

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 705 – CIVIL ENGINEERING

Transport – Roads

793TH – Improvement to Sunny Bay Interchange

Members are invited to recommend to Finance Committee the upgrading of **793TH** to Category A at an estimated cost of \$598.7 million in money-of-the-day prices for the improvement works to Sunny Bay Interchange.

PROBLEM

We need to enhance the connectivity of the Sunny Bay area and to provide an alternative access for traffic going to and from Kowloon and the Penny's Bay area in case of emergency closure or traffic disruption at Penny's Bay Highway.

PROPOSAL

2. The Director of Civil Engineering and Development, with the support of the Secretary for Transport and Housing, proposes to upgrade **793TH** to Category A at an estimated cost of \$598.7 million in money-of-the-day (MOD) prices for the improvement works to Sunny Bay Interchange.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of **793TH** comprises –
- (a) construction of two single two-lane elevated carriageways with a total length of about 2 kilometres (km);
 - (b) construction of at-grade roads of about 500 metres (m) and a roundabout connecting the elevated carriageways mentioned in paragraph 3(a) above;
 - (c) reclamation works for the formation of about 3 hectares (ha) of land at Sunny Bay for the construction works mentioned in paragraphs 3(a) and 3(b) above;
 - (d) construction of a seawall of about 600 m long;
 - (e) ancillary works including drainage works, landscaping works and traffic control and surveillance system (TCSS); and
 - (f) implementation of environmental mitigation measures during the construction period.

———— A site plan showing the proposed works is at Enclosure 1.

4. We plan to commence the construction works in June 2008 for completion in April 2011.

JUSTIFICATION

5. The infrastructure works at the Penny's Bay area including Penny's Bay Highway (PBH) and Inspiration Lake Recreation Centre were completed in 2005 and an international theme park was opened to the public in 2005. At present, the Penny's Bay area is only served by PBH which connects to North Lantau Highway (NLH). In case there is any incident causing blockage on PBH, traffic going to and from the Penny's Bay area will need to use NLH, local roads at Tung Chung, Cheung Tung Road and Sunny Bay Road as an alternative access. Enclosure 2 illustrates this alternative route.

6. To use the current alternative route, traffic will suffer from a detour of about 20 km and an additional journey time of about 20 minutes. The proposed road works will provide a complementary connection to and from the Penny's Bay area, which will reduce the detour distance to about 2.5 km. The proposed new access will help to minimize the detour time and disturbance to tourists' itinerary in case there is blockage on PBH.

7. In addition, the road scheme will enhance the access to the vicinity of the Sunny Bay Public Transport Interchange. Without the proposed new roads, traffic going to this area from NLH will need to go through PBH, the Penny's Bay area and Sunny Bay Road, which is also considered a very inconvenient route.

8. For the purpose of monitoring and controlling the traffic flow, we will install a TCSS comprising closed circuit television cameras with associated communication and installation equipment, lane control signals and variable message signs at appropriate locations.

FINANCIAL IMPLICATIONS

9. We estimate the capital cost of this project to be \$598.7 million in money-of-the-day (MOD) prices (see paragraph 11 below), made up as follows –

	\$ million
(a) Elevated carriageways	311.0
(b) At-grade road	15.3
(c) Seawall and reclamation	122.3
(d) Drainage works	8.2
(e) Landscaping works	10.5
(f) TCSS	10.1

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(g)	Environmental mitigation and monitoring measures		8.1	
(h)	Consultants' fees for		51.8	
	(i) contract administration	3.5		
	(ii) resident site staff costs	46.3		
	(iii) environmental monitoring and audit (EM&A) programme	2.0		
(i)	Contingencies		<u>48.5</u>	
		Sub-total	<u>585.8</u>	(in September 2007 prices)
(j)	Provision for price adjustment		12.9	
		Total	<u>598.7</u>	(in MOD prices)

10. We propose to engage consultants to supervise the proposed works and implement an EM&A programme. A breakdown by man-months of the estimates for consultants' fees is at Enclosure 3.

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

Year	\$ million (Sep 2007)	Price Adjustment Factor	\$ million (MOD)
2008 – 2009	59.6	1.00750	60.0
2009 – 2010	271.0	1.01758	275.8
2010 – 2011	217.6	1.02775	223.6
2011 – 2012	23.7	1.03803	24.6
2012 – 2013	13.9	1.05619	14.7
	<u>585.8</u>		<u>598.7</u>

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12. We have derived the MOD estimate 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 2008 to 2013. The contract will provide for price adjustment as the duration of the contract will exceed 21 months.

13. We estimate the annual recurrent expenditure upon the completion of the project to be about \$2.5 million.

PUBLIC CONSULTATION

14. We consulted the Tsuen Wan District Council on 31 May 2005. Some members raised concerns over the rights of the fisheries and requested the Administration to consult the Ma Wan Fisheries Rights Association Limited (MWFRAL) on the project.

15. We consulted the MWFRAL on 29 June 2005 and 25 July 2005; and the Hong Kong and Kowloon Timber Merchants Association, representing the operators of the existing log ponds off Sunny Bay, on 14 June 2005, 21 July 2005 and 2 December 2005. We have adopted most of their suggestions in our work plan, including the maintenance of marine traffic and close liaison with them throughout the construction period.

16. We gazetted the proposed road scheme under the Roads (Works, Use and Compensation) Ordinance (the Ordinance) on 25 November 2005 and received one objection. The objector expressed concern that the proposed reclamation works at Sunny Bay would cause serious contamination to the seawater and demanded that the government should grant ex-gratia allowance (EGA) to all the mariculturists within 10 km of the site.

17. We met the objector and explained that we would implement mitigation measures in accordance with the EM&A Manual approved by the Director of Environmental Protection and closely supervise the reclamation works to keep the impact on water quality within the approved allowable limits. We also explained to the objector that the granting of any EGA affected by marine works projects could only be based on the eligibility criteria approved by the Finance Committee of the Legislative Council on 1 December 2000. Notwithstanding our explanation, the objector did not withdraw his objection.

18. Having considered the unresolved objection, the Chief Executive-in-Council authorized the proposed works under the Ordinance on 9 May 2006. The notice of authorization was gazetted on 19 May 2006.

19. We consulted the Legislative Council Panel on Transport on 20 July 2007 on the proposed works. At the meeting, some members were concerned about the environmental impacts of the proposed reclamation and queried if the proposed roads could be constructed on elevated structures supported on piles driven into the seabed instead. Subsequently, we carried out a further review of the project scheme to examine the benefits with the option of elevated structures. Our review showed that while the construction of elevated structures was technically feasible, there would be significant drawbacks for the proposal when compared with the reclamation proposal. In particular, the elevated structures would be visually intrusive and the estimated cost of works would increase by about \$158.6 million (in September 2007) prices. The review concluded that the current proposed road scheme could not be improved by means of using elevated structures.

20. Another member at the Panel meeting requested the forecast of the number of vehicles to justify the need of the proposed roads. We wish to reiterate that the proposed roads are justified on the grounds set out in paragraphs 5 to 7 above in order to provide an alternative access to the Penny's Bay area and enhance the access to the Sunny Bay area. It is anticipated that the road network in the area would be able to cope with the traffic demand in future. Traffic forecast is not a key justification for this project.

21. We reported the findings of the review as set out in paragraphs 19 and 20 above to the Panel on Transport on 18 December 2007. Members supported the implementation of the project.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

22. The project is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and an environmental permit is required for the construction and operation of the project. The key environmental concerns are water quality and ecological impact. A statutory EIA was completed in July 2005 and the EIA report concluded that the environmental impacts of the project could be controlled to within the criteria under the EIA Ordinance and the Technical Memorandum on EIA Process. The Director of Environmental Protection approved the EIA report on 6 September 2005 and issued an environmental permit for the designated project on 10 October 2005. We will implement the measures recommended in the approved EIA report. The key measures include the control on the rates and methods of reclamation for the proposed reclamation works at Sunny Bay. We estimate the cost of implementing the environmental monitoring and mitigation measures to be \$8.1 million (in September 2007 prices). We have included this cost in the overall project estimate.

23. During construction, we will keep noise, dust and site run-off nuisance within established standards and guidelines through the implementation of appropriate mitigation measures in the works contract. We will also implement an EM&A programme to ensure timely and effective implementation of the recommended mitigation measures.

24. We will deploy framed type silt curtains to fully enclose any grab dredgers and, if necessary, additional floated type silt curtains at the eastern and western ends of the reclamation area to contain sediment loss. All filling activities for the reclamation will be carried out with a minimum 100 m lead length behind seawalls unless prior written approval from the Director of Environmental Protection is obtained.

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25. We have considered the design of the layout of the proposed reclamation, and the levels and alignments of the proposed roads in the planning and design stages to reduce the generation of construction waste where possible. In addition, we will require the contractor to reuse suitable excavated soil on site as far as possible, in order to minimize the disposal of inert construction waste to public fill reception facilities¹. We will encourage the contractor to maximize the use of recycled or recyclable inert construction waste, as well as the use of non-timber formwork to further minimize the generation of construction waste.

26. We will also 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 require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert construction waste and non-inert construction waste to public fill reception facilities and landfills respectively through a trip-ticket system.

27. We estimate that the project will generate in total about 84 300 tonnes of construction waste. Of these, we will reuse about 75 130 tonnes (89%) of inert construction waste on site and dispose of about 9 170 tonnes (11%) of non-inert construction waste at landfills. The reclamation works for the project will receive public fill of about 522 500 tonnes out of which about 123 500 tonnes will be used for surcharge on top of the reclamation area. After completion of the surcharging period, the surcharge materials will be delivered to public fill reception facilities or other suitable projects for subsequent use. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be about \$4.5 million for this project (based on a unit cost of \$27/tonne for disposal at public fill reception facilities and \$125/tonne² at landfills).

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¹ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of public fill in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

² This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90/m³), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

28. We estimate that the reclamation works will produce about 692 000 cubic metres (m³) of uncontaminated marine mud. There will be sufficient capacity in the marine disposal areas for disposal of this mud. In addition, about 8 000 m³ of contaminated mud generated by the project will be disposed of at the marine disposal facility at East of Sha Chau.

LAND ACQUISITION

29. We will resume about 44 square metres (m²) of land and create easements over the Mass Transit Railway Lot under the Roads (Works, Use and Compensation) Ordinance. No land acquisition and clearance cost will be required.

HERITAGE IMPLICATIONS

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

BACKGROUND INFORMATION

31. We upgraded **793TH** to Category B in 30 April 2007.

32. In December 1997, the Finance Committee approved the upgrading of **108AP** to Category A entitled “Northshore Lantau Development Feasibility Study” at an estimated cost of \$62.8 million in MOD prices. Under the Northshore Lantau Development Feasibility Study, the consultants completed the preliminary project feasibility study and preliminary design of the project of Road P1 between Sham Shui Kok and Sunny Bay in October 2001.

33. In November 2001, we engaged consultants to carry out a study to review the traffic needs for the development areas at Penny’s Bay and Sunny Bay. We have charged the cost of \$850,000 to **662CL** “Reclamation of Penny’s Bay Stage 1 works, design of site formation at Yam O and design of associated infrastructure and government, institution and community facilities for the development of Hong Kong Disneyland Phase 1 on Lantau Island”. The consultants completed the study in July 2002.

/34.

34. In August 2002, we engaged consultants to carry out EIA study and detailed design for the proposed works. We have charged the cost of \$3.5 million to block allocation **Subhead 5101CX** "Civil engineering works, studies and investigations for items in Category D of the Public Works Programme". The consultants have completed the detailed design and drawings.

35. When we consulted the Panel on Transport on 18 December 2007 on the proposed works, the estimated project cost set out in the paper was \$541.4 million in September 2007 prices, or \$552.8 million in MOD prices. However, taking into account the recent abrupt escalation of works tender prices in the market due mainly to the significant increase in labour, structural steel and fuel prices, it is necessary to upward adjust the estimated project cost from \$552.8 million by \$45.9 million to \$598.7 million (all in MOD prices).

36. Of the 230 trees within the project boundary, 166 trees will be preserved. The proposed improvement to Sunny Bay Interchange will involve the removal of 64 trees including 3 to be felled and 61 to be transplanted and 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 estimated quantities of 210 trees, 184 290 shrubs and 8 440 m² of grassed area.

37. We estimate that the proposed works will create about 355 jobs (285 for labourers and another 70 for professional / technical staff) providing a total employment of 8 200 man-months.

Transport and Housing Bureau
January 2008

³ "Important trees" 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 over 100 years old;
- (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 exceeding 1.0 m (measured at 1.3 m above ground level), or with height/canopy spread equal or exceeding 25 m.

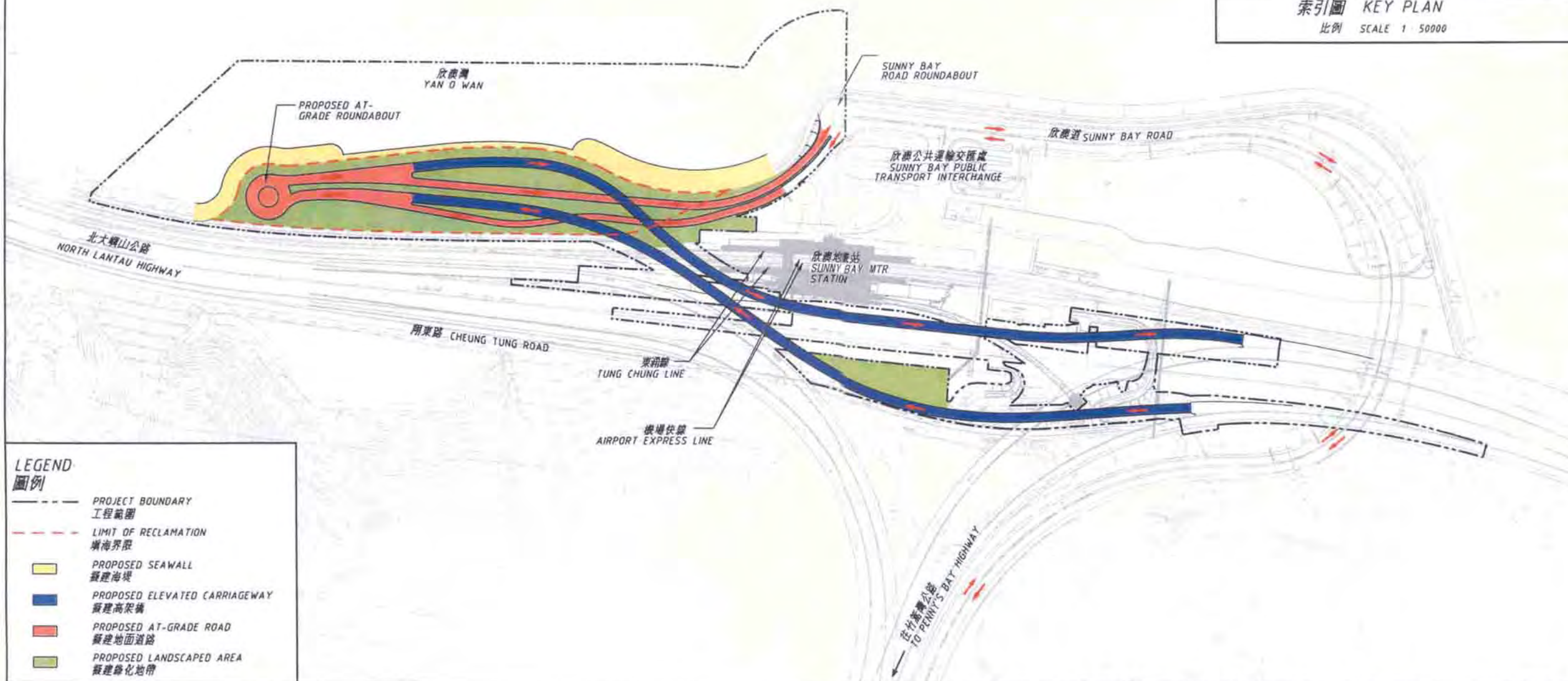


鹿頸村
LUK KENG TSUEN

長策
CHEUNG SOK



索引圖 KEY PLAN
比例 SCALE 1 : 50000



LEGEND
圖例

	PROJECT BOUNDARY 工程範圍
	LIMIT OF RECLAMATION 填海界限
	PROPOSED SEAWALL 擬建海堤
	PROPOSED ELEVATED CARRIAGEWAY 擬建高架橋
	PROPOSED AT-GRADE ROAD 擬建地面道路
	PROPOSED LANDSCAPED AREA 擬建綠化地帶

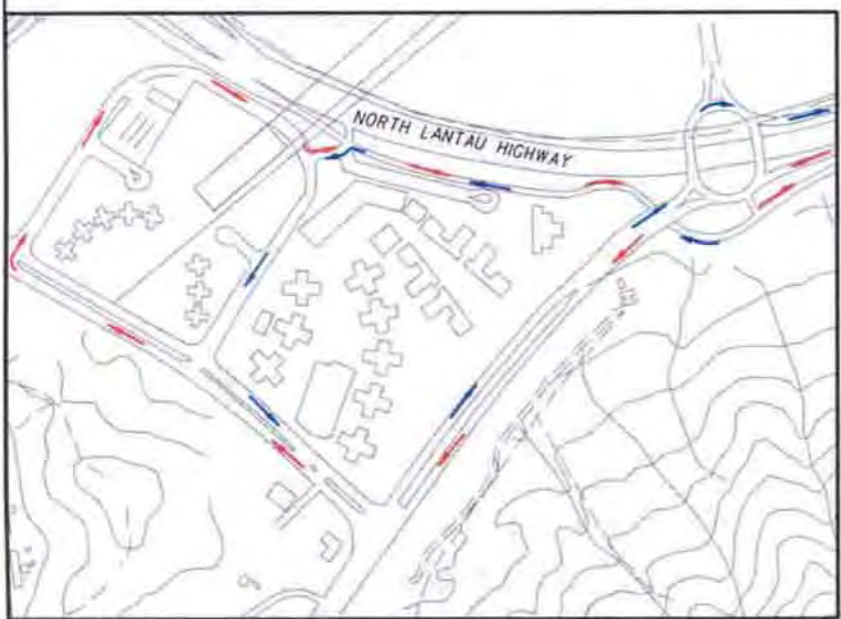
drawing title 圖則名稱

**PWP ITEM NO. 793TH - IMPROVEMENT TO SUNNY BAY INTERCHANGE
SITE PLAN**

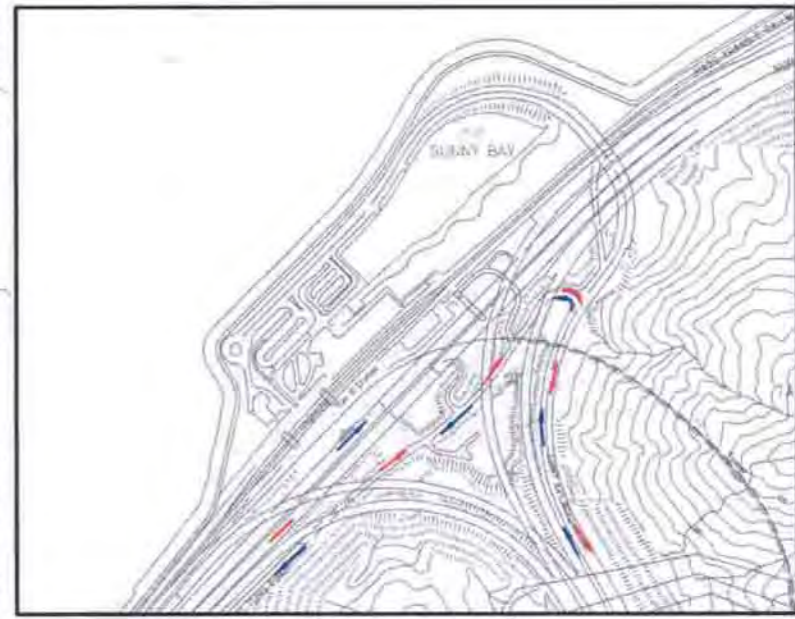
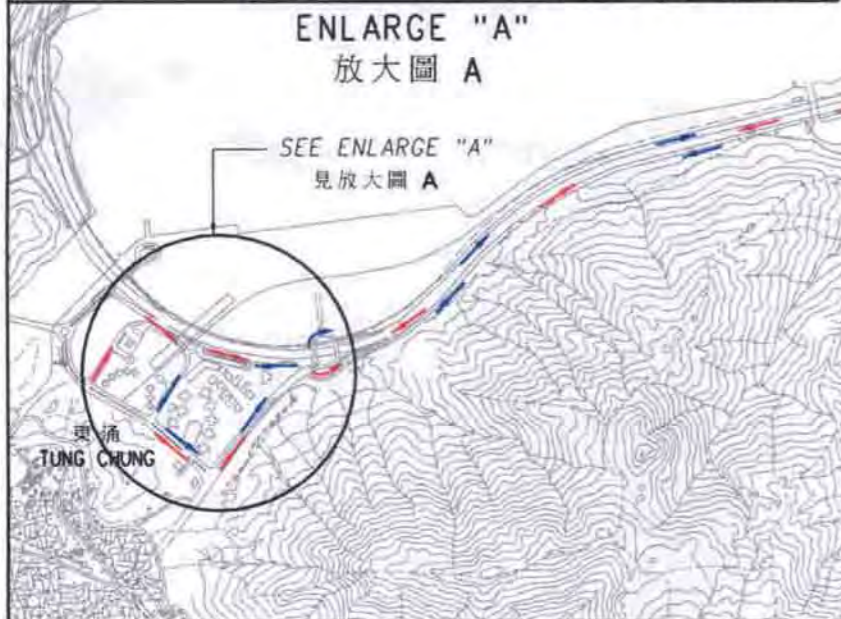
	name 姓名	initial 簽署	date 日期	drawing no. 圖則編號	scale 比例
designed 設計	W.M. IP	SIGNED	May 07	SD 2001-130	A3 1 : 4000
checked 核對	M.C. LEE	SIGNED	May 07		
approved 核准	C.M. CHAN	SIGNED	May 07		
office 辦事處	土木工程處 CIVIL ENGINEERING OFFICE			 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	

LEGEND :

- 圖例
- ALTERNATIVE ROUTE ENTERING PENNY'S BAY
進入竹篙灣的替代路線
 - ALTERNATIVE ROUTE EXITING PENNY'S BAY
離開竹篙灣的替代路線



ENLARGE "A"
放大圖 A



ENLARGE "B"
放大圖 B

drawing title 圖則名稱	name 姓名		initial 簽名	date 日期	drawing no. 圖則編號	scale 比例	
	designed 設計		W.M. IP	SIGNED			May 07
	checked 核對		M.C. LEE	SIGNED	May 07	SD 2001-131	A3 1 : 30000
	approved 核准		C.M. CHAN	SIGNED	May 07		
	office 辦事處		土木工程處 CIVIL ENGINEERING OFFICE				
ALTERNATIVE ROUTE TO AND FROM PENNY'S BAY AREA 進出竹篙灣區的替代路線							

793TH – Improvement to Sunny Bay Interchange**Breakdown of estimates for consultants' fees**

Consultants' staff costs		Estimated man-months	Average MPS* salary point	Multiplier (Note 1)	Estimated fee (\$ million)
(a) Construction Supervision					
(i) contract administration (Note 2)	Professional	-	-	-	2.0
	Technical	-	-	-	1.5
(ii) resident site staff (Note 3)	Professional	238	38	1.6	21.7
	Technical	817	14	1.6	24.6
Sub-total					49.8
(b) EM&A Programme	Professional	11	38	2.0	1.3
	Technical	19	14	2.0	0.7
Sub-total					2.0
Total consultants' staff costs					51.8

* MPS = Master Pay Scale

Notes

1. A multiplier of 2.0 is applied to the average MPS point to arrive at the full staff costs including the consultants' overheads and profit as the staff will be employed in the consultants' offices. 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 1 December 2007, MPS pt. 38 = \$56,945 per month and MPS pt. 14 = \$18,840 per month).
2. The consultants' staff cost for contract administration is calculated in accordance with the existing Agreement No. CE 68/99 Supplementary Agreement No. 1 "Improvement to Sunny Bay Interchange – Engineering Design and Construction". The construction phase of the assignment will only be executed subject to Finance Committee's approval to upgrade **793TH** to Category A.
3. We will only know the actual man-months and actual costs after completion of the construction works.