

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

Head 704 – DRAINAGE

Environmental Protection – Sewerage and sewage treatment

382DS – Sewerage at Clear Water Bay Road, Pik Shui Sun Tsuen and west of Sai Kung town

Members are invited to recommend to Finance Committee to increase the approved project estimate of **382DS** by \$68.4 million from \$290.6 million to \$359.0 million in money-of-the-day prices.

PROBLEM

The approved project estimate (APE) of **382DS** is not sufficient to cover the cost of works under the project.

PROPOSAL

2. The Director of Drainage Services, with the support of the Secretary for the Environment, proposes to increase the APE of **382DS** by \$68.4 million from \$290.6 million to \$359.0 million in money-of-the-day (MOD) prices.

PROJECT SCOPE AND NATURE

3. In June 2012, the Finance Committee (FC) approved the upgrading of part of **272DS** “Port Shelter sewerage, stage 2” and part of **273DS** “Port Shelter sewerage, stage 3” to Category A as **382DS** at an estimated cost of \$290.6 million in MOD prices. The approved scope of **382DS** comprises the construction of –

/(a)

- (a) about 12.8 kilometres (km) of sewers ranging from 150 millimetres (mm) to 300 mm in diameter for 11 unsewered areas, namely Kap Pin Long, Nam Shan, Pak Kong, San Uk, Sha Kok Mei, Tai Ping Village, Tai Shui Tseng, Wo Tong Kong, Lung Wo Tsuen, Pik Shui Sun Tsuen and in the vicinity of Fei Ngo Shan Road;
- (b) about 3.6 km of gravity trunk sewers ranging from 225 mm to 450 mm in diameter along Clear Water Bay Road from Shun Chi Street to Razor Hill Road and around Pik Shui Sun Tsuen;
- (c) one sewage pumping station (SPS) at Pik Shui Sun Tsuen;
- (d) about 900 metres (m) of twin rising mains ranging from 150 mm to 350 mm in diameter –
 - (i) at Pik Shui Sun Tsuen in association with construction of the SPS in (c) above;
 - (ii) along sections of Clear Water Bay Road near Tseng Lan Shue and Pak Shek Wo; and
- (e) ancillary works.

———— Site plans showing the proposed works are at Enclosure 1.

4. We are going to implement the project under two contracts. The first contract covers the construction of civil engineering works associated with (a), (b), part of the works in (c), (d) and (e) in paragraph 3 whereas the second contract covers the electrical and mechanical (E&M) works of (c) in paragraph 3.

5. Tender assessment for the first contract was completed in October 2012. We will tender the second contract for the E&M works in early 2015. Having reviewed the financial position of the project, we propose to increase the APE of **382DS** before recommending the award of the first contract. Subject to funding approval by the FC, we plan to commence the construction of the proposed sewerage works in January 2013 for completion in January 2017.

/JUSTIFICATION

JUSTIFICATION

6. We need to seek approval from the FC to increase the APE of **382DS** by \$68.4 million to cover the additional costs due to higher-than-expected tender prices and increase in the provision for price adjustment over the duration of the project. The justifications for the increase are set out in paragraphs 7 to 10 below.

Higher-than-expected tender prices

7. All returned tender prices for the works under the first contract are higher than expected. We understand that tenderers have included more risk allowance taking into account the severe site constraints such as the difficult access to the hilly and congested village areas in Sai Kung and the stringent traffic restrictions at Clear Water Bay Road, leading to higher-than-expected risk costs. Based on the returned tender prices, this has led to an increase in construction cost by \$59.7 million.

8. In the tender document for the first contract, we have presented an optimised design for the sewer alignment. We have also proposed to adopt open-trench construction method as far as possible to contain the construction costs. We have reviewed the design and construction method of works after the tender exercise but found little room to reduce the construction costs. We have also carefully considered the option of re-tendering. However, in view of the severe site constraints leading to higher cost as mentioned in paragraph 7 above and the fact that all bidders have submitted higher-than-expected tender prices, it is unlikely that the tender prices can be reduced by re-tendering. We have therefore decided not to pursue the option of re-tendering and propose to increase the APE for the project accordingly.

Increase in the provision for price adjustment

9. 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 **382DS** is subject to CPF, and the provision for price adjustment was allowed when FC's funding approval for **382DS** was given in June 2012. At that time, on the basis of the assumptions on the trend rate of change in the prices of public sector building and construction output in March 2012, a provision of \$52.8 million was allowed for price adjustment in the original APE.

/10.

10. Given the need to provide for price adjustment for the \$59.7 million increase in construction cost in paragraph 7 above and the increase in the latest forecast on the trend rate of change in the prices of public sector building and construction output¹, we anticipate that the provision for price adjustment will be increased by \$19.2 million from \$52.8 million to \$72.0 million. Detailed calculation on the proposed increase in provision for price adjustment is at Enclosure 2.

Offset by contingencies

11. After reviewing the financial position of **382DS**, we recommend to partly offset the combined increase of \$78.9 million in paragraph 7 and 10 above by drawing down a sum of \$10.5 million in the project contingencies. The resultant shortfall will be met by increasing the APE of the project by \$68.4 million from \$290.6 million to \$359.0 million in MOD prices. We consider it necessary to retain \$10.0 million as contingencies to cater for possible instances incurring additional costs throughout the remaining stages of the project, such as variations of works as necessary, possible claims and valuation of works during finalisation of the project account.

Review of financial position

12. A summary of the proposed increase of \$68.4 million is as follows –

Factors	Proposed increased amount/savings in MOD prices (\$ million)	% of the total increased amount/savings
Increase due to –		
(a) Higher-than-expected tender prices	59.7	76

/(b)

¹ The original funding application was approved by FC in June 2012, which assumed that the construction prices would increase by 5.5% per annum from 2012 onwards. The latest forecast in October 2012 assumes an increase of 7.0% per annum in 2012, 6.0% per annum from 2013 to 2017 and 5.0% per annum from 2018 onwards.

Factors	Proposed increased amount/savings in MOD prices (\$ million)	% of the total increased amount/savings
(b) Increase in provision for price adjustment	19.2	24
(c) Total increase (c = a + b)	78.9	100
Partly offset by –		
(d) Contingencies (part)	10.5	100
(e) Total savings (e = d)	10.5	100
(f) Proposed increase (f = c – e)	68.4	

_____ A comparison of the cost breakdown of the APE and the latest project estimate is at Enclosure 3.

13. Since the first contract as mentioned in paragraph 4 above constitutes most of the project estimate and the cost of the first contract is now ascertained by the tenders received, the uncertainties of the project are reduced. We will closely monitor and control the project programme and spending during the entire duration of the project with a view to containing the total expenditure within the latest project estimate. Also, we have reserved some contingencies for any possible additional costs in the latest project estimate. Hence, we consider that the revised APE is sufficient to cover the costs of the project.

FINANCIAL IMPLICATIONS

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

/2012

Year	\$ million (MOD)
2012 – 2013	0.9
2013 – 2014	80.5
2014 – 2015	85.4
2015 – 2016	81.8
2016 – 2017	74.2
2017 – 2018	25.6
2018 – 2019	10.6
	<hr style="border-top: 1px solid black;"/>
	359.0
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15. The proposed increase in the APE will not give rise to additional recurrent expenditure.

PUBLIC CONSULTATION

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

17. We consulted the Legislative Council Panel on Environmental Affairs on 26 November 2012 on the proposed increase in the APE. Members raised no objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

18. The proposed increase in the APE will not give rise to any adverse environmental implications.

/HERITAGE

HERITAGE IMPLICATIONS

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

LAND ACQUISITION

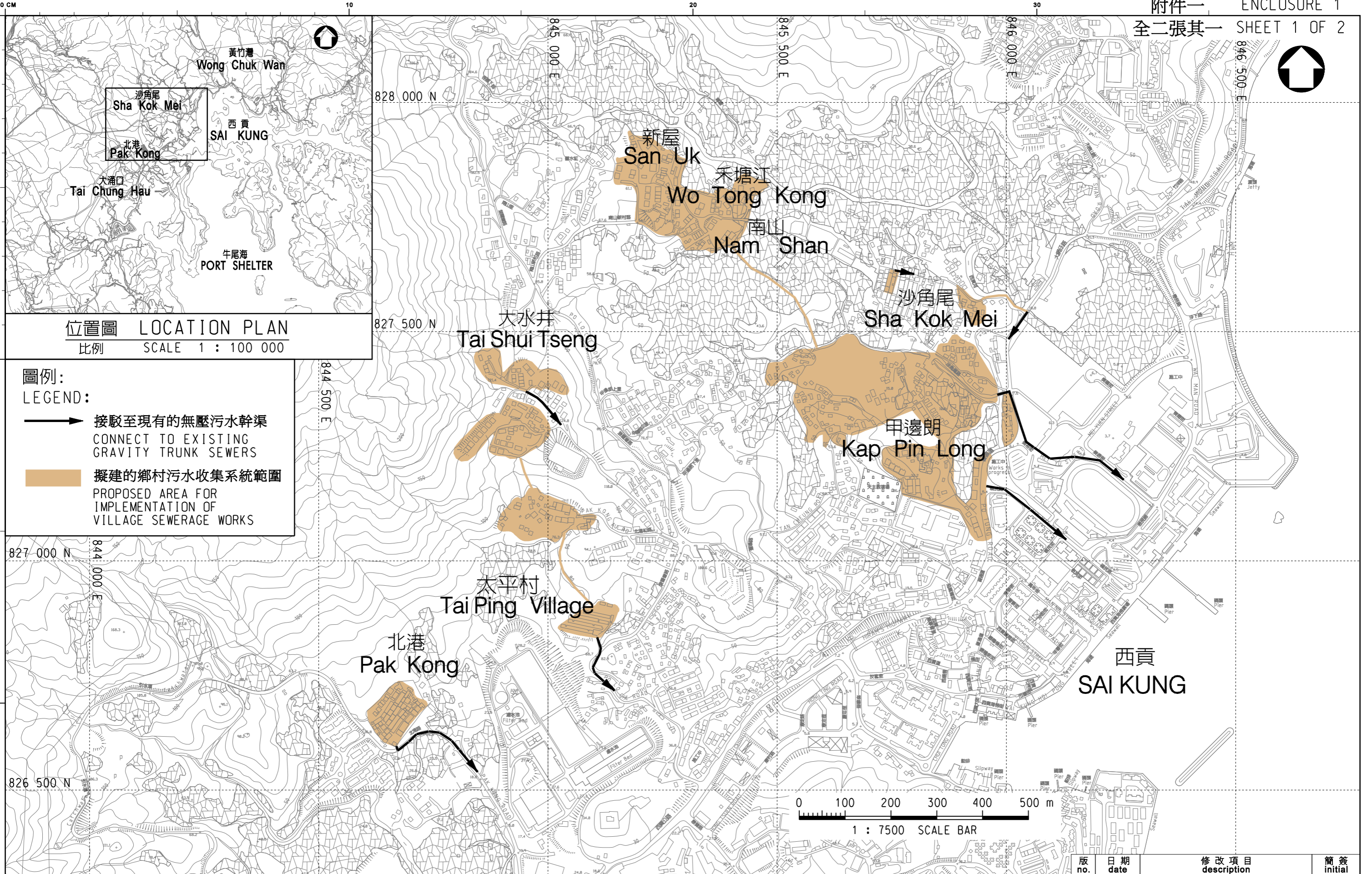
20. The proposed increase in the APE will not involve any land acquisition.

BACKGROUND INFORMATION

21. In June 2012, the FC approved the upgrading of part of **272DS** and part of **273DS** to Category A as **382DS** at an estimated cost of \$290.6 million in MOD prices for implementing the proposed sewerage works in the Port Shelter catchment.

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

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

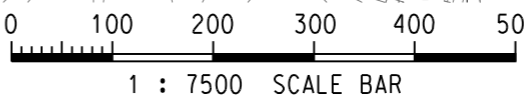


位置圖 LOCATION PLAN
比例 SCALE 1 : 100 000

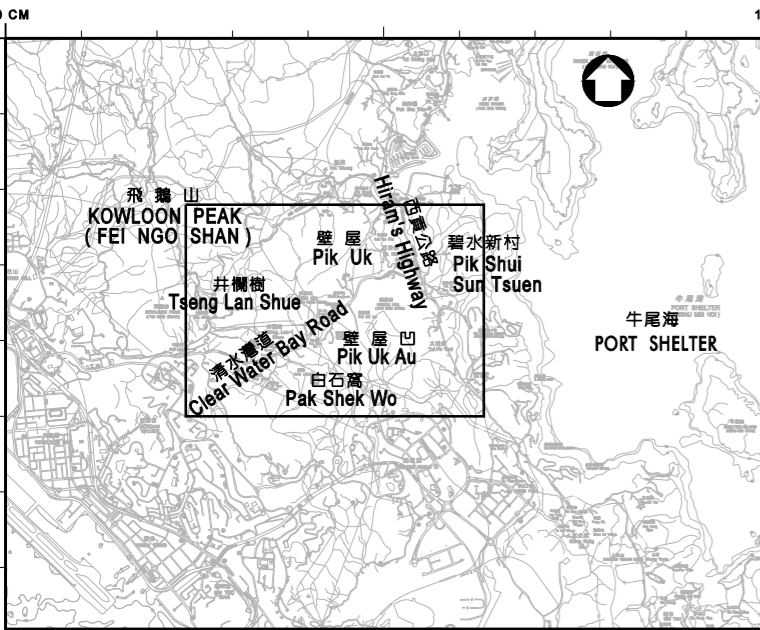
圖例:
LEGEND:

→ 接駁至現有的無壓污水幹渠
CONNECT TO EXISTING GRAVITY TRUNK SEWERS

■ 擬建的鄉村污水收集系統範圍
PROPOSED AREA FOR IMPLEMENTATION OF VILLAGE SEWERAGE WORKS

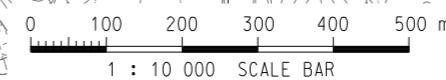


圖則名稱 drawing title 工務計劃項目第 382DS 號 - 清水灣道、碧水新村及西貢西郊污水收集系統 PWP ITEM NO.382DS - SEWERAGE AT CLEAR WATER BAY ROAD, PIK SHUI SUN TSUEN AND WEST OF SAI KUNG TOWN	繪畫 drawn SIGNED C. C. CHAN	日期 date 13 NOV 2012	修改項目 description 保留版權 COPYRIGHT RESERVED	簡簽 initial AS SHOWN
	核對 checked SIGNED Ir S. P. CHOW	日期 date 13 NOV 2012	圖則編號 drawing no. DSP/382DS1/11023	
	批核 approved SIGNED Ir C. C. YEUNG	日期 date 13 NOV 2012	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 污水工程部 SEWERAGE PROJECTS DIVISION			



位置圖 LOCATION PLAN
比例 SCALE 1 : 100 000

- 圖例:
LEGEND:
- 接駁至現有的無壓污水幹渠
CONNECT TO EXISTING GRAVITY TRUNK SEWERS
 - 擬建的無壓污水幹渠
PROPOSED GRAVITY TRUNK SEWERS
 - 擬建的雙管壓力污水管
PROPOSED TWIN RISING MAINS
 - 擬建的鄉村污水收集系統範圍
PROPOSED AREA FOR IMPLEMENTATION OF VILLAGE SEWERAGE WORKS
 - 擬建污水泵房
PROPOSED SEWAGE PUMPING STATION



圖則名稱 drawing title
工務計劃項目第 382DS 號 - 清水灣道、碧水新村及西貢西郊污水收集系統
PWP ITEM NO.382DS - SEWERAGE AT CLEAR WATER BAY ROAD,
PIK SHUI SUN TSUEN AND WEST OF SAI KUNG TOWN

繪畫 drawn SIGNED C. C. CHAN	日期 date 13 NOV 2012	修改項目 description 圖則編號 drawing no. DSP/382DS1/11024	簡簽 initial AS SHOWN
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382DS – Sewerage at Clear Water Bay Road, Pik Shui Sun Tsuen and west of Sai Kung town

Table 1 – Cash flow and provisions for price adjustment in PWSC(2012-13)13

Year	Original project estimate (\$ million, in September 2011 prices) X	Original price adjustment factors (March 2012)# Y	Approved project estimate (\$ million, in MOD prices) Z	Provision for price adjustment (\$ million) A=Z – X
2012 – 2013	21.2	1.05325	22.3	1.1
2013 – 2014	34.6	1.11118	38.4	3.8
2014 – 2015	49.7	1.17229	58.3	8.6
2015 – 2016	52.1	1.23677	64.4	12.3
2016 – 2017	53.4	1.30479	69.7	16.3
2017 – 2018	18.4	1.37656	25.3	6.9
2018 – 2019	8.4	1.45227	12.2	3.8
Total	237.8		290.6	52.8

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 2011 prices) a	Latest PE (\$ million, in September 2012 prices)^ b	Latest price adjustment factors (October 2012) ## c	Latest PE (\$ million, in MOD prices) d	Latest provision for price adjustment (\$ million) e	Net increase in provision for price adjustment (\$ million) f
2012 – 2013	0.8	0.9	1.00000	0.9	e = d – a	f = e – A
2013 – 2014	71.1	75.8	1.06250	80.5		
2014 – 2015	71.1	75.8	1.12625	85.4		
2015 – 2016	64.2	68.5	1.19383	81.8		
2016 – 2017	54.9	58.6	1.26545	74.2		
2017 – 2018	17.9	19.1	1.34138	25.6		
2018 – 2019	7.0	7.5	1.41180	10.6		
Total	287.0	306.2		359.0	72.0	19.2

Notes:

Price adjustment factors adopted in March 2012 are based on the projected movement of prices for public sector building and construction output at that time, which are assumed to increase by 5.5% per annum from 2012 onwards.

Price adjustment factors adopted in October 2012 are based on the latest movement of prices for public sector building and construction output, which are assumed to increase by 7.0% per annum in 2012, by 6.0% per annum from 2013 to 2017 and by 5.0% per annum from 2018 onwards.

^ The latest project estimate (in September 2011 prices) is multiplied by 1.06675 for conversion to September 2012 prices. The figure of 1.06675 represents the changes in price movement for public sector building and construction output between September 2011 and September 2012.

**382DS – Sewerage at Clear Water Bay Road, Pik Shui Sun Tsuen and
west of Sai Kung town**

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

	(A) Approved Project Estimate (\$ million)	(B) Latest Project Estimate (\$ million)	(B) - (A) Difference (\$ million)
(a) Construction of sewers within villages	81.6	110.2	28.6
(b) Construction of gravity trunk sewers	69.0	93.1	24.1
(c) Construction of rising mains	15.7	21.2	5.5
(d) Construction of sewage pumping station	12.9	14.3	1.4
(i) civil engineering works	4.5	5.9	1.4
(ii) electrical and mechanical works	8.4	8.4	0
(e) Ancillary works	0.5	0.6	0.1
(f) Environmental mitigation measures	4.3	4.3	0
(g) Consultants' fees for	3.0	3.0	0
(i) contract administration	0.8	0.8	0
(ii) management of resident site staff	1.7	1.7	0
(iii) environmental monitoring and audit	0.5	0.5	0

	(A) Approved Project Estimate (\$ million)	(B) Latest Project Estimate (\$ million)	(B) - (A) Difference (\$ million)
(h) Remuneration of resident site staff	30.3	30.3	0
(i) Contingencies	20.5	10.0	(10.5)
Sub-total	237.8	287.0	49.2
(j) Provision for price adjustment	52.8	72.0	19.2
Total	290.6	359.0	68.4

2. As regards **1(a) (Construction of sewers within villages), 1(b) (Construction of gravity trunk sewers), 1(c) (Construction of rising mains), 1(d)(i) (Construction of sewage pumping station – civil engineering works)** and **1(e) (Ancillary works)**, the increase of \$59.7 million is due to higher-than-expected tender prices.

3. As regards **1(i) (Contingencies)**, after review we consider that a smaller sum of contingencies of \$10.0 million would be adequate to cater for variations of works as necessary, possible claims and valuation of works during finalisation of the project account, etc.

4. As regards **1(j) (Provision for price adjustment)**, the increase of \$19.2 million is due to an increase in payment for projected contract price fluctuation.