For discussion **PWSC(2015-16)23**
(date to be confirmed)

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE
Environmental Protection – Sewerage and sewage treatment
272DS – Port Shelter sewerage, stage 2

Members are invited to recommend to the Finance Committee –

(a) the upgrading of part of **272DS**, entitled "Trunk sewers at Hiram's Highway" to Category A at an estimated cost of $68.9 million in money-of-the-day prices; and

(b) the retention of the remainder of **272DS** in Category B.

PROBLEM

It is necessary to provide sewers to a number of unsewered areas along the Port Shelter.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade part of **272DS** to Category A at an estimated cost of $68.9 million in money-of-the-day (MOD) prices for the construction of trunk sewers along Hiram's Highway (between Marina Cove and Ho Chung), Ho Chung Road and Luk Mei Tsuen Road in Sai Kung.

/PROJECT …..

PROJECT SCOPE AND NATURE

3. The part of **272DS** that we propose to upgrade to Category A comprises the construction of –

(a) about 1.3 kilometres (km) of trunk sewers with diameters ranging from 225 millimetres (mm) to 525 mm along Hiram's Highway between Marina Cove and Ho Chung;

(b) about 620 metres of trunk sewers with diameters ranging from 250 mm to 450 mm along Ho Chung Road and Luk Mei Tsuen Road; and

(c) ancillary works.

A site plan showing the proposed works is at Enclosure 1.

4. Subject to funding approval of the Finance Committee (FC), we plan to commence the proposed works in the third quarter of 2015 for completion in end 2020.

5. We will retain the remainder of **272DS** in Category B, which comprises the construction of about 28 km of sewers with associated pumping stations and two local sewage treatment plants in Ho Chung and Wo Mei for unsewered areas in the Port Shelter catchment. Planning and design of the relevant works are in progress. Funding for the remainder of **272DS** will be sought at a later stage after completion of the design and preparatory work.

JUSTIFICATION

6. At present, sewage from a number of village areas in the Port Shelter catchment is mostly treated and disposed of by means of private on-site treatment facilities such as septic tanks and soakaway systems. These facilities, in particular those inadequately maintained or of old designs, are not as effective in removing pollutants as proper sewerage infrastructure. Sewage from these unsewered areas could be a source of water pollution to Port Shelter.

7. The Environmental Protection Department has formulated a long-term programme under the Port Shelter Sewerage Master Plan to expand the public sewerage in the Port Shelter catchment. The programme is divided into three stages for implementation. Stage 1 has been completed whereas Stages 2 and 3 are being implemented in phases.

/8. …..

8. We now propose to upgrade part of **272DS** to Category A for implementation of the proposed works as set out in paragraph 3 as part of Stage 2 of Port Shelter sewerage. The proposed works aim to provide trunk sewers along Hiram's Highway (between Marina Cove and Ho Chung), Ho Chung Road and Luk Mei Tsuen Road for the collection and transfer of sewage from the unsewered areas in Ho Chung alongside Hiram's Highway to the proposed local sewage treatment plant at Ho Chung in subsequent phases of Stage 2 works under planning. This will minimise the discharge of pollutants into the environment and bring about sustainable improvement to the water quality of Port Shelter.

9. The Highway Department (HyD) is seeking to upgrade **703TH**, entitled "Dualling of Hiram's Highway between Clear Water Bay Road and Marina Cove and Improvement to Local Access to Ho Chung" to Category A. The project mainly involves improvement to two sections of Hiram's Highway (between Clear Water Bay Road and New Hiram's Highway, and between Nam Pin Wai roundabout and Pak Wai), improvement to Ho Chung Road and Luk Mei Tsuen Road and associated works. The proposed trunk sewers construction works fall within the project boundary of **703TH**. To achieve cost synergy, avoid repeated road opening and any interfacing problems that may arise from multiple contractors working on the same site, we plan to entrust the proposed works to HyD for implementation in conjunction with **703TH**.

FINANCIAL IMPLICATIONS

10. We estimate the cost of the proposed works to be $68.9 million in MOD prices (please see paragraph 12 below), broken down as follows –

			$ million
(a)	Construction of trunk sewer		40.5
(b)	Ancillary works		0.6
(c)	Environmental mitigation measures		1.4
(d)	Consultants' fees		0.5
	(i) Contract administration	0.1	
	(ii) Management of resident site staff	0.4	
(e)	Remuneration of resident site staff		7.2

/(f) …..

		$ million	
(f)	Contingencies	4.8	
	Sub-total	55.0	(in September 2014 prices)
(g)	Provision for price adjustment	13.9	
	Total	68.9	(in MOD prices)

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

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

Year	**$ million (Sept 2014)**	**Price adjustment factor**	**$ million (MOD)**
2015 – 2016	1.0	1.05725	1.1
2016 – 2017	8.0	1.12069	9.0
2017 – 2018	13.0	1.18793	15.4
2018 – 2019	16.0	1.25920	20.1
2019 – 2020	11.0	1.33475	14.7
2020 – 2021	4.0	1.40483	5.6
2021 – 2022	2.0	1.47507	3.0
Total	55.0		68.9

13. We have derived the MOD estimates 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 2015 to 2022. As mentioned in paragraph 9 above, we plan to entrust the proposed works to HyD for implementation in conjunction with **703TH**. HyD will deliver the proposed works under a standard re-measurement contract because the quantities of works including the sewers to be entrusted will vary depending on actual ground conditions. The contract will provide for price adjustment.

/14. …..

14. We estimate the additional annual recurrent expenditure arising from the proposed works to be $0.22 million. 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

15. We consulted Sai Kung Rural Committee on the proposed works on 26 September 2001 and 25 October 2007. We also consulted the Housing and Environmental Hygiene Committee under Sai Kung District Council on 15 April 2008 and 14 March 2013. Both committees supported the proposed works.

16. We consulted the Legislative Council Panel on Environmental Affairs on 26 January 2015 and Members raised no objection to the proposed works.

ENVIRONMENTAL IMPLICATIONS

17. The proposed works are not designated projects under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). Drainage Services Department completed an Environmental Study that covers the proposed works in December 2010 and it was concluded that the proposed works would not have long-term adverse environmental impacts upon implementation of appropriate mitigation measures.

18. 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 noise barriers 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 regular site inspections to ensure that these recommended mitigation measures and good site practices will be properly implemented on site. We have included a sum of $1.4 million (in September 2014 prices) in paragraph 10(c) above in the project estimates of the proposed works for implementation of the necessary environmental mitigation measures.

/19. …..

19. 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 sewers in such a manner that excavation and demolition of existing structures will be minimised. In addition, we will require the contractors 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 facilities (PFRF)[1]. We will encourage the contractors 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.

20. At the construction stage, we will require the contractors 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 contractors to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert and non-inert construction waste at PFRF and landfills respectively through a trip-ticket system.

21. We estimate that the proposed works will generate about 20 500 tonnes of construction waste. Of these, we will reuse 14 100 tonnes (68.8%) of inert construction waste on site and deliver another 5 400 tonnes (26.3%) to PFRF for subsequent reuse. We will dispose of the remaining 1 000 tonnes (4.9%) of non-inert construction waste at landfills. The total costs for accommodating construction waste at PFRF and landfill sites are estimated to be about $0.27 million for the proposed works (based on a unit charge rate of $27 per tonne for disposal at PFRF and $125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

HERITAGE IMPLICATIONS

22. The proposed works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

/LAND …..

---

[1] PFRF are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in PFRF requires a licence issued by the Director of Civil Engineering and Development.

LAND ACQUISITION

23. The proposed works will be implemented within the project boundary of **703TH**. Land resumption is not required under **272DS**.

BACKGROUND INFORMATION

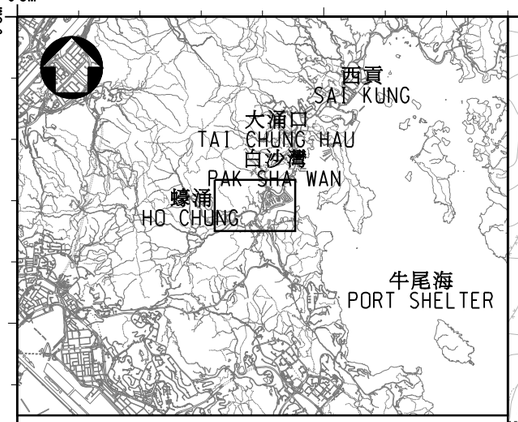
24. In September 2006, we upgraded **272DS** to Category B for implementation of sewerage works in the Port Shelter catchment recommended under the Port Shelter Sewerage Master Plan study. In August 2007, we engaged consultants to carry out investigation and design for implementing long-term water pollution abatement works in the Port Shelter catchment at an estimated cost of $7.8 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". We have substantially completed the detailed design of the proposed works mentioned in paragraph 3 above. The consultants are working on the design of the remaining works under **272DS**.

25. In June 2012, we upgraded part of **272DS** and **273DS** "Port Shelter sewerage, stage 3" to Category A as **382DS** "Sewerage at Clear Water Bay Road, Pik Shui Sun Tsuen and west of Sai Kung town" at an Approved Project Estimate of $290.6 million in MOD prices. In January 2013, FC approved the increase in APE of **382DS** by $68.4 million to $359 million in MOD prices. The construction works commenced in January 2013 for completion in January 2017.

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

27. We estimate that the proposed works under **272DS** will create about 12 jobs (ten labourers and two professional or technical staff), providing a total employment of 680 man-months.

Environment Bureau
June 2015



位置圖 LOCATION PLAN

比例 SCALE 1 : 150 000

圖例 LEGEND :

擬委託路政署與703TH項目一併建造的污水幹渠
PROPOSED TRUNK SEWERS TO BE ENTRUSTED TO HIGHWAYS DEPARTMENT FOR IMPLEMENTATION WITH 703TH

0 CM 10 20 30

843 000 E 843 500 E 844 000 E 844 500 E

824 500 N 824 000 N

10 20

西貢 SAI KUNG

北圍 PAK WAI

匡湖居 MARINA COVE

牛尾海 PORT SHELTER

蠔涌 HO CHUNG

蠔涌新村 HO CHUNG NEW VILLAGE

南圍 NAM WAI

西貢公路 HIRAM'S HIGHWAY

鹿尾村路 LUK MEI TSUEN ROAD

蠔涌路 HO CHUNG ROAD

版 no.	日期 date	修改項目 description	簡簽 initial

圖則名稱 drawing title

牛尾海污水收集系統第2階段工程
PORT SHELTER SEWERAGE, STAGE 2

繪畫 drawn	SIGNED K. H. CHAN	日期 date 15 JAN 2015
核對 checked	SIGNED Ir S. P. CHOW	日期 date 15 JAN 2015
批核 approved	SIGNED Ir C. C. YEUNG	日期 date 15 JAN 2015

部門 office 顧問工程管理部
CONSULTANTS MANAGEMENT DIVISION

圖則編號 drawing no. DCM/2015/001

比例 scale 1 : 5000 OR AS SHOWN

香港特別行政區政府渠務署
DRAINAGE SERVICES DEPARTMENT
GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION

272DS — Port Shelter sewerage, stage 2

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2014 prices)

			Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee ($ million)
(a)	Consultants' fees for contract administration (Note 2)	Professional	-	-	-	0.1
					Sub-total	0.1
(b)	Resident site staff (RSS) costs (Note 3)	Professional	26	38	1.6	3.0
		Technical	118	14	1.6	4.6
					Sub-total	7.6
	Comprising –					
	(i) Consultants' fees for management of RSS				0.4	
	(ii) Remuneration of RSS				7.2	
					Total	**7.7**

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants (as at now, MPS salary point 38 = $71,385 per month and MPS salary point 14 = $24,380 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. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade part of **272DS** to Category A.

3. The actual man-months and actual costs will only be known after the completion of the construction works.