For discussion **PWSC(2010-11)17**
on 24 November 2010

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT
Education Subventions
90EB – Redevelopment of St Francis' Canossian College at Kennedy Road, Wan Chai

Members are invited to recommend to Finance Committee the upgrading of **90EB** to Category A at an estimated cost of $315.1 million in money-of-the-day prices for in-situ redevelopment of St Francis' Canossian College at Kennedy Road, Wan Chai.

PROBLEM

We need to redevelop St Francis' Canossian College (the School) situated in Kennedy Road, Wan Chai, which is housed in sub-standard premises, to improve its learning and teaching environment.

PROPOSAL

2. The Secretary for Education, on the advice of the Director of Architectural Services (D Arch S), proposes to upgrade **90EB** to Category A at an estimated cost of $315.1 million in money-of-the-day (MOD) prices for in-situ redevelopment of the School.

/PROJECT …..

PROJECT SCOPE AND NATURE

3. The project involves the demolition of the existing sub-standard school premises, the construction of a new school premises and the renovation of the existing assembly hall block for a 24-classroom secondary school with the provision of the following facilities –

(a) 24 classrooms;

(b) 17 special rooms, including a computer-assisted learning room and a multi-purpose room;

(c) three small group teaching rooms;

(d) a guidance activity room;

(e) an interview room;

(f) a staff room-cum-staff common room;

(g) a student activity centre;

(h) a conference room;

(i) a library-cum-language room;

(j) an assembly hall (which can also be used for a wide range of physical activities such as badminton, gymnastics and table-tennis);

(k) a multi-purpose area;

(l) a basketball court;

(m) a green corner[1];

(n) a 27-metre (m) running track[2]; and

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[1] 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 greenhouse, a weather station and planting beds.

[2] Making optimal use of the campus, a 27-m running track will be provided.

(o) ancillary accommodation, including two lifts and relevant facilities for the physically disabled.

Renovation works will be carried out at the existing assembly hall block to provide for some of the above facilities, including conversion of the existing computer room, two classrooms and library into two equipment-based multi-purpose rooms (paragraph 3(b) above), conversion of the existing language room into a guidance activity room (paragraph 3(d) above) and renovation of the existing assembly hall (paragraph 3(j) above). A site plan of the existing school premises is at Enclosure 1. A site plan and an artist's impression of the proposed new school premises are at Enclosures 2 and 3 respectively.

4. The proposed new school premises will meet the planning target of providing two square metres of open space per student. Subject to funding approval from the Finance Committee, the school sponsor plans to commence demolition works in early 2011. The construction and renovation works, which consist of two phases, are expected to commence in July 2011 and July 2013 respectively and scheduled for completion in April 2013 and mid-2015 respectively. During the redevelopment period, the School will continue to operate at the existing school premises and move to the new school building upon its completion. Since the project will be conducted in two phases and the school site is located on a sloping area, the construction period for the project would be longer.

JUSTIFICATION

5. The School currently operates 24 classes. The existing premises of the School, falls short of meeting the teaching and learning needs as imposed by changes in curriculum and pedagogy in recent years. Certain essential facilities for effective teaching and learning, such as multi-purpose area, small group teaching rooms and interview rooms, are lacking.

6. Except for the assembly hall block which was built in 1985, the existing school premises was built more than 50 years ago and its facilities fall short of the current standard of public sector schools. Frequent repairs are required to deal with concrete spalling and water seepage at ceiling and walls. In addition, a serious landslide occurred on a slope adjoining the school premises in

2000 and caused severe damage to one classroom which had to be closed permanently. The redevelopment project will improve the condition of the School and upgrade its facilities to the prevailing standards. The design of the new school premises has taken into account a number of considerations, including the surrounding environment, site constraints and learning and teaching needs of the School. There will be improvements in the following areas. First, in order to enhance the surrounding environment, the new school building will be set back from Kennedy Road and adopt a stepped design. In addition, the existing assembly hall block and the new school building will be connected by an open corridor which will in turn enhance the ventilation and the overall view of the area. Second, the design has incorporated a number of green features, including green roofs, in order to improve the landscape and enhance the environment. Third, under the new design, vehicles can enter and leave the School through a vehicular access at Kennedy Road and loading and unloading of students can take place within the school premises, and hence road traffic and pedestrian safety will be greatly enhanced.

7. With the implementation of the New Senior Secondary (NSS) academic structure, the School will have an ultimate class structure of four classes at each level from Secondary 1 to Secondary 6. Upon completion, **90EB** will provide 24 classrooms and other facilities to support the implementation of the NSS curriculum.

FINANCIAL IMPLICATIONS

8. The school sponsor estimates the capital cost of the project to be $315.1 million in MOD prices (please see paragraph 9 below). D Arch S has examined and endorsed the cost estimate, which is broken down as follows -

		$ million
(a)	Demolition	14.2
(b)	Site formation	17.3
(c)	Piling	47.8

/(d) …..

			$ million	
(d)	Building		99.0	
(e)	Building services		32.8	
(f)	Additional energy conservation measures		3.8	
(g)	Drainage		3.8	
(h)	External works		17.7	
(i)	Furniture and equipment[3]		6.8	
(j)	Consultants' fees		7.1	
	(i)	contract administration	4.3	
	(ii)	site supervision	2.7	
	(iii)	out-of pocket expenses	0.1	
(k)	Contingencies		23.6	
		Sub-total	273.9	(in September 2010 prices)
(l)	Provision for price adjustment		41.2	
		Total	**315.1**	(in MOD prices)

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[3] The estimated cost of furniture and equipment is prepared with reference to the standard furniture and equipment reference list prepared by the Education Bureau for a new 30-classroom secondary school adopting the standard schedule of accommodation. As there will only be 24 classrooms in the redeveloped premises, suitable downward adjustment has been made to the estimated cost. The actual cost will be determined based on a survey on the serviceability of the existing furniture and equipment which can be re-used as far as practicable. The cost of furniture and equipment, estimated to be $6.8 million, will be borne by the Government according to the existing policy.

The school sponsor proposes 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 4. The construction floor area (CFA) of the school premises under **90EB** is 13 391 m^2. The estimated construction unit cost, represented by the building and the building services costs, is $9,842 per m^2 of CFA in September 2010 prices. D Arch S considers this comparable to similar school projects built by the Government. A comparison of the reference cost for constructing a 24-classroom secondary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for **90EB** is at Enclosure 5.

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

Year	$ million (Sept 2010)	Price adjustment factor	$ million (MOD)
2011 – 12	29.0	1.04250	30.2
2012 – 13	91.0	1.09463	99.6
2013 – 14	55.6	1.14936	63.9
2014 – 15	63.0	1.20682	76.0
2015 – 16	28.7	1.27169	36.5
2016 – 17	6.6	1.34163	8.9
	273.9		315.1

10. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period 2011 to 2017. The school sponsor will deliver the demolition works and the two phases of the project through three separate lump-sum contracts because the school sponsor can clearly define the scope of works in advance. The contracts will provide for price adjustments.

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11. The redevelopment project will not give rise to additional recurrent expenditure, as the mode of operation and the number of classes of the School will remain unchanged. The annual recurrent expenditure of the School was $38.2 million in 2009/10 school year.

PUBLIC CONSULTATION

12. We consulted the Legislative Council (LegCo) Panel on Education on 24 October 2005 on our review of the School Building Programme. Members noted our plan to proceed with reprovisioning and redevelopment projects to upgrade sub-standard facilities in existing schools. **90EB** is a project to reprovision and redevelop an existing school operating in sub-standard premises. On 1 November 2010, we issued an information note on this proposed project to the LegCo Panel on Education. Members did not raise any objection to the proposal.

13. At its meeting on 15 June 2010, the Development, Planning, and Transport Committee of Wan Chai District Council (WCDC) was consulted on **90EB** and gave in-principle support to the redevelopment project. The Committee suggested the School to communicate with the nearby residents on the proposed redevelopment project so as to make appropriate arrangements for traffic and construction works. They also advised the School to examine whether there was scope to further maximise the use of the site so as to reduce the height of the new school building.

14. In response to the suggestion of WCDC, the school sponsor held a briefing session for nearby residents on 7 July 2010. In general, attendees did not raise objection to the redevelopment of the School. While some attendees expressed strong support for the project, a few nearby residents raised concerns about the possible impact of the redevelopment to the surrounding environment. The School and its consultant gave an account of the balanced approach adopted in designing the new school premises and the improvements brought about under the design as set out in paragraph 6 above.

15. The School and its consultant have also re-visited the school design and considered that the current layout of the new school premises with stepped design has taken into account various factors, including existing vegetation on the slopes and the actual conditions and constraints of the sloping site. We provided the relevant information to WCDC on 14 October 2010 and WCDC did not raise further concerns.

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ENVIRONMENTAL IMPLICATIONS

16. The school project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The school sponsor conducted a Preliminary Environmental Review (PER) for **90EB** in October 2010, following the approach stated in the Class Assessment Document (CAD) approved by the Director of Environmental Protection. The PER recommended installation of openable well-gasketted windows and air-conditioning for rooms exposed to traffic noise exceeding the limits recommended in the Hong Kong Planning Standards and Guidelines. These recommended mitigation measures will be installed in 24 classrooms and 8 special rooms located at various floors of the school building[4]. With such mitigation measures in place, the School would not be exposed to long term environmental impacts. The school sponsor has included the cost of the recommended environmental mitigation measures under the cost item on the building services in the project estimate at paragraph 8 above.

17. During construction, the school sponsor will control noise and dust nuisances and site run-off to within established standards and guidelines through the implementation of mitigation measures in the relevant 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.

18. At the planning and design stages, the school sponsor has considered measures (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects) to reduce the generation of construction waste where possible. In addition, the school sponsor will require the contractor to reuse inert construction waste (e.g. use of 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 facilities[5]. The school sponsor will encourage the contractor to maximise the use of recycled / recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

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[4] The PER also recommended installation of openable well-gasketted windows and air-conditioning for the Staff Room and General Office. Since air-conditioning will be provided for the Staff Room and General Office under standard provision, the cost of air-conditioning for these two rooms will be excluded from the cost for environmental mitigation measures.

[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.

19. At the construction stage, the school sponsor will 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. The school sponsor will ensure that the day-to-day operations on site comply with the approved plan. The school sponsor will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. The school sponsor 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.

20. The school sponsor estimates that the project will generate in total about 19 000 tonnes of construction waste. Of these, the school sponsor will reuse about 4 000 tonnes (21%) of inert construction waste on site and deliver 12 250 tonnes (65%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, the school sponsor will dispose of 2 750 tonnes (14%) 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 $0.7 million for this project (based on a unit cost of $27 per tonne for disposal at public fill reception facilities and $125 per tonne[6] at landfills).

21. The school sponsor has included the costs of implementing the environmental mitigation measures including an environmental monitoring and audit programme ($1.2 million) in the overall project estimate.

ENERGY CONSERVATION MEASURES

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

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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 m^3), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled.

(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.

23. For renewable energy technology, the school sponsor will install a photovoltaic system to provide renewable energy for environmental benefits.

24. For greening features, appropriate areas on the main roofs and the terraces will be landscaped for environmental and amenity benefits.

25. For recycled features, the school sponsor will install a rainwater recycling system for landscape irrigation with a view to conserving water.

26. The total estimated additional cost for adopting the energy conservation measures is around $3.8 million (including $0.6 million for energy efficient features), which has been included in the cost estimate for this project. The energy efficient features will achieve 7.7% energy savings in the annual energy consumption with a payback period of about 7 years.

HERITAGE IMPLICATIONS

27. The proposed 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 …..

LAND ACQUISITION

28. The project does not require any land acquisition.

BACKGROUND INFORMATION

29. We upgraded **90EB** to Category B in December 2008. The school sponsor engaged an architectural consultant to undertake detailed design and site investigation work and a quantity surveying consultant to prepare tender documents in May 2009. The total cost of the above consultancy services and works is about $10.2 million. We have charged this amount to block allocation Subhead **8100QX** "Alterations, additions, repairs and improvements to education subvented buildings". Detailed design and site investigation have been completed and the tender documents are being finalised.

30. The proposed works will involve removal of 14 existing trees. All 14 existing trees will be felled and no existing trees will be transplanted. All trees to be removed are not important trees[7]. The school sponsor will incorporate planting proposals as part of the project, including the planting of 16 trees and approximately 5 000 shrubs, ground covers and climbers.

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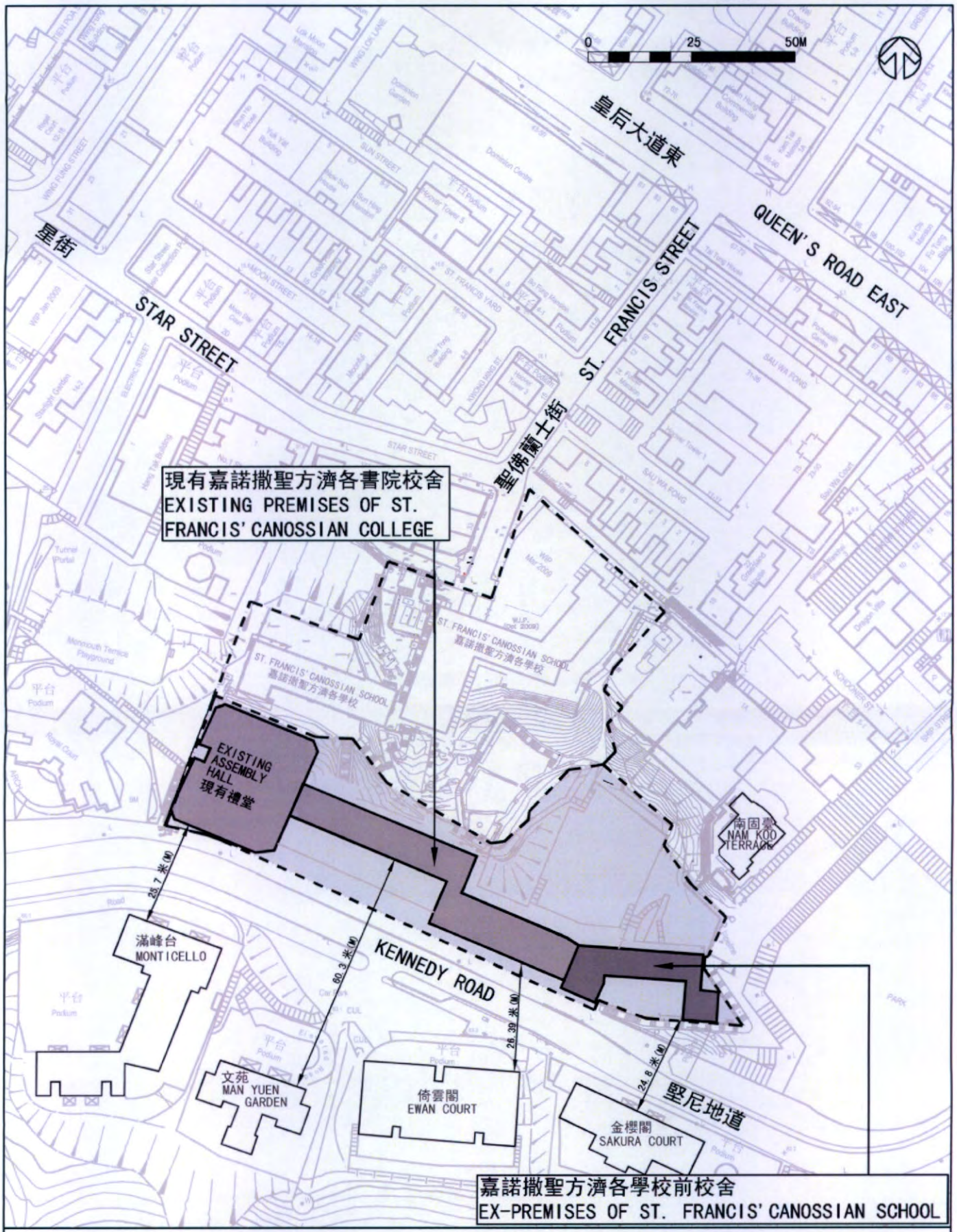
[7] "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria -

(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.

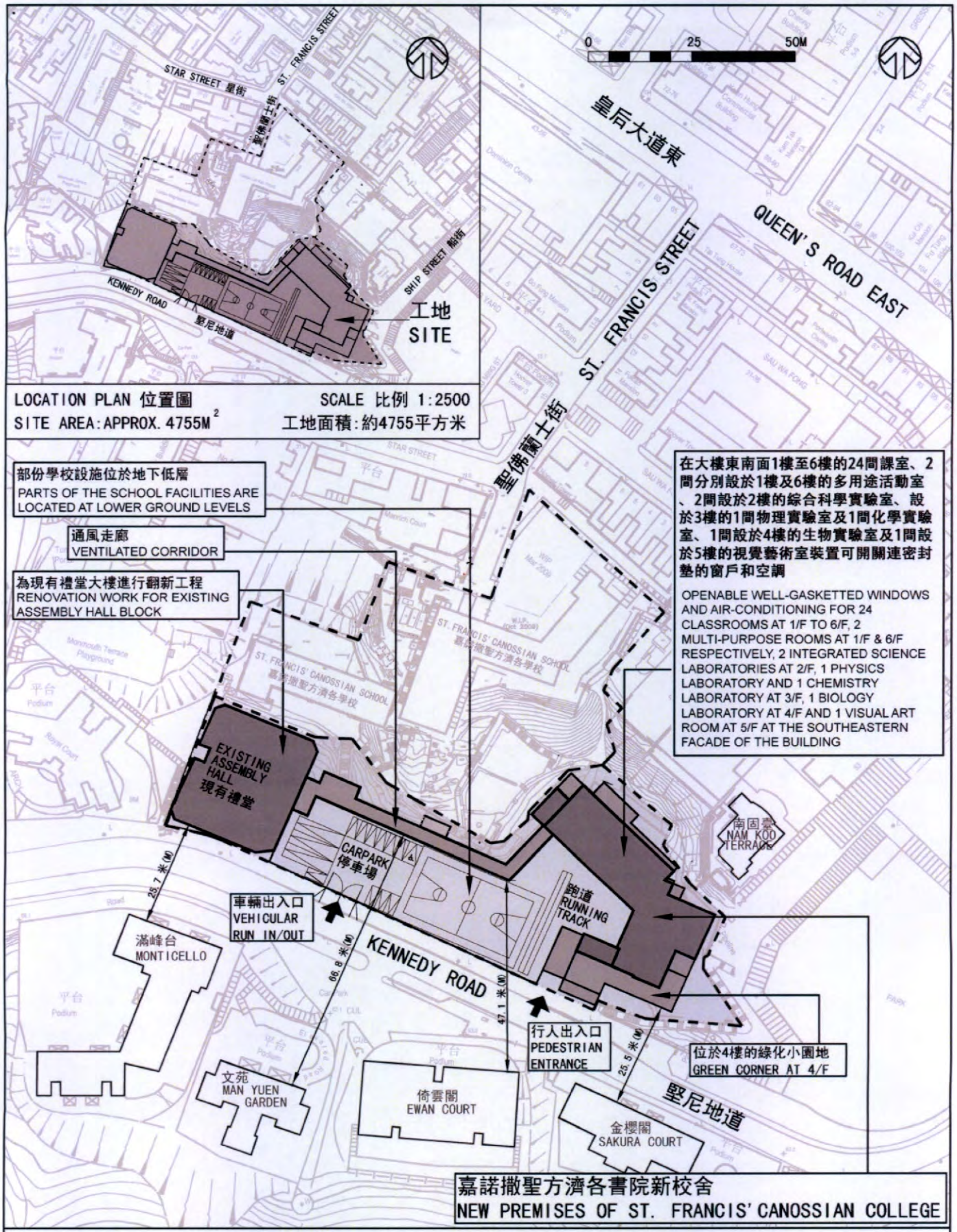
31. We estimate that the proposed works will create about 122 jobs (110 for labourers and another 12 for professional/technical staff) providing a total employment of 3 750 man-months.

Education Bureau
November 2010



90EB – REDEVELOPMENT OF ST. FRANCIS' CANOSSIAN COLLEGE AT KENNEDY ROAD, WAN CHAI – EXISTING SCHOOL PREMISES
灣仔堅尼地道嘉諾撒聖方濟各書院重建計劃 – 現有校舍

附件 2　ENCLOSURE 2



90EB – REDEVELOPMENT OF ST. FRANCIS' CANOSSIAN COLLEGE AT KENNEDY ROAD, WAN CHAI

灣仔堅尼地道嘉諾撒聖方濟各書院重建計劃

從堅尼地道望向新校舍的構思圖
VIEW OF THE NEW SCHOOL PREMISES FROM KENNEDY ROAD (ARTIST'S IMPRESSION)

從西南面高處望向新校舍的構思圖
AERIAL VIEW OF THE NEW SCHOOL PREMISES FROM SOUTH WESTERN DIRECTION (ARTIST'S IMPRESSION)

90EB - REDEVELOPMENT OF ST. FRANCIS' CANOSSIAN COLLEGE AT KENNEDY ROAD, WAN CHAI
灣仔堅尼地道嘉諾撒聖方濟各書院重建計劃

90EB – Redevelopment of St Francis' Canossian College at Kennedy Road, Wan Chai

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2010 prices)

		Estimated man-months	Average MPS* salary point	Multiplier	Estimated fee ($ million)
(a) Consultants' staff costs					
(i) Contract administration (Note 1)	Professional	-	-	-	4.3
(ii) Site supervision (Note 2)	Technical	84	14	1.6 (Note 3)	2.7
(b) Out-of-pocket expenses (Note 4)					0.1
				Total	7.1

* MPS = Master Pay Scale

Notes

1. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **90EB**. The construction phase of the assignment will only be executed subject to the Finance Committee's approval to upgrade **90EB** to Category A.

2. 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.

3. 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 14 = $19,945 per month.)

4. Examples of out-of-pocket expenses include the purchase of documents, drawings, maps, photographs and records, printing, lithography, presentational materials, etc.. The consultants are not entitled to any additional payment for overheads or profit in respect of these items.

Enclosure 5 to PWSC(2010-11)17

A comparison of the reference cost of a 24-classroom secondary school project with the estimated cost of 90EB

		$ million (in Sept 2010 prices)		
		Reference cost*	**90EB**	
(a)	Demolition works	–	14.2	(See note A)
(b)	Site Formation	–	17.3	(See note B)
(c)	Piling	20.1	47.8	(See note C)
(d)	Building	92.3	99.0	(See note D)
(e)	Building services	22.0	32.8	(See note E)
(f)	Drainage	5.2	3.8	(See note F)
(g)	External works	20.6	17.7	(See note G)
(h)	Additional energy conservation measures	–	3.8	(See note H)
(i)	Furniture and equipment	–	6.8	(See note I)
(j)	Consultants' fees	–	7.1	(See note J)
(k)	Contingencies	16.0	23.6	
Total		176.2	273.9	
(l)	Construction floor area	11 220 m^2	13 391 m^2	
(m)	Construction unit cost {[(d) + (e)] ÷ (l)}	\$10,187/m^2	\$9,842/m^2	

/* **Assumptions** .....

*** Assumptions for reference cost of a 24-classroom secondary school project**

1. It is assumed 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. It is assumed that 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. It is assumed that there will be a mixed use of 130 steel H-piles at an average depth of 30 m, assuming that percussive piling is permissible. The costs for pile caps, strap beams and testing are included. No allowance is reserved for the effect of negative skin friction due to fill on reclaimed land.

4. It is assumed that for a 24-classroom school, the school site will be about 6 500 m^2 in size, and will be an average level site without complicated geotechnical conditions, utility diversions, etc. (i.e. a "green-field" site).

5. It is assumed that no consultancy services are required because the project would be managed by ArchSD using in-house resources.

6. Furniture and equipment costs are excluded as they are usually borne by the sponsoring bodies of new schools.

7. The reference cost is only provided for comparison purposes and is subject to review regularly. Director of Architectural Services will review, and revise if necessary, the reference cost which should be adopted for future projects.

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Notes

A. Additional cost is required for demolition of the existing school premises.

B. Additional cost is required for site formation works of the new school premises, which would be constructed on a sloping site.

C. The piling cost is expected to be higher for **90EB** because of the difficult topography profile, the need for protecting the existing underground storm water culvert and soil nails, and the use of pre-bored socketted steel H-pile due to shallow rock head level and steep bedrock profile. Moreover, with phased development, higher cost is required for mobilization of piling plants and extra temporary platform for the piling work.

D. The building cost is expected to be higher because **90EB** will have a larger construction floor area as compared to a 24-classroom secondary school project.

E. The building services cost is expected to be higher because of the need to install additional automatic sprinkler system, a 200kVA emergency generator, an additional lift in response to Fire Services Department's requirements in light of actual site condition. There is also a need to install additional air-conditioning to satisfy the noise abatement requirement under the Preliminary Environmental Review as approved by the Director of Environmental Protection. Diversion of the existing utilities systems and additional modification works are required because the project will be implemented in two phases.

F. Drainage cost is expected to be lower because the site for **90EB** is smaller than a site for a 24-classroom secondary school.

G. The cost of external works is expected to be lower because the site area is smaller than a site for a 24-classroom secondary school.

H. The additional cost is required for the provision of additional energy conservation measures explained in paragraphs 22 to 26 of the paper. They will achieve 7.7% energy savings in the annual energy consumption with a payback period of about 7 years.

I. The cost of furniture and equipment, which is estimated to be $6.8 million, will be borne by the Government. This is in line with the existing policy on redevelopment and reprovisioning school projects.

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J. Additional cost is required for meeting the cost of contract administration and site supervision consultancy services, and reimbursing the consultants for their out-of-pocket expenses.