For discussion
on 2 January 2001

Legislative Council
Panel on Environmental Affairs

Central, Western and Wan Chai West sewerage, stage 2 phase 1 works

Purpose

This paper seeks Members' support for the Administration's proposal to seek Public Work Subcommittee's approval on 14 February 2001 to upgrade part of Public Works Project Item 143DS, namely Central, Western and Wan Chai West sewerage, stage 2 phase 1 works, to Category A at an estimated cost of $202.0 million in money-of-the-day (MOD) prices for carrying out local sewerage improvement works in Central, Western and Wan Chai West.

Background

2. The Central, Western and Wan Chai West Sewerage Master Plan (SMP) is one of sixteen SMPs developed by the Administration to identify the sewerage infrastructure necessary for meeting population demand and improving water quality in coastal waters. The Central, Western and Wan Chai West SMP study was completed in August 1993 and a package of sewerage improvement works was identified to cope with the additional sewage flows from the new developments in the districts. These developments include the Land Development Corporation sites near Queen Street and Wan Chai Road (by 2003), the Central Reclamation Phase III site (by 2006), the residential development site near Lung Wah Street (by 2007) and the Wan Chai Development Phase II site (by 2009) with an estimated total residential population of 27 000 and an estimated non-residential population of 60 000.

3. The majority of the sewers in Central, Western and Wan Chai West were built 30 years ago and need replacement. Constrained by the hilly slopes and dense developments, coupled with the problems arising from the heavily trafficked and narrow roads in the areas, we could only make limited local improvements to the system from time to time to avoid creating severe disruption to traffic. The Central, Western and Wan Chai West sewerage improvement works are implemented in two stages as follows-

(a) Stage 1

(i) construction of 5.9 kilometres of trunk sewers of along the coastal areas;

(ii) construction of two pumping stations at the existing Central and Wan Chai East sewage screening plants; and

(iii) upgrading and improvement of 19.0 kilometres of branch sewers on the hillside in the upper catchment, e.g. the Mid-levels.

(b) Stage 2

(i) construction of about 20.4 kilometres of branch sewers along the coastal areas in the lower catchment; and

(ii) decommissioning of the Wan Chai West sewage screening plant.

4. We started the stage 1 works in July 1996 for completion in 2003. As at December 2000, we have substantially completed the construction works relating to the trunk sewers. We have also completed the upgrading and improvement of about 13.0 kilometres of branch sewers.

Justifications

5. With the progressive completion of stage 1 works under the Central, Western and Wan Chai West SMP, it is necessary to proceed with the stage 2 works to enable the whole sewerage system to meet future demands arising from all existing and planned developments in the districts. To minimize possible disruption to traffic, we plan to construct stage 2 works in two phases as follows-

(a) Stage 2, phase 1

This is the part of 143DS which we propose for upgrading to Category A. This covers the more urgent sewerage works which comprises the construction of about 5.4 kilometres of sewers (with diameters ranging from 225mm to 1 350mm) in Central, Western and Wan Chai West as set out below –

(i) new sewers for connecting the existing sewers to the trunk system;
(ii) upgrading and rehabilitating some of the older sewers with critical capacity and ageing problems; and
(iii) rectifying the associated expedient connections[1] in the old

[1] Expedient connections are improper connections which divert foul sewage flows into storm drains and storm-water flows into foul sewers. Through these connections, foul sewage can flow into the storm-water drainage system and pollute environmental waters. Storm-water will also enter the sewerage

sewers.

We intend to start the stage 2 phase 1 works in June 2001 for completion in November 2004. A location plan showing the proposed works is at Enclosure 1.

(b) Stage 2, phase 2

These cover the less urgent sewerage works which will be implemented at a later stage. We plan to implement the stage 2 phase 2 works in 2002 for completion in 2006.

6. We have completed the traffic impact assessment for the project and formulated proposed temporary traffic schemes during construction of the sewers. We will maintain road access as far as possible. Construction works in busy road sections will be carried out only in non-peak hours. We will also use the more expensive trenchless method[2] to construct sewers on busy roads such as Des Voeux Road West, Queen's Road West and Connaught Road West.

7. To avoid possible delays to the project due to unforeseen underground utility obstruction, we will reconfirm, at the beginning of the contract, the exact locations of the utilities with the utilities undertakers, deploy non-destructive detection techniques and if necessary, excavate trial pits or trenches. We will also control the sequence of the sewerage works to cater for interface issues with underground utilities.

8. We estimate that the project will create some 105 new jobs during the construction stage. These will comprise 25 professional/technical staff and 80 labourers, totalling 4 400 man-months.

Financial Implications

9. We estimate the capital cost of the proposed stage 2 phase 1 works to be $202.0 million in MOD prices, made up as follows-

	$ million
(a) Construction of sewers	146.1

system through these connections and reduce the capacity of the sewage collection and treatment system for collecting and treating sewage.

[2] Trenchless method refers to the use of micro-tunnelling or boring techniques to construct underground sewers and drain pipes without opening up the road surface. Although the trenchless method is about four times more expensive than the conventional open cut method, the former method, if feasible, is preferred to for carrying out works at busy road sections since it will greatly reduce the need for road opening and thus minimize disruption to traffic during the construction phase.

	(i) by trenchless method	23.6		
	(ii) by open cut method	122.5		
(b)	Consultants' fees for construction stage		1.4	
(c)	Resident site staff cost		22.7	
(d)	Environmental mitigation measures		1.6	
(e)	Contingencies		12.3	
			184.1	(in September 2000 prices)
(f)	Provision for price adjustments		17.9	
		Total	202.0	(in MOD prices)

10. The proposed work will not give rise to additional recurrent expenditure.

Public Consultation

11. We consulted the then Central and Western District Board and Wan Chai District Board on the project 143DS (i.e. both stage I and stage II works) in May 1993 and August 1993 respectively. The Central and Western District Board requested Government to carry out the project immediately while the Wan Chai District Board had no objection to the proposed works. With regard to the implementation of stage 2 works of 143DS, we consulted the Central and Western District Council and the Wan Chai District Council on 16 November 2000 and 28 November 2000 respectively. Both Councils had no objection to the implementation of the proposed works.

Environmental Implications

12. We completed an Environmental Impact Assessment (EIA) study in May 1996, which concluded that there would be no long-term environmental impacts exceeding established criteria. For short term impacts during the construction phase, we will avoid night works and control noise, dust and site run-off nuisance to comply with the established standards and guidelines through the implementation of appropriate mitigation measures, such as the use of noise barriers and silenced construction plants to reduce noise generation, water-

spraying to reduce emission of fugitive dust and strict control on diversion of sewage flows in the works contracts. An environmental monitoring and audit programme would be implemented to ensure compliance with the EIA recommendations.

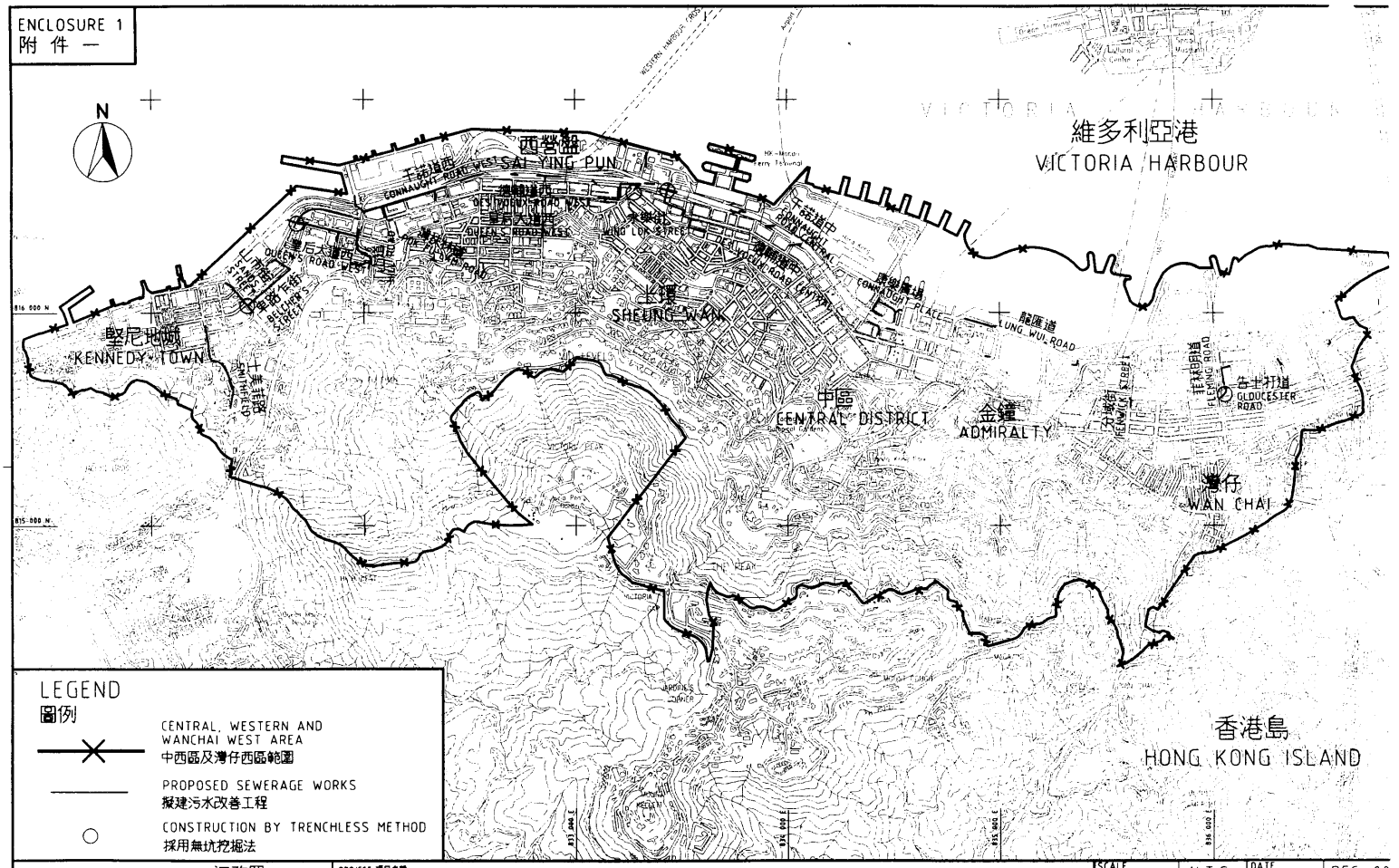
13. We estimate the cost of implementing the environmental mitigation measures to be $1.6 million in September 2000 prices. We have included this in the overall project estimate.

14. We estimate that about 27 000 cubic metres (m^3) of construction and demolition (C&D) materials will be generated by the project. Of these, about 22 000 m^3 (81.5%) will be re-used on site, 3 500 m^3 (13.0 %) will be reused as fill in public filling areas[3] and 1 500 m^3 (5.5%) will be disposed of at landfills. We have considered in the planning and design stages ways of reducing the generation of C&D materials as far as possible. We will require the contractor to implement necessary measures to minimize the generation of C&D materials and to reuse C&D materials as fill material as far as possible. We will control disposal of public fill and C&D waste to designated public filling facility and landfills respectively through a trip-ticket system. We will record the disposal and re-use of C&D materials for monitoring purposes.

Environment and Food Bureau
December 2000

[3] A public filling area is a designated part of a development project that accepts public fill for reclamation purpose. Deposition of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

ENCLOSURE 1
附 件 一



LEGEND
圖例

- CENTRAL, WESTERN AND WANCHAI WEST AREA
  中西區及灣仔西區範圍
- PROPOSED SEWERAGE WORKS
  擬建污水改善工程
- CONSTRUCTION BY TRENCHLESS METHOD
  採用無坑挖掘法

DRAINAGE SERVICES 渠務署 DEPARTMENT	PROJECT 項目名稱	中西區及灣仔西污水收集系統改善工程第二階段第一期 CENTRAL, WESTERN & WANCHAI WEST SEWERAGE STAGE 2, PHASE 1	SCALE 比例	N T S	DATE 日期	DEC 00
			CHECKED BY 檢查	TNC	DRAWN BY 繪圖	TSG
PROJECT MANAGEMENT 工程管理部 DIVISION	TITLE 圖表名稱	4143DS 項目之整體工程 PROJECT WORKS UNDER 4143DS	PROJECT 項目號	91194	DRG NO 圖號	111