 管理特種行政區域的渠務 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	

## Enclosure 2 to PWSC(2005-06)8

### 204DS – Wan Chai East and North Point sewerage, remaining works

#### Breakdown of estimates for consultants' fees

Consultants' staff costs		Estimated man months	Average MPS salary point	Multiplier (Note 1)	Estimated fee (\$million)
(a)	Contract administration	-	-	-	0.7
	(Note 2)	-	-	-	0.4
(b)	Site supervision by resident site staff	156	38	1.6	13.5
	employed by the consultants	415	14	1.6	12.0
					26.6

\* MPS = Master Pay Scale

#### Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the resident site staff cost supplied by the consultants. (As at 1 January 2005, MPS pt. 38 = \$54,255 per month and MPS pt. 14 = \$18,010 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the investigation, design and construction of **204DS**. The construction phase of the assignment for this project will only be executed subject to Finance Committee's approval to upgrade **204DS** to Category A.
3. We will only know the actual man months and actual fees after the completion of the project.