

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 29CD - Main drainage channels for Ngau Tam Mei

Members are invited to recommend to Finance Committee –

- (a) the upgrading of part of **29CD**, entitled “Main drainage channel for Ngau Tam Mei phase 1 – Yau Mei San Tsuen to Tai Sang Wai section”, to Category A at an estimated cost of \$442.5 million in money-of-the-day prices; and
- (b) the retention of the remainder of **29CD**, retitled “Main drainage channel for Ngau Tam Mei phase 2 - Ngau Tam Mei to Yau Mei San Tsuen section”, in Category B.

PROBLEM

We need to construct a main drainage channel from Castle Peak Road near Yau Mei San Tsuen to Tai Sang Wai to alleviate the flooding hazard to the low-lying areas of Ngau Tam Mei (Yuen Long).

/PROPOSAL

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PROPOSAL

2. The Director of Territory Development, with the support of the Secretary for Works, proposes to upgrade part of **29CD** to Category A at an estimated cost of \$442.5 million in money-of-the-day (MOD) prices for the construction of a main drainage channel from Castle Peak Road near Yau Mei San Tsuen to Tai Sang Wai.

PROJECT SCOPE AND NATURE

3. The scope of **29CD** comprises the construction of a main drainage channel from Ngau Tam Mei through Castle Peak Road near Yau Mei San Tsuen to Tai Sang Wai.

4. The part of **29CD** we now propose to upgrade to Category A comprises –

- (a) a drainage channel of about 2.3 kilometres long from Castle Peak Road near Yau Mei San Tsuen to Tai Sang Wai;
- (b) an inflatable dam and a low flow pumping station;
- (c) an irrigation pumping station;
- (d) roads and ramps with associated drainage and water works;
- (e) four vehicular bridges;
- (f) environmental mitigation measures including landscaping works; and
- (g) an environmental monitoring and audit programme for works mentioned in paragraphs (a) to (f) above.

/JUSTIFICATIONS

JUSTIFICATIONS

5. In recent years, extensive changes in land use and rapid development in Ngau Tam Mei have significantly aggravated the flooding problem in the area which is already susceptible to flooding due to its low-lying topography. The “North West New Territories Base Strategy Studies” (the Initial Study), completed in 1983, recommended a series of river training works to alleviate the flooding hazard in the North West New Territories, including the low-lying areas of Ngau Tam Mei. The “Territorial Land Drainage and Flood Control Strategy Study - Phase II” completed in 1993 under **52CD**, also confirmed the recommendations of the Initial Study.

6. We will complete the works for the downstream area of Kam Tin River under **60CD** in July 1999. The proposed drainage channel under **29CD** will convey surface runoff arising from the upper and lower Ngau Tam Mei catchment areas including Yau Mei San Tsuen, Chuk Yuen Tsuen, San Wai Tsuen and Pok Wai into the Kam Tin main drainage channel. The new channel is capable of accommodating a 50-year return period rainstorm. It serves to alleviate flooding problem in the Ngau Tam Mei area and forms part of the overall flood alleviation programme in the North West New Territories.

7. To prevent back flow of tidal sea water from Deep Bay through the Kam Tin main drainage channel into the proposed channel causing undesirable impacts to the nearby environment, we will construct an inflatable dam and associated pumping facilities at the downstream end of the proposed drainage channel. Under normal weather conditions, we will inflate the dam to prevent sea water entering the channel. We will pump the flow from the area upstream of the dam into the Kam Tin main drainage channel. During heavy rainstorms when the upstream water level in the proposed drainage channel is high, we will deflate the inflatable dam to discharge flood water into Kam Tin main drainage channel. In order to supply water to some areas of farmland at the upstream end of the proposed drainage channel for irrigation, we will construct an irrigation pumping station near Yau Mei San Tsuen to pump water from the proposed drainage channel to the farmland.

8. To facilitate future maintenance of the proposed drainage channel and to ensure its smooth functioning, we need to construct roads and ramps. We will also construct four vehicular bridges for crossing the proposed drainage channel and connecting them to the existing roads affected by this drainage channel.

/FINANCIAL

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$442.5 million in MOD prices (see paragraph 10 below), made up as follows -

	\$ million	
(a) Drainage channel	135.0	
(b) Inflatable dam, low flow and irrigation pumping stations	84.0	
(c) Roads, drainage and associated waterworks	76.0	
(d) Vehicular bridges	42.0	
(e) Environmental mitigation measures (including landscaping works)	10.0	
(f) Environmental monitoring and audit (EM&A) programme	6.0	
(g) Resident site staff	14.0	
(h) Contingencies	36.0	
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Sub-total	403.0	(at December 1998 prices)
(i) Provision for price adjustment	39.5	
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Total	442.5	(in MOD prices)
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While resident site staff from the Drainage Services Department will provide some on-site supervision, there are not sufficient in-house resources to provide the entire complement of site staff required. The Director of Drainage Services (DDS) therefore proposes to employ additional resident site staff through consultants for supervising the geotechnical and EM&A components of the works. A breakdown by man-months of the estimate for consultants' resident site staff expenses is at Enclosure 1.

/10.

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

Year	\$ million (Dec 1998)	Price adjustment factor	\$ million (MOD)
1999 - 2000	45.0	1.02625	46.2
2000 - 2001	108.0	1.06217	114.7
2001 - 2002	117.0	1.09934	128.6
2002 - 2003	90.0	1.13782	102.4
2003 - 2004	43.0	1.17765	50.6
	403.0		442.5

11. 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 1999 to 2004. We will tender the civil engineering works under a standard remeasurement contract because the works involve extensive earthworks, the quantity of which may vary according to the actual ground conditions. The contract will provide for price adjustments as the contract period will exceed 21 months. We will tender the electrical and mechanical works separately under a lump sum contract because we can clearly define the scope of the works.

12. We estimate the annually recurrent expenditure to be \$5.89 million.

PUBLIC CONSULTATION

13. We consulted the San Tin Rural Committee and the Yuen Long District Board about the proposed works on 2 March 1993 and 15 April 1993. Members of the Committee and District Board supported the proposed project for the relief it would bring to the flooding problem in the Ngau Tam Mei area.

/14.

14. We presented the findings and the environmental mitigation measures recommended in the Environmental Impact Assessment (EIA) report to the Yuen Long District Board on 13 June 1996. Members had no objection to the findings and the recommended mitigation measures. We then consulted the EIA Subcommittee of the Advisory Council on the Environment (ACE) on the EIA study report on 1 July 1996. The ACE endorsed the study report with the conditions described in paragraph 19 below.

15. As the river training works involved filling below high tide level, we gazetted the proposed reclamation works under the Foreshore and Sea-bed (Reclamations) Ordinance on 21 October 1994. We received eight objections. We had a series of discussions with the objectors and one of them withdrew his objection. The remaining seven objectors maintained their objections against resumption of their land. On 18 April 1997, we gazetted an additional area of reclamation works located at the upstream of the proposed drainage channel near Yau Mei San Tsuen under the Foreshore and Sea-bed (Reclamations) Ordinance and received no objection.

16. We also gazetted the proposed road works ancillary to the drainage channel under the Roads (Works, Use and Compensation) Ordinance on 19 August 1994. We received 11 objections. We had a series of discussions with the objectors. Subsequently, we amended the road scheme to revise the alignment of the road and three objectors withdrew their objections. The remaining eight objectors maintained their objections against resumption of their land.

17. We gazetted the amendments under the Roads (Works, Use and Compensation) Ordinance on 27 March 1997. We received four objections to the amendments including one from the remaining eight objectors mentioned in paragraph 16 above. After a series of discussions, we were able to persuade one objector, who objected to the traffic flow arrangement, to withdraw his objection. As a result of his request, we consulted the Yuen Long Provisional District Board on 26 February 1998 on the revised traffic flow arrangement and obtained their endorsement. The remaining three objectors maintained their objections against the resumption of their land.

18. On 29 September 1998, the Chief Executive in Council overruled the objections mentioned in paragraphs 15 to 17 above in the public interest and authorized the proposed road works and reclamation works of the project without modification.

ENVIRONMENTAL IMPLICATIONS

19. The project is a designated project under Schedule 2 of the EIA Ordinance (Cap. 499) and an environmental permit is required for the construction and operation of the project. In May 1994, we employed consultants to carry out an EIA study 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 completion of the EIA report in May 1996, we consulted the ACE in July 1996. ACE endorsed the report on condition that (a) old river channels would be considered for restoration into wildlife habitats; (b) the disposal of contaminated mud should be to the satisfaction of the Fill Management Committee (FMC) and that such disposal would have no adverse effects on the environment; and (c) the proponents should review the conceptual off-site compensation measures in light of Government's latest policy on off-site compensation and report back to the EIA Sub-committee of the ACE their specific proposals for this project.

20. The EIA report concluded that the environmental impact of the proposed works could be controlled to within established standards and guidelines through the implementation of the mitigation measures as recommended in the EIA study. We will implement these measures. As regards the conditions set by ACE, the Agriculture and Fisheries Department (A&FD) is currently carrying out a study to address the restoration of the old river channels and off-site compensation, and will report the findings to the EIA Sub-committee after the completion of the study in end 2000. We have also obtained approval from the FMC for the arrangements to dispose of contaminated mud. The key measures in respect of dredging works include the use of a close mechanical grab, no stockpiling of contaminated mud, proper disposal of dredged materials and regular maintenance dredging. We estimate the cost of implementing the environmental mitigation measures (\$10 million) and EM&A (\$6 million) to be \$16 million which has been included as part of the overall project estimate.

/LAND

LAND ACQUISITION

21. We will resume about 16.7 hectares of agricultural land and 455 square metres of building land for the project. The land acquisition and clearance will affect 23 households involving 93 persons and 44 business/agricultural structures. The Director of Housing will offer eligible families accommodation in public housing in line with the existing policy. We will charge the costs of land acquisition and clearance, estimated to be \$280 million, to **Head 701** - Land Acquisition.

BACKGROUND INFORMATION

22. We upgraded **29CD** to Category B in 1987. We completed the preliminary design in late 1989 and started the public consultation in early 1990. The village representative of Chuk Yuen Tsuen and the Yuen Long District Board raised objections to the alignment of the proposed drainage channel. We revised the alignment of the drainage channel to avoid Chuk Yuen Tsuen but the village representative and the Yuen Long District Board still did not support the project. We made further revisions and the San Tin Rural Committee, the Yuen Long District Board and the village representative of Chuk Yuen Tsuen finally gave their support in mid 1993. Upon completion of the consultation, we went through the statutory procedures as mentioned in paragraphs 15 to 18 above and completed the statutory procedures in late 1998.

23. DDS has completed the detailed design and drawings for the proposed works using in-house resources. We plan to start the works in October 1999 for completion in August 2002. A map showing the proposed works is at Enclosure 2. We will commence the remaining works under **29CD** in early 2000 for completion in late 2002. A map showing the remaining works under **29CD** is at Enclosure 3.

Works Bureau
June 1999

29CD - Main drainage channels for Ngau Tam Mei

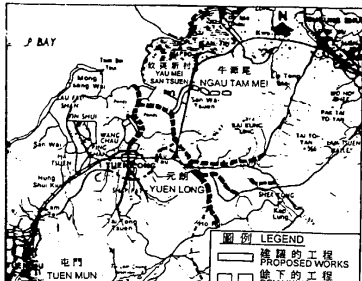
Breakdown of the estimate for consultants' fees

Consultants' staff costs		Estimated man months	Average MPS* salary point	Multiplier factor	Estimated fees (\$ million)
Site supervision by resident site staff employed by the consultants	Professional	105	40	1.7	11.2
	Technical	78	16	1.7	2.8
Total consultants' staff cost					14.0

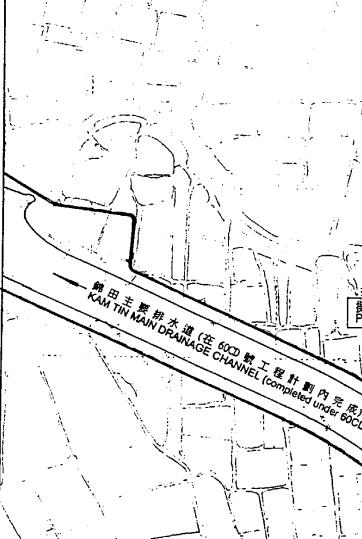
* MPS = Master Pay Scale

Notes

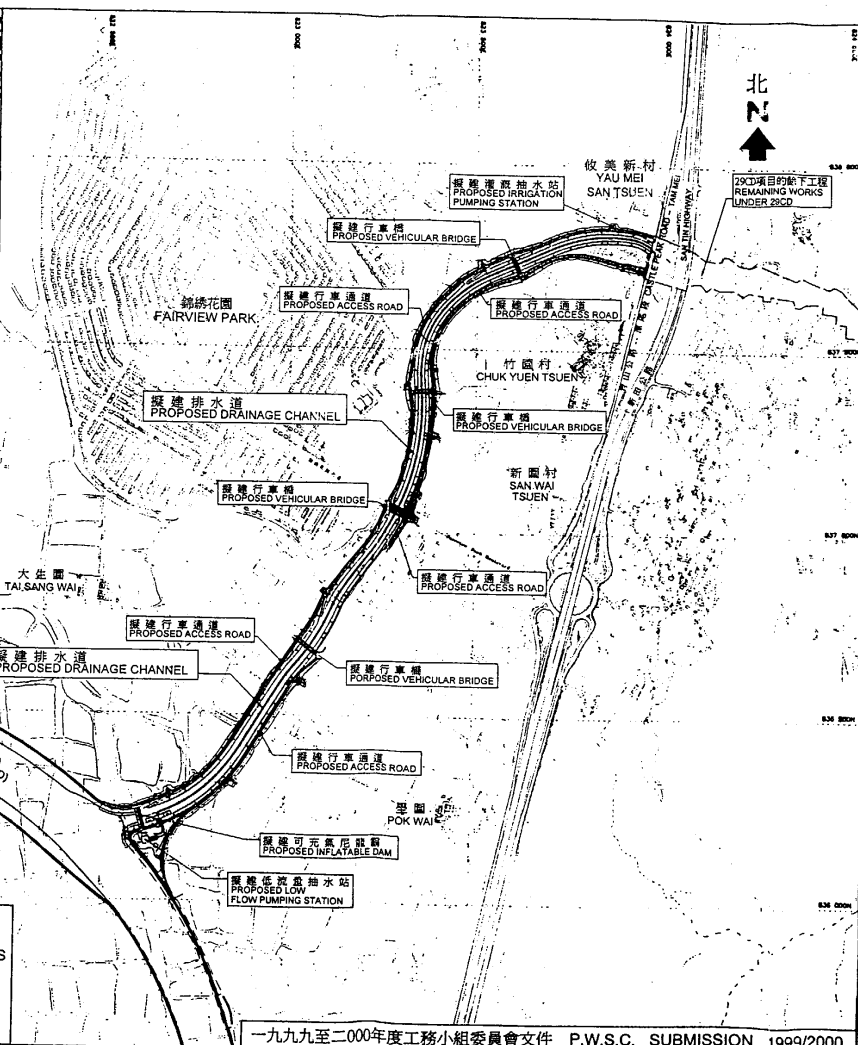
1. A multiplier factor of 1.7 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be supplied by the consultants. (At 1.4.98, MPS pt. 40 = \$62,780 p.m. and MPS pt. 16 = \$21,010 p.m.)
2. The figures given above are based on estimates prepared by the Director of Drainage Services. We will only know the actual man months and fees when we have appointed the resident site staff.



索引圖
KEY PLAN
比例
SCALE 1:200 000

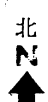


圖例 LEGEND:
 建議的排水道工程
 PROPOSED DRAINAGE CHANNEL WORKS
 建議的行人通道及橋樑
 PROPOSED ROAD AND BRIDGES
 29 CD 項目的餘下工程
 REMAINING WORKS UNDER 29CD



一九九至二000年度工務小組委員會文件 P.W.S.C. SUBMISSION 1999/2000

註 NOTES:



編號 No.	日期 date	內容 description	校對 checked	核准 approved
B	08.04.99	General Revision		
A	26.03.99	General Revision		

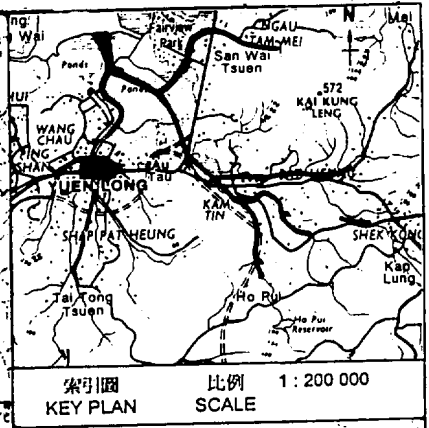
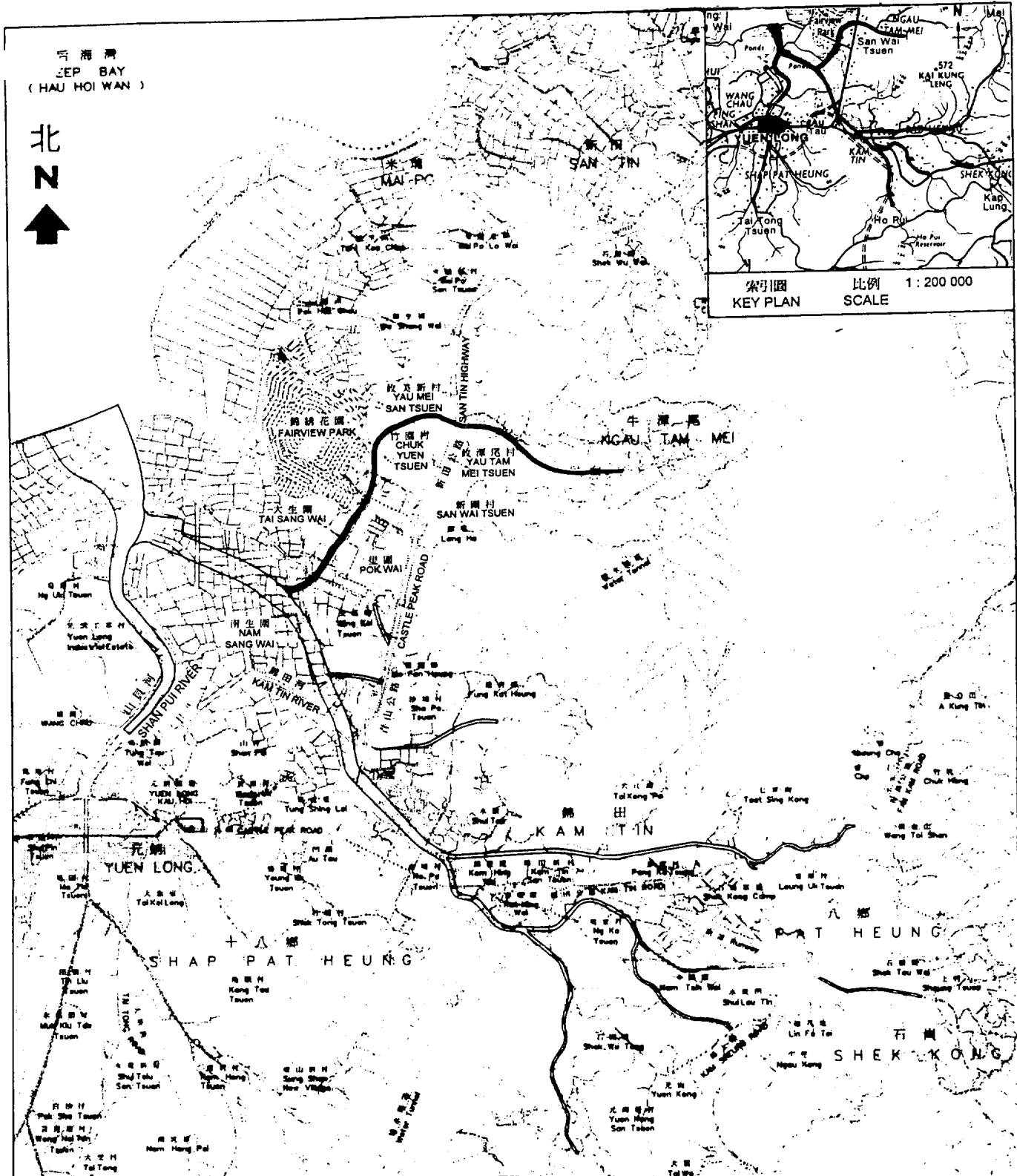
姓名 name	簽署 initial	日期 date
K. S. LO		21.12.98
Y. P. HUNG		21.12.98
S. K. LAM		21.12.98

項目編號
item no. 29 CD
 圖則名稱
drawing title
**牛潭尾主要排水道工程
 MAIN DRAINAGE CHANNELS
 FOR NGAU TAM MEI**

圖則編號
drawing no. NTN 2027B
 比例
scale 1:10 000

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

**拓展署
 TERRITORY DEVELOPMENT
 DEPARTMENT**



圖例 LEGEND:
 建議提升為甲級的工程
PROPOSED WORKS TO BE UPGRADED TO CAT. A
 29CD項目的餘下工程
REMAINING WORKS UNDER 29CD
 在60CD項目下完成的河道治理工程
RIVER TRAINING WORKS COMPLETED UNDER 60CD

編號 no.	日期 date	內容摘要 description	核對 checked	核准 approved
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一九九九至二〇〇〇年度工務小組委員會文件 P.W.S.C. SUBMISSION 1999/2000 **修訂 REVISION**

圖則編號 drawing title	繪圖 drawn	簽署 Initial	日期 date	項目編號 item no.	辦事處 office 新界北拓展處 NEW TERRITORIES NORTH DEVELOPMENT OFFICE
牛潭尾主要排水道工程 MAIN DRAINAGE CHANNELS FOR NGAU TAM MEI	K.S. LO		26.4.99	29CD	
	核對 checked	簽署 Initial	日期 date	比例 scale	
	Y.P. HUNG		26.4.99	1:50 000	
核准 approved	簽署 Initial	日期 date	圖則編號 drawing no.	拓展署 TERRITORY DEVELOPMENT DEPARTMENT	
S.K. LAM		27.4.99	NTN 2041		