For discussion **PWSC(2017-18)24**
on 29 November 2017

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS
Education – Primary
352EP – A 30-classroom primary school at Tonkin Street, Cheung Sha Wan

Members are invited to recommend to the Finance Committee the upgrading of **352EP** to Category A at an estimated cost of $345.5 million in money-of-the-day prices.

PROBLEM

We need to construct a primary school at Tonkin Street of Cheung Sha Wan for the reprovisioning of Pak Tin Catholic Primary School.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Education, proposes to upgrade **352EP** to Category A at an estimated cost of $345.5 million in money-of-the-day (MOD) prices for the construction of a primary school premises at Tonkin Street, Cheung Sha Wan for reprovisioning Pak Tin Catholic Primary School.

/**PROJECT** …..

PROJECT SCOPE AND NATURE

3. The project site occupies an area of around 6 500 square metres (m^2) at Tonkin Street, Cheung Sha Wan. The scope of works comprises —

(a) 30 classrooms;

(b) six special rooms, comprising a music room, a visual arts room, a general studies room, a multi-purpose room, a computer assisted learning room and a language room;

(c) four small group teaching rooms;

(d) a guidance activity room;

(e) two interview rooms;

(f) a staff room and a staff common room;

(g) a student activity centre;

(h) a conference room;

(i) a library;

(j) an assembly hall;

(k) a multi-purpose area;

(l) two basketball courts (on ground level);

(m) two running tracks[1];

(n) a green corner[2]; and

(o) ancillary facilities including an accessible/ fireman's lift, facilities for the disabled, a tuck shop-cum-central portioning area, stores and toilets, etc.

/4. …..

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[1] Two 50-metre running tracks will be provided to make optimal use of campus space.

[2] A green corner is a designated area inside the campus to encourage students to develop an interest in horticulture and natural environment. The green corner may include planting beds.

4. The new school premises will meet the planning target of providing 2 m^2 of open space per student. A site plan, layout plans, a sectional plan, an artist's impression and a barrier-free access plan for the project are at Enclosures 1 to 5. Subject to the funding approval by the Finance Committee, we plan to commence construction in the second quarter of 2018 for completion in the first quarter of 2021.

JUSTIFICATION

5. It is the Government's plan to, based on the needs of the schools, improve the physical conditions and facilities of school premises not built according to the prevailing standards through reprovisioning and redevelopment projects. Pak Tin Catholic Primary School is currently occupying a site area of only about 650 m^2 in Pak Tin Estate, Sham Shui Po, with the school premises built in 1973 according to past planning standards. Due to site constraints, while the school has benefited from the School Improvement Programme[3], the school facilities could not be upgraded in a full scale through it. The school currently falls short of certain facilities such as general studies room, guidance activity room, assembly hall and multi-purpose area, and some of its existing facilities such as small group teaching room, computer assisted learning room, library, student activity centre, covered playground, staff room and staff common room are undersized according to prevailing standards. The school does not have the additional space required for infrastructure upgrading or in-situ redevelopment. Reprovisioning is considered to be the most effective way to upgrade the facilities of the school and improve the teaching and learning environment for teachers and students.

6. Under the Primary One Admission System, the 18 districts in the territory are divided into 36 school nets and the school net in Sham Shui Po is School Net 40. Pak Tin Catholic Primary School will remain in School Net 40 after reprovisioning to the new school premises. Upon completion of the proposed project, Pak Tin Catholic Primary School, which currently operates 23 classes in the 2017/18 school year, may operate up to 30 classes in the new school premises.

/7. …..

[3] The School Improvement Programme was carried out in five phases between 1994 and 2006. It was introduced at that time to progressively upgrade the teaching and learning environment of schools so as to provide additional space and facilities for teaching, out-of-class activities and supporting services for both teachers and students.

7. Pak Tin Catholic Primary School shall cease to occupy its existing premises in Pak Tin Estate after reprovisioning. The tenancy agreement in respect of the existing premises signed between the school and the Hong Kong Housing Authority shall be terminated in accordance with the terms and conditions thereof. The Government will handle the to-be-vacated premises following the established mechanism. In other words, the Education Bureau (EDB) will consider factors including the size, location, physical conditions, etc. of the to-be-vacated existing premises, and the educational needs and relevant policy initiatives with a view to assessing whether the premises is needed to be re-allocated for school or other educational use. Once it is confirmed that the premises is no longer required by EDB for school or other educational uses, EDB would inform the Planning Department and other relevant departments (such as Lands Department) for consideration of suitable alternative uses in accordance with the central clearing house mechanism.

FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the project to be $345.5 million in MOD prices (please see paragraph 10 below), broken down as follows –

		$ million
(a)	Site works	6.0
(b)	Piling	28.8
(c)	Building[4]	147.1
(d)	Building services	41.1
(e)	Drainage	9.3
(f)	External Works	25.3
(g)	Additional energy conservation, green and recycled features	4.5
(h)	Furniture and equipment (F&E)[5]	2.4

/(i) …..

[4] Building works cover construction works of superstructure of the building.

[5] The estimated cost of F&E is prepared with reference to the standard F&E reference list prepared by the Education Bureau for a new 30-classroom primary school adopting the standard schedule of accommodation. The actual cost will be subject to a survey on the conditions of the existing F&E.

		$ million	
(i)	Contingencies	26.5	
	Sub-total	291.0	(in September 2017 prices)
(j)	Provision for price adjustment	54.5	
	Total[6]	345.5	(in MOD prices)

9. The construction floor area (CFA) of **352EP** is about 10 011 m^2. The estimated construction unit cost, represented by the building and building services costs, is $18,799 per m^2 of CFA in September 2017 prices. We consider this comparable to that of similar projects built by the Government. A comparison of the reference cost for a 30-classroom primary school based on an uncomplicated site with no unusual environmental or geotechnical constraints with the estimated costs for this project is at Enclosure 6.

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

Year	**$ million (Sept 2017)**	**Price adjustment factor**	**$ million (MOD)**
2018 – 2019	20.0	1.05125	21.0
2019 – 2020	65.0	1.10907	72.1
2020 – 2021	117.0	1.17007	136.9
2021 – 2022	38.0	1.23003	46.7
2022 – 2023	20.0	1.29154	25.8

/2023 – 2024 …..

[6] As announced by the Chief Executive in her 2017 Policy Address delivered on 11 October 2017, to create a better learning environment, EDB will provide air-conditioning in the standard teaching facilities (including classrooms and special rooms), student activity centres and assembly halls of public sector schools. This new initiative will be incorporated into this project and the project estimate is expected to be sufficient to cover the additional cost.

Year	$ million (Sept 2017)	Price adjustment factor	$ million (MOD)
2023 – 2024	17.0	1.35611	23.1
2024 – 2025	14.0	1.41883	19.9
	291.0		345.5

11. 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 2018 to 2025. We will deliver the construction works through a lump-sum contract because we can clearly define the scope of the works in advance. The contract will provide for price adjustments.

12. The cost of F&E for the project, estimated to be about $2.4 million, will be borne by the Government according to the existing policy. We estimate the annual recurrent expenditure to be $39.4 million upon full commissioning of the new school premises.

PUBLIC CONSULTATION

13. We consulted the Sham Shui Po District Council on 10 January 2017. Members of the District Council supported the project.

14. We consulted the Legislative Council Panel on Education on 15 May 2017. Panel Members supported the project and did not raise any objection to the submission of the funding proposal to the Public Works Subcommittee. Supplementary information requested by Panel Members has been submitted to the Panel on 1 June 2017.

/ENVIRONMENTAL …..

ENVIRONMENTAL IMPLICATIONS

15. The project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We have completed a Preliminary Environmental Review (PER) for **352EP** and agreed the PER findings with the Director of Environmental Protection in May 2017. The PER recommended implementation of mitigation measures, which include construction of a 2.5-metre high wall along part of the south-eastern side of the site and installation of insulated windows and air-conditioning for 20 classrooms, general studies room, multi-purpose room and small group teaching room. With the above mitigation measures in place, noise affecting the teaching and learning environment of the school will be reduced to the minimum. The estimated cost of the mitigation measures is $5.2 million[7] in September 2017 prices. We have included the cost of the mitigation measures as part of the building and building services works in the project estimate.

16. During construction, we will control noise, dust and site run-off nuisances to within established standards and guidelines through the implementation of mitigation measures in the relevant contract. These include the use of silencers, mufflers, acoustic lining or shields and the building of barrier wall for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

17. At the planning and design stages, we have 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[8]. We 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.

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[7] The cost of provision of air-conditioning for standard teaching facilities will be part of the standard construction cost under the new initiative announced in the 2017 Policy Address (see footnote 6), and hence has been excluded from estimated cost of mitigation measures.

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

19. We estimate that the project will generate in total 11 989 tonnes of construction waste. Of these, we will reuse 2 309 tonnes (19.2%) of inert construction waste on site and deliver 6 998 tonnes (58.4%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 2 682 tonnes (22.4%) 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 $1.0 million for this project (based on a unit charge rate of $71 per tonne for disposal at public fill reception facilities and $200 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 354N)).

HERITAGE IMPLICATIONS

20. 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

21. The project does not require any land acquisition.

ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES

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

(a) heat recovery fresh air pre-conditioners in the air-conditioned space for heat energy reclaim of exhaust air;

(b) LED general light fittings; and

/(c) …..

(c) photovoltaic system.

23. For greening features, there will be landscaping, vertical greening and roof greening in the appropriate areas for environmental and amenity benefits.

24. For recycled features, we will adopt a rainwater harvesting system for landscape irrigation with a view to conserving water.

25. The total estimated additional cost for adoption of the above features is around $4.5 million (including $550,000 for energy efficient features), which has been included in the cost estimate of this project. The energy efficient features will achieve 5.8% energy savings in the annual energy consumption with a payback period of about 10.4 years.

BACKGROUND INFORMATION

26. We upgraded **352EP** to Category B in September 2011. We engaged term contractor to undertake ground investigation, and consultants to undertake topographic survey and PER at a total cost of about $0.6 million. The services and works by the consultants are funded under block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees for items in Category D of the Public Works Programme". The contractor and consultants have completed all the above consultancy services and works.

27. Of the nine trees within the project boundary, one tree will be preserved. The proposed works will involve felling of eight trees. All trees to be removed are not important trees[9]. We will incorporate planting proposals as part of the project, including the planting of about 34 trees, 1 400 shrubs, 38 000 groundcovers, and 640 m^2 of grassed area.

/28. …..

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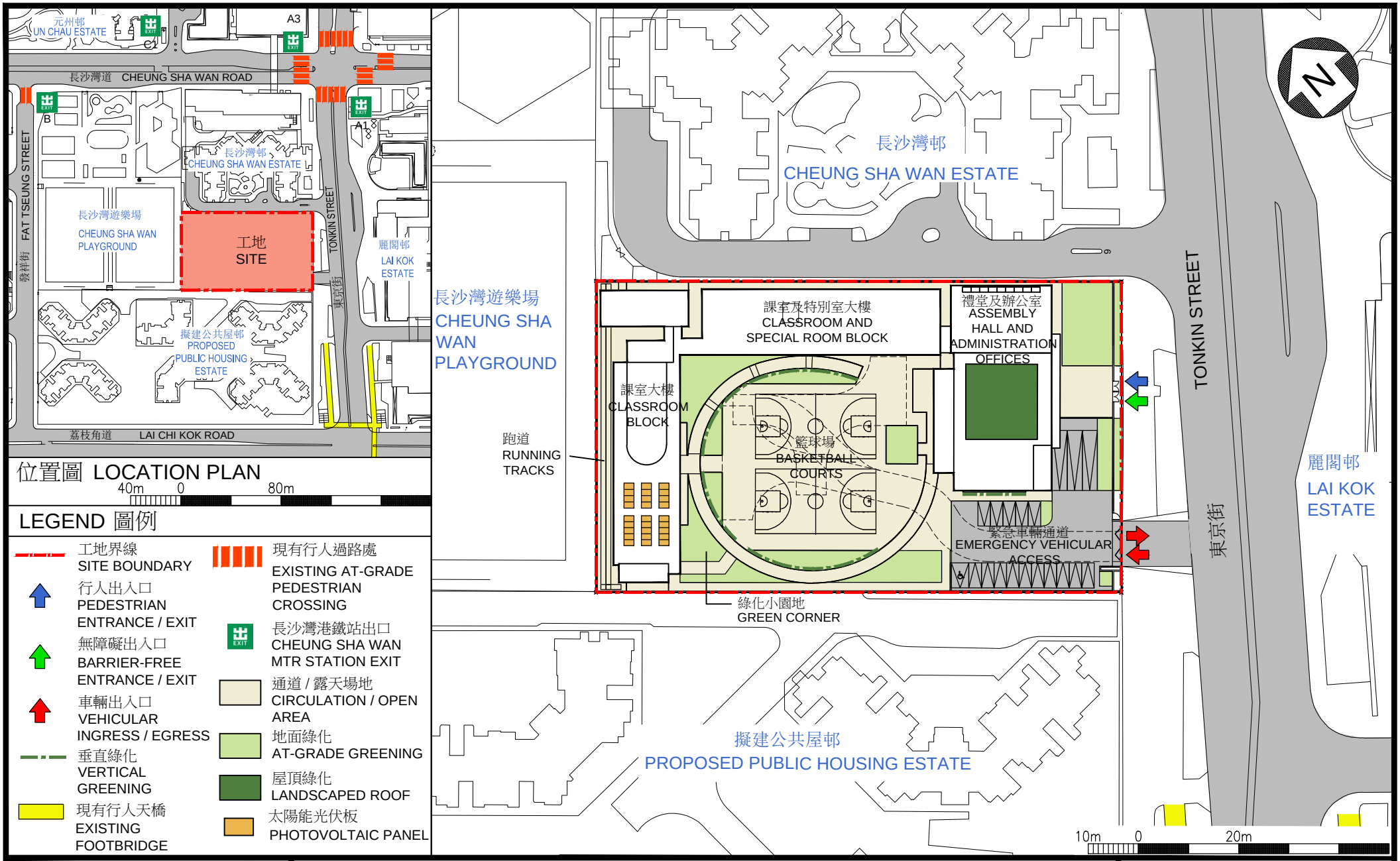
[9] "Important trees" refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –
(a) trees of 100 years old or above;
(b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage 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 (m) (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

28. We estimate that the proposed works will create about 240 jobs (220 for labourers and 20 for professional or technical staff) providing a total employment of 2 800 man-months.

29. In June 2017, we submitted PWSC(2017-18)10 which invited Members to recommend to the FC the upgrading of **352EP** to Category A. The paper was not discussed by the PWSC during the 2016-17 legislative session. This paper supersedes PWSC(2017-18)10 to update the works programme, phasing of expenditure and estimated cost of the project.

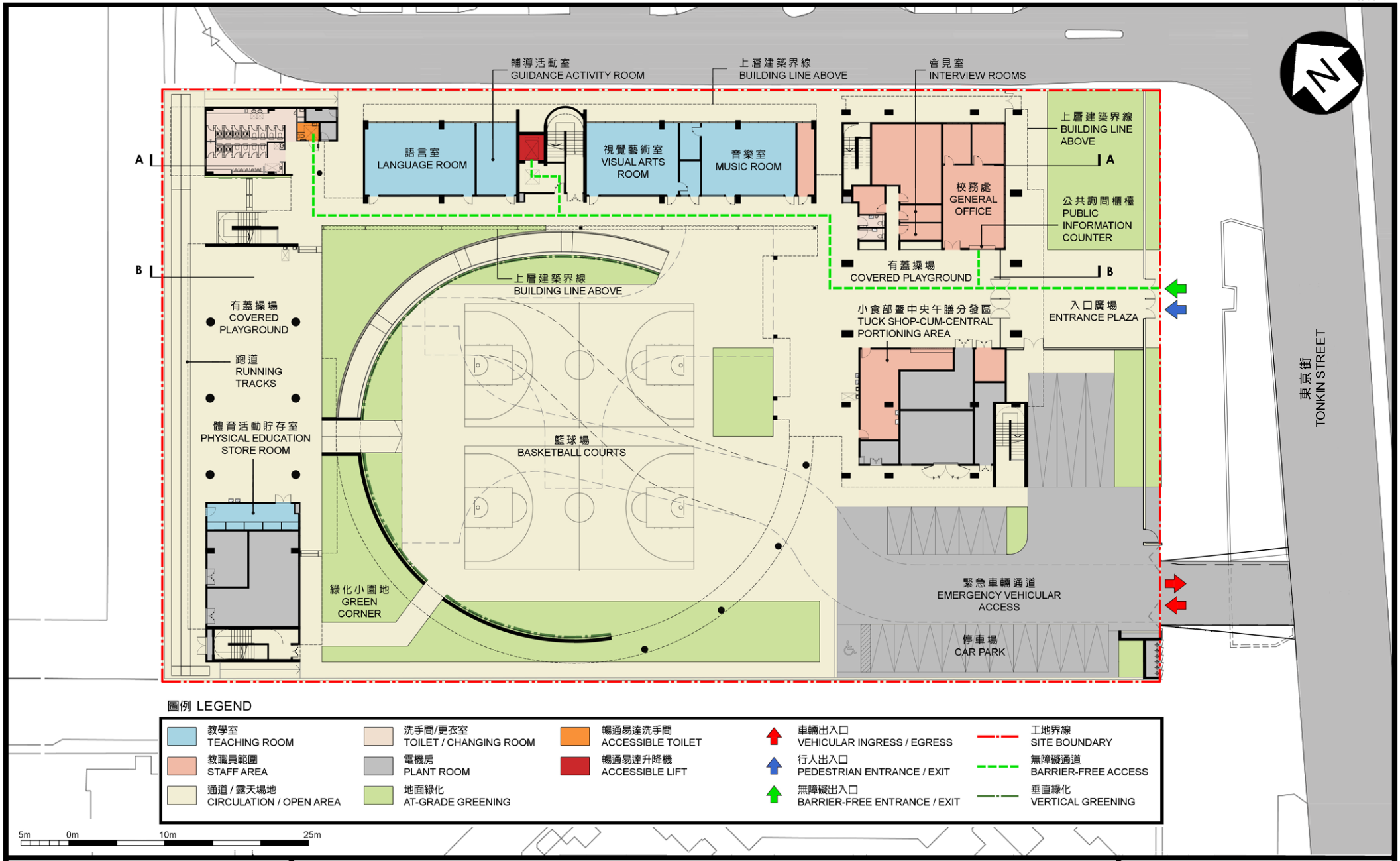
Education Bureau
November 2017



工地平面圖
SITE PLAN

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

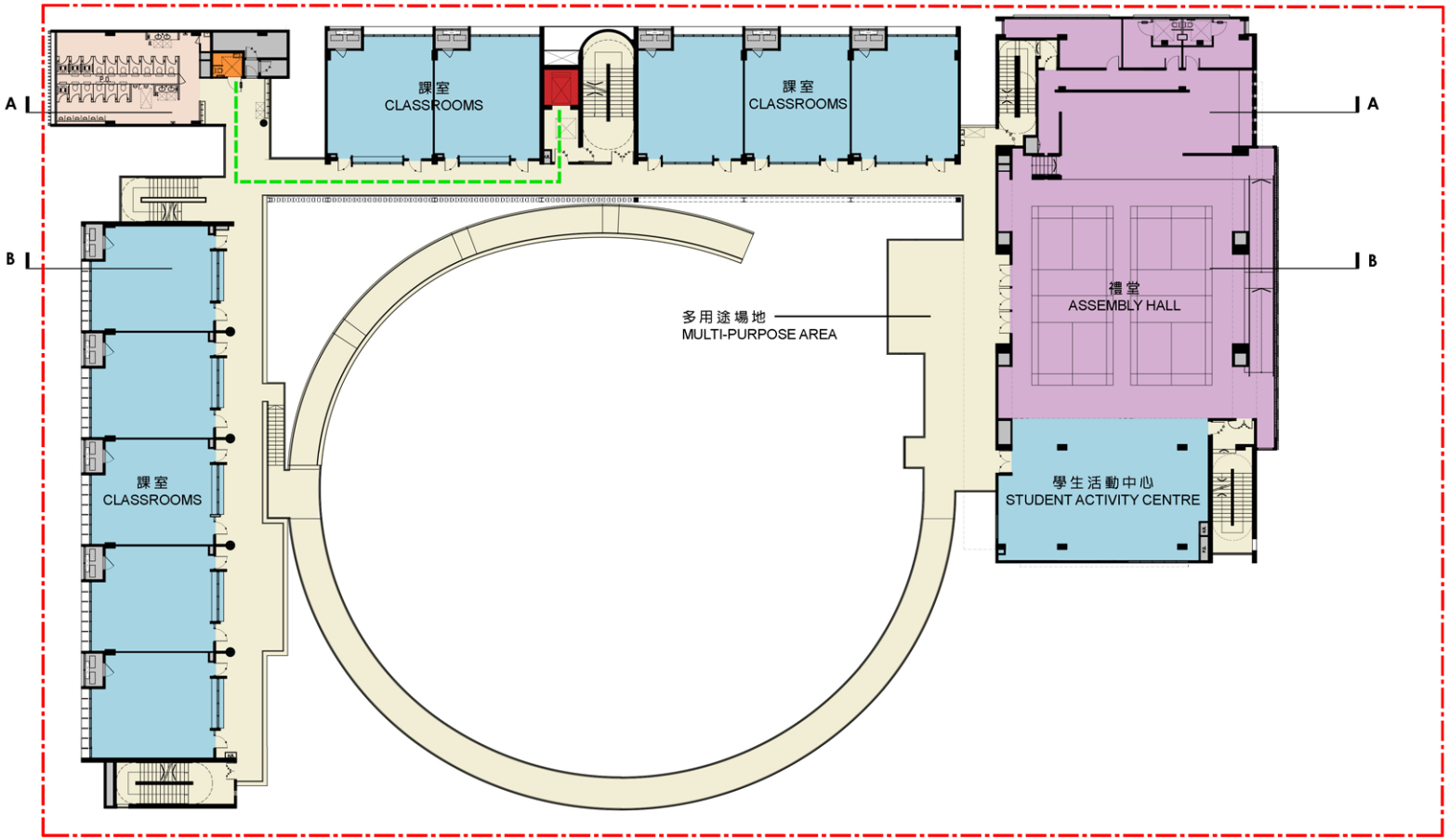
ARCHITECTURAL SERVICES DEPARTMENT 建築署



地面平面圖
GROUND FLOOR PLAN

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

ARCHITECTURAL SERVICES DEPARTMENT 建築署



圖例 LEGEND

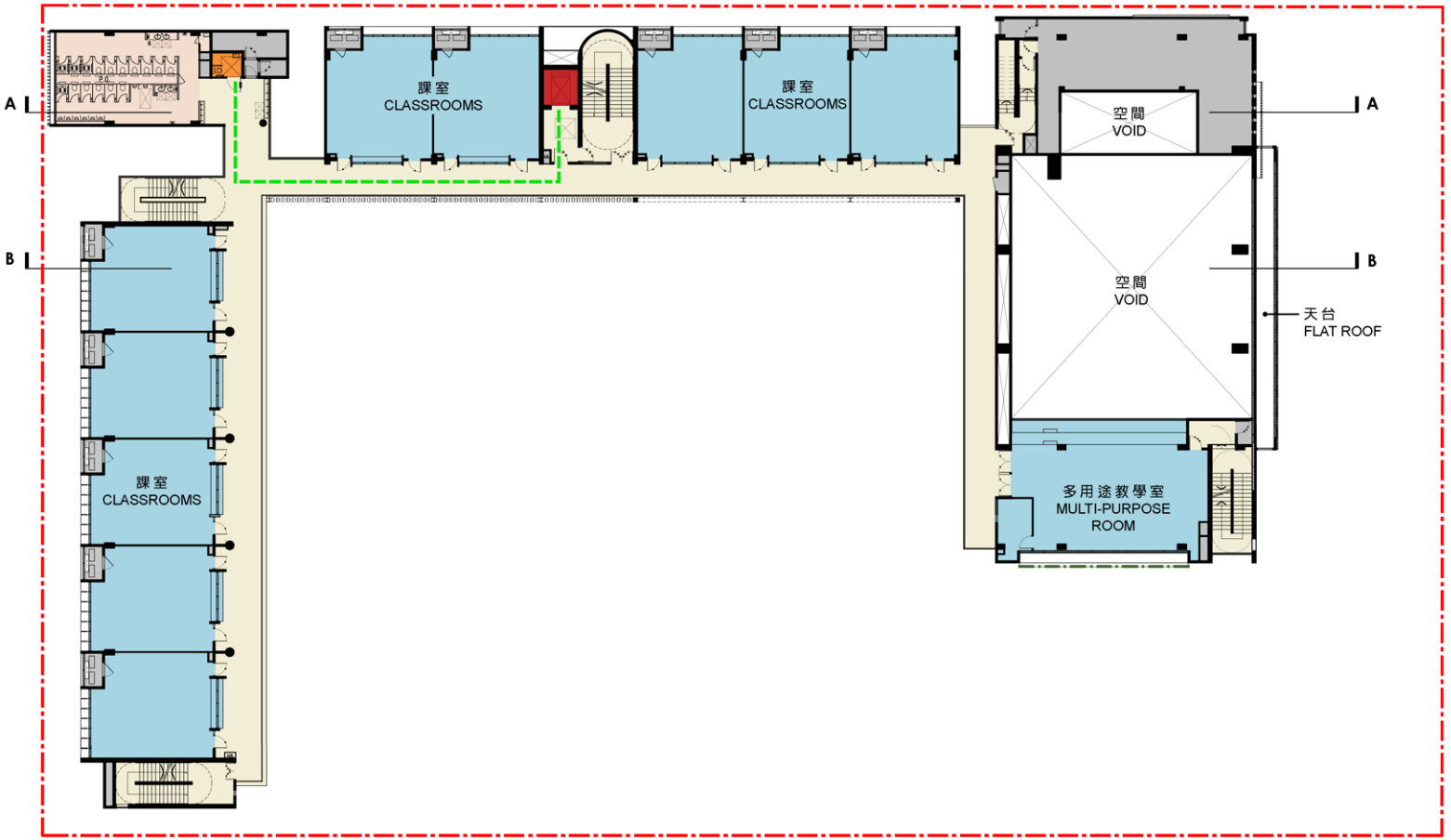
教學室 TEACHING ROOM	洗手間/更衣室 TOILET / CHANGING ROOM	暢通易達洗手間 ACCESSIBLE TOILET
通道 / 露天場地 CIRCULATION / OPEN AREA	電機房 PLANT ROOM	暢通易達升降機 ACCESSIBLE LIFT
禮堂 ASSEMBLY HALL	無障礙通道 BARRIER-FREE ACCESS	工地界線 SITE BOUNDARY

5m 0m 10m 25m

一樓平面圖
FIRST FLOOR PLAN

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

ARCHITECTURAL SERVICES DEPARTMENT 建築署



圖例 LEGEND

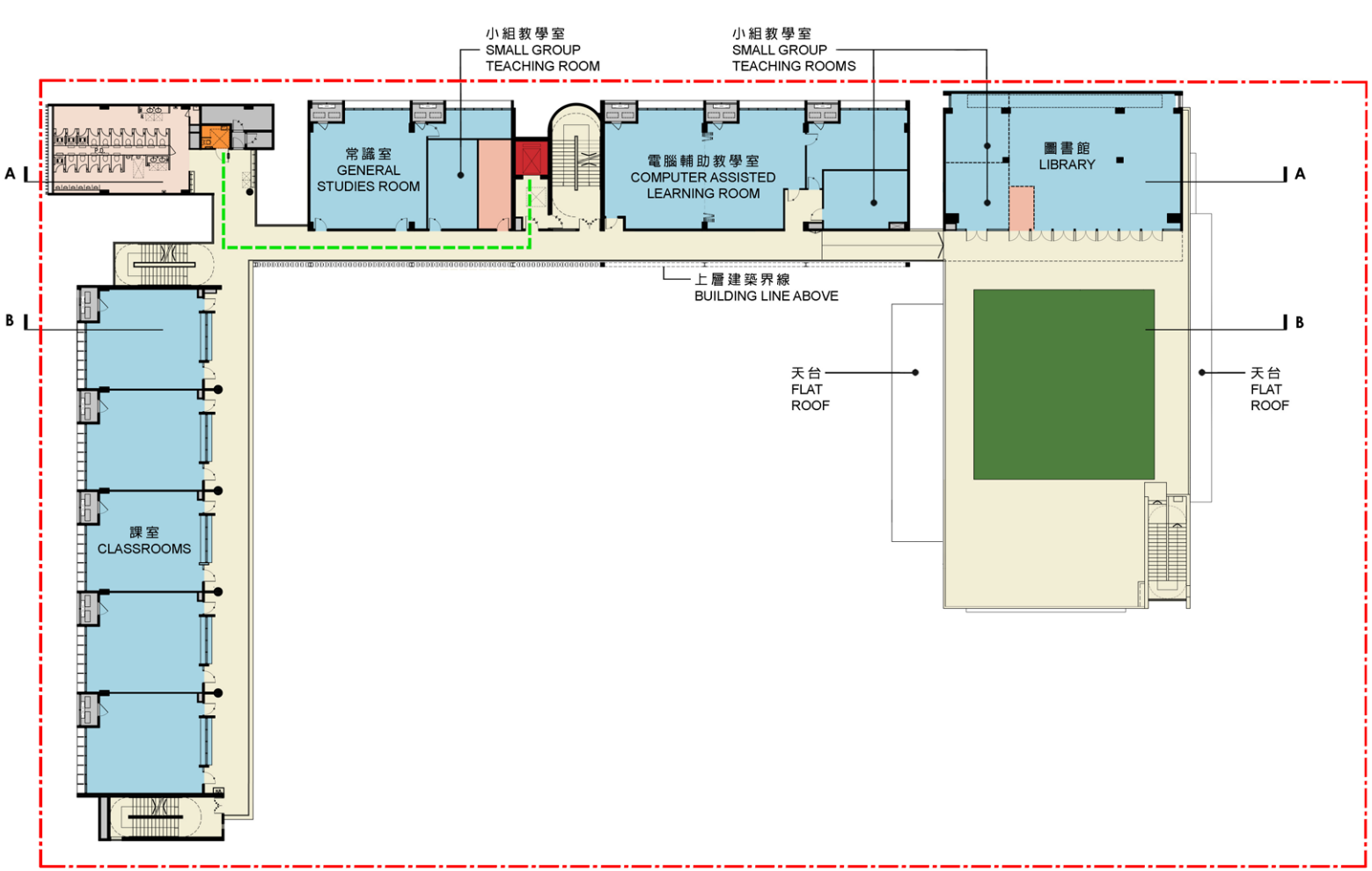
教學室 TEACHING ROOM	電機房 PLANT ROOM	垂直綠化 VERTICAL GREENING
通道 / 露天場地 CIRCULATION / OPEN AREA	暢通易達洗手間 ACCESSIBLE TOILET	無障礙通道 BARRIER-FREE ACCESS
洗手間/更衣室 TOILET / CHANGING ROOM	暢通易達升降機 ACCESSIBLE LIFT	工地界線 SITE BOUNDARY

5m 0m 10m 25m

二樓平面圖
SECOND FLOOR PLAN

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

ARCHITECTURAL SERVICES DEPARTMENT 建築署



圖例 LEGEND

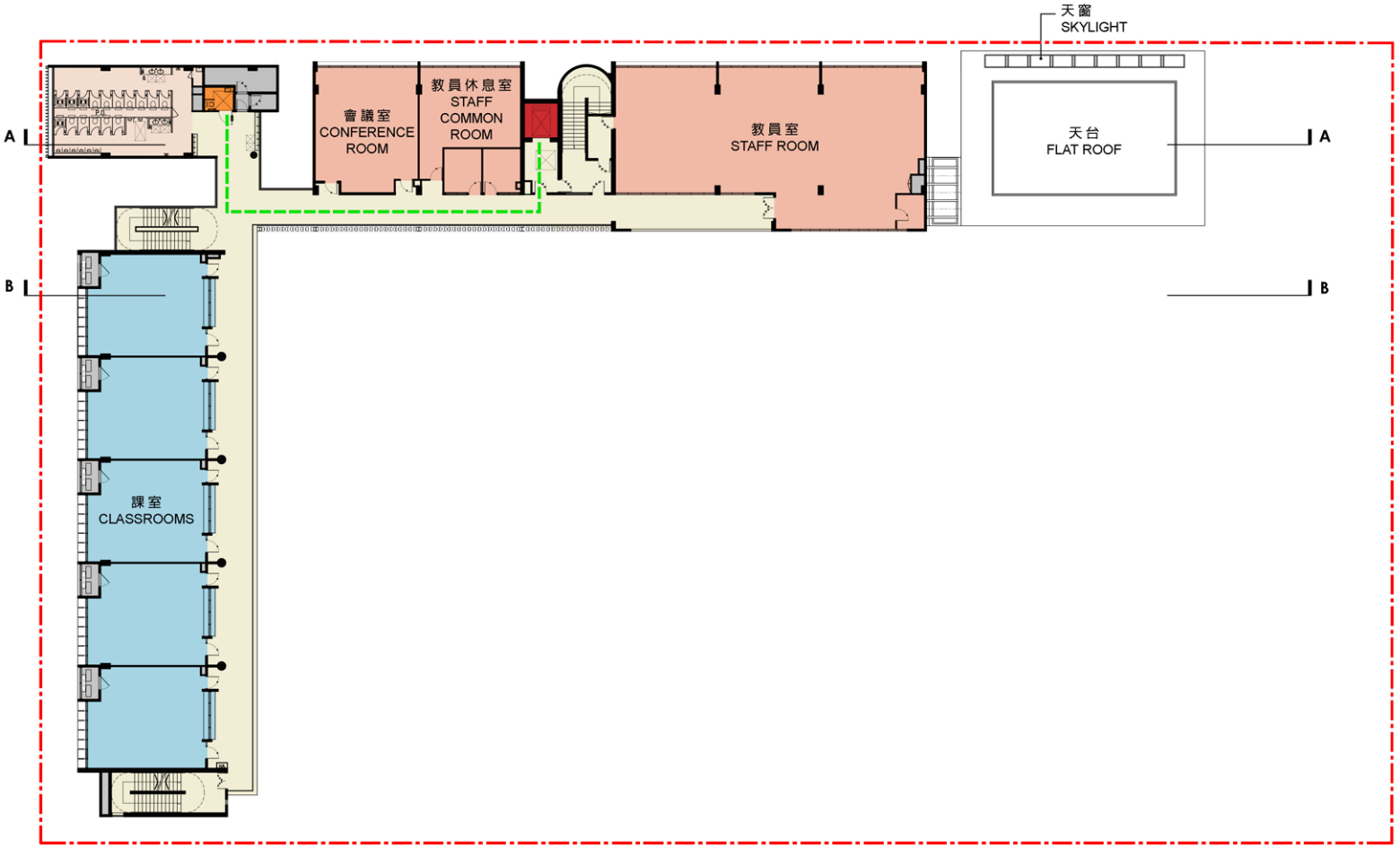
教職員範圍 STAFF AREA	教學室 TEACHING ROOM	洗手間/更衣室 TOILET / CHANGING ROOM	暢通易達洗手間 ACCESSIBLE TOILET
	通道 / 露天場地 CIRCULATION / OPEN AREA	電機房 PLANT ROOM	暢通易達升降機 ACCESSIBLE LIFT
	屋頂綠化 LANDSCAPED ROOF	無障礙通道 BARRIER-FREE ACCESS	工地界線 SITE BOUNDARY

5m 0m 10m 25m

三樓平面圖
THIRD FLOOR PLAN

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

ARCHITECTURAL SERVICES DEPARTMENT 建築署



圖例 LEGEND

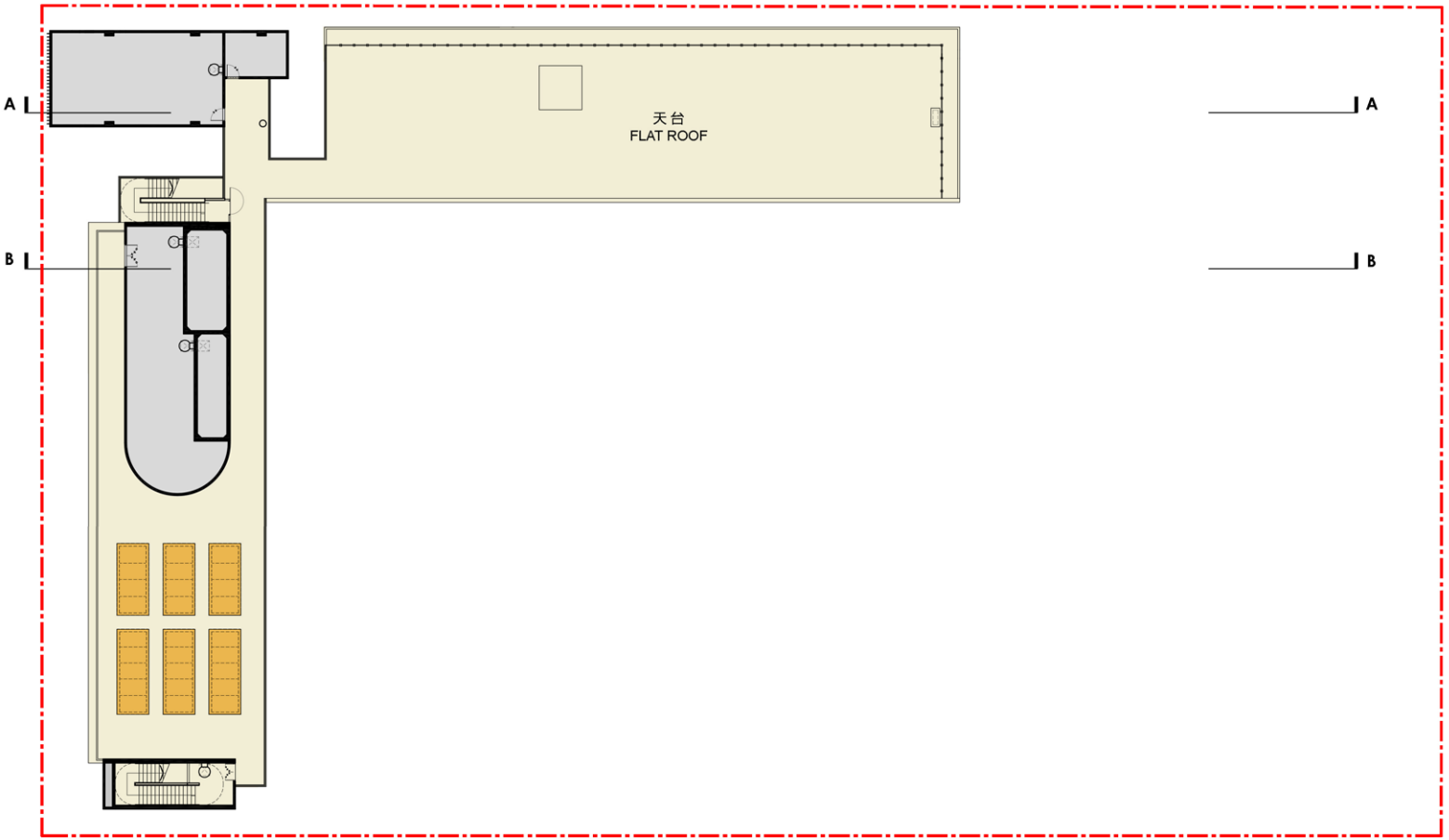
教學室 TEACHING ROOM	洗手間/更衣室 TOILET / CHANGING ROOM	暢通易達洗手間 ACCESSIBLE TOILET
通道 / 露天場地 CIRCULATION / OPEN AREA	電機房 PLANT ROOM	暢通易達升降機 ACCESSIBLE LIFT
教職員範圍 STAFF AREA	無障礙通道 BARRIER-FREE ACCESS	工地界線 SITE BOUNDARY

5m 0m 10m 25m

四樓平面圖
FOURTH FLOOR PLAN

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

ARCHITECTURAL SERVICES DEPARTMENT 建築署



圖例 LEGEND

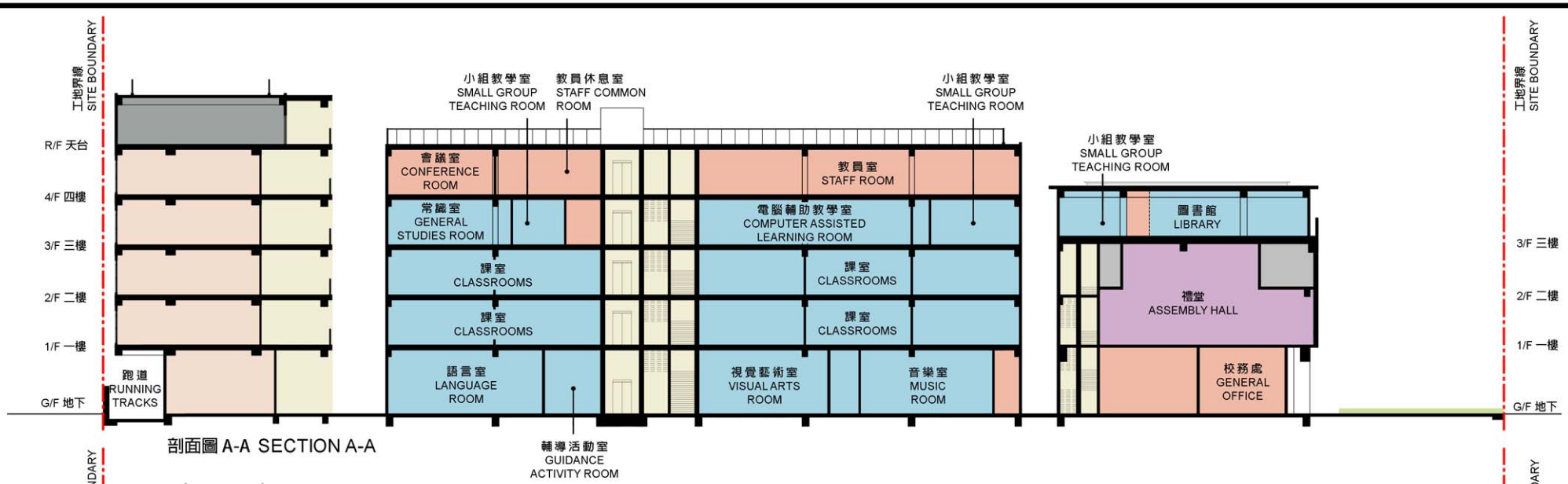
通道 / 露天場地 CIRCULATION / OPEN AREA	電機房 PLANT ROOM	太陽能光伏板 PHOTOVOLTAIC PANEL
		工地界線 SITE BOUNDARY

5m 0m 10m 25m

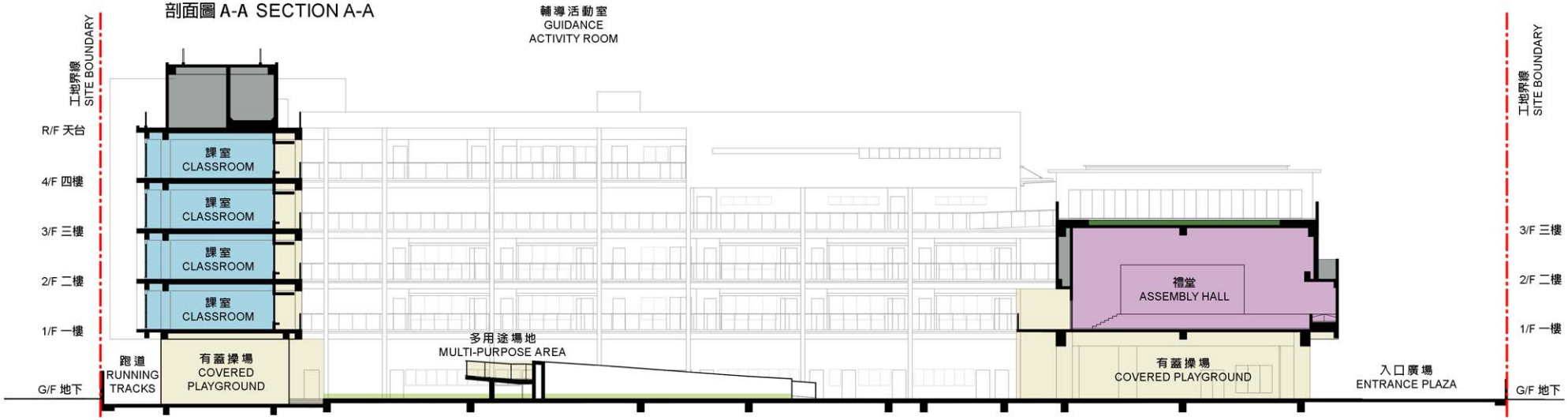
屋頂平面圖
ROOF PLAN

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

ARCHITECTURAL SERVICES DEPARTMENT 建築署



剖面圖 A-A SECTION A-A



剖面圖 B-B SECTION B-B

圖例 LEGEND

教學室 TEACHING ROOM	洗手間/更衣室 TOILET / CHANGING ROOM	地面綠化 AT-GRADE GREENING
教職員範圍 STAFF AREA	電機房 PLANT ROOM	屋頂綠化 LANDSCAPED ROOF
通道 / 露天場地 CIRCULATION / OPEN AREA	禮堂 ASSEMBLY HALL	工地界線 SITE BOUNDARY

5m 0m 10m 25m

剖面圖
SECTIONS

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

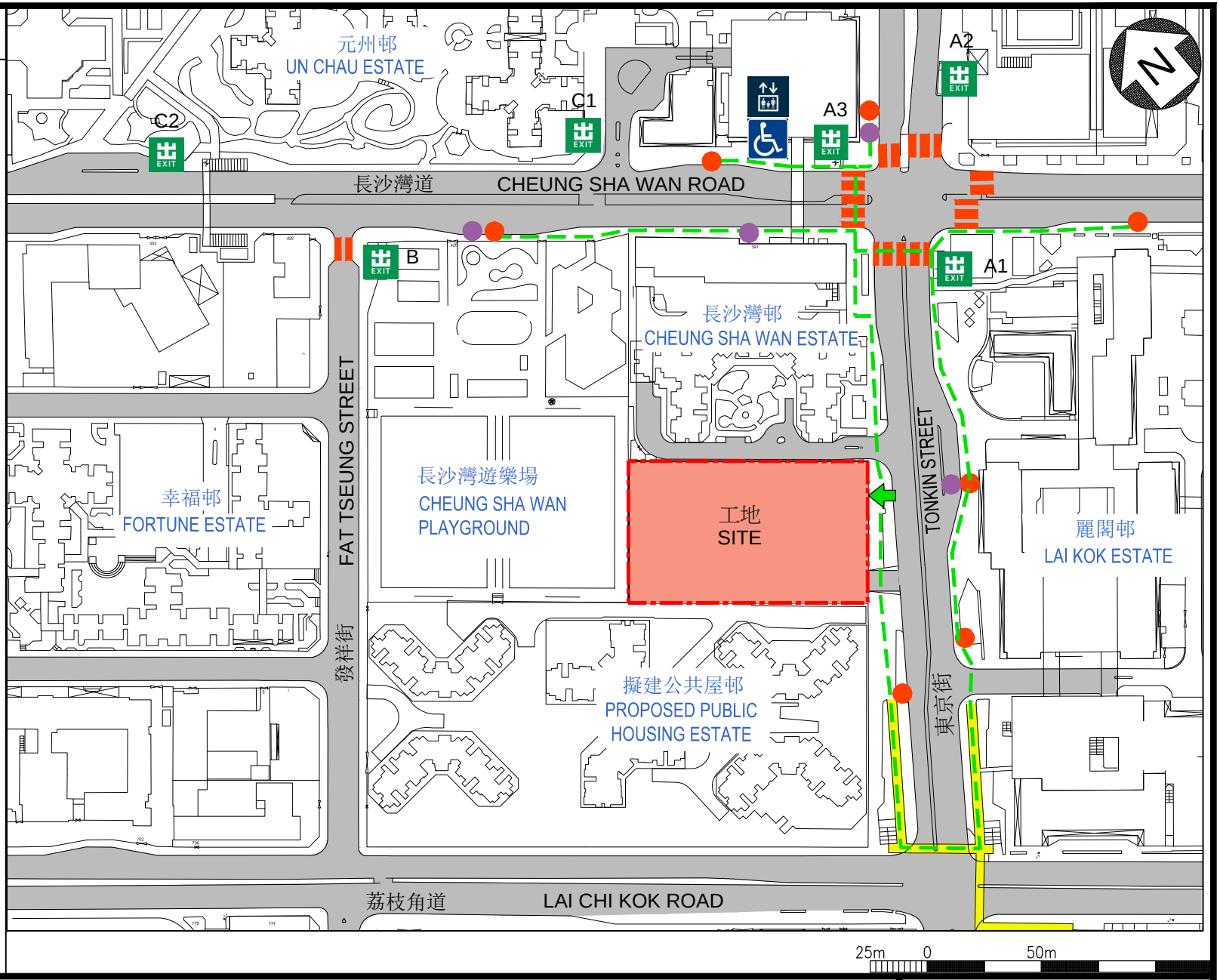
ARCHITECTURAL SERVICES DEPARTMENT 建築署

從南面望向小學的構思透視圖
PERSPECTIVE VIEW FROM SOUTHERN DIRECTION

構思圖 ARTIST'S IMPRESSION	352EP 長沙灣東京街 1所設有30間課室的小學 A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN	ARCHITECTURAL SERVICES DEPARTMENT 建築署

LEGEND 圖例

- 工地界線 SITE BOUNDARY
- 無障礙通道 BARRIER-FREE ACCESS
- 無障礙出入口 BARRIER-FREE ENTRANCE / EXIT
- 現有巴士站 EXISTING BUS STOP
- 現有小巴站 EXISTING MINIBUS STOP
- 現有行人過路處 EXISTING AT-GRADE PEDESTRIAN CROSSING
- 現有行人天橋 EXISTING FOOTBRIDGE
- 長沙灣港鐵站出口 CHEUNG SHA WAN MTR STATION EXIT
- 長沙灣港鐵站升降機 CHEUNG SHA WAN MTR STATION LIFT
- 長沙灣港鐵站無障礙出入口 CHEUNG SHA WAN MTR STATION BARRIER-FREE ENTRANCE/EXIT



無障礙通道平面圖
PLAN OF BARRIER-FREE ACCESS

352EP
長沙灣東京街 1所設有30間課室的小學
A 30-CLASSROOM PRIMARY SCHOOL AT TONKIN STREET, CHEUNG SHA WAN

ARCHITECTURAL SERVICES DEPARTMENT 建築署

A comparison of the reference cost of a 30-classroom primary school project with the estimated cost of 352EP

		$ million (in Sept 2017 prices)		
		Reference cost*	**352EP**	
(a)	Site works	–	6.0	
(b)	Piling	19.0	28.8	(See note A)
(c)	Building	145.5	147.1	(See note B)
(d)	Building services	41.7	41.1	(See note C)
(e)	Drainage	7.6	9.3	(See note D)
(f)	External works	25.8	25.3	(See note E)
(g)	Additional energy conservation, green and recycled features	–	4.5	(See note F)
(h)	Furniture and equipment	–	2.4	(See note G)
(i)	Contingencies	24.0	26.5	
	Total	263.6	291.0	
(j)	Construction floor area	11 260 m^2	10 011 m^2	
(k)	Construction unit cost {[(c) + (d)] ÷ (j)}	$16,625 per m^2	$18,799 per m^2	

*** Assumptions for reference cost**

1. The estimation is based on the assumption 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. 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. Piling cost is based on the mixed use of 118 steel H-piles at an average depth of 30 m, assuming that percussive piling is permissible. It also includes costs for pile caps, strap beams and testing. No allowance is reserved for the effect of negative skin friction due to fill on reclaimed land.

4. Cost for drainage and external works is for a standard 30-classroom primary school site area of 6 200 m^2 built on an average level site without complicated geotechnical conditions, utility diversions, etc. (i.e. a "green-field" site).

5. No consultancy services are required.

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

7. The reference cost for comparison purpose is subject to review regularly. We will review, and revise if necessary, the reference cost which should be adopted for future projects.

Notes

A. The piling cost is higher because of adoption of measures to minimise construction noise nuisance during construction to avoid excessive vibrations and noise to be generated to nearby residents. It is estimated that this project will require the use of 99 steel H piles at an average depth of 40 m including 30 steel H piles in pre-bored hole at an average depth of 15 m.

/B. .....

B. The building cost is higher because of the provision of insulated windows and acoustic fins to satisfy the noise abatement requirements under the Preliminary Environmental Review as approved by the Environmental Protection Department for this project.

C. The building services cost in this project is lower because of less construction floor area in this project.

D. The drainage cost is higher because of larger site area for this project.

E. The external works cost is lower because of less external area due to large footprint area in this project.

F. The cost is required for the provision of energy conservation, green and recycled features for this project. Such provision has not been included in the reference project.

G. The cost of furniture and equipment, estimated to be $2.4 million, will be borne by the Government. This is in line with the existing policy in redevelopment and reprovisioning of schools.