CENTRAL RECLAMATION PHASE III (CRIII) – ENGINEERING WORKS

REPORT

on

Review of CRIII Reclamation and the Essential Infrastructure thereon

by applying the Three Tests laid down in the Judgment by Madam Justice Chu in connection with the Draft Wan Chai North District Outline Zoning Plan

Volume 2 - Appendix

By Territory Development Department

In Consultation with Atkins China Ltd, Transport Department, Highways Department and Marine Department

中區填海第三期工程

檢討報告書

引用朱芬齡法官就灣仔北分區計劃大綱草圖一案判詞所訂立的三項測試準則檢討中區塡海第三期工程及相關的必要基建項目

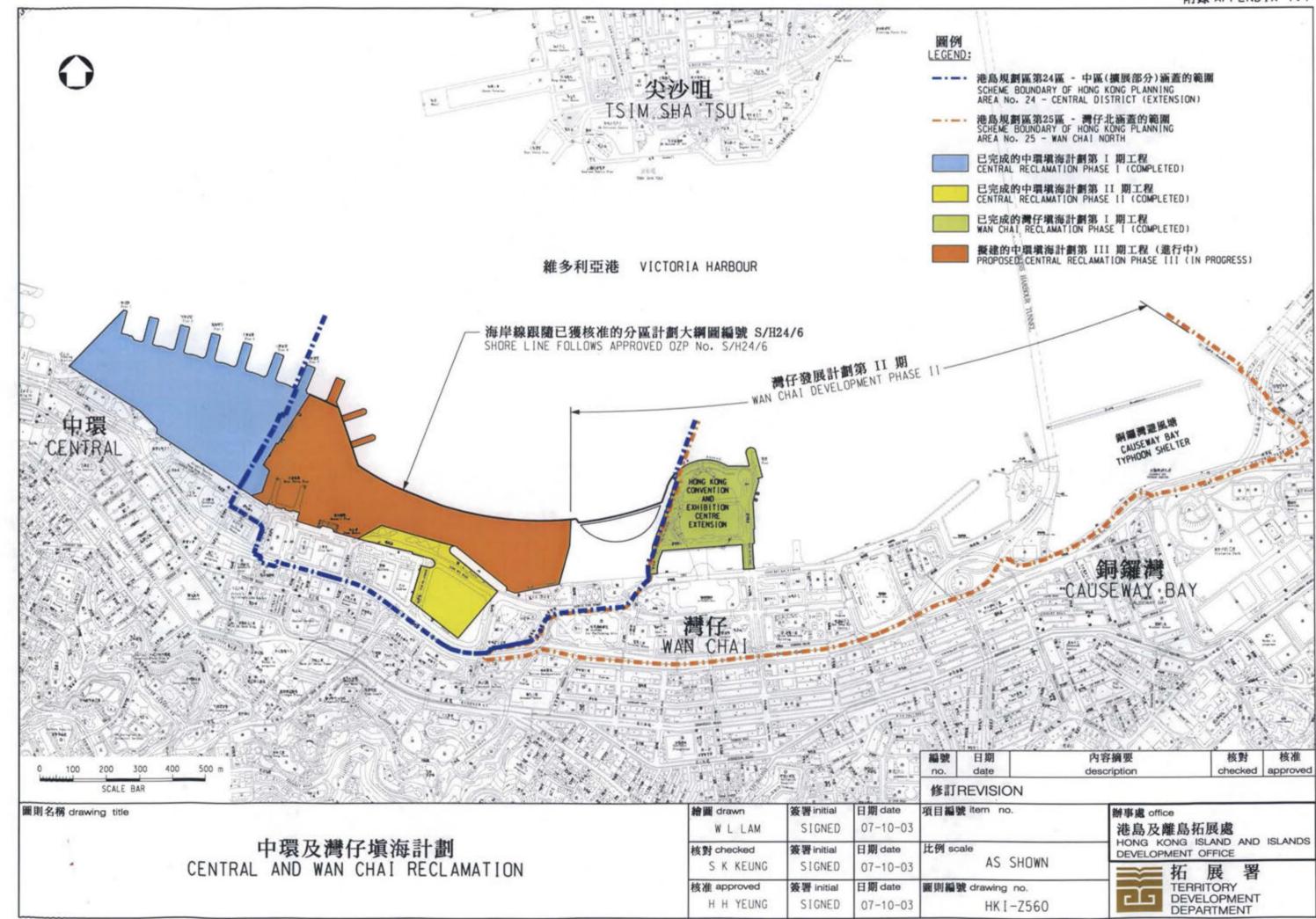
第二卷 - 附錄

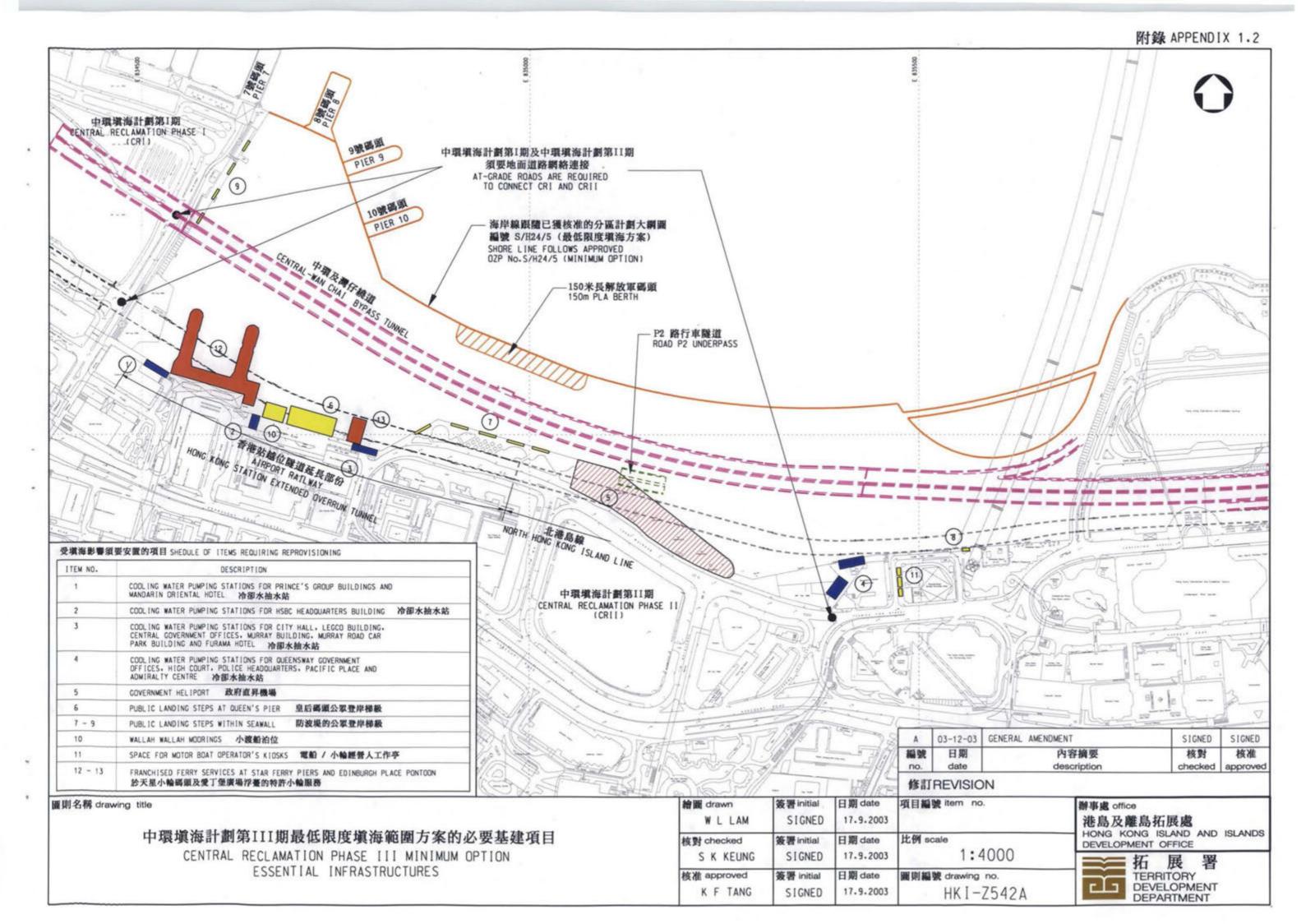
拓展署編制

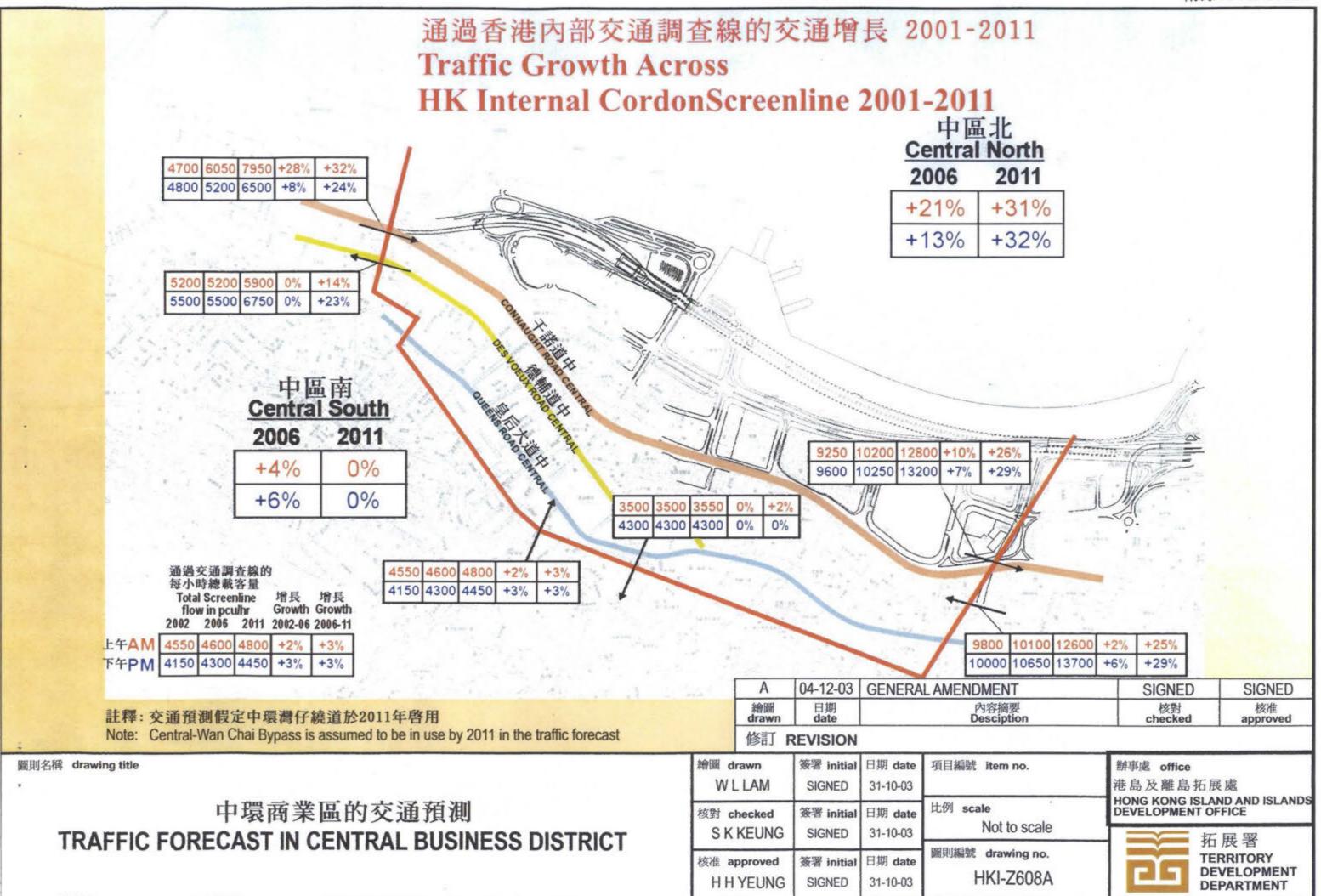
安建顧問公司、運輸署、路政署及海事處提供意見

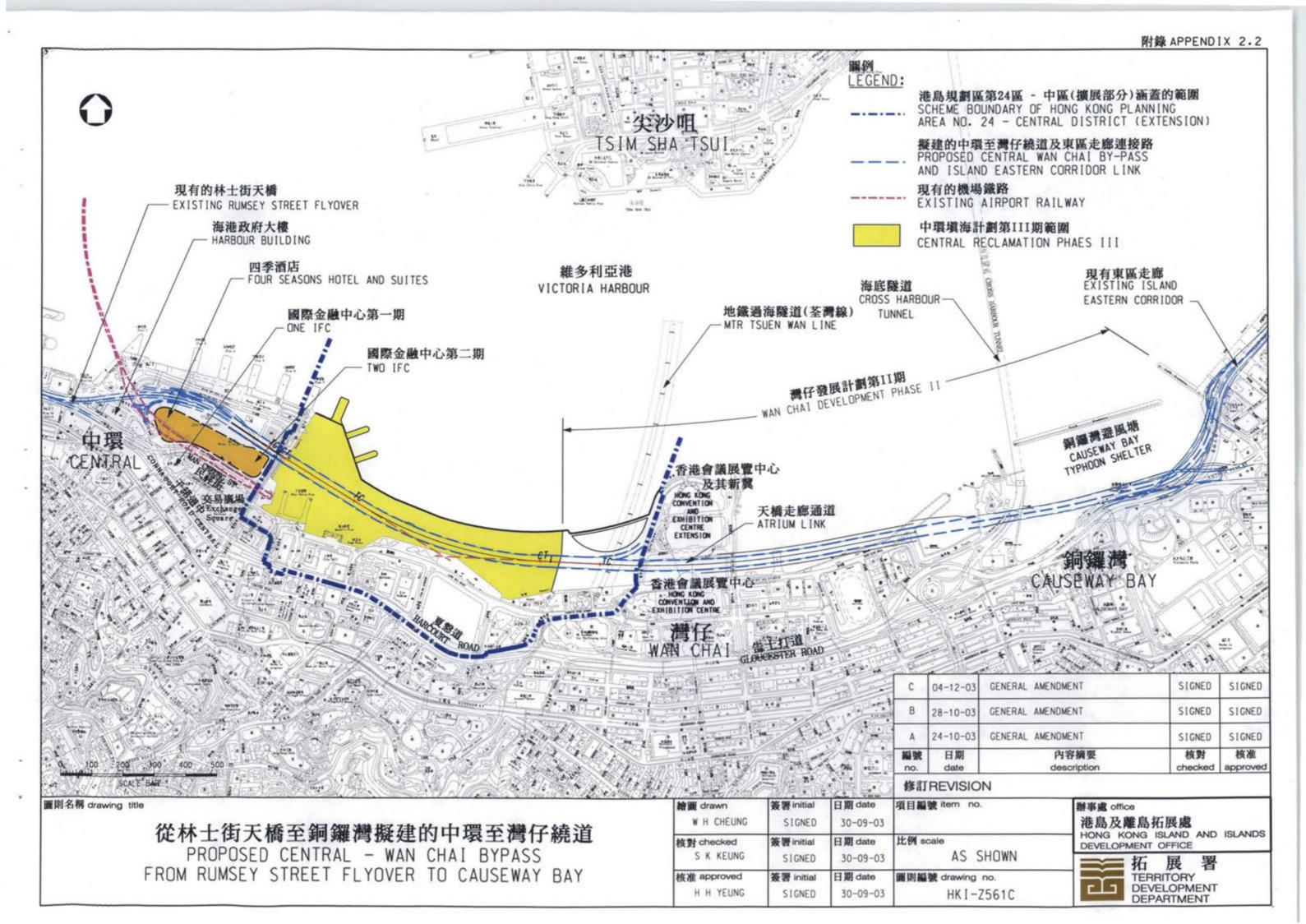
CONTENT 目錄

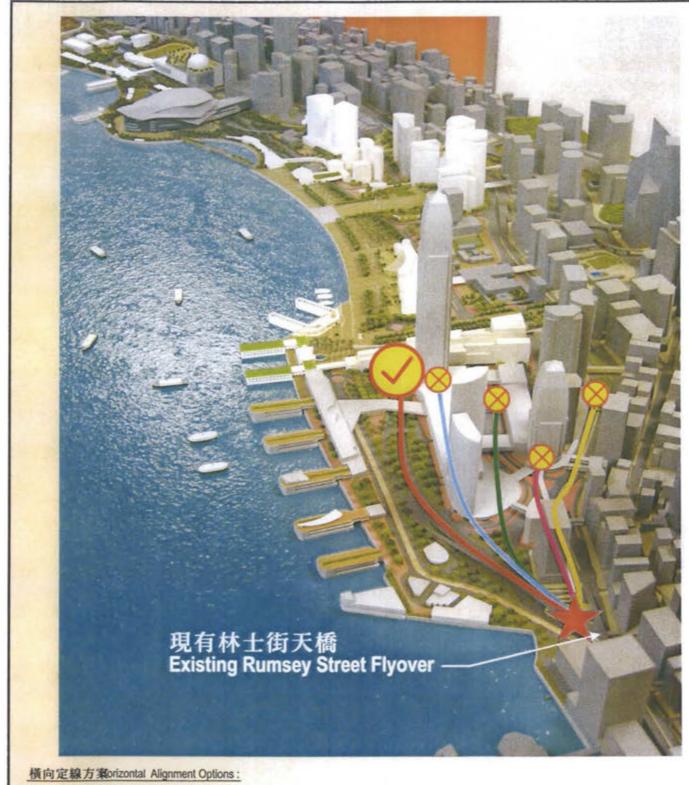
Appendix No. 附錄	Description 敘述				
1.1	Central and Wan Chai Reclamation	中環及灣仔塡海計劃			
1.2	Central Reclamation Phase III Minimum Option – Essential Infrastructure	中環填海計劃第III期最低限度填海範圍方案的必要基建項目			
2.1	Traffic Forecast in Central Business District	中環商業區的交通預測			
2.2	Proposed Central-Wan Chai Bypass from Rumsey Street Flyover to Causeway Bay	從林士街天橋至銅鑼灣擬建的中環至灣仔繞道			
2.3	Horizontal Alignment Options for the Section of CWB between Rumsey St Flyover and Man Yiu St	由林士街天橋至民耀街之間的中環灣仔繞道的橫向定線方案			
2.4	Central Reclamation Phase III - Typical Cross-section across Current Minimum Option	中環塡海計劃第Ⅲ期工程最低限度塡海方案之典型切面			
2.5	Central Reclamation Phase III - Reclamation Extent for Minimum Option	中環塡海計劃第Ⅲ期工程最低限度塡海方案			
2.6	Vertical Profile of the Central-Wan Chai Bypass Tunnel within CRIII	中環填海計劃第III期內中環灣仔繞道隧道的縱向斷面圖			
3.1	Proposed Central Reclamation Phase III Road Network and Junctions Performance in Central	擬建的中環填海計劃第 Ⅲ 期道路網及路口容車量表現 中環填海計劃第 Ⅲ 期 - 填海次序			
4.1	Central Reclamation Phase III - Reclamation Sequence				
4.2	Various Foundation Options for Cooling Water Pumping Station	冷卻用水抽水站地基方案			
4.3	Typical Section of Driven Pile Foundation for Cooling Water Pumping Station	冷卻用水抽水站打入椿地基的典型橫切面			
4.4	Typical Section of Bored Pile Foundation for Cooling Water Pumping Station	冷卻用水抽水站鑽孔椿地基的典型橫切面			
4.5	Typical Section of Caisson Foundation for Cooling Water Pumping Station	冷卻用水抽水站蓆式地基的典型橫切面			
4.6	Central Reclamation Phase III – Relocation options for Cooling Water Pumping Station	中環塡海計劃第III期冷卻水抽水站的遷移方案			
5.1	Piers in Central	中環碼頭			
6.1	Existing Public Landing Steps in Central Waterfront before the commencement of CRIII	於中環填海計劃第III期開展前的現有中環海傍公眾登岸梯級			
7.1	Arrangement of Piers with the marine operation requirement	基於海事運作要求的碼頭安排			
8.1	MTRCL's letter C/DM/5018/C500 dated 18 Dec 2000 enclosing a paper regarding the Hong K	ong Station extended overrun tunnel. 地下鐵路公司信件 (只有英文本)			
8.2	MTRCL's letter PJD/LAR/125 dated 21 Feb 2002 regarding implementation of 40m and the re-	maining 460m EOT. 地下鐵路公司信件 (只有英文本)			
8.3	Railway Development Strategy 2000	鐵路發展策略 2000			
9.1	Central Reclamation Phase III - Works Area for the Essential Infrastructure	中環填海計劃第III期必要基建項目的施工範圍			











- 沿手諾選中 Along Connaught Road Central
 - 在千諾道中與民幹街之間 Between Connaught Road Central and Man Cheung Street
- 当民祥街 Along Man Cheung Street
- 民群街以北 North of Man Cheung Street

現有走線 Current Alignment

A 03-12-03 (GENERAL AMENDMENT	SIGNED	SIGNED	
編號	日期	內容摘要	模別	模准	
no.	date.	description	checked	approved	

修訂REVISION

圖則名稱 drawing title

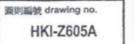
由林士街天橋至民耀街之間的中環灣仔繞道的橫向定線方案 Horizontal Alignment Options for the section of CWB between Rumsey Street Flyover and Man Yiu Street

	繪圖 drawn W L LAM	簽署 initial SIGNED	日期 date 24-10-03			
	核對 checked S K KEUNG	簽署 initial SIGNED	日期 date 24-10-03			
	核准 approved H H YFUNG	簽署 initial SIGNED	日期 date			

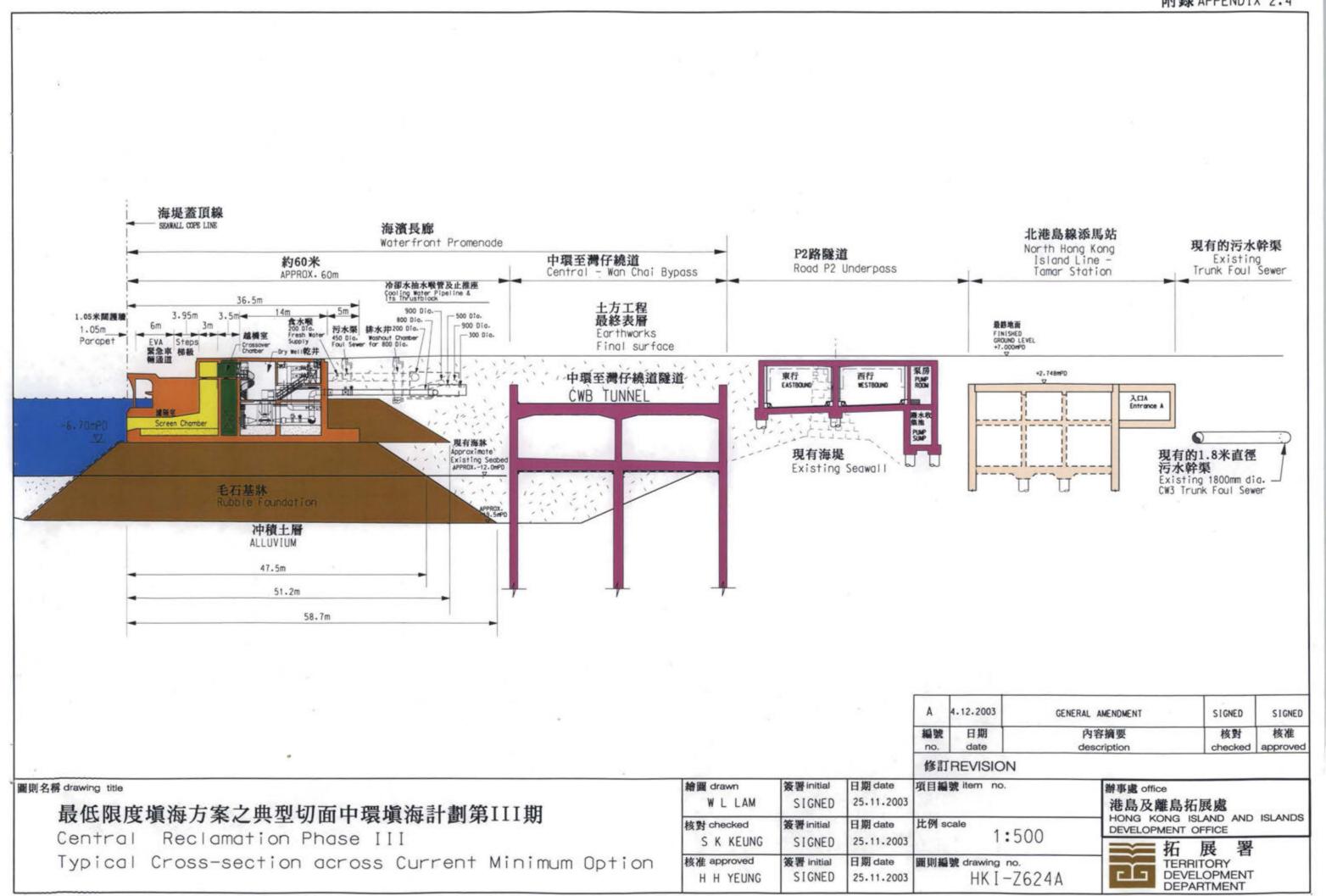
項目	編號	item	no.

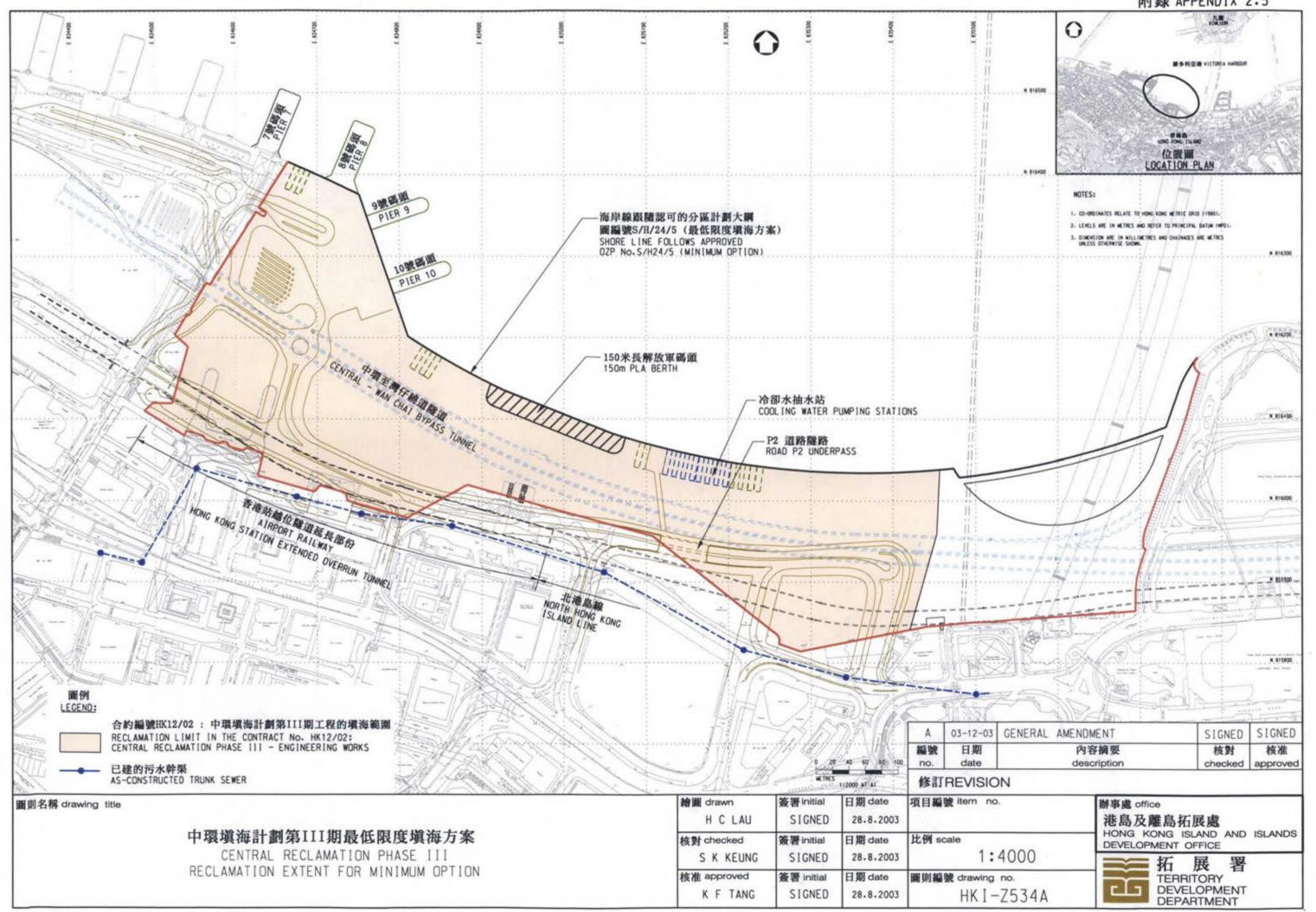
比例 scale

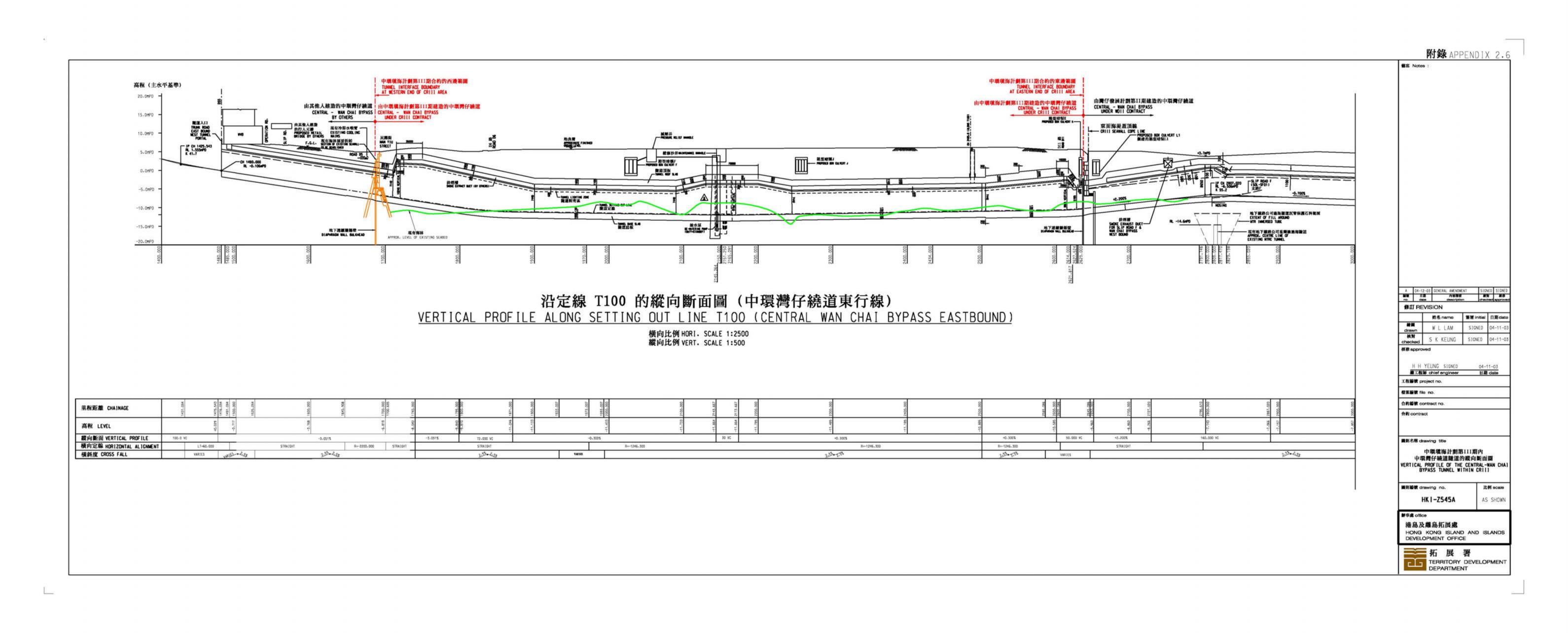
辦事處 office 海島及羅島拓展處 HONG KONG ISLAND AND ISLANDS DEVELOPMENT OFFICE

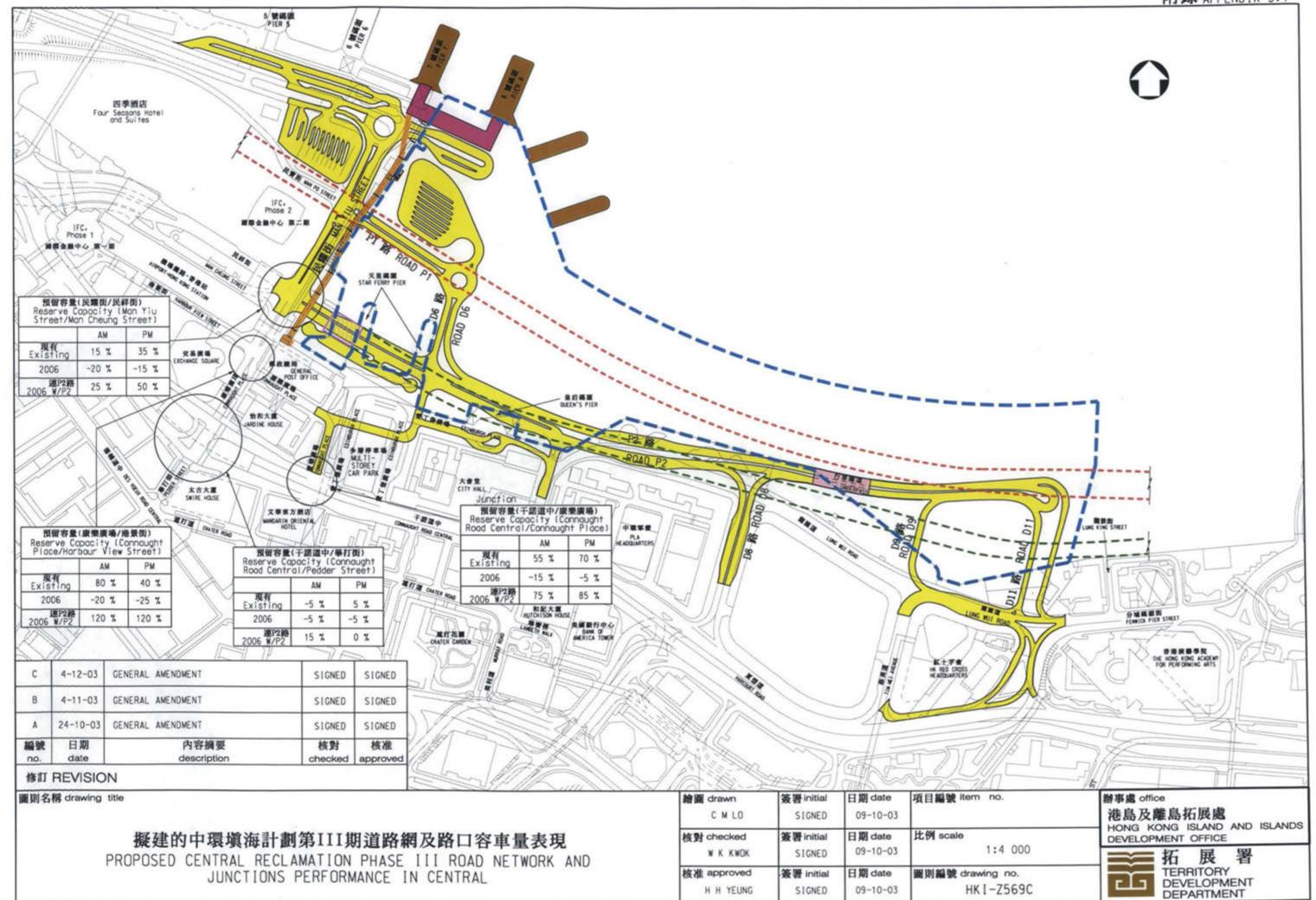


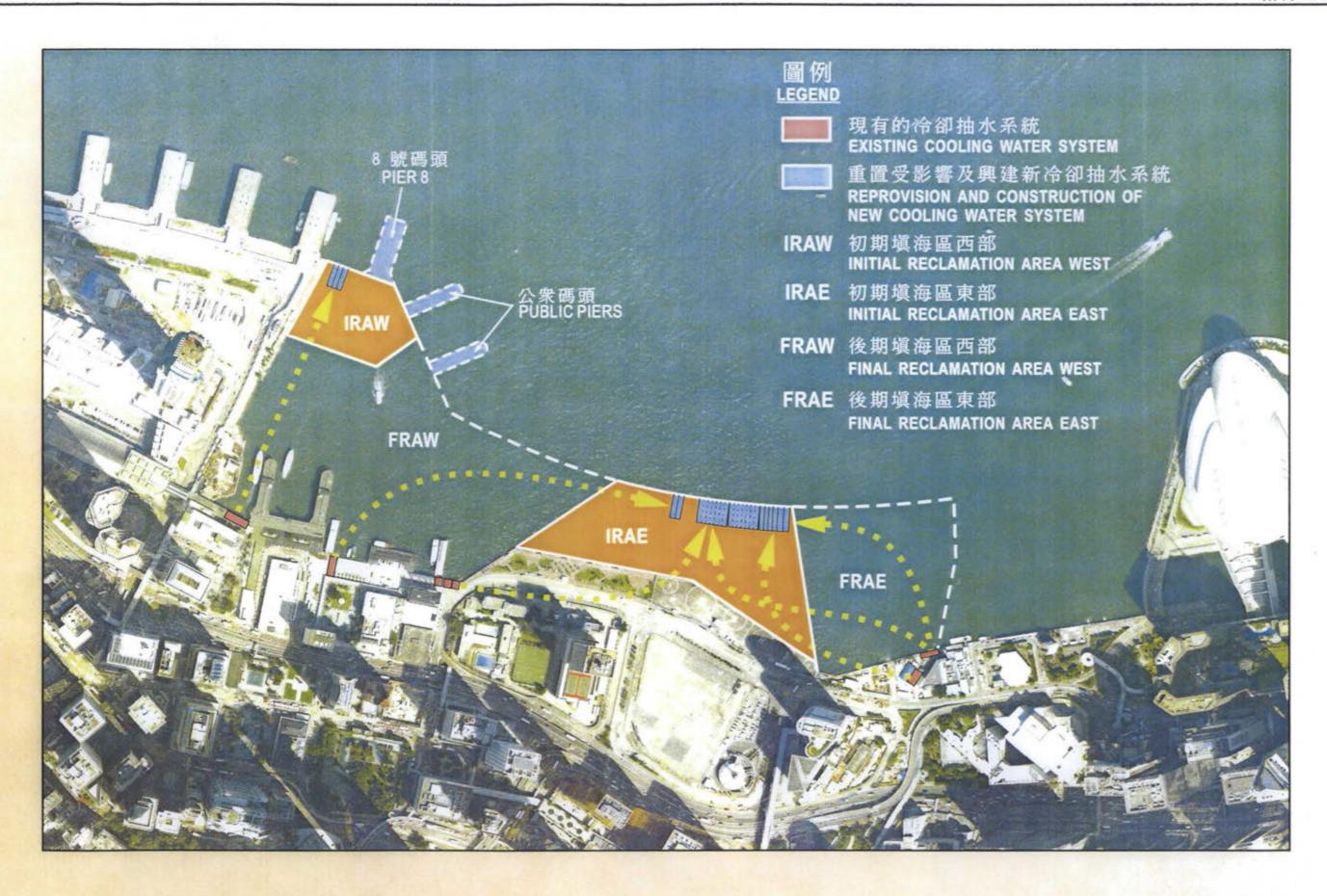












中環填海計劃第III期 - 填海次序 CENTRAL RECLAMATION PHASE III - RECLAMATION SEQUENCE 比例 scale

不按比例 N.T.S.

圖則編號drawing no.

HKI-Z479A

辦事處 Office

HONG KONG ISLAND AND ISLANDS DEVELOPMENT OFFICE

TERRITORY DEVELOPMENT DEPARTMENT

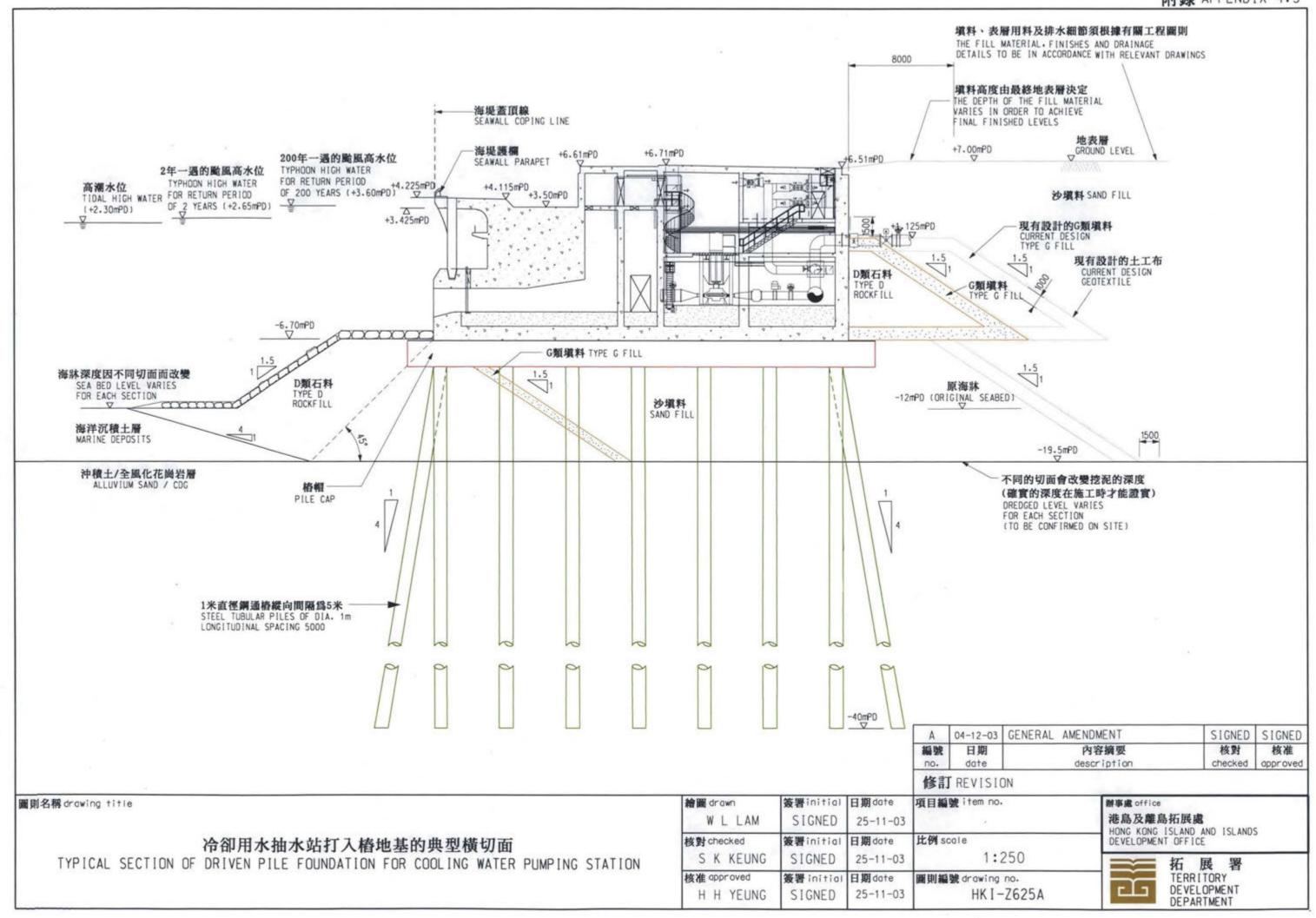
Various Foundation Options for Cooling Water Pumping Station

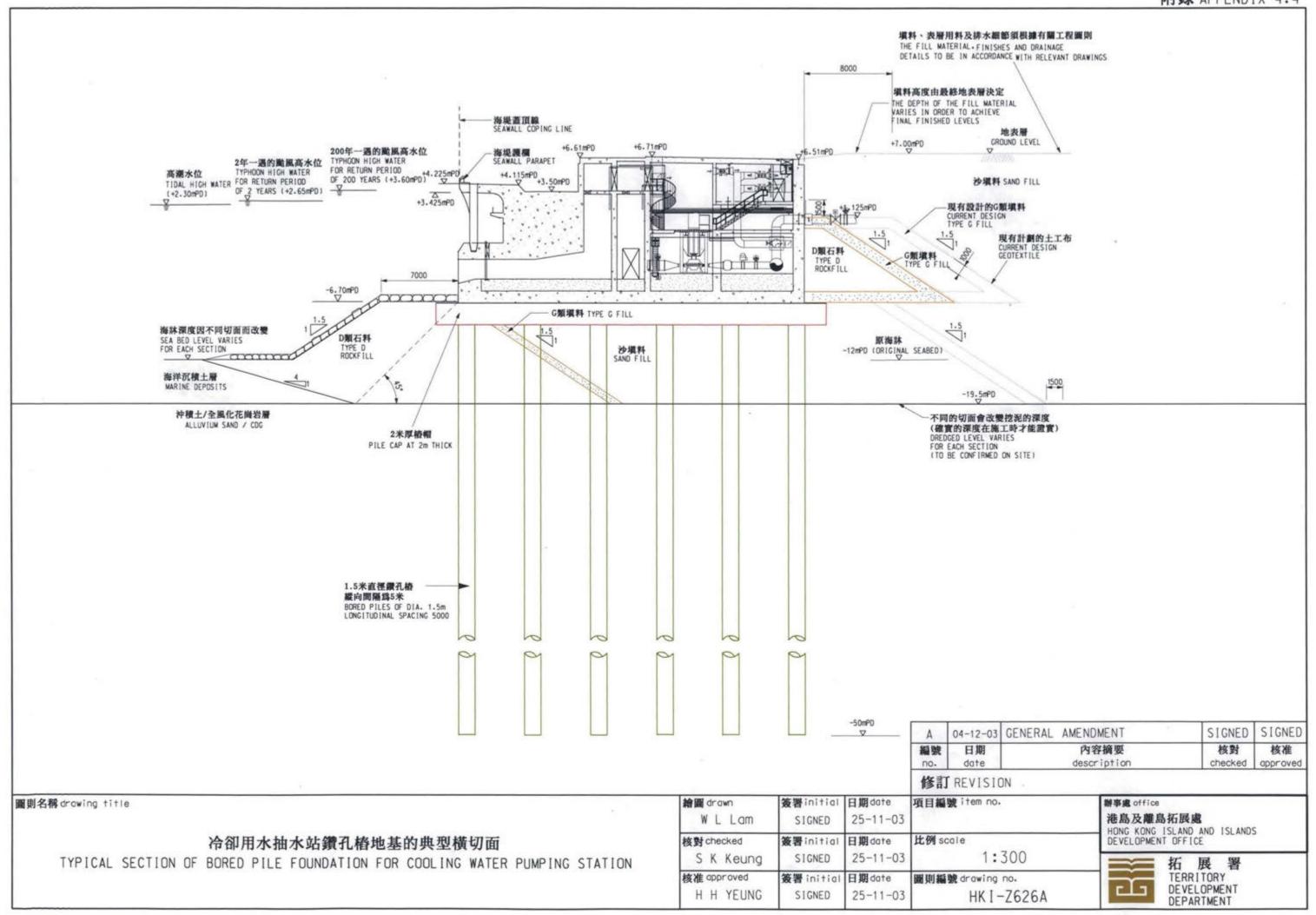
冷卻用水抽水站地基方案

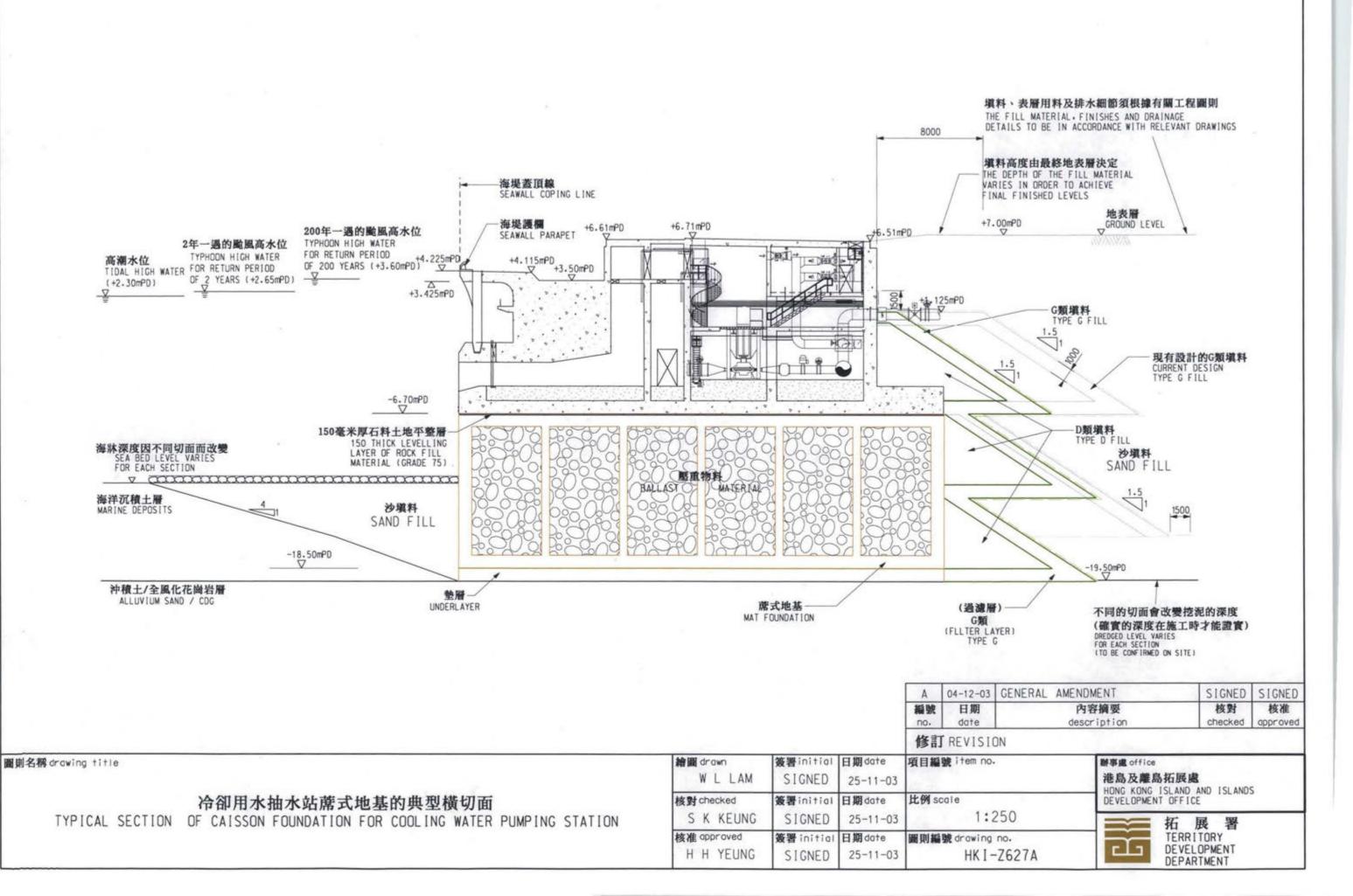
Foundation Scheme 地基方案	Feature 特點	Cost Estimation 估價 million \$ 百萬元	Advantage 優點	Constraints 限制	Remarks 評論
Rock Fill Mound (Current Design) 毛石基牀 (現時的設計)	Rock fill between elevations -6.7 mPD and -19.5 mPD with slope gradient of 1:1.5 在主水平基準以下 6.7 米到 19.5 米之間 建造毛石基床,兩旁斜坡 1:1.5	9.0	Optimal design 最佳的設計	-	Viable 可行的方案
Driven Pile Foundation 打入椿地基	Tubular Steel Piles of diameter 1 m penetrated to -40 mPD with top of pile cap level at -6.7 mPD. 直徑 1 米的鋼通椿需要打入到主水平基準以下 40 米,椿帽頂於主水平基準以下 6.7 米	121	6 m less lateral extent of the rock fill mound 寬度較現時毛石基牀設 計少6米	Difficult to construct the pile cap underwater 在水中建造椿帽很困難	Not viable. 不可行的方案 Private Sector may be required to share the foundation cost. 建造地基的價錢需要私營公司分擔
Bored Pile Foundation 鑽孔椿地基	Bored Piles of diameter 1.5 m penetrated to -50 mPD with top of pile cap level at -6.7 mPD. 直徑 1.5 米的鑽孔椿需要鑽入到主水平基準以下 50 米,椿帽頂於主水平基準以下 6.7 米	127	6 m less lateral extent of the rock fill mound 寬度較現時毛石基牀設 計少6米	Difficult to construct the pile cap underwater 在水中建造椿帽很困難	Not viable. 不可行的方案 Private Sector may be required to share the foundation cost. 建造地基的價錢需要私營公司分擔
Mat Foundation 蓆式地基	Precast cellular caisson with top and bottom elevations of –6.7 mPD and –18.5 mPD in-filled with ballast material 在主水平基準以下 6.7 米到 18.5 米之間 放置預製格孔式沉箱,內嵌壓重物料	120	6 m less lateral extent of the rock fill mound 寬度較現時毛石基牀設 計少6米	-	Not viable. 不可行的方案 Private Sector may be required to share the foundation cost. 建造地基的價錢需要私營公司分擔

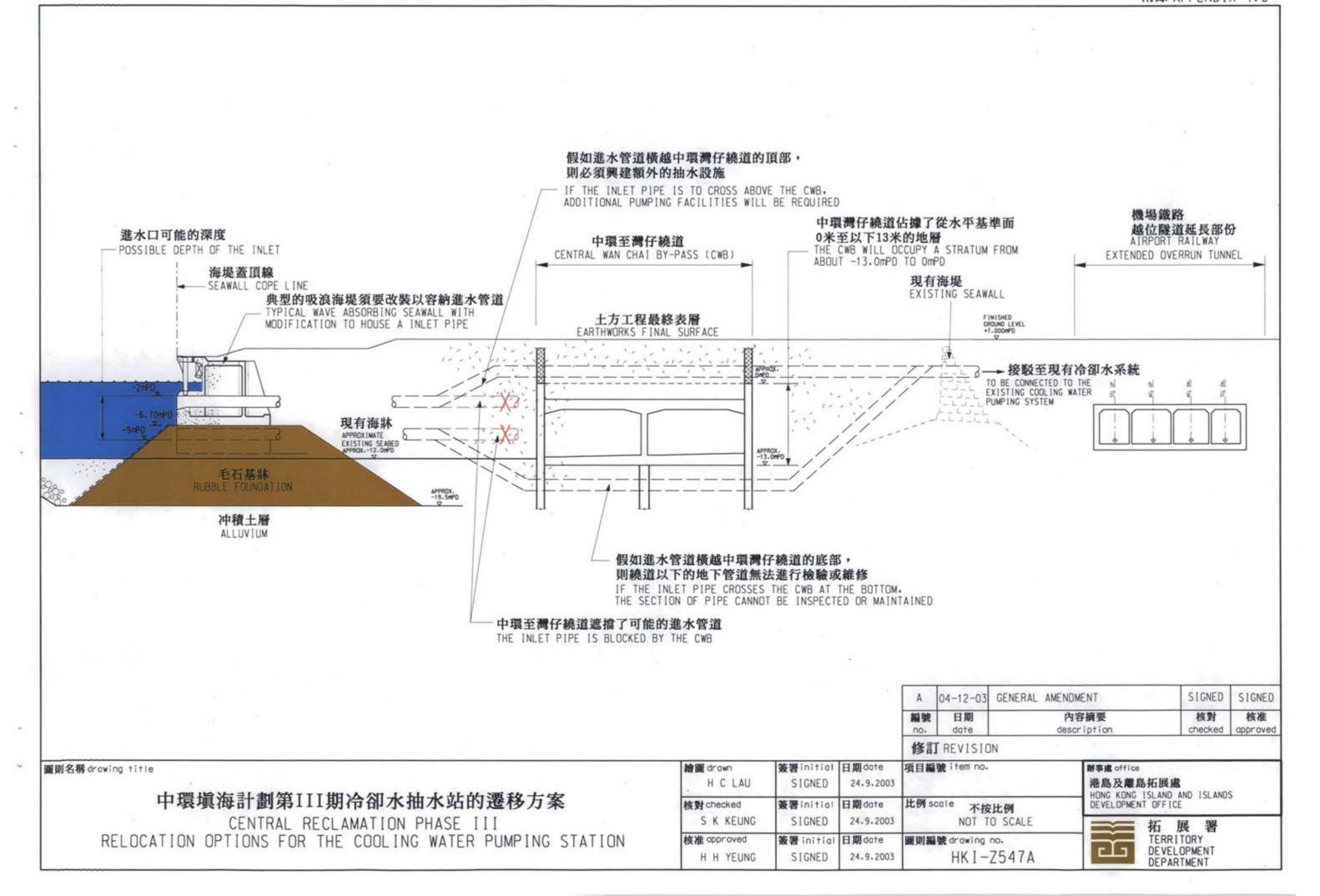
Notes 註解:

- (1) Cost estimations for various schemes do not include preliminary items and the caisson units. 每個方案的估價不包括開辦費用和海堤沉箱的價錢。
- (2) The cost estimations in this Table are the total cost for the foundation beneath the CWPS units that has the total length of approximately 175 m along the coping line direction. 每個方案的估價以沿海堤接近 175 米長的冷卻用水抽水站以下的地基建造總價計算。











附錄 APPENDIX 7.1 0 0 服务利益機 VICTORIA HARBOUR N 816500 碼頭間須保持約45米至160米距離給予渡輪與游河船隻安全使用 位置圖 LOCATION PLAN APPROX. 45m TO 100M CLEARANCE PROVIDED BETWEEN FERRY SERVICES: AND PLEASURE CRAFT MOTES: PIER 9 1. CO-ORDINATES RELATE TO HONG KONG METRIC GRID (1980). 碼頭間須保持65米距離給予船隻安全使用登岸梯級 65m REQUIRED FOR SAFE OPERATION OF VESSELS AT INNER SETS OF LANDING STEPS 2. LEVELS ARE IN METRES AND REFER TO PRINCIPAL BATUM (MPD). 解放軍碼頭150米範圍內不能有任何搭建物 3. CINENSION ARE IN MILLINETRES AND CHAINAGES ARE NETRES UNLESS CONCENTISE SHOWN. ANY STRUCTURES SHALL NOT BE ALLOWED WITHIN THE 150m MINIMUM CLEARANCE ZONE FROM THE PLA BERTH 10號歐頭 PIER 10 N 816200 P2路行車隧道 ROAD P2 UNDERPASS 解放軍軍用總國 PLA BERTH 冷卻水抽水站 COOLING WATER PUMPING STATIONS N 816100 THEFT HONG KONG STATION EXTENDED DVERRUN TUNNEL N 816000 NORTH HONG KONG N 815800 圖例 LEGEND: 04-12-03 GENERAL AMENDMENT SIGNED SIGNED 合約編號HK12/02: 中環填海計劃第III期工程的填海範圍 日期 內容續要 核對 核准 RECLAMATION LIMIT IN THE CONTRACT No. HK12/02: 編號 CENTRAL RECLAMATION PHASE 111 - ENGINEERING WORKS description checked approved 修訂REVISION 日期 date 項目編號 item no. 繪圖 drawn 簽署initial 辦事處 office W L LAM SIGNED 28.8.2003 港島及離島拓展處 HONG KONG ISLAND AND ISLANDS 圖則名稱 drawing title 比例 scale 簽署initial 日期 date 核對 checked DEVELOPMENT OFFICE 中環填海計劃第III期最低限度填海方案 1:4000 S H YU SIGNED 28.8.2003 基於海事運作要求的碼頭安排 拓 展署 CENTRAL RECLAMATION PHASE III 核准 approved 日期 date 簽署 initial 圖則編號 drawing no. TERRITORY RECLAMATION EXTENT FOR MINIMUM OPTION DEVELOPMENT 28.8.2003 HK I -Z553A ARRANGEMENT OF PIERS WITH THE MARINE OPERATIONAL REQUIREMENT H H YEUNG SIGNED DEPARTMENT



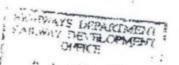
Mr. Timothy Leung Highways Department

1/F, Ho Man Tin Government Offices

88 Chung Hau Street

Ho Man Tin

Kowloon



BY FAX & POST

Our ref: C/DM/5018/C500

18 December 2000

8/5/2/

Dear Sir,

Hong Kong Station Extended Overrun Tunnel

I refer to your letter ref. RD 8/5/2/1 dated 30 November 2000.

As requested, I enclose a copy of the paper which confirms the EOT is required for the LAR to meet safety requirements and to provide train reversing facilities. Without the EOT, the LAR cannot operate to its full design capacity.

Yours faithfully,

Peter Leung

Design Manager (New Projects)

Encl.

c.c. TDD - Mr. K F Tang

PL/CN/cb/053/EFS#00483571

地罐有限公司 MTR Corporation Limited 香港九龍灣偉業街33號 德福廣場地鐵大廈 香港郵政總局信箱 9916 號 電話:(852) 2993 2111 傳真:(852) 2798 8822 銀址:www.mtr.com.hk

MTR Tower, Telford Plaza, 33 Wai Yip Street, Kowloon Bay, Hong Kong. GPO Box 9916, Hong Kong. Telephone: (852) 2798 8822 Website: 18822 2798 8822

LANTAU AND AIRPORT RAILWAY HONG KONG STATION EXTENDED OVERRUN TUNNEL

1. INTRODUCTION

1.1 This paper describes the Hong Kong Station Extended Overrun Tunnel and outlines the reasons why it is required.

2. BACKGROUND

- 2.1 During the feasibility study and design stages of the Lantau and Airport Railway (LAR), it was identified that an overrun tunnel was required east of Hong Kong Station for the following reasons:
 - (a) To ensure trains failing to stop at the design position do not collide with the tunnel end.
 - (b) To allow trains to be turned back on the east side of the station without hindering trains approaching from the west, thereby enabling the LAR to operate to its design capacity and allow the use of separate platforms for AEL arrivals and departures.
- 2.2 Due to phasing problems with the Central Reclamation, it was recognised from the outset that the full overrun tunnel could not be completed by the opening date of LAR Phase 1. A scheme was developed to construct the overrun tunnel in two stages to suit the phasing of the Central Reclamation.
- 2.3 In the first stage, as a compromise solution which would avoid demolition of the Star Ferry pier, a short overrun tunnel of approximately 80m route length was planned to be constructed together with LAR Phase 1. This short overrun tunnel has been completed and put into operation when Phase 1 of the LAR opened in mid-1998.
- 2.4 In the second stage, the overrun tunnel would be extended to its full extent to satisfy the requirements stated in section 2.1 above. This extension is now called the Hong Kong Station Extended Overrun Tunnel (EOT) and is intended to be constructed at the same time as Central Reclamation Phase III (CRIII).
- 2.5 The original envisaged programme for completion of CRIII and the EOT was 2001. However, due to problems with the scope of CRIII, the CRIII programme has been delayed. The current programme shows that CRIII construction will commence in April 2002 and complete by end 2006.
- 2.6 It should be noted that construction of the EOT was agreed with Government during negotiations on the LAR project in 1991. This agreement is now embodied in paragraph 8A of the Airport Railway Financial Support Agreement.

3. LAR PHASE 1 (SHORT OVERRUN TUNNEL)

- 3.1 The schematic layout at Hong Kong Station for LAR Phase 1 is shown in Figure 1 attached to this paper. The existing railway facilities are not sufficient to meet the requirements in section 2.1 above. This is explained in the following sections.
- 3.2 For safety reasons, an overrun tunnel of at least 110m is required at all terminal stations to ensure trains failing to stop at the design position, as a result of human error or defective equipment, would not collide with the tunnel end. These train overruns occur relatively infrequently and pose no safety risk provided adequate overrun tunnel is available. It is not possible to eliminate overruns.
- 3.3 As the existing short overrun tunnel constructed as part of LAR Phase 1 is only 80m long, it does not meet the safety requirements. This is tolerable while the LAR operates at extended headways, as on a statistical basis the risk of such accidents can be accepted. The HK Railway Inspector has accepted this sub-standard overrun tunnel, based on the lower frequencies of AEL and TCL trains during initial operation of LAR. MTR is required to report on an annual basis, whether the risk remains acceptable.
- Taking into account the latest patronage figures and forecasts and proposed improvements to headways to accommodate increased flows from the new West Rail connection at Nam Cheong Station, the latest risk assessment conducted by MTR shows that the EOT should be commissioned latest by 2003. Based on the current CRIII programme, the earliest EOT opening date that can be achieved, assuming the EOT construction is entrusted to TDD under CRIII, is 2006. MTR Corporation consider this to be marginally tolerable, again on a statistical basis, and has advised the HK Railway Inspector accordingly.
- 3.5 Whilst the existing crossovers located on the west side of Hong Kong Station allow trains to reverse at HOK, they constrain the overall LAR capacity due to the following reasons:
 - (a) The location and geometry of the turnouts for the crossovers impose speed restrictions on approaching trains.
 - (b) Trains leaving the TCL platform obstruct the approaching track for a short period of time, requiring approaching trains to be kept further away.
 - (c) The single AEL crossover encroaches into the AEL platform thus imposing a limit of 8 car operation for the AEL. In order to provide full capacity, AEL has to operate with 10 car trains and with two platforms.
 - (d) With a single AEL crossover and platform, approaching AEL trains have to wait until the single AEL platform is cleared. This constrains the AEL service and consequently the TCL service.
- In order to operate AEL and TCL to full design capacity, the existing crossovers west of HOK have to be removed and re-provisioned east of HOK and an overrun tunnel of sufficient length (approximately 500m) for trains to reverse is required.

4. LAR PHASE 2 – HOK EXTENDED OVERRUN TUNNEL

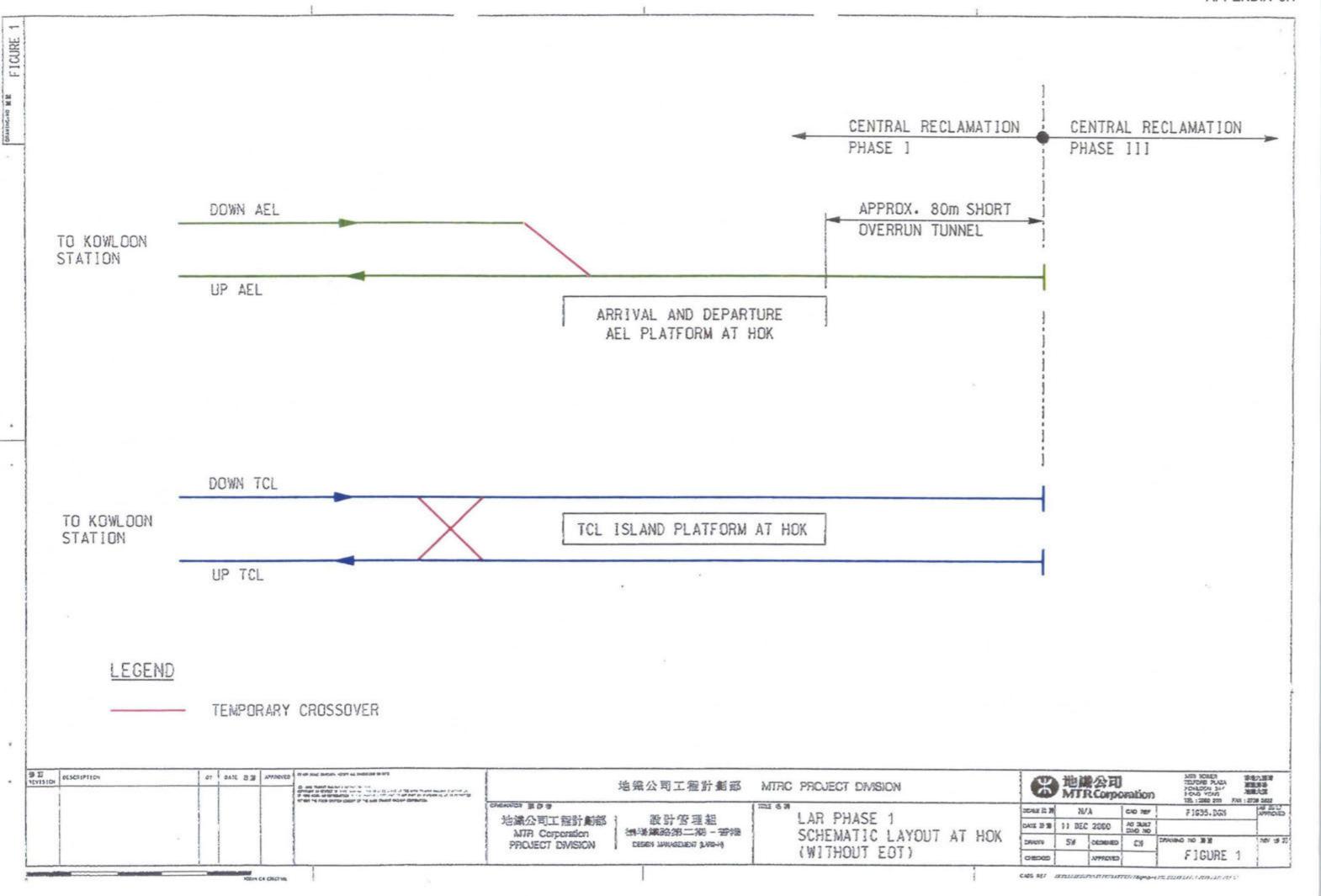
- 4.1 The required extent of the LAR Phase 2 HOK Extended Overrun Tunnel which satisfies the requirements in section 2.1 is shown in the attached Figure 2. The length of the EOT has been calculated to meet safety requirements and to allow trains to reverse.
- 4.2 After commissioning of the EOT, passengers arriving at HOK Station would alight at the arrival AEL or down TCL platforms. The trains will then enter the overrun tunnel via the crossovers east of HOK and return to the departure AEL or up TCL platforms to pick up departing passengers.

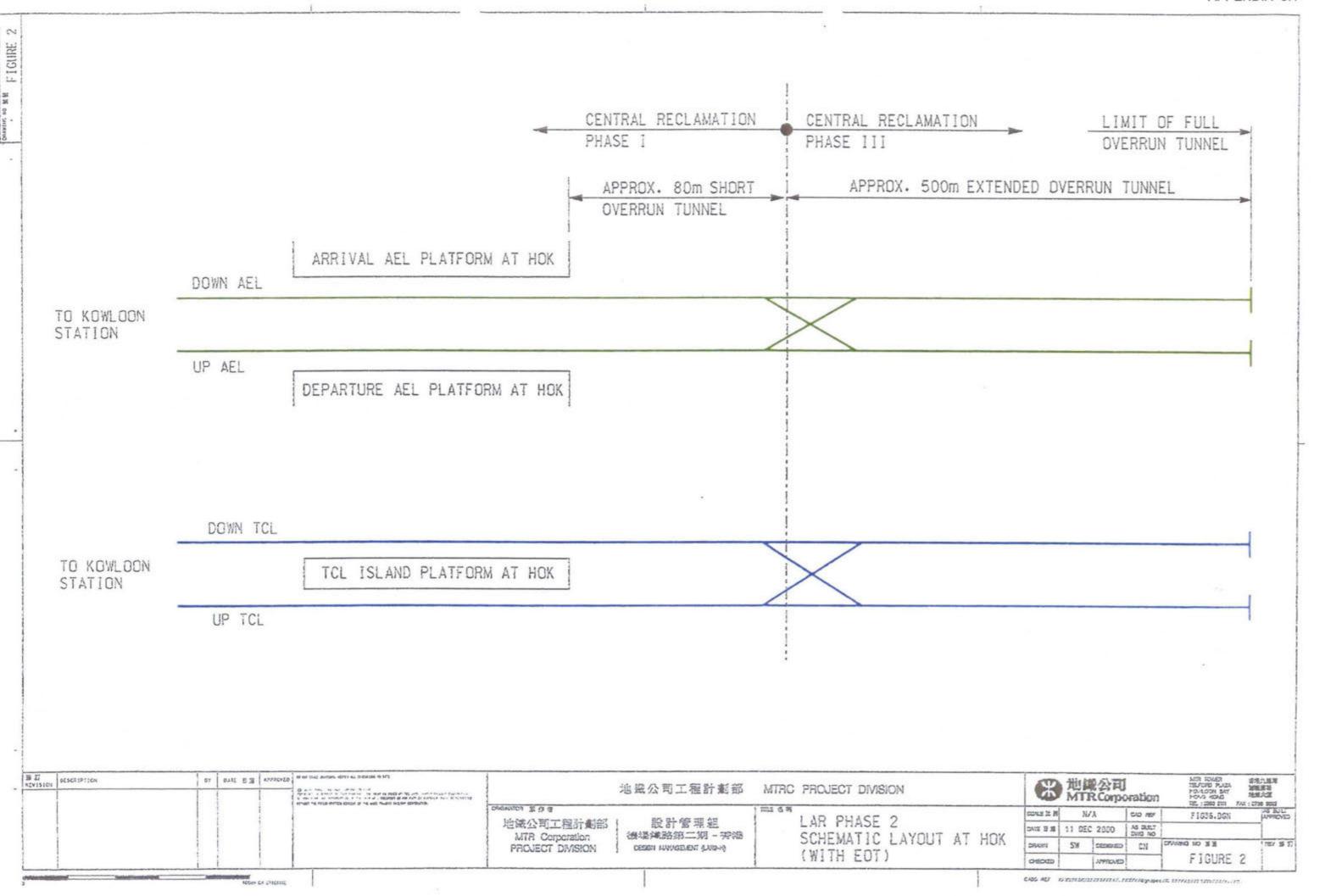
5. CONCLUSIONS

- 5.1 The existing short overrun tunnel east of Hong Kong Station was a compromise solution to reclamation phasing problems and is not adequate to meet safety and operational requirements at improved LAR service levels.
- 5.2 The HOK Extended Overrun Tunnel has been delayed from the original intended completion date of 2001 and must be constructed as soon as possible to meet the safety and operational requirements in section 2.1 above.

CN/dh/035

18.12.00





Our Ref.

Date

PID/LAR/125

21 February 2002

HIGHWAYS DEPARTMENT RAHLWAY DEVELOPMENT

2 2 FEB 2002

RECEIVED

BY FAX & POST (2537 3231)

Secretary for Transport Transport Bureau 16/F Murray Building Garden Road Hong Kong

Attention : Mr Pani Tang

70/01

Central Reclamation Phase III Hong Kong Extended Overrun Tunnel

I refer to our previous discussions on the intended arrangements for construction of the Hong Kong Extended Overun Turnel (EOT) and wish to advise the Corporation's current position following a review of the overall need, based on the latest projections for growth in demand on the Airport Express (AEL) and Tung Chung Line (TCL).

As you may be aware the need for the EOT is dictated by two issues.

The first concerns the ability of the AFL and TCL to meet the future demand. Any major improvements in headways which might be needed to achieve higher capacities, can only be realised if the second AEL platform is provided and trains are turned back on the east side of Hong Kong Station. The full 500m of the EOT is needed for this purpose.

The second issue is a safety issue and concerns the risk of trains colliding with the end wall of the tunnel. The current overnun of 84m, which was the maximum possible at the time of construction of Hong Kong Station, is less than our standard length of 110m.

Recent data on population assumptions for North Lantau, West Kowloon and the North West NT, updated patronage forecasts for the Airport, observed current ridership on the AEL and TCL, and current and envisaged future levels of bus competition have been used to develop revised predictions for future demand and the necessity for increasing the frequency of TCL and AEL services and hence the need for the EOT. Assuming that the rate of population increase in the AEL and TCL catchments is at the new reduced rate and that the KCRC West Rail and Kowloon Southern Link projects are completed in 2003 and 2008 respectively, the ability of the existing TCL and AEL to accommodate the reduced future demand is now predicted to be adequate until at least 2014. Only at that time will the provision of the full 500m EOT, with train reversing provisions east of Hong Kong Station, be required.

治療有限公司

否形九章建位双亚亚英 建福度增越越大度 香港等政策后信頼 976 克 を話:(852) 2993 2771 學美:(852) 2798 4822

HUNTING I MUTENTAL

MTATower, Teifond Plaza 33 West You Street, GPC Sex 9916. Ho Hephone: (852) 2999 2111

L'INCCE TENEDIACET

- 2 -

With regard to the safety issue the existing overrun tunnel length of 84m remains a safety concern for the operation of the TCL and AEL. Our current assessment is that this arrangement will be tolerable until 2006, at which time patronage increases will necessitate an increase in the overrim timnel length. A modest increase of the timnel length by approximately 40m will overcome the safety concern.

The Corporation has therefore concluded that we only require a 40m extension of the existing overrun tunnel at this time.

We do acknowledge the desirability of avoiding future disruption to the completed CRIII works, by constructing the full 500m of overrun tunnel concurrently with the reclamation works. We would therefore welcome discussions on the way forward, with one suggestion being that, except for the 40m required for safety reasons, Government fund and undertake these tunnel works as railway route protection measures, to be refunded by the Corporation when the works are incorporated into the railway to meet operational needs. Other funding arrangements may also need to be explored, possibly combined with a package for NIL funding.

We understand that Government intend to invite tenders for the CRIII works in April 2002 and award the contract in August 2002. In order not to delay this programme and to allow sufficient time to consider the timing and funding arrangements for the EOT we would propose that the EOT works are included in the contract as an Option subject to excision. It is understood that the contractor would not need to be instructed to proceed with the EOT until December 2002. This should allow sufficient time for a decision on funding and route protection to be taken.

We recognize that this strategy differs from our original intention and regret having to inform you of this approach in the final stages of preparation of the tender documentation for CRIII by TDD, however the Corporation has only recently received the planning data confirming the very substantial reduction in population growth forecasts.

We would be pleased to discuss further as necessary.

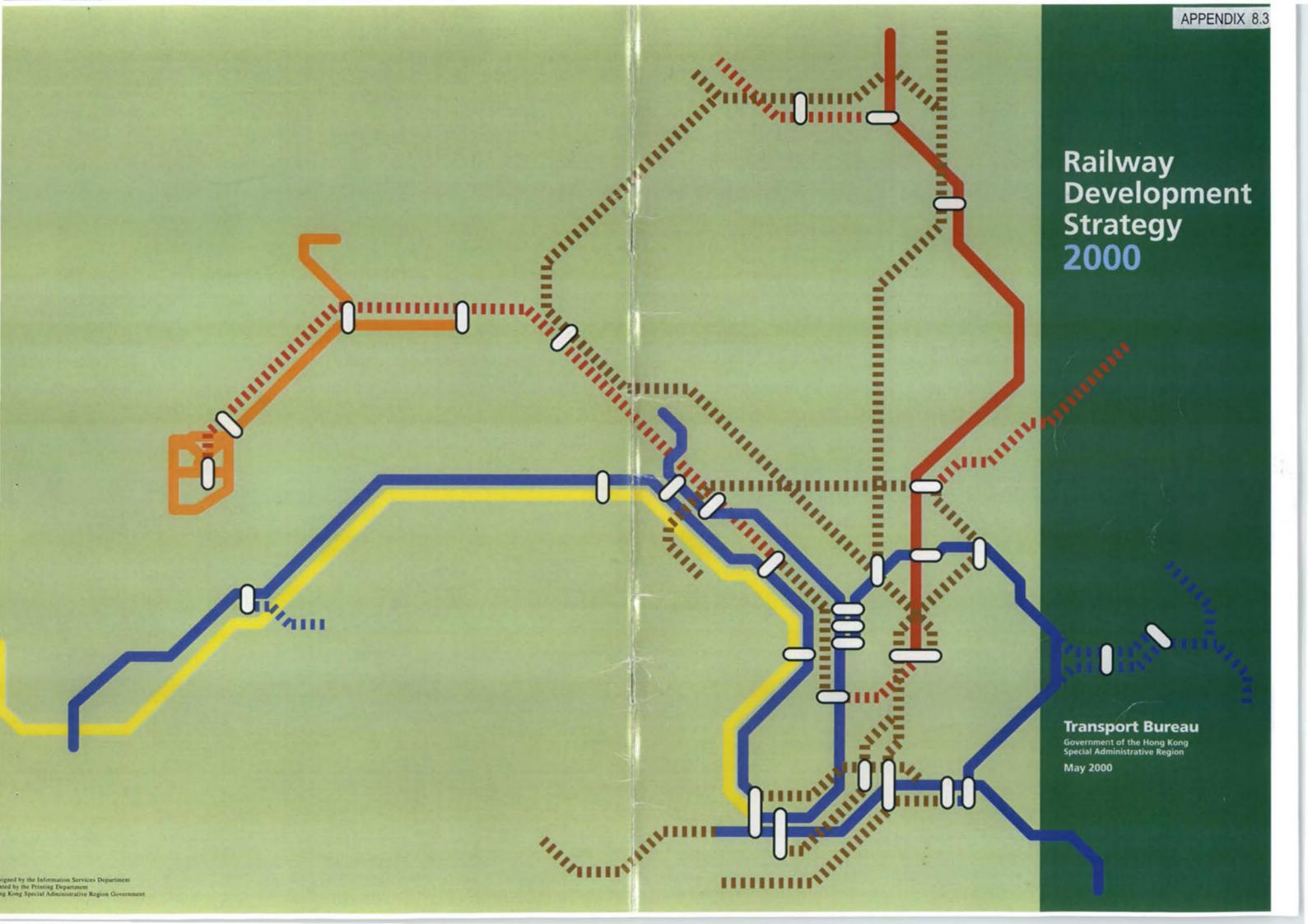
Yours sincerely.

RJ. Black Project Director

c.c. RDO, HyD - Attn. Mr John Chai TDD - Attn. Mr H.K. Wong FB - Attn. Mr M. Glass

RJB/AMG/af

21-553-2002 14:54



Government of the Hong Kong Special Administrative Region Transport Bureau

Railway Development Strategy 2000

Contents

₹.	INTROBUCTION	rage
	Policy on railway development	1
	The 1994 Railway Development Strategy	2
2.	THE SECOND RAILWAY DEVELOPMENT STUDY	
	The study objectives	3
	New railway schemes	3
3.	RAILWAY DEVELOPMENT STRATEGY 2000	
	Key features of the preferred network	4
	The new railway projects	. 6
	 Island Line Extensions Sha Tin to Central Link Kowloon Southern Link Northern Link Regional Express Line Port Rail Line 	
	Hung Hom as the Mass Transportation Centre	14
	Benefits of the expanded railway network	14
	Implementation	16
	Order of costs	19
	Long term railway development possibilities	20

1 INTRODUCTION

- 1.1 This is the second Railway Development Strategy to be prepared for Hong Kong. The Strategy provides the planning framework for further expansion of Hong Kong's railway network up to 2016.
- 1.2 The Strategy is based on the findings of the Second Railway Development Study which was completed in early 2000. The further decision to build individual railway projects will follow on detailed engineering, environmental and financial studies relating to these projects. Public consultation will be undertaken prior to the implementation of any railway projects.

Policy on railway development

- 1.3 Railways are environmentally friendly and efficient mass carriers. Hong Kong's railways now account for more than 30% of daily domestic passenger travel, over 80% of cross-boundary passenger trips and a limited amount of freight movement between Hong Kong and the Mainland. The new transport strategy entitled "Hong Kong Moving Ahead" promulgated in October 1999 has reaffirmed the need to rely on railways as the backbone of Hong Kong's transport system. Railways are essential to Hong Kong's continued economic, social and land development, and will be given priority in Government's plans for infrastructure development.
- 1.4 The two Railway Corporations have to operate on a prudent commercial basis. Government acknowledges that any new railway project will have to provide a commercial return to the Corporation, or any other operator, chosen to implement the project. The present practice to allow, where appropriate, the Railway Corporations to develop property on the stations and depots has worked well and should be retained. Government will also continue to pay for ancillary public works item required to support railway development. Other support for marginally viable projects will be considered on the basis of the need for the individual projects.

1

The 1994 Railway Development Strategy

- 1.5 The Government formulated the first Railway Development Strategy for Hong Kong in 1994. It set out a railway development programme, according priority to the implementation of three new railway projects, namely, the KCR West Rail, the MTR Tseung Kwan O Extension, and the Ma On Shan to Tai Wai Rail Link which is to couple with an extension of the KCR East Rail from Hung Hom to Tsim Sha Tsui.
- 1.6 The three rail projects are now at different stages of implementation. In addition, the decision was taken in 1999 for the implementation of the Sheung Shui to Lok Ma Chau Spur Line to provide additional rail passenger crossing facilities between Hong Kong and Shenzhen to relieve the congestion at Lo Wu. In late 1999, we decided to build the Penny's Bay Rail Link to open in time for the Disney Theme Park. Thus a total of six new railway lines are scheduled for completion between 2002 and 2005. These six railway lines cost over HK\$100 billion. Their completion signifies the expansion of the existing railway network by about 40% to more than 200 kilometres. The completed railway network by the year 2006 is shown in Figure 1.



FIGURE 1: 2006 RAILWAY NETWORK

2. THE SECOND RAILWAY DEVELOPMENT STUDY

2.1 In order to cater for Hong Kong's continued population growth (which is projected to reach 8.9 million by 2016) and the increasing cross-boundary social and economic activities, Government commissioned the Second Railway Development Study (RDS-2) in March 1998 to examine how best to further expand the rail network to the year 2016.

The study objectives

- 2.2 The RDS-2 examined the needs of the future railway network to fulfill the following objectives:
 - (a) to relieve bottlenecks in the existing railway systems;
 - (b) to provide rail service to strategic growth areas for housing and economic development;
 - (c) to meet cross-boundary passenger and freight demands; and
 - (d) to increase the share of rail in the overall transport system to reduce reliance on roadbased transport.

New railway schemes

- 2.3 In order to achieve the intended objectives, RDS-2 has studied a number of new railway schemes which can be combined in different ways with the existing railway lines to form expanded railway networks. Six component railway schemes have been shortlisted for the formation of the basic network options. They are:-
 - (a) North Hong Kong Island Line;
 - (b) East Kowloon Line;
 - (c) Fourth Rail Harbour Crossing;
 - (d) Tai Wai to Diamond Hill Link;
 - (e) Kowloon Southern Link; and
 - (f) Northern Link
- 2.4 In addition, three stand-alone schemes, which would not affect the formation of the basic network options, have also been identified to serve transport needs in particular corridors. They are the West Hong Kong Island Line, the Regional Express Line and the Port Rail Line.
- 2.5 RDS-2 recommends that network expansion should be based on the East Kowloon Line connecting with the Fourth Rail Harbour Crossing.

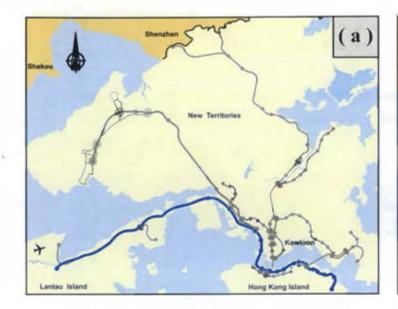
3. RAILWAY DEVELOPMENT STRATEGY 2000

3.1 Based on the key findings of RDS-2, Government has formulated Railway Development Strategy 2000. The Strategy maps out the preferred railway network expansion plan for the HKSAR up to the year 2016.

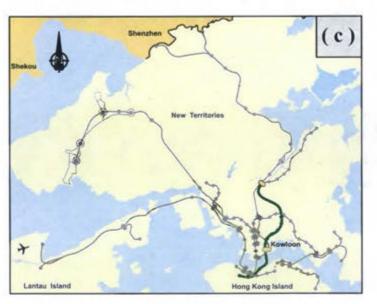
Key features of the preferred network

- 3.2 On completion, the Network will feature six new rail corridors and a potential Port Rail Line (PRL). The six new rail corridors are shown in Figure 2. They are:-
 - (a) an east-west corridor from Chai Wan to Tung Chung formed by the MTR Island Line (ISL), the North Hong Kong Island Line (NIL) and the Tung Chung Line (TCL);
 - (b) a second east-west corridor from Tseung Kwan O to Kennedy Town formed by the MTR
 Tseung Kwan O Extension, ISL and the West Hong Kong Island Line (WIL);
 - (c) a north-south corridor which, depending on the operator, could either run direct from Tai Wai or Ma On Shan to Hong Kong Island via South East Kowloon;
 - (d) a Kowloon Southern Link (KSL) that will provide convenient connection between the KCR East Rail and West Rail via the Kowloon peninsula;
 - (e) a Northern Link (NOL) that will connect the KCR East Rail and West Rail at the northern part of the New Territories; and
 - (f) a Regional Express Line (REL) that will provide rapid rail transport between the Boundary and the Metro areas.

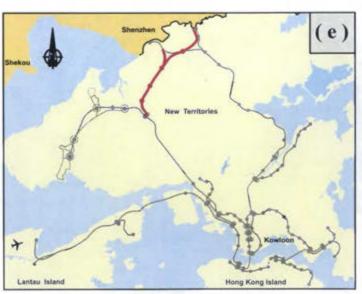
The potential PRL will be from Lo Wu to the Kwai Chung terminals, via either East Rail or West Rail.











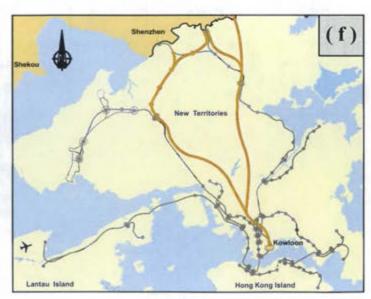


FIGURE 2: NEW RAIL CORRIDORS

The new railway projects

3.3 In order to achieve the Network desired, we intend to group the new railway schemes identified in RDS-2 into the following projects for implementation (see Figure 7 on pages 10 and 11):-

Island Line Extensions

- 3.4 The Island Line Extensions comprise a new North Hong Kong Island Line (NIL) and a West Hong Kong Island Line (WIL). The NIL is an extension of the existing MTR TCL along the north shore of Hong Kong Island to run through onto the eastern half of the existing MTR ISL at the Fortress Hill Station. Concurrently, the new MTR Tseung Kwan O Extension (TKE) will join and run through onto the western half of the ISL at the Tin Hau Station. NIL can relieve the Causeway Bay section of the ISL and the Nathan Road section of the Tsuen Wan Line (TWL) by redistributing the cross-harbour trips to the TCL and TKE. The WIL is an extension of the MTR ISL from Sheung Wan to Kennedy Town.
- 3.5 Implementation of the NIL depends on the forecast timing of occurrence of the bottlenecks on the ISL and TWL and on the availability of the Central and Wanchai Reclamation. The viability of WIL would be affected by the progress of the Western District Development and success of the urban renewal process. As both NIL and WIL are natural extensions of the Island Line, they should be considered to be implemented as a package. The layout of the two railway lines is shown in Figure 3.



FIGURE 3: ISLAND LINE EXTENSIONS

3.6 The Sha Tin to Central Link will be a new strategic rail corridor in the rail network formed by EKL, FHC and TDL (see Figure 4). Not only will it increase significantly the cross-harbour and Shatin-Kowloon rail capacities, it will also help to redistribute the flows and relieve the other railway lines in Hong Kong and Metro Kowloon.

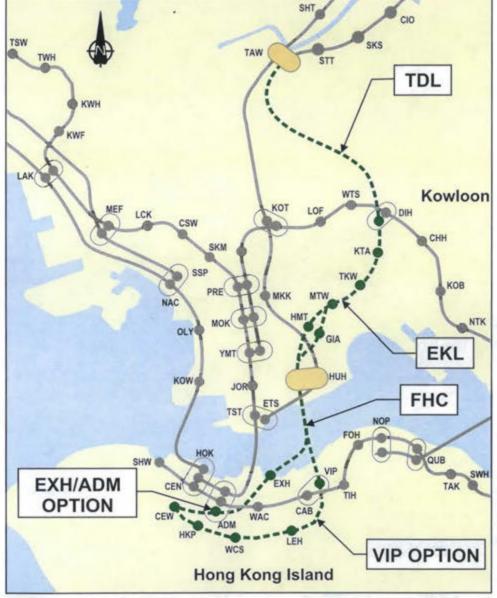


FIGURE 4: SHA TIN TO CENTRAL LINK

3.7 The East Kowloon Line (EKL) section of the Link connects the MTR Diamond Hill Station and the KCR Hung Hom Station. RDS-2 has found that on its own, the EKL is not an efficient, nor a viable project. It should be connected with other railway schemes to form a strategic rail corridor. To the south, the EKL would be extended from Hung Hom across the harbour to Hong Kong Island, forming the Fourth Rail Harbour Crossing (FHC). To the north, the EKL would be extended from Diamond Hill to Tai Wai, forming the Tai Wai to Diamond Hill Link (TDL).

- 3.8 The Fourth Rail Harbour Crossing (FHC) starts from Hung Hom on Kowloon side. On Hong Kong Island, the FHC could route directly to Central via Exhibition/Admiralty (the EXH/ADM Option) or via Victoria Park, Leighton Hill and Wanchai South (the VIP Option). The EXH/ADM Option is cheaper to build and provides a direct route from Hung Hom to Central. It caters well for the daily commuter traffic. On the other hand, the VIP Option would be able to accommodate a more diversified nature of trips as it connects to the busy commercial and retail Causeway Bay district. In longer term, the VIP Option may help facilitate a shift of the development focus from Central towards Causeway Bay.
- 3.9 The Tai Wai to Diamond Hill Link (TDL) will provide an additional rail corridor from North East New Territories to Kowloon so as to relieve the East Rail bottleneck at Beacon Hill Tunnel.
- 3.10 The implementation of the Sha Tin to Central Link will depend on the overall transport requirement of the network expansion, the pace of the planned developments in North East New Territories and Ma On Shan as well as the programme of the South East Kowloon Development and the Central and Wanchai Reclamation.

Kowloon Southern Link

3.11 The KSL is an extension of West Rail from its Nam Cheong Station to connect with the KCR Tsim Sha Tsui Extension. The layout of the KSL is shown in Figure 5.



FIGURE 5: KOWLOON SOUTHERN LINK

Northern Link

3.13 The Northern Link (NOL) would connect West Rail at Kam Sheung Road to East Rail at Kwu Tung and to the boundary crossing point at Lok Ma Chau. It will provide domestic passenger service for the strategic growth areas in North New Territories and cross-boundary passenger service for the western part of the HKSAR. Implementation timing of the line will depend on the development programme of the strategic growth areas in North East New Territories and North West New Territories and the growth of the cross-boundary traffic. The layout of NOL is shown in Figure 6.

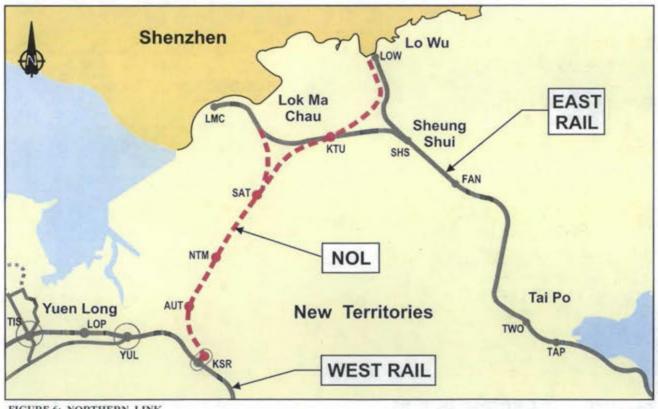


FIGURE 6: NORTHERN LINK

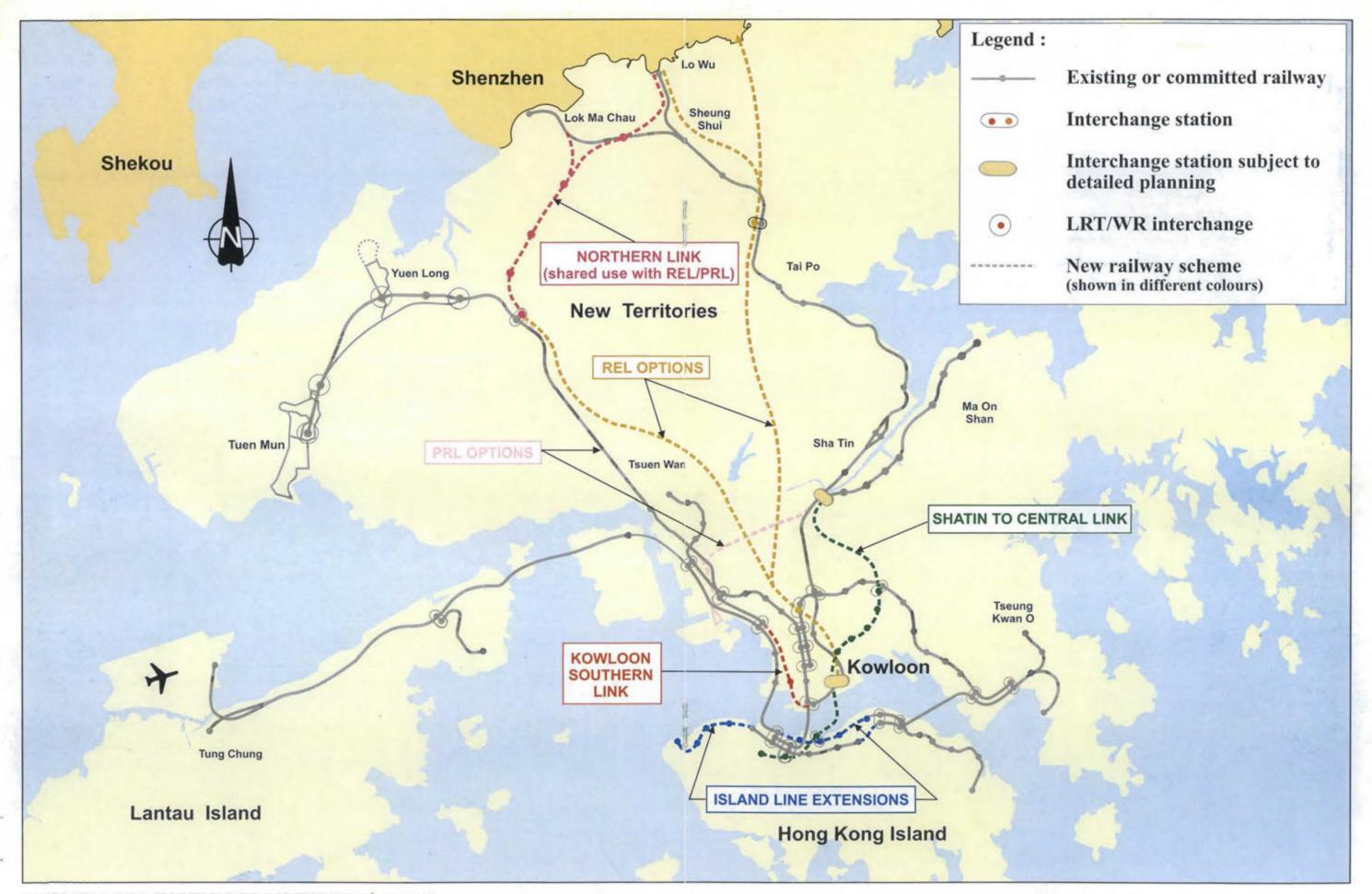


FIGURE 7: NEW RAILWAY PROJECTS IN RAILWAY DEVELOPMENT STRATEGY 2000

Regional Express Line

- 3.14 The Regional Express Line (REL) is an express rail service which will link the urban area with the Boundary. In addition to providing fast domestic service with limited stops, through train may also run on the REL.
- 3.15 The preliminary alignment of the REL will link Hung Hom to the Boundary via Shek Kip Mei. It has two route options in the New Territories, an eastern one via Fanling South and a western one via Kam Sheung Road. The eastern option may incorporate a third Rail Boundary Crossing, but this would depend on co-ordinating with the planning intentions of the Shenzhen side. A possible extension of the REL from Hung Hom to the Central on Hong Kong Island would further enhance the attractiveness of the corridor given the increasing integration of the economic activities between the HKSAR and the Pearl River Delta. The layout of the REL is shown in Figure 8.
- 3.16 The annual cross-boundary passenger traffic has been growing at 18-20% since mid 1996. The average daily number of cross-boundary passengers at Lo Wu now reaches 220,000. Should the present growth rate continue, it may be necessary to start planning the REL early in order that this new rail corridor could be provided in a timely manner.



FIGURE 8: REGIONAL EXPRESS LINE

Port Rail Line

- 3.17 The Port Rail Line (PRL) is a new freight rail connection from Lo Wu to a new port rail terminal at Kwai Chung. The line has two route options, one as part of West Rail via Kam Sheung Road to Kwai Chung and the other via East Rail and then a new tunnel from Tai Wai to Kwai Chung. The two route options are shown in Figure 9.
- 3.18 Allowing direct cross-boundary freight service through Lo Wu to the Kwai Chung ports, the PRL would support the growth of the port cargo by tapping freight from the deep hinterland of the Mainland and could benefit the SAR's economy. The implementation of the PRL hinges on growth of the rail-borne freight to the Kwai Chung ports.

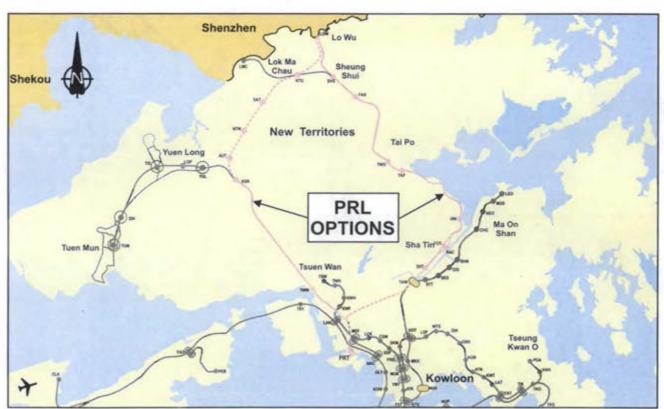


FIGURE 9: PORT RAIL LINE

Hung Hom as the Mass Transportation Centre

- 3.19 In addition to the new railway schemes, RDS-2 also investigated the role and function of a Mass Transportation Centre (MTC). The MTC differs from other public transport interchanges. It provides for terminal facilities for cross boundary inter-city services with the necessary customs and immigration facilities. The existing Hung Hom Terminal, which is centrally located in the HKSAR is already functioning as an MTC with good capability for expansion.
- 3.20 Hung Hom will be the preferred landing point of the FHC on Kowloon side. Other rail lines including the East Rail, West Rail and EKL will also be connected to Hung Hom, where many cross-harbour tunnel bus routes are providing convenient interchange between the rail and the road mode of transport. Hung Hom should remain as the MTC for the HKSAR.

Benefits of the expanded railway network

3.21 Railways will be vital in supporting the economic, social and population growth of the HKSAR in the next 15 years. Implementing the network expansion will facilitate closer economic and social linkages between the HKSAR and the Mainland, particularly Guangdong and the Pearl River Delta. Investing in the Network will yield the following benefits to the community:

(a) Improving accessibility

Implementing the Network would place about 70% of the population and about 80% of job opportunities within one kilometre of a railway station. The Network would facilitate the development of the strategic growth areas in the New Territories and development and redevelopment in the Metro area.

(b) Realization of integrated transport planning

The comprehensive Network coverage will facilitate co-ordination with other public transport services at key interchange stations. This will enable the realization of integrated transport planning in which railways will form the backbone of Hong Kong's transport system, while other public transport services will operate in a co-ordinated manner to maximise efficiency of service to passengers in terms of time and cost and to meet forecast demand.

(c) High level of transport service

The comprehensive Network will offer fast and reliable travel throughout the SAR.

Typical journey times are as follows:

Tin Shui Wai to Central	41 minutes
Lo Wu to Admiralty	50 minutes
Tsuen Wan to Kai Tak	32 minutes
Tseung Kwan O to Central	21 minutes

(d) Meeting cross-boundary demand

The Network will be able to meet the growing cross-boundary demand, which is forecast to increase by over 3 times by 2016.

(e) Economic Return

The investments in the Railway Network will yield an economic internal rate of return of more than 15%.

(f) Environmental benefits

The Strategic Environmental Assessment carried out as part of the RDS-2 has concluded none of the new railway schemes will present insurmountable environmental problems, though all have some potential environmental impacts. These will be addressed during the design and development process of individual railway scheme.

On completion, the Network would increase the rail share in the public transport system from 31% at present to 43% by 2016, or in terms of the distance travelled by passengers, from 34% to almost 60%. This would reduce the reliance on road-based transport and translate to environmental benefits amounting to a reduction of air pollutants by some 600 tonnes of NO_x and respirable suspended particulates per year and 160,000 tonnes of CO₂ per year.

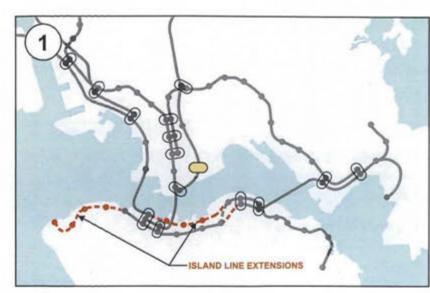
Implementation

- 3.22 In terms of implementation, the actual sequence and timing of the six new rail projects would be subject to more detailed engineering feasibility studies, having regard to the building up of transport demand, the pace of development of the strategic growth areas, project interfaces and consultation with the two Corporations. The implementation of some of the projects could be phased to meet demand.
- 3.23 As regards the implementation arrangement, the Island Line Extensions, being formed from extensions of the MTR system, have to be built and operated by MTRC. On the other hand, the KSL and NOL have to be undertaken by KCRC in order to facilitate their proper integration with the East Rail and the West Rail.
- 3.24 In awarding other new railway projects which are not natural extensions of any existing line, the Government shall adopt an open and fair approach by inviting the two Railway Corporations to bid for the projects. The Government shall specify the terms with which the two Corporations can bid on a level playing field basis. In considering the proposals, the Government would take into account all relevant factors including technical, financial and other alternative suggestions by the Corporations which would enhance the cost-effectiveness of the projects.
- 3.25 As the Shatin to Central Link is not a natural extension of an existing line and connects to both the MTR and the KCR networks, it may be undertaken by either Corporation. The two Corporations will be invited to put forward competitive proposals on its implementation. The REL is also a potential candidate for bidding by the two Corporations, if it is planned on the basis of a third rail passenger crossing, in addition to Lo Wu and Lok Ma Chau. The decision on how best to take forward this project would be subject to more detailed feasibility study on the alignment of the REL.
- 3.26 As regards the potential PRL, it is a natural KCRC project. KCRC will be invited to explore in more detail how the project can be implemented and Government will render full support in its planning and implementation.

3.27 Subject to future developments, the implementation of the new schemes in Railway Development Strategy 2000 could be grouped into six packages as follows:-

Package	Operator	Remarks
Shatin to Central Link (TDL/EKL /FHC)	MTRC/KCRC	Needed to provide a strategic rail corridor for relieving ER, supporting South East Kowloon Development and enhancing cross-harbour rail capacity. Operator selection through competitive bidding. Likely completion window: 2008-2011
Island Line Extensions (NIL and WIL)	MTRC	NIL needed to relieve TWL and ISL but subject to the availability of the Central and Wanchai Reclamation. WIL needed to support development and urban renewal in Western District Likely completion window: 2008-2012
KSL	KCRC	Improves east-west connectivity across Kowloon and helps relieve TCL. Dependent on development of Lantau Island and the strategic growth areas in North West New Territories Likely completion window: 2008-2013
NOL	KCRC	Needed to improve accessibility of Western New Territories to the Boundary. Serves planned strategic growth areas at Ngau Tam Mei, San Tin and Au Tau Likely completion window: 2011-2016
REL ,	MTRC/KCRC	Preliminary planning to proceed early. Subject to alignment, operator selection by competitive bidding. Implementation depends on cross-boundary traffic build-up.
PRL	KCRC	KCRC to investigate into implementation opportunities. Implementation depends on cross-boundary freight build-up.

A possible development sequence of the first three packages is shown in Figure 10.



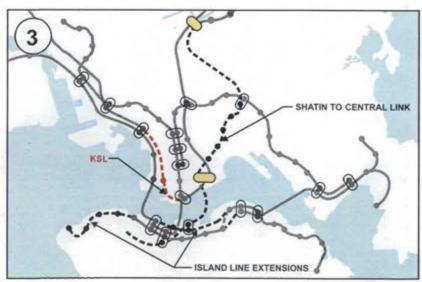
Stage 1:

Implementation of the Island Line Extensions. Completion of the NIL should precede the WIL in order not to overload the ISL.



Stage 2:

Implementation of the Shatin to Central Link. The link can be completed in phases.



Stage 3:

Implementation of the Kowloon Southern Link. This links the KCR West Rail round the Kowloon peninsula to Hung Hom and provides convenient interchange for passengers.

FIGURE 10: A POSSIBLE DEVELOPMENT SEQUENCE OF THE RAILWAY NETWORK

Order of costs

3.28 The order of costs estimated for the component and stand-alone schemes are listed in Table 1.

Table 1 Order of Cost Estimates

Scheme	Cost Estimate (\$ billion)
NIL	9-10
FHC	10-16
EKL	12-14
TDL	3-5
CEW Extension	2
KSL	7-8
NOL	9
WIL	10
REL	13-17
PRL/PRT	5-9
TOTAL	80-100

Notes: (1) Order of cost estimates are in 1998 prices and include land costs.

(2) A range is given for the cost estimates for schemes with alternative arrangement.

(3) The higher NIL costs include a VIP station for interchange with FHC.

(4) CEW Extension starts from HKP or ADM respectively under the VIP and EXH/ADM options.

(5) Costs for REL exclude rolling stock.

3.29 The costings will need to be refined following detailed financial, engineering and environmental studies, to be carried out in conjunction with the implementation of any railway projects.

Long term railway development possibilities

3.30 There are other rail schemes which have been investigated in RDS-2. These include South Hong Kong Island Line, the Fifth Rail Harbour Crossing, the Outer Western Corridor, the Deep Bay Link, Chek Lap Kok Link and the East-west Kowloon Link (see Figure 11). These projects do not command priority at this stage as the traffic demand has yet to warrant a mass carrier. They should be further investigated if planning parameters change significantly.

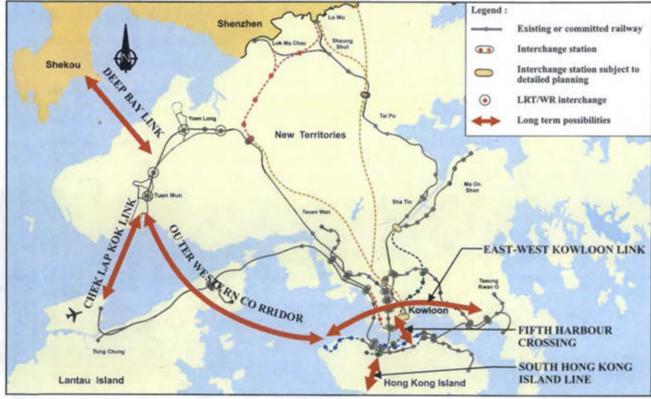


FIGURE 11: LONG TERM RAILWAY DEVELOPMENT POSSIBILITIES

STATION ABBREVIATIONS

ADM	Admiralty	MTW	Ma Tau Wai
AUT	Au Tau	NAC	Nam Cheong
BEL	Belcher Garden	NOP	North Point
CAB	Causeway Bay	NTK	Ngau Tau Kok
CEN	Central	NTM	Ngau Tam Mei
CEW	Central West	OLY	Olympic
CHG	Chevalier Garden	PEB	Penny's Bay
CHH	Choi Hung	POA	Po Lam
CHW	Chai Wan	PRE	Prince Edward
CIO	City One	PRT	Port Rail Terminal
CLK	Chek Lap Kok	QUB	Quarry Bay
CSW	Cheung Sha Wan	SAT	San Tin
DIH	Diamond Hill	SHT	Shatin
DVR	Des Voeux Road	SHM	Shek Mun
ETS	East Tsim Sha Shui	SHS	Sheung Shui
EXH	Exhibition	SHW	Sheung Wan
FAN	Fanling	SIH	Siu Hong
FAS	Fanling South	SKM	Shek Kip Mei
FOH	Fortress Hill	SKS	Sha Kok Street
FOT	Fo Tan	SKW	Shau Kei Wan
GIA	Gillies Avenue	SSP	Sham Shui Po
HAH	Hang Hau	STT	Sha Tin Tau
HEO	Heng On	SWH	Sai Wan Ho
HFC	Heng Fa Chuen	SYP	Sai Ying Pun
HKP	Hong Kong Park	TAK	Tai Koo
НМТ	Ho Man Tin	TAM	Tamar
НОК	Hong Kong	TAP	Tai Po
HUH	Hung Hom	TAW	Tai Wai
JOR	Jordan	TIH	Tin Hau
KEN	Kennedy Town	TIK	Tiu Keng Leng
КОВ	Kowloon Bay	TIS	Tin Shui Wai
KOT	Kowloon Tong	ТКО	Tseung Kwan O
KOW	Kowloon	TKS	Tseung Kwan O South
KSR	Kam Sheung Road	TKW	To Kwa Wan
KTA	Kai Tak	TST	Tsim Sha Tsui
KTU	Kwu Tung	TSW	Tsuen Wan
KWF	Kwai Fong	TSY	Tsing Yi
KWH	Kwai Hing	TUC	Tung Chung
KWT	Kwun Tong	TUM	Tuen Mun
LAK	Lai King	TWH	Tai Wo Hau
LAT	Lam Tin	TWO	Tai Wo
LCK	Lai Chi Kok	TWW	Tsuen Wan West
LEH	Leighton Hill	UNI	University ·
LEO	Lee On	VIP	Victoria Park
LMC	Lok Ma Chau	WAC	Wan Chai
LOF	Lok Fu	WCS	Wan Chai South
LOP	Long Ping	WKN	West Kowloon
LOW	Lo Wu	WTS	Wong Tai Sin
MEF	Mei Foo	YAO	Yam O
MKK		YAT	
	Mong Kok (KCR)	YMT	Yau Ma Toi
MOK	Mong Kok (MTR)	_	Yau Ma Tei
MOS	Ma On Shan	YUL 21	Yuen Long

RAILWAY LINES ABBREVIATIONS

EKL	East Kowloon Line		
ER	East Rail		
FHC	Fourth Rail Harbour Crossing		
ISL	Island Line		
KSL	Kowloon Southern Link		
LRT	Light Rail Transit		
NIL	North Hong Kong Island Line		
NOL	Northern Link		
PBL	Penny's Bay Rail Link		
PRL	Port Rail Line		
REL	Regional Express Line		
SIL	South Hong Kong Island Line		
TCL	Tung Chung Line		
TDL	Tai Wai to Diamond Hill Link		
TKE	Tseung Kwan O Extension		
TWL	Tsuen Wan Line		
WIL	West Hong Kong Island Line		
WR	West Rail		



香港特別行政區政府 運輸局

鐵路發展策略2000

目錄

1.	序言	貝数
	鐵路發展政策	1
	一九九四年鐵路發展策略	2
2.	第二次鐵路發展研究	
	研究的目標	3
	新鐵路方案	3
3.	鐵路發展策略2000	
	鐵路網絡擴展計劃的要點	4
	新鐵路項目	6
	一 港島線延線一 沙田至中環線一 九龍南環線一 北環線	
	- 區域快線 - 港口鐵路線	
	紅磡作爲集體運輸中心的選址	14
	擴展鐵路網絡的效益	14
	實施	16
	費用估計	19
	長遠發展方案	20

1. 序言

- 1.1 這是香港第二份鐵路發展策略。本策略爲規劃香港鐵路網絡直至二零一 六年的進一步擴展,提綱挈領制定出藍圖。
- 1.2 本策略是以第二次鐵路發展研究的結果作爲基礎,這項研究已在二零零零年年初完成。有關建造個別鐵路的進一步決定,須取決於與這些項目有關的詳細工程、環境和財務研究結果。當局在落實與建新鐵路線時,會先諮詢公眾的意見。

鐵路發展政策

- 1.3 鐵路是既環保又具效率的集體運輸工具。目前,本港每天有超過三成的本地客運是倚賴鐵路,而利用鐵路過境的旅客更超逾八成。此外,進出香港與內地之間的貨運也有少部分是使用鐵路的。政府在一九九九年十月發表題爲"邁步前進"的長遠運輸策略,重點提出要以鐵路作爲香港運輸系統的骨幹。鐵路對於香港在經濟、社會及土地方面的持續發展是不可或缺的,而政府在基建發展規劃上,也會優先建設鐵路。
- 1.4 兩間鐵路公司須以審慎的商業原則經營業務。政府也認同任何新鐵路項目須爲獲選實施有關項目的鐵路公司或其他經營者提供商業回報。目前當局視乎情況所需而容許鐵路公司在車站和車廠上蓋發展物業的做法行之有效,因此應予保留。至於配合鐵路發展的相關公務工程,政府會繼續承擔所需費用,而在某些財務可行性不高的項目,政府會按個別項目的需求情況而考慮給予扶助。

1

一九九四年鐵路發展策略

- 1.5 政府在一九九四年制定了香港首份鐵路發展策略。該份策略提出了一個 鐵路發展計劃,並建議優先發展三個新鐵路項目,即九廣西鐵、地鐵將 軍澳支線以及馬鞍山至大圍鐵路線(連同九廣東鐵由紅磡至尖沙咀延 線)。
- 1.6 上述三個鐵路項目已進入不同的實施階段。此外,當局又在一九九九年 決定興建上水至落馬洲支線,以便提供多一條連接香港與深圳的鐵路旅 客通道。在一九九九年年底,當局決定建造竹篙灣鐵路,並計劃這條鐵 路與廸士尼主題公園同時落成。因此,在二零零二年至二零零五年期 間,我們會有六條新鐵路線陸續建成。當這六條耗資超過1,000億港元的 鐵路建成後,香港的鐵路網會擴展約40%,即路軌總長度會擴展至200公 里。圖1顯示在二零零六年的鐵路網絡。



圖 1: 2006年的鐵路網絡

2. 第二次鐵路發展研究

2.1 爲了應付香港人口的持續增長(預料會在二零一六年增至890萬人)以及 香港與內地之間日益頻繁的社會和經濟活動,政府在一九九八年三月委 聘顧問進行第二次鐵路發展研究(第二次研究),以探討直至二零一六 年進一步擴展鐵路網絡的最佳方法。

研究的目標

- 2.2 第二次研究爲拓展香港鐵路網絡的需求訂出下列目標;
 - (a) 紓緩現有鐵路系統的瓶頸地帶;
 - (b) 爲一些策略性增長地區提供鐵路服務,以配合房屋和經濟發展:
 - (c) 應付跨界客貨運輸的需求;以及
 - (d) 增加鐵路在整體運輸系統所佔的比例,以減少對道路交通工具的倚賴。

新鐵路方案

- 2.3 爲了達到上述目標,第二次研究探討了多個新鐵路方案,這些方案可以 不同方式與現有鐵路線組合成不同的鐵路網絡,經篩選後,其中六個方 案選定爲構成鐵路網絡擴展的主要方案。這六個主要方案爲:
 - (a) 北港島線;
 - (b) 東九龍線;
 - (c) 第四條過海鐵路線;
 - (d) 大圍至鑽石山線;
 - (e) 九龍南環線;以及
 - (f) 北環線
- 2.4 此外,第二次研究也建議三個獨立方案,以應付個別走廊的運輸需求; 這些獨立方案並不影響網絡的基本組合。這三個獨立方案爲西港島線、 區域快線和港口鐵路線。
- 2.5 第二次研究建議,香港未來鐵路網絡的發展應以東九龍線連接第四條過 海鐵路線作爲基礎。

3. 鐵路發展策略2000

3.1 政府根據第二次研究的結果,制定了《鐵路發展策略2000》。這套策略 訂定適用至二零一六年的鐵路網絡擴展計劃。

鐵路網絡擴展計劃的要點

- 3.2 這個鐵路網絡建成後,會提供六條新鐵路走廊和一條可供考慮發展的港口鐵路線。**圖2**顯示這六條新鐵路走廊。它們爲:
 - (a) 由柴灣至東涌的東西向走廊:這條走廊由港島線、北港島線和東涌 線組成;
 - (b) 由將軍澳至堅尼地城的第二條東西向走廊:這條走廊由地鐵將軍澳 支線、港島線和西港島線組成;
 - (c) 南北向走廊:視乎不同的營辦機構,這條走廊可直接由大圍,或由 馬鞍山經東南九龍至港島;
 - (d) 九龍南環線:這條鐵路經九龍半島,爲九鐵的東鐵和西鐵提供方便 的接駁;
 - (e) 北環線:這條走廊在新界北部連接九鐵的東鐵和西鐵;以及
 - (f) 區域快線:這條鐵路爲邊界和都會區提供快速的鐵路服務。

此外,策略還包括一條可能發展的港口鐵路線,線路經由東鐵或西鐵連接羅湖與葵涌貨運站。





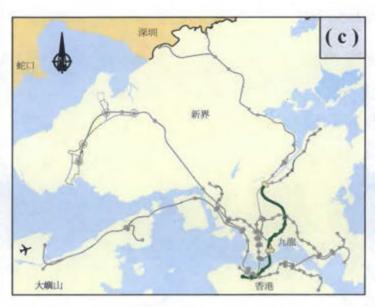








圖 2: 新鐵路走廊

4

新鐵路項目

3.3 爲了達成鐵路網絡的擴展計劃,政府建議把第二次研究篩選出的新鐵路 方案歸納爲下述項目(見圖7在第10和11頁),以供實施:

港島線延線

- 3.4 港島線延線包括北港島線和西港島線。北港島線是現有地鐵東涌線沿港 島北岸向東的延伸,至炮台山站與地鐵港島線的東半部連接。同時,新 建成的將軍澳支線會延伸至天后站與港島線的西半部連接。北港島線可 紓緩港島線銅鑼灣段,並分流過海乘客到東涌線和將軍澳支線,從而紓 緩荃灣線彌敦道走廊的擠迫情況。至於西港島線,則將會是地鐵港島線 由上環至堅尼地城的延線。
- 3.5 北港島線何時實施,須視乎港島線和荃灣線預計何時會出現瓶頸情況, 以及中環及灣仔填海區何時可供使用而定。至於西港島線項目是否可 行,須視乎西區發展的進展情況以及舊區重建過程是否順利而定。由於 北港島線和西港島線很自然是港島線的延伸部分,因此應歸納在同一個 項目下實施。這兩條鐵路的路線見圖3。



圖 3: 北及西港島線

沙田至中環線

3.6 沙田至中環線由東九龍線、第四條過海鐵路線和大圍至鑽石山線(見圖 4)組成,這將會是一條新策略性鐵路走廊。這條走廊不但可大大增加過 海及沙田至九龍鐵路的載客量,而且可疏導鐵路乘客,紓緩港島及九龍 都會區其他鐵路線的壓力。



3.7 這項目的東九龍線段連接地鐵鑽石山站與九鐵紅磡站。第二次研究發 現,如果單獨發展,東九龍線段既欠效率,又不符合財務效益。因此, 東九龍線應與其他鐵路線連接,以組成一條策略性鐵路走廊。東九龍線 應由紅磡向南延伸過海,構成第四條過海鐵路線;另應由鑽石山向北延 伸至大圍,構成大圍至鑽石山線。

- 3.8 第四條過海鐵路線會以紅磡爲九龍方面的起點。在港島方面,則可經會 議展覽中心/金鐘(會展/金鐘方案)或維多利亞公園、禮頓山及灣仔 南至中環。會展/金鐘方案所需建造費用會較爲廉宜,並可直接連接紅 磡與中環,配合市民日常的交通需求。至於維園方案,則可連接銅鑼灣 的繁忙商業區和店鋪,因此可應付乘客的不同需要。長遠而言,維園方 案有助把都會發展重心由中環東移向銅鑼灣。
- 3.9 大圍至鑽石山線可提供多一條連接新界東北部與九龍的鐵路走廊,從而 経東鐵筆架山隧道一段的瓶頸地帶。
- 3.10 沙田至中環線何時興建,須視乎網絡發展的整體運輸需求、新界東北部 和馬鞍山的計劃發展步伐,以及東南九龍的發展和中環灣仔的填海時間 表而定。

九龍南環線

3.11 九龍南環線是西鐵的延伸部分,連接西鐵南昌站與東鐵尖沙咀延線。這 條鐵路的路線見圖5。

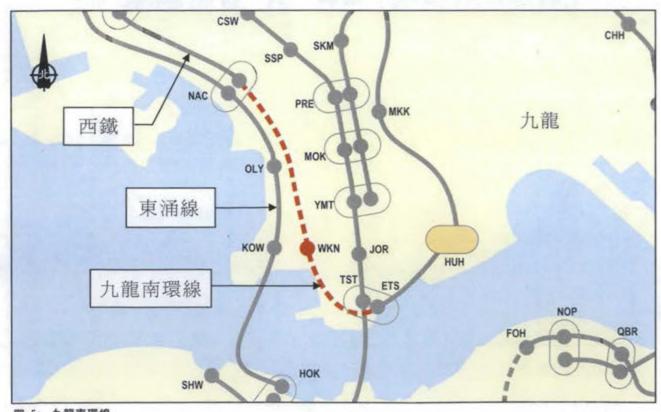


圖 5: 九龍南環線

3.12 九龍南環線將會經九龍半島南部,提供一條方便的東西向鐵路線,並可 促進大嶼山、新界西北部、西九龍和東九龍的發展。此外,這條鐵路線 也有助把來自新界西北部的部分過海乘客分流至第四條過海鐵路線,從 而紓緩東涌線過海段的擠迫情況。至於何時興建,則須視乎交通需求的 增長情況而定,特別是市民對東涌線的需求會隨著大嶼山和新界西北部 策略性增長地區的進一步發展而有所增加。

北環線

3.13 北環線連接西鐵(錦上路)與東鐵(古洞)以及落馬洲的過境站。這條 鐵路可爲新界北部的策略性增長地區提供客運服務,並爲香港西部地區 提供跨界客運服務。北環線何時興建,須視乎新界東北部和新界西北部 策略性增長地區的發展計劃,以及跨界交通的增長情況而定。這條鐵路 的路線見圖6。





圖 7: 鐵路發展策略2000的新鐵路項目

區域快線

- 3.14 區域快線是一條連接市區與邊界的快速鐵路。這條鐵路除了提供只有少數中途站的本地快線服務之外,還可供直通車行駛。
- 3.15 區域快線初步的定線以紅磡為起點途經石硤尾至邊界。其路線在新界的部分有兩個方案可供選擇:其一是在東面經粉嶺南;其二是在西面經錦上路。東面路線可提供第三條鐵路過境通道,但這須配合深圳方面的規劃構想。鑑於香港與珠江三角洲之間的經濟活動日益頻繁,若能把區域快線由紅磡延伸至港島的中環,可進一步增加這條走廊的吸引力。區域快線的路線見圖8。
- 3.16 自一九九六年中以來,過境乘客每年持續以約18%至20%增長。目前,每 天經羅湖過境的乘客平均有22萬人次。如果跨界交通維持目前的增長幅 度,我們可能有需要及早開展區域快線的規劃工作,以便及時提供這條 新鐵路走廊。



圖 8: 區域快線

港口鐵路線

- 3.17 這條新貨運鐵路線將連接羅湖與位於葵涌的新港口鐵路貨運站。這條鐵路有兩個路線方案可供選擇:其一是利用西鐵部分路線,然後經錦上路至葵涌;其二是經東鐵和一條由大圍至葵涌的新隧道。這兩條路線見圖 9。
- 3.18 港口鐵路線提供由羅湖直達葵涌港口的跨界貨運服務,可吸納來自內陸 較偏遠腹地的貨運,因此有助促進港口貨運量的增長,有利香港的經 濟。這條鐵路何時興建,須視乎輸往葵涌港的鐵路貨運增長量而定。



圖 9: 港口鐵路線

紅磡作為集體運輸中心的選址

- 3.19 除了各項新鐵路方案之外,第二次研究亦探討了集體運輸中心(運輸中心)所發揮的作用和功能。運輸中心有別於其他公共交通交匯處,作爲跨界市際服務的終點站,它提供必需的海關和出入境設施。現有的紅磡終點站位處香港的中心位置,目前已發揮了運輸中心的作用,而且尚有發展空間。
- 3.20 紅磡亦是第四條過海鐵路線在九龍的首選著陸點。其他鐵路線,如東 鐵、西鐵及東九龍線也會接駁至紅磡,而這處有多條過海隧道巴士線, 可方便乘客轉乘鐵路或道路交通工具。故此,紅磡應該繼續充當香港的 運輸中心。

擴展鐵路網絡的效益

3.21 爲了配合香港在未來十五年的經濟、社會和人口增長,鐵路建設是至爲重要的。擴展鐵路網絡,有助促使香港與內地(特別是廣東和珠江三角洲地區)之間的經濟和社會聯繫更加密切。投資發展鐵路網絡,可爲香港帶來下列益處:

(a) 改善交通接駁

鐵路網絡擴展完成後,其覆蓋範圍可將全港約七成人口及八成就業區納入在鐵路車站一公里範圍內。鐵路網絡也有助促進新界策略性增長地區的發展,以及都會區的發展和重建計劃。

(b) 實踐綜合運輸規劃

鐵路網絡的覆蓋範圍廣泛,可方便市民在各主要交匯站轉乘其他公共交通工具。這有助實踐以鐵路作爲香港交通運輸系統的骨幹、其他公共交通工具爲配合的綜合運輸規劃,令鐵路服務發揮最高的效率,減省交通時間和費用,並滿足預期的需求。

(c) 提供高水平的運輸服務

這個覆蓋範圍廣泛的鐵路網絡貫通港九各處,提供快捷可靠的交通服務。一些具代表性的行程所需時間如下:

 天水圍至中環
 41分鐘

 羅湖至金鐘
 50分鐘

 荃灣至啓德
 32分鐘

 將軍澳至中環
 21分鐘

(d) 滿足跨界交通的需求

到二零一六年,跨界交通預計會增加超過三倍,而擴展的鐵路網絡可滿足不斷增長的跨界交通需求。

(e) 經濟回報

投資發展鐵路網絡,可得的經濟內部回報率將超過15%。

(f) 環保效益

第二次研究進行了策略性環境評估。評估顯示,各項新鐵路方案雖 然可能會對環境造成一些影響,但這些問題並非不能克服,當局會 在個別鐵路方案的設計和發展階段加以處理。

到二零一六年,當鐵路網絡擴展完成後,鐵路在公共交通系統所佔的比例會由目前的31%上升至43%;若以乘客行程的距離計算,則會由34%增至接近60%。這不但可以減少市民對道路交通工具的倚賴,而且更可帶來環保效益,每年可減少大約600公噸氧化氮和可吸入懸浮粒子及16萬公噸二氧化碳。

實施

- 3.22 在實施方面,六個新鐵路項目的實際實施次序和興建時間表,須考慮交 通需求的增長情況、策略性增長地區的發展步伐、不同項目的配合,以 及政府與兩間鐵路公司的磋商,然後進行較詳盡的工程可行性研究才可 決定。部分項目可分不同階段興建,以配合交通需求。
- 3.23 在實施安排方面,由於港島線延線會由地鐵系統的延線構成,因此應由 地鐵公司興建和經營。另一方面,爲使九龍南環線和北環線能夠與東鐵 和西鐵更配合得宜,這兩條鐵路線應交由九鐵公司興建。
- 3.24 擬批出的新鐵路項目如果不屬於現有鐵路線的延伸部分,政府將會採取公開而公平的做法,邀請兩間鐵路公司競投有關項目。政府會訂明條款,讓兩間公司在公平的基礎上競爭。政府在考慮建議書時,會考慮所有相關的因素,包括兩間公司提出的技術、財務和其他可以提高有關項目成本效益的建議。
- 3.25 由於沙田至中環線並非現有鐵路線的延伸部分,而這條鐵路線可連接地 鐵和九鐵的網絡,因此可由其中一間公司興建。兩間鐵路公司都會獲邀 就這個項目的實施提交建議書。此外,若政府規劃在羅湖和落馬洲以外 的地方關設第三條鐵路旅客過境通道,則區域快線也可供兩間公司競 投,但我們須就其定線進行更詳細的可行性研究,才可決定推展這個項 目的最佳方法。
- 3.26 至於可能發展的港口鐵路線,則應交由九鐵公司興建。政府會邀請九鐵公司詳細探討如何實施這項目,而政府會在規劃和實施給予全力支持。

3.27 本策略現就新鐵路方案的實施歸納爲以下六個項目。至於具體實施時間,則須視乎日後的發展情況而定:-

項目	營辦機構	備註	
沙田至中環	地鐵公司/	有需要提供一條策略性鐵路走廊,以	
線(大圍至	九鐵公司	紓緩東鐵、配合東南九龍的發展,以	
鑽石山線/		及提高過海鐵路線的載客量。透過競	
東九龍線/		投方式甄選營辦機構。	
第四條過海		CONTROL OF STATE OF S	
鐵路線)		預計完成的時間:2008年至2011年	
港島線延線	地鐵公司	北港島線可紓緩荃灣線和港島線,但	
(北港島線		其實施須視乎中環及灣仔塡海區是否	
和		可供應用而定;西港島線則可配合西	
西港島線)		區的發展和市區重建計劃。	
		2000 2 2000 2000 2	
		預計完成的時間:2008年至2012年	
九龍南環線	九鐵公司	可改善九龍東西面的交通接駁,並有	
-		助紓緩東涌線,但其實施須視乎大嶼	
		山和新界西北部策略性增長地區的發	
		展而定。	
11 mm 1 4		預計完成的時間:2008年至2013年	
北環線	九鐵公司	可改善由新界西部至邊界的交通接駁	
		,並爲牛潭尾、新田和凹頭規劃中的	
		策略性增長地區提供服務。	
		TEST to Dilimeter and to the second	
T= 1.4.1.4.1.4.1	ULAMA C = 1	預計完成的時間:2011年至2016年	
區域快線	地鐵公司/	應早日開展初步規劃。視乎有關定線	
	九鐵公司	,可透過競投方式甄選營辦機構。	
		3.50k8大汉4.10.5.42.7.83.4	
中の中国社会	上のもよ	視乎跨界交通的增長情況而興建。	
港口鐵路線	九鐵公司	九鐵公司會研究實施這個項目的機	
		會。	
		男式吹用化等具 处 位与1400字母对	
		視乎跨界貨運量的增長情況而興建。	

17

首三個項目的可能發展次序見圖10。



第一階段:

興建港島線延線。應先興 建北港島線,然後才興建 西港島線,以免令港島線 不勝負荷。



第二階段:

興建沙田至中環線。這條 線可分階段完成。



圖 10: 鐵路網絡的可能發展次序

第三階段:

興建九龍南環線。這條線 經九龍半島,連接九廣西 鐵與紅磡,讓乘客可方便 轉乘西鐵與東鐵。

費用估計

3.28 各主要方案和獨立方案的大約費用估計列載於表1。

表1 大約費用估計

項目	費用估計
北港島線	90 - 100億元
第四條過海鐵路線	100 - 160億元
東九龍線	120 - 140億元
大圍至鑽石山線	30 - 50億元
中環西部延線	20億元
九龍南環線	70 - 80億元
北環線	90億元
西港島線	100億元
區域快線	130 - 170億元
港口鐵路線/港口鐵路貨運站	50 - 90億元
合計	800 - 1,000億元

備註:(1) 大約費用估計是以一九九八年價格計算,並已包括土地費用。

- (2) 有關項目如有多於一個方案可供選擇,則會列出最高和最低的費用估計。
- (3) 北港島線一項所列的較高費用包括興建維園站,以便接駁第四條過海鐵路線。
- (4) 中環西部延線在維園方案下會連接香港公園,在會展/金鐘方案下則連接金鐘。
- (5) 區域快線的估算不包括購置列車的費用。
- 3.29 有關費用須在詳細的財務、工程和環境研究完成後再加修訂,這些研究 會在實施個別鐵路項目時進行。

長遠發展方案

3.30 第二次研究亦探討過其他鐵路方案,包括南港島線、第五條過海鐵路線、西部外走廊、后海灣線、赤鱲角線和東西九龍線(見圖11)。由於有關地區的交通需求尚未足以支持興建集體運輸設施,因此在現階段無須優先發展這些項目。如規劃情況有重大的變化,我們會再探討這些項目。

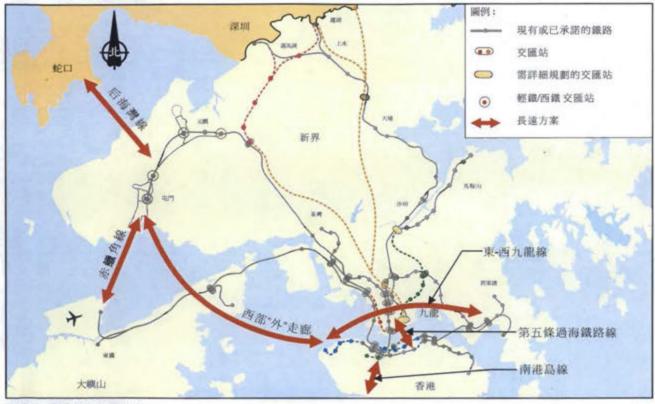


圖 11: 長遠鐵路發展方案

車站縮寫對照表

ADM	金鐘	MTW	馬頭圍
AUT	凹頭	NAC	南昌
BEL	寶翠園	NOP	北角
CAB	銅鑼灣	NTK	牛頭角
CEN	中環	NTM	牛潭尾
CEW	中環西	OLY	奥運
CHG	富安花園	PEB	竹篙灣
CHH	彩虹	POA	寶琳
CHW	柴灣	PRE	太子
CIO	第一城	PRT	港口鐵路貨運站
CLK	赤鱲角	QUB	鰂魚涌
CSW	長沙灣	SAT	新田
DIH	鑽石山	SHT	沙田
DVR	德輔道	SHM	石門
ETS	尖沙咀東	SHS	上水
EXH	會展	SHW	上環
FAN	粉嶺	SIH	兆康
FAS	粉嶺南	SKM	石硤尾
FOH	炮台山	SKS	沙角街
FOT	火炭	SKW	筲箕灣
GIA	機利士路	SSP	深水埗
HAH	坑口	STT	沙田頭
HEO	恆安	SWH	西灣河
HFC	杏花邨	SYP	西營盤
HKP	香港公園	TAK	太古
НМТ	何文田	TAM	添馬
нок	香港	TAP	大埔
HUH	紅磡	TAW	大圍
JOR	佐敦	TIH	天后
KEN	堅尼地城	TIK	調景嶺
КОВ	九龍灣	TIS	天水圍
KOT	九龍塘	TKO	將軍澳
KOW	九龍	TKS	將軍澳南
KSR	錦上路	TKW	土瓜灣
KTA	啓 德	TST	尖沙咀
KTU	古洞	TSW	荃灣
KWF	葵芳	TSY	青衣
KWH	葵 興	TUC	東涌
KWT	觀塘	TUM	屯門
LAK	荔景	TWH	大窩口
LAT	藍田	TWO	太和
LCK	荔枝角	TWW	荃灣西
LEH	禮頓山	UNI	大學
LEO	利安	VIP	維園
LMC	落馬洲	WAC	灣仔
LOF	樂富	WCS	灣仔南
LOP	朗屏	WKN	西九龍
LOW	羅湖	WTS	黄大仙
MEF	美孚	YAO	陰澳
MKK	旺角(九鐵)	YAT	油塘
MOK	旺角(地鐵)	YMT	油麻地
MOS	馬鞍山	YUL	元朗
. 100	1/1/2778.133	21	I/UP/I

20

鐵路線縮寫對照表

EKL	東九龍線	
ER	東鐵	
FHC	第四條過海鐵路線	
ISL	港島線	
KSL	九龍南環線	
LRT	輕鐵	
NIL	北港島線	
NOL	北環線	
PBL	竹篙灣鐵路	
PRL	港口鐵路線	
REL	區域快線	
SIL	南港島線	
TCL	東涌線	
TDL	大園至鑽石山線	
TKE	將軍澳支線	
TWL	荃灣線	
WIL	西港島線	
WR	西鐵	

CENTRAL RECLAMATION PHASE III WORKING AREAS FOR THE ESSENTIAL INFRASTRUCTURES 核准 approved 日期 date 簽署 initial 圖則編號 drawing no. TERRITORY DEVELOPMENT H H YEUNG HKI-Z544A SIGNED 22-09-03 DEPARTMENT