For discussion **PWSC(2008-09)6**
on 23 April 2008

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Education – Primary
345EP – An 18-classroom primary school at Pak Fuk Road, North Point

Members are invited to recommend to Finance Committee the upgrading of **345EP** to Category A at an estimated cost of $131.6 million in money-of-the-day prices for the construction of an 18-classroom primary school at Pak Fuk Road, North Point.

PROBLEM

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

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education, proposes to upgrade **345EP** to Category A at an estimated cost of $131.6 million in money-of-the-day (MOD) prices for the construction of an 18-classroom primary school at Pak Fuk Road, North Point.

/PROJECT .....

PROJECT SCOPE AND NATURE

3. The proposed scope comprises demolition of the vacant ex-Hong Kong Teachers' Centre on site and construction of the proposed primary school. The school premises under **345EP** will provide the following facilities –

(a) 18 classrooms;

(b) six special rooms;

(c) three small group teaching rooms;

(d) a guidance activity room;

(e) an interview room;

(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 also 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 40-metre (m) running track[1] on rooftop;

(o) a green corner[2]; and

/(p) .....

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[1] Making optimal use of the space of the campus, a 40-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.

The proposed school will meet the planning target of providing two square metres (m^2) 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 demolition works in June 2008 and construction works in December 2008 for completion of the new school building in July 2010.

JUSTIFICATION

4. It is Government's policy to implement whole-day schooling for all primary school students. In the 2007/08 school year, 97% of primary school places are in whole-day mode.

5. Upon completion, **345EP** will provide 18 classrooms and other facilities for accommodating one session of an existing bi-sessional primary school in the same district and in so doing, enable both sessions to switch to whole-day operation. In the 2008/09 school year, the school will be operating seven primary one classes in two sessions. When it operates from two premises after completion of the project, its planned class structure will remain unchanged and the overall supply of primary school places will not be affected.

6. We have examined whether we should expand the scope of this project to provide additional classrooms to help meet any shortfall in classrooms arising from the implementation of small-class teaching beginning 2009/10 school year. In consultation with the school sponsoring body, we have decided to proceed with this project at its present scope of work and school design without further delay so that the school may turn whole-day as early as possible according to an established policy objective. The fact is we will only be able to arrive at a realistic assessment as to whether additional classrooms would be required in the school net in which this project is located (and, if yes, the number) by mid-2008. The extent for expanding the scope of this project is also likely to be constrained by the area of the school site.

/**FINANCIAL** .....

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be $131.6 million in MOD prices (see paragraph 8 below), made up as follows –

			$ million	
(a)	Demolition		6.7	
(b)	Foundation/Substructure		14.5	
(c)	Building		61.2	
(d)	Building services		16.1	
(e)	Drainage		1.1	
(f)	External works		1.2	
(g)	Furniture and equipment[3]		2.8	
(h)	Consultants' fees for –		6.3	
	(i) Contract administration	1.9		
	(ii) Site supervision	4.4		
(i)	Contingencies		10.0	
	Sub-total		119.9	(in September 2007 prices)
(j)	Provision for price adjustment		11.7	
	Total		131.6	(in MOD prices)

/We .....

[3] Based on the standard furniture and equipment reference list prepared by the Education Bureau for a new 18-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.

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 **345EP** is 8 895 m^2. The estimated construction unit cost, represented by the building and the building services costs, is $8,690 per m^2 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 an 18-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for **345EP** is at Enclosure 4.

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

Year	$ million (Sept 2007)	Price adjustment factor	$ million (MOD)
2008 – 09	10.0	1.02575	10.3
2009 – 10	46.0	1.06293	48.9
2010 – 11	38.5	1.10545	42.6
2011 – 12	14.4	1.14967	16.6
2012 – 13	11.0	1.19566	13.2
	119.9		131.6

9. 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 deliver the demolition and construction works through two separate lump-sum contracts because we can clearly define the scope of the works in advance. The contracts will not provide for price adjustment because the contract periods will not exceed 21 months.

10. The cost of furniture and equipment, estimated to be $2.8 million, will be borne by the Government. This is in line with the existing policy.

/11. .....

11. We estimate the annual recurrent expenditure for **345EP** to be $15.9 million.

PUBLIC CONSULTATION

12. We consulted the Eastern District Council on **345EP** on 13 March 2008. Members of the Council supported the project.

13. We consulted the Legislative Council Panel on Education 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.

ENVIRONMENTAL IMPLICATIONS

14. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **345EP** 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 include the provision of insulated windows and air-conditioning for 18 classrooms, one small group teaching room and five special rooms from 2/F to 6/F at the western facade of the classroom and special room block at a cost of $2.9 million. 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 and building services in the project estimate.

15. 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.

/16. .....

16. 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 facilities[4]. 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.

17. 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.

18. We estimate that the project will generate in total about 24 100 tonnes of construction waste. Of these, we will reuse about 3 900 tonnes (16.2%) of inert construction waste on site and deliver 19 000 tonnes (78.8%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 1 200 tonnes (5.0%) 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 $663,000 for this project (based on a unit cost of $27/tonne for disposal at public fill reception facilities and $125/tonne[5] at landfills).

/ENERGY .....

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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 $\$90/m^3$), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled.

ENERGY CONSERVATION MEASURES

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

(a) T5 energy efficient fluorescent tubes with electronic ballast and lighting control by daylight sensor will be adopted in all offices and rooms at the perimeter of the building;

(b) heat recovery fresh air pre-conditioners will be adopted in the air-conditioned rooms; and

(c) automatic on/off switching of lighting and ventilation fan will be adopted inside the lift.

20. There are no renewable energy features to be provided in this project due to limited space on rooftop.

21. We will provide landscape in the appropriate area on the main roof and terraces for environmental and amenity benefits.

22. The total estimated additional cost for adoption of the energy efficient and greening features is around $1.2 million, which has been included in the cost estimate for this project. There will be about 9% energy savings in the annual energy consumption.

LAND ACQUISITION

23. The project does not require any land acquisition.

HERITAGE IMPLICATIONS

24. The 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.

/**BACKGROUND** .....

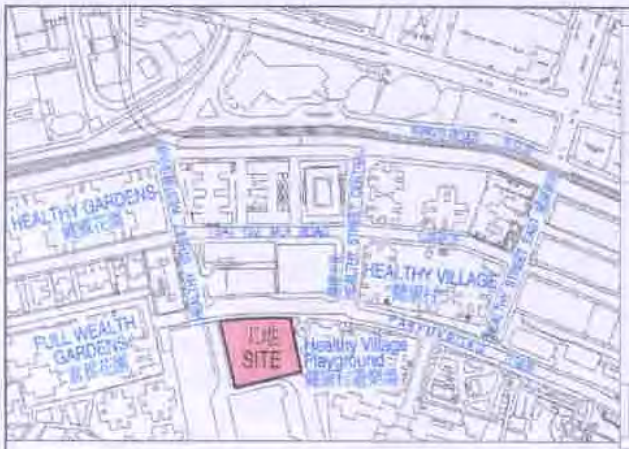
BACKGROUND INFORMATION

25. We upgraded **345EP** to Category B in November 2006. We engaged an architectural consultant in June 2007 to undertake the detailed design and PER. We engaged a quantity surveying consultant in October 2007 to prepare tender documents. The total cost of the above consultancy services and works is about $3.5 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.

26. The proposed works will not involve any removal of trees. We will incorporate planting proposals as part of the project, including estimated quantities of seven trees and 500 shrubs.

27. We estimate that the proposed works will create about 125 jobs (109 for labourers and another 16 for professional/technical staff) providing a total employment of 2 244 man-months.

Education Bureau
April 2008



位置圖
LOCATION PLAN

比例
SCALE 1 : 5000

北角街市
North Point Market

PAK FUK ROAD 百福道

EVA 緊急車輛通道

PEDESTRIAN ENTRANCE
行人入口

ASSEMBLY HALL BLOCK
禮堂大樓

BASKETBALL COURT AT 4/F
籃球場(設於4樓)

GREEN CORNER
綠化地帶

PRIMARY SCHOOL
小學
SITE AREA : 2149m²
地盤面積 : 2149平方米

CLASSROOM AND SPECIAL ROOM BLOCK
課室及特別室大樓

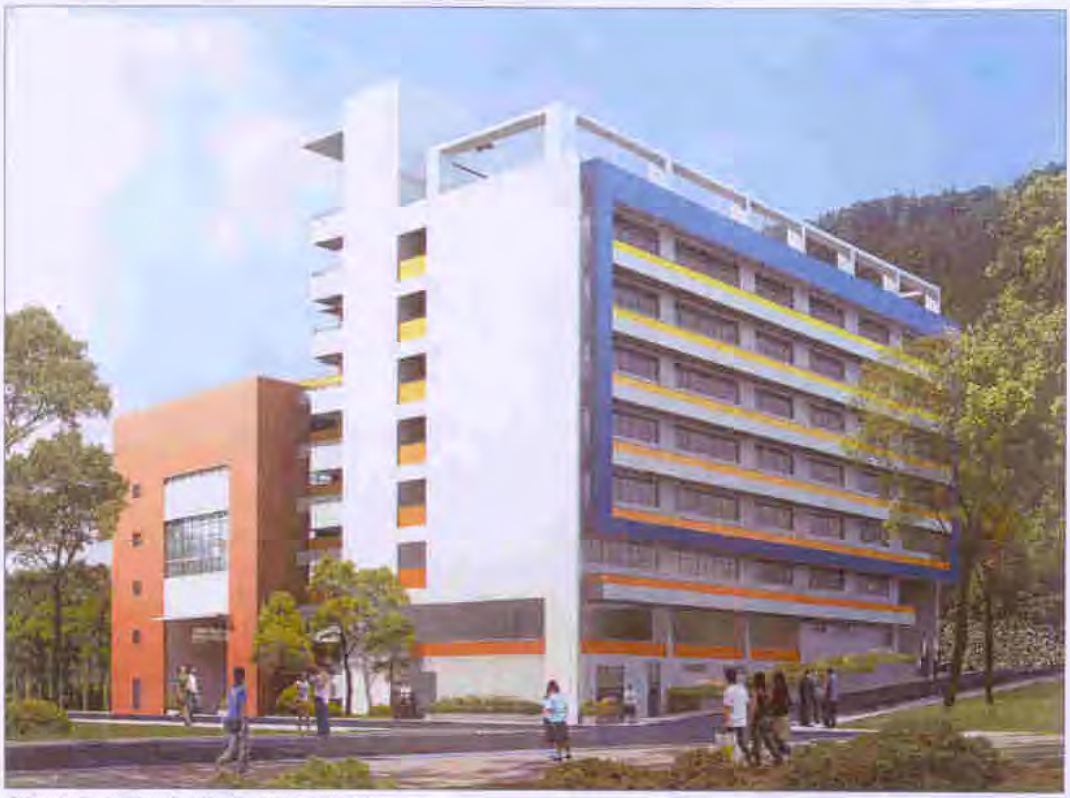
Healthy Village Playground
健康村遊樂場

INSULATED WINDOWS AND AIR-CONDITIONING FOR 18 CLASSROOMS ,1 SMALL GROUP TEACHING ROOM AND 5 SPECIAL ROOMS FROM 2/F TO 6/F AT THE WESTERN FACADE OF THE CLASSROOM AND SPECIAL ROOM BLOCK
在課室及特別室大樓西面2樓至6樓的18間課室, 1間小組教學室及5間特別室裝置隔音窗和空調

VEHICULAR INGRESS/ EGRESS
車輛出入口

40 M RUNNING TRACK ON ROOFTOP
40米跑道(設於頂層上)

TITLE 345EP AN 18 - CLASSROOM PRIMARY SCHOOL AT PAK FUK ROAD, NORTH POINT 北角百福道1所設有18間課室的小學	drawn by 繪圖 畢浩璋 LEO PAT	date 日期 31.03.08	drawing no. 圖號 AB/7094/NM-01	scale 比例 1 : 500
	approved by 批核 鄧文傑 JOSEPH M.K. TANG	date 日期 31.03.08		
	office 辦事處 ARCHITECTURAL BRANCH 建築設計處		ARCHITECTURAL SERVICES DEPARTMENT 建築署	



從西北面望向校舍的構思圖

VIEW OF THE SCHOOL PREMISES FROM NORTH-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 345EP AN 18 - CLASSROOM PRIMARY SCHOOL AT PAK FUK ROAD, NORTH POINT 北角百福道1所設有18間課室的小學	drawn by 繪圖 畢浩翔 LEO PAT	date 日期 31.03.06	drawing no. 圖號 AB/7094/NM-02	scale 比例 N.T.S.
	approved by 批核 鄧文傑 JOSEPH M.K. TANG	date 日期 31.03.06	ARCHITECTURAL SERVICES DEPARTMENT 建築署	
	office 辦事處 ARCHITECTURAL BRANCH 建築設計處			

345EP – An 18-classroom primary school at Pak Fuk Road, North Point

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	–	–	–	1.4
		Technical	–	–	–	0.5
(b)	Site supervision (Note 3)	Professional	12.1	38	1.6	1.1
		Technical	109.5	14	1.6	3.3
					Total	6.3

* 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 **345EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **345EP** 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 an 18-classroom primary school project with the estimated cost of 345EP

	$ million (in Sept 2007 prices)		
	Reference cost*	**345EP**	
(a) Demolition	–	6.7	(See note A)
(b) Foundation/Substructure	9.6	14.5	(See note B)
(c) Building	52.3	61.2	(See note C)
(d) Building services	13.3	16.1	(See note D)
(e) Drainage	1.8	1.1	(See note E)
(f) External works	8.4	1.2	(See note F)
(g) Furniture and equipment	–	2.8	(See note G)
(h) Consultants' fees	–	6.3	(See note H)
(i) Contingencies	8.5	10.0	
Total	93.9	119.9	
(j) Construction floor area	8 476 m^2	8 895 m^2	
(k) Construction unit cost {[(c) + (d)] ÷ (j)}	$7,739/$m^2$	$ 8,690/m^2	

/**Assumptions** .....

*** Assumptions for reference cost**

1. 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 use of 95 steel H-piles at an average depth of 30m, 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 18-classroom primary school site area of 3 950 m^2 built on an average level site without complicated geotechnical conditions, utility diversions, etc. (i.e. a "green-field" site).

5. No consultancy services are allowed.

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 have revised the reference cost in March 2008 in accordance with the finalised price level in September 2007.

/Notes .....

Notes

A. The demolition cost is for the demolition of vacant premises on site.

B. The foundation/substructure cost is higher due to the restricted site area, extensive temporary earth lateral support system for the semi-basement and monitoring required due to the adjacent MTR underground structures which are prone to ground borne vibrations.

C. The building cost is higher because of the restricted site area and larger construction floor area.

D. The building services cost is higher because of the larger construction floor area and the provision of air-conditioning as a noise mitigation measure.

E. The cost of drainage works is lower because of smaller site area.

F. The cost of external works is lower because of smaller external area.

G. The cost of furniture and equipment, estimated to be $2.8 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.

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