

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS

Education – Primary

281EP – Two primary schools at Site 5, West Kowloon Reclamation

Members are invited to recommend to Finance Committee the upgrading of **281EP** to Category A at an estimated cost of \$208.1 million in money-of-the-day prices for the construction of two 30-classroom primary schools at Site 5, West Kowloon Reclamation.

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 **281EP** to Category A at an estimated total cost of \$208.1 million in money-of-the-day (MOD) prices for the construction of two 30-classroom primary schools at Site 5, West Kowloon Reclamation.

PROJECT SCOPE AND NATURE

3. The two proposed primary schools are standard design 30-classroom school buildings. Each school will have -

- (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 room;
- (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) **School 1** will have two basketball courts (inclusive of one on ground level and one at the rooftop of the assembly hall block) and a mini-soccer pitch;
- (m) **School 2** will have three basketball courts (inclusive of two on ground level and a further one at the rooftop of the assembly hall block);
- (l) ancillary accommodation including a lift and relevant facilities for the handicapped; and
- (m) a green corner¹ (For **School 1**, the green corner is on ground level. For **School 2**, the green corner is at the rooftop of the classroom block.);

/ 4.

¹

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

4. The two proposed schools will be able to meet the planning target of providing two square meters of open space per student. A site plan for the two schools is at Enclosure 1. D Arch S plans to start construction works in January 2001 for completion in July 2002.

JUSTIFICATION

5. 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 study on a whole-day basis by the school year 2002/03, the Director of Education (D of E) originally planned to build 73 new primary schools for completion between August 1998 and August 2002. Pursuant to the latest projection on population distribution² which indicates that further primary school places will need to be provided in certain districts in order to meet the 60% whole-day primary schooling target, D of E now plans to build five additional schools on top of the 73 schools mentioned above, making up a total of 78 schools for completion by the school year 2002/03. To date, 36 of these 78 schools have been completed and 32 schools are at various stages of construction. Another six are pending upgrading to Category A³.

6. Sham Shui Po District currently has 22 public sector primary schools providing 399 classrooms. Whilst 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, **281EP** will enable two existing bi-sessional primary schools in the district to convert into whole-day operation.

FINANCIAL IMPLICATIONS

7. We estimate the capital cost of the project to be \$208.1 million in MOD prices (see paragraph 8 below), made up as follows -

/ (a)

² The Working Group on Population Distribution under the Planning Department releases updated projection on population distribution from time to time. The last update was released in February 2000.

³ At the Public Works Subcommittee meeting on 8 November 2000, Members endorsed the upgrading of **252EP**, **267EP**, **268EP**, **276EP**, **286EP** and **287EP** for the construction of four 30-classroom primary schools and two 24-classroom primary schools. The Finance Committee will consider the recommendations on 1 December 2000.

	School 1	School 2	Total for 281EP	
	\$ million			
(a) Piling	12.7	12.7	25.4	
(b) Building	49.7	49.7	99.4	
(c) Building services	13.8	14.1	27.9	
(d) Drainage and external works	10.0	10.0	20.0	
(e) Furniture and equipment	4.5	4.5	9.0	
(f) Contingencies	8.6	8.6	17.2	
Sub-total	99.3	99.6	198.9	(in September 2000 prices)
(g) Provision for price adjustment	4.6	4.6	9.2	
Total	103.9	104.2	208.1	(in MOD prices)

The construction floor area for each of the schools is 10 727 square metres. The construction unit costs of the two schools, represented by building and building services costs, are \$5,920 per square metre and \$5,948 per square metre respectively in September 2000 prices. D Arch S considers the estimated construction unit costs comparable to similar school projects built by the Government. A comparison of the reference cost of a 30-classroom primary school based on uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for **281EP** is at Enclosure 2.

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

/ Year

Year	\$ million (Sept 2000)			Price adjustment factor	\$ million (MOD)		
	Sch. 1	Sch. 2	Total for 281EP		Sch. 1	Sch. 2	Total for 281EP
2000 – 01	0.5	0.5	1.0	1.00000	0.5	0.5	1.0
2001 – 02	43.5	43.5	87.0	1.02550	44.6	44.6	89.2
2002 – 03	47.9	48.0	95.9	1.05627	50.6	50.7	101.3
2003 – 04	5.2	5.2	10.4	1.08795	5.7	5.7	11.4
2004 – 05	2.2	2.4	4.6	1.12059	2.5	2.7	5.2
	<u>99.3</u>	<u>99.6</u>	<u>198.9</u>		<u>103.9</u>	<u>104.2</u>	<u>208.1</u>

9. We derived the MOD estimates on the basis of Government's latest forecast of trend labour and construction prices for the period 2000 to 2005. We will tender the works under a fixed-price lump-sum contract because the construction period of the two schools will be less than 21 months and we can clearly define the scope of works in advance, leaving little room for uncertainty.

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

PUBLIC CONSULTATION

11. We consulted the Sham Shui Po District Council on **281EP** in October 2000. Members of the District Council supported the project.

ENVIRONMENTAL IMPLICATIONS

12. We conducted a Preliminary Environmental Review (PER) for the project in March 1999. The PER concluded that these schools would not be subject to adverse environmental impacts provided that we implement the following environmental mitigation measures to keep the road traffic noise impact within the limits stipulated in the Hong Kong Planning Standards and Guidelines -

	Mitigation Measures	Estimated Cost \$ million (in Sept. 2000 prices)
School 1	(a) Construction of a 3-metre high solid boundary wall surrounding the site;	1.0
	(b) Provision of insulated windows and air-conditioning to 15 classrooms from the 2/F to the 6/F at the southern façade of the classroom block and four special rooms on the 3/F at the eastern and western façades of the special room block;	2.5
School 2	(c) Construction of a 3-metre high solid boundary wall surrounding the site; and	1.0
	(d) Provision of insulated windows and air-conditioning to 18 classrooms from the 2/F to the 6/F at the southern façade of the classroom block and four special rooms on the 3/F at the eastern and western façades of the special room block.	2.8

We have included the costs of these mitigation measures as part of the building and building services works in the project estimates.

13. 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.

14. Ways of minimizing the generation of construction and demolition (C&D) materials were considered at the planning and design stage. We will require the contractor to implement necessary measures to minimize the generation of C&D materials. Where such materials are produced, we will try to reuse and recycle them. If this is not possible, C&D materials will be disposed of through designated public filling facilities and/or in landfills through a trip-ticket system. The reuse, recycling and disposal of C&D materials will be properly

recorded for monitoring purposes. We estimate that some 8 880 cubic metres of C&D materials will be generated by the project. Of these about 6 660 cubic metres (75%) will be reused on site, 700 cubic metres of inert C&D materials (7.9%) will be reused as fill in public filling areas⁴ and about 1 520 cubic metres of C&D waste (17.1%) will be disposed of at landfills.

LAND ACQUISITION

15. Neither of the two schools requires land acquisition.

BACKGROUND INFORMATION

16. We upgraded **281EP** to Category B in September 2000. We engaged consultants to carry out a PER in March 1999, a topographical survey in August 1999 and employed a term contractor to carry out site investigation in August 1999 at a total cost of \$1.555 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 consultants and the term contractor have completed the PER, topographical survey and site investigation. D Arch S has completed the detailed design and the tender documents of the project using in-house staff resources.

17. We estimate that the proposed projects will create some 325 jobs with a total of 5 410 man-months comprising four professional staff, 11 technical staff and 310 labourers during the construction period.

Education and Manpower Bureau
November 2000

(PWSC0315/WIN13)

⁴

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.



**A comparison of the reference cost of
a 30-classroom primary school project
with the estimated cost of 281EP**

	Reference cost*	281EP School 1	School 2	
	\$ million (in Sept 2000 prices)			
(a) Piling	9.0	12.7	12.7	(See A below)
(b) Building	49.5	49.7	49.7	(See B below)
(c) Building services	11.5	13.8	14.1	(See C below)
(d) Drainage and external works	9.0	10.0	10.0	(See D below)
(e) Furniture and equipment	-	4.5	4.5	(See E below)
(f) Contingencies	7.9	8.6	8.6	
Total	<u>86.9</u>	<u>99.3</u>	<u>99.6</u>	
(g) Construction floor area	10 727m ²	10 727m ²	10 727m ²	
(h) Construction unit cost {[(b)+(c)] ÷ (g)}	\$5,687/m ²	\$5,920/m ²	\$5,948/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 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 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.

Estimates for 281EP

- A. The piling costs are higher because they are based on the use of 148 numbers of steel H-piles at an average depth of 40 metres for each school under **281EP** instead of 112 numbers of steel H-piles at an average depth of 30 metres in a standard 30-classroom primary school. Additional piles are required due to negative skin friction as the site is on reclaimed land. The average depth of 40 metres is necessary because of a deeper rock head level.
- B. The building cost for each school is higher because of the provision of the insulated windows as a noise mitigation measure.
- C. The building services cost for each school is higher because of the provision of air-conditioning as a noise mitigation measure.
- D. The drainage and external works cost for each school is higher because of the construction of a 3-metre high solid boundary wall as a noise mitigation measure.
- E. The cost of furniture and equipment, estimate to be \$4.5 million for each school, will be borne by Government as the schools will be allocated to two existing bi-sessional schools for conversion to whole-day operation.