

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Education – Primary

302EP – Primary school in Area 31, Sheung Shui

Members are invited to recommend to Finance Committee the upgrading of **302EP** to Category A at an estimated cost of \$106.1 million in money-of-the-day prices for the construction of a primary school in Area 31, Sheung Shui.

PROBLEM

We need to construct a new primary school for the whole-day conversion of an existing bi-sessional primary school in the North District.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education and Manpower (SEM), proposes to upgrade **302EP** to Category A at an estimated cost of \$106.1 million in money-of-the-day (MOD) prices for the construction of a primary school in Area 31, Sheung Shui.

/PROJECT

PROJECT SCOPE AND NATURE

3. The proposed primary school will have the following facilities¹ –
- (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;
 - (g) a staff common room;
 - (h) a student activity centre;
 - (i) a conference room;
 - (j) a library;
 - (k) an assembly hall (which can also be used for recreational activities);
 - (l) a multi-purpose area;
 - (m) two basketball courts at ground level;
 - (n) a green corner²; and
 - (o) ancillary accommodation, including a lift and relevant facilities for the handicapped.

/The

The proposed school will meet the planning target of providing two square metres

¹ Owing to the limited site area, level differences across the site and the restricted building layout, a running track cannot be provided.

² 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.

of open space per student. A site plan is at Enclosure 1 and views of the school premises (artist's impression) are at Enclosure 2. Subject to the funding approval of the Finance Committee, we plan to start the construction works in September 2006 for completion in July 2008.

JUSTIFICATION

4. It is Government's policy to implement whole-day primary schooling for virtually all primary school students by the 2007/08 school year. In the 2005/06 school year, over 80% of primary school places are in the whole-day mode. To facilitate implementation of the policy, we have included in our School Building Programme 14 school projects under planning, including **302EP**.

5. Since the project is meant to facilitate an existing bi-sessional primary school to switch to whole-day operation, the school development will not increase the overall supply of primary school places. Upon its completion in July 2008, **302EP** will provide 30 primary classes for the AM and PM sessions of the existing primary school in the same district. This represents a reduction in scope of operation as the school is now operating 40 bi-sessional classes. The school sponsoring body has accepted this arrangement in view of the decline in student population and the enrolment in recent years.

FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be \$106.1 million in MOD prices (see paragraph 7 below), made up as follows –

	\$ million
(a) On-site demolition works	0.3
(b) Piling	17.5
(c) Building	44.9
(d) Building services	16.4
(e) Drainage	2.0

/(f)

	\$ million	
(f) External works	8.5	
(g) Furniture and equipment ³	3.4	
(h) Consultants' fees for –	3.6	
(i) Contract administration	1.8	
(ii) Site supervision	1.8	
(i) Contingencies	9.3	
Sub-total	105.9	(in September 2005 prices)
(j) Provision for price adjustment	0.2	
Total	106.1	(in MOD prices)

We propose to engage consultants to undertake contract administration and site supervision of the project. A detailed breakdown of the estimate for consultants' fees by man-months is at Enclosure 3. The construction floor area (CFA) of **302EP** is 10 897 square metres. The estimated construction unit cost, represented by the building and the building services costs, is \$5,625 per square metre of CFA in September 2005 prices. We consider 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 costs for **302EP** is at Enclosure 4.

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

/Year

³ Based on the standard furniture and equipment reference list prepared by the Education and Manpower Bureau for a new 30-classroom primary school adopting the standard schedule of accommodation.

Year	\$ million (Sept 2005)	Price adjustment factor	\$ million (MOD)
2006 – 07	17.0	1.00125	17.0
2007 – 08	44.0	1.00125	44.1
2008 – 09	31.0	1.00125	31.0
2009 – 10	10.8	1.00125	10.8
2010 – 11	3.1	1.01627	3.2
	105.9		106.1

8. We have derived the MOD estimates on the basis of the Government's latest forecast of trend rate of change in the prices of public sector building and construction output for the period 2006 to 2011. We intend to award the contract on a lump-sum basis because we can clearly define the scope of the works in advance. The contract will not provide for price adjustment because the contract period will not exceed 21 months.

9. The cost of furniture and equipment, estimated to be \$3.4 million, will be borne by the Government as the school premises will enable an existing bi-sessional school to convert to whole-day operation. The actual amount will be determined on the basis of a survey on the serviceability of the existing F&E. This is in line with the existing policy.

10. The annual recurrent expenditure of two half-day sessions of the existing primary school was \$36.4 million in the 2004/05 school year, when the AM and PM sessions of the school operated a total of 45 classes. Upon whole-day conversion at the new premises under **302EP**, the annual recurrent expenditure is estimated to be \$22.5 million, with the difference attributable to the ultimate decrease of 15 operating classes.

/PUBLIC

PUBLIC CONSULTATION

11. We consulted the North District Council on **302EP** on 19 December 2005. Members of the Council supported the project.

12. We also consulted the Legislative Council Panel on Education (the Panel) on 24 October 2005 on our review of the School Building Programme. Members generally supported our recommendation to proceed with school projects for converting existing bi-sessional primary schools to whole-day operation.

13. We circulated to the Panel an information paper on this primary school project on 26 January 2006. We have not received any objection to the project.

ENVIRONMENTAL IMPLICATIONS

14. We engaged a consultant to conduct Preliminary Environmental Review (PER) for **302EP** in June 2002. The PER recommended the provision of boundary walls at suitable locations and installation of insulated windows and air-conditioning for rooms exposed to traffic noise exceeding the limits recommended in the Hong Kong Planning Standards and Guidelines. The recommended mitigation measures are as follows –

Mitigation measures	Estimated cost \$ million (in Sept 2005 prices)
(a) A two-metre high boundary wall at the south-western side of the site	0.3
(b) Insulated windows and air-conditioning for 18 classrooms from the 1/F to 6/F at the south-eastern façade of the classroom block	1.9
	/Mitigation

Mitigation measures	Estimated cost \$ million (in Sept 2005 prices)
(c) Insulated windows and air-conditioning for seven classrooms and three small group teaching rooms from the 3/F to 6/F at the north-western façade of the classroom block	1.0
(d) Insulated windows and air-conditioning for four special rooms on the 2/F, 3/F and 5/F at the north-western façade of the special room block	0.8

We have included the cost of the above mitigation measures as part of the building services and external works in the project estimate.

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 sites, and the provision of wheel-washing facilities.

16. We have considered introducing more prefabricated building elements (e.g. dry-wall partitioning and proprietary fittings and fixtures) into the school design in the planning and design stages to reduce the generation of construction and demolition (C&D) materials where possible. In addition, we will require the contractor to reuse inert C&D materials on site or in other suitable construction sites as far as possible (e.g. use suitable excavated materials for filling within the site, use metal site hoardings and signboards so that these materials can be recycled or reused in other projects), in order to minimise the disposal of C&D materials to public fill reception facilities. We will encourage the contractor to maximize the use of recycled or recyclable C&D materials, as well as the use of non-timber formwork to further minimize the generation of construction waste.

17. We will also 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. We will ensure that the day-to-day operations on site comply with the approved WMP. We will control the disposal of public fill, C&D materials and C&D waste to public fill reception facilities, sorting facilities and landfills respectively through a trip-ticket system. We will require the contractor 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.

18. We estimate that the project will generate about 4 360 tonnes of C&D materials. Of these, we will reuse about 2 960 tonnes (67.9%) on site and 180 tonnes (4.1%) on other project site(s), deliver 740 tonnes (17.0%) to public fill reception facilities⁴ for subsequent reuse, and 60 tonnes (1.4%) to sorting facilities⁴ in order to retrieve the inert portion for reuse as public fill. In addition, we will dispose of 420 tonnes (9.6%) at landfills. The total cost for accommodating C&D materials at public fill reception facilities and landfill sites, together with the cost for handling the materials at sorting facilities is estimated to be \$78,480 for this project (based on an unit cost of \$27/tonne for disposal at public fill reception facilities, \$100/tonne at sorting facilities and \$125/tonne⁵ at landfills).

LAND ACQUISITION

19. To implement the project, D Arch S has requested the resumption of all private land within the project site and the adjacent school site. This comprises 29 private agricultural lots with a total area of 10 130 square metres. The land resumption formalities for both sites were completed in June 2004. We charged the land acquisition cost of \$28 million to **Head 701** "Land Acquisition".

20. As there are some village houses and temporary structures erected

/on

⁴ Sorting facilities and public fill reception facilities are specified in Schedule 3 and Schedule 4 respectively of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

⁵ 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/m³), nor the cost to provide new landfills (which are likely to be more expensive) when the existing ones are filled.

on the said private lots before resumption, we have made the necessary re-housing arrangements for the affected households. Clearance of these village houses and temporary structures was completed by District Lands Office, North in March 2005.

BACKGROUND INFORMATION

21. We upgraded **302EP** to Category B in December 2001. We engaged an architectural consultant in June 2002 to undertake the detailed design, PER and topographical survey, and a term contractor in October 2002 to carry out site investigation, at a total cost of \$3.0 million. We engaged a quantity surveying consultant to prepare tender documents in August 2003 at a cost of \$0.5 million. We charged these amounts to block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees for items in Category D of the Public Works Programme". The architectural consultant and the term contractor have completed the detailed design, PER, topographical survey, site investigation and tender documentation.

22. We submitted **302EP** for discussion at the PWSC meeting on 29 October 2003 together with **245ES**, the secondary school project at the adjacent site. Members generally supported item **302EP** for the whole-day conversion of an existing bi-sessional primary school but had reservation about the need to build a secondary school meeting new demand in the North district. Having regard to Members' concern, we withdrew the entire proposal comprising **302EP** and **245ES**. **245ES** was subsequently deleted while **302EP** has been recommended to proceed under our School Building Programme review.

23. The proposed construction of a primary school in Area 31, Sheung Shui, will involve removal of 47 trees, including 33 trees to be felled and 14 trees to be replanted within the project site. All trees to be removed are not important trees⁶. We will incorporate planting proposals as part of the project, including estimated quantities of 187 trees, 11 032 shrubs, 1 620 annuals and 466 square metres of grassed area.

/24.

⁶ Important trees include trees on Register of Old and Valuable Trees, and any other trees which meet one or more of the following criteria –

- (a) trees over 100 years old;
- (b) trees of cultural, historical or memorable significance;
- (c) trees of precious or rare species;
- (d) trees of outstanding form; or
- (e) trees with trunk diameter exceeding one metre (measured at one metre above ground level).

24. We estimate that the proposed works will create about 126 jobs (112 for labourers and another 14 for professional/technical staff) providing a total employment of 2 157 man-months.

Education and Manpower Bureau
February 2006



位置圖
LOCATION PLAN

SCALE 1:5000

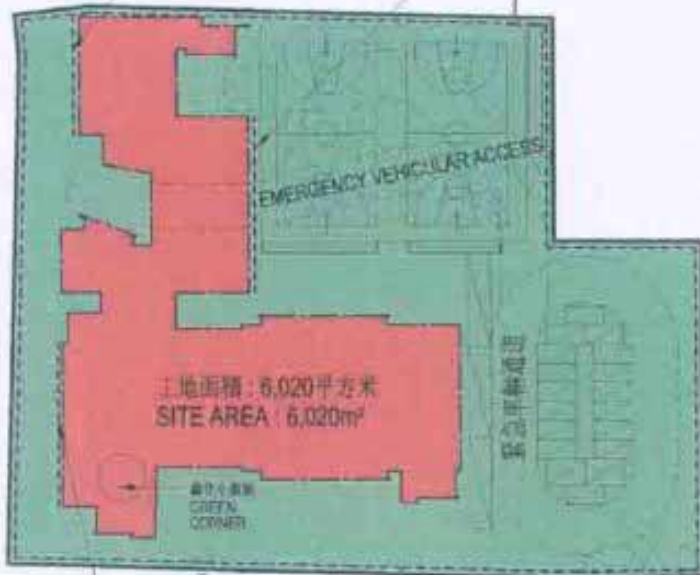
INSULATED WINDOWS AND AIR-CONDITIONING FOR 7 CLASSROOMS AND 3 SMALL GROUP TEACHING ROOMS FROM THE 3/F TO 6/F AT THE NORTH-WESTERN FACADE OF THE CLASSROOM BLOCK

在課室大樓向西北一面3樓至6樓的7間課室和3間小組教學室裝置隔音窗和空調

INSULATED WINDOWS AND AIR-CONDITIONING FOR 18 CLASSROOMS FROM THE 1/F TO 6/F AT THE SOUTH-EASTERN FACADE OF THE CLASSROOM BLOCK

在課室大樓向東南一面1樓至6樓的18間課室裝置隔音窗和空調

私人屋苑 (皇府山)
PRIVATE HOUSING (NOBLE HILL)



土地面積: 6,020平方米
SITE AREA: 6,020m²

綠化角
GREEN CORNER

EMERGENCY VEHICULAR ACCESS

預留作未來學校發展用地
SITE RESERVED FOR FUTURE SCHOOL DEVELOPMENT

行人出入口
PEDESTRIAN ENTRANCE

車輛出入口
INGRESS / EGRESS

天平路
TIN PING ROAD

A 2-METRE HIGH BOUNDARY WALL SURROUNDING THE SITE
圍繞工地興建一幢兩米高的圍牆

INSULATED WINDOWS AND AIR-CONDITIONING FOR 4 SPECIAL ROOMS ON THE 2/F, 3/F AND 5/F AT THE NORTH-WESTERN FACADE OF THE SPECIAL ROOM BLOCK

在特別室大樓向西北一面2樓, 3樓及5樓的4間特別室裝置隔音窗和空調

天平邨
TIN PING ESTATE

title 302EP

上水第31區的1所小學

PRIMARY SCHOOL IN AREA 31,
SHEUNG SHUI

drawn by

方蕙華 DANA FONG

date

03.02.06

drawing no.

AB/6452/NM-01

scale

1:1000

approved

黎敏鏗 REMBERT S.K. LAI

date

03.02.06

office

ARCHITECTURAL BRANCH



ARCHITECTURAL
SERVICES
DEPARTMENT

(1)



從西面望向校舍的構思圖
 VIEW OF SCHOOL PREMISES FROM WESTERN DIRECTION (ARTIST'S IMPRESSION)

4/10/2006 09:54:42 AM - 03-01-Ang, 03/02/2004 15:14:50, A3 2017 x 430 mm, 1:1, PRINT PRINT

title 302EP 上水第31區的1所小學 PRIMARY SCHOOL IN AREA 31, SHEUNG SHUI	drawn by 鄭建榮 KEN K. Y. CHENG	date 03.02.06	drawing no. AB/6452/NM-02	scale --
	approved 黎紹堅 REMBERT S.K. LAI	date 03.02.06	 ARCHITECTURAL SERVICES DEPARTMENT	
	office ARCHITECTURAL BRANCH			

302EP – Primary school in Area 31, Sheung Shui**Breakdown of the estimate for consultants' fees**

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Contract administration (Note 2)				
	Professional	–	–	–	1.2
	Technical	–	–	–	0.6
(b)	Site supervision (Note 3)				
	Professional	9.2	38	1.6	0.8
	Technical	34.7	14	1.6	1.0
				Total	3.6

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at 1 January 2006, MPS point 38 = \$54,255 per month and MPS point 14 = \$18,010 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **302EP**. The assignment will only be executed subject to Finance Committee's approval to upgrade **302EP** to Category A.
3. The consultants' staff cost for site supervision is based on the estimate prepared by the Director of Architectural Services. We will only know the actual man-months and actual costs after completion of the construction works.

Enclosure 4 to PWSC(2005-06)51

**A comparison of the reference cost of
a 30-classroom primary school project
with the estimated cost of 302EP**

\$ million (in Sept 2005 prices)

		Reference cost*	302EP	
(a)	Demolition	–	0.3	(See note A)
(b)	Piling	8.2	17.5	(See note B)
(c)	Building	44.1	44.9	(See note C)
(d)	Building services	12.6	16.4	(See note D)
(e)	Drainage	2.0	2.0	
(f)	External works	8.2	8.5	(See note E)
(g)	Furniture and equipment	–	3.4	(See note F)
(h)	Consultants' fees	–	3.6	(See note G)
(i)	Contingencies	7.5	9.3	
	Total	<u>82.6</u>	<u>105.9</u>	
(j)	Construction floor area	10 727 m ²	10 897 m ²	
(k)	Construction unit cost {[(c) + (d)] ÷ (i)}	\$5,286/m ²	\$5,625/m ²	

/* Assumptions

*** 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 112 steel H-piles at an average depth of 30 metres, assuming 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. We will review, and revise if necessary, the reference cost which should be adopted for future projects.

Notes

- A. Demolition is required for the clearance of existing village houses on the resumed land.
- B. The piling cost is higher because of the ground conditions, the larger construction floor area and the requirement to use 165 non-percussive “Jacked” steel H-piles at an average depth of 40 metres in order to avoid causing any damage to the neighbouring village houses.

/C.

- C. The building cost is higher because of the larger construction floor area.
- D. The building services cost is higher because of the larger construction floor area and the provision of air-conditioning as a noise mitigation measure.
- E. The cost of drainage and external works is higher because of the provision of a two-metre high boundary wall as a noise mitigation measure.
- F. The cost of furniture and equipment, estimated to be \$3.4 million, will be borne by the Government as the school premises will be allocated to an existing bi-sessional school for conversion into whole-day operation. The actual amount will be determined on the basis of a survey on the serviceability of the existing F&E.
- G. Consultants' fees are required for contract administration and site supervision.