

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

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

#### **Medical Subventions**

#### **67MM – Expansion of the Hong Kong Red Cross Blood Transfusion Service Headquarters**

Members are invited to recommend to the Finance Committee the upgrading of **67MM** to Category A at an estimated cost of \$893.1 million in money-of-the-day prices for the expansion of the Hong Kong Red Cross Blood Transfusion Service Headquarters.

#### **PROBLEM**

The existing facilities in the Hong Kong Red Cross Blood Transfusion Service (BTS) Headquarters cannot meet the future service demand for safe blood supply in Hong Kong.

#### **PROPOSAL**

2. The Secretary for Food and Health proposes to upgrade **67MM** to Category A at an estimated cost of \$893.1 million in money-of-the-day (MOD) prices for the expansion of the BTS Headquarters.

**/PROJECT .....**

**PROJECT SCOPE AND NATURE**

3. The project 67MM involves the in-situ expansion of the existing BTS Headquarters to provide improved and appropriate facilities for the following services –

**Existing services**

- (a) Donor centre;
- (b) Components Preparation Laboratory;
- (c) Grouping and Labelling Laboratory;
- (d) Blood Storage and Issue Section;
- (e) Microbiology Laboratory;
- (f) Blood Components and Quality Control Laboratory;
- (g) Red Cell and Platelet Reference Laboratory;
- (h) Infectious Diseases Screening Laboratories;
- (i) Human Leucocyte Antigens and Molecular Laboratory;
- (j) Reagent preparation;
- (k) Donor blood sample archive;
- (l) Training, research and development;
- (m) Computer server room;
- (n) Administration offices;
- (o) Workshops and other supporting facilities;

**New or expanded services**

- (p) Cord Blood Bank;
- (q) Cellular Therapy Laboratory;
- (r) Tissue Typing Laboratory;
- (s) Nucleic Acid Test Laboratory;
- (t) Leucodepletion Laboratory;
- (u) Viral Inactivation Laboratory; and
- (v) Bone Marrow Donor Registry.

4. In order to allow continued operation of BTS during the expansion and to mitigate potential vibration risks for sensitive equipment, 67MM will be implemented in two stages –

- (a) stage 1 – construction of a new eight-storey annex block connected to the existing building at the adjacent vacant area; and
- (b) stage 2 – rearrangement of the functional layouts of the existing building, including removal of the existing partition walls for expansion of the lower ground floor upon moving out of the existing facilities thereat.

5. The site plan showing the location of construction works at the BTS Headquarters is at Enclosure 1. The floor plans, sectional drawings and a perspective view (artist's impression) of the new annex block and the existing building are at Enclosures 2 to 9.

6. We plan to commence the construction works immediately after the funding approval of the Finance Committee (FC), for completion of stage 1 in late 2018 and stage 2 in the third quarter of 2020 respectively.

## JUSTIFICATION

7. BTS is responsible for ensuring sufficient supply of safe and high-quality blood and blood components. The BTS Headquarters is located adjacent to the Queen Elizabeth Hospital and is under the management of the Kowloon Central Cluster of the Hospital Authority (HA). BTS is the only organisation responsible for collection and supply of fully-tested blood and haematopoietic stem cells, and is also the major provider of plasma products in Hong Kong. Its key services include collecting, testing, processing and distributing blood and blood components to blood banks in both public and private hospitals, as well as encouraging donation of blood and haematopoietic stem cells regularly. In addition, BTS provides a number of highly specialised services, including the External Quality Assurance Programme for blood banks in Hong Kong and a reference laboratory for immuno-haematology. It operates Hong Kong's only public cord blood bank and bone marrow donor registry which assists patients to find unrelated matched haematopoietic stem cells.

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8. The existing BTS Headquarters at King's Park Rise was built in 1984. Over the years, services provided by BTS have expanded in volume, scope and complexity. In terms of volume, the annual blood collection has increased since 1984 by around 78% to 247 000 units. The number of fresh blood components processed from whole blood donation has increased by around 100% to 629 700 units as compared with that of 1984 and the number of plasma derived medicinal products increased by around 500% to 157 000 units over the same period. With Hong Kong's population projected to grow from 7.2 million in 2013 to 7.6 million in 2020 and the elderly population (population aged 65 or above) to increase by 36% during the same period, the overall demand for blood collection is estimated to further increase by 15 to 20%.

9. In terms of service scope and complexity for enhancing blood safety, the number of mandatory infectious diseases screening tests required for each unit of donated blood has remarkably increased over the last three decades<sup>1</sup>. Additional processes have also been introduced to ensure product quality and safety through the introduction of new technologies such as universal leuco-filtration. The existing space provision in the BTS Headquarters is inadequate for its current scale of operations and workload and is unable to meet the projected growth in future.

10. Completed three decades ago, the design of the BTS Headquarters is outdated. At present, laboratories are scattered on different floors of the building, which is not conducive to efficient and effective operations. Further, the configuration of the building does not facilitate planning of laboratories for meeting the requirements of the Good Manufacturing Practices (GMP). GMP is a system commonly adopted for ensuring that products may be consistently produced and controlled according to quality standards appropriate to their intended use and as required by the product specification. In particular, GMP recommends that there should be uni-directional flow of blood and plasma products in the production processes to minimise chances of contamination. There is a need to address the limited space and outdated design of the existing building to ensure compliance with the requirement. An earlier GMP audit also highlighted insufficient provision of laboratory bench spaces in the BTS Headquarters to cater for the required operations and workflow.

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<sup>1</sup> With significant medical advances over the years, each unit of blood is now tested not only for hepatitis B surface antigen and syphilis, but is also tested for hepatitis B virus deoxyribonucleic acid (DNA), human immunodeficiency virus (HIV) antibodies and ribonucleic acid (RNA), hepatitis C antibodies and RNA, and human T-cell leukaemia/lymphoma virus antibodies.

11. To address the space shortage and outdated design which may pose potential risks of blood products contamination as well as occupational hazards, we plan to expand the BTS Headquarters to bring its facilities up to prevailing international standards, provide adequate space to cope with its projected level of services and ensure a safe working environment.

## FINANCIAL IMPLICATIONS

12. HA, in consultation with the Director of Architectural Services, estimates the cost of the proposed expansion works to be \$913.1 million in MOD prices (please see paragraph 15 below), of which \$893.1 million will be funded by the Government (please see paragraph 14 below), broken down as follows –

	<b>\$ million</b>
(a) Site works and demolition	9.3
(b) Piling/foundation works	35.6
(c) Building works <sup>2</sup>	276.7
(d) Building services works <sup>3</sup>	240.5
(e) Drainage works	9.1
(f) External works and soft landscaping works	13.7
(g) Additional energy conservation, green and recycled measures	7.5
(h) Furniture and equipment (F&E) <sup>4</sup>	34.7

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<sup>2</sup> Building works comprise construction of the substructure and superstructure of the building.

<sup>3</sup> Building services works comprise electrical installations, ventilation and air-conditioning, fire services installation and lifts, etc.

<sup>4</sup> Based on an indicative list of F&E items at Enclosure 11 and their estimated prices.

		<b>\$ million</b>	
(i)	Consultants' fees for	11.8	
	(i) contract administration	11.1	
	(ii) management of resident site staff	0.7	
(j)	Remuneration of resident site staff	23.3	
(k)	Contingencies	35.4	
	Sub-total	697.6	(in September 2014 prices)
(l)	Provision for price adjustment	215.5	
	Total	913.1	(in MOD prices)

13. HA will engage consultants to undertake contract administration and supervision for the construction works. A detailed breakdown of the estimate for consultants' fees and resident site staff costs by man-months is at Enclosure 10. The construction floor area (CFA) of the proposed new annex block and the existing building for renovation is about 10 000 square metres (m<sup>2</sup>) and 8 000 m<sup>2</sup> respectively. The estimated construction unit cost represented by the building and the building services costs is \$33,220 per m<sup>2</sup> and \$23,125 per m<sup>2</sup> of CFA for the new annex block and renovation works respectively in September 2014 prices. We consider this unit cost reasonable as compared with that of similar projects.

14. Hong Kong Red Cross (HKRC), the parent organisation of the BTS, has undertaken to contribute \$20 million in MOD prices towards the capital cost of the project. The Government will fund the remaining commitment of \$893.1 million in MOD prices for this project, calculated as follows –

		<b>\$ million</b>	
(a)	Total capital cost	913.1	
(b)	Contribution from HKRC	(20.0)	
	Total commitment sought	893.1	(in MOD prices)

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15. Subject to funding approval, HA will phase the expenditure as follows –

Year	\$ million (Sept 2014)		Price adjustment factor	\$ million (MOD)	
	Funded under 67MM	Total construction cost		Funded under 67MM	Total construction cost
2015 – 16	10.7	29.6	1.05725	11.3	31.3
2016 – 17	106.0	106.0	1.12069	118.8	118.8
2017 – 18	110.0	110.0	1.18793	130.7	130.7
2018 – 19	114.0	114.0	1.25920	143.5	143.5
2019 – 20	106.0	106.0	1.33475	141.5	141.5
2020 – 21	70.0	70.0	1.40483	98.3	98.3
2021 – 22	70.0	70.0	1.47507	103.3	103.3
2022 – 23	51.0	51.0	1.54882	79.0	79.0
2023 – 24	41.0	41.0	1.62626	66.7	66.7
	<u>678.7</u>	<u>697.6</u>		<u>893.1</u>	<u>913.1</u>

16. HA has 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 from 2015 to 2024. HA will award the contract on a lump-sum basis because the scope of the works can be clearly defined in advance. The contract will provide for price adjustment. HA will award the contract on consultancy services for contract administration and construction supervision on a lump-sum basis without provision for price adjustment.

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17. HA has assessed the requirements for F&E for this project, and estimates the F&E costs to be \$34.7 million. The proposed F&E provision represents 6.4% of the total construction cost of the project<sup>5</sup>. An indicative list of major F&E items (costing \$1 million or above per item) to be procured for the project is at Enclosure 11.

18. We estimate the additional annual recurrent expenditure arising from this project to be \$91.9 million.

## **PUBLIC CONSULTATION**

19. We consulted the Yau Tsim Mong District Council (YTMD) in respect of the proposed project on 26 June and 28 August 2008. Members of YTMD supported the proposed project. We updated YTMD on the latest status of the proposed project on 21 August 2014 and received positive feedback.

20. We consulted the Legislative Council Panel on Health Services on 17 November 2014. Members of the Panel supported the project.

## **ENVIRONMENTAL IMPLICATIONS**

21. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). HA has completed the Preliminary Environmental Review (PER) for the project. The PER has concluded and the Director of Environmental Protection agreed that the project would not have any long-term environmental impacts.

22. HA will incorporate into the works contract the mitigation measures recommended in the PER to control the environmental impacts arising from the construction works to within established standards and guidelines. These include the use of temporary noise barrier for noisy construction activities, frequent cleaning, and the watering of the site. HA has included \$6.7 million in the project estimate for the implementation of the environmental mitigation measures.

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5 Represented by building, building services, drainage, external works, and soft landscaping works costs.



23. At the planning and design stages, HA has considered measures to reduce the generation of construction waste where possible (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects). In addition, we 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<sup>6</sup>. HA will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

24. At the construction stage, HA 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. HA will ensure that the day-to-day operations on site comply with the approved plan. HA will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. HA will control the disposal of inert and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

25. HA estimates that the project will generate in total about 8 800 tonnes of construction waste. Of these, HA will reuse about 2 200 tonnes (25%) of inert construction waste on site and deliver 5 720 tonnes (65%) of inert construction waste to public fill reception facilities for subsequent reuse. HA will dispose of the remaining 880 tonnes (10%) 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 \$260,000 for this project (based on a unit charge rate of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

## **ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES**

26. This project will adopt various forms of energy efficient features and renewable energy technologies, in particular –

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<sup>6</sup> 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.

- (a) automatic demand control of chilled water circulation system;
- (b) automatic demand control of supply air;
- (c) demand control of fresh air supply with carbon dioxide sensors;
- (d) high efficiency air-cooled chiller with heat recovery function; and
- (e) heat pump for space heating or dehumidification.

27. For greening features, HA will provide vertical greening and green roof landscaping on the appropriate facades of the building for environmental and amenity benefits.

28. For recycled features, HA will provide rainwater recycling system for irrigation purpose.

29. The total estimated additional cost for adoption of the above features is around \$7.5 million (including \$2.8 million for energy efficient features), which has been included in the cost estimate of this project. The energy efficient features will achieve 6.5% energy savings in the annual energy consumption with a payback period of about 5.2 years.

## **HERITAGE IMPLICATIONS**

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

## **LAND ACQUISITION**

31. This project does not require any land acquisition.

**/BACKGROUND .....**

**BACKGROUND INFORMATION**

32. We upgraded **67MM** to Category B in September 2013.

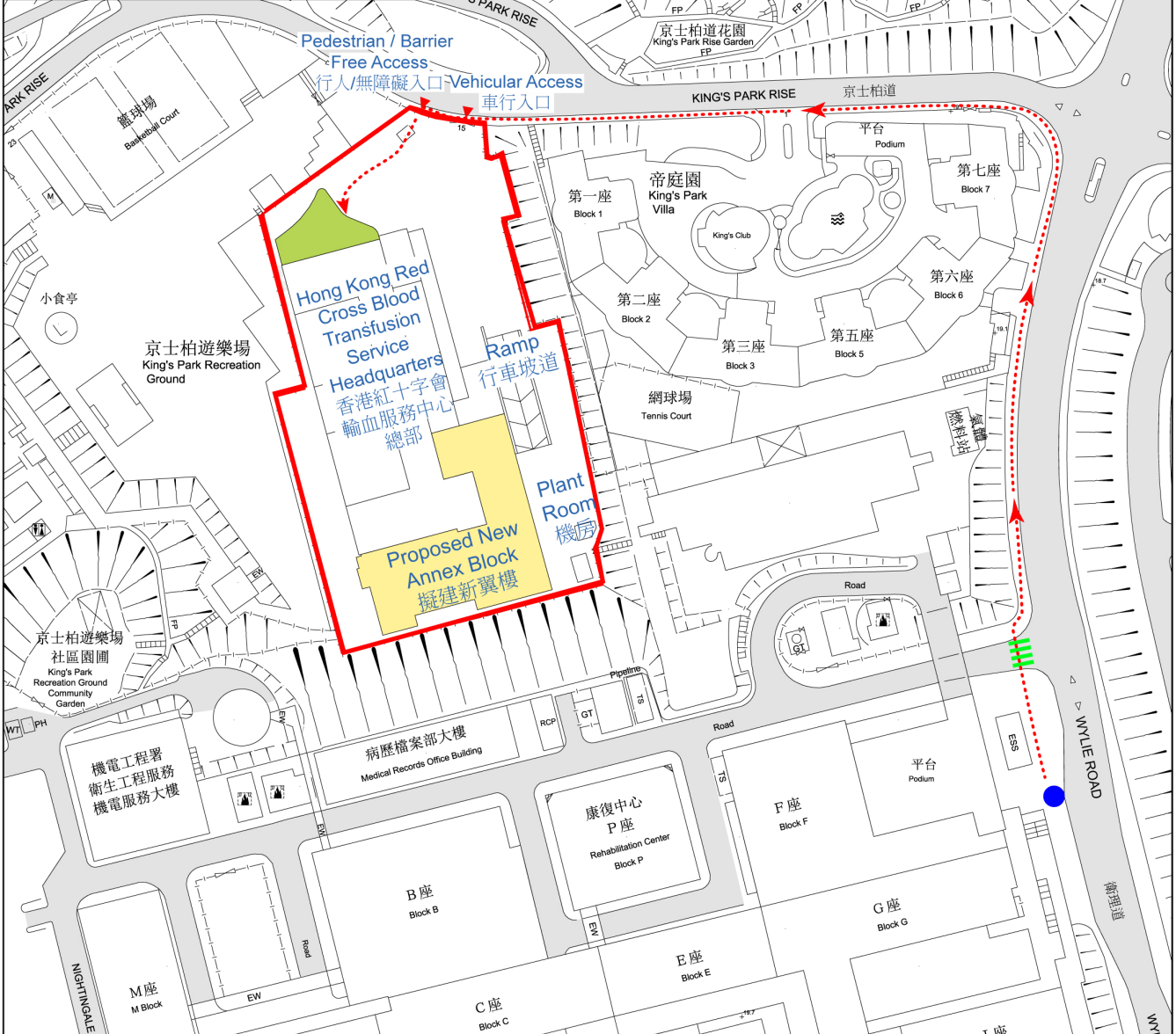
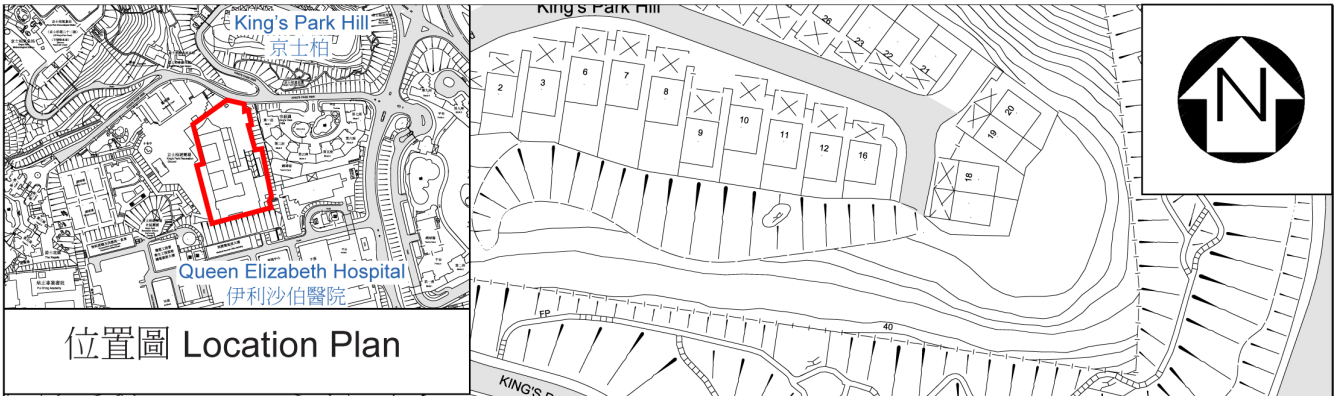
33. HA engaged consultants to carry out traffic impact assessment, ground investigation works, utility, and topographical surveys. HA also appointed a quantity surveying consultant to prepare tender document. The total cost of the above-mentioned services is about \$15.9 million. HA has charged this amount to **Subhead 8083MM** “One-off grant to the Hospital Authority for minor works projects”. All the above consultancy services, investigation and survey works have been completed.

34. The project will not involve any tree removal or planting proposals.

35. 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 around 10 940 man-months.

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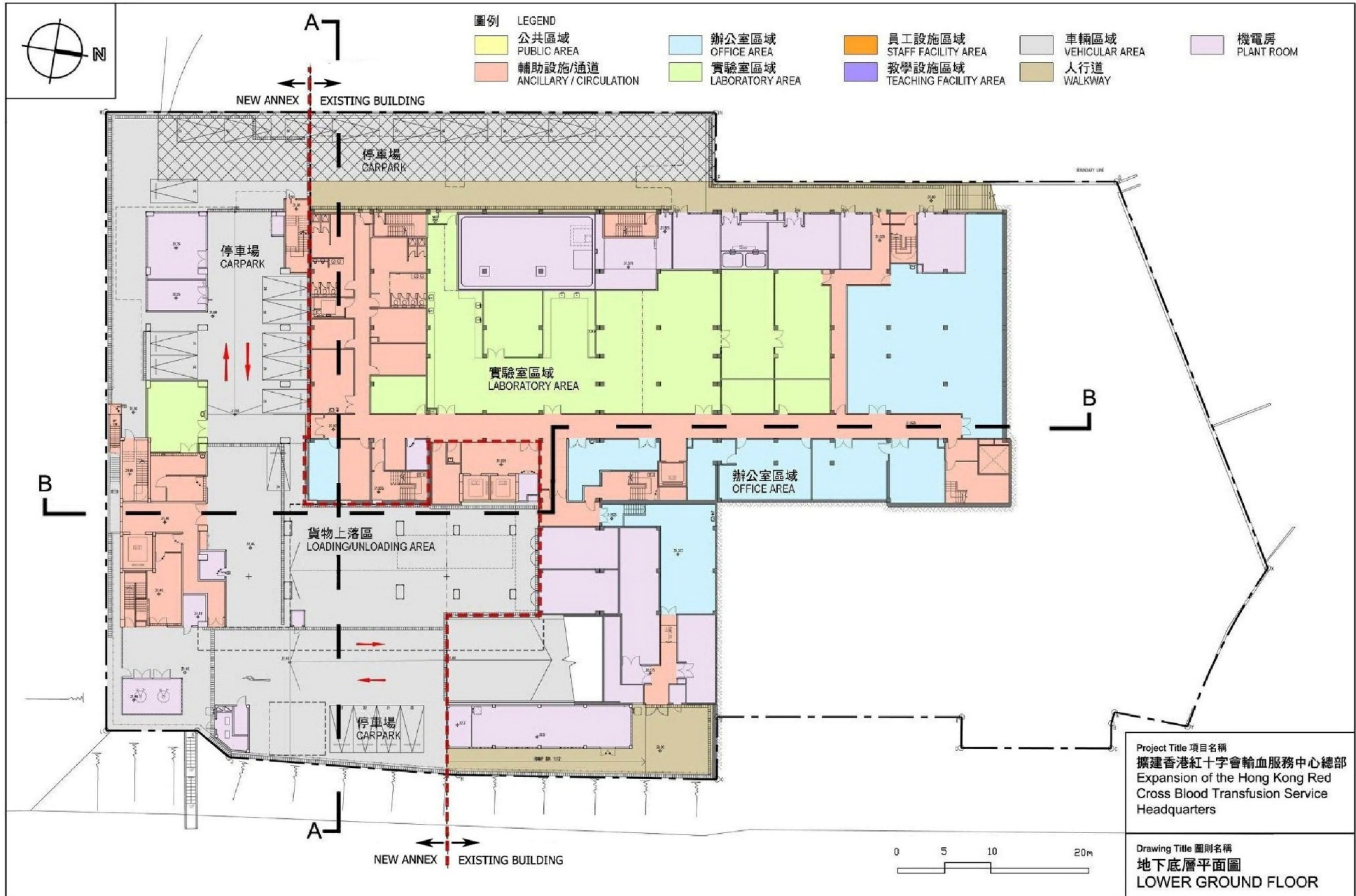
Food and Health Bureau  
March 2015



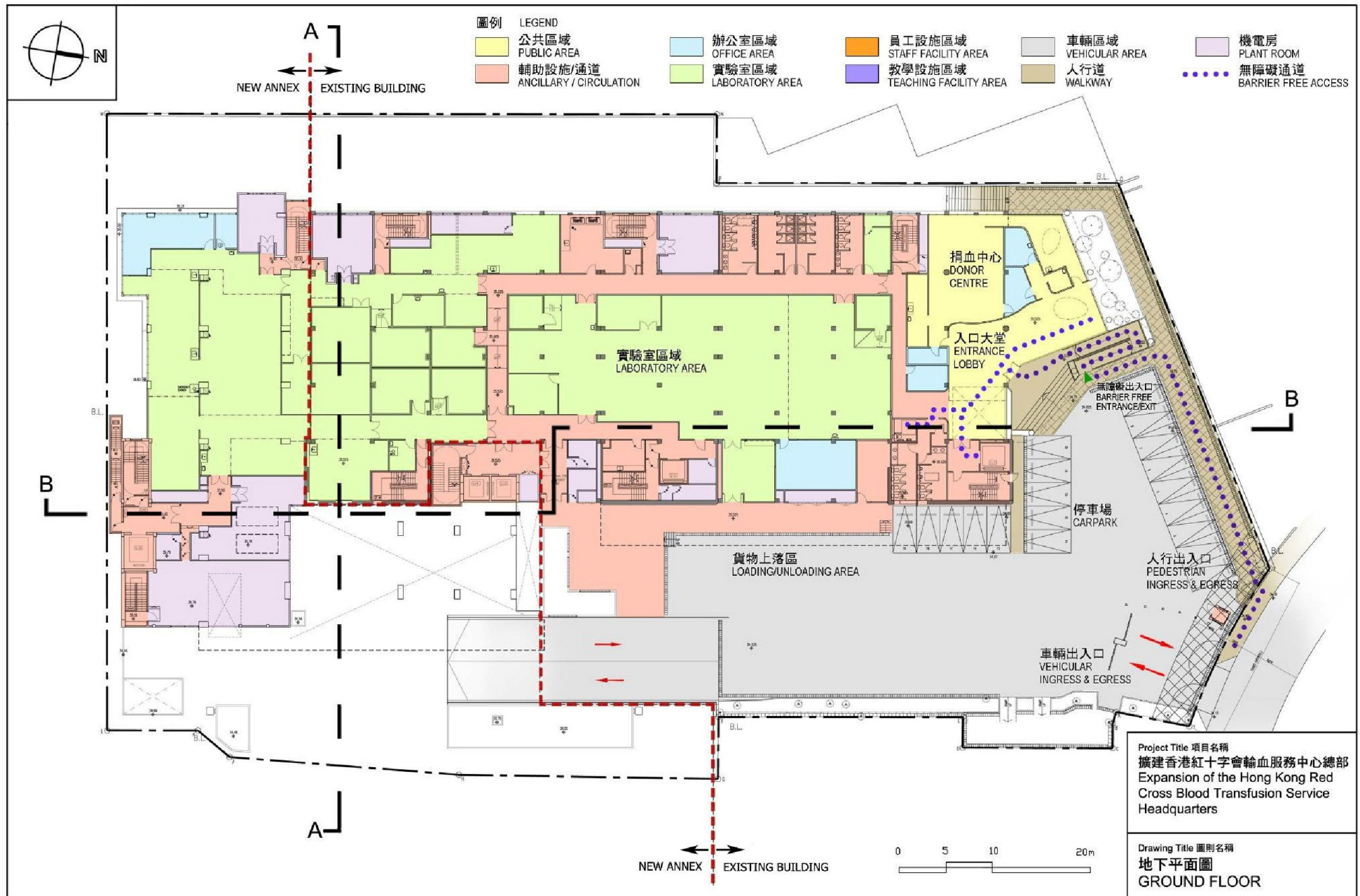
<p><b>Legends 圖例:</b></p> <p> Hong Kong Red Cross Blood Transfusion Service Headquarters Site Boundary 香港紅十字會輸血服務中心總部範圍</p> <p> Proposed New Annex 擬建新翼</p> <p> Proposed Expanded Area 擬擴建範圍</p> <p> Existing Pedestrian Crossing 現有行人過路處</p>	<p> Pedestrian / Barrier Free Route 行人/無障礙道路</p> <p> Existing Bus Stop 現有巴士站</p>
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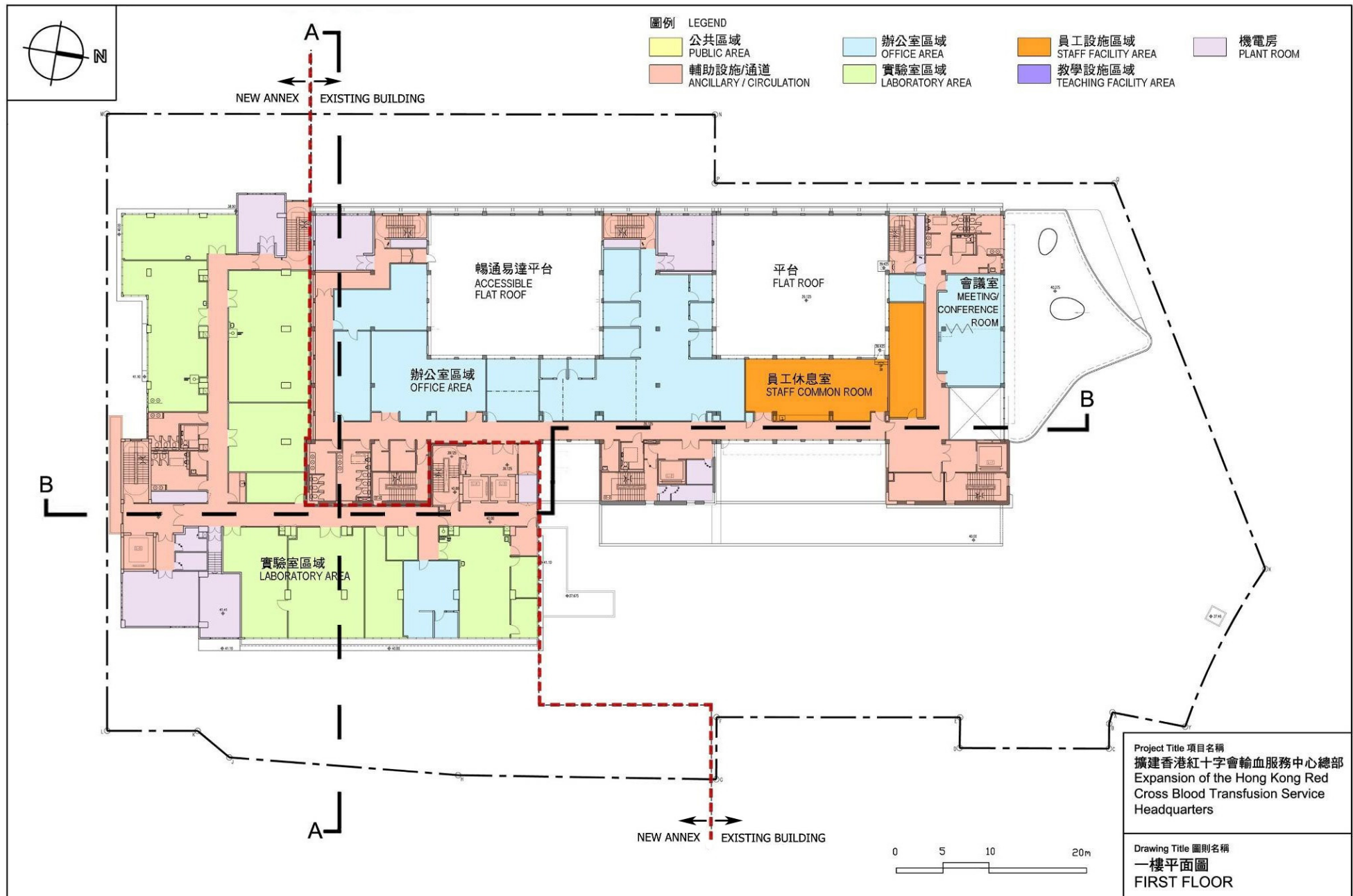
Project Title 項目名稱  
67MM - Expansion of the Hong Kong Red Cross Blood Transfusion Service Headquarters  
擴建香港紅十字會輸血服務中心總部

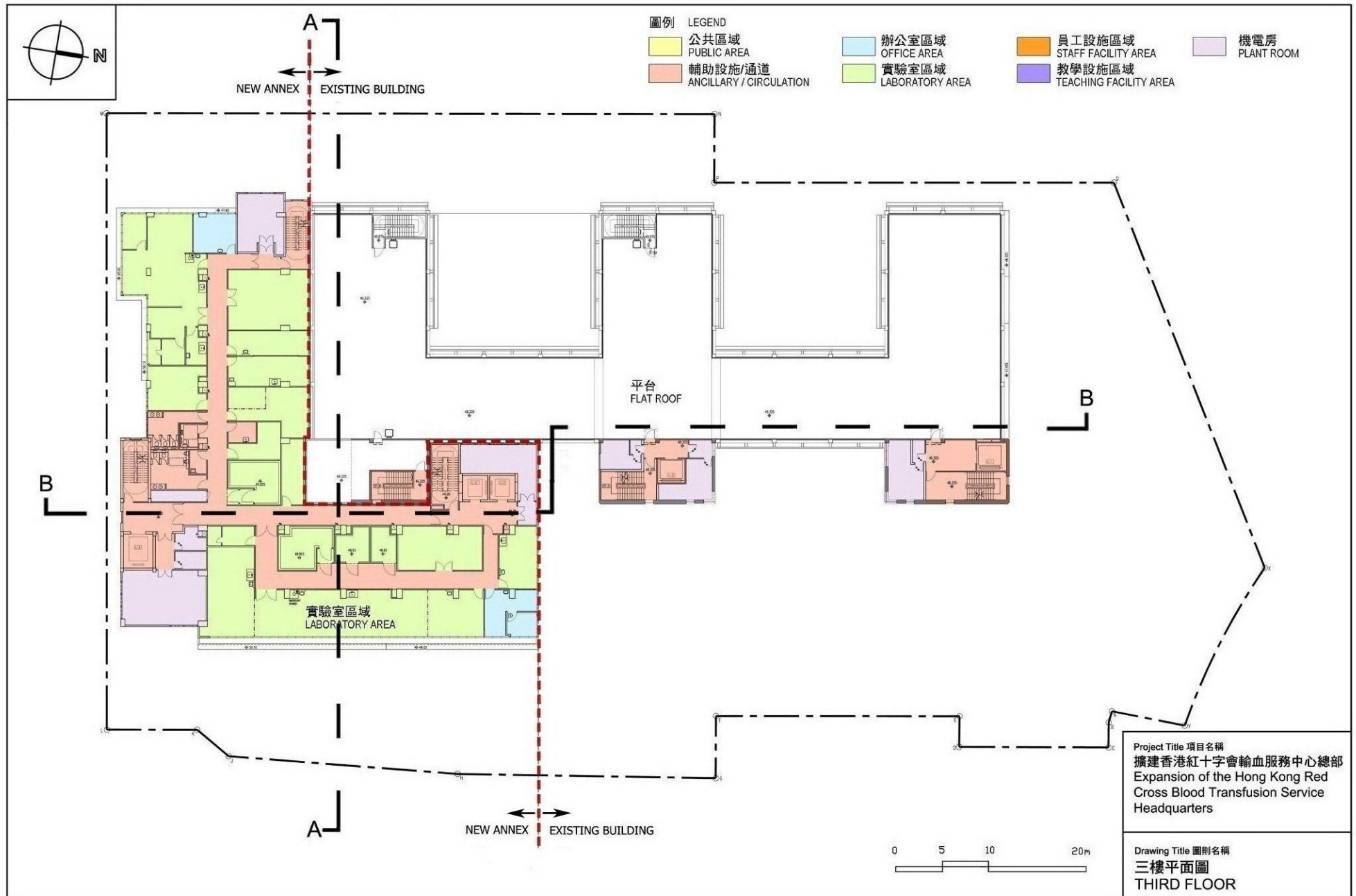
Site Location Plan (Not to Scale)  
工地平面圖 (不按比例)



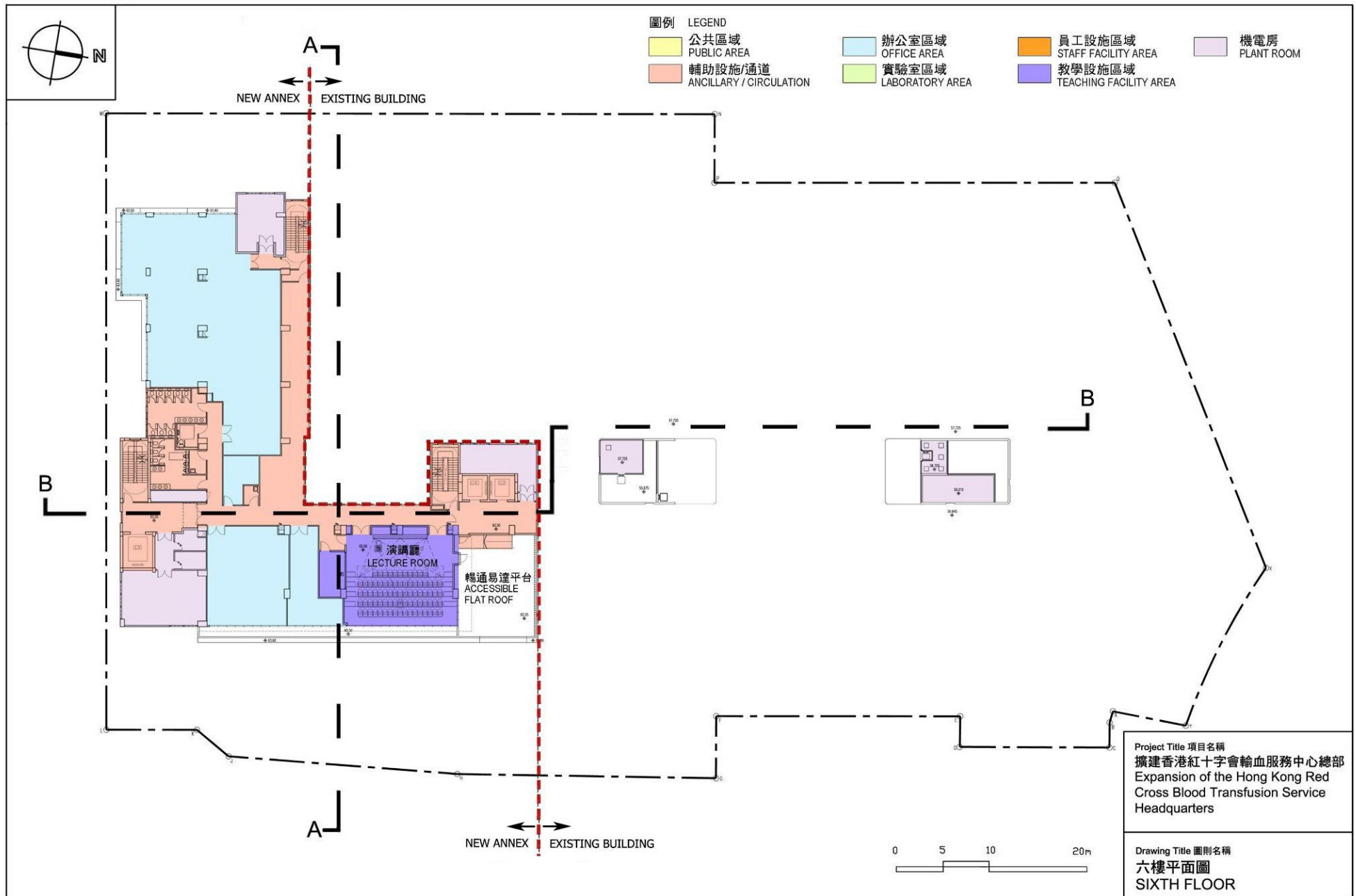




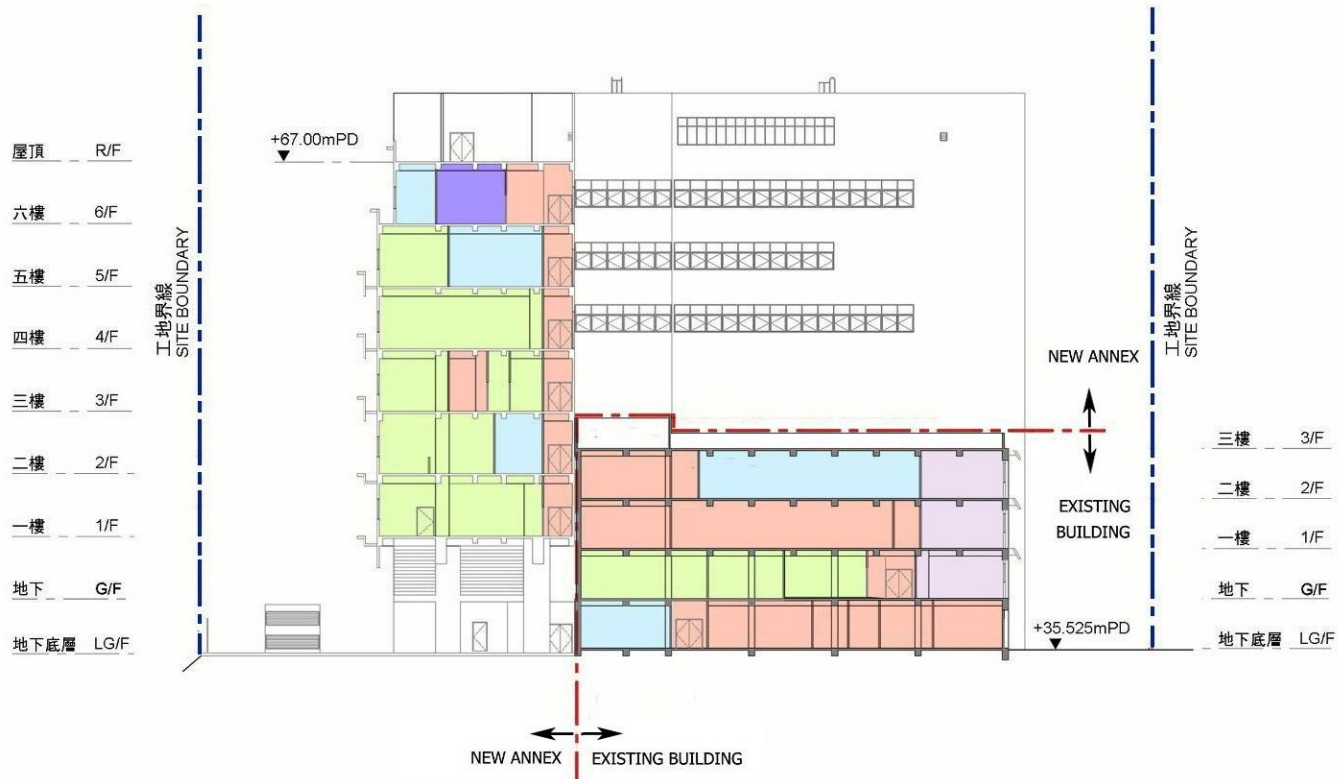






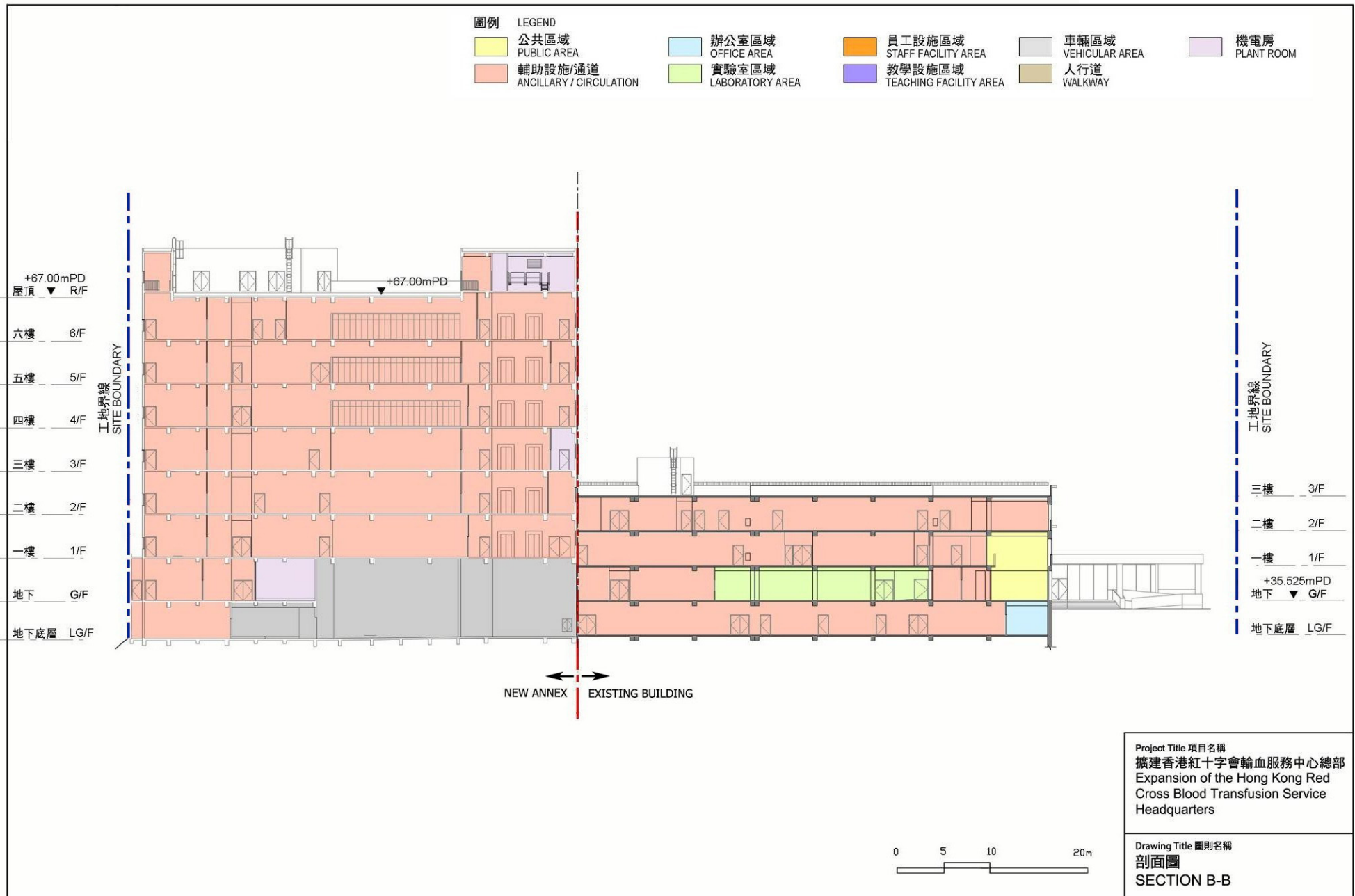


圖例		LEGEND	
	公共區域 PUBLIC AREA		辦公室區域 OFFICE AREA
	輔助設施/通道 ANCILLARY / CIRCULATION		實驗室區域 LABORATORY AREA
	員工設施區域 STAFF FACILITY AREA		教學設施區域 TEACHING FACILITY AREA
	車輛區域 VEHICULAR AREA		人行道 WALKWAY
	機電房 PLANT ROOM		



Project Title 項目名稱  
 擴建香港紅十字會輸血服務中心總部  
 Expansion of the Hong Kong Red  
 Cross Blood Transfusion Service  
 Headquarters

Drawing Title 圖則名稱  
 剖面圖  
 SECTION A-A







67MM - Expansion of the Hong Kong Red Cross Blood Transfusion Service Headquarters 擴建香港紅十字會輸血服務中心總部  
Perspective view from King's Park Rise (Artist's Impression) 面向京士柏道擴建後的香港紅十字會輸血服務中心總部構思透視圖

**67MM – Expansion of the Hong Kong Red Cross  
Blood Transfusion Service Headquarters**

**Breakdown of the estimates for consultants' fees and resident site staff costs  
(in September 2014 prices)**

			<b>Estimated man-months</b>	<b>Average MPS* salary point</b>	<b>Multiplier (Note 1)</b>	<b>Estimated fee (\$ million)</b>
(a)	Consultants' fees for contract administration (Note 2)	Professional	49	38	2.0	7.0
		Technical	84	14	2.0	4.1
					Sub-total	<hr/> 11.1
(b)	Resident site staff (RSS) costs (Note 2)	Technical	615	14	1.6	24.0
					Sub-total	<hr/> 24.0
	Comprising –					
(i)	Consultants' fees for management of RSS				0.7	
(ii)	Remuneration of RSS				23.3	
					<b>Total</b>	<hr/> <b>35.1</b>

\* MPS = Master Pay Scale

**Notes**

1. A multiplier of 2.0 is applied to the average MPS salary point to estimate the full staff cost including the consultants' overheads and profit for staff employed in the consultants' offices. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants. (As at now, MPS salary point 38 = \$71,385 per month and MPS salary point 14 = \$24,380 per month.)
2. The actual man-months and actual fees will only be known after completion of the construction works.

**67MM – Expansion of the Hong Kong Red Cross  
Blood Transfusion Service Headquarters**

**Indicative list of furniture and equipment items  
with unit cost of \$1 million or above**

<b>Item description</b>	<b>Quantity</b>	<b>Unit cost (\$ million)</b>	<b>Total cost (\$ million)</b>
Automatic Blood Grouping Analyser and Middleware	2	1.200	2.400
Automatic Component Extractor System	1	1.800	1.800
Card Access Control System	1	6.500	6.500
Cesium137 Blood Irradiator	1	4.800	4.800
Flow Cytometer Cell Sorter	1	3.800	3.800
Public Address System	1	1.700	1.700
Rapid Freezer	4	1.400	5.600
Security System/Closed Circuit Television (CCTV) System	1	2.700	2.700
Telephone System, Digital Analogue, Private Automatic Branch Exchange (PABX), and Interactive Voice Response System (IVRS)	1	3.700	3.700