

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment

331DS – Outlying Islands sewerage, stage 2 – South Lantau sewerage works

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **331DS**, entitled “Outlying Islands sewerage, stage 2 – South Lantau sewerage works – consultants’ detailed design fees”, to Category A at an estimated cost of \$30.0 million in money-of-the-day prices; and
- (b) the retention of the remainder of **331DS** in Category B.

PROBLEM

Sewage from unsewered areas in South Lantau is a source of water pollution to the southern waters as well as the nearby streams and four public beaches on the southern coast of Lantau, namely Tong Fuk Beach, Upper Cheung Sha Beach, Lower Cheung Sha Beach and Pui O Beach.

/PROPOSAL

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to upgrade part of **331DS** to Category A at an estimated cost of \$30.0 million in money-of-the-day (MOD) prices for engaging consultants to carry out detailed design and for conducting site investigation for the provision of sewerage in South Lantau under **331DS**.

PROJECT SCOPE AND NATURE

3. The part of **331DS** that we propose to upgrade to Category A comprises –

- (a) a consultancy for implementation of sewerage works in South Lantau that includes –
 - (i) detailed design of sewerage, sewage treatment works and associated facilities for the collection, conveyance, treatment and disposal of sewage from six unsewered areas, namely Shui Hau, Tong Fuk, Cheung Sha, San Shek Wan, Pui O and Ham Tin;
 - (ii) impact assessment on drainage, geotechnical, waterworks, traffic and other aspects necessary for the detailed design;
 - (iii) preparation of tender documents and assessment of tenders;
 - (iv) supervision of the site investigation, surveys and laboratory testing in (b) below; and
- (b) site investigation, surveys and laboratory testing in support of the detailed design work and impact assessment.

_____ A site plan showing the project boundary and locations of the unsewered areas concerned is at Enclosure 1.

4. Subject to the funding approval of the Finance Committee, we plan to commence the proposed design consultancy in September 2012 for completion in September 2015.

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5. We will retain the remainder of **331DS** in Category B, which is the construction works under this project. Funding of the remainder of **331DS** will be sought at a later stage after completion of the detailed design works described in paragraph 3 above.

JUSTIFICATION

6. There is at present no public sewerage in South Lantau and sewage is often treated and disposed of by means of private on-site treatment facilities (such as septic tanks and soakaway (STS) systems). These facilities are however often ineffective in removing pollutants due to their proximity to watercourses¹ or inadequate maintenance². Sewage generated in South Lantau has been identified as a source of water pollution to our southern waters. These could also affect the water quality at four public beaches on the southern coast of Lantau, namely Tong Fuk Beach, Upper Cheung Sha Beach, Lower Cheung Sha Beach and Pui O Beach.

7. In view of the above, public sewerage should be made available in South Lantau as a long-term measure to better protect the water quality of our southern waters and the four public beaches. In 2008, we completed a review of the sewerage scheme for South Lantau, which recommended the provision of public sewerage for six unsewered areas, namely Shui Hau, Tong Fuk, Cheung Sha, San Shek Wan, Pui O and Ham Tin. The review also recommended a schematic design comprising one secondary sewage treatment works, six sewage pumping stations, one submarine outfall, gravity trunk sewers and rising mains along South Lantau Road as well as sewers within the concerned unsewered areas for the collection, conveyance, treatment and disposal of sewage generated from these areas.

8. The preliminary design and the environmental impact assessment of the project carried out under an investigation consultancy are expected to be completed in August 2012 to enable commencing the detailed design works of the project thereafter. The impact on drainage, geotechnical, waterworks, traffic and other relevant aspects will be assessed and site investigation will also be carried out in support of the detailed design works.

/FINANCIAL

¹ STS systems operate by allowing the effluent to percolate through gravels whereby pollutants are removed in a natural manner. However, if a STS system is located in an area where the ground water table is high, such as an area in proximity to watercourses, it will not function properly due to ineffective percolation.

² Inadequate maintenance of STS systems would affect their pollutant removal efficiency and might even lead to overflow of effluent.

FINANCIAL IMPLICATIONS

9. We estimate the cost of the proposed design consultancy and site investigation to be \$30.0 million in MOD prices (please see paragraph 10 below), broken down as follows –

		\$ million
(a)	Consultants' fees for	15.5
	(i) detailed design	10.0
	(ii) impact assessment	3.6
	(iii) tender documentation and assessment	1.0
	(iv) supervision of site investigation, surveys and laboratory testing	0.9
(b)	Site investigation, surveys and laboratory testing	7.3
(c)	Contingencies	2.2
	Sub-total	25.0 (in September 2011 prices)
(d)	Provision of price adjustment	5.0
	Total	30.0 (in MOD prices)

Owing to insufficient in-house resources, we propose to engage consultants to undertake the proposed detailed design and supervision of site investigation works. A breakdown of the estimates for the consultants' fees by man-months is at Enclosure 2.

/10.

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

Year	\$ million (Sept 2011)	Price adjustment factor	\$ million (MOD)
2012 – 2013	0.5	1.05325	0.5
2013 – 2014	5.1	1.11118	5.7
2014 – 2015	8.3	1.17229	9.7
2015 – 2016	6.3	1.23677	7.8
2016 – 2017	4.2	1.30479	5.5
2017 – 2018	0.6	1.37656	0.8
	<hr/> 25.0 <hr/>		<hr/> 30.0 <hr/>

11. 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 2012 to 2018. We will tender the proposed consultancy under a lump sum contract as the scope of the consultancy can be well defined. The consultancy contract will provide for price adjustments as its duration will exceed 12 months. We will deliver the site investigation, survey and laboratory testing under a re-measurement contract because the quantities of works involved will vary depending on the actual ground conditions. The contract will also provide for price adjustments.

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

PUBLIC CONSULTATION

13. We consulted the South Lantau Rural Committee on 3 August 2010 and the Tourism, Agriculture, Fisheries and Environmental Hygiene Committee of the Islands District Council on 18 July 2011. Both committees supported the provision of sewerage in South Lantau.

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14. We consulted the Legislative Council Panel on Environmental

Affairs on 23 April 2012 for the proposed consultancy and site investigation. Members raised no objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

15. The proposed consultancy and site investigation is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The proposed consultancy will not cause any adverse environmental impacts. We shall implement suitable mitigation measures to control any short-term environmental impacts arising from site investigation and surveys.

16. The site investigation works will only generate an insignificant quantity of construction waste. We will require the consultants to fully consider measures to be implemented in future construction stage to minimise the generation of construction waste and to reuse/recycle construction waste as much as possible.

HERITAGE IMPLICATIONS

17. The proposed consultancy and site investigation 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.

LAND ACQUISITION

18. The proposed consultancy and site investigation do not require any land acquisition.

BACKGROUND INFORMATION

19. In September 2008, we completed the review of sewerage scheme for South Lantau. The review recommended the provision of public sewerage for six unsewered areas, namely Shui Hau, Tong Fuk, Cheung Sha, San Shek Wan, Pui O and Ham Tin.

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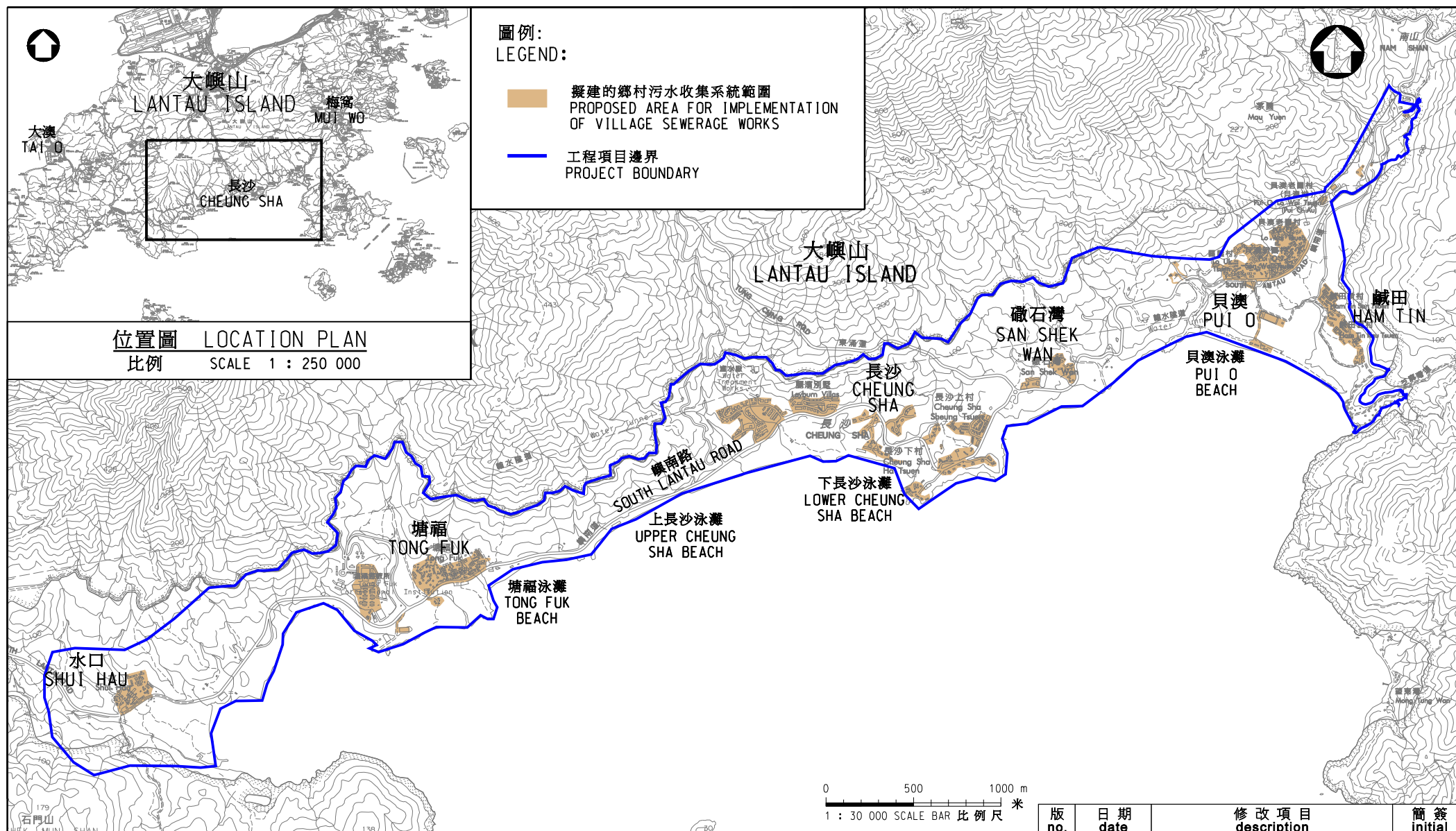
20. In October 2008, we upgraded **331DS** to Category B. In March

2010, we engaged consultants to carry out the environmental impact assessment and preliminary design for **331DS** at an estimated cost of \$11.5 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 schedule to complete the environmental impact assessment and preliminary design in August 2012.

21. The proposed consultancy and site investigation 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 the project. We will also include tree planting proposals, where feasible, in the construction phase in the future.

22. We estimate that the proposed consultancy and site investigation will create about 15 jobs (five for labourers and another ten for professional/technical staff), providing a total employment of 360 man-months.

Environment Bureau
May 2012



圖則名稱 drawing title

工務計劃項目第 331DS 號 - 離島污水收集系統第2階段
- 南大嶼山污水收集系統工程
PWP ITEM NO. 331DS - OUTLYING ISLANDS SEWERAGE, STAGE 2
- SOUTH LANTAU SEWERAGE WORKS

繪畫 drawn

W. Y. HUI

日期 date
08 Mar 2012

核對 checked

K. H. LAI

日期 date
08 Mar 2012

批核 approved

W. Y. CHAN

日期 date
08 Mar 2012

部門 office 顧問工程管理部

CONSULTANTS MANAGEMENT DIVISION

修改項目
description

圖則編號 drawing no.

DCM/2012/003

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

Enclosure 2 to PWSC(2012-13)14

331DS – Outlying Islands sewerage, stage 2 – South Lantau sewerage works

Breakdown of estimate for consultants' fees (in September 2011 prices)

Consultants' staff costs (Note 2)			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Detailed design	Professional	60	38	2.0	7.5
		Technical	60	14	2.0	2.5
(b)	Impact assessment	Professional	22	38	2.0	2.7
		Technical	22	14	2.0	0.9
(c)	Tender documentation and assessment	Professional	6	38	2.0	0.7
		Technical	6	14	2.0	0.3
(d)	Supervision of site investigation, surveys and laboratory testing	Professional	5	38	2.0	0.6
		Technical	6	14	2.0	0.3
Total						15.5

*MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff costs including the consultants' overheads and profit for staff employed in the consultants' offices. (As at now, MPS salary point 38 = \$62,410 per month and MPS salary point 14 = \$21,175 per month.)
2. The actual man-months and fees will only be known when we have selected the consultants through the usual competitive lump sum fee bidding system.