For discussion
on 19 March 2001

Legislative Council
Panel on Environmental Affairs

Tolo Harbour sewerage of unsewered areas, stage 1 phases 1D and 2B

Purpose

This paper seeks Members' support for the Administration's proposal to invite Public Work Subcommittee to recommend to Finance Committee on 27 April 2001 to upgrade part of Public Works Project Item 125DS, namely "Tolo Harbour sewerage of unsewered areas, stage 1 phases 1D and 2B", to Category A at an estimated cost of $170.0 million in money-of-the-day (MOD) prices for implementing sewerage works in unsewered areas in the Tolo Harbour catchment.

Background

2. At present, domestic sewage from unsewered areas in Sha Tin and Tai Po is partially treated by private treatment facilities before being discharged into Tolo Harbour via stormwater drains and streams. Most of these treatment facilities are septic tanks and soakaway systems in village houses. The effectiveness of these facilities in removing pollutants depends on their size[1], whether they are located in areas where the ground conditions are suitable for the soakaway systems to work properly[2] and whether there is adequate maintenance of the systems. Sewage discharged from unsewered areas is a source of pollution in Tolo Harbour.

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[1] Undersized septic tanks or soakaway systems would affect the pollutant removal efficiency of the system and may even lead to an overflow of effluent.

[2] Soakaway systems operate by allowing the effluent to percolate through the gravel whereby the pollutants would be removed in a natural manner. However, if the system is located in an area where the underground water table is high, the system cannot function properly.

3. As a long-term measure to address the water pollution problem in the Tolo Harbour catchment, we included the project "Tolo Harbour sewerage of unsewered areas" as 125DS in the Public Works Programme in August 1990 with a view to providing public sewerage facilities to 169 unsewered areas in the Tolo Harbour catchment. The project includes constructing public sewers and pumping stations to convey sewage flows from these unsewered areas into the existing sewerage reticulation systems in Sha Tin and Tai Po and providing new communal septic tanks with absorption field[3] in unsewered areas situated in remote locations.

4. Works under 125DS were divided into two stages. Stage 1 covers works in 85 unsewered areas in Sha Tin and Tai Po which produce large volumes of pollutants. Stage 2 covers works in the remaining 84 unsewered areas. The implementation plan and updated cost estimate of the whole Tolo Harbour sewerage of unsewered areas project is summarised in Annex A.

5. To break the works under stage 1 into packages of more manageable size, stage 1 works were further divided into two phases. Stage 1 phase 1 works comprises four sub-phases (namely 1A, 1B, 1C and 1D) while stage 1 phase 2 works includes three sub-phases (namely 2A, 2B and 2C). We have so far completed the works under phases 1A, 1B, 1C and 2A at 46 unsewered areas. Location plans of the 85 unsewered areas covered under stage 1 are set out at Annex B.

Proposal and Justification

6. The part of 125DS which we now propose to upgrade to Category A is the stage 1 phases 1D and 2B works. This comprises the following –

(a) providing public sewerage facilities to 15 500 people in 27 unsewered areas. Sewers will be constructed up to the lot boundary of individual houses at most of these areas;

(b) constructing pumping stations in Sheung Wo Che, Lok Lo

[3] An absorption field provides the requisite surface area for proper treatment of septic tank effluent.

Ha, Sha Lan, Tai Mei Tuk and Tung Tze to uplift the sewage collected in these areas to existing public sewers. These pumping stations are required as a result of the topography of these areas and the levels of the existing sewers nearby; and

(c) constructing a new communal septic tank system with an associated pumping station at Yung Shue O to properly treat the sewage on site and discharge the effluent underground through a suitably designed absorption field. Due to the remote and isolated location of Yung Shue O, it would not be cost-effective to extend the public sewerage system to the area. It is considered that building a communal septic tank would be the most appropriate solution, given that a location with suitable ground conditions has been identified to build the septic tanks and absorption field.

7. Upon completion, we will be able to improve the water quality of the Tolo Harbour by preventing about 3 600 m^3 of sewage which has not undergone proper treatment from entering Tolo Harbour each day. We plan to start the proposed works in September 2001 for completion in April 2004, followed by minor house connection works.

Financial Implications

8. We estimate the capital cost of the proposed works to be $170.0 million in MOD prices made up as follows –

			$ million	
(a)	Sewers		98.3	
(b)	Sewage pumping stations		14.	
	(i) civil works	6.7		
	(ii) electrical & mechanical works	7.7		
(c)	Communal septic tanks and absorption field		1.2	
(d)	Maintenance access		2.8	
(e)	Environmental mitigation measures		0.8	
(f)	Consultants' fees		1.3	
(g)	Resident site staff cost		24.0	
(h)	Contingency		14.2	
	Sub-total		157.0	(in September 2000 prices)
(i)	Provision for price adjustment		13.0	
	Total		170.0	(in MOD prices)

9. We estimate the additional annually recurrent expenditure for maintenance works to be $3.9 million.

10. Based on the current level of expenditure on operation and maintenance of sewerage facilities, the proposed work by itself would lead to an increase in the recurrent cost of providing sewage services by about 0.29%. This will need to be taken into account in determining sewage charges.

Public Consultation

11. We consulted the Health and Environment Committee of the then Sha Tin Provisional District Board on 3 September 1998 and 6 May 1999 on the proposed stage 1 phases 1D and 2B works respectively. We also consulted the Tai Po Provisional District Board on 17 July 1998 and 14 May 1999 on these works. They supported the implementation of the proposed works.

Environmental Implications

12. We completed the Environmental Impact Assessment (EIA) for the stage 1 phase 1D works and 2B works in October 1993 and November 1996 respectively. As recommended by the EIA, we will provide mitigation devices to control possible odour arising from the operation of sewage pumping stations. For short-term impacts caused by excavation works during construction, we shall control noise, dust and site run-off within established standards and guidelines through implementation of mitigation measures.

13. We estimate the cost of implementing the environmental mitigation measures to be $0.8 million in September 2000 prices. We have included this in the overall project estimate.

Land Acquisition

14. The project requires land acquisition. The land resumption and clearance cost for the project is estimated at $29 million and will be charged to Head 701 - Land Acquisition. All the statutory procedures for resuming the required land has been completed in accordance with the Water Pollution Control (Sewerage) Regulation.

Advice Sought

15. Members are invited to support our proposal to invite the Public Work Subcommittee to recommend to Finance Committee the upgrading of the "Tolo Harbour sewerage of unsewered areas stage 1 phases 1D and 2B" works to Category A at an estimated cost of $170.0 million in MOD prices.

Environment and Food Bureau
March 2001

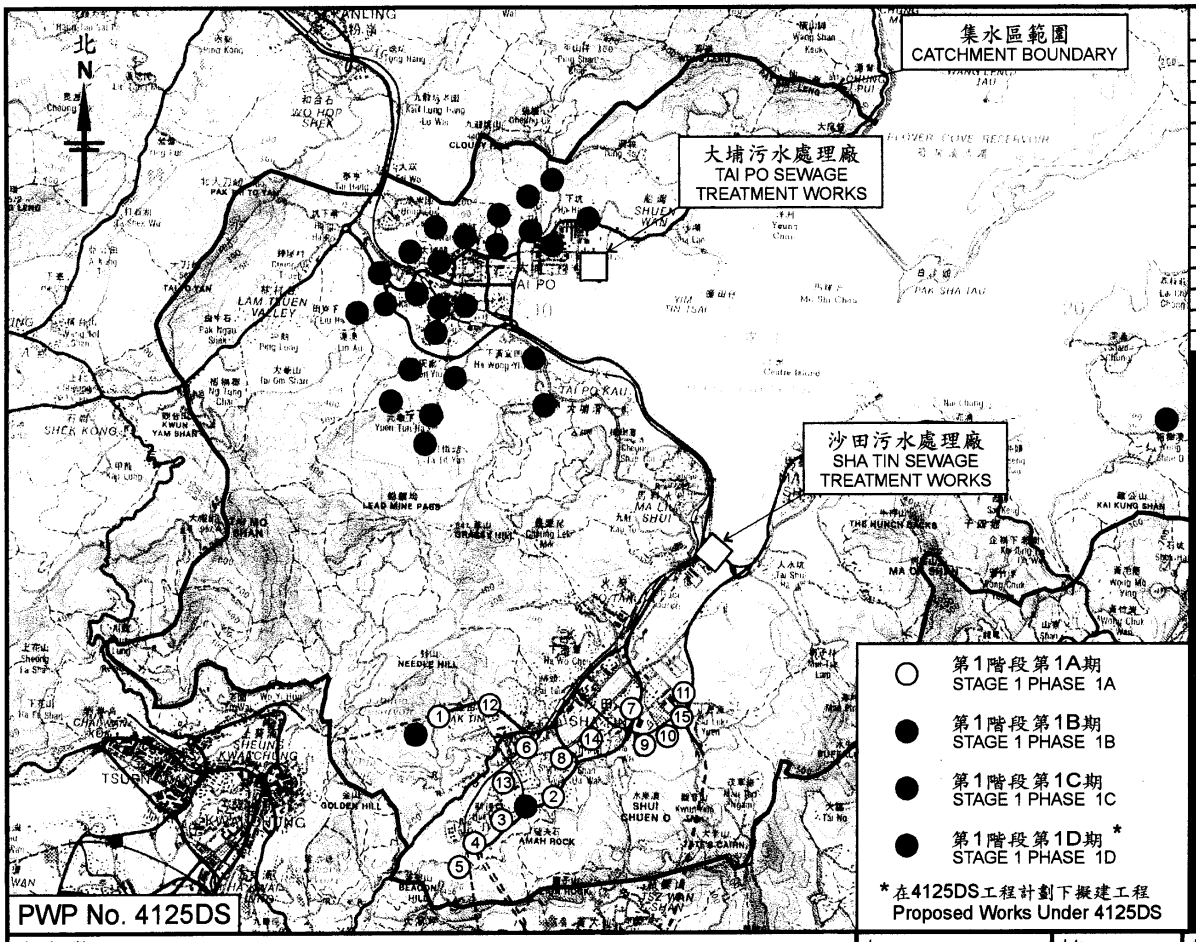
Tolo Harbour sewerage of unsewered areas
Updated cost estimate and implementation plan

PWP Item No.	Description	No. of unsewered areas	Start Date	Completion Date	Updated Cost Estimate ($million in Sept 2000 prices)	Estimated Population Served
	Stage 1 Phase 1 (covering 43 unsewered areas)					
137DS	Design consultancy		Aug 1991	June 2001	12.5	-
163DS	Stage 1 phase 1A	15	Jun 1993	May 1995	56.8	17 300
177DS	Stage 1 phase 1B	10[1]	Oct 1994	Aug 1998	72.4	8 200
284DS	Stage 1 phase 1C	6[1]	Jun 1997	Feb 1999	28.6	4 800
(Note 1)	Stage 1 phase 1D	12[1]	Sep 2001	May 2003	46.7	3 400
				Subtotal:	217.0	33 700
	Stage 1 Phase 2 (covering 42 unsewered areas)					
179DS	Design consultancy		May 1995	Aug 2002	11.6	-
213DS	Stage 1 phase 2A	15	May 1998	Mar 2001	83.2	11 800
(Note 1)	Stage 1 phase 2B	15	Nov 2001	Apr 2004	110.3	12 100
(Note 2)	Stage 1 phase 2C	12	Jun 2003	Jun 2006	101.5	19 200
				Subtotal:	306.6	43 100
				Total:	523.6	76 800
	Stage 2[2] (covering 84 unsewered areas)					
(Note 2)	Design consultancy		Dec 2002	Dec 2008	40.0	-
(Note 2)	Construction		2005/2006[2]	2008/2009[2]	395.0	13 000
				Total:	435.0	13 000

Note 1 Part of **125DS** we now propose to upgrade to Category A.
Note 2 The remainder of **125DS** for retention in Category B.

[1] Some of these areas are parts of individual unsewered villages.

[2] The original plan for stage 2 works covers 84 unsewered areas which are located in relatively remote locations. We are currently undertaking a Review of North District and Tolo Harbour Sewerage Master Plans (the Review) to update the scope and the implementation programme of the stage 2 works by taking into account latest developments within the catchment and in the light of experience gained in implementing village sewerage schemes under the stage 1 works. We commenced the Review in June 2000 for substantial completion by end 2001. Based on the recommendations of the Review, we would include the updated stage 2 works into the Public Works Programme for implementation in 2002



LIST OF VILLAGES		鄉村名單
1	HEUNG FAN LIU (EAST)	香粉寮(東)
2	KAN TIN	隔田
3	HA KENG HAU	下徑口
4	SHEUNG KENG HAU	上徑口
5	HIN TIN	顯田
6	TAI WAI	大圍
7	SHA TIN WAI	沙田圍
8	SHA TIN TAU	沙田頭
9	TO SHEK	多石
10	CHAP WAI KON	插桅杆
11	NGAU PEI SHA	牛皮沙
12	PAK TIN	白田
13	TIN SAM	田心
14	TSANG TAI UK	曾大屋
15	CHAP WAI KON NEW VILLAGE	插桅杆新村
	YUE KOK	魚角
	NAM HANG	南坑
	YING PUN HA	營盤下
	SHUI WAI	水圍
	KAM SHAN	錦山
	PAN CHUNG SAN TSUEN	泮涌新村
	SHEUNG WUN YIU	上碗窰
	SAN UK KA (PART)	新屋家(部份)
	TIN SAM (PART)	田心(部份)
	HA HANG	下坑
	LAI CHI HANG	荔枝坑
	SHEK KWU LUNG (PART)	石古壟(部份)
	PAN CHUNG (PART)	泮涌(部份)
	SAN UK KA (PART)	新屋家(部份)
	HEUNG FAN LIU (WEST)	香粉寮(西)
	TAI PO KAU	大埔滘
	CHEUNG UK TEI	張屋地
	CHUK HANG	竹坑
	SAN WAI TSAI	新圍仔
	FUNG YUEN LO TSUEN	鳳園老村
	MAK UK	麥屋
	YUNG SHUE O	榕樹澳
	KAU SHI WAI	狗屎圍
	SHEK KWU LUNG (PART)	石古壟(部份)
	PAN CHUNG (PART)	泮涌(部份)
	TIN SAM (PART)	田心(部份)
	HUNG MUI KUK	紅梅谷
	LAI CHI SHAN	荔枝山

○ 第1階段第1A期 STAGE 1 PHASE 1A

● 第1階段第1B期 STAGE 1 PHASE 1B

● 第1階段第1C期 STAGE 1 PHASE 1C

● 第1階段第1D期 * STAGE 1 PHASE 1D

* 在4125DS工程計劃下擬建工程
Proposed Works Under 4125DS

PWP No. 4125DS

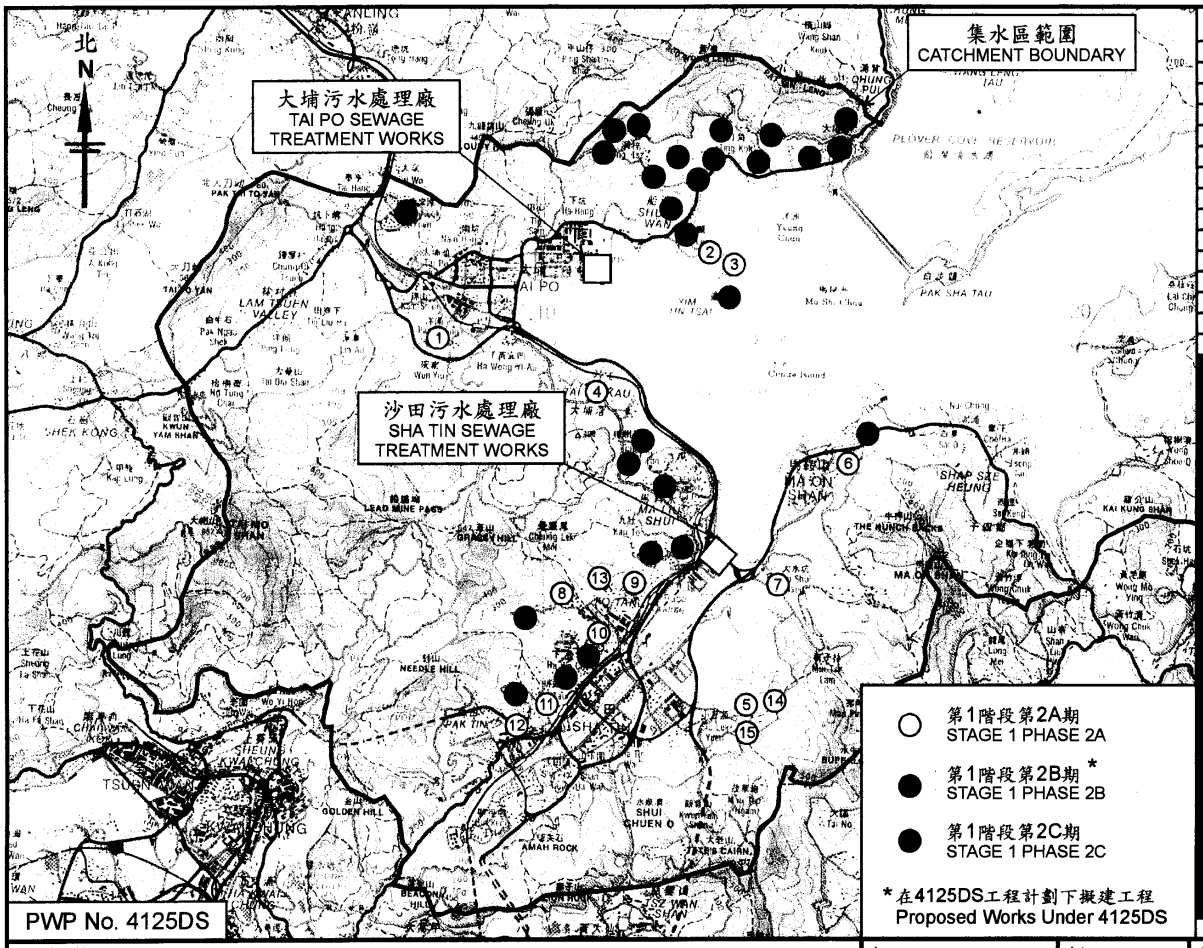
drawing title

為吐露港內未有污水設施地區而興建的污水收集系統 - 第1階段第1期工程 - 位置圖
TOLO HARBOUR SEWERAGE OF UNSEWERED AREAS - STAGE 1, PHASE 1 - LOCATION PLAN

drawn	date	drawing no.	scale
C.W. CHAN	12-12-2000	DCM/2000/025	N.T.S.
approved: S.K. WONG	date: 01-03-2001		
office: 顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION			

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

Annex B 附件 B



LIST OF VILLAGES		鄉村名單
1	TO YUEN TUNG	桃園洞
2	HOME FOR THE AGED	東華三院
3	SAM MUN TSAI NEW VILLAGE	三門仔新村
4	TAI PO KAU SAN WAI	大埔滘新圍
5	TAI LAM LIU	大藍寮
6	WU KWAI SHA NEW VILLAGE	烏溪沙新村
7	TAI SHUI HANG	大水坑
8	FO TAN COTTAGE AREA	火炭平房區
9	WO LIU HANG	禾寮坑
10	FO TAN	火炭
11	PAI TAU	排頭
12	TUNG LO WAN	銅鑼灣
13	PAT TSZ WO	扯子窩
14	SHEK KWU LUNG	石古聾
15	WONG NAI TAU	黃泥頭
	TUNG TSE	洞梓
	SHA LAN	沙欄
	TAI MEI TUK	大尾篤
	TSIU LAM	蕉林
	WAI HA	圍下
	SHUEN WAN CHIM UK	船灣詹屋
	SHUEN WAN LEI UK	船灣詹李屋
	A SHA TSENG TAU	鴉山井頭
	YIM TIN TSAI (LUEN YICK)	鹽田仔
	TO FUNG SHAN	道風山
	HA WO CHE	下禾輋
	SHEUNG WO CHE	上禾輋
	HO TUNG LAU	何東樓
	LOK LO HA	落路下
	WONG CHUK YEUNG	黃竹洋
	LO TSZ TIN	蘆慈田
	LUNG MEI	龍尾
	PO SAM PAI	布心排
	TING KOK	汀角
	WONG CHUK TSUEN	黃竹村
	SAN TAU KOK	磡頭角
	LAI PEK SHAN SAN TSUEN	犁壁山新村
	CHEUNG SHUE TAN	樟樹灘
	TAI PO MEI	大埔尾
	CHEK NAI PING	赤泥坪
	LOK WO SHA	落禾沙
	HONG LOK YUEN	康樂園

drawing title

為吐露港內未有污水設施地區而興建的污水收集系統 - 第1階段第2期工程 - 位置圖

TOLO HARBOUR SEWERAGE OF UNSEWERED AREAS - STAGE 1, PHASE 2 - LOCATION PLAN

drawn	date
C.W. CHAN	12-12-2000
approved	date
C.H. WONG	01-03-2001
office	
顧問工程管理部 CONSULTANTS MANAGEMENT DIVISION	

drawing no.	scale
DCM/2000/026	N.T.S.

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