

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS

Education - Primary

275EP - Primary school in Area 10, Tsing Yi

Members are invited to recommend to Finance Committee the upgrading of **275EP** to Category A at an estimated cost of \$113.4 million in money-of-the-day prices for the construction of a 30-classroom primary school in Area 10, Tsing Yi.

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 **275EP** to Category A at an estimated cost of \$113.4 million in money-of-the-day (MOD) prices for the construction of a primary school in Area 10, Tsing Yi.

PROJECT SCOPE AND NATURE

3. The proposed primary school is a standard design 30-classroom school building to be built on the podium level of a two-storey public housing

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carpark block¹. The topography of the site enables the main entrance (as marked 'A' on the site plan in Enclosure 1) to be on the same level as the adjacent public housing development in Area 10, Tsing Yi with a staircase linking the ground level and the podium level of the school. Separately, the vehicular access and a pedestrian access of the school will be more or less the same level as Liu To Road (as marked 'B') and the nearby bus terminal (as marked 'C') respectively. While the school will be at a higher level than the adjacent public housing estate, there will be a pedestrian ramp cum lift (as marked 'D') and a footbridge (as marked 'E') linking the two. The pedestrian accesses at 'C', 'D' and 'E' are outside the school boundary and are funded by the Housing Authority (HA).

4. The school will be provided with 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 (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;

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¹ The original plan is to build a multi-storey public housing carpark block next to the school. However, this would obstruct the natural ventilation and lighting for the school which is surrounded by slopes and residential blocks. The proposed podium design will avoid such ventilation and lighting problems and provide a better learning environment for the students.

- (l) three basketball courts (two on the carpark podium level and the other at the rooftop of the assembly hall block);
- (m) a green corner²;
- (n) an amphitheatre³; and
- (o) ancillary accommodation including a lift and relevant facilities for the handicapped.

5. The proposed project will be able to meet the planning target of providing two square metres of open space per student. The Director of Housing (D of H) plans to start the construction works in November 2000 for completion in July 2002.

JUSTIFICATION

6. 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 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 to August 2002. To date, 19 of these schools have been completed and 46 schools are at various stages of construction⁴. Two projects are pending upgrading to Category A⁵.

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² 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 includes a green house, a weather station and planting beds.

³ The amphitheatre will be funded by the HA. The triangular open area adjacent to the north-western boundary of the site was originally planned as an open area of the housing estate. HA has given consideration to how to make the best use of this open area. Taking into consideration the position of this open area, HA considers it more desirable to incorporate this open area into the school boundary with a view to providing more open space for the students. We will construct an amphitheatre there with landscape furnishing surrounding it. The open area and the school are at different levels and a staircase, funded by the HA, will be provided to facilitate students' access to the open area.

⁴ Of these 46 schools, 41 were approved by Finance Committee and five are being funded by the HA.

⁵ At the Public Works Subcommittee meeting on 17 May 2000, Members endorsed the upgrading of **232EP** and **273EP** to Category A at an estimated cost of \$106.3 million and \$113.1million in MOD prices for the construction of two 30-classroom primary schools. Finance Committee will consider the recommendations on 9 June 2000.

7. Kwai Tsing District currently has 27 public sector primary schools providing 639 classrooms. While the 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, **275EP** will enable an existing bi-sessional school in the district to convert into whole-day operation.

8. In order to tie in with the overall public housing development programme in Area 10, Tsing Yi, we will entrust the construction of the school to the HA.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$113.4 million in MOD prices (see paragraph 10 below), made up as follows -

| | \$ million | |
|---|-------------------|---------------------------|
| (a) Piling (raft foundation) | 14.5 | |
| (b) Building | 49.5 | |
| (c) Building services | 12.1 | |
| (d) Drainage and external works | 13.0 | |
| (e) Furniture and equipment | 4.8 | |
| (f) Contingencies | 8.9 | |
| (g) 2% Housing Authority on-cost ⁶ | 2.0 | |
| | 104.8 | (in December 1999 prices) |
| (h) Provision for price adjustment | 8.6 | |
| | 113.4 | (in MOD prices) |

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⁶ There is a standard arrangement to pay 2% on-cost charges for administrative and supervisory works where Government projects are entrusted to the HA.

The construction floor area of **275EP** is 10 727 square metres. The construction unit cost, represented by building and building services costs, is \$5,743 per square metre in December 1999 prices. D Arch S considers the estimated construction unit costs 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.

10. 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 | 49.1 | 1.04500 | 51.3 |
| 2002 – 03 | 45.5 | 1.10770 | 50.4 |
| 2003 – 04 | 4.8 | 1.17416 | 5.6 |
| 2004 – 05 | 2.8 | 1.24461 | 3.5 |
| | 104.8 | | 113.4 |

11. 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. The construction including the foundation and the building works will be included in the contract for the construction of the phase 3 of public housing estate development in Area 10, Tsing Yi. HA will tender the works under a fixed-price lump-sum contract because the contract period will be shorter than 21 months.

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

PUBLIC CONSULTATION

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

ENVIRONMENTAL IMPLICATIONS

14. The D of H engaged a consultant in December 1998 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.

15. We estimate that some 350 cubic metres of public fill will be delivered to public filling areas and about 760 cubic metres of construction and demolition (C&D) materials will be disposed of at landfills. Ways of minimizing the generation of 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 and to reuse and recycle them. We will control the disposal of C&D materials to designated public filling facilities and/or landfills through a trip-ticket system, and record the disposal, reuse and recycling of C&D materials for monitoring purposes.

LAND ACQUISITION

16. The project does not require any land acquisition.

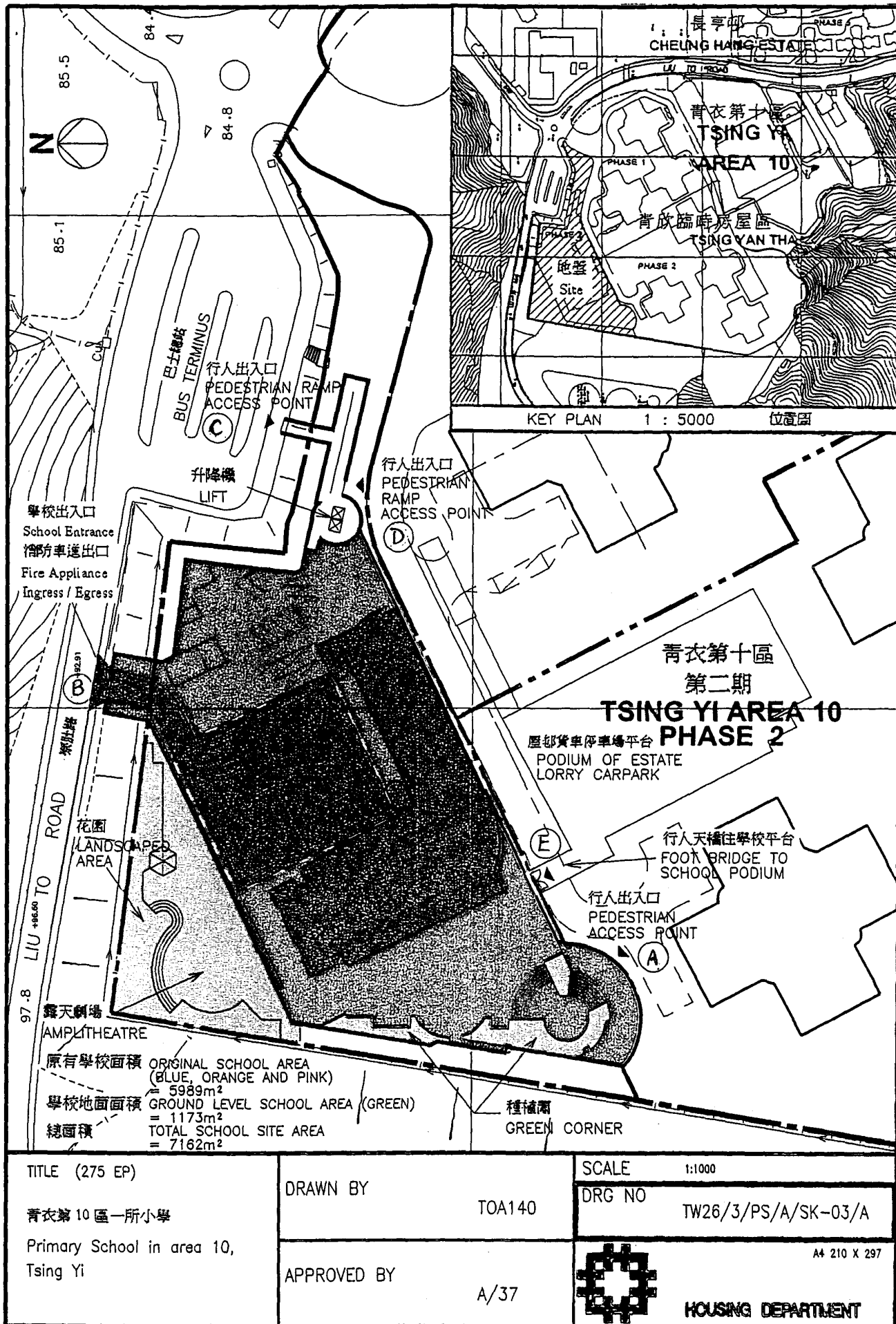
BACKGROUND INFORMATION

17. We upgraded **275EP** to Category B in September 1999. D of H engaged a consultant to carry out the PER at \$35,000 and employed a term contractor to carry out site investigation at \$1.6 million. D of H charged the amounts to the HA's funding votes "Civil Engineering Studies and Land Surveying" and "Site Investigation and Geotechnical Studies" respectively. The consultant has completed the PER and the term contractor has substantially completed the site investigation. D of H has completed the detailed design of the project and is preparing the tender documents using in-house staff resources.

18. We estimate that the proposed works will create some 159 jobs with a total of 2 575 man months, comprising two professional staff, six technical staff and 151 labourers during the construction period.

Education and Manpower Bureau
May 2000

(PWSC0281/WIN11)



**A comparison of the standard cost of a 30-classroom primary school project
with the estimated cost of 275EP**

| | Standard cost* | 275EP | |
|--|---------------------------|------------------------|--------------|
| \$ million (in Dec 1999 prices) | | | |
| (a) Piling (raft foundation) | 9.0 | 14.5 | (See note A) |
| (b) Building | 49.5 | 49.5 | |
| (c) Building services | 11.5 | 12.1 | (See note B) |
| (d) Drainage and external works | 9.0 | 13.0 | (See note C) |
| (e) Furniture and equipment | - | 4.8 | (See note D) |
| (f) Contingencies | 7.9 | 8.9 | |
| (g) 2% HA on-cost | - | 2.0 | (See note E) |
| Total | 86.9 | 104.8 | |
| (h) Construction floor area | 10 727m ² | 10 727m ² | |
| (i) Construction unit cost {[(b)+(c)] ÷(h)} | \$5,687/m ² | \$5,743/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. The D Arch S will review, and revise if necessary, the standard cost which should be adopted for future projects.

Notes

- A. Raft foundation instead of piling will be used for the school because the site is located within the Mass Transit Railway (MTR) Zone and the rock founding level is high. Raft foundation is considered the most appropriate and economical foundation system under the circumstances. The cost of the raft foundation works is calculated on an apportionment basis between the carpark and school based on construction floor area.
- B. Building service costs are higher due to the provision of additional external lighting and upfeed pump system required as a consequence of the school being located on the roof of the carpark block.
- C. The school is to be built as part of the phase 3 of public housing estate development in Area 10, Tsing Yi. The drainage and external works costs are estimated on the basis of the construction floor area of the school building as a proportion of the total construction floor area of the housing development.
- D. 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.
- E. There is a standard arrangement to pay 2% on-cost charges for administrative and supervisory works where Government projects are entrusted to the HA.