For discussion **PWSC(2000-01)21**
on 17 May 2000

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS
Education - Primary
232EP - Primary school in Lai Chi Kok Estate, phase 4

Members are invited to recommend to Finance Committee the upgrading of **232EP** to Category A at an estimated cost of $106.3 million in money-of-the-day prices for the construction of a 30-classroom primary school in Lai Chi Kok Estate, phase 4.

PROBLEM

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

PROPOSAL

2. The Director of Architectural Services (D Arch S), with the support of the Secretary for Education and Manpower, proposes to upgrade **232EP** to Category A at an estimated cost of $106.3 million in money-of-the-day (MOD) prices for the construction of a primary school in Lai Chi Kok Estate, phase 4.

PROJECT SCOPE AND NATURE

3. The proposed primary school is a standard design 30-classroom school building. A site plan for the school is at Enclosure 1 for Members' reference. The school building will have -

/(a) …..

(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 (which, together with the roof of the assembly hall block, can also be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);

(k) a multi-purpose area;

(l) three basketball courts (two at ground level locating side by side which also provides for a mini-football pitch and the other at the rooftop of the assembly hall block); and

(m) ancillary accommodation including a lift and relevant facilities for the handicapped.

The proposed project will be able to meet the planning target of providing 2 square metres of open space per student. D Arch S plans to start construction works in December 2000 for completion in July 2002.

JUSTIFICATION

4. To meet the increase in demand for primary school places and to help achieve the policy target of enabling 60% of pupils in public sector schools

/to …..

to study on a whole-day basis by the commencement of the school year 2002/03, the Director of Education (D of E) plans to build an additional 73 primary schools for completion between August 1998 and August 2002. To date, 19 of these schools have been completed, and 46 schools are at various stages of construction[1]. A separate project (**273EP**) for a 30-classroom primary school will also be considered by Members at this meeting (see paper referenced PWSC(2000-01)22).

5. Kwai Tsing District currently has 27 public sector primary schools, providing 639 classrooms. While D of E forecasts that no additional classrooms are required to meet the increase in demand for school places by the school year 2002/03, **232EP** will enable an existing bi-sessional school in the district to convert into whole-day operation.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be $106.3 million in MOD prices (see paragraph 7 below), made up as follows -

		$ million	
(a)	Site formation	2.0	
(b)	Piling	13.0	
(c)	Building	49.5	
(d)	Building services	11.5	
(e)	Drainage and external works	9.0	
(f)	Furniture and equipment	4.8	
(g)	Contingencies	8.5	
	Sub-total	98.3	(in December 1999 prices)

/(h) …..

[1] Of these 46 schools, 41 were approved by Finance Committee and five are being funded by the Housing Authority.

		$ million	
(h)	Provision for price adjustment	8.0	
	Total	106.3	(in MOD prices)

The construction floor area of **232EP** is 10 727 square metres. The construction unit cost, represented by building and building services costs, is $5,687 per square metre at December 1999 prices. D Arch S considers this construction unit cost comparable to similar school projects built by the Government. A comparison of the standard cost of a 30-classroom primary school with the estimated cost for this school is at Enclosure 2.

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

Year	**$ million (Dec 1999)**	**Price adjustment factor**	**$ million (MOD)**
2000 - 01	2.6	1.00000	2.6
2001 - 02	48.5	1.04500	50.7
2002 - 03	35.5	1.10770	39.3
2003 - 04	11.7	1.17416	13.7
	98.3		106.3

8. We derived the MOD estimates on the basis of Government's latest forecast of trend labour and construction prices for the period 2000 to 2004. We will tender the works under a fixed-price lump-sum contract because we can clearly define the scope of works in advance, leaving little room for uncertainty.

9. We estimate the additional annually recurrent expenditure for the school to be $19.5 million.

PUBLIC CONSULTATION

10. We consulted the Community Affairs Committee of the Kwai Tsing District Council in April 2000. Members of the Committee supported the project.

ENVIRONMENTAL IMPLICATIONS

11. We engaged a consultant in October 1999 to conduct a Preliminary Environmental Review (PER) for the school. The PER concluded that the school would not be subject to any adverse environmental impacts. During construction, we 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.

12. We estimate that about 760 cubic metres of construction and demolition (C&D) waste will be disposed of at landfills and 350 cubic metres of public fill will be delivered to public filling areas. Ways of reducing the generation of C&D material were considered during the planning and design stage. We will require our contractor to submit a waste management plan to the D Arch S for approval, with appropriate mitigation measures including allocation of an area for waste segregation. We will ensure that the day-to-day operations on site comply with the approved waste management plan. As far as possible, we will require the contractor to reuse the excavated material as filling material on site or at other sites in order to minimize the disposal of public fill to public filling areas. To further minimize the generation of C&D materials, we will encourage the contractor to use non-timber formwork, hoarding and other temporary works. We will require the contractor to separate public fill from C&D waste for disposal at appropriate locations and to sort the C&D waste by category on site to facilitate reuse/recycling in order to reduce the generation of such waste. We will control the disposal of public fill and C&D waste to designated public filling facilities and landfills respectively through a trip ticket system, and record the disposal, reuse and recycling of C&D materials for monitoring purposes.

LAND ACQUISITION

13. The project does not require any land acquisition.

/BACKGROUND …..

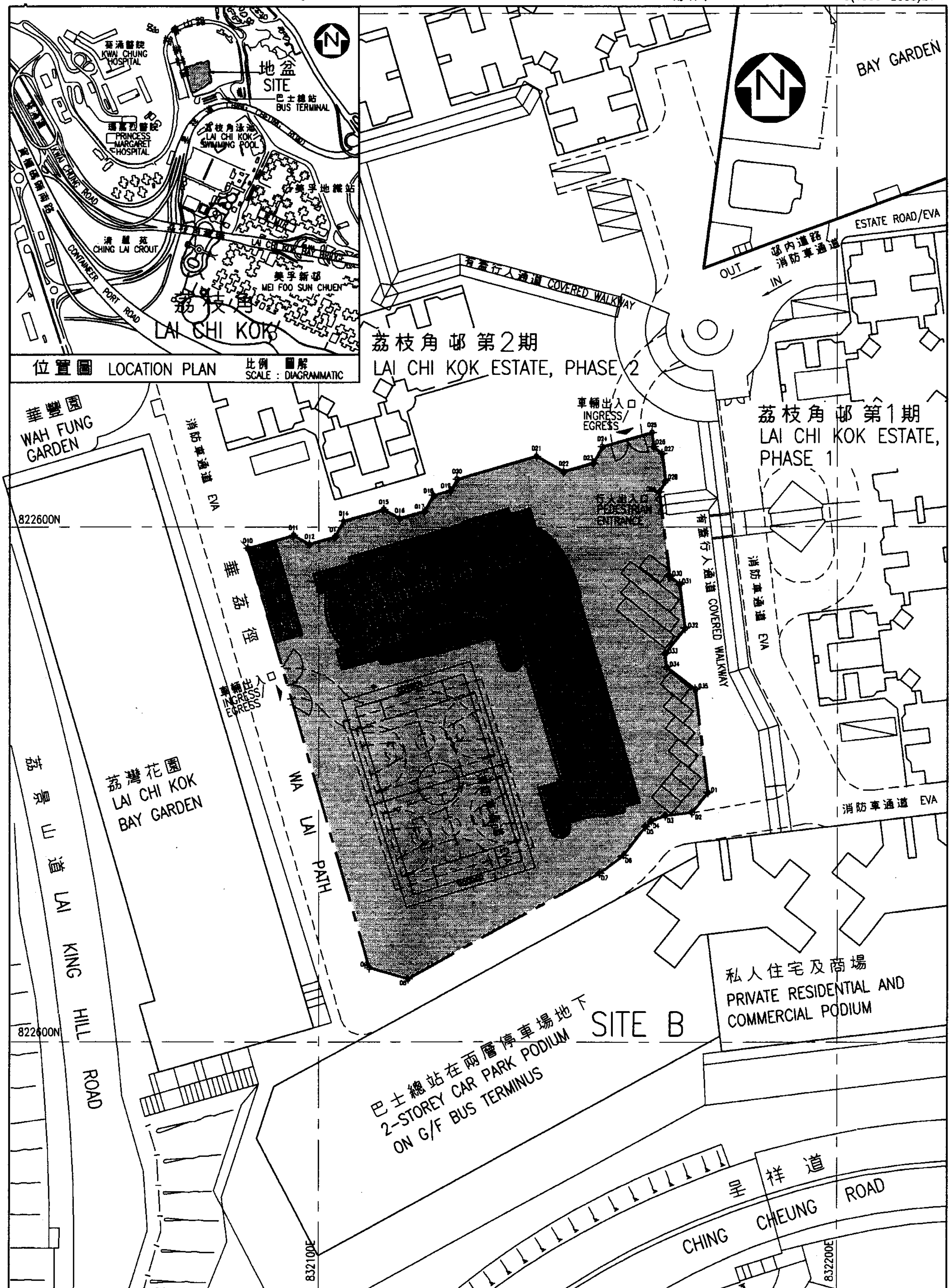
BACKGROUND INFORMATION

14. We upgraded **232EP** to Category B in September 1999. We engaged a consultant to carry out the PER and employed a term contractor to carry out ground investigation in October 1999 and February 2000 respectively at a total cost of $570,000. 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 consultant and the term contractor have respectively completed the PER and ground investigation. D Arch S has completed the detailed design of the project and is preparing the tender documents using in-house staff resources.

15. We estimate that the proposed works will create some 135 new jobs comprising two professional staff, five technical staff and 128 labourers during the construction period.

Education and Manpower Bureau
May 2000

(PWSC0273/WIN11)



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Enclosure 2 to PWSC(2000-01)21

A comparison of the standard cost of a 30-classroom primary school project with the estimated cost of 232EP

		Standard cost*	232EP	
		$ million (at Dec 1999 prices)		
(a)	Site formation	-	2.0	(See note A)
(b)	Piling	9.0	13.0	(See note B)
(c)	Building	49.5	49.5	
(d)	Building services	11.5	11.5	
(e)	Drainage and external works	9.0	9.0	
(f)	Furniture and equipment	-	4.8	(See note C)
(g)	Contingencies	7.9	8.5	
	Total	86.9	98.3	
(h)	Construction floor area	10 727m^2	10 727m^2	
(i)	Construction unit cost {[(c)+(d)] ÷(h)}	\$5,687/m^2	\$5,687/m^2	

*** Assumptions for standard 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 greenfield 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 standard cost for comparison purpose is subject to review regularly. D Arch S has recently updated the standard cost of a primary school from $90.8 million at December 1998 prices to $86.9 million at December 1999 prices. D Arch S will continue to periodically review, and revise if necessary, the standard cost which should be adopted for future projects.

Notes

A. Site formation is necessary because of the requirement to raise the site level to match the surrounding areas and also the need to remove existing concrete paving and underground structures.

B. The piling cost is higher because it is based on the use of 125 numbers of rock-socketed steel H-piles in prebored holes of 30 metres average depth instead of 112 numbers of steel H-piles at average depth of 30 metres for a standard school. Percussive steel H-piles are unsuitable because the weak soil above bedrock is unable to provide restraint to the pile base. The increase in number of piles is due to negative skin friction, which is partly compensated by the increase in capacity of rock-socketed piles.

C. The cost of furniture and equipment, estimated to be $4.8 million, will be borne by Government as the school will be allocated to an existing bi-sessional school for conversion to whole-day operation.