

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 704 – DRAINAGE

Civil Engineering – Drainage and erosion protection

148CD – Drainage improvement works in Ping Kong, Kau Lung Hang, Yuen Leng, Nam Wa Po and Tai Hang areas

Members are invited to recommend to Finance Committee to increase the approved project estimate of **148CD** by \$97.9 million from \$260.5 million to \$358.4 million in money-of-the-day prices.

PROBLEM

The approved project estimate (APE) of **148CD** is not sufficient to cover the costs of the works under the project.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for Development, proposes to increase the APE of **148CD** by \$97.9 million from \$260.5 million to \$358.4 million in money-of-the-day (MOD) prices.

PROJECT SCOPE AND NATURE

3. In December 2006, the Finance Committee (FC) approved the upgrading of **148CD** to Category A at an estimated cost of \$260.5 million in MOD prices. The approved scope of works under **148CD** comprises –

/(a)

- (a) construction of about 3.6 kilometres (km) of drainage channels with width ranging from 1.3 metres (m) to 30 m and about 0.5 km of box culverts with width ranging from 1.3 m to 20 m in Kau Lung Hang, Yuen Leng, Nam Wa Po and Tai Hang areas;
- (b) construction of about 0.84 km of drainage channels with width ranging from about 3 m to 17 m and about 0.21 km of box culverts of 4 m wide in Ping Kong areas;
- (c) construction and reprovisioning of vehicular/pedestrian access; and
- (d) ancillary works including reprovisioning of a public toilet and diversion of watermains.

_____ A site plan and typical cross-sections showing the works are at Enclosure 1.

4. We started the construction works in December 2006 and originally planned to complete the works in November 2010. However, the construction period has been deferred due to unforeseen site constraints and local concerns. As at end November 2011, 85% of works were completed. We expect that the works will be substantially completed by June 2012.

JUSTIFICATION

5. Following a review of the financial position of the project, we consider it necessary to increase the APE of **148CD** by \$97.9 million in MOD prices to cover additional costs arising from the following –

- (a) unforeseen site constraints and local concerns; and
- (b) increase in provision for price adjustment.

Unforeseen site constraints and local concerns

6. There had been more site constraints than originally envisaged due to presence of uncharted utilities, such as watermains, telecommunication cables and electricity cables. Design changes to the drainage channels and structural crossings were necessary to accommodate these utilities, which have

/incurred

incurred additional time and cost to the project. Furthermore, we encountered local concerns unforeseen before commencement of works, including susceptible damage to village houses due to drainage works, objection against transplanting of trees and requests for maintaining local vehicular and pedestrian access during construction period. In order to address these local concerns, design changes to the original drainage works¹ were made resulting in additional time and cost to the project. The additional costs arising from variation of works due to unforeseen site constraints and local concerns, and increased site overheads due to prolonged site works have not been allowed for in the original budget, and are estimated to be \$37.9 million.

Increase in provision for price adjustment

7. According to existing Government practice, monthly payments to contractors for most construction contracts are adjusted to cover market fluctuation in labour and material costs, which are known as Contract Price Fluctuation (CPF) payment. The payment for the works of **148CD** is subject to CPF, and the provision for price adjustment was allowed when FC's approval for the APE of 148CD was sought in December 2006. At that time, on the basis of the forecast of trend rate of change in the prices of public sector building and construction output in October 2006, as well as the anticipated project cash flow, a provision of \$7.9 million was allowed for price adjustment in the original APE.

8. Construction material prices have been increasing since 2004. While the rise in the first two years or so has been modest, it has become sharper since mid-2007 before moderating in mid-2009. A chart showing the relevant trend of material costs is at Enclosure 2. For example, the July 2011 cost indices for steel reinforcement, galvanized mild steel and sand have risen by 78.8%, 38.9% and 111.6% respectively from the December 2006 prices when the funding for the project was approved. In the light of the sharp increase in subsequent forecast on the trend rate of change in the prices of public sector building and construction output (the latest forecast is that there will be an increase of 5% per annum in 2011 and 5.5% per annum from 2012 to 2015) and the actual price deflators between 2007 and 2010 (the actual price deflators for 2007, 2008, 2009 and 2010 were 2.9%, 8.7%, 3.1% and 2.9% respectively)², the CPF payments have been higher than expected. We anticipate that the provision for price

/adjustment

¹ For example, alignment of drainage works has been adjusted to address local concerns about susceptible damage to village houses; additional temporary accesses have been provided to maintain local vehicular and pedestrian access.

² The price adjustment factors adopted for the original funding application approved by FC in December 2006 are 0.5% in 2006, 1.5% per annum between 2007 and 2010, and 2.5% per annum from 2011 onwards.

adjustment will have to be increased by \$62.9 million from \$7.9 million to \$70.8 million. Details are at Enclosure 3.

9. We have already drawn down a sum of \$10.0 million from the original contingency provision of \$23.0 million in the APE to meet the additional costs arising from the higher-than-expected tender prices (\$7.1 million) and to partly offset the increased cost for additional works due to unforeseen site constraints and local concerns (\$2.9 million) (please refer to Enclosure 4 for details). We need to retain \$13.0 million contingencies to cater for further variations and possible claims during construction of the remaining works and valuation of works during finalization of the project account. As such, the remaining balance in the project vote is not sufficient to cover the remainder of the increased costs for additional works (\$35.0 million) and the additional CPF payment (\$62.9 million).

10. A summary of the proposed increase of \$97.9 million is as follows –

| Factors | Proposed increased amount/ savings in MOD prices (\$ million) | % of the total increased amount/ savings |
|--|---|---|
| Increase due to – | | |
| (a) Unforeseen site constraints and local concerns | 37.9 | 37.6 |
| (b) Increase in provision for price adjustment | 62.9 | 62.4 |
| (c) Total cost increase (c) = (a) + (b) | 100.8 | 100.0 |
| Partly offset by - | | |
| (d) Contingencies (part) | 2.9 | 100.0 |
| (e) Total savings | 2.9 | 100.0 |
| (f) Proposed increase (f) = (c) – (e) | 97.9 | |

11. Since the most difficult and uncertain parts of the works have been over and we have already included the cost of the foreseeable variations of works in the latest project estimate, we consider that the revised APE is sufficient to cover the costs of the project.

12. A comparison of the cost breakdown of the APE and the latest project estimate is given at Enclosure 4.

FINANCIAL IMPLICATIONS

13. Subject to FC's approval, we will phase the expenditure as follows –

| Year | \$ million (in MOD prices) |
|---------------------|-------------------------------|
| Up to 31 March 2011 | 183.9 |
| 2011 – 2012 | 62.0 |
| 2012 – 2013 | 45.0 |
| 2014 – 2014 | 37.0 |
| 2014 – 2015 | 30.5 |
| Total | 358.4 |

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

PUBLIC CONSULTATION

15. As the proposed increase in the APE does not involve any change in project scope, we consider further public consultation not required. Nevertheless, we will maintain close liaison with the local community.

16. We consulted the Legislative Council Panel on Development on the proposed increase in the APE on 22 November 2011. Members raised no objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

17. The proposed increase in the APE does not have any environmental implication.

HERITAGE IMPLICATIONS

18. The proposed increase in the APE does not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic site/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

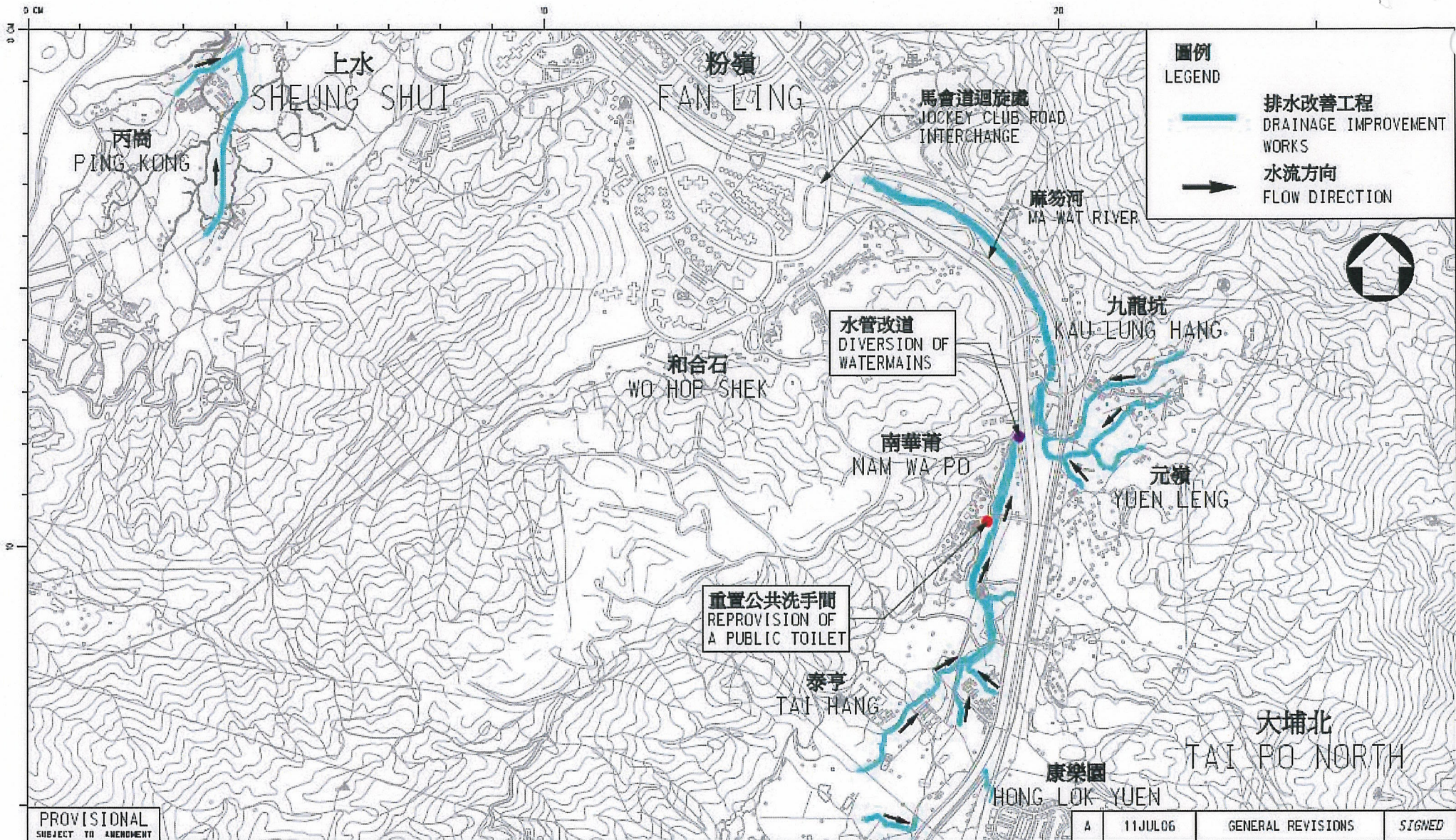
19. The proposed increase in the APE does not require any land acquisition.

BACKGROUND INFORMATION

20. In December 2006, we upgraded **148CD** to Category A at an estimated cost of \$260.5 million for the construction of drainage improvement works in Ping Kong, Kau Lung Hang, Yuen Leng, Nam Wa Po and Tai Hang areas. The construction works commenced in December 2006 and is expected to be substantially completed by June 2012.

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

22. The proposed increase in the APE will not create any new job.



圖例
LEGEND

 排水改善工程
DRAINAGE IMPROVEMENT WORKS

 水流方向
FLOW DIRECTION

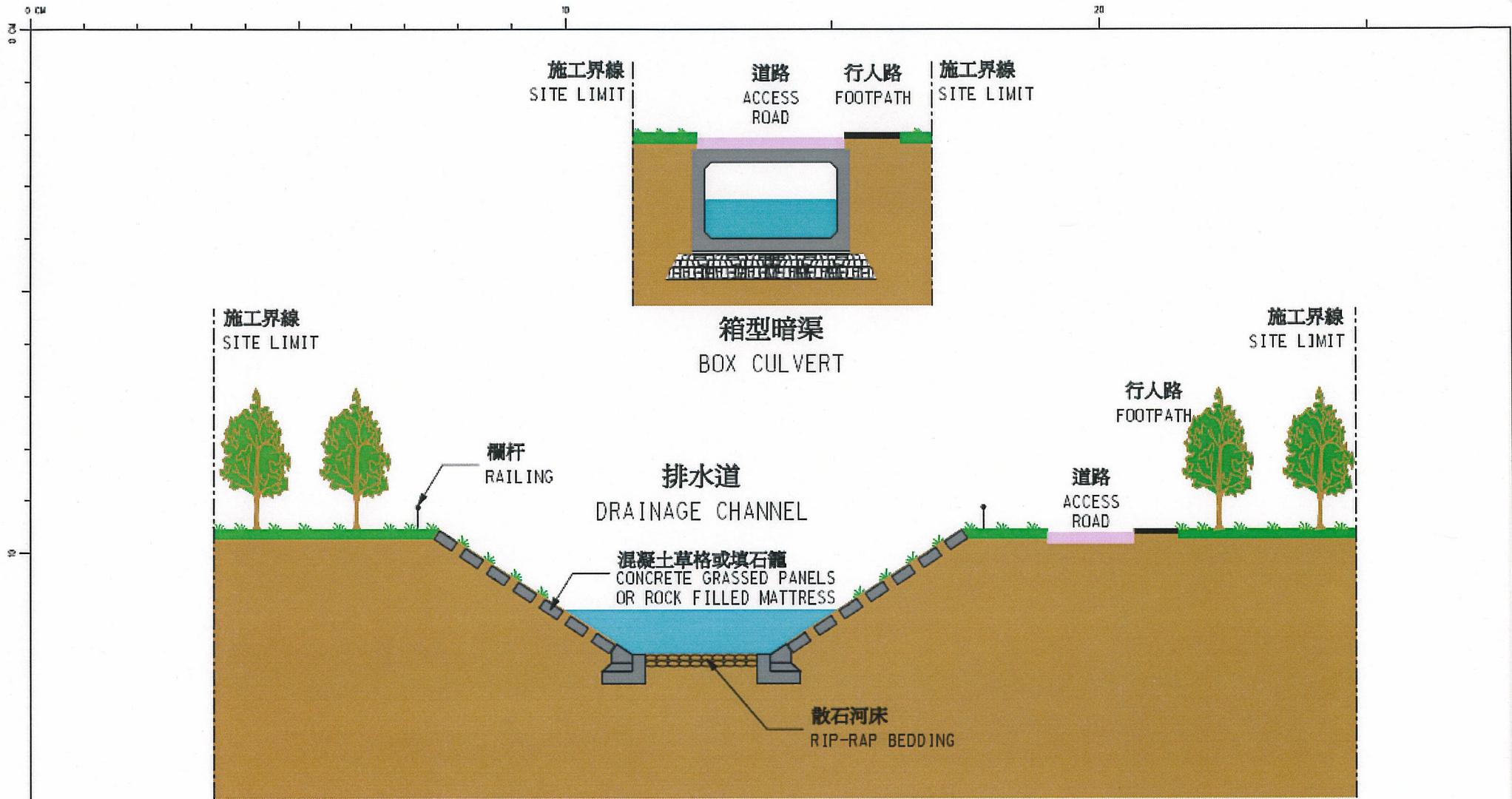


PROVISIONAL
SUBJECT TO AMENDMENT

圖則名稱 drawing title
丙崗、九龍坑、元嶺、南華莆及泰亨地區排水改善工程
- 分布圖
 DRAINAGE IMPROVEMENT IN PING KONG, KAU LUNG HANG,
 YUEN LENG, NAM WA PO AND TAI HANG AREAS
 - LAYOUT PLAN

| | | | | | | | |
|--------------------------------------|------------------|---------|---------|--|-----------------|----------|----------|
| 繪畫 drawn | SIGNED C.K.LAM | 日期 date | 26MAY06 | 圖則編號 drawing no. | DPM/112CD/0098A | 比例 scale | 1:20 000 |
| 校對 checked | SIGNED W.C.SIU | 日期 date | 07JUN06 | 保留版權 COPYRIGHT RESERVED | | | |
| 批核 approved | SIGNED C.M.CHUNG | 日期 date | 07JUN06 | | | | |
| 部門 office | | | | 香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION | | | |
| 工程管理部 PROJECT MANAGEMENT DIVISION | | | | | | | |

附件一 (頁一, 共二頁) ENCLOSURE 1 (SHEET 1 OF 2)



| | | | | | |
|--|--|---|--------------------|---|----------------------|
| PROVISIONAL SUBJECT TO AMENDMENT | | A | 27JUN06 | GENERAL REVISIONS | SIGNED |
| 圖則名稱 drawing title 丙崗、九龍坑、元嶺、南華莆及泰亨地區排水改善工程 - 河道及箱型暗渠典型切面圖 DRAINAGE IMPROVEMENT IN PING KONG, KAU LUNG HANG, YUEN LENG, NAM WA PO AND TAI HANG AREAS - TYPICAL CROSS-SECTIONS OF DRAINAGE CHANNEL AND BOX CULVERT | | 繪圖 drawn SIGNED C.K.LAM | 日期 date 26MAY06 | 圖則編號 drawing no. DPM/112CD/0099A | 比例 scale N. T. S. |
| | | 核對 checked SIGNED W.C.SIU | 日期 date 07JUN06 | 保留版權 COPYRIGHT RESERVED | |
| | | 批核 approved SIGNED C.M.CHUNG | 日期 date 07JUN06 | 香港特別行政區政府渠務署 DRAINAGE SERVICES DEPARTMENT GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION | |
| | | 部門 office 工程管理部 PROJECT MANAGEMENT DIVISION | | | |

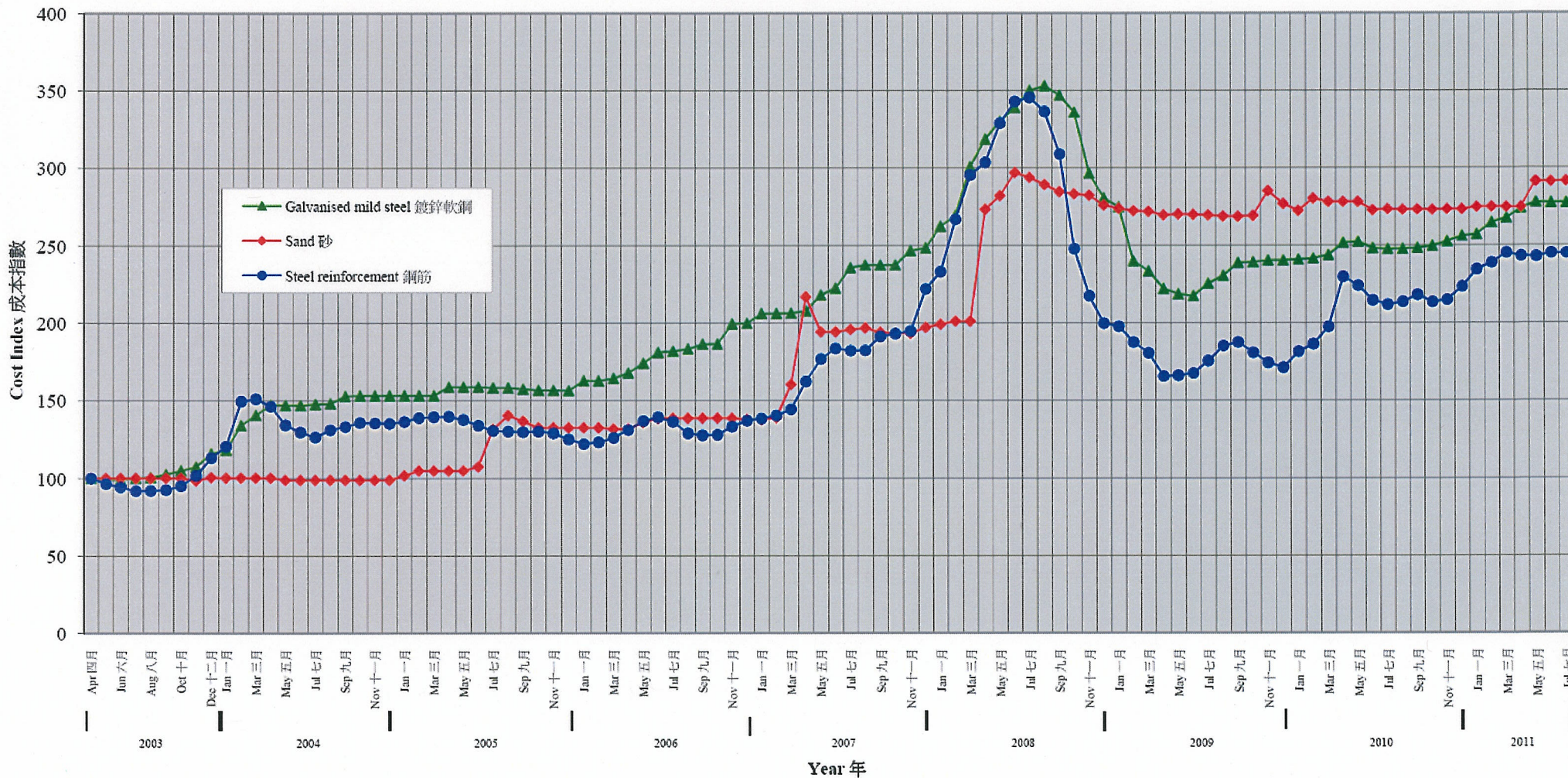
附件一(圖二, 共二頁) ENCLOSURE 1 (SHEET 2 OF 2)

Index Numbers of Cost of Materials used in Public Sector Construction Projects (Apr 2003 = 100)

(Apr 2003 - Jul 2011)

公營建築工程的材料成本指數 (2003年4月= 100)

(2003年4月至2011年7月)



**148CD – Drainage improvement works in Ping Kong, Kau Lung Hang,
Yuen Leng, Nam Wa Po and Tai Hang areas**

Table 1 – Cash flow and provisions for price adjustment in PWSC(2006-07)45

| Year | Original project estimate (\$ million, in September 2006 prices) A | Original price adjustment factors (October 2006)# B | Approved project estimate (\$ million, in MOD prices) C | Provision for price adjustment (\$ million) D = C – A |
|--------------|---|--|--|--|
| 2006 - 2007 | 10.5 | 1.00000 | 10.5 | 0.0 |
| 2007 - 2008 | 59.8 | 1.01250 | 60.5 | 0.7 |
| 2008 - 2009 | 74.7 | 1.02769 | 76.8 | 2.1 |
| 2009 - 2010 | 74.8 | 1.04310 | 78.0 | 3.2 |
| 2010 - 2011 | 32.8 | 1.05875 | 34.7 | 1.9 |
| Total | 252.6 | | 260.5 | 7.9 |

Table 2 – Latest cash flow and provision for price adjustment due to latest project estimate (PE) and latest adjustment factors

| Year | Latest PE (\$ million, in September 2006 prices) a | Latest PE (\$ million, in September 2011 prices) ^{^^} b | Latest price adjustment factors (October 2011) ## c | Latest PE (\$ million, in MOD prices) d | Latest provision for price adjustment (\$ million) e | Net increase in provision for price adjustment (\$ million) f |
|------------------|---|---|--|--|---|--|
| Up to March 2011 | 154.5 | 183.9 [^] | 1.00000 | 183.9 [^] | e = d – a | f = e – D |
| 2011 – 2012 | 50.3 | 62.0 | 1.00000 | 62.0 | | |
| 2012 – 2013 | 34.7 | 42.7 | 1.05375 | 45.0 | | |
| 2013 – 2014 | 27.0 | 33.3 | 1.11171 | 37.0 | | |
| 2014 – 2015 | 21.1 | 26.0 | 1.17285 | 30.5 | | |
| Total | 287.6 | 347.9 | | 358.4 | 70.8 | 62.9 |

Notes:

Price adjustment factors adopted in October 2006 were based on the projected movement of prices for public sector building and construction output at that time, which were assumed to increase by 0.5% per annum in 2006, increase by 1.5% per annum from 2007 to 2010 and by 2.5% per annum from 2011 onwards.

Price adjustment factors promulgated in October 2011 were based on the latest movement of prices for public sector building and construction output, which are assumed to increase by 5.0% per annum in 2011 and by 5.5% per annum from 2012 onwards.

[^] \$183.9 million was the actual expenditure up to March 2011.

^{^^} The latest project estimate (in September 2006 prices) was multiplied by 1.23228 for conversion to September 2011 prices. The figure of 1.23228 represented the changes in price movement for public sector building and construction output between September 2006 and September 2011.

**148CD – Drainage improvement works in Ping Kong, Kau Lung Hang,
Yuen Leng, Nam Wa Po and Tai Hang**

Comparison between the Approved Project Estimate and the Latest Project Estimate

A comparison of the approved project estimate and the latest project estimate is as follows –

| | (A) Approved Project Estimate | (B) Revised Project Estimate¹ | (C) Latest Project Estimate | (C) – (A) Difference |
|--|--|---|--|---------------------------------|
| | (\$ million) | (\$ million) | (\$ million) | (\$ million) |
| (a) Construction of drainage channels and box culverts in Kau Lung Hang, Yuen Leng, Nam Wa Po and Tai Hang areas | 136.6 | 141.7 | 169.2 | 32.6 |
| (b) Construction of drainage channels and box culverts in Ping Kong areas | 40.2 | 42.2 | 50.5 | 10.3 |
| (c) Construction and reprovisioning of vehicular/pedestrian access | 33.1 | 33.1 | 33.1 | 0.0 |
| (d) Ancillary works | 9.2 | 9.2 | 11.3 | 2.1 |
| (e) Environmental mitigation measures | 10.5 | 10.5 | 10.5 | 0.0 |
| Total value of contract works (sum of items (a) to (e)) | 229.6 | 236.7 | 274.6 | 45.0 |
| (f) Contingencies | 23.0 | 15.9 | 13.0 | (10.0) |
| Sub-total (sum of items (a) to (f)) | 252.6 | 252.6 | 287.6 | 35.0 |

¹ Revised project estimate after contract award

| | (A) Approved Project Estimate | (B) Revised Project Estimate ¹ | (C) Latest Project Estimate | (C) – (A) Difference |
|------------------------------------|--|---|--------------------------------------|-------------------------|
| | (\$ million) | (\$ million) | (\$ million) | (\$ million) |
| (g) Provision for price adjustment | 7.9 | 7.9 | 70.8 | 62.9 |
| Total | <u>260.5</u> | <u>260.5</u> | <u>358.4</u> | <u>97.9</u> |

2. As regards **(a) (Construction of drainage channels and box culverts in Kau Lung Hang, Yuen Leng, Nam Wa Po and Tai Hang areas)**, the total increase of \$32.6 million is due to -

- (i) an increase of \$5.1 million due to higher-than-expected tender prices, and
- (ii) an increase of \$27.5 million due to additional works arising from unforeseen site constraints and local concerns.

3. As regards **(b) (Construction of drainage channels and box culverts in Ping Kong areas)**, the total increase of \$10.3 million is due to -

- (i) an increase of \$2.0 million due to higher-than-expected tender prices, and
- (ii) an increase of \$8.3 million due to additional works arising from unforeseen site constraints and local concerns.

4. As regards **(d) (Ancillary works)**, the total increase of \$2.1 million is due to the additional ancillary works in Tai Hang and Ping Kong to address local concerns.

5. As regards **(f) (Contingencies)**, we need to retain the remaining sum of \$13.0 million as contingencies to cater for further variations and possible claims during construction and valuation of works during finalisation of project account.

6. As regards **(g) (Provision for price adjustment)**, the increase of \$62.9 million is due to an increase in projected payments for contract price fluctuation.