ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT Education Subventions

48EC – A direct subsidy scheme school (secondary-cum-primary) in Area 65, Tseung Kwan O

> Members are invited to recommend to Finance Committee the upgrading of **48EC** to Category A at an estimated cost of \$218.2 million in money-of-the-day prices for the construction of a direct subsidy scheme school (secondary-cum-primary) in Area 65, Tseung Kwan O.

PROBLEM

We need to establish a vibrant and diversified school system to keep abreast of the development of Hong Kong as a multi-faceted society and to provide choices in school education.

PROPOSAL

2. The Secretary for Education and Manpower (SEM), on the advice of the Director of Architectural Services (D Arch S), proposes to upgrade **48EC** to Category A at an estimated cost of \$218.2 million in money-of-the-day (MOD) prices for the construction of a direct subsidy scheme (DSS) school (secondary-cum-primary) in Area 65, Tseung Kwan O.

/**PROJECT**

PROJECT SCOPE AND NATURE

3. The proposed school will adopt a non-standard design and flexible schedule of accommodation to accommodate a 30-classroom secondary section and a 30-classroom primary section, with the following planned facilities –

		Secondary section	Primary section
(a)	classrooms	30	30
(b)	special rooms, including a computer- assisted learning room and a language room	17	6
(c)	small group teaching rooms	3	4
(d)	guidance activity room	1	1
(e)	interview room	1	1
(f)	staff rooms	3	2
(g)	staff common room	1	1
(h)	student activity centre	1	1
(i)	green corner ¹	1	1
(j)	ancillary accommodation, including a lift and relevant facilities for the handicapped	Available	Available

Shared facilities

- (k) two conference rooms;
- (l) a combined library;
- (m) a large assembly hall (which can be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);

/(n)

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.

Shared facilities

- (n) a small assembly hall;
- (o) a teacher resource centre;
- (p) two basketball courts at ground level;
- (q) a mini-football pitch-cum-two basketball courts at ground level;
- (r) two running tracks²; and
- (s) bus and car parking facilities.

A comparison of the facilities at the proposed school with those at standard design schools is at Enclosure 1.

4. The proposed school will meet the planning target of providing two square metres of open space per student. A site plan is at Enclosure 2 and views of the school premises (artist's impression) are at Enclosure 3. The school sponsor plans to start the construction works in October 2004 for completion in June 2006.

JUSTIFICATION

5. 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 places³. To date, Finance Committee (FC) has approved funding for ten new schools, which will reduce the shortfall in the number of classes to 190. A secondary school project with 30 classrooms, covered in **260ES** under **Head 703**, is pending FC's approval⁴. **48EC** includes a 30-classroom secondary section.

/Members

² Making optimal use of the open space of the campus, a 60-metre running track and a 100-metre running track will be provided in the secondary section and the primary section respectively.

³ 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.

⁴ At the Public Works Subcommittee meeting on 5 May 2004, Members agreed to recommend to FC the upgrading of **260ES** "A direct subsidy scheme secondary school in Area 50, Tseung Kwan O". FC will consider the recommendation on 11 June 2004.

Members will consider **102ET** under **Head 703** which also includes a 30-classroom secondary section at this meeting (see paper referenced PWSC(2004-05)25). Further public sector school construction projects will be subject to review, taking into account the annual update of forecast in supply and demand of school places.

6. Secondary school places are planned on a territory-wide basis⁵. 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. For the Sai Kung District, 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^{6} .

7. The Sai Kung District, in which **48EC** is located, currently has 27 public sector primary school premises providing 691 classrooms. Upon the completion of three primary school projects, 96 additional classrooms will be provided starting from the 2004/05 school year. SEM forecasts that the total provision will be sufficient to meet the projected demand for 708 classes for the full implementation of whole-day primary schooling by the 2007/08 school year. If we exclude the supply of DSS school places, there would be a projected nominal surplus of 41 classrooms⁷.

/8.

⁵ Primary school places are planned on a district basis to enable young children to attend schools close to their home.

⁶ 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 largely on a district basis. If we nevertheless include the supply of school places of DSS schools in the district (including **48EC** and **260ES**), Sai Kung may have a projected surplus of 38 secondary classes by 2007. As at May 2004, there are three DSS secondary schools in the Sai Kung District with an enrolment of 1 538 students, of whom about 73% are students with residence outside the District.

⁷ If we nevertheless include the supply of school places of DSS schools in the District (including **48EC**), Sai Kung may have a projected surplus of 95 primary classes by 2007. As at May 2004, there are two DSS primary schools in the Sai Kung District with an enrolment of 784 students, of whom about 64% are students with residence outside the District.

8. Apart from meeting the projected demand for school places from a macro-planning perspective, our School Building Programme is designed to upgrade the quality of education and to help implement various policy objectives. Among other things, we would like to establish a vibrant and diversified school system to enhance choice and to promote the "through-train" mode through the allocation of school premises. Under the "through-train" arrangement, students of the linked primary schools are allowed to proceed to the linked secondary schools without going through the Secondary 1 school places allocation process. This will better enable the development of a coherent curriculum with continuity of learning experience throughout the primary and secondary schooling as well as professional collaboration between teachers of the primary and secondary sections. We also believe that this helps promote students' effective learning and smoothen their transition from primary to secondary education. The proposed project **48EC** is a secondary-cum-primary school to be operated under a "through-train" arrangement.

9. The School Allocation Committee⁸ has recommended the allocation of **48EC** to the Association of Evangelical Free Churches of Hong Kong for operation under the DSS mode⁹. The primary and secondary sections of the "through-train" pair would be operated with the same education philosophy and aspiration. Co-location also facilitates better interface, cross-level programmes for students, joint activities and sharing of experience among teachers and students of the primary and secondary sections.

FINANCIAL IMPLICATIONS

10. The school sponsor estimates the capital cost of **48EC** to be \$218.2 million in MOD prices (see paragraph 11 below). D Arch S has examined and endorsed the cost estimate, made up as follows –

/(a)

⁸ The School Allocation Committee makes recommendations to SEM on the allocation of school premises/sites to suitable school sponsors through an open and competitive selection process. The Committee comprises an equal number of official and non-official members familiar with the Hong Kong education system.

⁹ Under the DSS, a DSS grant based on the average unit cost for an aided school place is provided on a per student basis.

		\$million			
		Secondary section	Primary section	Total	
(a)	Piling	29.5	24.1	53.6	
(b)	Building	53.7	41.3	95.0	
(c)	Building services	16.4	10.9	27.3	
(d)	Drainage and external works	13.5	10.5	24.0	
(e)	Consultants' fees for -	3.9	3.1	7.0	
	(i) Contract administration	3.1	2.4	5.5	
	(ii) Site supervision	0.6	0.5	1.1	
	(iii) Out-of-pocket expenses	0.2	0.2	0.4	
(f)	Contingencies	11.7	9.0	20.7	
	Sub-total	128.7	98.9	227.6	(in September
(g)	Provision for price adjustment	(5.3)	(4.1)	(9.4)	2003 prices
	Total	123.4	94.8	218.2	(in MOD prices)

The school sponsor proposes 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 4. The construction floor areas (CFAs) of the secondary section and the primary section are 12 526 square metres and 10 239 square metres respectively. The estimated construction unit costs of the secondary section and the primary section, represented by the building and building services costs, are \$5,596 and \$5,098 per square metre of CFA in September 2003 prices respectively. D Arch S considers these unit costs 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 the secondary section is at Enclosure 5. A similar comparison between a 30-classroom primary school and the primary section is at Enclosure 6.

Year	\$ million (Sept 2003)	Price adjustment factor	\$ million (MOD)
2004 - 05	45.8	0.97150	44.5
2005 - 06	161.0	0.95450	153.7
2006 - 07	13.5	0.95450	12.9
2007 - 08	7.3	0.96643	7.1
	227.6		218.2

11. Subject to approval, the school sponsor will phase the expenditure as follows –

12. 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 2008. The school sponsor will deliver the works through a fixed-price lump-sum contract because the contract period will be less than 21 months and it can clearly define the scope of works in advance, leaving little room for uncertainty.

13. The cost of furniture and equipment¹⁰ for the school will be borne by the school sponsor. This is in line with the existing policy. We estimate the annual recurrent expenditure for the secondary section to be \$38.2 million and that for the primary section to be \$23 million.

PUBLIC CONSULTATION

14. We consulted the Sai Kung District Council (SKDC) on 19 August 2003. During the discussion, members enquired about the operational details of this "through-train" DSS school, the facilities to be provided under this school project and the planned completion date. Members of the Council welcomed and supported the project.

/15.

Based on the furniture and equipment reference list prepared by the Education and Manpower Bureau for new school adopting the standard schedule of accommodation.

10

15. We also 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 (PWSC) 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.

16. We have circulated the draft PWSC paper to the Panel on Education on 28 May 2004.

ENVIRONMENTAL IMPLICATIONS

17. The school sponsor engaged a consultant to conduct a Preliminary Environmental Review (PER) for **48EC** in July 2003. The PER recommended the installation of 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 2003 prices)
	Air-conditioning for the secondary section –	
(a)	for 22 classrooms from the 2/F to 5/F at the northern façade of the classroom block	1.8
(b)	for three special rooms from the 3/F to 5/F at the northern façade of the special room block	0.5
		/The

The school sponsor has included the costs of the above mitigation measures as part of the building services works in the project estimate.

18. During construction, the school sponsor 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.

19. At the planning and design stages, the school sponsor has considered measures to reduce the generation of construction and demolition (C&D) materials. The school sponsor 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. The school sponsor will use suitable excavated materials for filling within the site to minimise off-site disposal. In addition, the school sponsor will require its contractors to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

20. The school sponsor will require its contractors to submit waste a management plan (WMP) for approval. The WMP will include appropriate mitigation measures to avoid, reduce, reuse and recycle C&D materials. The school sponsor will ensure that the day-to-day operations on site comply with the approved WMP. The school sponsor 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 school sponsor will require its contractors to separate public fill from C&D waste for disposal at appropriate facilities. The school sponsor will record the disposal, reuse and recycling of C&D materials for monitoring purposes. The school sponsor estimates that the project will generate about 4 304 cubic metres (m³) of C&D materials. Of these, the school sponsor will reuse about 2 710 m³ (63%) on site, 692 m³ (16.1%) as fill in public filling areas¹¹, and dispose of 902 m^3 (20.9%) at landfills. The notional cost of accommodating C&D waste at landfill sites is estimated to be \$112,750 for this

/project

¹¹ 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.

project (based on a notional unit $cost^{12}$ of $125/m^3$).

LAND ACQUISITION

21. The project does not require land acquisition.

BACKGROUND INFORMATION

22. As one of the initiatives to introduce diversity to school building designs to meet the practical needs of different schools, we conducted a school design competition in collaboration with the Hong Kong Institute of Architects in 2001. Parties entering the competition were invited to design the secondary-cum-primary school premises of **48EC** with reference to the mission of the selected school sponsor. The result of the competition was announced on 29 April 2002. In line with the intention of the competition, the school sponsor has agreed to adopt the winning design for implementing **48EC**.

23. We upgraded **48EC** to Category B in July 2003. The school sponsor engaged consultants to undertake the PER and detailed design in July 2003, site investigation and topographical survey in September 2003 and tender documentation in January 2004 for the project. We will charge a total cost of \$11.8 million to block allocation **Subhead 8100QX** "Alterations, additions, repairs and improvements to education subvented buildings". The consultants engaged by the school sponsor have completed all the services except for the preparation of tender documents which are being finalised.

24. The proposed construction of the school will not involve any tree removal proposal. We will incorporate planting proposal as part of the project, including estimated quantities of 125 trees, 2 300 shrubs, 1 000 annuals and 150 square metres of grassed area.

/25.

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. The notional cost estimate is for reference only and does not form part of this project estimate.

12

25. We estimate that the proposed works will create about 210 jobs (190 for labourers and another 20 for professional/technical staff) providing a total employment of 3 750 man-months.

Education and Manpower Bureau June 2004

48EC – A direct subsidy scheme school (secondary-cum-primary) in Area 65, Tseung Kwan O

A comparison of the facilities proposed under 48EC with those at standard design schools

Facilities	48EC		Standard design school	
	30-classroom secondary section	30-classroom primary section	30-classroom secondary school	30-classroom primary school
Classroom	30	30	30	30
Special room	17	6	16	6
Small group teaching room	3	4	3	4
Guidance activity room	1	1	1	1
Interview room	1	1	2	2
Staff room	3	2	1 or 2	1 or 2
Staff common room	1	1	1	1
Student activity centre	1	1	1	1
Multi-purpose area	_	_	1	1
Conference room	2		1	1
Library	1		1	1
Assembly hall	2	2	1	1
Teacher resource centre	1		_	_
Basketball court	4	ŀ	2	2
Green corner	1	1	1	1
Ancillary accommodation, including a lift and facilities for the disabled	Available		Available	Available

48EC – A direct subsidy scheme school (secondary-cum-primary) in Area 65, Tseung Kwan O

Breakdown of the estimate for consultants' fees

				Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$million)
(a)	Cor	nsultants' staff costs					
	(i)	Contract administration (Note 2)	Professional	_	-	_	5.5
	(ii)	Site supervision (Note 3)	Technical	36	14	1.6	1.1
						Sub-total	6.6
(b)	Out Litł exp	-of-pocket expenses ^(Note 4) nography and other direct enses					0.4
						Sub-total	0.4
						Total	7.0

* MPS = Master Pay Scale

Notes

- 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 2004, MPS point 14 = \$18,603 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 **48EC**. The assignment will only be executed subject to Finance Committee's approval to upgrade **48EC** to Category A.
- 3. We will only know the actual man-months and actual costs for site supervision after completion of the works.
- 4. Out-of-pocket expenses are the actual costs incurred. The consultants are not entitled to any additional payment for overheads or profit in respect of these items.

Enclosure 5 to PWSC(2004-05)26

A comparison of the reference cost of a secondary school project with the estimated cost of the secondary section of 48EC

\$ million (in Sept 2003 prices)

		Reference cost*	Secondary section of 48EC	
(a)	Piling	9.5	29.5	(See note A)
(b)	Building	52.5	53.7	(See note B)
(c)	Building services	13.9	16.4	(See note C)
(d)	Drainage and external works	11.3	13.5	(See note D)
(e)	Consultants' fees	-	3.9	(See note E)
(f)	Contingencies	8.7	11.7	
	Total	95.9	128.7	
(g)	Construction floor area	12 238 m ²	12 526 m ²	
(h)	Construction unit cost $\{[(b) + (c)] \div (g)\}$	\$5,426/m ²	\$5,596/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 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 higher because the ground conditions require the use of 344 driven steel H-piles at an average depth of 46.8 metres. The increase in numbers of piles is caused by the additional imposed load on piles aroused from negative skin friction of this reclaimed land.
- B. The building cost is higher because of the larger construction floor area.
- 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 total site area of 48EC (14 380 m² as compared to the total site area of a standard secondary school and a standard primary school of 13 150 m²) and the need to modify a portion of the footpath along Chi Shin Street to provide a lay-by.
- E. Consultants' fees are required for contract administration, site supervision and out-of-pocket expenses.

A comparison of the reference cost of a 30-classroom primary school project with the estimated cost of the primary section of 48EC

\$ million (in Sept 2003 prices)

		Reference cost*	Primary section of 48EC	
(a)	Piling	8.0	24.1	(See note A)
(b)	Building	43.3	41.3	(See note B)
(c)	Building services	11.5	10.9	(See note C)
(d)	Drainage and external works	10.0	10.5	(See note D)
(e)	Consultants' fees	_	3.1	(See note E)
(f)	Contingencies	7.2	9.0	
	Total	80.0	98.9	
(g)	Construction floor area	10 727 m ²	10 239m ²	
(h)	Construction unit cost $\{[(b) + (c)] \div (g)\}$	\$5,109/m ²	\$5,098/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 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. 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 higher because the ground conditions require the use of 282 driven steel H-piles at an average depth of 46.8 metres. The increase in numbers of piles is caused by the additional imposed load on piles aroused from negative skin friction of this reclaimed land.
- B. The building cost is lower because of the smaller construction floor area.
- C. The building services cost is lower because of the smaller construction floor area.
- D. The drainage and external works cost is higher because of the larger total site area of 48EC (14 380 m² as compared to the total site area of a standard secondary school and a standard primary school of 13 150 m²) and the need to modify a portion of the footpath along Chi Shin Street to provide a lay-by.
- E. Consultants' fees are required for contract administration, site supervision and out-of-pocket expenses.