For discussion **PWSC(2009-10)41**
on 15 June 2009

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Education – Primary
344EP – A 30-classroom primary school at development near Choi Wan Road and Jordan Valley, Kwun Tong

Members are invited to recommend to Finance Committee the upgrading of **344EP** to Category A at an estimated cost of $189.9 million in money-of-the-day prices for the construction of a 30-classroom primary school at development near Choi Wan Road and Jordan Valley, Kwun Tong.

PROBLEM

Some schools are operating in premises which are under-provided by today's standards and should be reprovisioned when the opportunity arises.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education, proposes to upgrade **344EP** to Category A at an estimated cost of $189.9 million in money-of-the-day (MOD) prices for construction of a 30-classroom primary school at development near Choi Wan Road and Jordan Valley, Kwun Tong, to reprovision an existing aided primary school (the School) which is operating in a sub-standard premises in the same district.

/PROJECT …..

PROJECT SCOPE AND NATURE

3. The proposed scope of works for **344EP** includes —

(a) 30 classrooms;

(b) six special rooms, including a computer-assisted learning room and a language room;

(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 also be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);

(l) a multi-purpose area;

(m) two basketball courts cum a mini-soccer pitch at ground level;

(n) a 40-metre (m) running track[1];

(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] 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 construction works in December 2009 for completion in August 2011.

JUSTIFICATION

4. The school which is to be reprovisioned is currently housed in a 26 year-old premises built on a site smaller than 3 000 m^2, which falls short of the current standard. Certain essential facilities for effective teaching and learning such as small group teaching rooms, multi-purpose room, conference room, medical room and changing room, are lacking. The open space provision also falls short of the latest planning standard. The situation is further aggravated by the need for frequent repairs including spalling concrete and extensive waterpipe leakage. Due to site constraints which pose difficulties for in-situ redevelopment, reprovisioning is the most cost-effective way to upgrade the teaching and learning environment of the School.

5. Upon completion, **344EP** will provide 30 primary classrooms and other facilities for accommodating the existing school which is operating 18 classes in the 2008/09 school year in the same district. We propose a scope larger than the current 18 classrooms in order to provide additional school places to meet the new demand arising from extensive pubic housing development in the district and to optimize the development potential of the school site.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be $189.9 million in MOD prices (see paragraph 7 below), made up as follows –

/(a) …..

			$ million	
(a)	Foundation		12.2	
(b)	Building		92.8	
(c)	Building services		21.5	
(d)	Additional energy conservation measures		2.2	
(e)	Drainage		4.8	
(f)	External works		16.3	
(g)	Furniture and equipment[3]		3.0	
(h)	Consultants' fees		2.5	
	(i) contract administration	2.4		
	(ii) management of resident site staff	0.1		
(i)	Remuneration of resident site staff		5.2	
(j)	Contingencies		15.8	
	Sub-total		176.3	(in September 2008 prices)
(k)	Provision for price adjustment		13.6	
	Total		189.9	(in MOD prices)

/We …..

[3] Based on the standard furniture and equipment reference list prepared by the Education Bureau for a new 30-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 estimates for the consultants' fees and resident site staff costs by man-months is at Enclosure 3. The construction floor area (CFA) of **344EP** is 11 260 m^2. The estimated construction unit cost, represented by the building and the building services costs, is $10,151 per m^2 of CFA in September 2008 prices. We consider this comparable to similar school projects built by the Government. A comparison of the reference cost for a 30-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for **344EP** is at Enclosure 4.

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

Year	$ million (Sept 2008)	Price adjustment factor	$ million (MOD)
2009 – 10	2.0	1.03500	2.1
2010 – 11	44.1	1.05570	46.6
2011 – 12	97.0	1.07681	104.5
2012 – 13	21.6	1.09835	23.7
2013 – 14	11.6	1.12032	13.0
	176.3		189.9

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 2009 to 2014. We will deliver the construction works through a lump sum contract because we can clearly define the scope of the works in advance. The contract will provide for price adjustments to reflect market fluctuations in labour and material costs.

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

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10. We estimate the annual recurrent expenditure for **344EP** to be $27.1 million.

PUBLIC CONSULTATION

11. At its meeting on 7 April 2009, the Kwun Tong District Council was consulted on **344EP** and supported the project.

12. We consulted the Legislative Council Panel on Education on 24 October 2005 on our review of the School Building Programme. Members noted our plan to proceed with reprovisioning and redevelopment projects to upgrade sub-standard facilities in existing schools. **344EP** is a project to reprovision an existing school operating in sub-standard premises.

ENVIRONMENTAL IMPLICATIONS

13. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **344EP** in December 2006. The PER recommended that mitigation measures would not be necessary for the proposed school.

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 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 minimize

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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.

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 15 800 tonnes of construction waste. Of these, we will reuse about 8 900 tonnes (56.3%) of inert construction waste on site and deliver 5 300 tonnes (33.6%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of 1 600 tonnes (10.1%) 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 $343,100 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 CONSERVATION MEASURES

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

/(a) …..

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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.

(a) Variable Refrigerant Volume (VRV) air-conditioning system;

(b) heat recovery fresh air pre-conditioners in the air-conditioned spaces for heat energy reclaim of exhaust air;

(c) T5 energy efficient fluorescent tubes with electronic ballast and lighting control by occupancy sensors and daylight sensors;

(d) light emitting diode (LED) type exit signs; and

(e) automatic on/off switching of lighting and ventilation fan inside the lift.

19. For renewable energy technologies, we will adopt photovoltaic system to provide renewable energy for environmental benefits.

20. For greening features, we will provide landscape in the appropriate area on the main roofs and terrace for environmental and amenity benefits.

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

22. The total estimated additional cost for adoption of the above features is around $2.2 million (including $397,000 for energy efficient features), which has been included in the cost estimate for the project. The energy efficient features will achieve 7.2% energy savings in the annual energy consumption with a payback period at about 7.3 years.

HERITAGE IMPLICATIONS

23. 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.

/LAND …..

LAND ACQUISITION

24. The project does not require any land acquisition.

BACKGROUND INFORMATION

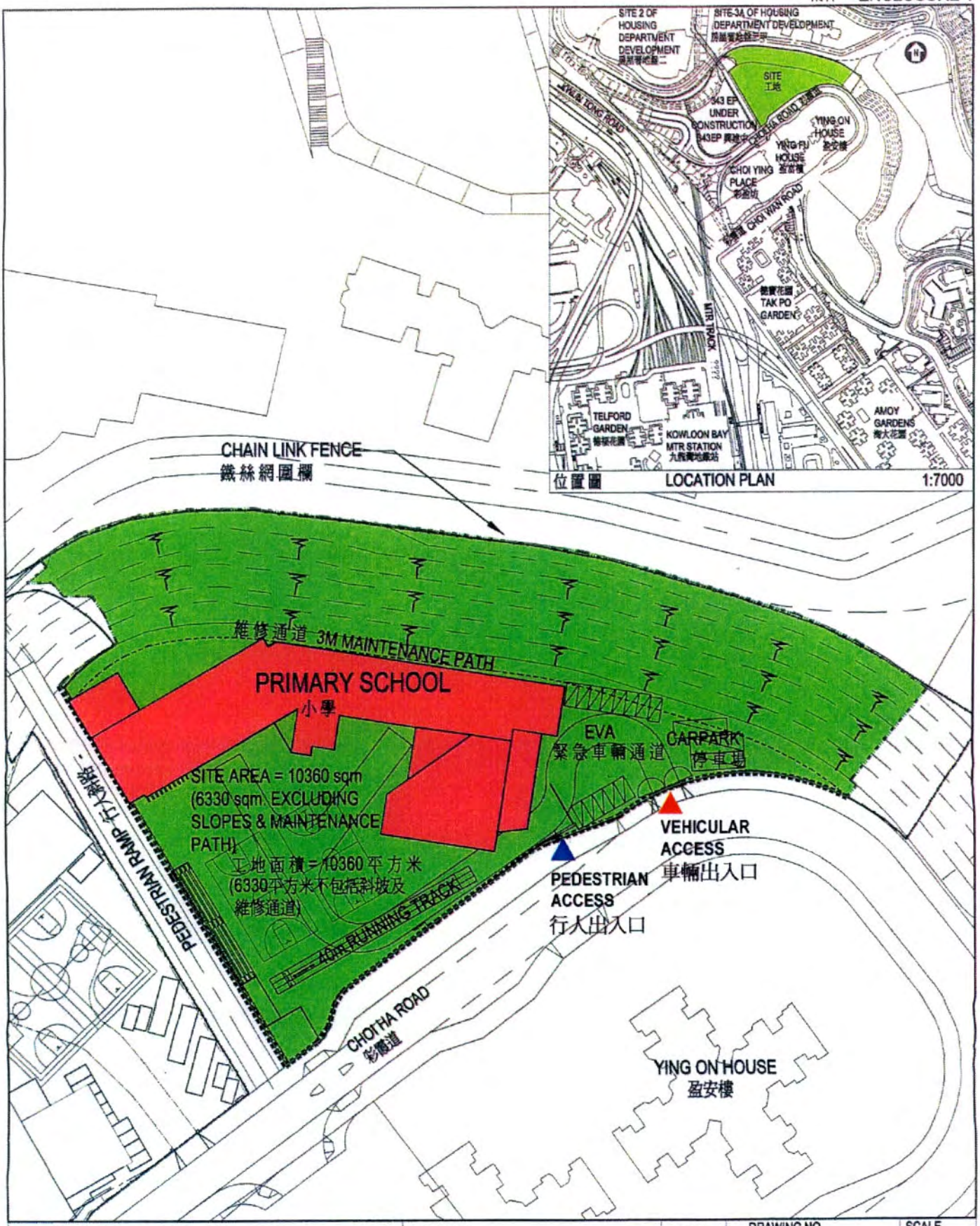
25. We upgraded **344EP** to Category B in September 2008 and engaged an architectural consultant to undertake the detailed design and the PER. We also engaged a quantity surveying consultant to prepare tender documents. The total cost of these consultancy services and works is about $2.4 million. We have 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 80 trees, 6 400 shrubs and 600 m^2 of grassed area.

27. We estimate that the proposed works will create about 187 jobs (169 for labourers and another 18 for professional/technical staff) providing a total employment of 3 208 man-months.

Education Bureau
June 2009

附件 1 ENCLOSURE 1



TITLE 344 EP 觀塘彩雲道及佐敦谷毗鄰發展計劃 1所設有30間課室的小學 A 30-CLASSROOM PRIMARY SCHOOL AT DEVELOPMENT NEAR CHOI WAN ROAD AND JORDAN VALLEY, KWUN TONG	DRAWN BY WS Leung 梁慧珊	DATE 29.05.2009	DRAWING NO. AB/7143/GP1000	SCALE 1:1000
	APPROVED G. Li 李慧思	DATE 29.05.2009	ARCHITECTURAL SERVICES DEPARTMENT 建築署	
	OFFICE ARCHITECTURAL BRANCH 建築設計部			

VIEW OF SCHOOL PREMISES FROM SOUTH-WESTERN DIRECTION (ARTIST'S IMPRESSION)
從西南面望向校舍的構思圖

AERIAL VIEW OF SCHOOL PREMISES FROM SOUTHERN DIRECTION (ARTIST'S IMPRESSION)
從南面望向校舍的鳥瞰構思圖

TITLE 344 EP 觀塘彩雲道及佐敦谷毗鄰發展計劃 1所設有30間課室的小學 A 30-CLASSROOM PRIMARY SCHOOL AT DEVELOPMENT NEAR CHOI WAN ROAD AND JORDAN VALLEY, KWUN TONG	DRAWN BY WS Leung 梁慧珊	DATE 29.05.2009	DRAWING NO. AB/7143/GP1001 / SCALE 1:1000
	APPROVED G. Li 李慧思	DATE 29.05.2009	ARCHITECTURAL SERVICES DEPARTMENT 建築署
	OFFICE ARCHITECTURAL BRANCH 建築設計部		

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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	–	–	–	1.8
		Technical	–	–	–	0.6
					Sub-total	2.4
(b)	Resident site staff costs (Note 3)	Professional	18.6	38	1.6	1.8
		Technical	110.3	14	1.6	3.5
					Sub-total	5.3
	Comprising -					
	(i) Consultants' fees for management of resident site staff					0.1
	(ii) Remuneration of resident site staff					5.2
					Total	7.7

* 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 38 = $60,535 per month and MPS point 14 = $19,835 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 **344EP**. The assignment will only be executed subject to the Finance Committee's approval to upgrade **344EP** to Category A.

/3. …..

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 30-classroom primary school project with the estimated cost of 344EP

		$ million (in Sept 2008 prices)		
		Reference cost*	**344EP**	
(a)	Foundation	16.5	12.2	(See note A)
(b)	Building	92.6	92.8	(See note B)
(c)	Building services	21.5	21.5	
(d)	Additional energy conservation measures	-	2.2	(See note C)
(e)	Drainage	4.0	4.8	(See note D)
(f)	External works	15.0	16.3	(See note E)
(g)	Furniture and equipment	-	3.0	(See note F)
(h)	Consultants' fees	-	2.5	(See note G)
(i)	Remuneration of resident site staff	-	5.2	(See note H)
(j)	Contingencies	15.0	15.8	
	Total	164.6	176.3	
(k)	Construction floor area	10 727 m^2	11 260 m^2	
(l)	Construction unit cost {[(b) + (c)] ÷ (k)}	$10,637/$m^2$	$10,151/$m^2$	

*** 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 mixed use of 118 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 30-classroom primary school site area of 6 200 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 required.

6. Furniture and equipment costs are excluded as they are usually borne by the sponsoring bodies of new schools for meeting new demand of school places.

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 lower because footing foundation is adopted instead of piling.

/B. …..

B. The building cost is higher because of larger construction floor area.

C. Additional energy conservation measures are required for environmental benefits.

D. The cost of drainage is higher because of larger site area and high bedrock level.

E. The cost of external works is higher because of larger site area.

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 school for reprovisioning.

G. Consultants' fees for contract administration and management of resident site staff are required for contract administration and site supervision of the building works.

H. Remuneration of resident site staff is required for site supervision of the building works.