ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE Environmental Protection – Sewerage and Sewage Treatment 143DS – Central, Western and Wan Chai West Sewerage, stage 2 phase 2B works

Members are invited to recommend to Finance Committee the upgrading of the remainder of **143DS**, retitled "Central, Western and Wan Chai West Sewerage, stage 2 phase 2B works", to Category A at an estimated cost of \$234.4 million in money-of-theday prices.

PROBLEM

Existing sewers in Central, Western and Wan Chai West were built several decades ago and do not have adequate capacity to cope with the increasing sewage flow 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 **143DS** to Category A at an estimated cost of \$234.4 million in money-of-the-day (MOD) prices for the construction of Central, Western and Wan Chai West sewerage, stage 2 phase 2B works.

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PROJECT SCOPE AND NATURE

- 3. The scope of the proposed works comprises
 - (a) upgrading and rehabilitating about 9.5 kilometres (km) of sewers, from 225 millimetres (mm) to 1 350 mm in diameter, along the coastal areas in the lower catchment at Central and Western district; and
 - (b) rectification of expedient connections in old sewers.

4. The construction works would commence in May 2004 for completion in May 2008. A site plan showing the indicative locations of the proposed works is at Enclosure 1.

JUSTIFICATION

5. The Central, Western and Wan Chai West Sewerage Master Plan (SMP) is one of the 16 SMPs developed by the Administration to identify the sewerage infrastructure necessary for meeting population demand and improving water quality in coastal waters. The Central, Western and Wan Chai West SMP study was completed in August 1993 and a package of sewerage improvement works was identified to improve and upgrade the sewerage system in the area so as to meet future development needs.

6. Given the existing dense development, coupled with the problems arising from the heavily trafficked and narrow roads in the Central, Western and Wan Chai West areas, phased construction is required to avoid creating severe disruption to residents and traffic. The Central, Western and Wan Chai West sewerage improvement works are thus implemented in two stages.

7. The stage 1 works started in July 1996 and most works have been completed except the Central sewage screening plant which is targeted for completion in end 2004. Construction of the stage 2 phase 1 and stage 2 phase 2A works commenced in October 2001 and November 2002 respectively and will be completed in January 2005 and February 2006 correspondingly. In order to tie in with the construction programme, we now propose to upgrade the stage 2 phase 2B works, which are the last package of the Central, Western and Wan Chai West sewerage improvement works.

8. The proposed stage 2 phase 2B sewerage improvement works are required given that the majority of the sewers in the Central and Western areas were built several decades ago and need replacement. Some of the sewers also have to be upgraded to cope with the additional sewage flows from the new developments, including the Kennedy Town New Praya Project of the Urban Renewal Authority (for completion by 2005), the residential development sites at Kwun Lung Lau (for completion in two stages by 2005 and 2010 respectively) and Lung Wah Street (for completion by 2007), and the Police Married Quarters at Ka Wai Man Road (for completion by 2014), with an estimated increase in total residential population of 24 000. The proposed works will be able to cater for demands from all existing and planned developments in the area.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the proposed stage 2 phase 2B works to be \$234.4 million in MOD prices (see paragraph 10 below), made up as follows –

		\$ r	nillion	
(a)	Construction of about 9.5 km of sewers		197.2	
	(i) by trenchless method¹(about 0.3km)	28.0		
	(ii) by open cut method(about 9.2km)	169.2		
(b)	Consultants' fees for		20.1	
	(i) contract administration	1.1		
	(ii) site supervision	19.0		
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¹ Trenchless method refers to the use of mirco-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 about four times more expensive than the conventional open cut 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 thus minimise disruption to traffic during the construction phase.

PWSC(2003-04)64

(c)	Environmental mitigation measures		2.0	
(d)	Contingency		21.9	_
	Sub-	total	241.2	(in September 2003 prices)
(e)	Provision for price adjustment		(6.8)	2003 prices)
	- -	Fotal	234.4	(in MOD prices)

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

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

Year	\$ million (Sept 2003)	Price adjustment factor	\$ million (MOD)
2004 - 2005	24.4	0.98225	24.0
2005 - 2006	42.0	0.97734	41.0
2006 - 2007	60.0	0.97245	58.3
2007 - 2008	59.6	0.96759	57.7
2008 - 2009	30.0	0.96638	29.0
2009 - 2010	25.2	0.96638	24.4
	241.2		234.4

11. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period

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2004 to 2010. We will tender the works under a standard re-measurement contract because of the uncertainties of the existence and location 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.

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

PUBLIC CONSULTATION

13. We consulted the then Central and Western District Board and Wan Chai District Board on **143DS** (both stage 1 and stage 2 works) in May 1993 and August 1993 respectively. The Central and Western District Board requested the Administration to carry out the project immediately while the then Wan Chai District Board had no objection to the proposed works. With regard to the implementation of stage 2 works of **143DS**, we consulted the Central and Western District Council (C&WDC) and the Wan Chai District Council on 16 November 2000 and 28 November 2000 respectively. Both Councils had no objection to the implementation of the proposed works. We have further consulted and updated the C&WDC regarding the implementation of the proposed works under this project on 15 January 2004 and 27 January 2004. The C&WDC supported the implementation of the proposed works.

14. We consulted the Legislative Council Panel on Environmental Affairs on the proposed works on 22 December 2003. While supportive of the implementation of the project, Members requested the Administration to maintain close liaison with the affected parties, accommodate their suggestions as far as possible and ensure that the works would be completed within the shortest period. Members also requested more detailed information on the overall net population increase within the new developments and the proposed measures in minimising possible disruption to traffic. The supplementary information is set out in paragraphs 8 and 19.

ENVIRONMENTAL IMPLICATIONS

15. We completed an Environmental Impact Assessment (EIA) study in May 1996, which concluded that there would be no long-term environmental

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impacts exceeding established criteria. 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, such as 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 contracts. An environmental monitoring and audit programme would be implemented to ensure compliance with EIA recommendations. For night-works identified as necessary at the Central commercial areas, we will apply for Construction Noise Permits under the Noise Control Ordinance and restrict the plant type used to minimise the noise level.

16. We estimate the cost of implementing the environmental mitigation measures to be about \$2.0 million in September 2003 prices, which has been included in the project estimate.

17. We have given due consideration to the need to minimise generation of construction and demolition (C&D) materials in the planning and design stages of the proposed works. We will require the works contractor to submit a waste management plan (WMP) to the Engineer for approval, with appropriate mitigation measures to reduce, reuse and recycle construction and demolition materials as much as possible. We will ensure that the day-to-day operations on site comply with the WMP. To further minimise the generation of C&D materials and the disposal of public fill to public filling facilities, we will require the contractor to reuse the excavated material as filling material on site or on other construction sites as far as possible and encourage the contractor to use non-timber formwork and recyclable material for temporary works. We will also control disposal of public fill and C&D waste to designated public filling facility and landfills respectively through a trip-ticket system, and require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. For better monitoring purposes, the disposal and reuse of C&D materials will be recorded.

18. We estimate that about 27 000 cubic metres (m^3) of C&D materials will be generated by the project. Of these, we will reuse about 14 000 m³ (52%) on site, 12 000 m³ (44%) as fill in public filling areas² and dispose of 1 000 m³

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² A public filling area is a designated part of a development project that accepts public fill for reclamation purpose. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

(4%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$125,000 for this project (based on a notional unit cost³ of $$125/m^3$).

TRAFFIC IMPLICATIONS

19. To minimise possible disruption to traffic during construction of the sewers, we have completed the traffic impact assessment for the project. We will maintain smooth traffic flow through temporary traffic management measures as far as possible and display notice boards on site to explain the reason of temporary traffic arrangements and the expected completion date of the concerned section of works. In addition, telephone hotlines 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 Des Voeux Road Central, Des Voeux Road West, Connaught Road West and Connaught Road Central. We will also carry out overnight works in commercial areas, such as road sections of Des Voeux Road Central, Chater Road, Pedder Street and Connaught Road Central. More information on the proposed measures in minimising possible disruption to traffic is given at Enclosure 3.

LAND ACQUISITION

20. The proposed works do not require land acquisition.

BACKGROUND INFORMATION

21. In August 1993, we completed a comprehensive study of the sewerage systems in Central, Western and Wan Chai West under **111DS** "Central, Western and Wan Chai West sewerage master plan study – consultants' fees and investigation".

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³ 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/m³), 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.

22. In March 1994, we upgraded **143DS** to Category B to implement the sewerage works recommended under the study. In April 1994, we upgraded part of **143DS** to Category A as **176DS** "Central, Western and Wan Chai West sewerage, consultants' fees and investigations" for engaging consultants to carry out detailed design, investigation, environmental and traffic impact assessments for the whole project.

23. In July 1996, we upgraded part of **143DS** to Category A as **282DS** "Central, Western and Wan Chai West sewerage, stage 1 works" to construct the trunk sewers, two new sewage pumping stations and the critical sewers in the upper catchment of Central, Western and Wan Chai West. We commenced construction of the stage 1 works in September 1996. We have completed construction works relating to the trunk sewers, Wan Chai East sewage screening plant and upgrading of the sewers at the upper catchment. Construction works for the Central sewage screening plant are in progress and will be completed in end 2004.

24. In April 2001, we upgraded part of **143DS** to Category A as **327DS** "Central, Western and Wan Chai West sewerage, stage 2 phase 1 works" to construct the branch sewers in the lower catchment of Central and Western District and Wan Chai West. We commenced construction of the stage 2 phase 1 works in October 2001 for completion in January 2005.

25. In June 2002, we further upgraded part of **143DS** to Category A as **333DS** "Central, Western and Wan Chai West sewerage, stage 2 phase 2A works" to construct the branch sewers in the lower catchment of Central, Western and Wan Chai West, and to decommission the Wan Chai West sewage screening plant. We commenced construction of the stage 2 phase 2A works in November 2002 for completion in February 2006.

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

27. We estimate that the project will create some 125 jobs comprising 25 professional/technical staff and 100 labourers, totalling 4 600 man-months.

Environment, Transport and Works Bureau February 2004

