

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 708 – CAPITAL SUBVENTIONS AND MAJOR SYSTEMS AND EQUIPMENT

Universities

The University of Hong Kong

63EG – Academic building at No. 3 Sassoon Road

Members are invited to recommend to the Finance Committee the upgrading of **63EG** to Category A at an estimated cost of \$810.9 million in money-of-the-day prices for construction of a new academic building for the University of Hong Kong.

PROBLEM

The University of Hong Kong (HKU) needs additional space and facilities to align with the current and future development of the Li Ka Shing (LKS) Faculty of Medicine.

PROPOSAL

2. The Secretary-General, University Grants Committee (SG, UGC), on the advice of the University Grants Committee (UGC) and the Director of Architectural Services (D Arch S) as UGC's Technical Adviser, and with the support of the Secretary for Education, proposes to upgrade **63EG** to Category A at an estimated cost of \$810.9 million in money-of-the-day (MOD) prices for the construction of a new academic building with teaching and research facilities at No. 3 Sassoon Road, Pokfulam, Hong Kong.

/PROJECT

PROJECT SCOPE AND NATURE

3. The project site occupies an area of around 3 600 square meters (m²) at No. 3 Sassoon Road. The scope of works comprises –

- (a) demolition of the Hospital Authority (HA)'s three-storey linen store building which is located on the site;
- (b) construction of a new eight-storey academic building (excluding the basement floor);
- (c) construction of car parking and loading/unloading facilities;
- (d) provision of a pedestrian connection with existing footbridge linking to Queen Mary Hospital (QMH); and
- (e) associated retaining structural works for future extension of adjacent bus layby along Pokfulam Road.

4. The new academic building will provide approximately 10 400 m² in net operational floor area¹ (NOFA) of space for offices, classrooms, laboratories and shared facilities. The LKS Faculty of Medicine, in particular the School of Public Health, School of Chinese Medicine and School of Nursing under the Faculty, will be relocated to the new academic building. The building will accommodate the following facilities –

- (a) classrooms and study space of about 2 260 m² in NOFA;
- (b) laboratories of about 2 400 m² in NOFA;
- (c) student and staff amenities of about 1 040 m² in NOFA;
- (d) offices of about 3 550 m² in NOFA; and

/(e)

¹ NOFA is the floor area actually allocated to the users of a building for carrying out the intended activities. Unlike the construction floor area which takes into account all areas within the building structure envelope, NOFA does not include areas for such facilities (if any) as toilets, bathrooms and shower rooms, lift lobbies, stair halls, public or shared corridors, stairwells, escalators and lift shafts, pipe or services ducts, barrier-free access facilities, gender mainstreaming facilities, refuse chutes and refuse rooms, balconies, verandas, open decks and flat roofs, parking spaces, loading and unloading areas and mechanical plant rooms, etc.

- (e) supporting facilities of about 1 100 m² in NOFA, including store rooms and meeting rooms.

5. Location and site plans, layout plans, sectional plans, an artist's impression, and a list of facilities are at Enclosures 1 to 5 respectively. Subject to funding approval of the Finance Committee (FC), HKU plans to commence the construction works in 2017 for completion in the first quarter of 2021. To meet the works programme, HKU invited tenders for the proposed works in March 2017. Tender will only be awarded after obtaining FC's funding approval.

JUSTIFICATION

6. The Government and the UGC are committed to supporting the campus development of the UGC-funded universities in accordance with the established policies and calculation criteria. Based on the established calculation criteria, HKU has an estimated academic space shortfall of around 42 800 m² in NOFA as at the 2016/17 academic year.

7. In an effort to meet the existing space shortfall and as part of its long term development strategy, HKU proposes to build a new academic building with teaching and research facilities to be relocated from the existing Faculty of Medicine Buildings. The project will allow HKU to re-organise its community of medical functions along Sassoon Road so as to align with the latest medical technologies. The proposed works will involve the relocation of various teaching and research facilities under the LKS Faculty of Medicine which are currently stationed at some old buildings, including the Patrick Manson Building, Pauline Chan Building, Estates Building and the University Pathology Building. All of these buildings, which came into existence during different stages of campus development, were originally designed for administrative and ancillary uses such as office and student accommodation, but not for teaching and research. These premises can no longer meet the modern-day service requirements of the LKS Faculty of Medicine. Moreover, the Patrick Manson Building was built in the early 1960s and is approaching the last phase of its designed lifespan. Meanwhile, HKU will need to surrender the University Pathology Building to the Government as a necessary step to enable the redevelopment of QMH (Phase 1, Main Works).

8. With the substantial growth in staff and student populations as well as the proliferation and advancement of research programmes and activities, the demand for space and infrastructure to support teaching and research has far outgrown the capacity of the above-mentioned low-rise low-density buildings which are equipped with outdated building systems. To align with the current and future development of the LKS Faculty of Medicine, a new academic building with updated design and facilities is necessary.

9. Furthermore, as part of the current strategy to enhance the connectivity and pedestrian circulation of the HKU campus, the new academic building will be connected to the existing footbridge to QMH so as to provide a safe and convenient access for the users of the new academic building and visitors to HKU's campus at Sassoon Road.

FINANCIAL IMPLICATIONS

10. We estimate the capital cost of the project to be \$810.9 million in MOD prices (please see paragraph 13 below), broken down as follows –

	\$ million
(a) Demolition	15.8
(b) Site formation and development	88.0
(c) Foundation	29.5
(d) Building ²	239.3
(e) Building services ³	147.1
(f) Drainage, external works, utilities and services	28.2

/(g)

² Building works cover construction of substructure and superstructure of the building.

³ Buildings services works cover construction of electrical system, mechanical ventilation and air-conditioning system, fire services system, lift and escalator, aboveground plumbing system, town gas system and technical gas system.

		\$ million	
(g)	Energy conservation, green and recycled features	10.1	
(h)	Furniture and equipment	44.5	
(i)	Consultants' fees for	9.4	
	(i) contract administration	8.4	
	(ii) management of resident site staff (RSS)	1.0	
(j)	Remuneration of RSS	11.3	
(k)	Contingencies	60.2	
	Sub-total	683.4	(in September 2016 prices)
(l)	Provision for price adjustment	127.5	
	Total	810.9	(in MOD prices)

11. HKU will engage consultants to undertake tender assessment, 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 6.

12. The construction floor area (CFA) of this project is approximately 18 569 m². The estimated construction unit cost, represented by the building and building services costs, is \$20,809 per m² of CFA in September 2016 prices. D Arch S considers, taking into account the site factors, the estimated construction unit cost is reasonable as compared with similar projects for UGC-funded universities.

/13.

13. Subject to funding approval, HKU projects to phase the expenditure as follows –

Year	\$ million (Sept 2016)	Price adjustment factor	\$ million (MOD)
2017 – 2018	35.2	1.05750	37.2
2018 – 2019	224.3	1.12095	251.4
2019 – 2020	281.4	1.18821	334.4
2020 – 2021	77.1	1.25950	97.1
2021 – 2022	24.8	1.32562	32.9
2022 – 2023	21.1	1.39190	29.4
2023 – 2024	19.5	1.46150	28.5
	<hr/> 683.4 <hr/>		<hr/> 810.9 <hr/>

14. 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 2017 to 2024. HKU will award the contract on a lump-sum contract because HKU can clearly define the scope of works in advance. The contract will provide for price adjustment.

15. The project has no impact on tuition fees. The additional recurrent costs associated with this project will be funded by HKU. The proposal has no additional recurrent financial implications for the Government.

/PUBLIC

PUBLIC CONSULTATION

16. As the project is located within HKU's campus, there are no other residential developments in its immediate vicinity apart from the student residential hostels of HKU. It is unlikely that the project will affect other public residents in the area, and therefore no consultation in this respect is considered necessary.

17. HKU briefed Members of Southern District Council on the project proposal in March 2015. Members have no objection to the proposed development of the academic building. HKU also briefed and consulted its staff and students on the project in various committee meetings. No adverse comment on the project has been received.

18. We consulted the Legislative Council Panel on Education on 15 May 2017. Panel Members supported submitting the funding proposal to the Public Works Subcommittee (PWSC) for consideration. Supplementary information requested by Panel Members has been submitted to the Panel on 31 May 2017.

ENVIRONMENTAL IMPLICATIONS

19. This is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). It will not cause any long-term adverse environmental impact.

20. HKU has included in the project estimates the cost to control short-term environmental impacts. During construction, HKU will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contract. These include the use of silencers, mufflers, acoustic linings or shields for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

/21.

21. At the planning and design stages, HKU has considered measures (e.g. adjusting the building layout and foundation system to cope with the topography) to reduce the generation of construction waste where possible. In addition, HKU will require the contractor to reuse inert construction waste (e.g. excavated soil) 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 facilities⁴. HKU 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 minimise the generation of construction waste. In addition, HKU will require the contractor to use metal site hoardings and signboards so that these materials can be recycled or reused in other projects.

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

23. HKU estimates that the project will generate in total 23 397 tonnes of construction waste. Of these, HKU will reuse 7 487 tonnes (32%) of inert construction waste on site and deliver 12 400 tonnes (53%) of inert construction waste to public fill reception facilities for subsequent reuse, and 702 tonnes (3%) of mixed inert and non-inert construction waste to sorting facilities to separate the inert from the non-inert portion. In addition, HKU will dispose of the remaining 2 808 tonnes (12%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites, together with the cost for handling mixed inert and non-inert construction waste at sorting facilities, is estimated to be \$1.6 million for this project (based on a unit charge rate of \$71 per tonne for disposal at public fill reception facilities, \$175 per tonne at sorting facilities and \$200 per tonne at landfills respectively as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

/HERITAGE

⁴ 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.

HERITAGE IMPLICATIONS

24. 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

25. The project does not require any land acquisition but is undergoing a land exchange process.

ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES

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

- (a) water cooled chillers with variable speed drive;
- (b) automatic demand control of supply air;
- (c) heat wheels/heat pipes for heat energy reclaim of exhaust air;
- (d) building energy management system; and
- (e) photovoltaic system.

27. For green features, this project will provide vertical greening and other greening provisions at different levels for environmental and amenity benefits.

28. For recycled features, this project will adopt a rainwater harvesting system and a grey water recycling system for landscape irrigation and toilet flushing respectively.

29. The total estimated additional cost for adoption of the above features is around \$10.1 million (including \$4.1 million for energy efficient features), which has been included in the cost estimate of the project. The energy efficiency features will achieve minimum 9.4% energy savings in the annual energy consumption with a payback period of about 9.6 years.

BACKGROUND INFORMATION

30. The land of the site is currently held by the HA under GLA-HK1 (Portion) and is used as a linen store. A land exchange proposal is underway involving the surrender of the HKU's University Pathology Building to the north of the existing Block K of QMH and the re-grant of the HA's site at No. 3 Sassoon Road.

31. Under existing procedures, UGC-funded universities submit capital works proposals to the UGC annually. The UGC examines all these proposals carefully, with professional advice provided by D Arch S who acts as UGC's Technical Adviser, and refers those supported proposals to the Government for consideration of bidding of funds under the established mechanism.

32. We upgraded **63EG** to Category B in October 2015. HKU engaged consultants in April 2016 to carry out site investigation and to prepare preliminary design, detailed design and tender documents at a total estimated fee of about \$12.9 million. The services and works by the consultants are funded under block allocation **Subhead 8100EX** "Alterations, additions, repairs and improvements to the campuses of the UGC-funded institutions". The consultants have completed site investigation, preliminary design and detailed design of the project. Parallel tendering has been adopted in this project.

33. Of the 85 trees within the project boundary, 42 trees will be preserved. The proposed project works will involve felling of 43 trees, subject to consideration and approval by the Lands Department (LandsD) under the Conditions of Exchange upon completion of the land transaction with HKU.

/Besides

Besides, two important trees⁵ (T41 & T43) will be affected during the implementation of the project. Felling of T41 & T43 may be necessary to allow for the necessary slope upgrading works in order to ensure slope safety. Nevertheless, HKU, in response to LandsD, will carry out another detailed investigation to gather further information regarding soil conditions and tree growth, etc. after taking over the land of the site. With such study, HKU could then consider more thoroughly other possible tree treatments, including retention of the trees. A summary of important trees affected is provided at Enclosure 7. HKU will incorporate planting proposals as part of the project, including the planting of 44 trees, 4 171 shrubs, 14 376 groundcover and 147 m² of grassed area.

34. We estimate that the proposed works will create about 450 jobs (400 for labourers and another 50 for professional/technical staff) providing a total employment of more than 8 400 man-months.

35. As mentioned in paragraph 5 above, HKU invited tenders for the proposed works in March 2017. After assessing the returned tender prices for the main contract, we have updated the project estimate. We consider that the latest estimate, which is 3.5% less than our earlier estimate as stated in Panel paper (LC Paper No. CB(4)1009/16-17(01)), has reflected the prevailing market situation and the latest estimate should be adequate to deliver the proposed works.

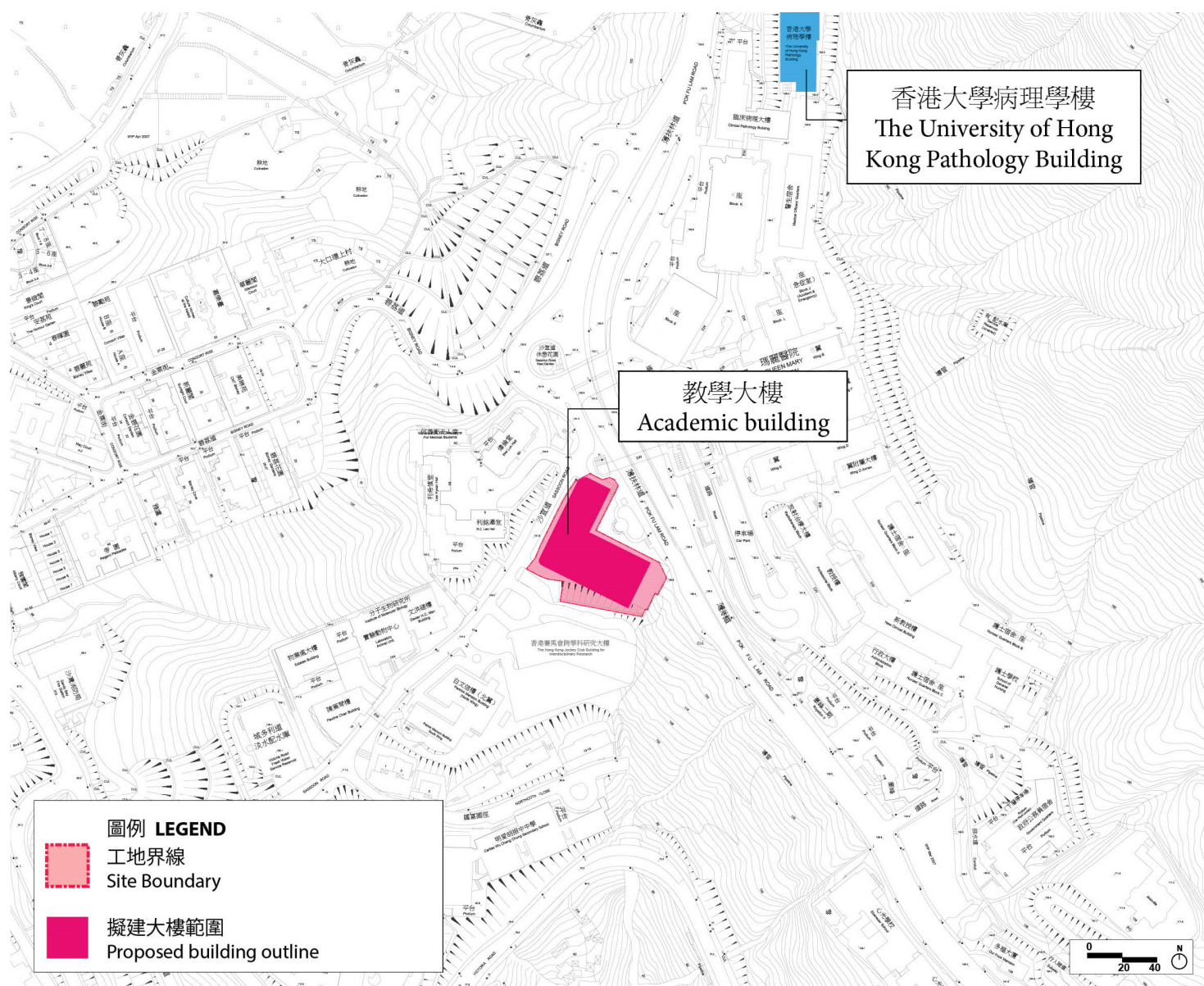
Education Bureau
June 2017

⁵ “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 of 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 metres (m) (measured at 1.3 m above ground level) or with height/canopy spread equal or exceeding 25 m.

香港大學 – 沙宣道 3 號教學大樓
The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road

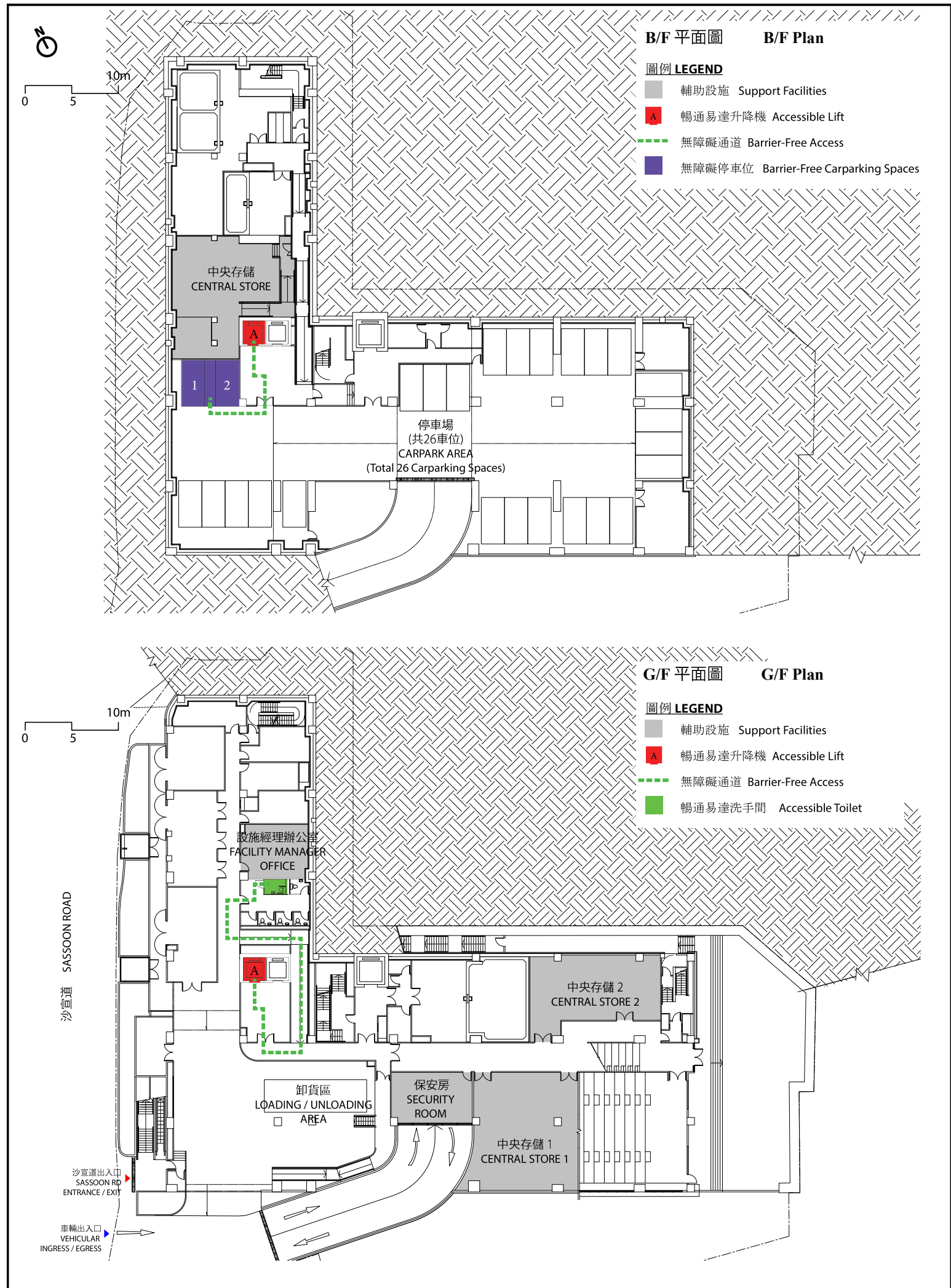
工地位置平面圖 Location plan

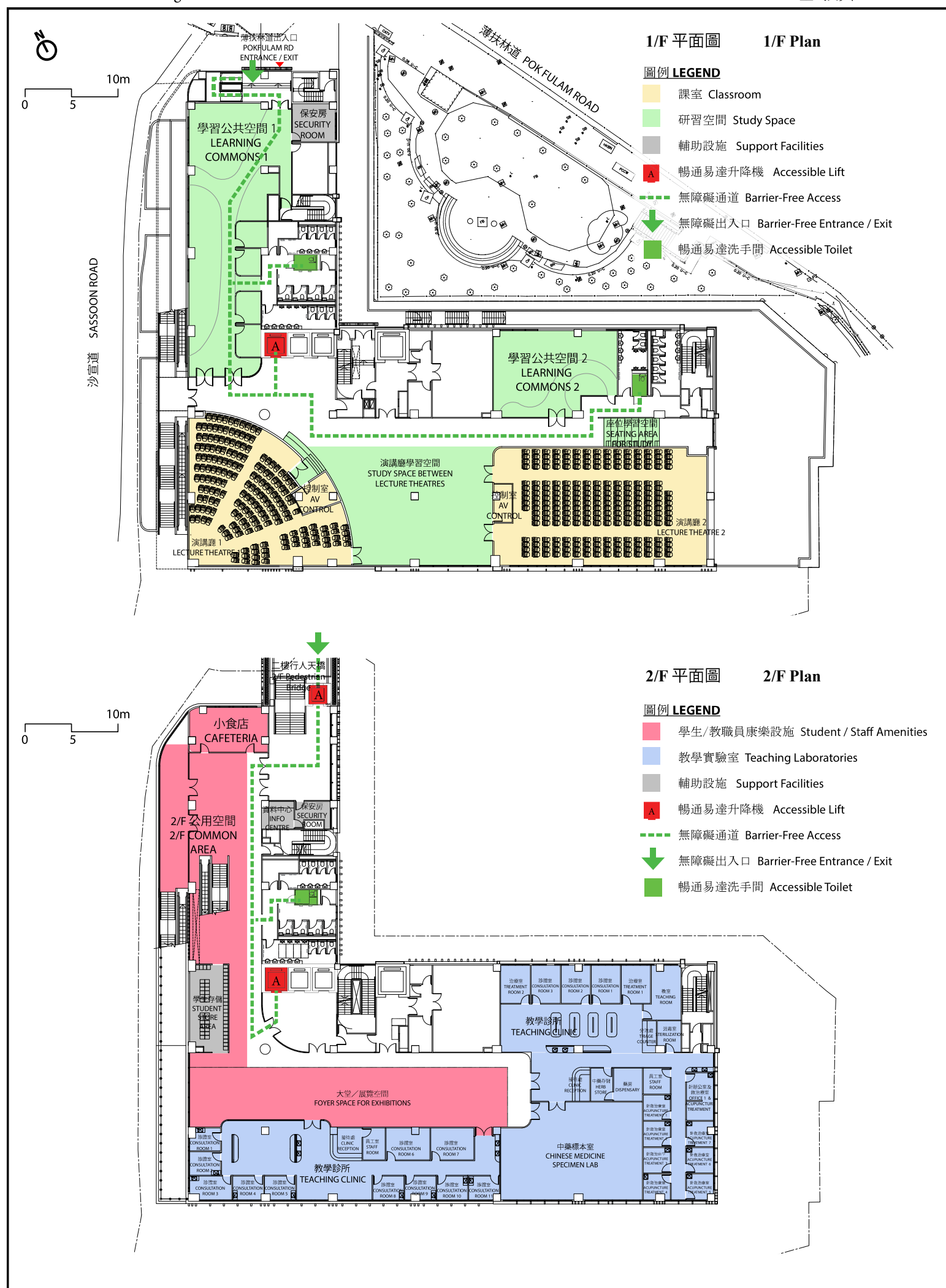


香港大學 – 沙宣道 3 號教學大樓
The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road

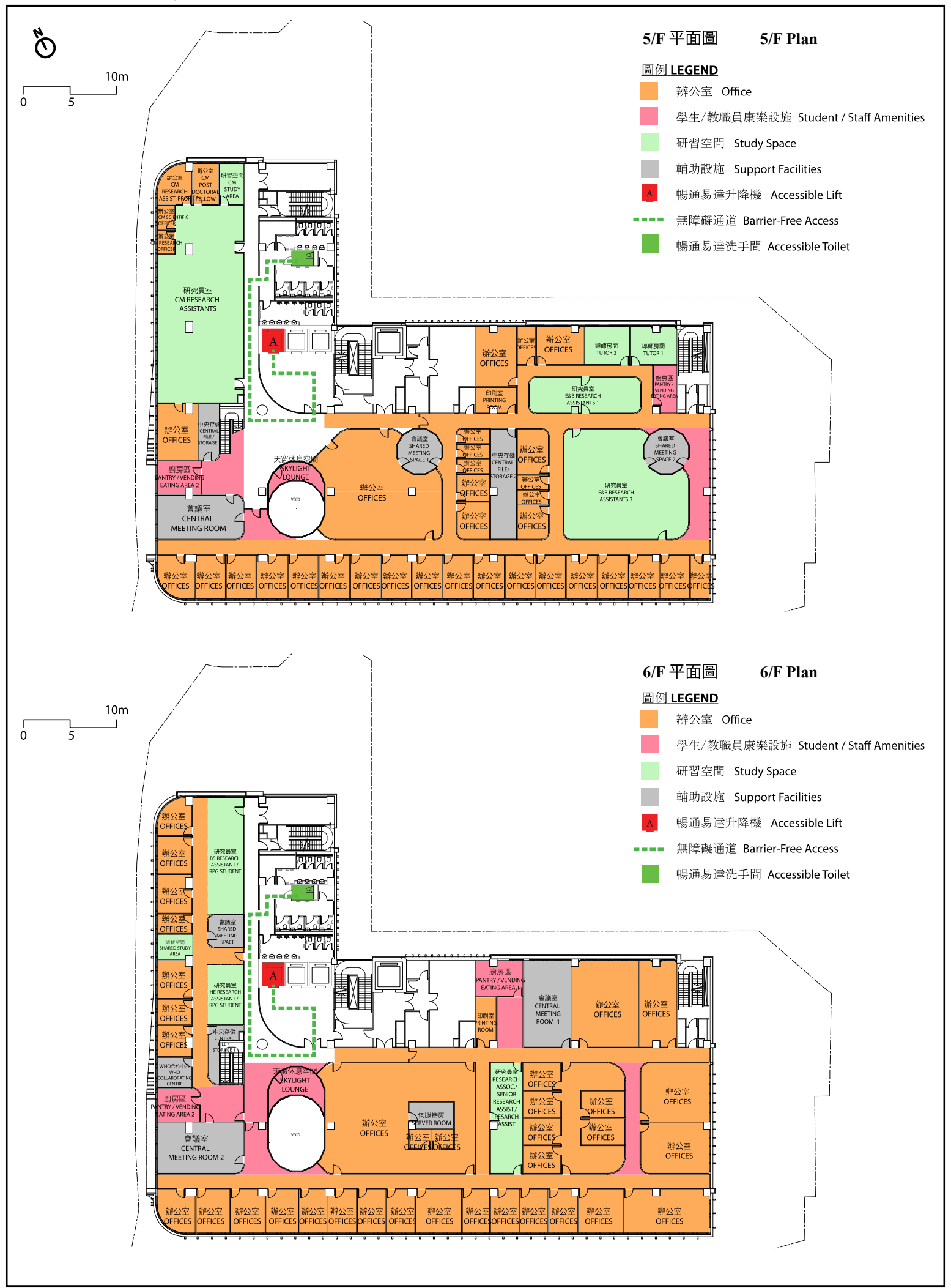
工地平面圖 Site plan

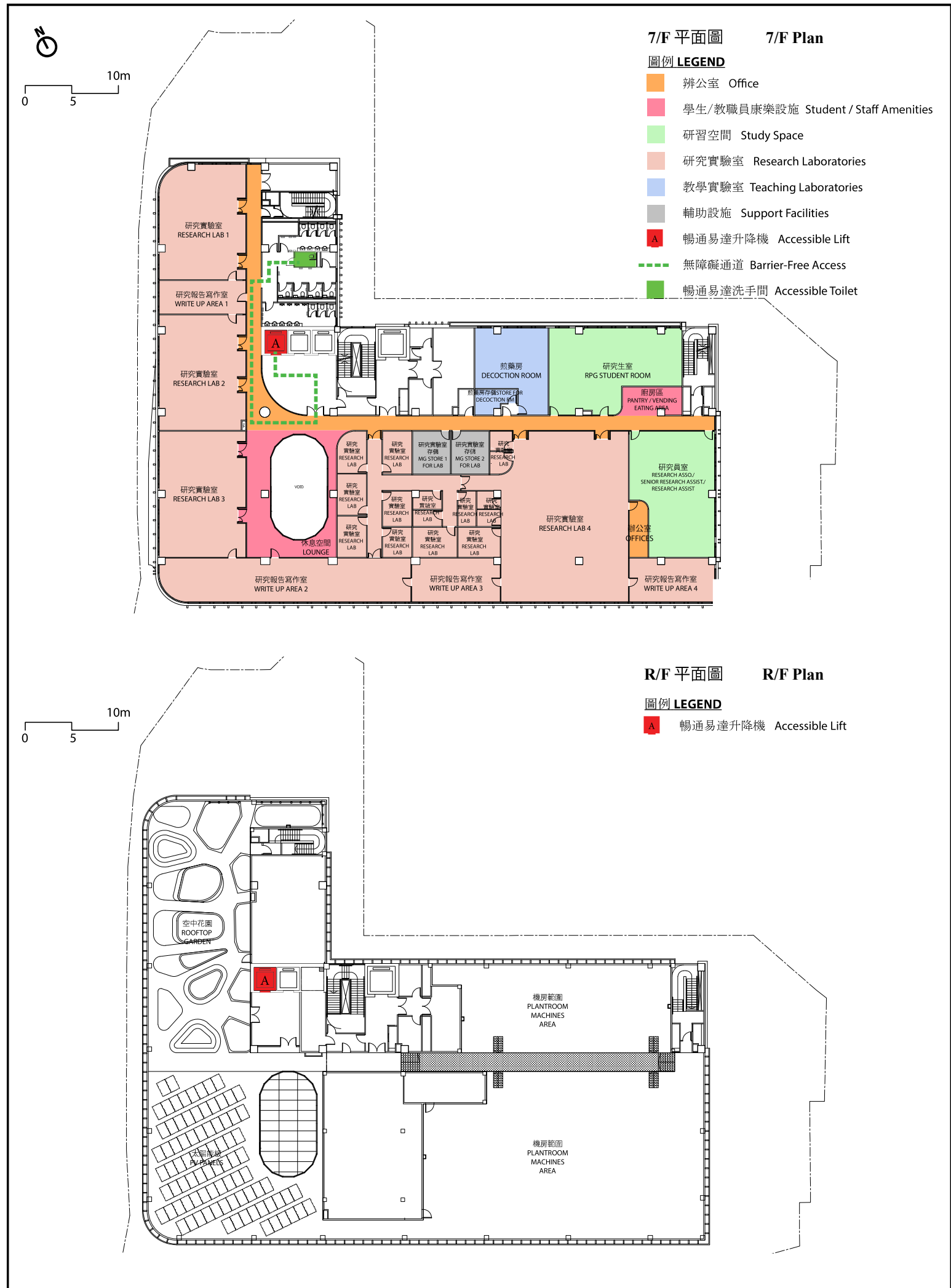






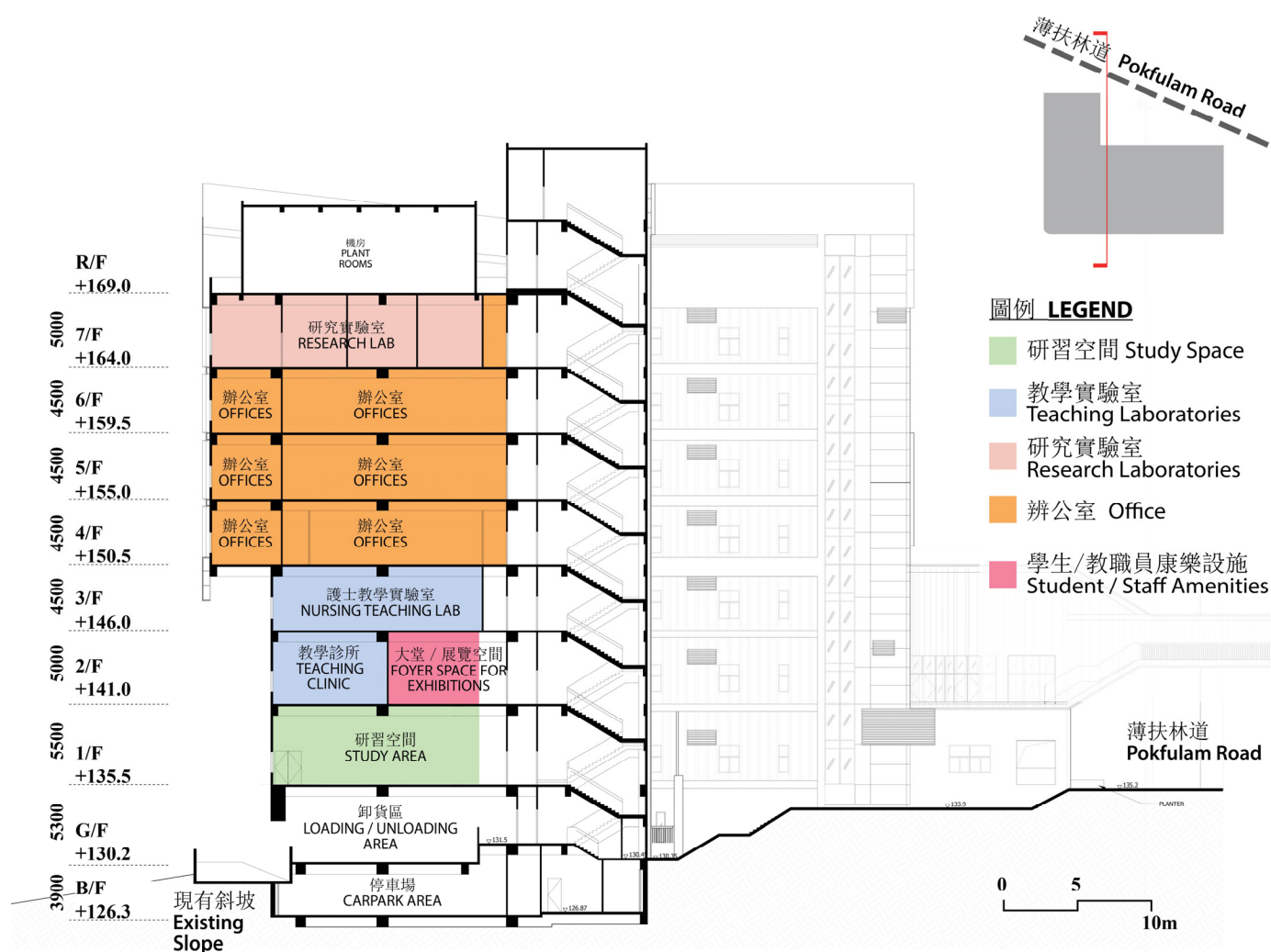






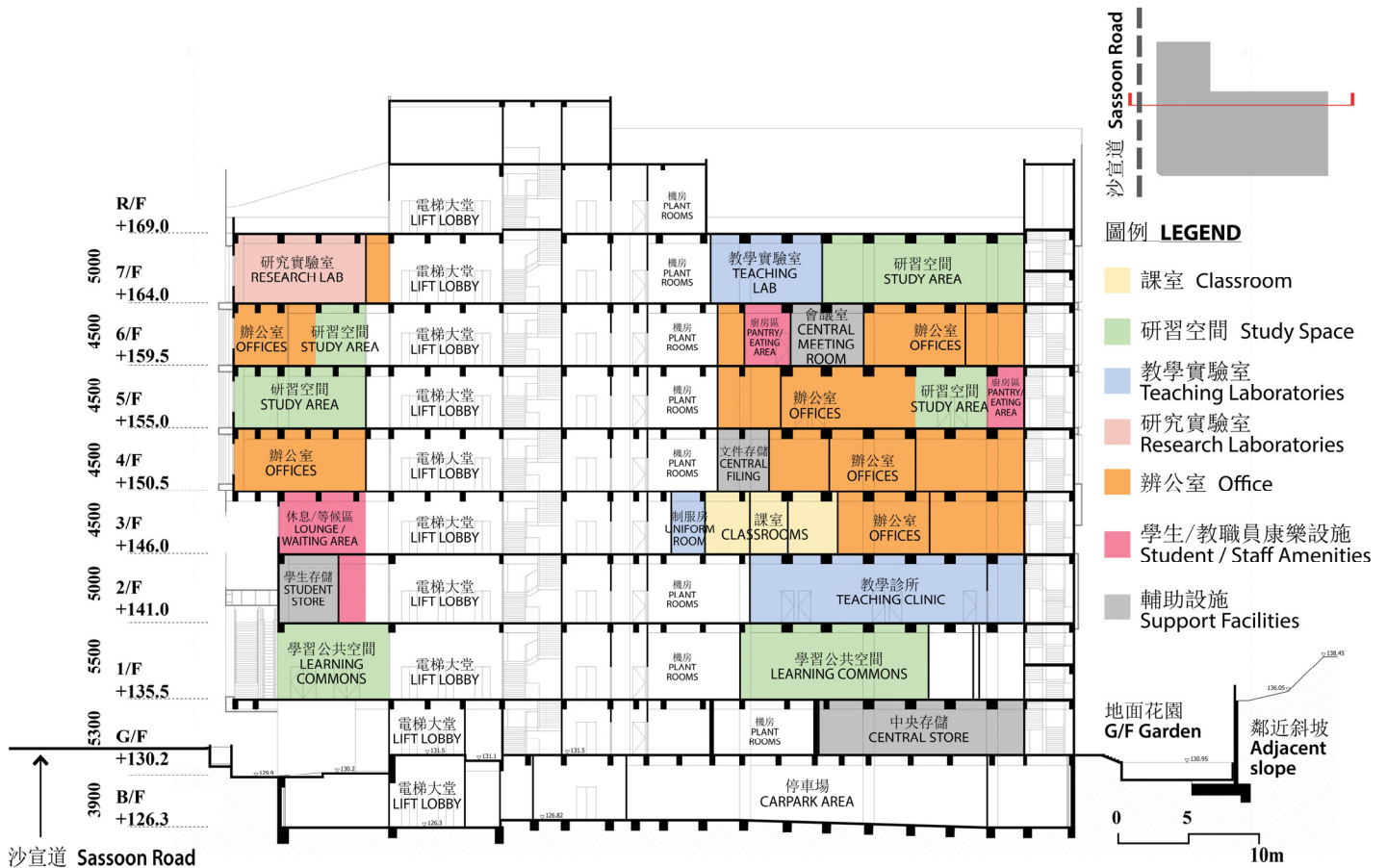
香港大學 – 沙宣道 3 號教學大樓
 The University of Hong Kong
 63EG – Academic Building at No. 3 Sassoon Road

截面圖 Sectional Plan A



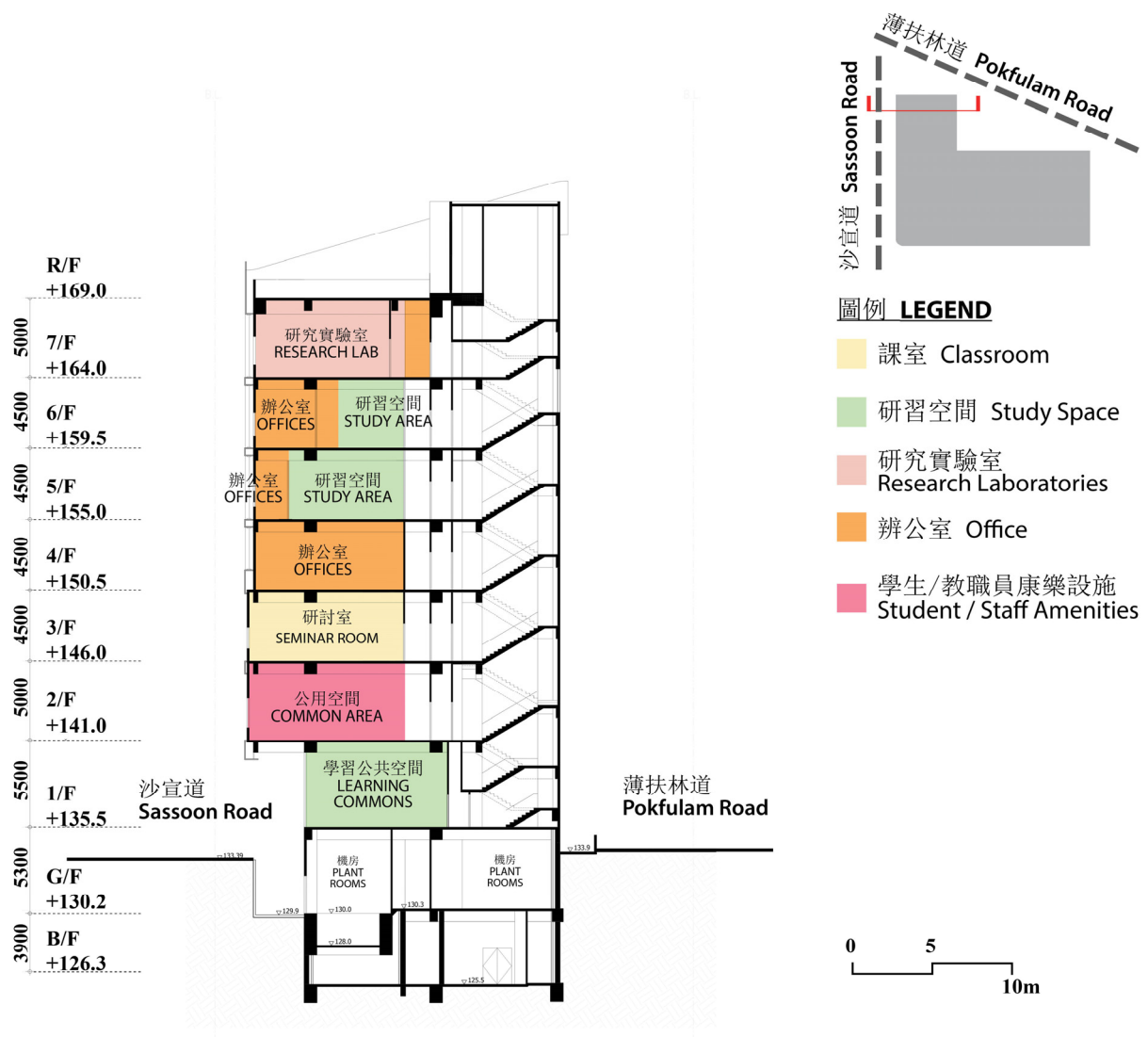
香港大學 – 沙宣道 3 號教學大樓
The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road

截面圖 Sectional Plan B



香港大學 – 沙宣道 3 號教學大樓
The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road

截面圖 Sectional Plan C



Enclosure 4 to PWSC (2017-18)13

Sheet 1 of 3

PWSC (2017-18)13 附件 4

全 3 張其 1

**香港大學 – 沙宣道 3 號教學大樓
The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road**



**從東北面望向教學大樓的構思圖
View of academic building from northeast (Artist's impression)**

香港大學 – 沙宣道 3 號教學大樓
The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road



從西南面望向教學大樓的構思圖

View of academic building from southwest (Artist's impression)

Enclosure 4 to PWSC (2017-18)13

Sheet 3 of 3

PWSC (2017-28)13 附件 4

全 3 張其 3

香港大學 – 沙宣道 3 號教學大樓
The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road



從西北面望向教學大樓的構思圖

View of academic building from northwest (Artist's impression)

**The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road**

List of facilities

List of Facilities	Estimated floor area in net operational floor area (NOFA) (m²)
(a) Classroom*	732
(b) Study Space*	1 523
(c) Teaching Laboratories*	1 384
(d) Research Laboratories*	1 016
(e) Office*	3 547
(f) Student / Staff Amenities*	1 038
(g) Support Facilities*	1 072
Total	10 312

CFA = 18 569 m²

** subject to layout refinement and finalisation with user groups*

The University of Hong Kong
63EG – Academic Building at No. 3 Sassoon Road

**Breakdown of the estimates for consultants' fees and resident site staff costs
(in September 2016 prices)**

		Estimated man- months	Average MPS [*] salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for contract administration (Note 2)				
	Professional	–	–	–	8.4
	Technical	–	–	–	–
				Sub-total	8.4
(b)	Resident site staff (RSS) costs (Note 3)				
	Professional	–	–	–	–
	Technical	288	14	1.6	12.3
				Sub-total	12.3
	Comprising –				
	(i) Consultants' fees for management of RSS				1.0
	(ii) Remuneration of RSS				11.3
				Total	20.7

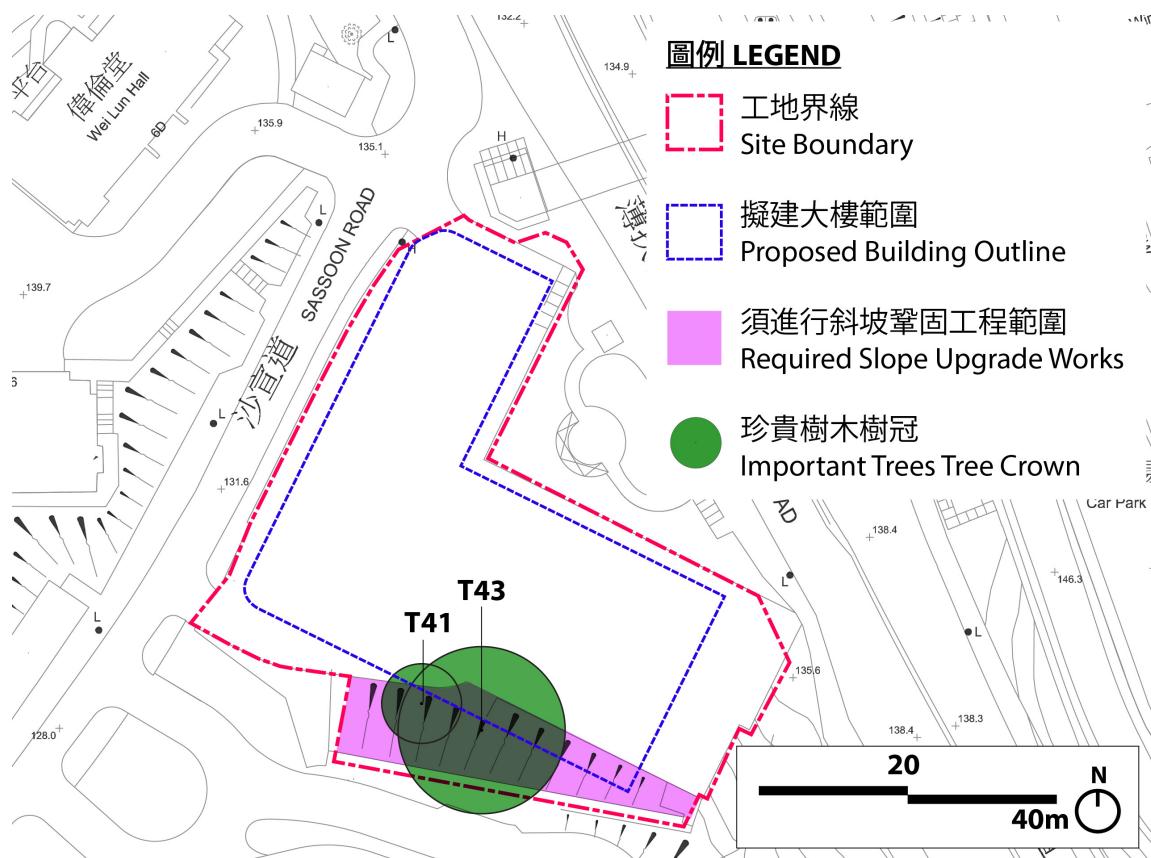
* MPS = Master Pay Scale

Notes

1. 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 14 = \$26,700 per month).
2. The consultants' fees for contract administration are calculated in accordance with the existing consultancy agreement for the design and construction of **63EG**. The construction phase of the assignment will only be executed subject to FC's approval to upgrade **63EG** to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.

珍貴樹木摘錄
 Summary of Important Trees

樹木參考編號 Tree no.		T41	T43
樹木品種 Tree species		細葉榕 Ficus microcarpa	細葉榕 Ficus microcarpa
樹木大小 Tree size	整體高度(米) Overall height (m)	11.0	15.0
	樹幹直徑(毫米) Trunk diameter (mm)	1 220	1 034
	樹冠平均闊度(米) Average Crown Spread (m)	11.0	23.0
形態(良好／一般／欠佳) Form (Good/ Fair/ Poor)		欠佳 Poor	欠佳 Poor
健康狀況(良好／一般／欠佳) Health condition (Good/ Fair/ Poor)		欠佳 Poor	欠佳 Poor
觀賞價值(高／中／低) Amenity value (High/ Med/ Low)		低 Low	低 Low
移植後的存活率(高／中／低) Survival rate after transplanting (High/ Med/ Low)		低 Low	低 Low
建議(保留／移植／砍伐) Recommendation (Retain/ Transplant/ Fell)		砍伐 Fell	砍伐 Fell



砍伐樹木的理由：

編號 11SW-C/FR42 的現有斜坡不符合現行安全標準，因此須進行斜坡鞏固工程，而為應付挖掘過程中的水平差距，有需要建造建築物基腳和管樁。有關工程的範圍均在T41 和T43 的樹木保護範圍內，有可能令樹木受損，而且存活率低，因此建議砍伐有關樹木，但須待與港大完成換地程序後由地政總署按換地條件作出考慮和予以批准。

Justification of tree felling:

The existing slope 11SW-C/FR42 does not meet the current safety standard, hence slope upgrading works is required. The said works and the construction of building footings and pipe piles, as required to support level difference during excavations, will fall within the tree protection zone of tree T41 and T43. There is possibility that the concerned trees would be damaged with low survivability, hence it is recommended to be felled subject to the consideration and approval by the Lands Department under the Conditions of Exchange upon completion of the land transaction with HKU.