ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

Head 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment 348DS – North District and Tolo Harbour sewerage, sewage treatment and disposal – regional sewerage works, part 1 – sewerage upgrade

Members are invited to recommend to Finance Committee the upgrading of **348DS** to Category A at an estimated cost of \$ 793.2 million in money-of-the-day prices for the sewerage upgrading works in Sha Tin, Tai Po and North District.

PROBLEM

The existing sewerage in Sha Tin, Tai Po and North District do not have adequate capacity to cope with the forecast sewage flow generated in these areas.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade **348DS** to Category A at an estimated cost of \$793.2 million in money-of-the-day (MOD) prices for the sewerage upgrading works in Sha Tin, Tai Po and North District.

PROJECT SCOPE AND NATURE

- 3. The scope of **348DS** comprises -
 - (a) construction of about 14 kilometres of sewers in Sha Tin, Tai Po and North District; and

(b) upgrading of the existing Sha Tin main sewage pumping station, Chinese University of Hong Kong sewage pumping station and Po Wan Road sewage pumping station.

— The location plans showing the proposed works are at Enclosure 1 to Enclosure 4.

4. We plan to start construction in June 2009 for completion in December 2013.

JUSTIFICATION

5. The Environmental Protection Department (EPD) completed a review, entitled "Review of North District and Tolo Harbour Sewerage Master Plans" (the Review) in November 2002, to assess whether the existing sewerage in North District and Tolo Harbour catchments have the capacity to cater for the planned developments and forecast population change. The Review recommended, amongst others, upgrading sections of existing trunk and branch sewers and a number of sewage pumping stations in Sha Tin, Tai Po and North District.

6. The Drainage Services Department employed consultants in January 2007 to carry out the investigation, design and construction supervision of a part of the sewerage upgrading works recommended in the Review. The consultants have ascertained the updated situation by conducting an overall review on the sewerage in Sha Tin, Tai Po and North District and confirmed the imminent need of the proposed works to tie in with the extension of public sewerage to unsewered areas, population growth and future developments in the areas. Without improvement, local surcharging and overflow would occur. We therefore propose to proceed with the upgrading works to enhance the existing flow capacity.

FINANCIAL IMPLICATIONS

7. We estimate the project cost of the proposed works to be \$793.2 million in MOD prices (see paragraph 8 below), made up as follows –

(a)	Construction of sewers	418.3
(b)	Upgrading of sewage pumping stations	141.3

\$ million

/(c)

(c)	Envi mea	ironmental mitigation sures		6.2	
(d)	Con	sultants' fees for		83.1	
	(i)	contract administration	2.1		
	(ii)	site supervision	81.0		
(e)	Con	tingencies		64.8	
		Sub-total		713.7	(in September
(f)	Prov	vision for price adjustment		79.5	2008 prices)
		Total		793.2	(in MOD prices)

A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 5.

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

\$ million (September 2008)	Price adjustment factor	\$ million (MOD)
19.0	1.03200	19.6
56.9	1.05264	59.9
109.9	1.07369	118.0
157.5	1.09517	172.5
157.4	1.11707	175.8
127.4	1.14779	146.2
85.6	1.18222	101.2
713.7		793.2
	\$ million (September 2008) 19.0 56.9 109.9 157.5 157.4 127.4 85.6 713.7	\$ million (September 2008)Price adjustment factor19.01.0320056.91.05264109.91.07369157.51.09517157.41.11707127.41.1477985.61.18222713.7

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9. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period from 2009 to 2016. We will tender the civil engineering works on a re-measurement basis because of uncertainties concerning the existence and location of various underground utilities and tender the electrical and mechanical works under a lump-sum contract as the scope of works is well defined.

10. We estimate the annual recurrent expenditure arising from the proposed works to be \$1.7 million.

PUBLIC CONSULTATION

11. We consulted the Development and Housing Committee of the Sha Tin District Council, the Environment, Housing and Works Committee of the Tai Po District Council as well as the District Minor Works and Environmental Improvement Committee of the North District Council on 28 August 2008, 10 September 2008 and 22 September 2008 respectively. They all supported the implementation of the proposed works.

12. We consulted the Legislative Council Panel on Environmental Affairs on 15 December 2008 on the proposed works. Members raised no objection to our plan to submit the funding proposal to the Public Works Subcommittee.

ENVIRONMENTAL IMPLICATIONS

13. The proposed upgrading of the Chinese University of Hong Kong sewage pumping station is a designated project under the Environmental Impact Assessment (EIA) Ordinance. Having regard to the project profile, the Director of Environmental Protection is satisfied that the environmental impact of the proposed pumping station can meet the requirements of the Technical Memorandum on EIA Process for granting permission to apply directly for an environmental permit. We shall implement the mitigation measures set out in the environmental permit to be issued under the EIA Ordinance.

14. Apart from the proposed upgrading of the Chinese University of Hong Kong sewage pumping station, the other proposed sewerage works are not designated projects under the EIA Ordinance. We have completed a Preliminary Environmental Review for the other proposed sewerage works and concluded that the works would not cause any long term adverse environmental impacts. 15. We have included in paragraph 7(c) above a sum of \$6.2 million (in September 2008 prices) in the project estimates for implementation of the environmental mitigation.

16. For short term impacts during construction of the proposed works, we will control noise, dust and site run-off within the established standards and guidelines through implementation of mitigation measures in the works contracts, such as the use of silenced construction plants to reduce noise generation, water-spraying to reduce emission of fugitive dust, and proper treatment of site run-off before discharge. We will also carry out close site inspection to ensure that these recommended mitigation measures and good site practice are properly implemented on site.

17. We have considered in the planning and design stages ways to reduce the generation of construction waste where possible. For example, while making due consideration of hydraulic and traffic requirements, we have designed the alignment of the proposed sewerage in such a manner that excavation and demolition of existing structures will be minimized. In addition, we will require the contractor to reuse the inert construction waste (e.g. excavated soil for backfilling) 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 facilities¹. We will encourage the contractor 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.

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

19. We estimate that the project will generate in total about 94 500 tonnes of construction waste. Of these, we will reuse about 51 500 tonnes (55%) of inert construction waste on site and deliver 36 900 tonnes (39%) of inert

/construction

¹ 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.

construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 6 100 tonnes (6%) of non-inert construction waste at landfills. The total cost for accommodating the construction waste at public fill reception facilities and landfill sites is estimated to be \$1.8 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne² at landfills.)

HERITAGE IMPLICATIONS

20. One graded building, namely Fanling Wai, is located in the vicinity of the works area. Adequate mitigation measures will be implemented to ensure no adverse impact to be posed on this historic building during the construction phase.

TRAFFIC IMPACTS

21. We have completed a traffic impact assessment (TIA) for the proposed works and worked out mitigation measures to minimise possible disruption to traffic during construction of the proposed works. During construction, we will maintain smooth traffic flow through implementing temporary traffic management measures as appropriate. We will display notice boards on site to explain the reason of temporary traffic arrangements and indicate the expected completion date of the concerned section of works. We will also employ trenchless methods to construct the sections of sewers at major road junctions to minimise disruption to traffic as far as practicable. The TIA has concluded that the proposed works would not cause any significant traffic impact.

22. We will also establish a Traffic Management Liaison Group (TMLG) under the contract and invite representatives from the Transport Department, Hong Kong Police Force, Highways Department, relevant District Offices, public transport operators and utility undertakings to attend the TMLG meetings, and every temporary traffic arrangement will have to be agreed by the TMLG before implementation. The TMLG will also take into account relevant factors such as site restrictions, traffic conditions, pedestrian safety, accesses to buildings/shop fronts and provision of emergency vehicular accesses in considering the temporary traffic arrangements. In addition, we will set up telephone hotlines for public enquires related to the proposed works.

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² 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/m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

LAND ACQUISITION

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

BACKGROUND INFORMATION

24. In November 2002, EPD completed the study "Review of North District and Tolo Harbour Sewerage Master Plans" for assessing the adequacy of the existing sewerage of the North District and Tolo Harbour catchments for meeting future demands. We then upgraded **348DS** to Category B in October 2005.

25. In January 2007, we engaged consultants to undertake site investigation, surveys, traffic impact assessment and detailed design for the proposed sewerage upgrading works at an estimated cost of \$3.8 million in MOD prices. We have charged this amount to block allocation **Subhead 4100DX** "Drainage works, studies and investigations for items in Category D of the Public Works Programme". We have substantially completed the detailed design of the proposed sewerage upgrading works.

26. Of the 1 420 trees within the project boundary, 1 409 trees will be preserved. The proposed works will involve the removal of 11 trees, including one dead tree to be felled and 10 trees to be replanted within the project site. All trees to be removed are not important trees³. We will incorporate planting proposals as part of the project, including estimated quantities of about 350 shrubs and 100 square metres of grassed area.

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"Important trees" refer to trees in the Register of Old and Valuable Trees, and any other trees that meet one or more of the following criteria –

(a) trees of 100 years old or more;

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- (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 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 or exceeding 1.0 metre (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

27. We estimate that the proposed works will create about 305 jobs (250 for labourers and another 55 for professional/technical staff) providing a total employment of 14 500 man-months.

Environment Bureau March 2009





ENCLOSURE





Enclosure 5 to PWSC(2009-10)1

348DS – North District and Tolo Harbour sewerage, sewage treatment and disposal – regional sewerage works, part 1 – sewerage upgrade

Breakdown of estimate for consultants' fees (in September 2008 prices)

Consultants' staff costs			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional Technical	-	-	-	1.7 0.4
(b)	Site supervision by resident site staff (Note 3)	Professional Technical	462 1 144	38 14	1.6 1.6	44.7 36.3
			Total co	onsultants' s	staff costs	83.1

* MPS = Master Pay Scale

Notes

- 1. A multiplier of 1.6 is applied to the average MPS point to arrive at the full staff costs, including the consultants' overheads and profit, for staff employed in the consultants' offices. MPS points 38 and 14 are used as the average MPS salary points for professionals and technical staff respectively. (As at 1 April 2008, MPS point 38 = \$60,535 per month and MPS point 14 = \$19,835 per month)
- 2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of the project.
- 3. We will only know the actual man-months and actual costs for site supervision after the completion of the construction works.