

For discussion
on 4 February 2004

PWSC(2003-04)63

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE

Civil Engineering – Drainage and erosion protection

**64CD – Rural Drainage Rehabilitation Scheme – drainage rehabilitation works
at Sha Po Tsuen Stream**

Members are invited to recommend to Finance Committee the upgrading of the remainder of **64CD** to Category A at an estimated cost of \$60.9 million in money-of-the-day prices.

PROBLEM

Sha Po Tsuen, south of Ngau Tam Mei, is a low-lying area and susceptible to local flooding during heavy rainstorms.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade the remainder of **64CD** to Category A at an estimated cost of \$60.9 million in money-of-the-day (MOD) prices for implementation of the proposed drainage rehabilitation works at Sha Po Tsuen Stream in North West New Territories.

/PROJECT.....

PROJECT SCOPE AND NATURE

3. The scope of the proposed works at Sha Po Tsuen comprises –
- (a) construction of drainage channels of about 700 metres long;
 - (b) construction of maintenance access;
 - (c) reprovisioning of one vehicular crossing and provisioning of one pedestrian crossing; and
 - (d) ancillary works.

We plan to start the proposed works in June 2004 for completion in January 2007. Site plan showing the location of the proposed works at Sha Po Tsuen Stream is at the Enclosure.

JUSTIFICATION

4. Sha Po Tsuen is a low-lying area situated south of Ngau Tam Mei in Yuen Long. The Sha Po Tsuen Stream, for conveying the stormwater in the area, was narrow with bends. Due to its low drainage capacity, the village area as well as the agricultural area alongside the stream were vulnerable to flooding during heavy rains. To mitigate the flooding problem, we have carried out drainage improvement works under **7071CD** “Village flood protection for Sha Po Tsuen, Kam Tin, New Territories” to improve the protection to the main Sha Po Tsuen proper and the area at the downstream. The works under **7071CD** were completed in April 1999. We now propose to proceed with the drainage rehabilitation works at the upper part of the Sha Po Tsuen Stream to upgrade its drainage capacity. Upon completion of the proposed drainage rehabilitation works, the flood protection level around the Sha Po Tsuen area will generally be raised to withstand rainstorms with a return period of 50 years¹, and the risk of flooding during heavy rainstorms be substantially reduced.

/5.....

¹ “Return period” is the average number of years during which a severity of flooding will occur once, statistically. A longer return period means a rare chance of occurrence of a more severe flooding.

5. To facilitate its future maintenance, we need to construct the maintenance access alongside of the drainage channel. In addition, the proposed works will affect one vehicular crossing used by Water Supplies Department for maintenance purpose and one footpath. We need to reconstruct the vehicular crossing and provide a pedestrian crossing to maintain the pedestrian flow of the footpath under the project.

FINANCIAL IMPLICATIONS

6. We estimate the cost of the proposed works to be \$60.9 million at MOD prices (see paragraph 7 below), made up as follows –

	\$ million	
(a) Drainage channel works	43.4	
(b) Maintenance access	5.4	
(c) One vehicular crossing and one pedestrian crossing	3.7	
(d) Ancillary works	2.9	
(e) Environmental mitigation measures	1.4	
(f) Contingencies	5.7	

	Sub-total	62.5 (in September 2003 prices)
(g) Provision for price adjustment	(1.6)	

	Total	60.9 (in MOD prices)

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

/Year.....

Year	\$ million (Sept 2003)	Price adjustment factor	\$ million (MOD)
2004 – 2005	10.8	0.98225	10.6
2005 – 2006	25.0	0.97734	24.4
2006 – 2007	17.5	0.97245	17.0
2007 – 2008	7.2	0.96759	7.0
2008 – 2009	2.0	0.96638	1.9
	62.5		60.9

8. We have derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2004 to 2009. We will tender the proposed works under a standard re-measurement contract because of the uncertainties of the underground conditions which will affect the earthwork quantities. The contract will provide for price adjustments as the contract period will exceed 21 months.

9. We estimate that the annual recurrent expenditure arising from this project to be about \$0.42 million.

PUBLIC CONSULTATION

10. We consulted the then Yuen Long District Board and Kam Tin Rural Committee in October 1996 and April 1997 respectively on the proposed drainage rehabilitation works in the North West New Territories including Sha Po Tsuen Stream. Members of the District Board and Rural Committee supported implementation of the proposed works.

11. We gazetted the proposed rehabilitation works at Sha Po Tsuen Stream under the Foreshore and Sea-bed (Reclamations) Ordinance and Roads (Works, Use and Compensation) Ordinance on 13 August 1999 and 28 June 2002 respectively. We did not receive any objection to the works under the Foreshore and

/Sea-bed.....

Sea-bed (Reclamations) Ordinance and the scheme was authorised under the Foreshore and Sea-bed (Reclamations) Ordinance on 13 January 2004. However, we received five objections to the works under the Roads (Works, Use and Compensation) Ordinance. Three of them were subsequently withdrawn unconditionally after discussion. The objector of the fourth objection agreed to withdraw his objection subject to minor modification of the road scheme, while one objection remained unresolved. The Chief Executive in Council authorised the road scheme with modification on 8 July 2003.

ENVIRONMENTAL IMPLICATIONS

12. We completed an Environmental Impact Assessment (EIA) study for the Rural Drainage Rehabilitation Scheme in July 1996. The EIA concluded that with the implementation of the recommended mitigation measures, the environmental impacts arising from the project could be mitigated to within established standards and guidelines. The Advisory Council on the Environment endorsed the EIA report on 20 January 1997.

13. For short term impacts caused by excavation works during construction, we will control noise, dust and site run-off within established standards and guidelines through implementation of mitigation measures, such as the use of temporary noise barriers and silenced construction plant to reduce noise generation, water-spraying to reduce emission of dust and strict control on diversion of stream flows in the works contract. We estimate the cost of implementing the environmental mitigation measures to be about \$1.4 million in September 2003 prices. We have included this in the project estimate.

14. We have considered in the planning and design stages ways of reducing the generation of construction and demolition (C&D) materials as far as possible. The alignment of the proposed drainage channel was determined where least excavation and demolition of existing structures were expected. Furthermore, typical sections of reinforced concrete structures were adopted to minimise the use of formwork. We will require the contractor under the contract to submit a waste management plan to the Engineer for approval, with appropriate mitigation measures, including the allocation of an area for waste segregation. We will ensure that the day-to-day operations on site comply with the waste management plan. We will require the contractor to reuse the excavated material as filling material on site or on other construction sites as far as possible to minimise the disposal of public fill to public filling facilities. To further minimise the generation of C&D materials, we

/will.....

will encourage the contractor to use non-timber formwork and recyclable material for temporary works. We will also require the contractor to carry out on-site sorting to recover reusable/recyclable material from C&D materials to minimise disposal of public fill and C&D waste at landfills. We will control disposal of public fill and C&D waste to public filling facilities and landfills respectively through a trip-ticket system. We will require the contractors to separate public fill from C&D waste for disposal at appropriate facilities. We will record the disposal and reuse of C&D materials for monitoring purposes.

15. The Sha Po Tsuen Stream project is not a Designated Project under the Environmental Impact Assessment Ordinance. We estimate that about 30 200 cubic metres (m³) of C&D materials will be generated by the rehabilitation works at Sha Po Tsuen Stream. Of these, about 3 100 m³ (10%) will be reused on site, 23 400 m³ (78%) will be reused as fill in public filling areas² and 3 700 m³ (12%) will be disposed of at landfills. The notional cost³ of accommodating C&D waste at landfill site is estimated to be \$462,500 for this project (based on a notional unit cost of \$125/m³).

16. In addition, the works will generate about 4 900 m³ of uncontaminated mud and about 6 220 m³ of contaminated mud. All uncontaminated and contaminated mud will be delivered to the marine disposal facility at East Sha Chau.

LAND ACQUISITION

17. We will resume about 26 023 square metres (m²) of private agricultural land and clear 17 720 m² of government land for the proposed works. The land resumption and clearance cost for the project is estimated at \$40.64 million and will be charged to **Head 701 – Land Acquisition**.

BACKGROUND/.....

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.

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/m³), nor the cost to provide new landfills (which are likely to be more expensive) when existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.

BACKGROUND INFORMATION

18. In March 1994, we upgraded **64CD** to Category B. The project comprises two stages – stage 1 works for North East New Territories and stage 2 works for North West New Territories.

Stage 1

19. In November 1994, we upgraded part of **64CD** to Category A as **67CD** “Rural drainage rehabilitation scheme – consultants’ fees and investigations” to engage consultants to conduct an EIA study for the whole project and carry out investigations and detailed design for the stage 1 works.

20. In December 1997, we upgraded part of **64CD** to Category A as **91CD** “Rural drainage rehabilitation scheme, stage 1, phase 1A – rehabilitation works at Ng Tung River”. We started the works in November 1998 and completed them in December 2001.

21. In October 1998, we further upgraded part of **64CD** to Category A as **93CD** “Rural drainage rehabilitation scheme, stage 1, phase 1B – rehabilitation works at Sheung Yue River”. We started the works in April 1999 and completed them in December 2001.

Stage 2

22. In August 1996, we included an item “Site investigation for rural drainage rehabilitation scheme in the North West New Territories” under the block allocation **Subhead 4100DX** “Drainage works, studies and investigations for items in Category D of Public Works Programme” at an approved project estimate of \$2.2 million for carrying out site investigation works for the stage 2 works.

23. In December 1999, we upgraded part of **64CD** to Category A as **101CD** “Rural drainage rehabilitation scheme, stage 2, phase 1 – Nam Hang Drainage Improvement”. We started the works in July 2000 and completed them in February 2003.

24. In December 2002, we upgraded part of **64CD** to Category A as **131CD** “Rural drainage rehabilitation scheme – drainage rehabilitation works at Ping Yuen River and Mo Fan Heung Stream”. We started the works in May 2003 for completion in October 2005.

25. We plan to start the rehabilitation works at Sha Po Tsuen Stream in June 2004 for completion in January 2007. We will deploy in-house resources to supervise the works.

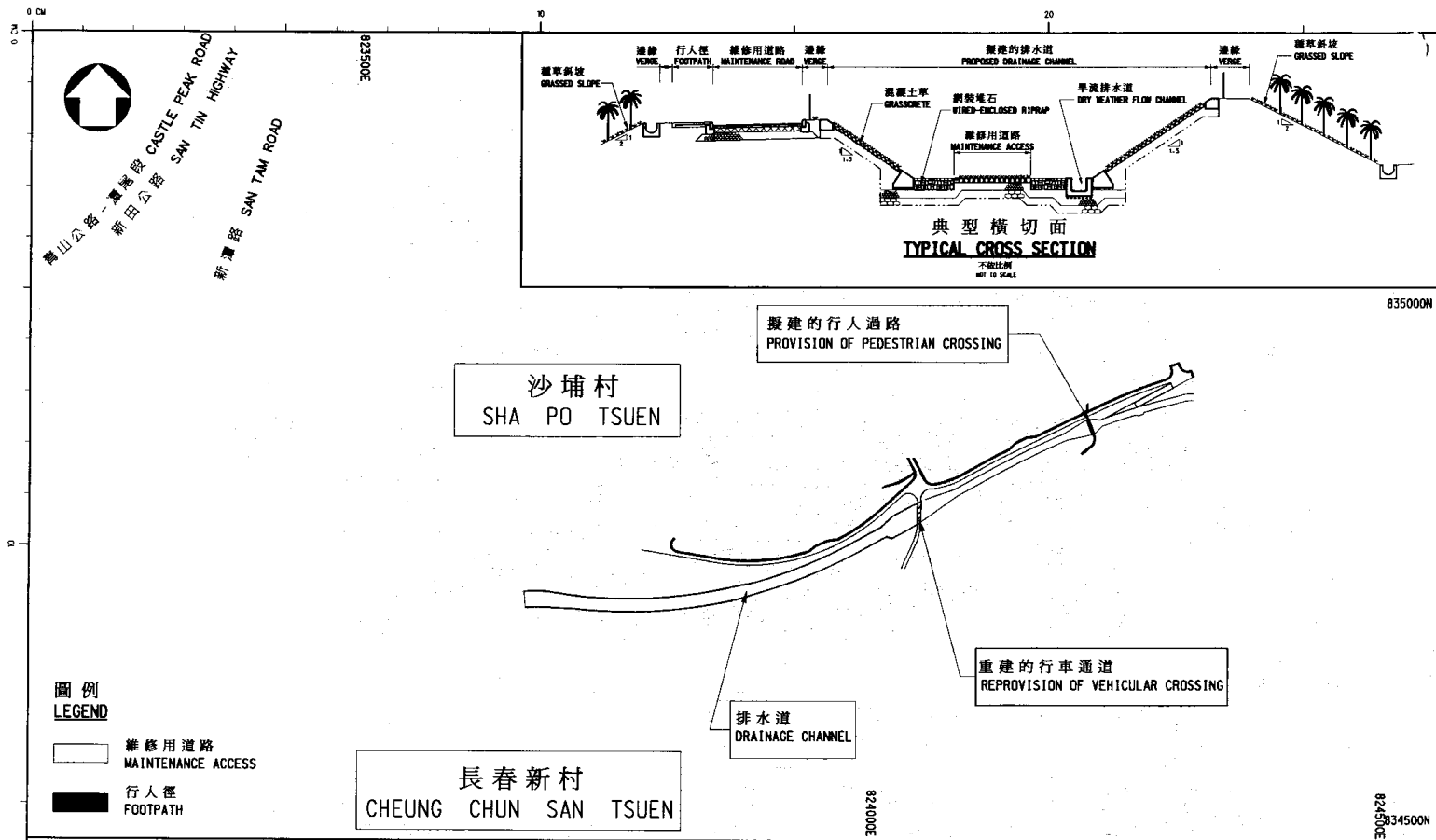
26. The proposed construction of the drainage channel at Sha Po Tsuen Stream will involve felling of 45 trees. All trees to be removed are not important trees⁴. We will incorporate planting proposal as part of the project, including estimated quantities of 2 200 trees, 12 000 shrubs and 15 000 m² of grassed area.

27. We estimate that the proposed works will create some 45 jobs comprising five professional/technical staff and 40 labourers, totalling 1 030 man-months.

Environment, Transport and Works Bureau
February 2004

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 trees with trunk diameter exceeding one metre (measured at one metre above ground level).



圖例
LEGEND

維修用道路
MAINTENANCE ACCESS
 行人徑
FOOTPATH

圖則名稱 drawing title
 工務計劃項目第 4064CD
 鄉郊排水系統修復計劃 - 沙埔村河排水系統修復工程
 PWP ITEM No. 4064CD
 RURAL DRAINAGE REHABILITATION SCHEME
 - DRAINAGE REHABILITATION WORKS AT SHA PO TSUEN STREAM

繪畫 drawn SIGNED K. L. TAM
 日期 date 28.11.2003
 核對 checked SIGNED C. H. HO
 日期 date 1.12.2003
 批核 approved SIGNED P. Y. WONG
 日期 date 16.1.2004
 部門 office 排水工程處
 DRAINAGE PROJECTS DIVISION

圖則編號 drawing no. DDN/64CD/1824
 比例 scale 1:5000
 保留版權 COPYRIGHT RESERVED
 香港特別行政區政府渠務署
 DRAINAGE SERVICES DEPARTMENT
 GOVERNMENT OF THE HONG KONG
 SPECIAL ADMINISTRATIVE REGION

ENCLOSURE 附件