For Discussion
20 December 2002

Legislative Council Panel on Transport

Sha Tin New Town, Stage II - Construction of Road T3

PURPOSE

This paper informs Members of our proposal to upgrade **458CL**, Sha Tin New Town, Stage II - Construction of Road T3, to Category A for the construction of Road T3 connecting the future Route 9 - section between Cheung Sha Wan and Sha Tin (R9 - CSWST) and the existing Tai Po Road - Sha Tin section.

PROJECT SCOPE

2. The scope of **458CL** includes -

(a) construction of about 2 kilometres of dual two-lane elevated road, with interchanges and slip roads, on the section of Tai Po Road between Sha Tin Heights and Lion Rock Tunnel Road;

(b) construction of slip roads, viaducts and an underpass to connect to R9-CSWST and provision for connection to the future Road T4;

(c) realignment of the westbound carriageway of the Tai Po Road Bridge over the existing Kowloon Canton Railway (KCR) East Rail tracks to accommodate the Road T3 viaduct;

(d) reprovisioning of a footbridge over the KCR East Rail tracks adjacent to Tai Po Road – Tai Wai Section;

(e) realignment of a section of Sha Tin Heights Road and modification of Chik Wan Street;

(f) construction of a two-lane elevated road linking Tai Po Road – Sha Tin Heights section and Lower Shing Mun Road;

(g) improvement works at Tai Po Road – Sha Tin Heights section between Lok Hop Village and Tai Wai New Village including the construction of two turn-around flyovers, local road widening and slope stabilisation;

(h) improvement works at Mei Tin Road comprising construction of –

(i) a gyratory one-way road system and a two-lane vehicular bridge over the Shing Mun River at the junctions of Mei Tin Road with Heung Fan Liu Street and Pik Tin Street;

(ii) a footbridge for pedestrians and cyclists at the junction of Mei Tin Road and Chik Wan Street;

(iii) a footbridge for pedestrians and cyclists at the road junction west of Mei Lam Estate across Mei Tin Road; and

(iv) a subway extension for pedestrians and cyclists at the junction of Mei Tin Road and Chik Fai Street.

(i) provision of some 6 415 metres of noise barriers along Road T3, including about 5 200 metres of vertical barriers ranging from two to six metres high, about 1 000 metres of semi-enclosures and about 215 metres of full enclosures;

(j) associated traffic control and surveillance system, electrical and mechanical works, drainage, landscaped areas, footways, cycle tracks and geotechnical works; and

(k) implementation of an environmental monitoring and audit (EM&A) programme for works mentioned in items (a) to (j) above.

——— Details of the proposed works are shown at Enclosures 1 to 4.

JUSTIFICATION

3. The proposed Road T3 is a dual two-lane primary distributor road in Tai Wai of the Sha Tin New Town, serving as an approach to the future R9 – CSWST on the Sha Tin side. It will connect the existing Tai Po Road - Sha Tin Heights section and R9 – CSWST to the existing Tai Po Road – Sha Tin section as well as to Ma On Shan via the future Road T4. It needs to be completed by 2007 in order to realize the full traffic carrying potential of R9 – CSWST, which is currently under construction for completion by 2007. R9 – CSWST serves to relieve traffic on the existing links between Tai Wai and Kowloon, including Lion Rock Tunnel and Tate's Cairn Tunnel where traffic congestion frequently occurs during peak hours at the approaches.

4. Without Road T3, R9 – CSWST could only rely on its single-lane slip roads connected to Che Kung Miu Road for reaching Sha Tin. This would greatly reduce the attractiveness of Route 9 with its function being constrained by the limited traffic capacity of the local road network. It would cause serious traffic congestion problem on the already busy Tai Po Road. Lion Rock Tunnel as well as the local road network in Sha Tin and Tai Wai will also be overloaded and the traffic condition along Che Kung Miu Road would deteriorate significantly at its junction with Lion Rock Tunnel Road.

5. The Strategic Highway Project Review carried out in early 2002 confirms that Road T3 will be required by 2007 when R9 – CSWST comes into operation. According to the latest traffic forecast, the peak hour volume to capacity (v/c) ratios[1] at critical sections of the relevant road links, with or without Road T3, are as follows -

Road Link	(v/c) ratios in 2002	(v/c) ratios in 2007		(v/c) ratios in 2011		(v/c) ratios in 2016	
		Without Road T3	with Road T3	without Road T3	with Road T3	without Road T3	with Road T3
Road T3	-	-	0.7	-	0.8	-	0.9
R9-CSWST	-	0.3	0.6	0.3	0.6	0.4	0.7
Lion Rock Tunnel	1.2	1.2	1.1	1.2	1.1	1.3	1.1

[1] Volume to capacity (v/c) ratio is an indicator which reflects the performance of a road. A v/c ratio equals 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. A v/c ratio above 1.2 indicates more serious congestion with traffic speed deteriorating progressively with further increase in traffic.

Road Link	(v/c) ratios in 2002	(v/c) ratios in 2007		(v/c) ratios in 2011		(v/c) ratios in 2016	
		Without Road T3	with Road T3	without Road T3	with Road T3	without Road T3	with Road T3
Shing Mun Tunnel	1.0	1.0	0.8	1.1	0.9	1.1	0.9
Tai Po Road	1.0	1.1	0.8	1.2	0.8	1.3	0.9

6. In the absence of Road T3, traffic utilisation along R9 – CSWST would drop significantly by more than 40% to v/c ratios of only 0.3 - 0.4 during the morning and afternoon peaks. Lion Rock Tunnel, Shing Mun Tunnel and section of Tai Po Road would then be working above capacities at v/c ratios of 1.3, 1.1 and 1.3 respectively by 2016 as more traffic would continue to use these external routes. The provision of Road T3 will greatly improve traffic conditions, reducing the v/c ratios of most concerned road sections to within acceptable levels. Although the utilisation of the popular Lion Rock Tunnel would remain relatively high, its v/c ratio at the peak hours could be improved from the heavily congested level of 1.3 to around 1.1 by 2016.

FINANCIAL IMPLICATIONS

7. We estimate the cost of Road T3 to be $2,120.2 million in money-of-the-day (MOD) prices made up as follows –

			$ million
(a)	Roads and drains		177.0
(b)	Elevated highway structures		903.0
(c)	Underpass connection to Route 9		97.0
(d)	Subways		10.0
(e)	Retaining structures		74.0
(f)	Slope works		87.0
(g)	Environmental mitigation measures		361.0
	(i) noise barriers	358.0	
	(ii) low noise road surfacing	3.0	
(h)	Landscaping works		29.0
(i)	EM&A programme		3.0
(j)	Consultants' fees for		200.1
	(i) construction stage	26.1	

			$ million	
	(ii) resident site staff	174.0		
(k)	Contingencies		195.0	
	Subtotal		2,136.1	(in September 2002 prices)
	Provision for price adjustment		(15.9)	
	Total		2,120.2	(in MOD prices)

8. We estimate the annual recurrent expenditure arising from the project to be $17.629 million. It is expected to generate 757 jobs comprising 141 professional/technical staff and 616 labourers during the construction stage.

PUBLIC CONSULTATION

9. We consulted the Traffic and Transport Committee (T&TC) of the then Sha Tin Provisional District Board on the preliminary design of Road T3 in July 1996. The T&TC supported the road scheme in general. We further briefed members on the noise mitigation measures to be incorporated under the Road T3 project in September 1997. In November 2001, we presented the latest development of the project to the T&TC of the Sha Tin District Council. Members expressed support for the road project including the proposed package of noise barriers. Some suggested to covert the proposed vertical noise barriers to noise enclosures for better noise protection.

10. We gazetted the road scheme of Road T3 under the Roads (Works, Use and Compensation) Ordinance (the Ordinance) in January 1998. Four objections were received during the objection period, three of which were subsequently withdrawn. Having considered the objections and the road scheme, the Chief Executive in Council authorised the road works in October 1998.

11. During the detailed design of the project, it was identified that some amendments to the authorised road scheme were required. We gazetted the amendments under the Ordinance in January 2002 and received no statutory objection against the revised scheme. The then Secretary for Transport authorised the amendments in April 2002.

ENVIRONMENTAL IMPLICATIONS

12. Road T3 is a designated project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance and an environmental permit is required for its construction and operation. An EIA study completed for the project was approved by the Director of Environmental Protection (DEP) in March 1998.

13. We conducted an EIA review in early 2002 to address the environmental issues arising from the changes made in the detailed design of the project subsequent to the approval of the EIA report. The EIA report and review concluded that the environmental impact of the project could be mitigated to within statutory levels under the EIA Ordinance and the Technical Memorandum on EIA Process. DEP issued the Environmental Permit on 13 May 2002.

14. Traffic noise arising from the operation of the road is the key environmental concern of the project. In the EIA study and the EIA review, noise impacts arising from the Road T3, which traverses the built-up area of Tai Wai, on both existing and planned developments were thoroughly assessed and a package of 5200 metres vertical/cantilever noise barriers ranging from two to six metres high, 1000 metres semi-enclosures and 215 metres full enclosures generally of seven metres high was proposed to protect those developments from excessive traffic noise.

15. The proposed noise barrier panels will be mounted on structural steel supports and generally will be acrylic material for side and roof panels but with 2.5m high aluminium absorptive panels at the bottom of the side barriers. The absorptive panel will effectively absorb the wheel noise generated by the moving traffic and the acrylic panels will help to reduce the bulky appearance of the noise barriers while shielding noise. The acrylic roof panels will be translucent with a non-reflective surface while those at the sides will be transparent. Drawings showing the artistic impression of the noise barriers/enclosures to be provided are at Enclosures 5 and 6. With these mitigation measures in place, noise levels will be controlled to within the statutory levels. About 3,500 existing dwellings would benefit directly from the provision of these noise barriers, including Mei Lam Estate, Tung Lo Wan Village, Tai Wai New Village and other existing residential dwellings within Tai Wai Town Centre such as Holford Garden, Grandeur Garden and Grandway Garden and along Chik Chuen Street. Some 2,000 planned dwellings at Sha Tin Heights Road, Heung Fan Liu, Tung Lo Wan Hill, and above the KCRC Tai Wai Maintenance Centre and Che Kung Miu Station together with two planned schools would also directly benefit from the proposed noise barriers. The timing of provision of the barriers to protect the planned developments will generally

phase in with the developments. The average cost of provision of noise barriers is estimated to be $65,000 per dwelling.

LAND ACQUISITION

16. The project will require resumption of about 40.5 square metres of agricultural land. Land acquisition and clearance will affect 54 households and 103 structures. The Director of Housing will offer eligible clearees accommodation in public housing in accordance with the existing policy. We will charge the land acquisition and clearance costs, estimated to be $6.1 million (in September 2002 prices) to **Head 701** – "Land Acquisition" **Subhead 1100CA** – "Compensation and ex-gratia allowances in respect of projects in the Public Works Programme".

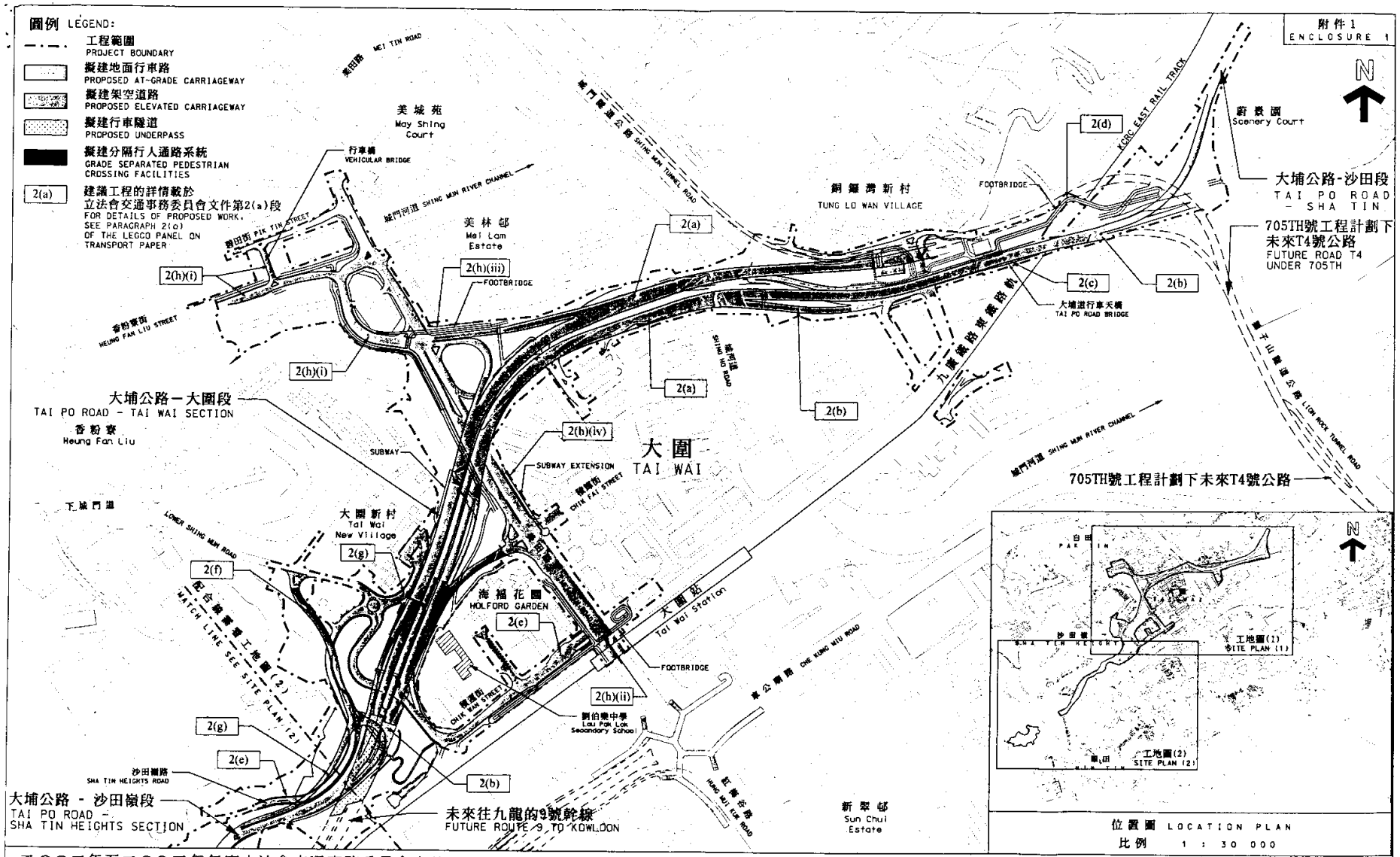
WAY FORWARD

17. We plan to seek the funding support of the Public Works Sub-Committee of the Legislative Council on 15 January 2003 for upgrading **458CL** to Category A. Subject to funding approval, construction of the project will start in March 2003 for completion in April 2007.

ADVICE SOUGHT

18. 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)4/6/148(02)Pt.9



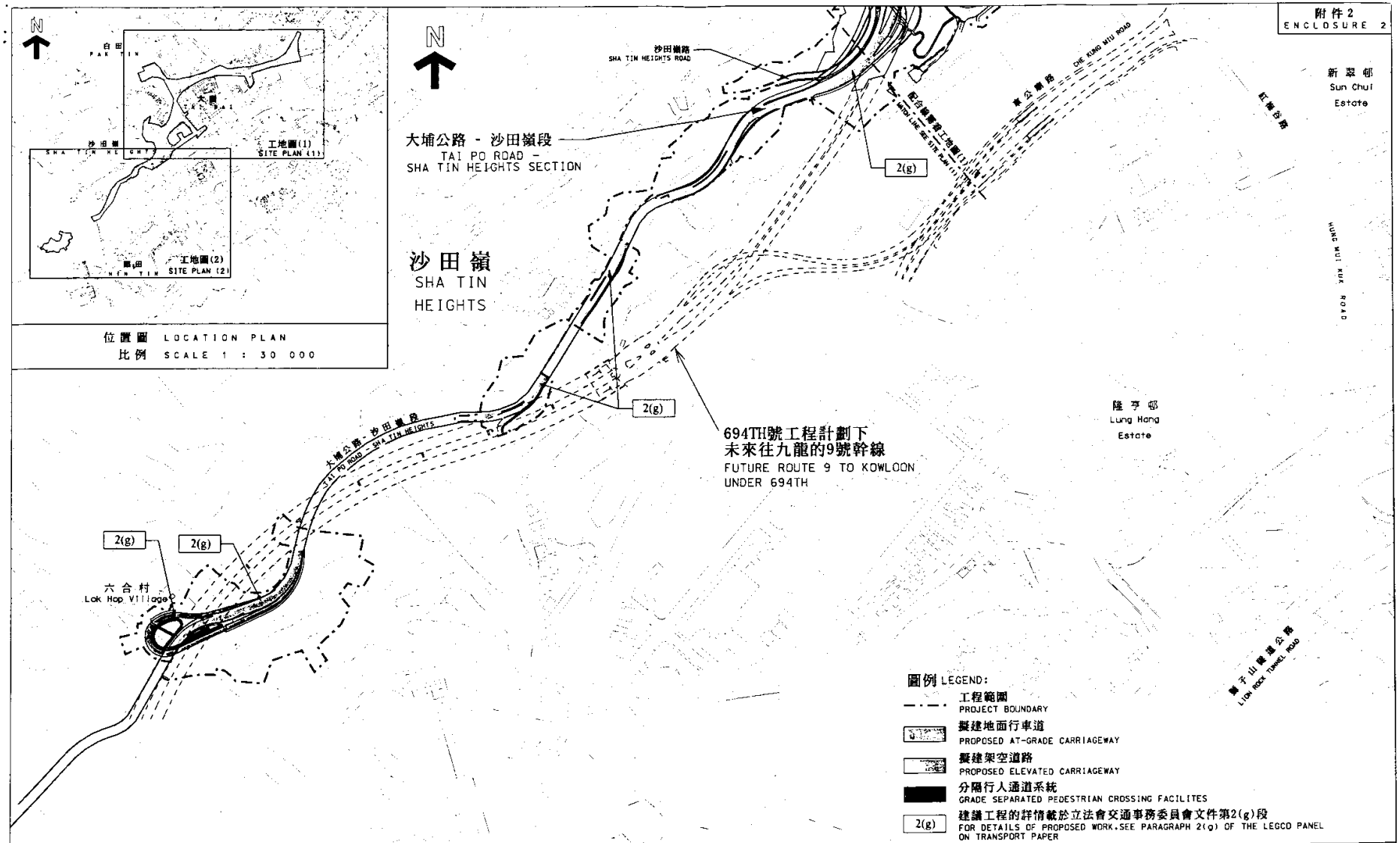
二〇〇二年至二〇〇三年年度立法會交通事務委員會文件 LegCo Panel on Transport SUBMISSION 2002-2003

項目編號 ITEM No. 458CL

圖則名稱 title 工務項目計劃第458CL號
沙田新市鎮第二階段工程 - T3號道路建造工程
工地圖(1)
PWP ITEM NO. 458CL
SHA TIN NEW TOWN, STAGE II - CONSTRUCTION OF ROAD T3
SITE PLAN (1)

繪圖 drawn C S LAU	簽署 initial	日期 date 30.8.02	比例 scale 1 : 5 000	辦事處 office 新界東拓展處 NT EAST DEVELOPMENT OFFICE
核對 checked T K LEE	簽署 initial	日期 date 30.8.02	圖則編號 drawing no. ST2021	拓展署 TERRITORY DEVELOPMENT DEPARTMENT
核准 approved C W KAM	簽署 initial	日期 date 30.8.02		

附件2
ENCLOSURE 2



二〇〇二年至二〇〇三年年度立法會交通事務委員會文件 LegCo Panel on Transport SUBMISSION 2002-2003

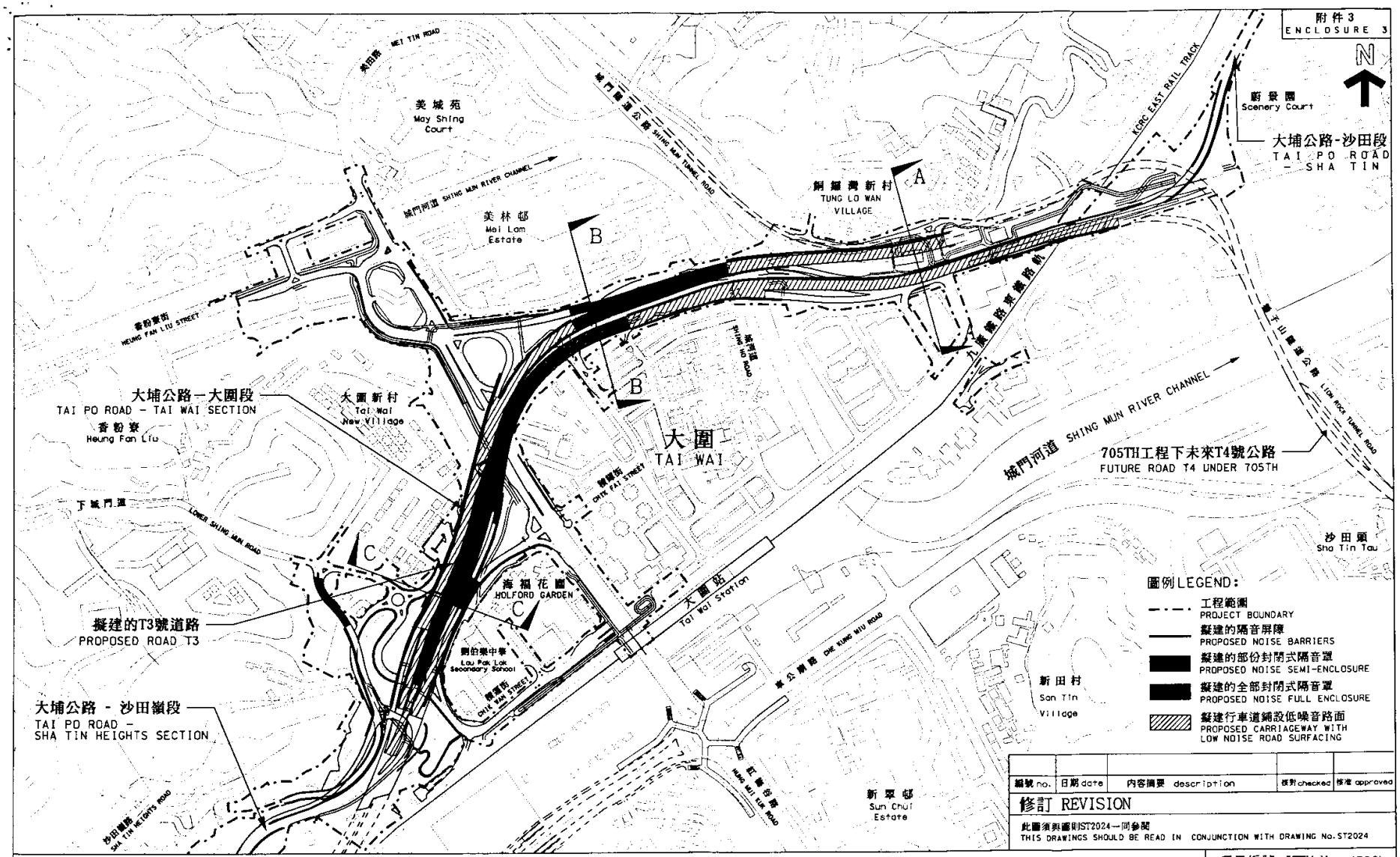
項目編號 ITEM No. 458CL

圖則名稱 title
工務項目計劃第458CL號
沙田新市鎮第二階段工程 - T3號道路建造工程
工地圖(2)
PWP ITEM NO. 458CL
SHA TIN NEW TOWN, STAGE II - CONSTRUCTION OF ROAD T3
SITE PLAN (2)

繪圖 drawn	簽署 initial	日期 date	比例 scale
C S LAU		30.8.02	1 : 5 000
核對 checked	簽署 initial	日期 date	圖則編號 drawing no.
T K LEE		30.8.02	ST2022
核准 approved	簽署 initial	日期 date	
C W KAM		30.8.02	

辦事處 office
新界東拓展處
NT EAST DEVELOPMENT OFFICE

拓展署
TERRITORY DEVELOPMENT DEPARTMENT



編號 no.	日期 date	內容摘要 description	核對 checked	核准 approved
修訂 REVISION				

此圖須與圖則ST2024一同參閱
THIS DRAWINGS SHOULD BE READ IN CONJUNCTION WITH DRAWING No. ST2024

二〇〇二年至二〇〇三年年度立法會交通事務委員會文件 LegCo Panel on Transport SUBMISSION 2002-2003

項目編號 ITEM No. 458CL

圖則名稱 title

工務項目計劃第458CL號
沙田T3號道路 - 擬議消減噪音措施
PWP ITEM NO. 458CL
ROAD T3, SHA TIN - PROPOSED NOISE MITIGATION MEASURES

繪圖 drawn	C S LAU	簽署 initial	日期 date 30.8.02
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核准 approved	C W KAM	簽署 initial	日期 date 30.8.02

比例 scale 1 : 5000

圖則編號 drawing no. ST2023

辦事處 office
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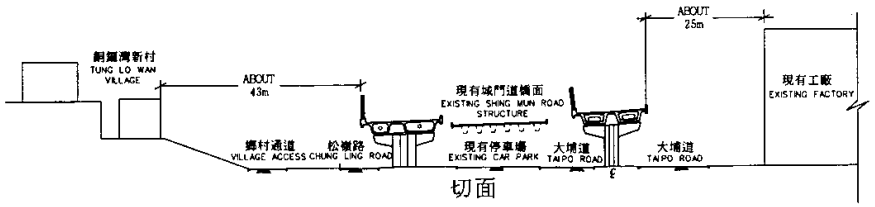
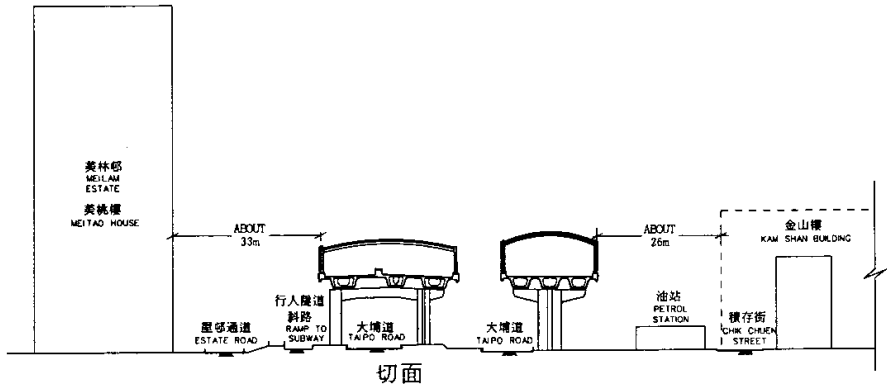
NT EAST DEVELOPMENT OFFICE

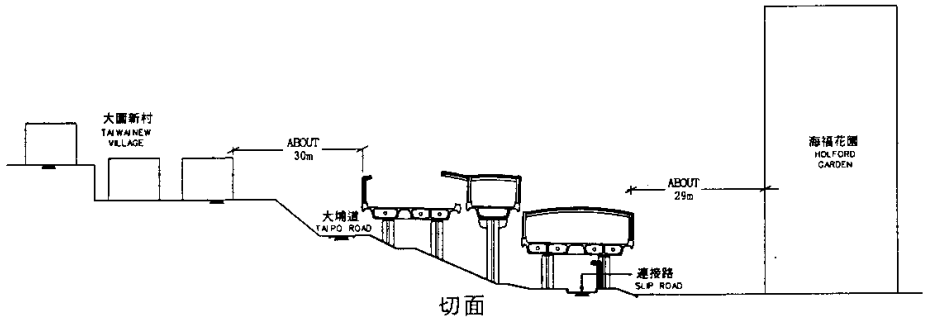
拓展署
TERRITORY DEVELOPMENT DEPARTMENT



切面
SECTION A - A

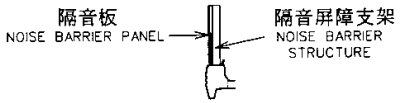


切面
SECTION B - B

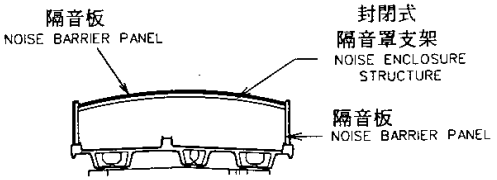


切面
SECTION C - C

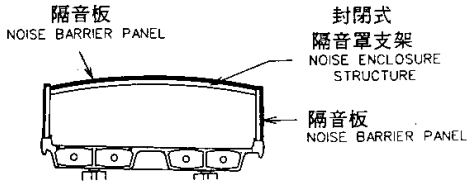
圖例
LEGEND



隔音屏障
NOISE BARRIER



全部封閉式隔音罩
NOISE FULL ENCLOSURE



部份封閉式隔音罩
NOISE SEMI-ENCLOSURE

此圖須與圖則ST2023一同參閱
THIS DRAWINGS SHOULD BE READ IN CONJUNCTION WITH DRAWING No.ST2023

二〇〇二年至二〇〇三年年度立法會交通事務委員會文件 LegCo Panel on Transport SUBMISSION 2002-2003

項目編號 ITEM No. 458CL

圖則名稱 title

工務項目計劃第458CL號
沙田T3號道路 - 擬議消減噪音措施 - 切面
PWP ITEM NO. 458CL
ROAD T3, SHA TIN - PROPOSED NOISE MITIGATION MEASURES - CROSS SECTIONS

繪圖 drawn	C S LAU	簽署 initial	日期 date 30.8.02
核對 checked	T K LEE	簽署 initial	日期 date 30.8.02
核准 approved	C W KAM	簽署 initial	日期 date 30.8.02

比例 scale 1 : 1000

圖則編號 drawing no. ST2024

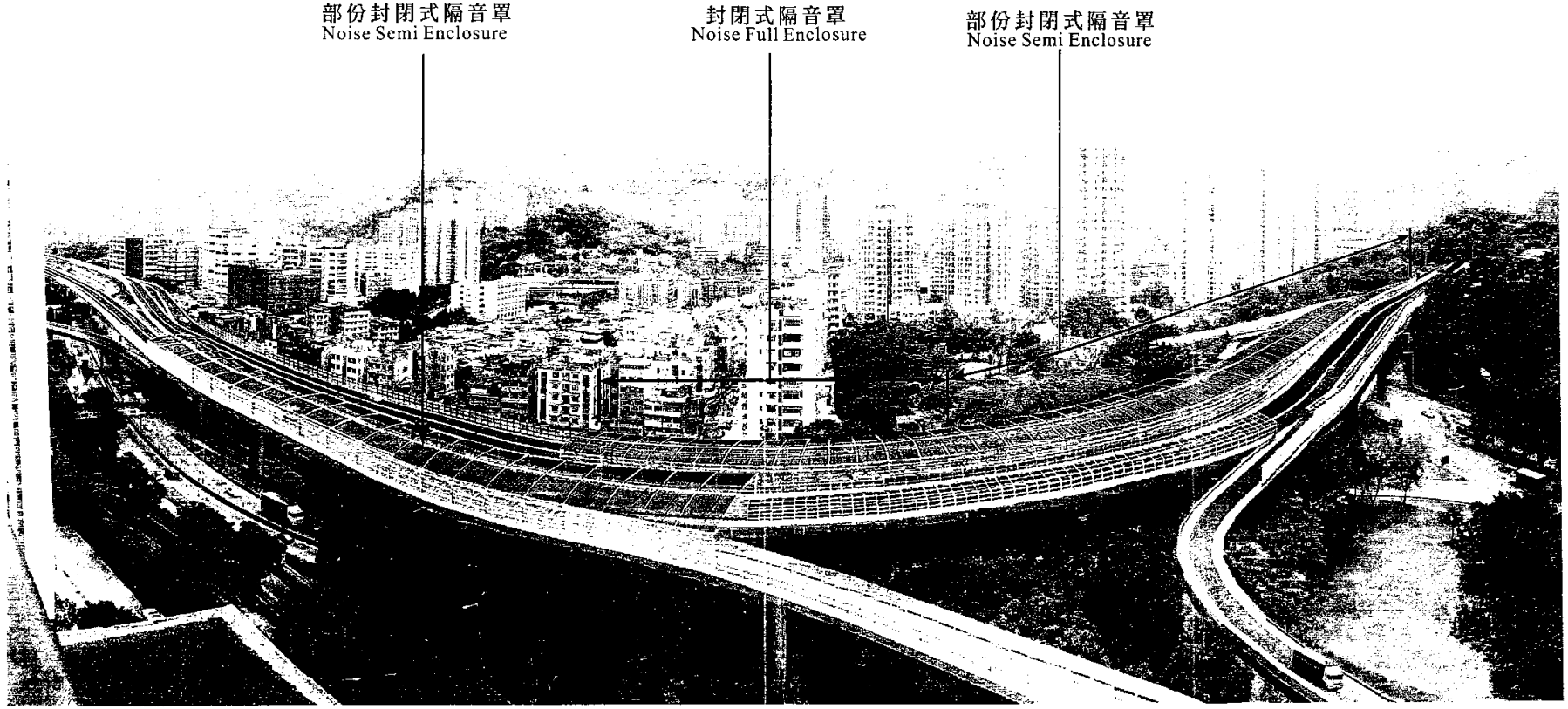
辦事處 office 新界東拓展處 NT EAST DEVELOPMENT OFFICE

拓展署 TERRITORY DEVELOPMENT DEPARTMENT

附件 5
ENCLOSURE 5

註釋: 部份封閉式隔音罩只於背向觀察點部分沒有遮蓋。
從這個觀察點的角度看出去，部份封閉式
隔音罩與封閉式隔音罩外觀完全一樣。

Note: Noise Semi Enclosure are open on side facing
away from viewpoint. From this viewpoint angle
the semi and full enclosures have the same appearance.



二〇〇二年至二〇〇三年年度立法會交通事務委員會文件 LegCo Panel on Transport SUBMISSION 2002-2003

項目編號 ITEM No. 458CL

圖則名稱 title

工務項目計劃第458CL號
PWP ITEM NO. 458CL
沙田T3號道路 - 已豎設隔音屏障的電腦合成照片（從美林邨望出）
ROAD T3, SHA TIN - PHOTOMONTAGE VIEWED FROM MEI LAM ESTATE

繪圖 drawn	簽署 initial	日期 date	比例 scale	辦事處 office	
C S LAU		3.12.02	NTS	新界東拓展處 NT EAST DEVELOPMENT OFFICE	
核對 checked	簽署 initial	日期 date	圖則編號 drawing no.		
T K LEE		3.12.02	ST2025	拓展署 TERRITORY DEVELOPMENT DEPARTMENT	
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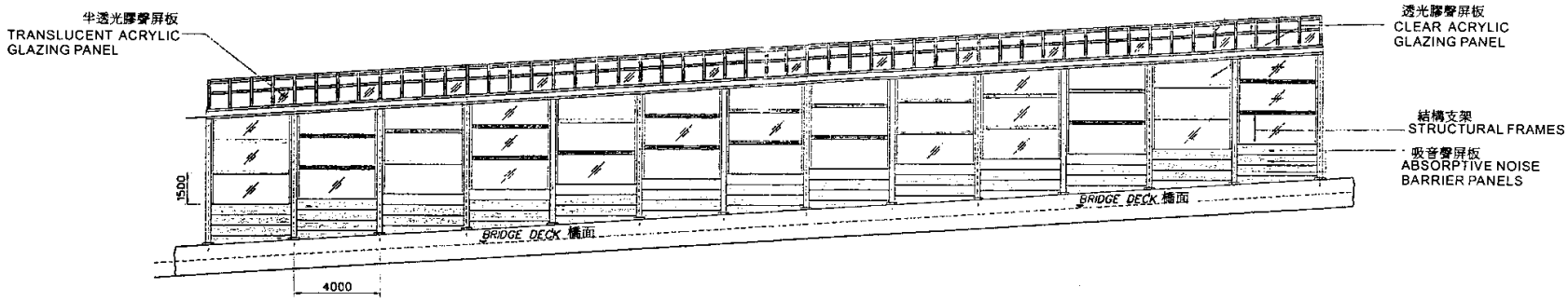

圖則名稱 title

工務項目計劃第458CL號
PWP ITEM NO. 458CL
沙田T3號道路 - 隔音屏障的典型外視圖
ROAD T3, SHA TIN - TYPICAL EXTERNAL ELEVATION OF NOISE BARRIER

繪圖 drawn	C S LAU	簽署 initial	日期 date	3.12.02	比例 scale: NTS
核對 checked	T K LEE	簽署 initial	日期 date	3.12.02	圖則編號 drawing no.: ST2026
核准 approved	C W KAM	簽署 initial	日期 date	3.12.02	辦事處 office: 新界東拓展處

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