

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

### **HEAD 703 – BUILDINGS**

#### **Education – Secondary**

#### **260ES – A direct subsidy scheme secondary school in Area 50, Tseung Kwan O**

Members are invited to recommend to Finance Committee the upgrading of **260ES** to Category A at an estimated cost of \$116.3 million in money-of-the-day prices for the construction of a direct subsidy scheme secondary school in Area 50, Tseung Kwan O.

### **PROBLEM**

We do not have enough schools to meet the forecast demand for secondary school places by the 2007/08 school year.

### **PROPOSAL**

2. The Director of Architectural Services (D Arch S), with the support of the Secretary for Education and Manpower (SEM), proposes to upgrade **260ES** to Category A at an estimated cost of \$116.3 million in money-of-the-day (MOD) prices for the construction of a direct subsidy scheme (DSS) secondary school in Area 50, Tseung Kwan O.

**PROJECT SCOPE AND NATURE**

3. The proposed secondary school will adopt a non-standard design with the following facilities<sup>1</sup> –

- (a) 30 classrooms;
- (b) 16 special rooms, including a computer-assisted learning room and a language room;
- (c) three 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, together with the rooftop of the assembly hall block, can be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);
- (l) a multi-purpose area;
- (m) three basketball courts (two at ground level and one at the rooftop of the assembly hall block);
- (n) a green corner<sup>2</sup>; and

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<sup>1</sup> It is not practical to include a running track because of the limitations of the irregularly shaped site and also because of the differences in level across this sloping site.

<sup>2</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.

- (o) ancillary accommodation, including two lifts and relevant facilities for the handicapped.

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 The proposed school will meet the planning target of providing two square metres 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. D Arch S plans to start the construction works in October 2004 for completion in July 2006.

## JUSTIFICATION

4. SEM forecasts that 423 secondary school classes in addition to the existing provision will be required in the territory between the 2004/05 and 2007/08 school years to meet the projected increase in demand for new school places<sup>3</sup>. To date, Finance Committee has approved funding for nine new schools, which will reduce the shortfall in the number of classes to 201. A school project with a secondary section, covered in **38EC** under **Head 708**, is pending Finance Committee's approval<sup>4</sup>. The School Allocation Committee<sup>5</sup> has recommended the allocation of **260ES** to Creative Education Foundation Limited for operation of a 30-classroom secondary school under the DSS mode<sup>6</sup>. This will further reduce the territory-wide shortfall. We plan to meet the rest of the requirement through further school construction projects. These include **102ET** to be considered by Members at this meeting (see paper referenced PWSC(2004-05)9).

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<sup>3</sup> The existing provision has included DSS school places. Details of our school place planning mechanism can be found in LC Paper No. 1058/03-04(01) discussed by the Legislative Council Panel on Education on 30 January 2004.

<sup>4</sup> At the Public Works Subcommittee meeting on 21 April 2004, Members agreed to recommend to Finance Committee the upgrading of **38EC** "A direct subsidy scheme school (secondary-cum-primary) at Harmony Road, Siu Sai Wan". The Finance Committee will consider the recommendation on 14 May 2004.

<sup>5</sup> The School Allocation Committee makes recommendations to SEM on the allocation of school premises/sites to suitable school sponsors. The Committee comprises an equal number of official and non-official members familiar with the Hong Kong education system.

<sup>6</sup> Under the DSS, a DSS grant based on the average unit cost for an aided school place is provided on a per student basis.

5. Secondary school places are planned on a territory-wide basis<sup>7</sup>. This has the advantage of containing the number of new schools required to be built. Nevertheless, in identifying sites for building new secondary schools, we would seek to balance the supply and demand at the district level as far as possible. As far as the Sai Kung District is concerned, if we exclude the supply of school places provided by DSS schools which may charge a school fee and recruit students from all over the territory, we project that it will have a shortfall of 109 secondary school classes by 2007<sup>8</sup>.

## FINANCIAL IMPLICATIONS

6. We estimate the capital cost of the project to be \$116.3 million in MOD prices (see paragraph 7 below), made up as follows –

	<b>\$ million</b>	
(a) Piling	8.3	
(b) Building	66.1	
(c) Building services	19.4	
(d) Drainage and external works	16.3	
(e) Consultant's fee for contract administration	0.5	
(f) Contingencies	11.0	
Sub-total	121.6	(in September 2003 prices)
(g) Provision for price adjustment	(5.3)	
Total	116.3	(in MOD prices)

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<sup>7</sup> Primary school places are planned on a district basis to enable young children to attend schools close to their home.

<sup>8</sup> Unlike DSS schools, government and aided schools provide non-fee charging school places in Secondary 1 to Secondary 3 and all their school places are subject to the Secondary School Places Allocation system administered on a district basis. If we nevertheless include the supply of school places of DSS schools in the district, Sai Kung may have a projected surplus of 26 secondary classes by 2007.

D Arch S proposes to engage a consultant to undertake contract administration of the project. A detailed breakdown of the estimate for the consultant's fee by man-months is at Enclosure 3. The construction floor area (CFA) of **260ES** is 15 500 square metres. The estimated construction unit cost, represented by the building and the building services costs, is \$5,516 per square metre of CFA in September 2003 prices. D Arch S considers this unit cost comparable to similar school projects built by the Government. A comparison of the reference cost for a secondary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated cost for **260ES** is at Enclosure 4.

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

<b>Year</b>	<b>\$ million (Sept 2003)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2004 – 05	2.0	0.97150	1.9
2005 – 06	50.0	0.95450	47.7
2006 – 07	56.0	0.95450	53.5
2007 – 08	12.0	0.96643	11.6
2008 – 09	1.6	0.98455	1.6
	121.6		116.3

8. We have derived the MOD estimate 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 2004 to 2009. 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.

9. The cost of furniture and equipment<sup>9</sup> for **260ES** will be borne by the sponsor. This is in line with the existing policy. We estimate the annual recurrent expenditure of the secondary school under **260ES** will be \$38.2 million.

## **PUBLIC CONSULTATION**

10. We consulted the Legislative Council Panel on Education on 30 January 2004 on the planning and provision of public sector school places and the various projects to be implemented in the School Building Programme in the next few years. The Panel on Education thoroughly discussed the Administration's policy and noted its plan to proceed with seeking funding approval from the Public Works Subcommittee for projects in the following three categories –

- (a) whole-day primary schools;
- (b) reprovisioning and redevelopment projects; and
- (c) schools, including DSS and private independent schools, which have already been allocated to sponsoring bodies.

Members supported projects under categories (a) and (b). In respect of proposals under category (c), members asked that full background and justification, including the supply and demand balance of school places on both a territory-wide and district basis, be provided to facilitate consideration on a case-by-case basis.

11. On 20 April 2004, we consulted the Sai Kung District Council and obtained its support.

## **ENVIRONMENTAL IMPLICATIONS**

12. We engaged a consultant to conduct a Preliminary Environmental Review (PER) for **260ES** in December 2003. The PER recommended the provision 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 –

/Insulated .....

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<sup>9</sup> Based on the furniture and equipment reference list prepared by the Education and Manpower Bureau for new schools adopting the standard schedule of accommodation.

Mitigation measures	Estimated cost \$ million (in Sept 2003 prices)
Insulated windows and air-conditioning for –	
(a) 12 classrooms from the 3/F to 6/F at the north-western façade of the classroom block	1.2
(b) ten classrooms and three special rooms from the 3/F to 7/F at the south-eastern façade of the classroom block	1.6
(c) six special rooms from the 3/F to 5/F at the eastern and western façades of the special room block	1.0
(d) a special room on the 2/F at the eastern and western façades of the assembly hall block	0.2

13. The school site is located within the 250-metre consultation zone of Tseung Kwan O Stage I Landfill. We have engaged a consultant to conduct a Landfill Gas Hazard Assessment for the project and will implement the recommended mitigation measures, including adequate provision of mechanical ventilation, installation of gas detectors at sensitive locations and installation of four gas monitoring wells at the eastern and southern boundaries. We will also carry out a gas monitoring programme during construction and operation of the project. Provided that the recommended mitigation and precautionary measures are properly in place, the health and safety of workers during the construction phase, and the occupants during the operation phase will be safeguarded.

14. We have included the costs of the mitigation measures as mentioned in paragraphs 12 and 13 above as part of the building services works in the project estimate.

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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 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 contractors 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 contractors to submit waste management plans (WMPs) for approval. The WMPs 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 WMPs. 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. D Arch S will require the contractors 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 3 560 cubic metres (m<sup>3</sup>) of C&D materials. Of these, we will reuse about 2 290 m<sup>3</sup> (64.3%) on site, 710 m<sup>3</sup> (20.0%) as fill in public filling areas<sup>10</sup>, and dispose of 560 m<sup>3</sup> (15.7%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$70,000 for this project (based on a notional unit cost<sup>11</sup> of \$125/m<sup>3</sup>).

**/LAND .....**

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<sup>10</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.

<sup>11</sup> 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<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.



**LAND ACQUISITION**

18. This project does not require land acquisition.

**BACKGROUND INFORMATION**

19. We upgraded **260ES** to Category B in October 2003. We engaged a term contractor to carry out site investigation in November 2003; and consultants to carry out a topographical survey in November 2003, the PER in December 2003 and tender documentation in April 2004 at a total cost of \$1.6 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 term contractor and the consultants have completed the site investigation, topographical survey and PER of the project. D Arch S is finalising the detailed design using in-house staff resources and the consultants are finalising the tender documents.

20. The proposed construction of a secondary school will not involve any tree removal proposal. We will incorporate planting proposal as part of the project, including estimated quantities of 70 trees, 1 100 shrubs and 600 annuals.

21. We estimate that the proposed works will create about 130 jobs (120 for labourers and another ten for professional/technical staff) providing a total employment of 2 280 man-months.

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Education and Manpower Bureau  
April 2004



位置圖 LOCATION PLAN SCALE 1:10000

建議文娛設施  
PROPOSED AMENITY FACILITIES

樓上預留伸車道  
PROVISION OF LAZ-BY

在向西及向西兩面3樓至7樓的12間課室裝置隔音及利空調  
INSULATED WINDOWS AND AIR-CONDITIONING FOR 12 CLASSROOMS FROM 3/F TO 6/F AT THE NORTH-WESTERN FACADE

在向南及向西兩面2樓的1間特別室裝置隔音及利空調  
INSULATED WINDOWS AND AIR-CONDITIONING FOR 1 SPECIAL ROOM ON 2/F AT THE EASTERN AND WESTERN FACADES

在向南及向西兩面3樓至5樓的6間特別室裝置隔音及利空調  
INSULATED WINDOWS AND AIR-CONDITIONING FOR 6 SPECIAL ROOMS FROM 3/F TO 5/F AT THE EASTERN AND WESTERN FACADES

在向南及向西兩面1樓至7樓的10間課室及5間特別室裝置隔音及利空調  
INSULATED WINDOWS AND AIR-CONDITIONING FOR 10 CLASSROOMS AND 5 SPECIAL ROOMS FROM 1/F TO 7/F AT THE SOUTH-EASTERN FACADE

工地面積：約8 564平方米  
SITE AREA: 8 564 m<sup>2</sup> APPROX.

title 260ES  
將軍澳第50區的1所  
直接資助計劃中學  
A DIRECT SUBSIDY SCHEME  
SECONDARY SCHOOL IN  
AREA 50, TSEUNG KWAN O

drawn by	W. H. LAW	date	
approved	KEVIN LI	date	
office	ARCHITECTURAL BRANCH		

drawing no.	scale
AB/6418/XE201	1:2000






從北面望向中學校舍的構思圖  
VIEW OF THE SECONDARY SCHOOL PREMISES FROM NORTHERN DIRECTION (ARTIST'S IMPRESSION)



從東南面鳥瞰中學校舍的構思圖  
AERIAL VIEW OF THE SECONDARY SCHOOL PREMISES FROM SOUTH-EASTERN DIRECTION (ARTIST'S IMPRESSION)

title 260ES 將軍澳第50區的1所 直接資助計劃中學 A DIRECT SUBSIDY SCHEME SECONDARY SCHOOL IN AREA 50, TSEUNG KWAN O	drawn by	W. H. LAW	date	drawing no.	scale
	approved	KEVIN LI	date	AB/6418/XE202	N.T.S.
	office	ARCHITECTURAL BRANCH		 ARCHITECTURAL SERVICES DEPARTMENT	

**Enclosure 3 to PWSC(2004-05)8**

**260ES – A direct subsidy scheme secondary school in Area 50,  
Tseung Kwan O**

**Breakdown of the estimate for consultant's fee**

<b>Consultant's staff cost</b>		<b>Estimated fee (\$ million)</b>
Contract administration <sup>(Note)</sup>	Professional	0.3
	Technical	0.2
Total		0.5

**Note**

The consultant's staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the tender documentation of **260ES**. The assignment will only be executed subject to Finance Committee's approval to upgrade **260ES** to Category A.

**A comparison of the reference cost of  
a secondary school project  
with the estimated cost of 260ES**

		\$ million (in Sept 2003 prices)		
		Reference cost*	260ES	
(a)	Piling	9.5	8.3	(See note A)
(b)	Building	52.5	66.1	(See note B)
(c)	Building services	13.9	19.4	(See note C)
(d)	Drainage and external works	11.3	16.3	(See note D)
(e)	Consultant's fee	–	0.5	(See note E)
(f)	Contingencies	8.7	11.0	
Total		95.9	121.6	
(g)	Construction floor area	12 238 m <sup>2</sup>	15 500 m <sup>2</sup>	
(h)	Construction unit cost {[(b) + (c)] ÷ (g)}	\$5,426/m <sup>2</sup>	\$5,516/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 138 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 secondary school site area of 6 950 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. The piling cost is lower because ground conditions require the use of 197 rock-socketted steel H-piles at an average depth of 15 metres. Although more piles are needed due to the larger construction floor area, the average depth of piles is reduced due to the shallow rock stratum, which accounts for the lower piling cost.
- B. The building cost is higher because of the larger construction floor area and larger building footprint.
- C. The building services cost is higher because of the larger construction floor area and the provision of air-conditioning as a noise mitigation measure.
- D. The drainage and external works cost is higher because of the larger site area and awkward sloping site configuration, as well as the requirement to re-provision a lay-by outwith the school site.
- E. Consultant’s fee is required for contract administration.