

For discussion
on 15 December 2008

PWSC(2008-09)50

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 707 – NEW TOWNS AND URBAN AREA DEVELOPMENT
New Territories East Development
Transport – Roads
823TH – Tseung Kwan O – Lam Tin Tunnel

Members are invited to recommend to Finance
Committee -

- (a) the upgrading of part of **823TH**, entitled
“Tseung Kwan O – Lam Tin Tunnel –
investigation and preliminary design”, to
Category A at an estimated cost of
\$198.9 million in money-of-the-day prices; and
- (b) the retention of the remainder of **823TH** in
Category B.

PROBLEM

We need to carry out site investigation and preliminary design for the proposed Tseung Kwan O – Lam Tin Tunnel (TKO-LT Tunnel) which will connect Tseung Kwan O (TKO) with Kowloon in order to cope with the anticipated traffic demand as TKO further develops and to provide necessary relief to the existing heavily trafficked TKO Tunnel.

/PROPOSAL

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Transport and Housing, proposes to upgrade part of **823TH** to Category A at an estimated cost of \$198.9 million in money-of-the-day (MOD) prices to engage consultants to undertake the investigation and preliminary design (I&PD) and the associated site investigation works for the TKO-LT Tunnel.

PROJECT SCOPE AND NATURE

3. The scope of **823TH** (the Project) comprises -
- (a) a dual two-lane highway of approximately 4.8 kilometres (km) long connecting TKO at Po Yap Road in the east with Trunk Road T2 in Kai Tak Development in the west. About 3.0 km of the highway is in the form of tunnel;
 - (b) a toll plaza, ventilation and administration buildings, and other tunnel portal facilities together with the associated reclamation in TKO;
 - (c) slip roads and branch tunnels on Kowloon side for connecting the TKO-LT Tunnel and Trunk Road T2 to Eastern Harbour Crossing and Cha Kwo Ling Road; and
 - (d) the associated building, civil, structural, marine, electrical and mechanical, landscaping, and environmental protection and mitigation works.

_____ A location plan showing the preliminary alignment of the TKO-LT Tunnel is at Enclosure 1.

4. The part of the Project we now propose to upgrade to Category A comprises –

/(a)

- (a) an investigation study comprising –
 - (i) a review of the findings of previous studies and design options; and
 - (ii) impact assessments on environment, traffic, marine, heritage and other related aspects;
- (b) the preliminary design of the works described in paragraph 3 above; and
- (c) associated site investigations and works supervision.

5. We plan to start the I&PD study of the Project in March 2009 for completion in May 2011. We intend to start the construction works in late 2012 for completion in 2016. The cost of the Project is about \$5.9¹ billion.

JUSTIFICATION

6. At present, the TKO-Tunnel is the main connection between TKO and other areas in the territory. The Feasibility Study for Further Development of Tseung Kwan O (the “TKO Study”) completed in 2005 recommended a new external road network (comprising the TKO-LT Tunnel and Cross Bay Link) for meeting the long-term transport needs of TKO. According to the traffic impact assessment of the TKO Study, the existing TKO Tunnel would experience serious congestion after 2016 if an alternative external road connection is not provided. The projected volume/capacity (v/c) ratios² during the peak hours at the existing TKO Tunnel with and without the Project are shown in the following table-

Year	v/c Ratio Without the TKO-LT Tunnel	v/c Ratio With the TKO-LT Tunnel
2011	1.17	--
2016	1.22	0.94
2021	1.36	1.00

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¹ Please refer to Paragraph 15 for possible increase in project cost for adoption of the tunnel option.

² A volume/capacity (v/c) ratio is normally used to reflect traffic situation during peak hours. A v/c ratio equals to or less than 1.0 is considered acceptable. A v/c ratio above 1.0 indicates the onset of mild congestion and a v/c ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A v/c ratio above 1.2 indicates the onset of more serious congestion.

It is therefore necessary to complete the TKO-LT tunnel around 2016 to meet the anticipated traffic generated from further population intake and industrial development of TKO.

7. The TKO-LT Tunnel, together with the proposed Trunk Road T2 in Kai Tak Development and Central Kowloon Route, will form Route 6 in the strategic road network. Route 6 will provide an east-west express link between Kowloon and TKO areas. Upon completion in 2016, this strategic route will also provide the necessary relief to the existing heavily trafficked road network in the central and eastern Kowloon areas, and reduce the related environmental impacts on these areas. A location plan showing the indicative alignment of Route 6 is at Enclosure 2.

8. The proposed I&PD study is to determine the design options, general layout, land requirements and impacts of the Project. We will carry out an environmental impact assessment (EIA) in association with the I&PD study in order to identify the environmental impacts and the mitigation measures required, including those related to heritage preservation. We will also carry out site investigation works to provide geotechnical and geological information for related design works. As the Civil Engineering and Development Department does not have the necessary in-house resources, we need to employ consultants to undertake the I&PD study and the supervision of site investigation works.

FINANCIAL IMPLICATIONS

9. We estimate the cost of the I&PD study and the associated site investigations to be \$198.9 million in MOD prices (see para. 10 below), made up as follows –

	\$ million
(a) Consultants' fees	64.2
(i) review of the findings of previous studies and design options	8.2
(ii) impact assessments (environmental, traffic, marine, heritage, etc.)	21.7
(iii) preliminary design	24.4
	/(iv)

	(iv) supervision of site investigations	9.9	
(b)	Site investigations	99.5	
(c)	Contingencies	16.4	
		Sub-total	180.1 (in September 2008 prices)
(d)	Provision for price adjustment	18.8	
		Total	198.9 (in MOD prices)

_____ A breakdown by man-months of the estimate for consultants' fees is at Enclosure 3.

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

Year	\$ million (Sept 2008)	Price adjustment factor	\$ million (MOD)
2009 – 10	27.6	1.04000	28.7
2010 – 11	77.9	1.08160	84.3
2011 – 12	39.5	1.12486	44.4
2012 – 13	23.8	1.16986	27.8
2013 – 14	11.3	1.21665	13.7
	180.1		198.9

/11.

11. We have derived the MOD estimates on the basis of the Government's latest forecast of the trend rate of change in the prices of public sector building and construction output for the period 2009 to 2014. We will engage consultants to undertake the I&PD study on a lump sum basis with provision for price fluctuations as the duration of the consultancy agreement will exceed 12 months. We will tender the proposed site investigation works under a standard re-measurement contract because the quantity of works involved may vary depending on actual ground conditions. The contract for site investigation works will provide for price adjustments.

12. The proposed I&PD study and the associated site investigation works will not give rise to any recurrent expenditure.

PUBLIC CONSULTATION

13. We consulted the Sai Kung District Council (SKDC) on 5 June 2007. Members raised a number of requests, mainly on the deletion of the proposed flyover at the junction of Po Yap Road and Po Shun Road and the provision of a connection to Junk Bay Chinese Permanent Cemetery. We have addressed members' above requests by replacing the proposed flyover with a signalized junction and making allowance for vehicular connection points to Junk Bay Chinese Permanent Cemetery in the layout design. We consulted the SKDC again on 22 January 2008 with the above amendments. Members welcomed the proposed amendments and supported the early implementation of the Project.

14. We consulted the Kwun Tong District Council (KTDC) on 17 May 2007 and the villagers' organizations of Cha Kwo Ling Village (CKLV) on 21 June 2007. The scheme of the Kowloon section of the TKO-LT Tunnel originally took the form of a depressed road option. The KTDC members raised concerns on the clearance of part of CKLV and suggested this section of road be designed in tunnel form. The villagers' organizations also expressed serious concerns over the depressed road proposal and strongly urged for the road section at CKLV be changed to tunnel form to preserve the integrity of the village community.

15. We took into consideration of the concerns of the KTDC and villagers' organizations in preserving the village community and proposed an alternative scheme of a tunnel option at CKLV. This scheme involves constructing a tunnel in close proximity to CKLV, Sai Tso Wan Landfill and MTR Rail Line together with additional branch tunnels. We consulted the KTDC again on 6 May 2008 with the tunnel option and informed them that the tunnel option may cost up to \$2 billion more than the depressed road option. We also informed the KTDC that two slip roads from Cha Kwo Ling Road and Eastern Harbour Crossing to Trunk Road T2 cannot be provided under the tunnel option, and the traffic from these roads to West Kowloon through Central Kowloon Route would have to use the existing roads i.e. Kwun Tong By-pass and Kai Fuk Road. We would investigate the geological conditions in the subsequent investigation stage and confirm its feasibility. As the tunnel option can avoid the clearance of CKLV and preserve the village community, the KTDC welcomed this alternative and supported the early implementation of the Project.

16. We consulted the villagers' organizations again on 14 May 2008. While noting the preservation of the village community, some lot owners raised concerns on the potential impact of the tunnel option on the redevelopment rights of their existing land lots. They considered the tunnel option would prevent the provision of deep foundation needed to support possible high rise buildings on their lots upon redevelopment. They suggested the Administration to further review the alignment. The CKL Villagers Fraternity Association, a villagers' organisation, also expressed concerns on the possible impact of the tunnel option to the village's 'Fung Shui'. We noted their latest views and would study their concerns and maintain close dialogue with them in the next investigation stage.

17. We consulted the Legislative Council Panel on Transport on 28 November 2008. The Panel supported the proposal in paragraph 2 above.

ENVIRONMENTAL IMPLICATIONS

18. The proposed TKO-LT Tunnel is a designated project under schedule 2 of the EIA Ordinance. An environmental permit is required for the construction and operation of the Project. We will carry out an EIA study to address the potential environmental impacts of the Project. We will submit the EIA report to the Director of Environmental Protection for approval under the EIA Ordinance and will follow the statutory procedures of making the EIA report available for comments by the public and the Advisory Council on the Environment.

19. The proposed I&PD study will not give rise to any adverse environmental implications. We will implement standard environmental pollution control measures to manage the environmental impacts of the associated site investigation works. We will incorporate into the detailed design and relevant works contracts all the mitigation measures required and an Environmental Monitoring & Audit programme as recommended in the EIA report.

20. The proposed site investigation works will only generate very little construction waste. We will require the consultants to fully consider measures to minimize the generation of construction waste and to reuse/recycle construction waste as much as possible in the future implementation of the construction projects.

HERITAGE IMPLICATIONS

21. The proposed I&PD study and its associated site investigation works will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interests and Government historic sites identified by the Antiquities and Monuments Office. We will investigate in the I&PD study if the Project will affect any heritage site.

LAND ACQUISITION

22. The proposed I&PD study and the associated site investigation works do not require land acquisition and clearance.

BACKGROUND INFORMATION

23. In 2002, we engaged consultants under **683CL** “Feasibility Study for Further Development of Tseung Kwan O” to carry out the TKO Study which aims at formulating a comprehensive plan for further development of TKO. It recommends to further develop TKO to house a total population of 450 000 besides the district’s continuous commercial and industrial developments. To cope with the anticipated transport need, the TKO Study recommended the provision of TKO-LT Tunnel and Cross Bay Link to meet the long term traffic demand between TKO and the external areas. The TKO Study was substantially completed in end 2005.

24. Under the TKO Study, the original design of the Kowloon section of the TKO-LT Tunnel was a viaduct above CKLV connecting to the Trunk Road T2 in Kai Tak Development. In the light of the Court of Final Appeal (CFA)'s Judgement on a judicial review³ in January 2004 on reclamation, the alignment of the proposed Trunk Road T2 was revised to an immersed tube tunnel below seabed. To align with this change, the road scheme for the TKO-LT Tunnel was subsequently revised in 2006 by adopting a different alignment. This road scheme requires crossing the CKLV in depressed road for connection to the Trunk Road T2. After consultation with the Kwun Tong District Council in May 2007, we suggested including the alternative tunnel option in the I&PD study which might avoid clearance of CKLV.

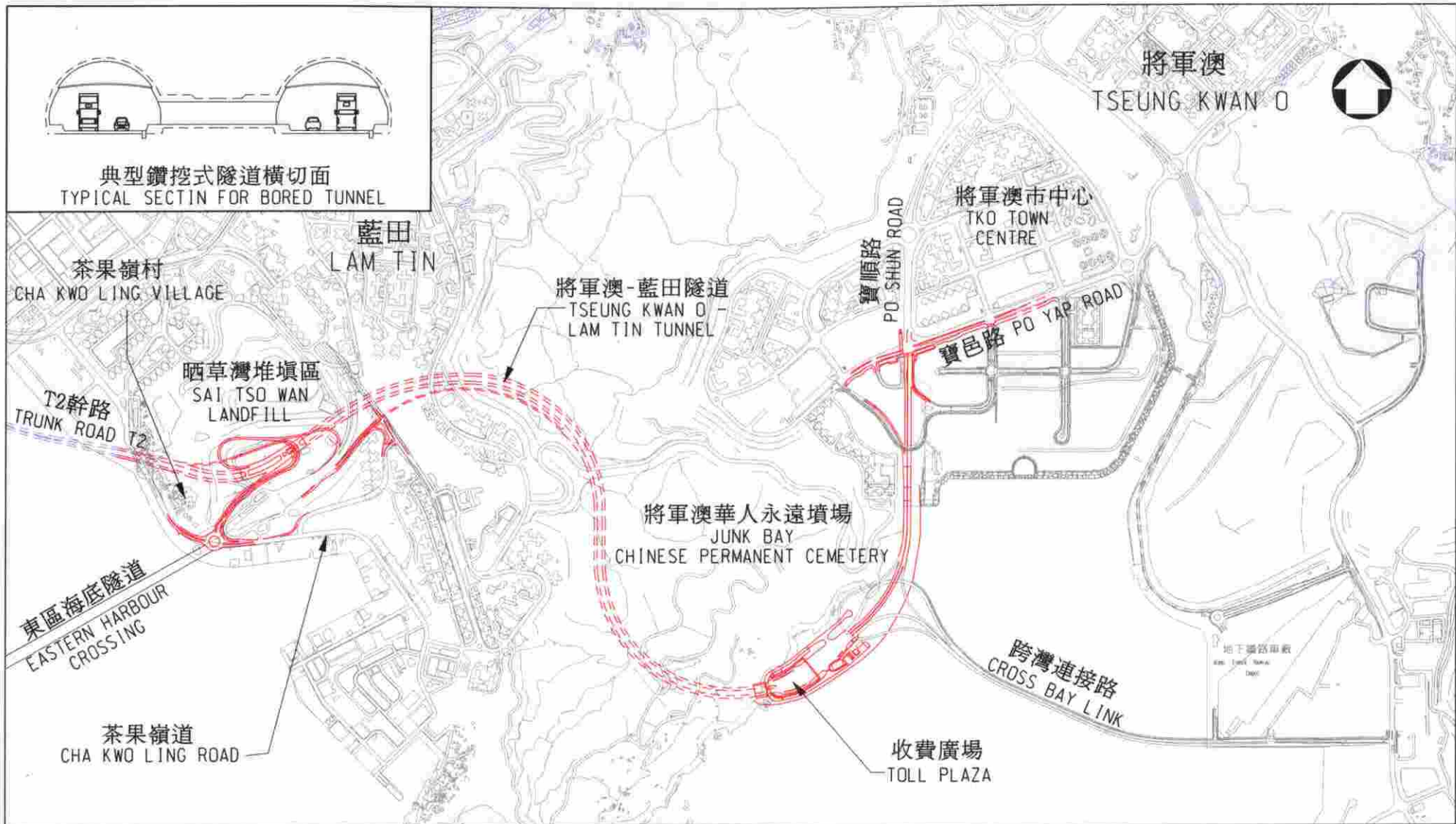
25. We upgraded **823TH** to Category B in April 2007.

26. The proposed I&PD study and its associated site investigation works will not involve any tree removal or planting proposals. We will require the consultants to take into consideration the need for tree preservation during the I&PD study and subsequent detailed design stage of the Project. We will also incorporate tree planting proposals, where possible, in the construction phase.


27. We estimate that the proposed I&PD study and its associated site investigation works will create about 119 jobs (62 labourers and 57 professional /technical staff), providing a total employment of 2 200 man-months.

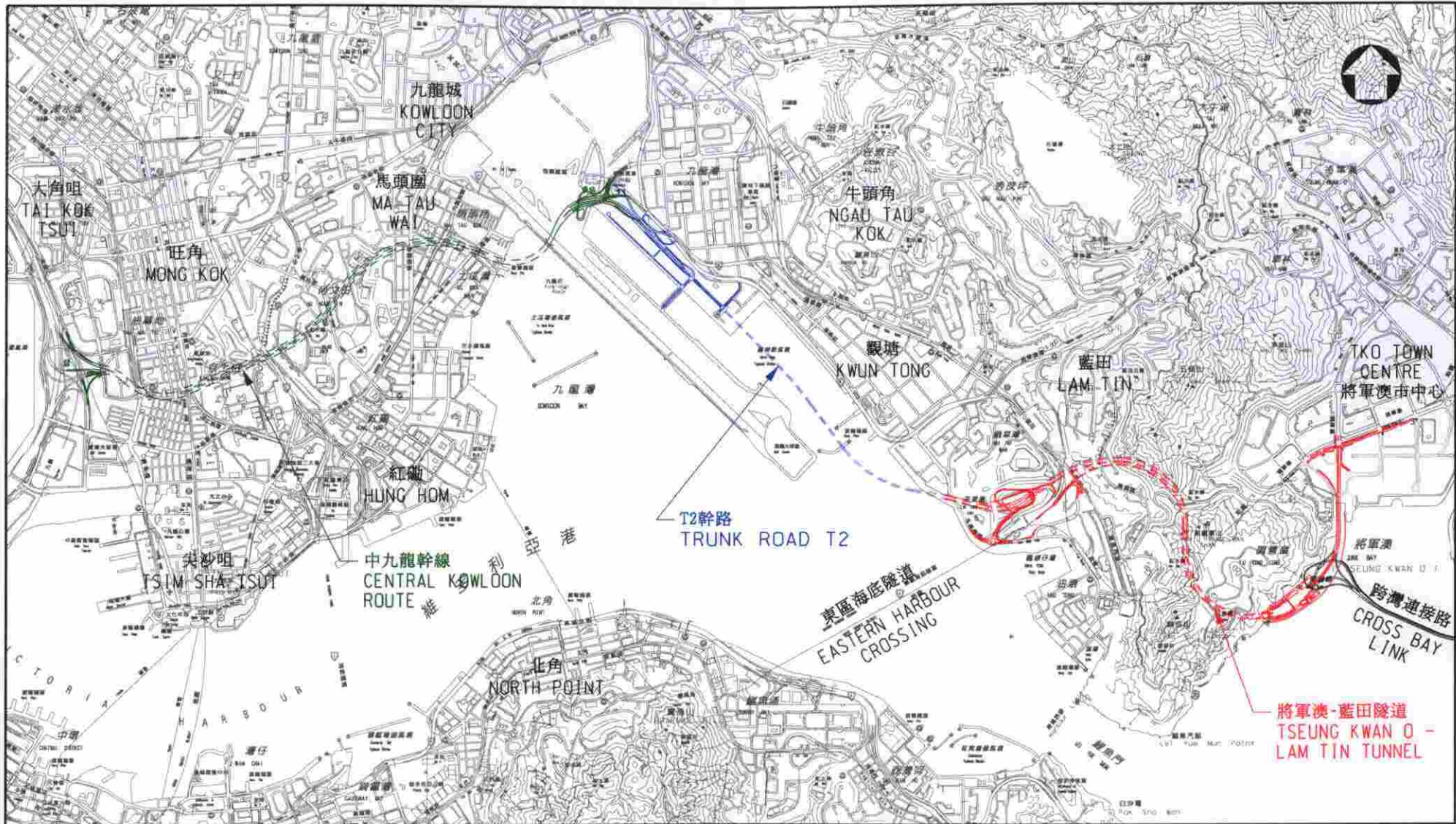
Transport and Housing Bureau
December 2008

³ The judicial review applied by the Society for Protection of the Harbour in February 2003.



二〇〇八年至二〇〇九年度工務小組委員會文件 P.W.S.C. SUBMISSION 2008-2009

圖則名稱 drawing title 工務計劃第823TH號 - 將軍澳-藍田隧道 - 位置圖 PWP ITEM NO. 823TH - TSEUNG KWAN O - LAM TIN TUNNEL - LOCATION PLAN	繪圖 drawn Y W LO	簽署 initial SIGNED	日期 date 2.12.08	項目編號 item no. 823TH	辦事處 office 新界東拓展處 NEW TERRITORIES EAST DEVELOPMENT OFFICE
	核對 checked C H CHAN	簽署 initial SIGNED	日期 date 2.12.08	比例 scale 1 : 20 000	
	批准 approved W M WONG	簽署 initial SIGNED	日期 date 2.12.08	圖則編號 drawing no. TK2350	 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT



二〇〇八年至二〇〇九年度工務小組委員會文件 P.W.S.C. SUBMISSION 2008-2009

圖則名稱 drawing title

六號幹線示意走線位置圖
LOCATION PLAN OF THE INDICATIVE
ALIGNMENT OF ROUTE 6

繪圖 drawn

Y W LO

簽署 initial

SIGNED

日期 date

2.12.08

項目編號 item no.

823TH

辦事處 office

新界東拓展處

NEW TERRITORIES EAST
DEVELOPMENT OFFICE

核對 checked

C H CHAN

簽署 initial

SIGNED

日期 date

2.12.08

比例 scale

1 : 40 000

核准 approved

W M WONG

簽署 initial

SIGNED

日期 date

2.12.08

圖則編號 drawing no.

TK2351



土木工程拓展署
CIVIL ENGINEERING
AND DEVELOPMENT
DEPARTMENT

附件二

Enclosure 2

Enclosure 3 to PWSC(2008-09)50

823TH – Tseung Kwan O – Lam Tin Tunnel

Breakdown of the estimates for consultants' fees (in September 2008 prices)

Consultants' staff costs		Estimated man- months	Average MPS* salary point	<small>(Note 1)</small> Multiplier	Estimated fees (\$ million)	
(a)	Review of the findings of previous studies and design options <small>(Note 2)</small>	Professional	48	38	2.0	5.8
		Technical	60	14	2.0	2.4
(b)	Impact assessments (environmental, traffic, marine, heritage, etc.) <small>(Note 2)</small>	Professional	127	38	2.0	15.4
		Technical	160	14	2.0	6.3
(c)	Preliminary Design <small>(Note 2)</small>	Professional	142	38	2.0	17.2
		Technical	182	14	2.0	7.2
(d)	Supervision of site investigations <small>(Note 2)</small>	Professional	48	38	1.6	4.6
		Technical	167	14	1.6	5.3
Total					64.2	

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 and 1.6 is applied to the average MPS point to estimate the cost of consultants' staff and resident site staff supplied by the consultants respectively. (As at 1 April 2008, MPS pt. 38 = \$60,535 per month and MPS pt. 14 = \$19,835 per month.)
2. The actual man-months and fees will only be known when we have selected the consultants through the usual competitive bid system.