

## **ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE**

### **HEAD 703 – BUILDINGS**

#### **Education – Primary**

#### **289EP – A 36-classroom primary school at Pokfield Road, Kennedy Town**

Members are invited to recommend to Finance Committee the upgrading of **289EP** to Category A at an estimated cost of \$163 million in money-of-the-day prices for the construction of a 36-classroom primary school at Pokfield Road, Kennedy Town.

### **PROBLEM**

We need to provide additional primary schools to implement 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 **289EP** to Category A at an estimated cost of \$163 million in money-of-the-day (MOD) prices for the construction of a 36-classroom primary school at Pokfield Road, Kennedy Town.

### **PROJECT SCOPE AND NATURE**

3. The proposed primary school will have the following facilities –

- (a) 36 classrooms;
- (b) nine special rooms including two 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 and a staff common room;
- (g) a student activity room;
- (h) a conference room;
- (i) a library;
- (j) an assembly hall (can be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);
- (k) a multi-purpose area;
- (l) two basketball courts (on ground level);
- (m) a green corner<sup>1</sup>; and
- (n) ancillary accommodation including four lifts<sup>2</sup> and relevant facilities for the handicapped.

————— The proposed project will meet the planning target of providing two square metres of open space per student. A site plan is at Enclosure 1. D Arch S plans to start the construction works in November 2002 for completion in June 2005.

#### **/JUSTIFICATION .....**

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<sup>1</sup> 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 green house, a weather station and planting beds.

<sup>2</sup> Apart from the standard premises of a lift for school use, three additional lifts are needed to provide convenient access from Rock Hill Street as the ground floor of the school is about 40 metres above Rock Hill Street.

## JUSTIFICATION

4. The Government's interim target is to enable 60% of our primary school students to study in whole-day schools in the 2002/03 school year. To achieve this target, 78 new primary schools are required between the 1998/99 and the 2002/03 school years. To date, 55 schools have already been completed, and the remaining 23 are at various stages of construction.

5. The Government is further committed to enabling virtually all primary school students to study in whole-day schools by the 2007/08 school year. To this end, the Director of Education (D of E) plans to construct another 46<sup>3</sup> new schools between the 2003/04 and the 2007/08 school years. To date, 16 new school projects have already been upgraded to Category A. **289EP** will help achieve this policy target. Another 36-classroom and two other 24-classroom schools, covered in **274EP**, **301EP** and **312EP**, will also be considered by Members at this meeting (see paper referenced PWSC(2002-03)51 and PWSC(2002-03)56).

6. The Central and Western District, in which **289EP** is located, currently has 20 public sector primary schools providing 334 classrooms. D of E forecasts that about 30 additional classrooms will be required for full implementation of whole-day primary schooling in the district by the 2007/08 school year. **289EP** will provide 36 classrooms for the conversion of an existing 36-class bi-sessional primary school into whole-day operation. It is more desirable to develop a 36-classroom premises so that the school could be converted into whole-day operation without affecting its student intake. Moreover, taking into consideration the site formation cost and additional piling and building cost involved, it would be more cost-effective to develop a 36-classroom premises so as to maximise the site potential. We note that upon the completion of **289EP**, there will be six classrooms in excess of the forecast demand in the district in accordance with the current plan. We will review the situation, for example, the actual enrolment rate, nearer the time to ensure that classrooms in the district and public money are put to good use.

## FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be \$163 million in MOD prices (see paragraph 8 below), made up as follows –

/(a) .....

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<sup>3</sup> The figure has not taken into account the primary school places provided by **8029EC** "A private independent school at Po Kong Village Road, Wong Tai Sin". We will further review the figure in due course.

	\$ million	
(a) Site formation	16.0	
(b) Piling	29.5	
(c) Building	70.0	
(d) Building services	22.8	
(e) Drainage and external works	6.8	
(f) Furniture and equipment <sup>4</sup>	5.0	
(g) Consultants' fees for contract administration <sup>5</sup>	1.0	
(h) Contingencies	14.6	
Sub-total	165.7	(in September 2001 prices)
(i) Provisions for price adjustment	(2.7)	
Total	163.0	(in MOD prices)

Due to inadequate in-house staff resources, D Arch S proposes to engage consultants to undertake certain aspects of the contract administration for building services and quantity surveying works of the project. The construction floor area (CFA) of **289EP** is about 17 820 square metres. The estimated construction unit cost, represented by the building and building services costs, is \$5,208 per square metre of CFA in September 2001 prices. D Arch S considers this comparable to similar school projects built by the Government. A comparison of the reference cost of a 36-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost of **289EP** is at Enclosure 2.

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<sup>4</sup> Based on a standard furniture and equipment list prepared by Education Department for "Year 2000 design" school.

<sup>5</sup> The consultants' fees form an optional part of the lump-sum price quoted by the consultants selected to undertake the building services design and prepare tender documents as mentioned in paragraph 18 of the paper. Subject to Members' approval to upgrade **289EP** to category A, D Arch S will direct the necessary works to be carried out.

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

Year	\$ million (Sept 2001)	Price adjustment factor	\$ million (MOD)
2002 – 03	8.0	0.98625	7.9
2003 – 04	47.0	0.98378	46.2
2004 – 05	53.0	0.98378	52.1
2005 – 06	40.0	0.98378	39.4
2006 – 07	16.0	0.98378	15.7
2007 – 08	1.7	0.98378	1.7
	165.7		163.0

9. We derived the MOD estimates on the basis of the Government's latest forecast of trend labour and construction prices for the period 2002 to 2008. We will deliver the works through a lump-sum contract with provision for price fluctuation because the contract period will be more than 21 months.

10. The cost of furniture and equipment, estimated to be \$5 million, will be borne by the Government as the school will enable an existing bi-sessional school to convert into whole-day operation. This is in line with existing policy.

11. We estimate the annual recurrent expenditure of the project to be \$26.8 million.

## **PUBLIC CONSULTATION**

12. We consulted the Central and Western District Council on 12 April 2001. Members of the Council supported the project.

**/ENVIRONMENTAL .....**

## ENVIRONMENTAL IMPLICATIONS

13. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **289EP** in April 2002. The PER concluded that the school would not be subject to adverse environmental impacts, and the road traffic noise impact will be kept within the limits recommended in the Hong Kong Planning Standards and Guidelines, provided that insulated windows and air-conditioning are provided to the 36 classrooms, four small group teaching rooms and five special rooms at the northern façade of the classroom block. We have included \$4.8 million in the project estimate as part of the building services cost to implement the above mitigation measures.

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 relevant contracts. 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. At the planning and design stages, we have considered measures to reduce the generation of construction and demolition (C&D) materials. D Arch S has introduced more prefabricated building elements into the school design to reduce temporary formwork and construction waste. These include dry-wall partitioning and proprietary fittings and fixtures. We will use suitable excavated materials for filling within the site to minimise off-site disposal. In addition, we will require the contractor to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

16. D Arch S will 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. D Arch S will ensure that the day-to-day operations on site comply with the approved WMP. D Arch S 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. We will record the disposal, reuse and recycling of C&D materials for monitoring purposes. We estimate that the project will generate about 3 480 cubic metres (m<sup>3</sup>) of C&D materials. Of these, we will reuse about 2 220 m<sup>3</sup> (63.8%) on site, 720 m<sup>3</sup> (20.7%) as fill in public filling areas<sup>6</sup>, and

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<sup>6</sup> 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.

dispose of 540 m<sup>3</sup> (15.5%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$67,500 for this project (based on a notional unit cost<sup>7</sup> of \$125/m<sup>3</sup>).

## LAND ACQUISITION

17. The project does not require land acquisition.

## BACKGROUND INFORMATION

18. We upgraded **289EP** to Category B in October 2000. We engaged consultants to carry out a topographical survey in April 2001 and PER in April 2002 and employed a term contractor to carry out site investigation in May 2001 at a total cost of \$970,000. We also engaged consultants to undertake the building services design and prepare tender documents at a total cost of \$1.1 million. We charged these to block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees for items in Category D of the Public Works Programme". The consultants and the term contractor have completed the topographical survey, PER and site investigation respectively. D Arch S has completed the detailed architectural and structural designs of the project with in-house staff resources. The consultants have completed the building services design and tender documents.

19. We estimate that the proposed works under **289EP** will create 135 jobs with a total of 3 830 man-months comprising three professional staff, seven technical staff and 125 labourers.

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Education and Manpower Bureau  
June 2002

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<sup>7</sup> This estimate has taken into account the cost for developing, operating and restoring the landfill 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<sup>3</sup>), nor the cost to provide new landfills (which are likely to be more expensive) when the existing ones are filled. The notional cost estimate is for reference only and does not form part of this project estimate.



**A comparison of the reference cost of  
a 36-classroom primary school project  
with the estimated cost of 289EP**

**\$ million (in Sept 2001 prices)**

	<b>Reference cost*</b>	<b>289EP</b>	
(a) Site formation	–	16.0	(See note A)
(b) Piling	11.2	29.5	(See note B)
(c) Building	53.9	70.0	(See note C)
(d) Building services	12.7	22.8	(See note D)
(e) Drainage and external works	11.0	6.8	(See note E)
(f) Furniture and equipment	–	5.0	(See note F)
(g) Consultants' fees for contract administration	–	1.0	(See note G)
(h) Contingencies	8.9	14.6	
	Total	97.7	165.7
(i) Construction floor area	12 770 m <sup>2</sup>	17 820 m <sup>2</sup>	
(j) Construction unit cost {[(c) + (d)] ÷ (i)}	\$5,215/m <sup>2</sup>	\$5,208/m <sup>2</sup>	

**\* 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 140 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 36-classroom primary school site area of 7 000 square metres<sup>8</sup> 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. D Arch S will review, and revise if necessary, the reference cost which should be adopted for future projects.

## Notes

- A. Additional cost is required for carrying out site formation to provide level platforms and also pedestrian access from Rock Hill Street on this steeply sloping site.
- B. Piling cost is higher because it is based on the use of 40 numbers of caissons with an average depth of 17 metres instead of the use of 140 numbers of steel H-piles at an average depth of 30 metres as assumed for the reference cost. Caissons are required as other forms of piling are not practical on this steeply sloping site.
- C. Building cost is higher because of a complex structural design required to suit the steep slopes of the site and the increased construction floor area required to form the lower ground carpark and playground platforms.

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<sup>8</sup> We do not have a standard design for 36-classroom primary school. 7 000 square metres are calculated on a pro-rata basis having regard to the site area of a standard design 30-classroom primary school.

- D. Building services cost is higher because of the provision of air-conditioning as a noise mitigation measure and additional lifts to provide access from Rock Hill Street. The increased construction floor area of this school also accounts for a higher cost.
- E. The drainage and external works costs are lower because of a smaller site area and inclusion of the lower ground carpark and playground platforms in building cost rather than the external works cost as in the case of other school projects.
- F. The cost of furniture and equipment, estimated to be \$5 million, will be borne by the Government as the school is for the conversion of an existing bi-sessional school into whole-day operation.
- G. Consultants' fees are required for contract administration for building services and quantity surveying works.