

**For discussion  
on 18 December 2007**

**Legislative Council Panel on Transport**

**793TH – Improvement to Sunny Bay Interchange**

**PURPOSE**

This paper seeks Members' view on our proposal to upgrade **793TH**, Improvement to Sunny Bay Interchange, to Category A in order to carry out the proposed construction works.

**PROJECT SCOPE**

2. The scope of **793TH** comprises –
  - (a) construction of 2 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 2 (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 2(a) and 2(b) above;
  - (d) construction of a seawall of about 600m 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.

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

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

## **JUSTIFICATION**

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4. The infrastructural 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.

5. 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.

6. 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.

7. 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.

8. We consulted this Panel on 20 July 2007 on the proposed works. At the meeting, some members were concerned about the environmental impact of the proposed reclamation and queried if the proposed roads could be constructed on elevated structures supported on

piles driven into the seabed instead. Members asked the Administration to review the construction method and report the findings to the Panel before submitting the funding proposal to the Public Works Subcommittee. Consequently, we have further reviewed the project to ascertain the benefits of the option with elevated structures. Our review showed that while the construction of elevated structures was technically feasible, there would be significant drawbacks when compared with the reclamation proposal. In particular, the elevated structures would be visually intrusive and the estimated cost of the works would increase from \$541.4 million (in September 2007 prices) to about \$700 million. The findings of the review are summarised at **Enclosure 3**. The review concluded that the proposal could not be improved by means of using elevated structures.

9. 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 4 to 6 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.

## **FINANCIAL IMPLICATIONS**

10. We estimate the capital cost of the project to be \$552.8 million in money-of-the-day (MOD) prices, made up as follows –

	<b>\$ million</b>
(a) Elevated carriageways	268.7
(b) At-grade roads	13.2
(c) Seawall and reclamation	122.3
(d) Drainage works	8.2
(e) Landscaping works	10.5
(f) TCSS	10.1
(g) Environmental mitigation and monitoring measures	8.1

	<b>\$ million</b>	
(h) Consultants' fees	51.8	
(i) construction stage	3.5	
(ii) resident site staff costs	46.3	
(iii) environmental monitoring and audit (EM&A) programme	2.0	
(i) Contingencies	48.5	
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	Sub-total	541.4 (in September 2007 prices)
(j) Provision for price adjustment	11.4	
	<hr/>	
	Total	552.8 (in MOD prices)

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

## **PUBLIC CONSULTATION**

12. 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.

13. 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.

14. 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.

15. We met the objector and explained that we would implement mitigation measures in accordance with the Environmental Monitoring & Audit 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.

16. 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.

## **ENVIRONMENTAL IMPLICATIONS**

17. The project is a designated project under Schedule 2 of the 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.

18. 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.

19. We will deploy framed type silt curtains to fully enclose any grab dredgers and 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.

20. 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 facilities<sup>1</sup>. 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.

21. 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 ensure that the day-to-day operations on site comply with the approved plan. 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.

22. 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/tonne<sup>2</sup> at landfills).

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<sup>1</sup> Public fill reception facilities are specified in Schedule 4 respectively 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.

<sup>2</sup> 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/m<sup>3</sup>), nor the cost to provide new landfills, (which is likely to be more expensive) when the existing ones are filled.

23. We estimate that the reclamation works will produce about 692 000 cubic metres (m<sup>3</sup>) of uncontaminated marine mud. There will be sufficient capacity in the marine disposal areas for disposal of this mud. In addition, about 8 000 m<sup>3</sup> of contaminated mud generated by the project will be disposed of at the marine disposal facility at East of Sha Chau.

24. Of the 230 number of trees within the project boundary, 166 number of 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 trees<sup>3</sup>. We will incorporate planting proposals as part of the project, including estimated quantities of 210 trees, 184 290 shrubs and 8 440 square metres (m<sup>2</sup>) of grassed area.

## **LAND ACQUISITION**

25. We will resume about 44 m<sup>2</sup> 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**

26. This project will not affect any heritage site, i.e. all declared monuments, graded historic buildings and sites of archaeological interests.

## **THE WAY FORWARD**

27. We intend to submit the project to the Public Works Sub-Committee and Finance Committee of the Legislative Council on 30 January 2008 and 22 February 2008 respectively for upgrading the

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<sup>3</sup> "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 metre (measured at 1.3 metre above ground level), or with height/canopy spread equal or exceeding 25 m.

project to Category A. Subject to funding approval, we plan to start construction works in June 2008 for completion in April 2011.

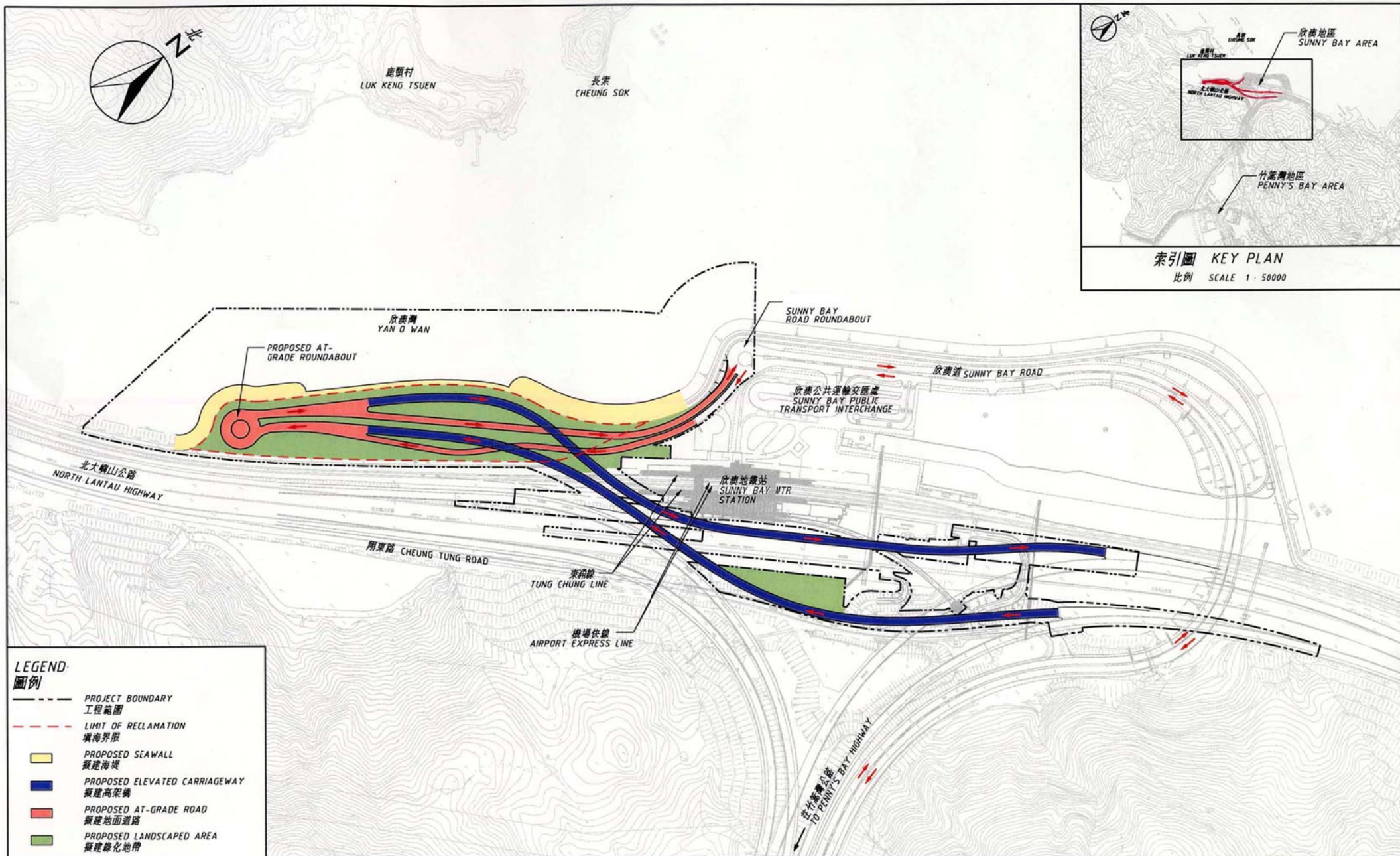
### **ADVICE SOUGHT**

28. Members are invited to comment on this paper.

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Transport and Housing Bureau  
December 2007





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**

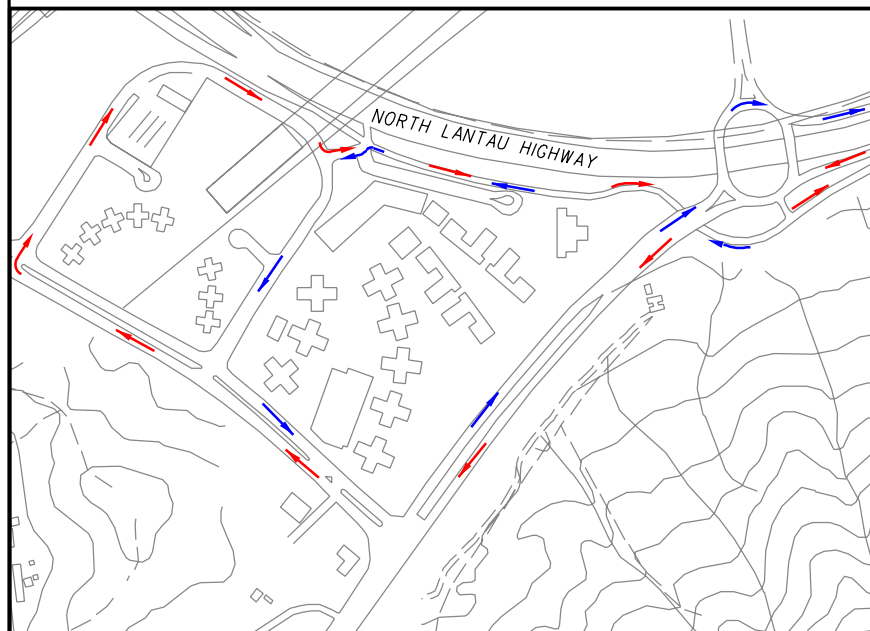
	name 姓名	initial 簽署	date 日期	drawing no. 圖則編號	scale 比例
designed 設計	W.M. IP	SIGNED	May 07	SD 2001-130	A3 1 : 4000
checked 核對	M.C. LEE	SIGNED	May 07		
approved 核准	C.M. CHAN	SIGNED	May 07		
office 辦事處	土木工程處 CIVIL ENGINEERING OFFICE			 土木工程拓展署 CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT	



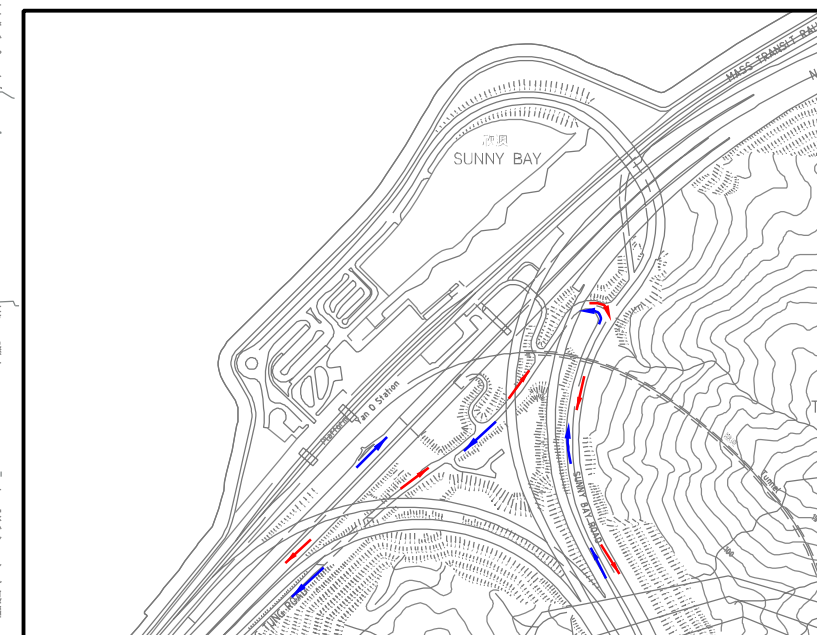
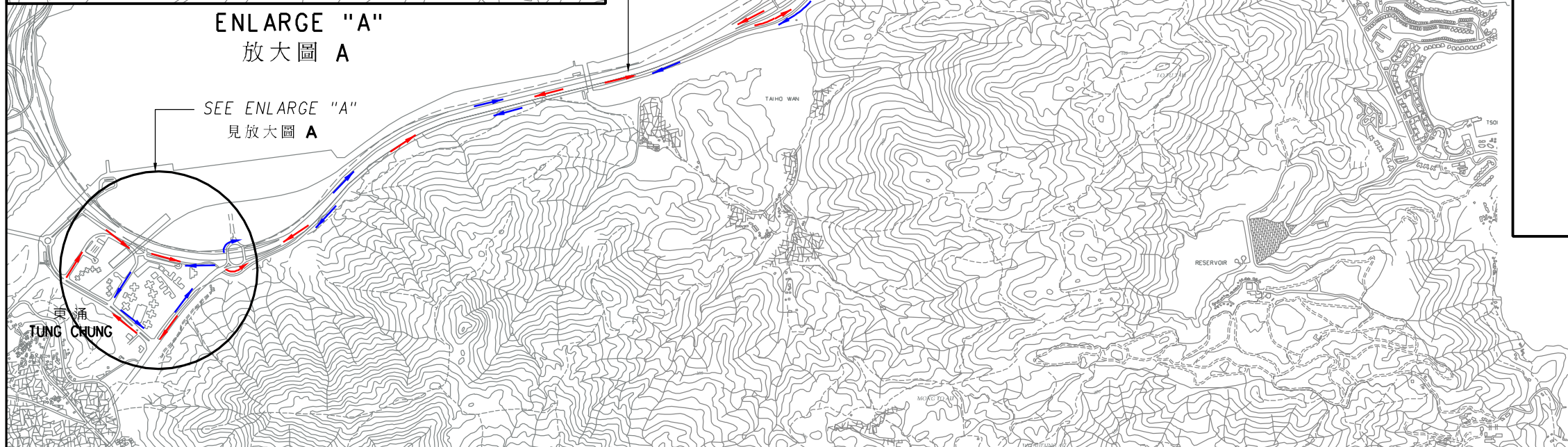
LEGEND :

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

ALTERNATIVE ROUTE TO AND FROM PENNY'S BAY AREA  
進出竹篙灣區的替代路線

	name 姓名	initial 簽署	date 日期
designed 設計	W.M. IP	SIGNED	May 07
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		

drawing no. 圖則編號  
**SD 2001-131**  
scale 比例  
A3 1 : 3000



土木工程拓展署  
CIVIL ENGINEERING  
AND DEVELOPMENT  
DEPARTMENT

**Comparison of Current Proposal with  
The Alternative Elevated Structures Proposal**

In response to the concerns of members at the Transport Panel meeting on 20 July 2007, we have further reviewed and compared our current proposed road scheme with an alternative scheme of elevated structures. The major findings are summarized as follows:

	<b>Elevated Structures</b>	<b>Reclamation</b>
Environmental Impact	Loss of permanent seawater area will be small. However, there would still be potential environmental impacts on the marine habitats caused by heavy piling activities, including noise and disturbance to the seabed. The scope for landscape improvement would be significantly reduced. At most, some shrubs could be grown on landscape planters.	Loss of 3-hectare permanent seawater area. There is no established method for quantitative assessment of the impacts arising therefrom. However, the area concerned is assessed to have no significant ecological value, and the reclaimed land will offer an opportunity for landscape improvement. A total of 210 trees and 184 290 shrubs are planned to be grown.
Aesthetics	About 50 bridge columns of 25 metre high will need to be constructed along the seafront.	The trees and shrubs planted on the reclamation area could screen off a large portion of the proposed works to provide greening effects.
	Photomontages of the two schemes are shown at <b>Appendix</b> . The outlook of the reclamation scheme is considered to be more pleasant.	

	<b>Elevated Structures</b>	<b>Reclamation</b>
Project cost (in September 2007 prices)	About \$700 million	\$541.4 million
Constraint to future land use	The bridge columns and piles will pose constraints to the future land use and potentially affect the compatibility with the plan for future adjoining development.	The reclaimed area has a greater potential for compatibility with the future adjoining development, including beneficial use of the seafront for public enjoyment.
Maintenance of existing seawall	The bridge columns will pose constraints to the future maintenance of the existing seawall. The maintenance cost is expected to increase although the problem is not insurmountable.	Access for future maintenance will not be restricted.
Programme	With the road scheme to be re-designed, the start of the works will be deferred to August 2009 and the completion of the works deferred to March 2012.	The works are planned to commence in June 2008 for completion in April 2011.



# AERIAL VIEW OF PROPOSED PROJECT

## 擬建計劃的鳥瞰圖

### Photomontage

### 合成照片



Existing View  
現有景觀



Aerial View of Proposed Project (Elevated Bridge Structure Scheme)  
擬建計劃的鳥瞰圖(高架結構橋方案)



Aerial View of Proposed Project (Reclamation Scheme)  
擬建計劃的鳥瞰圖(填海方案)

<p>Project title 工程名稱</p>	<p>Improvement to Sunny Bay Interchange 欣澳交匯處改善工程 Aerial View of Proposed Project 擬建計劃的鳥瞰圖</p>	<p>Project No. 91800</p>	<p>Date Nov 2007</p>	<p>Figure No. 10.5.1</p>
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# ELEVATION ( FULL VIEW ) OF PROPOSED PROJECT

## 擬建計劃的全景立面圖

### Photomontage 合成照片



Existing View  
現有景觀



Elevation (Full View) of Proposed Project (Elevated Bridge Structure Scheme)  
擬建計劃的全景立面圖(高架結構橋方案)



Elevation (Full View) of Proposed Project (Reclamation Scheme)  
擬建計劃的全景立面圖(填海方案)

<p>Project title 工程名稱</p>	<p>Improvement to Sunny Bay Interchange 欣澳交匯處改善工程 Elevation (Full View) of Proposed Project 擬建計劃的全景立面圖</p>	<p>Project No. 91800</p>	<p>Date Nov 2007</p>	<p>Figure No. 10.5.2</p>
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# ELEVATION (CLOSE-UP VIEW) OF PROPOSED PROJECT

## 擬建計劃的特寫立面圖

### Photomontage 合成照片



Existing View  
現有景觀



Elevation (Close-up View) of Proposed Project (Elevated Bridge Structure Scheme)  
擬建計劃的特寫立面圖(高架結構橋方案)



Elevation (Close-up View) of Proposed Project (Reclamation Scheme)  
擬建計劃的特寫立面圖(填海方案)

<p>Project title 工程名稱</p>	<p>Improvement to Sunny Bay Interchange 欣澳交匯處改善工程 Elevation (Close-up View) of Proposed Project 擬建計劃的特寫立面圖</p>	<p>Project No. 91800</p>	<p>Date Nov 2007</p>	<p>Figure No. 10.5.3</p>
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