

**For discussion
20 December 2002**

Legislative Council Panel on Transport

**Widening of Yuen Long Highway between
Lam Tei and Shap Pat Heung Interchange**

PURPOSE

This paper informs Members of our proposal to upgrade **721TH** - Widening of Yuen Long Highway between Lam Tei to Shap Pat Heung Interchange to Category A for the widening works at Yuen Long Highway between Lam Tei and Shap Pat Heung (LTSPH).

PROJECT SCOPE

2. The scope of **721TH** includes -
- (a) widening of 6.8 kilometres long Yuen Long Highway - LTSPH from a dual two-lane to a dual three-lane carriageway;
 - (b) provision of a hard shoulder of 3.65 metres wide and a one-metre wide marginal strip along the slow lane of the carriageway;
 - (c) modifying the existing Hung Tin Road Interchange and Tong Yan San Tsuen Interchange and the associated slip roads affected by the proposed road widening;
 - (d) extending existing highway structures affected by the proposed road widening including vehicular bridges, vehicular underpasses, pedestrian subways and culverts;
 - (e) installation of some 11.6 kilometres long noise barriers and provision of noise reducing road surfacing; and
 - (f) associated works including road rehabilitation, geotechnical, drainage, lighting, landscaping and a closed circuit television system (CCTV).

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

JUSTIFICATION

3. The Yuen Long Highway-LTSPH is a 6.8 kilometre long dual two-lane carriageway. It connects Tuen Mun and Yuen Long in the North West New Territories (NWNT) and forms part of the major road network serving Tin Shui Wai.

4. With the committed and future developments in NWNT, we project that the population in the region will increase from about 1.09 million in 2006 to about 1.39 million in 2016. We also forecast that the daily cross boundary traffic will grow from 65 100 vehicles in 2006 to 117 300 vehicles in 2016. With the commissioning of the fourth boundary crossing at Deep Bay (i.e. the Shenzhen Western Corridor) in end 2005, we expect further traffic pressure on the Yuen Long Highway from the Shenzhen Western Corridor (SWC) and Deep Bay Link (DBL) at a new interchange at Lam Tei. The proposed road widening is necessary to cope with the increasing traffic demand generated from the population growth in the NWNT and the increase in the cross-boundary traffic.

5. At present, the Yuen Long Highway-LTSPH is already operating near its capacity. The projected traffic volume to capacity (V/C)¹ ratio during peak hours in 2006, 2011 and 2016, with and without the proposed widening, are as follows -

	<u>V/C Ratio of Yuen Long Highway at Shap Pat Heung Interchange</u>			
	<u>Year</u>			
	2002	2006	2011	2016
Without the proposed road widening works	0.9	1.21	1.34	1.51
With the proposed road widening works	-	0.81	0.9	1.01

6. In order to meet the traffic demand up to 2016, we propose to widen Yuen Long Highway - LTSPH from a dual two-lane to a dual three-lane carriageway.

¹ Volume to capacity (V/C) ratio is an indicator which reflects 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 under consideration and the resultant traffic will flow smoothly. A V/C ratio above 1.0 indicates the onset of congestion; above 1.2 indicates more serious congestion with traffic speeds deteriorating progressively with further increase in traffic.

FINANCIAL IMPLICATIONS

7. We estimate the cost of the project to be \$944.5 million in money-of-the-day (MOD) prices made up as follows –

		\$ million
(a)	Roads and drains	283.3
(b)	Earthworks and retaining walls	111.0
(c)	Structural works	89.7
(d)	Noise barriers	301
(e)	Noise reducing road surfacing	3.9
(f)	Landscaping works	4.4
(g)	CCTV	3.0
(h)	Consultants' fees	78.3
(i)	supervision and administration of contract	9.2
(ii)	Site staff costs	63.9
(iii)	Environmental monitoring and audit (EM&A) programme	4.7
(iv)	Electrical and Mechanical Services Trading Fund (EMSTF) charges	0.5
(h)	Contingencies	<u>77.0</u>
	Sub-total	951.6 (in September 2002 prices)
(i)	Provision for price adjustment	<u>-(7.1)</u>
	Total :	944.5 (in MOD prices)

8. We estimate the annual recurrent expenditure arising from the proposed works to be \$11.8 million. It is expected to generate 810 jobs comprising 140 professional/technical staff and 670 labourers during the construction stage.

PUBLIC CONSULTATION

9. We consulted the Yuen Long District Council on 2 February 2000 and Tuen Mun District Council on 7 March 2000. We also consulted the Tuen Mun Rural Committee on 15 July 1999, the Ping Shan Rural Committee on

2 November 1999 and the Shap Pat Heung Rural Committee on 5 November 1999. All parties supported the project.

10. We gazetted the project under the Roads (Works, Use and Compensation) Ordinance (The Ordinance) (Cap. 370) in two parts due to interface of the project with the proposed DBL at Lam Tei. We gazetted the proposed works between Tan Kwai Tsuen and Shap Pat Heung Interchange on 21 December 2001 and received three objections which remained unresolved. We gazetted the proposed road widening works between Lam Tei to Tan Kwai Tsuen together with the DBL project under the Ordinance on 15 March 2002. We received four objections which remained unresolved. Having consider the unresolved objections and the proposed modifications to the project, the Chief Executive-in-Council authorized the proposed works from Lam Tei to Tan Kwai Tsuen on 26 November 2002. The proposed works from Tan Kwai Tsuen to Shap Pat Heung Interchange will be put forward to the Chief-Executive Council for consideration in due course.

ENVIRONMENTAL IMPLICATIONS

11. Yuen Long Highway is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and an Environmental Permit is required for its construction and operation. We completed an EIA study for the project in October 2001 and the EIA report was endorsed by the Advisory Council on the Environment in February 2002. The Director of Environmental Protection approved the EIA report in May 2002 after public consultation and issued the Environmental Permit in June 2002.

12. According to the EIA Study carried out for the proposed works, it is necessary to install about 11.6 kilometres long noise barriers in order to mitigate the traffic noise arising from the widened highway to within established standards. The noise barriers comprise five vertical types from two-metres to six-metres high, and two other types both having a 5.5 metre high vertical portion with either a 1.5 or 2.5 metre bend in 45 degrees to the vertical. A plan showing the location of the noise barriers to be provided is at **Enclosure 2**.

13. The noise barriers are of transparent type. Drawings showing the preliminary design of the noise barriers are at **Enclosure 3**. With these mitigation measures in place, noise levels will be controlled to within statutory levels. We estimate that about 16 000 existing dwellings (e.g. Fu Tai Estate, Yuen Long Town Lot 500, Town Park Road South, Tong Yan San Tsuen and Fui Sha Wai) along the highway corridor will benefit from the provision of these noise barriers. Some 6 450 planned developments along the highway corridor (at Hung Shui Kiu, Tong Yan San Tsuen, Long Tin Road and Yuen

Long Area 13) are also expected to benefit from the proposed noise barriers, the timing of provision of which will phase in with such developments. The average cost of providing noise barriers per dwelling is estimated to be about \$13,400. We will consult the District Council concerned on the design of the barriers.

LAND ACQUISITION

14. The proposed project does not require resumption of private land.

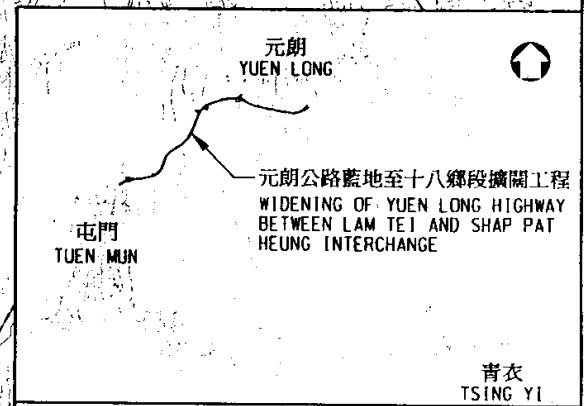
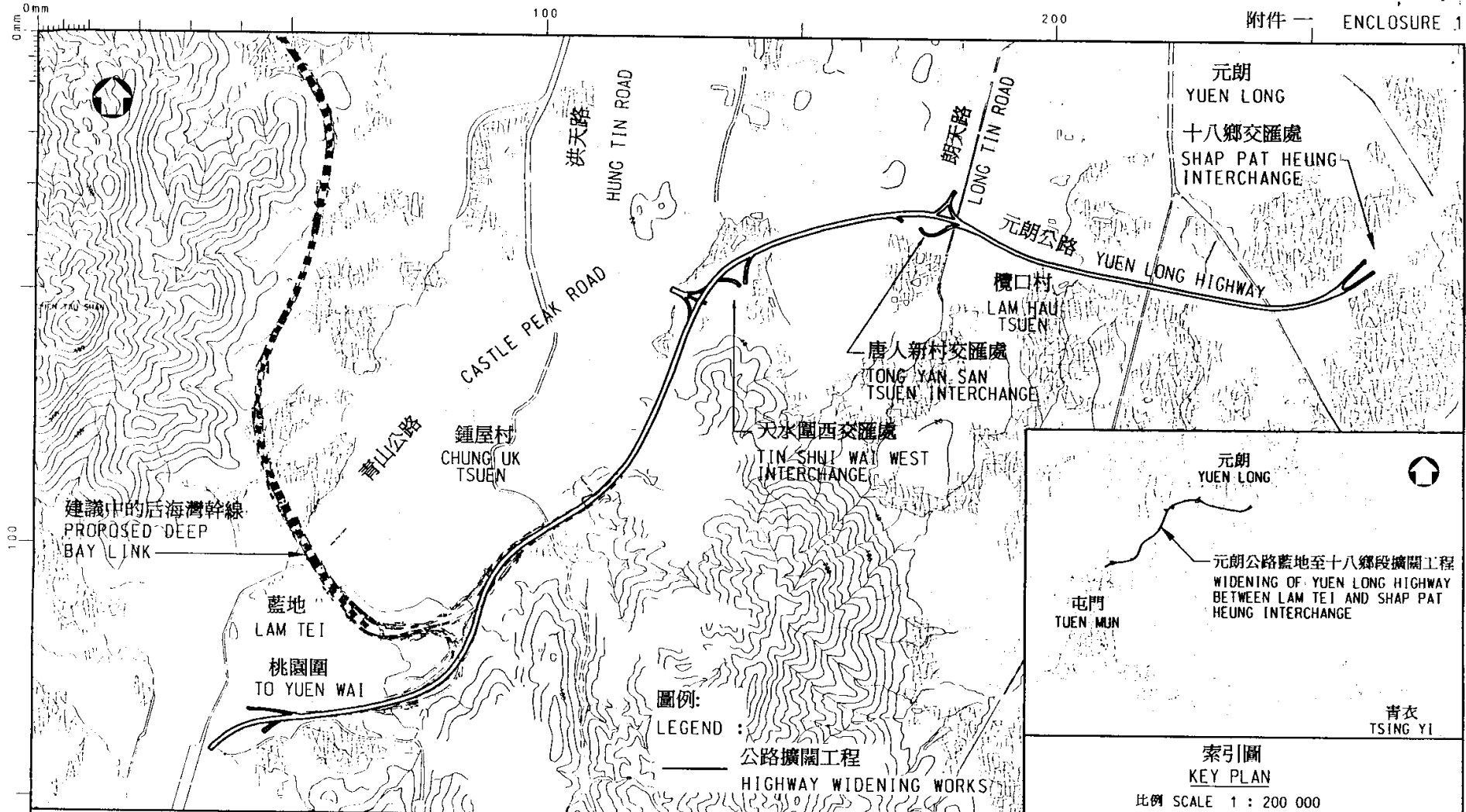
WAY FORWARD

15. We intend to seek the funding support of the Public Works sub-committee (PWSC) of the Legislative Council in January 2003 to upgrade the project to Category A for construction. Subject to funding approval, we plan to start construction works in August 2003 for completion in December 2005.

ADVICE SOUGHT

16. Members are invited to comment on the project before we seek the PWSC's funding approval.

Environment, Transport and Works Bureau
December 2002
ETWB(T)4/6/186(01)Pt.5




圖例:
LEGEND:
—— 公路擴闊工程
HIGHWAY WIDENING WORKS

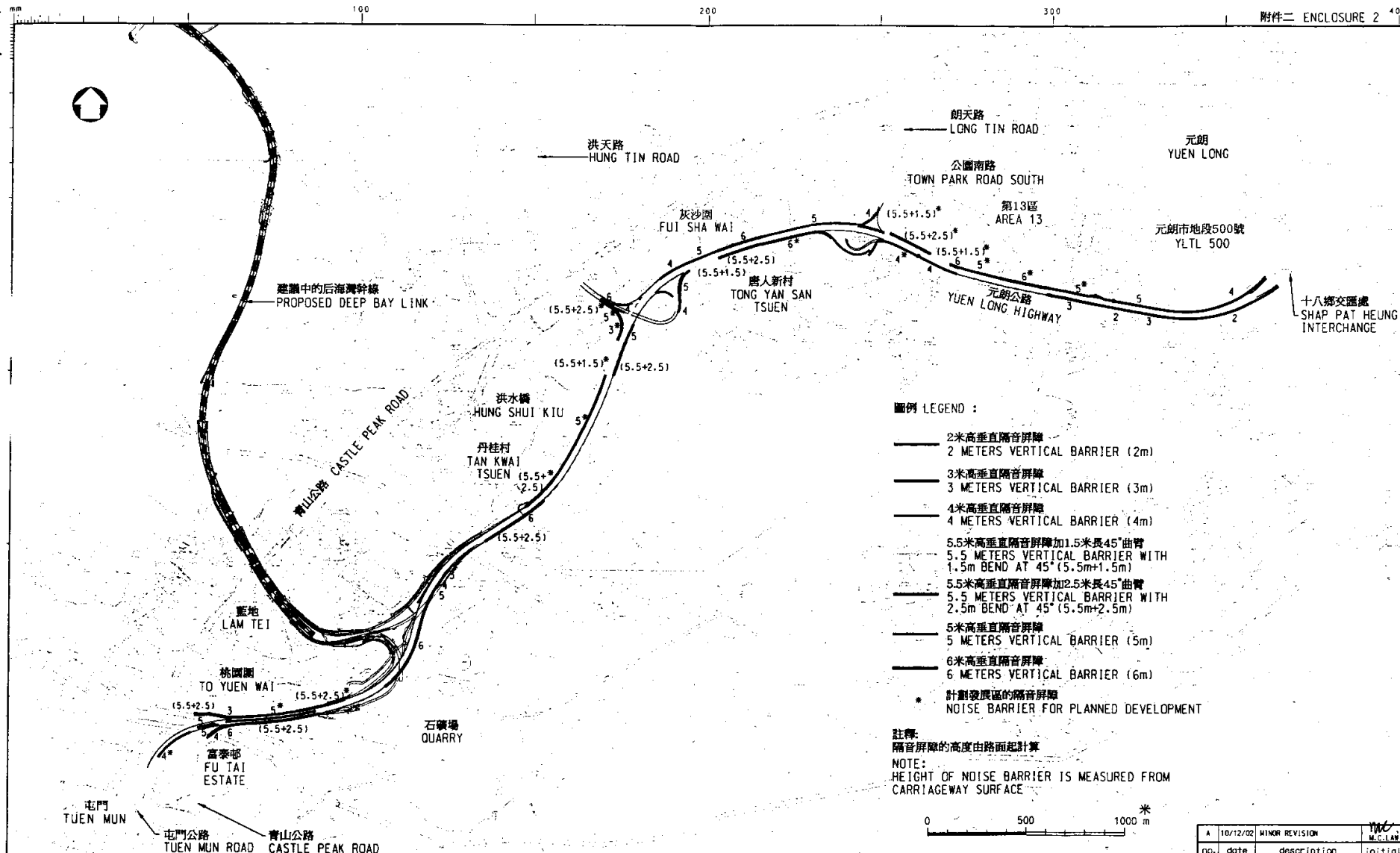
索引圖
KEY PLAN
比例 SCALE 1 : 200 000

圖則名稱 drawing title
工務計劃項目第6721TH號
元朗公路藍地至十八鄉段擴闊工程 - 工地平面圖
PWP ITEM NO. 6721TH
WIDENING OF YUEN LONG HIGHWAY BETWEEN LAM TEI
AND SHAP PAT HEUNG INTERCHANGE - SITE PLAN

設計 designed M.C.LAW 21/11/02	繪圖 drawn S.K.TSE 21/11/02
覆核 checked M.C.LAW 21/11/02	批准 approved M.C.LAW 21/11/02
主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE	

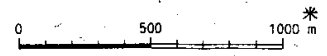
圖則編號 drawing no. HMW6721TH-GL0001	比例 scale 1 : 25000
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 HIGHWAYS DEPARTMENT 路政署 HONG KONG	

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- 圖例 LEGEND :
- 2米高垂直隔音屏障
2 METERS VERTICAL BARRIER (2m)
 - 3米高垂直隔音屏障
3 METERS VERTICAL BARRIER (3m)
 - 4米高垂直隔音屏障
4 METERS VERTICAL BARRIER (4m)
 - 5.5米高垂直隔音屏障加1.5米長45°曲臂
5.5 METERS VERTICAL BARRIER WITH 1.5m BEND AT 45° (5.5m+1.5m)
 - 5.5米高垂直隔音屏障加2.5米長45°曲臂
5.5 METERS VERTICAL BARRIER WITH 2.5m BEND AT 45° (5.5m+2.5m)
 - 5米高垂直隔音屏障
5 METERS VERTICAL BARRIER (5m)
 - 6米高垂直隔音屏障
6 METERS VERTICAL BARRIER (6m)
 - * 計劃發展區的隔音屏障
NOISE BARRIER FOR PLANNED DEVELOPMENT

註釋:
隔音屏障的高度由路面起計算
NOTE:
HEIGHT OF NOISE BARRIER IS MEASURED FROM CARRIAGEWAY SURFACE



圖則名稱 drawing title
元朗公路藍地至十八鄉段擴闊工程
- 隔音屏障位置圖
WIDENING OF YUEN LONG HIGHWAY BETWEEN LAM TEI AND SHAP PAT HEUNG INTERCHANGE
- NOISE BARRIER LOCATION PLAN

設計 designed	SIGNED	繪圖 drawn	SIGNED
M.C.LAW	27/11/02	S.K.TSE	27/11/02
覆核 checked	SIGNED	批准 approved	SIGNED
M.C.LAW	27/11/02	M.C.LAW	29/11/02

主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

A	10/12/02	MINOR REVISION	M.C.LAW
no.	date	description	initial

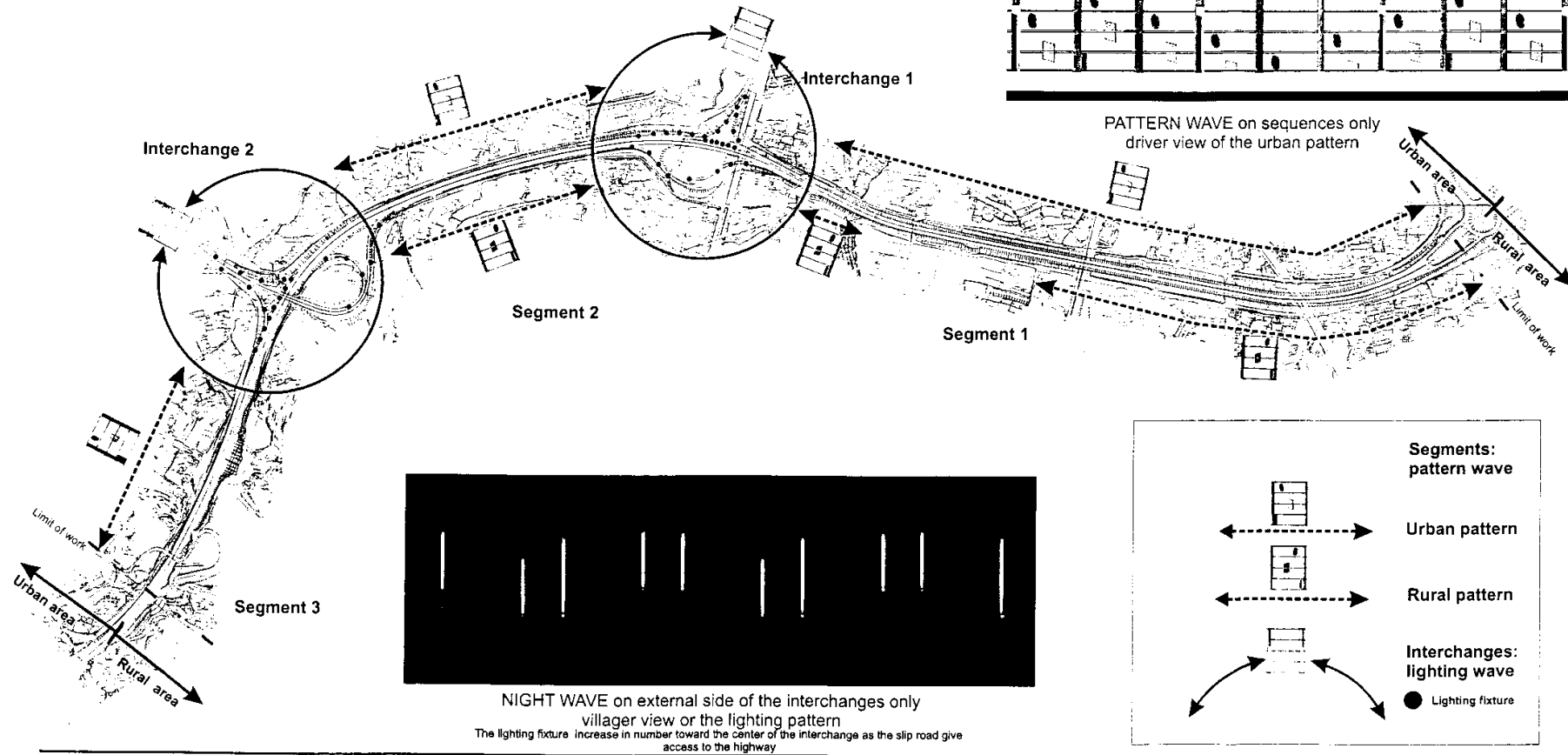
圖則編號 drawing no. 比例 scale
HMW6721TH-SP0001-A 1:17 500

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HIGHWAYS DEPARTMENT 路政署
HONG KONG 香港

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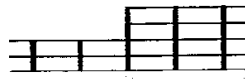
Yuen Long highway is divided in three segments and 2 interchanges.
 The design scheme consists of color patterns applied on the transparent noise barriers, like notes on a musical partition. They are applied per sections and create a wave of color on the segments.
 The two interchanges are treated as landscape sculptures with lighting fixtures installed on the post of the noise barriers to recreate the colour wave at night.



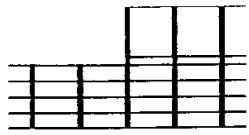
Noise barrier with urban pattern
villager view



D1: 5.5m+1.5m/3m



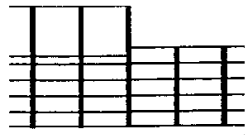
D6: 5m/3m



D2: 5.5m+1.5m/5m



D7: 5m/4m



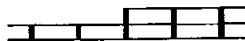
D3: 5.5m+1.5m/6m



D8: 5m/6m



D5: 5m/5.5m+2.5m

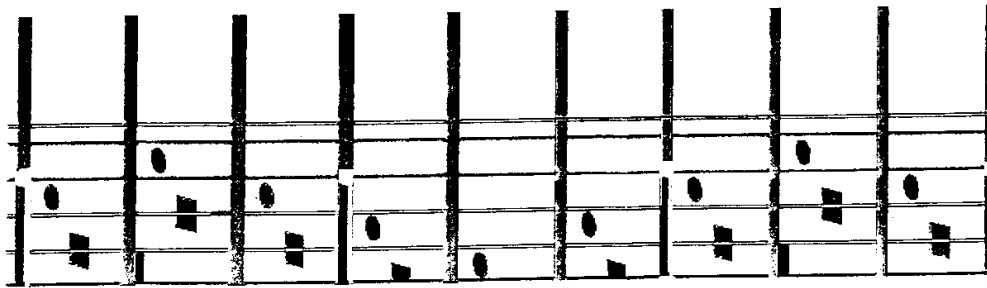
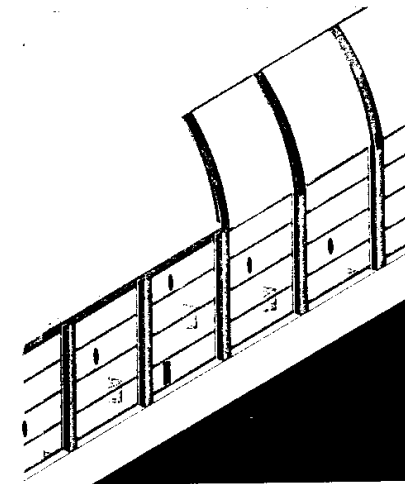
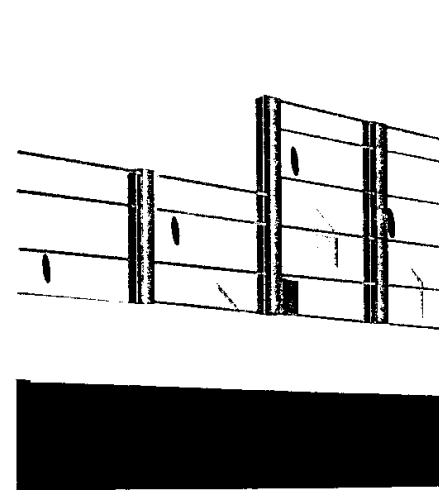


D9: 3m/2m

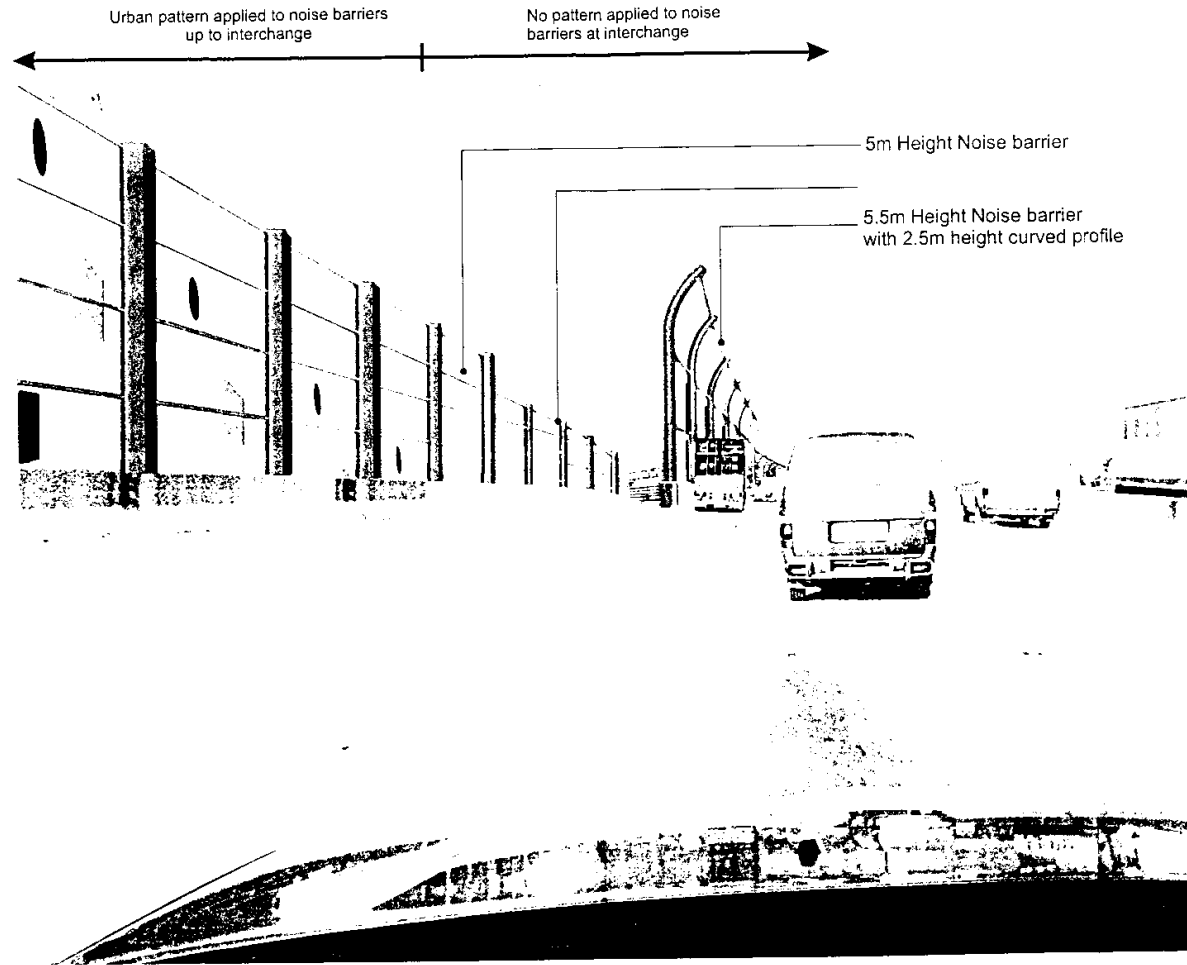
Interfaces between
different noise barriers



D10: 5.5m+2.5m/6m



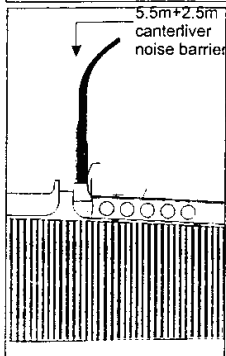
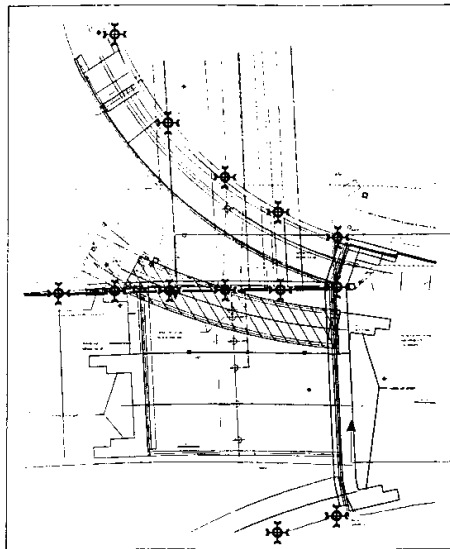
Partial section of Noise Barrier with rural pattern



Driver's view after development

Legend:

- 5.5m+2.5m cantilever noise barrier
- 5.5m+1.5m cantilever noise barrier
- ✱ Proposed lighting fixture on NB post



Plan with new alignment



Before development



After development

Painted concrete finish on soffit

Bi-color columns

Proposed widening of N710

Existing finish on abutment: ribbed concrete

Painted concrete finish to match existing N710