

## ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

### HEAD 706 – HIGHWAYS

#### Transport – Roads

#### 856TH – Flyover from Kwai Tsing Interchange Upramp to Kwai Chung Road

Members are invited to recommend to the Finance Committee the upgrading of **856TH** to Category A at estimated cost of \$472.0 million in money-of-the-day prices.

### PROBLEM

At present, the traffic at the section of Tsuen Wan Road (Kowloon-bound) between the Kwai Tsing Interchange upramp and Kwai Chung Road during the morning peak hours on weekdays is heavily congested, making it difficult for the large amount of vehicles travelling from Kwai Tsing Interchange upramp to merge into the slow lane of Tsuen Wan Road. The queue of vehicles waiting at the Kwai Tsing Interchange upramp to merge into Tsuen Wan Road occasionally extends to the nearby Hing Fong Road and Kwai Fuk Road, causing traffic congestion in the vicinity.

### PROPOSAL

2. The Director of Highways, with the support of the Secretary for Transport and Housing, proposes to upgrade **856TH** to Category A. The estimated cost of the project is \$472.0 million in money-of-the-day (MOD) prices.

### PROJECT SCOPE AND NATURE

3. The proposed scope of works under this project includes –

/(a) .....

- (a) construction of a single-lane vehicular bridge of approximately 370 metres in length connecting Tsuen Wan Road southbound fast lane (near the Kwai Tsing Interchange upramp) to Kwai Chung Road;
- (b) widening of a section of Tsuen Wan Road southbound traffic lane of approximately 85 metres in length between Kwai Tsing Interchange upramp and Kwai Chung Road;
- (c) construction of noise barriers at the vehicular bridge as stated in item 3(a);
- (d) demolition and reprovisioning of the existing Footbridge No. NF303 and provision of lifts;
- (e) relocation of the bus stop next to Footbridge No. NF303 and associated footpath reconstruction;
- (f) reconstruction of a section of road at Kwai Chung Road and Container Port Road South; and
- (g) implementation of ancillary works including public lighting, drainage, landscaping, etc. and carrying out environmental mitigation measures and an environmental monitoring and audit (EM&A) programme for the works mentioned in items 3(a) to (f) above.

4. A layout plan and artist's impression of the project are at **Enclosure 1**.

5. We plan to commence the proposed works upon obtaining funding approval from the Finance Committee (FC) for target completion in around four years. To commence the construction works as soon as possible, the Highways Department (HyD) initiated parallel tendering for the construction works contract in January 2021. The returned tender price has been reflected in the estimated cost of the project. The contract will only be awarded after obtaining funding approval from the FC.

## JUSTIFICATION

6. Tsuen Wan Road carries substantial traffic flow from the Northwest New Territories to and from Kowloon via Tsuen Wan, and is an important part of the transportation network of Hong Kong. Vehicles travelling from Kwai Chung

/and .....

and Tsing Yi to Kowloon can merge into the slow lane of Tsuen Wan Road via the Kwai Tsing Interchange upramp before entering Kwai Chung Road.

7. At present, the traffic at the section of Tsuen Wan Road (Kowloon-bound) between the Kwai Tsing Interchange upramp and Kwai Chung Road during the morning peak hours on weekdays is heavily congested, making it difficult for the large amount of vehicles travelling from Kwai Tsing Interchange upramp to merge into the slow lane of Tsuen Wan Road. The queue of vehicles waiting at the Kwai Tsing Interchange upramp to merge into Tsuen Wan Road occasionally extends to the nearby Hing Fong Road and Kwai Fuk Road, causing traffic congestion in the vicinity.

8. In view of the above, we propose to construct a single-lane vehicular bridge connecting Tsuen Wan Road southbound fast lane to Kwai Chung Road, and widen a section of Tsuen Wan Road southbound traffic lane between Kwai Tsing Interchange upramp and Kwai Chung Road. Upon completion of the project, vehicles travelling from the Kwai Tsing Interchange upramp will no longer need to merge into the slow lane of Tsuen Wan Road, and vehicles travelling on the fast lane of Tsuen Wan Road will be able to access Kwai Chung Road via the new vehicular bridge. It is expected that the proposed works will relieve the traffic congestion at the Kwai Tsing Interchange upramp. Upon completion of the project, the volume to capacity (v/c) ratio <sup>1</sup> for the section of Tsuen Wan Road (Kowloon-bound) after the Kwai Tsing Interchange upramp during the weekday morning peak hours will be improved as follows.

Year	V/c ratio for the section of Tsuen Wan Road (Kowloon-bound) after the Kwai Tsing Interchange upramp	
	Without the project	With the project
2021	1.20	-
2026	1.21	0.90

## FINANCIAL IMPLICATIONS

9. We estimate the capital cost of the project to be \$472.0 million in MOD prices (please see paragraph 11 below), broken down as follows –

/(a) .....

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<sup>1</sup> V/c ratio is an indicator of the traffic condition of a road. A v/c ratio equal to or less than 1.0 means that a road has sufficient capacity to cope with the anticipated volume of vehicular traffic. A v/c ratio above 1.0 indicates the onset of congestion. A v/c ratio above 1.2 indicates more serious congestion with traffic speeds deteriorating progressively when there is further increase in traffic.

		<b>\$ million</b> <b>(in MOD prices)</b>
(a)	Construction of a new single-lane vehicular bridge	163.4
(b)	Widening of Tsuen Wan Road southbound traffic lane	48.5
(c)	Construction of noise barriers	50.2
(d)	Reprovisioning of the existing footbridge	58.9
(e)	Demolition of the existing footbridge, relocation of the bus stop and associated footpath reconstruction	15.3
(f)	Reconstruction of a section of road at Kwai Chung Road and Container Port Road South and ancillary works including public lighting, drainage, landscaping, etc	26.8
(g)	Environmental mitigation measures and EM&A programme	8.0
(h)	Consultants' fees for	2.8
	(i) contract administration	2.3
	(ii) management of resident site staff (RSS)	0.5
(i)	Remuneration of RSS	55.2
(j)	Contingencies	42.9
	Total	472.0

10. The HyD proposes to engage consultants to undertake the contract management, site supervision work and implementation of EM&A programme for the project. A breakdown of the estimates for consultants' fees and RSS costs by man-months is at **Enclosure 2**.

11. Subject to funding approval within this legislative session, we plan to phase the expenditure as follows –

Year	\$ million (in MOD prices)
2021 – 2022	34.1
2022 – 2023	111.7
2023 – 2024	140.8
2024 – 2025	137.9
2025 – 2026	31.0
2026 – 2027	10.8
2027 – 2028	5.7
	<hr style="width: 100%; border: 0.5px solid black;"/> 472.0 <hr style="width: 100%; border: 0.5px solid black;"/>

12. 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 2021 to 2028. Subject to funding approval, we will deliver the construction works under a contract using the New Engineering Contract (NEC) form<sup>2</sup> with provision for price adjustments.

13. We estimate the annual recurrent expenditure arising from the project to be \$2.64 million.

## **PUBLIC CONSULTATION**

14. The Civil Engineering and Development Department (CEDD) consulted the Traffic and Transport Committee (the Committee) of the Kwai Tsing District Council on the project on 11 December 2014, which was generally /supported .....

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<sup>2</sup> NEC is a suite of contracts developed by the Institution of Civil Engineers, United Kingdom. It is a contract form that emphasises cooperation, mutual trust and collaborative risk management between contracting parties.

supported by the Committee members. Subsequently, the HyD continued to implement the project and consulted the Committee on the design of the project through circulation paper in March 2017, during which no objection was received.

15. We gazetted the scheme and plan of the project under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) on 3 and 10 November 2017. During the statutory period, no objection was received and the scheme was subsequently authorised. The relevant authorisation notice was gazetted on 2 and 9 February 2018.

16. The HyD has consulted the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS)<sup>3</sup> on the aesthetic design of the vehicular bridges and the footbridge of the project. The ACABAS accepted the proposed aesthetic design.

17. We consulted the Legislative Council Panel on Transport on the project on 15 January 2021. Members generally supported the project. In response to Members' enquiries on the project estimate, consultancy reports and the lead time required for the pre-construction works at the meeting, we will provide supplementary information for the Panel on Transport.

## **ENVIRONMENTAL IMPLICATIONS**

18. The project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and an Environmental Permit (EP) is required for the construction and operation of the project. The EIA report for the project was approved on 3 August 2015 and an EP was issued on 2 August 2017 under the EIA Ordinance. The EIA report concluded that with the implementation of the recommended mitigation measures, the environmental impact of the project could be controlled to level within the standards under the EIA Ordinance and the Technical Memorandum on the EIA Process.

19. The HyD shall implement the mitigation measures recommended in the approved EIA report and the EM&A programme during the construction and operation phases. The mitigation measures recommended to be implemented during the construction phase mainly include adoption of quieter construction equipment  
/and .....

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<sup>3</sup> ACABAS comprises representatives of the Hong Kong Institute of Architects, the Hong Kong Institution of Engineers, the Hong Kong Institute of Planners, the Architectural Services Department, the HyD, the Housing Department, the CEDD, and a representative from an architecture or relevant faculty of a local academic institution. It is responsible for vetting the design of bridges and other structures associated with the public highway system, including noise barriers and enclosures, from the aesthetic and visual impact points of view.

and movable temporary noise barriers to minimise the noise impact arising from the construction, regular water spraying for dust control, installation of temporary drainage pipes to control the run-off from the construction site, and setting up of community liaison groups. The mitigation measures to be implemented during the operation phase mainly include adoption of low-noise road surfacing and installation of noise barriers. The HyD has included the cost for the implementation of the necessary environmental mitigation measures and the EM&A programme in the project estimate.

20. During the planning and design stages, the HyD has considered all the design and construction procedures of the project with a view to reducing the generation of construction waste as far as possible. In addition, the HyD will require the contractor to reuse inert construction waste (e.g. use of excavated materials for backfilling) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities<sup>4</sup>. The HyD will encourage the contractor to maximise the use of recycled / recyclable inert construction waste, and the use of non-timber formwork.

21. During the construction stage, the HyD will require the contractor to submit for the Government's approval a plan setting out the waste management measures, which will include appropriate mitigation measures to avoid, reduce, reuse and recycle inert construction waste. The HyD will ensure that the day-to-day operations on site comply with the approved plan and will require the contractor to separate the inert portion from non-inert construction waste on site for disposal of at appropriate facilities. The HyD 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.

22. The HyD estimates that the project will generate a total of about 4 761 tonnes of construction waste. Of these, about 1 053 tonnes (22.1%) of inert construction waste will be reused on site, while about 3 090 tonnes (64.9%) of inert construction waste will be delivered to public fill reception facilities for subsequent reuse. The remaining about 618 tonnes (13.0%) of non-inert construction waste will be disposed of at landfills. The total cost for disposal of the construction waste at public fill reception facilities and landfill sites is estimated to be about \$342,990 for the 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 .....**

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

## HERITAGE IMPLICATIONS

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

## LAND ACQUISITION

24. The project does not require acquisition of private land.

## TRAFFIC IMPLICATIONS

25. The project will not cause significant traffic impact during construction. To facilitate the related construction works, the HyD will implement temporary traffic arrangements (TTA) and set up a traffic management liaison group to discuss and vet the TTA. This group comprises representatives from the contractor, the Hong Kong Police Force, the Transport Department and other relevant government departments. The HyD will specify requirements for implementing the TTA in the works contracts to minimise the traffic impact during construction. The HyD will also display publicity boards on site, providing details of the TTA and the anticipated completion dates of individual sections of works. In addition, the HyD will set up a telephone hotline for public enquiries or complaints.

## BACKGROUND INFORMATION

26. The project was upgraded to Category B in September 2011. The CEDD engaged an engineering consultant to undertake an investigation study in July 2012 which was completed in September 2016. The total cost of the investigation study is about \$3.77 million, funded by block allocation **Subhead 7100CX** “New towns and urban area works, studies and investigations for items in Category D of the Public Works Programme”.

27. The HyD continued to implement the project and engaged an engineering consultant in September 2016 to undertake site investigation and detailed design works of the project at a total cost of about \$5.2 million. This amount will be charged to block allocation **Subhead 6100TX** “Highway works, studies and investigations for items in Category D of the Public Works Programme”. The site investigation and detailed design works have been completed.



28. There are 162 trees within the project boundary, among which 32 trees will be preserved. In order to make way for construction of the proposed facilities, the proposed works will involve removal of 130 trees, including 106 trees to be felled and 24 trees to be transplanted to the proximity of the project boundary. It has been confirmed that all affected trees are not important trees<sup>5</sup>. The HyD will incorporate planting proposals into the Project, including the compensatory planting of 106 new trees.

29. We estimate that the project will create about 90 jobs (70 for labourers and 20 for professional/technical staff), providing a total employment of about 3 500 man-months.

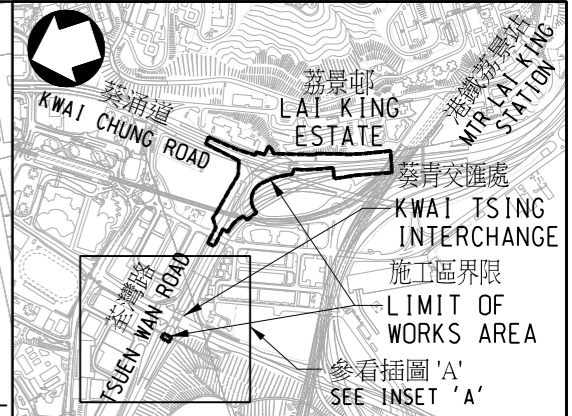
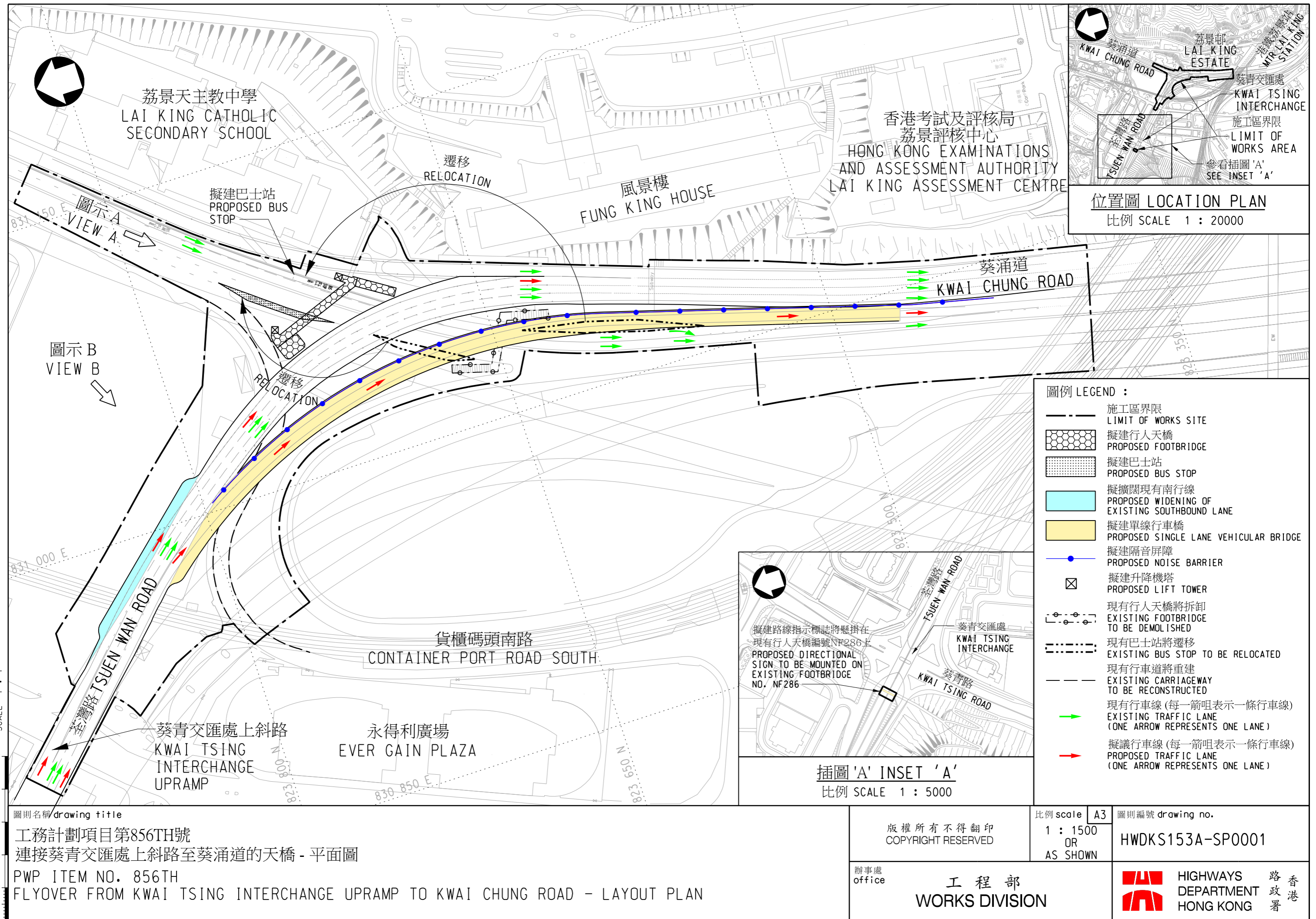
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Transport and Housing Bureau  
Highways Department  
March 2021

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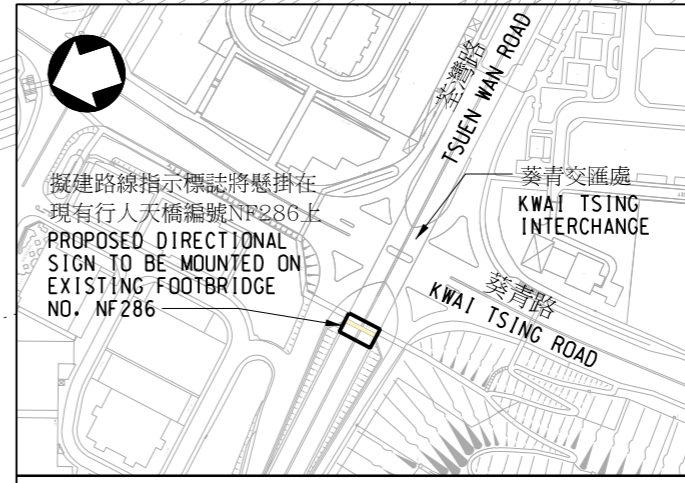
<sup>5</sup> “Important trees” refers to trees set out in the Register of Old and Valuable Trees, or any other tree that meets one or more of the following criteria –

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



位置圖 LOCATION PLAN  
比例 SCALE 1 : 20000

- 圖例 LEGEND :
- 施工區界限  
LIMIT OF WORKS SITE
  - ◻ 擬建行人天橋  
PROPOSED FOOTBRIDGE
  - ◻ 擬建巴士站  
PROPOSED BUS STOP
  - ◻ 擬擴闊現有南行線  
PROPOSED WIDENING OF EXISTING SOUTHBOUND LANE
  - ◻ 擬建單線行車橋  
PROPOSED SINGLE LANE VEHICULAR BRIDGE
  - 擬建隔音屏障  
PROPOSED NOISE BARRIER
  - ⊠ 擬建升降機塔  
PROPOSED LIFT TOWER
  - ⊠ 現有行人天橋將拆卸  
EXISTING FOOTBRIDGE TO BE DEMOLISHED
  - ⊠ 現有巴士站將遷移  
EXISTING BUS STOP TO BE RELOCATED
  - 現有行車道將重建  
EXISTING CARRIAGEWAY TO BE RECONSTRUCTED
  - 現有行車線 (每一箭咀表示一條行車線)  
EXISTING TRAFFIC LANE (ONE ARROW REPRESENTS ONE LANE)
  - 擬議行車線 (每一箭咀表示一條行車線)  
PROPOSED TRAFFIC LANE (ONE ARROW REPRESENTS ONE LANE)



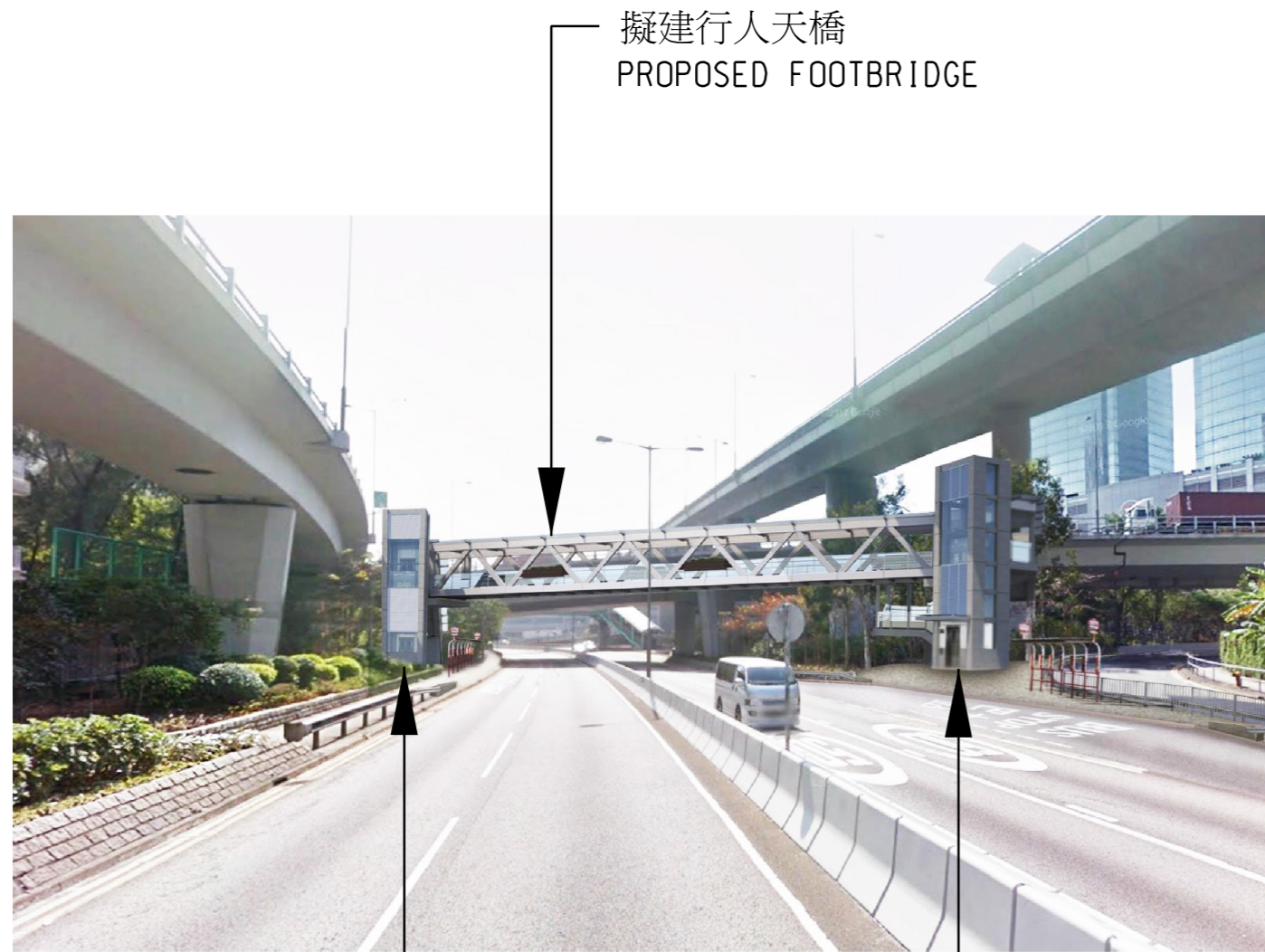
擬建路線指示標誌將懸掛在  
現有行人天橋編號NF286上  
PROPOSED DIRECTIONAL  
SIGN TO BE MOUNTED ON  
EXISTING FOOTBRIDGE  
NO. NF286

插圖 'A' INSET 'A'  
比例 SCALE 1 : 5000

50mm SCALE 1 : 1  
40  
30  
20  
10  
0

圖則名稱 drawing title  
工務計劃項目第856TH號  
連接葵青交匯處上斜路至葵涌道的天橋 - 平面圖  
PWP ITEM NO. 856TH  
FLYOVER FROM KWAI TSING INTERCHANGE UPRAMP TO KWAI CHUNG ROAD - LAYOUT PLAN

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辦事處 office	工程 WORKS DIVISION	HIGHWAYS DEPARTMENT HONG KONG 路政署

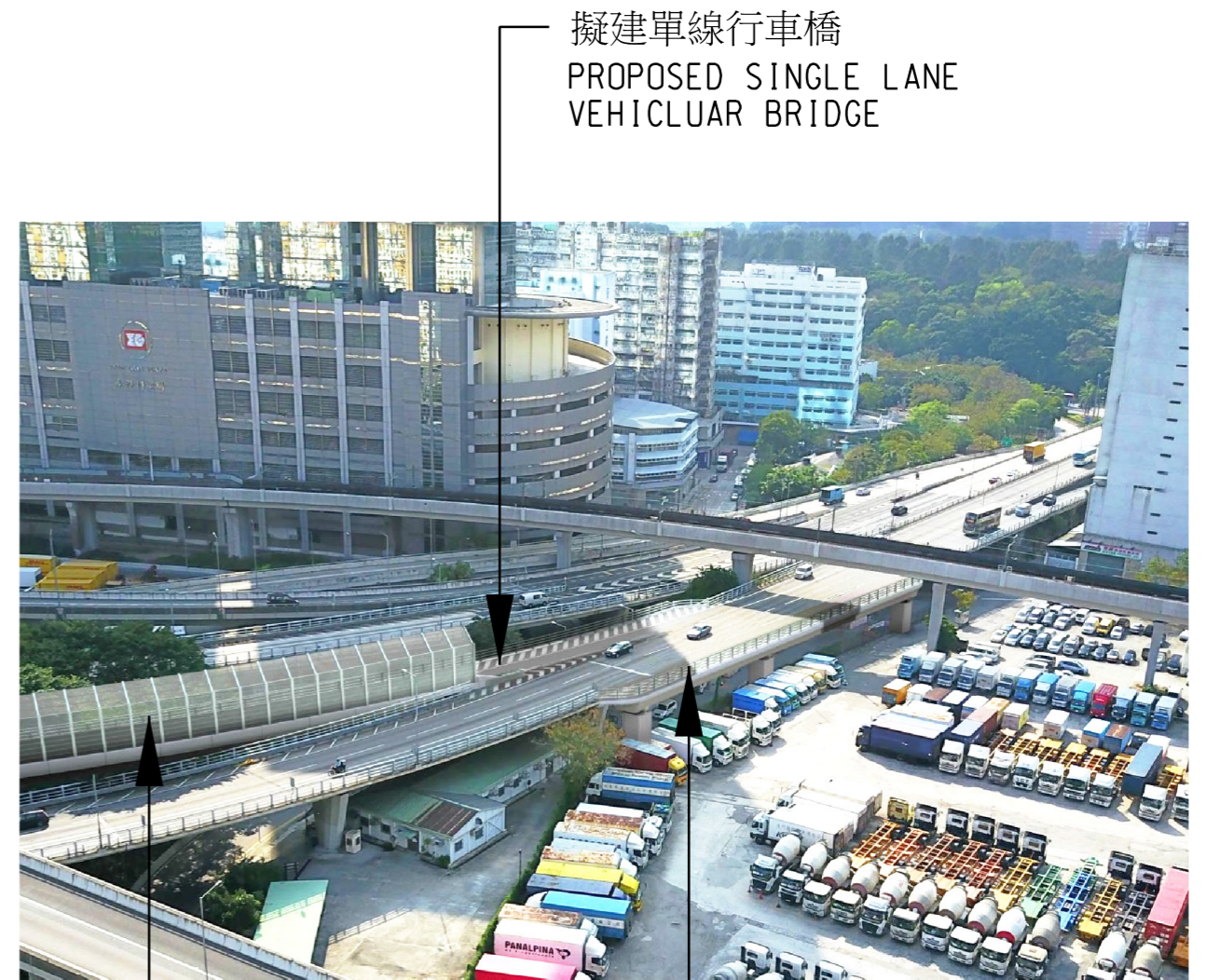


擬建行人天橋  
PROPOSED FOOTBRIDGE

擬建升降機塔及升降機  
PROPOSED LIFT TOWER  
AND LIFT

擬建升降機塔及升降機  
PROPOSED LIFT TOWER  
AND LIFT

圖示 A  
VIEW A



擬建單線行車橋  
PROPOSED SINGLE LANE  
VEHICULAR BRIDGE

擬建隔音屏障  
PROPOSED NOISE BARRIER

擬擴闊現有南行線  
PROPOSED WIDENING OF  
EXISTING SOUTHBOUND LANE

圖示 B  
VIEW B

50 mm SCALE 1 : 1

圖則名稱 drawing title

工務計劃項目第856TH號  
連接葵青交匯處上斜路至葵涌道的天橋 - 構思圖

PWP ITEM NO. 856TH  
FLYOVER FROM KWAI TSING INTERCHANGE UPRAMP TO KWAI CHUNG ROAD - ARTIST'S IMPRESSION

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比例 scale A3

不適用  
N/A

圖則編號 drawing no.

HWDKS153A-SP0002

辦事處  
office

工程 部  
WORKS DIVISION



HIGHWAYS 路 香港  
DEPARTMENT 政 署  
HONG KONG

**856TH – Flyover from Kwai Tsing Interchange Upramp  
to Kwai Chung Road**

**Breakdown of the estimates for consultants' fees and resident site staff costs  
(in September 2020 prices)**

			Estimated man- months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a)	Consultants' fees for contract administration <sup>(Note 2)</sup>	Professional	–	–	–	1.5
		Technical	–	–	–	0.5
		Sub-total				2.0#
(b)	Resident site staff (RSS) costs <sup>(Note 3)</sup>	Professional	135	38	1.6	18.5
		Technical	610	14	1.6	29.5
		Sub-total				48.0
	Comprising –					
(i)	Consultant's fee for management of RSS					0.4#
(ii)	remuneration of RSS					47.6#
		<b>Total</b>				<b>50.0</b>

\* MPS = Master Pay Scale

### Notes

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of RSS supplied by the consultants (as at now, MPS salary point 38 = \$85,870 per month and MPS salary point 14 = \$30,235 per month).
2. The consultant's staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of the project. The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade the project to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.

### Remarks

The figures in this enclosure 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 9.