

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Environmental Hygiene – Burial grounds, columbaria and crematoria

17NB – Provision of a columbarium and garden of remembrance at Kiu Tau Road, Wo Hop Shek

Members are invited to recommend to Finance Committee the upgrading of **17NB** to Category A at an estimated cost of \$629.5 million in money-of-the-day prices for the provision of a columbarium and garden of remembrance at Kiu Tau Road, Wo Hop Shek.

PROBLEM

We need to provide additional public columbaria and gardens of remembrance to meet public demand.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Food and Health, proposes to upgrade **17NB** to Category A at an estimated cost of \$629.5 million in money-of-the-day (MOD) prices for the provision of a new columbarium and garden of remembrance (GoR) at Kiu Tau Road, Wo Hop Shek (WHS).

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of **17NB** comprises –
- (a) construction of a five-storey columbarium building to provide for about 30 000 public niches with passenger lifts and incense burning facilities at designated upper floors;
 - (b) construction of a single-storey administration block with supporting and ancillary facilities such as administration office, public toilets, refuse chutes, store rooms, plant rooms and a visitors' hall installed with computer kiosks;
 - (c) construction of about 7 000 outdoor niches at various terraced levels;
 - (d) construction of GoR in terraced lawns with memorial stones / pillars or other architectural structures;
 - (e) provision of closed-circuit television (CCTV) system and public address system;
 - (f) provision of 12 joss paper burners with filtering devices outside the columbarium building;
 - (g) provision of vehicular access and operational car-parking spaces;
 - (h) re-provisioning of the existing refuse collection point within the project site; and
 - (i) general landscaping and water features.
4. The proposed site at Kiu Tau Road is an old coffin burial ground covering an area of 3.6 hectares. As it is situated within the WHS Cemetery, it could be developed readily without incurring additional time and resource for building new supporting infrastructure. In addition, the site, in the form of a basin with trees and rich vegetation along the surrounding terraces, is shielded off by natural terrain and hence will have minimal visual impact on the nearby environment.

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5. We will make full use of the natural setting of this site and minimise the need for extensive geotechnical works. The flat land in the middle of the basin will be used to construct a five-storey columbarium building. The existing terrace profile to the northeast of the site and near the entrance will be maintained and re-designed to provide for outdoor niches and GoR. The entire layout is planned with a view to being as environmentally friendly as possible to minimise any possible impact on the existing landscape.

6. The proposed project will also include a new electronic facility. Given the large number of niches on this site and the different locations of the niches, some indoor and some outdoor, some members of the public may have difficulty in locating the niche position of the deceased. In this regard, we plan to set up computer kiosks in the visitors' hall located in administration block with a view to enabling the public to check the location of the niche of the deceased through an electronic map. Furthermore, for those who wish to pay memorial service to the deceased whose ashes have been scattered in the GoR, as the memorial stones / pillars there will only bear inscriptions of the name and birth / death dates of the deceased so as to make the best use of the limited space, we will set up an e-memorial book to allow other personal particulars of the deceased, including photos, to be stored in a dedicated memorial page. The family / relatives / friends may access the memorial page through the computer kiosks in the administration block. They may browse through the page or pay respect through simulation, such as burning of incense, offering flowers or leaving messages in the memorial page. We will provide appropriate data protection device in the system.

7. A location map of the site is at Enclosure 1 and the artist's impression of the development is at Enclosure 2. We plan to start the construction works in December 2009 for completion in July 2012.

JUSTIFICATION

8. With a growing and aging population in Hong Kong, the number of deaths and the corresponding number of cremations have been rising gradually year on year. The number of deaths and cremations in 2007 were 39 963 and 34 427 respectively and those for 2008 were 41 530 (deaths) and 36 410 (cremations). With an increasing demand for cremation service, there is also an increasing need for the supply of niches.

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9. At present, in addition to the columbarium facilities run by non-government organisations (e.g. the Board of Management of Chinese Permanent Cemeteries), religious entities and the private sector, there are a total of eight public columbaria managed by the Food and Environmental Hygiene Department (FEHD) providing some 167 900 public niches. For cost and other reasons, there has been a strong demand for public niches.

10. We have recently completed the construction of 3 374 additional niches at the Kwai Chung Columbarium and 18 500 new niches at the Diamond Hill Columbarium. At the same time, FEHD has been promoting alternative ways of handling cremains, such as scattering of cremains at designated sea waters within the territory and scattering of ashes at GoRs. Despite the growing acceptance of the public towards these alternatives, there remains a strong demand for public niches. The development of a columbarium and GoR at Kiu Tau Road in WHS Cemetery will help relieve the demand for public niches.

FINANCIAL IMPLICATIONS

11. We estimate the capital cost of **17NB** to be \$629.5 million in MOD prices (see paragraph 12 below), made up as follows –

	\$ million
(a) Site preparation	7.1
(b) Site formation and geotechnical works	32.3
(c) Piling	30.1
(d) Building	177.6
(e) Building services	41.6
(f) Drainage	24.3

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	\$ million	
(g) External works, including landscaping works	189.1	
(h) Additional energy conservation measures	8.4	
(i) Furniture & Equipment ¹	3.3	
(j) Consultants' fees	0.6	
(i) contract administration	0.4	
(ii) management of resident site staff	0.2	
(k) Remuneration of resident site staff	7.3	
(l) Contingencies	51.0	
Sub-total	572.7	(in September 2008 prices)
(m) Provision for price adjustment	56.8	
Total	629.5	(in MOD prices)

We propose to engage consultants to undertake contract administration and site supervision. A detailed breakdown of the estimates for the consultants' fees and resident site staff costs by man-months is at Enclosure 3. The construction floor area (CFA) of **17NB** is about 13 070 square metres (m²). The estimated construction unit cost, represented by the building and the building services costs, is \$16,771 per m² of CFA in September 2008 prices. We consider this unit cost reasonable as compared with other similar projects undertaken by the Government.

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¹ Based on an indicative list of furniture and equipment items required.

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

Year	\$ million (Sep 2008)	Price adjustment factor	\$ million (MOD)
2009 – 10	1.0	1.03500	1.0
2010 – 11	52.1	1.05570	55.0
2011 – 12	213.6	1.07681	230.0
2012 – 13	118.4	1.09835	130.0
2013 – 14	107.1	1.12032	120.0
2014 – 15	56.5	1.15113	65.0
2015 – 16	24.0	1.18566	28.5
	572.7		629.5

13. We have derived the MOD estimates 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 2009 to 2016. We will award the contract on a lump-sum basis because we can clearly define the scope of the works in advance. The contract will provide for price adjustments.

14. The annual recurrent expenditure for the proposed columbarium and GoR is about \$7.8 million.

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PUBLIC CONSULTATION

15. We consulted the WHS village representatives on the columbarium project on 26 February 2008. They had no objection to the project but expressed concern over the height of the new columbarium building. They asked that the building should be kept below the ridge line of the terrain to minimize the visual impact on villagers living in the vicinity.

16. We consulted the North District Council on the project on 17 March 2008. Members agreed that the Government needed to provide affordable niches to meet public demand. They noted that the site was fairly concealed from the visual point of view and that the proposed design of the columbarium would further minimize visual impact on the local community. They raised no objection to the project but shared the view of the village representatives regarding the height of the columbarium building. We have taken into account these views in designing the columbarium building as a low-rise structure.

17. We consulted the Legislative Council Panel on Food Safety and Environmental Hygiene on the proposed project on 12 May 2009. The Panel supported the proposal.

ENVIRONMENTAL IMPLICATIONS

18. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We carried out a Preliminary Environmental Review (PER) for the project in May 2009. The PER report was agreed by the Director of Environmental Protection. The PER report concluded that with proper design and implementation of joss paper furnace equipped with exhaust air treatment plant to mitigate the adverse quality of gaseous emissions, the project will not cause long-term environmental impact.

19. During construction, we will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contracts. These include

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the use of silencers, mufflers, acoustic lining or shields and the building of barrier wall for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

20. We have considered measures in the planning and design stages to reduce the generation of construction waste where possible (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects). In addition, we will require the contractor to reuse inert construction waste on site (e.g. use of excavated materials for filling within the site) or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities². 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 further minimise the generation of construction waste.

21. Besides, we will 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 complies with the approved plan. We will also require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. The disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively will be controlled through a trip-ticket system.

22. We estimate that the project will generate in total about 59 271 tonnes of construction waste. Of these, we will reuse about 4 380 tonnes (7.4%) of inert construction waste on site and deliver 47 531 tonnes (80.2%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 7 360 tonnes (12.4%) of non-inert construction waste

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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.

at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$2.2 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne³ at landfills).

ENERGY CONSERVATION MEASURES

23. This project has adopted various forms of energy efficient features, including –

- (a) T5 energy efficient fluorescent tubes with electronic ballast and lighting control by occupancy sensors;
- (b) Light-emitting diode (LED) type exit signs and feature lightings; and
- (c) Automatic on/off switching of lighting and ventilation fan inside the lifts.

24. For renewable energy technologies, we will adopt solar bollard LED lamps at the outdoor areas for environmental benefits.

25. For greening features, we will adopt the following green features for environmental and amenity benefits, including -

- (a) lawn on roof and podium deck of columbarium building and administration block; and
- (b) vertical greening at the outdoor niches.

26. For recycled features, we will adopt rainwater recycling system for landscape irrigation with a view to conserving water.

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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/m³), nor the cost to provide new landfills (which is likely to be more expensive) when the existing ones are filled.

27. The total estimated additional cost for adoption of the energy conservation measures is around \$8.4 million (including \$63,000 for energy efficient features), which has been included in the cost estimate of this project. The energy efficient features will achieve 1.8% energy savings in the annual energy consumption with a payback period at about 4.8 years.

HERITAGE IMPLICATIONS

28. This project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites / buildings, sites of archaeological interests and Government historic sites identified by the Antiquities and Monuments Office.

TRAFFIC IMPACT

29. A traffic impact assessment study on the proposed project was completed in February 2009. The study concluded that no significant impact would arise from the proposed project provided that the current special traffic and crowd control arrangements at grave-sweeping seasons would continue to apply. The FEHD would continue to work closely with other relevant departments to carry out crowd control and management measures as appropriate.

LAND ACQUISITION

30. The project does not require any land acquisition.

BACKGROUND INFORMATION

31. We upgraded **17NB** to Category B in March 2008. We engaged term contractors to carry out topographical survey in June 2007 and ground investigation in June 2008. We engaged consultants to carry out the geotechnical assessment in June 2008, the Fire Engineering Study in October 2008 and the PER in March 2009. We charged the total cost of \$2.1 million to block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees for items in Category D of the Public Works Programme". The

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term contractors have completed the topographical survey and ground investigation. The consultants have completed the geotechnical assessment, Fire Engineering Study and PER. We have completed the detailed design of the project and are preparing the tender documents with in-house staff resources.

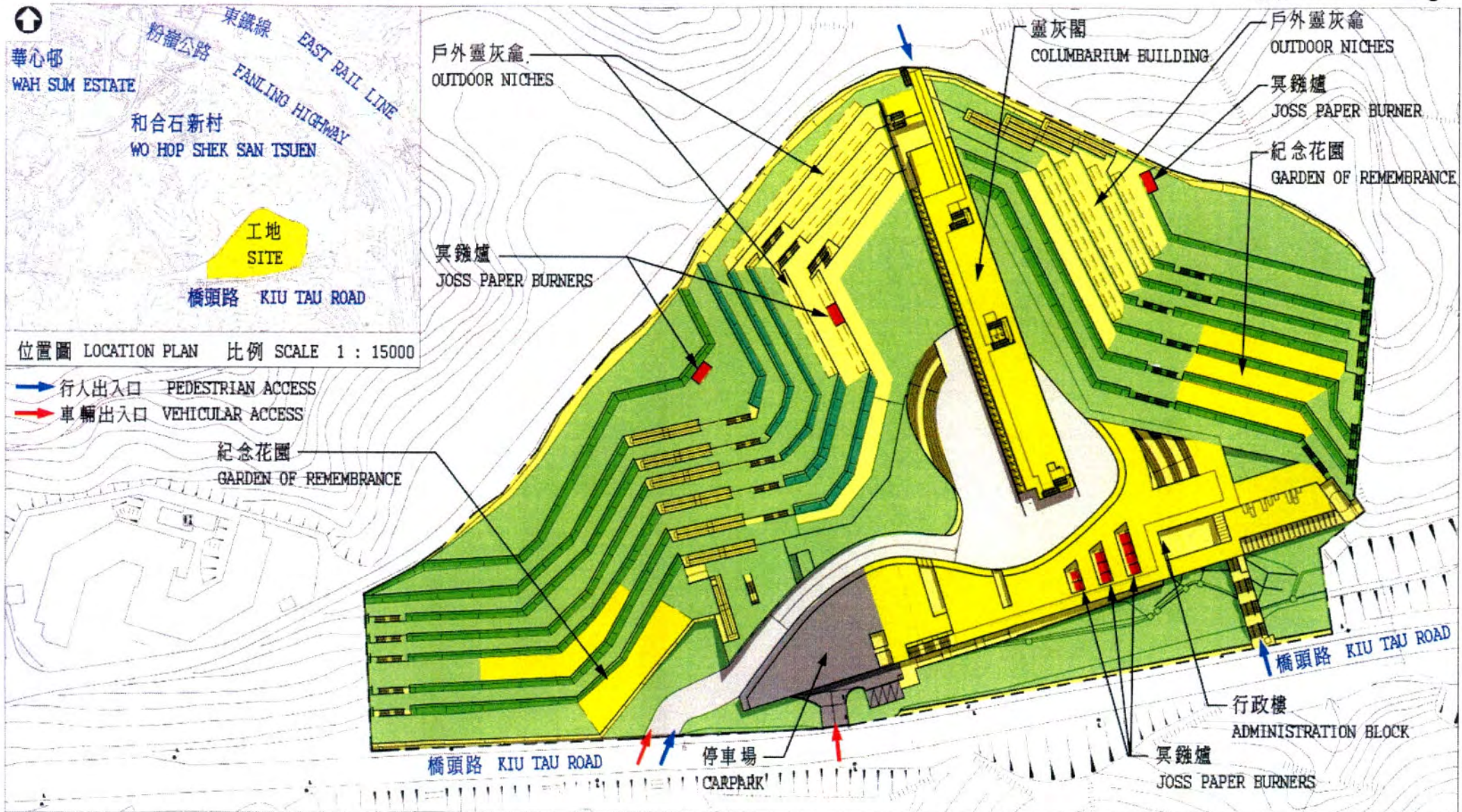
32. The proposed construction works will involve removal of 548 trees, including 37 dead trees, 503 to be felled and 8 to be transplanted elsewhere. All trees to be removed are not important trees⁴. We will incorporate planting proposals as part of the project, including estimated quantities of 348 trees, 20 000 shrubs, 25 000 groundcovers / annuals and 14 000 m² of grassed area.

33. We estimate that the proposed works will create about 355 jobs (329 for labourers and another 26 for professional / technical staff) providing a total employment of 8 590 man-months.

Food and Health Bureau
June 2009

⁴ “Important trees” 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 metre (m) (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.



17NB 在和合石橋頭路建造靈灰安置所和紀念花園 PROVISION OF A COLUMBARIUM AND GARDEN OF REMEMBRANCE AT KIU TAU ROAD, WO HOP SHEK	drawn by	W.K. CHAN	Date	May, 2009	drawing no.	AB/6936/XA001	scale	1 : 1500
	approved	XENIA KWAN	Date	May, 2009				
	office	ARCHITECTURAL BRANCH						



從西南面望向靈灰閣及紀念花園的構思圖

VIEW OF THE COLUMBARIUM AND GARDEN OF REMEMBRANCE FROM SOUTH-WEST DIRECTION (ARTIST'S IMPRESSION)



紀念花園的構思圖

VIEW OF THE GARDEN OF REMEMBRANCE
(ARTIST'S IMPRESSION)



戶外靈灰龕的構思圖

VIEW OF THE OUTDOOR NICHES
(ARTIST'S IMPRESSION)

17NB

在和合石橋頭路建造靈灰安置所和紀念花園
PROVISION OF A COLUMBARIUM AND GARDEN OF
REMEMBRANCE AT KIU TAU ROAD, WO HOP SHEK

drawn by

W.K. CHAN

Date

May, 2009

approved

XENIA KWAN

Date

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office

ARCHITECTURAL BRANCH

drawing no.

AB/6936/XA004

scale

1 : 1500



ARCHITECTURAL
SERVICES
DEPARTMENT

Enclosure 3 to PWSC(2009-10)56

**17NB – Provision of a columbarium and garden of remembrance at Kiu
Tau Road, Wo Hop Shek**

**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 fee (\$ million)
(a) Consultants' fees for contract administration ^(Note 2)	Professional	-	-	-	0.4
	Technical	-	-	-	-
				Sub-total	0.4
(b) Resident site staff costs ^(Note 3)	Professional	12	38	1.6	1.2
	Technical	199	14	1.6	6.3
				Sub-total	7.5
Comprising –					
(i) Consultants' fees for management of resident site staff					0.2
(ii) Remuneration of resident site staff					7.3
				Total	7.9

*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 April 2008, MPS point 14 = \$19,835 per month and MPS point 38 = 60,535 per month)

2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **17NB**. The assignment will only be executed subject to the Finance Committee's approval to upgrade **17NB** to Category A.
3. The consultants' staff cost for site supervision is based on estimates prepared by the Director of Architectural Services. We will only know the actual man-months and actual costs after completion of the construction works.