

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 705 – CIVIL ENGINEERING

#### Civil Engineering – Land development

#### 657CL – Demolition of buildings, structures and chimneys at Kwai Chung Incineration Plant

Members are invited to recommend to Finance Committee the upgrading of **657CL** to Category A at an estimated cost of \$191.0 million in money-of-the-day prices to carry out the demolition and ground decontamination works at the Kwai Chung Incineration Plant site.

### PROBLEM

We need to demolish all buildings, structures and chimneys, and carry out ground decontamination works within the Kwai Chung Incineration Plant (KCIP) site to prepare the site for future development.

### PROPOSAL

2. The Director of Civil Engineering and Development (DCED), with the support of the Secretary for Environment, Transport and Works, proposes to upgrade **657CL** to Category A at an estimated cost of \$191.0 million in money-of-the-day (MOD) prices for demolition of all buildings, structures and chimneys, and carrying out ground decontamination works at the KCIP site.

/PROJECT .....

## PROJECT SCOPE AND NATURE

3. The scope of works under **657CL** comprises -
- (a) removal, treatment and disposal of asbestos-containing materials (ACM) and dioxin-containing materials (DCM) in existing structures;
  - (b) demolition and removal of the main incineration plant, a chimney of 150 metres (m) in height and various ancillary structures;
  - (c) ground decontamination works including on-site treatment, confirmatory ground investigation and testing;
  - (d) earthworks including temporary works, excavation works, disposal of soil contaminated with hydrocarbons to designated landfill and reinstatement of site;
  - (e) drainage works; and
  - (f) implementation of environmental mitigation, monitoring and audit for the proposed works mentioned in sub-paragraphs (a) to (e) above.

— A site plan showing the proposed works is at Enclosure 1.

4. We plan to commence the proposed works in October 2007 for completion in October 2012.

## JUSTIFICATION

5. In accordance with the 1989 White Paper on “Pollution in Hong Kong – A Time to Act”, the municipal solid waste incinerators in Hong Kong had been closed in phases and replaced by a system of transfer stations feeding large landfill sites. The KCIP ceased to operate in May 1997.

6. As revealed from the Environmental Impact Assessment (EIA) approved in 2002 and subsequent site investigation, the buildings, structures and chimneys at the KCIP site are contaminated with ACM and/or DCM<sup>1</sup>. The underground soil is also contaminated with heavy metals and hydrocarbons. As required by the Environmental Permit (EP) issued by the Director of Environmental Protection, we need to carry out remediation of the site before permanent future development of the site.

## FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be \$191.0 million in MOD prices (see paragraph 9 below), made up as follows –

	<b>\$ million</b>
(a) Demolition works -	35.0
(i) removal of ACM and DCM	9.0
(ii) demolition of building, structures and chimneys	26.0
	101.5
(b) Decontamination works -	
(i) ground decontamination works	61.5
(ii) earthworks	40.0
(c) Drainage works	0.3

/(d) .....

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<sup>1</sup> According to the findings of the EIA Report, ACM and DCM exist only in the incinerators and/or buildings above ground. They are of limited volume and could be contained for removal.

	<b>\$ million</b>	
(d) Consultants' fees	29.4	
(i) construction supervision and contract administration	1.0	
(ii) resident site staff costs	26.6	
(iii) environmental monitoring and audit (EM&A) programme	1.8	
(e) Environmental mitigation measures	3.0	
(f) Contingencies	<u>15.5</u>	
Sub-total	184.7	(in September 2006 prices)
(g) Provision for price adjustment	<u>6.3</u>	
Total	<u>191.0</u>	(in MOD prices)

8. Due to insufficient in-house resources, we propose to engage consultants to supervise the proposed works and implement an EM&A programme. A breakdown by man-months of the estimates for consultants' fees is at Enclosure 2.

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

<b>Year</b>	<b>\$ million (Sep 2006)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2007 – 2008	6.6	0.99900	6.6
2008 – 2009	17.1	1.00649	17.2
2009 – 2010	13.7	1.01656	13.9
2010 – 2011	46.0	1.02672	47.2
2011 – 2012	48.8	1.03699	50.6
2012 – 2013	49.0	1.05514	51.7
2013 – 2014	3.5	1.07624	3.8
	184.7		191.0

10. We have derived the MOD estimate on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period from 2007 to 2014. We will tender the demolition work on a remeasurement basis because the quantities of earthworks and decontamination work are subject to variation during construction to suit the actual site conditions. The contract will also provide for price adjustment as the contract period will exceed 21 months.

11. The proposed project will not give rise to any recurrent expenditure.

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## PUBLIC CONSULTATION

12. We consulted the Planning and Environmental Hygiene Committee of the Kwai Tsing District Council on 17 April 2007. Members had no objection to the proposed project and strongly demanded the Government to commence the project as soon as possible.

13. We consulted the Legislative Council Panel on Planning, Lands and Works on 22 May 2007. Members had no objection to the proposed project.

## ENVIRONMENTAL IMPLICATIONS

14. The project is a designated project under Schedule 2 of the EIA Ordinance (Cap. 499) and an EP is required for the project. The EIA report, which concluded that the environmental impacts of the project could be controlled to within the criteria under the EIA Ordinance and the Technical Memorandum on EIA Process, was approved by the Environmental Protection Department in January 2002. We will implement the measures recommended in the approved EIA report. We have included \$3.0 million (in September 2006 prices) in the overall project estimate for implementing the environmental monitoring and mitigation measures.

15. For short-term impacts during construction, we will control noise, dust, site surface run-off and chemical waste within established standards and guidelines through the implementation of mitigation measures in the contract. We will also implement an EM&A programme to ensure timely and effective implementation of the recommended mitigation measures.

16. We have considered measures including selective demolition and on-site sorting in the planning and design stages to reduce the generation of construction and demolition (C&D) materials and to reuse/recycle such materials where possible. In addition, we will require the contractor to reuse inert C&D materials on site, in order to minimise the disposal of C&D materials to public fill reception facilities<sup>2</sup>. We will encourage the contractor to maximise the use of recycled or recyclable C&D materials, as well as the use of non-timber formwork to further minimise the generation of construction waste.

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<sup>2</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

17. We will also require the contractor to submit a waste management plans (WMP) for approval. The WMP will include appropriate reduction, remediation, treatment and disposal methods and plans, as well as mitigation measures to avoid, reduce, reuse and recycle all types of contaminated soils and wastes, and C&D materials in order to keep the volume of waste to be disposed of at Designated Waste Disposal Facilities within the best practicable minimum quantity and environmentally acceptable quality. We will ensure that the day-to-day operations on site comply with the approved WMP. We will control the disposal of public fill and C&D waste to public fill reception facilities and landfills respectively through a trip-ticket system. We will require the contractor to separate public fill from C&D waste for disposal at appropriate facilities. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes.

18. We estimate that the project will generate about 33 000 tonnes of C&D materials. Of these, we will recycle 8 500 tonnes (26%) for other uses, deliver about 14 500 tonnes (44%) to public fill reception facilities for subsequent reuse and about 10 000 tonnes (30%) to landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites is estimated to be about \$1.6 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne at landfills<sup>3</sup>).

## LAND ACQUISITION

19. The proposed works do not require any land acquisition.

## BACKGROUND INFORMATION

20. We included **657CL** in Category B in September 2005.

21. In September 1999, we engaged consultants to carry out the EIA study and site investigation works at an estimated cost of \$1.63 million. We charged the amount to block allocation **Subhead 5101CX** "Civil engineering works, studies and investigations for items in Category D of the Public Works Programme".

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<sup>3</sup> This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m<sup>3</sup>), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

22. In July 2002, we employed consultants to carry out the review, design, tender and construction phases at an estimated cost of \$4.52 million. We charged the amount to block allocation **Subhead 5101CX** “Civil engineering works, studies and investigations for items in Category D of the Public Works Programme”.

23. The proposed works will involve the removal of all the 42 trees within the project boundary by felling. All trees to be removed are not important trees<sup>4</sup> and are either adhering to the disused structures or with roots being contaminated.

24. We estimate that the proposed works will create about 134 jobs (110 for labourers and another 24 for professional/technical staff) providing a total employment of 3 300 man-months.

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Environment, Transport and Works Bureau  
May 2007

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<sup>4</sup> “Important tree” refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria:-

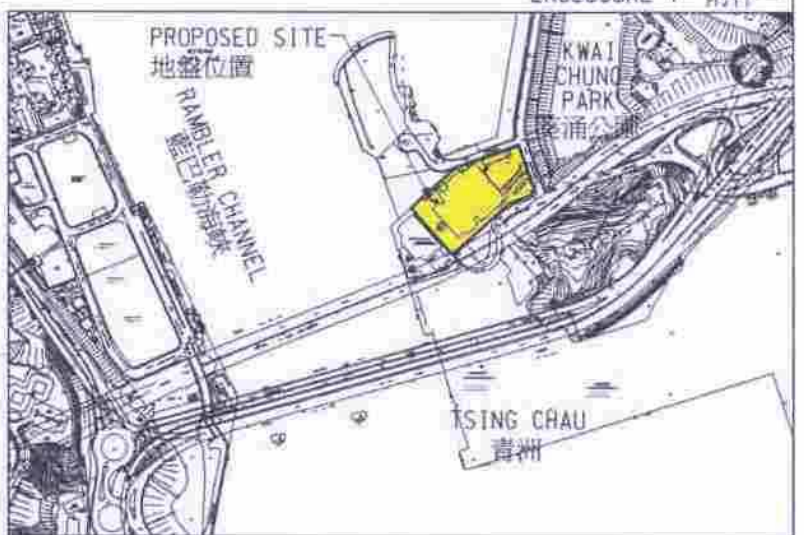
- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.



LEGEND : 圖例

- SITE BOUNDARY 地盤邊界
- WORKS SITE 地盤範圍

ENCLOSURE 1 附件一



位置圖 LOCATION PLAN  
比例 SCALE 1 : 5000

823800 N

829800 E

823600 N

830000 E

煙肉 CHIMNEY

葵涌焚化爐 KWAI CHUNG INCINERATION PLANT

渠務署葵涌基本污水處理廠  
DRAINAGE SERVICES DEPARTMENT  
KWAI CHUNG PRELIMINARY  
TREATMENT WORKS



PWP item no. 5657CL - Demolition of buildings, structures and chimneys at Kwai Chung Incineration Plant  
5657CL 號工程計劃 - 葵涌焚化爐建築物、構築物和煙囪拆卸工程



Mott Connell Limited  
40/F Hopewell Centre  
105 Queen's Road East  
Hong Kong

TITLE

KWAI CHUNG INCINERATION PLANT SITE LAYOUT PLAN  
葵涌焚化爐工地圖

SCALE 比例

1 : 2000

DRAWING 圖則編號

KCIP004

**657CL – Demolition of buildings, structures and chimneys  
at Kwai Chung Incineration Plant**

**Breakdown of estimates for consultants' fees**

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Construction supervision and contract administration (Note 2)	Professional	-	-	-	0.7
	Technical	-	-	-	0.3
(b) Resident site staff (Note 3)	Professional	147	38	1.6	12.8
	Technical	479	14	1.6	13.8
(c) Environmental monitoring and audit (EM&A)	Professional	-	-	-	1.8
				<b>Total</b>	<b>29.4</b>

\* MPS = Master Pay Scale

**Notes**

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at 1 January 2007, MPS pt. 38 = \$54,255 per month and MPS pt. 14 = \$18,010 per month.)
2. The consultants' staff cost for the contract administration is calculated in accordance with the existing consultancy agreement. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade **657CL** to Category A.
3. We will only know the actual man-months and actual costs after completion of the construction works.