

**For discussion
on 3 May 2001**

PWSC(2001-02)20

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 - CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Education Subventions

18EA - A 30-classroom Primary School in Diocesan Boys' School campus at 131 Argyle Street, Kowloon

Members are invited to recommend to the Finance Committee the approval of a new commitment of \$129.1 million in money-of-the-day prices for the construction of a 30-classroom primary school at the existing Diocesan Boys' School campus at 131 Argyle Street, Kowloon.

PROBLEM

We need to provide additional primary schools for the implementation of the whole-day primary schooling policy.

PROPOSAL

2. With the support of the Secretary for Education and Manpower and on the advice of the Director of Architectural Services (D Arch S), the Director of Education (D of E) proposes to create a commitment of \$129.1 million in money-of-the-day (MOD) prices for constructing a 30-classroom primary school in the existing Diocesan Boys' School (DBS) campus.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of the project includes the construction of a new 30-classroom school building at the southern end of the existing DBS campus. To construct the new school building, an abandoned two-storey building (which used to be staff quarters) occupying some 270 square metres at the southern part of the campus will have to be demolished. Besides, a new elevated road (70 metres long and 8.5 metres wide) will be necessary to provide a proper vehicular access (which also provides emergency vehicular access) for the proposed school. A site plan of the proposed school is at Enclosure 1.

4. While the proposed primary school will be a non-standard design, it will meet the latest schedule of accommodation and cover all facilities allowed for a standard 30-classroom primary school. It will have the following facilities -

- (a) 30 classrooms;
- (b) six special rooms, including a computer-assisted learning room and a language room;
- (c) four remedial teaching rooms;
- (d) a guidance activity/interview room;
- (e) two interview rooms;
- (f) two staff rooms and a staff common room;
- (g) a student activity centre;
- (h) a conference room;
- (i) a library;
- (j) an assembly hall;
- (k) a multi-purpose area;
- (l) one basketball court on the ground level and one basketball court on the roof;
- (m) ancillary accommodation including a lift and relevant facilities for the handicapped; and

(n) a green corner¹.

5. In addition to the above facilities, students of the proposed primary school will have access to DBS's existing sports facilities within the same campus, including a swimming pool, tennis courts, basketball courts and a gymnasium. The proposed project will be able to meet the planning target of providing two square metres of open space per student.

6. The School Authority plans to demolish the abandoned staff quarters in June 2001. Construction works for the new school building and the new elevated road will start in December 2001. The new school building is expected to be completed by July 2003.

JUSTIFICATION

7. The Government's interim target is to enable 60% of our primary school pupils to study in whole-day schools by the 2002/03 school year. To achieve this target, 78 new primary schools are required between the 1998/99 and 2002/03 school years. To date, 37 schools have already been completed, and a further 40 are at various stages of construction. The only remaining project targeted to be completed by end 2002 will be submitted to the Committee as soon as possible.

8. The Government is further committed to enabling virtually all primary school pupils to study in whole-day schools by the 2007/08 school year. To this end, D of E plans to construct another 46 new schools between the 2003/04 and the 2007/08 school years. **18EA** will help achieve this policy target.

9. The Kowloon City district currently has 29 public sector primary schools providing 530 classrooms. D of E forecasts that 34 additional classrooms will be required to meet the increase in demand for school places by the 2007/08 school year. **18EA** will help meet the shortfall.

FINANCIAL IMPLICATIONS

10. The cost of the project is estimated to be \$129.1 million in MOD prices (see paragraph 11 below). The estimated cost, which has been examined and endorsed by D Arch S, is made up as follows -

/(a)

¹ The green corner is a designated area inside the campus to enable students to pursue their interests in horticulture and natural environment. The green corner may include a green house, a weather station and planting beds.

	\$ million	
(a) Demolition and site formation	7.7	
(b) Elevated road	20.2	
(c) Piling	17.5	
(d) Building	49.5	
(e) Building services	11.6	
(f) Drainage and external works	9.3	
(g) Consultants' fees -	3.9	
(i) contract administration	1.9	
(ii) site supervision	1.6	
(iii) out-of-pocket expenses	0.4	
(h) Contingencies	12.0	
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	Sub-total	131.7 (in September 2000 prices)
(i) Provision for price adjustment	(2.6)	
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	Total	129.1 (in MOD prices)
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The construction floor area of the proposed school is 10 727 square metres. The construction unit cost, represented by building and building services costs, is \$5,696 per square metre in September 2000 prices. D Arch S considers the estimated construction unit cost reasonable and comparable to other 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 cost for **18EA** is at Enclosure 2. A breakdown by man-months of the cost estimate for consultants' fees is at Enclosure 3.

11. Subject to approval, the School Authority will phase the expenditure as follows -

Year	\$ million (Sept 2000)	Price adjustment factor	\$ million (MOD)
2001 - 02	29.5	0.98000	28.9
2002 - 03	81.9	0.97976	80.2
2003 - 04	20.3	0.98759	20.0
	131.7		129.1

12. We derived the MOD estimates on the basis of Government's forecast of trend labour and construction prices for the period 2001 to 2004. The School Authority will tender the works under two fixed-price lump-sum contracts (one on demolition/site formation works and the other on piling/building works). This is because the scope of works can be defined in advance, leaving little room for uncertainty.

13. We estimate the annually recurrent expenditure for the school to be \$23.1 million.

PUBLIC CONSULTATION

14. The School Authority has consulted the parents and teachers of the DBS on the proposed project. The proposal has received their support. The School Authority will take all necessary measures to minimize possible disruptions caused by the construction works to existing DBS students and teachers (see paragraph 17 below).

15. As the proposed school project is carried out within the existing school boundary, we do not consider public consultation to be necessary.

ENVIRONMENTAL IMPLICATIONS

16. The School Authority conducted a Preliminary Environment Review (PER) on the proposed project in July 1999. The PER concluded that, in order to

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keep the road traffic noise impact within the limits stipulated in the Hong Kong Planning Standards and Guidelines, insulated windows and air-conditioning would need to be provided for three special rooms from the 1/F to the 3/F at the southern façade of the special room block. We have included \$120,000 in the project estimate as part of the building and building services works to implement the above mitigation measures.

17. During construction, the School Authority will control noise, dust and site run-off nuisances through the implementation of mitigation measures in the relevant contracts. These include the use of silencers, mufflers, acoustic lining or shields for noisy construction activities as well as frequent cleaning and watering of the site, etc.

18. At the planning and design stages, the School Authority has considered measures to reduce the generation of construction and demolition (C&D) materials. The School Authority has introduced more prefabricated building elements into project design to avoid temporary formwork and construction waste. Suitable excavated materials will be used for filling within the site to minimize off-site disposal. To further minimize the generation of C&D materials, the School Authority will require the contractors to use non-timber formwork and recyclable materials for temporary works. In addition, the contractor will be required to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

19. The School Authority will also require the contractor to submit a waste management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. The School Authority will ensure that the day-to-day operations on site comply with the approved WMP. The School Authority will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip-ticket system. The contractor will be required to separate public fill from C&D waste for disposal at appropriate facilities. The School Authority will record the disposal, reuse and recycling of C&D materials for monitoring purposes. We estimate that the project will generate about 47 100 cubic metres (m³) of C&D materials. Of these, we will reuse about 7 500 m³ (16%) on site, 32 100 m³ (68%) as fill in public filling areas², and dispose of 7 500 m³ (16%) at landfills.

/LAND

² A public filling area is a designated part of a development project that accepts public fill for reclamation purposes. Disposal of public fill in a public filling area requires a licence issued by the Director of Civil Engineering.

LAND ACQUISITION

20. The project does not require land acquisition.

BACKGROUND INFORMATION

21. The site is a private lot owned by the Diocesan Boys' School Committee. In 1926, a secondary school was built thereon and has been run under the sponsorship of Sheng Kung Hui. The proposed primary school will be run under the same school sponsor.

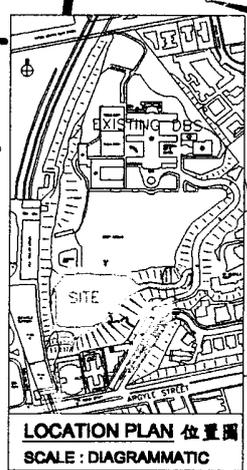
22. We upgraded **18EA** to Category B in October 1999. The consultant engaged by the School Authority completed the feasibility study in October 1999. The consultant has also completed the detailed design and tender documents for the demolition/site formation works and is now finalising the detailed design and tender documents for the piling/building works. We charged the cost of the pre-contract consultancy, amounting to \$4.1 million, to block allocation **Subhead 8100QX** "Alterations, additions, repairs and improvements to education subvented buildings".

23. We estimate that **18EA** will create about 190 jobs with a total of 3 420 man-months comprising three professional staff, 12 technical staff and 175 labourers during the construction period.

Education and Manpower Bureau
May 2001

SITE PLAN 總體平面圖

SPORT GROUND
運動場



SWIMMING POOL
游泳池

EXISTING 2 STOREYS QUARTER TO BE DEMOLISHED FOR CONSTRUCTION
將原有兩層高宿舍拆除

36.0
⊕

GREEN CORNER
自然角

PROPOSED PRIMARY SCHOOL (30 CLASSROOM)
擬建小學(三十間課室)

TOTAL SITE AREA 6200 SM. APPROX
地盤總面積約6200平方米

NEW ELEVATED ROAD
新升高道路

5 NOS. OF PRIVATE CARPARK
私家車車位共五個

3 NOS. OF SCHOOL BUS PARKING
校車車位共三個

PROVISION OF INSULATED WINDOWS & AIR CONDITIONING TO 3 SPECIAL ROOMS FROM 1/F TO 3/F AT THE SOUTHERN FACADE OF THE SPECIAL ROOM BLOCK
在特別室大樓向南面由一樓至三樓之三間特別室安裝隔音玻璃和空氣調節

ASSEMBLY OF GOD KINDERGARDEN
神召會幼稚園

GLEN HAVEN
嘉麗園

ARGYLE STREET 113
亞皆老街一一三號

ARGYLE STREET 亞皆老街

KADOORIE AVENUE 嘉道理道

TITLE 8018EA
A 30 - CLASSROOM PRIMARY SCHOOL IN DIOCESAN BOYS' SCHOOL CAMPUS
AT 131 ARGYLE STREET, KOWLOON
在九龍亞皆老街一百三十一號的拔萃男書院校園興建一所設有三十間課室的小學

DRAWING NO. : PWSC-01 SCALE 1:1000

Enclosure 2 to PWSC(2001-02)20

**A comparison of the reference cost of
a 30-classroom primary school project
with the estimated cost of 18EA**

\$ million (in Sept 2000 prices)

	Reference cost*	18EA	
(a) Demolition and site formation	-	7.7	(See A below)
(b) Elevated road	-	20.2	(See B below)
(c) Piling	9.0	17.5	(See C below)
(d) Building	49.5	49.5	
(e) Building services	11.5	11.6	(See D below)
(f) Drainage and external works	9.0	9.3	(See E below)
(g) Consultants' fees	-	3.9	(See F below)
(h) Contingencies	7.9	12.0	
	<hr/>	<hr/>	
Total	86.9	131.7	
	<hr/>	<hr/>	
(i) Construction floor area	10 727m ²	10 727m ²	
(j) Construction unit cost {[(d)+(e)] ÷ (i)}	\$5,687/m ²	\$5,696/m ²	

*** Assumptions for reference cost**

1. The estimation is based on the assumption that the school site is uncomplicated and without abnormal environmental restrictions. No allowance is reserved for specific environmental restrictions such as the provision of insulated windows, air-conditioning and solid 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 the handing-over of the project site for school construction.
3. Piling cost is based on the use of 112 numbers of steel H-piles at an average depth of 30 metres, on the assumption 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 square metres 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 body.
7. The reference cost for comparison purpose is subject to review regularly. D Arch S will review, and revise if necessary, the reference cost which should be adopted for future projects.

Estimates for 18EA

- A. An abandoned two-storey building at the southern part of the campus will have to be demolished. Site formation works are also required to level off the site to create a platform for the new school building. The works include cutting of soils, forming appropriate site profile and slope stabilisation works.
- B. Since the new school will be located at the southern end of the campus, a new elevated road is required to provide a proper vehicular access (which also provides emergency vehicular access) for the school. The need for the access road can be obviated if we were to move the proposed school northwards immediately next to the current DBS secondary school building where the existing sports field of DBS is located. If we were to adopt this, some of the current facilities will have to be moved to other parts of the campus. D Arch S has however advised that this is not cost effective. This is because doing so entails about an additional \$100 million mainly for carrying out extensive site formation/slope treatment and stabilization works at the eastern and western sides of the school campus, as well as for reprovisioning the existing sports facilities elsewhere within the campus.

- C. The piling cost is higher because it is based on the use of 189 numbers of mini-piles at an average depth of 19 metres (with a total of 450 metres for rock socket) and 19 numbers of reinforced concrete footings, instead of 112 numbers of steel H-piles at an average depth of 30 metres. Since the location of the piles is very close to an existing slope, any driving of piles may affect the stability of the slope. The proposed piling method is considered most economical and suitable in this case.
- D. The building services cost is higher because of the provision of insulated windows and air-conditioning as a noise mitigation measure.
- E. The drainage and external works cost is higher because a budget of \$300,000 has been included for the construction of the green corner.
- F. The total consultancy fees are estimated to be \$8.0 million. Those incurred before tendering are \$4.1 million and those after tendering are \$3.9 million. Following existing practice, the consultancy fees incurred before tendering are funded under the block allocation **Subhead 8100QX** “Alterations, additions, repairs and improvements to education subvented buildings”.

Enclosure 3 PWSC(2001-02)20

**18EA - A 30-classroom Primary School in Diocesan Boys' School campus at
131 Argyle Street, Kowloon**

Breakdown of the estimates for consultants' fees

Consultants' staff costs		Estimated man- months	Average MPS* salary point	Multiplier factor	Actual & Estimated fee (\$ million)
(a) Contract administration	Professional	9.9	38	2.4	1.4
	Technical	10.9	14	2.4	0.5
(b) Site supervision	Technical	49.4	14	1.7	1.6
				Sub-total	3.5
Out-of-pocket expenses					
Lithography and other direct expenses					0.4
				Sub-total	0.4
				Total	3.9

* MPS = Master Pay Scale

NOTES

1. A multiplier factor of 2.4 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit, as the staff will be employed in the consultant's offices. A multiplier factor of 1.7 is applied in the case of site staff supplied by the consultant. (At 1.4.2000, MPS pt. 38 = \$57,525p.m. and MPS pt.14 = \$19,055p.m.)
2. Out-of-pocket expenses are the actual costs incurred. The consultants are not entitled to any additional payment for overheads or profit in respect of these items.
3. The figures given above are estimates prepared by the Director of Architectural Services. We will only know the actual fees when we have selected the consultant through the usual competitive bidding system.