For discussion **PWSC(2004-05)38**
on 27 October 2004

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT
New Territories North and West Development
Civil Engineering – Land development
227CL – Tin Shui Wai development – village flood protection works for Sheung Cheung Wai, phase 2 – construction of interceptor drains

Members are invited to recommend to Finance Committee the upgrading of the remainder of **227CL** to Category A at an estimated cost of $27.2 million in money-of-the-day prices.

PROBLEM

We need to implement the flood protection scheme in Sheung Cheung Wai in full to further alleviate the flooding problems in Ping Shan North.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade the remainder of **227CL** to Category A at an estimated cost of $27.2 million in money-of-the-day (MOD) prices for the construction of interceptor channels, drains and a box culvert to complete the implementation of the flood protection scheme in Sheung Cheung Wai.

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PROJECT SCOPE AND NATURE

3. The scope of the proposed works comprises –

(a) construction of high level interceptor channels and drains along the eastern boundary of Sheung Cheung Wai to intercept run-off from the hillside for discharging into the Eastern culvert;

(b) construction of low level interceptor channels and drains to the west of Sheung Cheung Wai to intercept run-off from the adjacent ground for discharging into an existing flood storage pond;

(c) construction of a box culvert alongside Ping Ha Road and low level interceptor channels and drains to the west of Hang Tau Tsuen and Hang Mei Tsuen to intercept run-off from the villages for discharging into the existing flood storage pond;

(d) implementation of associated works including re-provisioning of the existing facilities, such as footpaths and paved areas;

(e) implementation of associated landscaping works; and

(f) environmental monitoring and audit (EM&A) programme for the works mentioned in items (a) to (e) above.

The proposed works are shown on the plan at the Enclosure. We plan to start construction in February 2005 for completion in February 2007.

JUSTIFICATION

4. Flooding in the low-lying area south of Tin Shui Wai has adversely affected the villages in Ping Shan North, including Sheung Cheung Wai. It has caused economic losses and disruption to transport and social activities in the villages. The proposed flood protection works form part of the Government's overall flood control programme for the North West New Territories and will further alleviate flooding problems in Ping Shan North.

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5. The original flood protection scheme in Sheung Cheung Wai under **227CL** was a poldered village scheme comprising construction of a pumping station, a flood water storage pond and flood protection embankments. We completed the pumping station and flood water storage pond in February 1992 under **338CL** "Tin Shui Wai development, village flood protection, phase III" (see paragraph 21 below). We were not able to implement the remaining flood protection embankments under **227CL** as the height of the proposed embankments was not acceptable to the local villagers. As a result, the scheme completed under **338CL** is only able to withstand rainstorms with a 10-year return period[1].

6. As a result of subsequent developments in the areas, such as formation for open storage and filling up of existing ponds on private land, the overall flood water storage capacity has been greatly reduced. These have further aggravated the flooding problems in Ping Shan North. Having consulted the Ping Shan Rural Committee and the Yuen Long District Council in July 2001, we have revised the remaining scope of the poldered village scheme under **227CL** by upgrading the capacity of the pumping station and by constructing interceptor channels, instead of using embankments, taking into account the feedback of local villagers. This revised scheme will alleviate the flooding problems in the following manner –

(a) increasing the maximum discharge capacity of the existing stormwater pumping station from 1.65 cubic metres (m^3) per second to 8.25 m^3 per second. To provide this extra discharge capacity, we are upgrading the existing stormwater pumping system by constructing an extension and carrying out modification works to the existing pumping station as phase 1 of the revised village flood protection scheme under **698CL**; and

(b) constructing interceptor channels, drains and a box culvert in the villages in Ping Shan North. These drains will intercept run-off from the catchment areas and discharge the stormwater into the existing flood storage pond and the existing Eastern culvert. These works will be carried out as phase 2 of the revised scheme under **227CL**, now proposed to be upgraded to Category A**.**

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[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.

7. Construction works under **698CL** commenced in January 2003 and is scheduled for completion in early 2005. Upon completion of the proposed works under **227CL** in February 2007, the revised scheme will have a design capacity to withstand rainstorms with a 50-year return period.

FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the project to be $27.2 million in MOD prices (see paragraph 9 below), made up as follows –

		$million	
(a)	Drainage works		22.7
	(i) high level interceptor channels and drains along the eastern boundary of Sheung Cheung Wai	10.7	
	(ii) low level interceptor channels and drains west of Sheung Cheung Wai	1.5	
	(iii) box culvert alongside Ping Ha Road and low level interceptor channels and drains west of Hang Tau Tsuen and Hang Mei Tsuen	10.5	
(b)	Reprovisioning works		0.7
(c)	Landscaping works		0.3
(d)	EM&A programme		0.8
(e)	Environmental mitigation measures		0.5

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(f)	Contingencies	2.5	
	Sub-total	27.5	(in September 2004 prices)
(g)	Provision for price adjustment	(0.3)	
	Total	27.2	(in MOD prices)

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

Year	$ million (Sept 2004)	Price adjustment factor	$ million (MOD)
2005 – 2006	9.8	0.99000	9.7
2006 – 2007	12.9	0.98753	12.7
2007 – 2008	3.8	0.99123	3.8
2008 – 2009	1.0	0.99990	1.0
	27.5		27.2

10. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in the prices for public sector building and construction output for the period from 2005 to 2009. We will tender the proposed works under a lump-sum contract, because we can clearly define the scope of the majority of these works in advance. The contract will not provide for price adjustments as the contract period will not exceed 21 months.

11. We estimate the annual recurrent expenditure arising from this project to be $110,000.

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PUBLIC CONSULTATION

12. We consulted the Ping Shan Rural Committee on 5 July 2001, and the Town Planning and Development Committee of the Yuen Long District Council on 11 July 2001 regarding the revised flood protection scheme as described in paragraph 6 above. Members supported the proposed revised flood protection scheme.

13. After commencement of the phase 1 works under **698CL** in January 2003, we invited the representatives of the affected villages to a consultation meeting on 2 April 2004 regarding phase 2 of the revised scheme. The representatives maintained their support for the implementation of the proposed works.

ENVIRONMENTAL IMPLICATIONS

14. The project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and an environmental permit is required for the construction and operation of the project. We completed an EIA study in March 1997 to assess the environmental impacts of the further developments in Tin Shui Wai and its vicinity. The findings and recommendations of the EIA Report were endorsed by Advisory Council on the Environment on 21 April 1997.

15. We have completed an environmental review for the village flood protection works in Sheung Cheung Wai. The review confirmed that the environmental impacts of the project had been adequately assessed in the EIA report for Tin Shui Wai further development. It also concluded that the environmental impact of the project could be controlled to within the established standards and guidelines with the application of the recommended mitigation measures. We will implement the measures recommended in the EIA report. The key measures include the control of noise, dust, and water quality to within established standards and guidelines through the implementation of pollution control measures in the works contract during the construction stage. We will implement an EM&A programme during the course of the project. We estimate the cost of implementing the environmental mitigation measures and the EM&A programme to be $1.3 million. We have included this cost in the overall project estimate.

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16. At the planning and design stage, we have given due consideration in designing the level and layout of the proposed works and the construction sequence, so as to minimise the generation of construction and demolition (C&D) materials as far as possible. We will require the contractor to submit a waste management plan (WMP) for our approval. The plan will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials, including the allocation of an area for waste segregation. We will require the contractor to ensure that the day-to-day operations on site comply with the approved WMP. To further minimise the generation of C&D materials, we will encourage the contractor to use non-timber formwork and recyclable materials for temporary works. We will also require the contractor to separate public fill from C&D waste for disposal at appropriate locations and sort the C&D materials by category on-site to facilitate reuse/recycling of paper/cardboard, timber and metal. We will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

17. We estimate that the project will generate about 14 200 m^3 of C&D materials. Of these, we will reuse about 9 600 m^3 (68%) on site, deliver 4 000 m^3 (28%) to public filling areas[2] and dispose of 600 m^3 (4%) at landfills. The notional cost of accommodating C&D waste at landfill site is estimated to be $75,000 for this project (based on a notional unit cost[3] of $125/$m^3$).

LAND ACQUISITION

18. We will resume about 3 040 square metres of private agricultural land for the proposed works. On 29 June 2004, the Chief Executive ordered under the Lands Resumption Ordinance (Chapter 124) that the proposed resumption of land was required for public purpose. A three-month notice of resumption was published in the Government Gazette on 23 July 2004. The land acquisition and clearance will affect two non-domestic structures, and no domestic structure is involved. Compensation and ex-gratia allowances will be payable for the proposed land acquisition and clearance. The associated cost is estimated at $4.96 million and to be charged to **Head 701 – Land Acquisition**.

/BACKGROUND .....

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[2] A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering and Development.

[3] This estimate has taken into account the cost of 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 are likely to be more expensive) when the existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

BACKGROUND INFORMATION

19. We included **227CL** in Category B in June 1984 for flood protection works in Tin Shui Wai.

20. In September 1986, we part-upgraded **227CL** to Category A as **270CL** "Tin Shui Wai development, package 3, part IIA – village flood protection". Works started in April 1987 and were completed in March 1990.

21. In December 1989, we part-upgraded **338CL** "Tin Shui Wai development, village flood protection, phase III". Works started in November 1990 and were completed in February 1992.

22. In July 1996, we part-upgraded **473CL** "Tin Shui Wai development – village flood protection works for Ha Mei San Tsuen". Works started in April 1997 and were completed in September 1998.

23. In June 2002, we part-upgraded **698CL** "Tin Shui Wai development – village flood protection works for Sheung Cheung Wai, phase 1 – upgrading of existing stormwater pumping station". Works started in January 2003 and are scheduled for completion in early 2005.

24. We have engaged consultants to undertake the site investigation, scheme review and detailed design for the flood protection works in Sheung Cheung Wai at an estimated cost of $3.2 million. We charged the amount to block allocation Subhead **7100CX** "New towns and urban area works, studies and investigations for items in Category D of the Public Works Programme". The consultants have completed the site investigation, detailed design and preparation of tender documents for the proposed works.

25. We plan to start the construction works in Sheung Cheung Wai in February 2005 for completion in February 2007. We will deploy in-house resources to supervise the works.

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26. The proposed construction works will involve removal of 39 common trees including 28 trees to be felled, 11 trees to be transplanted elsewhere. The trees to be transplanted and felled are not important trees[4]. We will incorporate planting proposals as part of the project, including estimated quantities of 50 trees.

27. We estimate that the proposed works will create about 30 jobs (20 for labourers and another ten for professional/technical staff) providing a total employment of 450 man-months.

Environment, Transport and Works Bureau
October 2004

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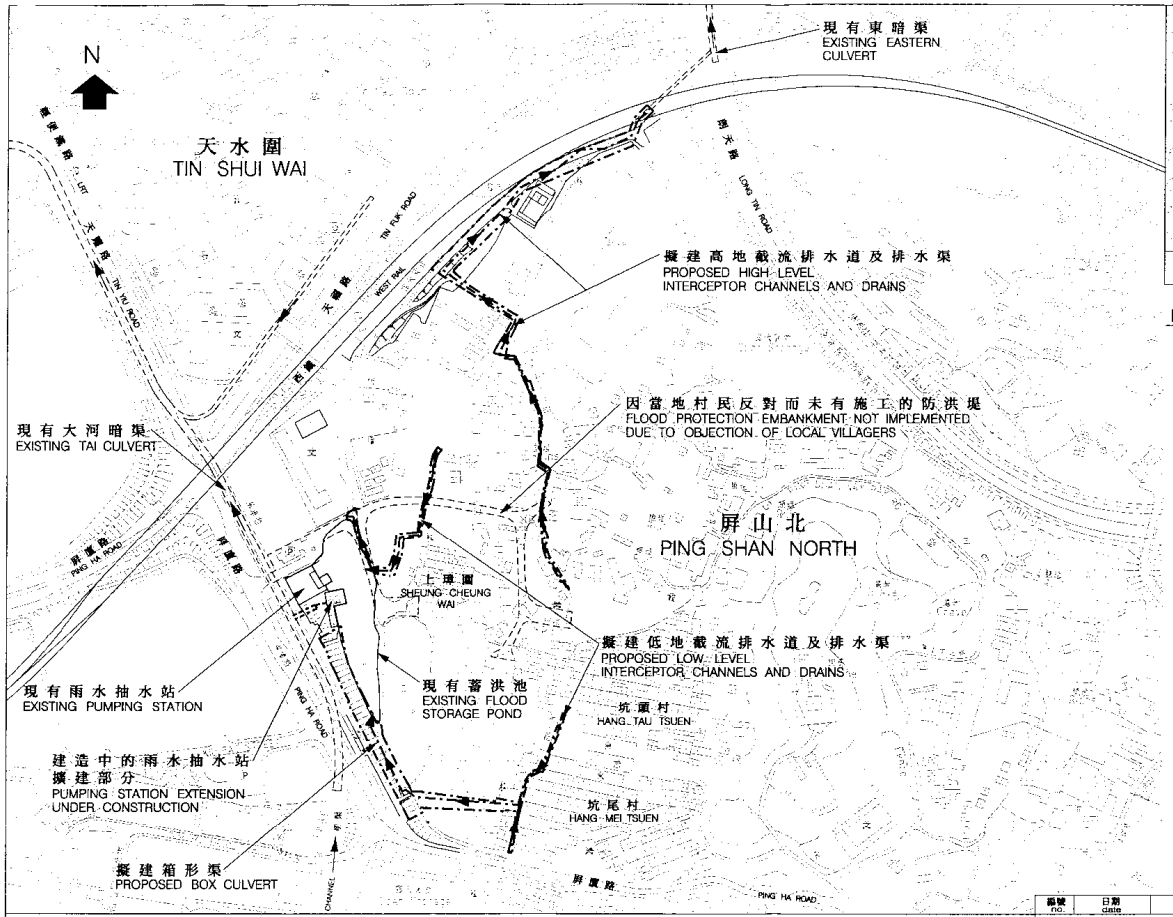
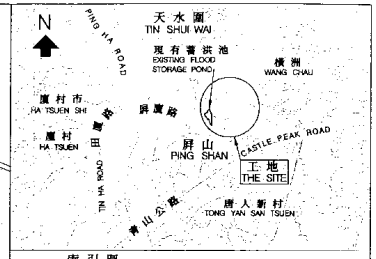
[4] Important trees include trees on the Register of Old and Valuable Trees, and any other trees which meet one or more of the following criteria –

(a) trees over 100 years old;
(b) trees of cultural, historical or memorable significance;
(c) trees of precious or rare species;
(d) trees of outstanding form; or
(e) trees with trunk diameter exceeding one metre (measured at one metre above ground level).

附件 ENCLOSURE





索引圖 KEY PLAN 比例 SCALE 1 : 50 000

圖例 LEGEND:

建造中的698CL工程(第1期工程)：
WORKS BEING CONSTRUCTED UNDER 698CL (PHASE 1 WORKS):

現有雨水抽水站設施的修改工程
MODIFICATION WORKS TO EXISTING STORMWATER PUMPING STATION FACILITIES

雨水抽水站擴建部分
STORMWATER PUMPING STATION EXTENSION

排水管、箱形渠
DRAIN PIPE, BOX CULVERT

建議提升爲甲級的工程(第2期工程)：
WORKS PROPOSED TO BE UPGRADED TO CATEGORY A (PHASE 2 WORKS):

第2期工程施工區範圍
LIMIT OF SITE AREA FOR PHASE 2

擬建截流排水道、排水渠、箱形渠及相關工程
PROPOSED INTERCEPTOR CHANNEL, DRAIN, BOX CULVERT AND ASSOCIATED WORKS

編號 no.	日期 date	內容摘要 description	核對 checked	核准 approved

二〇〇四至二〇〇五年年度工務小組委員會文件 P.W.S.C. SUBMISSION 2004/2005

修訂 REVISION

圖則名稱 drawing title

天水圍發展計劃 - 上璋圍鄉村防洪工程第2期 - 敷設截流渠

TIN SHUI WAI DEVELOPMENT –
VILLAGE FLOOD PROTECTION WORKS FOR SHEUNG CHEUNG WAI, PHASE 2 –
CONSTRUCTION OF INTERCEPTOR DRAINS

繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	辦事處 office
C CHUN	SIGNED	13.10.2004	227CL	新界西及北拓展處 NEW TERRITORIES NORTH AND WEST DEVELOPMENT OFFICE
核對 checked	簽署 initial	日期 date	比例 scale	
H K MO	SIGNED	13.10.2004	1: 4 000	
核准 approved	簽署 initial	日期 date	圖則編號 drawing no.	土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT
M Y MA	SIGNED	15.10.2004	NTN 2150	

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