

## **Information Paper for Legislation Council LegCo Panel on Planning, Lands and Works**

### **74CD – Village flood protection for Yuen Long, Kam Tin and Ngau Tam Mei, North West New Territories – stage II**

#### **PURPOSE**

This paper briefs Members on the proposed upgrading of **74CD**, retitled “Village flood protection for Tai Kiu and Shui Pin Tsuen, Yuen Long, New Territories”, to Category A at an estimated cost of \$64.4 million in money-of-the-day (MOD) prices.

#### **PROBLEM**

2. The villages in Tai Kiu and Shui Pin Tsuen in Yuen Long are in low-lying areas and are prone to frequent flooding during typhoons or heavy rainstorms.

#### **PROPOSAL**

3. The Director of Territory Development, with the support of the Secretary for the Environment, Transport and Works, proposes to upgrade **74CD** to Category A at an estimated cost of \$64.4 million in MOD prices for village flood protection works at Tai Kiu and Shui Pin Tsuen in Yuen Long.

#### **PROJECT SCOPE AND NATURE**

4. The scope of **74CD** comprises –
- (a) flood protection works at Tai Kiu, including construction of –
    - (i) a floodwater storage pond;

- (ii) a floodwater pumping station and associated electrical and mechanical (E&M) works;
  - (iii) associated internal access and drainage works;  
and
- (b) flood protection works at Shui Pin Tsuen, including construction of –
- (i) an underground floodwater storage tank;
  - (ii) a floodwater pumping station and associated E&M works; and
  - (iii) associated internal access and drainage works.

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Details of the proposed works at Tai Kiu and Shui Pin Tsuen are shown at Enclosures 1 and 2 respectively. We plan to commence construction in August 2003 for completion in December 2005.

## **JUSTIFICATION**

5. Tai Kiu and Shui Pin Tsuen are situated in the low-lying areas of Yuen Long. Several flooding incidents in the areas have adversely affected the properties of local residents, and have 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 to alleviate flooding problems in the said villages.

6. The proposed works will protect, in the following ways, the villages in Tai Kiu and Shui Pin Tsuen from flooding –

### **Tai Kiu**

- (a) the proposed floodwater storage pond, together with the surface channels, will collect the rainwater within the village boundaries. Before the pond starts to overflow, the proposed pumping system will be activated to pump the water into the existing Yuen Long Nullah; and

**Shui Pin Tsuen**

- (b) the proposed underground floodwater storage tank will collect the rainwater within the village boundaries via the existing surface channels. Before the tank starts to overflow, the proposed pumping system will be activated to pump the water into the existing drainage system at Town Park Road North.

The proposed flood protection works are capable of withstanding rainstorms with a return period of 50 years<sup>1</sup>. The 50-year return period is the desired standard adopted by the Government for new drainage facilities in rural areas. It is derived to achieve cost effectiveness based on land requirement considerations as well as social and economic impacts of flooding.

**FINANCIAL IMPLICATIONS**

7. We estimate the capital cost of the project to be \$64.4 million in MOD prices (see paragraph 8 below), made up as follows –

	<b>\$ million</b>
(a) Floodwater storage pond/tank and floodwater pumping stations	60.6
<u>Tai Kiu</u>	
(i) civil works	28.1
(ii) E & M works	8.3
<u>Shui Pin Tsuen</u>	
(i) civil works	18.7
(ii) E & M works	5.5

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<sup>1</sup> “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.

		<b>\$ million</b>
(b)	Drainage pipes, channels and internal access	2.1
(c)	Contingencies	<u>6.3</u>
	Sub-total	69.0 (in September 2002 prices)
(d)	Provision for price adjustment	<u>(4.6)</u>
	Total	<u>64.4 (in MOD prices)</u>

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

<b>Year</b>	<b>\$ million (Sept 2002)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2003 - 2004	17.3	0.94300	16.3
2004 - 2005	31.1	0.93003	28.9
2005 - 2006	13.8	0.93003	12.8
2006 - 2007	3.4	0.93003	3.2
2007 - 2008	3.4	0.93003	3.2
	<u>69.0</u>		<u>64.4</u>

9. We have derived the MOD estimate on the basis of the Government's latest forecast of trend labour and construction prices for the period from 2003 to 2008. 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 as the construction period will exceed 21 months. We will tender the proposed E&M works on fixed-price lump-sum basis because we can clearly define the scope of works in advance.

10. We estimate the annually recurrent expenditure arising from this project to be \$1.43 million.

## **PUBLIC CONSULTATION**

11. On 13 June 2001, we briefed Members on the flooding that occurred in the New Territories in early June 2001. In August and September 2001, we provided information papers to Members and committed to speeding up implementation of the remaining flood protection projects (including **74CD**) in the North West New Territories to bring early relief to the flooding problem. We further presented the Tin Shui Wai/Yuen Long Development Programme (2001/2002 Edition), including this project, to the Yuen Long District Council on 7 February 2002. The Council did not raise any objection to the proposed works.

### **Tai Kiu**

12. For the Tai Kiu flood protection scheme, we consulted the Shap Pat Heung Rural Committee and the Environmental Improvement Committee of Yuen Long District Council on 10 May 2002 and 25 July 2002 respectively. Members of both Committees supported the project.

### **Shui Pin Tsuen**

13. For the Shui Pin Tsuen flood protection scheme, we consulted the Ping Shan Rural Committee and the Environmental Improvement Committee of Yuen Long District Council on 18 October 2002 and 14 November 2002 respectively. Both Committees supported the project.

## **ENVIRONMENTAL IMPLICATIONS**

14. For the flood protection works in the North West New Territories, including this project, we completed an Environmental Study (the Study) in November 1999. We consulted the Advisory Council on the Environment which endorsed the conclusion of the Study in January 2000. The Study concluded that the environmental impact of the proposed works at Tai Kiu and Shui Pin Tsuen was low and could be controlled to within established standards and guidelines through the implementation of the mitigation measures as recommended in the Study. We will implement the recommended mitigation measures by incorporating them into the works contract.

15. We will incorporate into the works contract the recommended measures to control pollution arising during construction and operation. These measures include frequent watering of the site and 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.

16. We have considered in the planning and design stages ways of minimising the generation of construction and demolition (C&D) materials by giving due consideration to designing the level and layout of the proposed works. We estimate that the proposed works will generate about 7 200 cubic metres (m<sup>3</sup>) of C&D materials. Of these, we will reuse about 3 000 m<sup>3</sup> (42%) on site, 3 600 m<sup>3</sup> (50%) as fill in public filling areas<sup>2</sup> and dispose of 600 m<sup>3</sup> (8%) 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<sup>3</sup> of \$125/m<sup>3</sup>).

17. We will require the contractor under the contract to submit a waste management plan (WMP) for approval with appropriate mitigation measures, including the allocation of an area for waste segregation. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. We will ensure that day-to-day operations on site will comply with the approved WMP. We will require the contractor to reuse the excavated materials on site or on other construction sites as filling materials as far as possible to minimise the disposal of public fill. To further minimise the generation of C&D materials, we will encourage the contractor to use non-timber materials for hoarding, formwork and other temporary works. 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 require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

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<sup>2</sup> A public filling area is a designated part of a development project that accepts public fill for reclamation purpose. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

<sup>3</sup> 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<sup>3</sup>), 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.

## LAND ACQUISITION

18. We will resume about 0.06 hectare of agricultural land for the proposed works at Tai Kiu. The land clearance will affect one domestic structure and 18 other temporary non-domestic structures. Under the existing policy, the Director of Housing will offer eligible families accommodation in public housing. We will charge the land acquisition and clearance costs estimated at \$2.65 million, comprising \$2.15 million for land resumption and \$0.5 million for clearance, to **Head 701 - Land Acquisition**.

19. The proposed works at Shui Pin Tsuen do not require any land acquisition.

## BACKGROUND INFORMATION

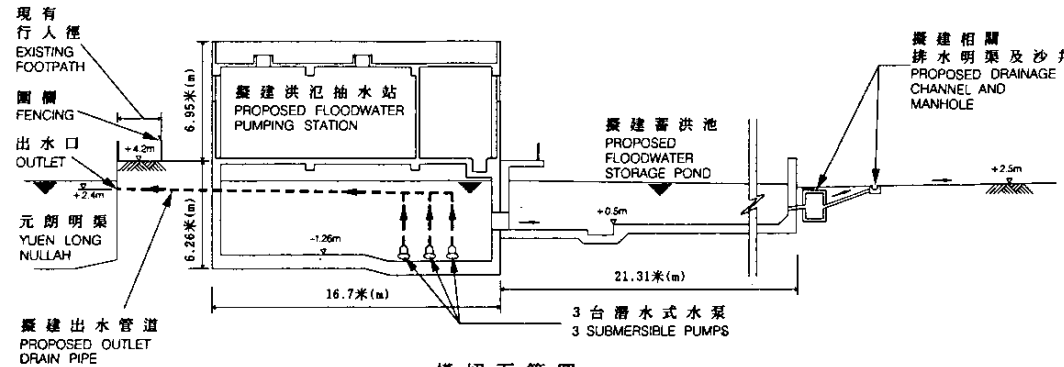
20. We upgraded **74CD** to Category B in December 1995.

21. In June 2001, the Finance Committee approved the upgrading of part of **74CD** to Category A as **117CD** entitled “Village flood protection for Mai Po Lo Wai, Mai Po San Tsuen, Ma Tin Tsuen and Shui Pin Wai, North West New Territories” at an estimated cost of \$174.8 million in MOD prices. The works commenced in December 2001 for completion in December 2005.

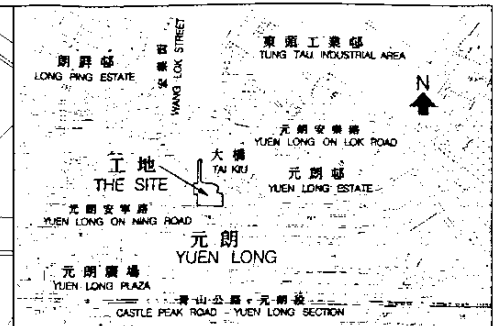
22. The Director of Drainage Services has completed the detailed design and drawings for the proposed works using in-house resources. He will also supervise the construction works by in-house resources.

23. We estimate that the project will create some 36 jobs, comprising six professional/technical staff and 30 labourers, totalling 900 man-months.

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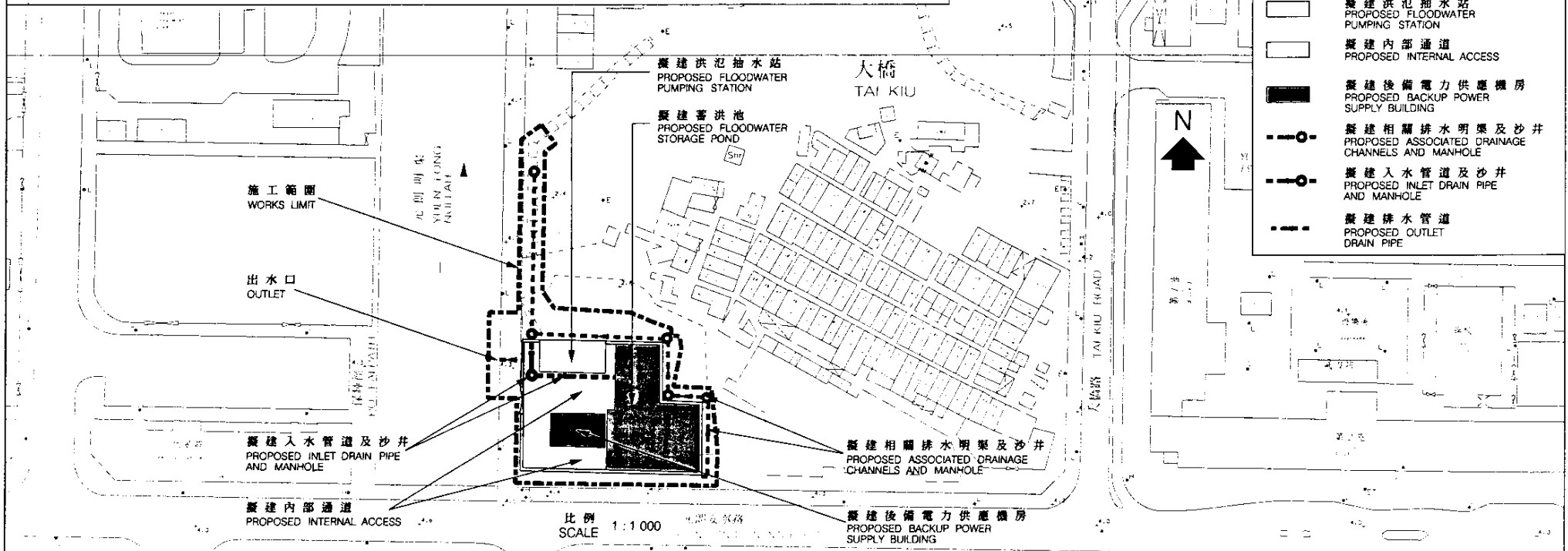


橫切面簡圖  
DIAGRAMMATIC CROSS SECTION



索引圖  
KEY PLAN  
比例 1:10 000  
SCALE

- 圖例 LEGEND:
- 擬建的蓄洪池  
PROPOSED FLOODWATER STORAGE POND
  - 擬建洪水抽水站  
PROPOSED FLOODWATER PUMPING STATION
  - 擬建內部通道  
PROPOSED INTERNAL ACCESS
  - 擬建後備電力供應機房  
PROPOSED BACKUP POWER SUPPLY BUILDING
  - 擬建相關排水明渠及沙井  
PROPOSED ASSOCIATED DRAINAGE CHANNELS AND MANHOLE
  - 擬建入水管道及沙井  
PROPOSED INLET DRAIN PIPE AND MANHOLE
  - 擬建排水管道  
PROPOSED OUTLET DRAIN PIPE



比例 1:1 000  
SCALE

二〇〇三至二〇〇四年度工務小組委員會文件 P.W.S.C. SUBMISSION 2003/2004

圖則名稱 drawing title

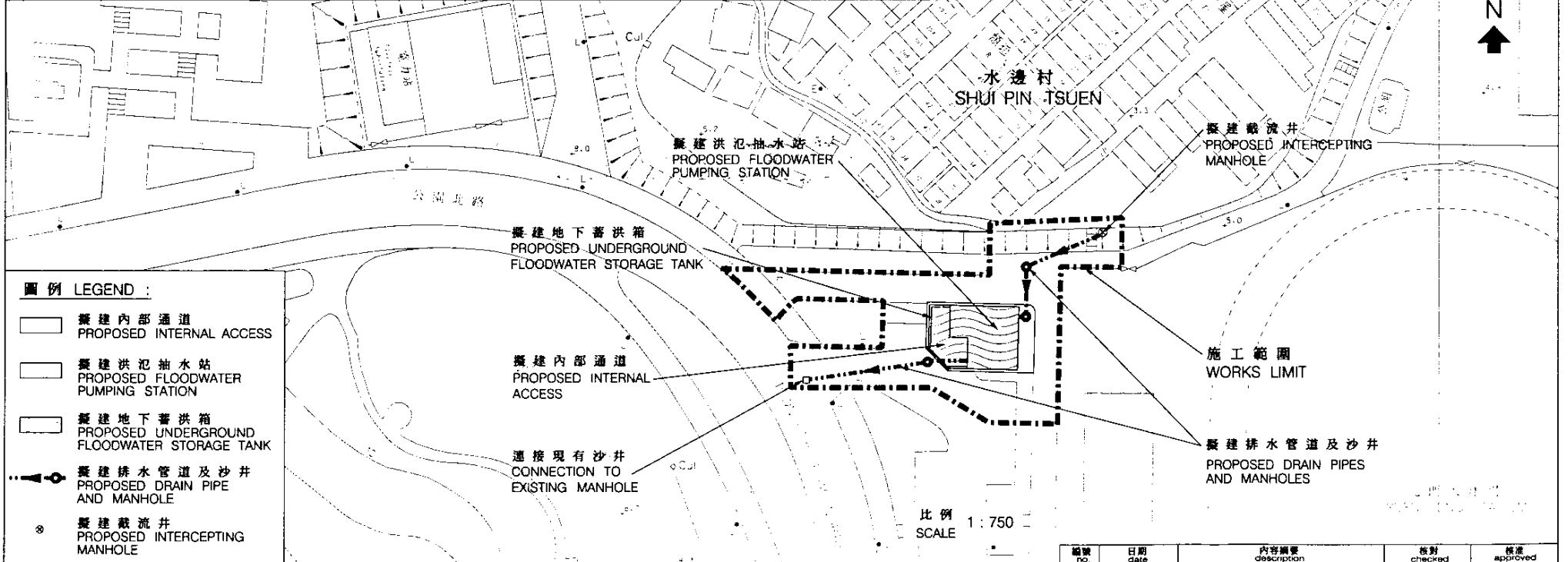
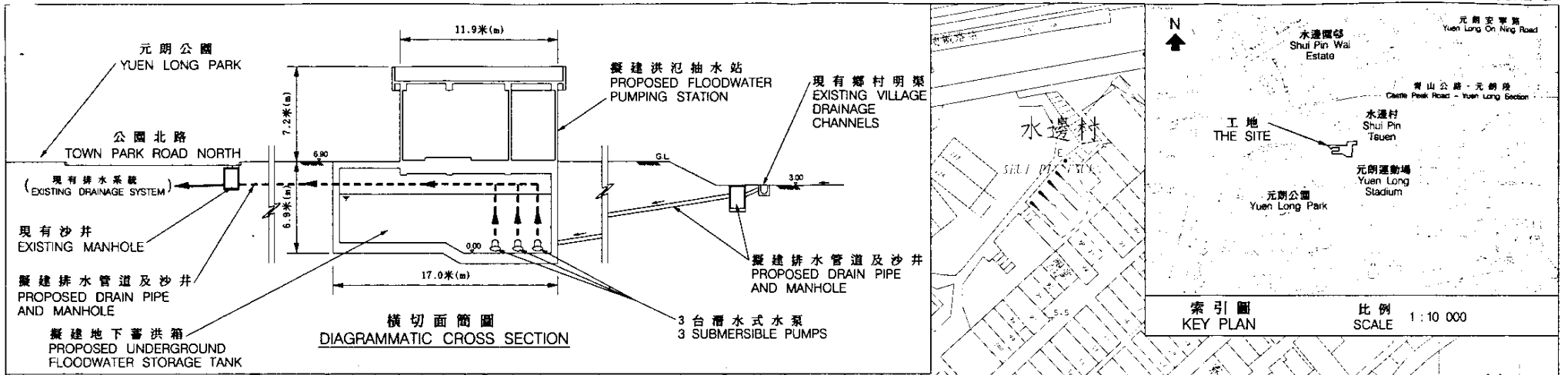
擬建的大橋鄉村防洪工程  
PROPOSED VILLAGE FLOOD PROTECTION WORKS FOR TAI KIU

修訂 REVISION				內容描述 description	核對 checked	核准 approved
編號 no.	日期 date	簽署 initial	日期 date			
繪圖 drawn	K.H.LO	SIGNED	6.11.02	項目編號 item no.	74CD	
核對 checked	W.H. WONG	SIGNED	28.1.03	比例 scale	如圖示 AS SHOWN	
核准 approved	D.J. Hayes	SIGNED	6.2.03	圖則編號 drawing no.	NTN 2136	

辦事處 office  
新界北拓展處  
NEW TERRITORIES NORTH DEVELOPMENT OFFICE

拓展署  
TERRITORY DEVELOPMENT DEPARTMENT





- 圖例 LEGEND :**
- 擬建內部通道  
PROPOSED INTERNAL ACCESS
  - 擬建洪氾抽水站  
PROPOSED FLOODWATER PUMPING STATION
  - 擬建地下蓄洪箱  
PROPOSED UNDERGROUND FLOODWATER STORAGE TANK
  - 擬建排水管道及沙井  
PROPOSED DRAIN PIPE AND MANHOLE
  - 擬建截流井  
PROPOSED INTERCEPTING MANHOLE

二〇〇三至二〇〇四年度工務小組委員會文件 P.W.S.C. SUBMISSION 2003/2004

圖則名稱 drawing title		修訂 REVISION				辦事處 office 新界北拓展處 NEW TERRITORIES NORTH DEVELOPMENT OFFICE
擬建的水邊村鄉村防洪工程 PROPOSED VILLAGE FLOOD PROTECTION WORKS FOR SHUI PIN TSUEN		繪圖 drawn	簽署 initial	日期 date	項目編號 item no.	
		K H CHAN	SIGNED	06.11.2002	74CD	
		核對 checked	簽署 initial	日期 date	圖則編號 drawing no.	NTN 2137
W H WONG	SIGNED	28.01.2003				
核准 approved	簽署 initial	日期 date				
D J HAYES	SIGNED	06.02.2003				