

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Environmental Hygiene – Burial grounds, columbaria and crematoria

23NB – Provision of columbarium at Cape Collinson Road in Chai Wan

26NB – Expansion of Wo Hop Shek Crematorium

Members are invited to recommend to the Finance Committee the upgrading of **23NB** and **26NB** to Category A at estimated costs of \$791.7 million and \$174.2 million in money-of-the-day prices respectively.

PROBLEM

We need to provide additional columbaria to increase the supply of public niches for meeting the demand for public niches and provide additional body cremators and a service hall within the existing Wo Hop Shek Crematorium (WHSC) to meet the increasing public demand for cremation service.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Food and Health, proposes to upgrade **23NB** and **26NB** to Category A at estimated costs of \$791.7 million and \$174.2 million in money-of-the-day prices for the provision of columbarium at Cape Collinson Road in Chai Wan and the expansion of WHSC respectively.

/3.

————— 3. Details of the above two projects are at Enclosures 1 and 2 respectively.

Food and Health Bureau
April 2018

Provision of columbarium at Cape Collinson Road in Chai Wan

PROJECT SCOPE AND NATURE

The scope of works includes –

- (a) construction of a 5-storey columbarium block at the subject site to provide about 25 000 niches;
- (b) provision of communal incense holders for individual floor, except for the lower ground first and lower ground second floors set aside for incense free niches;
- (c) provision of communal eco-friendly joss paper burning facilities on the first floor of the columbarium building with exhaust air treatment facilities;
- (d) provision of supporting facilities including passenger lifts, administrative office, storerooms, public toilets, first aid room, closed-circuit television system-cum-command centre, public address system, computer kiosks to facilitate the public to search for the niche location of their ancestors and to disseminate promotional information on green burial;
- (e) construction of a pedestrian access route with escalators and stairways connecting Cape Collinson Road and San Ha Street; and
- (f) road widening and improvement works at Cape Collinson Road.

2. The location plan, site plan, floor plans, sectional drawings, artist's impressions and a barrier-free access plan for the proposed columbarium block and the pedestrian access route are at Annexes 1 to 10 to Enclosure 1. Subject to the funding approval of the Finance Committee, we plan to commence construction in the fourth quarter of 2018 for completion in the first quarter of 2022.

/JUSTIFICATION

JUSTIFICATION

3. With a growing and ageing population in Hong Kong, the number of deaths and cremations has been rising gradually. The annual average number of deaths and cremations is estimated to be around 59 000 and 56 000 respectively in the future 20 years (from 2018 to 2037).

4. The prevailing practice after cremation is to store ashes in columbarium facilities. It is likely that this trend will continue for some time as it takes time to fortify the mindset changes necessary for turning green burials into the mainstream mode for handling human ashes. Properly regulated private columbaria can complement public columbaria but the processing of some applications may take time and is dependent on a number of variables. To meet the demand for public niches, there is a genuine need for the Government to increase the supply of public columbarium facilities.

5. The Government announced in July 2010 the policy under which the 18 districts would collectively share the responsibility of developing district-based columbarium facilities. The Government also identified a total of 24 potential sites in the 18 districts (through three batches in July 2010, December 2010 and April 2011) for columbarium development. The Government emphasised that whether the sites could eventually be used for developing columbarium facilities would depend on the results of traffic impact assessment (TIA), engineering feasibility study (if applicable), technical feasibility studies and consultation with the District Councils (DCs) concerned.

6. The site at Cape Collinson Road in Chai Wan is one of the 24 sites identified. Subject to funding approval by the Finance Committee, we propose to develop a columbarium block at the subject site to provide about 25 000 niches by the first quarter of 2022. As recommended in the TIA completed in 2012 and the TIA Review Study completed in 2014 for the proposed works, construction of a pedestrian access route with escalators and stairways connecting Cape Collinson Road and San Ha Street and local widening at short sections of Cape Collinson Road are also required for the proposed columbarium development as a whole, in order to ease traffic impact on existing roads in terms of vehicular and pedestrian flow. For instance, with the escalators and stairways, visitors can access the planned columbarium direct from San Ha Street without the need to route through Lin Shing Road.

/7.

7. The subject site is located at Cape Collinson Road in Chai Wan opposite to the Chai Wan Chinese Permanent Cemetery Columbarium and next to Wan Tsui Estate Park with an area of about 3 400 square metres (m²) (columbarium site only). Please see Annex 1 to Enclosure 1 for the location plan of the subject site.

FINANCIAL IMPLICATIONS

8. We estimate the capital cost of the project to be \$791.7 million in money-of-the-day (MOD) prices, broken down as follows –

| | \$ million (in MOD prices) |
|--|---------------------------------------|
| (a) Site works | 18.8 |
| (b) Geotechnical works ¹ | 130.4 |
| (c) Foundation | 42.1 |
| (d) Building ² | 225.2 |
| (e) Building services | 47.9 |
| (f) Drainage | 10.7 |
| (g) External works | 29.1 |
| (h) Additional energy conservation, green and recycled features | 3.5 |
| (i) Construction of a pedestrian access route ³ | 145.2 |
| (j) Road widening works and improvement works | 23.8 |

/\$ million

¹ Geotechnical works comprise site formation, construction of retaining structure and slope works.

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

³ Construction of a pedestrian access route comprises construction of substructure, superstructure, building services and soft landscaping works in connection with the pedestrian access route.

| | | \$ million (in MOD prices) |
|-----|--|---------------------------------------|
| (k) | Furniture and equipment ⁴ | 0.2 |
| (l) | Consultants' fees for | 23.8 |
| | (i) contract administration | 21.6 |
| | (ii) management of resident site staff (RSS) | 2.2 |
| (m) | Remuneration of RSS | 19.1 |
| (n) | Contingencies | 71.9 |
| | Total | 791.7 |

9. We propose to engage consultants to undertake contract administration and site supervision for the project. A detailed breakdown of the estimate for consultants' fees and RSS costs by man-months is at Annex 11 to Enclosure 1. The construction floor area (CFA) of this project is 6 884 m². The estimated construction unit cost, represented by the building and building services costs, is \$39,672 per m² of CFA in MOD prices. We consider this unit cost comparable to that of similar projects built by the Government.

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

| Year | \$ million (in MOD prices) |
|-------------|---------------------------------------|
| 2018 – 2019 | 12.6 |
| 2019 – 2020 | 149.7 |
| 2020 – 2021 | 198.9 |
| 2021 – 2022 | 252.2 |
| 2022 – 2023 | 120.1 |

/Year

⁴ The estimated cost is based on an indicative list of furniture and equipment required.

| Year | \$ million (in MOD prices) |
|-------------|---------------------------------------|
| 2023 – 2024 | 43.4 |
| 2024 – 2025 | 14.8 |
| | <hr/> |
| | 791.7 |
| | <hr/> |

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 as the scope of the works can be clearly defined in advance. The contract will provide for price adjustment.

12. We estimate the annual recurrent expenditure arising from this project to be \$14.8 million. The Government charges a uniform set of fees and charges for columbarium services, irrespective of the location of the columbarium and niches. When setting and reviewing the level of fees and charges for columbarium services, the Government would take into account, among other factors, the construction cost of the columbarium buildings and related costs, as well as the recurrent costs arising from the allocation, operation and maintenance of the niches.

PUBLIC CONSULTATION

13. The Food, Environment and Hygiene Committee (FEHC) of Eastern District Council (EDC) was consulted on the proposed columbarium project including the TIA findings on 4 September 2014 and the revised traffic mitigation measures on 6 November 2014. The conceptual and schematic designs for the columbarium block, the pedestrian access route with escalators and stairways and the local road widening works at Cape Collinson Road were later presented to the FEHC of EDC on 13 June and 5 September 2017. Members' support for the subject columbarium project at Cape Collinson Road was obtained.

14. We further presented the progress of the traffic mitigation measures to the Traffic and Transport Committee (TTC) of EDC on 21 November 2017. Members of the TTC noted the latest development and considered that the road widening and improvement works at Cape Collinson Road were essential traffic improvement measures. Members also requested the Government to monitor the traffic and pedestrian flow and implement measures as appropriate to ensure smooth traffic movements and pedestrian safety during Ching Ming and Chung Yeung festive periods arising from the proposed project.

15. We consulted the Legislative Council Panel on Food Safety and Environmental Hygiene (the Panel) on 13 March 2018. Members of the Panel generally supported submitting the funding proposal to the Public Works Subcommittee for consideration. Supplementary information requested by Panel Members was submitted to the Panel on 26 April 2018.

ENVIRONMENTAL IMPLICATIONS

16. This project is not a designated project under the Environmental Impact Assessment Ordinance (Cap. 499). We completed the Preliminary Environmental Review (PER) for the project in November 2017. The PER has concluded and the Director of Environmental Protection agreed that with proper design and implementation of joss paper burning facilities equipped with the best available technology⁵, the project would not cause long term environmental impacts.

17. We 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 measures include the use of quality powered mechanical equipment, silencers, mufflers, movable noise barriers for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities. Noise monitoring will also be carried out at representative noise sensitive receivers including residential buildings and schools near the site. We have included in the project estimate the cost for the implementation and monitoring of the environmental mitigation measures.

/18.

⁵ Best available technology refers to the use of electrostatic precipitation and water scrubbers for flue gas treatment in joss paper burning facilities, as mentioned in “Guidelines on Air Pollution Control for Paper Artifacts Burning at Funeral Parlours and Other Places of Worship” published by the Environmental Protection Department.

18. 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 facilities⁶. We will encourage the contractor to maximise the use of recycled/recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

19. 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 and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

20. We estimate that the project will generate in total 37 930 tonnes of construction waste. Of these, we will reuse about 4 650 tonnes (12.2%) of inert construction waste on site and deliver 27 680 tonnes (73.0%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 5 600 tonnes (14.8%) of non-inert construction waste at landfills. The total cost for the disposal of construction waste at public fill reception facilities and landfill sites is estimated to be \$ 3.1 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

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

/LAND

⁶ 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.

LAND ACQUISITION

22. The project does not require any land acquisition.

ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES

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

- (a) light-emitting diode type light fittings;
- (b) heat energy reclaim of exhaust air; and
- (c) solar powered light fittings.

24. For greening features, we will provide greening on rooftop and suitably incorporate vertical greening on one of the staircase cores, as well as other landscape features and slope greening in appropriate areas of the site for environmental and amenity benefits.

25. For recycled features, we will adopt a rainwater harvesting system for landscape irrigation.

26. The total estimated additional cost for adoption of the above energy conservation measures, greening features and recycled features is around \$3.5 million (including \$0.2 million for energy efficient features), which has been included in the cost estimate of this project. The energy efficient features will achieve 5.4% energy savings in the annual energy consumption with a payback period of about six years.

/TRAFFIC

TRAFFIC IMPLICATIONS

27. The TIA Study completed in 2012 and the TIA Review Study completed in 2014 concluded that the additional traffic and pedestrian volume arising from the proposed columbarium development during the Ching Ming and Chung Yeung festive periods should be manageable with the implementation of appropriate traffic improvement measures as mentioned in paragraphs 1(e) and (f) above. In view of EDC members' comment that the special shuttle bus service between San Ha Street and MTR Heng Fa Chuen Station would impose further burden to the existing traffic network, the proposed service was therefore dropped. A further study on the public transport demand and arrangement was carried out in 2017 and Transport Department had no adverse comment on its findings which concur with the findings of the previous TIA Study in 2012 and TIA Review Study in 2014.

28. Taking into account the TIA findings, we propose to develop about 25 000 niches with the traffic improvement measures set out in paragraphs 1(e) and (f) above. After the proposed columbarium is commissioned, the Food and Environmental Hygiene Department will work closely with the Hong Kong Police Force and other relevant departments to ensure that effective traffic and crowd control measures are implemented during the grave sweeping seasons.

BACKGROUND INFORMATION

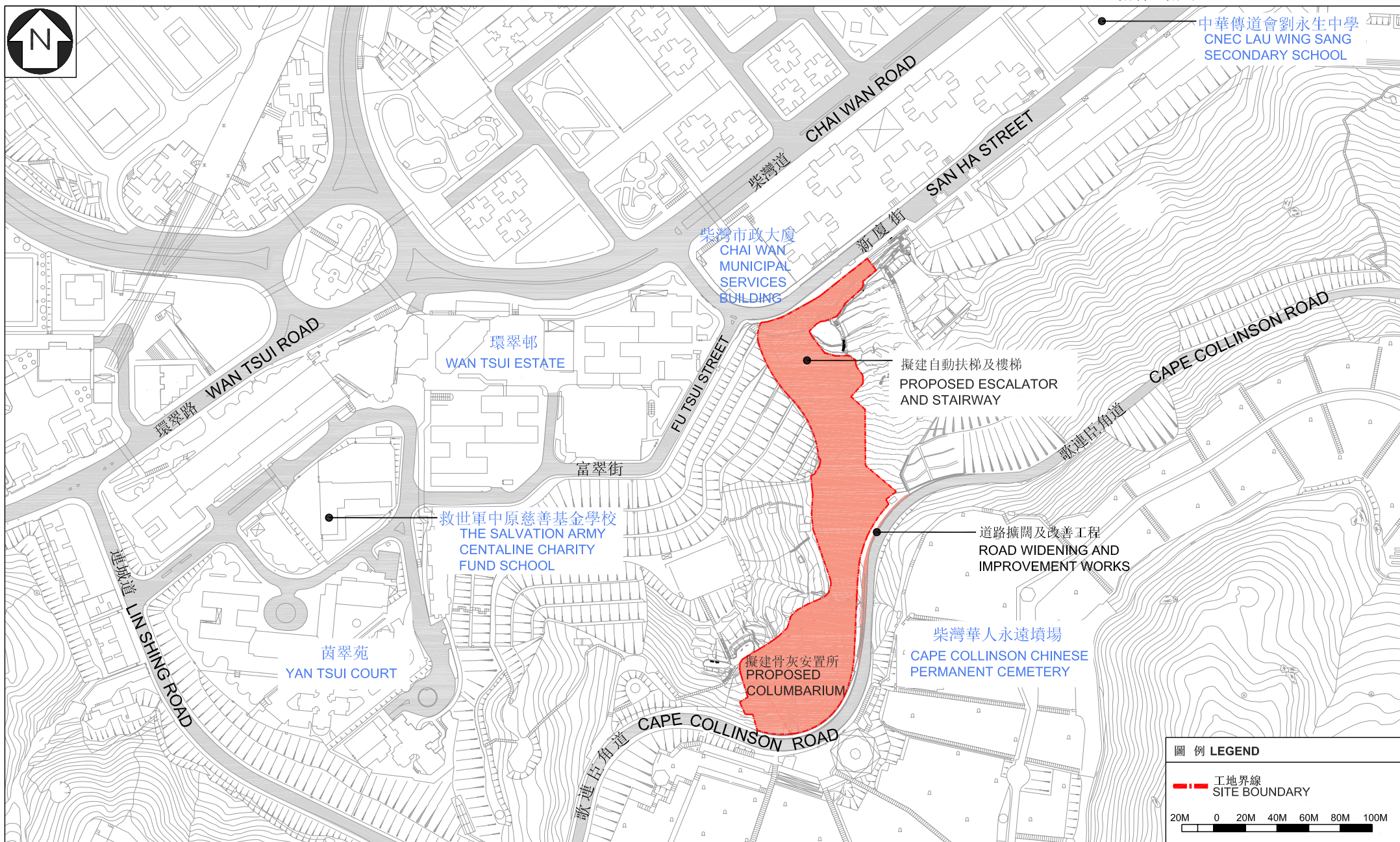
29. We upgraded **23NB** to Category B in September 2013. We engaged consultants to render design services and carry out site investigation, topographical survey, utilities survey and PER in December 2015 at a total cost of about \$26.4 million in MOD prices. The services and works by the consultants were 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 site investigation, topographical survey, utilities survey and PER have been completed.

30. There are 616 trees within the project boundary, and the proposed works could involve the felling of these trees subject to the final construction methodology. All trees to be felled are not important trees⁷. We will incorporate planting proposals as part of the project, including the planting of an estimated quantities of 616 trees, 2 800 shrubs and groundcovers, and 0.65 hectares of grassed area.

31. We estimate that the proposed works will create about 200 jobs (170 for labourers and 30 for professional or technical staff) providing a total employment of 6 100 man-months.

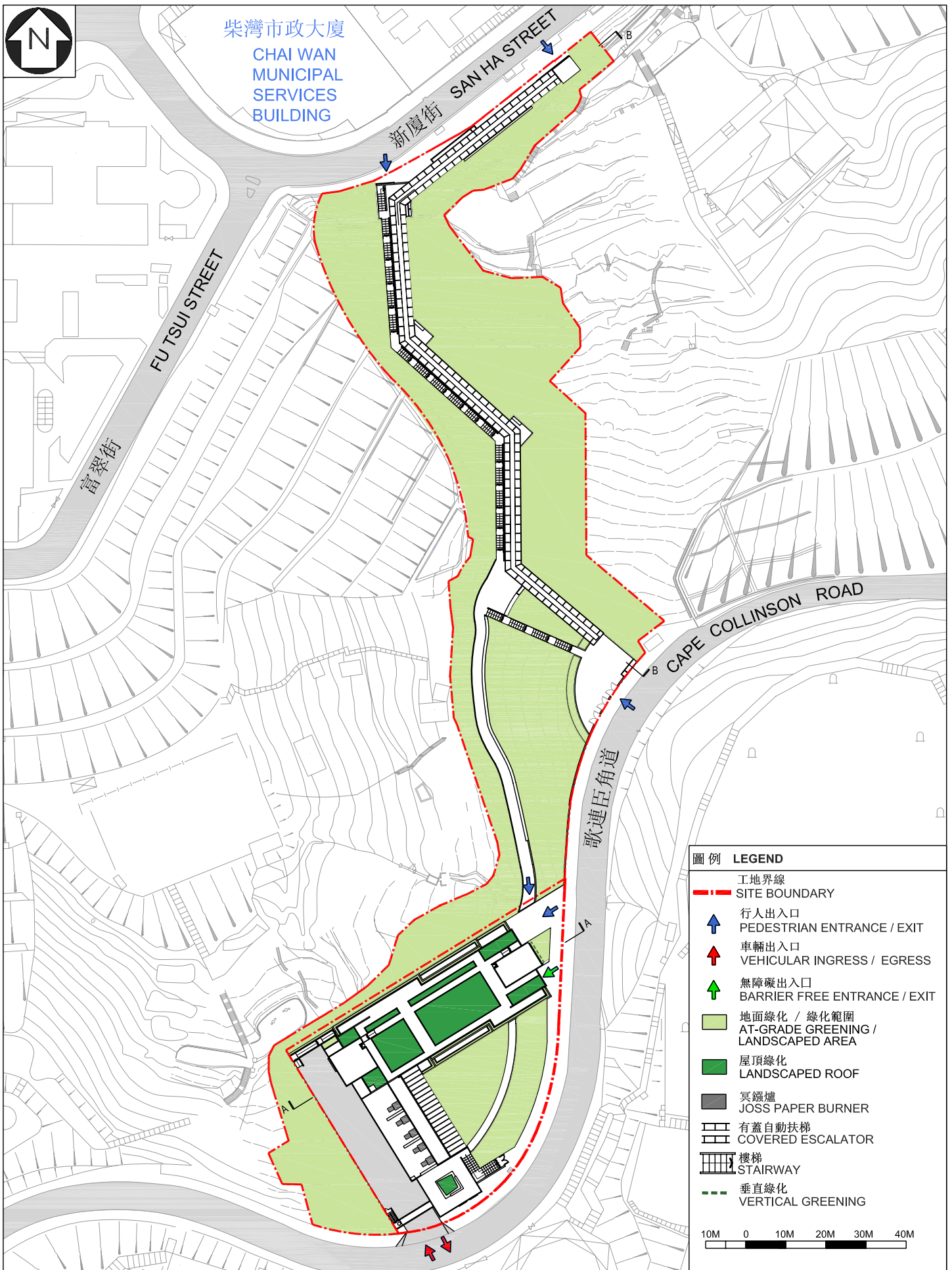
⁷ “Important trees” refer to trees in the Register of Old and Valuable Trees, or any other trees that meet one or more of the following criteria –

- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtain like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 metre (m) (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.



位置圖
LOCATION PLAN

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN



擬建骨灰安置所, 自動扶
梯及樓梯工地平面圖
COLUMBARIUM, ESCALATOR
AND STAIRWAY SITE PLAN

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT
CAPE COLLINSON ROAD IN CHAI WAN



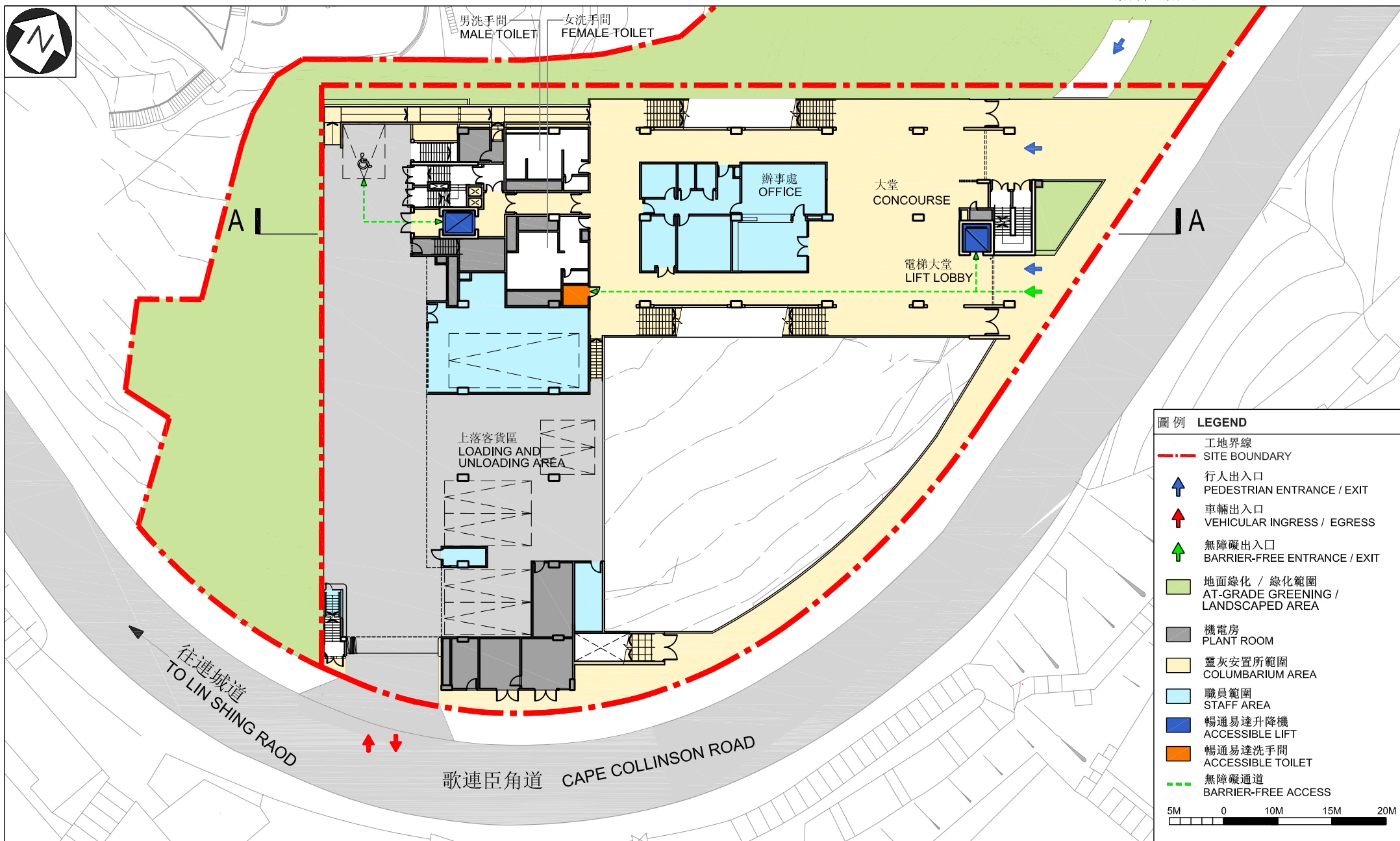
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SERVICES
DEPARTMENT 建築署



| 圖例 | LEGEND |
|---|--|
| - - - | 工地界線 SITE BOUNDARY |
| | 地面綠化 / 綠化範圍 AT-GRADE GREENING / LANDSCAPED AREA |
| | 靈灰安置所範圍 COLUMBARIUM AREA |
| | 機電房 PLANT ROOM |
| | 暢通易達升降機 ACCESSIBLE LIFT |
| | 暢通易達洗手間 (只限地下二樓) ACCESSIBLE TOILET (LG2/F ONLY) |
| | 通用洗手間 (只限地下二樓) UNIVERSAL TOILET (LG2/F ONLY) |
| | 職員範圍 STAFF AREA |
| | 長椅 BENCH |
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骨灰安置所地下二樓及
地下一樓平面圖
COLUMBARIUM
LG2/F AND LG1/F FLOOR PLAN

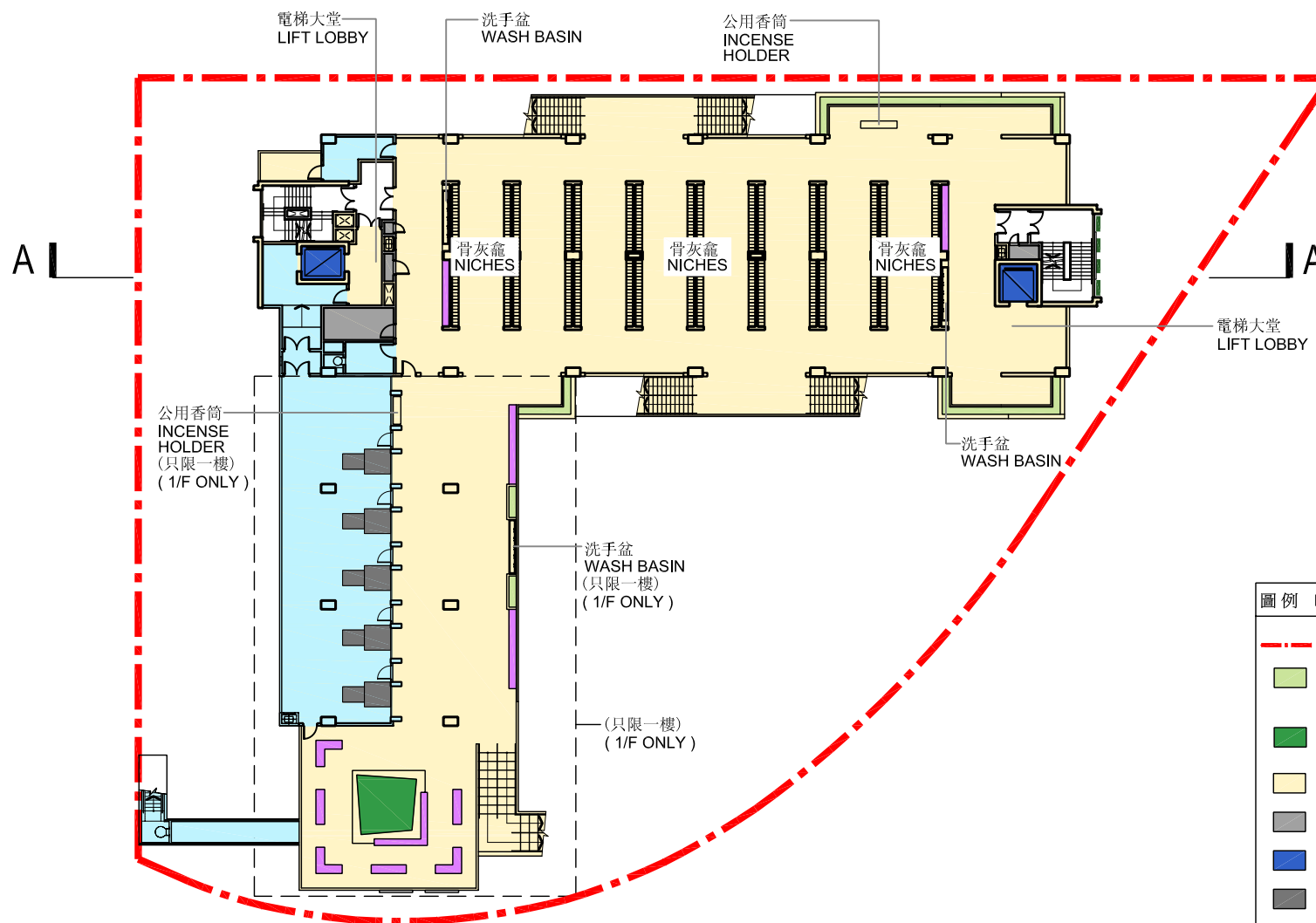
23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN



骨灰安置所地下平面圖
COLUMBARIUM
G/F FLOOR PLAN

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN

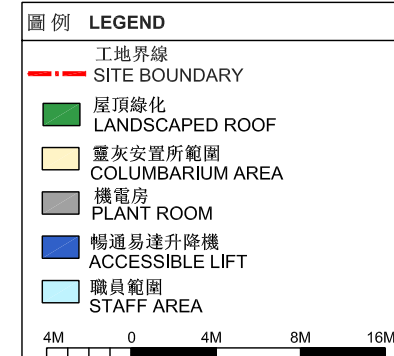
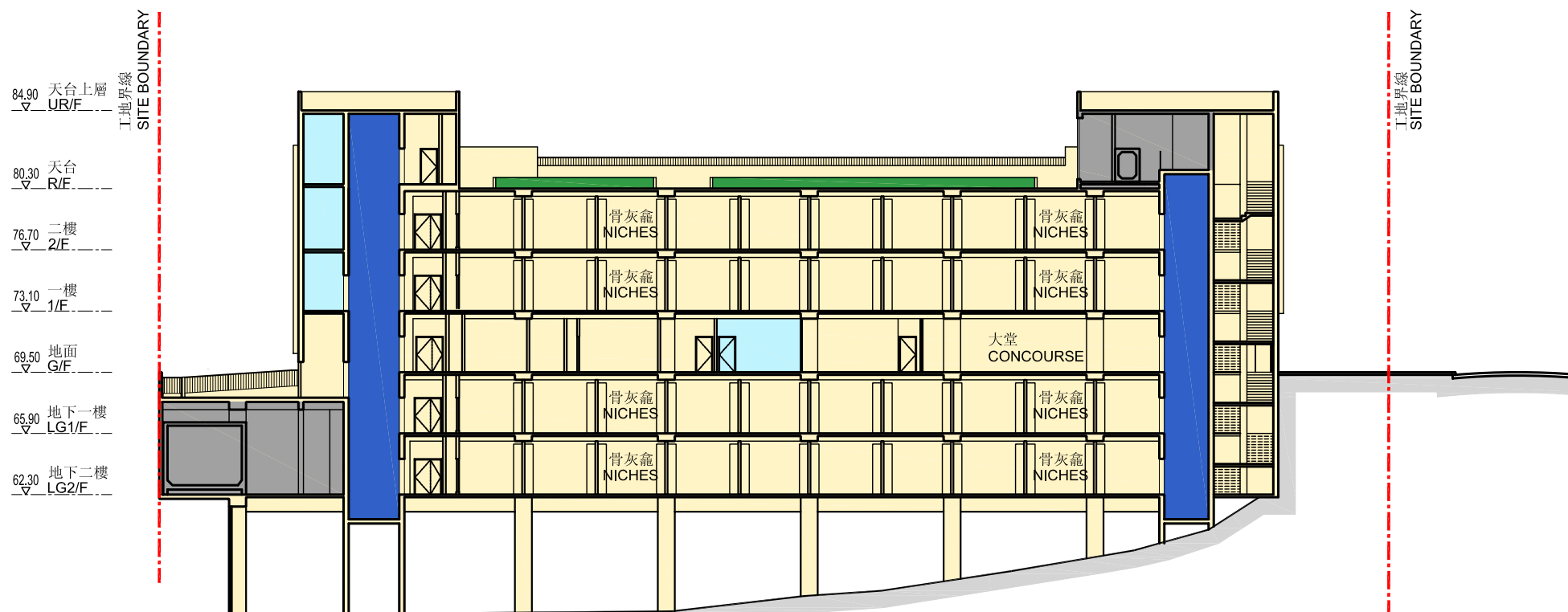
ARCHITECTURAL
SERVICES
DEPARTMENT 建築署



| 圖例 | LEGEND |
|--|--|
| --- | 工地界線 SITE BOUNDARY |
| | 地面綠化 / 綠化範圍 AT-GRADE GREENING / LANDSCAPED AREA |
| | 屋頂綠化 LANDSCAPED ROOF |
| | 靈灰安置所範圍 COLUMBARIUM AREA |
| | 機電房 PLANT ROOM |
| | 暢通易達升降機 ACCESSIBLE LIFT |
| | 冥蠟爐 (只限一樓) JOSS PAPER BURNER (1/F ONLY) |
| | 職員範圍 STAFF AREA |
| | 長椅 BENCH |
| --- | 垂直綠化 VERTICAL GREENING |
| <div style="display: flex; align-items: center;"> <div style="width: 100px; border-bottom: 1px solid black; position: relative;"> 5M 20M </div> <div style="margin: 0 10px;">0 10M 15M</div> </div> | |

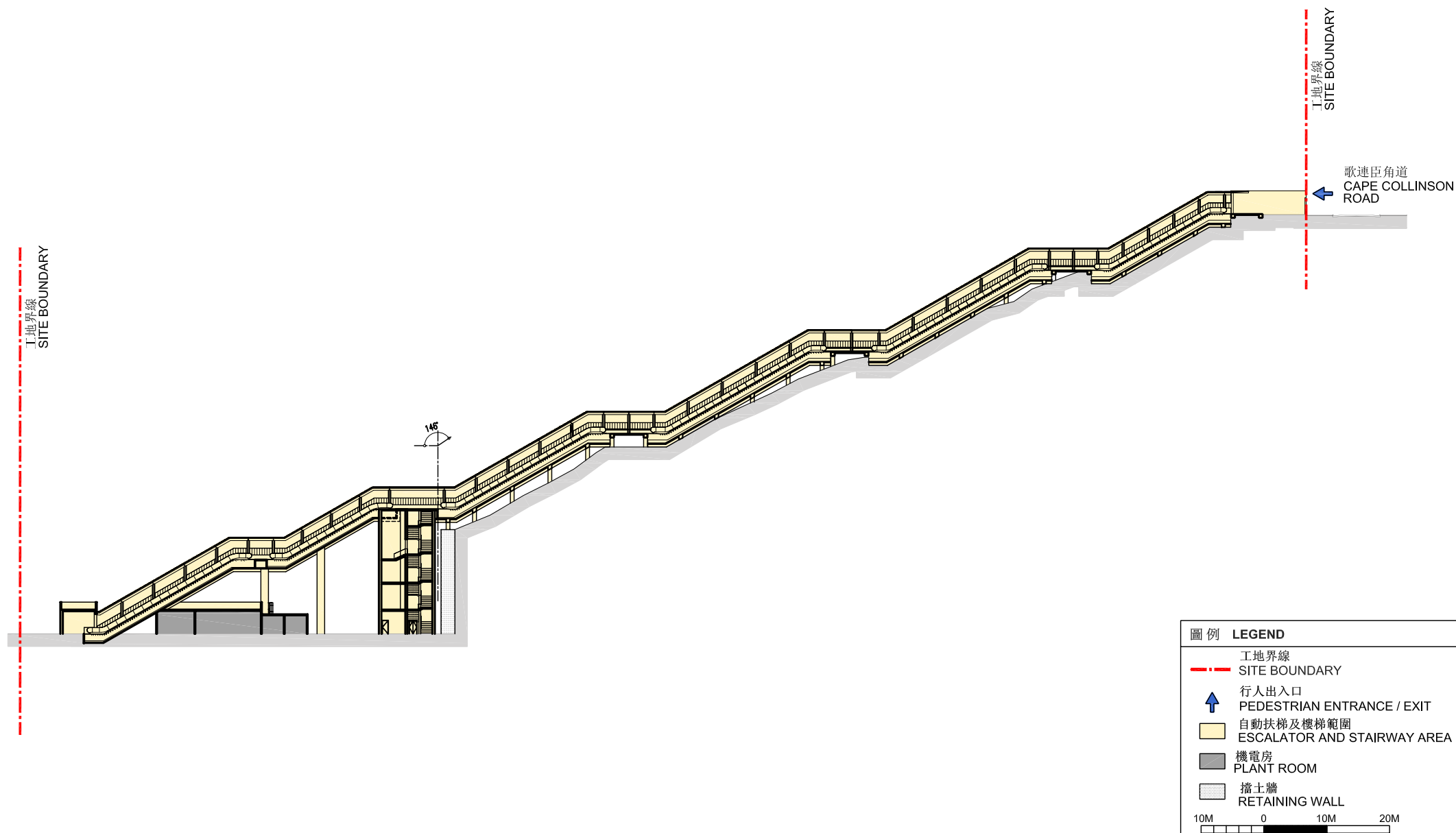
骨灰安置所一樓及
二樓平面圖
COLUMBARIUM
1/F AND 2/F FLOOR PLAN

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN



骨灰安置所A-A剖面圖
COLUMBARIUM
SECTION A-A

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN



| 圖例 LEGEND | |
|--|--|
| - - - | 工地界線 SITE BOUNDARY |
| ↑ | 行人出入口 PEDESTRIAN ENTRANCE / EXIT |
| | 自動扶梯及樓梯範圍 ESCALATOR AND STAIRWAY AREA |
| | 機電房 PLANT ROOM |
| | 擋土牆 RETAINING WALL |
| <div style="display: flex; align-items: center;"> <div style="width: 100px; border-bottom: 1px solid black; position: relative;"> 10M 20M </div> <div style="margin: 0 10px;">0</div> <div style="width: 100px; border-bottom: 1px solid black; position: relative;"> 10M </div> </div> | |

自動扶梯及樓梯
B-B 剖面圖
ESCALATOR AND STAIRWAY
SECTION B-B

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN



從北面望向自動扶梯及樓梯的構思透視圖
PERSPECTIVE VIEW FROM NORTHERN DIRECTION (ARTIST'S IMPRESSION)

構思圖
ARTIST'S
IMPRESSION

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT
CAPE COLLINSON ROAD IN CHAI WAN



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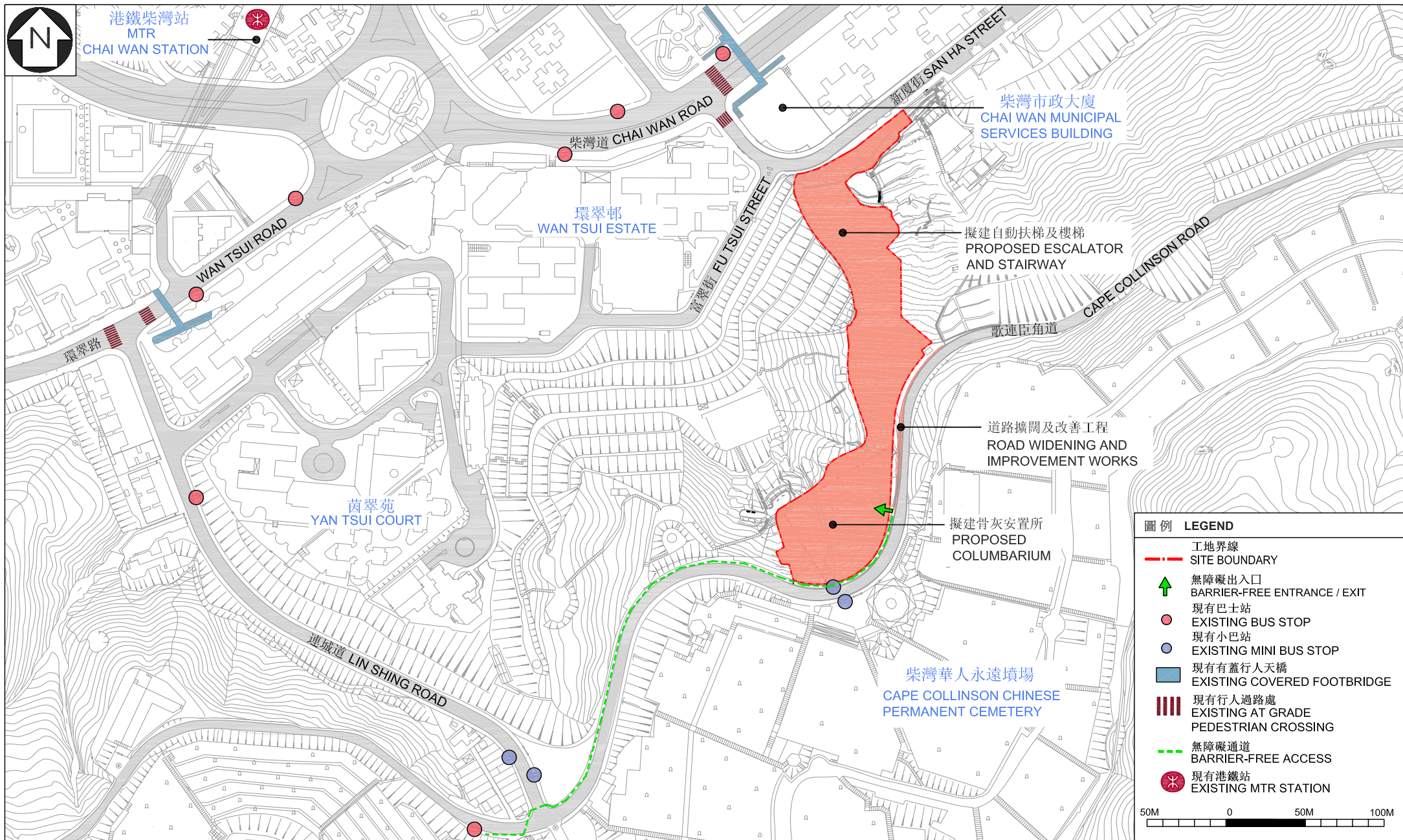
從西面望向骨灰安置所的構思透視圖
PERSPECTIVE VIEW FROM WESTERN DIRECTION (ARTIST'S IMPRESSION)

構思圖
ARTIST'S
IMPRESSION

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN



ARCHITECTURAL
SERVICES
DEPARTMENT 建築署



無障礙通道平面圖
PLAN OF
BARRIER-FREE ACCESS

23NB
在柴灣歌連臣角道興建骨灰安置所設施工程
PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN



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SERVICES
DEPARTMENT 建築署

Annex 11 to Enclosure 1

23NB – Provision of Columbarium at Cape Collinson Road in Chai Wan

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2017 prices)

| | | Estimated man- months | Average MPS* salary point | Multiplier (Note 1) | Estimated fee (\$ million) |
|--|--------------|-----------------------------|------------------------------------|------------------------|----------------------------------|
| (a) Consultants' fees for contract administration (Note 2) | Professional | — | — | — | 13.7 |
| | Technical | — | — | — | 4.2 |
| | | | | Sub-total | 17.9 # |
| (b) Resident site staff (RSS) costs (Note 3) | Professional | 45 | 38 | 1.6 | 5.7 |
| | Technical | 273 | 14 | 1.6 | 12.0 |
| | | | | Sub-total | 17.7 |
| Comprising - | | | | | |
| (i) Consultants' fees for management of RSS | | | 1.8# | | |
| (ii) Remuneration of RSS | | | 15.9# | | |
| Total | | | | | 35.6 |

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants (as at now, MPS salary point 38 = \$78,775 per month and MPS salary point 14 = \$27,485 per month).
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for provision of contract administration and site supervision of **23NB**. The assignment will only be executed subject to Finance Committee's funding approval to upgrade **23NB** to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.

Remarks

The cost figures in this Annex are shown in constant prices to correlate with the MPS salary point of the same year. The figures marked with # are shown in money-of-the-day prices in paragraph 8 of Enclosure 1.

Expansion of Wo Hop Shek Crematorium

PROJECT SCOPE AND NATURE

The scope of the project comprises -

- (a) provision of two new body cremators in the Wo Hop Shek Crematorium (WHSC);
- (b) construction of one new multi-purpose service hall;
- (c) provision of a full range of ancillary facilities such as joss paper burner, toilets, refuse storage area, public announcement and intercom system, storeroom, etc.; and
- (d) addition, alteration and modification works that are necessary for the provision of additional cremators and service hall.

2. The location plan, floor plan, sectional drawing, artist's impression and a barrier-free access plan for the project are at Annexes 1 to 5 to Enclosure 2. Subject to the funding approval of the Finance Committee, we plan to commence construction in the fourth quarter of 2018 for completion in the first quarter of 2023. Throughout the construction period, WHSC will be kept in normal operation.

JUSTIFICATION

3. At present, the Food and Environmental Hygiene Department (FEHD) manages 32 body cremators (10 in Cape Collinson, six in Diamond Hill, six in Wo Hop Shek, four in Fu Shan, four in Kwai Chung and two in Cheung Chau). About 52 840 cremation sessions (sessions) are available each year under general operation of FEHD facilities. With the growth in overall population and changes in demographic profile, the projected demand for cremation service in Hong Kong is expected to continue to increase steadily in the next 20 years. The annual average number of deaths and cremations is estimated to be around 59 000 and 56 000 respectively in the future 20 years (from 2018 to 2037).

4. On the supply side, the serviceable life span of cremators is generally 15 to 20 years, or about 30 000 to 40 000 cremation cycles. The cremators in WHSC and the Cape Collinson Crematorium (CCC) were newly reprovisioned in 2013 and 2015 respectively. The cremators in the four crematoria in Cheung Chau, Kwai Chung, Fu Shan and Diamond Hill have been in use since 1991, 2003, 2004 and 2007 respectively. In the normal course, reprovisioning projects for crematoria need to be kicked off at suitable junctures. Between the decommissioning of an old facility and completion of a new one (typically three to four years), there will be a reduction in the total number of cremation sessions available. As an overall picture, we expect that there may be a shortfall of cremation sessions from 2023 to 2026 due to the reprovisioning of cremators in Kwai Chung Crematorium and Fu Shan Crematorium. Furthermore, some locationally-convenient crematoria such as those in Diamond Hill, Fu Shan and Kwai Chung were more popular and their usage rates exceeded 99% in 2017.

5. Given the increasing demand for cremation service and the reprovisioning of crematoria, planning is in place to take forward crematorium projects in a paced manner to ensure no service gaps. The next in the pipeline is the current expansion project to provide two new cremators at WHSC for commissioning in 2023, adding about 3 800 cremation sessions per annum. In tandem with the increase in cremation service, we also need to construct a new multi-purpose service hall for holding farewell ceremonies.

6. The existing WHSC was reprovisioned in February 2013, following the completion of the project **13NB** “Reprovisioning of Wo Hop Shek Crematorium”, with funding approved by the Legislative Council in February 2009. It comprises six body cremators, one bone cremator and three service halls. At its design stage, some areas have already been reserved for the addition of two body cremators and one service hall as and when required. The expansion project will take place in the reserved area of about 1 489 square metres (m²) in WHSC. Upon completion of the expansion project, WHSC will have a total of eight body cremators, one bone cremator, four service halls and other ancillary facilities.

/7.

7. The two new cremators will be built in accordance with the latest environmental standards, fully meeting the requirements set out in “A Guidance Note on the Best Practicable Means for Incinerators (Crematoria)” issued by the Environmental Protection Department (EPD). The environmental performance of the new cremators will also be regulated by the Specified Process Licence of the Air Pollution Control Ordinance (Cap. 311). The design and operation of these new cremators will be fully computerised, using advanced technologies. They will be installed with an advanced flue gas filtering system to process and filter out waste gases and particles generated during the combustion process, and will also be fitted with a high temperature secondary combustion chamber to ensure completion of combustion during the cremation process.

8. The above design was adopted for the new cremators at our reprovisioning projects completed in recent years, including CCC and six existing cremators in WHSC, and has proven effective in reducing the emission of particles/waste gases and dark smoke as well as meeting the statutory environmental standards. The new cremators will be equipped with a computer system to record their emissions. The system is connected to EPD for real-time and comprehensive monitoring to ensure that waste gas emissions are in full compliance with the air quality standards.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$174.2 million in money-of-the-day (MOD) prices, broken down as follows –

| | \$ million (in MOD prices) |
|-----------------------|---|
| (a) Site works | 3.5 |
| (b) Building | 57.0 |
| (c) Building services | 17.6 |
| (d) Drainage | 1.4 |
| (e) External works | 3.7 |

/\$ million

| | | \$ million (in MOD prices) |
|-----|--------------------------------------|---|
| (f) | Supply and installation of cremators | 72.3 |
| (g) | Furniture and equipment ¹ | 0.5 |
| (h) | Consultants' fees | 2.5 |
| (i) | Contingencies | 15.7 |
| | Total | 174.2 |

10. The design and contract administration of the project will be undertaken with in-house resources. We propose to engage consultants to undertake environmental assessment and quantity surveying of the project. A detailed breakdown of the estimate for consultants' fees is at Annex 6 to Enclosure 2. The construction floor area (CFA) of this project is about 1 489 m². The estimated construction unit cost, represented by the building and building services costs, is \$50,101 per m² of CFA in MOD prices. We consider this unit cost comparable to that of similar projects built by the Government.

11. Subject to funding approval, we plan to phase the expenditure as follows –

| Year | \$ million (in MOD prices) |
|-------------|---|
| 2018 – 2019 | 3.2 |
| 2019 – 2020 | 16.6 |
| 2020 – 2021 | 29.3 |
| 2021 – 2022 | 40.6 |

/Year

¹ The estimated cost is based on an indicative list of furniture and equipment required.

| Year | \$ million (in MOD prices) |
|------------|-------------------------------|
| 2022– 2023 | 38.7 |
| 2023– 2024 | 21.7 |
| 2024– 2025 | 12.8 |
| 2025– 2026 | 7.4 |
| 2026– 2027 | 3.9 |
| | <hr/> 174.2 <hr/> |

12. 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 2027. We will deliver the construction works through a lump-sum contract as the scope of the works can be clearly defined in advance. The contract will provide for price adjustment.

13. We estimate the annual recurrent expenditure arising from this project to be \$11.9 million. The Government charges a uniform set of fees and charges for cremation service, irrespective of the location of the crematorium. When setting and reviewing the level of fees and charges for cremation service, the Government would take into account, among other factors, the construction cost of the crematorium buildings, cremators and related costs, as well as the recurrent costs arising from the handling of applications, operation and maintenance of the cremators.

PUBLIC CONSULTATION

14. In March 2008, we consulted the District Minor Works and Environmental Improvement Committee (DMW&EIC) of the North District Council (NDC) on the proposal to construct eight technologically advanced new body cremators to replace four old ones. The meeting agreed that a phased-approach would be adopted for the installation of the new cremators. While six cremators would be constructed in the first phase (under Project 13NB), it was agreed that the planning works for the remaining two body cremators would be initiated at a suitable juncture.

/15.

15. Accordingly, on 18 September 2017, we sought views from DMW&EIC of NDC regarding the current expansion project. Some members of the DMW&EIC were concerned about the flue gas emissions with the provision of additional cremators. We assured members that air emissions from the new cremators would be kept under close monitoring and emission samples would be taken regularly for testing to ensure that they meet the stringent and up-to-date requirements as approved. Members of the DMW&EIC generally supported the proposed project and suggested that FEHD should also brief the Fanling District Rural Committee (FDRC) together with relevant village representatives. To follow up, FEHD met with the FDRC and its stakeholders on 8 December 2017, who raised no objection to the proposed project.

16. We consulted the Legislative Council Panel on Food Safety and Environmental Hygiene (the Panel) on 13 February 2018. Members of the Panel supported the project. Supplementary information requested by Panel members was submitted to the Panel on 9 April 2018.

ENVIRONMENTAL IMPLICATIONS

17. The Project is the remaining part of the designated project entitled “Provision of Cremators at Wo Hop Shek Crematorium” under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) for which an EIA report was approved in June 2008 and an Environmental Permit (EP) was issued in February 2009 by EPD. The EIA report concluded that the environmental impact of the project can be controlled to within the criteria under EIA Ordinance and the Technical Memorandum on EIA Process. The EIA report and the EP covered a maximum of nine cremators, seven of which was commissioned in 2013 under project 13NB “Reprovisioning of Wo Hop Shek Crematorium” and the remaining two cremators to be provided in this Project.

18. We will implement the measures recommended in the approved EIA report and stipulated in the EP. The key measures include equipping the cremators with the latest technology for flue gas filtering and emission monitoring system that would meet the emission requirements as set out in “A Guidance Note on the Best Practicable Means for Incinerators (Crematoria)” issued by EPD. We estimate the cost of implementing these environmental mitigation measures to be \$8.0 million. We have included the cost of implementing the environmental mitigation measures in the overall project estimate.

19. 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 use of temporary noise barriers for noisy construction activities, frequent cleaning and watering of the site, and the provision of wheel-washing facilities.

20. 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 facilities². 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.

21. 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 and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

22. We estimate that the project will generate in total about 2 190 tonnes of construction waste. Of these, we will reuse about 300 tonnes (13.7%) of inert construction waste on site and deliver 1 570 tonnes (71.7%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 320 tonnes (14.6%) of non-inert construction waste at landfills. The total cost for disposal of construction waste at public fill reception facilities and landfill sites is estimated to be \$0.2 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

² 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

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

LAND ACQUISITION

24. The project does not require any land acquisition.

ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES

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

- (a) light-emitting diode (LED) type light fittings; and
- (b) LED outdoor light fittings.

26. The total estimated additional cost for adoption of the above energy conservation measures is around \$20,000, which has been included in the cost item under paragraph 9(c) “Building services” of this project. The energy efficient features will achieve 3% energy savings in the annual energy consumption with a payback period of about seven years.

BACKGROUND INFORMATION

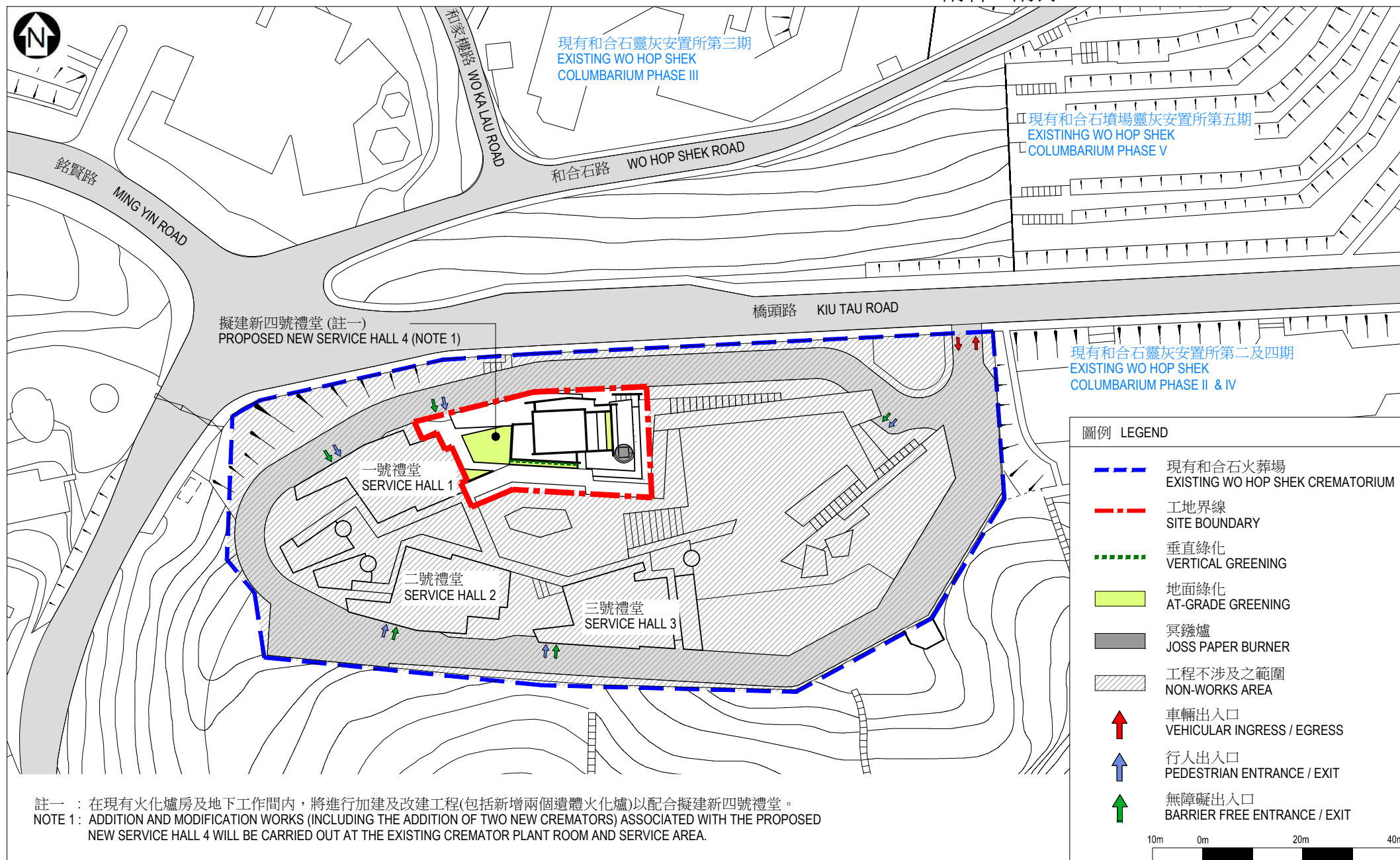
27. We upgraded **26NB** to Category B in September 2017. We engaged consultants to undertake various services, including geotechnical study in December 2016, topographical survey in January 2017, utilities mapping in February 2017 and building information modelling in June 2017, quantity surveying services in January 2018 and environmental consultancy in April 2018 at a total cost of about \$1.5 million in MOD prices. 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 geotechnical study, topographical survey, utilities mapping, and building information modelling have been completed.

28. Of the nine trees within the project boundary, no tree will be felled but seven trees will be transplanted elsewhere within WHSC and two trees will be replanted within the project site. All trees to be removed are not important trees³. We will incorporate planting proposals as part of the project, including the planting of about 120 shrubs, 1 340 groundcovers, and 48 m² of grassed area.

29. We estimate that the proposed works will create about 31 jobs (28 for labourers and three for professional or technical staff) providing a total employment of 970 man-months.

³ “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.



位置圖

LOCATION PLAN

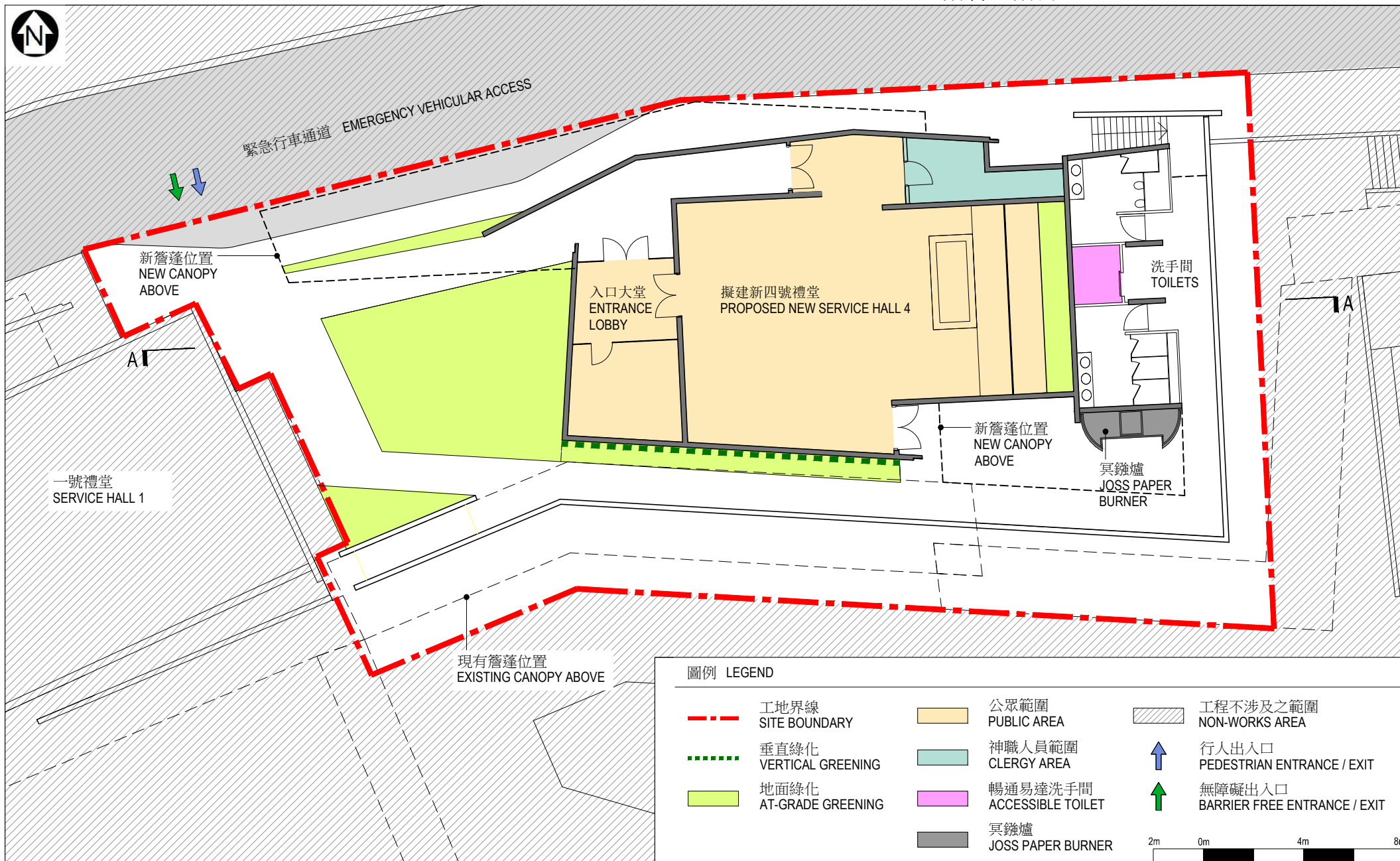
26NB

EXPANSION OF WO HOP SHEK CREMATORIUM

和合石火葬場擴展工程



建築署
ARCHITECTURAL
SERVICES
DEPARTMENT

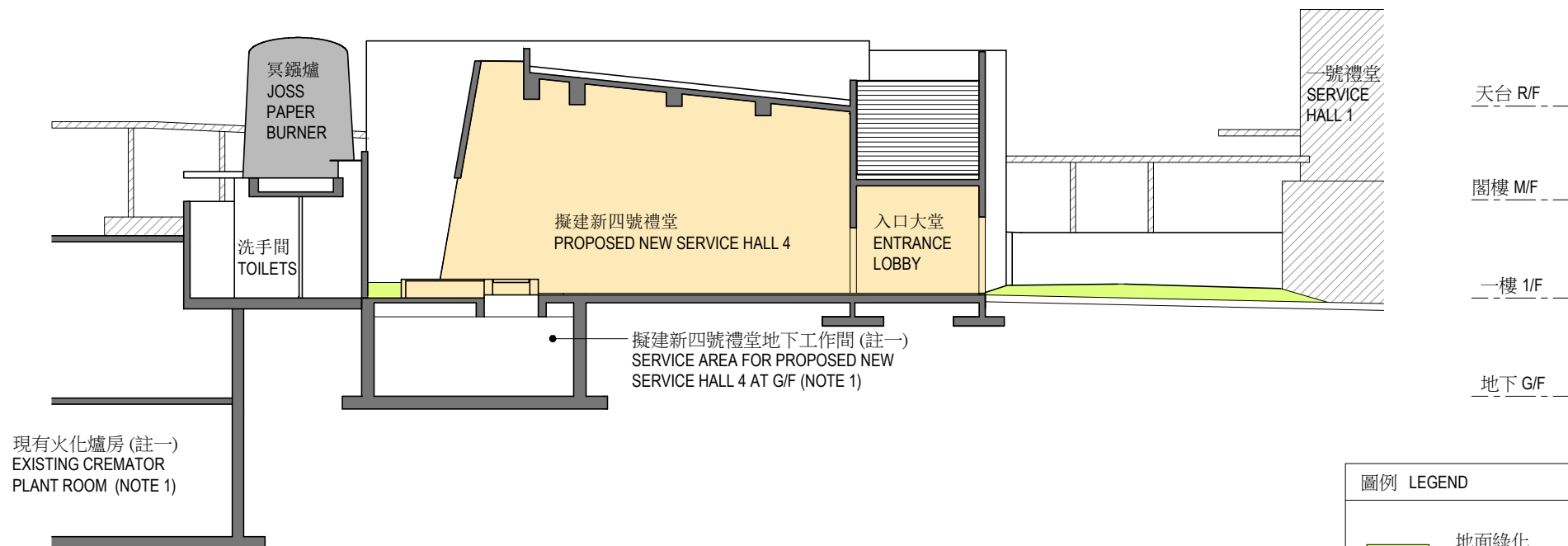


新四號禮堂一樓平面圖
NEW SERVICE HALL 4 1/F PLAN

26NB
EXPANSION OF WO HOP SHEK CREMATORIUM
和合石火葬場擴展工程



建築署
ARCHITECTURAL
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DEPARTMENT



註一：在現有火化爐房及地下工作間內，將進行加建及改建工程(包括新增兩個遺體火化爐)以配合擬建新四號禮堂。
NOTE 1: ADDITION AND MODIFICATION WORKS (INCLUDING THE ADDITION OF TWO NEW CREMATORS) ASSOCIATED WITH THE PROPOSED NEW SERVICE HALL 4 WILL BE CARRIED OUT AT THE EXISTING CREMATOR PLANT ROOM AND SERVICE AREA.

新四號禮堂A-A剖面圖
NEW SERVICE HALL 4 SECTION A-A

26NB
EXPANSION OF WO HOP SHEK CREMATORIUM
和合石火葬場擴展工程

圖例 LEGEND

- 地面綠化 AT-GRADE GREENING
- 公眾範圍 PUBLIC AREA
- 冥鑪 JOSS PAPER BURNER
- 工程不涉及之範圍 NON-WORKS AREA

2m 0m 4m 8m



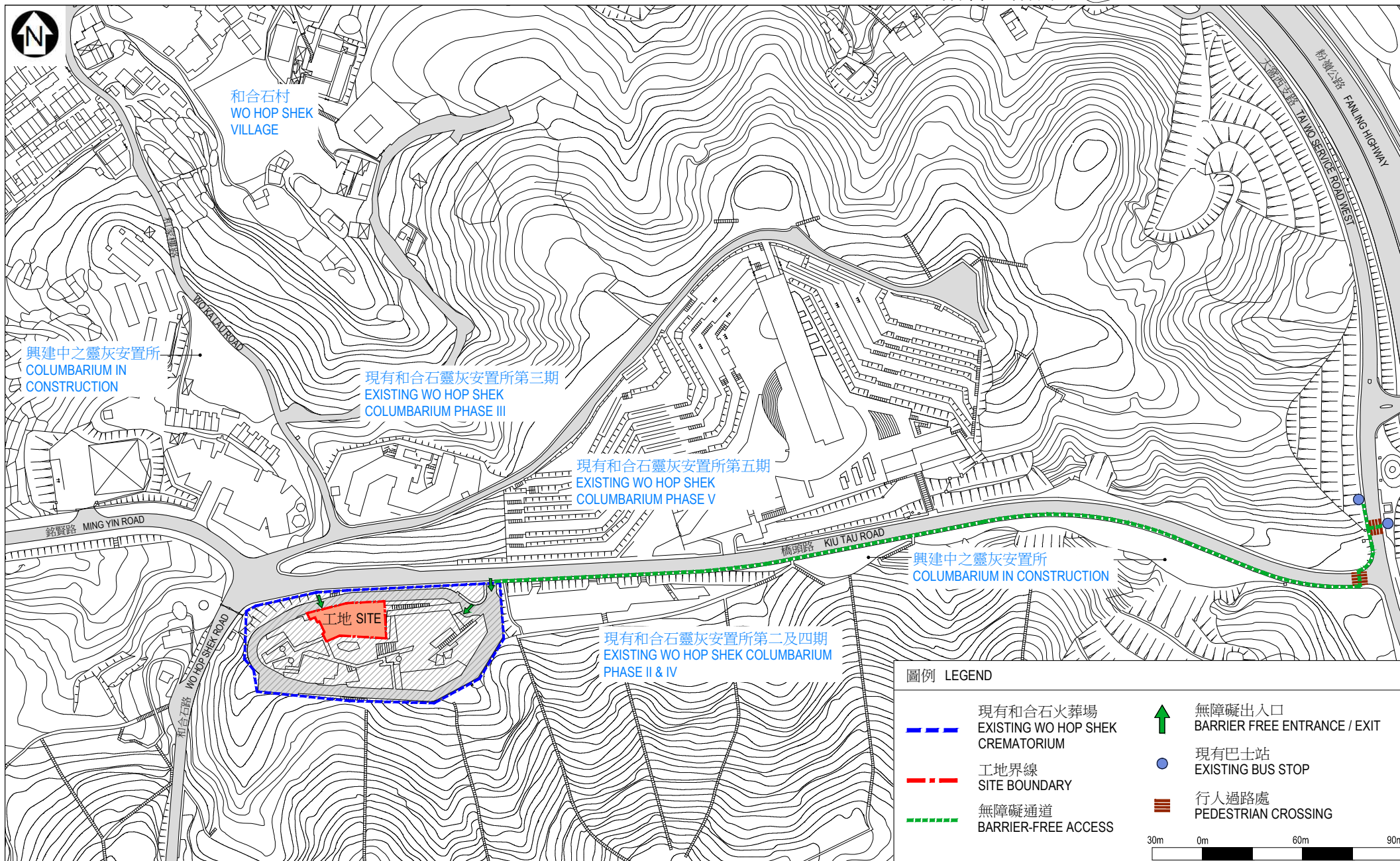
PERSPECTIVE VIEW FROM NORTHERN DIRECTION (ARTIST'S IMPRESSION)
從北面望向和合石火葬場的構思圖

構思圖
ARTIST'S IMPRESSION

26NB
EXPANSION OF WO HOP SHEK CREMATORIUM
和合石火葬場擴展工程



建築署
ARCHITECTURAL
SERVICES
DEPARTMENT



無障礙通道平面圖
PLAN OF BARRIER-FREE ACCESS

26NB
EXPANSION OF WO HOP SHEK CREMATORIUM
和合石火葬場擴展工程



建築署
ARCHITECTURAL
SERVICES
DEPARTMENT

26NB – Expansion of Wo Hop Shek Crematorium

**Breakdown of the estimates for consultants' fees
(in September 2017 prices)**

| | | Estimated man- months | Average MPS* salary point | Multiplier | Estimated fee (\$ million) |
|---|--------------|-----------------------------|------------------------------------|--------------|----------------------------------|
| (a) Consultants' fees ^(Note 1) | Professional | – | – | – | 1.4 |
| | Technical | – | – | – | 0.6 |
| | | | | Total | 2.0# |

* MPS = Master Pay Scale

Note

1. The consultants' fees for contract administration of environmental works and quantity surveying is calculated in accordance with the existing environmental works consultancy agreement and quantity surveying consultancy agreement for **26NB**. The assignment will only be executed subject to Finance Committee's funding approval to upgrade **26NB** to Category A.

Remarks

The cost figures in this Annex are shown in constant prices. The figure marked with # is shown in money-of-the-day prices in paragraph 9 of Enclosure 2.