For discussion **PWSC(2008-09)27**
on 13 June 2008

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE
Civil Engineering – Drainage and erosion protection
144CD – Drainage improvement in Southern Hong Kong Island

Members are invited to recommend to Finance Committee –

(a) the upgrading of part of **144CD**, entitled "Drainage improvement in Southern Hong Kong Island – package 1" to Category A at an estimated cost of $28.0 million in money-of-the-day prices; and

(b) the retention of the remainder of **144CD**, re-titled "Drainage improvement in Southern Hong Kong Island – package 2" in Category B.

PROBLEM

Some areas on the southern part of Hong Kong Island are susceptible to flooding during heavy rainstorms due to inadequate capacity of the existing drainage systems.

/PROPOSAL .....

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for Development, proposes to upgrade part of **144CD** to Category A at an estimated cost of $28.0 million in money-of-the-day (MOD) prices for carrying out drainage improvement works in Pok Fu Lam, Wah Fu, Tin Wan, Aberdeen, Wong Chuk Hang, Shouson Hill and Shek O.

PROJECT SCOPE AND NATURE

3. The part of **144CD** which we propose to upgrade to Category A comprises -

(a) construction of about 1.3 kilometres of stormwater drains of diameter ranging from 300 millimetres (mm) to 1 200 mm at 16 locations;

(b) widening of about 50 metres (m) of a covered drainage channel of width from 600 mm to 1 200 mm near Pok Fu Lam Village;

(c) widening of about 10 m of a drainage channel of width from 1 500 mm to 3 000 mm in Shek O;

(d) modification of weirs at a drainage channel in Shouson Hill; and

(e) provision of ancillary works.

A site plan and typical sections of the proposed works are at Enclosure 1.

4. We plan to commence construction in November 2008 for completion in January 2011.

JUSTIFICATION

5. The southern part of Hong Kong Island is served by drainage systems built decades ago. Rapid development and changes in land use over the past decades have increased the size of paved areas. This has led to a significant increase in surface run-off causing overloading of the existing drainage systems. Although we have improved the systems to cater for developments from time to time, the drainage systems as a whole are still inadequate to meet the current flood protection standard. Flooding sometimes occurs during heavy rainstorms.

/6. .....

6. To alleviate the flooding problem, we propose to upgrade part of **144CD** for improving the existing drainage systems at different critical locations in Pok Fu Lam, Wah Fu, Tin Wan, Aberdeen, Wong Chuk Hang, Shouson Hill and Shek O. Upon completion of the proposed works, the drainage systems in these areas will generally be capable of withstanding rainstorms with a return period[1] of one in 50 years.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the proposed works to be about $28.0 million in MOD prices (see paragraph 8 below), made up as follows –

				$ million	
(a)	Construction of			21.9	
	(i)	stormwater drains	20.5		
	(ii)	drainage channels upgrading works	1.3		
	(iii)	ancillary works	0.1		
(b)	Environmental mitigation measures			1.2	
(c)	Contingencies			2.2	
		Sub-total		25.3	(in September 2007 prices)
(d)	Provision for price adjustment			2.7	
		Total		28.0	(in MOD prices)

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

/2008 – 09 .....

[1] "Return period" is the average number of years during which a certain severity of flooding will occur once, statistically. A longer return period means a rarer chance of occurrence of a more severe flooding.

Year	$ million (Sept 2007)	Price adjustment factor	$ million (MOD)
2008 – 2009	2.5	1.02575	2.6
2009 – 2010	7.6	1.06293	8.1
2010 – 2011	7.6	1.10545	8.4
2011 – 2012	4.4	1.14967	5.1
2012 – 2013	3.2	1.19566	3.8
	25.3		28.0

9. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2008 to 2013. We will tender the proposed works under a standard re-measurement contract because of the uncertainties of the existence and alignment of the underground utilities and the ground condition. The contract will provide for price adjustments because the contract period will exceed 21 months.

10. We estimate the annual recurrent expenditure arising from this project to be about $19,000.

PUBLIC CONSULTATION

11. We consulted the District Development and Environment Committee of the Southern District Council on 28 April 2008 regarding the proposed drainage improvement works. Members supported the works.

12. We consulted the Legislative Council Panel on Development on the proposed works by circulation of an information paper on 19 May 2008. Members raised no objection to the proposed works.

/ENVIRONMENTAL .....

ENVIRONMENTAL IMPLICATIONS

13. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We completed the Environmental Review for the proposed works in 2005, which concluded that the project will not cause any long term adverse environmental impacts.

14. For short-term impacts during construction, we will control noise, dust and site run-off within the established standards and guidelines through implementation of mitigation measures in the works contract, such as the use of temporary noise barriers and silenced construction plants to reduce noise generation, water-spraying to reduce emission of dust, and temporary drains to dispose of site run-off. We have included $1.2 million (in September 2007 prices) in the project estimates for implementation of the environmental mitigation measures.

15. We have considered ways in the planning and design stages to reduce the generation of construction waste where possible. For example, we have designed the alignment of the proposed drainage works in such a manner that excavation and demolition of existing structures will be minimized. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated soil for backfilling) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities[2]. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

16. We will also require the contractor 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 contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

/17. .....

---

[2] Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

17. We estimate that the project will generate in total about 12 000 tonnes of construction waste. Of these, we will reuse about 6 000 tonnes (50%) of inert construction waste on site and deliver 5 400 tonnes (45%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 600 tonnes (5%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be about $0.2 million for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[3] at landfills.)

HERITAGE IMPLICATIONS

18. This project 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.

TRAFFIC IMPACTS

19. We have completed a traffic impact assessment for the proposed works, which concluded that the proposed works would not cause any significant traffic impact. We will establish a Traffic Management Liaison Group (TMLG) under the contract to discuss and scrutinise proposed temporary traffic management measures before implementation. We will invite representatives from the Transport Department, Hong Kong Police Force, Highways Department, District Office and various public transport operators to attend the TMLG meetings. The TMLG will take into account relevant factors such as site restrictions, traffic conditions, pedestrian safety, access to buildings/shop fronts and provision of emergency vehicular access when considering the proposed temporary traffic arrangements.

20. We will also display notice boards on site to explain the reason of temporary traffic arrangements and indicate the expected completion date of the works.

/LAND .....

---

[3] This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at $90/m^3), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

LAND ACQUISITION

21. The project does not require any land acquisition.

BACKGROUND INFORMATION

22. We completed a drainage master plan study in 2005 which assessed the adequacy of the existing drainage systems on the southern part of Hong Kong Island. The study recommended drainage improvement measures at various locations on the southern part of Hong Kong Island to bring the existing drainage systems up to the current standard.

23. In September 2006, we included **144CD** "Drainage improvement in Southern Hong Kong Island" in Category B for improvement of the existing drainage systems on the southern part of Hong Kong Island.

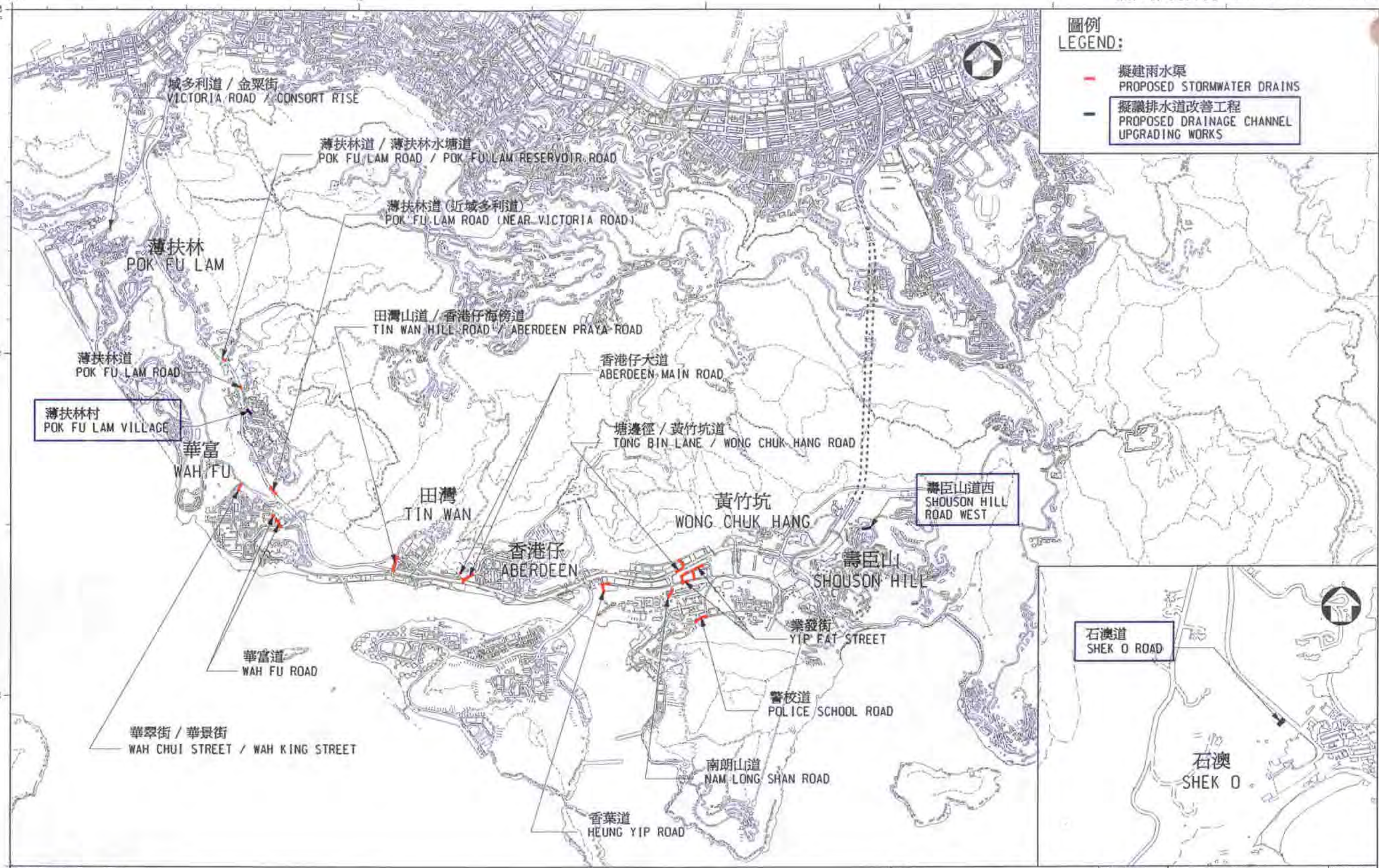
24. In October 2007, we engaged a consultant to undertake the traffic impact assessment for the proposed drainage improvement works mentioned in paragraph 3 above at a cost of $0.2 million in MOD prices. We have charged this amount to block allocation **Subhead 4100DX** "Drainage works, studies and investigations for items in Category D of the Public Works Programme".

25. We have substantially completed the design of the proposed works as mentioned in paragraph 3 above by in-house resources. Design of the remaining works under **144CD** is in progress.

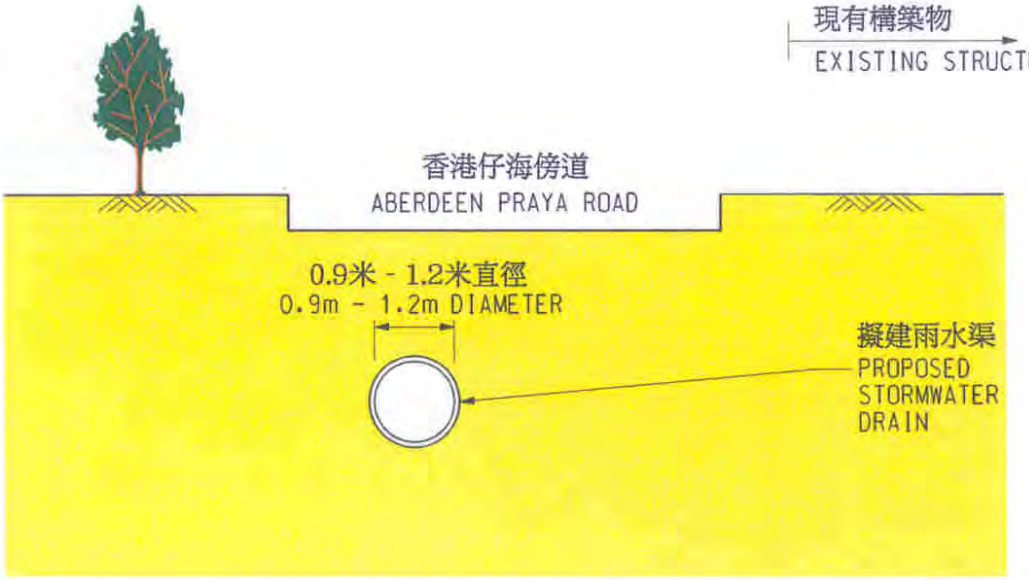
26. The proposed works will not require the removal of any trees.

27. We estimate that the proposed works will create about 23 jobs (19 for labourers and another four for professional/technical staff) providing a total employment of 460 man-months.

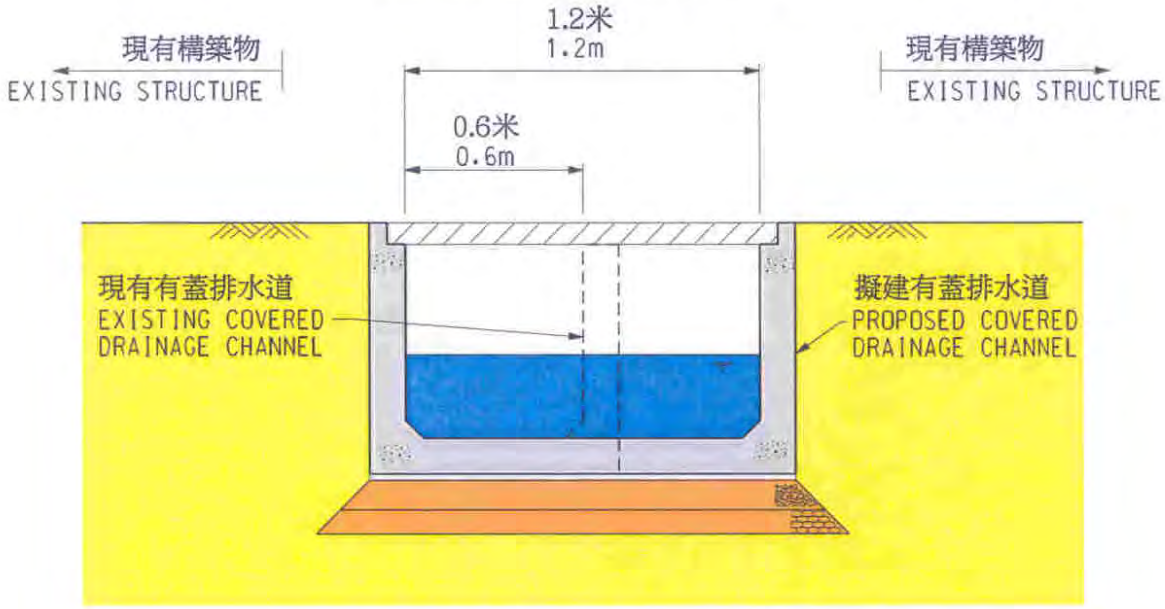
Development Bureau
June 2008



圖則名稱 drawing title	繪畫 drawn		日期 date	圖則編號 drawing no.	比例 scale
PWP ITEM NO. 144CD DRAINAGE IMPROVEMENT IN SOUTHERN HONG KONG ISLAND 工務計劃工程項目編號 144CD 港島南部雨水排放系統改善計劃	SIGNED	Y.K. WONG	10 APR 08	DDH/144CD1/8057	N.T.S.
	核對 checked SIGNED	M.L. WONG	11 APR 08	保留版權 COPYRIGHT RESERVED	
	批核 approved SIGNED	K.K. CHAN	11 APR 08	香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION	
	部門 office	排水工程部 DRAINAGE PROJECTS DIVISION			



香港仔海傍道擬建雨水渠的典型切面圖
TYPICAL SECTION OF PROPOSED STORMWATER DRAIN AT ABERDEEN PRAYA ROAD



薄扶林村附近擬議有蓋排水道改善工程
PROPOSED COVERED DRAINAGE CHANNEL UPGRADING WORKS NEAR POK FU LAM VILLAGE

圖例
LEGEND:

現有樹木
EXISTING TREE

圖則名稱 drawing title: PWP ITEM NO. 144CD DRAINAGE IMPROVEMENT IN SOUTHERN HONG KONG ISLAND 工務計劃工程項目編號 144CD 港島南部雨水排放系統改善計劃	繪畫 drawn SIGNED Y.K. WONG	日期 date 10 APR 08	圖則編號 drawing no. DDH/144CD1/8058	比例 scale N.T.S.
	核對 checked SIGNED M.L. WONG	日期 date 11 APR 08		
	批核 approved SIGNED Y.Y. CHAN	日期 date 11 APR 08		
	部門 office 排水工程部 DRAINAGE PROJECTS DIVISION			

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