

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

Head 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment

344DS – Upgrading of Central and East Kowloon sewerage

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **344DS**, entitled “Upgrading of Central and East Kowloon sewerage – phase 2”, to Category A at an estimated cost of \$503.0 million in money-of-the-day prices; and
- (b) the retention of the remainder of **344DS** in Category B.

PROBLEM

Existing sewers in the Central and East Kowloon areas do not have adequate capacity to cope with the increasing sewage flow generated in these areas.

/PROPOSAL

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade part of **344DS** to Category A at an estimated cost of \$503.0 million in money-of-the-day (MOD) prices for the sewerage upgrading works in the Central and East Kowloon areas.

PROJECT SCOPE AND NATURE

3. The part of **344DS** which we propose to upgrade to Category A comprises –

- (a) upgrading of about 5.7 kilometres (km) of existing sewers with larger sewage pipes of diameters from 300 millimetres (mm) to 1 350 mm and construction of about 1.3 km of new sewers with diameters from 750 mm to 1 050 mm in Kwun Tong, Yau Tong, Ngau Tau Kok, Kowloon Bay and Ngau Chi Wan;
- (b) upgrading of seven existing dry weather flow interceptors (DWFI)¹ in Kwun Tong, To Kwa Wan and Kowloon Bay; and
- (c) ancillary works.

— A site plan showing the locations of the above works of **344DS** proposed to be part-upgraded is at Enclosure 1.

4. Subject to the funding approval of the Finance Committee, we plan to commence the proposed works in July 2011 for completion in December 2015.

5. We will retain the remainder of **344DS** in Category B, which covers the upgrading of about 7.0 km of the existing sewers in San Po Kong, Kowloon City, To Kwa Wan, Hung Hom and Tsim Sha Tsui. Planning and design of the relevant works is in progress. Funding for the remainder of **344DS** will be sought at a later stage after completion of the design and preparatory works.

/JUSTIFICATION

¹ During dry seasons, DWFIs prevent water pollution by intercepting and diverting the polluted dry weather flow in a stormwater system to the sewerage for treatment and disposal; whereas in wet seasons, the flow would largely bypass the DWFIs for discharge via the stormwater system.

JUSTIFICATION

6. The review of Central Kowloon Sewerage Master Plan (SMP) and East Kowloon SMP completed in August 2003 identified that the flow capacity of the existing sewerage in Central and East Kowloon is inadequate and recommended a host of sewerage improvement works in order to provide adequate flow capacity to cater for development needs in the region. These include provision of new sewers and upgrading of existing sewage facilities in Kwun Tong, Wong Tai Sin, Kowloon City and Yau Tsim Mong districts.

7. Due to the inadequate capacity of the existing sewers in the areas, local surcharge in many sections of the existing sewer network were found. Upon further development in the areas, the problem of surcharge would be more serious and the risk of overflow may increase. The proposed sewerage works as mentioned in paragraph 3(a) above will alleviate the risk of local surcharging and overflow in these areas. We also propose to upgrade seven DWFIs as mentioned in paragraph 3(b) above with adjustable weirs to enhance their performance in flow control.

FINANCIAL IMPLICATIONS

8. We estimate the cost of the proposed works to be \$503.0 million in MOD prices (please see paragraph 9 below), broken down as follows –

	\$ million
(a) Construction of sewers	290.2
(b) Improvement works for dry weather flow interceptors	24.3
(c) Ancillary works	2.0
(d) Environmental mitigation measures	9.1
(e) Consultants' fees for	2.5
(i) contract administration	0.6
(ii) management of resident site staff	1.9

/(f)

(f)	Remuneration of resident site staff	47.5	
(g)	Contingencies	37.4	
	Sub-total	413.0	(in September 2010 prices)
(h)	Provision for price adjustment	90.0	
	Total	503.0	(in MOD prices)

— A breakdown of the estimates for the consultants' fees and resident site staff costs by man-months is at Enclosure 2.

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

Year	\$ million (Sept 2010)	Price adjustment factor	\$ million (MOD)
2011 – 2012	24.0	1.04525	25.1
2012 – 2013	57.0	1.10143	62.8
2013 – 2014	106.0	1.16201	123.2
2014 – 2015	99.0	1.22592	121.4
2015 – 2016	65.0	1.29335	84.1
2016 – 2017	38.0	1.36448	51.9
2017 – 2018	24.0	1.43953	34.5
	<u>413.0</u>		<u>503.0</u>

10. We have derived the MOD estimate on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period from 2011 to 2018. We will deliver the works under a re-measurement contract because of the uncertain underground conditions that may affect the alignments of the sewers. The contract will provide for price adjustments.

11. We estimate the additional annual recurrent expenditure arising from the proposed works to be \$271,000. The recurrent expenditure attributable to sewage charges has been taken into account in determining the sewage charges for the years 2008-09 to 2017-18 stipulated in the Sewage Services (Sewage Charge) Regulation (Cap. 463A) and the recurrent expenditure attributable to trade effluent surcharges will be taken into account in reviewing the trade effluent surcharge rates in future.

PUBLIC CONSULTATION

12. We consulted the Housing and Infrastructure Committee of Kowloon City District Council (DC), the Traffic and Transport Committee of Kwun Tong DC and the Traffic and Transport Committee of Wong Tai Sin DC on 18 November 2010, 25 November 2010 and 30 November 2010 respectively. The Committees supported the proposed works.

13. We consulted the Legislative Council Panel on Environmental Affairs on 28 February 2011 on the proposed works. Members raised no objection to the proposed works.

ENVIRONMENTAL IMPLICATIONS

14. 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 they would not have any long term adverse environmental impacts.

15. For short term environmental impacts during construction, we will control noise, dust and site run-off to levels within the established standards and guidelines through implementation of environmental mitigation measures, such as the use of silenced construction equipment and temporary noise barriers or acoustic shed to reduce noise generation, proper scheduling of construction activities to minimise nuisance to the public, water-spraying to reduce emission of fugitive dust, and proper treatment of site run-off before discharge. We will also carry out regular site inspection to ensure that these recommended mitigation measures and good site practices are properly implemented on site. We have included in paragraph 8(d) above a sum of \$9.1 million (in September 2010 prices) in the project estimates for implementing the environmental mitigation measures.

16. At the planning and design stages, we have considered ways to reduce the generation of construction waste where possible. For example, in addition to the need for meeting the hydraulic and traffic requirements, we have also designed the alignment of the proposed sewerage works in such a manner that excavation and demolition of existing structures will be minimised. 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 facilities². 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.

17. 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 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 at public fill reception facilities and landfills respectively through a trip-ticket system.

/18.

² 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.

18. We estimate that the proposed works will generate in total about 60 200 tonnes of construction waste. Of these, we will reuse about 22 500 tonnes (37%) of inert construction waste on site and deliver 34 200 tonnes (57%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 3 500 tonnes (6%) 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 \$1.4 million for the proposed works (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne³ at landfills).

HERITAGE IMPLICATIONS

19. 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

20. 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 works. The TIA has concluded that the proposed works would not cause any significant traffic impact. We will establish a Traffic Management Liaison Group (TMLG) under the contract and invite representatives from Transport Department, Hong Kong Police Force, Highways Department, the relevant District Offices, public transport operators and utility undertakings to attend the TMLG meetings. Every temporary traffic arrangement will be agreed by the TMLG before implementation. The TMLG will also take into account relevant factors such as site restrictions, traffic conditions, pedestrian safety, access to buildings/shop fronts and provision of emergency vehicular access in considering the temporary traffic arrangements.

/21.

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 is likely to be more expensive) when the existing ones are filled.

21. 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 avoid affecting the busy traffic there. In addition, we will set up telephone hotlines for public enquiries related to the proposed works.

LAND ACQUISITION

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

BACKGROUND INFORMATION

23. In September 2005, we upgraded the package 1 works of **337DS** “Upgrading of Central and East Kowloon sewerage” to Category B as **344DS** “Upgrading of Central and East Kowloon sewerage – package 1”. In September 2006, we upgraded the packages 2 and 3 works of **337DS** entitled “Upgrading of Central and East Kowloon sewerage – packages 2 & 3” to Category B, and the package 4 works of **337DS** to Category B as **356DS** “Upgrading of Central and East Kowloon sewerage – package 4”.

24. In May 2007, we engaged consultants to undertake site investigation, surveys, traffic impact assessment and detailed design for the sewerage upgrading works under all four packages mentioned above at an estimated cost of \$5.1 million in MOD prices. We charged this amount to block allocation **Subhead 4100DX** “Drainage works, studies and investigations for items in Category D of the Public Works Programme”. The consultancy works are being carried out in phases.

25. In May 2008, we merged **337DS**, **344DS** and **356DS** as a single project **344DS** “Upgrading of Central and East Kowloon sewerage – packages 1 to 4” to facilitate better coordination and programming of works.

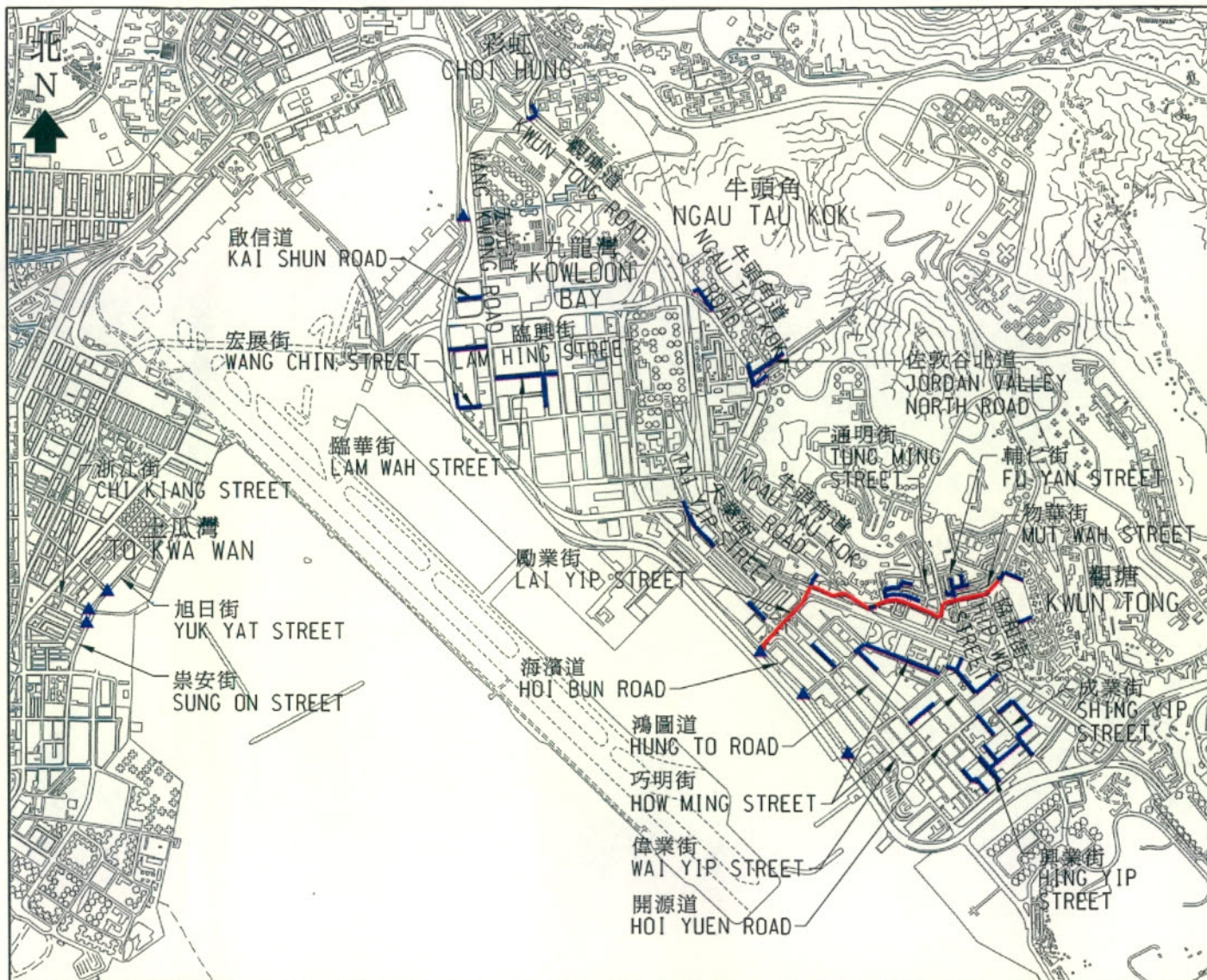
26. In January 2009, we upgraded part of **344DS** to Category A as **367DS** “Upgrading of Central and East Kowloon sewerage – phase 1” at an approved project estimate of \$304.7 million in MOD prices. The construction works commenced in January 2009 for completion in June 2012.

27. We have completed under the Category D item created in paragraph 24 above the detailed design of the proposed works mentioned in paragraph 3 above.

28. The proposed works will not involve any tree removal or planting proposals.

29. We estimate that the proposed works will create about 150 jobs (122 for labourers and another 28 for professional/technical staff), providing a total employment of 6 500 man-months.

Environment Bureau
May 2011

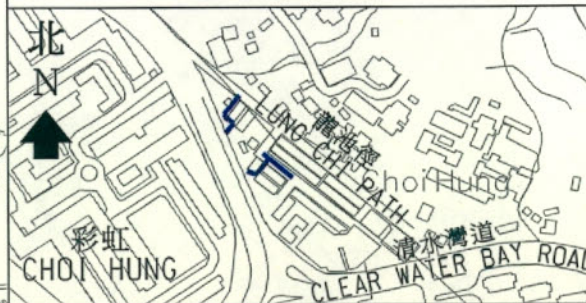


圖例： 擬建的污水收集系統改善工程
 LEGEND: PROPOSED SEWERAGE UPGRADING WORKS

— 新建污水渠
 NEW SEWERS

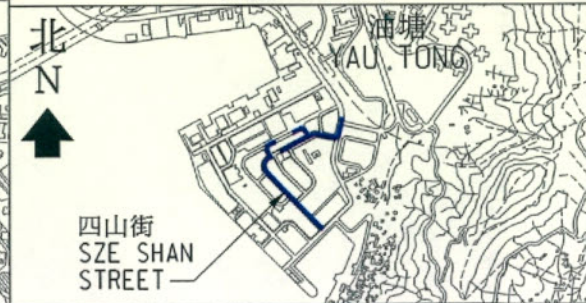
— 改善現有污水渠
 UPGRADING OF EXISTING SEWERS

▲ 旱季污水截流設施
 DRY WEATHER FLOW INTERCEPTORS



牛池灣 NGAU CHI WAN

SCALE 1 : 7500



油塘 YAU TONG

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		圖則編號 drawing no.	比例 scale
		DCM/2010/034	1 : 25000
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顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION			

圖則名稱 drawing title

工務計劃項目第344DS號
 九龍中部及東部污水收集系統改善工程
 PWP ITEM NO. 344DS
 UPGRADING OF CENTRAL AND EAST KOWLOON SEWERAGE

繪畫 drawn	H.K. LAI	日期 date
核對 checked	C.M. LEUNG	日期 date
批核 approved	T.O. WOO	日期 date
部門 office 顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION		

附件1 ENCLOSURE 1

344DS – Upgrading of Central and East Kowloon sewerage

Breakdown of the estimates for consultants' fees and resident site staff costs
(in September 2010 prices)

		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Consultants' fees for contract administration (Note 2)	Professional	-	-	-	0.4
	Technical	-	-	-	0.2
				Sub-total	0.6
(b) Resident site staff costs ^(Note 3)	Professional	144	38	1.6	13.4
	Technical	1 128	14	1.6	36.0
				Sub-total	49.4
Comprising –					
(i) Consultants' fees for management of resident site staff				1.9	
(ii) Remuneration of resident site staff				47.5	
			Total		50.0

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of resident site staff supplied by the consultants. (As at now, MPS salary point 38 = \$58,195 per month and MPS salary point 14 = \$19,945 per month)
2. The consultants' staff cost for the contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of the project. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade part of 344DS to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.