

**For discussion  
on 27 February 2015**

**Legislative Council Panel on Transport**

**703TH – Dualling of Hiram’s Highway between  
Clear Water Bay Road and Marina Cove and  
Improvement to Local Access to Ho Chung**

**PURPOSE**

This paper seeks Members’ views on the funding proposal for upgrading **703TH** “Dualling of Hiram’s Highway between Clear Water Bay Road and Marina Cove and Improvement to Local Access to Ho Chung” (the Project) to Category A.

**PROJECT SCOPE AND NATURE**

2. The proposed scope of works under the Project includes –
  - (a) provision of an additional two-lane Sai Kung bound carriageway of approximately 720 metres (m) long alongside the existing Hiram’s Highway between Clear Water Bay Road and New Hiram’s Highway, and reconstruction of the existing Kowloon bound carriageway;
  - (b) widening of a section of Hiram’s Highway of approximately 900 m long between Nam Pin Wai roundabout and Pak Wai from a single two-lane carriageway to a dual two-lane carriageway;
  - (c) provision of a vehicular bridge-cum-walkway across Ho Chung Channel and demolition of the existing vehicular bridge-cum-walkway;
  - (d) provision of a footbridge across the widened Hiram’s Highway near Nam Pin Wai roundabout;
  - (e) improvement of a section of the existing Ho Chung Road of approximately 290 m long, including widening and reconstruction of the road as well as enhancement of the road drainage system;

- (f) widening and realignment of the existing Luk Mei Tsuen Road and extension of the road by approximately 300 m to connect with Ho Chung Road;
- (g) provision of the following noise barriers –
  - (i) vertical noise barriers of approximately 435 m long (ranging from 2.5 m to 5 m high); and
  - (ii) single-leaf cantilever noise barriers of approximately 280 m long (5 m high with 2 m cantilever);
- (h) demolition and reprovisioning of a village office, a public toilet and two refuse collection points (RCPs); and
- (i) associated civil and road works, slope and geotechnical works, public lighting facilities, drainage and waterworks, and landscaping works.

3. The layout plan and cross-sections of the Project are at **Enclosure 1**.

4. We have completed the detailed design of the Project. Subject to the funding approval of the Finance Committee, we plan to commence construction works in the third quarter of 2015 for completion by 2020.

## **JUSTIFICATIONS**

5. Hiram's Highway is the only principal road linking Sai Kung to East Kowloon and Tseung Kwan O. There is traffic congestion along some sections of the road during morning peak hours on weekdays and during afternoon peak hours on weekends and public holidays. The volume/capacity (v/c) ratios<sup>1</sup> of the two sections of Hiram's Highway between Clear Water Bay Road and New Hiram's Highway, and between Nam Pin Wai roundabout and Pak Wai, have already reached 1.10 and 1.17 respectively during morning peak hours on weekdays, indicating that the traffic flow at these sections of the road has already exceeded their design

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<sup>1</sup> Volume/capacity (v/c) ratio is an indicator of the performance 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 volume of vehicular traffic and the traffic flow will be smooth. 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 as a result of further increase in traffic.

capacity. For roads under this condition, minor disruption will lead to substantial congestion. Upon the further development of Sai Kung, we anticipate that the traffic conditions of the abovementioned sections of Hiram’s Highway will deteriorate during morning peak hours on weekdays. The estimated v/c ratios with and without the Project are set out in table below –

	<b>V/C Ratio of Hiram’s Highway</b>			
	<b>between Clear Water Bay Road and New Hiram’s Highway</b>		<b>between Nam Pin Wai roundabout and Pak Wai</b>	
	<b>2021</b>	<b>2031</b>	<b>2021</b>	<b>2031</b>
Without the Project	1.23	>1.3	1.27	>1.3
With the Project	0.4	0.5	0.5	0.6

6. The section of Hiram’s Highway between Nam Pin Wai roundabout and Pak Wai is particularly vulnerable to traffic congestion as a result of unexpected events (such as vehicle breakdowns, traffic accidents or emergency road repairing works). This section of the road is a single two-lane carriageway at present, with one Sai Kung bound lane and one Kowloon bound lane. When an unexpected event takes place resulting in temporary closure of one lane, both Sai Kung bound and Kowloon bound traffic can only share the use of the remaining lane, leading to serious traffic congestion.

7. Therefore, we propose providing one additional lane for each of the Sai Kung bound and Kowloon bound for the two sections of Hiram’s Highway between Clear Water Bay Road and New Hiram’s Highway, and between Nam Pin Wai roundabout and Pak Wai, to relieve the current traffic congestion, accommodate the anticipated traffic growth, and cope with unexpected events. For the road widening, we need to demolish and reconstruct an existing vehicular bridge-cum-walkway across Ho Chung Channel and re-provision a village office, a public toilet and RCPs affected by the widening works.

8. Furthermore, we will upgrade the design of the abovementioned two sections of Hiram’s Highway, including: constructing a new footbridge near Nam Pin Wai roundabout to facilitate pedestrians crossing the widened Hiram’s Highway; straightening the section of Hiram’s Highway between

Nam Pin Wai roundabout and Pak Wai to provide better sight lines for road users and enhance road safety; and providing noise barriers to mitigate the noise impact on nearby residents, etc. We will also improve Ho Chung Road and Luk Mei Tsuen Road near Hiram's Highway to enhance the connectivity of Ho Chung area with Hiram's Highway.

9. Over the years, the Sai Kung District Council (SKDC) and locals have been urging for the early implementation of the Project to relieve traffic congestion along Hiram's Highway. We consider it necessary to commence the related works as soon as possible to suitably respond to their request.

## **FINANCIAL IMPLICATIONS**

10. We estimate the cost of the Project to be \$1,774.4 million in money-of-the-day (MOD) prices (please see paragraph 15 below), made up as follows –

	<b>\$ million</b>
(a) Roads, drains and waterworks	179.0
(i) Construction of carriageways	128.8
(ii) Drainage and waterworks	50.2
(b) Geotechnical works	431.6
(i) Retaining walls	287.7
(ii) Slopeworks	143.9
(c) Vehicular bridge-cum-walkway and footbridge	298.9
(d) Noise barriers	90.7
(e) Public lighting facilities	10.5
(f) Landscaping works	43.0
(g) Re-provisioning of a village office, a public toilet and RCPs	13.8
(h) Consultants' fees	6.9
(i) Contract administration	2.1
(ii) Management of resident site staff	4.1
(iii) Environmental Monitoring and Audit (EM&A) programme	0.7

	<b>\$ million</b>	
(i) Remuneration of resident site staff	156.7	
(j) Contingencies	118.9	
	<u>1,350.0</u>	(in September 2014 prices)
Sub-total		
(k) Provision for price adjustment	424.4	
	<u>1,774.4</u>	(in MOD prices)
Total		

11. The roads, drains and waterworks in item (a) of paragraph 10 above include those construction works mentioned in items (a), (b), (e) (f) and (i) of paragraph 2 above, as well as the related utilities diversion, road pavement, installation of street furniture, ancillary traffic facilities, drainage, waterworks and temporary traffic measures.

12. The geotechnical works in item (b) of paragraph 10 above include carrying out those works mentioned in item (i) of paragraph 2 above covering the slope works and retaining walls at the relevant locations along the section of Hiram's Highway between Clear Water Bay Road and Marina Cove, along Ho Chung Road and along Luk Mei Tsuen Road.

13. The vehicular bridge-cum-walkway and footbridge works in item (c) of paragraph 10 above include carrying out those works mentioned in items (c) and (d) of paragraph 2 above.

14. A breakdown of the estimated consultants' fees and resident site staff costs by man-months is at **Enclosure 2**.

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

<b>Year</b>	<b>\$ million (Sep 2014)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2015-2016	67.5	1.06000	71.6
2016-2017	135.0	1.12360	151.7
2017-2018	189.0	1.19102	225.1
2018-2019	229.5	1.26248	289.7
2019-2020	229.5	1.32876	305.0
2020-2021	202.5	1.39519	282.5

<b>Year</b>	<b>\$ million (Sep 2014)</b>	<b>Price adjustment factor</b>	<b>\$ million (MOD)</b>
2021-2022	148.5	1.46495	217.5
2022-2023	94.5	1.53271	144.8
2023-2024	54.0	1.60168	86.5
	<u>1,350.0</u>		<u>1,774.4</u>

16. 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 2015 to 2024. The contract will provide for price adjustments.

## **PUBLIC CONSULTATION**

17. The Highways Department (HyD) consulted the Traffic and Transport Committee of SKDC on 14 August 2007 and the Sai Kung Rural Committee on 1 February 2008. Both Committees indicated their support for the Project. Subsequently, at the request of SKDC, HyD reported the progress of the Project to SKDC every two months from March 2013 to January 2015. SKDC has been expecting early commencement of the works.

18. We gazetted the road scheme for the proposed works of the Project under the Roads (Works, Use and Compensation) Ordinance (Cap. 370) (the Ordinance) on 26 March and 1 April 2010. During the statutory objection period, 50 objections were received. Three of them were withdrawn unconditionally. The reasons for the objections were mainly related to the need for the Project, environmental impacts, land resumption, access to land lots and impact on the objectors' businesses. In response to the issues raised in the objections, we amended the works limit and the road scheme. We gazetted the amendment scheme on 11 and 18 February 2011. Two objections were received during the statutory objection period and subsequently withdrawn unconditionally.

19. Having considered the 47 unresolved objections and the amendments, the Chief Executive-in-Council authorised the proposed works of the Project under the Ordinance. The authorisation notice of the project was gazetted on 11 and 18 November 2011.

20. We have consulted the Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS)<sup>2</sup> on the proposed aesthetic design of the noise barriers, vehicular bridge, footbridge and retaining walls of the Project. ACABAS accepted the proposed aesthetic design.

## ENVIRONMENTAL IMPLICATIONS

21. The Project is not a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). We have conducted an Environmental Study (ES) and an Engineering Review (ER) to assess the environmental impacts of the Project. The Environmental Protection Department accepted the ES report and related environmental impact sections in the ER report in September 2011 and January 2015 respectively.

22. According to the ES and ER reports, the environmental impacts of the Project can be controlled within the established guidelines and standards through implementation of mitigation measures (including the noise barriers shown at **Enclosure 1**). During construction, we will implement the mitigation measures and the EM&A programme according to the proposals in the ES and ER reports. These measures mainly include the use of quieter equipment and movable noise barriers to minimise construction noise impact, and regular watering of the works sites to minimise dust generation. We estimate the cost of implementing the environmental mitigation measures and the EM&A programme to be \$97.4 million (in September 2014 prices). We have included this cost in the overall project estimate.

23. At the planning and design stages, we have considered minimising the generation of construction waste as far as possible through the design of road alignment. In addition, we will require the contractor to reuse inert construction waste on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at

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<sup>2</sup> The Advisory Committee on the Appearance of Bridges and Associated Structures comprises representatives of the Hong Kong Institute of Architects, the Hong Kong Institution of Engineers, the Hong Kong Institute of Planners, an academic institution, the Architectural Services Department, the Highways Department, the Housing Department and the Civil Engineering and Development Department. It is responsible for vetting the design of bridges and other structures associated with the public highway system, including noise barriers and semi-enclosures, from the aesthetic and visual impact points of view.

public fill reception facilities<sup>3</sup>. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork, to further minimise the generation of construction waste.

24. At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures. The plan will include appropriate mitigation measures 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 inert construction waste from non-inert construction waste on site to facilitate their transportation to appropriate facilities for disposal. We will control the disposal of inert construction waste and non-inert construction waste at public fill reception facilities and landfills respectively for disposal through a trip-ticket system.

25. We estimate that the Project will generate in total about 157 460 tonnes of construction waste. Of these, we will reuse about 62 370 tonnes (39.6%) of inert construction waste on site and deliver about 94 980 tonnes (60.3%) of inert construction waste to public fill reception facilities for subsequent reuse. In addition, we will dispose of the remaining 110 tonnes (0.1%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites for the Project is estimated to be \$2.58 million (based on a unit charge rate of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

## **HERITAGE IMPLICATIONS**

26. The Project will not affect any heritage sites, 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.

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<sup>3</sup> Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a license issued by the Director of Civil Engineering and Development.



## TREE IMPLICATIONS

27. There are about 1 417 trees including two Old and Valuable Trees (OVTs) within the project boundary; about 259 trees including these two OVTs will be preserved. The Project will require the removal of about 1 158 trees, including about 1 082 trees to be felled and about 76 trees to be transplanted within the project boundary. All trees to be removed are not important trees<sup>4</sup>. We will incorporate planting proposals into the Project, including the planting of about 277 heavy standard trees, 1 617 whips and 4 031 shrubs, covering a planting area of about 16 513 square metres (m<sup>2</sup>).

## LAND ACQUISITION

28. About 9 687.9 m<sup>2</sup> of private agricultural land has to be resumed and about 140 500 m<sup>2</sup> of government land need to be cleared for the Project. It is estimated that the land resumption and clearance will affect five domestic structures, involving 40 persons of 12 families. Eligible owners of the lots to be resumed will be offered compensation in accordance with the prevailing policy, while the affected households will be offered public housing (including Interim Housing) or ex-gratia allowances, where eligible. There are 37 non-domestic structures on private agricultural land and 29 non-domestic structures on Government land to be cleared. Issues arising from the clearance of these structures will be dealt with in accordance with the prevailing land policies. The Project also requires the clearance of crops, cultivation and miscellaneous permanent items (such as fences and walls) on both private agricultural land and Government land. Ex-gratia allowances will be paid to genuine cultivators. We will charge the cost of land resumption and clearance estimated at \$71.41 million to **Head 701 – Land Acquisition**. A breakdown of the land clearance costs is at **Enclosure 3**.

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<sup>4</sup> An “important tree” refers 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 m (measured at 1.3 m above ground level), or with height/canopy spread equal to or exceeding 25 m.

## **TRAFFIC IMPLICATIONS**

29. We have conducted traffic impact assessment for the Project, covering the traffic impact during the construction period. According to the findings of the assessment, with the implementation of appropriate temporary traffic arrangement (TTA), the construction works will not cause significant impact on the traffic network in the area concerned.

30. We will implement TTA, involving lane closures, traffic diversions and other arrangements, to facilitate the construction works. To minimise the adverse traffic impact of the works on the existing road network in the area, we will maintain the same number of traffic lanes in each direction of the existing carriageway during peak hours of the construction period.

## **EMPLOYMENT OPPORTUNITIES**

31. We estimate that the proposed construction works will create about 350 jobs (70 for professional/technical staff and 280 for labourers) providing a total employment of about 19 800 man-months.

## **BACKGROUND**

32. We upgraded **703TH** to Category B in September 2004, and have allocated an amount of about \$12.1 million under block allocation **Subhead 6100TX** “Highway works, studies and investigations for items in Category D of the Public Works Programme” to fund the investigation and detailed design works of the Project. These works have been completed.

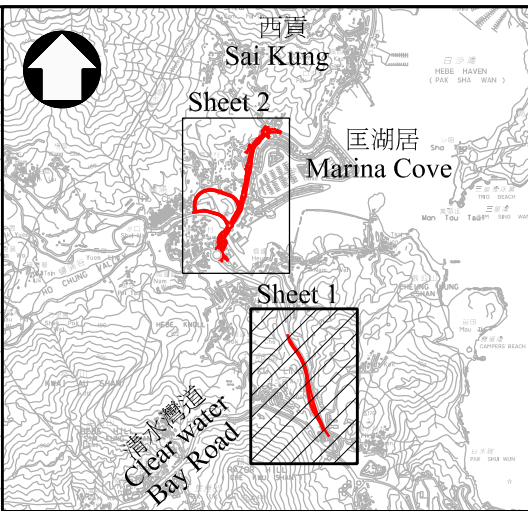
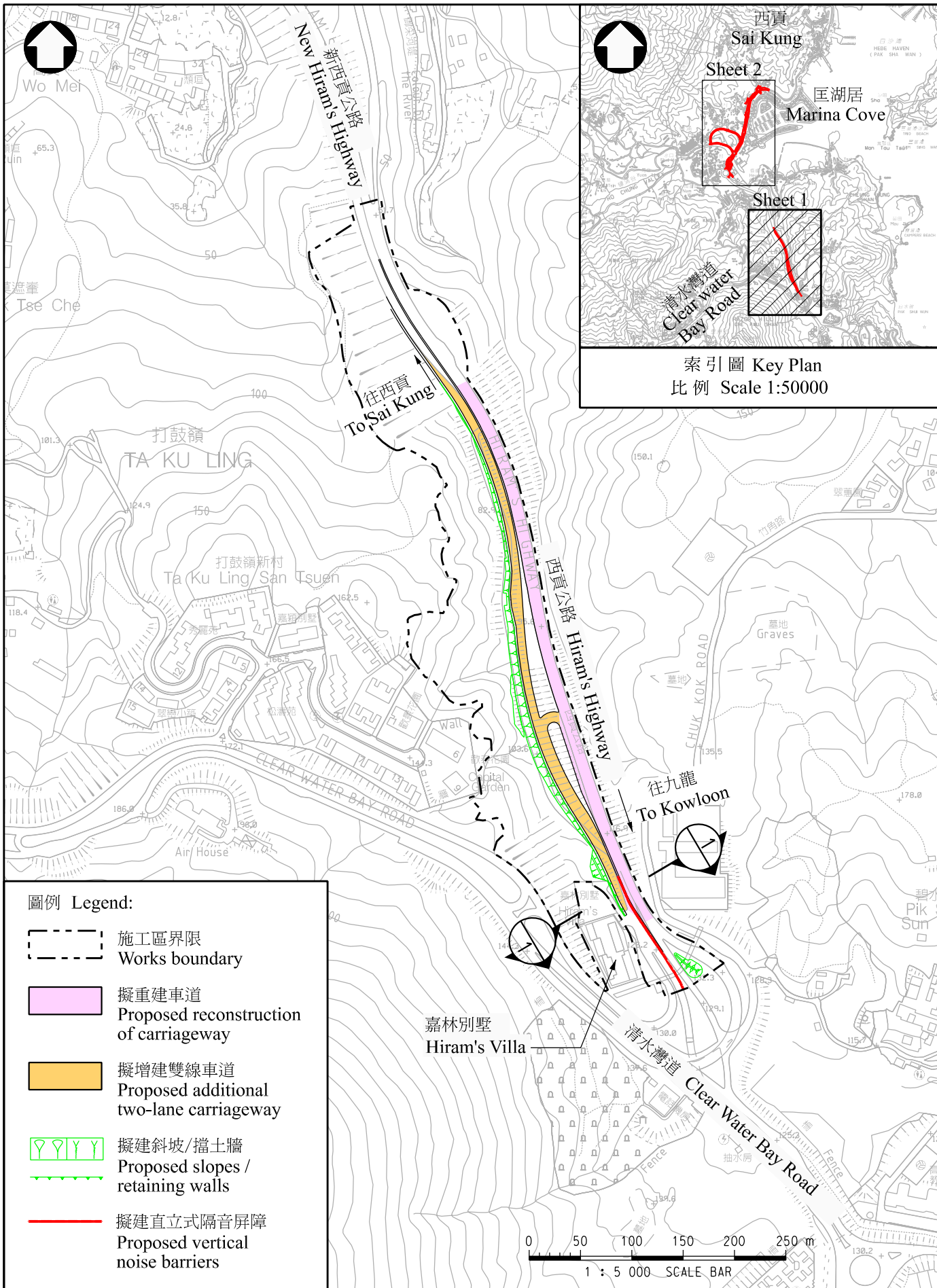
## **WAY FORWARD**

33. Subject to the support of this Panel, we plan to seek the endorsement of the Legislative Council Public Works Subcommittee for upgrading the construction works of **703TH** as detailed in paragraph 2 above to Category A, and then to seek funding approval from the Finance Committee.

**ADVICE SOUGHT**

34. Members are invited to comment on and support our funding application.

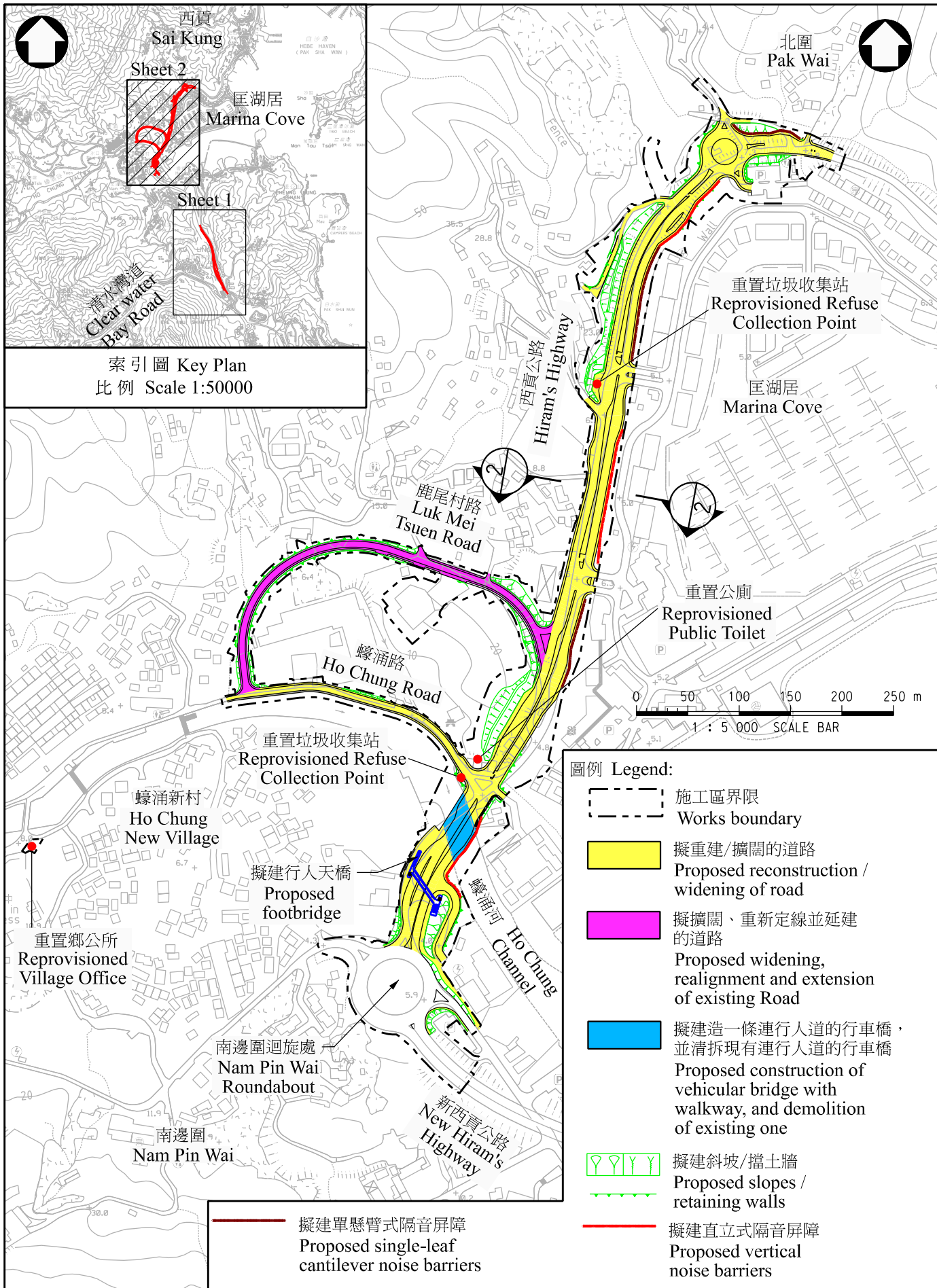
**Transport and Housing Bureau  
February 2015**



- 圖例 Legend:**
- 施工區界限  
Works boundary
  - 擬重建車道  
Proposed reconstruction of carriageway
  - 擬增建雙線車道  
Proposed additional two-lane carriageway
  - 擬建斜坡/擋土牆  
Proposed slopes / retaining walls
  - 擬建直立式隔音屏障  
Proposed vertical noise barriers

工務計劃項目第 6703TH 號  
 清水灣道與匡湖居之間的一段西貢公路分隔車道工程及  
 蠔涌區內通路改善工程 - 平面圖 (二張中的第一張)  
 PWP Item No. 6703TH  
 Dualling of Hiram's Highway between Clear Water Bay Road and Marina Cove  
 and Improvement to Local Access to Ho Chung  
 - Layout Plan (Sheet 1 of 2)

圖則編號 plan no. HMW6703TH-SK0035	比例 scale 1:5000 或圖示 Or As Shown
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	HIGHWAYS 路 DEPARTMENT 政 HONG KONG 署



索引圖 Key Plan  
比例 Scale 1:50000

**圖例 Legend:**

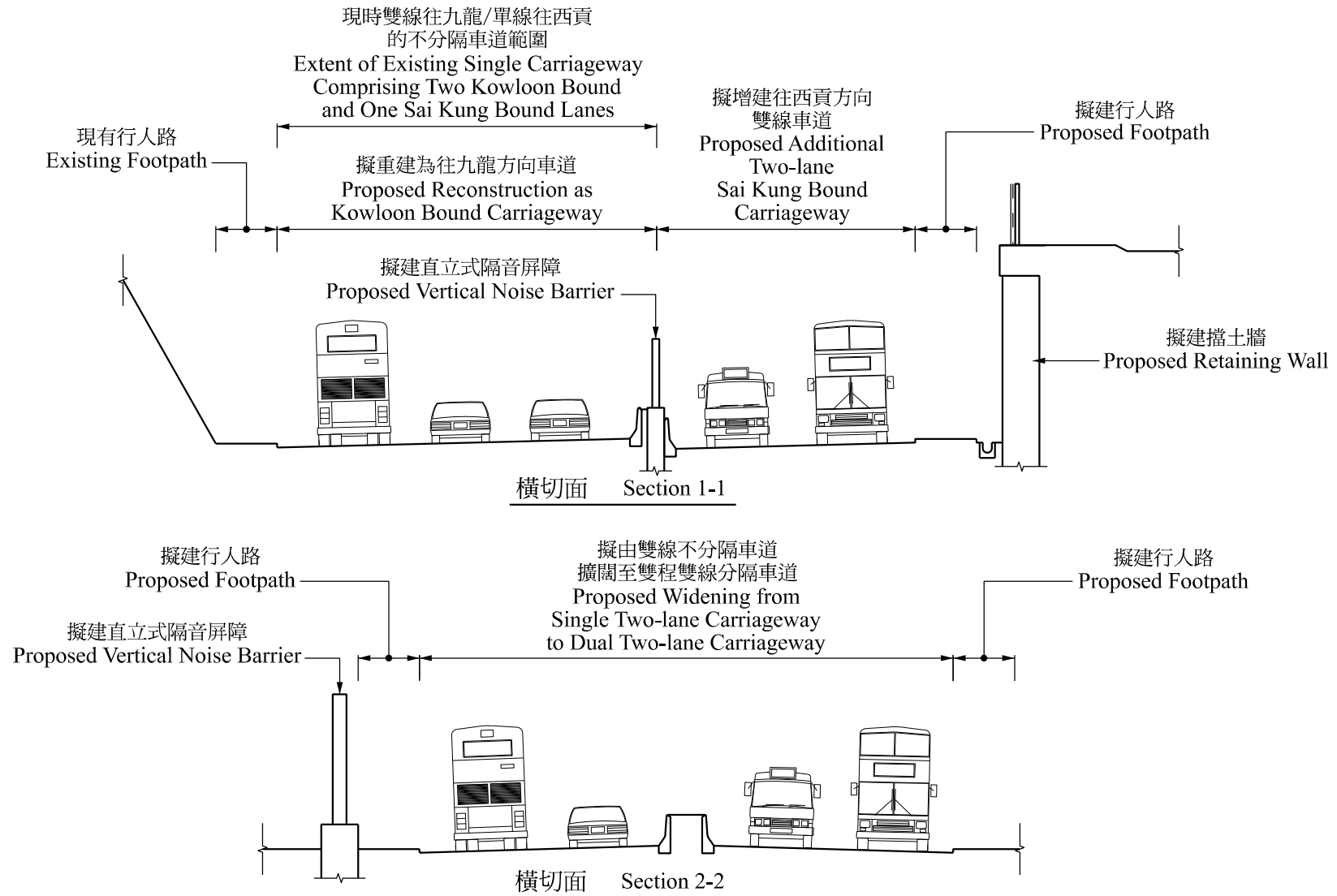
- 施工區界限  
Works boundary
- 擬重建/擴闊的道路  
Proposed reconstruction / widening of road
- 擬擴闊、重新定線並延建的道路  
Proposed widening, realignment and extension of existing Road
- 擬建造一條連行人道的行車橋，並清拆現有連行人道的行車橋  
Proposed construction of vehicular bridge with walkway, and demolition of existing one
- 擬建斜坡/擋土牆  
Proposed slopes / retaining walls
- 擬建單懸臂式隔音屏障  
Proposed single-leaf cantilever noise barriers
- 擬建直立式隔音屏障  
Proposed vertical noise barriers

工務計劃項目第 6703TH 號  
清水灣道與匡湖居之間的一段西貢公路分隔車道工程及  
蠔涌區內通路改善工程 - 平面圖 (二張中的第二張)  
PWP Item No. 6703TH  
Dualling of Hiram's Highway between Clear Water Bay Road and Marina Cove  
and Improvement to Local Access to Ho Chung  
- Layout Plan (Sheet 2 of 2)

圖則編號 plan no.	比例 scale
HMW6703TH-SK0036	1:5000 或圖示 Or As Shown

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	HIGHWAYS DEPARTMENT HONG KONG	路政署
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圖則名稱 plan title

工務計劃項目第6703TH號  
清水灣道與匡湖居之間的一段西貢公路分隔車道工程及蠔涌區內通路改善工程 - 切面圖  
PWP Item No. 6703TH  
Dualling of Hiram's Highway Between Clear Water Bay Road and Marina Cove  
and Improvement to Local Access to Ho Chung - Sections

圖則編號 plan no.

HMW6703TH-SK0037

比例 scale

示意圖  
DIAGRAMMATIC

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HIGHWAYS  
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**Enclosure 2**

**703TH – Dualling of Hiram’s Highway between  
Clear Water Bay Road and Marina Cove and  
Improvement to Local Access to Ho Chung**

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

		<b>Estimated man- months</b>	<b>Average MPS* salary point</b>	<b>Multiplier (Note 1)</b>	<b>Estimated fee (\$ million)</b>
(a) Consultants’ fees for contract administration (Note 2)	Professional	–	–	–	1.6
	Technical	–	–	–	0.5
				Sub-total	2.1
(b) Resident site staff costs (Note 3)	Professional	719	38	1.6	82.1
	Technical	2,017	14	1.6	78.7
				Sub-total	160.8
Comprising –					
(i)	Consultants’ fee for managing resident site staff				4.1
(ii)	Remuneration of resident site staff				156.7
(c) Environmental Monitoring and Audit programme	Professional	–	–	–	0.35
	Technical	–	–	–	0.35
				Sub-total	0.7
				<b>Total</b>	<b>163.6</b>

\* MPS = Master Pay Scale

Notes:

1. A multiplier of 1.6 is applied to the average MPS point to estimate the cost of resident site staff supplied by the consultants. (As at now, MPS salary point 38 = \$71,385 per month and MPS salary point 14 = \$24,380 per month.)
2. The consultants' staff cost for contract administration is calculated in accordance with the existing consultancy agreement for the design and construction of **703TH**. The construction phase of the assignment in respect of the works will only be executed subject to the Finance Committee's approval to upgrade **703TH** to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.



**703TH – Dualling of Hiram’s Highway between  
Clear Water Bay Road and Marina Cove and  
Improvement to Local Access to Ho Chung**

**Breakdown of land resumption and clearance cost**

	(\$ million)
<b>(I) Estimated resumption cost</b>	<b>53.66</b>
(a) Agricultural land ex-gratia compensation 73 agricultural lots [with a total area of 104 282 square feet (ft <sup>2</sup> ) or 9 687.9 square metres (m <sup>2</sup> )] 57 097 ft <sup>2</sup> × \$606 per ft <sup>2</sup> (Zone B) 47 185 ft <sup>2</sup> × \$404 per ft <sup>2</sup> (Zone C) (Please see Notes below)	53.66
<b>(II) Estimated clearance cost</b>	<b>11.22</b>
(a) Ex-gratia allowance of crop compensation	0.1
(b) Ex-gratia allowance for farm structures and miscellaneous permanent improvements to farms	0.1
(c) Ex-gratia allowance for miscellaneous indigenous villager matters, e.g. removal of graves and shrines and Tun Fu ceremonies	0.02
(d) Ex-gratia allowance for domestic occupiers and business undertakings	11.0
<b>(III) Interest and contingency payment</b>	<b>6.53</b>
(a) The interest payment on various ex-gratia compensation for private land @0.001%	0.04
(b) Contingency on the above costs @10%	6.49
<b>Total</b>	<b><u>71.41</u></b>

Notes:

1. There are four ex-gratia compensation zones, namely Zones A, B, C and D, for land resumption in the New Territories as approved by the Executive Council in 1985 and 1996. The boundaries of these zones are shown on the Zonal Plan for Calculation of Compensation Rates. The land to be resumed under **703TH** is agricultural land currently within Compensation Zones B, C and D. As this project involves area improvement, upgrading of land currently within Zone D to Zone C is being considered in accordance with established mechanisms.
2. In accordance with G.N. 5692 dated 24 September 2014 on the revised ex-gratia compensation rates for resumed land, the ex-gratia compensation rate of agricultural land for Zone B is 75% of the Basic Rate at \$808 per square foot, i.e. \$606 per square foot, and that for Zone C is 50% of the Basic Rate at \$808 per square foot, i.e. \$404 per square foot.