Enclosure 4

Highways Department
Major Works Project Management Office

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主要工程管理處

Agreement No. CE 43/2010 (HY)
Central Kowloon Route
- Design and Construction

Traffic Impact Assessment

January 2014

ARUP Mott MacDonald
Arup-Mott MacDonald Joint Venture

Contents

Page

1 INTRODUCTION 1
1.1 General 1
1.2 Description of Project 1
1.3 Objective of the Updated Traffic Impact Assessment Report 4
1.4 Structure of Report 4

2 STUDY METHODOLOGY 6
2.1 Background of the Updated TIA Report 6
2.2 Modelling Methodology 6
2.3 Project Forecast Scenarios 9
2.4 Traffic Impact Assessment 10

3 BASELINE REVIEW 11
3.1 Overview of Road Network 11
3.2 Previous Studies / Surveys Conducted 11
3.3 Baseline Traffic Conditions 13

4 CONTEXT OF CKR 21
4.1 Alignment and Interchanges 21
4.2 Eastern Interchange 21
4.3 Western Interchange 21
4.4 Slip Roads Performance 22
4.5 Proposed Speed Limit 23
4.6 Weaving Analysis of CKR Slip Roads 23
4.7 Weaving Analysis of Kai Fuk Road Slip Roads 24
4.8 Permanent Deletion of Existing Slip Road from West Kowloon Highway Southbound to Lai Cheung Road 25
4.9 Affected Road Junction Due to Construction of CKR 26
4.10 Interfaces with Public Transport Services 27
4.11 Interfaces with Other Major Projects 28

5 MAJOR FINDINGS OF SCENARIO TESTING 30
5.1 Assessment Principles 30
5.2 Projected Traffic Conditions - 2016 32
5.3 Projected Traffic Conditions - 2021 37
5.4 Projected Traffic Conditions - 2026 40
5.5 Projected Journey Times 43

6 FINDINGS ON IMPLEMENTATION OF CKR 45

6.1 Implementation of CKR 45

7 CONCEPTUAL TRAFFIC IMPROVEMENT MEASURES 45

7.1 Problematic Junctions Identification 45
7.2 Proposed Improvement Scheme 46

8 SUMMARY 54

8.1 Summary 54

Appendix A - Drawings

CKR/F/03/0011	General Layout Plan of Central Kowloon Route
CKR/F/03/0012	General Alignment for Route 6 & CBL
CKR/F/03/0021	Area of Influence, Locations of Road Junctions and Road Links
CKR/F/03/0031	2012 Critical Junctions Perforamnce
CKR/F/03/0032	2012 Critical Road Links Perforamnce
CKR/F/03/0061	Interchange at CKR Eastern End
CKR/F/03/0062	Interchange at CKR Western End
CKR/F/03/0071	2016, 2021 and 2026 Critical Junctions Performance
CKR/F/03/0072	2016 Critical Road Links Perforamnce
CKR/F/03/0073	2021 Critical Road Links Perforamnce
CKR/F/03/0074	2026 Critical Road Links Perforamnce
CKR/F/03/0201	2012 Observed Peak Hour Traffic Flows (1 of 7)
CKR/F/03/0202	2012 Observed Peak Hour Traffic Flows (2 of 7)
CKR/F/03/0203	2012 Observed Peak Hour Traffic Flows (3 of 7)
CKR/F/03/0204	2012 Observed Peak Hour Traffic Flows (4 of 7)
CKR/F/03/0205	2012 Observed Peak Hour Traffic Flows (5 of 7)
CKR/F/03/0206	2012 Observed Peak Hour Traffic Flows (6 of 7)
CKR/F/03/0207	2012 Observed Peak Hour Traffic Flows (7 of 7)
CKR/F/03/0033	2012 Observed Maximum Queue Length for J1
CKR/F/03/0034	2012 Observed Maximum Queue Length for J2
CKR/F/03/0035	2012 Observed Maximum Queue Length for J3, J23, J34, J35 & J36
CKR/F/03/0036	2012 Observed Maximum Queue Length for J4 & J25
CKR/F/03/0037	2012 Observed Maximum Queue Length for J5, J9, J10 & J11
CKR/F/03/0038	2012 Observed Maximum Queue Length for J6
CKR/F/03/0039	2012 Observed Maximum Queue Length for J7 & J8
CKR/F/03/0040	2012 Observed Maximum Queue Length for J12
CKR/F/03/0041	2012 Observed Maximum Queue Length for J13 & J14
CKR/F/03/0042	2012 Observed Maximum Queue Length for J15
CKR/F/03/0043	2012 Observed Maximum Queue Length for J17
CKR/F/03/0044	2012 Observed Maximum Queue Length for J18
CKR/F/03/0045	2012 Observed Maximum Queue Length for J19

CKR/F/03/0046	2012 Observed Maximum Queue Length for J20, J21 & J28
CKR/F/03/0047	2012 Observed Maximum Queue Length for J22 & J29
CKR/F/03/0048	2012 Observed Maximum Queue Length for J26
CKR/F/03/0049	2012 Observed Maximum Queue Length for J27
CKR/F/03/0050	2012 Observed Maximum Queue Length for J30
CKR/F/03/0051	2012 Observed Maximum Queue Length for J31
CKR/F/03/0052	2012 Observed Maximum Queue Length for J32
CKR/F/03/0053	2012 Observed Maximum Queue Length for J33
CKR/F/03/0054	2012 Observed Maximum Queue Length for J37
CKR/F/03/0055	2012 Observed Maximum Queue Length for J38
CKR/F/03/0063	Journey Time From Hoi Wan Road to Kai Fuk Road During Normal Weekday Peak Hours
CKR/F/03/0064	Journey Time From Kai Fuk Road to Hoi Wan Road During Normal Weekday Peak Hours
CKR/F/03/0211	2016 Forecast (Reference) Peak Hour Traffic Flows (1 of 7)
CKR/F/03/0212	2016 Forecast (Reference) Peak Hour Traffic Flows (2 of 7)
CKR/F/03/0213	2016 Forecast (Reference) Peak Hour Traffic Flows (3 of 7)
CKR/F/03/0214	2016 Forecast (Reference) Peak Hour Traffic Flows (4 of 7)
CKR/F/03/0215	2016 Forecast (Reference) Peak Hour Traffic Flows (5 of 7)
CKR/F/03/0216	2016 Forecast (Reference) Peak Hour Traffic Flows (6 of 7)
CKR/F/03/0217	2016 Forecast (Reference) Peak Hour Traffic Flows (7 of 7)
CKR/F/03/0221	2021 Forecast (Reference) Peak Hour Traffic Flows (1 of 7)
CKR/F/03/0222	2021 Forecast (Reference) Peak Hour Traffic Flows (2 of 7)
CKR/F/03/0223	2021 Forecast (Reference) Peak Hour Traffic Flows (3 of 7)
CKR/F/03/0224	2021 Forecast (Reference) Peak Hour Traffic Flows (4 of 7)
CKR/F/03/0225	2021 Forecast (Reference) Peak Hour Traffic Flows (5 of 7)
CKR/F/03/0226	2021 Forecast (Reference) Peak Hour Traffic Flows (6 of 7)
CKR/F/03/0227	2021 Forecast (Reference) Peak Hour Traffic Flows (7 of 7)
CKR/F/03/0231	2021 Forecast (Design) Peak Hour Traffic Flows (1 of 7)
CKR/F/03/0232	2021 Forecast (Design) Peak Hour Traffic Flows (2 of 7)
CKR/F/03/0233	2021 Forecast (Design) Peak Hour Traffic Flows (3 of 7)
CKR/F/03/0234	2021 Forecast (Design) Peak Hour Traffic Flows (4 of 7)

CKR/F/03/0235	2021 Forecast (Design) Peak Hour Traffic Flows (5 of 7)
CKR/F/03/0236	2021 Forecast (Design) Peak Hour Traffic Flows (6 of 7)
CKR/F/03/0237	2021 Forecast (Design) Peak Hour Traffic Flows (7 of 7)

CKR/F/03/0241	2026 Forecast (Reference) Peak Hour Traffic Flows (1 of 7)
CKR/F/03/0242	2026 Forecast (Reference) Peak Hour Traffic Flows (2 of 7)
CKR/F/03/0243	2026 Forecast (Reference) Peak Hour Traffic Flows (3 of 7)
CKR/F/03/0244	2026 Forecast (Reference) Peak Hour Traffic Flows (4 of 7)
CKR/F/03/0245	2026 Forecast (Reference) Peak Hour Traffic Flows (5 of 7)
CKR/F/03/0246	2026 Forecast (Reference) Peak Hour Traffic Flows (6 of 7)
CKR/F/03/0247	2026 Forecast (Reference) Peak Hour Traffic Flows (7 of 7)

CKR/F/03/0251	2026 Forecast (Design) Peak Hour Traffic Flows (1 of 7)
CKR/F/03/0252	2026 Forecast (Design) Peak Hour Traffic Flows (2 of 7)
CKR/F/03/0253	2026 Forecast (Design) Peak Hour Traffic Flows (3 of 7)
CKR/F/03/0254	2026 Forecast (Design) Peak Hour Traffic Flows (4 of 7)
CKR/F/03/0255	2026 Forecast (Design) Peak Hour Traffic Flows (5 of 7)
CKR/F/03/0256	2026 Forecast (Design) Peak Hour Traffic Flows (6 of 7)
CKR/F/03/0257	2026 Forecast (Design) Peak Hour Traffic Flows (7 of 7)

CKR/F/03/0065	Projected Journey Time From Hoi Wan Road to Kai Fuk Road
CKR/F/03/0066	Projected Journey Time From Kai Fuk Road to Hoi Wan Road

CKR/F/03/0301	Proposed Junction Arrangement at Junction of Hoi Wang Road and Lai Cheung Road (J1) and Junction of Hoi Wong Road and Yau Ma Tei Interchange
CKR/F/03/0301_1	Proposed Junction Arrangement at Junction of Hoi Wang Road and Lai Cheung Road (J1)
CKR/F/03/0301_2	Proposed Junction Arrangement at Junction of Hoi Wong Road and Yau Ma Tei Interchange
CKR/F/03/0301_2-SP	Proposed Junction Arrangement at Junction of Hoi Wong Road and Yau Ma Tei Interchange (Swept Path Analysis)
CKR/F/03/0302_1	Proposed Junction Arrangement at Junction of Kansu Street, Ferry Street and Yan Cheung Road (J2)
CKR/F/03/0302_2	Proposed Junction Arrangement at Ferry Street, Kan Su Street and Yan Cheung Road – (With Noise Enclosure)

CKR/F/03/0303	Proposed Junction Arrangement at Junction of Austin Road West, Austin Road and Canton Road (J4)
CKR/F/03/0304	Proposed Junction Improvement at Junction of Sai Yee Street and Mong Kok Road (J9)
CKR/F/03/0305	Proposed Junction Improvement at Junction of Argyle Street and Sai Yee Street (J10)
CKR/F/03/0306	Proposed Junction Improvement at Junction of Argyle Street and Yim Po Fong Street (J11)
CKR/F/03/0307	Proposed Junction Improvement at Junction of Kai Cheung Road and Wang Chiu Road (J21)
CKR/F/03/0308	Proposed Junction Improvement at Junction of Sheung Yee Road and Wang Chiu Road (J22)
CKR/F/03/0309	Proposed Junction Improvement at Junction of Choi Hung Road and Tai Yau Street (J27)
CKR/F/03/0310	Proposed Junction Improvement at Junction of Lam Hing Street and Wang Kwong Road (J20, J28)
CKR/F/03/0311	Proposed Junction Improvement at Junction of Hoi Bun Road, Cheung Yip Street and Wang Chiu Road (J29)
CKR/F/03/0312	Proposed Junction Improvement at Olympic Garden Roundabout (J38)
CKR/F/03/0081	Proposed Junction Improvement at Cherry Street / Lin Cheung Road

Appendix B –Detail Information of Speed Limit of Slip Roads

Appendix C –Detail information of Weaving Analysis of CKR Slip Roads

Appendix D –Detail information of Weaving Analysis of Kai Fuk Road Slip Roads

Appendix E –Technical Note on Review of Lai Cheung Road Link

Appendix F –Technical Note on Demolition of 55 Ferry Street Subway

Appendix G –Junctions Assessment Summary

Appendix H –Junctions Improvement Summary

1 INTRODUCTION

1.1 General

1.1.1 On 30 June 2011, Highways Department (HyD) of the Government of the Hong Kong Special Administrative Region appointed the Arup – Mott MacDonald Joint Venture (AMMJV) under Agreement No. CE43/2010(HY) to provide consultancy services in respect of Central Kowloon Route – Design and Construction (the Project). The date for the commencement of the Assignment was 30 June 2011.

1.2 Description of Project

1.2.1 The need for additional traffic capacity on the east-west road links across central Kowloon, particularly for coping with the new developments on its western and eastern sides, has been recognized for a number of years.

1.2.2 In the final report of the West Kowloon Reclamation Transport Study (1990), a route in tunnel was proposed to be developed to link the West Kowloon Highway with the future highway system on the then SEKD. This route became known as Central Kowloon Route (CKR). The proposed alignment of CKR has evolved through a number of studies, aimed at minimizing the land resumption/clearance and disruption to the public.

1.2.3 In 1990, CKR was proposed as a dual 2-lane tunnel. According to the initial design concept, the route would connect at its western end in Yau Ma Tei with the West Kowloon Highway and the Western Harbour Crossing. It descended into a cut-and-cover tunnel section west of Ferry Street and continued as a bored tunnel. It ended at a toll plaza before connecting to the future highway system on the then proposed Kowloon Bay Reclamation.

1.2.4 In August 1991, HyD commissioned the Central Kowloon Route Study to verify the engineering feasibility of CKR and to carry out preliminary design for the alignment and configuration of the road scheme. This study was completed in late 1993.

1.2.5 HyD undertook a further study in June 1995 to re-consider the recommendations and investigate other options. This further study was called the Central Kowloon Route - Study on Alternatives. It evaluated more than 30 route options. These route options are detailed in the Final Report of the Central Kowloon Route - Study on Alternatives.

1.2.6 Additional Studies were carried out under the Central Kowloon Route - Study on Alternatives. Under the Additional Studies, two route options were identified as viable, and are detailed in the Final Option Comparison Report of the Central Kowloon Route - Study on Alternatives - Additional Studies.

1.2.7 HyD commissioned the Design and Construction Assignment for the Central Kowloon Route in June 1998. An alignment study, preliminary design and impact assessments were carried out without proceeding to the detailed design or construction phases due to substantial changes in scope of CKR. The study was based on a dual two-lane configuration. Its findings indicated the need for resumption of some residential buildings in the vicinity of Bailey Street in To

Kwa Wan and included an outline proposal for reprovisioning of some Government and community facilities in Yau Ma Tei. These facilities included Yau Ma Tei Police Station, Kowloon Government Offices, Yau Ma Tei Multi-storey Carpark Building, Yau Ma Tei Jockey Club Polyclinic Building and Specialist Clinic Extension Building, Yau Ma Tei Jade Hawker Bazaar, public toilet and refuse collection point adjoining Temple Street, and other minor facilities.

1.2.8 In March 1999, Government confirmed that a toll plaza for CKR would no longer be necessary. This removed a major constraint on the vertical alignment of CKR at the eastern end. The alternative alignment options for CKR were then re-examined taking into account the updated planning of the then SEKD for reduced scale of reclamation. In August 1999, HyD commissioned a further study to investigate alternative routes to the east of Ho Man Tin with a view to minimising resumption of residential properties while dovetailing with the overall planning of the road network in the then SEKD. The results were presented in the Final Report on Alternative Alignment Options Study completed in November 1999. The study recommended a new alignment running through the bus terminus at Kowloon City Ferry Pier, which could avoid resumption of residential buildings.

1.2.9 In November 2001, a further investigation into re-aligning the section of CKR near To Kwa Wan Road and a review of the ventilation system, in order to reduce emissions in the then SEKD, was carried out. The results were presented in the Final Report on Building Location and Eastern Alignment Options Study. This study was based on a dual 2-lane configuration of CKR.

1.2.10 In April 2002, the then Transport Bureau confirmed that CKR should be of dual 3-lane configuration.

1.2.11 The Court of Final Appeal handed down its judgement on the draft Wan Chai North Outline Zoning Plan in relation to the Protection of the Harbour Ordinance, Cap. 531, on 9 January 2004. According to this Judgment, the presumption against reclamation under section 3(1) of the Protection of the Harbour Ordinance can only be rebutted by establishing an overriding public need for reclamation, i.e. "the overriding public need test".

1.2.12 In 2004, PlanD commissioned the Kai Tak Planning Review study to review the planning framework for the Kai Tak Development with "no reclamation" as the starting point. The section of CKR east of To Kwa Wan Road falls within its study area. An immersed tube tunnel of about 400m in length was proposed for the section in the waters of Kowloon Bay to avoid reclamation.

1.2.13 The GRF is currently a single 2-lane, 2-way viaduct of about 1.2 km in length connecting the West Kowloon Corridor with Chatham Road South, with its narrowest section constrained by the Yau Ma Tei Multi-storey Carpark Building where only one lane in each direction can be accommodated. The proposed demolition of the Carpark Building as well as other Government and community facilities to the west of Nathan Road for the construction of CKR would remove this constraint on widening of GRF. The Technical Feasibility Study for widening of GRF completed in 2006 indicated that part of the widened GRF foundation would have to be integrated with the CKR tunnel structure at Yau Ma Tei.

1.2.14 Agreement No. CE 58/2006 (HY) – Central Kowloon Route and Widening of Gascoigne Road Flyover – Investigation (referred to hereafter as the Investigation Assignment) was commissioned by HyD in August 2007 to conduct the investigation and preliminary design of the CKR (in dual 3-lane configuration) and Widening of GRF projects. The major objectives of the assignment were to:

(a) Review available information, findings and recommendations of previous studies;

(b) Develop new alignment options for CKR in dual 3-lane configuration;

(c) Evaluate various alignment options;

(d) Formulate a preferred scheme; to address issues related to the planning and construction of the projects; and

(e) Determine sufficient details of the projects for proceeding with detailed design and construction stages.

1.2.15 CKR is now a proposed dual 3-lane trunk road across central Kowloon linking the West Kowloon in the west and the proposed KTD in the east. It will connect the West Kowloon Highway at Yau Ma Tei Interchange with the road network at Kowloon Bay and the future Trunk Road T2 at KTD which will connect to the future TKO-LTT. The current general layout for the CKR is shown in **Drawing No. CKR/F/03/0011**.

1.2.16 CKR, Trunk Road T2 and TKO-LTT will form a strategic highway link, namely Route 6, connecting West Kowloon and Tseung Kwan O. Consultancy studies for Trunk Road T2 and TKO-LTT have been commissioned by CEDD.

1.2.17 CEDD has also commissioned a consultancy study for the proposed Cross Bay Link (CBL) for connecting TKO-LTT with the eastern part of Tseung Kwan O. A plan showing Route 6 and CBL is provided in **Drawing No. CKR/F/03/0012**.

1.2.18 Agreement No. HMW 1/2009 (EM) – Investigation Study of Air Purification Systems for Central Kowloon Route (referred to hereinafter as the APS Study) was commissioned in April 2009 by HyD to study the feasibility and cost effectiveness of use of air purification systems to further mitigate the air quality impact of the CKR and to develop schematic designs for the system.

1.2.19 Both the Investigation Assignment and APS Study are consultancy assignments commissioned by HyD in the investigation stage. HyD commissioned another consultancy study under Agreement No. HMW 1/2010 (TT) - Supplementary Traffic Study for Central Kowloon Route (referred to hereafter as the Supplementary Traffic Study) in February 2011, which assessed the impacts of the various scenarios on the timeframes for commissioning of various components of Route 6 on the district road network in the Area of Influence in 2016, 2021 and 2026.

1.2.20 Additionally, this also developed the conceptual design for permanent traffic management schemes for facilitating the commissioning of the CKR and interim traffic management schemes in the intervening period before the commissioning of CKR and other components of Route 6. Main tasks under the Supplementary Traffic Study have recently been completed and are made available for reference in this Study.

1.2.21 In accordance with the latest target, the construction works of CKR will start in early 2015 for completion and commissioning by 2020/2021.

1.3 Objective of the Updated Traffic Impact Assessment Report

1.3.1 The main objectives of the Updated Traffic Impact Assessment Report are as follows:

- To review the key issues identified in the TIA Report for CKR prepared under the Investigation Assignment and the findings and the recommendations of the Supplementary Traffic Study; To conduct a comprehensive review of traffic data presently available and to collect data to supplement the existing information;
- To review the preferered CKR alignment and the proposed interchagnes and junctions;
- To provide traffic forecasts for the purpose of designing, constructing and operating the Project;
- To determine any adverse traffic impacts within the AOI during construction and operation stages, taking into account relevant concurrent projects;
- To determine the capacity and lane configurations of proposed roads, interchanges and junctions; and
- To review the conceptual permanent and interim traffic improvement measures proposed in the Supplementary Traffic Study and carry out preliminary design for the measures including area wide traffic management meausres to address the traffic demands and problems in the AOI.

1.4 Structure of Report

1.4.1 This Report forms the Updated Traffic Impact Assessment Report for the Project, and has been prepared in accordance with Clause 4.1 (b) of Annex I-40 of the Project Brief. The Report contains the following sections in addition to this introduction:

1.4.2 Section 2 – Study Methodology

This section presents an overview of the traffic model methodology, base year validation and way of ensuring the traffic forecast are consistency with TD's traffic review.

1.4.3 Section 3 – Baseline Review

This section presents an overview of the existing traffic conditions and identifying traffic problems and issues which would have to be resolved through the commissioning of Route 6.

1.4.4 Section 4 – Context of CKR

This section presents an alignment of the CKR including the design of slip road, and the associated civil works induced by the construction of CKR.

1.4.5 Section 5 – Major Findings of Scenario Testing

This section presents an overview of the 6 different infrastructure traffic forecast scenarios based on different combinations of Route 6 components, CBL and GRF widening and their corresponding assessment findings on the timing for commissioning of the CKR.

1.4.6 Section 6 – Findings on Implementation of CKR

This section contains a summary on the findings on the implementation programme of the road infrastructure items of concern in this Project.

1.4.7 Section 7 - Conceptual Traffic Improvement Measures

It presents feasible improvement measures to overcome the traffic problems identified in future years.

1.4.8 Section 8 – Summary

The section summarises the findings and recommendation of this Report.

2 STUDY METHODOLOGY

2.1 Background of the Updated TIA Report

2.1.1 Prior to the commencement of the Project, the Supplementary Traffic Study for Central Kowloon Route had been carried out by Highways Department (HyD) to assess the traffic impacts brought to the road network in the Kowloon under different commissioning of the various components of Route 6, for instance, CKR, Trunk Road T2, Tseung Kwan O-Lam Tin Tunnel, Cross Bay Link and the widening of Gascoigne Road Flyover.

2.1.2 After the completion of the Supplementary Traffic Study, Planning Department issued a new set of planning data, 2009 based Territorial Population Employment Data Matrices (TPEDM), incorporating the latest development on territorial development assumption. Therefore the purpose of this report is to update and present the full assessment of the traffic impact of CKR, including the impact during the construction.

2.2 Modelling Methodology

2.2.1 Three Local Transport Models (LTM) were developed under the Supplementary Traffic Study for Central Kowloon Route has been updated based on the revised set of planning data, 2009-based TPEDM. The LTM comprised three separate models covering West and Central Kowloon (K1), Central and South East Kowloon (K2) and Tseung Kwan O / Lam Tin areas (NTE2) were developed using Saturn software.

2.2.2 Analysis to review the change in planning assumption has been made. **Table 2.1** compared the planning data adopted in the Supplementary Traffic Study and that adopted in the assignment focusing on the study area as shown in **Drawing CKR/F/03/0021**. The study area includes the districts of Yau Ma Tei, Mong Kok, Sham Shui Po, Kowloon City, Kwun Tong, Wong Tai Sin and Tseung Kwan O.

Table 2.1: Comparison of 2006-based and 2009-based TPEDM for the AOI (2016 to 2031)

	Design Population	Population (Usual Residents)	Population (other than Usual Residents)	Households	Resident Students	School Places	Resident workers	Job Places
2006-based TPEDM								
2016								
2021								
2026								
2031								
2009-based TPEDM								
2016								
2021								
2026								
2031								
Percentage Change (2009-based TPEDM / 2006-based TPEDM)								
2016	0.0%	-0.7%	7.2%	0.2%	0.3%	0.6%	-0.7%	-1.7%

	Design Population	Population (Usual Residents)	Population (other than Usual Residents)	Households	Resident Students	School Places	Resident workers	Job Places
2021	-1.3%	-2.2%	8.0%	-0.7%	-0.3%	-0.8%	-2.5%	-1.2%
2026	-5.1%	-7.2%	14.9%	-5.1%	-11.7%	-0.9%	-8.1%	-0.9%
2031	-1.8%	-5.0%	27.0%	-2.5%	-7.2%	-1.3%	-4.8%	-0.4%

2.2.3 The comparison revealed that the revised set of planning data assumed a relative lower level of development density over the same planning horizon. Both the population and jobs were assumed with a smaller projection in year 2031.

2.2.4 In particular, a comparison of land-use planning data to the areas within K1, K2 and NTE2 is shown in **Table 2.2 – Table 2.4**.

Table 2.2: Comparison of 2006-based and 2009-based TPEDM for K1 (2016 to 2031)

	Design Population	Population (Usual Residents)	Population (other than Usual Residents)	Households	Resident Students	School Places	Resident workers	Job Places
2006-based TPEDM								
2016								
2021								
2026								
2031								
2009-based TPEDM								
2016								
2021								
2026								
2031								
Percentage Change (2009-based TPEDM / 2006-based TPEDM)								
2016	-0.9%	1.2%	-14.6%	0.2%	-2.2%	2.1%	1.8%	4.8%
2021	1.2%	4.5%	-20.5%	1.2%	0.9%	3.7%	5.3%	5.5%
2026	5.3%	9.8%	-22.2%	5.6%	12.3%	3.0%	10.8%	5.7%
2031	-0.4%	4.0%	-26.3%	-0.4%	3.1%	3.6%	3.3%	6.1%

Table 2.3: Comparison of 2006-based and 2009-based TPEDM for K2 (2016 to 2031)

	Design Population	Population (Usual Residents)	Population (other than Usual Residents)	Households	Resident Students	School Places	Resident workers	Job Places
2006-based TPEDM								
2016								
2021								
2026								
2031								
2009-based TPEDM								
2016								
2021								
2026								
2031								
Percentage Change (2009-based TPEDM / 2006-based TPEDM)								
2016	1.5%	1.4%	2.5%	0.2%	1.3%	-3.2%	1.2%	-1.5%
2021	2.2%	2.0%	3.5%	1.1%	-0.3%	-2.2%	2.1%	-2.9%
2026	6.2%	7.8%	-5.5%	5.9%	13.9%	-2.6%	8.9%	-3.5%
2031	4.1%	7.3%	-16.8%	5.1%	10.8%	-2.3%	7.4%	-4.8%

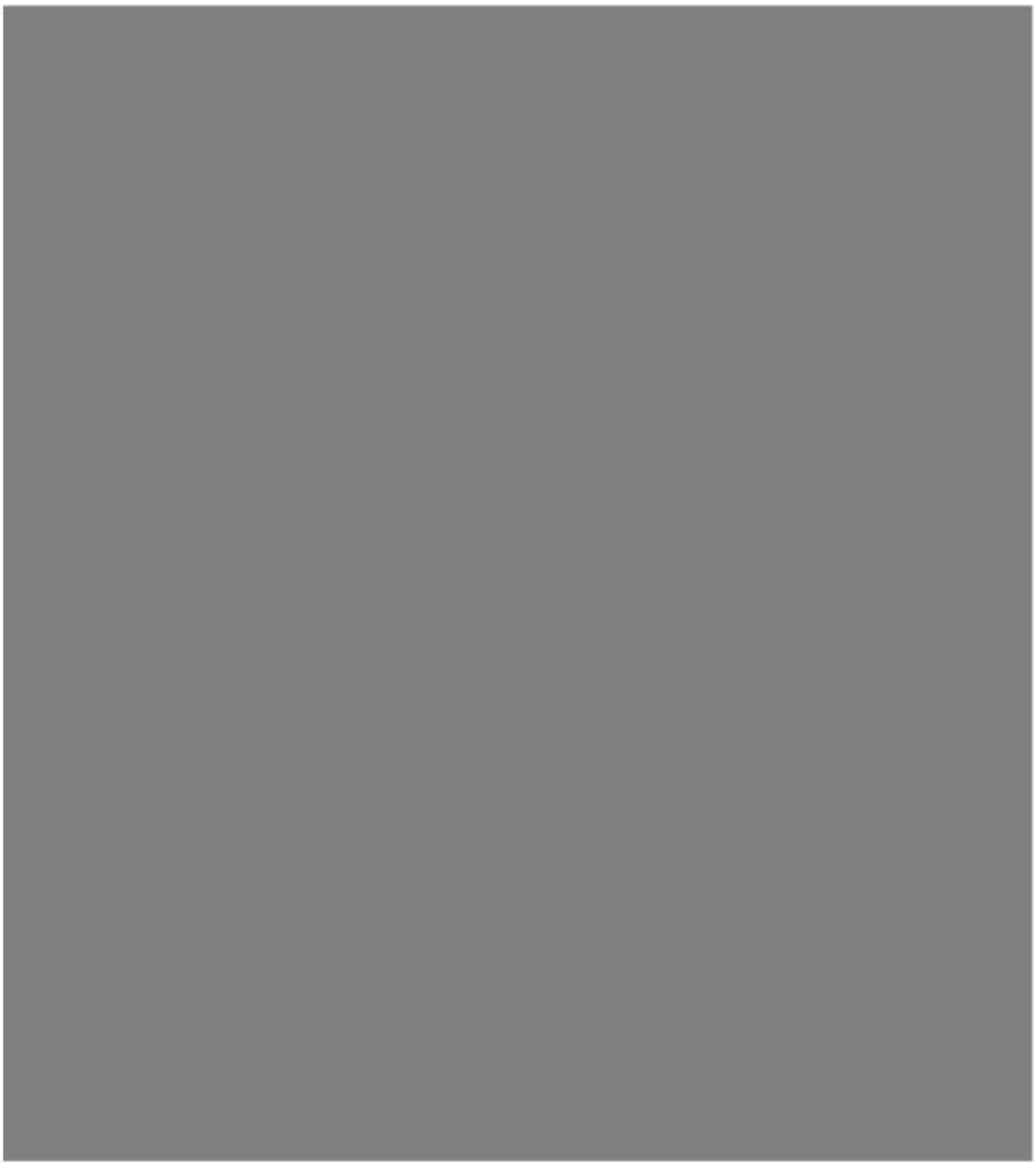
Table 2.4: Comparison of 2006-based and 2009-based TPEDM for NTE2 (2016 to 2031)

	Design Population	Population (Usual Residents)	Population (other than Usual Residents)	Households	Resident Students	School Places	Resident workers	Job Places
2006-based TPEDM								
2016								
2021								
2026								
2031								
2009-based TPEDM								
2016								
2021								
2026								
2031								
Percentage Change (2009-based TPEDM / 2006-based TPEDM)								
2016	-3.3%	-3.6%	2.8%	-5.2%	-3.4%	0.9%	-3.5%	-0.3%
2021	-0.5%	-1.7%	24.0%	-3.2%	0.4%	0.9%	-1.9%	-1.9%
2026	2.8%	2.1%	14.4%	0.4%	10.9%	4.0%	2.0%	-6.4%
2031	-2.5%	-2.6%	-0.4%	-5.3%	2.5%	4.0%	-4.3%	-6.3%

2.2.5 Considering the planning data of areas within K1, from 2006-based to 2009-based TPEDM, there is a substantial accumulated increase in job places over the design years, ranging from 4.8% for 2016 to 6.1% for 2031. For K2, there is a moderate accumulated increase in design population, ranging from 1.5% for 2016 to 6.2% for 2026, while there is a moderate accumulated decrease in job places, ranging from -1.5% for 2016 to -4.8% for 2031. For NTE2, there is a general decrease in design population for each design year except the increase

of 2.8% for 2026, and there is a decreasing trend in job places, starting from -0.3% for 2016 and reaching to -6.3% for 2031.

2.2.6



2.2.7

2.3 Project Forecast Scenarios

2.3.1 Central Kowloon Route is scheduled to be opened at end 2020/early 2021. The Updated Traffic Impact Assessment will be carried out by comparing the traffic forecast of reference (without CKR) and design (with CKR) scenarios. It consists

of the test scenarios of the Supplementary Traffic Study for CKR which are summarised below:

- 2016 Reference Scenario: S2016 – This will constitute the pre-commissioning and construction stage of CKR scenario;
- 2021 Reference Scenario: S2021/A – This will constitute the without CKR scenario and other components of Route 6;
- 2021 Design Scenario: S2021/C – This will constitute the with CKR and TKO-LTT scenario whilst T2 is not in place as a conservative approach to test under this study;
- 2026 Reference Scenario: S2026/A – This will constitute the without CKR and other components of Route 6 scenario; and
- 2026 Design Scenario: S2026/G – This will constitute the with CKR, other component of Route 6, Cross Bay Link and Garden Road Flyover Widening scenario.

2.4 Traffic Impact Assessment

2.4.1 The traffic impact assessment was conducted at the AM peak hour and PM peak hour. The traffic impact of CKR was revealed by comparing the network performance of the road network within the AOI between the scenario with CKR and scenario without CKR various forecasting years.

2.4.2 Assessments of critical junctions within the Study Area were conducted. In the pre-commissioning scenario, local road junctions were identified to be possibly affected by the construction works and the associated temporary traffic management scheme were developed, with the resulting junction performance indicating some junctions need improvement to achieve satisfaction.

2.4.3 In the post-commissioning scenarios, considerable amount of strategic traffic is expected to use CKR, thus most local roads should expect to see some improvement in performance. These strategic roads were assessed based on the concept of volume-to-capacity (V/C ratio) which indicated the general change (increase or decrease) in traffic volumes and degree of utilisation for road in question.

2.4.4 Some of the critical junctions, particularly those near the interchanges and slip roads connecting CKR, may receive additional traffic. These junctions were assessed to gauge the degree of impacts from CKR. Design on the CKR mainline and slip roads at interchange have also taken due consideration from traffic forecast. Improvement schemes, where necessary, were developed to address the identified problem in the road network.

3 BASELINE REVIEW

3.1 Overview of Road Network

3.1.1 The road network in the Central part of Kowloon Peninsula is essentially a grid format of east-west and north-south running roads. Of particular concern in the current study are the roads higher in the road hierarchy, i.e. trunk roads, primary distributors and district distributors, which has the important role of providing high throughput capacity for cross-district traffic.

3.1.2 The following roads are given particular attention here because of their district-wide significance:

- Lung Cheung Road
- Boundary Street
- Prince Edward Road
- Argyle Street
- Waterloo Road
- Jordan Road
- Chatham Road North
- East Kowloon Corridor
- Kai Tak Tunnel
- Gascoigne Road

3.1.3 Although some of the above roads are classified as primary distributor with the planning intention of serving mostly cross-district traffic, in reality a significant portion of traffic on these roads is local district traffic due to a number of reasons.

3.2 Previous Studies / Surveys Conducted

3.2.1 In order to appraise the existing traffic condition within the AOI, the survey conducted from the Supplementary Traffic Study was further reviewed. Though the survey had been conducted in March 2011, further checking against the latest Annual Traffic Census (ATC) indicated that the changes in traffic flow, for the same period in 2012 were minimal. Therefore, the traffic flow extracted from the validated LTM of the Supplementary Traffic Study would be adopted for this Report. **Table 3.1** and **Drawing CKR/F/03/0021** illustrate the junctions and road links surveyed by the Supplementary Traffic Study.

Table 3.1 Survey Junctions and Road Links

Junction / Road Link No.	Road Junction / Road Link
J1	Hoi Wang Road / Lai Cheung Road
J2	Kansu Street / Ferry Street / Yan Cheung Road
J3	Jordan Road/ Ferry Street / Canton Road
J4	Austin Road West / Austin Road / Canton Road
J5	Argyle Street / Nathan Road
J6	Waterloo Road / Nathan Road
J7	Jordan Road / Nathan Road
J8	Austin Road / Nathan Road
J9	Sai Yee Street / Mong Kok Road
J10	Argyle Street / Sai Yee Street
J11	Argyle Street / Yim Po Fong Street
J12	Prince Edward Road West / Kadoorie Avenue
J13	Boundary Street / Waterloo Road
J14	Prince Edward Road West / Waterloo Road
J15	Argyle Street / Waterloo Road / Princess Margaret Road
J16	Gascoigne Road / Chatham Road South
J17	Austin Road / Chatham Road South / Cheong Wan Road
J18	Chatham Road North / Wuhu Street
J19	Ma Tau Chung Road / Sung Wong Toi Road
J20	Kai Cheung Road / Wang Kwong Road
J21	Kai Cheung Road / Wang Chiu Road
J22	Sheung Yee Road / Wang Chiu Road
J23	Lin Cheung Road / Jordan Road
J24[(1)]	Lin Cheung Road / Wui Cheung Road
J25	Lin Cheung Road / Austin Road West
J26	Ma Tau Wai Road / Tin Kwong Road
J27	Choi Hung Road / Tai Yau Street
J28	Lam Hing Street / Wang Kwong Road
J29	Hoi Bun Road / Cheung Yip Street / Wang Chiu Road
J30	Wai Yip Street / Lai Yip Street
J31	Wai Yip Street / Hoi Yuen Road
J32	Wai Yip Street / Wai Fat Road
J33	Cha Kwo Ling Road / Yau Tong Road
J34	Temporary Road D1A(S) / Jordan Road
J35	Temporary Road D1A(S) / Wui Cheung Road
J36	Canton Road / Wui Cheung Road
J37	Gascoigne Rd / Nathan Rd / Kansu St
J38	Olympic Garden Roundabout
RL1	Lung Cheung Road (from Lion Rock Tunnel Road to Chuk Yuen Road)

Junction / Road Link No.	Road Junction / Road Link
RL2	Boundary Street (From Tai Hang Tung Road to Embankment Road)
RL3	Prince Edward Road West (from Embankment Road to Kadoorie Ave)
RL4	Argyle Street & FO (from Gullane Rd to Tin Kwong Rd)
RL5	Chatham Road North (From Wuhu Street to Ping Chi Street)
RL6	East Kowloon Corridor (From Ma Tau Kok Road to Chatham Road North)
RL7	Gascoigne Road Flyover (Eastern Side of Nathan Road)

Note: (1) Existing Lin Cheung Road / Wui Cheung Road junction already removed due to Express Rail Ling project.

3.3 Baseline Traffic Conditions

Existing Junctions Performance

3.3.1 The capacity assessment for the selected junctions based on the baseline year (2012) traffic flows are summarized in **Table 3.2**. The subject assessment results are also presented diagrammatically in **Drawing CKR/F/03/0031**. The observed traffic flows at the corresponding junctions are shown in **Drawing CKR/F/03/0201 – 0207.**

Table 3.2 Junction Capacity Assessment – 2012 Traffic Flows

Junction No.	Road Junctions	Reserve Capacity (R.C.)[4] / Design Flow of Capacity (DFC)[5]	
		Weekday AM Peak	Weekday PM Peak
J1	Hoi Wang Rd / Lai Cheung Rd	27.5%	47.6%
J2	Kansu Street / Ferry Street / Yan Cheung Rd	64.3%	84.8%
J3	Jordan Rd/ Ferry Street / Canton Rd	39.9%	53.9%
J4	Austin Rd West / Austin Rd / Canton Rd	7.5%	14.4%
J5	Argyle Street / Nathan Rd	-1.6%	-3.0%
J6	Waterloo Rd / Nathan Rd	12.9%	10.7%
J7	Jordan Rd / Nathan Rd	16.0%	21.0%
J8	Austin Rd / Nathan Rd	24.1%	30.4%
J9	Sai Yee Street / Mong Kok Rd	1.5%	-3.3%
J10	Argyle Street / Sai Yee Street	-1.5%	-3.7%
J11	Argyle Street / Yim Po Fong Street	-6.8%	-6.1%
J12	Prince Edward Rd West / Kadoorie Avenue	17.2%	31.6%
J13	Boundary Street / Waterloo Rd	12.8%	18.0%
J14	Prince Edward Rd West / Waterloo Rd	9.8%	11.7%
J15	Argyle Street / Waterloo Rd / Princess Margaret Rd	-4.4%	5.8%
J16 [1]	Gascoigne Rd / Chatham Rd South	-	-
J17	Austin Rd / Chatham Rd South / Cheong Wan Rd	-5.2%	-4.8%

Junction No.	Road Junctions	Reserve Capacity (R.C.)[4] / Design Flow of Capacity (DFC)[5]	
		Weekday AM Peak	Weekday PM Peak
J18	Chatham Rd North / Wuhu Street	-6.0%	-19.9%
J19	Ma Tau Chung Rd / Sung Wong Toi Rd	19.3%	15.1%
J20	Kai Cheung Rd / Wang Kwong Rd	18.1%	34.6%
J21	Kai Cheung Rd / Wang Chiu Rd	0.6%	36.5%
J22	Sheung Yee Rd / Wang Chiu Rd	3.4%	-3.3%
J23[2]	Lin Cheung Rd / Jordan Rd	-	-
J24[3]	Lin Cheung Rd / Wui Cheung Rd	-	-
J25	Lin Cheung Rd / Austin Rd West	0.7	0.8
J26	Ma Tau Wai Rd / Tin Kwong Rd	2.6%	0.3%
J27	Choi Hung Rd / Tai Yau Street	16.1%	21.9%
J28	Lam Hing Street / Wang Kwong Rd	49.5%	47.2%
J29	Hoi Bun Rd / Cheung Yip St / Wang Chiu Rd	89.1%	81.4%
J30	Wai Yip St / Lai Yip St	74.6%	57.4%
J31	Wai Yip Street / Hoi Yuen Rd	69.3%	58.5%
J32	Wai Yip Street / Wai Fat Rd	6.6%	20.5%
J33	Cha Kwo Ling Rd / Yau Tong Rd	>100%	>100%
J34	Temporary Rd D1A(S) / Jordan Rd	50.0%	36.7%
J35	Temporary Rd D1A(S) / Wui Cheung Rd	>100%	>100%
J36	Canton Rd / Wui Cheung Rd	42.5%	32.0%
J37	Gascoigne Rd / Nathan Rd / Kansu St	56.9%	52.9%
J38	Olympic Garden Roundabout	1.0	1.2

Notes:
(1) Existing Gascoigne Road / Chatham Road South junction is a grade separated junction.
(2) Existing Lin Cheung Road / Jordan junction is changing under Express Rail Link (XRL) TTM arrangement.
(3) Existing Lin Cheung Road / Wui Cheung Road junction is removed by XRL project.
(4) R.C. (indicated in %) provides an indication of signal junction performance. Positive R.C. indicates the junction is operating satisfactorily, negative R.C. indicates the junction is overloaded.
(5) DFC provides an indication of priority junction and roundabout performance. DFC below 1.0 indicates the junction is operating satisfactorily, DFC over 1.0 indicates the junction is overloaded.

Existing Traffic Queue Observation

3.3.2 In order to have clear picture of the traffic condition at the baseline year, queue length observation at major junctions were carried out. The maximum queue length and calculated R.C. / DFC value were tabulated as shown in **Table 3.3** and presented in **Drawing CKR/F/03/0033 - 55** diagrammatically.

Table 3.3 Observed Queue Length and Junction Assessment Results

Junction Index	Junction	R.C./DFC		Junction ARM	Queue length (m)	
		AM	PM		AM	PM
J1	Hoi Wang Rd / Lai Cheung Rd	27.5%	47.6%	Hoi Wang Rd SB	120	90
				Lai Cheung Rd EB	200	120
				Hoi Wang Rd NB	90	70
J2	Ching Ping Street/ Kansu Street/ Ferry Street/ Yan Cheung Street	64.3%	84.8%	Ching Ping St SB	40	20
				Kansu Street WB	10	20
				Ferry Street NB	10	0
				Yan Cheung St EB	10	0
J3	Ferry ST/ Canton Rd/ Jordan Rd	33.9%	53.9%	Ferry Street SB	200	80
				Jordan Rd WB	70	50
				Canton Rd NB	120	90
				Jordan Rd SB	120	100
J4	Canton Rd/ Austin Rd West	7.5%	14.4%	Canton Rd SB	140	195
				Austin Rd West WB	120	90
				Canton Rd NB	40	220
J5	Nathan Rd/ Argyle Street	-1.6%	-3.0%	Nathan Rd SB	130	130
				Argyle St WB	60	70
				Nathan Rd NB	80	120
J6	Nathan Rd/ Waterloo Rd	12.9%	10.7%	Nathan Rd SB	180	180
				Waterloo Rd WB	150	120
				Nathan Rd NB	170	200
				Waterloo Rd EB	120	70
J7	Nathan Rd/ Jordan Rd	16.0%	21.0%	Nathan Rd SB	90	170
				Jordan Rd WB	90	110
				Nathan Rd NB	60	110
				Jordan Rd EB	195	195
J8	Nathan Rd/ Austin Rd	24.1%	30.4%	Nathan Rd SB	80	120
				Austin Rd WB	70	150
				Nathan Rd NB	50	70
				Austin Rd EB	100	160
J9	Sai Yee St/ Mong Kok Rd	1.5%	-3.3%	Sai Yee St SB	60	110
				Sai Yee St NB	70	170
				Mong Kok Rd EB	100	100
J10	Sai Yee Street/ Argyle Street	-1.5%	-3.7%	Sai Yee St SB	120	120
				Argyle St WB	90	90
				Sai Yee St NB	50	70
				Argyle St EB	60	50

Junction Index	Junction	R.C./DFC		Junction ARM	Queue length (m)	
		AM	PM		AM	PM
J11	Argyle Street / Yim Po Fong Street	-6.8%	-6.1%	Argyle St WB	150	180
				Yim Po Fong St NB	170	180
				Argyle St EB	120	120
J12	Prince Edward Rd West / Kadoorie Avenue	12.2%	31.6%	Prince Edward Rd West	100	40
				Kadoorie Avenue	60	20
J13	Boundary Street / Waterloo Rd	12.8%	18.0%	Waterloo Rd SB	80	80
				Waterloo Rd NB	140	120
				Boundary Street EB	240	240
J14	Prince Edward Rd West / Waterloo Rd	9.8%	11.7%	Waterloo Rd SB	80	60
				Prince Edward Rd West WB	160	120
				Waterloo Rd NB	180	110
J15	Argyle Street / Waterloo Rd / Princess Margaret Rd	-4.4%	5.8%	Waterloo Rd SB	180	100
				Argyle Street WB	100	70
				Princess Margaret Rd NB	120	150
				Argyle Street EB	150	80
J17	Austin Rd / Chatham Rd South / Cheong Wan Rd	-5.2%	-4.8%	Chatham Rd South SB	100	110
				Cheong Wan Rd WB	60	100
				Chatham Rd South NB	150	130
				Austin Rd EB	150	90
J18	Chatham Rd North / Wuhu Street	-6.0%	-19.9%	Chatham Rd North SB	310	280
				Wuhu Stret WB	140	70
J19	Ma Tau Chung Rd / Sung Wong Toi Rd	19.3%	15.1%	Ma Tau Chung Rd SB	250	120
				Ma Tau Chung Rd NB	150	150
				Sung Wong Toi Rd WB	150	90
				Fu Ning St EB	30	10
J20	Sheung Yee Rd / Wang Chiu Rd	18.1%	34.6%	Wang Kwong Rd SB	160	140
				Kai Cheung Rd WB	90	90
				Wang Kwong Rd NB	110	110
				Kai Cheung Rd EB	140	70
J21	Kai Cheung Rd / Wang Chiu Rd	0.6%	36.5%	Wang Chiu Rd SB	120	80
				Kai Cheung Rd WB	290	180
				Wang Chiu Rd NB	110	110
				Kai Cheung Rd EB	120	220
J22	Sheung Yee Rd / Wang Chiu Rd	3.4%	-3.3%	Wang Chiu Rd SB	120	120
				Sheung Yee Rd WB	60	60
				Wang Chiu Rd NB	150	150
				Sheung Yee Rd EB	90	90
J25	Lin Cheung Rd / Austin Rd West	0.7	0.8	Lin Cheung Rd NB	30	30
				Austin Rd EB	40	40

Junction Index	Junction	R.C./DFC		Junction ARM	Queue length (m)	
		AM	PM		AM	PM
J26	Ma Tau Wai Rd / Tin Kwong Rd	2.6%	0.3%	Ma Tau Wai Rd SB	110	85
				Ma Hang Chung Rd WB	70	70
				Ma Tau Wai Rd NB	110	100
				Tin Kwong Rd EB	100	90
J27	Choi Hung Rd / Tai Yau Street	16.1%	21.9%	Choi Hung Rd EB	110	100
				Choi Hung Rd WB	90	80
				Tai Yau Street NB	30	50
J28	Lam Hing St / Wang Kwong Rd	49.5%	47.2%	Lam Hing St WB	70	100
				Wang Kwong Rd SB	40	70
				Wang Kwong Rd NB	80	80
				Lam Hing St WB EB	50	70
J29	Hoi Bun Rd / Cheung Yip Street / Wang Chiu Rd	89.1%	81.4%	Cheung Yip Street SB	30	30
				Hoi Bun Rd WB	60	60
				Cheung Yip Street NB	120	120
				Hoi Bun Rd EB	80	80
J30	Wai Yip Street / Lai Yip Street	74.6%	57.4%	Wai Yip Street SB	60	140
				Lai Yip Street WB	100	100
				Wai Yip Street NB	50	60
				Lai Yip Street EB	60	70
J31	Wai Yip Street / Hoi Yuen Rd	69.3%	58.5%	Wai Yip Street SB	80	150
				Hoi Yuen Rd WB	60	175
				Wai Yip Street NB	20	40
J32	Wai Yip Street / Wai Fat Rd	6.6%	20.5%	Wai Yip Street SB	230	230
				Wai Fat Rd WB	100	90
				Wai Yip Street NB	90	80
				Wai Fat Road EB	120	120
J33	Cha Kwo Ling Rd / Yau Tong Rd	>100%	>100%	Yau Tong Rd SB	30	30
				Cha Kwo Ling Rd WB	50	40
				Cha Kwo Ling Rd EB	80	60
J34	Road D1A / Jordan Rd	50.0%	36.7%	Jordan Rd WB	90	50
				Road D1A(S) NB	30	30
				Road D1A(N) SB	210	160
				Jordan Rd EB	80	90
J35	Road D1A/Wui Cheung Rd	>100%	>100%	Road D1A(S) SB	20	20
				Wui Man Rd NB	90	90
				Wui Cheung Rd WB	60	110
J36	Canton Rd / Wui Cheung Rd	42.5%	32.0%	Canton Rd SB	140	140
				Canton Rd NB	240	240
				Wui Cheung Rd EB	130	180

Junction Index	Junction	R.C./DFC		Junction ARM	Queue length (m)	
		AM	PM		AM	PM
J37	Gascoigne Rd/ Nathan Rd/Kansu St	56.9%	52.9%	Nathan Rd SB	80	120
				Gascoigne Rd WB	75	68
				Nathan Rd NB	85	65
J38	Olympic Garden Roundabout	1.0	1.2	Prince Edward Rd W EB	130	100
				Argyle St EB	90	80
				Ma Tau Chung Rd NB	130	100
				Ma Tau Chung Rd SB	95	120

Existing Road Links Performance

3.3.3 The capacity assessment of critical road links has also been carried out based on the baseline year traffic volume are summarized and tabulated in **Table 3.4** below, the subject assessment results are also presented diagrammatically in **Drawing CKR/F/03/0032**.

Table 3.4 Road Link Capacity Assessment – 2012 Traffic Flows

Road Link No.	Road Link	Direction	Traffic Flow (pcu/hr) [V/C ratio]***	
			Weekday AM Peak	Weekday PM Peak
RL1	Lung Cheung Road (from Lion Rock Tunnel Road to Chuk Yuen Road)	EB	5530 [0.9]	4537 [0.8]
		WB	4646 [0.9]	4568 [0.9]
		WB (Slip road from Chuk Yuen Road)	950 [0.9]	555 [0.6]
RL2	Boundary Street (From Tai Hang Tung Road to Embankment Road)	EB	3112 [1.0]	3194 [1.1]
RL3	Prince Edward Road West (from Embankment Road to Kadoorie Ave)	WB	4884 [0.8]	4335 [0.7]
RL4	Argyle Street & FO (from Gullane Rd to Tin Kwong Rd)	EB	1997 [0.8]	2079 [0.9]
		WB	2004 [0.8]	1809 [0.8]
RL5	Chatham Road North (From Wuhu Street to Ping Chi Street)	EB	4640 [1.1]	4769 [1.1]
		WB	1394 [0.8]	2082 [1.2]
		WB (farside free flow lane)	2080 [1.3]	581 [0.4]
RL6	East Kowloon Corridor (From Ma Tau Kok Road to Chatham Road North)	EB	3159 [1.0]	3308 [1.1]
		WB	2398 [0.8]	1786 [0.6]
RL7	Gascoigne Road Flyover (Eastern Side of Nathan Road)	EB	1350 [0.8]	2265 [1.3]
		WB	1960 [1.2]	1763 [1.1]

Notes: *** V/C ratio above 1.0 indicates the onset of mild congestion.
V/C ratio above 1.2 indicates the onset of more serious congestion, and will be bounded to 1.3 due to the physical limitation.

Journey Time Surveys

3.3.4 Car journey time surveys were carried out in both of conventional commuting AM and PM peak periods at normal day along 2 designated routes in both direction between west Kowloon and east Kowloon areas as depicted below:

- **Route 1** : Hoi Wang Rd ←→ Lai Cheung Rd ←→ Ferry Street ←→ Gascoigne Rd ←→ Chatham Rd North ←→ East Kowloon Corridor ←→ Kai Tak Tunnel ←→ Kai Fuk Rd
- **Route 2** : Hoi Wang Rd ←→ Lai Cheung Rd ←→ Waterloo Rd ←→ Prince Edward Rd West ←→ Prince Edward Rd East ←→ Kwun Tong Rd←→ Wai Yip St ←→ Kai Cheung Rd ←→Kai Fuk Rd

Two cars were utilized in the survey, one of each at the aforementioned routes, starting at the origin approximately the same time. Checkpoints at intermediate points along the route were set and times were recorded at the check points. Result of the journey time surveys were tabulated in below **Table 3.5**, and demonstrate in **Drawing CKR/F/03/0063 - 64** diagrammatically.

Table 3.5 Result of Journey Time Survey

Road Section	Check Point No.	Distance (km)	Journey Time (Min)		Average Speed (km/h)	
			AM	PM	AM	PM
Route 1 (Hoi Wang Road → Kai Fuk Rd)						
Gascoigne Rd	1	1.45	18:37	10:37	4.7	8.2
Chatham Rd North	2	1.2	3:32	2:40	20.4	27.0
Kai Fuk Rd	End point	3.25	3:57	3:18	49.3	59.0
Route 2 (Hoi Wang Road → Kai Fuk Rd)						
Waterloo Rd	1	1.85	16:43	14:14	6.6	7.8
Prince Edward Rd	2	1.3	4:39	5:02	16.8	15.5
Kai Fuk Rd	End Point	4.42	11:13	9:29	23.6	28.0
Route 1 (Kai Fuk Rd → Hoi Wang Rd)						
Chatham Rd North	1	3.25	07:05	13:06	27.5	14.9
Gascoigne Rd	2	1.2	08:59	08:43	8.01	4.82
Hoi Wang Rd	End point	1.45	02:49	02:13	30.9	39.2
Route 2 (Kai Fuk Rd → Hoi Wang Rd)						
Prince Edward Rd	1	4.42	10:10	15:50	26.1	16.7
Waterloo Rd	2	1.3	04:09	03:38	18.8	21.5
Hoi Wang Rd	End Point	1.85	12:17	10:17	9.0	10.8

Existing Traffic Situation

3.3.5 Considering the findings obtained from above surveys and the large coverage of the surveyed area, the depiction of existing traffic situation will be divided into three portions: West Kowloon, Central Kowloon and East Kowloon, respectively.

West Kowloon

3.3.6 Traffic from a new adjacent residential and office development as well as the West Kowloon Highway were observed reaching Gascoigne Road Flyover, junctions, such as Austin Road West / Austin Road / Canton Road (J4) and Lin Cheung Road / Austin Road (J25), are currently suffering from high traffic throughput during the two peak hours. With respect to the traffic situation along Gascoigne Road Flyover, as expected, long traffic queues were observed at bothbounds. The maximum queues at Gascoigne Road Flyover eastbound and westbound were observed to tail back to reach Waterloo Road and Fat Kwong Street, respectively.

Central Kowloon

3.3.7 High traffic demand of traffic in Central Kowloon along the road networks not only causes these road networks to reach or even exceed their capacity, but also results in backing up to upstream road networks within short time intervals. This results in causing serious traffic issues at the local road junctions. This phenomenon is well depicted by the junctions / road links assessment result obtained above. In view of the sudden surge of traffic demand in peak hours with high arrival rate, long traffic queues is easily to be observed at those congested junctions / road links, such as junctions Argyle Street / Yim Po Fong Street (J11), Chatham Road North / Wu Hu Street (J18), and Olympic Garden Roundabout (J38); and road links for instance, Boundary Street (RL2) and Chatham Road North (RL5). The journey time survey also depicts the congested traffic conditions at Central Kowloon area.

East Kowloon

3.3.8 East Kowloon area is business and industrial with the road reserve planned for the East Kowloon Business District, road networks built with less spatial constraint as compared with Central Kowloon. Junctions here generally have ample capacity during two peak hours except the junction which directly connects to the trunk road network as it will be hindered by the external traffic, i.e. junction of Sheung Yee Road / Wang Chiu Road (J22). As presented in the above junctions' assessment results, all junctions expect J22 in East Kowloon are currently operating with satisfactory performance which is in-line with the observation in the survey.

4 CONTEXT OF CKR

4.1 Alignment and Interchanges

4.1.1 CKR spans across Central Kowloon connecting Yau Ma Tei in the east via, Yau Ma Tei Interchange, and Kowloon Bay in the west via Kai Tak Interchange. The mainline carriageway is in the form of a tunnel in dual-three lane configuration. Local widening is provided at both exits of CKR, to four lanes for discharging traffic movements approaching to the interchanges at both ends.

4.2 Eastern Interchange

4.2.1 CKR will provide various strategic connections to/from other main roads in eastern Kowloon as follows and as shown in **Drawing CKR/F/03/0061**.

- Slip road S1 – from CKR (eastbound) to Kai Cheung Road (to Kowloon Bay)
- Slip road S2 – from Kai Cheung Road to CKR (westbound) (from Kowloon Bay)
- Slip road S3 – from CKR (eastbound) to Kai Fuk Road (to Kwun Tong)
- Slip road S4 – from Kai Fuk Road to CKR (westbound) (from Kwun Tong)
- Slip road S5 – from CKR (eastbound) to Kai Tak South Apron
- Slip road S6 – from Kai Tak South Apron to CKR (westbound)
- Slip road S7 – from CKR (eastbound) to Kai Tak North Apron
- Slip road S8 – from Kai Tak North Apron to CKR (westbound)
- Slip road SE – from Kai Cheung Road to Kai Fuk Road (to To Kwa Wan)
- Continuation of mainline to/from Trunk Road T2 in longer-term

4.3 Western Interchange

4.3.1 CKR will provide the following slip road connections in West Kowloon, as also illustrated in **Drawing CKR/F/03/0062**:

- Slip road A – from CKR (westbound) to Lin Cheung Road (southbound) (to Tsim Sha Tsui, Jordan)
- Slip road B – from CKR (westbound) to Western Harbour Tunnel (southbound) (to Hong Kong Island West)
- Slip road C – from CKR (westbound) to Lin Cheung Road (northbound) (to Tai Kok Tsui, Cheung Sha Wan)
- Slip road D – from CKR (westbound) to West Kowloon Highway (northbound) (to Kwai Chung, Tsuen Wan, Northwest New Territories, Lantau)
- Slip road E – from West Kowloon Highway (southbound) to CKR

(eastbound) (from Kwai Chung, Tsuen Wan, Northwest New Territories, Lantau)

- Slip road F – from Lin Cheung Road (southbound) to CKR (eastbound) (from Tai Kok Tsui, Cheung Sha Wan)
- Slip road G – from Hoi Po Road (northbound) to CKR (eastbound) (from Hong Kong Island West, Tsim Sha Tsui, Jordan)

4.4 Slip Roads Performance

4.4.1 In order to have better understanding of the slip roads' performance in future years, road link assessments were carried out for all slip roads in scenarios of 2021/C and 2026/G (Refer to section 5 below for the scenarios definition). **Table 4.1** illustrates the result of the results of assessments.

Table 4.1 Concerned Road Link Assessments

Eastern Interchange								
Slip Roads	Traffic Flow (pcu/hr)				V/C*			
	2021/C		2026/G		2021/C		2026/G	
	AM	PM	AM	PM	AM	PM	AM	PM
S1	1809	1707	1487	1455	1.01	0.95	0.83	0.81
S2	715	651	400	595	0.40	0.36	0.22	0.33
S3	943	1738	185	172	0.52	0.97	0.10	0.10
S4	1762	2000	661	1305	0.49	0.56	0.18	0.36
S5	-	-	647	448	-	-	0.36	0.25
S6	-	-	377	331	-	-	0.21	0.18
S7	658	654	414	441	0.37	0.36	0.23	0.25
S8	886	556	793	378	0.49	0.31	0.44	0.21
S9	449	291	619	403	0.25	0.16	0.34	0.22
T2 E/B	-	-	1605	3017	-	-	0.45	0.84
T2 W/B	-	-	2688	1866	-	-	0.75	0.52
Western Interchange								
Slip Roads	Traffic Flow (pcu/hr)				V/C*			
	2021/C		2026/G		2021/C		2026/G	
	AM	PM	AM	PM	AM	PM	AM	PM
A	1258	1053	928	782	0.70	0.59	0.52	0.43
B	15	7	20	16	0.01	0.00	0.01	0.01
B2	1114	459	1111	356	0.62	0.26	0.62	0.20
C	971	680	698	497	0.54	0.38	0.39	0.28
C2	979	1172	1052	1206	0.54	0.65	0.58	0.67
D	1927	2078	3393	3315	0.54	0.58	0.94	0.92
E	1661	1949	2200	2856	0.46	0.54	0.61	0.79
F	885	1027	645	978	0.49	0.57	0.36	0.54
G	463	864	420	809	0.26	0.48	0.23	0.45

Notes: * V/C ratio above 1.0 indicates the onset of mild congestion.
V/C ratio above 1.2 indicates the onset of more serious congestion, and will be bounded to 1.3 due to the physical limitation.

4.4.2 Based on the results shown in **Table 4.1**, it was observed that all slip roads will be operating within capacity throughout all design scenarios.

4.5 Proposed Speed Limit

4.5.1 Based on the different site constraints of eastern and western portions of CKR, the design speed of mainline in western part of CKR will be 50km/hr whereas the design speed of mainline in eastern part of CKR will be 80km/hr. The reason of proposing 50km/hr speed limit for CKR west portion mainline is because of the site constraints such that the western part of CKR can not fulfills absolute minimum requirement for both of horizontal and vertical transition values if design speed 70km/hr or above is adopted. Detail information of speed limit of slip roads of CKR is presented in **Appendix B**.

4.6 Weaving Analysis of CKR Slip Roads

4.6.1 Weaving analysis of slip roads with recommended speed limit as discussed in about were carried out and the summary of results are depicted in **Table 4.2**.

Table 4.2 Summary of Weaving Analysis for Tunnel Portal

Westbound	West Portal			East Portal
	Diverging CL/1L/2L	Weaving CL/1L	Weaving 1L/2L	Weaving 1L/2L
Design Speed (km/hr)	50	50	50	80
Length (m)	100	100	150	240
N-value (AM peak)	N/A	1.77	1.96	1.77
N-value (PM peak)	N/A	1.34	2.50	1.41
Result	OK	OK	OK	OK
Eastbound	**West Portal**		**East Portal**	
	Weaving 1L/2L	Merging 1L/2L	Weaving CL/1L	Merging 1L/2L
Design Speed (km/hr)	50	50	80	80
Length (m)	230	150	250	150
N-value (AM peak)	1.55	N/A	1.20	N/A
N-value (PM peak)	2.26	N/A	1.46	N/A
Result	OK	OK	OK	OK

4.6.2 Based on the above result, it is concluded that future weaving condition of CKR slip roads will be operating satisfactorily in both directions. Detail information of the weaving analysis is presented in **Appendix C**.

4.7 Weaving Analysis of Kai Fuk Road Slip Roads

4.7.1 Weaving analysis of slip roads in Kai Fuk Road were also carried out in two design scenarios 2021/C and 2026/G (Refer to section 5 below for the scenarios definition), the summary of results are depicted in **Table 4.3 & Table 4.4**.

Table 4.3 Summary of Weaving Analysis for Kai Fuk Road (Scenario 2021/C)

Westbound	Merging South Apron	Weaving
Design Speed (km/hr)	70	70
Length (m)	110	370
N-value (AM peak)	N/A	3.93
N-value (PM peak)	N/A	2.99
Result	OK	Tolerate AM peak

Eastbound	Weaving Kai Cheung Road	Weaving CKR S3
Design Speed (km/hr)	70	70
Length (m)	240	250
N-value (AM peak)	1.94	1.99
N-value (PM peak)	2.35	2.65
Result	OK	Tolerate PM peak

Table 4.4 Summary of Weaving Analysis for Kai Fuk Road (Scenario 2026/G)

Westbound	Merging South Apron	Weaving
Design Speed (km/hr)	70	70
Length (m)	110	370
N-value (AM peak)	N/A	2.86
N-value (PM peak)	N/A	2.51
Result	OK	OK

Eastbound	Weaving Kai Cheung Road	Weaving CKR S3
Design Speed (km/hr)	70	70
Length (m)	240	250
N-value (AM peak)	1.91	1.52
N-value (PM peak)	2.13	1.64
Result	OK	OK

4.7.2 Based on the above results, it is concluded that future weaving condition of Kai Fuk Road slip roads will be operating satisfactorily in both directions. Detail information of the weaving analysis and the preliminary road marking design of the concerned road section of Kai Fuk Road are presented in **Appendix D**.

4.8 Permanent Deletion of Existing Slip Road from West Kowloon Highway Southbound to Lai Cheung Road

4.8.1 There is at present a slip road from the southbound carriageway of the West Kowloon highway (WKH) to Lai Cheung Road. In the previous preliminary design stage of this project under Agreement CE 56/2008 (HY) it identified that there was no feasible way to maintain this slip road within this heavily constrained area whilst providing the required connection to the Central Kowloon Route (CKR). Therefore the slip road would be required to demolish. An alternative route involving diverting traffic from the WKH at the Lai Wan Interchange to Lin Cheung Road and then to Lai Cheung Road was established to maintain all existing and future traffic movements. **Table 4.5** below summarises the performance of Lin Cheung Road before and after the deletion of the slip road from the southbound carriageway of WKH to Lai Cheung Road.

Table 4.5 Road Link Assessment for Lin Cheung Road

Lin Cheung Road	Without CKR				With CKR			
	2021A		2026A		2021C		2026G	
	AM	PM	AM	PM	AM	PM	AM	PM
Traffic Flow (pcu/hr)	2,565	1,481	3,059	1,889	3,930	3,481	3,628	3,873
V/C	0.43	0.25	0.51	0.31	0.66	0.58	0.60	0.65

4.8.2 With reference to the road link assessment as shown in **Table 4.5**, Lin Cheung Road would operate satisfactorily with the diverted traffic due to the deletion of the slip road. The detailed technical note on the concerned slip road is provided in **Appendix E**.

4.8.3 It is noted that the traffic queue is frequently observed at the priority junction of Cherry Street and Lin Cheung Road. With the anticipated increase in traffic due to the deletion of the slip road from WKH to Lai Cheung Road, the traffic condition at Cherry Street may be worsened. Assessment indicted that the DFC for the priority junction of Cherry Street and Lin Cheung Road would be greater than 1.3 for the 2026G scenario. Improvement scheme is therefore proposed as shown in **Drawing CKR/F/03/0081**. **Table 4.**6 below summarizes the junction / road link assessment with / without the proposed improvement scheme for Cherry Street under the "with CKR Scenario.

Table 4.6 Road Link Assessment for Lin Cheung Road With/Without the Proposed Improvement Scheme at Cherry Street

	Without Improvement Scheme		With improvement Scheme	
	2026G		2026G	
	AM	PM	AM	PM
Priority Junction of Cherry Street and Lin Cheung Road	>1.3	>1.3	Free Flow	
Lin Cheung Road SB (3 lanes in w/o improvement scheme, 2 lanes in with improvement scheme)	0.60	0.65	0.91	0.97

4.8.4 With reference to the road link assessment as shown in **Table 4.6**, Lin Cheung Road would operate within capacity (after having l lane reduction) with the diverted traffic due to the deletion of the slip road and with proposed improvement scheme at Cherry Street in place.

4.9 Affected Road Junction Due to Construction of CKR

4.9.1 In order to facilitate the construction and operation of the Western Interchange of CKR in the Yau Ma Tei area, the existing Hoi Wang Road would have to be realigned while the Ngo Cheung Road would be decommissioned as shown in **Drawing CKR/F/03/0301**. **Table 4.7** below summarises the junction performance for the corresponding assessment years.

Table 4.7 Road Link Assessment for Hoi Wang Road / Lai Cheung Road and Yau Ma Tei Interchange

Junction (Reserve Capacity)	2026G	
	AM	PM
Hoi Wang Road / Lai Cheung Road	37.1%	35.1%
Hoi Wang Road / Yau Ma Tei Interchange	>50%	19.0%

4.9.2 Similarly, the junction of Ferry Street / Kansu Street / Yan Cheung Road would be affected by the construction of CKR and it is understood that the said junction improvement would be required as identified in Agreement No. TD 54/2008 West Kowloon Reclamation Development Traffic Study. To streamline the improvement works, the proposed junction improvement would be carried out under Agreement No. CE 43/2010 (HY) Central Kowloon Route - Design and Construction.

4.9.3 In addition to the junction improvement, demolition of the existing subway K55 would be required to facilitate the proposed full noise enclosure along Ferry Street. It is therefore agreed amongst relevant government departments to enhance the existing crossing facilities at the junction of Ferry Street / Kansu Street / Yan Cheung Road, and to provide the proposed junction arrangement is shown in **Drawing CKR/F/03/0302_1** and the corresponding junction performance is summarized in **Table 4.8** below.

Table 4.8 Junction Assessment for Ferry Street / Kansu Street / Yan Cheung Road

Junction (Reserve Capacity)	2026G without Improvement		2026G with Improvement	
	AM	PM	AM	PM
Ferry Street / Kansu Street / Yan Cheung Road	45.5%	46.7%	35.5%	35.7%

4.9.4 As shown in **Table 4.8**, the junction would operate with satisfactory reserve capacity.

4.9.5 In order to address the views raised by the public, two options of junction arrangement had been developed. These two options are summarised as below:

1. Provision of full noise enclosure at the junction of Ferry Street / Kansu Street / Yan Cheung Road – In order to facilitate the provision of full noise enclosure at the junction, Kansu Street would reduce from 3 traffic lanes to 2 traffic lanes, as shown in **Drawing CKR/F/03/0302_2,** which resulted in the reduction of RC from 35.7% to 17.2% for the PM peak in 2026; and

2. Provision of right turn from Yan Cheung Road to Ferry Street Southbound to enhance accessibility of traffic leaving Yau Cheung Street – Due to site constraints, the right turn from Yan Cheung Road to Ferry Street Southbound, if provided, would require setting back of the existing stop line on Yan Cheung Road and Ferry Street northbound. Setting back the stop line would inevitably increase the intergreen time between stages and thus compromise the junction performance with reserve capacity dropping from satisfactory (RC = 35.7%) to less desirable (i.e RC = 6.1%). Also, introduction of right-turn from Yan Cheung Road would require removal of an existing traffic island separating traffic movements leaving Kansu Street. Removal of this traffic island could no longer provide physical separation to prevent traffic from Yan Cheung Road to cut into oncoming traffic on Kansu Street and jeopardize road safety at this junction. In addition, the right-turn, if provided, would result in an acute turning angle not suitable for turning of large vehicles including buses and container vehicles. Taking into account the above undesirable issues, introduction of right-turn from Yan Cheung Road would not be pursued further.

4.9.6 To enhance the accessibility from Yau Cheung Road, a preliminary junction layout for Yau Cheung Road and Yan Cheung Road is proposed and shown in **Drawing CKR/F/03/0302_1**. This junction arrangement allows the motorists to turn left and turn right from Yau Cheung Road to eastbound and westbound of Yan Cheung Road, and versa via. This proposal helps to improve the accessibility around Yau Cheung Road area. The implementation of the above proposal is yet to be confirmed but it would not affect the junction improvement proposal at the junction of Ferry Street / Kansus Street / Yan Cheung Road.

4.10 Interfaces with Public Transport Services

Shatin Central Link

4.10.1 Shatin-Central Link (SCL) connects Admiralty and Tai Wai passing through Kai Tak District. The proposed alignment of SCL intersects with that of CKR underneath the site of ex-Kai Tak Airport. While the SCL is scheduled to open in year 2018 and CKR is expected to open in year 2021, the construction works of SCL and CKR are expected to be happening at the same time. In order to have sound precaution measures for the potential interference of construction works such as the cumulative impact of construction vehicles induced from the project of constructing CKR and SCL, a separate working paper on Temporary Traffic Arrangement Measures (Ref.:217722/4.3/EC/DL/HL/CC/CC/0771) has been prepared and submitted with detailed study on impacts and corresponding mitigation measures for further discussion with the related parties.

Ma Tau Kok Bus Terminus and Ferry Pier

4.10.2 The proposed construction program of CKR would take up the land of the existing Ma Tau Kok public transport termini and the piers. In order to ensure a continual operation of the termini and the piers during the construction of CKR and minimize the induced traffic impact, the separated working paper on Temporary Traffic Arrangement Measures for the reconstruction of PTI and Ferry Pier (Ref.:217722/4.3/EC/DL/HL/CC/CC/0771) had been prepared and submitted with detailed study on impacts and corresponding mitigation measure for further discussion with the related parties.

4.11 Interfaces with Other Major Projects

Kai Tak Development

4.11.1 The Kai Tak Development (KTD) will be over 300 hectares in size, occupying the ex-Kai Tak Airport and the existing waterfront areas in To Kwa Wan and in Cha Kwo Ling.

4.11.2 The development proposal of KTD has been issued and documented in the Recommended Outline Development Plan issued in August 2011. Of particular relevance to the current assignment is the aforementioned CKR – Trunk Road T2 Interchange which is within the KTD boundary. At the interchange, a total of four slip roads connecting CKR and KTD (North Apron and South Apron) will be built.

4.11.3 A landscape deck spanning over the east end depressed road, near the CKR portal, will be construction under the Multi-Purpose Complex of KTD; it has been reviewed and preliminary checked that sufficient headroom will be provided for the installation of directional signs and TCSS facilities for CKR. Further liaison with KTD will be required.

Trunk Road T2, Tseung Kwan O – Lam Tin Tunnel and Cross Bay Link

4.11.4 Trunk Road T2, Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) and CKR, are proposed to be branded as Route 6 in the future. The tentative completion programme of the three roads is understood to be beyond 2021, in order to synchronize with CKR forming Route 6 holistically.

4.11.5 Route 6 is proposed to connect Cross Bay Link in the southern portion of Tseung Kwun O. Together, they provide an alternative to the existing Tseung Kwun O Tunnel to access to Kowloon. Traffic relief to Wan Po Road, Tseung Kwan O Tunnel, and other roads in TKO town centre is anticipated

4.11.6 The Trunk Road T2, TKO-LTT and CBL are proposed to be of dual 2 configurations bridging over Tseung Kwun O, Kwun Tong, and Yau Tong to West Kowloon. It will certainly expedite the development potential in those areas, like Tseung Kwun O, of which the development potential was restrained by the available capacity in Tsueng Kwun O Tunnel.

West Kowloon Terminus of the Express Rail Link and West Kowloon Cultural District

4.11.7 The Express Rail Link (XRL) is proposed to be terminated at the West Kowloon Reclamation Area, known as West Kowloon Terminus (WKT), beside the West Kowloon Cultural District. XRL and WKT are scheduled to be operational by 2014/2015. Alongside the station development, topside property was proposed but following different development schedule and is currently unknown to the Consultant. .

4.11.8 West Kowloon Cultural District (WKCD) is a comprehensive development comprising venue for arts and cultural performance, museum, commercial and residential developments. The first phase of WKCD is scheduled for completion in 2014 and the second phase is scheduled for completion by 2026.

4.11.9 Both WKT and WKCD are one of the ten major infrastructure projects in Hong Kong proposed under the Donald Tseng Administration. Sitting side by side with each other in the southern tip of Kowloon, the WKT and WKCD carry strategic importance in traffic management. Any proposed traffic and transport strategy and highway improvement measures should cater to the two major projects. "Agreement No. TD 54/2008 West Kowloon Reclamation Development Traffic Study" was commissioned to review the traffic arrangement in the vicinity and to propose measures to remediate the situation.

5 MAJOR FINDINGS OF SCENARIO TESTING

5.1 Assessment Principles

5.1.1 According to the Study Brief and the actual correlations to CKR, it was required to assess a total of 38 junctions and 16 road links. It covered almost all the critical road junctions and road links in the entire Kowloon area.

5.1.2 The selected junctions and road links for assessment are shown **Table 5.1**. **Drawing CKR/F/03/0021** illustrates the overall selected junctions and road links for assessment.

Table 5.1 Assessed Junctions and Road Links

Junction/ Road Link No.	Road Junction / Road Link	Remark
J1	Hoi Wang Road / Lai Cheung Road	Signalized Junction
J2	Kansu Street / Ferry Street / Yan Cheung Road	Signalized Junction
J3	Jordan Road/ Ferry Street / Canton Road	Signalized Junction
J4	Austin Road West / Austin Road / Canton Road	Signalized Junction
J5	Argyle Street / Nathan Road	Signalized Junction
J6	Waterloo Road / Nathan Road	Signalized Junction
J7	Jordan Road / Nathan Road	Signalized Junction
J8	Austin Road / Nathan Road	Signalized Junction
J9	Sai Yee Street / Mong Kok Road	Signalized Junction
J10	Argyle Street / Sai Yee Street	Signalized Junction
J11	Argyle Street / Yim Po Fong Street	Signalized Junction
J12	Prince Edward Road West / Kadoorie Avenue	Signalized Junction
J13	Boundary Street / Waterloo Road	Signalized Junction
J14	Prince Edward Road West / Waterloo Road	Signalized Junction
J15	Argyle Street / Waterloo Road / Princess Margaret Road	Signalized Junction
J17	Austin Road / Chatham Road South / Cheong Wan Road	Signalized Junction
J18	Chatham Road North / Wuhu Street	Signalized Junction
J19	Ma Tau Chung Road / Sung Wong Toi Road	Signalized Junction
J20	Kai Cheung Road / Wang Kwong Road	Signalized Junction
J21	Kai Cheung Road / Wang Chiu Road	Signalized Junction
J22	Sheung Yee Road / Wang Chiu Road	Signalized Junction
J23	Lin Cheung Road / Jordan Road	Signalized Junction
J25	Lin Cheung Road / Austin Road West	Roundabout
J26	Ma Tau Wai Road / Tin Kwong Road	Signalized Junction
J27	Choi Hung Road / Tai Yau Street	Signalized Junction
J28	Lam Hing Street / Wang Kwong Road	Signalized Junction
J29	Hoi Bun Road / Cheung Yip Street / Wang Chiu Road	Signalized Junction
J30	Wai Yip Street / Lai Yip Street	Signalized Junction
J31	Wai Yip Street / Hoi Yuen Road	Signalized Junction

Junction/ Road Link No.	Road Junction / Road Link	Remark
J32	Wai Yip Street / Wai Fat Road	Signalized Junction
J33	Cha Kwo Ling Road / Yau Tong Road	Signalized Junction
J34	Temporary Road D1A(S) / Jordan Road	Signalized Junction
J35	Temporary Road D1A(S) / Wui Cheung Road	Signalized Junction
J36	Canton Road / Wui Cheung Road	Signalized Junction
J37	Gascoigne Rd/ Nathan Rd/Kansu St	Signalized Junction
J38	Olympic Garden Roundabout	Roundabout
RL1	Lung Cheung Road (from Lion Rock Tunnel Road to Chuk Yuen Road)	Road Link
RL2	Boundary Street (From Tai Hang Tung Road to Embankment Road)	Road Link
RL3	Prince Edward Road West (from Embankment Road to Kadoorie Ave)	Road Link
RL4	Argyle Street & FO (from Gullane Road to Tin Kwong Road)	Road Link
RL5	Chatham Road North (From Wuhu Street to Ping Chi Street)	Road Link
RL6	East Kowloon Corridor (From Ma Tau Kok Road to Chatham Road North)	Road Link
RL7	Gascoigne Road Flyover (Eastern Side of Nathan Road)	Road Link
RL8	Clear Water Bay Road	Road Link
RL9	Kai Tak Tunnel	Tunnel
RL10	Kwun Tong Bypass (near Richland Gardens)	Road Link
RL11	Kwun Tong Bypass (near Hoi Yuen Road)	Road Link
RL12	Kai Fuk Road	Road Link
RL13	Kwun Tong Road (near Kai Yip Estate)	Road Link
RL14	Kwun Tong Road (near Elegance Road)	Road Link
RL15	Wai Yip Street	Road Link
RL16	Kwun Tong Bypass Slip Road (to/from Kai Fuk Road)	Road Link

5.1.3 The key locations of the road network in the affected area is assessed based on the following criteria:

- Junction capacity assessment – Signalized junction is based on Reserve Capacity (R.C.). R.C. (indicated in %) provides an indication of signal junction performance. Positive R.C. indicates the junction is operating satisfactorily; negative R.C. indicates the junction is overloaded.
- Junction capacity assessment – Priority junction/roundabout is based on Design Flow-to-Capacity (DFC) Ratio. DFC provides an indication of performance. DFC below 1.0 indicates the junction is operating satisfactorily; DFC over 1.0 indicates the junction is overloaded; and
- Road link assessment – Volume-to-Capacity (V/C) Ratio.

5.2 Projected Traffic Conditions - 2016

5.2.1 There is only one forecast scenario for the year 2016, and that is with neither CKR nor any Route 6 components.

5.2.2 The junction and road links assessment results are shown in **Drawing CKR/F/03/0071** and **Drawing CKR/F/03/0072,** respectively, and are summarized in **Table 5.2 and Table 5.3** below. The 2016 forecast traffic flows at the corresponding junctions are shown in **Drawing CKR/F/03/0211 – 0217**.

Table 5.2 2016 Critical Junctions Performance

Junction No.	Road Junction	Junction Capacity (R.C.)[3] / Demand Capacity (RFC)[4]	
		AM Peak	PM Peak
J1	Hoi Wang Road / Lai Cheung Road	31.7%	21.3%
J2	Kansu Street / Ferry Street / Yan Cheung Road	47.2%	46.8%
J3	Jordan Road/ Ferry Street / Canton Road	56.0%	27.8%
J4	Austin Road West / Austin Road / Canton Road	11.2%	3.2%
J5	Argyle Street / Nathan Road	-2.1%	-3.5%
J6	Waterloo Road / Nathan Road	-5.2%	-3.8%
J7	Jordan Road / Nathan Road	17.0%	16.0%
J8	Austin Road / Nathan Road	0.3%	-2.5%
J9	Sai Yee Street / Mong Kok Road	17.5%	1.6%
J10	Argyle Street / Sai Yee Street	-5.6%	-21.8%
J11	Argyle Street / Yim Po Fong Street	1.5%	-32.1%
J12	Prince Edward Road West / Kadoorie Avenue	-6.6%	15.9%
J13	Boundary Street / Waterloo Road	-16.5%	-14.3%
J14	Prince Edward Road West / Waterloo Road	-7.8%	5.9%
J15	Argyle Street / Waterloo Road / Princess Margaret Road	-8.6%	7.6%
J17	Austin Road / Chatham Road South / Cheong Wan Road	-17.7%	-18.9%
J18	Chatham Road North / Wuhu Street	-37.2%	-27.9%
J19	Ma Tau Chung Road / Sung Wong Toi Road	3.8%	-3.3%
J20	Kai Cheung Road / Wang Kwong Road	2.9%	6.3%
J21	Kai Cheung Road / Wang Chiu Road	-9.2%	-3.8%
J22	Sheung Yee Road / Wang Chiu Road	-18.0%	11.2%
J23	Lin Cheung Road / Jordan Road	29.2%	23.7%
J25	Lin Cheung Road / Austin Road West	>100%	60.7%
J26	Ma Tau Wai Road / Tin Kwong Road	-6.0%	-8.0%
J27	Choi Hung Road / Tai Yau Street	-4.1%	3.8%
J28	Lam Hing Street / Wang Kwong Road	41.7%	-13.1%
J29	Hoi Bun Road / Cheung Yip Street / Wang Chiu Road	2.0%	-0.1%
J30	Wai Yip Street / Lai Yip Street	87.5%	23.3%
J31	Wai Yip Street / Hoi Yuen Road	71.3%	75.4%
J32	Wai Yip Street / Wai Fat Road	23.2%	19.5%
J33	Cha Kwo Ling Road / Yau Tong Road	83.7%	>100%

Junction No.	Road Junction	Junction Capacity (R.C.)[3] / Demand Capacity (RFC)[4]	
		AM Peak	PM Peak
J34	Temporary Road D1A(S) / Jordan Road	57.5%	36.1%
J35	Temporary Road D1A(S) / Wui Cheung Road	>100%	>100%
J36	Canton Road / Wui Cheung Road	>100%	61.4%
J37	Gascoigne Rd/ Nathan Rd/Kansu St	51.6%	21.0%
J38	Olympic Garden Roundabout	1.0	1.4

Table 5.3 2016 Critical Road Links Performance

Road Link No.	Road Link	Direction	Traffic Flow (pcu/hr) [V/C ratio]	
			AM Peak	PM Peak
RL1	Lung Cheung Road (from Lion Rock Tunnel Road to Chuk Yuen Road)	EB	6286 [1.1]	6002 [1.0]
		WB	5420 [1.1]	4933 [1.0]
		WB (slip road from Chuk Yuen Road)	1134 [1.1]	592 [0.6]
RL2	Boundary Street (From Tai Hang Tung Road to Embankment Road)	EB	3626 [1.2]	3497 [1.2]
RL3	Prince Edward Road West (from Embankment Road to Kadoorie Avenue)	WB	5782 [1.0]	4641 [0.8]
RL4	Argyle Street & FO (from Gullane Road to Tin Kwong Road)	EB	2499 [1.0]	2545 [1.1]
		WB	2458 [1.0]	2049 [0.9]
RL5	Chatham Road North (From Wuhu Street to Ping Chi Street)	EB	5271 [1.2]	5391 [1.2]
		WB	2027 [1.1]	2102 [1.2]
		WB (far side free flow lane)	1900 [1.2]	1408 [0.9]
RL6	East Kowloon Corridor (From Ma Tau Kok Road to Chatham Road North)	EB	4074 [1.3]	3800 [1.2]
		WB	2419 [0.8]	2263 [0.7]
RL7	Gascoigne Road Flyover (Eastern Side of Nathan Road)	EB	2171 [1.3]	2298 [1.3]
		WB	2000 [1.3]	2000 [1.3]
RL8	Clear Water Bay Road	EB	3084 [0.9]	3346 [0.9]
		WB	3924 [0.9]	3304 [0.7]
RL9	Kai Tak Tunnel	EB	2559 [0.7]	2643 [0.7]
		WB	2610 [0.7]	2583 [0.7]
RL10	Kwun Tong Bypass (near Richland Gardens)	EB	3594 [1.0]	2289 [0.6]
		WB	3122 [0.9]	2646 [0.7]

Road Link No.	Road Link	Direction	Traffic Flow (pcu/hr) [V/C ratio]	
			AM Peak	PM Peak
RL11	Kwun Tong Bypass (near Hoi Yuen Road)	EB	6336 [1.2]	4919 [0.9]
		WB	6078 [1.1]	4663 [0.9]
RL12	Kai Fuk Road	EB	2861 [0.5]	3337 [0.6]
		WB	2806 [0.5]	2465 [0.5]
RL13	Kwun Tong Road (near Kai Yip Estate)	EB	5554 [1.0]	5105 [0.9]
		WB	5360 [1.0]	5792 [1.1]
RL14	Kwun Tong Road (near Elegance Road)	EB	3592 [0.6]	4663 [0.8]
		WB	3911 [0.6]	3574 [0.6]
RL15	Wai Yip Street	EB	1221 [0.3]	2546 [0.7]
		WB	652 [0.1]	921 [0.2]
RL16	Kwun Tong Bypass Slip Road (to/from Kai Fuk Road)	EB	1964 [1.1]	1878 [1.0]
		WB	1951 [1.1]	1532 [0.9]

Notes: *** V/C ratio above 1.0 indicates the onset of mild congestion.
V/C ratio above 1.2 indicates the onset of more serious congestion, and will be bounded to 1.3 due to the physical limitation.

5.2.3 Due to the broad coverage of this sector, the sector is further narrowed down into the following corridors/locales for a more focused and systematic look at the traffic issues:

- Prince Edward Road/Boundary Street - Prince Edward Road West and Boundary Street are reviewed as a corridor, as each is primarily one-direction within Central Kowloon and together form a two-way pair of primary distributors (Prince Edward Road West is primarily westbound and Boundary Street is primarily eastbound); The assessed junctions included:

  J12 Prince Edward Road West / Kadoorie Avenue
  J13 Boundary Street / Waterloo Road
  J14 Prince Edward Road West / Waterloo Road

- Argyle Street - The most critical section of Argyle Street is where it runs through the heart of Mongkok district; The assessed junction included:

  J5 Argyle Street / Nathan Road
  J9 Sai Yee Street / Mong Kok Road
  J10 Argyle Street / Sai Yee Street
  J11 Argyle Street / Yim Po Fong Street
  J15 Argyle Street / Waterloo Road / Princess Margaret Road

- East Kowloon Corridor / Chatham Road North / Gascoigne Road Flyover - This corridor is experiencing a series of traffic issues close to one another which, in combination, have created significant implications on the entire corridor and knock-on effects onto Cross Harbour Tunnel (CHT). As a result, the three road sections making up of this corridor are reviewed as a whole; the corresponding junctions are:

  J16 Gascoigne Road / Chatham Road South

J17 Austin Road / Chatham Road South / Cheong Wan Road
J18 Chatham Road North / Wuhu Street
J19 Ma Tau Chung Road / Sung Wong Toi Road
J26 Ma Tau Wai Road / Tin Kwong Road
J37 Gascoigne Road / Nathan Rd / Kansu Street
J38 Olympic Garden Roundabout

- Jordan Road / Austin Road - The road links and junctions in this locale form the main road network in the West Kowloon Reclamation (WKR) area and its center at the older Jordan district and the northern fringes of Tsim Sha Tsui; The assessed junctions are:

  J1 Hoi Wang Road / Lai Cheung Road
  J2 Kansu Street / Ferry Street / Yan Cheung Road
  J3 Jordan Road/ Ferry Street / Canton Road
  J4 Austin Road West / Austin Road / Canton Road
  J23 Lin Cheung Road / Jordan Road
  J24 Lin Cheung Road / Wui Cheung Road
  J25 Lin Cheung Road / Austin Road West
  J34 Temporary Road D1A(S) / Jordan Road
  J35 Temporary Road D1A(S) / Wui Cheung Road
  J36 Canton Road / Wui Cheung Road

- East Kowloon - The targeted areas in the East Kowloon area are Kowloon Bay and Kwun Tong South. According to the requirement in the project brief, a traffic junction in Sam Po Kong is also included. The assessed road junction under this group are:

  J20 Kai Cheung Road / Wang Kwong Road
  J21 Kai Cheung Road / Wang Chiu Road
  J22 Sheung Yee Road / Wang Chiu Road
  J27 Choi Hung Road / Tai Yau Street
  J28 Lam Hing Street / Wang Kwong Road
  J29 Hoi Bun Road / Cheung Yip Street / Wang Chiu Road
  J30 Wai Yip Street / Lai Yip Street
  J31 Wai Yip Street / Hoi Yuen Road
  J32 Wai Yip Street / Wai Fat Road
  J33 Cha Kwo Ling Road / Yau Tong Road

5.2.4 It is modeled to have a general deterioration in network performance throughout the study area even though some junctions will have better performance than that in year 2012, the number of junctions which will be operating unsatisfactory at peak hours increased from 9 in year 2012 to 18 (at either AM and PM peak) in year 2016. The deterioration is attributable to the natural growth, since there is no major transport corridor happen commence around the study area.

5.2.5 Based on the assessment results, the Prince Edward Road West / Boundary Street corridor will be very several critical junctions along this corridor. By looking at the road link performance, Boundary Street will be highly saturated with V/C ratio = 1.2 and reach to the onset of unstable flow.

5.2.6 For the Argyle Street corridor, the assessment results present that the congestion are mostly happened at the westbound direction at most of the critical junctions along Argyle Street. In view of the development characteristics of the hinterland of Mongkok area which consists of different type of developments such as office, residential, retail, entertainment and etc. the PM peak traffic is more severe than that found at AM peak. Generally speaking, all the assessed junction in this area are all overload with the reason of limited traffic discharge rate by different constraints such as pedestrian crossing and tailback of traffic queue generated by the next junction.

5.2.7 When looking at the East Kowloon Corridor / Chatham Road North / Gascoigne Road Flyover, serious traffic congestion is found for the junction of Chatham Road North / Wuhu Street with R.C. < -37%. The serious congestion at this junction and upstream is a result of combination of traffic issues downstream which lead the discharge rate at the junction highly depreciated due to traffic constraints downstream, and thus the undischarged traffic arriving from Kai Tak Tunnel / East Kowloon Corridor causes traffic queue back. Chatham Road North, Gascoigne Road Flyover, Lung Cheung Road, Boundary Street and East Kowloon Corridor will all be operating at congested levels i.e. V/C ratio >1.0.

5.2.8 In the Jordan Road/Austin Road locale, some junctions around the WKR would be subject to the series of improvement schemes proposed under the study of "TD 54/2008 West Kowloon Reclamation Development Traffic Study". The most notable is the Lin Cheung Road/Austin Road Underpass which would channelize much of the through traffic between the strategic roads of Route 3 towards Tsim Sha Tsui away from the at-grade junctions, and would free up the at-grade roads for the new development traffic from WKT/WKCD. Therefore, for the year 2016, the junctions in the area would be largely operating satisfactorily while the WKT and WKCD are still in early stages of operation, except the existing road junction without scope of redevelopment but taking on the responsibility of connecting the new developing area and the developed hinterland. The mentioned junction is J4 Austin Road West / Austin Road / Canton Road.

5.2.9 For East Kowloon, the critical location in the East Kowloon area is on Kwun Tong Bypass in where some section consists of V/C ratio = 1.2, implying very congested traffic situation. Other traffic issues occur at Kwun Tong Road, Wang Chiu Road, and Wai Yip Street. Wang Chiu Road and Wai Yip Street handle both sub-regional traffic (between Kowloon Bay and Kwun Tong) and direct local traffic due to presence of development site vehicular entrances along these two roads. As a result, Wang Chiu Road and Wai Yip Street serve both strategic and local traffic, with the widespread kerbside activities of goods vehicles and maneuvering of heavy vehicles leading blockages at mid-block, therefore, further deteriorating the traffic situation.

5.2.10 Moreover, the above contention is also justifiable by the forecast road link performance in 2012, as shown by the V/C ratios in **Table 5.3**. Almost all the assessed road links will be operating at congested levels (i.e. V/C ratio > 1.0) during the corresponding weekday morning and evening peak periods. It is only slightly better along the major road links in East Kowloon area (RL8 – RL16). This reflects the situation of continuous growth in populations and employments in the urban areas, but the road link provision cannot catch up with the development.

5.3 Projected Traffic Conditions - 2021

5.3.1 The junction and road link assessment results are summarized in **Tables 5.4** to **5.5** below. **Drawing CKR/F/03/0071** and **Drawing CKR/F/03/0073** illustrate the 2021 junctions and road links assessment results respectively.

5.3.2 The following scenarios are selected for assessment for quantifying the effects of CKR:

- 2021 Reference Scenario - 2021/A – Without Route 6, Without CBL – "Do-Nothing" scenario;
- 2021 Design Scenario - 2021/C – With CKR and TKO-LTT

The forecast flows for the individual assessed junctions are contained in **Drawing CKR/F/03/0221 – 0227** and **Drawing CKR/F/03/0231 - 0237** for Scenarios 2021/A and 2021/C respectively.

Table 5.4 2021 Critical Junctions Performance for Reference and Design Scenarios

Junction No.	Junction Capacity (R.C.)			
	2021 Reference – 2021/A		2021 Design – 2021/C	
	AM Peak	PM Peak	AM Peak	PM Peak
J1[(1)]	31.4%	21.0%	45.3%	27.3%
J2	47.0%	47.8%	55.7%	46.3%
J3	63.9%	26.7%	66.6%	33.0%
J4	15.5%	3.5%	15.8%	1.8%
J5	-1.9%	-3.5%	12.3%	-1.9%
J6	-8.5%	-0.6%	-9.3%	3.0%
J7	19.5%	18.4%	13.7%	14.1%
J8	1.1%	-2.0%	-3.2%	-2.4%
J9	15.4%	3.7%	27.9%	4.8%
J10	-7.4%	-22.0%	4.1%	-21.5%
J11	-8.0%	-39.3%	15.9%	-26.5%
J12	-12.3%	-3.4%	7.2%	8.1%
J13	-3.8%	-1.5%	10.2%	20.5%
J14	-18.1%	-0.1%	15.9%	12.1%
J15	-13.7%	3.5%	-4.1%	20.4%
J17	-21.8%	-16.8%	-18.1%	-14.1%
J18	-38.1%	-23.0%	14.0%	63.5%
J19	-4.2%	-5.6%	-2.7%	-3.4%

Junction No.	Junction Capacity (R.C.)			
	2021 Reference – 2021/A		2021 Design – 2021/C	
	AM Peak	PM Peak	AM Peak	PM Peak
J20	-4.8%	-2.9%	-6.2%	-12.3%
J21	-17.8%	-16.9%	-23.4%	-6.8%
J22	-9.7%	7.0%	-7.4%	-7.9%
J23	25.3%	18.6%	3.3%	7.9%
J25	>100%	65.0%	>100%	52.5%
J26	-8.7%	-10.0%	-4.1%	-11.4%
J27	-4.1%	1.4%	2.5%	3.7%
J28	15.5%	-10.0%	-1.4%	-10.5%
J29	-24.4%	-20.0%	-7.3%	-10.6%
J30	39.2%	3.8%	13.4%	2.9%
J31	47.2%	30.6%	45.2%	30.9%
J32	-2.5%	16.4%	-9.3%	-1.1%
J33	19.7%	53.7%	>100%	65.0%
J34	42.4%	37.7%	13.6%	18.0%
J35	>100%	>100%	39.9%	54.1%
J36	>100%	62.4%	>100%	55.8%
J37	41.5%	14.2%	38.4%	6.2%
J38	1.6	1.6	1.4	1.6

Notes: (1) In 2021 design scenario, J1 Hoi Wang Road / Lai Cheung Road will have been modified as part of the CKR project in the western interchange area within the works boundary of the project.

Table 5.5 2021 Critical Road Links Performance for Reference and Design Scenarios

Road Link No.	Direction	Traffic Flow (pcu/hr) [V/C ratio]			
		2021 Reference – 2021/A		2021 Design – 2021/C	
		AM Peak	PM Peak	AM Peak	PM Peak
RL1	EB	6928 [1.2]	6258 [1.1]	5324 [0.9]	5671 [1.0]
	WB	5337 [1.0]	5003 [1.0]	4587 [0.9]	4176 [0.8]
	WB (slip rd from Chuk Yuen Rd)	1110 [1.1]	631 [0.6]	935 [0.9]	490 [0.5]
RL2	EB	3702 [1.2]	3770 [1.3]	2518 [0.8]	2637 [0.9]
RL3	WB	6385 [1.1]	5009 [0.8]	5028 [0.8]	4455 [0.7]
RL4	EB	2750 [1.1]	2504 [1.0]	1771 [0.7]	1781 [0.7]
	WB	2587 [1.1]	2215 [0.9]	1755 [0.7]	1835 [0.8]
RL5	EB	5852 [1.3]	5430 [1.2]	4689 [1.1]	4512 [1.0]
	WB	1820 [1.0]	2106 [1.2]	1830 [1.0]	1209 [0.7]
	WB (far side free flow lane)	2080 [1.3]	1395 [0.9]	1820 [1.1]	1713 [1.1]
RL6	EB	4160 [1.3]	3950 [1.3]	3291 [1.1]	3257 [1.1]
	WB	2275 [0.7]	2313 [0.7]	2676 [0.9]	1904 [0.6]

Road Link No.	Direction	Traffic Flow (pcu/hr) [V/C ratio]			
		2021 Reference – 2021/A		2021 Design – 2021/C	
		AM Peak	PM Peak	AM Peak	PM Peak
RL7	EB	2139 [1.3]	2367 [1.3]	1750 [1.1]	1900 [1.2]
	WB	2062 [1.3]	2150 [1.3]	1824 [1.1]	1951 [1.2]
RL8	EB	3066 [0.9]	3405 [0.9]	3376 [0.9]	3593 [1.0]
	WB	4293 [1.0]	3741 [0.8]	3900 [0.9]	3643 [0.8]
RL9	EB	2700 [0.7]	2934 [0.8]	2131 [0.6]	2333 [0.6]
	WB	2786 [0.8]	2578 [0.7]	2572 [0.7]	2253 [0.6]
RL10	EB	3528 [1.0]	2807 [0.8]	3367 [0.9]	2331 [0.6]
	WB	2863 [0.8]	2736 [0.8]	2863 [0.8]	2233 [0.6]
RL11	EB	6456 [1.2]	4984 [0.9]	6399 [1.2]	5025 [0.9]
	WB	5546 [1.0]	4805 [0.9]	5563 [1.0]	4850 [0.9]
RL12	EB	3200 [0.6]	3873 [0.7]	2580 [0.5]	3179 [0.6]
	WB	3077 [0.6]	2541 [0.5]	2500 [0.5]	1927 [0.4]
RL13	EB	5579 [1.0]	5044 [0.9]	4785 [0.9]	5255 [1.0]
	WB	5588 [1.0]	5816 [1.1]	5000 [0.9]	5540 [1.0]
RL14	EB	3861 [0.6]	4690 [0.8]	4399 [0.7]	5052 [0.8]
	WB	4207 [0.7]	3224 [0.5]	4625 [0.7]	4145 [0.7]
RL15	EB	1766 [0.5]	3179 [0.8]	2268 [0.6]	3144 [0.8]
	WB	1224 [0.3]	1587 [0.4]	1183 [0.3]	1520 [0.3]
RL16	EB	2000 [1.1]	1888 [1.0]	2035 [1.1]	2058 [1.1]
	WB	1939 [1.1]	1324 [0.7]	2000 [1.1]	1896 [1.1]
RL17	EB	2623 [0.7]	3429 [1.0]	1587 [0.4]	2054 [0.6]
	WB	4603 [1.3]	2914 [0.8]	3390 [0.9]	2346 [0.7]
CKR	EB	-	-	3029 [0.6]	3855 [0.7]
	WB	-	-	3938 [0.7]	3576 [0.7]
TKO-LTT	EB	-	-	1643 [0.5]	2102 [0.6]
	WB	-	-	2209 [0.6]	1270 [0.4]

Notes: *** V/C ratio above 1.0 indicates the onset of mild congestion.
V/C ratio above 1.2 indicates the onset of more serious congestion, and will be bounded to 1.3 due to the physical limitation.

5.3.3 The problematic locations in the current situation are expected to be further aggravated. The results indicate that in the Reference / "Do-Nothing" scenario (2021/A), the traffic conditions in the study areas, in particular the critical locations at East Kowloon study area, would be worsened considerably. V/C ratios of 1.2 would also occur at the major road links (RL8 – RL16) at East Kowloon area, which substantial reserved capacities are still anticipated in 2016 reference year. A total of 19 junctions (out of 38 junctions) would be expected to be overloaded in either the morning or evening peak periods or both, and out of these 6 junctions would be seriously overloaded (with R.C. < -15%).

5.3.4 The results indicate that in the "Do-Nothing" scenario (2021/A), the increased cross districts through traffic will add on to the primary distributors such as Prince Edward Road East, Kwun Tong Road, Kai Fuk Road and Wai Yip Street. The problematic locations in the current situation are expected to be further aggravated.

5.3.5 However, in the 2021 design year scenario (2021/C), there is a general improvement in the congestions in the study areas. The reserved capacities of the critical road junctions are generally increased when comparing with those of 2021 do-nothing scenario. V/C ratios at the critical east-west road sections such as Prince Edward Road West, Boundary Street, Argyle Street, East Kowloon Corridor, Gascoigne Road Flyover and Kai Tak Tunnel would also be reduced due to the relief effects from CKR.

5.3.6 With CKR and LTT-TKO, the current east-west traffic issues in Kowloon are found resolved moderately. Although the commencement of CKR alleviates traffic congestion in some part of Kwun Tong and Kowloon Bay area, it induced additional traffic trespassing Kwun Tong and Kowloon Bay for CKR which diluted the benefit brought by CKR.

5.3.7 However, for the major junctions' assessment, the subject alleviation is not apparent as those on the major road links, though there are still generally improvements in the junction performance among the assessed junctions. Considering the apparent improvement along the major road links and the corresponding locations of the congested road junctions, it is believed that the junction problems are mainly induced by the population and employment growth of the subject areas, but not induced by CKR. In fact, CKR do have positive effects on those junctions by attracting the bypass traffic away from their ordinary urban distributors.

5.4 Projected Traffic Conditions - 2026

5.4.1 The following scenarios are selected for assessment for quantifying the effects of CKR:

- 2026 Reference Scenario - 2026/A – Without Route 6, Without CBL – "Do-Nothing" scenario;
- 2026 Design Scenario - 2026/G – With full Route 6 and CBL.

The forecast flows for the individual assessed junctions are contained in **Drawing CKR/F/03/0241 – 0247** and **Drawing CKR/F/03/0251 - 0257** for Scenarios 2026/A and 2026/G respectively.

5.4.2 The junction and road link assessment results are summarized in **Tables 5.6** to **5.7** below. **Drawing CKR/F/03/0071** and **Drawing CKR/F/03/0074** illustrate the 2026 junction and road link assessment results respectively.

Table 5.6 2026 Critical Junctions Performance for Reference and Design Scenarios

Junction No.	Junction Capacity (R.C.)			
	2026 Reference – 2026/A		2026 Design – 2026/G	
	AM Peak	PM Peak	AM Peak	PM Peak
J1[(1)]	34.1%	15.7%	37.1%	35.1%
J2	41.2%	47.1%	45.5%	46.7%
J3	64.2%	25.7%	81.8%	44.1%
J4	9.6%	0.2%	22.0%	0.2%
J5	-10.9%	-0.7%	11.8%	-0.7%
J6	-9.6%	-3.4%	-7.3%	1.2%
J7	19.6%	19.5%	10.4%	15.9%
J8	-5.7%	-3.5%	-1.4%	2.2%
J9	13.8%	1.3%	32.5%	11.1%
J10	-8.0%	-22.8%	5.9%	-10.0%
J11	-1.3%	-41.1%	-6.4%	-19.5%
J12	-13.4%	-4.7%	0.6%	6.2%
J13	-13.1%	-3.0%	8.8%	21.2%
J14	-18.9%	7.0%	4.7%	19.6%
J15	-13.5%	6.2%	0.0%	19.5%
J17	-16.9%	-19.9%	-20.6%	-11.2%
J18	-39.7%	-28.4%	6.1%	57.5%
J19	-3.9%	-4.6%	-3.4%	-3.6%
J20	-3.5%	-4.3%	-0.9%	-14.5%
J21	-9.9%	-15.3%	-15.0%	-5.1%
J22	-4.3%	11.3%	-6.6%	-8.8%
J23	25.9%	23.3%	22.7%	18.0%
J25	>100%	58.2%	>100%	51.7%
J26	-9.9%	-10.1%	-2.4%	-11.8%
J27	-4.1%	0.4%	-0.3%	1.5%
J28	16.4%	-9.0%	4.0%	-9.7%
J29	-24.5%	-20.3%	-9.5%	-11.6%
J30	28.3%	1.2%	17.9%	5.6%
J31	46.5%	29.5%	47.1%	30.4%
J32	-3.5%	14.7%	-4.0%	-5.5%
J33	17.0%	45.6%	77.6%	81.8%
J34	36.6%	35.4%	17.3%	28.0%
J35	>100%	>100%	50.4%	67.7%
J36	>100%	62.3%	>100%	60.2%
J37	39.0%	14.4%	35.6%	17.1%
J38	1.7	1.7	1.4	1.7

Notes: [(1)] In 2026 design scenario, J1 Hoi Wang Road / Lai Cheung Road will have been modified as part of the CKR project in the western interchange area within the works boundary of the project.

Table 5.7 2026 Critical Road Links Performance for Reference and Design Scenarios

Road Link No.	Direction	Traffic Flow (pcu/hr) [V/C ratio]			
		2026 Reference – 2026/A		2026 Design – 2026/G	
		AM Peak	PM Peak	AM Peak	PM Peak
RL1	EB	7012 [1.2]	6404 [1.1]	5443 [0.9]	5641 [1.0]
	WB	5308 [1.0]	5015 [1.0]	4717 [0.9]	4163 [0.8]
	WB (slip rd from Chuk Yuen Rd)	1187 [1.2]	636 [0.6]	965 [1.0]	509 [0.5]
RL2	EB	3707 [1.2]	3975 [1.3]	2507 [0.8]	2632 [0.9]
RL3	WB	6416 [1.1]	5101 [0.9]	5030 [0.8]	4431 [0.7]
RL4	EB	2785 [1.2]	2557 [1.1]	1704 [0.7]	1847 [0.8]
	WB	2941 [1.2]	2367 [1.0]	1781 [0.7]	1822 [0.8]
RL5	EB	5861 [1.3]	5448 [1.2]	4641 [1.1]	4629 [1.1]
	WB	1980 [1.1]	2111 [1.2]	1908 [1.1]	1222 [0.7]
	WB (far side free flow lane)	2080 [1.3]	1537 [1.0]	1830 [1.1]	1781 [1.1]
RL6	EB	4160 [1.3]	3950 [1.3]	3394 [1.1]	3418 [1.1]
	WB	2410 [0.8]	2370 [0.8]	2619 [0.8]	1885 [0.6]
RL7	EB	2139 [1.3]	2289 [1.3]	2240 [1.3]	2500 [1.3]
	WB	2074 [1.3]	2150 [1.3]	2262 [1.3]	2517 [1.3]
RL8	EB	3096 [0.9]	3434 [1.0]	3260 [0.9]	3502 [1.0]
	WB	4566 [1.0]	3874 [0.9]	4020 [0.9]	3822 [0.8]
RL9	EB	2600 [0.7]	2899 [0.8]	2230 [0.6]	2350 [0.7]
	WB	2878 [0.8]	2624 [0.7]	2637 [0.7]	2196 [0.6]
RL10	EB	3665 [1.0]	2916 [0.8]	3242 [0.9]	2554 [0.7]
	WB	2848 [0.8]	2575 [0.7]	1684 [0.5]	2583 [0.7]
RL11	EB	6462 [1.2]	4998 [0.9]	4828 [0.9]	4923 [0.9]
	WB	5701 [1.1]	4885 [0.9]	4908 [0.9]	4603 [0.9]
RL12	EB	3132 [0.6]	3873 [0.7]	2601 [0.5]	3225 [0.6]
	WB	3233 [0.6]	2634 [0.5]	2653 [0.5]	1979 [0.4]
RL13	EB	5500 [1.0]	5028 [0.9]	4735 [0.9]	5188 [1.0]
	WB	5564 [1.0]	5821 [1.1]	5100 [0.9]	5658 [1.0]
RL14	EB	3815 [0.6]	4744 [0.8]	3975 [0.6]	4645 [0.7]
	WB	4232 [0.7]	3395 [0.5]	4809 [0.8]	3427 [0.6]
RL15	EB	1818 [0.5]	3311 [0.9]	2146 [0.6]	3032 [0.8]
	WB	1206 [0.3]	1559 [0.3]	1159 [0.3]	1511 [0.3]
RL16	EB	2000 [1.1]	1843 [1.0]	1458 [0.8]	1403 [0.8]
	WB	1998 [1.1]	1437 [0.8]	1806 [1.0]	1375 [0.8]

Road Link No.	Direction	Traffic Flow (pcu/hr) [V/C ratio]			
		2026 Reference – 2026/A		2026 Design – 2026/G	
		AM Peak	PM Peak	AM Peak	PM Peak
RL17	EB	2729 [0.8]	3593 [1.0]	1249 [0.3]	1788 [0.5]
	WB	4944 [1.3]	3048 [0.8]	3173 [0.9]	1941 [0.5]
CKR	EB	-	-	3304 [0.6]	4688 [0.9]
	WB	-	-	4919 [0.9]	4474 [0.8]
T2	EB	-	-	1605 [0.4]	3017 [0.8]
	WB	-	-	2688 [0.7]	1866 [0.5]
TKO-LTT	EB	-	-	2446 [0.7]	3335 [0.9]
	WB	-	-	3442 [1.0]	2219 [0.6]

Notes: *** V/C ratio above 1.0 indicates the onset of mild congestion.
V/C ratio above 1.2 indicates the onset of more serious congestion, and will be bounded to 1.3 due to the physical limitation.

5.4.3 The results indicate that in the reference scenario, the traffic conditions in the study area would further deteriorate compared with the 2021 situation. A total of 20 junctions (out of 38 junctions) would be expected to be operating unsatisfactory in either the morning or evening peak periods or even both, and the junction performance are generally worsen than that observed in 2021 reference scenario. The increasing cross district through traffic will continue to add on to the road networks in the study areas, and the congestion at these locations will further aggravate.

5.4.4 For the 2026 design year scenario, the situation is similar to our previous assessment for year 2021. There is a general improvement in the congestions in the study areas when comparing with the corresponding reference year scenario. Junction performances are generally improved when comparing with those of 2026 do-nothing scenario. It implies that the implementation of CKR together with other component of route 6 and CBL imposes positive traffic effect in the entire Kowloon area.

5.4.5 The junction assessment summary has been tabulated and presented in **Appendix G**.

5.5 Projected Journey Times

5.5.1.1 **Table 5.8** below shows the comparison of peak hour journey time between West Kowloon and Kowloon Bay for the selected routes under with and without CKR scenarios in year 2021 and 2026. **Drawing CKR/F/03/0065** and **Drawing CKR/F/03/0066** details the selected routes for both eastbound and westbound travelling.

5.5.1.2 It is estimated that under the scenario of year 2021 with CKR, the forecast journey time between West Kowloon and Kowloon Bay would take about 5 minutes, resulting a time saving of 25-30 minutes, as compared to that of the scenario of year 2021 with CKR. Similar trend is anticipated in the year 2026 traffic forecast.

Table 5.8 Comparison of Journey Time between West Kowloon and Kowloon Bay (in minutes)

Route (bound)	Observed	2021		2026	
		Without CKR	With CKR	Without CKR	With CKR
Route 1 (EB)	26	29	-	31	-
Route 2 (EB)	33	35	-	36	-
Route via CKR (EB)	-	-	5	-	5
Route 1 (WB)	24	29	-	31	-
Route 2 (WB)	30	35	-	36	-
Route via CKR (WB)	-	-	5	-	5

*__Route 1__ : Hoi Wang Rd ←→ Lai Cheung Rd ←→ Ferry Street ←→ Gascoigne Rd ←→ Chatham Rd North ←→ East Kowloon Corridor ←→ Kai Tak Tunnel ←→ Kai Fuk Rd

*__Route 2__ : Hoi Wang Rd ←→ Lai Cheung Rd ←→ Waterloo Rd ←→ Prince Edward Rd West ←→ Prince Edward Rd East ←→ Kwun Tong Rd←→ Wai Yip St ←→ Kai Cheung Rd ←→Kai Fuk Rd

6 FINDINGS ON IMPLEMENTATION OF CKR

6.1 Implementation of CKR

6.1.1 The traffic forecasts and assessment results indicate that by 2016 onward there would be congestions at numerous junctions and road links across Central and West Kowloon in the absence of CKR. However, the fact that some critical road link sections have projected V/C ratios of not more than 1.0 suggests that spare capacity on a screenline-wide basis would still be available and diversions to use other parallel roads may still be possible for carrying out an east-west journey.

6.1.2 By 2021, the V/C ratios at the critical road sections would be almost all over 1.0, with many sections at 1.2 and above. This indicates that not only the degree of congestion would be worsening, but the extent would also be more widespread as there would be a lack of alternative/diversion routes for traffic.

6.1.3 In short, there would be traffic issues on a Kowloon district-wide level beyond 2016 to justify the need of CKR. Given the typical lead time for the construction of projects of such scale, the traffic issues may be handled on an interim basis from 2016 onward by short-term road improvement schemes and promotion of alternative/diversion routes to make use of spare capacity available in some other east-west Kowloon road links. By 2021, CKR would be in place according to the current schedule, or else the east-west Kowloon-wide primary/district distributor road network would reach saturation.

6.1.4 However, it is worthwhile to highlight that the implementation of CKR cannot resolve all of the potential traffic issues throughout Kowloon. Especially, traffic growth in local context at those urban developments in Yau Tsim Mong area, Kowloon Bay and Kwun Tong. The traffic measures to resolve the increasing local traffic demands of the continuous development / redevelopment of the developed areas are highly restricted by the existing road network with those districts and their associated transport provisions. The traffic problems have to be resolved in local context, although CKR could improve the strategic context along the main routes adjacent to these local road junctions.

7 CONCEPTUAL TRAFFIC IMPROVEMENT MEASURES

7.1 Problematic Junctions Identification

7.1.1 In the earlier Section 5, a series of traffic forecast scenarios have been developed to investigate the traffic situations with and without CKR (or with Route 6 & CBL) in place. Forecast scenarios of 2016, 2021/A and 2026/A, assuming none of the Route 6 components would be in place, are the key reference scenarios that will form the basis for comparing effects with CKR in place. These scenarios would generally represent the worst case scenarios in terms of traffic in study area (almost the entire Kowloon) for respective design years.

7.1.2 Based on the findings in the earlier Section 5, junctions which are identified will be out of capacity in at least one of the design scenario are listed in **Table 7.1**.

Table 7.1 Overloaded Junctions

Junction No.	Junction	Remark
J4	Austin Road West / Austin Road / Canton Road	Signalized Junction
J5	Argyle Street / Nathan Road	Signalized Junction
J6	Waterloo Road / Nathan Road	Signalized Junction
J8	Austin Road / Nathan Road	Signalized Junction
J9	Sai Yee Street / Mong Kok Road	Signalized Junction
J10	Argyle Street / Sai Yee Street	Signalized Junction
J11	Argyle Street / Yim Po Fong Street	Signalized Junction
J12	Prince Edward Road West / Kadoorie Avenue	Signalized Junction
J13	Boundary Street / Waterloo Road	Signalized Junction
J14	Prince Edward Road West / Waterloo Road	Signalized Junction
J15	Argyle Street / Waterloo Road / Princess Margaret Rd	Signalized Junction
J17	Austin Road / Chatham Road South / Cheong Wan Rd	Signalized Junction
J19	Ma Tau Chung Road / Sung Wong Toi Road	Signalized Junction
J20	Kai Cheung Road / Wang Kwong Road	Signalized Junction
J21	Kai Cheung Road / Wang Chiu Road	Signalized Junction
J22	Sheung Yee Road / Wang Chiu Road	Signalized Junction
J26	Ma Tau Wai Road / Tin Kwong Road	Signalized Junction
J27	Choi Hung Road / Tai Yau Street	Signalized Junction
J28	Lam Hing Street / Wang Kwong Road	Signalized Junction
J29	Hoi Bun Road / Cheung Yip Street / Wang Chiu Road	Signalized Junction
J32	Wai Yip Street / Wai Fat Road	Signalized Junction
J38	Olympic Garden Roundabout	Roundabout

7.1.3 It is identified that there will be 22 junctions will be out of capacity in at least one of the design scenario, therefore practical improvement schemes should be designed and implemented for those affected junctions timely in order to avoid expected traffic congestion.

7.2 Proposed Improvement Scheme

7.2.1 By considering the wide-spread coverage AOI of CKR, it is unavoidable that some junctions which are identified to be out of capacity in future year are not due to the present of CKR.

7.2.2 Some junctions are going to be improved based on the findings and designs proved by earlier local development projects and which are considered more practicable against the traffic problem on specific junctions based on more localized and focusing traffic model and latest traffic information.

7.2.3 As mentioned in Chapter 6, it is understood some junction deterioration is solely because of the traffic growth in local context at those urban developments, such as in Yau Tsim Mong area, Kowloon Bay and Kwun Tong, and therefore junction improvement is not accountable to CKR.

7.2.4 Having several rounds of discussions and meetings with different Government Department and other stakeholders, the consensus of the way forward has be reached such that **6** classifications for all junctions has been done. They are;

- Improvement scheme to be carried out by CKR project
- No junction improvement scheme would be required
- No practical improvement scheme is identified
- No junction improvement scheme would be proposed
- Action by other projects
- Improvement scheme to be identified by the Study

Detail discussion of each classification will be described in subsequent paragraphs below

Improvement schemes to be carried out by CKR project

7.2.5 During the construction of CKR, the junction of Hoi Wang Road / Lai Cheung Road (J1), Kansu Street / Ferry Street / Yan Cheung Road (J2) will be re-constructed because of the Cut and Cover construction method. Another junction which is not covered in the AOI of CKR, Hoi Wong Road / Yau Ma Tei Interchange will also be affected and rebuilt with the same reason. Since there is no traffic problem to be identified of these three junctions, therefore, no comparison can be made among before and after improvement scheme scenarios. Nevertheless, the R.C. value, delay and the expected maximum traffic queue of J1, J2 and junction of Hoi Wong Road / Yau ma Tei Interchange have been calculated based on the improvement scheme and presented in **Table 7.2**, **7.3 and 7.4** respectively.

Table 7.2 Junction Performance of J1

Improvement Scheme	Junction Capacity (R.C.)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	31.7%	21.3%	31.4%	21.0%	34.1%	15.7%
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	45.3%	27.3%	37.1%	35.1%
Improvement Scheme	Queue Length					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	66	74	66	73	65	77
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	84	58	91	60
Improvement Scheme	Maximum Delay					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	68	57	64	54	67	57
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	49	56	50	55

Table 7.3 Junction Performance of J2

Improvement Scheme	Junction Capacity (R.C.)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	47.2%	46.8%	47.0%	47.8%	41.2%	47.1%
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	55.7%	46.3%	45.5%	46.7%
Improvement Scheme	Maximum Queue Length (meter)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	66	74	66	73	65	77
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	84	58	91	60
Improvement Scheme	Maximum Delay (vehicle / hr)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	68	57	64	54	67	57
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	49	56	50	55

Table 7.4 Junction Performance of Hoi Wong Road / Yau Mei Interchange

Improvement Scheme	Junction Capacity (R.C.)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	-	-	-	-	-	-
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	51.6%	72.8%	46.3%	79.8%
Improvement Scheme	**Maximum Queue Length (meter)**					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	-	-	-	-	-	-
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	90	85	99	84
Improvement Scheme	**Maximum Delay (vehicle / hr)**					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
N.A.	-	-	-	-	-	-
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
N.A.	-	-	45	89	42	39

7.2.6 The above assessment results depicted that all of three junctions will be operating satisfactorily throughout all design scenario. The implementation of these junctions improvement scheme will be carried out in year 2016 and to be completed before year 2021. The proposed junction improvement layout of J1, J2 and the junction of Hoi Wong Road / Yau ma Tei Interchange are shown in **Drawing CKR/F/03/0301 & CKR/F/03/0302** respectively.

7.2.7 At the east Kowloon area, the junction improvement schemes of Kai Cheung Road / Wang Kwong Road (J20) and Lam Hing Street (J28) will be carried out by CKR project because of the close proximity with the slip road of eastern portion of CKR and both of them will be out of capacity in future year. The R.C. value, delay and the expected maximum traffic queue of J20 & J28 have been calculated based on the proposed improvement scheme and presented in **Table 7.5 &7.6** respectively.

Table 7.5 Junction Performance of J20

Improvement Scheme	Junction Capacity (R.C.)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
Without	2.9%	6.3%	-4.8%	-2.9%	-3.5%	-4.3%
With	-	-	-	-	-	-
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
Without			-6.2%	-12.3%	-0.9%	-14.5%

Improvement Scheme	Junction Capacity (R.C.)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
With			3.7%	2.9%	8.0%	1.2%
Improvement Scheme	Maximum Queue Length (meter)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
Without	99	154	114	174	120	172
With	-	-	-	-	-	-
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
Without	213	215	172	221	213	215
With	192	208	167	212	192	208
Improvement Scheme	Maximum Delay (vehicle / hr)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
Without	80	71	129	96	113	111
With	-	-	-	-	-	-
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
Without			163	96	94	109
With			66	93	68	99

Table 7.6 Junction Performance of J21

Improvement Scheme	Junction Capacity (R.C.)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
Without	41.7%	-13.1%	15.5%	-10.0%	16.4%	-9.0%
With	-	-	-	-	-	-
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
Without	-	-	-1.4%	-10.5%	4.0%	-9.7%
With	-	-	3.9%	5.4%	4.9%	5.7%
Improvement Scheme	Maximum Queue Length (meter)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
Without	76	100	88	102	87	320
With	-	-	-	-	-	-
			2021/C AM	2021/C PM	2026/G AM	2026/G PM
Without	-	-	104	101	99	936
With	-	-	101	72	99	73
	Maximum Delay (vehicle / hr)					

Improvement Scheme	Junction Capacity (R.C.)					
	2016 AM	2016 PM	2021/A AM	2021/A PM	2026/A AM	2026/A PM
Improvement Scheme	**2016 AM**	**2016 PM**	**2021/A AM**	**2021/A PM**	**2026/A AM**	**2026/A PM**
Without	174	144	87	102	86	568
With	-	-	-	-	-	-
			2021/C AM	**2021/C PM**	**2026/G AM**	**2026/G PM**
Without	-	-	127	125	110	120
With	-	-	116	79	108	79

7.2.8 The above assessment results depicted that all of two junctions will be operating satisfactorily throughout all design scenario with the proposed improvement measure. The implementation of these junctions improvement scheme will be carried out in year 2021. Because of the close proximity of J20 and J21, the integrated junction improvement has been proposed as shown in **Drawing CKR/F/03/0310**.

No junction improvement scheme would be required

7.2.9 In the scenario of 2026/G, there are in total 11 junctions will be operating satisfactorily without any improvement measure as listed in **Table 7.7**.

Table 7.7 Junction that No Improvement Scheme would be Required

Junction No.	Junction
J3	Jordan Road / Ferry Street / Canton Road
J7	Jordan Rod / Nathan Road
J23	Lin Cheung Road / Jordan Road
J25	Lin Cheung Road / Austin Road
J30	Wai Yip Street / Lai Yip Road
J31	Wai Yip Street / Hoi Yuen Road
J33	Cha Kwo Ling Road / Yau Tong Road
J34	Temporary Road D1A(S) / Jordan Road
J35	Temporary Road D1A(S) / Wui Cheung Road
J36	Canton Road / Wui Cheung Road
J37	Gascoigne Road / Nathan Road / Kansu Street

7.2.10 Since all the junctions as listed above will be operating with spare capacity in the 2026/G scenario and no interim measure can be made because of the site constraint or some junctions will be operating satisfactorily throughout all design scenarios, therefore no junction improvement scheme would be required.

No practical improvement scheme is identified

7.2.11 There are some junctions located along the primary distributors and suffering serious traffic congestion even in the off-peak period. These junctions, generally

limited by insurmountable site constraints to having any physical junction improvement. Therefore, no practical improvement scheme is identified. Junctions which are identified no practical improvement scheme at this stage are listed in **Table 7.8**.

Table 7.8 Junction that No Practical Improvement Scheme is Identified

Junction No.	Junction
J5	Argyle Street / Nathan Road
J6	Waterloo Road / Nathan Road
J8	Austin Road / Nathan Road
J12	Prince Edward Road West / Kadoorie Avenue
J13	Boundary Street / Waterloo Road
J14	Prince Edward Road West / Waterloo Road
J15	Argyle Street / Waterloo Road / Prince Margaret Road
J17	Austin Road / Chatham Road South / Cheong Wan Road
J18	Chatham Road North / Wuhu Street

No junction improvement scheme would be proposed

7.2.12 In view of wide coverage of AOI of CKR, there are some junctions located within AOI but perform indifferent to the present or not of CKR. Since the junction performance is irrelevant to the present of CKR, therefore, no junction improvement scheme would be proposed as it appears no relationship with the Project. Junctions which are identified no junction improvement scheme would be proposed are listed in **Table 7.9**.

Table 7.9 Junction that No improvement scheme would be proposed

Junction No.	Junction
J19	Ma Tau Chung Road / Sung Wong Toi Road
J20	Kai Cheung Road / Wang Kwong Road

Action by other Projects

7.2.13 As discussed in the earlier of this section, there will be some junction improvement schemes to be carried out by other Projects which are going to be designed with more detail local knowledge, and based on more robust traffic model and updated planning assumption. Junctions that the improvement schemes to be carried out by other projects are listed in **Table 7.10**.

Table 7.10 Junction that the improvement scheme will be carried out by Other Project

Junction No.	Junction	Correlated Projects
J4	Austin Road West / Austin Road / Canton Road	HyD Project - Agreement No. CE 44/2011 (HY)
J9	Sai Yee Street / Mong Kok Road	PlanD Project - Agreement No. CE 16/2013 (TP)
J10	Argyle Street / Sai Yee Street	
J11	Argyle Street / Yim Po Fong Street	
J21	Kai Cheung Road / Wang Chiu Road	

Junction No.	Junction	Correlated Projects
J22	Sheung Yee Road / Wang Chiu Road	CEDD Project - Agreement No.CE 38/2008(HY)
J27	Choi Hung Road / Tai Yau Street	CEDD Project - Contract No.KL/2012/02
J29	Hoi Bun Road / Cheung Yip Street / Wang Chiu Road	CEDD Project - Agreement No.CE 38/2008(HY)
J32	Wai Yip Street / Wai Fat Road	CEDD Project - greement No.CE 42/2008(CE)

7.2.14 Preliminary junction improvements scheme for all above junctions except J32 which is still under design have been presented in **Drawing CKR/F/03/0303 – 0309 & 0311**.

Improvement scheme to be identified by the Study

7.2.15 For the junction of Olympic Garden Roundabout, interim mitigation measure is designed such that motorists from slow lane of eastbound of Prince Edward Road West can not merge in to the captioned roundabout in order to lower the disturbing to the motorists who are driving in the roundabout to enhance the efficiency and safety. The detail of the improvement scheme has been presented in **Drawing CKR/F/03/0312**.

7.2.16 The summary of the junction improvement has been attached in Appendix H.

8 SUMMARY

8.1 Summary

8.1.1 Central Kowloon Route (CKR) is now a proposed dual 3-lane trunk road across central Kowloon linking the West Kowloon in the west and the proposed Kai Tak Development (KTD) in the east. It will connect the West Kowloon Highway at Yau Ma Tei Interchange with the road network at Kowloon Bay and the future Trunk Road T2 at KTD which will connect to the future Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) and Cross Bay Link (CBL).

8.1.2 CKR runs between Yau Ma Tei Interchange and interchange with Kai Fuk Road next to the new Kai Tak Development. The mainline is of dual-three standard. At both exits of the eastern and western ends of CKR, there is a fourth lane to be used as the climbing lane for facilitating traffic movements. The construction works of CKR will start in early 2015 for completion and commissioning by end 2020.

8.1.3 Highways Department (HyD) commissioned another consultancy study under Agreement No. HMW 1/2010 (TT) - Supplementary Traffic Study for Central Kowloon Route in February 2011, which developed the conceptual design for permanent traffic management schemes for facilitating the commissioning of the CKR and interim traffic management schemes in the intervening period before the commissioning of CKR and other components of Route 6 & CBL. The study results are made available for application to this Study.

8.1.4 The main objectives of the Updated Traffic Impact Assessment Report is to review the key issues identified in the TIA Report for CKR prepared under the Investigation Assignment and the findings and the recommendations of the Supplementary Traffic Study.

8.1.5 The Updated Traffic Impact Assessment will be carried out by comparing the traffic forecast of reference (without CKR) and design (with CKR) scenarios. It corresponds to the test scenarios of the Supplementary Traffic Study for CKR which are summarised below:

- 2016 Reference Scenario: S2016 – This will constitute the pre-commissioning and construction stage of CKR scenario;
- 2021 Reference Scenario: S2021/A – This will constitute the without CKR scenario and other components of Route 6;
- 2021 Design Scenario: S2021/C – This will constitute the with CKR and TKO-LTT scenario;
- 2026 Reference Scenario: S2026/A – This will constitute the without CKR and other components of Route 6 scenario; and
- 2026 Design Scenario: S2026/G – This will constitute the with CKR and other component of Route 6 scenario.

8.1.6 Most of the critical junctions under assessment are generally operating close to their capacity in 2012 baseline scenario during the peak periods.

8.1.7 The traffic forecast and junction assessment show that there will be general deterioration in reserved capacities at the assessed road junctions throughout the study area in the Reference Scenarios of future years. Since there will be neither CKR nor any Route 6 components, the deteriorated traffic condition is induced by the background growth of population and employment in the area.

8.1.8 For the design year scenarios (with CKR), there is a general improvement to the traffic condition in the study areas when comparing with the corresponding reference year scenarios. The reserved capacities of the critical road junctions are generally enhanced when comparing with those of do-nothing / reference scenarios in the corresponding years.

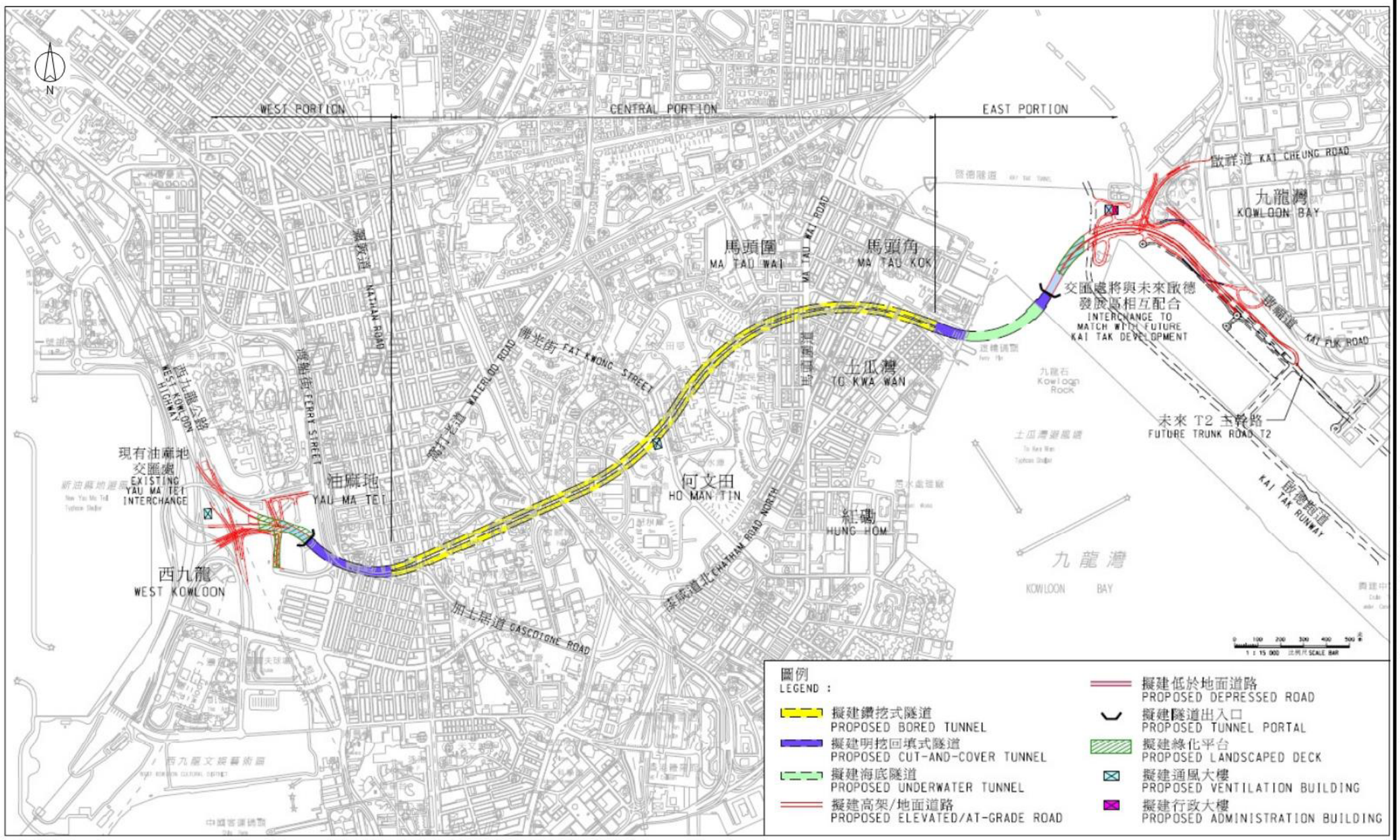
8.1.9 Considering the apparent improvement along the major road links and the corresponding locations of the congested road junctions, it is revealed that the junction problems are mainly induced by the population and employment growth of the local areas, but not induced by CKR.

8.1.10 For those assessed junctions where traffic congestions are identified to be not directly contingent to the CKR Project, conceptual improvement measures were established after a comprehensive review of the recommendations under the HMW 1/2010 (TT) Supplementary Traffic Study for Central Kowloon Route to alleviate the traffic problems at the identified congested junctions in future years.

8.1.11 All the junctions within the AOI have been reviewed critically and classified. Feasible junctions improvement scheme for the junction which are affected by CKR directly have been designed in order to alleviate the traffic problems at the identified congested junctions in future years.

8.1.12 Based on the above assessment results, even though congestions will still be found in some junctions / road links in scenario 2026/G, yet, the contribution of CKR together with other route 6 components and CBL can greatly reduce the predicted traffic problems from West Kowloon to East of Tseung Kwan O. Therefore, it can be concluded that the proposed construction of CKR is essential and justifiable from the traffic engineering point of view.

Appendix A - Drawings



圖例
LEGEND :

- 擬建鑽挖式隧道 PROPOSED BORED TUNNEL
- 擬建明挖回填式隧道 PROPOSED CUT-AND-COVER TUNNEL
- 擬建海底隧道 PROPOSED UNDERWATER TUNNEL
- 擬建高架/地面道路 PROPOSED ELEVATED/AT-GRADE ROAD
- 擬建低於地面道路 PROPOSED DEPRESSED ROAD
- 擬建隧道出入口 PROPOSED TUNNEL PORTAL
- 擬建綠化平台 PROPOSED LANDSCAPED DECK
- 擬建通風大樓 PROPOSED VENTILATION BUILDING
- 擬建行政大樓 PROPOSED ADMINISTRATION BUILDING

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

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Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
General Layout Plan of Central Kowloon Route

Drawing no.	Rev.
CKR/F/03/0011	B

Drawn	Date	Checked	Approved
CHPH	Jun 13	WCEC	WCEC

Scale: N.T.S.
Status: PRELIMINARY

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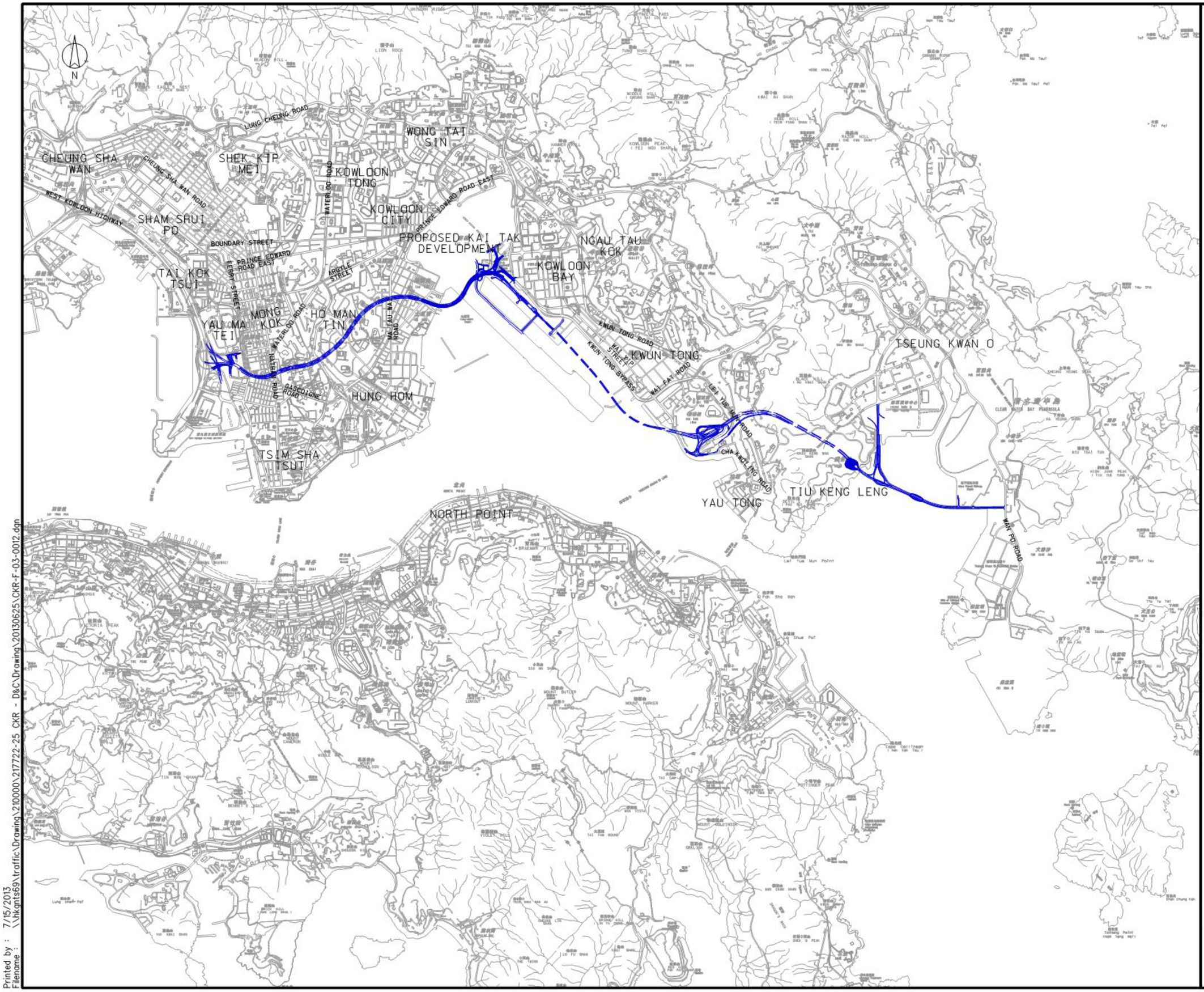

B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12
Rev	Description	By	Date

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

General Alignment For Route 6 & CBL

Drawing no.			Rev.
CKR/F/03/0012			B
Drawn: CHPH	Date: Jun 13	Checked: WCEC	Approved: WCEC
Scale: 1:25000 @ A1		Status: PRELIMINARY	

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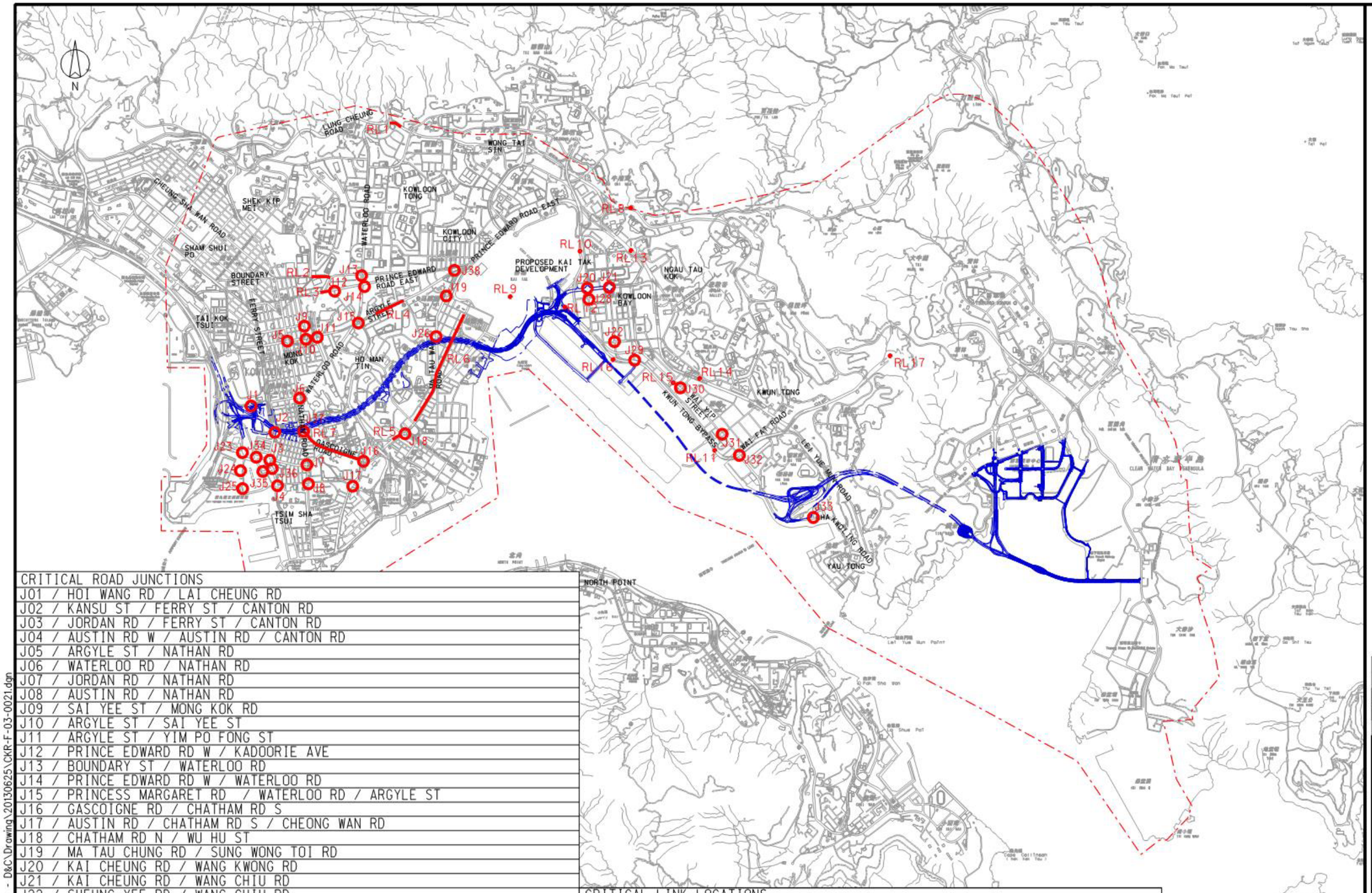

LEGEND :

- AREA OF INFLUENCE
- CRITICAL JUNCTION
- CRITICAL LINK

CRITICAL ROAD JUNCTIONS
J01 / HOI WANG RD / LAI CHEUNG RD
J02 / KANSU ST / FERRY ST / CANTON RD
J03 / JORDAN RD / FERRY ST / CANTON RD
J04 / AUSTIN RD W / AUSTIN RD / CANTON RD
J05 / ARGYLE ST / NATHAN RD
J06 / WATERLOO RD / NATHAN RD
J07 / JORDAN RD / NATHAN RD
J08 / AUSTIN RD / NATHAN RD
J09 / SAI YEE ST / MONG KOK RD
J10 / ARGYLE ST / SAI YEE ST
J11 / ARGYLE ST / YIM PO FONG ST
J12 / PRINCE EDWARD RD W / KADOORIE AVE
J13 / BOUNDARY ST / WATERLOO RD
J14 / PRINCE EDWARD RD W / WATERLOO RD
J15 / PRINCESS MARGARET RD / WATERLOO RD / ARGYLE ST
J16 / GASCOIGNE RD / CHATHAM RD S
J17 / AUSTIN RD / CHATHAM RD S / CHEONG WAN RD
J18 / CHATHAM RD N / WU HU ST
J19 / MA TAU CHUNG RD / SUNG WONG TOI RD
J20 / KAI CHEUNG RD / WANG KWONG RD
J21 / KAI CHEUNG RD / WANG CHIU RD
J22 / SHEUNG YEE RD / WANG CHIU RD
J23 / LIN CHEUNG RD / JORDAN RD
J24 / LIN CHEUNG RD / WUI CHEUNG ROAD
J25 / LIN CHEUNG RD / AUSTIN RD
J26 / MA TAU WAI RD / TIN KWONG RD
J27 / CHOI HUNG RD / TAI YAU ST
J28 / LAM HING ST / WANG KWONG RD
J29 / HOI BUN RD / CHEUNG YIP ST
J30 / WAI YIP ST / LAI YIP ST
J31 / WAI YIP ST / HOI YUEN RD
J32 / WAI YIP ST / WAI FAT RD
J33 / CHA KWO LING RD / YAU TONG RD
J34 / D1A(S) / JORDAN RD
J35 / D1A(S) / WUI CHEUNG RD
J36 / CANTON RD / WUI CHEUNG RD
J37 / GASCOIGNE ROAD / NATHAN ROAD / KANSU STREET
J38 / OLYMPIC GARDEN ROUNDABOUT

CRITICAL LINK LOCATIONS
RL1 / LUNG CHEUNG ROAD (FROM LION ROCK TUNNEL ROAD TO CHUK YUEN ROAD)
RL2 / BOUNDARY STREET (FROM TAI HANG TUNG ROAD TO EMBANKMENT ROAD)
RL3 / PRINCE EDWARD ROAD WEST (FROM EMBANKMENT ROAD TO KADOORIE AVE)
RL4 / ARGYLE STREET & FO (FROM GULLANE ROAD TO TIN KWONG ROAD)
RL5 / CHATHAM ROAD NORTH (FROM WUHU STREET TO PING CHI STREET)
RL6 / EAST KOWLOON CORRIDOR (FROM MA TAU KOK ROAD TO CHATHAM ROAD NORTH)
RL7 / GASCOIGNE ROAD FLYOVER (EASTERN SIDE OF NATHAN ROAD)
RL8 / CLEAR WATER BAY ROAD
RL9 / KAI TAK TUNNEL
RL10 / KWUN TONG BYPASS (NEAR RICHLAND GARDENS)
RL11 / KWUN TONG BYPASS (NEAR HOI YUEN ROAD)
RL12 / KAI FUK ROAD
RL13 / KWUN TONG ROAD (NEAR KAI YIP ESTATE)
RL14 / KWUN TONG ROAD (NEAR ELEGANCE ROAD)
RL15 / WAI YIP STREET
RL16 / KWUN TONG BYPASS SLIP ROAD (TO/FROM KAI FUK ROAD)

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
Area of Influence, Locations of Road Junctions and Road Links

Drawing no.			Rev.
CKR/F/03/0021			B
Drawn: CMPH	Date: Jun 13	Checked: FKFT	Approved: WCEC
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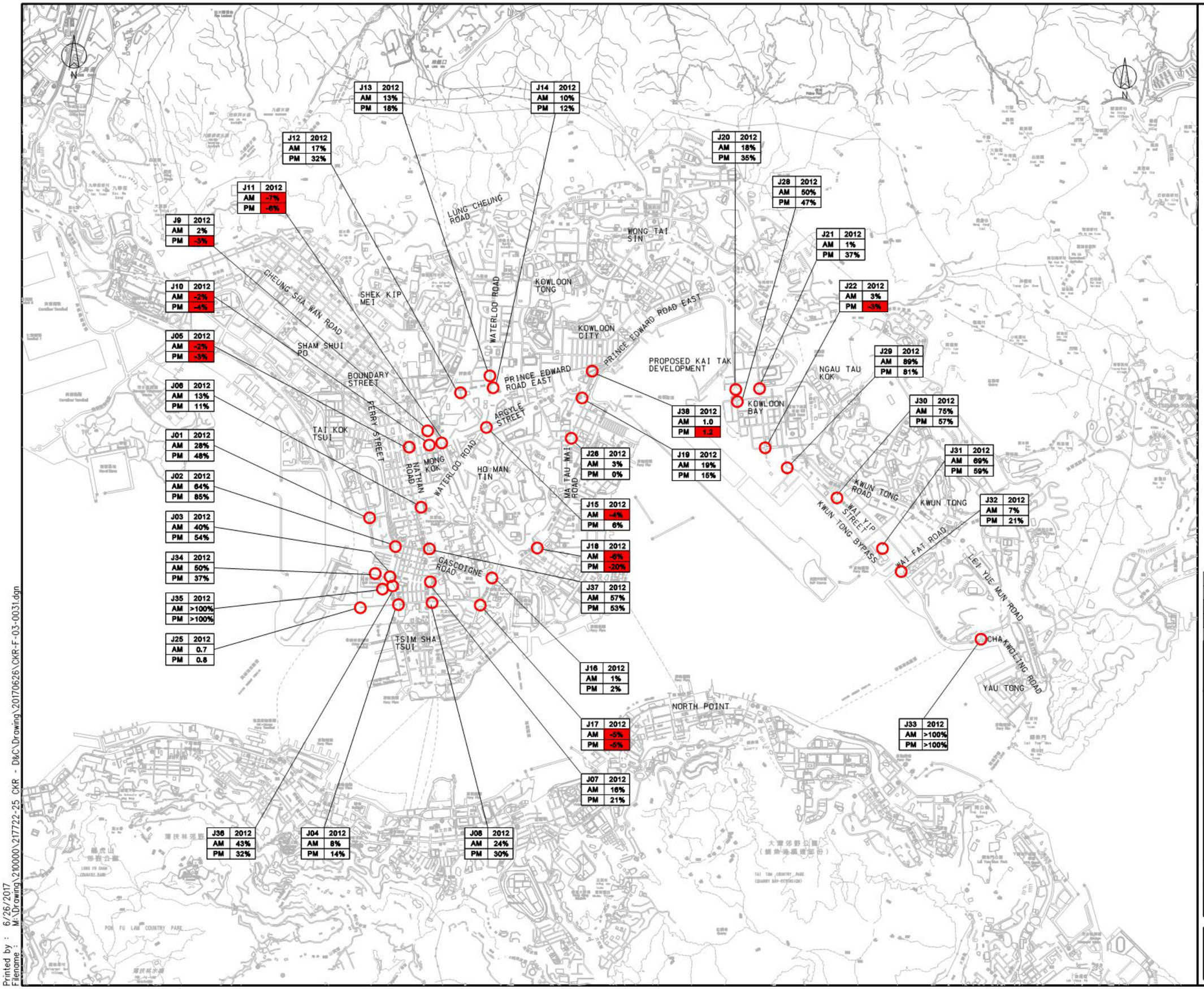

LEGEND :

JUNCTION WITH RC ≥ 0%
JUNCTION WITH RC < 0%

JUNCTION WITH DFC ≤1.0
JUNCTION WITH DFC >1. 0

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant

ARUP Mott MacDonald Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 Critical Junctions Performance

Drawing no.			Rev.
CKR/F/03/0031			B
Drawn: CHPH	Date: Jun 13	Checked: FKFT	Approved: WCDC
Scale: 1:20000 @ A1		Status: PRELIMINARY	

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Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20170626\CKR-F-03-0031.dgn

Boundary St (from Tai Hang Tung Rd to Embankment Rd) - RL2	2012	
	AM	PM
EB	1.0	1.1

Lung Cheung Rd (from Lion Rock Tunnel Rd to Chuk Yuen Rd) - RL1	2012	
	AM	PM
EB	0.9	0.8
WB	0.9	0.9

Prince Edward Rd West (from Embankment Rd to Kadoorie Ave) - RL3	2012	
	AM	PM
WB	0.8	0.7

Argyle St & FO (from Gullane Rd to Tin Kwong Rd) - RL4	2012	
	AM	PM
EB	0.8	0.9
WB	0.8	0.8

East Kowloon Corridor (from Ma Tau Kok Rd to Chatham Rd North) RL6	2012	
	AM	PM
EB	1.0	1.1
WB	0.8	0.6

Gascoigne Rd Flyover (Eastern side of Nathan Rd) - RL7	2012	
	AM	PM
EB	0.8	1.3
WB	1.2	1.1

Chatham Rd North (from Wuhu St to Ping Chi St) - RL5	2012	
	AM	PM
EB	1.1	1.1
WB	0.8	1.2

LEGEND :

LINK WITH V/C RATIO <1.2
LINK WITH V/C RATIO ≥1.2

CRITICAL ROAD LINKS

TRAFFIC BOUND	V/C RATIO
EB	1.0

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 Critical Road Links Performance

Drawing no.			Rev.
CKR/F/03/0032			B
Drawn	Date	Checked	Approved
CHPH	Jun 13	FKFT	WCDC
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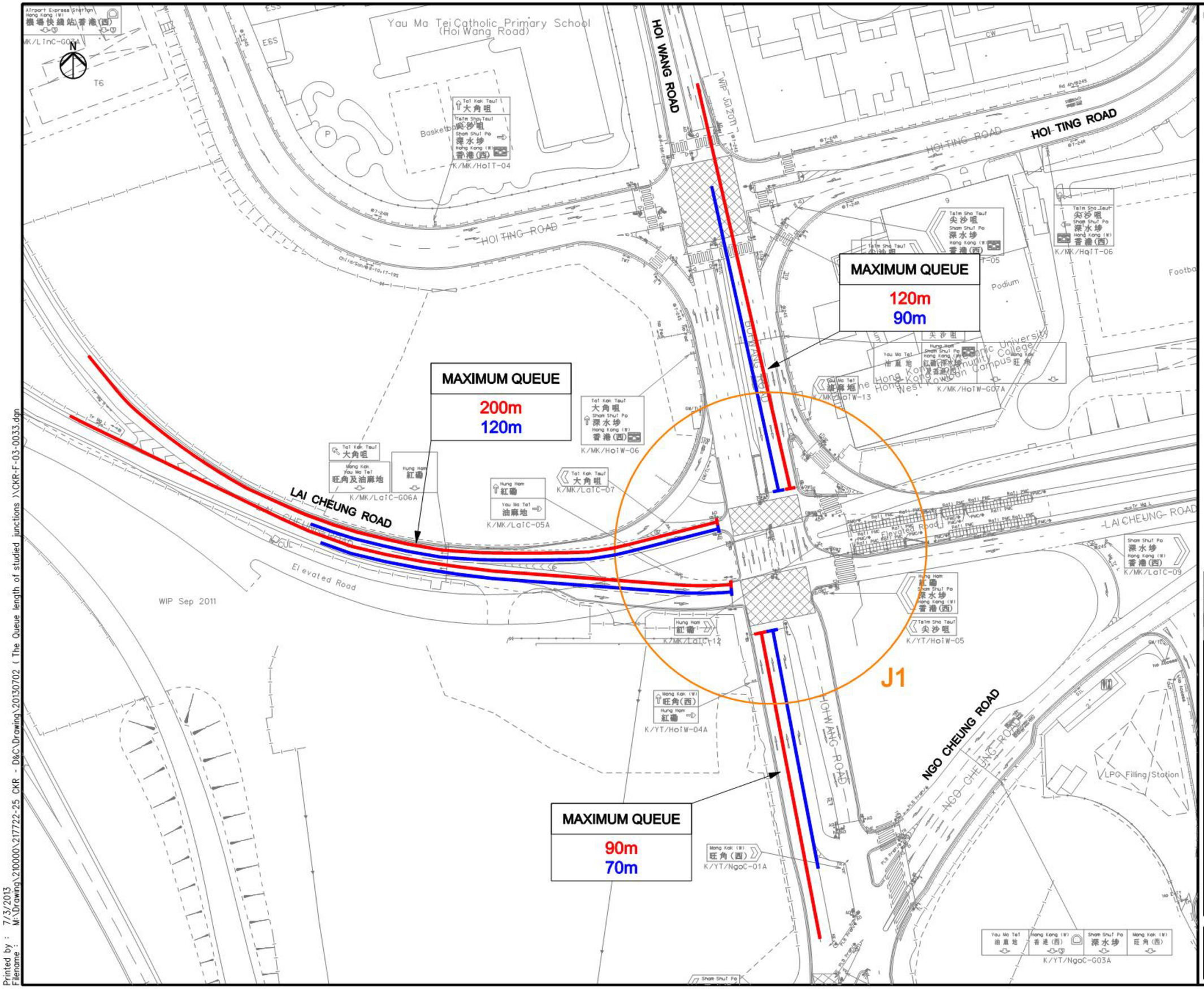

LEGEND :

- J10 JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
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Mott MacDonald
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J1

Drawing no.			Rev.
CKR/F/03/0033			A
Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC
Scale		Status	
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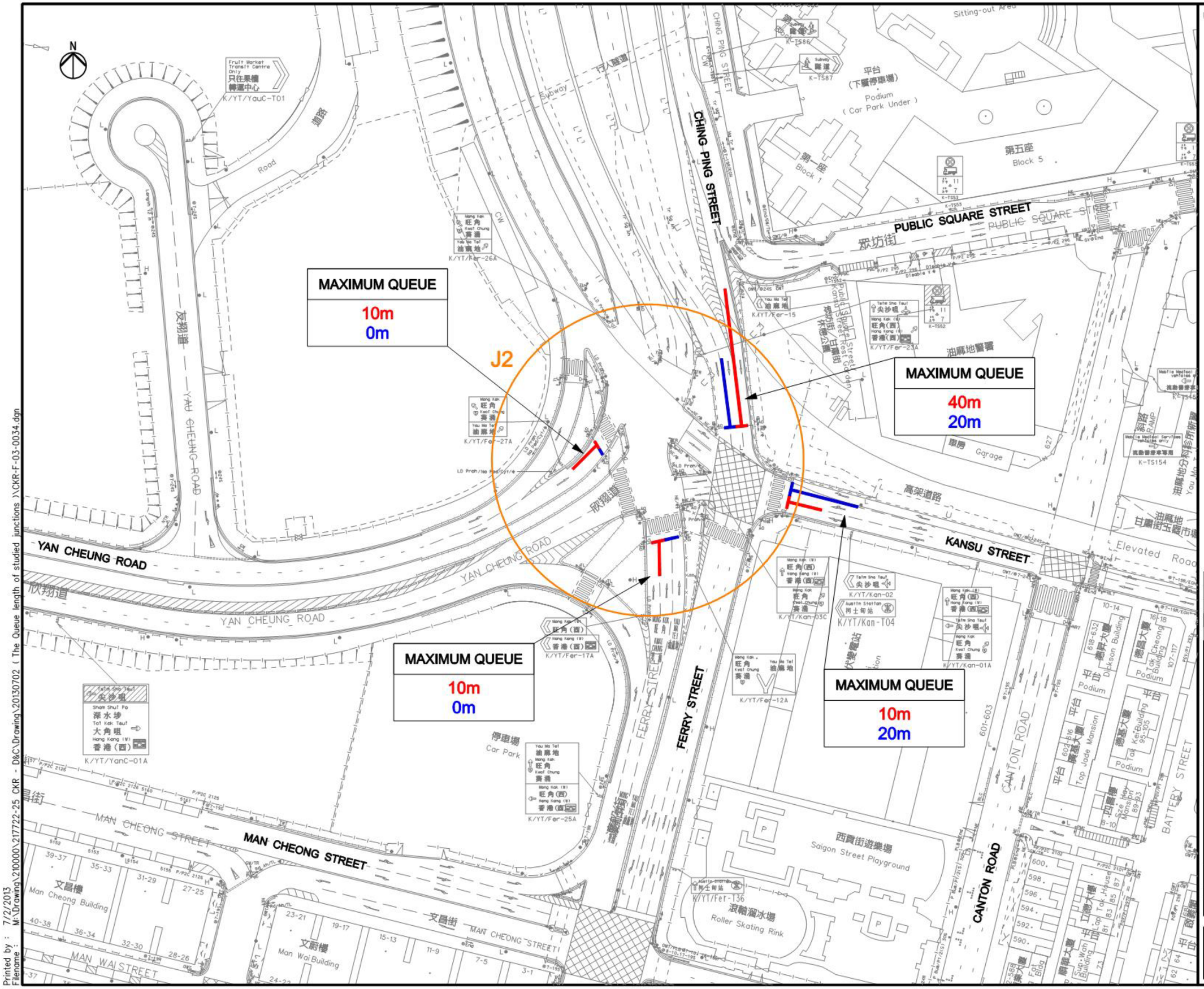

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J2

Drawing no.	Rev.
CKR/F/03/0034	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale 1:1000 @ A3
Status PRELIMINARY

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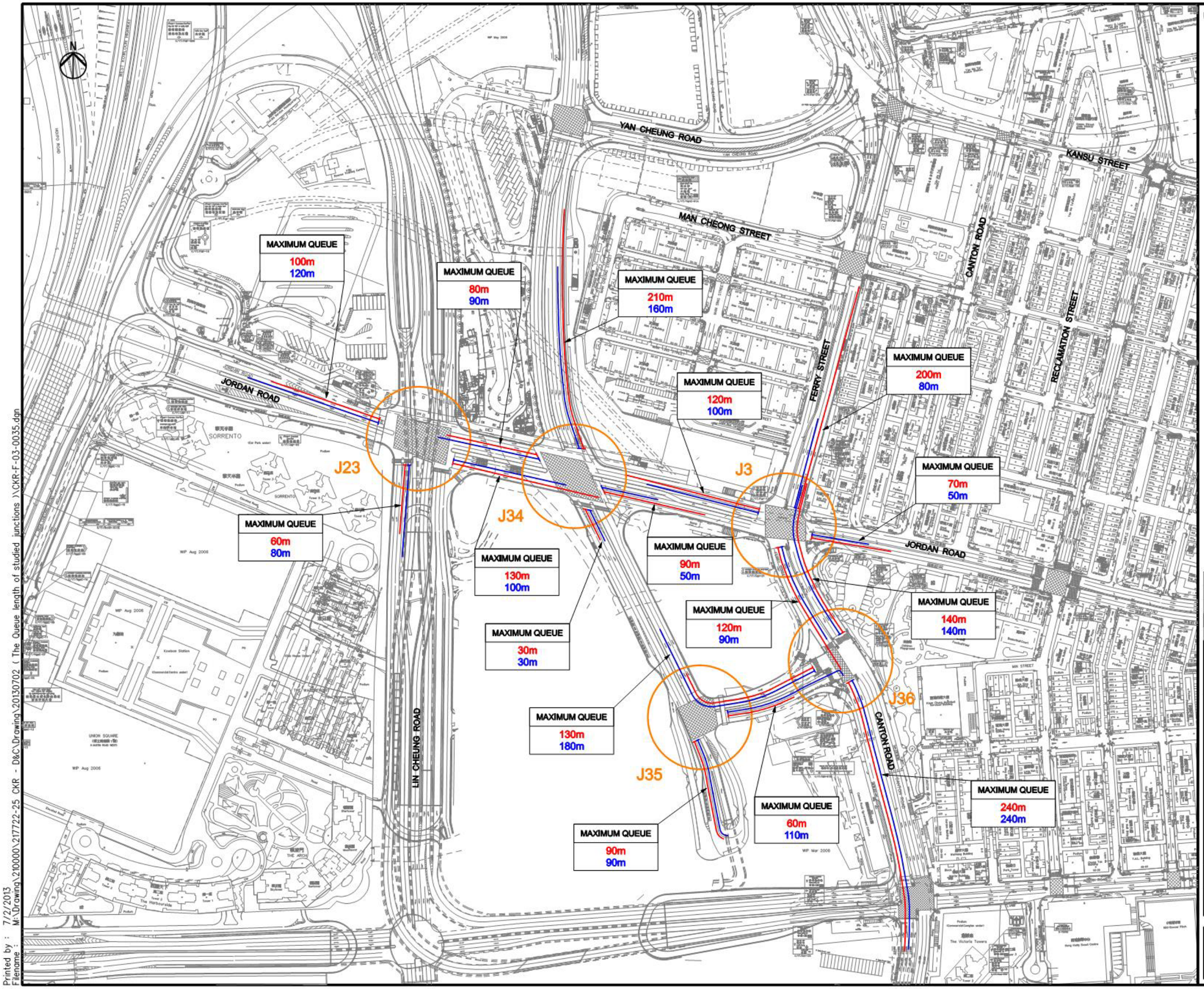

LEGEND :

- J10 JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route -
Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J3,J23,J34,J35 & J36

Drawing no.			Rev.
CKR/F/03/0035			A
Drawn: CHPH	Date: JUN 13	Checked: FKFT	Approved: WCEC
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JORDAN ROAD

LIN CHEUNG ROAD

WUI CHEUNG ROAD

CANTON ROAD

AUSTIN ROAD WEST

City Golf Club

KOWLOON PARK

J25

MAXIMUM QUEUE
40m
40m

MAXIMUM QUEUE
30m
30m

J4

MAXIMUM QUEUE
40m
220m

MAXIMUM QUEUE
140m
195m

MAXIMUM QUEUE
120m
90m

LEGEND :

JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J4 & J25

Drawing no.			Rev.
CKR/F/03/0036			A
Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC
Scale		Status	
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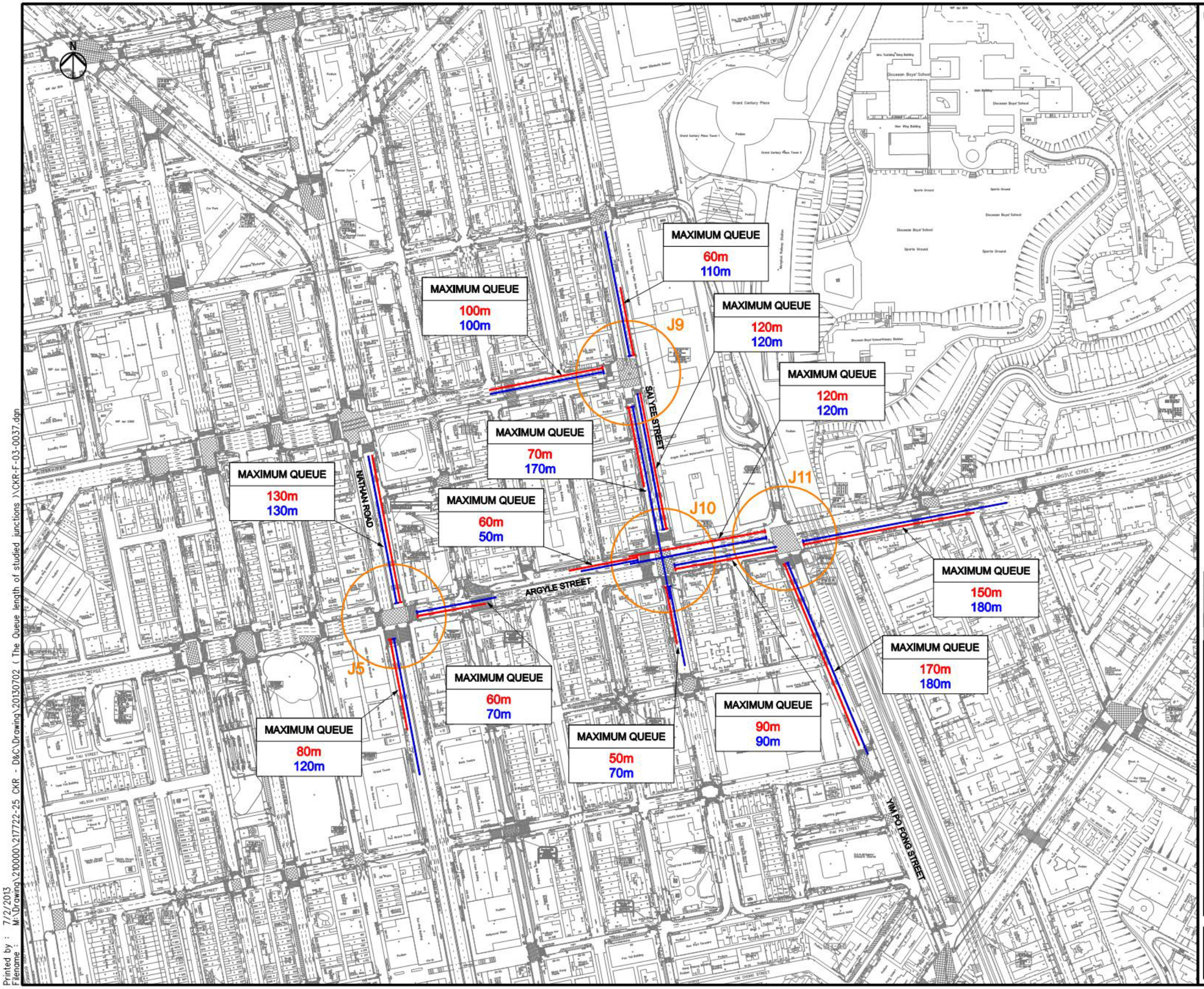

LEGEND :

J10 JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J5 ,J9, J10 & J11

Drawing no.			Rev.
CKR/F/03/0037			A
Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC
Scale		Status	
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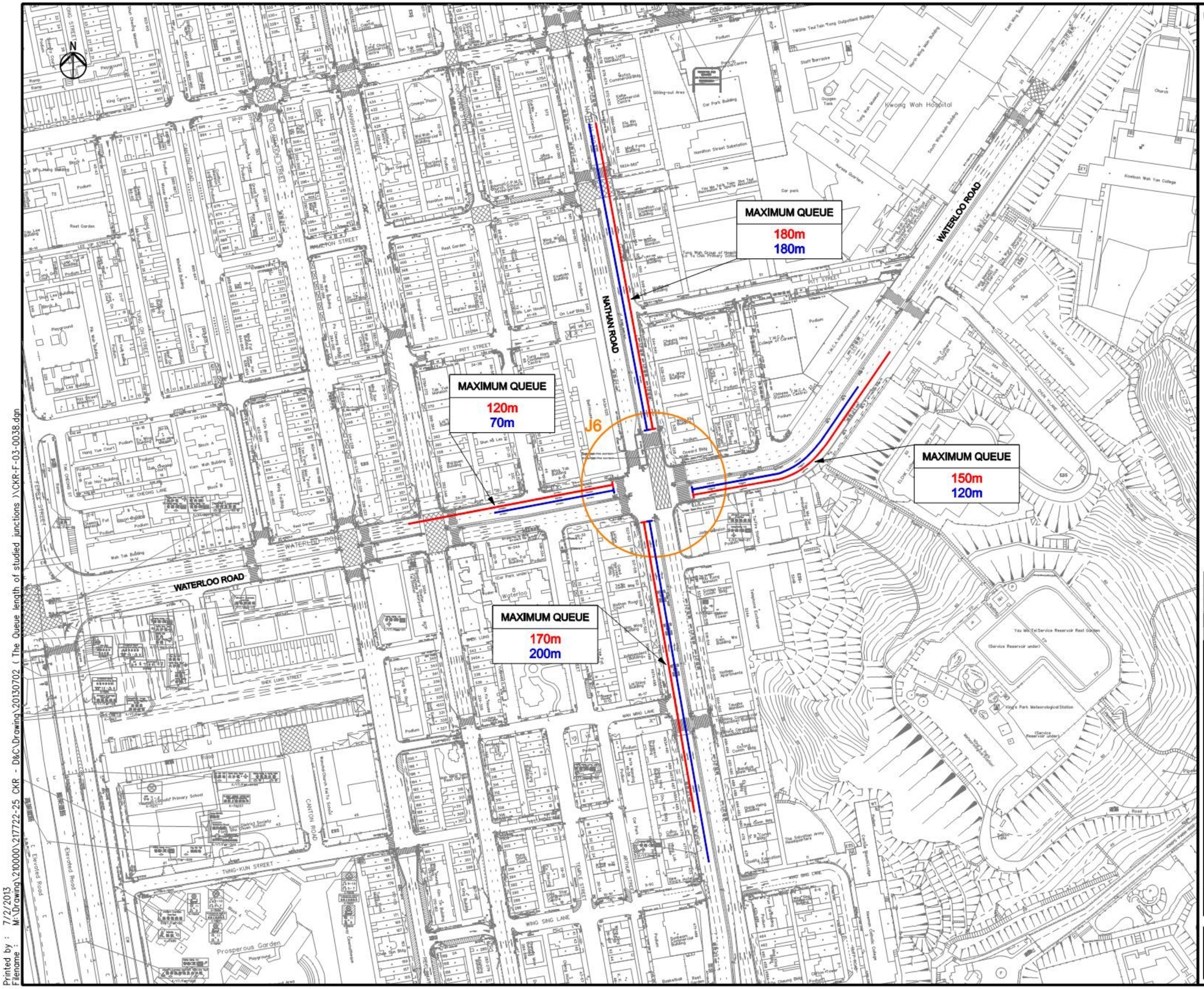

LEGEND :

J10 JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J6

Drawing no.			Rev.
CKR/F/03/0038			A
Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	MCEC
Scale	1:2000 @ A1	Status	PRELIMINARY

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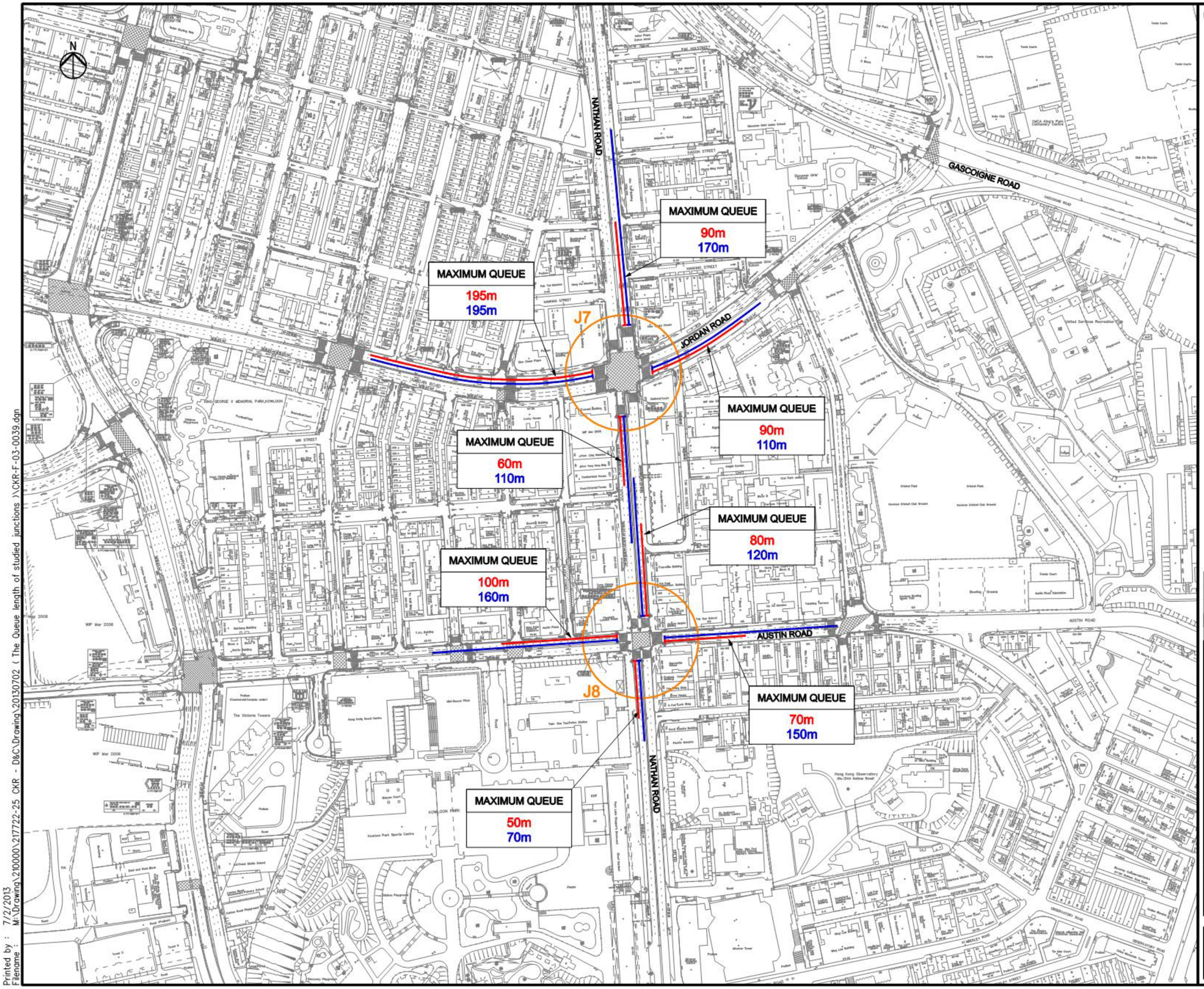

LEGEND :

J10 JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J7 & J8

Drawing no.	Rev.
CKR/F/03/0039	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale 1:3000 @ A3

Status PRELIMINARY

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J12

MAXIMUM QUEUE
100m
40m

MAXIMUM QUEUE
60m
20m

LEGEND :

J10 JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J12

Drawing no.	Rev.
CKR/F/03/0040	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

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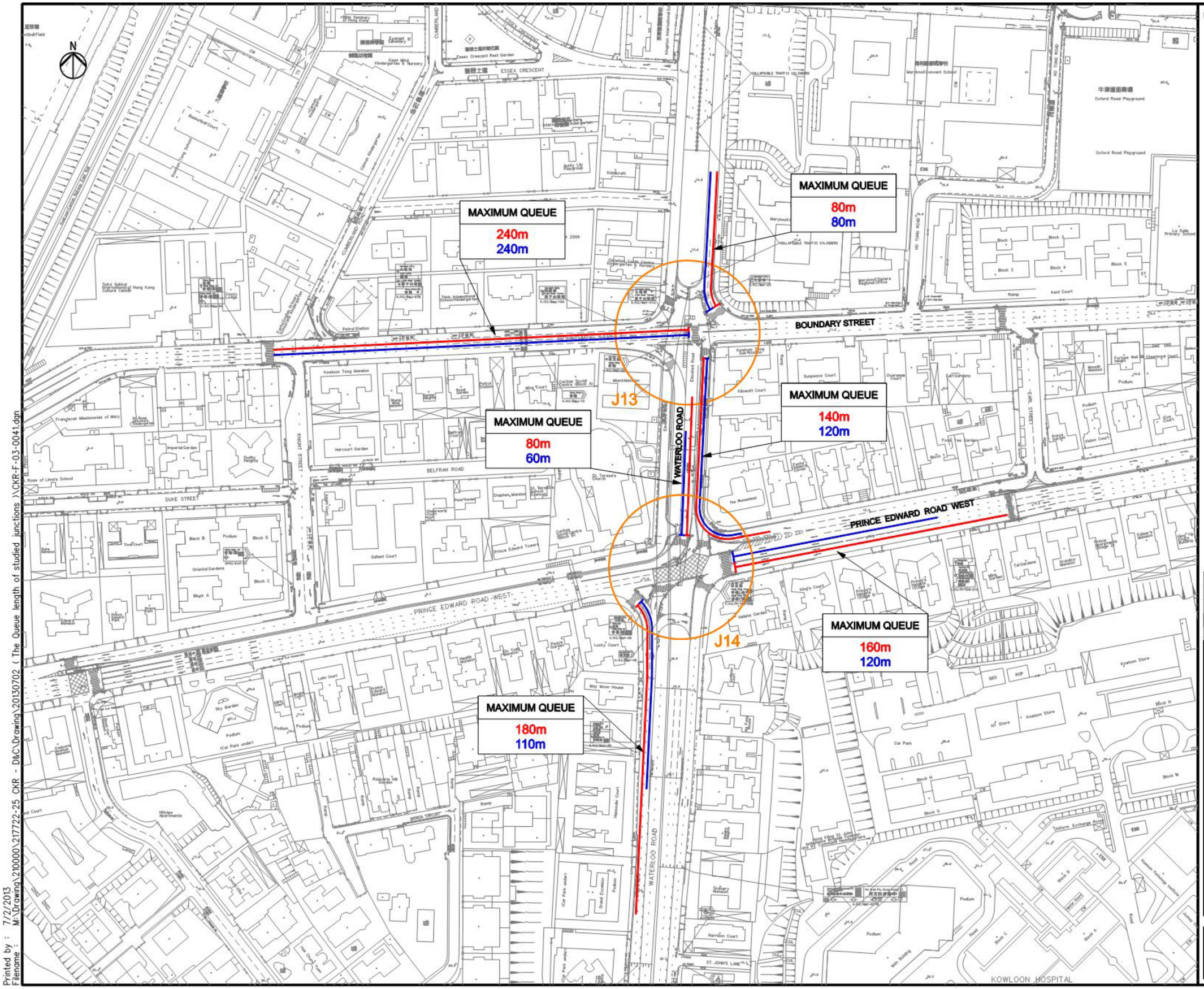

LEGEND :

J10 JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route -
Design and Construction

Drawing title

2012 OBSERVED MAXIMUM
QUEUE LENGTH FOR J13 & J14

Drawing no.			Rev.
CKR/F/03/0041			A
Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC
Scale		Status	
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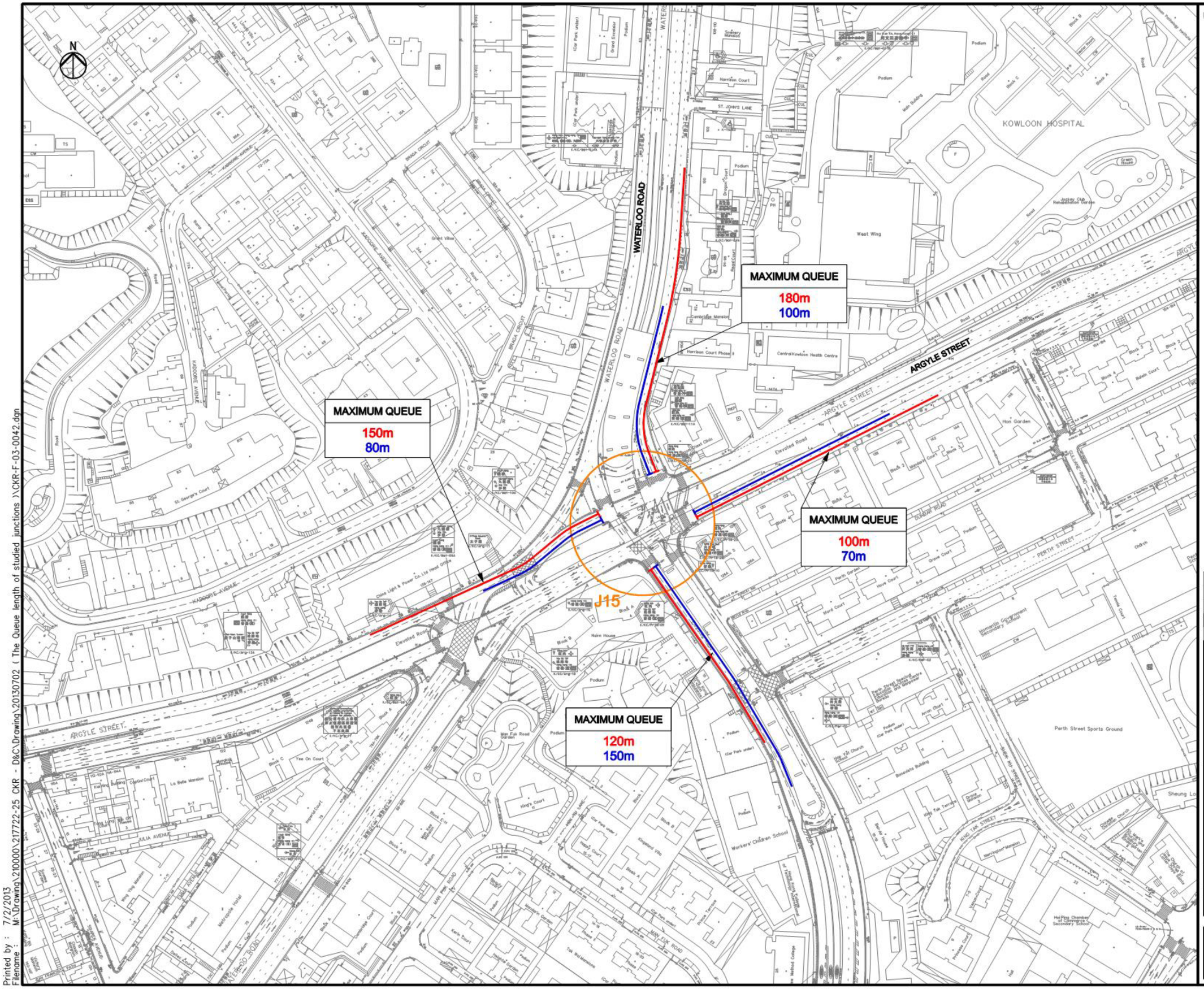

LEGEND :

J10 JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J15

Drawing no.		Rev.
CKR/F/03/0042		A
Drawn: CHPH	Date: JUN 13	Checked: FKFT / Approved: WCEC
Scale: 1:2000 @ A1	Status: PRELIMINARY	

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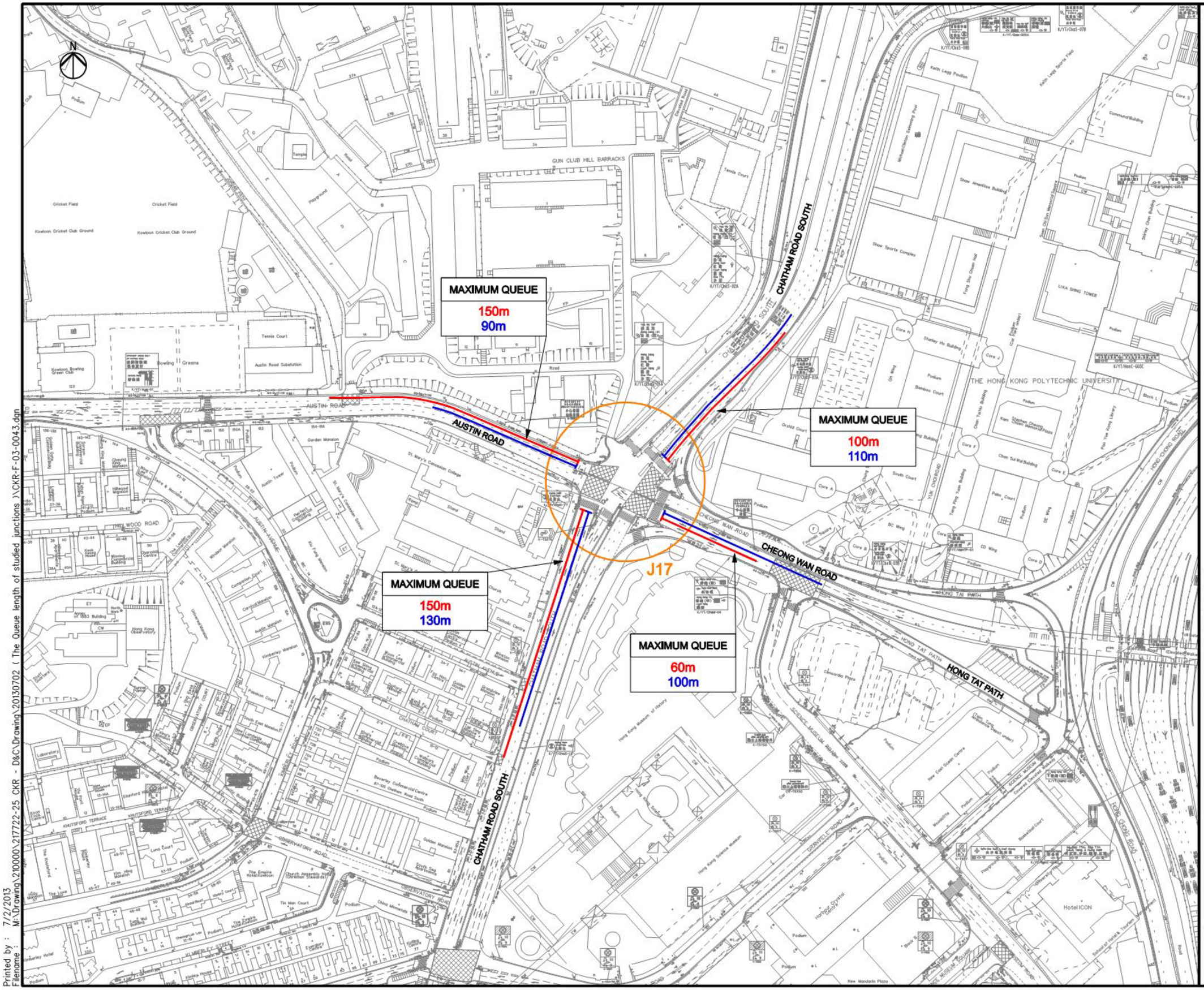

LEGEND :

- J10 JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route -
Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J17

Drawing no.			Rev.
CKR/F/03/0043			A
Drawn: CHPH	Date: JUN 13	Checked: FKFT	Approved: MCEC
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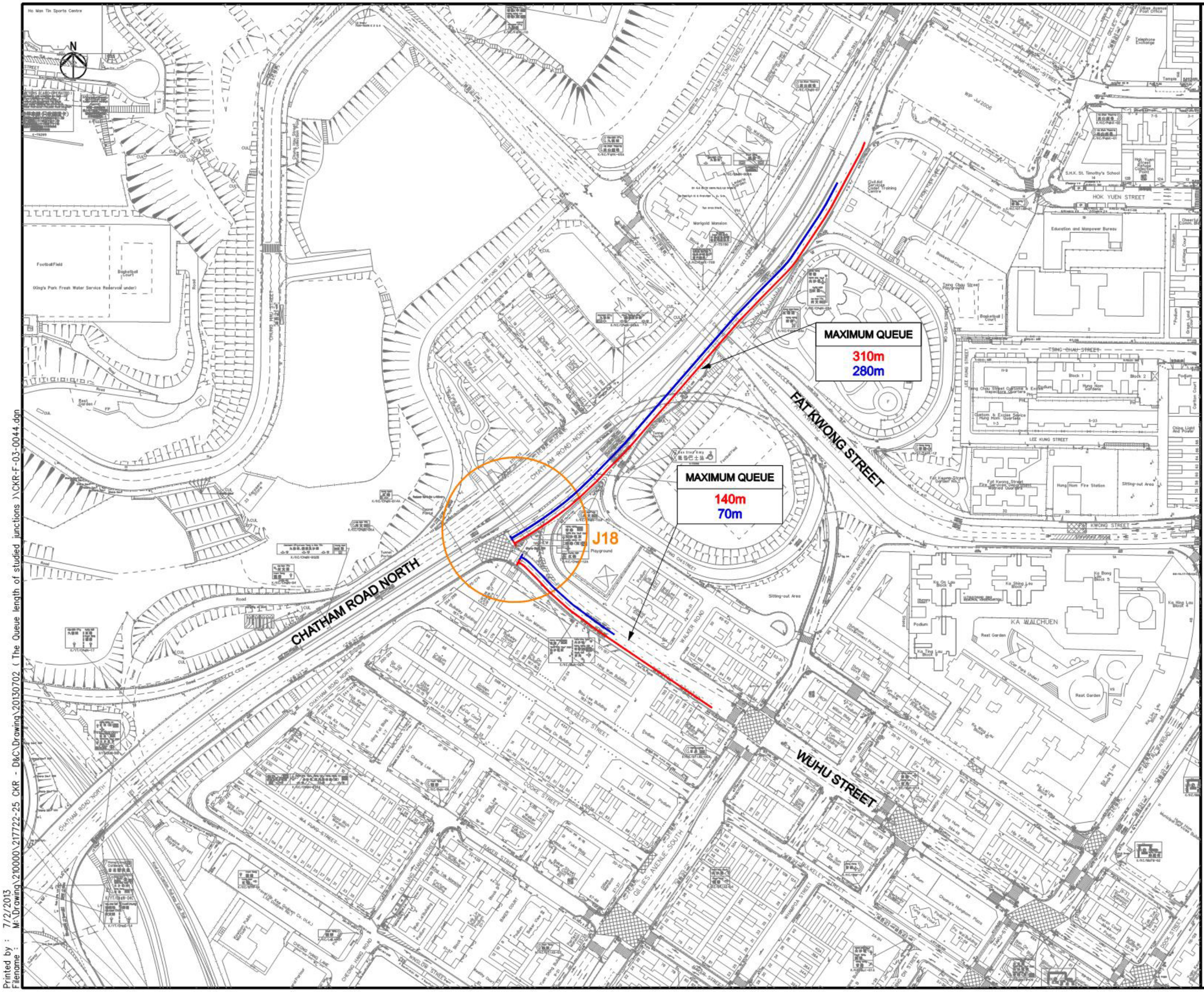

LEGEND :

- J10 JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J18

Drawing no.	Rev.
CKR/F/03/0044	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale 1:2000 @ A1
Status PRELIMINARY

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Printed by : 7/2/2013
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0044.dgn

LEGEND :

J10 JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

MAXIMUM QUEUE
30m
10m

MAXIMUM QUEUE
250m
120m

MAXIMUM QUEUE
150m
150m

MAXIMUM QUEUE
150m
90m

J19

FU NING STREET

MA TAU CHUNG ROAD

SUNG WONG TOI ROAD

PRINCE EDWARD ROAD WEST

ARGYLE STREET

TURN ON STREET

FUK CHEUNG STREET

MOK CHEONG STREET

MA TAU WAI ESTATE

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J19

Drawing no.			Rev.
CKR/F/03/0045			A
Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC
Scale		Status	
1:2000 @ A1		PRELIMINARY	

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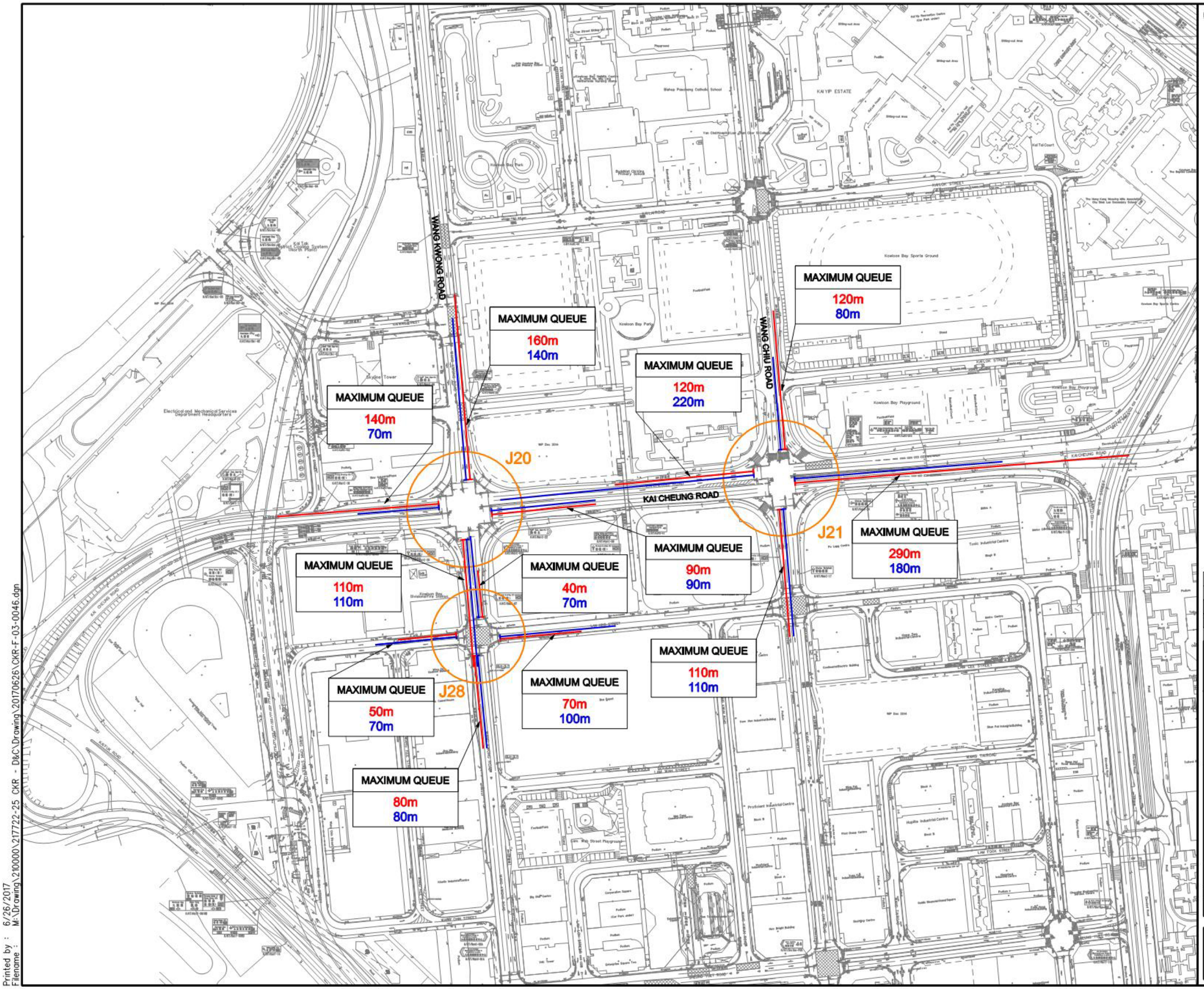
Printed by : 7/2/2013
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0045.dgn



LEGEND :

- J10 JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route -
Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J20 , J21 & J28

Drawing no.	Rev.
CKR/F/03/0046	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale 1:3000 @ A3

Status PRELIMINARY

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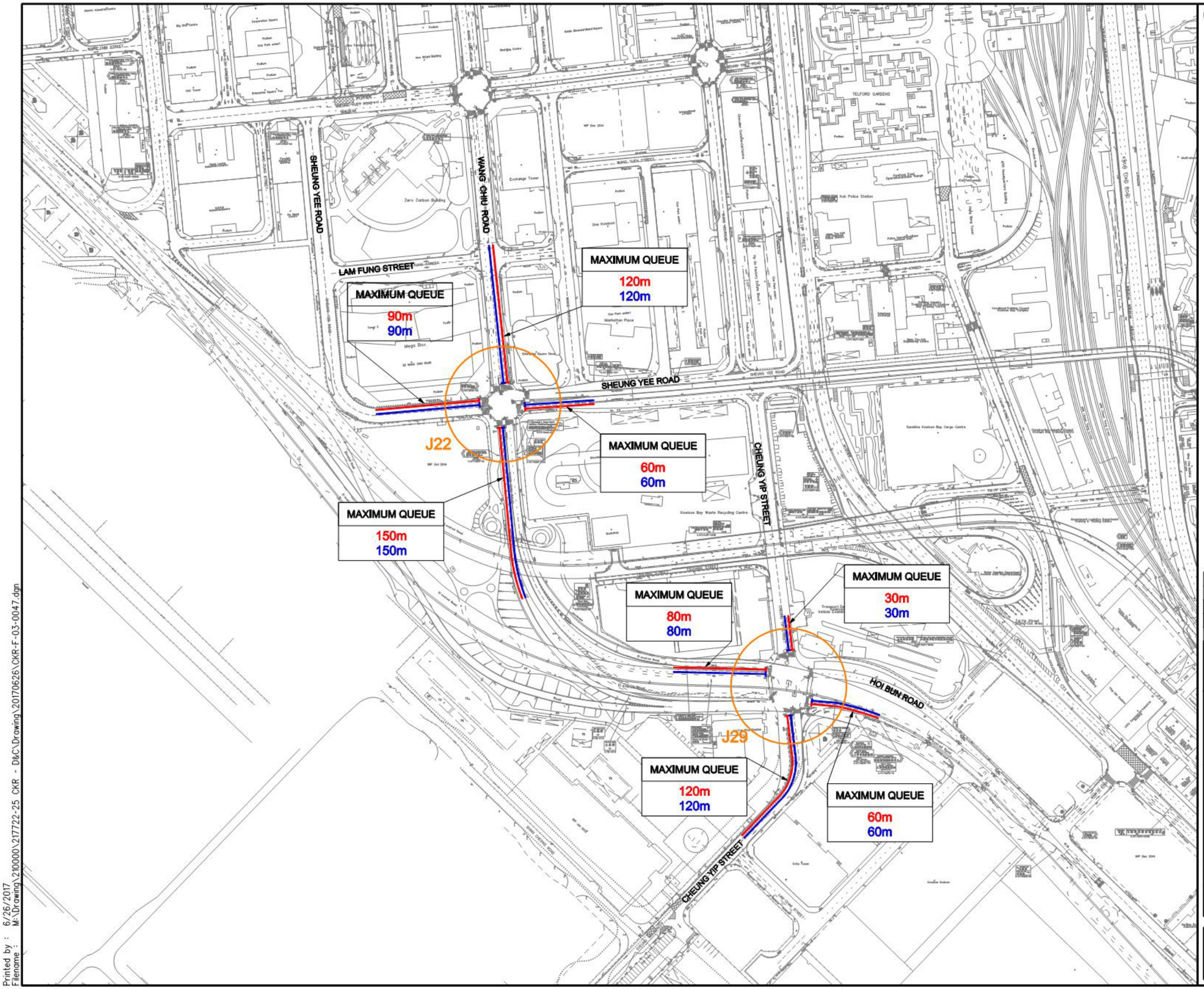
Printed by : 6/26/2017
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20170626\CKR-F-03-0046.dgn



LEGEND :

J10 JUNCTION NUMBER

WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)

WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J22 & J29

Drawing no.			Rev.
CKR/F/03/0047			A
Drawn: CHPH	Date: JUN 13	Checked: FKFT	Approved: WCEC
Scale: 1:3000 @ A3		Status: PRELIMINARY	

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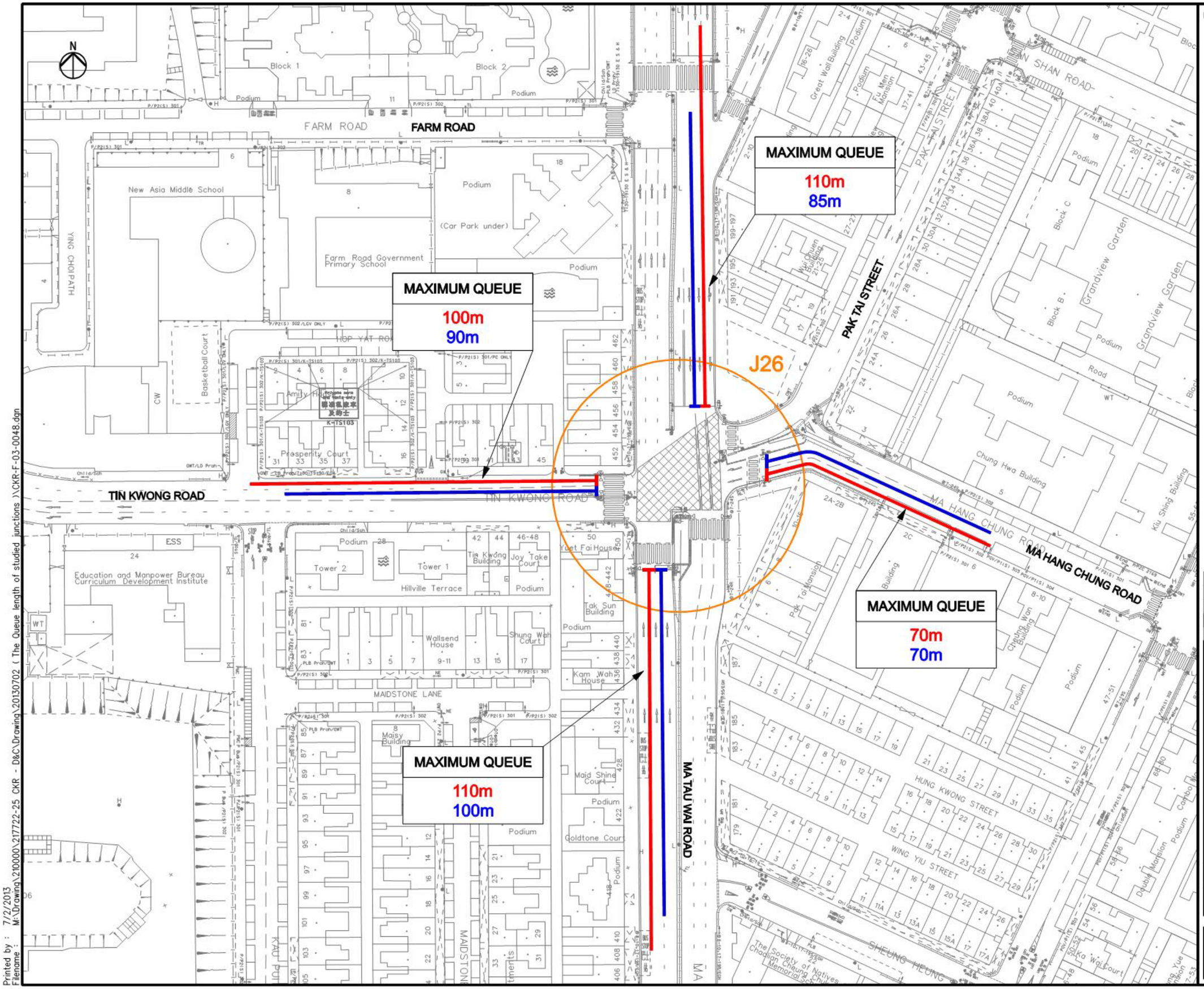
Printed by : 6/26/2017
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20170626\CKR-F-03-0047.dgn



LEGEND :

- J10 JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J26

Drawing no.	Rev.
CKR/F/03/0048	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale 1:1000 @ A3
Status PRELIMINARY

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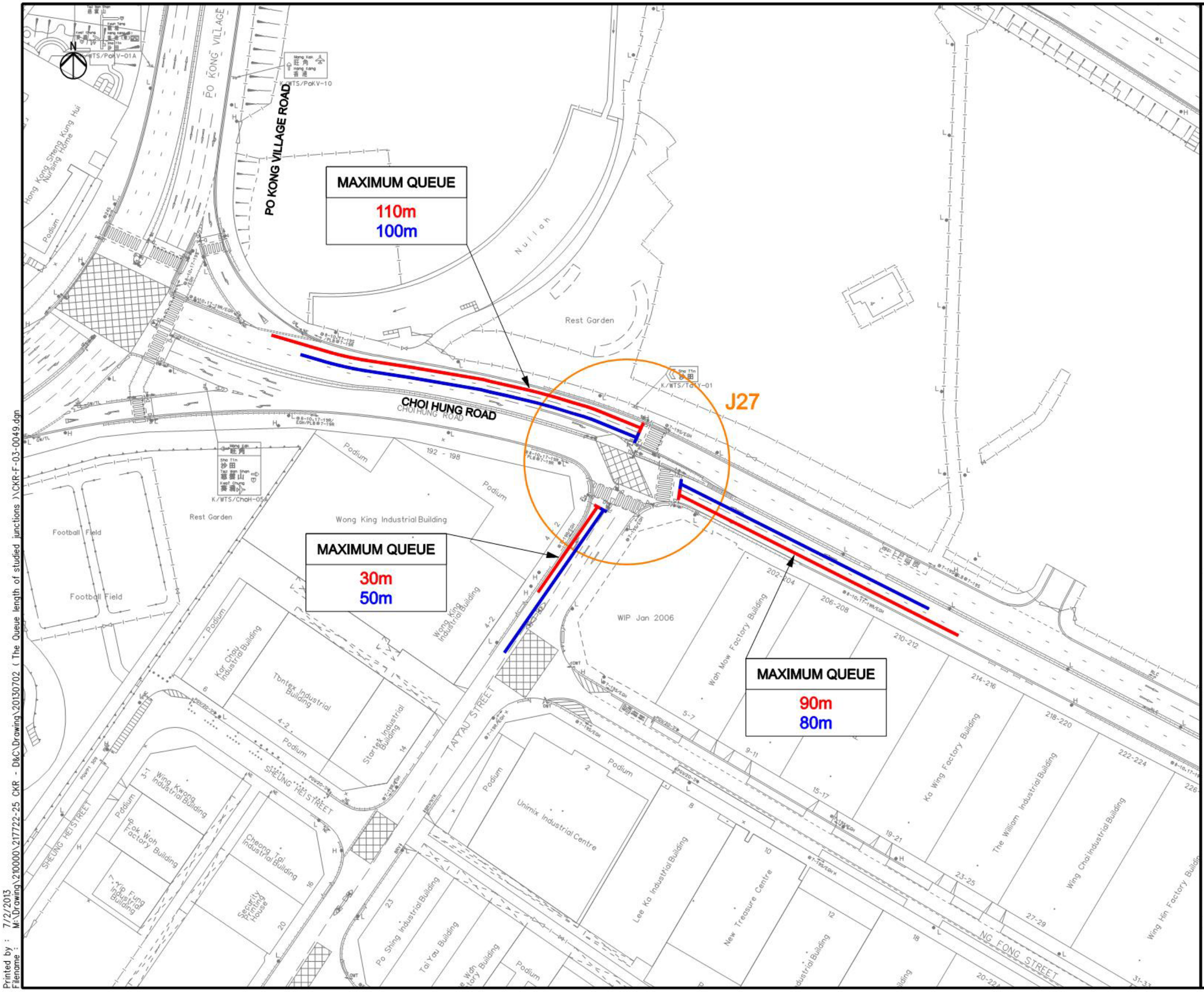
Printed by : 7/2/2013
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0048.dgn



LEGEND :

- J10 JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J27

Drawing no.	Rev.
CKR/F/03/0049	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale 1:1000 @ A3
Status PRELIMINARY

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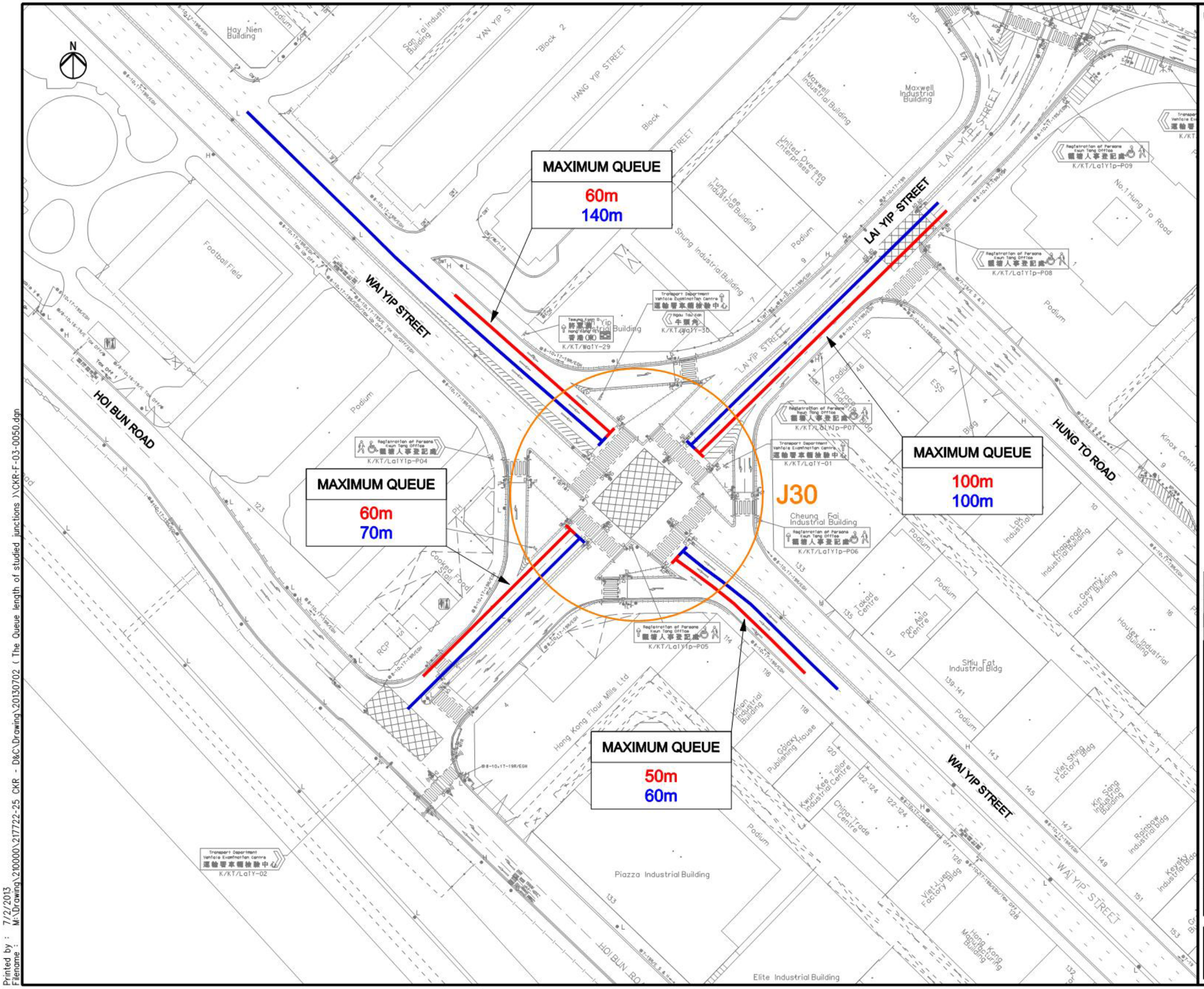
Printed by : 7/2/2013
Filename : M:\Drawing\20000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0049.dgn



LEGEND :

- JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP — Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J30

Drawing no.			Rev.
CKR/F/03/0050			A
Drawn: CHPH	Date: JUN 13	Checked: FKFT	Approved: WCEC
Scale: 1:1000 @ A1		Status: PRELIMINARY	

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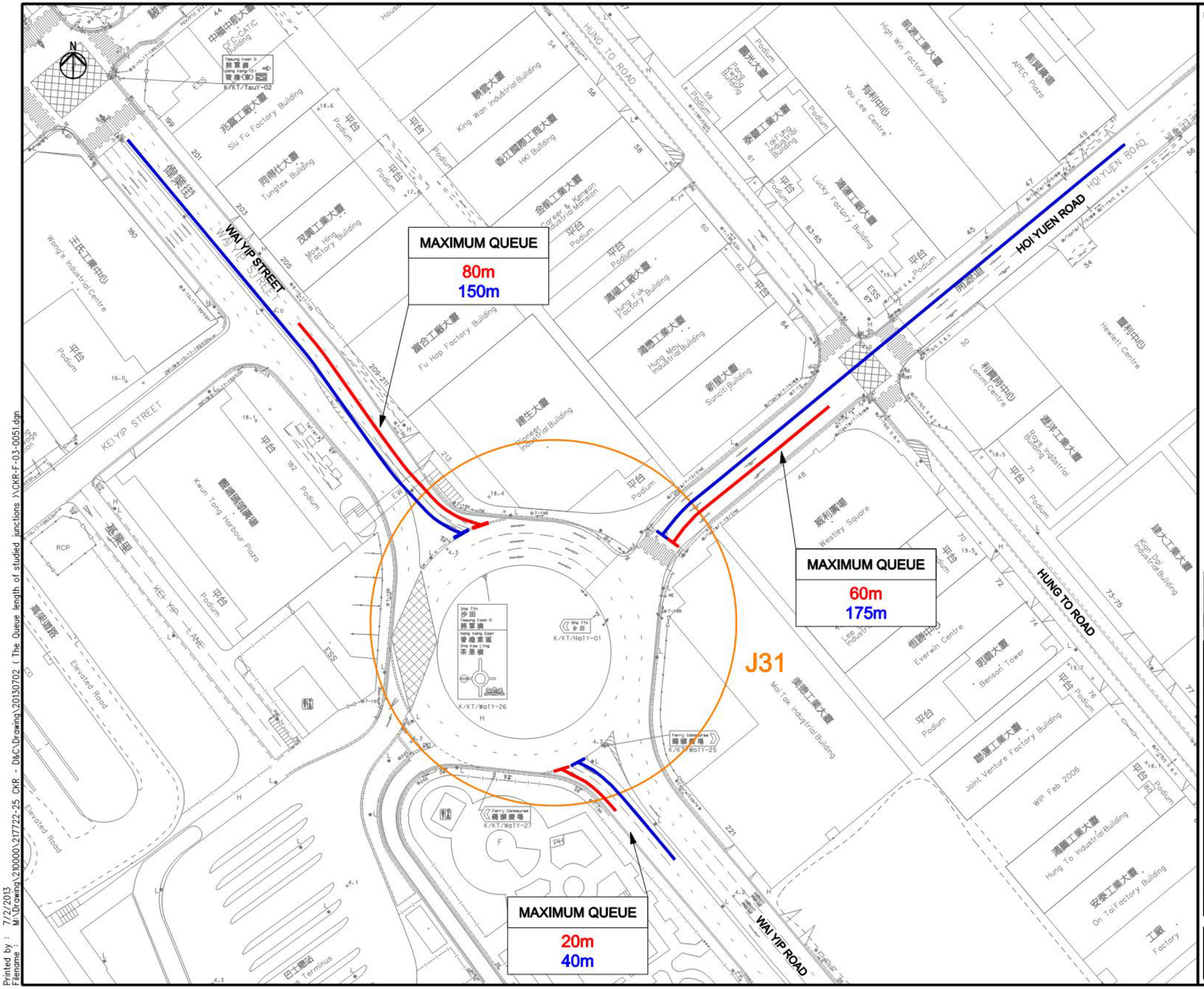
Printed by : 7/2/2013
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0050.dgn



LEGEND :

- JUNCTION NUMBER (J10)
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant: ARUP / Mott MacDonald Joint Venture

Project title: Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title: 2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J31

Drawing no.	Rev.
CKR/F/03/0051	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale: 1:1000 @ A1
Status: PRELIMINARY

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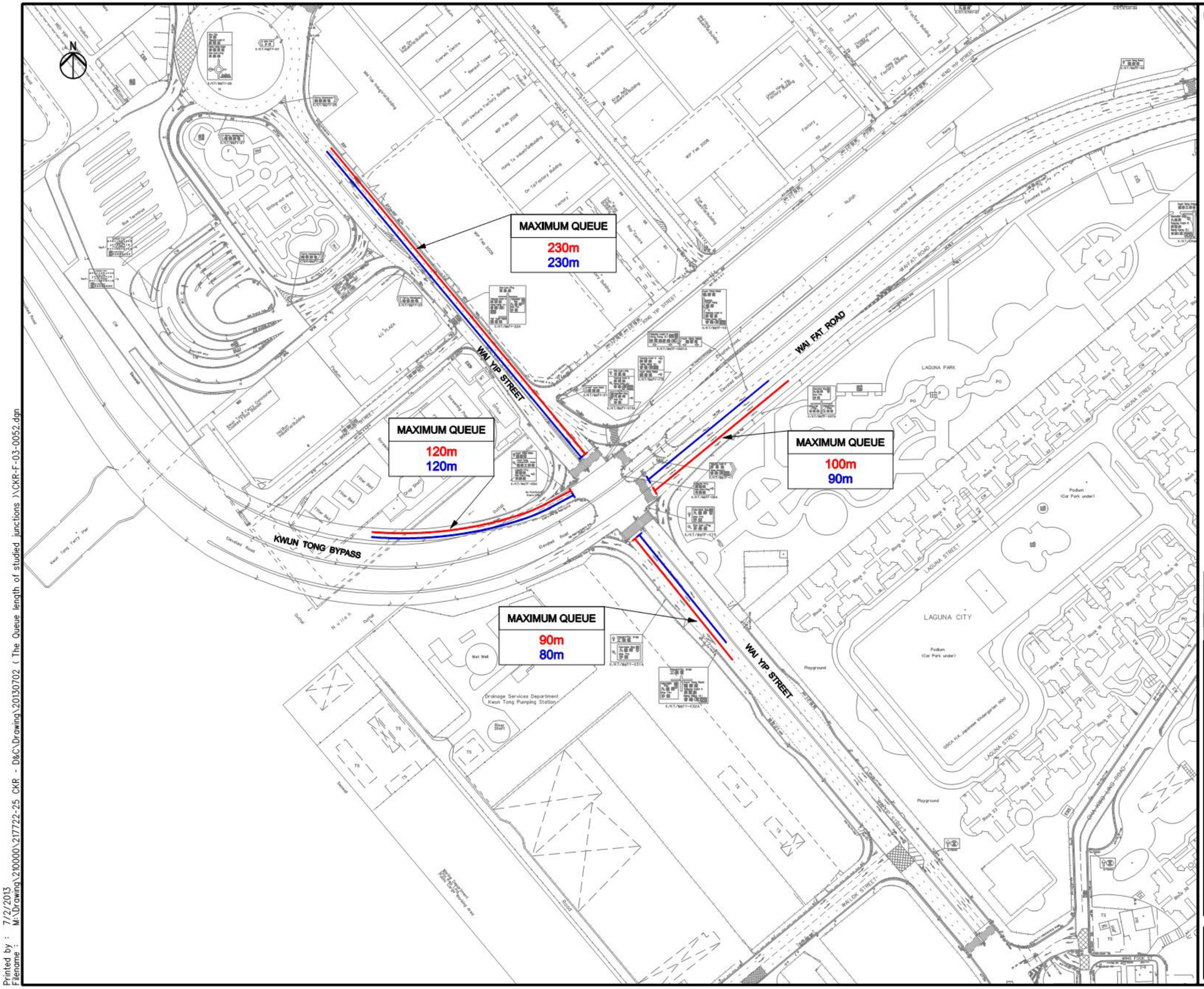
Printed by : 7/2/2013
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0051.dgn



LEGEND :

- JUNCTION NUMBER (J10)
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J32

Drawing no.	Rev.
CKR/F/03/0052	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale: 1:2000 @ A1

Status: PRELIMINARY

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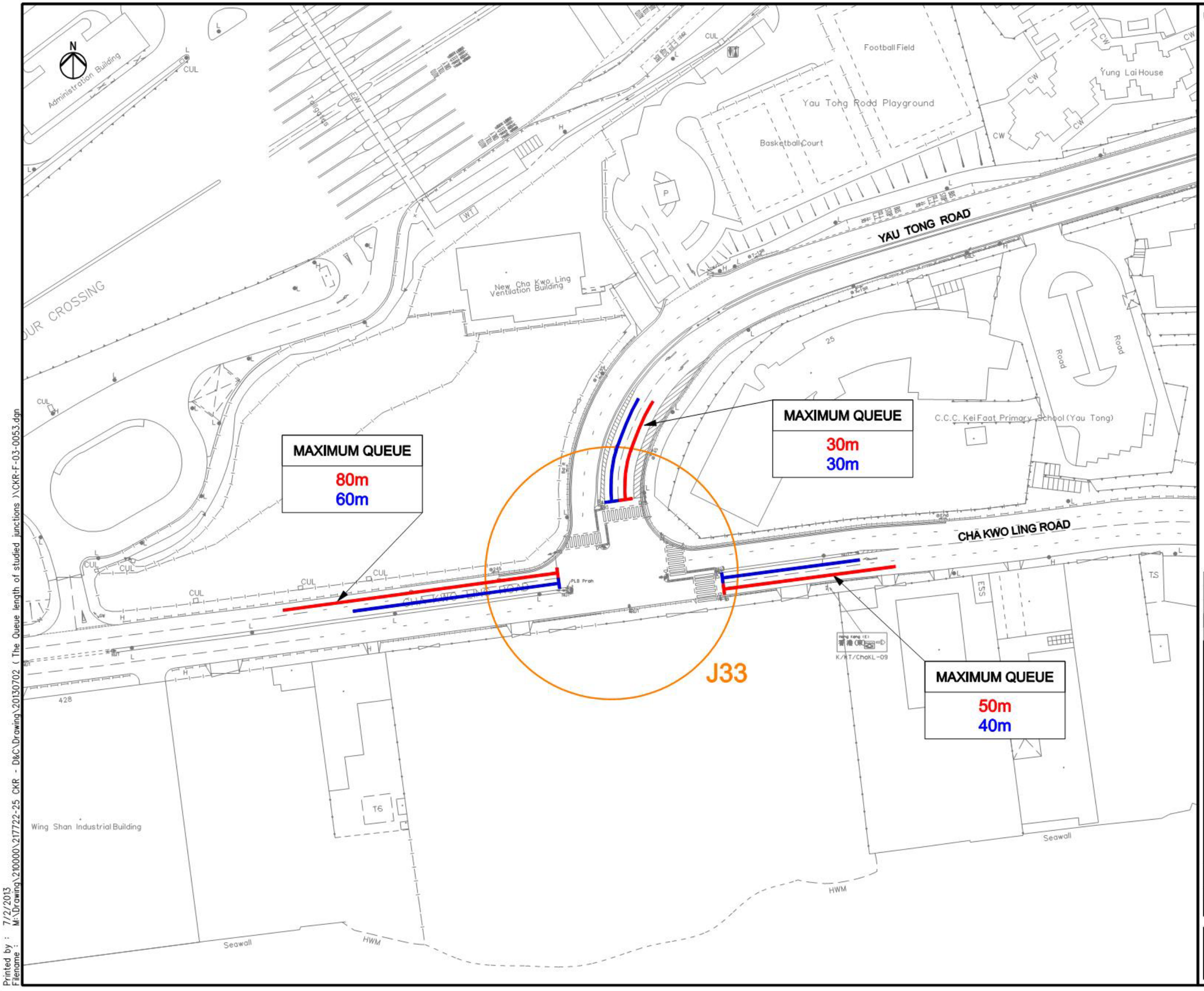
Printed by : 7/2/2013
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0052.dgn



LEGEND :

- J10 JUNCTION NUMBER
- WEEKDAY AM PEAK MAXIMUM QUEUE LENGTH (m)
- WEEKDAY PM PEAK MAXIMUM QUEUE LENGTH (m)

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J33

Drawing no.	Rev.
CKR/F/03/0053	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

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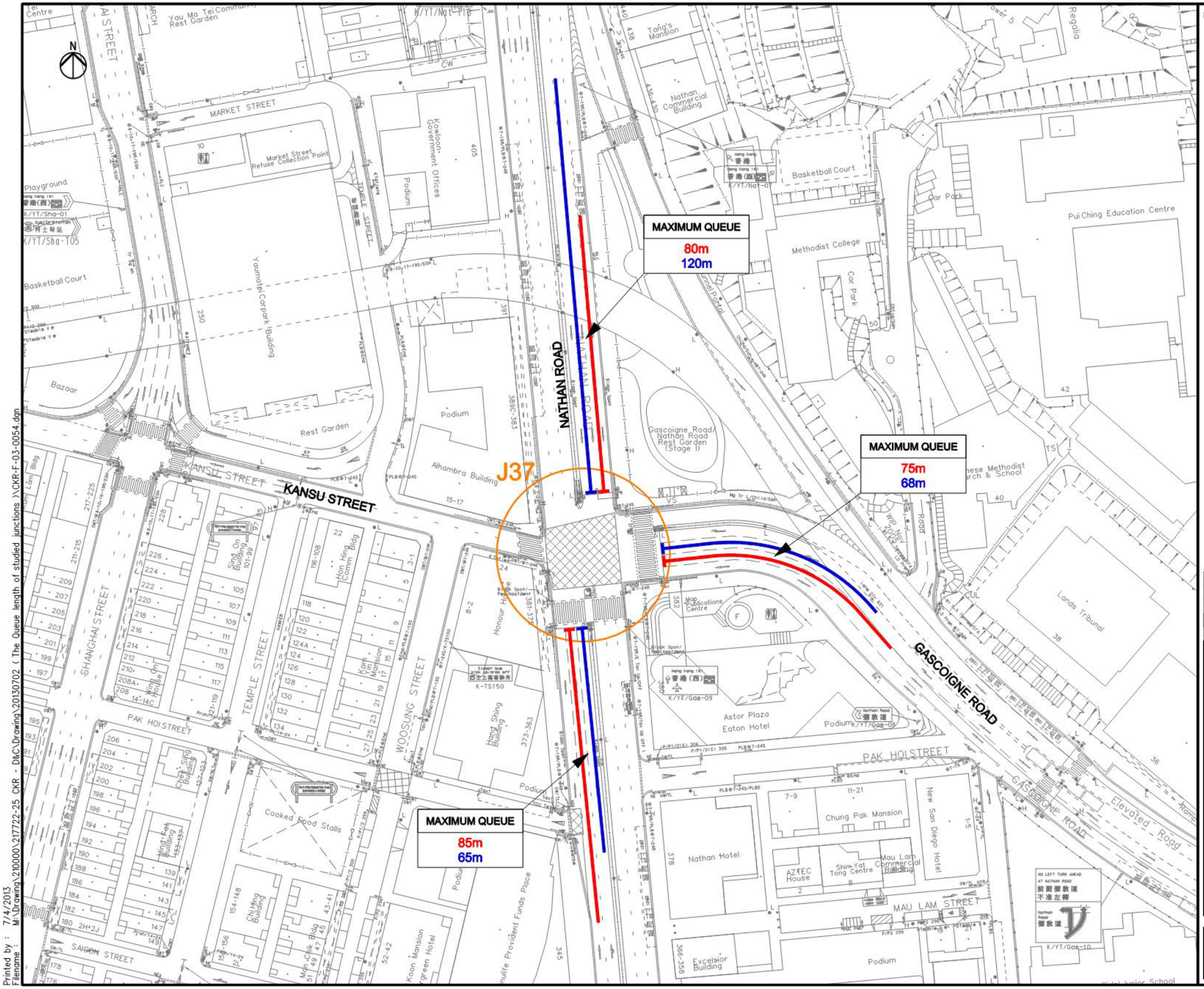
Printed by : 7/2/2013
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0053.dgn



Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 OBSERVED MAXIMUM QUEUE LENGTH FOR J37

Drawing no.	Rev.
CKR/F/03/0054	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCEC

Scale 1:2000 @ A1
Status PRELIMINARY

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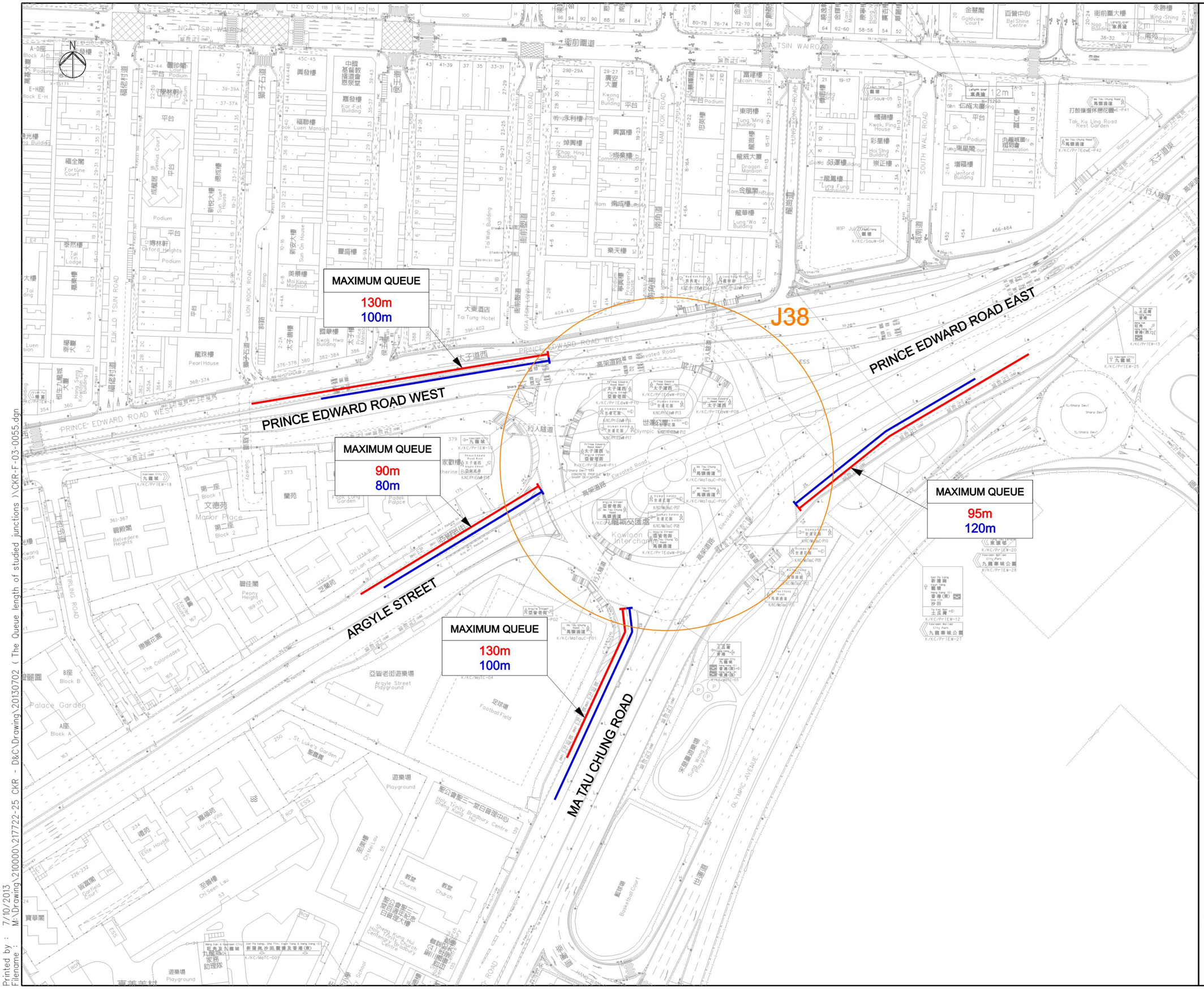
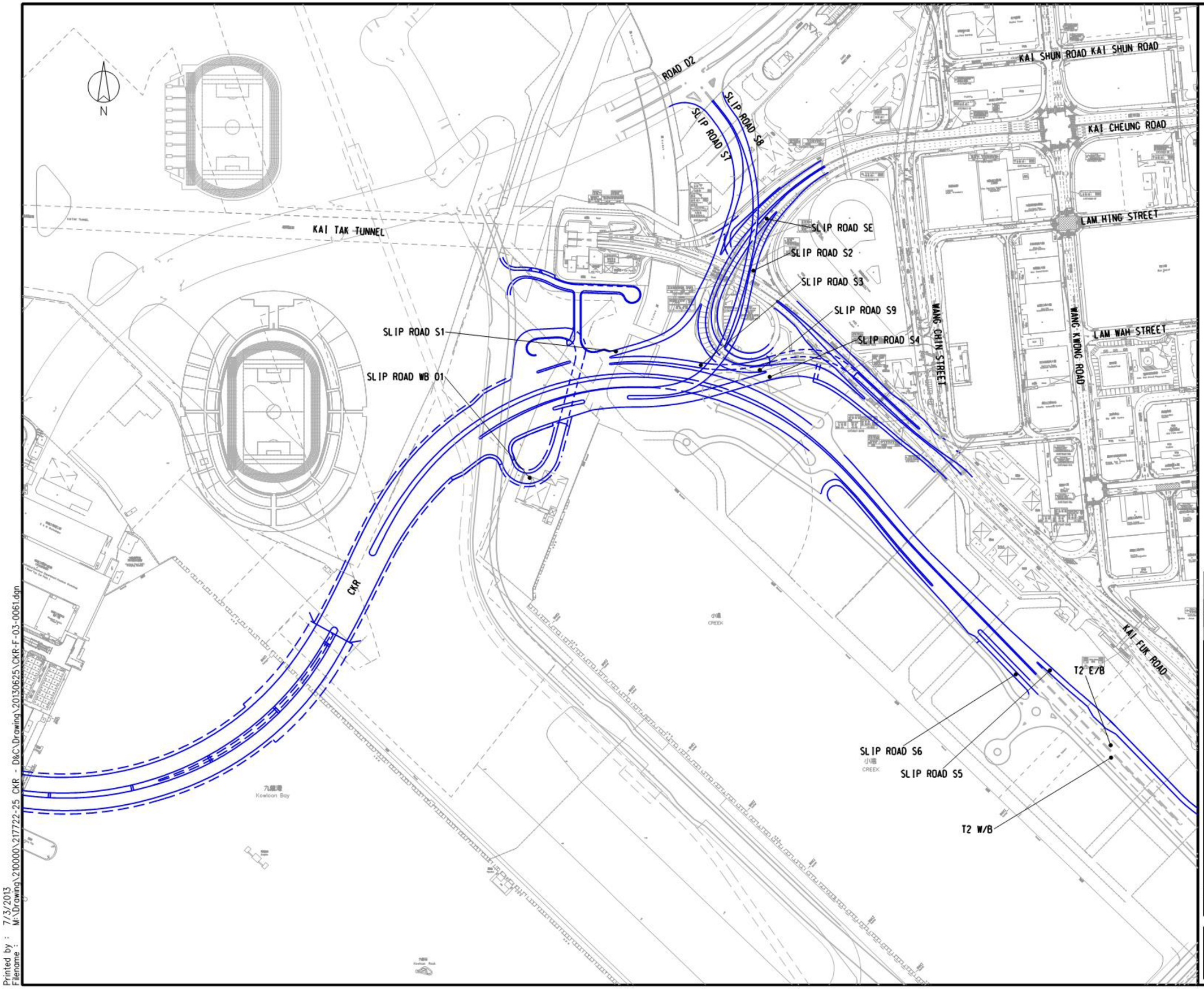

J38
MAXIMUM QUEUE
130m
100m
MAXIMUM QUEUE
90m
80m
MAXIMUM QUEUE
95m
120m
MAXIMUM QUEUE
130m
100m
PRINCE EDWARD ROAD WEST
PRINCE EDWARD ROAD EAST
ARGYLE STREET
MA TAU CHUNG ROAD
NGA TSIN WAI ROAD
LION ROCK ROAD
NGA TSIN LONG ROAD
SOUTH WALL ROAD
TSING LONG ROAD
NAM KOK ROAD
STIRLING ROAD
OLYMPIC AVENUE
Kowloon Interchange
Elevated Road
Argyle Street Playground
St. Luke's Garden
Football Field
Basketball Court
Wong Tai Sin Playground
Holy Trinity Broadbury Centre
Sheng Kung Hui Church Centenary Broadbury Centre
Church
Manor Place
Belvedere Heights
Peony Heights
The Colonnades
Palace Garden
Oxford Heights
Fortune Court
Genius Court
Pearl House
Tai Lodge
Kwok Hwa Building
Tai Tung Hotel
Metro Square
Kowloon City
Tak Ku Ling Road Rest Garden
Jenford Building
Kwok Ping House
Hoi Sing Building
Lung Fung Mansion
Dragon Mansion
Falcon House
Tung Ming Building
Kwong Sang Building
Wing Hing Building
Chop Hing Building
Kar-Fat Building
Sun On House
Mai King Mansion
Prosperity House
Tai Wah Building
Kam Hing House
Lung Wa Building
Kwong Sang Commercial House
Nam Shing Mansion
Kowloon City Plaza
Wing Shing House
Goldview Court
Bel Shine Centre
Tung Hei Court
Tung Hei Building
Sun Ping Yuen
Hong Kong Chinese Girls' Guides Association
Kowloon Walled City Park
Lung Tsui Court
Lung Tsui Building
Lung Tsui House
Lung Tsui Mansion
Lung Tsui Villa
Lung Tsui Garden
Lung Tsui Lodge
Lung Tsui Court
Lung Tsui Terrace
Lung Tsui Heights
Lung Tsui Plaza
Lung Tsui Square
Lung Tsui Centre
Lung Tsui Tower
Lung Tsui Palace
Lung Tsui Manor
Lung Tsui Residence
Lung Tsui Apartments
Lung Tsui Flats
Lung Tsui Gardens
Lung Tsui Park



Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

Interchange at CKR Eastern End

Drawing no.			Rev.
CKR/F/03/0061			B
Drawn	Date	Checked	Approved
CHPH	Jun 13	FKFT	WCDC
Scale		Status	
1:2000 @ A1		PRELIMINARY	

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Printed by : 7/3/2013
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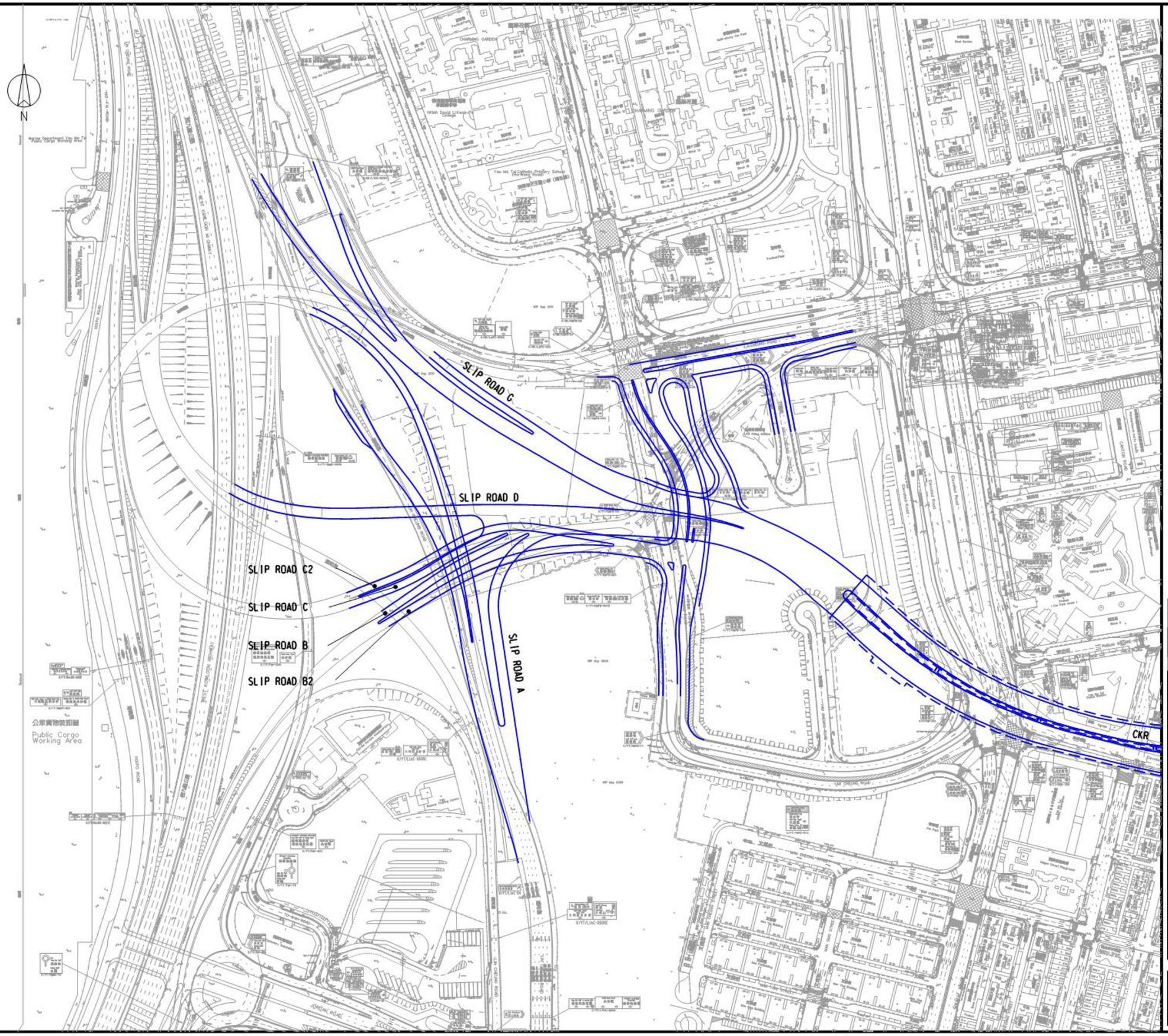

B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12
Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
Interchange at CKR Western End

Drawing no.			Rev.
CKR/F/03/0062			B
Drawn	Date	Checked	Approved
CHPH	Jun 13	FKFT	WCDC
Scale		Status	
1:2000 @ A1		PRELIMINARY	

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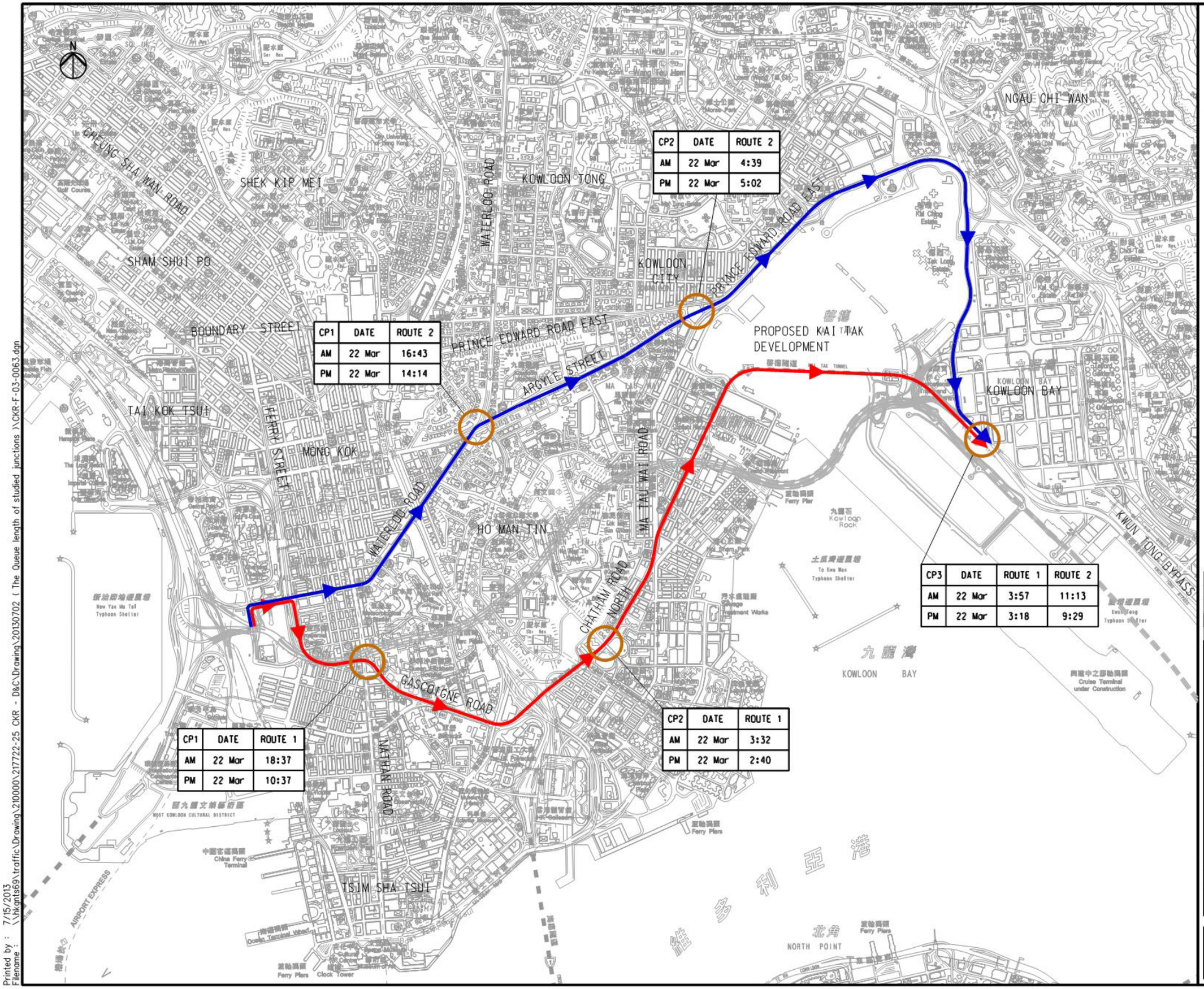
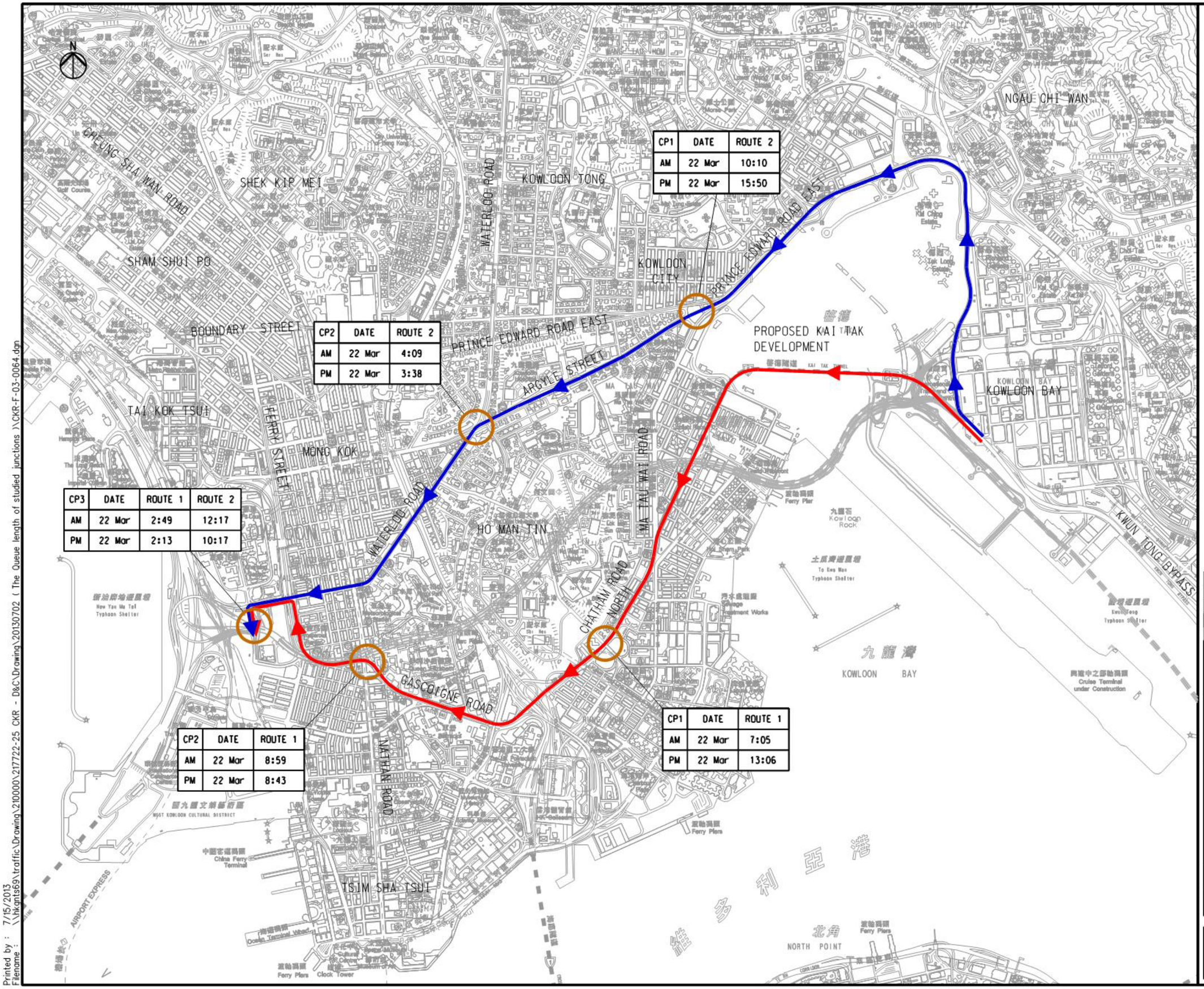

CHEUNG SHA WAN ROAD
SHEK KIP MEI
SHAM SHUI PO
KOWLOON TONG
WATERLOO ROAD
KOWLOON CITY
PRINCE EDWARD ROAD EAST
BOUNDARY STREET
ARGYLE STREET
PROPOSED KAI TAK DEVELOPMENT
NGAU CHI WAN
KOWLOON BAY
TAI KOK TSUI
FERRY STREET
MONG KOK
HO MAN TIN
MA TAU WAI ROAD
CHATHAM ROAD NORTH
KWUN TONG BYPASS
GASCOIGNE ROAD
NATHAN ROAD
TSIM SHA TSUI
AIRPORT EXPRESS
NORTH POINT
KOWLOON BAY
Ferry Pier
Kowloon Rock
Ferry Piers
Clock Tower
China Ferry Terminal
Cruise Terminal under Construction
To Kwa Wan Typhoon Shelter
New Yau Ma Tei Typhoon Shelter
Kwun Tong Typhoon Shelter
WEST KOWLOON CULTURAL DISTRICT
Ocean Terminal
Harbour City
Star Ferry
Museum of Art
Cultural Centre
Kowloon Park
Sogo
Cityplaza
Oil Street Art Space
Kai Tak Tunnel
Kai Ching Estate
Tak Long Estate
Chun Yeu Chuen
Ma Tau Kok Rd Sitting Out Area
Ma Tau Kok Rd Playground
Ma Tau Kok Rd Sports Centre
Ma Tau Kok Rd Public Toilet
Ma Tau Kok Rd Children's Playground
Ma Tau Kok Rd Sitting Out Area
Ma Tau Kok Rd Public Toilet



LEGEND :

ROUTE 1 (VIA KAI TAK TUNNEL AND CHATHAM ROAD NORTH)

ROUTE 2 (VIA PRINCE EDWARD ROAD EAST AND ARGYLE STREET)

CP	DATE	ROUTE 2
AM	22 Mar	4:39
PM	22 Mar	5:02

TRAVELLING TIME BETWEEN CHECKPOINTS (MM:SS)

CHECKPOINT FOR JOURNEY TIME SURVEY

Rev	Description	By	Date
A	FIRST ISSUE	TS	06/13

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

JOURNEY TIME FROM KAI FUK ROAD TO HOI WANG ROAD DURING NORMAL WEEKDAY PEAK HOURS

Drawing no.	Rev.
CKR/F/03/0064	A

Drawn	Date	Checked	Approved
CHPH	JUN 13	HTTS	WCEC

Scale 1:10000 @ A1

Status PRELIMINARY

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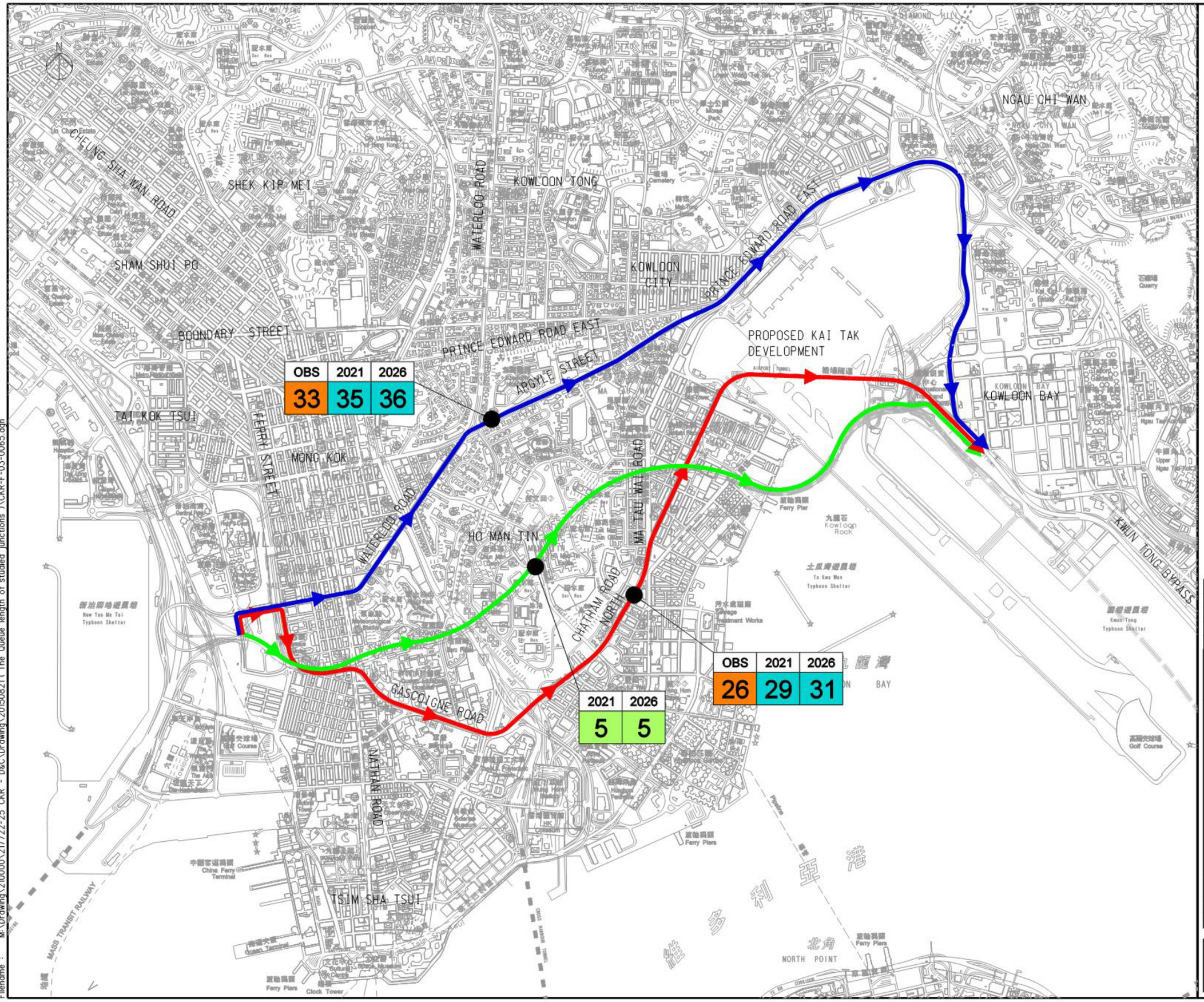
Filename : \\hkgnts69\traffic\Drawing\210000\217722-25 CKR - D&C\Drawing\20130702 (The Queue length of studied junctions)\CKR-F-03-0064.dgn



LEGEND :

- ROUTE 1 (VIA CHATHAM ROAD NORTH AND KAI TAK TUNNEL)
- ROUTE 2 (VIA ARGYLE STREET AND PRINCE EDWARD ROAD EAST)
- ROUTE (VIA CKR)
- 20 SURVEYED PEAR HOUR JOURNEY TIME (MIN)
- 20 ESTIMATED PEAK HOUR JOURNEY TIME UNDER WITHOUT CKR SCENARIO (MIN)
- 20 ESTIMATED PEAK HOUR JOURNEY TIME UNDER WITH CKR SCENARIO (MIN)

Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROJECTED JOURNEY TIME RESULTS FROM HOI WANG ROAD TO KAI FUK ROAD

Drawing no.	Rev.
CKR/F/03/0065	B

Drawn	Date	Checked	Approved
CHPH	JUN 13	HTTS	WCEC

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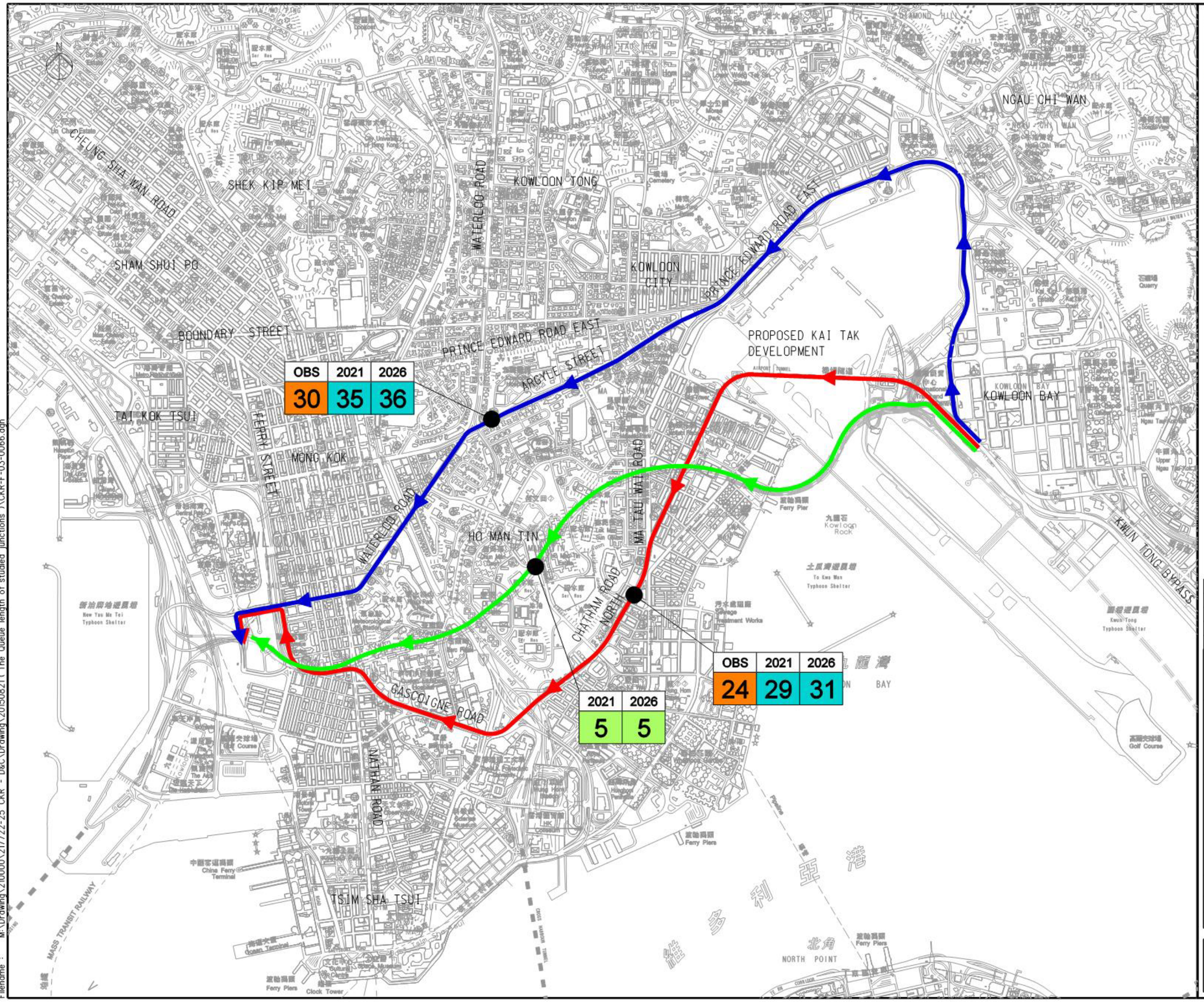
Printed by : 8/21/2015
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20150821 (The Queue length of studied junctions)\CKR-F-03-0065.dgn



LEGEND :

- ROUTE 1 (VIA KAI TAK TUNNEL AND CHATHAM ROAD NORTH)
- ROUTE 2 (VIA PRINCE EDWARD ROAD EAST AND ARGYLE STREET)
- ROUTE (VIA CKR)
- 20 SURVEYED PEAR HOUR JOURNEY TIME (MIN)
- 20 ESTIMATED PEAK HOUR JOURNEY TIME UNDER WITHOUT CKR SCENARIO (MIN)
- 20 ESTIMATED PEAK HOUR JOURNEY TIME UNDER WITH CKR SCENARIO (MIN)

Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROJECTED JOURNEY TIME RESULTS FROM KAI FUK ROAD TO HOI WANG ROAD

Drawing no.	Rev.
CKR/F/03/0066	B

Drawn	Date	Checked	Approved
CHPH	JUN 13	HTTS	WCEC

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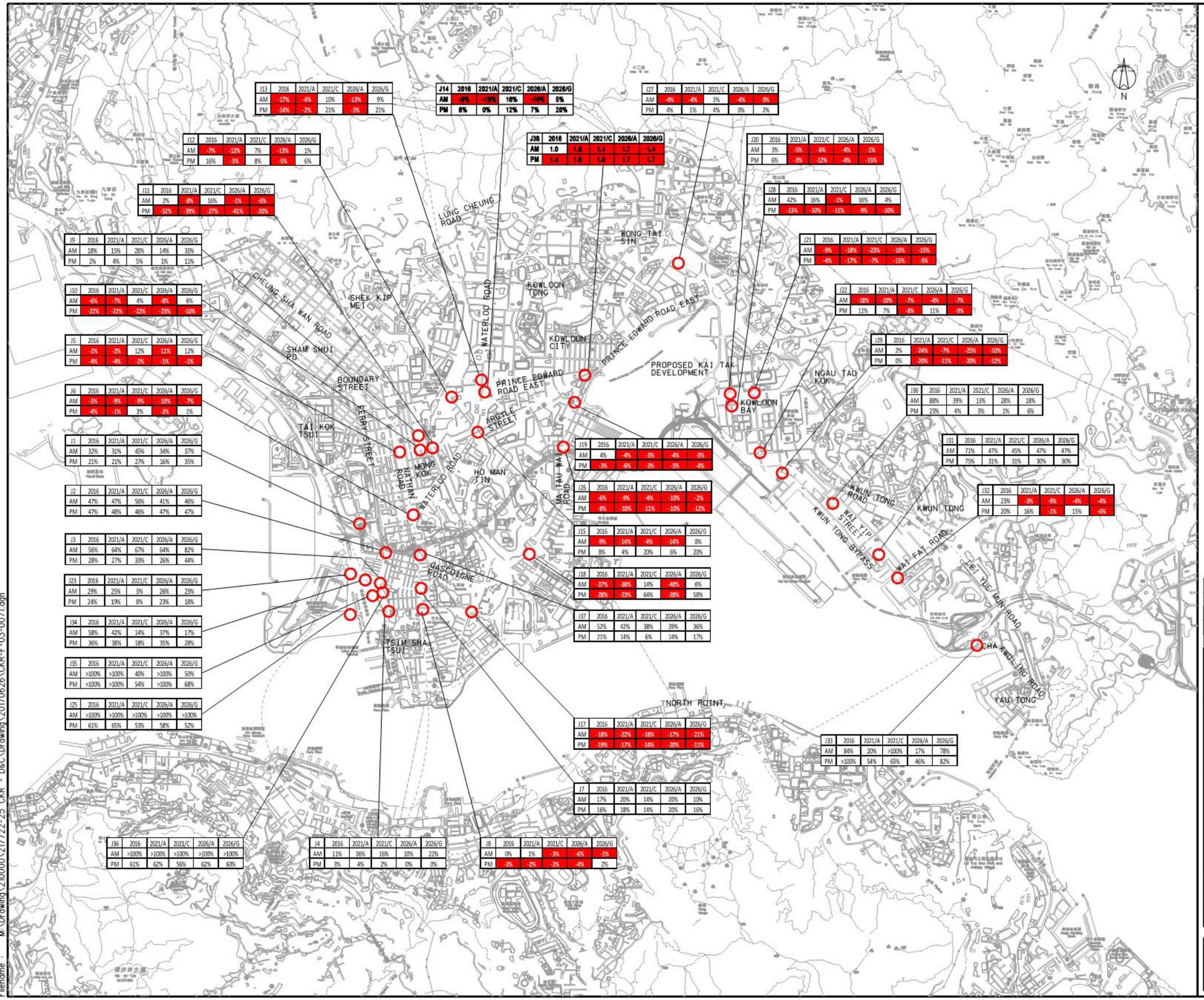

J13	2016	2021/A	2021/C	2026/A	2026/G
AM	-17%	-4%	10%	-13%	9%
PM	-14%	-2%	21%	-3%	21%

J14	2016	2021/A	2021/C	2026/A	2026/G
AM	-8%	>-18%	16%	>-18%	5%
PM	6%	0%	12%	7%	20%

J27	2016	2021/A	2021/C	2026/A	2026/G
AM	-4%	-4%	3%	-4%	0%
PM	4%	1%	4%	0%	2%

J12	2016	2021/A	2021/C	2026/A	2026/G
AM	-7%	-12%	7%	-13%	1%
PM	16%	-3%	8%	-5%	6%

J38	2016	2021/A	2021/C	2026/A	2026/G
AM	1.0	1.8	1.4	1.7	1.4
PM	1.4	1.8	1.8	1.7	1.7

J20	2016	2021/A	2021/C	2026/A	2026/G
AM	3%	-5%	-6%	-4%	-1%
PM	6%	-3%	-12%	-4%	-15%

J11	2016	2021/A	2021/C	2026/A	2026/G
AM	2%	-8%	16%	-1%	-6%
PM	-32%	-39%	-27%	-41%	-20%

J28	2016	2021/A	2021/C	2026/A	2026/G
AM	42%	16%	-1%	16%	4%
PM	-13%	-10%	-11%	-9%	-10%

J9	2016	2021/A	2021/C	2026/A	2026/G
AM	18%	15%	28%	14%	33%
PM	2%	4%	5%	1%	11%

J21	2016	2021/A	2021/C	2026/A	2026/G
AM	-9%	-18%	-23%	-10%	-15%
PM	-4%	-17%	-7%	-15%	-5%

J10	2016	2021/A	2021/C	2026/A	2026/G
AM	-6%	-7%	4%	-6%	6%
PM	-22%	-22%	-22%	-23%	-10%

J22	2016	2021/A	2021/C	2026/A	2026/G
AM	-18%	-10%	-7%	-4%	-7%
PM	11%	7%	-8%	11%	-9%

J5	2016	2021/A	2021/C	2026/A	2026/G
AM	-2%	-2%	12%	-11%	12%
PM	-4%	-4%	-2%	-1%	-1%

J29	2016	2021/A	2021/C	2026/A	2026/G
AM	2%	-24%	-7%	-25%	-10%
PM	0%	-20%	-11%	-20%	-12%

J6	2016	2021/A	2021/C	2026/A	2026/G
AM	-5%	-9%	-9%	-10%	-7%
PM	-4%	-1%	3%	-3%	1%

J30	2016	2021/A	2021/C	2026/A	2026/G
AM	88%	39%	13%	28%	18%
PM	23%	4%	3%	1%	6%

J19	2016	2021/A	2021/C	2026/A	2026/G
AM	4%	-4%	-3%	-4%	-3%
PM	-3%	-6%	-3%	-5%	-4%

J31	2016	2021/A	2021/C	2026/A	2026/G
AM	71%	47%	45%	47%	47%
PM	75%	31%	31%	30%	30%

J1	2016	2021/A	2021/C	2026/A	2026/G
AM	32%	31%	45%	34%	37%
PM	21%	21%	27%	16%	35%

J26	2016	2021/A	2021/C	2026/A	2026/G
AM	-6%	-9%	-4%	-10%	-2%
PM	-8%	-10%	-11%	-10%	-12%

J32	2016	2021/A	2021/C	2026/A	2026/G
AM	23%	-3%	-9%	-4%	-4%
PM	20%	16%	-1%	15%	-6%

J2	2016	2021/A	2021/C	2026/A	2026/G
AM	47%	47%	56%	41%	46%
PM	47%	48%	46%	47%	47%

J15	2016	2021/A	2021/C	2026/A	2026/G
AM	-9%	-14%	-4%	-14%	0%
PM	8%	4%	20%	6%	20%

J3	2016	2021/A	2021/C	2026/A	2026/G
AM	56%	64%	67%	64%	82%
PM	28%	27%	33%	26%	44%

J18	2016	2021/A	2021/C	2026/A	2026/G
AM	-37%	-38%	14%	-40%	6%
PM	-28%	-23%	64%	-28%	58%

J23	2016	2021/A	2021/C	2026/A	2026/G
AM	29%	25%	3%	26%	23%
PM	24%	19%	8%	23%	18%

J37	2016	2021/A	2021/C	2026/A	2026/G
AM	52%	42%	38%	39%	36%
PM	21%	14%	6%	14%	17%

J34	2016	2021/A	2021/C	2026/A	2026/G
AM	58%	42%	14%	37%	17%
PM	36%	38%	18%	35%	28%

J35	2016	2021/A	2021/C	2026/A	2026/G
AM	>100%	>100%	40%	>100%	50%
PM	>100%	>100%	54%	>100%	68%

J25	2016	2021/A	2021/C	2026/A	2026/G
AM	>100%	>100%	>100%	>100%	>100%
PM	61%	65%	53%	58%	52%

J17	2016	2021/A	2021/C	2026/A	2026/G
AM	-18%	-22%	-18%	-17%	-21%
PM	-19%	-17%	-14%	-20%	-11%

J33	2016	2021/A	2021/C	2026/A	2026/G
AM	84%	20%	>100%	17%	78%
PM	>100%	54%	65%	46%	82%

J7	2016	2021/A	2021/C	2026/A	2026/G
AM	17%	20%	14%	20%	10%
PM	16%	18%	14%	20%	16%

J36	2016	2021/A	2021/C	2026/A	2026/G
AM	>100%	>100%	>100%	>100%	>100%
PM	61%	62%	56%	62%	60%

J4	2016	2021/A	2021/C	2026/A	2026/G
AM	11%	16%	16%	10%	22%
PM	3%	4%	2%	0%	0%

J8	2016	2021/A	2021/C	2026/A	2026/G
AM	0%	1%	-3%	-6%	-1%
PM	-3%	-2%	-2%	-4%	2%

LEGEND :

JUNCTION WITH RC ≥ 0%

JUNCTION WITH RC < 0%

JUNCTION WITH DFC ≤1.0

JUNCTION WITH DFC >1.0

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant

ARUP

Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2016,2021 and 2026 Critical Junctions Performance

Drawing no.		Rev.
CKR/F/03/0071		B
Drawn: CHPH	Date: Jun 13	Checked: FKFT / Approved: WCDC
Scale: 1:20000 @ A1	Status: PRELIMINARY	

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Printed by : 6/26/2017
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20170626\CKR-F-03-0071.dgn

Boundary St (from Tai Hang Tung Rd to Embankment Rd) - RL2	2016	
	AM	PM
EB	1.2	1.2

Prince Edward Rd West (from Embankment Rd to Kadoorie Ave) - RL3	2016	
	AM	PM
WB	1.0	0.8

Gascoigne Rd Flyover (Eastern side of Nathan Rd) - RL7	2016	
	AM	PM
EB	1.3	1.3
WB	1.3	1.3

Chatham Rd North (from Wuhu St to Ping Chi St) - RL5	2016	
	AM	PM
EB	1.2	1.2
WB	1.1	1.2

Lung Cheung Rd (from Lion Rock Tunnel Rd to Chuk Yuen Rd) - RL1	2016	
	AM	PM
EB	1.1	1.0
WB	1.1	1.0

Argyle St & FO (from Gullane Rd to Tin Kwong Rd) - RL4	2016	
	AM	PM
EB	1.0	1.1
WB	1.0	0.9

Clear Water Bay Road - RL8	2016	
	AM	PM
EB	0.9	0.9
WB	0.9	0.7

Kwun Tong Bypass (near Richland Gardens) - RL10	2016	
	AM	PM
EB	1.0	0.6
WB	0.9	0.7

Kwun Tong Road - RL13	2016	
	AM	PM
EB	1.0	0.9
WB	1.0	1.1

Kwun Tong Bypass Slip Road (to/from Kai Fuk Road) - RL16	2016	
	AM	PM
EB	1.1	1.0
WB	1.1	0.9

Kai Fuk Road - RL12	2016	
	AM	PM
EB	0.5	0.6
WB	0.5	0.5

East Kowloon Corridor (from Ma Tau Kok Rd to Chatham Rd North) RL6	2016	
	AM	PM
EB	1.3	1.2
WB	0.8	0.7

Kai Tak Tunnel - RL9	2016	
	AM	PM
EB	0.7	0.7
WB	0.7	0.7

Kwun Tong Road (near Elegance Road) - RL14	2016	
	AM	PM
EB	0.6	0.8
WB	0.6	0.6

Kwun Tong Road - RL11	2016	
	AM	PM
EB	1.2	0.9
WB	1.1	0.9

Wai Yip Street - RL15	2016	
	AM	PM
EB	0.3	0.7
WB	0.1	0.2

LEGEND :

LINK WITH V/C RATIO <1.2
LINK WITH V/C RATIO ≥1.2

CRITICAL ROAD LINKS

TRAFFIC BOUND	V/C RATIO
EB	1.0

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2016 Critical Road Links Performance

Drawing no.			Rev.
CKR/F/03/0072			B
Drawn	Date	Checked	Approved
CHPH	Jun 13	FKFT	WCDC
Scale		Status	
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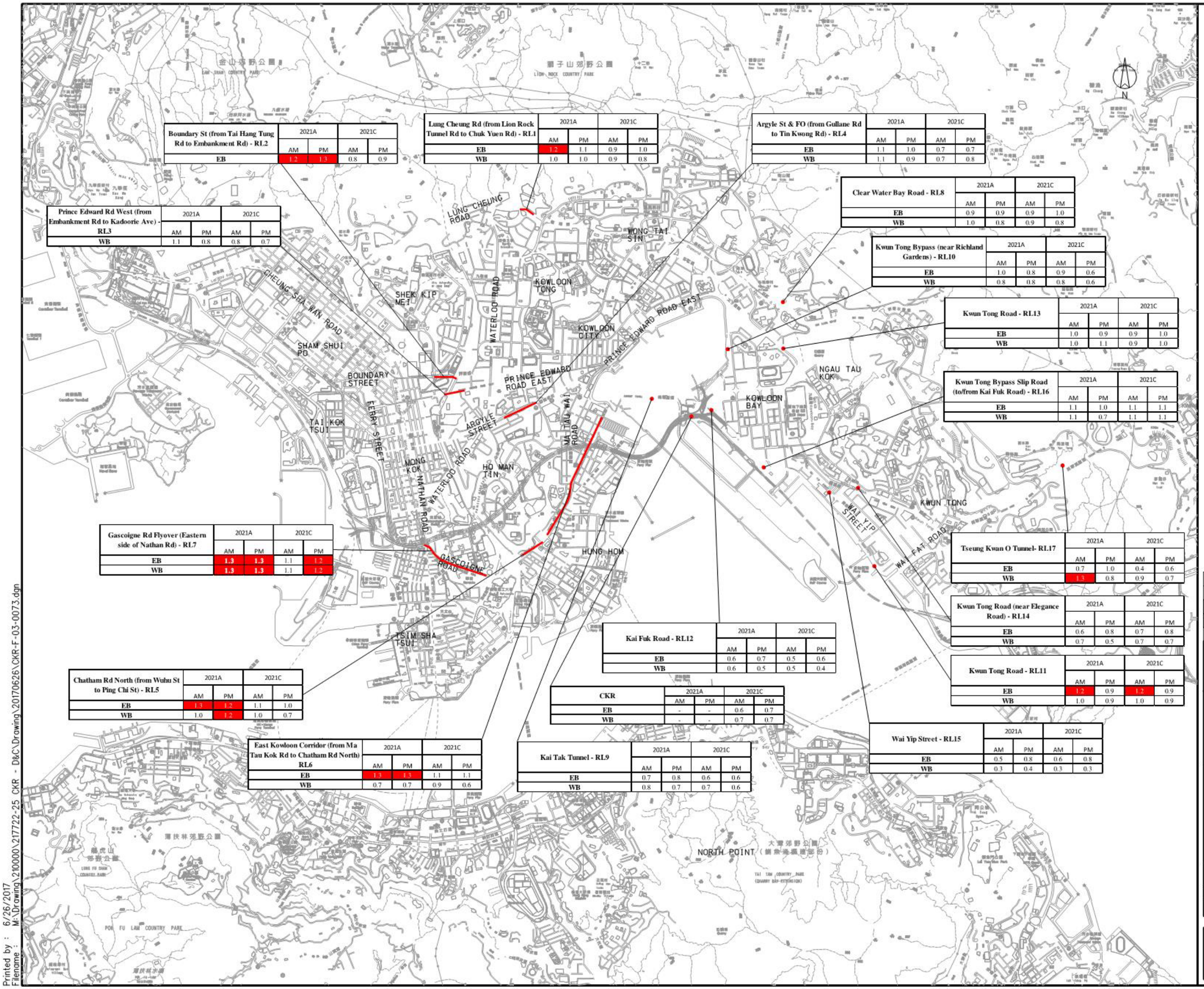

Boundary St (from Tai Hang Tung Rd to Embankment Rd) - RL2	2021A		2021C	
	AM	PM	AM	PM
EB	1.2	1.3	0.8	0.9

Lung Cheung Rd (from Lion Rock Tunnel Rd to Chuk Yuen Rd) - RL1	2021A		2021C	
	AM	PM	AM	PM
EB	1.2	1.1	0.9	1.0
WB	1.0	1.0	0.9	0.8

Argyle St & FO (from Gullane Rd to Tin Kwong Rd) - RL4	2021A		2021C	
	AM	PM	AM	PM
EB	1.1	1.0	0.7	0.7
WB	1.1	0.9	0.7	0.8

Prince Edward Rd West (from Embankment Rd to Kadoorie Ave) - RL3	2021A		2021C	
	AM	PM	AM	PM
WB	1.1	0.8	0.8	0.7

Clear Water Bay Road - RL8	2021A		2021C	
	AM	PM	AM	PM
EB	0.9	0.9	0.9	1.0
WB	1.0	0.8	0.9	0.8

Kwun Tong Bypass (near Richland Gardens) - RL10	2021A		2021C	
	AM	PM	AM	PM
EB	1.0	0.8	0.9	0.6
WB	0.8	0.8	0.8	0.6

Kwun Tong Road - RL13	2021A		2021C	
	AM	PM	AM	PM
EB	1.0	0.9	0.9	1.0
WB	1.0	1.1	0.9	1.0

Kwun Tong Bypass Slip Road (to/from Kai Fuk Road) - RL16	2021A		2021C	
	AM	PM	AM	PM
EB	1.1	1.0	1.1	1.1
WB	1.1	0.7	1.1	1.1

Gascoigne Rd Flyover (Eastern side of Nathan Rd) - RL7	2021A		2021C	
	AM	PM	AM	PM
EB	1.3	1.3	1.1	1.2
WB	1.3	1.3	1.1	1.2

Tseung Kwan O Tunnel- RL17	2021A		2021C	
	AM	PM	AM	PM
EB	0.7	1.0	0.4	0.6
WB	1.3	0.8	0.9	0.7

Kwun Tong Road (near Elegance Road) - RL14	2021A		2021C	
	AM	PM	AM	PM
EB	0.6	0.8	0.7	0.8
WB	0.7	0.5	0.7	0.7

Kai Fuk Road - RL12	2021A		2021C	
	AM	PM	AM	PM
EB	0.6	0.7	0.5	0.6
WB	0.6	0.5	0.5	0.4

Kwun Tong Road - RL11	2021A		2021C	
	AM	PM	AM	PM
EB	1.2	0.9	1.2	0.9
WB	1.0	0.9	1.0	0.9

Chatham Rd North (from Wuhu St to Ping Chi St) - RL5	2021A		2021C	
	AM	PM	AM	PM
EB	1.3	1.2	1.1	1.0
WB	1.0	1.2	1.0	0.7

CKR	2021A		2021C	
	AM	PM	AM	PM
EB	-	-	0.6	0.7
WB	-	-	0.7	0.7

East Kowloon Corridor (from Ma Tau Kok Rd to Chatham Rd North) RL6	2021A		2021C	
	AM	PM	AM	PM
EB	1.3	1.3	1.1	1.1
WB	0.7	0.7	0.9	0.6

Kai Tak Tunnel - RL9	2021A		2021C	
	AM	PM	AM	PM
EB	0.7	0.8	0.6	0.6
WB	0.8	0.7	0.7	0.6

Wai Yip Street - RL15	2021A		2021C	
	AM	PM	AM	PM
EB	0.5	0.8	0.6	0.8
WB	0.3	0.4	0.3	0.3

LEGEND :

LINK WITH V/C RATIO <1.2
LINK WITH V/C RATIO ≥1.2

CRITICAL ROAD LINKS

TRAFFIC BOUND	V/C RATIO
EB	1.0

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2021 Critical Road Links Performance

Drawing no.			Rev.
CKR/F/03/0073			B
Drawn	Date	Checked	Approved
CHPH	Jun 13	FKFT	WCDC
Scale		Status	
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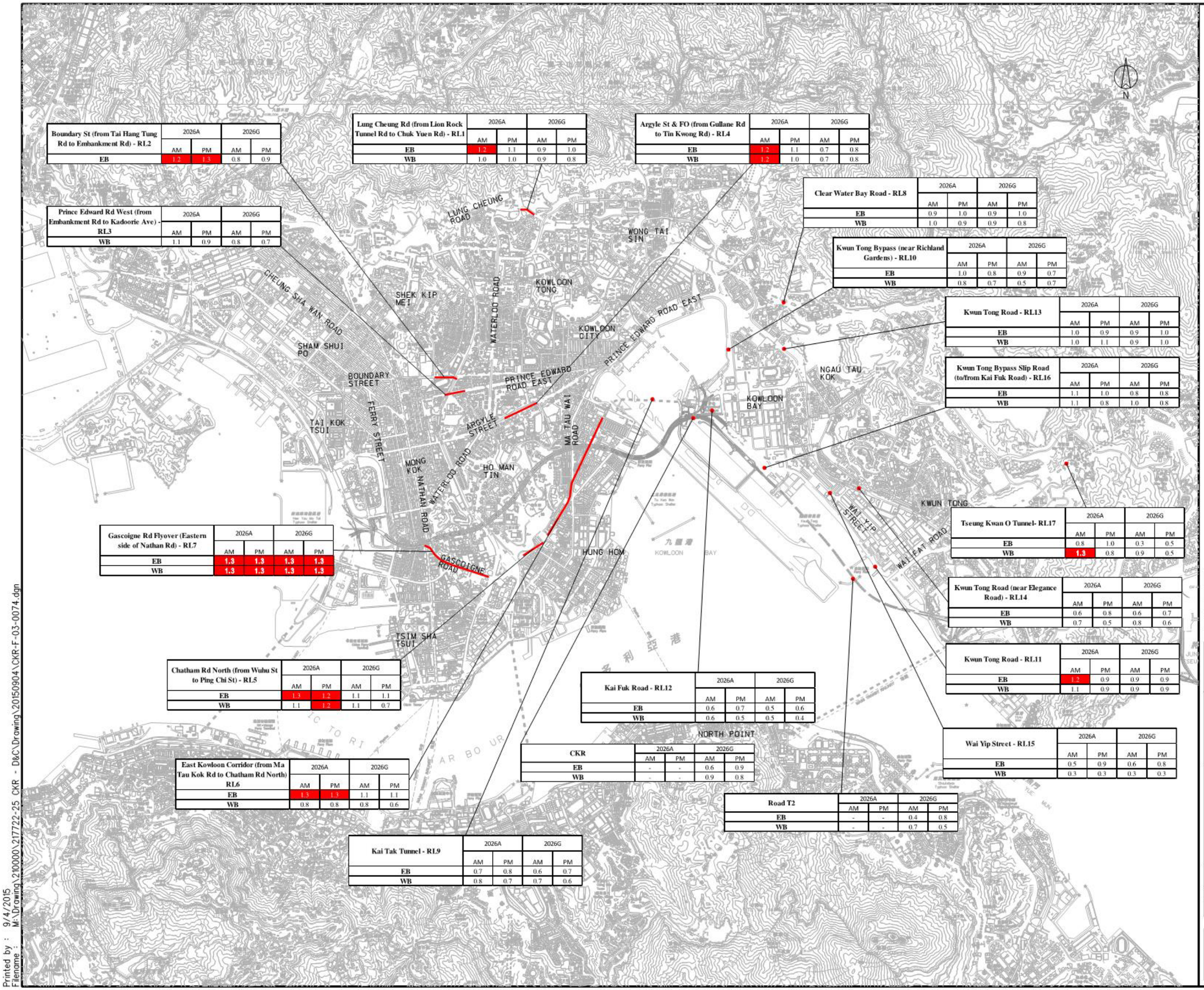

Boundary St (from Tai Hang Tung Rd to Embankment Rd) - RL2	2026A		2026G	
	AM	PM	AM	PM
EB	1.2	1.3	0.8	0.9

Lung Cheung Rd (from Lion Rock Tunnel Rd to Chuk Yuen Rd) - RL1	2026A		2026G	
	AM	PM	AM	PM
EB	1.2	1.1	0.9	1.0
WB	1.0	1.0	0.9	0.8

Argyle St & FO (from Gullane Rd to Tin Kwong Rd) - RL4	2026A		2026G	
	AM	PM	AM	PM
EB	1.2	1.1	0.7	0.8
WB	1.2	1.0	0.7	0.8

Prince Edward Rd West (from Embankment Rd to Kadoorie Ave) - RL3	2026A		2026G	
	AM	PM	AM	PM
WB	1.1	0.9	0.8	0.7

Clear Water Bay Road - RL8	2026A		2026G	
	AM	PM	AM	PM
EB	0.9	1.0	0.9	1.0
WB	1.0	0.9	0.9	0.8

Kwun Tong Bypass (near Richland Gardens) - RL10	2026A		2026G	
	AM	PM	AM	PM
EB	1.0	0.8	0.9	0.7
WB	0.8	0.7	0.5	0.7

Kwun Tong Road - RL13	2026A		2026G	
	AM	PM	AM	PM
EB	1.0	0.9	0.9	1.0
WB	1.0	1.1	0.9	1.0

Kwun Tong Bypass Slip Road (to/from Kai Fuk Road) - RL16	2026A		2026G	
	AM	PM	AM	PM
EB	1.1	1.0	0.8	0.8
WB	1.1	0.8	1.0	0.8

Tseung Kwan O Tunnel- RL17	2026A		2026G	
	AM	PM	AM	PM
EB	0.8	1.0	0.3	0.5
WB	1.3	0.8	0.9	0.5

Kwun Tong Road (near Elegance Road) - RL14	2026A		2026G	
	AM	PM	AM	PM
EB	0.6	0.8	0.6	0.7
WB	0.7	0.5	0.8	0.6

Kwun Tong Road - RL11	2026A		2026G	
	AM	PM	AM	PM
EB	1.2	0.9	0.9	0.9
WB	1.1	0.9	0.9	0.9

Wai Yip Street - RL15	2026A		2026G	
	AM	PM	AM	PM
EB	0.5	0.9	0.6	0.8
WB	0.3	0.3	0.3	0.3

Gascoigne Rd Flyover (Eastern side of Nathan Rd) - RL7	2026A		2026G	
	AM	PM	AM	PM
EB	1.3	1.3	1.3	1.3
WB	1.3	1.3	1.3	1.3

Chatham Rd North (from Wuhu St to Ping Chi St) - RL5	2026A		2026G	
	AM	PM	AM	PM
EB	1.3	1.2	1.1	1.1
WB	1.1	1.2	1.1	0.7

Kai Fuk Road - RL12	2026A		2026G	
	AM	PM	AM	PM
EB	0.6	0.7	0.5	0.6
WB	0.6	0.5	0.5	0.4

CKR	2026A		2026G	
	AM	PM	AM	PM
EB	-	-	0.6	0.9
WB	-	-	0.9	0.8

East Kowloon Corridor (from Ma Tau Kok Rd to Chatham Rd North) RL6	2026A		2026G	
	AM	PM	AM	PM
EB	1.3	1.3	1.1	1.1
WB	0.8	0.8	0.8	0.6

Road T2	2026A		2026G	
	AM	PM	AM	PM
EB	-	-	0.4	0.8
WB	-	-	0.7	0.5

Kai Tak Tunnel - RL9	2026A		2026G	
	AM	PM	AM	PM
EB	0.7	0.8	0.6	0.7
WB	0.8	0.7	0.7	0.6

LEGEND :

LINK WITH V/C RATIO <1.2
LINK WITH V/C RATIO ≥1.2

CRITICAL ROAD LINKS

TRAFFIC BOUND	V/C RATIO
EB	1.0

C	REVISION	TS	09/15
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12
Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2026 Critical Road Links Performance

Drawing no. CKR/F/03/0074 Rev. C

Drawn	Date	Checked	Approved
CHPH	SEP 15	FKFT	WCDC

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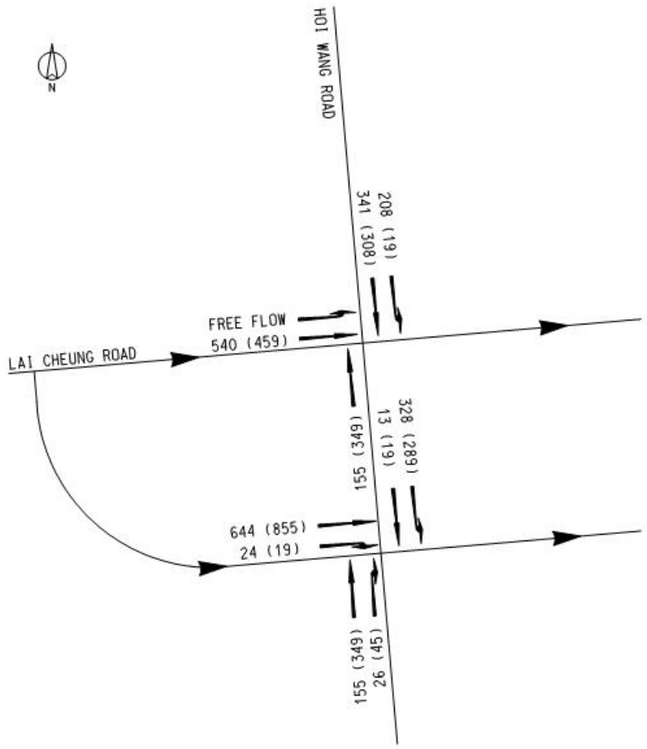
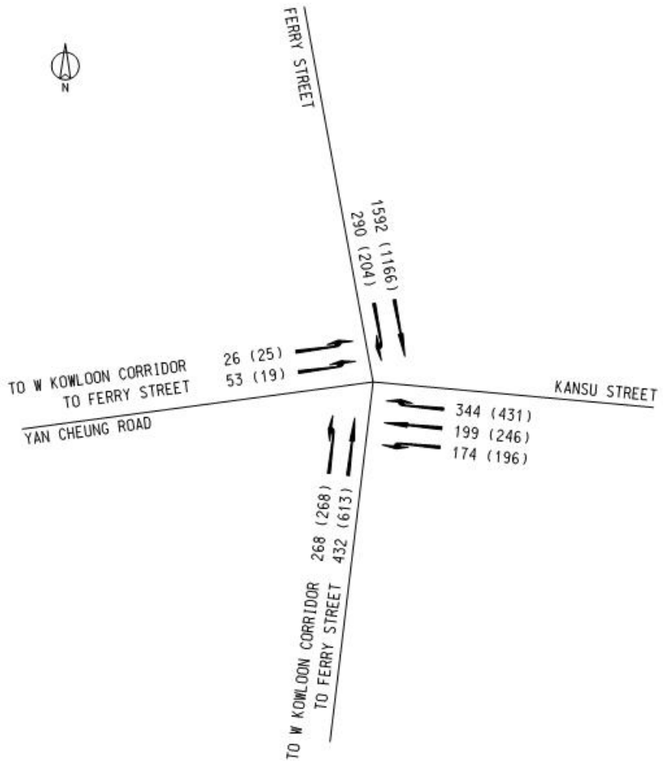
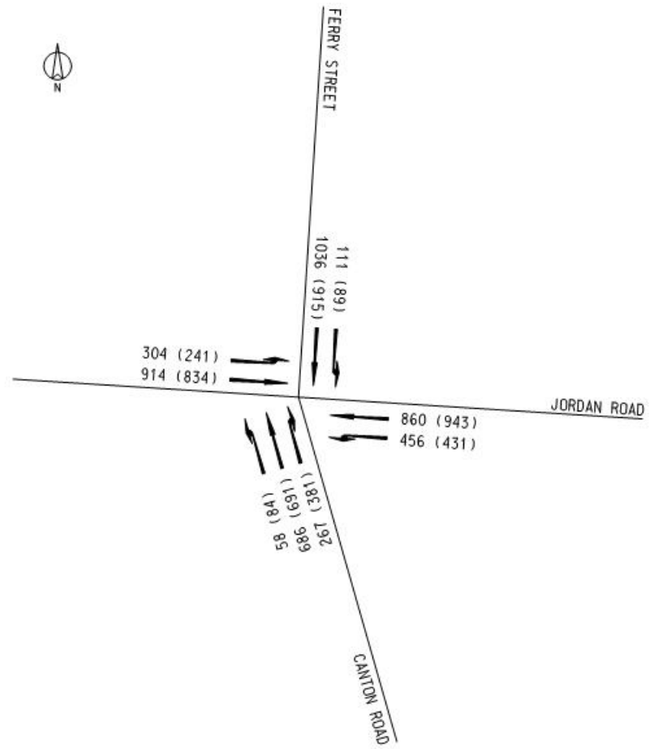


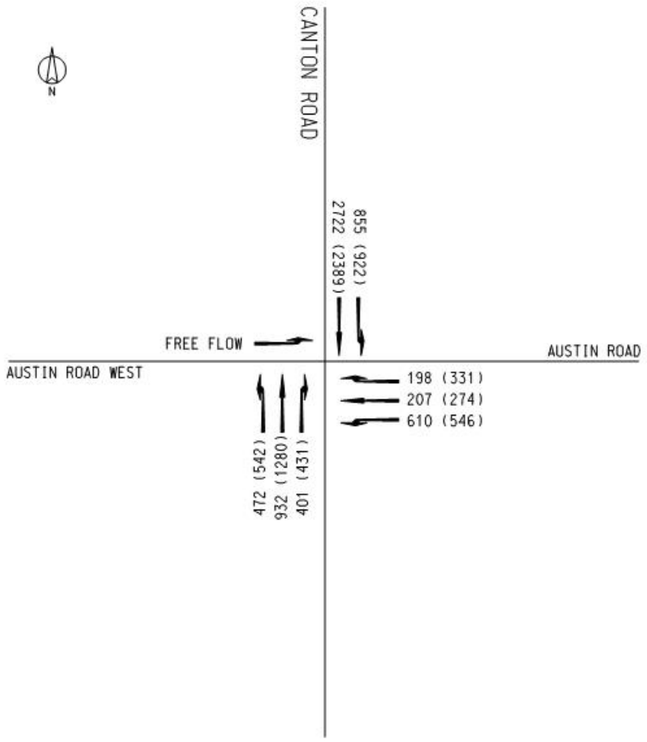
(J1) HOI WANG ROAD / LAI CHEUNG ROAD



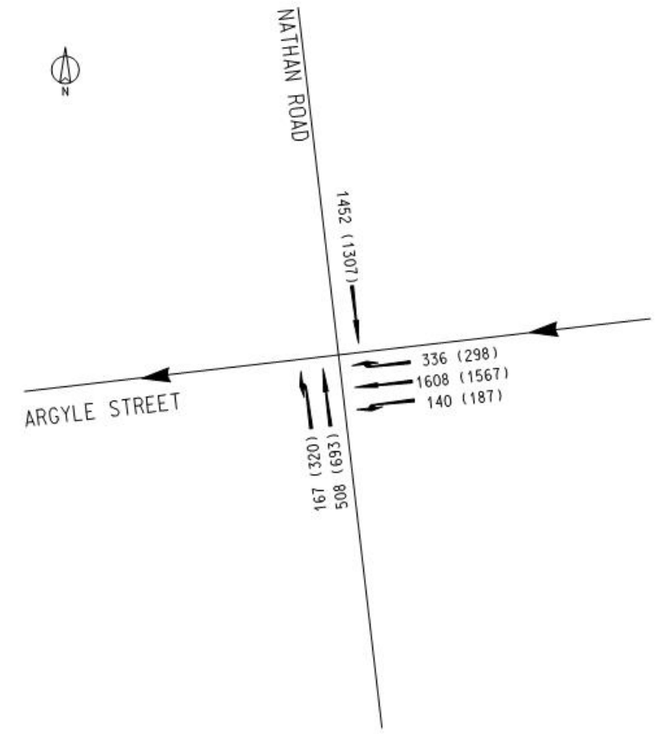
(J2) KANSU STREET / FERRY STREET / YAN CHEUNG ROAD



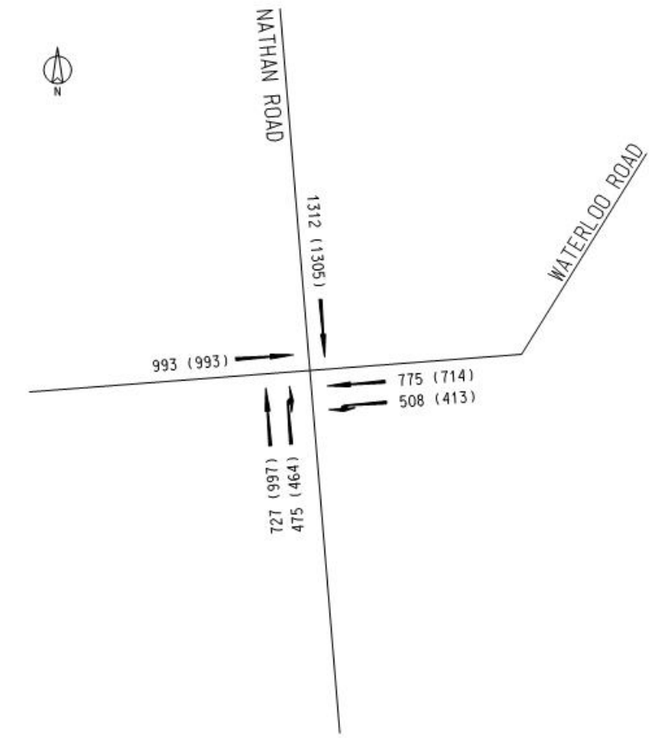
(J3) JORDAN ROAD / FERRY STREET / CANTON ROAD



(J4) AUSTIN ROAD WEST / AUSTIN ROAD / CANTON ROAD



(J5) ARGYLE STREET / NATHAN ROAD



(J6) WATERLOO ROAD / NATHAN ROAD

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A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 Observed Peak Hour Traffic Flow (1 of 7)

Drawing no.	Rev.
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CHPH	JUN 13	FKFT	WCDC

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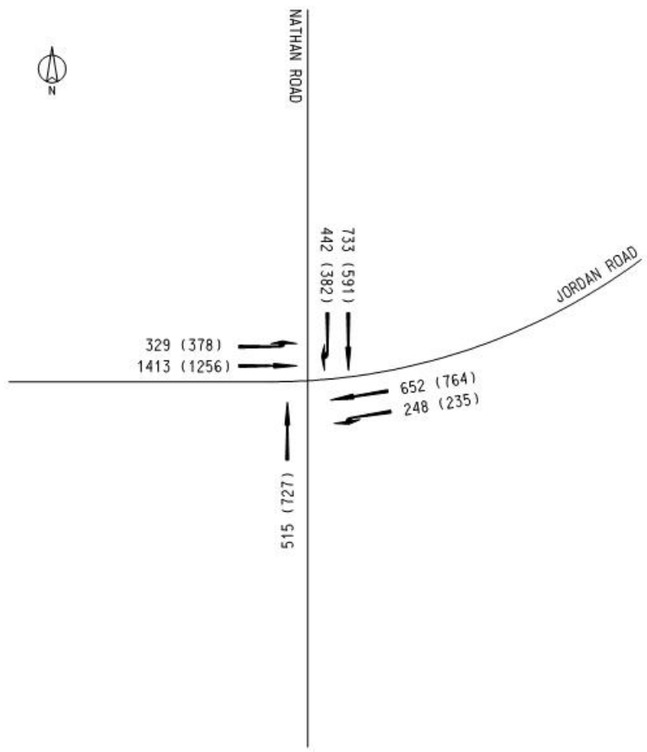
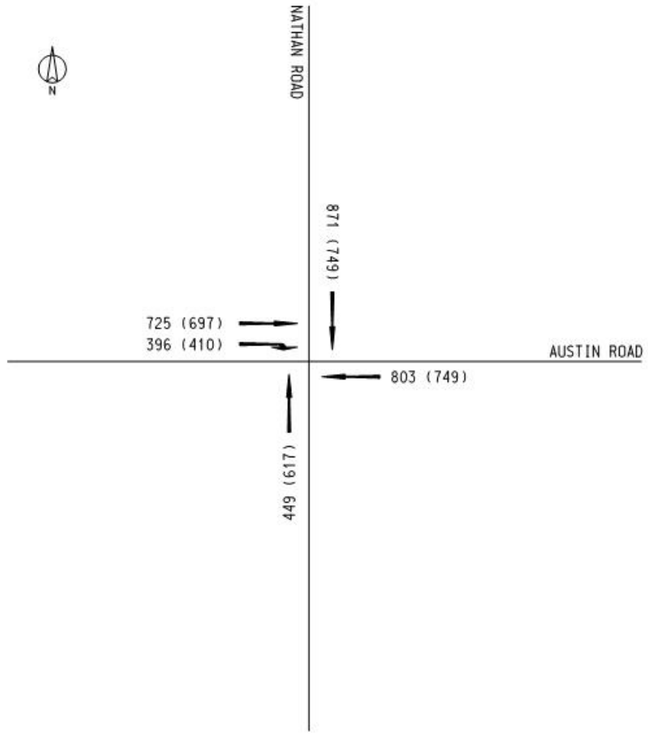
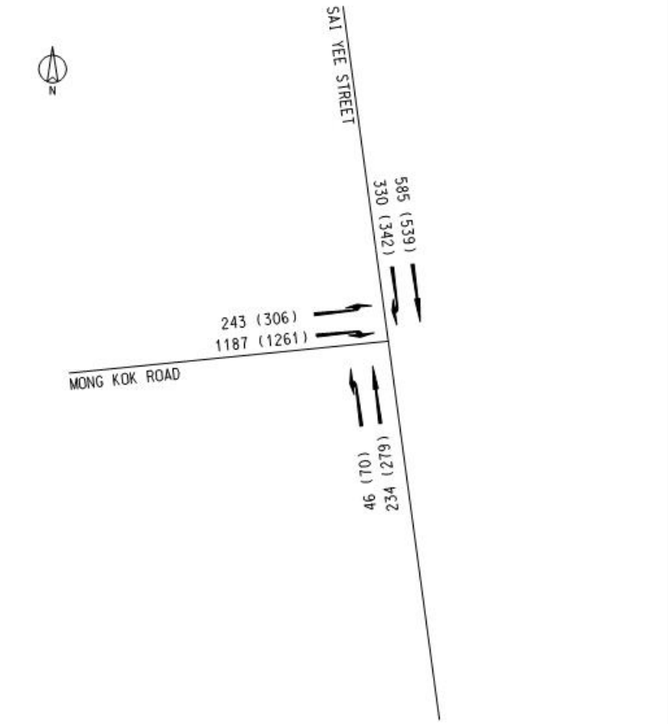


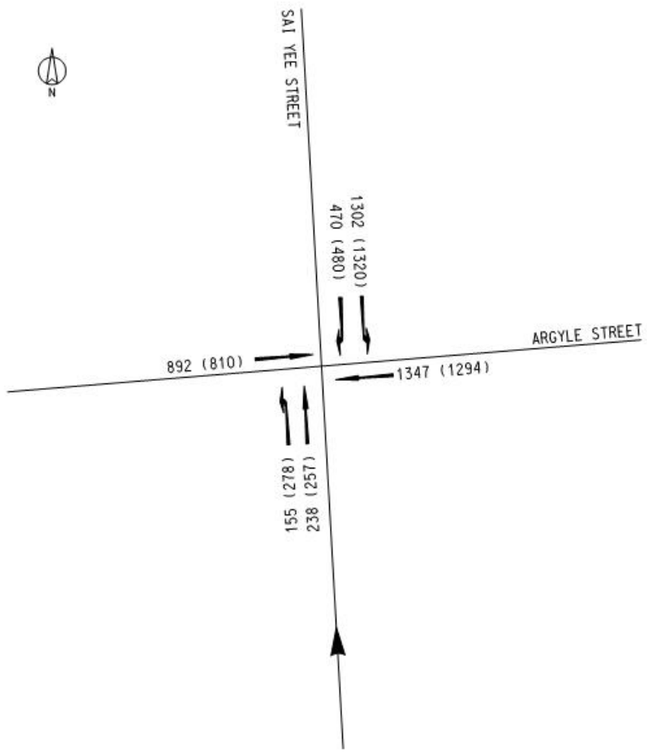
(J7) JORDAN ROAD / NATHAN ROAD



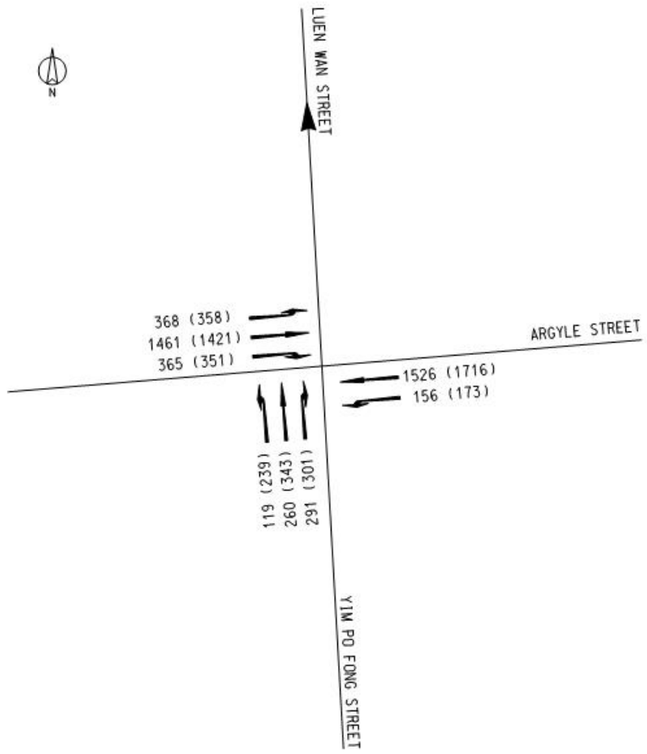
(J8) AUSTIN ROAD / NATHAN ROAD



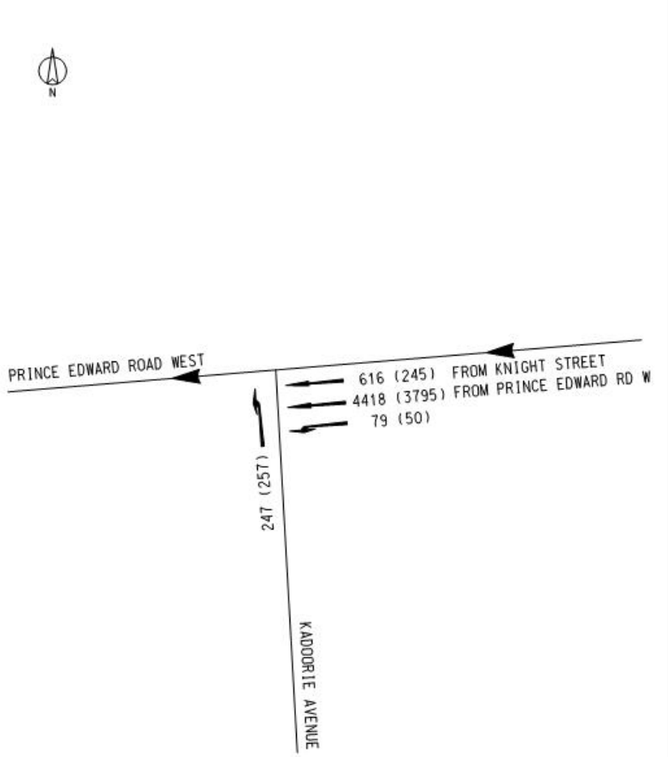
(J9) SAI YEE STREET / MONG KOK ROAD



(J10) ARGYLE STREET / SAI YEE STREET



(J11) ARGYLE STREET / YIM PO FONG STREET



(J12) PRINCE EDWARD ROAD WEST / KADOORIE AVENUE

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 Observed Peak Hour Traffic Flow (2 of 7)

Drawing no.	Rev.
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CHPH	JUN 13	FKFT	WCDC

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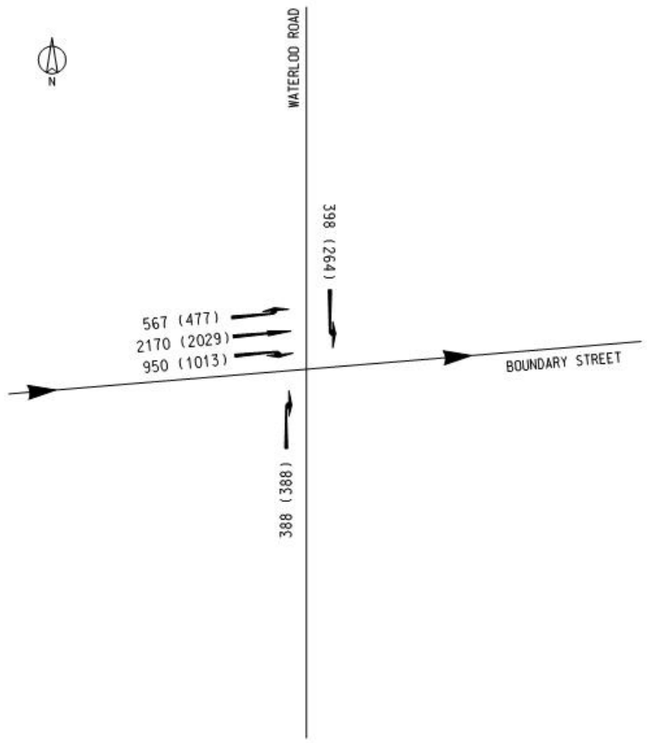
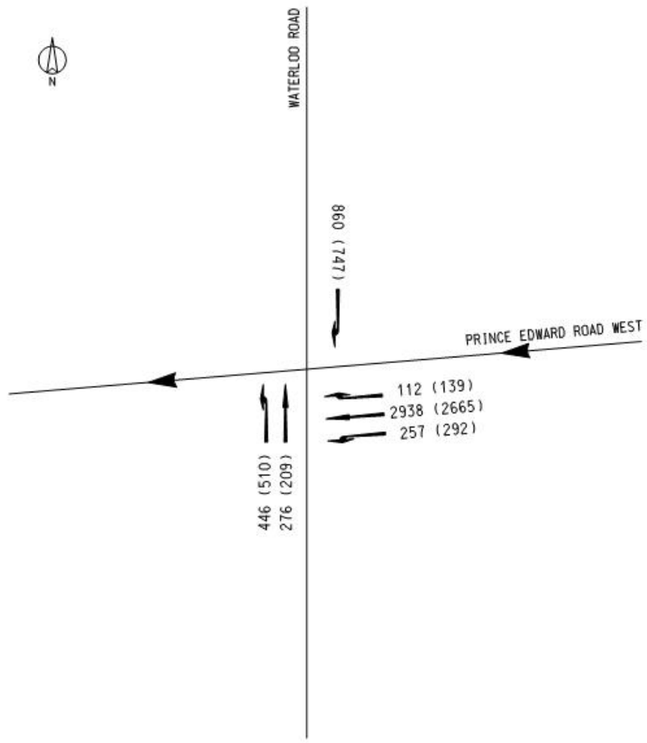
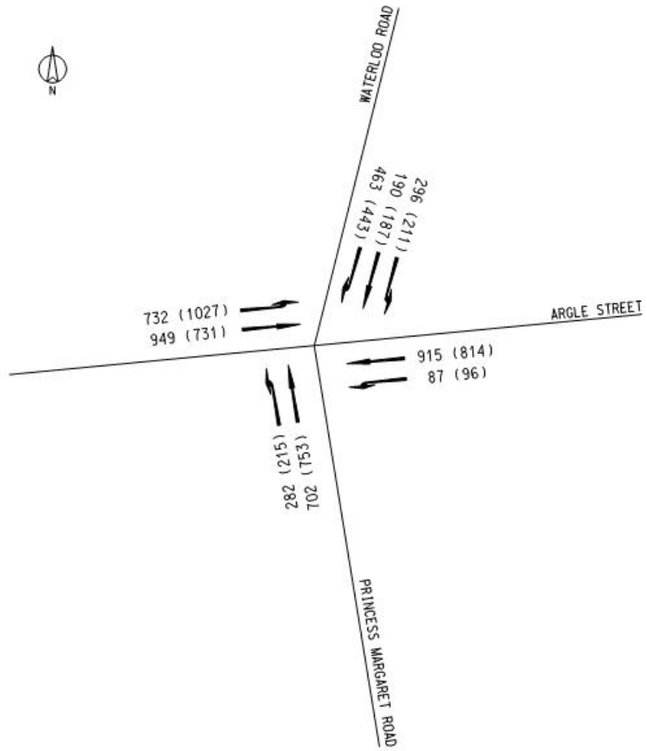


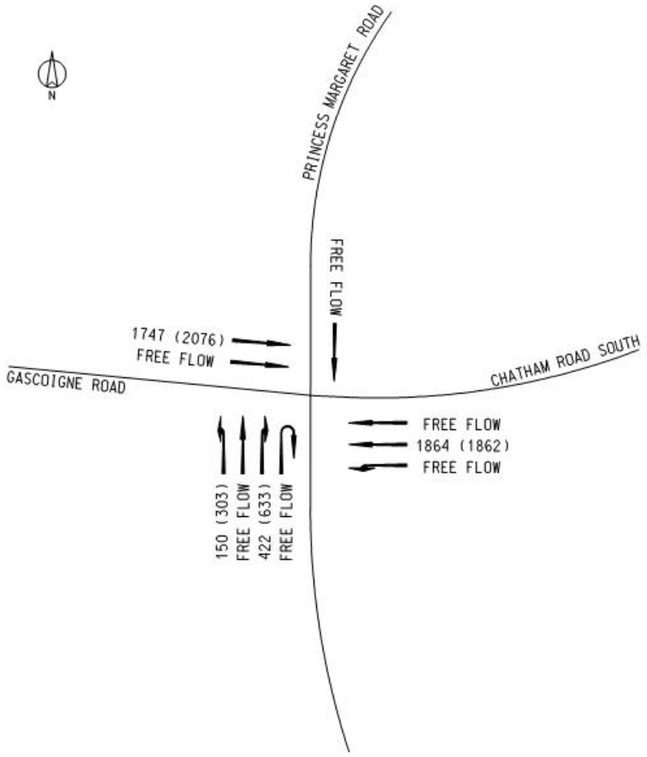
(J13) BOUNDARY STREET / WATERLOO ROAD



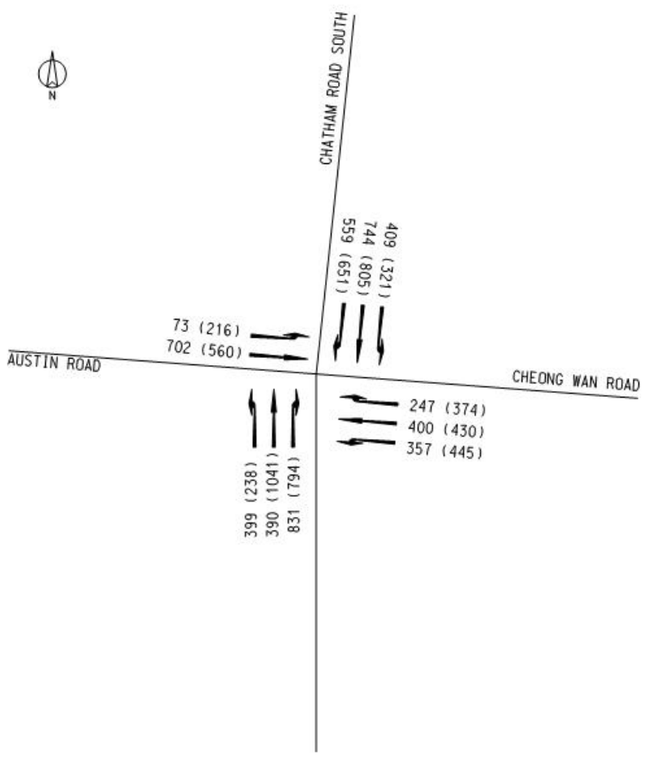
(J14) PRINCE EDWARD WEST / WATERLOO ROAD



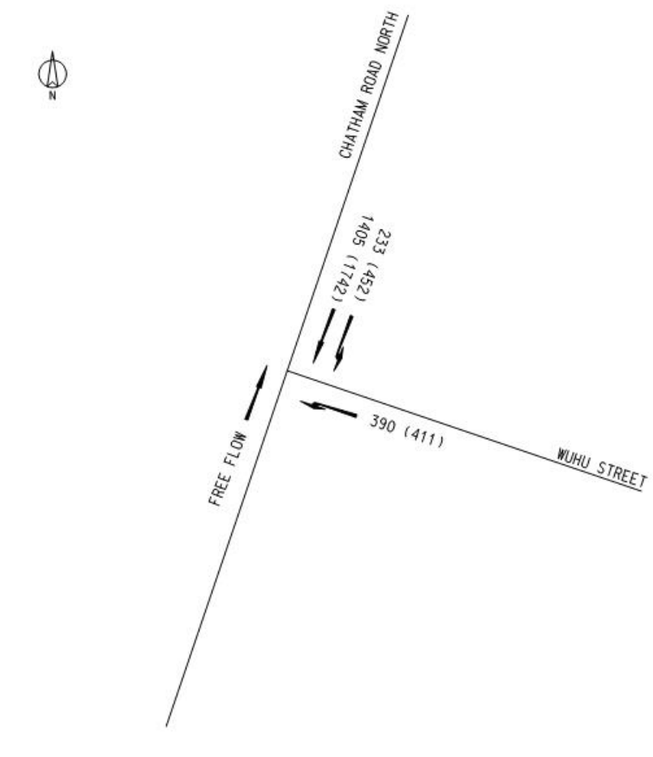
(J15) ARGLE STREET / WATERLOO ROAD / PRINCESS MARGARET ROAD



(J16) GASCOIGNE ROAD / CHATHAM ROAD SOUTH



(J17) AUSTIN ROAD / CHATHAM ROAD SOUTH / CHEONG WAN ROAD



(J18) CHAMTHAM ROAD NORTH / WUHU STREET

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
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Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2012 Observed Peak Hour Traffic Flow (3 of 7)

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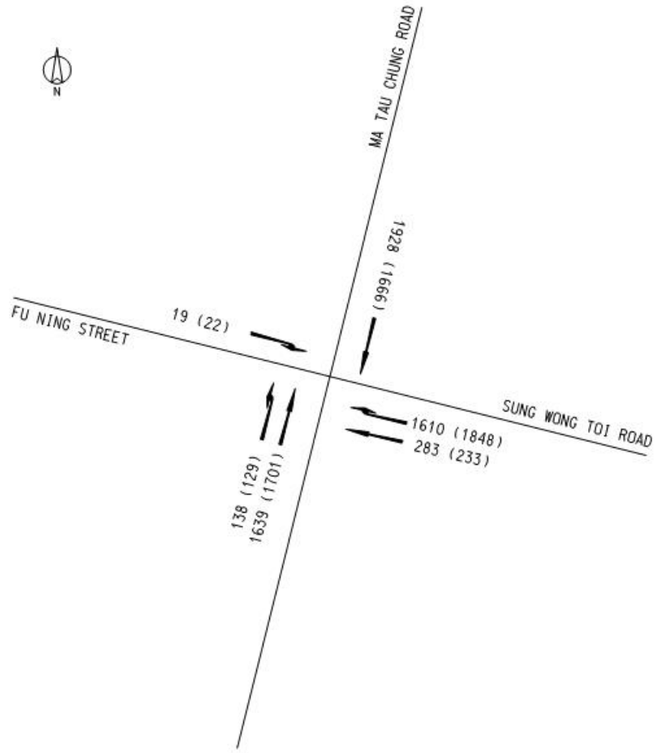
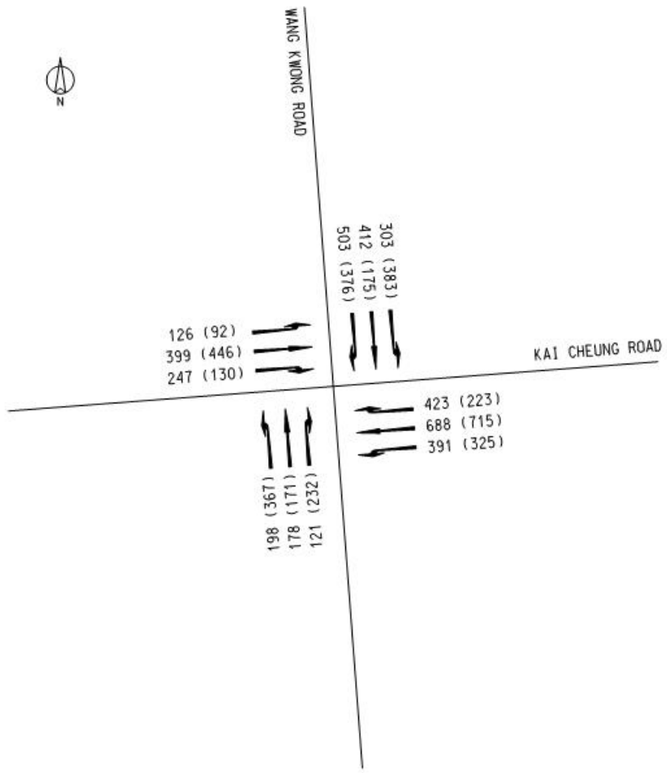
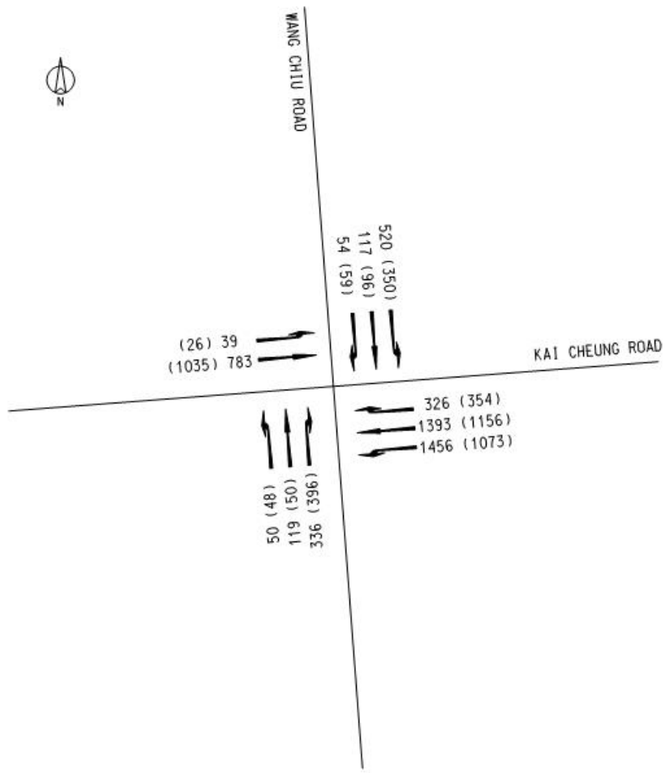


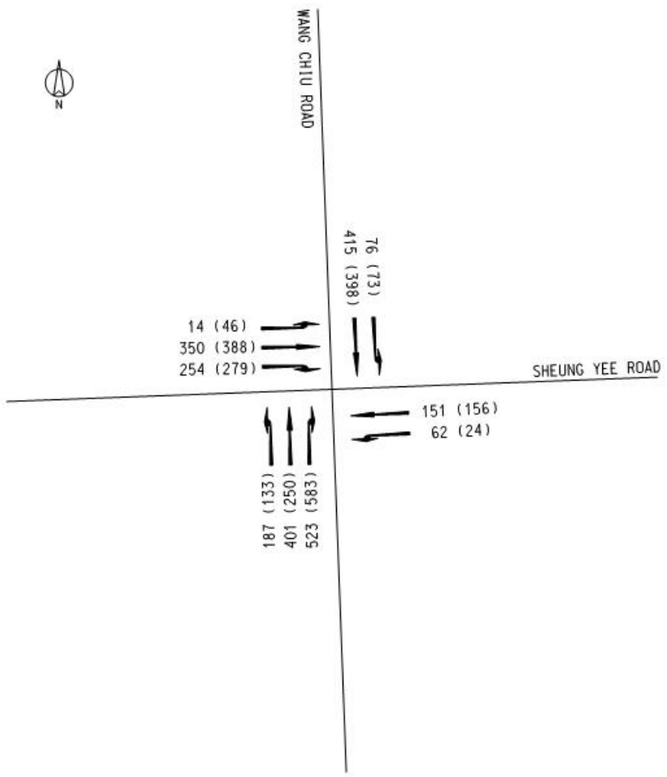
(J19) MA TAU CHUNG ROAD / SUNG WONG TOI ROAD



(J20) KAI CHEUNG ROAD / WANG KWONG ROAD



(J21) KAI CHEUNG ROAD / WANG CHIU ROAD



(J22) SHEUNG YEE ROAD / WANG CHIU ROAD

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 Observed Peak Hour Traffic Flow (4 of 7)

Drawing no.	Rev.
CKR/F/03/0204	-

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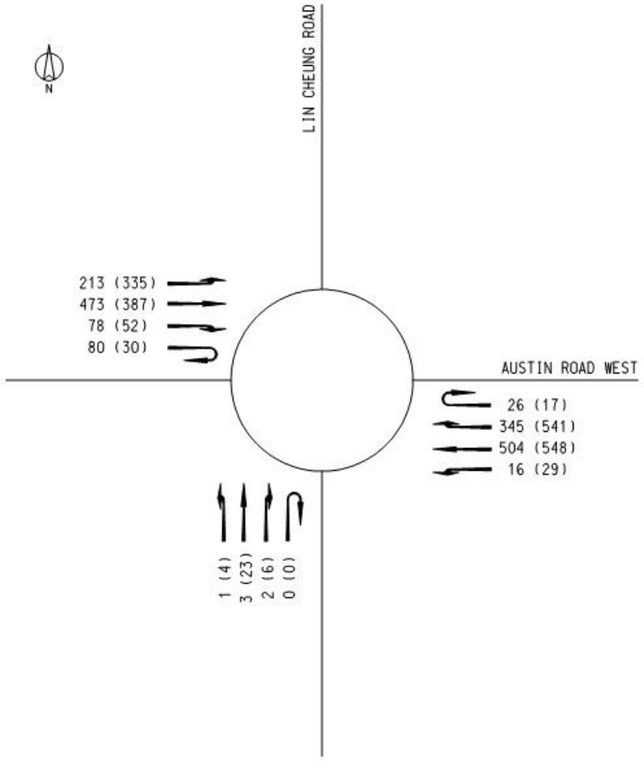
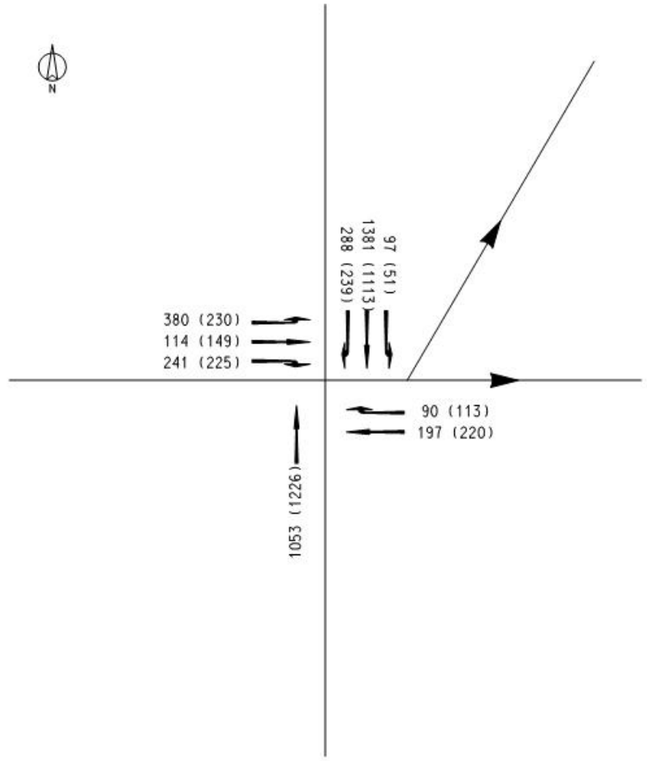
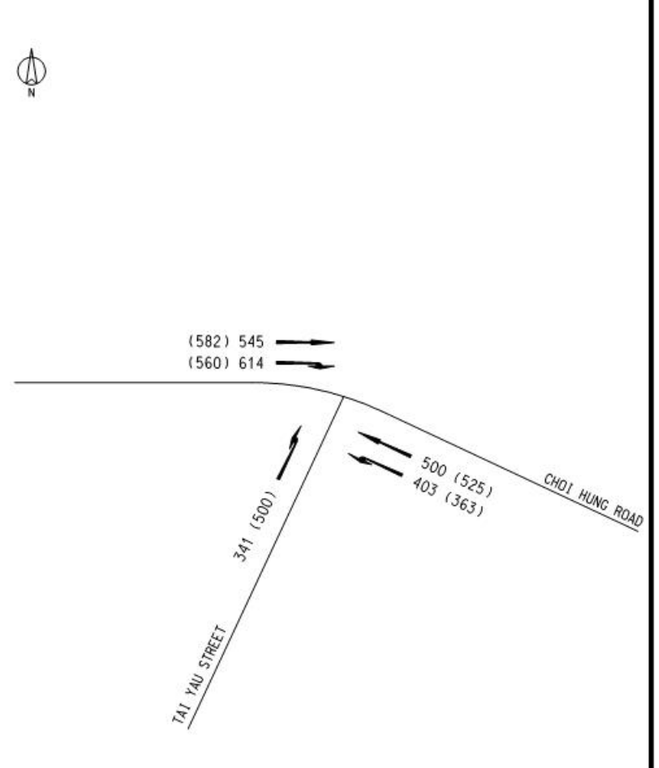


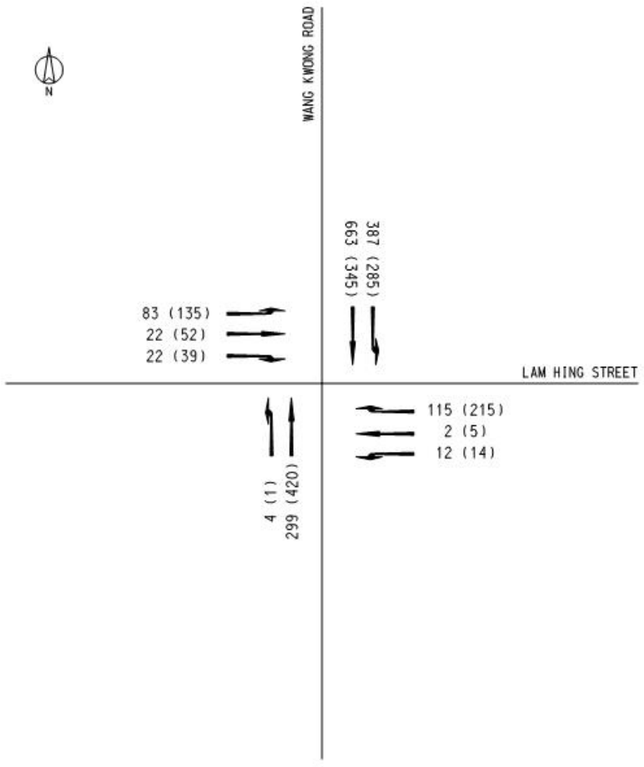
(J25) LIN CHEUNG ROAD / AUSTIN ROAD WEST



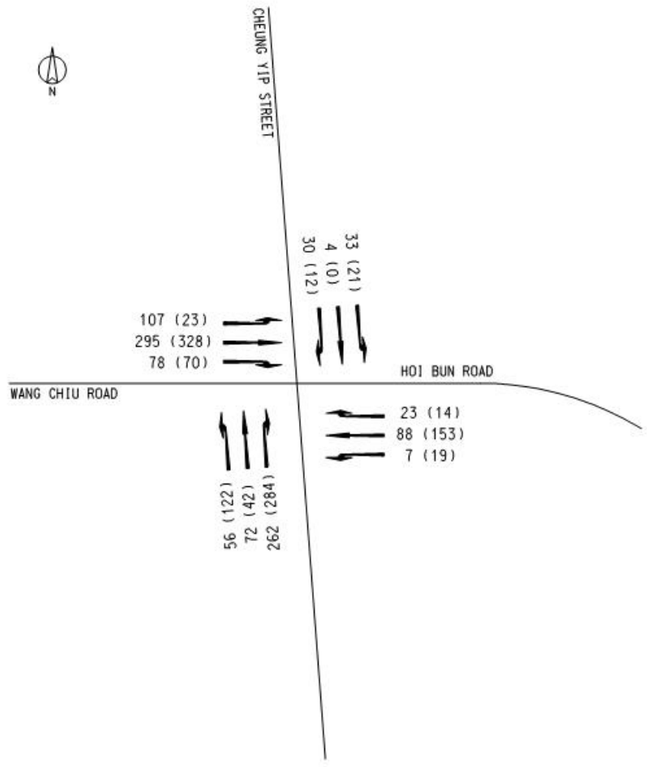
(J26) MA TAU ROAD / TIN KWONG ROAD



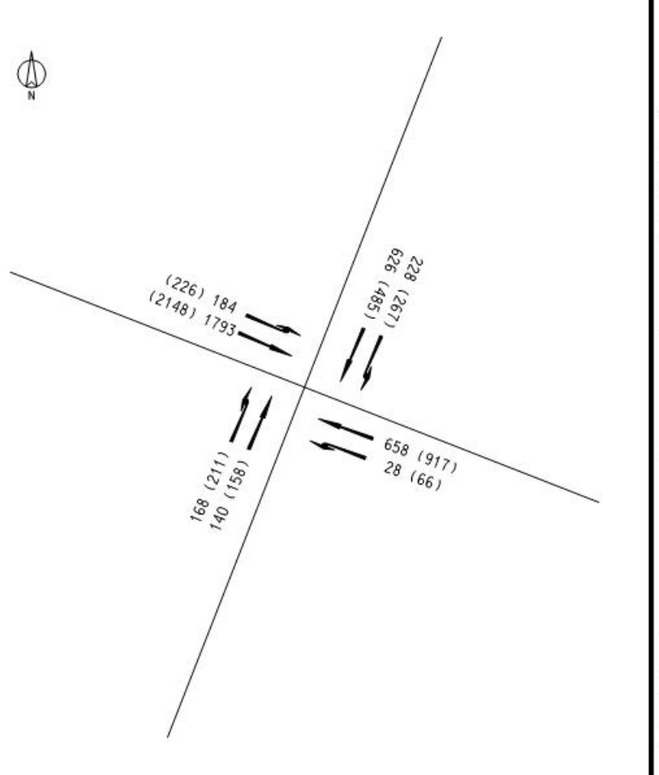
(J27) CHOI HUNG ROAD / TAI YAU STREET



(J28) LAM HING STREET / WANG KWONG ROAD



(J29) HOI BUN ROAD / CHEUNG YIP STREET / WANG CHIU ROAD



(J30) WAI YIP STREET / LAI YIP STREET

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 Observed Peak Hour Traffic Flow (5 of 7)

Drawing no.	Rev.
CKR/F/03/0205	-

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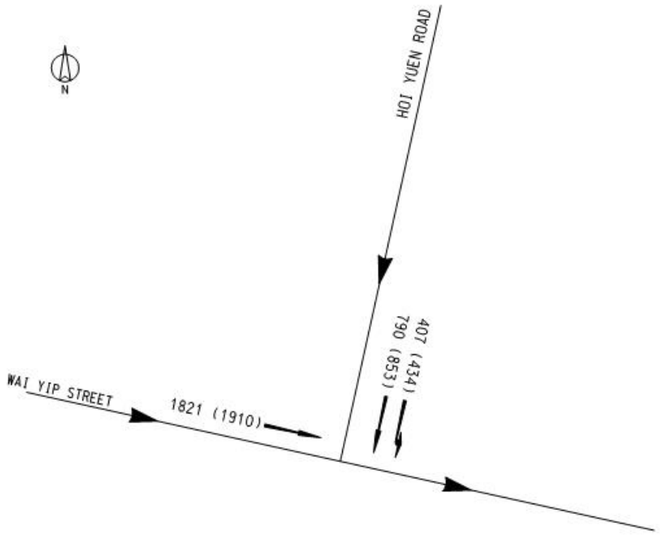
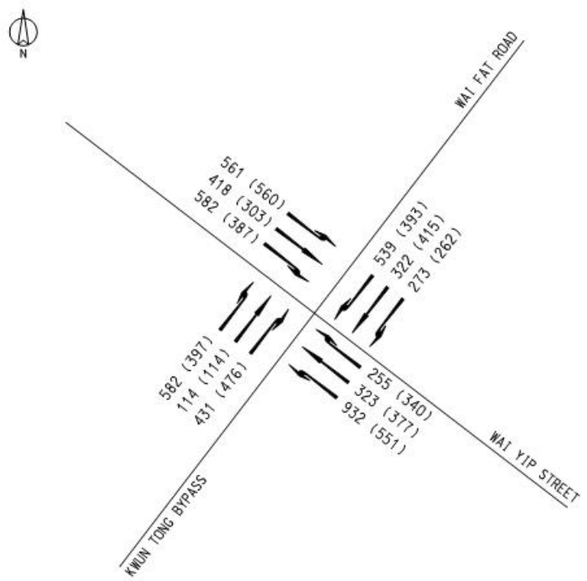
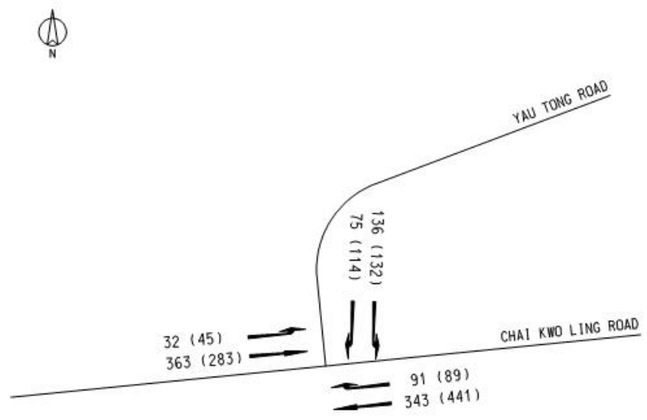


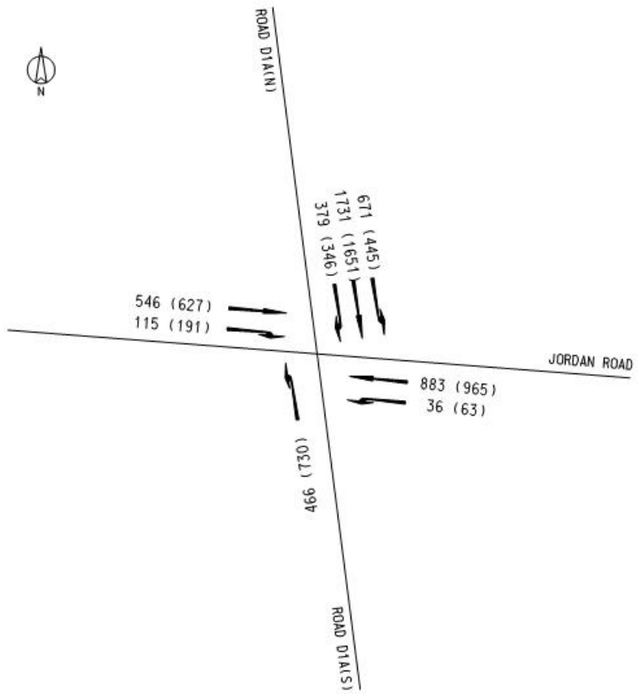
(J31) WAI YIP STREET / HOI YUEN ROAD



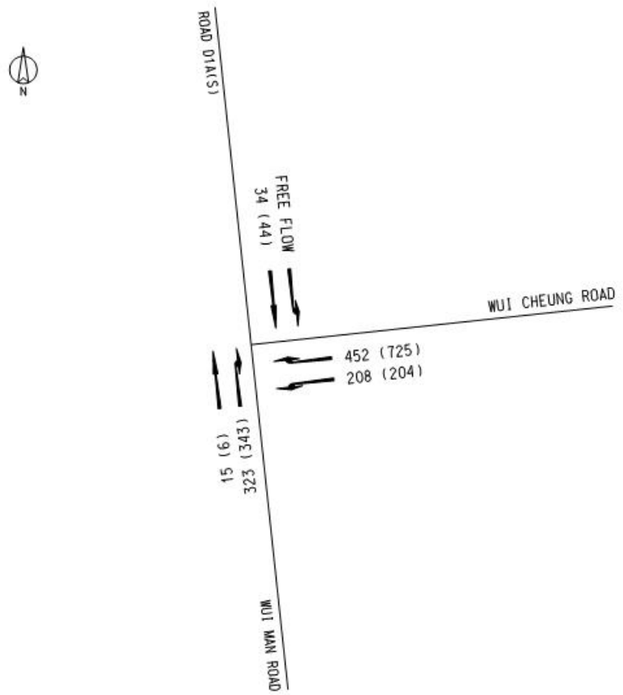
(J32) WAI YIP STREET / WAI FAT ROAD



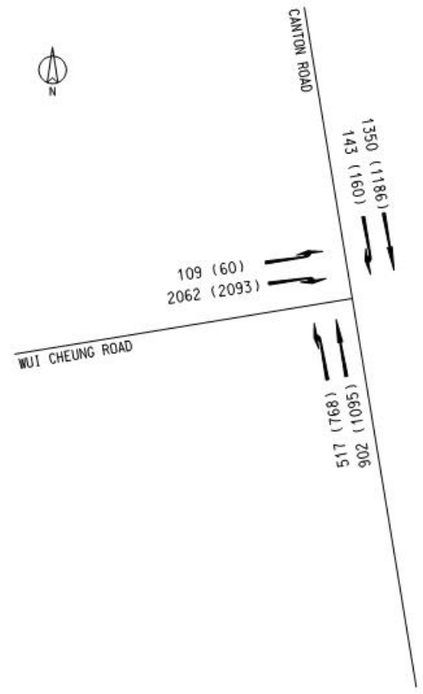
(J33) CHAI KWO LING ROAD / YAU TONG ROAD



(J34) TEMPORARY ROAD D1A(S) / JORDAN ROAD



(J35) TEMPORARY ROAD D1A(S) / WUI CHEUNG ROAD



(J36) CANTON ROAD / WUI CHEUNG ROAD

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2012 Observed Peak Hour Traffic Flow (6 of 7)

Drawing no. CKR/F/03/0206 Rev. -

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CHPH	JUN 13	FKFT	WCDC

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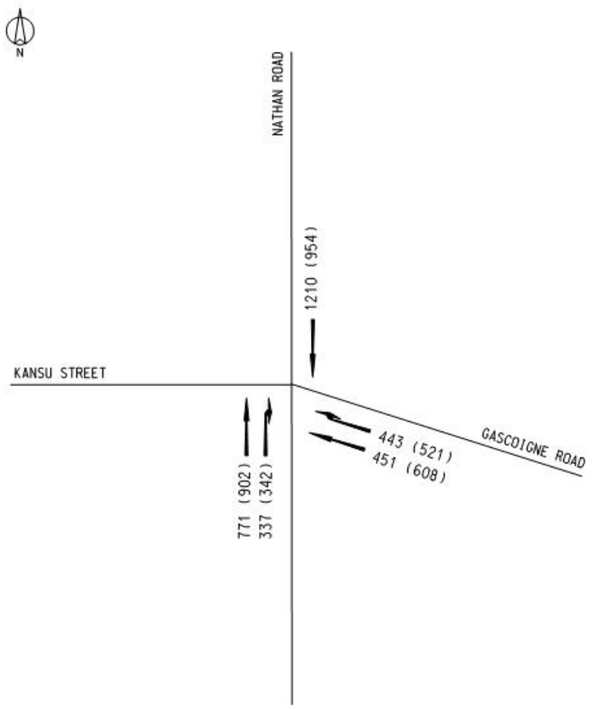
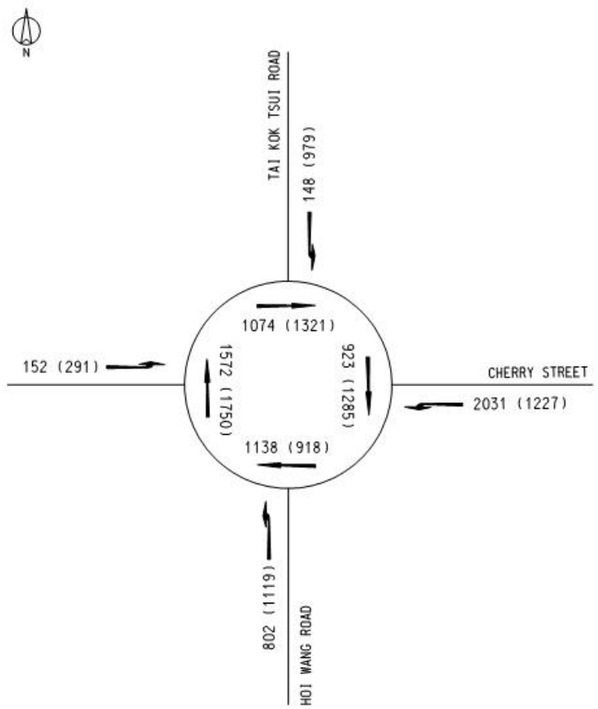


(J37) KANSU STREET / NATHAN ROAD / GASCOIGNE ROAD



(J38) OLYMPIC GARDEN ROUNDABOUT

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
2012 Observed Peak Hour
Traffic Flow (7 of 7)

Drawing no.	Rev.
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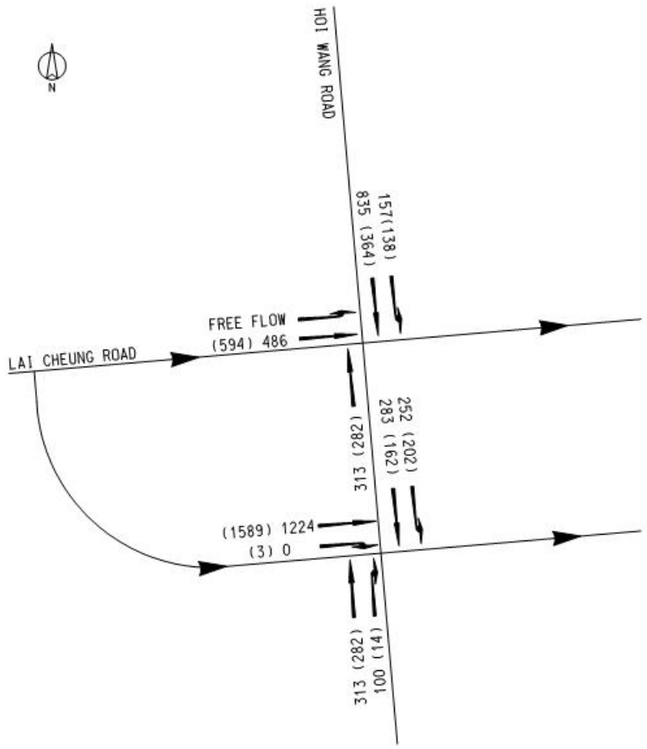
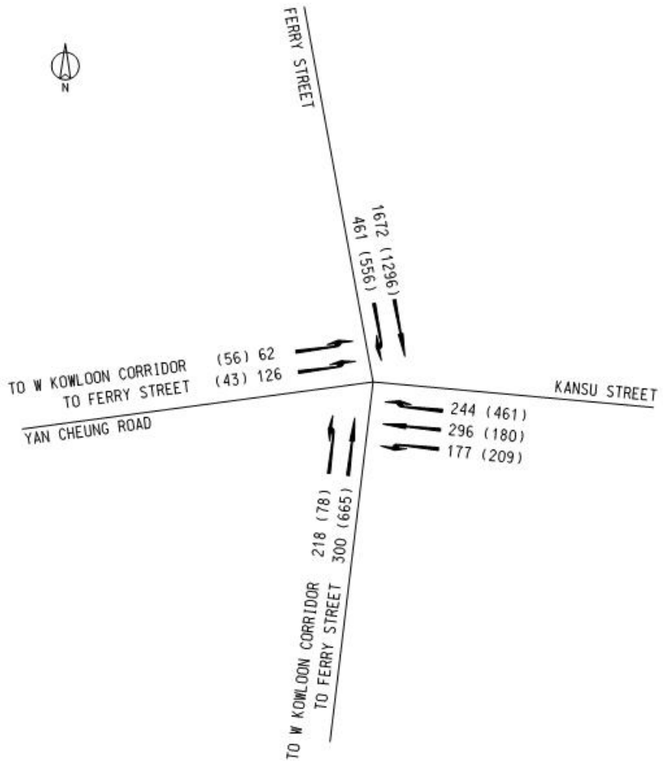
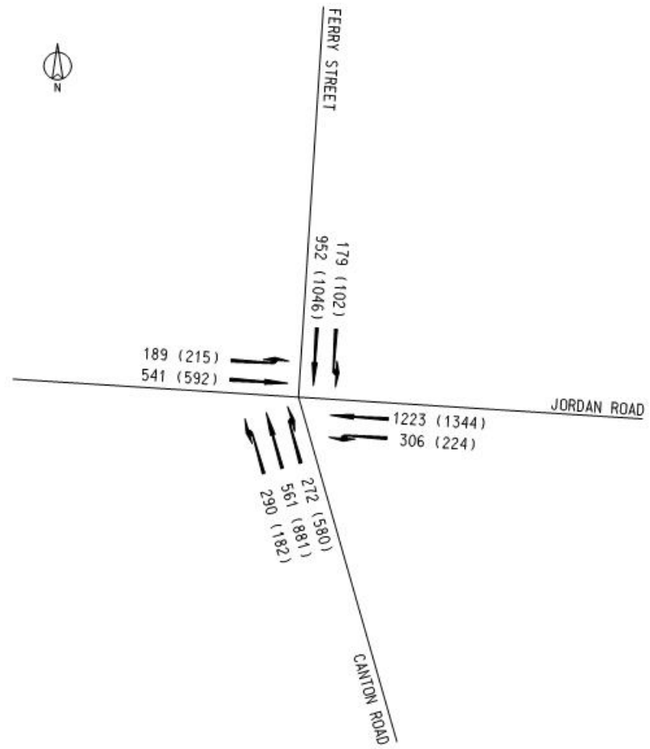


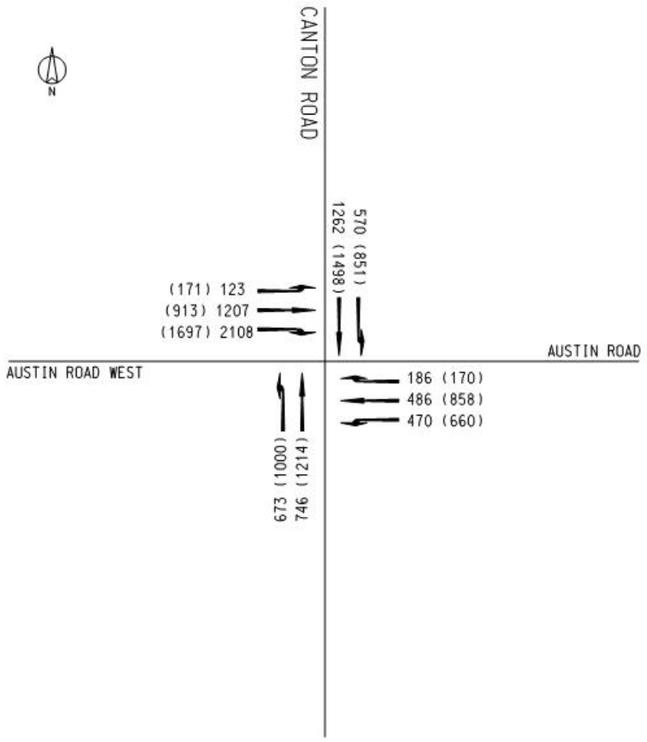
(J1) HOI WANG ROAD / LAI CHEUNG ROAD



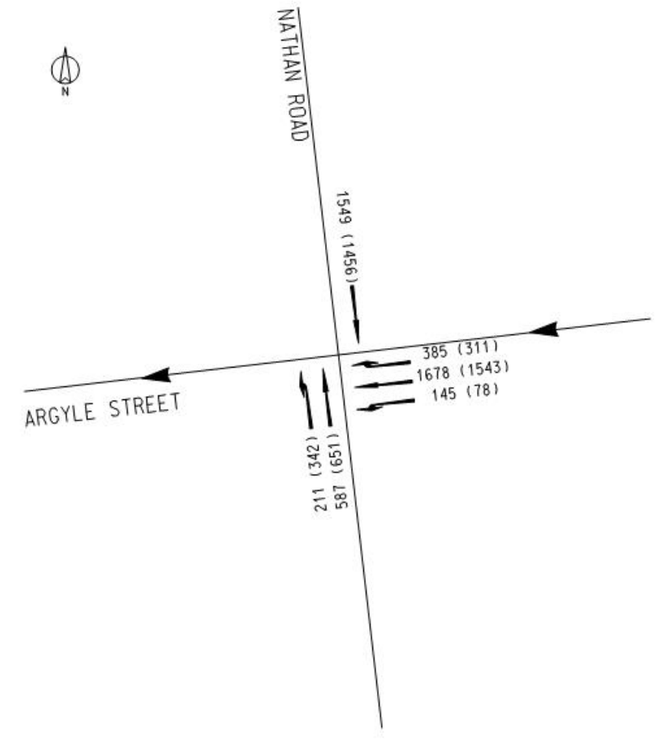
(J2) KANSU STREET / FERRY STREET / YAN CHEUNG ROAD



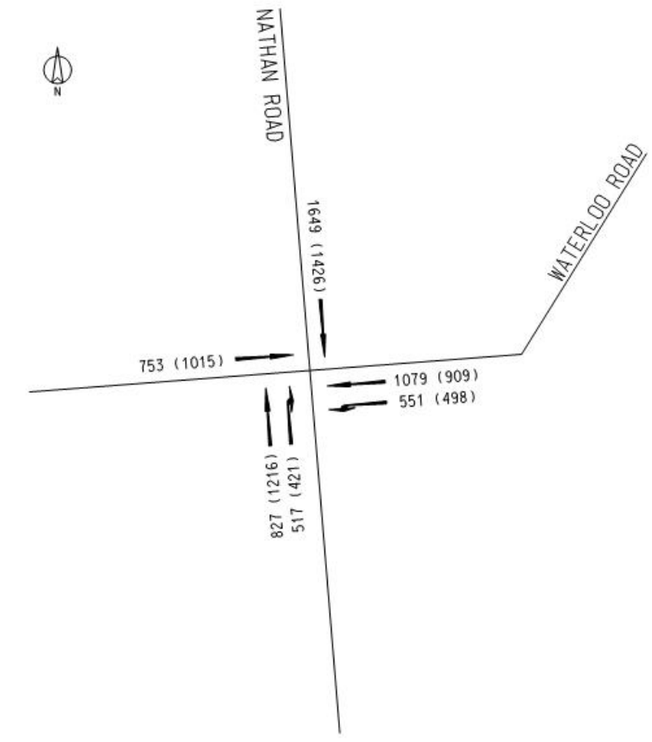
(J3) JORDAN ROAD / FERRY STREET / CANTON ROAD



(J4) AUSTIN ROAD WEST / AUSTIN ROAD / CANTON ROAD



(J5) ARGYLE STREET / NATHAN ROAD



(J6) WATERLOO ROAD / NATHAN ROAD

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Central Kowloon Route - Design and Construction

Drawing title
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Peak Hour Traffic Flows
(1 of 7)

Drawing no.	Rev.
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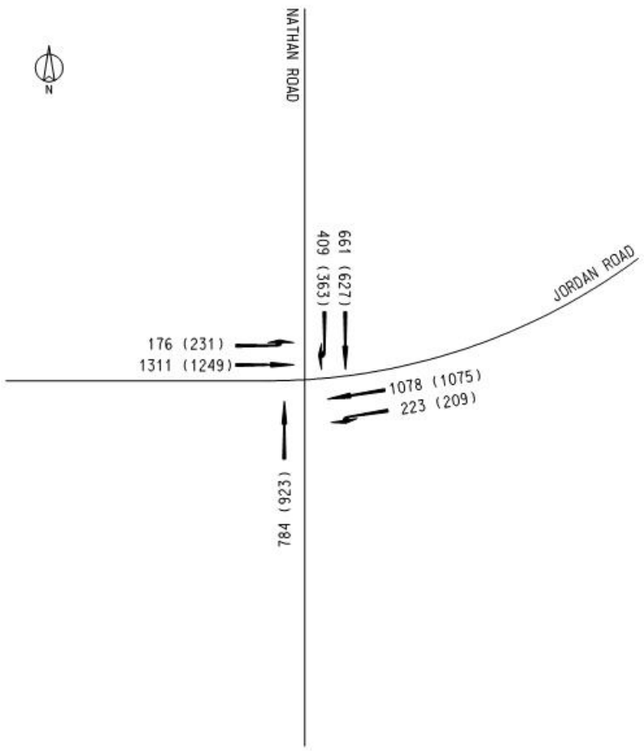
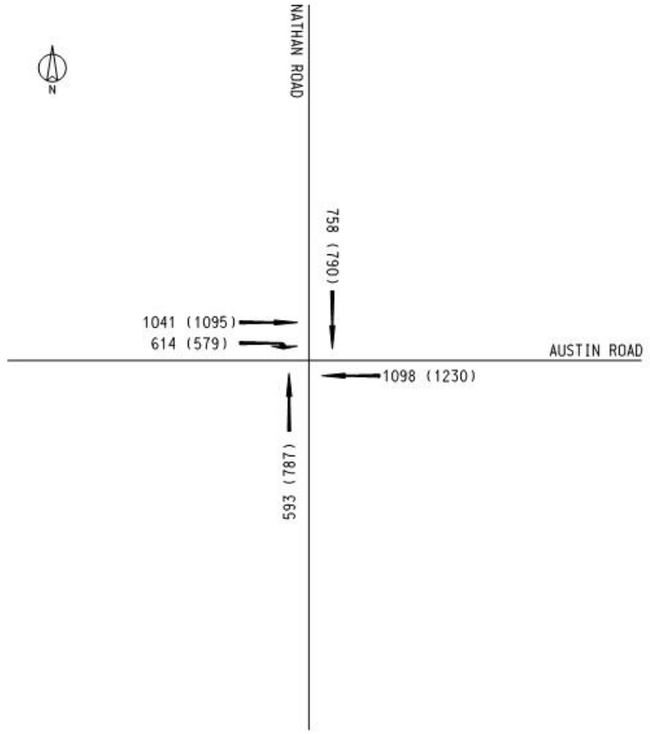
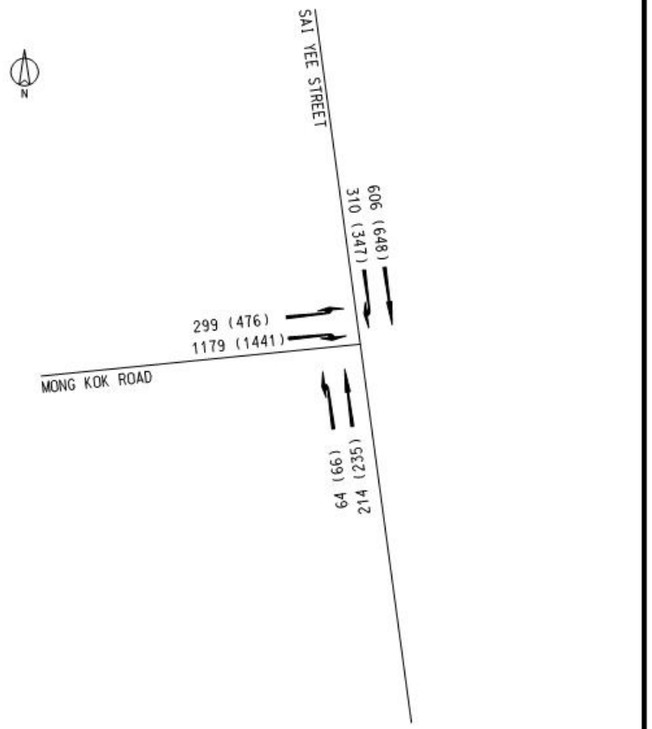


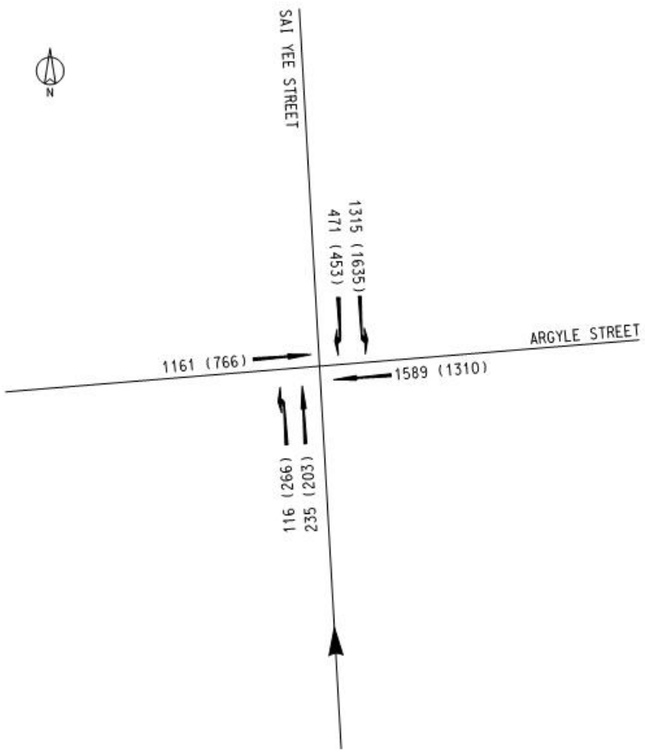
(J7) JORDAN ROAD / NATHAN ROAD



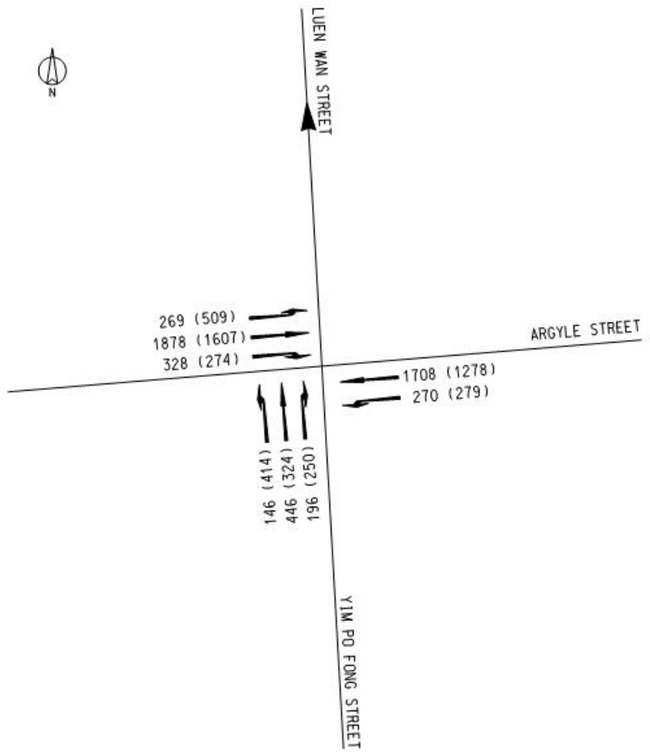
(J8) AUSTIN ROAD / NATHAN ROAD



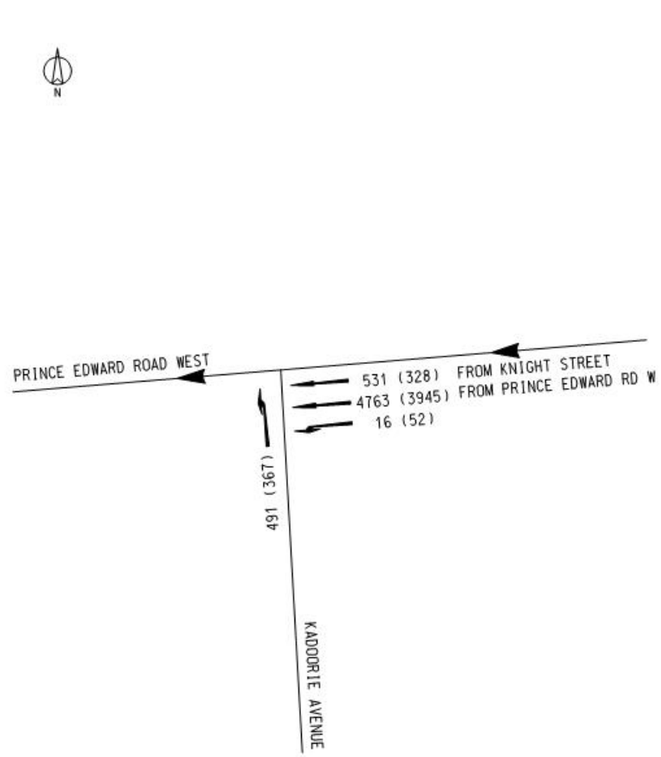
(J9) SAI YEE STREET / MONG KOK ROAD



(J10) ARGYLE STREET / SAI YEE STREET



(J11) ARGYLE STREET / YIM PO FONG STREET



(J12) PRINCE EDWARD ROAD WEST / KADOORIE AVENUE

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
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ARUP Mott MacDonald
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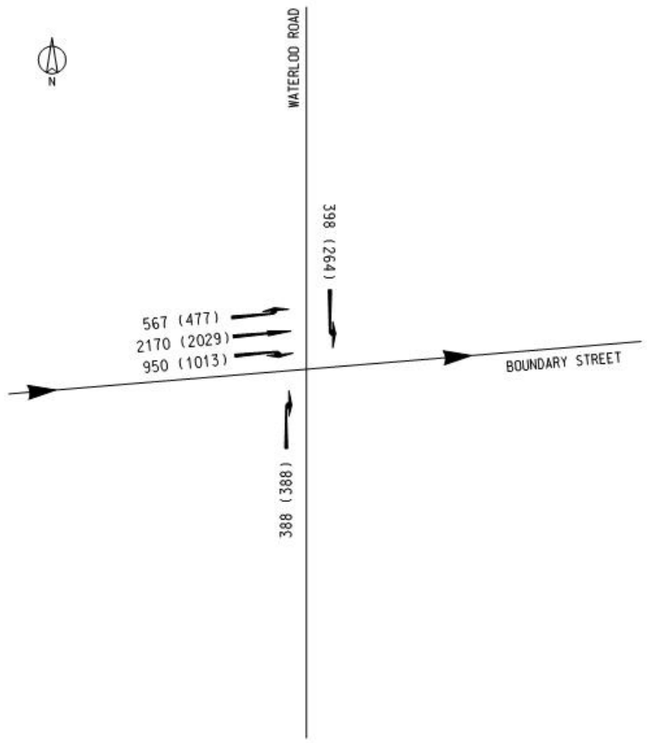
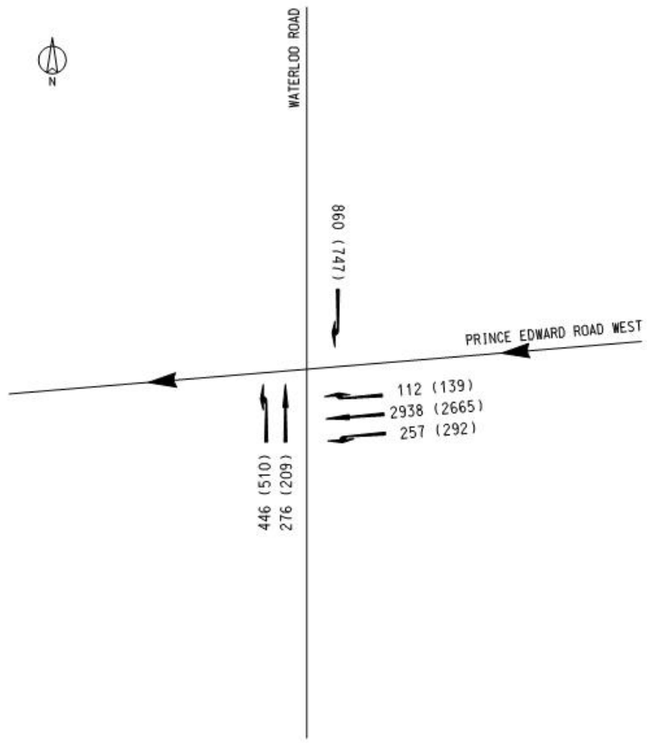
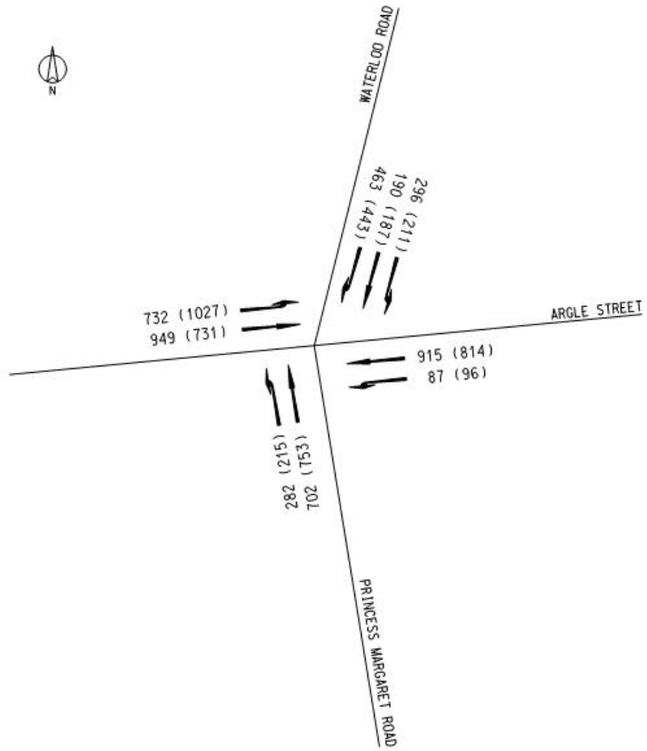


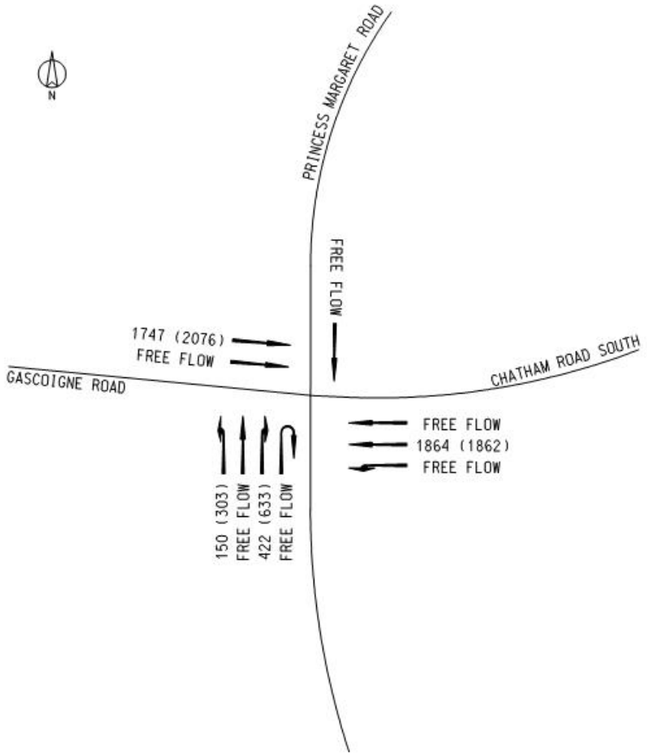
(J13) BOUNDARY STREET / WATERLOO ROAD



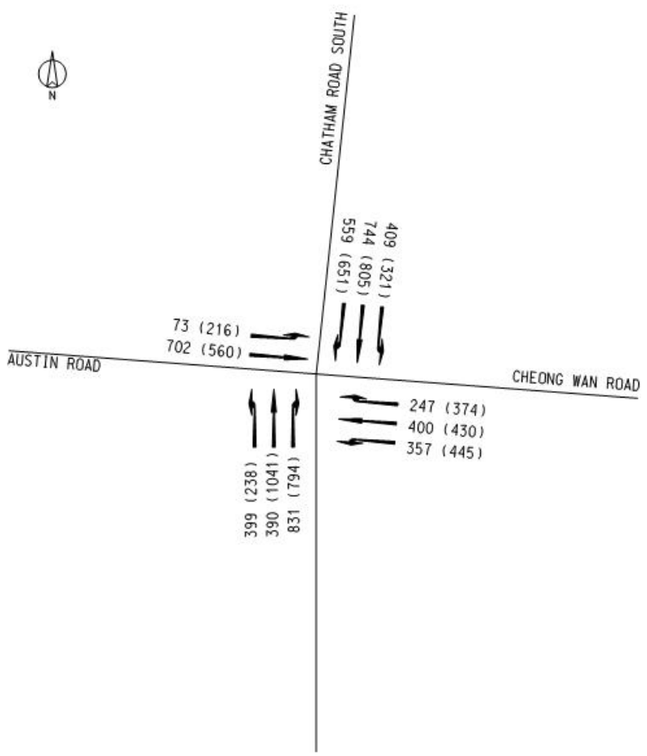
(J14) PRINCE EDWARD WEST / WATERLOO ROAD



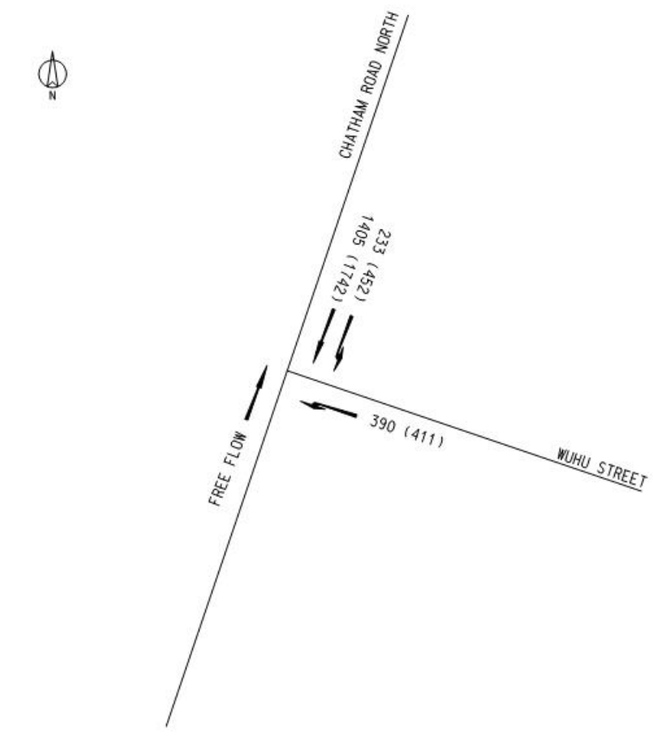
(J15) ARGLE STREET / WATERLOO ROAD / PRINCESS MARGARET ROAD



(J16) GASCOIGNE ROAD / CHATHAM ROAD SOUTH



(J17) AUSTIN ROAD / CHATHAM ROAD SOUTH / CHEONG WAN ROAD



(J18) CHAMTHAM ROAD NORTH / WUHU STREET

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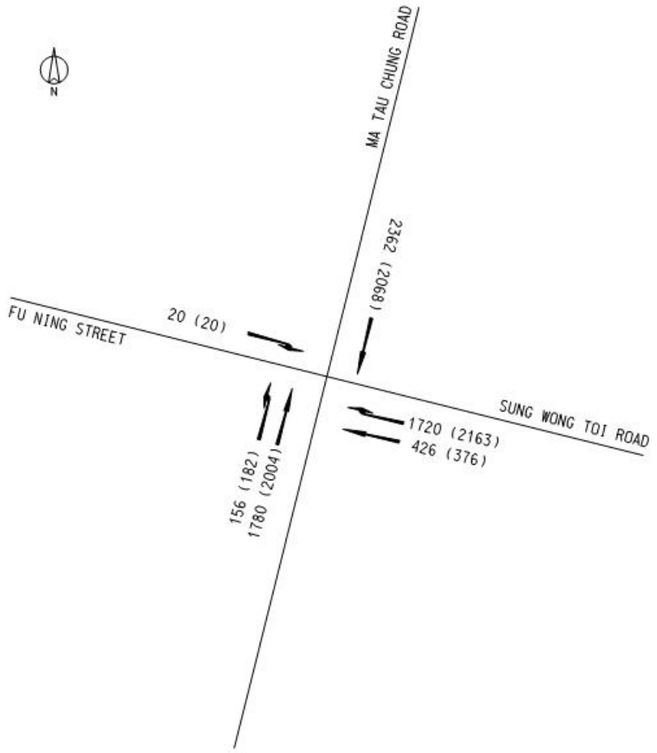
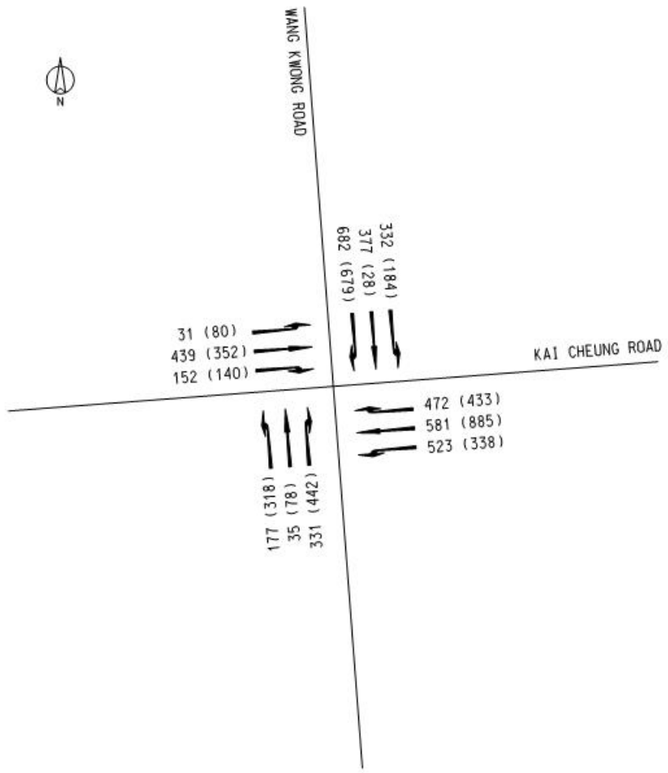
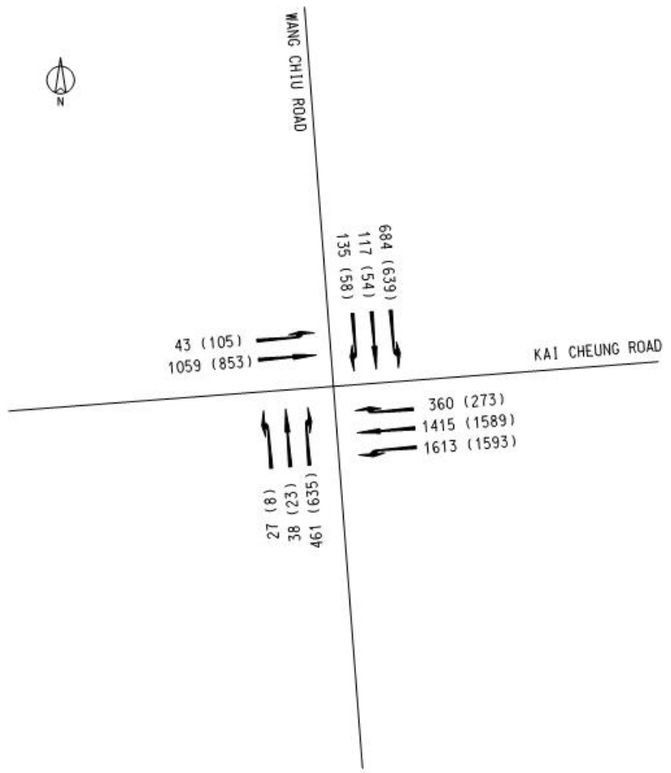


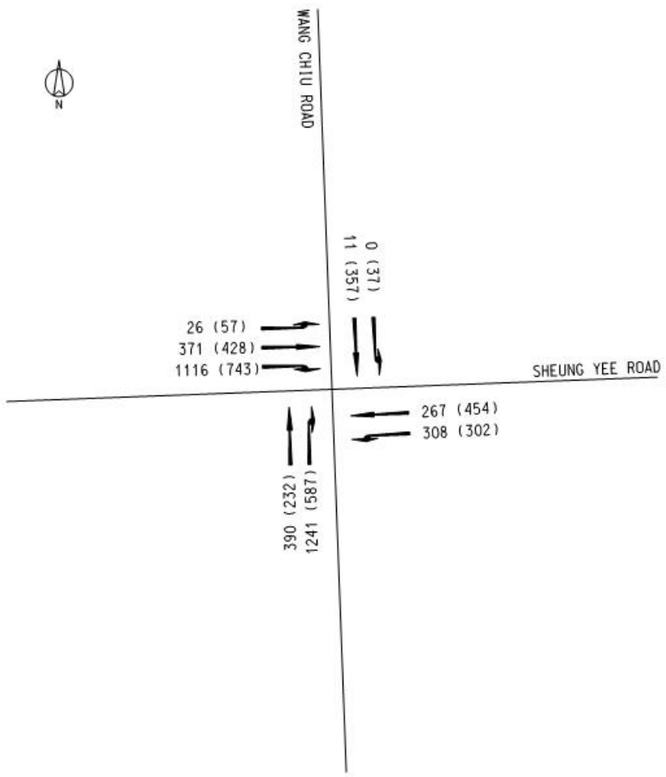
(J19) MA TAU CHUNG ROAD / SUNG WONG TOI ROAD



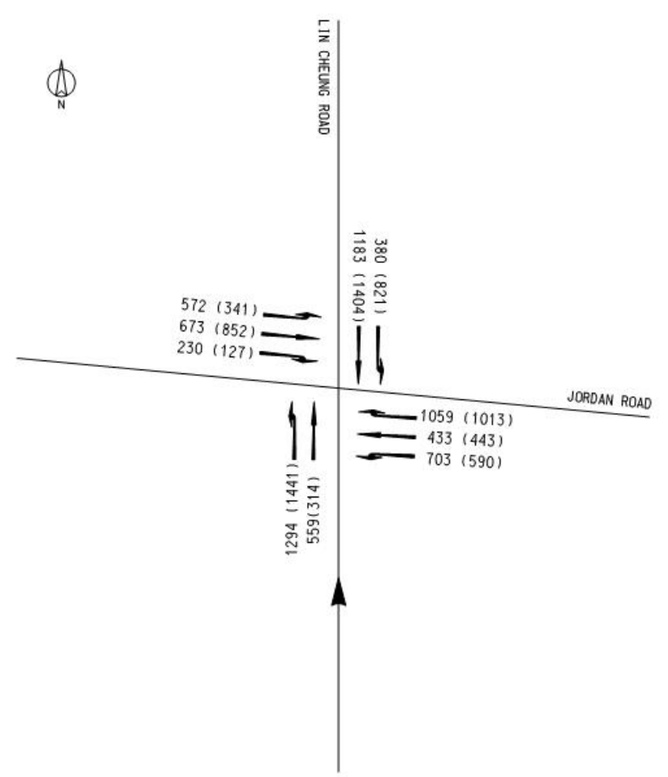
(J20) KAI CHEUNG ROAD / WANG KWONG ROAD



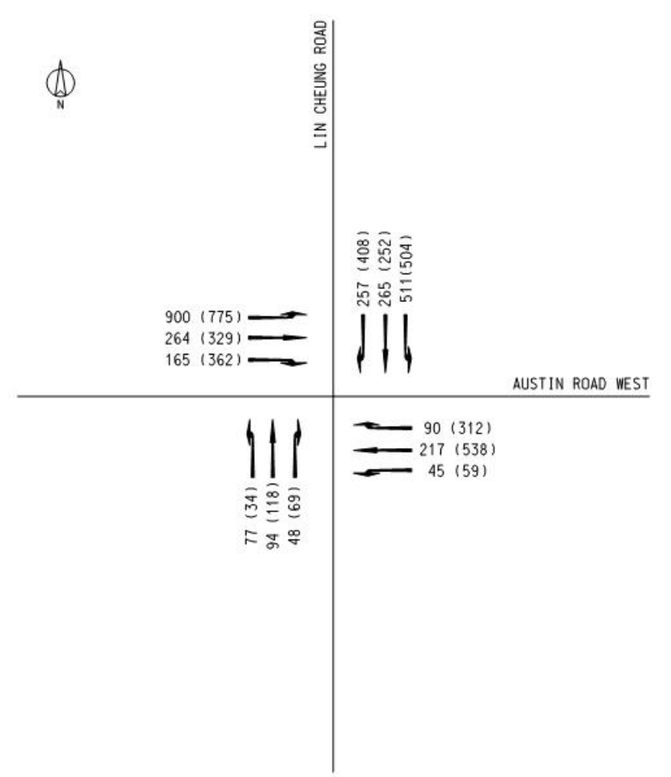
(J21) KAI CHEUNG ROAD / WANG CHIU ROAD



(J22) SHEUNG YEE ROAD / WANG CHIU ROAD



(J23) LIN CHEUNG ROAD / JORDAN ROAD



(J25) LIN CHEUNG ROAD / AUSTIN ROAD WEST

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B	SECOND ISSUE	TS	06/13
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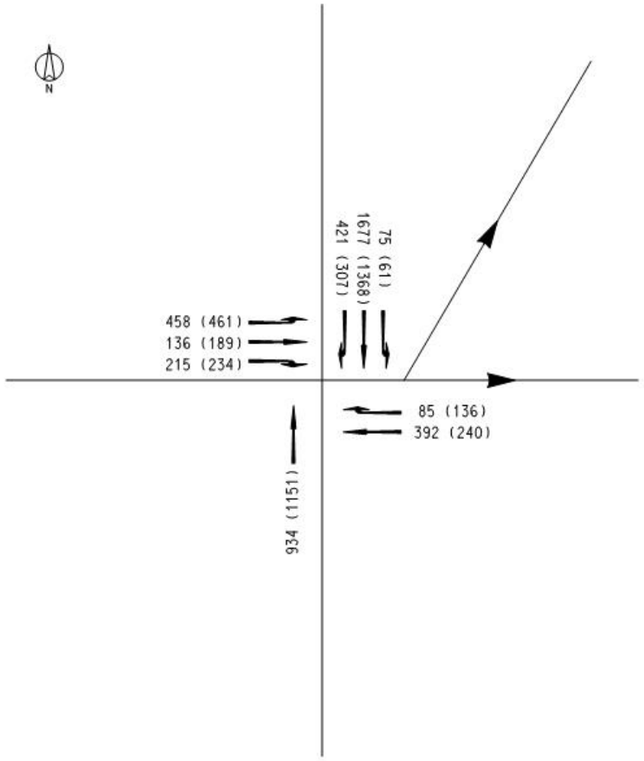
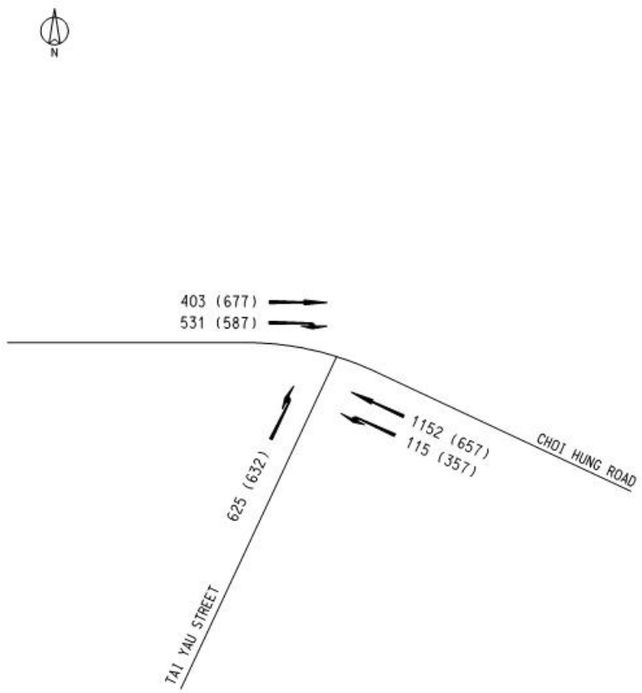
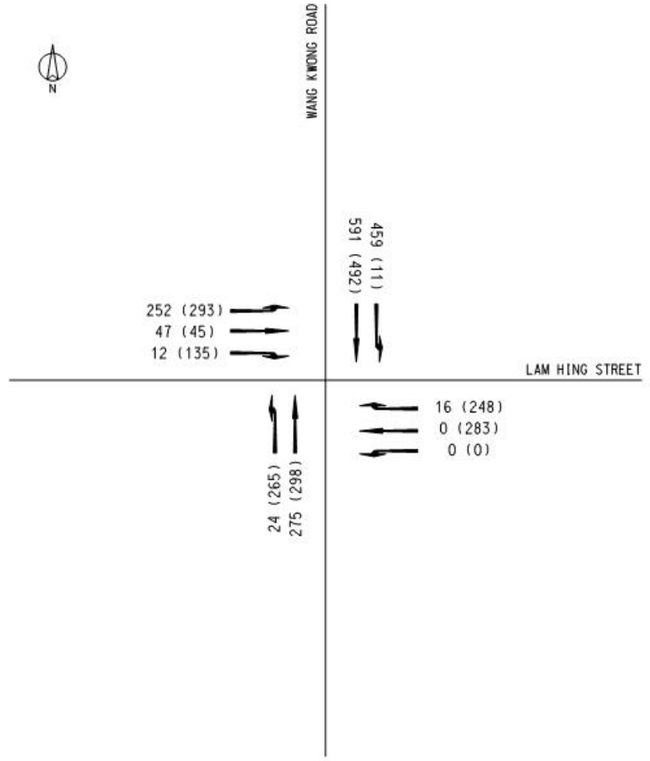


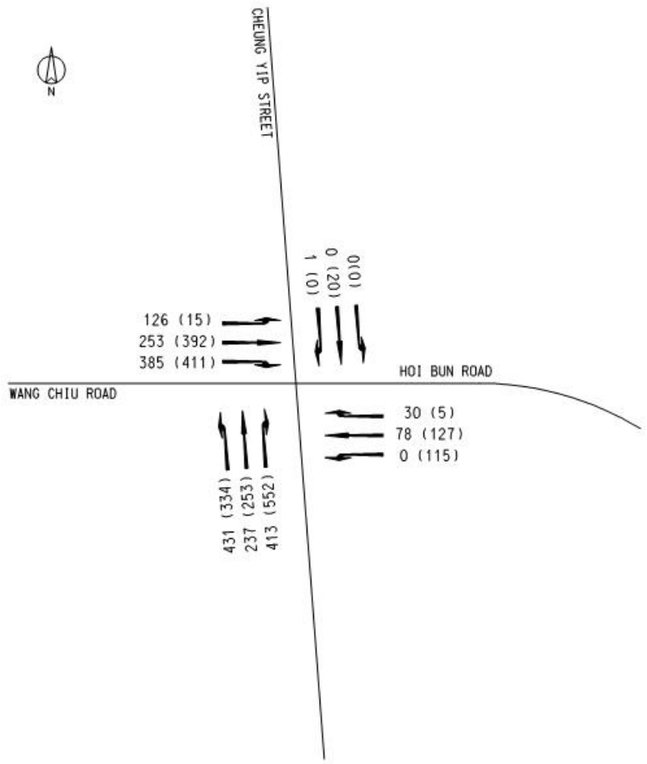
(J26) MA TAU ROAD / TIN KWONG ROAD



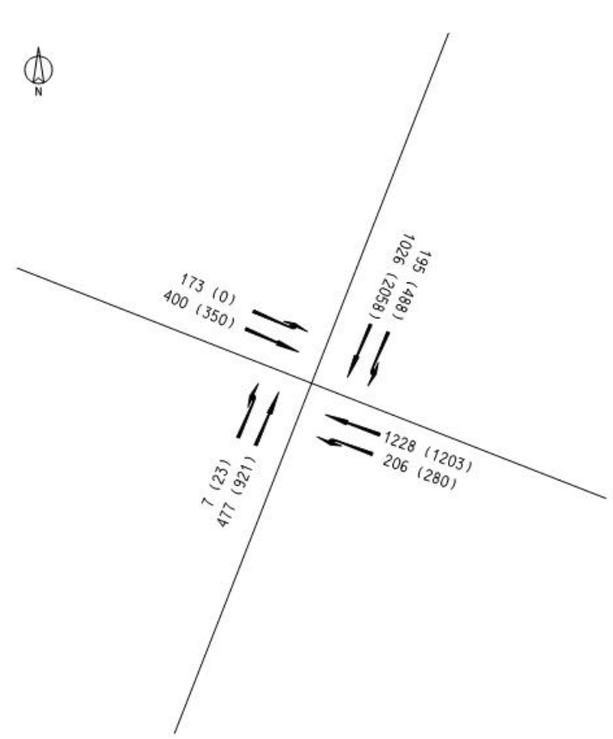
(J27) CHOI HUNG ROAD / TAI YAU STREET



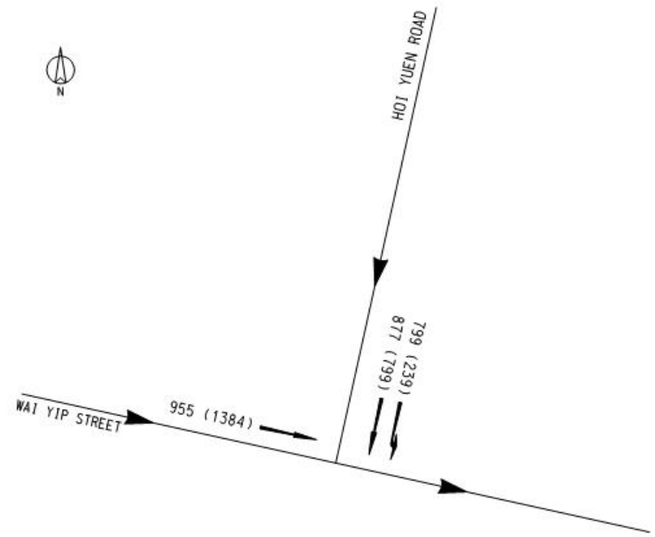
(J28) LAM HING STREET / WANG KWONG ROAD



(J29) HOI BUN ROAD / CHEUNG YIP STREET / WANG CHIU ROAD



(J30) WAI YIP STREET / LAI YIP STREET



(J31) WAI YIP STREET / HOI YUEN ROAD

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2016 Forecast (Reference) Peak Hour Traffic Flows (5 of 7)

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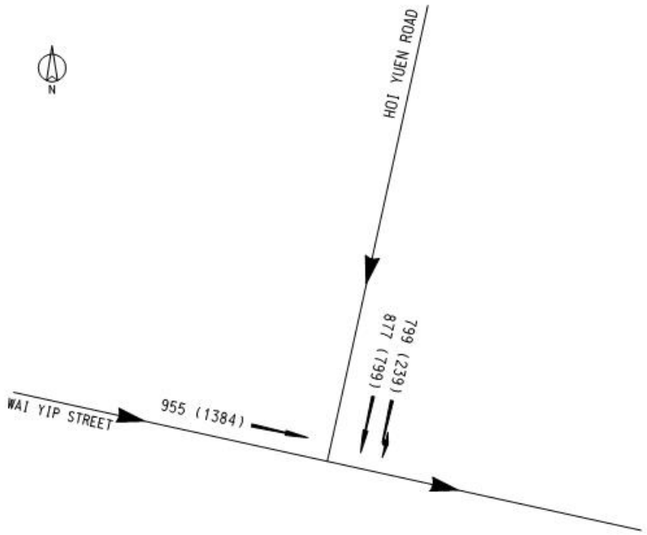
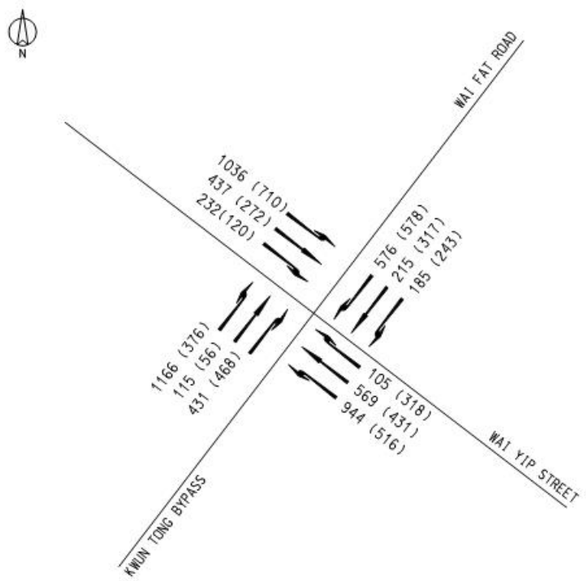
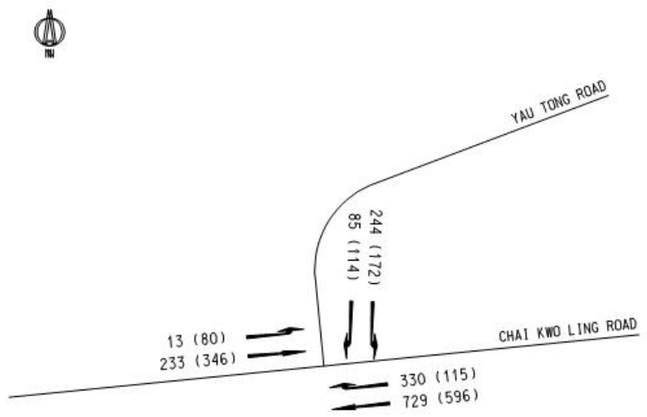


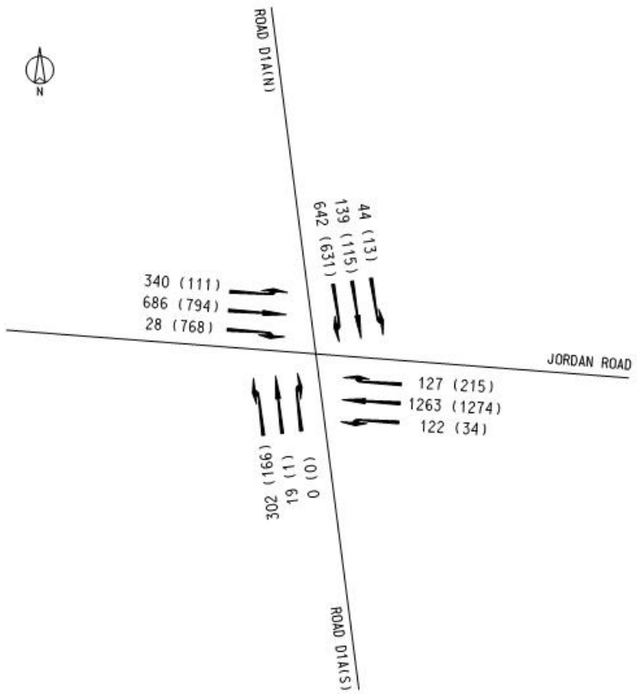
(J31) WAI YIP STREET / HOI YUEN ROAD



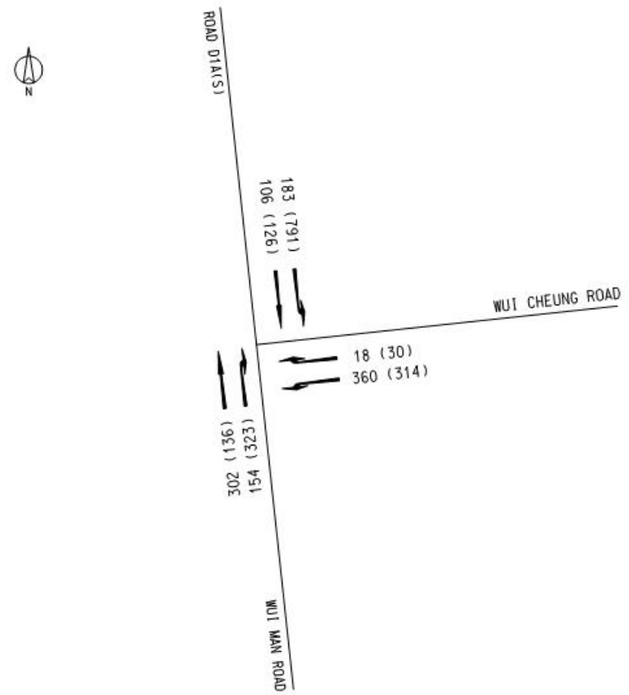
(J32) WAI YIP STREET / WAI FAT ROAD



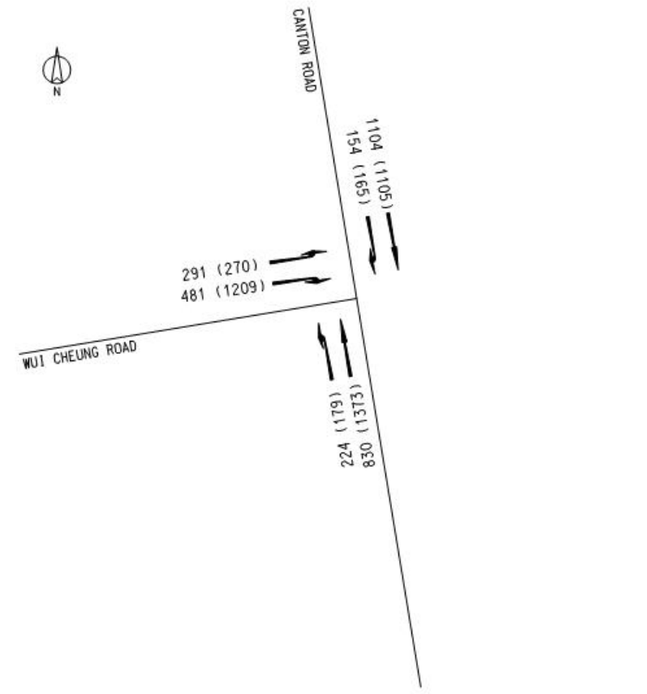
(J33) CHAI KWO LING ROAD / YAU TONG ROAD



(J34) TEMPORARY ROAD D1A(S) / JORDAN ROAD



(J35) TEMPORARY ROAD D1A(S) / WUI CHEUNG ROAD



(J36) CANTON ROAD / WUI CHEUNG ROAD

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Project title
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Peak Hour Traffic Flows
(6 of 7)

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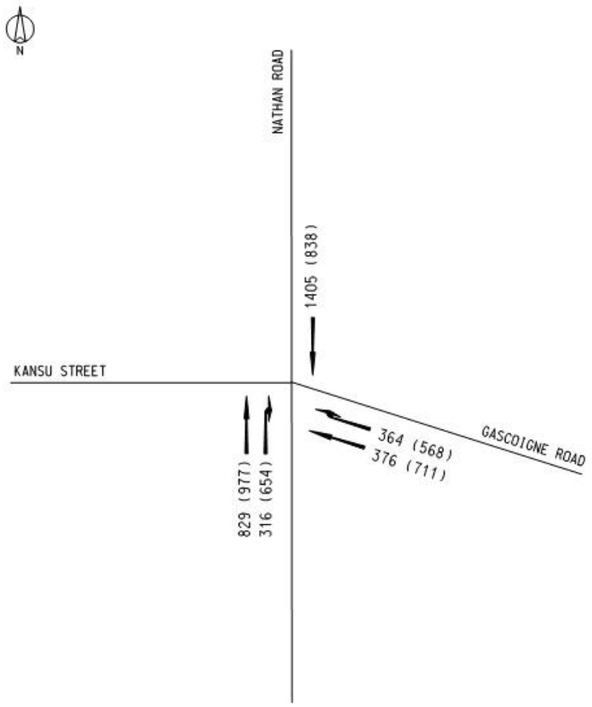
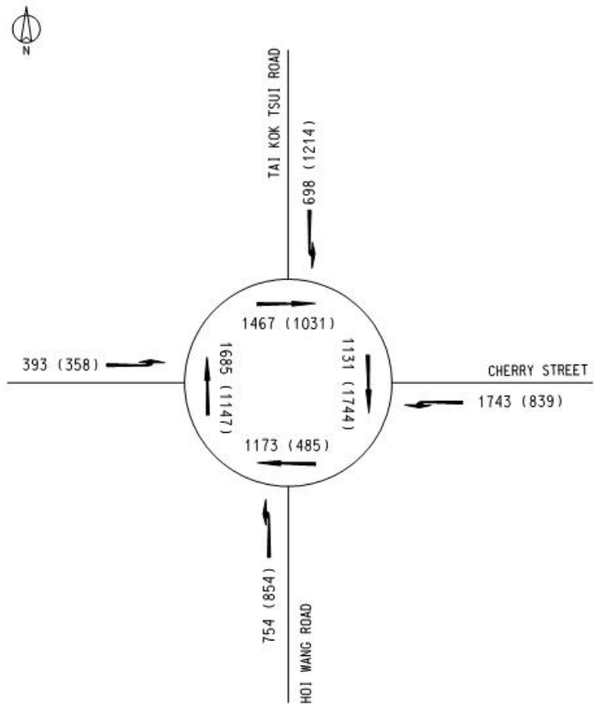


(J37) KANSU STREET / NATHAN ROAD / GASCOIGNE ROAD



(J38) OLYMPIC GARDEN ROUNDABOUT

Rev	Description	By	Date
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A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
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Drawing title
2016 Forecast (Reference)
Peak Hour Traffic Flows
(7 of 7)

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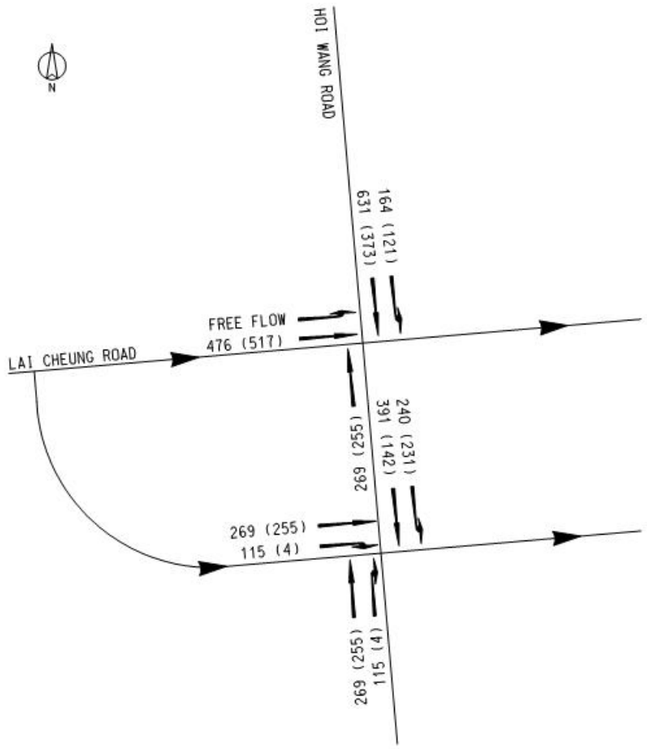
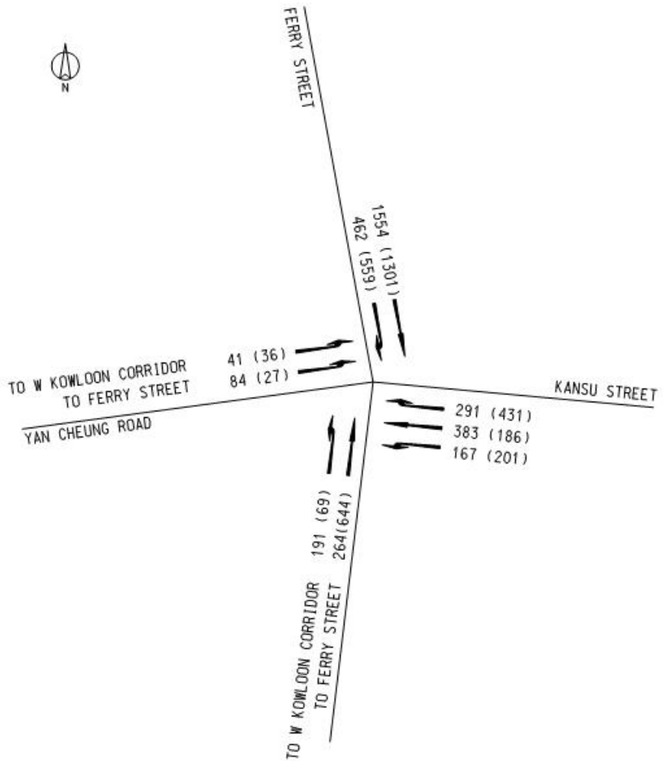
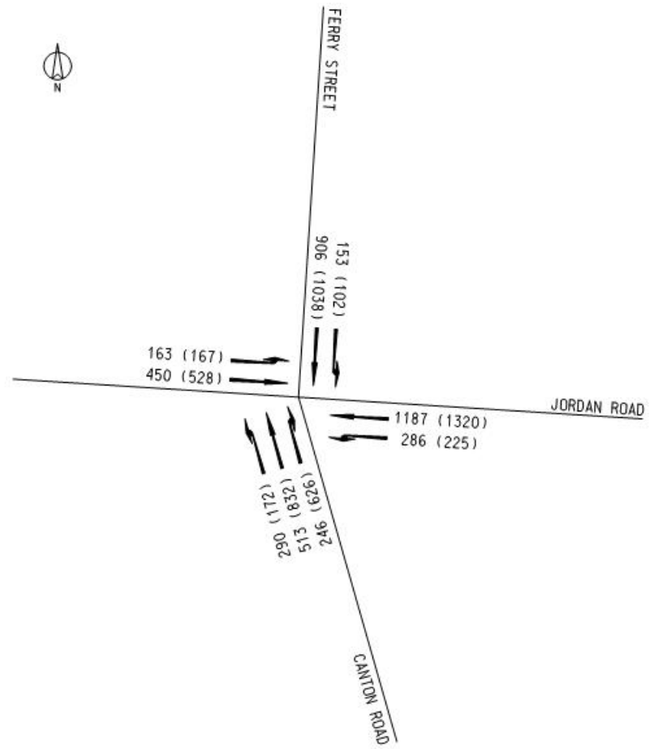


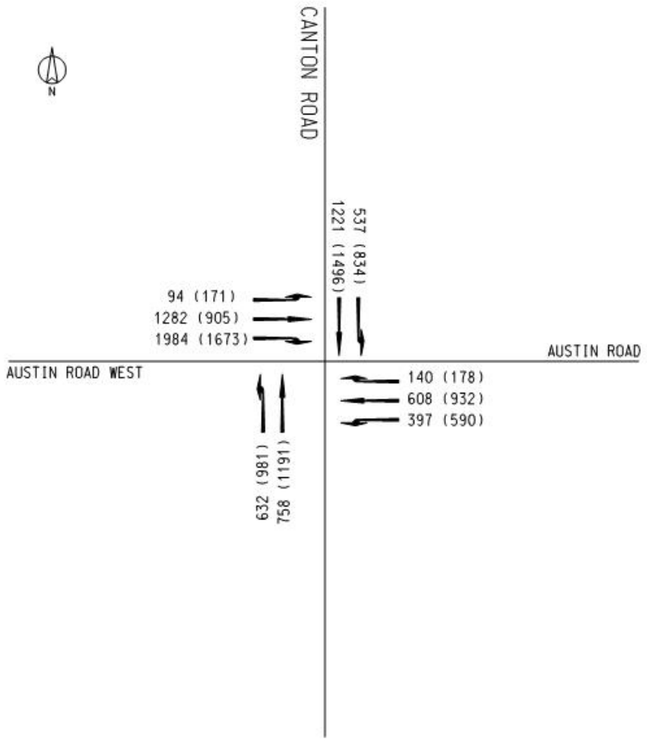
(J1) HOI WANG ROAD / LAI CHEUNG ROAD



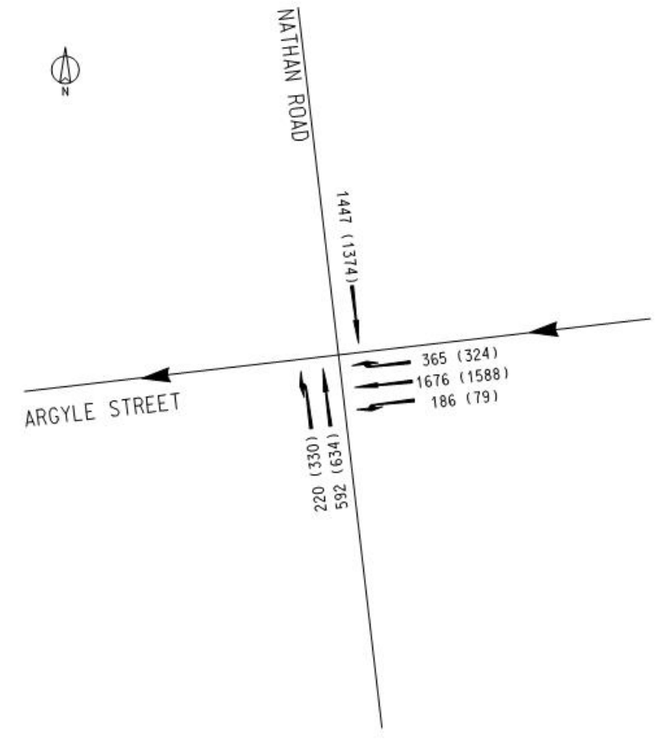
(J2) KANSU STREET / FERRY STREET / YAN CHEUNG ROAD



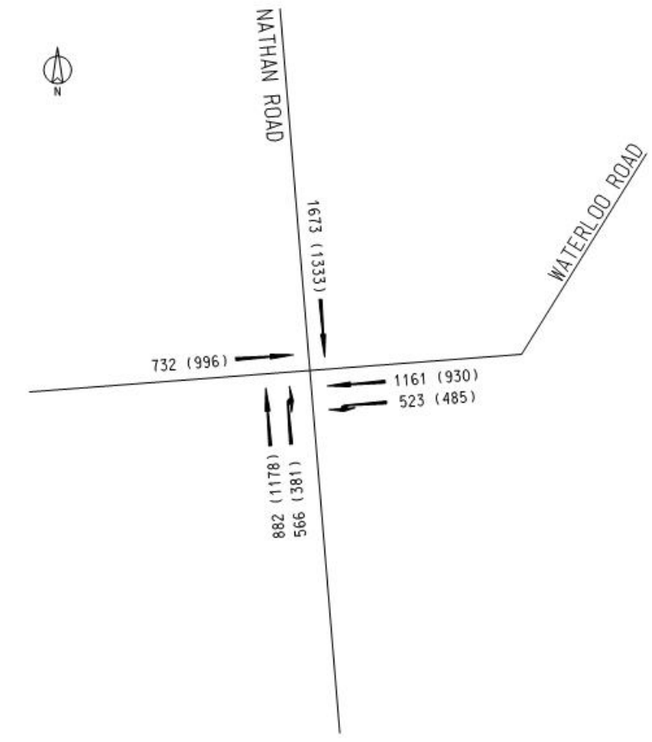
(J3) JORDAN ROAD / FERRY STREET / CANTON ROAD



(J4) AUSTIN ROAD WEST / AUSTIN ROAD / CANTON ROAD



(J5) ARGYLE STREET / NATHAN ROAD



(J6) WATERLOO ROAD / NATHAN ROAD

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ARUP Mott MacDonald
Joint Venture

Project title
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Central Kowloon Route -
Design and Construction

Drawing title
2021 Forecast (Reference)
Peak Hour Traffic Flows
(1 of 7)

Drawing no.	Rev.
CKR/F/03/0221	-

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CHPH	JUN 13	FKFT	WCDC

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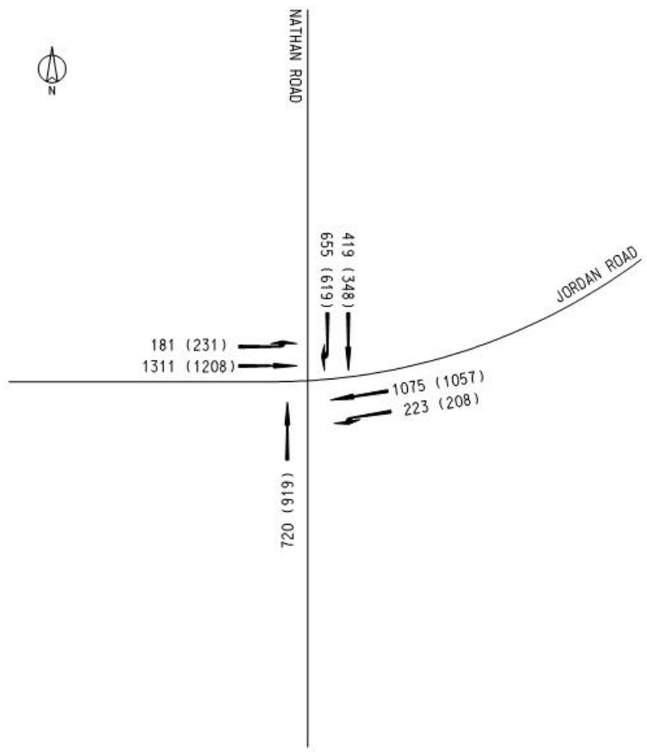
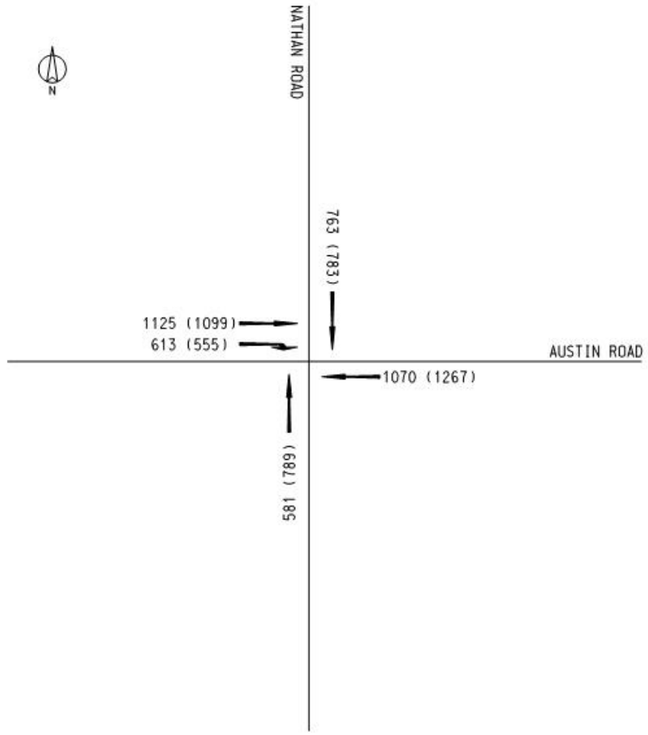
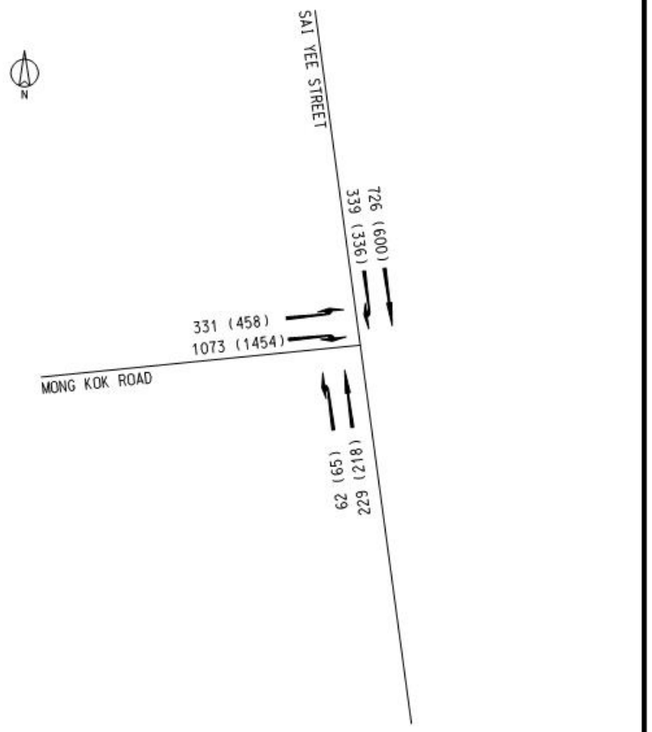


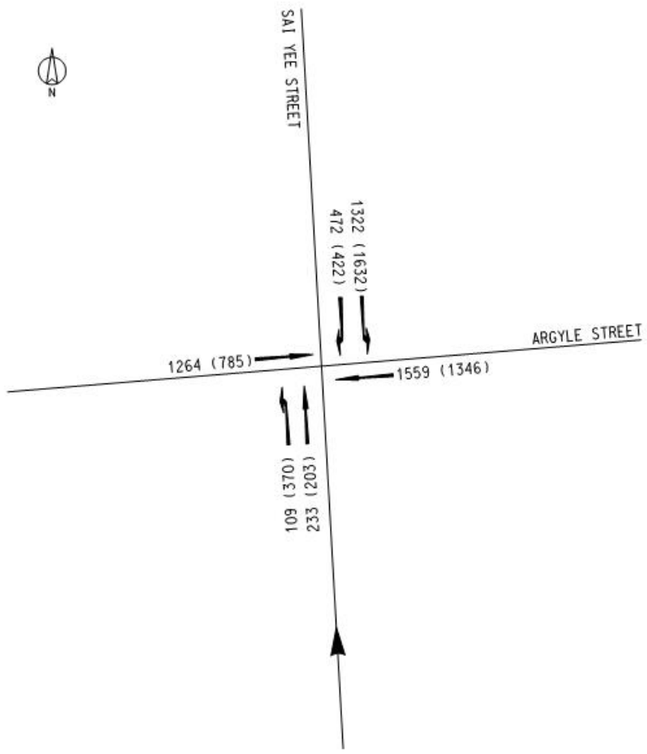
(J7) JORDAN ROAD / NATHAN ROAD



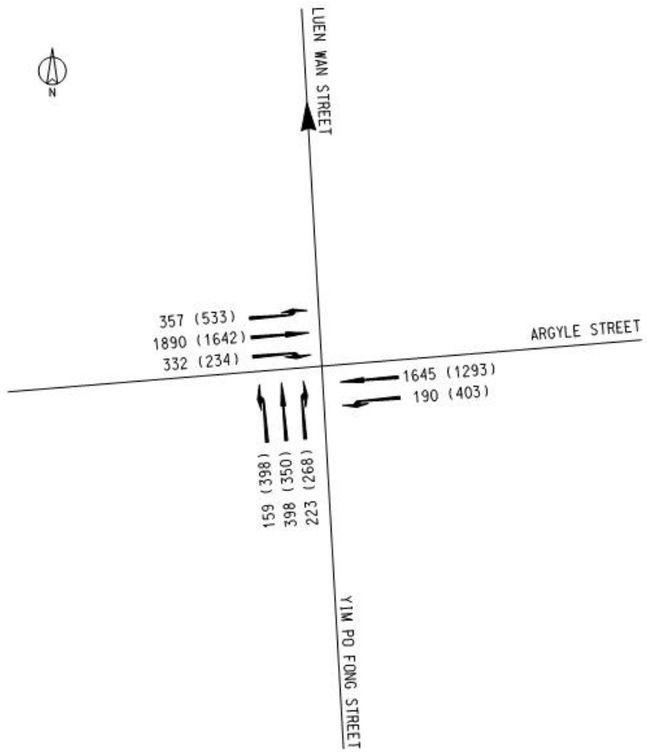
(J8) AUSTIN ROAD / NATHAN ROAD



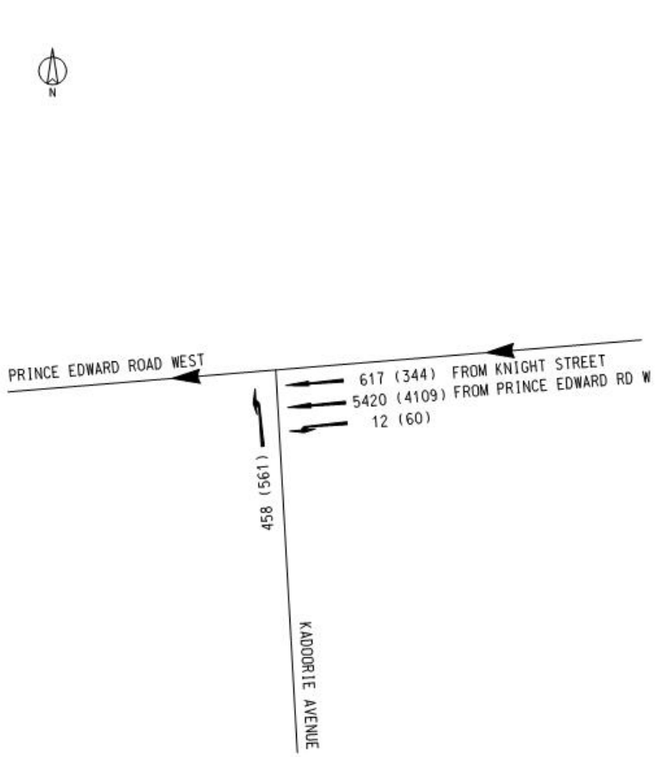
(J9) SAI YEE STREET / MONG KOK ROAD



(J10) ARGYLE STREET / SAI YEE STREET



(J11) ARGYLE STREET / YIM PO FONG STREET



(J12) PRINCE EDWARD ROAD WEST / KADOORIE AVENUE

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B	SECOND ISSUE	TS	06/13
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Consultant
ARUP Mott MacDonald
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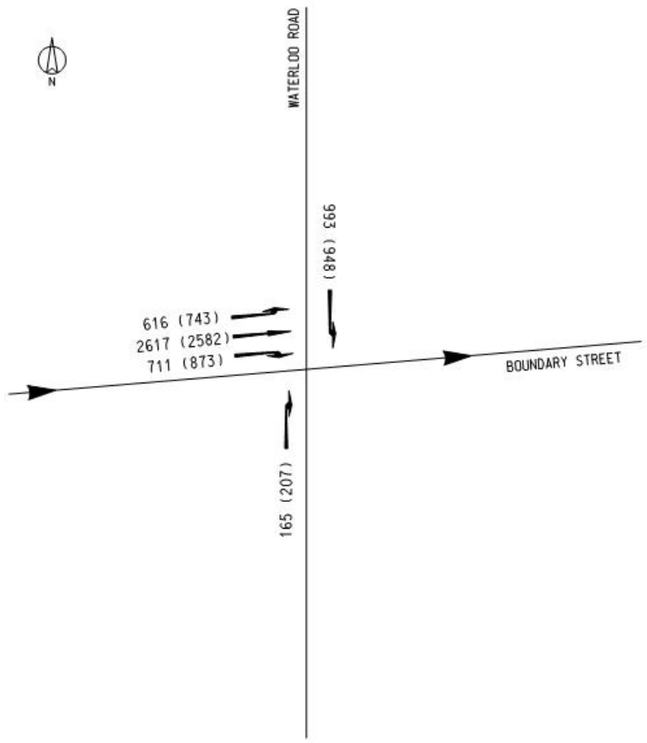
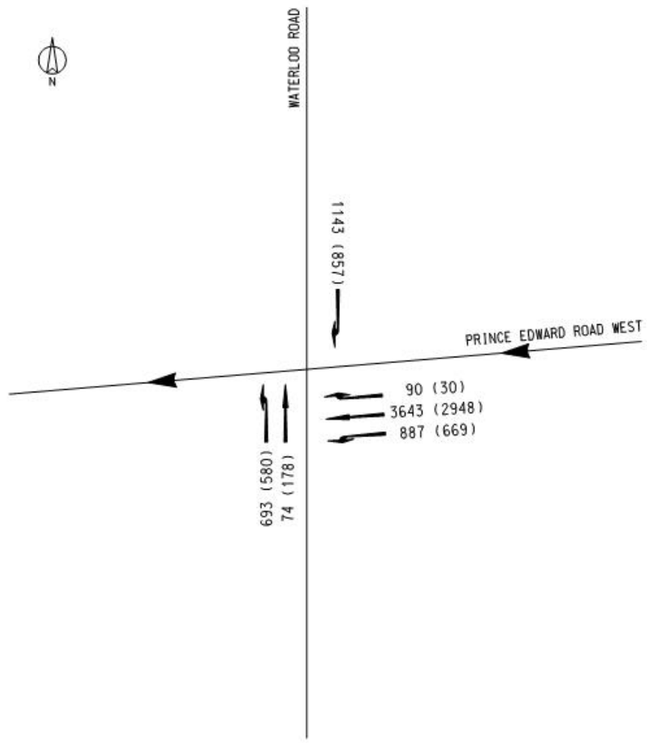
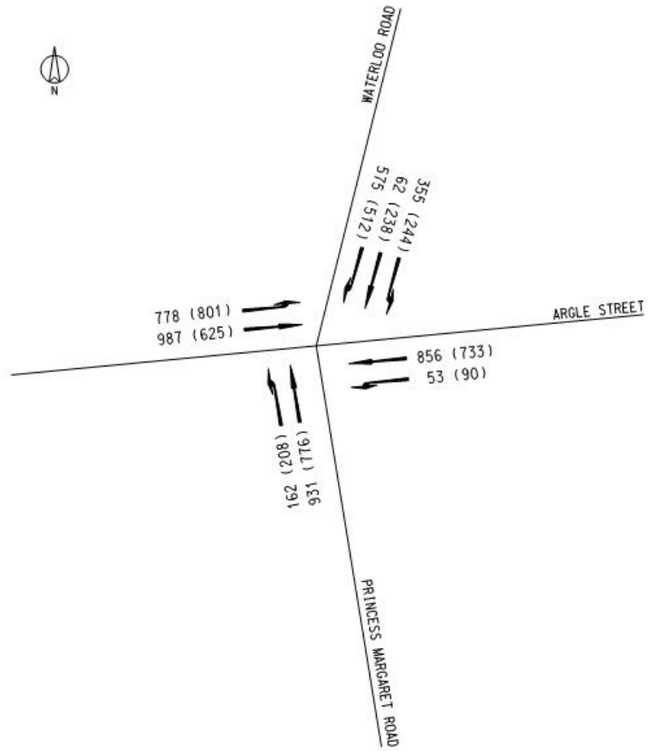


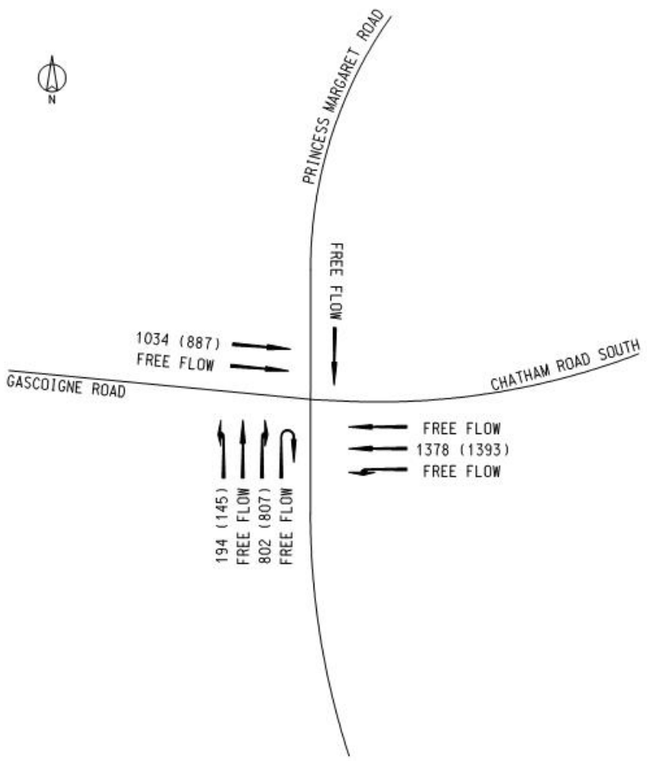
(J13) BOUNDARY STREET / WATERLOO ROAD



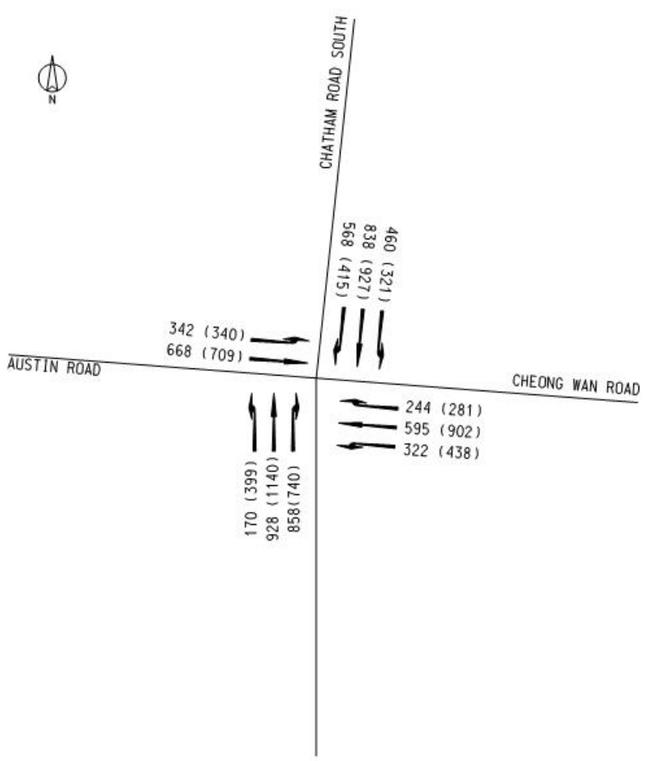
(J14) PRINCE EDWARD WEST / WATERLOO ROAD



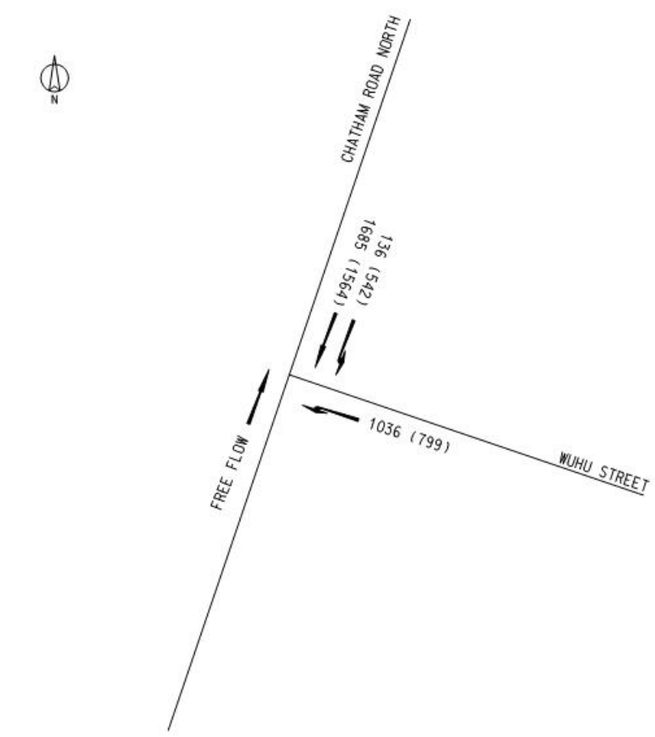
(J15) ARGLE STREET / WATERLOO ROAD / PRINCESS MARGARET ROAD



(J16) GASCOIGNE ROAD / CHATHAM ROAD SOUTH



(J17) AUSTIN ROAD / CHATHAM ROAD SOUTH / CHEONG WAN ROAD



(J18) CHAMTHAM ROAD NORTH / WUHU STREET

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Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

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2021 Forecast (Reference) Peak Hour Traffic Flows (3 of 7)

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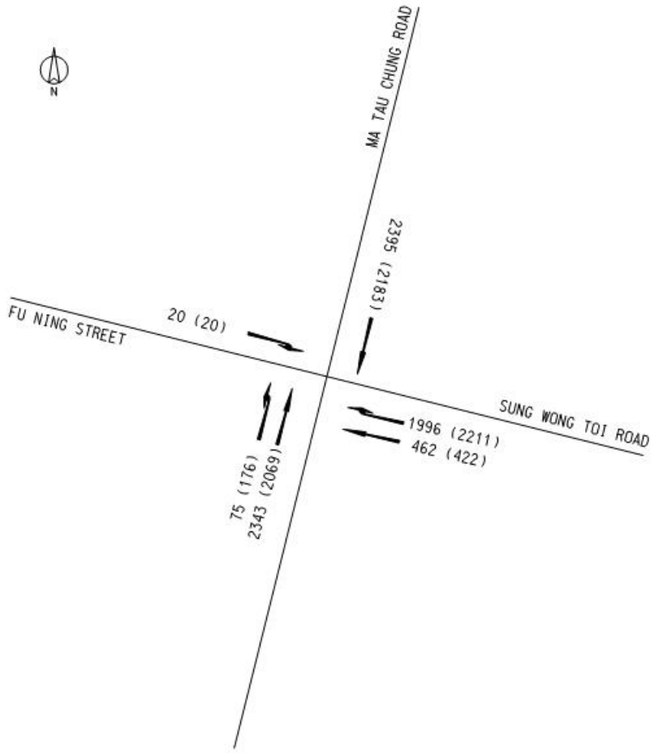
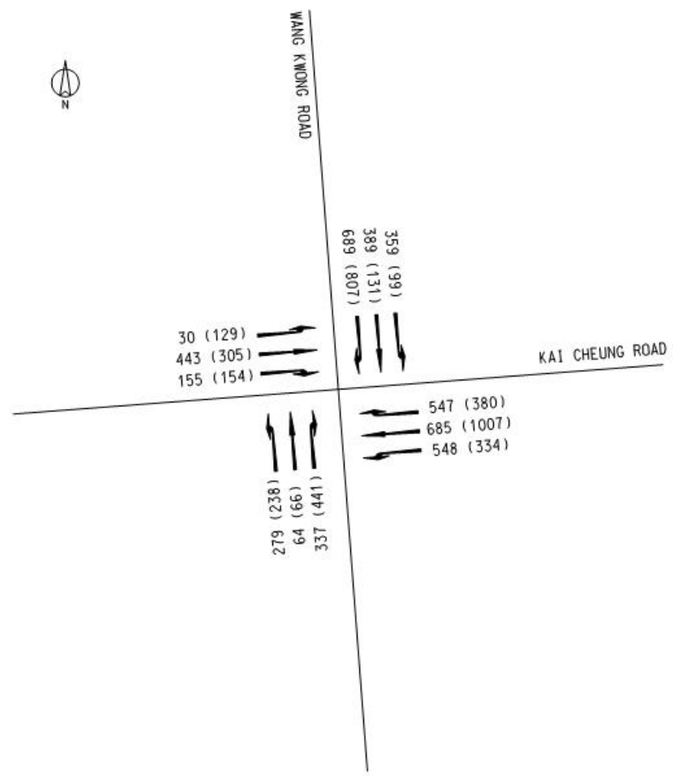
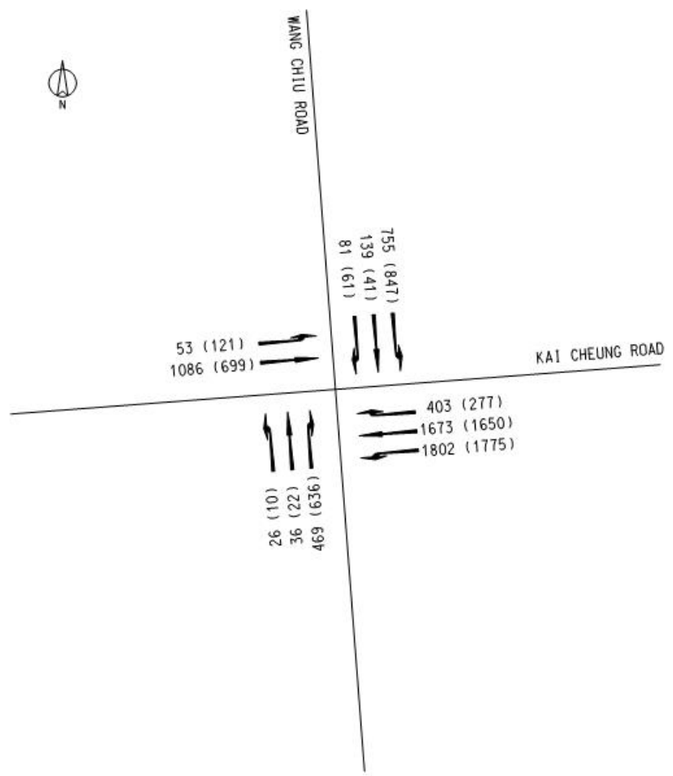


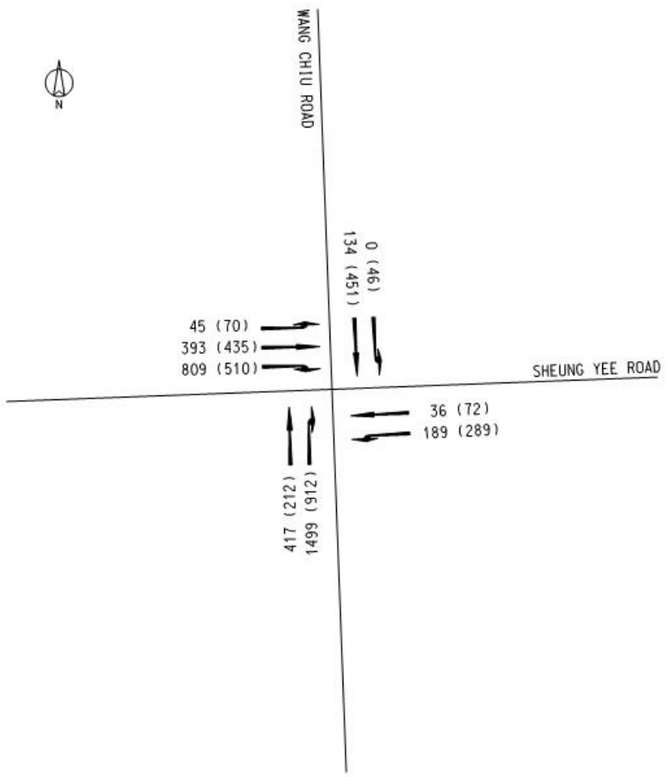
(J19) MA TAU CHUNG ROAD / SUNG WONG TOI ROAD



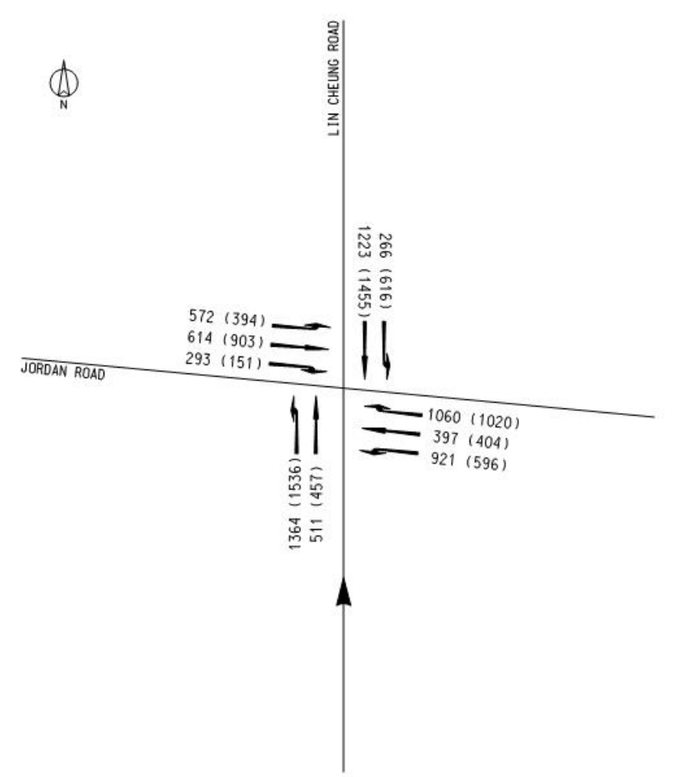
(J20) KAI CHEUNG ROAD / WANG KWONG ROAD



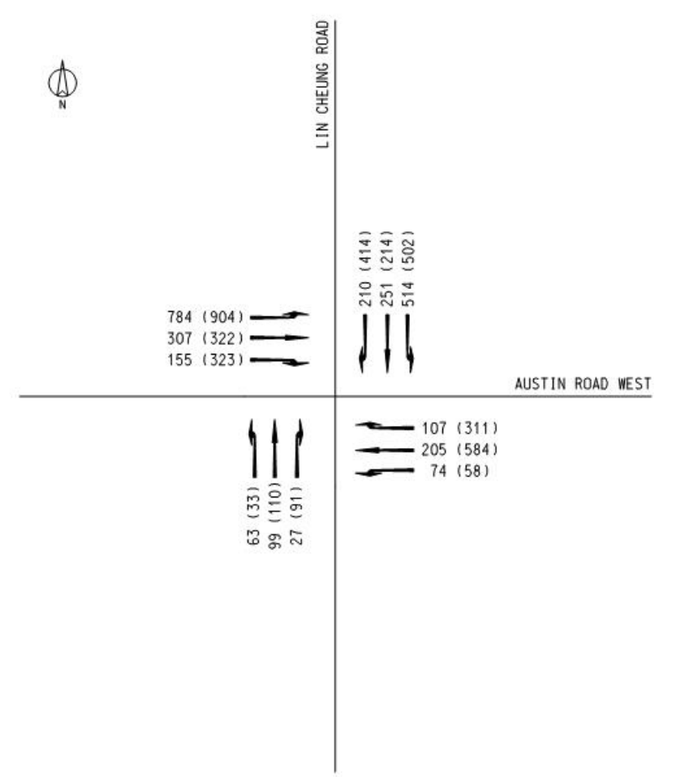
(J21) KAI CHEUNG ROAD / WANG CHIU ROAD



(J22) SHEUNG YEE ROAD / WANG CHIU ROAD



(J23) LIN CHEUNG ROAD / JORDAN ROAD



(J25) LIN CHEUNG ROAD / AUSTIN ROAD WEST

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B	SECOND ISSUE	TS	06/13
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ARUP Mott MacDonald
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Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2021 Forecast (Reference) Peak Hour Traffic Flows (4 of 7)

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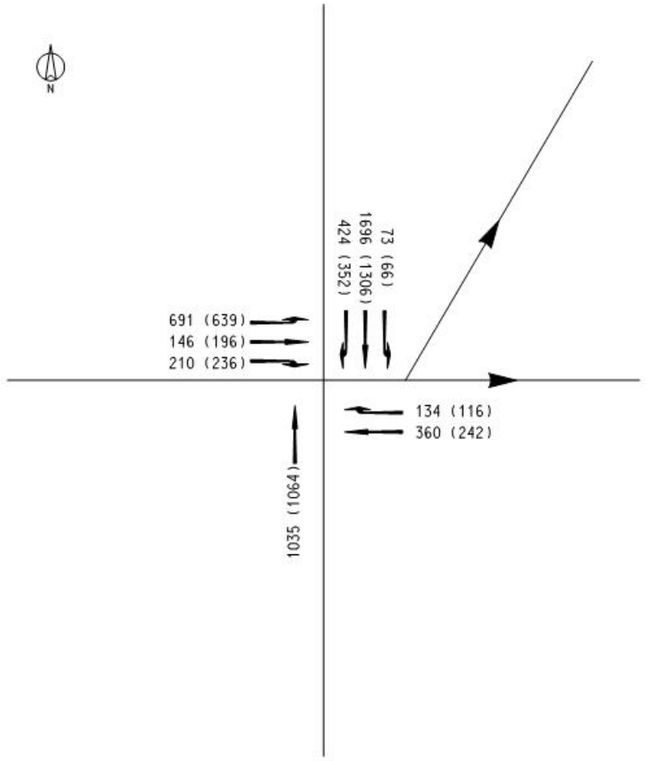
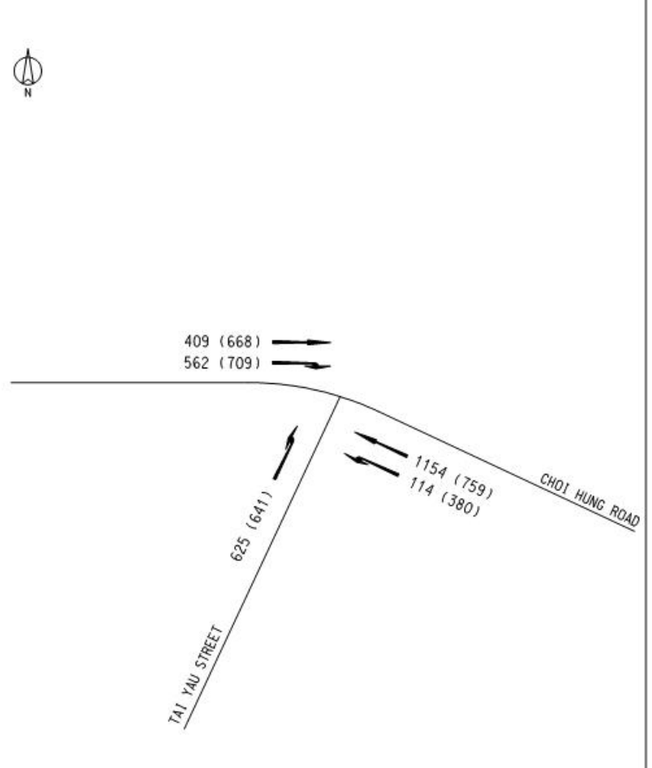
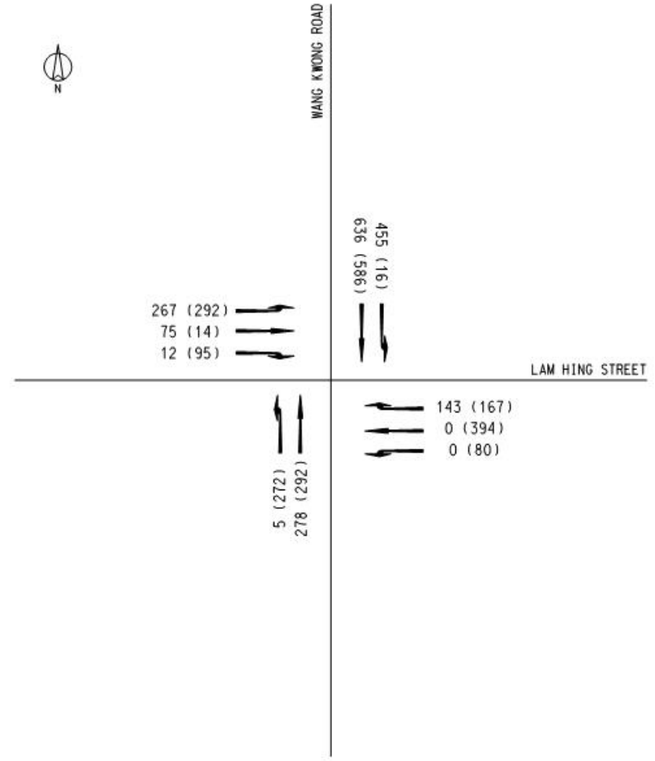


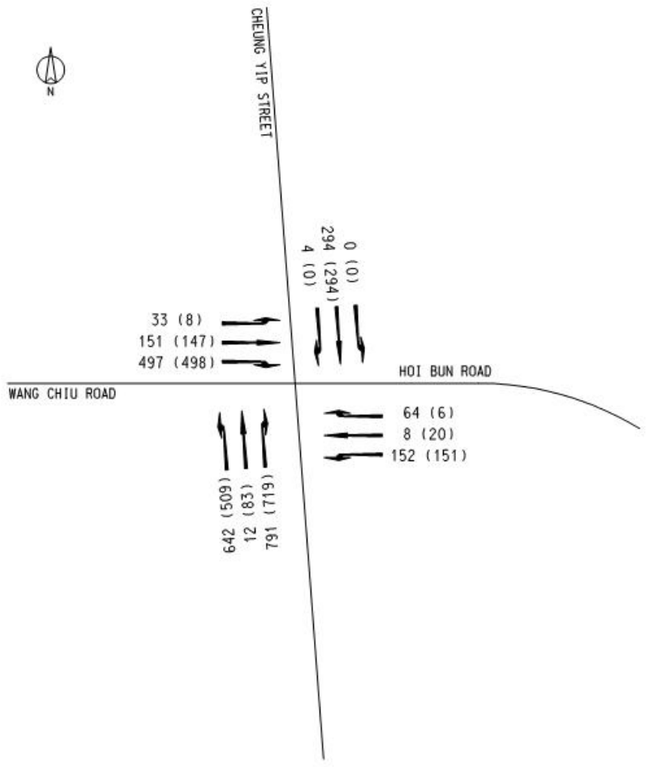
(J26) MA TAU ROAD / TIN KWONG ROAD



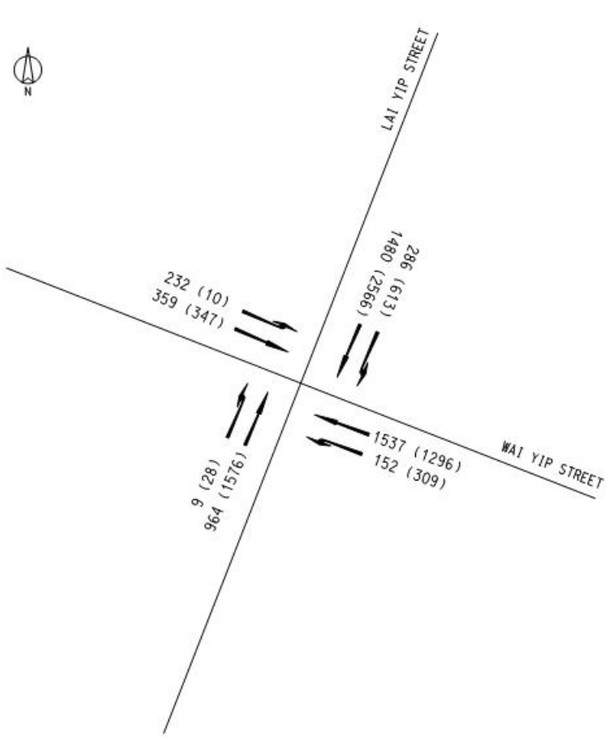
(J27) CHOI HUNG ROAD / TAI YAU STREET



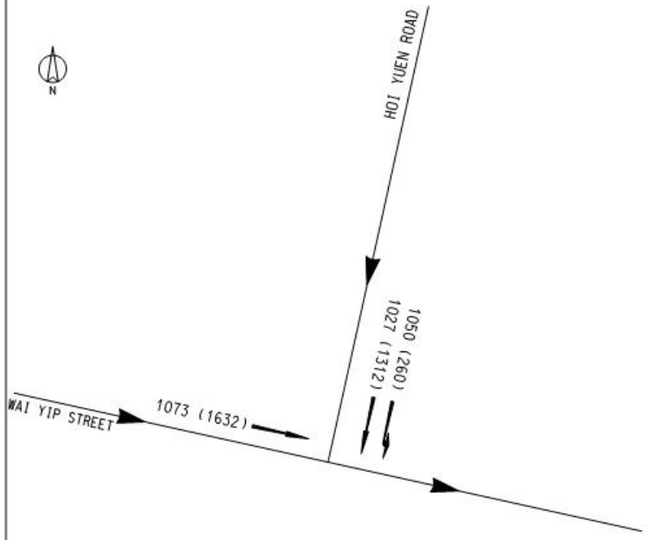
(J28) LAM HING STREET / WANG KWONG ROAD



(J29) HOI BUN ROAD / CHEUNG YIP STREET / WANG CHIU ROAD



(J30) WAI YIP STREET / LAI YIP STREET



(J31) WAI YIP STREET / HOI YUEN ROAD

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
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Consultant

ARUP Mott MacDonald Joint Venture

Project title

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Central Kowloon Route - Design and Construction

Drawing title

2021 Forecast (Reference) Peak Hour Traffic Flows (5 of 7)

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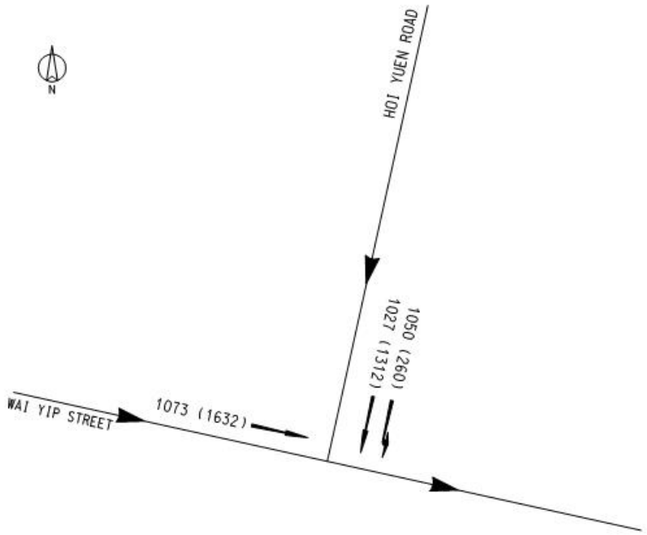
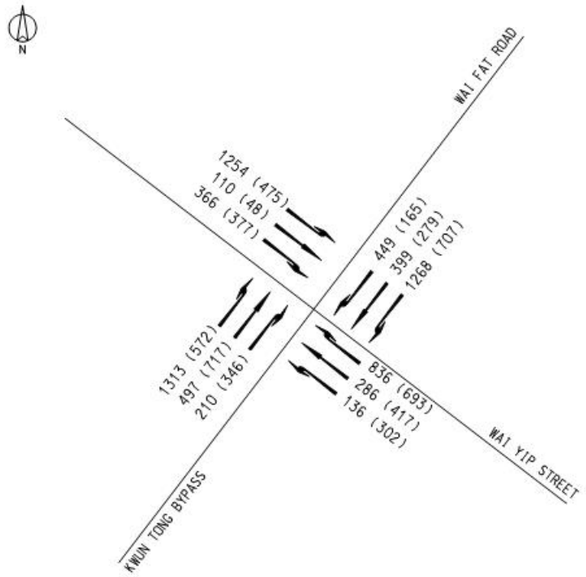
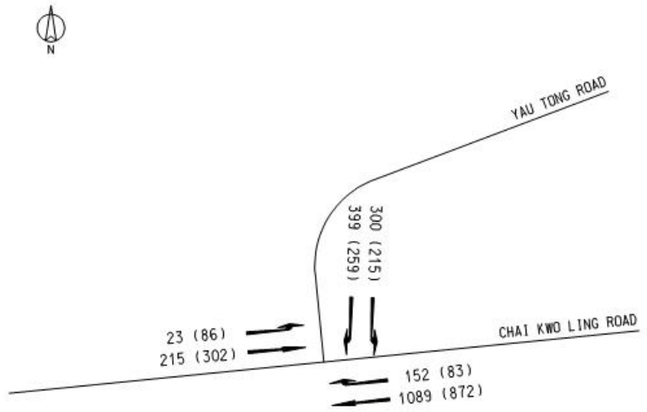


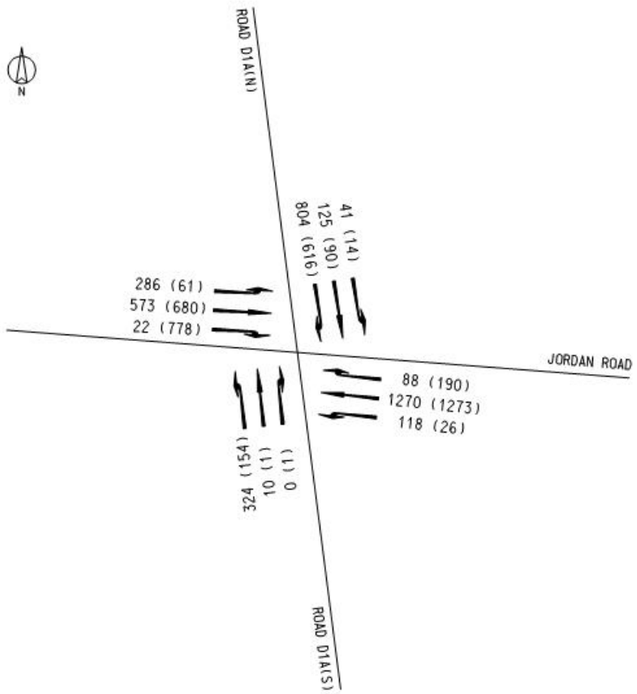
(J31) WAI YIP STREET / HOI YUEN ROAD



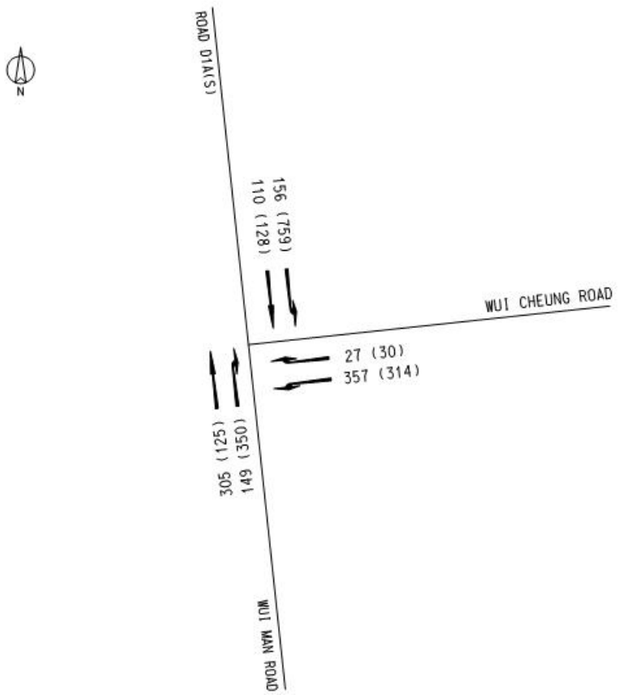
(J32) WAI YIP STREET / WAI FAT ROAD



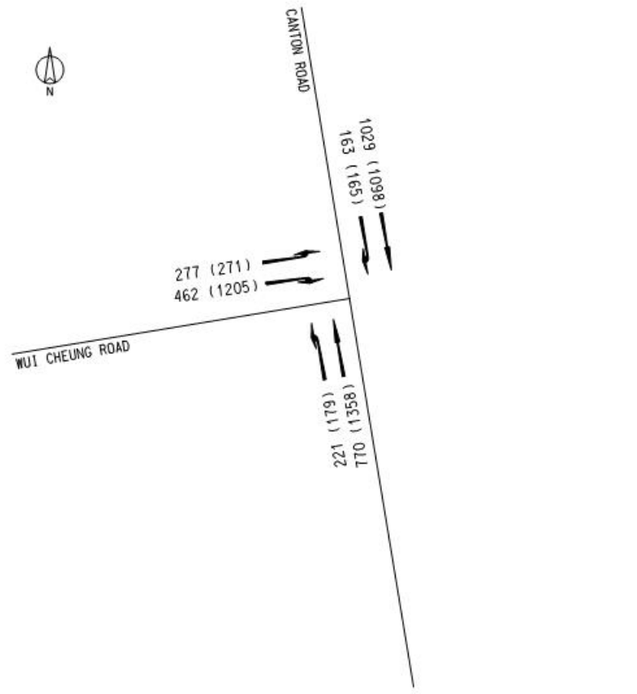
(J33) CHAI KWO LING ROAD / YAU TONG ROAD



(J34) TEMPORARY ROAD D1A(S) / JORDAN ROAD



(J35) TEMPORARY ROAD D1A(S) / WUI CHEUNG ROAD



(J36) CANTON ROAD / WUI CHEUNG ROAD

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2021 Forecast (Reference) Peak Hour Traffic Flows (6 of 7)

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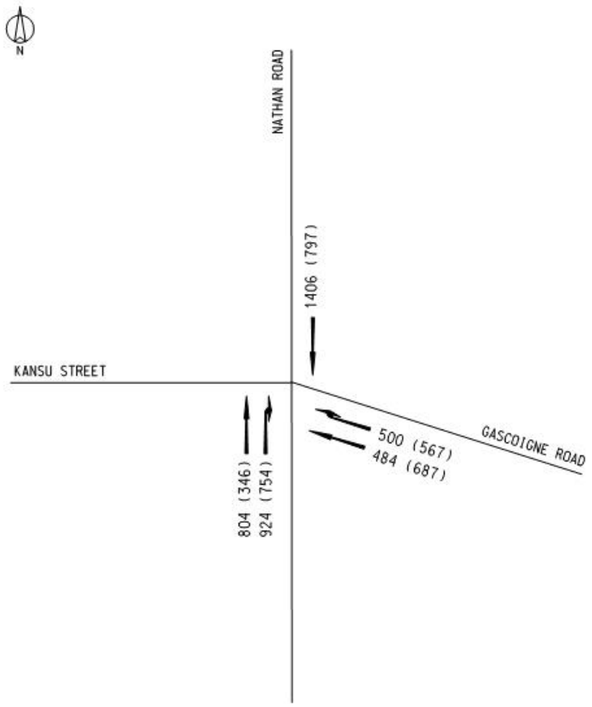
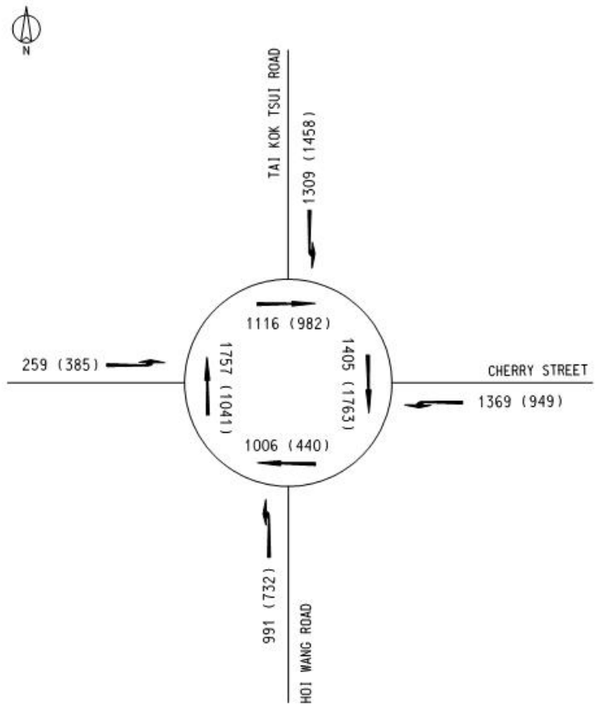


(J37) KANSU STREET / NATHAN ROAD / GASCOIGNE ROAD



(J38) OLYMPIC GARDEN ROUNDABOUT

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2021 Forecast (Reference) Peak Hour Traffic Flows (7 of 7)

Drawing no.	Rev.
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Drawn	Date	Checked	Approved
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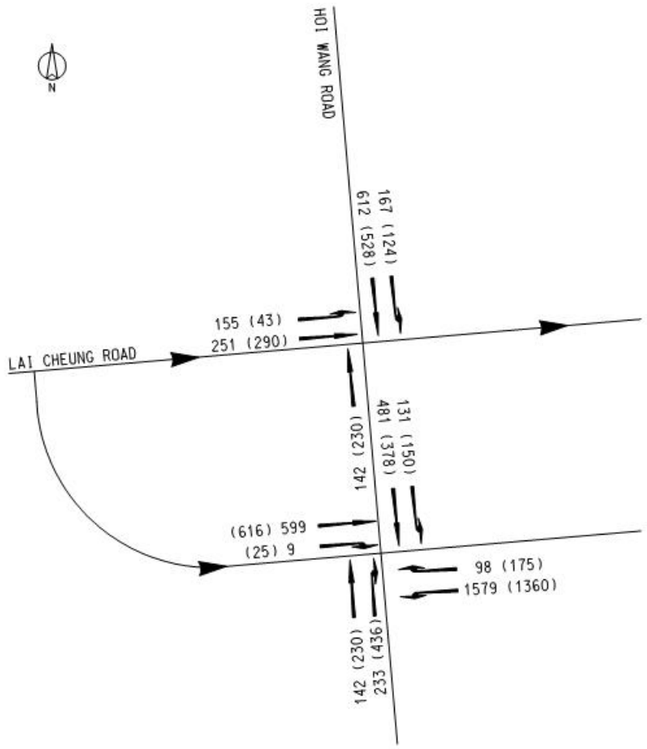
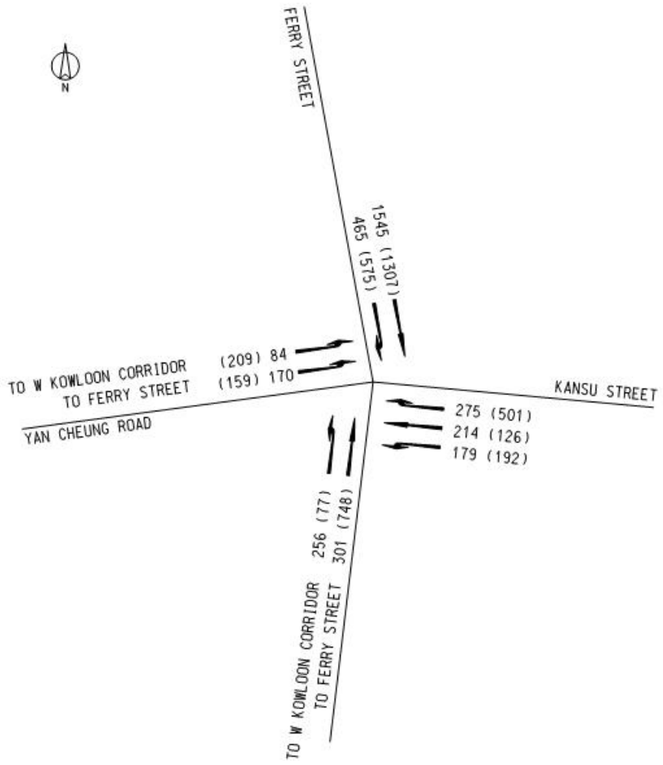
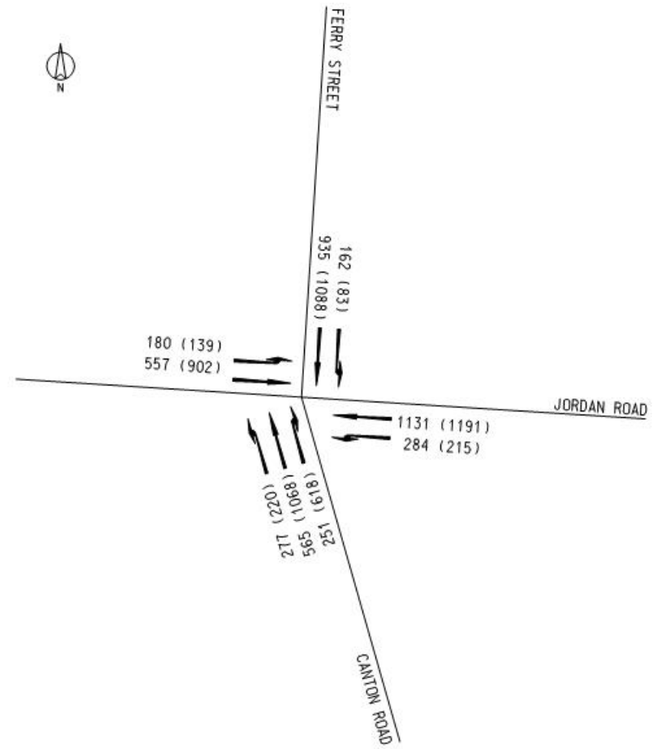


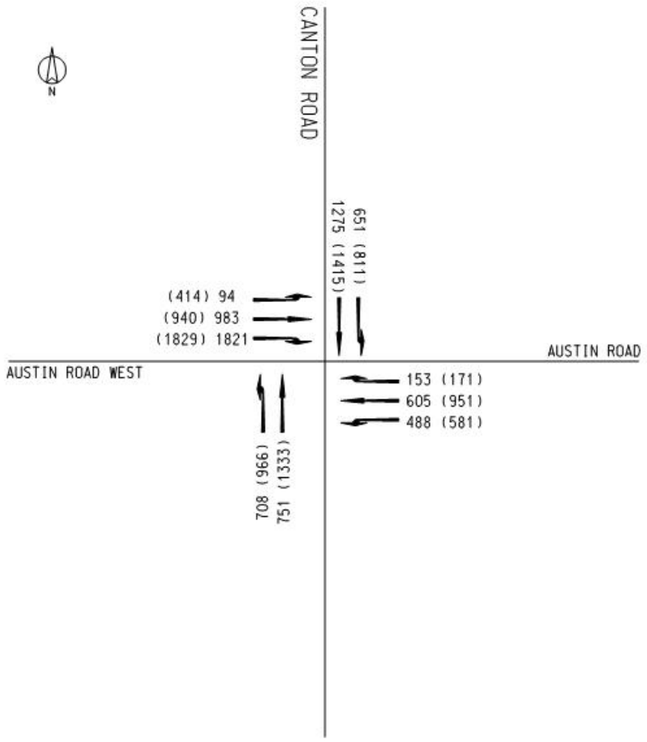
(J1) HOI WANG ROAD / LAI CHEUNG ROAD



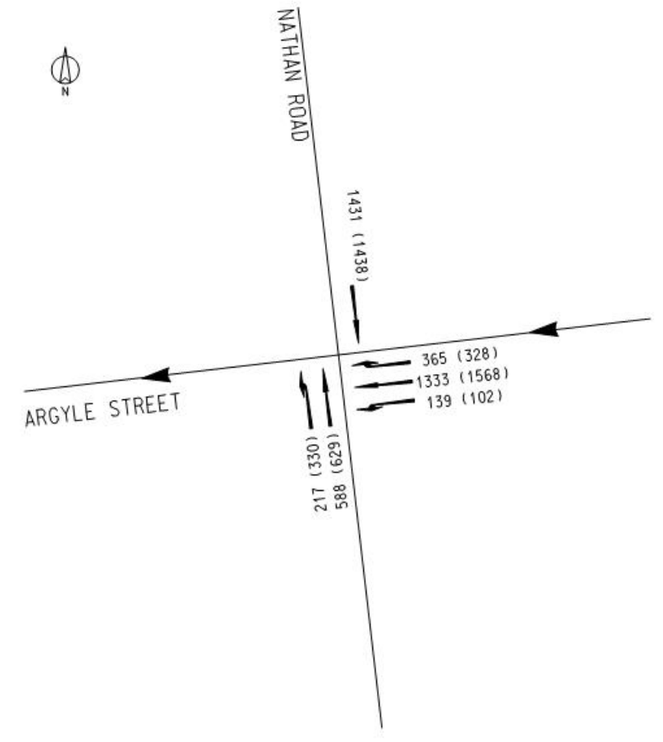
(J2) KANSU STREET / FERRY STREET / YAN CHEUNG ROAD



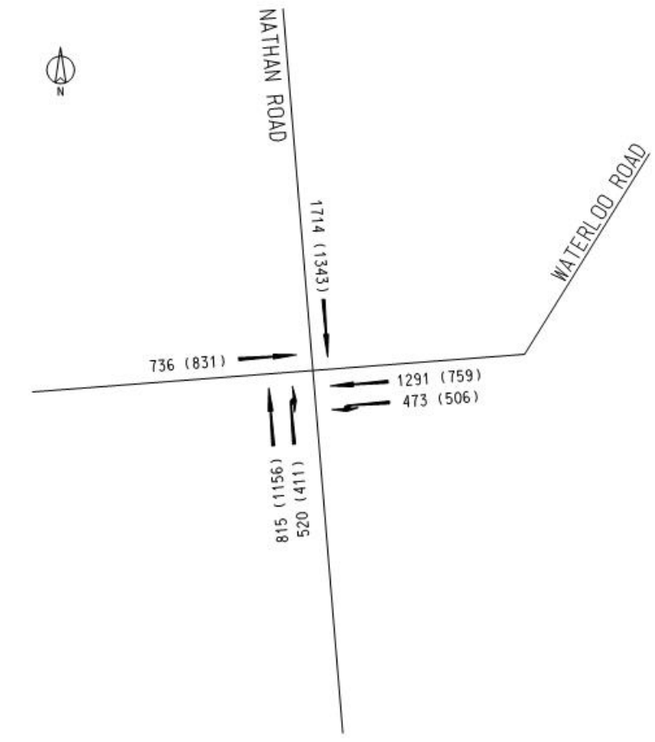
(J3) JORDAN ROAD / FERRY STREET / CANTON ROAD



(J4) AUSTIN ROAD WEST / AUSTIN ROAD / CANTON ROAD



(J5) ARGYLE STREET / NATHAN ROAD



(J6) WATERLOO ROAD / NATHAN ROAD

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Joint Venture

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Central Kowloon Route - Design and Construction

Drawing title
2021 Forecast (Design)
Peak Hour Traffic Flows
(1 of 7)

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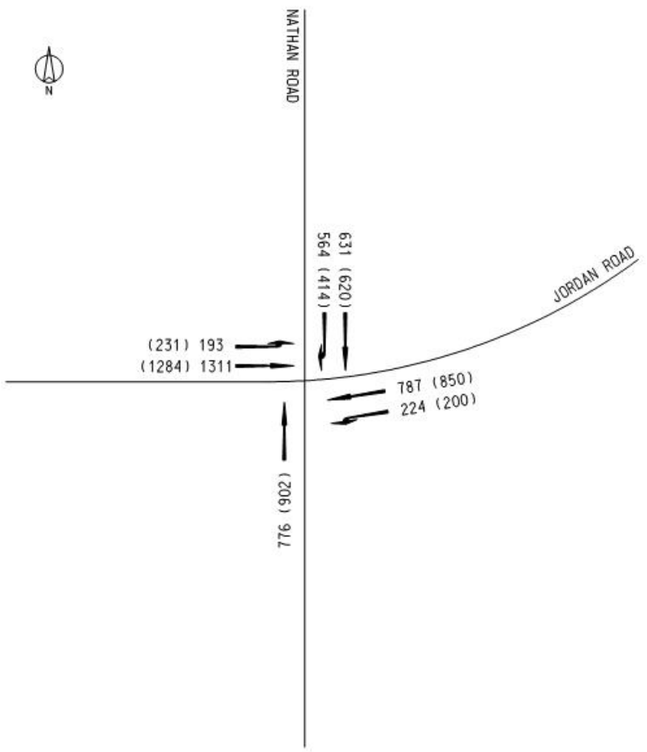
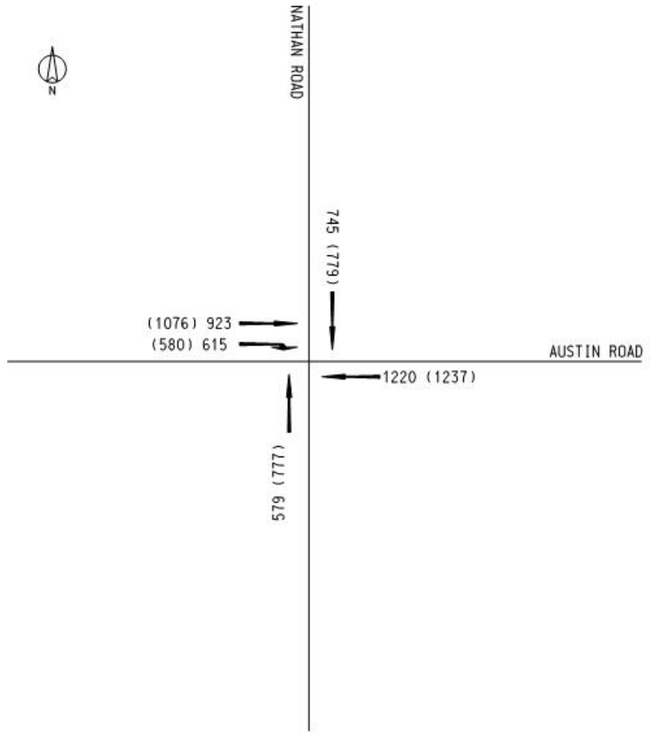


(J7) JORDAN ROAD / NATHAN ROAD



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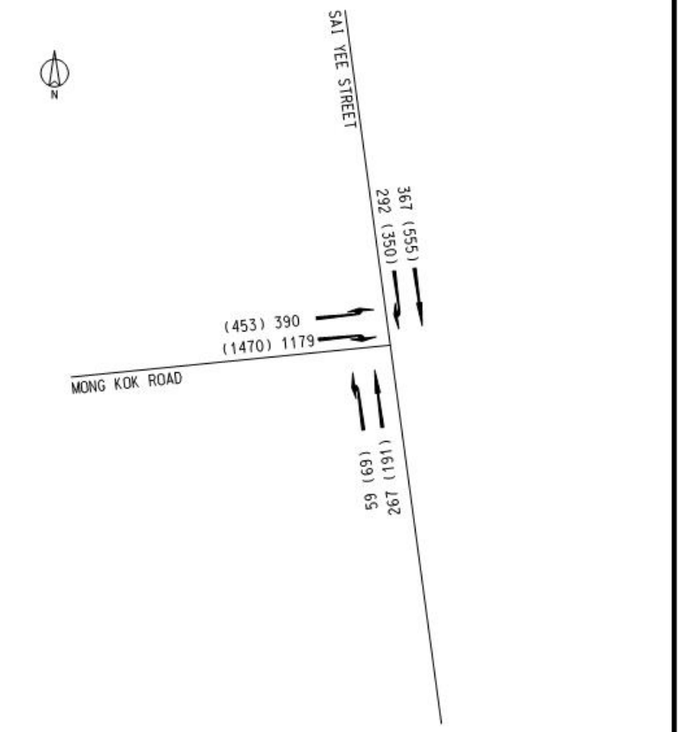
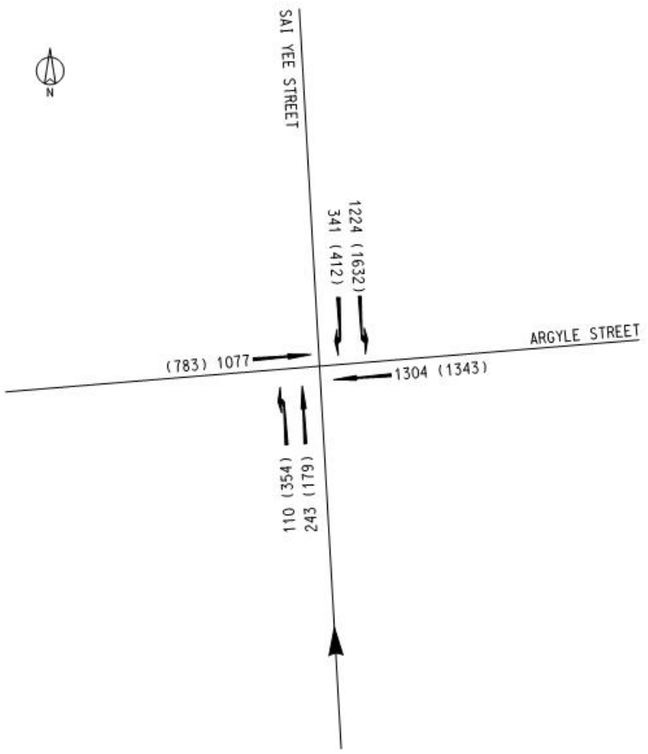
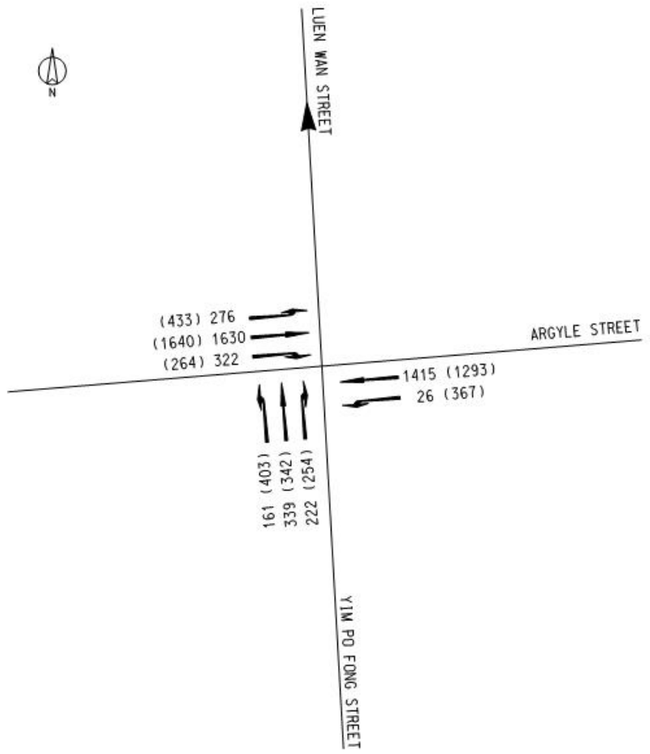


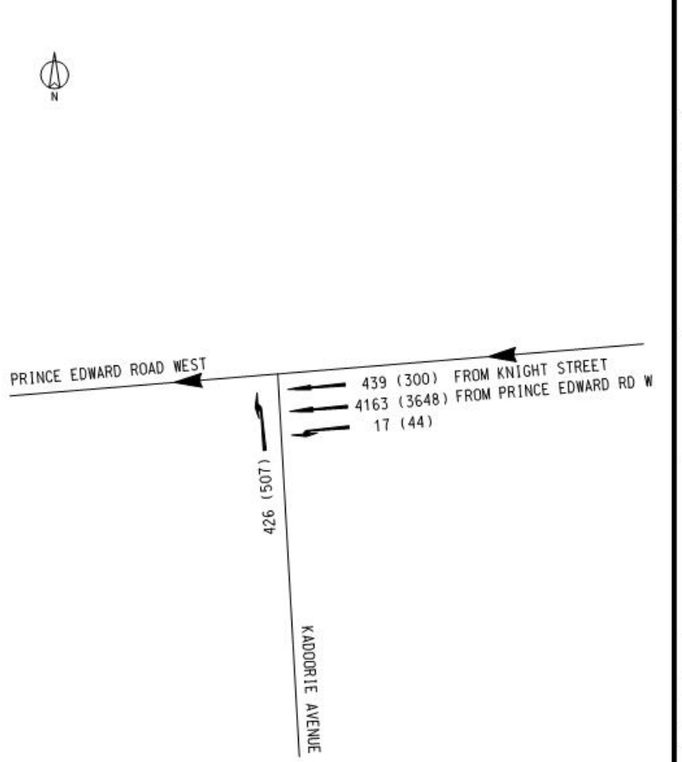
(J9) SAI YEE STREET / MONG KOK ROAD



(J10) ARGYLE STREET / SAI YEE STREET



(J11) ARGYLE STREET / YIM PO FONG STREET



(J12) PRINCE EDWARD ROAD WEST / KADOORIE AVENUE

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B	SECOND ISSUE	TS	06/13
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2021 Forecast (Design)
Peak Hour Traffic Flows
(2 of 7)

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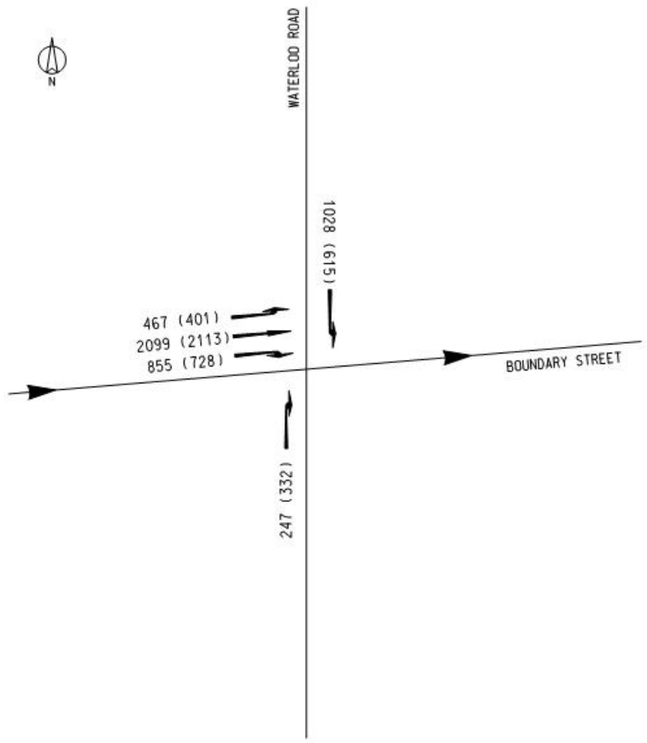
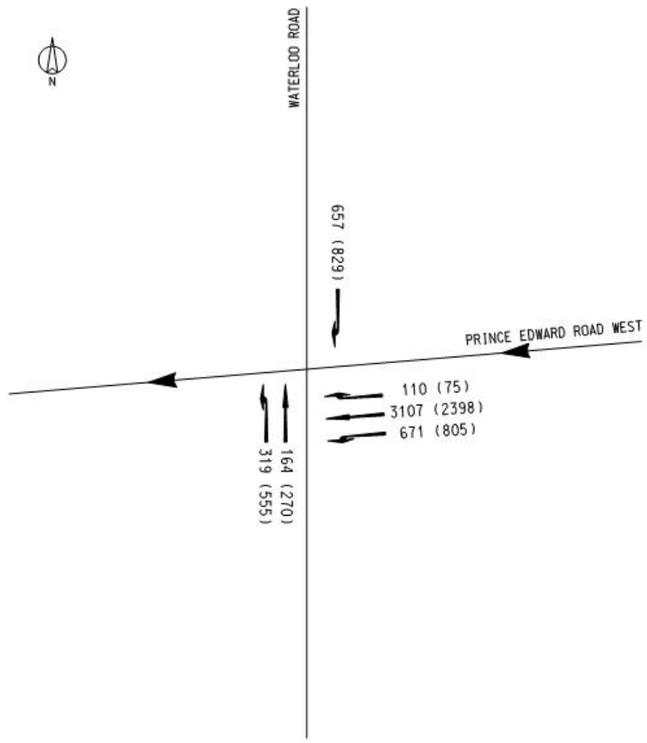
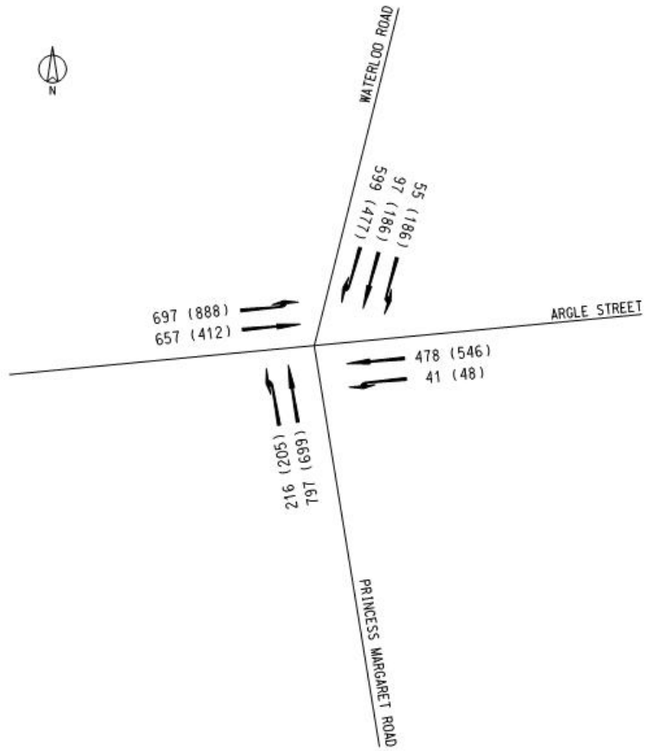


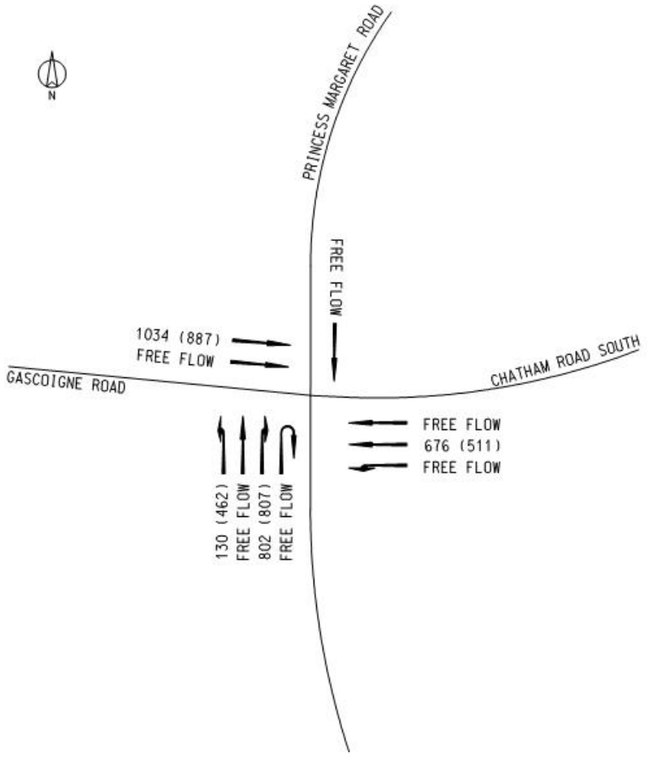
(J13) BOUNDARY STREET / WATERLOO ROAD



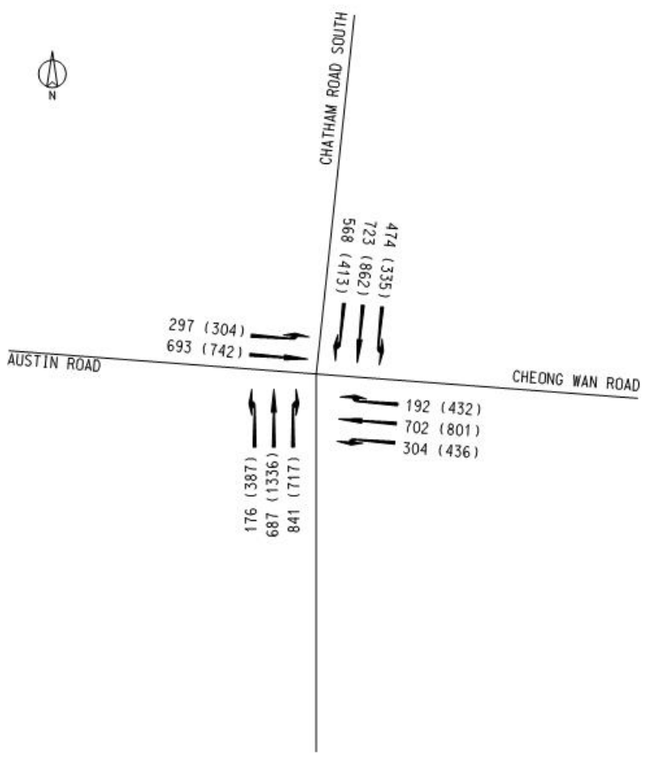
(J14) PRINCE EDWARD WEST / WATERLOO ROAD



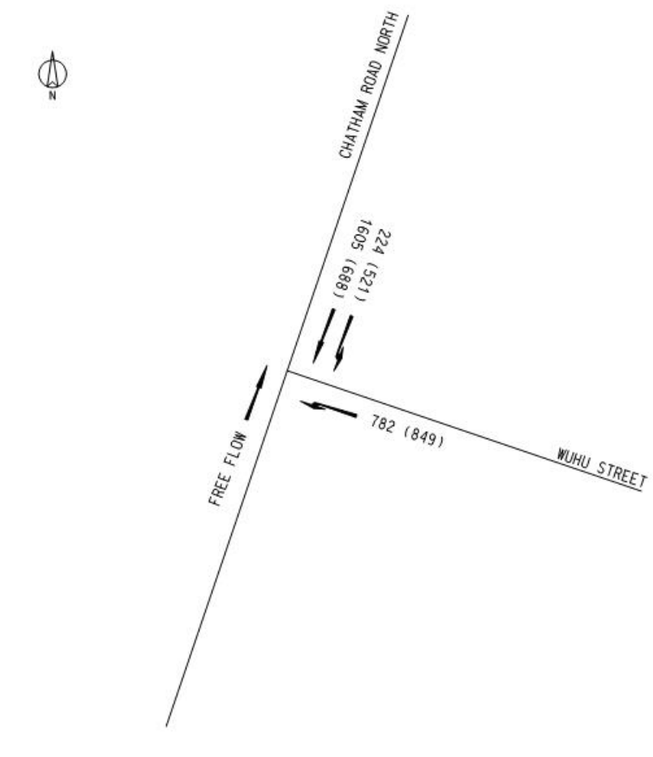
(J15) ARGLE STREET / WATERLOO ROAD / PRINCESS MARGARET ROAD



(J16) GASCOIGNE ROAD / CHATHAM ROAD SOUTH



(J17) AUSTIN ROAD / CHATHAM ROAD SOUTH / CHEONG WAN ROAD



(J18) CHAMTHAM ROAD NORTH / WUHU STREET

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Central Kowloon Route - Design and Construction

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2021 Forecast (Design) Peak Hour Traffic Flows (3 of 7)

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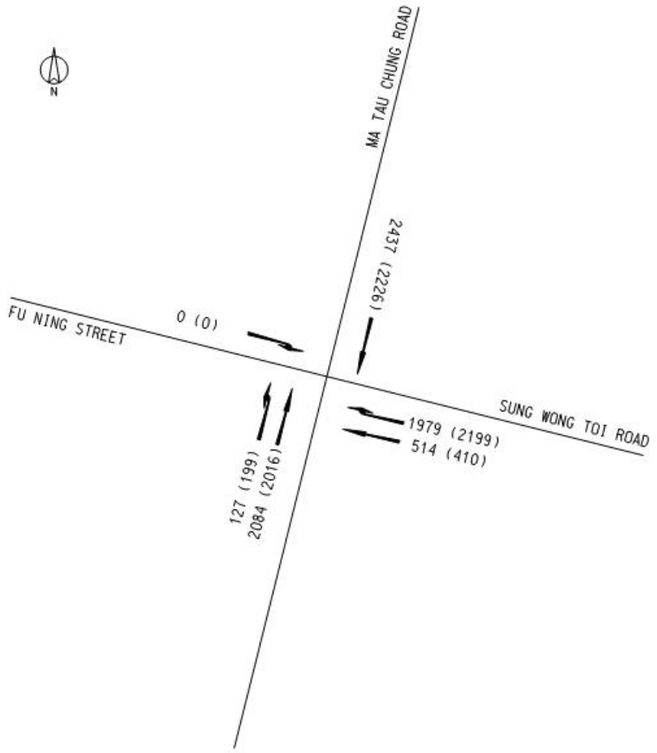
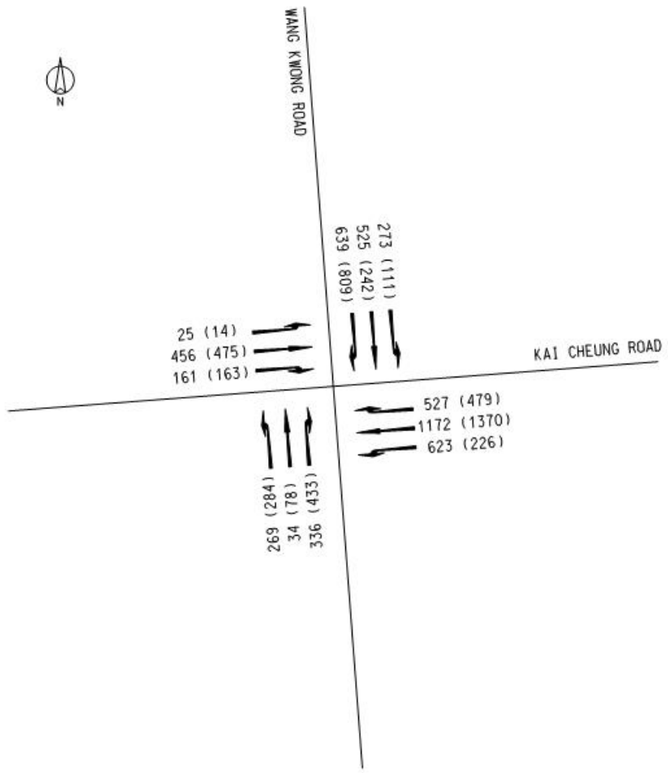
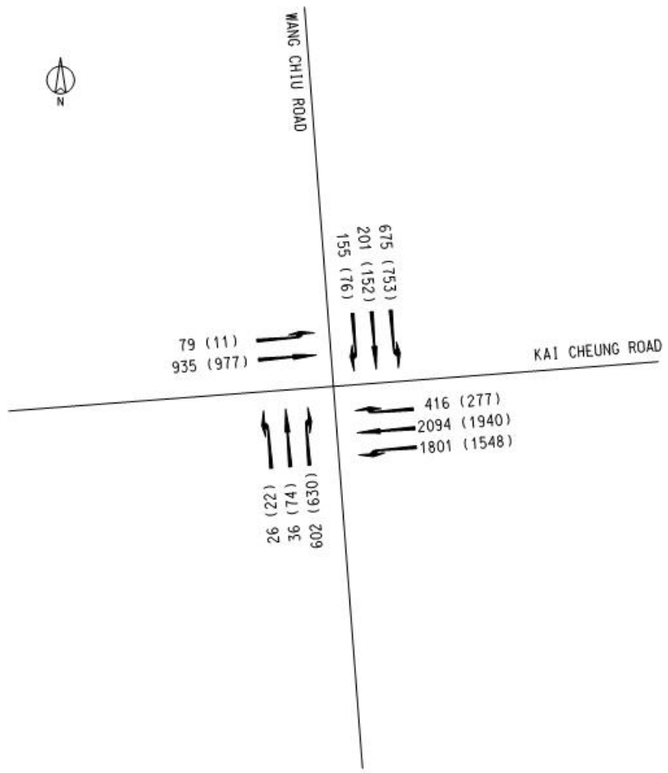


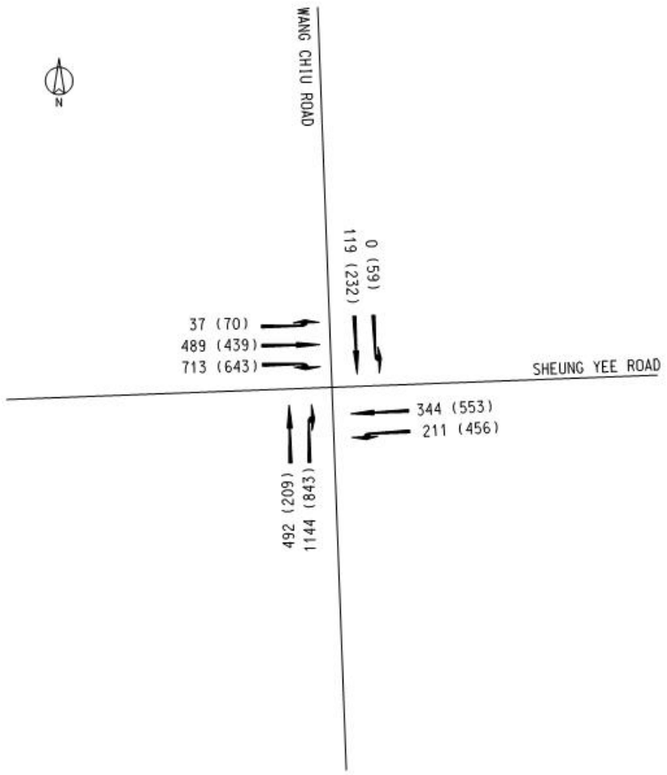
(J19) MA TAU CHUNG ROAD / SUNG WONG TOI ROAD



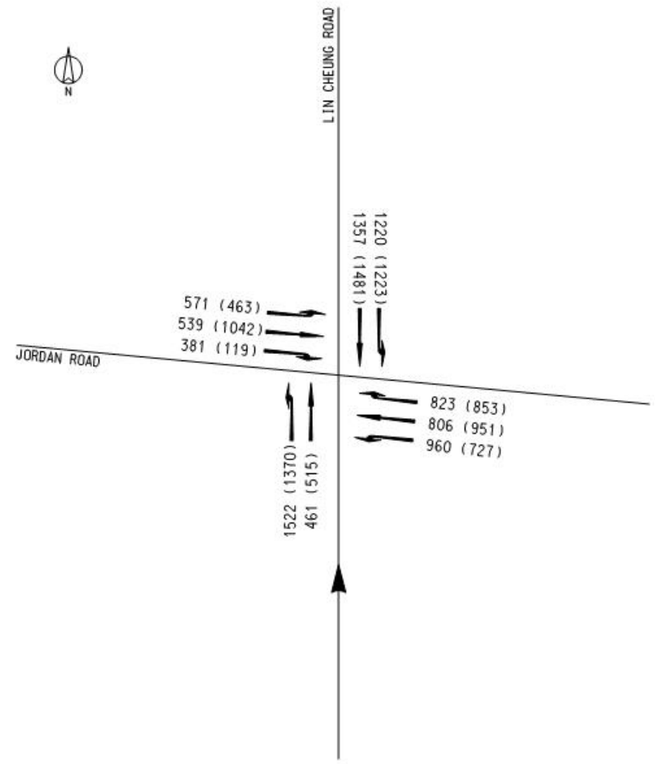
(J20) KAI CHEUNG ROAD / WANG KWONG ROAD



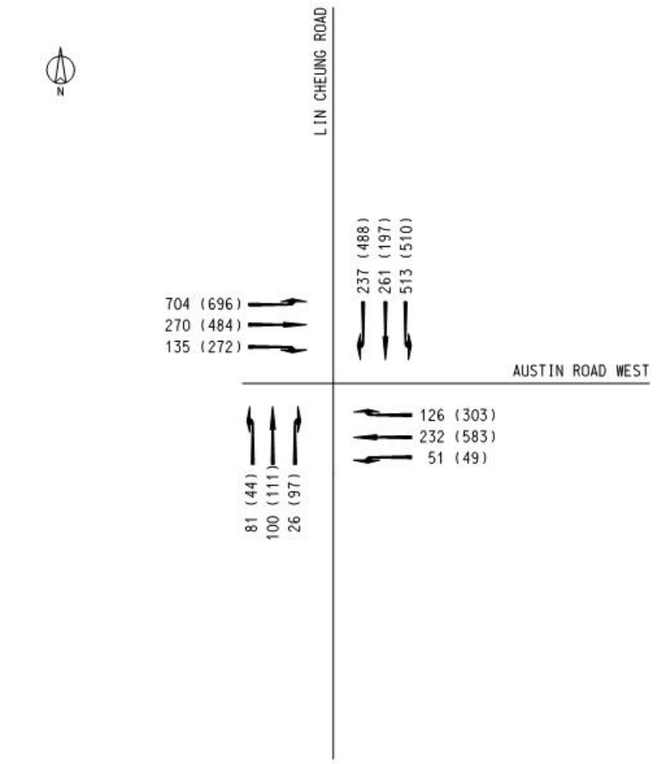
(J21) KAI CHEUNG ROAD / WANG CHIU ROAD



(J22) SHEUNG YEE ROAD / WANG CHIU ROAD



(J23) LIN CHEUNG ROAD / JORDAN ROAD



(J25) LIN CHEUNG ROAD / AUSTIN ROAD WEST

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Central Kowloon Route - Design and Construction

Drawing title
2021 Forecast (Design)
Peak Hour Traffic Flows
(4 of 7)

Drawing no.	Rev.
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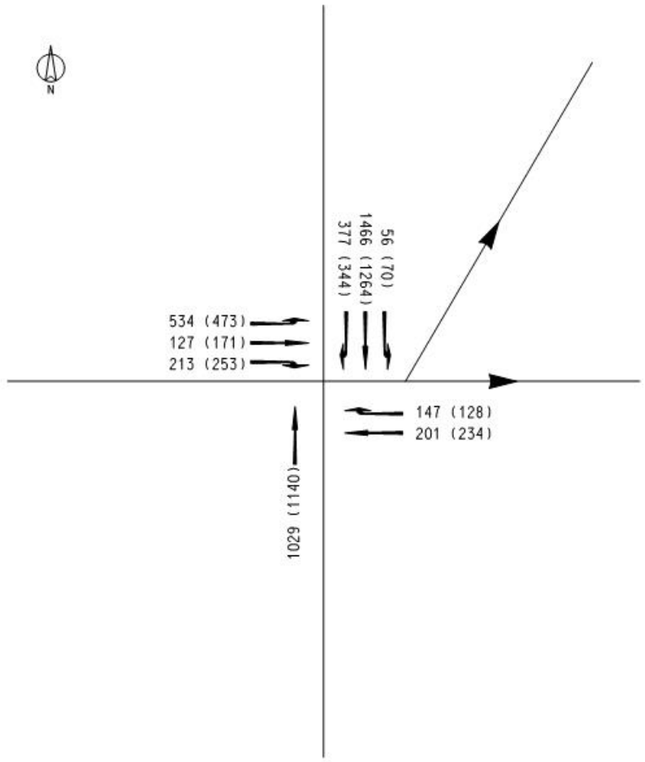
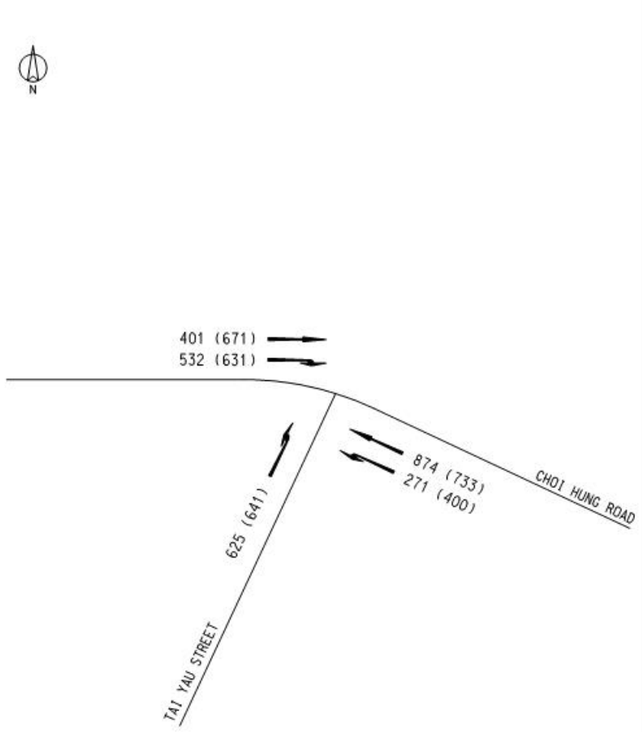
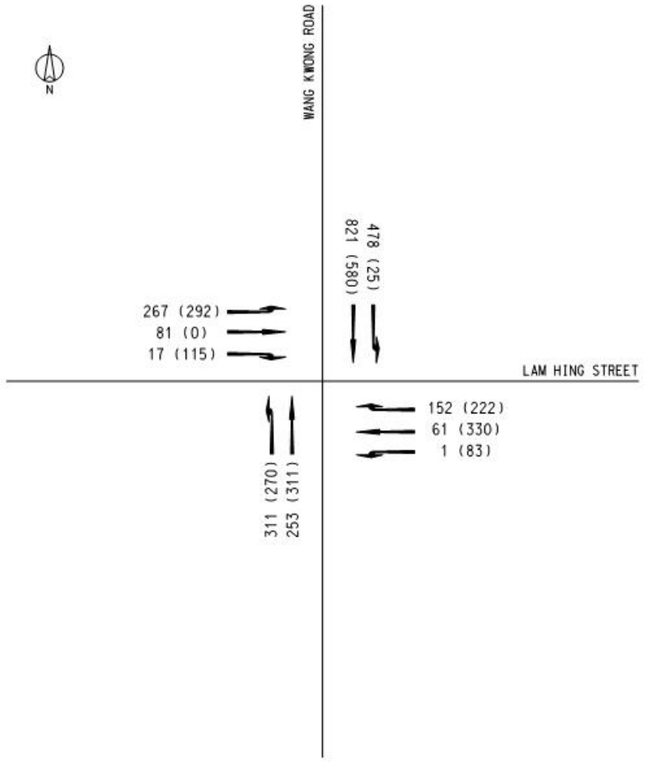


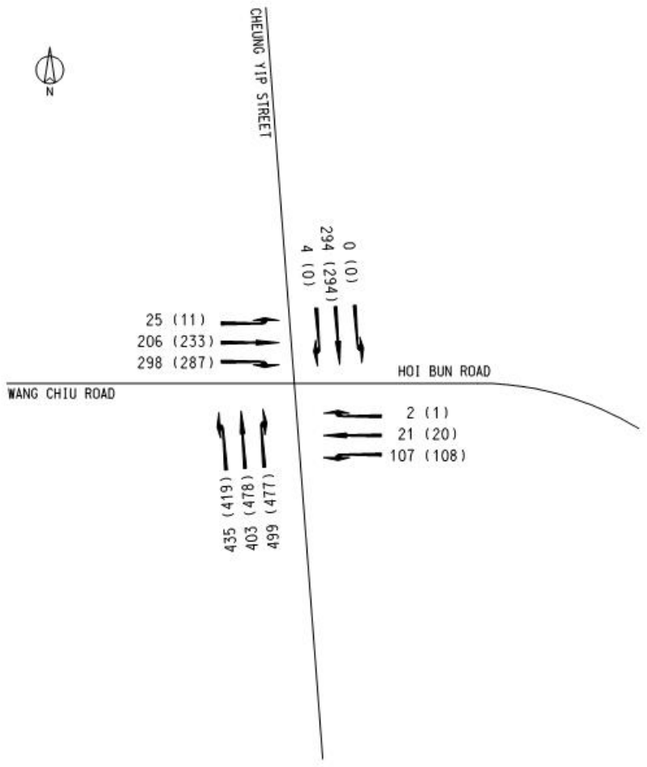
(J26) MA TAU ROAD / TIN KWONG ROAD



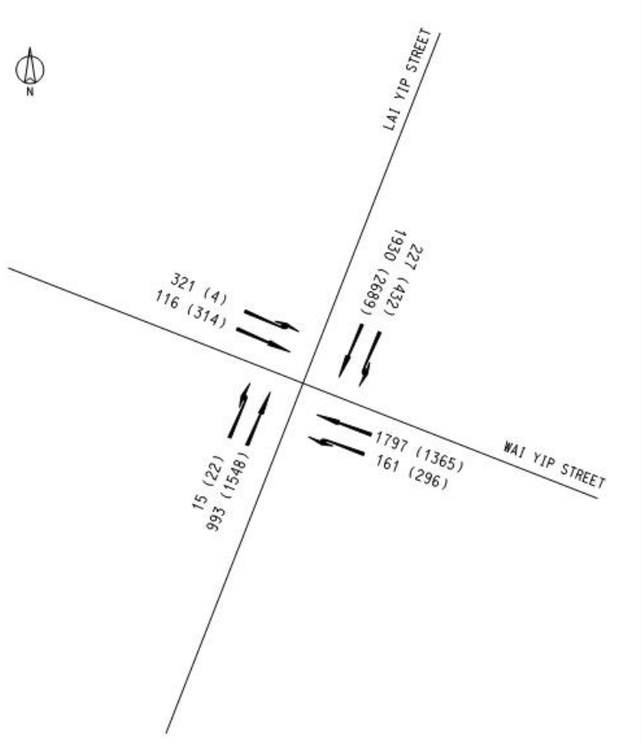
(J27) CHOI HUNG ROAD / TAI YAU STREET



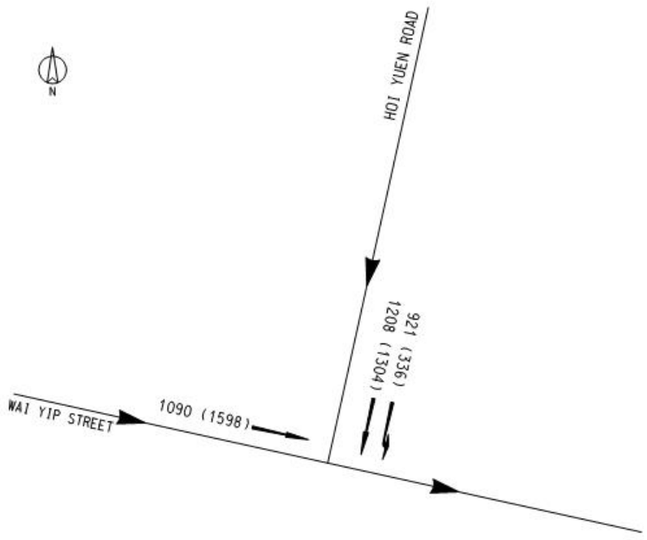
(J28) LAM HING STREET / WANG KWONG ROAD



(J29) HOI BUN ROAD / CHEUNG YIP STREET / WANG CHIU ROAD



(J30) WAI YIP STREET / LAI YIP STREET



(J31) WAI YIP STREET / HOI YUEN ROAD

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Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2021 Forecast (Design)
Peak Hour Traffic Flows
(5 of 7)

Drawing no.	Rev.
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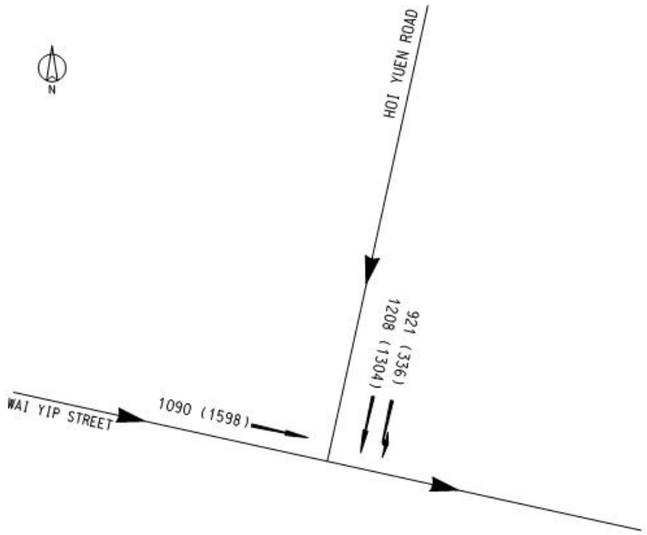
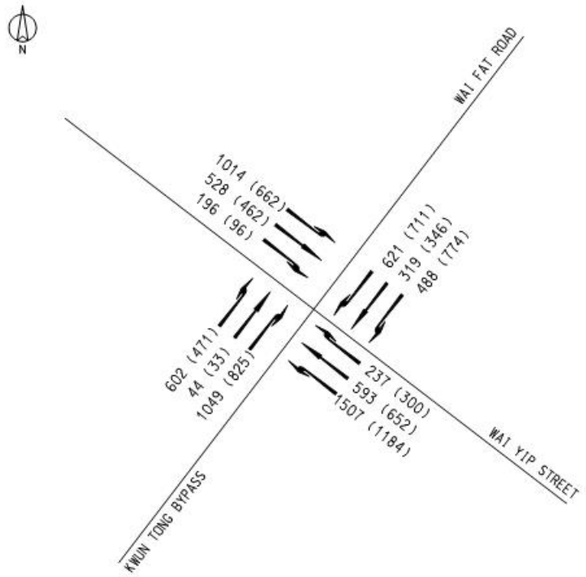
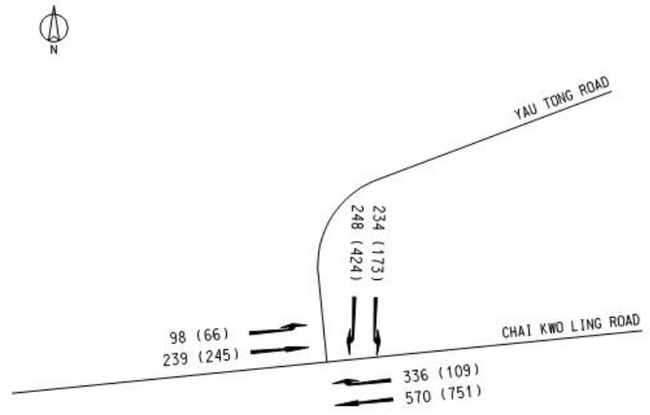


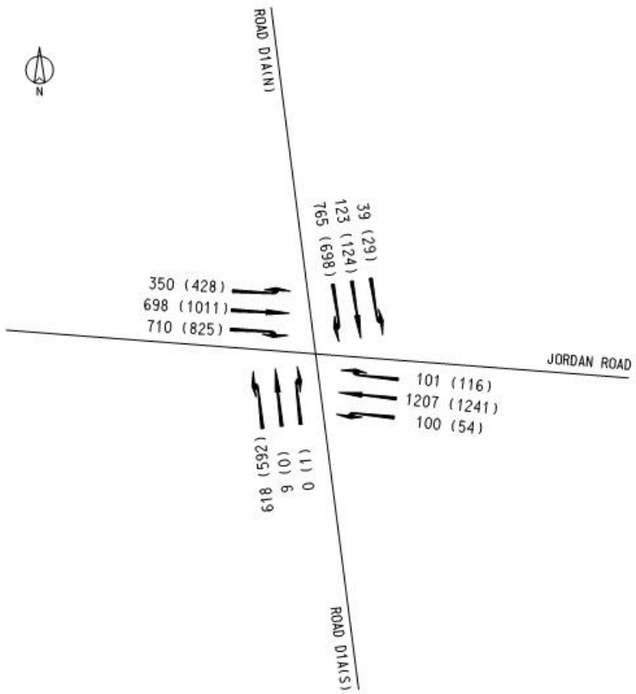
(J31) WAI YIP STREET / HOI YUEN ROAD



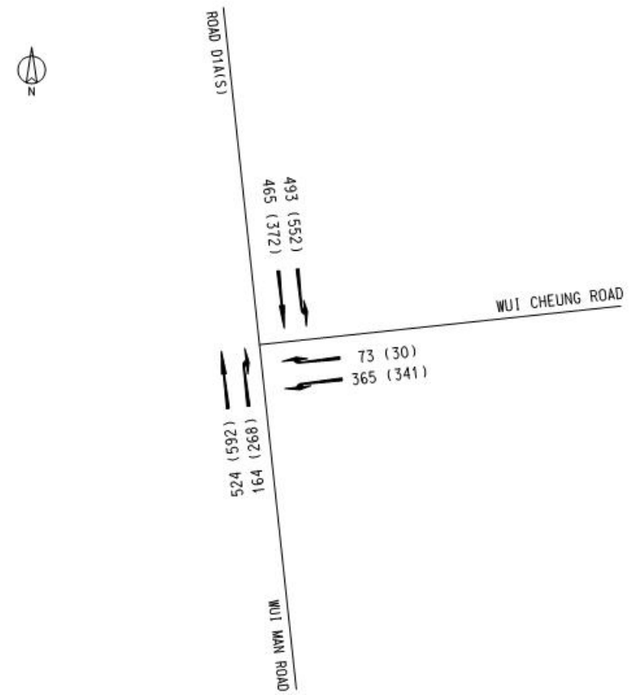
(J32) WAI YIP STREET / WAI FAT ROAD



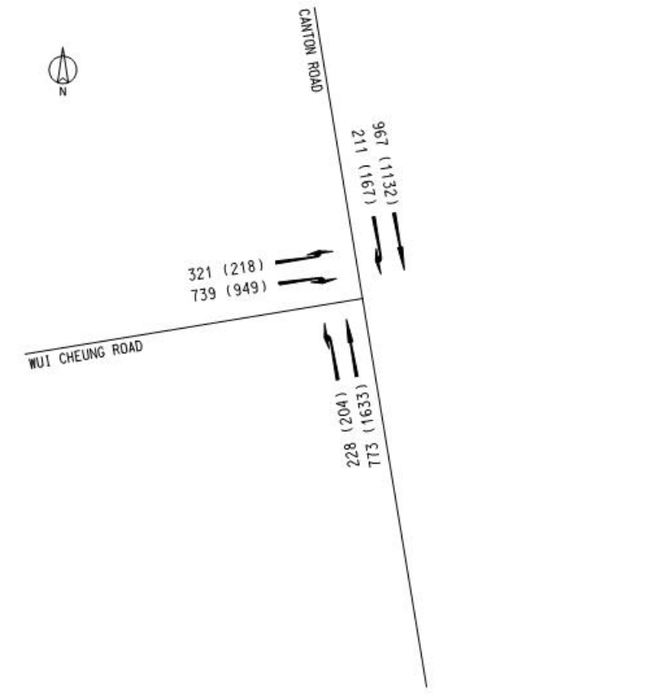
(J33) CHAI KWO LING ROAD / YAU TONG ROAD



(J34) TEMPORARY ROAD D1A(S) / JORDAN ROAD



(J35) TEMPORARY ROAD D1A(S) / WUI CHEUNG ROAD



(J36) CANTON ROAD / WUI CHEUNG ROAD

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Project title
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Central Kowloon Route - Design and Construction

Drawing title
2021 Forecast (Design)
Peak Hour Traffic Flows
(6 of 7)

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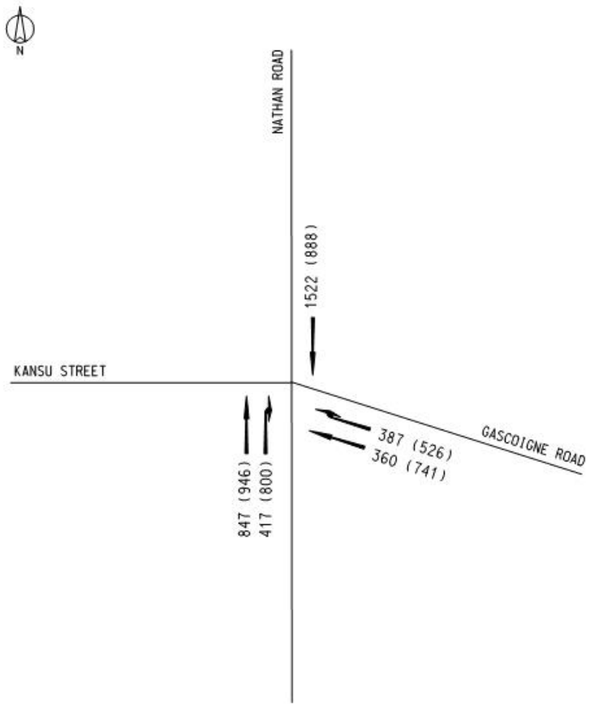
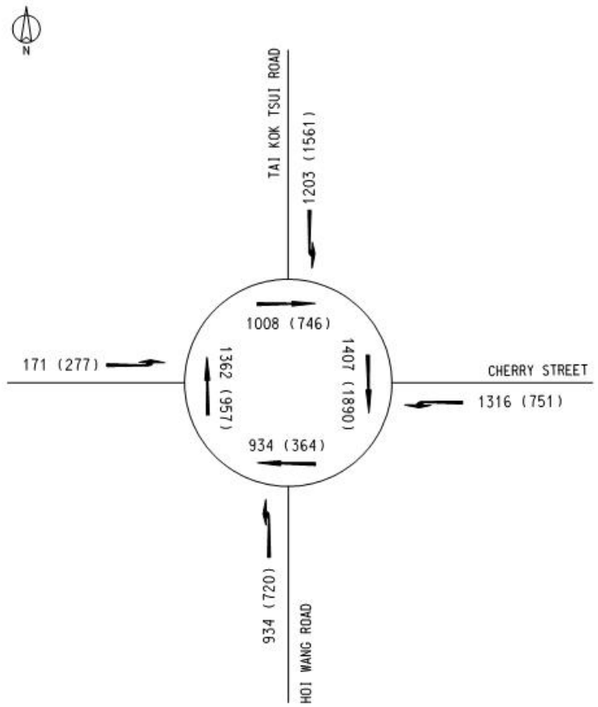


(J37) KANSU STREET / NATHAN ROAD / GASCOIGNE ROAD



(J38) OLYMPIC GARDEN ROUNDABOUT

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
2021 Forecast (Design)
Peak Hour Traffic Flows
(7 of 7)

Drawing no.	Rev.
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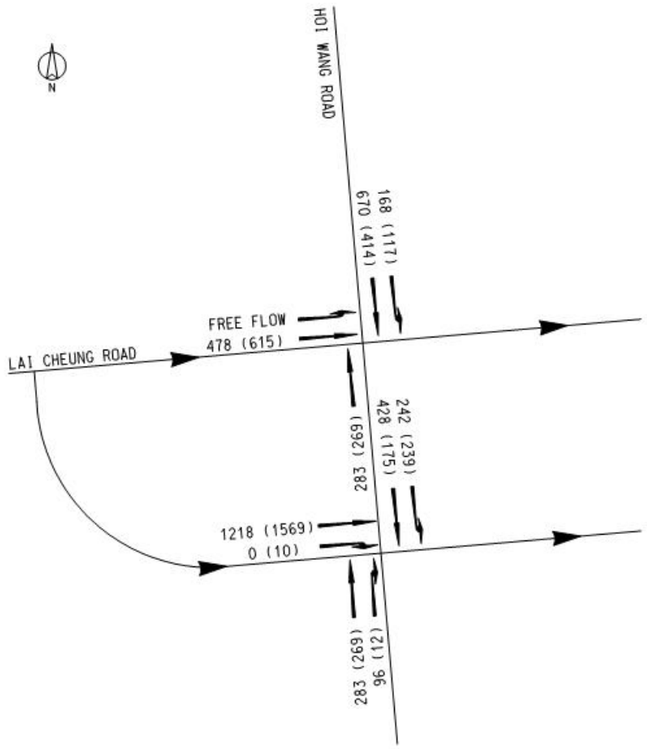
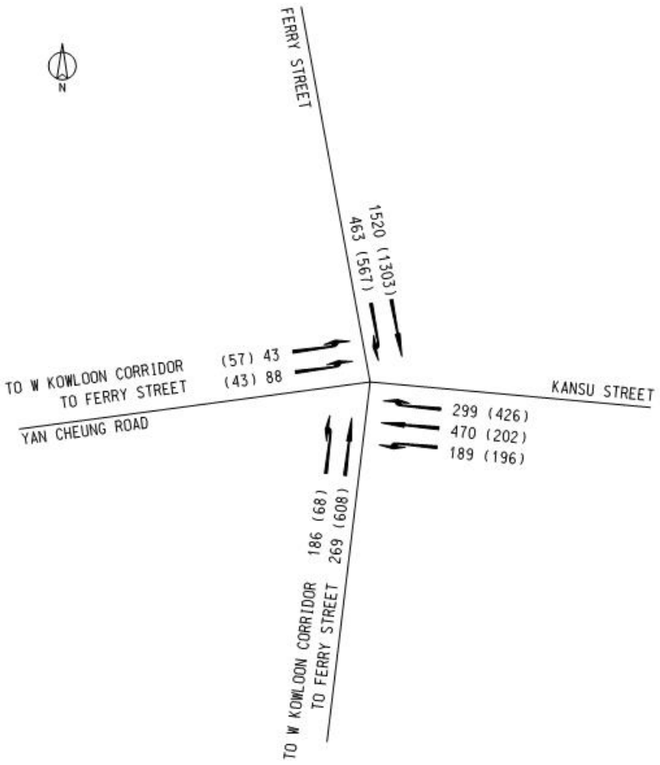
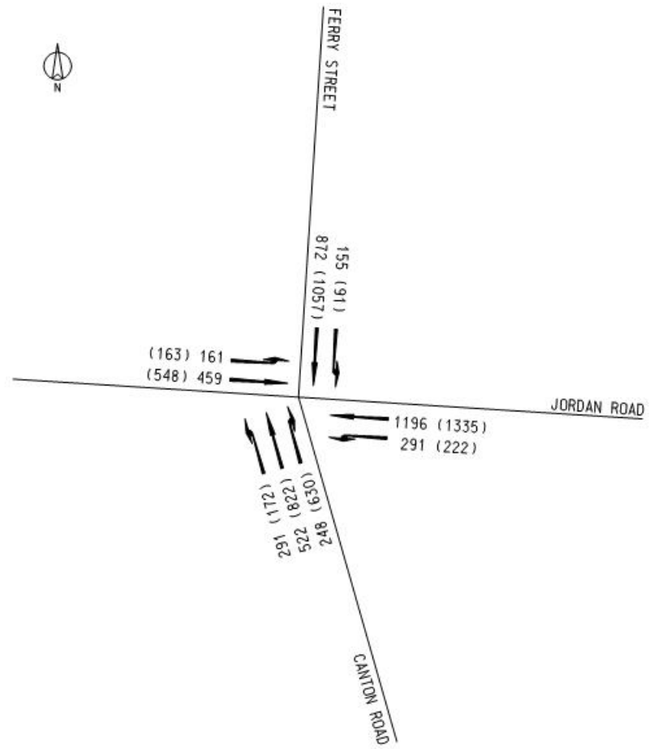


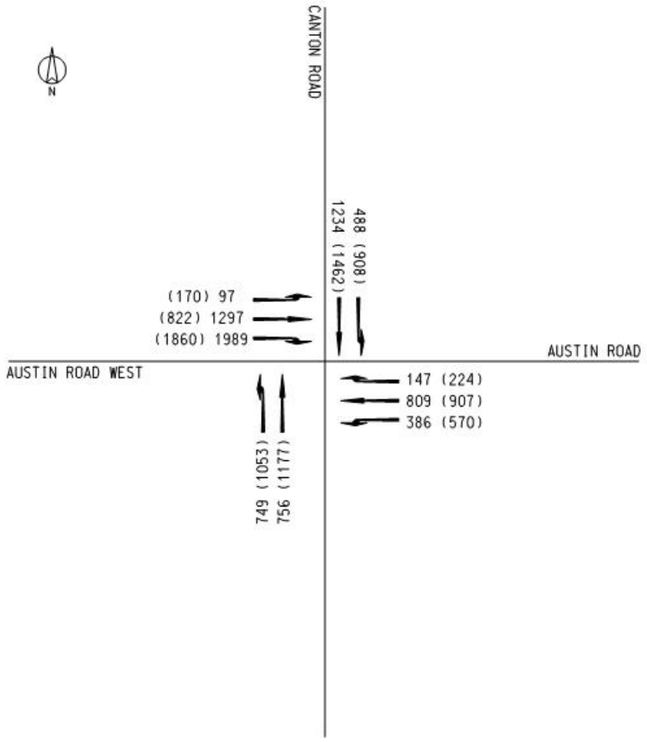
(J1) HOI WANG ROAD / LAI CHEUNG ROAD



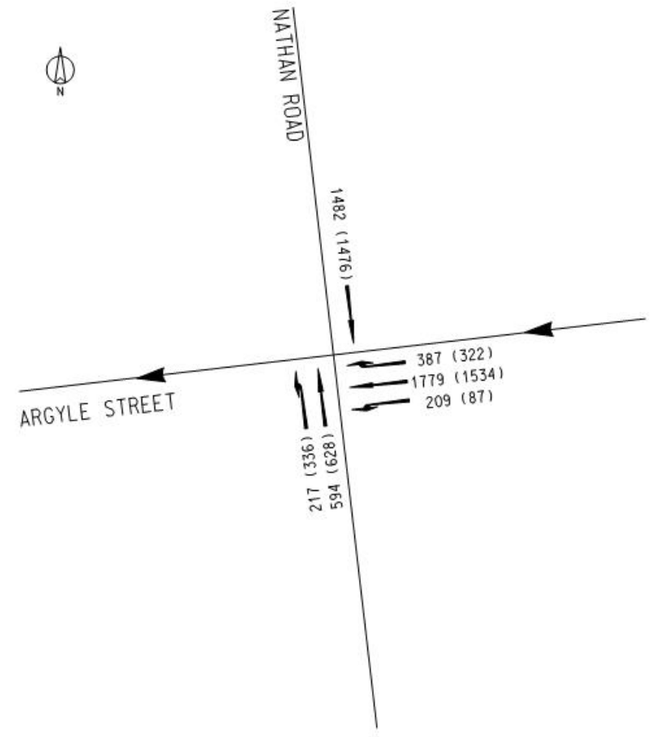
(J2) KANSU STREET / FERRY STREET / YAN CHEUNG ROAD



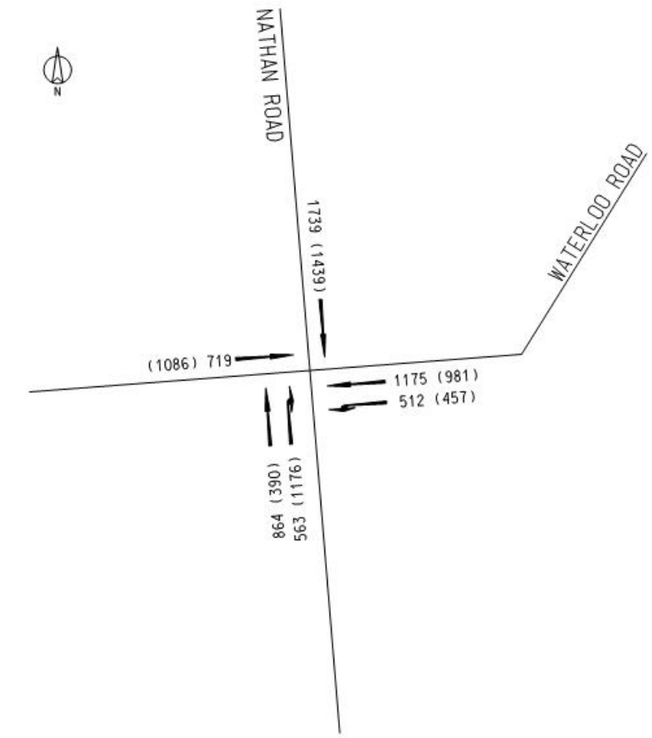
(J3) JORDAN ROAD / FERRY STREET / CANTON ROAD



(J4) AUSTIN ROAD WEST / AUSTIN ROAD / CANTON ROAD



(J5) ARGYLE STREET / NATHAN ROAD



(J6) WATERLOO ROAD / NATHAN ROAD

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Project title
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Central Kowloon Route - Design and Construction

Drawing title
2026 Forecast (Reference)
Peak Hour Traffic Flows
(1 of 7)

Drawing no.	Rev.
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CHPH	JUN 13	FKFT	WCDC

Scale	Status
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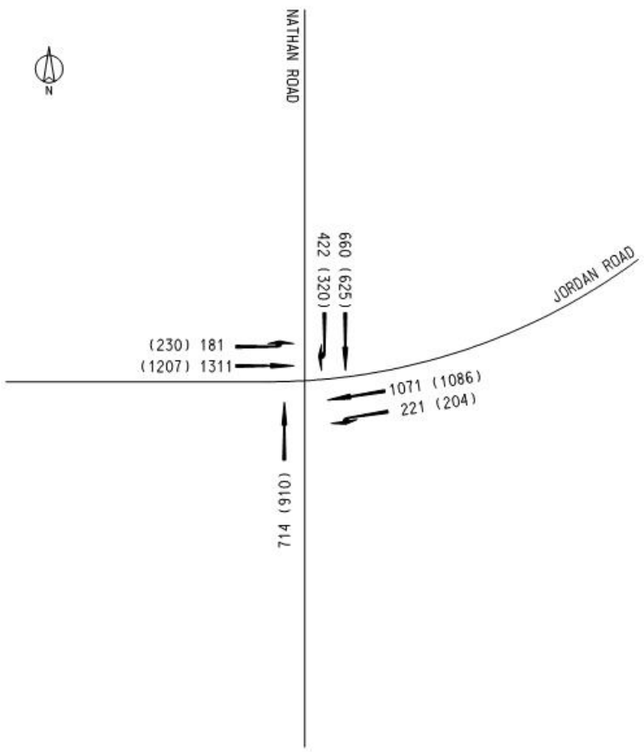
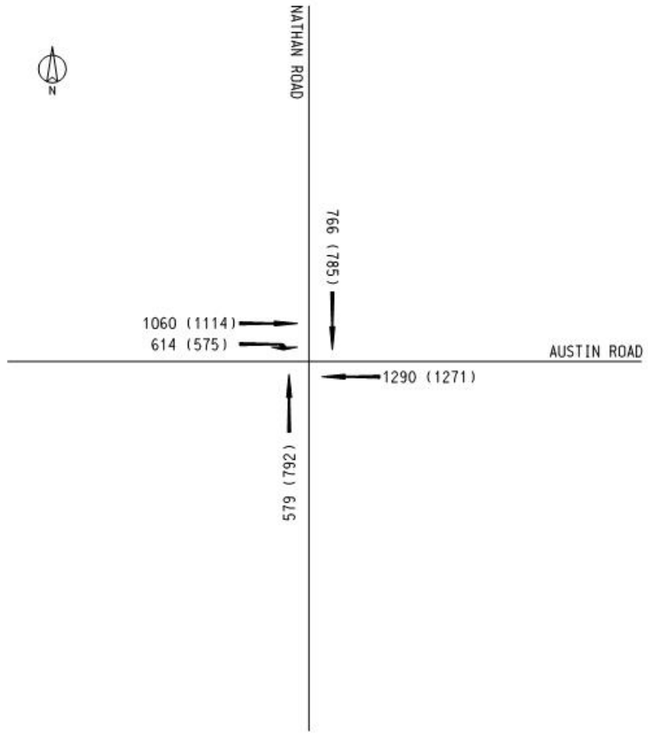
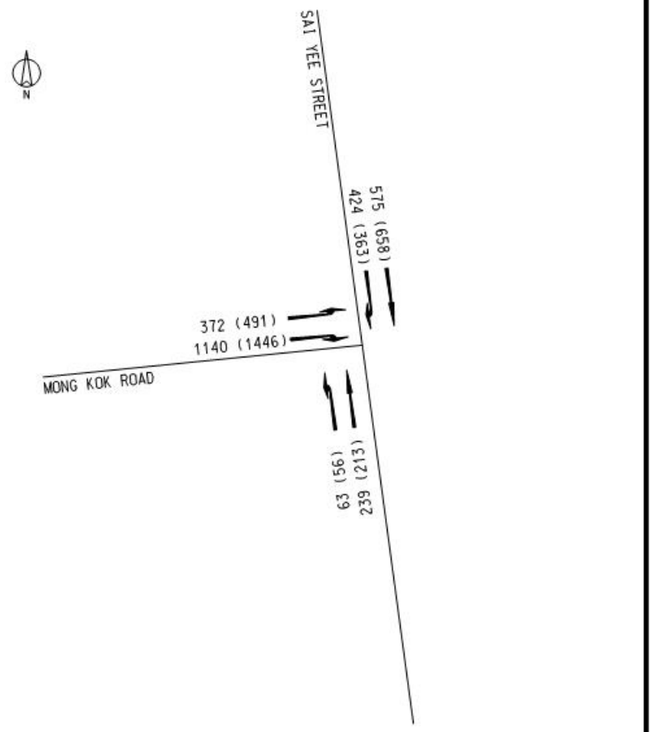


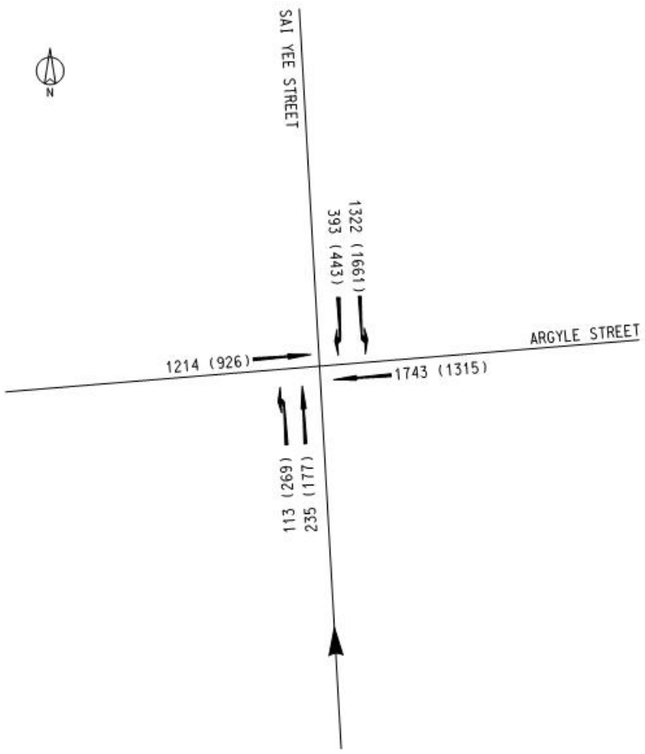
(J7) JORDAN ROAD / NATHAN ROAD



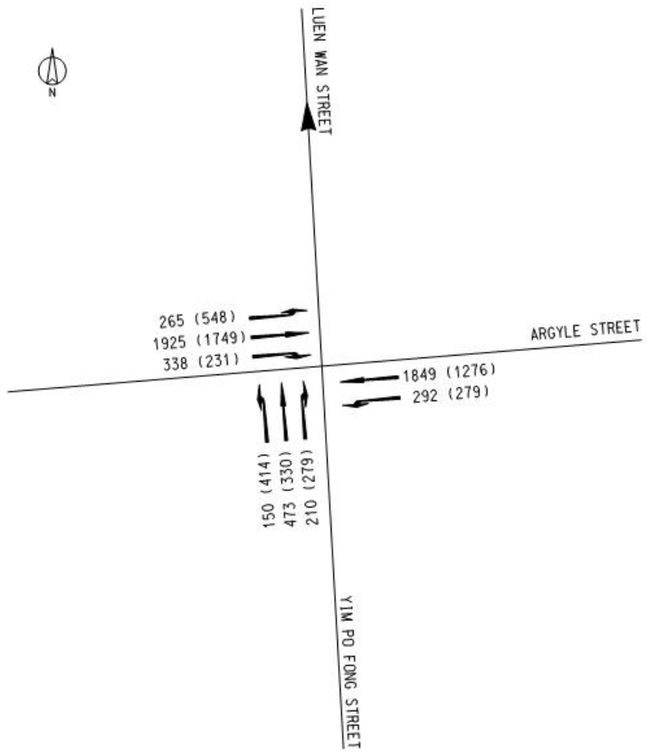
(J8) AUSTIN ROAD / NATHAN ROAD



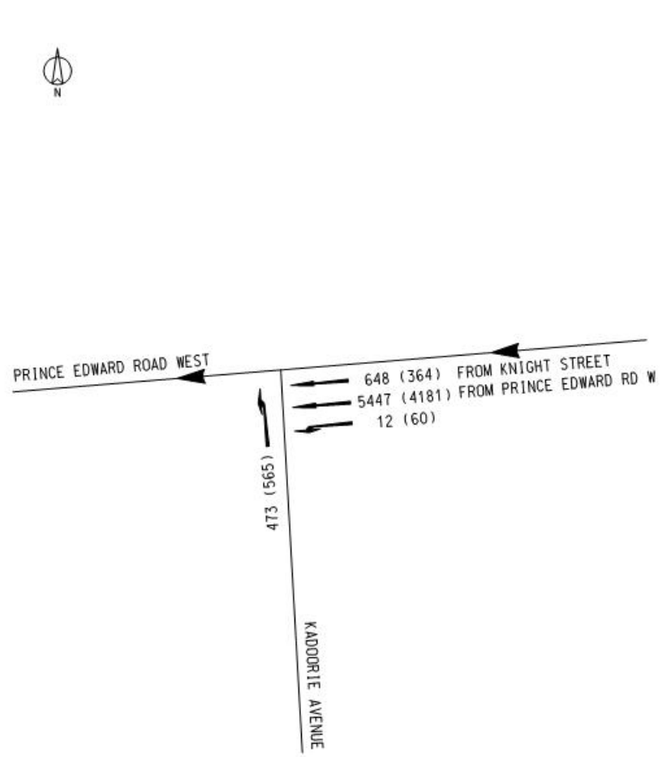
(J9) SAI YEE STREET / MONG KOK ROAD



(J10) ARGYLE STREET / SAI YEE STREET



(J11) ARGYLE STREET / YIM PO FONG STREET



(J12) PRINCE EDWARD ROAD WEST / KADOORIE AVENUE

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B	SECOND ISSUE	TS	06/13
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ARUP Mott MacDonald
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Drawing title
2026 Forecast (Reference) Peak Hour Traffic Flows (2 of 7)

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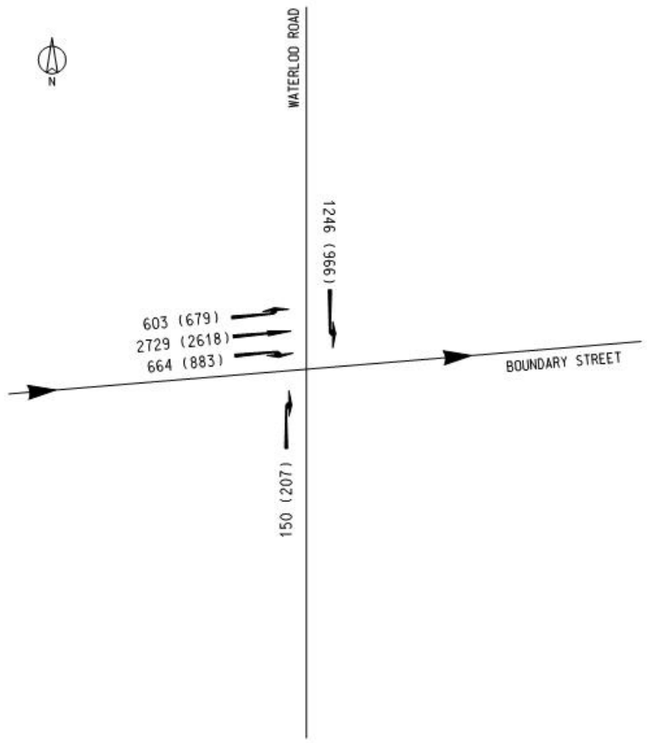
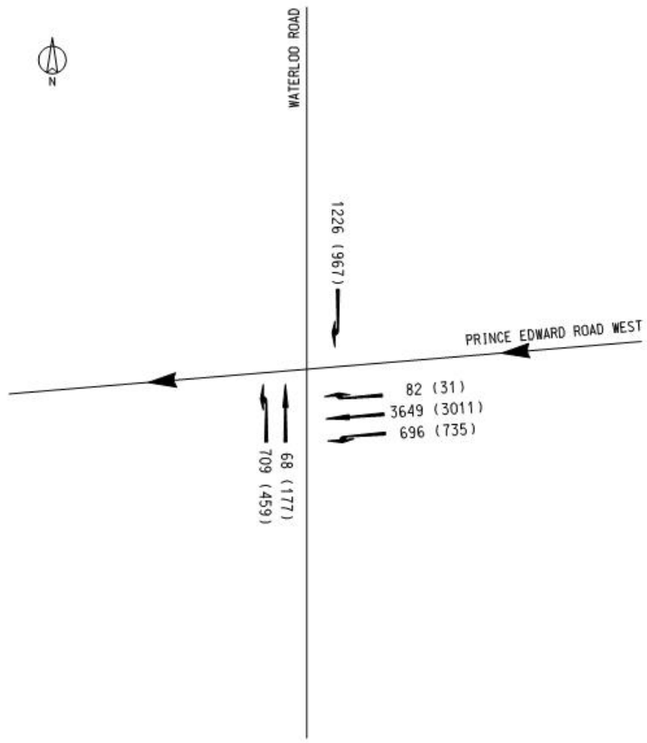
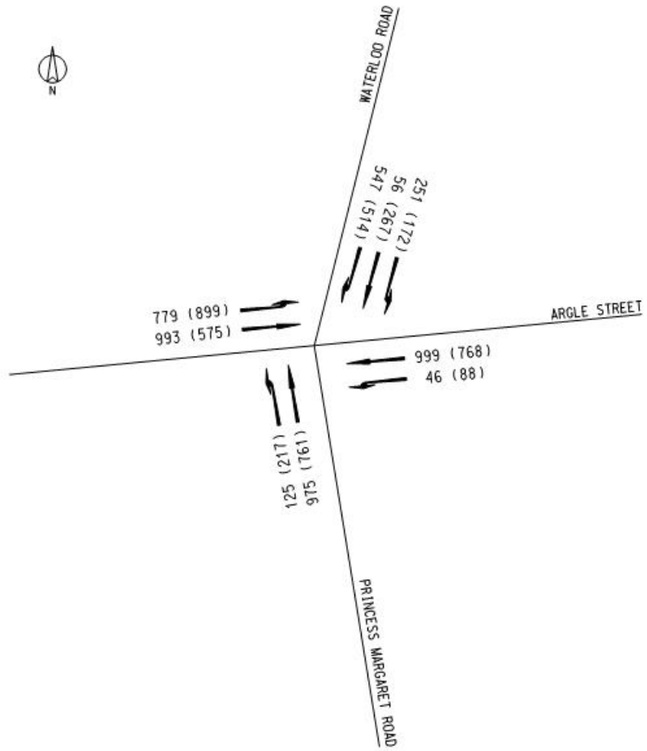


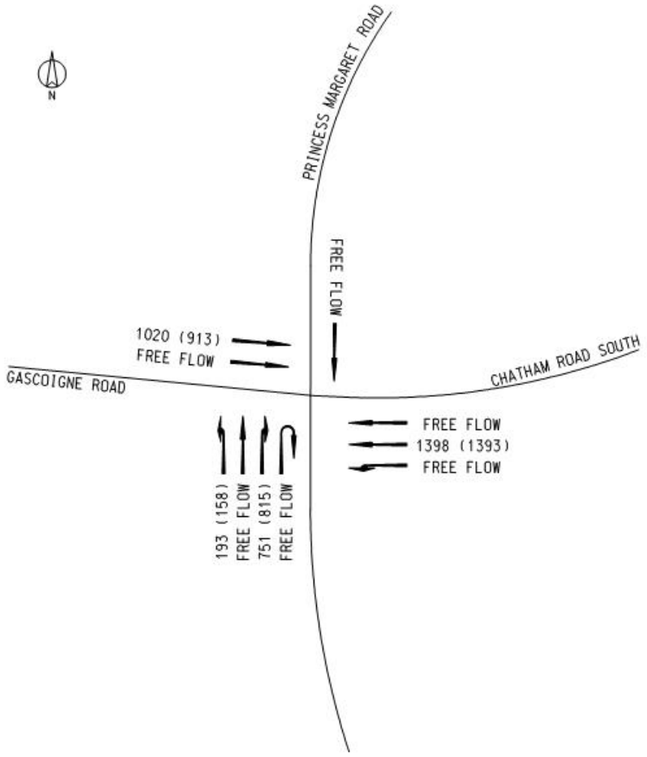
(J13) BOUNDARY STREET / WATERLOO ROAD



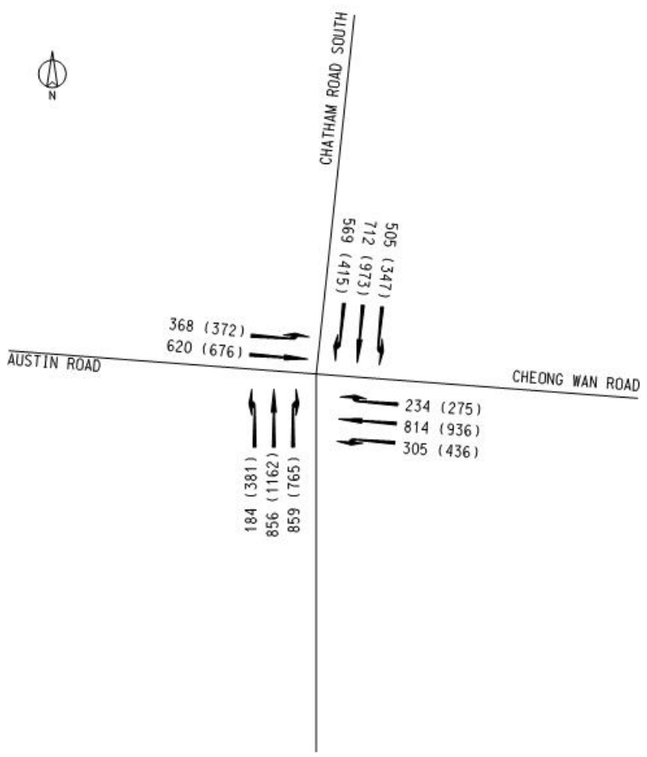
(J14) PRINCE EDWARD WEST / WATERLOO ROAD



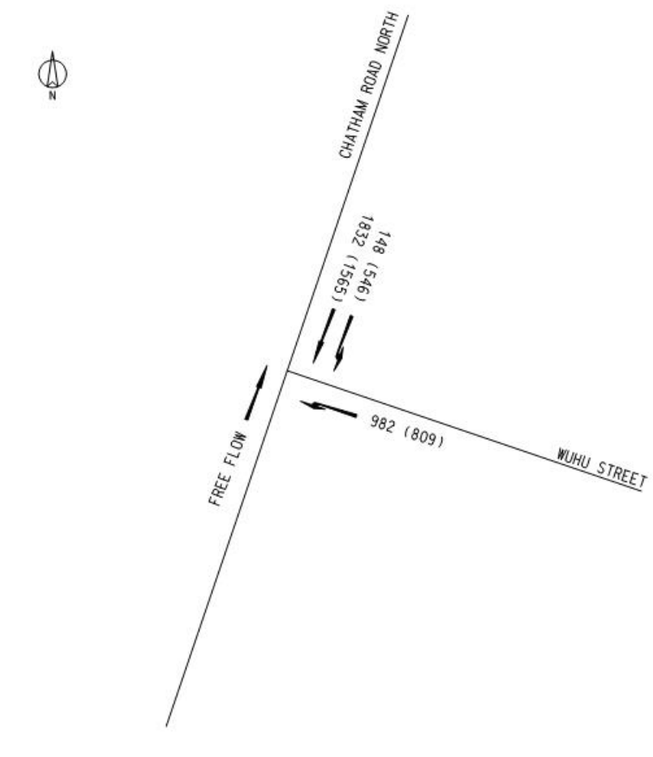
(J15) ARGLE STREET / WATERLOO ROAD / PRINCESS MARGARET ROAD



(J16) GASCOIGNE ROAD / CHATHAM ROAD SOUTH



(J17) AUSTIN ROAD / CHATHAM ROAD SOUTH / CHEONG WAN ROAD



(J18) CHAMTHAM ROAD NORTH / WUHU STREET

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Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

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2026 Forecast (Reference) Peak Hour Traffic Flows (3 of 7)

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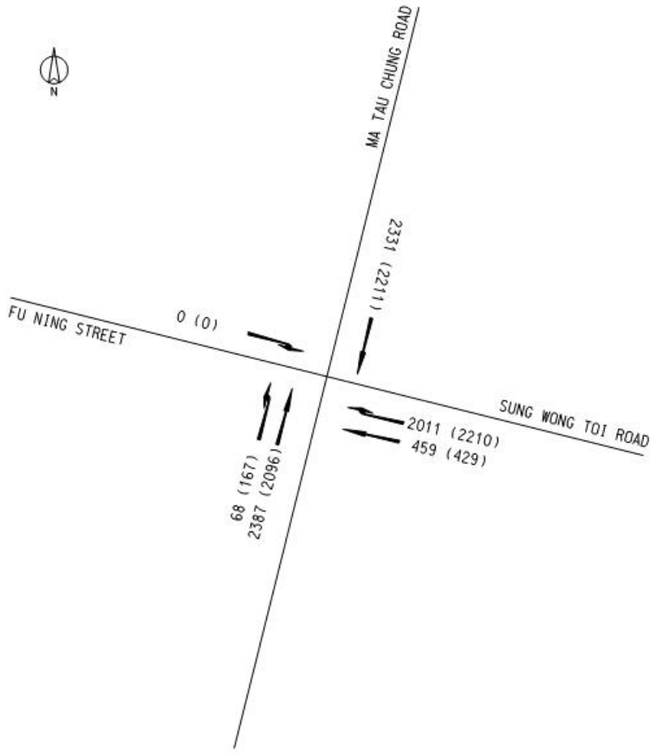
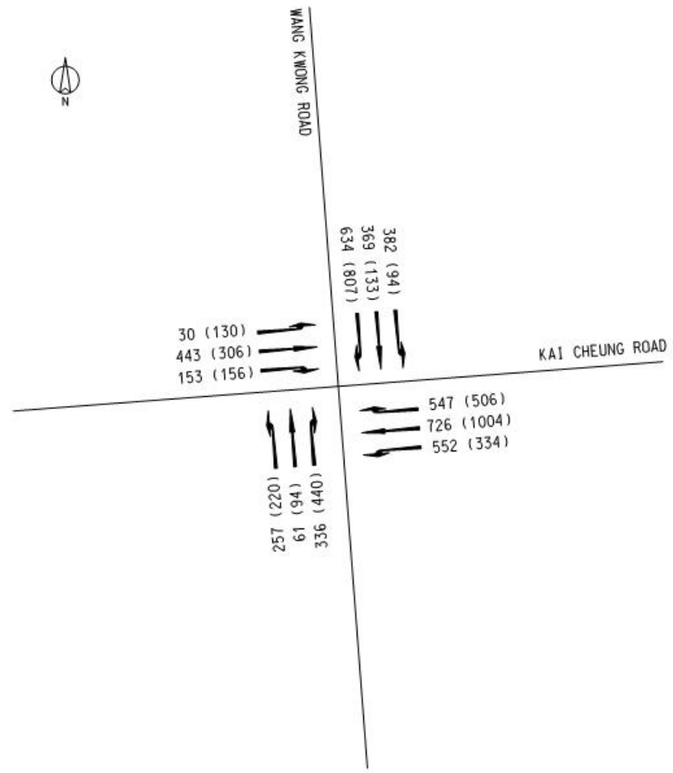
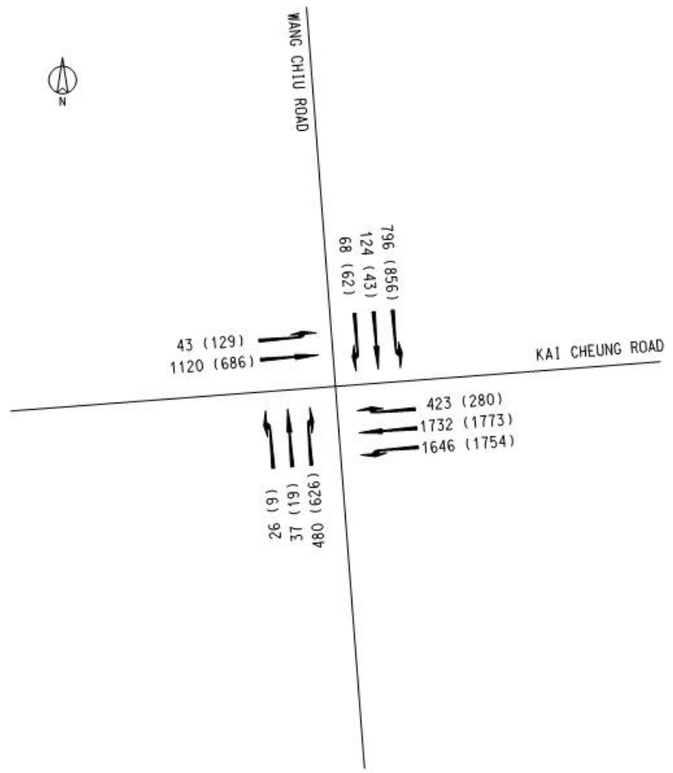


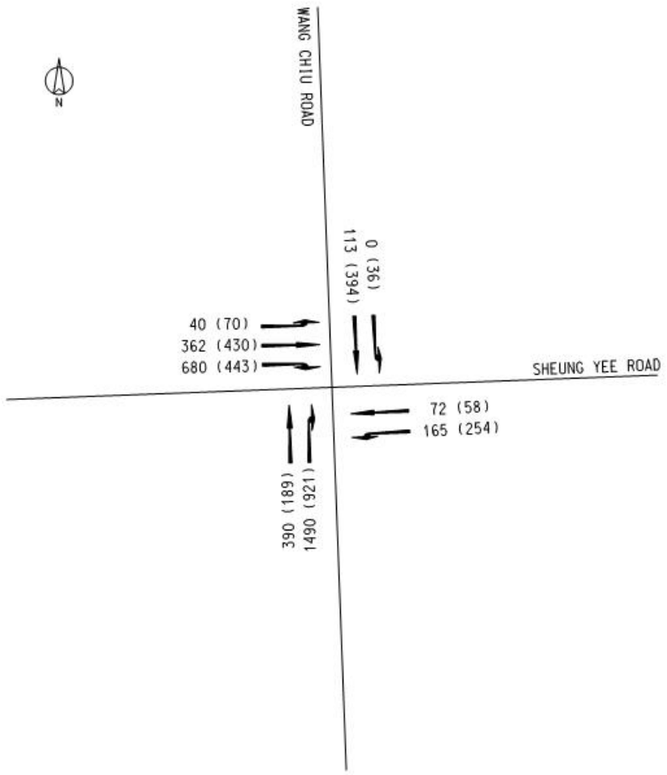
(J19) MA TAU CHUNG ROAD / SUNG WONG TOI ROAD



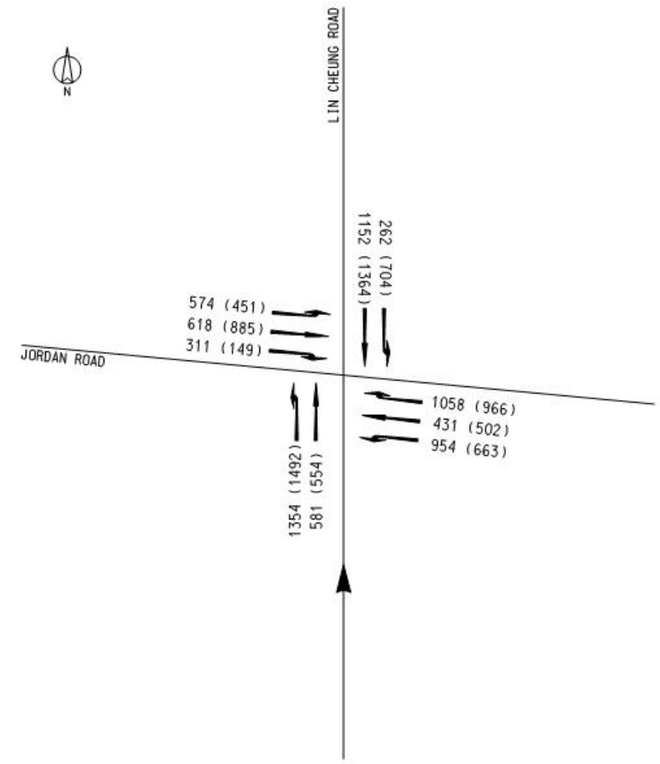
(J20) KAI CHEUNG ROAD / WANG KWONG ROAD



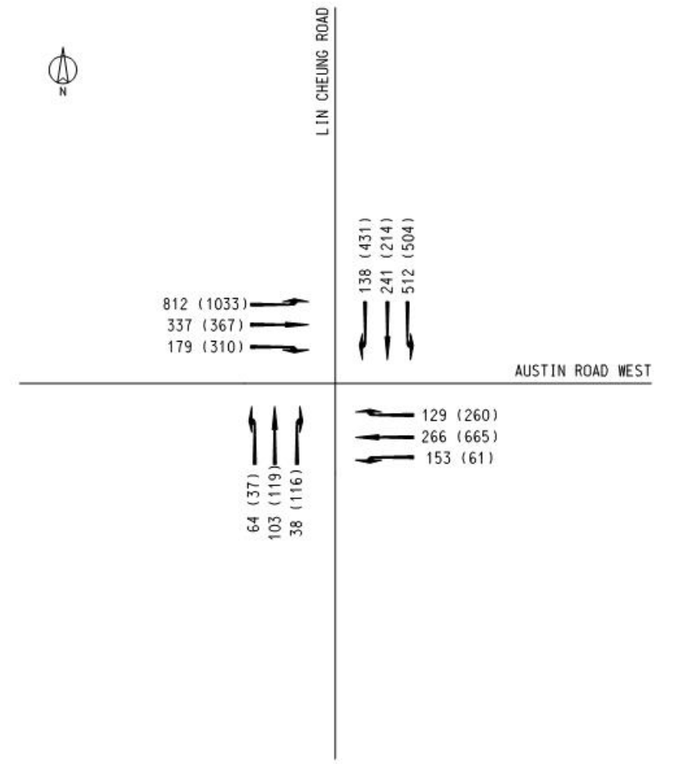
(J21) KAI CHEUNG ROAD / WANG CHIU ROAD



(J22) SHEUNG YEE ROAD / WANG CHIU ROAD



(J23) LIN CHEUNG ROAD / JORDAN ROAD



(J25) LIN CHEUNG ROAD / AUSTIN ROAD WEST

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B	SECOND ISSUE	TS	06/13
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ARUP Mott MacDonald
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Project title
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Central Kowloon Route - Design and Construction

Drawing title
2026 Forecast (Reference) Peak Hour Traffic Flows (4 of 7)

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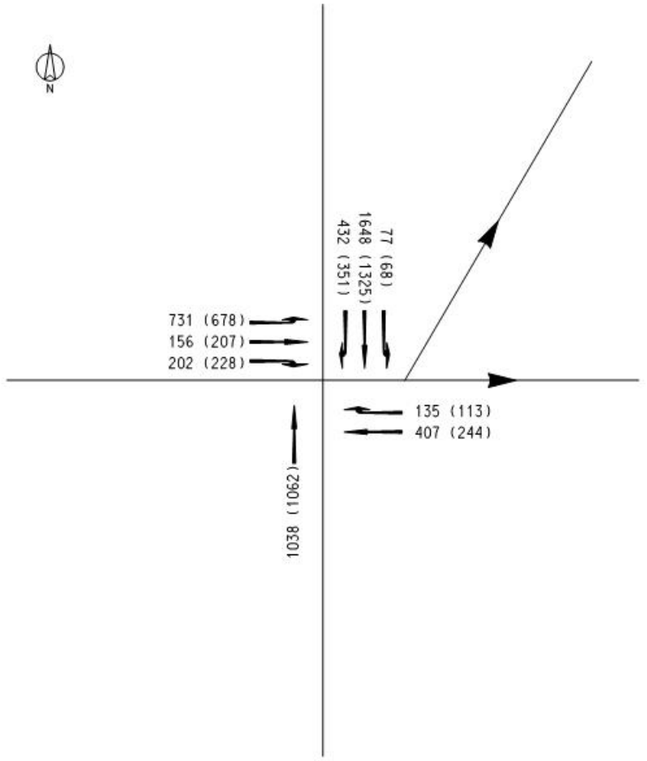
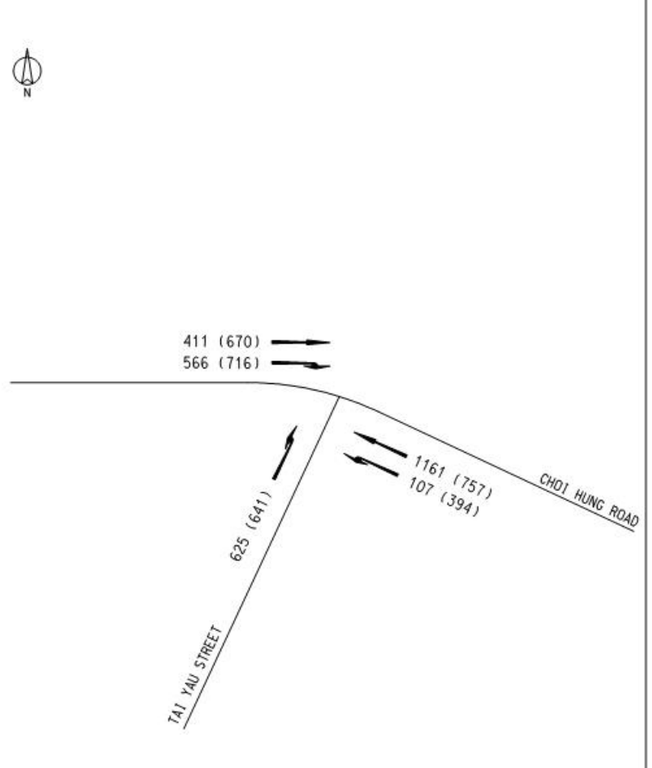
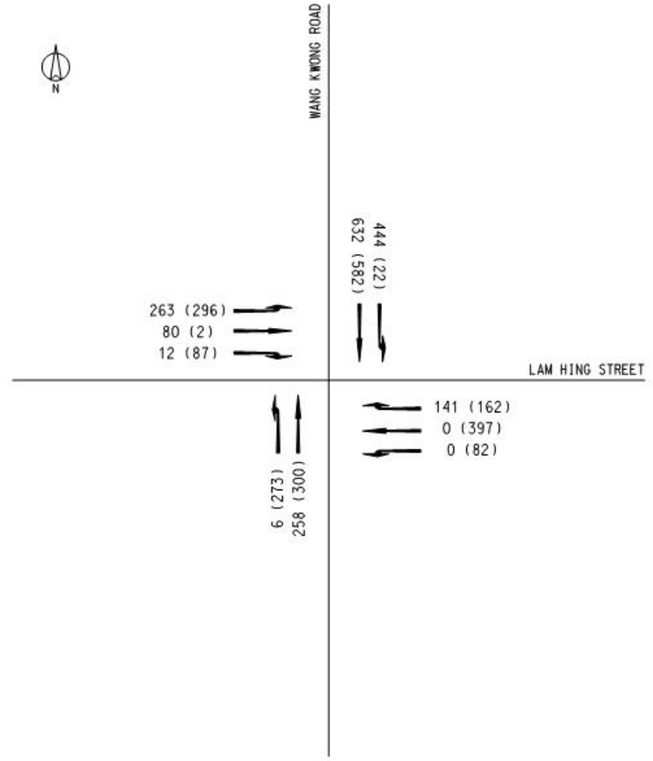


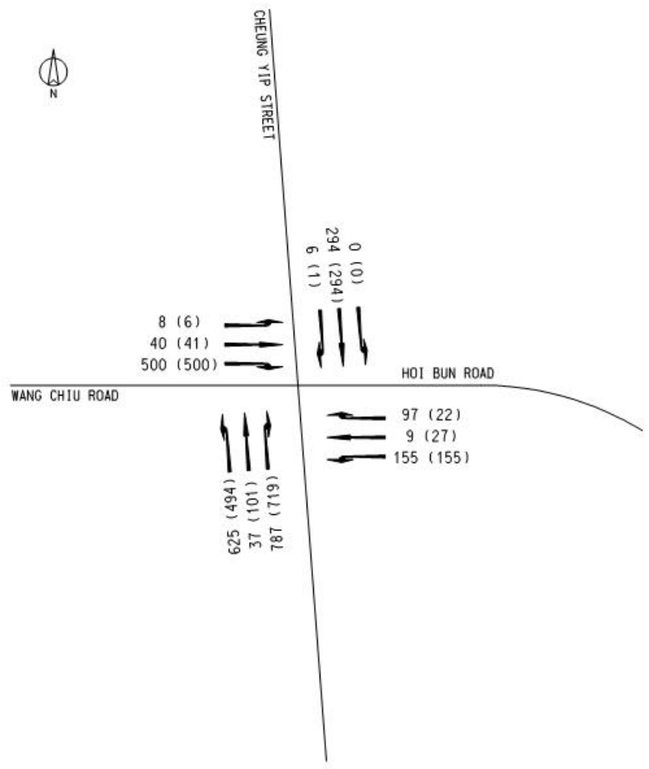
(J26) MA TAU ROAD / TIN KWONG ROAD



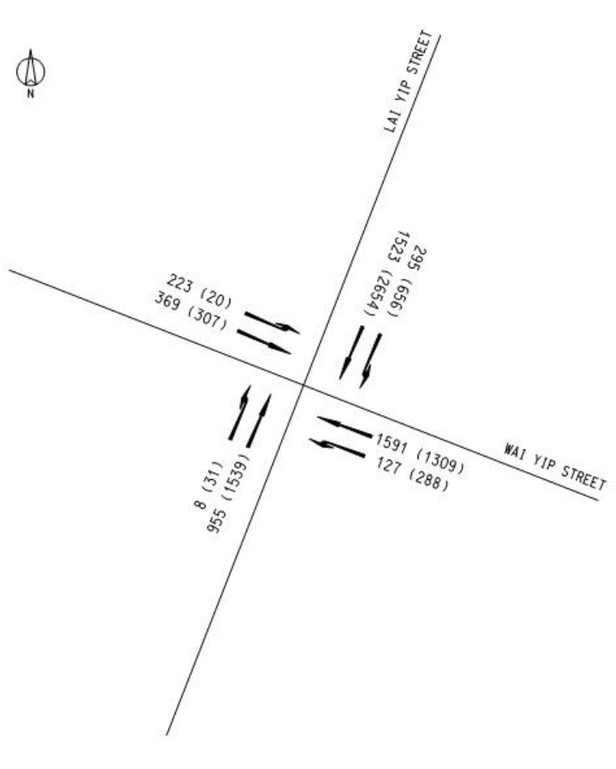
(J27) CHOI HUNG ROAD / TAI YAU STREET



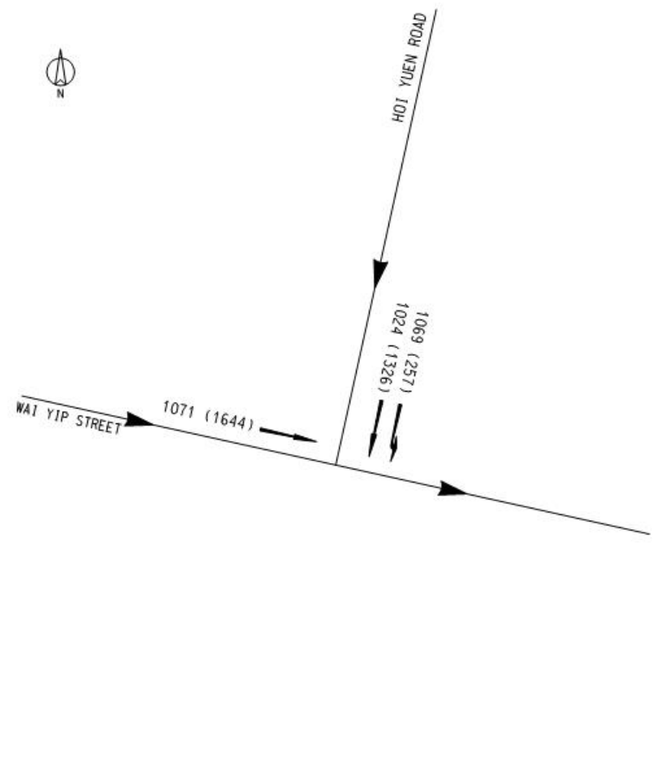
(J28) LAM HING STREET / WANG KWONG ROAD



(J29) HOI BUN ROAD / CHEUNG YIP STREET / WANG CHIU ROAD



(J30) WAI YIP STREET / LAI YIP STREET



(J31) WAI YIP STREET / HOI YUEN ROAD

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Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2026 Forecast (Reference)
Peak Hour Traffic Flows
(5 of 7)

Drawing no.	Rev.
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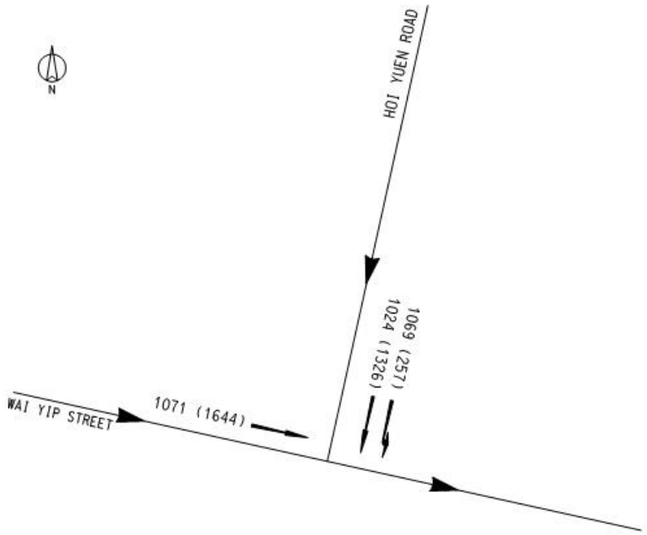
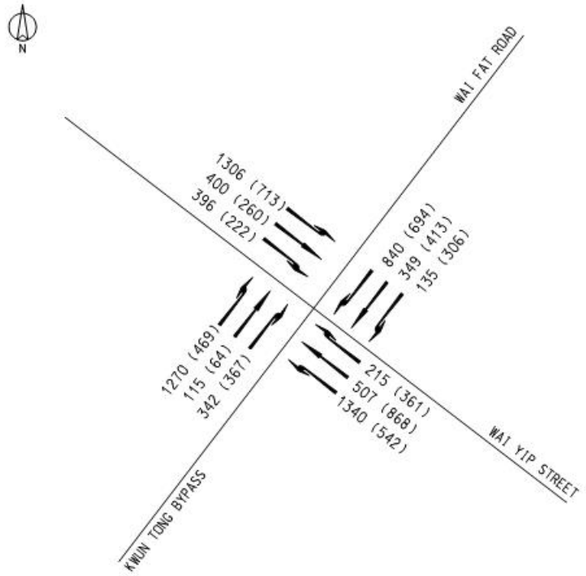
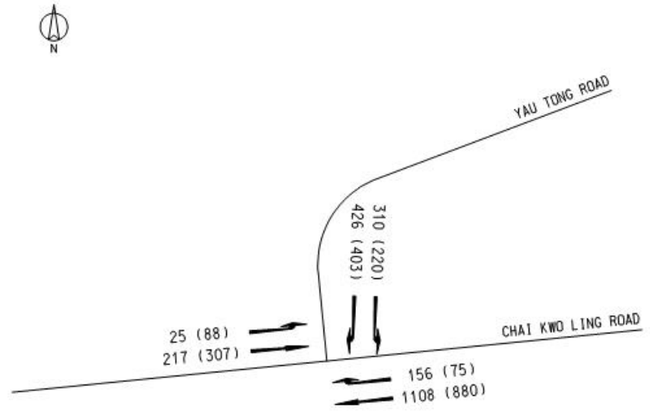


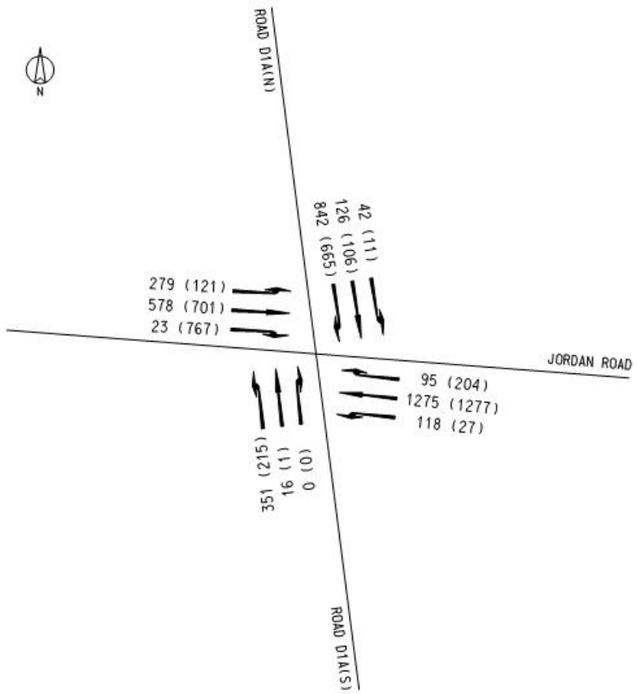
(J31) WAI YIP STREET / HOI YUEN ROAD



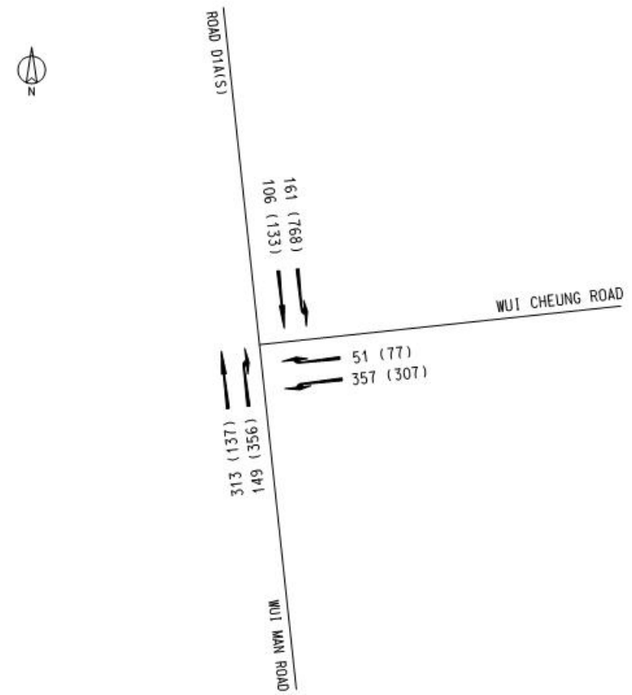
(J32) WAI YIP STREET / WAI FAT ROAD



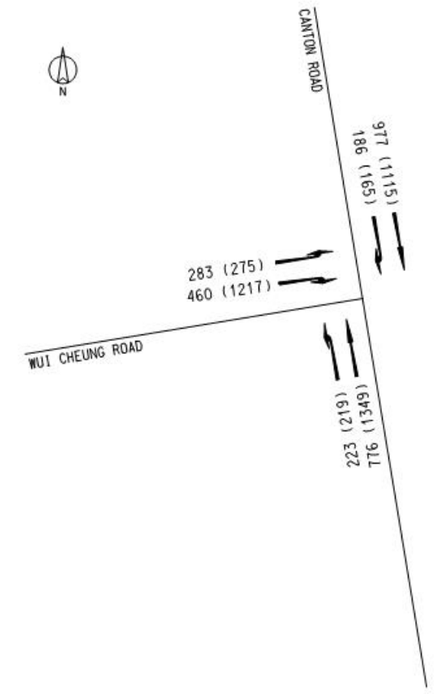
(J33) CHAI KWO LING ROAD / YAU TONG ROAD



(J34) TEMPORARY ROAD D1A(S) / JORDAN ROAD



(J35) TEMPORARY ROAD D1A(S) / WUI CHEUNG ROAD



(J36) CANTON ROAD / WUI CHEUNG ROAD

Rev	Description	By	Date
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A	FIRST ISSUE	TS	08/12

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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2026 Forecast (Reference)
Peak Hour Traffic Flows
(6 of 7)

Drawing no.	Rev.
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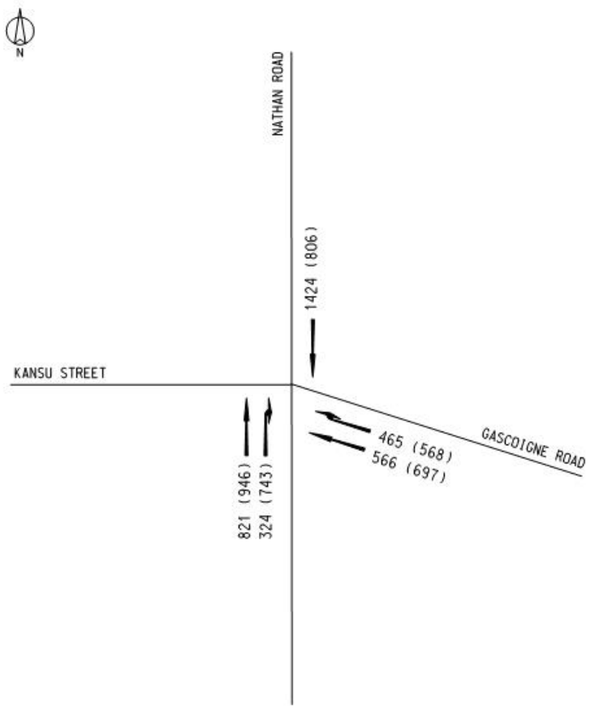
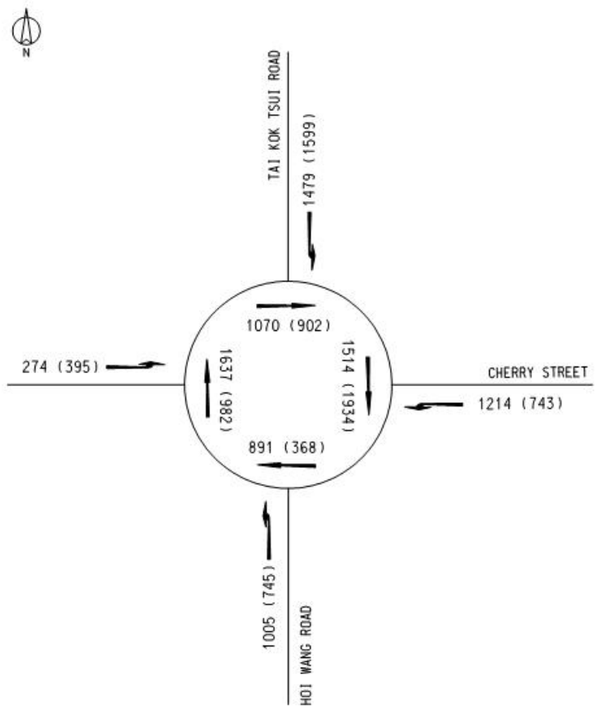


(J37) KANSU STREET / NATHAN ROAD / GASCOIGNE ROAD



(J38) OLYMPIC GARDEN ROUNDABOUT

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant

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Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

2026 Forecast (Reference)
Peak Hour Traffic Flows
(7 of 7)

Drawing no.			Rev.
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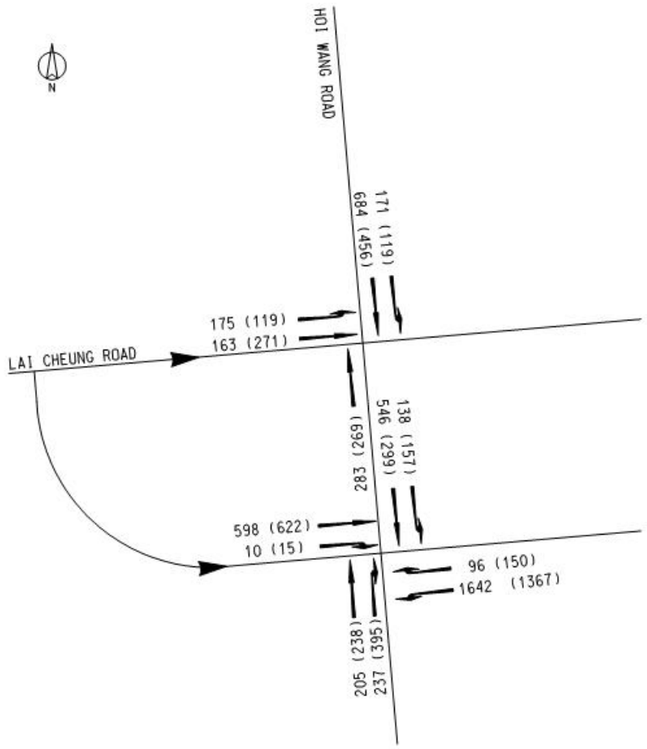
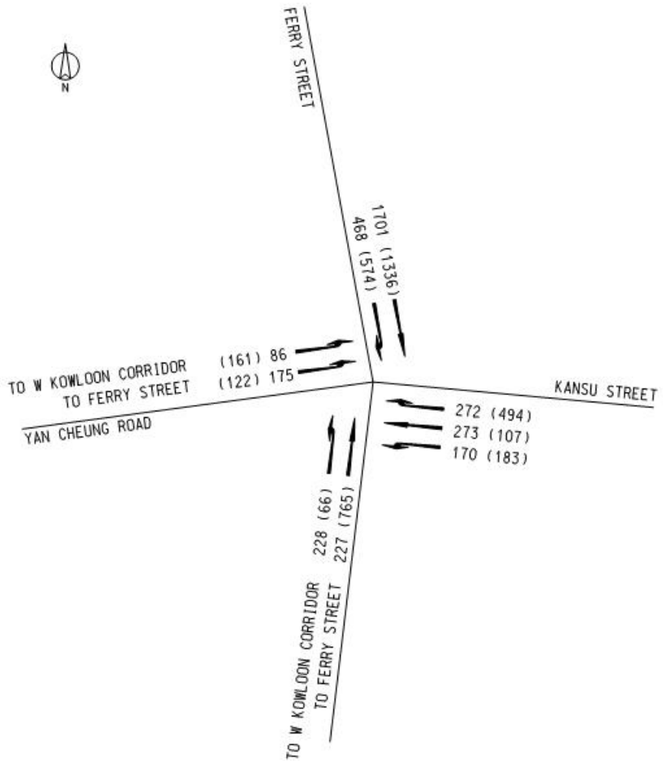
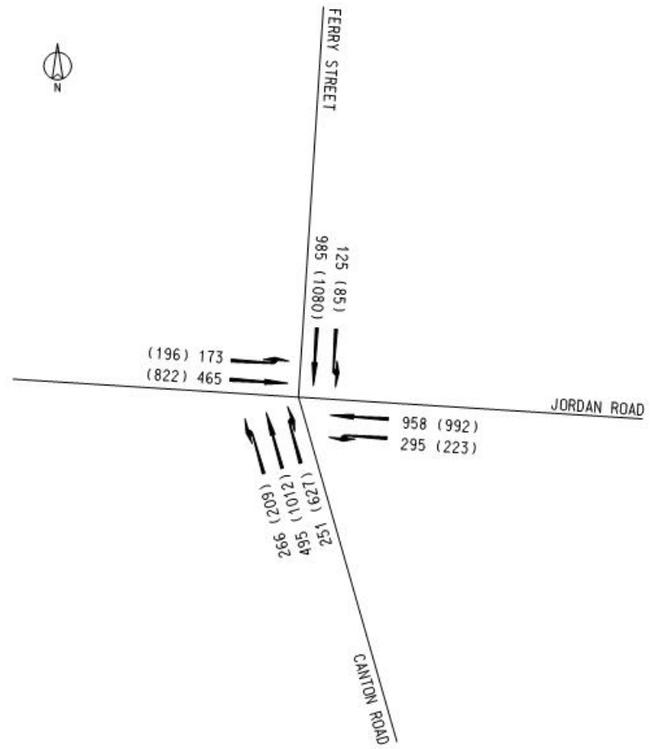


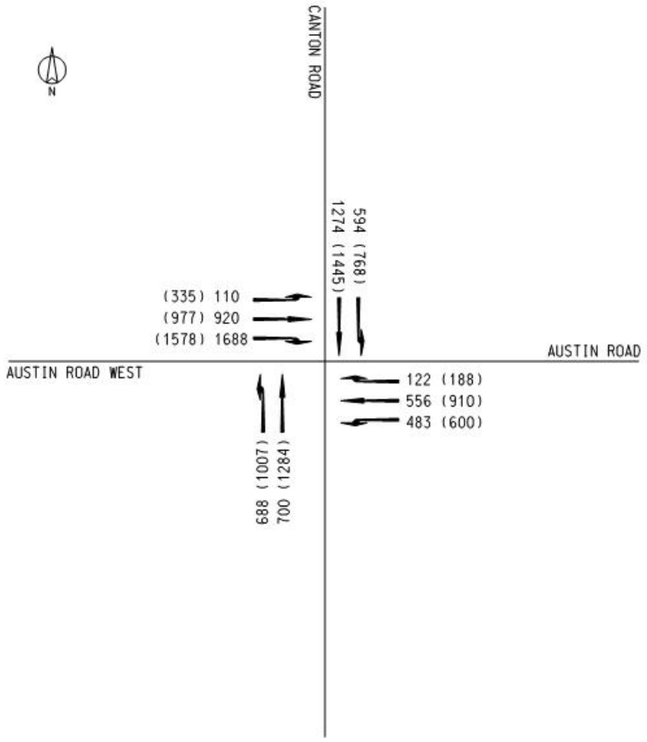
(J1) HOI WANG ROAD / LAI CHEUNG ROAD



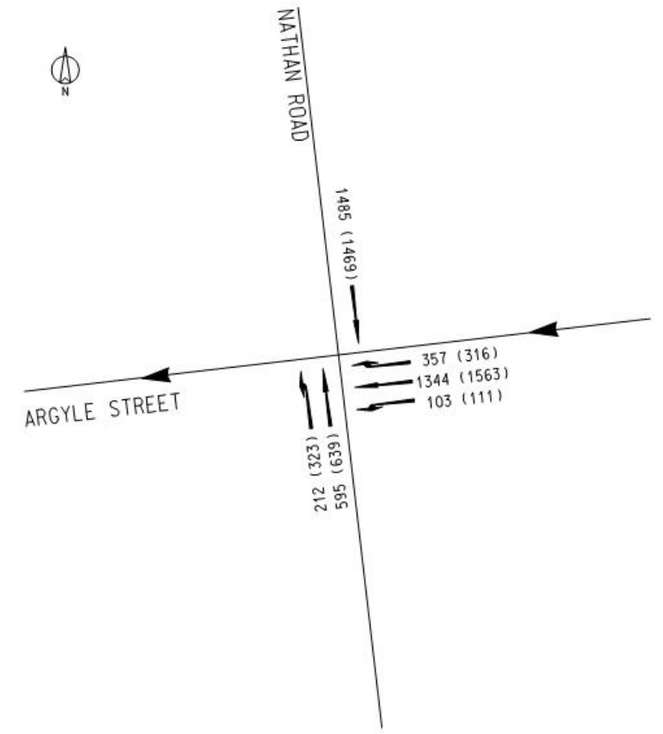
(J2) KANSU STREET / FERRY STREET / YAN CHEUNG ROAD



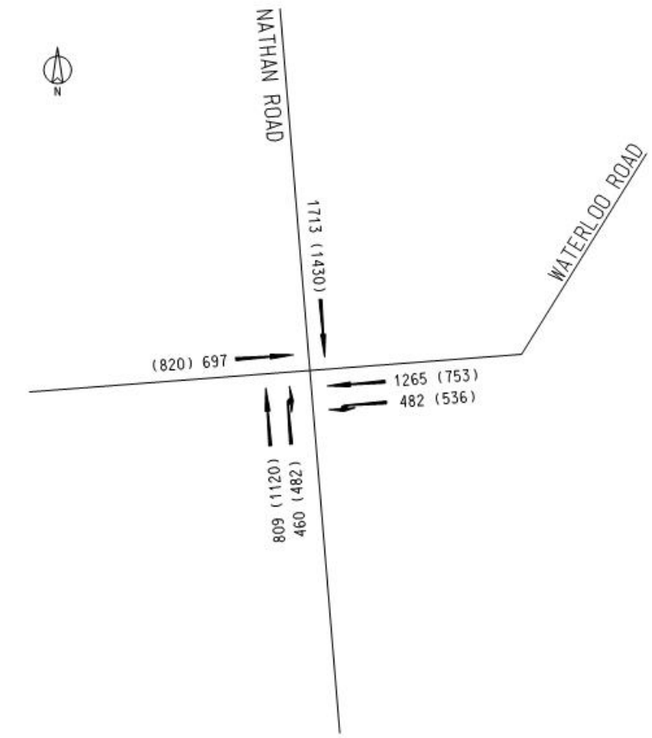
(J3) JORDAN ROAD / FERRY STREET / CANTON ROAD



(J4) AUSTIN ROAD WEST / AUSTIN ROAD / CANTON ROAD



(J5) ARGYLE STREET / NATHAN ROAD



(J6) WATERLOO ROAD / NATHAN ROAD

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Central Kowloon Route - Design and Construction

Drawing title
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Peak Hour Traffic Flows
(1 of 7)

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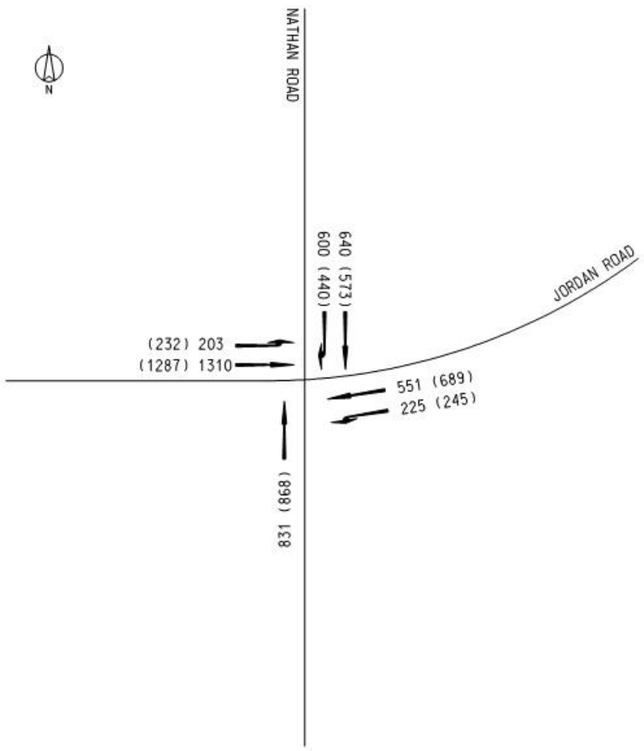
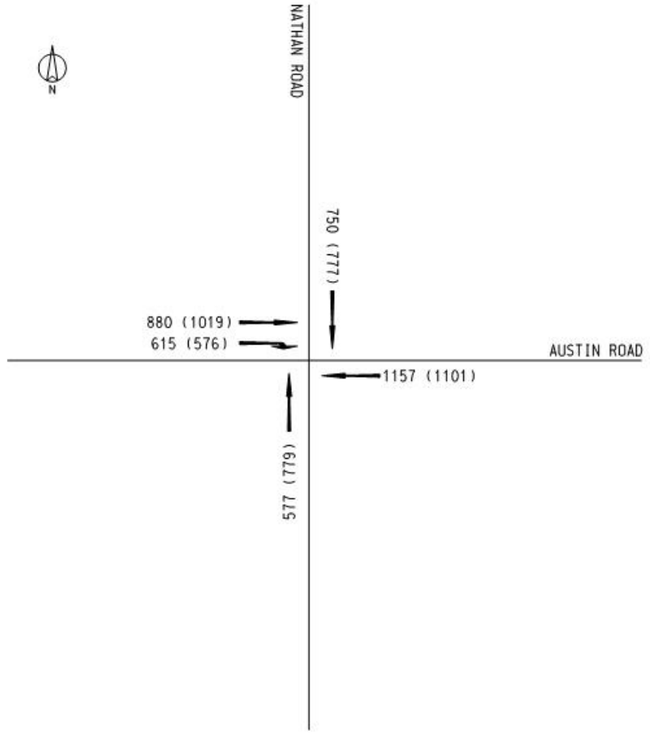
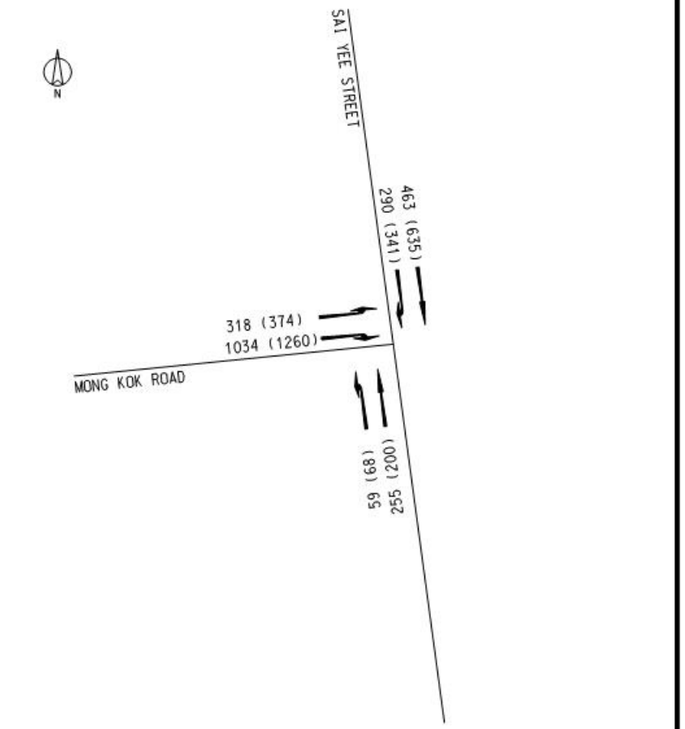


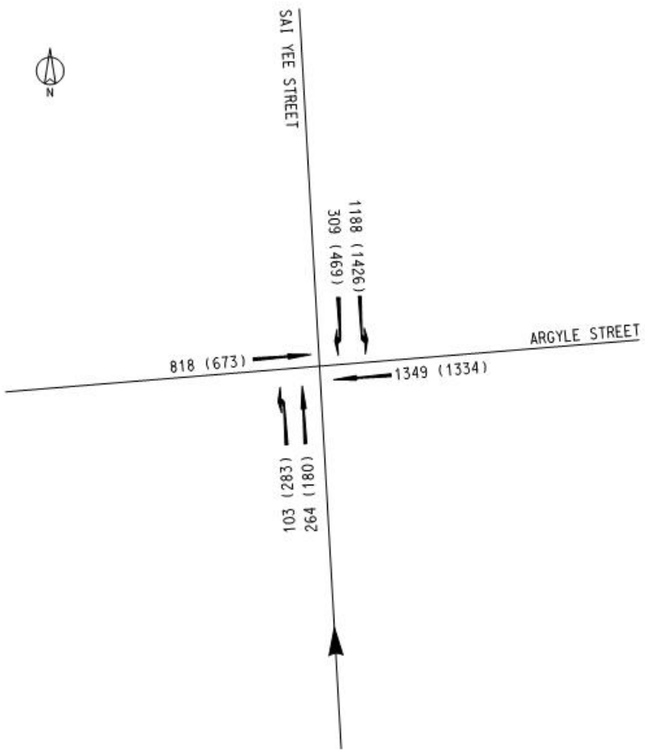
(J7) JORDAN ROAD / NATHAN ROAD



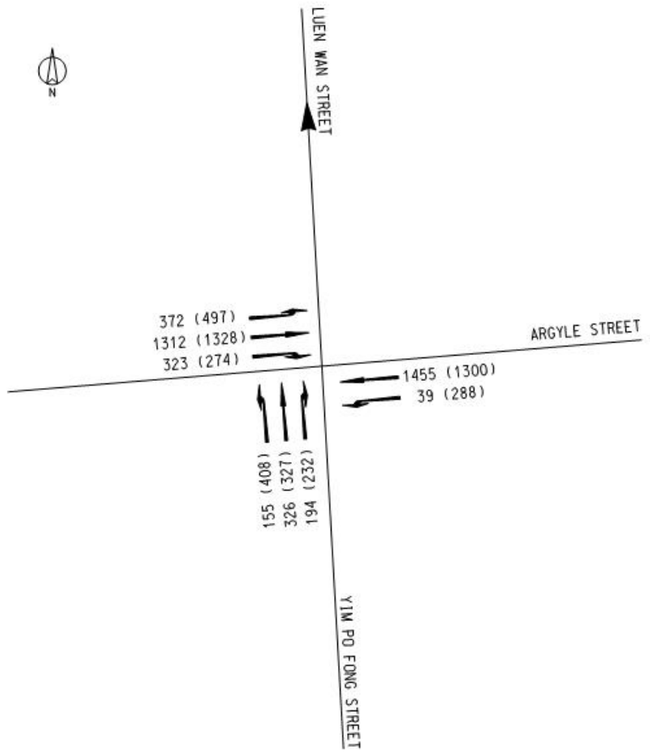
(J8) AUSTIN ROAD / NATHAN ROAD



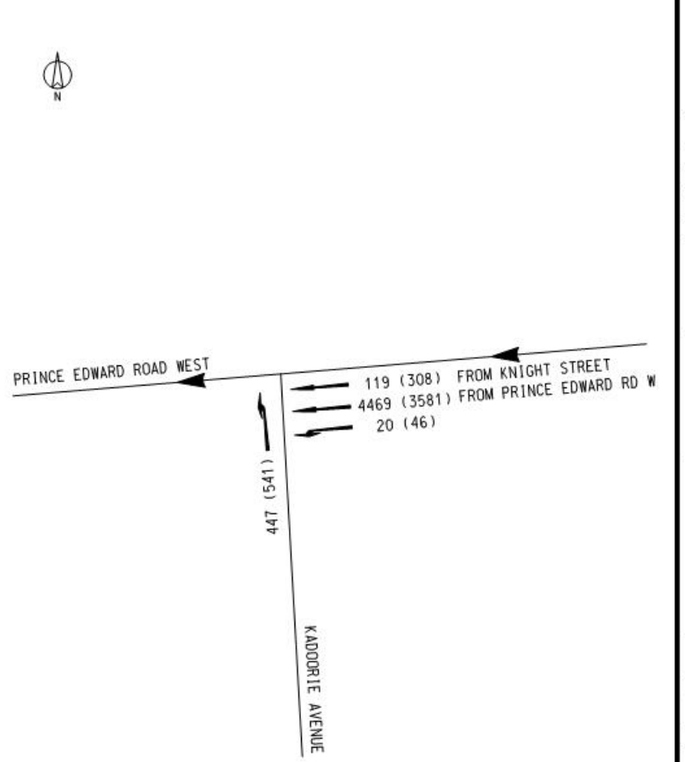
(J9) SAI YEE STREET / MONG KOK ROAD



(J10) ARGYLE STREET / SAI YEE STREET



(J11) ARGYLE STREET / YIM PO FONG STREET



(J12) PRINCE EDWARD ROAD WEST / KADOORIE AVENUE

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B	SECOND ISSUE	TS	06/13
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Drawing title
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(2 of 7)

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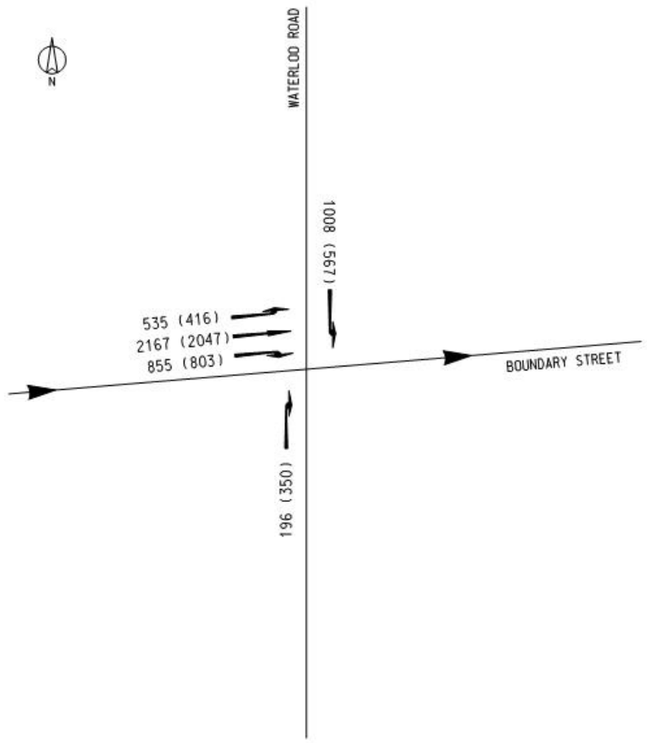
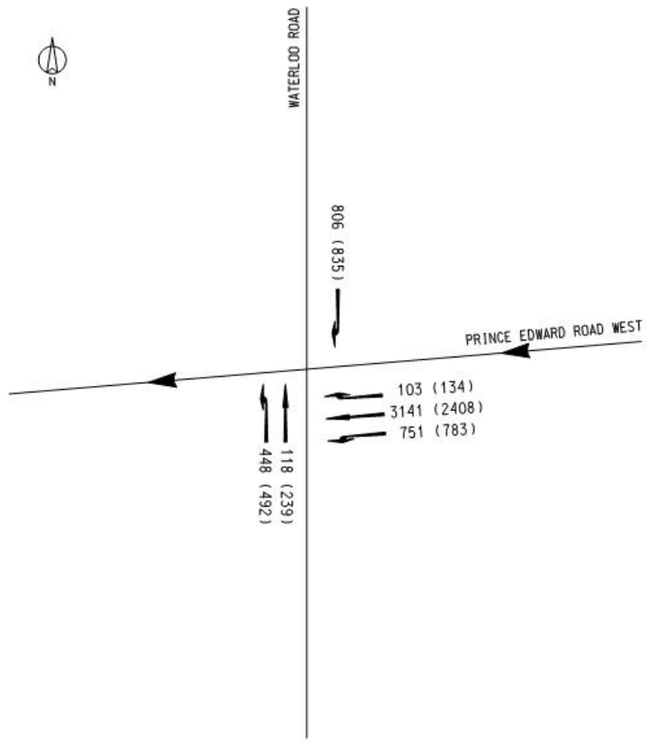
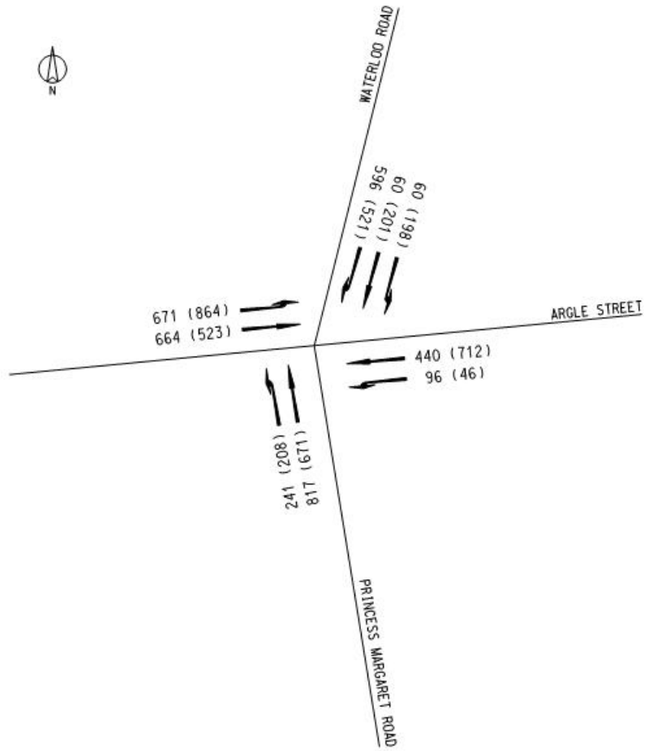


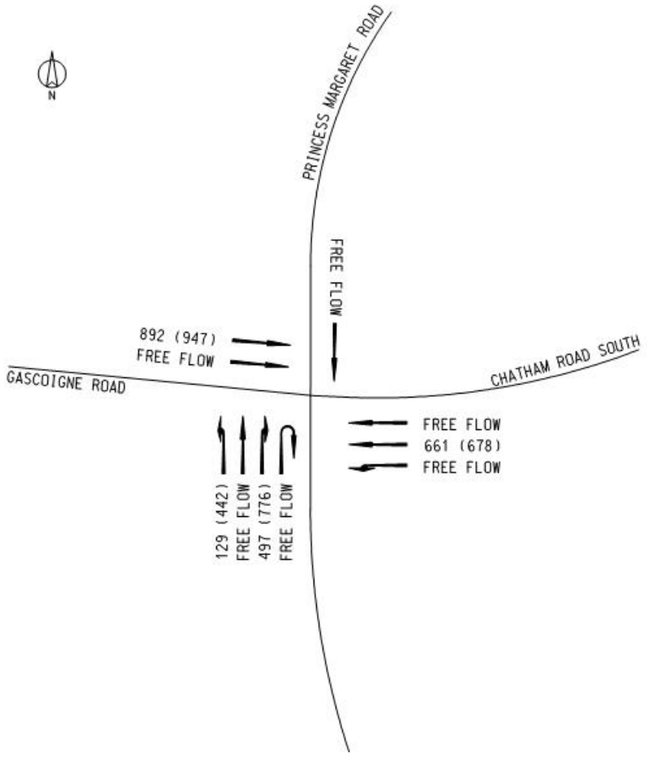
(J13) BOUNDARY STREET / WATERLOO ROAD



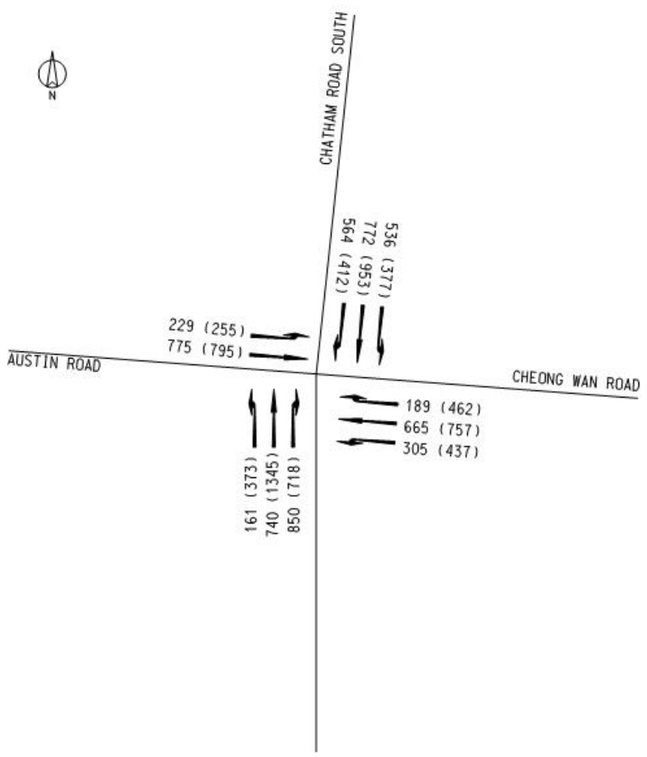
(J14) PRINCE EDWARD WEST / WATERLOO ROAD



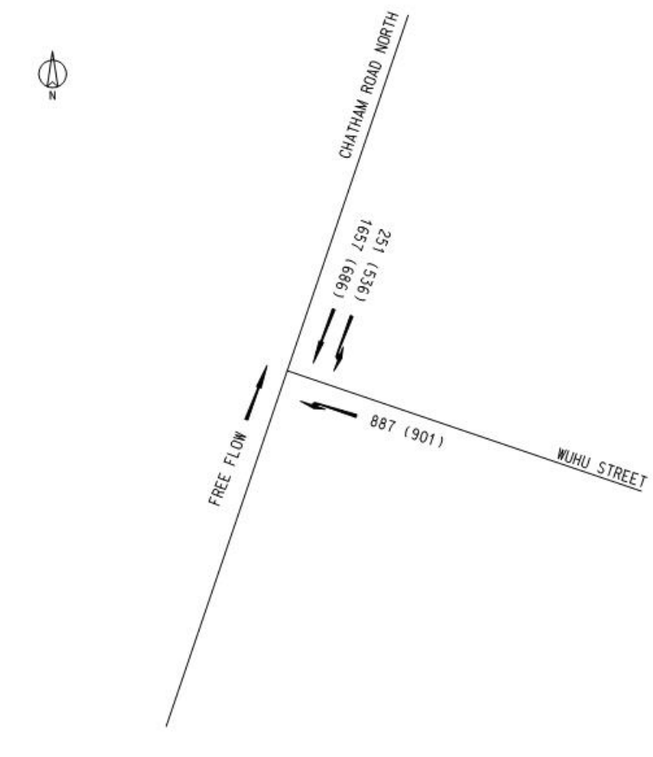
(J15) ARGLE STREET / WATERLOO ROAD / PRINCESS MARGARET ROAD



(J16) GASCOIGNE ROAD / CHATHAM ROAD SOUTH



(J17) AUSTIN ROAD / CHATHAM ROAD SOUTH / CHEONG WAN ROAD



(J18) CHAMTHAM ROAD NORTH / WUHU STREET

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B	SECOND ISSUE	TS	06/13
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Peak Hour Traffic Flows
(3 of 7)

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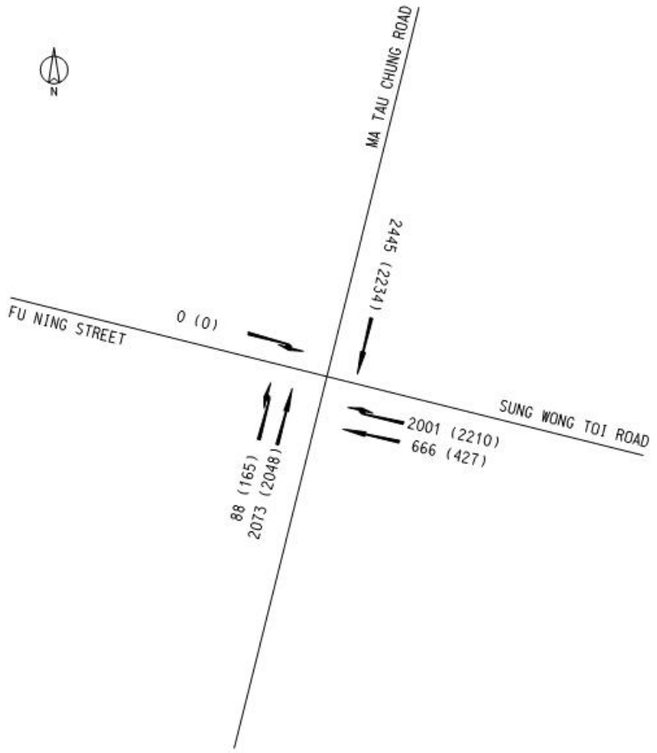
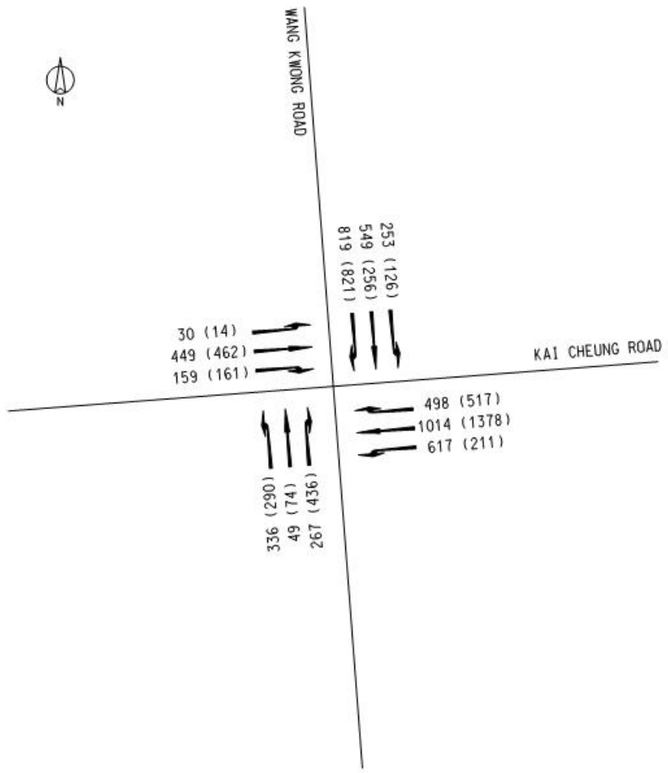
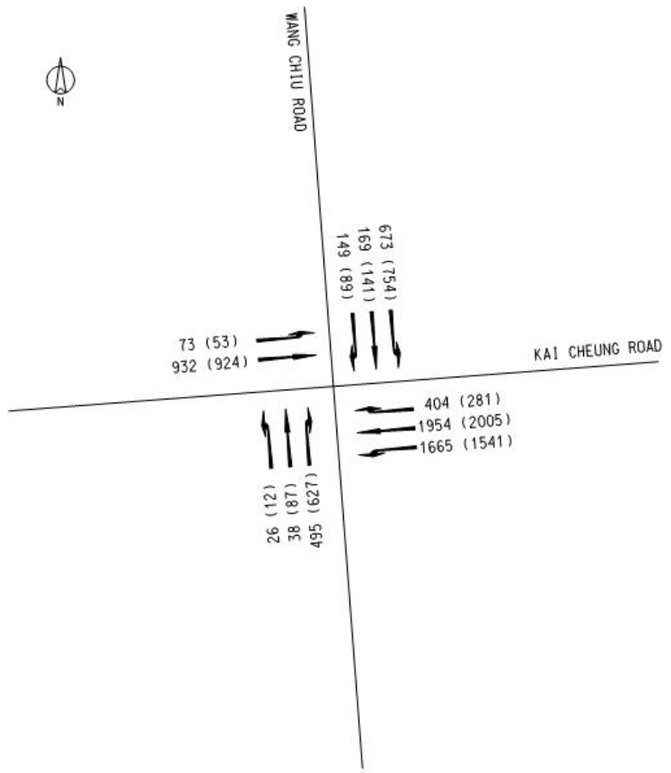


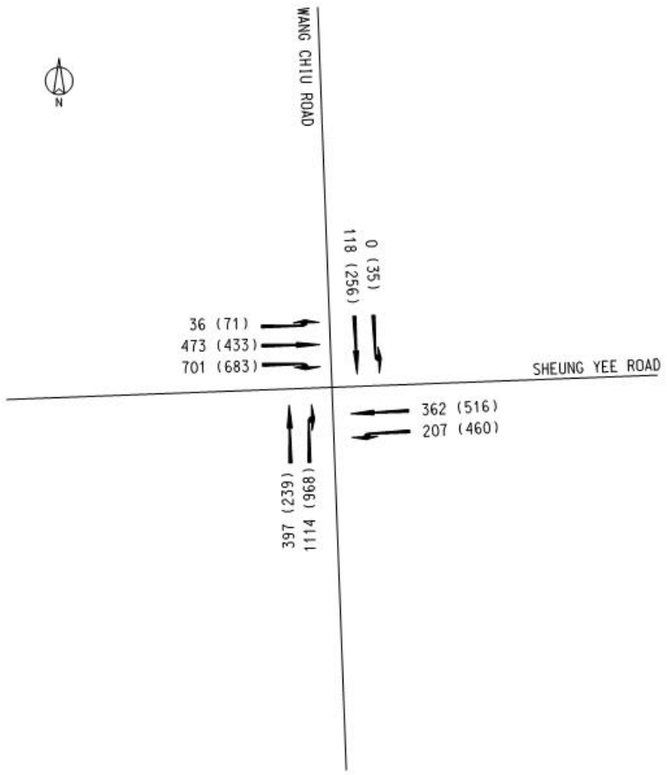
(J19) MA TAU CHUNG ROAD / SUNG WONG TOI ROAD



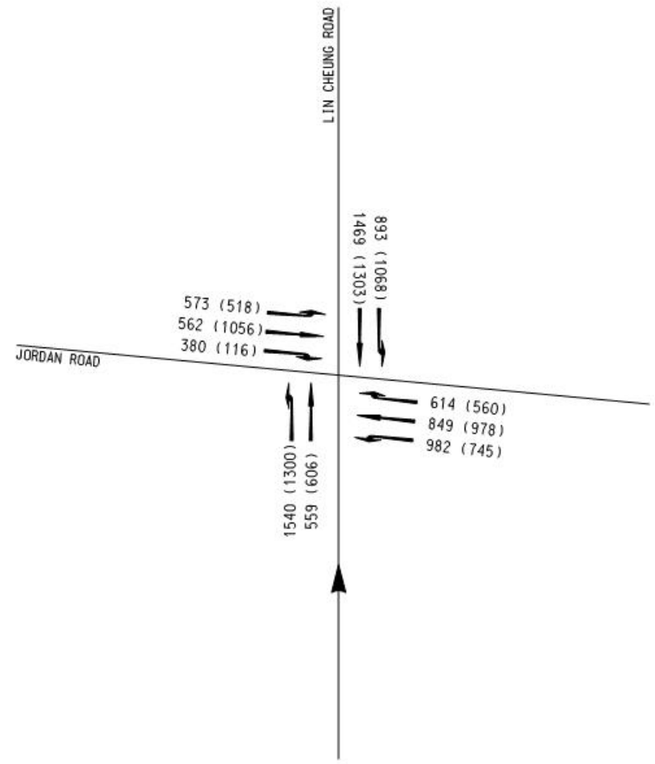
(J20) KAI CHEUNG ROAD / WANG KWONG ROAD



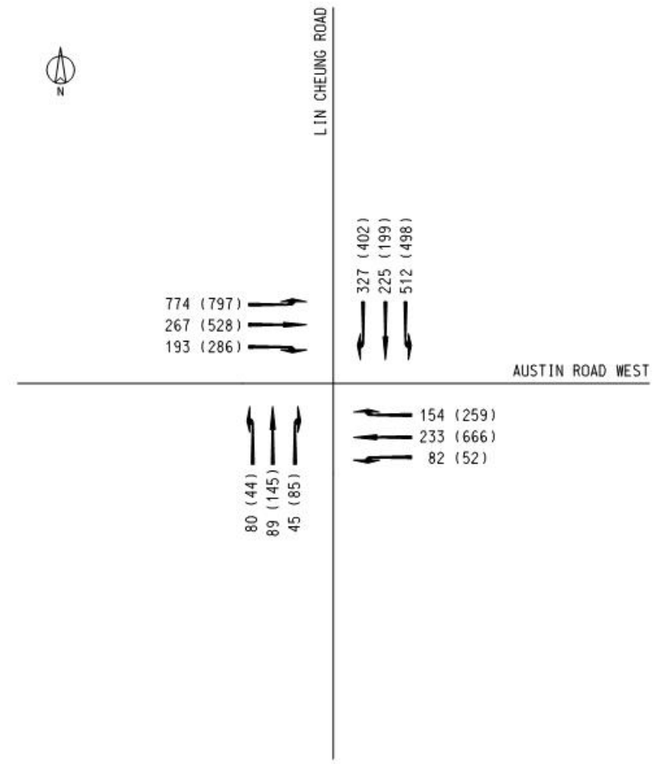
(J21) KAI CHEUNG ROAD / WANG CHIU ROAD



(J22) SHEUNG YEE ROAD / WANG CHIU ROAD



(J23) LIN CHEUNG ROAD / JORDAN ROAD



(J25) LIN CHEUNG ROAD / AUSTIN ROAD WEST

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B	SECOND ISSUE	TS	06/13
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Peak Hour Traffic Flows
(4 of 7)

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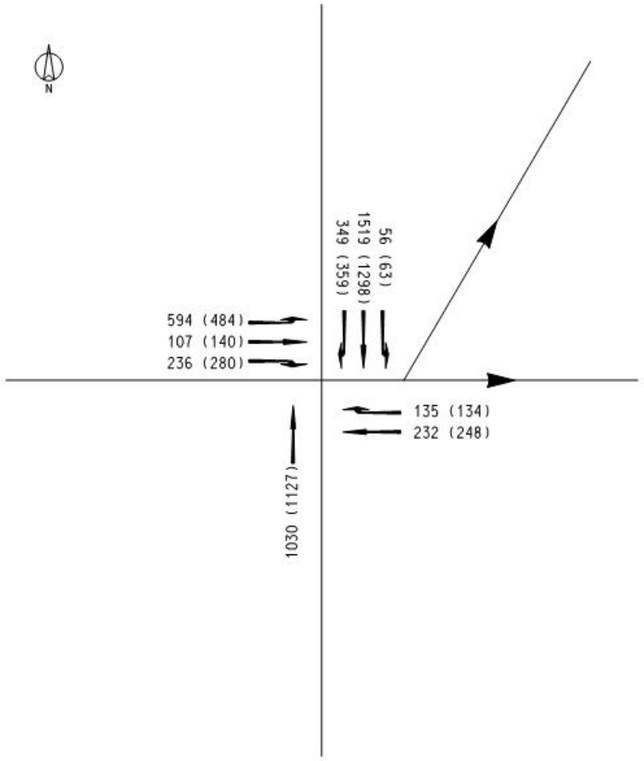
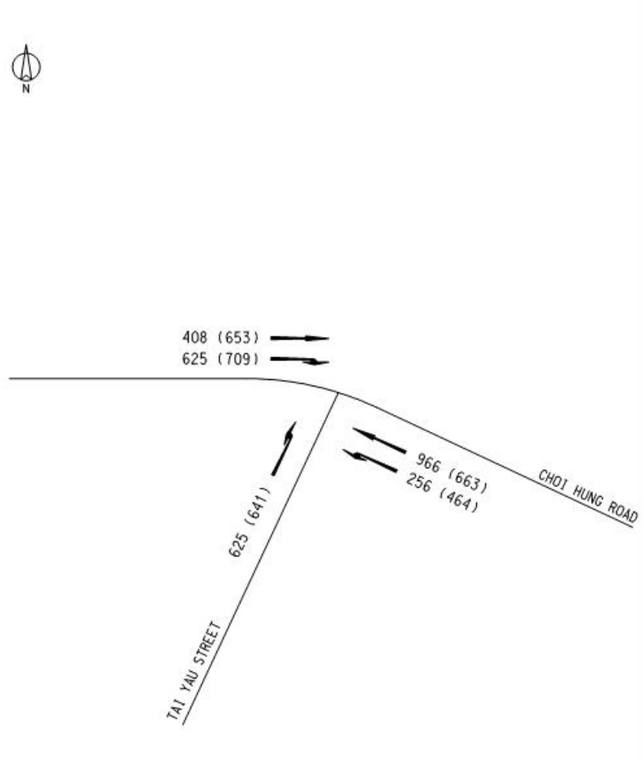
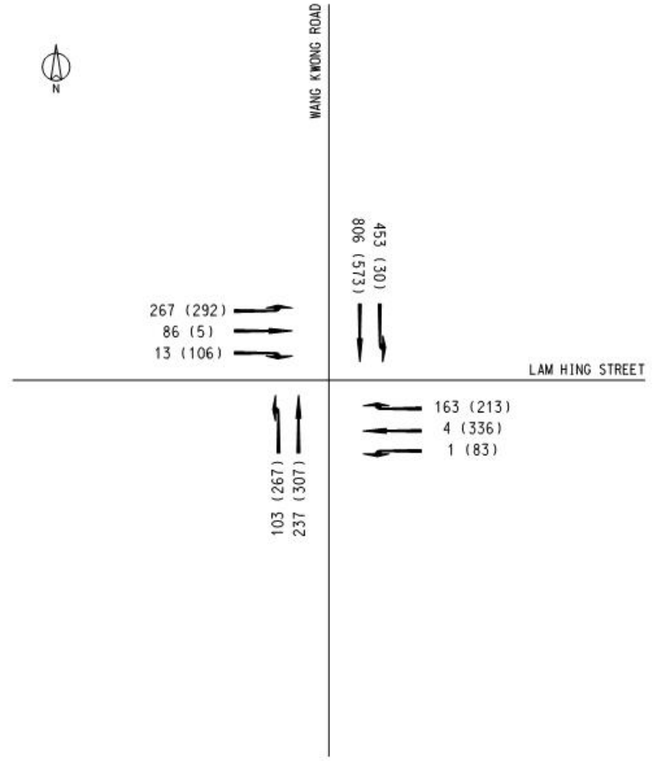


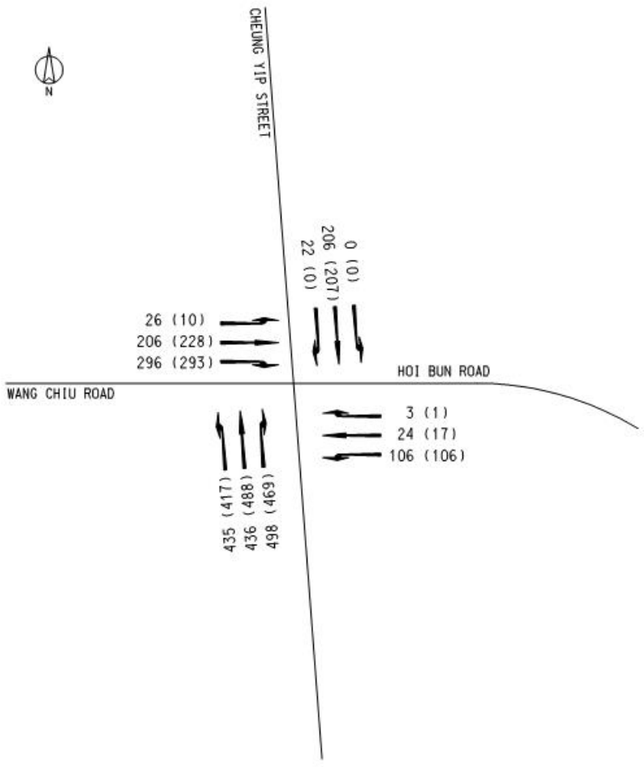
(J26) MA TAU ROAD / TIN KWONG ROAD



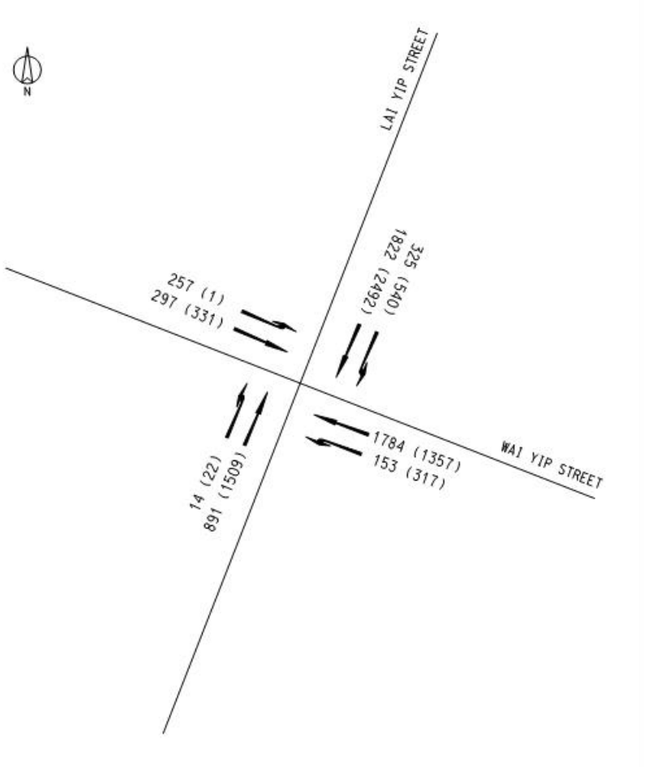
(J27) CHOI HUNG ROAD / TAI YAU STREET



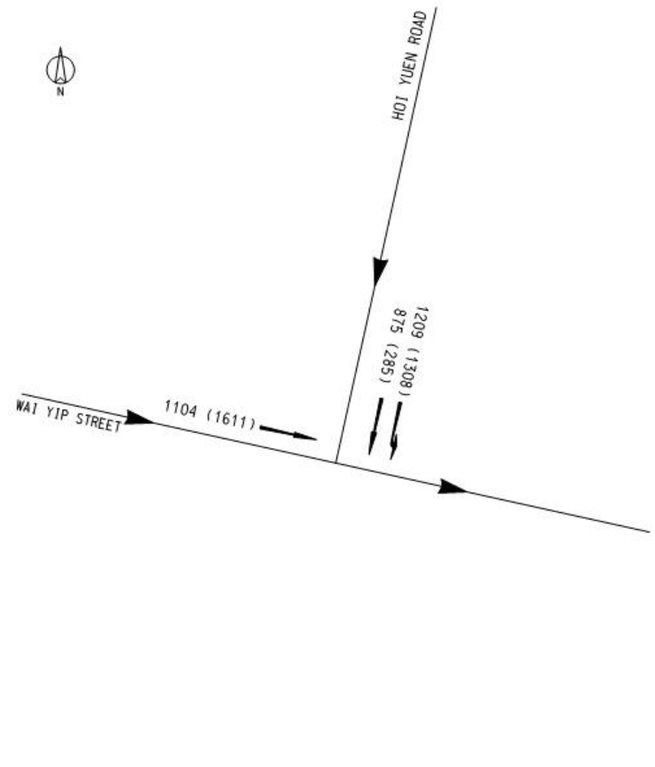
(J28) LAM HING STREET / WANG KWONG ROAD



(J29) HOI BUN ROAD / CHEUNG YIP STREET / WANG CHIU ROAD



(J30) WAI YIP STREET / LAI YIP STREET



(J31) WAI YIP STREET / HOI YUEN ROAD

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B	SECOND ISSUE	TS	06/13
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2026 Forecast (Design)
Peak Hour Traffic Flows
(5 of 7)

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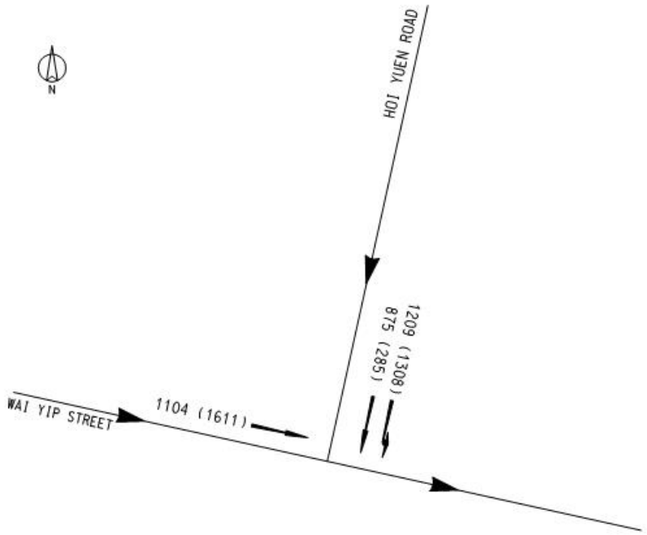

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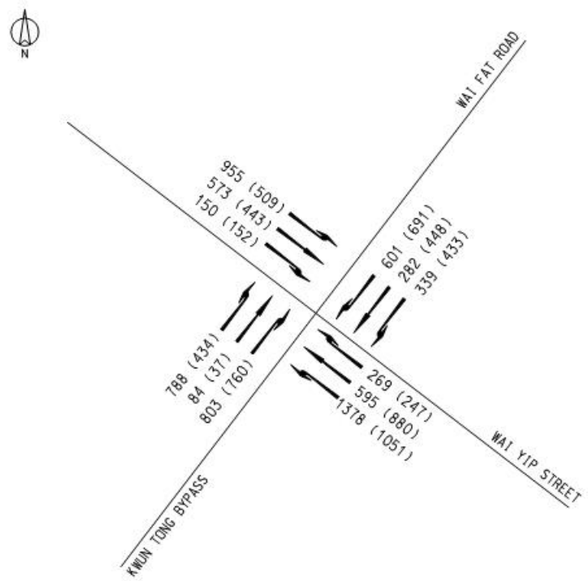
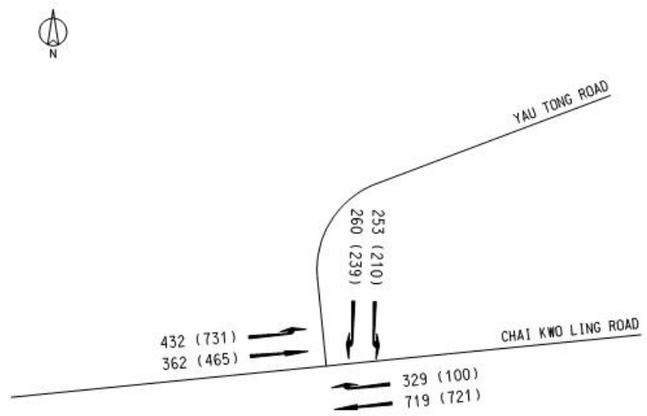
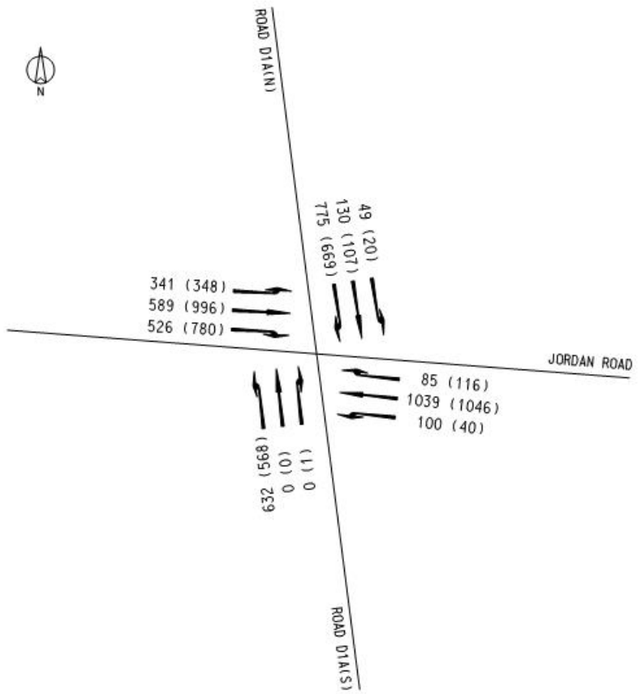


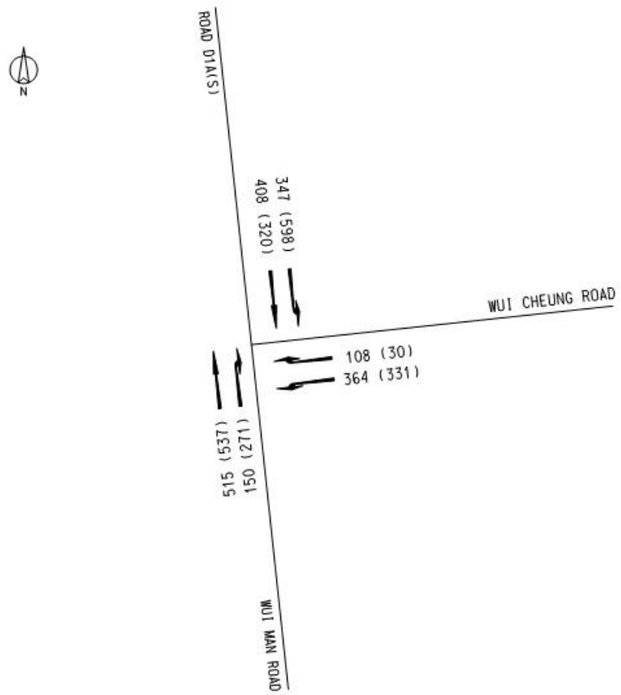
(J32) WAI YIP STREET / WAI FAT ROAD



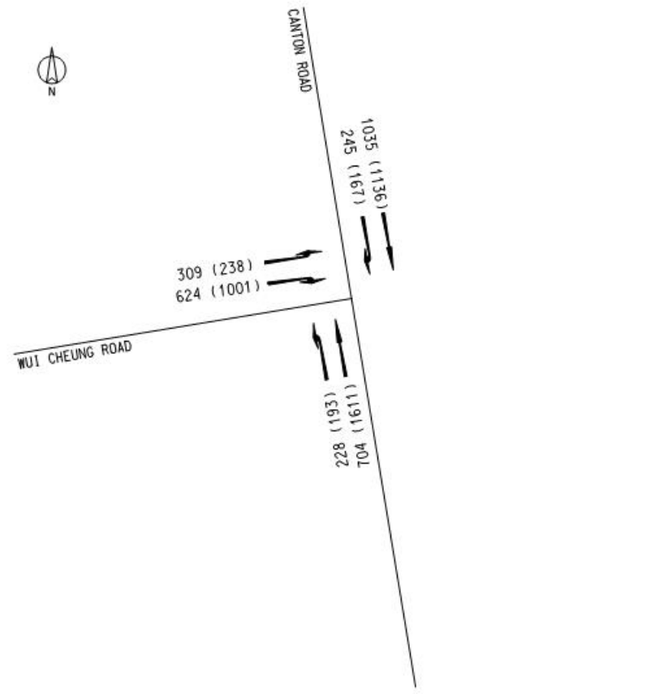
(J33) CHAI KWO LING ROAD / YAU TONG ROAD



(J34) TEMPORARY ROAD D1A(S) / JORDAN ROAD



(J35) TEMPORARY ROAD D1A(S) / WUI CHEUNG ROAD



(J36) CANTON ROAD / WUI CHEUNG ROAD

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Drawing title
2026 Forecast (Design)
Peak Hour Traffic Flows
(6 of 7)

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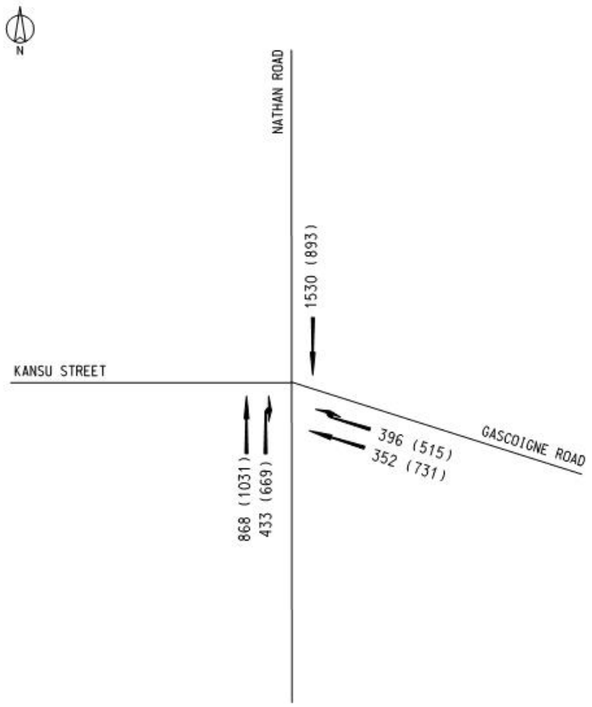
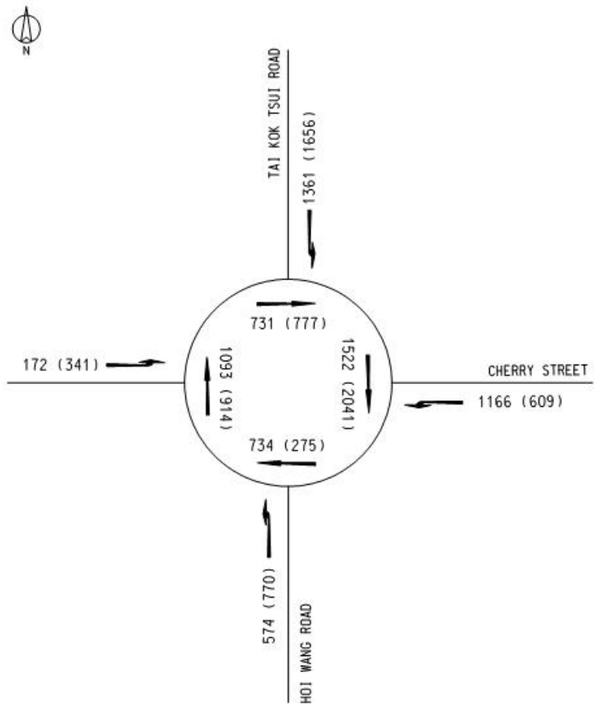


(J37) KANSU STREET / NATHAN ROAD / GASCOIGNE ROAD



(J38) OLYMPIC GARDEN ROUNDABOUT

Rev	Description	By	Date
B	SECOND ISSUE	TS	06/13
A	FIRST ISSUE	TS	08/12

Consultant
ARUP Mott MacDonald
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
2026 Forecast (Design)
Peak Hour Traffic Flows
(7 of 7)

Drawing no.	Rev.
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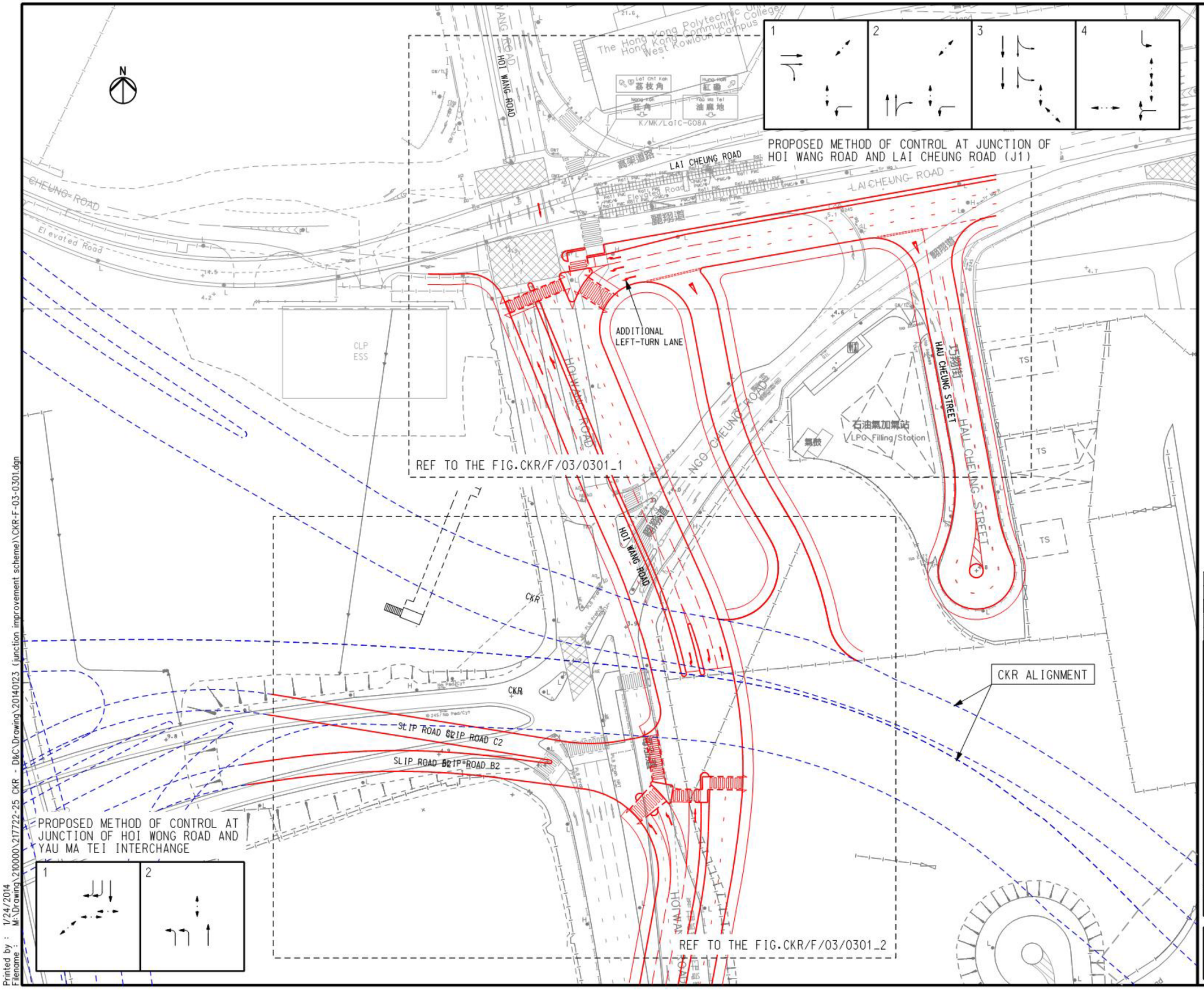

Rev	Description	By	Date

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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROPOSED JUNCTION ARRANGEMENT AT JUNCTION OF HOI WANG ROAD AND LAI CHEUNG ROAD (J1) AND JUNCTION OF HOI WONG ROAD AND YAU MA TEI INTERCHANGE

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Printed by : 1/24/2014
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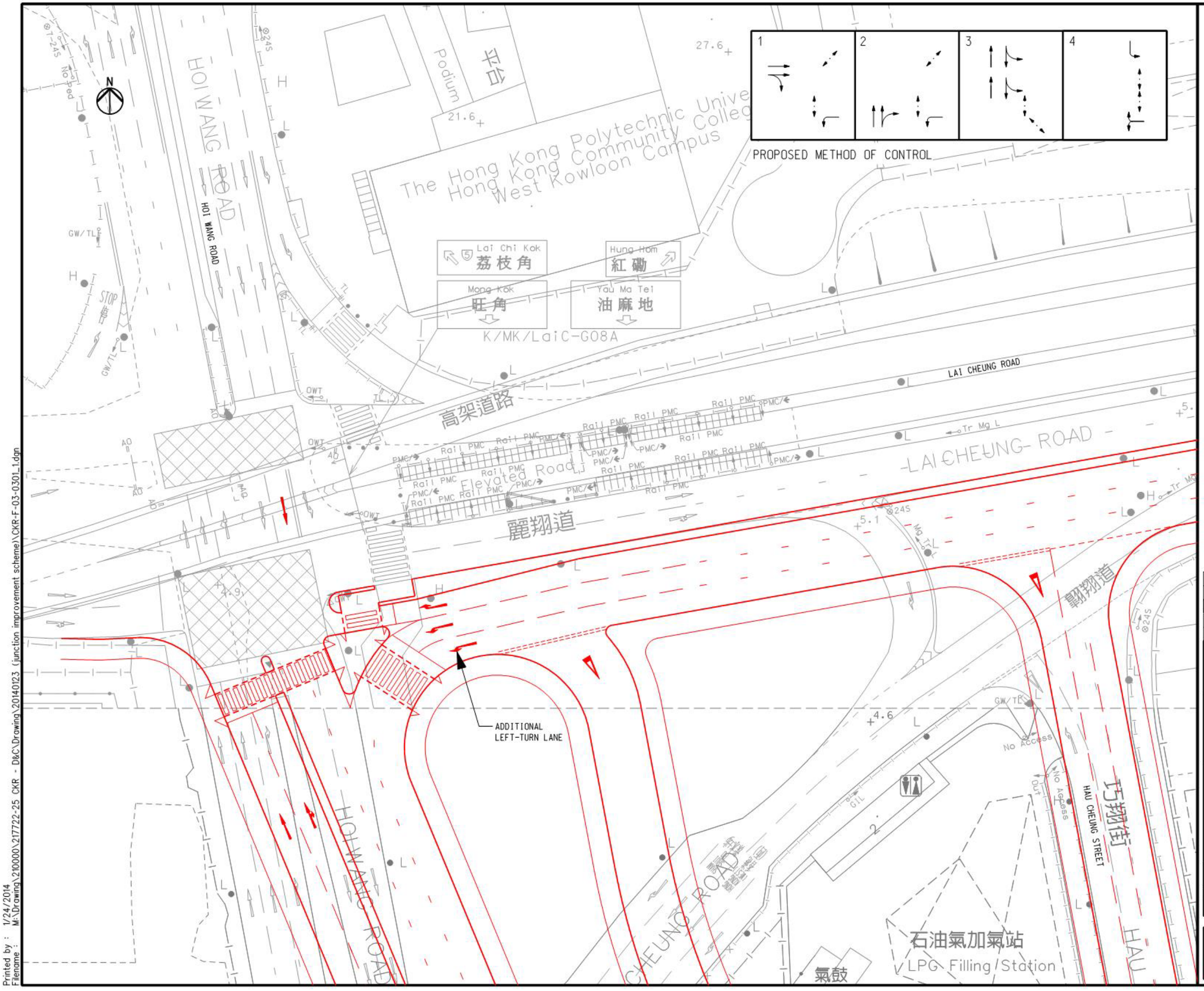

Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROPOSED JUNCTION ARRANGEMENT AT JUNCTION OF HOI WANG ROAD AND LAI CHEUNG ROAD (J1)

Drawing no.	Rev.
CKR/F/03/0301_1	-

Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC

Scale 1:250 @ A1
Status PRELIMINARY

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主要工程管理處 MAJOR WORKS PROJECT MANAGEMENT OFFICE

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N

CKR ALIGNMENT

CKR

SLIP ROAD C2

SLIP ROAD B2

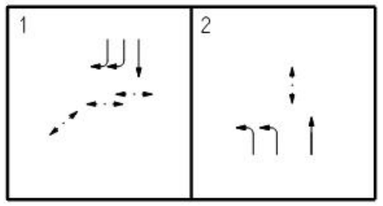
HOI WANG ROAD

HOI WANG ROAD

No Ped/Cyt

⊗ 24S/ No Ped/Cyt

PROPOSED METHOD OF CONTROL



LEGEND

CKR ALIGNMENT

IMPROVEMENT WORK CARRIED OUT BY CKR

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

PROPOSED JUNCTION ARRANGEMENT AT JUNCTION OF HOI WONG ROAD AND YAU MA TEI INTERCHANGE

Drawing no.			Rev.
CKR/F/03/0301_2			-
Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC
Scale		Status	
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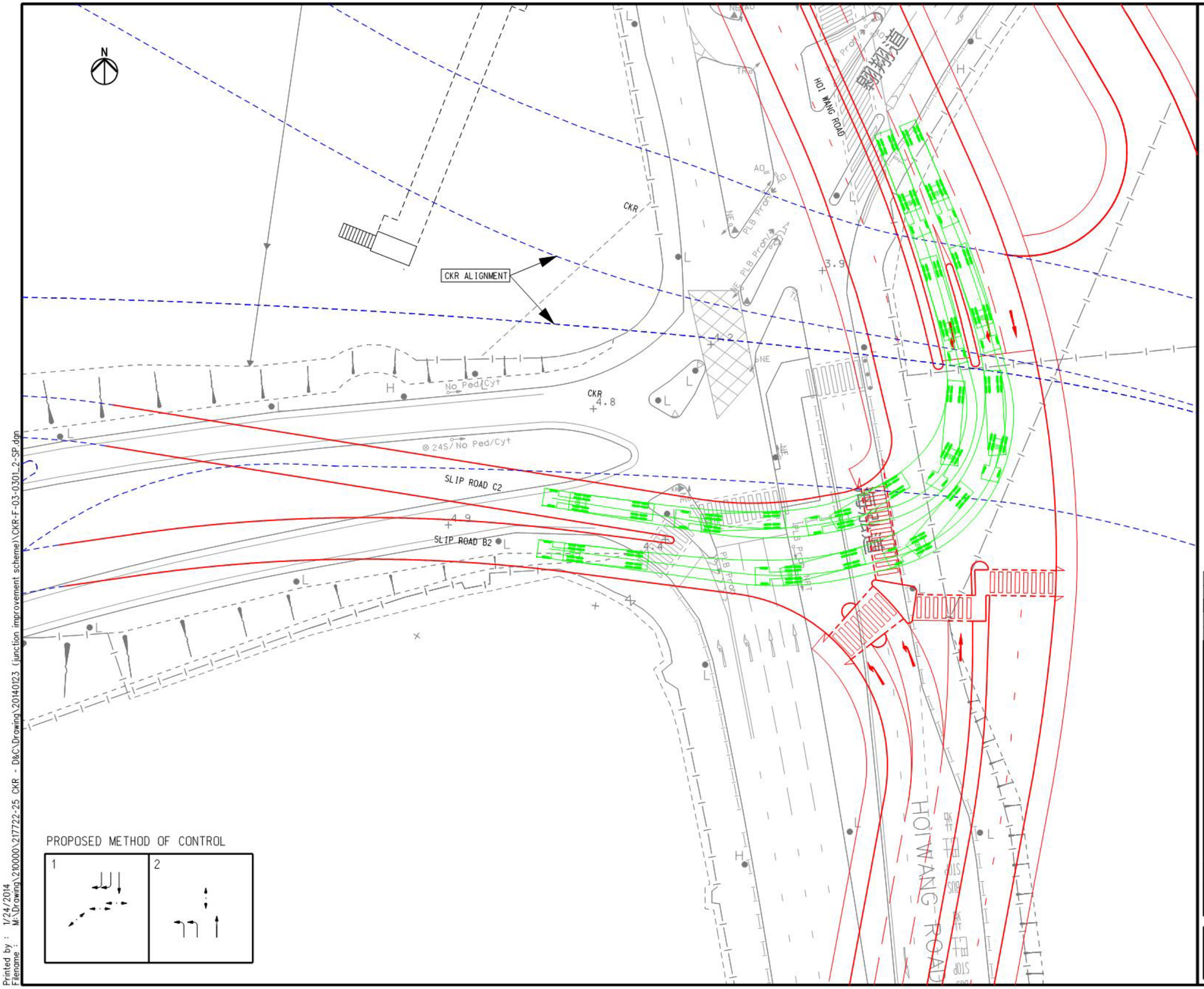
Printed by : 1/24/2014
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20140123 (junction improvement scheme)\CKR-F-03-0301_2.dgn



LEGEND

- CKR ALIGNMENT
- 16m CONTAINER
- IMPROVEMENT WORK CARRIED OUT BY CKR

Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROPOSED JUNCTION ARRANGEMENT AT JUNCTION OF HOI WONG ROAD AND YAU MA TEI INTERCHANGE (SWEPT PATH ANALYSIS)

Drawing no.	Rev.
CKR/F/03/0301_2-SP	-

Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC

Scale: 1:250 @ A1
Status: PRELIMINARY

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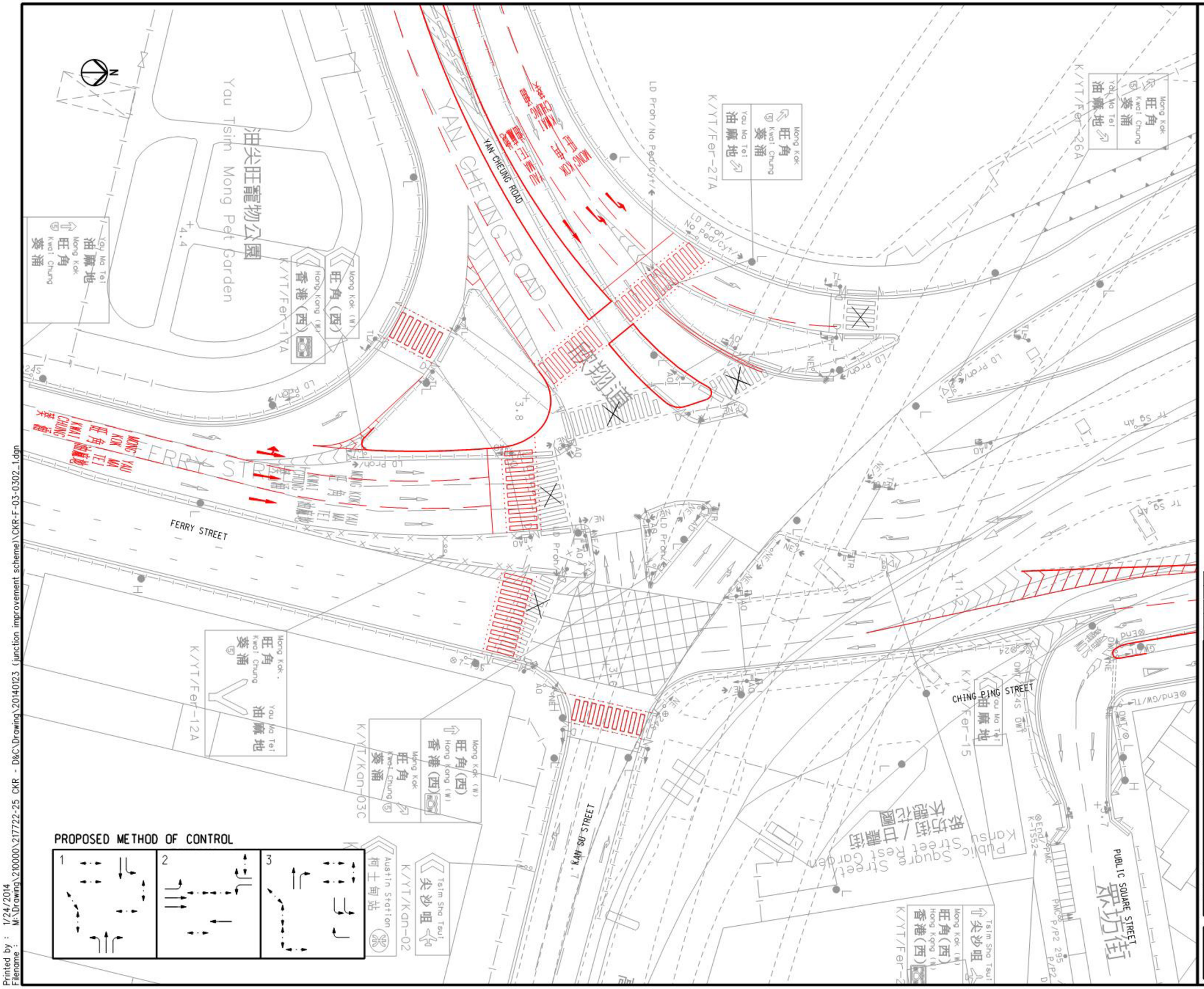
Printed by : 1/24/2014
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20140123 (junction improvement scheme)\CKR-F-03-0301_2-SP.dgn



Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROPOSED JUNCTION ARRANGEMENT AT JUNCTION OF KANSU STREET, FERRY STREET AND YAN CHEUNG ROAD (J2)

Drawing no.		Rev.
CKR/F/03/0302_1		-
Drawn: CLL	Date: NOV/13	Checked: HTTS / Approved: CC
Scale: 1:250 @ A1	Status: PRELIMINARY	

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MAJOR WORKS PROJECT MANAGEMENT OFFICE

Printed by : 1/24/2014
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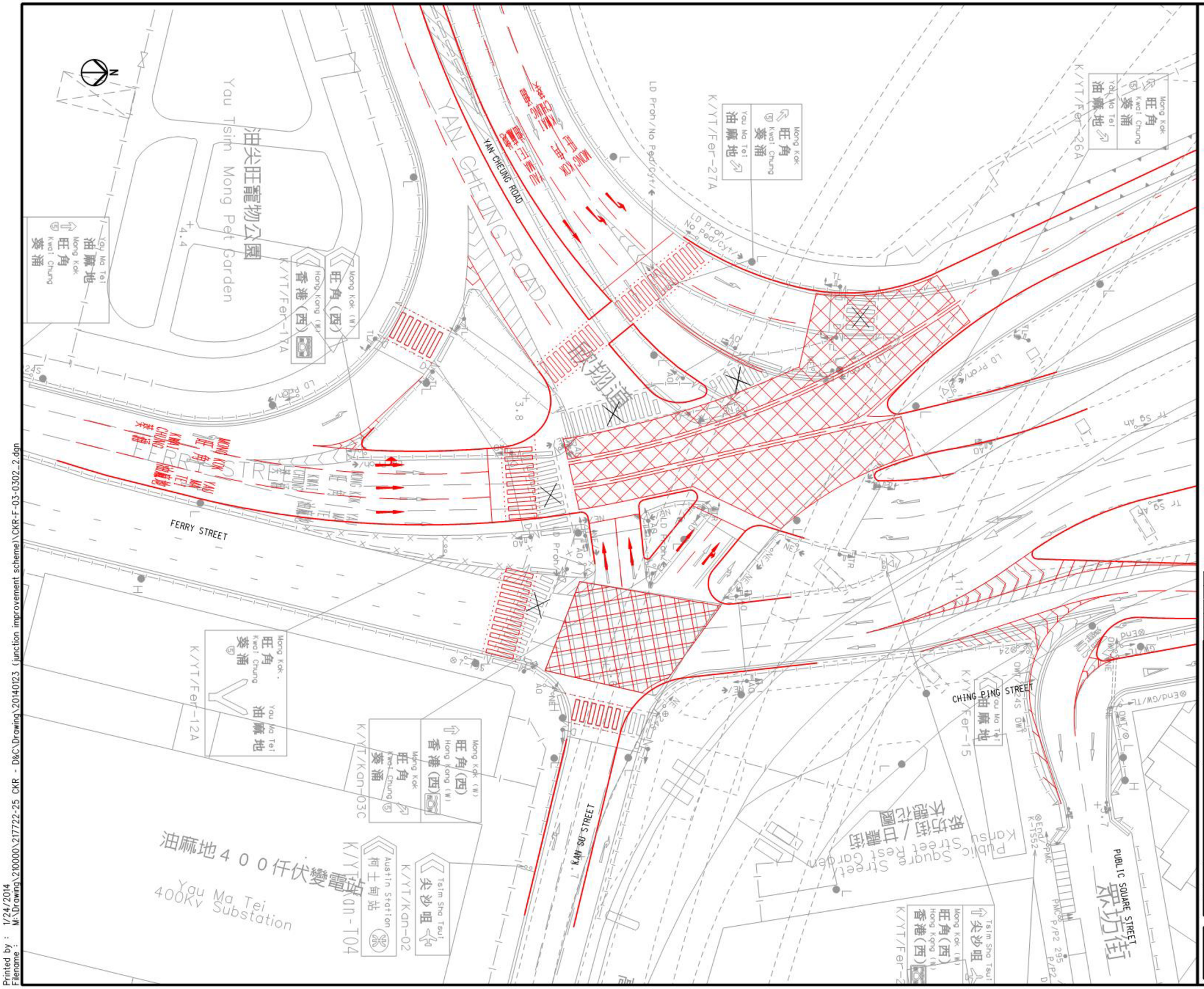
YAN CHEUNG ROAD
FERRY STREET
KAN SU STREET
CHING PING STREET
PUBLIC SQUARE STREET
油尖旺寵物公園
Yau Tsim Mong Pet Garden
油麻地400仟伏變電站
Yau Ma Tei 400Kv Substation
LD Prohi/No Ped/Cyt
TR Sg Ah
NE1
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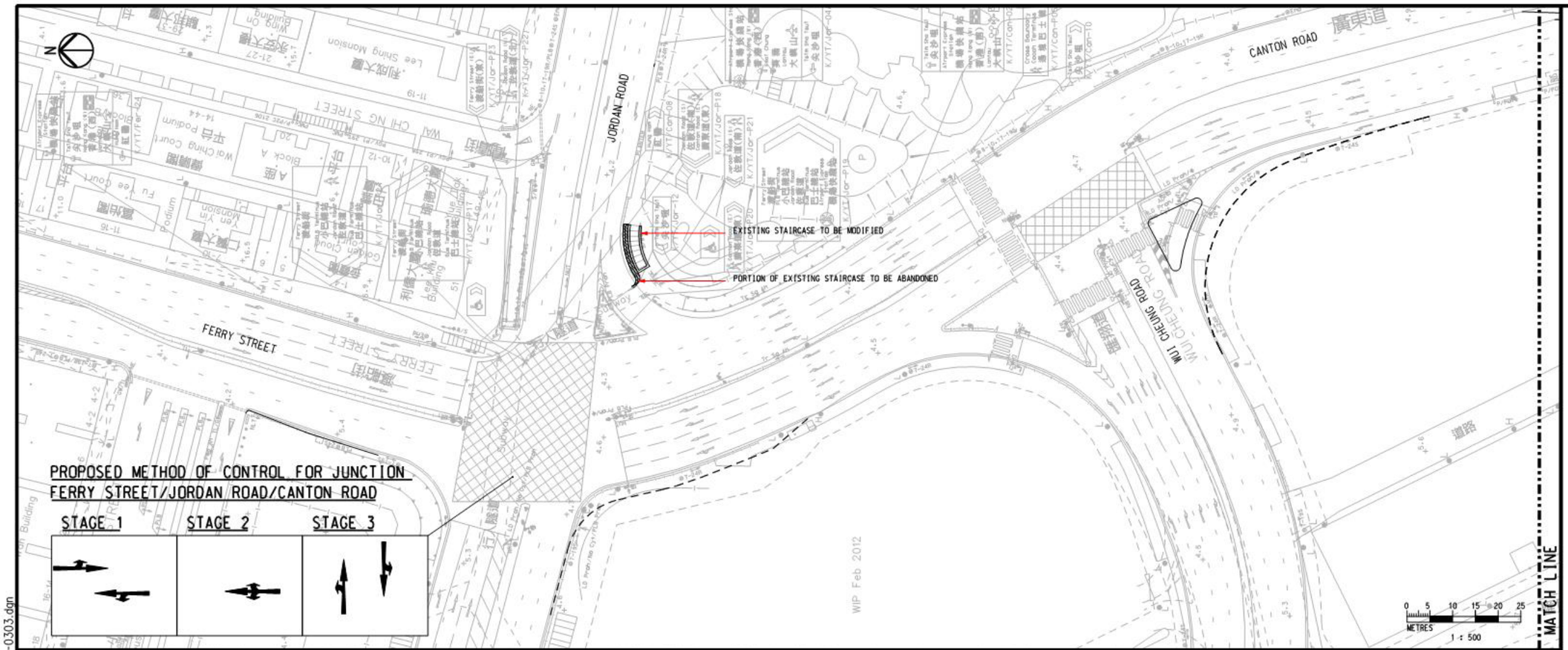
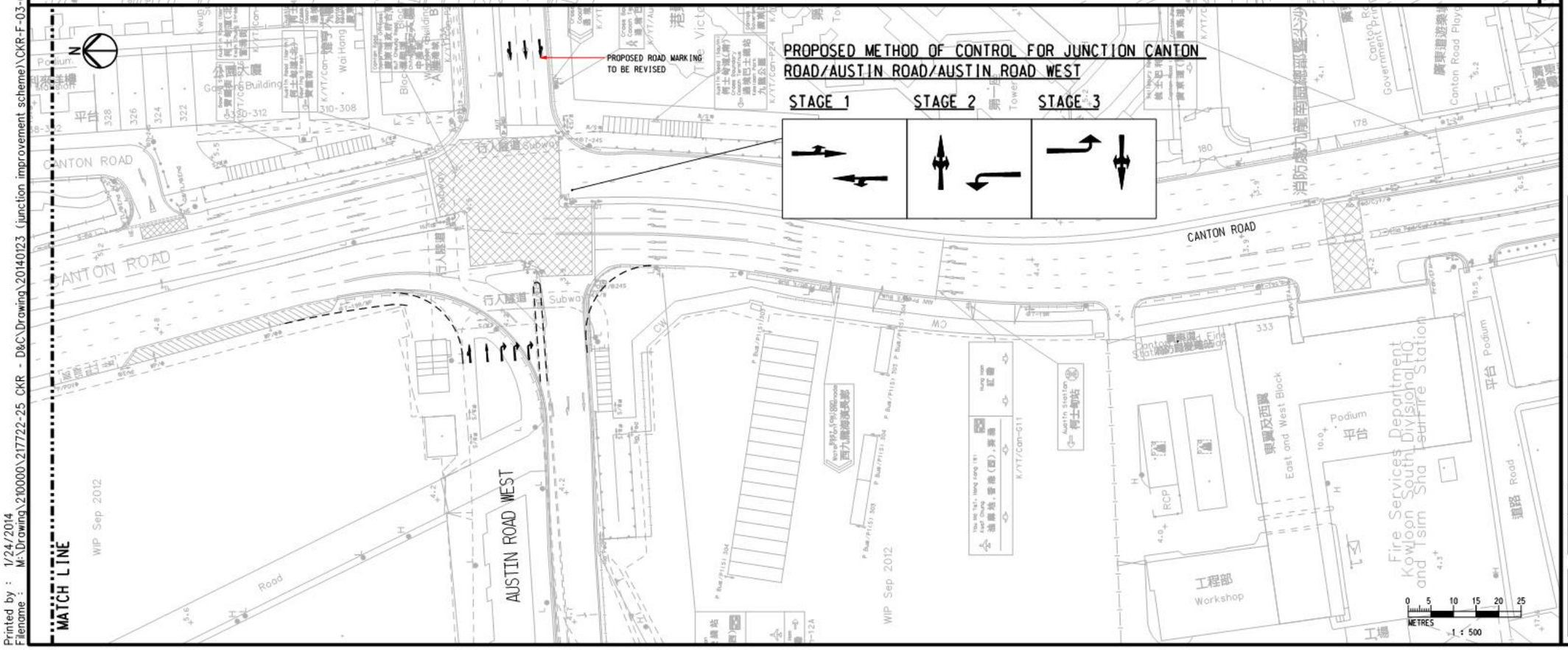
NE40





LEGEND

- - - IMPROVEMENT WORK CARRIED OUT BY OTHER PROJECTS

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

PROPOSED JUNCTION ARRANGEMENT AT JUNCTION OF AUSTIN ROAD WEST, AUSTIN ROAD AND CANTON ROAD (J4)

Drawing no.	Rev.
CKR/F/03/0303	-

Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC

Scale: 1:500 @ A1

Status: PRELIMINARY

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LEGEND

IMPROVEMENT WORK CARRIED OUT BY OTHER PROJECTS

TO BE CARRIED OUT BY OTHER PROJECT

食物環境衞生署
Food and Environmental Hygiene Department

Except for access to Government Offices 前往政府合署者 不在此限 K-TS137

Prince Edward Road Boundary Street 太子道 界限街 K/MK/Monk-02

Argyle Street 亞皆老街

平台 Podium

Public & KLN Chiu Chow Assn Sec School

SAI YEE STREET 洗衣街

MONG KOK ROAD

HAWKERS

榮梅大廈 Wing Mui Building

正華大廈 Cheng Wah Mansion

國際大廈 International Building

新旺大樓 Sun Mong House

華美樓 Wah Mei Building

聯安大廈 Luen On Building

友和大樓 Yau Woo Apartment

泰怡大廈 Tai Yue Mansion

景亮大廈 King Leong Mansion

Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROPOSED JUNCTION IMPROVEMENT AT JUNCTION OF SAI YEE STREET AND MONG KOK ROAD (J9)

Drawing no.	Rev.
CKR/F/03/0304	-

Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC

Scale 1:250 @ A1
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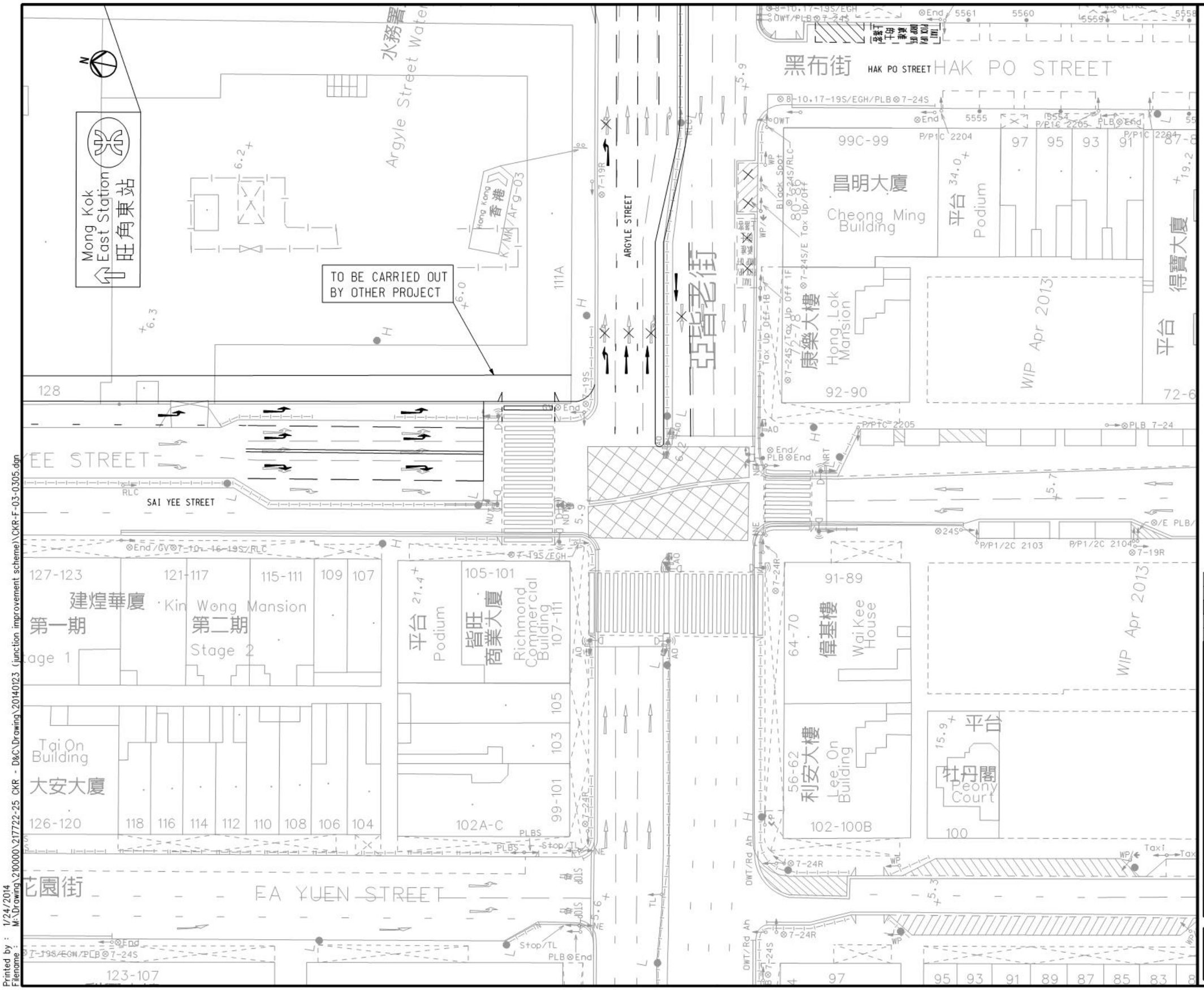
Printed by : 1/24/2014
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20140123 (junction improvement scheme)\CKR-F-03-0304.dgn



Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROPOSED JUNCTION IMPROVEMENT AT JUNCTION OF ARGYLE STREET AND SAI YEE STREET (J10)

Drawing no.	Rev.
CKR/F/03/0305	-

Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC

Scale 1:250 @ A1
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主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

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LEGEND

—— IMPROVEMENT WORK CARRIED OUT BY OTHER PROJECTS

TO BE CARRIED OUT BY OTHER PROJECT

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

PROPOSED JUNCTION IMPROVEMENT AT JUNCTION OF ARGYLE STREET AND YIM PO FONG STREET (J11)

Drawing no.			Rev.
CKR/F/03/0306			-
Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC
Scale		Status	
1:250 @ A1		PRELIMINARY	

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Printed by : 1/24/2014
Filename : M:\Drawing\20000\21722-25 CKR - D&C\Drawing\20140123 (junction improvement scheme)\CKR-F-03-0306.dgn

839500 E

839550 E

839600 E

820750 N

820700 N

WANG CHIU ROAD

KAI CHEUNG ROAD

Stand

RAMP

休憩處
Sitting-Out Area

Telford Gardens
德福花園
Ngau Tau Kok
牛頭角
Kwun Tong
觀塘
Chai Hung Interchange
彩虹交滙處
Sha Tin
沙田
Sai Kung
西貢

K/KT/KcjC-09A

MIN. 3.5m FOOTPATH

MIN. 2.5m FOOTPATH

MIN. 2.5m FOOTPATH

MIN. 3.5m FOOTPATH

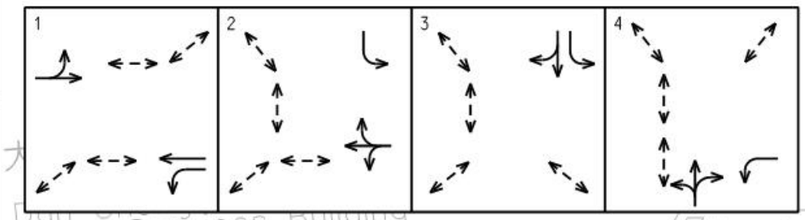
平台
Podium

寶隆中心
Po Lung Centre

Motor Services Building

Hong Kong (E)
香港(東)

PROPOSED M.O.C.



LEGEND

IMPROVEMENT WORK CARRIED OUT BY OTHER PROJECTS

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

PROPOSED JUNCTION IMPROVEMENT AT JUNCTION OF KAI CHEUNG ROAD AND WANG CHIU ROAD (J21)

Drawing no.			Rev.
CKR/F/03/0307			-
Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC
Scale		Status	
A3 1:500		PRELIMINARY	

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HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

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839550 E

839600 E

839650 E

820050 N

820000 N

N

企業廣場3期
Enterprise Square Three

平台
Podium

Wai Yip Street 偉業街

Wai Yip Street 偉業街

Kwun Tong 觀塘

K/KT/SheY-09

Telford Garden 德福花園

K/KT/SheY-04

Choi Hung Interchange 彩虹交滙

K/KT/

⊗7-19R/EGH

⊗7-19S/EGH

Exp/w200m

NRT

⊗End

No Ped/Cyt/

高架道路

TL

⊗7-19R

SHEUNG YEE ROAD

Exp/w/200m

NE

NLT

NE/

4.7

SET BACK EXISTING KERB TO PROVIDE AN ADDITIONAL WESTBOUND TRAFFIC LANE

MIN. 3.5m FOOTPATH

Cruise Terminal 郵輪碼頭

K/KT/SheY-07

WANG CHIU ROAD

宏照道

Transport Department Vehicle Examination Centre 運輸署車輛檢驗中心

K/KT/WanC-07

Kowloon Bay 九龍灣 Cruise Terminal

PO

九龍

Kowloon

PROPOSED M.O.C.

1. 2. 3. 4.

LEGEND

IMPROVEMENT WORK CARRIED OUT BY OTHER PROJECTS

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

PROPOSED JUNCTION IMPROVEMENT AT JUNCTION OF SHEUNG YEE ROAD AND WANG CHIU ROAD (J22)

Drawing no.	Rev.
CKR/F/03/0308	-

Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC

Scale	Status
A3 1:500	PRELIMINARY

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Printed by : 1/24/2014
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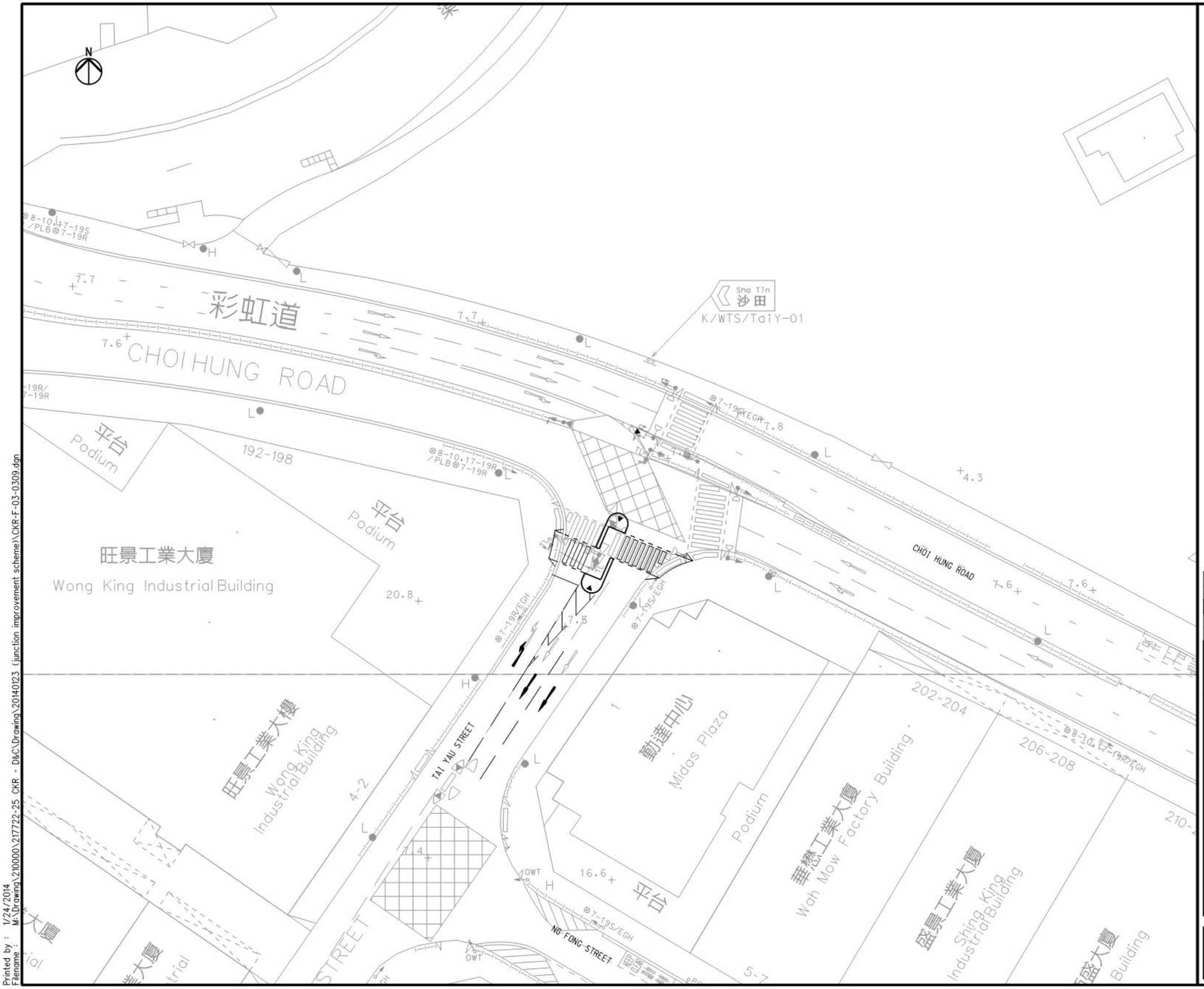

Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
PROPOSED JUNCTION IMPROVEMENT AT JUNCTION OF CHOI HUNG ROAD AND TAI YAU STREET (J27)

Drawing no.			Rev.
CKR/F/03/0309			-
Drawn: CLL	Date: NOV/13	Checked: HTTS	Approved: CC
Scale: 1:250 @ A1		Status: PRELIMINARY	

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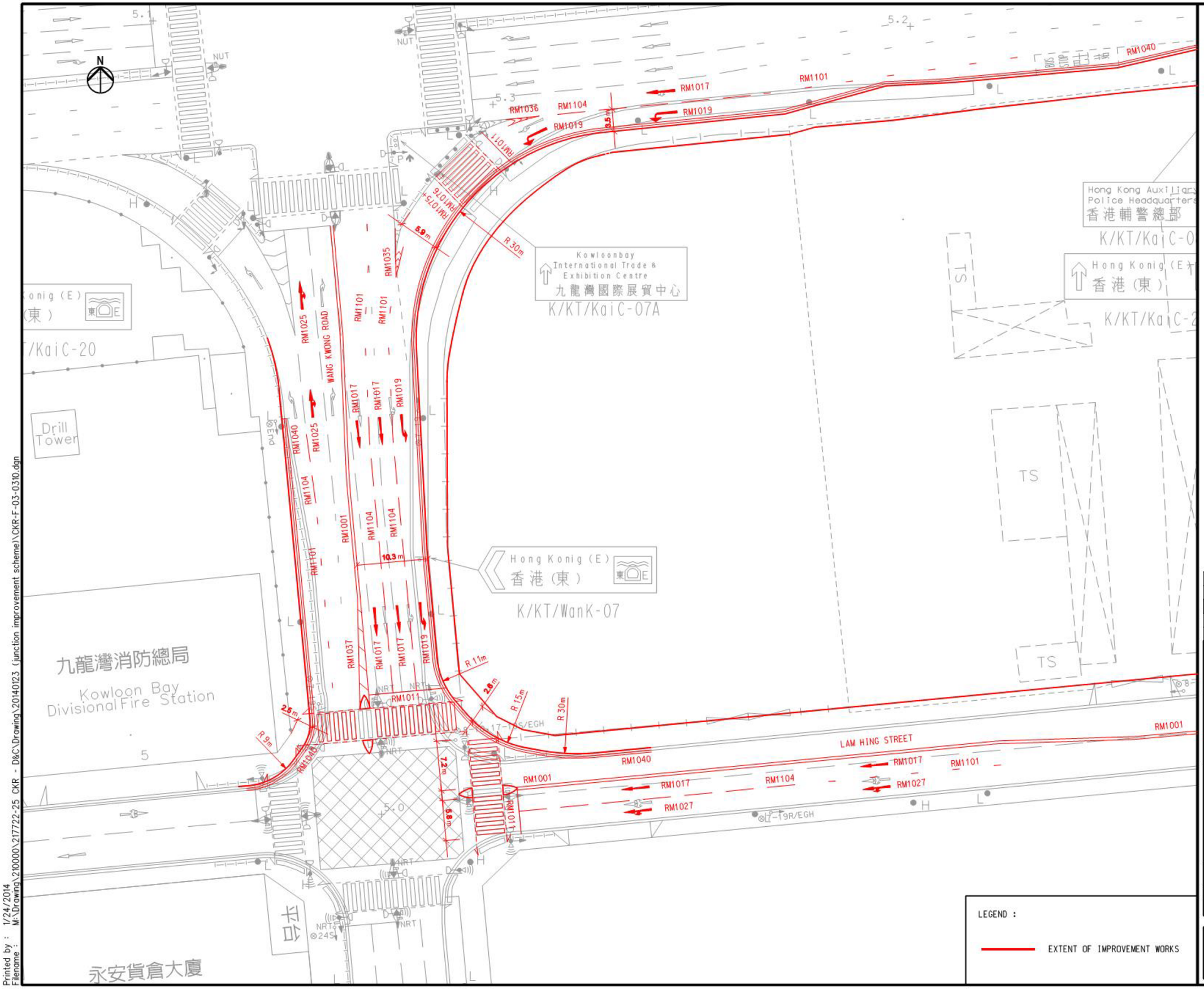
Printed by : 1/24/2014
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20140123 (junction improvement scheme)\CKR-F-03-0309.dgn



LEGEND

IMPROVEMENT WORK CARRIED OUT BY CKR

LEGEND :

EXTENT OF IMPROVEMENT WORKS

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

PROPOSED JUNCTION IMPROVEMENT AT JUNCTION OF LAM HING STREET AND WANG KWONG ROAD (J20, J28)

Drawing no.	Rev.
CKR/F/03/0310	-

Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC

Scale 1:250 @ A1

Status PRELIMINARY

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Printed by : 1/24/2014
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20140123 (junction improvement scheme)\CKR-F-03-0310.dgn

839800 E

839850 E

839900 E

CHEUNG YIP STREET

Transport Department
Vehicle Examination Centre
運輸署車輛檢驗中心
K/KT/WanC-09

Cruise Terminal
郵輪碼頭
K/KT/CheYip-01

5.6

5.8

819800 N

WANG CHIU ROAD

HOI BUN ROAD

海濱道

80 km/h

ExpS6.7R2

KLUO

ExpN6.7R2

ExpS6.7R2

Rd Nar R

TWT

15.3

ExpS6.6R2

高架道路

ExpN6.6R2

14.2

AMV Prof

Reduce Sp

6.4

819750 N

Cruise Terminal
郵輪碼頭
K/KT/WanC-15

Cheung Yip Street
祥業街
石油氣加氣站
LPG Filling Station
Central Laboratory
中央試驗所
K/KT/HoiB-11

MIN. 2.5m FOOTPATH

Kowloon Bay
九龍灣
Cruise Terminal
郵輪碼頭
K/KT/Hoi-13

To Kwa Wan
土瓜灣

Kowloon Bay
Cruise Terminal
九龍灣
郵輪碼頭

Mong Kok & Sha Tin
旺角及沙田

WIP Apr 2006

K/KT/KwuTB-XG17A

K/KT/HoiB-T01

3.9

PROPOSED M.O.C.

1. 2. 3. 4.

LEGEND

IMPROVEMENT WORK CARRIED OUT BY OTHER PROJECTS

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

PROPOSED JUNCTION IMPROVEMENT AT JUNCTION OF HOI BUN ROAD, CHEUNG YIP STREET AND WANG CHIU ROAD (J29)

Drawing no.	Rev.
CKR/F/03/0311	-

Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC

Scale: N.T.S.

Status: PRELIMINARY

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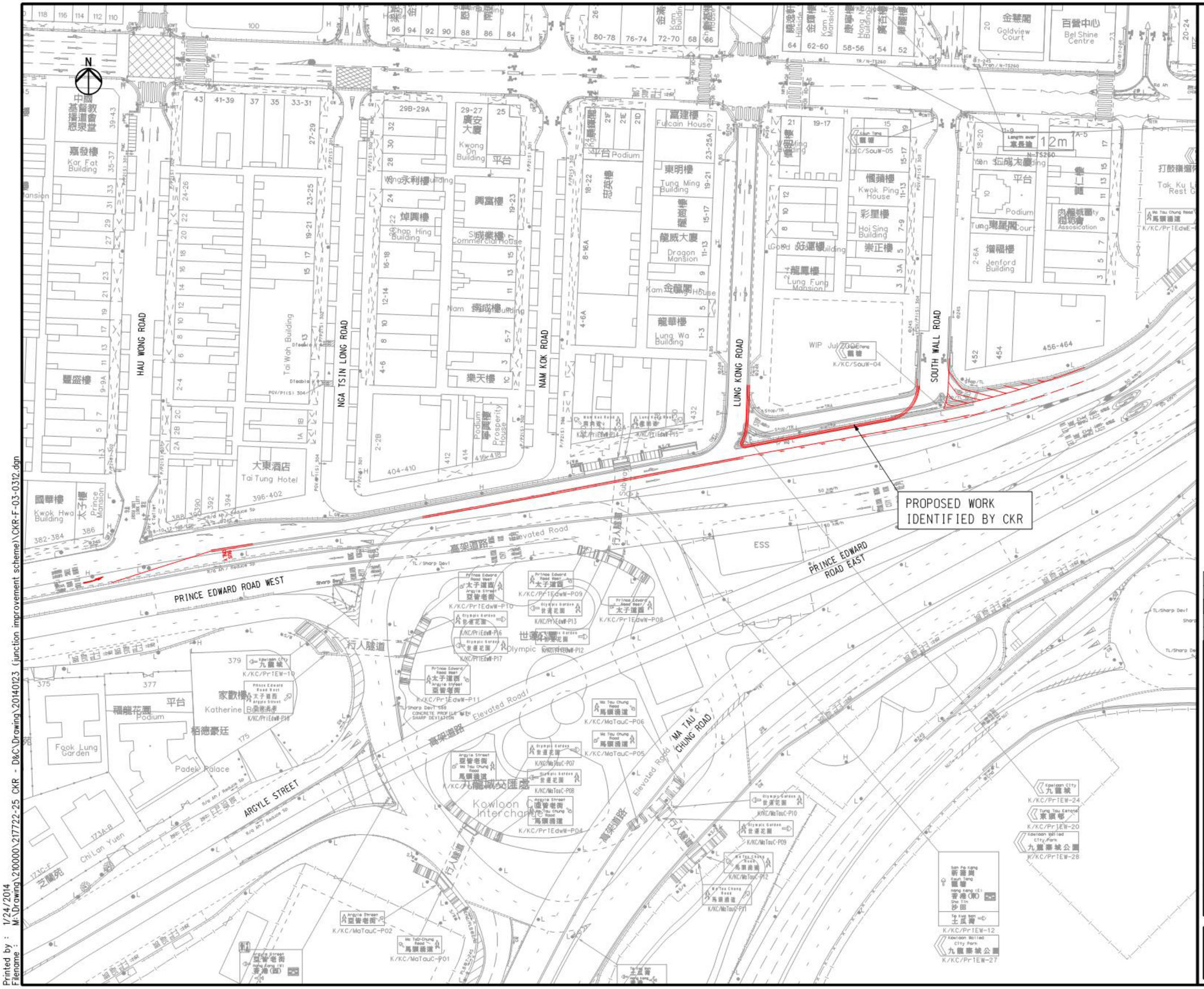

LEGEND

IMPROVEMENT WORK IDENTIFIED BY CKR

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

PROPOSED JUNCTION IMPROVEMENT AT OLYMPIC GARDEN ROUNDABOUT (J38)

Drawing no.			Rev.
CKR/F/03/0312			-
Drawn	Date	Checked	Approved
CLL	NOV/13	HTTS	CC
Scale		Status	
1:500 @ A1		PRELIMINARY	

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Printed by : 1/24/2014
Filename : M:\Drawing\210000\217722-25 CKR - D&C\Drawing\20140123 (junction improvement scheme)\CKR-F-03-0312.dgn

	FLOW		V/C	
SECTION	AM	PM	AM	PM
A1	3199	2640	0.9	0.7
A2	713	805	0.2	0.2
B	3912	3445	1.1	0.9
C	3942	3485	0.7	0.6

LEGEND:

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

Proposed Junction Improvement at Cherry Street and Lin Cheung Road

Drawing no.			Rev.
CKR/F/03/0081			-
Drawn	Date	Checked	Approved
CHPH	JUN 13	FKFT	WCDC
Scale		Status	
1:1500 @ A1		PRELIMINARY	

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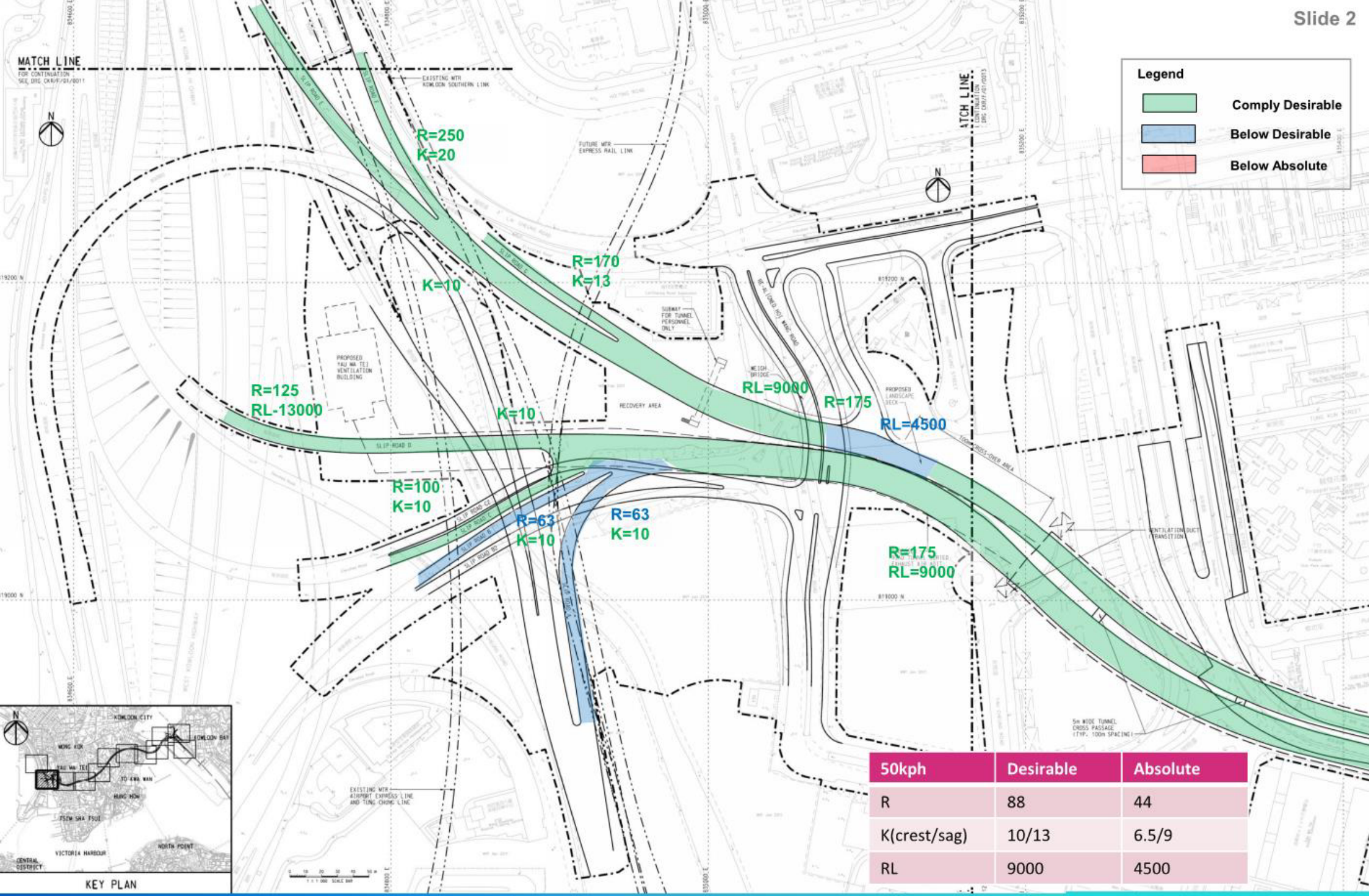
Printed by : 8/6/2013
Filename : \\hkgnts69\traffic\Drawing\210000\217722-25 CKR - D&C\Drawing\20130802(Final TIA)\CKR-F-03-0081.DGN

Appendix B – Detail Information of Speed Limit of Slip Roads

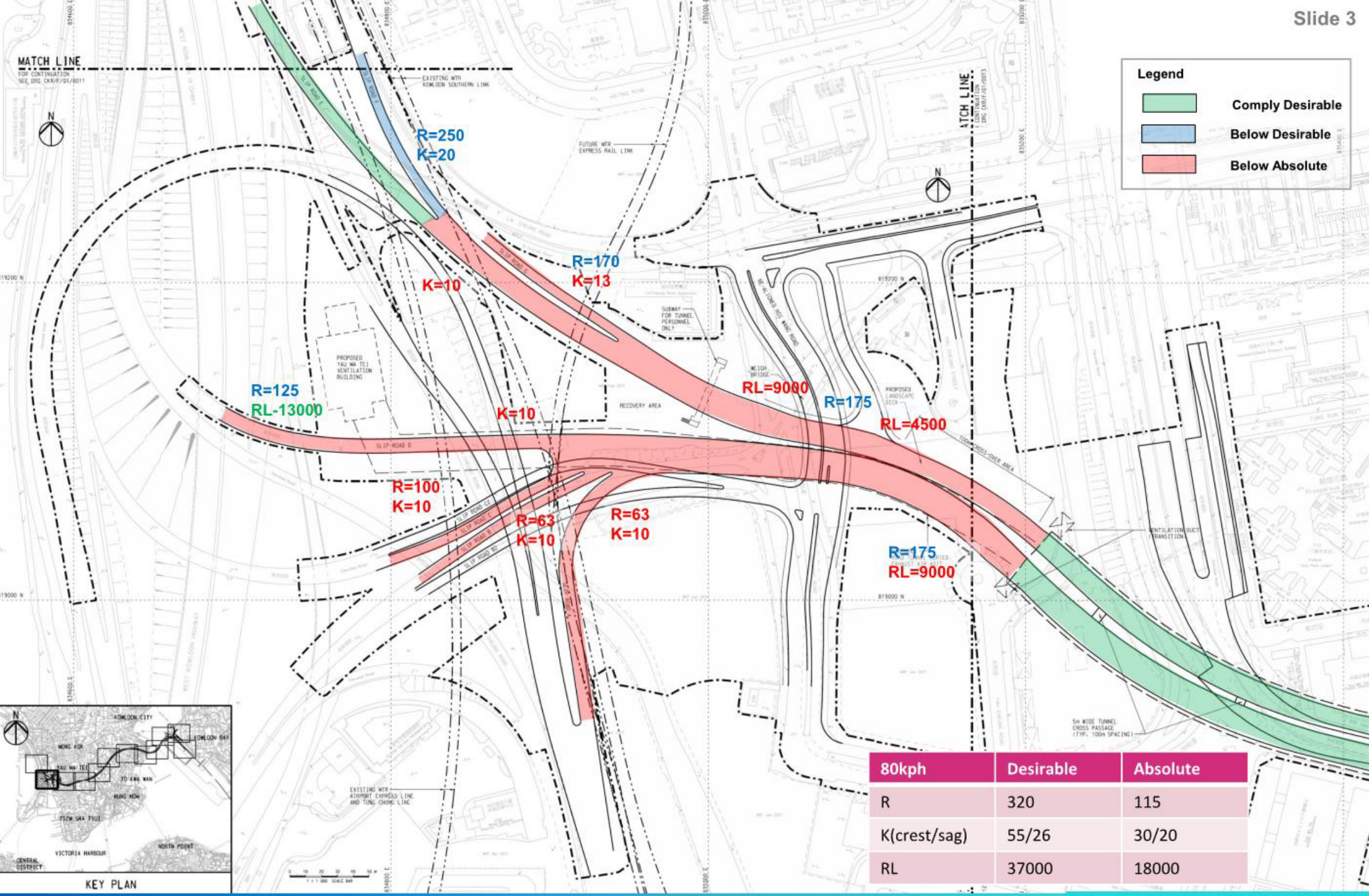
Speed Limit



50kph	Desirable	Absolute
R	88	44
K(crest/sag)	10/13	6.5/9
RL	9000	4500

Compliance if 50kph – West Portion

ARUP Mott MacDonald
Arup-Mott MacDonald Joint Venture



80kph	Desirable	Absolute
R	320	115
K(crest/sag)	55/26	30/20
RL	37000	18000

Compliance if 80kph – West Portion

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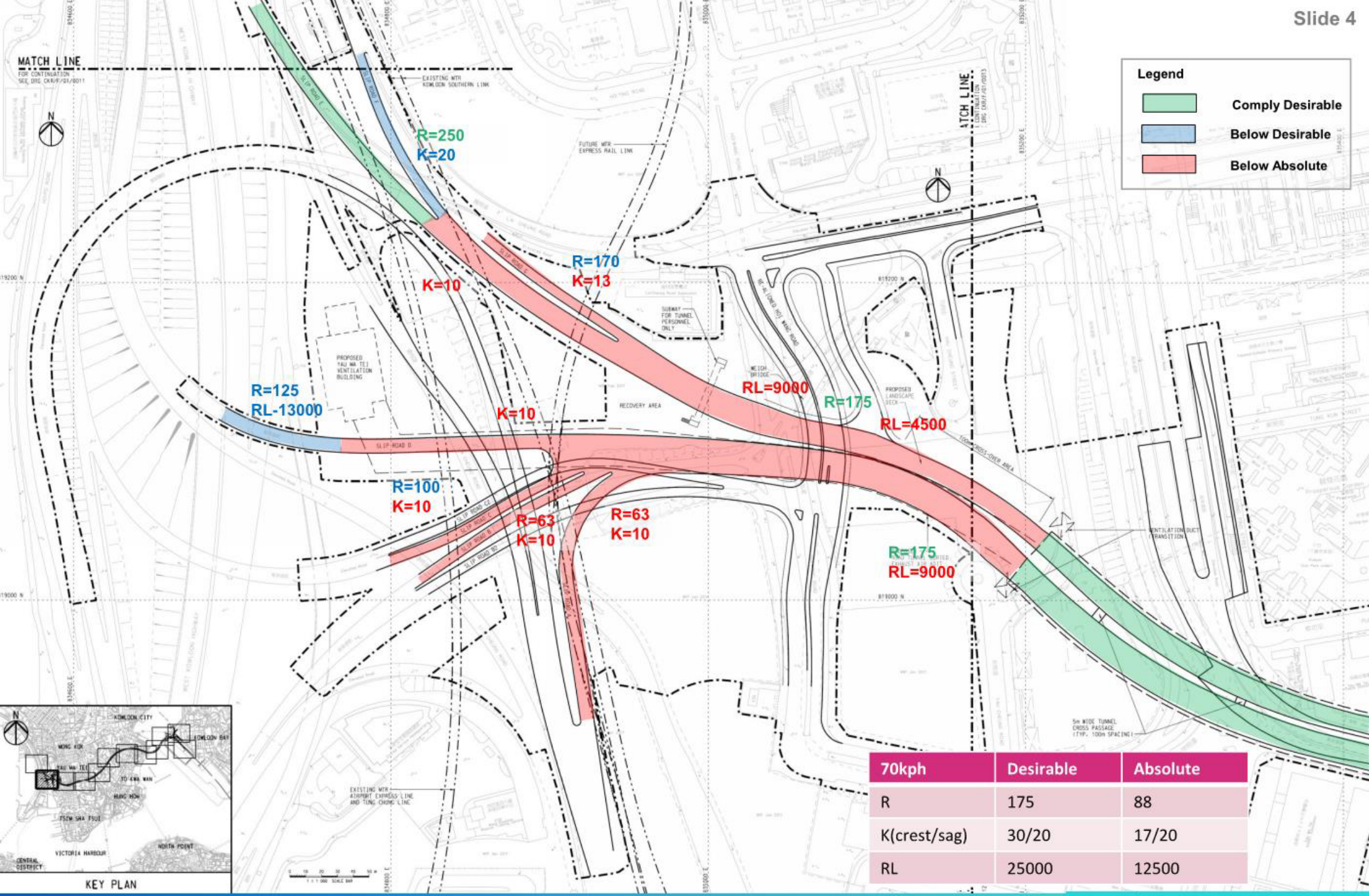
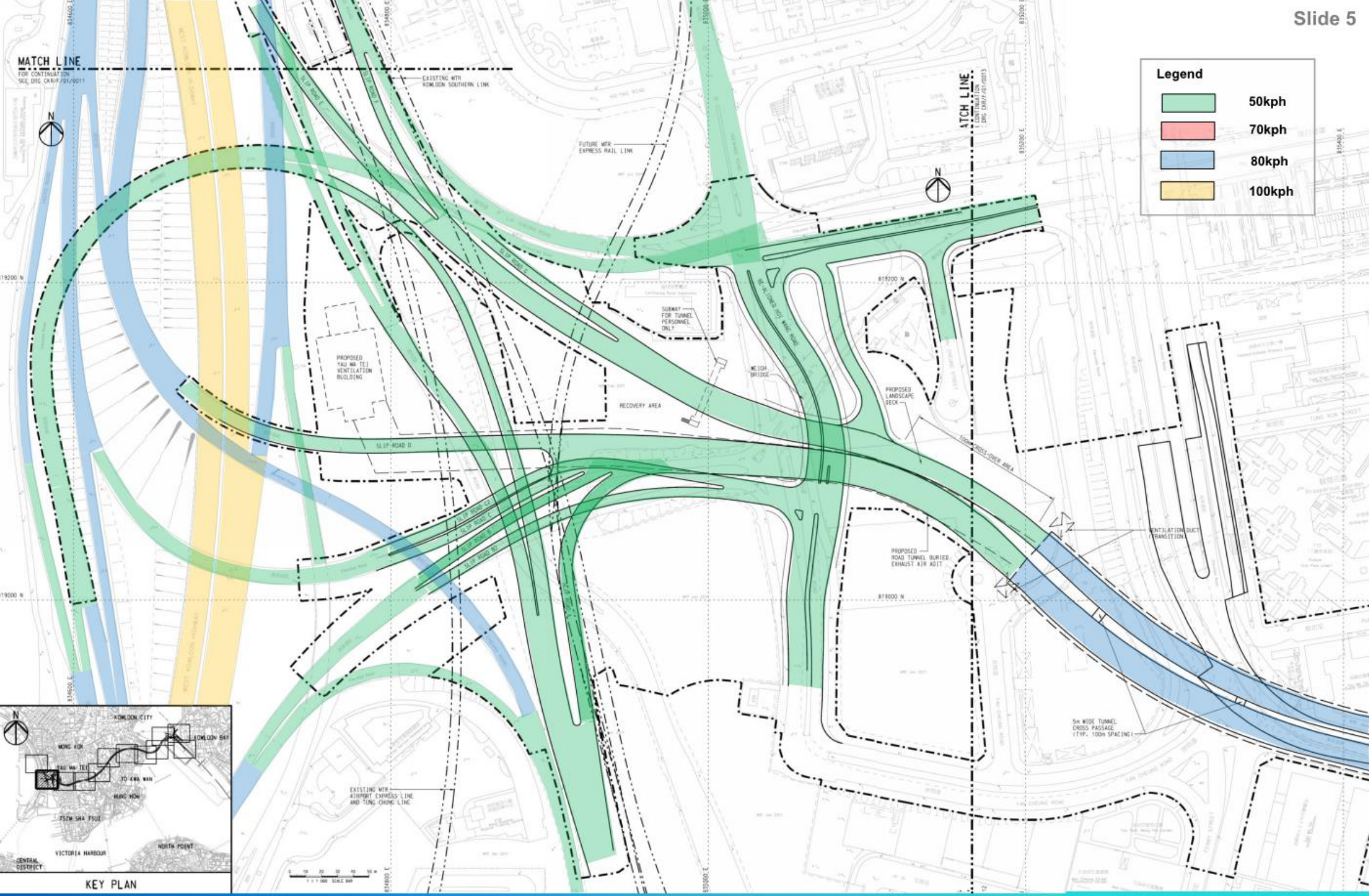


70kph	Desirable	Absolute
R	175	88
K(crest/sag)	30/20	17/20
RL	25000	12500

Compliance if 70kph – West Portion

ARUP Mott MacDonald
Arup-Mott MacDonald Joint Venture



Proposed Speed Limit – West Portion

Appendix C – Detail information of Weaving Analysis of CKR Slip Roads

Appendix C

Weaving Assessment at Central Kowloon Route Tunnel Portal

Contents

C1 Location 1

C2 Assumption 1

C2.1 Design Speed 1
C2.2 No Lane Change in Tunnel 1
C2.3 Lane Restriction for Heavy Vehicle 1

C3 Traffic Volume 2

C3.1 Origin / Destination 2
C3.2 Tunnel Lane 4

C4 Westbound – Eastern Portal 5

C4.1 Weaving Analysis 5
C4.2 Recommend Lane Arrangement 5

C5 Westbound – Western Portal 6

C5.1 Weaving Analysis 6
C5.2 Recommend Lane Arrangement 7

C6 Eastbound – Western Portal 8

C6.1 Weaving Analysis 8
C6.2 Recommend Lane Arrangement 8

C7 Eastbound – Eastern Portal 9

C7.1 Weaving Analysis 9
C7.2 Recommend Lane Arrangement 9

C8 Summary 10

C1 Location

This section presented the weaving analysis just outside the tunnel portals of the Central Kowloon Route.

C2 Assumption

C2.1 Design Speed

The design speed of the western portal weaving section is taken as 50kph due to the site constraints on the geometrical parameters (the transition of the horizontal and vertical alignment).

The design speed of the eastern portal weaving section is taken as 80kph.

The abovementioned design speeds are used in the weaving analysis.

C2.2 No Lane Change in Tunnel

Same as other existing tunnels in operation, it is assumed that double white lines are adopted to restrict lane change within the tunnel portal, except at the diverging area near the tunnel exit.

C2.3 Lane Restriction for Heavy Vehicle

The option comparison of lane restriction for heavy vehicle is presented in separated Appendix H, and the preferred option is subject to further discussion and agreement with HyD and TD.

Hence for the sake of the weaving analysis in this section, the worst scenario, i.e. Option A is used for assessment purpose. Option A restricts all heavy vehicles to climbing lane (CL) and hence the weaving activity by heavy vehicles at both ends of the tunnel will be the greatest. The lane arrangement which can address weaving in Option A will also be able to handle weaving in Option B & C.

C3 Traffic Volume

C3.1 Origin / Destination

With reference to the traffic flow obtained from the TIA (Scenario 2026G), the westbound and eastbound traffic volume through the tunnel is tabulated in the below table.

Table F3.1 Traffic Volume in Tunnel according to Origin & Destination

W/B AM Peak From Slip Road	To Slip Road	A Tsim Sha Tsui	B Hong Kong West	C Tai Kok Tsui	D Kwai Chung, Lantau	Total
S4	PV vph	111	42	61	329	542
Kwun Tong,	HV vph	7	0	5	20	32
Hong Kong East	HV %	6%	0%	7%	6%	6%
	Total vph	118	42	65	350	575
S2/S8	PV vph	372	147	47	438	1,003
Kai Tak North,	HV vph	21	1	1	29	52
Kowloon Bay	HV %	5%	0%	3%	6%	5%
	Total vph	393	147	48	467	1,055
T2	PV vph	441	11	362	1,497	2,312
Kai Tak South,	HV vph	32	0	33	139	205
Yau Tong,	HV %	7%	0%	8%	9%	8%
Tseung Kwan O	Total vph	473	11	396	1,637	2,517
Total	PV vph	924	199	470	2,264	3,857
	HV vph	60	1	39	189	289
	HV %	6%	0%	8%	8%	7%
	Total vph	984	200	509	2,453	4,146

W/B PM Peak From Slip Road	To Slip Road	A Tsim Sha Tsui	B Hong Kong West	C Tai Kok Tsui	D Kwai Chung, Lantau	Total
S4	PV vph	215	21	185	657	1,079
Kwun Tong,	HV vph	12	0	6	43	62
Hong Kong East	HV %	5%	0%	3%	6%	5%
	Total vph	227	21	192	700	1,140
S2/S8	PV vph	272	74	41	426	813
Kai Tak North,	HV vph	13	0	2	29	44
Kowloon Bay	HV %	4%	0%	4%	6%	5%
	Total vph	284	74	43	455	856
T2	PV vph	325	8	273	970	1,577
Kai Tak South,	HV vph	24	0	25	119	169
Yau Tong,	HV %	7%	0%	8%	11%	10%
Tseung Kwan O	Total vph	349	8	298	1,090	1,745
Total	PV vph	812	104	499	2,053	3,468
	HV vph	48	0	33	192	274
	HV %	6%	0%	6%	9%	7%
	Total vph	860	104	533	2,245	3,742

E/B AM Peak From Slip Road	To Slip Road	S1/S7 Kai Tak North, Kowloon Bay	S3 Kwun Tong, Hong Kong East	T2 Kai Tak South, Yau Tong, Tseung Kwan O	Total
G	PV vph	141	7	156	303
Hong Kong West,	HV vph	4	0	6	10
Tsim Sha Tsui	HV %	3%	1%	4%	3%
	Total vph	145	7	161	313
F	PV vph	140	61	646	846
Tai Kok Tsui,	HV vph	5	2	36	43
Sham Shui Po	HV %	4%	3%	5%	5%
	Total vph	145	63	681	889
E	PV vph	440	86	913	1,439
Kwai Chung,	HV vph	31	6	104	141
Lantau	HV %	7%	7%	10%	9%
	Total vph	471	92	1,017	1,580
Total	PV vph	721	153	1,714	2,588
	HV vph	40	8	146	194
	HV %	5%	5%	8%	7%
	Total vph	761	162	1,860	2,783

E/B PM Peak From Slip Road	To Slip Road	S1/S7 Kai Tak North, Kowloon Bay	S3 Kwun Tong, Hong Kong East	T2 Kai Tak South, Yau Tong, Tseung Kwan O	Total
G	PV vph	260	5	289	554
Hong Kong West,	HV vph	8	0	13	21
Tsim Sha Tsui	HV %	3%	3%	4%	4%
	Total vph	268	5	301	575
F	PV vph	95	40	857	993
Tai Kok Tsui,	HV vph	6	4	53	63
Sham Shui Po	HV %	6%	9%	6%	6%
	Total vph	102	44	910	1,056
E	PV vph	495	77	1,580	2,152
Kwai Chung,	HV vph	40	10	135	185
Lantau	HV %	8%	11%	8%	8%
	Total vph	535	86	1,715	2,337
Total	PV vph	850	122	2,726	3,698
	HV vph	55	14	201	269
	HV %	6%	10%	7%	7%
	Total vph	905	135	2,927	3,967

C3.2 Tunnel Lane

The distribution of the traffic volume among the lane is estimated in the below table.

The capacity vph is based upon TPDM Volume 2 Table 2.4.1.1 and adjusted according to the heavy vehicle content as per Table 2.4.1.2. All tunnel lanes are operating within the practical capacity.

Table F3.2 Estimated Traffic Volume in Each Tunnel Lane

W/B AM Peak	CL	1L	2L	3L
PV vph		1,108	1,252	1,497
HV vph		289		
HV %		21%	0%	0%
Total vph		1,397	1,252	1,497
Capacity vph (adjusted to HV content)		1,410	1,560	1,560

W/B PM Peak	CL	1L	2L	3L
PV vph		1,153	1,345	970
HV vph		274		
HV %		19%	0%	0%
Total vph		1,426	1,345	970
Capacity vph (adjusted to HV content)		1,450	1,560	1,560

E/B AM Peak	CL	1L	2L	3L
PV vph		874	801	913
HV vph		194		
HV %		18%	0%	0%
Total vph		1,068	801	913
Capacity vph (adjusted to HV content)		1,450	1,560	1,560

E/B PM Peak	CL	1L	2L	3L
PV vph		972	1,146	1,580
HV vph		269		
HV %		22%	0%	0%
Total vph		1,242	1,146	1,580
Capacity vph (adjusted to HV content)		1,410	1,560	1,560

C4 Westbound – Eastern Portal

C4.1 Weaving Analysis

A traffic flow diagram is tabulated at the back of the appendix.

From the traffic forecast, it is noted that the peak non-heavy vehicle volume from Road T2 to West Kowloon Highway northbound (i.e. Slip Road D) is close to one lane capacity. Private cars following the mainline have the tendency to keep to the farside lane of the tunnel to enjoy the fastest speed. The aligning of this flow to the 3rd lane in advance is also beneficial to the weaving condition, because it minimises the lane change between 2L and 3L, in particular at the critical weaving section at the western portal. It is therefore designed that:

- 3L is exclusively used by non-heavy vehicles from Road T2 to Slip Road D.

Several key lane changing activities identified at westbound eastern portals are:

- Slow-moving heavy vehicles from Road T2 are required to change from 2L to 1L to fulfil the lane restriction requirement in tunnel.
- Non-heavy vehicles from S2/S8 heading to Slip Road D tend to change from 1L to 2L in the eastern portal.

As the merging taper of S4 is close to the tunnel portal, it is anticipated there can be difficulties for the traffic to change lane to 2L in short distance. Vehicles from S4 to Slip Road D may find difficulties to change to the right-side lanes in eastern portal. Instead such lane changing activity is likely to take place outside the western portal. It is assumed that:

- S4 traffic tends to keep in 1L in tunnel.

From the traffic flow diagram, it is noted that the 1L tends to be more congested than the other two lanes and working close to the lane capacity at peak hour. In the peak period, it is anticipated that:

- Portion of non-heavy vehicles from S2/S8 heading to Slip Road A, B & C tends to reach to 2L in tunnel for faster traffic speed.

There is a weaving section between the 1L and 2L at the eastern portal. A weaving length of 240m is provided. The weaving calculation in accordance with TPDM Volume 2 Clause 4.6.10 is enclosed at the back of the appendix. It is found that the am and pm peak N value are **1.77** and **1.41** respectively. The weaving condition is satisfactory.

C4.2 Recommend Lane Arrangement

The below arrangement is recommended to improve the weaving condition in westbound eastern portion:

- Early advance directional sign(s) at the east for traffic from Road T2 to Slip Road D to prepare lane change to 3L in advance.
- Shallow island merging type for Slip Road S4, S2/S8 (TPDM Volume 2 Diagram 4.6.8.3)
- Short dotted markings to emphasise the 240m weaving section

C5 Westbound – Western Portal

C5.1 Weaving Analysis

A traffic flow diagram is tabulated at the back of the appendix.

Due to the relatively short weaving section and the most number of slip road choices, the westbound western portal is the more critical weaving section among the four locations.

- Bus going to the to XRL PTI exit from slip road A. They keep in the CL.

It is designed as continuity of the eastern portal:

- 3L is exclusively used by non-heavy vehicles from Road T2 to Slip Road D.

Several key lane changing activities identified at westbound western portals are:

- Slow-moving heavy vehicles heading to slip Road C or D are required to change lane from CL to 1L. Those heading to Slip road D have to change to 2L further downstream.
- Non-heavy vehicles from slip road S4 to slip road D changes from 1L to 2L at west portal.
- Non-heavy vehicles from Road T2 & slip road S2/S8 heading to Slip Road A, B & C but running in 2L in tunnel changes from 2L to 1L. Those heading to Slip Road A & B have to change to CL further downstream.
- Non-heavy vehicles from slip road S4 to slip road A & B changes from 1L to CL.

These lane changing activities happening at the western portal area are assumed to be grouped into 3 sections:

a) weaving portion (1) between 1L and 2L;

b) weaving portion (2) between CL and 1L;

c) Further diverging from 1L to CL or 2L.

The weaving portion overlaps in real situation and cannot be directly analyzed by the traditional weaving calculations. For analysis purpose, it is assumed that the total weaving length is divided among the three sections

The total length of available weaving section outside the tunnel portal is 250m.

With a design speed of 50kph, 100m is assigned for the diverging potion from 1L to CL or 2L. Another 100m is assigned for the weaving portion (2) between CL and 1L. The weaving calculations at the back of the appendix give am and pm peak N value as **1.77** and **1.34** respectively. The weaving condition is satisfactory.

The weaving portion (1) between 1L and 2L requires another 100m as the absolute weaving length. The weaving calculation suggests that only by a weaving length of another 150m, am and pm peak N values correspond to **1.96** and **2.50** respectively.

Hence the absolute and desirable weaving lengths for all the lane changing activities are estimated as 300m and 350m respectively.

C5.2 Recommend Lane Arrangement

The below arrangement is recommended to improve the weaving condition in westbound western portion:

- Double white line between 2L and 3L to minimise further increase in the weaving activity at 2L.
- Diverging type to maximise the weaving length outside tunnel portal.

From studying the traffic flow pattern, it is noted that the weaving and traffic safety condition can be improve by allowing some 2L traffic to diverge to 1L in advance within the tunnel portal. Since climbing lane is introduced in the last 170m within the tunnel portal and part of the 1L traffic is diverged to it, the lL has "space" to accommodate lane change from 2L within the tunnel portal. By advancing part of the diverging from 2L to 1L within the tunnel portal, it will minimise the conflict with the weaving between CL and 1L outside the tunnel portal. It minimises overlapping of the weaving section the hazardous situation where 1L is receiving lane change from both CL from the left and 2L from the right simultaneously. The below is suggested to enhance the traffic safety at the weaving section:

- Solid-cum broken line to allow diverging from 2L to 1L on the last 50m (absolute) or 100m (desirable) within the tunnel portal.

C6 Eastbound – Western Portal

C6.1 Weaving Analysis

A traffic flow diagram is tabulated at the back of the appendix.

Several key lane changing activities identified at eastbound western portals are:

- Slow-moving heavy vehicles from slip road E are required to change from 2L to 1L to fulfil the lane restriction requirement in tunnel.
- Non-heavy vehicles from slip road E heading to slip roads S1/S7 & S3 tends to change from 2L to 1L.
- Non-heavy vehicles from slip road F heading to Road T2 tends to change from 1L to 2L.
- Merging of Slip road G and subsequently the traffic heading to Road T2 tends to change lane to 2L.

There is hence one weaving section between 1L and 2L and a merging section for slip road G at eastbound western portal.

The total available weaving length is 380m. It is possible to divide it as 230m for the weaving between slip roads E & F, and another 150m for the merging of the slip road G traffic from 1L to 2L. The weaving calculation is enclosed at the back of the appendix and the N values at am and pm peaks are found to be **1.55** and **2.26** respectively. The weaving between slip roads E & F are satisfactory before the lane change by slip road G traffic. The slip road G traffic is hence only one-direction merging.

For eastbound, most traffic, except the slow-moving heavy vehicles, can already select lane according to their destination before entering the tunnel.

C6.2 Recommend Lane Arrangement

The below arrangement is recommended to improve the weaving condition in westbound western portion:

- Early advance directional sign(s) at the west for traffic from slip road E & F to carry out lane change, if necessary, in advance.
- Solid-cum broken line to prevent lane change from 2L to 1L at the last 150m before the tunnel portal. This area will hence only allow one direction lane change from 1L to 2L. This avoids the weaving and enhances the traffic safety there.

As the weaving condition is much better than westbound, it might not be necessary to pose destination restriction on 3L.

C7 Eastbound – Eastern Portal

C7.1 Weaving Analysis

A traffic flow diagram is tabulated at the back of the appendix.

The key lane changing activities identified at eastbound eastern portals are:

- Heavy vehicles heading to S3 & Road T2 are required to change lane from CL to 1L. Those heading to Road T2 have to change to 2L further downstream.
- Non-heavy vehicles heading to slip road S1/S7 change from 1L to CL at eastern portal.

The total available weaving length is 400m. It is possible to divide it as 250m for the weaving between CL & 1L, and another 150m for the merging of the heavy vehicle traffic from 1L to 2L. The weaving calculation is enclosed at the back of the appendix. It is found that the am and pm peak N value are **1.20** and **1.46** respectively. The weaving condition is satisfactory.

C7.2 Recommend Lane Arrangement

As the weaving condition in Eastbound Eastern Portal is the most comfortable among all the 4 locations, the normal lane / road marking is adequate.

C8 Summary

The weaving analysis result for the CKR tunnel portals is summarised in the following table:

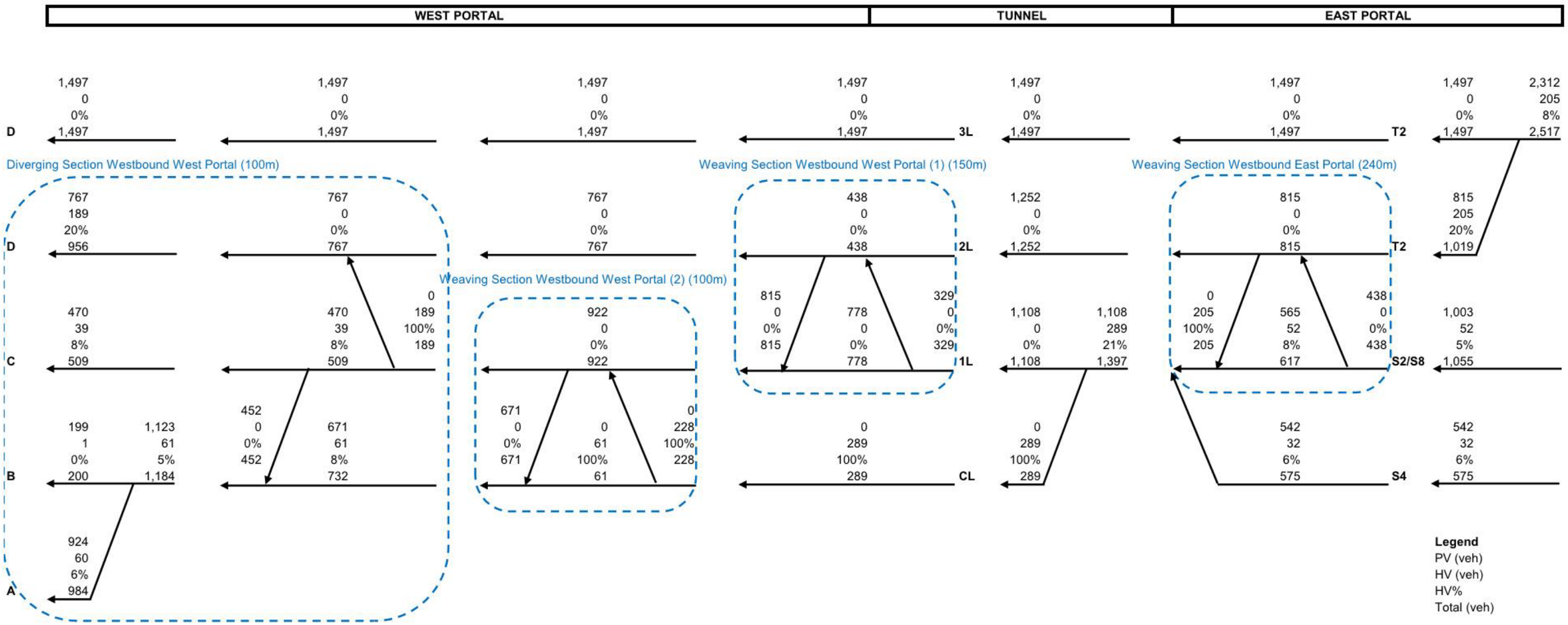
Table F8.1 Summary of Weaving Analysis for Tunnel Portal

Westbound	West Portal			East Portal
	Diverging CL/1L/2L	Weaving CL/1L	Weaving 1L/2L	Weaving 1L/2L
Design Speed (km/hr)	50	50	50	80
Length (m)	100	100	150	240
N-value (AM peak)	N/A	1.77	1.96	1.77
N-value (PM peak)	N/A	1.34	2.50	1.41
Result	OK	OK	OK	OK

Eastbound	West Portal		East Portal	
	Weaving 1L/2L	Merging 1L/2L	Weaving CL/1L	Merging 1L/2L
Design Speed (km/hr)	50	50	80	80
Length (m)	230	150	250	150
N-value (AM peak)	1.55	N/A	1.20	N/A
N-value (PM peak)	2.26	N/A	1.46	N/A
Result	OK	OK	OK	OK

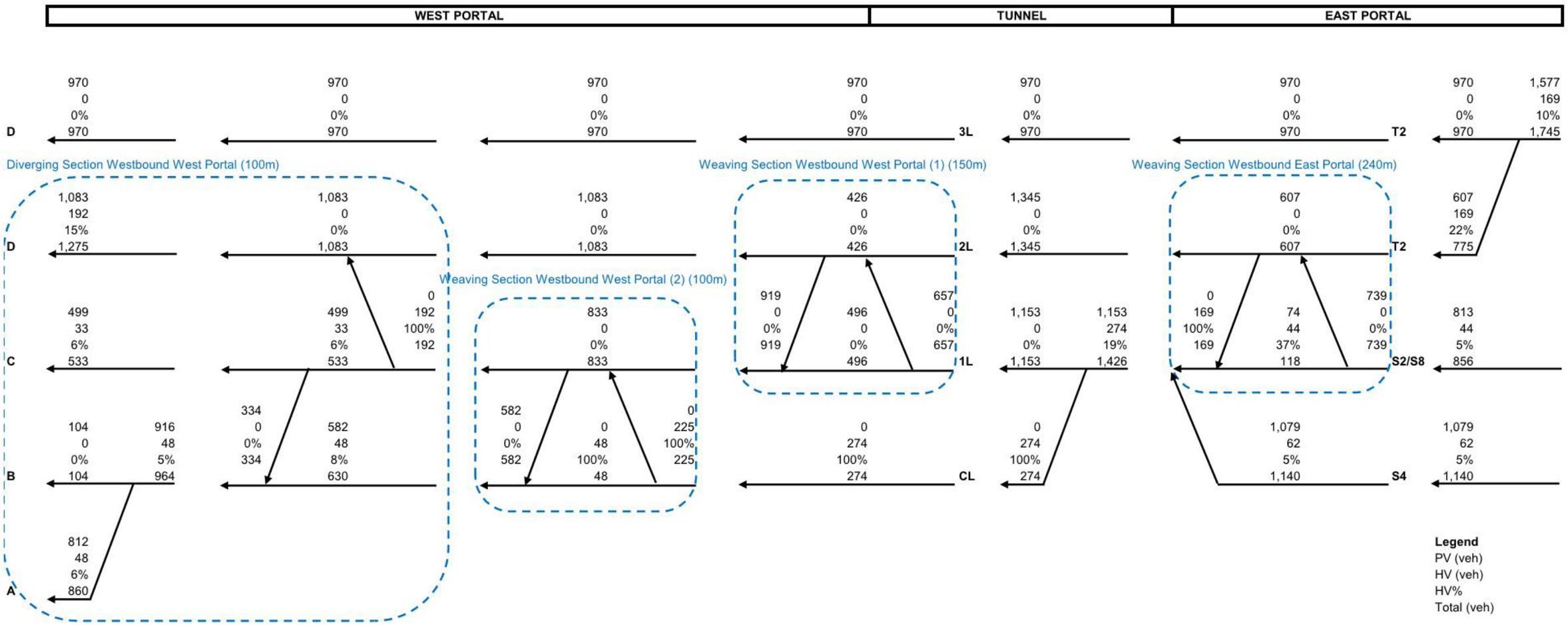
Central Kowloon Route

Weaving at Tunnel Portal - Westbound AM Peak



Central Kowloon Route

Weaving at Tunnel Portal - Westbound PM Peak



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (80kph)

Weaving at East Portal (1L & 2L)

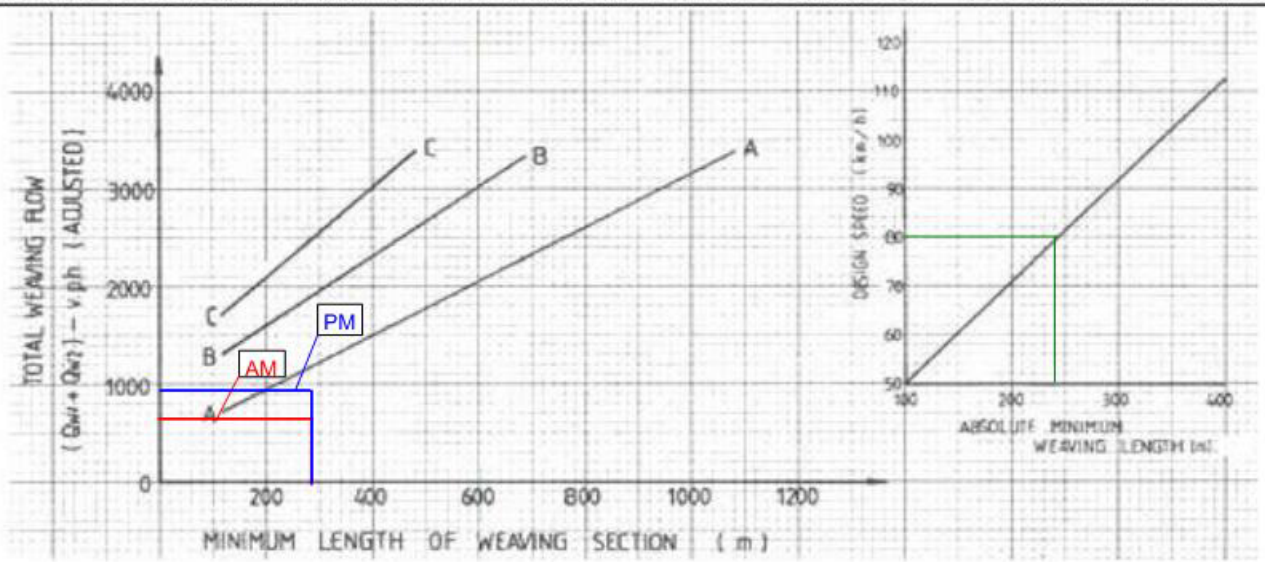
Peak	Mainline Gradient Range	Non-Weaving Traffic 1L				Weaving Traffic 1L to 2L			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	Downhill	617	8%	-6%	580	438	0%	-8%	400
PM	Downhill	118	37%	20%	140	739	0%	-8%	680
Peak	**Mainline Gradient Range**	**Non-Weaving Traffic 2L**				**Weaving Traffic 2L to 1L**			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	Downhill	815	0%	-8%	750	205	100%	20%	250
PM	Downhill	607	0%	-8%	560	169	100%	20%	200

Total Weaving Flow

AM 650 vph

PM 880 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows)

Weaving at East Portal (1L & 2L)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

Qnw	=	1330	Absolute Lmin	=	240
Qw1	=	400	Desirable Lmin	=	240
Qw2	=	250	Lact	=	240
N	**=**	**1.77**	D	=	1400

PM

Qnw	=	700	Absolute Lmin	=	240
Qw1	=	680	Desirable Lmin	=	240
Qw2	=	200	Lact	=	240
N	**=**	**1.41**	D	=	1400

Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (50kph)

Weaving at West Portal (1L & 2L)

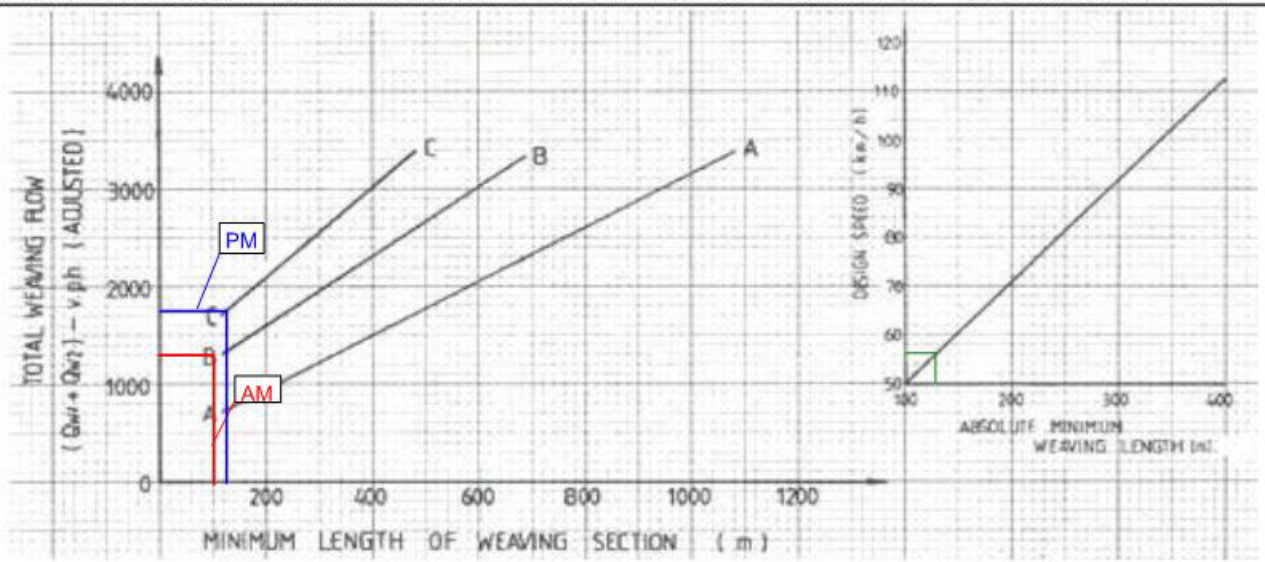
Peak	Mainline Gradient Range	Non-Weaving Traffic 1L				Weaving Traffic 1L to 2L			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	5.5%UP	778	0%	12%	870	329	0%	12%	370
PM	5.5%UP	496	0%	12%	560	657	0%	12%	740
Peak	Mainline Gradient Range	Non-Weaving Traffic 2L				Weaving Traffic 2L to 1L			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	5.5%UP	438	0%	12%	490	815	0%	12%	910
PM	5.5%UP	426	0%	12%	480	919	0%	12%	1030

Total Weaving Flow

AM 1280 vph

PM 1770 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows)

Weaving at West Portal (1L & 2L)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

Qnw	=	1360	Absolute Lmin	=	100
Qw1	=	910	Desirable Lmin	=	100
Qw2	=	370	Lact	=	150
N	**=**	**1.96**	D	=	1600

PM

Qnw	=	1040	Absolute Lmin	=	100
Qw1	=	1030	Desirable Lmin	=	120
Qw2	=	740	Lact	=	150
N	**=**	**2.50**	D	=	1600

Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (50kph)

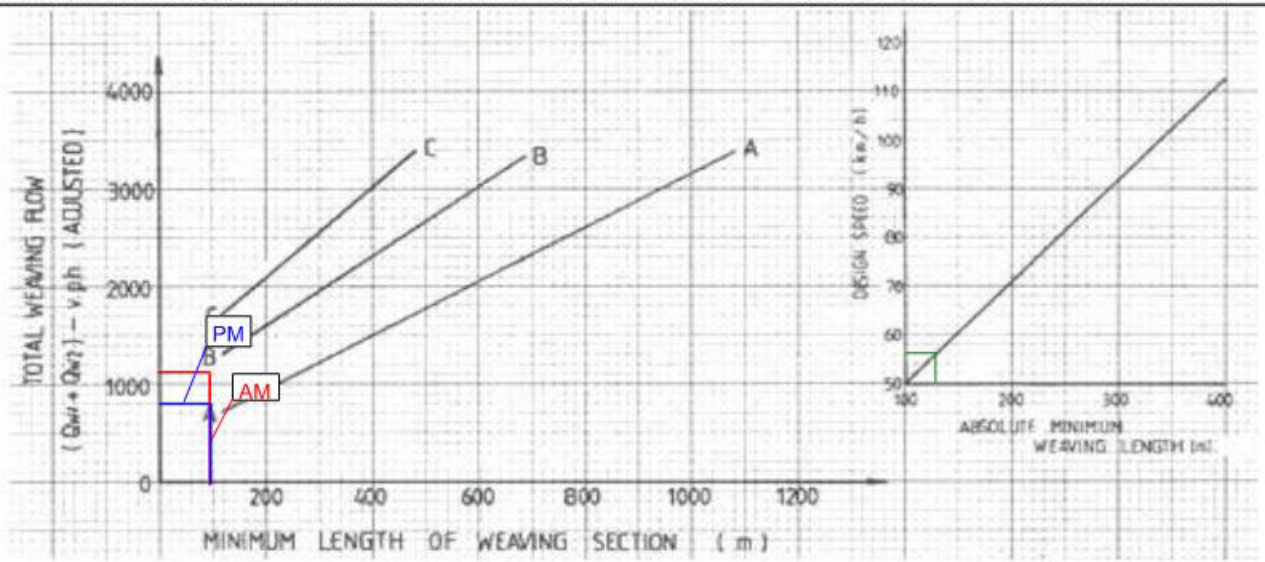
Weaving at West Portal (CL & 1L)

Peak	Mainline Gradient Range	Non-Weaving Traffic				Weaving Traffic			
		CL				CL to 1L			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	5.5%UP	61	100%	40%	90	228	100%	40%	320
PM	5.5%UP	48	100%		50	225	100%		230
Peak	Mainline Gradient Range	Non-Weaving Traffic				Weaving Traffic			
		1L				1L to CL			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	5.5%UP	922	0%	12%	1030	671	0%	12%	750
PM	5.5%UP	833	0%		830	582	0%		580

Total Weaving Flow

AM	1070 vph
PM	810 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows)

Weaving at West Portal (CL & 1L)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

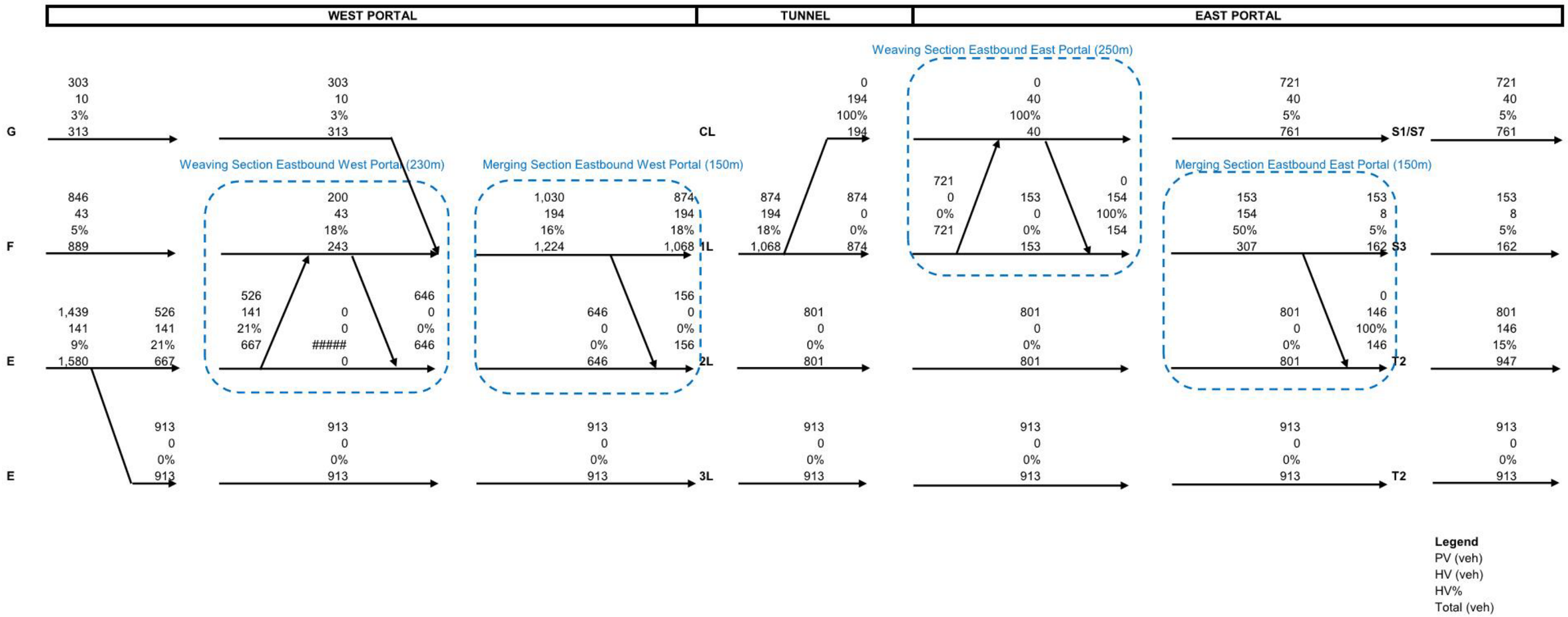
Qnw	=	1120	Absolute Lmin	=	100
Qw1	=	750	Desirable Lmin	=	100
Qw2	=	320	Lact	=	100
N	**=**	**1.77**	D	=	1600

PM

Qnw	=	880	Absolute Lmin	=	100
Qw1	=	580	Desirable Lmin	=	100
Qw2	=	230	Lact	=	100
N	**=**	**1.34**	D	=	1600

Central Kowloon Route

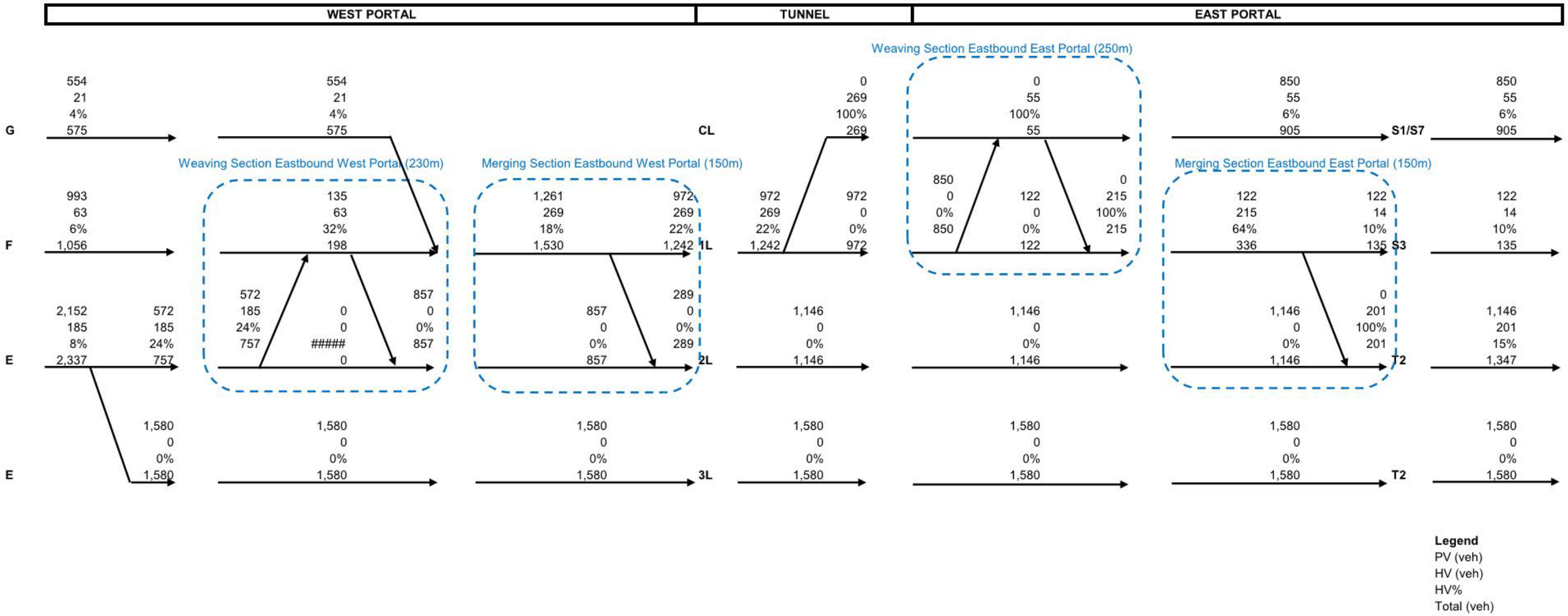
Weaving at Tunnel Portal - Eastbound AM Peak



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Central Kowloon Route

Weaving at Tunnel Portal - Eastbound PM Peak



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (50kph)

Weaving at West Portal (1L & 2L)

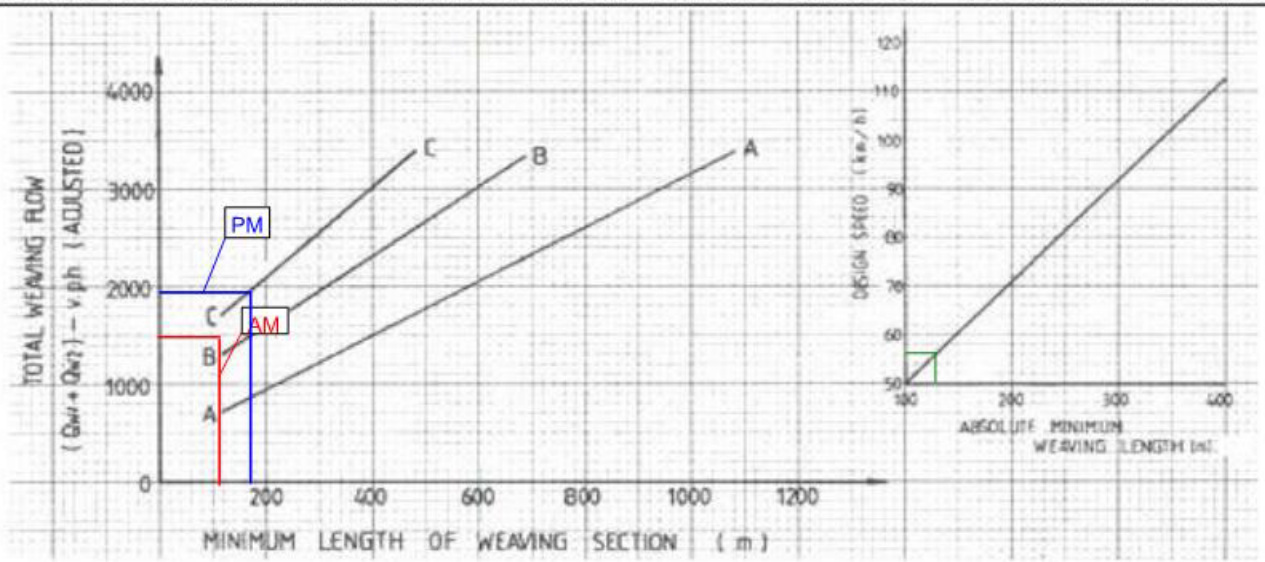
Peak	Mainline Gradient Range	Non-Weaving Traffic 1L				Weaving Traffic 1L to 2L			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	2.5%UP	243	18%	22%	300	646	0%	12%	720
PM	2.5%UP	198	32%	34%	270	857	0%	12%	960
Peak	Mainline Gradient Range	Non-Weaving Traffic 2L				Weaving Traffic 2L to 1L			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	2.5%UP	0	0%	12%	0	667	21%	25%	830
PM	2.5%UP	0	0%	12%	0	757	24%	27%	960

Total Weaving Flow

AM 1550 vph

PM 1920 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows)

Weaving at West Portal (1L & 2L)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

Qnw	=	300	Absolute Lmin	=	100
Qw1	=	830	Desirable Lmin	=	100
Qw2	=	720	Lact	=	230
N	**=**	**1.55**	D	=	1600

PM

Qnw	=	270	Absolute Lmin	=	100
Qw1	=	960	Desirable Lmin	=	170
Qw2	=	960	Lact	=	230
N	**=**	**2.26**	D	=	1600

Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (80kph)

Weaving at East Portal (CL & 1L)

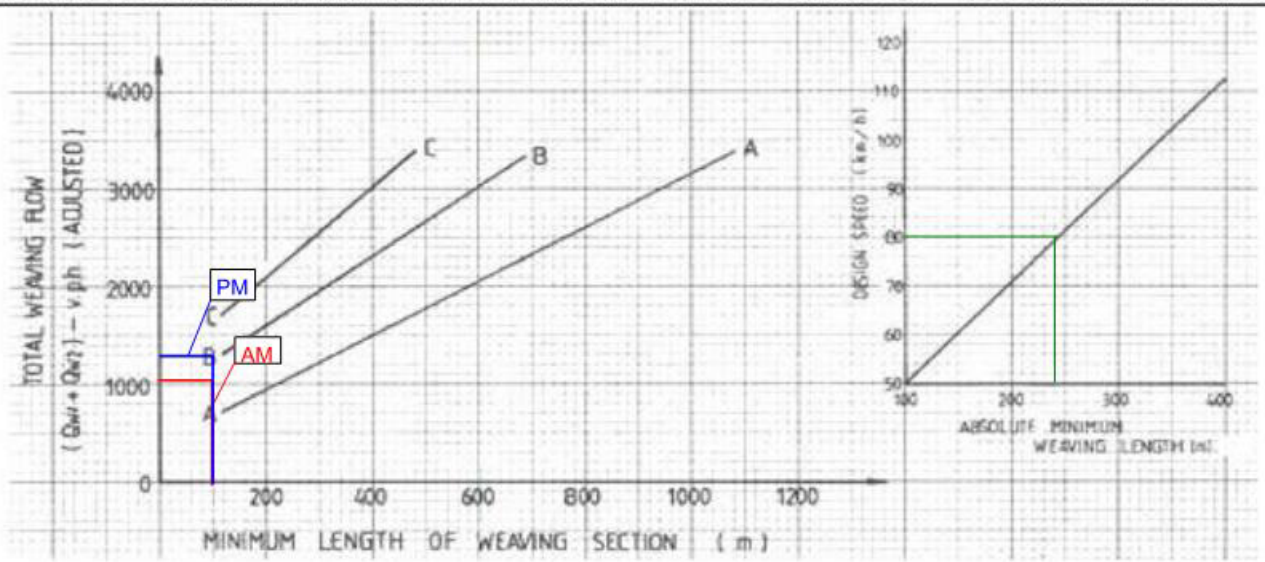
Peak	Mainline Gradient Range	Non-Weaving Traffic CL				Weaving Traffic CL to 1L			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	4%UP	40	100%	40%	60	154	100%	40%	220
PM	4%UP	55	100%	40%	80	215	100%	40%	300
Peak	Mainline Gradient Range	Non-Weaving Traffic 1L				Weaving Traffic 1L to CL			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	4%UP	153	0%	12%	170	721	0%	12%	810
PM	4%UP	122	0%	12%	140	850	0%	12%	950

Total Weaving Flow

AM 1030 vph

PM 1250 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows)

Weaving at East Portal (CL & 1L)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

Qnw	=	230	Absolute Lmin	=	240
Qw1	=	810	Desirable Lmin	=	240
Qw2	=	220	Lact	=	250
N	**=**	**1.20**	D	=	1400

PM

Qnw	=	220	Absolute Lmin	=	240
Qw1	=	950	Desirable Lmin	=	240
Qw2	=	300	Lact	=	250
N	**=**	**1.46**	D	=	1400

Appendix D – Detail information of Weaving Analysis of Kai Fuk Road Slip Roads

Appendix D

Weaving Assessment at Kai Fuk Road

Contents

D1 Location 1

D2 Assumption 1

D2.1 Design Speed 1
D2.2 Trunk Road T2 1

D3 Traffic Volume 2

D3.1 Interim Stage without Trunk Road T2 2
D3.2 Ultimate Stage with Trunk Road T2 4

D4 Westbound – Interim Stage without Trunk Road T2 6

D4.1 Weaving Analysis 6

D5 Westbound – Ultimate Stage with Trunk Road T2 7

D5.1 Weaving Analysis 7
D5.2 Recommended Lane Arrangement 7

D6 Eastbound – Interim Stage without Trunk Road T2 9

D6.1 Weaving Analysis 9

D7 Eastbound – Ultimate Stage with Trunk Road T2 10

D7.1 Weaving Analysis 10
D7.2 Recommended Lane Arrangement 10

D8 Summary 11

D1 Location

This section presented the weaving analysis on Kai Fuk Road (Route 5) between Central Kowloon Route slip roads S3 & S4 (Route 6) and Kwun Tong Bypass slip roads (Route 2).

D2 Assumption

D2.1 Design Speed

The design speed of Kai Fuk Road is maintained at the existing speed limit at 70kph.

The abovementioned design speed is used in the weaving analysis.

D2.2 Trunk Road T2

It is understood that the implementation of Trunk Road T2 might be deferred to a later timeframe after the opening of Central Kowloon Route. There might be an interim stage when CKR is in place without the presence of Trunk Road T2 (Scenario 2021C in the TIA). In the ultimate stage, the CKR will be in operation with the presence of Trunk Road T2 (Scenario 2026G in the TIA).

Both scenarios are analyzed in this section.

D3 Traffic Volume

D3.1 Interim Stage without Trunk Road T2

With reference to the traffic flow obtained from the TIA (Scenario 2021C), the westbound and eastbound traffic volume through the tunnel is tabulated in the below table.

Table G3.1 Traffic Volume in Tunnel according to Origin & Destination (Scenario 2021C without T2)

W/B AM Peak From Slip Road	To Slip Road	Kai Tak Tunnel	CKR	Kai Cheung Road	South Apron	Total
Kai Fuk Road	PV vph	828	885	289	26	2,028
	HV vph	48	63	10	2	123
	HV %	5%	7%	3%	7%	6%
	Total vph	876	948	299	28	2,150
Kwun Tong Bypass	PV vph	846	512	95	103	1,557
	HV vph	122	57	3	8	191
	HV %	13%	10%	3%	7%	11%
	Total vph	968	570	99	111	1,748
South Apron	PV vph	15	10	24	0	48
	HV vph	2	2	5	0	9
	HV %	12%	16%	18%	0%	16%
	Total vph	17	12	29	0	58
Total	PV vph	1,689	1,407	408	129	3,633
	HV vph	172	122	19	10	323
	HV %	9%	8%	4%	7%	8%
	Total vph	1,861	1,530	427	139	3,956

W/B PM Peak From Slip Road	To Slip Road	Kai Tak Tunnel	CKR	Kai Cheung Road	South Apron	Total
Kai Fuk Road	PV vph	543	988	69	8	1,607
	HV vph	25	60	5	2	91
	HV %	4%	6%	6%	19%	5%
	Total vph	568	1,047	74	10	1,699
Kwun Tong Bypass	PV vph	697	570	91	32	1,390
	HV vph	96	65	4	7	173
	HV %	12%	10%	5%	19%	11%
	Total vph	792	635	96	39	1,563
South Apron	PV vph	50	26	54	0	130
	HV vph	3	4	12	0	19
	HV %	6%	13%	18%	0%	13%
	Total vph	53	30	66	0	150
Total	PV vph	1,289	1,584	215	39	3,128
	HV vph	124	128	21	9	283
	HV %	9%	7%	9%	19%	8%
	Total vph	1,414	1,713	236	49	3,411

E/B AM Peak From Slip Road	To Slip Road	Kai Fuk Road	Kwun Tong Bypass	Wan Kwong Road	Total
Kai Tak Tunnel	PV vph	802	544	261	1,608
	HV vph	44	69	6	118
	HV %	5%	11%	2%	7%
	Total vph	846	613	267	1,726
Kai Cheung Road	PV vph	171	251	265	687
	HV vph	10	24	11	45
	HV %	5%	9%	4%	6%
	Total vph	181	275	276	732
CKR	PV vph	168	503	0	670
	HV vph	19	57	0	75
	HV %	10%	10%	0%	10%
	Total vph	186	559	0	746
Total	PV vph	1,141	1,298	526	2,965
	HV vph	72	149	17	238
	HV %	6%	10%	3%	7%
	Total vph	1,214	1,447	542	3,204

E/B PM Peak From Slip Road	To Slip Road	Kai Fuk Road	Kwun Tong Bypass	Wan Kwong Road	Total
Kai Tak Tunnel	PV vph	1,361	178	357	1,896
	HV vph	89	35	10	134
	HV %	6%	17%	3%	7%
	Total vph	1,450	213	367	2,030
Kai Cheung Road	PV vph	331	59	480	870
	HV vph	19	8	23	50
	HV %	5%	12%	5%	5%
	Total vph	350	67	503	920
CKR	PV vph	325	976	0	1,302
	HV vph	27	82	0	110
	HV %	8%	8%	0%	8%
	Total vph	353	1,059	0	1,412
Total	PV vph	2,017	1,212	837	4,067
	HV vph	135	126	33	294
	HV %	6%	9%	4%	7%
	Total vph	2,153	1,338	870	4,361

D3.2 Ultimate Stage with Trunk Road T2

With reference to the traffic flow obtained from the TIA (Scenario 2026G), the westbound and eastbound traffic volume through the tunnel is tabulated in the below table.

Table G3.1 Traffic Volume in Tunnel according to Origin & Destination (Scenario 2026G with T2)

W/B AM Peak From Slip Road	To Slip Road	Kai Tak Tunnel	CKR	Kai Cheung Road	South Apron	Total
Kai Fuk Road	PV vph	730	478	295	24	1,527
	HV vph	39	19	10	2	70
	HV %	5%	4%	3%	7%	4%
	Total vph	769	498	305	25	1,597
Kwun Tong Bypass	PV vph	957	93	224	94	1,368
	HV vph	130	14	8	7	159
	HV %	12%	13%	4%	7%	10%
	Total vph	1,087	107	232	102	1,527
South Apron	PV vph	15	10	24	0	48
	HV vph	2	2	5	0	8
	HV %	11%	15%	17%	0%	15%
	Total vph	17	11	28	0	57
Total	PV vph	1,702	581	542	118	2,943
	HV vph	170	35	23	9	238
	HV %	9%	6%	4%	7%	7%
	Total vph	1,872	616	565	127	3,181

W/B PM Peak From Slip Road	To Slip Road	Kai Tak Tunnel	CKR	Kai Cheung Road	South Apron	Total
Kai Fuk Road	PV vph	588	841	102	8	1,538
	HV vph	26	43	6	2	75
	HV %	4%	5%	5%	18%	5%
	Total vph	614	883	107	9	1,614
Kwun Tong Bypass	PV vph	659	253	139	31	1,081
	HV vph	86	18	5	7	115
	HV %	12%	7%	3%	18%	10%
	Total vph	744	271	144	37	1,196
South Apron	PV vph	44	26	59	0	128
	HV vph	2	4	12	0	18
	HV %	4%	12%	17%	0%	12%
	Total vph	46	29	71	0	146
Total	PV vph	1,291	1,119	300	38	2,747
	HV vph	113	64	23	8	208
	HV %	8%	5%	7%	18%	7%
	Total vph	1,404	1,183	322	47	2,956

E/B AM Peak From Slip Road	To Slip Road	Kai Fuk Road	Kwun Tong Bypass	Wan Kwong Road	Total
Kai Tak Tunnel	PV vph	783	580	285	1,648
	HV vph	45	70	6	120
	HV %	5%	11%	2%	7%
	Total vph	828	650	290	1,768
Kai Cheung Road	PV vph	138	349	85	573
	HV vph	15	35	3	53
	HV %	10%	9%	4%	8%
	Total vph	153	384	89	625
CKR	PV vph	44	131	0	175
	HV vph	3	9	0	12
	HV %	6%	6%	0%	6%
	Total vph	47	140	0	186
Total	PV vph	965	1,060	370	2,395
	HV vph	63	113	9	185
	HV %	6%	10%	2%	7%
	Total vph	1,027	1,174	379	2,580

E/B PM Peak From Slip Road	To Slip Road	Kai Fuk Road	Kwun Tong Bypass	Wan Kwong Road	Total
Kai Tak Tunnel	PV vph	1,046	479	221	1,746
	HV vph	69	63	3	135
	HV %	6%	12%	1%	7%
	Total vph	1,116	542	223	1,881
Kai Cheung Road	PV vph	115	390	414	919
	HV vph	7	21	15	43
	HV %	6%	5%	3%	5%
	Total vph	122	411	429	962
CKR	PV vph	44	131	0	174
	HV vph	3	10	0	13
	HV %	7%	7%	0%	7%
	Total vph	47	141	0	188
Total	PV vph	1,205	1,000	635	2,840
	HV vph	80	95	18	192
	HV %	6%	9%	3%	6%
	Total vph	1,285	1,094	653	3,031

D4 Westbound – Interim Stage without Trunk Road T2

D4.1 Weaving Analysis

A traffic flow diagram is tabulated at the back of the appendix.

Without the presence of Trunk Road T2, the traffic forecast predicted that more traffic will enter the Central Kowloon Route via Kai Fuk Road. Hence there is more weaving traffic on Kai Fuk Road in the interim stage without Trunk Road T2 (Scenario 2021C).

Major weaving occurs between the traffic from Kwun Tong Bypass slip road (Route 2) to Kai Tak Tunnel (Route 5) and the traffic from Kai Fuk Road (Route 5) to Central Kowloon Route slip road S4 (Route 6) & Kai Cheung Road slip road S9. The weaving length is 370m.

The weaving calculation in accordance with TPDM Volume 2 Clause 4.6.10 is enclosed at the back of the appendix. It is found that the am and pm peak N values are **3.93** and **2.99** respectively. The N value at the PM peak matches with the provided number of lanes (i.e. 3 nos. westbound). Thus the weaving condition is satisfactory at the PM peak. However, the N value exceeds the provided number of lanes in the AM peak. This represents that at the AM peak, Kai Fuk Road will still experience some weaving difficulties and occasional reduction in traffic performance. The road users will have to tolerance some delay at the AM peak.

The analysis finding in fact confirms the justification of Trunk Road T2 in relieving the existing traffic congestion problem in Eastern Kowloon. The study on the traffic volume reveals that the weaving difficulties are mainly because Kai Fuk Road is heavily trafficked during the peak hours, without the diversion effect brought by Trunk Road T2. The heavy traffic fundamentally makes lane changing more difficult. The benefits brought by Central Kowloon Route is not fully utilised without the compliment of Trunk Road T2.

From the traffic analysis, it is highly recommended that the opening of Trunk Road T2 should match with the opening of Central Kowloon Route, as far as practicable.

D5 Westbound – Ultimate Stage with Trunk Road T2

D5.1 Weaving Analysis

A traffic flow diagram is tabulated at the back of the appendix.

Major weaving occurs between the traffic from Kwun Tong Bypass slip road (Route 2) to Kai Tak Tunnel (Route 5) and the traffic from Kai Fuk Road (Route 5) to Central Kowloon Route slip road S4 (Route 6) & Kai Cheung Road slip road S9. The weaving length is 370m.

Under the review phase of this agreement, the slip road S4 has been reconfigured to increase the weaving length of this major weaving activity.

In order to facilitate the merging of the petrol filling station and south apron development traffic to the mainline, solid-cum-broken line has been proposed between the south apron development on-slip entry to Kai Fuk Road mainline and the S4 off-slip exit to Central Kowloon Route. For the sake of the weaving analysis related to Kwun Tong Bypass, this merging length is conservatively not counted in the calculation.

The weaving calculation in accordance with TPDM Volume 2 Clause 4.6.10 is enclosed at the back of the appendix. It is found that the am and pm peak N values are **2.86** and **2.51** respectively. The N values match with the provided number of lanes (i.e. 3 nos. westbound) in the weaving section. The weaving condition becomes satisfactory, with the presence of Trunk Road T2 and after the reconfiguration of slip road S4.

The analysis confirms the need for reconfiguring the slip road S4 to provide sufficient weaving length for the major weaving activity on Kai Fuk Road.

Regarding the merging of the petrol filling station and south apron development traffic to Kai Tak Tunnel, it is forecasted that the traffic volume is small at 17vph (AM peak) and 46vph (PM peak). In addition, the traffic on the 2L leading to Kai Tak Tunnel is 1,855 / 2 = 928vph (AM peak) and 1,358 / 2 = 679vph (PM peak). The lane is well below the lane capacity and hence has more "space" for the merging of the petrol filling station and south apron development traffic. The solid-cum broken line is proposed to eliminate the major weaving activity related to Kwun Tong Bypass at the 110m solely for the merging of the south apron traffic. Moreover, a parallel merging arrangement is proposed to allow the vehicles to wait until the mainline is "clear" for safe merging. With these measures and the minimal merging traffic volume, it is considered that the merging arrangement is satisfactory.

D5.2 Recommended Lane Arrangement

The below arrangement is recommended to improve the weaving condition in westbound Kai Fuk Road:

- Solid-cum-broken line is proposed between the south apron development on-slip entry to Kai Fuk Road mainline and the S4 off-slip exit to Central Kowloon Road. The road marking only allows nearside vehicles to merge into

lanes heading to Kai Fuk Tunnel, but not vice versa. This enhances the traffic safety at that location.

- The off-mainline lane for access to the existing petrol filling station is maintained. This off-mainline lane is at a lower speed limit of 50kph. Stop restriction road marking is suggested along this lane and queuing of vehicles heading to petrol filling station can be managed within the south apron development local roads.
- Early directional sign on Kai Fuk Road to inform the Kai Fuk Road and Kwun Tong Bypass traffic to select the appropriate lanes before the solid-cum-broken line. The solid-cum broken line area hence will provide the merging section for the South Apron traffic.
- Advance directional sign on Kai Fuk Road to encourage traffic heading to Kai Tak Tunnel to align to the farside lane in advance.

D6 Eastbound – Interim Stage without Trunk Road T2

D6.1 Weaving Analysis

A traffic flow diagram is tabulated at the back of the appendix.

Without the presence of Trunk Road T2, the traffic forecast predicted that more traffic will leave the Central Kowloon Route via Kai Fuk Road. Hence there is more weaving traffic on Kai Fuk Road in the interim stage without Trunk Road T2 (Scenario 2021C).

The first weaving occurs between traffic from Kai Tak Tunnel (Route 5) to Wan Kwong Road and the traffic from Kai Cheung Road to Kai Fuk Road (Route 5) or Kwun Tong Bypass (Route 2). The weaving length is 240m.

The second weaving occurs between traffic from Kai Tak Tunnel (Route 5) to Kwun Tong Bypass slip road (Route 2) and the traffic from Central Kowloon Route slip road S3 (Route 6) to Kai Fuk Road (Route 5). The weaving length is 250m.

The weaving calculation in accordance with TPDM Volume 2 Clause 4.6.10 is enclosed at the back of the appendix. For the first weaving, it is found that the am and pm peak N values are **1.94** and **2.35** respectively. For the second weaving, the am and pm peak N values are **1.99** and **2.65** respectively. The N value at the AM peak matches with the provided number of lanes in the two weaving sections (i.e. 2 nos. eastbound). Thus the weaving condition is satisfactory at the AM peak. However, the N value for the second weaving marginally exceeds the provided number of lanes in the PM peak. This represents that at the PM peak, Kai Fuk Road will still experience some weaving difficulties and occasional reduction in traffic performance. The road users will have to tolerance some delay at the PM peak.

The analysis finding in fact confirms the justification of Trunk Road T2 in relieving the existing traffic congestion problem in Eastern Kowloon. The study on the traffic volume reveals that the weaving difficulties are mainly because Kai Fuk Road is heavily trafficked during the peak hours, without the diversion effect brought by Trunk Road T2. The heavy traffic fundamentally makes lane changing more difficult. The benefits brought by Central Kowloon Route is not fully utilised without the compliment of Trunk Road T2.

From the traffic analysis, it is highly recommended that the opening of Trunk Road T2 should match with the opening of Central Kowloon Route, as far as practicable.

D7 Eastbound – Ultimate Stage with Trunk Road T2

D7.1 Weaving Analysis

A traffic flow diagram is tabulated at the back of the appendix.

There are two major weaving sections along the Kai Fuk Road Eastbound.

The first weaving occurs between traffic from Kai Tak Tunnel (Route 5) to Wan Kwong Road and the traffic from Kai Cheung Road to Kai Fuk Road (Route 5) or Kwun Tong Bypass (Route 2). The weaving length is 240m.

The second weaving occurs between traffic from Kai Tak Tunnel (Route 5) to Kwun Tong Bypass slip road (Route 2) and the traffic from Central Kowloon Route slip road S3 (Route 6) to Kai Fuk Road (Route 5). The weaving length is 250m.

Due to site constraints on vertical alignment, the slip road S3 lane gain and the existing Kwun Tong Bypass slip road lane drop both occur on the farside.

As identified in the investigation stage, in order to allow the space for the slip road S3 lane gain, the original Kai Cheung road slip road lane gain will be adjusted as a direct entry merging.

There is existing lane drop exit to Wang Kwong Road on the nearside of Kai Fuk Road mainline. However, the available weaving distance between the slip road S3 to this exit is short (less than 100m), and vehicles have to change 2 lanes in this weaving section. It is considered unpreferrable in traffic safety to allow this particular weaving activity. Instead traffic heading to Kowloon Bay area can and should use slip road S1 and Kai Cheung Road as a safer route. Hence solid-cum-broken line is suggested to restrict the slip road S3 traffic from existing to Wang Kwong Road directly. For the sake of the analysis related to Kwun Tong Bypass, this lane drop to Wang Kwong Road is not counted when comparing with the N values.

The weaving calculation in accordance with TPDM Volume 2 Clause 4.6.10 is enclosed at the back of the appendix. For the first weaving, it is found that the am and pm peak N values are **1.91** and **2.13** respectively. For the second weaving, the am and pm peak N values are **1.52** and **1.64** respectively. The N values match with the provided number of lanes (i.e. 2 nos. eastbound) in the two weaving sections. The weaving condition is satisfactory.

D7.2 Recommended Lane Arrangement

The below arrangement is recommended to improve the weaving condition in eastbound Kai Fuk Road:

- Solid-cum-broken line is suggested between the Kai Fuk road nearside lane and middle lane to restrict the slip road S3 traffic from existing to Wang Kwong Road directly. This enhances the traffic safety at that location.
- The off-mainline lane for access to the existing petrol filling station is maintained. This off-mainline lane is at a lower speed limit of 50kph.

D8 Summary

The weaving analysis result for Kai Fuk Road is summarised in the following table:

Table G8.1 Summary of Weaving Analysis for Kai Fuk Road (Scenario 2021C without T2)

Westbound	Merging South Apron	Weaving
Design Speed (km/hr)	70	70
Length (m)	110	370
N-value (AM peak)	N/A	3.93
N-value (PM peak)	N/A	2.99
Result	OK	Tolerate AM peak

Eastbound	Weaving Kai Cheung Road	Weaving CKR S3
Design Speed (km/hr)	70	70
Length (m)	240	250
N-value (AM peak)	1.94	1.99
N-value (PM peak)	2.35	2.65
Result	OK	Tolerate PM peak

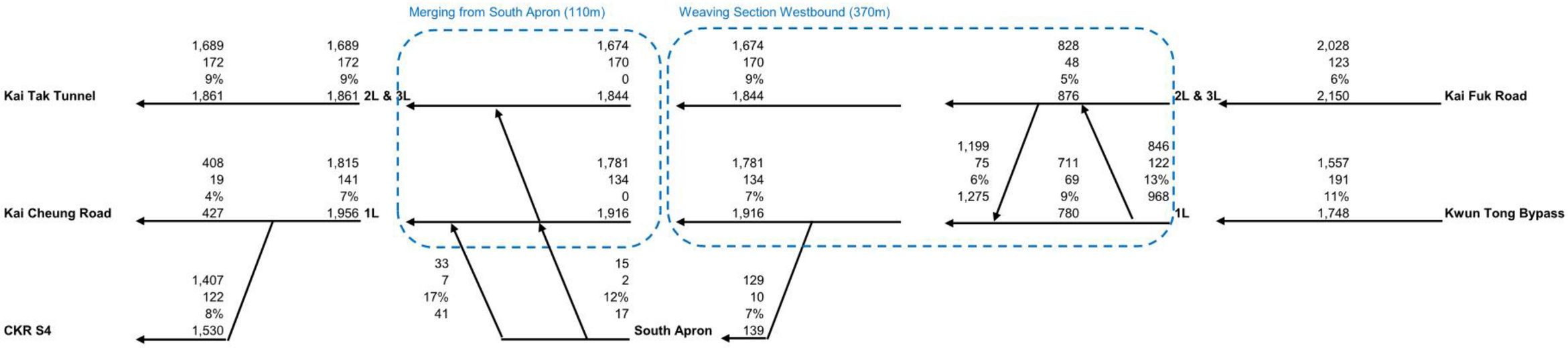
Table G8.2 Summary of Weaving Analysis for Kai Fuk Road (Scenario 2026G with T2)

Westbound	Merging South Apron	Weaving
Design Speed (km/hr)	70	70
Length (m)	110	370
N-value (AM peak)	N/A	2.86
N-value (PM peak)	N/A	2.51
Result	OK	OK

Eastbound	Weaving Kai Cheung Road	Weaving CKR S3
Design Speed (km/hr)	70	70
Length (m)	240	250
N-value (AM peak)	1.91	1.52
N-value (PM peak)	2.13	1.64
Result	OK	OK

Central Kowloon Route

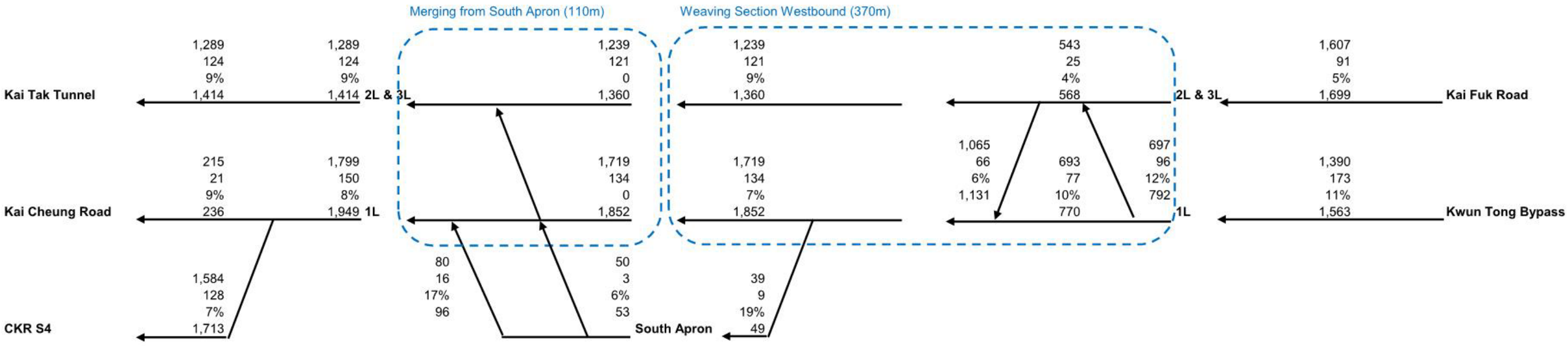
Weaving at Kai Fuk Road - Westbound AM Peak - Scenario 2021C without T2



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Central Kowloon Route

Weaving at Kai Fuk Road - Westbound PM Peak - Scenario 2021C without T2



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Weaving Calculations (Design Year 2021 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Westbound without T2

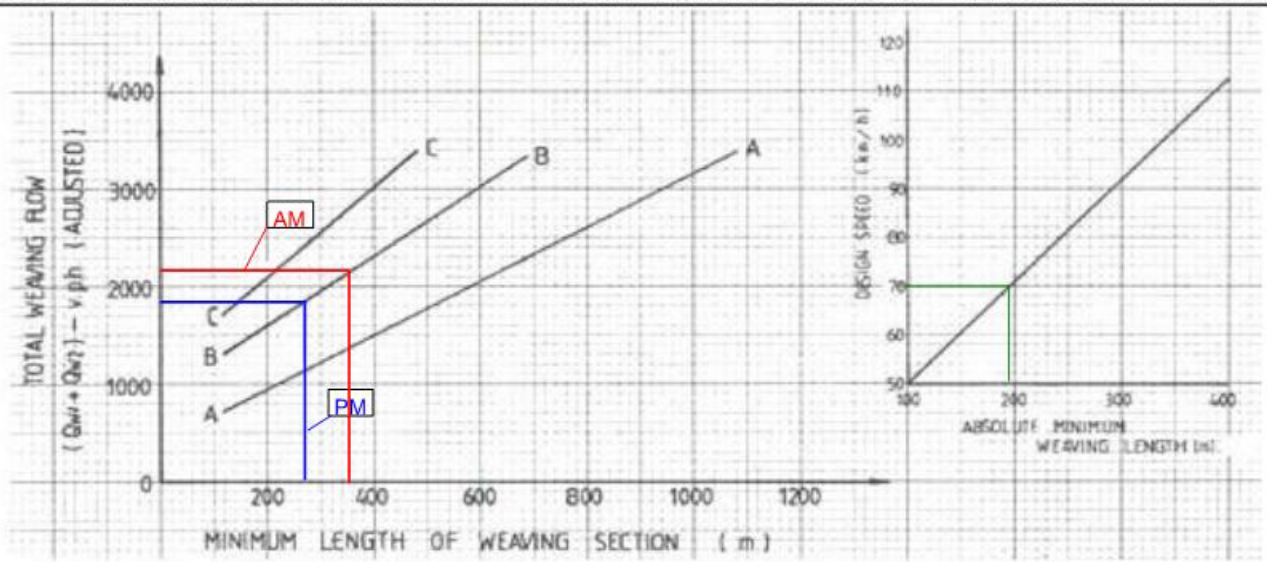
Peak	Mainline Gradient Range	Non-Weaving Traffic (Kai Fuk Road to Kai Tak Tunnel)				Weaving Traffic (Kai Fuk Road to Kai Cheung Road & CKR S4)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	876	5%	-8%	810	1275	6%	-7%	1190
PM	<1%	568	4%	-8%	520	1131	6%	-7%	1050
Peak	**Mainline Gradient Range**	**Non-Weaving Traffic (KT Bypass to Kai Cheung Road & CKR S4)**				**Weaving Traffic (KT Bypass to Kai Tak Tunnel)**			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	780	10%	-4%	750	968	13%	-2%	950
PM	<1%	770	10%	-4%	740	792	12%	-2%	780

Total Weaving Flow

AM 2140 vph

PM 1830 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2021 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Westbound without T2

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

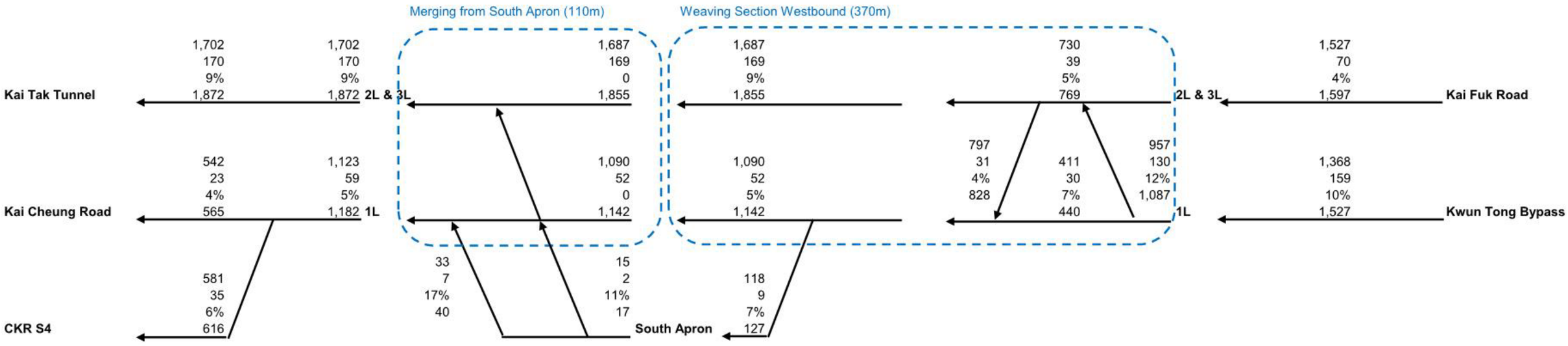
Qnw	=	1560	Absolute Lmin	=	190
Qw1	=	1190	Desirable Lmin	=	350
Qw2	=	950	Lact	=	370
N	**=**	**3.93**	D	=	1400

PM

Qnw	=	1260	Absolute Lmin	=	190
Qw1	=	1050	Desirable Lmin	=	260
Qw2	=	780	Lact	=	370
N	**=**	**2.99**	D	=	1400

Central Kowloon Route

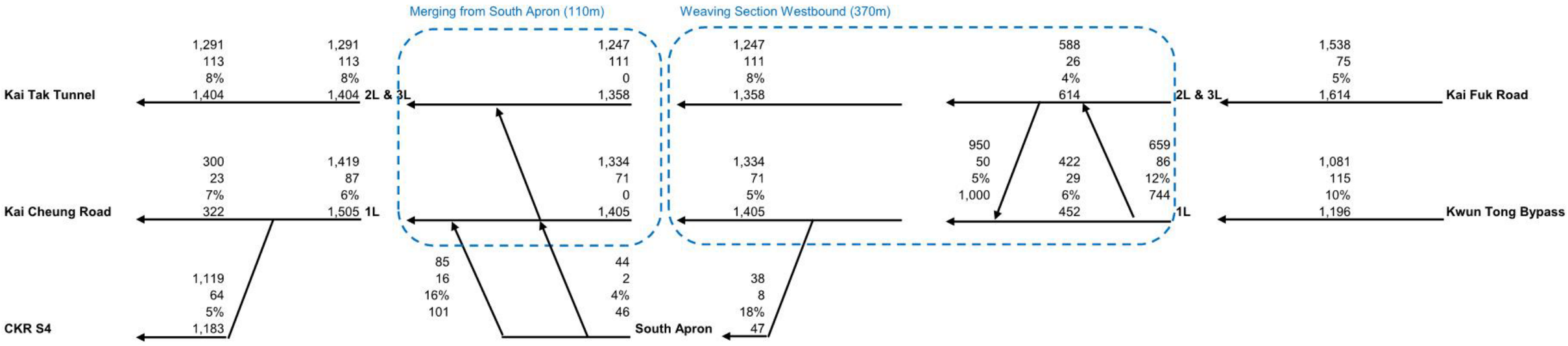
Weaving at Kai Fuk Road - Westbound AM Peak - Scenario 2026G with T2



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Central Kowloon Route

Weaving at Kai Fuk Road - Westbound PM Peak - Scenario 2026G with T2



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Westbound with T2

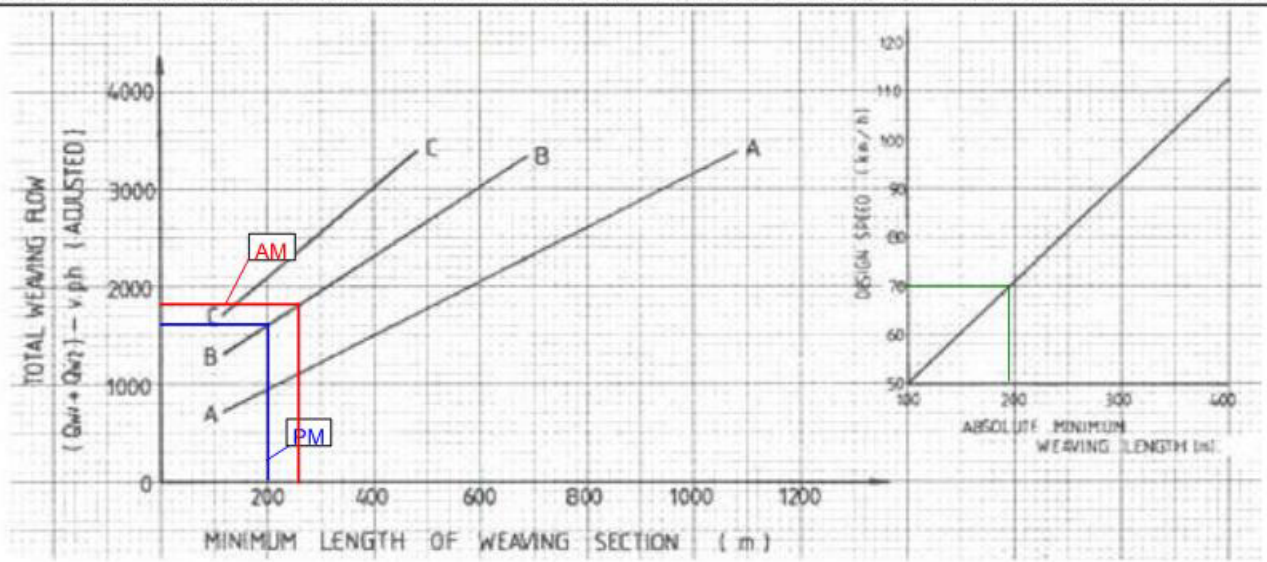
Peak	Mainline Gradient Range	Non-Weaving Traffic (Kai Fuk Road to Kai Tak Tunnel)				Weaving Traffic (Kai Fuk Road to Kai Cheung Road & CKR S4)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	769	5%	-8%	710	828	4%	-8%	760
PM	<1%	614	4%	-8%	570	1000	5%	-8%	920
Peak	**Mainline Gradient Range**	**Non-Weaving Traffic (KT Bypass to Kai Cheung Road & CKR S4)**				**Weaving Traffic (KT Bypass to Kai Tak Tunnel)**			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	440	6%	-7%	410	1087	12%	-2%	1060
PM	<1%	452	6%	-7%	420	744	12%	-2%	730

Total Weaving Flow

AM 1820 vph

PM 1650 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Westbound with T2

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

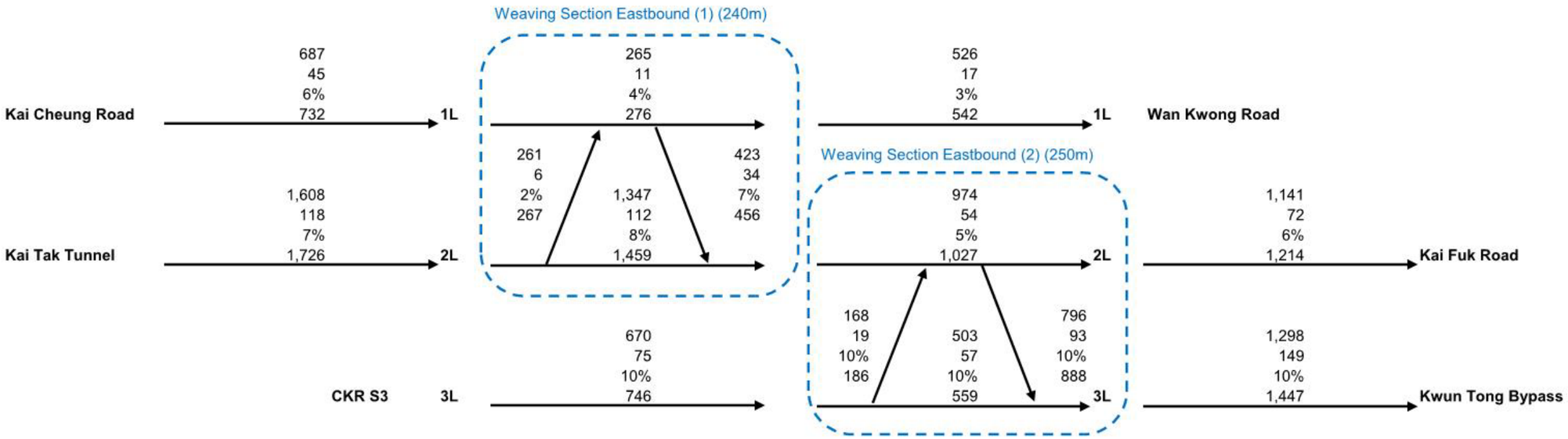
Qnw	=	1120	Absolute Lmin	=	190
Qw1	=	1060	Desirable Lmin	=	260
Qw2	=	760	Lact	=	370
N	**=**	**2.86**	D	=	1400

PM

Qnw	=	990	Absolute Lmin	=	190
Qw1	=	920	Desirable Lmin	=	220
Qw2	=	730	Lact	=	370
N	**=**	**2.51**	D	=	1400

Central Kowloon Route

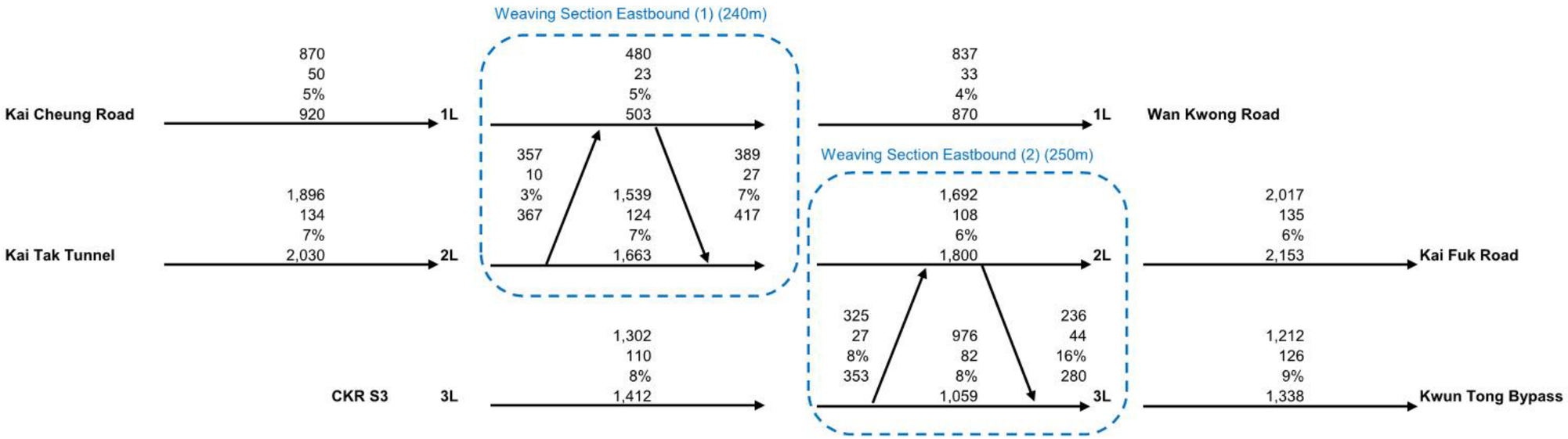
Weaving at Kai Fuk Road - Eastbound AM Peak - Scenario 2021C without T2



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Central Kowloon Route

Weaving at Kai Fuk Road - Eastbound PM Peak - Scenario 2021C without T2



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Weaving Calculations (Design Year 2021 AM & PM Peak Hours Flows) (70kph)

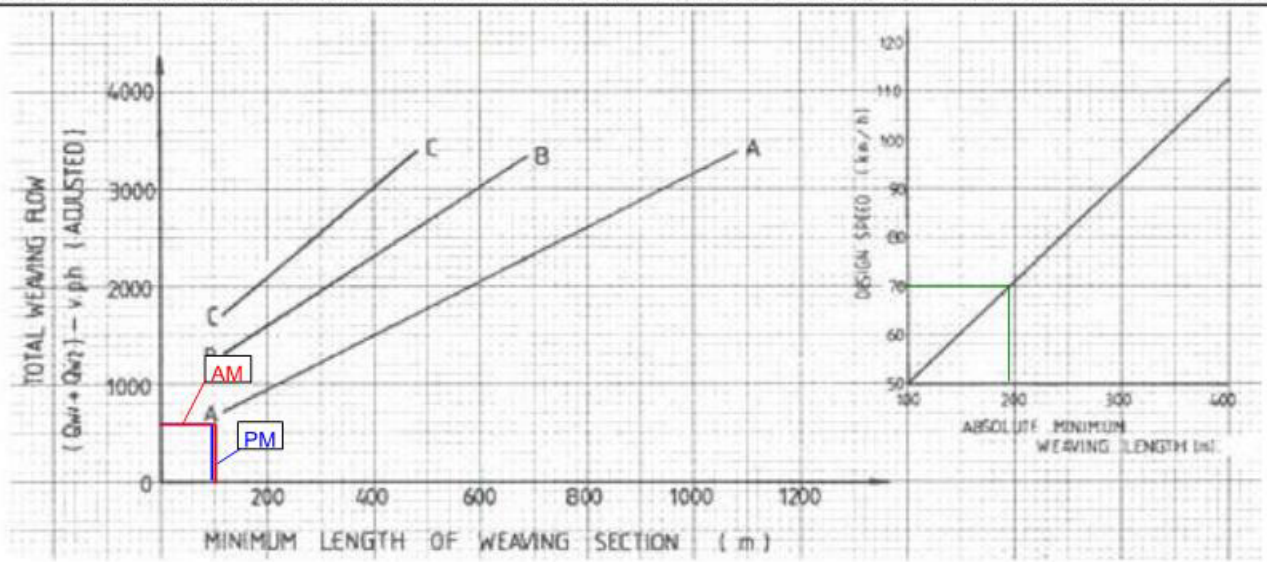
Weaving at Kai Fuk Road Eastbound without T2 (Kai Cheung Road & Kai Fuk Road)

Peak	Mainline Gradient Range	Non-Weaving Traffic (Kai Cheung Road to Wan Kwong Road)				Weaving Traffic (Kai Cheung Road to Kai Fuk Road)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	276	4%	-8%	250	456	7%	-6%	430
PM	<1%	503	5%	-8%	460	417	7%	-6%	390
Peak	Mainline Gradient Range	Non-Weaving Traffic (Kai Tak Tunnel to Kai Fuk Road)				Weaving Traffic (Kai Tak Tunnel to Wan Kwong Road)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	1459	8%	-5%	1390	267	2%	-8%	250
PM	<1%	1663	7%	-6%	1560	367	3%	-8%	340

Total Weaving Flow

AM	680 vph
PM	730 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2021 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Eastbound without T2 (Kai Cheung Road & Kai Fuk Road)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

Qnw	=	1640	Absolute Lmin	=	190
Qw1	=	430	Desirable Lmin	=	190
Qw2	=	250	Lact	=	240
N	**=**	**1.94**	D	=	1400

PM

Qnw	=	2020	Absolute Lmin	=	190
Qw1	=	390	Desirable Lmin	=	190
Qw2	=	340	Lact	=	240
N	**=**	**2.35**	D	=	1400

Weaving Calculations (Design Year 2021 AM & PM Peak Hours Flows) (70kph)

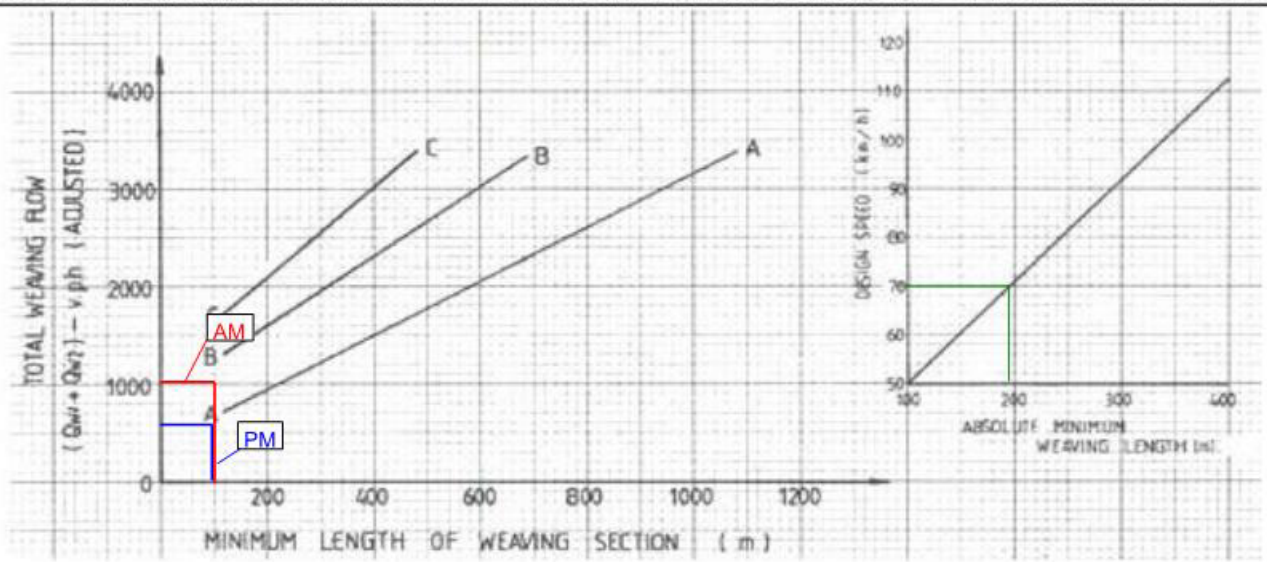
Weaving at Kai Fuk Road Eastbound without T2 (Kai Fuk Road & CKR S3)

Peak	Mainline Gradient Range	Non-Weaving Traffic (Kai Fuk Road to Kai Fuk Road)				Weaving Traffic (Kai Fuk Road to KT Bypass)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	1027	5%	-8%	940	888	10%	-4%	850
PM	<1%	1800	6%	-7%	1670	280	16%	1%	280
Peak	Mainline Gradient Range	Non-Weaving Traffic (CKR S3 to KT Bypass)				Weaving Traffic (CKR S3 to Kai Fuk Road)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	559	10%	-4%	540	186	10%	-4%	180
PM	<1%	1059	8%	-6%	1000	353	8%	-6%	330

Total Weaving Flow

AM	1030 vph
PM	610 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2021 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Eastbound without T2 (Kai Fuk Road & CKR S3)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

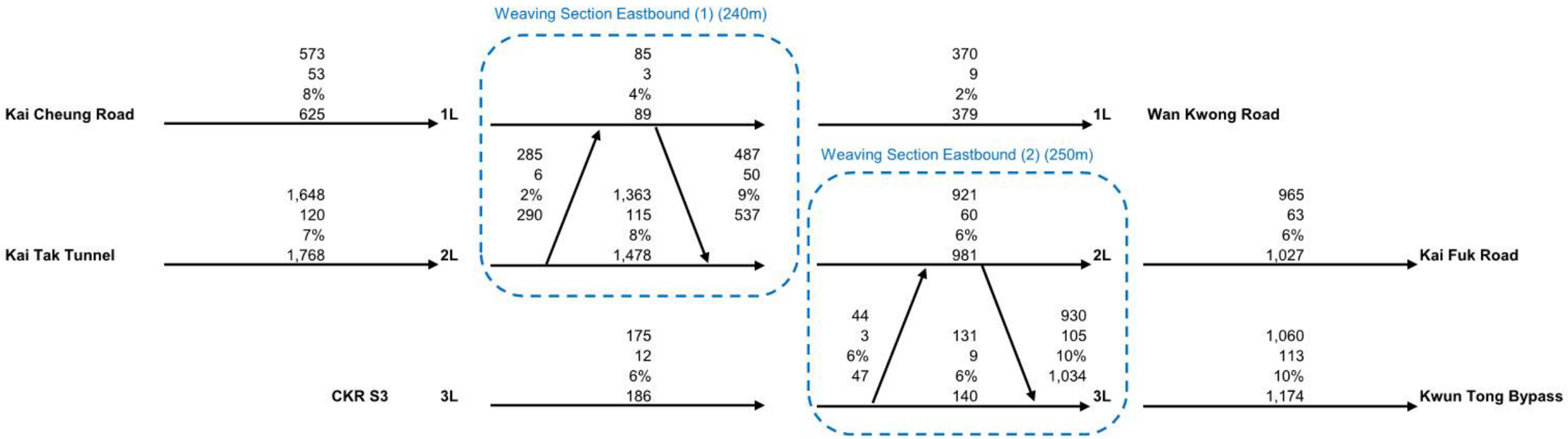
Qnw	=	1480	Absolute Lmin	=	190
Qw1	=	850	Desirable Lmin	=	190
Qw2	=	180	Lact	=	250
N	**=**	**1.99**	D	=	1400

PM

Qnw	=	2670	Absolute Lmin	=	190
Qw1	=	330	Desirable Lmin	=	190
Qw2	=	280	Lact	=	250
N	**=**	**2.65**	D	=	1400

Central Kowloon Route

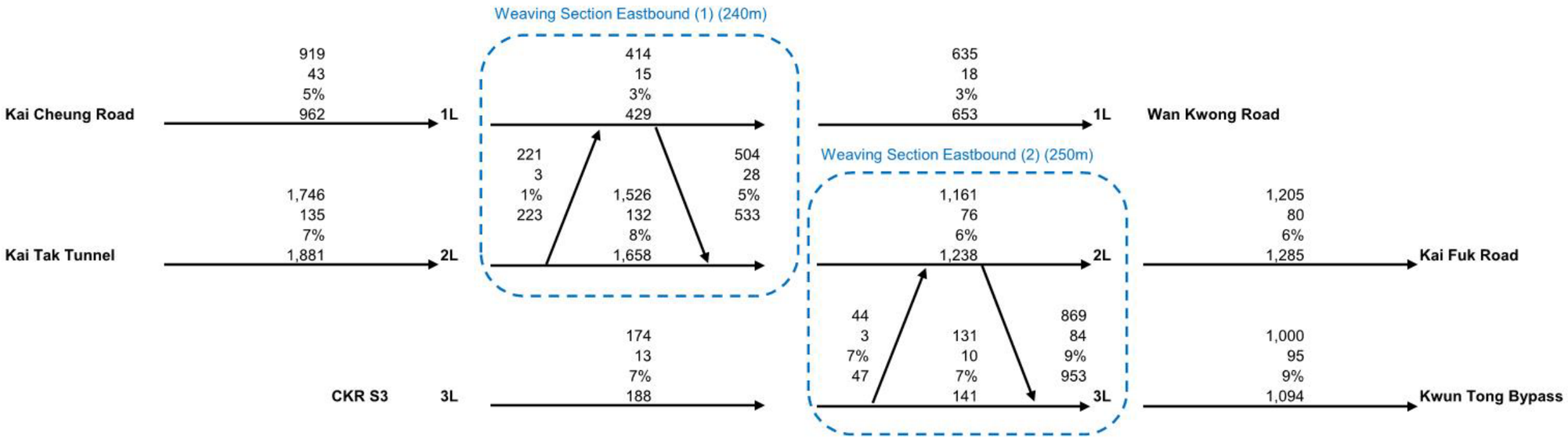
Weaving at Kai Fuk Road - Eastbound AM Peak - Scenario 2026G with T2



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Central Kowloon Route

Weaving at Kai Fuk Road - Eastbound PM Peak - Scenario 2026G with T2



Legend
PV (veh)
HV (veh)
HV%
Total (veh)

Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (70kph)

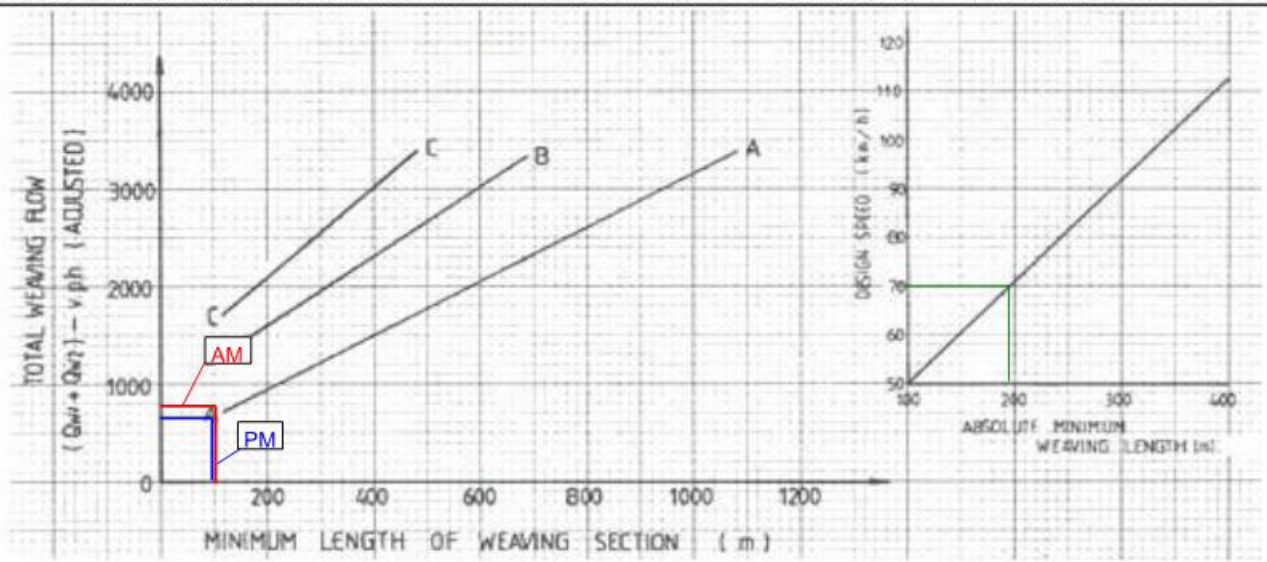
Weaving at Kai Fuk Road Eastbound with T2 (Kai Cheung Road & Kai Fuk Road)

Peak	Mainline Gradient Range	Non-Weaving Traffic (Kai Cheung Road to Wan Kwong Road)				Weaving Traffic (Kai Cheung Road to Kai Fuk Road)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	89	4%	-8%	80	537	9%	-5%	510
PM	<1%	429	3%	-8%	390	533	5%	-8%	490
Peak	Mainline Gradient Range	Non-Weaving Traffic (Kai Tak Tunnel to Kai Fuk Road)				Weaving Traffic (Kai Tak Tunnel to Wan Kwong Road)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	1478	8%	-6%	1390	290	2%	-8%	270
PM	<1%	1658	8%	-6%	1560	223	1%	-8%	210

Total Weaving Flow

AM	780 vph
PM	700 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Eastbound with T2 (Kai Cheung Road & Kai Fuk Road)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

(Max Flow of AM and PM)

AM

Qnw	=	1470	Absolute Lmin	=	190
Qw1	=	510	Desirable Lmin	=	190
Qw2	=	270	Lact	=	240
N	**=**	**1.91**	D	=	1400

PM

Qnw	=	1950	Absolute Lmin	=	190
Qw1	=	490	Desirable Lmin	=	190
Qw2	=	210	Lact	=	240
N	**=**	**2.13**	D	=	1400

Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Eastbound with T2 (Kai Fuk Road & CKR S3)

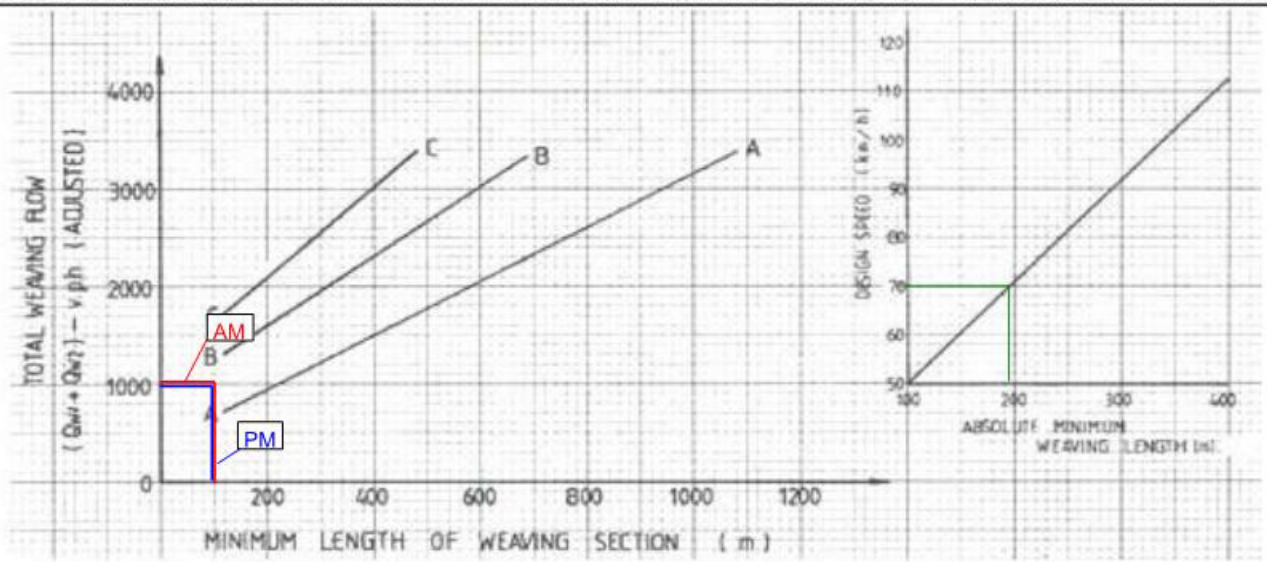
Peak	Mainline Gradient Range	Non-Weaving Traffic (Kai Fuk Road to Kai Fuk Road)				Weaving Traffic (Kai Fuk Road to KT Bypass)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	981	6%	-7%	910	1034	10%	-4%	990
PM	<1%	1238	6%	-7%	1150	953	9%	-5%	910
Peak	Mainline Gradient Range	Non-Weaving Traffic (CKR S3 to KT Bypass)				Weaving Traffic (CKR S3 to Kai Fuk Road)			
		Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*	Flow (vph)	Percentage of HV	Percentage Correction	Adjusted Flow (vph)*
AM	<1%	140	6%	-7%	130	47	6%	-7%	40
PM	<1%	141	7%	-6%	130	47	7%	-6%	40

Total Weaving Flow

AM 1030 vph

PM 950 vph

DIAGRAM 4.6.10.1 : Lmin MINIMUM LENGTH OF WEAVING SECTION



Weaving Calculations (Design Year 2026 AM & PM Peak Hours Flows) (70kph)

Weaving at Kai Fuk Road Eastbound with T2 (Kai Fuk Road & CKR S3)

$$N = \frac{Qnw + Qw1}{D} + \left(2 \times \frac{Lmin}{Lact} + 1\right) \frac{Qw2}{D}$$

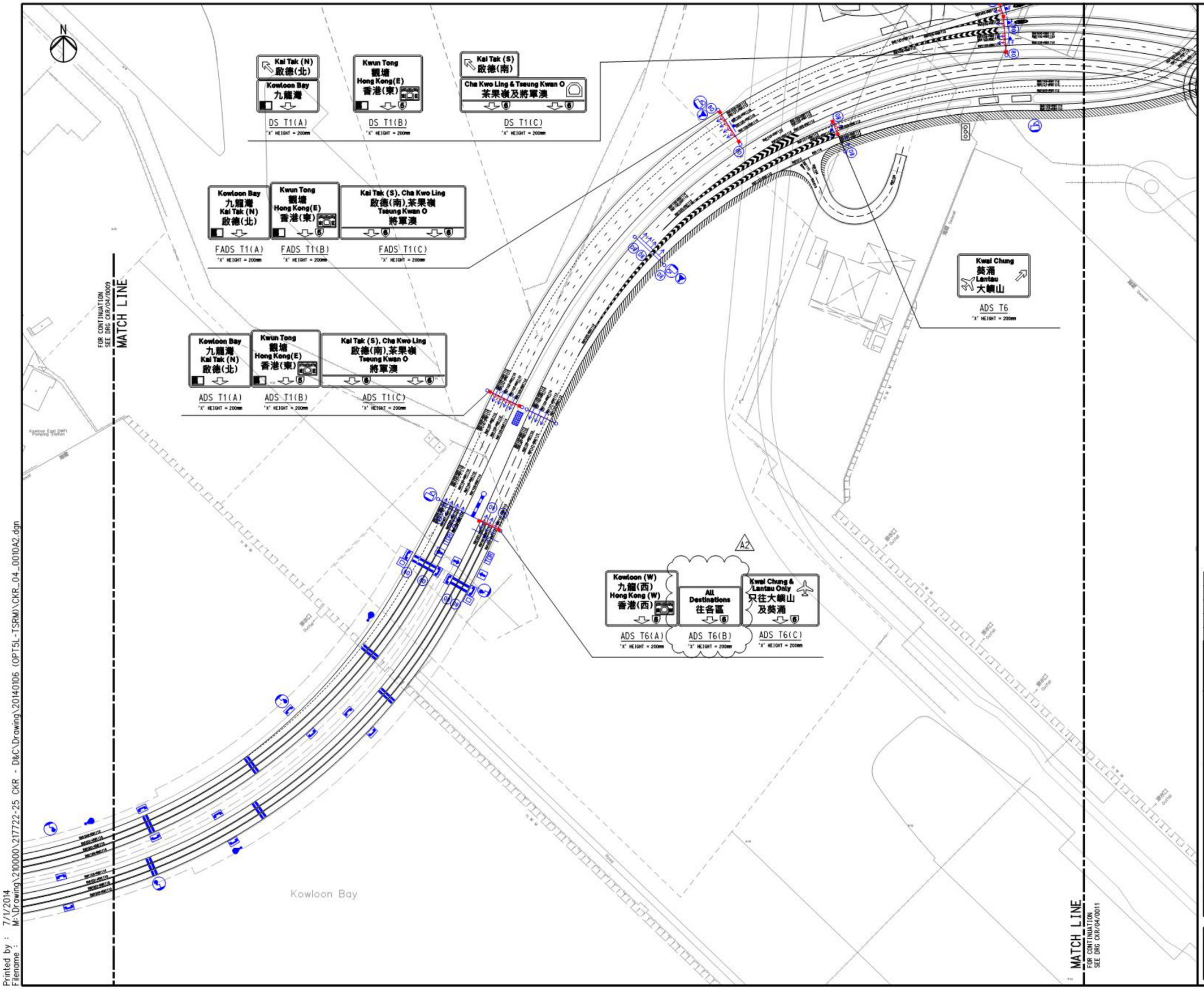
(Max Flow of AM and PM)

AM

Qnw	=	1040	Absolute Lmin	=	190
Qw1	=	990	Desirable Lmin	=	190
Qw2	=	40	Lact	=	250
N	**=**	**1.52**	D	=	1400

PM

Qnw	=	1280	Absolute Lmin	=	190
Qw1	=	910	Desirable Lmin	=	190
Qw2	=	40	Lact	=	250
N	**=**	**1.64**	D	=	1400



A2	REVISION DUE TO STRUCTURAL INTERFACE	BF	01-14
A1	FIRST DRAFT	BF	11-13
Rev	Description	By	Date

Consultant

ARUP

Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

TRAFFIC SIGNS AND ROAD MARKING LAYOUT PLAN (SHEET 9 OF 13)

Drawing no.	Rev.
CKR/04/0010	A2

Drawn	Date	Checked	Approved
MKKL	11/13	DW	EC

Scale: 1:1000 @ A1

Status: PRELIMINARY

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N

Kai Tak (N)
啟德(北)
DS T3(A)
'x' HEIGHT = 250mm

Kowloon Bay
九龍灣
Hong Kong(E)
香港(東)
DS T3(B)
'x' HEIGHT = 250mm

Kowloon (W)
九龍(西)
Hong Kong (W)
香港(西)
Kwai Chung
葵涌
DS T5(A)
'x' HEIGHT = 200mm

Kowloon Bay
九龍灣
Hong Kong(E)
香港(東)
DS T5(B)
'x' HEIGHT = 200mm

Kowloon (W)
九龍(西)
Hong Kong (W)
香港(西)
Kwai Chung
葵涌
DS T8(A)
'x' HEIGHT = 200mm

To Kwa Wan
土瓜灣
Hong Kong
香港
DS T8(B)
'x' HEIGHT = 200mm

Kowloon (W)
九龍(西)
Hong Kong (W)
香港(西)
Kwai Chung
葵涌
DS T9(A)
'x' HEIGHT = 200mm

To Kwa Wan
土瓜灣
Hong Kong
香港
DS T9(B)
'x' HEIGHT = 200mm

Kwun Tong
Hong Kong (E)
觀塘, 香港(東)

To Kwa Wan & Hong Kong
土瓜灣及香港

K/KT/KaiC-G02B

觀塘
Kwun Tong
DS T10(A)
'x' HEIGHT = 200mm

Kowloon (W)
九龍(西)
Hong Kong (W)
香港(西)
Kwai Chung
葵涌
FADS T10(B)
'x' HEIGHT = 200mm

To Kwa Wan
土瓜灣
Hong Kong
香港
FADS T10(C)
'x' HEIGHT = 200mm

Kowloon (W)
九龍(西)
Hong Kong (W)
香港(西)
Kwai Chung
葵涌

Kowloon Bay
九龍灣
Hong Kong(E)
香港(東)
DS T4(A)
'x' HEIGHT = 200mm

To Kwa Wan & Hong Kong
土瓜灣及香港
DS T4(B)
'x' HEIGHT = 200mm

Tseung Kwan O
將軍澳
Hong Kong(E)
香港(東)
DS T7
'x' HEIGHT = 200mm

Cruise Terminal
郵輪碼頭

Tseung Kwan O
Hong Kong (E)
將軍澳
香港(東)

Kowloon Bay
九龍灣
Kwun Tong
觀塘
K/KT/KaiF-XG10D

Kowloon (W) &
Hong Kong (W)
九龍(西)及
香港(西)

Kwai Chung, Lantau
葵涌,大嶼山
AD$ T11
'x' HEIGHT = 250mm

FOR CONTINUATION
SEE DRG CKR/04/0010
MATCH LINE

MATCH LINE
FOR CONTINUATION
SEE DRG CKR/04/0012

KEY PLAN

Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
TRAFFIC SIGNS AND
ROAD MARKING LAYOUT PLAN
(SHEET 10 OF 13)

Drawing no.			Rev.
CKR/04/0011			A1
Drawn	Date	Checked	Approved
MKKL	11/13	DW	EC
Scale		Status	
1:1000 @ A1		PRELIMINARY	

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FOR CONTINUATION
SEE DRG CKR/04/0011
MATCH LINE

Kai Tak (S)
啟德(南)
Cha Kwo Ling & Tseung Kwan O
茶果嶺及將軍澳
6 6
FADS T2
'X' HEIGHT = 200mm

Cha Kwo Ling
茶果嶺
Kai Tak (S)
啟德(南)
6
Tseung Kwan O
將軍澳
6 6
DS T2(A)
'X' HEIGHT = 250mm
DS T2(B)
'X' HEIGHT = 250mm

CREEK

CREEK

FOR CONTINUATION
SEE DRG CKR/04/0010
MATCH LINE

MATCH LINE
FOR CONTINUATION
SEE DRG CKR/04/0013

KEY PLAN

Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
TRAFFIC SIGNS AND
ROAD MARKING LAYOUT PLAN
(SHEET 11 OF 13)

Drawing no.			Rev.
CKR/04/0012			A1
Drawn	Date	Checked	Approved
MKKL	11/13	DW	EC
Scale		Status	
1:1000 @ A1		PRELIMINARY	

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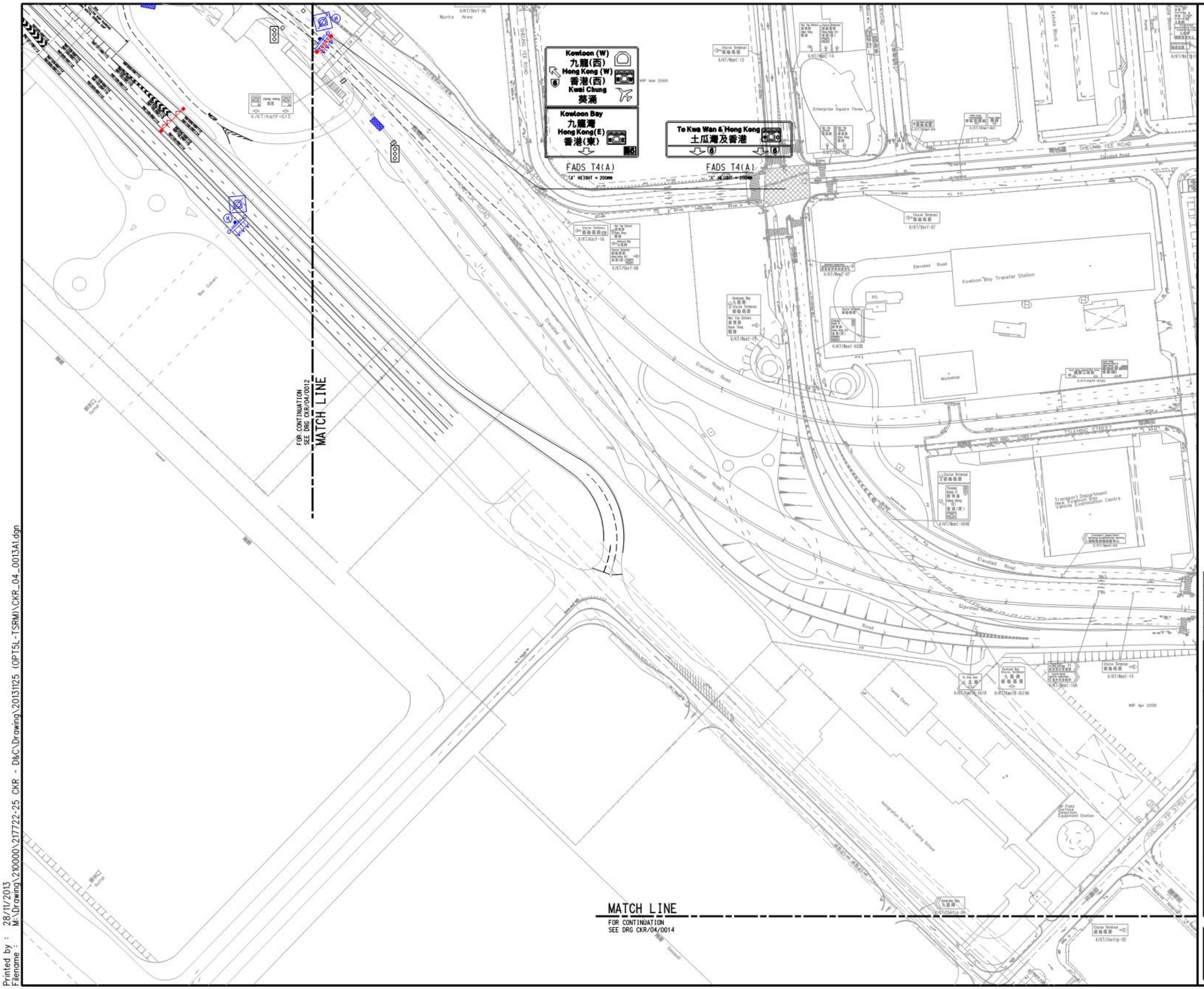

KEY PLAN

Rev	Description	By	Date

Consultant

ARUP Mott MacDonald

Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

TRAFFIC SIGNS AND ROAD MARKING LAYOUT PLAN (SHEET 12 OF 13)

Drawing no.			Rev.
CKR/04/0013			A1
Drawn: MKKL	Date: 11/13	Checked: DW	Approved: EC
Scale: 1:1000 @ A1		Status: PRELIMINARY	

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Appendix E - Technical Note on Review of Lai Cheung Road Link

Technical Note on Review of Lai Cheung Road Link

1. Background:

There is at present a connection from the southbound carriageway of the West Kowloon Highway (WKH) to Lai Cheung Road, as indicated on **Drawing CKR/SK/056**. At the previous preliminary design stage of this project under Agreement CE 56/2008 (HY) it had been identified that there was no feasible way to maintain this connection within this heavily constrained area whilst providing the required connections to the Central Kowloon Route (CKR), and therefore the connection was deleted. An alternative route involving diverting traffic from the WKH at the Lai Wan Interchange to Lin Cheung Road and thence to Lai Cheung Road was agreed as the solution to this issue. The alternative route is indicated on **Drawing CKR/SK/068**.

Subsequently the AMMJV was instructed under Agreement CE 43/2010 (HY) to review the situation to ascertain whether there is really no feasible solution to the issue of reproviding the connection at the Yau Ma Tei Interchange. A summary of the extensive investigation carried out by AMMJV is presented below.

2. Existing Constraints:

The existing constraints are summarised below:

1. West Kowloon Highway (WKH) is at 100km/h speed limit
2. Lai Cheung Road (LCR) is at 50km/h speed limit – a safe transition is required between the two speed limits.
3. The WKH southbound is aligned close to the MTRC Tung Chung/ Airport Express Lines (TCL/ AEL) which are in a depressed U-trough/ cut and cover tunnel section.
4. The existing southbound two lane slip road from the WKH to Lin Cheung Road/ Lai Cheung Road is retained and used as the connection to the Central Kowloon Route/ Lin Cheung Road – the number of traffic lanes may not be reduced to accommodate an additional connection.
5. The existing southbound Lin Cheung Road flyover is at the same location.
6. The existing MTRC Tai Kok Tsui Ventilation Building is at the same location.
7. The existing slip road from WKH northbound to Ferry Street/ Waterloo Road is at the same location.
8. The existing southbound connection from Lin Cheung Road to Lai Cheung Road is at the same location.

3. Alignment Development:

The alignment options that have been developed in the course of this additional investigation are summarised below:

3.1 The southbound Lin Cheung Road flyover is a major constraint vertically. Passing under the flyover is not an option owing to the congestion of existing and future at-grade roads. Three options to pass over the flyover have been developed.

Option A requires a single span over the flyover, which in turn requires a span length of approximately 60m owing to the large skew angle, and a connection to the existing elevated road. Options B and C propose an intermediate pier at the bifurcation of the Lin Cheung Road, involving the partial demolition and reconstruction of the road to create the necessary space, but reducing the span length to approximately 30m, and connecting to the existing at-grade Lai Cheung Road.

3.2 Option A (Drawing CKR/SK/035 and 036) is developed on the principle of avoiding any impact on the existing slip road to Lin Cheung Road/ future CKR. There is limited space between the WKH carriageway on one side and the MTRC TCL/ AEL lines on the other side, therefore the strat of the slip road taper is only approximately 270m before the point where the road must cross over the elevated Lin Cheung Road. This option requires a construction depth for the slip road of approximately 3m for the span over the elevated Lin Cheung Road, giving a carriageway level of +18mPD at the west edge of the flyover. To elevate to this level from the WKH requires a gradient of 15% and vertical curve K-values of 9.0 (sag) and 6.5 (crest). The diverge taper length from the WKH and the nosing length are less than the required minimum, it would be necessary to reduce the speed limit from 100km/h to 50km/h at the diverge nosing, and there would remain a level difference of approximately 1m at the nosing location. This option is technically infeasible as it is not compliant with the absolute minimum standards of the TPDM and is not a safe solution from the traffic aspect.

3.3 Option B (Drawing CKR/SK/069, 070 and 071) alignment is developed on the principle of improving the vertical alignment of the slip road as far as possible, which requires the extension of the start of the slip road into the existing WKH carriageway, and the introduction of an intermediate pier on the section spanning over the existing elevated Lin Cheung Road. This option requires a construction depth for the slip road of approximately 1.5m, giving a minimum carriageway level of +16.5mPD at the west edge of the flyover. To elevate to this level from the WKH requires a gradient of 10% and vertical curve K-values of 20 (sag) and 6.5 (crest). The K-values are the absolute minimum for a 80km/h and 50km/h design speed respectively, and the speed limit is proposed to reduce to 80km/h at the nosing, and then further reduce to 50km/h on the ramp section. To connect back into the at-grade Lai Cheung Road requires a sag curve K-value of 3 which is less than the absolute minimum. The diverge taper from the WKH extends into the existing diverge taper for the future CKR/ existing Lin Cheung Road. The diverge taper for the two-lane CKR/ Lin Cheung Road would be reduced by approximately 200m with only 145m remaining for the diverge taper and nosing which compromises the safe and efficient operation of this slip road. The merge taper of the slip road with the existing LCR is only 60m from the junction with Hoi Wang Road which is substandard in length and does not allow for any weaving of traffic between this road and the exisitng link from Lin Cheung Road to Lai Cheung Road, which compromises the traffic movements to Hoi Wang Road and Ferry Street. This option is technically infeasible as it is creates a sub-standard diverge for the existing slip road from WKH to Lin Cheung Road/ future CKR, creates a sub-standard merge/ weave with the existing LCR, and therefore potentially creates traffic safety issues at both locations for the diverging/ merging and weaving traffic flows.

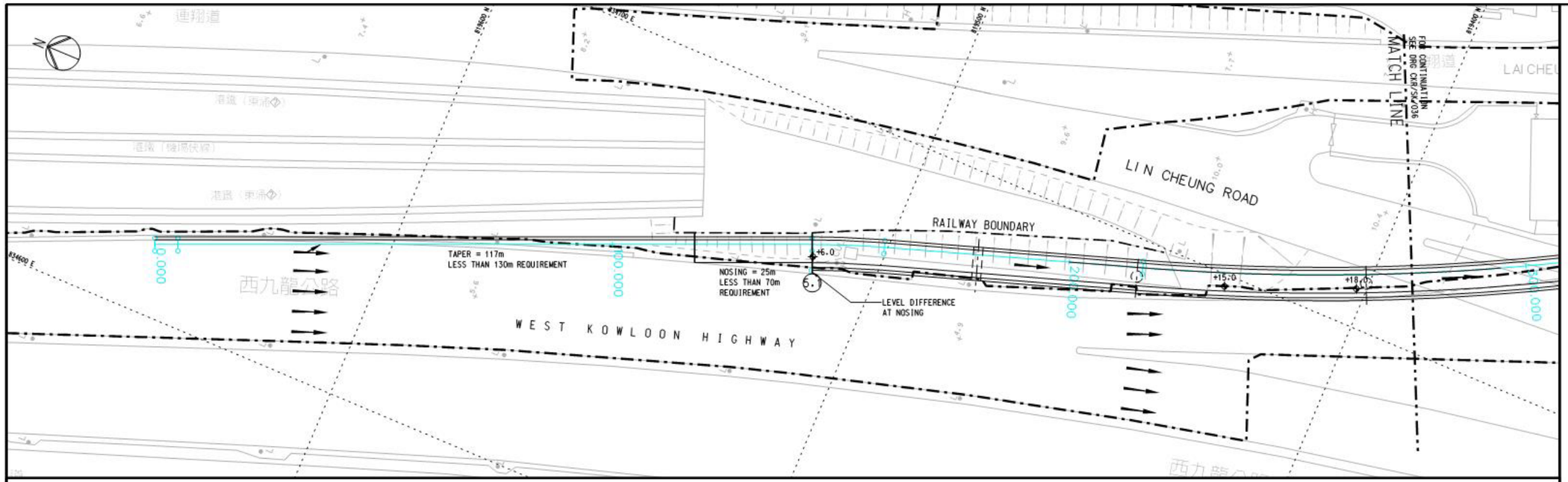
3.4 Option C (Drawing CKR/SK/061, 062 and 063) alignment is developed on a similar principle of the above Option B in terms of the vertical profile, but retaining the existing numbers of traffic lanes on the WKH so as not to negatively impact the traffic flow on either the WKH or the CKR/ Lin Cheung Road slip road. Similar to Option B this requires reducing the design speed to 80km/h on the diverge from the

WKH, then further reducing to 50km/h on the ramp. Using the same absolute minimum vertical curve K-values and absolute maximum gradient results in an alignment that is not possible to elevate over the existing elevated Lin Cheung Road. This option is therefore technically infeasible as it is not possible to clear the existing elevated road.

3.5 Review of Alignment of WKH (as requested by TD) As noted above, the existing WKH is a major constraint to the devlopment of a feasible solution to this issue owing to its level and profile relative to the proposed crossing over the elevated Lin Cheung Road. The possibility of reprofiling the WKH to achieve a more favourable alignment for the slip road has been considered, however it is found that the WKH is constrained vertically by the footbridge at Olympic Station to the north, and the Lin Cheung Road bridge at the south. The change in profile of the WKH would therefore not be of significant benefit to the alignment of the proposed slip road.

Conclusion:

A number of options have been developed to reprovide the existing connection from WKH to LCR, other than those illustrated here, and no option has been found to be technically feasible. The preferred solution is therefore to use the previously proposed diversion from the WKH to Lin Cheung Road at the Lai Wan Interchange, whilst those traffic that do not exit the WKH at this location may alternatively use the existing/ planned road network, with traffic diverted through the Lin Cheung Road to Jordan Road, thence north along the Road D1/ Hoi Wang Road to Lai Cheung Road/ Ferry Street/ Waterloo Road, as indicated on **Drawing CKR/SK/056**.



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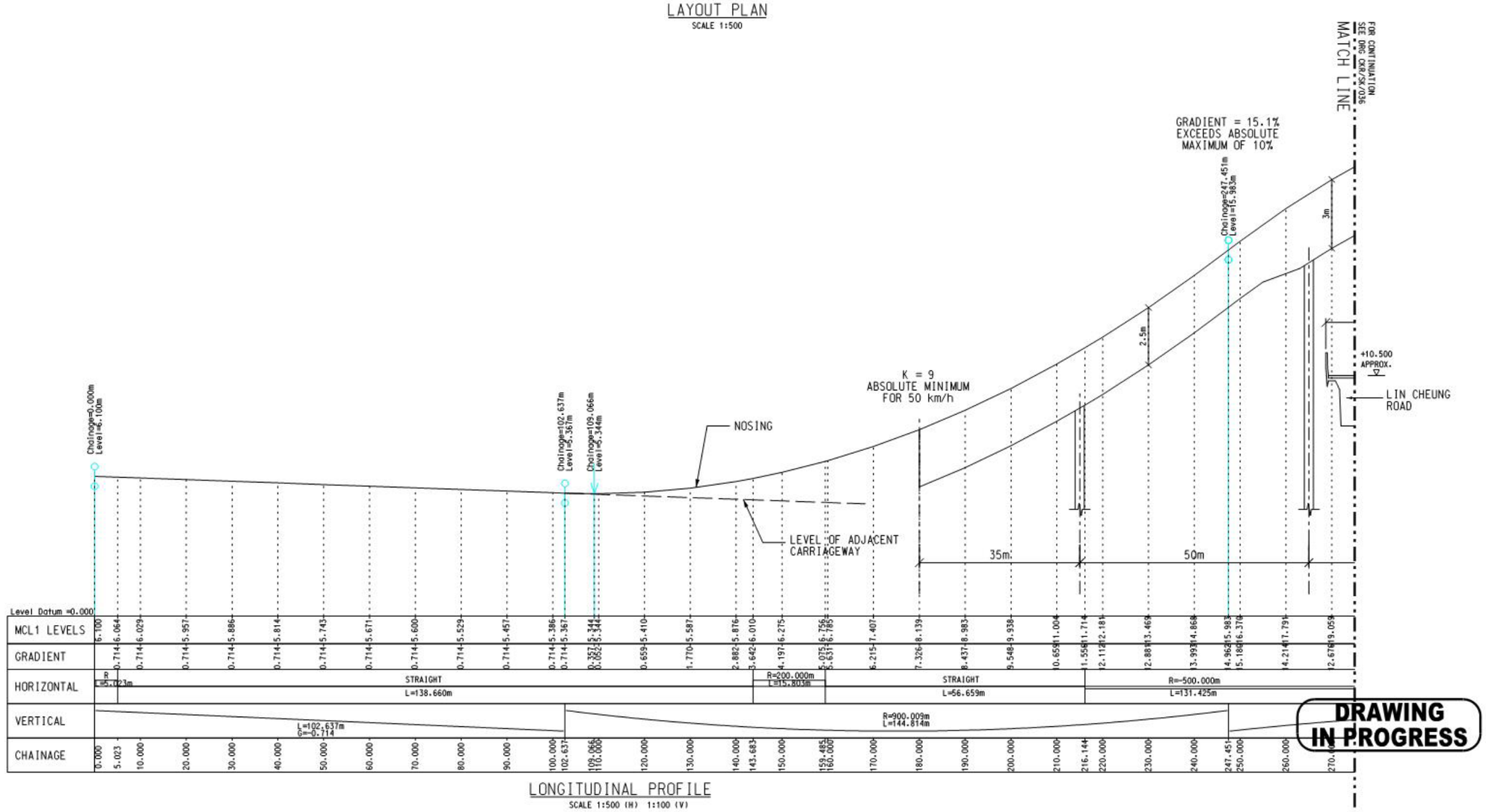

LONGITUDINAL PROFILE
SCALE 1:500 (H) 1:100 (V)

DRAWING IN PROGRESS

Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
OPTION FOR KEEPING
LINK ROAD TO
LAI CHEUNG ROAD

(SHEET 1 OF 2)

Drawing no.	Rev.
CKR/SK/035	A

Drawn	Date	Checked	Approved
KKL	06/12	HL	FC

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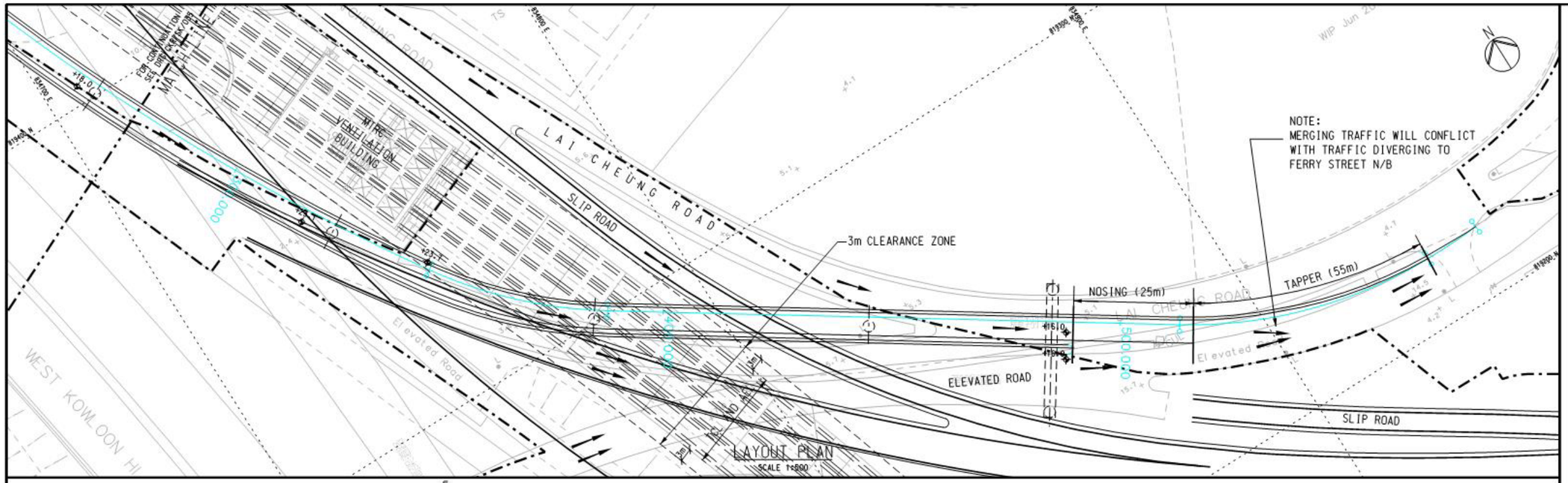

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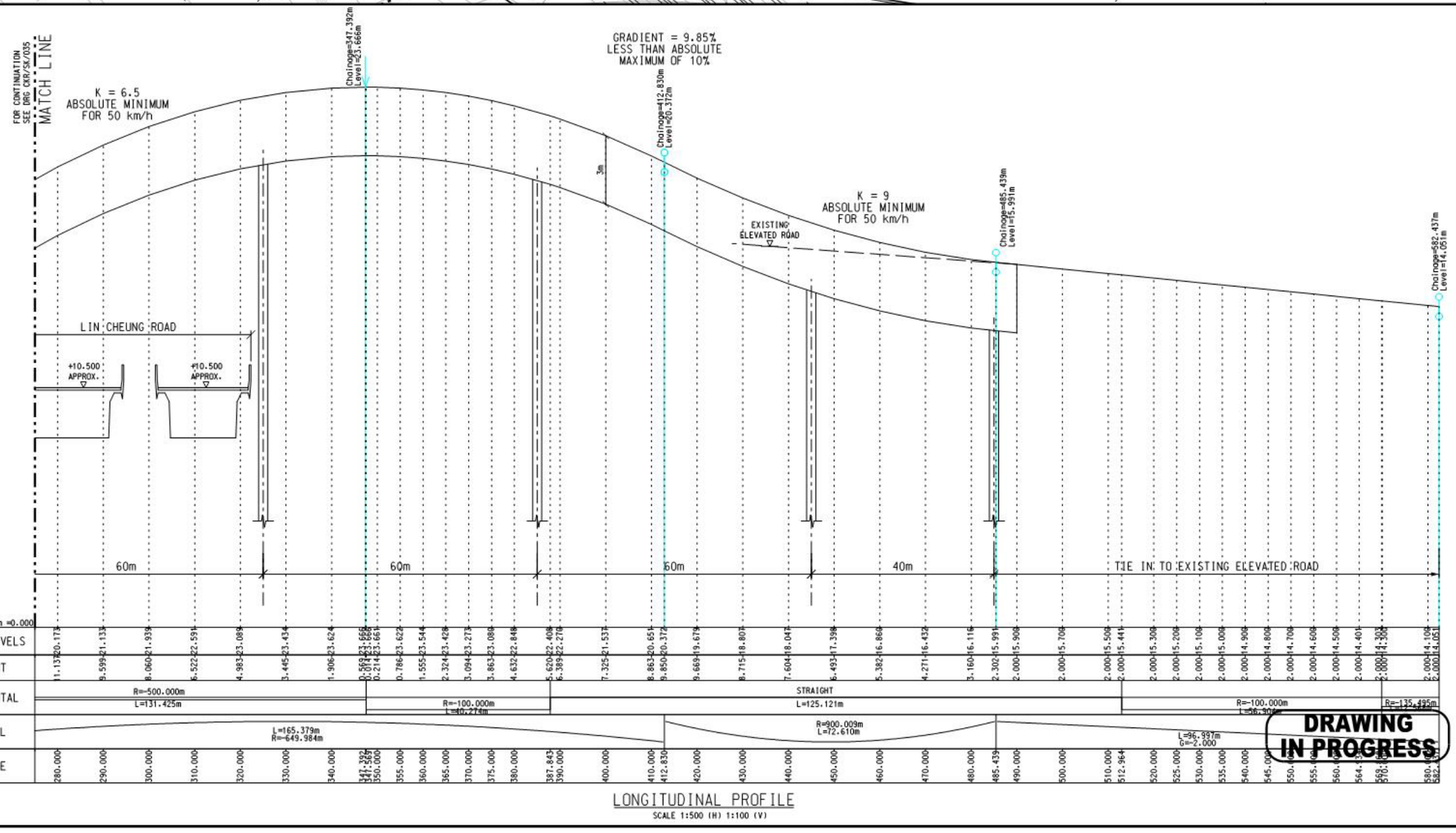

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DRAWING IN PROGRESS

Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
OPTION FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD
(SHEET 2 OF 2)

Drawing no.	Rev.
CKR/SK/036	A

Drawn	Date	Checked	Approved
KKL	06/12	HL	FC

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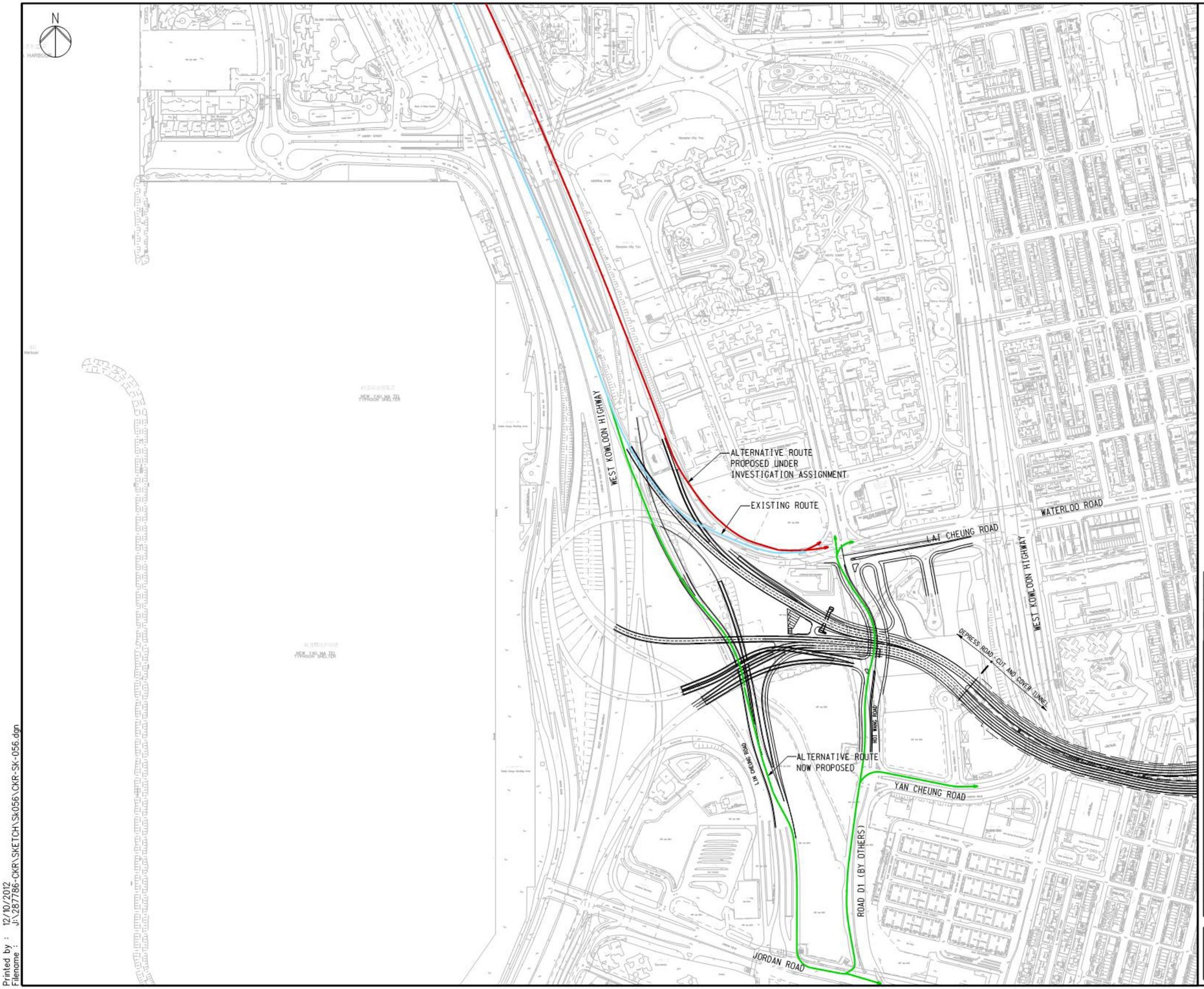

Rev	Description	By	Date
A	FIRST ISSUE	JL	08/12

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route -
Design and Construction

Drawing title

PROPOSED ALTERNATIVE
TRAFFIC DIVERSION
FROM WKH AT YMT INTERCHANGE
TO LAI CHEUNG ROAD

Drawing no.			Rev.
CKR/SK/056			A
Drawn: CW	Date: 08/12	Checked: HL	Approved: EC
Scale: 1:5000 @ A1		Status: PRELIMINARY	

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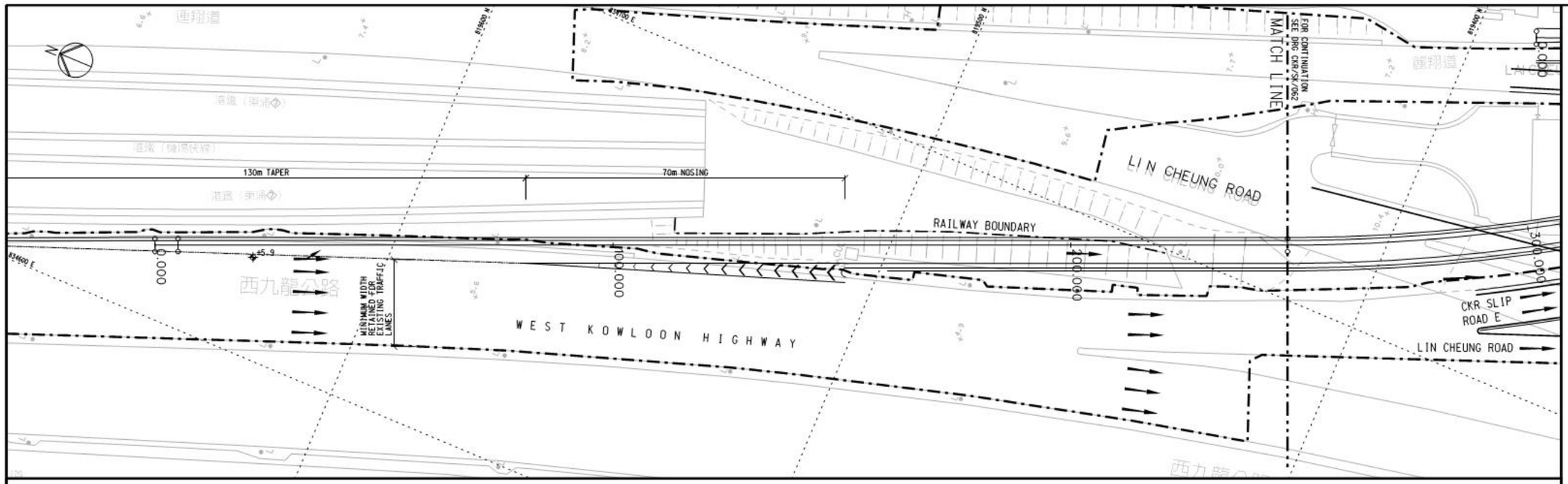

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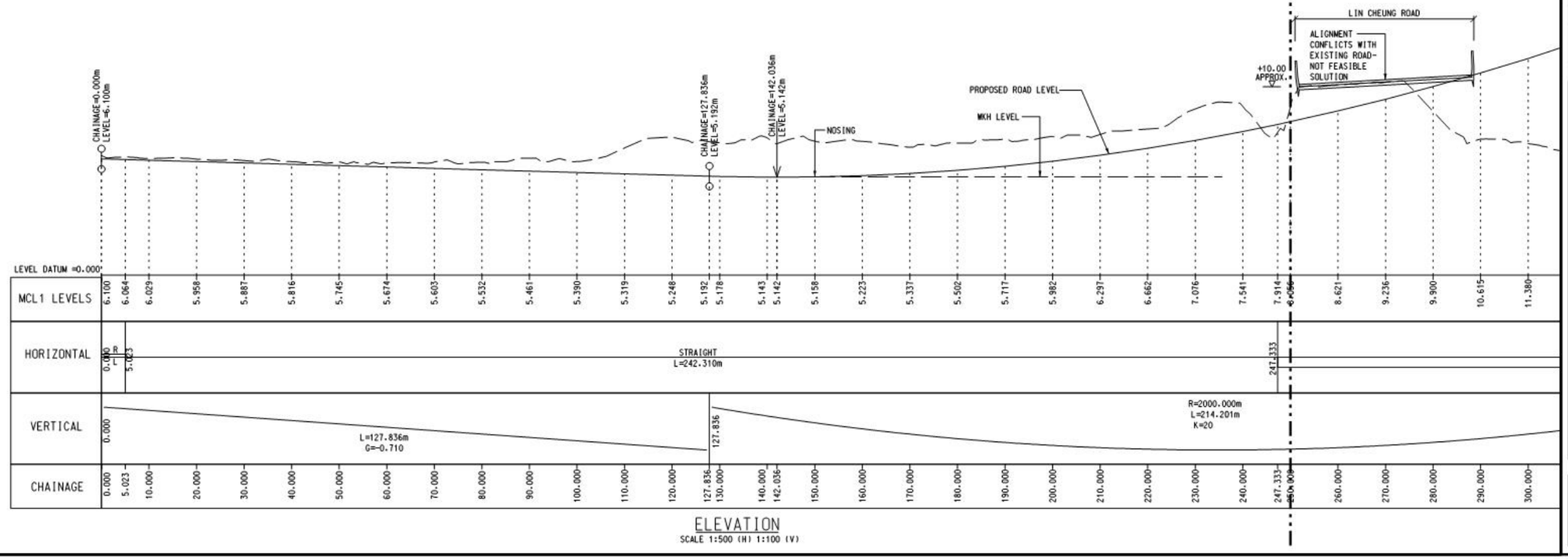

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Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
OPTION C FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD
(SHEET 1 OF 3)

Drawing no.	Rev.
CKR/SK/061	A

Drawn	Date	Checked	Approved
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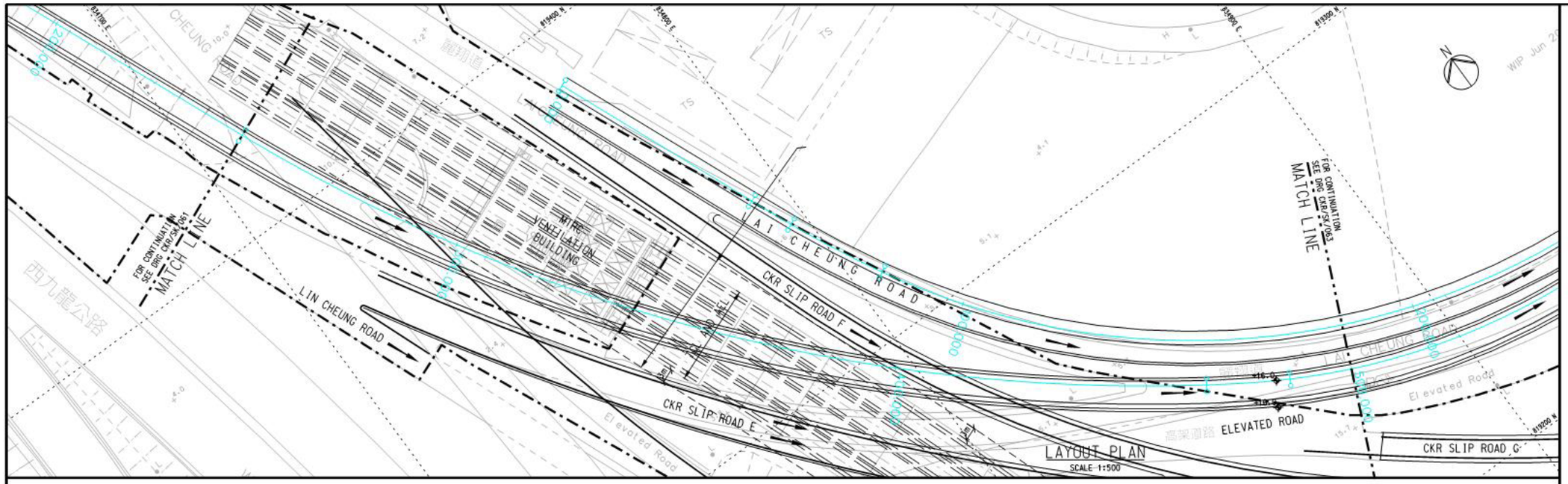

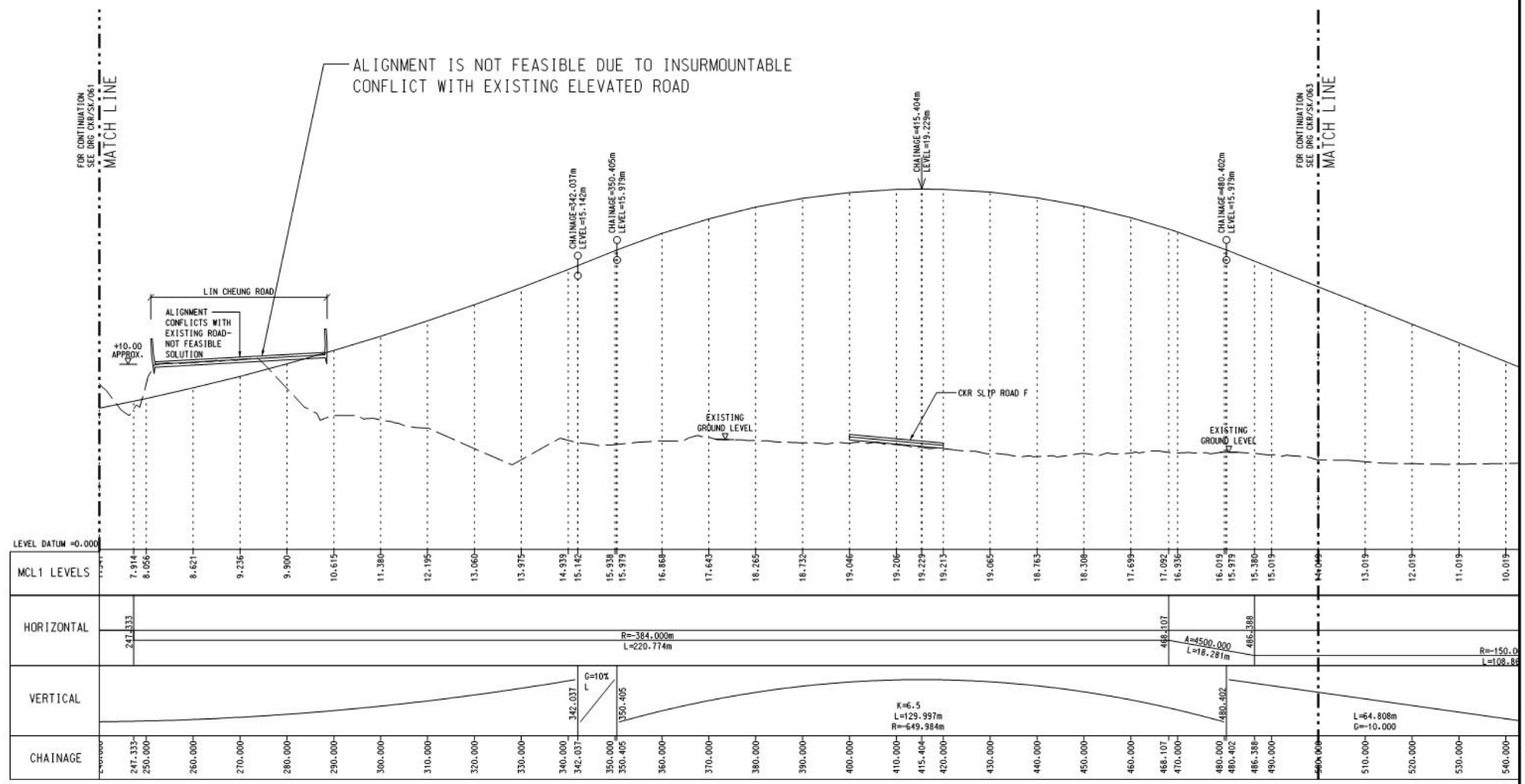

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Rev	Description	By	Date

Consultant
ARUP
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
OPTION C FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD
(SHEET 2 OF 3)

Drawing no.	Rev.
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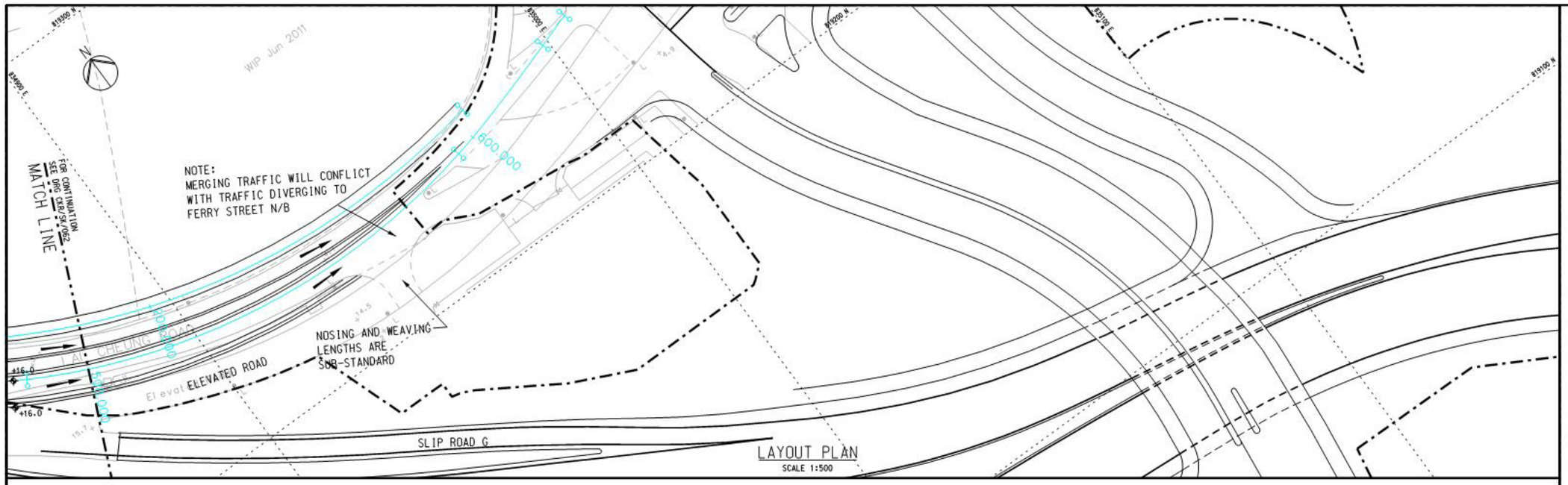

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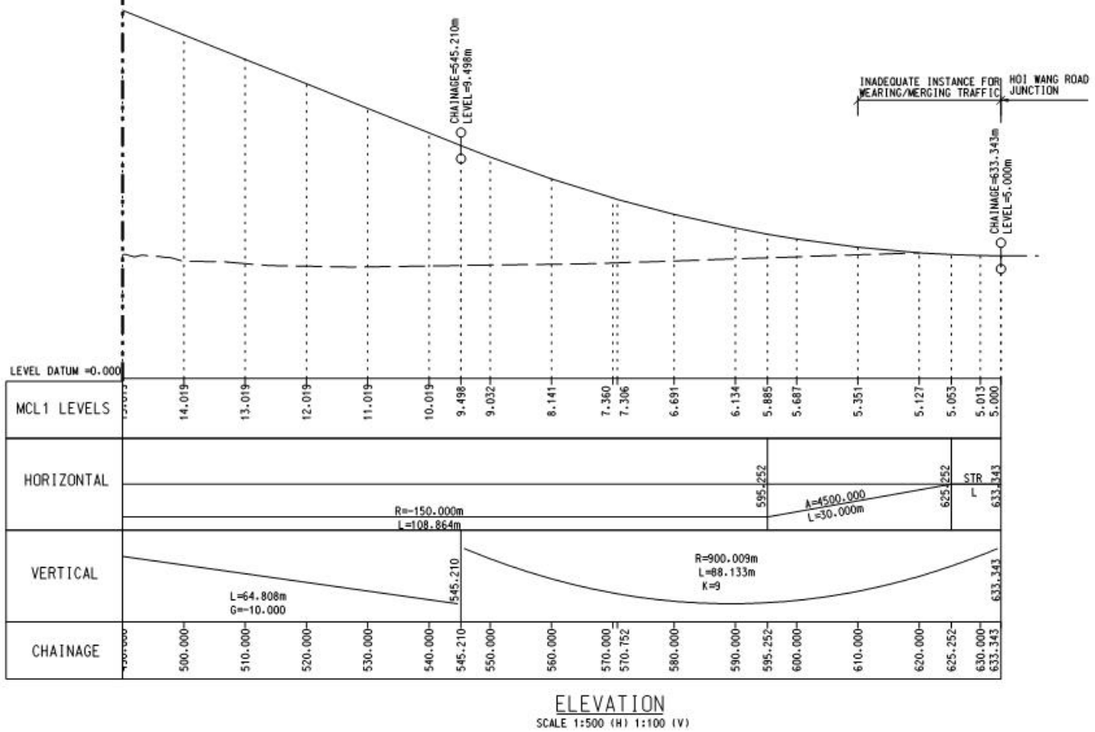

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Rev	Description	By	Date

Consultant
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Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
OPTION C FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD

(SHEET 3 OF 3)

Drawing no.	Rev.
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A	FIRST ISSUE	JL	08/12
Rev	Description	By	Date

Consultant

ARUP Mott MacDonald
Joint Venture

Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route -
Design and Construction

Drawing title

TRAFFIC DIVERSION FROM WKH AT LAI WAN INTERCHANGE TO LIN CHEUNG ROAD

Drawing no.			Rev.
CKR/SK/068			A
Drawn	Date	Checked	Approved
CW	08/12	HL	EC
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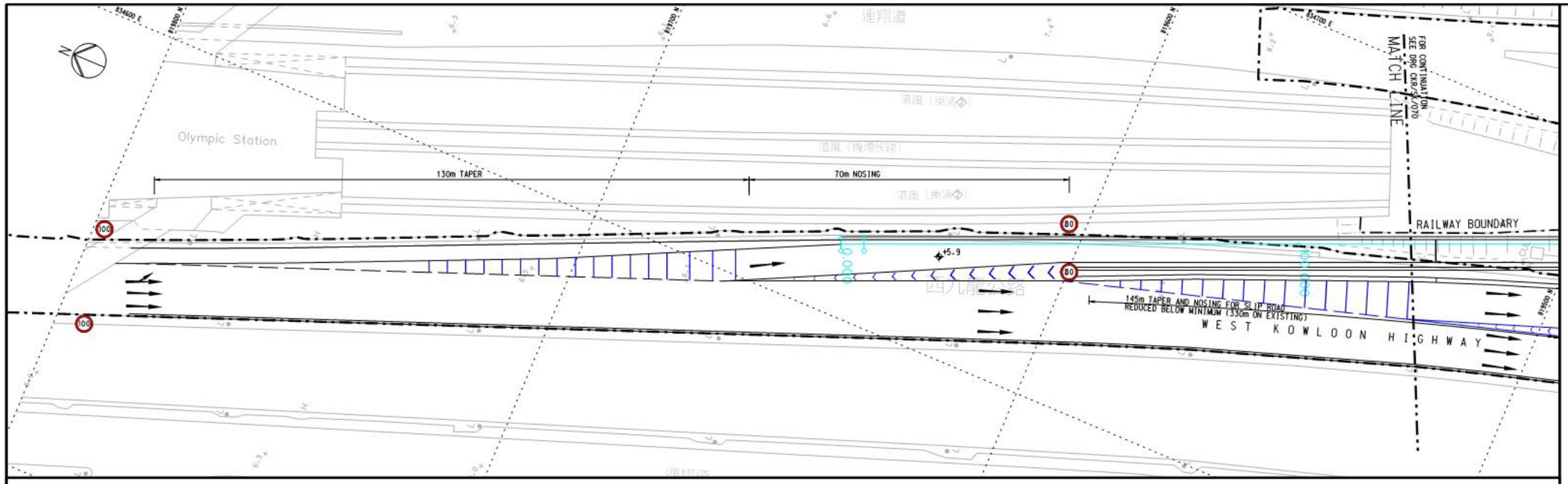

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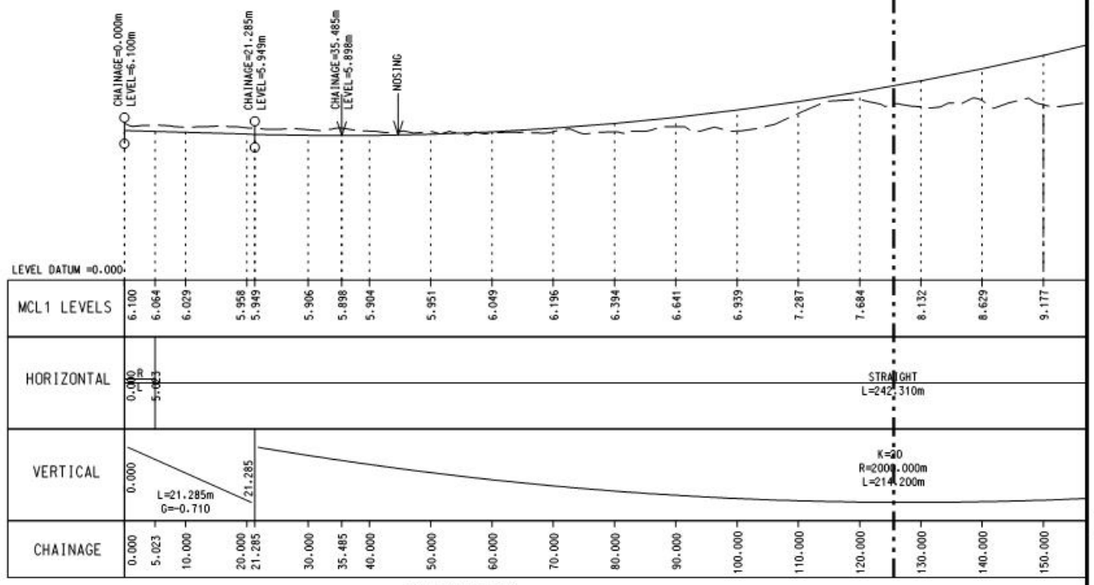

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Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
OPTION B FOR KEEPING
LINK ROAD TO
LAI CHEUNG ROAD

(SHEET 1 OF 3)

Drawing no.	Rev.
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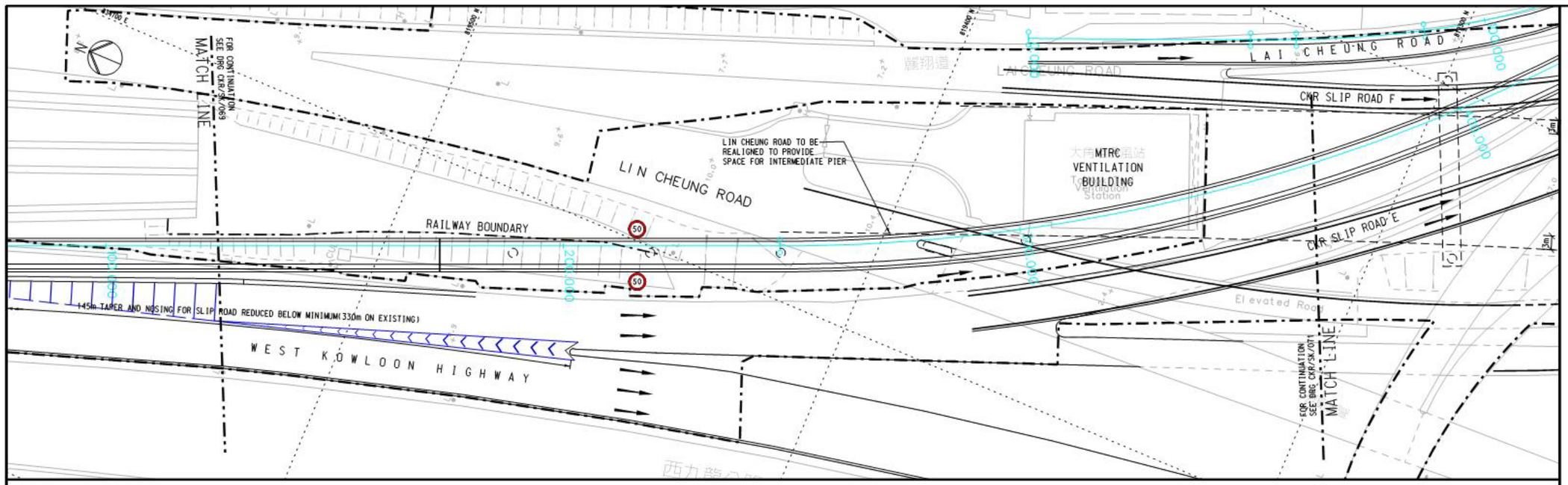

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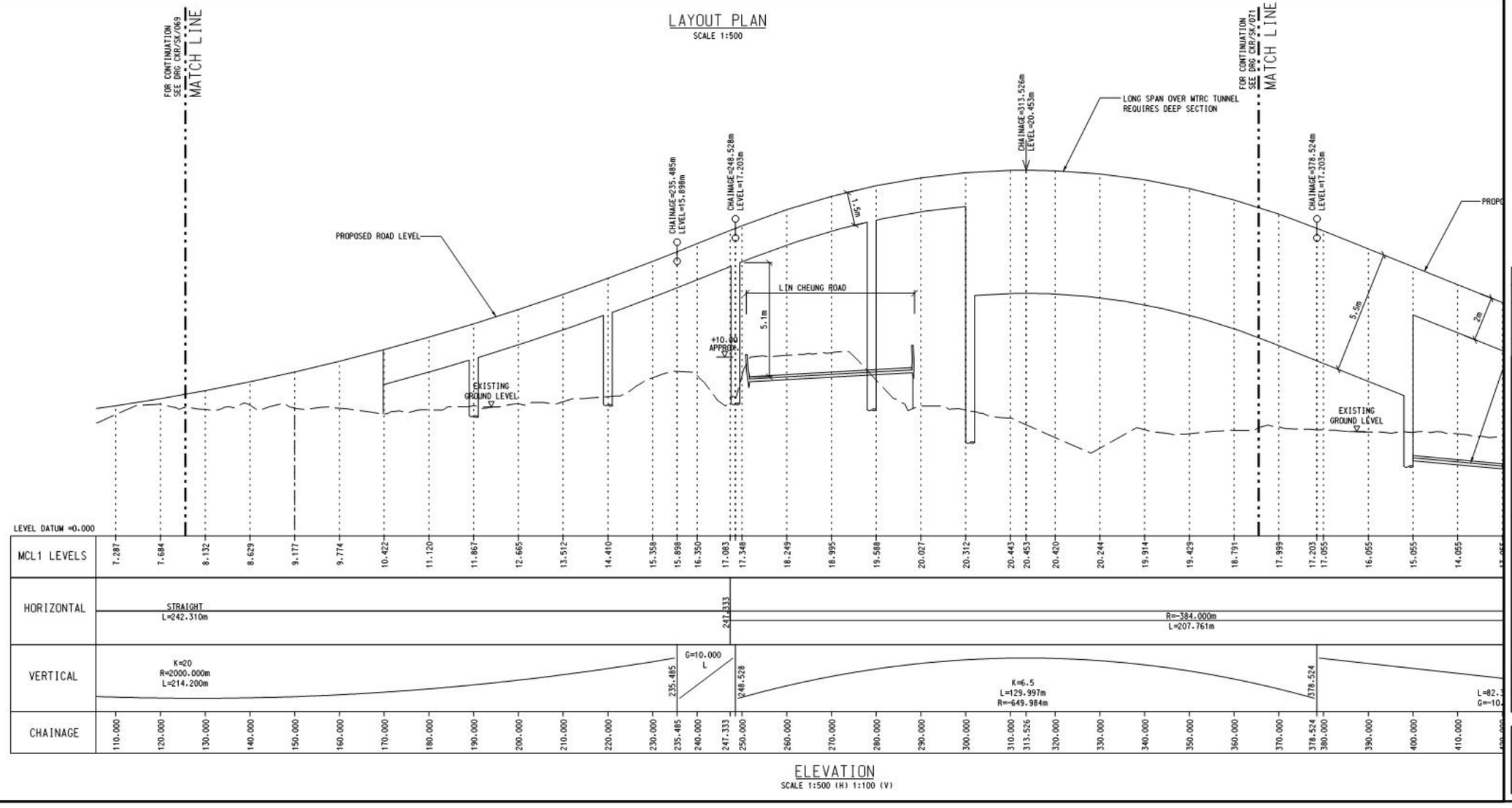

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Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
OPTION B FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD

(SHEET 2 OF 3)

Drawing no.	Rev.
CKR/SK/070	A

Drawn	Date	Checked	Approved
KKL	06/12	HL	FC

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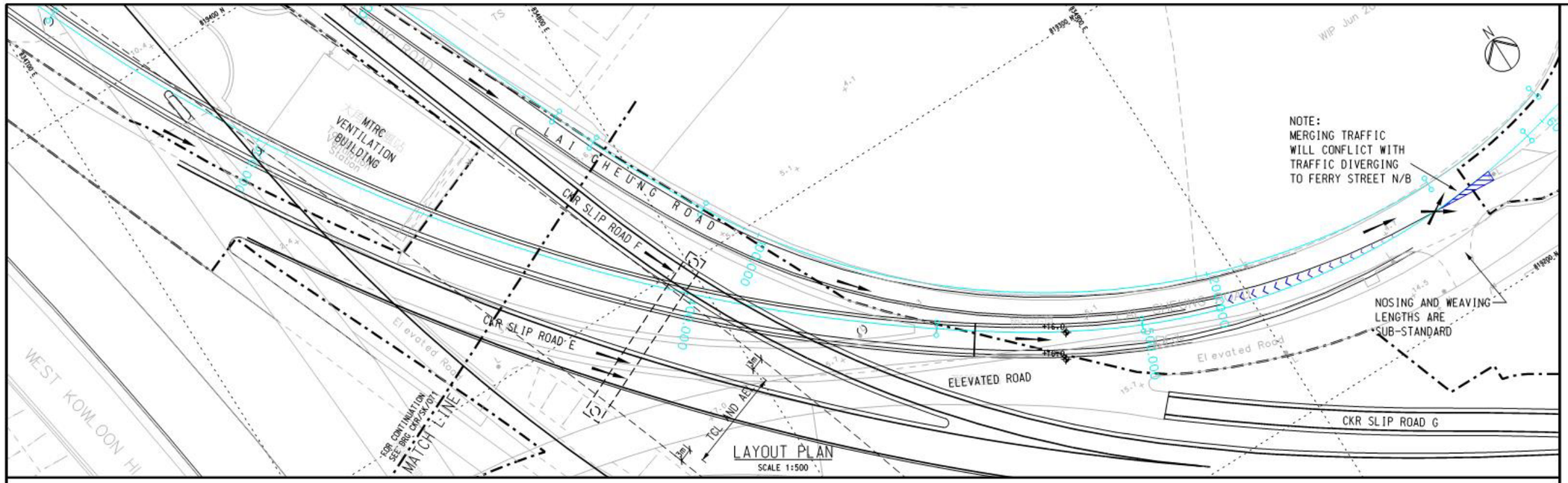

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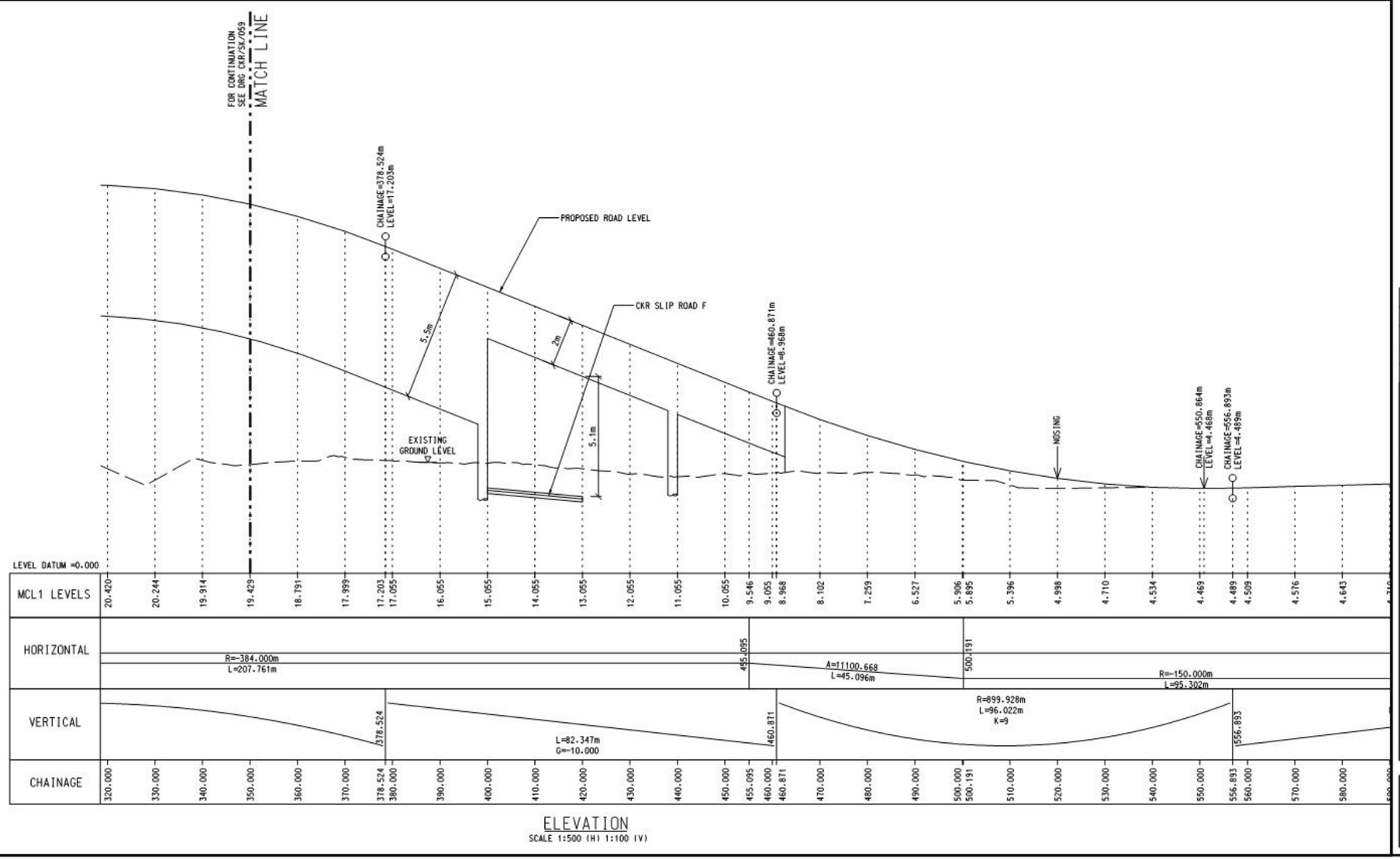

ELEVATION
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Rev	Description	By	Date

Consultant
ARUP
Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
OPTION B FOR KEEPING
LINK ROAD TO
LAI CHEUNG ROAD

(SHEET 3 OF 3)

Drawing no.	Rev.
CKR/SK/071	A

Drawn	Date	Checked	Approved
KKL	06/12	HL	FC

Scale	Status
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Filename : J:\28778-CKR\SKETCH\Sk069-71\CKR-SK-071.dgn

Technical Note on Review of Lai Cheung Road Link

1. Background:

There is at present a connection from the southbound carriageway of the West Kowloon Highway (WKH) to Lai Cheung Road, as indicated on **Drawing CKR/SK/056**. At the previous preliminary design stage of this project under Agreement CE 56/2008 (HY) it had been identified that there was no feasible way to maintain this connection within this heavily constrained area whilst providing the required connections to the Central Kowloon Route (CKR), and therefore the connection was deleted. An alternative route involving diverting traffic from the WKH at the Lai Wan Interchange to Lin Cheung Road and thence to Lai Cheung Road was agreed as the solution to this issue. The alternative route is indicated on **Drawing CKR/SK/068**.

Subsequently the AMMJV was instructed under Agreement CE 43/2010 (HY) to review the situation to ascertain whether there is really no feasible solution to the issue of reproviding the connection at the Yau Ma Tei Interchange. A summary of the extensive investigation carried out by AMMJV is presented below.

2. Existing Constraints:

The existing constraints are summarised below:

1. West Kowloon Highway (WKH) is at 100km/h posted speed limit
2. Lai Cheung Road (LCR) is at 50km/h posted speed limit – a safe transition is required between the two speed limits.
3. The WKH southbound is aligned close to the MTRC Tung Chung/ Airport Express Lines (TCL/ AEL) which are in a depressed U-trough/ cut and cover tunnel section.
4. The existing southbound two lane slip road from the WKH to Lin Cheung Road/ Lai Cheung Road is retained and used as the connection to the Central Kowloon Route/ Lin Cheung Road – the number of traffic lanes on this connection may not be reduced to accommodate an additional connection. Further, modification
5. The existing southbound Lin Cheung Road flyover forms both a horizontal and a vertical constraint to the construction of any additional slip road.
6. The existing MTRC Tai Kok Tsui Ventilation Building forms both a horizontal and a vertical constraint to the construction of any additional slip road.
7. The existing slip road from WKH northbound to Ferry Street/ Waterloo Road forms both a horizontal and a vertical constraint to the construction of any additional slip road.
8. The existing southbound connection from Lin Cheung Road to Lai Cheung Road forms both a horizontal and a vertical constraint to the construction of any additional slip road.

3. Alignment Development:

The alignment options that have been developed in the course of this additional investigation are summarised below:

3.1 The southbound Lin Cheung Road flyover is a major constraint vertically. Passing under the flyover is not an option owing to the congestion of existing and future at-grade roads. Three options to pass over the flyover have been developed. Option A requires a single span over the flyover, which in turn requires a span length of approximately 60m owing to the large skew angle, and a connection to the existing elevated road. Options B and C propose an intermediate pier at the bifurcation of the Lin Cheung Road, involving the partial demolition and reconstruction of the road to create the necessary space, but reducing the span length to approximately 30m, and connecting to the existing at-grade Lai Cheung Road.

3.2 Option A (Drawing CKR/SK/035 and 036) is developed on the principle of avoiding any impact on the existing slip road to Lin Cheung Road/ future CKR. There is limited space between the WKH carriageway on one side and the MTRC TCL/ AEL lines on the other side, therefore the start of the Option A slip road taper is only approximately 270m before the point where the road must cross over the elevated Lin Cheung Road. This option requires a construction depth for the slip road of approximately 3m for the 60m span over the elevated Lin Cheung Road, giving a carriageway level of +18mPD at the west edge of the flyover. To elevate to this level from the WKH requires a gradient of 15% and vertical curve K-values of 9.0 (sag) and 6.5 (crest). Furthermore the diverge taper length from the WKH and the nosing length are less than the required minimum, it would be necessary to reduce the speed limit from 100km/h to 50km/h at the diverge nosing, and there would remain a level difference of approximately 1m between the two adjacent carriageways at the nosing location.

This option is considered to be technically infeasible as it is not compliant with the absolute minimum standards of the TPDM and is not a safe solution from the traffic aspect.

3.3 Option B (Drawing CKR/SK/069, 070 and 071) alignment is developed on the principle of improving the vertical alignment of the Option A slip road as far as possible, which requires the extension of the start of the slip road into the existing WKH carriageway, and the introduction of an intermediate pier on the section spanning over the existing elevated Lin Cheung Road. This option reduces the span to approximately 30m and thereby reduces the estimated construction depth for the slip road to approximately 1.5m, giving a minimum carriageway level of +16.5mPD at the west edge of the flyover. To elevate to this level from the WKH requires a gradient of 10% and vertical curve K-values of 20 (sag) and 6.5 (crest). The K-values are the absolute minimum for a 80km/h and 50km/h design speed respectively, and the speed limit is proposed to reduce to 80km/h at the nosing, and then further reduce to 50km/h on the ramp section. To connect back into the at-grade Lai Cheung Road requires a sag curve K-value of 9 which is an absolute minimum for 50km/h.

The diverge taper from the WKH extends into the existing diverge taper for the future CKR/ existing Lin Cheung Road. The diverge taper for the two-lane CKR/ Lin Cheung Road would be reduced by approximately 200m with only 145m remaining for the diverge taper and nosing which compromises the safe and efficient operation of this slip road. The merge taper of the slip road with the existing LCR is only 60m from the junction with Hoi Wang Road which is substandard in length and does not allow for any weaving of traffic between this road and the existing link from Lin

Cheung Road to Lai Cheung Road, which compromises the traffic movements to Hoi Wang Road and Ferry Street.

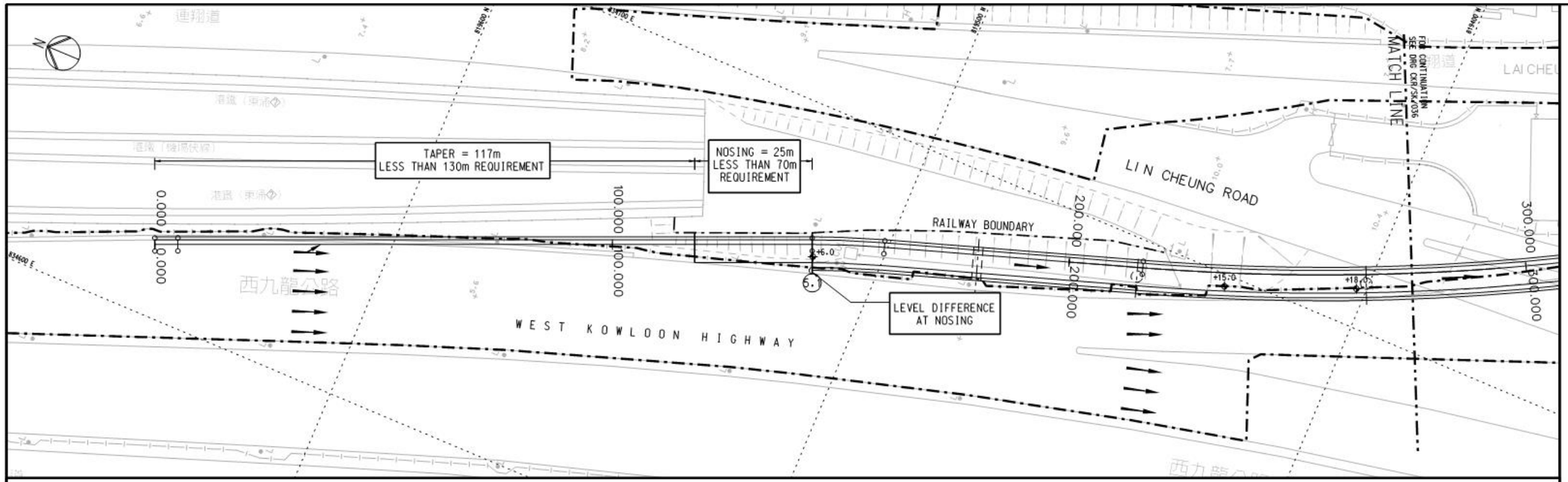
This option is considerde to be technically infeasible as it creates a sub-standard diverge for the existing slip road from WKH to Lin Cheung Road/ future CKR, creates a sub-standard merge/ weave with the existing LCR, and therefore potentially creates traffic safety issues at both locations for the diverging/ merging and weaving traffic flows.

3.4 Option C (Drawing CKR/SK/061, 062 and 063) alignment is developed on a similar principle of the above Option B in terms of the vertical profile, but retaining the existing numbers of traffic lanes on the WKH so as not to negatively impact the traffic flow on either the WKH or the CKR/ Lin Cheung Road slip road. Similar to Option B this requires reducing the design speed to 80km/h on the diverge from the WKH, then further reducing to 50km/h on the ramp. Using the same absolute minimum vertical curve K-values and absolute maximum gradient results in an alignment that is not possible to elevate over the existing elevated Lin Cheung Road. This option is therefore technically infeasible as it is not possible to clear the existing elevated road.

3.5 Review of Alignment of WKH (as requested by TD) As noted above, the existing WKH is a major constraint to the devlopment of a feasible solution to this issue owing to its level and profile relative to the proposed crossing over the elevated Lin Cheung Road. The possibility of reprofiling the WKH to achieve a more favourable alignment for the slip road has been considered, however it is found that the WKH is constrained vertically by the footbridge at Olympic Station to the north, and the Lin Cheung Road bridge at the south. Raising the profile of the WKH by introducing a sag curve and an upward gradient south of the Olympic Station footbridge, with the constraint of having to ramp down again in order to pass under the Lin Cheung Road bridge, would result in a marginal increase in the level of the proposed slip road at the diverge location and would therefore not be of significant benefit to the alignment of the proposed slip road, whilst resulting in massive disruption to traffic flows along the WKH during the reconstruction process.

Conclusion:

A number of options have been developed to reprovide the existing connection from WKH to LCR, other than those illustrated here, and no option has been found to be technically feasible. The preferred solution is therefore to use the previously proposed diversion from the WKH to Lin Cheung Road at the Lai Wan Interchange, whilst those traffic that do not exit the WKH at this location may alternatively use the existing/ planned road network, with traffic diverted through the Lin Cheung Road to Jordan Road, thence north along the Road D1/ Hoi Wang Road to Lai Cheung Road/ Ferry Street/ Waterloo Road, as indicated on **Drawing CKR/SK/056**.



LAYOUT PLAN
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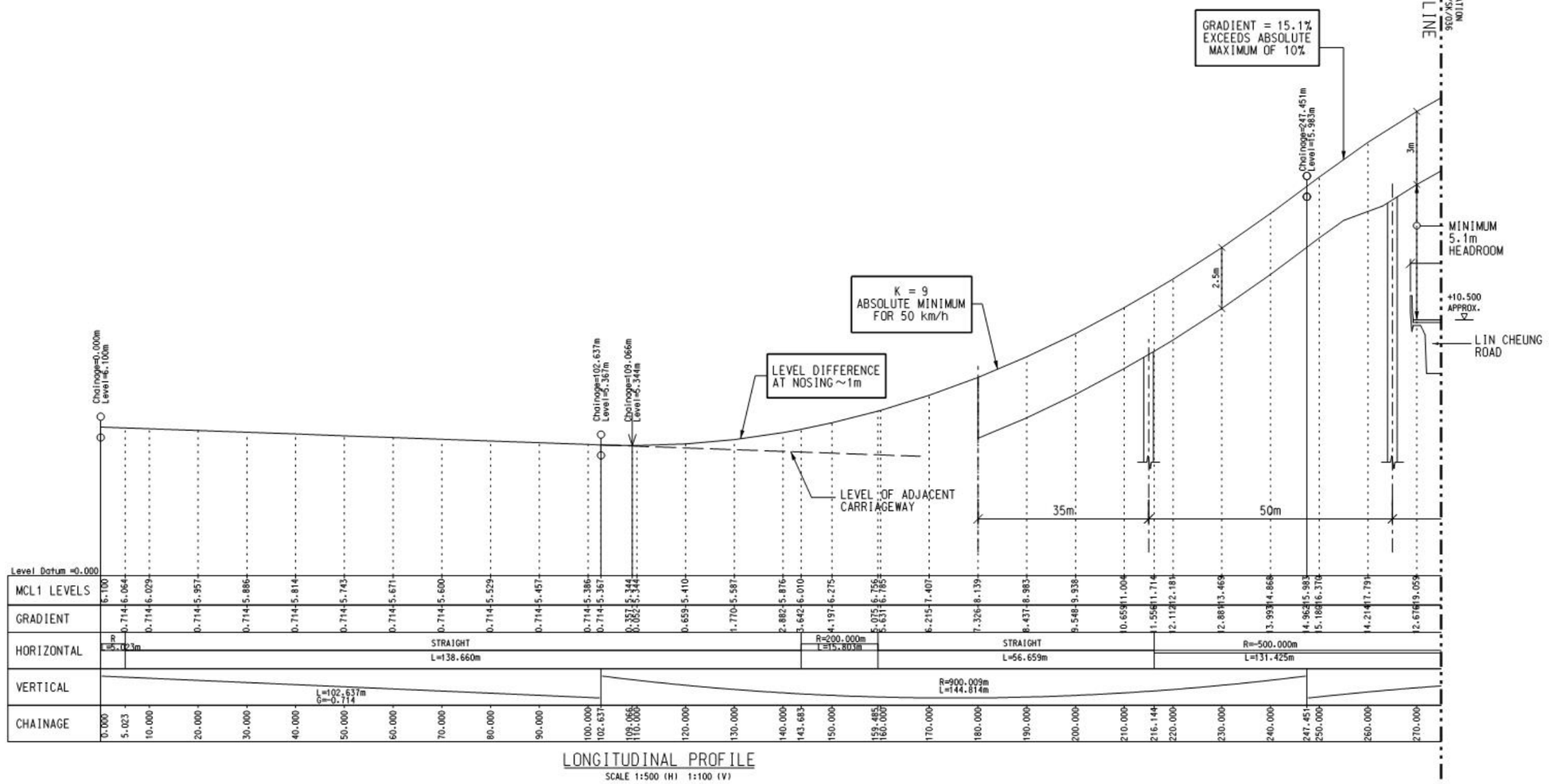

LONGITUDINAL PROFILE
SCALE 1:500 (H) 1:100 (V)

Rev	Description	By	Date

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
OPTION A FOR KEEPING
LINK ROAD TO
LAI CHEUNG ROAD

(SHEET 1 OF 2)

Drawing no.	Rev.
CKR/SK/035	A

Drawn	Date	Checked	Approved
KKL	06/12	HL	FC

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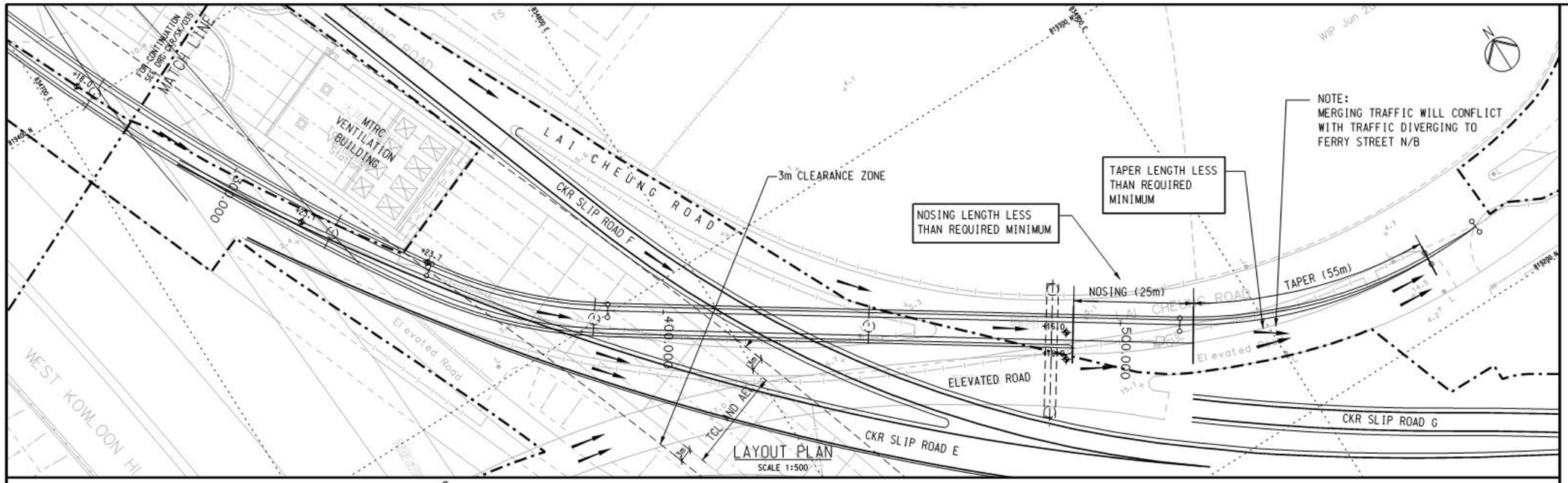

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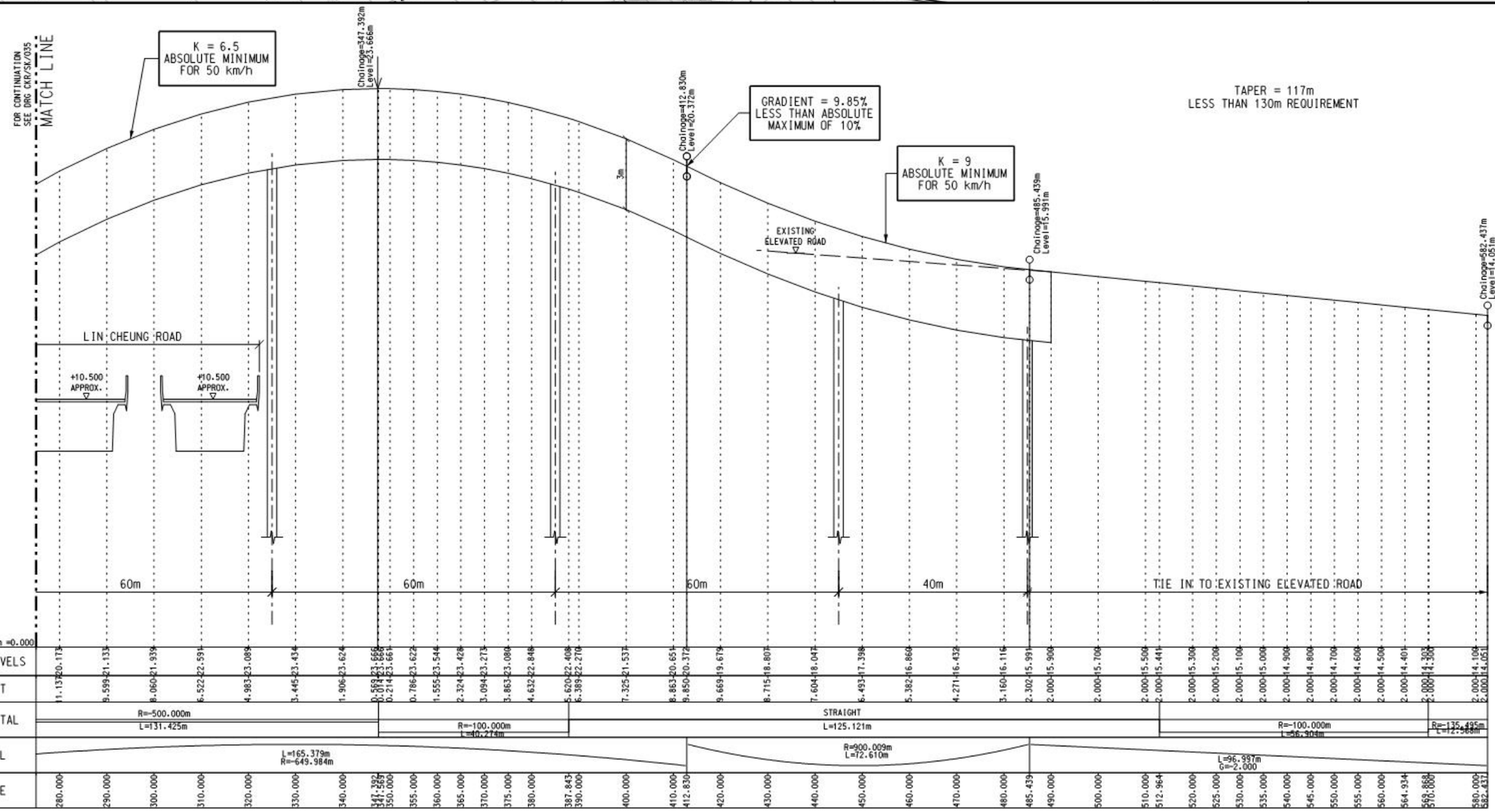

LONGITUDINAL PROFILE
SCALE 1:500 (H) 1:100 (V)

TAPER = 117m
LESS THAN 130m REQUIREMENT

Rev	Description	By	Date

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Project title
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Central Kowloon Route - Design and Construction

Drawing title
OPTION A FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD

(SHEET 2 OF 2)

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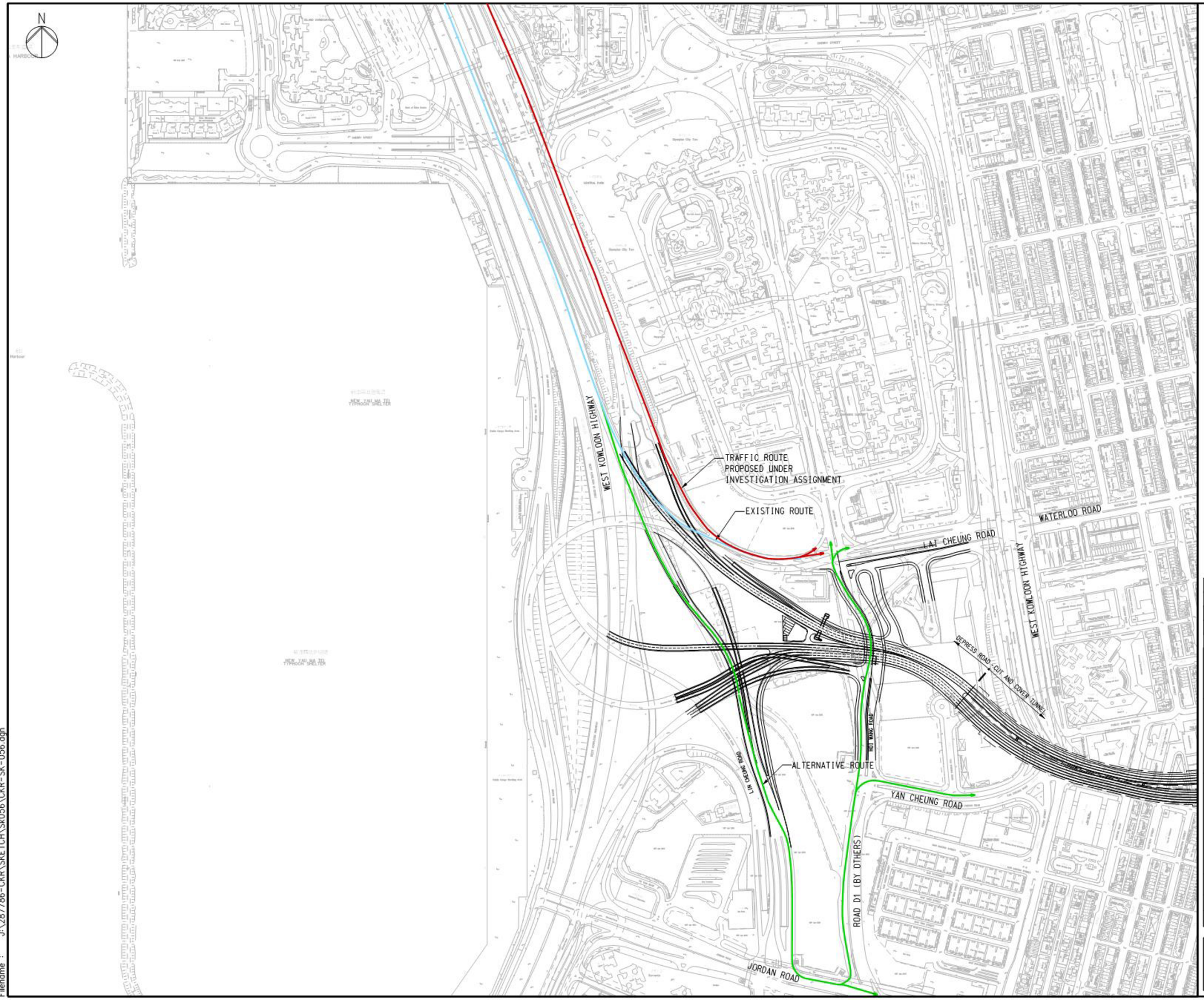

Rev	Description	By	Date
B	SECOND ISSUE	JL	01/13
A	FIRST ISSUE	JL	08/12

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Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route - Design and Construction

Drawing title

ALTERNATIVE TRAFFIC DIVERSION FROM WKH AT YMT INTERCHANGE TO LAI CHEUNG ROAD

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CKR/SK/056	B

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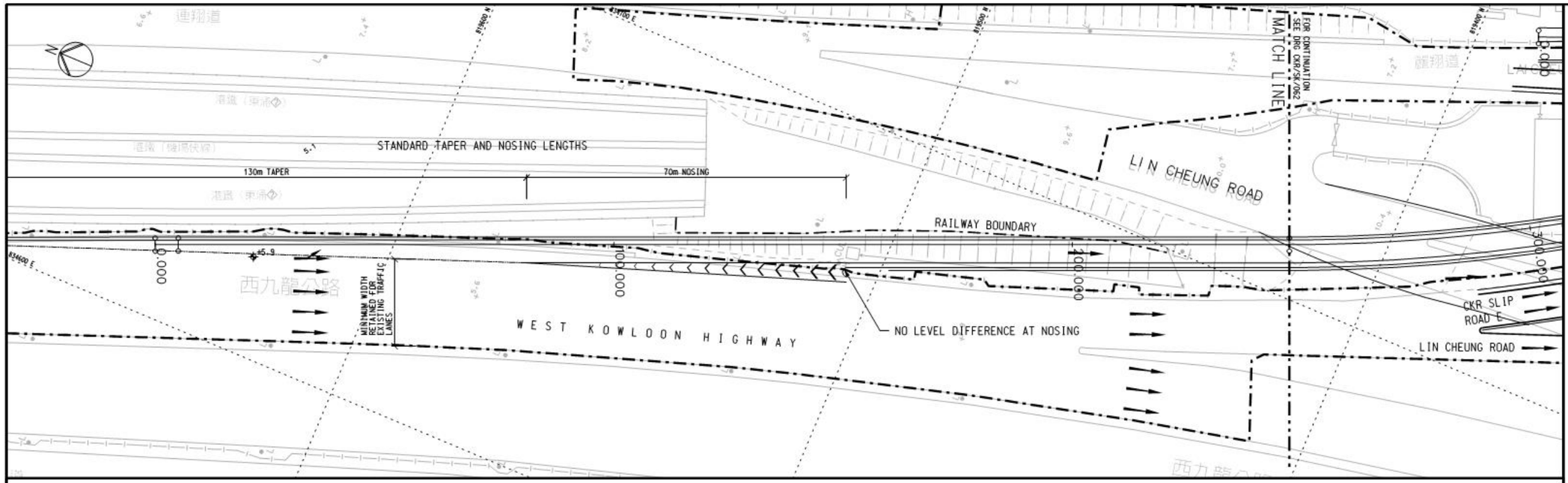
STANDARD TAPER AND NOSING LENGTHS
130m TAPER
70m NOSING
RAILWAY BOUNDARY
LIN CHEUNG ROAD
MATCH LINE
FOR CONTINUATION
SEE DRG CKR/SK/062
MINIMUM WIDTH RETAINED FOR EXISTING TRAFFIC LANES
WEST KOWLOON HIGHWAY
NO LEVEL DIFFERENCE AT NOSING
CKR SLIP ROAD E
LIN CHEUNG ROAD
834400 E
819600 N
819700 N
819800 N
819900 N
820000 N
820100 N
820200 N
820300 N
820400 N
820500 N
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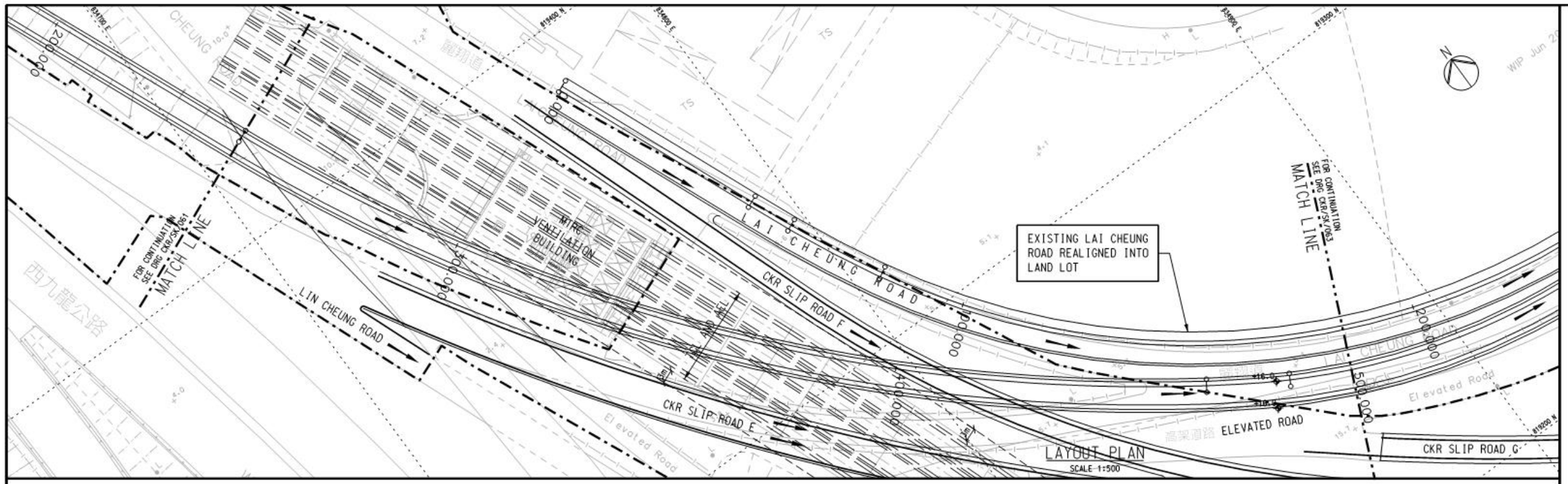
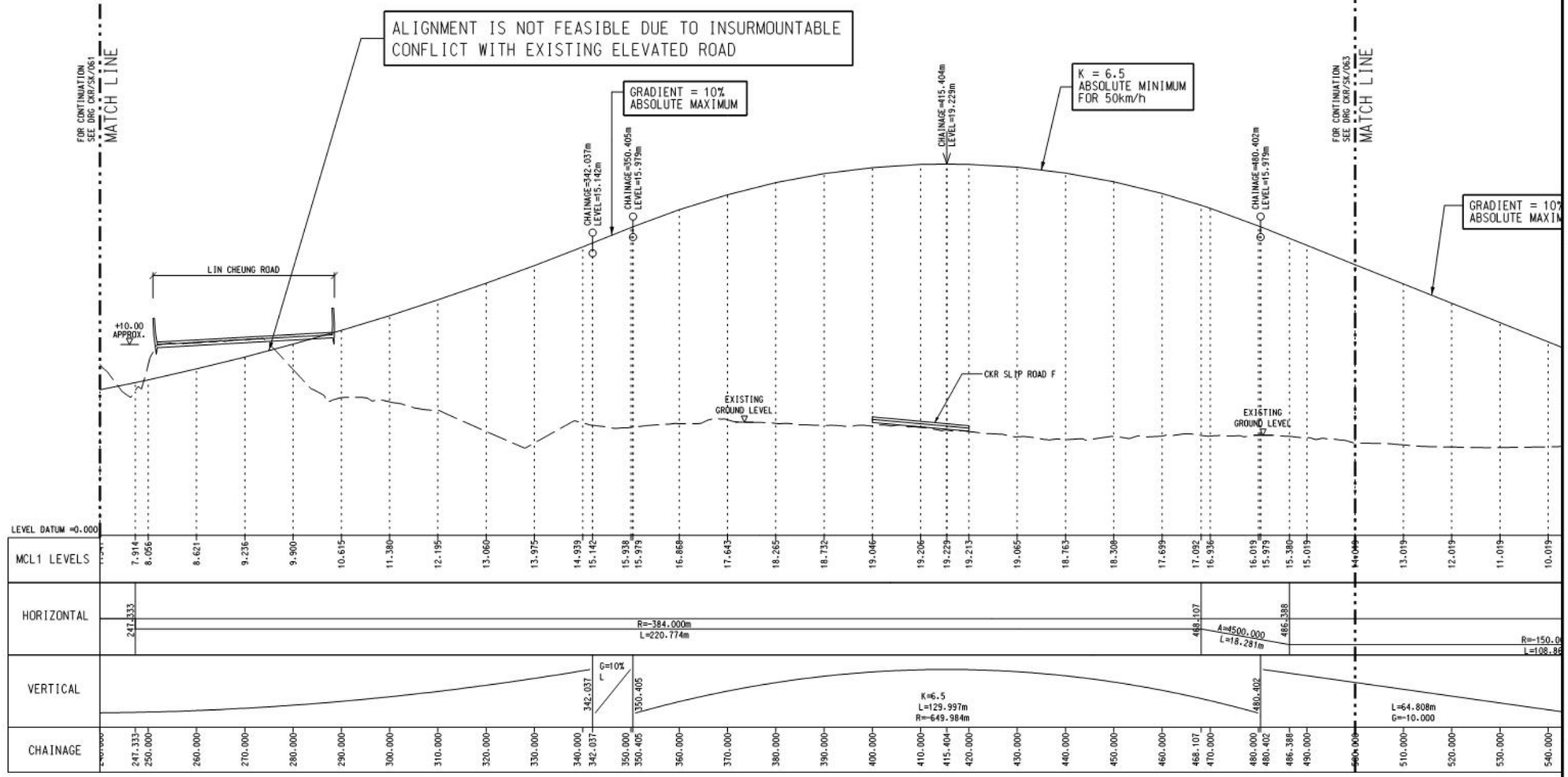
821200 N
821300 N
821400 N
821500 N



LAYOUT PLAN
SCALE 1:500



ELEVATION
SCALE 1:500 (H) 1:100 (V)

Rev	Description	By	Date

Consultant
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Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
OPTION C FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD

(SHEET 2 OF 3)

Drawing no.	Rev.
CKR/SK/062	B

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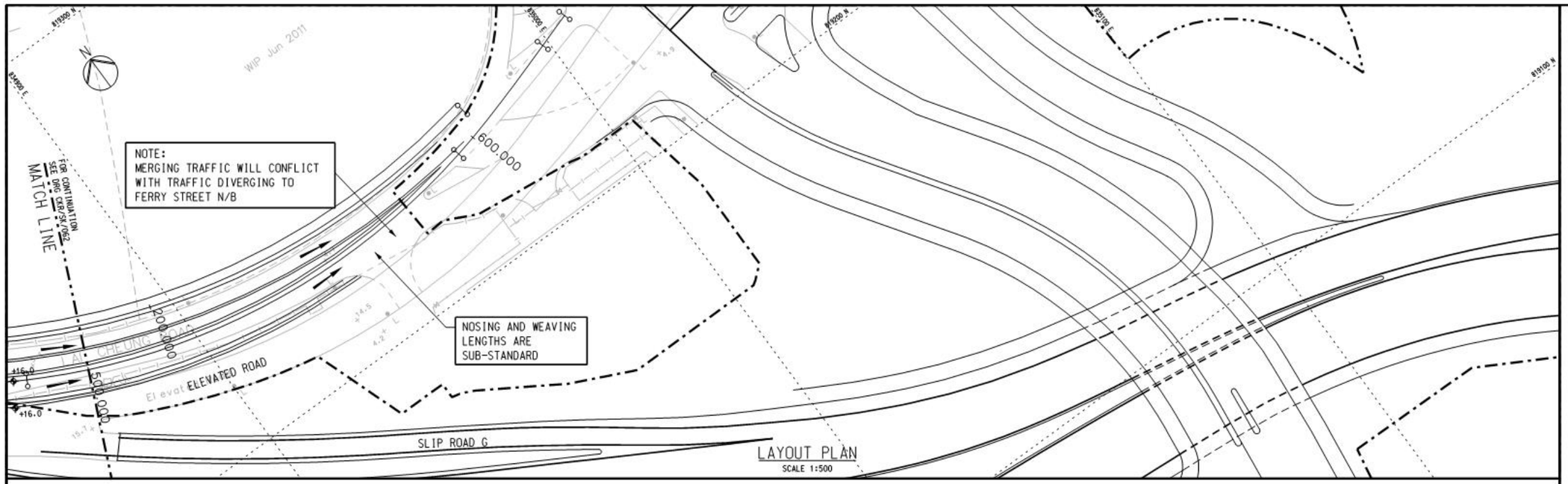
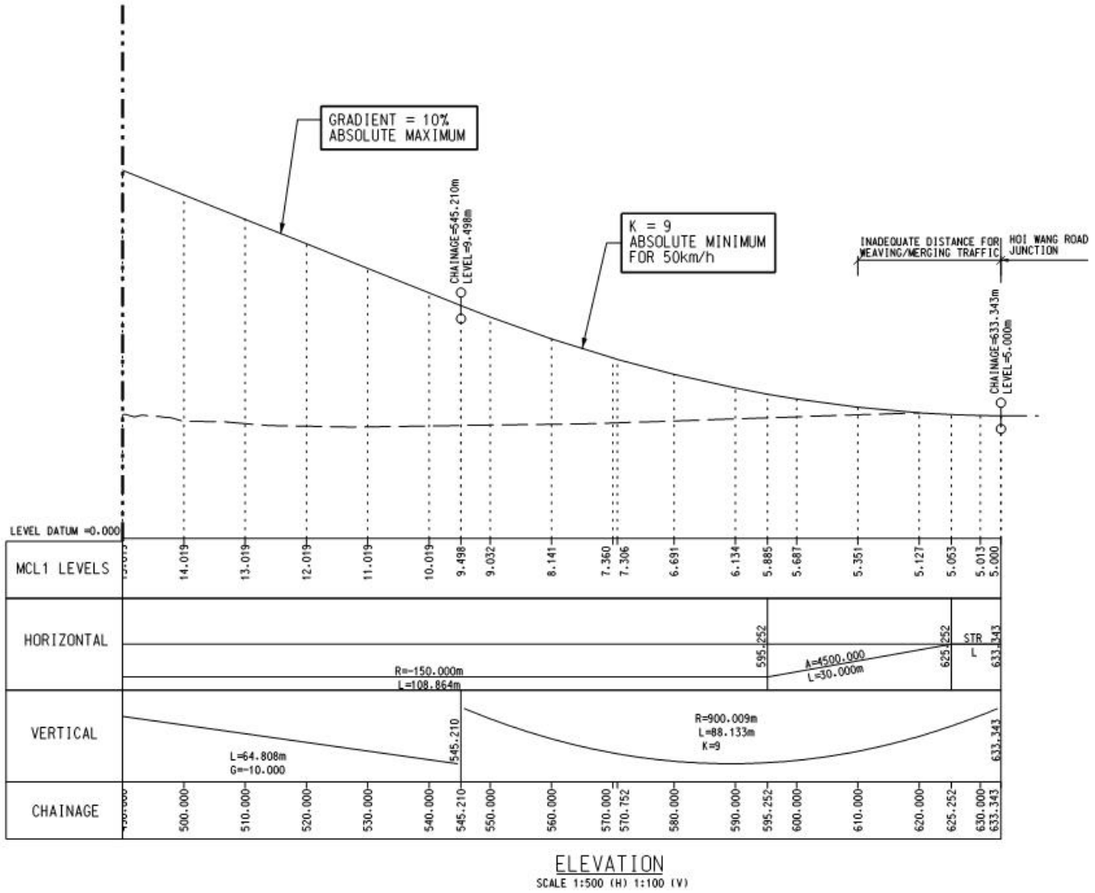


LAYOUT PLAN
SCALE 1:500

ALIGNMENT IS NOT FEASIBLE DUE TO INSURMOUNTABLE CONFLICT WITH EXISTING ELEVATED ROAD



ELEVATION
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Project title
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Central Kowloon Route - Design and Construction

Drawing title
OPTION C FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD

(SHEET 3 OF 3)

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Rev	Description	By	Date

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Project title

Agreement No. CE 43/2010 (HY)

Central Kowloon Route -
Design and Construction

Drawing title

TRAFFIC DIVERSION FROM WKH AT LAI WAN INTERCHANGE TO LIN CHEUNG ROAD

Drawing no.			Rev.
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Scale		Status	
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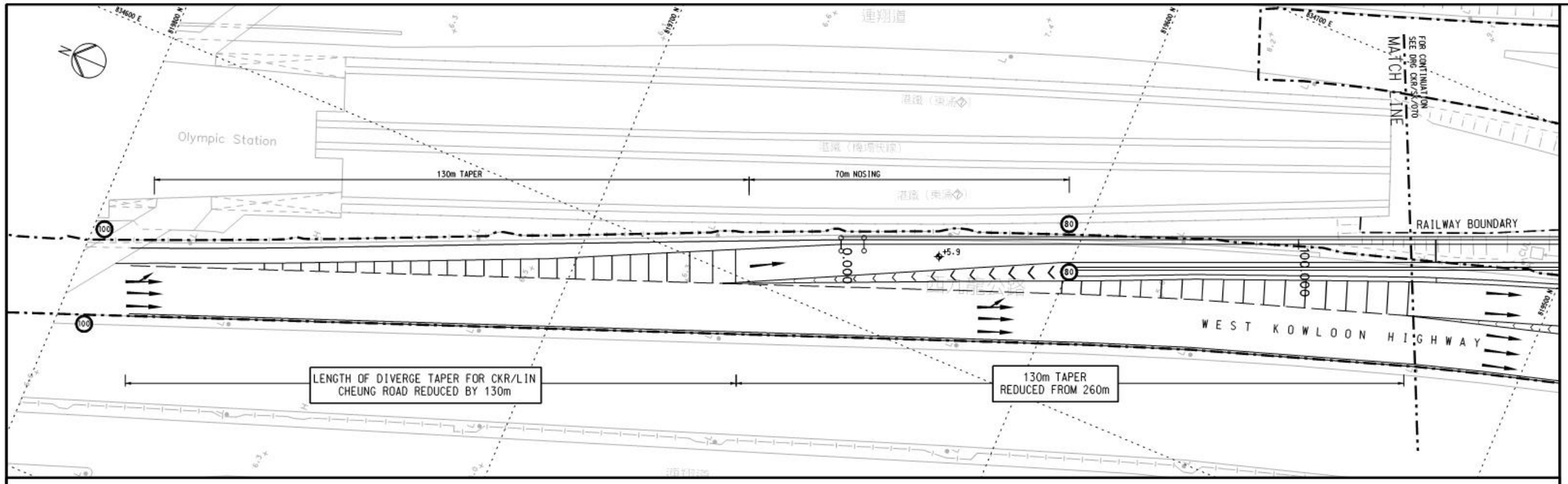
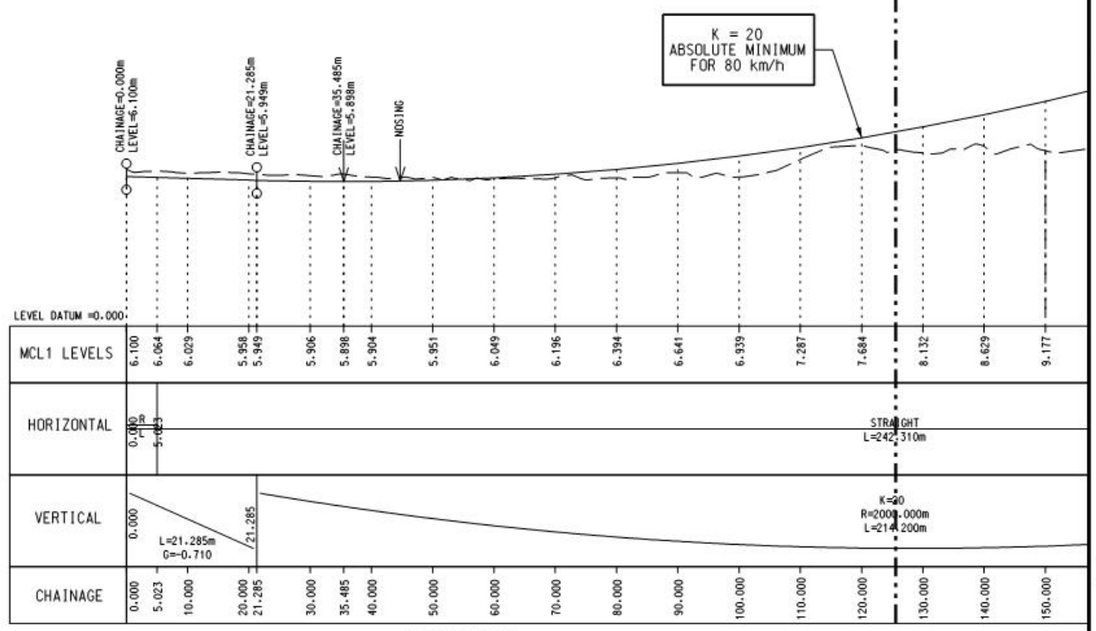


LAYOUT PLAN
SCALE 1:500

MATCH LINE
FOR CONTINUATION
SEE DRG CKR/SK/070



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Central Kowloon Route -
Design and Construction

Drawing title
OPTION B FOR KEEPING
LINK ROAD TO
LAI CHEUNG ROAD

(SHEET 1 OF 3)

Drawing no.	Rev.
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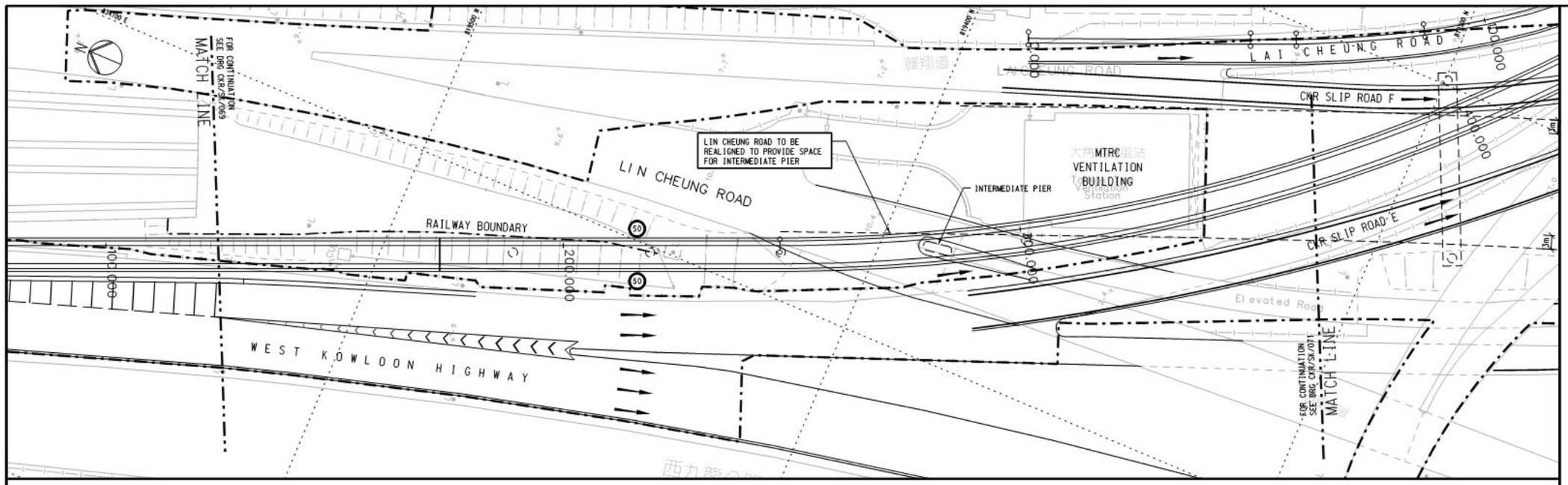

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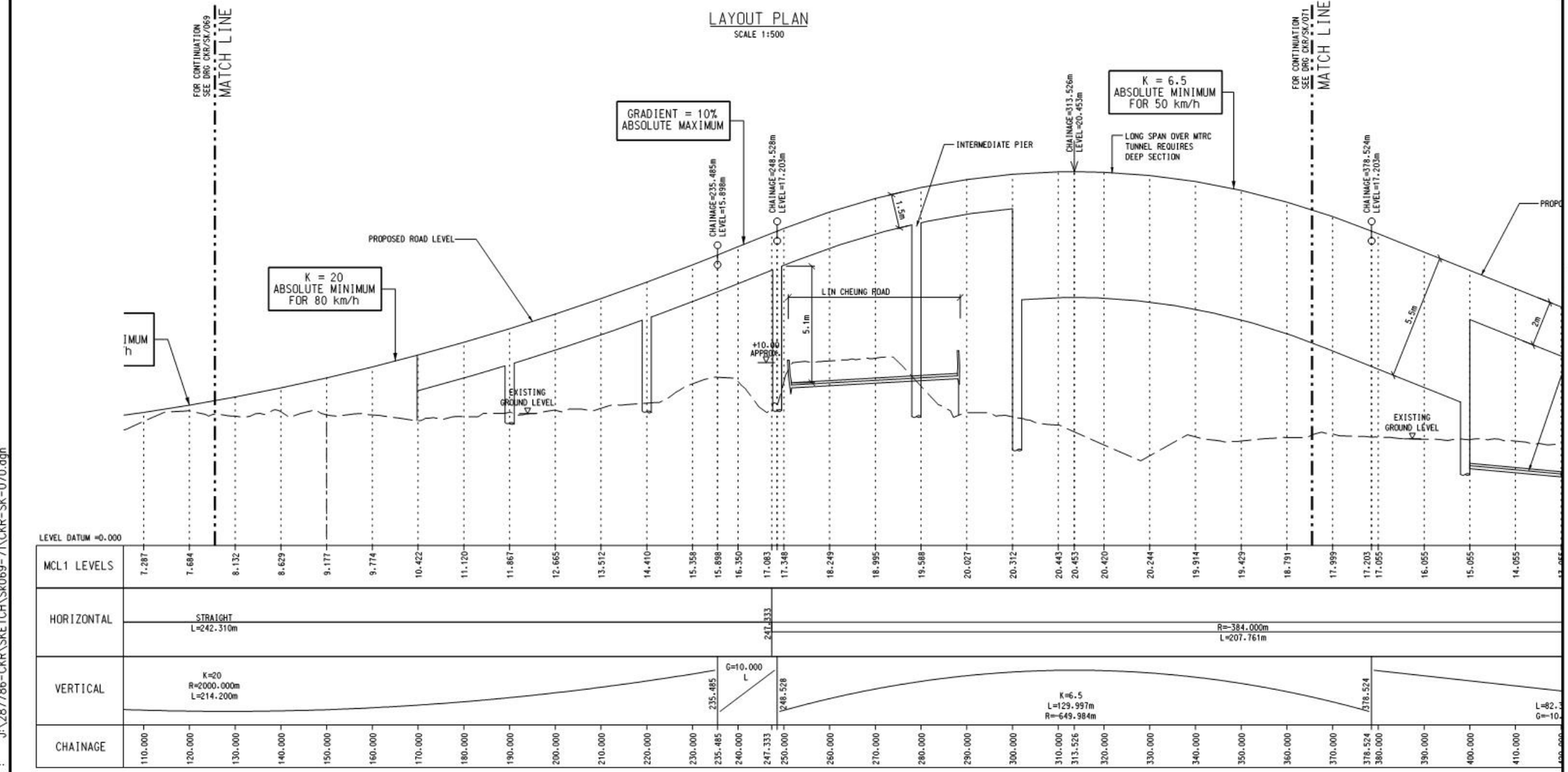

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Project title
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Central Kowloon Route - Design and Construction

Drawing title
OPTION B FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD
(SHEET 2 OF 3)

Drawing no.	Rev.
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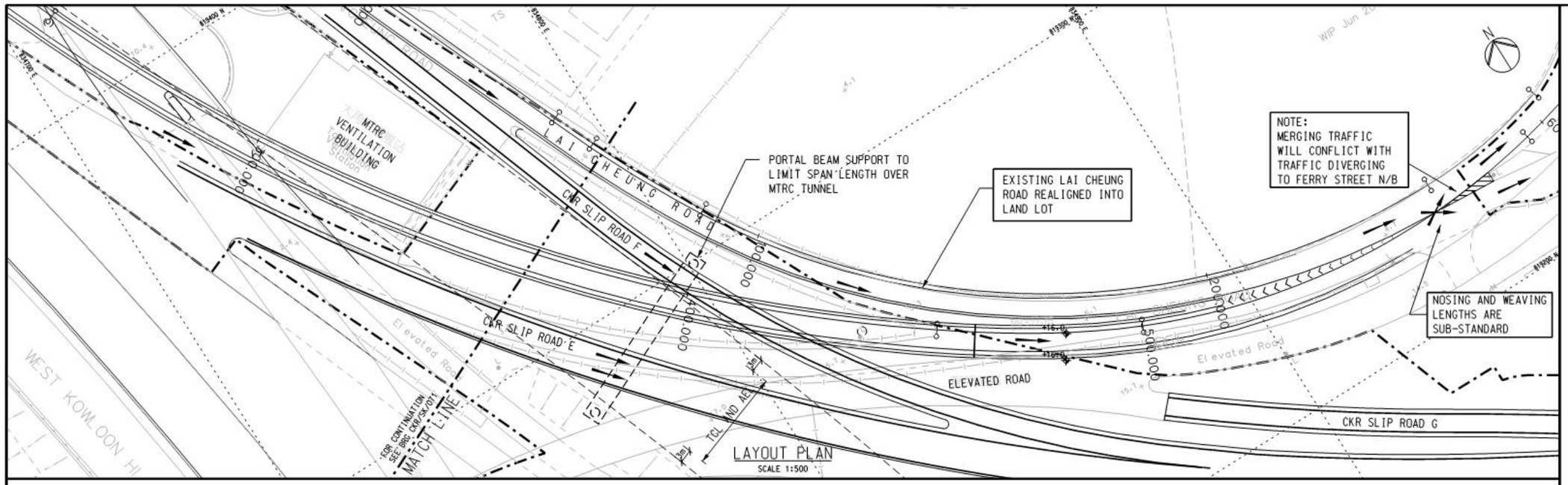

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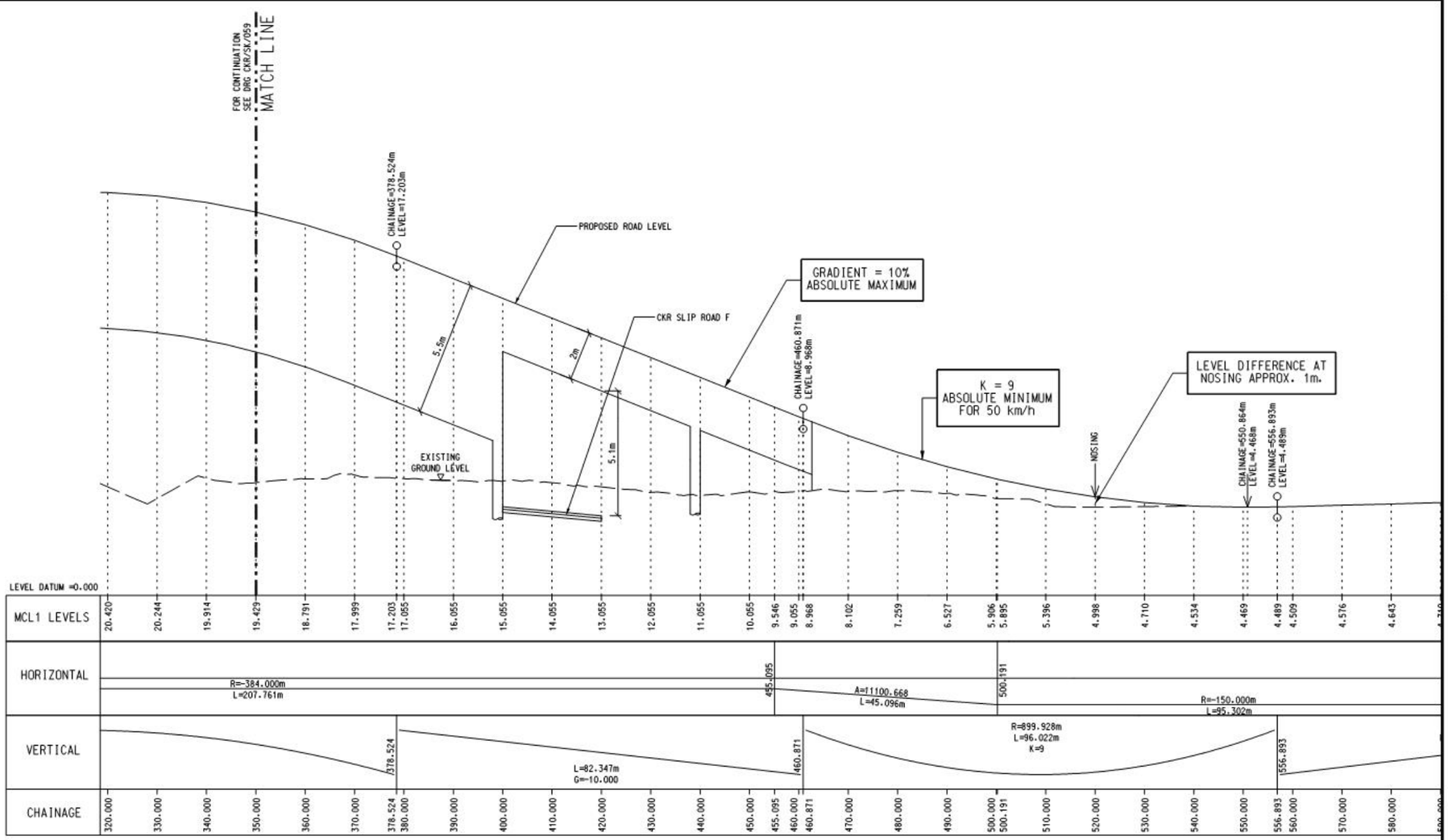

ELEVATION
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
OPTION B FOR KEEPING LINK ROAD TO LAI CHEUNG ROAD
(SHEET 3 OF 3)

Drawing no.	Rev.
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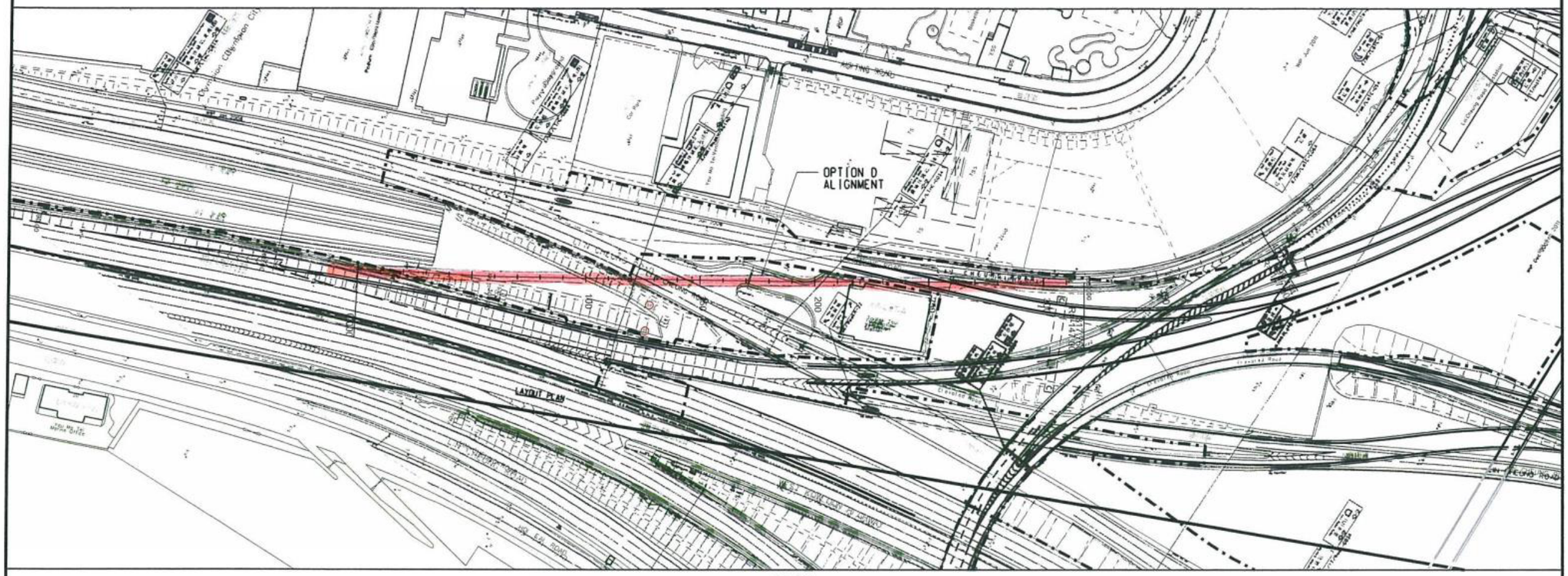

PLAN
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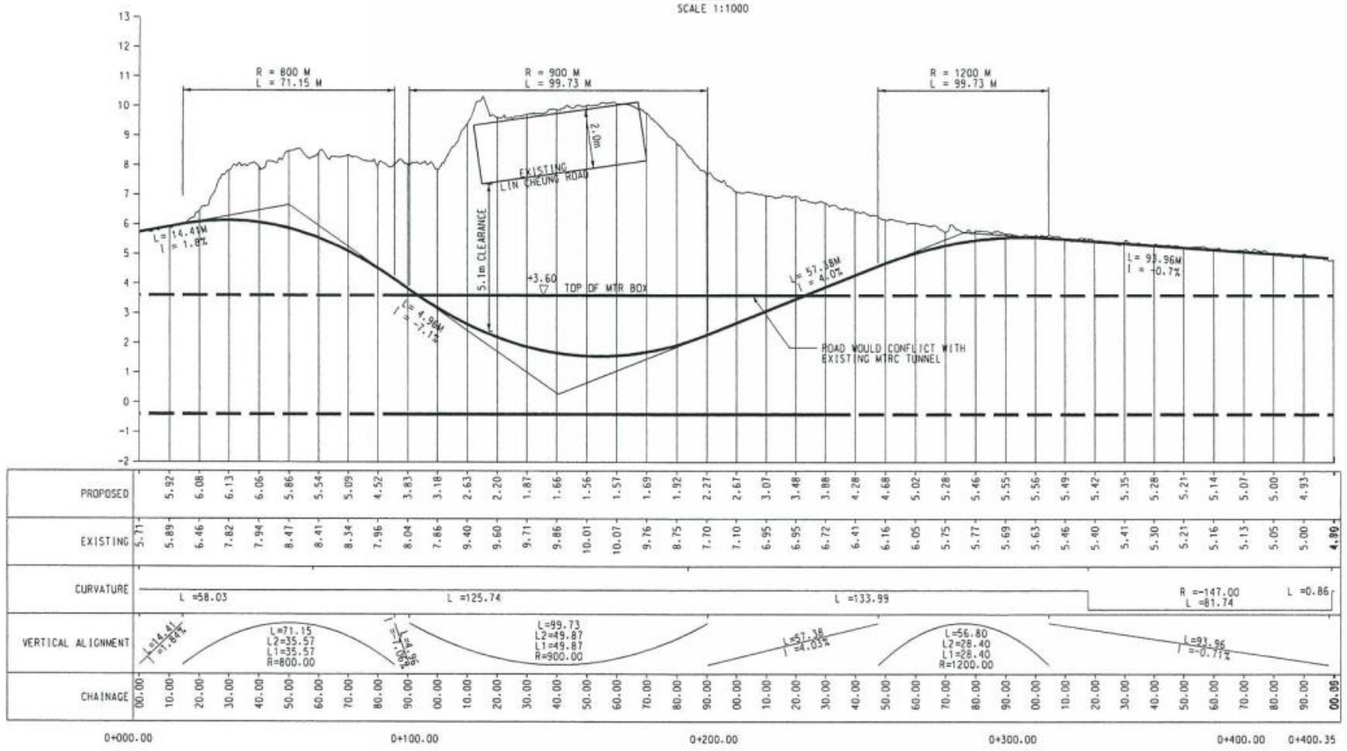

LINK ROAD TO LAI CHEUNG ROAD
SCALE 1:100/1000

0 10 20 30 40 50 m
1 : 1 000 SCALE BAR

Rev	Description	By	Date
A	FIRST ISSUE	SHL	08/12

Consultant
ARUP Mott MacDonald
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route -
Design and Construction

Drawing title
LINK ROAD TO
LAI CHEUNG ROAD OPTION D

Drawing no.	Rev.
CKR/SK/92/3001	A

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SHL	08/12	AL	HTC

Scale: AS SHOWN @ A1
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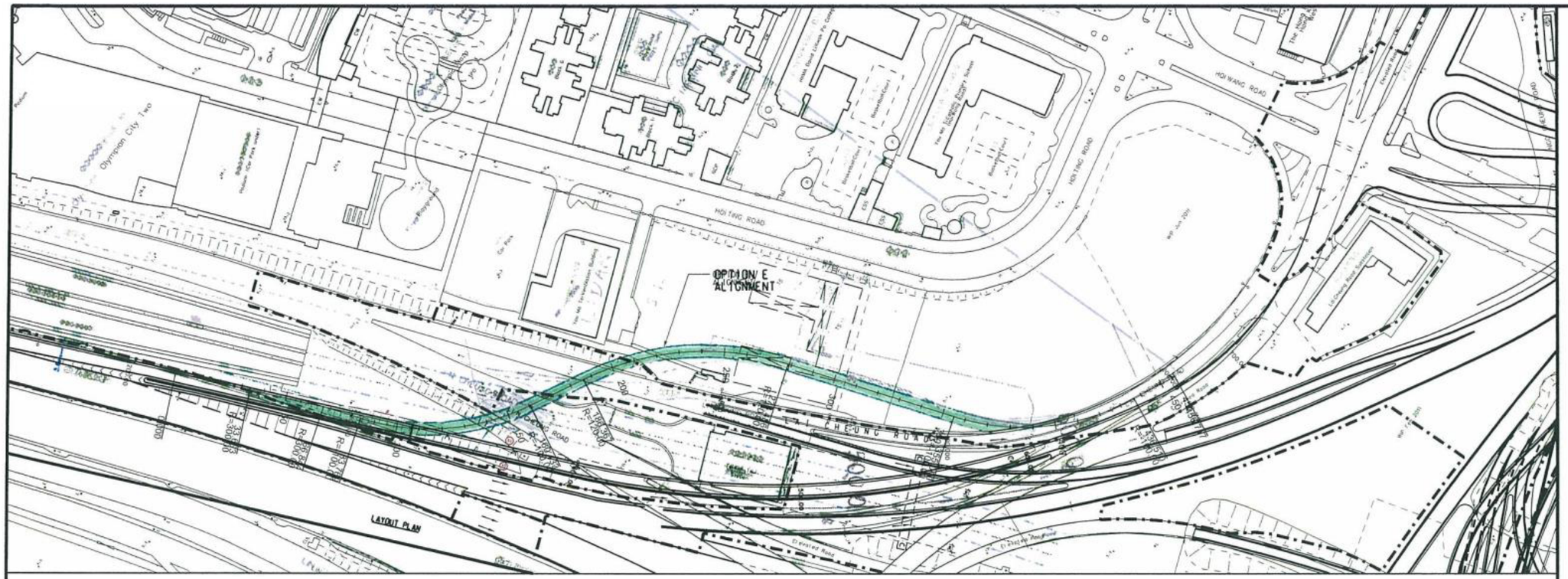

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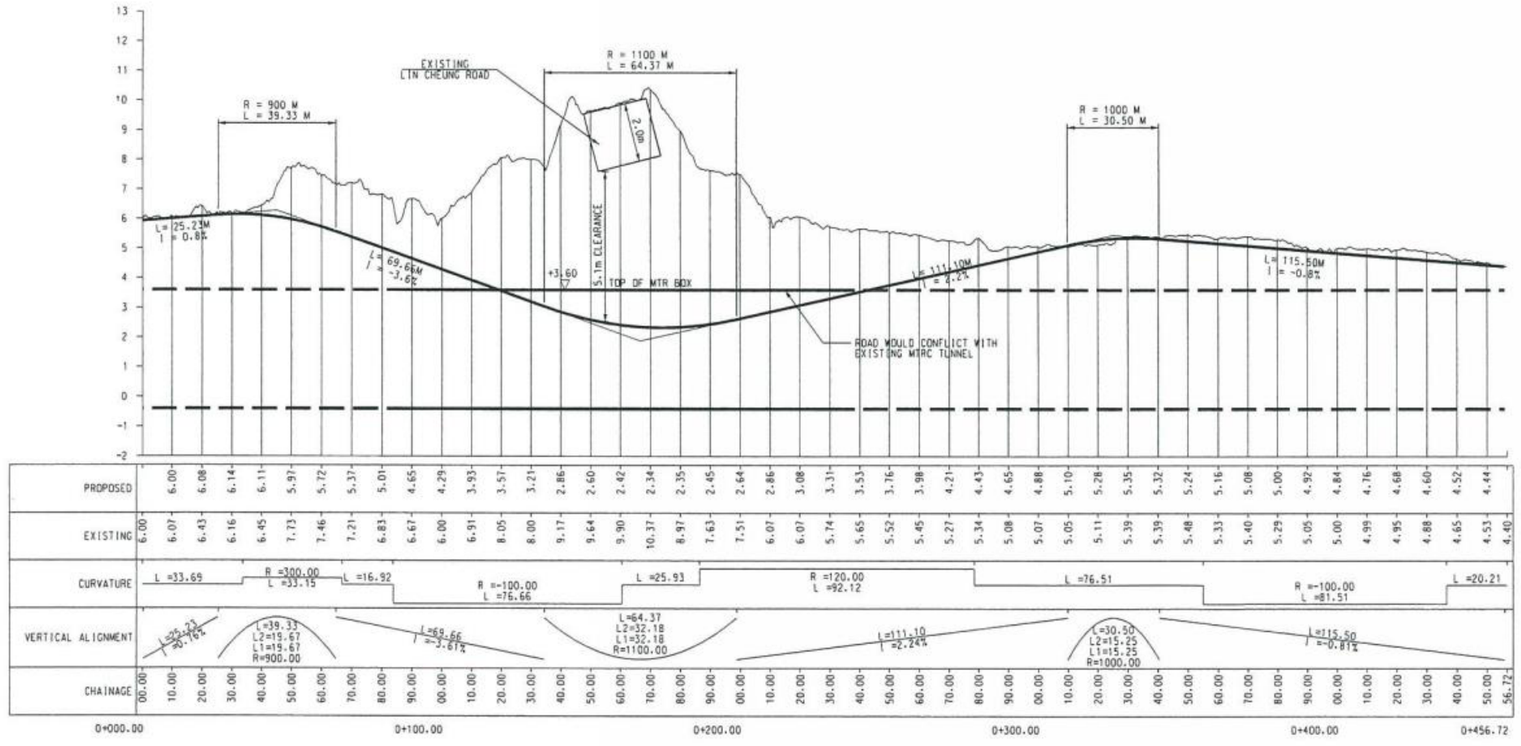

LINK ROAD TO LAI CHEUNG ROAD
SCALE 1:100/1000

0 10 20 30 40 50 m
1 : 1000 SCALE BAR

Rev	Description	By	Date
A	FIRST ISSUE	SHL	08/12

Consultant
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Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
LINK ROAD TO LAI CHEUNG ROAD OPTION E

Drawing no.	Rev.
CKR/SK/92/3002	A

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SHL	08/12	AL	HTC

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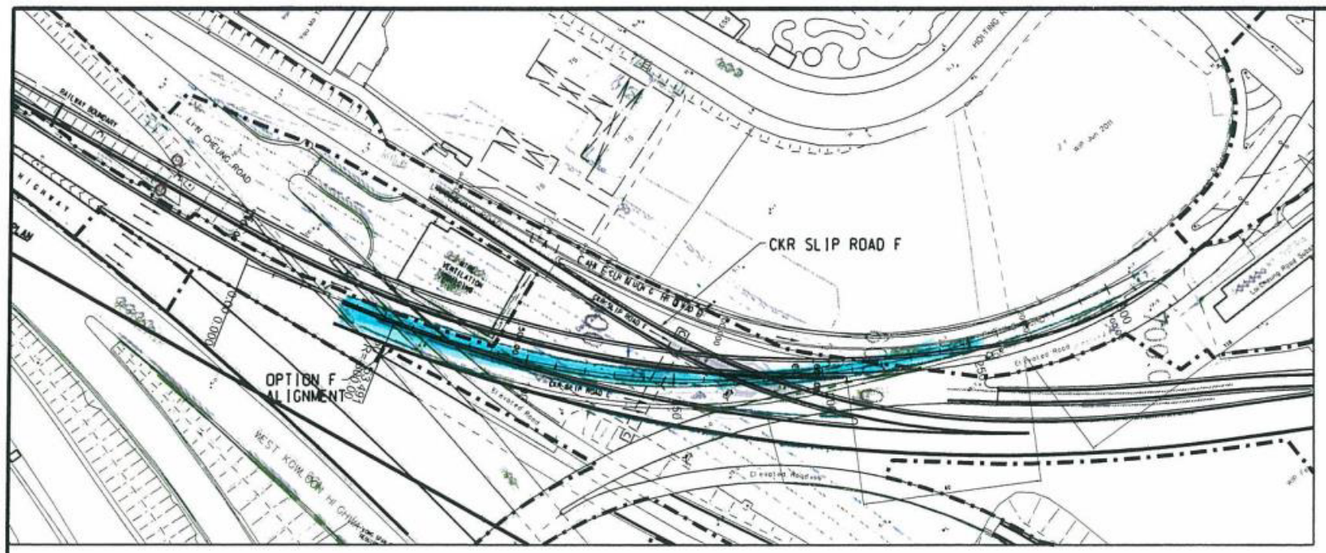
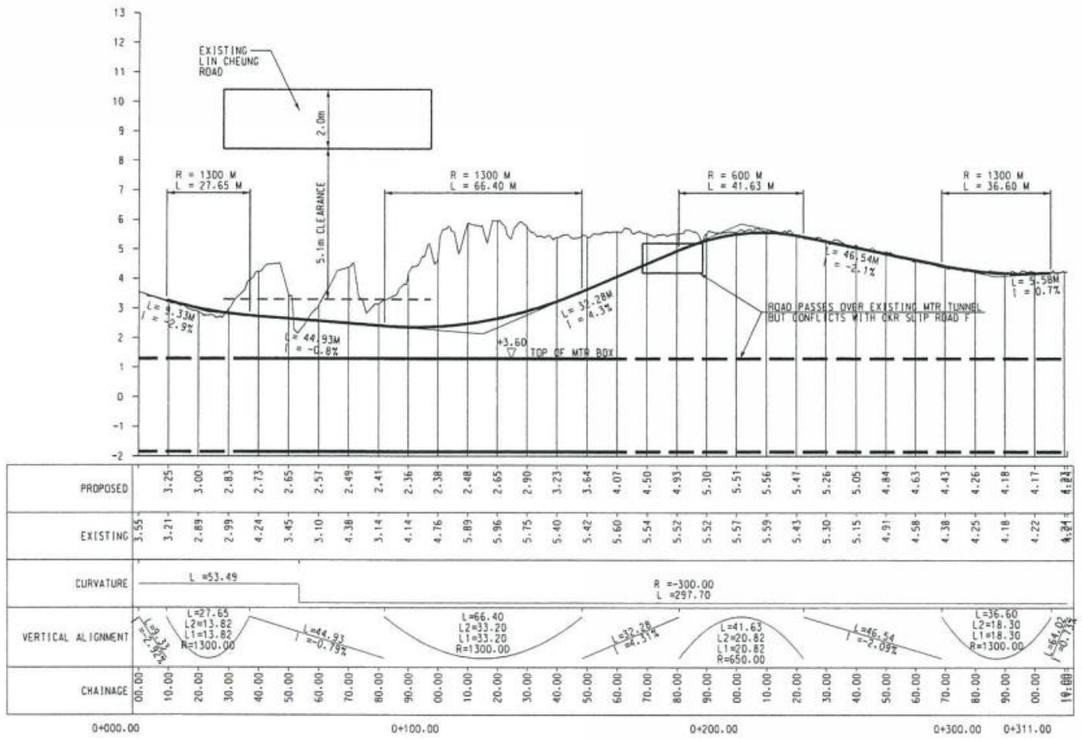
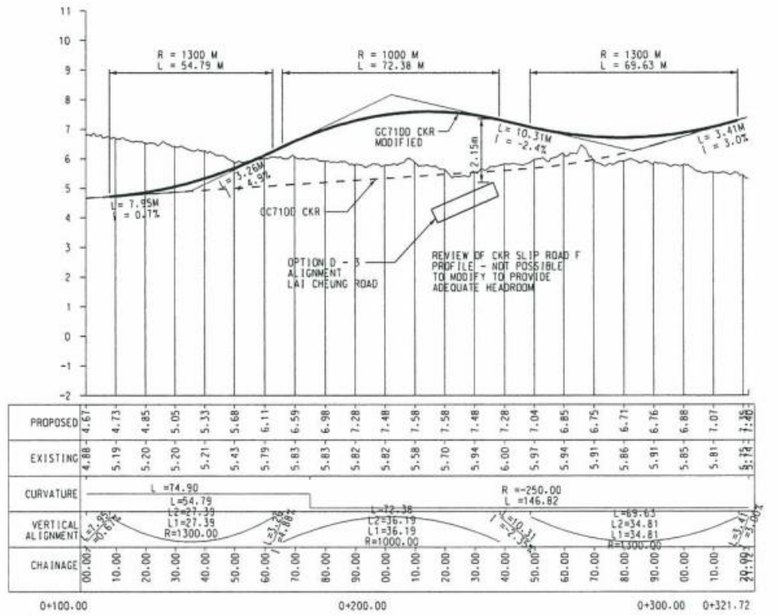


PLAN
SCALE 1:1000



LINK ROAD TO LAI CHEUNG ROAD
SCALE 1:100/1000



SLIP ROAD F LONG SECTION
SCALE 1:100/1000

0 10 20 30 40 50 m
1 : 1 000 SCALE BAR

Rev	Description	By	Date
A	FIRST ISSUE	SHL	08/12

Consultant
ARUP Mott MacDonald
Joint Venture

Project title
Agreement No. CE 43/2010 (HY)
Central Kowloon Route - Design and Construction

Drawing title
LINK ROAD TO LAI CHEUNG ROAD OPTION F

Drawing no.	Rev.
CKR/SK/92/3003	A

Drawn	Date	Checked	Approved
SHL	08/12	AL	HTC

Scale: AS SHOWN @ A1
Status: PRELIMINARY

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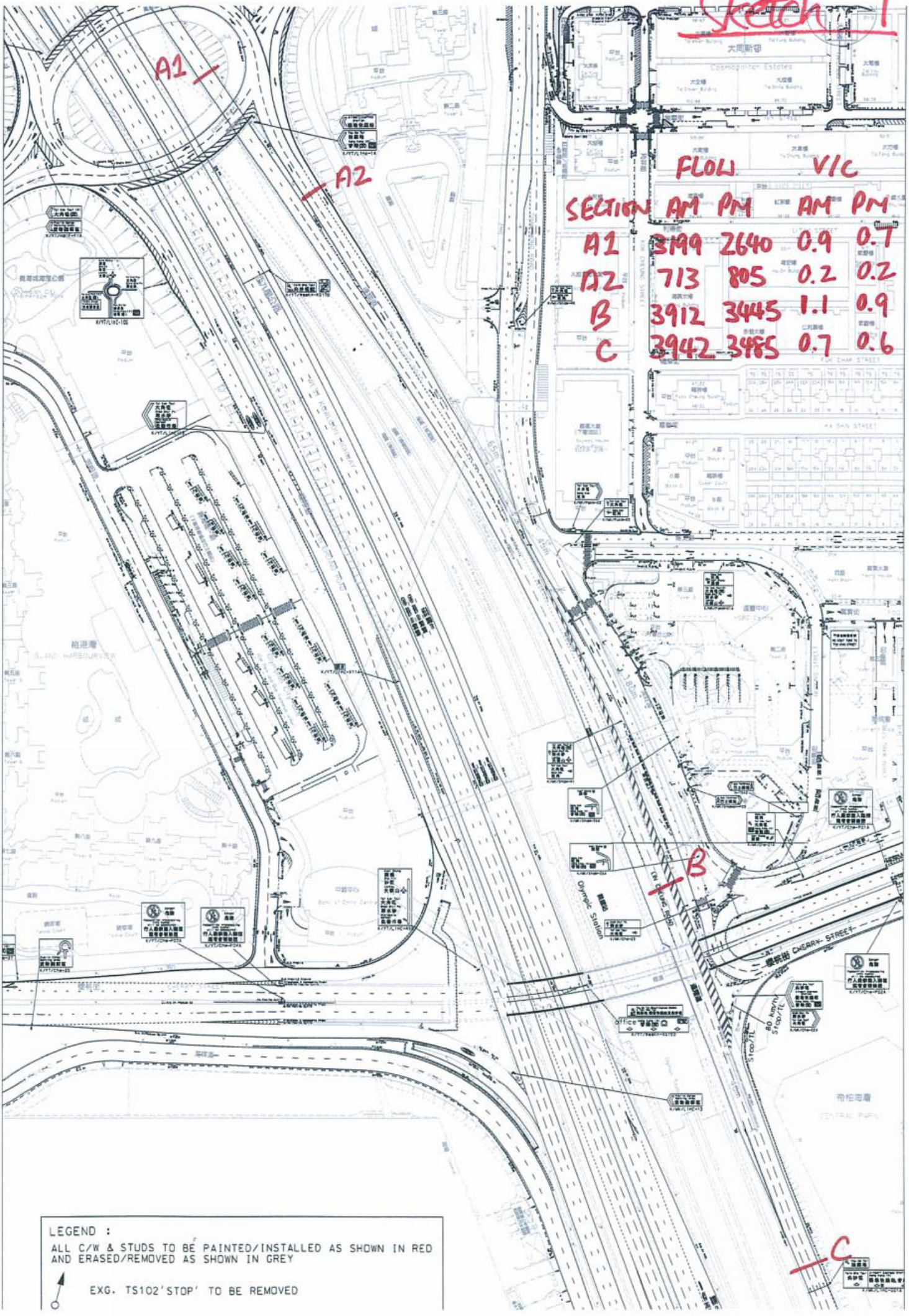
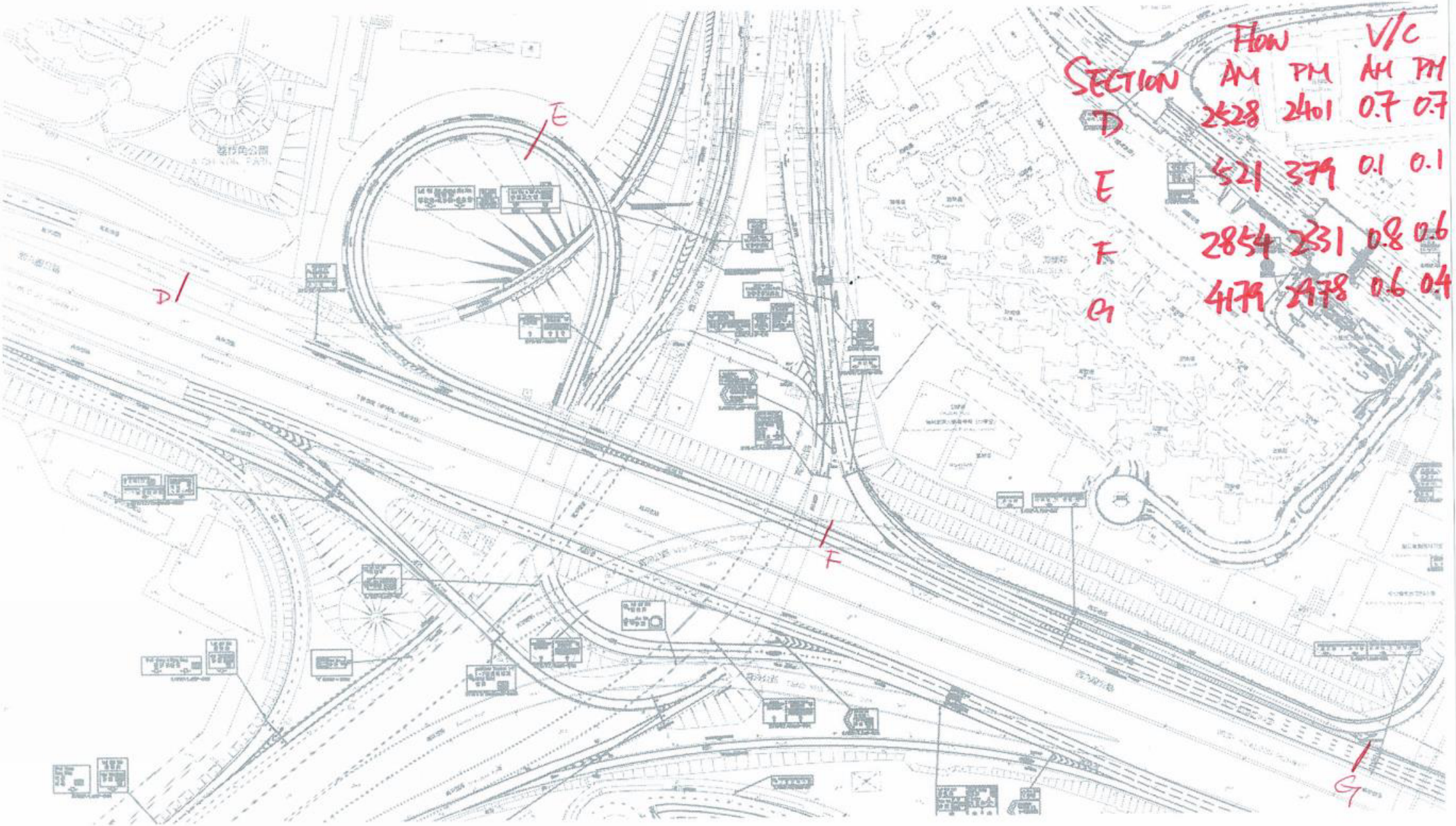
Printed by : 03/04/2013
Filename : J:\287786-CKR\SKETCH\92\SK_92_3001-3003\CKR_SK_92_3003.dgn

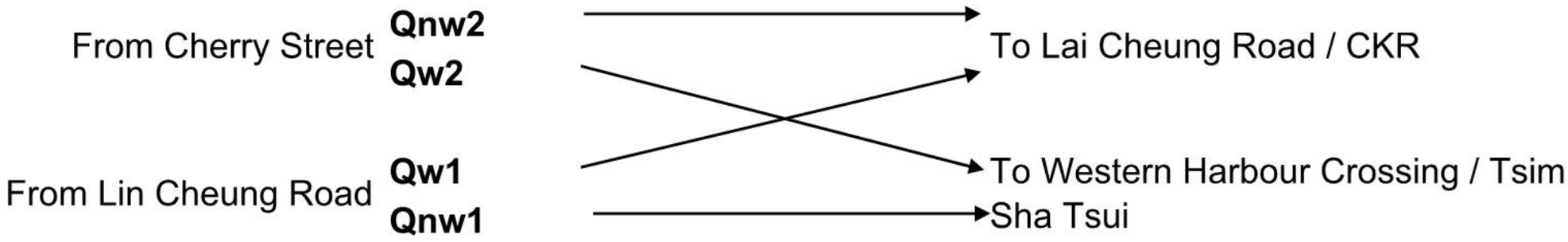
Sketch 1


A1
A2
B
C
FLOW V/C
SECTION AM PM AM PM
A1 3199 2640 0.9 0.7
A2 713 805 0.2 0.2
B 3912 3445 1.1 0.9
C 3942 3485 0.7 0.6
LEGEND :
ALL C/W & STUDS TO BE PAINTED/INSTALLED AS SHOWN IN RED AND ERASED/REMOVED AS SHOWN IN GREY
EXG. TS102 'STOP' TO BE REMOVED

Sketch 2



SECTION	Flow AM	Flow PM	V/C AM	V/C PM
D	2528	2401	0.7	0.7
E	521	379	0.1	0.1
F	2854	2331	0.8	0.6
G	4179	1478	0.6	0.4



		(VPH)	
2021 Flows		**AM**	**PM**
Qnw1	=	1,788	1,325
Qnw2	=	13	13
Qw1	=	1,718	1,855
Qw2	=	7	11
Heavy Vehicle %	=	11%	11%

Sketch 4 - Traffic Diversion from Tsing Sha Highway to Lai Cheung Road

ARUP Mott MacDonald
Arup-Mott MacDonald Joint Venture

中九龍幹線
CentralKowloon Route

Appendix F – Technical Note on Demolition of 55 Ferry Street Subway

Technical Note

ARUP

Project title	Agreement No. CE 43/2010 (HY) Central Kowloon Route - Design and Construction	Job number 217722-25
		File reference CKR\K55 Subway_2012-07-13
		Date 15 July 2012
Subject	CKR – Demolition of K55 Ferry Street Subway	

1. Background

1.1 Background

1.1.1 The need of a trunk road linking east-west Kowloon has been recognized for a number of years. Upon completion of the planned Kai Tak Development area on the east and West Kowloon Cultural District on the west, it is expected a substantial amount of traffic will be generated or attracted to these two destinations.

1.1.2 In 1990, a route in tunnel was proposed to be developed to link the West Kowloon Highway with the future highway system on the then South East Kowloon District. This route became known as Central Kowloon Route (CKR).

1.1.3 The construction of CKR was previously targeted for completion in 2016. The current target is to start construction in late 2014 and completion in 2020.

1.2 Issues

1.2.1 It has been identified that to cater for the construction of CKR, the existing K55 subway, which provides east-west pedestrian crossing underneath Ferry Street, Yau Ma Tei will be affected. This technical note will therefore review:-

(1) Temporary pedestrian arrangement during the demolition works, and;

(2) Justification for permanent reprovision of the subway.

2. Existing Condition

2.1 Existing Situation of K55 Subway

2.1.1 The Eastern portal of the K55 subway is on Ferry Street (S/B) near Public Square Street and the Western portal is on Ferry Street (N/B) near Yan Cheung Road. The subway tube is approximately 40m long, adding the approx. 30m long ramp on both sides, the total walking distance for crossing Ferry Street using K55 subway is approx.100m. Stairway access is provided on the Eastern side only.

Diagram 1: Eastern portal - overview

Diagram 2: Eastern portal – stairways

Diagram 3: Subway

Diagram 4: Western portal

2.1.2 A pedestrian count survey was done on a normal weekday on the 21st December 2011 (Wednesday). The pedestrian counts for the K55 subway during the morning, lunch and evening peak periods (from 07:00 to 19:00 hours) show that the utilization rate is relatively low. The peak hourly pedestrian flow in 2-way was identified to be less than 20 persons in an hour among the peak periods surveyed.

Pedestrian Count (per pedestrian in every 15 minutes)

	15 minutes starts	W/B	E/B	2-way Total
Morning Peak	7:00	1	0	1
	7:15	1	0	1
	7:30	2	0	2
	7:45	1	0	1
	8:00	1	0	1
	8:15	1	0	1
	8:30	1	1	2
	8:45	4	0	4
Lunch Peak	11:30	2	0	2
	11:45	0	0	0
	12:00	0	2	2
	12:15	1	0	1
	12:30	1	2	3
	12:45	1	0	1
	13:00	0	0	0
	13:15	2	0	2
Off-school Peak	14:30	1	0	1
	14:45	2	2	4
	15:00	1	1	2
	15:15	0	0	0
	15:30	1	1	2
	15:45	0	2	2
Evening Peak	17:00	2	5	7
	17:15	1	0	1
	17:30	4	2	6
	17:45	1	4	5
	18:00	0	1	1
	18:15	0	2	2
	18:30	2	1	3
	18:45	1	0	1
	19:00	1	3	4

2.2 Alternative Pedestrian Route Across Ferry Street

2.2.1 There is an alternative at-grade crossing at this section of Ferry Street. Consider the Western portal as the starting point:

(1) Head South-East (30m) towards CLP Electricity Substation for a signalized pedestrian crossing to cross Yan Cheung Road

(2) Head North-East (30m) towards Public Square Street Playground for a signalized pedestrian crossing to cross the Kansu Street / Ferry Street Intersection

(3) Head North to cross Public Square Street

(4) Go straight (30m) to reach the Eastern portal stairways of the K55 subway

2.2.2 The alternative route provides almost the same walking distance as compared with the existing subway route.

2.2.3 A pedestrian count survey was carried out on a normal weekday on the 29th May 2012 (Tuesday) in order to appreciate the existing utilization of this alternative route via the at-grade signalized pedestrian crossings.

2.2.4 The results of pedestrian survey during the morning, lunch and evening peak periods (from 07:00 to 19:00 hours) show that the crossings were reasonably in frequent use by the locals. During morning peak, the peak demand is crossing Kansu Street whilst during lunch and afternoon periods, the pedestrian flows across Yan Cheung Road dominated. During evening peak, the pedestrian flows along these crossings were observed to be similar.

Technical Note

217722-25 15 July 2012

Pedestrian Counts at Ferry Street / Kansu Street / Yan Cheung Road (per pedestrian in every 15 minutes)

2-way (Ped)	15 minutes starts	A. Across Kansu Street	B. Across Ferry Street	C. Across Yan Cheung Road	D. to and from Yau Tsim Mong Pets Park
Morning Peak	7:00	58	16	14	14
	7:15	71	27	31	34
	7:30	116	31	47	47
	7:45	137	37	55	32
	8:00	160	67	81	49
	8:15	168	61	90	63
	8:30	103	55	95	57
	8:45	93	52	97	62
Lunch Peak	11:30	31	38	149	116
	11:45	51	37	219	205
	12:00	45	43	207	187
	12:15	32	31	188	177
	12:30	32	56	178	151
	12:45	32	25	108	103
	13:00	50	34	75	64
	13:15	39	23	35	32
Off-school Peak	14:30	42	11	10	20
	14:45	24	14	17	13
	15:00	34	9	10	9
	15:15	62	17	13	12
	15:30	85	7	19	22
	15:45	144	15	9	11
Evening Peak	17:00	74	42	44	43
	17:15	67	75	119	70
	17:30	83	77	95	60
	17:45	79	91	114	60
	18:00	93	53	71	57
	18:15	73	34	37	29
	18:30	68	35	42	44
	18:45	64	47	32	33
	19:00	76	42	32	30
	19:15	71	28	18	30

3. Pedestrian Demand from New Developments

3.1 Estimation of Future Pedestrian Demands from New Developments

3.1.1 Currently there is no major existing development in the area west of the Ferry Street immediately next to K55 Subway and thus there is currently no major pedestrian demand to and from the Yau Ma Tei area. It is however identified that a residential development, namely the Coronation (御金國峰), is located at the north-east corner of Hoi Wang Road / Yan Cheung Road junction. Upon completion, it will provide a total flats nos. of 740 and the target population intake is by end 2012.

3.1.2 In order to appreciate the future pedestrian generations at this committed future residential development, pedestrian trip generation survey was carried out on the 1st June 2012 Friday at an existing residential development, Hampton Place, which is located at Hoi Fai Road. These two residential developments are considered to have common characteristics as they are both located in West Kowloon District. Not being railway station topside developments, they both require around 500m walking distances for access to the nearest railways stations and less than 200m walking distance to the nearest enroute bus stops in the area.

3.1.3 The resulting pedestrian generation rate of 0.3 ped/hr/flat during the morning peak period were established, accounting for no. of people entering and leaving the residential developments by walk trips.

Forecast of Pedestrian Trips at the The Coronation

No. of Flats	740
Pedestrian Generation Rate (2-way ped/hr/flat)	0.3 (AM)
Pedestrian Distribution	Assume 50% walking population across Ferry Street to and From Yau Ma Tei area
Pedestrian during peak hour across Ferry Street (2-way ped/ hr)	740 X 0.3 X 50% = 111 => 120

3.1.4 In addition, the future Yau Ma Tei police station will be situated at Hoi Wang Road to the north of the residential development, the Coronation. It is targeted to be in operation in 2016 / 2017. With reference to the information provided from by HKPF at the existing Yau Ma Tei Police Station, a pedestrian forecast with breakdowns in different time slots / different duties and different visitors were established. The forecast information indicated that the peak pedestrian period would occur during morning park hours 0730 – 0830 hours with 2-ways pedestrian flows of about 200 ped/hr. Taking into account HKPF's policy of encouraging the police officers to use public transport for assessing the police station, the additional 200 ped/hr is assumed to use the pedestrian links across Ferry Street for access to the public transport facilities along and adjacent to it.

3.1.5 Besides the above two new developments, there is no committed future development adjacent to this section of Ferry Street.

3.2 Future Years Pedestrian Forecast

3.2.1 Considering the morning peak period is the general peak of the peak period for the demand assessment, as a conservative approach, the background pedestrian flows and the peak pedestrian demands to and from the different generators are assumed appearing simultaneously. It is assumed that the K55 subway would be demolished in 2017 with full population intake of the Coronation and the full operation of Yau Ma Tei new police station. The concerned pedestrians are all diverted to Ferry Street / Kansu Street / Yan Cheung Road junction.

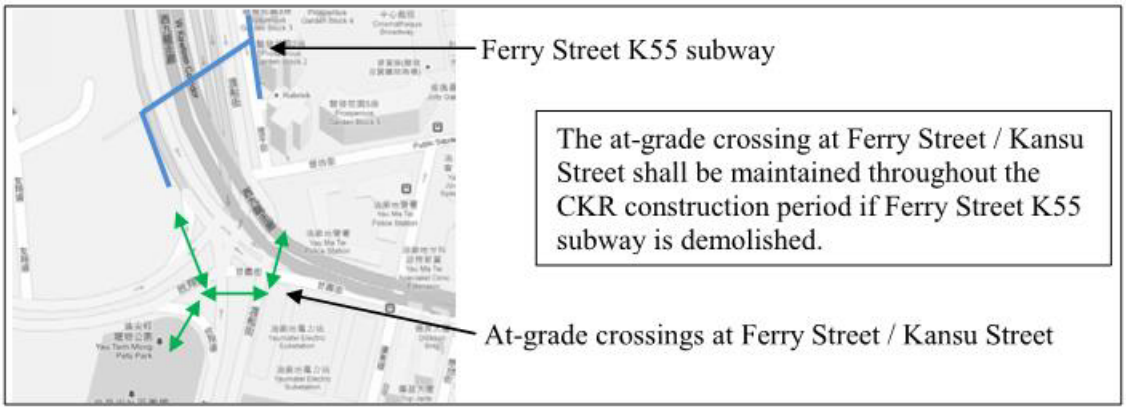
Future Year Peak Pedestrian Demand across Ferry Street (2-way ped/hr)

The ordinary pedestrians along the K55 Subway	~ 10
Ferry Street / Kansu Street / Yan Cheung Road junction	~ 800 (Picking the peak record as conservation approach)
The Coronation	~ 120
Yau Ma Tei new police station	~ 200
Total	~ 1130

3.3 Temporary Pedestrian Arrangement during Subway Demolition and Reconstruction

3.3.1 According to TPDM volume 2 Chapter 3 Section 3.7.2, the existing 4m wide pedestrian crossings provides can accommodate 2-way pedestrian flow of 2400 – 4800 pedestrians per hour. As such, it could adequately handle the forecast peak of the peak pedestrian flow of about 1130 nos. 2-way pedestrian flow per hour.

3.3.2 In this regards, for all the TTMS designed for CKR construction at the Ferry Street / Kansu Street / Yan Cheung Road junction, the at-grade pedestrian crossings would be always maintained. The need for the temporary re-provisioning of the K55 subway during the CKR construction stage is not identified.



4. Conclusion

4.1.1 Currently, the utilization rate of the K55 subway is relatively low. The peak hourly pedestrian flow in 2-way was only less than 20 persons in an hour.

4.1.2 An at-grade alternative route at the existing Kansu Street / ferry Street / Yan Cheung Road junction is identified and has almost the same walking distance. The subject at-grade signalized pedestrian crossings can suitably accommodate the increase in pedestrian demand due to the identified development plans at the Yan Cheung Road / Hoi Wang Road area to the east of Ferry Street to cater for the future pedestrian demands. As such, the need for re-provisioning of the K55 subway after the completion of CKR is not considered.

Appendix G – Junctions Assessment Summary

APPENDIX G

JUNCTION ASSESSMENT SUMMARY

Junction		2012_AM	2012_PM	2016_AM	2016_PM	2021A_AM	2021A_PM	2021C_AM	2021C_PM	2026A_AM	2026A_PM	2026G_AM	2026G_PM
J01	Hoi Wang Rd / Lai Cheung Rd	27.5%	47.6%	31.7%	21.3%	31.4%	21.0%	45.3%	27.3%	34.1%	15.7%	37.1%	35.1%
J02	Kansu Street / Ferry Street / Yan Cheung Rd	64.3%	84.8%	47.2%	46.8%	47.0%	47.8%	55.7%	46.3%	41.2%	47.1%	45.5%	46.7%
J03	Jordan Rd/ Ferry Street / Canton Rd	39.9%	53.9%	56.0%	27.8%	63.9%	26.7%	66.6%	33.0%	64.2%	25.7%	81.8%	44.1%
J04	Austin Rd West / Austin Rd / Canton Rd	7.5%	14.4%	11.2%	3.2%	15.5%	3.5%	15.8%	1.8%	9.6%	0.2%	22.0%	0.2%
J05	Argyle Street / Nathan Rd	-1.6%	-3.0%	-2.1%	-3.5%	-1.9%	-3.5%	12.3%	-1.9%	-10.9%	-0.7%	11.8%	-0.7%
J06	Waterloo Rd / Nathan Rd	12.9%	10.7%	-5.2%	-3.8%	-8.5%	-0.6%	-9.3%	3.0%	-9.6%	-3.4%	-7.3%	1.2%
J07	Jordan Rd / Nathan Rd	16.0%	21.0%	17.0%	16.0%	19.5%	18.4%	13.7%	14.1%	19.6%	19.5%	10.4%	15.9%
J08	Austin Rd / Nathan Rd	24.1%	30.4%	0.3%	-2.5%	1.1%	-2.0%	-3.2%	-2.4%	-5.7%	-3.5%	-1.4%	2.2%
J09	Sai Yee Street / Mong Kok Rd	1.5%	-3.3%	17.5%	1.6%	15.4%	3.7%	27.9%	4.8%	13.8%	1.3%	32.5%	11.1%
J10	Argyle Street / Sai Yee Street	-1.5%	-3.7%	-5.6%	-21.8%	-7.4%	-22.0%	4.1%	-21.5%	-8.0%	-22.8%	5.9%	-10.0%
J11	Argyle Street / Yim Po Fong Street	-6.8%	-6.1%	1.5%	-32.1%	-8.0%	-39.3%	15.9%	-26.5%	-1.3%	-41.1%	-6.4%	-19.5%
J12	Prince Edward Rd West / Kadoorie Avenue	17.2%	31.6%	-6.6%	15.9%	-12.3%	-3.4%	7.2%	8.1%	-13.4%	-4.7%	0.6%	6.2%
J13	Boundary Street / Waterloo Rd	12.8%	18.0%	-16.5%	-14.3%	-3.8%	-1.5%	10.2%	20.5%	-13.1%	-3.0%	8.8%	21.2%
J14	Prince Edward Rd West / Waterloo Rd	9.8%	11.7%	-7.8%	5.9%	-18.1%	-0.1%	15.9%	12.1%	-18.9%	7.0%	4.7%	19.6%
J15	Argyle Street / Waterloo Rd / Princess Margaret Rd	-4.4%	5.8%	-8.6%	7.6%	-13.7%	3.5%	-4.1%	20.4%	-13.5%	6.2%	0.0%	19.5%
J17	Austin Rd / Chatham Rd South / Cheong Wan Rd	-5.2%	-4.8%	-17.7%	-18.9%	-21.8%	-16.8%	-18.1%	-14.1%	-16.9%	-19.9%	-20.6%	-11.2%
J18	Chatham Rd North / Wuhu Street	-6.0%	-19.9%	-37.2%	-27.9%	-38.1%	-23.0%	14.0%	63.5%	-39.7%	-28.4%	6.1%	57.5%
J19	Ma Tau Chung Rd / Sung Wong Toi Rd	19.3%	15.1%	3.8%	-3.3%	-4.2%	-5.6%	-2.7%	-3.4%	-3.9%	-4.6%	-3.4%	-3.6%
J20	Kai Cheung Rd / Wang Kwong Rd	18.1%	34.6%	2.9%	6.3%	-4.8%	-2.9%	-6.2%	-12.3%	-3.5%	-4.3%	-0.9%	-14.5%
J21	Kai Cheung Rd / Wang Chiu Rd	0.6%	36.5%	-9.2%	-3.8%	-17.8%	-16.9%	-23.4%	-6.8%	-9.9%	-15.3%	-15.0%	-5.1%
J22	Sheung Yee Rd / Wang Chiu Rd	3.4%	-3.3%	-18.0%	11.2%	-9.7%	7.0%	-7.4%	-7.9%	-4.3%	11.3%	-6.6%	-8.8%
J23	Lin Cheung Rd / Jordan Rd	-	-	29.2%	23.7%	25.3%	18.6%	3.3%	7.9%	25.9%	23.3%	22.7%	18.0%
J25	Lin Cheung Rd / Austin Rd West	0.7	0.8	>100%	60.7%	>100%	65.0%	>100%	52.5%	>100%	58.2%	>100%	51.7%
J26	Ma Tau Wai Rd / Tin Kwong Rd	2.6%	0.3%	-6.0%	-8.0%	-8.7%	-10.0%	-4.1%	-11.4%	-9.9%	-10.1%	-2.4%	-11.8%
J27	Choi Hung Rd / Tai Yau Street	16.1%	21.9%	-4.1%	3.8%	-4.1%	1.4%	2.5%	3.7%	-4.1%	0.4%	-0.3%	1.5%
J28	Lam Hing Street / Wang Kwong Rd	49.5%	47.2%	41.7%	-13.1%	15.5%	-10.0%	-1.4%	-10.5%	16.4%	-9.0%	4.0%	-9.7%
J29	Hoi Bun Rd / Cheung Yip St / Wang Chiu Rd	89.1%	81.4%	2.0%	-0.1%	-24.4%	-20.0%	-7.3%	-10.6%	-24.5%	-20.3%	-9.5%	-11.6%
J30	Wai Yip St / Lai Yip St	74.6%	57.4%	87.5%	23.3%	39.2%	3.8%	13.4%	2.9%	28.3%	1.2%	17.9%	5.6%
J31	Wai Yip Street / Hoi Yuen Rd	69.3%	58.5%	71.3%	75.4%	47.2%	30.6%	45.2%	30.9%	46.5%	29.5%	47.1%	30.4%
J32	Wai Yip Street / Wai Fat Rd	6.6%	20.5%	23.2%	19.5%	-2.5%	16.4%	-9.3%	-1.1%	-3.5%	14.7%	-4.0%	-5.5%
J33	Cha Kwo Ling Rd / Yau Tong Rd	>100%	>100%	83.7%	>100%	19.7%	53.7%	>100%	65.0%	17.0%	45.6%	77.6%	81.8%
J34	Temporary Rd D1A(S) / Jordan Rd	50.0%	36.7%	57.5%	36.1%	42.4%	37.7%	13.6%	18.0%	36.6%	35.4%	17.3%	28.0%
J35	Temporary Rd D1A(S) / Wui Cheung Rd	>100%	>100%	>100%	>100%	>100%	>100%	39.9%	54.1%	>100%	>100%	50.4%	67.7%
J36	Canton Rd / Wui Cheung Rd	42.5%	32.0%	>100%	61.4%	>100%	62.4%	>100%	55.8%	>100%	62.3%	>100%	60.2%
J37	Gascoigne Rd / Nathan Rd / Kansu St	56.9%	52.9%	51.6%	21.0%	41.5%	14.2%	38.4%	6.2%	39.0%	14.4%	35.6%	17.1%
J38	Olympic Garden Roundabout	1.0	1.2	1.0	1.4	1.6	1.6	1.4	1.6	1.7	1.7	1.4	1.7

Appendix H – Junctions Improvement Summary

Junction No.	Location	Drawing No.
J1	Hoi Wang Rd / Lai Cheung Rd	CKR/F/03/0301
J2	Ching Ping Street/ Kansu Street/ Ferry Street/ Yan Cheung Street	CKR/F/03/0302
J3	Ferry ST/ Canton Rd/ Jordan Rd	
J4	Canton Rd/ Austin Rd West	CKR/F/03/0303
J5	Nathan Rd/ Argyle Street	
J6	Nathan Rd/ Waterloo Rd	
J7	Nathan Rd/ Jordan Rd	
J8	Nathan Rd/ Austin Rd	
J9	Sai Yee Street/ Mong Kok Rd	CKR/F/03/0304
J10	Sai Yee Street/ Argyle Street	CKR/F/03/0305
J11	Argyle Street / Yim Po Fong Street	CKR/F/03/0306
J12	Prince Edward Rd West / Kadoorie Avenue	
J13	Boundary Street / Waterloo Rd	
J14	Prince Edward Rd West / Waterloo Rd	
J15	Argyle Street / Waterloo Rd / Princess Margaret Rd	
J17	Austin Rd / Chatham Rd South / Cheong Wan Rd	
J18	Chatham Rd North / Wuhu Street	
J19	Ma Tau Chung Rd / Sung Wong Toi Rd	
J20	Kai Cheung Rd / Wang Kwong Rd	CKR/F/03/0311
J21	Kai Cheung Rd / Wang Chiu Rd	CKR/F/03/0308
J22	Sheung Yee Rd / Wang Chiu Rd	CKR/F/03/0309
J23	Lin Cheung Rd/ Jordan Rd	
J25	Lin Cheung Rd / Austin Rd West	
J26	Ma Tau Wai Rd / Tin Kwong Rd	
J27	Choi Hung Rd / Tai Yau Street	CKR/F/03/0310
J28	Lam Hing St / Wang Kwong Rd	CKR/F/03/0311
J29	Hoi Bun Rd / Cheung Yip Street / Wang Chiu Rd	CKR/F/03/0312
J30	Wai Yip Street / Lai Yip Street	
J31	Wai Yip Street / Hoi Yuen Rd	
J32	Wai Yip Street / Wai Fat Rd	
J33	Cha Kwo Ling Rd / Yau Tong Rd	
J34	Road D1A / Jordan Rd	
J35	Road D1A/Wui Cheung Rd	
J36	Canton Rd / Wui Cheung Rd	
J37	Gascoigne Rd/ Nathan Rd/Kansu St	
J38	Olympic Garden Roundabout	CKR/F/03/0314
-	Hoi Wong Rd/ Yau Ma Tei Interchange	CKR/F/03/0301