

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Education – Primary

340EP – A 24-classroom primary school at Inverness Road, Kowloon City

Members are invited to recommend to Finance Committee the upgrading of **340EP** to Category A at an estimated cost of \$121.5 million in money-of-the-day prices for the construction of a 24-classroom primary school at Inverness Road, Kowloon City.

PROBLEM

We need to construct a primary school for the whole-day conversion of an existing bi-sessional school in Kowloon City District.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education (SED), proposes to upgrade **340EP** to Category A at an estimated cost of \$121.5 million in money-of-the-day (MOD) prices for the construction of a 24-classroom primary school at Inverness Road, Kowloon City.

/PROJECT

PROJECT SCOPE AND NATURE

3. The proposed primary school under **340EP** will have the following facilities –

- (a) 24 classrooms;
- (b) six special rooms;
- (c) four small group teaching rooms;
- (d) a guidance activity room;
- (e) two interview rooms;
- (f) a staff room;
- (g) a staff common room;
- (h) a student activity centre;
- (i) a conference room;
- (j) a library;
- (k) an assembly hall (which can be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);
- (l) a multi-purpose area;
- (m) one basketball court;
- (n) a 50-metre (m) running track¹;
- (o) a green corner²; and

/(p)

¹ Making optimal use of the space of the campus, a 50-m running track will be provided.

² The green corner is a designated area inside the campus to enable students to develop an interest in horticulture and natural environment. The green corner may include a greenhouse, a weather station and planting beds.

- (p) ancillary accommodation, including a lift and relevant facilities for the handicapped.

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 The proposed school will meet the planning target of providing two square metres (m²) of open space per student. A site plan is at Enclosure 1 and views of the school premises (artist's impression) are at Enclosure 2. We plan to start the construction works in April 2008 for completion in December 2009.

JUSTIFICATION

4. It is Government's policy to implement whole-day primary schooling for virtually all primary school students by the 2007/08 school year. In the 2007/08 school year, about 96% of primary school places are in whole-day mode.

5. Upon completion, **340EP** will provide 24 classrooms and other facilities for accommodating one session of an existing bi-sessional primary school in the same school net and in so doing, enable both sessions to switch to whole-day operation. The project will not affect the overall supply of primary school places.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be \$121.5 million in MOD prices (see paragraph 7 below), made up as follows –

	\$ million
(a) Piling	15.3
(b) Building	55.0
(c) Building services	16.1
(d) Drainage	3.0
(e) External works	9.5

/(f)

	\$ million	
(f) Furniture and equipment ³	3.0	
(g) Consultants' fees for –	6.1	
(i) Contract administration	2.1	
(ii) Site supervision	4.0	
(h) Contingencies	10.5	
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Sub-total	118.5	(in September 2007 prices)
(i) Provision for price adjustment	3.0	
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Total	121.5	(in MOD prices)
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We propose to engage consultants to undertake contract administration and site supervision of the project. A detailed breakdown of the estimate for consultants' fees by man-months is at Enclosure 3. The construction floor area (CFA) of **340EP** is 9 657m². The estimated construction unit cost, represented by the building and the building services costs, is \$7,363 per m² of CFA in September 2007 prices. We consider this comparable to similar school projects built by the Government. A comparison of the reference cost for a 24-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for **340EP** is at Enclosure 4.

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

/2008 – 09

³ Based on the standard furniture and equipment reference list prepared by the Education Bureau for a new 24-classroom primary school adopting the standard schedule of accommodation. The actual amount will be determined on the basis of a survey on the serviceability of the existing furniture and equipment.

Year	\$ million (Sept 2007)	Price adjustment factor	\$ million (MOD)
2008 – 09	19.0	1.00750	19.1
2009 – 10	49.0	1.01758	49.9
2010 – 11	22.5	1.02775	23.1
2011 – 12	14.5	1.03803	15.1
2012 – 13	13.5	1.05619	14.3
	118.5		121.5

8. 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 2008 to 2013. 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 not provide for price adjustment because the contract period will not exceed 21 months.

9. The cost of furniture and equipment, estimated to be \$3.0 million, will be borne by the Government. This is in line with the existing policy.

10. The annual recurrent expenditure of one session of the existing primary school was \$18.1 million in the 2005/06 school year. We estimate the annual recurrent expenditure for **340EP** to be \$20.8 million.

PUBLIC CONSULTATION

11. We consulted the Kowloon City District Council on **340EP** in November 2005 and Members of the Council supported the project. We updated the Kowloon City District Council in August 2007 on the progress of the school building project and have not received any adverse views.

/12.

12. We consulted the Legislative Council Panel on Education (the Panel) on 24 October 2005 on our review of the School Building Programme. Members supported our recommendation to proceed with school projects for converting existing bi-sessional primary schools to whole-day operation, including **340EP**. We circulated to the Panel an information paper on this primary school project on 4 October 2007. Members have not raised any comments.

ENVIRONMENTAL IMPLICATIONS

13. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **340EP** in October 2007. The PER recommended installation of insulated windows and air-conditioning for rooms exposed to traffic noise exceeding the limits recommended in the Hong Kong Planning Standards and Guidelines. The recommended mitigation measures are as follows –

Mitigation measures	Estimated cost \$ million (in Sept 2007 prices)
(a) Insulated windows and air-conditioning for six classrooms from the 4/F to 5/F of the southern façade of classroom block	0.6
(b) Insulated windows and air-conditioning for two special rooms on the 2/F of the southern façade of special room block	0.4

With such mitigation measures in place, the project would not have long term environmental impacts. We have included the cost of the above mitigation measures as part of the building services in the project estimate.

14. 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 contract. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

15. 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 (e.g. use of excavated materials for filling within the site) on site or in other suitable construction sites as far as possible, in order to minimize the disposal of inert construction waste to public fill reception facilities⁴. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

16. 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.

17. We estimate that the project will generate in total about 10 650 tonnes of construction waste. Of these, we will reuse about 3 800 tonnes (35.7%) of inert construction waste on site and deliver 6 000 tonnes (56.3%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 850 tonnes (8.0%) 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 \$268,250 for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne⁵ at landfills).

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⁴ 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.

⁵ 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.

LAND ACQUISITION

18. The project does not require any land acquisition.

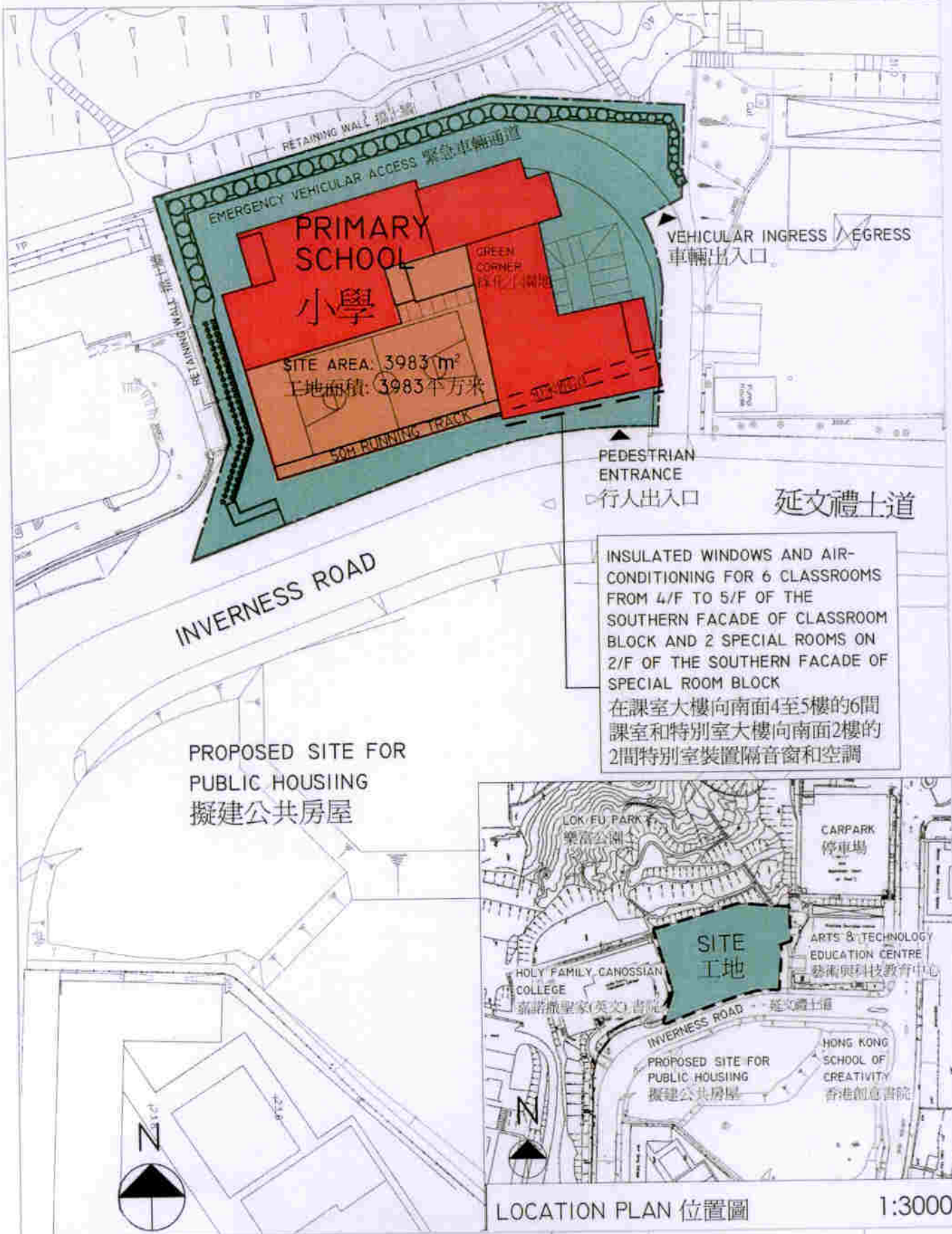
BACKGROUND INFORMATION

19. We upgraded **340EP** to Category B in November 2005. We engaged an architectural consultant in November 2006 to undertake the detailed design and PER. We engaged a quantity surveying consultant in February 2007 to prepare tender documents. The total cost of the above consultancy services and works is about \$3.0 million. We charged this amount to block allocation **Subhead 3100GX** “Project feasibility studies, minor investigations and consultants’ fees for items in Category D of the Public Works Programme”. The architectural consultant has completed the detailed design and PER. The quantity surveying consultant is finalising the tender documents.

20. The proposed works will not involve any tree removal. We will incorporate planting proposals as part of the project, including estimated quantities of 45 trees and 2 760 shrubs.

21. We estimate that the proposed works will create about 140 jobs (123 for labourers and another 17 for professional/technical staff) providing a total employment of 2 405 man-months.

Education Bureau
October 2007



TITLE 340EP
A 24-CLASSROOM PRIMARY SCHOOL
AT INVERNESS ROAD,
KOWLOON CITY
九龍城延文禮士道1所
設有24間課室的小學

DRAWN BY 繪圖
S K HO

APPROVED 覆核
BERNARD LIM

OFFICE 辦事處
ARCHITECTURAL BRANCH 建築設計處

DATE 日期
2-10-07

DATE 日期
2-10-07

DRAWING NO. 圖號
AB/6340/XA101

SCALE 比例
1:750



ARCHITECTURAL
SERVICES
DEPARTMENT 建築署




從西南面望向校舍的構思圖

VIEW OF THE SCHOOL PREMISES FROM SOUTH-WESTERN DIRECTION (ARTIST'S IMPRESSION)



從東南面望向校舍的構思圖

VIEW OF THE SCHOOL PREMISES FROM SOUTH-EASTERN DIRECTION (ARTIST'S IMPRESSION)

TITLE 340EP A 24-CLASSROOM PRIMARY SCHOOL AT INVERNESS ROAD, KOWLOON CITY 九龍城延文禮士道1所 設有24間課室的小學	DRAWN BY 繪圖 S K HO	DATE 日期 2-10-07	DRAWING NO. 編號 AB/6340/XAI02	SCALE 比例 N.T.S.
	APPROVED 覆核 BERNARD LIM	DATE 日期 2-10-07	 ARCHITECTURAL SERVICES DEPARTMENT 建築署	
	OFFICE 辦事處 ARCHITECTURAL BRANCH 建築設計處			

340EP – A 24-classroom primary school at Inverness Road, Kowloon City**Breakdown of the estimate for consultants' fees**

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Contract administration (Note 2)				
	Professional	–	–	–	1.5
	Technical	–	–	–	0.6
(b)	Site supervision (Note 3)				
	Professional	12.5	38	1.6	1.1
	Technical	96.2	14	1.6	2.9
				Total	6.1

* 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 2007, MPS point 38 = \$56,945 per month and MPS point 14 = \$18,840 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 **340EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **340EP** to Category A.
3. The consultants' staff cost for site supervision is based on the estimate prepared by the Director of Architectural Services. We will only know the actual man-months and actual costs after completion of the construction works.

**A comparison of the reference cost of
a 24-classroom primary school project
with the estimated cost of 340EP**

\$ million (in Sept 2007 prices)

	Reference cost*	340EP	
(a) Foundation	9.3	15.3	(See note A)
(b) Building	49.8	55.0	(See note B)
(c) Building services	13.3	16.1	(See note C)
(d) Drainage	2.1	3.0	(See note D)
(e) External works	8.5	9.5	(See note E)
(f) Furniture and equipment	–	3.0	(See note F)
(g) Consultants' fees	–	6.1	(See note G)
(h) Contingencies	8.3	10.5	
	Total	91.3	118.5
(i) Construction floor area	9 129 m ²	9 657 m ²	
(j) Construction unit cost {[(b) + (c)] ÷ (i)}	\$6,912/m ²	\$7,363/m ²	

*** Assumptions for reference cost**

- The estimation is based on the assumption that the school site is uncomplicated and without unusual environmental restrictions. No allowance is reserved for specific environmental restrictions such as the provision of insulated windows, air-conditioning and boundary walls to mitigate noise impacts on the school.

2. No site formation works/geotechnical works are required as they are normally carried out by other government departments under a separate engineering vote before handing over the project site for school construction.
3. Piling cost is based on the mixed use of 101 steel H-piles at an average depth of 30 m, assuming that percussive piling is permissible. It also includes costs for pile caps, strap beams and testing. No allowance is reserved for the effect of negative skin friction due to fill on reclaimed land.
4. Cost for drainage and external works is for a standard 24-classroom primary school site area of 4 700 m² built on an average level site without complicated geotechnical conditions, utility diversions, etc. (i.e. a “green-field” site).
5. No consultancy services are required.
6. Furniture and equipment costs are excluded as they are usually borne by the sponsoring bodies of new schools.
7. The reference cost for comparison purpose is subject to review regularly. We will review, and revise if necessary, the reference cost which should be adopted for future projects.

Notes

- A. The foundation cost is higher because of the close proximity of another school which precludes the use of percussive piling system as excessive vibrations and noise will be generated. It is estimated that this project will require the use of a combination of pad/raft foundations and the use of 32 non-percussive pre-bored socketted steel-H pile at an average of 15 metres.
- B. The building cost is higher because of larger construction floor area and higher cost allowed for substructure construction due to high bedrock level.
- C. The building services cost is higher because of larger construction floor area and the provision of air-conditioning as a noise mitigation measure.
- D. The cost of drainage works is higher because of high bedrock level.
- E. The cost of external works is higher because of high bedrock level.

/F.

- F. The cost of furniture and equipment, estimated to be \$3.0 million, will be borne by the Government as the school premises is allocated to an existing bi-sessional school for conversion into whole-day operation.

- G. Consultants' fees are required for contract administration and site supervision.