For discussion **PWSC(2001-02)65**
on 31 October 2001

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS
Education - Primary
288EP - Primary school in Ma Wan, Tsuen Wan

Members are invited to recommend to Finance Committee the upgrading of **288EP** to Category A at an estimated cost of $110.7 million in money-of-the-day prices for the construction of a 30-classroom primary school in Ma Wan, Tsuen Wan.

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 **288EP** to Category A at an estimated cost of $110.7 million in money-of-the-day (MOD) prices for the construction of a 30-classroom primary school in Ma Wan, Tsuen Wan.

PROJECT SCOPE AND NATURE

3. The proposed 30-classroom primary school will adopt tailor-made non-standard design to suit the special conditions of the site concerned. The school will have the following facilities -

/(a) …..

(a) 30 classrooms;

(b) six special rooms, including a 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 centre;

(h) a conference room;

(i) a library;

(j) an assembly hall (which, together with the roof of the assembly hall block, can 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 (including two on ground level and one at the rooftop of the assembly hall block);

(m) a green corner[1]; and

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

/In …..

---

[1] 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.

In addition, the school will have its own spectator stand and a running track adjacent to the basketball courts on the ground level. 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 February 2002 for completion in September 2003[2].

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, 52 schools have already been completed, and the remaining 26 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, Director of Education (D of E) plans to construct another 46 new schools between the 2003/04 and the 2007/08 school years. To date, nine new schools have already been upgraded to Category A and another four are pending upgrading[3]. **288EP** will help achieve this policy target.

6. Tsuen Wan District, in which **288EP** is located, currently has 21 public sector primary schools providing 436 classrooms. D of E forecasts that an additional 125 classrooms will be required for full implementation of whole-day primary schooling by the 2007/08 school year. **288EP** will help reduce the shortfall by 30 classrooms to 95 in this district and will enable an existing bi-sessional primary school to convert into whole-day operation. We plan to meet the remaining shortfall through further school construction projects.

/FINANCIAL …..

FINANCIAL IMPLICATIONS

---

[2] D Arch S originally planned to start works in December 2001 for completion in July 2003, subject to Finance Committee's approval being obtained before the Legislative Council recess in 2001. As the project was not endorsed by Members at the Public Works Subcommittee meeting on 20 June 2001 (paper referenced PWSC(2001-02)48), it has to be re-submitted in the current Legislative Council session. The program has to be revised accordingly.

[3] At the Public Works Subcommittee meeting on 17 October 2001, Members agreed to recommend to Finance Committee the upgrading of **279EP**, **284EP**, **292EP** and **293EP** for the construction of three 30-classroom primary schools and a 36-classroom primary school. Finance Committee will consider the recommendations on 9 November 2001.

7. We estimate the capital cost of **288EP** to be $110.7 million in MOD prices (see paragraph 8 below), made up as follows -

		$ million	
(a)	Slope works	4.9	
(b)	Piling	9.7	
(c)	Building	57.7	
(d)	Building services	14.4	
(e)	Drainage and external works	9.5	
(f)	Furniture and equipment[4]	4.5	
(g)	Contingencies	9.6	
	Sub-total	110.3	(in September 2001 prices)
(h)	Provision for price adjustment	0.4	
	Total	110.7	(in MOD prices)

The construction floor area (CFA) of **288EP** is 13 900 square metres. The estimated construction unit cost, represented by the building and the building services costs, is $5,187 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 for a 30-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost of **288EP** is at Enclosure 2.

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

/2002 - 03 …..

Year	**$ million (Sept 2001)**	**Price adjustment factor**	**$ million (MOD)**

[4] Based on a standard furniture and equipment list prepared by Education Department for "Year 2000 design" school.

2002 - 03	39.6	0.99700	39.5
2003 - 04	53.9	1.00398	54.1
2004 - 05	13.8	1.01101	14.0
2005 - 06	3.0	1.01808	3.1
	110.3		110.7

9. We derived the MOD estimates on the basis of Government's latest forecast of trend labour and construction prices for the period 2002 to 2006. We will deliver the works through a fixed-price lump-sum contract because the contract period will be less than 21 months and we can clearly define the scope of works in advance, leaving little room for uncertainty.

10. The cost of furniture and equipment, estimated to be $4.5 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 $22.2 million.

PUBLIC CONSULTATION

12. We consulted the Tsuen Wan District Council on **288EP** in November 2000. Members of the District Council supported the project.

ENVIRONMENTAL IMPLICATIONS

13. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **288EP** in February 2000. The PER concluded that the school would not be subject to adverse environmental impacts.

/14. …..

14. At this Subcommittee's meeting on 20 June 2001, Members expressed concern about the aircraft noise impact on **288EP** and requested the Administration to find ways to mitigate the impact. As an initiative to enhance the teaching and learning environment, the Quality Education Fund has earmarked

provision to cover 50% of the cost to install air-conditioners in classrooms not provided with such facilities for schools commencing operation in the 2003/04 school year, which will include **288EP**. The Hong Kong Jockey Club Charities Trust will subsidize the remaining 50% of the capital cost. The recurrent consequence of air-conditioning will be met by the school sponsoring body, in line with the existing policy.

15. 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.

16. 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 designs 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.

17. 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 2 750 cubic metres (m^3) of C&D materials. Of these, we will reuse about 1 850 m^3 (67.3%) on site, 400 m^3 (14.5%) as fill in public filling areas[5] and

/dispose …..

dispose of 500 m^3 (18.2%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be $62,500 for this project (based on a notional unit cost[6] of $125/$m^3$).

---

[5] 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.

[6] This estimate has taken into account the cost for developing, operating and restoring the landfills 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^3$), nor the cost to provide new landfills (which

LAND ACQUISITION

18. The project does not require land acquisition.

BACKGROUND INFORMATION

19. We upgraded **288EP** to Category B in October 2000. We engaged consultants to carry out a PER in February 2000 and employed a term contractor to carry out site investigation in October 2000 at a total cost of $785,000. 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 consultants and the term contractor have completed the PER and site investigation respectively. D Arch S has completed detailed design and tender document of the project.

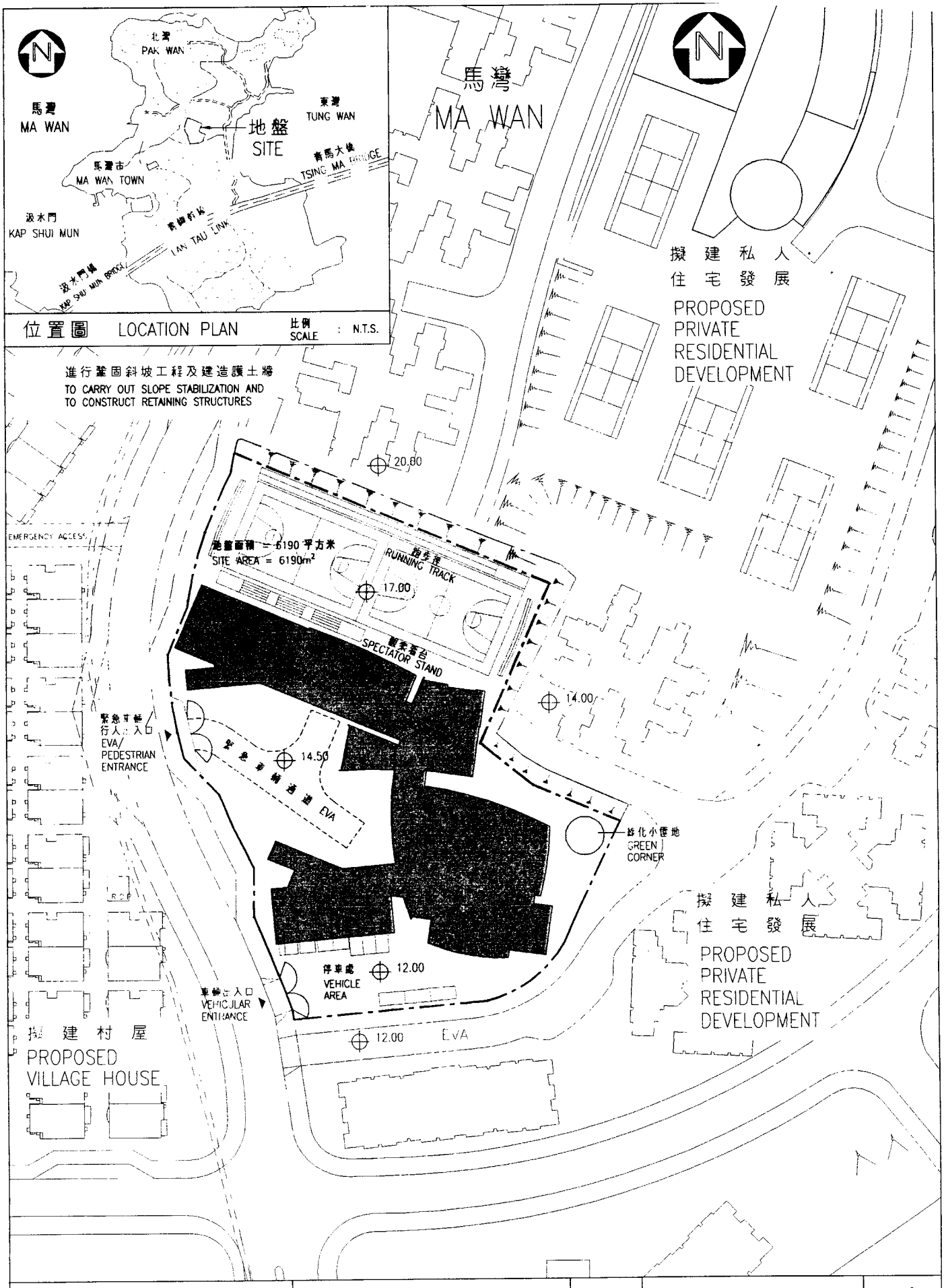
20. We estimate that the proposed works under **288EP** will create some 165 jobs with a total of 2 840 man-months comprising three professional staff, seven technical staff and 155 labourers.

Education and Manpower Bureau
October 2001

---

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.

位置圖 LOCATION PLAN 比例 SCALE : N.T.S.



title 288EP 荃灣馬灣 1 所小學 PRIMARY SCHOOL IN MA WAN, TSUEN WAN	drawn by P.Y. LAI, EMIL CHOI	date 09/2001	drawing no. AB/5692/XF101	scale 1:1000
	approved ANDREW SUNG	date 09/2001		
	office ARCHITECTURAL BRANCH		ARCHITECTURAL SERVICES DEPARTMENT	

CAD Ref. XD101--1:1000

A4 210 x 297

Enclosure 2 to PWSC(2001-02)65

A comparison of the reference cost of a 30-classroom primary school project with the estimated cost of 288EP

$ million (in Sept 2001 prices)

	Reference cost*	**288EP**	
(a) Slope works	-	4.9	(See note A)
(b) Piling	9.0	9.7	(See note B)
(c) Building	45.3	57.7	(See note C)
(d) Building services	11.9	14.4	(See note D)
(e) Drainage and external works	9.5	9.5	(See note E)
(f) Furniture and equipment	-	4.5	(See note F)
(g) Contingencies	7.5	9.6	
Total	83.2	110.3	
(h) Construction floor area	10 727m^2	13 900m^2	
(i) Construction unit cost {[(c) + (d)] ÷ (h)}	$5,332/$m^2$	$5,187/$m^2$	

*** 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 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 handing over 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 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 slope stabilization as well as building retaining structures.

B. The piling cost is higher because it is based on the use of 145 numbers of rock socketed steel H-piles in prebored holes at an average depth of 18 metres instead of 112 numbers of steel H-piles at an average depth of 30 metres. Percussive steel H-piles are unsuitable due to the need to drive the piles through an extensive layer of boulders. Also, the piles will be driven to a shallower depth because the bedrock level is close to the surface.

C. The building cost is higher because the construction floor area (13 900 m^2) is larger. Due to the topography and the configuration of the site, D Arch S has adopted a non-standard design taking into account the existing site platforms and the particular environment surrounding this site. D Arch S considers that this is the most appropriate approach in the circumstances as a standard design would entail extensive and costly site formation works and would not maximise the potential of the Ma Wan site.

D. The building services cost is higher due to the larger construction floor area of the school.

E. Compared to the previous submission on 20 June 2001, the external works cost has increased to accommodate improvements to the seating and spectator areas and the provision of a running track agreed with the school sponsoring body.

F. The cost of furniture and equipment, estimated to be $4.5 million, will be borne by the Government as the school has been allocated to an existing bi-sessional school for conversion into whole-day operation.