

For Discussion
on 15 December 2014

**LEGISLATIVE COUNCIL
PANEL ON ENVIRONMENTAL AFFAIRS**

233DS – Sludge Treatment Facilities

PURPOSE

This paper seeks Members' support to our proposal to increase the approved project estimate (APE) of **233DS** by \$307.9 million from \$5,154.4 million to \$5,462.3 million in money-of-the-day (MOD) prices due to the need to increase the provision for price adjustment.

PROJECT SCOPE

2. In June 2009, the Finance Committee (FC) of the Legislative Council approved the upgrading of **233DS** to Category A at an estimated cost of \$5,154.4 million in MOD prices. There is no change to the approved scope of **233DS** which comprises –

- (a) design and construction of a sludge treatment facility (STF) of capacity of 2 000 tonnes per day;
- (b) provision of ancillary facilities;
- (c) provision of environmental educational and associated facilities;
and
- (d) environmental monitoring during the construction stage.

A layout plan showing the location of the STF is at **Enclosure 1**.

3. The project is being implemented under a Design-Build-and-Operate contract arrangement. The contractual operation period is 15 years. We started the design and construction works in October 2010. As at end October 2014, the first phase of construction works was substantially completed. Testing and commissioning started since mid-2014 with a view to

commencing operation in early 2015.

JUSTIFICATION

4. After reviewing the financial position of **233DS**, we consider it necessary to increase the provision of price adjustment of APE of **233DS** by **\$307.9 million**, which will change the APE from \$5,154.4 million to \$5,462.3 million in MOD prices to cover the additional costs arising from increase in provision for price adjustment.

Increase in provision for price adjustment

5. 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 **233DS** is subject to CPF, and a provision of \$423.6 million was included in the APE of **233DS** for price adjustment. When the project estimate was prepared in 2009, we estimated the provision for price adjustment based on the prevailing Government's set of assumptions on the trend rate of change in the prices of public sector building and construction output in March 2009, which was assumed to increase by 2% per annum for the period from 2009 to 2013 and by 3% per annum from 2014 to 2019.

6. Since the commencement of the design and construction of the STF in October 2010, there has been a significant increase in labour wages and construction material prices. The actual price deflators for 2009, 2010, 2011, 2012 and 2013 were 3.1%, 2.9%, 5.9%, 6.8% and 4.8% respectively. The latest estimate (as at October 2014) is that the prices for public sector building and construction output will increase by 6% per annum from 2014 to 2018. The actual and forecast factors are higher than expected.

7. Based on the latest assumption for price adjustment factors above and the latest estimated cash flow, we estimate that the provision for price adjustment will increase by **\$425.5 million** from \$423.6 million to \$849.1 million. The latest cash flow of the project and the detailed assessment of the latest provision for price adjustment are at **Enclosure 2**.

Drawdown of project contingencies

8. A provision of \$428.7 million has been made for project contingencies. Due to the tender outcome, \$111.1 million has been deployed from the project contingencies to meet the higher-than-expected tender price. Of the remaining balance of \$317.6 million of project contingencies, we estimate contingencies of \$200.0 million are appropriate to meet costs arising from claims during construction of the works, valuation of works during finalization of the project account and unforeseeable circumstances, etc. An amount of \$117.6 million of project contingencies will be released to partly offset the increase in price adjustment of \$425.5 million. A shortfall of \$307.9 million remains to be met.

9. A breakdown of the proposed increase in APE is as follows -

Factors	Proposed increase amount in MOD prices (\$ million)
Increase due to –	
(a) Increase in provision of price adjustment	425.5
	<hr/>
Partly Offset by -	
(b) Drawdown from Contingencies	(117.6)
	<hr/>
(c) Proposed Increase (c) = (a) – (b)	307.9

10. A comparison of the cost breakdown of the original APE and the latest project estimate of **233DS** is at **Enclosure 3**.

FINANCIAL IMPLICATIONS

11. Subject to FC's approval, we will revise the phased expenditure as follows-

Year	\$ million (in MOD prices)
Up to 31 March 2014	4,361.9
2014-15	423.9
2015-16	213.4
2016-17	463.1
Total:	<hr style="border-top: 1px solid black;"/> 5,462.3 <hr style="border-top: 1px solid black;"/>

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

PUBLIC CONSULTATION

13. As the proposed increase in APE does not involve any change in project scope, further public consultation is not required.

ENVIRONMENTAL IMPLICATIONS

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

HERITAGE IMPLICATIONS

15. The proposed increase in 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 AQUISITION

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

BACKGROUND

17. In June 2009, we upgraded **233DS** to Category A at an estimated cost of \$5,154.4 million for the design and construction of the STF. The STF will have a design capacity of 2 000 tonnes per day and it will provide treatment for sewage sludge generated from regional sewage treatment works including Harbour Area Treatment Scheme Stage 2A by means of high temperature incineration technology to substantially reduce the volume of sewage sludge by 90%. The design and construction works commenced in October 2010 and we expect to start the operation in phases in early 2015.

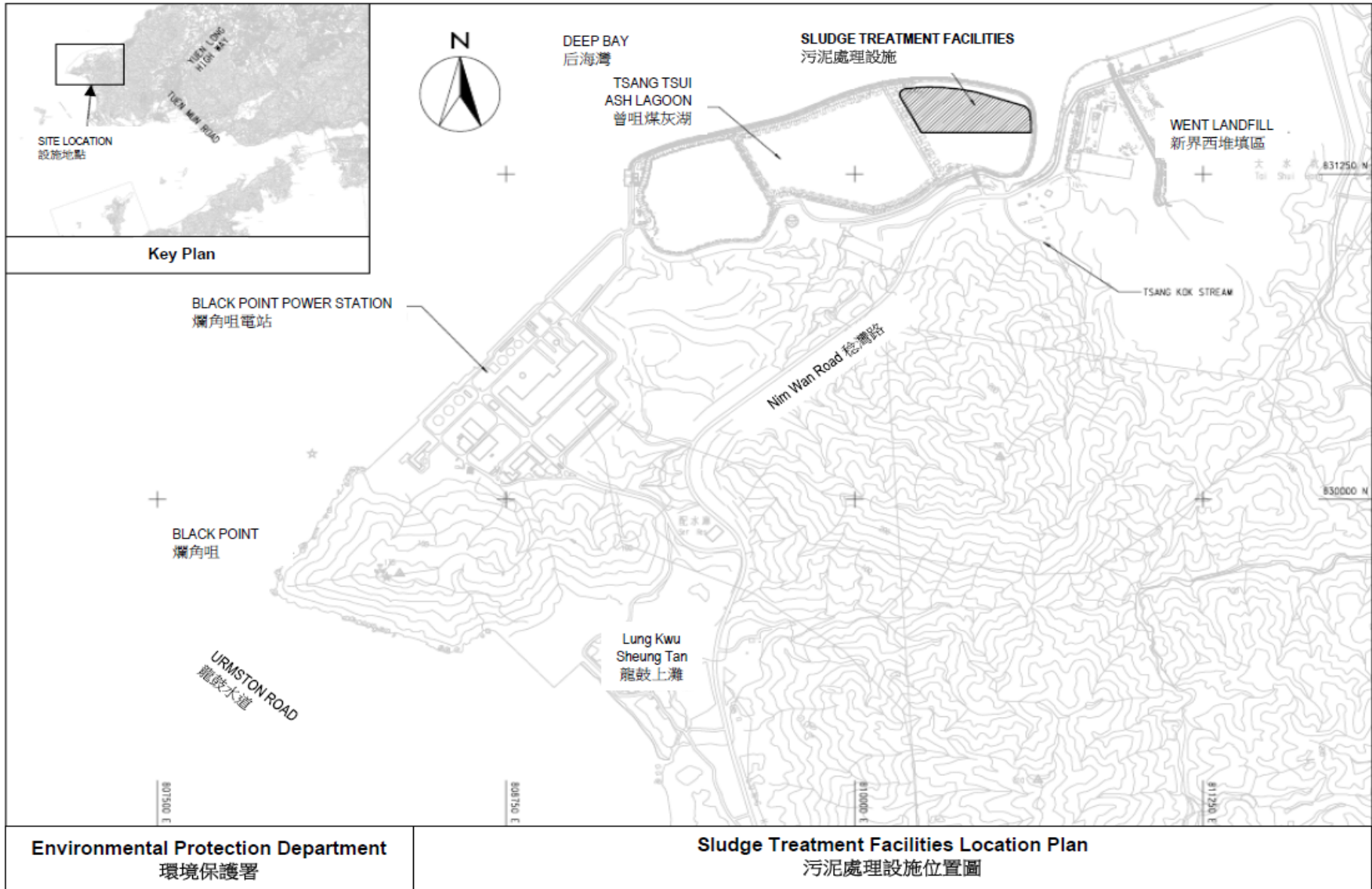
18. The proposed increase in APE will not involve any additional tree removal and planting proposal.

19. The proposed increase in APE will not involve the creation of any additional professional and technical posts or job opportunities.

WAY FORWARD

20. We plan to seek the support of Public Works Subcommittee and funding approval from FC for the increase in APE of **233DS** in early 2015.

Environment Bureau
December 2014



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Table 1 – Cash flow and provisions for price adjustment provided in PWSC(2009-10)16

Year	Original project estimate (\$ million, in September 2008 prices) X	Original price adjustment factors (March 2009)# Y	Approved project estimate (\$million, in MOD prices) Z	Provision for price adjustment (\$ million) A = Z-X
2009 - 2010	112.0	1.03500	115.9	3.9
2010 - 2011	1,221.5	1.05570	1,289.5	68.0
2011 - 2012	1,442.2	1.07681	1,553.0	110.8
2012 - 2013	1,245.3	1.09835	1,367.8	122.5
2013 - 2014	208.2	1.12032	233.3	25.1
2014 - 2015	167.2	1.15113	192.5	25.3
2015 - 2016	167.2	1.18566	198.2	31.0
2016 - 2017	167.2	1.22123	204.2	37.0
Total	4,730.8		5,154.4	423.6

Table 2 – Latest cash flow and provision for price adjustment for 233DS

Year	Latest Project Estimate (PE) (\$ million, in September 2008 prices) a	Latest PE (\$ million, in September 2014 prices) @ b	Latest price adjustment factors (October 2014) ## 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 2014	3,840.1 [^]	4,361.9 [^]	1.00000	4,361.9 [^]	e = d – a	f = e – A
2014 - 2015	315.9	423.9	1.00000	423.9		
2015 - 2016	150.0	201.3	1.06000	213.4		
2016 - 2017	307.2	412.2	1.12360	463.1		
Total	4,613.2	5,399.3		5,462.3	849.1	425.5

Notes:

- # Price adjustment factors promulgated in March 2009 were based on the projected movement of prices for public sector building and construction output at that time, which were assumed to increase by 2% per annum from 2009 to 2013, and by 3% per annum from 2014 to 2019.
- @ The latest project estimate (in September 2008 prices) is multiplied by 1.34187 for conversion to September 2014 prices. The figure of 1.34187 represented the changes in price movement for public sector building and construction output between September 2008 and September 2014.
- ## Price adjustment factors promulgated in October 2014 were based on the latest movement of prices for public sector building and construction output, which are assumed to increase by 6% per annum from 2014 to 2017.
- [^] \$3,840.1 was the actual expenditure excluding price adjustment up to March 2014, whereas \$4,361.9 million was the actual expenditure up to 31 March 2014 including price adjustment.

233DS – Sludge Treatment Facilities

**Comparison between original Approved Project Estimate
and the Latest Project Estimate**

		(A) Approved Project Estimate (\$ million)	(B) Latest Project Estimate (\$ million)	(B) – (A) Difference (\$ million)
(a)	Civil and site formation works	79.0	456.5	377.5
(b)	Building and architectural works	705.5	1,007.7	302.2
(c)	Incineration system	3,386.3	2,732.0	(654.3)
	(i) Sludge receiving facilities	706.9	247.0	(459.9)
	(ii) Sludge incinerators	795.8	1,238.6	442.8
	(iii) Waste heat recovery system	956.6	402.7	(553.9)
	(iv) Flue gas treatment system	795.8	631.1	(164.7)
	(v) Associated electrical and mechanical installations and pipeworks	131.2	212.6	81.4
(d)	Ancillary facilities	25.3	58.7	33.4
(e)	Environmental educational and associated facilities	20.4	24.0	3.6
(f)	Environmental monitoring during the construction stage	10.2	58.9	48.7
(g)	Consultants' fees for contract administration	17.4	17.4	0.0
(h)	Resident site staff costs	58.0	58.0	0.0
(i)	Contingencies	428.7	200.0	(228.7)
	Sub-total (sum of items (a) to (i))	4,730.8 (in September 2008 prices)	4,613.2 (in September 2008 prices)	(117.6)
(j)	Provision for price adjustment	423.6	849.1	425.5
	Total	5,154.4 (in MOD prices)	5,462.3 (in MOD prices)	307.9

- As regards **items (a), (b), (d), (e) and (f) (civil and site formation works, building and architectural works, ancillary facilities, environmental educational and associated facilities, and environmental monitoring during the construction stage)**, the variations reflect the differences between the awarded tender and the APE in pricing these items. In comparison with the APE, the awarded tender price for **items (a), (b), (d), (e) and (f)** are \$765.4 million higher than that estimated in the APE.
- As regards **item (c) (incineration system)**, the variation reflects the difference between the awarded tender and the APE in pricing this item. In comparison with the APE, the awarded tender price is \$654.3 million lower than that estimated in the APE.
- As regards **item (i) (contingencies)**, we have drawn \$117.6 million and \$111.1 million from the contingencies allowed in the APE to partly offset the increase in the provision for price adjustment and cover the higher-than-expected awarded tender price (as explained in paragraph 8 above) respectively. The remaining sum \$200.0 million has to be retained as contingencies for meeting costs arising from claims during construction of the works, valuation of works during finalization of the project account and unforeseeable circumstances, etc.
- As regards **item (j) (provision for price adjustment)**, the increase of \$425.5 million is based on the latest increase in the price adjustment factors and the latest anticipated cash flow.