

For discussion  
on 7 June 2006

PWSC(2006-07)24

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment

235DS – Yuen Long and Kam Tin sewerage and sewage disposal

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **235DS**, entitled “Yuen Long and Kam Tin sewerage and sewage disposal – consultants’ fees and investigations” to Category A at an estimated cost of \$28.0 million in money-of-the-day prices; and
- (b) the retention of the remainder of **235DS** in Category B.

### PROBLEM

There is no public sewerage at Ngau Tam Mei, San Tin, Pat Heung, Kam Tin, Lau Fau Shan and Yuen Long South in Northwest New Territories. Sewage discharging from the unsewered areas is polluting the watercourses and the receiving waters in Deep Bay.

/PROPOSAL .....

## PROPOSAL

2. The Director of Drainage Services (D of DS), with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade part of **235DS** to Category A at an estimated cost of \$28.0 million in money-of-the-day (MOD) prices for engaging consultants to undertake site investigations and surveys, an adoptive review<sup>1</sup> and detailed design of the civil engineering works for provision of public sewerage facilities in the Northwest New Territories under **235DS**.

## PROJECT SCOPE AND NATURE

3. The scope of works under **235DS** comprises –
- (a) construction of trunk sewers, sewage pumping stations and twin rising mains at Ngau Tam Mei, San Tin, Pat Heung, Kam Tin, Yuen Long South and Lau Fau Shan;
  - (b) expansion of the existing Ha Tsuen sewage pumping station and San Wai sewage treatment works; and
  - (c) construction of an effluent pumping station and twin rising mains from the existing Yuen Long Sewage Treatment Works to San Wai Sewage Treatment Works.

\_\_\_\_\_ A layout plan showing the locations of the proposed works is at Enclosure 1.

4. We propose to upgrade part of **235DS** to Category A for the following consultancy services for the above proposed works –

- (a) site investigations and surveys;

/(b) .....

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<sup>1</sup> The Adoptive Review is to review the planning, investigation, survey, study and preliminary design work for the Project previously done with a view to facilitating more effective and efficient implementation. The review shall take account of any changed circumstances up to the beginning of the review and current constraints, including changes in the hydraulic condition in the catchment, traffic, road opening restrictions, environmental protection, legislation, land use, population, aspirations/requirements of local residents, Yuen Long District Council and Rural Committees, and any other recent developments.

- (b) adoptive review; and
- (c) detailed design (including preparation of tender documents and assessment of tenders).

5. We plan to commence the above consultancy services in November 2006 for completion in December 2010.

## JUSTIFICATION

6. There is no public sewerage at Ngau Tam Mei, San Tin, Pat Heung, Kam Tin, Lau Fau Shan and Yuen Long South in the Northwest New Territories. The sewage is treated and disposed of by means of privately owned sewage treatment plants or septic tank and soakaway systems. These privately owned facilities are often ineffective in removing pollutants due to their close proximity to watercourses<sup>2</sup> and inadequate maintenance<sup>3</sup>. Sewage discharged from these unsewered areas is a source of pollution to the existing streamcourses and their receiving waters of Deep Bay. The lack of adequate public sewerage facilities also hinders the potential development of the Northwest New Territories.

7. In January 1999, we completed the study “Review of Yuen Long and Kam Tin sewerage and sewage disposal requirements”. The study has recommended a package of sewerage improvement works to provide trunk sewer systems in the above unsewered areas and to upgrade relevant sewerage facilities to abate the water pollution problems and to meet future development needs in the Northwest New Territories. The recommendations took into account the targets set down in the Deep Bay Water Pollution Control Joint Implementation Programme agreed with the Mainland authorities to reduce the amount of pollutants flowing into Deep Bay, so as to protect the sensitive inner Deep Bay habitat. The proposed sewer network will be designed for a population of about 300 000 people in Yuen Long South, Ngau Tam Mei, San Tin, Kam Tin, Mong Tseng and Lau Fau Shan areas.

/8. ....

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<sup>2</sup> Soakaway systems operate by allowing the effluent to percolate through the gravel whereby pollutants would be removed in a natural manner. However, if a system is located in an area where the underground water table is high such as an area in close proximity to watercourses, it cannot function properly.

<sup>3</sup> Inadequate maintenance of septic tanks or soakaway systems would affect the pollutant removal efficiency of a system and may even lead to an overflow of effluent.

8. We have deployed in-house resources to substantially complete the investigation for the proposed sewerage works. We are now ready to proceed to the design and tender stage and will deploy in-house staff to carry out the detailed design of the electrical and mechanical works. Owing to the inadequate in-house staff resources, D of DS proposes to employ consultants to carry out site investigations and surveys, the adoptive review, and the design for the civil engineering part of the proposed sewerage works under **235DS**.

### FINANCIAL IMPLICATIONS

9. We estimate the cost of the proposed consultancy to be \$28.0 million in MOD prices (see paragraph 10 below), made up as follows –

	<b>\$ million</b>	
(a) Surveys, site investigations and testing	5.0	
(b) Design consultancy	19.3	
(i) supervision of surveys, site investigations and testing	0.9	
(ii) adoptive review	2.1	
(iii) design (including preparation of tender documents and assessment of tenders)	16.3	
(c) Contingencies	2.4	
	<hr/>	
Sub-total	26.7	(in September 2005 prices)
(d) Provision for price adjustment	1.3	
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Total	28.0	(in MOD prices)
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/A ....

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

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

Year	\$ million (Sept 2005)	Price adjustment factor	\$ million (MOD)
2006 – 2007	1.1	1.01500	1.1
2007 – 2008	8.5	1.03023	8.8
2008 – 2009	7.0	1.04568	7.3
2009 – 2010	6.5	1.06136	6.9
2010 – 2011	1.8	1.07728	1.9
2011 – 2012	1.8	1.10152	2.0
	26.7		28.0

11. We have derived the MOD estimate on the basis of the Government's latest forecasts of trend rate of change in the prices of public sector building and construction output for the period from 2006 to 2012. We will tender the proposed consultancy on a lump sum basis with provision for inflation adjustment. We allow for inflation adjustment because the duration of the consultancy agreement will exceed 12 months.

12. The proposed consultancy will not give rise to any recurrent expenditure.

/PUBLIC .....

## **PUBLIC CONSULTATION**

13. We reported to the Environmental Improvement Committee of the Yuen Long District Council on 20 March 2006 about the latest implementation programme for engaging consultants to undertake the review and design of the project. They indicated no objection to the proposed engagement of consultants to undertake the review and design of the project. They requested that we should consult the Rural Committees and locals when more design details of the project are available.

14. We consulted the Legislative Council Panel on Environmental Affairs on 22 May 2006 on the proposed consultancy. Members raised no objection to our plan of submitting the proposal to the Public Works Subcommittee for consideration.

## **ENVIRONMENTAL IMPLICATIONS**

15. Some of the proposed works constitute designated projects under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance. The EIA reports were completed and approved under the EIA Ordinance. We will incorporate the recommended mitigation measures at the detailed design stage. We shall obtain the environmental permit for the designated projects before construction and operation.

16. The proposed consultancy will not cause any significant adverse environmental impacts. The site investigations under the proposed consultancy will generate an insignificant amount of construction and demolition (C&D) materials. We will require the consultants to fully consider and propose measures to minimize the generation of C&D materials and for reusing/recycling C&D materials as much as possible when carrying out the site investigation work and in the future implementation of the construction projects.

## **LAND ACQUISITION**

17. The proposed consultancy services do not require any land acquisition.

**/BACKGROUND .....**

**BACKGROUND INFORMATION**

18. In September 1998, we included **215DS** in Category B for the provision and upgrading of sewerage facilities in the Northwest New Territories.

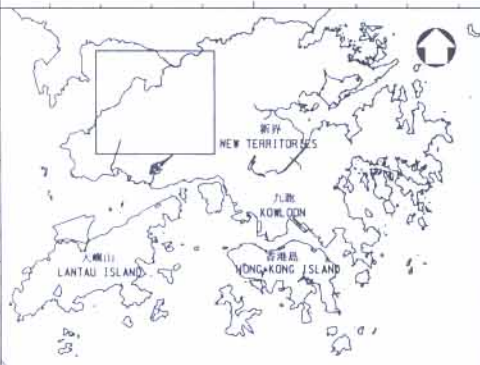
19. In January 1999, the Environmental Protection Department completed the study “Review of Yuen Long and Kam Tin sewerage and sewage disposal requirements”. The recommendations of the study are described in paragraph 7 above.

20. From July 1999 to March 2004, we engaged consultants to carry out environmental impact assessment, ground investigations and traffic impact assessment studies for **215DS** at total estimated costs of about \$10.8 million. We charged this amount to block allocation **Subhead 4100DX** “Drainage works, studies and investigations for items in Category D of the Public Works Programme”.

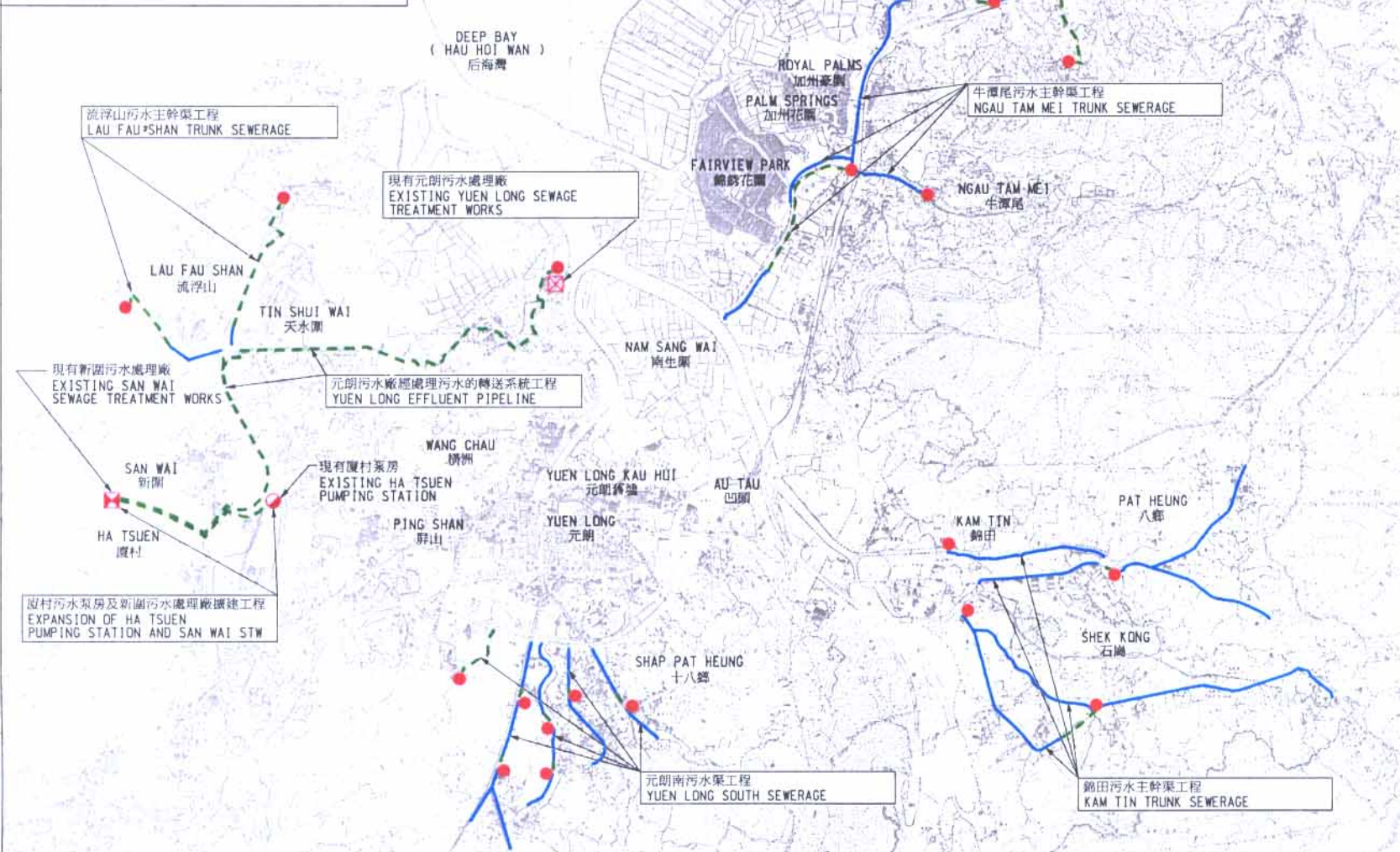
21. In February 2004, we split **215DS** into **215DS** “Yuen Long and Kam Tin sewerage and sewage disposal – Kam Tin trunk sewerage phase 1 and Au Tau trunk sewers” and **235DS** “Yuen Long and Kam Tin sewerage and sewage disposal”. We plan to implement **235DS** in three works packages, taking into account matters such as the land availability dates, and the nature and geographical location of the works.

22. The proposed consultancy will not directly involve any tree removal or planting proposals. We will require the consultants to take into consideration the need for tree preservation during the planning and design stages of projects. We will also incorporate tree planting proposals, where possible, in the construction phase in the future.

23. We estimate that the proposed design consultancy will create about 16 new jobs comprising seven professional and nine technical staff, totalling 650 man-months.



索引圖 KEY PLAN



註 NOTES :

LEGEND :

- PROPOSED SEWER  
擬建污水渠
- - - PROPOSED RISING MAIN  
擬建加壓污水管
- PROPOSED PUMPING STATION  
擬建污水泵房

A	24 MAY 2006	GENERAL REVISION	SIGNED P.W. CHAN E/S10
版 No.	日期 date	修改項目 description	簡簽 Initial

修訂 REVISION

	姓名 name	日期 date
繪圖 drawn	SIGNED Y. K. FAN	12MAY2006
核對 checked	SIGNED Ir P. W. CHAN	12MAY2006
批核 approved	SIGNED Ir T. Y. YUEN	12MAY2006

合約編號 contract no.	
檔案編號 file no.	
工程編號 project no.	
合約名稱 contract	

圖則名稱 drawing title  
元朗及錦田污水收集系統及污水排放計劃  
YUEN LONG AND KAM TIN SEWERAGE AND SEWAGE DISPOSAL  
工程範圍 SCOPE OF WORKS

圖則編號 drawing no.	比例 scale
DDN/235DS/0003A	NTS

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部門 office  
**污水工程部**  
SEWERAGE PROJECTS DIVISION



附件 1 ENCLOSURE 1



**Enclosure 2 to PWSC(2006-07)24**

**235DS – Yuen Long and Kam Tin sewerage and sewage disposal**

**Breakdown of estimate for consultants' fees**

<b>Consultants' staff costs</b>			<b>Estimated man- months</b>	<b>Average MPS* salary point</b>	<b>Multiplier (Note 1)</b>	<b>Estimated fee (\$ million)</b>
(a)	Supervision of	Professional	5	38	2	0.5
	survey, site investigations and testing	Technical	10	14	2	0.4
(b)	Adoptive review	Professional	15	38	2	1.6
		Technical	15	14	2	0.5
(c)	Design (including preparation of tender documents and assessment of tenders)	Professional	90	38	2	9.8
		Technical	180	14	2	6.5
<b>Total consultants' staff costs</b>						<hr/> 19.3 <hr/>
(Note 2)						

\* MPS = Master Pay Scale

**Notes**

1. A multiplier of 2.0 is applied to the average MPS point to estimate the full staff costs including the consultants' overheads and profit for staff employed in the consultant's offices. (At 1.1.2005, MPS pt. 38 = \$54,255 per month and MPS pt. 14 = \$18,010 per month).
2. The actual man-months and fees will be known when we have selected the consultants through the usual competitive fee bid system.