

For discussion
On 8 May 2001

Legislative Council
Panel on Environmental Affairs

**209DS – Outlying Islands sewerage, stage 1, phase 1 -
consultants’ fees and investigations**

Purpose

This paper seeks Members’ views on the Administration’s proposal to invite Public Works Subcommittee to recommend to Finance Committee on 30 May 2001 to increase the approved project estimate (APE) for Public Works Programme (PWP) Item **209DS** by \$12.6 million in money-of-the-day (MOD) prices in order to conduct new impact assessments, investigations and design for the revised Ngong Ping sewerage scheme.

Background

2. The Outlying Islands Sewerage Master Plan (SMP) is one of 16 SMPs developed by the Administration to identify the sewerage infrastructure necessary for meeting population demand and improving water quality in coastal waters. The Outlying Islands SMP study was completed in December 1994 and sewerage upgrading works were identified for six areas, namely Cheung Chau, Mui Wo, Siu Ho Wan, Yung Shue Wan, Peng Chau and Ngong Ping. A location plan showing the proposed upgrading works is at **Enclosure 1**. One of the proposed works packages is the construction of sewers and a sewage treatment plant (STP) at Ngong Ping.

3. In April 1996, Finance Committee approved \$24.0 million in MOD prices for **209DS** “Outlying Islands sewerage, stage 1, phase 1-consultants’ fees and investigations” for employing consultants to carry out impact assessments and investigation work for the sewerage works in these six areas. This included detailed design of the sewerage works at Ngong Ping.

4. The consultants commenced the impact assessments and investigation work for the Ngong Ping STP in May 1996 and completed the work in early 1998. Under the original scheme, the STP will provide treatment for sewage generated by an estimated number of 12 000 visitors per day and 500 residents in Ngong Ping.

Proposal

5. We propose to increase the APE of **209DS** by \$12.6 million in MOD prices to cover the new site investigations, impact assessments and design for the revised Ngong Ping sewerage scheme.

Justifications

6. To increase the range of attractions to enhance Hong Kong's position as the leading tourist destination in Asia, the Administration started to plan for a cable car system linking Tung Chung and Ngong Ping in early 1998. Proceeding with the cable car system requires the following changes to the original design of the Ngong Ping STP –

- (a) the treatment capacity of the STP will need to be increased since the proposed cable car system is expected to bring more visitors to Ngong Ping upon its planned commissioning in 2006; and
- (b) the STP will need to be relocated to a new site since the originally proposed location will be incompatible with future land use as it will be in close proximity with core tourist activities around the proposed cable car terminus.

7. Taking into consideration the proposed cable car system and latest developments, the Environmental Protection Department (EPD) conducted a review of the Ngong Ping sewerage scheme in February 1999. Following the review, we have concluded that the treatment capacity of the

STP should be increased to cater for around 49 000 visitors¹ and that the STP should be relocated from the core tourist and commercial activities at Ngong Ping. The STP will provide tertiary level of sewage treatment² with disinfection as originally proposed. However, to protect water quality within the water gathering grounds for Shek Pik Reservoir, the treated effluent from the STP will be conveyed by a fully enclosed pipeline on the existing Ngong Ping Road and Tai O Road to Tai O for disposal to marine waters via an existing culvert³. We will also provide a sewerage system in Ngong Ping to collect the sewage generated from the existing and future developments. A location plan showing the original and the revised Ngong Ping sewerage scheme is at **Enclosure 2**.

8. Since the revised scheme deviates substantially from the original one, new impact assessments and investigation work need to be conducted. Additional funds would also be required for the design, preparation of tender documents and assessment of tenders for the revised scheme.

9. Owing to the lack of in-house staff resources and expertise, the Director of Drainage Services (DDS) proposes to employ professional services to carry out the required work for the revised Ngong Ping sewerage scheme. We will start the proposed impact assessments, investigation and design works in October 2001 for completion in October 2005⁴. We plan to start the construction of the proposed works for the revised Ngong Ping sewerage scheme in December 2003. The STP, effluent export pipeline and trunk

¹ The estimate was based on the latest tourist forecasts released by the Hong Kong Tourist Association in February 2001 and the projection methodology given in the Tung Chung Cable Car Feasibility Study Final Report completed by the Mass Transit Railway Corporation in March 1999.

² Under tertiary treatment, sewage is further treated by physical, chemical, biological or a combination of these processes to further reduce the level of Biochemical Oxygen Demand, suspended solids and/or nutrients to protect sensitive receiving waters.

³ In arriving at this proposal, EPD had examined the feasibility of other export routes and effluent discharge locations. These included connecting the export pipeline to the sewerage system at Tung Chung and discharging the effluent to the marine waters at Sham Wat Bay. The first option, however, is ruled out because of its adverse environmental impact on environmentally and ecologically sensitive areas within the Country Park areas. The latter option is also not acceptable due to its significant impacts on the existing diverse ecology in Sham Wat, which is a designated archaeological site and is rich in marine and terrestrial habitats.

⁴ Since the Ngong Ping village sewerage scheme would need to go through statutory and land resumption process, the design works can only be finished after these procedures have been completed.

sewers are expected to be completed in March 2006 while the remaining sewers are expected to be completed in April 2007.

Financial Implications

10. Following a review of the financial position of the project, we consider it necessary to increase the approved project estimate of **209DS** from \$32.0 million⁵ by \$12.6 million to \$44.6 million in MOD prices in order to cover investigations, impact assessments and design work for the revised Ngong Ping sewerage scheme. A summary of the proposed increase is as follows -

Factor	Increase/(Decrease) in MOD prices (\$million)	%
(a) site investigations and surveys	4.3	34.1
(b) Consultants' fees	8.1	64.3
(i) supervision of site investigations	0.6	
(ii) impact assessments	2.5	
(iii) review and design	4.1	
(iv) cost for preparation of tender documents and assessment of tenders	0.9	

⁵ Under the delegated authority of Secretary for the Treasury, the Administration increased the APE of 209DS from \$24.0 million by \$8.0 million to \$32.0 million in MOD prices in April 1999 to cover the additional investigation costs and consultants' fees for the inclusion of the ultra-violet disinfection facilities for the Siu Ho Wan STP and the slope stabilization works for Yung Shue Wan STP.

Factor	Increase/(Decrease) in MOD prices (\$million)	%
(c) Saving due to the deletion of the consultants' fees of Ngong Ping sewerage scheme ⁶	(0.7)	(5.5)
(d) Contingencies	0.9	7.1
Total	12.6	100.0
	(in MOD prices)	

11. We have derived the MOD estimates on the basis of the Government's forecasts of trend labour and construction prices for the period 2001 to 2006. A comparison of the cost breakdowns of the APE and the revised project estimate for 209DS is at **Enclosure 3**.

12. The proposed increase in the approved project estimate will not give rise to additional recurrent expenditure.

Public Consultation

13. We presented the Outlying Islands sewerage stage 1, phase 1 works, including the original Ngong Ping sewerage scheme, to the former Islands District Board on 24 April 1995. The Board supported the implementation of the works. We also presented the revised Ngong Ping sewerage scheme to the Islands District Council on 22 May 2000. The Council supported the revised scheme.

Environmental Implications

14. The proposed impact assessments and design of the revised

⁶ The saving arises from the reduction of consultancy fees due to termination of the remaining consultancy services for the original Ngong Ping sewerage scheme.

Ngong Ping sewerage scheme will not give rise to any adverse environmental implications.

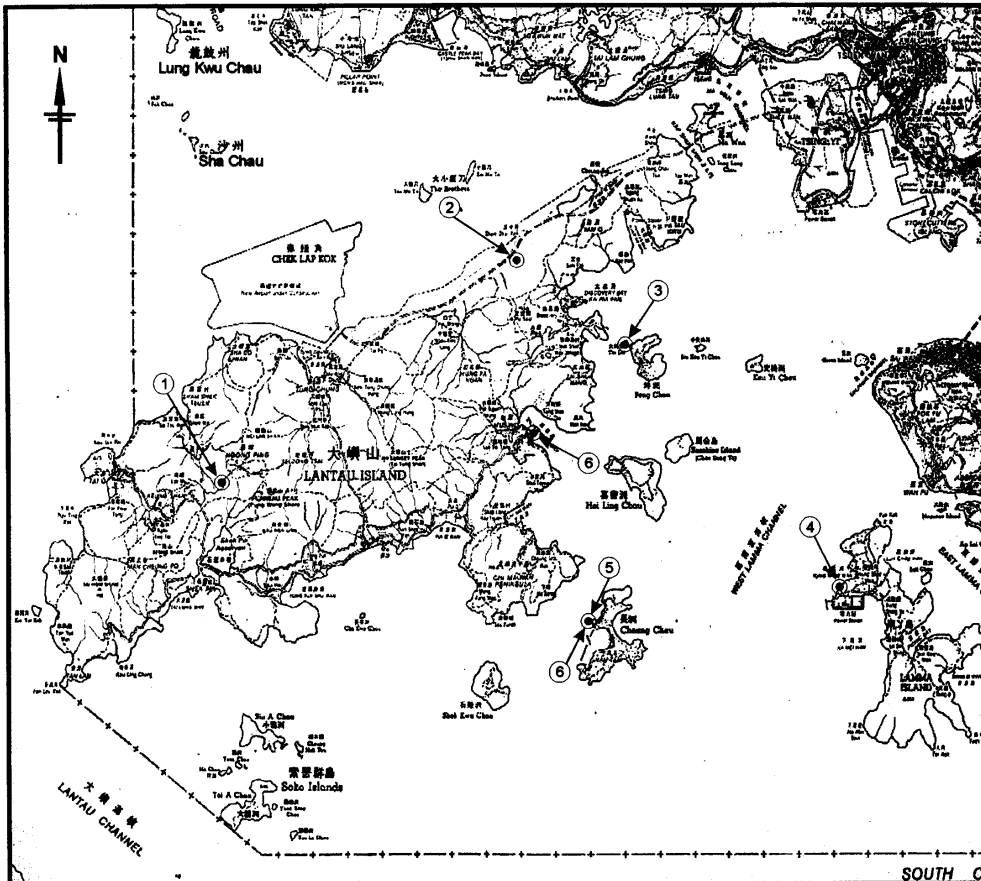
15. The Ngong Ping sewerage scheme is a designated project under the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499). We will undertake an environmental impact assessment study for the project.

16. The proposed site investigations of the revised Ngong Ping sewerage scheme will not give rise to any adverse environmental implications as we shall control short-term impacts within established standards and guidelines through pollution control clauses in the site investigation contracts.

Advice Sought

17. Subject to the views of Members, our proposal to increase the approved project estimate of **209DS** will be submitted to the Public Works Subcommittee for consideration on 30 May 2001 with a view to seeking the funding approval of Finance Committee on 22 June 2001.

Environment and Food Bureau
May 2001



擬建的工程
PROPOSED WORKS

- ① 昂坪污水系統及污水處理廠
NGONG PING SEWERS AND
SEWAGE TREATMENT PLANT
- ② 小墟灣污水處理廠改善工程
SIU HO WAN SEWAGE TREATMENT
PLANT UPGRADING
- ③ 坪洲抽水站及海底管道
PENG CHAU PUMPING STATION AND
SUBMARINE PIPELINE
- ④ 榕樹灣污水處理廠及海底排放管道
YUNG SHUE WAN SEWAGE
TREATMENT PLANT AND
SUBMARINE OUTFALL
- ⑤ 長洲新海底排放管道
CHEUNG CHAU NEW
SUBMARINE OUTFALL
- ⑥ 長洲及梅窩污水處理廠
污泥脫水設備改善工程
UPGRADING OF SEWAGE SLUDGE
DEWATERING FACILITIES IN
SEWAGE TREATMENT PLANTS AT
CHEUNG CHAU AND MUI WO

圖例
LEGEND :

- ① 擬建的工程
PROPOSED WORKS

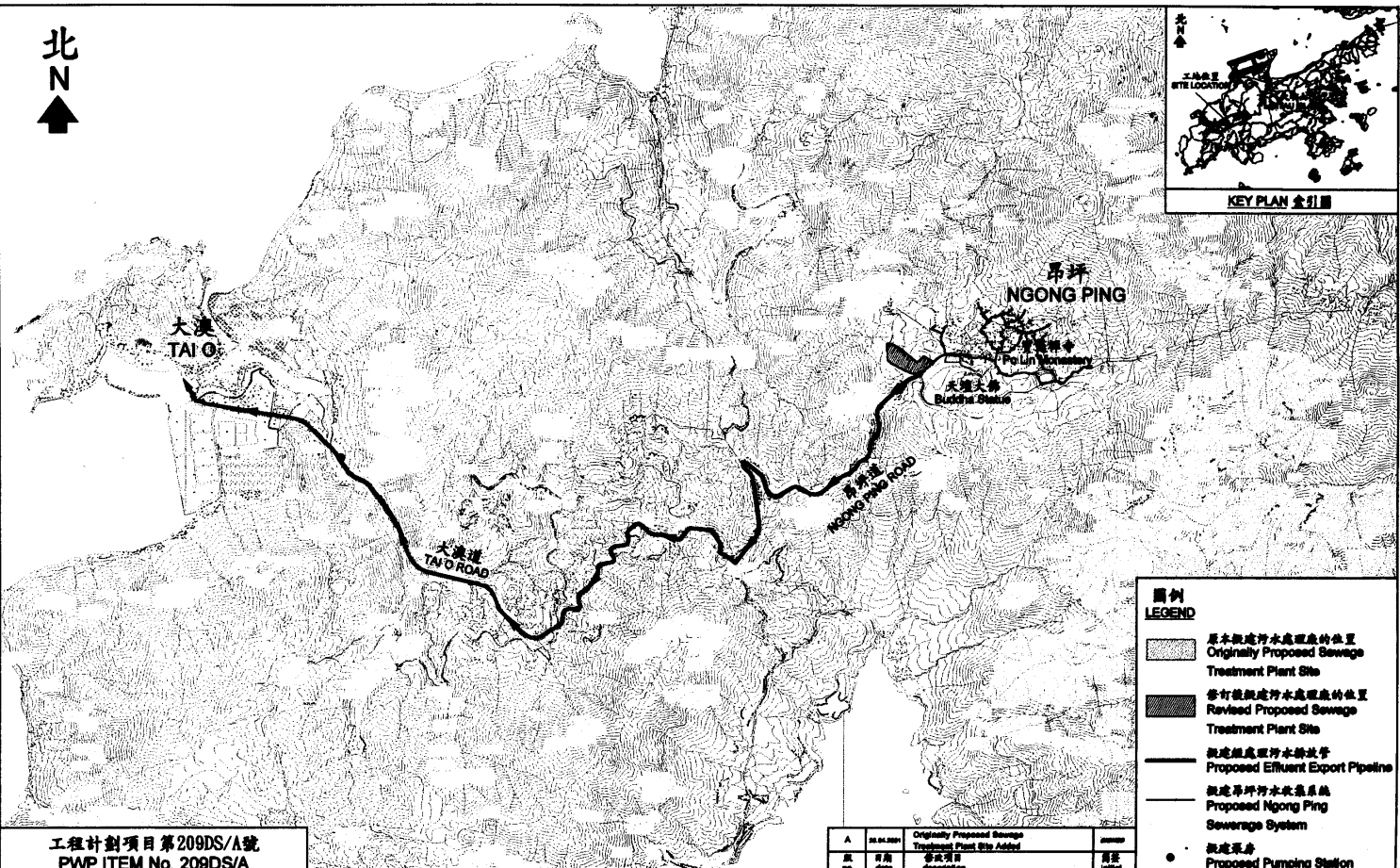
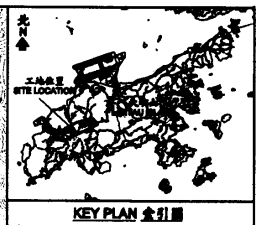
工務計劃項目第208DS號
PWP ITEM NO. 208DS

drawing title

離島污水收集系統第一階段第一期
OUTLYING ISLANDS SEWERAGE STAGE I PHASE I

drawn	SIGNED C.W. CHAN	date	27.04.2001
approved	SIGNED S.K. WONG	date	27.04.2001
office	顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION		

drawing no.	DCM/2001/049	scale	N.T.S.
 香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION			



圖例 LEGEND

- 原本擬建污水處理廠的位置
Originally Proposed Sewage Treatment Plant Site
- 修訂後擬建污水處理廠的位置
Revised Proposed Sewage Treatment Plant Site
- 擬建或現行污水排放管
Proposed Effluent Export Pipeline
- 擬建昂坪污水收集系統
Proposed Ngong Ping Sewerage System
- 擬建泵房
Proposed Pumping Station

工程計劃項目第209DS/A號
PWP ITEM No. 209DS/A

A	23-02-2001	Originally Proposed Sewage Treatment Plant Site Added	日期 Date	內容 Content
核准 date	日期 date	修訂項目 Description	日期 date	內容 Content
由 drawn by	SIGNED	C.W. CHAN	日期 date	23 - 02 - 2001
批准 approved by	SIGNED	Y.T.D. CHEUNG	日期 date	19 - 04 - 2001
辦事處 office	顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION			

圖號 Drawing no.	比例 Scale
DCM/2001/028A	N.T.S.
香港特別行政區政府服務處 GOVERNMENT SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	

修訂的昂坪污水收集系統 REVISED NGONG PING SEWERAGE SCHEME

附件 2 Enclosure 2

A comparison of the cost breakdowns of the approved project estimate and the revised project estimate for 209DS “Outlying Islands sewerage, stage 1, phase 1 - consultants’ fees and investigations”

A comparison between the current approved project estimate and the proposed revised project estimate is as follows -

	Approved Project Estimate (MOD) \$ million	Proposed Revised Estimate (MOD) \$ million	Difference \$ million
(a) Site investigations, other investigations and surveys	8.5	12.8	4.3
(b) Consultants’ fees	24.8	32.9	8.1
(i) supervision of site investigations	1.4	2.0	0.6
(ii) impact assessments	5.5	8.0	2.5
(iii) review and design	15.6	19.7	4.1
(iv) preparation of tender documents and assessment of tenders	2.3	3.2	0.9
(c) Saving	(4.3)	(5.0)	(0.7)
(i) the actual consultants’ fees bid being lower than the original	(4.3)	(4.3)	-
(ii) the deletion of the consultants’ fees for Ngong Ping sewerage scheme under the original consultancy	-	(0.7)	0.7
(c) Contingencies	3.0	3.9	0.9
Total	<u>32.0</u>	<u>44.6</u>	<u>12.6</u>

2. **As regards (a) (site investigations and other investigations)**, the increase of \$4.3 million is due to site investigations and surveys for the revised Ngong Ping sewerage scheme.

3. **As regards (b) (consultants' fees)**, of the total net increase of \$8.1 million -

(a) \$0.6 million is due to supervision of site investigations arising from paragraph 2 above;

(b) \$2.5 million is due to impact assessments for the revised Ngong Ping sewerage scheme;

(c) \$4.1 million is due to review and design work for the revised Ngong Ping sewerage scheme; and

(d) \$0.9 million is due to preparation of tender documents and assessment of tenders for the revised Ngong Ping sewerage scheme.

4. **As regards (c) (saving)**, of the total net decrease of \$0.7 million is due to saving from the deletion of Ngong Ping sewerage scheme under the original consultancy.

5. **As regards (d) (contingencies)**, we reserve an additional amount of \$0.9 million as contingencies for possible additional environmental impact assessment study, design work and site investigations for the Ngong Ping sewerage scheme.