

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

### **HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT**

#### **Education Subventions**

#### **92EB - Redevelopment of Tung Wah Group of Hospitals Wong Fut Nam College at Oxford Road, Kowloon**

Members are invited to recommend to the Finance Committee the upgrading of **92EB** to Category A at an estimated cost of \$323.7 million in money-of-the-day prices for the redevelopment of Tung Wah Group of Hospitals Wong Fut Nam College at Oxford Road, Kowloon.

#### **PROBLEM**

We need to improve the teaching and learning environment of Tung Wah Group of Hospitals Wong Fut Nam College (the School) of the Tung Wah Group of Hospitals (the School Sponsor), which is housed in sub-standard school premises.

#### **PROPOSAL**

2. The Secretary for Education (SED), on the advice of the Director of Architectural Services (D Arch S), proposes to upgrade **92EB** to Category A at an estimated cost of \$323.7 million in money-of-the-day (MOD) prices for the redevelopment of the School.

**/PROJECT .....**

#### **PROJECT SCOPE AND NATURE**

3. The project scope includes demolition of the existing buildings of the School at 1C Oxford Road and construction of a 30-classroom secondary school premises on the cleared site to provide the following facilities -

- (a) 30 classrooms;
- (b) 19 special rooms comprising a music room, a visual arts room, a computer assisted learning room, a preparation room for computer assisted learning, two integrated science laboratories, a preparation room for integrated science, a multi-purpose room and 11 equipment-based multi-purpose rooms<sup>1</sup>;
- (c) a library-cum-language room;
- (d) a guidance activity room;
- (e) two interview rooms;
- (f) three small group teaching rooms;
- (g) administration offices comprising a principal's office, two deputy principal's offices, a discipline master's office, a career master's office, a pantry, a printing room and security store, a medical inspection room, a general office, a staff room, a staff common room, a conference room and a school social worker's office;
- (h) an assembly hall with a stage, chair stores and a dressing room;

/(i) .....

---

<sup>1</sup> The equipment-based multi-purpose rooms are for holding various functions to meet the teaching and learning needs of the School. The proposed 11 rooms comprise a biology laboratory, a preparation room for biology laboratory, a physics laboratory, a chemistry laboratory, a preparation room for physics and chemistry laboratory, a dark room for physics, a design and technology workshop, a needlework room, a home management room, a geography room and a computer room.

- (i) areas for physical education including covered playgrounds, multi-purpose areas, two student activity centres, three physical education stores and two changing rooms;
- (j) a running track<sup>2</sup>;
- (k) a green corner<sup>3</sup>; and
- (l) ancillary facilities including a disabled/fireman's lift, facilities for the physically disabled, a tuck shop-cum-central portioning area, store rooms and toilets.

4. Three new building blocks will be constructed at the existing site to accommodate the above facilities<sup>4</sup>. The proposed new school premises will meet the planning target of providing two square metres of open space per student. A site plan is at Enclosure 1 and aerial views of the school premises (artist's impressions) are at Enclosure 2. Subject to the funding approval of the Finance Committee, the School Sponsor plans to commence works in the third quarter of 2013 for completion by end of 2015. During redevelopment, the School will be temporarily accommodated at the vacant school premises of the ex-Shatin Tsung Tsin Secondary School at Sun Chui Estate, Shatin, New Territories.

#### **/JUSTIFICATION .....**

---

<sup>2</sup> A running track surrounding the basketball court on the roof will be provided to make optimal use of campus space.

<sup>3</sup> A 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 weather station and planting beds.

<sup>4</sup> There will be three blocks in total, with the north block housing mainly administration facilities on G/F, and classrooms and small group teaching rooms on 1/F to 5/F; the south block housing mainly services rooms such as switch room and transformer room on G/F and special rooms such as music room, visual arts room and laboratories, etc on 1/F to 5/F; and the west block housing mainly the covered playground on 1/F to 3/F and the assembly hall on 4/F to 5/F.

## JUSTIFICATION

5. The School is currently operating 30 classes and will operate the same number of classes after completion of the redevelopment by 2015. The existing premises of the School, comprising 25 classrooms, were mainly built in 1962 and 1992<sup>5</sup>. The sub-standard facilities of the existing campus are inadequate to meet the prevailing teaching and learning needs of a secondary school. The existing site area of the School (i.e. about 3 809 m<sup>2</sup>) is far below the standard site area of 6 950 m<sup>2</sup> for a standard 30-classroom secondary school. As a result, the existing facilities are seriously under-sized. The School also lacks certain standard facilities such as small group teaching rooms, multi-purpose room, multi-purpose area, student activity centre and disabled/fireman's lift. With changes in curriculum and pedagogy in recent years, including the implementation of the New Senior Secondary (NSS) Curriculum since the 2009/10 school year, the shortfall in teaching and learning space has posed more acute challenge to the School. The redevelopment project will upgrade the facilities of the School to meet the prevailing standards and requirements for improved teaching and learning and implementation of the NSS Curriculum.

## FINANCIAL IMPLICATIONS

6. The capital grant for **92EB** is calculated having regard to the reference cost of a standard design 30-classroom public sector secondary school. The reference costs are based on an uncomplicated site with no unusual environmental or geotechnical constraints. To cater for the site-specific requirements, we will also provide the School Sponsor with additional grants for site specific works. We estimate the capital grant to be \$323.7 million in MOD prices (please see paragraph 8 below), broken down as follows –

	<b>\$ million</b>	
(a) Demolition	3.5	
(b) Site formation	3.7	
(c) Piling	42.0	
(d) Building	134.3	/(d) .....

---

<sup>5</sup> The main school building, including the main teaching block and assembly hall, was built in 1962 while the extension teaching block was built in 1992.

	<b>\$ million</b>	
(e) Building services	43.6	
(f) Drainage	3.5	
(g) External works	12.5	
(h) Additional energy conservation measures	2.2	
(i) Furniture and equipment <sup>6</sup>	6.7	
(j) Consultants' fees for	3.2	
(i) contract administration	2.6	
(ii) management of resident site staff (RSS)	0.3	
(iii) out-of-pocket expenses	0.3	
(k) Remuneration of RSS	1.9	
(l) Contingencies	<u>24.5</u>	
	Sub-total	281.6 (in September 2012 prices)
(m) Provision for price adjustment	<u>42.1</u>	
	Total	<u>323.7 (in MOD prices)</u>

/7. ....

---

<sup>6</sup> 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.

7. 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 RSS costs by man-months is at Enclosure 3. The construction floor area (CFA) of the school premises under **92EB** is 13 106 m<sup>2</sup>. The estimated construction unit cost, represented by the costs of building works and building services works, is \$13,574 per m<sup>2</sup> of CFA in September 2012 prices. D Arch S considers this comparable to that of similar projects built by the Government. A comparison of the reference costs for constructing a 30-classroom secondary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for **92EB** is at Enclosure 4.

8. Subject to approval, the School Sponsor will phase the expenditure as follows –

Year	\$ million (Sept 2012)	Price adjustment factor	\$ million (MOD)
2013 – 14	25.0	1.06250	26.6
2014 – 15	154.0	1.12625	173.4
2015 – 16	89.8	1.19383	107.2
2016 – 17	9.3	1.26545	11.8
2017 - 18	3.5	1.34138	4.7
	281.6		323.7

9. 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 2013 to 2018. The School Sponsor will deliver the construction works through three lump-sum contracts. The contracts will provide for price adjustment.

10. The cost of furniture and equipment for **92EB**, estimated to be about \$6.7 million, will be borne by the Government according to the existing policy. The annual recurrent expenditure of the School was \$45.1 million in the 2011/12 school year. We do not anticipate any substantial increase in annual recurrent expenditure upon commissioning of the new school premises.

## **PUBLIC CONSULTATION**

11. We consulted the Legislative Council Panel on Education on 24 October 2005 on our review of the School Building Programme. Members noted without objection our plan to proceed with reprovisioning and redevelopment projects to upgrade sub-standard facilities in existing schools.

12. We circulated an information paper on **92EB** to the Kowloon City District Council on 26 October 2012. Members did not express any objection to the proposed redevelopment project.

13. We consulted the Legislative Council Panel on Education on 14 January 2013. Members supported the project.

## **ENVIRONMENTAL IMPLICATIONS**

14. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). The School Sponsor engaged a consultant to conduct a Class Assessment Document for Standard Schools (CAD) for **92EB** in August 2011. The CAD recommended installation of insulated windows and air-conditioning for noise sensitive rooms exposed to background noise exceeding the limits recommended in the Hong Kong Planning Standards and Guidelines. With such mitigation measures in place, noise affecting teaching and learning environment of the redeveloped School will be reduced to the minimum. The School Sponsor has included the cost of the above mitigation measures as part of the building and building services works in the project estimate at paragraph 6 above.

/15. ....

15. During construction, the School Sponsor will control noise, dust and site run-off nuisances in accordance with 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 to prevent dust nuisance.

16. 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 backfilling) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste to public fill reception facilities<sup>7</sup>. The School Sponsor will encourage the contractor to maximize the use of recycled/recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

17. At the construction stage, the School Sponsor will also require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation measures 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 also require the contractor to 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.

/18. ....

---

<sup>7</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N). Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.



18. The School Sponsor estimates that the project will generate in total about 12 000 tonnes of construction waste. Of these, the School Sponsor will reuse about 2 700 tonnes (22.5%) of inert construction waste on site, and deliver 8 000 tonnes (66.7%) of inert construction waste to public fill reception facilities for subsequent reuse. The School Sponsor will dispose of the remaining 1 300 tonnes (10.8%) 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 about \$0.38 million for this project (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne<sup>8</sup> at landfills).

### ENERGY CONSERVATION MEASURES

19. This project will adopt various forms of energy efficient features including –

- (a) variable refrigerant volume 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.

20. For renewable energy technology, the School Sponsor will adopt photovoltaic system for environmental benefits and education purpose.

/21. ....

---

<sup>8</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 per m<sup>3</sup>), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled.

21. For greening features, the School Sponsor will adopt greening on ground floor and part of roofs for environmental and amenity benefits.

22. For recycled features, the School Sponsor will adopt rainwater recycling system for landscape irrigation.

23. The total estimated additional cost for adopting the energy conservation measures is around \$2.2 million (including \$0.5 million for energy efficient features) which has been included in the cost estimate for this project. The energy efficient features will achieve 7.4% energy savings in the annual energy consumption with a payback period of about 5.1 years.

#### **HERITAGE IMPLICATIONS**

24. The 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**

25. The project does not require any land acquisition.

#### **BACKGROUND INFORMATION**

26. We upgraded **92EB** to Category B in September 2010. The School Sponsor engaged consultants to undertake the detailed design and preparation of tender documents in March 2011, and engaged contractors to carry out topographical survey in June 2011 and ground investigation in July 2011. The topographical survey and ground investigation were completed in July 2011 and September 2011 respectively. The cost of the above services amounts to \$5.7 million. We have charged this amount to block allocation Subhead **8100QX** "Alterations, additions, repairs and improvements to education subvented buildings".

27. The proposed construction of the whole project will involve removal of 16 trees. All trees to be removed are not important trees<sup>9</sup>. The School Sponsor will incorporate planting proposals as part of the project, including planting of 48 new trees.

28. We estimate that the proposed works will create about 236 jobs (213 for labourers and another 23 for professional/technical staff) providing a total employment of 3 700 man-months.

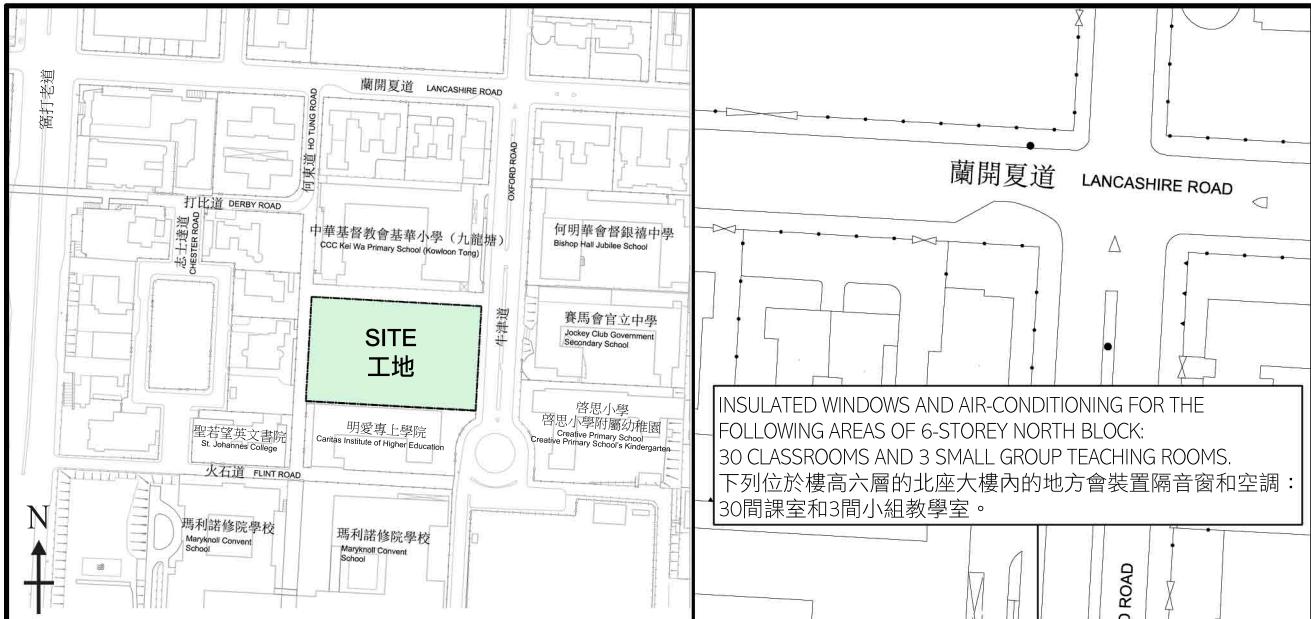
-----

**Education Bureau**  
**January 2013**

---

<sup>9</sup> “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, trees as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) Tree 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 root, trees growing in unusual habitat; or
- (e) Trees with trunk diameter equal or exceeding 1.0 metre (measured at 1.3 m above ground level), or with height/ canopy spread equal to or exceeding 25 metres.



位置圖 LOCATION PLAN 1:3500



平面圖 SITE PLAN 1:1000

92EB - REDEVELOPMENT OF TUNG WAH GROUP OF HOSPITALS  
WONG FUT NAM COLLEGE AT OXFORD ROAD, KOWLOON

92EB - 九龍牛津道東華三院黃笏南中學重建計劃



AERIAL VIEW OF THE NEW SCHOOL PREMISES FROM NORTHEAST  
從東北面望向校舍鳥瞰構思圖



AERIAL VIEW OF THE NEW SCHOOL PREMISES FROM NORTHWEST  
從西北面望向校舍鳥瞰構思圖

92EB - REDEVELOPMENT OF TUNG WAH GROUP OF HOSPITALS  
WONG FUT NAM COLLEGE AT OXFORD ROAD, KOWLOON

92EB - 九龍牛津道東華三院黃笏南中學重建計劃

**92EB – Redevelopment of Tung Wah Group of Hospitals  
Wong Fut Nam College at Oxford Road, Kowloon**

**Breakdown of estimates for consultants' fees and resident site staff costs (in September 2012 prices)**

		Estimated man- months	Average MPS <sup>*</sup> salary point	Multiplier (Note 1)	Estimated Fees (\$ million)
(a) Consultants' fees for contract administration (Note 2)	Professional	—	—	—	2.6
				Sub-total	2.6
(b) Resident site staff (RSS) costs	Technical	60	14	1.6	2.2
Comprising –					
(i) Consultants' fees for management of RSS (Note 3)					0.3
(ii) Remuneration of RSS					1.9
				Sub-total	2.2
(c) Out-of-pocket expenses (Note 4)					0.3
				Sub-total	0.3
				<b>Total</b>	<b>5.1</b>

\* 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 salary point 14 = \$22,405 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 **92EB**. The construction phase of the assignment will only be executed subject to the Finance Committee's funding approval to upgrade **92EB** to Category A.
3. The consultants' staff cost for site supervision is based on the estimate prepared by the D Arch S. We will only know the actual man-months and actual costs after completion of the construction works.
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 4 to PWSC(2012-13)54**

**A comparison of the reference cost of  
a 30-classroom secondary school project  
with the estimated cost of 92EB**

	\$ million (in Sept 2012 prices)		
	Reference cost*	92EB	
(a) Demolition	–	3.5	(See note A)
(b) Site formation	–	3.7	(See note B)
(c) Piling	24.7	42.0	(See note C)
(d) Building	126.7	134.3	(See note D)
(e) Building services	36.5	43.6	(See note E)
(f) Drainage	6.4	3.5	(See note F)
(g) External works	22.8	12.5	(See note G)
(h) Additional energy conservation measures	–	2.2	(See note H)
(i) Furniture and equipment	–	6.7	(See note I)
(j) Consultants' fees	–	3.2	(See note J)
(k) Remuneration of resident site staff	–	1.9	(See note K)
(l) Contingencies	21.7	24.5	
	<hr/>	<hr/>	
Total	238.8	281.6	
	<hr/>	<hr/>	
(m) Construction floor area	12 850 m <sup>2</sup>	13 106 m <sup>2</sup>	
(n) Construction unit cost {[(d)+(e)] ÷ (m)}	\$12,700 per m <sup>2</sup>	\$13,574 per m <sup>2</sup>	



\* **Assumptions for reference cost of a 30-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 and air-conditioning 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 145 steel H-piles at an average depth of 30 m, assuming that percussive piling is permissible. The cost 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 30-classroom secondary school, the school site will be about 6 950 m<sup>2</sup> in size, and it will be an average level site without complicated geotechnical conditions, utility diversion, 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 purpose 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.

**Notes**

- A. Additional cost is required for demolition of the existing school premises.
- B. Additional cost is required for site formation for the new school premises.
- C. The cost for piling is expected to be higher for **92EB** because of the necessity to adopt pre-boring works before driven steel H-pile and other measures to mitigate the vibration impact to surrounding buildings.
- D. The cost for building works is expected to be higher because **92EB** will have a larger construction floor area (CFA) as compared to a standard 30-classroom secondary school project. The site area of the School (3 809 m<sup>2</sup>) is much smaller than that of a standard school (6 950 m<sup>2</sup>), and in order to accommodate all required rooms and facilities within the smaller site, a playground is located at the roof level to meet the planning target of providing two square metres of open space per student, creating a covered area at G/F which becomes CFA-countable. There is also a need to install insulated windows to satisfy the noise abatement requirement under the Class Assessment Document (CAD) as approved by the Environmental Protection Department (EPD).
- E. The cost for building services works is expected to be higher because **92EB** will have a larger construction floor area as compared to a standard 30-classroom secondary school project. The site area of the School (3 809 m<sup>2</sup>) is much smaller than that of a standard school (6 950 m<sup>2</sup>), and in order to accommodate all required rooms and facilities within the smaller site, a playground is located at the roof level to meet the planning target of providing two square metres of open space per student, creating a covered area at G/F which becomes CFA-countable. There is also a need to install additional air-conditioning to satisfy the noise abatement requirement under the CAD as approved by EPD.
- F. The cost for drainage works is lower because the total area for **92EB** (3 809 m<sup>2</sup>) is smaller than a standard site for a 30-classroom secondary school (6 950 m<sup>2</sup>).
- G. The cost of external works such as paving and landscaping is lower because the total area for **92EB** (3 809 m<sup>2</sup>) is smaller than a standard site for a 30-classroom secondary school (6 950 m<sup>2</sup>).

- H. The cost is required for the provision of additional energy conservation measures for energy saving in the annual consumption with a payback period of about 5.1 years.
- I. The cost of furniture and equipment, which is estimated to be \$6.7 million, will be borne by the Government. This is in line with the existing policy on redevelopment and reprovisioning of schools.
- 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.
- K. Remuneration of resident site staff (to be employed by the consultants) is required for site supervision of the building works.