For discussion **PWSC(2009-10)65**
on 15 June 2009

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT
New Territories North and West Development
Civil Engineering – Drainage and erosion protection
705CL – Hang Hau Tsuen Channel at Lau Fau Shan

Members are invited to recommend to Finance Committee the upgrading of **705CL** to Category A at an estimated cost of $91.2 million in money-of-the-day (MOD) prices for the drainage improvement works in Hang Hau Tsuen, Lau Fau Shan.

PROBLEM

We need to construct a drainage channel to alleviate the flooding problems in Hang Hau Tsuen, Lau Fau Shan.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Development, proposes to upgrade **705CL** to Category A at an estimated cost of $91.2 million in MOD prices for the drainage improvement works in Hang Hau Tsuen, Lau Fau Shan.

PROJECT SCOPE AND NATURE

3. The scope of **705CL** comprises the construction of–

/(a) .....

(a) about 370 metres (m) drainage channel of 25 m to 30 m in width from Deep Bay Road to Deep Bay;

(b) four footbridges of 4 m in width;

(c) a vehicular access road alongside the proposed drainage channel with a car park, footpaths, and associated drainage and water works ;

(d) about 16 m of triple-cell box culvert with internal cell dimensions of 5 m in width by 3 m in height underneath Deep Bay Road; and

(e) implementation of necessary environmental mitigation measures including landscaping works and an Environmental Monitoring and Audit programme for the works mentioned in items (a) to (d) above.

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

4. We plan to start the construction works in December 2009 for completion by June 2013.

JUSTIFICATION

5. The existing Hang Hau Tsuen stream is under-capacity due to siltation and its meandering alignment. Further, changes in land use in areas upstream over the years have resulted in tracts of natural ground being replaced by impermeable pavings. Rainwater can no longer dissipate naturally through ground infiltration as in the past and surface run-off increases as a result. Because of the inadequate drainage capacity of the Hang Hau Tsuen stream, the low-lying Hang Hau Tsuen is susceptible to flooding.

6. To alleviate the problem, we propose to carry out drainage improvement works as mentioned in paragraph 3 above. Upon completion of the proposed works, the drainage system in this area will generally be able to withstand flooding with a return period[1] of one in 50 years, and the risk of

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[1] "Return period" is the average number of years during which a certain severity of flooding will occur once, statistically. A longer return period means a rarer chance of occurrence of a more severe flooding.

flooding will be greatly reduced. A 3.5 m wide access road will be constructed alongside the drainage channel for maintenance access. It will also provide access to the seafront for the public to enjoy the scenery of Deep Bay.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be $91.2 million in MOD prices (see paragraph 8 below), made up as follows –

			$ million	
(a)	Drainage Channel		37.5	
(b)	Four footbridges and a box culvert		9.0	
(c)	Associated roadworks, drainage and water works		19.1	
(d)	Environmental mitigation measures including landscaping works		2.0	
(e)	Environmental Monitoring and Audit programme		1.2	
(f)	Consultants' fee		2.1	
	(i) contract administration	0.5		
	(ii) management of resident site staff	1.6		
(g)	Remuneration of resident site staff		6.5	
(h)	Contingencies		7.7	
	Sub-total		85.1	(in September 2008 prices)
(i)	Provision for price adjustment		6.1	
	Total		91.2	(in MOD prices)

A detailed breakdown of the estimates for the consultants' fees and resident site staff costs by man-months is at Enclosure 2.

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

Year	$ million (Sept 2008)	Price adjustment factor	$ million (MOD)
2009 – 2010	5.0	1.03500	5.2
2010 – 2011	36.5	1.05570	38.5
2011 – 2012	26.5	1.07681	28.5
2012 – 2013	9.3	1.09835	10.2
2013 – 2014	5.0	1.12032	5.6
2014 – 2015	2.8	1.15113	3.2
	85.1		91.2

9. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period from 2009 to 2015. We will tender the proposed works under a standard remeasurement contract because the quantities of earthworks may vary according to the actual ground conditions. The contract will provide for price adjustments.

10. We estimate that the annual recurrent expenditure arising from this project to be about $590,000.

PUBLIC CONSULTATION

11. We consulted the Ha Tsuen Rural Committee on 2 January 2008. We also consulted the Environmental Improvement Committee of the Yuen Long District Council on the proposed works and the main findings of the Environmental Impact Assessment (EIA) study report on 10 March 2008 and 9 March 2009 respectively. Members of the Committees supported the proposed works, and had no adverse comments on the main findings of the EIA study report.

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12. We gazetted the proposed works under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) on 11 July 2008 and received four objections. The four objectors all agreed to withdraw their objections whilst two of them asked for minor adjustment to the land clearance boundary to avoid resumption of existing houses. The road scheme with minor modifications was authorised on 2 June 2009.

13. We gazetted the proposed works under the Foreshore and Sea-bed (Reclamations) Ordinance (Cap. 127) on 19 September 2008 and no objections were received. The proposed works was authorised on 13 January 2009.

14. We consulted the Legislative Council Panel on Development on the proposed works by circulation of an information paper on 15 May 2009. Members raised no objection to the proposal.

ENVIRONMENTAL IMPLICATIONS

15. The project is a designated project under Schedule 2 of the EIA Ordinance (Cap. 499) and an environmental permit is required for the construction and operation of the project. We completed an EIA report on the project in December 2008, which concluded that the environmental impact arising from the project could be controlled to within established standards and guidelines through the implementation of the recommended mitigation measures. The EIA report was endorsed by the Advisory Council on the Environment on 26 March 2009 and approved by the Director of Environmental Protection on 1 April 2009.

16. We will incorporate the environmental mitigation measures recommended in the EIA report into the works contract to control any pollution arising from construction works within established standards and guidelines. The contractors are required to follow the procedures as recommended in Environmental Protection Department's Recommended Pollution Control Clauses such as frequent watering of the site and provision of wheel-washing facilities to reduce emission of fugitive dust, the use of quiet construction plant to reduce noise generation. We will also provide an area for growth of mangroves at the downstream and adopt grasscrete channel bedding at the upstream in order to provide higher ecological value for the channel. Furthermore, we will implement the Environmental Monitoring and Audit programme recommended in the EIA report. We have included $3.2 million (in September 2008 prices) in the project estimate for implementing the environmental mitigation measures and the Environmental Monitoring and Audit programme.

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17. We have determined the drainage alignment such that excavation and demolition of existing structures would be minimised to reduce the generation of construction waste. In addition, we will require the contractor to reuse inert construction waste (e.g. excavated materials) on site or in other suitable construction sites, in order to minimise the disposal of inert construction waste to public fill reception facilities[2]. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to minimise the generation of construction waste.

18. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

19. We estimate that the project will generate in total about 16 400 tonnes of construction waste. Of these, we will reuse about 14 700 tonnes (90%) of inert construction waste on site and deliver 685 tonnes (4%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 1 015 tonnes (6%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be $145,370 for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[3] at landfills).

20. We estimate that the project will generate about 4 650 tonnes of uncontaminated mud and about 2 450 tonnes of contaminated mud. We will deliver the contaminated mud by barges to the contaminated mud disposal area at East Sha Chau and re-use the uncontaminated mud on site.

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[2] Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

[3] 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^3), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

HERITAGE IMPLICATIONS

21. This project 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

22. We have to resume about 4 300 square metres of agricultural land for the project. The land resumption and clearance will affect 22 families involving 64 persons and 165 temporary structures. These families will be offered ex-gratia allowances and, where eligible, accommodation in public housing in accordance with the established rehousing policy. The estimated cost of land acquisition and clearance is about $20 million. The cost of land acquisition will be charged to **Head 701 – Land Acquisition**. A breakdown of the land resumption and clearance costs is at Enclosure 3. We have reviewed the design of the project to minimise the land acquisition cost. The cost is considered justified as flooding risk will be mitigated.

BACKGROUND INFORMATION

23. We upgraded **705CL** to Category B in October 2004.

24. Of the 53 trees within the project boundary, 27 trees will be preserved. The proposed works will involve the removal of 26 trees, including 16 to be felled and 10 to be transplanted within the project site. All trees to be removed are not important trees[4]. We plan to plant 114 trees and 14 260 shrubs as part of the project.

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[4] An "important tree" refers to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria:-

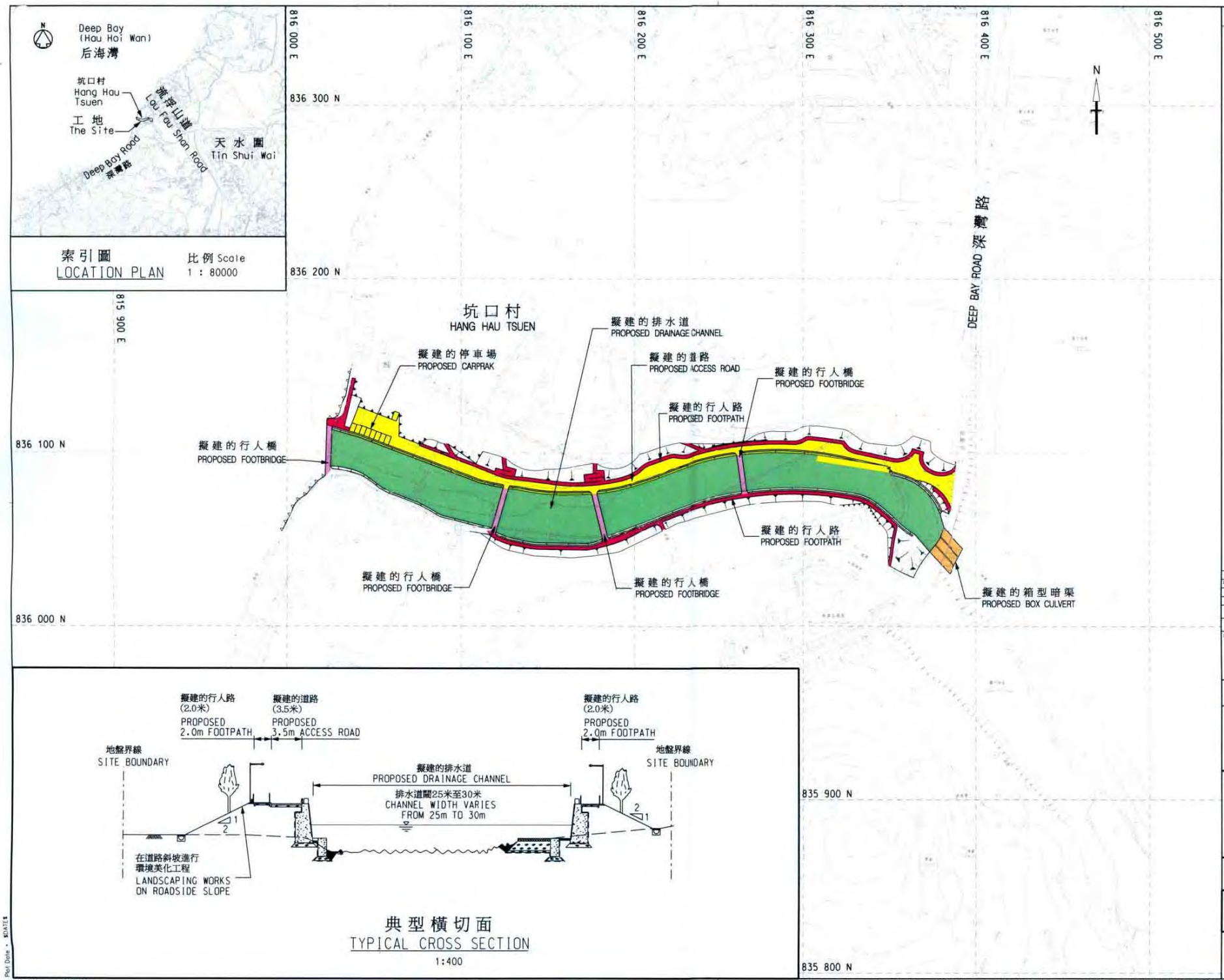
(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
(c) trees of precious or rare species;
(d) trees of outstanding form (taking account 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 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25 m.

25. We estimate that the proposed works will create about 45 jobs (36 for labourers and another 9 for professional/technical staff) providing a total employment of 1 400 man-months.

Development Bureau
June 2009

索引圖
LOCATION PLAN

比例 Scale
1 : 80000



典型橫切面
TYPICAL CROSS SECTION
1:400

圖例 LEGEND:

- 擬建的排水道 PROPOSED DRAINAGE CHANNEL
- 擬建行車道及斜路 PROPOSED ACCESS ROAD AND RAMP
- 擬建的行人路 PROPOSED FOOTPATH
- 擬建的行人橋 PROPOSED FOOTBRIDGE
- 擬建的箱型暗渠 PROPOSED BOX CULVERT
- 擬建的斜坡 PROPOSED SLOPE

A	26.05.09	MINOR AMENDMENT	SIGNED	SIGNED

修訂 REVISION

	K H LO	SIGNED	09.02.2009
	W K CHAN	SIGNED	12.05.2009

核准 Approved
(SIGNED)
Y M CHAN 12.05.2009

合約編號 contract no.

合約 contract

圖則名稱 drawing title
流浮山的坑口村排水道
HANG HAU TSUEN CHANNEL
AT LAU FAU SHAN

圖則編號 drawing no. NTN 2262A

比例 Scale A3 1:2000

辦事處 office
新界西及北拓展處
NEW TERRITORIES NORTH AND
WEST DEVELOPMENT OFFICE

土木工程拓展署
CEDD CIVIL ENGINEERING AND
DEVELOPMENT DEPARTMENT

Plot Date = $DATE$
CAD Filename = DGN$SPEC$

(Updated as at 26 May 2009) L:\CSWP_Drawing\705CL\DRAWING\Ntn2262A.dgn

A3 420MM X 297MM

705CL – Hang Hau Tsuen Channel at Lau Fau Shan

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2008 prices)

			Estimated Man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fees ($ million)
(a)	Consultants' fees for construction supervision and contract administration (Note 2)	Professional	--	--	--	0.42
		Technical	--	--	--	0.08
					Sub-total	0.5
(b)	Resident site staff costs (Note 3)	Professional	36	38	1.6	3.49
		Technical	144	14	1.6	4.57
					Sub-total	8.06
Comprising –						
(i)	Consultants' fees for management of resident site staff					1.61
(ii)	Remuneration of resident site staff					6.45
					Total	8.56
						(Say 8.60)

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS point to arrive at the cost of resident site staff supplied by the consultants. (As at 1 April 2008, MPS pt. 38 = $60,535 per month and MPS pt. 14 = $19,835 per month.)

2. The consultants' fees for construction supervision and contract administration are estimated in accordance with the terms stipulated in the existing consultancy agreement. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade **705CL** to Category A.

3. We will only know the actual man-months and actual costs after completion of the construction works.

Enclosure 3 to PWSC(2009-10)65

705CL – Hang Hau Tsuen Channel at Lau Fau Shan

Breakdown of the estimated land resumption and clearance costs

			($)
Land resumption cost			13,592,728
(a)	Agricultural Land Ex-gratia Compensation (10 lots affected by the project are within Compensation Zone "B". The total area involved is 4 262.3 square metres (m^2) or 45 880 square feet. - 4 262.3m^2 @ \$3,188.9/ m^2 (Note)	13,592,048	
(b)	Interest payment on ex-gratia compensations for private land (at 0.01% annual rate for 1/2 year)	680	
Clearance cost			4,801,149
(a)	Ex-gratia allowance for crops	1,425,923	
(b)	Ex-gratia allowance for miscellaneous permanent improvements to farms	125,226	
(c)	Ex-gratia allowance for domestic structures	3,250,000	
Contingency (10% of land resumption and clearance cost)			1,839,388
	Total land resumption and clearance costs		**20,233,265**
			(Say \$20 million)

Note: The land to be resumed in this project is agricultural land within Compensation Zone "B". As published in the Gazette, the ex-gratia compensation rate effective from 1 April 2009 for this zone is \$296.25 per square foot (or \$3,188.9 per m^2). Hence the ex-gratia compensation rate used for estimating the resumption cost of the lots affected by this project is \$3,188.9 per m^2.