

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Education – Others

106ET – Special school in Area 16, Tuen Mun, for students with physical disability

Members are invited to recommend to Finance Committee the upgrading of **106ET** to Category A at an estimated cost of \$260.4 million in money-of-the-day prices for the construction of a special school with boarding facilities in Area 16, Tuen Mun for students with physical disability.

PROBLEM

We need to provide additional classrooms and boarding places for the Hong Kong Christian Service (HKCS) Pui Oi School in Tuen Mun for implementation of the New Senior Secondary (NSS) academic structure for special schools. As the existing premises has no room for in-situ expansion, we need to re-provision the school to a new school premises in Area 16, Tuen Mun.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education, proposes to upgrade **106ET** to Category A at an estimated cost of \$260.4 million in money-of-the-day (MOD) prices for the construction of a special school in Area 16, Tuen Mun for students with physical disability to re-provision an existing aided special school in order to provide additional classrooms, boarding places and ancillary facilities for the school to implement the NSS academic structure.

/PROJECT

PROJECT SCOPE AND NATURE

3. The proposed scope of works under **106ET** includes –
- (a) a school section with the following facilities –
- (i) 18 classrooms;
 - (ii) ten special rooms, including a computer-assisted learning room, a multi-purpose room, an optional subject room and two elective subject rooms;
 - (iii) three small group teaching rooms;
 - (iv) six therapy/treatment rooms;
 - (v) three social worker's rooms;
 - (vi) three interview rooms;
 - (vii) a staff room;
 - (viii) a staff common room;
 - (ix) a student activity centre;
 - (x) a conference room;
 - (xi) a library;
 - (xii) a multi-purpose area;
 - (xiii) an assembly hall;
 - (xiv) a 40-metre (m) running track¹;
 - (xv) a green corner²; and

/(xvi)

¹ Making optimal use of the space of the campus, a 40-m running track will be provided.

² Green corner is a designated area inside the campus to enable students to develop an interest in horticulture and the natural environment. The green corner may include a weather station and planting beds.

- (xvi) other ancillary facilities, including loading/unloading bay, a lift and relevant facilities for the disabled;
- (b) a boarding section with the following facilities –
- (i) bedrooms and study areas to accommodate 60 boarders;
 - (ii) two sleep-in rooms for staff;
 - (iii) a dining/multi-purpose room;
 - (iv) a television/common room;
 - (v) a general office;
 - (vi) a nurse's duty room-cum-sick room; and
 - (vii) other ancillary facilities including a kitchen, a laundry, a lift and relevant facilities for the disabled; and
- (c) a link bridge connecting the classroom block with the assembly hall block and the boarding block.

The proposed new school premises will meet the planning target of providing two square metres (m²) of open space per student. We plan to start the construction in June 2010 for completion in February 2012. A site plan and an artist's impression of the school premises are at Enclosures 1 and 2 respectively.

JUSTIFICATION

The NSS academic structure

4. It is the Government's policy to implement the NSS academic structure in all schools including special schools. Under the NSS academic structure, students with physical disability but with normal intellectual ability pursuing the ordinary curriculum are provided with ten years of basic education plus three years of senior secondary education. The existing HKCS Pui Oi School at Area 39, Tuen Mun is a special school for students with physical disability comprising ten classrooms for primary and secondary sections. We need to provide additional classrooms and related facilities to facilitate implementation of the NSS academic structure by the school.

/Boarding

Boarding service

5. The boarding service is provided for students with long term boarding needs. Currently, boarding facilities are provided to students with physical disability who would need special care not readily provided by their families. The objective is to help the students learn how to live independently and to develop their adaptive social behaviour and communication skills, apart from meeting their long term boarding needs.

6. In planning the provision of boarding service for students with physical disability, we have examined the demand and supply as well as the geographical distribution of the residential areas of the existing boarders. Currently, there are no boarding places in the New Territories. There is scope for extending the boarding service to schools in the New Territories to minimise the need for students with physical disability residing in the New Territories to study and board in schools far away from their families. Against this background, we propose to set up two boarding sections in special schools for children with physical disability, one in the New Territories East which is under construction and the other in the New Territories West, as part of the HKCS Pui Oi School, to cater for the boarding needs of students with physical disability in those regions. Parents' representatives of the students with physical disability welcomed the proposal of setting up the proposed boarding sections at the special schools in the New Territories.

Need for reprovisioning

7. In the light of the above considerations, we have examined the possibility of constructing an extension to the HKCS Pui Oi school to provide the additional classrooms and other facilities needed for implementing the NSS academic structure as well as a 60-place boarding section for students with physical disability in the New Territories West. The existing school site is, however, too small for accommodating the proposed extension. We have thus decided to reprovision the HKCS Pui Oi school to a site at Area 16, Tuen Mun and build a boarding section at an adjacent site which the boarders could commute to through a link bridge.

8. After reprovisioning to Area 16, Tuen Mun, the HKCS Pui Oi School will be able to operate ten classes³ from primary level up to junior secondary level and

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³ Since the learning of the students with physical disability of normal intelligence is frequently and regularly disrupted by therapies and hospitalisation, one more year of basic education is provided to better prepare them for the three-year senior secondary education.

three senior secondary classes. To cater for the learning needs of students with physical disability and intellectual disability from primary to secondary levels, five additional classrooms will be provided to facilitate the school to offer an adaptive curriculum and group the students for teaching according to their ability and progress. Other essential facilities, including one optional subject room and two elective subject rooms which are currently lacking in the existing school premises, will also be provided. In consultation with the school sponsoring body, we have agreed to proceed with this project at its present scope of works and school design without further delay so that the school could implement the NSS academic structure as early as possible according to an established policy objective. The proposed scope of development is considered appropriate having regard to the school’s needs, site consideration and the impact to the nearby environment.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$260.4 million in MOD prices (please see paragraph 10 below), broken down as follows –

	\$ million
(a) Piling	35.4
(b) Building	117.5
(c) Building services	24.5
(d) Additional energy conservation measures	4.9
(e) Drainage	3.4
(f) External works	23.9
(g) Furniture and equipment ⁴	5.6
(h) Consultants’ fees	6.6
(i) contract administration	6.1
(ii) management of resident site staff	0.5

/(i)

4 The amount is based on the indicative furniture and equipment reference lists prepared by the Education Bureau for new special schools for students with physical disability and new special schools for students with severe intellectual disability.

		\$ million	
(i)	Remuneration of resident site staff	5.6	
(j)	Contingencies	22.3	
	Sub-total	249.7	(in September 2009 prices)
(k)	Provision for price adjustment	10.7	
	Total	260.4	(in MOD prices)

We propose to engage consultants to undertake contract administration and site supervision of the project. A detailed breakdown of the estimates for consultants' fees and resident site staff costs by man-months is at Enclosure 3. The construction floor area (CFA) of the new school premises under **106ET** is 12 350 m². The estimated construction unit cost, represented by the building and the building services costs, is \$11,498 per m² of CFA in September 2009 prices. We consider this comparable to similar school projects built by the Government.

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

Year	\$ million (Sept 2009)	Price adjustment factor	\$ million (MOD)
2010 – 11	50.0	1.02000	51.0
2011 – 12	150.0	1.04040	156.1
2012 – 13	30.0	1.06121	31.8
2013 – 14	14.0	1.08243	15.2
2014 – 15	5.7	1.11220	6.3
	249.7		260.4

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11. 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 2010 to 2015. We will deliver the construction works through a lump-sum contract because we can clearly define the scope of the works in advance. The contract will provide for price adjustments.

12. The cost of furniture and equipment, estimated to be \$5.6 million, will be borne by the Government in line with the existing policy.

13. The annual recurrent expenditure for the school was \$20.7 million in 2008/09 school year. Upon reprovisioning of HKCS Pui Oi School to the new premises in 2012, the annual recurrent expenditure is estimated to be \$51 million. The increase is mainly attributable to implementation of the NSS academic structure and operation of boarding facilities.

PUBLIC CONSULTATION

14. We briefed the Legislative Council (LegCo) Panel on Education on the development of the NSS academic structure for special schools in July 2006. In particular, we reported that we would examine special schools' proposals on conversion works and/or additional facilities for the implementation of the new academic structure. Members urged for the provision of sufficient classrooms and other facilities as well as boarding facilities to support the implementation of the NSS academic structure for children with special education needs. We updated the LegCo Subcommittee to Study Issues Relating to the Provision of Boarding Places, Senior Education and Employment Opportunities for Children with Special Education Needs on the progress of the implementation of the NSS academic structure for special schools in November 2006. We circulated an information note to the LegCo Panel on Education on 7 December 2009 on this proposed project. Members did not raise any objection to the proposal.

15. The Environment, Hygiene and District Development Committee (EHDDC) of the Tuen Mun District Council was consulted on 14 May 2007. EHDDC members passed a motion in support of the project and urged for its early completion. EHDDC members noted the design of building and the link bridge in a progress report issued on 17 July 2009 and did not raise any objection.

16. We also consulted the local residents of Tuen Mun on 16 November 2009. Most of the residents attended the meeting did not have strong views on the special school project, and a few expressed concerns about the impact of the school building to the nearby environment. We explained to the residents that the school has a low rise design and will include extensive greening features (including a rooftop garden, a landscaped courtyard and peripheral planters).

ENVIRONMENTAL IMPLICATIONS

17. This is not a designated project under the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). We completed a Preliminary Environmental Review (PER) for **106ET** and agreed the findings with the Director of Environmental Protection in December 2009. The PER recommended that, since all classrooms and special rooms will be provided with air-conditioning and well-gasketed windows of minimum thickness of six millimetres, no additional noise mitigation measures would be needed.

18. 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 contract. 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. We have considered measures (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects) in the planning and design stages to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse inert construction waste (e.g. using excavated materials for filling within the site) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities⁵. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further reduce the generation of construction waste.

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⁵ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

20. We will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

21. We estimate that the project will generate in total about 15 000 tonnes of construction waste. Of these, we will reuse about 5 800 tonnes (38.7%) of inert construction waste on site and deliver 7 400 tonnes (49.3%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of the remaining 1 800 tonnes (12.0%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$424,800 for this project (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne⁶ at landfills).

ENERGY CONSERVATION MEASURES

22. This project has adopted various forms of energy efficient features including –

- (a) Variable Refrigerant Volume (VRV) air-conditioning system;
- (b) heat recovery fresh air pre-conditioners in the air-conditioned spaces for heat energy reclaim of exhaust air;
- (c) T5 energy efficient fluorescent tubes with electronic ballast and lighting control by occupancy sensors and daylight sensors;
- (d) light emitting diode (LED) type exit signs; and
- (e) automatic on/off switching of lighting and ventilation fan inside the lift.

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

23. For renewable energy technology, we will install photovoltaic system and solar hot water system to provide renewable energy for environmental benefits.

24. For greening features, we will provide a rooftop garden, a landscaped courtyard, peripheral planters and vertical greening for environmental and amenity benefits.

25. For recycled feature, we will install a rainwater recycling system for landscape irrigation with a view to conserving water.

26. The total estimated additional cost for adoption of the energy conservation features is around \$4.9 million (including \$456,500 for energy efficient features), which has been included in the cost estimate of the project. The energy efficient features will achieve about 6.7% energy savings in the annual energy consumption with a payback period of about 8.1 years.

HERITAGE IMPLICATIONS

27. This project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

28. The project does not require any land acquisition.

BACKGROUND INFORMATION

29. We upgraded **106ET** to Category B in December 2007. We engaged an architectural consultant in October 2008 to undertake the detailed design and PER, and a quantity surveying consultant in September 2009 to prepare the tender documents. The total cost of these consultancy services is about \$10.1 million. We have 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 architectural consultant has completed the detailed design and PER. The quantity surveying consultant is finalising the tender documents.

30. The proposed works will involve removal of 34 trees, including 32 trees to be felled and two trees to be replanted within the project site. All trees to be removed are not important trees⁷. We will incorporate planting proposals as part of the project, including estimated quantities of 65 trees, 13 144 shrubs, 33 320 groundcovers and 126 climbers.

31. We estimate that the proposed works will create about 280 jobs (250 for labourers and another 30 for professional/technical staff) providing a total employment of 4 529 man-months.

Education Bureau
January 2010

⁷ “Important trees” refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria -

- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25 metres.



TITLE 106ET
 屯門第16區1所為肢體傷殘學生而設的特殊學校
 SPECIAL SCHOOL IN AREA 16, TUEN MUN, FOR STUDENTS WITH PHYSICAL DISABILITY

DRAWN BY THOMAS YUEN 袁家耀	DATE 30.12.2009
APPROVED PHILIP CHAN 陳迪生	DATE 30.12.2009
OFFICE PROJECT MANAGEMENT BRANCH 工程策劃處	

DRAWING NO. AB/7268/XA001	SCALE 1:1000
 ARCHITECTURAL SERVICES DEPARTMENT 建築署	



VIEW OF THE CLASSROOM BLOCK FROM NORTH-EASTERN DIRECTION (ARTIST'S IMPRESSION)
從東北面望向課室大樓的構思圖



VIEW OF THE BOARDING BLOCK AND ASSEMBLY HALL BLOCK FROM SOUTH-WESTERN DIRECTION (ARTIST'S IMPRESSION)
從西南面望向宿舍大樓及禮堂大樓的構思圖

TITLE 106ET

屯門第16區1所為肢體傷殘學生
而設的特殊學校
SPECIAL SCHOOL IN AREA 16,
TUEN MUN, FOR STUDENTS WITH
PHYSICAL DISABILITY

DRAWN BY
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APPROVED
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OFFICE
PROJECT MANAGEMENT BRANCH 工程策劃處

DATE
30.12.2009

DATE
30.12.2009

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SCALE
NTS



ARCHITECTURAL
SERVICES
DEPARTMENT 建築署

106ET – Special school in Area 16, Tuen Mun, for students with physical disability

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2009 prices)

		Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Consultants' fees for contract administration (Note 2)	Professional	–	–	–	4.9
	Technical	–	–	–	1.2
				Sub-total	6.1
(b) Resident site staff costs (Note 3)	Professional	47	38	1.6	4.3
	Technical	57	14	1.6	1.8
				Sub-total	6.1
Comprising –					
(i) Consultants' fees for management of resident site staff					0.5
(ii) Remuneration of resident site staff					5.6
				Total	12.2

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of resident site staff supplied by the consultants. (As at now, MPS point 38 = \$57,280 per month and MPS point 14 = \$19,835 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 **106ET**. The construction phase of the assignment will only be executed subject to the Finance Committee's approval to upgrade **106ET** 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.