

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
70CD – Yuen Long bypass floodway

Members are invited to recommend to Finance Committee to increase the approved project estimate of **70CD** from \$476.2 million by \$40.8 million to \$517.0 million in money-of-the-day prices.

PROBLEM

The approved project estimate (APE) of **70CD** is insufficient to cover the costs of the works under the project.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to increase the APE of **70CD** from \$476.2 million by \$40.8 million to \$517.0 million in money-of-the-day (MOD) prices.

/PROJECT

PROJECT SCOPE AND NATURE

3. 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.

JUSTIFICATIONS

4. It is necessary to increase the APE of **70CD** by \$40.8 million to cover the additional cost due to unforeseen circumstances 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

Additional Costs due to Unforeseen Circumstances and Site Conditions

5. During construction of the project, the excavated materials had to be delivered to a more distant designated site (West New Territories Landfill) for disposal as the original designated site (Tuen Mun Area 38) was approaching saturation. Also the drainage work near Tung Shing Lei had to be extended to cover a locally depressed area for alleviating flood risk. These unforeseen circumstances necessitated additional works (\$22.0 million), together with other minor items (\$16.9 million) as detailed at Enclosure 3, totaling \$38.9 million.

6. Separately, in the course of works, we found that the ground levels of the private land resumed for the project were generally higher than those originally envisaged. As a result, we had to carry out a larger amount of excavation to reach the required formation levels and additional works (costing \$21.3 million) were incurred. In addition, we needed to divert some existing watermains along Castle Peak Road near Pok Oi Hospital to remove their conflicts with the box culvert construction under this project (\$7.0 million). Together with other minor items (\$12.6 million) as detailed at Enclosure 3, the total cost of the additional works due to unforeseen site conditions is \$40.9 million.

Additional Costs due to Significant Increase in CPF Payment

7. When the project was upgraded to Category A on 5 June 2002, the price adjustment factors adopted for the period from 2002 to 2008 were less than one, reflecting a period of deflation. The provision for price adjustment in the APE was minus \$7.8 million in MOD prices.

8. The construction contract commenced in January 2003 and was substantially completed in November 2006. However, during this period, there was a significant increase in costs of materials and 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

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

9. 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.

10. 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 comprising cost increase of \$117.6 million, which is partly offset by savings of \$76.8 million, as discussed in paragraphs 5 to 9 above –

Factors	Proposed increased amount/savings in MOD prices (\$ million)	% of the total increased amount/savings
<u>Increase due to -</u>		
(a) Additional Costs due to Unforeseen Circumstances	38.9	33
(b) Additional Costs due to Unforeseen Site Conditions	40.9	35
(c) Contract Price Fluctuation	37.8	32
		<hr/>
(d) Total cost increase (d = a + b + c)	117.6	100

/(e)

<u>Partly Offset by -</u>			
(e)	Lower-than-expected Tender Prices	35.8	47
(f)	Contingencies	41.0	53
(g)	Total savings (g = e + f)	<u>76.8</u>	<u>100</u>
(h)	Proposed increase (h = d - g)	<u>40.8</u>	

FINANCIAL IMPLICATIONS

11. 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
	<u>517.0</u>

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

PUBLIC CONSULTATION

13. We consulted the Legislative Council Panel on Development on the proposed increase in APE by circulation of an information paper on 20 May 2009. Members raised no objection to the proposal.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

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

HERITAGE IMPLICATION

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

LAND ACQUISITION

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

BACKGROUND INFORMATION

17. 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.

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

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

Enclosure 3 to PWSC(2009-10)66

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 Estimate¹ (\$ 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 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 circumstances and site conditions –
 - (a) unforeseen circumstances including the change of designated tip for excavated materials from Tuen Mun Area 38 to West New Territories 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 circumstances 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) lower-than-expected contract rates (minus \$21.6 million); and
- (ii) additional costs due to unforeseen circumstances and site conditions –
 - (a) unforeseen circumstances including the change of designated tip for excavated materials from Tuen Mun Area 38 to West New Territories 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) lower-than-expected contract rates (minus \$18.3 million); and
(ii) additional costs due to unforeseen circumstances and site conditions –

- (a) unforeseen circumstances 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 channelworks and in other roads and drainage works, and the diversion of four watermains 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 circumstances and site conditions –

- (a) unforeseen circumstances such as additional wheel washing facilities to minimise 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 consultant contract.

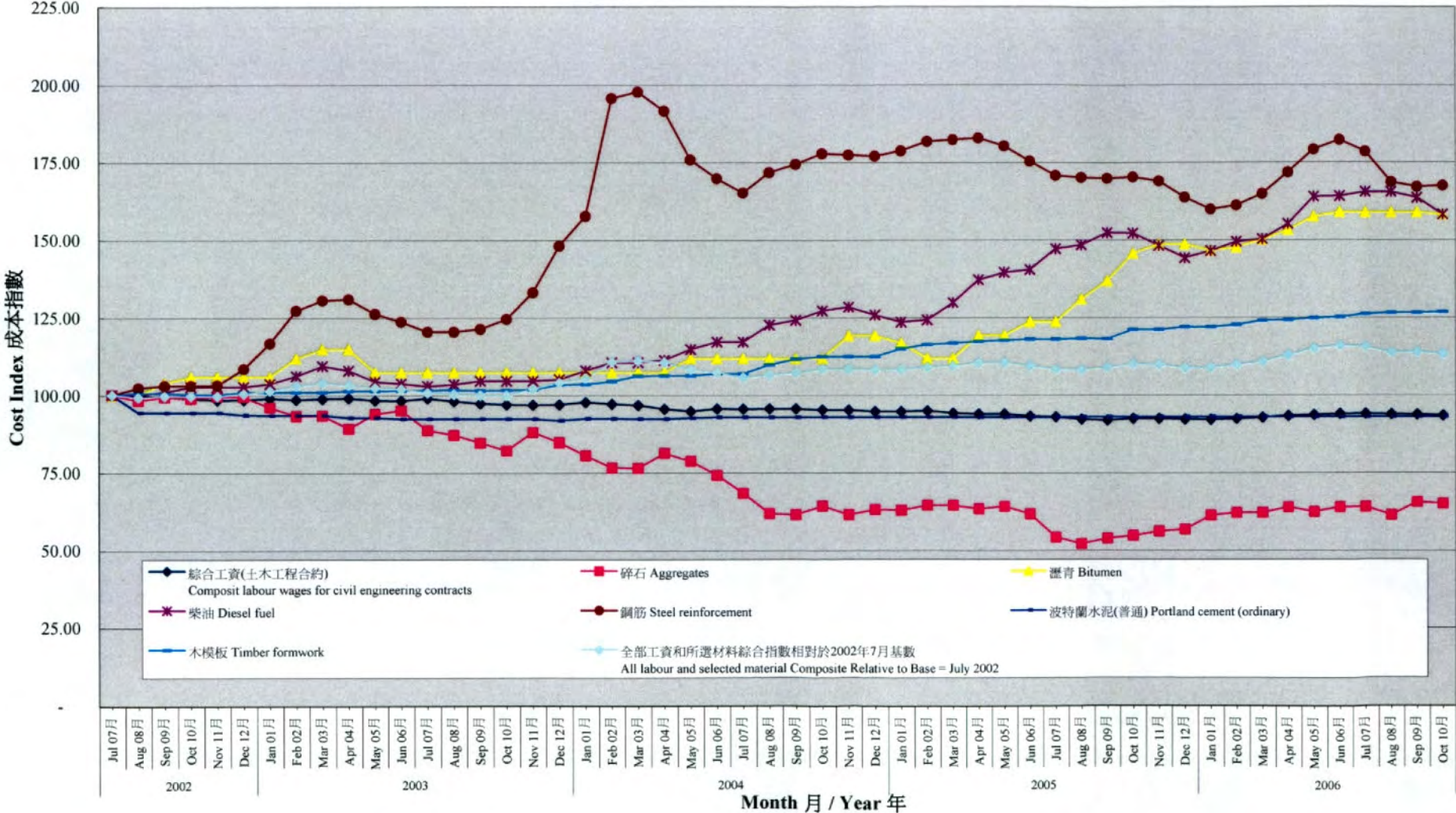
10. As regards **1(g) (Contingencies)**, we retain \$3.0 million as contingencies to cater for minor reconciliation of measurements in the contract finalization process. Hence \$41.0 million was spared to offset part of the increase in costs.

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 payment 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 circumstances is \$38.9 million (adding up from items described in paragraphs 3(ii)(a), 4(ii), 6(ii)(a), 7(ii)(a) and 8(ii)(a) above). Besides, the total additional cost due to an increase in the quantities of works because of unforeseen site conditions is \$40.9 million (adding up from items described in paragraphs

3(ii)(b), 6(ii)(b), 7(ii)(b) and 8(ii)(b) above). On the other hand, the lower-than-expected tender prices contributes a total reduction of \$35.8 million (consolidating from items described in paragraphs 3(i), 4(i), 5, 6(i), 7(i), 8(i) and 9 above).

工資及材料的成本指數(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)



Formulated from data of Census and Statistics Department
以政府統計處資料編製