

For discussion
on 7 June 2000

PWSC(2000-01)36

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 - NEW TOWNS AND URBAN AREA DEVELOPMENT

New Territories North Development

Civil Engineering - Drainage and erosion protection

30CD – Village flood protection for Yuen Long, Kam Tin and Ngau Tam Mei, North West New Territories, stage 1 - remainder

Members are invited to recommend to Finance Committee -

- (a) the upgrading of part of **30CD**, entitled “Village flood protection for Chuk Yuen Tsuen and Ha San Wai, North West New Territories”, to Category A at an estimated cost of \$152.1 million in money-of-the-day prices; and
- (b) the retention of the remainder of **30CD** in Category B.

PROBLEM

The villages in Chuk Yuen Tsuen and Ha San Wai in the North West New Territories are in low-lying areas and are prone to frequent flooding during typhoons or heavy rainstorms.

/PROPOSAL

PROPOSAL

2. The Director of Territory Development, with the support of the Secretary for Works, proposes to upgrade part of **30CD** to Category A at an estimated cost of \$152.1 million in money-of-the-day (MOD) prices for flood protection works at Chuk Yuen Tsuen and Ha San Wai near Ngau Tam Mei.

PROJECT SCOPE AND NATURE

3. The scope of **30CD** comprises the construction of flood protection works at Chuk Yuen Tsuen and Ha San Wai, a drainage channel at Pok Wai and a floodwater storage tank and a pumping station at Wang Chau.

4. The part of **30CD** we now propose to upgrade to Category A comprises the works at Chuk Yuen Tsuen and Ha San Wai -

- (a) a floodwater storage pond and a floodwater pumping station;
- (b) roads for maintenance access with associated drainage works;
- (c) two footbridges and a vehicular crossing;
- (d) flood protection embankments;
- (e) drainage channels and a box culvert;
- (f) environmental mitigation measures including landscaping works; and
- (g) an environmental monitoring and audit (EM&A) programme for works mentioned in items (a) to (f) above.

A site plan is at the Enclosure.

5. The remainder of **30CD** consists of the construction of the drainage channel at Pok Wai and the floodwater storage tank and the pumping station at Wang Chau.

/JUSTIFICATION

JUSTIFICATION

6. Several flooding incidents in the past have adversely affected the houses and properties of local residents, and have caused economic losses and disruption to transport and social activities in the villages in Chuk Yuen Tsuen and Ha San Wai, which are in low-lying flood plains of Ngau Tam Mei. The proposed drainage channels are capable of accommodating a 50-year return period rainstorm and will serve to alleviate flooding problems in these villages. The proposed flood protection works form part of the Government's overall flood control programme for the North West New Territories.

7. The proposed works will protect the villages in Chuk Yuen Tsuen and Ha San Wai from being flooded in the following ways -

Villages in Chuk Yuen Tsuen

- (a) during typhoons or heavy rainstorms, the proposed floodwater storage pond together with the channel near Chuk Yuen Tsuen will collect the rainwater within the village boundaries. Before the pond starts to overflow, the pumping system will be activated to pump the water into the Ngau Tam Mei main drainage channel which is under construction for completion in August 2002 under **100CD** (see paragraph 26 below);

Villages in Ha San Wai

- (b) the proposed drainage channel near Ha San Wai will collect the rainwater within the village boundaries and will convey the rainwater to the Ngau Tam Mei main drainage channel; and
- (c) the proposed flood protection embankments will prevent any external floodwater from entering the village proper of Chuk Yuen Tsuen and Ha San Wai.

8. As part of the village flood protection works at Chuk Yuen Tsuen and Ha San Wai, we will also construct access roads to facilitate future maintenance of the proposed floodwater storage pond, pumping station and the

/drainage

drainage channels. To tie in with the overall flood control programme for Ngau Tam Mei area, we plan to start construction works in November 2000 for completion in March 2003.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$152.1 million in MOD prices (see paragraph 10 below), made up as follows –

	\$million	
(a) Drainage channels and box culvert	28.8	
(b) Floodwater storage pond	5.6	
(c) Floodwater pumping station	45.0	
(i) civil works	21.5	
(ii) electrical and mechanical (E&M) works	23.5	
(d) Road works and associated drainage works	21.6	
(e) Footbridges and a vehicular crossing	3.0	
(f) Flood protection embankments	17.5	
(g) Environmental mitigation measures including landscaping works	2.3	
(h) Environmental monitoring and audit (EM&A) programme	1.7	
(i) Contingencies	12.5	
Sub-total	138.0	(in December 1999 prices) /(j)

(j) Provision for price adjustment	14.1	
Total	152.1	(in MOD prices)

10. Subject to approval, we will phase the expenditure as follows -

Year	\$ million (Dec 1999)	Price adjustment factor	\$ million (MOD)
2000 – 2001	8.0	1.00000	8.0
2001 – 2002	34.0	1.04500	35.5
2002 – 2003	72.0	1.10770	79.8
2003 – 2004	16.0	1.17416	18.8
2004 – 2005	8.0	1.24461	10.0
	138.0		152.1

11. We have derived the MOD estimate on the basis of Government's latest forecast of trend labour and construction prices for the period from 2000 to 2005. We will tender the proposed civil engineering works under a standard remeasurement contract because the works involve extensive earthworks, the quantities of which may vary according to the actual ground conditions. The contract will provide for price adjustments because the construction period will exceed 21 months. We will tender the proposed E&M works on a fixed-price lump-sum basis because we can clearly define the scope of works in advance.

12. We estimate the additional annually recurrent expenditure to be \$2.5 million.

/PUBLIC

PUBLIC CONSULTATION

13. We consulted the San Tin Rural Committee, the Yuen Long District Board and the Yuen Long Provisional District Board on 2 September 1993, 21 October 1993 and 28 May 1998 respectively. Members supported the project on the ground that it would bring relief to the flooding problems of the villages in Chuk Yuen Tsuen and Ha San Wai. We further presented the Tin Shui Wai/Yuen Long Development Programme (1999/2000 Edition), including this project, to Yuen Long District Council on 2 February 2000. Members did not raise any objection to the proposed works at the meeting.

14. We gazetted the roadworks of the proposed village flood protection scheme under the Roads (Works, Use and Compensation) Ordinance on 29 January 1999 and received three objections. We had a series of discussions with the objectors and two of them subsequently withdrew their objections on condition that we would revise the resumption limits to avoid resumption of part of their land. The remaining objector maintained his objection against resumption of his lot. On 9 November 1999, the Chief Executive in Council overruled the unwithdrawn objection in the public interest and authorised the proposed road works with minor modifications. The modifications involve revision of the resumption limits to avoid resumption of part of the objectors' lots, shifting of a passing bay and widening of a footbridge to provide access for emergency vehicles.

15. We briefed the Legislative Council Panel on Planning, Lands and Works on the overall flood protection strategy on 23 July 1998. Members supported the early implementation of all flood protection schemes in the North West New Territories, including this project.

ENVIRONMENTAL IMPLICATIONS

16. In May 1994, we employed consultants to carry out an Environmental Impact Assessment (EIA) to assess the environmental impacts due to the construction and operation of a series of flood control projects in Yuen Long, Kam Tin and Ngau Tam Mei. Following the completion of the EIA report in May 1996, we consulted the Advisory Council on the Environment (ACE) which endorsed the report in July 1996.

17. The EIA report concluded that the environmental impacts of the proposed works at Chuk Yuen Tsuen and Ha San Wai could be controlled to within established standards and guidelines. We will implement the recommended environmental mitigation measures by incorporating them into the works contract. These measures include landscaping works (hydroseeding/plantation of about 1 000 trees) on the embankment and open space, grasscrete laying over the floodwater storage pond and installation of noise insulation at the plant room of the pumping station. We will also incorporate into the works contract standard measures to control pollution arising during construction. These measures will include frequent watering of the site and the provision of wheel-washing facilities to reduce emission of fugitive dust, the use of silenced construction plant to reduce noise generation and other procedures as recommended in Environmental Protection Department's Recommended Pollution Control Clauses. We have included the costs of implementing the environmental mitigation measures including landscaping works (\$2.3 million) and an EM&A programme (\$1.7 million) in the overall project estimate.

18. At the planning and design stages, we have considered how to reduce the generation of construction and demolition material (C&DM) as much as possible. We estimate about 112 500 cubic metres (m³) of C&DM will be generated from the project, made up of 2 800m³ C&D waste, 30 000 m³ marine fill, 39 700 m³ marine mud and 40 000 m³ contaminated mud, to be disposed off site. The C&D waste will be delivered to West New Territories/North East New Territories landfills. The marine fill will be delivered to the public filling areas via the barging point at Tuen Mun Area 38 and the marine mud will be delivered to the marine dumping sites at Cheung Chau South/Ninepin. The contaminated mud will be disposed of at East Sha Chau marine dumping site. Besides stipulating the need for proper disposal of dredged material, we will require the contractor to make use of closed mechanical grabs and to avoid stockpiling of contaminated mud on site.

19. We will require the contractor under the contract to submit a waste management plan for approval with appropriate mitigation measures, including the allocation of an area for waste segregation. We will ensure the day-to-day operations on site comply with the waste management plan submitted. We will also require the contractor to reuse the excavated material on site or another construction site as filling material as far as possible to minimise the disposal of public fill to public filling areas. To further minimise the generation of C&DM, we will encourage the contractor to use non-timber formwork, hoarding and other temporary works. We will require the contractor to separate public fill from C&D

/waste

waste for disposal at appropriate locations and to sort the C&DM by category on site to facilitate its reuse and recycling. We will control the disposal of public fill and C&D waste to the designated public filling areas and landfills respectively through a trip-ticket system. We will record the disposal, reuse and recycling of C&DM for monitoring purposes.

LAND ACQUISITION

20. We will resume about three hectares of agricultural land and 64 square metres of private residential land for the proposed works. The land acquisition and clearance will affect two households involving six persons and 78 temporary structures. The Director of Housing will offer the eligible clearerees accommodation in public housing in accordance with the existing housing policy. We will charge the costs of land acquisition and clearance, estimated at \$65 million, to Head 701 - Land Acquisition.

BACKGROUND INFORMATION

21. In August 1990 and December 1995, we upgraded **30CD** and **74CD**¹ respectively to Category B for the construction of flood protection works for low-lying villages in Yuen Long, Kam Tin and Ngau Tam Mei.

22. Finance Committee (FC) has approved the upgrading to Category A part of the works under **30CD**. These are detailed below -

Upgrade to Cat. A	Project Title (Approved project estimate)	Start date	Completion date
Jun 1995	71CD – “Village flood protection for Sha Po Tsuen, Kam Tin, New Territories” (\$96.60 million)	Sep 1996	Apr 1999

/Jun 1999

¹ We plan to implement flood protection works under **74CD** "Village flood protection for Yuen Long, Kam Tin and Ngau Tam Mei, NWNT – stage II" in late 2001 for completion by phases from late 2003 to mid 2005.

Jun 1999	98CD - “Phase 1 village flood protection for Pok Wai and Wang Chau, North West New Territories” (\$106.80 million)	Oct 1999	Mar 2002
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23. The remaining scope of **30CD** comprises the works we now propose for upgrading for Chuk Yuen Tsuen and Ha San Wai, and the Phase 2 works for Pok Wai and Wang Chau described at paragraphs 4 and 5 above respectively.

24. As the works agent of the proposed works, the Director of Drainage Services has completed the detailed design and drawings using in-house staff resources. We plan to start the works in November 2000 for completion in March 2003. We will implement the remaining works under **30CD** (see paragraph 5 above) in late 2001 for completion in stages by mid 2004.

25. We estimate that the project will create some 120 new jobs totalling 3 000 man-months comprising 15 professional/technical staff and 105 labourers.

26. There are also related flood protection projects in the Yuen Long, Kam Tin and Ngau Tam Mei areas previously upgraded to Category A under PWP items other than **30CD**. These are detailed below -

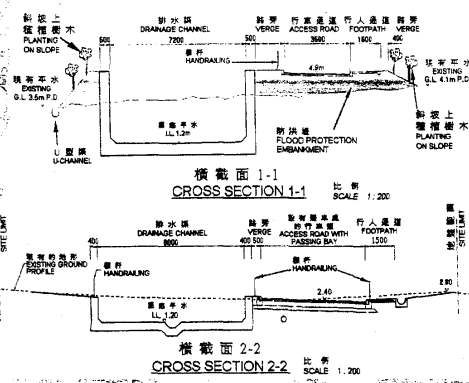
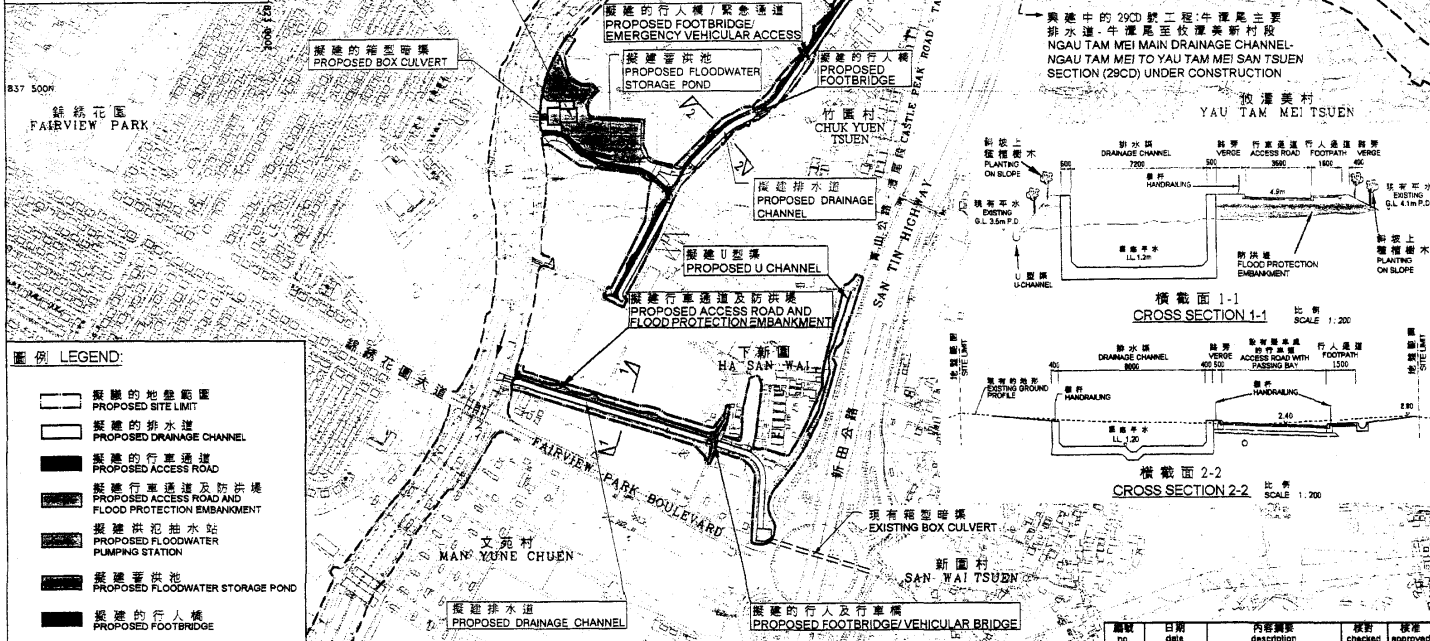
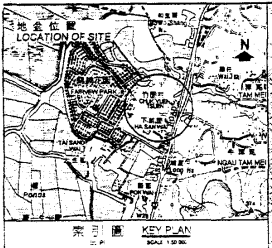
Upgrade to Cat. A	Project Title (Approved project estimate)	Start date	Completion date
May 1993	60CD – “North West New Territories development - main drainage channels for Yuen Long and Kam Tin stage 1, phase 1” (\$880 million)	Oct 1993	July 1999
Jul 1999	100CD – “Main drainage channel for Ngau Tam Mei phase 1 - Yau Mei San Tsuen to Tai Sang Wai section” (\$442.50 million)	Nov 1999	Aug 2002

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Nov 1999	29CD – “Main drainage channels for Ngau Tam Mei phase 2 - Ngau Tam Mei to Yau Mei San Tsuen section” (\$142.10 million)	Mar 2000	Aug 2002
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Works Bureau
May 2000

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- 圖例 LEGEND:**
- 擬議的地盤範圍 PROPOSED SITE LIMIT
 - 擬議的排水道 PROPOSED DRAINAGE CHANNEL
 - 擬議的行人通道 PROPOSED ACCESS ROAD
 - 擬議的行人通道及防洪堤 PROPOSED ACCESS ROAD AND FLOOD PROTECTION EMBANKMENT
 - 擬議的抽水站 PROPOSED FLOODWATER PUMPING STATION
 - 擬議的蓄水池 PROPOSED FLOODWATER STORAGE POND
 - 擬議的行人橋 PROPOSED FOOTBRIDGE

二〇〇〇至二〇〇一年度工程小組委員會文件 P.W.S.C. SUBMISSION 2000/2001

新界西北部元朗、錦田及牛潭尾的鄉村防洪計劃第一階段-餘下部份 VILLAGE FLOOD PROTECTION FOR YUEN LONG, KAM TIN AND NGAU TAM MEI, NORTH WEST NEW TERRITORIES, STAGE I - REMAINDER 新界西北部-建議的竹園村及下新圍防洪工程 PROPOSED VILLAGE FLOOD PROTECTION FOR CHUK YUEN TSUEN AND HA SAN WAI, NORTH WEST NEW TERRITORIES		繪圖人 K. S. LO	簽署 <i>[Signature]</i>	日期 17.01.00	項目編號 30 CD	辦事處 新界北拓展處 NEW TERRITORIES NORTH DEVELOPMENT OFFICE
校核人 W. K. HO	簽署 <i>[Signature]</i>	日期 17.01.00	比例 1:5 000	修訂 RBVISION		
核准人 H. Y. WONG	簽署 <i>[Signature]</i>	日期 17.01.00	圖則編號 NTN 2056		核准 checked approved	拓展署 TERRITORY DEVELOPMENT DEPARTMENT