

**Legislative Council
Panel on Development**

**PWP Item No. 70CD
Yuen Long bypass floodway**

PURPOSE

This paper briefs Members on a proposed increase in the approved project estimate (APE) of **70CD** from \$476.2 million by \$40.8 million to \$517.0 million in money-of-the-day (MOD) prices.

PROJECT SCOPE

2. In June 2002, we upgraded **70CD** to Category A at an estimated cost of \$476.2 million in MOD prices for constructing a main drainage channel for use as a bypass floodway to alleviate the flooding problems in and around Yuen Long Town. The approved scope of works under **70CD** comprises –

- (a) construction of a drainage channel of about 3.8 kilometres long from Sham Chung Tsuen to Kam Tin River near Sha Po Tsuen;
- (b) construction of an inflatable dam and a low flow pumping station at the downstream end of the proposed drainage channel;
- (c) construction of nine vehicular bridges and five footbridges;
- (d) construction of roads and ramps with associated drainage and water works along the proposed drainage channel;
- (e) implementation of environmental mitigation measures including creation of an artificial wetland and landscaping works; and

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

———— Details of the proposed works are shown at **Enclosures 1 and 2.**

JUSTIFICATION

3. It is necessary to increase the APE of **70CD** by \$40.8 million to cover the additional cost due to unforeseen situations and site conditions. The significant increase in Contract Price Fluctuation (CPF) over the duration of the contract also resulted in additional cost. The increase in cost has been partly offset by the lower-than-expected tender sum and the drawdown from project contingencies as elaborated in the paragraphs below.

Additional Costs due to Unforeseen Situations and Site Conditions

4. Due to unforeseen situations and site conditions, additional costs which are evaluated to be \$38.9 million and \$40.9 million respectively after thorough assessments, are required as briefly summarised in paragraphs 5 and 6 below.

5. During construction of the project, we encountered a number of unforeseen situations which necessitated additional works. These additional works included the disposal of excavated materials to a more distant designated site (West New Territories Landfill) as the original designated site (Tuen Mun Area 38) was found approaching saturation, and the extension of drains to cover a locally depressed area near Tung Shing Lei for alleviating flood risk. The total cost due to these additional works is about \$38.9 million.

6. Separately, the actual site conditions encountered during construction were different from those originally envisaged. In the course of works, we found that the ground levels were generally higher than those originally anticipated from survey information. As a result, we had to carry out a larger amount of excavation works and additional costs were incurred. In addition, we needed to divert some existing watermain along Castle Peak Road near Pok Oi Hospital which were in conflict with the box culvert under this project. The total additional cost due to unforeseen site conditions is about \$40.9 million.

7. The breakdown of the additional costs arising from the unforeseen situations and site conditions is included at **Enclosure 3.**

Additional Costs due to Significant Increase in Contract Price Fluctuation

8. At the time when the project was upgraded to Cat A at the Finance Committee meeting on 5 June 2002, the price adjustment factors adopted for the period between 2002-03 to 2007-08 were less than one, reflecting a period of deflation. As a result, the provision for price adjustment in the APE was minus \$7.8 million in MOD prices.

9. The construction contract commenced in January 2003 and was substantially completed in November 2006. As a result of the significant increase in costs of materials, the average CPF adjustment for the period from 2003 to 2006 is about 6.6% per annum. The final CPF cost is about \$30.0 million, which is \$37.8 million higher than that allowed for in the APE.

Offset by Lower-than-expected Tender Outturn Prices and Drawdown from Contingencies

10. Due to the lower-than-expected tender prices for some sections of the tender, the cost of the works is \$35.8 million less than the sum allowed for in the APE. This amount, together with the project contingencies of \$41.0 million, could be spared to offset part of the increase in costs. The net result is a need to increase the APE of **70CD** from \$476.2 million by \$40.8 million to \$517.0 million in MOD prices in order to cover the additional cost.

11. A comparison of the cost breakdown of the APE and the revised project estimate is at **Enclosure 3**. The summary below shows the make up of the proposed increase of \$40.8 million as discussed in paragraphs 4 to 10 above –

		Proposed increased amount in MOD prices (\$ million)	% of the total increased amount
Factors			
<u>Increase due to -</u>			
(a)	Additional Costs due to Unforeseen Situations	38.9	95.3
(b)	Additional Costs due to Unforeseen Site Conditions	40.9	100.3
(c)	Contract Price Fluctuation	37.8	92.6

<u>Partly Offset by -</u>			
(d)	Lower-than-expected Tender Prices	(35.8)	(87.7)
(e)	Contingencies	(41.0)	(100.5)
		<hr/>	<hr/>
Total		40.8	100.0
		<hr/>	<hr/>

FINANCIAL IMPLICATIONS

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

Year	\$ million (MOD)
Up to 31 March 2009	475.4
2009 – 2010	37.8
2010 – 2011	3.8
	<hr/>
	517.0
	<hr/>

13. The proposed increase in the APE will not give rise to any additional recurrent expenditure.

PUBLIC CONSULTATION

14. The proposed increase in the APE does not involve any public interest. Public consultation at District Council level was hence considered unnecessary.

ENVIRONMENTAL IMPLICATIONS

15. The proposed increase in the APE does not have any environmental implications.

HERITAGE IMPLICATION

16. The proposed increase in the APE does not have any heritage implications.

LAND ACQUISITION

17. The proposed increase in the APE does not require any land acquisition.

BACKGROUND

18. In June 2002, the Finance Committee approved the upgrading of **70CD** “Yuen Long bypass floodway” to Category A at an estimated cost of \$476.2 million in MOD prices. The construction contract commenced in January 2003 and was substantially completed in November 2006. We expect that the maintenance certificate will be issued in mid 2009 after all the contractual duties and obligations related to the Contractor have been completed by the Contractor satisfactorily.

19. The proposed increase in the APE will not involve any additional tree removal or planting proposal.

20. The proposed increase in the APE will not create any new jobs.

WAY FORWARD

21. We plan to seek the Public Works Sub-Committee’s endorsement for increasing the APE of **70CD** from \$476.2 million by \$40.8 million to \$517.0 million in MOD prices in June 2009.

ATTACHMENT

Enclosure 1 - Plan No. NTN 2260A

Enclosure 2 - Plan No. NTN 2261A

Enclosure 3 - Comparison of the APE and the Revised Project Estimate

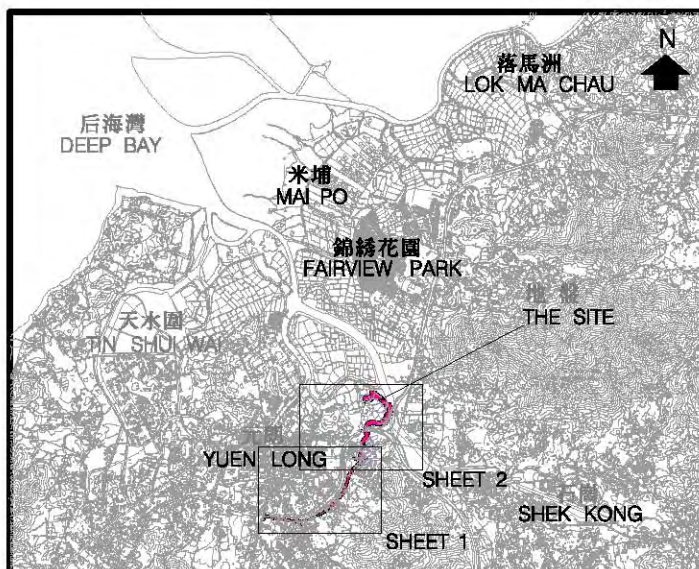
Enclosure 4 – Cost of Labour and Material Index

Development Bureau

Civil Engineering and Development Department

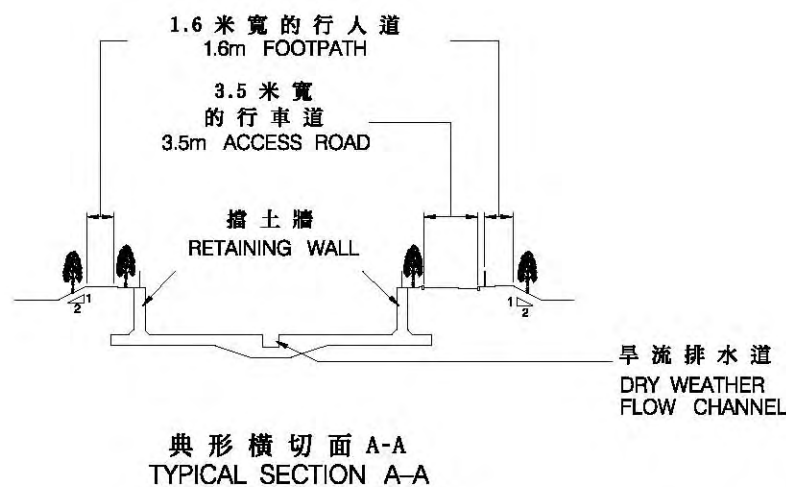
May 2009

註釋 NOTES :



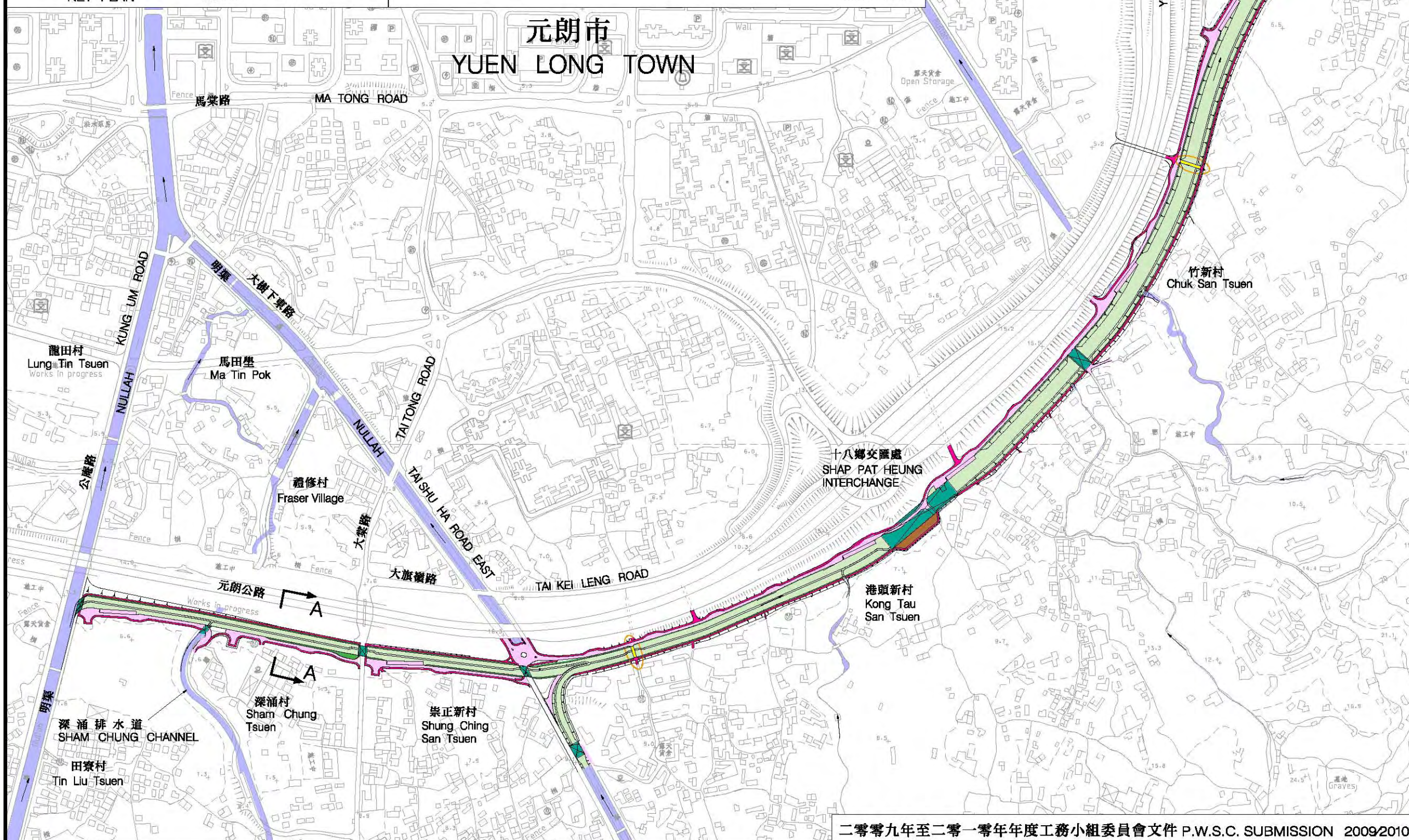
索引圖
KEY PLAN








比例 1 : 150 000
SCALE



典型横切面 A-A
TYPICAL SECTION A-A

比例
SCALE 1:500



- | | |
|---|---|
|  | 排水道
DRAINAGE CHANNEL |
|  | 行車道及斜路
ACCESS ROAD AND RAMPS |
|  | 重建之泊車範圍
REPROVISION
OF CAR PARK AREA |
|  | 行人路
FOOTPATH |
|  | 行車橋 - 箱涵
VEHICULAR BRIDGE
- BOX CULVERT |
|  | 行人橋 - 箱涵
FOOTBRIDGE
- BOX CULVERT |
|  | 現有河道 / 河流 / 明渠
EXISTING STREAM /
RIVER / NULLAH |

A	16.03.09	MINOR AMENDMENT	SIGNED	SIGNED
編號	日期	內容摘要	核對	核准

修訂 REVISION

	姓名 name	簽署 initial	日期 date
繪圖 drawn	K H LO	SIGNED	13.01.2009
核對 checked	W K CHAN	SIGNED	15.01.2009

核准	approved
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Y M CHAN SIGNED 16.01.2009
日期 date

工程編號 project no. 70CD

檔案編號 file no.

合約編號 contract no.

合約	contract
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[illegible]

元朗排水繞道
YUEN LONG
BYPASS FLOODWAY

(SHEET 1 OF 2)

圖則編號 drawing no.

NTN 2260A

比例	scale
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1:6 000




辦事處 office

新界西及北拓展處
NEW TERRITORIES NORTH AND
WEST DEVELOPMENT OFFICE



土木工程拓展署
CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

註釋 NOTES :

-  排水道
DRAINAGE CHANNEL
-  行車道及斜路
ACCESS ROAD AND RAMPS
-  行人路
FOOTPATH
-  行車橋 - 箱涵
VEHICULAR BRIDGE - BOX CULVERT
-  行人橋 - 箱涵
FOOTBRIDGE - BOX CULVERT
-  低流量抽水站
LOW FLOW PUMPING STATION
-  可充氣氬龍壩
INFLATABLE DAM
-  濕地
WETLAND
-  現有河道 / 河流 / 明渠
EXISTING STREAM / RIVER / NULLAH

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工程編號 project no.	70CD
檔案編號 file no.	
合約編號 contract no.	
合約 contract	

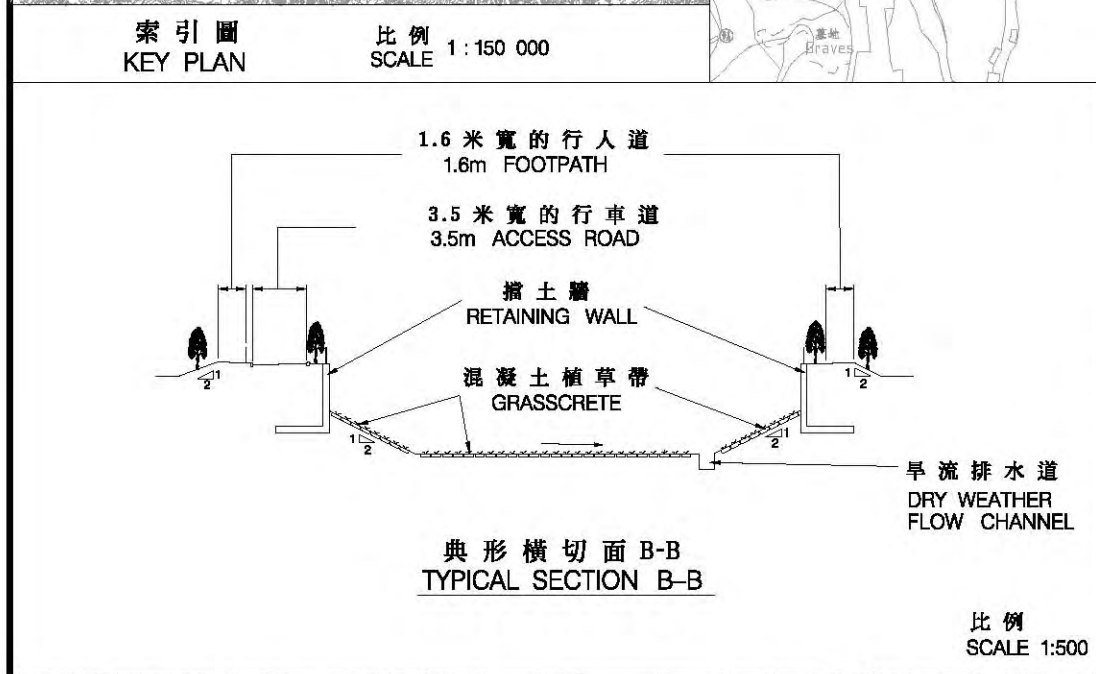
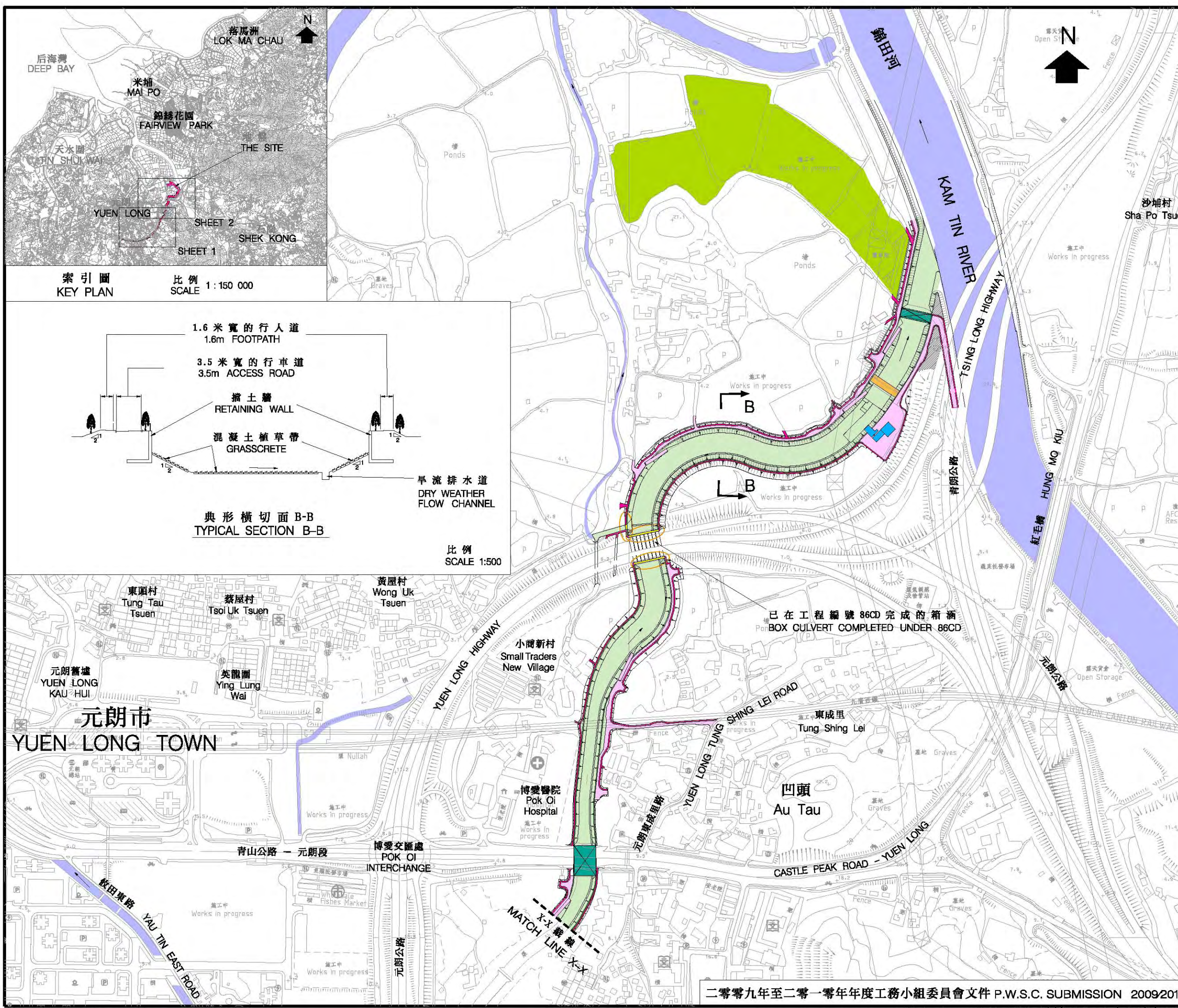
圖則名稱 drawing title

元朗排水繞道
YUEN LONG BYPASS FLOODWAY
(SHEET 2 OF 2)

圖則編號 drawing no.	NTN 2261A
比例 scale	1:6 000

辦事處 office

新界西及北拓展處
NEW TERRITORIES NORTH AND WEST DEVELOPMENT OFFICE



70CD – Yuen Long bypass floodway

A comparison of the APE and the revised project estimate in MOD prices is as follows –

		(A) Approved Estimate (\$ million)	(B) Revised Estimate ¹ (\$ million)	(C) Latest Estimate (\$ million)	(C) – (A) Difference (\$ million)
(a)	Drainage channel	190.0	222.6	245.5	55.5
(b)	Inflatable dam and low flow pumping station	40.0	45.6	47.0	7.0
	(i) civil works	27.0	37.7	39.1	12.1
	(ii) electrical and mechanical (E&M) works	13.0	7.9	7.9	(5.1)
(c)	Nine vehicular bridges and five footbridges	85.0	63.4	75.5	(9.5)
(d)	Roads and ramps with associated drainage and water works	64.0	45.7	84.1	20.1
(e)	Environmental mitigation measures (including creation of an artificial wetland and associated landscaping works)	55.0	25.9	30.9	(24.1)
(f)	EM&A programme	6.0	1.0	1.0	(5.0)
(g)	Contingencies	44.0	64.8	3.0	(41.0)
(h)	Provision for price adjustment	(7.8)	7.2	30.0	37.8
	Total	476.2	476.2	517.0	40.8

¹ Revised estimate after contract award and based on tender sum.

2. The reasons of the cost difference between the latest Project Estimate and the APE for each major section of the works are elaborated in the paragraphs below.

3. **As regards 1(a) (Drainage Channel)**, the total increase of \$55.5 million is due to

- i) higher-than-expected contract rates (\$32.6 million); and
- ii) additional costs due to unforeseen situations and site conditions:
 - a) unforeseen situations including the change of designated tip for excavated materials from Tuen Mun Area 38 to West New Territories (WENT) Landfill at \$7.0 million; and
 - b) unforeseen site conditions resulted in deeper excavations for the drainage channels at \$15.9 million.

4. **As regards 1(b)(i) (Civil Works for inflatable dam and low flow pumping station)**, the total increase of \$12.1 million is due to

- i) higher-than-expected contract rates (\$10.7 million); and
- ii) unforeseen situations to meet new maintenance requirements at \$1.4 million (e.g. additional security measures against vandalism).

5. **As regards 1(b)(ii) (Electrical and mechanical works for inflatable dam and low flow pumping station)**, the decrease of \$5.1 million is due to lower-than-expected contract rates for the inflatable dam and low flow pumping station.

6. **As regards 1(c) (Nine vehicular bridges and five footbridges)**, the total decrease of \$9.5 million is due to

- i) the lower-than-expected contract rates (minus \$21.6 million); and
- ii) additional costs due to unforeseen situations and site conditions:
 - a) unforeseen situations including the change of designated tip for excavated materials from Tuen Mun Area 38 to West New Territories (WENT) Landfill, an additional roundabout at Tai

Shu Ha Road, and an additional pedestrian crossing at Yeung Uk Tsuen at \$9.1 million; and

- b) unforeseen site conditions resulted in deeper excavation for the box culverts at \$3.0 million.

7. **As regards 1(d) (Roads and ramps with associated drainage and water works)**, the total increase of \$20.1 million is due to

- i) the lower-than-expected contract rates (minus \$18.3 million); and
- ii) additional costs due to unforeseen situations and site conditions:
 - a) unforeseen situations such as the extension of drains near Tung Shing Lei at \$18.4 million; and
 - b) unforeseen site conditions resulted in deeper excavation for the channel works and in other roads and drainage works, and the diversion of four watermain along Castle Peak Road at \$20.0 million.

8. **As regards 1(e) (Environmental mitigation measures)**, the total decrease of \$24.1 million is due to

- i) lower-than-expected contract rates (minus \$29.1 million); and
- ii) additional costs due to unforeseen situations and site conditions:
 - a) unforeseen situations such as additional wheel washing facilities to minimize dust nuisance at Nam Sang Wai at \$3.0 million ; and
 - b) unforeseen site conditions for landscaping works at \$2.0 million.

9. **As regards 1(f) (EM&A programme)**, the decrease of \$5.0 million is due to lower-than-expected contract rates for the environmental mitigation measures and the Independent Environmental Checker (IEC) consultant contract.

10 **As regards 1(g) (Contingencies)**, we retain \$3.0 million as contingencies to cater for minor reconciliation of measurements in the contract

Enclosure 3

finalization process. Hence \$41.0 million was spared to offset part of the increase in costs.

11. **As regards 1(h) (Provision for price adjustment)**, the increase of \$37.8 million is due to the higher-than-expected increase in contract price fluctuation throughout the contract period. A chart showing the Cost of Labour and Material Index throughout the construction period is shown in **Enclosure 4**.

12. In summary, the total additional cost due to additional works arising from unforeseen situations, building up from items described in paragraph 3 ii) a), 4 ii), 6 ii) a), 7 ii) a) and 8 ii) a) above, is \$38.9 million. Besides, the total additional cost due to an increase in the quantities of works because of unforeseen site conditions, adding up from items described in paragraph 3 ii) b), 6 ii) b), 7 ii) b) and 8 ii) b) above, is \$40.9 million. On the other hand, the lower-than-expected tender prices, consolidating from items described in paragraphs 3 i), 4 i), 5, 6 i), 7 i), 8 i) and 9 above, contributes a total reduction of \$35.8 million.

工資及物料的成本指數 (2002年7月=100)
(2002年7月至2006年11月)
Cost of Labour and Material Index (July 2002 = 100)
(July 2002 - November 2006)

