METRO PLANNING COMMITTEE OF THE TOWN PLANNING BOARD

MPC Paper No. 13/16

For Consideration by the <u>Metro Planning Committee on 26.8.2016</u>

Proposed Amendments to <u>The Approved Chai Wan Outline Zoning Plan No. S/H20/21</u>

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PROPOSED AMENDMENTS TO THE APPROVED CHAI WAN OUTLINE ZONING PLAN NO. S/H20/21

1. <u>Introduction</u>

This paper is to seek Members' agreement that:

- (a) the proposed amendments to the approved Chai Wan Outline Zoning Plan (OZP) No. S/H20/21 as shown on the draft OZP No. S/H20/21A (Attachment II) and its Notes (Attachment III) are suitable for exhibition for public inspection under section 5 of the Town Planning Ordinance (the Ordinance); and
- (b) the revised Explanatory Statement (ES) of the OZP (Attachment IV) is an expression of the planning intentions and objectives of the Town Planning Board (the Board) for various land use zonings of the OZP, and is suitable for exhibition together with the OZP and its Notes.

2. <u>Status of the Current OZP</u>

- 2.1 On 5.2.2013, the Chief Executive in Council (CE in C), under section 9(1)(a) of the Ordinance approved the draft Chai Wan OZP. On 22.2.2013, the approved Chai Wan OZP No. S/H20/21 (Attachment I) was exhibited for public inspection under section 9(5) of the Ordinance.
- 2.2 On 29.4.2014, the CE in C agreed to refer the approved Chai Wan OZP to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 16.5.2014 under section 12(2) of the Ordinance.

3. <u>Proposed Amendments to the OZP</u>

The proposed amendments are mainly related to:

- (a) the rezoning of a site at the junction of Chai Wan Road, Wing Ping Street and San Ha Street for public housing development;
- (b) the rezoning of a site at Cape Collinson Road for public columbarium development; and
- (c) some technical amendments to the Notes of the OZP.

4. <u>Proposed Public Housing Development at the junction of Chai Wan Road, Wing Ping</u> <u>Street and San Ha Street</u> (Plans 2 to 8)

Background

- 4.1 The Government has been increasing land supply through a multi-pronged approach with short, medium and long-term measures to achieve the target of providing a total of 460,000 housing units in the coming ten years. As stated in the 2016 Policy Address, housing is still the most important livelihood issue to be addressed. In the short and medium term, the Government will continue to rezone sites, increase development intensity and conduct holistic land use reviews to make optimal use of land.
- 4.2 Upon a land use review and subsequent confirmation with relevant departments on its technical feasibility, a site at the junction of Chai Wan Road, Wing Ping Street and San Ha Street has been identified for public housing development by the Housing Department (HD) to meet the pressing need for housing land. The site is currently zoned "Open Space" ("O") on the OZP (**Plan 2**).

The Site and its Surroundings

- 4.3 The site has an area of about 0.37 ha (net site of about 0.33 ha). It is a piece of Government land currently used as a plant nursery by the Leisure and Cultural Services Department (LCSD).
- 4.4 The site is located in a neighbourhood comprising mainly of residential and Government, institution and community (GIC) developments. To the east of the site on both sides of the nearby Hong Ping Street are private residential developments, while the public housing estates of Chai Wan Estate and Yue Wan Estate are located to the south-west and north-west of the site respectively.
- 4.5 The CNEC Lau Wing Sang Secondary School and SKH Chai Wan St. Michael's Primary School are located to the immediate west of the site, while the Caritas Chai Wan Marden Foundation School and the Precious Blood Secondary School are located to the immediate south of the site. To the north of the site are an existing bus terminus and the ex-bus depot of China Motor Bus Company Limited (the ex-CMB depot), for which planning permission for a proposed comprehensive residential development with a public transport terminus (Application No. A/H20/177) was given by the Board under section 16 of the Ordinance.

The Rezoning Proposal

- 4.6 It is proposed to rezone the site from "O" to "Residential (Group A)" ("R(A)") for a public housing development. A building height restriction (BHR) of 120mPD is also proposed, taking account of the surrounding high-rise residential developments which range from 100mPD to 120mPD and to maintain a stepped BH profile gradually decreasing towards the waterfront (**Plan 2**).
- 4.7 According to HD's proposal, a public housing block on top of a podium will be developed with a plot ratio of 10 and a building height (BH) not exceeding 120mPD, providing about 800 flats for an estimated population of about 1,830. A Neighbourhood Elderly Centre and a public open space with children's playground will

be provided. A preliminary conceptual layout for the proposed development prepared by HD is shown in **Attachment V**. The proposed development is targeted to be completed by 2021/22.

Land Use Compatibility

4.8 While the site is located in a neighbourhood comprising mainly of residential and GIC developments, the proposed public housing development is generally compatible with the surrounding land uses.

Visual Aspect

4.9 In order to achieve a stepped building height profile from the waterfront, a BHR of 120mPD is stipulated for the site. According to the visual appraisal conducted by HD (Attachment VI), although the proposed development would detract from the visual openness of the locality, it is not incompatible with the surrounding developments in terms of scale and height. Mitigation measures such as careful building disposition, maximization of at-grade greening, and use of architectural articulations can be explored at the detailed design stage for better integration with the neighbourhood. Photomontages showing the visual impact of the proposed development at four major public viewing points are provided at Plans 5 to 8. The Chief Town Planner/Urban Design & Landscape of Planning Department (CTP/UD&L, PlanD) considers the proposed housing development is not incompatible with the surrounding developments in terms of scale and height. She has no adverse comment on the proposed rezoning.

Traffic Aspect

- 4.10 According to the Traffic Impact Assessment (TIA) conducted by HD (**Attachment VII**), all critical junctions will operate within their capacities in design year 2025. The proposed housing site is well served by public transport network. However, in view of the demand to be generated by the proposed housing development, the TIA recommends improvement to the bus and green mini bus services to serve the area. HD undertakes to conduct further public transport assessment to propose feasible improvement measures to cope with the additional public transport demand. The TIA also indicates that the additional pedestrian demand arising from the proposed housing development is not significant and the existing footpath in the vicinity will be able to cater for the anticipated pedestrian demand.
- 4.11 The Commissioner for Transport (C for T) considers that the TIA is acceptable and has no objection to the proposed rezoning of the subject site from traffic point of view.

Air Ventilation Aspect

4.12 An Air Ventilation Assessment – Expert Evaluation for the proposed public housing development was undertaken by HD (Attachment VIII). According to the AVA, the proposed public housing development would not significantly affect the ventilation performance of the major breezeway of Chai Wan Road under the annual wind condition. Although localized ventilation impact would be induced at the school sites under annual condition and at Chai Wan Road and planned CDA development under summer condition, with the provision of a 7m tower setback from Chai Wan Road, 18m tower setback from the adjacent SKH Chai Wan St. Michael's Primary School and 10m

wide podium level empty bay, the wind environment of leeward side is expected to be alleviated. These mitigation measures would be specified in the Planning Brief to guide subsequent public housing development by HD.

Landscape Aspect

4.13 Approximately 102 trees within and adjoining the site were identified at the initial tree survey conducted in October 2014, all of which were local common species including *Hisbiscus tiliaceus* (黃槿), *Erythrina variegata* (刺桐), *Cinnamomum burmannii* (陰香), *Koelreuteria bipinnata* (復羽葉欒樹) and *Ficus benjamina* (垂葉榕) generally with fair to poor health and structural conditions. No Champion Trees, registered Old and Valuable Trees (OVTs), potentially registrable trees or protected species are recorded. According to HD's Preliminary Landscape Proposal (Attachment IX), one tree of higher landscape and amenity value is recommended to be transplanted, and 15 roadside trees outside the site will be retained as far as practicable except those affected by the run-in/out of the proposed public housing development. While most of the existing trees within the site are recommended to be felled, the loss will be compensated with heavy standard trees in accordance with Development Bureau Technical Circular (Works) No. 7/2015 as far as possible. HD also aims to achieve a 20% site coverage of greenery for the public housing development.

Environmental and Infrastructural Aspects

- 4.14 No insurmountable noise, air and sewerage problem is anticipated for the proposed public housing development. Concerned Government departments have no in-principle objection to/no adverse comment on the rezoning proposal from environmental, drainage and sewerage, and water supply perspectives. HD has submitted a finalised Quantitative Risk Assessment (QRA) Report in June 2016, which took into account the risk posed by the petrol-cum-LPG filling station in the vicinity of the proposed housing development (Attachment X). The Director of Electrical and Mechanical Services (DEMS) considers the QRA report acceptable and has no objection to the rezoning.
- 4.15 HD would carry out relevant technical assessments, such as Environmental Assessment Study (including Air Quality Impact Assessment and Noise Impact Assessment) and Sewerage Impact Assessment for the housing project at the detailed design stage after rezoning of the proposed housing site and would be submitted to relevant Government departments for comment/agreement.

5. <u>Proposed Columbarium Development at Cape Collinson Road</u> (Plans 9 to 16)

<u>Background</u>

5.1 With a growing and ageing population in Hong Kong, the number of deaths and the corresponding number of cremations have been rising gradually year on year resulting in an increasing demand for public niches. Based on past data, the annual average numbers of deaths and cremations in the next 20 years (i.e. from 2016 to 2035) are estimated to be about 57,000 to 54,000 respectively. Currently, there are eight public columbaria managed by Food and Environmental Hygiene Department (FEHD) providing about 214,000 public niches, including the new columbarium at Kiu Tau

Road, Wo Hop Shek, the extension of Diamond Hill Columbarium and the Cheung Chau Cemetery extension completed in 2012 and 2013 respectively. The allocation of the above niches (about 45,000 niches) was completed in March 2016 and there will not be any new supply of public niches until 2018/19.

5.2 To meet the demand for public niches, the Government launched a public consultation on review of columbarium policy from July to September 2010. The Government has been promoting the district-based columbarium development scheme under which the 18 districts would collectively share the responsibility of developing columbarium facilities so as to increase the supply of public niches. According to the consultation exercise in 2010, members of the public are supportive of the district-based columbarium development scheme. The proposed public columbarium development site at Cape Collinson Road is one of the shortlisted sites in the consultation document. The site is currently a Government land zoned "Other Specified Uses" annotated "Funeral Parlour" ("OU(Funeral Parlour)") on the OZP (**Plan 9**), but there is no development programme for the funeral parlour.

The Site and its Surroundings

- 5.3 The site has an area of about 3,940m² (including the columbarium site of about 3,400m² and related road works of about 540m²) and is located at Cape Collinson Road opposite Cape Collinson Chinese Permanent Cemetery Columbarium. It is on a natural slope with height varying from +48.0mPD to +68.0mPD.
- 5.4 The surrounding land uses include the Wan Tsui Estate Park to its immediate northwest, an extensive piece of "Green Belt" to its immediate north, and the Chinese Permanent Cemetery to its southeast across Cape Collinson Road.

The Rezoning Proposal

- 5.5 It is proposed to rezone the site from "OU(Funeral Parlour)" to "OU" annotated "(Columbarium)" ("OU(Columbarium)") to take forward the proposed public columbarium development. The current BHR of 5 storeys (excluding any basement floor(s)) covering the site would remain unchanged.
- 5.6 It is estimated that the proposed public columbarium development would be a 6-storey building (including one storey of basement) providing 25,000 niches. A notional development scheme for the proposed development is shown in **Attachment XI**.

Land Use Compatibility

5.7 The site is located adjacent to the Chinese Permanent Cemetery. The proposed development of a columbarium at the site is compatible with the cemetery.

Traffic Aspect

5.8 A TIA Review was conducted in February 2014 for a columbarium development with 25,000 niches at the site. The TIA Review Report is at **Attachment XII**.

- 5.9 The TIA Review has confirmed that the proposed columbarium will increase the traffic and pedestrian flows in the vicinity, particularly in Lin Shing Road and recommended the following improvement measures to mitigate the potential impacts (**Plan 12**):
 - (a) provision of a new pedestrian access route by linking Cape Collinson Road and San Ha Street with escalators and stairway, together with associated footpath and carriageway widening on Cape Collinson Road;
 - (b) widening of carriageway and footway at the junction of Lin Shing Road and Cape Collinson Road, coupled with the provision of bus lay-bys; and
 - (c) several other special traffic management measures as detailed in para. 3.2 of **Attachment XII**.
- 5.10 Architectural Services Department (ArchSD), as an agent of the project proponent (FEHD), agrees to update the traffic and transport assessment review report during the detailed design stage for the proposed development. The C for T and the Commissioner of Police (C of P) have no in-principle objection to the proposed traffic and transport improvement measures, and have no objection to/no comment on the proposed rezoning.

Visual Aspect

5.11 A visual appraisal (Attachment XIII) was conducted to assess the possible visual impact of the proposed columbarium development on the surrounding areas. According to the visual appraisal, the proposed development will either be screened off by existing trees or distracted by similar visual resources (i.e. existing cemetery and vegetation). Although the columbarium would unavoidably result in loss of existing vegetation and natural green slopes, the proposed columbarium development is not incompatible with the surrounding visual character in terms of nature and height. With the application of the proposed mitigation measures, the visual impacts experienced by the receivers at key public viewpoints are slightly adverse. Photomontages showing the visual impacts of the proposed columbarium development at four major viewing points are provided at **Plans 13 to 16**.

Landscape Aspect

5.12 A total of 177 trees within and adjoining the site with majority in fair condition and the remaining in poor condition were identified at the tree survey in March 2016. A total of 26 species were identified, 11 of them are exotic species including *Dimocarpus longan* (龍眼) and *Litchi chinensis* (荔枝), and 15 of them are native species including *Macaranga tanarius* (血桐) and *Mallotus paniculatus* (白楸). No Champion Trees, registered OVTs, potentially registrable trees or protected species are recorded. According to the Landscape and Tree Preservation Proposal submitted by FEHD (Attachment XIV), 11 trees are recommended to be retained, while the other 166 trees (including four dead trees) are recommended to be felled. Tree planting proposed on-site shall serve mainly for peripheral buffer planting, entrance features and definition of space. The landscape design of the future development will comply with the prescriptive requirements such as Site Coverage of Greenery in accordance with Development Bureau Technical Circular (Works) No. 3/2012. Off-site compensatory

planting at available land will also be explored to improve the compensatory planting ratio.

Geotechnical Aspect

- 5.13 The Site is a natural hillside with a profile varying from +48.0mPD to +68.0mPD. There are two registered geotechnical features in the vicinity of the site that may affect or would be affected by the proposed development. Site formation is required for housing the columbarium, associated drainage facilities, landscaping works, improvement to the existing geotechnical features and widening of access route.
- 5.14 The Head of Geotechnical Engineering Office, Civil Engineering and Development Department (H(GEO), CEDD) considered that the site is geotechnically feasible for the proposed development. A ground investigation and a geotechnical assessment will be carried out to confirm the ground profile and soil information for the design of slope/foundation works.

Environmental and Infrastructural Aspects

5.15 Concerned Government departments have no in-principle objection to/no adverse comment on the rezoning proposal from environmental, drainage and sewerage, and water supply perspectives. Director of Environmental Protection (DEP) considers that the environmental problems (air and sewerage) for the proposed columbarium development are surmountable. The future project proponent will conduct a Preliminary Environmental Review (PER) for the project at the design stage and agree the findings with the DEP. Drainage and sewerage plans will be submitted by the project proponent at the design stage to demonstrate that there is no unacceptable impact on the public storm-water and sewerage system, together with any necessary mitigation measures to be put in place, if required.

6. <u>Incorporation of 'Art Studio (excluding those involving direct provision of services or goods)' in the "Industrial" and "Other Specified Uses" annotated "Business" Zones</u>

With a view to support art development, the feasibility of allowing 'Art Studio' in the Industrial-Office (I-O) buildings has been investigated by relevant bureaux and departments. As the key concern is on fire safety, 'Art Studio' is considered acceptable in the industrial and I-O buildings if it does not involve direct provision of services or goods (e.g. hobby classes, seminars and sale of goods, art gallery and venue for rehearsal for art performance). The proposal was generally supported by the stakeholders with no objection from concerned Government departments. In this regard, it is proposed to incorporate 'Art Studio (excluding those involving direct provision of services or goods)' as a Column 1 use in the "Industrial" ("I") zone and in Schedule II of the "OU" annotated "Business" ("OU(B)") zone. As 'Art Studio' is subsumed under the 'Place of Recreation, Sports or Culture' use, corresponding amendment will also be made to replace 'Place of Recreation, Sports or Culture' under Column 2 in the same schedule by 'Place of Recreation, Sports or Culture (not elsewhere specified)'. Since 2015, similar amendments to the Notes of the "I", "OU(B)" and "Residential (Group E)" zones for OZPs with I-O buildings have been made when the opportunity arises.

7. <u>Provision of Open Space and GIC Facilities</u>

A table on the provision of major community facilities and open space in Chai Wan area is at **Attachment XV**. Based on a planned population of about 178,510 (including the proposed public housing development under Amendment Item A), there is no shortfall on major GIC facilities, except the primary school classrooms. The existing shortfall of primary school classrooms in the area can be catered by the surplus of primary school classrooms in the surrounding area, in particular in the Shau Kei Wan area within the same school net. Regarding open space provisions in the area, there is an overall surplus of 6.67 ha open space (including both district and local open space). The proposed amendment items will not have adverse impact on major GIC and open space provisions in the area.

8. <u>Proposed Amendments to Matters shown on the Plan</u>

The proposed amendments as shown on the draft Chai Wan OZP No. S/H20/21A (Attachment II) are as follows:

Amendment Item A (about 0.37 ha) (Plan 2)

(a) Rezoning of a site at the junction of Chai Wan Road, Wing Ping Street and San Ha Street from "O to "R(A)" with the stipulation of a maximum building height of 120mPD.

Amendment Item B (about 3,940 m²) (Plan 9)

(b) Rezoning of a site at Cape Collinson Road from "OU(Funeral Parlour)" to "OU(Columbarium)". The existing restriction of a maximum building height of 5 storeys (excluding any basement floor(s)) remains unchanged.

9. <u>Proposed Amendments to the Notes of the OZP</u>

- 9.1 Amendments to the Notes of the OZP (**Attachment III**) are proposed as follows:
 - (a) in relation to Amendment Item B, a new set of Notes for the "OU(Columbarium)" zone is proposed; and
 - (b) to incorporate 'Art Studio (excluding those involving direct provision of services or goods)' as a Column 1 use in the "I" zone and in Schedule II of the "OU(B)" zone, and to replace 'Place of Recreation, Sports or Culture' under Column 2 in the same schedules by 'Place of Recreation, Sports or Culture (not elsewhere specified)'.
- 9.2 The proposed amendments to the Notes of the OZP (with additions in *bold and italics* and deletions in 'erossed out') are at **Attachment III** for Members' consideration.

10. <u>Revision to the Explanatory Statement of the OZP</u>

The ES of the OZP has been revised to take into account the proposed amendments as mentioned in the above paragraphs. Opportunity has also been taken to update the general information for various land use zones to reflect the latest status and planning circumstances of the OZP. The proposed amendments to the ES of the OZP (with additions in *bold and italics* and deletions in 'crossed out') are at **Attachment IV** for Members' consideration.

11. Plan Number

Upon exhibition for public inspection, the Plan will be renumbered as S/H20/22.

12. Consultation

Consultation with the Eastern District Council (EDC)

- 12.1 On 27.6.2016, the Planning, Works and Housing Committee (PWHC) of the Eastern District Council (EDC) was consulted on the proposed OZP amendments. The relevant meeting summary is at **Attachment XVI**. In general, members supported the proposed amendments which would facilitate the provision of public housing units and public columbarium niches. Their main concerns are on the compensation on the loss of "O" site, traffic arrangement of the two sites and potential noise problem arising from the flyover junction between Chai Wan Road and Wing Tai Road affecting the public housing site.
- 12.2 In response to EDC's concerns on the traffic generated by the proposed public housing development, HD indicated that a public open space with children's playground will be provided at the proposed development. According to the TIA conducted for the proposed development, there would be no adverse traffic impact on the surrounding road network. Parking spaces will be provided in accordance with the HKPSG. On the noise aspect, mitigation measures will be provided through the design of the housing block including the disposition of tower and the provision of noise-reduction balconies. DEP considers that there is no insurmountable noise problem.

Public Consultation

12.3 If the proposed amendments are agreed by the Committee, the draft OZP (to be renumbered to S/H20/22 upon exhibition) and its Notes will be exhibited under section 5 of the Ordinance. Members of the public can submit representations on the OZP amendments to the Board during the two-month statutory public inspection period.

Departmental Circulation

- 12.4 The proposed amendments have been circulated to the relevant Government departments for comments. The following bureaux/departments have no objection to/no adverse comment on the proposed amendments:
 - Director of Housing;
 - Director of Food and Environmental Hygiene;

- C for T;
- Secretary for Development;
- Secretary for Food and Health;
- Secretary for Education;
- District Lands Officer/Hong Kong East, Lands Department;
- Chief Building Surveyor/Hong Kong East & Heritage, Buildings Department;
- Chief Architect/Central Management Division 2, ArchSD;
- Director of Agriculture, Fisheries and Conservation;
- Director of Environmental Protection;
- District Officer (Eastern), Home Affairs Department;
- Chief Highway Engineer/Hong Kong, Highways Department;
- Project Manager/Hong Kong Island and Islands, Civil Engineering and Development Department;
- Head of Geotechnical Engineering Office, Civil Engineering and Development Department;
- Chief Engineer/Construction, Water Supplies Department;
- Chief Engineer/Hong Kong & Islands, Drainage Services Department;
- Director of Electrical and Mechanical Services;
- Director of Leisure and Cultural Services;
- C of P;
- Director of Fire Services;
- Director of Social Welfare;
- Director of Health; and
- Chief Town Planner/Urban Design & Landscape, Planning Department (CTP/UD&L, PlanD).

13. Decision Sought

Members are invited to:

- (a) <u>agree</u> to the proposed amendments to the approved Chai Wan OZP No. S/H20/21 and that the draft Chai Wan OZP No. S/H20/21A at **Attachment II** (to be renumbered to S/H20/22 upon exhibition) and its Notes at **Attachment III** are suitable for exhibition under section 5 of the Ordinance; and
- (b) <u>adopt</u> the revised ES for the draft Chai Wan OZP No. S/H20/21A at **Attachment IV** as an expression of the planning intentions and objectives of the Board for various land use zonings of the OZP and agree that the revised ES is suitable for publication together with the OZP.

14. <u>Attachments</u>

Attachment I	Approved Chai Wan Outline Zoning Plan No. S/H20/21 (Reduced Size)						
Attachment II	Draft Chai Wan Outline Zoning Plan No. S/H20/21A						
Attachment III	Notes of draft Chai Wan Outline Zoning Plan No. S/H20/21A						
Attachment IV	Explanatory Statement of draft Chai Wan Outline Zoning Plan No.						
	S/H20/21A						
Attachment V	Preliminary Concept Layout for Proposed Amendment Item A						
Attachment VI	Visual Appraisal for Proposed Amendment Item A						

Attachment VII	Traffic Impact Assessment for Proposed Amendment Item A
Attachment VIII	Air Ventilation Assessment (Expert Evaluation) for Proposed Amendment
	Item A
Attachment IX	Preliminary Landscape Proposal for Proposed Amendment Item A
Attachment X	Quantitative Risk Assessment for Proposed Amendment Item A
Attachment XI	Notional Development Scheme for Proposed Amendment Item B
Attachment XII	Traffic Impact Assessment Review Report for Proposed Amendment Item B
Attachment XIII	Visual Appraisal for Proposed Amendment Item B
Attachment XIV	Landscape and Tree Preservation Proposal for Proposed Amendment Item B
Attachment XV	Provision of Major Community Facilities in Chai Wan Area
Attachment XVI	Meeting Summary of Meeting of PWHC of EDC held on 27.6.2016
Plan 1	Comparison of the proposed and existing zonings for Amendment Items A
	and B
Plan 2	Site Plan of Proposed Amendment Item A
Plan 3	Aerial Photo of Proposed Amendment Item A
Plan 4	Site Photos of Proposed Amendment Item A
Plans 5 to 8	Photomontages of Proposed Amendment Item A
Plan 9	Site Plan of Proposed Amendment Item B
Plan 10	Aerial Photo of Proposed Amendment Item B
Plan 11	Site Photo of Proposed Amendment Item B
Plan 12	Proposed Mitigation Measures for Proposed Amendment Item B
Plans 13 to 16	Photomontages of Proposed Amendment Item B

PLANNING DEPARTMENT AUGUST 2016



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ZONES	地帶	COMMUNICATIONS		交通	USES	大約16日 APPROXIMA 22日 HECTARES	及百分年 TE AREA & % % 百分率	用途]		
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RESIDENTIAL (GROUP A)	住宅(甲屬)	RAILWAY AND STATION (ELEVATED)		鐵路及車站(高架)	INDUSTRIAL	6.10	1.01				
	1.	MAJOR ROAD AND JUNCTION	 ;	主視蹦路及鵜口	GOVERNMENT, INSTITUTION OR COMMUNITY	70.58	11.50	数用、栅模或鞋匾			ļ
GOVERNMENT, INSTITUTION OR COMMUNITY	波府、梧桐或社区	ELEVATED ROAD	11 II. 64 4. 94 4. 19	高架道路	OPEN SPACE	21.35	3.48	体雕用油	夾附的《註釋》 履	這份罵則的一部分	1
OPEN SPACE 0	休酿用地				GREEN BELT	181.32	29.55	杜化地架	THE ATTACHED NOTES ALS	O FORM PART OF THIS PLAN	
OTHER SPECIFIED USES OU	其他指定用油	MISCELLANEOUS		其他	COASTAL PROTECTION AREA	5.88	0.96	海岸保護區			
GREEN BELT GB	緣化地帶	BOUNDARY OF PLANNING SCHEME		筑时吨 图券 被	COUNTRY PARK	115.43	18.81	영광소문 고등대하는			
COASTAL PROTECTION AREA CPA	洋岸保護區	BOUNDARY OF COUNTRY PARK / SPECIAL AREA	·	炒野公開/ 响别地盔界線				****	4		
	外野公園	BUILDING HEIGHT CONTROL ZONE BOUNDARY		油新物高度管制货币单	TOTAL PLANNING SCHEME AREA	613.65	100.00	· 規劃机圖給面積			
		MAXIMUM BUILDING HEIGHT (IN METRES ABOVE PRINCIPAL DATUM)	<u>A</u>	最高増設施高度 (在主水平基準上第千米)					1		
		MAXIMUM BUILDING MEXCHT (IN NUMBER OF STOREYS)		最高建築物高度 (總斯範月)							
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		NON-BUILDING AREA		非谁整用场							POT
行政長官を開行設全部約2013年2月5日 後編城市 検羅協会第9(1)(a)後林港的期料 APPROVED BY THE CHEFE EXECUTIVE IN COUNCIL UNDER SECTION 9(1)(a) OF THE TOWN PLANNING ORDINANCE ON SFEBRUARY 2013						hment I of Paper No.					
Ms Kinnle WONG 黃澤怡女士 CLERK TO THE EXECUTIVE COUNCIL 行政會關係書			A ANTITALS 1		SCALE 1:55000 比 6위 FC co eco	e co		eco metreza (* etrezeza		圖則編號 PLAN No. S/H20/21	13/16



		Ν	OTATION	I
ZONES		地帶		COMMUNICATIONS
 COMPREHENSIVE DEVELOPMENT AREA	CDA	綜合發展區		RAILWAY AND STATION
RESIDENTIAL (GROUP A)	R(A)	住宅(甲類)		RAILWAY AND STATION (UNDERGROUND)
INDUSTRIAL	I	工業		RAILWAY AND STATION (ELEVATED)
GOVERNMENT, INSTITUTION OR COMMUNITY	G/IC	政 府 、 機 構 或 社 區		MAJOR ROAD AND JUNCTION
OPEN SPACE	0	休憩用地		ELEVATED ROAD
OTHER SPECIFIED USES	OU	其他指定用途		
GREEN BELT	GB	綠化地帶		MISCELLANEOUS
COASTAL PROTECTION AREA	СРА	海岸保護區		BOUNDARY OF PLANNING SCHEME

COUNTRY PARK

圖例

車站 STATION

	土地用途及面積一覽表 SCHEDULE OF USES AND AREAS					
		大約面積 APPROXIMA	及百分率 TE AREA & %	шх		
交通	0565	公頃 HECTARES	% 百分率	田述		
鐵路及車站	COMPREHENSIVE DEVELOPMENT AREA	1.37	0.22	綜合發展區		
鐵路及車站(地下)	RESIDENTIAL (GROUP A)	72.88	11.88	住宅(甲類)		
鐵路及車站(高架)	INDUSTRIAL	6.19	1.01	工業		
主要道路及路口	GOVERNMENT, INSTITUTION OR COMMUNITY	70.58	11.50	政府、機構或社區		
宣加诺叻	OPEN SPACE	20.98	3.42	休憩用地		
尚 朱 追 路	OTHER SPECIFIED USES	88.15	14.37	其他指定用途		
	GREEN BELT	181.32	29.55	綠化地帶		
其他	COASTAL PROTECTION AREA	5.88	0.96	海岸保護區		
十日 中地 女女 1380 日日 《白	COUNTRY PARK	115.43	18.81	郊野公園		
况 劃 靶 闺 芥 緑	MAJOR ROAD ETC.	50.77	8.28	主要道路等		

夾附的《註釋》屬這份圖則的**一部分**, 現經修訂並按照城市規劃條例第5條展示。 THE ATTACHED NOTES ALSO FORM PART OF THIS PLAN

AND HAVE BEEN AMENDED FOR EXHIBITION UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE

核准圖編號 S/H20/21 的修訂 AMENDMENTS TO APPROVED PLAN No. S/H20/21



HONG KONG PLANNING AREA NO. 20

APPROVED DRAFT CHAI WAN OUTLINE ZONING PLAN NO. S/H20/21A

(Being an Approveda Draft Plan for the Purposes of the Town Planning Ordinance)

NOTES

(N. B. These form part of the Plan)

- (1) These Notes show the uses or developments on land falling within the boundaries of the Plan which are always permitted and which may be permitted by the Town Planning Board, with or without conditions, on application. Where permission from the Town Planning Board for a use or development is required, the application for such permission should be made in a prescribed form. The application shall be addressed to the Secretary of the Town Planning Board, from whom the prescribed application form may be obtained.
- (2) Any use or development which is always permitted or may be permitted in accordance with these Notes must also conform to any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, as may be applicable.
- (3) (a) No action is required to make the existing use of any land or building conform to this Plan until there is a material change of use or the building is redeveloped.
 - (b) Any material change of use or any other development (except minor alteration and/or modification to the development of the land or building in respect of the existing use which is always permitted) or redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Town Planning Board.
 - (c) For the purposes of subparagraph (a) above, "existing use of any land or building" means -
 - (i) before the publication in the Gazette of the notice of the first statutory plan covering the land or building (hereafter referred as 'the first plan'),
 - a use in existence before the publication of the first plan which has continued since it came into existence; or
 - a use or a change of use approved under the Buildings Ordinance which relates to an existing building; and
 - (ii) after the publication of the first plan,
 - a use permitted under a plan which was effected during the effective period of that plan and has continued since it was effected; or
 - a use or a change of use approved under the Buildings Ordinance which relates to an existing building and permitted under a plan prevailing at the time when the use or change of use was approved.

- (4) Except as otherwise specified by the Town Planning Board, when a use or material change of use is effected or a development or redevelopment is undertaken, as always permitted in terms of the Plan or in accordance with a permission granted by the Town Planning Board, all permissions granted by the Town Planning Board in respect of the site of the use or material change of use or development or redevelopment shall lapse.
- (5) Road junctions, alignments of roads and railway tracks, and boundaries between zones may be subject to minor adjustments as detailed planning proceeds.
- (6) Temporary uses (expected to be 5 years or less) of any land or building are always permitted as long as they comply with any other relevant legislation, the conditions of the Government lease concerned, and any other Government requirements, and there is no need for these to conform to the zoned use or these Notes. For temporary uses expected to be over 5 years, the uses must conform to the zoned use or these Notes.
- (7) The following uses or developments are always permitted on land falling within the boundaries of the Plan except (a) where the uses or developments are specified in Column 2 of the Notes of individual zones or (b) as provided in paragraph (8) in relation to areas zoned "Coastal Protection Area":
 - (a) provision, maintenance or repair of plant nursery, amenity planting, open space, rain shelter, refreshment kiosk, road, bus/public light bus stop or lay-by, cycle track, Mass Transit Railway station entrance, Mass Transit Railway structure below ground level, taxi rank, nullah, public utility pipeline, electricity mast, lamp pole, telephone booth, telecommunications radio base station, automatic teller machine and shrine;
 - (b) geotechnical works, local public works, road works, sewerage works, drainage works, environmental improvement works, marine related facilities, waterworks (excluding works on service reservoir) and such other public works co-ordinated or implemented by Government; and
 - (c) maintenance or repair of watercourse and grave.
- (8) In areas zoned "Coastal Protection Area",
 - (a) the following uses or developments are always permitted:
 - (i) maintenance or repair of plant nursery, amenity planting, sitting out area, rain shelter, refreshment kiosk, road, watercourse, nullah, public utility pipeline, electricity mast, lamp pole, telephone booth, shrine and grave; and
 - (ii) geotechnical works, local public works, road works, sewerage works, drainage works, environmental improvement works, marine related facilities, waterworks (excluding works on service reservoir) and such other public works co-ordinated or implemented by Government; and

(b) the following uses or developments require permission from the Town Planning Board:

provision of plant nursery, amenity planting, sitting out area, rain shelter, refreshment kiosk, footpath, public utility pipeline, electricity mast, lamp pole, telephone booth and shrine.

(9) In any area shown as 'Road', all uses or developments except those specified in paragraph (7) above and those specified below require permission from the Town Planning Board:

on-street vehicle park, railway track.

- (10) Unless otherwise specified, all building, engineering and other operations incidental to and all uses directly related and ancillary to the permitted uses and developments within the same zone are always permitted and no separate permission is required.
- (11) In these Notes, "existing building" means a building, including a structure, which is physically existing and is in compliance with any relevant legislation and the conditions of the Government lease concerned.

HONG KONG PLANNING AREA NO. 20

APPROVED CHAI WAN OUTLINE ZONING PLAN NO. S/H20/21A

Schedule of Uses

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Column 1	Column 2
Uses always permitted	Uses that may be permitted with or
	without conditions on application
	to the Town Planning Board
	Ambulance Depot
	Commercial Bathhouse/Massage Establishment
	Eating Place
	Educational Institution
	Exhibition or Convention Hall
	Flat
	Government Refuse Collection Point
	Government Use (not elsewhere specified)
	Hospital
	Hotel
	House
	Information Technology and
	Institutional Lies (not allow here specified)
	Librory
	Libiai y Morkot
	Marst Transit Railway Vent Shaft and/or Other Structure
	above Ground Level other than Entrances
	Off-course Betting Centre
	Office
	Petrol Filling Station
	Place of Entertainment
	Place of Recreation, Sports or Culture
	Private Club
	Public Clinic
	Public Convenience
	Public Transport Terminus or Station
	Public Utility Installation
	Public Vehicle Park (excluding container vehicle)
	Recyclable Collection Centre
	Religious Institution
	Research, Design and Development Centre
	Residential Institution
	School Shan and Samiasa
	Snop and Services
	Social Wellare Facility Training Contro
	Italiing Conuc Utility Installation for Private Project
	ounty instantion for rivate rioject

COMPREHENSIVE DEVELOPMENT AREA

Planning Intention

This zone is intended for comprehensive development/redevelopment of the area for residential and/or commercial uses with the provision of open space and other supporting facilities. The zoning is to facilitate appropriate planning control over the development mix, scale, design and layout of development, taking account of various environmental, traffic, infrastructure and other constraints.

<u>COMPREHENSIVE DEVELOPMENT AREA (cont'd)</u>

<u>Remarks</u>

- (1) Pursuant to section 4A(2) of the Town Planning Ordinance, and except as otherwise expressly provided that it is not required by the Town Planning Board, an applicant for permission for development on land designated "Comprehensive Development Area" or "Comprehensive Development Area (1)" shall prepare a Master Layout Plan for the approval of the Town Planning Board and include therein the following information :-
 - (i) the area of the proposed land uses, the nature, position, dimensions, and heights of all buildings to be erected in the area;
 - (ii) the proposed total site area and gross floor area for various uses, total number of flats and flat size, where applicable;
 - (iii) the details and extent of Government, institution or community (GIC) and recreational facilities, public transport and parking facilities, and open space to be provided within the area;
 - (iv) the alignment, widths and levels of any roads proposed to be constructed within the area;
 - (v) the landscape and urban design proposals within the area;
 - (vi) programmes of development in detail;
 - (vii) an environmental assessment report to examine any possible environmental problems that may be caused to or by the proposed development during and after construction and the proposed mitigation measures to tackle them;
 - (viii) a drainage and sewerage impact assessment report to examine any possible drainage and sewerage problems that may be caused by the proposed development and the proposed mitigation measures to tackle them;
 - (ix) a traffic impact assessment report to examine any possible traffic problems that may be caused by the proposed development and the proposed mitigation measures to tackle them;
 - (x) an air ventilation assessment report to examine any possible air ventilation problems that may be caused by the proposed development and the proposed mitigation measures to tackle them;
 - (xi) a visual impact assessment to examine any possible visual impacts that may be caused by the proposed development and the proposed mitigation measures to tackle them; and
 - (xii) such other information as may be required by the Town Planning Board.
- (2) The Master Layout Plan should be supported by an explanatory statement which contains an adequate explanation of the development proposal, including such information as land tenure, relevant lease conditions, existing conditions of the site, the character of the site in relation to the surrounding areas, principles of layout design, major development parameters, design population, types of GIC facilities, and recreational and open space facilities.
- (3) On land designated "Comprehensive Development Area", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of metres above Principal Datum, as stipulated on the Plan, or the height of the existing building, whichever is the greater. The provision for development/redevelopment to the height of the existing building is not applicable to part of the Chai Wan Flatted Factory site which is subject to a maximum building height of 21mPD, as stipulated on the Plan.

<u>COMPREHENSIVE DEVELOPMENT AREA</u> (cont'd)

Remarks (cond't)

- (4) On land designated "Comprehensive Development Area (1)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum gross floor area of 86,268m² and the maximum building height, in terms of metres above Principal Datum, as stipulated on the Plan, or the gross floor area and the height of the existing building, whichever is the greater.
- (5) In determining the maximum gross floor area for the purposes of paragraph (4) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room, caretaker's office and caretaker's quarters, or recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded. Any floor space that is constructed or intended for use solely as public transport facilities, or GIC facilities, as required by the Government, may also be disregarded.
- (6) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height and gross floor area restrictions stated in paragraphs (3) and (4) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

RESIDENTIAL (GROUPA)

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot	Commercial Bathhouse/Massage Establishment
Flat	Eating Place
Government Use (not elsewhere specified)	Educational Institution
House	Exhibition or Convention Hall
Library	Government Refuse Collection Point
Market	Hospital
Place of Recreation, Sports or Culture	Hotel
Public Clinic	Institutional Use (not elsewhere specified)
Public Transport Terminus or Station	Mass Transit Railway Vent Shaft and/or Other Structure
(excluding open-air terminus or station)	above Ground Level other than Entrances
Residential Institution	Office
School (in free-standing purpose-designed	Petrol Filling Station
building only)	Place of Entertainment
Social Welfare Facility	Private Club
Utility Installation for Private Project	Public Convenience
	Public Transport Terminus or Station (not elsewhere specified)
	Public Utility Installation
	Public Vehicle Park (excluding container vehicle)
	Religious Institution
	School (not elsewhere specified)
	· · · · · · · · · · · · · · · · · · ·

Shop and Services Training Centre

RESIDENTIAL (GROUP A) (cont'd)

In addition, the following uses are always permitted (a) on the lowest three floors of a building, taken to include basements; or (b) in the purpose-designed non-residential portion of an existing building, both excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room:

Eating Place Educational Institution Institutional Use (not elsewhere specified) Off-course Betting Centre Office Place of Entertainment Private Club Public Convenience Recyclable Collection Centre School Shop and Services Training Centre

Planning Intention

This zone is intended primarily for high-density residential developments. Commercial uses are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building.

Remarks

- (1) On land designated "Residential (Group A)" ("R(A)"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum, as stipulated on the Plan, or the height of the existing building, whichever is the greater.
- (2) On land designated "R(A)1", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of metres above Principal Datum, as stipulated on the Plan.

RESIDENTIAL (GROUPA) (cont'd)

Remarks (cont'd)

- (3) A minimum 30m wide non-building area to the south of Hing Man Estate shall be provided as stipulated on the Plan. In addition, a minimum 20m wide non-building area shall be provided within Tsui Wan Estate (covering part of Tsui Wan Street), and a minimum 10m wide non-building area shall be provided from the lot boundary of Greenwood Terrace fronting Hong Man Street as stipulated on the Plan.
- (4) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restrictions stated in paragraphs (1) and (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.
- (5) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the non-building area restrictions as stipulated on the Plan or stated in paragraph (3) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

INDUSTRIAL

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Column 1 Uses always permitted Ambulance Depot Art Studio (excluding those involving direct provision of services or goods) Bus Depot Cargo Handling and Forwarding Facility (not elsewhere specified) Eating Place (Canteen, Cooked Food Centre only) Government Refuse Collection Point Government Use (not elsewhere specified) Information Technology and Telecommunications Industries Office (Audio-visual Recording Studio, Design and Media Production, Office Related to Industrial Use only) Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Recyclable Collection Centre Research, Design and Development Centre Shop and Services (Motor-vehicle Showroom on ground floor, service Trades only) Utility Installation for Private Project Vehicle Repair Workshop Warehouse (excluding Dangerous Goods Godown)	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board Broadcasting, Television and/or Film Studio Cargo Handling and Forwarding Facility (Container Freight Station, free-standing purpose-designed Logistics Centre only) Concrete Batching Plant Container Vehicle Park/Container Vehicle Repair Yard Dangerous Goods Godown Eating Place (not elsewhere specified) (in wholesale conversion of an existing building only) Educational Institution (ground floor only except in wholesale conversion of an existing building) Exhibition or Convention Hall Industrial Use (Bleaching and Dyeing Factory, Electroplating/Printed Circuit Board Manufacture Factory, Metal Casting and Treatment Factory/Workshop only) Institutional Use (not elsewhere specified) (in wholesale conversion of an existing building only) Marine Fuelling Station Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Offensive Trades Office (not elsewhere specified) Open Storage Petrol Filling Station Pier Place of Entertainment (ground floor only except in wholesale conversion of an existing building) Place of Recreation, Sports or Culture (<i>not elsewhere</i> <i>specified</i>)
	Private Club Public Clinic (in wholesale conversion of an existing building only) Religious Institution (ground floor only except in
	 wholesale conversion of an existing building) Ship-building, Ship-breaking and Ship-repairing Yard Shop and Services (not elsewhere specified) (ground floor only, except in wholesale conversion of an existing building and Ancillary Showroom[#] which may be permitted on any floor) Training Centre Vehicle Stripping/Breaking Yard Wholesale Trade

INDUSTRIAL (cont'd)

In addition, the following uses are always permitted In addition, the following use may be permitted with in the purpose-designed non-industrial portion on the or without conditions on application to the Town lower floors (except basements and floors containing Planning Board the purpose-designed in wholly or mainly car parking, loading/unloading non-industrial portion on the lower floors (except bays and/or plant room) of an existing building, basements and floors containing wholly or mainly car provided that the uses are separated from the parking, loading/unloading bays and/or plant room) industrial uses located above by a buffer floor or of an existing building, provided that the use is floors and no industrial uses are located within the separated from the industrial uses located above by a non-industrial portion: buffer floor or floors and no industrial uses are located within the non-industrial portion: Eating Place Social Welfare Facility (excluding those involving Educational Institution residential care) Exhibition or Convention Hall Institutional Use (not elsewhere specified) **Off-course Betting Centre** Office Place of Entertainment Place of Recreation, Sports or Culture Private Club **Public Clinic Religious Institution** Shop and Services

Ancillary Showroom requiring planning permission refers to showroom use of greater than 20% of the total usable floor area of an industrial firm in the same premises or building.

Training Centre

Planning Intention

This zone is intended primarily for general industrial uses to ensure an adequate supply of industrial floor space to meet demand from production-oriented industries. Information technology and telecommunications industries and office related to industrial use are also always permitted in this zone.

<u>Remarks</u>

(1) On land designated "Industrial", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 12 and the maximum building height, in terms of metres above Principal Datum, as stipulated on the Plan, or the plot ratio and the height of the existing building, whichever is the greater.

INDUSTRIAL (cont'd)

Remarks (cont'd)

- (2) In determining the maximum plot ratio for the purpose of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.
- (3) Where the permitted plot ratio as defined in Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio for the building on land to which paragraph (1) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio specified in paragraph (1) above may thereby be exceeded.
- (4) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height and plot ratio restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

GOVERNMENT, INSTITUTION OR COMMUNITY

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Ambulance Depot Animal Quarantine Centre (in Government building only) Broadcasting, Television and/or Film Studio Cable Car Route and Terminal Building Eating Place (Canteen, Cooked Food Centre only) Educational Institution Exhibition or Convention Hall Field Study/Education/Visitor Centre Government Refuse Collection Point Government Use (not elsewhere specified) Hospital Institutional Use (not elsewhere specified) Library Market Mass Transit Railway Depot (for "G/IC(3)" only) Pier Place of Recreation, Sports or Culture Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Recyclable Collection Centre Religious Institution Research, Design and Development Centre School Service Reservoir Social Welfare Facility Training Centre Wholesale Trade	Animal Boarding Establishment Animal Quarantine Centre (not elsewhere specified) Columbarium Correctional Institution Crematorium Driving School Eating Place (not elsewhere specified) Flat Funeral Facility Helicopter Landing Pad Helicopter Fuelling Station Holiday Camp Hotel House Marine Fuelling Station Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Off-course Betting Centre Office Petrol Filling Station Place of Entertainment Private Club Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation (Refuse Transfer Station only) Residential Institution Sewage Treatment/Screening Plant Shop and Services Utility Installation for Private Project Zoo

Planning Intention

This zone is intended primarily for the provision of Government, institution or community facilities serving the needs of the local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments.

GOVERNMENT, INSTITUTION OR COMMUNITY (cont'd)

Remarks

- (1) On land designated "Government, Institution or Community" ("G/IC"), no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of metres above Principal Datum or number of storeys, as stipulated on the Plan, or the height of the existing building, whichever is the greater.
- (2) On land designated "G/IC(1)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum building height of 4 storeys, except a drill tower up to 9 storeys, or the height of the existing building, whichever is the greater.
- (3) On land designated "G/IC(2)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height, in terms of metres above Principal Datum (including roof-top structures) as stipulated on the Plan, or the height of the existing building, whichever is the greater.
- (4) On land designated "G/IC(3)", no new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum building height of 8 storeys, excluding the Mass Transit Railway depot below, or the height of the existing building, whichever is the greater.
- (5) A minimum 30m wide non-building area shall be provided to the north of the Sai Wan Service Reservoir as stipulated on the Plan.
- (6) In determining the relevant maximum number of storey(s) for the purposes of paragraphs (1) and (2) above, any basement floor(s) may be disregarded.
- (7) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restrictions stated in paragraphs (1) to (4) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.
- (8) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the non-building area restriction as stipulated on the Plan or stated in paragraph (4) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

OPEN SPACE

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Aviary Field Study/Education/Visitor Centre	Barbecue Spot Cable Car Route and Terminal Building
Park and Garden	Eating Place
Pavilion	Government Refuse Collection Point
Pedestrian Area	Government Use (not elsewhere specified)
Picnic Area	Holiday Camp
Playground/Playing Field	Mass Transit Railway Vent Shaft and/or Other Structure
Promenade	above Ground Level other than Entrances
Public Convenience	Pier
Sitting Out Area	Place of Entertainment
Zoo	Place of Recreation, Sports or Culture
	Private Club
	Public Transport Terminus or Station
	Public Utility Installation
	Public Vehicle Park (excluding container vehicle)
	Religious Institution
	Service Reservoir
	Shop and Services
	Tent Camping Ground
	Utility Installation for Private Project

Planning Intention

This zone is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.

OTHER SPECIFIED USES

For "Business" only

Column 1 Uses always permitted

Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

Schedule I: for open-air development or for building other than industrial or industrial-office building[@]

Ambulance Depot Commercial Bathhouse/Massage Establishment **Eating Place Educational Institution** Exhibition or Convention Hall Government Use (Police Reporting Centre, Post Office only) Information Technology and Telecommunications Industries Institutional Use (not elsewhere specified) Library Non-polluting Industrial Use (excluding industrial undertakings involving the use/storage of Dangerous Goods#) **Off-course Betting Centre** Office Place of Entertainment Place of Recreation, Sports or Culture Private Club Public Clinic Public Convenience Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation **Recyclable Collection Centre Religious Institution** Research, Design and Development Centre School (excluding free-standing purpose-designed building and kindergarten) Shop and Services **Training Centre** Utility Installation for Private Project

Broadcasting, Television and/or Film Studio Cargo Handling and Forwarding Facility Government Refuse Collection Point Government Use (not elsewhere specified) Hotel Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Non-polluting Industrial Use (not elsewhere specified) Petrol Filling Station School (not elsewhere specified) Social Welfare Facility (excluding those involving residential care) Warehouse (excluding Dangerous Goods Godown) Wholesale Trade

For "Business" only (cont'd)

Column 1	Column 2
Uses always permitted	Uses that may be permitted with or
	without conditions on application
	to the Town Planning Board

Schedule II: for industrial or industrial-office building [@]

Ambulance Depot	Broadcasting, Television and/or Film Studio
Art Studio (excluding those involving direct provision	Cargo Handling and Forwarding Facility
of services or goods)	(Container Freight Station, free-standing
Bus Depot	purpose-designed Logistics Centre only)
Cargo Handling and Forwarding Facility	Educational Institution (ground floor only)
(not elsewhere specified)	Industrial Use (not elsewhere specified)
Eating Place (Canteen only)	Mass Transit Railway Vent Shaft and/or Other
Government Refuse Collection Point	Structure above Ground Level other than Entrances
Government Use (not elsewhere specified)	Off-course Betting Centre
Information Technology and Telecommunications	Office (not elsewhere specified)
Industries	Petrol Filling Station
Non-polluting Industrial Use (excluding industrial	Place of Entertainment (ground floor only)
undertakings involving the use/storage of	Place of Recreation, Sports or Culture (not elsewhere
Dangerous Goods#)	specified)
Office (excluding those involving direct provision	Private Club
of customer services or goods)	Religious Institution (ground floor only)
Public Convenience	Shop and Services (not elsewhere specified)
Public Transport Terminus or Station	(ground floor only except Ancillary
Public Utility Installation	Showroom* which may be permitted on any
Public Vehicle Park (excluding container vehicle)	floor)
Radar, Telecommunications Electronic Microwave	Training Centre
Repeater, Television and/or Radio Transmitter	Vehicle Repair Workshop
Installation	Wholesale Trade
Recyclable Collection Centre	
Research, Design and Development Centre	
Shop and Services (Motor-vehicle Showroom	
on ground floor, Service Trades only)	

In addition, for building without industrial undertakings involving offensive trades or the use/storage of Dangerous Goods#, the following use is always permitted :

Warehouse (excluding Dangerous Goods Godown)

Utility Installation for Private Project

Office

For "Business" only (cont'd)

In addition, the following uses are always permitted in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the uses are separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:

In addition, the following use may be permitted with or without conditions on application to the Town Planning Board in the purpose-designed non-industrial portion on the lower floors (except basements and floors containing wholly or mainly car parking, loading/unloading bays and/or plant room) of an existing building, provided that the use is separated from the industrial uses located above by a buffer floor or floors and no industrial uses are located within the non-industrial portion:

Commercial Bathhouse/Massage Establishment **Eating Place Educational Institution** Exhibition or Convention Hall Institutional Use (not elsewhere specified) Library Off-course Betting Centre Office Place of Entertainment Place of Recreation, Sports or Culture Private Club **Public Clinic Religious Institution** School (excluding kindergarten) Shop and Services **Training Centre**

Social Welfare Facility (excluding those involving residential care)

- @ An industrial or industrial-office building means a building which is constructed for or intended to be used by industrial or industrial-office purpose respectively as approved by the Building Authority.
- # Dangerous Goods refer to substances classified as Dangerous Goods and requiring a licence for their use/storage under the Dangerous Goods Ordinance (Cap. 295).
- * Ancillary Showroom requiring planning permission refers to showroom use of greater than 20% of the total usable floor area of an industrial firm in the same premises or building.

Planning Intention

This zone is intended primarily for general business uses. A mix of information technology and telecommunications industries, non-polluting industrial, office and other commercial uses are always permitted in new "business" buildings. Less fire hazard-prone office use that would not involve direct provision of customer services or goods to the general public is always permitted in existing industrial or industrial-office buildings.

For "Business" Only (cont'd)

Remarks

- (1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of a maximum plot ratio of 12, and the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, or the plot ratio and height of the existing building, whichever is the greater. The provision for development/redevelopment to the height of the existing building is not applicable to an area between Chai Wan Industrial Centre and Minico Building which is subject to a maximum building height of 23mPD, as stipulated on the Plan.
- (2) A minimum 3m wide non-building area shall be provided from the lot boundary of 45 Kut Shing Street and 10 Hong Man Street fronting Hong Man Street, and 4m from the lot boundary of 44 Lee Chung Street and 40 Lee Chung Street fronting Hong Man Street as stipulated on the Plan.
- (3) In determining the relevant maximum plot ratio for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room and caretaker's office, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded.
- (4) Where the permitted plot ratio as defined in the Building (Planning) Regulations is permitted to be exceeded in circumstances as set out in Regulation 22(1) or (2) of the said Regulations, the plot ratio for the building on land to which paragraph (1) applies may be increased by the additional plot ratio by which the permitted plot ratio is permitted to be exceeded under and in accordance with the said Regulation 22(1) or (2), notwithstanding that the relevant maximum plot ratio specified in paragraph (1) above may thereby be exceeded.
- (5) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height and plot ratio restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.
- (6) Under exceptional circumstances, for a development or redevelopment proposal, minor relaxation of the non-building area restriction as stipulated on the Plan or stated in paragraph (2) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

Column 1 Uses always permitted Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Cargo Handling Area" only

Cargo Handling Area Public Convenience Government Use Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is intended to reserve land for cargo handling area use.

Remarks

- (1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storeys as stipulated on the Plan, or the height of the existing building, whichever is the greater.
- (2) In determining the maximum number of storey(s) for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.
- (3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

Column 1 Uses always permitted Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Cemetery" only

Columbarium Crematorium Funeral Facility Government Use Grave Public Convenience Place of Recreation, Sports or Culture Public Transport Terminus or Station Public Utility Installation Religious Institution Shop and Services Utility Installation for Private Project

Planning Intention

This zone is intended to reserve land for cemetery use.

<u>Remarks</u>

- (1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storeys as stipulated on the Plan, or the height of the existing building, whichever is the greater.
- (2) In determining the maximum number of storey(s) for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.
- (3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.
Column 1 Uses always permitted Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Columbarium" only

Columbarium Garden of Remembrance Government Use Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is primarily for land intended for columbarium and garden of remembrance use.

<u>Remarks</u>

- (1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storeys as stipulated on the Plan, or the height of the existing building, whichever is the greater.
- (2) In determining the maximum number of storey(s) for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.
- (3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restriction stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

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OTHER SPECIFIED USES (cont'd)

Column 1 Uses always permitted Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Mass Transit Railway Comprehensive Development Area" only

Ambulance Depot	Broadcasting, Television and/or Film Studio
Eating Place	Commercial Bathhouse/Massage Establishment
Educational Institution (in a commercial building or in the	Educational Institution (not elsewhere specified)
purpose-designed non-residential portion ⁺ of an	Government Refuse Collection Point
existing building only)	Hotel
Exhibition or Convention Hall	Institutional Use (not elsewhere specified)
Flat	Mass Transit Railway Vent Shaft and/or Other
Government Use (not elsewhere specified)	Structure above Ground Level other than Entrances
House	Petrol Filling Station
Mass Transit Railway Depot	Pier
Library	Public Convenience
Market	Recyclable Collection Centre
Off-course Betting Centre	Religious Institution
Office	School (not elsewhere specified)
Place of Entertainment	
Place of Recreation, Sports or Culture	
Private Club	
Public Clinic	
Public Transport Terminus or Station	
Public Utility Installation	
Public Vehicle Park (excluding container vehicle)	
Residential Institution	
School (in a free-standing purpose-designed school building	,
in a commercial building or in the purpose-designed	
non-residential portion ⁺ of an existing building only)	
Shop and Services	
Social Welfare Facility	
Training Centre	
Utility Installation for Private Project	

+ Excluding floors containing wholly or mainly car parking, loading/unloading bays and/or plant room.

Planning Intention

This zone is intended to demarcate the Heng Fa Chuen residential site and its adjoining area.

For "Mass Transit Railway Comprehensive Development Area" only (cont'd)

Remarks

- (1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum as stipulated on the Plan, and a maximum gross floor area of 425,000m² for residential use and 26,750m² for commercial use, or the height and gross floor area of the existing building, whichever is the greater.
- (2) In determining the maximum gross floor area for the purposes of paragraph (1) above, any floor space that is constructed or intended for use solely as car park, loading/unloading bay, plant room or caretaker's office and caretaker's quarters or recreational facilities for the use and benefit of all the owners or occupiers of the domestic building or domestic part of the building, provided such uses and facilities are ancillary and directly related to the development or redevelopment, may be disregarded. Any floor space that is constructed or intended for use solely as rail depot and station, public transport facilities, and GIC facilities, as required by the Government, may also be disregarded.
- (3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height and gross floor area restrictions stated in paragraph (1) above, may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

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Column 1 Uses always permitted Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For "Refuse Transfer Station" only

Refuse Transfer Station

Government Use (not elsewhere specified) Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is intended to reserve land for the purpose of a refuse transfer station.

<u>Remarks</u>

- (1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of number of storeys as stipulated on the Plan, or the height of the existing building, whichever is the greater.
- (2) In determining the maximum number of storey(s) for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.
- (3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

(please see next page)

Column 1 Uses always permitted Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board

For All Other Sites (Not Listed Above)

As Specified on the Plan

Government Use Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Public Utility Installation Utility Installation for Private Project

Planning Intention

This zone is intended to identify land reserved for purposes as specified on the plan.

Remarks

- (1) No new development, or addition, alteration and/or modification to or redevelopment of an existing building shall result in a total development and/or redevelopment in excess of the maximum building height in terms of metres above Principal Datum or number of storeys as stipulated on the Plan, or the height of the existing building, whichever is the greater.
- (2) In determining the maximum number of storey(s) for the purposes of paragraph (1) above, any basement floor(s) may be disregarded.
- (3) Based on the individual merits of a development or redevelopment proposal, minor relaxation of the building height restrictions stated in paragraph (1) above may be considered by the Town Planning Board on application under section 16 of the Town Planning Ordinance.

GREEN BELT

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use Country Park* Government Use (Police Reporting Centre only) Nature Reserve Nature Trail On-Farm Domestic Structure Picnic Area Public Convenience Tent Camping Ground Wild Animals Protection Area	Animal Boarding Establishment Barbecue Spot Broadcasting, Television and/or Film Studio Burial Ground Cable Car Route and Terminal Building Columbarium (within a Religious Institution or extension of existing Columbarium only) Crematorium (within a Religious Institution or extension of existing Crematorium only) Field Study/Education/Visitor Centre Flat Funeral Facility Government Refuse Collection Point Government Use (not elsewhere specified) Holiday Camp House Marine Fuelling Station Mass Transit Railway Vent Shaft and/or Other Structure above Ground Level other than Entrances Petrol Filling Station Pier Place of Recreation, Sports or Culture Public Transport Terminus or Station Public Utility Installation Public Vehicle Park (excluding container vehicle) Radar, Telecommunications Electronic Microwave Repeater, Television and/or Radio Transmitter Installation Religious Institution School Service Reservoir Social Welfare Facility Utility Installation for Private Project Zoo

*Country Park means a country park or special area as designated under the Country Parks Ordinance (Cap. 208). All uses and developments require consent from the Country and Marine Parks Authority and approval from the Town Planning Board is not required.

Planning Intention

The planning intention of this zone is primarily for the conservation of the existing natural environment amid the built-up areas/at the urban fringe, to safeguard it from encroachment by urban type development, and to provide additional outlets for passive recreational activities. There is a general presumption against development within this zone.

COASTAL PROTECTION AREA

Column 1 Uses always permitted	Column 2 Uses that may be permitted with or without conditions on application to the Town Planning Board
Agricultural Use (other than Plant Nursery)	Barbecue Spot
Nature Reserve	Field Study/Education/Visitor Centre
Nature Trail	Government Use
On-Farm Domestic Structure	Holiday Camp
Picnic Area	House (Redevelopment only)
Wild Animals Protection Area	Pier
	Public Convenience
	Public Utility Installation
	Radar, Telecommunications Electronic
	Microwave Repeater, Television
	and/or Radio Transmitter Installation

Planning Intention

Tent Camping Ground

Utility Installation for Private Project

This zoning is intended to conserve, protect and retain the natural coastlines and the sensitive coastal natural environment, including attractive geological features, physical landform or area of high landscape, scenic or ecological value, with a minimum of built development. It may also cover areas which serve as natural protection areas sheltering nearby developments against the effects of coastal erosion.

There is a general presumption against development in this zone. In general, only developments that are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest may be permitted.

Remarks

No redevelopment, including alteration and/or modification, of an existing house shall result in a total redevelopment in excess of the plot ratio, site coverage and height of the house which was in existence on the date of the first publication in the Gazette of the notice of the draft Chai Wan Outline Zoning Plan No. S/H20/16.

COUNTRY PARK

Country Park means a country park or special area as designated under the Country Parks Ordinance (Cap. 208). All uses and developments require consent from the Country and Marine Parks Authority and approval from the Town Planning Board is not required.

HONG KONG PLANNING AREA NO. 20

APPROVED DRAFT CHAI WAN OUTLINE ZONING PLAN NO. S/H20/21A

EXPLANATORY STATEMENT

HONG KONG PLANNING AREA NO. 20

APPROVED DRAFT CHAI WAN OUTLINE ZONING PLAN NO. S/H20/21A

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HONG KONG PLANNING AREA NO. 20

APPROVED DRAFT CHAI WAN OUTLINE ZONING PLAN NO. S/H20/21A

(Being an Approved a Draft Plan for the Purposes of the Town Planning Ordinance)

EXPLANATORY STATEMENT

Note: For the purposes of the Town Planning Ordinance, this statement shall not be deemed to constitute a part of the Plan.

1. <u>INTRODUCTION</u>

This explanatory statement is intended to assist an understanding of the approved *draft* Chai Wan Outline Zoning Plan (OZP) No. S/H20/21A. It reflects the planning intention and objectives of the Town Planning Board (the Board) for the various land use zonings of the Plan.

2. <u>AUTHORITY FOR THE PLAN AND PROCEDURES</u>

- 2.1 On 9 August 1957, the draft Chai Wan Outline Development Plan No. LH20/1/2, being the first statutory plan covering the Chai Wan area, was gazetted under the Town Planning Ordinance (the Ordinance). Since then, the plan had been amended many times to reflect the changing circumstances and updated land use development.
- 2.2 On 6 September 1988, the Chai Wan OZP No. S/H20/4 was approved by the then Governor in Council under section 9(1)(a) of the Ordinance. On 6 November 1990, the then Governor in Council referred the approved OZP to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. Since then, the OZP had been amended ten times and exhibited for public inspection under section 5 or 7 of the Ordinance to reflect the changing circumstances.
- 2.3 On 26 November 2002, the Chief Executive in Council (CE in C), under section 9(1)(a) of the Ordinance, approved the draft Chai Wan OZP, which was subsequently renumbered as S/H20/15. On 8 July 2003, the CE in C referred the approved Chai Wan OZP No. S/H20/15 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. On 21 October 2004, the draft Chai Wan OZP No. S/H20/16 was exhibited for public inspection under section 5 of the Ordinance.
- 2.4 On 8 November 2005, the CE in C under section 9(1)(a) of the Ordinance, approved the draft Chai Wan OZP, which was subsequently renumbered as S/H20/17. On 20 June 2006, the CE in C referred the approved Chai Wan OZP No. S/H20/17 to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. *The OZP was amended three times and exhibited for public inspection under section 5 or 7 of the Ordinance.*

- 2.5 On 30 June 2011, the draft Chai Wan OZP No. S/H20/18, incorporating amendments to the Notes of the "Industrial" zone, was exhibited for public inspection under section 5 of the Ordinance. During the exhibition period, a total of 5 representations were received. On 23 September 2011, the Board published the representations for 3 weeks for public comments and no comments were received. After giving consideration to the representations on 3 February 2012, the Board decided not to uphold the representations.
- 2.6 On 11 November 2011, the draft Chai Wan OZP No. S/H20/19, incorporating amendments relating to the extension of the western boundary of the OZP, rezoning of a few sites and deletion of a previously proposed pier, was exhibited for public inspection under section 7 of the Ordinance. During the exhibition period, a total of 2 representations were received. On 3 February 2012, the Board published the representations for 3 weeks for public comments and no public comments were received. After giving consideration to the representations on 22 June 2012, the Board decided not to uphold the representations.
- 2.7 On 20 January 2012, the draft Chai Wan OZP No. S/H20/20, incorporating amendments mainly relating to the imposition of building height restrictions for various zones and plot ratio restrictions for the "Industrial" and "Other Specified Uses" annotated "Business" zones, rezoning of "Commercial/Residential" ("C/R") sites to "Residential (Group A)" ("R(A)") and rezoning proposals to reflect their as built situation, was exhibited for public inspection under section 7 of the Ordinance. During the exhibition period, a total of 284 representations were received. On 10 April 2012, the Board published the representations for 3 weeks for public comments and 1 comment was received. After giving consideration to the representations and comment on 27 July 2012, the Board decided not to uphold the representations.
- 2.85 On 5 February 2013, the CE in C, under section 9(1)(a) of the Ordinance, approved the draft Chai Wan OZP, which was subsequently renumbered as S/H20/21. On 22 February 2013, the approved Chai Wan OZP No. S/H20/21 (the Plan) was exhibited for public inspection under section 9(5) of the Ordinance. On 29 April 2014, the CE in C agreed to refer the approved Chai Wan OZP to the Board for amendment under section 12(1)(b)(ii) of the Ordinance. The reference back of the OZP was notified in the Gazette on 16 May 2014 under section 12(2) of the Ordinance.
- 2.6 On _____ September 2016, the draft Chai Wan OZP No. S/H20/21A (the Plan), incorporating amendments mainly to rezone a site at the junction of Chai Wan Road, Wing Ping Street and San Ha Street from "Open Space" to "Residential (Group A)", and to rezone a site at Cape Collinson Road from "Other Specified Uses" annotated "Funeral Parlour" to "Other Specified Uses" annotated "Columbarium", was exhibited for public inspection under section 5 of the Ordinance.

3. <u>OBJECT OF THE PLAN</u>

- 3.1 The object of the Plan is to indicate the broad land use zonings and major transport networks so that development and redevelopment within the Planning Scheme Area can be put under statutory planning control.
- 3.2 The Plan is to illustrate only the broad principles of development within the Planning Scheme Area. It is a small-scale plan and the transport alignments and boundaries between the land use zones may be subject to minor alterations as detailed planning proceeds.
- 3.3 Since the Plan is to show broad land use zoning, there would be cases that small strips of land not intended for building development purposes and carry no development right under the lease, such as the areas restricted for garden, slope maintenance and access road purposes, are included in the residential zones. The general principle is that such areas should not be taken into account in plot ratio and site coverage calculation. Development within residential zones should be restricted to building lots carrying development right in order to maintain the character and amenity of the Chai Wan area and not to overload the road network in this area.

4. <u>NOTES OF THE PLAN</u>

- 4.1 Attached to the Plan is a set of Notes which shows the types of uses or developments which are always permitted within the Planning Scheme Area and in particular zones and which may be permitted by the Board, with or without conditions, on application. The provision for application for planning permission under section 16 of the Ordinance allows greater flexibility in land use planning and control of development to meet changing needs.
- 4.2 For the guidance of the general public, a set of definitions that explains some of the terms used in the Notes may be obtained from the Technical Services Division of the Planning Department and can be downloaded from the Board's website at <u>http://www.info.gov.hk/tpb</u>.

5. <u>THE PLANNING SCHEME AREA</u>

- 5.1 The Planning Scheme Area (the Area) is located in the eastern part of Hong Kong Island. It is bounded by Heng Fa Chuen to the north, Tai Tam Country Park to the west, and Shek O Country Park to the south. To the east, it extends to the waterfront. The boundary of the Area is shown by a heavy broken line on the Plan. It covers an area of about 614 hectares of land. Developments in the Area are mainly on land reclaimed from the sea, with reclamation started in 1961.
- 5.2 Chai Wan has been predominantly a public housing area. There exist a number of public rental housing estates, Home Ownership Schemes (HOS) and Private Sector Participation Schemes (PSPS) developments. Nevertheless, there are also a number of private residential developments, such as Heng Fa Chuen on top of

and adjacent to the Mass Transit Railway (MTR) depot and Island Resort in Siu Sai Wan.

- 5.3 Chai Wan is also one of the major industrial areas on Hong Kong Island. Industrial developments are located around Lee Chung Street near MTR Chai Wan Station and adjacent to the cargo handling basin.
- 5.4 Siu Sai Wan has been developed mainly for residential uses with some government, institution and community (GIC) uses. Public rental housing estates, HOS and PSPS developments have been developed along the foothills of Pottinger Peak. Adjoining it is the Siu Sai Wan reclamation area which has been developed for both public and private housing, sports ground, open space and GIC facilities.
- 5.5 The hillside to the south along Cape Collinson Road is dominated by cemeteries including crematorium and columbarium uses. The Area also covers parts of Shek O Country Park and Tai Tam Country Park.

6. <u>POPULATION</u>

According to the 2006-2011 Population By-Census, the population of the Area was about 182,800179,050. It is estimated that the planned population of the Area would be about 186,300178,510.

7. <u>BUILDING HEIGHT RESTRICTIONS</u>

- 7.1 In the absence of building height control, tall buildings may proliferate at random locations and the scale may be out-of-context in the locality, resulting in negative impacts on the visual quality of the Area and may sometimes obstructing air ventilation. In order to provide better planning control on the development intensity and building height upon development/redevelopment, to prevent excessively tall or out-of-context buildings and to meet public aspirations for greater certainty and transparency in the statutory planning system, a review of the Chai Wan OZP has been undertaken with a view to incorporating appropriate building height restrictions on the Plan for various development zones.
- 7.2 The review has taken into account urban design considerations and various factors including preservation of public view to the ridgelines, the stepped height concept in general as recommended in the Urban Design Guidelines, the local topography and characteristics, local wind environment, compatibility of building masses in the wider setting, as well as the need to strike a balance between public interest and private development rights.
- 7.3 Building height restrictions of 35 to 100 metres above Principal Datum (mPD) are generally adopted for the "Other Specified Uses" ("OU"), "Government, Institution or Community" ("G/IC") and "Industrial" ("T") sites located at the central waterfront around the Basin area. Specific "OU" and "G/IC" sites directly abutting the waterfront are restricted to more stringent height restrictions to maintain the low-rise character of waterfront developments. Further inland in the

Chai Wan Town Centre area, maximum height of 100 to 120mPD are adopted in order to achieve a stepped building height profile and to preserve the existing view to the ridgelines.

- 7.4 Following the topography of the area which rises further uphill in the northern, western and southern peripheries, and against the mountain backdrop, higher building height restrictions of 70 to 140mPD and 160 to 210mPD are adopted respectively for the Pamela Youde Nethersole Eastern Hospital under "G/IC" zoning at the northern periphery and the "R(A)" zones located in the southern periphery of the area in Siu Sai Wan/areas north of Cape Collinson Road as well as in the western periphery area near the foothills of Mount Parker.
- 7.5 Specific building height restrictions for the "G/IC" and "OU" zones in terms of number of storeys or mPD, which mainly reflect the building heights of existing and committed developments, have been incorporated into the Plan to provide visual and spatial relief to the high density environment of the Area.
- 7.6 An Expert Evaluation on Air Ventilation Assessment (AVA) has been undertaken to assess the existing wind environment and the likely impact of the proposed building heights of the development sites within the Area on the pedestrian wind environment. The building height and non-building area restrictions as well as the building gap requirements incorporated into the Plan have taken the findings of the AVA into consideration.
- 7.7 In general, the major prevailing annual wind comes from the north-east and east directions, and the prevailing summer wind mainly comes from the south-west, south, south-east to east directions. There are strong northeast-southwest and east-southwest channelling effects at or near the ground level due to the surrounding topography and the area's proximity to the waterfront.
- 7.8 To facilitate better air ventilation in the Area, the AVA has recommended that existing open space and low-rise GIC or OU sites and the major breezeways should be maintained to allow penetration of wind inland. Non-building areas (NBAs) and building gaps are stipulated on the Plan to facilitate the air ventilation at major ventilation corridors. Furthermore, future developments are encouraged to adopt suitable design measures to minimize any possible adverse air ventilation impacts. These include greater permeability of podiums, wider gap between buildings, building set-back to create air/wind path for better ventilation and minimizing the blocking of air/wind flow through positioning of building towers and podiums to align with the prevailing wind directions, as appropriate.
- 7.9 In general, a minor relaxation clause in respect of building height restrictions is incorporated into the Notes of the Plan in order to provide incentive for developments/redevelopments with planning and design merits and to cater for circumstances with specific site constraints. Each planning application for minor relaxation of building height restrictions under section 16 of the Ordinance will be considered on its own merits and the relevant criteria for consideration of such application are as follows:
 - (a) amalgamating smaller sites for achieving better urban design and local area improvements;

- (b) accommodating the bonus plot ratio granted under the Buildings Ordinance in relation to surrender/dedication of land/area for use as a public passage/street widening;
- (c) providing better streetscape/good quality street level public urban space;
- (d) providing separation between buildings to enhance air and visual permeability;
- (e) accommodating building design to address specific site constraints in achieving the permissible plot ratio under the Plan; and
- (f) other factors such as need for tree preservation, innovative building design and planning merits that would bring about improvements to townscape and amenity of the locality and would not cause adverse landscape and visual impacts.
- 7.10 However, for any existing building with building height already exceeding the building height restrictions in terms of mPD and/or number of storeys as stated in the Notes of the Plan and/or stipulated on the Plan, there is a general presumption against such application for minor relaxation unless under exceptional circumstances.

<u>NBAs</u>

- 7.11 In order to facilitate ventilation along major corridors, 3 NBAs are designated in the area:
 - (a) a 30m wide NBA is designated to the south of Hing Man Estate to facilitate air ventilation along the southwest-northeast air corridor. It will facilitate the valley wind to flow over the 4-storeyed Chai Wan Health Centre across Chai Wan Road towards the proposed NBA along Hong Man Street;
 - (b) NBAs are designated along Hong Man Street to facilitate the flowing of valley winds from the southerly quarters. These comprise a 10m wide NBA from the lot boundary of Greenwood Terrace, 3m wide NBAs from the lot boundary of 45 Kut Shing Street and 10 Hong Man Street fronting Hong Man Street, 4m wide NBAs from the lot boundary of 44 Lee Chung Street and 40 Lee Chung Street fronting Hong Man Street with the 6m wide footpath between them; and
 - (c) a 20m wide NBA within Tsui Wan Estate (covering part of Tsui Wan Street) is designated to facilitate the air ventilation along the major southwest-northeast air path and the penetration of sea breeze between the waterfront and the inland.

Building Gaps

7.12 Gaps between buildings play a key role in creating air paths by appropriate design and disposition of building blocks.

- (a) A 5m wide setback requirement within the "CDA" zone above 21mPD (about 15m above ground level) along the northwestern side of the existing Chai Wan Flatted Factory is imposed. With wind channeling through the existing 3-storeyed Telephone Exchange Building at Cheung Lee Street to Chui Hang Street, Lee Chung Street and the existing open-air bus terminus at Ning Foo Street, the proposed setback together with Chui Hang Street will create a 20m wide building gap to facilitate air ventilation along the major southwest-northeast air path; and
- (b) A 15m wide building gap above 23mPD (about 15m above ground level) between two existing industrial buildings, namely Chai Wan Industrial Centre and Minico Building, is introduced taking account of the existing building gap above podium level for air/wind penetration as well as visual permeability, and to facilitate the air ventilation along the major southwest-northeast air path.

8. <u>LAND USE ZONINGS</u>

- 8.1 <u>Comprehensive Development Area ("CDA")</u> : Total Area 1.37 ha
 - 8.1.1 This zone is intended for comprehensive development/redevelopment of the area for residential and/or commercial uses with the provision of open space and other supporting facilities. The zoning is to facilitate appropriate planning control over the development mix, scale, design and layout of development, taking account of various environmental, traffic, infrastructure and other constraints.
 - 8.1.2 This zone covers two sites, one located to the immediate west of the MTR Chai Wan Station and the other one at Chai Wan Road near Siu Sai Wan Road. Pursuant to section 4A(1) of the Ordinance, any development within the "CDA" zone would require approval of the Board by way of a planning application under section 16 of the Ordinance. A Master Layout Plan (MLP) should be submitted in accordance with the requirements as specified in the Notes for the approval of the Board pursuant to section 4A(2) of the Ordinance. A copy of the approved MLP would be available for public inspection in the Land Registry pursuant to section 4A(3) of the Ordinance.
 - 8.1.3 The "CDA" site to the immediate west of the MTR Chai Wan Station is for the redevelopmentconservation and conversion of the Chai Wan Flatted Factory (CWFF) building for public rental housing use. The conservation and conversion project of the CWFF building is already completed.—The site is subject to a maximum building height of 120mPD.—Maximum building height of 21mPD (about 15m above ground level) is imposed for part of the site along Chui Hang Street to facilitate air ventilation.—Since the site is subject to air and noise pollution generated by the nearby industrial uses and traffic on nearby roads, due regard should be given to these environmental problems in formulating a redevelopment scheme for the site. A planning brief

will be prepared to guide the future development of this "CDA" site.

- 8.1.4 The "CDA(1)" site at Chai Wan Road near Siu Sai Wan Road covers part of the bus depot, formerly occupied by the China Motor Bus (CMB), and the adjoining bus terminus. It is intended for comprehensive development/redevelopment for residential and/or commercial uses with the provision of supporting facilities. While a maximum building height restriction of 140mPD is imposed, a stepped height profile should be adopted for future development. To ensure that the development will be of compatible scale, a maximum total gross floor area of 86,268m² is specified in the Notes of the Plan.
- 8.1.5 Minor relaxation of the gross floor area and building height restrictions may be considered by the Board on application. Each application will be considered on its own merits.
- 8.2 Residential (Group A) ("R(A)") : Total Area 72.5172.88 ha
 - 8.2.1 This zoning is intended primarily for high-density residential developments. Commercial uses such as shops, services and eating places are always permitted on the lowest three floors of a building or in the purpose-designed non-residential portion of an existing building.
 - 8.2.2 Public housing projects include public rental housing estates, HOS and PSPS and a few private residential developments are within this zone. Major community facilities and open space as well as commercial facilities are provided within these public housing developments to serve the needs of the residents.
 - 8.2.3 Developments and redevelopments within the "R(A)" zone are subject to building height restrictions as stipulated on the Plan or the height of the existing building, whichever is the greater. Following the topography of the area and adopting the urban design principle of stepped heights, residential developments within the zone are restricted to the range of 100mPD to 120mPD at the town centre and the Siu Sai Wan waterfront area (with the exception of Island Resort); 100mPD to 140mPD at the inland area in Siu Sai Wan and along the foothills of Pottinger Peak in the south and Mount Parker in the west and 160 to 210mPD for the uphill location in the western periphery area near Mount Parker.
 - 8.2.4 Island Resort on the waterfront of Siu Sai Wan is a private residential development with a public transport interchange and public car park and is zoned "R(A)1" on the Plan. The existing building height of the development at 193mPD is considered incompatible and incongruous with the surrounding developments and the waterfront setting. In order to respect the urban design principle for maintaining lower building heights on the waterfront to avoid out-of-context and incompatible developments, a maximum building height of 140mPD is imposed on this "R(A)1" site. Future redevelopment to the existing building height is not permitted.

- 8.2.5 A non-building area of 30m wide is designated to the south of Hing Man Estate to facilitate valley wind from the southwest to penetrate into the inland area. Two non-building areas of 10m and 20m wide are imposed within Greenwood Terrace and Tsui Wan Estate (covering part of Tsui Wan Street) respectively to facilitate valley wind from the southwest to the northeastern part of the area.
- 8.2.6 An AVA Expert Evaluation (AVA EE (2016)) has been carried out for the "R(A)" site at the junction of Chai Wan Road, Wing Ping Street and San Ha Street. The AVA EE (2016) indicates that tower setbacks and permeability design of domestic block on top of the podium should be incorporated in the proposed development to alleviate the potential ventilation impact to the surrounding area. A planning brief will be prepared to guide the development of the site.
- 8.2.67 Minor relaxation of the building height restrictions and the non-building area requirements may be considered by the Board on application. Each application will be considered on its own merits.
- 8.3 Industrial ("I") : Total Area 6.19 ha
 - 8.3.1 This zone is intended primarily for general industrial uses to ensure an adequate supply of industrial floor space to meet demand from production-oriented industries. Information technology and telecommunications industries and office related to industrial use are always permitted in this zone. However, general commercial and office uses, other than those permitted in the purpose-designed non-industrial portion on the lower floors of an existing building will require permission from the Board.
 - 8.3.2 Industrial developments to the east and south of the Basin are subject to a maximum plot ratio of 12 having regard to the traffic condition in the area and a maximum building height of 100mPD. Established industrial developments are mainly located in the vicinity of Wing Tai Road, Ka Yip Street, Fung Yip Street and On Yip Street.
 - 8.3.3 In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratio may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.
 - 8.3.4 Minor relaxation of the building height and plot ratio restrictions may be considered by the Board on application. Each application will be considered on its own merits.
- 8.4. <u>Government, Institution or Community ("G/IC")</u> : Total Area 70.58 ha
 - 8.4.1 This zone is intended primarily for the provision of government, institution and community (GIC) facilities serving the needs of the

local residents and/or a wider district, region or the territory. It is also intended to provide land for uses directly related to or in support of the work of the Government, organizations providing social services to meet community needs, and other institutional establishments. Such developments, particularly for those which are low-rise, serve to provide visual and spatial relief to the densely built-up environment of the Area.

- 8.4.2 Existing facilities include the Siu Sai Wan Complex, Youth Square, a swimming pool complex, a health centre, a technical institute, a divisional police station, three post offices, two fire stations, some service reservoirs, a fresh water pumping station, a salt water pumping station, a switching cum pumping station, electricity sub-stations, a refuse collection point, a cooked food centre, a telephone exchange, churches and a number of primary and secondary schools. In addition, there are two existing correctional services institutions, i.e. Lai Chi Rehabilitation Centre and Cape Collinson Correctional Institution. The police rank-and-file quarters are located near Yue Wan Estate. The Fire Services Department Staff Quarters are located at Fei Tsui Road. A minimum 30m wide non-building area to the north of the Sai Wan Service Reservoir shall be provided to facilitate the flowing of valley wind.
- 8.4.3 A standard sports ground is provided in the Siu Sai Wan reclamation area primarily to meet the district demand and to serve as the main venue for school athletic events.
- 8.4.4 The "G/IC(1)" site covering a site at the junction of Siu Sai Wan Road and Sun Yip Street is reserved for an ambulance depot.
- 8.4.5 The "G/IC(3)" site at Heng Fa Chuen is subject to a maximum building height of 8 storeys, excluding the Mass Transit Railway depot, for the provision of land for the depot with GIC facilities above.
- 8.4.6 A site to the north of Lok Man Road is occupied by Pamela Youde Nethersole Eastern Hospital (the Eastern Hospital). Maximum building height restrictions of 120mPD and 140mPD have been imposed for the southern and northern parts of the site respectively to reflect their respective existing heights. The Chai Wan Laundry located at the western part of the Hospital, a building height of 120mPD has been imposed generalizing the building height of the adjacent Main Block/Pathology Block and having regard to the Hospital's expansion plan. For the eastern portion of the Hospital, which is under the Hospital's helicopter flight path, is zoned "G/IC(2)" and building height restrictions of 70mPD and 100mPD, including roof-top structures, are imposed.
- 8.4.7 For the Hong Kong Institute of Vocational Education north of Shun Tai Road, a building height restriction of 55mPD is imposed for the Institute portion. As for the staff quarters in the northern part of the site, which is zoned "G/IC(2)" on the Plan, a building height restriction

of 70mPD, including roof-top structures, is imposed as the area is under the helicopter flight path of the Eastern Hospital.

- 8.4.8 Some sites to the north of the cargo handling area in Chai Wan East are reserved for future GIC developments including a site at the junction of Sheung Mau Street and Sheung On Street for a joint-user government building. Due consideration should be given to incorporating suitable landscaping treatment and innovative design elements in the future development of these sites to enhance the environment near the waterfront. This area is under the helicopter flight path of the Eastern Hospital and is zoned "G/IC(2)" with a maximum building height restriction of 70mPD, including roof-top structures, so as to safeguard the operation of helicopters and to facilitate the penetration of sea breeze into the inland area. The Government Flying Services should be consulted on any development on the sites under the flight path.
- 8.4.9 Law Uk near the junction of Chai Wan Road and Kut Shing Street has been developed into a folk museum.
- 8.4.10 Development and redevelopment within the "G/IC", "G/IC(1)", "G/IC(2)" and "G/IC(3)" zones are subject to maximum building height restrictions as stipulated on the Plan/in the Notes, or the height of the existing building, whichever is the greater. Minor relaxation of the building height restrictions and the non-building area requirement may be considered by the Board on application. The Government Flying Services should be consulted on any application for minor relaxation of building height restrictions for "G/IC(2)" sites. Each application will be considered on its own merits.
- 8.5 <u>Open Space ("O")</u> : Total Area 21.3520.98 ha
 - 8.5.1 This zoning is intended primarily for the provision of outdoor open-air public space for active and/or passive recreational uses serving the needs of local residents as well as the general public.
 - 8.5.2 Chai Wan Park which occupies a central location in Chai Wan has provided a wide range of recreational facilities to serve the population in the Area. As part of the Wan Tsui Estate redevelopment, a site to its south has been developed as a public park.
 - 8.5.3 Within the Siu Sai Wan reclamation area, open spaces are planned near Harmony Garden as well as along the waterfront for the convenience of the public and for their enjoyment of sea view. Another site at Sheung On Street near the waterfront is also reserved for open space development.
 - 8.5.4 Open spaces are also provided within public housing estates, and within private residential developments such as Heng Fa Chuen and Island Resort. These open spaces do not fall within areas zoned "O". Smaller pockets of open spaces are reserved and developed at suitable

locations to provide as far as possible an even distribution of recreational facilities within the Area.

- 8.6 <u>Other Specified Uses ("OU")</u> : Total Area 88.15 ha
 - 8.6.1 Heng Fa Chuen and the adjoining area are zoned "OU(Mass Transit Railway Comprehensive Development Area)". Heng Fa Chuen is a comprehensive commercial/residential development on top of and adjacent to the MTR depot. Adequate open space and community facilities have been provided within the development to serve the residents. Having regard to the existing building height and its waterfront location, a stepped height of 70mPD and 90mPD are imposed for the lower platform near the waterfront and for the upper platform above the MTR Heng Fa Chuen Station respectively. A maximum domestic and non-domestic GFA of 425,000m² and 26,750m² respectively for residential and commercial uses is also imposed.
 - 8.6.2 The industrial sites to the west of MTR Chai Wan Station (except for the Chai Wan Flatted Factory site) and the sites at Sun Yip Street in Siu Sai Wan are designated for "Business" use (totaling 5.56 ha) to allow flexibility in the use of existing industrial and industrial-office (I-O) buildings as well as in the development of new buildings for both commercial and clean industrial uses. The planning intention of the "OU(B)" zone is primarily for general business uses. A mix of information technology and telecommunications industries. non-polluting industrial, office and other commercial uses are always permitted in new "business" buildings. Less fire hazard-prone office use that would not involve direct provision of customer services or goods to the general public is always permitted in the existing industrial or I-O buildings within this zone.
 - 8.6.3 As it is not possible to phase out existing polluting and hazardous industrial uses all at once, it is necessary to ensure compatibility of the uses within the same building and in existing industrial areas until the whole area is transformed to cater for the new non-polluting business uses. Development within this zone should make reference to the relevant Town Planning Board Guidelines.
 - 8.6.4 Having regard to the traffic capacity in the two "OU(Business)" areas, a plot ratio restriction of 12 is imposed on the "OU(Business)" zones. A building height restriction of 120mPD for the "OU(Business)" zones to the west of MTR Chai Wan Station and those clustered around Sun Yip Street is imposed.
 - 8.6.5 In the circumstances set out in Regulation 22 of the Building (Planning) Regulations, the above specified maximum plot ratio may be increased by what is permitted to be exceeded under Regulation 22. This is to maintain flexibility for unique circumstances such as dedication of part of a site for road widening or public uses.
 - 8.6.6 Other specified uses in the Area include a public filling barging point,

a cargo handling area, a refuse transfer station, liquefied petroleum gas cum petrol filling stations, oil depot,—and cemeteries *and columbarium*. These facilities are subject to building height restrictions as stipulated on the Plan.—A site is also reserved for a funeral parlour but there is no development programme.

- 8.6.7 A 3m wide non-building area from the lot boundary of 45 Kut Shing Street and 10 Hong Man Street, and 4m wide non-building area from the lot boundary of 44 Lee Chung Street and 40 Lee Chung Street, all fronting Hong Man Street are imposed. In addition, a building gap of 15m wide above 23mPD (about 15m above ground level) is imposed between Chai Wan Industrial Centre and Minico Building.
- 8.6.8 Minor relaxation of the plot ratio and building height restrictions, and the non-building area requirements, may be considered by the Board on application. Each application will be considered on its own merits.
- 8.7 <u>Green Belt ("GB")</u>: Total Area 181.32 ha
 - 8.7.1 The planning intention of this zone is primarily for the conservation of the existing natural environment amid the built-up areas/at the urban fringe, to safeguard it from encroachment by urban type development, and to provide additional outlets for passive recreational activities. There is a general presumption against development within this zone.
 - 8.7.2 This zone covers the steep hillsides to the west and south-west where, because of difficult topography, urban type development as well as extensive recreational uses are not possible. However, the area contributes visually to the environment of the district. Development within this zone will be carefully controlled and development proposals will be assessed on individual merits taking into account the relevant Town Planning Board Guidelines.
 - 8.7.3 There is a large site to the north of the Area which was originally part of Lei Yue Mun Barracks. A portion of the site has been turned into Lei Yue Mun Park to serve as a natural break between the built-up areas of Chai Wan and Shau Kei Wan, apart from providing some recreational outlets for the residents.
- 8.8 <u>Coastal Protection Area ("CPA") :</u> Total Area 5.88 ha
 - 8.8.1 This zoning is intended to conserve, protect and retain the natural coastlines and the sensitive coastal natural environment, including attractive geological features, physical landform or area of high landscape, scenic or ecological value, with a minimum of built development. It may also cover areas which serve as natural protection areas sheltering nearby developments against the effects of coastal erosion.
 - 8.8.2 There is a general presumption against development in this zone. In general, only developments that are needed to support the conservation

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of the existing natural landscape or scenic quality of the area or the development is an essential infrastructure project with overriding public interest may be permitted.

- 8.8.3 This zone comprises mainly areas of natural coastlines with attractive coastal features such as boulders and rocky shore. These areas of high scenic quality should be protected from development. Falling within this area are undeveloped coastal areas mainly below the 20 metre contour, including the coastal areas of Cape Collinson and Ngan Wan southwards towards Tso Tui Wan.
- 8.9 <u>Country Park ("CP")</u>: Total Area 115.43 ha

Country Park means a country park or special area as designated under the Country Parks Ordinance (Cap. 208). All uses and developments require consent from the Country and Marine Parks Authority and approval from the Town Planning Board is not required. This zone covers parts of Tai Tam Country Park and Shek O Country Park which fall within the planning scheme boundary of the Plan. The Country Parks contribute to the conservation of the natural environment. Both passive and active recreational outlets are available within the Country Parks.

9. <u>COMMUNICATIONS</u>

9.1 <u>Roads</u>

Chai Wan Road and Island Eastern Corridor are major roads connecting the Area to other parts of Hong Kong Island. It is also proposed to widen Cape Collinson Road.

9.2 <u>Mass Transit Railway (MTR)</u>

The Area is served by the MTR Island Line with Chai Wan Station and Heng Fa Chuen Station. The railway is elevated and traverses the Area in a north-south direction.

9.3 <u>Public Transport Termini</u>

There are several existing public transport termini within the Area, including the ones at MTR Chai Wan Station, Siu Sai Wan Estate, Heng Fa Chuen, Sheung On Street and within the Island Resort.

10. <u>UTILITY SERVICES</u>

10.1 Fresh water supply to the Area is served by five fresh water service reservoirs beside the Eastern Hospital, Heng Fa Chuen, Shan Tsui Court, Hing Wah Estate and Siu Sai Wan Estate respectively. Salt water supply to the Area is served by a

salt water service reservoir to the east of Fung Wah Estate.

- 10.2 There is a sewage screening plant and a refuse transfer station at Sun Yip Street.
- 10.3 Three electricity substations are located respectively at Shing Tai Road, Chai Wan Road and Cheung Lee Street to serve the Area. There is a telephone exchange to the west of Lee Chung Street to provide telephone services to the community.
- 10.4 No great difficulty is envisaged in meeting the future requirements for services and public utilities.

11. <u>CULTURAL HERITAGE</u>

11.1 Law Uk is a declared monument. The Cape Collinson Muslim Cemetery, Mosque and the Cape Collinson Light house are Grade 3 historic buildings. The Antiquities Advisory Board (AAB) has released the list of historic buildings and details of these historic buildings have been uploaded onto the official website of the Antiquities and Monuments Office (AMO) of the Leisure and Cultural Services Department (LCSD) at <u>http://www.amo.gov.hk</u> for reference. Prior consultation with the AMO of the LCSD should be made if any development or rezoning proposals might affect the declared monument/graded historic buildings.

12. <u>IMPLEMENTATION</u>

- 12.1 Although existing uses non-conforming to the statutory zonings are tolerated, any material change of use and any other development/redevelopment must be always permitted in terms of the Plan or, if permission is required, in accordance with the permission granted by the Board. The Board has published a set of Guidelines for the interpretation of existing use in the urban and new town areas. Any person who intends to claim an "existing use right" should refer to the Guidelines and will need to provide sufficient evidence to support his claim. The enforcement of the zonings mainly rests with the Buildings Department, the Lands Department and the various licensing authorities.
- 12.2 The Plan provides a broad land use framework within which more detailed non-statutory plans for the Area are prepared by the Planning Department. These detailed plans are used as the basis for public works planning and site reservation within Government departments. Disposal of sites is undertaken by the Lands Department. Public works projects are co-ordinated by the Civil Engineering and Development Department in conjunction with the client departments and the works departments, such as the Highways Department and the Architectural Services Department. In the course of implementation of the Plan, the Eastern District Council would be consulted as appropriate.
- 12.3 Planning applications to the Board will be assessed on individual merits. In general, the Board's consideration of the planning applications will take into account all relevant planning considerations which may include the

departmental outline development plans/layout plans and the Guidelines published by the Board. The outline development plans and layout plans are available for public inspection at the Planning Department. Guidelines published by the Board are available from the Board's website, the Secretariat of the Board and the Technical Services Division of the Planning Department. Application forms and Guidance Notes for planning applications can be downloaded from the Board's website and are available from the Secretariat of the Board and the Technical Services Division and the relevant District Planning Office of the Planning Department. Applications should be supported by such materials as the Board thinks appropriate to enable it to consider the applications.

TOWN PLANNING BOARD FEBRUARY 2013AUGUST 2016

Attachment V of <u>MPC Paper No. 13/16</u>



BASE EXTRACTED FROM SHT. No. 11-SE-19B

Visual Appraisal

Proposed Public Housing Development at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street, Chai Wan (Site No. GLA 4) Visual Appraisal Proposed Public Housing Development at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street, Chai Wan (Site No. GLA 4)

1. Site Particulars and Proposed Development

- 1.1 The subject site (about 0.33 ha) is zoned "Open Space" on the approved Chai Wan Outline Zoning Plan (OZP) No. S/H20/21. It is currently occupied by LCSD's plant nursery on government land.
- 1.2 The subject site is located on the eastern fringe of Chai Wan. It is bounded by Chai Wan Road to the north, Wing Ping Street to the east, and San Ha Street to the south. SKH Chai Wan St. Michael's Primary School (about 29mPD) is located to the immediate west and high-rise residential clusters including Chai Wan Estate (about 118mPD) and Lok Hin Terrace (about 99mPD) located to the further west. Residential clusters (about 48 90mPD) can also be found to the immediate east with Chai Wan Swimming Pool and Siu Sai Wan Estate (about 113 118mPD) to the further east. To the immediate north is a bus terminus with an industrial area to the further north and the former China Motor Bus Depot to the northeast. A comprehensive development (about 134 140mPD) is planned at the bus terminus and the former China Motor Bus Depot. Caritas Chai Wan Marden Foundation Secondary School (about 41mPD) is found to the immediate south, with Cape Collinson Chinese Permanent Cemetery to the further south. Please refer to **Drawing A** for details.
- 1.3 The subject site is situated in a predominantly built-up area with high-rise residential development and industrial buildings mingled with low-rise Government, Institution, or Community uses. The mountain backdrop and Pottinger Peak are located to the further south of the subject site. As stipulated in the OZP, the building height restriction is imposed in the area in order to form a stepped building height profile from the waterfront towards the inland. Major visual detractors in the area include the Cape Collinson Chinese Permanent Cemetery in the south and the industrial uses in the area (including the cargo handling basin) in the north.
- 1.4 The site is proposed to be rezoned to "Residential (Group A)" ("R(A)") for public housing development, and subject to a building height restriction of 120mPD and total GFA of about 33,000 m² (equivalent to a plot ratio of about 10). The proposed public housing development will deliver about 800 flats to accommodate a design population of about 2,000 persons. The proposed development comprises a single building block on top of a podium not exceeding 7m high. Please refer to **Drawing B** for details.

2. Viewpoints (VPs)

2.1 Four VPs from different directions and distances are selected (**Drawing A** refers) for appraisal of the visual impact of the proposed development. These VPs are located at prominent and easily accessible pedestrian nodes in the area with direct sightline to the subject site. They include:

VP 1	Bus stop along Chai Wan Road (outside former China Motor Bus Depot)
VP 2	Outside Chai Wan Swimming Pool
VP 3	Bus stop along Chai Wan Road (outside Yue On House of Yue Wan Estate)
VP 4	Pedestrian footpath at Junction of Wing Tai Road and Sheung Ping Street

2.2 A vantage point from Sheung On Street Playground (the "O" zone between "GIC" and "CDA" zones at the junction of Wing Tai Road/ Ka Yip Street/ Sheung On Street) was initially selected as one of the vantage points but subsequently not adopted because it will be blocked by the planned CDA development and the peripheral trees at the Playground (**Figure 1** refers). Notwithstanding, VP4 approximates a similar view angle.

3. Visual Appraisal

<u>VP1</u> - Bus stop along Chai Wan Road (outside former China Motor Bus Depot (Plan 1 refers)

3.1 Frequently used by the bus commuters, this VP is situated at the eastbound bus stop on Chai Wan Road at about 170m from the proposed development. In addition to the commuters, this VP can approximate the views of the future users of the open space to the east of the planned CDA development, which is not available for public access at the moment. The existing view from this VP mainly consists of the former China Motor Bus Depot, high-rise residential buildings and school against the mountain and sky view. As demonstrated in the photomontage in **Plan 1**, the view from the bus stop towards the site is dominated by the neighbouring residential buildings, namely, Sun Tak House (about 90mPD) and Artland Court (49mPD). The proposed development will be partially blocked by Sun Tak House with parts of the podium and building block being visible. The visual impact of the proposed development as viewed from this VP is considered slight.

VP2 - Outside Chai Wan Swimming Pool (Plan 2 refers)

3.2 Located 185m from the proposed development, this VP is situated at a key pedestrian

Visual Appraisal Proposed Public Housing Development at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street, Chai Wan (Site No. GLA 4)

node at San Ha Street, which is frequented by users of Chai Wan Swimming Pool, the students/staffs of Precious Blood Secondary School, and residents nearby. The existing view from this VP mainly consists of the existing residential buildings and Precious Blood Secondary School, with mountain and sky backdrop. From this VP, the proposed development including its podium will be partially obstructed by the residential building of Artview Court (about 49mPD) and the existing trees. As shown in the photomontage in **Plan 2**, the proposed development by virtue of its height would reduce the view of the sky. Viewers at this VP are mostly pedestrians passing this location and experiencing transient view of the proposed development. The visual impact of the proposed development is considered moderate.

<u>VP3 - Bus stop along Chai Wan Road (outside Yue On House of Yue Wan Estate)</u> (**Plan** <u>**3** refers)</u>

3.3 This VP is located at a highly utilized eastbound bus stop on Chai Wan Road (outside Yue On House of Yue Wan Estate) at about 240m from the proposed development. The existing view from this VP mainly consists of high-rise residential developments, including Sun Tak House (about 90mPD) and Chai Wan Estate (about 118mPD), and schools set against the open sky backdrop. As demonstrated in the photomontage in **Plan 3**, the proposed development by virtue of its height will intrude into the view of the sky. The lower portion of the proposed development would be blocked by the existing school buildings and vegetation in front. Taking into account the nearby Chai Wan Estate, the proposed development is not incompatible in terms of scale and height with the residential development (of about 140mPD) at the adjacent CDA site. The visual impact from this viewpoint is considered moderate.

<u>VP4 - Pedestrian footpath at Junction of Wing Tai Road and Sheung Ping Street (Plan 4</u> refers)

3.4 This VP is situated at the pedestrian footpath at Junction of Wing Tai Road and Sheung Ping Street at about 410m from the proposed development. The existing view from this VP consists of Chai Wan Industrial City Phase 1 and 2 (about 90 - 93mPD), Hang Tsui Court (about 99mPD) and its multi-storey car park with SKH Chai Wan St. Michael's Primary School and mountain/open sky view as the backdrop. As demonstrated in the photomontage in **Plan 4**, the proposed development is compatible in scale and height with the surrounding buildings. With the existing trees and the elevated road in the midground, the podium of the proposed development is not visible from this VP. However, the proposed development would intrude into the view of the sky and block the mountain backdrop. In view of the above factors, the visual impact Visual Appraisal

Proposed Public Housing Development at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street, Chai Wan (Site No. GLA 4)

of the proposed development as viewed from this VP is considered moderate.

4. Conclusion

As discussed in Section 3 above, the visual impact of the proposed development will be slight as viewed from VP1 and moderate as viewed from VP2, VP3 and VP4. It would detract from the visual openness of the locality. Nevertheless, in terms of scale and height, it is not incompatible with the surrounding developments. Mitigation measures such as careful building disposition, maximization of at-grade greening, use of architectural articulations will be explored at detailed design stage for better integration of the proposed development with the neighbourhood. In overall terms, the visual impact of the proposed public housing development is considered moderate.

Attachments

Drawing A	Locations of Viewpoints for Visual Appraisal
Drawing B	Tentative layout
Figure 1	Vantage Point from Sheung On Street Playground
Plan 1	Photomontages at VP1 (View from bus stop along Chai Wan Road
	(outside former China Motor Bus Depot))
Plan 2	Photomontages at VP 2 (View from outside Chai Wan Swimming Pool)
Plan 3	Photomontages at VP 3 (View from bus stop along Chai Wan Road (outside
	Yue On House of Yue Wan Estate))
Plan 4	Photomontages at VP 4 (View from pedestrian footpath at Junction of Wing
	Tai Road and Sheung Ping Street)

HOUSING DEPARTMENT May 2016



DRAWING A





Figure 1 Vantage Point from Sheung On Street Playground








11/08/2016

Reference number: CHK50019644

TERM TRAFFIC AND ENVIRONMENTAL CONSULTANCY SERVICES 2014-2016 INSTRUCTION NO. M31 PROPOSED PUBLIC HOUSING DEVELOPMENT AT CHAI WAN ROAD TRAFFIC IMPACT ASSESSMENT STUDY DRAFT FINAL REPORT





In association with Mott MacDonald Hong Kong Ltd. ENVIRON Hong Kong Ltd. Cinotech Consultants Ltd. Maurice Lee & Associates Ltd.





PROPOSED PUBLIC HOUSING DEVELOPMENT AT CHAI WAN ROAD

TRAFFIC IMPACT ASSESSMENT STUDY

IDENTIFICATION TABLE	
Client/Project owner	Hong Kong Housing Authority
Project	Proposed Public Housing Development at Chai Wan Road
Study	Traffic Impact Assessment Study
Type of document	Draft Final Report
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Proposed Public Housing Development at Chai Wan Road

Traffic Impact Assessment Study	g:\mva\hk500196\chk50019644 (m31)\report\draft final rpt_20160811b.docx			
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8.

SUMMARY AND CONCLUSION



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- 8.1 SUMMARY
- 8.2 CONCLUSION

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Proposed Public Housing Development at Chai Wan Road



1. INTRODUCTION

1.1 Background

- 1.1.1 MVA Hong Kong Limited (MVA) was commissioned by the Hong Kong Housing Authority (HKHA) in 2015 to conduct a Traffic Impact Assessment (TIA) study for the proposed housing development at Chai Wan Road. **Drawing 1.1** shows the location of the development site.
- 1.1.2 This TIA study is to examine the impact of the traffic generated by the proposed development on the existing and planned road networks in the near vicinity. Any deficiency would be identified and improvement proposals would be recommended if necessary to resolve any foreseeable problem.

1.2 Study Objectives

- 1.2.1 The main objectives of the study are as follows:
 - o to assess the existing traffic conditions in the vicinity of the proposed development;
 - o to forecast traffic demands on the adjacent road network in the design year 2025;
 - to estimate the likely traffic generated by the proposed development based on the updated planning parameters;
 - to assess the impacts of traffic generated by the proposed development on the adjacent road network;
 - o to recommend improvement measures, if necessary, to alleviate any traffic problems on the road network; and
 - to investigate the public transport and pedestrian needs in the near vicinity.

1.3 Structure of the Report

- 1.3.1 Following this introductory chapter, there are seven further chapters.
- 1.3.2 **Chapter 2 The Proposed Development**, which presents the planning parameters of the proposed development.
- 1.3.3 **Chapter 3 Existing Traffic Conditions**, which describes the existing road network in the vicinity of the proposed development, presents the summary of traffic count survey and assesses the existing traffic conditions.
- 1.3.4 **Chapter 4 Future Traffic Conditions**, which describes the future road network in the near vicinity and discusses the potential traffic generations and attractions of the proposed development under the updated development proposal. It also summarises the methodology for future traffic forecasts.
- 1.3.5 **Chapter 5 Traffic Impact Assessment**, which presents the findings of the traffic impact assessment in the future design year and recommends improvement measures, if necessary.

Proposed Public Housing Development at Chai Wan Road



- 1.3.6 **Chapter 6 Public Transport Provisions Service**, which provides an examination of the provisions of public transport in the vicinity of the proposed development.
- 1.3.7 **Chapter 7 Pedestrian Facilities and Assessment**, which provides an examination of the provision of existing pedestrian facilities in the vicinity of the proposed development.
- 1.3.8 **Chapter 8 Summary and Conclusion**, which summarises the findings of the study and presents the conclusion regarding the traffic issues of the proposed development.

Proposed Public Housing Development at Chai Wan Road

A MINOR AMENDMENT GPH 06MAY16 - Rev. Description Checked Date Rev. Description Project Title Checked Date Rev. Description Checked Date	
PROPOSED HOUSING DEVELOPMENT AT CHAI WAN ROAD TRAFFIC IMPACT ASSESSMENT	MV



2. THE PROPOSED DEVELOPMENT

2.1 Site Location

2.1.1 As shown in **Drawing 1.1**, the site subjected to this assessment is located at Chai Wan adjacent to the junction of Chai Wan Road, Wing Ping Street and San Ha Street.

2.2 Proposed Development

2.2.1 The proposed development is planned as Public Rental Housing (PRH), which falls within part of the subject site. **Table 2.1** summarises the development parameters.

Table 2.1 Development Parameters

Component	Development Parameter
Public Rental Housing (PRH)	800 flats (including 183 flats of 1/2P)
Retail	180 sq.m GFA

2.2.2 The proposed development is scheduled to be completed by end of 2022. The layout plan of the proposed development is shown in **Drawing 2.1**.

2.3 Vehicular Access of Proposed Development

2.3.1 As shown in **Drawing 2.1**, an all-movement vehicular access of the proposed development will be located at San Ha Street. At present, San Ha Street is a single two lanes carriageway running in east-west direction.

2.4 Parking and Servicing Facilities Provisions of Proposed Development

- 2.4.1 Private car, motor-cycle, light good vehicle parking spaces, loading/unloading bays will be provided inside the proposed development.
- 2.4.2 Based on the proposed development parameters as shown in **Table 2.1** and District-Based Parking Standards for Chai Wan, the proposed parking provisions for the proposed development are summarized in **Table 2.2** and **2.3**.

Development			
Parking Facilities	Chai Wan District-based Parking Standards outside 500m of Rail Station ⁽¹⁾	HKPSG Requirements	Proposed Provision
Car Parking Spaces	1 per 26-40 flats (Outside 500m radius of a rail	15-23	23 ⁽³⁾

station)

1 per 110-210 flats

1 per 200-600 flats

Table 2.2 Proposed Parking and Loading/Unloading Bays Requirements for Proposed Development

Notes: (1) 1p/2p flats are excluded from parking provision.

(2) Based on HKPSG requirement of 1 bay per block

Proposed Public Housing Development at Chai Wan Road

(domestic)

Car Parking Spaces

(Retail) Motor-cycle Parking

Light Goods Vehicle

Loading/Unloading

Traffic Impact Assessment Study g:\mva\hk500196\chk50019644 (m31)\report\draft final rpt_20160811b.docx

1

6

2

1

3-6

1-3

-





3. EXISTING TRAFFIC CONDITIONS

3.1 Existing Road Network

- 3.1.1 **Drawing 3.1** shows the existing road network that serves the proposed development. The proposed development is mainly served by Wing Tai Road, Chai Wan Road, Ka Yip Street, Sheung On Street, Wing Ping Street and San Ha Street. These existing major corridors are listed below:
 - Wing Tai Road is a mainly a dual-three lanes district distributor in north-south direction connecting Island Eastern Corridor and Chai Wan Road. The north direction also consists of a flyover between Sheung Ping Street and Wing Ping Street.
 - Chai Wan Road is a dual-three lanes primary distributor in east-west direction. It connects with Siu Sai Wan Road to the east and extends into the interland of Shau Kei Wan area which connects with Shau Kei Wan Road to the west.
 - Ka Yip Street is a single two lanes local distributor which connects with Sheung On Street to southwest and terminates at a cul-de-sac to the northeast. A section of Ka Yip Street between Wing Tai Road and Sheung On Street is operating in one-way eastbound direction with two traffic lanes.
 - Sheung On Street is a single two lanes local distributor in north-south direction. It connects with Chong Fu Road to the north and Chai Wan Road to the south. The section of Sheung On Street between Sheung Ping Street and Ka Yip Street is operating in a one-way northbound direction.
 - Wing Ping Street is a single two lanes carriageway in north-south direction connecting Chai Wan Road and San Ha Street.
 - San Ha Street is a single two lanes carriageway in east-west direction which connects with Chai Wan Road to the east and terminates at a cul-de-sac to the west. It provides direct access to the proposed development.

3.2 Critical Junctions

3.2.1 Six junctions were identified to be critical for assessment of traffic impact due to the proposed development. They are listed in **Table 3.1** below.

Ref.	Junction	Туре	Drawing
			No.
А	Chai Wan Road/Sheung On Street/Wing Ping Street	Signal	3.2
В	Wing Tai Road/Chai Wan Road	Signal	3.3
C	Wing Tai Road/Ka Yip Street	Signal	3.4
D	Ka Yip Street/Sheung On Street	Signal	3.5
E	Chai Wan Road / Sun Yip Street	Signal	3.6
F	Chai Wan Road / San Ha Street	Signal	3.7

Table 3.1 Critical Junctions for Assessment

3.2.2 The locations of the above six junctions are illustrated in **Drawing 3.1**. The existing junction layout arrangements and method of control for critical junctions are shown in **Drawings 3.2** to **3.7** respectively.

Proposed Public Housing Development at Chai Wan Road



- 3.2.3 In order to appraise the existing traffic conditions of these junctions, a traffic survey in the form of manual classified count was conducted at a typical weekday in June 2015. Analysis of the observed traffic data indicates that the AM and PM peak hour flows occurred from 7:30 to 8:30 and from 17:00 to 18:00 respectively. The results are shown in **Drawing 3.8**.
- 3.2.4 Existing operational performance of the critical junctions and the results are listed in **Table 3.2** below.

Pof	lunction	Turno	2015 RC ⁽¹⁾	
Rel.	Junction	туре	AM Peak	PM Peak
Α	Chai Wan Road/Sheung On Street/Wing Ping Street	Signal	25%	25%
В	Wing Tai Road/Chai Wan Road	Signal	>100%	>100%
С	Wing Tai Road/Ka Yip Street	Signal	>100%	>100%
D	Ka Yip Street/Sheung On Street	Signal	62%	54%
E	Chai Wan Road / Sun Yip Street	Signal	34%	70%
F	Chai Wan Road / San Ha Street	Signal	97%	>100%

Table 3.2 Operational Performance of Critical Junctions in 2015

Notes: (1) RC represents the reserve capacity for signal junction. A positive RC value indicates the junction is within capacity and a negative RC value indicates the junction is at/over capacity.

3.2.5 The assessment results in **Table 3.2** indicate that all critical junctions are at present operating within capacities.

Proposed Public Housing Development at Chai Wan Road















Representation of the second s	лания л	EGEND : TO(75) AM(PM) PEAK HOURLY TRAFFIC FLOW (PCU/HR)
A MINOR AMENDMENT GPH 3JUN16		
Rev. Description Checked Date	Rev. Description Checked Date Rev. Description	Checked Date
Project Title PROPOSED HOUSING DEVELOPMENT AT CHAI WAN ROAD - TRAFFIC IMPACT ASSESSMENT	Drawing Title 2015 OBSERVED TRAFFIC FLOWS Designed Checked Scale	
CHK50019644/TIA/F38-A.CDR/CKM/6JUN16	SFL GPH NTS FEB 2016 Standing to 3.8	B A



4. FUTURE TRAFFIC CONDITIONS

4.1 Design Year

4.1.1 It is anticipated that the proposed development will be completed by end of 2022. In order to assess the impact of the development related traffic on the local road network, it is necessary to forecast the traffic flows for year 2025, the adopted design year, which is 3 years upon completion.

4.2 Future Road Network

4.2.1 The future road network in the vicinity of the proposed development is anticipated to remain essentially the same as the existing network. No major planned highway infrastructures are anticipated.

4.3 Reference Traffic Flows

- 4.3.1 Since there is no major change in road network in the vicinity of the proposed development, the traffic forecast has been derived based on the review of the following information:
 - Historical traffic data of the Annual Traffic Census (ATC) reports published annually by transport Department;
 - o 2011-Based TPEDM land use/planning data published by Planning Department;
 - o Planned/committed developments in the vicinity of the proposed development; and
 - The traffic flow of Chai Wan Public Fill Barging Point ("CWPFBP") with reference to the previously approved TIA.

Historical Growth Trend

4.3.2 The Transport Department has traffic count stations in the vicinity of the proposed development. The traffic count at the concerned stations over a period of 5 years between 2010 and 2014 are summarised in **Table 4.1**.

Station	Pood Name	Annual Average Daily Traffic (AADT))
No.	Road Name	2010	2011	2012	2013	2014
1254	Chai Wan Rd (From Wing Tai Rd to Sun Yip St)	23,570*	23,140*	23,080*	23,150	23,700
1420	Chai Wan Rd (From Wan Tsui Rd to Wing Tai Rd)	18,570	18,910*	19,200*	19,200*	17,220
1857	Wing Tai Rd (From Chai Wan Rd to Shun Tai Rd)	22,750*	24,560	24,350	24,030*	23,860*
2614	Fung Yip St (From Sheung On St to Sun Yip St)	6,220	5,360	5,780	5,680	5,510
2620	Ka Yip St (From Wing Tai Rd to End)	11,610	10,810	12,210	11,040	9,970

Table 4.1 ATC Counting Station Records

Proposed Public Housing Development at Chai Wan Road



Station Road Name		Annual Average Daily Traffic (AADT)					
No.	Road Name	2010	2011	2012	2013	2014	
2650	Sheung On St (From Chai Wan Rd to Chong Fu Rd)	11,780	10,600	10,530	11,300	10,820	
Total		94,500	93,380	95,150	94,400	91,080	
Average Annual Growth Rate (%)				-0.9%			

Notes: (1) Number marked with "*" are estimated by growth rate.

4.3.3 From the above **Table 4.1**, it can be noted that over the past 5 years, 2010-2014, the average annual traffic growth pattern in the area shows a negative growth trend with rate of -0.9% per annum.

<u>Planning Data</u>

4.3.4 Reference has also been made to the latest 2011-Based Territorial Population and Employment Data Matrices (TPEDM) planning data published by the Planning Departments for years 2011 and 2025 in Chai Wan Area. The average annual growth rate in terms of population and employment from year 2011 to year 2025 are illustrated in **Tables 4.2** and **4.3**, respectively.

Table 4.2	2011 to 2025 Po	pulation Growth i	n Chai Wan Area

	Population			
	2011	2025		
33	57,550	58,000		
34	70,450	69,800		
Total	128,000	127,800		
Average Annual Crowth Data between Veens 2011 and 2025 - 0%				

Average Annual Growth Rate between Years 2011 and 2025 = 0%

Notes: (1) Refer to Drawing 4.1 for TPEDM Zone 33 and 34

Table 4.32011 to 2025 Employment Growth in Chai Wan Area

	Emplo	yment	
	2011	2025	
33	25,900	26,850	
34	32,300	36,800	
Total	58,200	63,650	
Average Annual Growth Rate between Years 2011 and 2025 = 0.6%			

Notes: (1) Refer to Drawing 4.1 for TPEDM Zone 33 and 34

4.3.5 From **Table 4.2 and Table 4.3**, the population and employment growth rate in the vicinity of the area from 2011 to 2025 is 0.6% per annum respectively.

Adopted Growth Rate

4.3.6 The growth rate derived from employment growth is the highest (+0.6% p.a.). Therefore, an annual growth rate of 0.6% p.a. was adopted to project the 2015 observed flows to 2025 traffic flows.

Proposed Public Housing Development at Chai Wan Road



Planned/Committed Development Traffic

4.3.7 In addition to the consideration of annual traffic growth rate of TPEDM and planning data, the reference traffic forecast had also taken into consideration of the planned and committed developments in the vicinity of the subject site as summarised in **Table 4.4** and **Drawing 4.2**.

Site No.	Sites	Development Parameters	Designated Land Uses	Current Status
А	Sheung On Street, Sheung Ping Street, Wing Tai Road	39,730 sq.m ⁽¹⁾	Government, Institution or Community / Open Space	Construction Site of THEi New Campus Development / Short term tenancy carpark ^{(4)/(5)}
В	Sheung On Street, Sheung Mau Street	84,000 sq.m ⁽²⁾	Development of Chai Wan Government Complex and Vehicle Depot	Construction Site of Chai Wan Government Complex and Vehicle Deport ^{(4)/(5)}
С	Chong Fu Road, Shing Tai Road	115,000 sq.m ⁽²⁾	Development of WSD and CSD Headquarters	Short term tenancy carpark ⁽⁴⁾ (reserved for Development of WSD and CSD Headquarters ⁽⁵⁾)
D	Chong Fu Road site next to Government Logistic Centre	57,000 sq.m ⁽²⁾	Industrial Use	Site for scrap metal recycle ⁽⁴⁾
E	Sheung On Street, Shing Tai Road, Shing Mau Street	3,986 sq.m ⁽²⁾ (Land Area)	Other Specified Uses (Petrol Filling Station)	Petrol filling station & LPG station ⁽⁴⁾
F	Fung Yip Street	1,743 sq.m ⁽²⁾ (Land Area)	Other Specified Uses (Petrol Filling Station)	Petrol filling station & LPG station ⁽⁴⁾
G	Shing Tai Road	5,053 sq.m ⁽²⁾ (Land Area)	Open Space	Temporary land allocations (reserved for the development of a local open space to serve the working population nearby)
Н	Fung Yip Street	N/A ⁽³⁾	Open Space	Vacant Site ⁽⁴⁾
I	Wing Tai Road	860 flats	Public Housing Development	Construction Site of Public Housing Development ^{(4)/(5)}
J	Chai Wan Road	64,500 sq.m	PTI & Residential Use	Existing PTI & Depot

Table 4.4 Planned/Committed Development

Notes: (1) GFA data extracted from GBP of THEi new campus approved in Apr 2014

(2) GFA data extracted from previous approved TIA approved in 2013

(3) Data not available from Planning Department

(4) Information obtained by on-site observation on 23 Feb 2016

(5) Information obtained by Transportation Department

4.3.8 In order to estimate the traffic generation and attraction of the planned/committed development in the vicinity, reference has been made to the trip generation rates as stipulated in Volume 1 Chapter 3 Appendix D Table 1 of the latest T.P.D.M.. The adopted trip rates are summarized in **Table 4.5**.

Table 4.5 Adopted Trip Rates for Planned/Committed Development

			AM Peak		PM Peak		
Site No.	Land Use		Generation	Attraction	Generation	Attraction	
D	Industrial	pcu/hr/100 sq.m GFA	0.0926	0.1386	0.135	0.1049	
I	Subsidised Housing: Public Rental (Average flat size:30sq.m)	pcu/hr/flat	0.0242	0.0226	0.0177	0.0201	

Proposed Public Housing Development at Chai Wan Road



4.3.9 Based on the planned/committed development parameters and the adopted trip rates shown in **Table 4.4** and **Table 4.5**, **Table 4.6** summarises the volume of traffic generated by the planned/committed Development.

Site	Sitor	Designated Land Lloss	AM I	Peak	PM Peak		
No.	Sites	Designated Land Oses	Generation	Attraction	Generation	Attraction	
A	Sheung On Street, Sheung Ping Street, Wing Tai Road	THEi New Campus	16 ⁽¹⁾	23 ⁽¹⁾	45 ⁽¹⁾	29(1)	
В	Sheung On Street, Sheung Mau Street	Development of Chai Wan Government Complex and Vehicle Depot	47 ⁽¹⁾	20(1)	15 ⁽¹⁾	12 ⁽¹⁾	
с	Chong Fu Road, Shing Tai Road	Development of WSD and CSD Headquarters	237 ⁽¹⁾	206(1)	117(1)	149 ⁽¹⁾	
D	Chong Fu Road site next to Government Logistic Centre	Industrial	53	79	77	60	
E	Sheung On Street, Shing Tai Road, Shing Mau Street	Other Specified Uses	-	-	-	-	
F	Fung Yip Street	Other Specified Uses	-	-	-	-	
G	Shing Tai Road	Open Space	-	-	-	-	
Н	Fung Yip Street	Open Space	-	-	-	-	
I	Wing Tai Road	Public Rental Housing	21	19	15	17	
J	Proposed residential development at 391 Chai Wan Road	PTI & Private Housing	100(2)	57 ⁽²⁾	54 ⁽²⁾	45 ⁽²⁾	

Table 4.6 Traffic Generations of Planned/Committed Development (pcu/hr)

Notes: (1) Trip generation obtained from "Water Supplies Department Headquarters with Hong Kong and Islands Regional Office and Correctional Services Department Headquarters at Junction of Shing Tai Road, Chong Fu Road and Sheung Tat Street" TIA report

(2) Trip generation obtained from "Proposed Residential Development at 391 Chai Wan Road, Hong Kong" TIA report

Traffic Flow of the Chai Wan Public Fill Barging Point

- 4.3.10 A manual classified traffic count survey had been conducted during the morning (0730-0930) and evening (1700-1900) peak hours on a typical weekday in June 2015 for the purpose of identifying the existing traffic generation and pattern of the CWPFBP site. The CWPFBP site was closed on the surveyed date. For conservative purpose, the traffic flow generated and attracted by the CWPFBP site has been taken into consideration in the reference traffic forecast and the design traffic forecast in Year 2026, based on previous studies.
- 4.3.11 Two-way traffic of some 160 veh/hr and 135 veh/hr were recorded during the morning and evening peak respectively.
- 4.3.12 Taking into consideration of the possible increase of utilisation for disposal of construction waste due to the construction of new MTR lines, it is assumed that an increase of two-way traffic of some 50 construction vehicles per hour during the morning and evening peak periods. This assumption translates to a total of some 210 veh/hr and 185 veh/hr during the morning and evening peak period, which is about 35% increase from the existing traffic generation of the CWPFBP.

Proposed Public Housing Development at Chai Wan Road



- 4.3.13 Based on the previously approved TIA in 2013, the maximum daily incoming truck is about 1100 vehicles per day (i.e. 138 vehicles per hour based on 8 working hours per day), therefore the aforesaid assumption should be reasonably conservative for traffic assessment purpose.
- 4.3.14 Based on site observation, the ingress and egress routings of CWPFBP are illustrated in Figure 4.2 and its estimated future traffic generation is then assigned to the road network accordingly in developing the reference traffic forecast.

2025 Reference Traffic Flows

- 4.3.15 Based on an annual growth rate of 0.6% p.a., the traffic generation of planned/committed development shown in **Table 4.5** and the additional construction traffic from CWPFBP, 2025 reference traffic flows have been projected from 2015 observed flows and shown in **Drawing No. 4.3**.
- 4.3.16 2025 Reference Flows = 2015 Observed Flows x Growth Factor (0.6% p.a. for 10 years) + Planned/Committed Development Traffic + Additional Chai Wan Public Fill Barging Point Traffic

4.4 Development Traffic Generation

4.4.1 In order to estimate the traffic generation and attraction of the proposed development, reference has been made to the trip generation rates as stipulated in Volume 1 Chapter 3 Appendix D Table 1 of the latest T.P.D.M. and the adopted trip rates are summarised in **Table 4.7**.

	AM Peak		PM	Peak
	Generation	Attraction	Generation	Attraction
Public Rental (PRH) (pcu/hr/flat)	0.0432	0.0326	0.0237	0.0301
Retail (pcu/hr/100 sqm GFA)	0.2296	0.2434	0.3100	0.3563

Table 4.7 Adopted Trip Rates

- 4.4.2 As a conservative approach, an additional 10% allowance had been allowed for the proposed development for future design variation. The traffic impact assessment has been based on 880 PRH flats and 198 sq.m GFA of retail.
- 4.4.3 Based on adopted trip rates given in **Table 4.7**, the total trips generated by the proposed development are computed and shown in **Table 4.8**.

Table 4.8 Traffic Generations of Proposed Development (pcu/hr)

Dovelonment Peremeters	AM Peak		PM Peak	
Development Parameters	Generation	Attraction	Generation	Attraction
880 PRH Flats	38	29	21	26
Retail (198 sqm GFA)	1	1	1	1
Total	39	30	22	27

Proposed Public Housing Development at Chai Wan Road



4.4.4 It is estimated that the proposed development will generate and attract about 39 pcu/hr and 30 pcu/hr in the AM peak hour, and generate and attract about 22 pcu/hr and 27 pcu/hr in the PM peak hour respectively.

4.5 Design Traffic Forecasts

- 4.5.1 The development traffic flows were then superimposed onto the 2025 reference traffic flows (without development) as shown in **Drawing 4.3** to derive the 2025 design traffic forecasts (with development).
- 4.5.2 2025 Design Flows = 2025 Reference Flows + Proposed Development Traffic
- 4.5.3 The 2025 AM and PM peak hour design traffic forecasts (with development) are shown in **Drawing 4.4**.

Proposed Public Housing Development at Chai Wan Road

CHK50019644/TIA/F41.CDR/CKM/12FEB16











5. TRAFFIC IMPACT ASSESSMENT

5.1 Operational Assessment

- 5.1.1 To assess the traffic impact due to the proposed development, capacity analysis of the identified critical junctions in the study area for both reference and design scenarios in year 2025 has been carried out.
- 5.1.2 As identified in the redevelopment of former China Motor Bus Depot study, junction improvement schemes have been proposed at Junction A as illustrated in **Drawing 5.1**. The proposed improvement scheme will be carried out by the applicant of the redevelopment of former China Motor Bus Depot study.
- 5.1.3 The results are summarised and presented in **Table 5.1**.

				2025	RC ⁽¹⁾	
	Junction		Reference	e Scenario	Design Scenario	
Ref.		Туре	(Wit	hout	(W	'ith
			Develo	pment)	Develo	pment)
			AM Peak	PM Peak	AM Peak	PM Peak
۸	Chai Wan Road/Sheung On	Signal	1.0%	2/10/	1.70/	10%
A	Street/Wing Ping Street ⁽²⁾	Signal	1970	2470	1270	1970
В	Wing Tai Road/Chai Wan Road	Signal	>100%	>100%	>100%	>100%
С	Wing Tai Road/Ka Yip Street	Signal	91%	87%	88%	85%
D	Ka Yip Street/Sheung On Street	Signal	29%	29%	29%	29%
E	Chai Wan Road / Sun Yip Street	Signal	19%	47%	19%	47%
F	Chai Wan Road / San Ha Street	Signal	85%	>100%	79%	>100%

Table 5.1 Operational Performance of Critical Junctions in 2025

Notes: (1) RC represents the reserve capacity for signal junction. A positive RC value indicates the junction is within capacity and a negative RC value indicates the junction is at/over capacity.

(2) Based on redevelopment of former China Motor Bus study's proposed junction improvement scheme.

5.1.4 The assessment results in **Table 5.1** indicates that all critical junctions will still operate within their capacities in design year 2025.

Proposed Public Housing Development at Chai Wan Road

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6. PUBLIC TRANSPORT PROVISIONS

6.1 Existing Public Transport Services

6.1.1 At present, there are currently 33 bus routes and 9 GMB routes operating in the near vicinity to the proposed development site as illustrated in **Drawing 6.1**. Details of the existing public transport services available are summarized in **Table 6.1** to **Table 6.3**. In addition, there is an existing bus terminus, the Chai Wan (East) Bus Terminus located at north of Chai Wan Road, which is located in close proximity to the proposed development.

Table 6.1	Existing Public Transport Services at Public Transport Terminus at Sheung
	On Street

Rout	Service	Destinations	Service Hour	Peak Hour Frequency (minutes)	Non-Peak Hour Frequency (minutes)				
Day Time Routes									
82	NWFB	Siu Sai Wan (Island Resort) <-> North Point Ferry Pier	05:20-00:40	6-9	10				
682	NWFB	Chai Wan (East) <-> Ma On Shan (Wu Kai Sha Station)	08:05-23:50	8-12	12-20				
780	СТВ	Chai Wan (East) <-> Central (Ferry Piers)	05:35-00:30	8-11	15				
Peaks Only Routes/ Special Departures Routes									
682	NWFB	Chai Wan (East) <-> Ma On Shan (Lee On Estate)	05:40-09:18	5-11	-				
682A	NWFB	Ma On Shan Town Centre -> Chai Wan (East)	07:20-07:40	20	-				
		Chai Wan (East) -> Ma On Shan (Wu Kai Sha Station)	18:00-18:20	20	-				
682B	NWFB	Shui Chuen O Estate -> Chai Wan (East)	07:20-07:35	15	-				
		Chai Wan (East) -> Shui Chuen O Estate	18:05-18:25	20	-				
682P	NWFB	Ma On Shan (Lee On Estate) -> Chai Wan (East)	07:30-07:55	-	-				
		Ma On Shan (Wu Kai Sha Station) -> Chai Wan (East)	07:20	-	-				

Table 6.2 Existing Bus Services in the near vicinity

Route	Service	Destinations	Service Hour	Peak Hour Frequency (minutes)	Non-Peak Hour Frequency (minutes)				
Day Time Routes									
8	NWFB	Heng Fa Chuen <-> Wan Chai North	05:30-00:45	11-15	12-15				
8P	NWFB	Siu Sai Wan (Island Resort) <-> Wan Chai North	05:30-00:55	4-9	5-10				
8X	СТВ	Siu Sai Wan (Island Resort) <-> Happy Valley (Lower)	05:26-00:45	5-18	10-25				
19	СТВ	Siu Sai Wan (Island Resort) <-> Happy Valley (Upper)	05:40-23:30	8-20	20-30				

Proposed Public Housing Development at Chai Wan Road


Route	Service	Destinations	Service Hour	Peak Hour Frequency (minutes)	Non-Peak Hour Frequency (minutes)
82M	NWFB	Chai Wan Station <-> Siu Sai Wan (Island Resort) (Circular)	07:20-16:20	20	40
82X	NWFB	Siu Sai Wan (Island Resort) <-> Quarry Bay	06:40-20:28	9	15
85	СТВ	Siu Sai Wan (Island Resort) <-> Braemar Hill (Circular)	06:00-22:10	10-12	15-20
106	KMB / NWFB	Siu Sai Wan (Island Resort) <-> Wong Tai Sin	05:35-00:00	4-10	5-10
118	KMB / CTB	Siu Sai Wan (Island Resort) <-> Sham Shui Po (Tonkin Street)	06:02-00:00	3-6	5-10
606	KMB / CTB	Siu Sai Wan (Island Resort) <-> Choi Wan (Fung Shing Street)	09:30-20:00	15	20-25-
694	NWFB	Siu Sai Wan Estate <-> Tiu Keng Leng Station	06:00-00:30	15-20	25
788	СТВ	Siu Sai Wan (Island Resort) <-> Central (Macau Ferry)	05:30-00:30	3-8	10-15
789	СТВ	Siu Sai Wan (Island Resort) <-> Admiralty (Rodney Street)	06:25-00:30	4-9	10-15
A12	CTB Siu Sai Wan (Island Resort) <-> Airport (Ground Transportation Centre)		05:30-00:10	20	20-30
Peaks	Only Ro	utes/ Special Departures Routes			
81S	NWFB	Siu Sai Wan (Harmony Garden) -> Braemar Hill	06:50-07:10	10	-
82M	NWFB	Siu Sai Wan (Harmony Garden) -> Chai Wan Station	07:00-08:40	25	-
82S	NWFB	Siu Sai Wan (Island Resort) <-> Yiu Tung (Wai Hang Street)	06:45-07:40	20-30	-
85	СТВ	Siu Sai Wan (Island Resort) <-> North Point Ferry Pier	22:30-00:00	20	-
85P	СТВ	Siu Sai Wan (Island Resort) -> Braemar Hill	06:55-07:15	10	-
0.01	CID	Braemar Hill -> Siu Sai Wan (Island Resort)	16:10-16:30	20	-
106P	кмв /	Siu Sai Wan (Island Resort) -> Wong Tai Sin	06:45-07:55 18:00-18:15	12-15	-
1001	NWFB	Wong Tai Sin -> Siu Sai Wan (Island Resort)	17:15-17:35	20	-
119D	кмв /	Siu Sai Wan (Island Resort) -> Sham Shui Po (Tonkin Street)	07:18-08:24	5-7	-
TIOP	СТВ	Sham Shui Po (Tonkin Street) -> Siu Sai Wan (Island Resort)	16:55-18:55	12-14	-
606	KMB / CTB	Choi Wan (Fung Shing Street) -> Siu Sai Wan (Island Resort) (via Choi Ha Road)	06:30-08:54	17-22	-
606X	KMB / CTB	Siu Sai Wan (Island Resort) <-> Kowloon Bay	06:10-09:10	10-20	-
802	KMB / NWFB	Shatin Racecourse -> Siu Sai Wan (Island Resort)	-	-	-

Proposed Public Housing Development at Chai Wan Road



Route	Service	Destinations	Service Hour	Peak Hour Frequency (minutes)	Non-Peak Hour Frequency (minutes)
		Siu Sai Wan (Island Resort) -> Airport (via Cathay City / CAD Headquarters)	06:50-07:30	20	-
A12	СТВ	Airport (via Cathay City / CAD Headquarters) -> Siu Sai Wan (Island Resort)	17:30-18:10	20	-
Recre	ation Ro	utes			
8S	СТВ	Happy Valley Racecourse -> Siu Sai Wan (Island Resort)	-	-	-
314	СТВ	Siu Sai Wan (Island Resort) <-> Stanley (Beach / Market)	07:08-19:43	30	30
Overn	night Rou	tes			
N8	NWFB	Heng Fa Chuen <-> Wan Chai North	00:15-06:10	15	30
N8P	NWFB	Siu Sai Wan (Island Resort) <-> Wan Chai (Harbour Road)	00:35-05:40	15	15
N8X	СТВ	Siu Sai Wan (Island Resort) <-> Central (Macau Ferry)	00:15-05:45	30	30
N118	КМВ / СТВ	Siu Sai Wan (Island Resort) <-> Sham Shui Po (Tonkin Street)	00:10-05:55	15	20

Table 6.3 Existing GMB Services in the near vicinity

Route	Service	Destinations	Service Hour	Peak Hour Frequency (minutes)	Non-Peak Hour Frequency (minutes)
Day T	ime Rout	tes			
20	GMB	Sai Wan Ho (Grand Promenade) Public Transport Terminus <-> Chai Wan (Fung Yip Street)/ Chai Wan Industrial City	06:00-23:40	6	6-12
20M	GMB	Hing Man Estate <-> Chai Wan Industrial City	06:15-00:45	4-15	4-15
47E	GMB	Siu Sai Wan Phase III <-> Pamela Youde Nethersole Eastern Hospital (Circular)	10:00-17:00	20	20
47M	GMB	Chai Wan Station <-> Siu Sai Wan Phase	06:00-01:15	3-10	3-10
47S	GMB	Chai Wan Station <-> Harmony Garden (Circular)	06:00-00:00	10-20	10-20
62	GMB	Heng Fa Chuen Public Transport Interchange -> Siu Sai Wan (Cheerful Garden)	06:15-01:20	5-8	5-8
62A	GMB	Siu Sai Wan (Island Resort) Public Transport Interchange <-> Heng Fa Chuen Public Transport Interchange	06:15-23:36	4-9	4-9

Proposed Public Housing Development at Chai Wan Road



Route	Service	Destinations	Service Hour	Peak Hour Frequency (minutes)	Non-Peak Hour Frequency (minutes)
Peaks	Only Ro	utes/ Special Departures Routes			
4754	CNAD	Hiu Tsui Street <-> Chai Wan Station	07:30-09:00	10-15	-
47111	GIVIB	Wing Ping Street <-> Chai Wan Station	07:30-08:15	15	-
62	GMB	Siu Sai Wan (Cheerful Garden) -> Heng Fa Chuen Public Transport Interchange	06:15-09:00	5	-
62A	GMB	Siu Sai Wan (Island Resort) Public Transport Interchange <-> Heng Fa Chuen (Circular route)	06:15-09:00	5-6	-
Overn	night Rou	tes			
44M	GMB	Chai Wan Station > Siu Sai Wan Estate (Circular)	00:00-06:00	15	-
61	GMB	Siu Sai Wan (Island Resort) <-> Mong Kok East Station	23:00-05:30	30	30

- 6.1.2 The nearest railway station would be Chai Wan Station. The walking distance would be about 1km and the walking time is about 15mins as illustrated in **Drawing 6.2**.
- 6.1.3 The local taxi stands are provided at Chai Wan Road, Sheung Ping Street, while the cross harbour taxi stand is provided at Island Resort as illustrated on **Drawing 6.3**. The walking distance (time) to the local stand at Chai Wan Road and Sheung Ping Street are about 300m (5 min.) and 460m (7 min.) respectively. The walking distance (time) to the cross harbour taxi stand at Island Resort is about 1km (15 min.)

6.2 Public Transport Demand of the Proposed Development

6.2.1 Based on our in-house MVCTS Public Transport Model, **Table 6.4** summarizes the 2025 Peak outbound direction Public Transport (PT) Demand (rail and non-rail) due to the proposed PRH development. According to the model, a factor for PT of 0.18 was adopted and the modal split for rail (including feeder services of bus/GMB) and non-rail (bus/GMB) is about 32% and 68%. It is anticipated the modal for The anticipated outbound direction PT demands are summarized in **Table 6.4**.

Site	Population	2025 AM Peak Outbound Direction Public Transport Demand (patronage/hr)				
Proposed Development	2,200 (1)	Rail (including feeder services) : 127 Bus/GMB : 269				

Table 6.4 Year 2027 Anticipated Outbound Direction PT Demand

Notes: (1) A total of 800 PRH would be provided on the proposed development. To allow for 10% additional buffer and assume 2.5 persons per flat, a total population of 2,200 is assumed for the proposed development.

Proposed Public Housing Development at Chai Wan Road



6.3 Feeder Services to Railway Station

- 6.3.1 The additional demand due to the proposed development on the Bus/GMB could be easily accommodated taken into consideration of the comprehensive of the public transport services in the near vicinity. The additional demand on rail (including feeder services) is considered to be minimal in view of the scale of the proposed development.
- 6.3.2 In view of the long walking distance to Chai Wan MTR Station (about 1km), the public housing residents would take the feeder routes GMB 47M and its short working trips departed at Wing Ping Street to travel to/from Chai Wan Station. The stop for GMB 47M is located at Wing Ping Street adjacent to our proposed development and is considered to be very convenient for the proposed housing development.
- 6.3.3 In order to determine the adequacy of the existing feeder services, a traffic survey was conducted on 9 August 2016 and is non-school day and HD agreed to conduct a new survey upon commencement of the new school term to assess the sufficiency of services and work out improvement measures with student demand taken into account. The occupancy of the feeder route GMB 47M were observed upon the arrival of each GMB.
- 6.3.4 It is considered that the impact to the feeder service during the AM Peak (outbound direction to Chai Wan Station) and PM Peak (inbound direction from Chai Wan Station) would be most critical. Therefore, the GMB occupancy were determined at Wing Ping Street GMB stop and San Ha Street GMB stop at the AM Peak and at Chai Wan MTR Station at the PM Peak. The results are summarized in **Table 6.5**.

GMB/ Stop Location	Destination	Observed No. of GMB	Observed Capacity (Patronage/hr)	Existing Occupancy	Additional PassegnerTrips due to Proposed Development (Patronage/hr)	Anticipated Occupancy (with Proposed Development) (%)
GMB						
Route 47M (Wing Ping Street)		79	1264 (16 passenger / GMB)	1,228 (97%)	-	1,228 (97%)
Route 47S (Wing Ping Street)	Chai wan Station	7	112 (16 passenger /GMB)	109 (97%)	-	109 (97%)
BUS Route 82M						
Chai Wan Road (near Wing Ping Street)	Chai Wan Station	3	393 (131 passenger /Bus)	187 (48%)	127	314 (80%)

 Table 6.5
 Occupancy of Existing Feeder Services (AM Peak Outbound Direction)

Proposed Public Housing Development at Chai Wan Road



GMB Stop Location	Destination	Observed No. of GMB	Observed Capacity (Patronage/hr)	Existing Occupancy (%)	Additional PassegnerTrips due to Proposed Development (Patronage/hr)	Anticipated Occupancy (with Proposed Development) (%)
GMB						
Route 47M (Chai Wan MTR Station)	Siu Sai Wan Phase III	72	1152 (16 passenger / GMB)	1,106 (96%)	127 (equivalent to additional 8 GMB trip/hr)	1,233 (107%)
Route 47S (Chai Wan MTR Station)	Harmony Garden	5	80 (16 passenger / GMB)	76 (95%)	-	76 (95%)

 Table 6.6 Occupancy of Existing Feeder Services (PM Peak Inbound Direction)

- 6.3.5 The GMB occupancy results in **Table 6.5** revealed that GMB 47M is already operating near its capacity in the AM peak, therefore, it is anticipated that the future residents of the proposed development will take Bus Route 82M to Chai Wan Station during the AM Peak. Also, it is proposed provide additional special services of the GMB 47M shorting working trips at Wing Ping Street to strengthen the service.
- 6.3.6 The GMB occupancy results in Table 6.6 revealed that GMB 47M is already operating near its capacity and over capacity after in-take of the proposed development in the PM Peak. It is proposed to increase the peak hour frequency of the GMB 47M to strengthen the service. An alternative feeder service between Chai Wan Station and proposed development would be bus route NWFB 82M. The existing stop for NWFB 82M is located at Chai Wan Road near its junction with Wing Ping Street. It is considered this is also a convenient bus stop for the future residents to use. The existing NWFB 82M is a circular route travel between Chai Wan Station and Siu Sai Wan, which operates from 7:20 to 16:20. It is proposed to extend the services to until 20:00 at the evening peak to cover the additional passenger trip demand. The exact time could be further reviewed subject to overall planning of the public transport services in the future. The capacity of 82M is 131 passengers/bus. To extend the service under the existing frequency (3 veh/hr), the total capacity is 393 passengers/hr which should be enough to cater the additional passenger demand (i.e. 127 passenger trips). Subject to the future planning of public transport services in the district, it is considered that the extension of the operation hours of this bus route to the evening peak would also be beneficial to the proposed development.
- 6.3.7 Taking into consideration, the necessary of additional stacking to accommodate the additional GMB, it is proposed to extend the existing GMB stand for Route 47M at Chai Wan Station as illustrated in **Drawing 6.4**. The existing traffic arrangement could only accommodate 5no. GMB at the maximum. With the proposed arrangement, about 7 nos. of GMB could be accommodated. The proposed improvement would only require minor modification of traffic aids. Taken into consideration of the nature of the required site works, the improvement proposal could be further reviewed and ascertained upon the intake of the proposed development.

Proposed Public Housing Development at Chai Wan Road



- 6.3.8 The existing footpath (near the GMB stop) is about 2.5m wide at Wing Ping Street. For the Wing Ping Street en-route GMB stop, the existing footpath extends from Wing Ping Street to San Ha Street (i.e. over 50m), which should be sufficient for passenger queuing. HD undertake to conduct further assessment on sufficiency of both GMB loading/unloading spaces and passenger queuing spaces at Chai Wan Station PTI and Wing Ping Street en-route stop (Chai Wan Station bound) and work out viable solutions cum improvement proposals to cater for the new population intake's public transport demand for TD's consideration.
- 6.3.9 The analysis results suggested improvement to public transport services based on the current survey results in August, which is not a typical school day. Nevertheless, it is expected the proposed improvement would also applicable, which should still improve the situation during school day. Also, it is anticipated that recommended improvement could accommodate the additional public transport demand due to proposed housing development during school day. Nevertheless, HD agreed to conduct a new survey upon commencement of the new school term to assess the sufficiency of services and work out improvement measures with student demand taken into account.
- 6.3.10 In view of the comprehensive coverage of the public transport services and the available different choices on transport modes together with the recommended measures, the proposed development is considered to have very good accessibility via the public transport.

Proposed Public Housing Development at Chai Wan Road











7. PEDESTRIAN FACILITIES

7.1 Existing Pedestrian Conditions

Existing Pedestrian Facilities

7.1.1 At present, numerous pedestrian crossings and footbridges are provided in the vicinity and at the nearby junctions to link up the proposed development and the surrounding housing developments and shopping centre. The locations of the pedestrian crossings and footbridges in the vicinity of the proposed development are shown in **Drawing 7.1**.

Observed Pedestrian Demand

- 7.1.2 In order to determine the existing pedestrian condition, pedestrian surveys in form of manual head count survey was conducted on a typical weekday in December 2015 at the footpaths in the vicinity of the proposed development.
- 7.1.3 The observed pedestrian count data indicates that the highest peak 15-mins pedestrian demands occur at 7:35 to 7:50 and 17:45 to 18:00 in the AM and PM peaks respectively. The observed peak 15-mins pedestrian flows are shown in **Drawing 7.2**.
- 7.1.4 To investigate the serviceability level of the footpath near the proposed development, the concept of Level-of-Service (LOS) as stipulated in T.P.D.M. Volume 6 Chapter 10 Section 10.4.2 have been applied. The concept of Level-of-Service (LOS) defines the serviceability level of walkway in terms of several parameters such as flow rate, pedestrian space, walking speed, etc. Operational assessment on the existing footpaths under LOS concept has been assessed and the results are summarized in **Table 7.1** and shown in **Drawing 7.2**.

		-						
Footpath Section	Total Width (Approx. In	Effective Width ⁽¹⁾ (Approx. in	Two-way 15- mins Pedestrian Flows (ped/15 mins)		Two Pedestri Ra (ped/m	-way ian Flow ite in/m) ⁽²⁾	Level of (LO	Service S) ⁽³⁾
	metres)	meters) ⁽¹⁾	AM	PM	AM	PM	AM	PM
P1	2.6	1.1	50	25	3	2	А	А
P2	2.5	1.0	35	25	2	2	А	А
P3	4.7	3.2	330	155	7	3	А	А
Note: (1) Ef	fective width of	footpath is defin	ed as the act	ual width of	footpath by	excluding th	e dead widt	ns on both

Table 7.1 Operational Assessment for Existing Footpaths near the ProposedDevelopment

 Effective width of footpath is defined as the actual width of footpath by excluding the dead widths on both sides (0.5m on both sides) and 0.5m for kerbside railings.

(2) Two-way pedestrian flow rate = Two-way 15-mins pedestrian flows / 15 min / Effective width of footpath

(3) Details of Pedestrian Walkway LOS refer to T.P.D.M. Volume 6 Chapter 10 Section 10.4.2.

7.1.5 As indicated in **Tables 7.1**, the existing footpaths near the proposed development are now operating with adequate level of services to cater for the existing pedestrian demand.

Proposed Public Housing Development at Chai Wan Road



7.2 Future Pedestrian Conditions

<u>Pedestrian Forecast</u>

- 7.2.1 It is anticipated that the proposed development will be completed and occupied by year 2023 under the latest programme. For the purpose of this pedestrian study, year 2025 will be adopted as the design year, which is 3 years upon completion.
- 7.2.2 There are two main factors being considered to derive the pedestrian demand forecasting including:
 - General growth of pedestrian in the area; and
 - Pedestrian trip generations of the proposed development.

Pedestrian Generation

7.2.3 In order to estimate the potential pedestrian trip generations of the proposed development, trip generation rates of similar characteristics have been adopted for the different proposed development components. The reference surveyed trip rates are summarised in **Table 7.2**.

Table 7.2 Reference Trip Rates

	Pedestrian Trip Rates					
	AM	Peak	PM Peak			
	Generation	Attraction	Generation	Attraction		
PRH flats (ped/flat/hr) ⁽¹⁾	0.47	0.10	0.19	0.33		
Retail/Commercial (ped/hr/100sqm GFA) ⁽²⁾	4.82	7.37	3.69	2.08		

Note: (1) Trip rate obtained from survey at Tung Wui Estate – Wui Sum House.

(2) Trip rate obtained from survey at Po Tat Shopping Center.

7.2.4 Based on the 880 PRH flats, 198 sq.m GFA of retail and the surveyed trip rates given in **Table 7.2**, the total pedestrian trips generated by the proposed development under the updated development proposals are computed and shown in **Table 7.3**.

Table 7.3 Pedestrian Generations of Proposed Development

	Pedestrian Trip Rates (pedestrians/flat/hr)					
	AM	Peak	PM I	Peak		
	Generation	Attraction	Generation	Attraction		
880 PRH Flats	414	88	167	290		
Retail (198 sqm GFA)	10	15	7	4		
Total	424	103	174	294		

7.2.5 With reference to the latest 2011-Based Territorial Population and Employment Data Matrices (TPEDM) planning data, the anticipated 2025 peak hour pedestrian flows along the footpaths are derived by applying the adopted +0.6% annual growth rate onto the observed pedestrian flows. The likely pedestrian generations of the proposed development have been added and assigned onto the footpaths/crossings. The anticipated 2025 pedestrian flows are produced and shown in **Drawing 7.3**.

Proposed Public Housing Development at Chai Wan Road



Operational Assessment

Note:

7.2.6 Under the proposed development, footpath sections P1, P2 and P3 will be widened to 3.6m, 4.0m and 3.0m respectively. Operational assessment for footpaths based on LOS concept has been assessed and the results are summarized in **Table 7.4** and shown in **Drawing 7.3**. Operational assessment for crossing at Junction A based on proposed improvement scheme under the redevelopment of former China Motor Bus has also been assessed and the results are summarized in **Table 7.5**.

Table 7.4	2025 Operational Assessment for Footpaths near the Proposed
	Development

Footpath Section Footpath Section Footpath Footpath Section Footpath Footpath Section Footpath Footpat		Effective Width ⁽¹⁾ (Approx. in	Two-way 15- mins Pedestrian Flows (ped/15 mins)		Two-way Pedestrian Flow Rate (ped/min/m) ⁽²⁾		Level of Service (LOS) ⁽³⁾	
	metres)	meters) ⁽¹⁾	AM	PM	AM	PM	AM	PM
P1	3.6	2.1	185	145	6	5	А	А
P2	4.0	2.5	170	145	5	4	А	А
P3	3.0	1.5	480	280	21	12	В	А

 Effective width of footpath is defined as the actual width of footpath by excluding the dead widths on both sides (0.5m on both sides) and 0.5m for kerbside railings.

(2) Two-way pedestrian flow rate = Two-way 15-mins pedestrian flows / 15 min / Effective width of footpath

(3) Details of Pedestrian Walkway LOS refer to T.P.D.M. Volume 6 Chapter 10 Section 10.4.2.

Index	Location of Pedestrian Crossing	Cycle Time (Sec)	Pedestrian Green Time (Sec)	Green Time Proportion	Lateral Width (m)	Pedestrian Capacity (Ped/hr) ⁽¹⁾	2-way Flow (Ped/hr)	V/C Ratio
Chai Wa	n Road/Sheung On	Street	/Wing Ping St	reet				
AM Peal	k							
1	North of Junction	120	37	0.31	6	3,534	1,055	0.30
2	East of Junction	120	37	0.31	6	3,534	1,005	0.28
3	South of Junction	120	18	0.15	4	1,140	1,065	0.93
PM Peal	ĸ							
1	North of Junction	120	31	0.26	6	2,964	725	0.24
2	East of Junction	120	31	0.26	6	2,964	1,325	0.45
3	South of Junction	120	18	0.15	4	1,140	780	0.68

Note: (1) PC = K x GTP x W (Refer to TPDM Volume 4, 3.2.5.6)

PC = Pedestrian crossing capacity in pedestrians per hour

GTP = Green time proportion i.e. (Pedestrian green + flashing green time) / Cycle time

W = Lateral width of pedestrian crossing

K = A constant equivalent to saturation flow for pedestrians, may be taken as 1900 ped/metre/hours.

7.2.7 As indicated in **Tables 7.4**, the footpaths in the vicinity of the proposed development will still operate satisfactorily in year 2025 after the population intake of the proposed development. The results shown in **Table 7.5** indicate that all crossings at Junction A will still operate within their capacities in year 2025 after the population intake of the proposed development.

Proposed Public Housing Development at Chai Wan Road

where



7.2.8 In view of the level of services of footpath in vicinity of the proposed development, it is expected that the pedestrian facilities will operate within acceptable serviceability. In view of the pedestrian facilities provision and the scale of the proposed development, it is not expected that there will be significant impact on the existing pedestrian facilities.

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CHK50019644/TIA/F71.CDR/CKM/11FEB16



CHK50019644/TIA/F72.CDR/CKM/11FEB16





CHK50019644/TIA/F73.CDR/LLH/26FEB16



8. SUMMARY AND CONCLUSION

8.1 Summary

- 8.1.1 MVA Hong Kong Limited (MVA) was commissioned by the Hong Kong Housing Authority (HKHA) to carry out a traffic impact assessment study for the proposed housing development at Chai Wan Road.
- 8.1.2 The proposed PRH development will comprise about 800 public rental flats. The proposed development is scheduled to be completed by end of 2022. As a conservative approach, an additional 10% allowance had been allowed for the proposed development to cater for future design variation. The traffic impact assessment has been based on 880 public rental flats.
- 8.1.3 To appraise the existing traffic condition, traffic count surveys were conducted in the surrounding road network of the proposed development. Moreover, current operational performance of the critical junctions was assessed with the observed traffic flows. The operational assessment results revealed that all critical junctions are at present operating within capacities.
- 8.1.4 In order to assess the impact of the development related traffic on the local road network, it is necessary to forecast the traffic flows for 2025, which is 3 years upon completion.
- 8.1.5 The planned/committed development traffic from the planned/committed developments in the vicinity of the subject site are also included in the assessment.
- 8.1.6 Traffic generation and attraction from the proposed development has been assessed. It is estimated that the proposed development will generate and attract about 39pcu/hr and 30pcu/hr in the AM peak hour, and generate and attract about 22pcu/hr and 27pcu/hr in the PM peak hour respectively.
- 8.1.7 Assessment of operational performance of the critical junctions revealed that all critical junctions will still operate within their capacities in design year 2025.
- 8.1.8 The assessment results indicated that the GMB 47M is already operating near its capacity in the AM peak, therefore, it is anticipated that the future residents of the proposed development will take Bus Route 82M to Chai Wan Station during the AM Peak. Also, it is proposed to increase the peak hour frequency of the GMB 47M shorting working trips at Wing Ping Street to strengthen the service.
- 8.1.9 The assessment results indicated that the GMB 47M is already operating near its capacity and over capacity after in-take of the proposed development in the PM Peak. It is proposed to increase the peak hour frequency of the GMB 47M to strengthen the service. An alternative feeder service between Chai Wan Station and proposed development would be bus route NWFB 82M. The existing stop for NWFB 82M is located at Chai Wan Road near its junction with Wing Ping Street. It is considered this is also a convenient bus stop for the future residents to use. The existing NWFB 82M is a circular route travel between Chai Wan Station and Siu Sai Wan, which operates from 7:20 to 16:20. Subject to the future planning of public transport services in the district, it is considered that the

Proposed Public Housing Development at Chai Wan Road

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extension of the operation hours of this bus route to the evening peak would also be beneficial to the proposed development.

- 8.1.10 Taking into consideration, the necessary of additional stacking to accommodate the additional GMB, it is proposed to extend the existing GMB stand for Route 47M at Chai Wan Station. The existing traffic arrangement could only accommodate 5no. GMB at the maximum. With the proposed arrangement, about 7 nos. of GMB could be accommodated. The proposed improvement would only require minor modification of traffic aids. Taken into consideration of the nature of the required site works, the improvement proposal could be further reviewed and ascertained upon the intake of the proposed development.
- 8.1.11 In view of the comprehensive coverage of the public transport services and the available different choices on transport modes together with the recommended measures, the proposed development is considered to have very good accessibility via the public transport.
- 8.1.12 Future pedestrian demand has been assessed, the result indicates that the additional pedestrian demands generated to/from the proposed development are not significant and the existing pedestrian facilities in the vicinity will be able to cater for the anticipated pedestrian demands.

8.2 Conclusion

8.2.1 In conclusion, the traffic impact assessment has demonstrated that the traffic generated by the proposed development can be absorbed by the nearby road network and would not cause any adverse traffic impact. Hence it can be concluded that the proposed development is acceptable in traffic terms.

Proposed Public Housing Development at Chai Wan Road

Appendix A – Junction Calculation Sheets

2015 Observed Flows

Junction: Ch	ai Wan	Road/	Sheur	ng On St	reet/Wi	ing Ping	g Stree	t							Design Ye	ar: 201	5
Description: Ob	served	Traffic	: Flow	S				-			Designed	By: <u>TY</u>	C		Checked I	By: <u>GP</u>	H
	t -				Radi	us (m)	ient	Pro. Tu	rning (%)	Revised Flow (Saturation pcu/hr)		A.M. Pea	k	I	P.M. Pea	k
Approach	Movemer	Phase	Stage	Width (m)	Left	Right	Uphill grad (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB	$\stackrel{\uparrow}{\rightarrow} \rightarrow$	A A A	1 1 1	4.000 3.600 3.700	12			91%	92%	1720 2115 2125	1715 2115 2125	268 330 332	0.156 0.156 0.156	·	320 394 396	0.187 0.186 0.186	
Sheung On Street SB	بلہ جا	C C	4 4	4.000 3.900	10	15 10		32% / 68%	519% / 81%	1805 1865	1815 1865	202 208	0.112 0.112	0.112	387 398	0.213 0.213	0.213
Chai Wan Road WB	$\stackrel{\checkmark}{\downarrow}$	A A A	1 1 1	3.800 3.200 3.200	15			37%	37%	1925 2075 2075	1925 2075 2075	518 559 558	0.269 0.269 0.269	0.269	377 407 406	0.196 0.196 0.196	0.196
Wing Ping Street NB	٦	В	2	3.900	15					1825	1825	130	0.071	0.071	65	0.036	
Pedestrian Crossing		Dp Ep Fp	2,3 2,3 3	MIN GR MIN GR MIN GR	EEN + EEN + EEN +	FLASH FLASH FLASH	10 11 6	+ + +	18 14 12	= =	28 25 18			÷			·
Notes:						Traffic	Flow	(pcu/hr)	,		N	Group		A,B,Fp,C	Group		A,B,Fp,C,
1 Site factor of 0.95 h lane of	as been	appli	ed to t	the nears	side		245(295	5)	345(710)	65(75)	I	У		0.453	У		0.410
Chai Wan Road EB for the junction outside the	or the Gl	MB ste erminu	op loc Js.	ated righ	t after		685(815	5)				L (sec)		37	L (sec)		43
											1445(1050)	C (sec)		100	C (sec)		100
								•		190(140)		y pract.		0.567	y pract.		0.513
								\ 130(65)				R.C. (%)		25%	R.C. (%)		25%
1.	ams	A	_	2.	<- ₿ [¶]	- <u>Ep</u> > /	Dp V	3.	< < Fp	Ep-> //	ÎDp ∕∕	4.	C 🗸	\	5.		
I/G= 5			I/G	= 11		5		I/G= 4		18 18	I/G=	- 2		I/G			
r/G= 0			I/G	= 11		5		I/G= 4		18	Date	=∠ a:	Junct	ion:	=		

Job No.: <u>CHK50019644</u> MVA ASIA LIMITED

TRAFFIC SIG	NAL	s c	AL	CULA	TIO	Ν					Job No.:	CHK	50019644	<u> </u>	MV	A ASIA	LIMITED
Junction: Wi	ng Tai F	load/C	Chai V	Van Roa	d			_							Design Ye	ar: <u>20</u>	15
Description: Ob	served	Traffic	Flow	s				-			Designed	By: <u>TY</u>	С		Checked E	By: <u> </u>	<u>9H</u>
	+				Radi	us (m)	ent	Pro. Tu	rning (%)	Revised	Saturation		A.M. Pea	k	I	P.M. Pea	k
Approach	Movemen notation	Phase	Stage	Width (m)	Left	Right	Uphill gradie (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB	┥┽┾	B B B	1 1 1	2.900 3.800 4.100	70 70	25 20	1	13% / 87%	60% / 100%	1865 2025 2015	1865 2015 2015	306 333 331	0.164 0.164 0.164	0.164	255 360 360	0.137 0.179 0.179	0.179
Wing Tai Road SB	$\rightarrow \rightarrow \swarrow$	C C C	2 2 2	3.700 3.700 4.000		15		77%	100%	1985 2125 2000	1985 2125 1960	135 144 136	0.068 0.068 0.068	0.068	186 199 195	0.094 0.094 0.099	0.099
Chai Wan Road WB	ţ	A A	1 1	4.000 4.100	100 100					1985 2135	1985 2135	287 308	0.145 0.144		265 285	0.134 0.133	
Pedestrian Crossing		Dp Ep Fp	1 1 2	MIN GR MIN GR MIN GR	EEN + EEN + EEN +	FLASH FLASH FLASH	1 8 1 6 1 6	+ +	10 7 7		18 13 13						
Notes:						Traffic	: Flow	(pcu/hr)			N	Group	A,C	B,C	Group	A,C,,,	B,C,,,
									310(385)		I	у	0.213	0.232	у	0.233	0.278
							350(255	105(195) 5]				L (sec)	10	10	L (sec)	10	10
							1					C (sec)	100	100	C (sec)	100	100
							620(720	0)	595(550)			y pract.	0.810	0.810	y pract.	0.810	0.810
												R.C. (%)	281%	248%	R.C. (%)	248%	191%
Stage / Phase Diagra	Dp 77		A	2. <	Ep Fp ħ	Fp (N	3.				4.			5.		

I/G= I/G=

I/G= 5 I/G= 5 I/G= 7 I/G= 7

TRAFF	IC SIG	INAL	S C	AL(CULA		N					Job No.	: <u>CHK</u>	50019644	<u> </u>	MV	A ASIA I	
Junction:	Wi	ng Tai F	Road/ł	Ka Yip	Street											Design Ye	ar: 201	15
Description:	Ob	served	Traffic	: Flow	S							Designed	By: <u>TY</u>	С		Checked E	3y: <u>GF</u>	<u>ਅ</u>
						Radii	us (m)	t	Pro. Tur	ning (%)	Revised	Saturation		A.M. Pea	k	F	P.M. Pea	k
Appro	bach	Movement notation	Phase	Stage	Width (m)	Left	Right	Uphill gradie (%)	A.M.	P.M.	A.M.	pcu/hr) P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Wing Ta SE	ii Road 3	+ + + +	B B B	2,3 2,3 2,3	3.830 3.580 4.040	13 18			100%	99%	1790 1950 2160	1790 1950 2160	447 488 420	0.250 0.250 0.194	0.250	482 526 582	0.269 0.270 0.269	0.270
Wing Ta NE	ii Road 3	Ť	A A	1,2 1,2	4.240 3.910						2040 2145	2040 2145	197 208	0.097 0.097	0.097	178 187	0.087 0.087	0.087
Pedestrian (Crossing		Ср Др Ер	3 1 1	MIN GF MIN GF MIN GF	:EEN + :EEN + :EEN +	FLASH FLASH	+ 10 + 7 + 6	+ +	7 13 12		17 20 18						
Notes:							Traffic	Flow	(pcu/hr) 420(58 3)	₹ 935(1005)		↑ N	Group y	Ер,В 0.250	А,В 0.347	Group y	Ер.В.,, 0.270	А,В,,, 0.357
										405(365)			L (sec) C (sec) y pract. R.C. (%)	30 100 0.630 152%	10 100 0.810 133%	L (sec) C (sec) y pract. R.C. (%)	30 100 0.630 134%	10 100 0.810 127%
Stage / Pha	ise Diagra	ams			2		1		1.0	\\			4	I	<u></u>	5		<u> </u>
1.	≪ Ďŗ	7)	۲ ب A		2.	B A			3.	Ср	7	_	4.	_		5.		_
I/G=				I/G	= 7				I/G= 5			I/G=	L =		I/G	=		
I/G=				I/G	= /				I/G= 5	I		I/G=	e:	Junct	ion:	=		C

TRAFFIC SIG	SNAL	s c	AL	CULA		N					Job No.	: <u>CHK</u>	50019644	1	MV	A ASIA	LIMITED
Junction: Ka	NYip Stre	eet/Sł	neung	On Stree	et										Design Ye	ar: 20	15
Description: OI	bserved	Traffic	c Flow	/S						Designed	By: <u>TY</u>	°C		Checked I	By: <u>G</u> F	РН	
	Ħ				Radi	us (m)	ent	Pro. Tu	rning (%)	Revised S	Saturation		A.M. Pea	k		P.M. Pea	k
Approach	Movemer notation	Phase	Stage	Width (m)	Left	Right	Uphill gradi (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Ka Yip Street WB	·	В	3	4.070	10			•		1760	1760	100	0.057	•	195	0.111	0.111
Sheung On Street NB	₽	В	3	5.240		15		8%	8%	2120	2125	125	0.059	0.059	195	0.092	
Ka Yip Street	⊥→	A	1	4.490	15			4%	12%	2055	2040	655	0.319	0.319	585	0.287	0.287
EB	\neg	A	1	4.450		15				2000	2000	280	0.140		420	0.210	
Pedestrian Crossing		Cp Dp	2,3 2	MIN GF MIN GF	REEN + REEN +	FLASH FLASH	10 7	+ +	10 10	= =	20 17			*			*
Notes:						Traffie	c Flow	(pcu/hr)			≜ N	Group			Group		
											+	v		0.378	v		А, DP, B,,
												L (sec)		32	L (sec)		32
							25(70)	000/545		100(195)		C (sec)		100	C (sec)		100
								280(420)		◄ 10(15)		y pract.		0.612	y pract.		0.612
								280(420)	115(180)	10(13)		R.C. (%)		62%	R.C. (%)		54%
Stage / Phase Diagra	ams			2.				3.				4.			5.		
	A				Dp L K Cp	7 F.	, Dp		Ср Л	B B							
I/G= 6			I/G	6= 8		17		I/G= 3	3		I/G=			I/G	 = _		
0 = U			1/6	0 =0		17		/G= 3			Date	e:	Junct	ion:		root	D

TRAFFIC S	SIGNA	ALS (CALC	CULAT	ION						Job No.:	: <u>CHK5</u>	<u>00196</u> 44	Ν	IVA HON	g kong	LIMITED
Junction:	Chai W	an Roa	d / Siu S	Sai Wan Ro	oad / Sur	n Yip Stre	eet								Design Yea	r:2015_	
Description:	Observe	ed Traff	ic Flows								Designed	Bv: LTH			Checked By	r: EDC	
				1			<u> </u>					, <u> </u>			,		
	ents				Radi	us (m)	ıt (%)	Pro. Tu	rning (%)	Revised S Flow (p	aturation cu/hr)		AM Peak	-		PM Peak	
Approach	Movem	Phase	Stage	Width (m)	Left	Right	Gradien	AM	РМ	АМ	PM	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB	_≤ → →	F A A	1,3 1 1	3.100 3.100 3.900	10					1675 1925 2145	1675 1925 2145	325 199 221	0.194 0.103 0.103		330 263 292	0.197 0.137 0.136	0.137
Sun Yip Street SB	 1 €	D E	3 3	4.260 4.300	45	15				1975 2050	1975 2050	185 510	0.094 0.249	0.249	165 480	0.084 0.234	0.084 0.234
Siu Sai Wan Road WB	1 ← 2 ← 2 ▲	B B C	1,2 1,2 2	3.100 3.500 3.500		20				1925 1265 1175	1925 1265 1175	685 450 65	0.356 0.356 0.055	0.356	428 282 95	0.222 0.223 0.081	
Pedestrian Crossi	ng	Gp Hp Ip Jp	1,2 1 2 3	MIN GRE MIN GRE MIN GRE MIN GRE	EN + FL EN + FL EN + FL EN + FL	.ASH = .ASH = .ASH = .ASH =	10 7 9	+ + +	6 7 6 16	= = =	16 14 13 25						
						1 											
Notes:	led for th	e flare l	ane of S	un Yin Str	et SB	I raffic	325(330)	nr)		Κ.	+ N	Group	A,D,E	B,E	Group	A,C,E	A,D,E
right turn lane.		o naro r)	020(000)		510(480)	185(165)		У	0.446	0.605	У	0.452	0.454
2. Site factor of 0.	6 are ado	ded for t	flare lan	e of offside	lane.		▲ 420(555)					L (sec)	14	10	L (sec)	12	14
										65(95)		C (sec)	100	100	C (sec)	100	100
										\leftarrow	1135(710)	y pract.	0.774	0.810	y pract.	0.792	0.774
												R.C. (%)	74%	34%	R.C. (%)	75%	70%
Stage / Phase Di 1.	agrams			2.				3.				4.			5.		
A «	⇒	Gp ∠	7	ह्)」 Ip		Gp 47	F)	E K	D						
		B ◀	_				B			Jp ↑							
I/G= 7			I/G=	-				I/G= 5			I/G=			I/G=	• 		
I/G= 5			I/G=	1				I/G= 5	I		Date	Nov 2015		Junct	ion:	i Wan Road / C	E

Job No.: <u>CHK50019</u>644

MVA ASIA LIMITED

Junction: Chai Wan Road/ San Ha Stre	et														Design Ye	ar: <u>20</u>	15
Description: Observe Flows											Designed	By: <u>Hk</u>	(H		Checked E	By: <u>GP</u>	H
					Radiu	us (m)		Pro. Tur	ning (%)	Revised	Saturation		A.M. Pea	k		P.M. Pea	k
Approach	Movement notation	Phase	Stage	Width (m)	Left	Right	(%) uphill Gradient	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	, Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB		A A B	1 1 2	3.300 3.300 3.300		15			•	1945 2085 1895	1945 2085 1895	415 445 75	0.213 0.213 0.040	0.213	417 448 90	0.214 0.215 0.047	0.215
Chai Wan Road WB	$\stackrel{\leftarrow}{\leftarrow}$	A A	1 1	3.500 3.500						1965 2105	1965 2105	285 305	0.145 0.145		316 339	0.161 0.161	
San Ha Street NB	ſſ	С	2	4.000	10					1750	1750	355	0.203	0.203	230	0.131	0.131
LRT/Pedestrian		Dp	1	Min	6	+	11			=	17						
		Ep	2	Min	12	+	8			=	20						
Notes:						Traff	ic Flow					Group	AEp	AC	Group	AFn	AC
						(pc	cu/hr)					v	0.213	0.416	v	0.215	0.346
						8	60(865)	>			590(655)	, L (sec)	28	9.110	, L (sec)	28	0.010 Q
							75(90)				000(000)	C (sec)	100	100	C (sec)	100	100
							. ,					v pract	0.648	0.819	v pract	0.648	0.819
									255(220)			R.C. (%)	204%	97%	R.C. (%)	202%	137%
Stage / Phase Diagrams				2					3			4	l		5		
A	/			2.	В	۲ ۲	``, Ep `\		5.			7.			5.		
47 27 Dp					*	$\overline{\}$	С										
I/G= 5			I/G=	= 6				I/G=			I/G=			I/G)=)=		
			, ., O-	~				1,,0-	1		Date	: Аш	n-16	Jui	nction:		F

2025 Reference Flows

Job No.: <u>CHK50019644</u> MVA ASIA LIMITED

Junction: Ch	nai Wan	Road/	Sheur	ng On St	reet/W	ing Ping	g Street								Design Ye	ar: 202	25
Description: Re	eference	Traffi	c Flow	/S							Designed	By: <u>TY</u>	с		Checked E	By: <u> </u>	Υ <u>Η</u>
	t				Radi	us (m)	ent	Pro. Tu	rning (%)	Revised S	Saturation		A.M. Pea	k	I	P.M. Pea	k
Approach	Movemen notation	Phase	Stage	Width (m)	Left	Right	Uphill gradi (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB	\downarrow \rightarrow \rightarrow	A A A	1 1 1	4.000 3.600 3.700	12			100%	100%	1700 2115 2125	1700 2115 2125	325 384 386	0.191 0.182 0.182		365 444 446	0.215 0.210 0.210	
Sheung On Street SB	♪ - -	C C C	4 4 4	3.333 3.333 3.333	10	12 10				1695 1730 1815	1695 1730 1815	125 256 269	0.074 0.148 0.148	0.148	130 415 435	0.077 0.240 0.240	0.240
Chai Wan Road WB	<	A A A	1 1 1	3.800 3.200 3.200	15			35%	34%	1930 2075 2075	1930 2075 2075	576 620 619	0.298 0.299 0.298	0.299	435 468 467	0.225 0.226 0.225	0.226
Wing Ping Street NB	٦	В	2	3.900	15					1825	1825	140	0.077	0.077	70	0.038	0.038
Pedestrian Crossing		Dp Ep Fp	2,3 2,3 3	MIN GR MIN GR MIN GR	2 EEN + 2 EEN + 2 EEN +	FLASH FLASH FLASH	H 10 H 11 H 6	+ +	18 14 12	= =	28 25 18						
Notes:						Traffic	Flow	(pcu/hr)			• N		1				
1 Site factor of 0.95 h	as been	applie	ed to t	he nears	ide		325(365)	()			+	Group		A,B,Fp,C	Group		A,B,Fp,C,
lane of Chai Wan Road EB fo	or the GI	MB sto	op loc	ated righ	t after		•		525(850)	125(130)		L (sec)		37	y L (sec)		37
the junction outside the	ne bus te	erminu	s.				770(890)			←	1015(1000)	C (sec)		120	C (sec)		120
								•		200(150)	1615(1220)	y pract.		0.623	y pract.		0.623
								140(70)		200(130)		R.C. (%)		19%	R.C. (%)		24%
Stage / Phase Diagr	ams A	A	_	2.	<- ₿ [₹]	- ^{Ep} ->	Dp //	3.	≪ ≪ Fp	-Ep., //	Dp //	4.	C 🖌	\	5.		
I/G= 5 I/G= 5			I/G	= 11 = 11				I/G= 4		18 18	I/G	= 2		I/G:	=		
									I		Dat	e: Aug-16	Junct Chai \	ion: Van Road/	Sheuna On	Street/Wi	A A Ping Str

Austro: Wing Tas Road Design For Design For <th>TRAFFIC SIG</th> <th>SNAL</th> <th>S C</th> <th>AL</th> <th>CULA</th> <th></th> <th>N</th> <th></th> <th></th> <th></th> <th></th> <th>Job No.</th> <th>: <u>CHK</u></th> <th>5001964</th> <th>4</th> <th>MV</th> <th>A ASIA</th> <th>LIMITED</th>	TRAFFIC SIG	SNAL	S C	AL	CULA		N					Job No.	: <u>CHK</u>	5001964	4	MV	A ASIA	LIMITED
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Junction: Wi	ing Tai F	Road/(Chai V	Van Roa	d			_							Design Ye	ar:202	25
Approach Image: Section of the sectin of the sectin of the section of the section of the section of t	Description: Re	eference	Traffi	c Flov	WS				_			Designed	By: <u>TY</u>	′C		Checked E	By: <u>GF</u>	<u>H</u>
Approach Image of the set		Ħ				Radi	us (m)	ent	Pro. Tu	rning (%)	Revised S	Saturation		A.M. Pea	k		P.M. Pea	k
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Approach	Movemer notation	Phase	Stage	Width (m)	Left	Right	Uphill gradi (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Chai Wan Road EB	┥┽	B B B	1 1 1	2.900 3.800 4.100	70 70	25 20		20% / 80%	60% / 100%	1865 2030 2015	1865 2015 2015	369 402 399	0.198 0.198 0.198	0.198	330 407 408	0.177 0.202 0.202	0.202
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Wing Tai Road SB	$\rightarrow \rightarrow \downarrow$	с с с	2 2 2	3.700 3.700 4.000		15		100%	100%	1985 2125 1960	1985 2125 1960	179 191 230	0.090 0.090 0.117	0.117	210 225 295	0.106 0.106 0.151	0.151
Pedestrian Grossing Dp 1 MN GREEN + FLASH 8 + 10 = 18 Ep 1 MN GREEN + FLASH 6 + 7 = 13 Fp 2 MN GREEN + FLASH 6 + 7 = 13 Notes: Traffic Flow (pcu/hr) f^{*} Group A.C. B.C. B.C. V000000000000000000000000000000000000	Chai Wan Road WB	↓ ↓	A A	1 1	4.000 4.100	100 100					1985 2135	1985 2135	332 358	0.167 0.168		308 332	0.155 0.156	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Pedestrian Crossing		Dp Ep Fp	1 1 2	MIN GF MIN GF MIN GF	REEN + REEN + REEN +	FLASH FLASH FLASH	+ 8 + 6 + 6	+ + +	10 7 7	= = =	18 13 13						
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $																		
Notes: Traffic Flow (pcu/hr) \uparrow N Group A.c B.C Group A.C B.C $230(295)$ $370(435)$ $450(330)$ $450(330)$ $450(330)$ 10 L (sec) 10 10 L (sec) 10 10 $720(815)$ $450(330)$ 4 $680(640)$ $R.C.(\%)$ 1810 9 pract. 0.810 0.810 9 pract. 0.810 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>																		
Notes: $I^{rather Flow (peunf)} = I^{rather Flow (peunf)} = I^{rathe$	Netes						T		(1	1			1
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Notes:						Traine	C FIOW	(pcu/m)			ŦŇ	Group	A,C	B,C	Group	A,C,,,	B,C,,,
$\begin{array}{c c c c c c c c c c c c c c c c c c c $									230(295)	370(435)			У	0.285	0.315	У	0.306	0.353
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$								450(33	0]				L (sec)	10	10	L (sec)	10	10
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$								720(81)					C (Sec)	0.810	0.810	C (sec)	0.810	0.810
Stage / Phase Diagrams 1. Dp T C T <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>720(01)</td> <td></td> <td>690(640)</td> <td></td> <td></td> <td>R.C. (%)</td> <td>184%</td> <td>157%</td> <td>R.C. (%)</td> <td>165%</td> <td>129%</td>								720(01)		690(640)			R.C. (%)	184%	157%	R.C. (%)	165%	129%
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Stage / Phase Diagra	ams			12				3							5		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $		Dp ⊐ ∕∠	,		∠. ≪	<u> </u>	K		3.				4.			5.		
I/G=5 I/G=7 I/G= I/G= I/G=5 I/G=7 I/G= I/G= I/G=5 I/G=7 I/G= I/G= Date: Junction: B	В	た、Ep		A		Fp f	لاً Fp	\$										
I/G= 0 I/G= / I/G= / I/G= / Date: Junction: B	I/G= 5			I/G))= 7				I/G=			I/G=	⊥ ⊧		I/G	=		
	I/G= 5			I/G	p= /				1/G=	<u> </u>		I/G=	e:	Junci	tion:	=		B

TRAFFIC SIG	SNAL	S C	AL)	CULA		N					Job No.	: <u>CHK</u>	5001964 4	4	MV	A ASIA I	
Junction: W	ing Tai F	Road/I	Ka Yip	Street											Design Ye	ar: 202	25
Description: Re	eference	Traffi	ic Flov	VS							Designed	By: <u>TY</u>	С		Checked E	3y: <u>GF</u>	Ή
					Radir	us (m)	t	Pro. Tur	ning (%)	Revised	Saturation		A.M. Pea	k		P.M. Pea	k
Approach	Movement notation	Phase	Stage	Width (m)	Left	Right	Uphill gradie (%)	A.M.	P.M.	A.M.	pcu/hr) P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Wing Tai Road SB	+ ∱ ۲	B B B	2,3 2,3 2,3	3.830 3.580 4.040	13 18			100%	96%	1790 1950 2160	1790 1955 2160	543 592 610	0.303 0.304 0.282	0.304	588 643 709	0.328 0.329 0.328	0.329
Wing Tai Road NB	Ť	A A	1,2 1,2	4.240 3.910						2040 2145	2040 2145	244 256	0.120 0.119	0.120	214 226	0.105 0.105	0.105
Pedestrian Crossing		Ср Dр Ер	3 1 1	MIN GF MIN GF MIN GF	≀EEN + ≀EEN + ≀EEN +	FLASH FLASH	H 10 H 7 H 6	+ + +	7 13 12	= =	17 20 18						
Notes:						Traffic	: Flow	(pcu/hr) 610(73 9)	オ 1135(1205)		↑ N	Group y L (sec)	Ер.В 0.304 30	А,В 0.423 10	Group y L (sec)	ер.в.,, 0.329 30	A,B,,, 0.434 10
									500(440)			C (sec) y pract. R.C. (%)	100 0.630 108%	100 0.810 91%	C (sec) y pract. R.C. (%)	100 0.630 92%	100 0.810 87%
Stage / Phase Diagr 1. ∠´´Ď	ams 7 p	۲. ^{Ep}		2.	B			3.	Cp			4.	1		5.		
I/G=			I/G	i= 7 i= 7				I/G= 5			I/G=	 		I/G	 = =		
			1.0	- 1							Date	e: .lun-16	Junct	ion: Tai Road/k	a Yin Stree		C

Notice: Karting (N) Traffic Flow (positiv) Part (N) Point (N) Po	TRAFFIC SIG	AL)	CULA		Job No.	: <u>CHK</u>	50019644	MVA ASIA LIMITED										
Description: Letterner Traffic Flows Product (h) Prod	Junction: Ka	Yip Stre	eet/Sł	neung	On Stree	et										Design Ye	ar: 202	25
Approach weak Radius (n) (n) g (n) Pro- tent Rgn Pro- (g) Turning (N) Revest Seturation Program A.M. Peak P.M. Peak Ka Yip Street VB F 8 3 4.070 10 1760 1760 1760 105 0.060 205 0.116 Shang On Street Tp B 3 5.240 15 14% 12% 2110 2115 180 0.065 0.065 255 0.116 0.1 Shang On Street Tp A 1 4.450 15 3% 10% 2000 2000 330 0.165 475 0.238 Ka Yip Street Tp A 1 4.450 15 3% 10% 2000 2000 330 0.165 475 0.238 Pedestran Crossing Cp 2.3 MIN GREEN + FLASH 0 + 10 = 20 3.2 1.6(c) 3.2 1.6(c) 3.2 1.6(c) 3.2 1.6(c) 3.2	Description: Re	eference	Traff	ic Flov	vs							Designed	By: <u>TY</u>	C		Checked I	By: <u>G</u> F	РН
Approach Notes Traffic Flow (pcuhr) Traffic Flow (pcuhr) 1780 Traffic Flow (pcuhr) Value Critical Y Power (pcuhr) Value Crital Y						Radi	us (m)	ut	Pro. Turning (%)		Revised S	Saturation		A.M. Pea	k	P.M. Peak		
Notes: Traffic Flow (pcufnr) 1 1 10 10 10 10 10 0.080 205 0.116 Notes: P 3 4.070 10 10 106 0.080 205 0.116 0.236 0.391 0.331 7.30 0.357 0.3 0.300 0.165 0.176 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238 0.238	Approach	Movemen	Phase	Stage	Width (m)	Left	Right	Uphill gradie (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Ka Yip Street WB	. ≜	В	3	4.070	10	1	I		L	1760	1760	105	0.060		205	0.116	
Ka Vip Street La A 1 4.460 15 3% 10% 2060 2046 805 0.391 0.391 730 0.367 0.3 Pedestrian Crossing Cp 2.3 MIN GREEN + FLASH 10 = 20 330 0.165 475 0.238 Notes: Traffic Flow (pcu/hr) $+$ 10 = 20 $ -$	Sheung On Street NB	₽	В	3	5.240		15		14%	12%	2110	2115	180	0.085	0.085	250	0.118	0.118
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Ka Yip Street	ᡗ	A	1	4.490	15			3%	10%	2060	2045	805	0.391	0.391	730	0.357	0.357
Pedestrian Crossing Cp 2.3 MIN GREEN + FLASH 10 + 10 = 20 Dp 2 MIN GREEN + FLASH 7 + 10 = 17 - Notes: Traffic Flow (pcu/hr) 1^{+} Group A.Do.8 Group A.Do.8 Votes: Traffic Flow (pcu/hr) 1^{+} Group A.Do.8	EB	\neg	A	1	4.450		15				2000	2000	330	0.165		475	0.238	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Pedestrian Crossing		Cp Dp	2,3 2	MIN GR MIN GR	REEN + REEN +	· FLASH · FLASH	+ 10 + 7	+ +	10 10	= =	20 17			*			*
Notes: Traffic Flow (pcu/hr) \uparrow^{N} Group A.Dp.B Group A.Dp. 25(75) 105(205) 105(205) L (sec) 32 L (sec) 33 780(655) 780(655) 25(30) C (sec) 100 C (sec) 100 25(20) 155(220) 25(30) Pract. 0.612 y pract. 0.612 Stage / Phase Diagrams 1. 2. 3. 4. 5.																		
$\frac{1}{25(75)} + \frac{100 \text{ p}}{105(205)} + \frac{100 \text{ p}}{100 \text{ c}} + $	Notes:						Traffie	Flow	(pcu/hr)			≜ N	Group	I	A.Dp.B	Group		A.Dp.B.
$\begin{array}{c c c c c c c c c c c c c c c c c c c $												Ť	V		0.476	y v		0.475
$\begin{array}{c c c c c c c c c c c c c c c c c c c $								25(75)			105(205)		L (sec)		32	L (sec)		32
$\begin{array}{c c c c c c c c c c c c c c c c c c c $								25(75)	780(655)		(C (sec)		100	C (sec)		100
Stage / Phase Diagrams 2. 3. 4. 5. 1. A Cp^{-7} T_{\perp} Dp </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>// \</td> <td>330(475)</td> <td>_</td> <td>25(30)</td> <td></td> <td>y pract.</td> <td></td> <td>0.612</td> <td>y pract.</td> <td></td> <td>0.612</td>								// \	330(475)	_	25(30)		y pract.		0.612	y pract.		0.612
Stage / Phase Diagrams 1. A A Cp^{-7} <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>000(110)</td> <td>155(220)</td> <td>20(00)</td> <td></td> <td>R.C. (%)</td> <td></td> <td>29%</td> <td>R.C. (%)</td> <td></td> <td>29%</td>									000(110)	155(220)	20(00)		R.C. (%)		29%	R.C. (%)		29%
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Stage / Phase Diagr 1.	ams			2.	Da			3.		<u>م</u>		4.			5.		
		A				Dp Le K Cp	7 R 12-DP	Dp		Ср'Л К	B							
1/G= 6 1/G= 8 17 1/G= 3 1/G= 1/G=	I/G= 6			I/G) i= 8		17		I/G= 3			I/G=	:		I/G:	=		
I/G=6 I/G=8 17 I/G=3 I/G= I/G= Date: Junction: C	I/G= 6			I/G	6= 8		17		I/G= 3			I/G= Date	: e:	Junct	I/G	=		D

Audit Description	TRAFFIC SIGNALS CALCULATION											Job No.: <u>CHK500196</u> 44 MVA HONG KONG LIMITED							
Designed. Designed. Linit Original and an analysis of the problem	Junction:	Chai V	Van Ro	ad / Siu	Sai Wan F	Road / Si	un Yip S	treet	-							Design Yea	r: <u>2025</u>		
Network Image: space of the lates of the l	Description:	Refere	nce Tra	affic Flow	v				-			Designed	By: <u>LTH</u>			Checked By	: EDC		
Note: Note: S					Radi	us (m)	t (%)	Pro. Tu	rning (%)	Revised S Flow (p	aturation cu/hr)		AM Peak		PM Peak				
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Approach	Moveme	Phase	Stage	Width (m)	Left	Right	Gradien	АМ	РМ	АМ	РМ	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Chai Wan Road EB	$ \stackrel{\triangleleft}{\rightarrow} \stackrel{\rightarrow}{\rightarrow} $	F A A	1,3 1 1	3.100 3.100 3.900	10					1675 1925 2145	1675 1925 2145	345 236 264	0.206 0.123 0.123		350 296 329	0.209 0.154 0.153	0.154	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Sun Yip Street SB	↓ 1 €	DE	3 3	4.260 4.300	45	15				1975 2050	1975 2050	195 595	0.099 0.290	0.290	175 585	0.089 0.285	0.089 0.285	
Pedestrian Crossing Qp 1.2 MM GREEN + FLASH = 10 + 6 = 16 H0 1 MM GREEN + FLASH = 7 + 6 = 16 Jp 3 MM GREEN + FLASH = 7 + 6 = 13 Jp 3 MM GREEN + FLASH = 9 + 16 = 25 Interpretation Consumer	Siu Sai Wan Road WB	1 < 2 ← 2 ▲	B B C	1,2 1,2 2	3.100 3.500 3.500		20				1925 1265 1175	1925 1265 1175	751 494 80	0.390 0.391 0.068	0.391	474 311 110	0.246 0.246 0.094		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Pedestrian Cross	ing	Gp Hp Ip Jp	1,2 1 2 3	min gre Min gre Min gre Min gre	EEN + FL EEN + FL EEN + FL EEN + FL	_ASH = _ASH = _ASH = _ASH =	10 7 7 9	+ + +	6 7 6 16	= = =	16 14 13 25							
Notes: 1. 72pou/hr is added for the flare lane of Sun Yip Street SB right turn lane. 2. Site factor of 0.6 are added for flare lane of offside lane. 345(350) 345(350) 550(625) 550(625) 550(625) 550(625) 550(625) 550(625) 550(625) 550(625) 550(625) 550(625) 550(625) 550(625) 550(625) 195(175) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 1245(785) 100 1																			
$\frac{11.72pcu/hr}{pch turn lane.}$	Notes						Traffic	Flow (pc)	ı/br)			A			1				
right turn lane. 2. Site factor of 0.6 are added for flare lane of offside lane. 2. Site factor of 0.6 are added for flare lane of offside lane. $ \begin{array}{c c c c c c c c c c c c c c c c c c c $	1. 72pcu/hr is add	ded for th	ne flare	lane of	Sun Yip S	treet SB	manie	345(350)		\checkmark	\bigwedge	+	Group	A,D,E	B,E	Group	A,C,E	A,D,E	
2. Site factor of 0.6 are added for flare lane of offside lane. 2. Site factor of 0.6 are added for flare lane of offside lane. 2. Site factor of 0.6 are added for flare lane of offside lane. 3. $L(sec)$ 100 100 $L(sec)$ 100 100 100 100 100 100 100 100 100 10	right turn lane.)			595(585)	195(175)		y	14	10	y	0.533	0.528	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Site factor of 0.	.6 are ad	ded for	flare lar	ne of offsid	le lane.		500(625)						100	100	C (sec)	100	100	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $											80(110)		v pract	0 774	0.810	v pract	0 792	0 774	
Stage / Phase Diagrams I. S. (H) Sind HO. (H) HO. (H) <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1245(785)</td><td>BC (%)</td><td>51%</td><td>19%</td><td>B C (%)</td><td>49%</td><td>47%</td></th<>												1245(785)	BC (%)	51%	19%	B C (%)	49%	47%	
1. $f \\ A$ Hp Gp f Gp Gp f Gp Gp Gp Gp Gp Gp Gp Gp	Stage / Phase Di	agrams												0170			1070		
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	1.				2.				3.		_		4.			5.			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	↓ ▲ 《	Нр (>	Gr ∠	7	Ľ	lр Г		Gp 4	-	+	E K	D							
VG=7 V/G= V/G=5 V/G= V/G= V/G=5 V/G=7 V/G=7 </td <td></td> <td></td> <td>B</td> <td>-</td> <td></td> <td></td> <td></td> <td>G B</td> <td></td> <td></td> <td>Jp ↑ ↓</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			B	-				G B			Jp ↑ ↓								
VG= 5 VG= 7 VG= 5 VG= 7 Date: Junction: Junction:	I/G= 7			I/G=	<u> </u>				I/G= 5			I/G=	:		I/G=				
	I/G= 5			I/G=	7				I/G= 5			I/G= Date	e:		l/G=	tion:		\bigcirc	

Job No.: <u>CHK50019</u>644

MVA ASIA LIMITED

Junction: <u>Chai Wan Road/ San Ha Stre</u>	et														Design Ye	ar: <u>202</u>	25
Description: <u>Reference Flow</u>											Designed	By: Hk	КН		Checked E	By: <u>GP</u>	н
					Radi	us (m)		Pro. Tur	ning (%)	Revised	Saturation		A.M. Pea	k		P.M. Pea	k
Approach	Movement notation	Phase	Stage	Width (m)	Left	Right	(%) uphill Gradient	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB		A A B	1 1 2	3.300 3.300 3.300		15			•	1945 2085 1895	1945 2085 1895	442 473 80	0.227 0.227 0.042	0.227	444 476 95	0.228 0.228 0.050	0.228
Chai Wan Road WB	$\stackrel{\leftarrow}{\downarrow}$	A A	1 1	3.500 3.500						1965 2105	1965 2105	302 323	0.154 0.153		336 359	0.171 0.171	
San Ha Street NB	¢٦	С	2	4.000	10					1750	1750	375	0.214	0.214	245	0.140	0.140
		_		• •													
LR1/Pedestrian		Dp Ep	1 2	Min Min	6 12	+ +	11 8			=	17 20						
Notes:						Traff	ic Flow					0	45-		0	45-	4.0
						(po	cu/hr)					Group	0 0 0 7 7	0.440	Group	0 220	0.260
							15(020)				EDE/EDE	y	0.227	0.442	y	0.220	0.308
						5	80/05)			-	620(695)		20	9		20	9
							80(95)					C (sec)	100	100	C (sec)	100	100
									375(245)			y pract. R.C. (%)	0.648 185%	0.819 85%	y pract. R.C. (%)	0.648 184%	122%
Stage / Phase Diagrams				2				1	373(243)								
				2.	в		K, , , , , , , , , , , , , , , , , , ,	Ep	э.			4.			5.		
	A				/		C 4										
۲۰۰۰٬۰۰۰ Dp			1/2			- \	\										
I/G= 5			1/G=	= 0 = 6				1/G=			I/G=	:		I/G	i=		_
											Date	e: Aud	g-16	Jur	nction:		E

2025 Design Flows

TRAFFIC SIG	SNAL	S C	:AL	CULA		Ν					Job No.	: <u>CHK</u>	50019644	4	MVA	ASIA L	IMITED
Junction: <u>Ch</u>	ai Wan I	Road/	Sheur	ng On St	reet/Wi	ing Ping	g Street								Design Ye	ar: 202	25
Description: <u>De</u>	Description: Design Traffic Flows														Checked E	By: <u>GP</u>	'H
						us (m)	ent	Pro. Turning (%) Revise		Revised	Saturation		A.M. Pea	k	P.M. Peak		
Approach :	Movemen notation	Phase	Stage	Width (m)	Left	Right	Uphill gradie (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB	$\stackrel{\uparrow}{\rightarrow} \rightarrow$	A A A	1 1 1	4.000 3.600 3.700	12			100%	100%	1700 2115 2125	1700 2115 2125	325 384 386	0.191 0.182 0.182		365 444 446	0.215 0.210 0.210	
Sheung On Street SB	لم لح لح	C C C	4 4 4	3.333 3.333 3.333	10	12 10				1695 1730 1815	1695 1730 1815	125 271 284	0.074 0.157 0.156	0.157	130 427 448	0.077 0.247 0.247	0.247
Chai Wan Road WB	$\overset{\longleftrightarrow}{\leftarrow}$	A A A	1 1 1	3.800 3.200 3.200	15			35%	34%	1930 2075 2075	1930 2075 2075	576 620 619	0.298 0.299 0.298	0.299	435 468 467	0.225 0.226 0.225	0.226
Wing Ping Street NB	•	В	2	3.900	15					1825	1825	180	0.099	0.099	90	0.049	0.049
Pedestrian Crossing		Dp Ep Fp	2,3 2,3 3	MIN GR MIN GR MIN GR	EEN + EEN + EEN +	FLASH FLASH	- 10 - 11 - 6	+ + +	18 14 12	= =	28 25 18			*			
Notes: 1 Site factor of 0.95 h	nas been	appli	ed to t	the nears	side	Traffic	325(365	(pcu/hr)			↑ N	Group		A,B,Fp,C	Group		A,B,Fp,C,
Chai Wan Road EB fo	or the GI	MB ste	op loc Is	ated righ	t after	\square	770/900	\	555(875)	125(130)		L (sec)		37	L (sec)		37
							110(090)		-	1615(1220)	C (sec)		120	C (sec)		120
								•		¥ 200(150)		y pract.		0.623	y pract.		0.623
) 180(90)				R.C. (%)		12%	R.C. (%)		19%
1.	ams	A		2.	<- B [¶]	_ <u>Ep</u> _ → /	Dp V	3.	< < Fp	-E₽-> /	Dp V	4.	° "	\	5.		
I/G= 5 I/G= 5			I/G	= 11 = 11				I/G= 4		18 18	I/G=	= 2		I/G=	=		
											Date	Aug-16	Juncti Chai V	ion: Van Road/	Sheung On	Street/Wir	A ng Ping Str
TRAFFIC SIG	NAL	S C	AL	CULA	TIO	Ν					Job No.	: CHK	50019644	1	MV	A ASIA I	LIMITED
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Junction: Wi	ng Tai F	load/0	Chai V	Van Roa	d			_							Design Ye	ar: 202	25
Description: De	sign Tra	affic F	ows					-			Designed	By: <u>TY</u>	с		Checked E	By: <u> </u>	<u>Ч </u>
					Radiu	us (m)	ţ	Pro. Turi	ning (%)	Revised	Saturation		A.M. Pea	k	F	P.M. Pea	k
Approach	Movement notation	Phase	Stage	Width (m)	Left	Right	Uphill gradie (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB	┥┽┾┝	B B B	1 1 1	2.900 3.800 4.100	70 70	25 20	1	20% / 80%	0% / 100%	1865 2030 2015	1865 2015 2015	369 402 399	0.198 0.198 0.198	0.198	330 407 408	0.177 0.202 0.202	0.202
Wing Tai Road SB	$\rightarrow \rightarrow \downarrow \rightarrow$	C C C	2 2 2	3.700 3.700 4.000		15		100%	100%	1985 2125 1960	1985 2125 1960	179 191 230	0.090 0.090 0.117	0.117	210 225 295	0.106 0.106 0.151	0.151
Chai Wan Road WB	ţ	A A	1 1	4.000 4.100	100 100					1985 2135	1985 2135	332 358	0.167 0.168		308 332	0.155 0.156	
Pedestrian Crossing		Dp Ep Fp	1 1 2	MIN GR MIN GR MIN GR	2EEN + 2EEN + 2EEN +	FLASH FLASH FLASH	+ 8 + 6 + 6	+ +	10 7 7	=	18 13 13						
Notes:						Traffic	: Flow	(pcu/hr)	270(425)		↑ N	Group	а,с 0.285	в,с	Group	A,C,,, 0.306	в,с,,, 0.353
							450(330	230(295)	370(435)			L (sec)	10	10	L (sec)	10	10
							2	`				C (sec)	100	100	C (sec)	100	100
							720(815	5) ~	690(640)			y pract.	0.810	0.810	y pract.	0.810	0.810
Stage / Phase Diagra	ams								`			к.с. (%)	184%	157%	к.с. (%)	105%	129%
1.	Dp 77 LE F, Ep	,	A	2. ≪	Ęp Fp ₨	FP (3.				4.			5.		
I/G= 5			I/G	= 7				I/G=			I/G=			I/G:	 =]_		
I/G= 5			I/G	= 7				I/G=			I/G=	:		I/G	=		

Date:

Jun-16

Wing Tai Road/Chai Wan Road

B

Junction:

TRAFFIC SIG	INAL	S C	AL	CULA	TIO	N					Job No.	: <u>CHK</u>	50019644	1	MV	A ASIA I	LIMITED
Junction: Wi	ng Tai F	Road/I	Ka Yip	Street											Design Ye	ar: 202	25
Description: De	sign Tra	affic F	lows								Designed	By: <u>TY</u>	с		Checked E	By: <u>G</u> F	<u>भ</u>
					Radi	us (m)	nt	Pro. Tur	ning (%)	Revised S	Saturation		A.M. Pea	k		P.M. Pea	k
Approach	Movemen	Phase	Stage	Width (m)	Left	Right	Uphill gradie (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Wing Tai Road SB	ب ج ب	B B B	2,3 2,3 2,3	3.830 3.580 4.040	13 18			100%	98%	1790 1950 2160	1790 1955 2160	558 607 610	0.312 0.311 0.282	0.312	596 650 719	0.333 0.332 0.333	0.333
Wing Tai Road NB	ţ	A A	1,2 1,2	4.240 3.910						2040 2145	2040 2145	244 256	0.120 0.119	0.120	214 226	0.105 0.105	0.105
Pedestrian Crossing		Ср Dр Ер	3 1 1	MIN GR MIN GR MIN GR	EEN + EEN + EEN +	FLASH FLASH	H 10 H 7 H 6	+ +	7 13 12	= = =	17 20 18						
Notes:						Traffic	Flow	(pcu/hr) 610(73 3)	≭ 1165(1230)		≜ ^N	Group y L (sec) C (sec)	ер,В 0.312 30 100	^{А,В} 0.431 10 100	Group y L (sec) C (sec)	е _{р,В,,,} 0.333 30 100	A,B,,, 0.438 10 100
									500(440)			y pract. R.C. (%)	0.630 102%	0.810 88%	y pract. R.C. (%)	0.630 89%	0.810 85%
Stage / Phase Diagra	ams 7	ر ب A		2.	B			3.	Cp	л Л		4.	·	·	5.		·
I/G= I/G=			I/G	6= 7 6= 7				I/G= 5 I/G= 5			I/G= I/G= Date	e:	Junct	1/G 1/G ion:			C

TRAFFIC SIG	AFFIC SIGNALS CALCULATION					Job No.: <u>CHK50019644</u> MVA ASIA LII				LIMITED							
Junction: Ka	NYip Stre	eet/Sh	neung	On Stree	ət										Design Ye	ar: 202	25
Description: De	esign Tra	affic F	lows								Designed	By: <u>TY</u>	ſC		Checked I	By: <u>G</u> F	<u>9H</u>
	Ŧ				Radi	us (m)	ent	Pro. Tur	rning (%)	Revised S	Saturation		A.M. Pea	k		P.M. Pea	k
Approach	Movemen notation	Phase	Stage	Width (m)	Left	Right	Uphill gradi (%)	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Ka Yip Street WB		В	3	4.070	10		1	1	I	1760	1760	105	0.060	I	205	0.116	I
Sheung On Street NB	₽	В	3	5.240		15		14%	12%	2110	2115	180	0.085	0.085	250	0.118	0.118
Ka Yip Street EB	♪	A	1	4.490	15			3%	10%	2060	2045	805	0.391	0.391	730	0.357	0.357
	\neg	A	1	4.450		15				2000	2000	360	0.180		500	0.250	
Pedestrian Crossing		Cp Dp	2,3 2	MIN GF MIN GF	REEN + REEN +	FLASH FLASH	+ 10 + 7	+ +	10 10	= =	20 17			*			*
Notes:						Traffic	c Flow	(pcu/hr)			≜ N	Group		A.Dp.B	Group		A.Dp.B.
											Т	y		0.476	y v		0.475
							25(75)			105(205)		L (sec)		32	L (sec)		32
							25(15)	780(655)		(105(203)		C (sec)		100	C (sec)		100
							~ \	360(500)		25(30)		y pract.		0.612	y pract.		0.612
								()	155(220)	_=(-=)		R.C. (%)		29%	R.C. (%)		29%
Stage / Phase Diagr. 1.	ams A			2.	Dp Lé R Cp	7 R.	, Dp	3.	Ср`і	↓ ^B		4.			5.		
1/G= 6			1/6) = 8		17		1/6- 3	1		1/6-	 		1/0-			
I/G= 6			I/G	6= 8		17		I/G= 3	3		1/G=	=	Junet	I/G	=		
											Dati	Jun-16	Ka Yir	Street/Sh	euna On St	reet	

TRAFFIC	SIGN	ALS	CAL	CULA	TION						Job No.	: CHK5	0019644	Ν	IVA HON	g kong	LIMITED
Junction:	Chai V	Van Roa	ad / Siu	Sai Wan F	Road / S	un Yip S	treet								Design Yea	r: <u>2025</u>	
Description:	Design	Traffic	Flow								Designed	By: LTH			Checked By	EDC	
	ints				Radi	us (m)	t (%)	Pro. T	urning (%)	Revised S Flow (p	aturation cu/hr)		AM Peak			PM Peak	
Approach	Moveme	Phase	Stage	Width (m)	Left	Right	Gradien	АМ	РМ	АМ	РМ	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wan Road EB	$\stackrel{\triangleleft}{\rightarrow}$	F A A	1,3 1 1	3.100 3.100 3.900	10					1675 1925 2145	1675 1925 2145	345 236 264	0.206 0.123 0.123		350 296 329	0.209 0.154 0.153	0.154
Sun Yip Street SB	لم ا جا	D E	3 3	4.260 4.300	45	15				1975 2050	1975 2050	195 595	0.099 0.290	0.290	175 585	0.089 0.285	0.089 0.285
Siu Sai Wan Road WB	1 ← 2 ← 2 ▲	B B C	1,2 1,2 2	3.100 3.500 3.500		20				1925 1265 1175	1925 1265 1175	751 494 80	0.390 0.391 0.068	0.391	474 311 110	0.246 0.246 0.094	
Pedestrian Cross	ing	Gp Hp Ip Jp	1,2 1 2 3	MIN GRE MIN GRE MIN GRE MIN GRE	EN + FI EN + FI EN + FI EN + FI	_ASH = _ASH = _ASH = _ASH =	10 7 7 9	+ + +	6 7 6 16	= = =	16 14 13 25						
Notes: 1. 72pcu/hr is add	ded for th	ne flare	lane of	Sun Yip S	treet SB	Iraffic	345(350)	hr)	\checkmark	\bigwedge	T ^N	Group	A,D,E	B,E	Group	A,C,E	A,D,E
right turn lane.	6 oro od	dad for	flore los	a of offoid		2	×		595(585)	195(175)		y L (sec)	14	10	y L (sec)	12	14
2. Site factor of 0.	o are au		naie iai		e lane.		500(625)			80(110)		C (sec)	100	100	C (sec)	100	100
											1245(785)	y pract.	0.774	0.810	y pract.	0.792	0.774
										•	. ,	R.C. (%)	51%	19%	R.C. (%)	49%	47%
Stage / Phase Di	agrams			2											<i>c</i>		
	Нр (>	Gp	7	۲.	lp M		Gp 47	-	_	E	D	4.			5.		
~		₿	_				Ca B			Jp ↑							
							ט				1						
I/G= 7 I/G= 5			I/G= I/G=	7				I/G= 5	5		I/G= I/G=			I/G= I/G=			
											Date	Nov 2015		Junci Chai Wa	tion:	Wap Bood / S	E

TRAFFIC SIGNALS CALCULATION

Job No.: <u>CHK50019</u>644

MVA ASIA LIMITED

Junction: <u>Chai Wan</u>	Road/ San Ha Stree	et														Design Ye	ar: <u>20</u>	25
Description: De	sign Flow											Designed	By: Hk	(H		Checked I	Ву: <u>GP</u>	Υ <u>Η</u>
						Radi	us (m)		Pro. Tu	ırning (%)	Revised Flow	Saturation (pcu/hr)		A.M. Pea	k		P.M. Pea	k
Appro	bach	Movement notation	Phase	Stage	Width (m)	Left	Right	(%) uphill Gradient	A.M.	P.M.	A.M.	P.M.	Flow (pcu/hr)	y Value	Critical y	Flow (pcu/hr)	y Value	Critical y
Chai Wa El	n Road 3		A A B	1 1 2	3.300 3.300 3.300		15				1945 2085 1895	1945 2085 1895	442 473 120	0.227 0.227 0.063	0.227	444 476 115	0.228 0.228 0.061	0.228
Chai Wa Wi	n Road B	$\stackrel{\leftarrow}{\leftarrow}$	A A	1 1	3.500 3.500						1965 2105	1965 2105	302 323	0.154 0.153		336 359	0.171 0.171	
San Ha Ni	Street 3	¢٦	С	2	4.000	10					1750	1750	405	0.231	0.231	270	0.154	0.154
LRT/Pedestrian			Dp Ep	1 2	Min Min	6 12	+ +	11 8			= =	17 20						
Notes:							Trafi (p	fic Flow cu/hr)					Group	AEp	AC	Group	AEp	AC
													у	0.227	0.459	у	0.228	0.383
							ę	915(920)			•	625(695)	L (sec)	28	9	L (sec)	28	9
							1	120(115)	t				C (sec)	100	100	C (sec)	100	100
										•			y pract.	0.648	0.819	y pract.	0.648	0.819
										405(270)			R.C. (%)	185%	79%	R.C. (%)	184%	114%
Stage / Phase Diagra	ims				2.					3.			4.			5.		
А							в	`、Ep `∢										
	7					/	c	A A A A A A A A A A A A A A A A A A A										
	L Dp							/										
I/G= 5 I/G= 5				I/G=	= 6				I/G=			I/G=	:		I/G	=		
												Dat	e: Auc	g-16	Jun	ction:		F

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Hong Kong Housing Authority Air Ventilation Assessment of Proposed Public Housing Development at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street

Expert Evaluation Report

Issue 4 Rev 3 | 18 August 2016

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number --

Ove Arup & Partners Hong Kong Ltd Level 5 Festival Walk 80 Tat Chee Avenue Kowloon Tong Kowloon Hong Kong www.arup.com

ARUP

Document Verification

ARUP

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		Signature			
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		Signature			
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1 Introduction

1.1 Project Background

Ove Arup & Partners Hong Kong Ltd (Arup) was commissioned by the Hong Kong Housing Authority (HKHA) to carry out an Air Ventilation Assessment (AVA) – Expert Evaluation for the development at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street (the Development).

1.2 Objective

The objective of this study is to evaluate the wind performance of the Development using the methodology of Air Ventilation Assessment, based on the "Housing Planning and Lands Bureau – Technical Circular No. 1/06, Environment, Transport and Works Bureau – Technical Circular No. 1/06" issued on 19th July 2006 (the Technical Circular) and "Technical Guide for Air Ventilation Assessment for Development in Hong Kong – Annex A" (the Technical Guide). This report presents the findings for the Expert Evaluation, which is to advise the implication of the proposed development on the pedestrian wind environment in a qualitative manner.

An Initial Study will be conducted in the next stage at detailed building design to help optimize the wind pertinence through the use of computation fluid dynamic (CFD) techniques.

1.3 Study Tasks

The major task of this study is to carry out an expert evaluation on the characteristics of the site wind availability data of the development area and assessment of the wind performance under existing development situation and the proposed building design option in a qualitative way. The expert evaluation will cover the following tasks:

- Identify the wind condition
- Identify problem areas
- Identify good design features

2 Site Characteristics

The proposed Development is located within Chai Wan district, on a flat reclamation land. The Chai Wan Area is, exposed to the sea to the northeast and surrounded by Mount Collinson (\approx 348mPD) to the south, Mount Parker (\approx 507mPD) to the west and also Pottinger Peak (\approx 312 mPD) to the southeast as shown in Figure 1.



Figure 1 Topography of Chai Wan District (source: google map)

The Proposed Development is located adjacent to Chai Wan Road (Green line), Wing Ping Street (Black line) and San Ha Street (Orange Line). The location of the Development site is shown in Figure 2.

It is in close proximity to low rise school area (SKH Chai Wan St. Michael's Primary School and Caritas Chai Wan Marden Foundation Secondary School etc.) at its west and south. There are high rise residential estate (Chai Wan Estate and Lok Hin Terrace) at the southwest side. At its east side, there are mid to high rise residential buildings at Hong Ping Street. The industrial buildings cluster (Ex-bus depot of the China Motor Bus Company and Sunview Industrial building etc.) are located at the northeast side of the site.

Chai Wan Road



Wing Ping Street

San Ha Street

Figure 2 Location of surrounding major roads (source: google map)

Chai Wan Fire Station (15.8mPD)

ELCHK Faith Love Lutheran School (27.7mPD)

Yue Wan Estate (62.5mPD)

SKH Chai Wan St. Michael's Primary School & CNEC Lau Wing Sang Secondary School (29.1mPD - 33.5mPD)

Lok Hin Terrace (98.8mPD)

Chai Wan Estate (117.7mPD)

Caritas Chai Wan Marden Foundation Secondary School & Precious Blood Secondary School (21.8mPD - 45.7mPD)



Industrial Building cluster at Kwun Yip Street (49.0mPD-89.7mPD)

Industrial Building cluster at On Yip Street (50.3mPD-51.6mPD)

Sunview Industrial Building, Sino Favour Centre & Mega-iAdvantage (49.1mPD -134.5mPD)

Ex-bus depot of the China Motor Bus Company Limited (28.7mPD)

Exisitng PTI

Residential developments at Hong Ping Street (49.3mPD-90.1mPD)

Figure 3 Location of the Development and its surrounding developments (source: google map)

Wing Tai Road

There will be a planned development at Wing Tai Road located northwest to the -Development and a planned development in a site zoned Comprehensive Development Area (CDA) on the ex-bus depot site situated to the north of the Development as shown in Figure 4. The development parameters of these planned developments are tabulated in Table 1.



Figure 4 Location of future developments (source: google map)

Table 1 Development parameters of planned developments

	Wing Tai Road	CDA site
Source	In-fill block at Yue Wan Estate	Approved planning application
		(no. A/H20/177) approved by
		the Town Planning Board on
		23 August 2013
Number of blocks	1	3
Building height	Max. 110mPD	133.9 - 140mPD
Plot ratio	3.4 (Overall Yue Wan Estate)	5.98 (Domestic)
		0.017 (Non-domestic)
Podium height		2-3 storeys
Podium coverage	Podium Free Design	Development above podium

CDA Site

3 Site Wind Availability

To investigate the wind performance of the Development site, the characteristic of the natural wind availability of the site is essential. Site wind availability data presented in the wind rose could be used to assess the wind characteristics in terms of the magnitude and frequency of approaching wind from different wind directions. There are three sources of site wind data for this Development, including simulated RAMS, simulated MM5 data and the nearby Hong Kong Observatory (HKO) Station – North Point weather station.

3.1 RAMS Wind Data

As stipulated in the Technical Guide, the site wind availability would be presented by using appropriate mathematical models (e.g. RAMS simulation). Planning Department (PlanD) has set up a set of wind availability data of the Territory for AVA study, which could be downloaded at Planning Department Website¹.

The wind availability data at 200mPD of location grid (y:94, x:30) obtained from the RAMS simulation is utilised for the Expert Evaluation, as shown in Figure 5a and Figure 5b below.



Figure 5a Annual Wind Rose at 200 mPD from RAMS data

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¹ <u>http://www.pland.gov.hk/pland_en/info_serv/site_wind/site_wind/index.html</u>

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Figure 5b Summer Wind Rose at 200 mPD from RAMS data

Table 2 Prevailing wind frequency

Prevailing Wind		Annual		Summer				
Wind Direction	NNE	ENE	Е	SSW	SW	S		
Wind Frequency	10.5%	17.0%	20.7%	13.2%	14.9%	11.4%		

According to the RAMS wind data, NNE, ENE and E winds contribute to 10.5%, 17.0% and 20.7% of the annual wind frequency respectively while the SSW, SW and S winds contribute to 13.2%, 14.9% and 11.4% of the summer wind frequency respectively. Hence, NNE, ENE and E winds are identified as the annual prevailing wind direction and SSW, SW and S winds are identified as the summer prevailing wind direction.

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3.2 MM5 Wind Data

The MM5 data quoted in the Term Consultancy for Air Ventilation Assessment Services report for the Chai Wan Area² is used as the second reference. With consideration of flow characteristics, MM5 data extraction location A (Red spot) would have closer flow pattern to the Development then location C (Green spot). Location A and the Development are located close to the same major breezeway. Wind Data from location A is selected for the study. The wind roses of the location A (shown in Figure 6) at 120m and 450m are extracted and illustrated in Figure 7.

With reference to the Expert Evaluation for the Chai Wan Area, the annual prevailing winds are NE, ENE and E, while the summer prevailing wind are E, SE and SW winds.





Figure 3.11 Wind roses (summer) at A (120m; 450m)

Figure 6 The three locations of MM5 extracted data

Figure 7 Annual and summer wind roses for Chai Wan Area

² Term Consultancy for Expert Evaluation and Advisory Services on Air Ventilation Assessment (PLNQ 35/2009)

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3.3 Hong Kong Observatory

On the other hand, the prevailing wind direction measured at the closest weather station - North Point Weather Station from the Hong Kong Observatory³ is tabulated in Table 3 for each month. It can be seen from Table 3 that the E wind is the annual prevailing wind direction while the SW and E winds are the summer prevailing wind directions.

Mo	nth	Prevailing Wind Direction					
		(°)					
Jan	uary	90					
Febr	ruary	90					
Ma	urch	90					
Aŗ	oril	90					
M	ay	260					
June		260					
July	(Summer)	80					
August		260					
Septe	ember	80					
Oct	ober	90					
Nove	ember	90					
Dece	mber	90					
Anı	nual	90					

 Table 3 Monthly Wind Direction Recorded at North Point Station (Source: HKO)



Figure 8 Location of North Point Weather Station

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³ Summary of Meteorological and Tidal Observations in Hong Kong

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3.4 Summary of the Site Wind Availability

These three sets of wind data have been studied. The wind data from North Point weather station is considered distant from the Development and this is not used in estimating the wind condition for this study. The RAMS and MM5 data indicated prevailing winds directions are tabulated in Table 4.

The tabulated data reflects similar annual prevailing wind directions which are NNE, NE, ENE and E, whereas the summer prevailing wind directions varies from E, SE, S, SSW and SW. The evaluation of site wind performance would consider both site wind availability data and site characteristics.

Prevailing Wind Direction	RAMS	MM5 (Chai Wan Area)
Annual	NNE/ENE/E	NE/ENE/E
Summer	S/SSW/SW	E/SE/SW

Table 4 Prevailing wind directions for the Study Area

4 Qualitative Assessment of the Existing Condition with Committed Development

4.1 Preliminary Assessment on Site Wind Performance

The Development is located in flat reclaimed area which expose to the sea in the northeast and surrounded by mountains in the west, south and southeast. There is a strong northeast-southwest and east-southwest channelling effect near the ground level due to the surrounding topography and the area proximity to the waterfront.

As discussed in Section 3, the annual prevailing wind is from NNE, ENE, NE and E directions while the summer prevailing wind is from E, SE, S, SSW and SW directions. The ventilation performance of the development site at pedestrian level is evaluated based on these prevailing wind directions and channelling wind effect.

It is expected that the planned developments at adjacent CDA site, may impose some impact on the air path around the Development, the layout of the planned CDA development as shown in Figure 9 is also taken into consideration in the following analysis.

The planned public housing development at Wing Tai Road is considered distant from the Development and it is not located in the upwind nor the downwind directions of the prevailing winds, thus the planned development at Wing Tai Road not taken account in the following study.



Figure 9 Layout of the Committed Development at the Comprehensive Development Area (CDA) Site

4.1.1 Annual prevailing wind condition

North-Northeast (NNE), Northeast (NE), East-north-east (ENE) and East (E) directions are the annual prevailing wind directions.

In the topography characteristics described above, the NNE, NE and ENE prevailing winds from the sea and travel along the Fung Yip Street and then Chai Wan Road; and also Sun On Street and penetrate through the building separation between the planned CDA site and reach the Development and San Ha Street (the blue arrows in Figure 10).



Figure 10 Wind environment of Chai Wan Area under annual condition (NNE, NE and ENE winds)

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Under E wind direction, high-rise buildings situated at the upwind direction at the east, such as the Island Resort, Harmony Garden and residential building at Hong Ping Street may likely shield the approaching wind and deflect to Siu Sai Wan Road and Chai Wan Road via Siu Sai Wan Road Garden (the blue arrows in Figure 11). In addition, approaching wind would also penetrate over atop of the school districts and Chai Wan Swimming Pool and flow along San Ha Street and Chai Wan Road (the dark blue arrows in Figure 11).



Figure 11 Wind environment of Chai Wan Area under annual condition (E wind)

4.1.2 Summer prevailing wind condition

East (E), Southeast (SE), South (S), South-Southwest (SSW) and Southwest (SW) directions are the summer prevailing wind directions. Under SSW and SW summer prevailing wind condition, Chai Wan Road serve as the major breezeway for inducing the SSW and SW prevailing wind passing through the Sheung On Playground and continue to travel along Fung Yip Street to allow wind penetration to the northeast of the Chai Wan Area. San Ha Street is the secondary breezeway to facilitate the penetration of the SSW and SW wind through Chai Wan Area. As the existing condition of the project site is open space, the summer prevailing wind along San Ha Street could further penetrate across the site and atop of the school sites to Chai Wan Road and Hong Ping Street. The E prevailing wind condition is as described in 4.1.1.



Figure 12 Wind environment of Chai Wan Area under summer condition (SSW and SW winds)

Under S wind condition, the Pottinger Peak (312mPD) is situated at the upwind direction that would alter the S approaching wind that majority of the incoming wind would likely penetrate into Chai Wan Area from southeast and southwest direction. Although minor south prevailing wind may skim over the Pottinger Peak and penetrate towards the Project Site, Caritas Chai Wan Marden Foundation Secondary School, Caritas Social Centre and Precious Blood Secondary School located at the downhill area of the Pottinger Peak would likely shield the approaching wind from Pottinger Peak. The wind being diverted by the high-rise residential cluster Lok Hin Terrace that travels along San Ha Street would become the dominant approaching wind towards the Project Site.

As the existing condition of the project site is open space, the summer prevailing wind along San Ha Street could further penetrate across the site to Chai Wan Road and Hong Ping Street.



Figure 13 Wind environment of Chai Wan Area under summer condition (S wind)

Under SE wind direction, the relative openness to the south of Siu Sai Wan Estate allows the SE wind reaches Siu Sai Wan Estate through the building gaps (the purple arrow) and along Ming Tsui Street (the blue arrow). The approaching wind may likely penetrate into San Ha Street via the building separation between Chai Wan Swimming Pool and Schools and reach to the Development.



Figure 14 Wind environment of Chai Wan Area under summer condition (SE wind)

5 Preliminary Plan

The Development consists of a single residential block with 38 domestic storeys on a podium. The podium garden is provided at 11.3mPD with about 91% site boundary coverage. The tower block (from transfer plate or above) has a setback of about 7m from Site Boundary along Chai Wan Road and about 18m from the adjacent school block to its west. (Subject to future design)

Figure 15 and Figure 16 show the site layout plan and elevation of the Development.



Table 5 Indicative parameters of the Development

Figure 15 Site Layout Plan of the Development (Subject to future design)



Figure 16 Elevation Plan of the Development

6 Ventilation Performance of the Proposed Development

This section explains how the annual and summer prevailing wing access to the Development and the ventilation impact to the surroundings by the Development.

6.1 Ventilation Performance under Annual Condition

Under E Wind

As the high rise and high density residential developments at Hong Ping Street is located at the east side of the development, the E prevailing wind flow mainly along Chai Wan Road and San Ha Street to reach the Development (the blue arrows in Figure 17). As the disposition of the tower block and podium of the Development is generally aligned with the adjacent buildings such as the residential development at Hong Ping Street and SKH Chai Wan St. Michael's Primary School, thus it is expected that the Proposed Development would not induce significant interruption to the major breezeway along Chai Wan Road. Hence, it is expected that the Development would not induce significant adverse impacts to the ventilation performance of major breezeway.

The Proposed Development is expected to induce wind shadow to the adjacent SKH Chai Wan St. Michael's Primary School, however, with provision of the tower setback of about 18m from the school site, the potential ventilation impact on the downstream school site could be reduced. The 18m separation between the school site and the tower of the proposed development would reduce the potential wake area on the school site. This would allow some incoming E wind to enter the school site at the downstream more easily.



Figure 17 Wind environment under annual wind condition (E wind)

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Under NNE, NE and ENE Wind

NNE, NE and ENE annual prevailing winds would likely flow through Sun On Street and Fung Yip Street from the waterfront. The air stream from Fung Yip Street would connect with Chai Wan Road for wind penetration (the purple arrows in Figure 18) while the air stream along Sun On Street would skim over the podium of the Planned CDA Site and reach to the Development. Hence, the approaching wind is diverted to reach the Development by NE direction.

With located at the immediate windward side of the Caritas Chai Wan Marden Foundation Secondary School, the high-rise domestic tower of the Development would potentially shield the approaching wind. The 18m separation between the school site and the tower of the proposed development allow some incoming NNE/NE/ENE winds to enter the school site at the downstream more easily and slightly alleviate the impact on the wind environment.



Figure 18 Wind environment under annual wind condition (NNE/NE/ENE winds)

6.2 Ventilation Performance under Summer Condition

Under summer condition, the prevailing winds are mainly coming from E, SE, S, SSW and SW wind directions, in which the E prevailing wind condition is described in Section 6.1.

Under S, SSW and SW winds

Under the S, SSW and SW winds, the prevailing wind would ventilate along Chai Wan Road. Since the Development is located away from of Chai Wan Road, the ventilation performance of the major breezeway would unlikely be interrupted by the Development.



Figure 19 Wind environment under summer wind condition (SW/SSW Winds)

Besides, SW and SSW prevailing winds would reach the Development via the secondary wind path along San Ha Street. With the presence of the building block of the Development, it would be likely to cause localised ventilation impact on the leeward side, such as Wing Ping Street, Hong Ping Street, Chai Wan Road and Planned CDA Site in comparison to the existing situation.

The presence of the tower setback on podium top from the adjacent SKH Chai Wan St. Michael's Primary School, may allow the prevailing wind ventilate through the Development as shown in Figure 20. Hence, the potential ventilation impact at the Chai Wan Road and Planned CDA Site is reduced under summer wind condition.



Figure 20 Summer wind condition (S/SSW/SW winds) of the Development

Under SE wind

Under the SE wind, the prevailing wind would ventilate along San Ha Street and reach to the Development. With the presence of domestic tower at the junction of Wing Ping Street and San Ha Street, the approaching wind would be diverted into two air streams, one ventilates along San Ha Street and the other one flow through Wing Ping Street as indicated in Figure 22. Hence, the high-rise domestic tower would potentially cast wind shadow towards the northwest part of its own site and the adjacent SKH Chai Wan St. Michael's Primary School and a portion of Chai Wan Road. Since the school site is relatively low-rise, the SE incoming wind from San Ha Street would skim over the school area and carry on travelling along Chai Wan Road, minor ventilation impacts on the adjacent school site and Chai Wan Road are expected.

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Figure 21 Wind environment under summer wind condition (SE Wind)



Figure 22 Summer wind condition (SE wind) of the Development

7 **Recommendation**

To further alleviate the wind performance of the Development and its surrounding areas and mitigate the localized ventilation impact on its downstream area, the following recommendation is suggested.

7.1 Empty bay at podium level

As discussed at Section 6.2, the presence of the Development would be likely to cause localised ventilation impact on Wing Ping Street and Hong Ping Street in comparison to the existing situation. Podium level empty bay (1 storey) of 10m in width could be considered at the southeast wing of the building block (Subject to detail design) to enhance summer wind permeability towards Wing Ping Street and Hong Ping Street at the leeward side.



Figure 23 Recommended podium level empty bay for summer wind condition (Subject to future design)

8 Further Quantitative Study

In general, the Development may not significantly affect the ventilation performance of the major breezeway of Chai Wan Road under annual wind condition due to the tower setback from Chai Wan Road. However, localized ventilation impact would be induced at the school sites under annual condition and at Chai Wan Road and planned CDA site under summer condition. With provision of the below adopted and recommended mitigation measures listed below (Subject to detail design), the wind environment of leeward side is expected to be alleviated.

- 7m tower setback from Chai Wan Road
- 18m tower setback from adjacent school site
- Suggested 10m wide podium level empty bay

Since the ventilation impact of the Development would subject to the detailed building design of the Development, it is recommended to proceed with the AVA Initial study to optimise the wind performance at the building design stage in accordance with the guideline given in "HOUSING, PLANNING AND LANDS BUREAU TECHNICAL CIRCULAR NO. 1/06 ENVIRONMENT, TRANSPORT AND WORKS BUREAU TECHNICAL CIRCULAR NO. 1/06, Technical Guide for Air Ventilation Assessment for Developments in Hong Kong". The above recommended mitigation measures would be taken into account and assessed in the Initial Study.

9 Conclusion

Qualitative assessment of the wind environment of the Development at Chai Wan Road was conducted. The air ventilation impacts of the building design was studied.

According to the analysis, the annual prevailing wind comes from NNE, NE, ENE and E directions while the summer prevailing wind is from E, SE, S, SSW, and SW directions.

The Development consists of single building block that it is slightly setbacked from major breezeway of Chai Wan Road, so that the Development would not significantly affect the ventilation performance of the major breezeway of Chai Wan Road under the annual wind condition.

Besides, although localized ventilation impact would be induced at leeward side under summer and annual condition, tower setback is maintained with adjacent SKH Chai Wan St. Michael's Primary School to the west would allow wind penetration and reduce the ventilation impacts at the leeward side under summer and annual wind condition.

In addition, the Development could consider to further provide a 1 storey empty bay at podium level to improve the ventilation. It is also important to maintain the tower setback between building block and school building to facilitate wind penetration across the Development and hence minimize the localized ventilation impact.

While this Expert Evaluation provides qualitative analysis of wind performance of the Development, AVA Initial study is recommended to further optimize the wind performance at the building design stage.
Preliminary Landscape Proposal

Proposed Public Housing Development at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street, Chai Wan (Site No. GLA 4) Preliminary Landscape Proposal Proposed Public Housing Development at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street, Chai Wan (Site No. GLA 4)

Content

- 1.0 Introduction
- 2.0 Existing Site Conditions
- 3.0 Assessment of Existing Trees
- 4.0 Proposed Landscaping
- 5.0 Barrier-Free Access Design
- 6.0 Soil Depth, Drainage & Irrigation
- 7.0 Landscape Management & Maintenance

1.0 Introduction

- 1.1 This Preliminary Landscape Proposal is to support the rezoning by the Planning Department (PlanD) from "Open Space" ("O") zone to "Residential (Group A)" ("R(A)") zone at J/O of Chai Wan Road, Wing Ping Street, and San Ha Street, Chai Wan (the Subject Site).
- 1.2 A public housing development is proposed at the Subject Site with basement car park and retail along Chai Wan Road.

2.0 Existing Site Conditions (Plan 1 refers)

- 2.1 The Subject Site, with an area of about 0.33 ha, is zoned "Open Space" ("O") on the Approved Chai Wan Outline Zoning Plan No. S/H20/21.
- 2.2 At present, it is bounded by Chai Wan Road to the north; and San Ha Street to the south and Wing Ping Street to the east.
- 2.3 The Subject Site is currently allocated to Leisure and Cultural Services Department (LCSD) for plant nursery.

3.0 Assessment of Existing Trees

- 3.1 Initial tree survey was carried out in October 2014. Approximately 102 nos. of existing trees have been identified within and adjoining the Subject Site.
- 3.2 Tree inventory survey was carried out in December 2015.
- 3.3 No Champion trees, registered Old and Valuable Trees (OVTs), or potentially registration is recorded.
- 3.4 Dominated species include-Hisbiscus tiliaceus (黃槿) Erythrina variegata (刺桐) Cinnamomum burmannii (陰香) Koelreuteria bipinnata (複羽葉欒樹) Ficus benjamina (垂葉榕)

They are species commonly found in Hong Kong.

- 3.5 Health and structural condition of existing trees are generally from fair to poor.
- 3.6 Impact on existing trees has been carefully studied. Tree preservation proposal and comprehensive compensatory planting proposal will be prepared and submitted to relevant government authority(s) for comments and approval in later stage.

- 3.7 Within the Subject site, 1 no. of tree, which is of higher landscape / amenity value, is recommended to be transplanted and 88 nos. are recommended to be felled.
- 3.8 Estimated loss of 88 nos. of trees within the Subject Site with 17,485 mm DBH will be compensated with heavy standard trees according to DEVB TC(W) No. 7/2015 as far as possible and subject to the approval of Tree Preservation Committee (TPC) of Housing Department (HD).
- 3.9 Blanket approval has been given by District Lands Office (DLO) of Lands Department (LandsD) to TPC of HD as per DEVB TC(W) No. 7/2015 to consider tree removal application for trees affected by public housing development.
- 3.10 There are 15 nos. roadside trees along Chai Wan Road, Wing Ping Street, and San Ha Street. These trees will be retained as far as practicable except those affected by the run-in/run-out of the Proposed Development, which is yet to be confirmed at this stage.
- 3.11 Future approval of tree removal application(s) will be circulated to PlanD and LandsD for formal record.
- 3.12 Upon possession of site, tree inventory survey will be carried out again by the HD to update and verify the accuracy of the initial tree survey.

4.0 Proposed Landscaping

- 4.1 HD aims to achieve 20% site coverage of greenery for public housing development with site area of less than 2 ha.
- 4.2 Calculation of site coverage of greenery shall comply with the requirement as stipulated in PNAP APP-152.
- 4.3 The Site area as stated in para. 2.1 above is subject to detailed survey and layout finalization.
- 4.4 All of the proposed greenery shall be uncovered.
- 4.5 All of the proposed greenery areas at 15m pedestrian zone are designed as development common areas, which will be accessible by all occupants of the proposed development except for the vertical greening.

5.0 Barrier Free Access Design

5.1 Design Manual – Barrier Free Access issued by Building Authority will be followed in the provision of access to cater for disabled persons to landscape areas.

6.0 Soil Depth, Drainage & Irrigation

- 6.1 The landscaped area will be designed with adequate soil depth (i.e. a minimum 1.2m soil depth excluding drainage layers for tree planting).
- 6.2 Structural capacity for tree/ palm planting will be carefully calculated and allowed.
- 6.3 Drainage for all planted areas will be provided with the provision of water supply at 20m hose radius.

7.0 Landscape Management & Maintenance

7.1 Management and maintenance of all landscape areas will be undertaken by respective facilities management office in a sustainable manner.







AECOM

Hong Kong Housing Authority

Quantitative Risk Assessment for A Proposed Public Housing Development near Chai Wan Road

Final QRA Report

May 2016

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Disclaimer	Disclaimer						
The information contained in this report is, to the best of our knowledge, correct at the time of printing. The interpretation and recommendations in the report are based on our experience, using reasonable professional skill and judgment, and based upon the information that was available to us. These interpretations and recommendations are not necessarily relevant to any aspect outside the restricted requirements of our brief. This report has been prepared for the sole and specific use of our client and AECOM Asia Co. Ltd. accepts no responsibility for its use by others.							
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1 INTRODUCTION

1.1 Background

- 1.1.1 AECOM Asia Company Limited (AECOM) has been commissioned by the Hong Kong Housing Authority (HKHA) (the Client) to carry out a quantitative risk assessment (QRA) for a proposed public housing development near Chai Wan Road (the Project).
- 1.1.2 This assessment investigates the feasibility of locating the proposed development on a plot of land which is zoned as "Open Space" (O) near Chai Wan Road at Chai Wan.
- 1.1.3 The project site is adjacent to a Petrol-cum-LPG Filling Station at 23 Fung Yip Street, Chai Wan (the LPG Filling Station). This QRA study is to ascertain the risk level, posed by the LPG Filling Station with the proposed development, fulfils the Hong Kong Risk Guidelines' requirement.
- 1.1.4 The assessment is carried out in accordance with the Hong Kong Planning Standards and Guidelines (HKPSG).

1.2 Scope of Work

- 1.2.1 The scope of the study is paraphrased as follows:
 - (a) Identify potential hazards and estimate associated frequencies by reviewing of the LPG system design and historical data;
 - (b) Carry out QRA to determine the risk levels impacted by the LPG Filling Station;
 - (c) Present the QRA results in the form of iso-risk contours and "fN" curve for individual and societal risks respectively; and
 - (d) Compare the results of QRA, both existing land use (Existing Scenario) and the future operation of the LPG Filling Station (Future Scenario) scenarios, with Government's Risk Guidelines; propose risk mitigation measures if necessary.
- 1.2.2 In undertaking this study, it is necessary to set the following boundaries:
 - (a) The risks associated with the transport of LPG by road tankers have been restricted to the consideration of their final approach to the LPG Filling Station.
 - (b) The risk assessment has been limited to those events which have the potential for off-site fatalities.

1.3 Hong Kong Risk Guidelines

- 1.3.1 The LPG Filling Station stores LPG in bulk quantities less than 25 tonnes and thus is classified as a Notifiable Gas Installation (NGI) under the Gas Safety Ordinance Cap. 51, but not a Potential Hazardous Installation according to the *Miscellaneous Planning Standards and Guidelines* of *Hong Kong Planning Standards and Guidelines*.
- 1.3.2 An NGI is subjected to criteria for individual and societal risks in accordance with the Hong Kong Risk Guidelines. The criterion for individual risk is that no person off-site shall be subject to an additional risk of 1×10⁻⁵ / year due to the operation of the LPG Filling Station. The Societal Risk Guidelines specify ranges of risk values which define the limits of "acceptable" and "unacceptable" risks. For societal risk which exceeds the "acceptable" risk limits but not the "unacceptable" risk limits, cost-effective measures should be taken to reduce the risk "as low as reasonably practicable" (ALARP). The societal risk guidelines are shown in Figure 1.

1.4 Structure of the Report

- 1.4.1 The report has been written in 8 sections with this section providing a broad introduction.
 - Section 2 Describes the characteristics of the LPG Filling Station, its surrounding environment, background information and the proposed development;
 - Section 3 Identifies all potential failure cases of the operation of the LPG facilities and their frequencies of occurrence;
 - Section 4 Estimates the frequencies of hazard events which could lead to a gas release;
 - Section 5 Presents the method for analyzing the consequences of the outcomes, given a release;
 - Section 6 Presents the results of the associated risk computations and examines whether they are likely to be regarded as acceptable in relation to the Risk Guidelines;
 - Section 7 Summarizes the overall findings and conclusions; and
 - Section 8 References

2 SITE DESCRIPTION

2.1 Study Area

- 2.1.1 The subject site near Chai Wan Road falls within an area zoned as "Open Space (O)" on the Chai Wan Outline Zoning Plan (OZP) No. S/H20/21. The study area of 200m radius from the LPG Filling Station is adopted in the study and shown in **Figure 2**.
- 2.1.2 The LPG Filling Station is located to the north of the proposed development, surrounded by Fung Yip Street and Sheung On Street to the north-west, an open space to the east and a CDA site to the south.
- 2.1.3 There is a proposed comprehensive residential development at 391 Chai Wan Road and adjoining government land. Although the programme of this development is not yet known, its population will be included in the risk assessment for the Future scenario of this QRA.

2.2 The Proposed Development

2.2.1 The project site is currently a vacant land. The proposed public housing development will have 1 residential building. The proposed development will produce about 800 flats. It is scheduled to be completed in Q4 of 2022, and the tentative intake year is assumed to be 2023 in this assessment. Layout plan of the proposed development is shown in **Appendix A**.

2.3 The Existing LPG Filling Station

- 2.3.1 The LPG Filling Station is operated by Feoso. Written requests were made to the operators for operational details of the LPG Filling Station and the reply from Feoso is attached in **Appendix I**.
- 2.3.2 According to the information provided by Feoso, the LPG Filling Station consists of one 21kL (water capacity) underground storage vessel, and the storage vessel is filled to a maximum permissible level (85% of the maximum capacity). There are 2 dispensers and 4 nozzles for vehicle refuelling in the LPG Filling Station.
- 2.3.3 The storage vessel is manufactured and tested in accordance with the requirements of GSO, and it is covered with corrosion protection coating, stress relieved and 100% radiographed.

2.4 LPG Delivery and Transfer

- 2.4.1 LPG is delivered to the LPG Filling Station by road tankers. The maximum capacity of the road tanker is about 9 tonnes. Based on information provided by Feoso, there is around 300 vehicles refilling LPG and 350 vehicles refilling gasoline / diesel.
- 2.4.2 According to the collected information, there is around 700 annual LPG deliveries or 1 to 2 daily deliveries of LPG. The exact number of deliveries depends on seasonal demand. Adopting a conservative approach, 2 deliveries per day or 730 deliveries per year is assumed for risk modelling purpose. According to the information provided by Feoso, LPG deliveries will be made between 8:00am to 6:00pm.
- 2.4.3 Based on the LPG pumping rate of 200 litre / minute, the duration of replenishment of storage vessel would take approximately 60 minutes for 9t delivery. In addition, the road tanker is expected to spend about 15 minutes on site for setting up and preparation. Therefore, the road tanker's residence time on the LPG Filling Station is around 1.25 hours for a 9-tonne load.
- 2.4.4 Road tankers are operated in accordance with the standard requirements of the LPG Filling Station operator. The standard procedures for the LPG delivery are summarized as follows:
 - (a) Two people are present during delivery operation (the driver and assistant)
 - (b) Dedicated unloading area is available for unloading operation. There is a possibility of road tankers reversing in the unloading area. Road tankers will face towards run-out so that it may leave rapidly should it need to do so

- (c) The condition of all connections and hoses is checked by the driver
- (d) The vessels are filled to a maximum of 85% of the liquid level capacity
- (e) During delivery, the driver waits in close proximity to the "emergency-cut-off switch" while the assistant takes care the delivery process

2.5 Population

2.5.1 Societal risk is a measure of the consequence magnitude and the frequency of the hazardous events. In order to establish the impact of any release (the number of people likely to be affected) in the future, it is necessary to have a good knowledge of the future surrounding population levels. It includes residential population, government and institutional population and transport population. **Figure 3** shows locations of population groups and roads which are included in the assessment.

Proposed Public Housing Development

2.5.2 According to the information from the HKHA, the total designed population for the residential building is about 2,000. A 10% margin for the residential population is included in the risk assessment to allow flexibility of building design, and thus the population in the proposed development is modelled as 2,200. The tentative intake year for the proposed development is assumed to be 2023, and year 2023 is taken as the assessment year for Future scenario.

Surrounding Population

- 2.5.3 Residential and employment population are estimated based on the observation through site surveys and data from the enhanced 2011-based Territorial Population and Employment Data Matrix (TPEDM) provided by the Planning Department (PlanD), which estimates the population in various areas of Hong Kong in Year 2011 and Year 2026. PlanD has been consulted for the latest land use and population assumption in the vicinity on 1 March 2016 and its reply is attached in **Appendix J**. The population assumption used in this report have incorporated all comments from PlanD.
- 2.5.4 The population in each area are listed in **Table 2.1**. Details of population at different time modes and information sources are given in **Appendix B**. It is estimated with the following assumptions:
 - (a) 50% and 70% of night-time population is assumed for day-time population on weekdays and weekends for residential buildings respectively;
 - (b) Occupancies of the LPG Filling Station are assumed to be 100% at any time;
 - (c) According to enhanced 2011-based TPEDM, there were 3.19 residents in a household in the PDZ#34 in 2011, and it was found to have a negative growth rate of the household size of this residential area between the period of 2011 and 2026. Considering the worst case scenario, a household size of 3.19 is assumed for both existing and future scenarios;
 - (d) An average of 5% residential and office populations is taken to be out of doors;
 - (e) Population in the proposed development is provided by Client; and
 - (f) Population in the proposed comprehensive residential development is estimated based on the information provided in the Planning Application No. A/H20/177.

Table 2.1	Population around 200 metre from the LPG Filling Station
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Location	Description	Existing	Maximum Popu	lation [Note 2]
Location	Description	Land Use	2016	2023
1	Project Site	0	0	2200 [Note 1]
2	S.K.H. Chai Wan Saint Michael's Primary School	G/IC	1050	1050
3	San Ha Street Sitting-out Area	0	5	5
4	Sun Tak House	R(A)	345	345
5	Artland Court	R(A)	510	510
6	Artview Court	R(A)	479	479
7	Fu On Court	R(A)	268	268
8	Fu Ming Court	R(A)	230	230
9	Fu Shing Court	R(A)	357	357
10	Wah Yu Court	R(A)	383	383
11	Bus Terminus	CDA(1)	20	0
12	China Motor Bus Company Limited	CDA(1)	43	0
11+12	Proposed Comprehensive Residential Development	CDA(1)	0	4060
	- Residential Blocks		0	4000
	- Public Transport Terminus		0	20
	- Open Space		0	40
13	Sunview Industrial Building	OU	1317	1317
14	Cheung Yick Industrial Building & Hop Ming Factory Building	I	985	985
15	Vacant Land	0	0	20
16	ECO dedicated LPG Filling Station	OU	15	15
17	Wah Shing Centre		861	861
18	Reality Tower		422	422
19	Kailey Industrial Centre		1586	1586
20	Yip Cheung Centre		572	572
21	Asia One Tower		367	367
22	Gee Wing Chang Industrial Building & Gee	I	1055	1055
	Tung Chang Industrial Building			
23	Federal Centre		422	422
24	Yiko Industrial Building	l	548	548
25	Paramount Building		1472	1472
26	Ming Pao Industrial Centre Block B		1133	1133
27	Sheung On Street Playground	0	50	50
28	Sheung On Driving Test Centre	G/IC	20	20
29	RCP	G/IC	2	2
30	Chai Wan Fire Station [Note 3]	G/IC	43	43
31	Cornell Centre		1149	1149
32	Feoso Petrol cum LPG Filling Station	0	5	5
33	Chai Wan Public Cargo Working Area		50	50
34	Yue On House	R(A)	/61	/61
35	Kong Faith Love Lutheran School	R(A)	390	390
36	Caritas Chai Wan Marden Foundation Secondary School	G/IC	673	673
37	Precious Blood Secondary School	G/IC	899	899
38	Summit Industrial Building	I	1593	1593
R1	Wing Tai Road	Road	21	23
R2	Chai Wan Road	Road	58	63
R3	Ka Yip Street	Road	17	18
R4	Sheung On Street	Road	30	32
R5	Fung Yip Street	Road	12	13

Hong Kong Housing Authority

R6	Kwun Yip Street	Road	0	0
R7	On Yip Street	Road	5	5

Notes:

[1] Population in the proposed development is provided by Client.

[2] According to data for Years 2011 and 2026 of enhanced 2011-based TPEDM data, annual growth rate of average household size for PDZ#33 and #34 obtained from TPEDM is -0.39% (from 3.02 person per flat in 2011 to 2.85 person per flat in 2026) and -0.36% (from 3.19 person per flat in 2011 to 3.02 person per flat in 2026) respectively. To be conservative, the average household size of residential areas in Years 2016 and 2023 is assumed to be equivalent to that in Year 2011.

[3] Population in the Chai Wan Fire Station is estimated based on 9,500 uniformed personnel and 720 civilian member in 79 fire stations in Hong Kong, and all the personnel are working at 8-hour shift.

Road Population

2.5.5 Traffic data is obtained from the Transport Department, "Annual Traffic Census 2014" [2] for the estimation of traffic population and reference data source is attached in **Appendix C**. Speed limit on all the assed road is assumed to be 50km/hr. The road population is predicted based on the following equation:

Population = No. of person/vehicle * No. of vehicles/hr * Road Length / Speed

The estimated population on road is presented in **Table 2.2** with the following assumptions:

- (a) "The Annual Traffic Census 2014" for Chai Wan Road (from Island Eastern Corridor approach to Tai Tam Road) is adopted for estimation of vehicle type distribution and corresponding occupancy;
- (b) Traffic density for day-time (07:00 19:00) is assumed the same as the peak hour traffic density.
- (c) According to information provided in "The Annual Traffic Census 2014" for Chai Wan Road (from Island Eastern Corridor approach to Tai Tam Road), the percentage of daytime (12-hour basis) and night-time traffic are 70.8% and 29.2% respectively. Therefore, night-time road population assumed is 41% of the daytime population; and
- (d) Traffic speed limit is applied to traffic speed for each road
- (e) Road population in the existing scenario (Year 2016) and future scenario (Year 2023) is projected from the Year 2014 data with 1% annual growth rate.

		Exis	ting (2016	5)	Future (2023)			
	1	Peak	Estim	ated	Peak	Estim	ated	
	Length of Road	Hour	Popul	ation	Hour	Popul	ation	
Road	Segment (km)	Density (vehicle per hour)	Day	Night	Density (vehicle per hour)	Day	Night	
Wing Tai Road	0.15	900	14	11	965	15	12	
Chai Wan Road	0.42	1850	81	66	2023	89	72	
Ka Yip Street	0.25	600	16	13	643	17	14	
Sheung On Street	0.28	1080	32	26	1158	34	27	
Fung Yip Street	0.22	540	12	10	579	13	11	
Kwun Yip Street	0.20	8	0	0	9	0	0	
On Yip Street	0.16	270	5	4	289	5	4	

 Table 2.2
 Road Population within the Study Area

2.6 Meteorology

- 2.6.1 Meteorological data is required for consequence modelling and risk calculation. Consequence modelling (dispersion modelling) requires wind speed and stability class to determine the degree of turbulent mixing potential whereas risk calculation requires wind-rose frequencies for each combination of wind speed and stability class.
- 2.6.2 Since there is no weather station with wind measurement in Chai Wan, the nearest weather station with similar topographic features is used to represent the meteorological condition in the project area. Meteorological data is obtained from North Point Weather Station (2014) where wind speed, stability class, weather class and wind direction are available. This data represents the weather conditions for the whole year in 2014 and has already taken into account of seasonal variations, and is therefore considered applicable for this assessment. **Table 2.3** shows the wind speed-stability frequencies.

Daytime							
Wind Speed (m/s)	Α	В	С	D	E	F	Total (%)
0.0-1.9	6.63	3.1	0	4.27	0	6.15	20.15
2.0-3.9	2.69	13.42	7.05	10.08	3.72	0.99	37.95
4.0-5.9	0	10.05	9.52	11.93	0.62	0	32.12
6.0-7.9	0	0	1.79	6.5	0	0	8.29
Over 8.0	0	0	0.09	1.4	0	0	1.49
All (%)	9.32	26.57	18.45	34.18	4.34	7.14	100

 Table 2.3
 Stability Category-Wind Speed Frequencies at North Point Station

Night-time							
Wind Speed (m/s)	Α	В	С	D	E	F	Total (%)
0.0-1.9	0	0	0	0.53	0	35.4	35.93
2.0-3.9	0	0	0	12.98	17.78	4.93	35.69
4.0-5.9	0	0	0	17.02	2.73	0	19.75
6.0-7.9	0	0	0	6.31	0	0	6.31
Over 8.0	0	0	0	2.32	0	0	2.32
All (%)	0	0	0	39.16	20.51	40.33	100

- 2.6.3 According to **Table 2.3**, 6 combinations (3B, 1D, 4D, 7D, 3E and 1F) and 5 combinations (1D, 4D, 7D, 2E and 1F) of wind speed and stability class are chosen for day-time and night-time meteorological conditions respectively. These combinations of wind speed and stability class are referred as weather classes. These combinations are considered adequate to reflect the full range of observed variations in these quantities. It is not necessary and efficient to consider every combination observed. The principle is to group these combinations into representative weather classes which together cover all conditions observed.
- 2.6.4 Once the weather classes have been selected, frequencies for each wind direction for each weather class can then be determined. These frequency distributions are given in **Table 2.4** for the day-time and night-time meteorological conditions respectively.

Table 2.4 Weather Class-Wind Direction Frequencies at North Point Station

Daytime							
Direction	3B	1D	4D	7D	3E	1F	Total
0 - 30	4.07	1.46	2.73	0.05	0.96	2.11	11.38
30 – 60	1.17	0.07	0.81	0.07	0.48	0.10	2.70
60 - 90	2.47	0.17	3.14	0.48	0.69	0.14	7.09
90 – 120	16.44	0.36	21.36	13.75	2.73	0.41	55.05
120 – 150	0.46	0.10	0.67	0.00	0.69	0.31	2.23
150 – 180	0.02	0.00	0.00	0.00	0.02	0.00	0.04
180 – 210	0.14	0.00	0.02	0.00	0.00	0.02	0.18
210 - 240	0.36	0.00	0.14	0.00	0.07	0.02	0.59
240 - 270	4.07	0.17	2.32	0.53	0.50	0.22	7.81
270 - 300	5.39	0.14	3.50	1.20	0.69	0.24	11.16
300 - 330	0.22	0.02	0.24	0.02	0.12	0.10	0.72
330 - 360	0.19	0.00	0.55	0.00	0.26	0.05	1.05
All	35.00	2.49	35.48	16.10	7.21	3.72	100.00

Night-time							
Direction	1D	4D	7D	2E	1F	Total	
0 - 30	0.27	2.37	0.05	3.18	11.49	17.36	
30 - 60	0.00	0.66	0.15	1.78	0.24	2.83	
60 - 90	0.00	2.52	0.39	3.69	1.08	7.68	
90 – 120	0.00	17.63	11.49	15.99	3.45	48.56	
120 – 150	0.00	0.24	0.02	2.79	1.86	4.91	
150 – 180	0.00	0.00	0.00	0.00	0.10	0.10	
180 – 210	0.00	0.02	0.00	0.07	0.17	0.26	
210 – 240	0.00	0.00	0.00	0.34	0.22	0.56	
240 – 270	0.07	1.74	0.20	3.81	0.86	6.68	
270 – 300	0.00	3.20	0.12	4.64	1.37	9.33	
300 - 330	0.00	0.02	0.02	0.10	0.20	0.34	
330 - 360	0.02	0.42	0.02	0.61	0.32	1.39	
All	0.36	28.82	12.46	37.00	21.36	100.00	

3 HAZARD IDENTIFICATION AND ANALYSIS

3.1 Introduction

- 3.1.1 A hazard is described as the property of a material or activity with the potential to do harm. A release of flammable gas such as LPG has the potential to cause fire or explosion if ignited. Without ignition, the gas vapours will disperse harmlessly. Under normal conditions, the LPG at the existing LPG Filling Station will be stored and handled under contained and controlled manners. For LPG to pose a hazard to people in the surrounding area, a release must occur as a result of a failure of that containment or as a result of faulty transfer procedures.
- 3.1.2 This section of the report summarises all possible failure cases and associated failure rates which could lead to a release of LPG. The failure rates adopted throughout this report are quoted in the paper on "Quantitative Risk Assessment for LPG Installations (Reeves, Minah and Chow, 1997)" [1]. Furthermore, some frequencies are referenced from approved EIA Reports [3][12] and QRA studies [7][9] where it is necessary. In addition, possible initiating events are identified.

3.2 Behaviour of LPG Releases

- 3.2.1 LPG is a mixture of butane and propane. The gas is twice as heavier than that of air. For a release of LPG, the nature of the combustion will depend on the timing of ignition and the size of the release.
- 3.2.2 Release of several tonnes of LPG, if ignited immediately, will produce a fireball. Initially the gas concentration in the mixture will be above the Upper Flammability Limit (UFL). As burning occurs around the edges of the release, this will entrain more air into the mixture and more combustion will take place. The process accelerates until the mixture rising above the ground as a ball of fire. A fireball may also result from a boiling liquid expanding vapour explosion (BLEVE). This results from the bursting of a vessel (due to a high internal pressure and a weakening of the vessel material, due to a fire for example). The vessel contents rapidly vaporise and are ignited.
- 3.2.3 If not ignited immediately, the gas will disperse and dilute. If ignition occurs when the gas concentration is between lower Flammability Limit (LFL) and Upper Flammability Limit (UFL), a flame front will propagate to produce a flash fire.
- 3.2.4 For small releases, immediate ignition will produce a long vigorous jet flame from the point of release. As for large releases, delayed ignition will generally produce a flash fire.
- 3.2.5 For all sizes of release the LPG will disperse harmlessly if there is no source of ignition.

3.3 Hazard Analysis

Spontaneous Failures

Failure of Storage Vessel

- 3.3.1 Failure of vessel can be resulted from (i) cold catastrophic failure leading to instantaneous release of full inventory and (ii) partial failure leading to continuous release of full inventory via 25mm hole. The causes of failure are summarised as follows:
 - (a) Spontaneous failure due to corrosion, fatigue, etc
 - (b) Overfilling
 - (c) Earthquake

Failure of Road Tanker

3.3.2 Causes of failure of a road tanker are similar to that of a storage vessel. Furthermore, road tankers are vulnerable to collision with other road vehicles during delivery.

Guillotine Failure of Liquid Filling Line to Storage Vessel

3.3.3 Failure of liquid line is possible due to corrosion or fatigue, vehicle impact and external events. Only guillotine failure of LPG pipework is considered in this study as partial failure of the pipeworks is insignificant contributors towards the overall risk levels. The failure would result in LPG leaking from full bore of the pipe. Moreover, part of the pipeworks is installed aboveground. Failure of the aboveground portion of liquid filling line can be resulted from vehicle impact while failure of the underground portion of the liquid filling line can be resulted from earthquake.

Guillotine Failure of Liquid Line to Dispenser

3.3.4 Cause of failure of this line is similar to liquid filling line to storage vessel, mainly due to corrosion or fatigue. Moreover, the failure of the underground portion of the pipework can be resulted from external events while the aboveground portion of the pipework can be resulted from vehicle impact. Releases would result in leak from full bore of the pipe.

Guillotine Failure of Liquid Line from Tanker Pipe to Loading Hose

3.3.5 Cause of failure of this line is similar to liquid filling line to storage vessel, mainly due to corrosion or fatigue. Moreover, the failure can be due to vehicle impact and other external events.

Failure of Dispenser

3.3.6 The cause of failure of dispenser could be corrosion, fatigue, vehicle impact (vehicle visiting the LPG Filling Station) and other external events, which would result in a release of the dispenser pipework.

Failure of Flexible Hose

- 3.3.7 The loading hose could fail due to the following causes:
 - (a) Fatigue
 - (b) Hose misconnection
 - (c) Hose disconnection during loading or unloading process
 - (d) Vehicle impact
 - (e) Operator / driver error.

Failure of Vapour Return Line

3.3.8 Similar to the liquid line, failure of the vapour return line is credible which would result in vapour leak equivalent to the diameter of the line. Moreover, the failure of vapour return line can be resulted from external events.

Release from Storage Vessel Pump Flange

3.3.9 Release from the submersible pump on the storage vessel is not credible as the LPG release would flow back into the storage vessel, however, the release would take place from the flanges associated with the pump fitting.

Release from Storage Tank Drain Valve

3.3.10 The storage tank drain valve is open to drain out accumulated water several times per year. Release from drain valve is possible due to human error. The operator fails to close it by accident.

Leak from Vehicle Vessel

3.3.11 Similar to the failure of LPG storage vessel and road tanker, a leak from vehicle vessel could be spontaneous caused by other vehicles impact or refuelling error. However, the LPG inventory of vehicle vessel is small as compared to storage vessel and road tanker. The effect is insignificant.

Delivery Failures

- 3.3.12 When LPG releases occur as a direct result of the road tanker unloading operation, the failure events can be regarded as loading failures.
- 3.3.13 The failure events could be categorised as loading failures were listed as follows:
 - (a) Hose misconnection and disconnection error
 - (b) Tanker drive away error
 - (c) Road tanker collision
 - (d) Vehicle impact with tanker during unloading
 - (e) Storage vessel overfilling
 - (f) Over-pressurization of pipework.

Hose Misconnection and Disconnection Error

3.3.14 A significant release of LPG during transfer from road tanker to storage vessel could occur as a result of failure of the transfer hoses and coupling, human error, or vehicle impact.

Tanker Drive away Error

3.3.15 This error could be resulted from: (i) repositioning of truck during delivery; and/or (ii) driver drives the tanker away before the delivery is completed.

Road Tanker Collision

3.3.16 Road tanker collision refers to the striking facilities of the LPG Filling Station by the LPG road tanker and damages are resulted. Dedicated road tanker parking area and unloading area, speed control, controlling the use of dispenser system and well-adopted training system are safety measures commonly adopted to avoid serious collision incidents. Road tanker collision leading to failure of the road tanker itself is considered to be insignificant. Underground facilities such as LPG storage vessel and pipework would not be affected by this event since they are installed underground. Collision of an LPG road tanker with other road tankers is considered not possible as concurrent unloading of liquid fuels and LPG at the station is not allowed in Hong Kong.

Vehicle Impact with Road Tanker during Unloading

3.3.17 There is a possibility that a vehicle collides with the road tanker during unloading operation. When this happens, a release of LPG could occur.

Storage Vessel Overfilling

3.3.18 Failure of LPG storage vessel could occur as a result of overfilling of LPG from road tanker to vessel.

Over-pressurization of Pipework

3.3.19 Over-pressurization could be caused by continuing unloading operation when a storage vessel is overfilled or isolation valves at the receiving storage vessel are closed. It is considered that the probability of the pipework over-pressurization is negligible with all the safety system provided at the LPG Filling Station, and therefore not considered in this study.

External Events

- 3.3.20 A LPG release event could occur due to external events and the consequences could be catastrophic. The related external events are listed as follows:
 - (a) Earthquake
 - (b) Aircraft crash
 - (c) Landslide
 - (d) Severe environmental event such as typhoon or tsunami
 - (e) Subsidence
 - (f) External Fire.
- 3.3.21 According to BDEIA [3], earthquake of Modified Mercali Intensity (MMI) VII could provide enough intensity to result in damage to storage vessel or pipework. Therefore, earthquake is considered in this study.
- 3.3.22 Aircrafts crashing into the LPG Filling Station due to take-off and landing as well as arrival/departure flight paths are taken into account in this study. Method given in HSE (1997) [6] for calculation of aircraft crash frequency is adopted.
- 3.3.23 The LPG Filling Station is bounded by roads and buildings with no slope in vicinity of it. Therefore, the probability of landslide is negligible and this external event is not further considered in this study.
- 3.3.24 According to BDEIA [3], loss of LPG content due to severe environmental event such as typhoon or tsunami (i.e. a tidal wave following an earthquake) is considered to be insignificant as the installation of LPG vessel is situated underground and away from seashore. Subsidence is usually slow in movement and such movement can be observed and remedial action can be taken in time. Therefore, the probabilities of severe environmental events and subsidence are very small or negligible so these external events are not further considered in this study.
- 3.3.25 External fire means the occurrence of fire event which leads to the failure of tanker / vessel or other facilities. The key concern is the LPG road tanker being affected by external fires. In Hong Kong, LPG delivery trucks are of Chartek coating. Chartek coating could ensure that tanker wall temperatures are kept sufficiently low. Fire extinguishers are also provided in the LPG Filling Station. The LPG system will be shut down as a closed system once there is external fire threatening the station. Escalation due to fire outside of the LPG Filling Station is therefore considered not credible. Fire events, such as vehicle fire, within the LPG Filling Station" sections in this assessment.

Safety Features

3.3.26 Safety features installed in the facilities can act in different combination to mitigate LPG releases. Such features are highlighted in the following sections.

Pressure Relief Valve

3.3.27 Relief valve is employed to ensure the vessel is not subjected to an excessive internal pressure which may cause failure due to overfilling. Also it offers protection against excessive pressure build up within the vessel in case of fire situation.

Non-return Valve

3.3.28 Non-return valve on the liquid filling line can isolate release immediately. If it functions properly, there will be no significant consequence.

Excess Flow Valve

3.3.29 Excess flow valve installed at the road tanker and the storage vessel is expected to mitigate release from guillotine failure of pipework or flexible filling hose.

Emergency Shutdown System

3.3.30 An Emergency Shutdown (ESD) system is installed on both road tankers and vessel. For release from road tankers, emergency isolation system and engine emergency stop system can be activated to isolate release due to equipment failure and human error. For release from vessel, emergency isolation system can be triggered to enable quick remote closure of all actuated valves at the station mitigating the release at the road tanker unloading / filling point, the liquid supply line and vapour return line of each dispenser, the liquid outlet / inlet and vapour return line on the vessel.

Double-check Filler Valve

3.3.31 Double-check filler valve is provided at the hose connection point on the liquid filling line to prevent release to be fed back from the vessel. The design of this valve is essentially 2 non-return valves in series.

Breakaway Coupling

3.3.32 One problem identified with road tankers and refilling vehicles is the possibility of road tankers and vehicles being driven away whilst the hose is still connected causing damage to facilities and resulting in release of LPG. The breakaway coupling is installed to prevent undue spillage of LPG due to movement of road tankers and vehicles.

Manual Isolation System

3.3.33 Manual valve is installed for the operators/ drivers to close the manual valve in case of failure.

Human Error

3.3.34 When failure of equipment or loading process occurs, it is possible for staff to rectify the problem before hazard event occurs. Human error is considered as a failure case if staff fails to rectify the problem.

Fire Protection / Fighting System

Water Spray System

3.3.35 The LPG Filling Station possesses with its own storage of 30 minutes of water supply to the entire water spray system. When a water spray system is activated, the fire associated with equipment in the LPG Filling Station such as pipeworks, dispensers and LPG vehicles can be extinguished or prevented from spreading towards a parked road tanker.

Fire Service

3.3.36 Fire service will be available within a few minutes in case of fire. The extinguishments of fire by fire fighters prevent BLEVE from occurring. Besides, a street fire hydrant is available nearby and fire service water inlet is installed at the perimeter of the LPG Filling Station to provide additional fire water supply.

13

Chartek Coating

3.3.37 Chartek coating is a safety feature coated on road tankers. It was reported that the coating could give a protection for at least 30 minutes in case of jet fire. The coating could prevent a hot spot on the road tanker due to jet fire attack, which can cause thermal weakening of the road tanker wall leading to BLEVE.

Escalation

- 3.3.38 BLEVE of a LPG road tanker can happen if the road tanker is impinged by jetfire from aboveground LPG facilities listed below:
 - (a) Dispenser
 - (b) In-let filling pipework
 - (c) Liquid supply line to dispenser
 - (d) Flexible hose during loading to underground vessel
 - (e) Liquid line from tanker to loading hose
 - (f) Flexible hose during loading to vehicle is not considered as the jet flame produced will not impinge on the road tanker; and
 - (g) While Chartek coating can provide 30 minutes protection to the storage tank, the release and jetfire duration is less than 10 min in leak failure of a LPG vehicle. Therefore, jetfire in leak failure of LPG vehicle does not lead to BLEVE of a LPG road tanker

Summary

- 3.3.39 Possible hazard events for day-to-day operation of LPG filling station have been identified and reviewed in previous section. Only those possible failure cases considered to have the potential to cause off-site fatality are summarized in **Table 3.1**.
- 3.3.40 The significance of each failure case and adoption of generic frequency are discussed in the next section.

FAILURE TYPES	FAILURE CASES
Spontaneous Failure of Pressurised LPG Equipment	 Storage Vessel Failure Road Tanker Failure Pipework Failure Dispenser Failure Hose Failure Vapour Return Line Failure Release from Storage Vessel Pump Flange
	 Release from Storage Vessel Drain Valve
Delivery Failure	 Hose Misconnection Error Hose Disconnection Error Tanker Drive-away Error Road Tanker Collision during Unloading Vehicle Impact with Tanker during Unloading Storage Vessel Overfilling
External Event	Earthquake MMI VIII Aircraft Crash
Safety System Failure	 Pressure Relief Valve Failure Non-return Valve Failure Excess Flow Valve Failure Emergency Shutdown System Failure Double-check Filler Valve Failure Breakaway Coupling Failure Manual Isolation Valve Failure Human Error
Fire Fighting System Failure	 Water Spray System Failure Fire Services Failure Chartek Coating Failure
Escalation	 LPG Road Tanker BLEVE Due to Fire in the Filling Facilities LPG Road Tanker BLEVE Due to Jetfire from Aboveground LPG Facilities

Table 3.1	Identified Failure Case of the LPG Filling Station
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Spontaneous Failure of Pressurised LPG Equipment

Storage Vessel Failure

- 3.3.41 A release of LPG could occur as a result of catastrophic failure or partial failure of the storage vessel and such a failure would lead to either a loss of entire contents of the vessel or a continuous release of LPG to atmosphere. A generic failure rate of 1.8 x 10⁻⁷ per vessel year [1] is adopted for cold catastrophic failure. Due to the variation of contents of the vessel with time, it is assumed that the vessel is being nominally full for 30% of the time and 60% of maximum for the other 70% of time. The variation of content of the storage vessel is estimated from operation parameters as shown in Section 2.4.
- 3.3.42 For partial failure, a generic failure rate of 5 x 10^{-6} per vessel year [1] is applied.

Road Tanker Failure

3.3.43 As discussed in Section 3.3.2, the definitions of catastrophic and partial failures of road tanker are similar to that of vessel. It is generally considered that catastrophic failure rate for LPG road tankers could be higher than for a fixed storage vessel because of a) stresses experienced by the road tanker due to vibration during transportation, and b) cyclic loading

associated with filling/unloading the road tanker. A rate of 2.0×10^{-6} per tanker year [1] is adopted for catastrophic tanker failure. Similar to storage vessel, the tanker is modelled at maximum content for 30% of the time and 50% maximum for 70% of the time.

3.3.44 A failure rate of 5.0 x 10⁻⁶ per tanker year [1] is applied for partial failure of road tanker.

Pipework Failure

3.3.45 According to the study conducted by Reeves et al. (1997) [1], it is assumed that releases from pipework partial failures are insignificant contributors towards the overall risk levels. Therefore, in this study, only guillotine failure of LPG pipework is considered as the release from partial failure of pipework is insignificant towards the overall risk levels. A generic guillotine failure of pipework is taken as 1.0 x 10⁻⁶ per meter per year.

Dispenser Failure

- 3.3.46 The dispenser is a metering device, a hose with a self-sealing connector, 4 ball valves (with 2 flanges for each valve) and a certain length of rigid pipework. The only way to estimate the failure frequency would be to account for each of these components and add together. Assuming the dispenser is equivalent to 1m of small bore piping (<100mm) with 2 flanges joints and 4 ball valves with 8 flange joints, failure rate of a LPG disperser 5x10⁻⁵ per hour is obtained with following estimates:
 - (a) 1m piping * 1×10^{-10} per meter per hour [10]
 - (b) 10 flanges (8 from 4 ball valves, 2 from meter joints) * 3x10⁻⁷ per flange per hour [11]
 - (c) 4 ball valves * 0.5x10⁻⁶ per valve per hour [11]
- 3.3.47 Therefore, the dispenser failure rate per year is estimated as $5 \times 10^{-6} \times 8,760$ (1 year = 8760 hours) = 4.38 x 10^{-2} .

Hose Failure

- 3.3.48 Again, the effect of partial failure of the hose is neglected. A generic guillotine failure rate of flexible hose of 1.8 x 10⁻⁷ per transfer, for 2 hours transfer, is assumed thus giving a guillotine failure rate of flexible hose of 9.0 x 10⁻⁸ per hour [1].
- 3.3.49 Each unloading process for 9t deliveries takes 105 minutes (from road tanker to vessel). Therefore, guillotine failure rate of flexible hose for 9t LPG unloading is 1.58 x 10⁻⁷ per transfer. In addition, vehicle loading process takes about 5 minutes (from dispenser to vehicle). Therefore, guillotine failure rate of flexible hose for LPG loading to a vehicle is 7.5 x 10⁻⁹ per transfer.

Vapour Return Line Failure

3.3.50 A generic failure rate of 1×10^{-6} per meter per year is adopted [1].

Release from Storage Vessel Pump Flange

3.3.51 A generic failure rate of 1.09×10^{-4} per flange per year¹ is adopted [8].

Release from Storage Vessel Drain Valve

3.3.52 For the operator failed to close the drain valve by accident, a failure rate of 2.0 x 10⁻⁵ per operation [4] is adopted.

¹ Referencing the SPC/TECH/OSD/24 - accident/incident data from Health and Safety Executive (HSE) reviewed in March 2007, it stated the failure rate of pump flange is between 4.11×10^{-5} and 1.09×10^{-4} /flange year. Thus, a conservative value of 1.09 x 10-4 /flange year was assumed in this study as this is an updated value in March 2007 to reflect the failure frequency of a pump flange.

Loading / Unloading Failures

Hose Misconnection Error

3.3.53 A significant release of LPG during transfer from road tanker to storage vessel could occur as a result of failure of the transfer hoses and coupling, human error, or vehicle impact. The likelihood of such an event is taken as 3×10^{-5} per operation [1].

Hose Disconnection Error

3.3.54 A rate of 2×10^{-6} per operation [1] is adopted in this failure case.

Tanker Drive-away Error

3.3.55 Tanker drive-away error refers tanker moves away with the hose still connected. It could be resulted from inadvertent drive away before delivery is completed. It is considered that drive-away is unlikely. Even such error do occur, it is highly likely that the failure can be immediately rectified since delivery process would not go unattended. A failure rate of 4 x 10⁻⁶ per operation [1] is adopted.

Tanker Collision during Unloading

3.3.56 A release of LPG cloud occurs as a result of an incident involving an LPG tanker during delivery and LPG equipment. It is assumed that the failure rate of tanker impact during unloading is 1.5 x 10⁻⁴ per delivery [1].

Vehicle Impact with Road Tanker during Unloading

3.3.57 A rate of 1 x 10⁻⁸ per operation [1] is adopted for the case that a vehicle impact into road tanker during unloading.

Storage Vessel Overfilling

3.3.58 The practice on-site in unloading LPG to the underground storage vessel is that the vessel will be only filled to 85% of the maximum capacity. It is considered that the probability of the driver overfilling a storage vessel is low. The rate 2 x 10⁻² per operation [1] is adopted for this failure case.

External Events

Earthquake MMI VIII

3.3.59 The probability 1.0 x 10⁻⁵ per year of earthquake MMI VIII occurrence is adopted. The failure rate of pipework and partial failure of underground vessel due to earthquake is assumed to be 0.01 [3], whereas the other failure rate of road tanker and the underground vessel is considered to be zero.

Aircraft Crash

3.3.60 The distance between the nearest arrival flight path and the LPG Filling Station is approximately 4.5 km. The distance between the LPG Filling Station and Chek Lap Kok International Airport is about 33 km and over 5 miles which is the criteria for the consideration of airfield accident. At such distances, the LPG Filling Station is not covered by critical takeoff and landing phases, therefore, background crash rate and airway crash rate are taken into account. The frequency of aircraft crash was estimated using the methodology of the HSE (1997) [6]. The model takes into account specific factors such as the target area of the LPG Filling Station and distance between the LPG Filling Station and the runway threshold. The aircraft crash frequency per year is calculated as:

Frequency (per year) = Background Crash Rate + Airway Crash Rate

Frequency (per year) = $(A \times B_i) + (A \times N_i \times R_i \times afac/alt)$

where A is the area of the LPG Station, N is the number of runway movements per year and Ri is the aircraft in-flight reliability per year per km per aircraft movement. According to the statistic of Civil International Air Transport Movements of Aircraft, there are 406,034 movements per year which represents the largest number of movements per year from January 2015 to December 2015. The detailed calculation of aircraft crash is shown in **Appendix D**.

3.3.61 The frequency of the event aircraft due to background and airway crash in the LPG Station is estimated at 2.10 x 10⁻⁹ per year.

Safety System Failure

3.3.62 If the safety system operates as designed then releases will not present an off-site hazard. There is, however, potential for failure of the safety system. A typical safety system involves pressure relief valve, non-return valve, excess flow valve, emergency shutdown system, breakaway coupling and double-check filler valve.

Pressure Relief Valve Failure

3.3.63 Pressure relief valve avoids the LPG pipework or underground storage vessel from getting overpressure. A generic failure of pressure relief valve on demand of 1 x 10⁻⁴ [1] is adopted.

Non-return Valve Failure

3.3.64 Non-return valve is intended to avoid the back flow of LPG. A generic failure rate of 0.013 per demand [1] is adopted.

Excess Flow Valve Failure

3.3.65 The excess flow valve installed at road tanker and storage vessel is expected to be functional when guillotine failure of pipework or flexible hose occurs. Considering different testing interval for road tankers and storage vessels, generic failure rates of 0.013 and 0.13 per demand [1] are adopted for road tanker and vessel respectively.

Emergency Shutdown System Failure

3.3.66 A generic failure rate of 1×10^{-4} per demand [1] is assumed.

Breakaway Coupling Failure

3.3.67 Generic failure rate of 0.013 and 0.13 per demand [1] is adopted for road tanker and dispenser, respectively.

Double-check Filler Valve Failure

3.3.68 Double-check filler valve prevents the LPG release to be fed back from the storage vessel. The design is 2 non-return valves in series. A generic failure rate of 2.6 x 10⁻³ per demand [1], common mode failure, is adopted.

Manual Isolation Valve Failure

3.3.69 A generic failure rate of 0.5 per demand [1] is assumed.

Human Error

3.3.70 According to Appendix III of Reactor Safety Study prepared by US Nuclear Regulatory Commission in 1975, an estimation of average error rate of 0.2 to 0.3 was assumed for nuclear

power plant personnel in a high-stress situation [4]. In that study, it also stated that the range of 0.2 to 0.3 was to be considered conservative. In this study, a probability of 0.2 per demand² [3] is assumed to account for human error in which operators fail to rectify the problem before any hazard event occurs.

Fire Fighting System Failure

Water Spray System Failure

3.3.71 A generic failure rate of 1.5 x 10⁻² per demand [1] is adopted to account for the common problems of the water spray system: blocked nozzles and malfunction of the fire detectors.

Failure of Fire Services

3.3.72 It is assumed that the Fire Services are always operational and zero probability is therefore applied for the failure of "Fire Services arrive late". A generic failure rate of 0.5 per demand [1] is assumed for the Fire Services to be ineffective against a fire attack.

Gas Detection System

3.3.73 The system is identified as an additional safety device for the operator to take emergency actions when LPG release occurs. Since the system would not induce additional likelihood of failure events, the system would not be included into the fault tree analysis.

Chartek Coating Failure

- 3.3.74 A generic failure rate of 0.1 per demand [1] is applied for Chartek coating fails to prevent hot spot on road tanker in a jet fire attack due to poor maintenance.
- 3.3.75 The above initialising events could result in LPG release scenarios. **Table 3.2** summarises the identified LPG release scenarios.

Table 3.2Summary of Identified Failure Cases and Their Associated Failure Rates
for the LPG Filling Station

Failure Cases	Failure Rates	Reference Source		
Spontaneous Failure of Pressurized LPG Equipment				
Catastrophic Failure of Storage Vessel	1.8×10 ⁻⁷ per vessel year	Reference [1]		
Partial Failure of Storage Vessel	5.0×10 ⁻⁶ per vessel year	Reference [1]		
Catastrophic Failure of Road Tanker	2.0×10 ⁻⁶ per tanker year	Reference [1]		
Partial Failure of Road Tanker	5.0×10 ⁻⁶ per tanker year	Reference [1]		
Guillotine Failure of Pipework	1.0×10 ⁻⁶ per meter per year	Reference [1]		
Hose Failure	9.0×10 ⁻⁸ per hour	Reference [1]		
Dispenser Failure	4.38×10 ⁻² per year	Sections 3.3.46 – 3.3.47		
Vapour Return Line Failure	1.0×10 ⁻⁶ per meter per year	Reference [1]		
Release from Storage Vessel Pump Flange	1.09×10 ⁻⁴ per year	Reference [8]		
Release from Storage Vessel Drain	2.0×10 ⁻⁵ per operation	Reference [4]		

² According to the EIA study "Proposed Headquarters and Bus Maintenance Depot in Chai Wan" (BDEIA), by Ling Chan + Partners Limited. (2001)", a probability of 0.2 is assumed for human error. Moreover, from Appendix III of Reactor Safety Study prepared by US Nuclear Regulatory Commission in 1975, an estimation of average error rate of 0.2 to 0.3 was assumed for nuclear power plant personnel in a high-stress situation. In that study, it also stated that the range of 0.2 to 0.3 was to be considered conservative. In this study, a probability of 0.2 (per demand) was assumed to account for human error which operators fail to rectify the problem before any hazard event occurs.

Failure Cases	Failure Rates	Reference Source	
Valve			
External Event			
Earthquake (MMI VIII)	1.0×10⁻⁵ per year	Reference [3]	
Aircraft Crash	2.10×10 ⁻⁹ per year	Appendix D	
LPG Loading Failure			
Hose Misconnection Failure	3.0×10 ⁻⁵ per operation	Reference [1]	
Hose Disconnection Failure	2.0×10 ⁻⁶ per operation	Reference [1]	
Tanker Drive-away Error	4.0×10 ⁻⁶ per operation	Reference [1]	
Road Tanker Collision	1.5×10 ⁻⁴ per operation	Reference [1]	
Vehicle Impact into Tanker During Unloading	1.0×10 ⁻⁸ per operation	Reference [1]	
Storage Vessel Overfilling	2.0×10 ⁻² per operation	Reference [1]	
Safety Features Failure			
Pressure Relief Valve Failure	1×10 ⁻⁴ per demand	Reference [1] based on ESD system	
Non-return Valve Failure	0.013 per demand	Reference [1]	
Excess Flow Valve Failure	0.013 per demand for tanker 0.13 per demand for vessel	Reference [1]	
Emergency Shutdown System Failure	1.0×10 ⁻⁴ per demand	Reference [1]	
Breakaway Coupling Failure	0.013 per demand for tanker, 0.13 per demand for dispenser	Reference [1]	
Double-check Filler Valve Failure	2.6×10 ⁻³ per demand	Reference [1]	
Human Error	0.2 per demand	Reference [4]	
Fire Protection / Fighting System Failure			
Water Spray System Failure	1.5×10 ⁻² per demand	Reference [1]	
Failure of Fire Services	0.5 per demand	Reference [1]	
Chartek Coating Failure	0.1	Reference [1]	

Escalation

- 3.3.76 Escalation refers to a relatively insignificant accident causes an event with much more significance to occur. As the LPG filling facilities is located beside petrol/diesel filling facilities within the station, hazards in the petrol filling facilities that may lead to escalation are considered in this study.
- 3.3.77 Typical hazards that could lead to escalation are:
 - (a) Shrapnels from LPG storage vessel impacting on an LPG road tanker;
 - (b) Fire at the filling facilities, such as leakage of petrol through pipelines and dispensers as well as vehicle fire, engulfing an LPG road tanker and causing BLEVE; and
 - (c) Ignited leak from above ground LPG facilities (jetfire) impinging an LPG road tanker and causing BLEVE.
- 3.3.78 As storage vessel is installed underground, the knock-on failures on this equipment from an accident are unlikely to occur. Therefore, knock-on failures on storage are not further considered.
- 3.3.79 When a LPG road tanker is impacted by the shrapnels from LPG storage vessels (i.e. catastrophic rupture of vessels occurs), this is already a severe event and no knock-on events significantly worse have been identified.

BLEVE of LPG Road Tanker Caused by Liquid Fuel Pool Fire

- 3.3.80 For a pool fire leading to BLEVE of LPG road tanker, the factors needed to be considered are as follows:
 - (a) Frequency of fire incidents occurring in petrol / LPG Filling Station
 - (b) The proportion of fire incidents severe enough to endanger the road tanker
 - (c) The portion of time for tanker present in the LPG Filling Station
 - (d) Failure to prevent BLEVE from occurring
- 3.3.81 The calculation of probability of road tanker BLEVE is shown in **Appendix E**. The frequency/proportion used in the first two factors is described below.

Frequency of Fire Incidents Occurring in Petrol / LPG Filling Stations

3.3.82 The frequency is estimated by the equation:

Number of fire incidents occurred / number of petrol filling station-year

- 3.3.83 Information on the number of fire incidents occurred is provided by Hong Kong Fire Services Department (**Appendix G**). According to the record, there were 23 fire incidents occurred in petrol filling stations from year 1995 to 2011. Until year 2007, there were 189 commercial petrol filling stations in Hong Kong; at year 2011, there were 187 commercial petrol filling stations. By assuming the number of petrol filling stations remaining stable from 1995 to 2007 and from 2007 to 2011, it is estimated that the frequency of fire incidents = 23 fire incidents / (189 x 13 + 187 x 4 petrol filling station-year) = 7.18 x 10⁻³ fire incident per petrol filling station-year.
- 3.3.84 It should be noted that it is a conservative estimate because non-commercial petrol filing stations are not considered.

The Proportion of Fire Incidents Severe Enough to Endanger the Road Tanker

- 3.3.85 Not all the fire incidents recorded/occurred in petrol filling stations will endanger the road tanker. There is a portion of recorded fire incidents could be false alarm which leads to overestimate of the fire incident frequency. Moreover, a fire leading to BLEVE of road tanker needs to be sufficiently long period (i.e. 30 minutes). A prolonged pool fire engulfing the road tanker can only sustain with enough flammable source. However, most of the fire incidents occurred is small in scale such as fire caused by smoking, small fire in the office of petrol filling station, fire due to small leakage of liquid fuel etc. Therefore, a proportion of 1 in 100 is assumed for severe fire incidents.
- 3.3.86 By considering the 4 factors mentioned above, the calculated frequency of a fire incident in petrol filling station causing BLEVE of LPG road tanker is 5.61 x 10⁻⁹ per year for 9-tonne LPG delivery.

BLEVE of LPG Road Tanker Caused by Jetfire from Above Ground LPG Facilities

- 3.3.87 For a jetfire leading to BLEVE of LPG road tanker, a number of factors are needed to be considered, as follows:
 - (a) Frequency of LPG leak from above ground LPG facilities last for at least 30 minutes
 - (b) Immediate ignition probability of LPG leak from above ground LPG facilities which causes a jetfire
 - (c) The portion of jetfire impinging at road tanker
 - (d) The portion of time for road tanker present in the LPG filling station
 - (e) Failure to prevent BLEVE from occurring
- 3.3.88 The calculation of probability of road tanker BLEVE is shown in **Appendix E**. The elaboration of the first three factors is provided below.

Frequency of LPG Leak from Aboveground LPG Facilities Lasting for at Least 30 Minutes

3.3.89 It is conservatively assumed that the inventory in the storage vessel at maximum inventory or 60% of maximum inventory is enough to support a 30-minute leakage. Therefore, the frequencies of aboveground LPG facilities failure shown in **Appendix E** are applied to the frequencies of LPG leak lasting for at least 30 minutes.

Immediate Ignition Probability of LPG Leak from Aboveground LPG Facilities

3.3.90 Immediate ignition of LPG release from aboveground LPG facilities will cause a jetfire. A probability of 0.05 is adopted in **Appendix F** for immediate ignition of LPG leak from aboveground LPG facilities.

The Portion of Jetfire Impinging at Road Tanker On Site

- 3.3.91 Not all the ignited jetfire from aboveground LPG facilities will impinge into the LPG road tanker. Jetfire due to LPG release from aboveground LPG facilities may impinge into other objects or burn as a free jet. A probability of 0.1 is assumed for the jetfire from most of the aboveground LPG facilities impinge into LPG road tanker on site by considering the relative angular position of the LPG road tanker to LPG facilities such as dispensers. For jetfire caused by liquid supply line between from road tanker and loading hose, probability of 0.5 is assumed.
- 3.3.92 By considering the 5 factors mentioned above, the calculated frequency of a jetfire from aboveground LPG facilities causing BLEVE of LPG road tanker is 1.27 x 10⁻⁹ per year for 9-tonne LPG delivery.

4 HAZARD OCCURRENCE

4.1 Introduction

- 4.1.1 Subsequent to the Hazard Identification and Analysis in previous section, the next step will be to estimate the likelihoods of various release scenarios. There are combinations of hazard initiating events, as identified in previous section, which would lead to release scenarios.
- 4.1.2 Fault Tree Analysis (FTA) permits the hazardous incident ("Significant Failure Events") frequency to be estimated from a logical model of the failure mechanisms of a system. The model is based on the combinations of failures of more basic components, safety systems and human errors. Station-specific circumstances (e.g. number of LPG tanker visit) are taken into account in the FTA.
- 4.1.3 FTA is the use of a combination of simple logic gates, "AND" and "OR" gates, to synthesize a failure model of the hazardous installation. The "Significant Failure Events" frequency is calculated from failure data of more simple events.
- 4.1.4 A basic assumption in FTA is that all failures in a system are binary in nature, a component or operator either performs successfully or fails completely. In addition, the system is assumed to be functioning if all sub-components are operating properly.
- 4.1.5 The stepwise procedure for undertaking FTA is presented below:
 - (a) Hazard identification and selection of the "Significant Failure Events", where the "Significant Failure Events" are considered as significant LPG release cases.
 - (b) Construction of fault tree
 - (c) Quantitative evaluation of the fault tree
- 4.1.6 The inventory in LPG storage vessel and road tanker during unloading varies with time. It is assumed that the inventories are full (100% maximum capacity of vessel) in the risk model at 30% of time and there are nominal 70% inventory in vessel at 80% of time; while the inventory in road tanker is full (100% maximum capacity of tanker) in the risk model at 30% of time and there are nominal 50% inventory in road tanker at 70% of time.

4.2 Frequency of Occurrence

4.2.1 Sets of fault tree diagrams are attached in **Appendix E**. The estimated likelihoods of various releases of LPG at the existing LPG Filling Station are summarized in **Table 4.1**.

Table 4.1 Estimated Occurrence Frequency of Significant LPG Releases

Release Case	Frequency of Occurrence/ Year
Catastrophic Failure of a Storage Vessel (Full Inventory)	7.34E-08
Catastrophic Failure of a Storage Vessel (60% Inventory)	1.71E-07
Catastrophic Failure of Road Tanker (Full Inventory)	6.28E-08
Catastrophic Failure of Road Tanker (50% Inventory)	1.46E-07
Partial Failure of a Storage Vessel (Full Inventory)	1.52E-06
Partial Failure of a Storage Vessel (60% Inventory)	3.55E-06
Partial Failure of Road Tanker (Full Inventory)	1.58E-07
Partial Failure of Road Tanker (50% Inventory)	3.69E-07

Guillotine Failure of Liquid Filling Line to Storage Vessel – release from vessel (Full Inventory in Storage Vessel)	1.83E-11
Guillotine Failure of Liquid Filling Line to Storage Vessel – release from vessel (60% Inventory in Storage Vessel)	4.28E-11
Guillotine Failure of Liquid Filling Line to Storage Vessel – release from road tanker (Full Inventory in Road Tanker)	1.91E-12
Guillotine Failure of Liquid Filling Line to Storage Vessel – release from road tanker (50% Inventory in Road Tanker)	4.46E-12
Guillotine Failure of Liquid Filling Line to Dispenser (Full Inventory in Storage Vessel)	1.39E-07
Guillotine Failure of Liquid Filling Line to Dispenser (60% Inventory in Storage Vessel)	3.24E-07
Failure of Dispenser (Full Inventory in Storage Vessel)	3.71E-04
Failure of Dispenser (60% Inventory in Storage Vessel)	8.65E-04
Guillotine Failure of Hose during Unloading from Road Tanker to Storage Vessel, LPG Released from Tanker (Full Inventory in tanker)	9.32E-07
Guillotine Failure of Hose during Unloading from Road Tanker to Storage Vessel, LPG Released from Tanker (50% Inventory in tanker)	2.18E-06
Guillotine Failure of Hose during Unloading from Road Tanker to Storage Vessel, LPG Released from Vessel (Full Inventory in vessel)	2.42E-09
Guillotine Failure of Hose during Unloading from Road Tanker to Storage Vessel, LPG Released from Vessel (60% Inventory in vessel)	5.66E-09
Failure of Flexible Hose during Loading to LPG vehicles, LPG Released from Dispenser (Full Inventory in Storage Vessel)	7.38E-02
Failure of Flexible Hose during Loading to LPG vehicles, LPG Released from Dispenser (60% Inventory in Storage Vessel)	1.72E-01
Failure of Flexible Hose during Loading to LPG vehicles, LPG Released from vehicle (Full Inventory in Vehicle)	4.92E-01
Release from Storage Vessel Pump Flange (Full Inventory in Storage Vessel)	1.31E-04
Release from Storage Vessel Pump Flange (60% Inventory in Storage Vessel)	3.05E-04
Release from Storage Vessel Drain Valve (Full Inventory in Storage Vessel)	7.20E-05
Release from Storage Vessel Drain Valve (60% Inventory in Storage Vessel)	1.68E-04
Failure of Vapour Return Line (Full Inventory in Storage Vessel)	1.79E-07
Failure of Vapour Return Line (60% Inventory in Storage Vessel)	4.17E-07
Guillotine Failure of Liquid Line from Tanker to Flexible Hose (full inventory in Road Tanker)	2.41E-09

Guillotine Failure of Liquid Line from Tanker to Flexible Hose (50% inventory in Road Tanker)	5.63E-09
BLEVE of Road Tanker (Full Inventory in Road Tanker)	2.06E-09
BLEVE of Road Tanker (50% Inventory in Road Tanker)	4.81E-09
5 CONSEQUENCES AND IMPACT ANALYSIS

5.1 Introduction

5.1.1 Consequence and impact analysis is conducted to provide a quantitative estimate of the likelihood and number of deaths associated with the range of possible outcomes (i.e. fireball, jet fire, flash fire etc) which are resulted from failure cases identified in previous sections for the LPG Filling Station. In this study, PhastRisk 6.7, upgraded version of DNV SAFETI, is used.

5.2 Modelling Input

- 5.2.1 The LPG Station failure events identified in previous sections have been considered and evaluated through consequence analysis. Taking into account the safeguard measures, layout plan of the LPG Filling Station and effect distances of failure events, some failure events would have insignificant off-site impact. Those failure events having potential off-site impact are listed as follows:
 - (a) Rupture of storage vessel
 - (b) Rupture of road tanker
 - (c) Partial failure of storage vessel
 - (d) Partial failure of road tanker
 - (e) Guillotine failure of liquid filling line to storage vessel
 - (f) Pump flange leak
 - (g) BLEVE of road tanker
- 5.2.2 There is one underground vessel with water capacity of 21kL at the LPG Filling Station. Therefore, maximum inventory for the LPG storage vessel is assumed 10 tonnes in this study. Replenishment of LPG is assumed to be 2 deliveries per day, and the replenishment is assumed to be arranged at day-time for risk modelling purpose according to the information provided by Feoso.

5.3 Ignition Source

5.3.1 In order to calculate the risk from flammable materials, information on ignition sources present in the study area needs to be identified. Such data is included in the risk model for each type of ignition source (i.e. point sources, line sources and area sources). The risk calculation program (MPACT) will then predict the probability of a flammable cloud being ignited (delayed ignition) as the cloud moves downwind over ignition sources.

Point Sources

- 5.3.2 According to HSE (1997) [5], compressors could be categorised as a strong ignition source with ignition probability greater than 0.5 but smaller than 1. Although a vehicle using the LPG Station is close to a release source, it is classified as a weak ignition source with ignition probability between 0.05 and 0.5. Therefore, the following assumptions are applied to estimate the presence factor of the point source and the ignition probability.
 - (a) Probability of ignition for a compressor is taken as 0.75 in 60 seconds
 - (b) Presence factor of the ignition source is assumed to be 1.

Line Sources

5.3.3 Roads are defined as line sources in PhastRisk. The following assumptions are applied to estimate the presence factor of the line source and the ignition probability:

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- (a) Probability of ignition for a vehicle is taken as 0.4 in 60 seconds
- (b) Traffic density is based on the projected traffic flow as shown **Table 2.2**.
- 5.3.4 Ignition line sources are summarized in **Table 5.1** to **Table 5.2**.

Line Source	Daytime Traffic Density (veh/ hr)	Night-time Traffic Density (veh/ hr)	Average Traffic Speed (km / hr)		
Wing Tai Road	900	302	50		
Chai Wan Road	1850	620	50		
Ka Yip Street	600	201	50		
Sheung On Street	1080	362	50		
Fung Yip Street	540	181	50		
Kwun Yip Street	8	3	50		
On Yip Street	270	90	50		

Table 5.1 Summary of Line Ignition Source for Current Scenario (Year 2016)

Table 5.2	Summary of Line Ignition Source for Future Scenario ((Year 2023)
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Line Source	Daytime Traffic Density (veh/ hr)	Night-time Traffic Density (veh/ hr)	Average Traffic Speed (km / hr)
Wing Tai Road	965	323	50
Chai Wan Road	2023	678	50
Ka Yip Street	643	216	50
Sheung On Street	1158	388	50
Fung Yip Street	579	194	50
Kwun Yip Street	9	3	50
On Yip Street	289	97	50

Area Source

5.3.5 PhastRisk considers residential population as an ignition source (such as cooking, smoking, heating appliances etc.). The ignition probability is derived from population densities in the concerned area by the software.

5.4 Ignition Probability

5.4.1 Immediate ignition probabilities of 0.9 and 0.05 [1] are adopted for instantaneous release and continuous release of LPG respectively. These ignition probabilities are applied to event trees which are adopted in PhastRisk as shown in **Appendix F**. Input parameters of PhastRisk are shown in **Appendix H**.

5.5 Population Input

- 5.5.1 With reference to previous practice with SAFETI in Hong Kong, population at locations listed in **Table 2.1** are applied to the risk model and described in the following.
- 5.5.2 Cloud height decreases further away from the source. Most dispersed clouds for LPG will have a cloud height lower than 10m [1]. As a result, only the population of the lowest 2 storeys (including ground level) are being affected. The actual population affected by release events is dependent on gas dispersion results in PhastRisk. Therefore, consequence modelling results

for the worst instantaneous and continuous releases are examined to determine the height protection factors.

- 5.5.3 Shielding protection factors for fireball events are applied to the population surrounding the LPG Filling Station [1]. For building wholly within the fireball diameter, population at the back of the building are considered protected. For building wholly outside the fireball diameter, population without direct line of sight of the LPG facilities are considered protected. The actual population affected by fireball events are also detailed in **Appendix B**.
- 5.5.4 To allow flexible of building design of the proposed development, no height protection factor and shielding factor are applied for the proposed residential building as a conservative approach.

6 RISK EVALUATION

6.1 Introduction

- 6.1.1 In this section, the risks arising from the LPG Filling Station are evaluated in terms of both individual and societal risks.
- 6.1.2 Individual risk is a measure of the risk to a chosen individual at a particular location. As such, this is evaluated by summing the contributions to that risk across a spectrum of incidents which could occur at a particular location.
- 6.1.3 Societal risk is a measure of the overall impact of an activity upon the surrounding community. As such, the likelihoods and consequences of the range of incidents postulated for that particular activity are combined to create a cumulative picture of the spectrum of the possible consequences and their frequencies. This is usually presented as an fN curve and the acceptability of the results can be judged against the societal risk criterion under the risk guidelines.

6.2 Individual Risk

- 6.2.1 The associated individual risk levels are shown in **Figure 4**. Five levels of risk area shown are 1×10⁻⁵, 1×10⁻⁶, 1×10⁻⁷, 1×10⁻⁸ and 1×10⁻⁹ per year. The risk level is based on 100% occupancy with no allowance made for shelter or escape, which can be referred from the user manual of PhastRisk.
- 6.2.2 The 1×10⁻⁵, 1×10⁻⁶, 1×10⁻⁷, 1×10⁻⁸ and 1×10⁻⁹ per year contours extend 9m, 24m, 43m, 71m and 125m from the LPG Filling Station, respectively. The 1×10⁻⁵ per year risk contour lies within the boundary of the LPG Filling Station. Therefore, no individual would be exposed under risk level greater than 1×10⁻⁵ per year offsite of the LPG Filling Station.

Acceptability

6.2.3 On this basis, it would appear that the level of individual risk associated with the LPG Filling Station and individual risk imposed to the proposed development should be acceptable since it meets the Government Risk Guidelines.

6.3 Societal Risk

- 6.3.1 The societal risks are evaluated for the range of incidents with the potential for fatalities in the vicinity of the LPG Filling Station and are shown in **Figure 5** (Existing Scenario) and **Figure 6** (Future Scenario). The societal risk is more complex than that for individual risk but, in essence, comprises three regions:
 - (a) Unacceptable a region within which the risks may be regarded as unacceptable
 - (b) Acceptable a region within which the risks may be regarded as acceptable
 - (c) ALARP a region between the two in which measures should be taken to demonstrate the risks as "as low as reasonably practicable" (ALARP). In other words, consideration is given not only to the level of risk but also the cost and practicality of reducing it
- 6.3.2 Numerically, the upper bound of the ALARP region (and hence the borderline of "unacceptability") can be summarised as:
 - (a) 1 chance in 1,000 per year of an incident resulting in 1 or more fatalities;
 - (b) 1 chance in 10,000 per year of an incident resulting in 10 or more fatalities;
 - (c) 1 chance in 100,000 per year of an incident resulting in 100 or more fatalities; and
 - (d) not more than 1,000 fatalities at a frequency of greater than 1 chance in a billion (1,000,000,000) per year.

Acceptability

6.3.3 As shown in **Figure 5** and **Figure 6**, the societal risk associated with the operation of the LPG Filling Station falls in the "Acceptable" region in both Existing Scenario and Future Scenario. Therefore, the associated societal risk is considered acceptable. Data points for the Future Scenario are tabulated in **Table 6.1**.

No. Fatalities	Frequency (/year)	No. Fatalities	Frequency (/year)	No. Fatalities	Frequency (/year)
1	1.94E-06	15	2.10E-07	120	6.90E-09
2	3.32E-07	20	2.05E-07	150	6.87E-09
3	2.54E-07	25	2.03E-07	200	6.87E-09
4	2.45E-07	30	2.01E-07	250	6.49E-09
5	2.37E-07	40	6.78E-08	300	2.06E-09
6	2.32E-07	50	6.64E-08	400	2.06E-09
8	2.25E-07	60	6.53E-08	500	2.06E-09
10	2.18E-07	80	7.59E-09	600	2.06E-09
12	2.14E-07	100	6.98E-09	800	2.06E-09

 Table 6.1
 Societal Risk Data of the LPG Filling Station (Future Scenario)

6.4 Potential Loss of Life (PLL)

6.4.1 The total PLL and top 5 most significant contributing events for the modelled case at Year 2023 for the LPG Filling Station are tabulated in **Table 6.2**. Based on the modelling results, LPG road tanker rupture is the main contributor to the overall risk.

Table 6.2	Breakdown of PLL for the LPG Filling Station (Future Scenario)
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Event Description	Potential Loss of Life (PLL) / per year	% of Total PLL
Road Tanker Rupture - 9t delivery (50% of inventory)	4.40E-06	31.5
Road Tanker Rupture - 9t delivery (100% of inventory)	4.25E-06	30.5
BLEVE of Road Tanker (100% of inventory)	1.73E-06	12.4
BLEVE of Road Tanker (500% of inventory)	1.21E-06	8.6
Pump Flange Leak (60% of inventory)	9.70E-07	7.0
Others	1.39E-06	10.0
Total	1.39E-05	100

7 CONCLUSIONS

7.1 General

- 7.1.1 A full quantitative risk assessment has been carried out for the proposed development near the LPG Filling Station at Fung Yip Street, Chai Wan. The assessment is based on information collected from Hong Kong Observatory, Planning Department, Transport Department and site visits made by the Consultant.
- 7.1.2 The predicted individual risks for the LPG Filling Station comply with the Hong Kong Risk Guidelines as stipulated in HKPSG. The predicted societal risks for the LPG Filling Station, taking into account the proposed development, are considered acceptable by satisfying the following criteria,
 - (a) The 1 x 10^{-5} per year contour for individual risk is confined within the boundary of the LPG Filling Station. Therefore, no offsite population is subject to the individual risk exceeding 1 x 10^{-5} per year;
 - (b) Societal risk for the LPG Filling Station falls into the "Acceptable" region.
- 7.1.3 Therefore, results of this assessment support that the proposed development would not result in unacceptable risks to the overall population around the LPG Filling Station.

7.2 Recommendations

7.2.1 As shown in previous sections, the level of individual and societal risks for the LPG Filling Station is acceptable on risk grounds based on the information and data available at the time of preparing this report. The future land uses, particularly with significant population increase comparing with those assumed in this assessment, in the vicinity of the LPG Filling Station should be carefully assessed to ensure the risk levels to any new population are acceptable. QRA is recommended for developments in the Study Area with significant change in population or significant increase in LPG throughput at the LPG Filling Station.

8 REFERENCES

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FIGURES



Figure 1



SITE LOCATION PLAN





SURROUNDING POPULATION GROUPS





INDIVIDUAL RISK CONTOURS FOR LPG FILLING STATION





FN CURVE FOR LPG FILLING STATION (EXISTING SCENARIO)





FN CURVE FOR LPG FILLING STATION (FUTURE STAGE)

APPENDIX A

Layout Plan of the Proposed Development







KEY PLAN SCALE 1:2000(A3)





APPENDIX B

Population Data

ID	Description	No. of	Popu	lation	Indoor	% occupancy			Exisiting (Year 2016)				Future (Year 2023)				
	·	Storeys	Maximum	Maximum	ratio				Population				Population				
		,	Population	Population													
				·													
										1							
						Wee	kdav	Wee	kend	Wee	kdav	Wee	kend	Wee	kdav	Wee	kend
			Existina -	Future - Yr													
			Yr 2016	2023		Day	Night	Day	Night	Day	Night	Day	Night	Day	Night	Day	Night
1	Project Site	1	0	2200	0.95	50%	100%	70%	100%	0	0	0	0	1100	2200	1540	2200
2	S.K.H. Chai Wan Saint Michael's Primary School	6	1050	1050	0.95	100%	0%	55%	0%	1050	0	578	0	1050	0	578	0
3	San Ha Street Sitting-out Area	1	5	5	0	100%	10%	100%	10%	5	1	5	1	5	1	5	1
4	Sun Tak House	27	345	345	0.95	50%	100%	70%	100%	172	345	241	345	172	345	241	345
5	Artland Court	16	510	510	0.95	50%	100%	70%	100%	255	510	357	510	255	510	357	510
6	Artview Court	15	479	479	0.95	50%	100%	70%	100%	240	479	335	479	240	479	335	479
7	Fu On Court	14	268	268	0.95	50%	100%	70%	100%	134	268	188	268	134	268	188	268
8	Fu Ming Court	12	230	230	0.95	50%	100%	70%	100%	115	230	161	230	115	230	161	230
9	Fu Shing Court	14	357	357	0.95	50%	100%	70%	100%	179	357	250	357	179	357	250	357
10	Wah Yu Court	12	383	383	0.95	50%	100%	70%	100%	191	383	268	383	191	383	268	383
11	Bus Terminus	1	20	0	0	100%	20%	100%	20%	20	4	20	4	0	0	0	0
12	China Motor Bus Company Limited	4	43	0	0.95	100%	0%	50%	0%	43	0	22	0	0	0	0	0
11+12	Proposed Comprehensive Residential Development		0	4060										-			
	- Residential Blocks	Note 1	0	4000	0.95	50%	100%	70%	100%	0	0	0	0	2000	4000	2800	4000
	- Public Transport Terminus	1	0	20	0.95	100%	20%	100%	20%	0	0	0	0	20	4	20	4
	- Open Space	1	0	40	0	100%	10%	100%	10%	0	0	0	0	40	4	40	4
13	Sunview Industrial Building	15	1317	1317	0.95	100%	0%	50%	0%	1317	0	659	0	1317	0	659	0
14	Cheung Yick Industrial Building & Hop Ming Factory	15	985	985	0.95	100%	0%	50%	0%	985	0	493	0	985	0	493	0
	Building																
15	Vacant Land	1	0	20	0.5	100%	0%	50%	0%	0	0	0	0	20	0	10	0
16	ECO dedicated LPG Filling Station	1	15	15	0	100%	100%	100%	100%	15	15	15	15	15	15	15	15
17	Wah Shing Centre	14	861	861	0.95	100%	0%	50%	0%	861	0	431	0	861	0	431	0
18	Reality Tower	15	422	422	0.95	100%	0%	50%	0%	422	0	211	0	422	0	211	0
19	Kailey Industrial Centre	18	1586	1586	0.95	100%	0%	50%	0%	1586	0	793	0	1586	0	793	0
20	Yip Cheung Centre	15	572	572	0.95	100%	0%	50%	0%	572	0	286	0	572	0	286	0
21	Asia One Tower	15	367	367	0.95	100%	0%	50%	0%	367	0	184	0	367	0	184	0
22	Gee Wing Chang Industrial Building & Gee Tung	15	1055	1055	0.95	100%	0%	50%	0%	1055	0	528	0	1055	0	528	0
	Chang Industrial Building														-		
23	Federal Centre	15	422	422	0.95	100%	0%	50%	0%	422	0	211	0	422	0	211	0
24	Yiko Industrial Building	15	548	548	0.95	100%	0%	50%	0%	548	0	274	0	548	0	274	0
25	Paramount Building	15	1472	1472	0.95	100%	0%	50%	0%	1472	0	736	0	1472	0	736	0
26	Ming Pao Industrial Centre Block B	15	1133	1133	0.95	100%	0%	50%	0%	1133	0	567	0	1133	0	567	0
27	Sheung On Street Playground	1	50	50	0	100%	10%	100%	10%	50	5	50	5	50	5	50	5
28	Sheung On Driving Test Centre	1	20	20	0	100%	50%	100%	50%	20	10	20	10	20	10	20	10
29	RCP	1	2	2	0	100%	100%	100%	100%	2	2	2	2	2	2	2	2
30	Chai Wan Fire Station	3	43	43	0.95	100%	50%	100%	50%	43	22	43	22	43	22	43	22
31	Cornell Centre	20	1149	1149	0.95	100%	0%	50%	0%	1149	0	575	0	1149	0	575	0
32	Feoso Petrol cum LPG Filling Station	1	5	5	0	100%	100%	100%	100%	5	5	5	5	5	5	5	5
33	Chai Wan Public Cargo Working Area	1	50	50	0	100%	10%	100%	10%	50	5	50	5	50	5	50	5
34	Yue On House	6	761	761	0.95	50%	100%	70%	100%	381	761	533	761	381	761	533	761
35	The Evangelical Lutheran Church of Hong Kong Faith	6	390	390	0.95	100%	0%	55%	0%	390	0	215	0	390	0	215	0
	Love Lutheran School																
36	Caritas Chai Wan Marden Foundation Secondary		673	673	0.95	100%	0%	55%	0%	673	0	370	0	673	0	370	0
	School																
37	Precious Blood Secondary School	6	899	899	0.95	100%	0%	55%	0%	899	0	494	0	899	0	494	0
38	Summit Industrial Building	15	1593	1593	0.95	100%	0%	50%	0%	1593	0	797	0	1593	0	797	0
R1	Wing Tai Road	1	14	15	0	-	-	-	-	14	5	14	5	15	5	15	5
R2	Chai Wan Road	1	81	89	0	-	-	-	-	81	27	81	27	89	30	89	30
R3	Ka Yip Street	1	16	17	0	-	-	-	-	16	5	16	5	17	6	17	6
R4	Sheung On Street	1	32	34	0	-	-	-	-	32	11	32	11	34	11	34	11
R5	Fung Yip Street	1	12	13	0	-	-	-	-	12	4	12	4	13	4	13	4
R6	Kwun Yip Street	1	0	0	0	-	-	-	-	0	0	0	0	0	0	0	0
R7	On Yip Street	1	5	5	0	-	-	-	-	5	2	5	2	5	2	5	2
			•														

Note 1: The residential blocks will be located above a podium which is over 10m, hence population in the residential blocks will be protected from flash fire and jet fire.

ID	Description	Shielding Factor		Year 2	016_FB		Protection Factor	Year 2016_FF,JF			
			Weel	kday	Wee	kend		Weekday		Weel	kend
			Day	Night	Day	Night		Day	Night	Day	Night
1	Project Site	0.00	0	0	0	0	0.00	0	0	0	0
2	S.K.H. Chai Wan Saint Michael's Primary School	0.50	525	0	289	0	0.50	525	0	289	0
3	San Ha Street Sitting-out Area	0.00	5	1	5	1	0.00	5	1	5	1
4	Sun Tak House	0.50	86	172	121	172	0.89	19	38	27	38
5	Artland Court	0.50	128	255	179	255	0.81	48	96	67	96
6	Artview Court	0.50	120	240	168	240	0.80	48	96	67	96
/	Fu On Court	0.50	6/	134	94	134	0.79	29	57	40	57
0	Fu Shing Court	0.50	90	170	125	170	0.75	29	- 30 - 77	40	77
10	Wab Yu Court	0.50	96	101	123	101	0.75	48	96	67	96
10	Bus Terminus	0.00	20	4	20	4	0.00	20	4	20	4
12	China Motor Bus Company Limited	0.00	43	0	22	0	0.25	32	0	16	0
11+12	Proposed Comprehensive Residential Development										
	- Residential Blocks	0.50	0	0	0	0	1.00	0	0	0	0
	- Public Transport Terminus	0.00	0	0	0	0	0.00	0	0	0	0
	- Open Space	0.00	0	0	0	0	0.00	0	0	0	0
13	Sunview Industrial Building	0.50	659	0	329	0	0.80	263	0	132	0
14	Cheung Yick Industrial Building & Hop Ming Factory Building	0.50	493	0	246	0	0.80	197	0	99	0
15	Vacant Land	0.00	0	0	0	0	0.00	0	0	0	0
16	ECO dedicated LPG Filling Station	0.00	15	15	15	15	0.00	15	15	15	15
17	Wan Shing Centre	0.50	431	0	215	0	0.79	185	0	92	0
18	Reality Tower	1.00	0	0	0	0	0.80	84	0	42	0
20	Vin Cheung Centre	0.50	286	0	143	0	0.83	204	0	57	0
20		0.50	184	0	92	0	0.80	73	0	37	0
22	Gee Wing Chang Industrial Building & Gee Tung Chang Industrial Building	0.50	528	0	264	0	0.80	211	0	106	0
23	Federal Centre	1.00	0	0	0	0	0.80	84	0	42	0
24	Yiko Industrial Building	1.00	0	0	0	0	0.80	110	0	55	0
25	Paramount Building	1.00	0	0	0	0	0.80	294	0	147	0
26	Ming Pao Industrial Centre Block B	1.00	0	0	0	0	0.80	227	0	113	0
27	Sheung On Street Playground	0.00	50	5	50	5	0.00	50	5	50	5
28	Sheung On Driving Test Centre	0.00	20	10	20	10	0.00	20	10	20	10
29	RCP	0.00	2	2	2	2	0.00	2	2	2	2
30	Chai Wan Fire Station	0.50	22	11	22	11	0.00	43	22	43	22
31	Cornell Centre	0.50	5/5	0	287	0	0.85	172	0	86	0
32	Feoso Petrol cum LPG Filling Station	0.00	5	5	5	5	0.00	5	5	5	5
34	Vue On House	0.00	100	291	266	291	0.00	127	254	179	254
35	The Evangelical Lutheran Church of Hong Kong Faith	0.50	195	0	107	0	0.50	195	0	107	0
36	Caritas Chai Wan Marden Foundation Secondary School	0.50	337	0	185	0	0.50	337	0	185	0
37	Precious Blood Secondary School	0.50	450	0	247	0	0.50	450	0	247	0
38	Summit Industrial Building	0.50	797	0	398	0	0.80	319	0	159	0
R1	Wing Tai Road	0.00	14	5	14	5	0.00	14	5	14	5
R2	Chai Wan Road	0.00	81	27	81	27	0.00	81	27	81	27
R3	Ka Yip Street	0.00	16	5	16	5	0.00	16	5	16	5
R4	Sheung On Street	0.00	32	11	32	11	0.00	32	11	32	11
R5	Fung Yip Street	0.00	12	4	12	4	0.00	12	4	12	4
R6	Kwun Yip Street	0.00	0	0	0	0	0.00	0	0	0	0
R7	On Yip Street	0.00	5	2	5	2	0.00	5	2	5	2

ID	Description	Shielding Factor		Year 20	023_FB		Protection Factor	Year 2023_FF,JF				
			Weekday		Weekend			Weekday		Wee	rend	
			Day	Night	Day	Night		Day	Night	Day	Night	
1	Project Site	0.00	1100	2200	1540	2200	0.00	1100	2200	1540	2200	
2	S.K.H. Chai Wan Saint Michael's Primary School	0.50	525	0	289	0	0.50	525	0	289	0	
3	San Ha Street Sitting-out Area	0.00	5	1	5	1	0.00	5	1	5	1	
4	Sun Tak House	0.50	86	172	121	172	0.89	19	38	27	38	
5	Artland Court	0.50	128	255	179	255	0.81	48	96	67	96	
6	Artview Court	0.50	120	240	168	240	0.80	48	96	67	96	
7	Fu On Court	0.50	67	134	94	134	0.79	29	57	40	57	
8	Fu Ming Court	0.50	58	115	81	115	0.75	29	58	40	58	
9	Wab Vu Court	0.50	09	101	123	101	0.79	30	06	54	06	
10	Bus Terminus	0.00	90	0	134	0	0.00	40	90	0	90 0	
12	China Motor Bus Company Limited	0.00	0	0	0	0	0.00	0	0	0	0	
11+12	Proposed Comprehensive Residential Development	0.00	0			0	0.20		0		0	
	- Residential Blocks	0.50	1000	2000	1400	2000	1.00	0	0	0	0	
	- Public Transport Terminus	0.00	20	4	20	4	0.00	20	4	20	4	
	- Open Space	0.00	40	4	40	4	0.00	40	4	40	4	
13	Sunview Industrial Building	0.50	659	0	329	0	0.80	263	0	132	0	
14	Cheung Yick Industrial Building & Hop Ming Factory Building	0.50	493	0	246	0	0.80	197	0	99	0	
15	Vacant Land	0.00	20	0	10	0	0.00	20	0	10	0	
16	ECO dedicated LPG Filling Station	0.00	15	15	15	15	0.00	15	15	15	15	
10	Wan Sning Centre	0.50	431	0	215	0	0.79	185	0	92	0	
10	Kailey Industrial Centre	0.50	703	0	307	0	0.80	264	0	42	0	
20	Yin Cheung Centre	0.50	286	0	143	0	0.80	114	0	57	0	
21	Asia One Tower	0.50	184	0	92	0	0.80	73	0	37	0	
22	Gee Wing Chang Industrial Building & Gee Tung Chang Industrial Building	0.50	528	0	264	0	0.80	211	0	106	0	
23	Federal Centre	1.00	0	0	0	0	0.80	84	0	42	0	
24	Yiko Industrial Building	1.00	0	0	0	0	0.80	110	0	55	0	
25	Paramount Building	1.00	0	0	0	0	0.80	294	0	147	0	
26	Ming Pao Industrial Centre Block B	1.00	0	0	0	0	0.80	227	0	113	0	
27	Sheung On Street Playground	0.00	50	5	50	5	0.00	50	5	50	5	
28	Sheung On Driving Test Centre	0.00	20	10	20	10	0.00	20	10	20	10	
29	RCP	0.00	2	2	2	2	0.00	2	2	2	2	
30	Chai Wan Fire Station	0.50	22	11	22	11	0.00	43	22	43	22	
22	Comell Centre	0.50	5/5	U E	287	U E	0.00	1/2 E	0	60 E	U E	
32	Chai, Wan Public Cargo Working Area	0.00	50	5	50	5	0.00	50	5	50	5	
34	Yue On House	0.50	190	381	266	381	0.60	127	254	178	254	
35	The Evangelical Lutheran Church of Hong Kong Faith	0.50	195	0	107	0	0.50	195	0	107	0	
36	Caritas Chai Wan Marden Foundation Secondary School	0.50	337	0	185	0	0.50	337	0	185	0	
37	Precious Blood Secondary School	0.50	450	0	247	0	0.50	450	0	247	0	
38	Summit Industrial Building	0.50	797	0	398	0	0.80	319	0	159	0	
R1	Wing Tai Road	0.00	15	5	15	5	0.00	15	5	15	5	
R2	Chai Wan Road	0.00	89	30	89	30	0.00	89	30	89	30	
R3	Ka Yip Street	0.00	17	6	17	6	0.00	17	6	17	6	
R4	Sheung On Street	0.00	34	11	34	11	0.00	34	11	34	11	
R5	Fung Yip Street	0.00	13	4	13	4	0.00	13	4	13	4	
K6	Kwun Yip Street	0.00	0	0	0	0	0.00	0	0	0	0	
r. /	on np sueet	0.00	Э	2	Э	2	0.00	Э	۷ ک	Э	2	

APPENDIX C

Traffic Data

LINK CHAI WAN RD (from ISLAND EASTERN CORRIDOR APPROACH to TAI TAM RD)

CORE STATION	
ROAD NETWORK	
ROAD TYPE	

1009 MAJOR PRIMARY DISTRIBUTOR



1. TRAFFIC FLOW VARIATION AND GROWTH



2. TRAFFIC CHARACTERISTICS (BY DIRECTION)

Parameter	All - Day	Mon Fri.	Sat.	Sun.
A.A.D.T.	12690	12860	12840	11930
R 12 / 24 - %	67.3	68.3	65	64.2
R 16 / 24 - %	85.5	86.5	83	82.7
AM Peak Hour	0800-0900	0800-0900	0900-1000	0900-1000
One-way flow at AM peak hour	830	930	700	570
T - % (AM)	-	8.7	-	-
PM Peak Hour	1800-1900	1800-1900	1700-1800	1600-1700
One-way flow at PM peak hour	730	740	740	690
T - % (PM)	-	9.9	-	-
Prop.of commercial vehicles - 16 hr.	-	12.6	-	-
NORTH BOUND				
A.A.D.T.	12420	12610	12460	11730
R 12 / 24 - %	72.1	73.4	68.9	67.8
R 16 / 24 - %	87.9	88.6	85.8	85.7
AM Peak Hour	0800-0900	0800-0900	0900-1000	0900-1000
One-way flow at AM peak hour	810	920	660	580
T - % (AM)	-	10.4	-	-
PM Peak Hour	1700-1800	1700-1800	1700-1800	1700-1800
One-way flow at PM peak hour	930	980	850	810
T - % (PM)	-	10.1	-	-
Prop.of commercial vehicles - 16 hr.	-	11.7	-	-

3. OTHER INFORMATION AND COMMENT

Time		Class of vehicle									
		Motor	Private	Taxi	Private	PLB	Good	s veh.	Non	Fr.	Bus
		Cycle	Car		LB		Light	M & H	Fr. Bus	SD	DD
0700-0800	Pro	3.1	27.6	27.9	2.4	11.9	7.8	0.0	8.2	0.5	10.7
	Оср	1.2	1.4	2.0	5.4	10.3	1.2	0.0	18.3	14.0	49.1
0800-0900	Pro	1.6	52.1	21.1	2.0	7.3	6.3	0.8	2.0	0.4	6.4
Peak hour	Оср	1.0	1.2	2.0	3.1	12.9	1.4	2.3	8.8	29.9	42.9
0900-1000	Pro	3.4	39.1	22.6	1.8	8.6	12.5	0.6	2.1	0.4	8.9
	Оср	1.0	1.3	2.1	2.2	9.6	1.5	1.0	17.9	17.8	28.9
1000-1100	Pro	1.8	32.4	27.5	2.4	9.8	13.1	0.3	3.4	0.1	9.2
	Оср	1.0	1.3	2.1	1.8	8.0	1.4	4.0	8.5	18.0	22.4
1100-1200	Pro	2.7	37.8	23.5	1.7	8.5	15.7	0.3	0.3	0.3	9.1
	Ocp	1.0	1.4	2.2	1.6	8.7	1.7	1.0	1.0	12.3	25.6
1200-1300	Pro	2.1	36.7	27.9	4.7	7.0	12.4	0.0	1.3	0.3	7.7
	Ocp	1.1	1.5	1.9	3.7	10.0	1.5	0.0	11.4	21.0	23.7
1300-1400	Pro	1.3	29.0	27.5	2.2	13.7	13.7	1.6	2.2	0.3	8.5
	Ocp	1.0	1.2	1.9	3.0	7.6	1.3	1.4	7.0	9.5	24.6
1400-1500	Pro	1.9	40.8	21.0	1.9	10.2	12.7	0.6	1.9	0.3	8.6
	Ocp	1.2	1.4	2.2	2.7	8.0	1.5	1.5	1.0	16.3	29.7
1500-1600	Pro	2.1	33.9	22.5	2.8	9.7	12.5	1.0	4.8	0.3	10.3
	Ocp	1.0	1.5	2.5	5.8	9.3	1.6	1.7	13.1	16.5	30.0
1600-1700	Pro	3.6	39.1	17.9	2.2	9.2	13.4	0.3	6.4	0.2	7.6
	Оср	1.0	1.4	2.1	5.3	9.6	1.6	1.0	26.2	14.7	38.9
1700-1800	Pro	3.9	35.9	23.1	2.4	10.4	12.4	0.3	3.0	0.0	8.7
	Оср	1.1	1.5	2.0	4.8	11.0	1.5	2.0	7.1	0.0	45.1
1800-1900	Pro	4.0	45.6	24.6	0.5	9.0	7.5	0.0	0.8	0.2	7.8
	Ocp	1.1	1.6	2.5	2.5	11.6	1.4	0.0	19.0	37.3	48.4
1900-2000	Pro	4.7	49.6	22.8	0.3	10.4	2.8	0.0	0.3	0.1	8.9
	Оср	1.1	1.5	2.1	3.0	10.4	1.1	0.0	16.0	24.0	35.6
2000-2100	Pro	3.4	37.3	33.1	0.0	9.9	2.7	0.4	0.0	0.2	13.0
	Оср	1.0	1.6	1.9	0.0	9.0	2.0	1.0	0.0	7.0	24.4
2100-2200	Pro	1.4	31.6	38.1	0.5	10.2	4.2	0.0	0.5	0.1	13.6
	Ocp	1.0	1.9	2.4	4.0	7.2	1.6	0.0	1.0	5.0	28.9
2200-2300	Pro	4.1	37.7	34.5	0.9	6.9	2.3	0.5	0.0	0.0	13.1
	Ocp	1.1	1.9	2.0	3.0	7.1	1.4	2.0	0.0	0.0	27.6
16 hours	Pro	2.8	38.7	25.3	1.9	9.5	9.7	0.4	2.4	0.2	9.1
	Ocp	1.1	1.4	2.1	3.6	9.5	1.5	1.7	14.5	18.5	33.0

4. Vehicle classification and occupancy - Monday to Friday

Legend

Pro. Proportion of vehicles in % (Sum may not add up to 100% due to figure rounding)

Ocp. Average occupancy of vehicles

M&H Medium and Heavy

APPENDIX D

Aircraft Crash Frequency Calculation

APPENDIX D AIRCRAFT CRASH FREQUENCY CALCULATION

Introduction

The distance between the nearest arrival/departure flight path and the LPG Filling Station at Fung Yip Street is about 4.5 km. The distance between the LPG Filling Station and Chek Lap Kok International Airport is 33 km (distance between the LPG Filling Station and runway is approximately 33.5 km) and over 8 km, which fulfills the criteria for the consideration of airfield accident. At such distances, the LPG Filling Station is not covered by critical takeoff and landing phases. The frequency of aircraft crash is estimated using the methodology of the HSE (1997). Civil aircraft is the main type using the airport. According to the statistic of Civil International Air Transport Movements of Aircraft, there are 406,034 movements between January 2015 and December 2015 inclusively.

Frequency Calculation

The frequency of aircraft crash of a particular aircraft type is calculated with reference to *Health and Safety Executives - The Calculation of Aircraft Crash Risk in the UK* prepared by J P Byrue in 1997, given by the following equation:

Frequency (per year) = Background Crash Rate + Airway Crash Rate

Frequency (per year) = $(A \times B_i) + (A \times N_i \times R_i \times afac/alt)$, where

- A = area of the LPG Filling Station (in km^2)
- N_i = number of aircraft movement (for aircraft type i)
- B_i = background crash rate for aircraft (for aircraft type i, in per year per km²)
- R_i = aircraft in-flight reliability (for aircraft type i, crashes per year per km per aircraft movement)
- alt = altitudes of airways (in km)
- afac = area factor used in airway calculation

The parameters of the above equation are listed as follows:

- Area of the LPG Filling Station (A): $6.96 \times 10^{-4} \text{ km}^2 = 696 \text{m}^2$
- Number of aircraft movement (N):
 - There is 406,034 aircraft movement annually.
- Background aircraft crash rate (*B_i*):
 - The background crash rate for airliners is 2 x 10⁻⁶ per year per km²
- Aircraft in-flight crash rate (Ri):
 - It is taken as 4.7 x 10⁻¹¹ per year per km per movement
- Altitudes of airways (alt):
 - altitudes of airways is taken as 5 km
- Area factor (afac):
 - area factor (afac) is taken as 0.265 from Table 9 of Byrne (1997) with corresponding x1 = 0.9
 - (x1 = x/alt where x = the minimum horizontal distance from airway/flight path to the site which is taken as 4.5 km)

By substituting the parameters into the equation listed above, the annual aircraft crash rate can be estimated and listed as follows:

• Crash rate for airliners = 2.10×10^{-9} per year

Therefore, the frequency of aircraft crash at the LPG Filling Station = 2.10×10^{-9} per year.

Probability of LPG equipment failure due to aircraft crash

It is assumed that when there is an aircraft crash, the LPG liquid-line pipework (i.e. 'liquid inlet pipeline to storage vessel' and 'liquid line to dispenser') and dispenser will definitely fail (i.e. probability = 1). For 'vapour return line', it is assumed that the probability is 10 times lower than that of liquid-line pipework because the vapour return line is installed underground. The 'liquid line from tanker to flexible hose' is not considered because aircraft crash to tanker will lead to 'road tanker failure', which has a greater consequence.

For failure of road tanker, it is assumed that the probability of 'road tanker rupture' and 'road tanker partial failure' given that there is an aircraft crash are 0.1 and 0.9 respectively. For failure of storage vessel, it is assumed that the probability of failure is 10 times lower than that of road tanker because the LPG storage vessel is installed underground. Therefore, it is assumed that the probability of 'storage vessel rupture' and 'storage vessel partial failure' given that there is an aircraft crash are 0.01 and 0.09 respectively.

APPENDIX E

Fault Tree Analysis

Cold Catastrophic Failure of an LPG Vessel



Cold Partial Failure of an LPG Vessel



Cold Catastrophic Failure of Road Tanker



Cold Partial Failure of Road Tanker



A-5a Guillotine Failure of In-let Filling Pipework (release from the vessel)



3

Guillotine Failure of In-let Filling Pipework (release from the vessel) (Con't) A-5a



23

A-5a Guillotine Failure of In-let Filling Pipework (release from the vessel) (Con't)


A-5b Guillotine Failure of In-let Filling Pipework (release from road tanker)



Page 8 of 30

Guillotine Failure of In-let Filling Pipework (release from road tanker) (Con't)



A-5b

A-5b Guillotine Failure of In-let Filling Pipework (release from road tanker) (Con't)



Guillotine Failure of Liquid Supply Line to Dispenser



Guillotine Failure of Liquid Supply Line to Dispenser (Con't)



Guillotine Failure of Liquid Supply Line to Dispenser (Con't)



Failure of Dispenser



Failure of Dispenser (con't)



Failure of Dispenser (con't)



A-8a Failure of Flexible Hose during Loading to Storage Vessel (LPG released from the Hose Connecting to Road Tanker)





b Failure of Flexible Hose during Loading to Storage Vessel (LPG released from the Hose Connecting to vessel)





A-8b

A-9a Failure of Flexible Hose during Loading to Vehicle (LPG released from the Hose Connecting to Dispenser)



Remarks:

(1) = (daily no. of vehicle visit/24 hours)/(60 mins) * average time of filling

Page 19 of 30

Failure of Flexible Hose during Loading to Vehicle (LPG released from the Hose Connecting to Vehicle)





18 Non return valve failure (per demand)

1.30E-02

Remarks:

(1) = (daily no. of vehicle visit/24 hours)/(60 mins) * average time of refilling

Failure to Prevent BLEVE



Leak From Pump Flange

1 Leak from Pump Flange (per year)	
4.36E-04	
AND	
2	3
Flange Faliure (per year)	No. of Flange
1.09E-04	4

Leak From Drain Valve

Leak from drain valve (per year)		
2.40E-04		
AND		-
	-	
2	2	3
Valve fails to close (per operation)		No. of operation per year
2.00E-05		12

A-13 Failure of Vapour Return Line



A-14 Guillotine Failure of liquid line from Road Tanker to loading hose



Guillotine Failure of liquid line from Road Tanker to loading hose (Con't)

3			
**Failure to isolate			
5.01E-02			
AND			
11 Emergency Isolation System (EIS) is not effective	12 Manual Valve Failure (per demand)		
1.00E-01	0.50		
OR			
40			
Fail to activate EIS (per demand)	Failure of EIS (per demand)		
0.1	1.00E-04		
1			
5 **Tanker Collision (per year)			
0.00E+00			
AND			
15	16	17	,
anker collision during unloading (per operation)	No. of operation per year	Portion of impact with sufficient energy to cause damage	Concurrent road tanke
1.50E-04	730	0.01	0
		18 Probability to cause	

pipe rupture 0.90

19

4 Guillotine Failure of liquid line from Road Tanker to loading hose (Con't)



A-15a BLEVE of LPG road tanker due to fire from petrol filling facilities



BLEVE of LPG road tanker due to fire from LPG dispenser A-15b



A-15c BLEVE of LPG road tanker due to fire from In-let Filling Pipework



BLEVE of LPG road tanker due to fire from Liquid Supply Line to Dispenser A-15d



A-15e BLEVE of LPG road tanker due to fire from Flexible Hose during loading to underground vessel



BLEVE of LPG road tanker due to fire from Liquid Line (from tanker to loading hose) A-15f



APPENDIX F

Event Tree Analysis

Catastrophic Failure of Storage Vessel (Instantaneous release without rainout)



Progresses through consequence time-steps in PhastRisk. Whether a delayed ignition occurs depending on the existence and ignition probability of ignition sources along the dispersion path.

Note 1: applicable to mounded or underground tank only

* default in PhastRisk - based on TNO Purple Bool

delayed ignition probability varies from 0.4 to 0.75 for specified ignition sources and together with ignition due to population

Catastrophic Failure of Road Tanker (Instantaneous release without rainout)



Progresses through consequence time-steps in PhastRisk. Whether a delayed ignition occurs depending on the existence and ignition probability of ignition sources along the dispersion path.

* default in PhastRisk - based on TNO Purple Bool

delayed ignition probability varies from 0.4 to 0.75 for specified ignition sources and together with ignition due to population

Fault leading to BLEVE of Road Tanker (Instantaneous release without rainout)



Partial Failure of Storage Vessel (Continuous release without rainout)



Progresses through consequence time-steps in PhastRisk. Whether a delayed ignition occurs depending on the existence and ignition probability of ignition sources along the dispersion path.

* default in PhastRisk - based on TNO Purple Bool

delayed ignition probability varies from 0.4 to 0.75 for specified ignition sources and together with ignition due to population

Partial Failure of Road Tanker (Continuous release without rainout)



Progresses through consequence time-steps in PhastRisk. Whether a delayed ignition occurs depending on the existence and ignition probability of ignition sources along the dispersion path.

* default in PhastRisk - based on TNO Purple Bool

delayed ignition probability varies from 0.4 to 0.75 for specified ignition sources and together with ignition due to population

Guillotine Failure of Liquid Filling Line to Storage Vessel (Continuous release without rainout)





* default in PhastRisk - based on TNO Purple Bool

delayed ignition probability varies from 0.4 to 0.75 for specified ignition sources and together with ignition due to population

Pump Flange Leak (Continuous release without rainout)



Progresses through consequence time-steps in PhastRisk. Whether a delayed ignition occurs depending on the existence and ignition probability of ignition sources along the dispersion path.

* default in PhastRisk - based on TNO Purple Bool

delayed ignition probability varies from 0.4 to 0.75 for specified ignition sources and together with ignition due to population

APPENDIX G

Information from Fire Services Department 消防處 脊港九龍尖沙咀京部慶莊道1號 消防總部大厦



FIRE SERVICES DEPARTMENT FIRE SERVICES HEADQUARTERS BUILDING, No.1 Hong Chong Road, Tsim Sha Tsui, Kowicon, Hong Kong.

本威福號	OUR REF.	:	(2) in FSD/GR AI 22/0	13
來面檔號	YOUR REF.	:	R01501/c/wwck/3	
電訊掛號	Teler	:	39607 HKFSD HX	(24 小時 Hours FAY)
圖文傳真	FAX:	;	852-2739 5879	
電 話	tel no.	:	852-2733 7818	

6 June 2003

Maunsell Environment Management Consultants Ltd. Room 1213-1219, Grand Central Plaza, Tower 2, 138 Shatin Rural Committee Road, Shatin, New Territories, Hong Kong. (Attn.: Mr. Arthur Lee)

By fax only : 2891 0305

Dear Mr. Lee,

Quantitative Risk Assessment (QRA) of a LPG Compound at Repulse Bay

I refer to your letter of 28 May 2003.

I wish to inform you that we do not have any record of fire incidents under petrol filling station category before 1995, as such, I can only provide you below with the number of incidents in Petrol Filling Stations after 1995:-

Year	Number of Incidents in Petrol Filling Station
1995	4
1996	2
1997	2
1998	4
1999	1
2000	2
2001	
2002	1
2003 (Up to March)	0

Yours faithfully, ANG Wan-hing) for Director of Fire Services

Ref. Number and date should be quoted in reference to this letter 凡级及本信時語引述温疑及日期

TOTAL P.01

消防 威

香港九龍尖沙咀東康莊道1號 消防總部大鷹



FIRE SERVICES DEPARTMENT FIRE SERVICES HEADQUARTERS BUILDING No.1 Hong Chong Road Tsim Sha Tsui East Kowloon Hong Kong

 本處檔號
 Our Ref.:
 (2) in FSD/GR AI 9/08

 來函檔號
 Your Ref.:

 戰子郵件
 E-mail:
 hkfsdenq@hkfsd.gov.hk

 圖文傳真
 Fax:
 852-2739 5879

 電
 話
 Tel No.:
 852-2733 7818

ENSR Asia(HK) Ltd 11/F Grand Central Plaza, Tower 2, 138 Shatin Rural Committee, Shatin, Hong Kong 26 June 2008

By fax only : 2891 0305

Dear Mr. Hung,

Code on Access to Information Fire Incidents Records under Fuel Filling Station From 2003 to present

I refer to your email dated 20 June 2008.

2. Please be advised that the number of incidents in Fuel Filling Station as follows:-

Year	Number of Incidents in Fuel (Petrol/LPG/Petrol cum LPG) Filling Station
2003	
2004	0
2005	2
2006	0
2007	0
2008 (up to Feb)	0

Yours faithfully,

CHUI Man-toung) for Director of Fire Services

REF. NUMBER AND DATE SHOULD BE QUOTED IN REFERENCE TO THIS LETTER 凡 提 及 本 佰 時 誚 引 述 編 號 及 同 期

消 防 處

香港九龍尖沙咀東康莊道 1 號

消防總部大廈



FIRE SERVICES DEPARTMENT

FIRE SERVICES HEADQUARTERS BUILDING No.1 Hong Chong Road Tsim Sha Tsui East Kowloon Hong Kong

本處檔號 Our Ref. : (139) in FSD GR 6-5/5 R 來函檔號 Your Ref. : 60268214/C/atym12100812 電子郵件 E-mail : <u>hkfsdenq@hkfsd.gov.hk</u> 圖文傳真 Fax : 852-2739 5879 電 話 Tel No. : 852-2733 7818

2012 6707 22

18 October 2012

AECOM 8/F, Grand Central Plaza; Tower 2, 138 Shatin Rurai Committee Road, Shatin, Hong Kong (Attn: Ms. Angie TAI, Assistant Environmental Consultant)

Dear Ms. TAI,

Request for Fire Incidents Records under Fuel Filling Station Category from Year 2008 to Present

Reference is made to your letter dated 8 October 2012.

Please be advised that the statistical information pertaining to the captioned subject is as follows:-

Year	Number of Incidents in Fuel (Petrol/LPG/Petrol cum LPG) Filling Station
2008	0
2009	3
2010	1
2011	0
2012 (Jan to Jun)	0

Should you have any queries, please feel free to contact Miss CHAN at 2733

7532.

Yours sincerely, (YEUNG Ping-kwai) for Director of Fire Services

REF. NUMBER AND DATE SHOULD BE QUOTED IN REFERENCE TO THIS LETTER

凡提及本信時請引述編號及日期

APPENDIX H

Input Parameters



1ŵ

HA Chai Wan Road (RunRow 2023WDD fbx)

ParametersFB

Discharge Parameters

Continuous Critical Weber number	12.5	
Instantaneous Critical Weber number	12.5	
Venting equation constant	24.82	
Relief valve safety factor	1.2	
Minimum RV diameter ratio	1	
Critical pressure greater than flow phase	0.3447	bar
Maximum release velocity	500	m/s
Minimum drop diameter allowed	0.01	um
Maximum drop diameter allowed	1E4	um
Default Liquid Fraction	1	fraction
Continuous Drop Slip factor	1	
Instantaneous Drop Slip factor	1	
Number of Time Steps	100.00	
Maximum Number of Data Points	1,000.00	
Tolerance	0.0001	
Thermal coupling to the wall	No modelling of heat transfer	
Use Bernoulli for forced -phase liq-liq discharge	Use compressible flow eqn	
Capping of pipe flow rates	Use leak scenario cap, disallow flashing	
Velocity capping method	FixedVelocity	
Droplet Method - continuous only	Modified CCPS	
Thermodynamic Option for Gas Pipellines	Non-ideal Gas	
Excess Flow Valve velocity head losses	0	
Non-Return Valve velocity head losses	0	
Shut-Off Valve velocity head losses	0	
Frequency of bends in long pipes	0	/m
Frequency of couplings in long pipes	0	/m
Frequency of junctions in long pipes	0	/m
Line length	10	m
Pipe roughness	0.0457	mm
Air changes	3	/hr
Elevation	1	m
Atmospheric Expansion Method	Closest to Initial Conditions	
Tank Roof Failure Model Effects	Instantaneous effects	
Frequency of Excess Flow Valves	0	/m
Frequency of Non-Return Valves	0	/m
Frequency of Shut-Off Valves	0	/m
Mechanism for forcing droplet breakup - Inst.	Use flashing correlation	
Mechanism for forcing droplet breakup - Cont	Do not force correlation	
Flashing in the orifice	No flashing in the orifice	
Handling of droplets	Not Trapped	
Indoor mass modification factor	3	
Vacuum Relief Valve	Operating	
Vacuum Relief Valve Set Point	0	bar
Dispersion Parameters		
Expansion zone length/source diameter ratio	0.01	
Near Field Passive Entrainment Parameter	1	
Jet Model	Morton et.al.	
Jet entrainment coefficient alpha1	0.17	
Jet entrainment coefficient alpha2	0.35	

3/3/2016

Study Folder: HA Chai Wan Road (RunRow 2023WDD_fbx)

7,780,263 Phast Risk 6.7

Drag coefficient between plume and air	0	
Dense cloud parameter gamma - continuous	0	
Dense cloud parameter gamma - instant	0.3	
Dense cloud parameter K - continuous	1.15	
Dense cloud parameter K - instantaneous	1.15	
Modeling of instantaneous expansion	Standard Method	
Maximum Cloud/Ambient Velocity Difference	0.1	
Maximum Cloud/Ambient Density Difference	0.015	
Maximum Non-passive entrainment fraction	0.3	
Maximum Richardson number	15	
Distance multiple for full passive entrainment	2	
Core Averaging Time	18.75	S
Ratio instantaneous/continuous sigma-y	1	
Ratio instantaneous/continuous sigma-z	1	
Droplet evaporation thermodynamics model	No Rainout, Equilibrium	
Ratio Droplet/ expansion velocity for inst. release	0.8	
Expansion energy cutoff for droplet angle	0.69	kJ/kg
Coefficient of Initial Rainout	0	
Flag to reset rainout position	Do not reset rainout position	
Richardson Number for passive transition above pool	0.015	
Pool Vaporization entrainment parameter	1.5	
Richardson number criterion for cloud lift-off	-20	
Flag for Heat/Water vapor transfer	Heat and Water	
Surface over which the dispersion occurs	Land	
Minimum temperature allowed	-262.1	degC
Maximum temperature allowed	626.9	degC
Minimum release velocity for cont. release	0.1	m/s
Minimum Continuous Release Height	0	m
Maximum distance for dispersion	5E4	m
Maximum height for dispersion	1000	m
Minimum cloud depth	0.02	m
Treatment of top mixing layer	Constrained	
Model In Use	Best Estimate	
Lee Length	Calculate	
Lee Half-Width	Calculate	
Lee Height	Calculate	
K-Factor	Calculate	
Switch Distance	Calculate	
Maximum Initial Step Size	10	m
Minimum Number of Steps per Zone	5.00	
Factor for Step Increase	1.2	
Maximum Number of Output Steps	1,000.00	
Flag for finite duration correction	QI without Duration Adjustment	
Quasi-instantaneous transition parameter	0.8	
Relative tolerance for dispersion calculations	0.001	
Relative tolerance for droplet calculations	0.001	
Initial integration step size - Instantaneous	0.01	S
Initial integration step size - Continuous	0.01	m
Maximum integration step size - Instantaneous	100	S
Maximum integration step size - Continuous	100	m
Criterion for halting dispersion model	Risk based	
Impingement Option	Use Velocity Modification Factor	
Impinged velocity limit	500	m/s
Impinged Velocity Factor	0.25	
Dispersion Model to use	Version 2 model	

Study Folder:

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Fixed step size - Instantaneous	0.01	S
Fixed step size - Continuous	0.1	m
Number of fixed size output steps	20.00	
Multiplier for output step sizes	1.2	
Event Tree Probabilities		
Probability of a BLEVE	1	fraction
Probability of a Pool Fire	1	fraction
Toxic Probability	1	fraction
Continuous no Rainout Immediate Ignition	0.05	fraction
Continuous no Rainout Long Duration Horizontal Fraction	0	fraction
Continuous no Rainout Long Duration Horizontal Jet Fire	0	fraction
Continuous no Rainout Long Duration Vertical Jet Fire	0	fraction
Continuous no Rainout Short Duration Fraction	1	fraction
Continuous no Rainout Short Duration BLEVE	1	fraction
Continuous no Rainout Short Duration Flash Fire	0	fraction
Continuous no Rainout Short Duration Explosion	0	fraction
Continuous no Rainout Delayed Ignition Flash Fire	0	fraction
Continuous no Rainout Delayed Ignition Explosion	0	fraction
Continuous with Rainout Immediate Ignition	0.05	fraction
Continuous with Rainout Long Duration Horizontal Fraction	0.6	fraction
Continuous with Rainout Long Duration Horizontal Jet Fire	0	fraction
Continuous with Rainout Long Duration Horizontal Pool Fire	0	fraction
Continuous with Rainout Long Duration Horizontal Jet Fire with Pool Fire	1	fraction
Continuous with Rainout Long Duration Vertical Pool Fire	0	fraction
Continuous with Rainout Long Duration Vertical Jet Fire	0	fraction
Continuous with Rainout Short Duration Fraction	1	fraction
Continuous with Rainout Long Duration Vertical Jet Fire with Pool Fire	1	fraction
Continuous with Rainout Short Duration BLEVE with Pool Fire	1	fraction
Continuous with Rainout Short Duration BLEVE alone	0	fraction
Continuous with Rainout Short Duration Flash Fire with Pool Fire	0	fraction
Continuous with Rainout Short Duration Flash Fire Alone	0	fraction
Continuous with Rainout Short Duration Explosion with Pool Fire	0	fraction
Continuous with Rainout Short Duration Explosion Alone	0	fraction
Continuous with Rainout Short Duration Pool Fire	0	fraction
Continuous with Rainout Residual Pool Fire	0.15	fraction
Continuous with Rainout Delayed Ignition Flash Fire	0	fraction
Continuous with Rainout Delayed Ignition Explosion	0.4	fraction
Instantaneous no Rainout Immediate Ignition	0.9	fraction
Instantaneous no Rainout BLEVE	1	fraction
Instantaneous no Rainout Immediate Flash Fire	0	fraction
Instantaneous no Rainout Immediate Explosion	0	fraction
Instantaneous no Rainout Delayed Ignition Flash Fire	0	fraction
Instantaneous no Rainout Delayed Ignition Explosion	0	fraction
Instantaneous with Rainout Immediate Ignition	0.9	fraction
Instantaneous with Rainout BLEVE with Pool Fire	1	fraction
Instantaneous with Rainout BLEVE Alone	0	fraction
Instantaneous with Rainout Immediate Flash Fire with Pool Fire	0	fraction
Instantaneous with Rainout Immediate Flash Fire Alone	0	fraction
Instantaneous with Rainout Immediate Explosion with Pool Fire	0	fraction
Instantaneous with Rainout Immediate Explosion Alone	0	fraction
Instantaneous with Rainout Immediate Pool Fire Alone	0	fraction
Instantaneous with Rainout Residual Pool Fire	0.15	fraction
Instantaneous with Rainout Delayed Ignition Flash Fire	0	traction
Instantaneous with Rainout Delayed Ignition Explosion	0.4	traction

HA Chai Wan Road (RunRow 2023WDD_fbx)

Study Folder: HA Chai Wan Road (RunRow 2023WDD_fbx)



	Immediate Ignition	0.1	fraction
	Explosion Given Ignition	0.5	fraction
	Long Duration Jet Fire	0.5	fraction
	Short Duration Any Ignition of Cloud	0.5	fraction
	Short Duration Ignition of Cloud with Pool Fire	0	fraction
	Long Duration Horizontal Jet Fire with Pool	0	fraction
	Long Duration Vertical Jet Fire with Pool	0	fraction
	Short Duration Fraction for Effects	0	fraction
	Short Duration BLEVE not Flash Fire	0.5	fraction
	Volume based explosion probabilities	No	
	FlamespeedLowMedium	0.45	m/s
	FlamespeedMediumHigh	0.75	m/s
	Obstructed Cloud Volume (1)	200	m3
	Obstructed Cloud Volume (2)	3000	m3
	Obstructed Cloud Volume (3)	6000	m3
	Low Flame Speed Probability (1)	0	fraction
	Low Flame Speed Probability (2)	0.3	fraction
	Low Flame Speed Probability (3)	0.6	fraction
	Medium Flame Speed Probability (1)	0.3	fraction
	Medium Flame Speed Probability (2)	0.6	fraction
	Medium Flame Speed Probability (3)	0.9	fraction
	High Flame Speed Probability (1)	0.6	fraction
	High Flame Speed Probability (2)	0.9	fraction
	High Flame Speed Probability (3)	1	fraction
]	Explosion Parameters		
	Over Pressure Level 1	0 02068	bar
	Over Pressure Level 2	0.1379	bar
	Over Pressure Level 3	0 2068	bar
	Explosion Location Criterion	Cloud Front (LFL Fraction)	
	Minimum explosive mass	0	kg
	Minimum Explosion Energy	5E6	kJ
	Explosion Efficiency	0.1	fraction
	Coefficient for zone of heavy damage	0.03	
	Coefficient for zone of light damage	0.06	
	Explosion efficiency	10	%
	Air or Ground burst	Air burst	
	Explosion Mass Modification Factor	3	
	Use of mass modification factor	Early and late explosions	
1	Firehall and RLEVE Blast Parameters		
-	Maximum surface emissive power	400	kW/m2
	Radiation Dose for Fireball risk calculations	5 784F6	K W/1112
	Calculate Dose	Unselected	
	Calculate Probit	Unselected	
	Calculate Lethality	Unselected	
	TNO model flame temperature	1727	degC
	Mass Modification Factor	3	ucge
	Calculation method for fireball	DNV Recommended	
	Fireball Maximum Exposure Duration	2111 Recommended	s
	Intensity Levels (1)	20 1	kW/m?
	Intensity Levels (2)	12 5	kW/m^2
	Intensity Levels (2)	37.5	kW/m^2
	Prohit Levels (1)	2 73 2 73	K 11/1112
		2.15	

Probit Levels (2)

3.72
Study Folder	HA Chai Wan Road	(RunRow 2023WDD	fhv)
Study Folder.	IIA Chai wan Koau	(KullKow 2025 WDD_	_10

Probit Levels (3)	7.5	
Dose Levels (1)	1.27E6	
Dose Levels (2)	5.8E6	
Dose Levels (3)	2.51E7	
Lethality Levels (1)	0.01	
Lethality Levels (2)	0.1	
Lethality Levels (3)	1	
Ground Reflection	Ground Burst	
Ideal Gas Modeling	Model as real gas	
Minimum Distance	0	m
Number of Distance Points	100.00	
Ground Reflection	Ground Burst	
Ideal Gas Modeling	Model as real gas	
Minimum Distance	0	m
Number of Distance Points	100.00	
Ground Reflection	Ground Burst	
Ideal Gas Modeling	Model as real gas	
Minimum Distance	0	m
Number of Distance Points	100.00	
Flammable Parameters		
Height for calculation of flammable effects	0	m
Flammable result grid step in X-direction	10	m
LFL fraction to finish	0.85	
Angle of inclination	0	deg
Observer direction	Variable	E
Flammable mass calculation method	Mass between LFL and UFL	
Flammable Base averaging time	18.75	S
Radiation level for Jet/Pool Fire Risk	35	kW/m2
Cut Off fraction for cloud volume	0.001	fraction
UFL Multiple for immediate ignition	1	
Cut Off Time for Short Continuous Releases	20	S
Observer type radiation modelling flag	Planar	
Probit A Value	-36.38	
Probit B Value	2.56	
Probit N Value	1.333	
Height for reports	Centreline Height	
Angle of orientation	0	deg
Relative tolerance for radiation calculations	0.01	fraction
Number of Lethality Ellipses	5.00	
Ellipse linear spacing variable	Probit	
Minimum Probability Of Death	0.01	fraction
Number of radiation/distance points in linked radiation calculations	s 50.00	
Method for fitting ellipse to flash fire shape	ChiSq method	
Absolute tolerance for linked radiation calcs	1e-010	
Solar radiation	Exclude from calculations	
For time-varying releases	Don't Model Short Duration Effects	
Match fireball duration and mass released	No	
General Parameters		
Maximum release duration	3600	S
Height for concentration output	0	m
Rotation	0	deg
Lower Elevation	0	m
Multicomponent aerosol behaviour	Single aerosol modelling	

Study Folder: HA Chai Wan Road (RunRow 2023WDD fbx)



General Risk Parameters Use Free Field Modelling No Free Field m Distance to Site Boundary 0 Late Pool Fire Exclude Effects Minimum Case Frequency 1e-012 /AvgeYear Minimum Event Probability 1e-012 0.000168 Population Omega Factor Maximum Number of Subsquares across Ellipse 10.00 5.00 Maximum Number of Subdivisions per Square Factor for Toxic F-N Spread 2 Grid Sizing Calculated Grid Bounds Minimum X -1000 m Grid Bounds Maximum X 1000 m Grid Bounds Minimum Y -1000 m Grid Bounds Maximum Y 1000 m Grid Calculation Method Number of cells Grid cell size 10 m 40,000.00 Maximum number of cells Aversion Index 1.2 Indoor Population Omega Factor 0 1.00 Number of wind subdivisions per sector Method for handling Indoor/Outdoor risk Indoor and outdoor risk calculations Inter-ellipse interpolation method Weighted Method option Normal dispersion 3 Cylinder height over radius ratio Building damage method Worst point Reflection method Calculated Angle Number of X steps per view 11.00 Minimum X step 0.1 m Number of time steps - continuous clouds 5.00 Minimise Gaps Between Cloud Views Pressure exceedance curves Calculate Elevation of Floor or Ceiling 0 m Concentration method for filling Stoichiometric Minimum probability of death for explosions 0.001 Minimum Pressure Filter 0.01 bar Separation specification Use Ratio Critical Separation Ratio 0.5 Cloud Shape of Area Integration Elliptical Explosion efficiency method 100% efficiency **Explosion Type Calculation Method** Polynomial Curve-Fit Equations 30,000.00 Number of Blast Curve Discretization Points Maximum No. effect points along transect 2.00 Low to medium criterion 0.006 0.08 Medium to high criterion Volume Averaged Options available Method option: Ground reflection Reflection factor 1 2 Unconfined Explosion Strength 1 Explosion Efficiency fraction Flammable Mass Calculation Type Area Weighted Mass Integral Minimum Explosion Energy 0 kΙ 100.00 Maximum number of time steps Number of timesteps - time varying clouds 10.00 Active Shut Down No Shut Down

Discrete Overpressure

Reflected

Side on

Study Folder: HA Chai Wan Road (RunRow 2023WDD fbx)



Fraction of Population Indoors for Societal Risk Fraction of Population Indoors for Individual Risk

Indoor Vulnerability

Vulnerability Model Pressure Method - Building calculation Pressure Method - Individual Risk Pressure Method - Grid population Overpressure for Lethality (1) Overpressure for Lethality (2) Lethality (1) Lethality (2) Lethality (1) Equation Constant (1) Equation Exponent (1) Overpressure Offset (1) Impulse Offset (1) ProbitA ProbitB ProbitN Number of overpressures Number of impulses Fireball (Societal Radiation Criteria Zone) Fireball (Individual Radiation Criteria Zone) Fireball (Societal Flammable Probit Zone) Fireball (Individual Flammable Probit Zone) Jet Fire (Societal Radiation Criteria Zone) Jet Fire (Individual Radiation Criteria Zone) Jet Fire (Societal Flammable Probit Zone) Jet Fire (Individual Flammable Probit Zone) Pool Fire (Societal Radiation Criteria Zone) Pool Fire (Individual Radiation Criteria Zone) Pool Fire (Societal Flammable Probit Zone) Pool Fire (Individual Flammable Probit Zone) Light Explosion Damage vulnerability Heavy explosion damage vulnerability Method for Radiation Vulnerability Flash Fire Vulnerability Toxic Vulnerability Pool Fire Radiation Intensity Level (1) Pool Fire Radiation Intensity Level (2) Pool Fire Radiation Intensity Level (3) Jet Fire Radiation Intensity Level (1) Jet Fire Radiation Intensity Level (2) Jet Fire Radiation Intensity Level (3) Fire Ball Radiation Intensity Level (1) Fire Ball Radiation Intensity Level (2) Fire Ball Radiation Intensity Level (3)

Jet Fire Parameters

Maximum SEP for a Jet Fire Jet Fire Averaging Time Calculate Dose Calculate Probit Calculate Lethality

0.9	fraction
0	fraction

Side on	
0.1	bar
0.3	bar
0.025	fraction
1	fraction
1	fraction
0.3	bar
1	
0.3	bar
0	N.s/m2
-10.46	
1.35	
1	
2.00	
1.00	
0.5	fraction
1	fraction
0	fraction
0	fraction
1	fraction
1	fraction
0	fraction
0	fraction
1	fraction
1	fraction
0	fraction
0	fraction
0.025	fraction
1	fraction
Use Probit method	
0.1	
1	
4	kW/m2
12.5	kW/m2
37.5	kW/m2
4	kW/m2
12.5	kW/m2
37.5	kW/m2
4	kW/m2
12.5	kW/m2
37.5	kW/m2

400 kW/m2 20 s Unselected Unselected Unselected

HA Chai Wan Road (RunRow 2023WDD fbx)

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Study Folder:	HA Chai Wan Road (RunRow 2023WDD_fbx) Phast Ris	sk 6.7 🥫
Crosswi	nd Angle	0	deg
Correlat	ion	DNV Recommended	• /
Horizon	tal Options	Use standard method	
Rate Mo	dification Factor	3	
Jet Fire I	Maximum Exposure Duration	20	S
Emissivi	ity Method	E and F calculated	
Intensity	Levels (1)	4	kW/m2
Intensity	Levels (2)	12.5	kW/m2
Intensity	Levels (3)	37.5	kW/m2
Probit L	evels (1)	2.73	
Probit L	evels (2)	3.72	
Probit L	evels (3)	7.5	
Dose Le	vels (1)	1.27E6	
Dose Le	vels (2)	5.8E6	
Dose Le	vels (3)	2 51E7	
Lethality	Levels (1)	0.01	
Lethality	U Levels (2)	0.1	
Lethality	/ Levels (3)	1	
Outdoor V	/ulnerability		
Vulneral	pility Model	Discrete Overpressure	
Pressure	Method - Building calculation	Reflected	
Pressure	Method - Individual Risk	Side on	
Pressure	Method - Grid population	Side on	
Overnre	ssure for Lethality (1)	0.3	har
Lethality	I(1)	0.5	fraction
Lethality	I(1)	1	fraction
Equation	(1)	03	har
Equation	Exponent (1)	0.5	Uai
Overpre	source Offset (1)	0.3	har
Impulse	Offset (1)	0.5	N s/m2
Probit A		-10.46	14.5/1112
ProbitB		-10.40	
ProbitN		1.55	
Number	of overpressures	1	
Number	of impulses	1.00	
Fireball	(Secietal Rediction Criteria Zene)	1.00	fraction
Fileball	(Societal Radiation Chiefia Zone)	1	fraction
Fileball	(Individual Radiation Chiefia Zone)	1	fraction
Fileball	(Societal Flammable Flobit Zone)	0.14	fraction
Fireball	(Individual Flammable Probit Zone)	1	fraction
Jet Fire ((Societal Radiation Criteria Zone)	1	fraction
Jet Fire ((Individual Radiation Criteria Zone)	1	fraction
Jet Fire ((Societal Flammable Probit Zone)	0.14	fraction
Jet Fire ((Individual Flammable Probit Zone)	1	fraction
Pool Fire	e (Societal Radiation Criteria Zone)	1	fraction
Pool Fire	e (Individual Radiation Criteria Zone)	1	fraction
Pool Fire	(Societal Flammable Probit Zone)	0.14	fraction
Pool Fire	e (Individual Flammable Probit Zone)	l	fraction
Light Ex	piosion Damage vulnerability	0	fraction
Heavy e	xpiosion damage vulnerability		fraction
Method	Tor Kadiation Vulnerability	Use Probit method	
Flash Fi		1	
Toxic Vi		1	1 117/ -
Pool Fire	e kadiation Intensity Level (1)	4	kW/m2
Pool Fire	e Kadiation Intensity Level (2)	12.5	кw/m2

PARAMETER	S REPORT	Unique Audit Number: 7,7	80,263
Study Folder:	HA Chai Wan Road (RunRow 2023W)	DD_fbx) Phast Ris	sk 6.7
Pool Fir	e Radiation Intensity Level (3)	37.5	kW/m2
Jet Fire	Radiation Intensity Level (1)	4	kW/m2
Jet Fire	Radiation Intensity Level (2)	12.5	kW/m2
Jet Fire	Radiation Intensity Level (3)	37.5	kW/m2
Fire Bal	Radiation Intensity Level (1)	4	kW/m2
Fire Bal	Radiation Intensity Level (2)	12.5	kW/m2
Fire Bal	Radiation Intensity Level (3)	37.5	kW/m2
Pool Fire	Parameters		
Instanta	neous releases	10	S
Continue	ous releases	10	S
Calculat	e Dose	Not selected	
Calculat	e Probit	Not selected	
Calculat	e Lethality	Not selected	
MaxExp	osureDuration	20	S
Radiativ	e fraction for general fires	0.4	fraction
Intensity	v Levels (1)	4	kW/m2
Intensity	v Levels (2)	12.5	kW/m2
Intensity	Levels (3)	37.5	kW/m2
Dose Le	vels (1)	1.27E6	
Dose Le	vels (2)	5.8E6	
Dose Le	vels (3)	2.51E7	
Probit L	evels (1)	2.73	
Probit L	evels (2)	3.72	
Probit L	evels (3)	7.5	
Lethality	v Levels (1)	0.01	
Lethality	Levels (2)	0.01	
Lethality	y Levels (3)	1	
Pool Vapo	rization Parameters		
Toxics c	ut-off rate for pool evaporation	0.001	kg/s
Flamma	ble cut-off rate for pool evaporation	0.1	kg/s
Concent	ration power to use in pool rate load calculation	1	11,0
Maximu	m number of pool evaporation rates	10.00	
Pool mi	nimum thickness	5	mm
Surface	thermal conductivity	0.00221	k I/m s degK
Surface	roughness factor	2 634	KJ/III.S.GC
Surface	thermal diffusivity	9.48E-7	$m^{2/s}$
Type of	Rund Surface	9:40E-7 Concrete	1112/5
Type of Dund H	build Surface	Concrete	
Bund Fa	ilure Modeling	Bund cannot fail	111
Toxic Par	ameters		
Toxics	minimum probability of death	0.001	
Toxics: 1	height for calculation of effects	0	m
Toxics:	results grid step in Y-direction	2.5	m
Toxics:	results grid step in X-direction	25	m
Multi-co	omn toxic calc method	Mixture Probit	
Toxic Av	veraging Time - New Parameter	600	S
Prohit C	alculation Method	Use Prohit	~
Ruilding	Exchange Rate	4	/hr
Tail Tim	e e e e e e e e e e e e e e e e e e e	1900	, III S
Indoor (alculations	1000 Unselected	3
Wind D	anoniantono anendent Evolunge Pate	Case Specified	
vy ind Do	aging time equal to exposure time	Use a fixed averaging time	
Set aver	aging time equal to exposure time	USE a fixed averaging time	

Cut-off fraction of toxic load for exposure time calculation

0.05 fraction

Study Folder: HA Chai Wan Road (RunRow 2023WDD_fbx)



1.013	bar
28.97	
1.004	kJ/kg.degK
10	m
0	m
1	m
Power Law	
ithmic; Pres.Linear	
25	degC
0.75	fraction
0.1	
183.2	mm
Use Parameter	
25	degC
25	degC
0.5	kW/m2
4	/hr
1800	S
l low rise buildings	
1300	m
1080	m
920	m
880	m
840	m
820	m
800	m
400	m
100	m
100	m
1	1.013 28.97 1.004 10 0 1 Power Law ithmic; Pres.Linear 25 0.75 0.1 183.2 Use Parameter 25 25 0.5 4 1800 Iow rise buildings 1300 1080 920 880 840 820 800 400 100

Study Folder: HA Chai Wan Road (RunRow 2023WDN_ffx)



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HA Chai Wan Road (RunRow 2023WDN ffx)

ParametersFF

Discharge Parameters

Continuous Critical Weber number	12.5	
Instantaneous Critical Weber number	12.5	
Venting equation constant	24.82	
Relief valve safety factor	1.2	
Minimum RV diameter ratio	1	
Critical pressure greater than flow phase	0.3447	bar
Maximum release velocity	500	m/s
Minimum drop diameter allowed	0.01	um
Maximum drop diameter allowed	1E4	um
Default Liquid Fraction	1	fraction
Continuous Drop Slip factor	1	
Instantaneous Drop Slip factor	1	
Number of Time Steps	100.00	
Maximum Number of Data Points	1,000.00	
Tolerance	0.0001	
Thermal coupling to the wall	No modelling of heat transfer	
Use Bernoulli for forced -phase liq-liq discharge	Use compressible flow eqn	
Capping of pipe flow rates	Use leak scenario cap, disallow flashing	
Velocity capping method	FixedVelocity	
Droplet Method - continuous only	Modified CCPS	
Thermodynamic Option for Gas Pipellines	Non-ideal Gas	
Excess Flow Valve velocity head losses	0	
Non-Return Valve velocity head losses	0	
Shut-Off Valve velocity head losses	0	
Frequency of bends in long pipes	0	/m
Frequency of couplings in long pipes	0	/m
Frequency of junctions in long pipes	0	/m
Line length	10	m
Pipe roughness	0.0457	mm
Air changes	3	/hr
Elevation	1	m
Atmospheric Expansion Method	Closest to Initial Conditions	
Tank Roof Failure Model Effects	Instantaneous effects	
Frequency of Excess Flow Valves	0	/m
Frequency of Non-Return Valves	0	/m
Frequency of Shut-Off Valves	0	/m
Mechanism for forcing droplet breakup - Inst.	Use flashing correlation	
Mechanism for forcing droplet breakup - Cont	Do not force correlation	
Flashing in the orifice	No flashing in the orifice	
Handling of droplets	Not Trapped	
Indoor mass modification factor	3	
Vacuum Relief Valve	Operating	
Vacuum Relief Valve Set Point	0	bar
Dispersion Parameters		
Expansion zone length/source diameter ratio	0.01	
Near Field Passive Entrainment Parameter	1	
Jet Model	Morton et.al.	
Jet entrainment coefficient alpha1	0.17	
Jet entrainment coefficient alpha2	0.35	

Study Folder: HA Chai Wan Road (RunRow 2023WDN_ffx)

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Drag coefficient between plume and air	0	
Dense cloud parameter gamma - continuous	0	
Dense cloud parameter gamma - instant	0.3	
Dense cloud parameter K - continuous	1.15	
Dense cloud parameter K - instantaneous	1.15	
Modeling of instantaneous expansion	Standard Method	
Maximum Cloud/Ambient Velocity Difference	0.1	
Maximum Cloud/Ambient Density Difference	0.015	
Maximum Non-passive entrainment fraction	0.3	
Maximum Richardson number	15	
Distance multiple for full passive entrainment	2	
Core Averaging Time	18.75	S
Ratio instantaneous/continuous sigma-y	1	
Ratio instantaneous/continuous sigma-z	1	
Droplet evaporation thermodynamics model	No Rainout, Equilibrium	
Ratio Droplet/ expansion velocity for inst. release	0.8	
Expansion energy cutoff for droplet angle	0.69	kJ/kg
Coefficient of Initial Rainout	0	
Flag to reset rainout position	Do not reset rainout position	
Richardson Number for passive transition above pool	0.015	
Pool Vaporization entrainment parameter	1.5	
Richardson number criterion for cloud lift-off	-20	
Flag for Heat/Water vapor transfer	Heat and Water	
Surface over which the dispersion occurs	Land	
Minimum temperature allowed	-262.1	degC
Maximum temperature allowed	626.9	degC
Minimum release velocity for cont. release	0.1	m/s
Minimum Continuous Release Height	0	m
Maximum distance for dispersion	5E4	m
Maximum height for dispersion	1000	m
Minimum cloud depth	0.02	m
Treatment of top mixing layer	Constrained	
Model In Use	Best Estimate	
Lee Length	Calculate	
Lee Half-Width	Calculate	
Lee Height	Calculate	
K-Factor	Calculate	
Switch Distance	Calculate	
Maximum Initial Step Size	10	m
Minimum Number of Steps per Zone	5 00	
Factor for Step Increase	12	
Maximum Number of Output Steps	1 000 00	
Flag for finite duration correction	OI without Duration Adjustment	
Quasi-instantaneous transition parameter		
Relative tolerance for dispersion calculations	0.01	
Relative tolerance for droplet calculations	0.001	
Initial integration step size. Instantaneous	0.001	c
Initial integration step size - Installatious	0.01	5 m
Maximum integration step size - Collulidous	0.01	 c
Maximum integration step size - Installateous	100	5 m
Criterion for holting dispersion model	100 Diate based	111
Impingement Option	KISK Dased	
Impingement Option	Use velocity widdification Factor	
Impinged velocity Imit	500	m/s
Impinged Velocity Factor	0.25	
Dispersion Model to use	Version 2 model	

Study Folder:

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Fixed step size - Instantaneous	0.01	S
Fixed step size - Continuous	0.1	m
Number of fixed size output steps	20.00	
Multiplier for output step sizes	1.2	
Event Tree Probabilities		
Probability of a BLEVE	0	fraction
Probability of a Pool Fire	0	fraction
Toxic Probability	0	fraction
Continuous no Rainout Immediate Ignition	0.05	fraction
Continuous no Rainout Long Duration Horizontal Fraction	0	fraction
Continuous no Rainout Long Duration Horizontal Jet Fire	0	fraction
Continuous no Rainout Long Duration Vertical Jet Fire	0	fraction
Continuous no Rainout Short Duration Fraction	0	fraction
Continuous no Rainout Short Duration BLEVE	0	fraction
Continuous no Rainout Short Duration Flash Fire	0	fraction
Continuous no Rainout Short Duration Explosion	0	fraction
Continuous no Rainout Delayed Ignition Flash Fire	0.6	fraction
Continuous no Rainout Delayed Ignition Explosion	0.4	fraction
Continuous with Rainout Immediate Ignition	0.05	fraction
Continuous with Rainout Long Duration Horizontal Fraction	0	fraction
Continuous with Rainout Long Duration Horizontal Jet Fire	0	fraction
Continuous with Rainout Long Duration Horizontal Pool Fire	0	fraction
Continuous with Rainout Long Duration Horizontal Jet Fire with Pool Fire	0	fraction
Continuous with Rainout Long Duration Vertical Pool Fire	0	fraction
Continuous with Rainout Long Duration Vertical Jet Fire	0	fraction
Continuous with Rainout Short Duration Fraction	0	fraction
Continuous with Rainout Long Duration Vertical Jet Fire with Pool Fire	0	fraction
Continuous with Rainout Short Duration BLEVE with Pool Fire	0	fraction
Continuous with Rainout Short Duration BLEVE alone	0	fraction
Continuous with Rainout Short Duration Flash Fire with Pool Fire	0	fraction
Continuous with Rainout Short Duration Flash Fire Alone	0	fraction
Continuous with Rainout Short Duration Explosion with Pool Fire	0	fraction
Continuous with Rainout Short Duration Explosion Alone	0	fraction
Continuous with Rainout Short Duration Pool Fire	0	fraction
Continuous with Rainout Residual Pool Fire	0.15	fraction
Continuous with Rainout Delayed Ignition Flash Fire	0.6	fraction
Continuous with Rainout Delayed Ignition Explosion	0.4	fraction
Instantaneous no Rainout Immediate Ignition	0.9	fraction
Instantaneous no Rainout BLEVE	0	fraction
Instantaneous no Rainout Immediate Flash Fire	0	fraction
Instantaneous no Rainout Immediate Explosion	0	fraction
Instantaneous no Rainout Delayed Ignition Flash Fire	0.6	fraction
Instantaneous no Rainout Delayed Ignition Explosion	0.4	fraction
Instantaneous with Rainout Immediate Ignition	0.9	fraction
Instantaneous with Rainout BLEVE with Pool Fire	0	fraction
Instantaneous with Rainout BLEVE Alone	0	fraction
Instantaneous with Rainout Immediate Flash Fire with Pool Fire	0	fraction
Instantaneous with Rainout Immediate Flash Fire Alone	0	fraction
Instantaneous with Rainout Immediate Explosion with Pool Fire	0	fraction
Instantaneous with Rainout Immediate Explosion Alone	0	fraction
Instantaneous with Rainout Immediate Pool Fire Alone	0	fraction
Instantaneous with Rainout Residual Pool Fire	0.15	fraction
Instantaneous with Rainout Delayed Ignition Flash Fire	0.6	fraction
Instantaneous with Rainout Delayed Ignition Explosion	0.4	fraction

HA Chai Wan Road (RunRow 2023WDN_ffx)

Study Folder: HA Chai Wan Road (RunRow 2023WDN_ffx)



Immediate Ignition	0.1	fraction
Explosion Given Ignition	0.5	fraction
Long Duration Jet Fire	0.5	fraction
Short Duration Any Ignition of Cloud	0.5	fraction
Short Duration Ignition of Cloud with Pool Fire	0	fraction
Long Duration Horizontal Jet Fire with Pool	0	fraction
Long Duration Vertical Jet Fire with Pool	0	fraction
Short Duration Fraction for Effects	0	fraction
Short Duration BLEVE not Flash Fire	0.5	fraction
Volume based explosion probabilities	No	
FlamespeedLowMedium	0.45	m/s
FlamespeedMediumHigh	0.75	m/s
Obstructed Cloud Volume (1)	200	m3
Obstructed Cloud Volume (2)	3000	m3
Obstructed Cloud Volume (3)	6000	m3
Low Flame Speed Probability (1)	0	fraction
Low Flame Speed Probability (2)	0.3	fraction
Low Flame Speed Probability (3)	0.6	fraction
Medium Flame Speed Probability (1)	0.3	fraction
Medium Flame Speed Probability (2)	0.6	fraction
Medium Flame Speed Probability (3)	0.9	fraction
High Flame Speed Probability (1)	0.6	fraction
High Flame Speed Probability (2)	0.9	fraction
High Flame Speed Probability (3)	1	fraction
Explosion Parameters		
Over Pressure Level 1	0.02068	bar
Over Pressure Level 2	0.1379	bar
Over Pressure Level 3	0.2068	bar
Explosion Location Criterion	Cloud Front (LFL Fraction)	
Minimum explosive mass	0	kg
Minimum Explosion Energy	5E6	kJ
Explosion Efficiency	0.1	fraction
Coefficient for zone of heavy damage	0.03	
Coefficient for zone of light damage	0.06	
Explosion efficiency	10	%
Air or Ground burst	Air burst	
Explosion Mass Modification Factor	3	
Use of mass modification factor	Early and late explosions	
Fireball and BLEVE Blast Parameters		
Maximum surface emissive power	400	kW/m2
Radiation Dose for Fireball risk calculations	5.784E6	
Calculate Dose	Unselected	
Calculate Probit	Unselected	
Calculate Lethality	Unselected	
TNO model flame temperature	1727	degC
Mass Modification Factor	3	
Calculation method for fireball	DNV Recommended	
Fireball Maximum Exposure Duration	20	S
Intensity Levels (1)	4	kW/m2
Intensity Levels (2)	12.5	kW/m2
Intensity Levels (3)	37.5	kW/m2
Probit Levels (1)	2.73	
Probit Levels (2)	3.72	

Study Folder:	HA Chai Wan Road (RunRow 2023WDN_ff	x)
---------------	-------------------------------------	----

Probit Levels (3)	7.5	
Dose Levels (1)	1.27E6	
Dose Levels (2)	5.8E6	
Dose Levels (3)	2.51E7	
Lethality Levels (1)	0.01	
Lethality Levels (2)	0.1	
Lethality Levels (3)	1	
Ground Reflection	Ground Burst	
Ideal Gas Modeling	Model as real gas	
Minimum Distance	0	m
Number of Distance Points	100.00	
Ground Reflection	Ground Burst	
Ideal Gas Modeling	Model as real gas	
Minimum Distance	0	m
Number of Distance Points	100.00	
Ground Reflection	Ground Burst	
Ideal Gas Modeling	Model as real gas	
Minimum Distance	0	m
Number of Distance Points	100.00	
Flammable Parameters		
Height for calculation of flammable effects	0	m
Flammable result grid step in X-direction	10	m
LFL fraction to finish	0.85	
Angle of inclination	0	deg
Observer direction	Variable	
Flammable mass calculation method	Mass between LFL and UFL	
Flammable Base averaging time	18 75	S
Radiation level for let/Pool Fire Risk	35	kW/m2
Cut Off fraction for cloud volume	0.001	fraction
UFL Multiple for immediate ignition	1	nuotion
Cut Off Time for Short Continuous Releases	20	S
Observer type radiation modelling flag	Planar	5
Probit A Value	-36.38	
Probit B Value	2 56	
Probit N Value	1 333	
Height for reports	Centreline Height	
Angle of orientation	0	dea
Relative tolerance for radiation calculations	0.01	fraction
Number of Lethality Ellinses	5.00	naction
Filipse linear spacing variable	Probit	
Minimum Probability Of Death	0.01	fraction
Number of radiation/distance points in linked radiation calculation	s 50.00	naction
Method for fitting ellipse to flash fire shape	S 50.00 ChiSa method	
Absolute toloronge for linked rediction color		
Solar radiation	Evoludo from coloulations	
Solar faulation	Den't Model Short Duration Effects	
Match fireball duration and mass released	No	
General Parameters		
Maximum release duration	3600	s
Height for concentration output	5000	s m
Rotation	0	dea
Lower Elevation	0	m
Multicomponent aerosol behaviour	U Single serosal modelling	111
	Single acrosof modelling	

Study Folder: HA Chai Wan Road (RunRow 2023WDN ffx)



General Risk Parameters Use Free Field Modelling No Free Field m Distance to Site Boundary 0 Late Pool Fire Exclude Effects Minimum Case Frequency 1e-012 /AvgeYear Minimum Event Probability 1e-012 0.000168 Population Omega Factor Maximum Number of Subsquares across Ellipse 10.00 5.00 Maximum Number of Subdivisions per Square Factor for Toxic F-N Spread 2 Grid Sizing Calculated Grid Bounds Minimum X -1000 m Grid Bounds Maximum X 1000 m Grid Bounds Minimum Y -1000 m Grid Bounds Maximum Y 1000 m Grid Calculation Method Number of cells Grid cell size 10 m 40,000.00 Maximum number of cells Aversion Index 1.2 Indoor Population Omega Factor 0 1.00 Number of wind subdivisions per sector Method for handling Indoor/Outdoor risk Indoor and outdoor risk calculations Inter-ellipse interpolation method Weighted Method option Normal dispersion 3 Cylinder height over radius ratio Building damage method Worst point Reflection method Calculated Angle Number of X steps per view 11.00 Minimum X step 0.1 m Number of time steps - continuous clouds 5.00 Minimise Gaps Between Cloud Views Pressure exceedance curves Calculate Elevation of Floor or Ceiling 0 m Concentration method for filling Stoichiometric Minimum probability of death for explosions 0.001 Minimum Pressure Filter 0.01 bar Separation specification Use Ratio Critical Separation Ratio 0.5 Cloud Shape of Area Integration Elliptical Explosion efficiency method 100% efficiency **Explosion Type Calculation Method** Polynomial Curve-Fit Equations 30,000.00 Number of Blast Curve Discretization Points Maximum No. effect points along transect 2.00 Low to medium criterion 0.006 0.08 Medium to high criterion Volume Averaged Options available Method option: Ground reflection Reflection factor 1 2 Unconfined Explosion Strength 1 Explosion Efficiency fraction Flammable Mass Calculation Type Area Weighted Mass Integral Minimum Explosion Energy 0 kΙ 100.00 Maximum number of time steps Number of timesteps - time varying clouds 10.00 Active Shut Down No Shut Down

Study Folder: HA Chai Wan Road (RunRow 2023WDN ffx)



Fraction of Population Indoors for Societal Risk Fraction of Population Indoors for Individual Risk

Indoor Vulnerability

Vulnerability Model Pressure Method - Building calculation Pressure Method - Individual Risk Pressure Method - Grid population Overpressure for Lethality (1) Overpressure for Lethality (2) Lethality (1) Lethality (2) Lethality (1) Equation Constant (1) Equation Exponent (1) Overpressure Offset (1) Impulse Offset (1) ProbitA ProbitB ProbitN Number of overpressures Number of impulses Fireball (Societal Radiation Criteria Zone) Fireball (Individual Radiation Criteria Zone) Fireball (Societal Flammable Probit Zone) Fireball (Individual Flammable Probit Zone) Jet Fire (Societal Radiation Criteria Zone) Jet Fire (Individual Radiation Criteria Zone) Jet Fire (Societal Flammable Probit Zone) Jet Fire (Individual Flammable Probit Zone) Pool Fire (Societal Radiation Criteria Zone) Pool Fire (Individual Radiation Criteria Zone) Pool Fire (Societal Flammable Probit Zone) Pool Fire (Individual Flammable Probit Zone) Light Explosion Damage vulnerability Heavy explosion damage vulnerability Method for Radiation Vulnerability Flash Fire Vulnerability Toxic Vulnerability Pool Fire Radiation Intensity Level (1) Pool Fire Radiation Intensity Level (2) Pool Fire Radiation Intensity Level (3) Jet Fire Radiation Intensity Level (1) Jet Fire Radiation Intensity Level (2) Jet Fire Radiation Intensity Level (3) Fire Ball Radiation Intensity Level (1) Fire Ball Radiation Intensity Level (2) Fire Ball Radiation Intensity Level (3)

Jet Fire Parameters

Maximum SEP for a Jet Fire Jet Fire Averaging Time Calculate Dose Calculate Probit Calculate Lethality

0.9	fraction
0	fractior

Discrete Overpressure	
Reflected	
Side on	
Side on	
0.1	bar
0.3	bar
0.025	fraction
1	fraction
1	fraction
0.3	bar
1	
0.3	bar
0	N.s/m2
-10.46	
1.35	
1	
2.00	
1.00	
0.5	fraction
1	fraction
0	fraction
0	fraction
1	fraction
1	fraction
0	fraction
0	fraction
1	fraction
1	fraction
0	fraction
0	fraction
0.025	fraction
1	fraction
Use Probit method	
0.1	
1	
4	kW/m2
12.5	kW/m2
37.5	kW/m2
4	kW/m2
12.5	kW/m2
37.5	kW/m2
4	kW/m2

400 kW/m2 20 s Unselected Unselected

12.5 kW/m2

37.5

Unselected

kW/m2

Date: 3/3/2016

7,780,263 Phast Risk 6.7

Study Folder: HA Chai Wan Road (RunRow 2023WDN_ffx)

Crosswind Angle	0	deg
Correlation	DNV Recommended	
Horizontal Options	Use standard method	
Rate Modification Factor	3	
Jet Fire Maximum Exposure Duration	20	S
Emissivity Method	E and F calculated	
Intensity Levels (1)	4	kW/m2
Intensity Levels (2)	12.5	kW/m2
Intensity Levels (3)	37.5	kW/m2
Probit Levels (1)	2.73	
Probit Levels (2)	3.72	
Probit Levels (3)	7.5	
Dose Levels (1)	1.27E6	
Dose Levels (2)	5.8E6	
Dose Levels (3)	2.51E7	
Lethality Levels (1)	0.01	
Lethality Levels (2)	0.1	
Lethality Levels (3)	1	
Outdoor Vulnerability		
Vulnerability Model	Discrete Overpressure	
Pressure Method - Building calculation	Reflected	
Pressure Method - Individual Risk	Side on	
Pressure Method - Grid population	Side on	
Overpressure for Lethality (1)	0.3	bar
Lethality (1)	1	fraction
Lethality (1)	1	fraction
Equation Constant (1)	0.3	bar
Equation Exponent (1)	1	
Overpressure Offset (1)	0.3	bar
Impulse Offset (1)	0	N.s/m2
ProbitA	-10.46	
ProbitB	1.35	
ProbitN	1	
Number of overpressures	1.00	
Number of impulses	1.00	
Fireball (Societal Radiation Criteria Zone)	1	fraction
Fireball (Individual Radiation Criteria Zone)	1	fraction
Fireball (Societal Flammable Probit Zone)	0.14	fraction
Fireball (Individual Flammable Probit Zone)	1	fraction
Jet Fire (Societal Radiation Criteria Zone)	1	fraction
Jet Fire (Individual Radiation Criteria Zone)	1	fraction
Jet Fire (Societal Flammable Probit Zone)	0.14	fraction
Jet Fire (Individual Flammable Probit Zone)	1	fraction
Pool Fire (Societal Radiation Criteria Zone)	1	fraction
Pool Fire (Individual Radiation Criteria Zone)	1	fraction
Pool Fire (Societal Flammable Probit Zone)	0.14	fraction
Pool Fire (Individual Flammable Probit Zone)	1	fraction
Light Explosion Damage vulnerability	0	fraction
Heavy explosion damage vulnerability	1	fraction
Method for Radiation Vulnerability	Use Probit method	
Flash Fire Vulnerability	1	
Toxic Vulnerability	1	
Pool Fire Radiation Intensity Level (1)	4	kW/m2
Pool Fire Radiation Intensity Level (2)	12.5	kW/m2

PARAMETERS REPORT Unique Audit Number			
Study Folder:	HA Chai Wan Road (RunRow 2	023WDN_ffx)	ł
Pool Fire	Radiation Intensity Level (3)		
Jet Fire I	Radiation Intensity Level (1)		
Jet Fire I	Radiation Intensity Level (2)		
Jet Fire I	Radiation Intensity Level (3)		
Fire Ball	Radiation Intensity Level (1)		
Fire Ball	Radiation Intensity Level (2)		
Fire Ball	Radiation Intensity Level (3)		

Pool Fire Parameters

Instantaneous releases	10	S
Continuous releases	10	S
Calculate Dose	Not selected	
Calculate Probit	Not selected	
Calculate Lethality	Not selected	
MaxExposureDuration	20	S
Radiative fraction for general fires	0.4	fraction
Intensity Levels (1)	4	kW/m2
Intensity Levels (2)	12.5	kW/m2
Intensity Levels (3)	37.5	kW/m2
Dose Levels (1)	1.27E6	
Dose Levels (2)	5.8E6	
Dose Levels (3)	2.51E7	
Probit Levels (1)	2.73	
Probit Levels (2)	3.72	
Probit Levels (3)	7.5	
Lethality Levels (1)	0.01	
Lethality Levels (2)	0.1	
Lethality Levels (3)	1	

Pool Vaporization Parameters

0.001	kg/s
0.1	kg/s
1	
10.00	
5	mm
0.00221	kJ/m.s.degK
2.634	
9.48E-7	m2/s
Concrete	
0	m
Bund cannot fail	
	0.001 0.1 1 10.00 5 0.00221 2.634 9.48E-7 Concrete 0 Bund cannot fail

Toxic Parameters

Toxics: minimum probability of death	0.001	
Toxics: height for calculation of effects	0	m
Toxics: results grid step in Y-direction	2.5	m
Toxics: results grid step in X-direction	25	m
Multi-comp. toxic calc. method	Mixture Probit	
Toxic Averaging Time - New Parameter	600	S
Probit Calculation Method	Use Probit	
Building Exchange Rate	4	/hr
Tail Time	1800	S
Indoor Calculations	Unselected	
Wind Dependent Exchange Rate	Case Specified	
Set averaging time equal to exposure time	Use a fixed averaging time	
Cut-off fraction of toxic load for exposure time calculation	0.05	fraction



37.5 kW/m2 4 kW/m2 12.5 kW/m2 37.5 kW/m2 4 kW/m2 12.5 kW/m2 37.5 kW/m2



Study Folder: HA Chai Wan Road (RunRow 2023WDN_ffx)



Cut-off concentration for exposure time calculations	0	fraction
Weather Parameters		
Atmospheric pressure	1.013	bar
Atmospheric molecular weight	28.97	
Atmospheric specific heat at constant pressure	1.004	kJ/kg.degK
Wind speed reference height	10	m
Temperature reference height	0	m
Cut-off height for wind speed profile	1	m
Wind speed profile	Power Law	
Atmospheric T and P Profile	Temp.Logarithmic; Pres.Linear	
Atmospheric Temperature	25	degC
Relative Humidity	0.75	fraction
Parameter	0.1	
Length	183.2	mm
Surface Roughness	Use Parameter	
Surface Temperature for Dispersion Calculations	25	degC
Surface Temperature for Pool Calculations	25	degC
Solar Radiation Flux	0.5	kW/m2
Building Exchange Rate	4	/hr
Tail Time	1800	S
Surface Type	3m - City centre with high and low rise buildings	
Mixing Layer Height for Pasquil Stability A	1300	m
Mixing Layer Height for Pasquil Stability A/B	1080	m
Mixing Layer Height for Pasquil Stability B	920	m
Mixing Layer Height for Pasquil Stability B/C	880	m
Mixing Layer Height for Pasquil Stability C	840	m
Mixing Layer Height for Pasquil Stability C/D	820	m
Mixing Layer Height for Pasquil Stability D	800	m
Mixing Layer Height for Pasquil Stability E	400	m
Mixing Layer Height for Pasquil Stability F	100	m
Mixing Layer Height for Pasquil Stability G	100	m

APPENDIX I

Record of Requesting Information from LPG Filling Station

香港房屋委員會 Hong Kong Housing Authority

Our Ref. : HD(BS2) GAS/1059

Tel No. : 2761 7346

Fax No.: 2715 8247

Date: 25 February 2016

Feoso Oil Limited 10/F, Feoso Building, 877 Lai Chi Kok Road, Kowloon Hong Kong

Dear Sirs,

Quantitative Risk Assessment (QRA) on the Existing Petrol cum LPG Filling Station at 23 Fung Yip Street, Chai Wan

Request of Operation Information from Feoso

A public housing development will be developed near the Junction of Chai Wan Road and Wing Ping Street. As the proposed development is closed to the existing petrol cum LPG filling station at 23 Fung Yip Street in Chai Wan operating by Feoso, HKHA had appointed an environmental consultant, Messrs. AECOM Asia Co. Ltd., to carry out a Quantitative Risk Assessment (QRA) to the satisfactory of EMSD. In order to undertake the assessment by our consultant, I am writing to request the operation information for the captioned Petrol cum LPG filling station.

Attached please find an information request form for your completion. Please understand that this is a standard procedure for project data verification suggested by Gas Standards Office, EMSD. It would be highly appreciated if you could let us have the requested information by 4 March 2016.

Should you have any queries, please do not hesitate to contact the undersigned or our consultant representative Ms Connie Tsai at 3922 9419.

Yours faithfully,

(Jonathan C.Y. NG) BSE/C35 for Director of Housing

Encl.

c.c. A/25 PO/33 AECOM (Att.: Ms Benita Kung)

File via SBSE/C12

Quantitative Risk Assessment on the Existing Petrol cum LPG Filling Station at 23 Fung Yip Street, Chai Wan

1

Information Request Form

Item #	Requested Information	Information Provided by Operator
	Petrol cum LPG Filling Station at 23 Fung Yip Street, Chai	Farmer
	Wan	reoso
dinanju kas (d	LPG facilities	
1	Layout plan showing location of equipment and pipeline	
1	associated with LPG	
	- LPG storage vessel	
	- pipeline from filling point to dispensers	
	- valves	
1.0	- filling point (connecting to LPG road tanker)	
	- LPG road tanker unloading bay	
2	LPG Storage Vessel	
	Schematic diagram for LPG Storage Vessel	
	number of submersible pump per storage vessel	
de	Number of LPG Storage Vessel	
	Max. capacity of LPG Storage Vesser	
_	Max. inventory level (% of max. capacity of LPG vessel)	
	Undergound/ Aboveground?	
2	Operating conditions and physical parameters of LPG vessel /	ar a series and series and the series of the
3	pipeline	the dealer of the second se
	- liquid filling line from filling point to vessel (length &	
	diameter of pipeline)	
	 storage vessel (length & diameter) 	
10.13	 liquid supply line from vessel to dispenser (length & 	
	diameter of pipeline)	
	 vapour return line (length & diameter of pipeline) 	
4	LPG dispensers	
	- total number	
	- number of nozzles	
	 number of flange joints/ (ball) valves 	
	- pumping rate	
5	Please indicate % time for LPG inventory in a storage vessel:	
	- above 60% of the vessel capacity	
	- below 60% of the vessel capacity	
	Safety devices	
6	Whether the storage vessels have the following protection measures	the second second for the second s
	- corrosion protection coating / system	
	- stress relieved	
	- 100% radiographed	
_	Please indicate the availability of the following FS protection	
'	system,	
	- water spray system	
	- gas detection system	
	- others (please specify)	
8	Any overfilling protection (for refilling of the LPG vessel)	
9	Any lightning protection system	

Sec. Street	LPG replenishment	
10	Number of LPG road tanker deliveries in a year	
11	Road Tanker deliveries time (such as day-time / night-time, period of time 09:00 - 12:00), if any specific time period	
12	Maximum capacity of LPG road tanker	
13	Nominal loading of LPG road tanker (% of max. capacity)	
14	LPG pumping rate for unloading from LPG road tanker to LPG storage vessel	
15	Time (no. of minutes) for a road tanker staying at the LPG Station for unloading operation	
16	Please comment on the appropriateness for the following LPG road tanker unloading operation procedure,	
	 number of persons present during unloading operation (including the driver and his assistant) 	
	- no road tankers reversing into the unloading area is needed	
	- road tankers face towards the exit so that it may leave rapidly should it need to do so	
	- dedicated unloading area is available for unloading operation	
	- the condition of all connections and hoses is checked by the driver before unloading	
	- during delivery, the driver waits in close proximity to the "emergency-cut-off switch " while the assistant takes care the delivery process.	
	Utilisation of the Petrol/Diesel Filling Facilities	
17	Number of diesel / gasoline road tanker deliveries in a year	
18	Number of vehicles using Petrol/Diesel filing services (daily/annual)	
19	Would it be possible for both LPG road tanker and diesel/gasoline road tanker staying in the station at the same time? If possible, please specify how frequency it would happen (e.g. 1 in 2 LPG unloading operations)	
	Utilisation of the LPG Filling Facilities	
20	Daily / annual LPG consumption rate	
21	Number of vehicles using the LPG filling service (daily/annual)	
22	Peak hours of the LPG filling Station (e.g. 15:00 - 17:00)	
23	Number of vehicles using LPG filling service during peak hours	



Our Ref. No. FEOLT0178/16

Housing Authority Headquarters, 33 Fat Kwong Street, Ho Man Tin, Kowloon, Hong Kong. Kind Attention: Mr. Jonathan C.Y. Ng



Dear Mr. Ng,

Re Quantitative Risk Assessment (QRA) on the Existing Petrol cum LPG Filling Station at 23 Fung Yip Street, Chai Wan

We acknowledge receipt with thanks of your captioned letter dated 25th February, 2016.

As requested, we enclose herewith copy of your "information Request Form" with part of the column has been completed for your reference as other information will not release to public.

Thanking in advance for your kind attention.

Yours faithfully,

Mr. K. K. Ko - Manager



Encl:

HONG KONG OFFICE: 9-11 FLS., FEOSO BLDG., 877 LAI CHI KOK RD., KOWLOON, HONG KONG. FAX: 3162 3658 TEL: 3162 3888 SINGAPORE OFFICE: 400 ORCHARD ROAD, #13-06 ORCHARD TOWERS, SINGAPORE 238875. FAX: 6732 2055 TEL: 6732 1732 香港公司:香港九龍荔枝角道 877號東方石油大廈 9-11樓 • 新加坡公司:烏節路 400號 • 豪傑大廈 13-06室 • 新加坡 • 郵區 238875

Quantitative Risk Assessment on the Existing Petrol cum LPG Filling Station at 23 Fung Yip Street, Chai Wan

Item # Requested Information Information Provided by Operator Petrol cum LPG Filling Station at 23 Fung Yip Street, Chai Feoso Wan LPG facilities Layout plan showing location of equipment and pipeline 1 associated with LPG - LPG storage vessel - pipeline from filling point to dispensers - valves - filling point (connecting to LPG road tanker) - LPG road tanker unloading bay LPG Storage Vessel Schematic diagram for LPG Storage Vessel number of submersible pump per storage vessel 2 Number of LPG Storage Vessel Max. capacity of LPG Storage Vessel 141 21 Max. inventory level (% of max. capacity of LPG vessel) Undergound/ Aboveground? Undergound Operating conditions and physical parameters of LPG vessel / 3 pipeline - liquid filling line from filling point to vessel (length & diameter of pipeline) storage vessel (length & diameter) - liquid supply line from vessel to dispenser (length & diameter of pipeline) - vapour return line (length & diameter of pipeline) LPG dispensers total number - number of nozzles 4 - number of flange joints/ (ball) valves pumping rate Please indicate % time for LPG inventory in a storage vessel: 5 - above 60% of the vessel capacity - below 60% of the vessel capacity Safety devices Whether the storage vessels have the following protection 6 measures - corrosion protection coating / system stress relieved - 100% radiographed Please indicate the availability of the following FS protection system, - water spray system - gas detection system - others (please specify) Any overfilling protection (for refilling of the LPG vessel) Any lightning protection system

Information Request Form

	LPG replenishment	
10	Number of LPG road tanker deliveries in a year	700
11	Road Tanker deliveries time (such as day-time / night-time, period of time 09:00 - 12:00), if any specific time period	1:00 - 18:00
12	Maximum capacity of LPG road tanker	1000 LT
13	Nominal loading of LPG road tanker (% of max. capacity)	•
14	LPG pumping rate for unloading from LPG road tanker to LPG storage vessel	
15	Time (no. of minutes) for a road tanker staying at the LPG Station for unloading operation	30 m
16	Please comment on the appropriateness for the following LPG road tanker unloading operation procedure,	
	 number of persons present during unloading operation 	2
<u> </u>	(including the driver and his assistant)	<u> </u>
 	- no road tankers reversing into the unloading area is needed	No
	- road tankers face towards the exit so that it may leave	Jes
<u> </u>	rapidly should it need to do so	<u></u>
	 dedicated unloading area is available for unloading 	100
<u> </u>	operation	Yes
	- the condition of all connections and hoses is checked by the	Jac
	during delivery, the driver write in close provimity to the	ye
	"emergency-cut-off switch " while the assistant takes care the	Hac
	delivery process.	Jes
	Utilisation of the Petrol/Diesel Filling Facilities	
17	Number of diesel / gasoline road tanker deliveries in a year	160
	Number of vehicles using Petrol/Diesel filing services	24.2/1
18	(daily/annual)	stu/d
19	Would it be possible for both LPG road tanker and diesel/gasoline road tanker staying in the station at the same	
	time? If possible, please specify how frequency it would	./
	happen (e.g. 1 in 2 LPG unloading operations)	No
	Utilisation of the LPG Filling Facilities	
20	Daily / annual LPG consumption rate	
21	Number of vehicles using the LPG filling service (daily/annual)	300/0
22	Peak hours of the LPG filling Station (e.g. 15:00 - 17:00)	· · · · · · · · · · · · · · · · · · ·
23	Number of vehicles using LPG filling service during peak hours	
24	Operating time-mode and number of staff in the station	4-5

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APPENDIX J

Reply from PlanD

Tsai, Wai Yan Connie

From:	hli@pland.gov.hk		
Sent:	Wednesday, March 09, 2016 3:23 PM		
То:	Tsai, Wai Yan Connie		
Cc:	jjaustin@pland.gov.hk; jonathan.ng@housingauthority.gov.hk; edith.fung@housingauthority.gov.hk; cynthia.chu@housingauthority.gov.hk		
Subject:	Re: Proposed Public Housing Development at Junction of Chai Wan Road, Wing Ping Street and San Ha Street, Chai Wan (Site no.: GLA 4) - QRA		

Dear Ms. Tsai,

I refer to the captioned email dated 1.3.2016 seeking comments on population assumptions for the captioned project. Further to the e-mail from our SP Section dated 2.3.2016, please note the following additional comments on the estimated population data.

General

A small part of Yue Wan Estate, Caritas Chai Wan Marden Foundation Secondary School, Precious Blood Secondary School, Summit Industrial Building and The Evangelical Lutheran Church of Hong Kong Faith Love Lutheran School also fall into the 200 m radius of Feoso petrol-cum-LPG filling station. Please be advised that a certain percentage of the population of these buildings should also be covered in the assessment in order to arrive at the most conservative population figure.

Specific

ID 15 - It is suggested that the population should be estimated according to the planned use (zoned "O") instead of its temporary use.

ID 23 - Federal Centre is a commercial/office building, the worker density according to HKPSG should be $20-25m^2$ /worker. It is suggested $20m^2$ /worker should be used as the basis of population assumption.

ID 30 - It is doubtful that there are only 20 persons in a fire station. The consultant should be reminded that a more conservative population estimation for QRA should be adopted.

Regards, Haniel LI for District Planning Officer/Hong Kong Planning Department Tel: 2231 4938

----- Forwarded by Christopher Yiu Fai PANG/PLAND/HKSARG on 01/03/2016 10:59 -----

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	4) - QRA		

Dear Mr. Pang,

We are the Consultant commissioned by the Housing Authority to undertake a Quantitative Risk Assessment (QRA) for the captioned project. Based on site survey, request to corresponding population groups and the TPEDM data, we

estimate the existing (year 2016) and future population(intake year at year 2023) within the study area. The estimated population data is adopted in the QRA study. The population data together with a map showing location of population groups is enclosed for your comments/advice.

We would be most grateful to receive your feedback by 7 Mar 2016 so that we can incorporate your comment into the QRA report for onward submission to EMSD.

Should you have further queries, please do not hesitate to contact me at 3922 9419.

Regards,

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[attachment "Population Assumption.pdf" deleted by Haniel LI/PLAND/HKSARG]

Table 1 Population Assumption

ID	Description	Maximum	Maximum	Remarks
		Population at Year 2016	Population at Year 2023	
1	Project Site	0	2,200	Information provided by HA
2	S.K.H Chai Wan St.	1050	1050	Estimated based on 24
	Michael's Primary School			classes, 30 students per class & 50 staffs
3	San Ha Street Sitting-out Area	5	5	Site Survey
4	Sun Tak House	345	345	Enhanced TPEDM PDZ#34, estimated based on the people per household (=3.19ppl/hsehld)
5	Artland Court	510	510	Enhanced TPEDM PDZ#34, estimated based on the people per household (=3.19ppl/hsehld)
6	Artview Court	479	479	Enhanced TPEDM PDZ#34, estimated based on the people per household (=3.19ppl/hsehld)
7	Fu On Court	268	268	Enhanced TPEDM PDZ#34, estimated based on the people per household (=3.19ppl/hsehld)
8	Fu Ming Court	230	230	Enhanced TPEDM PDZ#34, estimated based on the people per household (=3.19ppl/hsehld)
9	Fu Shing Court	357	357	Enhanced TPEDM PDZ#34, estimated based on the people per household (=3.19ppl/hsehld)
10	Wah Yu Court	383	383	Enhanced TPEDM PDZ#34, estimated based on the people per household (=3.19ppl/hsehld)
11	Bus Terminus	20		Site Survey
12	China Motor Bus Company Limited	43		HKPSG, 700m ² /worker
11+12	Proposed Comprehensive Residential Development		2548	Planning Application No. A/H20/177
	Residential Blocks		2488	780 units, 3.19ppl per household
	Public Transport Terminus		20	Assume to be the same as current situation
	Open Space		40	0.01ppl per m ²
13	Sunview Industrial Building	1317	1317	HKPSG, 25m ² /worker
14	Cheung Yick Industrial Building & Hop Ming Factory Building	985	985	HKPSG, 25m ² /worker
15	Vacant Land	0	20	The site was the temporary site office and storage area for

				WSD, due to lack of
				development information of
				this site, similar use is
				assumed for future scenario.
16	ECO dedicated LPG filling	15	15	Site Survey
	station			
17	Wah Shing Centre	861	861	HKPSG, 25m ² /worker
18	Reality Tower	422	422	HKPSG, 25m ² /worker
19	Kailey Industrial Centre	1586	1586	HKPSG, 25m ² /worker
20	Yip Cheung Centre	572	572	HKPSG, 25m ² /worker
21	Asia One Tower	367	367	HKPSG, 25m ² /worker
22	Gee Wing Chang Industrial	1055	1055	HKPSG, 25m ² /worker
	Building & Gee Tung Chang			
	Industrial Building			
23	Federal Centre	338	338	HKPSG, 25m ² /worker
24	Yiko Industrial Building	548	548	HKPSG, 25m ² /worker
25	Paramount Building	1472	1472	HKPSG, 25m ² /worker
26	Ming Pao Industrial Centre	1133	1133	HKPSG, 25m ² /worker
	Block B			
27	Sheung On Street	50	50	Site Survey
	Playground			
28	Sheung On Driving Test	20	20	Site Survey
	Centre			
29	RCP	2	2	Site Survey
30	Chai Wan Fire Station	20	20	Estimated based on previous
				project
31	Cornell Centre	1149	1149	HKPSG, 25m ² /worker
32	Feoso Petrol cum LPG	10	10	Site Survey
	filling station			
33	Chai Wan Public Cargo	50	50	Site Survey
	Working Area			

Notes: According to data for Years 2011 and Year 2026 of enhanced 2011-based TPEDM data, annual growth rate of average household size obtained from the TPEDM is -0.36%. The household size of Year 2016 and Year 2023 is assumed to be equivalent to that of 2011, taking into account the worst case scenario.













Halcrow China Ltd

Traffic Impact Assessment Study for Columbarium Development at Cape Collinson Road, Chai Wan Final Traffic Review Study Report February 2014

Architectural Services Department

Halcrow China Ltd

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Traffic Impact Assessment Study for Columbarium Development at Cape Collinson Road, Chai Wan Final Traffic Review Study Report February 2014

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- Appendix D Reference Drawings extracted from 2012 TIA Study

1 Introduction

1.1 General

Halcrow China Limited (HCL) has been commissioned by Architectural Services Department (ArchSD) of the Government of the Hong Kong Special Administrative Region to undertake a Traffic Review Study (hereafter called "the Study") for the proposed revised provision of new niches at the Columbarium Development at Cape Collinson Road, Chai Wan.

1.2 Background

In order to meet the public demand for niches, the Government has been exploring various potential sites in the territory for columbarium development. Amongst the potential sites, two sites (Site I and Site II) on Cape Collinson Road have been identified for development of multi-storey columbarium blocks, as shown in Figure 1.1. Site I is planned for the construction of a multi-storey columbarium building, providing about 15,000 niches with ancillary facilities while Site II will provide 8,000 niches. As only one of the 2 sites would be developed, Site I was selected having regard to its potential of providing a larger number of niches. The proposed development at Site I is tentatively scheduled to commence construction in 2015 for completion in 2018.

A Traffic Impact Assessment (TIA) Study was conducted and completed in May 2012 (2012 Study) with the findings and recommended traffic and transport improvements endorsed by HKPF and TD, relating to the provision of 15,000 niches at Site I. The 2012 Study had already taken reference to the planned niche development in the vicinity in the forthcoming years in the analyses. For better utilisation of the site, a preliminary study was conducted to increase the niches by 10,000, making the total provision to 25,000 niches. In this connection, it was considered appropriate to conduct a review on the 2012 Study Report to assess the likely impact on the traffic and transport arrangements arising from the revised provision of 25,000 niches at Site I.

1.3

Objectives of the Review Study

The main objectives of this Review Study are to:

- (i) Carry out a TIA review study for the revised provision of 25,000 niches based on the findings and recommendations in the 2012 Study Report .
- (ii) Identify traffic impacts within the study area for the assessment years2011, 2016, 2021 and 2026 with updated information.

(iii) Propose solutions to the traffic impact and problems identified in the review study.

Scope of the Study

The main scope of the Assignment is to conduct a review study to assess the adequacy of the recommendations put forward in the 2012 Study in coping with the demand induced by the revised development proposal of 25,000 niches at Site I.

Specific scope of work includes:

- (i) To review the traffic demand by taking into account the historic data of grave sweepers visiting cemeteries in the Chai Wan area (Chai Wan Cemeteries) and to forecast the traffic flow in the study area under different traffic conditions during Ching Ming festive period in order to assess the traffic requirements of the project.
- (ii) To conduct a review on the special traffic arrangement and public transport service arrangement (including bus, taxi, pick-up/ drop-off operation) proposed in the 2012 Study Report and recommend further improvements as appropriate.
- (iii) To review the public transport arrangement for Ching Ming festive period, such as the stacking of buses, passenger queuing arrangement, pick up and set down of passengers for services operating between the MTR stations and San Ha Street.
- (iv) To undertake sensitivity tests for Ching Ming Festival and at immediate Saturdays and Sundays prior to and after Ching Ming in 2021 and recommend contingency traffic management measures.

(a) the trip generation and attraction rate assumed for Site I is underestimated by 20% during the critical days;

(b) the proposed number of niches at Site I is increased by 20%; and

(c) the background traffic at the road network within the study area is underestimated by 20%.

Structure of the Report

This Review Study Report contains the following chapters:

1.5

1.4

- Chapter 2 Existing Conditions of the Site;
- Chapter 3 Forecast Development Traffic;
- Chapter 4 Review of Proposed Improvement Schemes;
- Chapter 5 Traffic Assessment;
- Chapter 6 Sensitivity Tests; and
- Chapter 7 Conclusion.

2 Existing Conditions of the Site

2.1 Site Location

Figure 1.1 shows the proposed development site (Site I), which is located within the cluster of cemeteries in the Chai Wan area , and the road network in the Chai Wan district and the Study Area of the 2012 Study. Details of existing transport network and transport facilities in the study area are given in Chapter 2 of the 2012 Study Report. Table 2-1 and Figure 2.1 show the public transport services serving the Chai Wan area.

 Table 2-1
 Franchised Bus and GMB Services Serving Chai Wan District

Service	Route No.	Terminati	ng Points	Remarks
Franchised	8	Heng Fa Chuen	Wan Chai Ferry Pier	Daily services every 10-15 minutes
Bus	8S	Siu Sai Wan (Island Resort)	Happy Valley Race Course	Services on horse racing day only
	8X	Siu Sai Wan (Island Resort)	Happy Valley (Lower)	Daily services every 7-25 minutes
	8P	Siu Sai Wan (Island Resort)	Wan Chai Ferry	Daily express services every 3-7 minutes
	19	Siu Sai Wan (Island Resort)	Happy Valley (Upper)	Daily services every 10-30 minutes
	81	Chai Wan (Hing Wah Estate)	Lai Tak Tsuen	Daily services every 15-20 minutes
	81A	Hing Wah Estate	Lai Tak Tsuen	Services on school days morning & evening peaks only
	81S	Siu Sai Wan (Harmony Garden)	Braemar Hill	Services on school days mornings only
	82	North Point Ferry Pier	Siu Sai Wan (Island Resort)	Daily services every 5-15 minutes
	82M	Chai Wan Station	Siu Sai Wan (Island Resort) (Circular)	Services on weekday every 20-40 minutes; special departure during morning peak between 07:00 - 08:40 every 25 minutes on Mondays to Fridays
	82S	Yiu Tung (Wai Hang Street)	Siu Sai Wan (Island Resort)	Services on school day mornings only
	82X	Siu Sai Wan (Island Resort)	Quarry Bay	Daily express services every 10-20 minutes. Special departure during morning peak at 07:12 on School days.
	85	Siu Sai Wan (Island Reort)	Braemar Hill (Circular)/ North Point Ferry Pier	Daily services every 10-20 minutes, Departures from Siu Sai Wan after 21:50 daily will be terminated at North Point Ferry Pier every 20 minutes
	85P	Siu Sai Wan (Island Resort)	Braemar Hill	Services on school days morning & evening peaks only
	106	Wong Tai Sin	Siu Sai Wan (Island Resort)	Daily services every 4-10 minutes
	106P	Siu Sai Wan (Island Resort)	Wong Tai Sin	Services on Monday to Friday at 06:45, 07:00, 07:12, 07:25, 07:40, 07:55 and 18:00, 18:15.

Service	Route No.	Terminat	ing Points	Remarks
Franchised Bus	sed 314 Siu Sai Wan (Island Resort) S M		Stanley (Beach / Market) (Circular)	Services on Sunday and Public Holidays during Swimming Season from June to September every 30 minutes only.
	388	Chai Wan MTR Station	Chai Wan Cemeteries / Cape Collinson(Circular)	Services on specified day, circular.
	389	Shau Kei Wan MTR Station	Chai Wan Cemeteries / Cape Collinson	Services on specified day, circular.
	118	Siu Sai Wan (Island Resort)	Sham Shui Po (Tonkin Street)	Daily services every 4-10 minutes; Special departures on Monday to Saturday morning peak services.
	118P	Siu Sai Wan (Island Resort)	Sham Shui Po (Tonkin Street)/ Mong Kok (Bute Street)	Monday to Saturday express morning and evening peak services
	606	Choi Wan (Fung Shing Street)	Siu Sai Wan (Island Resort)	Daily services every 11-22 minutes
	606A	Choi Wan	Yiu Tung Estate	Daily morning services every 15-22 minutes except Sundays and public holidays
	698R Siu Sai Wan (Island Resort) Sai Ku		Sai Kung (Wong Shek Pier)	Sunday and public holidays morning and evening limited services
	682	Lee On	Chai Wan (East)	Daily services every 8-20 minutes
	682P	Lee On Wu Kai Sha Station	Chai Wan (East) Chai Wan (East)	Monday to Saturday morning peak only Monday to Friday morning peak only
	682A	Ma On Shan Town Centre	Siu Sai Wan	Monday to Friday morning peak express services at 07:20 and 07:40
	682B	Shui Chuen O -	Siu Sai Wan	Monday to Friday Morning peak only
	694	Tiu Keng Leng PTI	Siu Sai Wan	Daily express services every 15-25 minutes
	780	Chai Wan (East)	Central(Central Ferry Piers)	Daily express services every 12- 17minutes
	780P	Hing Wah (via Causeway Bay)	Central (Ferry Piers)	Services on Monday to Saturday morning every 20 minutes.
	788	Central (Macau Ferry)	Siu Sai Wan (Island Resort)	Daily express services every 4-15 minutes
	789	Admiralty (Rodney Street)	Siu Sai Wan (Island Resort)	Daily express services every 4-15 minutes
	802	Shatin Racecourse	Siu Sai Wan (Island Resort)	Service on specified day, horse racing.
	9	Shau Kei Wan	Shek O	Daily services every 6-30 minutes.
	14	Grand Promenade	Stanley Fort(Gate) (Circular)/ Stanley Plaza (Ma Hang) / Stanley Fort (Gate) (omit Ma Hang)	Daily services every 10-20 minutes.
	A12	Siu Sai Wan (Island Resort)	Airport (Ground Transportation Centre)	Cityflyer services daily every 20-25 minutes; Special departure during morning and evening peaks.
Franchised Bus	N8	Wan Chai Ferry Pier	Heng Fa Chuen	Daily over-night services every 30 minutes.

Service	Route No.	Terminat	Remarks			
	N8X	Siu Sai Wan (Island Resort)	Central (Macau Ferry)	Daily over-night services every 30 minutes.		
	N8P	Siu Sai Wan (Island Resort)	Wan Chai (Harbour Road)	Daily over-night services every 15 minutes.		
	N118	Siu Sai Wan (Island Resort)	Sham Shui Po (Tonkin Street)	Daily over-night services every 15-20 minutes.		
GMB	16A ⁽¹⁾	Chai Wan Station	Chung Hom Kok (Circular)	Daily services from Chai Wan Station at 10:05, 12:05, 12:40, 17:15 and 19:35; from Chung Hom Kok at 10:35, 12:35, 13:05, 17:45 and 20:05		
	$16 M^{(1)}$	Chai Wan Station	Chung Hom Kok	Daily services every 5-15 minutes		
	16X ⁽¹⁾	Chai Wan Station	Stanley Beach Road	Daily services every 5-15 minutes		
	18M ⁽¹⁾	Chai Wan Station	Cape Collinson (Correctional Institution)	Monday to Sunday(except Wednesday and public holidays) from 08:00 to 18:30, every 90-120 minutes		
	20	Grand Promenade	Chai Wan Ind City	Daily services every 7 minutes		
	20M	Hing Man Estate	Chai Wan Ind City	Daily services every 6-9 minutes		
	43M ⁽¹⁾	Chai Wan Station	Fung Wah Estate (Circular)	Daily service every 5-15 minutes		
	44M	Chai Wan Station	Siu San Wan Estate (Circular)	Daily over-night services every 15 minutes.		
	47E	Siu Sai Wan Estate	Eastern Hospital(Circular)	Services on Monday to Saturday every 20 minutes		
	47M	Chai Wan Station	Siu Sai Wan Estate (Circular)/Hiu Tsui Court/ Chai Wan (Wing Ping St)	Daily services every 3-10 minutes; Short Working services on Monday to Saturday morning every 10-15 minutes. Special services on Monday to Saturday every 20 minutes.		
	478	Chai Wan Station	Harmony Garden(Circular)/ Chai Wan (Wing Ping St)	Daily services every 10-20 minutes. Special services on Monday to Saturday morning every 10 minutes.		
	48M	Chai Wan Station (Lee Chung Street)	Pamela Youde Nethersole Eastern Hospital	Daily services every 3-10 minutes		
	61	Siu Sai Wan(Island Resort)	Mong Kok(Fife St)	Daily over-night services every 30 minutes.		
	62	Heng Fa Chuen	Cheerful Garden(Circular)	Daily services every 6-8 minutes		
	62A	Heng Fa Chuen	Island Resort	Daily services every 8-10 minutes		
	65	Eastern Hospital	North Point (Fort St)	Daily services every 5-6 minutes		
	65A	Chai Wan(Hong Man St)	Quarry Bay(Circular)	Services on Monday to Saturday every 10-15 minutes		
	66(1)	Chai Wan (Wan Tsui Road)	Aldrich Bay (Circular)	Daily service every 8-10 minutes		
	66A	Eastern Hospital	Aldrich Bay(Circular)	Daily service every 8 minutes		

Note: (1) Refer to Figure 2.1 for locations of GMB terminus, T2 - Terminus of Route 66 and T1 - Terminus for all other routes

2.2 Observed Traffic and Pedestrian Data

2.2.1

2011 Ching Ming Festive Period Traffic and Pedestrian Survey

Figure 2.2 shows the locations of the traffic and pedestrian traffic surveys undertaken in the area during the Ching Ming festive period in 2011 and details of the surveys are given in the 2012 Study Report. Table 2-2 summarises the survey periods and the identified peak hour on each survey day.

	HKPF	Traffic	Survey	Pedestrian Survey		
Survey Date	Traffic Plan	Survey Period	Peak Hour	Survey Period	Peak Hour	
2 April 2011, Saturday	Level 2	0700-1800	1045 - 1145	0700-1800	1050 -1150	
3 April 2011, Sunday	Level 3	0700-1800	1015 - 1115	0700-1800	1045 - 1145	
5 April 2011, Tuesday (Ching Ming Day)	Level 3	0700-1800	1015 – 1115	0700-1800	1045 - 1145	
9 April 2011, Saturday	Level 2	0700-1800	1115 – 1215	0700-1800	1110 - 1210	
10 April 2011, Sunday	Level 2	0700-1800	1030 - 1130	0700-1800	1205 - 1305	

 Table 2-2
 Traffic and Pedestrian Peak Hours During Ching Ming Period

It is noted that the peak hour for the vehicular traffic on the road network in the study area and the peak hour for grave sweeper person trips differed slightly. For conservative estimates, respective peak hour figures are adopted to derive the peak hour person trip rates and vehicle trip rates in the subsequent assessment.

Table 2-2 also shows the associated traffic plans (Level 1, 2 or 3) implemented by the Police on each survey day. In general, Level 1 is implemented when inflow of visitors starting to build up until around 3000-4000 visitors per hour, and change to Level 2 when visitor inflow continues to build up and Level 3 will be adopted with the highest level of visitor inflow such as the situation on Ching Ming Day.

During Level 2 (i.e. on 2, 9 and 10 April 2011), vehicular traffic on Cape Collinson Road east of Lin Shing Road are re-routed for one-way clockwise traffic for cars and taxis. General traffic are also allowed to travel along Cape Collinson Road west of Lin Shing Road leading to Shek O Road. Special franchised buses (Nos. 388, 389) and authorised GMB routes (Routes 16A, 16M, 16X, 18M) travelled on Lin Shing Road to Cape Collinson Road to Shek O Road, which was running one way in westbound direction.

Implementation of Level 3 on 3 April and 5 April (i.e. Ching Ming Day) involved the following traffic diversion and road closures due to heavy pedestrian flows.

- (a) Cape Collinson Road east of Lin Shing Road;
- (b) the slip road leading from Cape Collinson Road to Garden of Remembrance and Crematorium, except hearses and vehicle carrying passengers to service at the Crematorium (crematorium was closed on Ching Ming Day);
- (c) the slip road leading to Chai Wan Chinese Permanent Cemetery;
- (d) Wan Tsui Lane
- (e) Cape Collinson Road west of Lin Shing Road and Lin Shing Road were closed to all vehicular traffic except franchised buses, GMB routes 16A, 16M, 16X, 18M and hearses.

Daily and Peak Hour Grave Sweepers Inflows

2.2.2

Table 2-3 shows the daily grave sweeper inflows by different modes observed by the TIA Consultant during the Ching Ming festive period in 2011. The total no. of visitors is calculated based on the followings:

- Accessing pedestrians on Lin Shing Road Footpath (Location P1 of Figure 2.2)
 - When Level 2 was implemented on 2, 9 and 10 April, pedestrians on Lin Shing Road included those from MTR Chai Wan station, bus passengers from Chai Wan Road and other walk modes.
 - When Level 3 was implemented on 3 and 5 April, pedestrians on Lin Shing Road also included visitors by car/taxi from Wan Tsui Road pick up/drop off areas as Lin Shing Road was closed for general traffic.
- Incoming bus traffic for Special Route 388 and 389 and occupancy rates observed at Location J2 and also visitors by Route No. 9 on Shek O Road at Location J3 of Figure 2.2.
- Incoming GMB vehicle traffic and occupancy rates observed at Location J2 of Figure 2.2.
- Incoming car and taxi vehicle traffic and an assumed occupancy rate of 2.5 persons per vehicle.

Date	Traffic Plan	Lin Shing Road Footpath	Bus (Routes 388/389/9)		GMB		Car/Taxi			Total Visitors		
	Level	No. of	No. of	Ave	No. of	No. of	Ave	No. of	No. of	Ave	No. of	
		visitors	vehicles	Occ*	visitors	vehicles	Occ*	visitors	vehicles	Occ*	visitors	
2/4/2011, Saturday	2	3,805	216	61	13176	325	9	2925	3042	2.5	7605	27511
3/4/2011, Sunday	3	15,682	301	78	23478	397	12	4764	-	-	**	43924
5/4/2011, Ching Ming Day	3	37,907	507	83	42081	375	13	4875	-	-	**	84863
9/4/2011, Saturday	2	2,740	184	38	6992	307	6	1842	2992	2.5	7480	19054
10/4/2011, Sunday	2	7,719	292	57	16644	345	9	3105	4235	2.5	10588	38056

Table 2-3 2011 Daily Grave Sweeper Flows by Modes during Ching Ming Festive Period

Notes: * Ave Occ = Average Occupancy (persons per vehicle) observed on-site

** Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

Table 2-4 shows the daily grave sweepers provided by the Hong Kong Police Force between 2009 and 2013 and with details given in Appendix A. The table also includes the 2011 daily grave sweeper flows collected by the TIA Consultant as detailed in Table 2-3.

 Table 2-4
 Comparisons of Daily Grave Sweeper Inflows

Day	2009	2010	2011	2012	2013	2011 Traffic and Pedestrian Surveys
Preceding Saturday	3940	5900	16635	8920	14380	27511
Preceding Sunday	14930	8035	43565	43050	18260	43924
Ching Ming Day	102800	40070	70920	45400	93600	84863
Following Saturday	6590	5120	13875	6600	7720	19054
Following Sunday	3060	22135	28990	9800	32240	38056

Table 2-5 shows the peak hour visitor flows by modes collected by the TIA Consultant on Ching Ming Day and the preceding and following Saturday and Sunday in 2011 and Table 2-6 compares the corresponding figures in 2012 and 2013 provided by the Police. The tables also show the associated traffic plans implemented by the Police during the respective peak hours.

2		No. of Visitors						
Date	Date Level Lin Shing Road B Footpath		Bus	GMB	Car/ Taxi	Total		
Preceding Saturday (2/4/2011)	2	744	3426	492	1101	5763		
Preceding Sunday (3/4/2011)	3	2544	6507	400	*	9451		
Ching Ming Day (5/4/2011)	3	8879	9882	504	*	19265		
Following Saturday (9/4/2011)	2	431	2553	396	957	4337		
Following Sunday (10/4/2011)	2	1178	4377	672	1354	7581		

Table 2-52011 Peak Hour Grave Sweeper Flows by Modes

Notes: * Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

 Table 2-6
 Comparison of Peak Hour Grave Sweeper Inflows

Day	2011 Pedes	Traffic and trian Surveys	2	2012	2013		
	Level	No. of Visitors	Level	No. of Visitors	Level	No. of Visitors	
Preceding Saturday	2	5763	2	2250	2	3800	
Preceding Sunday	3	9451	2	9600	2	3710	
Ching Ming Day	3	19265	3	8100	3	24000	
Following Saturday	2	4337	2	1250	2	1650	
Following Sunday	2	7581	2	2110	2	7500	

It is noted in Table 2-4 and Table 2-6 that the daily and peak hour visitor flows recorded in the 2011 traffic and pedestrian count survey fall in the upper range of the historic data provided by the Police. As the survey data provide detailed information on modal splits, hence, the 2011 survey data are adopted in the subsequent analysis. In addition, a sensitivity test with an increase of the trip rates by 20% is included in Section 6.

To assess the traffic impact under different levels of traffic conditions, the peak hour flows on 9/4/2011, 10/4/2011 and 5/4/2011 are adopted for the assessment of Level 1, Level 2 and Level 3 traffic conditions respectively. As no data for the Level 1 traffic condition is available, despite Level 2 was implemented on 9/4/2011, the peak hour traffic on 9/4/2011 which is less busy and condition of traffic is close to Level 1 situation is adopted to represent Level 1.

2.2.3 Existing Peak Hour Trip Generations by Vehicular Modes

Based on the observed vehicle flows collected on different days during the 2011 Ching Ming festive period, Table 4-2 in the 2012 Study Report which shows the peak hour vehicle flows (in pcu's) and associated trip generation rates induced by the existing facilities in Chai Wan Cemeteries on Ching Ming Day (i.e. Level 3) is updated to include the peak hour traffic conditions at Level 1 (9/4/2011) and Level 2 (10/4/2011). The results are shown in Table 2-7. All vehicle flows in the subsequent analysis are converted to passenger car unit (PCU) based on the PCU factors indicated below.

<u>Vehicle Type</u>	PCU Factor
Private Car/Taxi/Passenger Van	1.0
Public Light Bus including GMB and RMB	1.5
Medium Good Vehicle	1.75
Heavy Goods Vehicle	2.0
Bus and Coach	3.0

The existing vehicle trip generation rates will be used to estimate the additional vehicular traffic to be generated by the committed and proposed future developments in Chai Wan Cemeteries for assessment of the potential traffic impact to the road network in the study area.

		Peak Hour Traffic Flow (PCU)									
		Level 1			Level 2			Level 3			
	(9/4/2011)			(10/4/2011	l)	(Ching Ming,5/4/2011)				
	In	Out	Total	In	Out	Total	In	Out	Total		
Car/Taxi	338	329	667	610	428	1038	552	557	1109		
Bus	75	57	132	123	78	201	198	162	360		
GMB	68	68	136	65	66	131	92	98	190		
Others	18	5	23	9	2	11	25	29	54		
Total	499	459	958	807	574	1381	867	846	1713		
		Peak Hou	r Trip Ra	te (PCU j	per 100 gr	aves/ urn	graves/	niches)			
Car/Taxi	0.165	0.161	0.326	0.298	0.209	0.508	0.270	0.272	0.542		
Bus	0.037	0.028	0.065	0.060	0.038	0.098	0.097	0.079	0.176		
GMB	0.033	0.033	0.067	0.032	0.032	0.064	0.045	0.048	0.093		
Others	0.009	0.003	0.011	0.006	0.001	0.005	0.012	0.014	0.026		
Total	0.244	0.224	0.469	0.395	0.281	0.675	0.424	0.413	0.837		

 Table 2-7
 2011 Peak Hour Generation Rates by Vehicular Modes

Note: 2011 total number of graves/ urn graves/ niches = 204,437

2.2.4

Peak Hour Traffic Conditions

Table 2-8 shows the existing peak hour junction performance at the key junctions in the study area. Detailed calculation sheets are given in Appendix B.

The calculation of the reserve capacities (RC) of signal controlled junctions and design flow/capacity ratio (DFC) of priority junctions and roundabout are carried out in accordance with the Transport Planning and Design Manual (TPDM) Volumes 2 and 4. A RC value of 10% or >10% for signal controlled junctions is considered within acceptable level without causing undue delay to motorists passing through the concerned junction. Likewise, a DFC value of 0.85 or <0.85 for priority and roundabout junction is considered satisfactory.

Jn No.	Location	Junction Type	Level 1 (9/4/2011)	Level 2 (10/4/2011)	Level 3 (Ching Ming, 5/4/2011)
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.50	0.77	0.32
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	36.6%	6.4%	37.7%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.61	1.47	0.52
J4	J/O Chai Wan Road Roundabout	Roundabout	0.66	0.55	0.60
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	187.5%	315.2%	282.8%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	91.6%	95.7%	144.9%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	103.8%	108.8%	184.1%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	46.8%	18.5%	7.7%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.35	0.24	0.43

Table 2-8 2011 Peak Hour Junction Performance during Different Traffic Plan Levels

*Notes: Reserve Capacity (RC) for signal controlled junction;

Design Flow /Capacity Ratio (DFC) for priority junction and roundabout

J1/J2/J3 are for information only (on-site manual traffic control implemented by the HKPF)

During the Ching Ming Period, special traffic arrangements had been implemented as described in Section 2.2.1 and traffic control was carried out by the HKPF at the junctions along Cape Collinson Road and Lin Shing Road, i.e. J1, J2 and J3. Hence, calculation of RC and DFC at these junctions as shown in Table 2-7 is for reference only and does not truly reflect the actual traffic condition as extensive traffic control and management measures were implemented by HKPF aimed to balance the demand of vehicular and pedestrian traffic and ensure road safety.

With the exception of J8 (J/O Chai Wan Road and Tai Tam Road), all other key junctions in the area performed satisfactorily during the peak hours at Level 1, 2 and 3. For J8, heavy right turn movements from Chai Wan Road (N) to Tai Tam Road were recorded and the junction was found to approach capacity during the peak hour under Level 3, i.e. on Ching Ming Day.

2.2.5

Traffic Analysis of Key Pedestrian Routes

Table 2-9 presents the peak hour pedestrian flows at the critical links recorded at Level 1, 2 and 3 during Ching Ming festive period. Figure 2.3 shows the locations of the critical footpath links and these are:

- P1: the footpaths on Cape Collinson Road east of Lin Shing Road
- P2: the footpaths on Lin Shing Road
- P3: the footpaths on Cape Collinson Road east of Shek O Road junction
- P4: the footpaths on Cape Collinson Road near the Second Columbarium.

Table 2-92011 Peak Hour Pedestrian Flows at Critical Lnks during
Ching Ming Festive Period

Route	P1			P2		P3		P4		Total
Link	А	В	С	D	Е	F	G	Н	Ι	Total
Level 1 (9/4/2011 11:10-12:10)	437	507	273	431	675	562	1495	197	99	4676
Level 2 (10/4/2011 12:05-13:05)	1884	2258	1079	1178	2122	1913	2909	938	946	15227
Level 3 (5/4/2011 10:45-11:45)	7584	6029	5709	8879	3634	3673	6113	4082	2110	47813

Note: Refer to Figure 2.3 for locations of footpaths and direction of movements

2.2.6

Traffic Analysis of Key Pedestrian Routes

In order to assess the performance of these critical pedestrian links, the level of service (LOS) of the links is calculated. The definitions of different levels of LOS in accordance with the Highway Capacity Manual (HCM) 2000 are given in Appendix C for easy reference. In general, LOS D is considered the minimum threshold from a comfort and safety point of view.

The LOS at the critical links is calculated using the observed peak-5 minute pedestrian flows along the links. It is noted that the actual widths along the critical links such as D and E along Lin Shing Road are widened by the special traffic management implemented on-site. For all footpath widths, 0.5m "shy zone" is deducted from the actual width to derive the effective width for the calculation. The calculations of the pedestrian LOS for Ching Ming Day at critical links for the peak 5-mins flows are shown in Table 2-10.

	Level 1										
Route	Critical Link	Actual Width	Effective Width ⁽¹⁾	Peak 5-min flows	Ped/min/m	LOS					
P1	A+B	3.0	2.5	113	9	А					
	C ⁽³⁾	3.0	2.5	49	4	А					
	D	3.0	2.5	72	6	А					
P2	Е	2.3	1.8	108	12	А					
Р3	F+G ⁽⁵⁾	2.8	2.3	205	18	В					
P4	$H+I^{(2)}$	2.5	2.0	50	5	А					
			Lev	vel 2							
Route	Critical Link	Actual Width	Effective Width ⁽¹⁾	Peak 5-min flows	Ped/min/m	LOS					
P1	A+B	3.0	2.5	455	36	D					
	C ⁽³⁾	3.0	2.5	218	-	-					
	D	3.0	2.5	325	26	С					
P2	Е	2.3	1.8	329	37	D					
Р3	$F + G^{(5)}$	2.8	2.3	785	68	Ε					
P4	$H + I^{(2)}$	2.5	2.0	213	21	В					
			Lev	vel 3							
Route	Critical Link	Actual Width	Effective Width ⁽¹⁾	Peak 5-min flows	Ped/min/m	LOS					
P1	$A + B^{(2)}$	10.9	9.9	1620	33	С					
	C ⁽³⁾	3.0	2.5	354	-	-					
	D ⁽⁴⁾	4.5	4.0	1026	51	E					
P2	E ⁽⁴⁾	3.3	2.8	719	52	Е					
P3	F+G ⁽⁵⁾	2.8	2.3	1322	115	F					
P4	$H+I^{(2)}$	5.9	4.9	1063	44	D					

Table 2-102011 LOS of Critical Links in Level 1, 2 and 3 during Ching
Ming Festive Period

Notes: (1) Effective width = Actual width -0.5m (one side or both sides)

(2) Carriageway without traffic being used as footway

(3) Management and crowd control by the HKPF at pedestrian crossings to control flows

(4) Footway width includes 1.0m temporary footway widening

(5) Footway at Link G only, no footway at Link F

As indicated in Table 2-10, the walking conditions at the critical links at Level 1 are generally within acceptable level as the pedestrian flows are relatively lighter than Level 2 and much less than Level 3. The condition at Level 3, i.e. on Ching Ming Day, is most critical as pedestrian demand is very high. An undesirable LOS value of E is calculated on the footpaths on both sides of Lin Shing Road, i.e. Link D and Link E at P2, which is the main pedestrian route to/from Chai Wan Cemeteries.

The other main entrance to Chai Wan Cemeteries is situated at the western end of Cape Collinson Road, i.e. Links F and G at P3. A high volume of bus passengers accessed the cemeteries after alighting at the bus stops on Shek O Road. Likewise, a large amount of leaving grave sweepers either taking Routes 388 or 389 on Cape Collinson Road, or other bus services on Shek O Road. It is concerned that there is actually no footpath at Link F, instead, bus passengers were queuing along the edge of carriageway and high level of vehicular/pedestrian conflicts were observed during the peak period. Due to the narrow width of the available footpath and the high intensity of conflicting vehicular and pedestrian activities in the area, observations revealed that in reality, pedestrian were found to spill over and walked along the trafficked carriageway and required high demand of management and control by the HKPF.

Forecast Development Traffic

Columbarium and Graves Facilities

The existing and planned columbarium and graves facilities in Chai Wan Cemeteries are summarized in Table 3-1.

Completion	Management	Туре	No.	Total
	Cape Collinson Columbarium	Niches	61,615	
		Coffin Graves	22,715	
	Chinese Permanent	Urns	1409	
Existing (as at	Cemeteries	Niches	66,229	
2011)		Ossuaries	8849	
		Coffin Graves	10,506	
	Roman Catholic Cemetery; Muslim Cometery: Buddhist	Urns	710	
	Cemetery	Niches	31,090	
	Semictory	Ossuaries	1314	204,437
2011-12	Chinese Permanent	Niches	8205	
2014	Cemeteries	Niches	17,129	
2013	Buddhist Cemetery	Niches	3220	28,554
2018	Site I	Niches	25,000	25,000
Total				257,991

 Table 3-1
 Existing and Planned Columbarium and Graves Facilities

At present, Chai Wan Cemeteries provide a total of 204,437 niches/ urn/ graves/ ossuaries. BMCPC plans to provide additional 8,205 niches in 2011-12 and 17.129 niches in 2014 and the Buddhist Cemetery also plans to provide additional 3,220 niches in 2013, giving a total of 28,554 new niches by 2014. Together with the currently proposed 25,000 at Site 1, there would be a total of 257,991 columbarium and graves facilities in Chan Wan Cemeteries.

Vehicular Traffic Generations from Committed and Proposed Developments

Based on the existing trip rates described in Table 2-7 and the committed and proposed provisions detailed in Table 3-1, Table 3-2 summarises the peak hour vehicular trips to be induced by the committed development and Site I development for Level 1, 2 and 3.

3.2

3

3.1

			Peak Hour Traffic Flow (PCU)								
			Level 1			Level 2			Level 3		
		In	Out	Total	In	Out	Total	In	Out	Total	
	Car/Taxi	47	46	93	85	60	145	77	78	155	
Committed	Bus	10	8	18	17	11	28	28	23	51	
Development	GMB	9	9	18	9	9	18	13	14	27	
niches)	Others	2	1	3	1	0	1	4	4	8	
	Total	68	64	132	112	80	192	122	119	241	
	Car/Taxi	41	40	81	75	52	127	68	68	136	
Site I	Bus	9	7	16	15	10	25	24	20	44	
(25,000 niches)	GMB	8	8	16	8	8	16	11	12	23	
	Others	2	1	3	1	0	1	3	4	7	
	Total	60	56	116	99	70	169	106	104	210	

 Table 3-2
 Forecast Peak Hour Development Vehicular Traffic

The committed developments (28,554 niches) are expected to induce two-way traffic flows of 132, 192 and 241 pcu's during the peak hour in Level 1, 2 and 3 respectively. The corresponding figures for Site 1 (25,000 niches) are 116, 169 and 210 respectively.

The additional development will be added to the background traffic, taking into account the proposed improvement and special traffic arrangements, to assess the traffic impact to the road network in the Study Area.

Person Trip Generations from Committed and Proposed Developments

Based on the observed peak hour trips described in Table 2-5 and the committed and proposed provisions detailed in Table 3-1, Table 3-3 summarises the peak hour person trips to be induced by the committed development and Site I development for Level 1, 2 and 3.

3.3

	Comr	nitted Provi (28,554 no	sions s)	Site I (25,000 nos.)			
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	
MTR/Walk	60	165	1240	53	144	1086	
Other Bus	58	171	272	50	149	238	
388, 389	299	441	1109	262	386	971	
GMB	55	94	70	48	82	62	
Taxi/ Car	134	189	*	117	166	*	
TOTAL	606	1060	2691	530	927	2357	

 Table 3-3
 Forecast Peak Hour Arriving Grave Sweeper Flows by Modes

* Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

For the most critical peak hour in Level 3, i.e. on Ching Ming Day, the committed development would attract 2,691 visitors and Site I would attract another 2,357 visitors, giving a total increase 5,048 visitors.

Review of Forecast Bus Passenger Demand

Based on the daily patronage figures provided by Transport Department, on 2013 Ching Ming Day, there were 29,044 and 25,550 passengers on board of Route No. 388 and No. 389 respectively, giving a daily patronage of 54,594 passengers. However, as there is no data regarding the peak hour patronage, the 2013 grave sweeper data provided by the Police are adopted to derive the peak hour patronage as detailed below:

2013 Routes 388 & 389 bus patronage = 29044 + 25550 = 54594(a)

Refer to Table 2-4: 2013 Daily Grave Sweeper Flows = 93,600 and

Table 2-6: 2013 Peak Hour Grave Sweeper Flows = 24,000

 \Rightarrow Peak Hour Factor = 24,000 / 93,600 = 0.256.....(b)

Hence, the 2013 peak hour trip generation rate by bus is:

$$\Rightarrow$$
 54594 (a) x 0.256 (b) / 204437 = 0.0684 trip per grave/urn......(c)

The peak hour bus demand for Site I development is:

 \Rightarrow 0.0684 (c) x 25,000 = 1,709 bus passengers per hour.....(d)

Refer to Table 2-7, according to the 2011 observed Ching Ming Day peak hour data, the ratio between arriving bus trips (198 pcus) and departing bus trips (162 pcus) was 55:45. To provide conservative estimates, a ratio of 60:40 split between arriving and departing bus trips are assumed. Hence, the derived 2013 peak hour bus passenger demand for Site I development is:

- \Rightarrow 1,709 (d) x 60% = 1025 arriving bus passengers
- \Rightarrow 1,709 (d) x 40% (e) = 684 departing bus passenger

Based on the above, the forecast bus passenger demand by Route 388 and 389 during the peak hour on Ching Ming Day (Level 3) in Table 3-3 is adjusted to 1025 accordingly as indicated in Table 3-4. Similarly, the peak hour bus demand for the committed provisions is increased to 1172.

	Comr	nitted Provi (28,554 no	sions s)	Site I (25,000 nos.)			
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	
MTR/Walk	60	165	1240	53	144	1086	
Other Bus	58	171	272	50	149	238	
388, 389	299	441	1172	262	386	1025	
GMB	55	94	70	48	82	62	
Taxi/ Car	134	189	*	117	166	*	
TOTAL	606	1060	2754	530	927	2411	

Table 3-4 Adjusted Peak Hour Arriving Grave Sweeper Flows by Modes

* Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

4 Proposed Improvements

4.1 4.1.1	Review of Proposed Improvement Schemes The following improvement schemes are recommended in the 2012 Report:							
	1. Provision of new pedestrian Access Route with escalators and stairways linking Cape Collinson Road and San Ha Street, with associated footpath and carriageway widening on Cape Collinson Road and special traffic plan.							
	2. Junction improvement at J/O Cape Collinson Road and Lin Shing Road.							
4.1.2	To facilitate visitors to access the new pedestrian access route, new special bus services from MTR Shau Kei Wan Station and from MTR Heng Fa Chuen Station to San Ha Street and strengthening of existing bus services running along Chai Wan Road are proposed to cope with the anticipated demand.							
4.1.3	The following special traffic arrangements are also proposed to facilitate the operation of the hillside escalators.							
	• Conversion of San Ha Street to one-way westbound direction in order to free up space for visitors.							
	• Closure of existing metered car parking spaces on the southern carriageway for temporary bus stand and/or pick up/drop off layby for car/taxi.							
	• Temporary bus stand for special bus services from MTR Heng Fa Chuen Station to San Ha Street and MTR Shau Kei Wan Station to San Ha Street and some existing bus services diverted from Chai Wan Road to San Ha Street.							
	• Temporarily closing the nearside lane of Chai Wan Road to accommodate left turning buses diverted from Chai Wan Road to San Ha Street via Wing Ping Street.							
	• The existing GMB service on San Ha Street westbound is to be maintained.							
	• The existing PLB prohibited zones on Chai Wan Road eastbound near San Ha Street, and San Ha Street are to be maintained.							

• The arrangement for guiding pedestrians for access from MTR Chai Wan Station to escalators on San Ha Street via Chai Wan Park and Yee Shun Street and pedestrian egress route from San Ha Street to MTR Chai Wan Station via Chai Wan Road southern footpaths and the footbridges across Chai Wan Road Roundabout may be considered.

4.2 Proposed Changes to Original Improvement Schemes

4.2.1

The proposed improvement schemes as described in Section 4.1 above are reviewed by taking into account the forecast additional traffic flows detailed in Table 3-2 and additional grave sweeper flows given in Table 3-4. Table 4-1 discusses the proposed changes to the original improvement proposal.

Table 4-1	Summary	of Proposed	Changes to	Original	Improvemen	t Proposal
			0	0	1	

Original Proposals in TIA Report	Proposed Changes	Reasons for Proposed Change
Provision of new pedestrian Access Route with escalators and stairways linking Cape Collinson Road and San Ha Street, with associated footpath and carriageway widening on Cape Collinson Road and improvement plan.	No change	(Figure 5.2a of the 2012 Study Report is attached in Appendix D for reference)
Junction improvement at J/O Cape Collinson Road and Lin Shing Road.	No change	(Figure 5.3a and Figure 5.3b of the 2012 Study Report are attached in Appendix D for reference)
New special bus services from MTR Shau Kei Wan Station and from MTR Heng Fa Chuen Station to San Ha Street	New special bus service from Heng Fa Chuen to San Ha Street only. (Figures 4.1 to 4.4)	 With clearer information to bus passengers All bus bays and passenger queuing platforms are fully occupied at Shau Kei Wan bus terminus, with a new bus route NWFB18X started providing service to passengers between Shau Kei Wan Bus Terminus and Kennedy Town in July 2013.
Strengthening of existing bus services running along Chai Wan Road are proposed to cope with the anticipated demand	Minor changes of bus frequency to suit forecast demand.	
Divert some existing bus services on Chai Wan Road to San Ha Street	Maintain all existing franchised bus services on Chai Wan Road, the major corridor in Chai Wan, without diversion of bus routes onto San Ha Street.	
Conversion of San Ha Street to one-way westbound direction in order to free up space for visitors.	No change	
Closure of existing metered car parking spaces on the southern carriageway for temporary bus stand and/or pick up/drop off layby for car/taxi.	8 nos. of metered car parking spaces, 2 nos. of disabled parking spaces and 16 nos. of motorcycle parking spaces will need to be closed temporarily. (Fig 4.1)	To allow special bus services only at San Ha Street and visitors by car/taxi will use the pick up/drop off facilities on Wan Tsui Road same as the existing situation to minimize traffic flows and simplify crowd management and traffic control on San Ha Street.
Temporary bus stand for special bus services from MTR Heng Fa Chuen Station to san Ha Street and some existing bus services diverted from Chai Wan Road to San Ha Street.	All existing bus services on Chai Wan Road will be maintained without any diversion.	To minimize traffic flows on San Ha Street.
Temporarily closing the nearside lane of Chai Wan Road to accommodate left turning buses diverted from Chai Wan Road to San Ha Street via Wing Ping Street. The existing GMB service on San Ha Street	In addition, minor modification of the traffic island at Wing Ping Street approach is required (Figure 4.6) No change	To allow sufficient space for left turning bus.
westbound is to be maintained. The existing PLB prohibited zones on Chai Wan Road eastbound near San Ha Street, and San Ha Street are to be maintained.	No change	
The arrangement for guiding pedestrians for	No change	

Original Proposals in TIA Report	Proposed Changes	Reasons for Proposed Change
access from MTR Chai Wan Station to escalators		
on San Ha Street via Chai Wan Park and Yee		
Shun Street and pedestrian egress route from San		
Ha Street to MTR Chai Wan Station via Chai		
Wan Road southern footpaths and the		
footbridges across Chai Wan Road Roundabout.		

- 4.2.2 Taking into account that the amount of visitors to Site I by car/taxi is relatively small, and also to minimize the amount of traffic flows on San Ha Street for more efficient crowd management, it is proposed that pick up/ drop off facilities for special bus service only be provided on San Ha Street. Visitors to Site I by car/taxi can use the pick up / drop off facilities on Wan Tsui Road same as the existing condition.
- 4.2.3 It is also proposed to provide only the special bus service between San Ha Street and Heng Fa Chuen as there is very limited scope for providing additional queuing area for the new special bus services in Shau Kei Wan bus terminus. The journey time for the proposed special bus route to travel between Heng Fa Chuen and San Ha Street, around 30 minutes (round trip time) is less that that of the journey time for another proposed special bus route to travel between Shau Kei Wan and San Ha Street of around 40 minutes (round trip time). Given the shorter turnaround time, the special bus route between Heng Fa Chuen and San Ha Street can provide a more frequent service to the passengers with a higher hourly carrying capacity.
- 4.2.4 The feasibility of providing additional bus services at the bus terminus at MTR Chai Wan Station is considered not viable due to lack of available vacant spaces for loading/unloading activities of buses and passenger queues. Also, the distance between MTR Chai Wan Station and Site I is not significant, visitors taking MTR to Chai Wan Station would likely to continue their journey by foot to the western part of Chai Wan Cemeteries similar to majority of the existing visitors.
- 4.2.5 The proposed special traffic arrangement on San Ha Street are shown in Figure 4.1 and detailed below:
 - 4 no. of bus stacking spaces are provided (2 boarding bay + 1 layover bay + 1 alighting bay) and flexibility is available if additional bay is required by suspended a few more metered parking spaces.
 - Since only one-way westbound traffic is allowed, westbound traffic will be diverted onto the eastbound carriageway while a short section of the westbound carriageway will be converted as bus bays for the special bus services.

- 8 nos. of existing metered car parking spaces, 2 nos. of disable parking and 16 motor-cycle parking spaces will need to be suspended temporarily and converted to become footpath and queuing area.
- A minimum length of 100m will be reserved for passenger queuing sufficient for 200 waiting passengers with an average waiting space of 0.5m² per passenger to a maximum of 300 waiting passengers with an average space of 0.3m² per passenger. Based on a peak hour demand of around 2400 bus passengers and a service headway of 3 minute, a maximum queue of 120 passengers per 3 minutes (which equivalent to the bus service headway) is expected. The queuing area is sufficient to accommodate the passenger queue with flexibility to hold a longer queue.
- For grave sweepers to and from Chai Wan Road, a one-way circulation system is proposed to minimize conflicting movements. The resulting Level of Services along the footpaths on San Ha Street are presented in Figure 4.2.
- 4.2.6 Figure 4.3 and Figure 4.4 shows two options for the provision of the temporary bus stand for the special bus service at Heng Fa Chuen. The proposed special traffic arrangements for Option 1 (Figure 4.3) are detailed below:
 - The temporary bus stand will be provided at the layby next to the Heng Fa Chuen bus terminus. The lay-by, around 40m in length, can allow a stacking of 3 buses for 2 loading bays and 1 unloading bay.
 - The pedestrian routes for arriving and departing bus passengers are segregated to minimize conflicting movements.
 - A queuing area with the flexibility to arrange one queue or two different queues with a total length of around 120m would be sufficient to accommodate around 240 waiting passengers with an average waiting space of 0.5m² per passenger to a maximum of 360 waiting passengers with an average space of 0.3m² per passenger. Based on a peak hour demand of 2400 passengers and a service headway of 3 minute, a maximum queue of 120 passengers is expected and hence the queuing area would be sufficient to accommodate the expected queue.
 - A temporary pedestrian crossing will be provided for the departing passengers after alighting from the bus. As the amount of vehicles entering the bus terminus is not high (less than 30 vehicles per hour), there would be sufficient crossing time available for the departing passengers.
- 4.2.7 The proposed special traffic arrangements for Option 2 (Figure 4.4) are detailed below:
 - It is proposed to re-locate the existing GMB stand to the lay-by adjacent to the bus terminus and convert the GMB stand for the special bus service to

San Ha Street. The existing GMB stand can allow a stacking of 2 buses and 2 unloading bays will be provided within the bus terminus.

- A queuing area with a total length of around 83m would be sufficient to accommodate around 166 waiting passengers with an average waiting space of 0.5m² per passenger to a maximum of 250 waiting passengers with an average space of 0.3m² per passenger. The arriving and departing passengers do not need to walk across the crossing points.
- The existing lay-by can accommodate 5 no. of GMB. While GMB passengers are required to walk across the crossing points, the amount of passengers is much less than the special bus service. The footway adjacent to the lay-by which is about 50m in length would allow for a queuing area for at least 100 GMB passengers.
- 4.2.8 The requirement for bus stacking area in Heng Fa Chuen bus terminus and San Ha Street to accommodate a peak hour demand of 20 bus trips (refer to Table 5-3) is detailed below:

Peak Bus Allocation	= 12
Peak Frequency	= 3 mins
Jou r ney Time	= 15 mins
Peak Bus Allocation x peak frequency	$= 12 \ge 3 = 36$
Total round trip (journey time x 2)	= 15 x 2 = 30 mins
Total excess time (layover)	= (36-30) mins
	= 6 mins (3 mins at each end)

Since the layover time is equal to the frequency, this should mean only one bus is on the stand at any one time. In Heng Fa Chuen bus terminus, 3 nos. stacking bays are provided for boarding, alighting and layover. At San Ha Street, 4 nos. of stacking bays are provided to allow for greater flexibility.

- *4.2.9* The routing of the special bus service between Heng Fa Chuen and San Ha Street is shown in Figure 4.5.
- 4.2.10 To allow for the special bus from Heng Fa Chuen to San Ha Street, it is required to temporarily closing the nearside lane of the Chai Wan Road approach at J11 (the junction of Chai Wan Road and Wing Ping Street) to allow buses left turn from Chai Wan Road to Wing Ping Street. In addition, minor modification of the traffic island which places the traffic lights at the approach of Wing Ping Street is required. The size of the traffic island needs to be reduced slightly as shown in Figure 4.6.

5 Traffic Assessment

5.1

5.1.1

Traffic and Transport Requirements to Complement the Proposed Escalators

Peak Hour Grave Sweeper Flows using Escalators

Table 5-1 shows the estimated amount of pedestrians who would use the proposed escalators during the peak hour in Level 1, 2 and 3.

	Access Mode	Level 1	Level 2	Level 3
Site I	New Special Bus	530	927	2,411
Visitors	Car/Taxi	-	-	-
Other	Diverted from No. 388/389 to	100	200	800
visitors	existing bus services to access			
	escalators			
	Diverted from MTR to existing	100	200	800
	bus services to access escalators			
	Continue to use existing bus	100	200	800
	services to access escalators			
TOTAL		830	1,527	4,811

Table 5-1Assumed Peak Hour Usage of the Proposed Escalators

The following assumptions are adopted in deriving the usage of the proposed escalators:

• In reality, some of the Site I visitors will use other public transport modes such as MTR to access Chai Wan and then walk to Site I via Lin Shing Road, or taking other bus services on Chai Wan Road. Since, the basic principle of the usage assumptions is that the proposed escalator will serve not only the Site I visitors, but also to be shared use by all other visitors to the cemeteries. Hence, if some of the Site I visitors use other modes instead of using the new special bus and escalator to access Site I, the spare capacity will be filled by other visitors until the capacity of the escalator is reached.

To take a conservative approach, therefore, it is assumed that all Site I visitors as shown in Table 3-4 would use the new special bus from Heng Fa Chuen to San Ha Street for accessing the proposed escalator. For Level 3, for example, around 2,411 Site I visitors are expected to use the new special bus service.

- Site I visitors by car/taxi will use the pick up /drop off facilities on Wan Tsui Road and then walk to Site I via Lin Shing Road same as the existing visitors.
- It is assumed around 800 of the existing Routes 388 and 389 bus passengers currently boarding and/or alighting at the bus stop near the junction of Cape Collinson Road and Lin Shing Road would be attracted by the proposed escalators, and hence will be diverted to use the existing bus service passing through Chai Wan Road for accessing the escalators on San Ha Street.
- It is assumed that a similar amount of the existing MTR passengers (800) would be attracted by the escalators. As the access route from MTR Chai Wan Station to San Ha Street via Chai Wan Park and Yee Shun Street is detour and indirect, majority of the accessing MTR visitors attracted by the escalators are expected to be diverted to use the existing bus services on Chai Wan Road for accessing the escalators instead of walking directly from MTR Chai Wan Station to San Ha Street. Hence, for the sake of simplicity, it is assumed no accessing visitors diverted directly from MTR to the escalators.
- Another 800 existing bus passengers currently using the various bus services on Chai Wan Road would be attracted to use the escalators instead of walking to Lin Shing Road. In this case, they would continue to use the existing bus services.

As a result, Table 5-1 shows that around 4,811 pedestrians are estimated to use the escalator in peak direction which is about 80-90% of the capacity of the escalator of around 5,000 - 5,500 pedestrians/hour. Among these pedestrians, around 50% (2,411 pedestrians) are visitors to Site I and about 50% (2,400 pedestrians) are "other visitors" to the nearby cemeteries.

Based on the above assumptions, Table 5-2 compares the existing peak hour flows and the future Reference, i.e. with committed developments but no improvement schemes, and the Design flows, i.e. with Site I and the proposed new special bus services and escalator provisions.

	Existing Provisions			Reference Scenario			Design Scenario			
		(204,437 nos.)			(232,991nos)			(257,991 nos)		
	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	Level 1	Level 2	Level 3	
MTR/Walk	431	1178	8879	491	1343	10119	391	1143	9319	
9	412	1221	1944	469	1392	2216	469	1392	2216	
388, 389	2141	3155	7938	2440	3596	9110	2340	3396	8310	
GMB	396	672	504	451	766	574	451	766	574	
Taxi/ Car	957	1355	0	1091	1544	*	1208	1709	*	
Special Bus	-	-	-	-	-	-	530	927	2411	
Additional							200	100	1(00	
Existing Bus	-	-	-	-	-	-	200	400	1600	
TOTAL	4337	7581	19265	4943	8640	22019	5589	9733	24430	

Table 5-2 Comparisons of Peak Hour Visitors by Modes With and Without Site I and Escalators

* Visitors by car/taxi are included in Lin Shing Road footpath when Level 3 is implemented.

Comparing the Reference and Design Scenarios in Level 3, around 2,411 Site 1 visitors would use the new special bus services and 1600 visitors will be diverted from other modes to use the existing bus services on Chai Wan Road to access the escalator. On the other hand, the amount of incoming visitors by MTR and Routes 388 and 389 would be reduced.

Peak Hour Bus Passenger Demand and Bus Fleet Requirements

(a) Special Bus Services

5.1.2

Based on Table 5-2 above, the estimated demand for the new special bus service is around 2,411. The additional bus trips and fleet requirement is shown in Table 5-3 for Level 3 (Ching Ming Day) which is the most critical stage. The recorded daily no. of bus trips and recorded patronage for Route 388 and 389 are 190 and 186, and 29,044 and 25,550 respectively on the Ching Ming Day in 2013. To provide conservative estimates, an average occupancy of 135 passengers is assumed in estimating the bus trips and fleet requirement as indicated in Table 5.3.

	Iournev*	Peak Hour Passengers		Peak Hour Bus Trips			No. of Bus			
Bus Route	Time	Existing	Reference	Design	Existing	Reference	Design	Existing	Reference	Design
No. 388	50-60 min	4366	5010	4570	33	37	34	33	37	34
No. 389	60-70 min	3572	4100	3740	27	31	28	32	36	33
Special Bus Service: Heng Fa Chuen MTR Station - San Ha Street	30-35 Min	-	-	2,411	-	-	18	-	-	12
TOTAL		7938	9110	10,721	60	68	80	65	73	79

 Table 5-3
 Special Bus Services Requirements for Ching Ming Peak Hour (Level 3)

Note: * Journey time = circular trip travelling time plus loading and unloading time

** Full bus occupancy = 135 passengers per bus

In summary, comparing the Reference (i.e. without Site I and escalators) and Design (with Site I and escalators) scenarios:

- An increase of 18 nos. of bus trips during the peak hour for the new bus services between Heng Fa Chuen and San Ha Street and a reduction of 6 bus trips for Nos. 388 and 389, giving a net increase of 12 bus trips in the peak hour.
- An increase of 12 nos. of bus is required during the peak hour for the new bus services and a reduction of 6 nos. of bus for Nos. 388 and 389, giving a net increase of 6 nos. of bus.
- (b) Strengthening of Existing Bus Services

From Table 5-2, the additional bus passengers on other bus services from Design scenario to Reference scenario is 1,600 (diverted from 388, 389 and MTR).

To accommodate this increase in demand, it is proposed to strengthen some of existing bus routes on Chai Wan Road to accommodate the increased demand due to passengers attracted from other modes to access the escalators. An addition of 6 bus trips is required for the Reference scenario and about 13 nos. of bus trips for the Design Scenario. Table 5-4 shows the proposed strengthening of bus services.

Bus Route	Terminating Points	Published Frequency	Existing	Reference	Design
8P	Siu Sai Wan - Wan Chai Ferry	3 – 7 min	10	11	11
8X	Siu Sai Wan - Happy Valley	7 – 25 min	10	10	11
82	North Point Ferry Pier - Siu Sai Wan	5 – 15 min	10	11	12
82X	North Point - Siu Sai Wan	10 - 20 min	4	4	5
106	Wong Tai Sin - Siu Sai Wan	4 - 10 min	10	11	12
118	Sham Shui Po - Siu Sai Wan	4 – 10 min	10	11	11
606	Siu Sai Wan - Choi Hung	11 - 22 min	6	7	7
682	Lee On - Chai Wan (East)	8 - 20 min	6	6	7
694	Siu Sai Wan - Tiu Keng Leng PTI	15 - 25 min	4	4	5
780	Chai Wan (East) - Central	12 - 17 min	9	10	11
TOTAL			79	85	92

Table 5-4Strengthening of Existing Bus Services on Chai Wan Road

Traffic Impact Assessment with the proposed Special Traffic Plan

Tables 5-5, 5-6 and 5-7 compare the junction capacity assessment results for 2016, 2021 and 2026 respectively for the following scenarios:

• Reference – no Site I and Escalators

5.2

• Design - Site I with Escalators and Revised Special Traffic Plan (car/taxi pick up / drop off remains on Wan Tsui Street).

In addition to the data collected during the Ching Ming festive period in 2011, additional traffic surveys at the Junction of Chai Wan Road and San Ha Street (J10), and the Junction of Chai Wan Road, Sheung On Street and Wing Ping Street (J11) have also been conducted during weekday morning and afternoon peak hours, and derived for the Ching Ming peak hour based on the travel pattern observed on the Ching Ming festive period in 2011. This additional data are collected in response to the recommendations and proposed improvement schemes. The peak hour junction performances for Reference and Design scenarios described above for all the design years of 2016, 2021 and 2026 are presented in Table 5-5 to 5-7 respectively and detailed junction calculation sheets are given in Appendix B.

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Table 5-5 Comparisons of 2016 Peak Hour Junction Performance

				Year 2016	
Jn		Junction			
No.	Location	Туре	Level 1	Level 2	Level 3
	Referen	ce Scenario		1	T
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.62	0.87	0.41
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	37.2%	17.3%	13.6%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.75	1.75	0.66
J4	J/O Chai Wan Road Roundabout	Roundabout	0.73	0.61	0.67
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	178.6%	300.4%	269.3%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	86.2%	90.2%	138.0%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	97.6%	102.3%	118.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	37.5%	9.6%	3.1%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.36	0.25	0.48
J10	J/O Chai Wan Road and San Ha Street	Signal	74.6%	169.6%	142.5%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	120.0%	128.5%	142.5%
	Design	Scenario			
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.65	0.94	0.36
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	32.4%	11.2%	58.1%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.78	1.85	0.58
J4	J/O Chai Wan Road Roundabout	Roundabout	0.75	0.63	0.72
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	177.4%	293.9%	260.1%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	86.0%	89.4%	135.2%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	97.6%	102.3%	118.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	35.5%	6.8%	1.9%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.36	0.26	0.53
J10	J/O Chai Wan Road and San Ha Street	Signal	72.4%	154.6%	62.9%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	120.0%	127.9%	141.1%

*Notes:

Reserve Capacity (RC) for signal controlled junction Design Flow /Capacity Ratio (DFC) for priority junction and roundabout. J1/J2/J3 are for information only, on-site crowd management and traffic control is required
Comparisons of 2021 Peak Hour Junction Performance Table 5-6

				Year 2021	
Jn		Junction			
No.	Location	Туре	Level 1	Level 2	Level 3
	Reference	ce Scenario			
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.64	0.89	0.42
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	33.7%	14.4%	58.7%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.77	1.81	0.68
J4	J/O Chai Wan Road Roundabout	Roundabout	0.76	0.63	0.70
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	171.1%	289.6%	259.0%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	81.2%	85.1%	131.5%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	99.1%	130.6%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	33.8%	6.7%	-0.3%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.37	0.26	0.50
J10	J/O Chai Wan Road and San Ha Street	Signal	69.9%	162.3%	132.8%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	126.4%	122.3%	132.8%
	Design	Scenario		•	
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.67	0.97	0.37
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	29.1%	8.6%	54.6%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.80	1.91	0.60
J4	J/O Chai Wan Road Roundabout	Roundabout	0.78	0.65	0.74
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	169.9%	283.4%	250.6%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	81.0%	84.3%	128.9%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	99.1%	130.6%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	38.9%	8.7%	-0.8%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.37	0.26	0.54
J10	J/O Chai Wan Road and San Ha Street	Signal	67.8%	148.1%	59.2%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	126.4%	122.3%	135.9%

*Notes: Reserve Capacity (RC) for signal controlled junction Design Flow /Capacity Ratio (DFC) for priority junction and roundabout. J1/J2/J3 are for information only, on-site crowd management and traffic control is required

Table 5-7 Comparisons of 2026 Peak Hour Junction Performance

			Year 2026				
Jn		Junction					
No.	Location	Туре	Level 1	Level 2	Level 3		
	Reference	ce Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.66	0.92	0.43		
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	30.4%	11.6%	58.4%		
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.79	1.87	0.70		
J4	J/O Chai Wan Road Roundabout	Roundabout	0.79	0.65	0.72		
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	163.7%	279.0%	249.7%		
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	76.2%	80.0%	125.2%		
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	93.8%	91.6%	106.8%		
J8	J/O Chai Wan Road and Tai Tam Road	Signal	30.3%	3.9%	-2.3%		
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.38	0.27	0.52		
J10	J/O Chai Wan Road and San Ha Street	Signal	0.65	155.1%	129.5%		
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	120.2%	116.2%	129.5%		
	Design	Scenario					
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.69	0.99	0.38		
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	26.0%	6.1%	51.2%		
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.83	1.97	0.62		
J4	J/O Chai Wan Road Roundabout	Roundabout	0.81	0.67	0.77		
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	162.6%	273.2%	241.4%		
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	76.0%	79.3%	122.8%		
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	87.1%	91.6%	106.8%		
J8	J/O Chai Wan Road and Tai Tam Road	Signal	28.0%	1.3%	-2.2%		
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.38	0.27	0.56		
J10	J/O Chai Wan Road and San Ha Street	Signal	63.3%	141.7%	55.5%		
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	108.2%	116.2%	129.5%		

*Notes: Reserve Capacity (RC) for signal controlled junction

Design Flow /Capacity Ratio (DFC) for priority junction and roundabout. J1/J2/J3 are for information only, on-site crowd management and traffic control is required

As indicated in the above tables, it should be noted that the calculation of junction capacity for J1, J2 and J3 is for information only as extensive crowd management and control are required at these locations due to heavy pedestrian flow particularly during Level 2 and Level 3.

In general, the traffic impact to be induced by the proposed Site I development is within acceptable level. With the exception of J8 (J/O Chai Wan Road and Tai Tam Road), the reserve capacity of all other key junctions would be sufficient to cope with the anticipated increase. Similar to the existing situation, 18 would be overloaded slightly under Level 3 i.e. on Ching Ming Day even without the Site I development. It can be seen that the proposed Site I development will only induce limited negative impact to J8.

Peak Hour Main Pedestrian Route Assessments

Figure 5.1 shows the amount of pedestrians along the major pedestrian routes for the Reference Case (i.e. no escalator) and Design Case (i.e. with Site I and escalators) during the most critical hour in Level 3, i.e. Ching Ming Day. As shown in the figure, the amount of pedestrians on Lin Shing Road would be reduced in the Design scenario due to diversion of MTR and 388/389 visitors to other bus services on Chai Wan Road for access of the escalators.

Table 5-8 shows the LOS assessment results on the critical pedestrian links on Cape Collinson Road (P1) and Lin Shing Road (P2). The LOS on Lin Shing Road would be improved slightly due to the diversion of pedestrian flows to the escalators.

D outo(1)	Critical	Effective Reference		Site	e I		
Koule(-)	Links	Width ⁽³⁾	PMM ⁽²⁾	LOS	PMM ⁽²⁾	LOS	
I	Proposed Improvement No improvement With E		No improvement		No improvement With Escal		calators
P1	A+B ⁽⁵⁾	9.9	37.4	D	34.9	D	
	С	2.5	Flow m	nanagement ar	nd control by I	HKPF	
P2	D ⁽⁴⁾	4.0	59.8	Ε	42.2	D	
	E ⁽⁵⁾	2.8	54.5	Е	47.3	D	
Notes:	(1)	Refer to Figu	re 2.3 for locati	ons of Routes a	nd Links		

Table 5-8 Peak Hour LOS of Critical Links

Notes:

(2) PMM = Pedestrian/ min/ meter

(3) Assume effective width same as existing

(4) Based on uphill direction busiest hour flow

(5) Based on downhill direction busiest hour flow

6 Sensitivity Tests

6.1 Test Scenarios

Sensitivity tests have been conducted to assess the traffic impact in 2021 due to:

- Test 1 The trip generation and attraction rates are underestimated by 20% OR The proposed no. of niches is increased by 20%
- Test 2 The background traffic is underestimated by 20%.

6.2 Test 1

Table 6-1 shows the junction performances in 2021 for Site I development for Level 1, 2 and 3. The results indicate that all key junctions in the study area would perform satisfactorily during the peak hour even with the 20% increase of development flows. It is noted that Junction of Chai Wan Road and Tai Tam Road (J8) would be overloaded slightly in Level 3.

				Year 2021	
Jn		Junction			
No.	Location	Туре	Level 1	Level 2	Level 3
	Reference	ce Scenario			
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.66	0.91	0.43
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	31.8%	12.1%	57.5%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.79	1.85	0.70
J4	J/O Chai Wan Road Roundabout	Roundabout	0.76	0.63	0.71
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	170.9%	289.0%	258.8%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	81.2%	85.1%	131.5%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	99.1%	96.8%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	33.0%	5.8%	0.1%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.37	0.26	0.51
J10	J/O Chai Wan Road and San Ha Street	Signal	69.8%	162.3%	79.5%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	126.4%	122.3%	135.9%
	Design	Scenario			
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.70	1.00	0.37
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	26.5%	5.4%	49.0%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.83	1.97	0.61
J4	J/O Chai Wan Road Roundabout	Roundabout	0.79	0.66	0.77
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	169.5%	281.7%	248.5%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	80.9%	84.1%	128.4%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	92.1%	96.8%	112.4%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	27.7%	0.4%	-1.4%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.37	0.26	0.56
J10	J/O Chai Wan Road and San Ha Street	Signal	67.3%	145.4%	54.3%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	114.0%	122.3%	135.9%

Table 6-1 Test 1 - Comparisons of 2021 Peak Hour Junction Performance

*Notes: Reserve Capacity (RC) for signal controlled junction

Design Flow /Capacity Ratio (DFC) for priority junction and roundabout.

J1/J2/J3 are for information only, on-site crowd management and traffic control is required

6.3 Test 2 6.3.1

Traffic Assessment

For this sensitivity test, the 2021 background traffic is underestimated by 20% before adding the new development traffic (committed developments and Site I development). Table 6-2 shows the junction performance results and detailed calculation sheets are given in Appendix B.

				Year 2021	
Jn No.	Location	Junction Type	Level 1	Level 2	Level 3
	Reference	ce Scenario			
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.77	1.05	0.49
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	12.8%	-3.0%	38.5%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.93	2.28	0.84
J4	J/O Chai Wan Road Roundabout	Roundabout	1.01	0.77	0.87
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	126.0%	225.0%	199.8%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	51.0%	54.2%	93.0%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	57.5%	88.4%	73.8%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	9.2%	-12.3%	-19.2%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.45	0.32	0.62
J10	J/O Chai Wan Road and San Ha Street	Signal	41.6%	118.6%	51.9%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	78.3%	85.2%	96.6%
	Design	Scenario			
J1	J/O Cape Collinson Road and Lin Shing Road	Priority	0.80	1.00	0.43
J2	J/O Lin Shing Road and Wan Tsui Road	Signal	9.6%	-7.2%	33.0%
J3	J/O Cape Collinson Road and Shek O Road	Priority	0.96	1.97	0.76
J4	J/O Chai Wan Road Roundabout	Roundabout	1.04	0.80	0.93
J5	J/O Chai Wan Road and Wing Tai Road and Siu Sai Wan Road	Signal	125.2%	220.8%	193.7%
J6	J/O Siu Sai Wan Road and Harmony Road (SW)	Signal	50.8%	53.7%	91.1%
J7	J/O Siu Sai Wan Road and Harmony Road (NE)	Signal	57.5%	88.4%	73.8%
J8	J/O Chai Wan Road and Tai Tam Road	Signal	5.6%	-7.6%	-15.6%
J9	J/O Chai Wan Road and Wan Tsui Road	Priority	0.45	0.26	0.67
J10	J/O Chai Wan Road and San Ha Street	Signal	40.2%	108.6%	36.2%
J11	J/O Chai Wan Road and Sheung On Street and Wing Ping Street	Signal	78.3%	85.2%	96.6%

Test 2 - Comparisons of 2021 Peak Hour Junction Performance Table 6-2

*Notes: Reserve Capacity (RC) for signal controlled junction

Design Flow /Capacity Ratio (DFC) for priority junction and roundabout. J1/J2/J3 are for information only, on-site crowd management and traffic control is required

The results indicate that J4 and J8 would be overloaded under the Reference Case, i.e. even without the proposed Site I development due to a significant increase of background traffic in the future.

Pedestrian Assessment

Similarly, the change in pedestrian traffic under Test 1 and 2 above will provide the same amount of future pedestrian flows to be generated by the proposed Site I development. Based on the increased pedestrian demand, the LOS of the critical pedestrian routes P1 and P2 are assessed for both the Reference and Design scenarios, i.e. "without" and "with improvement schemes" respectively. The results are shown in Table 6-3.

Effective Reference Site I Critical Route⁽¹⁾ Links Width⁽³⁾ $PMM^{(2)}$ LOS PMM⁽²⁾ LOS Proposed Improvement With Escalators No improvement P1 A+B⁽⁵⁾ 9.9 44.9 D 41.9 D С 2.5 Flow management and control by HKPF D⁽⁴⁾ 4.0 71.7 Ε 50.6 Е Ρ2 E⁽⁵⁾ 2.8 65.4 Ε 56.8 Е (1) Refer to Figure 2.3 for locations of Routes and Links Notes:

Sensitivity Test - Peak Hour LOS of Critical Links Table 6-3

(2) PMM = Pedestrian/min/meter

(3) Assume effective width same as existing

(4) Based on uphill direction busiest hour flow

(5) Based on downhill direction busiest hour flow

6.3.2

7 Conclusion

7.1 Summary of Findings

- 7.1.1 Halcrow are commissioned by Architectural Services Department to undertake a traffic review for the proposed revision of development intensity at Site I from 15,000 niches to 25,000 niches.
- 7.1.2 Estimation of trip generations are reviewed by taking into account the observed data collected during the Ching Ming period in 2011 and on-site historical data provided by the Hong Kong Police Force. The observed pedestrian data obtained from the surveys in 2011 fall in the upper range of the historical data and hence are considered appropriate for the assessment study.
- 7.1.3 Peak hour junction capacity assessments are carried out for all the key junctions within the Study Area for the different traffic plans being implemented by the Police Level 1, Level 2 and Level 3.
- 7.1.4 Based on the updated traffic forecasts, the proposed improvement schemes proposed in the TIA report are reviewed. The proposed improvement schemes are:
 - Provision of new pedestrian route with escalators and stairways linking Cape Collinson Road and San Ha Street, with associated footpath and carriageway widening on Cape Collinson Road and special traffic plan.
 - Junction improvement at J/O Cape Collinson Road and Lin Shing Road.
- 7.1.5 The results of the Review Study indicate that the proposed development at Site I with 25,000 niches would not create adverse vehicular traffic impact to the road network in Chai Wan area. Additional pedestrian facilities and associated bus services proposed in the 2012 Study report should be maintained in order to minimise the pedestrian impact induced by the proposed Site I development.
- 7.1.6 Sensitivity tests have been carried out and it is identified that most of the roads and pedestrian networks (with improvement schemes) in the area would be able to cope with a further increase of development traffic by 20% and the background traffic underestimated by 20%.

7.2 Conclusion

7.2.1

To complement the proposed pedestrian link at San Ha Street, the following Special Traffic Plan and special bus services are proposed:

- To maintain one way westbound only on San Ha Street.
- Temporary closure of about 8 nos. of existing metered car parking spaces, 2 nos. of disabled car parking spaces and 16 nos. of motorcycle parking spaces on the southern carriageway in order to provide temporary footway and queuing area for bus passengers.
- Convert a section of the westbound carriageway as bus bays for the special bus services from Heng Fa Chuen to San Ha Street.
- Temporarily closing the nearside lane of Chai Wan Road and minor modification of the junction layout at the junction of Chai Wan Road and Wing Ping Street is required to accommodate left turning buses diverted from Chai Wan Road to San Ha Street via Wing Ping Street.
- The existing GMB service on San Ha Street westbound is to be maintained.
- The existing PLB prohibited zones on Chai Wan Road eastbound near San Ha Street, and San Ha Street are to be maintained.
- The arrangement for guiding pedestrians for access from MTR Chai Wan Station to the escalators on San Ha Street via Chai Wan Park and Yee Shun Street and pedestrian egress route from San Ha Street to MTR Chai Wan Station via Chai Wan Road southern footpaths and the footbridges across Chai Wan Road Roundabout may be considered.
- 7.2.2 New bus service from MTR Heng Fa Chuen Station to San Ha Street is proposed with a service headway of 3 minutes during peak hours. Strengthening of existing bus services running along Chai Wan Road are also required to cope with the anticipated demand.
- 7.2.3 Bus stacking and passenger queuing arrangements at both San Ha Street and HengFa Chuen bus terminus are proposed.

Figures



e:*proj*CTLDQS*Figure*TIA*CCR_FIG_1_1_0_TIAR.dgn

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Appendix A

Hong Kong Police Force – Historic Grave Sweeper Data visiting Chai Wan Cemeteries

<u>清明節掃墓人數</u>

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Ching	Ming 2009	
2009-03-15 (SUN)	Level 1	4,920
2009-03-21 (SAT)	Level 1	4,020
2009-03-22 (SUN)	Level 1	15,940
2009-03-28 (SAT)	Level 1	3,940
2009-03-29 (SUN)	Level 2	14,930
Ching Ming Festival	Level 3	102,800
2009-04-05 (SUN)	Level 2	6,590
2009-04-10 (FRI) Easter Festival	Level 1	4,950
2009-04-11 (SAT) Easter Festival	Level 1	3,060
2009-04-12 (SUN) Easter Festival	Level 1	6,400
2009-04-13 (MON) Easter Festival	Level 1	1,995
2009-04-18 (SAT)	Level 1	5,075
2009-04-19 (SUN)	Level 1	11,145
2009-04-26 (SAT)	STA	6,100
	Total:	191,865

Ching Mir	g 2010	
2010-03-14 (SUN)	Level 1	3,95
2010-03-20 (SAT)	Level 1	3,48
2010-03-21 (SUN)	Level 1	11,96
2010-03-27 (SAT)	Level 1	5,32
2010-03-28 (SUN)	Level 1	23,47
2010-04-02 (FRI)	T 10	7.00
Easter Festival	Level 2	7,30
2010-04-03 (SAT)	x 10	5.00
Easter Festival	Level 2	5,90
2010-04-04 (SUN)	T1 0	0.02
Easter Festival	Level 2	8,02
2010-04-05 (MON)	Laval 2	40.05
Ching Ming Festival	Level 3	40,07
2010-04-06 (TUE)	Laval 2	05/
Easter Festival	LEVEI Z	0,04
2010-04-10 (SAT)	Level 1	5,12
2010-04-11 (SUN)	Level 1	22,13
2010-04-17 (SAT)	Level 1	4,13
2010-04-18 (SUN)	Level 1	15,18
2010-04-24 (SAT)	Level 1	3,39
2010-04-25 (SUN)	Level 1	17,32
2010-05-01 (SAT)	Level 1	4,03
2010-05-02 (SUN)	Level 1	2,68
2010-05-08 (SAT)	STA	50
2010-05-09 (SUN)	STA	80
2010-05-15 (SAT)	STA	8
	Total:	193,41

Ching N	fing 2011	
2011-03-06 (SUN)	Level 1	3,336
2011-03-12 (SAT)	Level 1	3,345
2011-03-13 (SUN)	Level 2	18,250
2011-03-19 (SAT)	Level 1	4,035
2011-03-20 (SUN)	Level 2	13,140
2011-03-26 (SAT)	Level 1	5,990
2011-03-27 (SUN)	Level 2	19,320
2011-04-02 (SAT)	Level 2	16,635
2011-04-03 (SUN)	Level 3	43,565
2011-04-05 (TUE) Ching Ming Festival	Level 3	70,920
2011-04-09 (SAT)	Level 2	13,875
2011-04-10 (SUN)	Level 2	28,990
2011-04-16 (SAT)	Level 1	4180
2011-04-17 (SUN)	Level 2	16,60
2011-04-22 (FRI)	Level 1	4,720
2011-04-23 (SAT)	Level 1	4,485
2011-04-24 (SUN)	Level 1	12,14
2011-04-25 (MON)	Level 1	4,24
2011-04-30 (SAT)	Level 1	6,22
2011-05-01 (SUN)	Level 1	12,685
2011-05-02 (MON)	Level 1	3,355
	Total :	310,050

Ching Mi	ng 2012	
2012-03-04 (SUN)	Level 1	7,280
2012-03-10 (SAT)	Level 1	1,325
2012-03-11 (SUN)	Level 2	4,005
2012-03-17 (SAT)	Level 1	2,220
2012-03-18 (SUN)	Level 2	9,005
2012-03-24 (SAT)	Level 1	5,266
2012-03-25 (SUN)	Level 2	12,100
2012-03-31 (SAT)	Level 2	8,920
2012-04-01 (SUN)	Level 3	43,050
Ching Ming	Level 3	45,400
2012-04-06 (FRI) Easter Festival	Level 2	7,100
2011-04-07 (SAT) Easter Festival	Level 2	6,600
2012-04-08 (SUN) Easter Festival	Level 2	9,800
2012-04-09 (MON) Easter Festival	Level 2	8,050
2012-04-14 (SAT)	Level 2	6,330
2012-04-15 (SUN)	Level 2	19,290
2012-04-21 (SAT)	Level 1	1,830
2012-04-22 (SUN)	Level 2	14,000
2012-04-28 (SAT)	Level 1	4,670
2012-04-29 (SUN)	Level 1	2,460
	Total :	218,701

Ching Mir	1g 2013		
2013-03-10 (SUN)	Level 1	4,080	
2013-03-16 (SAT)	Level 1	6,015	
2013-03-17 (SUN)	Level 1	15,220	
2013-03-23 (SAT)	Level 1	6,330	
2013-03-24 (SUN)	Level 2	19,550	
2013-03-29 (FRI) Easter Festival	Level 2	17,940	
2013-03-30 (SAT) Easter Festival	Level 2	14,380	
2013-03-31 (SUN)	Level 2	18,260	
2013-04-01 (MON) Easter Festival	Level 3	14,750	
2013-04-04 (THU) Ching Ming Festival	Level 3	93,600	
2013-04-06 (SAT)	Level 2	7,720	1615 hrs down to Level 1
2013-04-07 (SUN)	Level 2	32,240	
2013-04-13 (SAT)	Level 2	13,450	1620 hrs down to Level 1
2013-04-14 (SUN)	Level 2	27,640	1630 hrs down to Level 1
2013-04-20 (SAT)	Level 1	6,930	
2013-04-21 (SUN)	Level 1	20,800	Bet 0945 & 1615 hrs up to Level 2
2013-04-27 (SAT)	Level 1	8,510	
2013-04-28 (SUN)	Level 1	22,830	Bet 0945 & 1530 hrs up to Level 2
		050.045	

								<u>.</u>		No.	
	-	Chi	ng Ming 201	2 (4/3 - 29/4)				Ching	Ming 2013	(10/3 - 28/4)	
Date	Week	Phase	Peak Time	/Grave sweepers	Total Grave sweepers	Date	Week	Phase	Peak Time	/Grave sweepers	Total Grave sweepers
04-03-2012	SUN	I	1200 hrs	/1600	7280	10-03-2013	SUN	I	1200 hrs	/900	4080
0-03-2012	SAT	I	1300 hrs	/250	1325	16-03-2013	SAT	I	1300 hrs	/1275	6015
1-03-2012	SUN	II	1200 hrs	/940	4005	17-03-2013	SUN	I	1300 hrs	/4080	15220
7-03-2012	SAT	I	1200 hrs	/550	2220	23-03-2013	SAT	Ι	1300 hrs	/1105	6330
8-03-2012	SUN	п	1200 hrs	/1810	9005	24-03-2013	SUN	Π	1200 hrs	/5140	19550
4-03-2012	SAT	Ι	1100 hrs	/930	5266	29-03-2013	FRI	П	1300 hrs	/3800	17940
5-03-2012	SUN	II	1200 hrs	/3300	12100	30-03-2013	SAT '	П	1200 hrs	/3800	14380
1-03-2012	SAT	П	1200 hrs	/2250	8920	31-03-2013	SUN.	п	1300 hrs	/3710	18260
1-04-2012	SUN	П	1300 hrs	/9600	43050	01-04-2013	MON	ш	1200 hrs	/3410	14750
04-04-2012	WED	Ш	1400 hrs	/8100	45400	04-04-2013	THU	m	1300 hrs	/24000	93600
6-04-2012	FRI	II .	1200 hrs	/1680	7100	06-04-2013	SAT	П	1300 hrs	/1650	7720
7-04-2012	SAT	II	1200 hrs	/1250	6600	07-04-2013	SUN	п	1300 hrs	/7500	32240
8-04-2012	SUN	Π	1300 hrs	/2110	9800	13-04-2013	SAT	II	1300 hrs	/2950	13450
9-04-2012	MON	Π	1200 hrs	/2550	8050	14-04-2013	SUN	П	1500 hrs	/4900	27640
4-04-2012	SAT	II	1300 hrs	/1020	6330	20-04-2013	SAT	I	1200 hrs	/1830	6930
5-04-2012	SUN	п	1200 hrs	/4000	19290	21-04-2013	SUN	I	1100 hrs	/4200	20800
21-04-2012	SAT	I	1200 hrs	/320	1830	27-04-2013	SAT	I	1300 hrs	/1890	8510
2-04-2012	SUN	п	1200 hrs	/3340	14000	28-04-2013	SUN	I	1200 hrs	/6080	22830
8-04-2012	SAT	I	1300 hrs	/1210	4670						
9-04-2012	SUN	I	1200 hrs	/530	2460						

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Ching Ming 2013 (10/3 - 28/4)							
Date	Week	Phase	Peak Time	/Grave sweepers	Total Grave sweepers		
10-03-2013	SUN	I	1200 hrs	/900	4080		
16-03-2013	SAT	I	1300 hrs	/1275	6015		
17-03-2013	SUN	I	1300 hrs	/4080	15220		
23-03-2013	SAT	Ι	1300 hrs	/1105	6330		
24-03-2013	SUN	Π	1200 hrs	/5140	19550		
29-03-2013	FRI	п	1300 hrs	/3800	17940		
30-03-2013	SAT '	п	1200 hrs	/3800	14380		
31-03-2013	SUN.	п	1300 hrs	/3710	18260		
01-04-2013	MON	ш	1200 hrs	/3410	14750		
04-04-2013	THU	m	1300 hrs	/24000	93600		
06-04-2013	SAT		1300 hrs	/1650	7720		
07-04-2013	SUN	П	1300 hrs	/7500	32240		
13-04-2013	SAT	Ш	1300 hrs	/2950	13450		
14-04-2013	SUN	п	1500 hrs	/4900	27640		
20-04-2013	SAT	I	1200 hrs	/1830	6930		
21-04-2013	SUN	I	1100 hrs	/4200	20800		
27-04-2013	SAT	I	1300 hrs	/1890	8510		
28-04-2013	SUN	I	1200 hrs	/6080	22830		
		<u>.</u>					
		1			350245		

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Appendix B1

2011 Peak Hour Junction Assessment Calculation Sheets

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape Columbarium Development at Ca			Prepared By: KC	
	Junction Capacity Analysis		Checked By: OC	
Junction layout Desi	sketch - J1: J/O Cape Collinson Road and Lin Shing Road gn Year - 2011 Level 1 Time - 2011 Level 1 Peak Hour			
	ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
${\mathcal N}$	227 2 246	W ₁ = (metres)	GEOMETRIC PARAMETERS	5
4		$W_2 = 6.00$ (metres)	X _A =	0.922
		$W_3 = 3.00$ (metres)	X _B =	1.039
		$W_4 = 3.00$ (metres)	X _c =	0.586
	ARMA	W = 6.00 (metres)	X _D =	0.827
W ₁	W ₃	$W_{cr1} = 0.00$ (metres)	Y =	0.793
ARM C		$W_{cr2} = 0.00$ (metres)	Z _B =	1.005
Cape W _{cr1}	W _{cr2} Cape	$W_{cr} = 0.00 \text{ (metres)}$	Z _D =	0.905
on	9 on			
Road W ₂	\leftarrow 1 W ₄ Road	MAJOR ROAD (ARM A)	THE CAPACITY OF MOVEM	ENT
(W)	↓ 0 (E)	W _{a-d} = 3.00 (metres)	Q _{b-a} =	540
		Vr _{a-d} = 100 (metres)	Q _{b-c} =	749
		$q_{a-b} = 0$ (pcu/hr)	Q _{b-d} is nearside =	TRUE
		q _{a-c} = <mark>1</mark> (pcu/hr)	Q _{b-d} =	609
	25 220 19	q _{a-d} = <mark>9</mark> (pcu/hr)	Q _{d-a} =	674
			Q _{d-b} is nearside =	TRUE
	ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	Q _{d-b} =	529
		W _{c-b} = (metres)	Q _{d-c} =	455
EMARK: (GEOMETR	C INPUT DATA)	Vr _{c-b} = (metres)	Q _{c-b} =	439
W =	AVERAGE MAJOR ROAD WIDTH	q _{c-a} = 0 (pcu/hr)	Q _{a-d} =	616
W _{cr} =	AVERAGE CENTRAL RESERVE WIDTH	q _{c-b} = 0 (pcu/hr)		
W _{a-d} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c-d} = 0 (pcu/hr)	COMPARISION OF DESIGN	FLOW
W _{b-a} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A		TO CAPACITY	
W _{b-c} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	DFC _{b-a} =	0.035
W _{c-b} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres)	DFC _{b-c} =	0.033
W _{d-a} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres)	DFC _{b-d} =	0.362
W _{d-c} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$VI_{b-a} = 100$ (metres)	DFC _{d-a} =	0.365
Vr _{a-d} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{b-a} = 65$ (metres)		0.004
VI _{b-a} =	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{b-c} = 0$ (metres)		0.499
vr _{b-a} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	$q_{b-a} = 19$ (pcu/hr)		0.000
Vr _{b-c} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{b-c} = 25$ (pcu/nr)	DFC a-d =	0.015
VI c-b =		$q_{b-d} = 220$ (pcu/nr)		0.400
VI _{d-c} =	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C			0.499
VI _{d-c} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C			
vr _{d-a} =		$vv_{d-a} = 3.00$ (metres)		
× ×		$vv_{d-c} = 3.00 \text{ (metres)}$		
A _B =		$v_{1_{d-c}} = 50$ (metres)		
∧ _C =		$v_{1d-c} = 200$ (metres)		
v	GEOWETRIC PARAMETERS FOR STREAM D-C	$v_{i_{d-a}} = 80$ (metres)		
X _D =	CEOMETRIC RARAMETERS FOR STREAM R.C.			
X _D = Z _B =	GEOMETRIC PARAMETERS FOR STREAM B-C	$q_{d-a} = 246$ (pcu/hr)		

TRAFFIC SIGNAL CALCULATION			
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 1 Ref J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 351 \qquad \qquad$	N Xan Tsui Road	No. of stages per cycleN =Cycle timeC =12Sum(y)Y =0.467Loss timeL =35Total Flow=120Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=Yult=0.638R.C.ult=(Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)=Ymax=1-L/C=0.9*Ymax-Y)/Y*100%=36.6	2 0 sec 7 5 sec 3 pcu 3 sec 5 sec 3 5 % 7 sec 3 5 %
(1) (3	(4)		
Move- ment Stage Width Lane Phase Iane No. of Iane Radius O N Straight- Ahead Movemusical Left Straight- Straight m. m. m. Sat. Flow pcu/h pcu/h<	ent Total Proportion Sat. Flare la Right Flow of Turning Flow Lengt pcu/h pcu/h Vehicles pcu/h m.	ane Share Revised th Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / Jane) (seconds)
ST A 3.00 1 1 N 1915 351	351 0.00 1915	1915 0.183 5 33 85	0.259 18 4
ST/LT A 4.00 1 1 10 N 2015 587 265 Ped B 6.0 3 I <td>852 0.69 1826</td> <td>1826 0.467 0.467 85 85 30 30 100 100 100</td> <td>0.659 48 5</td>	852 0.69 1826	1826 0.467 0.467 85 85 30 30 100 100 100	0.659 48 5
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WA	ALKING SPEED = 1.2m/s QUEUING LENGTH = AVE	RAGE QUEUE * 6m



ROUNDABOUT CAPACITY ASSESSMENT					INITIALS	DATE		
TIAS	Study fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junc	tion 4: 0	Chai Wan Road Roundabout	J4LV1 Peak Hour		FILENAME : 2011_LV1_Ref_J4.xls	CHECKED BY:	OC	Sep-13
2011	Level 1	Peak Hour				REVIEWED BY:	OC	Sep-13
					(ARM D)			
		(ARM D)		N	958			
		Island Easter Corric	lor	*				
		+						
		[16] 416	[1] [2] [3] [4]		999			
		[15] 411	12 186 494 266		0.0			
					0 0			
			▲					
Ch ai								
Chai	wan R				0 0			
(AR	MC)		(ARM A)	1148	990 U U	1022	885	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
			11 [5]		0 0			
			Ţ		0 0			
			443 [6]		00			
		20 268 247 9	← 119 [7]		774			
		[12] [11] [10] [9]	312 [8]					
		Wan Tsui Road	·		544			
					(APM B)			
					(Artwid)			
ARM	1		A B C D					
INPI	IT PAR	AMETERS						
	/ / / / / / /							
v	=	Approach half width (m)	7.00 4.00 7.00 7.00					
E	=	Entry width (m)	9.00 7.00 10.00 7.00					
L	=	Effective length of flare (m)	6.00 5.00 6.00 6.00					
R	=	Entry radius (m)	40.00 15.00 40.00 25.00					
D	=	Inscribed circle diameter (m)	50.00 50.00 50.00 50.00					
А	=	Entry angle (degree)	30.00 35.00 36.00 30.00					
Q	=	Entry flow (pcu/h)	885 544 1148 958					
Qc	=	Circulating flow across entry (pcu/h)	1022 774 990 999					
OUT	PUT PA	ARAMETERS:						
s	=	Sharpness of flare = 1.6(E-V)/L	0.53 0.96 0.80 0.00					
к	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02 0.97 1.00 1.01					
X2	=	V + ((E-V)/(1+2S))	7.97 5.03 8.15 7.00					
М	=	EXP((D-60)/10)	0.37 0.37 0.37 0.37					
F	=	303*X2	2414 1523 2471 2121					
Td	=	1+(0.5/(1+M))	1.37 1.37 1.37 1.37					
Fc	=	0.21*Id(1+0.2*X2)	0.74 0.58 0.75 0.69				DOLL	
Qe	=	K(F-FC ⁻ QC)	1695 1042 1730 1447		i otal in Sum =	2521	PCU	
			0.50 0.50 0.00 0.00		DEC of Critical Approach	0.66		
DFC	=	Design flow/Capacity = Q/Qe	0.52 0.52 0.66 0.66		DFC of Childal Approach =	0.00		

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prep	pared By: KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Che	ocked By: OC 29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.: Revi	iewed By: OC 3-5-2011
$(3) 316 \qquad \qquad$	N 🏷 Wing Tai Road	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 2 C = 100 sec Y = 0.282 L = 10 sec = 1836 pcu = 27.8 sec = 13.9 sec = 0.825 = 192.8 % = 14.6 sec = 0.900 = 187.5 %
(4) (4) (5) (3) (3) (6) (6) (6) (6)			
5466 M 1 / 5466 B 1 5			
Move- ment Stage Width Lane Phase Width No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Moven Straight- Straight- m. m. m. m. m. Side Ahead Left Straight- Straight-	hent Total Proportion Sat. Fl ht Right Flow of Turning Flow h pcu/h pcu/h Vehicles pcu/h	are lane Share Revised Length Effect Sat. Flow y Greater L requ m. pcu/hr pcu/h y sec so	g g Degree of Queue Average uired (input) Saturation Length Delay sec sec X (m / lane) (seconds
LT A 3.75 1 2 22 y 4120 471 LT A 4.00 2 2 24 y 4310 243 RT A 3.50 2 2 11 y 4070 243 ST B 3.50 3 2 1 y 4070 316 RT B 4.50 3 2 13 y 4270 410 410 Ped A 4.50 5 -	471 1.00 3857 243 1.00 4056 731 731 1.00 3582 316 0.00 4070 75 75 1.00 3828	3857 0.122 3 4056 0.060 1 3582 0.204 0.204 4070 0.078 0.078 3828 0.020 6	.9 65 0.187 12 5 .9 65 0.092 6 5 .55 65 0.313 21 5 .55 25 0.313 18 24 6 25 0.079 3 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (2) (2) (2) (2) (35) (69) (1) (1) (465) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	N Siu Sai Wan Road 791	No. of stages per cycleN =3Cycle timeC =100 seSum(y)Y =0.244Loss timeL =48 seTotal Flow=1538 pcCo= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=66.5.5 seYult=0.540R.C.ult= (Yult-Y)/Y*100%=20.9*L/(0.9-Y)=65.9 seYmax= 1-L/C8=0.520R.C.(C)=(0.9*Ymax-Y)/Y*100%=91.6 %	IC IC
$(1) \underbrace{(1)}_{(1)} \underbrace{(1)}_{(1)}$	(2) I = 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- ment Width Iane Traffic? Side Ahead Left m. Iane? Sat. Flow pcu/	Novement Total Proportion Sat. I Straight Right Flow of Turning Flow Jocu/h Jocu/h Scu/h Vehicles pcu/h	lare lane Share Revised Length Effect Sat. Flow y Greater L required (input) Si m. pcu/hr pcu/h v sec sec sec	Degree of Queue Average aturation Length Delay X (m / Jane) (seconds)
LT/ST A 3.30 1 1 11 11 Y 1945 125 ST A 3.20 1 1 1 1 Y 1945 125 ST A 3.00 1 2 Y 3970 125 LT C 3.75 2 1 12 Y 1990 69 RT C 3.75 2 1 12 Y 1990 69 Ped B 6.50 4 - - 2130 - 2130 Ped B 6.50 5 - <td< td=""><td>148 277 0.47 1829 317 317 0.00 2075 791 791 0.00 3970 69 1.00 1769 85 85 1.00 1893</td><td>1829 0.151 28 32 42 2075 0.153 32 42 3970 0.199 0.199 42 42 1769 0.039 8 10 10 1893 0.045 0.045 10 10</td><td>0.357 24 14 0.360 30 14 0.470 36 13 0.404 6 42 0.470 12 43</td></td<>	148 277 0.47 1829 317 317 0.00 2075 791 791 0.00 3970 69 1.00 1769 85 85 1.00 1893	1829 0.151 28 32 42 2075 0.153 32 42 3970 0.199 0.199 42 42 1769 0.039 8 10 10 1893 0.045 0.045 10 10	0.357 24 14 0.360 30 14 0.470 36 13 0.404 6 42 0.470 12 43
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LEI	NGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal (1) 47 + (4) (4) (4) (4) (1) 140 + (1) 140 + (1) 140 + (1) 104 + (1) 144 + (5) + (1) 104 + (1) 109 (5) + (1) 109	N M ai Wan Road	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.366Loss timeL =18Total Flow=1313Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Smax= 1-L/C=0.29*R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec % sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) \xrightarrow{(4)} (4)$ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (6) → (5) (5) (5) (5) (5) (5) (5) (5)		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Straight- Mover Midth Iane Traffic? side Ahead Left Straight- Move- m. m. m. m. Sat. Flow pcu/h	ent Total Proportion Sat. Flare lane it Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.30 1 1 11 11 y 1945 47 79 ST/RT A 3.30 1 1 12 2085 61 RT B 3.50 2 1 12 2085 61 LT A,B 3.75 3 1 13 y 1990 146 RT C 3.50 4 1 12 2105 146 LT/ST C 3.50 4 1 12 2105 146 LT/ST C 3.50 5 1 12 2105 0 LT/ST D 3.50 5 1 12 2105 0 LT/ST D 3.50 5 1 11 y 1965 96 109 Ped D,A,B 4.00 6 14 14 14 14 14 14 14 15 109 <t< td=""><td>126 0.37 1851 104 165 0.63 1933 28 28 1.00 1871 146 1.00 1784 181 181 1.00 1871 279 0.72 1803 184 1.84 1.00 1871 205 0.47 1848</td><td>1851 0.068 18 16 20 1933 0.085 0.085 20 20 1871 0.015 0.015 4 4 1784 0.082 19 29 1871 0.097 23 37 1803 0.155 0.155 37 37 1871 0.098 23 23 23 1848 0.111 0.111 26 26</td><td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td></t<>	126 0.37 1851 104 165 0.63 1933 28 28 1.00 1871 146 1.00 1784 181 181 1.00 1871 279 0.72 1803 184 1.84 1.00 1871 205 0.47 1848	1851 0.068 18 16 20 1933 0.085 0.085 20 20 1871 0.015 0.015 4 4 1784 0.082 19 29 1871 0.097 23 37 1803 0.155 0.155 37 37 1871 0.098 23 23 23 1848 0.111 0.111 26 26	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 1 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 672 \\ (1) 365 \\ (1) 365 \\ (1) 506 \\ (3) (3) \\ (3) Tai Tam Road$	N 🚽	No. of stages per cycleN = \therefore Cycle timeC =10!Sum(y)Y =0.508Loss timeL =18Total Flow=234:Co= (1.5*L+5)/(1-Y)=65.0Cm= L/(1-Y)=36.6Yult=0.765R.C.ult= (Yult-Y)/Y*100%=50.6Cp= 0.9*L/(0.9-Y)=41.3Ymax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=46.8	sec sec pcu sec sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) $	 ← → (6) 1 = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Move ment Width Iane Traffic? Side Ahead Left Stra m Move- Straight- Move	ment Total Proportion Sat. Flare lane ght Right Flow of Turning Flow Length	Share Revised g Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
ST A 3.50 1 2 y 4070 60 RT A 3.50 1 1 13 2105 61 ST B 3.50 2 2 4210 55 LT B 3.10 2 1 12 y 1925 54 LT C 4.00 3 1 15 y 2015 347 LT/RT C 4.00 3 1 15 y 2015 159 Ped A 4.50 4 </td <td>2 672 0.00 4070 365 365 1.00 1887 7 527 0.00 4210 347 1.00 1832 217 376 1.00 1959</td> <td>pcd/m pcd/m y sec sec<!--</td--><td>A (in / lane) (seconds) 0.613 42 23 0.718 42 28 0.613 36 29 0.155 6 30 0.613 36 23 0.613 36 23 0.621 42 23</td></td>	2 672 0.00 4070 365 365 1.00 1887 7 527 0.00 4210 347 1.00 1832 217 376 1.00 1959	pcd/m pcd/m y sec sec </td <td>A (in / lane) (seconds) 0.613 42 23 0.718 42 28 0.613 36 29 0.155 6 30 0.613 36 23 0.613 36 23 0.621 42 23</td>	A (in / lane) (seconds) 0.613 42 23 0.718 42 28 0.613 36 29 0.155 6 30 0.613 36 23 0.613 36 23 0.621 42 23
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Kal	row	Agreement No. CPM301_15/10 - Traffic Impact Assessment S	Study For Columbarium Development at Cap	e CPrepared By:	KC
		Junction Capacity Analysis		Checked By:	00
Junction la	yout sketch Design Year Time	 J9: Junciton of Chai Wan Road and Wan Tsui Road 2011 Level 1 2011 Level 1 Peak Hour 	GEOMETRIC DETAILS	GEOMETRIC PAR/	AMETERS
W ₁ Chai Wan Road Wert	₽ № 85 240	ARM B Wan Tsui Road	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	D E F Y	0.675 = 1.109 = 0.993 = 0.320
REMARK: (GEOM	IETRIC INPUT	¹ 243 W ₄ (W) ← 463 ^(W) ARM C	$\begin{array}{rcl} \text{MAJOR ROAD} & (\text{ARM A}) \\ \textbf{q}_{a\text{-}b} & = & 85 & (\text{pcu/hr}) \\ \textbf{q}_{a\text{-}c} & = & 240 & (\text{pcu/hr}) \\ \end{array}$ $\begin{array}{rcl} \text{MAJOR ROAD} & (\text{ARM C}) \\ \textbf{W}_{c\text{-}b} & = & 3.30 & (\text{metres}) \\ \textbf{Vr}_{c\text{-}b} & = & 150 & (\text{metres}) \end{array}$	THE CAPACITY OF Q b-c = Q c-b = Q b-a = COMPARISION OF TO CAPACITY DFC b-a =	MOVEMENT = 791 = 702 = 379 TOESIGN FLOW = 0.079
W W _{cr}	= AVER/ = AVER/	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	q _{c-a} = 463 (pcu/hr) q _{c-b} = 243 (pcu/hr)	DFC _{b-c} = DFC _{c-b} =	= 0.314 = 0.346
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E	 LANE LANE LANE VISIBI VISIBI VISIBI VISIBI GEOM GEOM 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B ILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A ILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A ILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C ILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B METRIC PARAMETERS FOR STREAM B-C METRIC PARAMETERS FOR STREAM B-A	$\begin{array}{llllllllllllllllllllllllllllllllllll$	Critical DFC	= 0.346
Traffic Impact A October 2007	Assēssment Re	<u>ያ</u> ቻሪዝ ^v /			Page 3 of 3

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape Co			Prepared By: KC
	Checked By: OC		
Junction layout Desi	sketch - J1: J/O Cape Collinson Road and Lin Shing Road gn Year - 2011 Level 2		
	ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS	
${\mathcal N}$	271 3 516	W ₁ = (metres)	GEOMETRIC PARAMETERS
4		$W_2 = 6.00$ (metres)	X _A = 0.922
ſ		$W_3 = 3.00$ (metres)	X _B = 1.039
		$W_4 = 3.00$ (metres)	X _c = 0.586
	ARM A	W = 6.00 (metres)	X _D = 0.827
W ₁	W ₃	$W_{cr1} = 0.00$ (metres)	Y = 0.793
ARM C		$W_{cr2} = 0.00$ (metres)	Z _B = 1.005
Cape W _{cr1}	W _{cr2} Cape	$W_{cr} = 0.00$ (metres)	Z _D = 0.905
on			
Road W ₂	\leftarrow 0 W ₄ Road	MAJOR ROAD (ARM A)	THE CAPACITY OF MOVEMENT
(W)	0 (E)	W _{a-d} = 3.00 (metres)	Q _{b-a} = 455
		Vr _{a-d} = 100 (metres)	Q _{b-c} = 749
		q _{a-b} = 0 (pcu/hr)	Q _{b-d} is nearside = TRUE
		q _{a-c} = 0 (pcu/hr)	Q _{b-d} = 611
	183 143 11	q _{a-d} = <mark>0</mark> (pcu/hr)	Q _{d-a} = 674
			Q _{d-b} is nearside = TRUE
	ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	Q _{d-b} = 533
		W _{c-b} = (metres)	$Q_{d-c} = 439$
EMARK: (GEOMETR	C INPUT DATA)	Vr _{c-b} = (metres)	Q _{c-b} = 437
W =	AVERAGE MAJOR ROAD WIDTH	q _{c-a} = 0 (pcu/hr)	$Q_{a-d} = 616$
W _{cr} =	AVERAGE CENTRAL RESERVE WIDTH	q _{c-b} = 0 (pcu/hr)	
W _{a-d} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c-d} = 0 (pcu/hr)	COMPARISION OF DESIGN FLOW
W _{b-a} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A		TO CAPACITY
W _{b-c} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	$DFC_{b-a} = 0.024$
VV _{c-b} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres)	$DFC_{b-c} = 0.244$
VV _{d-a} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$VV_{b-c} = 5.00$ (metres)	$DFC_{b-d} = 0.234$
VV _{d-c} =		$VI_{b-a} = 100$ (metres)	$DFC_{d-a} = 0.765$
vi _{a-d} =		$v_{1 b-a} = 00$ (metres)	$D = 0 \ d \cdot b = 0.006$
vi _{b-a} =		$v_{1b-c} = 0$ (metres)	$D = C_{d-c} = 0.617$
vi _{b-a} =		$q_{b-a} = 112$ (pcu/nr)	$D_{\Gamma C} = 0.000$
Vi _{b-c} =		$q_{b-c} = 105 (pcu/nf)$	$D_{a-d} = 0.000$
VI _{c-b} =		$q_{b-d} = -145 (pcu/m)$	Critical DEC - 0.765
Vid-c =			
Vi d-c =			
× d-a = X	GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{d-a} = -3.00$ (metres)	
×A = ×	GEOMETRIC PARAMETERS FOR STREAM 8-0	$V_{d-c} = 50$ (metres)	
X _B =	GEOMETRIC PARAMETERS FOR STREAM C-B	$V_{1d-c} = 50$ (metres)	
X _c =	GEOMETRIC PARAMETERS FOR STREAM D-C	$Vr_{d-c} = 80$ (metres)	
7 _D =	GEOMETRIC PARAMETERS FOR STREAM B-C	$d_{-a} = 546$ (neu/br)	
∠ _B =	GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d-a} = -\frac{2}{2} (p_{cu}/hr)$	
ct Assessmight Report		$q_{d-b} = -3 (pcu/m)$	
or versessing in reboar	(1-0.034300)	$q_{d-c} = 271$ (pcu/nr)	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	_	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 118 \xrightarrow{} 2$ $(1) 118 \xrightarrow{} 46 (1)$ $(1) 117 8$ $(2) (2) \text{Lin Shing Road}$	N Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120Sum(y)Y =0.528Loss timeL =45Total Flow=1050Co= (1.5*L+5)/(1-Y)=Total Flow=0.563Cm= L/(1-Y)=Yult=0.563R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=6.4	sec pcu sec sec % sec %
(1) (3	(4)		
Move- Stage Lane Phase No. of Radius O N Straight- Movem Ahead Left Straight- Movem Ahead Left Straight- State Flow Pacify Pacif	ent Total Proportion Sat. Flare lane Sha t Right Flow of Turning Flow Length Eff Daguith Sciuth Provide Provid	hare Revised tect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
		y sec sec sec sec	
ST A 3.00 1 1 N 1915 118	118 0.00 1915	1915 0.062 9 75	0.099 6 7
ST/LT A 4.00 1 1 10 N 2015 886 46 Ped B 6.0 3 46 46	932 0.95 1764	1764 0.528 0.528 75 75 40	0.846 66 12
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING S	SPEED = 1.2m/s QUEUING LENGTH = AVER/	AGE QUEUE * 6m


The Support of Controlling Description at Case Collings Road J4L/V2 Peak Hour PROJECT NO: SUBSTIC				ROUNDABOUT CAPAC	CITY ASSESSMENT	NITIALS DATE
Junction A Cash Wan Read J4LV2 Peak Hour PiLENAME: 2011 Liv2 Rei, Halo OC Series 2011 Liv2 Rei, Halo (ARM D) (ARM A) 0.0 <	TIA S	tudy fo	r Columbarium Development at Cape Collinson Road		PROJECT NO.: 80510 PREPARED BY:	KC Sep-13
ADTI Level 2 Peak Hour REVIEWED BY: OC Reviewed By: OC Bent (ARM D) Island Easter Corrisor I IS Set S	Juncti	ion 4: C	hai Wan Road Roundabout	J4LV2 Peak Hour	FILENAME : 2011_LV2_Ref_J4.xls CHECKED BY:	OC Sep-13
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	2011	Level 2	Peak Hour		REVIEWED BY:	OC Sep-13
(ARM D) N (ARM D) ising Easter Conider 0 0 (IS 3) 0 0 (IS 4) 0 0 (ARM C) (IS 3) 0 (IS 4) 0 0 (IS 4) 0 0 (IS 4) 0 0 (IS 5) 0 0 (IS 6) 0 0 (IS 7) 10 10 (IS 8) 0 0 (IS 8) 0 0 (IS 8) 0 0 (IS 8) 0 0 (IS 8) 0						
$\begin{array}{c c c c c c c c c c c c c c c c c c c $					(ARM D)	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			(ARM D)		N 678.5	
$\begin{array}{c} (H) = 28 \\ (H) $			Island Easter Corrid	or	†	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			↑			
$\begin{array}{c c c c c c c c c c c c c c c c c c c $			[16] 298	[1] [2] [3] [4]	935	
$\begin{array}{ccccc} (44) & 466 & & & & & & & & & & & & & & & & &$			[15] 388	7 156 376 140	00	
$\begin{array}{ccccc} (ARM C) & & & & & & & & & & & & & & & & & & $			[14] 466		0 0	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				↑	0 0	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Chai V	Wan Ro	pad		0 0	
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	(ARM	/I C)	()-	(ARM A)	1156 512 O 0 1018	685
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		- /	$\langle \rangle$	Chan Wan Ro	pad (ARM C) O O (ARM A)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$			\checkmark			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				▲ U [0]		
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$				272 (0)	0 0	
Image: Second of the second				373 [6]	00	
Image: start result (12) [11] [10] [9] 103 [8] Wan Tsui Road 135 (ARM B) Mark to the start result of the start resu			11 55 60 9	4 201 [7]	749	
Image: Second S			[12] [11] [10] [9]	103 [8]		
135 (ARM B) (ARM Care B) (Are Care Care Care Care Care Care Care Ca				*		
A B C D INPUT PARAMETERS:			Wan Tsui Road		135	
ARM A B C D INPUT PARAMETERS: V = Approach half width (m) 7.00 4.00 7.00 7.00 E = Entry width (m) 9.00 7.00 10.00 7.00 L = Effective length of flare (m) 6.00 5.00 6.00 R = Entry radius (m) 40.00 15.00 40.00 25.00 D = Inscribed circle diameter (m) 50.00 50.00 50.00 A = Entry angle (degree) 30.00 35.00 36.00 30.00 Q = Entry flow (pcu/h) 685 135 1156 679 Qc = Circulating flow across entry (pcu/h) 1018 749 512 935 OUTPUT PARAMETERS: S S S Sharpness of flare = 1.6(E-V)/L 0.53 0.96 0.80 0.00 K = 1-0.0347(A-30)-0378(1/R-0.05) 1.02 0.37 7.37 7.37			(ARM B)		(ARM B)	
ARM A B C D INPUT PARAMETERS: V = Approach half width (m) 7.00 4.00 7.00 7.00 E = Entry width (m) 9.00 7.00 10.00 7.00 L = Effective leight of flare (m) 6.00 5.00 6.00 6.00 R = Entry angle (degree) 30.00 35.00 36.00 30.00 Q = Entry angle (degree) 30.00 36.00 30.00 Q = Entry angle (degree) 30.00 36.00 30.00 Q = Entry angle (degree) 30.00 36.00 38.00 Qc = Circulating flow across entry (pcu/h) 1018 749 512 935 OUTPUT PARAMETERS: S = Sharpness of flare = 1.6[C-V)/L 0.53 0.96 0.80 0.00 K = 1-0.037(h-2.05) 1.02 0.97 1.01 1.01 X2 V + ((E-V						
$\begin{array}{llllllllllllllllllllllllllllllllllll$	ARM			A B C D		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	INPU	T PAR/	AMETERS:			
E = Entry width (m) E = Entry radius (m) L = Effective length of flare (m) R = Entry radius (m) A = Entry radius (m) A = Entry angle (degree) 3 0.00 50.00 50.00 50.00 50.00 A = Entry angle (degree) 3 0.00 35.00 36.00 30.00 Q = Entry flow (pcu/h) 685 135 1156 679 Qc = Circulating flow across entry (pcu/h) 1018 749 512 935 OUTPUT PARAMETERS: S = Sharpness of flare = 1.6(E-V)/L 0.53 0.96 0.80 0.00 K = 1-0.00347(A-30)-0.978(1/R-0.05) 1.02 0.97 1.00 1.01 X2 = V + ((E-V)/(1+2S)) T.97 5.03 8.15 7.00 M = EXP((D-60)/10) 0.37 0.37 0.37 0.37 F = 303'X2 2414 1523 2471 2121 Td = 1+(0.5/(1+M)) 1.37 1.37 1.37 1.37 Fc = 0.21'Td(1+0.2'X2) Qe = K(F-Fc*Qc) DFC = Design flow/Capacity = Q/Qe 0.40 0.13 0.55 0.45 DFC of Critical Approach = 0.55	v	=	Approach half width (m)	7.00 4.00 7.00 7.00		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	E	=	Entry width (m)	9.00 7.00 10.00 7.00		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	L	=	Effective length of flare (m)	6.00 5.00 6.00 6.00		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	R	=	Entry radius (m)	40.00 15.00 40.00 25.00		
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D	=	Inscribed circle diameter (m)	50.00 50.00 50.00 50.00		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	А	=	Entry angle (degree)	30.00 35.00 36.00 30.00		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Q	=	Entry flow (pcu/h)	685 135 1156 679		
OUTPUT PARAMETERS: S = Sharpness of flare = $1.6(E-V)/L$ 0.53 0.96 0.80 0.00 K = $1-0.00347(A-30)-0.978(1/R-0.05)$ 1.02 0.97 1.00 1.01 X2 = V + ((E-V)/(1+2S)) 7.97 5.03 8.15 7.00 M = EXP((D-60)/10) 0.37 0.37 0.37 0.37 F = 303*X2 2414 1523 2471 2121 Td = $1+(0.5/(1+M))$ 1.37 1.37 1.37 Fc = $0.21*Td(1+0.2*X2)$ 0.74 0.58 0.75 0.69 Qe = K(F-Fc*Qc) 1698 1056 2092 1492 Total ln Sum = 2103 PCU	Qc	=	Circulating flow across entry (pcu/h)	1018 749 512 935		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	0.177					
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	S	-UI PA	KAIVIE I EKS: Sharphess of flare = 1.6/E \///	0.53 0.96 0.90 0.00		
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	ĸ	_	$\frac{1}{10} (0.347(\Delta_{-30})_{-0} 0.78(1/P_{-0} 0.5))$			
$ \begin{array}{llllllllllllllllllllllllllllllllllll$	X2	=	V + ((E-V)/(1+2S))	7.97 5.03 8.15 7.00		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	M	=	EXP((D-60)/10)	0.37 0.37 0.37 0.37		
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	F	=	303*X2	2414 1523 2471 2121		
Fc = 0.21*Td(1+0.2*X2) 0.74 0.58 0.75 0.69 Qe = K(F-Fc*Qc) 1698 1056 2092 1492 Total In Sum = 2103 PCU DFC = Design flow/Capacity = Q/Qe 0.40 0.13 0.55 0.45 DFC of Critical Approach = 0.55	Td	=	1+(0.5/(1+M))	1.37 1.37 1.37 1.37		
Qe = K(F-Fc*Qc) 1698 1056 2092 1492 Total In Sum = 2103 PCU DFC = Design flow/Capacity = Q/Qe 0.40 0.13 0.55 0.45 DFC of Critical Approach = 0.55	Fc	=	0.21*Td(1+0.2*X2)	0.74 0.58 0.75 0.69		
DFC = Design flow/Capacity = Q/Qe 0.40 0.13 0.55 0.45 DFC of Critical Approach = 0.55	Qe	=	K(F-Fc*Qc)	1698 1056 2092 1492	Total In Sum = 2103 F	PCU
	DFC	=	Design flow/Capacity = Q/Qe	0.40 0.13 0.55 0.45	DFC of Critical Approach = 0.55	

TRAFFIC SIGNAL CALCULATION					INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT N	IO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME	2_Ref_J2_J5_J6_J7_J8.xls	s Checked By:	OC	29-4-2011
2011 Level 2 Peak Hour		REFERENC	E NO.:	Reviewed By:	OC	3-5-2011
$(3) 235 \underbrace{(3) 33 } \qquad \underbrace{(3) 33 } \\ \underbrace{(3) 33 } \qquad \underbrace{(3) 33 } \\ \underbrace{(3) 33 } \qquad \underbrace{(3) 33 } \\ \underbrace{(3) 33 } \underbrace{(3) 33 } \\ \underbrace{(3) 33 } \underbrace{(3) 33 } \underbrace{(3) 33 } $	N 🏷 Wing Tai Road	No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	<pre>es per cycle = (1.5*L+5)/(1-Y) = L/(1-Y) = (Yult-Y)/Y*100% = 0.9*L/(0.9-Y) = 1-L/C = (0.9*Ymax-Y)/Y*100%</pre>	$N = 2 \\ C = 100 \\ Y = 0.195 \\ L = 10 \\ = 1332 \\ = 24.8 \\ = 12.4 \\ = 0.825 \\ = 322.8 \\ = 12.8 \\ = 0.900 \\ = 315.2 \\ N = 0.900 \\ = 315.2 \\ N = 0.900 \\$	2 sec pcu sec sec sec %	
(4) (4) (5) (3) (3) (6) (6) (6) (6) (6)						
						,
Move- ment Stage Width Lane Phase No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Moven Straight- Iane m. m. m. Traffic? Side Ahead Left Straight- Iane? Sat. Flow pcu/h pcu/h	hent Total Proportion Sat. F ht Right Flow of Turning Flow h pcu/h pcu/h Vehicles pcu/h	are lane Share Revised Length Effect Sat. Flow m. pcu/hr pcu/h	y Greater L y sec	required (input) sec sec	Degree of Saturation X	Queue Aver Length De (m / Iane) (seco
LT A 3.75 1 2 22 y 4120 401 LT A 4.00 2 2 24 y 4310 171 RT A 3.50 2 2 11 y 4070 171 ST B 3.50 3 2 - y 4070 235 RT B 4.50 3 2 13 y 4270 1420 171 Ped A 4.50 4 - - - - - 235 Ped A 4.50 5 -	401 1.00 3857 171 1.00 4056 492 492 1.00 3582 235 0.00 4070 33 33 1.00 3828	3857 4056 3582 4070 3828	0.104 0.042 0.137 0.137 0.058 0.058 0.009	48 63 19 63 63 63 27 27 4 27	0.164 0.067 0.217 0.217 0.032	12 6 3 6 15 5 12 23 0 24
		NOTES : PEDESTRA	IN WALKING SPEED = 1.2r	m/s QUEUING	LENGTH = A	VERAGE QUEUE *

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepa	ared By: KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Check	xed By: OC 29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.: Revie	wed By: OC 3-5-2011
Harmony Road (1) 97 - (1) 398 - (1) 5iu Siu Siu Siu Siu Siu Siu Siu Siu Siu S	N M N	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = (1.5*L+5)/(1-Y) Cm = L/(1-Y) Yult R.C.ult = (Yult-Y)/Y*100% Cp = 0.9*L/(0.9-Y) Ymax = 1-L/C R.C.(C) = (0.9*Ymax-Y)/Y*100%	N = 3 $C = 100 sec$ $Y = 0.239$ $L = 48 sec$ $= 1352 pcu$ $= 101.2 sec$ $= 63.1 sec$ $= 0.540$ $= 125.8 %$ $= 65.4 sec$ $= 0.520$ $= 95.7 %$
$(1) \longrightarrow (3) \qquad (2) \qquad (2) \qquad (2) \qquad (3) \qquad (2) \qquad (2) \qquad (3) \qquad (3) \qquad (2) \qquad (2) \qquad (3) \qquad (4) \qquad (4) \qquad (4) \qquad (4) \qquad (4) \qquad (5) $	= 6		
Move- mont Width Phase No. of Radius Opposing Near- Straight- Width Iang Straight Straight Straight Straight	ent Total Proportion Sat. Flare lane	Share Revised g	g Degree of Queue Average
m. m. lane? Sat. Flow pcu/h pcu/	n pcu/h pcu/h Vehicles pcu/h m.	pcu/hr pcu/h y sec sec	c sec X (m / lane) (seconds
LT/ST A 3.30 1 1 11 y 1945 97 148 ST A 3.20 1 1 1 2075 250 ST A 3.00 1 2 y 3970 625 LT C 3.75 2 1 12 y 1990 78 RT C 3.75 2 1 12 y 1990 78 Ped B 11.00 3 - 625 - - - - - - - 625 -	245 0.40 1845 250 0.00 2075 625 0.00 3970 78 1.00 1769 155 155 1.00 1893	1845 0.133 28 2075 0.120 26 3970 0.157 0.157 1769 0.044 10 1893 0.082 0.082 20 20	34 0.388 24 19 34 0.351 24 18 34 0.460 33 17 18 0.248 6 31 18 0.460 18 32
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	N Y	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.357Loss timeL =18Total Flow=1183Co= (1.5*L+5)/(1-Y)=49.8Cm= L/(1-Y)Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=29.8Ymax= 1-L/CR.C.(C)= (0.9*Ymax-Y)/Y*100%=108.8	sec pcu sec sec % sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) \xrightarrow{(4)} (4)$ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (6) (5) (5) (5) (5) (5) (5) (5) (5		
Move- ment Stage Width Lane Phase Width No. of lane Radius m. Opposing Traffic? Near- side Straight- Ahead Moven Left Moven m. m. m. m. m. Side Straight- lane? Sat. Flow pcu/h pcu/h	ent Total Proportion Sat. Flare lane 1 it Right Flow of Turning Flow Length I 1 pcu/h pcu/h Vehicles pcu/h m. p	Share Revised Effect Sat. Flow pcu/hr pcu/h gg greater L required (input) y sec sec	Degree of Saturation Queue Length Average Delay X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 Y 1945 32 79 ST/RT A 3.30 1 1 12 2085 66 RT B 3.50 2 1 12 2105 66 LT A,B 3.75 3 1 13 Y 1990 121 RT C 3.50 4 1 12 Y 1990 121 LT/ST C 3.50 4 1 12 Y 1965 131 72 ST/RT D 3.50 5 1 12 Y 1965 131 72 ST/RT D 3.50 5 1 11 Y 1965 92 128 Ped D,A,B 4.00 6 Image: Colored and	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	
	NC	OTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 2 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 786 \longrightarrow (1) 551 \longrightarrow (2) (2) (3) (3) (3) Tai Tam Road$	N ◀—	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.629Loss timeL =18Total Flow=2776Co=(1.5*L+5)/(1-Y)=R.C.ult=L/(1-Y)=R.C.ult=(Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)=Ymax=1-L/C=0.829R.C.(C)=(0.9*Ymax-Y)/Y*100%=	sec pcu sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (7) \qquad (7) \qquad (2) \qquad (3) \qquad (3)$ Stage A I = 7 Stage B I = 8 Stage C I	 ← → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mover ment Width lane Traffic? side Ahead Left Straight	ent Total Proportion Sat. Flare lane Sha ti Right Flow of Turning Flow Length Effe	are Revised g g ect Sat. Flow v Greater L required (input)	Degree of Queue Average Saturation Length Delay
m. m. lane? Sat. Flow pcu/h pcu/	n pcu/h pcu/h Vehicles pcu/h m. pcu,	ı/hr pcu/h y sec sec sec	X (m / lane) (seconds)
ST A 3.50 1 2 y 4070 786 RT A 3.50 1 1 13 2105 501 ST B 3.50 2 2 4210 501 LT B 3.10 2 1 12 y 1925 79 LT C 4.00 3 1 15 y 2015 400 LT/RT C 4.00 3 1 15 y 2155 159 Ped A 4.50 4 4 4.50 4 4.50 4 4.50 Ped B,C 3.50 5 4.50 4 4.50	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	0.760 51 26 1.148 66 34 0.760 36 37 0.295 6 35 0.760 48 28 0.815 54 31
	NOTE	ES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Halcrow	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at Cape C Prepared By: KC						
Junction layout sketch Design Yea Time	GEOMETRIC PARAMETERS						
W1 62 Chai 328 Wan War1	ARM B Wan Tsui Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D 0.675 E = 1.109 F = 0.993 Y = 0.320				
ARM A W ₂	$447 \qquad W_4 \qquad (W)$	MAJOR ROAD (ARM A) $q_{a-b} = 62$ (pcu/hr) $q_{a-c} = 328$ (pcu/hr) MAJOR ROAD (ARM C)	THE CAPACITY OF MOVEMENT $Q_{b-c} = 781$ $Q_{c-b} = 695$ $Q_{b-a} = 390$ COMPARISION OF DESIGN FLOW				
REMARK: (GEOMETRIC INPU W = AVEI W _{cr} = AVEI	IT DATA) RAGE MAJOR ROAD WIDTH RAGE CENTRAL RESERVE WIDTH	$W_{c-b} = 3.30$ (metres) $Vr_{c-b} = 150$ (metres) $q_{c-a} = 447$ (pcu/hr) $q_{c-b} = 92$ (pcu/hr)	$\begin{array}{rcl} DFC_{b-a} &=& 0.243\\ DFC_{b-c} &=& 0.152\\ DFC_{c-b} &=& 0.132 \end{array}$				
$W_{b-a} = LANE$ $W_{b-c} = LANE$ $W_{c-b} = LANE$ $VI_{b-a} = VISIE$ $Vr_{b-a} = VISIE$ $Vr_{b-c} = VISIE$ $Vr_{c-b} = VISIE$ $D = GEO$ $E = GEO$	E WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A E WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C E WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B BILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A BILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A BILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C BILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C BILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B METRIC PARAMETERS FOR STREAM B-C METRIC PARAMETERS FOR STREAM B-A	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 4.50(metres) $VI_{b-a} =$ 150(metres) $Vr_{b-a} =$ 150(metres) $Vr_{b-c} =$ 150(metres) $Vr_{b-c} =$ 150(metres) $q_{b-a} =$ 95(pcu/hr) $q_{b-c} =$ 119(pcu/hr)	Critical DFC = 0.243				
F = GEO Traffic Impact Assessment October 2007	DMETRIC PARAMETERS FOR STREAM C-B 0345W) Report		Page 3 of 3				

Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road				
Design Year - 2011 Level 3				
Time - 2011 Level 3 Peak Hour				
ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS		
<i>N</i> 167 2 8		$W_1 = (metres)$	GEOMETRIC PAR	AMETERS
		$W_2 = 6.00$ (metres)	× _A	= 0.922
		$W_3 = 3.00$ (metres)	A _B	= 1.039
		$W_4 = 3.00$ (metres)	AC X	= 0.000
W.		W = 0.00 (metres)	∧ _D ∨	= 0.027
	vv3	$W_{cr1} = 0.00$ (metres)	7.	- 1.005
	Cape	$W_{cr2} = 0.00$ (metres)	2 _B	- 0.905
	Collins			0.000
V_2	on W₄ Road	MAJOR ROAD (ARM A	THE CAPACITY O	F MOVEMENT
(W) 0	(E)	$W_{ad} = 3.00$ (metres)	Qha	= 623
		$Vr_{a-d} = 100$ (metres)	Q _{b-c}	= 749
		$q_{a-b} = 0$ (pcu/hr)	Q _{b-d} is nearside	= TRUE
		$q_{a-c} = 0$ (pcu/hr)	Q _{b-d}	= 611
2 0 0		$q_{a-d} = 0$ (pcu/hr)	Q _{d-a}	= 674
•			Q _{d-b} is nearside	= TRUE
ARM B Lin Shing Rd (S)		MAJOR ROAD (ARM C	C) Q _{d-b}	= 533
		W _{c-b} = (metres)	Q _{d-c}	= 518
EMARK: (GEOMETRIC INPUT DATA)		Vr _{c-b} = (metres)	Q _{c-b}	= 437
W = AVERAGE MAJOR ROAD WIDTH		q _{c-a} = 0 (pcu/hr)	Q _{a-d}	= 616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH		q _{c-b} = 0 (pcu/hr)		
W _{a-d} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D		$q_{c-d} = 0$ (pcu/hr)	COMPARISION O	F DESIGN FLOW
W_{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A			TO CAPACITY	
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C		MINOR ROAD (ARM E	B) DFC _{b-a}	= 0.000
W_{cb} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B		$W_{b-a} = 5.00$ (metres)	DFC b-c	= 0.003
$W_{d\cdot a}$ = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A		$W_{b-c} = 5.00$ (metres)	DFC b-d	= 0.000
W d-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C		$v_{1 b-a} = 100 $ (metres)		= 0.012
		$V_{1b-a} = 00$ (metres)		= 0.004
$V_{1_{b-a}} = V_{10}B_{11} + TO THE EEPT FOR VEHICLES WATTING IN STREAM B-A$		$rac{d}{d}_{b-c} = 0$ (neules)		- 0.000
$V_{r_{b-a}} = V_{iSIBILITY}$ TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A		$q_{b-a} = 2$ (pcu/hr)		= 0.000
$V_{I_{ab}} = V_{ISIBILITY}$ TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-R		$q_{b-c} = 0$ (pcu/hr)	Di O a-d	0.000
$V_{\rm obs}$ = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C			Critical DFC	= 0.322
Visibility to the right for vehicles waiting in stream D-C		MINOR ROAD (ARM I		
Vr da = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A		$W_{d-a} = 3.00$ (metres)	-,	
X_A = GEOMETRIC PARAMETERS FOR STREAM A-D		$W_{d-c} = 3.00$ (metres)		
$X_{\rm B}$ = GEOMETRIC PARAMETERS FOR STREAM B-A		$VI_{d-c} = 50$ (metres)		
X_{C} = GEOMETRIC PARAMETERS FOR STREAM C-B		$Vr_{d-c} = 50$ (metres)		
X_D = GEOMETRIC PARAMETERS FOR STREAM D-C		$Vr_{d-a} = 80$ (metres)		
	1	· · · · · · · · · · · · · · · · · · ·		
Z_{B} = GEOMETRIC PARAMETERS FOR STREAM B-C		q _{d-a} = <mark>8</mark> (pcu/hr)		

TRAFFIC SIGNAL CALCULATION		INITIALS DATE	
TIA Study for Columbarium Development at Cape Collinson Road, Cha	ii Wan	PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011	
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By: OC 29-4-2011	
2011 Level 3 Peak Hour		REFERENCE NO.: Reviewed By: OC 3-5-2011	
$(1) \begin{array}{c} 166 \\ 0 \\ \end{array} \\ \hline \\ 0 \\ \end{array} \\ \hline \\ 0 \\ (2) \\ (2) \\ \\ 0 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\$	Wan Tsui Road 351 (1) Shing Road	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.354Loss timeL =55 secTotal Flow=832 pcuCo= $(1.5*L+5)/(1-Y)$ =Cm= $L/(1-Y)$ =Yult=0.488R.C.ult= $(Yult - Y)/Y*100\%$ =Cp= $0.9*L/(0.9-Y)$ =90.7secYmax= $1-L/C$ =0.542R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =37.7%	
(1)	(3) (4) • (4) • (4)		
Move- ment Stage Width Lane Iane No. of Iane Radius Al O N Str. Al m. m. m. Sat	raight- <u>Movement</u> Total Proportion Sat. head Left Straight Right Flow of Turning Flow t. Flow pcu/h pcu/h pcu/h Vehicles pcu/h	Flare lane Share Revised g g Degree of Queue Length Effect Sat. Flow y Greater L required (input) Saturation Length m. pcu/hr pcu/h y sec sec sec X (m / lane)	Average Delay (seconds
ST A 3.00 1 1 N 1	1915 166 166 0.00 1915	1915 0.087 5 16 65 0.160 12	11
ST/LT A 4.00 1 1 10 N 24 Ped B 6.0 3 Image: Constraint of the second seco	2015 315 351 666 0.47 1882	1882 0.354 0.354 65 65 0.653 60 50 <td>10</td>	10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG	- STEADY GREEN FG - FLASHING GREEN PEDESTR	RAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m	



ROUNDABOUT CAPACITY ASSESSMENT					INITIALS	DATE		
TIA S	tudy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Juncti	ion 4: C	Chai Wan Road Roundabout	J4LV3 Peak Hour		FILENAME : 2011_LV3_Ref_J4.xls	CHECKED BY:	OC	Sep-13
2011	Level 3	Peak Hour				REVIEWED BY:	OC	Sep-13
					(ARM D)			
		(ARM D)		Ν	847			
		Island Easter Corric	lor	♠				
		† .						
		[16] 366	[1] [2] [3] [4]	—	904			
		[15] 465	10 259 345 233		00			
		[14] 345			0 0			
			▲		0 0			
Chai	Wan R				0 0			
		()		1181	662 0 0	071	700	
(/////	10)		(Alther A) Chan Wan Boad			571		
		\sim						
			9 [5] ∳		0 0			
					0 0			
			486 [6]		00			
		44 77 73 7	← 258 [7]		1027			
		[12] [11] [10] [9]	46 [8]					
		•						
		Wan Tsui Road			201			
		(ARM B)			(ARM B)			
ARM			A B C D					
INPU	T PAR	AMETERS:						
V	=	Approach half width (m)	7.00 4.00 7.00 7.00					
E	=	Entry width (m)	9.00 7.00 10.00 7.00					
L	=	Effective length of flare (m)	6.00 5.00 6.00 6.00					
R	=	Entry radius (m)	40.00 15.00 40.00 25.00					
D	=	Inscribed circle diameter (m)	50.00 50.00 50.00 50.00					
A	=	Entry angle (degree)	30.00 35.00 36.00 30.00					
Q	=	Entry flow (pcu/h)	799 201 1181 847					
Qc	=	Circulating flow across entry (pcu/h)	971 1027 662 904					
OUTF	PUT PA	RAMETERS:						
S	=	Sharpness of flare = $1.6(E-V)/L$	0.53 0.96 0.80 0.00					
K	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02 0.97 1.00 1.01					
X2	=	V + ((E-V)/(1+2S))	<i>(.97</i> 5.03 8.15 7.00					
	=	EAP((U-60)/10)	0.37 0.37 0.37 0.37					
r Td	=	303 AZ 1+(0.5/(1+M))	2414 1523 2471 2121 1 37 1 37 1 37 1 97					
Fc	-	ו דועו,ט. (ו דועו)) ח 21*Td(1+ח 2*X2)	1.57 1.57 1.57 0.74 0.58 0.75 0.69					
Qe	-	K(F-Fc*Qc)	1733 901 1978 1514		Total In Sum =	2339	PCU	
Q,U	-					2000		
	_	Decign flow/Capacity $= 0/0a$	0.46 0.22 0.60 0.56		DEC of Critical Approach -	0.60		
DFC	-	Design now capacity - Q/QE	0.70 0.22 0.00 0.00			0.00		
1								

TRAFFIC SIGNAL CALCULATION		INITIALS DATE	
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011	
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By: OC 29-4-2011	
2011 Level 3 Peak Hour		REFERENCE NO.: Reviewed By: OC 3-5-2011	
$(3) 226 \\ (3) 39 \\ (3) 39 \\ (3) 39 \\ (3) 39 \\ (3) 559 \\ (2) \\ (2$	N 📡 Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100 secSum(y)Y =0.212Loss timeL =10 secTotal Flow=1443 pcuCo= (1.5*L+5)/(1-Y)=25.4 secCm $L/(1-Y)$ Yult=0.825R.C.ult= (Yult-Y)/Y*100%=289.9 %Cp=Cp=0.9°L/(0.9-Y)Ymax=1-L/C=0.900R.C.(C)=(0.9*Ymax-Y)/Y*100%=282.8 %	
(4) (4) (4) (5) (5) (6) (6) (6) (6) (6) (6) (6) (6)			
Move- ment Stage Lane Phase No. of lane Radius Opposing Near- side Straight- Ahead Movement ment m. m. m. m. Side Ahead Left Straight	nt Total Proportion Sat. Flare Right Flow of Turning Flow Ler pcu/h pcu/h Vehicles pcu/h r	e lane Share Revised ngth Effect Sat. Flow y Greater L required (input) Saturation Length C m. pcu/hr pcu/h y sec sec sec X (m / lane) (sec	erage elay conds]
LT A 3.75 1 2 22 y 4120 386 LT A 4.00 2 2 24 y 4310 233 RT A 3.50 2 2 11 y 4070 233 ST B 3.50 3 2 y 4070 226 RT B 4.50 3 2 13 y 4270 226 Ped A 4.50 5	386 1.00 3857 233 1.00 4056 559 559 1.00 3582 226 0.00 4070 39 39 1.00 3828	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	5 5 25 26
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE	* 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	· · · · · · · · · · · · · · · · · · ·	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 3 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (2) (2) (2) (39 (32) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	N X u Sai Wan Road 77	No. of stages per cycleN =3Cycle timeC =100 sSum(y)Y =0.191Loss timeL =48 sTotal Flow=1264 pCo= (1.5*L+5)/(1-Y)=95.2 sCm=Cm= L/(1-Y)=95.4 y=0.540 pR.C.ult= (Yult-Y)/Y*100%=182.5 pCp= 0.9*L/(0.9-Y)=60.9 sYmax= 1-L/C=8.C.(C)= (0.9*Ymax-Y)/Y*100%=144.9 p	iec iec ocu iec iec iec %
$(1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (2) (1)$) ► I= 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Move- Width Iane Traffic? Side Ahead Left	rement Total Proportion Sat. Flare I raight Right Flow of Turning Flow Leng	lane Share Revised gth Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 99 ST A 3.20 1 1 11 y 1945 99 ST A 3.20 1 1 11 y 3970 ST A 3.00 1 2 y 3970 LT C 3.75 2 1 12 y 1990 32 RT C 3.75 2 1 12 y 1990 32 Ped B 6.50 4 -	Layn pcu/n venicies pcu/n m. 148 247 0.40 1844 269 269 0.00 2075 577 677 0.00 3970 32 1.00 1769 39 39 1.00 1893 1893 1893 1893	1. pcu/m pcu/m y sec sec <td>x (m / lane) (seconds) 0.289 18 12 0.279 24 12 0.368 30 11 0.323 0 47 0.368 6 48</td>	x (m / lane) (seconds) 0.289 18 12 0.279 24 12 0.368 30 11 0.323 0 47 0.368 6 48
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 3 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $(1) 12 \rightarrow (4) (4) (4) (4) (112 25 285) (1) 158 \rightarrow ($	N M	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.263Loss timeL =18Total Flow=971Co= (1.5*L+5)/(1-Y)=43.4Cm= L/(1-Y)Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=25.4Ymax= 1-L/CYmax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec % sec %
$(1) \longrightarrow (6) (7) (6) (7) (4) (4) (4) (1) (1) (1) (3) (2) (3) (3) (2) (3) (3) (2) (3) (3) (2) (3) (3) (2) (3) (3) (2) (3) (3) (2) (3) (3) (3) (3) (2) (3) (3) (3) (3) (3) (3) (3) (3) (3) (3$	$(4) \qquad (6) \\ (5) \\ (5) \\ (5) \\ (5) \\ (6) \\ (6) \\ (6) \\ (6) \\ (7) $		
Move- ment Stage Lane Phase No. of lane Radius Opposing Near- side Straight- Ahead Movem m. m. m. Traffic? side Ahead Left Straight- straight- m.	ent Total Proportion Sat. Flare lane t Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	e Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.30 1 1 11 12 79 ST/RT A 3.30 1 1 12 2085 79 RT B 3.50 2 1 12 2105 79 LT A,B 3.75 3 1 13 y 1990 90 RT C 3.50 4 1 12 y 1990 90 RT C 3.50 4 1 12 y 1965 285 25 ST/RT D 3.50 5 1 12 y 1965 285 25 ST/RT D 3.50 5 1 11 y 1965 3 67 Ped D,A,B 4.00 6 Ped A.00 7 Image: Colored and and and and and and and and and an	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	1911 0.048 18 16 15 2044 0.046 0.046 15 15 1871 0.005 0.005 2 2 1784 0.050 17 22 1871 0.060 20 58 1762 0.176 0.176 58 58 1871 0.104 35 35 35 1954 0.036 0.036 12 12	0.328 12 36 0.317 12 35 0.317 0 72 0.243 12 30 0.108 6 9 0.317 24 8 0.317 18 20 0.317 6 39
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2011 Level 3 Peak Hour		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 648 \\ (1) 690 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	N 🚽	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.693Loss timeL =18Total Flow=2756Co= $(1.5*L+5)/(1-Y)$ =Cm= L/(1-Y)=58.6Yult=0.765R.C.ult=(Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)=78.1Ymax=1-L/C=0.829R.C.(C)=(0.9*Ymax-Y)/Y*100%=7.7	sec pcu sec sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (5) \qquad (6) $	 ←→ (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lane Sh	hare Revised g g tect Sat Flow y Greater I required (input)	Degree of Queue Average
m. m. lane? Sat. Flow pcu/h pcu/	n pcu/h pcu/h Vehicles pcu/h m. pcu	u/hr pcu/h y sec sec sec	X (m / lane) (seconds)
ST A 3.50 1 2 y 4070 648 RT A 3.50 1 1 13 2105 639 ST B 3.50 2 2 4210 639 LT B 3.10 2 1 12 y 1925 113 LT C 4.00 3 1 15 y 2015 321 LT/RT C 4.00 3 1 15 y 2015 321 LT/RT C 4.00 3 1 15 y 2155 159 Ped A 4.50 4 4 4.50 4 4.50 Ped B,C 3.50 5 4.50 4 4.50 4 4.50 Ped B,C 3.50 5 4.50 4 4.50 4 4.50 Ped A,B 3.50 7 4.50 4 4.50 4.50 Ped A,B 3.50 7 4.50 <	648 0.00 4070 690 690 1.00 1887 639 0.00 4210 113 1.00 1711 321 1.00 1832 186 345 1.00 1959	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	0.836 45 37 1.920 96 43 0.836 45 38 0.364 12 33 0.836 42 46 0.840 48 45
	NOT	res : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Halcrov	Agreement No. CPM301_15/10 - Traffic Impact Assessment S	Study For Columbarium Development at C	ape CPrepared By: KC
Junction layout sket Design Ye Tir	tch - J9: Junciton of Chai Wan Road and Wan Tsui Road fear - 2011 Level 3 me - 2011 Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
W ₁ W ₁ W ₁ W ₂ W ₁ W	ARM B Wan Tsui Road	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	D 0.675 E = 1.109 F = 0.993 Y = 0.320
(E) ARM A W_2	$\begin{array}{cccc} & 152 & W_4 & (W) \\ \hline \bullet & 618 & & \mathbf{ARM C} \end{array}$	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF MOVEMENT $Q_{b-c} = 766$ $Q_{c-b} = 680$ $Q_{b-a} = 366$ COMPARISION OF DESIGN FLOW
REMARK: (GEOMETRIC INF W = AV W _{cr} = AV	PUT DATA) /ERAGE MAJOR ROAD WIDTH /ERAGE CENTRAL RESERVE WIDTH		TO CAPACITY DFC $_{b-a} = 0.426$ DFC $_{b-c} = 0.355$ DFC $_{c-b} = 0.224$
$W_{b-a} = LA$ $W_{b-c} = LA$ $W_{c-b} = LA$ $VI_{b-a} = VIS$ $Vr_{b-a} = VIS$ $Vr_{b-c} = VIS$ $D = GE$	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B SIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A SIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A SIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C SIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B SIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC = 0.426
E = GE F = GE Traffic Impact Assessmen October 2007	EOMETRIC PARAMETERS FOR STREAM B-A EOMETRIC PARAMETERS FOR STREAM C-B (0.0345W) TREPORT		Page 3 of 3

Appendix B2

2016 Peak Hour Junction Assessment Calculation Sheets

Bal	Agreement No. CPM301_15/10 - Traffic Impact Assessn	ment Study For Columbarium Development at Prepared By: KC	
	Junction Capacity Analysis	Checked By: OC	
Junction lay	ut sketch - J1: J/O Cape Collinson Road and Lin Shing Road		
U	Time - Level 1 Peak Hour		
	N 277 2 279	W ₁ = (metres) GEOMETRIC PARAMETERS	
		$W_2 = 6.00$ (metres) $X_A = 0.9$	922
		$W_3 = 3.00$ (metres) $X_B = 1.0$	039
		$W_4 = 3.00$ (metres) $X_c = 0.5$	586
	ARM	A W = 6.00 (metres) X _D = 0.8	327
W ₁	W ₃	$W_{cr1} = 0.00$ (metres) $Y = 0.7$	793
ARM C		$W_{cr2} = 0.00$ (metres) $Z_B = 1.0$	005
Cape W _{cr1}	W _{cr2} Cape	$W_{cr} = 0.00 \text{ (metres)} Z_D = 0.9$	905
on	10 on		
Road W ₂	▲ 1 W₄ Road	d MAJOR ROAD (ARM A) THE CAPACITY OF MOVEMENT	
(W)	0 (E)	$W_{a-d} = 3.00$ (metres) $Q_{b-a} = 52$	22
		$Vr_{a-d} = 100$ (metres) $Q_{b-c} = 74$	49
		$q_{a-b} = 0$ (pcu/hr) Q_{b-d} is nearside = TRI	UE
		$q_{a-c} = 1.0288 (pcu/hr) \qquad Q_{b-d} = 60$	08
	28 248 20	$q_{a-d} = 10.259 (pcu/hr) Q_{d-a} = 67$	/4
	ADM D Lin Shing Dd (S)	$Q_{d-b} \text{ is nearside} = 1 \text{ is nearside} $	(UE 20
	ARM B LIN Shing Ru (3)	$W_{d-b} = 32$	20 47
		-	30
W	= AVERAGE MAJOR ROAD WIDTH	$q_{cb} = 0$ (neus) $q_{cb} = 43$	16
W	= AVERAGE CENTRAL RESERVE WIDTH	$q_{c,a} = 0$ (pcu/hr) $q_{a,a} = 0$	10
Wood	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	$q_{cb} = 0$ (pcu/hr) COMPARISION OF DESIGN FLOV	w
W h-a	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A	TO CAPACITY	
W b-c	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B) DFC b-a = 0.0	037
W _{c-b}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres) DFC $_{b-c} = 0.0$	037
W _{d-a}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres) DFC $_{b-d} = 0.4$	408
W _{d-c}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$VI_{b-a} = 100$ (metres) DFC $_{d-a} = 0.4$	413
Vr _{a-d}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{b-a} = 65$ (metres) DFC _{d-b} = 0.0	004
VI _{b-a}	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{b-c} = 0$ (metres) DFC $_{d-c} = 0.6$	620
Vr _{b-a}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	$q_{b-a} = 19.547$ (pcu/hr) DFC _{c-b} = 0.0	000
Vr _{b-c}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{b-c} = 27.719 (pcu/hr) DFC_{a-d} = 0.0$	017
Vr _{c-b}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$q_{b-d} = 248.4 (pcu/hr)$	
VI _{d-c}	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	Critical DFC = 0.6	620
Vr _{d-c}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)	
Vr _{d-a}	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	$W_{d-a} = 3.00 \text{ (metres)}$	
X _A	= GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{d-c} = 3.00 \text{ (metres)}$	
X _B	= GEUMETRIC PARAMETERS FOR STREAM B-A	$VI_{d-c} = 50$ (metres)	
X _C	= GEOMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metres)	
X _D		$Vr_{d-a} = \frac{80}{(a m t r s)}$	
∠ _B 7	= GEUMETRIC PARAMETERS FOR STREAM D A	$q_{d-a} = 2/8.53$ (pcu/nr)	
ssessment Report	= GEOWE I RIG FARAWE I ERS FOR STREAM D-A $= (1-0.0345W)$	$q_{d-b} = 2.2002 (pcu/nr)$	
· ·	- (10.00000)	$q_{d-c} = 210.07$ (pcu/m)	

TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 1 Ref J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 361 \qquad \qquad$	Wan Tsui Road	No. of stages per cycleN =ICycle timeC =124Sum(y)Y =0.519Loss timeL =25Total Flow=130Co= (1.5*L+5)/(1-Y)=88.4Cm= L/(1-Y)=52.0Yult=0.713R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=59.1Ymax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=37.2	2 0 sec - sec 7 pcu - sec - sec
(1) (3	(4)		
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Movemure Left Straight- straight m. m. m. Sat. Flow pcu/h pc	ent Total Proportion Sat. Flare lane Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
ST A 3.00 1 1 N 1915 361 ST/LT A 4.00 1 1 10 N 2015 673 273 Ped B 6.0 3 I	361 0.00 1915 946 0.71 1821	1915 0.189 5 34 95 1821 0.519 0.519 95 95 20 20 10 10 10 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100	0.238 12 2 0.656 36 3
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALK	ING SPEED = 1.2m/s QUEUING LENGTH = AVE	RAGE QUEUE * 6m

Kali	Agreement No. CPM301_15/10 -	Traffic Impact Assessm	ent Study For Columbariur	n Development	at Prepared B	y: KC
	Junction Capacity Analysis				Checked By	y: OC
Junction lay C	out sketch - J3: J/O Cape Collinson Road and Liu esign Year - 2016 Ching Ming - Reference Case Time - Ching Ming Peak Hour	n Shing Road	GEOMETRIC DETAILS		GEOMETRIC P	PARAMETERS
N W1 Shek O Road (N)	ARM B Cape Coll	inson Road W ₃ Shek O W ₀₁₂ Road Q (S)	$W_{1} = 3.90$ $W_{2} = 3.90$ $W_{3} = 4.80$ $W_{4} = 4.50$ $W = 8.55$ $W_{cr1} = 0.00$ $W_{cr2} = 0.00$ $W_{cr} = 0.00$	 (metres) 	D E F Y	 0.626 = 0.996 = 1.109 = 0.705
ARM A W ₂		177 ^{W4} ARM C	MAJOR ROAD $q_{a-b} = 1$ $q_{a-c} = 172$	(ARM A) (pcu/hr) (pcu/hr)	THE CAPACITY Q _{b-c} Q _{c-b} Q _{b-a}	Y OF MOVEMENT = 698 = 777 = 347
			MAJOR ROAD	(ARM C)		I OF DESIGN FLOW
REMARK: (GEOM W W _{cr}	ETRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH = AVERAGE CENTRAL RESERVE WIDTH		$Vr_{c-b} = -4.00$ $Vr_{c-b} = -1500$ $q_{c-a} = -1777$ $q_{c-b} = -0$) (metres) (pcu/hr) (pcu/hr)	DFC _{b-a} DFC _{b-c} DFC _{c-b}	= 0.749 = 0.015 = 0.000
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} D E	 LANE WIDTH AVAILABLE TO VEHICLE WAITING II LANE WIDTH AVAILABLE TO VEHICLE WAITING II LANE WIDTH AVAILABLE TO VEHICLE WAITING II VISIBILITY TO THE LEFT FOR VEHICLES WAITING VISIBILITY TO THE RIGHT FOR VEHICLES WAITING GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B 	N STREAM B-A N STREAM B-C N STREAM C-B G IN STREAM B-A NG IN STREAM B-A NG IN STREAM B-C NG IN STREAM C-B	$ \begin{array}{rcl} \text{MINOR ROAD} \\ \text{W}_{\text{b-a}} &= & 0.00 \\ \text{W}_{\text{b-c}} &= & 3.80 \\ \text{VI}_{\text{b-a}} &= & 100 \\ \text{Vr}_{\text{b-a}} &= & 100 \\ \text{Vr}_{\text{b-c}} &= & 100 \\ \text{Q}_{\text{b-c}} &= & 100 \\ \text{Q}_{\text{b-c}} &= & 100 \\ \end{array} $	(ARM B) (metres) (metres) (metres) (metres) (metres) (pcu/hr) (pcu/hr)	Critical DFC	C = 0.749
affic Impact Asses	sment Report					Page 3 of

ROUNDABOUT CAPACITY ASSESSMENT				INITIALS	DATE			
TIA St	udy for	Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junctio	on 4: C	hai Wan Road Roundabout	J4LV1 Peak Hour		FILENAME2016_LV1_Ref_J2_J5_J6_J7_	J8.xls CHECKED BY:	OC	Sep-13
J4LV1	Peak I	Hour	-			REVIEWED BY:	OC	Sep-13
						*		- 1
					(ARM D)			
		(ARM D)		N	1015.48885			
		Island Easter Corri	dor	*				
		4						
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Chai V	Van Ro	ad 🔶 🗸			0 0			
(ARM	C)		(ARM A)	1222.248	1037 O O	1116.94	914.0088	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
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			↑		0 0			
			456 [6]					
			450 [0]		00			
		21 290 258 9	← 122 [7]		796			
		[12] [11] [10] [9]	325 [8]					
			¥					
		Wan Tsui Road			577.812881			
		Wan Tsui Roac (ARM B)			577.812881 (ARM B)			
		Wan Tsui Roac (ARM B)			577.812881 (ARM B)			
ARM		Wan Tsui Roac (ARM B)	A B C D		577.812881 (ARM B)			
ARM	PARA	Wan Tsui Roac (ARM B)	A B C D		577.812881 (ARM B)			
ARM INPUT	PARA	Wan Tsui Roac (ARM B) METERS:	A B C D		577.812881 (ARM B)			
	PARA	Wan Tsui Roac (ARM B) METERS:	A B C D		577.812881 (ARM B)			
ARM NPUT /	• PARA = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		577.812881 (ARM B)			
<u>ARM</u> NPUT / :	PARA = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		577.812881 (ARM B)			
ARM INPUT ✓ Ξ - ૨	PARA = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		577.812881 (ARM B)			
ARM NPUT / = - R	PARA = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 50.00		577.812881 (ARM B)			
ARM NPUT = - - - - - - - - - - - - - - - - - -	- PARA = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 15.00 50.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 30.00		577.812881 (ARM B)			
ARM INPUT = - R D A Q	- PARA = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 15.00 50.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 914 578 1222 1015		577.812881 (ARM B)			
4RM NPUT / Ξ - ₹ 2 2 2 2 2	PARA = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 50.00 50.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067		577.812881 (ARM B)			
ARM NPUT E L R D A Q Q Q C	PARA = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 50.00 50.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067		577.812881 (ARM B)			
ARM INPUT V E L R D A Q Q Q C	PARA = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067		577.812881 (ARM B)			
ARM INPUT V E L R D A Q Q Q C OUTPI S	= = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V//I	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067		577.812881 (ARM B)			
ARM INPUT V E L R D A A Q Q C OUTP ^I S K	= = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067		577.812881 (ARM B)			
ARM INPUT V E L L R D A Q Q Q C OUTP ^I S K X2	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		577.812881 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M	= = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		577.812881 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X 2 M F	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121		577.812881 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F Td	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37		577.812881 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F Td Fc	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69		577.812881 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F Td Fc Qe	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) $303^{2}X2$ 1+(0.5/(1+M)) $0.21^{*}Td(1+0.2^{*}X2)$ $K(F-Fc^{*}Qc)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69 1622 1030 1695 1400		577.812881 (ARM B)	2677.223	PCU	
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F Td F C Qe	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067 0.53 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1622 1030 1695 1400		577.812881 (ARM B)	2677.223	PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F Td Fc Qe DFC	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) WETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 914 578 1222 1015 1117 796 1037 1067 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1622 1030 1695 1400		Total In Sum =	2677.223	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS F	Prepared By: KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls (Checked By: OC 29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By: OC 3-5-2011
(3) 329 (3) 77 (3) 77 (3) 77 (485 (1)) $(2) (2) (2) (2) (2) (2) (2) (2) (2) (2)$	N 🔀	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 2 C = 100 sec Y = 0.291 L = 10 sec = 1896 pcu = 28.2 sec = 14.1 sec = 0.825 = 183.8 % = 14.8 sec = 0.900 = 178.6 %
(4) (4) (5) (3) (3) (6) (6) (6) (6)			
Stage A I = 7 Stage B I = 5			
Move- ment Stage Lane Phase No. of lane Radius Opposing Traffic? Near- side Straight- Ahead Moven m. m. m. m. m. Straight- m. Straight- side Moven	hent Total Proportion Sat. Flare ht Right Flow of Turning Flow Ler h pcu/h pcu/h Vehicles pcu/h r	e lane Share Revised ngth Effect Sat. Flow y Greater L m. pcu/hr pcu/h y sec	g g Degree of Queue Average required (input) Saturation Length Delay sec sec X (m / lane) (seconds
LT A 3.75 1 2 22 y 4120 485 LT A 4.00 2 2 24 y 4310 254 RT A 3.50 2 2 11 y 4070 329 ST B 3.50 3 2 13 y 4270 329 RT B 4.50 3 2 13 y 4270 485 Ped A 4.50 5 -	485 1.00 3857 254 1.00 4056 752 752 1.00 3582 329 0.00 4070 77 77 1.00 3828	3857 0.126 10 4056 0.063 3582 0.210 0.210 4070 0.081 0.081 3828 0.020 10	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/	/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION		INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By: KC 29	9-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By: OC 29	9-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.: Reviewed By: OC 3-	5-2011
Harmony Road $(1) 133 \xrightarrow{1}$ $(1) 478 \xrightarrow{1}$ $(1) (1) 478 \xrightarrow{1}$	N Siu Sai Wan Road — 814	No. of stages per cycleN =3Cycle timeC =100 secSum(y)Y =0.251Loss timeL =48 secTotal Flow=1583 pcuCo= (1.5*L+5)/(1-Y)=102.8 secCm= L/(1-Y)=64.1 secYult=0.540R.C.ult= (Yult-Y)/Y*100%=114.9 %Cp= 0.9*L/(0.9-Y)=66.6 secYmax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=86.2 %	
$(1) \xrightarrow{(1)} (1) (1)$	(2) 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- ment Width Iane Traffic? side Ahead	Movement Total Proportion Sat. Left Straight Right Flow of Turning Flow	Flare lane Share Revised Length Effect Sat. Flow y Greater L required (input) Saturation I	Queue Average Length Delay
LT/ST A 3.30 1 1 11 Y 1945 ST A 3.20 1 1 11 Y 1945 ST A 3.20 1 1 1 2075 ST A 3.00 1 2 y 3970 LT C 3.75 2 1 12 y 1990 RT C 3.75 2 1 12 y 1990 Ped B 11.00 3 - - - - Ped B 6.50 4 - - - - Ped B 6.50 5 - - - - Ped B 6.50 5 - - - -	curn pcu/n pcu/n vehicles pcu/h 133 148 281 0.47 1827 330 330 0.00 2075 814 814 0.00 3970 71 71 1.00 1769 88 88 1.00 1893	m. pcu/nr pcu/nr y sec sec sec sec x (n 1827 0.154 28 28 22 0.362 32 42 0.362 33 42 0.375 3370 0.205 0.205 33 42 0.375 42 42 0.483 42 0.483 42 0.483 42 0.483 42 0.483 42 0.483 42 0.483 42 0.483 42 42 0.483 42 42 0.483 42 <td< td=""><td>n / lane) (seconds) 24 14 30 14 39 13 6 42 12 43</td></td<>	n / lane) (seconds) 24 14 30 14 39 13 6 42 12 43
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVEF	RAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	N Sai Wan Road	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.377Loss timeL =18Total Flow=1351Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) \xrightarrow{(4)} (4)$ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} 1 = 5 \text{Stage B} 1 = 5 \text{Stage C}$	(4) (6) (5) (5) (5) (5) (5) (5) (5) (5		
Move- ment Stage Lane Width Phase No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Mov m. m. m. m. m. Traffic? Side Ahead Left Straight- Side Side Ahead Left Straight- Side Side	ment Total Proportion Sat. Flare lane Sha ight Right Flow of Turning Flow Length Effa //h pcu/h pcu/h Vehicles pcu/h m. pcu	nare Revised tect Sat. Flow y Greater L required (input) u/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / Jane) (seconds)
LT/ST A 3.30 1 1 11 11 y 1945 49 ST/RT A 3.30 1 1 12 2085 1 1 RT B 3.50 2 1 12 2085 1 1 LT A,B 3.75 3 1 13 y 1990 150 RT C 3.50 4 1 12 2105 150 LT/ST C 3.50 4 1 12 y 1965 206 150 ST/RT D 3.50 5 1 12 y 1965 206 150 LT/ST D 3.50 5 1 11 y 1965 98 1 Ped D,A,B 4.00 6 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <td< td=""><td>9 128 0.38 1849 5 107 172 0.62 1935 29 29 1.00 1871 150 1.00 1784 186 186 1.00 1871 1 287 0.72 1803 0 189 189 1.00 1871 13 211 0.47 1848</td><td>1849 0.069 18 1935 0.089 0.089 20 20 1871 0.015 0.015 4 4 1784 0.084 19 29 37 1803 0.159 0.159 37 37 1871 0.101 23 23 1871 0.101 23 23 1848 0.114 0.114 26 26</td><td>0.354 12 31 0.456 24 31 0.456 0 65 0.304 18 24 0.284 18 19 0.456 30 19 0.456 24 29 0.456 24 26</td></td<>	9 128 0.38 1849 5 107 172 0.62 1935 29 29 1.00 1871 150 1.00 1784 186 186 1.00 1871 1 287 0.72 1803 0 189 189 1.00 1871 13 211 0.47 1848	1849 0.069 18 1935 0.089 0.089 20 20 1871 0.015 0.015 4 4 1784 0.084 19 29 37 1803 0.159 0.159 37 37 1871 0.101 23 23 1871 0.101 23 23 1848 0.114 0.114 26 26	0.354 12 31 0.456 24 31 0.456 0 65 0.304 18 24 0.284 18 19 0.456 30 19 0.456 24 29 0.456 24 26
	NOTE	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	-	PROJECT NO.: CTLDQS Pre	pared By: KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Che	ecked By: OC 29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.: Rev	/iewed By: OC 3-5-2011
$(1) 719 \longrightarrow (1) 375 \longrightarrow (1) $	N ◀	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	$ \begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (7) \qquad (3)$ Stage A I = 7 Stage B I = 8 Stage C	 ← → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mover	nent Total Proportion Sat. Flare lan	e Share Revised	g g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Strain	ht Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L req	uired (input) Saturation Length Delay
ST A 3.50 1 2 y 4070 71 RT A 3.50 1 1 13 2105 4210 54 ST B 3.50 2 2 4210 54 LT B 3.10 2 1 12 y 1925 56 LT C 4.00 3 1 15 y 2015 391 LT/RT C 4.00 3 1 15 2155 159 Ped A 4.50 4 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 4 4 Ped B,C 3.50 5 4 <td< td=""><td>P 719 0.00 4070 375 375 1.00 1887 7 547 0.00 4210 56 1.00 1711 391 1.00 1832 229 388 1.00 1959</td><td>pcu/m pcu/m y sec s 4070 0.177 18 2 3 4887 0.199 0.199 3 4210 0.130 2 1711 0.032 1 3 3 3 3 3 1959 0.198 3 3 3 3 3</td><td>ec sec x (m / rane) (seconds) !8 28 0.655 45 24 !2 28 0.738 42 29 !1 21 0.655 36 30 5 21 0.164 6 30 34 34 0.655 42 22 32 34 0.607 42 21</td></td<>	P 719 0.00 4070 375 375 1.00 1887 7 547 0.00 4210 56 1.00 1711 391 1.00 1832 229 388 1.00 1959	pcu/m pcu/m y sec s 4070 0.177 18 2 3 4887 0.199 0.199 3 4210 0.130 2 1711 0.032 1 3 3 3 3 3 1959 0.198 3 3 3 3 3	ec sec x (m / rane) (seconds) !8 28 0.655 45 24 !2 28 0.738 42 29 !1 21 0.655 36 30 5 21 0.164 6 30 34 34 0.655 42 22 32 34 0.607 42 21
	<u> </u>	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m

Kal	C KUM	Agreement No. CPM301_15/10 - Traffic Impact Assessme	ent Study For Columbarium Development a	at Prepared By:	KC
		Junction Capacity Analysis		Checked By:	00
Junction lay	yout sketch - Design Year Time -	 J9: Junciton of Chai Wan Road and Wan Tsui Road 2016 Ching Ming - Reference Case Ching Ming Peak Hour 	GEOMETRIC DETAILS	GEOMETRIC PARAM	METERS
Chai Wan Road Wort	87 247	ARM B Wan Tsui Road	W_1 =10.90(metres) W_2 =7.70(metres) W_3 =10.60(metres) W_4 =10.20(metres) W =19.70(metres) W_{cr1} =4.10(metres) W_{cr2} =1.70(metres) W_{cr} =2.90(metres)	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂		\sim 504 W_4 ARM C	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF I Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 790 701 375
			MAJOR ROAD (ARM C) W _{c-b} = <mark>3.30</mark> (metres)	COMPARISION OF I TO CAPACITY	DESIGN FLOW
REMARK: (GEO W W _{cr}	metric inpu = Aver = Aver	T DATA) AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 504$ (pcu/hr) $q_{c-b} = 250$ (pcu/hr)	$\begin{array}{rcl} DFC_{b\text{-}a} & = \\ DFC_{b\text{-}c} & = \\ DFC_{c\text{-}b} & = \end{array}$	0.082 0.329 0.357
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE LANE LANE VISIBI VISIBI VISIBI VISIBI GEOM GEOM GEOM 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B METRIC PARAMETERS FOR STREAM B-C METRIC PARAMETERS FOR STREAM B-A METRIC PARAMETERS FOR STREAM C-B	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 4.50(metres) $VI_{b-a} =$ 150(metres) $Vr_{b-a} =$ 150(metres) $Vr_{b-c} =$ 150(metres) $q_{b-a} =$ 31(pcu/hr) $q_{b-c} =$ 260(pcu/hr)	Critical DFC =	0.357
raffic Impact ^Y Asse ctober 2007	essment Report	240VV <i>)</i>			Page 9 of 1

TRAFFIC SIGNAL CALCULATION		INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	PROJECT NO.: CILDUS Prepared By:	<u> </u>
2016 Level 1 Peak Hour -Reference Case	REFERENCE NO : Reviewed By:	· OC 3-5-2011
2016 Level 1 Peak Hour -Reference Case (1) 1006 (1) 1006 (23) (1) (361) (2) (2) (361) (2) (361) (2) (361) (3	N N Sumpty N = Cycle time N = Cycle time C = Sum(y) Y = Loss time L = Total Flow = CO = Loss time L = Total Flow = CO = L(1-Y) = Cm = L(1-Y) = Z L(1-Y) = Z <thz< th=""> Z Z Z</thz<>	OC 3-5-2011 2 100 sec 0.464 10 sec 1942 pcu 37.3 sec 18.7 sec 0.825 77.8 % 20.6 sec 0.900 74.6 %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (2)$ $(3) \longrightarrow (2)$ $(2) \longrightarrow (2)$ $(3) \longrightarrow (2)$ $(2) \longrightarrow (2)$ $(3) \longrightarrow (2)$		
Move- Stage Lane Phase No. of Radius O N Straight- Movem	nt Total Proportion Sat. Flare lane Share Revised g	g Degree of Queue Average
ment Width lane Anead Left Straigh	Right Flow of Furning Flow Length Effect Sat. Flow y Greater L required (i pcu/h pcu/h Vehicles pcu/h m. pcu/hr pcu/h y sec sec	sec X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 1006 ST A 3.50 1 2 10 N 4070 1006 553 LT B 3.00 2 1 10 N 1915 361 RT B 3.50 2 1 12 N 1915 361 Ped B 19.0 3 N 100 N 1915 361 Ped A 8.0 4 Image: Constraint of the second seco	1006 0.00 4070 4070 0.247 0.247 48 23 23 1.00 1665 1665 0.217 42 2 23 23 1.00 1871 1871 0.012 2 10	47 0.526 42 10 47 0.289 24 11 53 0.409 24 9 53 0.023 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH	= AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
111: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	1111 V1 - Peak Hour Traffic Flows	FILENAME 1. Ref. 12. 15. 16. 17. 18. vis Checked By:	OC 29-4-2011
2016 Level 1 Peak Hour -Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
		ner en	00 00 1011
Sheung On Street $(1) 93 \underbrace{(4) (4) \\ 329 21 \\ \underbrace{(1) 920 1}{(1) 920 \underbrace{(1) 920 \underbrace{(1) 920 \underbrace{(1) 920 \underbrace{(1) 920 1}{(1) 920 \underbrace{(1) 920 \underbrace{(1) 920 1}{(1) 920 \underbrace{(1) 920 \underbrace{(1) 920 \underbrace{(1) 920 1}{(1) 920 \underbrace{(1) 920 1}{(1) 920 1}{(1) 920 \underbrace{(1) 920 1}{(1) $	N ————————————————————————————————————	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.283Loss timeL =37Total Flow=2296Co= (1.5*L+5)/(1-Y)=84.4Cm= L/(1-Y)Cm= L/(1-Y)=84.7Cm=Yult=0.623R.C.ult= (Yult-Y)/Y*100%=120.0Cp=0.9*L/(0.9-Y)=54.0Ymax=1-L/C=0.692R.C.(C)=(0.9*Ymax-Y)/Y*100%=120.0	sec sec sec sec % sec %
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (2) \xrightarrow{(3)} (3)$			
Stage A I = 8 Stage B I = 5 Stage C	I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of lane Radius Opposing Traffic? Near- side Straight- Ahead Mov m. m. m. m. Traffic? Side Ahead Left Straight- side Straight- lane? Sat. Flow pcu/h p	ement Total Proportion Sat. Flare lane Sha iight Right Flow of Turning Flow Length Effi u/h pcu/h pcu/h Vehicles pcu/h m. pcu	hare Revised fect Sat. Flow y Greater L required (input) u/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.50 1 3 12 y 6175 93 93 93 93 93 94 LT/ST A 3.30 2 3 12 Y 6115 143 74 LT B 3.50 3 1 9 Y 1965 33 LT/RT D 3.75 4 2 10 y 4120 21 Ped B,C 4.00 5 -	20 1012 0.09 6105 58 901 0.16 5996 33 1.00 1684 329 350 1.00 3583	6105 0.166 0.166 49 5996 0.150 44 1684 0.020 0.020 6 3583 0.098 0.098 29 15 15 15	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	NOTI	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

Lak	CKON	Agreement No. CPM3	301_15/10 - Traffi	c Impact Assessn	nent St	udy For Col	lumbar	ium Develop	ment at	Prepared I	By:	КС	
		Junction Capacity An	nalysis							Checked E	By:	00	
Junction lay	vout sketo Design Ye Tim	ch - J1: J/O Cape Collinson ear - 2016 Level 1 - Site 1 ne - Level 1 Peak Hour	Road and Lin Shin	g Road		GEOMETRIC		s					
			Shing Ru (N)			GEONIETRICT	DETAILS)					
	${\mathcal N}$	287	2 301			W ₁	=	(metres)		GEOMETRIC	PARAM	ETERS	
	\mathbf{h}					W ₂	= 6	6.00 (metres)		X _A	=		0.922
						W ₃	= :	3.00 (metres)		X _B	=		1.039
	-	↓	↓└→∟			W_4	= 🤇	3.00 (metres)		X _c	=		0.586
				ARM A		W	= 6	6.00 (metres)		X _D	=		0.827
W ₁				W ₃		W _{cr1}	= (0.00 (metres)		Y	=		0.793
ARM C						W _{cr2}	= (0.00 (metres)		Z _B	=		1.005
Cape W _{cr1}				W _{cr2} Cape 11		W _{cr}	= (0.00 (metres)		Z _D	=		0.905
on Road W ₂				1 W₄ Road		MAJO	R ROAD	(ARM	A)	THE CAPACI	TY OF N	IOVEMEI	νT
(W)			↓ T	0 <i>(E)</i>		W _{a-d}	= 🤇	3.00 (metres)		Q _{b-a}	=		514
						Vr _{a-d}	=	100 (metres)		Q _{b-c}	=		749
						q _{a-b}	=	0 (pcu/hr)		Q _{b-d} is nears	de =		TRUE
						q _{a-c}	= 1.	0288 (pcu/hr)		Q _{b-d}	=		608
		30 268 20				q _{a-d}	= 11	1.259 (pcu/hr)		Q _{d-a}	=		674
		-	_							Q _{d-b} is nears	de =		TRUE
		ARM B Lin	Shing Rd (S)			MAJO	R ROAD	(ARM	C)	Q _{d-b}	=		528
						W _{c-b}	-	(metres)		Q _{d-c}	=		441
REMARK: (GEO	METRIC IN	IPUT DATA)				Vr _{c-b}	-	(metres)		Q _{c-b}	=		440
W	= AV	ERAGE MAJOR ROAD WIDTH				q _{c-a}	-	0 (pcu/hr)		Q _{a-d}	=		616
W _{cr}	= AV	ERAGE CENTRAL RESERVE WI	IDTH			q _{c-b}	=	0 (pcu/hr)					
W _{a-d}	= LA	NE WIDTH AVAILABLE TO VEHIC	CLE WAITING IN STR	EAM A-D		q _{c-d}	=	0 (pcu/hr)		COMPARISIC	N OF D	ESIGN FI	LOW
W _{b-a}	= LA	NE WIDTH AVAILABLE TO VEHIC	CLE WAITING IN STR	EAM B-A						TO CAPACIT	Y		
W b-c	= LA	NE WIDTH AVAILABLE TO VEHIC	CLE WAITING IN STR	EAM B-C		MINO	R ROAD	(ARM	B)	DFC _{b-a}	=		0.038
W _{c-b}	= LAI	NE WIDTH AVAILABLE TO VEHIC	CLE WAITING IN STR	EAM C-B		W _{b-a}	= {	5.00 (metres)		DFC _{b-c}	=		0.040
W _{d-a}	= LAI	NE WIDTH AVAILABLE TO VEHIC	CLE WAITING IN STR	EAM D-A		W _{b-c}	=	5.00 (metres)		DFC _{b-d}	=		0.440
W _{d-c}	= LAI	NE WIDTH AVAILABLE TO VEHIC	CLE WAITING IN STR	EAM D-C		VI _{b-a}	-	100 (metres)		DFC _{d-a}	=		0.447
Vr _{a-d}	= VIS		HICLES WAITING IN	STREAM A-D		Vr _{b-a}	=	65 (metres)		DFC _{d-b}	=		0.005
VI _{b-a}	= VIS	BILLITY TO THE LEFT FOR VEH	IICLES WAITING IN S	IKEAM B-A		Vr _{b-c}	=	0 (metres)		DFC d-c	=		0.651
Vr _{b-a}	= VIS	SIBILITY TO THE RIGHT FOR VE	HICLES WAITING IN	STREAM B-A		q _{b-a}	= 19	9.547 (pcu/hr)		DFC _{c-b}	=		0.000
Vr _{b-c}	= VIS	SIBILITY TO THE RIGHT FOR VE	HICLES WAITING IN	STREAM B-C		q _{b-c}	= 29	9.719 (pcu/hr)		DFC a-d	=		0.018
Vr _{c-b}	= VIS	SIBILITY TO THE RIGHT FOR VE	HICLES WATTING IN	STREAM C-B		q _{b-d}	= 26	67.74 (pcu/hr)			~	_	0.054
VI _{d-c}	= VIS	SIBILITY TO THE LEFT FOR VEH	IICLES WAITING IN S	TREAM D-C				(4.5.4)	D)	Critical DF	C =		0.051
Vr _{d-c}	= VIS			STREAM D-C		MINO			D)				
vr _{d-a}	= VIS		TICLES WALLING IN	SIREAWID-A		VV _{d-a}	=						
л _А У	= GE	ONETRIC PARAMETERS FOR S				vv _{d-c}	=	(metres)					
∧ _B ∨	= GE					VI _{d-c}		50 (metres)					
×C V	= GE	OMETRIC PARAMETERS FUR S				VI d-c	-	80 (metres)					
^D 7						vi _{d-a}	=	(inelies)					
∠ _B 7.	= GE					Ч _{d-a}	= 3	4484 (pcu/hr)					
sessment Report	= GE					Чd-b	= 2.	$\frac{1}{2}$ (pcu/ni)					
	- (1-	0.00-011)			1	Ч d-c	- 20	(pcu/iii)					

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME /1 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 361 \longrightarrow 0 \qquad (1)$ $(1) 361 \longrightarrow 0 \qquad (1)$ $(1) 58 213 \qquad (2) \qquad (2) \qquad (2) \qquad (1)$ $(1) 58 213 \qquad (1)$ $(2) (2) \qquad (2) \qquad (2) \qquad (2)$	N X Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120Sum(y)Y =0.538Loss timeL =25Total Flow=1340Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.713R.C.ult= (Yult-Y)/Y*100%=2p= 0.9*L/(0.9-Y)=Cnx= 1-L/C=0.9*Ymax = 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=32.4=	sec pcu sec sec sec %
(1) (3	(4)		
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Mover ment Width Iane Ahead Left Straight- Straight- Straight- Mover Straight- Straight- Mover	nent Total Proportion Sat. Flare lane ht Right Flow of Turning Flow Length h pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
ST A 3.00 1 1 N 1915 36	361 0.00 1915	1915 0.189 5 33 95	0.238 12 2
ST/LT A 4.00 1 1 10 N 2015 706 273 Ped B 6.0 3 Image: Constraint of the second	979 0.72 1818	1818 0.538 95 95 20 20 100 100 100 100 100 100 1100 100 100 100 1100 100 100 100 1100 100 100 100 1100 100 100 100 1100 100 100 100	0.680 36 3
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKIN	NG SPEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at						КС
		Junction Capacity Analysis			Checked By:	00
Junction lay	out sketch - Design Year Time -	 J3: J/O Cape Collinson Road and Lin Shing Road 2016 Level 1 - Site 1 Level 1 Peak Hour 	GEOMETRIC DETAILS		GEOMETRIC PARAM	IETERS
N W W N Shek O Road (N)	0 172	ARM B Cape Collinson Road	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂		↓ 100 ← 177 → ARM C	$\begin{array}{llllllllllllllllllllllllllllllllllll$		THE CAPACITY OF N Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 698 777 347
			MAJOR ROAD (ARM C) W _{c·b} = <mark>4.50</mark> (metres)		COMPARISION OF D	ESIGN FLOW
REMARK: (GEO W W _{cr}	METRIC INPU = AVER/ = AVER/	T DATA) AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	Vr _{c-b} = 150 (metres) q _{c-a} = 177 (pcu/hr) q _{c-b} = 0 (pcu/hr)		$\begin{array}{rcl} DFC_{b\text{-}a} & = \\ DFC_{b\text{-}c} & = \\ DFC_{c\text{-}b} & = \end{array}$	0.783 0.016 0.000
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE LANE LANE VISIBII VISIBII VISIBII VISIBII GEOM GEOM GEOM 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B METRIC PARAMETERS FOR STREAM B-C METRIC PARAMETERS FOR STREAM B-A	$\begin{array}{llllllllllllllllllllllllllllllllllll$		Critical DFC =	0.783
Iffic Impact Asse	ssment Report	345VV)				P <u>age 3</u> o

ROUNDABOUT CAPACITY ASSESSMENT						INITIALS	DATE	
TIA St	udy for	Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY	: KC	Sep-13
Juncti	on 4: C	hai Wan Road Roundabout	J4LV1 Peak Hour		FILENAME2016_LV1_S1_J2_J5_J6_J7	_J8.xls CHECKED BY	: OC	Sep-13
J4LV1	Peak	Hour	1			REVIEWED BY	: OC	Sep-13
			-		-	-		
					(ARM D)			
		(ARM D)		Ν	1039.61418			
		Island Easter Corr	idor					
		+						
		[16] 434	[1] [2] [3] [4	, 	1079			
				I I	00			
			12 195 301 27-		00			
		[14] 370			0 0			
					0 0			
Chai V	Van Ro	bad		→	0 0			
(ARM	C)		(ARM A	1231.38	3 1060 O O	1148.555	926.029	
			Chan V	an Road (ARM C)	0 0		(ARM A)	
		\rightarrow	11 [5]		0 0			
			Ť		0 0			
			464 [6]		0.0			
		21 202 261 0			0.7			
		21 303 261 9			807			
		[12] [11] [10] [9]	328 [8]					
			+					
			•					
		Wan Tsui Road	,		593.831246			
		Wan Tsui Road (ARM B)			593.831246 (ARM B)			
		Wan Tsui Roac (ARM B)	· ·		593.831246 (ARM B)			
ARM		Wan Tsui Roac (ARM B)	A B C D		593.831246 (ARM B)			
ARM	Γ PARA	Wan Tsui Roac (ARM B) METERS:	A B C D		593.831246 (ARM B)			
ARM	PAR4	Wan Tsui Roac (ARM B) METERS:	A B C D		593.831246 (ARM B)			
ARM INPUT	r Para	Wan Tsui Roac (ARM B) METERS: Approach half width (m)	A B C D		593.831246 (ARM B)			
ARM INPUT V E	[PARA = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		593.831246 (ARM B)			
ARM INPUT V E L	[PARA = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		593.831246 (ARM B)			
ARM INPUT V E L R	F PARA = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		593.831246 (ARM B)			
ARM INPUT V E L R D	□ PARA = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		593.831246 (ARM B)			
ARM INPUT E L R D A	□ PARA = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00		593.831246 (ARM B)			
ARM INPUT Z Z Z Z	= = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 926 594 1231 1040		593.831246 (ARM B)			
ARM INPUT E L R D A Q Q Q c	PARA = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 926 594 1231 1040 1149 807 1060 1075		593.831246 (ARM B)			
ARM INPUT V E L R D A Q Q Q c	= = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 926 594 1231 1040 1149 807 1060 1075		593.831246 (ARM B)			
ARM INPUT V E L R D A Q Q Q C OUTP	= = = = = = = = UUT PA	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 926 594 1231 1040 1149 807 1060 1075		593.831246 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S	= = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1075 0.53 0.96 0.80 0.00		593.831246 (ARM B)			
ARM INPUT E L R D A Q Q Q C S K	= = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1075 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		593.831246 (ARM B)			
ARM NPUT V E L R D A Q Q Q C OUTP S K X2	= = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1075 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.07 7.97 5.03 8.15 7.00		593.831246 (ARM B)			
ARM INPUT E L R D A Q Q C OUTP S K X2 M	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1075 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.07 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		593.831246 (ARM B)			
ARM INPUT E L R D A Q Q c S K X2 M F	F PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1075 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2127		593.831246 (ARM B)			
ARM INPUT E L R D A Q Q C OUTP S K X2 M F Td	F PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1073 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2122 1.37 1.37 1.37 1.37		593.831246 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C	T PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1075 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2122 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.68		593.831246 (ARM B)			
ARM INPUT E L R D A Q Q C OUTP S K X2 M F T d F C Qe	T PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1073 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2122 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.68 1598 1024 1677 1392		593.831246 (ARM B)	2735.389	PCU	
ARM INPUT E L R D A Q Q C OUTP S K X2 M F T d F C Qe	T PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 926 594 1231 1040 1149 807 1060 1075 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2122 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.68 1598 1024 1677 1392		593.831246 (ARM B)	2735.389	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 1/2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(3) 333 (3) 77 (3) 77 (3) 77 (4) (3) 77 (4) (3) 77 (4) (3) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5	Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.292Loss timeL =10Total Flow=1905Co= (1.5*L+5)/(1-Y)=28.2Cm= L/(1-Y)=14.1Yult=0.825R.C.ult= (Yult-Y)/Y*100%=182.5Cp= 0.9*L/(0.9-Y)=14.8Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=177.4	sec pcu sec sec %
(4) (4) (5) (5) (6) (6) (6) (6) (6) (6) (6)			
			Degree of Queue Augure
ment Width Iane m. Madus Opposing Near Straight- Mode Traffic? side Ahead Left Stra Jane? Sat. Flow pcu/h pc	ight Right Flow of Turning Flow Length I/h pcu/h pcu/h Vehicles pcu/h m.	h Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
LT A 3.75 1 2 22 y 4120 485 LT A 4.00 2 2 24 4310 258 RT A 3.50 2 2 11 y 4070 258 ST B 3.50 3 2 y 4070 3 RT B 4.50 3 2 y 4070 3 Ped A 4.50 4 4.50 5 y 4270 4270 Ped B 4.50 6 -<	485 1.00 3857 258 1.00 4056 753 753 1.00 3582 33 0.00 4070 77 77 1.00 3828	3857 0.126 39 65 4056 0.064 20 65 3582 0.210 0.210 65 65 4070 0.082 0.082 25 25 3828 0.020 6 25 25	0.194 12 5 0.098 6 5 0.324 21 5 0.324 18 24 0.080 3 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	•	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME /1_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (2) (2) (2) (2) (2) (2) (38 71) (1) (1) (479) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	N X Wan Road	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.252Loss timeL =48Total Flow=1585Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=Gm=L/(1-Y)=Gn=114.6Cp=0.9*L/(0.9-Y)=66.6Ymax=1-L/CR.C.(C)=(0.9*Ymax-Y)/Y*100%=86.0	sec pcu sec sec % sec %
$(1) \longrightarrow (1)$ $(1) \longrightarrow (1)$ $(1) \longrightarrow (1)$ $(5) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(2) (2)$ $(5) \longrightarrow (4)$ $(5) \longrightarrow $	6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Moveme	ent Total Proportion Sat. Flare lane Share	e Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straight	Right Flow of Turning Flow Length Effect	t Sat. Flow y Greater L required (input)	Saturation Length Delay
LT/ST A 3.30 1 1 11 Y 1945 133 148 ST A 3.20 1 1 11 Y 1945 133 148 ST A 3.20 1 1 11 Y 1945 133 148 ST A 3.00 1 2 Y 3970 815 LT C 3.75 2 1 12 Y 1990 71 RT C 3.75 2 1 12 Y 1990 71 Ped B 6.50 4 Image: A	281 0.47 1827 331 0.00 2075 815 0.00 3970 71 1.00 1769 88 88 1.00 1893	r pcu/m y sec sec	X (m / late) (seconds) 0.362 24 14 0.376 30 14 0.484 39 13 0.417 6 42 0.484 12 43
	NOTES :	: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	КС 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1/1_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	(4) 206 	No. of stages per cycleN = 22 Cycle timeC =109Sum(y)Y =0.377Loss timeL =18Total Flow=1351Co= (1.5*L+5)/(1-Y)=Sum(y)=0.765R.C.ult= (Yult-Y)/Y*100%=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Ymax= 1-L/C=0.9*L/(0.9-Y)=31.0Ymax= 1-L/C=0.9*Ymax-Y)/Y*100%=97.6	sec sec pcu sec sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(3)} (3)$ $(3) \xrightarrow{(3)} (2)$	(4) (4) (4) (4) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight-	Movement Total Proportion Sat.	Flare lane Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Anead m. m. lane? Sat. Flow	Left Straight Right Flow of Jurning Flow pcu/h pcu/h pcu/h pcu/h Vehicles pcu/h	m. pcu/hr pcu/h y Greater L required (input)	X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 11 y 1945 ST/RT A 3.30 1 1 12 2085 RT B 3.50 2 1 12 2105 LT A,B 3.75 3 1 13 y 1990 RT C 3.50 4 1 12 2105 2105 LT/ST C 3.50 4 1 12 y 1990 RT C 3.50 5 1 12 2105 2105 LT/ST D 3.50 5 1 12 2105 2105 LT/ST D 3.50 5 1 11 y 1965 Ped D,A,B 4.00 6 Ped Ped Ped Ped Image: Provide the state of	49 79 128 0.38 1849 65 107 172 0.62 1935 150 107 172 0.62 1935 150 150 1.00 1871 150 150 1.00 1784 186 186 1.00 1871 206 81 287 0.72 1803 0 189 189 1.00 1871 98 113 211 0.47 1848	1849 0.069 18 1935 0.089 0.089 20 20 1871 0.015 0.015 4 4 1784 0.084 19 29 1871 0.015 0.159 37 37 1803 0.159 0.159 37 37 1871 0.101 23 23 23 1848 0.114 0.114 26 26	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1011/4 Deels Hours Traffic Floure	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
	J8LV1 - Peak Hour Trailic Flows	REFERENCE NO :	0C 29-4-2011
		REFERENCE NO Reviewed by.	00 3-3-2011
$(1) 736 \longrightarrow (1) 375 \longrightarrow (1) $	N ++ Chai Wan Road 2) 2)	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.550Loss timeL =18Total Flow=2508Co= $(1.5*L+5)/(1-Y)$ =Cm= $L/(1-Y)$ =Vult=0.765R.C.ult= $(Yult-Y)/Y*100\%$ =Qp= $0.9*L/(0.9-Y)$ =46.3Ymax= $1-L/C$ PR.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =35.5	sec pcu sec sec %
$(1) \longrightarrow (5) (5) (5) (7) (7) (2) (3)$	 ← - ▶ (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- ment Width Iane Traffic? side Ahead Left St ment ment ment Straight-	ement Total Proportion Sat. Flare lane aight Right Flow of Turning Flow Length White Schuld S	Share Revised Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
ST A 3.50 1 2 y 4070 y RT A 3.50 1 1 13 2105 4210 1 ST B 3.50 2 2 4210 4210 1 LT B 3.10 2 1 12 y 1925 57 LT C 4.00 3 1 15 y 2015 403 LT/RT C 4.00 3 1 15 2155 155 Ped A 4.50 4 4 4 403 15 4 Ped B,C 3.50 5 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 4 4 Ped B,C 3.50 7 4 4 4 4 4 4 4 Ped A,B 3.50 7 4 4 4 4 4 4 4	36 736 0.00 4070 375 375 1.00 1887 53 553 0.00 4210 57 1.00 1711 403 1.00 1832 229 384 1.00 1959	y y	A (iii / late) (seconds) 0.664 45 23 0.731 42 29 0.664 36 30 0.167 6 30 0.664 42 22 0.592 42 21
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	LENGTH = AVERAGE QUEUE * 6m
	Cape Collinson Road, Chai Wan - Ju	nction Capacity Analysis	Checked By: OC
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unction layout Desig	sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road n Year - 2016 Level 1 - Site 1 Time - Level 1 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
W ₁ 87 250	ARM B Wan Tsui Road	$\begin{array}{llllllllllllllllllllllllllllllllllll$	D 0.675 E = 1.109 F = 0.993 Y = 0.320
ad <u>Wert</u> E) M A W ₂		$\begin{array}{rcl} \text{MAJOR ROAD} & (\text{ARM A}) \\ \textbf{q}_{a \cdot b} &= & \textbf{87.445} & (\text{pcu/hr}) \\ \textbf{q}_{a \cdot c} &= & \textbf{249.64} & (\text{pcu/hr}) \\ \end{array}$ $\begin{array}{rcl} \text{MAJOR ROAD} & (\text{ARM C}) \\ \textbf{W}_{c \cdot b} &= & \textbf{3.30} & (\text{metres}) \end{array}$	THE CAPACITY OF MOVEMENT $Q_{b-c} = 789$ $Q_{c-b} = 701$ $Q_{b-a} = 374$ COMPARISION OF DESIGN FLO TO CAPACITY
MARK: (GEOMETR		$Vr_{c-b} = 150$ (metres)	$DFC_{b-a} = 0.082$
W _{cr} =	AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	$q_{c-a} = 521.00 (pcu/hr)$ $q_{c-b} = 249.99 (pcu/hr)$	$DFC_{b-c} = 0.335$ $DFC_{c-b} = 0.357$
	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC = 0.35

TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME :/1_S1_J2_J5_J6_J7_J8.xls Checked By: OC 29-4-2011
2016 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011
(1) 1010 23 (1) 1010 23 (1) 1010 55 (1) 1010 (2) 55 San Ha Street	N Chai Wan Road 7 (1)	No. of stages per cycleN =2Cycle timeC =100 secSum(y)Y =0.470Loss timeL =10 secTotal Flow=1959 pcuCo= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=20.9 secYmax=Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%
$(1) \longrightarrow (2) \qquad (3)$ $(1) \longrightarrow (4) \qquad (2) \qquad (2)$ $(2) \qquad (3) \qquad (3)$ $(2) \qquad (2) \qquad (2)$ $(2) \qquad (3) \qquad (3)$ $(3) \qquad (3) \qquad (3)$ $(2) \qquad (3) \qquad (3)$ $(3) \qquad (3)$ $(3) \qquad (3)$ $(2) \qquad (3)$ $(3) \qquad (3)$ $(2) \qquad (3)$ $(3) $		
Move- Stage Lane Phase No. of Radius O N Straight- ment Width Iane Ahead Leff m. m. Sat. Flow pcu/	Vovement Total Proportion Sat. Flare Straight Right Flow of Turning Flow Len pcu/h pcu/h pcu/h Vehicles pcu/h n	iane Share Revised g g Degree of Queue Aver gth Effect Sat. Flow y Greater L required (input) Saturation Length Del n. pcu/hr pcu/h y sec sec sec X (m / lane) (seco
ST A 3.50 1 2 10 N 4070 ST A 3.50 1 2 10 N 4070 LT B 3.00 2 1 10 N 1915 369 RT B 3.50 2 1 12 N 1915 369 Ped B 19.0 3 -	1010 1010 0.00 4070 557 0.00 4070 369 1.00 1665 23 23 1.00 1871	4070 0.248 0.248 48 47 0.528 42 10 4070 0.137 26 47 0.291 24 11 1665 0.222 0.222 42 53 0.418 24 9 1871 0.012 2 53 0.023 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY G	EEN FG - FLASHING GREEN PEDESTRAIN V	VALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Chai Wai		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
2016 Level 1 Peak Hour - Site 1	JILVI - Peak Hour Trailic Flows	PEEEPENCE NO : Reviewed By:	00 29-4-2011
		REFERENCE NO Reviewed by.	00 3-3-2011
Sheung On S (1) 93 (4) 329 (1) 920 (1) 920 (4) 329 (1) 920 (4) 329 (1) 329 (1) 329 (1) 329 (1) 920 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	Street (4) 21 Chai Wan Road . 760 (2) 143 (2)	No. of stages per cycleN =4Cycle timeC =120 sSum(y)Y =0.283Loss timeL =37 sTotal Flow=2298Co= $(1.5*L+5)/(1-Y)$ =84.4 sCm= $L/(1-Y)$ Yult=0.623R.C.ult= $(Yult-Y)/Y*100\%$ =Cp= $0.9*L/(0.9-Y)$ =Ymax= $1-L/C$ =0.692R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$	Sec Sec pcu Sec Sec %
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} \underbrace{(5)}_{(3)} \underbrace{(6)}_{(6)}$	(5) • (4) (4) (6) • • • • • • • • • • • • • • • • • • •		
Stage A I = 8 Stage B I = 5 Sta	age C I = 7 Stage C I = 6		
Move- ment Stage Lane Width Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight Ahead m. m. m. Sat. Flor Sat. Flor Sat. Flor	It- Movement Total Proportion Sat. Flare lane d Left Straight Right Flow of Turning Flow Length w pcu/h pcu/h pcu/h pcu/h Vehicles pcu/h m.	ShareRevisedggEffectSat. FlowyGreaterLrequiredpcu/hrpcu/hysecsecsec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 y 6175 LT/ST A 3.30 2 3 12 Y 6115 LT B 3.50 3 1 9 Y 1965 LT/RT D 3.75 4 2 10 y 4120 Ped B,C 4.00 5 5 10 Y 4120 Ped B,C 5.00 6 6 6 10 Y 4120 Ped C 3.00 7 10 10 10 10 10 10 Ped C 3.00 7 10	93 920 1012 0.09 6105 143 760 903 0.16 5996 33 33 1.00 1684 21 329 350 1.00 3583	6105 0.166 0.166 49 5996 0.151 44 1684 0.020 0.020 6 3583 0.098 0.098 29 15 15 15	0.000 66 54 0.000 60 54 0.000 6 54 0.000 33 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessme	ent Study For Columbarium Development at	Prepared By: KC
Junction Capacity Analysis		Checked By: OC
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2016 Level 2 - Reference Case Time - Level 2 Peak Hour		
	GEOWETRIC DETAILS	
$\mathcal N$ 334 3 587	$W_1 = (metres)$	GEOMETRIC PARAMETERS
	$W_2 = 6.00$ (metres)	X _A = 0.922
	$W_3 = 3.00$ (metres)	X _B = 1.039
	$W_4 = 3.00$ (metres)	X _C = 0.586
ARM A	W = 6.00 (metres)	X _D = 0.827
W ₁ W ₃	$W_{cr1} = 0.00$ (metres)	Y = 0.793
ARM C	$W_{cr2} = 0.00$ (metres)	$Z_{\rm B} = 1.005$
Collins W _{ar1} Collins	$W_{cr} = 0.00$ (metres)	Z _D = 0.905
on o		THE CAPACITY OF MOVEMENT
(W) (W) (W) (W) (W)	W = 3.00 (metres)	$0 = \frac{424}{2}$
	$Vr_{a-d} = 100$ (metres)	$Q_{ba} = 749$
	$q_{a,b} = 0$ (pcu/hr)	Q_{bd} is nearside = TRUE
	$q_{a-c} = 0$ (pcu/hr)	$Q_{b-d} = 611$
190 159 11	$q_{a-d} = 1$ (pcu/hr)	Q _{d-a} = 674
		Q _{d-b} is nearside = TRUE
ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	Q _{d-b} = 533
	W _{c-b} = (metres)	Q _{d-c} = 433
REMARK: (GEOMETRIC INPUT DATA)	Vr _{c-b} = (metres)	Q _{c-b} = 437
W = AVERAGE MAJOR ROAD WIDTH	q _{c-a} = 0 (pcu/hr)	Q _{a-d} = 616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH	q _{c-b} = 0 (pcu/hr)	
W _{a-d} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c-d} = 0 (pcu/hr)	COMPARISION OF DESIGN FLOW
W _{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A		TO CAPACITY
W _{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	$DFC_{b-a} = 0.027$
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres)	$DFC_{b-c} = 0.254$
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres)	$DFC_{b-d} = 0.260$
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$VI_{b-a} = 100$ (metres)	$DFC_{d-a} = 0.870$
	$Vr_{b-a} = 65$ (metres)	$DFC_{d-b} = 0.006$
$VI_{b-a} = VISIBILITY TO THE DIGHT FOR VEHICLES WAITING IN STREAM B-A$	$Vr_{b-c} = 00$ (metres)	$DFC_{d-c} = 0.771$
	$q_{b-a} = -11.510 (pcu/m)$	$DFC_{c-b} = 0.000$
	$q_{b-c} = 190.20$ (pcu/m)	$D_{a-d} = 0.002$
		Critical DEC = 0.870
Vr do = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C		
Vr do = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	$W_{do} = 3.00$ (metres)	
X _A = GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{dec} = 3.00$ (metres)	
X_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A	$VI_{d-c} = 50$ (metres)	
$X_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metres)	
X _D = GEOMETRIC PARAMETERS FOR STREAM D-C	$Vr_{d-a} = 80$ (metres)	
Z _B = GEOMETRIC PARAMETERS FOR STREAM B-C	$q_{d-a} = 586.93$ (pcu/hr)	
$Z_{\rm D}$ = GEOMETRIC PARAMETERS FOR STREAM D-A	q _{d-b} = <mark>3.4124</mark> (pcu/hr)	
Assessment Report = $(1-0.0345W)$	q _{d-c} = <mark>334.25</mark> (pcu/hr)	

TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By: OC 29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.: Reviewed By: OC 3-5-2011
$(1) 121 \underbrace{\qquad}_{2} \underbrace{\qquad}_{133 9} \underbrace{\qquad}_{(2) (2)} \underbrace{\qquad}_{\text{Lin Shing Road}} 47 (1) \underbrace{\qquad}_{133 9} \underbrace{\qquad}_{\text{Lin Shing Road}} 1023 1023 1023 1023 1023 $	N X Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.608Loss timeL =25 secTotal Flow=1192 pcuCo= (1.5*L+5)/(1-Y)=108.3 secCm= L/(1-Y)=63.7 secYult=0.713R.C.ult= (Yult-Y)/Y*100%=17.3 %Cp=0.9*L/(0.9-Y)=76.9 secYmax=1-L/C=0.792R.C.(C)=(0.9*Ymax-Y)/Y*100%=17.3 %
$(1) \longrightarrow (3) $ $($		
Move- ment Stage Width Lane Phase Iane No. of Iane Radius Movemet O N Straight- Ahead Movemet ment Width Iane Movemet Ahead Left Straight Sat. Flow m. m. Sat. Flow pcu/h pcu/h	ent Total Proportion Sat. Flare la Right Flow of Turning Flow Lengt pcu/h pcu/h Vehicles pcu/h m.	ne Share Revised g g Degree of Queue Average h Effect Sat. Flow y Greater L required (input) Saturation Length Delay pcu/hr pcu/h y sec sec sec X (m / lane) (second
ST A 3.00 1 1 N 1915 121 ST/LT A 4.00 1 1 10 N 2045 4.000 17	121 0.00 1915	1915 0.063 5 10 95 0.080 0 2 1763 0.608 0.608 0.55 0.777 12 5
S1/L1 A 4.00 1 1 10 N 2015 1023 47 Ped B 6.0 3 Image: Constraint of the second		
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WA	LKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Kal	CKUN	Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development a	t Prepared By:	КС
1 1010		Junction Capacity Analysis		Checked By:	00
Junction lay	vout sketch - Design Year Time -	 J3: J/O Cape Collinson Road and Lin Shing Road 2016 Level 2 - Reference Case Level 2 Peak Hour 	GEOMETRIC DETAILS	GEOMETRIC PARA	METERS
N N W1 Shek O Road (N)	0 410	ARM B Cape Collinson Road	W_1 =3.90(metres) W_2 =3.90(metres) W_3 =4.80(metres) W_4 =4.50(metres) W =8.55(metres) W_{cr1} =0.00(metres) W_{cr2} =0.00(metres) W_{cr} =0.00(metres)	D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂		→ 309 W ₄ ARM C	MAJOR ROAD (ARM A) $q_{a \cdot b} = 0$ (pcu/hr) $q_{a \cdot c} = 410$ (pcu/hr) MAJOR ROAD (ARM C)	THE CAPACITY OF $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$ COMPARISION OF	MOVEMENT 637 709 295 DESIGN FLOW
REMARK: (GEOI W	METRIC INPU = AVER	T DATA) AGE MAJOR ROAD WIDTH	$W_{c \circ b} = \frac{4.50}{(metres)}$ $Vr_{c \circ b} = \frac{150}{(metres)}$ $q_{c \circ a} = \frac{309}{(pcu/hr)}$	TO CAPACITY DFC _{b-a} = DFC _{b-c} =	1.748 0.020
W _{cr} W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F	 AVER/ LANE LANE LANE VISIBII VISIBII VISIBII VISIBII GEOM GEOM 	AGE CENTRAL RESERVE WIDTH WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B METRIC PARAMETERS FOR STREAM B-C LITY CARAMETERS FOR STREAM B-A LITY CARAMETERS FOR STREAM C-B	q_{cb} = 0 (pcu/hr) MINOR ROAD (ARM B) W_{b-a} = 0.00 (metres) W_{b-c} = 3.80 (metres) V_{b-a} = 100 (metres) Vr_{b-a} = 100 (metres) Vr_{b-c} = 100 (metres) Vr_{b-c} = 100 (metres) q_{b-a} = 516 (pcu/hr) q_{b-c} = 12 (pcu/hr)	DFC _{c-b} =	0.000 1.748
raffic Impact Asser ctober 2007	ssment Report	345VV)			Page 3 of

			ROUNDABOUT CAPACITY ASS	SESSME	INT		INITIALS	DATE
TIA St	udy for	Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junctio	on 4: C	hai Wan Road Roundabout	J4LV2 Peak Hour		FILENAME2016_LV2_Ref_J2_J5_J6_J7_	J8.xls CHECKED BY:	OC	Sep-13
J4LV2	Peak I	Hour				REVIEWED BY:	OC	Sep-13
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		(ARM D)		Ν	736.871173			
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		[14] 546			0 0			
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Chai V	Van Ro	bad 🚽 🗸 🔪			0 0			
(ARM	C)		(ARM A)	1261.26	5 528 O O	1152.653	711.208	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
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			384 [6]		00			
		11 57 62 9	→ 207 [7]		771			
		[12] [11] [10] [9]	112 [8]					
			+					
		Wan Tsui Poac						
		Wall I Sul Nodu			139.71384			
		(ARM B)			139.71384 (ARM B)			
		(ARM B)			139.71384 (ARM B)			
ARM		(ARM B)	A B C D		139.71384 (ARM B)			
ARM	PARA	(ARM B)	A B C D		139.71384 (ARM B)			
ARM	PARA	(ARM B)	A B C D		139.71384 (ARM B)			
ARM INPUT	PARA	(ARM B)	A B C D		139.71384 (ARM B)			
ARM INPUT V	• PARA = =	AMETERS: Approach half width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		139.71384 (ARM B)			
ARM INPUT V E	PARA = = =	AMETERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		139.71384 (ARM B)			
ARM INPUT V E L R	PARA = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 15.00		139.71384 (ARM B)			
ARM INPUT V E L R D	PARA = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		139.71384 (ARM B)			
ARM INPUT V E L R D A	PARA = = = = = =	Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00		139.71384 (ARM B)			
ARM INPUT E - R D A 2	PARA = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 711 140 1261 737		139.71384 (ARM B)			
ARM INPUT = - - - - 2 2 2 2 2	PARA = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 711 140 1261 737 1153 771 528 1029		139.71384 (ARM B)			
ARM INPUT E L R D A Q Qc	PARA = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 15.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 50.00 30.00 36.00 30.00 711 140 1261 737 1153 771 528 1029		139.71384 (ARM B)			
ARM INPUT E L R D A Q Q C	PARA = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 711 140 1261 737 1153 771 528 1029 1029 1029 1029		139.71384 (ARM B)			
ARM NPUT V E L R D A A Q Q C OUTP ^I S	= = = = = = = = UT PAI	Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharnness of flare = 1 6(E-1/1/1	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 711 140 1261 737 1153 771 528 1029		139.71384 (ARM B)			
ARM NPUT V E L R D A Q Q Q C OUTP ^I S K	PARA = = = = = = = UT PAI	Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/B-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 9.97 1.00 1.01		139.71384 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2	PARA = = = = = = = = UT PAI	Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		139.71384 (ARM B)			
ARM INPUT V E L R D A Q Q Q C OUTPI S K X2 M	= = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		139.71384 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F	= = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121		139.71384 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F Td	- PARA = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37		139.71384 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F Td Fc		Approach half width (m) Entry width (m) Entry width (m) Entry width (m) Entry adjus (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 9.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69		139.71384 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F Td Fc Qe		Approach half width (m) Entry width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 9.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69 1595 1044 2080 1427		139.71384 (ARM B)	2269.694	PCU	
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F Td Fc Qe		Approach half width (m) Entry width (m) Entry width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.69 1595 1044 2080 1427		139.71384 (ARM B)	2269.694	PCU	
ARM INPUT V E L R D A Q Q C OUTPI S K X2 M F T d F C Q e	UT PARA = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 711 140 1261 737 1153 771 528 1029 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69 1595 1044 2080 1427		Total In Sum =	2269.694	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS	Prepared By: KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By: OC 29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.:	Reviewed By: OC 3-5-2011
$(3) 248 \qquad \longrightarrow \qquad (3) 34 \qquad \qquad (3) (3)$	N 🏷 Wing Tai Road	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	$N = 2$ $C = 100 \sec$ $Y = 0.202$ $L = 10 \sec$ $= 1377 pcu$ $= 25.1 \sec$ $= 0.825$ $= 307.8 %$ $= 12.9 \sec$ $= 0.900$ $= 300.4 %$
(4) (4) (3) (3) (3) (6) (6) (6) (6)			
Stage A I = 7 Stage B I = 5			
Move- ment Stage Lane Phase No. of lane Radius Opposing Traffic? Near- side Straight- Ahead Movem m. m. m. m. m. Straight- m. Straight- m. Movem	ent Total Proportion Sat. Flare t Right Flow of Turning Flow Ler 1 pcu/h pcu/h Vehicles pcu/h n	e lane Share Revised ngth Effect Sat. Flow y Greater L m. pcu/hr pcu/h y sec	g g Degree of Queue Aver required (input) Saturation Length De sec sec X (m / lane) (sec
LT A 3.75 1 2 22 y 4120 413 LT A 4.00 2 2 24 y 4310 176 RT A 3.50 2 2 11 y 4000 176 ST B 3.50 3 2 13 y 4070 248 RT B 4.50 3 2 13 y 4270 16 Ped A 4.50 5 -	413 1.00 3857 176 1.00 4056 506 506 1.00 3582 248 0.00 4070 34 34 1.00 3828	3857 0.107 10 4056 0.043 3582 0.141 0.141 4070 0.061 0.061 3828 0.009 10	48 63 0.170 12 6 19 63 0.069 3 6 63 63 0.225 15 6 27 27 0.225 15 2 4 27 0.033 0 2
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m	/s QUEUING LENGTH = AVERAGE QUEUE *

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	КС 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road $(1) 100 \xrightarrow{4} (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)$	N V 1 Sai Wan Road 13	No. of stages per cycleN =3Cycle timeC =100 sSum(y)Y =0.246Loss timeL =48 sTotal Flow=1391 pCo= (1.5*L+5)/(1-Y)=102.1 sCm= L/(1-Y)=63.7 sYult=0.540gR.C.ult= (Yult-Y)/Y*100%=119.5 yCp= 0.9*L/(0.9-Y)=66.1 sYmax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=90.2 y	ec ec ocu .ec ec ec %
$(1) \xrightarrow{(1)} (2) (2)$ $(1) \xrightarrow{(1)} (1)$ $(5) \xrightarrow{(1)} (4)$ $(4) \xrightarrow{(2)} (2)$ $(5) \xrightarrow{(1)} (4)$ $(5) \xrightarrow{(1)} (2)$) I = 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mo	ement Total Proportion Sat. Flare I	ane Share Revised g g	Degree of Queue Average
m. m. lane? Sat. Flow pcu/h r	cu/h pcu/h pcu/h Vehicles pcu/h m.	n. pcu/hr pcu/h y sec sec sec	X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 11 Y 1945 100 ST A 3.20 1 1 1 Y 1945 100 ST A 3.00 1 2 Y 990 80 LT C 3.75 2 1 12 Y 1990 80 RT C 3.75 2 1 12 Y 1990 80 Ped B 11.00 3 -	148 248 0.40 1844 261 261 0.00 2075 543 643 0.00 3970 80 1.00 1769 159 159 1.00 1893	1844 0.134 28 28 34 2075 0.126 27 34 3970 0.162 0.162 34 34 1769 0.045 10 18 1893 0.084 0.084 18 18	0.392 24 19 0.367 24 18 0.473 33 17 0.255 6 31 0.473 18 32
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LE	ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	•	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal (1) 33 (1) 149 (1) (1) 155 (1) (1) 155 (1) (1) (1) 155 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	N M Sai Wan Road S) S)	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.369Loss timeL =18Total Flow=1217Co= (1.5*L+5)/(1-Y)=50.7Cm= L/(1-Y)=28.5Yult=0.765R.C.ult= (Yult-Y)/Y*100%=107.5Cp= 0.9*L/(0.9-Y)=30.5Ymax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=102.3	sec pcu sec sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4)$ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (3) \xrightarrow{(3)} (2)$	4) (4) (6) () (5) (5) (5) (5) (5) (5) (5) (5		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- M ment Width Iane Traffic? Side Ahead Left	vement Total Proportion Sat. Flare lane traight Right Flow of Turning Flow Length	e Share Revised Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 33 ST/RT A 3.30 1 1 11 12 2085 RT B 3.50 2 1 12 2105 LT A,B 3.75 3 1 13 y 1990 125 RT C 3.50 4 1 12 2105 134 LT/ST C 3.50 4 1 12 2105 134 ST/RT D 3.50 5 1 112 y 1965 134 ST/RT D 3.50 5 1 11 y 1965 95 LT/ST D 3.50 5 1 11 y 1965 95 Ped D,A,B 4.00 6 Image: Alternative and the set of the se	79 112 0.30 1870 70 155 225 0.69 1920 28 28 1.00 1871 125 1.00 1871 165 165 1.00 1871 74 208 0.64 1818 0 127 127 1.00 1871 131 226 0.42 1859	pcd/m pcd/m y sec sec </td <td>A (in / tane) (seconds) 0.228 12 25 0.445 24 25 0.445 0 64 0.202 12 20 0.343 18 26 0.445 24 26 0.445 18 36 0.445 24 24</td>	A (in / tane) (seconds) 0.228 12 25 0.445 24 25 0.445 0 64 0.202 12 20 0.343 18 26 0.445 24 26 0.445 18 36 0.445 24 24
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	.ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	КС 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 862 \\ (1) 567 \\ (1) 567 \\ (1) 567 \\ (1) 567 \\ (1) 567 \\ (2) 528 (2) \\ (3) 528 (3) \\ (3) 528 (3) $	N ◀┥	No. of stages per cycleN =N =Cycle timeC =100Sum(y)Y =0.681Loss timeL =18Total Flow=297Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=0.765R.C.ult=0.765R.C.ult=(1.94)/(Y*100%=12.4Cp=0.9*L/(0.9-Y)=73.8Ymax=1-L/C=0.829R.C.(C)=(0.9*Ymax-Y)/Y*100%=9.6	sec sec pcu sec sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (3) \qquad (3)$	 4 - → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem ment Width Iane Traffic? side Ahead Left Straigh ment State Flow perufficient of the straight of the state of the straight of the state of the st	ent Total Proportion Sat. Flare lane S Right Flow of Turning Flow Length E Decuth peruth Vehicles peruth m	Share Revised Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
ST A 3.50 1 2 y 4070 862 RT A 3.50 1 1 13 2105 528 ST B 3.50 2 2 4210 528 LT B 3.10 2 1 12 y 1925 81 LT C 4.00 3 1 15 y 2015 467 LT/RT C 4.00 3 1 15 y 2155 159 Ped A 4.50 4 4 467 159 159 159 Ped B,C 3.50 5 4 4 467 159 Ped B,C 3.50 6 4 4 4 467 159 Ped A,B 3.50 7 4 4 4 4 4 Ped A,B 3.50 7 4 4 4 4 4 Ped A,B 3.50 7 4 4	Bit Second Page Mail Page Page <t< td=""><td>y sec sec sec sec 4070 0.212 18 12 27 27 1887 0.300 0.300 38 27 4210 0.125 0.125 16 16 1711 0.047 6 16 16 1832 0.255 0.255 33 33 1959 0.242 131 33</td><td>x (m / lane) (seconds) 0.821 54 28 1.165 72 34 0.821 39 41 0.311 12 35 0.821 54 30 0.778 54 26</td></t<>	y sec sec sec sec 4070 0.212 18 12 27 27 1887 0.300 0.300 38 27 4210 0.125 0.125 16 16 1711 0.047 6 16 16 1832 0.255 0.255 33 33 1959 0.242 131 33	x (m / lane) (seconds) 0.821 54 28 1.165 72 34 0.821 39 41 0.311 12 35 0.821 54 30 0.778 54 26
	NC	DTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	i LENGTH = AVERAGE QUEUE * 6m

Kalc		Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development a	at Prepared By:	КС
		Junction Capacity Analysis		Checked By:	00
Junction layo D€	out sketch - esign Year - Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road - 2016 Level 2 - Reference Case Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAM	METERS
W ₁ Chai Wan Road W _{cr1}	€4 337	ARM B Wan Tsui Road	W_1 =10.90 (metres) W_2 =7.70 (metres) W_3 =10.60 (metres) W_4 =10.20 (metres) W =19.70 (metres) W_{cr1} =4.10 (metres) W_{cr2} =1.70 (metres) W_{cr} =2.90 (metres)	D E = F = Y =	0.675 1.109 0.993 0.320
(E) ARM A W ₂		[95 W₄ (₩)	MAJOR ROAD (ARM A) q _{a-b} = <u>64</u> (pcu/hr) q _{a-c} = <mark>337</mark> (pcu/hr)	THE CAPACITY OF I Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 779 693 386
REMARK: (GEOM	ETRIC INPUT = AVERA	T DATA) AGE MAJOR ROAD WIDTH	MAJOR ROAD(ARM C) W_{c-b} =3.30(metres) Vr_{c-b} =150(metres) q_{c-a} =513(pcu/hr)	COMPARISION OF D TO CAPACITY DFC b-a = DFC b-c =	0.253 0.173
W _{cr} W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F	 AVERA LANE \ LANE \ LANE \ LANE \ VISIBIL VISIBIL VISIBIL VISIBIL GEOM GEOM GEOM 	AGE CENTRAL RESERVE WIDTH WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B	q_{c-b} = 95 (pcu/hr) MINOR ROAD (ARM B) W_{b-a} = 0.00 (metres) W_{b-c} = 4.50 (metres) VI_{b-a} = 150 (metres) Vr_{b-a} = 150 (metres) Vr_{b-c} = 150 (metres) Vr_{b-c} = 150 (metres) q_{b-a} = 98 (pcu/hr) q_{b-c} = 135 (pcu/hr)	DFC _{cob} =	0.136 0.253
ctober 2007					Page 9 of 1

TRAFFIC SIGNAL CALCULATION TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan			INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	1101 V2 - Deak Hour Traffic Flows	FILENAME 2 Ref. 12 15 16 17 18 vis Checked By:	00 29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO : Reviewed By:	0C 3-5-2011
		Reference from Reference by:	00 332011
$(1) \begin{array}{c} 682 \\ 26 \\ \hline \\ \hline \\ \\ 221 \\ (2) \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.300Loss timeL =10Total Flow=1419Co= (1.5*L+5)/(1-Y)=28.6Cm= L/(1-Y)=14.3Yult=0.8258.C.ult =(Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=15.0Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=169.6	sec pcu sec sec % sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (2)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (3)			
Move Stage Jane Dhase No of Padius O N Straight Movem	ant Tatal Broportion Sat Flare land Char	pro Povisod	
ment Width lane m. Sat. Flow pcu/h pcu/h	Right Flow of Turning Flow Length Effec pcu/h pcu/h Vehicles pcu/h m. pcu/l	he here here here here here here here h	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 682 ST A 3.50 1 2 10 N 4070 490 LT B 3.00 2 1 10 N 1915 221 RT B 3.50 2 1 12 12 105 2105 Ped B 19.0 3 -	682 0.00 4070 490 0.00 4070 221 1.00 1665 26 26 1.00 1871	4070 0.168 0.168 50 47 4070 0.120 36 47 1665 0.133 0.133 40 53 1871 0.014 4 53	0.357 30 11 0.256 21 11 0.251 12 9 0.026 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPI	PEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan	1	PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME 2 Ref J2 J5 J6 J7 J8.xls Checked Bv:	OC 29-4-2011
2016 Level 2 Hour -Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
			i
Sheung On Street (1) 98 (1) 579 (1)	N ————————————————————————————————————	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.272Loss timeL =37Total Flow=1937Co= (1.5*L+5)/(1-Y)=83.2Cm= L/(1-Y)Yult=0.623R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax=1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=128.5	sec pcu sec sec %
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} \underbrace{(5)}_{(3)} \underbrace{(5)}_{(3)} \underbrace{(5)}_{(3)} \underbrace{(5)}_{(7)} \underbrace{(5)}_{(7)}$	(4) (4) (6)		
Stage A I = 8 Stage B I = 5 Stage C	I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Straight- Ahead Mod m. m. m. m. Traffic? side Ahead Left 15	vement Total Proportion Sat. Flare lane Shar rraight Right Flow of Turning Flow Length Effer cu/h pcu/h pcu/h Vehicles pcu/h m. pcu/	are Revised g g ect Sat. Flow y Greater L required (input) i/hr pcu/h y sec sec sec	Degree of Saturation XQueue Length (m / lane)Average Delay (seconds)
LT/ST A 3.50 1 3 12 Y 6175 98 LT/ST A 3.30 2 3 12 Y 6115 102 LT B 3.50 3 1 9 Y 1965 36 LT/RT D 3.75 4 2 10 Y 4120 46 Ped B,C 5.00 6 - - - - - - - Ped B,C 5.00 6 -	579 677 0.14 6066 700 802 0.13 6019 36 1.00 1684 376 422 1.00 3583	6066 0.112 34 6019 0.133 0.133 41 1684 0.021 0.021 7 3583 0.118 0.118 36 15 15 15	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	NOTES	ES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Kal	Agreement No. CPM301_15/10 - Traffic Impact Assessm	sment Study For Columbarium Development at Prepared By: KC
	Junction Capacity Analysis	Checked By: OC
Junction lay D	ut sketch - J1: J/O Cape Collinson Road and Lin Shing Road sign Year - 2016 Level 2 - Site 1 Time - Level 2 Peak Hour ARM D. Lin Shing Rd (N)	
	N 343 4 636	W ₁ = (metres) GEOMETRIC PARAMETERS
		$W_2 = 6.00$ (metres) $X_A = 0.922$
		$W_3 = 3.00$ (metres) $X_B = 1.039$
		$W_4 = 3.00$ (metres) $X_C = 0.586$
	ARM	IA $W = 6.00$ (metres) $X_D = 0.827$
W ₁	W ₃	$W_{cr1} = 0.00$ (metres) Y = 0.793
	('ano	$W_{cr2} = 0.00$ (metres) $Z_B = 1.005$
Collins W _{cr1}	↓ W _{cr2} Collins	$W_{cr} = 0.00$ (metres) $Z_D = 0.905$
on Road Wa	↓ 2 on ↓ 0 W₄ Poad	MAJOR ROAD (ARM A) THE CAPACITY OF MOVEMENT
(W)		$W_{ad} = 3.00$ (metres) $Q_{ba} = 407$
		$Vr_{ad} = 100$ (metres) $Q_{bc} = 749$
		$q_{a+b} = 0$ (pcu/hr) Q_{b+d} is nearside = TRUE
		$q_{a-c} = 0$ (pcu/hr) $Q_{b-d} = 611$
	192 170 11	$q_{a-d} = 2$ (pcu/hr) $Q_{d-a} = 674$
	•	Q_{d-b} is nearside = TRUE
	ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C) $Q_{d-b} = 532$
		$W_{c-b} =$ (metres) $Q_{d-c} =$ 430
REMARK: (GEON	ETRIC INPUT DATA)	$Vr_{c-b} =$ (metres) $Q_{c-b} =$ 437
W	= AVERAGE MAJOR ROAD WIDTH	$q_{c-a} = 0$ (pcu/hr) $Q_{a-d} = 616$
W _{cr}	= AVERAGE CENTRAL RESERVE WIDTH	$q_{c-b} = 0$ (pcu/hr)
W _{a-d}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c-d} = 0 (pcu/hr) COMPARISION OF DESIGN FLOW
W _{b-a}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A	TO CAPACITY
W b-c	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B) DFC $_{b-a} = 0.028$
W _{c-b}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres) DFC $_{b-c} = 0.257$
W _{d-a}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00 \text{ (metres)} DFC_{b-d} = 0.278$
W _{d-c}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$VI_{b-a} = 100$ (metres) DFC $_{d-a} = 0.944$
Vr _{a-d}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{b-a} = 65$ (metres) DFC _{d-b} = 0.007
VI _{b-a}	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{b-c} = 0$ (metres) DFC _{d-c} = 0.798
Vr _{b-a}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	$q_{b-a} = 11.316 (pcu/hr) DFC_{c-b} = 0.000$
Vr _{b-c}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{b-c} = 192.26 (pcu/hr) DFC_{a-d} = 0.003$
Vr _{c-b}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$q_{b-d} = 109.54 (pcu/hr)$
VI _{d-c}	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	
VI _{d-c}		$W_{\text{M}} = \frac{200}{200} (\text{metros})$
vi _{d-a} X.		$W_{d-a} = 3.00$ (metres)
×A ×-	= GEOMETRIC PARAMETERS FOR STREAM R-A	$V_{1+1} = 50$ (metres)
Xo	= GEOMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metros)
X ₂	= GEOMETRIC PARAMETERS FOR STREAM D-C	$Vr_{doc} = 80$ (metres)
7.	= GEOMETRIC PARAMETERS FOR STREAM B-C	$q_{de} = 636.39$ (ncu/hr)
Z _D	= GEOMETRIC PARAMETERS FOR STRFAM D-A	$q_{db} = 3.7$ (pcu/hr)
essment Report	= (1-0.0345W)	$q_{dc} = 343.17$ (pcu/hr)

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME /2 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 121 \\ 2 \\ (1) 121 \\ 2 \\ (1) 121 \\ (2) (2) (2) (1) \\ (2) (2$	N X	No. of stages per cycleN =2Cycle timeC =120Sum(y)Y =0.641Loss timeL =25Total Flow=1251Co= (1.5*L+5)/(1-Y)=118.4Cm= L/(1-Y)=69.6Yult=0.713R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=86.9Ymax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=11.2	sec pcu sec sec sec %
(1) (3	(4)		
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Mover ment Width Iane Ahead Left Straight- Iane Straight- m. Straight- Sat. Flow Straight- pcu/h Mover	nent Total Proportion Sat. Flare lane ht Right Flow of Turning Flow Length h pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
ST A 3.00 1 1 N 1915 123	121 0.00 1915	1915 0.063 5 9 95	0.080 0 2
ST/LT A 4.00 1 1 10 N 2015 1082 47 Ped B 6.0 3 Image: Constraint of the second	1129 0.96 1762	1762 0.641 0.641 95 95 20 20 100 100 100	0.810 42 6
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKIN	NG SPEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

Kal	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at				
1 1010	Junction Capacity Analysis	Checked By:	00		
Junction lay	out sketch - J3: J/O Cape Collinson Road and Lin Shing Road Design Year - 2016 Level 2 - Site 1 Time - Level 2 Peak Hour	GEOMETRIC DETAILS GEOMETRIC PARAME	TERS		
N W1 Shek O Road (N)	ARM B Cape Collinson Road	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0.626 0.996 1.109 0.705		
ARM A W ₂	, 309 W	ARM C $q_{a\cdot b} = 0$ (pcu/hr) $q_{a\cdot c} = 410$ (pcu/hr) $Q_{b\cdot c} = 0$ $Q_{b\cdot c} = 0$	DVEMENT 637 709 295		
		$MAJOR ROAD (ARM C) COMPARISION OF DE W_{c-b} = 4.50 (metres) TO CAPACITY$	SIGN FLOW		
REMARK: (GEOI W W _{cr}	METRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH = AVERAGE CENTRAL RESERVE WIDTH	Vr $c-b$ 150 (metres)DFC $b-a$ =q $c-a$ 309 (pcu/hr)DFC $b-c$ =q $c-b$ 0 (pcu/hr)DFC $b-c$ =	1.847 0.021 0.000		
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-E GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W) 	$ \begin{array}{rcl} \text{MINOR ROAD} & (\text{ARM B}) \end{array} \\ \begin{array}{rcl} W_{b\text{-a}} & = & 0.00 & (\text{metres}) \\ W_{b\text{-c}} & = & 3.80 & (\text{metres}) \\ W_{b\text{-a}} & = & 100 & (\text{metres}) \\ VI_{b\text{-a}} & = & 100 & (\text{metres}) \\ Vr_{b\text{-a}} & = & 100 & (\text{metres}) \\ Vr_{b\text{-c}} & = & 100 & (\text{metres}) \\ q_{b\text{-a}} & = & 545 & (\text{pcu/hr}) \\ q_{b\text{-c}} & = & 13 & (\text{pcu/hr}) \end{array} $	1.847		
raffic Impact ^r Asses ctober 2007	ssment Report		Page 3 of		

			ROUNDABOUT CAPACITY A	SSESSMENT	INITIALS	DATE
TIA St	udy for	Columbarium Development at Cape Collinson Road		PROJECT NO.: 80510 PREPARED E	Y: KC	Sep-13
Juncti	on 4: C	hai Wan Road Roundabout	J4LV2 Peak Hour	FILENAME2016_LV2_S1_J2_J5_J6_J7_J8.xls CHECKED E	Y: OC	Sep-13
J4LV2	Peak	Hour		REVIEWED	Y: OC	Sep-13
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				(ARM D)		
		(ARM D)		N 771.010607		
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				0 0		
Chai V	Van Ro	bad		0 0		
(ARM	C)		(ARM A)	1292.647 555 O O 1211.883	747.882	
			Chan Wan Road	(ARM C) O O	(ARM A)	
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			±			
			•			
		Wan Tsui Road		140.446284		
		Wan Tsui Road (ARM B)	·	140.446284 (ARM B)		
		Wan Tsui Road (ARM B)		140.446284 (ARM B)		
ARM		Wan Tsui Roac (ARM B)	A B C D	140.446284 (ARM B)		
ARM	T PARA	Wan Tsui Road (ARM B) METERS:	A B C D	140.446284 (ARM B)		
ARM	[PARA	Wan Tsui Road (ARM B) METERS:	A B C D	140.446284 (ARM B)		
ARM INPUT	T PARA =	Wan Tsui Road (ARM B) METERS: Approach half width (m)	A B C D 7.00 4.00 7.00 7.00	140.446284 (ARM B)		
ARM INPUT V E	[PAR4 = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00	140.446284 (ARM B)		
ARM INPUT V E L	F PARA = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00	140.446284 (ARM B)		
ARM INPUT V E L R	T PARA = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00	140.446284 (ARM B)		
ARM INPUT E L R D	= = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00	140.446284 (ARM B)		
ARM INPUT V E L R D A	= = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00	140.446284 (ARM B)		
ARM INPUT V E L R D A Q	F PARA = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 748 140 1293 771	140.446284 (ARM B)		
ARM INPUT V E L R D A Q Q Q c	= = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 748 140 1293 771 1212 808 555 1060	140.446284 (ARM B)		
ARM INPUT V E L R D A Q Q c	= = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 748 140 1293 771 1212 808 555 1060	140.446284 (ARM B)		
ARM INPUT V E L R D A Q Q C	= = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 748 140 1293 771 1212 808 555 1060	140.446284 (ARM B)		
ARM INPUT V E L R D A Q Q C OUTP S	F PARA = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 748 140 1293 771 1212 808 555 1060	140.446284 (ARM B)		
ARM INPUT E L R D A Q Q C OUTP S K K	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 36.00 30.00 748 140 1293 771 1212 808 555 1060 0.00 1.02 0.97 1.00 1.01 7.00 1.01	140.446284 (ARM B)		
ARM INPUT E L R D A Q Q C OUTP S K X2 M	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXD(/D = 0040)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 6.00 6.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 748 140 1293 771 1212 808 555 1060 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 1.01 7.97 5.03 8.15 7.00 1.01 7.97 5.03 8.15 7.00 1.01 7.97 5.03 8.15 7.00 1.01 7.97 1.02 0.97 1.00 1.01 7.97 1.02 0.27	140.446284 (ARM B)		
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 2021/2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 748 140 1293 771 1212 808 555 1060 0.53 0.96 0.80 0.00 1.01 7.97 5.03 8.15 7.00 0.37	140.446284 (ARM B)		
ARM INPUT V E L R D A Q C OUTP S K X2 M F T d	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 36.00 30.00 748 140 1293 771 1212 808 555 1060 0.53 0.96 0.80 0.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.27 1.27	140.446284 (ARM B)		
ARM INPUT V E L R D A Q C OUTP S K X2 M F T d E	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 9.00 7.00 10.00 7.00 6.00 6.00 5.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 30.00 748 140 1293 771 1212 808 555 1060 100 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1	140.446284 (ARM B)		
ARM INPUT V E L R D A Q C OUTP S K X2 M F T d F C Q	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) $K(E-E^*Oc)$	A B C D 7.00 4.00 7.00 7.00 9.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 748 140 1293 771 1212 808 555 1060 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1556 1003 2059 1405	140.446284 (ARM B)		
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) Approach half width (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ $1-0.00347(A-30)-0.978(1/R-0.05)$ V + ((E-V)/(1+2S)) EXP((D-60)/10) $303*X2$ $1+(0.5/(1+M))$ $0.21*Td(1+0.2*X2)$ K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 9.00 7.00 10.00 7.00 6.00 6.00 5.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 30.00 748 140 1293 771 1212 808 555 1060 104	140.446284 (ARM B)	PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 748 140 1293 771 1212 808 555 1060 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1550 1023 2059 1405	140.446284 (ARM B)	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	I	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME /2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 258 \qquad \qquad$	N 🔪 Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.206Loss timeL =10Total Flow=1393Co= (1.5*L+5)/(1-Y)=Zo= (1.5*L+5)/(1-Y)=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=Ymax= 1-L/C=Ymax= 1-L/C=0.99*Ymax-Y)/Y*100%=293.9	sec pcu sec sec %
(4) (4) (4) (5) (3) (3) (6) (6) (6) (6) (6) (6) (6) (6) (6) (6)		-	
			Degree of Queue Augrees
ment Width lane m. Kalus Opposing Near Stalght- Mid Traffic? Side Ahead Left St lane? Sat. Flow pcu/h p	anent Flow of Turning Flow Length u/h pcu/h pcu/h Vehicles pcu/h m.	Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds
LT A 3.75 1 2 22 y 4120 413 LT A 4.00 2 2 24 4310 179 RT A 3.50 2 2 11 y 4070 ST B 3.50 3 2 13 y 4070 RT B 4.50 3 2 13 y 4270 Ped A 4.50 5 -	413 1.00 3857 179 1.00 4056 509 509 1.00 3582 258 0.00 4070 34 34 1.00 3828	3857 0.107 47 62 4056 0.044 19 62 3582 0.142 0.142 62 62 4070 0.063 0.063 28 28 3828 0.009 4 28	0.172 12 6 0.071 3 6 0.228 15 6 0.228 15 22 0.032 0 23
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	.ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME /2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road $(1) 100 \xrightarrow{4}$ $(1) 100 \xrightarrow{4}$ $(1) 412 \xrightarrow{5iu Sai}$ $(1) 647$	N Wan Road	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.247Loss timeL =48Total Flow=1398Co= (1.5*L+5)/(1-Y)=102.3Cm= L/(1-Y)Cm= L/(1-Y)=63.8Yult=Yult=0.540R.C.ult= (Yult-Y)/Y*100%=118.6Cp= 0.9*L/(0.9-Y)=66.2Ymax= 1-L/C=Ymax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=89.4	sec pcu sec sec sec %
$(1) \xrightarrow{(1)} (1) (1)$	6		
Mouse Change Lange Dhoose No of Dadius of Moore Changes - Mouse	unt Total Dreparties Cat Flave land Chara		
ment Width Iane m. Mean State State Pridse No. of Radius Opposing Near Straight- Involvement Traffic? side Ahead Left Straight Iane? Sat. Flow pcu/h pcu/h	Right Flow of Turning Flow Length Effect pcu/h pcu/h Vehicles pcu/h m. pcu/hr	t Sat. Flow y Greater L required (input) nr pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 100 148 ST A 3.20 1 1 1 2075 2075 264 ST A 3.00 1 2 y 3970 647 LT C 3.75 2 1 12 y 1990 80 RT C 3.75 2 1 12 y 1990 80 Ped B 6.50 4 y 100 148 100 149 Ped B 6.50 4 12 y 1990 80 Ped B 6.50 5 1 12 y 1300 148 Ped B 6.50 5 1 12 y 1300 148 Image: 1000 1 1 1 12 y 1300 149 Ped B 6.50 </td <td>248 0.40 1844 264 0.00 2075 647 0.00 3970 80 1.00 1769 159 159 1.00 1893</td> <td>1844 0.134 28 34 2075 0.127 27 34 3970 0.163 0.163 34 34 1769 0.045 10 18 1893 0.084 0.084 18 18</td> <td>0.392 24 18 0.371 24 18 0.475 33 17 0.257 6 31 0.475 18 32</td>	248 0.40 1844 264 0.00 2075 647 0.00 3970 80 1.00 1769 159 159 1.00 1893	1844 0.134 28 34 2075 0.127 27 34 3970 0.163 0.163 34 34 1769 0.045 10 18 1893 0.084 0.084 18 18	0.392 24 18 0.371 24 18 0.475 33 17 0.257 6 31 0.475 18 32
	NOTES :	: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME /2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$) 4 	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.369Loss timeL =18Total Flow=1217Co= (1.5*L+5)/(1-Y)=Co= L/(1-Y)=Zult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Symax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=102.3	sec yec sec sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (6)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$) (4) (4) (6) (5) (5) (5) (5) (5) (5) (5) (5		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight-	Movement Total Proportion Sat. Flare la	ne Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead	tt Straight Right Flow of Turning Flow Length	h Effect Sat. Flow y Greater L required (input)	Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 ST/RT A 3.30 1 1 11 12 2085 RT B 3.50 2 1 12 2105 LT A,B 3.75 3 1 13 y 1990 RT C 3.50 4 1 12 2105 LT/ST C 3.50 4 1 12 2105 LT/ST C 3.50 5 1 12 2105 LT/ST D 3.50 5 1 11 y 1965 ST/RT D 3.50 5 1 11 y 1965 LT/ST D 3.50 5 1 11 y 1965 Ped D,A,B 4.00 6 Image: Automation of the state of the st	3 79 112 0.30 1870 70 155 225 0.69 1920 28 28 1.00 1871 55 125 1.00 1871 4 74 208 0.64 1818 0 127 127 1.00 1871 5 131 226 0.42 1859	pedyn pedyn y sec sec </td <td>0.228 12 25 0.445 24 25 0.445 0 64 0.202 12 20 0.343 18 26 0.445 24 25 0.445 24 24 0.343 18 26 0.445 24 26 0.445 18 36 0.445 24 24</td>	0.228 12 25 0.445 24 25 0.445 0 64 0.202 12 20 0.343 18 26 0.445 24 25 0.445 24 24 0.343 18 26 0.445 24 26 0.445 18 36 0.445 24 24
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 72_S1_J2_J5_J6_J7_J8.XIS Checked By:	0C 29-4-2011
2010 Level 2 Peak Hour - Sile 1		REFERENCE NO Reviewed By.	00 3-3-2011
$(1) 907 \qquad \longrightarrow \qquad \\ (1) 567 \qquad \longrightarrow \qquad \\ (2) 100 \qquad 100 \qquad \\ (3) (3) Tai Tam Road$	N ◀—	No. of stages per cycleN =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Co= (1.5*L+5)/(1-Y)Cm= L/(1-Y)Yult=R.C.ult= (Yult-Y)/Y*100%Cp= 0.9*L/(0.9-Y)Ymax= 1-L/CR.C.(C)= (0.9*Ymax-Y)/Y*100%	3 105 sec 0.698 18 sec 3065 pcu 106.1 sec 59.7 sec 0.765 9.5 % 80.4 sec 0.829 6.8 %
$(1) \longrightarrow (5) (5) (7) (7) (2) (3)$	 ← → (6) = 6 		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Straight- Movem Width Iane Traffic? side Ahead Left Straight- Move- m. m. m. Iane? Sat. Flow pcu/h	ent Total Proportion Sat. Flare lane t Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m. p	Share Revised Effect Sat. Flow y Greater L required (in pcu/hr pcu/h y sec sec sec	g Degree of Queue Average 1put) Saturation Length Delay sec X (m / lane) (seconds
ST A 3.50 1 2 y 4070 907 RT A 3.50 1 1 13 2105 4210 545 LT B 3.10 2 1 12 y 1925 85 LT B 3.10 2 1 12 y 1925 85 LT C 4.00 3 1 15 y 2015 492 LT/RT C 4.00 3 1 15 y 2155 155 Ped A 4.50 4 4 2155 155 155 Ped B,C 3.50 5 5 5 6 15 155 155 Ped A,B 3.50 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	907 0.00 4070 567 567 1.00 1887 545 0.00 4210 85 1.00 1711 492 1.00 1832 314 469 1.00 1959	4070 0.223 18 1887 0.300 0.300 37 4210 0.129 0.129 16 1711 0.050 6 6 1832 0.269 0.269 33 1959 0.239 30 30	28 0.843 57 28 28 1.137 72 34 16 0.843 39 43 16 0.325 12 35 33 0.843 54 31 33 0.751 54 25
	N	OTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUE	EUING LENGTH = AVERAGE QUEUE * 6m



TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO CTI DOS Prenared By:	KC 29-4-2011
110: Junction of Chai Wan Boad and San Ha Street	1101 V2 - Peak Hour Traffic Flows	FILENAME /2 S1 12 15 16 17 18 xls Checked By:	0C 29-4-2011
2016 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
2016 Level 2 Peak Hour - Site 1	N Chai Wan Road	REFERENCE NO.: Reviewed By: No. of stages per cycle N = 2 Cycle time C = 100 Sum(y) Y = 0.318 Loss time L = 10 Total Flow = 1462 Co = (1.5*L+5)/(1-Y) = 29.3 Cm = L/(1-Y) = 14.7 Yult = 0.825 R.C.ult = (159.4) Cp = 0.91/(0.9-Y) = 15.5 Ymax = 1-L/C = 0.900 R.C.(C) = (0.9*Ymax-Y)/Y*100% = 154.6 154.6	OC 3-5-2011 sec pcu sec sec % sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (2)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$			
Move- Stage Lane Phase No. of Radius O N Straight- Movem	ent Total Proportion Sat. Flare lane Share	re Revised g g ct Sat Flow v Greater L required (input)	Degree of Queue Average Saturation Length Delay
m. m. Sat. Flow pcu/h pcu/h	pcu/h pcu/h Vehicles pcu/h m. pcu/h	hr pcu/h y sec sec sec	X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 689 ST A 3.50 1 2 10 N 4070 500 LT B 3.00 2 1 10 N 1915 248 RT B 3.50 2 1 12 2105 105 248 Ped B 19.0 3 - <td>689 0.00 4070 500 0.00 4070 248 1.00 1665 26 26 1.00 1871</td> <td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td> <td>0.360 30 11 0.261 21 11 0.281 18 9 0.026 0 10</td>	689 0.00 4070 500 0.00 4070 248 1.00 1665 26 26 1.00 1871	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.360 30 11 0.261 21 11 0.281 18 9 0.026 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPE	EED = 1.2m/s QUEUING LENGTH = AVER	AGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Chai	I Wan	FILENAME (2, C4, I2, IE, IC, I7, I8, Val Charles I, Prepared By:	кс 29-4-2011
J11: Junction of Chai Wan Road, Sneung On Street & Wing Ping Street	JIILV2 - Peak Hour Traffic Flows	FILENAME 72_S1_J2_J5_J6_J7_J8.XIS Checked By:	00 29-4-2011
		REFERENCE NO Reviewed By.	00 3-3-2011
(1) 98 (1) 98 (1) 579 (1) 579	N (4) (4) 376 46 Chai Wan Road 	No. of stages per cycleN =4Cycle timeC =120 sSum(y)Y =0.273Loss timeL =37 sTotal Flow=1941 pCo= (1.5*L+5)/(1-Y)=83.2 sCm= L/(1-Y)=50.9 sYult=0.623R.C.ult= (Yult-Y)/Y*100%=127.9 %Cp= 0.9*L/(0.9-Y)=53.1 sYmax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=127.9 %	ec iec iec iec %
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} \underbrace{(5)}_{(3)} \underbrace{(6)}_{(3)}$	$(5) \leftarrow \cdots \leftarrow (6) \qquad (4) (4) \qquad (4$		
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Side Stra Ah m. m. m. m. Traffic? side Ah	aight- <u>Movement</u> Total Proportion Sat. Flare la head <u>Left Straight Right</u> Flow of Turning Flow Leng Flow pcu/h pcu/h pcu/h vehicles pcu/h m.	lane Share Revised th Effect Sat. Flow y Greater L required (input) S . pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 y 61 LT/ST A 3.30 2 3 12 Y 61 LT B 3.50 3 1 9 Y 61 LT B 3.50 3 1 9 Y 61 LT D 3.75 4 2 10 y 41 Ped B,C 4.00 5 10 y 41 Ped B,C 5.00 6 10	175 98 579 677 0.14 6066 115 102 704 806 0.13 6020 965 36 36 1.00 1684 120 46 376 422 1.00 3583	6066 0.112 34 6020 0.134 0.134 41 1684 0.021 0.021 6 3583 0.118 0.118 36 15 15 15 15	0.000 44 54 0.000 52 54 0.000 6 54 0.000 42 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LE	ENGTH = AVERAGE QUEUE * 6m

Bal	Agreement No. CPM301_15/10 - Traffic Impact Assessm	ment Study For Columbarium Development at Prepared By: KC
	Junction Capacity Analysis	Checked By: OC
Junction layo	ut sketch - J1: J/O Cape Collinson Road and Lin Shing Road sign Year - 2016 Level 3 - Reference Case Time - Level 3 Peak Hour	
	ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS
	N 212 2 8	W ₁ = (metres) GEOMETRIC PARAMETERS
		$W_2 = 6.00$ (metres) $X_A = 0.922$
		$W_3 = 3.00$ (metres) $X_B = 1.039$
		$W_4 = 3.00$ (metres) $X_C = 0.586$
	ARM	$X_{D} = 0.827$ (metres) $X_{D} = 0.827$
W ₁	W ₃	$W_{cr1} = 0.00$ (metres) $Y = 0.793$
ARM C	('ane	$W_{cr2} = 0.00$ (metres) $Z_B = 1.005$
Collins W _{cr1}	t o Collins	$W_{cr} = 0.00 \text{ (metres)} Z_D = 0.905$
on Road Wa	on ← 0 W₄ Boad	MAJOR ROAD (ARM A) THE CAPACITY OF MOVEMENT
(W)		$W_{ad} = 3.00$ (metres) $Q_{ba} = 617$
		$Vr_{a-d} = 100$ (metres) $Q_{b-c} = 749$
		$q_{ab} = 0$ (pcu/hr) Q_{bd} is nearside = TRUE
		$q_{ac} = 0$ (pcu/hr) $Q_{bd} = 611$
	2 0 0	$q_{a-d} = 0$ (pcu/hr) $Q_{d-a} = 674$
	•	Q _{db} is nearside = TRUE
	ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C) $Q_{d-b} = 533$
		$W_{c-b} = $ (metres) $Q_{d-c} = 518$
REMARK: (GEON	ETRIC INPUT DATA)	Vr _{c-b} = (metres) Q _{c-b} = 437
W	= AVERAGE MAJOR ROAD WIDTH	$q_{c-a} = 0$ (pcu/hr) $Q_{a-d} = 616$
W _{cr}	= AVERAGE CENTRAL RESERVE WIDTH	q _{c-b} = 0 (pcu/hr)
W _{a-d}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c-d} = 0 (pcu/hr) COMPARISION OF DESIGN FLOW
W _{b-a}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A	TO CAPACITY
W _{b-c}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B) DFC $_{b-a} = 0.000$
W _{c-b}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres) DFC $_{b-c} = 0.003$
W _{d-a}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres) DFC $_{b-d} = 0.000$
W _{d-c}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$VI_{b-a} = 100$ (metres) DFC $_{d-a} = 0.012$
Vr _{a-d}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{b-a} = 65$ (metres) DFC _{d-b} = 0.004
VI _{b-a}	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{b-c} = 0$ (metres) DFC $_{d-c} = 0.409$
Vr _{b-a}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	$q_{b-a} = 0$ (pcu/hr) DFC _{c-b} = 0.000
Vr _{b-c}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{b-c} = 2.0575 (pcu/hr) DFC_{a-d} = 0.000$
Vr _{c-b}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$q_{b-d} = 0$ (pcu/hr)
VI _{d-c}	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	Critical DFC = 0.409
Vr _{d-c}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)
Vr _{d-a}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	$W_{d-a} = 3.00 \text{ (metres)}$
X _A	= GEUMETRIC PARAMETERS FOR STREAM A-D	$W_{d-c} = 3.00 \text{ (metres)}$
X _B	= GEOMETRIC PARAMETERS FOR STREAM B-A	$VI_{d-c} = 50$ (metres)
X _c	= GEUMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metres)
X _D	= GEUMETRIC PARAMETERS FOR STREAM D-C	$Vr_{d-a} = 800 \text{ (metres)}$
∠ _B 7	= GEUMETRIC PARAMETERS FOR STREAM B-C	$q_{d-a} = 8.2301$ (pcu/hr)
Assessment Report	= GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d-b} = 2.0575$ (pcu/nr) $q_{d-b} = 212.02$ (ncu/hr)
r	= (1-0.034378)	$q_{d-c} = 212.02 (pcu/m)$

TRAFFIC SIGNAL CALCULATION		INITIAL	5 DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By: KC	29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By: OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.: Reviewed By: OC	3-5-2011
$(1) 171 \longrightarrow 0 \\ (1) 171 \longrightarrow 0 \\ (1) 0 \qquad (1) \qquad 0 \qquad 0 \qquad (1) \qquad 0 \qquad $	N X	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.429Loss timeL =55 secTotal Flow=976 pcuCo= (1.5*L+5)/(1-Y)=153.3 secCm= L/(1-Y)=96.4 secYult=0.488R.C.ult= (Yult-Y)/Y*100%=13.6 %Cp= 0.9*L/(0.9-Y)=105.1 secYmax= 1-L/C=0.542R.C.(C)= (0.9*Ymax-Y)/Y*100%=13.6 %	
$(1) \longrightarrow (3)$ (3)	(4) =		
Move- Stage Lane Phase No. of Radius O N Straight- Movem ment Width Iane m. Sat. Flow pcu/h pcu/	ent Total Proportion Sat. Flare lane it Right Flow of Turning Flow Length h pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Degree (input) Effect Sat. Flow y Greater L required (input) Saturation pcu/hr pcu/hr y sec sec sec X	of Queue Average on Length Delay (m / lane) (seconds
ST A 3 00 1 1 1 N 1915 171	171 0.00 1915	5	12 11
ST/LT A 4.00 1 1 10 N 2015 396 409	805 0.49 1877	1877 0.429 0.429 65 65 0.792	72 13
	6000		
	6000	50	
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	I I I I FG - FLASHING GREEN PEDESTRAIN WALKING	I I I I I I I I I I I I I I I I I I I	JE * 6m

Vali	Agreement I	No. CPM301_15/10 - Traffic Imp	act Assessmen	t Study For Col	umbariun	n Developme	nt at	Prepared By	:	кс
	Junction Ca	pacity Analysis	-					Checked By:		00
Junction lay	ut sketch - J3: J/O Cape sign Year - 2016 Level 3 - Time - Level 3 Peak	Collinson Road and Lin Shing Roa - Reference Case Hour	ıd	GEOMETRIC I	DETAILS			GEOMETRIC PA	RAME	TERS
N Shek O Road (V)	0 403	ARM B Cape Collinson Road	W ₃ Shek O W _{cr2} Road (S)	W ₁ W ₂ W ₃ W ₄ W w or1 W or2 W or	= 3.90 = 3.90 = 4.80 = 4.50 = 8.55 = 0.00 = 0.00 = 0.00	(metres) (metres) (metres) (metres) (metres) (metres) (metres)		D E F Y	=	0.626 0.996 1.109 0.705
ARM A W ₂		0 ← 252	W ₄ (0) ARM C	MAJO q _{a-b} q _{a-c}	R ROAD = 0 = 403	(ARM A) (pcu/hr) (pcu/hr)		THE CAPACITY Q _{b-c} Q _{c-b} Q _{b-a}	OF M(= = =	OVEMENT 639 711 302
				MAJO W _{c-b}	R ROAD = 4.50	(ARM C) (metres)		COMPARISION	OF DE	SIGN FLOW
REMARK: (GEON W W _{cr}	ETRIC INPUT DATA) = AVERAGE MAJOR ROA = AVERAGE CENTRAL RE	AD WIDTH ESERVE WIDTH		Vr _{c-b} q _{c-a} q _{c-b}	= 150 = 252 = 0	(metres) (pcu/hr) (pcu/hr)		DFC _{b-a} DFC _{b-c} DFC _{c-b}	= = =	0.657 0.003 0.000
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F	 LANE WIDTH AVAILABL LANE WIDTH AVAILABL LANE WIDTH AVAILABL VISIBILITY TO THE LEF VISIBILITY TO THE RIGI VISIBILITY TO THE RIGI VISIBILITY TO THE RIGI GEOMETRIC PARAMET GEOMETRIC PARAMET GEOMETRIC PARAMET 	LE TO VEHICLE WAITING IN STREAM B- LE TO VEHICLE WAITING IN STREAM B- LE TO VEHICLE WAITING IN STREAM C- TFOR VEHICLES WAITING IN STREAM HT FOR VEHICLES WAITING IN STREAM FERS FOR STREAM B-C TERS FOR STREAM B-A TERS FOR STREAM C-B	A -C -B B-A M B-A M B-C M C-B	MINO W b-a W b-c VI b-a Vr b-a Vr b-c q b-a q b-c	R ROAD = 0.00 = 3.80 = 100 = 100 = 109 = 2	(ARM B) (metres) (metres) (metres) (metres) (pcu/hr) (pcu/hr)		Critical DFC	=	0.657
raffic Impact Asses ctober 2007										Page 3 of

ROUNDABOUT CAPACITY ASSESSMENT								DATE
TIA St	udy for	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Juncti	on 4: C	hai Wan Road Roundabout	J4LV3 Peak Hour	1	FILENAME2016_LV3_Ref_J2_J5_J6_J7_	J8.xls CHECKED BY:	OC	Sep-13
J4LV3	8 Peak	Hour				REVIEWED BY:	OC	Sep-13
			·]
					(ARM D)			
		(ARM D)		Ν	913.580004			
		Island Easter Corr	idor					
		4						
		[16] 396	[1] [2] [3] [4]		1004			
		[15] <u>481</u>	10 266 397 240		0.0			
			▲					
					0 0			
Chai V	Van Ro	bad			0 0			
(ARM	IC)		(ARM A)	1308.941	710 O O	1112.595	857.4006	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
			9 [5]		0 0			
			Ť		0 0			
			529 [6]		0.0			
		45 79 75 7			1085			
			54 [0]		1005			
			54 [6]					
			*					
			•					
		Wan Tsui Road	1		206.781726			
		Wan Tsui Road (ARM B)	· · · · · · · · · · · · · · · · · · ·		206.781726 (ARM B)			
		Wan Tsui Road (ARM B)	· · · · · · · · · · · · · · · · · · ·		206.781726 (ARM B)			
ARM		Wan Tsui Roac (ARM B)	A B C D		206.781726 (ARM B)			
ARM	Γ PAR	Wan Tsui Road (ARM B) METERS:	A B C D		206.781726 (ARM B)			
ARM	Γ PARA	Wan Tsui Road (ARM B) METERS:	A B C D		206.781726 (ARM B)			
ARM INPUT	ΓPARA =	Wan Tsui Road (ARM B) METERS: Approach half width (m)	A B C D 7.00 4.00 7.00 7.00		206.781726 (ARM B)			
ARM INPUT V E	Г РАКА = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		206.781726 (ARM B)			
ARM INPUT V E L	Г РАКА = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		206.781726 (ARM B)			
ARM INPUT V E L R	Г РАКА = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		206.781726 (ARM B)			
ARM INPUT V E L R D	Γ PARA = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		206.781726 (ARM B)			
ARM INPUT V E L R D A	Г РАКА = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00		206.781726 (ARM B)			
ARM INPUT E L R D A Q	Г РАКА = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914		206.781726 (ARM B)			
ARM INPUT V E L R D A Q Q Q c	Г РАКА = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004		206.781726 (ARM B)			
ARM INPUT E L R D A Q Q C	Г РАКА = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004		206.781726 (ARM B)			
ARM INPUT V E L R D A Q Q Q C	= = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004		206.781726 (ARM B)			
ARM INPUT E L R D A Q Q C OUTP S	Γ PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004		206.781726 (ARM B)			
ARM INPUT V E L L R D A Q Q C OUTP S K	Γ PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		206.781726 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2	Γ PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004 0.53 0.96 0.80 0.00 1.02 9.97 1.00 1.01 7.97 5.03 8.15 7.00		206.781726 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M T	Γ PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) Canada	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		206.781726 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T	Γ PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121		206.781726 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d T	Γ PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37		206.781726 (ARM B)			
ARM INPUT V E L R D A Q C OUTP S K X2 M F T d F C C	Γ PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69		206.781726 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	Γ PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1626 869 1942 1444		206.781726 (ARM B)	2551.645	PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	Γ PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 857 207 1309 914 1113 1085 710 1004 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1626 869 1942 1444		206.781726 (ARM B)	2551.645	PCU	

TRAFFIC SIGNAL CALCULATION				INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDC	QS Prepared By:	КС	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6	_J7_J8.xls Checked By:	OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By:	OC 2	3-5-2011
(3) 239 (3) 40	N 📡 Wing Tai Road	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-V)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/(1-V)$	N = 22 $C = 100$ $Y = 0.219$ $L = 10$ $= 1497$ $C = 12.8$ $= 0.825$ $= 0.825$ $C = 13.2$ $= 0.900$ $C = 269.3$) sec sec pcu sec sec % sec %	
(4) (4) (5) (3) (3) (6) (6) (6) (6)					
	I				
Move- ment Stage Width Lane Phase Width No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Movem Straight- Iane m. m. m. m. Straight- Iane? Straight- Side Movem Ahead Left Straight- Iane? Straight- Straight- Iane? Straight- Straight- Iane? Movem	ent Total Proportion Sat. Fla אד Right Flow of Turning Flow L h pcu/h pcu/h Vehicles pcu/h	e lane Share Revised ngth Effect Sat. Flow y Great m. pcu/hr pcu/h y	er L required (input) sec sec sec	Degree of Saturation X	Queue Average Length Delay (m / lane) (seconds
LT A 3.75 1 2 22 y 4120 397 LT A 4.00 2 2 24 y 4310 246 RT A 3.50 2 2 11 y 4070 246 ST B 3.50 3 2 13 y 4070 239 RT B 4.50 3 2 13 y 4270 4270 239 Ped A 4.50 5 -	397 1.00 3857 246 1.00 4056 575 575 1.00 3582 239 0.00 4070 40 40 1.00 3828	3857 0.103 4056 0.061 3582 0.161 0.16 4070 0.059 0.059 3828 0.010 0.010	10 42 66 25 66 1 66 66 24 24 4 24	0.156 0.092 0.244 0.244 0.043	9 5 6 5 15 5 15 25 0 26
		NOTES : PEDESTRAIN WALKING SPE	ED = 1.2m/s QUEUING	LENGTH = AV	'ERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	· · · · · · · · · · · · · · · · · · ·	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (1) 102 (2) (2) (40 33) (1) 429 (1) (1) (1)	N Siu Sai Wan Road 696	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.197Loss timeL =48Total Flow=1300Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.540R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=61.4Ymax= 1-L/CYmax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec % sec %
$(1) \longrightarrow (3) \qquad (2) \qquad (1) \longrightarrow (1) \qquad (5) \qquad (4) \qquad (4) \qquad (2) \qquad (5) \qquad (5) \qquad (4) \qquad (4) \qquad (5) \qquad (5) \qquad (6) $	(2)		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Straight- Ahead	Movement Total Proportion Sat. Flare lane Sh	nare Revised tect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 2 ST A 3.20 1 1 11 y 1945 2 ST A 3.00 1 2 y 3970 LT C 3.75 2 1 12 y 1990 RT C 3.75 2 1 12 2130 2130 Ped B 11.00 3 - <td< td=""><td>n pcu/n pcu/n venicies pcu/n m. pcu/n 2 148 250 0.41 1843 <td< td=""><td>u/m pcu/m y sec sec sec sec 1843 0.136 28 36 46 2075 0.135 36 46 3970 0.175 0.175 46 46 1769 0.019 5 6 6 1893 0.021 0.021 6 6</td><td>x (m / lane) (seconds) 0.292 18 12 0.292 24 12 0.378 30 11 0.332 0 47 0.378 6 49</td></td<></td></td<>	n pcu/n pcu/n venicies pcu/n m. pcu/n 2 148 250 0.41 1843 <td< td=""><td>u/m pcu/m y sec sec sec sec 1843 0.136 28 36 46 2075 0.135 36 46 3970 0.175 0.175 46 46 1769 0.019 5 6 6 1893 0.021 0.021 6 6</td><td>x (m / lane) (seconds) 0.292 18 12 0.292 24 12 0.378 30 11 0.332 0 47 0.378 6 49</td></td<>	u/m pcu/m y sec sec sec sec 1843 0.136 28 36 46 2075 0.135 36 46 3970 0.175 0.175 46 46 1769 0.019 5 6 6 1893 0.021 0.021 6 6	x (m / lane) (seconds) 0.292 18 12 0.292 24 12 0.378 30 11 0.332 0 47 0.378 6 49
	NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRA				ON																				ΙΝΙΤΙΔΙ S	DATE	
Т	IA Study	for Col	umbariu	m Deve	lopment	t at Cape	Collinsor	n Road.	Chai Wan									PROJECT N	0.:	CTLDQS		Prepared	Bv:	KC	29-4-2011	
J	7: Junctio	on of Siu	u Sai Wa	n Road	and Hari	mony Ro	ad(N)					J7LV3 -	Peak Hou	ur Traffic Flows				FILENAME	3 Ref J2	J5 J6 J7	J8.xls	Checked	Bv:	OC	29-4-2011	
2	016 Leve	3 Pea	k Hour -I	Referen	ce Case	,	()											REFERENC	E NO.:			Reviewed	d Bv:	OC	3-5-2011	
																	1									
							Bus Torn	ninal						Ν				No. of stag	es per cyo	cle		N =	4	500		
							bus rem	iiiiai										Sum(y)				Y =	0.342	300		
								(4)	(4)	(4)				\sim				Loss time				L =	18	sec		
					(1)	12 -	↑	115	20	293								Co	= (1.5*L+	+5)/(1-Y)		=	48.6	sec		
					(1)	163 -			1									Cm	= L/(1-Y)	- // /		=	27.3	sec		
					(1)	15 -	•	┥	v	►								Yult				=	0.765			
						↓	•				Siu Sai	Wan Ro	bad					R.C.ult	= (Yult-Y)/Y*100%		=	124.0	%		
									τ	201	(5)							Ср	= 0.9*L/((0.9-Y)		=	29.0	sec		
						93	9		←	3	(5)							R.C.(C)	= 1 - L/C = (0.9*Y)	max-Y)/Y*	100%	=	0.829	%		
						(3)	(2)		¥	-	(-)								(0.0					,-		
								Deed																		
							Harmony	у коаd																		
																•	1									
				(6)		(7)		(6)																		
	(1)	1	• ∢-	►	•	⊢▶			(7)	(4)	(4)	(4)			(6)											
	(1)		-						↓ • • • • • • • • • • • • • • • • • • •		i I			∢												
	(1)																									
		•				◄					, ,	->			(5)											
	-	-													(5)											
						(3)	(2)								(5)											
		(3)												¥												
	-				-	-				-		-	-		-											
	Stage	e A	1=	5	Sta	ge B	=	5	Stage	e C	=	6	Stage	eC I=	6											
	Move-	Stage	Lane	Phase	No. of	Radius	Opposing	Near-	Straight-	N	oveme	nt	Total	Proportion	Sat.	Flare lane	Share	Revised				g	g	Degree of	Queue	Average
	ment		Width		lane	m	Traffic?	side	Ahead	Left	Straight	Right	Flow	of Turning	Flow	Length	Effect	Sat. Flow	У	Greater	L	required	(input)	Saturation	Length	Delay (seconds)
								lane:	Sat. FIUW	μεάλι	μευγπ	μευ/Π	pcu/ii	Venicies	pcu/n		pcu/m	pcu/m		У	3ec 18	SEL	SEL	^		(seconds)
	LT/ST	А	3.30	1	1	11		v	1945	12	79		91	0.14	1910			1910	0.048		10	12	12	0.407	12	40
	ST/RT	А	3.30	1	1	12		,	2085		84	15	99	0.16	2045			2045	0.048	0.048		12	12	0.412	12	40
	RT	В	3.50	2	1	12			2105			9	9	1.00	1871			1871	0.005	0.005		1	1	0.412	0	96
	LT	A,B	3.75	3	1	13		У	1990	93			93	1.00	1784			1784	0.052			13	19	0.293	12	32
	RT	С	3.50	4	1	12			2105			115	115	1.00	1871			1871	0.062			16	46	0.140	6	14
	LT/ST	C	3.50	4	1	12		У	1965	293	26		319	0.92	1762			1762	0.181	0.181		46	46	0.412	30	14
	ST/RT	D	3.50	5	1	12			2105	2	0	201	201	1.00	1871			1871	0.107	0.107		27	27	0.412	24	25
	LI/SI Ped		3.50	5	T	11		У	1902	5	69		12	0.04	1954			1954	0.037			Э	9	0.412	Ø	44
	Ped	B.C	4.00	7																						
		0,0	4.00																							
																					- 1 2~					
																	NUTES :	PEDESIKA	IN VVALKI	NG SPEED	– 1.2M	11/5	QUEUING	LEING ($\mathbf{H} = \mathbf{A}$)	VERAGE QU	EUE OIII
· · · · · ·																										

TRAFFIC SIGNAL CALCULATION			INITIAL	5 DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS F	Prepared By: KC	29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls (Checked By: OC	29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO.:	Reviewed By: OC	3-5-2011
$(1) 717 \longrightarrow (1) 710 \longrightarrow (1) $	N ◀—	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 3 C = 105 sec Y = 0.723 L = 18 sec = 2955 pcu = 115.6 sec = 65.0 sec = 0.765 = 5.8 % = 91.6 sec = 0.829 = 3.1 %	
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (3) \qquad (3)$ Stage A I = 7 Stage B I = 8 Stage C I	 ← → (6) = 6 			
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Moven	ent Total Proportion Sat. Flare lan	e Share Revised	g g Degree (of Queue Average
ment Width lane Traffic? side Ahead Left Straig	nt Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L r	required (input) Saturatio	n Length Delay
ST A 3.50 1 2 y 4070 717 RT A 3.50 1 1 13 2105 692 ST B 3.50 2 2 4210 692 LT B 3.10 2 1 12 y 1925 116 LT C 4.00 3 1 15 y 2015 363 LT/RT C 4.00 3 1 15 2155 159 Ped A 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4.50 4 4.50	717 0.00 4070 710 710 1.00 1887 691 0.00 4210 116 1.00 1711 363 1.00 1832 199 358 1.00 1959	pco/m pco/m y sec 4070 0.176 18 1887 0.376 0.376 4210 0.164 0.164 1711 0.068 1832 1959 0.183 0.183	3cc 3cc X 21 21 0.873 45 21 1.865 20 20 0.873 8 20 0.361 24 24 0.873 22 24 0.807	48 42 96 42 48 43 12 32 54 35 48 38
	· · · · · ·	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/	/s QUEUING LENGTH =	AVERAGE QUEUE * 6m

Kal		Agreement No. CPM301_15/10 - Traffic Impact Assessme	ent Study For Columbarium Development a	at Prepared By:	КС
		Junction Capacity Analysis		Checked By:	00
Junction lay E	rout sketch - Design Year Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road - 2016 Level 3 - Reference Case Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAM	IETERS
W ₁ Chai Wan Road	87 444	ARM B Wan Tsui Road	W_1 =10.90(metres) W_2 =7.70(metres) W_3 =10.60(metres) W_4 =10.20(metres) W =19.70(metres) W_{cr1} =4.10(metres) W_{cr2} =1.70(metres) W_{cr} =2.90(metres)	D E = F = Y =	0.675 1.109 0.993 0.320
(E) ARM A W ₂		$- 156 \qquad (W)$ $- 686 \qquad ARM C$	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF P Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 764 678 361
			MAJOR ROAD (ARM C) W _{c-b} = <mark>3.30</mark> (metres)	COMPARISION OF E	DESIGN FLOW
REMARK: (GEO	METRIC INPUT	Γ ΔΑΤΑ)	Vr _{c-b} = <mark>150</mark> (metres)	DFC _{b-a} =	0.484
W W _{cr}	= AVERA = AVERA	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	q _{c∘a} = <mark>686</mark> (pcu/hr) q _{c⋅b} = <mark>156</mark> (pcu/hr)	DFC _{b-c} = DFC _{c-b} =	0.410 0.231
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F	= LANE = LANE = LANE = VISIBIL = VISIBIL = VISIBIL = VISIBIL = GEOM = GEOM = GEOM	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 4.50(metres) $VI_{b-a} =$ 150(metres) $Vr_{b-a} =$ 150(metres) $Vr_{b-c} =$ 150(metres) $Vr_{b-c} =$ 150(metres) $q_{b-a} =$ 175(pcu/hr) $q_{b-c} =$ 313(pcu/hr)	Critical DFC =	0.484
ctober 2007	ssment Keport	-			Page 9 of

TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows FILENAME 3_Ret_J2_J5_J6_J7_J8.xls [Checked By:	00 29-4-2011
2016 Level 3 Peak Hour -Reference Case	REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) \begin{array}{c} 821 \\ 51 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	No. of stages per cycle N = 2 Cycle time C = 100 sc Sum(y) Y = 0.436 Loss time L = 10 sc Total Flow = 1730 p Co = $(1.5*L+5)/(1-Y)$ = 35.5 sc Cm = $L/(1-Y)$ = 17.7 sc Yult = 0.825 R.C.ult = $(Yult-Y)/Y*100\%$ = 89.3 % Cp = $0.9*L/(0.9-Y)$ = 19.4 sc Ymax = $1-L/C$ = 0.900 R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$ = 85.8 %	ec ec icu ec ec 6 ec 6
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$		
Move Stage Lane Dhase No of Padius O N Straight Movem	ant Total Droportion Sat Elaroland Sharo Dovised I I g g g g	Degree of Queue Average
ment Width lane m. Sat. Flow pcu/h pcu/h	TRIGHT Flow of Turning Flow Length Effect Sat. Flow y Greater L required (input) S pcu/h pcu/h Vehicles pcu/h m. pcu/hr pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 821 ST A 3.50 1 2 10 N 4070 467 LT B 3.00 2 1 10 N 1915 390 RT B 3.50 2 1 12 10 N 1915 390 Ped B 19.0 3 -	821 0.00 4070 0.202 0.202 42 47 467 0.00 4070 0.115 24 47 390 1.00 1665 0.234 0.234 488 53 51 51 1.00 1871 1871 0.027 6 53	0.429 36 11 0.244 18 11 0.442 30 9 0.052 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE	GE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
111: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	1111V3 - Peak Hour Traffic Flows	FILENAME 3 Ref 12 15 16 17 18 visi Checked By:	00 29-4-2011
2016 Level 3 Peak Hour -Reference Case		REFERENCE NO : Reviewed By:	0C 3-5-2011
		nerence opr	00 00 1011
Sheung On Street $(1) 77 \underbrace{(1) 667}_{74} \underbrace{(2)}_{74} \underbrace{(2)}_{116} \underbrace$	N Chai Wan Road	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.257Loss timeL =37Total Flow=1876Co= (1.5*L+5)/(1-Y)=81.4Cm= L/(1-Y)=49.8Yult=0.623R.C.ult= (Yult-Y)/Y*100%=142.5Cp= 0.9*L/(0.9-Y)=51.8Ymax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=142.5	sec sec pcu sec sec %
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (2) \xrightarrow{(3)} (3)$	(4) (4) (6)		
Stage A I = 8 Stage B I = 5 Stage C	I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Straight- Mov Month Iane Traffic? side Ahead Left Si Month m. m. m. Sat. Flow pcu/h pcu/h	ement Total Proportion Sat. Flare lane Sh aight Right Flow of Turning Flow Length Eff u/h pcu/h pcu/h Vehicles pcu/h m. pcu	hare Revised tect Sat. Flow y Greater L required (input) u/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.50 1 3 12 y 6175 77 LT/ST A 3.30 2 3 12 Y 6115 116 LT B 3.50 3 1 9 Y 1965 74 LT/RT D 3.75 4 2 10 y 4120 24 Ped B,C 4.00 5 5 5 6 7 10 <td>67 744 0.10 6096 20 737 0.16 5997 74 1.00 1684 298 322 1.00 3583</td> <td>6096 0.122 39 5997 0.123 0.123 40 1684 0.044 0.044 14 3583 0.090 0.090 29 15 15</td> <td>0.000 48 54 0.000 48 54 0.000 12 54 0.000 30 54</td>	67 744 0.10 6096 20 737 0.16 5997 74 1.00 1684 298 322 1.00 3583	6096 0.122 39 5997 0.123 0.123 40 1684 0.044 0.044 14 3583 0.090 0.090 29 15 15	0.000 48 54 0.000 48 54 0.000 12 54 0.000 30 54
	NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m
Agreement No. CPM301_15/10 - Traffic Impact Assessm	Prepared By: KC		
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Junction Capacity Analysis		Checked By: OC	
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2016 Level 3 - Site 1 Time - Level 3 Peak Hour ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
N 185 2 8	$W_1 = (metres)$	GEOMETRIC PARAMETERS	
	$W_2 = 6.00$ (metres)	X _A = 0.922	
	$W_3 = 3.00$ (metres)	X _B = 1.039	
	$W_4 = 3.00$ (metres)	$X_{\rm C}$ = 0.586	
ARMA	W = 6.00 (metres)	X _D = 0.827	
W ₁ W ₃	$W_{cr1} = 0.00$ (metres)	Y = 0.793	
ARM C	$W_{cr2} = 0.00$ (metres)	$Z_{\rm B}$ = 1.005	
Collins W _{cr1} Collins	$W_{cr} = 0.00$ (metres)	Z _D = 0.905	
	$W_{a-d} = 3.00$ (metres)	$Q_{b-a} = 021$	
	$rac{d}{a - d} = rac{100}{100}$ (metres)	$Q_{b-c} = 749$	
	$q_{a-b} = 0$ (pcu/hr)	Q_{b-d} is hearside = INOE	
2 0 0	$q_{a-c} = 0$ (pcu/hr)		
2 0 0		$Q_{d-a} = TRUE$	
ARM B Lin Shina Rd (S)	MAJOR ROAD (ARM C)	$Q_{db} = 533$	
	$W_{cb} = (metres)$	$Q_{dec} = 518$	
REMARK: (GEOMETRIC INPUT DATA)	$Vr_{ob} = (metres)$	$Q_{ab} = 437$	
W = AVERAGE MAJOR ROAD WIDTH	$q_{ca} = 0$ (pcu/hr)	$Q_{a-d} = 616$	
W _{cc} = AVERAGE CENTRAL RESERVE WIDTH	$q_{ch} = 0$ (pcu/hr)		
W ard = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	$q_{cd} = 0$ (pcu/hr)	COMPARISION OF DESIGN FLOW	
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A		TO CAPACITY	
W _{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	DFC $_{b-a} = 0.000$	
W _{cb} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres)	$DFC_{b-c} = 0.003$	
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	W _{b-c} = 5.00 (metres)	DFC _{b-d} = 0.000	
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	VI _{b-a} = 100 (metres)	DFC _{d-a} = 0.012	
Vr a-d = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	Vr _{b-a} = 65 (metres)	DFC _{d-b} = 0.004	
VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	Vr _{b-c} = 0 (metres)	$DFC_{d-c} = 0.356$	
Vr _{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	q _{b-a} = 0 (pcu/hr)	DFC _{c-b} = 0.000	
Vr _{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	q _{b-c} = 2.0575 (pcu/hr)	DFC _{a-d} = 0.000	
Vr_{cb} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	q _{b-d} = 0 (pcu/hr)		
VI d-c = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C		Critical DFC = 0.356	
Vr_{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)		
Vr_{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	W _{d-a} = 3.00 (metres)		
X_A = GEOMETRIC PARAMETERS FOR STREAM A-D	W _{d-c} = 3.00 (metres)		
X_B = GEOMETRIC PARAMETERS FOR STREAM B-A	VI _{d-c} = 50 (metres)		
$X_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B	Vr _{d-c} = 50 (metres)		
X_D = GEOMETRIC PARAMETERS FOR STREAM D-C	Vr _{d-a} = 80 (metres)		
Z_B = GEOMETRIC PARAMETERS FOR STREAM B-C	q _{d-a} = <mark>8.2301</mark> (pcu/hr)		
Z _D = GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d-b} = 2.0575 (pcu/hr)$		
= (1-0.0345W)	q _{d-c} = 184.56 (pcu/hr)		

TIA Study for Columbarium Development at Cape Collinson Road. Chai V	Wan	PROJECT NO.: CTLDQS Prepared Bv: KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME /3 S1 J2 J5 J6 J7 J8.xls Checked By: OC 29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011
$(1) 171 \qquad \qquad$	Wan Tsui Road 451 (1) Shing Road	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.451Loss timeL =25 secTotal Flow=1019 pcuCo= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=45.5 secYult=0.713R.C.ult= (Yult-Y)/Y*100%=50.1 secYmax= 1-L/CYmax= 1-L/C=0.9*Y/max-Y)/Y*100%=58.1 %
(1) (2	3) (4) • • • • • • • • • • • • • • • • • • •	
Move- ment Stage Lane Phase No. of Radius O N Strai Midth Iane Iane Move- Iane Move- Iane Move- Iane N Strai	ight- Movement Total Proportion Sat. Flar ead Left Straight Right Flow of Turning Flow Le Flow pcu/h pcu/h pcu/h Vehicles pcu/h	e lane Share Revised g g Degree of Queue Avera ngth Effect Sat. Flow y Greater L required (input) Saturation Length Dela m. pcu/hr pcu/h y sec sec sec X (m / lane) (secor
51 A 3.00 I I I N 19:	15 1/1 1/1 0.00 1915	1912 0.089 10 10 92 0.113 6 Z
ST/LT A 4.00 1 1 10 N 201 Ped B 6.0 3 Image: Constraint of the second sec	15 397 451 849 0.47 1883	1883 0.451 0.451 95 95 0.569 30 3 20 20 10 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - 3	STEADY GREEN FG - FLASHING GREEN PEDESTRAIN	WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Val	elopment at	Prepared By:	KC			
	Junct	tion Capacity Analysis			Checked By:	OC
Junction lay	out sketch - J3: J/0 esign Year - 2016 L Time - Level	O Cape Collinson Road and Lin Shing Road Level 3 - Site 1 3 Peak Hour	GEOMETRIC DETAILS		GEOMETRIC PARA	METERS
N W1 Shek O Road (N)	0 403	ARM B Cape Collinson Road	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	res) res) res) res) res) res) res)	D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂		← 252 ^W 4 ARM	A C $q_{a-b} = 0$ (pcu) $q_{a-c} = 403$ (pcu)	(ARM A) /hr) /hr)	THE CAPACITY OF Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 639 711 302
			MAJOR ROAD W _{c-b} = 4.50 (met	(ARM C) res)	COMPARISION OF TO CAPACITY	DESIGN FLOW
REMARK: (GEO) W W _{cr}	IETRIC INPUT DATA) = AVERAGE MAJ = AVERAGE CEN	IOR ROAD WIDTH ITRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metr $q_{c-a} = 252$ (pcu/ $q_{c-b} = 0$ (pcu/	res) /hr) /hr)	DFC _{b-a} = DFC _{b-c} = DFC _{c-b} =	0.583 0.003 0.000
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE WIDTH A LANE WIDTH A LANE WIDTH A VISIBILITY TO VISIBILITY TO VISIBILITY TO VISIBILITY TO GEOMETRIC P. GEOMETRIC P. GEOMETRIC P. GEOMETRIC P. GEOMETRIC P. GEOMETRIC P. 	AVAILABLE TO VEHICLE WAITING IN STREAM B-A AVAILABLE TO VEHICLE WAITING IN STREAM B-C AVAILABLE TO VEHICLE WAITING IN STREAM C-B THE LEFT FOR VEHICLES WAITING IN STREAM B-A THE RIGHT FOR VEHICLES WAITING IN STREAM B-A THE RIGHT FOR VEHICLES WAITING IN STREAM B-C THE RIGHT FOR VEHICLES WAITING IN STREAM C-B PARAMETERS FOR STREAM B-C PARAMETERS FOR STREAM B-A PARAMETERS FOR STREAM B-A	MINOR ROAD W $b-a$ = 0.00 (met) W $b-a$ = 3.80 (met) VI $b-a$ = 100 (met) Vr $b-a$ = 100 (met) Vr $b-a$ = 100 (met) Q $b-a$ = 100 (met) Q $b-a$ = 176 (pcu) Q $b-c$ = 2 (pcu)	(ARM B) res) res) res) res) /hr) /hr)	Critical DFC =	0.583
affic Impact 'Asse tober 2007	sment Report					Page 3 of

	ROUNDABOUT CAPACITY ASSESSMENT					
TIA S	tudy for	r Columbarium Development at Cape Collinson Road		PROJECT NO.: 80510 PREPARED B	Y: KC Sep-13	
Junct	ion 4: C	Chai Wan Road Roundabout	J4LV3 Peak Hour	FILENAME2016_LV3_S1_J2_J5_J6_J7_J8.xls CHECKED B	Y: OC Sep-13	
J4LV:	3 Peak	Hour	-	REVIEWED B	Y: OC Sep-13	
			-			
				(ARM D)		
		(ARM D)		N 954.253933		
		Island Easter Corr	idor	A		
		+				
		[16] 406	[1] [2] [3] [4]	1031		
		[15] 498	10 280 424 240	00		
l		[14] 437		0 0		
l		[13] 5		0 0		
Chai	Wan Ro	bad \leftarrow	$ \begin{tabular}{cccccccccccccccccccccccccccccccccccc$	0 0		
(ARN	/I C)		(ARM A)	1345.847 804 O O 1163.689	966.9029	
l			Chan Wan Road	(ARM C) O O	(ARM A)	
		\downarrow	9 [5]	0 0		
			↑ ···	0 0		
			coo [6]			
			023 [0]	00		
		45 79 75 7	← 275 [7]	1203		
		[12] [11] [10] [9]	60 [8]			
			↓			
		Wan Tsui Road	1	206.781726		
		(ARM B)		(ARM B)		
ARM			A B C D			
INPU	T PARA	AMETERS:				
v	=	Approach half width (m)	7.00 4.00 7.00 7.00			
E	=	Entry width (m)	9.00 7.00 10.00 7.00			
L	=	Effective length of flare (m)	6.00 5.00 6.00 6.00			
R	=	Entry radius (m)	40.00 15.00 40.00 25.00			
	=	Inscribed circle diameter (m)	50.00 50.00 50.00 50.00			
D						
D A	=	Entry angle (degree)	30.00 35.00 36.00 30.00			
D A Q	=	Entry angle (degree) Entry flow (pcu/h)	30.00 35.00 36.00 30.00 967 207 1346 954			
D A Q Qc	= = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031			
D A Q Qc	= =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031			
D A Q Qc	= = = PUT PA	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031			
D A Q Qc OUTF S	= = = PUT PA =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00			
D A Q Qc OUTF S K	= = PUT PA = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01			
D A Q Qc OUTF S K X2	= = PUT PA = = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00			
D A Q Q OUTF S K X2 M	= = 2 PUT PA = = = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37			
D A Q OUTF S K X2 M F	= = = = = = = = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121			
D A Q OUTF S K X2 M F Td	= = = = = = = = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37			
D A Q OUTF S K X2 M F Td Fc	= = = = = = = = = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69			
D A Q Q OUTF S K X2 M F Td Fc Qe	= = = = = = = = = = = = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1587 804 1871 1425	Total In Sum = 2722.74	2 PCU	
D A Q Q Q C OUTF S K X2 M F Td F C Qe	= = = = = = = = = = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1587 804 1871 1425	Total In Sum = 2722.74	2 PCU	
D A Q Q C OUTF S K X2 M F Td F C Q e DFC	= = PUT PA = = = = = = =	Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc) Design flow/Capacity = Q/Qe	30.00 35.00 36.00 30.00 967 207 1346 954 1164 1203 804 1031 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1587 804 1871 1425 0.61 0.26 0.72 0.67	Total In Sum = 2722.74 DFC of Critical Approach = 0.72	2 PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME /3_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 254 \longrightarrow (3) 40 \longrightarrow $	N 🔭 Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.225Loss timeL =10Total Flow=1531Co= (1.5*L+5)/(1-Y)=25.8Cm= L/(1-Y)=12.9Yult=0.825R.C.ult=R.C.ult= (Yult-Y)/Y*100%=266.8Cp=0.9*L/(0.9-Y)=13.3Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=260.1	sec pcu sec sec %
(4) (4) (5) (5) (6) (6) (6) (6) (6)			
			1
Move- ment Stage Lane Phase No. of Radius Opposing Near- Straight- Mover ment Width Iane Traffic? side Ahead Left Straight- m. m. m. Iane? Sat. Flow pcu/h pcu	nent Total Proportion Sat. Flare lane sht Right Flow of Turning Flow Length /h pcu/h pcu/h Vehicles pcu/h m.	Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Saturation Queue Average X (m / lane) (seconds)
LT A 3.75 1 2 22 Y 4120 397 LT A 4.00 2 2 24 Y 4310 258 RT A 3.50 2 2 11 Y 4070 258 ST B 3.50 3 2 - Y 4070 258 RT B 4.50 3 2 13 Y 4070 258 Ped A 4.50 4 - - 13 Y 4070 258 Ped A 4.50 5 - - - - 4270 - 25 Ped A 4.50 5 -	397 1.00 3857 258 1.00 4056 582 582 1.00 3582 4 254 0.00 4070 40 40 1.00 3828	3857 0.103 41 65 4056 0.064 25 65 3582 0.162 0.162 65 65 4070 0.062 0.062 25 25 3828 0.010 4 25 65 4070 0.062 0.062 25 25 3828 0.010 4 25	0.158 9 5 0.098 6 5 0.250 15 5 0.250 15 24 0.042 0 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	КС 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME '/3_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road $(1) 102 (2) (2) (40 33 (1) 436 (1) (1) 5iu \ Sa (1) 706$	N M Wan Road	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.199Loss timeL =48Total Flow=1316Co= (1.5*L+5)/(1-Y)=96.1Cm= L/(1-Y)Cm= L/(1-Y)=90Yult=R.C.ult= (Yult-Y)/Y*100%=17.4Cp= 0.9*L/(0.9-Y)97=61.6Ymax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec %
$(1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (2) (2)$	6		
Move- Stage Lane Phase No of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat Flare land Share	Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straight	Right Flow of Turning Flow Length Effect	Sat. Flow y Greater L required (input)	Saturation Length Delay
LT/ST A 3.30 1 1 11 Y 1945 102 148 ST A 3.20 1 1 11 Y 1945 102 148 ST A 3.00 1 2 Y 3970 706 LT C 3.75 2 1 12 Y 1990 33 RT C 3.75 2 1 12 Y 1990 33 Ped B 11.00 3 Image: A strain and strain	pcu/h pcu/h Vehicles pcu/h m. pcu/hr 250 0.41 1843	r pcu/h y sec sec sec sec 1843 0.136 28 35 46 2075 0.139 36 46 3970 0.178 0.178 46 46 1769 0.019 5 6 6 1893 0.021 0.021 6 6	X (m / lane) (seconds) 0.292 18 12 0.299 24 12 0.383 30 11 0.336 0 48 0.383 6 49
	NOTES :	PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 73_S1_J2_J5_J6_J7_J8.xls Checked By:	0C 29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$) 3 Siu Sai Wan Road (5) (5) (5)	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.342Loss timeL =18Total Flow=999Co= (1.5*L+5)/(1-Y)=A8.6Cm= L/(1-Y)Cm= L/(1-Y)=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=118.4	sec pcu sec sec %
$(1) \xrightarrow{(6)} (7) (6)$ $(1) \xrightarrow{(1)} (1)$ $(1) \xrightarrow{(1)} (3)$ $(3) (2)$) (4) (4) (6) (6) (5) (5) (5) (5) (5) (5) (1= 6) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight-	Movement Total Proportion Sat. Flare lane	Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead L m. lane? Sat. Flow po	t Straight Right Flow of Turning Flow Length /h.pcu/h.pcu/h.pcu/h.Vehicles pcu/h.m.	pcu/hr pcu/h y Greater L (required (input)	X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 ST/RT A 3.30 1 1 11 12 2085 RT B 3.50 2 1 12 2105 LT A,B 3.75 3 1 13 y 1990 RT C 3.50 4 1 12 2105 LT/ST C 3.50 4 1 12 2105 LT/ST C 3.50 5 1 12 2105 ST/RT D 3.50 5 1 12 2105 LT/ST D 3.50 5 1 12 2105 LT/ST D 3.50 5 1 11 y 1965 Ped D,A,B 4.00 6 Ped B,C 4.00 7	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1911/2 Deals Hour Troffic Floure	PROJECT NO.: CTLDQS Prepared By:	RC 29-4-2011
2016 Level 3 Deak Hour - Site 1	J8LV3 - Peak Hour Trailic Flows	FILENAIVE 73_S1_J2_J5_J6_J7_J8.XIS CHECKED BY:	00 29-4-2011
		REFERENCE NO Reviewed by.	00 5-5-2011
$(1) 763 \longrightarrow (1) 710 \longrightarrow (1) $	N 🛶	No. of stages per cycleN =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Co= $(1.5*L+5)/(1-Y)$ =Cm= $L/(1-Y)$ =Yult=Cp= $0.9*L/(0.9-Y)$ =Cp= $0.9*L/(0.9-Y)$ =Ymax= $1-L/C$ =R.C. (C)= $(0.9*Ymax-Y)/Y*100\%$ =	3 105 sec 732 18 sec 1031 pcu 9.2 sec 7.0 sec 765 4.6 % 16.1 sec 829 1.9 %
$(1) \longrightarrow (5) (5) (5) (7) (7) (2) (3)$	 ← → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem ment Width Iane Traffic? side Ahead Left Straight-	ent Total Proportion Sat. Flare lane Sh t Right Flow of Turning Flow Length Ef	hare Revised g g tfect Sat. Flow y Greater L required (inp	Ut) Saturation Length Delay
ST A 3.50 1 2 n. Iane? Sat. Flow pcu/h	n pcu/h pcu/h Vehicles pcu/h m. pc 763 0.00 4070 710 710 1.00 1887 734 0.00 4210 125 1.00 1711 344 1.00 1832 199 354 1.00 1959	cu/hr pcu/h y sec sec </td <td>X (m / Iane) (seconds) 0.883 51 41 1.772 96 41 0.883 51 42 0.371 12 31 0.883 54 36 0.850 48 36</td>	X (m / Iane) (seconds) 0.883 51 41 1.772 96 41 0.883 51 42 0.371 12 31 0.883 54 36 0.850 48 36
	NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEU	ING LENGTH = AVERAGE QUEUE * 6m



TIA Study for Columbarium Development at Cane Collinson Road. Chai Wan		PROJECT NO CTLDOS Prenared By:	KC 29-4-2011
10: Junction of Chai Wan Boad and San Ha Street	1101 V3 - Peak Hour Traffic Flows	FILENAME /3 S1 12 15 16 17 18 xls Checked By:	0C 29-4-2011
2016 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) \begin{array}{c} 840 \\ 51 \end{array} \qquad $	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.497Loss timeL =10Total Flow=1858Co= (1.5*L+5)/(1-Y)=39.8Cm= L/(1-Y)Yult=0.825R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=22.3Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%	sec sec sec sec sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$			
Move- Stage Lane Phase No. of Radius O N Straight- Movem	ent Total Proportion Sat. Flare lane Share	are Revised g g	Degree of Queue Average
ment Width lane Ahead Left Straigh	Right Flow of Turning Flow Length Effect	ect Sat. Flow y Greater L required (input)	Saturation Length Delay
ST A 3.50 1 2 10 N 4070 840 ST A 3.50 1 2 10 N 4070 484 ST A 3.50 1 2 10 N 4070 484 LT B 3.00 2 1 10 N 1915 484 RT B 3.50 2 1 12 2105 105 484 Ped B 19.0 3 -	Brown pcurn venicies pcurn m. pcurn 840 0.00 4070 482 0.00 4070 484 51 51 51 51 1.00 1871 1871 1871 1871 100 1871 100 1871 100 1871 100 1871 100 1871 100 1871 100 1871 100 1871 100 </td <td>m pcum y sec sec sec sec 4070 0.206 0.206 37 47 4070 0.119 21 47 1665 0.291 0.291 53 53 1871 0.027 5 53 53</td> <td>A (m / lane) (seconds) 0.439 36 11 0.252 21 11 0.549 36 9 0.052 0 10</td>	m pcum y sec sec sec sec 4070 0.206 0.206 37 47 4070 0.119 21 47 1665 0.291 0.291 53 53 1871 0.027 5 53 53	A (m / lane) (seconds) 0.439 36 11 0.252 21 11 0.549 36 9 0.052 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPE	PEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	11111/2 Deale Hour Traffic Flows	PROJECT NO.: CTLDQS Prepared By:	кс <u>29-4-2011</u>
2016 Level 3 Deak Hour - Site 1	JILLV3 - Peak Hour Trailic Flows	PEEEPENCE NO : Reviewed By:	00 29-4-2011
		REFERENCE NO Reviewed by.	00 3-3-2011
Sheung On St. (1) 77 (1) 667	eet (4) 24 Chai Wan Road 630 (2) 116 (2)	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.258Loss timeL =37Total Flow=1886Co= (1.5*L+5)/(1-Y)=R.C.ult= V/(1-Y)=9Yult=0.623R.C.ult= (Yult-Y)/Y*100%=141.1Cp= 0.9*L/(0.9-Y)=9Ymax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec %
$(1) \longrightarrow (5) \longleftarrow (6)$ $(1) \longrightarrow (2)$ (3)	(5) <> (4) (4) (6) (7)		
Stage A I = 8 Stage B I = 5 Stage	C I = 7 Stage C I = 6		
Move- ment Stage Lane Width Phase No. of Iane Radius Opposing Traffic? Near- Side Straight- Ahead m. m. m. m. side Ahead	Movement Total Proportion Sat. Flare lane Sat. Left Straight Right Flow of Turning Flow Length I pcu/h pcu/h pcu/h vehicles pcu/h m. p	Share Revised Ettect Sat. Flow y Greater L required (input) ocu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 y 6175 LT/ST A 3.30 2 3 12 Y 6115 LT B 3.50 3 1 9 Y 1965 LT/RT D 3.75 4 2 10 y 4120 Ped B,C 4.00 5 5 10 y 4120 Ped B,C 5.00 6 10 10 10 10 10 10 Ped C 3.00 7 10	77 667 744 0.10 6096 116 630 746 0.16 5998 74 24 298 322 1.00 1684 100 1684 1.00 3583 1.00 1684 100 1684 1.00 1684 1.00 1684 100 1684 1.00 1684 1.00 1684 100 1684 1.00 1684 1.00 1684 100 1684 1.00 1684 1.00 1684 100 1684 1.00 1684 1.00 1684 100 1684 1.00 1684 1.00 1684 100 1684 1.00 1684 1.00 1684 100 1684 1.00 1684 1.00 1684	6096 0.122 39 5998 0.124 0.124 40 1684 0.044 0.044 14 3583 0.090 0.090 29 15 15 15	0.000 48 54 0.000 48 54 0.000 12 54 0.000 30 54
	NC	OTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

Appendix B3

2021 Peak Hour Junction Assessment Calculation Sheets

Valo	Ag	reement No. CPM301	_15/10 - Traffic Impact A	ssessment	t Study For Colu	umba	arium D	Developmen	t at C	Prepared B	/:	КС
	Jui	nction Capacity Anal	ysis							Checked By	:	00
Junction layo	ut sketch - J1: esign Year - 202 Time - Lev	J/O Cape Collinson Ro 1 Level 1 - Reference (/el 1 Peak Hour ARM D Lin Si	oad and Lin Shing Road Case ing Rd (N)		GEOMETRIC	DETA	ILS					
	_											
	\mathcal{N}	283 2	286		W ₁	=		(metres)		GEOMETRIC F	ARAMI	ETERS
	\mathbf{h}	1 1			W ₂	=	6.00	(metres)		X _A	=	0.922
					W ₃	=	3.00	(metres)		X _B	=	1.039
	-	↓ ↓			W_4	=	3.00	(metres)		X _C	=	0.586
				ARM A	W	=	6.00	(metres)		X _D	=	0.827
W ₁			W	3	W _{cr1}	=	0.00	(metres)		Y	=	0.793
ARM C					W cr2	=	0.00	(metres)		ZB	=	1.005
Cape W _{cr1}			Wa		W _{cr}	=	0.00	(metres)		Z _D	=	0.905
on			1 1	Collins								
Road W ₂			← 1 W	4 Road	MAJC	R RO	AD	(ARM A)		THE CAPACIT	OF M	OVEMENT
(W)			• <u> </u>	(E)	W _{a-d}	=	3.00	(metres)		Q _{b-a}	=	519
	•	ר ל ר			Vr _{a-d}	=	100	(metres)		Q _{b-c}	=	749
					q _{a-b}	=	0	(pcu/hr)		Q _{b-d} is nearsid	e =	TRUE
					q _{a-c}	=	1.0575	(pcu/hr)		Q _{b-d}	=	608
	2	8 255 20			q _{a-d}	=	10.518	(pcu/hr)		Q _{d-a}	=	674
	-									Q _{d-b} is nearsid	e =	TRUE
		ARM B Lin St	ning Rd (S)		MAJC	R RO	AD	(ARM C)		Q _{d-b}	=	528
					W _{c-b}	=		(metres)		Q _{d-c}	=	445
REMARK: (GEOM	ETRIC INPUT DA	TA)			Vr _{c-b}	=		(metres)		Q _{c-b}	=	440
W	= AVERAGE	VIAJOR ROAD WIDTH			q _{c-a}	=	0	(pcu/hr)		Q _{a-d}	=	616
W _{cr}	= AVERAGE (CENTRAL RESERVE WIDT	Ή		q _{c-b}	=	0	(pcu/hr)				
W _{a-d}	= LANE WIDT	H AVAILABLE TO VEHICL	E WAITING IN STREAM A-D		q _{c-d}	=	0	(pcu/hr)		COMPARISION	I OF DE	ESIGN FLOW
W _{b-a}	= LANE WIDT	H AVAILABLE TO VEHICL	E WAITING IN STREAM B-A							TO CAPACITY		
W _{b-c}	= LANE WIDT	H AVAILABLE TO VEHICL	E WAITING IN STREAM B-C		MINO	R RO	AD	(ARM B)		DFC b-a	=	0.039
W _{c-b}	= LANE WIDT	H AVAILABLE TO VEHICL	E WAITING IN STREAM C-B		W _{b-a}	=	5.00	(metres)		DFC b-c	=	0.038
W _{d-a}	= LANE WIDT	H AVAILABLE TO VEHICL	E WAITING IN STREAM D-A		W _{b-c}	=	5.00	(metres)		DFC b-d	=	0.419
W _{d-c}	= LANE WIDT	H AVAILABLE TO VEHICL	E WAITING IN STREAM D-C		VI _{b-a}	=	100	(metres)		DFC _{d-a}	=	0.424
Vr _{a-d}	= VISIBILITY	TO THE RIGHT FOR VEHIC	CLES WAITING IN STREAM A-I	C	Vr _{b-a}	=	65	(metres)		DFC _{d-b}	=	0.004
VI _{b-a}	= VISIBILITY	TO THE LEFT FOR VEHIC	ES WAITING IN STREAM B-A		Vr _{b-c}	=	0	(metres)		DFC _{d-c}	=	0.637
Vr _{b-a}	= VISIBILITY	TO THE RIGHT FOR VEHIC	CLES WAITING IN STREAM B-/	4	q _{b-a}	=	20.093	(pcu/hr)		DFC _{c-b}	=	0.000
Vr _{b-c}	= VISIBILITY	TO THE RIGHT FOR VEHIC	CLES WAITING IN STREAM B-	C	q _{b-c}	=	28	(pcu/hr)		DFC a-d	=	0.017
Vr _{c-b}	= VISIBILITY	TO THE RIGHT FOR VEHIC	CLES WAITING IN STREAM C-	В	q _{b-d}	=	254.73	(pcu/hr)				
VI _{d-c}	= VISIBILITY	TO THE LEFT FOR VEHIC	ES WAITING IN STREAM D-C							Critical DFC	=	0.637
Vr _{d-c}	= VISIBILITY	TO THE RIGHT FOR VEHIC	CLES WAITING IN STREAM D-	C	MINO	R RO	AD	(ARM D)				
Vr _{d-a}	= VISIBILITY	TO THE RIGHT FOR VEHIC	CLES WAITING IN STREAM D-	A	W _{d-a}	=	3.00	(metres)				
X _A	= GEOMETRI	C PARAMETERS FOR STR	REAM A-D		W _{d-c}	=	3.00	(metres)				
X _B	= GEOMETRI	C PARAMETERS FOR STR	REAM B-A		VI _{d-c}	=	50	(metres)				
X _C	= GEOMETRI	C PARAMETERS FOR STR	REAM C-B		Vr _{d-c}	=	50	(metres)				
X _D	= GEOMETRI	C PARAMETERS FOR STR	REAM D-C		Vr _{d-a}	=	80	(metres)				
Z _B	= GEOMETRI	C PARAMETERS FOR STR	REAM B-C		q _{d-a}	=	286	(pcu/hr)				
Z _D	= GEOMETRI	C PARAMETERS FOR STR	REAM D-A		q _{d-b}	=	2	(pcu/hr)				
Y	= (1-0.0345W))			q _{d-c}	=	283	(pcu/hr)				

TRAFFIC SIGNAL CALCULATION		INITIALS DATE	
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011	
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 1_Ret_J2_J5_J6_J7_J8.xls Checked By: OC 29-4-2011	
ZUZI LEVELI PEAK HOUR - KETERENCE Case	1	KEFEKENCE NO.: Reviewed By: OC 3-5-2011	
$(1) 371 \longrightarrow 0 10$	N Xuan Tsui Road	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.533Loss timeL =25 secTotal Flow=1341 pcuCo= $(1.5*L+5)/(1-Y)$ =91.0 secCm= $L/(1-Y)$ Cm= $L/(1-Y)$ =7ult=0.713R.C.ult= $(Yult-Y)/Y*100\%$ =A.C.(C)= $(0.9*L/(0.9-Y))$ =61.3 secYmax $1-L/C$ =0.792R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =33.7 %	
$(1) \longrightarrow (3)$	(4)		
Move- ment Stage Width Lane No. of lane No. of lane Radius Movement N Straight- Ahead Movement m. m. m. Straight- Sat. Flow Straight- pcu/h Movement	ent Total Proportion Sat. Flare Right Flow of Turning Flow Ler pcu/h pcu/h Vehicles pcu/h r	e lane Share Revised y Greater L required (input) Saturation Length m. pcu/hr pcu/h y S Greater sec sec sec X (m / lane)	Average Delay (seconds)
ST A 3.00 1 1 N 1915 371 ST/LT A 4.00 1 1 10 N 2015 690 280 Ped B 6.0 3 Image: Constraint of the second sec	371 0.00 1915 970 0.71 1821	1915 0.194 35 95 0.245 12 1821 0.533 0.533 95 95 0.673 36 20 1 1 1 1 1 1 1821 1 1 1 1 1 1 1821 1	2 3
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN V	WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m	

12al		Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Developmer	nt at Prepared By: KC
11010		Junction Capacity Analysis		Checked By:
Junction lay	vout sketch ∘ Design Year Time ∘	- J3: J/O Cape Collinson Road and Lin Shing Road - 2021 Level 1 - Reference Case - Level 1 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
𝔊 ↓ W₁ Shek O Road ₩cr1	0 177	ARM B Cape Collinson Road	W_1 = 3.90 (metres) W_2 = 3.90 (metres) W_3 = 4.80 (metres) W_4 = 4.50 (metres) W = 8.55 (metres) W_{cr1} = 0.00 (metres) W_{cr2} = 0.00 (metres) W_{cr} = 0.00 (metres)	$\begin{array}{cccc} D & & 0.626 \\ E & = & 0.996 \\ F & = & 1.109 \\ Y & = & 0.705 \end{array}$
ARM A W ₂		← 182 ^W ₄ (0) ← 182 ARM C	MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 177$ (pcu/hr) MAJOR ROAD (ARM C)	THE CAPACITY OF MOVEMENT $Q_{b-c} = 697$ $Q_{c-b} = 776$ $Q_{b-a} = 346$ COMPARISION OF DESIGN FLOW
REMARK: (GEO)		Τ ΠΔΤΔ)	$Vr_{cb} = 4.50$ (metres)	$DEC_{1} = 0.769$
W W _{cr}	= AVER = AVER	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$q_{c-a} = \frac{182}{0} (pcu/hr)$ $q_{c-b} = 0 (pcu/hr)$	$DFC_{b-c} = 0.015$ $DFC_{c-b} = 0.000$
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F Y	 LANE LANE LANE VISIBI VISIBI VISIBI VISIBI GEOM GEOM GEOM GEOM (1-0.03) 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B ILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A ILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A ILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C ILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B METRIC PARAMETERS FOR STREAM B-C METRIC PARAMETERS FOR STREAM B-A METRIC PARAMETERS FOR STREAM B-A METRIC PARAMETERS FOR STREAM C-B 345W)	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 3.80(metres) $VI_{b-a} =$ 100(metres) $Vr_{b-a} =$ 100(metres) $Vr_{b-c} =$ 100(metres) $q_{b-a} =$ 266(pcu/hr) $q_{b-c} =$ 10(pcu/hr)	Critical DFC = 0.769

			ROUNDABOUT C	CAPACITY ASSESS	MENT			INITIALS	DATE
TIA Stu	udy foi	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510		PREPARED BY:	KC	Sep-13
Junctic	on 4: C	Chai Wan Road Roundabout	J4LV1 Peak Hou	r	FILENAME2021_LV1_Ref_J2_J5	_J6_J7_	J8.xls CHECKED BY:	OC	Sep-13
J4LV1	Peak	Hour					REVIEWED BY:	OC	Sep-13
					-				
					(ARM E	D)			
		(ARM D)		Ν	1043.0455	53			
		Island Easter Corri	dor	+					
		<u>†</u>							
		[16] 446	[1] [2] [3]	[4]	109	6			
		[15] 435	13 197 552	281	00				
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Chaill	lan D				ő	0			
			/			0	1110 007	000 4057	
(ARM	C)		(AF	(M A) 12	55.27 1065 U	0	1146.337	939.4657	
				han Wan Road (ARI	M C) O	0		(ARM A)	
		▲┐ ▲ □→ □	12 [5]		0	0			
1					0	0			
1			468 [6]		00				
		21 298 265 10	◄ 126 [7]		819	Э			
		[12] [11] [10] [9]	334 [8]						
		Wan Tsui Road	*		593.46093	35			
		(APM B)			(APM	R)			
						0)			
ARM			АВС	D					
INPUT	PARA	AMETERS:							
-									
v	=	Approach half width (m)	7.00 4.00 7.00 7.0	00					
E	=	Entry width (m)	9.00 7.00 10.00 7.0	00					
L	=	Effective length of flare (m)	6.00 5.00 6.00 6.0	00					
R	=	Entry radius (m)	40.00 15.00 40.00 25	5.00					
D	=	Inscribed circle diameter (m)	50.00 50.00 50.00 50	0.00					
A	=	Entry angle (degree)	30.00 35.00 36.00 30	0.00					
Q	=	Entry flow (pcu/h)	939 593 1255	1043					
Qc	=	Circulating flow across entry (pcu/h)	1146 819 1065	1096					
		RAMETERS							
s	=	Sharpness of flare = 1.6(E-V)/L	0.53 0.96 0.80	0.00					
ĸ	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02 0.97 1.00	1.01					
X2	=	V + ((E-V)/(1+2S))	7.97 5.03 8.15	7.00					
М	=	EXP((D-60)/10)	0.37 0.37 0.37	0.37					
F	=	303*X2	2414 1523 2471	2121					
Td	=	1+(0.5/(1+M))	1.37 1.37 1.37	1.37					
Fc	=	0.21*Td(1+0.2*X2)	0.74 0.58 0.75	0.69					
Qe	=	K(F-Fc*Qc)	1600 1017 1673	1380	Total In Sum =		2749.739	PCU	
DFC	=	Design flow/Capacity = Q/Qe	0.59 0.58 0.75	0.76	DFC of Critical Approa	ach =	0.76		

TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJE	CT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows FILEN	AME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case	REFER	ENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 338 \longrightarrow \\ (3) 79 \checkmark \\ (2) $	N X Sum(y Loss ti Total I Co Wing Tai Road Yult R.C.ul Cp Ymax R.C.(C	stages per cycleN =2timeC =100 $i)$ Y =0.299imeL =10Flow=1949= (1.5*L+5)/(1-Y)=28.5= L/(1-Y)=14.3= 0.825t=t=(1.9*L/(0.9-Y)== 1-L/C=0.900:)=(0.9*Ymax-Y)/Y*100%=	sec pcu sec sec % sec %
(4) (4) (4) (5) (5) (6)			
Stage A I = 7 Stage B I = 5			
Move- ment Stage Width m. Lane Phase Midth No. of Iane Radius m. Opposing Traffic? Near- side Straight- Ahead Movem Left Straight- Straight	nt Total Proportion Sat. Flare lane Share Revi Right Flow of Turning Flow Length Effect Sat. F pcu/h pcu/h Vehicles pcu/h m. pcu/hr pcu	sed Flow y Greater L required (input) 1/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT A 3.75 1 2 22 y 4120 498 LT A 4.00 2 2 24 4310 261 RT A 3.50 2 2 11 y 4070 338 ST B 3.50 3 2 - y 4070 338 RT B 4.50 3 2 13 y 4270 4270 498 Ped A 4.50 5 -	498 1.00 3857 385 261 1.00 4056 405 773 773 1.00 3582 358 338 0.00 4070 407 79 79 1.00 3828 382	i7 0.129 39 65 i6 0.064 19 65 i2 0.216 0.216 65 65 i0 0.083 0.083 25 25 i8 0.021 6 25	0.199 12 5 0.099 6 5 0.332 21 5 0.332 21 24 0.083 3 25
	NOTES : PEDES	STRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIG	GNAL CA	LCULATI	ON																				INITIALS	DATE	
TIA Study	y for Col	umbariu	m Devel	opment	at Cape	Collinsor	n Road, O	Chai Wan			-						PROJECT N	0.:	CTLDQS		Prepared	By:	КС	29-4-2011	
J6: Juncti	ion of Siu	u Sai Wa	n Road a	and Harn	nony Ro	ad					J6LV1 -	Peak Hou	Ir Traffic Flows				FILENAME	1_Ref_J2	_J5_J6_J7	_J8.xls	Checked	By:	OC	29-4-2011	
2021 Lev	el 1 Pea	k Hour -	Referer	ice Case													REFERENCE	NO.:			Reviewed	d By:	OC	3-5-2011	
				(1) (1)	136 — 491 —	Hai	rmony R (2) 90	(2) 73		Siu Sai 836	Wan Ro	bad	N				No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	= (1.5*L+ = L/(1-Y) = (Yult-Y = 0.9*L/ = 1-L/C = (0.9*Y)	:le -5)/(1-Y))/Y*100% (0.9-Y) nax-Y)/Y*	100%	N = C = L = = = = = = =	3 100 0.258 48 1627 103.8 64.7 0.540 109.0 67.3 0.520 81.2	sec pcu sec sec sec % sec %		
(1) (1) Stag)	· • •	10	(5) Staį	 ↓ ↓	(3) ► ▲	(4)	(2)		(2)	6														
Move-	Stage	Lane	Phase	No. of	Radius	Opposing	Near-	Straight-	N	loveme	nt	Total	Proportion	Sat.	Flare lane	Share	Revised				g	g	Degree of	Queue	Average
ment		Width		lane	m	Traffic?	side	Ahead	Left	Straight	Right	Flow	of Turning	Flow	Length	Effect	Sat. Flow	У	Greater	L	(required)	(input)	Saturation	Length	Delay (seconds)
LT/ST ST ST LT RT Ped Ped Ped	A A C C B B B B	3.30 3.20 3.00 3.75 3.75 11.00 6.50 6.50	1 1 2 2 3 4 5	1 1 2 1 1	11 12 12		y y y y	1945 2075 3970 1990 2130	136 73	152 339 836	90	288 339 836 73 90	0.47 0.00 0.00 1.00 1.00	1827 2075 3970 1769 1893		<u>- pcu/m</u>	1827 2075 3970 1769 1893	0.158 0.164 0.211 0.041 0.048	у 0.211 0.048	28 20	32 33 42 8 10	42 42 42 10 10	0.372 0.386 0.497 0.428 0.497	24 30 39 6 12	14 14 13 42 44
																NOTES :	PEDESTRAI	N WALKI	NG SPEED	= 1.2m	ı/s	QUEUING	LENGTH = AV	/ERAGE QU	EUE * 6m

	│		ГТ
TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	0C 3-5-2011
Bus Terminal (1) 50 (1) 148 (1) 148 (1) (1) 110 (1) 110 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	N X	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.375Loss timeL =18Total Flow=1389Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=2 Cm= L/(1-Y)=2 R.C.ult= (Yult-Y)/Y*100%=104.2Cp=0.9*L/(0.9-Y)2 Max= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=99.1	sec sec pcu sec sec % sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (3) (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	$(4) \qquad (6) \\ (5) $		
Move- ment Stage Width m. Lane Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Movem Straight- Iane	ent Total Proportion Sat. Flare lane Shar nt Right Flow of Turning Flow Length Effec n pcu/h pcu/h Vehicles pcu/h m. pcu/l	rre Revised ect Sat. Flow y Greater L required (input) /hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.30 1 1 11 11 y 1945 50 81 ST/RT A 3.30 1 1 12 2085 67 RT B 3.50 2 1 12 2105 67 LT A,B 3.75 3 1 13 y 1990 154 RT C 3.50 4 1 12 2105 154 LT/ST C 3.50 4 1 12 2105 154 LT/ST C 3.50 5 1 12 2105 0 LT/ST D 3.50 5 1 12 2105 0 LT/ST D 3.50 5 1 11 y 1965 101 116 Ped D,A,B 4.00 6 1 1 1 1 1 1 1 1 1 1	131 0.38 1849 110 177 0.62 1935 29 29 1.00 1871 154 1.00 1784 191 191 1.00 1871 295 0.72 1803 194 194 1.00 1871 217 0.47 1848	1849 0.071 18 1935 0.091 0.091 21 21 1871 0.016 0.016 4 4 1784 0.086 20 30 1871 0.102 24 38 1803 0.164 0.164 38 38 1871 0.104 0.104 24 24 1848 0.117 27 27 27	0.350 18 30 0.452 24 31 0.452 0 64 0.303 18 23 0.282 18 18 0.452 30 18 0.452 30 18 0.452 30 18 0.452 24 28 0.452 24 26
	NOTES	S: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO · CTI DOS Prepared By:	INITIALS DATE
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 1 Ref J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 738 (1) 738 (1) 386 (1) 738 (1) 73	N	REFERENCE NO.:Reviewed By:No. of stages per cycleN =3Cycle timeC =105 stagesSum(y)Y =0.557Loss timeL =18 stagesTotal Flow=2543 stagesCo=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=Yult=0.765R.C.ult=(Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)=47.3 stagesYmax=1-L/C=0.829R.C.(C)=(0.9*Ymax-Y)/Y*100%=33.8 stages	OC 3-5-2011 sec
$(1) \longrightarrow (5) (5) (5) (7) (2) (3)$	 ←→ (6) I = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- M ment Width Iane Traffic? side Ahead Left m. m. Iane? Sat. Flow pcu/h	straight Right Flow of Turning Flow Length pcu/h pcu/h pcu/h Vehicles pcu/h m.	ShareRevisedggEffectSat. FlowyGreaterL(required (input)pcu/hrpcu/hysecsecsec	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 y 4070 RT A 3.50 1 1 13 2105 4210 ST B 3.50 2 2 4210 4210 LT B 3.10 2 1 12 y 1925 57 LT C 4.00 3 1 15 y 2015 402 LT/RT C 4.00 3 1 15 y 2015 402 LT/RT C 4.00 3 1 15 y 2015 402 LT/RT C 4.00 3 1 15 y 2155 163 Ped A 4.50 4 it	738 738 0.00 4070 386 386 1.00 1887 562 562 0.00 4210 57 1.00 1711 402 1.00 1832 235 398 1.00 1959	4070 0.181 18 28 28 1887 0.205 0.205 32 28 4210 0.134 0.134 21 21 1711 0.033 5 21 1832 0.219 0.219 34 34 1959 0.203 4 4 4	0.673 45 24 0.759 48 30 0.673 39 30 0.168 6 30 0.673 42 22 0.623 42 21
	Ν	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case	REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 1034 23 (1) 1034 (1)	No. of stages per cycle $N = 2$ Cycle time $C = 100$ so Sum(y) $Y = 0.477$ Loss time $L = 10$ so Total Flow $= 1996$ p Co $= (1.5*L+5)/(1-Y) = 38.2$ so Cm $= L/(1-Y) = 0.825$ Cm $= L/(1-Y) = 0.825$ Number $N = 0.825$ R.C.ult $= (Yult-Y)/Y*100\% = 73.0$ % Cp $= 0.9*L/(0.9-Y) = 21.3$ so Ymax $= 1-L/C = 0.900$ R.C.(C) $= (0.9*Ymax-Y)/Y*100\% = 69.9$ %	;ec ;ec ;ec ;ec ;ec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (2)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$		
Move- Stage Lane Phase No. of Radius O N Straight- Mov	ment Total Proportion Sat. Flare lane Share Revised g g I	Degree of Queue Average
ment Width lane Ahead Left Str	ight Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required (input) S	Saturation Length Delay
ST A 3.50 1 2 10 N 4070 10 ST A 3.50 1 2 10 N 4070 10 ST A 3.50 1 2 10 N 4070 5 LT B 3.00 2 1 10 N 1915 371 RT B 3.50 2 1 12 2105 2105 371 Ped B 19.0 3 -	34 1034 0.00 4070 4070 0.254 0.254 0.254 48 47 38 568 0.00 4070 4070 0.140 26 47 371 1.00 1665 1665 0.223 0.223 42 53 23 23 1.00 1871 1871 0.012 2 53	0.540 45 10 0.297 24 11 0.421 24 9 0.023 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAC	GE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION	ChaiWan			INITIALS DATE
111: Junction of Chai Wan Road, Sheung On Street & Wing Ping Str		ic Flows		Checked By: OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case			REFERENCE NO ·	Reviewed By: OC 3-5-2011
			REFERENCE NO	
(1) 95 (1) 945 (1) 945 34 (3) Wing Ping Street	ung On Street (4) (4) 338 21 Chai Wan Road 780 (2) 147 (2) t	N	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 4 C = 120 sec Y = 0.275 L = 37 sec = 2361 pcu = 83.4 sec = 51.0 sec = 0.623 = 126.4 % = 53.3 sec = 0.692 = 126.4 %
$(1) \longrightarrow (5) \longleftarrow (6)$ $(1) \longrightarrow (2) \qquad (3)$	(5) • • (4) • (6) • (7)	(4)		
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C	I = 6		
Move- ment Stage Lane Width Phase Iane No. of Iane Radius Traffic? Opposing Side Iane ? Near- Side Iane ?	Straight- Movement Total Prop Ahead Left Straight Right Flow of Tu Sat. Flow pcu/h pcu/h pcu/h ver/h Ver/h	ortion Sat. Flare lane Sh Irning Flow Length Eff icles pcu/h m. pcu	hare Revised Hect Sat. Flow y Greater L Lu/hr pcu/h y sec	g g Degree of Queue Average required (input) Saturation Length Delay sec sec X (m / lane) (seconds
LT/ST A 3.50 1 3 12 y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT B 3.50 3 1 9 Y LT D 3.75 4 2 10 y Ped B,C 4.00 5 - - - Ped B,C 5.00 6 - - - Ped C 3.00 7 - - - - Image: Comparison of the state of the st	6175 95 945 1041 6115 147 780 927 1965 34 34 4120 21 338 360	0.09 6105 0.16 5996 1.00 1684 1.00 3583	6105 0.170 5996 0.155 0.155 1684 0.020 0.020 3583 0.100 0.100 15	51 0.000 68 54 47 0.000 60 54 6 0.000 6 54 30 0.000 33 54
		NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m/	/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Palcro	Agreement No. CPM301_15/10 - Traffic Impact Assessr	nent Study For Columbarium Developm	ent a Prepared By: K	C
<i>iuici</i> u	Junction Capacity Analysis		Checked By: O	С
unction layout sk Design ו	etch - J1: J/O Cape Collinson Road and Lin Shing Road Year - 2021 Level 1 - Site 1 Fime - Level 1 Peak Hour			
	ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
${\mathcal N}$	294 3 308	W ₁ = (metres)	GEOMETRIC PARAMET	ERS
♠		$W_2 = 6.00$ (metres)	X _A =	0.922
		$W_3 = 3.00$ (metres)	X _B =	1.039
		$W_4 = 3.00$ (metres)	X _c =	0.586
		W = 6.00 (metres)	X _D =	0.827
W ₁	W ₃	W _{cr1} = 0.00 (metres)	Y =	0.793
IC_		W _{cr2} = 0.00 (metres)	Z _B =	1.005
W _{cr1}	W _{cr2} Cape	W _{cr} = 0.00 (metres)	Z _D =	0.905
ns	12 0n			
d W ₂	← 1 W₄ Road	MAJOR ROAD (ARM A)	THE CAPACITY OF MOV	'EMENT
)	0 (E)	W _{a-d} = 3.00 (metres)	Q _{b-a} =	510
		Vr _{a-d} = 100 (metres)	Q _{b-c} =	749
		q _{a-b} = <mark>0</mark> (pcu/hr)	Q _{b-d} is nearside =	TRUE
		q _{a-c} = <mark>1.0575</mark> (pcu/hr)	Q _{b-d} =	608
	30 274 20	q _{a-d} = <mark>11.518</mark> (pcu/hr)	Q _{d-a} =	674
			Q _{d-b} is nearside =	TRUE
	ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	Q _{d-b} =	527
		W _{c·b} = (metres)	Q _{d-c} =	439
ARK: (GEOMETRIC	CINPUT DATA)	Vr _{c·b} = (metres)	Q _{c-b} =	440
W =	AVERAGE MAJOR ROAD WIDTH	q _{c·a} = <mark>0</mark> (pcu/hr)	Q _{a-d} =	616
W _{cr} =	AVERAGE CENTRAL RESERVE WIDTH	q _{c·b} = <mark>0</mark> (pcu/hr)		
W _{a-d} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c·d} = <mark>0</mark> (pcu/hr)	COMPARISION OF DESI	GN FLOW
W _{b-a} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A		TO CAPACITY	
W _{b-c} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	DFC _{b-a} =	0.039
W _{c-b} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	W _{b-a} = 5.00 (metres)	DFC _{b-c} =	0.041
W _{d-a} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres)	DFC _{b-d} =	0.451
W _{d-c} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$VI_{b-a} = 100$ (metres)	DFC _{d-a} =	0.457
Vr _{a•d} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{b-a} = 65$ (metres)	DFC d-b =	0.005
VI _{b-a} =	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{b-c} = 0$ (metres)	DFC d-c =	0.669
Vr _{b-a} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	$q_{b-a} = 20.093 (pcu/hr)$	DFC _{c-b} =	0.000
Vr _{b-c} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{b-c} = 30.438 (pcu/hr)$	DFC a-d =	0.019
Vr _{c-b} =		$q_{b-d} = 274.07$ (pcu/nr)	Critical DEC	0 660
VI _{d-c} =				0.009
VI _{d-c} =				
vi _{d-a} =		$vv_{d-a} = 3.00$ (metres)		
∧ _A =		$vv_{d-c} = 3.00$ (metres)		
∧ _B =		$v_{1_{d-c}} = 50$ (metres)		
∧ _C =		$v_{1 d-c} = 20$ (metres)		
∧ _D =		$v_{1 d-a} = 80$ (metres)		
∠ _B =		$q_{d-a} = 308.23 (pcu/nr)$		
∠ _D =		$q_{d-b} = 2.50b (pcu/nr)$		
T =	(1-0.034500)	$q_{d-c} = 23.79 (pcu/nl)$		

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDOS Prepared By: GK 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME : 2021 LV1 \$1.xls Checked Bv: KC 29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011
$(1) 371 \qquad \qquad$	Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.552Loss timeL =25 secTotal Flow=1374 pcuCo= $(1.5*L+5)/(1-Y)$ =94.8 secCm=Cm= $L/(1-Y)$ =55.8 secYult=R.C.ult= $(Yult-Y)/Y*100\%$ =29.1 %Cp= $0.9*L/(0.9-Y)$ Ymax= $1-L/C$ =0.792R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =29.1 %
(1) (3) Stage A 1= 7 Stage B 1= Stage C	(4) I =	
Move- ment Stage Width Lane Phase Iane No. of Iane Radius M. O N Straight- Ahead N m. m. m. Sat. Flow pcu/h Sat. Flow pcu/h Sat. Flow pcu/h Sat. Flow pcu/h	ovement Total Proportion Sat. Flare Straight Right Flow of Turning Flow Leng pcu/h pcu/h pcu/h Vehicles pcu/h m	Iane Share Revised y Greater L g g Degree of Queue Average gth Effect Sat. Flow y Greater L required (input) Saturation Length Delay i. pcu/hr pcu/hr pcu/h y sec sec sec x (m / lane) (second)
ST A 3.00 1 1 N 1915 ST/LT A 4.00 1 1 10 N 2015 723 Ped B 6.0 3 Image: State of the state o	371 371 0.00 1915 280 1003 0.72 1818	1915 0.194 33 95 0.245 12 2 1818 0.552 0.552 95 0.697 36 4 101 101 101 101 101 101 101 101 101 111 101 <t< td=""></t<>
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GR	EN FG - FLASHING GREEN PEDESTRAIN W	ALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Kal	Agreer	ment No. CPM301_15/10 - Traffic Im	pact Assessment	t Study For Colu	umbarium	Developme	nt at	Prepared By	:	КС
	Junctio	on Capacity Analysis						Checked By		00
Junction lay	out sketch - J3: J/O lesign Year - 2021 Le Time - Level 1	Cape Collinson Road and Lin Shing Ro evel 1 - Site 1 Peak Hour	pad	GEOMETRIC D	DETAILS			GEOMETRIC PA	ARAME	ETERS
N Shek O Road (N)	0 177	ARM B Cape Collinson Road	W ₃ Shek O W _{cr2} Road	W ₁ W ₂ W ₃ W ₄ W w or1 W _{or2} W _{or}	= 3.90 = 3.90 = 4.80 = 4.50 = 8.55 = 0.00 = 0.00 = 0.00	(metres) (metres) (metres) (metres) (metres) (metres) (metres)		D E F Y	= =	0.626 0.996 1.109 0.705
ARM A W ₂		↓ 182	2 W ₄ (9) ARM C	MAJOF q _{a-b} q _{a-c}	R ROAD = 0 = 176.61	(ARM A) (pcu/hr) (pcu/hr)		THE CAPACITY Q _{b-c} Q _{c-b} Q _{b-a}	OF M(= = =	OVEMENT 697 776 346
				MAJOF W _{c-b}	R ROAD = <mark>4.50</mark>	(ARM C) (metres)		COMPARISION TO CAPACITY	OF DE	SIGN FLOW
REMARK: (GEO) W W _{cr}	METRIC INPUT DATA) = AVERAGE MAJO = AVERAGE CENT	DR ROAD WIDTH RAL RESERVE WIDTH		Vr _{c-b} q _{c-a} q _{c-b}	= 150 = 181.9 = 0	(metres) (pcu/hr) (pcu/hr)		DFC _{b-a} DFC _{b-c} DFC _{c-b}	= = =	0.804 0.016 0.000
W b-a W c-b VI b-a VI b-a VI b-c VI c-b D E F	 LANE WIDTH AV LANE WIDTH AV LANE WIDTH AV VISIBILITY TO TH VISIBILITY TO TH VISIBILITY TO TH VISIBILITY TO TH GEOMETRIC PAI GEOMETRIC PAI GEOMETRIC PAI GEOMETRIC PAI 	AILABLE TO VEHICLE WAITING IN STREAM AILABLE TO VEHICLE WAITING IN STREAM AILABLE TO VEHICLE WAITING IN STREAM HE LEFT FOR VEHICLES WAITING IN STREA HE RIGHT FOR VEHICLES WAITING IN STREA HE RIGHT FOR VEHICLES WAITING IN STREA HE RIGHT FOR VEHICLES WAITING IN STREA RAMETERS FOR STREAM B-C RAMETERS FOR STREAM B-A RAMETERS FOR STREAM C-B	B-A B-C C-B M B-A AM B-A AM B-C AM C-B	MINOR W _{b-a} W _{b-c} VI _{b-a} Vr _{b-a} Vr _{b-c} q _{b-a} q _{b-c}	ROAD = 0.00 = 3.80 = 100 = 100 = 277.71 = 11.286	(ARM B) (metres) (metres) (metres) (metres) (pcu/hr) (pcu/hr)		Critical DFC	=	0.804
affic Impact ^Y Asse ctober 2007	sment Report									Page 3 of

ROUNDABOUT CAPACITY ASSESSMENT									INITIALS	DATE
TIA Study for Columbarium Development at	Cape Collinson Road				PROJECT NO .:	8051	D	PREPARED BY	: KC	Sep-13
Junction 4: Chai Wan Road Roundabout	J4LV	'1 Peak Ho	ur		FILENAME :	2021_LV1_	_S1.xls	CHECKED BY	OC	Sep-13
J4LV1 Peak Hour								REVIEWED BY	OC	Sep-13
						(4.04				
							1 D)			
	(ARM D)			N		1067.17	086			
	Island Easter Corridor			t						
	1									
[16] 446	[1]	[2] [3]	[4]	I		11	108			
[15] 4 <u>36</u>	13	198 575	281			00)			
[14] 379						0	0			
[13] <u>3</u>						0	0			
Chai Wan Road	\leftarrow \land \land \Box		L_ >			0	0			
(ARM C)	()		(ARM A)	1264.405	5 .	1089 O	0	1177.953	951.4859	
			Chan Wan Road	(ARM C)		0	0		(ARM A)	
		- 12 [5]		(-)		0	0		()	
		[0]				0	0			
		470 [0]				0	, U			
	+	476 [6]				00) 			
21 311 268	10	— 127 [7]				8	329			
[12] [11] [10]	[9]	- 337 [8]								
	¥									
	Wan Tsui Road					609.479	301			
	(ARM B)					(AR	M B)			
ARM	A	B C	D							
NPUT PARAMETERS:										
/ = Approach half width (m)	7.00	4.00 7.00	7.00							
= Entry width (m)	9.00	7.00 10.00	7.00							
Entry and live (m)	6.00	5.00 6.00	6.00							
x = Entry radius (m)	40.00	15.00 40.00	20.00							
= inscribed circle diameter (m)	50.00 30.00	35.00 36.00	30.00							
= Entry angle (degree)	951	609 1264	1067							
$Q_{c} = Circulating flow across entry ($	pcu/h) 1178	829 1089	1108							
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	020 1000								
S = Sharpness of flare = $1.6/F_{-1/1/2}$	/ 0.53	0.96 0.80	0.00							
<pre>< = 1-0.00347(A-30)-0.978(1/R-0.</pre>	.05) 1.02	0.97 1.00	1.01							
(2 = V + ((E-V)/(1+2S))	, 7.97	5.03 8.15	7.00							
M = EXP((D-60)/10)	0.37	0.37 0.37	0.37							
= = 303*X2	2414	1523 2471	2121							
Td = 1+(0.5/(1+M))	1.37	1.37 1.37	1.37							
$Fc = 0.21^{T}d(1+0.2^{X}2)$	0.74	0.58 0.75	0.69							
Qe = K(F-Fc*Qc)	1576	1011 1655	1372		Total In Sum =			2807.905	PCU	
DFC = Design flow/Capacity = Q/Qe	0.60	0.60 0.76	0.78		DFC of Crit	tical Appro	bach =	0.78		

			DATE
TIA Study for Columbarium Development at Cape Collinson Road	d, Chai Wan	PROJECT NO.: CTLDQS Prepared By: GK 29-	4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls Checked By: KC 29-	4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-	-2011
$(3) 342 \longrightarrow (3) 79 \longrightarrow (2) 774 (2) 774 (2) Chai V$	Wing Tai Road + 498 (1) Wan Road	No. of stages per cycleN =2Cycle timeC =100 secSum(y)Y =0.300Loss timeL =10 secTotal Flow=1958 pcuCo= (1.5*L+5)/(1-Y)=28.6 secCm= L/(1-Y)=14.3 secYult=0.825R.C.ult=R.C.ult= (Yult-Y)/Y*100%=174.9 %Cp=0.9*L/(0.9-Y)=15.0 secYmax=1-L/C=0.900R.C.(C)=(0.9*Ymax-Y)/Y*100%=169.9 %	
(4) (4) (5) (5) (6) (6) (6) (6) (6)			
		-	
Move- ment Stage Lane Phase No. of Radius Opposing Near- Width m. Iane m. Traffic? side Iane?	r- Straight- Movement Total Proportion Sat. e Ahead Left Straight Right Flow of Turning Flow ? Sat. Flow pcu/h pcu/h pcu/h pcu/h Vehicles pcu/	Flare lane Share Revised g g Degree of Qu / Length Effect Sat. Flow y Greater L required (input) Saturation Length h m. pcu/hr pcu/h y sec sec sec X (m)	ueue Average ength Delay / lane) (seconds
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 4 1 1 1 1 Ped A 4.50 6 1 1 1 1 1 Ped B 4.50 6 1 1 1 1 1 Ped B 4.50 6 1 1 1 1 1	4120 498 498 1.00 3857 4310 265 265 1.00 4056 4070 774 774 1.00 3582 4070 342 342 0.00 4070 4270 79 79 1.00 3828	3857 0.129 39 65 0.199 4056 0.065 20 65 0.101 3582 0.216 0.216 65 65 0.333 4070 0.084 0.084 25 25 0.333 3828 0.021 6 25 0.082	12 5 6 5 21 5 21 24 3 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	GK 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls Checked By:	KC 29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road $(1) 136 \underbrace{(2) (2)}_{90} 73 \underbrace{(1) 492 \underbrace{(1) 492 \underbrace{(1) 5iu \ S}_{(1)} 838}_{(1)}$	N X	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.259Loss timeL =48Total Flow=1629Co= (1.5*L+5)/(1-Y)=103.9Cm= L/(1-Y)=64.7Yult=0.540R.C.ult= (Yult-Y)/Y*100%=108.8Cp= 0.9*L/(0.9-Y)=67.4Ymax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=81.0	sec pcu sec sec sec %
$(1) \xrightarrow{(1)} (1) (1)$	= 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Moven ment Width lane Traffic? side Ahead Left Straig	ent Total Proportion Sat. Flare lane t Right Flow of Turning Flow Length	Share Revised Etfect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
m. m. lane? Sat. Flow pcu/h pcu/	h pcu/h pcu/h Vehicles pcu/h m.	pcu/hr pcu/h y sec sec sec	X (m / lane) (seconds
LT/ST A 3.30 1 1 11 11 y 1945 136 152 ST A 3.00 1 2 y 3970 838 LT C 3.75 2 1 12 y 1990 73 RT C 3.75 2 1 12 y 1990 73 Ped B 11.00 3 - 1 12 - 340 - - 838 - - - - - - 838 - - - 12 - - - - - - - 3375 - - 12 - - - - - - - - - - - - -	288 0.47 1827 340 0.00 2075 838 0.00 3970 73 1.00 1769 90 90 1.00 1893	1827 0.158 32 42 2075 0.164 33 42 3970 0.211 0.211 42 42 1769 0.041 8 10 1893 0.048 0.048 10 10 10 10 10 10 10	0.372 24 14 0.386 30 14 0.497 39 13 0.428 6 42 0.497 12 44
	N	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	GK 29-4-2011
J/: Junction of Siu Sai Wan Road and Harmony Road(N)	J/LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xis Checked By:	KC 29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	N Sai Wan Road	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.375Loss timeL =18Total Flow=1389Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Qm= L/(1-Y)=R.C.ult= (Yult-Y)/Y*100%=104.2Cp= 0.9*L/(0.9-Y)=Max= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=99.1	sec pcu sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} 1 = 5 \xrightarrow{(3)} 5 \text{ tage } B \xrightarrow{(1)} 5 \xrightarrow{(1)} 5 \text{ tage } C$	(4) (6)		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Move ment Width Iane Traffic? side Ahead Left Stra ment Iane? Sat Flow per//h.pc/	nent Total Proportion Sat. Flare lane ght Right Flow of Turning Flow Length	Share Revised g g Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
LT/ST A 3.30 1 1 111 y 1945 50 8 ST/RT A 3.30 1 1 11 12 2085 6 RT B 3.50 2 1 12 2105 6 LT A,B 3.75 3 1 13 y 1990 154 RT C 3.50 4 1 12 2105 154 LT/ST C 3.50 5 1 12 2105 105 LT/ST D 3.50 5 1 12 y 1965 212 8 ST/RT D 3.50 5 1 12 2105 111 12 1065 111 11 Ped D,A,B 4.00 6 - - - - - - - 111 12 101 11 Ped B,C 4.00 7 - - - - - - - - - <td>1 131 0.38 1849 7 110 177 0.62 1935 29 29 1.00 1871 154 1.00 1784 191 191 1.00 1871 3 295 0.72 1803 194 194 1.00 1871 6 217 0.47 1848</td> <td>pcdym pcdym y sec sec<!--</td--><td>0.350 18 30 0.452 24 31 0.452 0 64 0.303 18 23 0.282 18 18 0.452 30 18 0.452 24 26</td></td>	1 131 0.38 1849 7 110 177 0.62 1935 29 29 1.00 1871 154 1.00 1784 191 191 1.00 1871 3 295 0.72 1803 194 194 1.00 1871 6 217 0.47 1848	pcdym pcdym y sec sec </td <td>0.350 18 30 0.452 24 31 0.452 0 64 0.303 18 23 0.282 18 18 0.452 30 18 0.452 24 26</td>	0.350 18 30 0.452 24 31 0.452 0 64 0.303 18 23 0.282 18 18 0.452 30 18 0.452 24 26
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared Bv:	GK 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME : 2021 LV1 S1.xls Checked By:	KC 29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 755 \longrightarrow (1) 386 \longrightarrow (1) $	N Chai Wan Road	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.537Loss timeL =18Total Flow=2575Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Qmax= 1-L/(C=0.9*L/(0.9-Y)=44.6Ymax= 1-L/C=0.9*Ymax-Y)/Y*100%=38.9	sec pcu sec sec %
$(1) \longrightarrow (5) (5) (5) (7) (2) (3)$	 ←- → (6) 1= 6 		
Move- ment Stage Lane Width Phase No. of m. No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Move- Istraight- Iane Move- m. m. m. m. m. Sat. Flow pc/h pc	ment Total Proportion Sat. Flare lane Sh. ight Right Flow of Turning Flow Length Eff i/h pcu/h pcu/h Vehicles pcu/h m. pcu	hare Revised fect Sat. Flow y Greater L required (input) y sec sec sec	Degree of Saturation Queue Length Average Delay X (m / lane) (seconds)
ST A 3.75 1 2 y 4120 7 RT A 3.00 1 1 13 2055 5 ST B 3.50 2 2 4210 5 LT B 3.10 2 1 12 y 1925 58 LT C 4.00 3 1 15 y 2015 430 LT/RT C 4.00 3 1 15 y 2155 142 Ped A 4.50 4	55 755 0.00 4120 386 386 1.00 1842 58 0.00 4210 58 1.00 1711 430 1.00 1832 235 377 1.00 1959	4120 0.183 30 30 1842 0.210 0.210 34 30 4210 0.135 0.135 22 22 1711 0.034 6 22 1832 0.235 38 38 1959 0.192 0.192 31 38	0.648 45 22 0.741 48 28 0.648 39 29 0.163 6 29 0.648 48 19 0.531 42 18
	NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at				at Prepared By:	КС
		Junction Capacity Analysis		Checked By:	00
Junction layo De	out sketch - esign Year Time -	 J9: Junciton of Chai Wan Road and Wan Tsui Road 2021 Level 1 - Site 1 Level 1 Peak Hour 	GEOMETRIC DETAILS	GEOMETRIC PARA	METERS
W ₁ Chai Wan Road W _{cr1}	90 257	ARM B Wan Tsui Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂		\sim 534 W_4 (m)	MAJOR ROAD (ARM A) $q_{a-b} = \frac{89.89}{256.55}$ (pcu/hr) $q_{a-c} = \frac{256.55}{256}$ (pcu/hr)	THE CAPACITY OF $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$	MOVEMENT 788 700 372
			MAJOR ROAD (ARM C)	TO CAPACITY	DESIGN FLOW
REMARK: (GEOM W W _{cr}	ETRIC INPUT = AVERA = AVERA	T DATA) AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 534.38$ (pcu/hr) $q_{c-b} = 256.98$ (pcu/hr)	$DFC_{b-a} = DFC_{b-c} = DFC_{c-b} =$	0.085 0.344 0.367
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE 1 LANE 1 LANE 1 LANE 1 VISIBIL VISIBIL VISIBIL VISIBIL GEOM GEOM GEOM GEOM L1-0.03 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B WETRIC PARAMETERS FOR STREAM B-C LETRIC PARAMETERS FOR STREAM B-A WETRIC PARAMETERS FOR STREAM B-A	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.367
raffic Impact Assess ctober 2007	sment Report				Page 9 of

TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By: GK 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME : 2021_LV1_S1.xls Checked By: KC 29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011
(1) 1039 23 (1) 1039 (1)	Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100 secSum(y)Y =0.483Loss timeL =10 secTotal Flow=2013 pcuCo= (1.5*L+5)/(1-Y)=38.7 secCm= L/(1-Y)=19.3 secYult=0.825R.C.ult= (Yult-Y)/Y*100%=70.9 %Cp= 0.9*L/(0.9-Y)=21.6 secYmax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=67.8 %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$		
Move- stage Lane Phase No. of Radius O N Straight- M ment Width lane m. Sat. Flow pcu/h	straight Right Flow of Turning Flow Length pcu/h pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Degree of Queue Aver Aver pcu/hr Aver g g g Degree of Queue Aver Aver pcu/h Aver g g
ST A 3.50 1 2 10 N 4070 A ST A 3.50 1 2 10 N 4070 N 4070 LT B 3.00 2 1 10 N 1915 379 RT B 3.50 2 1 12 Image: Constraint of the state of the	1039 1039 0.00 4070 573 573 0.00 4070 379 1.00 1665 23 23 1.00 1871	4070 0.255 0.255 48 47 0.543 45 10 4070 0.141 26 47 0.299 24 11 1665 0.228 0.228 42 53 0.429 24 9 1871 0.012 2 53 0.023 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GRE	N FG - FLASHING GREEN PEDESTRAIN WALK	XING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDOS Prepared By	GK 29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME : 2021 LV1 S1.xls Checked By:	KC 29-4-2011
2021 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
		······································	
Sheung On Street (1) 95 4 4) 338 21 4 4338 21 4 4338 21 4 4338 21 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 338 21 4 4 4 4 338 21 4 4 4 4 4 338 21 4 4 4 4 4 4 4 338 21 4 4 4 4 4 4 4 4 4	N Chai Wan Road	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.275Loss timeL =371Total Flow2361Co=(1.5*L+5)/(1-Y)Z=51.0Yult=0.623R.C.ult=(Yult-Y)/Y*100%Cp=0.9*L/(0.9-Y)Ymax=1-L/CR.C.(C)=(0.9*Ymax-Y)/Y*100%Z=126.4	sec pcu sec sec %
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (2) \xrightarrow{(3)} (3)$	(4) (4) (6)		
Stage A I = 8 Stage B I = 5 Stage C	I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of lane Radius Opposing Near- Side Straight- Ahead Move- Left m. m. m. Iane? Sat. Flow pcu/h pcu	ment Total Proportion Sat. Flare lane Share ight Right Flow of Turning Flow Length Effect i/h pcu/h pcu/h Vehicles pcu/h m. pcu/hr	Revised Sat. Flowggpcu/hGreaterLrequiredpcu/hysecsec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.50 1 3 12 y 6175 95 94 LT/ST A 3.30 2 3 12 Y 6115 147 78 LT B 3.50 3 1 9 Y 1965 34 LT/RT D 3.75 4 2 10 y 4120 21 Ped B,C 4.00 5 5 10 y 4120 21 Ped B,C 5.00 6 5	15 1041 0.09 6105 927 0.16 5996 34 1.00 1684 338 360 1.00 3583	6105 0.170 51 5996 0.155 0.155 47 1684 0.020 0.020 6 3583 0.100 0.100 30 15 15 15	0.000 68 54 0.000 60 54 0.000 6 54 0.000 33 54
	NOTES :	PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessme	nt Study For Columbarium Development at	C Prepared By:	кс
Junction Capacity Analysis		Checked By:	oc
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 2 - Reference Case Time - Level 2 Peak Hour ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
			TEDO
N 342 3 602	$W_1 = (metres)$	GEOMETRIC PARAME	IERS
	$W_2 = 6.00 \text{ (metres)}$	X _A =	0.922
	$W_3 = 3.00 \text{ (metres)}$	X _B =	1.039
	$W_4 = 3.00 $ (metres)	X _C =	0.586
	W = 6.00 (metres)	$X_D =$	0.827
W ₁ W ₃	$W_{cr1} = 0.00$ (metres)	Y =	0.793
RM C Cape	$W_{cr2} = 0.00$ (metres)	$Z_{\rm B} =$	1.005
Collins	$VV_{cr} = 0.00$ (metres)	Z _D =	0.905
on 1 on			
Road W ₂ = 0 W ₄ Road	MAJOR ROAD (ARM A)	THE CAPACITY OF MO	DVEMENT
	$W_{a-d} = 3.00$ (metres)	Q _{b-a} =	418
	Vr _{a-d} = 100 (metres)	Q _{b-c} =	749
	$q_{a-b} = 0$ (pcu/hr)	Q _{b-d} is nearside =	TRUE
	q _{a-c} = 0 (pcu/hr)	Q _{b-d} =	611
196 163 12	q _{a-d} = <u>1</u> (pcu/hr)	Q _{d-a} =	674
		Q _{d-b} is nearside =	TRUE
ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	Q _{d-b} =	533
	W _{c-b} = (metres)	Q _{d-c} =	431
EMARK: (GEOMETRIC INPUT DATA)	Vr _{c-b} = (metres)	Q _{c-b} =	437
W = AVERAGE MAJOR ROAD WIDTH	q _{c-a} = 0 (pcu/hr)	Q _{a-d} =	616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH	q _{c-b} = 0 (pcu/hr)		
W a-d = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c-d} = 0 (pcu/hr)	COMPARISION OF DE	SIGN FLOW
W_{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A		TO CAPACITY	
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	DFC _{b-a} =	0.028
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres)	DFC _{b-c} =	0.261
W_{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres)	DFC b-d =	0.267
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	VI _{b-a} = 100 (metres)	DFC _{d-a} =	0.892
Vr ard = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{b-a} = 65$ (metres)	DFC _{d-b} =	0.007
VI _{b-a} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	Vr _{b-c} = 0 (metres)	DFC _{d-c} =	0.793
Vr _{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	q _{b-a} = <mark>11.633</mark> (pcu/hr)	DFC _{c-b} =	0.000
Vr _{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	q _{b-c} = <mark>196</mark> (pcu/hr)	DFC a-d =	0.002
Vr _{c-b} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	q _{b-d} = 163.2 (pcu/hr)		
VI d-c = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C		Critical DFC =	0.892
Vr _{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)		
Vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	W _{d·a} = 3.00 (metres)		
X _A = GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{d-c} = 3.00$ (metres)		
X _B = GEOMETRIC PARAMETERS FOR STREAM B-A	VI _{d-c} = 50 (metres)		
X _C = GEOMETRIC PARAMETERS FOR STREAM C-B	Vr _{d-c} = <u>50</u> (metres)		
X _D = GEOMETRIC PARAMETERS FOR STREAM D-C	Vr _{d-a} = 80 (metres)		
Z_{B} = GEOMETRIC PARAMETERS FOR STREAM B-C	$q_{d-a} = 602$ (pcu/hr)		
Z_D = GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d-b} = 3$ (pcu/hr)		
Y = (1-0.0345W)	$q_{dc} = 342$ (pcu/hr)		

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	· · · · · · · · · · · · · · · · · · ·	PROJECT NO.: CTLDQS Prepared By:	КС 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 125 2 2 $(1) 125 2 2$ $(1) 125 2 2$ $(1) 125 2$ $(1) 1049$ $(1) 1049$ $(2) (2)$ $(2) (2)$ $(1) 1049$ $(1) 1049$ $(1) 1049$ $(1) 1049$ $(1) 1049$ $(1) 1049$ $(1) 1049$ $(1) 1049$ $(1) 1049$	N X Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120 sSum(y)Y =0.623Loss timeL =25 sTotal Flow=1222 pCo $= (1.5^*L+5)/(1-Y)$ =112.7 sCm $= L/(1-Y)$ =66.3 sYult=0.713R.C.ult $= (Yult-Y)/Y*100\%$ =14.4 9Cp $= 0.9*L/(0.9-Y)$ =81.2 sYmax $= 1-L/C$ =0.79 sR.C.(C) $= (0.9*Ymax-Y)/Y*100\%$ =14.4 9	iec iec iec iec iec % jec
$(1) \longrightarrow (3)$ (3)	(4)		
Move- ment Stage Width Lane Phase Iane No. of National m. Radius Iane O N Straight- Maead Moveme Left m. m. m. Sat. Flow pcu/fh Sat. Flow pcu/fh Sat. Flow pcu/fh	ent Total Proportion Sat. Flare lane Sh Right Flow of Turning Flow Length Eff pcu/h pcu/h Vehicles pcu/h m. pcu	are Revised g g fect Sat. Flow y Greater L (required) (input) ! u/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds
ST A 3.00 1 1 N 1915 125 ST/LT A 4.00 1 1 10 N 2015 1049 49 Ped B 6.0 3 Image: Constraint of the second sec	125 0.00 1915 1097 0.96 1762	1915 0.065 10 95 1762 0.623 0.623 95 95 20 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10	0.082 0 2 0.787 42 5
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING S	SPEED = 1.2m/s QUEUING LENGTH = AVERAG	GE QUEUE * 6m
Kaler	Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development a	t Prepared By: KC
--	--	--	--
	Junction Capacity Analysis		Checked By: OC
Junction layout Desig	sketch - J3: J/O Cape Collinson Road and Lin Shing Road In Year - 2021 Level 2 - Reference Case Time - Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
N W ₁ O Road (V)	$\begin{array}{c} 529 & 13 \\ \hline \\ $	$W_{1} = 3.30 \text{ (metres)}$ $W_{2} = 3.90 \text{ (metres)}$ $W_{3} = 4.80 \text{ (metres)}$ $W_{4} = 4.50 \text{ (metres)}$ $W = 8.55 \text{ (metres)}$ $W_{cr1} = 0.00 \text{ (metres)}$ $W_{cr2} = 0.00 \text{ (metres)}$ $W_{cr} = 0.00 \text{ (metres)}$	$ \begin{array}{rcl} $
ARMA W2	→ 317 ^{W4} ARM C	MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 422$ (pcu/hr) MAJOR ROAD (ARM C) $W_{a-c} = 450$ (metres)	THE CAPACITY OF MOVEMENT $Q_{b-c} = 634$ $Q_{c-b} = 706$ $Q_{b-a} = 293$ COMPARISION OF DESIGN FLOW TO CAPACITY
REMARK: (GEOMETR W = W _{cr} =	RIC INPUT DATA) AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	$Vr_{cb} = 150$ (metres) $q_{ca} = 317$ (pcu/hr) $q_{cb} = 0$ (pcu/hr)	$DFC_{b-a} = 1.807$ $DFC_{b-c} = 0.020$ $DFC_{c-b} = 0.000$
	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W)	$\begin{array}{llllllllllllllllllllllllllllllllllll$	Critical DFC = 1.807

			ROUNDABOUT CAPACITY AS	SESSMENT	INITIALS	DATE
TIA St	udy for	r Columbarium Development at Cape Collinson Road		PROJECT NO.: 80510 PREPARED BY	': KC	Sep-13
Junctio	on 4: C	Chai Wan Road Roundabout	J4LV2 Peak Hour	FILENAME2021_LV2_Ref_J2_J5_J6_J7_J8.xls CHECKED B	: OC	Sep-13
J4LV2	Peak	Hour		REVIEWED B	: OC	Sep-13
				(ARM D)		
		(ARM D)		N 756.388093		
1		Island Easter Corri	dor	▲		
1		4				
		[16] 321	[1] [2] [3] [4]	1055		
		[15] 410	7 165 436 148	0.0		
		[14] 550				
1			▲			
				0 0		
Chai V	Van Ro	bad <u> </u>		0 0		
(ARM	C)		(ARM A)	1294.512 542 O O 1181.936	730.9119)
ł			Chan Wan Road	(ARM C) O O	(ARM A)	
1			8 [5]	0 0		
			Ť	0 0		
			394 [6]	00		
		12 59 64 10	✓ 213 [7]	792		
			115 [9]	102		
			*			
		Wan Tsui Road		143.597089		
		(ARM B)		(ARM B)		
ARM			A B C D			
INPUT	PARA	AMETERS:				
			7.00 / 00 7.00 7.00			
v F	=	Approach hair width (m)	7.00 4.00 7.00 7.00			
	=	Effective length of flore (m)	9.00 7.00 10.00 7.00			
R	_	Entry radius (m)	40.00 15.00 40.00 25.00			
	_	Inscribed circle diameter (m)	50.00 50.00 50.00 50.00			
A	_	Entry angle (degree)	30.00 35.00 36.00 30.00			
Q	=	Entry flow (pcu/h)	731 144 1295 756			
Qc	=	Circulating flow across entry (pcu/h)	1182 792 542 1055			
					
OUTP		RAMETERS:				
S	=	Sharpness of flare = $1.6(E-V)/I$	0.53 0.96 0.80 0.00			
ĸ	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02 0.97 1.00 1.01			
X2	=	V + ((E-V)/(1+2S))	7.97 5.03 8.15 7.00			
М	=	EXP((D-60)/10)	0.37 0.37 0.37 0.37			
F	=	303*X2	2414 1523 2471 2121			
Td	=	1+(0.5/(1+M))	1.37 1.37 1.37 1.37			
-	=	0.21*Td(1+0.2*X2)	0.74 0.58 0.75 0.69			
FC	=	K(F-Fc*Qc)	1573 1032 2069 1408	Total In Sum = 2330.186	PCU	
⊦c Qe						
Fc Qe						
FC Qe DFC	=	Design flow/Capacity = Q/Qe	0.46 0.14 0.63 0.54	DFC of Critical Approach = 0.63		

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 255 \qquad \qquad$	N 📡 Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.208Loss timeL =10Total Flow=1415Co= (1.5*L+5)/(1-Y)=25.3Cm= L/(1-Y)Yult=0.825R.C.ult= (Yult-Y)/Y*100%=296.8Cp=Cp=0.9*L/(0.9-Y)Ymax=1.4CS.C.(C)= (0.9*Ymax-Y)/Y*100%=289.6	sec pcu sec sec %
(4) (4) (3) (3) (3) (6) (6) (6) (6)			
Move- ment Stage Width Lane Width Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Movement Straight- Iane m. m. m. Iane? Straight- Sat. Flow Movement pcu/h Straight- pcu/h Movement Pcu/h	ent Total Proportion Sat. Flare lane Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	ShareRevisedggEffectSat. FlowyGreaterLrequiredpcu/hrpcu/hysecsecsec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT A 3.75 1 2 22 y 4120 424 LT A 4.00 2 2 24 4310 181 RT A 3.50 2 2 11 y 4070 181 ST B 3.50 3 2 13 y 4270 181 Ped A 4.50 4 13 y 4070 255 Ped A 4.50 4 13 14 14 14 14 14 14 Ped A 4.50 5 1 13 14 14 14 14 14 14 14 14 14 15 15 15 15 15 16 14 14 14 14 14 14 15 16	424 1.00 3857 181 1.00 4056 520 520 1.00 3582 255 0.00 4070 35 35 1.00 3828	3857 0.110 48 63 4056 0.045 19 63 3582 0.145 0.145 63 63 4070 0.063 0.063 27 27 3828 0.009 4 27	0.175 12 6 0.071 3 6 0.231 15 6 0.231 15 23 0.034 0 24
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIG	GNAL CA	LCULATI	ON																				INITIALS	DATE	
TIA Study	y for Colu	umbariu	m Devel	opment	at Cape	Collinson	n Road, (Chai Wan									PROJECT N	0.:	CTLDQS		Prepared	By:	КС	29-4-2011	
J6: Juncti	ion of Siι	u Sai Wa	n Road a	and Harr	nony Ro	ad					J6LV2 -	Peak Hou	ur Traffic Flows				FILENAME	2_Ref_J2	_J5_J6_J7	_J8.xls	Checked	By:	OC	29-4-2011	
2021 Lev	rel 2 Peal	k Hour -	Referer	nce Case													REFERENCE	NO.:			Reviewed	l By:	OC	3-5-2011	
				(1) (1)	102 - 420 -	Har	rmony R (2) 164	(2) 83		Siu Sai 661	Wan Ro	bad	N				No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	es per cyc = (1.5*L-t = L/(1-Y) = (Yult-Y = 0.9*L/(= 1-L/C = (0.9*Y)	cle -5)/(1-Y))/Y*100% (0.9-Y) nax-Y)/Y*	100%	N = C = Y = = = = = =	3 100 0.253 48 1430 103.1 64.2 0.540 113.5 66.8 0.520 85.1	sec pcu sec sec sec % sec %		
(1) (1) Stag)	· • =	- (1)	(5) Sta	↓↓↓ge B	(3) ► ↓ ↓	(4)	(2)	⊆ C	(2)	6														
Move-	Stage	Lane	Phase	No. of	Radius	Opposing	Near-	Straight-	N	loveme	nt	Total	Proportion	Sat.	Flare lane	Share	Revised				g	g	Degree of	Queue	Average
ment		Width		lane	m	Traffic?	side	Ahead Sat Flow	Left	Straight	Right	Flow	of Turning Vehicles	Flow	Length	Effect	Sat. Flow	У	Greater	L	(required)	(input)	Saturation x	Length (m / Jane)	Delay (seconds)
LT/ST ST LT RT Ped Ped Ped	A A C C B B B	3.30 3.20 3.00 3.75 3.75 11.00 6.50 6.50	1 1 2 2 3 4 5	1 1 2 1 1	11 12 12		y y y	1945 2075 3970 1990 2130	102 83	152 268 661	164	254 268 661 83 164	0.40 0.00 0.00 1.00 1.00	1844 2075 3970 1769 1893			1844 2075 3970 1769 1893	0.138 0.129 0.166 0.047 0.086	0.166	28	28 27 34 10 18	34 34 34 18 18	0.403 0.378 0.486 0.263 0.486	24 24 36 6 18	19 18 17 31 32
																NOTES :	PEDESTRAI	N WALKII	NG SPEED	= 1.2m	n/s	QUEUING	LENGTH = A	/ERAGE QU	EUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO CTI DOS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 2 Ref J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	N X	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.323Loss timeL =18Total Flow=1251Co= (1.5*L+5)/(1-Y)=African et al. (1-Y)=26.6Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=130.6	sec pcu sec sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (6) (5) (5) (5) (5) (6) (6) (6) (7) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7		
Move- ment Stage Width Lane Move- m. Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Moveme Straight Move- m. m. m. m. m. Sat. Flow pcu/h pcu/	nt Total Proportion Sat. Flare lane Sh Right Flow of Turning Flow Length Eff pcu/h pcu/h Vehicles pcu/h m. pcu	nare Revised fect Sat. Flow y Greater L (required (input) u/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 34 81 ST/RT A 3.30 1 1 11 12 2085 72 RT B 3.50 2 1 12 2105 72 LT A,B 3.75 3 1 13 y 1990 128 RT C 3.50 4 1 12 2105 72 LT/ST C 3.50 4 1 12 2105 76 LT/ST C 3.50 5 1 12 2105 76 LT/ST D 3.50 5 1 12 y 1965 138 76 ST/RT D 3.50 5 1 11 y 1965 97 135 Ped D,A,B 4.00 6	115 0.30 1869 159 231 0.69 1920 29 29 1.00 1871 128 1.00 1871 214 0.64 1818 130 130 1.00 1871 233 0.42 1859	1869 0.062 18 1920 0.120 0.120 32 32 1871 0.016 0.016 4 4 1784 0.072 19 42 1871 0.091 24 32 1871 0.091 24 32 1871 0.070 19 42 188 0.118 0.118 32 32 1871 0.070 19 19 19 1859 0.125 34 34 34	0.200 12 22 0.390 24 22 0.390 0 57 0.181 12 16 0.301 18 22 0.390 24 22 0.391 18 33 0.390 24 21
	NOT	res : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 884 \longrightarrow (1) 583 \longrightarrow (1) $	N 🔸	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.699Loss timeL =18Total Flow=3057Co= (1.5*L+5)/(1-Y)=106.3Cm=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Qp=0.9*L/(0.9-Y)=80.6Ymax=1-L/C9.7=0.829R.C.(C)=(0.9*Ymax-Y)/Y*100%=6.7	sec pcu sec sec sec %
$(1) \longrightarrow (5) (1) \longrightarrow (7) (7) (7) (7) (7) (7) (7) (7) (2) (3)$	 ← → (6) = 6 		
Move- ment Stage Width Lane Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Movemusical Straight- Iane Movemusical m. mathing mathing mathing mathing Movemusical Movemusical Left Straight Straight Movemusical Left Straight Straight Left <	ent Total Proportion Sat. Flare lane Sh t Right Flow of Turning Flow Length Eff pcu/h pcu/h Vehicles pcu/h m. pcu	hare Revised fect Sat. Flow y Greater L (required) (input) u/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
ST A 3.50 1 2 y 4070 884 RT A 3.50 1 1 13 2105 542 ST B 3.50 2 2 4210 542 LT B 3.10 2 1 112 y 1925 84 LT C 4.00 3 1 15 y 2015 479 LT/RT C 4.00 3 1 15 y 2015 479 LT/RT C 4.00 3 1 15 y 2015 479 Ped A 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.60 4.63 4.63 4.64 4.64 4.64 4.64 4.64 4.64 4.64 4.64 4.64 4.64 4.64 4.64 4.64 4.64	884 0.00 4070 583 583 1.00 1887 542 0.00 4210 84 1.00 1711 479 1.00 1832 323 486 1.00 1959	4070 0.217 18 1887 0.309 0.309 38 27 1887 0.309 0.129 16 16 1711 0.049 6 16 16 1832 0.261 0.261 33 33 1959 0.248 31 33	0.844 57 29 1.199 72 35 0.844 39 43 0.320 12 35 0.844 54 32 0.800 54 28
	NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION TIA Study for Columbarium Development at Cane Collinson Road, Chai Wan		INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	I101V2 - Peak Hour Traffic Flows Ell ENAME 2, Ref. 12, 15, 16, 17, 18	vis Checked By: OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		Reviewed By: OC 3-5-2011
(1) 701 26 	N N N N N N N N N N N N N N	N = 2 $C = 100 sec$ $Y = 0.309$ $L = 10 sec$ $= 1459 pcu$ $= 28.9 sec$ $= 0.825$ $= 167.1 %$ $= 15.2 sec$ $= 0.900$ $162.3 %$
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$		
ment Width lane m. Straight St	Right Flow of Turning Flow Length Effect Sat. Flow y Greater L pcu/h pcu/h Vehicles pcu/h m. pcu/hr pcu/h y se	required (input) Saturation Length Delay sec sec sec X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 504 ST A 3.50 1 2 10 N 4070 504 LT B 3.00 2 1 10 N 1915 227 RT B 3.50 2 1 12 N 1915 227 Ped B 19.0 3 Image: Constraint of the state of the	701 0.00 4070 504 0.00 4070 227 1.00 1665 26 26 1.00 1871	10 50 47 0.367 30 11 36 47 0.263 21 11 40 53 0.258 12 9 4 53 0.027 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QU	EUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
			i
Sheung On Street (4) (4) (1) 595 (1)	N Chai Wan Road (2) (2)	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.280Loss timeL =37Total Flow=1991Co= (1.5*L+5)/(1-Y)=84.0Cm= L/(1-Y)=51.4Yult=0.623R.C.ult= (Yult-Y)/Y*100%=122.3Cp= 0.9*L/(0.9-Y)=53.7Ymax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=122.3	sec pcu sec sec % sec %
$(1) \xrightarrow{(1)} (5) \xleftarrow{(5)} \xleftarrow{(6)} (5) (5) (5) (5) (5) (5) (5) (5) (5) (5)$	(4) (4) (6)		
(2) (3)	► *		
Stage A I = 8 Stage B I = 5 Stage C	I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Straight- Move- m. Width Iane Traffic? side Ahead Left Move- m. m. m. Iane? Sat. Flow pcu/l	Novement Total Proportion Sat. Flare lane Share Straight Right Flow of Turning Flow Length Ettect pcu/h pcu/h pcu/h Vehicles pcu/h m. pcu/h	re Revised ct Sat. Flow y Greater L required (input) hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.50 1 3 12 y 6175 100 LT/ST A 3.30 2 3 12 Y 6115 105 LT B 3.50 3 1 9 Y 1965 37 LT/RT D 3.75 4 2 10 y 4120 48 Ped B,C 5.00 6 - - - - - - - 4120 48 Ped B,C 5.00 6 - - - - - - - - - - 48 Ped B,C 5.00 6 -	595 696 0.14 6066 720 825 0.13 6019 37 1.00 1684 386 434 1.00 3583	6066 0.115 34 6019 0.137 0.137 41 1684 0.022 0.022 7 3583 0.121 0.121 36 15 15 15	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	NOTES :	5 : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Palcro	Agreement No. CPM301_15/10 - Traffic Impact Assessr	nent Study For Columbarium Developme	ent a Prepared By: KC	
Iuicio	Junction Capacity Analysis		Checked By: OC	
unction layout ske Design \ Ti	etch - J1: J/O Cape Collinson Road and Lin Shing Road Year - 2021 Level 2 - Site 1 ime - Level 2 Peak Hour			
	ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
$\mathcal N$	351 4 651	W ₁ = (metres)	GEOMETRIC PARAMETERS	
4		$W_2 = 6.00$ (metres)	X _A =	0.922
		$W_3 = 3.00$ (metres)	X _B =	1.039
		$W_4 = 3.00$ (metres)	X _c =	0.586
	ARM A	W = 6.00 (metres)	X _D =	0.827
W ₁	W ₃	$W_{cr1} = 0.00$ (metres)	Y =	0.793
10		$W_{cr2} = 0.00$ (metres)	Z _B =	1.005
W _{cr1}	W _{cr2} Cape	$W_{cr} = 0.00$ (metres)	Z _D =	0.905
ns				
W ₂	← 0 W ₄ Road	MAJOR ROAD (ARM A)	THE CAPACITY OF MOVEMEN	IT
)	0 (E)	W _{a-d} = 3.00 (metres)	Q _{b-a} =	402
		Vr _{a-d} = 100 (metres)	Q _{b-c} =	749
		q _{a⋅b} = <mark>0</mark> (pcu/hr)	Q _{b-d} is nearside =	TRUE
		q _{a⋅c} = <mark>0</mark> (pcu/hr)	Q _{b-d} =	611
	198 174 12	q _{a-d} = <mark>2</mark> (pcu/hr)	Q _{d-a} =	674
			Q _{d-b} is nearside =	TRUE
	ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	Q _{d-b} =	532
		W _{c-b} = (metres)	Q _{d-c} =	428
ARK: (GEOMETRIC	INPUT DATA)	Vr _{c-b} = (metres)	Q _{c-b} =	437
W = A	AVERAGE MAJOR ROAD WIDTH	q _{⊳a} = <mark>0</mark> (pcu/hr)	Q _{a-d} =	616
W _{cr} = A	AVERAGE CENTRAL RESERVE WIDTH	q _{c·b} = <mark>0</mark> (pcu/hr)		
W _{a-d} = L	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c-d} = <mark>0</mark> (pcu/hr)	COMPARISION OF DESIGN FL	_OW
W _{b-a} = L	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A		TO CAPACITY	
W _{b-c} = L	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	DFC _{b-a} =	0.029
W _{c-b} = L	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	W _{b-a} = 5.00 (metres)	DFC _{b-c} =	0.264
W _{d-a} = L	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres)	DFC _{b-d} =	0.284
$W_{d-c} = L$	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$VI_{b-a} = 100$ (metres)	DFC _{d-a} =	0.966
Vr _{a-d} = V	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	Vr _{b-a} = 65 (metres)	DFC _{d-b} =	0.007
VI _{b-a} = V	/ISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{b-c} = 0$ (metres)	DFC _{d-c} =	0.820
$Vr_{b-a} = V$	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	$q_{b-a} = 11.633 (pcu/hr)$	DFC _{c-b} =	0.000
Vr _{b-c} = V	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{b-c} = 197.53 (pcu/hr)$	DFC _{a-d} =	0.003
Vr _{c-b} = V	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	q _{b-d} = 173.65 (pcu/hr)		
VI _{d-c} = V	/ISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C			1.966
$Vr_{d-c} = V$	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)		
$Vr_{d-a} = V$	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	$W_{d-a} = 3.00$ (metres)		
$X_A = 0$	JEOMETRIC PARAMETERS FOR STREAM A-D	$W_{d-c} = 3.00$ (metres)		
$X_B = G$	SEOMETRIC PARAMETERS FOR STREAM B-A	$VI_{d-c} = 50$ (metres)		
$X_{\rm C} = 0$	JEOMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metres)		
$X_D = G$	JEOMETRIC PARAMETERS FOR STREAM D-C	$Vr_{d-a} = 80$ (metres)		
$Z_B = G$	GEOMETRIC PARAMETERS FOR STREAM B-C	$q_{d-a} = 651.24 (pcu/hr)$		
$Z_D = O$	GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d-b} = 3.7863 (pcu/hr)$		
Y = (1-0.0345VV)	q _{d-c} = <mark>350.97</mark> (pcu/hr)		

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDOS Prepared By:	KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME /2 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 125 \xrightarrow{} 2 \xrightarrow{ 2 \xrightarrow{} 2 \xrightarrow{ 2 \xrightarrow{} 2 2 \xrightarrow{ $	N Wan Tsui Road 49 (1) 1108	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.656Loss timeL =25 secTotal Flow=1281 pcuCo= (1.5*L+5)/(1-Y)=123.6 secCm= L/(1-Y)=72.7 secYult=0.713R.C.ult= (Yult-Y)/Y*100%=8.6 %Cp= 0.9*L/(0.9-Y)=92.3 secYmax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=8.6 %	
$(1) \longrightarrow (3)$	<pre>(4) </pre>		
Move- ment Stage Width Lane Iane No. of Iane Radius O N Straight- Ahead m. m. m. Sat. Flow	Movement Total Proportion Sat. Flare Left Straight Right Flow of Turning Flow Leng cu/h pcu/h pcu/h pcu/h Vehicles pcu/h m	lane Share Revised gth Effect Sat. Flow y Greater L required (input) Sat . pcu/hr pcu/h y sec sec sec	egree of Queue Average turation Length Delay X (m / lane) (seconds)
ST A 3.00 1 1 N 1915	125 125 0.00 1915	1915 0.065 5 9 95 0	0.082 0 2
ST/LT A 4.00 1 1 10 N 2015 Ped B 6.0 3 Image: Constraint of the second se	.108 49 1156 0.96 1762		0.829 48 6
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEAL	GREEN FG - FLASHING GREEN PEDESTRAIN W	ALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE	QUEUE * 6m

Kal	Agreement No. CPM301_15/10 -	Traffic Impact Assessment	t Study For Columbarium D	Development at	Prepared By:	KC
	Junction Capacity Analysis				Checked By:	00
Junction lay	out sketch - J3: J/O Cape Collinson Road and Li esign Year - 2021 Level 2 - Site 1 Time - Level 2 Peak Hour	n Shing Road	GEOMETRIC DETAILS		GEOMETRIC PAR	RAMETERS
N W1 Shek O Road (N)		W ₃ Shek O W _{cr2} Road Q (S)	$W_{1} = 3.90$ $W_{2} = 3.90$ $W_{3} = 4.80$ $W_{4} = 4.50$ $W = 8.55$ $W_{cr1} = 0.00$ $W_{cr2} = 0.00$ $W_{cr} = 0.00$	(metres) (metres) (metres) (metres) (metres) (metres) (metres)	D E F Y	= 0.626 = 0.996 = 1.109 = 0.705
ARM A W ₂		317 W ₄ ARM C	$\begin{array}{rcl} \text{MAJOR ROAD} \\ \textbf{q}_{a\text{-}b} &= & \textbf{0} \\ \textbf{q}_{a\text{-}c} &= & \textbf{421.95} \end{array}$	(ARM A) (pcu/hr) (pcu/hr)	THE CAPACITY (Q _{b-c} Q _{c-b} Q _{b-a}	DF MOVEMENT = 634 = 706 = 293
			MAJOR ROAD W _{c-b} = <mark>4.50</mark>	(ARM C) (metres)	COMPARISION C TO CAPACITY	OF DESIGN FLOW
REMARK: (GEOI W W _{cr}	IETRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH = AVERAGE CENTRAL RESERVE WIDTH		$Vr_{c-b} = 150$ $q_{c-a} = 317.26$ $q_{c-b} = 0$	(metres) (pcu/hr) (pcu/hr)	DFC _{b-a} DFC _{b-c} DFC _{c-b}	= 1.907 = 0.022 = 0.000
W b-a W c-b VI b-a VI b-a VI b-a VI b-c VI c-b D E F	 LANE WIDTH AVAILABLE TO VEHICLE WAITING I LANE WIDTH AVAILABLE TO VEHICLE WAITING I LANE WIDTH AVAILABLE TO VEHICLE WAITING I VISIBILITY TO THE LEFT FOR VEHICLES WAITING VISIBILITY TO THE RIGHT FOR VEHICLES WAITING GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B 	N STREAM B-A N STREAM B-C N STREAM C-B G IN STREAM B-A NG IN STREAM B-A NG IN STREAM B-C NG IN STREAM C-B	MINOR ROAD $W_{b-a} = 0.00$ $W_{b-c} = 3.80$ $VI_{b-a} = 100$ $Vr_{b-a} = 100$ $Vr_{b-c} = 100$ $Q_{b-a} = 557.93$ $q_{b-c} = 13.782$	(ARM B) (metres) (metres) (metres) (metres) (pcu/hr) (pcu/hr)	Critical DFC	= 1.907
affic Impact Assent	sment Report					Page 3 of

			ROUNDABOUT CAPACITY AS	SSESSMENT			INITIALS	DATE
TIA St	udy for	Columbarium Development at Cape Collinson Road		PROJECT	NO.: 80510	PREPARED BY	': KC	Sep-13
Junctio	on 4: C	hai Wan Road Roundabout	J4LV2 Peak Hour	FILENAM	E2021_LV2_S1_J2_J5_J6_	J7_J8.xls CHECKED BY	: OC	Sep-13
J4LV2	Peak	Hour	7			REVIEWED BY	': OC	Sep-13
			-			•		
					(ARM D)			
		(ARM D)		Ν	790.527527			
		Island Easter Corr	idor					
		+						
		[16] 321	[1] [2] [3] [4]	<u> </u>	1087			
			7 171 464 148		0.0			
		[14] 564			0 0			
1					0 0			
Chai V	Van Ro	bad			0 0			
(ARM	IC)		(ARM A)	1325.899	570 O (D 1241.166	767.5859	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
		+ + + + + + + + + + + + + + + + + + +	8 [5]		0 0			
			Ť		0 0			
			421 [6]		0.0			
		12 59 64 10			820			
					029			
			121 [6]					
			*					
			•					
		Wan Tsui Road			144.329533			
		Wan Tsui Road (ARM B)	· · · · · · · · · · · · · · · · · · ·		144.329533 (ARM B)			
		Wan Tsui Road (ARM B)	· · · · · · · · · · · · · · · · · · ·		144.329533 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		144.329533 (ARM B)			
ARM	Γ PARA	Wan Tsui Road (ARM B) METERS:	A B C D		144.329533 (ARM B)			
ARM	Γ PAR <i>A</i>	Wan Tsui Road (ARM B) METERS:	A B C D		144.329533 (ARM B)			
ARM INPUT V	Γ PARA =	Wan Tsui Road (ARM B) METERS: Approach half width (m)	A B C D 7.00 4.00 7.00 7.00		144.329533 (ARM B)			
ARM INPUT V E	Г РАR <i>А</i> = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		144.329533 (ARM B)			
ARM INPUT V E L	Г РАКА = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		144.329533 (ARM B)			
ARM INPUT V E L R	Γ PARA = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		144.329533 (ARM B)			
ARM INPUT V E L R D	Г РАКА = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		144.329533 (ARM B)			
ARM INPUT V E L R D A	Г РАКА = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00		144.329533 (ARM B)			
ARM INPUT V E L R D A Q Q	Г РАКА = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791		144.329533 (ARM B)			
ARM INPUT V E L R D A Q Q Q c	Г РАКА = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087		144.329533 (ARM B)			
ARM INPUT E L R D A Q Q c	Г РАКА = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087		144.329533 (ARM B)			
ARM INPUT V E L R D A Q Q c	Γ PARA = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087		144.329533 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S	Γ PARA = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087		144.329533 (ARM B)			
ARM INPUT E L R D A Q Q C OUTP S K K	Г РАКА = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		144.329533 (ARM B)			
ARM INPUT V E L R R Q Q C OUTP S K X2	Г РАRА = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		144.329533 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 202122	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		144.329533 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.6)(/11+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121		144.329533 (ARM B)			
ARM INPUT V E L R D A Q C OUTP S K X2 M F T d E	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.56		144.329533 (ARM B)			
ARM INPUT V E L R D A Q C OUTP S K X2 M F T d F C Q	T PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) $K(E-E^*Oc)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1528 1011 20/8 1326	Tatal In St	144.329533 (ARM B)	2427 202	PCII	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	UT PAR = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fe*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1528 1011 2048 1386	Total In St	144.329533 (ARM B)		PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	UT PAR = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fe*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 768 144 1326 791 1241 829 570 1087 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1528 1011 2048 1386	Total In St	144.329533 (ARM B)	2427.383	PCU	

TRAFFIC SIGNAL CALCULATION					INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, G	Chai Wan	PRC	OJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILE	ENAME /2_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Site 1		REF	FERENCE NO.:	Reviewed By:	OC	3-5-2011
(3) 265 (3) 35 (3) 35 (3) 35 (2) (2) (2) (2) (3) (2) (2) (3) (3) (3) (3) (3) (3) (3) (3) (3) (3	Wing Tai Road	No. Cycc Sun Los Tot Co Cm Yult R.C Cp Ym: R.C	. of stages per cycle cle time m(y) ss time tal Flow = (1.5*L+5)/(1-Y) n = L/(1-Y) tt 2.ult $= (Yult-Y)/Y*100\%$ = 0.9*L/(0.9-Y) max = 1-L/C 2.(C) $= (0.9*Ymax-Y)/Y*100\%$	$\begin{array}{cccc} N = & 2 \\ C = & 100 \\ Y = & 0.211 \\ L = & 10 \\ = & 1432 \\ = & 25.4 \\ = & 12.7 \\ = & 0.825 \\ = & 290.5 \\ = & 13.1 \\ = & 0.900 \\ = & 283.4 \end{array}$	sec pcu sec sec % sec %	
(4) (4) (5) (5) (6) (6) (6) (6) (6)						
Move- ment Stage Lane Width Phase Iane No. of Iane Radius Traffic? Opposing Side Iane? Near- Side Iane?	Straight- Movement Total Proportion S Ahead Left Straight Right Flow of Turning Fl Sat. Flow pcu/h pcu/h pcu/h pcu/h vehicles pc	Flare lane Share Re Length Effect Sa m. pcu/hr p	evised at. Flow y Greater L pcu/h y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Averag Length Dela (m / lane) (secon
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 4 - - - Ped A 4.50 5 - - - Ped B 4.50 6 - - - - Image: Ped B 4.50 6 - - - - - Image: Ped B 4.50 6 - - - - - Image: Ped B 4.50 6 - - - - - Image: Ped B 4.50 6 - - - - - - Image: Ped B 4.50 - - - <td>4120 424 424 1.00 38 4310 184 184 1.00 40 4070 523 523 1.00 35 4070 265 265 0.00 40 4270 35 35 1.00 35 4070 4265 265 0.00 40 4270 35 35 1.00 35</td> <td></td> <td>10 3857 0.110 4056 0.045 3582 0.146 0.146 4070 0.065 0.065 3828 0.009</td> <td>47 62 19 62 62 62 28 28 4 28</td> <td>0.177 0.073 0.235 0.235 0.033</td> <td>12 6 3 6 15 6 15 22 0 23</td>	4120 424 424 1.00 38 4310 184 184 1.00 40 4070 523 523 1.00 35 4070 265 265 0.00 40 4270 35 35 1.00 35 4070 4265 265 0.00 40 4270 35 35 1.00 35		10 3857 0.110 4056 0.045 3582 0.146 0.146 4070 0.065 0.065 3828 0.009	47 62 19 62 62 62 28 28 4 28	0.177 0.073 0.235 0.235 0.033	12 6 3 6 15 6 15 22 0 23
		NOTES : PED	DESTRAIN WALKING SPEED = 1.2n	n/s QUEUING	LENGTH = A	VERAGE QUEUE * 6

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Pre	epared By: KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME /2_S1_J2_J5_J6_J7_J8.xls Che	ecked By: OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Rev	viewed By: OC 3-5-2011
Harmony Road (1) 102 (2) (2) (2) (3) (1) 102 (1) 424 (1) (1) 424 (1) (1	N X Wan Road	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 3 $C = 100 sec$ $Y = 0.254$ $L = 48 sec$ $= 1437 pcu$ $= 103.2 sec$ $= 64.3 sec$ $= 0.540$ $= 112.6 %$ $= 66.9 sec$ $= 0.520$ $= 84.3 %$
$(1) \longrightarrow (1)$ $(1) \longrightarrow (1)$ $(1) \longrightarrow (1)$ $(5) \longrightarrow (4)$ $(2) (2)$ (4) $(5) \longrightarrow (4)$	6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare land	Share Revised	g g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straight	Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L req	juired (input) Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 102 152 ST A 3.20 1 1 11 y 1945 102 152 ST A 3.00 1 2 y 3970 665 LT C 3.75 2 1 12 y 1990 83 RT C 3.75 2 1 12 y 1990 83 Ped B 6.50 4 -	254 0.40 1844 272 0.00 2075 665 0.00 3970 83 1.00 1769 164 164 1.00 1893	pcd/m pcd/m y sec y 1844 0.138 28 28 28 1844 0.138 2075 0.131 3970 0.168 0.168 1769 0.047 1893 0.086 0.086 20	sec x (m/rane) (second 28 34 0.402 24 18 27 34 0.382 24 18 34 34 0.488 36 17 10 18 0.264 6 31 18 18 0.488 18 32
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO CTLDOS Prenared Rv	KC 29-4-2011
17: Junction of Siu Sai Wan Road and Harmony Road(N)	171 V2 - Peak Hour Traffic Flows	FILENAME /2 S1 12 15 16 17 18 xls Checked By:	00 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $(1) \ 34 \ (1) \ 153 \ (1) \ 159 \ (1) \ 159 \ (1) \ 159 \ (1) \ 159 \ (1) \ 128 \ 29 \ (3) \ (2) \ (2) \ (5) \ 128 \ 97 \ (5) \ 135 \ (5) \ 977 \ (5) \ (5) \ Harmony Road$	N 🔨	No. of stages per cycleN =Cycle timeC =10Sum(y)Y =0.323Loss timeL =18Total Flow=125Co= (1.5*L+5)/(1-Y)=47.3Cm= L/(1-Y)Cm= L/(1-Y)=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)=R.C.(C)= (0.9*Ymax-Y)/Y*100%=130.6	4 5 sec 1 pcu 5 sec 5 %
$(1) \xrightarrow{(6)} (7) (6) (7) (4) (4)$ $(1) \xrightarrow{(1)} (3) (2)$ $(3) \xrightarrow{(3)} (3) (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	$(4) \qquad (6) \\ (5) $		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Straight- Movem Width Iane Traffic? side Ahead Left Straight- Move- m. m. m. m. Starigit Starigit Starigit	ent Total Proportion Sat. Flare lane nt Right Flow of Turning Flow Length n pcu/h pcu/h Vehicles pcu/h m.	Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.30 1 1 11 11 y 1945 34 81 ST/RT A 3.30 1 1 12 2085 72 RT B 3.50 2 1 12 2105 72 LT A,B 3.75 3 1 13 y 1990 128 RT C 3.50 4 1 12 2105 74 LT/ST C 3.50 4 1 12 74 76 LT/ST C 3.50 5 1 12 74 76 ST/RT D 3.50 5 1 12 74 76 LT/ST D 3.50 5 1 11 74 76 LT/ST D 3.50 5 1 11 76 76 Ped D,A,B 4.00 6 77 76 77 <td>115 0.30 1869 159 231 0.69 1920 29 29 1.00 1871 128 1.00 1784 170 170 1.00 1871 214 0.64 1818 130 1.00 1871 233 0.42 1859</td> <td>1869 0.062 17 32 1920 0.120 0.120 32 32 1871 0.016 0.016 4 4 1784 0.072 19 42 1871 0.091 24 32 1818 0.118 0.118 32 32 1818 0.118 0.118 32 32 1871 0.070 0.070 19 19 1859 0.125 34 34</td> <td>0.200 12 22 0.390 24 22 0.390 0 57 0.181 12 16 0.301 18 22 0.390 24 22 0.390 24 22 0.390 24 22 0.390 24 22 0.390 18 33 0.390 24 21</td>	115 0.30 1869 159 231 0.69 1920 29 29 1.00 1871 128 1.00 1784 170 170 1.00 1871 214 0.64 1818 130 1.00 1871 233 0.42 1859	1869 0.062 17 32 1920 0.120 0.120 32 32 1871 0.016 0.016 4 4 1784 0.072 19 42 1871 0.091 24 32 1818 0.118 0.118 32 32 1818 0.118 0.118 32 32 1871 0.070 0.070 19 19 1859 0.125 34 34	0.200 12 22 0.390 24 22 0.390 0 57 0.181 12 16 0.301 18 22 0.390 24 22 0.390 24 22 0.390 24 22 0.390 24 22 0.390 18 33 0.390 24 21
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	FILENAME /2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011	
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 929 \qquad \longrightarrow \qquad (1) 583 \qquad \checkmark \qquad $	N ◀— <u>Chai Wan</u> Road	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.686Loss timeL =18Total Flow=3145Co= (1.5*L+5)/(1-Y)=102.0Cm= L/(1-Y)=57.4Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=75.8Ymax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=8.7	sec pcu sec sec %
$(1) \longrightarrow (5) (5) (5) (7) (2) (3)$ Stage A $I = 7$ Stage B $I = 8$ Stage C	 ←→ (6) 1 = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Move	ment Total Proportion Sat. Flare lane Si	Share Revised g g g	Degree of Queue Average
ment width lane liamer side Anead Leit Stra	/h pcu/h pcu/h Vehicles pcu/h m. pc	cu/hr pcu/h y sec sec sec	X (m / lane) (seconds)
ST A 3.75 1 2 y 4120 9: 9: RT A 3.00 1 1 13 2055 4210 5: 5: 4210 5: 5: 5: 5: 5: 4210 5: 6: 9: 6: 6: 9: 6: <	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4120 0.226 18 182 0.316 0.316 40 29 1842 0.316 0.316 40 29 4210 0.133 0.133 17 17 1711 0.051 7 17 1832 0.285 36 36 1959 0.237 0.237 30 36	0.828 57 26 1.161 72 33 0.828 39 40 0.320 12 34 0.828 54 27 0.690 48 21
	NO	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Kaler	Agreement No. CPM301_15/10 - Traffic Impact Assessm	nent Study For Columbarium Development a	t Prepared By:	КС
	Junction Capacity Analysis		Checked By:	00
Junction layout s Design	ketch - J9: Junciton of Chai Wan Road and Wan Tsui Road n Year - 2021 Level 2 - Site 1 Time - Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAME	TERS
W ₁ W ₁ Chai Wan Road (E)	ARM B Wan Tsui Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂	← 571 ^{VV} 4 ARM	C MAJOR ROAD (ARM A) $q_{a-b} = \frac{65.567}{(pcu/hr)}$ $q_{a-c} = \frac{357.36}{(pcu/hr)}$	THE CAPACITY OF MC $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$	OVEMENT 777 691 381
		MAJOR ROAD (ARM C) W _{c-b} = 3.30 (metres)	COMPARISION OF DE	SIGN FLOW
REMARK: (GEOMETRI	C INPUT DATA)	Vr _{c-b} = 150 (metres)	DFC _{b-a} =	0.264
W = W _{cr} =	AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	q _{c-a} = 570.74 (pcu/hr) q _{c-b} = 97.293 (pcu/hr)	DFC _{b-c} = DFC _{c-b} =	0.191 0.141
$W_{b-a} =$ $W_{b-c} =$ $W_{c-b} =$ $VI_{b-a} =$ $Vr_{b-a} =$ $Vr_{b-c} =$ $Vr_{c-b} =$ $D =$ $E =$ $F =$	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.264
raffic impact Assessmen	ткероп /			Page 9 of 1

TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO : CTI DOS Prepared Rv:	KC 29-4-2011
110: Junction of Chai Wan Boad and San Ha Street	1101 V2 - Peak Hour Traffic Flows FILENAME /2 S1 12 15 16 17 18 xls Checked Bv:	00 29-4-2011
2021 Level 2 Peak Hour - Site 1	REFERENCE NO.: Reviewed By:	OC 3-5-2011
2021 Level 2 Peak Hour - Site 1 $(1) 708 _{26} _{26} _{513} (1)$	N N N \bigwedge \bigwedge \bigwedge \bigwedge \bigwedge \bigwedge \bigvee \bigvee \bigwedge \bigwedge \bigvee \bigvee \bigwedge \bigvee \bigvee \bigvee \bigwedge \bigvee \bigvee \bigvee \bigwedge \bigvee \bigcup <td>OC 3-5-2011 2 100 sec 1.326 10 sec 1502 pcu 29.7 sec 14.8 sec 1.825 15.7 % 15.7 sec 0.900 148.1 %</td>	OC 3-5-2011 2 100 sec 1.326 10 sec 1502 pcu 29.7 sec 14.8 sec 1.825 15.7 % 15.7 sec 0.900 148.1 %
$\begin{array}{ c c c c c c c c c c c c c c c c c c c$		
Stage A I = 6 Stage B I = 6 Stage C I =		
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Movem m. m. m. m. Sat. Flow pcu/h pcu	ent Total Proportion Sat. Flare lane Share Revised Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required (in pcu/h pcu/h Vehicles pcu/h m. pcu/hr pcu/h y sec sec sec	g Degree of Queue Average put) Saturation Length Delay ec X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 708 ST A 3.50 1 2 10 N 4070 513 LT B 3.00 2 1 10 N 1915 254 RT B 3.50 2 1 12 N 1915 254 Ped B 19.0 3 Image: Constraint of the state of the	708 0.00 4070 4070 0.174 0.174 48 513 0.00 4070 4070 0.126 35 254 1.00 1665 1665 0.153 0.153 42 26 26 1.00 1871 1871 0.014 4 4	17 0.370 30 11 17 0.268 21 11 13 0.288 18 9 13 0.027 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH =	AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Chai Wa	IN	PROJECT NO.: CTLDQS Prepared By:	кс <u>29-4-2011</u>
2021 Level 2 Peak Hour - Site 1	JIILV2 - Peak Hour Traffic Flows	PEEERENCE NO : Reviewed By:	0C 29-4-2011
		REFERENCE NO Reviewed by.	00 3-3-2011
Sheung On 1 (1) 100 (4) (1) 595 (1) 595 (4) (1) 595 (1) (4) (1) 595 (4) (4) (1) 386 (4) (1) 386 (4) (1) 386 (4) (4) (1) 386 (4) (4) (1) 386 (4) (4) (4) (4) (4) (4) (4) (4) (4) (4)	Street (4) 48 Chai Wan Road 720 (2) 105 (2)	No. of stages per cycleN =4Cycle timeC =120 sSum(y)Y =0.280Loss timeL =37 sTotal Flow=1991 pCo= (1.5*L+5)/(1-Y)=84.0 sCm= L/(1-Y)=51.4 sYult=0.623R.C.ult= (Yult-Y)/Y*100%=122.3 9Cp= 0.9*L/(0.9-Y)=53.7 sYmax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=122.3 9	ec ec icu ec iec %
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} \underbrace{(5)}_{(3)} \underbrace{(6)}_{(3)}$	(5) <> (4) (4) (6) (4) (4) (4) (4) (4) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5		
Stage A I = 8 Stage B I = 5 Sta	age C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Side Straigh Move- m. Width Iane Traffic? side Ahead Move- m. m. m. m. Sat. Flo	t- Movement Total Proportion Sat. Flare lane d Left Straight Right Flow of Turning Flow Length w pcu/h pcu/h pcu/h pcu/h Vehicles pcu/h m.	e Share Revised Effect Sat. Flow y Greater L required (input) Sec s	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.50 1 3 12 y 6175 LT/ST A 3.30 2 3 12 Y 6115 LT B 3.50 3 1 9 Y 1965 LT/RT D 3.75 4 2 10 y 4120 Ped B,C 4.00 5 5 10 Y 4120 Ped B,C 5.00 6 6 10	100 595 696 0.14 6066 105 720 825 0.13 6019 37 37 1.00 1684 48 386 434 1.00 3583	6066 0.115 34 6019 0.137 0.137 41 1684 0.022 0.022 7 3583 0.121 0.121 36 15 15 15	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM30	1_15/10 - Traffic Impact Assessment	Study For Colun	nbarium I	Developmen	t at C Pi	repared B	y :	КС
Junction Capacity Ana	lysis				C	hecked By	<i>ı</i> :	00
Junction layout sketch - J1: J/O Cape Collinson R Design Year - 2021 Level 3 - Reference Time - Level 3 Peak Hour ARM D Lin S	oad and Lin Shing Road Case thing Rd (N)	GEOMETRIC DE	ETAILS					
ac 217 a		10/		(0			TERO
N 217 2	8	VV 1	=	(metres)	G		ARAIVII	0.022
		VV ₂	= 0.00	(metres)		× ×	=	0.922
L		VV3	= 3.00	(metres)		∧ _B ∨	=	1.039
		VV4	= 5.00	(metres)		∧ _C ∨	=	0.500
14/		VV \\\/	= 0.00	(metres)		∧ _D	=	0.027
	vv ₃	VV cr1	= 0.00	(metres)		7	=	0.795
	Cape	VV cr2	= 0.00	(metres)		Ζ _B 7	=	1.005
Collins Collins	t Collins	VV cr	= 0.00	(metres)		ZD	=	0.905
on					T 1			
Road W ₂		MAJOR	RUAD	(ARIVI A)	IF			
	↓(<i>E</i>)	VV a-d	= 3.00	(metres)		Q _{b-a}	=	740
		vr _{a-d}	= 100	(metres)	~	Q _{b-c}	=	749
		q _{a-b}	= 0	(pcu/nr)	Q	b-d is nearsio	e =	
		q _{a-c}	= 0	(pcu/nr)		Q _{b-d}	=	011
2 0 0	1	Q _{a-d}	= 0	(pcu/nr)	-	Q _{d-a}	=	674
	thing Dd (C)				Q	d-b is nearsid	e =	TRUE
ARM B LINS	ning Ra (S)	MAJOR	RUAD	(ARIVI C)		Q _{d-b}	=	533
		VV _{c-b}	-	(metres)		Q _{d-c}	=	518
		Vr _{c-b}	=	(metres)		Q _{c-b}	=	437
W = AVERAGE MAJOR ROAD WIDTH		q _{c-a}	= 0	(pcu/hr)		Q _{a-d}	=	616
W _{cr} = AVERAGE CENTRAL RESERVE WID	IH	q _{c-b}	= 0	(pcu/hr)				
W _{a-d} = LANE WIDTH AVAILABLE TO VEHIC	LE WAITING IN STREAM A-D	q _{c-d}	= 0	(pcu/hr)	CC	OMPARISION	I OF DE	ESIGN FLOW
W _{b-a} = LANE WIDTH AVAILABLE TO VEHIC	LE WAITING IN STREAM B-A				тс) CAPACITY		
W_{b-c} = LANE WIDTH AVAILABLE TO VEHIC	LE WAITING IN STREAM B-C	MINOR	ROAD	(ARM B)		DFC _{b-a}	=	0.000
W _{c-b} = LANE WIDTH AVAILABLE TO VEHIC	LE WAITING IN STREAM C-B	W _{b-a}	= 5.00	(metres)		DFC b-c	=	0.003
W _{d-a} = LANE WIDTH AVAILABLE TO VEHIC	LE WAITING IN STREAM D-A	W _{b-c}	= 5.00	(metres)		DFC _{b-d}	=	0.000
W _{d-c} = LANE WIDTH AVAILABLE TO VEHIC	LE WAITING IN STREAM D-C	VI _{b-a}	= 100	(metres)		DFC _{d-a}	=	0.013
Vr_{a-d} = VISIBILITY TO THE RIGHT FOR VEH	ICLES WAITING IN STREAM A-D	Vr _{b-a}	= 65	(metres)		DFC _{d-b}	=	0.004
VI_{b-a} = VISIBILITY TO THE LEFT FOR VEHIC	CLES WAITING IN STREAM B-A	Vr _{b-c}	= 0	(metres)		DFC _{d-c}	=	0.419
Vr _{b-a} = VISIBILITY TO THE RIGHT FOR VEH	ICLES WAITING IN STREAM B-A	q _{b-a}	= 0	(pcu/hr)		DFC _{c-b}	=	0.000
Vr _{b-c} = VISIBILITY TO THE RIGHT FOR VEH	ICLES WAITING IN STREAM B-C	q _{b-c}	= 2	(pcu/hr)		DFC _{a-d}	=	0.000
Vr_{c-b} = VISIBILITY TO THE RIGHT FOR VEH	ICLES WAITING IN STREAM C-B	q _{b-d}	= 0	(pcu/hr)				
VI _{d-c} = VISIBILITY TO THE LEFT FOR VEHIC	CLES WAITING IN STREAM D-C				C	ritical DFC	; =	0.419
Vr _{d-c} = VISIBILITY TO THE RIGHT FOR VEH	ICLES WAITING IN STREAM D-C	MINOR	ROAD	(ARM D)				
Vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEH	ICLES WAITING IN STREAM D-A	W _{d-a}	= 3.00	(metres)				
X_A = GEOMETRIC PARAMETERS FOR ST	REAM A-D	W _{d-c}	= 3.00	(metres)				
X_{B} = GEOMETRIC PARAMETERS FOR ST	REAM B-A	VI _{d-c}	= 50	(metres)				
X _C = GEOMETRIC PARAMETERS FOR ST	REAM C-B	Vr _{d-c}	= 50	(metres)				
X _D = GEOMETRIC PARAMETERS FOR ST	REAM D-C	Vr _{d-a}	= 80	(metres)				
Z _B = GEOMETRIC PARAMETERS FOR ST	REAM B-C	q _{d-a}	= 8	(pcu/hr)				
Z _D = GEOMETRIC PARAMETERS FOR ST	REAM D-A	q _{d-b}	= 2	(pcu/hr)				
Y = (1-0.0345W)		q _{d-c}	= 217	(pcu/hr)				

TRAFFIC SIGNAL (CALCULAT	ION																				INITIALS	DATE	
TIA Study for C	olumbariı	ım Deve	lopment	at Cape	Collinson	Road, (Chai Wan									PROJECT N	0.:	CTLDQS		Prepared	By:	KC	29-4-2011	
Junction of Lin	Shing Roa	d and W	/an Tsui ƙ	Road						J2LV3 -	Peak Hou	ur Traffic Flows				FILENAME	:3_Ref_J2	_J5_J6_J7	_J8.xls	Checked	By:	OC	29-4-2011	
2021 Level 3 Pe	eak Hour ·	Refere	nce Case													REFERENCE	NO.:			Reviewed	By:	OC	3-5-2011	
				(1)	176 0 -	0 (2)	Lin Shing	— 419 - 405 Road	(1)		Wan Tsui	N X				No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	es per cyd = (1.5*L- = L/(1-Y) = (Yult-Y = 0.9*L/ = 1-L/C = (0.9*Y)	cle +5)/(1-Y))/Y*100% (0.9-Y) max-Y)/Y*	100%	N = C = Y = = = = = = =	2 120 0.439 25 1000 75.8 44.6 0.713 62.2 48.8 0.792 62.2	sec pcu sec sec sec sec %		
(1)	• • • • • • • • • • • • • • • • • • •	= 7	Sta	ge B			(3)	+ e C	▲	(4)					-									
Move- Stag ment	ge Lane Width m.	Phase	No. of lane	Radius m.	0	N	Straight- Ahead Sat. Flow	V Left pcu/h	Straight pcu/h	nt Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	Share Effect pcu/hr	Revised Sat. Flow pcu/h	У	Greater v	L sec	g (required) sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds
ST A ST/LT A Ped B	3.00 4.00	1 1 3	1 1	10		N N	1915 2015	405	176 419		176 825	0.00 0.49	1915 1877			1915 1877	0.092 0.439	0.439	20	20 95	95 95	0.116 0.555	6 30	2 3
NOTE : 0 - 0	OPPOSING	5 TRAFFI	C N -	NEAR S	IDE LANE		SG - STEA	DY GRE	EN	FG - FL	ASHING G	REEN	PEDESTR		ING SPEED) = 1.2m/s			QUEU	ING LENG	TH = AVER/	AGE QUEUE	* 6m	

Kale	NUN	Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development	at Prepared By:	КС
		Junction Capacity Analysis		Checked By:	00
Junction layo	out sketch - esign Year - Time -	J3: J/O Cape Collinson Road and Lin Shing Road - 2021 Level 3 - Reference Case Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAI	METERS
N W ₁ Shek O Road (N)	0Ĵ 415	ARM B Cape Collinson Road	W_1 = 3.90 (metres) W_2 = 3.90 (metres) W_3 = 4.80 (metres) W_4 = 4.50 (metres) W = 8.55 (metres) W_{cr1} = 0.00 (metres) W_{cr2} = 0.00 (metres) W_{cr} = 0.00 (metres)	D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂		∠ 259 W ₄ ARM C	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$ COMPARISION OF I	MOVEMENT 636 708 300 DESIGN FLOW
		ΓΡΑΤΑ	$W_{c-b} = 4.50$ (metres)	TO CAPACITY	0.679
W W W _{cr}	= AVERA = AVERA	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$q_{c-a} = 259$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	$DFC_{b-a} = DFC_{b-c} = DFC_{c-b} =$	0.003
W b-a W c-b VI b-a Vr b-a Vr b-a Vr b-c Vr c-b E F Y	 LANE \ LANE \ LANE \ VISIBIL VISIBIL VISIBIL VISIBIL GEOM GEOM GEOM (1-0.03) 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B 455W)	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 3.80(metres) $VI_{b-a} =$ 100(metres) $Vr_{b-a} =$ 100(metres) $Vr_{b-c} =$ 100(metres) $q_{b-a} =$ 203(pcu/hr) $q_{b-c} =$ 2(pcu/hr)	Critical DFC =	0.678

ROUNDABOUT CAPACITY ASSESSMENT								
TIA Study for Columbarium Development at Cape	Collinson Road		PROJECT NO.: 80510	PREPARED BY	: KC	Sep-13		
Junction 4: Chai Wan Road Roundabout	J4LV3 Peak Hour		FILENAME2021_LV3_Ref_J2_J5_J6_J7_	J8.xls CHECKED BY:	OC	Sep-13		
J4LV3 Peak Hour				REVIEWED BY:	: OC	Sep-13		
			(15115)					
			(ARM D)					
	(ARM D)	Ν	937.943795					
	Island Easter Corridor	4						
	<u>†</u> .							
[16] 407	[1] [2] [3] [4		1030					
[15] 495	→ 11 274 407 246)	00					
[14] 436 —			0 0					
[13] 5			0 0					
Chai Wan Bood								
				1110 500				
(ARM C)		1342.912	2 729 0 0	1140.526	880.3837			
	Chan V	Van Road (ARM C)	0 0		(ARM A)			
← ┐ ↓ ┌→	10 [5]		0 0					
			0 0					
	543 [6]		00					
47 81 77	7 4 273 [7]		1115					
[12] [11] [10]	[9] 55 [8]							
	· ·							
	, Wan Tsui Road		212.563452					
	(ARM B)		(ARM B)					
			(//////////////////////////////////////					
ARM	A B C D							
INPLIT PARAMETERS								
V = Approach balf width (m)	7.00 4.00 7.00 7.00							
E = Entry width (m)	9.00 7.00 10.00 7.00							
L = Effective length of flare (m)	6.00 5.00 6.00 6.00							
R = Entry radius (m)	40.00 15.00 40.00 25.00							
D = Inscribed circle diameter (m)	50.00 50.00 50.00 50.00							
A = Entry angle (degree)	30.00 35.00 36.00 30.00							
Q = Entry flow (pcu/h)	880 213 1343 938							
Qc = Circulating flow across entry (pcu/h) 1141 1115 729 1030)						
OUTPUT PARAMETERS:								
S = Sharpness of flare = 1.6(E-V)/L	0.53 0.96 0.80 0.00							
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.02 0.97 1.00 1.01							
X2 = V + ((E-V)/(1+2S))	7.97 5.03 8.15 7.00							
M = EXP((D-60)/10)	0.37 0.37 0.37 0.37							
F = 303*X2	2414 1523 2471 2121							
Td = 1+(0.5/(1+M))	1.37 1.37 1.37 1.37							
$Fc = 0.21^{*}Td(1+0.2^{*}X2)$	0.74 0.58 0.75 0.69		T () ()		DOLL			
Qe = K(F-Fc*Qc)	1604 852 1928 1426		I otal In Sum =	2618.926	PCU			
				- - -				
DFC = Design flow/Capacity = Q/Qe	0.55 0.25 0.70 0.66		DFC of Critical Approach =	0.70				

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	·	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 246 \longrightarrow (3) 41 \longrightarrow (408 (1))$ $(3) 41 \longrightarrow (408 (1))$ $(252) 591 \longrightarrow (408 (1))$ $(252) (2) (2) \longrightarrow (408 (1))$	N 📡 Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.225Loss timeL =10Total Flow=1539Co= (1.5*L+5)/(1-Y)=25.8Cm= L/(1-Y)=12.9Yult=0.825R.C.ult= (Yult-Y)/Y*100%=266.0Cp= 0.9*L/(0.9-Y)=13.3Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=259.4	sec pcu sec sec sec %
(4) (4) (3) (3) (3) $(-+)$ (6)			
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Moveme ment Width lane Traffic? side Ahead Left Straight m. Iane? Sat. Flow pcu/h jccu/h	ent Total Proportion Sat. Flare lane Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Effect Sat. Flow y Greater L (required) (input) pcu/hr y sec sec sec sec sec	Degree of SaturationQueueAverageX(m / lane)(seconds)
LT A 3.75 1 2 22 y 4120 408 252 LT A 4.00 2 2 24 y 4310 252 252 RT A 3.50 2 2 11 y 4070 252 RT B 3.50 3 2 13 y 4070 246 Ped A 4.50 4 4.50 5 4 4.50 5 4.50 5 4.50	408 1.00 3857 252 1.00 4056 591 591 1.00 3582 246 0.00 4070 41 1.00 3828	3857 0.106 42 66 4056 0.062 25 66 3582 0.165 0.165 66 66 4070 0.060 0.060 24 24 3828 0.011 42 66 66	0.161 9 5 0.094 6 5 0.250 15 5 0.250 15 25 0.045 0 26
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIG	NAL CAI	LCULATI	ON																				INITIALS	DATE	
TIA Study	for Colu	umbariu	m Devel	lopment	at Cape	Collinsor	n Road, (Chai Wan			·						PROJECT N	0.:	CTLDQS		Prepared	By:	КС	29-4-2011	
J6: Junctio	on of Siu	ı Sai Wa	n Road a	and Harn	nony Ro	ad					J6LV3 -	Peak Hou	ur Traffic Flows				FILENAME	:3_Ref_J2	_J5_J6_J7	_J8.xls	Checked	By:	OC	29-4-2011	
2021 Leve	el 3 Peak	k Hour -	Referer	nce Case													REFERENCE	E NO.:			Reviewed	l By:	OC	3-5-2011	
				(1) (1)	105 – 441 –	Hai	rmony R (2) 41	(2) 34		Siu Sai 716	Wan Ro	bad	N X				No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	= (1.5*L- = L/(1-Y) = (Yult-Y = 0.9*L/ = 1-L/C = (0.9*Yi	cle -5)/(1-Y))/Y*100% 0.9-Y) nax-Y)/Y*	100%	N = C = Y = = = = = = = = =	3 100 0.202 48 1337 96.5 60.2 0.540 167.2 61.9 0.520 131.5	sec pcu sec sec sec %		
(1) (1) Stag	•		10	(5) Sta	<pre></pre>	(3) ► ↓	(4)	(2)	 ⇒ C	(2)	6					-									
Move-	Stage	Lane	Phase	No. of	Radius	Opposing	Near-	Straight-	N	loveme	nt	Total	Proportion	Sat.	Flare lane	Share	Revised				g	g	Degree of	Queue	Average
ment		Width		lane	m	Traffic?	side lane?	Ahead Sat Flow	Left	Straight	Right	Flow ncu/h	of Turning Vehicles	Flow ncu/h	Length	Effect	Sat. Flow	У	Greater	L	(required)	(input)	Saturation	Length (m / Jane)	Delay (seconds)
LT/ST ST LT RT Ped Ped Ped	A A C C B B B B	3.30 3.20 3.00 3.75 3.75 11.00 6.50 6.50	1 1 2 2 3 4 5	1 1 2 1 1	11 12 12		y y y	1945 2075 3970 1990 2130	105 34	152 289 716	41	257 289 716 34 41	0.41 0.00 0.00 1.00 1.00	1843 2075 3970 1769 1893			1843 2075 3970 1769 1893	0.139 0.139 0.180 0.019 0.022	0.180	28	36 36 46 5 6	46 46 46 6 6	0.300 0.300 0.389 0.341 0.389	18 24 30 0 6	12 12 11 48 49
																NOTES :	PEDESTRAI	N WALKII	NG SPEED	= 1.2m	/s	QUEUING	LENGTH = A	/ERAGE QU	EUE * 6m

TRAFFIC SIGNAL CALCULATION		DROJECT NO · CTI DOS Prepared By:	INITIALS DATE
17: Junction of Siu Sai Wan Road and Harmony Road(N)	17LV3 - Peak Hour Traffic Flows	FILENAME 3 Ref 12 15 16 17 18 xls Checked By:	0C 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $(1) 13 \\ (1) 167 \\ (1) 167 \\ (1) 167 \\ (1) 16 \\ \hline \\ 95 10 \\ (3) (2) \\ \hline \\ Harmony Road$	N X Wan Road	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.351Loss timeL =18Total Flow=1027Co= (1.5*L+5)/(1-Y)=49.3Cm= L/(1-Y)Cm= L/(1-Y)=7Yult=0.765R.C.ult= (Yult-Y)/Y*100%Cp= 0.9*L/(0.9-Y)=29.5Ymax= 1-L/C9.6.(C)= (0.9*Ymax-Y)/Y*100%=112.4	sec pcu sec sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(7)} (3) (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} $	$(4) \qquad (6) \qquad (7) \qquad (6) \qquad (6) \qquad (7) $		
Move- ment Stage Width Lane Phase Iane No. of Iane Radius Traffic? Opposing side Near- Ahead Straight- Left Movement Straight m. m. m. m. Iane? Sat. Flow pcu/h	nt Total Proportion Sat. Flare lane Sr Right Flow of Turning Flow Length Ef pcu/h pcu/h Vehicles pcu/h m. pc	hare Revised ffect Sat. Flow y Greater L (required) (input) cu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 12 2105 13 81 ST/RT A 3.30 1 1 1 12 2085 86 RT B 3.50 2 1 12 2105 86 LT A,B 3.75 3 1 13 9 1990 95 RT C 3.50 4 1 12 2105 2105 LT/ST C 3.50 4 1 12 2105 2105 LT/ST D 3.50 5 1 12 2105 0 LT/ST D 3.50 5 1 12 y 1965 301 26 ST/RT D 3.50 5 1 11 y 1965 3 71 Ped D,A,B 4.00 6 11	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	0.417 12 40 0.424 12 40 0.424 0 99 0.301 12 32 0.144 6 14 0.424 30 14 0.424 6 45
	NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 735 \longrightarrow (1) 730 \longrightarrow (2) \\ (1) 730 \longrightarrow (2) \\ (3) (3) Tai Tam Road$	N 🚽	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.758Loss timeL =18Total Flow=3034Co= (1.5*L+5)/(1-Y)=200 Cm= L/(1-Y)=74.5Yult=70.7P. (1.5*L+5)/(1-Y)=70.7=14.570.7=0.9*L/(0.9-Y)=70.7=114.570.8=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=-1.7	sec pcu sec sec sec %
$(1) \longrightarrow (5) (5) (7) (7) (7) (2) (3)$	 (6) 6 		
Move- ment Stage Width Lane m. Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight Left Movem Straight Moven m. m. mathematical mathemat	ent Total Proportion Sat. Flare lane Sha Right Flow of Turning Flow Length Effe pcu/h pcu/h Vehicles pcu/h m. pcu/	are Revised ect Sat. Flow y Greater L (required (input) /hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
ST A 3.50 1 2 y 4070 735 RT A 3.50 1 1 13 2105 4210 709 ST B 3.50 2 2 4210 709 709 LT B 3.10 2 1 12 y 1925 120 LT C 4.00 3 1 15 y 2015 372 LT/RT C 4.00 3 1 15 y 2015 372 LT/RT C 4.00 3 1 15 2155 163 Ped A 4.50 4 4 4.00 <td< td=""><td>735 0.00 4070 730 730 1.00 1887 709 0.00 4210 120 1.00 1711 372 1.00 1832 205 368 1.00 1959</td><td>4070 0.181 18 21 21 1887 0.387 0.387 44 21 4210 0.168 0.168 19 19 1711 0.070 8 19 1832 0.203 0.203 23 23 1959 0.188 222 23</td><td>0.915 54 43 1.959 102 42 0.915 54 44 0.379 12 32 0.915 66 35 0.845 48 44</td></td<>	735 0.00 4070 730 730 1.00 1887 709 0.00 4210 120 1.00 1711 372 1.00 1832 205 368 1.00 1959	4070 0.181 18 21 21 1887 0.387 0.387 44 21 4210 0.168 0.168 19 19 1711 0.070 8 19 1832 0.203 0.203 23 23 1959 0.188 222 23	0.915 54 43 1.959 102 42 0.915 54 44 0.379 12 32 0.915 66 35 0.845 48 44
	NOTES	ES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows FILENAME 3_Ref_J2_J5_16_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case	REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) \begin{array}{c} 844 \\ 53 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	No. of stages per cycle N = 2 Cycle time C = 100 s Sum(y) Y = 0.447 Loss time L = 10 s Total Flow = 1777 p Co = $(1.5*L+5)/(1-Y)$ = 36.2 s Cm = $L/(1-Y)$ = 18.1 s Yult = 0.825 R.C.ult = $(Yult-Y)/Y*100\%$ = 84.4 9 Cp = $0.9*L/(0.9-Y)$ = 19.9 s Ymax = $1-L/C$ = 0.900 R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$ = 81.0 9	;ec ;ec ;ec ;ec % ;ec
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$	=	
Move- Stage Lane Phase No of Radius O N Straight- Movem	vent Total Proportion Sat Flare lane Share Revised	Degree of Queue Average
ment Width lane Ahead Left Straig	it Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required (input) S	Saturation Length Delay
ST A 3.50 1 2 10 N 4070 844 ST A 3.50 1 2 10 N 4070 480 ST A 3.50 1 2 10 N 4070 480 LT B 3.00 2 1 10 N 1915 400 RT B 3.50 2 1 12 St 2105 400 Ped B 19.0 3 St St <td>n pcu/n pcu/n v sec sec</td> <td>X (m / lane) (seconds) 0.441 36 11 0.251 21 11 0.453 30 9 0.053 0 10</td>	n pcu/n pcu/n v sec sec	X (m / lane) (seconds) 0.441 36 11 0.251 21 11 0.453 30 9 0.053 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAG	GE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION	Wee	INITIALS DATE	
111: Junction of Chai Wan Road, Sheung On Street & Wing Ding Street	11111/3 - Peak Hour Traffic Flows	EILENAME & Ref. 12. 15. 16. 17. 18 vis Checked By: CC 29-4-2011	
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO · Reviewed By: OC 25-4-2011	
(1) 79 (1) 685 (3) (1) 685 (3) (1) 685 (3) (1) 685 (3) (1) 685 (3) (1) 685 (3) (1) 685 (3) (1) 685 (1)	On Street (4) (4) 307 24 Chai Wan Road (2) (2)	No. of stages per cycleN =4Cycle timeC =120 secSum(y)Y =0.264Loss timeL =37 secTotal Flow=1929 pcuCo=(1.5*L+5)/(1-Y)=82.2 secCm=Cm=L/(1-Y)=90.23R.C.ult=0.623R.C.ult=(Yult-Y)/Y*100%=135.9 %Cp=0.592Ymax=1-L/C=0.692R.C.(C)=(0.9*Ymax-Y)/Y*100%=135.9 %SecSec	
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} \underbrace{(5)}_{(3)} \underbrace{(6)}_{(6)}$	$(5) \leftarrow \cdots \leftarrow (6) \qquad (4) (4) \qquad (4$		
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Strait Move- m. Midth Iane Traffic? side Ahe	aight- Movement Total Proportion Sat. Flare nead Left Straight Right Flow of Turning Flow Leng . Flow pcu/h pcu/h pcu/h Vehicles pcu/h m	laneShareRevisedgthEffectSat. FlowyGreaterLggDegree ofQueueu.pcu/hrpcu/hyGreaterLsecsecSecSaturationLengthu.pcu/hrpcu/hygsecsecsecsecx(m / lane)	Average Delay (seconds)
LT/ST A 3.50 1 3 12 Y 617 LT/ST A 3.30 2 3 12 Y 617 LT B 3.50 3 1 9 Y 199 LT/RT D 3.75 4 2 10 y 412 Ped B,C 4.00 5 10 Y 412 Ped B,C 5.00 6 10 Y 412 Ped C 3.00 7 10 10 10 10 LT/RT D 3.75 4 2 10 Y 412 Ped B,C 5.00 6 10 10 10 10 10 Ped C 3.00 7 10 10 10 10 10 10 L I I I I I I I I I I I I I I I I I I I	175 79 685 765 0.10 6096 115 120 638 757 0.16 5997 965 76 76 1.00 1684 120 24 307 331 1.00 3583	6096 0.125 39 0.000 50 5997 0.126 0.126 40 0.000 50 1684 0.045 0.045 14 0.000 12 3583 0.092 0.092 29 0.000 33 15 15 14 14 15 15 15	54 54 54 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUE	UE * 6m

1 010	. ro	W Innetion Consolity Analysis	ion o		Developine	Chester D	y. 	00
	_	Junction Capacity Analysis	r			Checked B	/:	OC
nction layo D	out sk esign	etch - J1: J/O Cape Collinson Road and Lin Shing Road Year - 2021 Level 3 - Site 1 Fime - Level 3 Peak Hour ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS				
	${\mathcal N}$	189 2 8		W ₁ =	(metres)	GEOMETRIC F	ARAN	IETERS
				$W_2 = 6.00$	(metres)	X _A	=	0.922
				$W_3 = 3.00$	(metres)	X _B	=	1.039
	_			$W_4 = 3.00$	(metres)	Xc	=	0.586
		ARMA		W = 6.00	(metres)	X _D	=	0.827
W ₁		W ₃		$W_{cr1} = 0.00$	(metres)	Y	=	0.793
c		Cono		$W_{cr2} = 0.00$	(metres)	Z _B	=	1.005
W _{cr1}		W _{er2} Collins		W _{cr} = 0.00	(metres)	Z _D	=	0.905
2		t 0 on						
W ₂		← 0 W₄ Road		MAJOR ROAD	(ARM A)	THE CAPACIT	YOFN	IOVEMENT
		• 0 (E)		W _{a-d} = 3.00	(metres)	Q _{b-a}	=	620
				Vr _{a-d} = 100	(metres)	Q b-c	=	749
				q _{a-b} = 0	(pcu/hr)	Q b-d is nearsid	e =	TRUE
				q _{a-c} = 0	(pcu/hr)	Q b-d	=	611
		2 0 0		q _{a-d} = 0	(pcu/hr)	Q _{d-a}	=	674
						Q _{d-b} is nearsid	e =	TRUE
		ARM B Lin Shing Rd (S)		MAJOR ROAD	(ARM C)	Q _{d-b}	=	533
				W _{c-b} =	(metres)	Q _{d-c}	=	518
RK: (GEON	IETRI	CINPUT DATA)		Vr _{c-b} =	(metres)	Q _{c-b}	=	437
W	=	AVERAGE MAJOR ROAD WIDTH		q _{c•a} = 0	(pcu/hr)	Q a-d	=	616
W _{cr}	=	AVERAGE CENTRAL RESERVE WIDTH		q _{c-b} = 0	(pcu/hr)			
W _{a-d}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D		q _{c-d} = 0	(pcu/hr)	COMPARISION	I OF D	ESIGN FLOW
W _{b-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A				TO CAPACITY		
W b-c	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C		MINOR ROAD	(ARM B)	DFC b-a	=	0.000
W _{c-b}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B		W _{b-a} = 5.00	(metres)	DFC b-c	=	0.003
W _{d-a}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A		$W_{b-c} = 5.00$	(metres)	DFC b-d	=	0.000
W _{d-c}	=	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C		VI _{b-a} = 100	(metres)	DFC _{d-a}	=	0.013
Vr _{a-d}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D		Vr _{b-a} = 65	(metres)	DFC _{d-b}	=	0.004
VI _{b-a}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A		Vr _{b-c} = 0	(metres)	DFC _{d-c}	=	0.366
Vr _{b-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A		q _{b-a} = 0	(pcu/hr)	DFC _{c-b}	=	0.000
Vr _{b-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C		q _{b-c} = 2.1151	(pcu/hr)	DFC a-d	=	0.000
Vr _{c-b}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B		q _{b-d} = 0	(pcu/hr)			
VI _{d-c}	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C				Critical DFC) =	0.366
Vr _{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C		MINOR ROAD	(ARM D)			
Vr _{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A		W _{d-a} = 3.00	(metres)			
X _A	=	GEOMETRIC PARAMETERS FOR STREAM A-D		W _{d-c} = 3.00	(metres)			
X _B	=	GEOMETRIC PARAMETERS FOR STREAM B-A		VI _{d-c} = 50	(metres)			
Xc	=	GEOMETRIC PARAMETERS FOR STREAM C-B		Vr _{d-c} = 50	(metres)			
X _D	=	GEOMETRIC PARAMETERS FOR STREAM D-C		Vr _{d-a} = 80	(metres)			
ZB	=	GEOMETRIC PARAMETERS FOR STREAM B-C		q _{d-a} = 8.4602	(pcu/hr)			
Z _D	=	GEOMETRIC PARAMETERS FOR STREAM D-A		q _{d-b} = 2.1151	(pcu/hr)			
V	_	(1-0.0345W)		$q_{dc} = 189.37$	(pcu/hr)			

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDOS Prepared By:	KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME /3 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 176 \qquad \qquad$	N X	No. of stages per cycleN =2Cycle timeC =120 sSum(y)Y =0.461Loss timeL =25 sTotal Flow=1043 gCo= (1.5*L+5)/(1-Y)=78.8 sCm= L/(1-Y)=46.4 sYult=0.713R.C.ult= (Yult-Y)/Y*100%=54.6 gCp= 0.9*L/(0.9-Y)=51.2 sYmax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=54.6 g	;ec ;ec ;ec ;ec ;ec ;ec ;ec ;ec
(1) (3) _	(4)		
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Moven m. Iane m. Sat. Flow pcu/h pcu/h pcu/h	hent Total Proportion Sat. Flare lane ht Right Flow of Turning Flow Length h pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Effect Sat. Flow y Greater L required (input) 1 pcu/hr pcu/h y sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
ST A 3.00 1 1 N 1915 176	i 176 0.00 1915	1915 0.092 5 19 95	0.116 6 2
ST/LT A 4.00 1 1 10 N 2015 406 462 Ped B 6.0 3 Image: Constraint of the second	2 868 0.47 1883	1883 0.461 0.461 95 95 20 20 100 100 100	0.582 36 3
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKIN	NG SPEED = 1.2m/s QUEUING LENGTH = AVERA	GE QUEUE * 6m

Vala	Agreement No. CPM301_15/10 - Traffic Impact Assessr	nent Study For Columbarium Development at	Prepared By:	КС
	Junction Capacity Analysis		Checked By:	00
Junction layou Des	t sketch - J3: J/O Cape Collinson Road and Lin Shing Road ign Year - 2021 Level 3 - Site 1 Time - Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAM	ETERS
$\mathcal{N} \qquad \qquad$	ARM B Cape Collinson Road	$ \begin{array}{rcrrr} W_1 & = & 3.90 & (metres) \\ W_2 & = & 3.90 & (metres) \\ W_3 & = & 4.80 & (metres) \\ W_4 & = & 4.50 & (metres) \\ W & = & 8.55 & (metres) \\ W_{cr1} & = & 0.00 & (metres) \\ W_{cr2} & = & 0.00 & (metres) \\ W_{cr} & = & 0.00 & (metres) \\ \end{array} $	D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂	← 259 ^W ₄ ARM	C MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 414.55$ (pcu/hr)	THE CAPACITY OF M $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$	OVEMENT 636 708 300
		$W_{cb} = 4.50 \text{ (ARM C)}$	TO CAPACITY	ESIGN FLOW
REMARK: (GEOMET W = W _{cr} =	FRIC INPUT DATA) AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	$ Vr_{c\cdot b} = 150 \text{ (metres)} q_{c\cdot a} = 259.09 \text{ (pcu/hr)} q_{c\cdot b} = 0 \text{ (pcu/hr)} $	$\begin{array}{rcl} DFC_{b\text{-}a} & = \\ DFC_{b\text{-}c} & = \\ DFC_{c\text{-}b} & = \end{array}$	0.603 0.003 0.000
$W_{b-a} = W_{b-c} = W_{c-b} = W_{c$	 LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W) 	$\begin{array}{llllllllllllllllllllllllllllllllllll$	Critical DFC =	0.603
attic Impact Assessm ctober 2007	nent Report			Page 3 of

			ROUNDABOUT CAPAC	ITY ASSESSM	ENT		INITIALS	DATE
TIA St	udy for	Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Junctio	on 4: C	hai Wan Road Roundabout	J4LV3 Peak Hour		FILENAME2021_LV3_S1_J2_J5_J6_J7_	J8.xls CHECKED BY:	OC	Sep-13
J4LV3	Peak	Hour				REVIEWED BY:	OC	Sep-13
							-	-
					(ARM D)			
		(ARM D)		N	978.617723			
		Island Easter Corri	dor					
		t						
		[16] 417	[1] [2] [3] [4]	-	1057			
		[15] 511	11 288 434 246		0.0			
					0.0			
			▲					
					0 0			
Chai V	Van Ro	pad			0 0			
(ARM	C)		(ARM A)	1379.81	8 823 O O	1191.619	989.886	
			Chan Wan Ro	ad (ARM C) O O		(ARM A)	
			10 [5]		0 0			
			Ť		0 0			
			637 [6]		0.0			
					1222			
					1232			
		[12] [11] [10] [9]	61 [8]					
			*					
		Wan Tsui Road			212.563452			
		Wan Tsui Road (ARM B)			212.563452 (ARM B)			
		Wan Tsui Road (ARM B)			212.563452 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		212.563452 (ARM B)			
ARM	PARA	Wan Tsui Road (ARM B) METERS:	A B C D		212.563452 (ARM B)			
ARM INPUT	PARA	Wan Tsui Road (ARM B) METERS:	A B C D		212.563452 (ARM B)			
ARM INPUT V	PARA =	Wan Tsui Road (ARM B) METERS: Approach half width (m)	A B C D		212.563452 (ARM B)			
ARM INPUT √ Ξ	PARA = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		212.563452 (ARM B)			
ARM INPUT V E	- PARA = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		212.563452 (ARM B)			
ARM INPUT E L R	PARA = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		212.563452 (ARM B)			
ARM INPUT V E L R D	PARA = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		212.563452 (ARM B)			
ARM INPUT E L R D A	- PARA = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00		212.563452 (ARM B)			
ARM INPUT E - R J A J	- PARA = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 990 213 1380 979		212.563452 (ARM B)			
ARM NPUT E L R D A Q Q C	= = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 990 213 1380 979 1192 1232 823 1057		212.563452 (ARM B)			
ARM INPUT E L R D A Q Q Q c	PARA = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057		212.563452 (ARM B)			
ARM INPUT E L R D A Q Q C OUTP	= = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057		212.563452 (ARM B)			
ARM INPUT E L R D A Q Q C OUTP S	= = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057		212.563452 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		212.563452 (ARM B)			
ARM INPUT V E L R D A Q Q Q C OUTP S K X2	= = = = = = = = = = UT PA = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 990 213 1380 979 1192 1232 823 1057 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		212.563452 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		212.563452 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414		212.563452 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d T	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 1.37 1.37		212.563452 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.69 0.69 0.69		212.563452 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F Td F C Q e	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1565 787 1856 1407		212.563452 (ARM B)	2790.023	PCU	
ARM INPUT V E L R D A Q Q C UTP S K X2 M F Td F C Qe	PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 990 213 1380 979 1192 1232 823 1057 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1565 787 1856 1407		212.563452 (ARM B)	2790.023	PCU	

TRAFFIC SIGNAL CALCULATION						INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	d, Chai Wan			PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Ho	our Traffic Flows		FILENAME :/3_S1_J2_J5_J6_J7_J8.xl	s Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Site 1			I	REFERENCE NO.:	Reviewed By:	OC	3-5-2011
$(3) 261 \longrightarrow (3) 41 \longrightarrow (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)$	Wing Ta 408 (1) 3 Wan Road	N 🔪		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 2 C = 100 Y = 0.231 L = 10 = 1573 = 26.0 = 13.0 = 0.825 = 257.1 = 13.5 = 0.900 = 250.6 $N = 2 = 250.6 $	sec pcu sec sec % sec %	
(4) (4) (5) (3) (3) (3) (6) (6) (6) (6) (6)							
Move- Stage Lane Phase No. of Radius Opposing Near- ment Width Iane m. Traffic? side Iane	r- Straight- Movement Total Ahead Left Straight Right Flow Sat. Flow pcu/h pcu/h pcu/h pcu/h	Proportion Sat. Flam of Turning Flow Le Vehicles pcu/h	are lane Share ength Ettect m. pcu/hr	Revised Sat. Flow y Greater L pcu/h y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Averag Length Delar (m / lane) (secon
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 4 <td>4120 408 408 408 4310 265 265 4070 598 598 4070 261 261 4270 41 41</td> <td>1.00 3857 1.00 4056 1.00 3582 0.00 4070 1.00 3828</td> <td></td> <td>10 3857 0.106 4056 0.065 3582 0.167 0.167 4070 0.064 0.064 3828 0.011</td> <td>41 65 25 65 65 65 25 25 4 25</td> <td>0.163 0.100 0.257 0.257 0.043</td> <td>9 5 6 5 15 5 15 24 0 25</td>	4120 408 408 408 4310 265 265 4070 598 598 4070 261 261 4270 41 41	1.00 3857 1.00 4056 1.00 3582 0.00 4070 1.00 3828		10 3857 0.106 4056 0.065 3582 0.167 0.167 4070 0.064 0.064 3828 0.011	41 65 25 65 65 65 25 25 4 25	0.163 0.100 0.257 0.257 0.043	9 5 6 5 15 5 15 24 0 25
			NOTES :	PEDESTRAIN WALKING SPEED = 1.2	m/s QUEUING	LENGTH = A	VERAGE QUEUE * 6ı
TRAFFIC SIGNAL CALCULATION			INITIALS DATE				
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TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011				
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME /3 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011				
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011				
Harmony Road (1) 105 (1) 448 (1) 448 (1) (1) (1)	N Siu Sai Wan Road 725	No. of stages per cycleN =3Cycle timeC =100 sSum(y)Y =0.204Loss timeL =48 sTotal Flow=1353 pCo= (1.5*L+5)/(1-Y)=96.8 sCm= L/(1-Y)=60.3 sYult=0.540R.C.ult= (Yult-Y)/Y*100%=164.1 sCp= 0.9*L/(0.9-Y)=62.1 sYmax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=128.9 s	sec sec sec sec %				
$(1) \xrightarrow{(1)} (1) (1)$	(2)						
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- ment Width Iane Traffic? side Ahead Left m, Iane? Sat. Flow pcu/	Novement Total Proportion Sat. Flare la Straight Right Flow of Turning Flow Lengti Jocu/h Jocu/h Vehicles pcu/h m.	ane Share Revised th Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / Jane) (seconds)				
LT/ST A 3.30 1 1 11 y 1945 105 ST A 3.20 1 1 11 y 1945 105 ST A 3.00 1 2 y 3970 105 LT C 3.75 2 1 12 y 1990 34 RT C 3.75 2 1 12 y 1990 34 Ped B 6.50 4 - - - 2130 - Ped B 6.50 5 - </td <td>152 257 0.41 1843 296 296 0.00 2075 725 725 0.00 3970 34 1.00 1769 41 41 1.00 1893</td> <td>1843 0.139 28 35 46 2075 0.143 36 46 46 3970 0.183 0.183 46 46 1769 0.019 5 6 6 1893 0.022 0.022 6 6</td> <td>0.300 18 12 0.307 24 12 0.393 30 11 0.345 0 48 0.393 6 49</td>	152 257 0.41 1843 296 296 0.00 2075 725 725 0.00 3970 34 1.00 1769 41 41 1.00 1893	1843 0.139 28 35 46 2075 0.143 36 46 46 3970 0.183 0.183 46 46 1769 0.019 5 6 6 1893 0.022 0.022 6 6	0.300 18 12 0.307 24 12 0.393 30 11 0.345 0 48 0.393 6 49				
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m				

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TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1711/2 Deak Hour Traffic Flows	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
3021 Lovel 2 Deek Hour Site 1	J7LV3 - Peak Hour Traffic Flows	FILENAME 73_S1_J2_J5_J6_J7_J8.XIS CHECKED BY:	00 29-4-2011
		REFERENCE NO Reviewed by.	00 3-3-2011
Bus Terminal $(1) 13 \qquad (4) (4) \qquad (4) \qquad (1) \qquad (1)$	N Wan Road	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.351Loss timeL =18Total Flow=1027Co= $(1.5*L+5)/(1-Y)$ =Qm= $L/(1-Y)$ =27.7Yult=Yult=0.765R.C.ult= $(Yult-Y)/Y*100\%$ =Cp= $0.9*L/(0.9-Y)$ =29.5Ymax= $1-L/C$ R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =112.4	sec pcu sec sec % sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (3) (2)$ $(3) \xrightarrow{(3)} (3) = 5 \xrightarrow{(3)} (2) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (6) → (5) (5) (5) (5) (5) (5) (5) (5)		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat Flare lane Sha	nare Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straigh	Right Flow of Turning Flow Length Effe	tect Sat. Flow y Greater L required (input)	Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 13 81 ST/RT A 3.30 1 1 11 12 2085 86 RT B 3.50 2 1 12 2105 86 LT A,B 3.75 3 1 13 y 1990 95 RT C 3.50 4 1 12 2105 12 LT/ST C 3.50 4 1 12 2105 13 LT/ST C 3.50 5 1 12 2105 14 LT/ST D 3.50 5 1 12 2105 14 LT/ST D 3.50 5 1 11 y 1965 301 26 ST/RT D 3.50 5 1 11 y 1965 3 71 Ped D,A,B 4.00 6 Image: Colored and and and and and and and and and an	pcu/n pcu/n venicies pcu/n m. pcu/n 94 0.14 1910 1 <	u/m pcu/m y sec sec sec 1910 0.049 18 12 12 2045 0.050 0.050 12 12 1871 0.005 0.005 1 1 1784 0.053 13 19 1871 0.063 16 46 1762 0.186 0.186 46 1871 0.110 277 27 1954 0.038 9 9	x (m / lane) (seconds) 0.417 12 40 0.424 12 40 0.424 0 99 0.301 12 32 0.144 6 14 0.424 30 14 0.424 6 45
	NOTE	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME /3_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 781 \longrightarrow (1) 730 (2) 753 $	N ◀	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.752Loss timeL =18Total Flow=3110Co= (1.5*L+5)/(1-Y)=129.0Cm= L/(1-Y)=72.6Yult=0.765R.C.ult= (1.7Cp= 0.9*L/(0.9-Y)=109.4Ymax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=-0.8	sec pcu sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (1) \longrightarrow (7) \qquad (7) \qquad (2) \qquad (3)$	 ← → (6) = 6 		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Traffic? Straight- side Mover m. m. m. m. Traffic? side Ahead Left Straight- Sat. Flow Sat. Flow pcu/n pcu/n	nent Total Proportion Sat. Flare lane Sharn ht Right Flow of Turning Flow Length Effec h pcu/h pcu/h Vehicles pcu/h m. pcu/h	re Revised oct Sat. Flow y Greater L required (input) 'hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
ST A 3.75 1 2 y 4120 78 RT A 3.00 1 1 13 2055 4210 75 ST B 3.50 2 2 4210 75 LT B 3.10 2 1 12 y 1925 129 LT C 4.00 3 1 15 y 2015 371 LT/RT C 4.00 3 1 15 y 2155 142 Ped A 4.50 4 4 4 4 4 4 4 4 Ped B,C 3.50 5 4	781 0.00 4120 730 730 1.00 1842 753 0.00 4210 129 1.00 1711 371 1.00 1832 205 347 1.00 1959	4120 0.190 18 1842 0.396 0.396 46 22 4210 0.179 0.179 21 21 1711 0.075 9 21 23 1832 0.203 23 23 23 1959 0.177 0.177 20 23	0.907 54 42 1.895 96 41 0.907 54 43 0.382 18 31 0.907 60 35 0.793 42 38
	NOTES	S: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Kal		Agreement No. CPM301_15/10 - Traffic Impact Assessn	nent Study For Columbarium Development a	at Prepared By:	КС
	Junction Capacity Analysis				00
Junction lay	rout sketch - Design Year - Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road - 2021 Level 3 - Site 1 Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARA	METERS
W ₁ Chai Wan Road W _{cr1} (E)	90 480	ARM B Wan Tsui Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂		← 750 ^{W4} ARM ($ \begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$	MOVEMENT 760 674 355
			MAJOR ROAD (ARM C) $W_{c-b} = 3.30$ (metres)	COMPARISION OF I	DESIGN FLOW
REMARK: (GEOI W W _{cr}	METRIC INPUT = AVERA = AVERA	T DATA) AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 749.66$ (pcu/hr) $q_{c-b} = 160.74$ (pcu/hr)	$DFC_{b-a} = DFC_{b-c} = DFC_{c-b} =$	0.542 0.462 0.239
W _{b-a} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F	= LANE \ = LANE \ = LANE \ = VISIBIL = VISIBIL = VISIBIL = VISIBIL = GEOMI = GEOMI = GEOMI	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B 45W)	$\begin{array}{llllllllllllllllllllllllllllllllllll$	Critical DFC =	0.542
ctober 2007					Page 9 of

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDOS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME /3 S1 J2 J5 J6 J7 J8 xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 863 (1) 863 (1) 863 (1) 495 (2) San Ha Street	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.509Loss timeL =10Total Flow=1906Co= (1.5*L+5)/(1-Y)=40.7Cm= L/(1-Y)Cm= L/(1-Y)=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=0.900R.C.(C)=0.917Ymax-Y)/Y*100%=59.2-	sec sec sec sec sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (2)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (2)$ $(2) \longrightarrow (2)$ $(2) \longrightarrow (2)$ $(2) \longrightarrow (2)$ $(3) \longrightarrow (2)$ $(3) \longrightarrow (2)$ $(2) \longrightarrow (2)$ $(3) \longrightarrow (2)$ $(2) \longrightarrow (2)$ $(3) \longrightarrow (2)$			
Move- Stage Lane Phase No. of Radius O N Straight- Movem ment Width lane Ahead Left Tstraight	ent Total Proportion Sat. Flare lane Sha TRI <u>ght</u> Flow of Turning Flow Length Effe	are Revised g g ect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
m. m. Sat. Flow pcu/h pcu/h	pcu/h pcu/h Vehicles pcu/h m. pcu/	i/hr pcu/h y sec sec sec	X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 863 ST A 3.50 1 2 10 N 4070 495 LT B 3.00 2 1 10 N 1915 495 RT B 3.50 2 1 12 2105 N 1915 495 Ped B 19.0 3 - <td>863 0.00 4070 495 0.00 4070 495 1.00 1665 53 53 1.00 1871</td> <td>4070 0.212 0.212 37 47 4070 0.122 22 47 1665 0.297 0.297 53 53 1871 0.028 5 53 1871 0.128 1 1 1</td> <td>0.451 36 11 0.259 21 11 0.560 36 9 0.053 0 10</td>	863 0.00 4070 495 0.00 4070 495 1.00 1665 53 53 1.00 1871	4070 0.212 0.212 37 47 4070 0.122 22 47 1665 0.297 0.297 53 53 1871 0.028 5 53 1871 0.128 1 1 1	0.451 36 11 0.259 21 11 0.560 36 9 0.053 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SP	PEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1 1111/2 Dook Hour Troffic Flowe	EILENAME /2 S1 12 IE IE IZ IB VIE Charlest Dur	<u> </u>
2021 Level 3 Peak Hour - Site 1		REFERENCE NO · Reviewed By:	00 3-5-2011
		REFERENCE NO Reviewed by.	5-5-2011
Sheung On Si (1) 79 (1) 685 (4) 307 (1) 685 (3) $(3$	treet (4) 24 Chai Wan Road 638 (2) 120 (2)	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.264Loss timeL =37Total Flow=1929Co= (1.5*L+5)/(1-Y)=82.2Cm= L/(1-Y)Yult=0.623R.C.ult= (Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)Ymax=1-L/C=0.692R.C.(C)=(0.9*Ymax-Y)/Y*100%	sec pcu sec sec % sec
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (3)$	(5) < (6) (4) (4) (4) (7)		
Stage A I = 8 Stage B I = 5 Stag	ge C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Straight- Width Iane Traffic? side Ahead m. m. m. Sat. Flow	- Movement Total Proportion Sat. Flare lane Left Straight Right Flow of Turning Flow Length v pcu/h pcu/h pcu/h pcu/h Vehicles pcu/h m.	ShareRevisedggEffectSat. FlowyGreaterLrequiredpcu/hrpcu/hysecsecsec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 y 6175 LT/ST A 3.30 2 3 12 Y 6115 LT B 3.50 3 1 9 Y 1965 LT/RT D 3.75 4 2 10 y 4120 Ped B,C 4.00 5 5 10 y 4120 Ped B,C 5.00 6	79 685 765 0.10 6096 120 638 757 0.16 5997 76 76 1.00 1684 24 307 331 1.00 3583	6096 0.125 39 5997 0.126 0.126 40 1684 0.045 0.045 14 3583 0.092 0.092 29 15 15 15	0.000 50 54 0.000 50 54 0.000 12 54 0.000 33 54
	Ν	IOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	.ENGTH = AVERAGE QUEUE * 6m

Appendix B4

2026 Peak Hour Junction Assessment Calculation Sheets

Agreement No. CPM301_15/10 - Traffic Impact Assessme	nt Study For Columbarium Development at (Prepared By:	KC
Junction Capacity Analysis		Checked By: 0	DC DC
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2026 Level 1 - Reference Case Time - Level 1 Peak Hour ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
a(
M 290 2 293	$W_1 = (\text{filetres})$		0.022
	$W_2 = 0.00$ (metres)	× _A =	0.922
	$W_3 = 3.00$ (metres)	∧ _B =	1.039
	$W_4 = 5.00$ (filettes)	× _C =	0.000
	W = 0.00 (metres)	∧ _D = ∨ -	0.027
W1 W3	$W_{cr1} = 0.00$ (metres)	T =	0.793
Cape M Cape	$W_{cr2} = 0.00$ (metres)	Δ _B =	1.005
Collins VV _{cr1} Collins	$vv_{cr} = 0.00$ (metres)	$z_{\rm D}$ =	0.905
Road W_2 W_4 Road (F)		THE CAPACITY OF MO	
	$vv_{a-d} = 3.00$ (metres)	Q _{b-a} =	510
	$Vr_{a-d} = 100$ (metres)	Q _{b-c} =	749
	$q_{a-b} = 0$ (pcu/nr)	Q_{b-d} is nearside =	IRUE
00 00 1 01	$q_{a-c} = 1.0871 (pcu/hr)$	Q _{b-d} =	608
29 261 21	$q_{a-d} = 10.784 (pcu/nr)$	Q _{d-a} =	674 TDUE
ADM D Lin Ching Dd (C)		Q_{d-b} is nearside =	TRUE
ARM B Lin Shing Ra (S)		Q _{d-b} =	528
	vv _{c-b} = (metres)	Q _{d-c} =	443
	$Vr_{c-b} = (metres)$	Q _{c-b} =	440
W = AVERAGE MAJOR ROAD WIDTH	$q_{c-a} = 0$ (pcu/hr)	Q _{a-d} =	616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH	$q_{c-b} = 0$ (pcu/hr)		
W _{ard} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	$q_{c-d} = 0$ (pcu/hr)	COMPARISION OF DES	SIGN FLOW
W_{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A			
W_{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	DFC _{b-a} =	0.040
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres)	DFC _{b-c} =	0.039
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres)	DFC _{b-d} =	0.430
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	VI _{b-a} = 100 (metres)	DFC _{d-a} =	0.434
Vr _{a-d} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	Vr _{b-a} = 65 (metres)	DFC _{d-b} =	0.005
VI_{b-a} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{b-c} = 0$ (metres)	DFC _{d-c} =	0.655
$Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A$	$q_{b-a} = 20.655$ (pcu/hr)	DFC _{c-b} =	0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{b-c} = 29.177 (pcu/hr)$	DFC _{a-d} =	0.018
Vr_{cb} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$q_{b-d} = 261.23 (pcu/hr)$		
VI d-c = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C		Critical DFC =	0.655
Vr _{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)		
Vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	$W_{d\cdot a} = 3.00$ (metres)		
X_A = GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{d-c} = 3.00$ (metres)		
X_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A	VI _{d-c} = 50 (metres)		
$X_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B	Vr _{d-c} = 50 (metres)		
X_{D} = GEOMETRIC PARAMETERS FOR STREAM D-C	Vr _{d-a} = 80 (metres)		
Z _B = GEOMETRIC PARAMETERS FOR STREAM B-C	q _{d-a} = 292.98 (pcu/hr)		
Z _D = GEOMETRIC PARAMETERS FOR STREAM D-A	q _{d-b} = <mark>2.3819</mark> (pcu/hr)		
Y = (1-0.0345W)	q _{d-c} = 290.11 (pcu/hr)		

TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1011/4 Deals Have Teaffin Flavor	PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011
Junction of Lin Sning Road and Wan Isui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME: 2026_LV1_RET.XIS CHECKED BY: OC 29-4-2011
		REFERENCE NO
$(1) 382 \longrightarrow 0$ $(1) 382 \longrightarrow 0$ $(1) 56 207$ $(2) (2) Lin Shing Received and (2)$	N Wan Tsui Road 288 (1) 707	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.547Loss timeL =25 secTotal Flow=1377 pcuCo= (1.5*L+5)/(1-Y)=93.7 secCm= L/(1-Y)=55.1 secYult=0.713R.C.ult= (Yult-Y)/Y*100%=30.4 %Cp= 0.9*L/(0.9-Y)=63.7 secYmax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=30.4 %
(1) (3	► =	
Move-Stage Lane Phase No. of Radius O N Straight- ment Width Iane Ahead I m Sat Flow In	Movement Total Proportion Sat. Flare lane tt Straight Right Flow of Turning Flow Length (th noru/h noru/h noru/h webicles noru/h m	Share Revised g g Degree of Queue Avera Effect Sat. Flow y Greater L required (input) Saturation Length Dela pcu/br pcu/br pcu/br sec sec X (m / lane) (secondary)
ST A 3.00 1 1 N 1915	382 382 0.00 1915	1915 0.199 35 95 0.252 12 2
ST/LT A 4.00 1 1 10 N 2015 3 Ped B 6.0 3 Image: Comparison of the second se	07 288 995 0.71 1821	1821 0.547 0.547 95 95 0.690 36 4 20 20 1
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY	GREEN FG - FLASHING GREEN PEDESTRAIN WALKI	NG SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m



ROUNDABOUT CAPACITY ASSESSMENT				INITIALS	DATE			
TIA St	udy for	Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY	: KC	Sep-13
Junctio	on 4: C	hai Wan Road Roundabout	J4LV1 Peak Hour	-	FILENAME : 2026_LV1_Ref.xls	GHECKED BY	: OC	Sep-13
J4LV1	Peak I	Hour				REVIEWED BY	: OC	Sep-13
			·					
					(ARM D)			
		(ARM D)		Ν	1071.37272			
		Island Easter Corr	idor					
1		4						
		[16] 458	[1] [2] [3] [4]	—	1125			
		[15] 447	13 202 567 289	·	0.0			
l			▲					
					0 0			
Chai V	√an Ro	Jad			0 0			
(ARM	C)		(ARM A)	1289.216	1094 O 0	O 1176.557	965.6343	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
			12 [5]		0 0			
			Ť		0 0			
			482 [6]		00			
		22 306 272 10	✓ 129 [7]		841			
					011			
			545 [0]					
			*					
			•					
		Wan Tsui Road	1		609.546517			
		Wan Tsui Roac (ARM B)	3		609.546517 (ARM B)			
		Wan Tsui Roac (ARM B)			609.546517 (ARM B)			
ARM		Wan Tsui Roac (ARM B)	A B C D		609.546517 (ARM B)			
ARM INPUT	PARA	Wan Tsui Roar (ARM B) 	A B C D		609.546517 (ARM B)			
ARM	PARA	Wan Tsui Roar (ARM B) 	A B C D		609.546517 (ARM B)			
ARM INPUT V	PARA =	Wan Tsui Roar (ARM B) 	A B C D 7.00 4.00 7.00 7.00		609.546517 (ARM В)			
ARM INPUT V E	· PARA = =	Wan Tsui Roar (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		609.546517 (ARM В)			
ARM INPUT V E L	PARA = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		609.546517 (ARM В)			
ARM INPUT V E L R	PARA = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		609.546517 (ARM B)			
ARM INPUT V E L R D	• PARA = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		609.546517 (ARM B)			
ARM INPUT V E L R D A	• PARA = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry (new(b))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00		609.546517 (ARM B)			
ARM INPUT V E L R D A Q	• PARA = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulation flow access entry (pcu/b)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1004 1125		609.546517 (ARM B)			
ARM INPUT V E L R D A Q Q Q c	PARA = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1094 1125		609.546517 (ARM B)			
ARM INPUT V E L R D A Q Q Q C	• PARA = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1094 1125		609.546517 (ARM B)			
ARM INPUT V E L R R Q Q Q C OUTP	- PAR# = = = = = = = = JJT PAI	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharmoon of flare = 1.6/E 10/1	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1094 1125		609.546517 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K	" PAR# = = = = = = = = JJT PAI	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1.0.00247(A-30).0.0276(4/P.0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1094 1125		609.546517 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X 2	" PAR# = = = = = = = = JJT PAI	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/L 1-20)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1094 1125 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.02 5.03 8.15 7.00		609.546517 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M	" PAR# = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP(/D_s60)/(10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1094 1125 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		609.546517 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F	" PAR# = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1094 1125 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414		609.546517 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F Td	" PAR# = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) WETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 30.00 36.00 30.00 966 610 1289 1071 1125 0.53 0.96 0.80 0.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 0.37 0.37 0.37 1.37 1.37 1.37		609.546517 (ARM B)			
ARM INPUT V E L R D A Q C OUTP S K X2 M F T d F C	" PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) WETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 30.00 36.00 30.00 966 610 1289 1071 1125 0.53 0.96 0.80 0.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 0.37 0.74 0.58 0.75 0.69 69 69 69		609.546517 (ARM B)			
ARM INPUT V E L R D A Q C C UTP S K X2 M F T d F C Qe	" PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) WETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 15.00 6.00 6.00 6.00 50.00 50.00 50.00 50.00 50.00 30.00 30.00 30.00 36.00 30.00 966 610 1289 1071 11177 841 1094 1125 1125 1125 1111 1117 38.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 1.37 0.37 0.69 1360 <td></td> <td>609.546517 (ARM B)</td> <td>2824 283</td> <td>PCU</td> <td></td>		609.546517 (ARM B)	2824 283	PCU	
ARM INPUT V E L R D A Q C C UTP S K X2 M F T d F C Qe	" PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) WETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) $303^{*}X2$ 1+(0.5/(1+M)) $0.21^{*}Td(1+0.2^{*}X2)$ $K(F-Fc^{*}Qc)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 966 610 1289 1071 1177 841 1094 1125 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1577 1004 1651 1360		609.546517 (ARM B)		PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	" PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) WETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303^*X2 1+(0.5/(1+M)) $0.21^*Td(1+0.2^*X2)$ $K(F-Fc^*Qc)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 30.00 36.00 30.00 966 610 1289 1071 1125 1125 0.53 0.96 0.80 0.00 1.01 7.97 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1577 1004 1651 1360		Total In Sum =		PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls Checked By:	OC 29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 347 \longrightarrow (3) 347 \longrightarrow (3) 82 \longrightarrow (3) 8$	Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.307Loss timeL =10Total Flow=2003Co= (1.5*L+5)/(1-Y)=28.9Cm= L/(1-Y)Cm= L/(1-Y)=14.4Yult=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=168.6Cp=0.9*L/(0.9-Y)=15.2Ymax=1-L/C=0.900R.C.(C)=(0.9*Ymax-Y)/Y*100%=163.7	sec sec sec sec %
(2) Chai Wan Road			
(4) (4) (5) (3) (6) (6) (6)			
Stage A I = 7 Stage B I = 5			
Move- ment Stage Lane Width Phase No. of Iane Radius Opposing Traffic? Near- Side Straight- Ahead M m.	ovement Total Proportion Sat. Flare lan Straight Right Flow of Turning Flow Length pcu/h pcu/h pcu/h Vehicles pcu/h m.	e Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / Iane)(seconds)
LT A 3.75 1 2 22 y 4120 512 LT A 4.00 2 2 24 y 4310 268 RT A 3.50 2 2 11 y 4070 268 ST B 3.50 3 2 y 4070 4270 RT B 4.50 3 2 13 y 4270 Ped A 4.50 5 - <	347 512 1.00 3857 268 1.00 4056 795 795 1.00 3582 347 347 0.00 4070 82 82 1.00 3828	3857 0.133 39 65 4056 0.066 19 65 3582 0.222 0.222 65 65 4070 0.085 0.085 25 25 3828 0.021 6 25 25	0.204 12 5 0.102 6 5 0.341 21 5 0.341 21 24 0.085 3 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	•	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls Checked By:	OC 29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (2) (2) (2) (2) (2) (2) (3) (2) (3) (3) (3) (3) (3) (3) (3) (3) (3) (3	u Sai Wan Road	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.266Loss timeL =48Total Flow=1672Co= (1.5*L+5)/(1-Y)=104.8Cm= L/(1-Y)=65.4Yult=0.540R.C.ult= (Yult-Y)/Y*100%=103.3Cp= 0.9*L/(0.9-Y)=68.1Ymax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=76.2	sec pcu sec sec sec %
$(1) \xrightarrow{(1)} (2) (2)$ $(1) \xrightarrow{(1)} (1)$ $(1) \xrightarrow{(1)} (2)$ $(2) (2)$ $(2) (2)$ $(3) \xrightarrow{(1)} (4)$ $(4) \xrightarrow{(1)} (2)$ $(5) \xrightarrow{(1)} (4)$ $(5) \xrightarrow{(1)} (2)$ $(5) \xrightarrow{(1)} (2)$ $(2) \xrightarrow{(1)} (2)$ $(2) \xrightarrow{(1)} (2)$ $(3) \xrightarrow{(1)} (2)$ $(4) \xrightarrow{(1)} (2)$ $(5) \xrightarrow{(1)} (2)$) ► 1= 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mo	vement Total Proportion Sat. Flare lane S	Share Revised g g g	Degree of Queue Average
m. m. lane? Sat. Flow pcu/h r	cu/h pcu/h pcu/h Vehicles pcu/h m. po	cu/hr pcu/h y sec sec sec	X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 140 ST A 3.20 1 1 1 1 2075 y 3970 ST A 3.00 1 2 y 3970 y 3970 LT C 3.75 2 1 12 y 1990 75 RT C 3.75 2 1 12 y 1990 75 Ped B 11.00 3 -	156 296 0.47 1827 349 349 0.00 2075 360 860 0.00 3970 75 1.00 1769 93 93 1.00 1893	1827 0.162 28 2075 0.168 33 42 3970 0.217 0.217 42 42 1769 0.042 8 10 1893 0.049 0.049 10 10	0.382 24 14 0.397 30 14 0.511 39 13 0.440 6 43 0.511 12 44
	NO	DTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
ITA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1711/1 Deak Hour Traffic Flows	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
3036 Lovel 1 Deek Hour - Deference Case	J/LV1 - Peak Hour Traffic Flows	FILENAIVE : 2026_LV1_RELXIS CHECKED By:	0C 29-4-2011
		REFERENCE NO Reviewed By.	00 3-3-2011
Bus Terminal (1) 51 (1) 152 (1) 113 (1) 152 (1) 113 (1) 153 (1) 158 30 (1) (1) 158 30 (1) (1) 119 (5) (1) 104 (5) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	N X Wan Road	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.385Loss timeL =18Total Flow=1427Co= (1.5*L+5)/(1-Y)=Cm $L/(1-Y)$ =Yult=0.765R.C.ult= (Yult-Y)/Y*100%=98.8Cp=0.9*L/(0.9-Y)Gmax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=93.8	sec pcu sec sec % sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) \xrightarrow{(4)} (4)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(3)} (3) \xrightarrow{(3)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} 1= 5 \text{Stage B} 1= 5 \text{Stage C} 1= 5$	(4) (6)		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	nt Total Proportion Sat. Flare lane Share	re Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straigh	Right Flow of Turning Flow Length Effec	ect Sat. Flow y Greater L required (input)	Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 51 84 ST/RT A 3.30 1 1 11 2085 68 RT B 3.50 2 1 12 2005 68 LT A,B 3.75 3 1 13 y 1990 158 RT C 3.50 4 1 12 2105 158 LT/ST C 3.50 4 1 12 2105 0 LT/ST C 3.50 5 1 112 2105 0 LT/ST D 3.50 5 1 11 y 1965 218 86 ST/RT D 3.50 5 1 11 y 1965 104 119 Ped D,A,B 4.00 6 11 4 14 14 14 14 15 14 119 119 1965 104 119 119 1965 104 119	pcu/m pcu/m vences pcu/m m. pcu/m 135 0.38 1849 <td>y sec sec</td> <td>A (m / lane) (seconds) 0.363 18 30 0.464 24 31 0.464 0 65 0.312 18 24 0.290 18 18 0.464 30 18 0.464 24 28 0.464 24 26</td>	y sec sec	A (m / lane) (seconds) 0.363 18 30 0.464 24 31 0.464 0 65 0.312 18 24 0.290 18 18 0.464 30 18 0.464 24 28 0.464 24 26
	NOTES	S : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME : 2026_LV1_Ref.xls Checked By:	OC 29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 758 \xrightarrow{(1) 397} (2)$ $(1) 397 \xrightarrow{(1) 397} (2)$ $(3) (3) Tai Tam Road$	N 🚽	No. of stages per cycleN =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Co= $(1.5*L+5)/(1-Y)$ =Cm= $(1.5*L+5)/(1-Y)$ =Yult=Nc.ult= $(Yult-Y)/Y*100\%$ =32Cp= $0.9*L/(0.9-Y)$ =Ymax= $1-L/C$ =0.8R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =30	3 105 sec 72 18 sec 512 pcu 4.8 sec 2.1 sec 65 8.7 % 9.4 sec 29 0.3 %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (2) \qquad (3) \qquad (3)$ Stage A I = 7 Stage B I = 8 Stage C I	 ← → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Moven	nent Total Proportion Sat. Flare lane	Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	ht Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L required (inpu	t) Saturation Length Delay
ST A 3.50 1 2 y 4070 758 RT A 3.50 1 1 13 2105 758 ST B 3.50 2 2 4210 578 LT B 3.10 2 1 12 y 1925 59 LT C 4.00 3 1 15 y 2015 412 LT/RT C 4.00 3 1 15 2155 168 Ped A 4.50 4 4 4.50 4 4.50 4 4.50 4 Ped B,C 3.50 5 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50	Tpco/n pco/n vences pco/n ni 397 397 1.00 1887 100 1887 578 0.00 4210 100 1711 111 412 1.00 1832 1832 100 1959	pcdym pcdym y sec sec </td <td>0.691 48 24 0.780 48 31 0.691 39 30 0.173 6 30 0.691 48 23 0.642 48 22</td>	0.691 48 24 0.780 48 31 0.691 39 30 0.173 6 30 0.691 48 23 0.642 48 22
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUII	NG LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION					INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai	Wan		PROJECT NO.: CTLD	QS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - I	- Peak Hour Traffic Flows	FILENAME : 2026_L	/1_Ref.xls Checked By:	OC 29-4-2011
2026 Level 1 Peak Hour - Reference Case			REFERENCE NO.:	Reviewed By:	0C 3-5-2011
$(1) 1062 \qquad \qquad$	584 (1) Ha Street	N X	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = (1.5*L+5)/(1- Cm = L/(1-Y) Yult R.C.ult = (Yult-Y)/Y*1C Cp = 0.9*L/(0.9-Y) Ymax = 1-L/C R.C.(C) = (0.9*Ymax-Y)	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	sec sec sec sec % sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$	Stage C 1=				
	isht Management i	Tatal Duanantian Cat Il			
ment Width Iane m. Stra m. Stra	ead Left Straight Right Flow pcu/h pcu/h pcu/h p	Flow of Turning Flow L pcu/h Vehicles pcu/h	ength Effect Sat. Flow y Grea m. pcu/hr pcu/h y	ter L (required (input) sec sec sec	Saturation Length Delay X (m / lane) (seconds
ST A 3.50 1 2 10 N 40 ST A 3.50 1 2 10 N 40 LT B 3.00 2 1 10 N 40 LT B 3.50 2 1 10 N 19 RT B 19.0 3 1 12 10 10 10 Ped B 19.0 3 1 12 10 10 10 10 10 Ped A 8.0 4 1 10<	170 1062 584 115 382 24	1062 0.00 4070 584 0.00 4070 382 1.00 1665 24 1.00 1871	4070 0.261 0.26 4070 0.144 1665 0.229 0.22 1871 0.013	10 1 48 47 26 47 9 42 53 2 53	0.555 45 10 0.305 24 11 0.432 24 9 0.024 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG -	STEADY GREEN FG - FLAS	SHING GREEN PEDESTRAIN	WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVER	AGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO : CTLDOS Prenared Rv:	KC 29-4-2011
111: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	1111 V1 - Peak Hour Traffic Flows	FILENAME : 2026 LV1 Ref xls Checked By:	0C 29-4-2011
2026 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
		nerenee no neviewed by.	00 552011
Sheung On Street (1) 98 (1) 972 (1) 972 (1) 972 (1) 972 (1) 972 (1) 972 (2) Wing Ping Street	N Chai Wan Road	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.283Loss timeL =37Total Flow2427Co= (1.5*L+5)/(1-Y)=84.3Cm= L/(1-Y)Cm= L/(1-Y)=9State=1020.2Cp0.9*L/(0.9-Y)=53.9Ymax= 1-L/C=0.622R.C.(C)= (0.9*Ymax-Y)/Y*100%=120.2StateState	sec pcu sec sec %
$(1) \longrightarrow (5) \longleftarrow (6)$ $(5) \longleftarrow (6)$ $(5) \longleftarrow (7)$ (7)	★ (4) (4) (6)		
Stage A I = 8 Stage B I = 5 Stage C	I = 7 Stage C I = 6		
Move- ment Stage Lane Width Phase No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Mov m. m. m. m. side Ahead Left straight- pru/h p.	ement Total Proportion Sat. Flare lane Share aight Right Flow of Turning Flow Length Effect u/h pcu/h pcu/h Vehicles pcu/h m. pcu/hr	Revised Sat. Flow y Greater L required (input) pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.50 1 3 12 y 6175 98	1070 0.09 6105 953 0.16 5996 35 1.00 1684 348 370 1.00 3583	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.000 70 54 0.000 62 54 0.000 6 54 0.000 36 54
	NOTES :	PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact A	ssessmen	it Study For Columbarium Development	a Prepared By:	ĸĊ
Junction Capacity Analysis			Checked By:	00
unction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2026 Level 1 - Site 1 Time - Level 1 Peak Hour ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS		
$\mathcal N$ 300 3 316		W ₁ = (metres)	GEOMETRIC PARAM	ETERS
		$W_2 = 6.00$ (metres)	X _A =	0.922
		$W_3 = 3.00 \text{ (metres)}$	X _B =	1.039
		$W_4 = 3.00$ (metres)	X _C =	0.586
NA/ NA/	ARM A	W = 6.00 (metres)	X _D =	0.827
vv ₁ vv ₃		$W_{cr1} = 0.00$ (metres)	Ý =	0.793
	Cape	$W_{cr2} = 0.00$ (metres)	∠ _B =	1.005
	Collins	$vv_{cr} = 0.00$ (metres)	Z _D =	0.905
	on			
	Road			IOVEINENT
	(二)	$W_{a-d} = 3.00$ (metres)	Q _{b-a} =	740
		$VI_{a-d} = 100$ (neu/br)	$Q_{b-c} =$	
		$q_{a-b} = 0$ (pcu/hi)		E COS
21 201 21		$q_{a-c} = 1.0871 (pcu/hr)$	Q _{b-d} =	674
51 261 21		$q_{a-d} = 11.784 (pcu/m)$	Q _{d-a} =	
ARM B Lin Shina Rd (S)		MAJOR ROAD (ARM C)		527
		$W_{ab} = (metres)$	Q do =	437
RK: (GEOMETRIC INPUT DATA)		Vrat = (metres)	Q =	440
W = AVERAGE MAJOR ROAD WIDTH		$q_{ca} = 0$ (pcu/br)	Q and =	616
W ~ = AVERAGE CENTRAL RESERVE WIDTH		$q_{ob} = 0$ (pcu/hr)	8-0	
W and = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D		$q_{crd} = 0$ (pcu/hr)	COMPARISION OF D	ESIGN FLOW
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A			TO CAPACITY	
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C		MINOR ROAD (ARM B)	DFC _{b-a} =	0.041
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B		$W_{b-a} = 5.00$ (metres)	DFC b-c =	0.042
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A		$W_{b-c} = 5.00$ (metres)	DFC b-d =	0.462
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C		VI _{b-a} = 100 (metres)	DFC _{d-a} =	0.468
Vr a-d = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D		Vr _{b-a} = <u>65</u> (metres)	DFC _{d-b} =	0.005
VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A		Vr _{b-c} = 0 (metres)	DFC _{d-c} =	0.687
Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A		q _{b-a} = 20.655 (pcu/hr)	DFC _{c-b} =	0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C		q _{b-c} = 31.177 (pcu/hr)	DFC a-d =	0.019
Vr_{c-b} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B		q _{b-d} = <mark>280.58</mark> (pcu/hr)		
VI_{d-c} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C			Critical DFC =	0.687
Vr_{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C		MINOR ROAD (ARM D)		
Vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A		$W_{d-a} = 3.00$ (metres)		
X _A = GEOMETRIC PARAMETERS FOR STREAM A-D		$W_{d-c} = 3.00$ (metres)		
X_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A		$VI_{d-c} = 50$ (metres)		
$X_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B		$Vr_{d-c} = 50$ (metres)		
$x_{\rm D}$ = GEOMETRIC PARAMETERS FOR STREAM D-C		$Vr_{d-a} = 80$ (metres)		
Z_{B} = GEOMETRIC PARAMETERS FOR STREAM B-C		$q_{d-a} = 315.51 (pcu/hr)$		
Z_D = GEOMETRIC PARAMETERS FOR STREAM D-A		$q_{d+b} = 2.5651 (pcu/hr)$		
Y = (1-0.0345W)		q _{d-c} = <u>300.5</u> (pcu/hr)		

TIA Study for Columbarium Development at Cape Collinson Road. Chai	Wan	PROJECT NO.: CTLDQS Prepared Bv: KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME /1 S1 J2 J5 J6 J7 J8.xls Checked By: OC 29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011
$(1) 382 \qquad \qquad$	Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.565Loss timeL =25 secTotal Flow=1410 pcuCo= (1.5*L+5)/(1-Y)=97.8secCm= L/(1-Y)=Yult=0.713R.C.ult= (Yult-Y)/Y*100%=26.0%Cp= 0.9*L/(0.9-Y)=67.3secYmax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%
(1)	(3) ↓ (4) ↓	
Move- Stage Lane Phase No. of Radius O N Stra Ah ment Width Iane Ah Ah Sat. Sat.	aight- Movement Total Proportion Sat. F nead Left Straight Right Flow of Turning Flow . Flow pcu/h pcu/h pcu/h Vehicles pcu/h	are lane Share Revised Length Effect Sat. Flow y Greater L required (input) Saturation Length Delay m. pcu/hr pcu/h y sec sec sec X (m / lane) (second
SI A 3.00 1 1 1 N 19	915 382 382 0.00 1915	1915 0.199 33 95 0.252 12 2
ST/LT A 4.00 1 1 10 N 20 Ped B 6.0 3 -	015 740 288 1028 0.72 1819 <td>1819 0.565 95 95 0.714 42 4 20 20 1</td>	1819 0.565 95 95 0.714 42 4 20 20 1
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG -	- STEADY GREEN FG - FLASHING GREEN PEDESTRA	N WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Vali	essment Study For Columbarium Development at Prepared By: KC		
	Junction Capacity Analysis	Checked By: OC	
Junction lay D	rout sketch - J3: J/O Cape Collinson Road and Lin Shing Road Design Year - 2026 Level 1 - Site 1 Time - Level 1 Peak Hour	GEOMETRIC DETAILS GEOMETRIC PARAMETERS	
N Shek O Road (N)	ARM B Cape Collinson Road	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	26 196 09 705
ARM A W ₂	↓	ARM CMAJOR ROAD(ARM A)THE CAPACITY OF MOVEMENT $q_{a-b} = 0$ (pcu/hr) $Q_{b-c} = 69$ $q_{a-c} = 181.55$ (pcu/hr) $Q_{c-b} = 77$ $Q_{b-a} = 34$	NT 96 75 44
		$ \begin{array}{c} \text{MAJOR ROAD} & (\text{ARM C}) & \text{COMPARISION OF DESIGN F} \\ \text{W}_{c-b} &= & \textbf{4.50} & (\text{metres}) & \text{TO CAPACITY} \end{array} $	LOW
REMARK: (GEON W W _{cr}	METRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH = AVERAGE CENTRAL RESERVE WIDTH	Vr_{c-b} =150 (metres)(metres)DFC $_{b-a}$ =0.8 0.0 q_{c-a} =186.98 (pcu/hr)(pcu/hr)DFC $_{b-c}$ =0.0 0.0 q_{c-b} =0(pcu/hr)DFC $_{c-b}$ =0.0 0.0	25)17)00
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E	 LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B 	$ \begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	25
affic Impact Asses	ssment Report 4500	Page	<u>je 3 of</u>

ROUNDABOUT CAPACITY ASSESSMENT					INITIALS	DATE		
TIA St	udy for	Columbarium Development at Cape Collinson Road		PROJECT NO.: 80510		PREPARED BY:	КС	Sep-13
Juncti	on 4: C	hai Wan Road Roundabout	J4LV1 Peak Hour	FILENAME2026_LV1_S1_J2_J5	_J6_J7_J	J8.xls CHECKED BY:	OC	Sep-13
J4LV1	Peak	Hour	1			REVIEWED BY:	OC	Sep-13
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				(ARM E	D)			
		(ARM D)		N 1095.4980	04			
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Chai V	Van Ro	bad		0	0			
(ARM	C)		(ARM A)	1298.35 1118 O	0	1208.172	977.6545	
			Chan Wan Road	(ARM C) O	0		(ARM A)	
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		Wan Tsui Road	1	625.56488	33			
		Wan Tsui Road (ARM B)	· · · · · · · · · · · · · · · · · · ·	625.56488 (ARM	33 B)			
		Wan Tsui Road (ARM B)	· · · · · · · · · · · · · · · · · · ·	625.56488 (ARM	33 B)			
ARM		Wan Tsui Road (ARM B)	A B C D	625.56488 (ARM	33 B)			
ARM	PARA	Wan Tsui Road (ARM B) METERS:	A B C D	625.56488 (ARM	33 B)			
ARM	PARA	Wan Tsui Road (ARM B) METERS:	A B C D	625.56488 (ARM	33 B)			
ARM INPUT	PARA =	Wan Tsui Road (ARM B) METERS: Approach half width (m)	A B C D 7.00 4.00 7.00 7.00	625.56488 (ARM	33 B)			
ARM INPUT V E	⁻ PARA = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00	625.56488 (ARM	33 B)			
ARM INPUT V E L	PARA = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00	625.56488 (ARM	33 B)			
ARM INPUT V E L R	- PARA = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00	625.56488 (ARM	33 B)			
ARM INPUT V E L R D	- PARA = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00	625.56488 (ARM	33 B)			
ARM INPUT V E L R D A	PARA = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00	625.56488 (ARM	33 B)			
ARM INPUT V E L R D A Q	PARA = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 978 626 1298 1095	625.56488 (ARM	33 B)			
ARM INPUT V E L R R D A A Q Q Q c	PARA = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 978 626 1298 1095 1208 852 1118 1138	625.56488	33 B)			
ARM INPUT V E L R D A Q Q Q c	= = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 978 626 1298 1095 1208 852 1118 1138	625.56488	33 B)			
ARM INPUT V E L R D A Q Q Q c	= = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 978 626 1298 1095 1208 852 1118 1138	625.56488	33 B)			
ARM INPUT V E L R D A Q Q C OUTP S		Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00	625.56488	33 B)			
ARM INPUT V E L L R D A Q Q C OUTP S S K	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01	625.56488 (ARM	33 B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 X2	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00	625.56488 (ARM	33 B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M T	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) Carolio	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37	625.56488 (ARM	33 B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121	625.56488 (ARM	33 B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d T	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.041T/(4-0.0420)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37	625.56488 (ARM	33 B)			
ARM INPUT V E L R D A Q C OUTP S K X2 M F T d F C C	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303^*X2 1+(0.5/(1+M)) $0.21^*Td(1+0.2^*X2)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69	625.56488 (ARM	33 B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	UT PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) WETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ $1-0.00347(A-30)-0.978(1/R-0.05)$ V + ((E-V)/(1+2S)) EXP((D-60)/10) $303*X2$ $1+(0.5/(1+M))$ $0.21*Td(1+0.2*X2)$ K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1553 999 1633 1351	625.56488 (ARM	33 B)	2882.449	PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	UT PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303^*X2 1+(0.5/(1+M)) $0.21^*Td(1+0.2^*X2)$ $K(F-Fc^*Qc)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 978 626 1298 1095 1208 852 1118 1138 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1553 999 1633 1351	625.56488 (ARM	33 B)	2882.449	PCU	

TRAFFIC SIGNAL CALCULATION					INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road,	, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows		FILENAME /1_S1_J2_J5_J6_J7_J8.xl	s Checked By:	OC	29-4-2011
2026 Level 1 Peak Hour - Site 1			REFERENCE NO.:	Reviewed By:	OC	3-5-2011
(3) 351 (3) 82 (3) 82 (3) 82 (3) 82 (3) 82 (3) 795 (2) 795 (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	Wing Tai Road 		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 2 C = 100 Y = 0.308 L = 10 = 2012 = 28.9 = 14.5 = 0.825 = 167.5 = 15.2 = 0.900 = 162.6	sec pcu sec sec % sec %	
(4) (4) (5) (5) (6) (6) (6) (6)						
Stage A 1- 7 Stage B 1- 5						
Move- ment Stage Lane Phase No. of Radius Opposing Near- Traffic? Side Iane m. Traffic? Iane?	Straight- Movement Total Proportion Ahead Left Straight Right Flow of Turning Sat. Flow pcu/h pcu/h pcu/h pcu/h vehicles p	at. Flare lane Share ow Length Effec u/h m. pcu/h	re Revised ect Sat. Flow y Greater L /hr pcu/h y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Averag Length Delay (m / lane) (secon
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 4 4.50 5 4 4.50 4	4120 512 512 1.00 3 4310 272 272 1.00 4 4070 795 795 1.00 3 4070 351 351 0.00 4 4270 82 82 1.00 3	57 56 82 70 28	3857 0.133 10 3857 0.133 10 3582 0.222 0.222 4070 0.086 0.086 3828 0.021 10	39 65 20 65 65 65 25 25 6 25	0.205 0.103 0.343 0.343 0.085	15 5 6 5 21 5 21 24 3 25
		NOTES	S : PEDESTRAIN WALKING SPEED = 1.2r	n/s QUEUING	LENGTH = A	VERAGE QUEUE * 6n

TRAFFIC SIGNAL CALCULATION				INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Cha	i Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak H	Hour Traffic Flows	FILENAME /1_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2026 Level 1 Peak Hour - Site 1			REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 140 \xrightarrow{(2)} \\ (1) 506 \xrightarrow{(2)} \\ (2) $	(2) 75 Siu Sai Wan Road (1) 861	N 🔨	No. of stages per cycleN =Cycle timeC =1Sum(y)Y =0.26Loss timeL =4Total Flow=16Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.54R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=G8Ymax= 1-L/CYmax= 1-L/C=0.52R.C.(C)= (0.9*Ymax-Y)/Y*100%=	3 30 sec 6 8 sec 74 pcu 9 sec 4 sec 0 1 % 1. sec 0 0 %
$(1) \xrightarrow{(1)} (1) (1)$	(2) (2) Stage C I = 6			
Move- Stage Lane Phase No. of Radius Opposing Near- Str ment Width Jane Traffic? side A	aight- Movement Total head Left Istraight Right Flow	al Proportion Sat. Flare la w of Turning Flow Lengt	ane Share Revised th Effect Sat. Flow v Greater L required (input	Degree of Queue Average) Saturation Length Delay
m. m. lane? Sat	. Flow pcu/h pcu/h pcu/h pcu/h	/h Vehicles pcu/h m.	pcu/hr pcu/h y sec sec sec	X (m / lane) (second
LT/ST A 3.30 1 1 11 y 1 ST A 3.20 1 1 2 y 3 ST A 3.00 1 2 y 3 LT C 3.75 2 1 12 y 1 RT C 3.75 2 1 12 2 2 Ped B 11.00 3 - - 2 2 Ped B 6.50 4 - - - - 2 Ped B 6.50 5 - - - - - 2	945 140 156 296 075 350 350 970 861 861 990 75 75 130 93 93	5 0.47 1827 0 0.00 2075 1 0.00 3970 1.00 1769 1.00 1893	1827 0.162 32 42 2075 0.169 33 42 3970 0.217 0.217 42 42 1769 0.042 8 10 1893 0.049 0.049 10 10	0.382 24 14 0.397 30 14 0.511 39 13 0.440 6 43 0.511 12 44
			NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUIN	G LENGTH = AVERAGE QUEUE * 6m

							ΙΝΙΤΙΔΙ S	DATE	
TIA Study for Columbarium Development at Cape Collinson Road. Chai V	/an			PROJECT NO.:	CTLDQS	Prepared By:	KC	29-4-2011	
17: Junction of Siu Sai Wan Road and Harmony Road(N)	I7I V1 - Peak H	our Traffic Flows		FILENAME /1 S1 12	15 16 17 18 xl	s Checked By:	00	29-4-2011	
2026 Level 1 Peak Hour - Site 1	0,202 , 60,000			REFERENCE NO.:		Reviewed By:	00	3-5-2011	
2026 Level 1 Peak Hour - Site 1 Bus Terminal (1) 51 (1) 152 (1) 113 (1) 113 (1) 152 (1) 113 (1) 158 (1) (1) 158 (1) 158 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)) (4) 5 218 	N X		REFERENCE NO.: No. of stages per cyc Cycle time Sum(y) Loss time Total Flow Co = (1.5*L+ Cm = L/(1-Y) Yult R.C.ult = (Yult-Y) Cp = 0.9*L/(Ymax = 1-L/C R.C.(C) = (0.9*Yr	le 5)/(1-Y) /Y*100% 0.9-Y) nax-Y)/Y*100%	N = 4 C = 105 Y = 0.399 L = 18 = 1427 = 53.2 = 29.9 = 0.765 = 91.9 = 32.3 = 0.829 = 0.829 = 87.1	OC Sec pcu sec sec sec sec %	3-5-2011	
Harmony Road $(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (6)$		(6) (5) (5) (5) (5)							
Move- ment Stage Lane Phase No. of Radius Opposing Near- Width Iane m. Traffic? Sat. F	sht- Movement Total ad Left Straight Right Flow low pcu/h pcu/h pcu/h pcu/h	Proportion Sat. Fla of Turning Flow L Vehicles pcu/h	are lane Share ength Ettect m. pcu/hr	Revised Sat. Flow y pcu/h	Greater L y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Length (m / Iane)	Average Delay (seconds)
LT/ST A 3.30 1 1 11 y 194 ST/RT A 3.30 1 1 12 208 RT B 3.50 2 1 12 210 LT A,B 3.75 3 1 13 y 199 RT C 3.50 4 1 12 210 LT/ST C 3.50 4 1 12 210 LT/ST D 3.50 5 1 112 210 LT/ST D 3.50 5 1 112 210 LT/ST D 3.50 5 1 112 210 LT/ST D 3.50 5 1 11 y 196 Ped D,A,B 4.00 6 - - - - Ped B,C 4.00 7 - - - -	5 51 84 135 5 68 113 181 5 8 133 30 0 158 158 158 5 218 86 303 5 0 200 200 5 104 119 223	0.3818490.6219341.0018711.0017841.0018710.7218031.0018710.471848		1849 0.073 1934 0.094 1871 0.016 1784 0.089 1871 0.105 1803 0.168 1871 0.107 1848 0.121	0.094 0.016 0.168 0.121	3 16 20 20 20 4 19 29 23 37 37 37 37 23 26 26 26 26	0.376 0.481 0.481 0.322 0.300 0.481 0.481 0.481	18 24 0 18 18 30 24 24	31 32 67 24 19 19 29 27
			NOTES :	PEDESTRAIN WALKIN	IG SPEED = 1.2r	m/s QUEUING	LENGTH = A	VERAGE QU	EUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME /1_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 775 \longrightarrow (1) 397 \longrightarrow (1) $	N 🚽 Chai Wan Road 2) 2)	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.583Loss timeL =18Total Flow=2645Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=Yult=0.765R.C.ult=(Yult-Y)/Y*100%=Standard=0.9*L/(0.9-Y)=Ymax=1-L/C=O, 20, 20, 20, 20, 20, 20, 20, 20, 20, 20	sec pcu sec sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (5) \qquad (7) \qquad (2) \qquad (3)$	 ← - → (6) I = 6 		
Move- ment Stage Width m. Lane Phase Width No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Mov Fraffic? Move- m. Move- Mane Mov	ement Total Proportion Sat. Flare lane ight Right Flow of Turning Flow Length u/h pcu/h pcu/h Vehicles pcu/h m.	Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h	Degree of Saturation Queue Length Average Delay X (m / lane) (seconds)
ST A 3.50 1 2 y 4070 7 RT A 3.75 1 1 13 2130 2130 4210 9 ST B 3.50 2 2 4210 4210 9 LT B 3.10 2 1 12 y 1925 60 LT C 4.00 3 1 15 y 2015 432 LT/RT C 4.00 3 1 15 2155 155 Ped A 4.50 4 <	75 0.00 4070 397 397 1.00 1910 84 584 0.00 4210 60 1.00 1711 432 1.00 1832 242 397 1.00 1959	4070 0.190 28 28 1910 0.208 0.208 31 28 4210 0.139 0.139 21 21 1711 0.035 5 21 1832 0.236 0.236 35 35 1959 0.202 30 35	0.703 48 24 0.767 48 30 0.703 39 31 0.177 6 30 0.703 48 22 0.603 42 20
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at					Prepared By:	- H	C			
	Junction Cap	acity Analysis						Checked By:	C)C
Junction layo De	Junction layout sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road Design Year - 2026 Level 1 - Site 1 Time - Level 1 Peak Hour				PETAILS			GEOMETRIC PA	RAMET	ERS
W ₁ Chai Wan Road W _{cr1}		ARM B Wan Tsui Road	W ₃ Chai Wan Wor2 Road	W ₁ W ₂ W ₃ W ₄ W W _{cr1} W _{cr2} W _{cr}	 = 10.90 = 7.70 = 10.60 = 10.20 = 19.70 = 4.10 = 1.70 = 2.90 	(metres) (metres) (metres) (metres) (metres) (metres) (metres)		D E F Y	-	0.675 1.109 0.993 0.320
ARM A W ₂		← 548	^{VV4} ARM C	MAJOF Q _{a•b} Q _{a•c}	ROAD = 92.403 = 263.64	(ARM A) (pcu/hr) (pcu/hr)		THE CAPACITY (Q _{b-c} Q _{c-b} Q _{b-a}	OF MO = = =	/EMENT 787 699 370
				MAJOF W _{c-b}	R ROAD = <u>3.30</u>	(ARM C) (metres)		COMPARISION O	OF DES	IGN FLOW
REMARK: (GEOME	TRIC INPUT DATA)			Vr _{c-b}	= 150	(metres)		DFC _{b-a}	=	0.088
W W _{cr}	 AVERAGE MAJOR ROAD AVERAGE CENTRAL RES 	WIDTH SERVE WIDTH		q _{c-a} q _{c-b}	= 548.07 = 264.16	(pcu/hr) (pcu/hr)		DFC _{b-c} DFC _{c-b}	=	0.354 0.378
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE WIDTH AVAILABLE LANE WIDTH AVAILABLE LANE WIDTH AVAILABLE VISIBILITY TO THE LEFT VISIBILITY TO THE RIGH VISIBILITY TO THE RIGH GEOMETRIC PARAMETE 	TO VEHICLE WAITING IN STREAM B TO VEHICLE WAITING IN STREAM B TO VEHICLE WAITING IN STREAM C FOR VEHICLES WAITING IN STREAM T FOR VEHICLES WAITING IN STREA T FOR VEHICLES WAITING IN STREA T FOR VEHICLES WAITING IN STREA RS FOR STREAM B-C RS FOR STREAM B-A RS FOR STREAM C-B	-A -C -B 1 B-A M B-A M B-C M C-B	MINOR W _{b-a} W _{b-c} VI _{b-a} Vr _{b-a} Vr _{b-c} q _{b-a} q _{b-c}	ROAD = 0.00 = 4.50 = 150 = 150 = 150 = 32.613 = 278.83	(ARM B) (metres) (metres) (metres) (metres) (pcu/hr) (pcu/hr)		Critical DFC	-	0.378
ctober 2007										Page 9 of

TRAFFIC SIGNAL CALCULATION		INITIALS DATE	
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011	
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows	FILENAME /1_S1_J2_J5_J6_J7_J8.xls Checked By: OC 29-4-2011	
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011	
(1) 1067 24	N Chai Wan Road (1)	No. of stages per cycleN =2Cycle timeC =100 secSum(y)Y =0.496Loss timeL =10 secTotal Flow=2069 pcuCo= (1.5*L+5)/(1-Y)=39.7 secCm= L/(1-Y)Yult=0.825R.C.ult= (Yult-Y)/Y*100%=66.3 %Cp=Cp=0.9°L/(0.9-Y)Ymax=1-L/C=0.900R.C.(C)=(0.9*Ymax-Y)/Y*100%	
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$	1=		
Move, Stage Lane Phase No of Radius O N Straight, Mo	rement Total Proportion Sat Flare la		Verage
ment Width lane Ahead Left s	raight Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L required (input) Saturation Length	Delay
ST A 3.50 1 2 10 N 4070 ST A 3.50 1 2 10 N 4070 ST A 3.50 1 2 10 N 4070 LT B 3.00 2 1 10 N 1915 RT B 3.50 2 1 12 2105 Ped B 19.0 3 Ped A 8.0 4 Image: A in the state of t	but in peurin peurin venicies peurin m. 067 1067 0.00 4070 588 0.00 4070 389 1.00 1665 24 24 1.00 1871 1871 1871 1871 100 1871 100 1871 100 1871 100 1871 100 1871 100 1871 100	pcu/m pcu/m y sec sec sec x (m/lane) (c 4070 0.262 0.262 48 47 0.558 45 4070 10 <t< td=""><td>10 11 9 10</td></t<>	10 11 9 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREE	I FG - FLASHING GREEN PEDESTRAIN WAI	LKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV1 - Peak Hour Traffic Flows	FILENAME /1_S1_J2_J5_J6_J7_J8.xls Checked By:	0C 29-4-2011
2026 Level 1 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	0C 3-5-2011
Sheung On Street (1) 98 (4) (4) (4) (1) 972 (4) (4) (4) (4) (4) (4) (4) (4) (4) (4)	A) 2 Chai Wan Road L (2) L (2)	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.299Loss timeL =37Total Flow=2427Co= (1.5*L+5)/(1-Y)=86.3Cm= L/(1-Y)Yult=0.623R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=St.AYmax= 1-L/CP.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec % sec %
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (2) \xrightarrow{(3)} (3)$	(4) (4) (6)		
Stage A I = 8 Stage B I = 5 Stage C	I = 7 Stage C I = 6		
Move- ment Stage Lane Width Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Lane m. m. m. m. side Ahead Lane Side Ahead Lane Lane? Sat. Flow pc	Movement Total Proportion Sat. Flare lane Shar eft Straight Right Flow of Turning Flow Length Effec J/h pcu/h pcu/h Vehicles pcu/h m. pcu/h	re Revised ect Sat. Flow y Greater L required (input) /hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.50 1 3 12 y 6175 9 LT/ST A 3.30 2 3 12 Y 6115 1 LT B 3.50 3 1 9 Y 1965 3 LT/RT D 3.75 4 2 10 y 4120 2 Ped B,C 4.00 5 -	8 972 1070 0.09 6105 51 801 953 0.16 5996 5 35 1.00 1684 2 348 370 1.00 3583	6105 0.175 0.175 49 5996 0.159 44 1684 0.021 0.021 6 3583 0.103 0.103 29 15 15 15	0.000 70 54 0.000 62 54 0.000 6 54 0.000 36 54
	NOTES	S: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment S	Study For Columbarium Development at	C Prepared By:	КС
Junction Capacity Analysis		Checked By:	00
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2026 Level 2 - Reference Case Time - Level 2 Peak Hour ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
W 350 4 647	W((motros)		ETERS
√ 350 4 617	$W_1 = 6.00$ (metres)	GEOWETRIC PARAM	0 022
	$W_2 = 3.00$ (metres)	× _A =	1.030
	$W_4 = 3.00$ (metres)	X _B =	0.586
	W = 6.00 (metres)	Хр =	0.827
W4 W2	$W_{\text{ref}} = 0.00$ (metres)	Y =	0.793
ис "	$W_{rrr} = 0.00$ (metres)	7. =	1 005
De Witter Cape	$W_{cr2} = 0.00$ (metres)	$Z_{\rm B}$ =	0.905
		∠ _D –	0.905
Wa → O W. Bood	MAJOR ROAD (ARM A)	THE CAPACITY OF M	OVEMENT
$\gamma \gamma $	$W_{ad} = 3.00$ (metres)	Q =	413
	$Vr_{ad} = 100$ (metres)	Q	749
	$\mathbf{q}_{a,b} = 0$ (neuse)	Q_{1} is nearside =	TRUE
	$q_{a-b} = 0$ (pcu/hr)		611
201 167 12	$q_{a-c} = 1$ (pcu/hr)	Q =	674
		$Q_{\rm unis}$ nearside =	TRUE
ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	$Q_{d,b} =$	533
	W _{ob} = (metres)	Q _{dc} =	429
IARK: (GEOMETRIC INPUT DATA)	Vreb = (metres)	Q =	437
W = AVERAGE MAJOR ROAD WIDTH	$q_{oo} = 0$ (pcu/hr)	Q _{od} =	616
W = AVERAGE CENTRAL RESERVE WIDTH	$q_{ch} = 0$ (pcu/hr)	∽ a-0	010
W at = I ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	$q_{cd} = 0$ (pcu/hr)	COMPARISION OF D	SIGN FLOW
$W_{ho} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A$		TO CAPACITY	20101112011
W b = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	DFC ha =	0.029
W ob = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{ba} = 5.00$ (metres)	DFC b =	0.268
W do = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b,c} = 5.00$ (metres)	DFC bd =	0.274
W do = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$V_{lbo} = 100$ (metres)	DFC do =	0.915
Vr ed = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{ba} = 65$ (metres)	DFC db =	0.007
VI ha = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{bc} = 0$ (metres)		0.816
Vr _{ba} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	$q_{ha} = 11.958 (pcu/hr)$	DFC and =	0.000
Vr _{bc} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{hc} = 200.94$ (pcu/hr)	DFC and =	0.002
Vr _{ch} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$q_{bd} = 167.43 (pcu/hr)$	- a•u	
VI de VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C		Critical DFC =	0.915
Vr _{de} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)		
Vr da = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	$W_{dea} = 3.00$ (metres)		
X_{A} = GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{dec} = 3.00$ (metres)		
$X_{\rm B}$ = GEOMETRIC PARAMETERS FOR STREAM B-A	$VI_{dc} = 50$ (metres)		
X_{c} = GEOMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metres)		
$X_{\rm p}$ = GEOMETRIC PARAMETERS FOR STREAM D-C	$Vr_{dra} = \frac{80}{(metres)}$		
$Z_{\rm B}$ = GEOMETRIC PARAMETERS FOR STREAM B-C	$q_{dra} = 617.03$ (pcu/hr)		
$Z_{\rm p}$ = GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d+b} = 3.5874 (pcu/hr)$		
Y = (1-0.0345W)	$q_{dc} = 350.06 (pcu/hr)$		
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TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls Checked By:	OC 29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 128 \xrightarrow{} 2 \xrightarrow{} 2$ $(1) 128 \xrightarrow{} 2 $	N Van Tsui Road	No. of stages per cycleN =2Cycle timeC =120Sum(y)Y =0.638Loss timeL =25Total Flow=1253Co= (1.5*L+5)/(1-Y)=Yult=0.713R.C.ult= (Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)Ymax=1-L/C=0.792R.C.(C)=(0.9*Ymax-Y)/Y*100%=11.6	sec pcu sec sec %
(1) (3	(4)		
Move- ment Stage Width Lane Phase Iane No. of Iane Radius Mover O N Straight- Ahead Mover m. m. m. Sat. Flow pcu/h pcu/h pcu/h	ent Total Proportion Sat. Flare lane Sha t Right Flow of Turning Flow Length Effe pcu/h pcu/h Vehicles pcu/h m. pcu	are Revised g g tect Sat. Flow y Greater L required (input) J/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
ST A 3.00 1 1 N 1915 128 ST/LT A 4.00 1 1 10 N 2015 1075 50 Ped B 6.0 3 Image: state of the state of	128 0.00 1915 1125 0.96 1762	1915 0.067 10 95 1762 0.638 0.638 95 95 20 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 110 10 10 10 10 10 110 10 10 10 10 10 110 10 10 10 10 10 110 10 10 10 10 10 110 10 10 10 10 10 110 10 10 10 10 10 110 10 10 10 10 10 10 110 10 10 10 10 10 10 10 110 10 10 10 10 10 10 10 10 110 10 10 <	0.085 0 2 0.806 42 6
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SI	SPEED = 1.2m/s QUEUING LENGTH = AVER/	AGE QUEUE * 6m



ROUNDABOUT CAPACITY ASSESSMENT				INITIALS	DATE				
TIA St	udy for	Columbarium Development at Cape Collinson Road		PR	ROJECT NO.: 80510		PREPARED BY:	: KC	Sep-13
Junctio	on 4: C	hai Wan Road Roundabout	J4LV2 Peak Hour	FIL	LENAME : 2026_LV2_F	Ref.xls	CHECKED BY:	OC	Sep-13
J4LV2	Peak	Hour					REVIEWED BY:	OC	Sep-13
			·						
					(ARM	D)			
		(ARM D)		Ν	776.4507	717			
		Island Easter Corr	idor	4					
		4							
		[16] 329	[1] [2] [3] [4]		108	83			
		[15] 422	8 170 448 152	I	0.0)			
					0	^			
					0	0			
					0	0			
Chai V	Van Ro	pad			0	0			
(ARM	C)		(ARM A)	1328.694	557 O	0	1212.037	751.1668	
			Chan Wan Road	(ARM C)	0	0		(ARM A)	
		$ \qquad \qquad$	9 [5]		0	0			
			f		0	0			
			405 [6]		0.0)			
		12 60 65 10			8	14			
					0	14			
			+						
			Y						
		Wan Tsui Road	Y I		147.5889	915			
		Wan Tsui Road (ARM B)	· · · · · · · · · · · · · · · · · · ·		147.5889 (ARM	915 И В)			
		Wan Tsui Roac (ARM B)	· · · · · · · · · · · · · · · · · · ·		147.5889 (ARM	915 И В)			
ARM		Wan Tsui Roac (ARM B)	A B C D		147.5889 (ARN	915 И В)			
ARM	PARA	Wan Tsui Roac (ARM B) METERS:	A B C D		147.5889 (ARM	915 И В)			
ARM	PARA	Wan Tsui Roac (ARM B) METERS:	A B C D		147.5889 (ARM	915 ИВ)			
ARM INPUT V	PARA =	Wan Tsui Roac (ARM B) METERS: Approach half width (m)	A B C D 7.00 4.00 7.00 7.00		147.5889 (ARM	915 M B)			
ARM INPUT V E	⁻ PARA = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		147.5889 (ARM	915 И В)			
ARM INPUT V E	- PARA = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		147.5889 (ARM	915 ИВ)			
ARM INPUT V E L R	- PARA = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		147.5889 (ARM	915 M B)			
ARM INPUT V E L R D	- PARA = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		147.5889 (ARM	915 // B)			
ARM INPUT E L R D A	PARA = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00		147.5885 (ARM	915 // B)			
ARM INPUT V E L R D A Q	PARA = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776		147.5889 (ARM	915 <u>A B)</u>			
ARM INPUT E L R D A Q Q C	PARA = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083		147.5889 (ARM	915 <u>A B)</u>			
ARM INPUT V E L R D A Q Q Q c	= = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083		147.5889 (ARM	915 <u>A B)</u>			
ARM INPUT V E L R D A Q Q C OUTP	= = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083		147.5889 (ARM	915 <u>A B)</u>			
ARM INPUT V E L R D A Q Q Q C OUTP S	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083 0.53 0.96 0.80 0.00		147.5889 (ARM	915 <u>A B)</u>			
ARM INPUT V E L R D A Q Q C OUTP S K	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		147.5889 (ARM	915 <u>A B)</u>			
ARM INPUT V E L L R D A Q Q Q C OUTP S K X2	= = = = = = = = = UT PA = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		147.5889 (ARM	915 <u>A B)</u>			
ARM INPUT V E L R D A Q Q c OUTP S K X2 M T	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		147.5889 (ARM	915 <u>A B)</u>			
ARM INPUT V E L R D A Q Q c OUTP S K X2 M F T	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083 0.53 0.96 0.80 0.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121		147.5885 (ARM	915 <u>A B)</u>			
ARM INPUT E L R D A Q Q c OUTP S K X2 M F T d T	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 751 148 1329 776 1212 814 557 1083 0.53 0.96 0.80 0.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 1.37 1.37 1.37		147.5885 (ARM	915 <u>A B)</u>			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F Td F C	UT PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M)) $0.21^{+}Td(1+0.2^{+}X2)$	A B C D 7.00 4.00 7.00 7.00 9.00 9.00 7.00 10.00 7.00 6.00 6.00 5.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 751 148 1329 776 1212 814 557 1083 100 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.		147.5885 (ARM	915 <u>A B)</u>			
ARM INPUT E L R D A Q Q C OUTP S K X2 M F Td F C Q e	UT PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) $303^{*}X2$ 1+(0.5/(1+M)) $0.21^{*}Td(1+0.2^{*}X2)$ $K(F-Fc^{*}Qc)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 751 148 1329 776 1212 814 557 1083 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1550 1020 2058 1389	To	147.5885 (ARM	915 <u>A B)</u>	2392.37	PCU	
ARM INPUT E L R D A Q Q C OUTP S K X2 M F Td F c Qe	UT PAR# = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) METERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M)) $0.21^{T}d(1+0.2^{X}X2)$ $K(F-Fc^{Q}C)$	A B C D 7.00 4.00 7.00 7.00 9.00 9.00 7.00 10.00 7.00 6.00 6.00 5.00 6.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 751 148 1329 776 1212 814 557 1083 1083 101 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1550 1020 2058 1389	To	147.5885 (ARM	915 <u>A B)</u>	2392.37	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai V	Nan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls Checked By:	OC 29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(3) 262 (3) 36 (3) 3	N Wing Tai Road ↓ 436 (1) wad	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.214Loss timeL =10Total Flow=1455Co= (1.5*L+5)/(1-Y)=Zo= (1.5*L+5)/(1-Y)=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=Zp=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=Z79.0	sec pcu sec sec sec %
(4) (4) (5) (3) (3) (3) (6) (6) (6) (6)			
Stage A I = 7 Stage B I = 5			
Move- ment Width Iane Phase No. of Radius Opposing Near- Midth M. Iane M. Traffic? Side Iane? Sat. F	ght- Movement Total Proportion Sat. Flare ad Left Straight Right Flow of Turning Flow Ler Flow pcu/h pcu/h pcu/h Vehicles pcu/h n	e lane Share Revised g g g ngth Ettect Sat. Flow y Greater L required (input) m. pcu/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT A 3.75 1 2 22 y 412 LT A 4.00 2 2 24 431 RT A 3.50 2 2 11 y 407 ST B 3.50 3 2 - y 407 RT B 4.50 3 2 13 y 407 Ped A 4.50 4 - - y 407 Ped A 4.50 3 2 13 y 427 Ped A 4.50 6 - - - - - Ped B 4.50 6 - - - - - - - Ped B 4.50 6 -	20 436 436 1.00 3857 10 186 1.86 1.00 4056 70 535 535 1.00 3582 70 262 262 0.00 4070 70 36 36 1.00 3828	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	0.180 12 6 0.073 3 6 0.237 15 5 0.237 15 23 0.035 0 24
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	.ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls Checked By:	OC 29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (1) 105 432 453 5143 51433 51433 51433 51433 51433 51433 51433 51433 51433 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 5143333 51433333 51433333 5143333 5143333 51433333 51433333 51433333 51433333 51433333 514333333 514333333 5143333333 5143333333 51433333333333 5143333333333333 514333333333333333333333333333333333333	N Wan Road	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.260Loss timeL =48Total Flow=1470Co= (1.5*L+5)/(1-Y)=0= L/(1-Y)=64.9Yult=Yult=0.540R.C.ult= (Yult-Y)/Y*100%=107.7Cp=Cp=0.9*L/(0.9-Y)9=67.5Ymax=1-L/C9=0.9*Ymax-Y)/Y*100%=80.0	sec pcu sec sec sec %
$(1) \longrightarrow (1)$ $(1) \longrightarrow (1)$ $(5) \longrightarrow (4)$ $(2) (2)$ (4) $(5) \longrightarrow (4)$	6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Moveme ment Width Iane Traffic? Side Ahead Left Straigh m m Lane? Sate Flow nou/h nou/h	ent Total Proportion Sat. Flare lane Right Flow of Turning Flow Length Degu/h pegu/h Vehicles pegu/h m r	Share Revised Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay X (m / Jane) (seconds
LT/ST A 3.30 1 1 111 y 1945 105 156 ST A 3.20 1 1 11 y 1945 105 156 ST A 3.00 1 2 y 3970 679 LT C 3.75 2 1 12 y 1990 85 RT C 3.75 2 1 12 y 1990 85 Ped B 11.00 3 -	261 0.40 1844 276 0.00 2075 679 0.00 3970 85 1.00 1769 168 168 1.00	1844 0.142 28 34 1844 0.142 28 34 2075 0.133 27 34 3970 0.171 0.171 34 34 1769 0.048 10 18 18 1893 0.089 0.089 18 18	0.414 24 19 0.389 30 18 0.500 36 17 0.270 6 31 0.500 18 33
	N	OTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

	1		
TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IA Study for Columbarium Development at Cape Collinson Road, Char Wan	1711/2 Deale Hours Traffic Flows	FILENAME : 2026 LV2 Potyle Checked By:	KC 29-4-2011
3036 Lovel 2 Deek Hour - Deference Case	J7LV2 - Peak Hour Traffic Flows	FILENAIVIE : 2026_LV2_REI.XIS CHECKED By:	0C 29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	0C 3-5-2011
Bus Terminal (1) 35 (1) 157 (1) 164 (1) (1) 164 (1) (1) (1) 164 (1) (1) (1) 164 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	N ×	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.389Loss timeL =18Total Flow=1286Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=Yult=0.765R.C.ult=(Yult-Y)/Y*100%=Op=0.9*L/(0.9-Y)=Ymax=1-L/C=0.829R.C.(C)=(0.9*Ymax-Y)/Y*100%=	sec pcu sec sec % sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (3) (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (6) (5) (5) (5) (5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lane Sha	are Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	t Right Flow of Turning Flow Length Effe	tect Sat. Flow y Greater L required (input)	Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 35 84 ST/RT A 3.30 1 1 11 12 2085 73 RT B 3.50 2 1 12 2105 73 LT A,B 3.75 3 1 13 y 1990 132 RT C 3.50 4 1 12 2105 73 LT/ST C 3.50 4 1 12 2105 78 ST/RT D 3.50 5 1 12 2105 0 LT/ST C 3.50 5 1 12 2105 0 LT/ST D 3.50 5 1 11 y 1965 100 139 Ped D,A,B 4.00 6 1 1 1 1 1 1 1 Ped B,C 4.00 7 1 1 1 1 1 1 1	119 0.29 1870 164 237 0.69 1919 30 30 1.00 1871 132 1.00 1784 175 175 1.00 1871 220 0.64 1818 134 134 1.00 1871 239 0.42 1859	Arm pcarm y sec sec <td>A (m) rate() (seconds) 0.242 12 25 0.470 30 25 0.470 0 66 0.214 12 20 0.363 18 26 0.470 24 26 0.470 18 37 0.470 30 25</td>	A (m) rate() (seconds) 0.242 12 25 0.470 30 25 0.470 0 66 0.214 12 20 0.363 18 26 0.470 24 26 0.470 18 37 0.470 30 25
	NOTE	ES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m
TRAFFIC SIGNAL CALCULATION			INITIALS DATE
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TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls Checked By:	OC 29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 907 _{(1) 599} _{(1) 599} _{(1) 599} _{(1) 599} _{(1) 599} _{(1) 599} _{(1) 599} _{(2) 557 (2) 566 (2) (2) 566 (2) $	N 🚽	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.717Loss timeL =18Total Flow=3139Co= (1.5*L+5)/(1-Y)=Total Flow=63.7Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Max= 1-L/C=0.29R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec sec % sec %
$(1) \longrightarrow (5) (5) (5) (7) (7) (2) (3)$	 ← - ▶ (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lane	Share Revised g g Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
m. m. lane? Sat. Flow pcu/h pcu/	n pcu/h pcu/h Vehicles pcu/h m.	pcu/hr pcu/h y sec sec sec	X (m / lane) (seconds
ST A 3.50 1 2 , y 4070 907 RT A 3.50 1 1 13 2105 557 ST B 3.50 2 2 , 4210 557 LT B 3.10 2 1 12 y 1925 86 LT C 4.00 3 1 15 y 2015 491 LT/RT C 4.00 3 1 15 2155 168 Ped A 4.50 4 4 400 400 400 400 Ped B,C 3.50 5 400 400 400 400 400 400 400 Ped B,C 3.50 5 400	907 0.00 4070 599 599 1.00 1887 557 0.00 4210 86 1.00 1711 491 1.00 1832 332 500 1.00 1959	4070 0.223 27 27 1887 0.317 0.317 38 27 4210 0.132 0.132 16 16 1711 0.050 6 16 1832 0.268 0.268 32 32 1959 0.255 31 32	0.866 57 39 1.233 72 35 0.866 39 45 0.329 12 35 0.866 54 29 0.825 60 29
	Ν	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m



			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV2 - Peak Hour Traffic Flows	FILENAME : 2026_LV2_Ref.xls Checked By:	OC 29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 721 27 (1) 27 (1) 234 (2) San Ha Street	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.317Loss timeL =10Total Flow=1499Co= (1.5*L+5)/(1-Y)=29.3Cm= L/(1-Y)Cm= L/(1-Y)=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=15.5Ymax= 1-L/CYmax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (2)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$			
Move- Stage Lane Phase No of Radius O N Straight- Moveme	nt Total Proportion Sat Elare land Share	Bevised a a	Degree of Queue Average
ment Width Iane m. Sat. Flow pcu/h pcu/h	Right Flow of Turning Flow Length Effect pcu/h pcu/h Vehicles pcu/h m. pcu/hr	r pcu/h y Greater L required (input) r pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 721 ST A 3.50 1 2 10 N 4070 721 ST A 3.50 1 2 10 N 4070 721 LT B 3.00 2 1 10 N 1915 234 RT B 3.50 2 1 12 N 1915 234 Ped B 19.0 3 N 1915 2105 214 Ped A 8.0 4 I <td< td=""><td>721 0.00 4070 517 0.00 4070 234 1.00 1665 27 27 1.00 1871</td><td>4070 0.177 0.177 50 47 4070 0.127 36 47 1665 0.140 0.140 40 53 1871 0.015 4 53</td><td>0.377 30 11 0.271 21 11 0.265 18 9 0.027 0 10</td></td<>	721 0.00 4070 517 0.00 4070 234 1.00 1665 27 27 1.00 1871	4070 0.177 0.177 50 47 4070 0.127 36 47 1665 0.140 0.140 40 53 1871 0.015 4 53	0.377 30 11 0.271 21 11 0.265 18 9 0.027 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEEL	ED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDOS Prepared By	KC 29-4-2011
J11: Junction of Chai Wan Road. Sheung On Street & Wing Ping Street	J11LV2 - Peak Hour Traffic Flows	FILENAME : 2026 LV2 Ref.xls Checked By:	OC 29-4-2011
2026 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Sheung On Street (1) 103 $\xrightarrow{4}$ (4) (4) 397 49 (1) 612 $\xrightarrow{4}$ (4) 397 49 $\xrightarrow{4}$ (4) 397 49 $\xrightarrow{4}$ (4) 397 49 $\xrightarrow{4}$ (5) $\xrightarrow{4}$ (740 108 (3) Wing Ping Street	Chai Wan Road	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.288Loss timeL =37Total Flow=2047Co= (1.5*L+5)/(1-Y)=Star=2047Cm= L/(1-Y)=Yult=0.623R.C.ult= (Yult-Y)/Y*100%=116.2Cp=0.9*L/(0.9-Y)Ymax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=116.2	sec pcu sec sec % sec %
$(1) \longrightarrow (5) \longleftarrow (6)$ $(5) \longleftarrow (6)$ $(7) \longleftarrow (7)$	(4) (4) (6)		
Stage A I = 8 Stage B I = 5 Stage C	I = 7 Stage C I = 6		
Move- ment Stage Lane Width Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left N Left m. m. m. m. side Ahead Left	wement Total Proportion Sat. Flare lane Share traight Right Flow of Turning Flow Length Effect pcu/h pcu/h pcu/h Vehicles pcu/h m. pcu/hr	e Revised t Sat. Flow y Greater L required (input) nr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.50 1 3 12 y 6175 103 LT/ST A 3.30 2 3 12 Y 6115 108 LT B 3.50 3 1 9 Y 6115 108 LT B 3.50 3 1 9 Y 1965 38 LT/RT D 3.75 4 2 10 y 4120 49 Ped B,C 5.00 6 - - - - - - - - - - - - - 49 - </td <td>612 715 0.14 6066 740 848 0.13 6019 38 1.00 1684 397 446 1.00 3583</td> <td>6066 0.118 34 6019 0.141 0.141 41 1684 0.023 0.023 7 3583 0.124 0.124 36 15 15 15</td> <td>$\begin{array}{cccccccccccccccccccccccccccccccccccc$</td>	612 715 0.14 6066 740 848 0.13 6019 38 1.00 1684 397 446 1.00 3583	6066 0.118 34 6019 0.141 0.141 41 1684 0.023 0.023 7 3583 0.124 0.124 36 15 15 15	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
	NOTES :	: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

Valero	Agreement No. CPM301_15/10 - Traffic Impact Assessr	nent Study For Columbarium Developme	ent a Prepared By: KC
	Junction Capacity Analysis		Checked By: OC
lunction layout sk Design T	etch - J1: J/O Cape Collinson Road and Lin Shing Road Year - 2026 Level 2 - Site 1 Time - Level 2 Peak Hour		
	ARM D LIN Shing Ru (N)	GEOMETRIC DETAILS	
${\mathcal N}$	359 4 666	W ₁ = (metres)	GEOMETRIC PARAMETERS
♠		$W_2 = 6.00$ (metres)	X _A = 0.922
		$W_3 = 3.00$ (metres)	X _B = 1.039
	↓ └→ [$W_4 = 3.00$ (metres)	X _C = 0.586
	ARM A	W = 6.00 (metres)	X _D = 0.827
W ₁	W ₃	W _{cr1} = 0.00 (metres)	Y = 0.793
/ C		$W_{cr2} = 0.00$ (metres)	Z _B = 1.005
W _{cr1}	W _{cr2} Cape	W _{cr} = 0.00 (metres)	Z _D = 0.905
ns			
W ₂	← 0 W ₄ Road	MAJOR ROAD (ARM A)	THE CAPACITY OF MOVEMENT
9	↓ 0 (E)	$W_{a-d} = 3.00$ (metres)	Q _{b-a} = 396
-		Vr _{a-d} = 100 (metres)	Q _{b-c} = 749
		$q_{a-b} = 0$ (pcu/hr)	Q _{b-d} is nearside = TRUE
		$q_{a-c} = 0$ (pcu/hr)	Q _{b-d} = 611
	203 178 12	q _{a-d} = 2 (pcu/hr)	Q _{d-a} = 674
	•		Q _{d-b} is nearside = TRUE
	ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	Q _{d-b} = 532
		W _{c·b} = (metres)	Q _{d-c} = 425
IARK: (GEOMETRIC	CINPUT DATA)	Vr _{c-b} = (metres)	Q _{c-b} = 437
W =	AVERAGE MAJOR ROAD WIDTH	q _{c∘a} = <mark>0</mark> (pcu/hr)	Q _{a-d} = 616
W _{cr} =	AVERAGE CENTRAL RESERVE WIDTH	q _{c·b} = <mark>0</mark> (pcu/hr)	
W _{a-d} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	q _{c-d} = <mark>0</mark> (pcu/hr)	COMPARISION OF DESIGN FLOW
W _{b-a} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A		TO CAPACITY
W _{b-c} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	DFC _{b-a} = 0.030
W _{c-b} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	W _{b-a} = 5.00 (metres)	$DFC_{b-c} = 0.271$
W _{d-a} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	W _{b-c} = 5.00 (metres)	DFC _{b-d} = 0.291
W _{d-c} =	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	VI _{b-a} = 100 (metres)	DFC _{d-a} = 0.988
Vr _{a-d} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	Vr _{b-a} = 65 (metres)	DFC _{d-b} = 0.007
VI _{b-a} =	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	Vr _{b-c} = 0 (metres)	$DFC_{d-c} = 0.844$
Vr _{b-a} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	q _{b-a} = <mark>11.958</mark> (pcu/hr)	DFC _{c-b} = 0.000
Vr _{b-c} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	q _{b-c} = 202.94 (pcu/hr)	DFC _{a-d} = 0.003
Vr _{c-b} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	q _{b-d} = <mark>177.88</mark> (pcu/hr)	
VI _{d-c} =	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C		Critical DFC = 0.988
Vr _{d-c} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)	
Vr _{d-a} =	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	W _{d-a} = 3.00 (metres)	
X _A =	GEOMETRIC PARAMETERS FOR STREAM A-D	W _{d-c} = 3.00 (metres)	
X _B =	GEOMETRIC PARAMETERS FOR STREAM B-A	VI _{d-c} = <mark>50</mark> (metres)	
X _C =	GEOMETRIC PARAMETERS FOR STREAM C-B	Vr _{d-c} = 50 (metres)	
X _D =	GEOMETRIC PARAMETERS FOR STREAM D-C	Vr _{d-a} = 80 (metres)	
Z _B =	GEOMETRIC PARAMETERS FOR STREAM B-C	q _{d-a} = <mark>666.49</mark> (pcu/hr)	
Z _D =	GEOMETRIC PARAMETERS FOR STREAM D-A	q _{d-b} = <mark>3.875</mark> (pcu/hr)	
Y =	(1-0.0345W)	q _{d-c} = 358.98 (pcu/hr)	

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO.: CTLDOS Prepared By: KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 1/2 S1 J2 J5 J6 J7 J8.xls Checked By: OC 29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011
$(1) 128 \xrightarrow{} 128 \xrightarrow{} 1134$ $(1) 128 \xrightarrow{} 1134$ $(2) (2) (2) \text{Lin Shing Road}$	Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.672Loss timeL =25 secTotal Flow=1312 pcuCo= $(1.5*L+5)/(1-Y)$ =129.5secCm= $L/(1-Y)$ =76.2secYult=R.C.ult= $(Yult-Y)/Y*100\%$ =6.1%Cp= $0.9*L/(0.9-Y)$ =98.6secYmax= $1-L/C$ =R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =6.1%
$(1) \longrightarrow (3)$ (3)	(4)	
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Move- Left Straight- Straight- Move- Mead m. m. m. Sat. Flow pcu/h pcu	nent Total Proportion Sat. Flare ght Right Flow of Turning Flow Len /h pcu/h pcu/h Vehicles pcu/h m	IaneShareRevisedggggDegree ofQueueAveraggthEffectSat. FlowyGreaterLrequired(input)SaturationLengthDelayn.pcu/hrpcu/hrpcu/hysecsecsecsecX(m / lane)(second
ST A 3.00 1 1 N 1915 12 ST/LT A 4.00 1 1 10 N 2015 1134 5 Ped B 6.0 3 Image: Constraint of the second secon	8 128 0.00 1915 0 1184 0.96 1762	1915 0.067 9 95 0.085 0 2 1762 0.672 0.672 95 95 0.849 48 7 20 10 100
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN W	VALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Kalc	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a				
<i>I</i> IUIC	Junction Capacity Analysis		Checked By:	эс	
Junction layo	out sketch - J3: J/O Cape Collinson Road and Lin Shing Road esign Year - 2026 Level 2 - Site 1 Time - Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMET	TERS	
N N Shek O Road (N)	ARM B Cape Collinson Road	$ \begin{array}{rcrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	D E = F = Y =	0.626 0.996 1.109 0.705	
ARM A W ₂	$\overset{\text{I}}{\longleftarrow} 326 \overset{\text{W}_4}{\longleftarrow} 326 \overset{\text{(6)}}{\longleftarrow}$	C MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 433.75$ (pcu/hr)	THE CAPACITY OF MO $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$	VEMENT 631 703 290	
		MAJOR ROAD (ARM C) W _{cb} = 4.50 (metres)	COMPARISION OF DES	SIGN FLOW	
REMARK: (GEOM W W _{cr}	ETRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH = AVERAGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 326.13$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	DFC _{b-a} = DFC _{b-c} = DFC _{c-b} =	1.970 0.022 0.000	
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W) 	$\begin{array}{llllllllllllllllllllllllllllllllllll$	Critical DFC =	1.970	
affic Impact Assess ctober 2007	sment Report			Page 3 of	

	ROUNDABOUT CAPACITY ASSESSMENT			
TIA Study for Columbarium Development at Cape Collin	nson Road	PROJECT NO.: 80510 PREPARED BY	/: КС	Sep-13
Junction 4: Chai Wan Road Roundabout	J4LV2 Peak Hour	FILENAME2026_LV2_S1_J2_J5_J6_J7_J8.xls CHECKED B	(: OC	Sep-13
J4LV2 Peak Hour		REVIEWED BY	C OC	Sep-13
		(ARM D)		
	(ARM D)	N 810.590151		
Islar	nd Easter Corridor	↓		
†				
[16] 329	[1] [2] [3] [4]	1115		
[15] 428	8 176 475 152	00		
[14] 598		0 0		
(ARM C)	(ARM A)	1360.081 585 0 0 12/1.267	787.8407	
	Chan Wan Road	(ARM C) O O	(ARM A)	
▲ ↓ → □	9 [5]	0 0		
		0 0		
	432 [6]	00		
12 61 66 10	← 223 [7]	851		
[12] [11] [10] [9]	124 [8]			
v	Van Tsui Road	148 32136		
		(ADM B)		
ARM	A B C D			
V = Approach half width (m)	7 00 4 00 7 00 7 00			
E = Entry width (m)	9.00 7.00 10.00 7.00			
L = Effective length of flare (m)	6.00 5.00 6.00 6.00			
R = Entry radius (m)	40.00 15.00 40.00 25.00			
D = Inscribed circle diameter (m)	50.00 50.00 50.00 50.00			
A = Entry angle (degree)	30.00 35.00 36.00 30.00			
Q = Entry flow (pcu/h)	788 148 1360 811			
Qc = Circulating flow across entry (pcu/h)	1271 851 585 1115			
OUTPUT PARAMETERS:				
S = Sharpness of flare = 1.6(E-V)/L	0.53 0.96 0.80 0.00			
K = 1-0.00347(A-30)-0.978(1/R-0.05)	1.02 0.97 1.00 1.01			
X2 = V + ((E-V)/(1+2S))	7.97 5.03 8.15 7.00			
M = EXP((D-60)/10)	0.37 0.37 0.37 0.37			
$F = 303^{*}X2$	2414 1523 2471 2121			
Tu = T+(U.D/(T+W)) Eq. (0.21*Td(1+0.2*Y2))	1.37 1.37 1.37 1.37			
$\Gamma_{0} = 0.21 IO(1+0.2^{\circ}XZ)$ $\Omega_{0} = K(F_{F}c^{*}\Omega_{C})$	U.74 U.38 U.75 U.89 1505 QQQ 2027 1267	Total In Sum – 2490 565		
	1303 333 2037 1307	10ta in 30in – 2409.307	100	
DFC = Design flow/Capacity = Q/Qe	0.52 0.15 0.67 0.59	DFC of Critical Approach = 0.67		

TRAFFIC SIGNAL CALCULATION				INIT	IALS DATE
TIA Study for Columbarium Development at Cape Collinson Road,	, Chai Wan		PROJECT NO.: CTLDQS	Prepared By: K	C 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Tra	affic Flows	FILENAME /2_S1_J2_J5_J6_J7_J8.xls	Checked By: C	C 29-4-2011
2026 Level 2 Peak Hour - Site 1			REFERENCE NO.:	Reviewed By: C	C 3-5-2011
(3) 272 (3) 36 (3) 36 (2) 538 (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	Wing Tai Road 436 (1) Wan Road	N X	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 2 C = 100 sec Y = 0.217 L = 10 sec = 1471 pcu = 25.5 sec = 12.8 sec = 0.825 = 280.2 % = 13.2 sec = 0.900 = 273.2 %	
(4) (4) (5) (5) (6) (6) (6) (6)					
Move- ment Stage Lane Phase No. of Radius Opposing Near- Width m. Iane m. Traffic? Side Iane?	- Straight- Movement Total Pr Ahead Left Straight Right Flow of Sat. Flow pcu/h pcu/h pcu/h pcu/h N	roportion Sat. Flare lan t Turning Flow Length Vehicles pcu/h m.	he Share Revised Effect Sat. Flow y Greater L pcu/hr pcu/h y sec	g g Degr required (input) Satur sec sec	ee of Queue Average ation Length Delay X (m / lane) (seconds
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 4 <td>4120 436 436 4310 189 189 4070 538 538 4070 272 272 4270 36 36 407 400 400 4000 400 400 4000 400 400 4000 400 400 4100 400 400 4100 400 400 4000 400 400 4000 400 400 4100 400 400 4100 400 400 4000 400 400 4000 400 400 4000 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100</td> <td>1.00 3857 1.00 4056 1.00 3582 0.00 4070 1.00 3828</td> <td>10 3857 0.113 4056 0.047 3582 0.150 0.150 4070 0.067 0.067 3828 0.009</td> <td>47 62 0.1 19 62 0.0 62 62 0.2 28 28 0.2 4 28 0.0</td> <td>81 12 6 .75 3 6 41 15 6 41 15 22 .34 0 23</td>	4120 436 436 4310 189 189 4070 538 538 4070 272 272 4270 36 36 407 400 400 4000 400 400 4000 400 400 4000 400 400 4100 400 400 4100 400 400 4000 400 400 4000 400 400 4100 400 400 4100 400 400 4000 400 400 4000 400 400 4000 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100 400 400 4100	1.00 3857 1.00 4056 1.00 3582 0.00 4070 1.00 3828	10 3857 0.113 4056 0.047 3582 0.150 0.150 4070 0.067 0.067 3828 0.009	47 62 0.1 19 62 0.0 62 62 0.2 28 28 0.2 4 28 0.0	81 12 6 .75 3 6 41 15 6 41 15 22 .34 0 23
			NOTES : PEDESTRAIN WALKING SPEED = 1.2m	n/s QUEUING LENGT	H = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION						INITIALS	DATE	
TIA Study for Columbarium Development at Cape Collinson Road, C	hai Wan			PROJECT NO.: CTLDQ	S Prepared By:	КС	29-4-2011	
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 -	- Peak Hour Traffic Flows		FILENAME /2_S1_J2_J5_J6_	J7_J8.xls Checked By:	OC	29-4-2011	
2026 Level 2 Peak Hour - Site 1				REFERENCE NO.:	Reviewed By:	OC	3-5-2011	
(1) 105 (1) 435 (1) 435 (1) 435 (1) 435 (1)	ad (2) 85 Siu Sai Wan Ro (1) 684	N X		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/(1-Y)$	N = 3 $C = 100$ $Y = 0.261$ $L = 48$ $= 1477$ $= 104.2$ $= 65.0$ $= 0.540$ $% = 106.9$ $= 67.6$ $= 0.520$ $Y*100% = 79.3$	sec pcu sec sec % sec %		
$(1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (5) \xrightarrow{(3)} (4)$	(2) (2) Stage C 1 = 6							
Move- Stage Lane Phase No. of Radius Opposing Near-	Straight- Movement	Total Proportion Sat.	Flare lane Share	Revised	g g	Degree of	Queue	Average
ment Width lane Traffic? side	Ahead Left Straight Right	Flow of Turning Flow	Length Effect	Sat. Flow y Greate	er L (required (input)	Saturation x	Length (m / Jane)	Delay (seconds)
LT/ST A 3.30 1 1 11 Y ST A 3.20 1 1 11 Y ST A 3.20 1 1 11 Y ST A 3.00 1 2 Y LT C 3.75 2 1 12 Y RT C 3.75 2 1 12 Y Ped B 11.00 3 - - - - Ped B 6.50 4 - - - - - Ped B 6.50 5 - - - - - A - - - - - - - - - Ped B 6.50 5 - <td>1945 105 156 2075 279 3970 684 1990 85 168</td> <td>261 0.40 1844 279 0.00 2075 684 0.00 3970 85 1.00 1769 168 1.00 1893</td> <td></td> <td>1844 0.142 2075 0.135 3970 0.172 1769 0.048 1893 0.089</td> <td>28 34 27 34 34 34 10 18 18 18 20 10</td> <td>0.413 0.392 0.502 0.271 0.502</td> <td>24 30 36 6 18</td> <td>18 18 17 31 33</td>	1945 105 156 2075 279 3970 684 1990 85 168	261 0.40 1844 279 0.00 2075 684 0.00 3970 85 1.00 1769 168 1.00 1893		1844 0.142 2075 0.135 3970 0.172 1769 0.048 1893 0.089	28 34 27 34 34 34 10 18 18 18 20 10	0.413 0.392 0.502 0.271 0.502	24 30 36 6 18	18 18 17 31 33
			NOTES :	PEDESTRAIN WALKING SPEE	D = 1.2m/s QUEUING	LENGTH = A	VERAGE QUE	EUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan	I	PROJECT NO.: CTLDOS Prepared By	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME /2 S1 J2 J5 J6 J7 J8 xls Checked By:	OC 29-4-2011
2026 Level 2 Peak Hour - Site 1		BEFERENCE NO : Reviewed By:	00 3-5-2011
2026 Level 2 Peak Hour - Site 1 Bus Terminal (1) 35 (1) 157 (1) 164 4 (4) (4) (4) (75 78 142 (1) 164 4 (1) 35 (1) 157 (1) 164 4 4 4 4 4 4 4 4	N Siu Sai Wan Road (5) (5) (5)	REFERENCE NO.: Reviewed By: No. of stages per cycle N = 4 Cycle time C = 105 Sum(y) Y = 0.389 Loss time L = 18 Total Flow = 1286 Co = (1.5*L+5)/(1-Y) = 52.4 Cm = L/(1-Y) = 29.5 Yult = 0.765 R.C.ult = (Yult-Y)/Y*100% = 96.5 Cp = 0.9*L/(0.9-Y) = 31.7 Ymax = 1-L/C = 0.829 R.C.(C) = (0.9*Ymax-Y)/Y*100% = 91.6	OC 3-5-2011 sec sec pcu sec sec % sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4)$ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (4) (5) (5) (5) (5) $1 = 6 $ $(4) (6) (6) (6) (7) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7$		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Side Straight- Ahead Move- m. Width Iane Traffic? Side Ahead Left Move- m. m. m. Iane? Sat. Flow pcu/	Avement Total Proportion Sat. Flare lar Straight Right Flow of Turning Flow Length pcu/h pcu/h pcu/h Vehicles pcu/h m.	ne Share Revised h Ettect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 35 ST/RT A 3.30 1 1 11 12 2085 RT B 3.50 2 1 12 2105 LT A,B 3.75 3 1 13 y 1990 132 RT C 3.50 4 1 12 2105 14 LT/ST C 3.50 4 1 12 y 1965 142 ST/RT D 3.50 5 1 12 2105 142 ST/RT D 3.50 5 1 12 2105 142 ST/RT D 3.50 5 1 11 y 1965 100 Ped D,A,B 4.00 6 100 Ped B,C 4.00 7	84 119 0.29 1870 73 164 237 0.69 1919 30 30 1.00 1871 132 1.00 1784 175 175 1.00 1871 78 220 0.64 1818 0 134 134 1.00 1871 139 239 0.42 1859	1870 0.064 18 14 28 1919 0.124 0.124 28 28 1871 0.016 0.016 4 4 1784 0.074 16 36 1871 0.016 0.121 27 27 1818 0.121 0.121 27 27 1871 0.072 16 16 16 1859 0.129 0.129 29 29 29	0.242 12 25 0.470 30 25 0.470 0 66 0.214 12 20 0.363 18 26 0.470 24 26 0.470 18 37 0.470 30 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Pro	epared By: KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 1/2_S1_J2_J5_J6_J7_J8.xls Ch	ecked By: OC 29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.: Re	viewed By: OC 3-5-2011
$(1) 952 \\ (1) 599 \\ (1) 599 \\ (1) 599 \\ (3) (3) (3) (3) \\ (3) (3) (3) (3) \\ (3) (3) (3) (3) (3) \\ (3) $	N 🛶	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 3 C = 105 sec Y = 0.736 L = 18 sec = 3227 pcu = 121.4 sec = 68.3 sec = 0.765 = 3.9 % = 99.1 sec = 0.829 = 1.3 %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (3)$	 ←→ (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lane	Share Revised	g g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Istraig	It Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L ree	quired (input) Saturation Length Delay
ST A 3.50 1 2 y 4070 952 RT A 3.75 1 1 13 2130 574 ST B 3.50 2 2 4210 574 LT B 3.10 2 1 12 y 1925 90 LT C 4.00 3 1 15 y 2015 525 LT/RT C 4.00 3 1 15 y 2015 525 Ped A 4.50 4	952 0.00 4070 599 599 1.00 1910 574 0.00 4210 90 1.00 1711 525 1.00 1832 332 487 1.00 1959	pcd/m pcd/m y sec 4070 0.234 18 1910 0.314 0.314 4210 0.136 0.136 1711 0.053 1832 1832 0.286 0.286 1959 0.248 1	28 28 0.889 60 39 37 28 1.191 72 34 16 16 0.889 42 45 6 16 0.343 12 35 34 34 0.889 60 28 29 34 0.771 54 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m

Valo	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a					
		Junction Capacity Analysis		Checked By:	00	
Junction layo	out sketch - esign Year - Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road - 2026 Level 2 - Site 1 Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARA	METERS	
W ₁ Chai Wan Road	67 367	ARM B Wan Tsui Road	W_1 =10.90 (metres) W_2 =7.70 (metres) W_3 =10.60 (metres) W_4 =10.20 (metres) W =19.70 (metres) W_{cr1} =4.10 (metres) W_{cr2} =1.70 (metres) W_{cr} =2.90 (metres)	D E = F = Y =	0.675 1.109 0.993 0.320	
(E) ARM A W ₂		L 100 W₄ (₩)	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 775 690 379	
REMARK: (GEOM			MAJOR ROAD (ARM C) $W_{cb} = 3.30$ (metres) $Vr_{cb} = 150$ (metres) $r_{cb} = 582.00$ (any/kg)	COMPARISION OF I TO CAPACITY DFC _{b-a} =	0.272	
W _{cr}	= AVERA = AVERA	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$q_{c-a} = 583.96 (pcu/nr)$ $q_{c-b} = 100.01 (pcu/hr)$	DFC _{b-c} = DFC _{c-b} =	0.196	
W b-a W b-c W c-b VI b-a Vr b-a Vr b-a Vr c-b D E F	= LANE \ = LANE \ = VISIBIL = VISIBIL = VISIBIL = VISIBIL = GEOM = GEOM = GEOM	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B H45W)	MINOR ROAD(ARM B) W_{b-a} =0.00(metres) W_{b-c} =4.50(metres) VI_{b-a} =150(metres) Vr_{b-a} =150(metres) Vr_{b-c} =150(metres) q_{b-a} =103.27(pcu/hr) q_{b-c} =152.22(pcu/hr)	Critical DFC =	0.272	
ctober 2007					Page 9 of 2	

TRAFFIC SIGNAL CALCULATION TIA Study for Columbarium Development at Cane Collinson Road, Chai Wan		PROJECT NO CTI DOS Prepared By:	INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	1101 V2 - Peak Hour Traffic Flows	FILENAME /2 S1 12 15 16 17 18 xls Checked By:	0C 29-4-2011
2026 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 727 \\ 27 \\ 527 (1) \\ 260 \\ (2) San Ha Street$	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.335Loss timeL =10Total Flow=1542Co= (1.5*L+5)/(1-Y)=30.1Cm= L/(1-Y)=15.0Yult=0.825R.C.ult= (Yult-Y)/Y*100%=146.2Cp=0.9*L/(0.9-Y)=15.9Ymax= $1-L/C$ =0.900R.C.(C)=(0.9*Ymax-Y)/Y*100%=141.7	sec pcu sec sec %
$(1) \longrightarrow (2) \qquad (3) \qquad (3) \qquad (1) \qquad (2) \qquad (2) \qquad (2) \qquad (2) \qquad (3) $			
Move- Stage Lane Phase No. of Radius O N Straight- Mover ment Width Iane Ahead Left Straig m. m. Sat. Flow pcu/h pcu/h	ent Total Proportion Sat. Flare lane Share t Right Flow of Turning Flow Length Effect pcu/h pcu/h Vehicles pcu/h m. pcu/hr	e Revised g g t Sat. Flow y Greater L required (input) r pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 727 ST A 3.50 1 2 10 N 4070 527 LT B 3.00 2 1 10 N 1915 260 RT B 3.50 2 1 12 N 1915 260 Ped B 19.0 3 - 527 - 527 - - - - - - - 527 -	727 0.00 4070 527 0.00 4070 260 1.00 1665 27 27 1.00 1871	4070 0.179 0.179 48 47 4070 0.130 35 47 1665 0.156 0.156 42 53 1871 0.015 4 53	0.380 30 11 0.276 21 11 0.295 18 9 0.027 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEE	ED = 1.2m/s QUEUING LENGTH = AVER/	AGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IA Study for Columbarium Development at Cape Collinson Road, Chai W	van	PROJECT NO.: CTLDQS Prepared By:	KL 29-4-2011
2026 Level 2 Beak Hour Site 1	JIILV2 - Peak Hour Trailic Flows	FILENAME 72_S1_J2_J5_J6_J7_J8.XIS CHECKED BY:	0C 29-4-2011
		REFERENCE NO Reviewed by.	00 3-3-2011
Sheung Or (4) (1) 103 (4) (1) 612 (4) (1) 612 (4) (397 (1) 612 (4) (397 (1) 612 (4) (4) (397 (1) 612 (4) (4) (397 (1) 612 (4) (4) (397 (1) 612 (4) (4) (397 (1) 612 (4) (4) (4) (397 (1) 612 (4) (4) (4) (4) (4) (4) (4) (4) (4) (4)	Dn Street (4) 7 49 Chai Wan Road 740 (2) - 108 (2)	No. of stages per cycleN =4Cycle timeC =120 sSum(y)Y =0.288Loss timeL =37 sTotal Flow=2047 pCo $= (1.5*L+5)/(1-Y)$ =85.0 sCm $= L/(1-Y)$ =52.0 sYult=0.623R.C.ult $= (Yult-Y)/Y*100\%$ =116.2 %Cp $= 0.9*L/(0.9-Y)$ =54.4 sYmax $= 1-L/C$ =0.692R.C.(C) $= (0.9*Ymax-Y)/Y*100\%$ =116.2 %	sec bec bec sec sec %
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (2) \xrightarrow{(3)} (3)$	$(5) \leftarrow \cdots \leftarrow (6) \qquad (4) (4) \qquad (4$		
Stage A I = 8 Stage B I = 5 St	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Width m. Phase No. of Iane Radius Traffic? Opposing Side Near- Ahea Iane? Straig Sate	ght- <u>Movement</u> Total Proportion Sat. Flare lar ad Left Straight Right Flow of Turning Flow Length Flow pcu/h pcu/h pcu/h Vehicles pcu/h m.	ne Share Revised h Effect Sat. Flow y Greater L required (input) S pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 Y 6175 LT/ST A 3.30 2 3 12 Y 6115 LT B 3.50 3 1 9 Y 1965 LT/RT D 3.75 4 2 10 Y 4120 Ped B,C 4.00 5 Ped B,C 5.00 6 Ped C 3.00 7 I I I I I I I I I I I I I I I I I I	75 103 612 715 0.14 6066 15 108 740 848 0.13 6019 55 38 38 1.00 1684 20 49 397 446 1.00 3583	6066 0.118 34 6019 0.141 0.141 41 1684 0.023 0.023 7 3583 0.124 0.124 36 15 15 15	0.000 46 54 0.000 56 54 0.000 6 54 0.000 42 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LE	ENGTH = AVERAGE QUEUE * 6m

Val	Agreement No. CPM301_15/10 - Traffic Imp	act Assessment	Study For Columbarium D	evelopment at	C Prepared By:	КС
1 1 1 1 1	Junction Capacity Analysis				Checked By:	00
Junction lay D	out sketch - J1: J/O Cape Collinson Road and Lin Shing Ro esign Year - 2026 Level 3 - Reference Case Time - Level 3 Peak Hour ARM D Lin Shing Rd (N)	ad	GEOMETRIC DETAILS			
	a(107	(motros)		AETEDS
	N 222 2 9		$vv_1 =$	(metres)		0.022
			$W_2 = 0.00$	(metree)	× =	1.020
			$VV_3 = 3.00$	(metres)	∧ _B =	1.039
			$VV_4 = 3.00$	(metres)	×c =	0.500
10/			VV = 8.00	(metres)	AD =	0.027
		vv ₃	$VV_{cr1} = 0.00$	(metres)	T =	0.795
		Cape	$VV_{cr2} = 0.00$	(metres)	Δ _B =	1.005
ollins	+	Collins	$vv_{cr} = 0.00$	(metres)	Z _D =	0.905
on		on				
load VV2		W ₄ Road		(ARIM A)		
<i>vv</i>)		(E)	$VV_{a-d} = 3.00$	(metres)	Q _{b-a} =	615
			$Vr_{a-d} = 100$	(metres)	Q _{b-c} =	749
			$q_{a-b} = 0$	(pcu/hr)	Q _{b-d} is nearside =	TRUE
			$q_{a-c} = 0$	(pcu/nr)	Q _{b-d} =	611
	2 0 0		$q_{a-d} = 0$	(pcu/hr)	Q _{d-a} =	674
					Q_{d-b} is nearside =	IRUE
	ARM B Lin Shing Rd (S)		MAJOR ROAD	(ARM C)	Q _{d-b} =	533
			VV _{c-b} =	(metres)	Q _{d-c} =	518
MARK: (GEO	IETRIC INPUT DATA)		Vr _{c-b} =	(metres)	Q _{c-b} =	437
W	= AVERAGE MAJOR ROAD WIDTH		q _{c-a} = 0	(pcu/hr)	Q _{a-d} =	616
W _{cr}	= AVERAGE CENTRAL RESERVE WIDTH		q _{c-b} = 0	(pcu/hr)		
W _{a-d}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM	A-D	$q_{c-d} = 0$	(pcu/hr)	COMPARISION OF D	ESIGN FLOW
W _{b-a}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM	B-A			TO CAPACITY	
W b-c	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM	B-C	MINOR ROAD	(ARM B)	DFC _{b-a} =	0.000
W _{c-b}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM	C-B	$W_{b-a} = 5.00$	(metres)	DFC b-c =	0.003
W _{d-a}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM	D-A	$W_{b-c} = 5.00$	(metres)	DFC _{b-d} =	0.000
W _{d-c}	= LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM	D-C	VI _{b-a} = 100	(metres)	DFC _{d-a} =	0.013
Vr _{a-d}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STRE	AM A-D	Vr _{b-a} = 65	(metres)	DFC _{d-b} =	0.004
VI _{b-a}	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREA	M B-A	$Vr_{b-c} = 0$	(metres)	DFC _{d-c} =	0.428
Vr _{b-a}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STRE	AM B-A	q _{b-a} = 0	(pcu/hr)	DFC _{c-b} =	0.000
Vr _{b-c}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STRE	AM B-C	$q_{b-c} = 2.1742$	(pcu/hr)	DFC _{a-d} =	0.000
Vr _{c-b}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STRE	AM C-B	$q_{b-d} = 0$	(pcu/hr)		
VI _{d-c}	= VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREA	M D-C			Critical DFC =	0.428
Vr _{d-c}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STRE	AM D-C	MINOR ROAD	(ARM D)		
Vr _{d-a}	= VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STRE	AM D-A	W _{d-a} = 3.00	(metres)		
X _A	= GEOMETRIC PARAMETERS FOR STREAM A-D		$W_{d-c} = 3.00$	(metres)		
X _B	= GEOMETRIC PARAMETERS FOR STREAM B-A		VI _{d-c} = 50	(metres)		
Xc	= GEOMETRIC PARAMETERS FOR STREAM C-B		Vr _{d-c} = 50	(metres)		
X _D	= GEOMETRIC PARAMETERS FOR STREAM D-C		Vr _{d-a} = 80	(metres)		
Z _B	= GEOMETRIC PARAMETERS FOR STREAM B-C		q _{d-a} = <mark>8.6968</mark>	(pcu/hr)		
Z _D	= GEOMETRIC PARAMETERS FOR STREAM D-A		q _{d-b} = 2.1742	(pcu/hr)		
Y	= (1-0.0345W)		$q_{d-c} = 221.76$	(pcu/hr)		

TRAFFIC SIGN	AL CAL	CULATI	ON																				INITIALS	DATE	
TIA Study fo	or Colui	mbariu	n Devel	opment	at Cape	Collinsor	n Road,	Chai Wan									PROJECT N	0.:	CTLDQS		Prepared	By:	KC	29-4-2011	
Junction of	Lin Shi	ng Roac	l and W	an Tsui	Road						J2LV3 -	Peak Hou	ur Traffic Flows				FILENAME	3_Ref_J2	_J5_J6_J7	_J8.xls	Checked	By:	OC	29-4-2011	
2026 Level 3	3 Peak	Hour -	Referer	nce Case													REFERENCE	NO.:			Reviewed	l By:	OC	3-5-2011	
					(1)	180 <u>–</u> 0 – 0 (2)	0 (2)	Lin Shing	— 430 - 415 Road	(1)		Wan Tsui	Road				No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	es per cyd = (1.5*L- = L/(1-Y) = (Yult-Y = 0.9*L/ = 1-L/C = (0.9*Y)	cle ⊦5)/(1-Y))/Y*100% (0.9-Y) max-Y)/Y*	100%	N = C = Y = = = = = = = =	2 120 0.450 25 1025 77.3 45.4 0.713 58.4 50.0 0.792 58.4	sec pcu sec sec % sec %		
(1) 	•	↓ =	7	Sta	ge B			(3) •	e C	•	(4)														
Move- S ment	Stage	Lane Width m	Phase	No. of Iane	Radius	0	N	Straight- Ahead	Left	oveme Straight	nt Right ncu/h	Total Flow	Proportion of Turning Vehicles	Sat. Flow	Flare lane Length	Share Effect	Revised Sat. Flow	У	Greater	L	g (required) sec	g (input)	Degree of Saturation	Queue Length	Average Delay (seconds)
								541.11000	peurn	pcu/II	pcu/II	μεάγπ	venicies	pcu/II		peurin	pcu/ii		Ŷ	5	300	300	~		(3000103)
ST	А	3.00	1	1			Ν	1915		180		180	0.00	1915			1915	0.094			20	95	0.119	6	2
ST/LT Ped	A B	4.00	1 3	1	10		Ν	2015	415	430		844	0.49	1877			1877	0.450	0.450	20	95	95	0.568	30	3
NOTE : 0	0 - OPP	POSING	TRAFFI	C N -	NEAR S	IDE LANE		SG - STEA	DY GRE	EN	FG - FL	ASHING G	IREEN	PEDESTR	AIN WALK	I ING SPEED	D = 1.2m/s		<u> </u>	QUEU	ING LENG	TH = AVER	AGE QUEUE	* 6m	<u> </u>



			ROUNDABOUT (APACITY ASSESSME	ENT		INITIALS	DATE
TIA St	udy for	Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	КС	Sep-13
Junctio	on 4: Cl	hai Wan Road Roundabout	J4LV3 Peak Hou	r	FILENAME2026_LV3_Ref_J2_J5_J6_J7_	J8.xls CHECKED BY:	OC	Sep-13
J4LV3	Peak H	Hour				REVIEWED BY:	OC	Sep-13
			•		-			
					(ARM D)			
		(ARM D)		Ν	962.988809			
1		Island Easter Corri	dor	A				
1		+						
1		[16] 418	[4] [2] [3]	[4]	1057			
					1037			
		[15] 508	11 282 417	253	00			
		[14] 446			0 0			
		[13] 5			0 0			
Chai V	Van Ro	ad 🚽 🔪		L	0 0			
(ARM	C)	((A)	(M A) 1377.833	3 748 O O	1169.238	904.0094	
	,		, C	yan Wan Road (ARM C)	0 0		(ARM A)	
		\sim			<u> </u>		(71.10174)	
			· IU [5]		0 0			
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			557 [6]		00			
		48 84 79 8	◄──── 280 [7]		1145			
		[12] [11] [10] [9]	57 [8]					
		I						
		Wan Tsui Road	Y		218 506838			
					(4 DM D)			
		(ARM B)			(ARM B)			
4.014				D				
ARIN			АВС	D				
INPUT	PARA	METERS:						
.,								
v -	=	Approach haif width (m)	7.00 4.00 7.00 7.	00				
E	=	Entry width (m)	9.00 7.00 10.00 7.	00				
-	=	Enertive length of flare (m)	6.00 5.00 6.00 6.					
	=	Entry radius (III)	40.00 10.00 40.00 2	.00				
ر ۷	=	Inscribed Circle diameter (m)	50.00 50.00 50.00 50	.00				
н О	=	Entry angle (degree)	30.00 35.00 36.00 30	.00				
с. Г	=	Entry now (pcu/n)	904 219 1378	903 1057				
يول.	=	Circulating now across entry (pcu/n)	1109 1140 748	1057				
OUTP	UT PAP	RAMETERS:						
S	=	Sharpness of flare = $1.6(E-V)/L$	0.53 0.96 0.80	0.00				
ĸ	=	1-0.00347(A-30)-0.978(1/R-0.05)	1.02 0.97 1.00	1.01				
X2	=	V + ((E-V)/(1+2S))	7.97 5.03 8.15	7.00				
M	=	EXP((D-60)/10)	0.37 0.37 0.37	0.37				
F	=	303*X2	2414 1523 2471	2121				
Тd	=	1+(0.5/(1+M))	1.37 1.37 1.37	1.37				
Fc	=	0.21*Td(1+0.2*X2)	0.74 0.58 0.75	0.69				
Qe	=	K(F-Fc*Qc)	1582 836 1913	1407	Total In Sum =	2688.088	PCU	
					DEC of Onitional American	0 70		
DFC	=	Design flow/Capacity = Q/Qe	0.57 0.26 0.72	0.68	DFC of Critical Approach =	0.72		

TRAFFIC SIGNAL CALCULATION						INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	d, Chai Wan			PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Pe	eak Hour Traffic Flows		FILENAME 3_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2026 Level 3 Peak Hour - Reference Case				REFERENCE NO.:	Reviewed By:	OC	3-5-2011
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Wi 420 (1) B Wan Road	N 🔪 Ying Tai Road		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	$\begin{array}{cccc} N = & 2 \\ C = & 100 \\ Y = & 0.232 \\ L = & 10 \\ = & 1581 \\ = & 26.0 \\ = & 13.0 \\ = & 0.825 \\ = & 256.1 \\ = & 13.5 \\ = & 0.900 \\ = & 249.7 \end{array}$	sec pcu sec sec % sec %	
(4) (4) (5) (2) (2) (1) (6) (6) (6) (6)	,						
Move- Stage Lane Phase No. of Radius Opposing Near ment Width Iane Traffic? side m. m.	Instruction Movement T e Ahead Left Straight Right F e? Sat. Flow pcu/h pcu/h pcu/h pcu/h	Total Proportion Sat. I Flow of Turning Flow pcu/h Vehicles pcu/h	Flare lane Share Length Effect m. pcu/hr	Revised Sat. Flow y Greater L pcu/h y sec	g g required (input) sec sec	Degree of Saturation X	Queue Averag Length Delay (m / lane) (secon
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 5 <td>4120 420 4310 259 608 608 4070 252 42 4270 42 42</td> <td>420 1.00 3857 259 1.00 4056 608 1.00 3582 252 0.00 4070 42 1.00 3828</td> <td></td> <td>3857 0.109 10 4056 0.064 3582 0.170 0.170 4070 0.062 0.062 3828 0.011 0.062</td> <td>42 66 25 66 66 66 24 24 4 24</td> <td>0.165 0.097 0.257 0.257 0.046</td> <td>9 5 6 5 15 5 15 25 0 26</td>	4120 420 4310 259 608 608 4070 252 42 4270 42 42	420 1.00 3857 259 1.00 4056 608 1.00 3582 252 0.00 4070 42 1.00 3828		3857 0.109 10 4056 0.064 3582 0.170 0.170 4070 0.062 0.062 3828 0.011 0.062	42 66 25 66 66 66 24 24 4 24	0.165 0.097 0.257 0.257 0.046	9 5 6 5 15 5 15 25 0 26
			NOTES :	PEDESTRAIN WALKING SPEED = 1.2r	n/s QUEUING	LENGTH = A	VERAGE QUEUE * 6r

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road $(1) 108 \qquad \qquad$	N × i Wan Road	No. of stages per cycleN =Cycle timeC =Sum(y)Y = 0.2Loss timeL =Total Flow= 1Co= $(1.5*L+5)/(1-Y)$ = 9Cm= $L/(1-Y)$ = 66Yult= 0.5R.C.ult= $(Yult-Y)/Y*100\%$ = 155Cp= 0.9*L/(0.9-Y)= 66Ymax= 1-L/C= 0.5R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ = 12	3 100 sec 08 48 sec 374 pcu 7.2 sec 0.6 sec 40 9.9 % 2.4 sec 5.2 %
$(1) \xrightarrow{(1)} (1) (1)$	- 6		
Move- Stage Lane Phase No. of Radius Opposing Near-Straight- Mover	ent Total Proportion Sat. Flare lane S	Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	Right Flow of Turning Flow Length E	ffect Sat. Flow y Greater L required (inpu	it) Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 108 156 ST A 3.20 1 1 11 y 1945 108 156 297 ST A 3.00 1 2 y 3970 736 LT C 3.75 2 1 12 y 1990 35 RT C 3.75 2 1 12 y 1990 35 Ped B 11.00 3 - <td>264 0.41 1842 297 0.00 2075 736 0.00 3970 355 1.00 1769 42 42 1.00 1893 42 42 1.00 1893 43 44</td> <td>Current pcurrent y sec sec</td> <td>X (m/rane) (seconds) 0.308 18 12 0.309 24 12 0.400 30 11 0.351 0 48 0.400 6 49</td>	264 0.41 1842 297 0.00 2075 736 0.00 3970 355 1.00 1769 42 42 1.00 1893 42 42 1.00 1893 43 44	Current pcurrent y sec sec	X (m/rane) (seconds) 0.308 18 12 0.309 24 12 0.400 30 11 0.351 0 48 0.400 6 49
	NO	DTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUI	NG LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1711/2 Deale Have Traffic Flaves	PROJECT NO.: CTLDQS Prepared By:	RC 29-4-2011
3036 Level 3 Deek Heur - Reference Case	J7LV3 - Peak Hour Traffic Flows	FILENAME 3_REI_J2_J5_J6_J7_J8.XIS CHECKED BY:	00 29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	0C 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	N Sai Wan Road	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.361Loss timeL =18Total Flow=1056Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Ymax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=106.8	sec pcu sec sec % sec
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (3) (3)$ $(3) \xrightarrow{(3)} (3) (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(1)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(1)} (2) \xrightarrow{(1)} (2)$ $(3) \xrightarrow{(1)} (2) \xrightarrow{(1)} (2)$ $(3) \xrightarrow{(1)} $	(4) (6) () (5) (5) (5) (5) (5) (5) (5) (5		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mo	ement Total Proportion Sat. Flare lane	Share Revised g g	Degree of Queue Average
ment Width lane Traffic? Side Ahead Left Side m. lane? ISat. Flow pcu/h p	aight Kignt Flow of Lurning Flow Length u/h pcu/h pcu/h Vehicles pcu/h m.	pcu/hr pcu/h y Greater L required (input)	X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 11 y 1945 13 ST/RT A 3.30 1 1 11 12 2085 13 RT B 3.50 2 1 12 2105 2105 LT A,B 3.75 3 1 13 y 1990 98 RT C 3.50 4 1 12 2105 2105 LT/ST C 3.50 4 1 12 2105 310 ST/RT D 3.50 5 1 12 y 1965 310 ST/RT D 3.50 5 1 12 y 1965 3 LT/ST D 3.50 5 1 11 y 1965 3 Ped D,A,B 4.00 6 1965	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1910 0.051 18 12 12 2045 0.051 0.051 12 12 1871 0.005 0.005 1 1 1784 0.055 13 19 1871 0.065 16 46 1762 0.191 0.191 46 46 1871 0.113 0.113 27 27 1954 0.039 9 9 9	0.435 12 41 0.435 12 40 0.435 0 101 0.311 12 33 0.148 6 14 0.435 30 14 0.435 24 25 0.435 12 45
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepar	ed By: KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 3_Ref_J2_J5_J6_J7_J8.xls Checke	ed By: OC 29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Review	ved By: OC 3-5-2011
$(1) 754 \qquad \longrightarrow \qquad $	N + Chai Wan Road (2) (2)	No. of stages per cycleNCycle timeCSum(y)YLoss timeLTotal FlowCCo= $(1.5*L+5)/(1-Y)$ Cm= $L/(1-Y)$ YultR.C.ultR.C.ult= $(Yult-Y)/Y*100\%$ Cp= $0.9*L/(0.9-Y)$ Ymax= $1-L/C$ R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$	= 3 = 105 sec = 0.764 = 18 sec = 3116 pcu = 135.3 sec = 76.1 sec = 0.765 = 0.2 % = 118.7 sec = 0.829 = -2.3 %
$(1) \longrightarrow (5) (5) (5) (7) (7) (2) (3)$	(6) = 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mo	ement Total Proportion Sat. Flare	lane Share Revised g	g Degree of Queue Average
ment Width lane Traffic? side Ahead Left S	aight Right Flow of Turning Flow Leng	gth Effect Sat. Flow y Greater L require	ed (input) Saturation Length Delay
ST A 3.50 1 2 y 4070 RT A 3.50 1 1 13 2105 ST B 3.50 2 2 4210 LT B 3.10 2 1 12 y 1925 123 LT C 4.00 3 1 15 y 2015 382 LT/RT C 4.00 3 1 15 y 2155 168 Ped A 4.50 4 4.50	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	pcd/m pcd/m y set set set 4070 0.185 18 18 18 18 121 1887 0.397 0.397 45 4210 0.173 0.173 20 1711 0.072 8 8 24 1959 0.193 0.193 22	21 0.922 54 42 21 1.976 102 42 20 0.922 54 43 20 0.382 12 32 24 0.922 66 35 24 0.854 48 35
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION			INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	1101V3 - Peak Hour Traffic Flows	FILENAME 3, Ref. 12, 15, 16, 17, 18 vis Checked By:	0C 29-4-2011
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO : Reviewed By:	0C 3-5-2011
2026 Level 3 Peak Hour - Reference Case	N Chai Wan Road	REFERENCE NO.:Reviewed By:No. of stages per cycleN =Cycle timeC =Cycle timeLSum(y)Y =Loss timeL =Total Flow=Co= (1.5*L+5)/(1-Y)Cm= L/(1-Y)Tult=Nult=R.C.ult= (Yult-Y)/Y*100%Cp=0.9°L/(0.9-Y)=20.4YmaxYmax=1-L/C=0.900R.C.(C)=0.9*Ymax-Y)/Y*100%=76.3	OC 3-5-2011 sec sec pcu sec sec sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$			
			Degree of Queue Augure
ment Width lane m. Stalgn- Moven Allas C N N N N N N N N N N N N N N N N N N	t Right Flow of Turning Flow Length Eft n pcu/h pcu/h Vehicles pcu/h m. pcu	red Sat. Flow y Greater L required (input) cu/hr pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 867 ST A 3.50 1 2 10 N 4070 494 LT B 3.00 2 1 10 N 1915 410 RT B 3.50 2 1 12 2105 1410 Ped B 19.0 3 - 4070 410 -	867 0.00 4070 494 0.00 4070 410 1.00 1665 54 54 1.00 1871	4070 0.213 0.213 42 47 4070 0.121 24 47 1665 0.246 0.246 48 53 1871 0.029 6 53	0.453 36 11 0.258 21 11 0.465 30 9 0.055 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING S	SPEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

			:
TIA Study for Columbarium Development at Cape Collinson Road. Chai Wa	Van	PROJECT NO.: CTLDQS Prepared By: KC 29-4-20)11
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	J11LV3 - Peak Hour Traffic Flows	FILENAME 3 Ref J2 J5 J6 J7 J8.xls Checked By: OC 29-4-20)11
2026 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By: OC 3-5-201	1
Sheung On (1) 82 (1) 704 78 (3) Wing Ping Street	N N (4) 5 25 Chai Wan Road - 656 (2) - 123 (2)	No. of stages per cycleN =4Cycle timeC =120 secSum(y)Y =0.271Loss timeL =37 secTotal Flow=1983 pcuCo= (1.5*L+5)/(1-Y)=83.0 secCm= L/(1-Y)=50.8 secYult=0.623R.C.ult= (Yult-Y)/Y*100%=129.5 %Cp= 0.9*L/(0.9-Y)=53.0 secYmax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=129.5 %	
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} \underbrace{(5)}_{(3)} \underbrace{(6)}_{(3)}$	(5) <> (4) (4) (6) (4) (7)		
Stage A I = 8 Stage B I = 5 Sta	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Iane Radius Opposing Near- Side Straigh Move- m. Width Iane m. Traffic? Side Ahear Sat. Floc Sat. Floc Sat. Floc Sat. Floc Sat. Floc Sat. Floc	ght- Movement Total Proportion Sat. Flare lane ad Left Straight Right Flow of Turning Flow Length Flow pcu/h pcu/h pcu/h Vehicles pcu/h m.	Share Ettect Revised Sat. Flow pcu/hr y Greater y L g required sec g (input) sec Degree of Saturation x Queu Lengt x	e Average h Delay ne) (seconds)
LT/ST A 3.50 1 3 12 y 6175 LT/ST A 3.30 2 3 12 Y 6115 LT B 3.50 3 1 9 Y 1965 LT/RT D 3.75 4 2 10 y 4120 Ped B,C 4.00 5 - - - - - Ped B,C 5.00 6 - - - - - Ped C 3.00 7 - - - - - - - Ped C 3.00 7 - - - - - - - L - <	75 82 704 786 0.10 6096 15 123 656 778 0.16 5997 55 78 78 1.00 1684 20 25 315 340 1.00 3583	6096 0.129 39 0.000 52 5997 0.130 0.130 40 0.000 50 1684 0.046 0.046 14 0.000 12 3583 0.095 0.095 29 0.000 33 15 15 15 15 15 15	54 54 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE	QUEUE * 6m

1010	ro	W Junction Canacity Analysis				Chocked P	,. ,.	00
		Junction Capacity Analysis	1			Checked By	/:	
nction layo Do	out sk esign T	etch - J1: J/O Cape Collinson Road and Lin Shing Road Year - 2026 Level 3 - Site 1 'ime - Level 3 Peak Hour ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS				
	${\mathcal N}$	194 2 9		W ₁ =	(metres)	GEOMETRIC P	ARAN	IETERS
				$W_2 = 6.00$	(metres)	X _A	=	0.922
	L.			$W_3 = 3.00$	(metres)	X _B	=	1.039
				$W_4 = 3.00$	(metres)	Xc	=	0.586
		ARMA		W = 6.00	(metres)	X _D	=	0.827
W ₁		W ₃		$W_{cr1} = 0.00$	(metres)	Y	=	0.793
		Cane		$W_{cr2} = 0.00$	(metres)	Z _B	=	1.005
W _{cr1}		W _{cr2} Collins		W _{cr} = 0.00	(metres)	Z _D	=	0.905
		0 on						
W ₂		← 0 W₄ Road		MAJOR ROAD	(ARM A)	THE CAPACITY	Y OF N	IOVEMENT
				$W_{a-d} = 3.00$	(metres)	Q _{b-a}	=	619
				$Vr_{a-d} = 100$	(metres)	Q _{b-c}	=	749
				$q_{a-b} = 0$	(pcu/hr)	Q b-d is nearsid	e =	TRUE
				q _{a-c} = 0	(pcu/hr)	Q _{b-d}	=	611
		2 0 0		$q_{a-d} = 0$	(pcu/hr)	Q _{d-a}	=	674
					(4514.0)	Q _{d-b} is nearsid	e =	TRUE
		ARM B Lin Sning Ra (S)	4	MAJOR ROAD	(ARM C)	Q _{d-b}	=	533
				VV _{c·b} =	(metres)	Q _{d-c}	=	518
RK: (GEON	/ETRIC			Vr _{c-b} =	(metres)	Q _{c-b}	=	437
VV	=			$q_{ca} = 0$	(pcu/hr)	Q _{a-d}	=	616
VV cr	=			$q_{c-b} = 0$	(pcu/nr)			
vv _{a-d}	=			$q_{c-d} = 0$	(pcu/nr)		IOFD	ESIGN FLOW
vv _{b-a}	=							0.000
VV b-c	=				(ARIVI D)		-	0.000
VV c-b	-			$W_{b-a} = 5.00$	(metres)		-	0.003
W d-a	_			$W_{b-c} = 0.00$	(metres)		-	0.000
Vr .	_	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A.D.		Vr. – 65	(metres)		_	0.013
VI.	_	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A		$Vr_{b-a} = 0$	(metres)	DFC	_	0.375
Vrha	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A		$q_{ba} = 0$	(pcu/hr)		=	0.000
Vrha	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C		$q_{bc} = 2.1742$	(pcu/hr)	DFC ar	=	0.000
Vr en	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B		$q_{bd} = 0$	(pcu/hr)	2. 0 a-d		0.000
VIde	=	VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C		100	M	Critical DFC	; =	0.375
Vr _{d-c}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C		MINOR ROAD	(ARM D)			
Vr _{d-a}	=	VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A		W _{d-a} = 3.00	(metres)			
X	=	GEOMETRIC PARAMETERS FOR STREAM A-D		W _{d-c} = 3.00	(metres)			
X _B	=	GEOMETRIC PARAMETERS FOR STREAM B-A		VI _{d-c} = 50	(metres)			
X _c	=	GEOMETRIC PARAMETERS FOR STREAM C-B		$Vr_{d-c} = 50$	(metres)			
X _D	=	GEOMETRIC PARAMETERS FOR STREAM D-C		Vr _{d-a} = 80	(metres)			
ZB	=	GEOMETRIC PARAMETERS FOR STREAM B-C		q _{d-a} = 8.6968	(pcu/hr)			
Z _D	=	GEOMETRIC PARAMETERS FOR STREAM D-A		$q_{d-b} = 2.1742$	(pcu/hr)			
v	_	(1-0 0345W)	1	$a_{1} = 1943$	(pcu/hr)			

											1														
TRAFFIC SI	GNAL CA	LCULATI	ON																				INITIALS	DATE	
TIA Stud	ly for Col	umbariu	m Deve	lopment	at Cape	e Collinsor	n Road,	Chai Wan			1011/0	D 1 1:					PROJECT N	0.:	CTLDQS		Prepared	By:	KC	29-4-2011	
J2: Junct	tion of Li	n Shing F	Road an	d Wan T	sui Road						J2LV3 -	Peak Hou	ur Traffic Flows				FILENAME	/3_\$1_J2	_15_16_17	_J8.xls	Checked	By:	00	29-4-2011	
2026 Le	vel 3 Pea	к Hour -	Site 1														REFERENCE	NO.:			Reviewed	і Ву:	UC	3-5-2011	
					(1)	180 = 0 = 0 (2)	0 (2)	Lin Shing	— 472 - 415 Road	(1)		Wan Tsui	N Koad				No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	= (1.5*L- = L/(1-Y) = (Yult-Y = 0.9*L/ = 1-L/C = (0.9*Y)	cle ⊦5)/(1-Y))/Y*100% (0.9-Y) max-Y)/Y*	100%	N = C = L = = = = = = =	2 120 0.471 25 1068 80.4 47.3 0.713 51.2 52.5 0.792 51.2	sec pcu sec sec % sec %		
(1) -	↓ ge A	▲ ↓ =	7	Sta	ge B			(3)	-	▲	(4)														
Move- ment	Stage	Lane Width	Phase	No. of Iane	Radius	0	N	Straight- Ahead	Left	oveme Straight	nt Right	Total Flow	Proportion of Turning	Sat. Flow	Flare lane Length	Share Effect	Revised Sat. Flow	у	Greater	L	g (required)	g (input)	Degree of Saturation	Queue Length	Average Delay
			<u> </u>					Sat. FIUW	μεά/Π	pcu/n	pcu/n	pcu/ii	venicies	pcu/ii		pcu/nr	pcu/II		У	<u>sec</u> 5	ડલા	っせし	^	(III / Idile)	(seconds)
ST	А	3.00	1	1			Ν	1915		180		180	0.00	1915			1915	0.094			19	95	0.119	6	2
				.									_												
ST/LT	A	4.00	1	1	10		Ν	2015	415	472		887	0.47	1883			1883	0.471	0.471		95	95	0.595	36	3
Ped	R	60	٦																	20					
		0.0																							
			I																						
NOTE :	0 - 0	PPOSING	TRAFFI	C N-	NEAR S	IDE LANE		SG - STEA	DY GRE	EN	FG - FL	ASHING G	IREEN	PEDESTR	AIN WALK	ING SPEED	0 = 1.2m/s			QUEU	ING LENG	TH = AVER	AGE QUEUE	* 6m	

Kalcr	Agreement No. CPM301_15/10 - Traffic Impact Assessm	nent Study For Columbarium Development a	t Prepared By: KC
	Junction Capacity Analysis		Checked By: OC
Junction layout s Desig	sketch - J3: J/O Cape Collinson Road and Lin Shing Road In Year - 2026 Level 3 - Site 1 Time - Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
𝔊 𝔊 𝔅 0 𝔅 𝔅 426 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅	ARM B Cape Collinson Road		D 0.626 E = 0.996 F = 1.109 Y = 0.705
ARM A W ₂	← 266 ^{VV4} ARM	$ \begin{array}{rcl} MAJOR ROAD & (ARM A) \\ q_{a \cdot b} &= & 0 & (pcu/hr) \\ q_{a \cdot c} &= & 426.14 & (pcu/hr) \\ \end{array} $	THE CAPACITY OF MOVEMENT $Q_{b-c} = 633$ $Q_{c-b} = 705$ $Q_{b-a} = 297$ COMPARISION OF DESIGN FLOW
		$W_{c-b} = 4.50$ (metres)	TO CAPACITY
REMARK: (GEOMETR W = W _{cr} =	RIC INPUT DATA) AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 266.34$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	$\begin{array}{rcl} {\sf DFC}_{\rm b-a} & = & 0.624 \\ {\sf DFC}_{\rm b-c} & = & 0.003 \\ {\sf DFC}_{\rm c-b} & = & 0.000 \end{array}$
$W_{b-a} = W_{b-c} = W_{c-b} = W_{c-b} = VI_{b-a} = VI_{b-a} = Vr_{b-c} = Vr_{c-b} = D = E = F = F = Taffic Impact Access for the second seco$	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC = 0.624
and impact Assessmer ctober 2007			Page 3 of

			ROUNDABOUT CAPACITY AS	SSESSME	NT		INITIALS	DATE
TIA St	udy for	Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-13
Juncti	on 4: C	hai Wan Road Roundabout	☐J4LV3 Peak Hour		FILENAME2026_LV3_S1_J2_J5_J6_J7_	J8.xls CHECKED BY:	OC	Sep-13
J4LV3	8 Peak	Hour				REVIEWED BY:	OC	Sep-13
					(ARM D)			
		(ARM D)		N	1003.66274			
		Island Easter Corri	dor	A				
l		+						
		[16] 428	[1] [2] [3] [4]		1084			
l		[15] 525	11 295 444 253		0.0			
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					0 0			
Chai V	Van Ro	pad			0 0			
(ARM	IC)		(ARM A)	1414.739	843 O O	1220.331	1013.512	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
l			10 [5]		0 0			
			Ť		0 0			
			652 [6]		00			
		48 84 79 8	✓ 290 [7]		1263			
			62 [8]		.200			
			02 [0]					
			*					
		Wan Tsui Road			218.506838			
		(ARM B)			(ARM B)			
					(/			
					((((())))))			
ARM			A B C D		(*****2)			
ARM INPUT	Γ PARA	METERS:	A B C D					
ARM INPU1	Γ PARA	METERS:	A B C D					
ARM INPU1 V	ΓPARA =	Approach half width (m)	A B C D					
ARM INPU1 V E	Г РАКА = =	METERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00					
ARM INPU V E L	Г РАКА = = =	METERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 4.00 40.00 15.00 4.00 25.00					
ARM INPUT E L R	Γ PARA = = = =	METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00					
ARM INPUT E L R D	Γ PARA = = = = =	METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00					
ARM INPUT E L R D A Q	Γ PARA = = = = = = =	METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (ncu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004					
ARM INPUT E L R D A Q Qc	Γ PARA = = = = = = = = =	METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084					
ARM INPUT E L R D A Q Qc	F PARA = = = = = = = =	METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084					
ARM INPUT V E L R D A Q Q C	Γ PARA = = = = = = = =	METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ENAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084					
ARM INPUT V E L R D A Q Q Q C OUTP	Г РАКА = = = = = = = 	METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharmass of flare = 1.6(E_1)//l	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084					
ARM INPUT V E L R D A Q Q C OUTP S K	Г РАКА = = = = = = 	METERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/B-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084					
ARM INPU ¹ V E L L R D A Q Q C OUTP S K X2	F PAR# = = = = = = = = UT PA = = =	Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00					
ARM INPU ^T V E L L R D A Q Q C OUTP S K X2 M	= = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37					
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F	= = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121					
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F Td	Г PARA = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5((1+M)))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37					
ARM INPU ⁻ V E L R D A Q Q c OUTPP S K X2 M F Td Fc	Г PARA = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.58 0.74 0.58 0.75 0.69					
ARM INPU V E L R D A Q Q C OUTP S K X2 M F Td Fc Qe	Г PARA = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.37 0.74 0.58 0.75 0.69 1543 770 1841 1389		Total In Sum =	2859.185	PCU	
ARM INPU E L R D A Q Q C OUTP S K X2 M F Td F C Qe	Γ PARA = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ $1-0.00347(A-30)-0.978(1/R-0.05)$ V + ((E-V)/(1+2S)) EXP((D-60)/10) $303'X2$ $1+(0.5/(1+M))$ $0.21*Td(1+0.2*X2)$ K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1543 770 1841 1389		Total In Sum =	2859.185	PCU	
ARM INPU' V E L R D A Q Q C OUTPP S K X2 M F Td F C Q e DFC	Г PARA = = = = = = = = = = = = = = = = = =	Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc) Design flow/Capacity = Q/Qe	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1014 219 1415 1004 1220 1263 843 1084 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1543 770 1841 1389		Total In Sum = DFC of Critical Approach =	2859.185 0.77	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME /3_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 267 \longrightarrow (3) 42 \longrightarrow $	N 📡 Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.237Loss timeL =10Total Flow=1616Co= (1.5*L+5)/(1-Y)=26.2Cm= L/(1-Y)Yult=0.825R.C.ult= (Yult-Y)/Y*100%=247.7Cp=Op =0.9*L/(0.9-Y)=13.6Ymax=Ymax=1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=241.4	sec pcu sec sec % sec %
$(4) \downarrow \qquad (5) \qquad (6) \qquad (6$			
Move- ment Stage Lane Phase No. of lane Radius Opposing Near- side Straight- Ahead Move m. m. m. m. m. Traffic? side Ahead Left Straight- pcu/h	nent Total Proportion Sat. Flare lane Si sht Right Flow of Turning Flow Length Ef /h pcu/h pcu/h Vehicles pcu/h m. pc	itheret Sat. Flow y Greater L required (input) cu/hr pcu/h	Degree of Saturation Queue Length Average Delay X (m / lane) (seconds)
LT A 3.75 1 2 22 y 4120 420 LT A 4.00 2 2 24 y 4310 272 RT A 3.50 2 2 11 y 4070 272 ST B 3.50 3 2 13 y 4070 272 RT B 4.50 3 2 13 y 4270 26 Ped A 4.50 5 -	420 1.00 3857 272 1.00 4056 615 615 1.00 3582 7 267 0.00 4070 42 42 1.00 3828	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	$\begin{array}{ccccccc} 0.167 & 12 & 5 \\ 0.103 & 6 & 5 \\ 0.264 & 15 & 5 \\ 0.264 & 15 & 24 \\ 0.044 & 0 & 25 \end{array}$
	NO	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME '/3_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (1) 108 420 35 420 350 420 350 400	N Siu Sai Wan Road 145	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.210Loss timeL =48Total Flow=1390Co= (1.5*L+5)/(1-Y)=97.5Cm= L/(1-Y)=60.8Yult=0.540R.C.ult= (Yult-Y)/Y*100%=157.0Cp= 0.9*L/(0.9-Y)=62.6Ymax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=122.8	sec pcu sec sec sec %
$(1) \xrightarrow{(1)} (1) (1)$	2) → = 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- M ment Width Iane Traffic? side Ahead Left m. m. Iane? Sat. Flow pcu/h	vement Total Proportion Sat. Flare land itraight Right Flow of Turning Flow Length ocu/h ocu/h Vehicles pcu/h m.	e Share Revised g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h v sec sec sec	Degree of Queue Average Saturation Length Delay X (m / Jane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 108 ST A 3.20 1 1 11 y 1945 108 ST A 3.00 1 2 y 3970 108 LT C 3.75 2 1 12 y 1990 35 RT C 3.75 2 1 12 2130 2130 35 Ped B 6.50 4	156 264 0.41 1842 304 304 0.00 2075 745 745 0.00 3970 42 42 1.00 1893	1842 0.143 28 1842 0.143 35 46 2075 0.147 36 46 3970 0.188 0.188 46 46 1769 0.020 5 6 6 1893 0.022 0.022 6 6	0.308 18 12 0.316 24 12 0.404 33 11 0.355 0 48 0.404 6 50
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	.ENGTH = AVERAGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road. Chai W	an		PROJECT NO.: CTLDOS	Prepared By: KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffi	ic Flows	FILENAME /3 S1 J2 J5 J6 J7 J8.xls	Checked By: OC 29-4-2011
2026 Level 3 Peak Hour - Site 1			REFERENCE NO.:	Reviewed By: OC 3-5-2011
$\begin{array}{c c} \hline \\ \hline $	(4) 310 Siu Sai Wan Road 212 (5) - 73 (5) 3 (5)	N X	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = (1.5*L+5)/(1-Y) Cm = L/(1-Y) Yult R.C.ult = (Yult-Y)/Y*100% Cp = 0.9*L/(0.9-Y) Ymax = 1-L/C R.C.(C) = (0.9*Ymax-Y)/Y*100%	N = 4 C = 105 sec Y = 0.361 L = 18 sec = 1056 pcu = 50.0 sec = 28.2 sec = 0.765 = 112.1 % = 30.0 sec = 0.829 = 106.8 %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (6) \xrightarrow{(7)} (7) (7)$	-• (4) (4) (4) • • • • • • • • • • • • • • • • • • •	(6) (5) (5) (5) (5) (5)	-	
Move- Stage Lane Phase No. of Radius Opposing Near- Straig ment Width Iane Traffic? side Ahea m. Iane? Sat Fl	ht- Movement Total Prop d Left Straight Right Flow of T	portion Sat. Flare lane Turning Flow Length hicles pcu/h m	e Share Revised Effect Sat. Flow y Greater L pcu/h y sec	g g Degree of Queue Average required (input) Saturation Length Delay sec sec X (m/lane) (second
LT/ST A 3.30 1 1 111 y 1945 ST/RT A 3.30 1 1 11 12 2085 RT B 3.50 2 1 12 2105 LT A,B 3.75 3 1 13 y 1990 RT C 3.50 4 1 12 2105 LT/ST C 3.50 4 1 12 2105 LT/ST C 3.50 5 1 12 2105 LT/ST D 3.50 5 1 12 2105 LT/ST D 3.50 5 1 11 y 1965 Ped D,A,B 4.00 6 Ped B,C 4.00 7 Image: Protein and protein an	13 84 97 13 84 97 88 16 104 10 10 98 98 122 122 310 27 3 73 76	0.13 1910 0.16 2045 1.00 1871 1.00 1784 1.00 1871 0.92 1762 1.00 1871 0.92 1762 1.00 1871 0.92 1762 1.00 1871 0.04 1954	y y	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
			NOTES : PEDESTRAIN WALKING SPEED = 1.2m	i/s QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepa	ared By: KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 1/3_S1_J2_J5_J6_J7_J8.xls Check	ked By: OC 29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.: Revie	ewed By: OC 3-5-2011
$(1) & 801 \\ (1) & 750 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	N ◀—	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 3 C = 105 sec Y = 0.763 L = 18 sec = 3192 pcu = 134.8 sec = 75.8 sec = 0.765 = 0.3 % = 117.9 sec = 0.829 = -2.2 %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) $	 ←→ (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lan	ne Share Revised g	g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	nt Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L requi	red (input) Saturation Length Delay
ST A 3.50 1 2 y 4070 801 903	801 0.00 4070 750 750 1.00 1910 772 0.00 4210 132 1.00 1711 372 1.00 1832 210 365 1.00 1959	4070 0.197 18 4070 0.393 0.393 45 4210 0.183 0.183 21 1711 0.077 9 1832 0.203 23 1959 0.186 0.186 21	22 0.920 57 42 22 1.838 102 41 21 0.920 57 43 21 0.387 18 31 23 0.920 66 36 23 0.845 48 44
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m

Kalc	Agreement No. CPM301_15/10 - Traffic Impact Assess	nent Study For Columbarium Development at	Prepared By: KC
	Junction Capacity Analysis		Checked By: OC
Junction layou De	ut sketch - J9: Junciton of Chai Wan Road and Wan Tsui Road sign Year - 2026 Level 3 - Site 1 Time - Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
W ₁ Chai Wan Road (E)	ARM B Wan Tsui Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D 0.675 E = 1.109 F = 0.993 Y = 0.320
ARM A W ₂	← 768 ^{W4} ARM	C MAJOR ROAD (ARM A) $q_{a-b} = 92.403$ (pcu/hr) $q_{a-c} = 492.59$ (pcu/hr)	THE CAPACITY OF MOVEMENT Q_{b-c} =758 Q_{c-b} =672 Q_{b-a} =352
		MAJOR ROAD (ARM C) W _{c-b} = 3.30 (metres)	COMPARISION OF DESIGN FLOW TO CAPACITY
REMARK: (GEOME	TRIC INPUT DATA)	Vr _{c-b} = 150 (metres)	DFC _{b-a} = 0.559
W W _{cr}	 AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH 	$q_{c-a} = 767.93 (pcu/hr)$ $q_{c-b} = 165.24 (pcu/hr)$	$DFC_{b-c} = 0.474$ $DFC_{c-b} = 0.246$
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W) 	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC = 0.559
rattic Impact Assessi ctober 2007	nent Kepört		Page 9 of

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO CTLDOS Prenared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME /3 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2026 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 886 54 54 505 (2) San Ha Street	N Chai Wan Road 1)	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.521Loss timeL =10Total Flow=1954Co= (1.5*L+5)/(1-Y)=41.7Cm= L/(1-Y)=20.9Yult=0.825R.C.ult= (Yult-Y)/Y*100%=58.4Cp= 0.9*L/(0.9-Y)=23.7Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=55.5	sec pcu sec sec sec %
$(1) \longrightarrow (2) \qquad (3) $			
Move- Stage Lane Phase No. of Radius O N Straight- Mov ment Width Iane Ahead Left St m. m. Sat. Flow pcu/h p	ement Total Proportion Sat. Flare lane aight Right Flow of Turning Flow Length u/h pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Saturation Queue Average X Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 N ST A 3.50 1 2 10 N 4070 N 4070 LT B 3.00 2 1 10 N 1915 505 RT B 3.50 2 1 12 N 1915 505 Ped B 19.0 3 Image: Construct of the state of	86 886 0.00 4070 09 509 0.00 4070 505 1.00 1665 54 54 1.00 1871	4070 0.218 0.218 38 47 4070 0.125 22 47 1665 0.303 0.303 52 53 1871 0.029 5 53	0.463 39 11 0.266 21 11 0.572 36 9 0.055 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREE	FG - FLASHING GREEN PEDESTRAIN WALKI	ING SPEED = 1.2m/s QUEUING LENGTH = AVERA	GE QUEUE * 6m
TRAFFIC SIGNAL CALCULATION			INITIALS DATE
--	---	---	--
IIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	11111/2 Deels Hour Troffic Flows	PROJECT NO.: CTLDQS Prepared By:	кс 29-4-2011
2026 Level 3 Peak Hour - Site 1	JILLV3 - Peak Hour Trailic Flows	FILENAIVIE 73_S1_J2_J5_J6_J7_J8.XIS CHECKED BY:	0C 29-4-2011
		REFERENCE NO Reviewed by.	00 3-3-2011
Sheung On St (1) 82 4 (1) 704 78 (3) 78 (3) 78 Wing Ping Street	reet (4) 25 └ Chai Wan Road 656 (2) 123 (2)	No. of stages per cycleN =4Cycle timeC =120 sSum(y)Y =0.271Loss timeL =37 sTotal Flow=1983 pCo= (1.5*L+5)/(1-Y)=83.0 sCm= L/(1-Y)=50.8 sYult=0.623R.C.ult= (Yult-Y)/Y*100%=129.5 9Cp= 0.9*L/(0.9-Y)=53.0 sYmax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=129.5 9	ec iec iec iec %
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (3)$	(5) <> (4) (4) (6) (4) (4) (4) (4) (4) (5) (6) (6) (6) (6) (6) (6) (6) (6) (6) (6		
Stage A I = 8 Stage B I = 5 Stage	e C I = 7 Stage C I = 6		
Move- ment Stage Lane Width Phase Iane No. of Iane Radius Traffic? Opposing Side Near- Ahead m. m. m. m. Traffic? Side Side Ahead	Movement Total Proportion Sat. Flare lar Left Straight Right Flow of Turning Flow Length pcu/h pcu/h pcu/h pcu/h w. Note Note	ne Share Revised h Effect Sat. Flow y Greater L required (input) Sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 y 6175 LT/ST A 3.30 2 3 12 Y 6115 LT B 3.50 3 1 9 Y 1965 LT/RT D 3.75 4 2 10 y 4120 Ped B,C 4.00 5 - - - - - 4120 Ped B,C 5.00 6 -	82 704 786 0.10 6096 123 656 778 0.16 5997 78 78 1.00 1684 25 315 340 1.00 3583	6096 0.129 39 5997 0.130 0.130 40 1684 0.046 0.046 14 3583 0.095 0.095 29 15 15 15	0.000 52 54 0.000 50 54 0.000 12 54 0.000 33 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

Appendix B5

2021 Sensitivity Test 1 Peak Hour Junction Assessment Calculation Sheets

Agreement No. CPM301_15/10 - Traffic Impact Assess	nent Study For Columbarium Development at C Pre	∋pared By: KC
Junction Capacity Analysis	Ch	ecked By: OC
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 1 - Reference Case Time - Level 1 Peak Hour ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS	
<i>№</i> 292 2 291	$W_1 = (metres)$ GEO	JMETRIC PARAMETERS
	$W_2 = 6.00$ (metres)	$A_{A} = 0.922$
	$W_3 = 3.00$ (metres)	A _B = 1.039
	$W_4 = 3.00$ (metres)	$A_{\rm C} = 0.380$
	$\mathbf{A} \qquad \forall \forall = 6.00 (\text{metres})$	$A_{\rm D} = 0.827$
vv ₁ vv ₃	$W_{cr1} = 0.00$ (metres)	f = 0.793
Cape W Cap	$W_{cr2} = 0.00$ (metres)	$Z_{\rm B} = 1.005$
Collins Wert Collin	$vv_{cr} = 0.00$ (metres)	$Z_{\rm D} = 0.905$
on 11 on		
Road W_2 1 W_4 Roa	MAJOR ROAD (ARM A) THE	
(W) ↓ 0 (E)	$W_{a-d} = 3.00$ (metres)	$Q_{b-a} = 516$
	$Vr_{a-d} = 100$ (metres)	Q _{b-c} = 749
	$q_{a-b} = 0$ (pcu/hr) Q_{b}	$_{-d}$ is nearside = TRUE
	$q_{a-c} = 1.0575$ (pcu/hr)	$Q_{b-d} = 608$
28 259 20	$q_{a-d} = 10.518 (pcu/hr)$	$Q_{d-a} = 674$
	Q _d	_{J-b} is nearside = TRUE
ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	$Q_{d-b} = 528$
	W _{c-b} = (metres)	$Q_{d-c} = 444$
EMARK: (GEOMETRIC INPUT DATA)	Vr _{c-b} = (metres)	Q _{c-b} = 440
W = AVERAGE MAJOR ROAD WIDTH	q _{c-a} = 0 (pcu/hr)	$Q_{a-d} = 616$
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH	$q_{c-b} = 0$ (pcu/hr)	
W a-d = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	$q_{c-d} = 0$ (pcu/hr) COI	MPARISION OF DESIGN FLOW
W _{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A	ТО	CAPACITY
W _{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	MINOR ROAD (ARM B)	$DFC_{b-a} = 0.039$
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres)	$DFC_{b-c} = 0.038$
W_{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A	$W_{b-c} = 5.00$ (metres)	$DFC_{b-d} = 0.426$
W_{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	VI _{b-a} = 100 (metres)	$DFC_{d-a} = 0.431$
Vr a-d = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{b-a} = 65$ (metres)	DFC $_{d-b}$ = 0.004
VI_{b-a} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{b-c} = 0$ (metres)	$DFC_{d-c} = 0.658$
$Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A$	q _{b-a} = 20.093 (pcu/hr)	DFC _{c-b} = 0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	q _{b-c} = <mark>28</mark> (pcu/hr)	DFC _{a-d} = 0.017
Vr _{c-b} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	q _{b-d} = <mark>259.34</mark> (pcu/hr)	
VI d-c = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	Cri	tical DFC = 0.658
Vr_{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)	
Vr_{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	W _{d-a} = 3.00 (metres)	
X _A = GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{d-c} = 3.00$ (metres)	
X _B = GEOMETRIC PARAMETERS FOR STREAM B-A	VI _{d-c} = 50 (metres)	
X _C = GEOMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metres)	
X _D = GEOMETRIC PARAMETERS FOR STREAM D-C	Vr _{d-a} = 80 (metres)	
Z_B = GEOMETRIC PARAMETERS FOR STREAM B-C	q _{d-a} = 291 (pcu/hr)	
Z _D = GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d-b} = 2$ (pcu/hr)	
Y = (1-0.0345W)	$q_{d-c} = 292$ (pcu/hr)	

TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 371 \longrightarrow \\ 0 & & \\ \hline \qquad \qquad$	N Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120Sum(y)Y =0.541Loss timeL =25Total Flow=1355Co= (1.5*L+5)/(1-Y)=Quert=54.4Yult=0.713R.C.ult= (Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)R.C.(C)= (0.9*Ymax-Y)/Y*100%=31.8=	sec pcu sec sec sec %
(1) (3	(4)		
Move- ment Stage Lane Phase No. of lane Radius O N Straight- Ahead Movem m. Iane m. Movem Ahead Left Straight- Stat. Flow pcu/h Stat. Flow pcu/h	ent Total Proportion Sat. Flare lane Sh t Right Flow of Turning Flow Length Eff pcu/h pcu/h Vehicles pcu/h m. pcu	are Revised g g tect Sat. Flow y Greater L required (input) u/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
ST A 3.00 1 1 N 1915 371	371 0.00 1915	1915 0.194 5 34 95	0.245 12 2
ST/LT A 4.00 1 1 10 N 2015 704 280 Ped B 6.0 3 Image: Constraint of the second	984 0.72 1820	1820 0.541 0.541 95 95 20 20 100 100 100 100	0.683 36 3
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING S	SPEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

Val	Agreement No. CPM3	01_15/10 - Traffic Impact Assessm	ent Study For Columbarium Developme	ent at Prepared By: KC
	Junction Capacity Ar	alysis		Checked By:
Junction lay D	out sketch - J3: J/O Cape Collinson esign Year - 2021 Level 1 - Referenc Time - Level 1 Peak Hour	Road and Lin Shing Road e Case	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
N W ₁ Shek O Road ())	AR	M B Cape Collinson Road	W_1 =3.90(metres) W_2 =3.90(metres) W_3 =4.80(metres) W_4 =4.50(metres) W =8.55(metres) W_{cr1} =0.00(metres) W_{cr2} =0.00(metres) W_{cr2} =0.00(metres)	D 0.626 E = 0.996 F = 1.109 Y = 0.705
ARM A W ₂		↓ 0 W ₄ (3)	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF MOVEMENT $Q_{b-c} = 697$ $Q_{c-b} = 776$ $Q_{b-a} = 346$
			MAJOR ROAD (ARM C) W _{c-b} = <mark>4.50</mark> (metres)	COMPARISION OF DESIGN FLOW TO CAPACITY
REMARK: (GEOM W W _{cr}	ETRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH = AVERAGE CENTRAL RESERVE WI	DTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 182$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	$\begin{array}{rcl} {\sf DFC}_{\rm b-a} & = & 0.792 \\ {\sf DFC}_{\rm b-c} & = & 0.015 \\ {\sf DFC}_{\rm c-b} & = & 0.000 \end{array}$
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F Y	 LANE WIDTH AVAILABLE TO VEHIC LANE WIDTH AVAILABLE TO VEHIC LANE WIDTH AVAILABLE TO VEHIC VISIBILITY TO THE LEFT FOR VEH VISIBILITY TO THE RIGHT FOR VEH VISIBILITY TO THE RIGHT FOR VEH VISIBILITY TO THE RIGHT FOR VEH GEOMETRIC PARAMETERS FOR S GEOMETRIC PARAMETERS FOR S GEOMETRIC PARAMETERS FOR S (1-0.0345W) 	CLE WAITING IN STREAM B-A CLE WAITING IN STREAM B-C CLE WAITING IN STREAM C-B ICLES WAITING IN STREAM B-A HICLES WAITING IN STREAM B-C HICLES WAITING IN STREAM C-B STREAM B-C TREAM B-A TREAM C-B	MINOR ROAD(ARM B) W_{b-a} =0.00(metres) W_{b-c} =3.80(metres) VI_{b-a} =100(metres) Vr_{b-a} =100(metres) Vr_{b-c} =100(metres) q_{b-a} =274(pcu/hr) q_{b-c} =11(pcu/hr)	Critical DFC = 0.792

			ROUNDABOUT (CAPACITY ASSESSM	ENT		INITIALS	DATE
TIA S	tudy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-1
Juncti	on 4: C	Chai Wan Road Roundabout	J4LV1 Peak Hou	ır	FILENAME:LV1_Sen1_Ref_J2_J5_J	6_J7_J8.08HECKED BY:	OC	Sep-1
J4LV1	Peak	Hour				REVIEWED BY:	OC	Sep-1
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		(ARM D)		N	1049.032			
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(ARN	I C)	()	(AR	RM A) 1263.52	1069 O 0	D 1159.45	940.176	
			b Cł	han Wan Road (ARM C)	0 0		(ARM A)	
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		[12] [11] [10] [9]	334 [8]					
			+					
			,					
		Wan Tsui Road	,		597.0939			
		Wan Tsui Road (ARM B)	,		597.0939 (ARM B)			
		Wan Tsui Road (ARM B)			597.0939 (ARM B)			
ARM		Wan Tsui Road (ARM B)	А В С	D	597.0939 (ARM B)			
ARM	Γ PAR/	Wan Tsui Road (ARM B) AMETERS:	A B C	D	597.0939 (ARM B)			
ARM INPU ⁻	Γ PAR/	Wan Tsui Road (ARM B) AMETERS:	A B C	D	597.0939 (ARM B)			
ARM INPU ⁻	Γ PARA =	Wan Tsui Road (ARM B) AMETERS:	A B C	D	597.0939 (ARM B)			
ARM INPU ⁻ V E	Γ PAR/ = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m)	A B C	D 00 00	597.0939 (ARM B)			
ARM INPU ⁻ V E	Γ PAR/ = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0	D 00 00 00	597.0939 (ARM B)			
ARM INPU ⁻ V E L R	Γ PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25	D 00 00 00 00 5.00	597.0939 (ARM B)			
ARM INPU ⁻ V E L R D	Γ PAR <i>i</i> = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50	D 00 00 00 5.00 0.00	597.0939 (ARM B)			
ARM INPU ⁻ V E L R D A	Г РАК/ = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30	D 00 00 00 00 5.00 0.00	597.0939 (ARM B)			
ARM INPU ⁻ V E L R D A Q	Γ PAR/ = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264	D 00 00 00 5.00 0.00 1049	597.0939 (ARM B)			
ARM INPU ⁻ V E L R D A Q Q Q	Γ PAR/ = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069	D 00 00 00 5.00 0.00 1049 1104	597.0939 (ARM B)			
ARM INPU ⁻ V E L R D A Q Q Q c	Г РАК/ = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069	D 00 00 00 5.00 0.00 1049 1104	597.0939 (ARM B)			
ARM INPU ^T V E L R D A Q Q C	Γ PAR/ = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069	D 00 00 00 5.00 0.00 1049 1104	597.0939 (ARM B)			
ARM INPU ^T V E L R D A Q Q Q C OUTF S		Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry avidth (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharnness of flare = 1.6/E-VV/l	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069	D 00 00 00 5.00 0.00 1049 1104	597.0939 (ARM B)			
ARM INPU ⁻ V E L R D A Q Q Q C OUTF S K		Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00	D 00 00 00 5.00 0.00 1049 1104 0.00 1.01	597.0939 (ARM B)			
ARM INPU ^T V E L R D D A Q Q Q C OUTF S S K X2	Γ PAR/ = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((F-V)/(1+2S))	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15	D 00 00 00 5.00 0.00 1049 1104 0.00 1.01 7.00	597.0939 (ARM B)			
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M	Γ PAR/ = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry avidth (m) Entry avidth (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP(/D-60)/10)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37	D 00 00 00 00 00 00 00 00 1049 1104 0.00 1.01 7.00 0.37	597.0939 (ARM B)			
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F	Г РАЯ/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry average (average) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*Z2	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37	D 00 00 00 00 00 00 00 00 00 1049 1104 0.00 1.01 7.00 0.37 2121	597.0939 (ARM B)			
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F Td	Г РАЯ/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471	D 00 00 00 00 00 00 00 00 00 1049 1104 0.00 1.01 7.00 0.37 2121 1.37	597.0939 (ARM B)			
ARM INPU ⁻ V E L R D A Q C OUTF S K X2 M F T d F C	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471 1.37 1.37 0.37	D 00 00 00 00 00 00 00 00 00 1049 1104 0.00 1.01 7.00 0.37 2121 1.37 0.69	597.0939 (ARM B)			
ARM INPU ^T V E L R D A Q C OUTF S K X2 M F T d F C Qe	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471 1.37 1.37 1.37 0.74 0.58 0.75 1590 1017 1670	D 00 00 00 00 00 00 00 00 00 1049 1104 0.00 1.01 7.00 0.37 2121 1.37 0.69 1375	597.0939 (ARM B)	2766 48	PCU	
ARM INPU ⁻ V E L R D A Q C OUTF S K X2 M F T d F C Qe	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471 1.37 1.37 1.37 0.74 0.58 0.75 1590 1017 1670	D 00 00 00 00 00 00 00 00 1049 1104 1104	597.0939 (ARM B)	2766.48	PCU	
ARM INPU ^T V E L R D A Q Q c OUTF S K X2 M F T d F C Qe	Γ PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fe*Qc)	A B C 7.00 4.00 7.00 7.0 9.00 7.00 10.00 7.0 6.00 5.00 6.00 6.0 40.00 15.00 40.00 25 50.00 50.00 50.00 50 30.00 35.00 36.00 30 940 597 1264 1159 819 1069 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471 1.37 1.37 1.37 0.74 0.58 0.75 1590 1017 1670	D 00 00 00 00 00 00 00 00 1049 1104 1104	Total In Sum =	2766.48	PCU	

					INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	d, Chai Wan		PROJECT NO.: CTLDC	S Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour	r Traffic Flows	FILENAME 1_Ref_J2_J5_J6	J7_J8.xls Checked By:	OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case			REFERENCE NO.:	Reviewed By:	OC	3-5-2011
(3) 338 (3) 79 (3) 79 (2) 261 773 (2) Chai V	Wing Tai F 498 (1) Wan Road	N 🔪	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/(1-Y)$	N = 2 $C = 100$ $Y = 0.299$ $L = 10$ $= 1950$ $Y = 0.825$ $= 14.3$ $= 0.825$ $W = 175.9$ $= 15.0$ $= 0.900$ $Y*100% = 170.9$	2 sec) pcu sec sec sec %	
(4) (4) (5) (3) (3) (3) (6) (6) (6) (6) (6) (6)						
Move- Stage Lane Phase No. of Radius Opposing Near ment Width Iane Traffic? side m. Interpretation m. Interpretation for the state of t	r- Straight- Movement Total e Ahead Left Straight Right Flow ? Sat. Flow pcu/h pcu/h pcu/h pcu/h	Proportion Sat. Flare I of Turning Flow Leng Vehicles pcu/h m.	lane Share Revised gth Effect Sat. Flow y Great n. pcu/hr pcu/h y	er L required (input) sec sec sec	Degree of Saturation X	Queue Average Length Delay (m / lane) (second:
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 4 14 14 14 Ped A 4.50 5 14 14 14 14 Ped B 4.50 6 14 14 14 14 14	4120 498 498 4310 261 261 4070 773 773 4070 338 338 4270 79 79	1.00 3857 1.00 4056 1.00 3582 0.00 4070 1.00 3828	3857 0.129 4056 0.064 3582 0.216 0.210 4070 0.083 0.083 3828 0.021 0.021	10 39 65 65 65 65 65 25 25 6 25 6 25	0.199 0.099 0.332 0.332 0.083	12 5 6 5 21 5 21 24 3 25
			NOTES : PEDESTRAIN WALKING SPE	ED = 1.2m/s QUEUING	i LENGTH = A'	VERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	·	PROJECT NO.: CTLDQS Prepared B	у: КС 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By	y: OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed E	Зу: OC 3-5-2011
Harmony Road $(1) 136 \qquad $	N X	No. of stages per cycleN =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Co= $(1.5*L+5)/(1-Y)$ Cm= $L/(1-Y)$ Yult=R.C.ult= $(Yult-Y)/Y*100\%$ Cp= $0.9*L/(0.9-Y)$ Ymax= $1-L/C$ R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$	3 100 sec 0.258 48 sec 1627 pcu 103.8 sec 64.7 sec 0.540 109.0 % 67.3 sec 0.520 81.2 %
$(1) \xrightarrow{(1)} (2) (2)$ $(1) \xrightarrow{(1)} (5) \xrightarrow{(1)} (4)$ $(2) (2) (2)$ $(5) \xrightarrow{(1)} (4)$ $(4) \xrightarrow{(1)} (4)$ $(5) (1)$	· 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lane	Share Revised g	g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Istraig	Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L required	(input) Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 136 152 ST A 3.20 1 1 11 y 1945 136 152 ST A 3.00 1 2 y 3970 836 LT C 3.75 2 1 12 y 1990 73 RT C 3.75 2 1 12 y 1990 73 Ped B 11.00 3 - 152 339 - - - - - - - - - - - - - - - - - </td <td>288 0.47 1827 339 0.00 2075 836 0.00 3970 73 1.00 1769 90 90 1.00 1893</td> <td>pcdym pcdym y set set<!--</td--><td>42 0.372 24 14 42 0.386 30 14 42 0.497 39 13 10 0.428 6 42 10 0.497 12 44</td></td>	288 0.47 1827 339 0.00 2075 836 0.00 3970 73 1.00 1769 90 90 1.00 1893	pcdym pcdym y set set </td <td>42 0.372 24 14 42 0.386 30 14 42 0.497 39 13 10 0.428 6 42 10 0.497 12 44</td>	42 0.372 24 14 42 0.386 30 14 42 0.497 39 13 10 0.428 6 42 10 0.497 12 44
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s Q	UEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan	1	PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 1 Ref J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
		ner en	
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	N Siu Sai Wan Road (5) (5) (5)	No. of stages per cycleN =4Cycle timeC =105 sSum(y)Y =0.375Loss timeL =18 sTotal Flow=1389 pCo= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=28.8 sYult=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Op= 0.9*L/(0.9-Y)=30.8 sYmax= 1-L/CP= (0.9*Ymax-Y)/Y*100%=99.1 9	ec ec icu ec iec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (6)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (3)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (4) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight-	Movement Total Proportion Sat. Flare lane	Share Revised g g	Degree of Queue Average
m. m. lane? Sat. Flow pc	h pcu/h pcu/h pcu/h Vehicles pcu/h m.	pcu/hr pcu/h y sec sec sec	X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 11 y 1945 55 ST/RT A 3.30 1 1 12 2085 2085 2085 2085 2085 2085 2085 2015 2105 <td>81 131 0.38 1849 67 110 177 0.62 1935 29 29 1.00 1871 154 1.00 1784 191 191 1.00 1871 2 83 295 0.72 1803 0 194 194 1.00 1871 116 217 0.47 1848</td> <td>1849 0.071 18 1935 0.091 0.091 21 21 1871 0.016 0.016 4 4 1784 0.086 20 30 1871 0.102 24 38 1803 0.164 0.164 38 38 1871 0.104 0.104 24 24 1848 0.117 27 27 27</td> <td>0.350 18 30 0.452 24 31 0.452 0 64 0.303 18 23 0.282 18 18 0.452 30 18 0.452 30 18 0.452 24 26</td>	81 131 0.38 1849 67 110 177 0.62 1935 29 29 1.00 1871 154 1.00 1784 191 191 1.00 1871 2 83 295 0.72 1803 0 194 194 1.00 1871 116 217 0.47 1848	1849 0.071 18 1935 0.091 0.091 21 21 1871 0.016 0.016 4 4 1784 0.086 20 30 1871 0.102 24 38 1803 0.164 0.164 38 38 1871 0.104 0.104 24 24 1848 0.117 27 27 27	0.350 18 30 0.452 24 31 0.452 0 64 0.303 18 23 0.282 18 18 0.452 30 18 0.452 30 18 0.452 24 26
	1	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 743 \longrightarrow (1) 386 \longrightarrow (1) $	N 🚽	No. of stages per cycleN =Cycle timeC =Sum(y)Y = 0.Loss timeL =Total Flow= 7Co= $(1.5*L+5)/(1-Y)$ = 7Cm= $(1.(1-Y))$ = 4Yult= 0.R.C.ult= $(Yult-Y)/Y*100\%$ = 3Cp= $0.9*L/(0.9-Y)$ = 4Ymax= $1-L/C$ = 0.R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ = 3	3 105 sec 561 18 sec 2556 pcu 2.9 sec 11.0 sec 765 36.4 % 17.8 sec 829 33.0 %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) $	 ← → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	nent Total Proportion Sat. Flare lane	Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	ht Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L required (inp	ut) Saturation Length Delay
ST A 3.50 1 2 y 4070 743 RT A 3.50 1 1 13 2105 4210 563 ST B 3.50 2 2 4210 563 LT B 3.10 2 1 12 y 1925 57 LT C 4.00 3 1 15 y 2015 408 LT/RT C 4.00 3 1 15 2155 163 Ped A 4.50 4 4 4.50	743 0.00 4070 386 386 1.00 1887 563 0.00 4210 57 1.00 1711 408 1.00 1832 236 399 1.00 1959	4070 0.183 18 28 26 4070 0.183 18 28 26 4210 0.134 0.134 21 22 1711 0.033 5 22 1832 0.222 0.222 35 35 1959 0.204 32 35	3 0.677 45 24 3 0.758 48 30 1 0.677 39 30 1 0.169 6 30 5 0.677 42 22 5 0.620 42 21
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEU	ING LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV1 - Peak Hour Traffic Flows FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case	REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 1034 23 (1) 1034 (1) 1034	No. of stages per cycle N = 2 Cycle time C = 100 s Sum(y) Y = 0.477 Loss time L = 10 s Total Flow = 1998 p Co = $(1.5*L+5)/(1-Y)$ = 38.2 s Cm = $L/(1-Y)$ = 19.1 s Yult = 0.825 R.C.ult = $(Yult-Y)/Y*100\%$ = 72.9 9 Cp = $0.9*L/(0.9-Y)$ = 21.3 s Ymax = $1-L/C$ = 0.900 R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$ = 69.8 9	sec sec sec sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$		
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Mover	nent Total Proportion Sat. Flare lane Share Revised g g Int Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required (input)	Degree of SaturationQueue LengthAverage Delay
m. m. Sat. Flow pcu/h pcu	/h pcu/h pcu/h Vehicles pcu/h m. pcu/hr pcu/h y sec sec sec	X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 103 ST A 3.50 1 2 10 N 4070 56 LT B 3.00 2 1 10 N 1915 371 RT B 3.50 2 1 12 N 1915 371 Ped B 19.0 3 -	4 1034 0.00 4070 0.254 0.254 48 47 569 0.00 4070 0.140 26 47 371 1.00 1665 1665 0.223 0.223 42 53 23 23 1.00 1871 1871 0.012 2 53 1871 0.10 1871 100 1665 1665 1665 1665	0.541 45 10 0.297 24 11 0.421 24 9 0.023 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE	GE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION	CheilMan	INITIALS DATE
111: Junction of Chai Wan Road, Shoung On Street 9, Wing Ding St	Cildi Wdii reat	EILENAME 1 Ref 12 IS IG IT 19 viel Charled By: KC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO · Reviewed By: OC 3-5-2011
(1) 95 (1) 945 (1) 945	eung On Street (4) (4) 338 21 Chai Wan Road (2) t	No. of stages per cycleN =4Cycle timeC =120 secSum(y)Y =0.275Loss timeL =37 secTotal Flow=2361 pcuCo= (1.5*L+5)/(1-Y)=83.4 secCm= L/(1-Y)=51.0 secYult=0.623R.C.ult= (Yult-Y)/Y*100%=126.4 %Cp= 0.9*L/(0.9-Y)=53.3 secYmax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=126.4 %
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (3)$	(5) <> (4) (4) (6) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4	
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I =	6
Move- ment Stage Lane Width m. Phase Iane No. of Iane Radius Traffic? Opposing Side Iane? Near- Side Iane?	Straight- Movement Total Proportion Ahead Left Straight Right Flow of Turning Sat. Flow pcu/h pcu/h pcu/h pcu/h Vehicles	Sat. Flare lane Share Revised Flow Length Effect Sat. Flow y Greater L required (input) Dcu/h pcu/hr pcu/h y
LT/ST A 3.50 1 3 12 Y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT B 3.50 3 1 9 Y LT/RT D 3.75 4 2 10 Y Ped B,C 4.00 5 - - - Ped B,C 5.00 6 - - - - Ped C 3.00 7 - - - - - Image: Ped C 3.00 7 - - - - - Image: Ped G 3.00 7 - - - - -	6175 95 945 1041 0.09 6115 147 780 927 0.16 1965 34 34 1.00 4120 21 338 360 1.00	5105 6105 0.170 22 51 0.000 68 54 5996 0.155 0.155 47 0.000 60 54 1684 0.020 0.020 6 0.000 6 54 3583 0.100 0.100 30 0.000 6 54 1684 0.020 0.100 15 6 0.000 6 54 3583 0.100 0.100 100 30 0.000 6 54 15
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impa	act Assessmer	nt Study For Columbariu	m Developme	ent a Prepared By	/: K	(C
Junction Capacity Analysis				Checked By	: 0	00
inction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 1 - Site 1 Time - Level 1 Peak Hour	b					
ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS				
N 305 3 318		W ₁ =	(metres)	GEOMETRIC P		TERS
		$W_2 = 6.00$	(metres)	X _A	=	0.922
		$W_3 = 3.00$	(metres)	X _B	-	1.039
		$W_4 = 3.00$	(metres)	Xc	- 1	0.586
	ARM A	W = 6.00	(metres)	X _D	- 1	0.827
W ₁	W ₃	$W_{cr1} = 0.00$	(metres)	Y	-	0.793
I C		$W_{cr2} = 0.00$	(metres)	Z _B	-	1.005
e W _{cr1}	W _{cr2} Cape	W _{cr} = 0.00	(metres)	Z _D	- 1	0.905
12	Collins					
d W₂ ← 1	W ₄ Road	MAJOR ROAD	(ARM A)	THE CAPACITY	OF MO	VEMENT
0	(E)	$W_{a-d} = 3.00$	(metres)	Q _{b-a}	- 1	506
		Vr _{a-d} = 100	(metres)	Q b-c	=	749
		q _{a-b} = 0	(pcu/hr)	Q _{b-d} is nearside	=	TRUE
		q _{a-c} = 1.057	5 (pcu/hr)	Q _{b-d}	- 1	608
30 283 20		q _{a-d} = 11.51	8 (pcu/hr)	Q _{d-a}	-	674
				Q _{d-b} is nearside		TRUE
ARM B Lin Shing Rd (S)		MAJOR ROAD	(ARM C)	Q _{d-b}	-	527
		W _{c-b} =	(metres)	Q _{d-c}	- 1	437
ARK: (GEOMETRIC INPUT DATA)		Vr _{c-b} =	(metres)	Q _{c-b}	- 1	440
W = AVERAGE MAJOR ROAD WIDTH		q _{c•a} = 0	(pcu/hr)	Q _{a-d}	-	616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH		q _{c-b} = 0	(pcu/hr)			
$W_{a \cdot d}$ = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-F	D	q _{c-d} = 0	(pcu/hr)	COMPARISION	OF DES	SIGN FLOW
W _{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-/	A			TO CAPACITY	_	
W _{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C	С	MINOR ROAD	(ARM B)	DFC b-a	-	0.040
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-F	В	$W_{b-a} = 5.00$	(metres)	DFC b-c	- 1	0.041
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-/	A	$W_{b-c} = 5.00$	(metres)	DFC b-d	- 1	0.465
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-0	С	VI _{b-a} = 100	(metres)	DFC _{d-a}	- 1	0.471
Vr _{a-d} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM	A A-D	Vr _{b-a} = 65	(metres)	DFC _{d-b}	-	0.005
VI_{b-a} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM	B-A	Vr _{b-c} = 0	(metres)	DFC _{d-c}	-	0.696
Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM	И В-А	q _{b-a} = 20.09	3 (pcu/hr)	DFC _{c-b}	-	0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM	I B-C	$q_{b-c} = 30.43$	8 (pcu/hr)	DFC _{a-d}	=	0.019
Vr _{c·b} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM	ИС-В	$q_{b-d} = 282.7$	6 (pcu/hr)			
VI d-c = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM	D-C			Critical DFC	-	0.696
Vr_{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM	M D-C	MINOR ROAD	(ARM D)			
$Vr_{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM$	M D-A	W _{d-a} = 3.00	(metres)			
X_A = GEOMETRIC PARAMETERS FOR STREAM A-D	1	$W_{d-c} = 3.00$	(metres)			
X_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A	1	$VI_{d-c} = 50$	(metres)			
X _c = GEOMETRIC PARAMETERS FOR STREAM C-B	1	$Vr_{d-c} = 50$	(metres)			
X_{D} = GEOMETRIC PARAMETERS FOR STREAM D-C		Vr _{d-a} = 80	(metres)			
Z_{B} = GEOMETRIC PARAMETERS FOR STREAM B-C		q _{d-a} = 317.8	5 (pcu/hr)			
Z_D = GEOMETRIC PARAMETERS FOR STREAM D-A		$q_{d-b} = 2.584$	1 (pcu/hr)			
Y = (1-0.0345W)		$q_{d-c} = 304.5$	3 (pcu/hr)			

		7							
TRAFFIC SIGNAL CALCULATION							INITIALS	DATE	
TIA Study for Columbarium Development at Cape Colli	inson Road, Chai Wan			PROJECT NO.:	CTLDQS	Prepared By:	GK	29-4-2011	
J2: Junction of Lin Shing Road and Wan Tsui Road		J2LV1 - Peak Hour Traffic Flows	5	FILENAME 31_S	51_J2_J5_J6_J7_J8.x	Is Checked By:	KC	29-4-2011	
2021 Ching Ming Peak Hour - Site 1				REFERENCE NO	.:	Reviewed By:	UC	3-5-2011	
	280 (1) 225 2) (2) Lin Shing Road	N Wan Tsui Road		No. of stages properties Cycle time Sum(y) Loss time Total Flow Co = (1 Cm = L/ Yult R.C.ult = (Y Cp = 0. Ymax = 1- R.C.(C) = (0) 1-	er cycle 5*L+5)/(1-Y) '(1-Y) 'ult-Y)/Y*100% 9*L/(0.9-Y) -L/C .9*Ymax-Y)/Y*100%	$\begin{array}{cccc} N = & 2 \\ C = & 120 \\ Y = & 0.563 \\ L = & 25 \\ = & 1395 \\ = & 97.3 \\ = & 57.3 \\ = & 0.713 \\ = & 26.5 \\ = & 66.8 \\ = & 0.792 \\ 6 & = & 26.5 \end{array}$	sec pcu sec sec % sec %		
(1) (1)	(3) >	(4)							
Move- Stage Lane Phase No. of Radius C ment Width Iane m.	D N Straight- Moven Ahead Left Straig Sat. Flow pcu/h pcu/	hent Total Proportion ht Right Flow of Turning h pcu/h pcu/h Vehicles	Sat. Flare lane Flow Length pcu/h m.	Share Revised Ettect Sat. Flow pcu/hr pcu/h	y Greater L y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Length (m / lane) (Average Delay (seconds)
						5			,
SI A 3.00 1 1	N 1915 371	371 0.00	1915	1915 0.3	194	33 95	0.245	12	2
ST/LT A 4.00 1 1 10 Ped B 6.0 3	N 2015 743 280	1024 0.73	1817	1817 0.5	563 0.563 20	95 95	0.712	42	4
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE L	ANE SG - STEADY GREEN	FG - FLASHING GREEN	PEDESTRAIN WALKI	NG SPEED = 1.2m/s	QUE	UING LENGTH = AVER	AGE QUEUE *	* 6m	

Kal	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a										
	Junction Capacity Analysis		Checked By:	oc							
Junction lay E	rout sketch - J3: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 1 - Site 1 Time - Level 1 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAME	TERS							
N W1 Shek O Road (N)	ARM B Cape Collinson Road	$ \begin{array}{rcrrr} W_1 & = & 3.90 & (metres) \\ W_2 & = & 3.90 & (metres) \\ W_3 & = & 4.80 & (metres) \\ W_4 & = & 4.50 & (metres) \\ W & = & 8.55 & (metres) \\ W_{cr1} & = & 0.00 & (metres) \\ W_{cr2} & = & 0.00 & (metres) \\ W_{cr} & = & 0.00 & (metres) \\ \end{array} $	D E = F = Y =	0.626 0.996 1.109 0.705							
ARM A W ₂	182 ^{₩4} ARM	C MAJOR ROAD (ARM A) $q_{a\cdot b} = 0$ (pcu/hr) $q_{a\cdot c} = 176.61$ (pcu/hr) MAJOR ROAD (ARM C)	THE CAPACITY OF MO $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$ COMPARISION OF DES	0VEMENT 697 776 346 SIGN ELOW							
REMARK: (GEOI W	METRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH	$W_{c-b} = 4.50 \text{ (metres)}$ $Vr_{c-b} = 150 \text{ (metres)}$ $q_{c-a} = 181.9 \text{ (pcu/hr)}$	TO CAPACITY DFC _{b-a} = DFC _{b-c} =	0.833 0.017							
W cr W b-a W b-c W c-b VI b-a VI b-a Vr b-a Vr b-c Vr c-b D E F	 AVERAGE CENTRAL RESERVE WIDTH LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W) 	q_{c-b} = 0 (pcu/hr) MINOR ROAD (ARM B) W_{b-a} = 0.00 (metres) W_{b-c} = 3.80 (metres) VI_{b-a} = 100 (metres) Vr_{b-a} = 100 (metres) Vr_{b-c} = 100 (metres) Vr_{b-c} = 100 (metres) q_{b-a} = 287.99 (pcu/hr) q_{b-c} = 11.639 (pcu/hr)	DFC _{ob} =	0.000							
raffic Impact Asses ctober 2007	ssment Report			Page 3 of							

			ROUNDABOUT CAPACITY		INITIALS	DATE		
TIA S	tudy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-1
Juncti	on 4: (Chai Wan Road Roundabout	J4LV1 Peak Hour	-	FILENAME:LV1_Sen1_S1_J2_J5_J6_J7	7_J8.X03HECKED BY:	OC	Sep-
J4LV1	Peak	Hour	7			REVIEWED BY:	OC	Sep-
					(ARM D)			
		(ARM D)		Ν	1077.9824			
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(ARN	I C)	((ARM A)	1274.48	1097 O O	1197.38	954.6	
	,		Chan Wan Road	(ARM C)	0 0		(ARM A)	
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		I	Ļ					
		Wan Tsui Road			616 31594			
		Wan Tsui Road	1		616.31594 (APM B)			
		Wan Tsui Road (ARM B)			616.31594 (ARM B)			
ARM		Wan Tsui Roac (ARM B)			616.31594 (ARM B)			
ARM		Wan Tsui Roac (ARM B)	A B C D		616.31594 (ARM B)			
ARM INPU ⁻	ΓPAR	Wan Tsui Road (ARM B) AMETERS:	A B C D		616.31594 (ARM B)			
ARM INPU ⁻	ΓPAR	Wan Tsui Road (ARM B) AMETERS:	A B C D		616.31594 (ARM B)			
ARM INPU ⁻	ΓPAR. =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m)	A B C D		616.31594 (ARM B)			
ARM INPU ⁻ V E	Г РАР. = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		616.31594 (ARM B)			
ARM INPU ⁻ V E	Γ PAR. = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Estre radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		616.31594 (ARM B)			
ARM INPU ⁻ V E L R	Γ PAR. = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Iboreited eirele diemeter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		616.31594 (ARM B)			
ARM INPU ⁻ V E L R D	Γ PAR. = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		616.31594 (ARM B)			
ARM INPU ⁻ E L R D A	Γ PAR. = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (ocu/b)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00		616.31594 (ARM B)			
ARM INPU ⁻ V E L L R D A Q Q	Γ PAR, = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 955 616 1274 1078 1197 831 1097 1118		616.31594 (ARM B)			
ARM INPU ⁻ V E L L R D A Q Q Q c	Г РАК. = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 955 616 1274 1078 1197 831 1097 1118		616.31594 (ARM B)			
ARM INPU ⁻ V E L R D A Q Q C	Γ PAR. = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 955 616 1274 1078 1197 831 1097 1118		616.31594 (ARM B)			
ARM INPU ^T V E L R D A A Q Q C OUTFP	Γ PAR. = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 955 616 1274 1078 1197 831 1097 1118		616.31594 (ARM B)			
ARM NPU ^T V E L R R D A A Q Q Q C OUTF S	F PAR. = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 955 616 1274 1078 1197 831 1097 1118		616.31594 (ARM B)			
ARM NPU ^T V E L R D A Q Q Q C OUTF S K	= = = = = = = = = - - 	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 955 616 1274 1078 1197 831 1097 1118 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		616.31594 (ARM B)			
ARM NPU ^T V E L R D A Q Q C OUTF S K K2	= = = = = = = = UUT P# = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 955 616 1274 1078 1197 831 1097 1118 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		616.31594 (ARM B)			
ARM INPU ^T V E L R R D A A Q Q C C UTP S K X2 M -	Γ PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 955 616 1274 1078 1197 831 1097 1118 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		616.31594 (ARM B)			
ARM INPU ⁻ V E L R D A Q Q C OUTF S K X2 M F -	Γ PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 955 616 1274 1078 1197 831 1097 1118 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121		616.31594 (ARM B)			
ARM INPU ⁻ V E L R D A Q Q C OUTF S K X2 M F T d	F PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 955 616 1274 1078 1197 831 1097 1118 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37		616.31594 (ARM B)			
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F T d F C	T PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 955 616 1274 1078 1197 831 1097 1118 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69		616.31594 (ARM B)			
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F T d F C Q e	UUT P/A = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 9055 616 1274 1078 1197 831 1097 1118 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1561 1010 1649 1365		616.31594 (ARM B)	2836.28	PCU	
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F T d F C Qe	UUT PAR = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 955 616 1274 1078 1197 831 1097 1118 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1561 1010 1649 1365		616.31594 (ARM B)	2836.28	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Ch	ai Wan	PROJECT NO.: CTLDQS Prepared By:	GK 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls Checked By:	KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 344 \\ (3) 79 \\ $	Wing Tai Road 498 (1)	No. of stages per cycleN =2Cycle timeC =100 sSum(y)Y =0.301Loss timeL =10 sTotal Flow=1961 sCo= (1.5*L+5)/(1-Y)=28.6 sCm= L/(1-Y)=14.3 sYult=0.825R.C.ult= (Yult-Y)/Y*100%=174.5 sCp= 0.9*L/(0.9-Y)=15.0 sYmax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=169.5 s	ec ec ocu sec sec %
(4) (4) (4) (5) (5) (6) (6) (6)			
Stage A I - 7 Stage B I - 5			
Move- ment Width m. Phase No. of Radius Opposing Near-Si Iane m. Traffic? Sa	traight- Movement Total Proportion Sat. F Ahead Left Straight Right Flow of Turning Flow at. Flow pcu/h pcu/h pcu/h Vehicles pcu/h	lare lane Share Revised Length Effect Sat. Flow y Greater L required (input) m. pcu/hr pcu/h	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 5 4 4 4 Ped A 4.50 6 4 4 4 Ped B 4.50 6 4	4120 498 498 1.00 3857 4310 266 1.00 4056 4070 774 774 1.00 3582 4070 344 344 0.00 4070 4270 79 79 1.00 3828	3857 0.129 39 65 4056 0.066 20 65 3582 0.216 0.216 65 65 4070 0.084 0.084 25 25 3828 0.021 6 25 10	0.200 12 5 0.101 6 5 0.334 21 5 0.334 21 24 0.082 3 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	·	PROJECT NO.: CTLDQS Prepared By:	GK 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls Checked By:	KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (1) 136 (1) 136 (1) 492 (1) 5iu Sa $(1) 838$	N S i Wan Road	No. of stages per cycleN =Cycle timeC =10Sum(y)Y =0.259Loss timeL =48Total Flow=162Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.540R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Grax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%	3 0 sec 9 sec 9 pcu 9 sec 7 sec 0 3 % 4 sec 0 9 %
$(1) \longrightarrow (1)$ $(1) \longrightarrow (1)$ $(1) \longrightarrow (1)$ $(5) \longrightarrow (4)$ (4) (2) (2) (2) (2) (3) (4) (4) $(5) \longrightarrow (4)$ (5) (5) (5) (5) (5) (6) (6) (7)	6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lane	Share Revised g g	Degree of Queue Average
ment wiατη iane Traffic? Side Anead Left Straigh m. Iane? Sat. Flow pcu/h pcu/h	pcu/h pcu/h Vehicles pcu/h m.	pcu/hr pcu/h y Greater L required (input)	X (m / lane) (seconds
LT/ST A 3.30 1 1 11 y 1945 136 152 ST A 3.20 1 1 1 1 1 1 136 152 340 ST A 3.00 1 2 y 3970 y 3970 838 LT C 3.75 2 1 12 y 1990 73 RT C 3.75 2 1 12 y 1990 73 Ped B 6.50 4 - 340 - - - - - - - - - - - - - - - <td>288 0.47 1827 340 0.00 2075 838 0.00 3970 73 1.00 1769 90 90 1.00 1893</td> <td>1827 0.158 28 32 42 2075 0.164 33 42 3970 0.211 0.211 42 42 1769 0.041 8 10 10 1893 0.048 0.048 10 10</td> <td>0.372 24 14 0.387 30 14 0.497 39 13 0.428 6 42 0.497 12 44</td>	288 0.47 1827 340 0.00 2075 838 0.00 3970 73 1.00 1769 90 90 1.00 1893	1827 0.158 28 32 42 2075 0.164 33 42 3970 0.211 0.211 42 42 1769 0.041 8 10 10 1893 0.048 0.048 10 10	0.372 24 14 0.387 30 14 0.497 39 13 0.428 6 42 0.497 12 44
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	G LENGTH = AVERAGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	<u> </u>	PROJECT NO.: CTLDQS Prepared Bv:	GK 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 11 S1 J2 J5 J6 J7 J8.xls Checked By:	KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
2021 Ching Ming Peak Hour - Site 1 Bus Terminal (1) 50 (1) 148 (1) 110 (1) 116 (5) (3) (2) Harmony Road	N M i Wan Road	REFERENCE NO.: Reviewed By: No. of stages per cycle N = Cycle time C = 10 Sum(y) Y = 0.38 Loss time L = 11 Total Flow = 133 Co = (1.5*L+5)/(1-Y) = 52. Cm = L/(1-Y) = 29. Yult = 0.76 R.C.ult = 97. Cp = 0.9*L/(0.9-Y) = 31. Ymax = 1-L/C = 0.82 R.C.(C) = (0.9*Ymax-Y)/Y*100% = 92.	OC 3-5-2011 4
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(2)} (3) \xrightarrow{(2)} (3)$	(4) (6)	1	
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Straight- Ahead Moven m. Iane Traffic? side Ahead Left Straight- straight-	ent Total Proportion Sat. Flare lane t Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec) Saturation X (m / lane) Seconds
LT/ST A 3.30 1 1 11 11 2085 50 81 ST/RT A 3.30 1 1 12 2085 67 RT B 3.50 2 1 12 2105 67 LT A,B 3.75 3 1 13 y 1990 154 RT C 3.50 4 1 12 2105 154 LT/ST C 3.50 4 1 12 y 1965 212 83 ST/RT D 3.50 5 1 12 y 1965 212 83 ST/RT D 3.50 5 1 12 y 1965 101 116 Ped D,A,B 4.00 6 - </td <td>131 0.38 1849 110 177 0.62 1935 29 29 1.00 1871 154 1.00 1784 191 191 1.00 1871 295 0.72 1803 194 194 1.00 1871 217 0.47 1848</td> <td>1849 0.071 18 1849 0.091 0.091 20 20 1935 0.091 0.091 20 20 1871 0.016 0.016 4 4 1784 0.086 19 29 1871 0.102 23 37 1803 0.164 0.164 37 37 1871 0.104 23 23 1848 0.117 0.117 26 26</td> <td>0.363 18 31 0.468 24 32 0.468 0 66 0.312 18 24 0.292 18 19 0.468 30 19 0.468 24 29 0.468 24 27</td>	131 0.38 1849 110 177 0.62 1935 29 29 1.00 1871 154 1.00 1784 191 191 1.00 1871 295 0.72 1803 194 194 1.00 1871 217 0.47 1848	1849 0.071 18 1849 0.091 0.091 20 20 1935 0.091 0.091 20 20 1871 0.016 0.016 4 4 1784 0.086 19 29 1871 0.102 23 37 1803 0.164 0.164 37 37 1871 0.104 23 23 1848 0.117 0.117 26 26	0.363 18 31 0.468 24 32 0.468 0 66 0.312 18 24 0.292 18 19 0.468 30 19 0.468 24 29 0.468 24 27
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUIN	G LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	GK 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls Checked By:	KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 764 \longrightarrow (1) 386 \longrightarrow (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)$	N 🚽	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.584Loss timeL =18Total Flow=2595Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=Mult=0.765R.C.ult=(0.9*L/(0.9-Y)=Cp=0.9*L/(0.9-Y)=Stmax=1-L/C=0.829R.C.(C)=(0.9*Ymax-Y)/Y*100%=	sec pcu sec sec sec %
$(1) \longrightarrow (5) \longrightarrow (5)$ $(4) \longrightarrow (7)$ $(7) \longrightarrow (2) \longrightarrow (3)$ (3)	 ← → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mover	nent Total Proportion Sat. Flare lane Sh	nare Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	ht Right Flow of Turning Flow Length Eff	tect Sat. Flow y Greater L (required (input)	Saturation Length Delay
ST A 3.75 1 2 y 4120 764 RT A 3.00 1 1 13 2055 570 ST B 3.50 2 2 4210 570 LT B 3.10 2 1 12 y 1925 58 LT C 4.00 3 1 15 y 2015 438 LT/RT C 4.00 3 1 15 2155 142 Ped A 4.50 4 4 4.50 4 4.55 4.55 4.55 Ped B,C 3.50 5 5 5 4.55 4.55 4.55 Ped A,B 3.50 7 4.55 <	764 0.00 4120 386 386 1.00 1842 570 0.00 4210 58 1.00 1711 438 1.00 1832 236 378 1.00 1959	4120 0.186 18 28 28 4120 0.186 0.210 31 28 4210 0.135 0.135 20 20 1711 0.034 5 20 20 1832 0.239 0.239 36 36 1959 0.193 29 36 36	0.705 48 24 0.796 48 33 0.705 39 31 0.178 6 31 0.705 48 22 0.569 42 20
	NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Kal		Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development a	t Prepared By:	КС
		Junction Capacity Analysis		Checked By:	00
Junction layo	out sketch - esign Year - Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road - 2021 Level 1 - Site 1 Level 1 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARA	METERS
W ₁ Chai Wan Road W _{er1} (E)	90 257	ARM B Wan Tsui Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂		543 ^{₩V₄} ARM C	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 788 700 372
			MAJOR ROAD (ARM C) W _{⇔b} = <mark>3.30</mark> (metres)	COMPARISION OF I	DESIGN FLOW
REMARK: (GEOM W	ETRIC INPUT = AVERA	T DATA) AGE MAJOR ROAD WIDTH	Vr _{c-b} = 150 (metres) q _{c-a} = 543.33 (pcu/hr)	DFC _{b-a} = DFC _{b-c} =	0.085 0.347
W _{cr}	= AVERA	GE CENTRAL RESERVE WIDTH	q _{c-b} = <mark>256.98</mark> (pcu/hr)	DFC _{c-b} =	0.367
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F	= LANE V = LANE V = LANE V = VISIBIL = VISIBIL = VISIBIL = GEOME = GEOME = GEOME	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B ETRIC PARAMETERS FOR STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.367
ctober 2007					Page 9 of

TRAFFIC SIGNAL CALCULATION	DROJEC		INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	I10LV1 - Peak Hour Traffic Flows	ME 11 S1 12 15 16 17 18 xls Checked By:	KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1	REFERE	NCE NO.: Reviewed By:	OC 3-5-2011
2021 Ching Ming Peak Hour - Site 1	No. of s Cycle ti Sum(y) Loss tin Total FI Co Cm Yult R.C.ult Cp Ymax R.C.(C)	NCE NO.: Reviewed By: itages per cycle N = 2 me C = 100 Y = 0.484 ne L = 10 ow = 2018 = (1.5*L+5)/(1-Y) = 38.8 = L/(1-Y) = 19.4 = 0.825 = = (Yult-Y)/Y*100% = 70.4 = 0.9*L/(0.9-Y) = 21.6 = 1-L/C = 0.900 = (0.9*Ymax-Y)/Y*100% = 67.3	OC 3-5-2011 sec sec sec sec sec % sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$			
ment Width m. No. of Nature of Natur	Right Flow of Turning Flow Length Effect Sat. Fl	y Greater L required (input) h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 1040 ST A 3.50 1 2 10 N 4070 10 574 LT B 3.00 2 1 10 N 1915 381 RT B 3.50 2 1 12 N 1915 381 Ped B 19.0 3 Image: Constraint of the second s	1040 0.00 4070 4070 574 0.00 4070 4070 381 1.00 1665 1665 23 23 1.00 1871 1871	10 0.256 0.256 48 47 0.141 26 0.229 0.229 42 53 0.012 2 53	0.544 45 10 0.300 24 11 0.431 24 9 0.023 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/	/s QUEUING LENGTH = AVER	AGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION	ChaiWan			INITIAL	S DATE
111: Junction of Chai Wan Road, Shoung On Street 9, Wing Ding Street	ent [1111/1 Dook Hour Troffic I	lows	EILENAME 1 ST 12 IE IE IZ 19 VIA	Checked By: C	29-4-2011
2021 Ching Ming Peak Hour - Site 1		10.005	REFERENCE NO ·	Reviewed By: OC	3-5-2011
			REFERENCE NO.	neviewed by. Oc	5 5 2011
(1) 95 (1) 945 (1) 945	N (4) (4) 338 21 Chai Wan Road 780 (2) 147 (2)	·	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 4 $C = 120 sec$ $Y = 0.291$ $L = 37 sec$ $= 2361 pcu$ $= 85.3 sec$ $= 52.2 sec$ $= 0.623$ $= 114.0 %$ $= 54.7 sec$ $= 0.692$ $= 114.0 %$	
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} \underbrace{(5)}_{(3)} \underbrace{(6)}_{(3)}$	(5) <> (4) (4) (4) (6) (6) (7)	→			
Stage A I = 8 Stage B I = 5	Stage C I = / Stage C	1= 6			
Move- ment Stage Lane Phase No. of Radius Opposing Near- side m. m. <td>Straight- Movement Total Proport Ahead Left Straight Right Flow of Turni Sat. Flow pcu/h pcu/h pcu/h pcu/h Vehicle</td> <td>on Sat. Flare lane Sha ng Flow Length Eth is pcu/h m. pcu</td> <td>hare Revised fect Sat. Flow y Greater L u/hr pcu/h y sec</td> <td>g g Degree (required (input) Saturati sec sec X</td> <td>of Queue Average on Length Delay (m / lane) (seconds)</td>	Straight- Movement Total Proport Ahead Left Straight Right Flow of Turni Sat. Flow pcu/h pcu/h pcu/h pcu/h Vehicle	on Sat. Flare lane Sha ng Flow Length Eth is pcu/h m. pcu	hare Revised fect Sat. Flow y Greater L u/hr pcu/h y sec	g g Degree (required (input) Saturati sec sec X	of Queue Average on Length Delay (m / lane) (seconds)
LT/ST A 3.50 1 3 12 y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT B 3.50 3 1 9 Y LT/RT D 3.75 4 2 10 y Ped B,C 4.00 5 5 10 y Ped B,C 5.00 6 6 10 10 10 Ped C 3.00 7 10	6175 95 945 1041 0 6115 147 780 927 0 1965 34 34 1 4120 21 338 360 1	09 6105 16 5996 00 1684 00 3583	6105 0.170 0.170 22 5996 0.155 1684 0.020 0.020 3583 0.100 0.100 15 15 15 15 15	49 0.000 44 0.000 6 0.000 29 0.000	68 54 60 54 6 54 33 54
		NOTE	TES : PEDESTRAIN WALKING SPEED = 1.2m	1/s QUEUING LENGTH :	AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment	Study For Columbarium Development at	C Prepared By: KC	
Junction Capacity Analysis		Checked By: OC	
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 2 - Reference Case Time - Level 2 Peak Hour ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
<i>𝔅</i> 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅	$W_1 = (metres)$	GEOMETRIC PARAMETERS	0.000
	$W_2 = 6.00$ (metres)	X _A =	0.922
	$W_3 = 3.00$ (metres)	∧ _B =	1.039
	$W_4 = 3.00$ (metres)	A _C =	0.000
	W = 6.00 (metres)	A _D =	0.827
W ₁ W ₃	$W_{cr1} = 0.00$ (metres)	f =	0.793
	$W_{cr2} = 0.00$ (metres)	Δ _B =	1.005
ollins W _{cr1} Collins	$VV_{cr} = 0.00$ (metres)	Z _D =	0.905
on in on in on			-NIT
Road W_2 W_4 Road W_2 W_4 (5)		THE CAPACITY OF MOVEME	N1
	$W_{a-d} = 3.00$ (metres)	Q _{b-a} =	413
	$Vr_{a-d} = 100$ (metres)	$Q_{b-c} =$	749
	$q_{a-b} = 0$ (pcu/hr)	Q_{b-d} is hearside =	TRUE
	$q_{a-c} = 0$ (pcu/hr)	Q _{b-d} =	611
196 166 12	$q_{a-d} = 1$ (pcu/hr)	Q _{d-a} =	674
		Q_{d-b} is nearside =	TRUE
ARM B Lin Shing Rd (S)	MAJOR ROAD (ARM C)	Q _{d-b} =	533
	W _{c-b} = (metres)	Q _{d-c} =	431
EMARK: (GEOMETRIC INPUT DATA)	$Vr_{c-b} = (metres)$	Q _{c-b} =	437
W = AVERAGE MAJOR ROAD WIDTH	$q_{c-a} = 0$ (pcu/hr)	Q _{a-d} =	616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH	$q_{c-b} = 0$ (pcu/hr)		
W _{a-d} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	$q_{c-d} = 0$ (pcu/hr)	COMPARISION OF DESIGN F	LOW
$W_{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A$			0.000
$W_{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C$	MINOR ROAD (ARM B)	DFC _{b-a} =	0.028
W_{cb} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{b-a} = 5.00$ (metres)	DFC _{b-c} =	0.261
$W_{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A$	$W_{b-c} = 5.00$ (metres)	DFC _{b-d} =	0.271
W_{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C	$VI_{b-a} = 100$ (metres)	DFC _{d-a} =	0.909
Vr _{a-d} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{b-a} = 65$ (metres)	DFC _{d-b} =	0.007
$VI_{b\cdot a} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A$	$Vr_{b-c} = 0$ (metres)	DFC _{d-c} =	0.820
$Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A$	$q_{b-a} = 11.633 (pcu/hr)$	DFC _{c-b} =	0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{b-c} = 196 (pcu/hr)$	DFC _{a-d} =	0.002
Vr_{cb} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$q_{b-d} = 165.8 (pcu/hr)$		
VI _{d-c} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C		Critical DFC =	0.909
	MINOR ROAD (ARM D)		
vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	$VV_{d-a} = 3.00$ (metres)		
X_A = GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{d-c} = 3.00$ (metres)		
x_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A	$VI_{d-c} = 50$ (metres)		
$x_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metres)		
$X_{\rm D}$ = GEOMETRIC PARAMETERS FOR STREAM D-C	$Vr_{d-a} = 80$ (metres)		
	$q_{d-a} = 613$ (pcu/hr)		
$L_{\rm D}$ = GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d-b} = 4$ (pcu/hr)		
Y = (1-0.0345W)	q _{d-c} = <u>353</u> (pcu/hr)		

TRAFFIC SIGNAL C	ALCULATI	ON																				INITIALS	DATE	
TIA Study for Co	lumbariu	m Deve	lopment	at Cape	Collinsor	n Road,	Chai Wan			1						PROJECT N	0.:	CTLDQS		Prepared	By:	KC	29-4-2011	
Junction of Lin S	hing Roa	d and W	/an Tsui	Road						J2LV2 -	Peak Hou	ur Traffic Flows				FILENAME	1_Ref_J2	_J5_J6_J7	_J8.xls	Checked	By:	OC	29-4-2011	
2021 Level 2 Pea	ak Hour -	Refere	nce Case	9												REFERENCE	NO.:			Reviewed	l By:	OC	3-5-2011	
				(1)	125 <u>-</u> 2 <u>-</u> 138 (2)	9 (2)	Lin Shing	— 49 - 1071 Road	(1)		Wan Tsui	N Road				No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	es per cyc = (1.5*L- = L/(1-Y) = (Yult-Y = 0.9*L/ = 1-L/C = (0.9*Y)	cle +5)/(1-Y))/Y*100% (0.9-Y) max-Y)/Y*	100%	N = C = Y = = = = = = = =	2 120 0.636 25 1245 116.6 68.6 0.713 12.1 85.1 0.792 12.1	sec pcu sec sec % sec %		
(1)	•		Sta	ge B	_ →		(3)	-	•	(4)														
Move- Stage	Lane	Phase	No. of	Radius	0	N	Straight-	Μ	loveme	nt	Total	Proportion	Sat.	Flare lane	Share	Revised		_		g	g	Degree of	Queue	Average
ment	Width m.		lane	m.			Ahead Sat. Flow	Left pcu/h	Straight pcu/h	Right pcu/h	Flow pcu/h	ot Turning Vehicles	Flow pcu/h	Length m.	Effect pcu/hr	Sat. Flow pcu/h	У	Greater V	L sec	required sec	(input) sec	Saturation X	Length (m / lane)	Delay (seconds)
ST A ST/LT A Ped B	3.00 4.00 6.0	1 1 3	1	10		N	1915 2015	1071	125 49		125 1120	0.00	1915 1762			1915 1762	0.065	0.636	20	10 95	95 95	0.082	0 42	2 6
NOTE : O - O	PPOSING	TRAFFI	C N -	NEAR S	IDE LANE		SG - STEA	DY GRE	EN	FG - FL	ASHING G	IREEN	PEDESTR	AIN WALK	ING SPEED	0 = 1.2m/s			QUEU	ING LENG	TH = AVER	AGE QUEUE	* 6m	

Kale		Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development	at Prepared By:	KC
		Junction Capacity Analysis		Checked By:	00
Junction layo	out sketch - esign Year - Time -	J3: J/O Cape Collinson Road and Lin Shing Road - 2021 Level 2 - Reference Case Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PAR	AMETERS
N W ₁ Shek O Road (N)	0 422	ARM B Cape Collinson Road	W_1 =3.90(metres) W_2 =3.90(metres) W_3 =4.80(metres) W_4 =4.50(metres) W =8.55(metres) W =0.00(metres) W_{cr1} =0.00(metres) W_{cr2} =0.00(metres) W_{cr} =0.00(metres)	D E = F = Y =	0.626 0.996 1.109
ARM A W ₂		→ 317 W ₄ (6) → 317 ARM C	MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 422$ (pcu/hr) MAJOR ROAD (ARM C)	THE CAPACITY O Q b-c = Q c-b = Q b-a =	F MOVEMENT = 634 = 706 = 293 = DESIGN FLOW
		Γρατα	$W_{c-b} = 4.50$ (metres)		1 950
W W W _{cr}	= AVERA = AVERA	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$q_{c-a} = 317$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	DFC _{b-a} = DFC _{b-c} = DFC _{c-b} =	= 0.021 = 0.000
W b-a W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F Y	 LANE V LANE V LANE V VISIBIL VISIBIL VISIBIL VISIBIL GEOMI GEOMI GEOMI GEOMI (1-0.03) 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B ITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 3.80(metres) $VI_{b-a} =$ 100(metres) $Vr_{b-a} =$ 100(metres) $Vr_{b-c} =$ 100(metres) $q_{b-a} =$ 542(pcu/hr) $q_{b-c} =$ 13(pcu/hr)	Critical DFC	- 1.852

			ROUNDABOUT CAPACITY ASSESSMENT							
TIA St	udy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-1		
Junctio	on 4: C	Chai Wan Road Roundabout	J4LV2 Peak Hour		FILENAME:LV2_Sen1_Ref_J2_J5_J6_J	7_J8. CHECKED BY:	OC	Sep-1		
J4LV2	Peak	Hour				REVIEWED BY:	OC	Sep-1		
					(ARM D)					
		(ARM D)		Ν	764.15894					
		Island Easter Corrid	dor							
		4		Ť						
				<u> </u>	1000					
		[16] 322	[1] [2] [3] [4]	I	1069					
		[15] 410	7 165 444 148		00					
		[14] 573			0 0					
			↑		0 0					
Chai V	Van Ro				0 0					
	0	()		1000.01	540.0	4000.04	700.040			
	C)		(ARIVI A)	1306.91	542 0 0	1203.01	132.213			
			Chan Wan Road	(ARM C)	0 0		(ARM A)			
			8 [5]		0 0					
			Ť		0 0					
			394 [6]		0.0					
					700					
		12 59 64 10	213 [7]		792					
		[12] [11] [10] [9]	117 [8]							
		· · · ·	★							
		Wan Tsui Road			143.76321					
		Wan Tsui Road (ARM B)			143.76321 (ARM B)					
		Wan Tsui Road (ARM B)			143.76321 (ARM B)					
ARM		Wan Tsui Road (ARM B)	A B C D		143.76321 (ARM B)					
ARM	PAR	Wan Tsui Road (ARM B)	A B C D		143.76321 (ARM B)					
ARM INPUT	PAR	Wan Tsui Road (ARM B) AMETERS:	A B C D		143.76321 (ARM B)					
ARM INPUT	PAR/	Wan Tsui Road (ARM B) AMETERS:	A B C D		143.76321 (ARM B)					
ARM NPUT	- PAR/ =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m)	A B C D		143.76321 (ARM B)					
ARM NPUT	- PAR/ = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		143.76321 (ARM B)					
ARM NPUT	- PAR/ = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		143.76321 (ARM B)					
ARM NPUT	- PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		143.76321 (ARM B)					
<u>ARM</u> NPUT 2 3 3	PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		143.76321 (ARM B)					
4RM NPUT - - 3 3	PAR/ = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00		143.76321 (ARM B)					
4RM NPU1 = - - - - - - - - - - - - - - - - - -	PAR/ = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 732 144 1309 764		143.76321 (ARM B)					
ARM NPUT = - R R D A Q Q Q c	PAR/ = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 732 144 1309 764 1203 792 542 1069		143.76321 (ARM B)					
ARM NPUT E L R D A Q Q Q c	= = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 732 144 1309 764 1203 792 542 1069		143.76321 (ARM B)					
ARM NPUT E L R D A Q Q C OUTP	= = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 732 144 1309 764 1203 792 542 1069		143.76321 (ARM B)					
ARM NPUT E L R D A Q Q Q C D UTP S	- PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 732 144 1309 764 1203 792 542 1069		143.76321 (ARM B)					
ARM NPUT V E L R D D A Q Q Q C UTP S K	- PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		143.76321 (ARM B)					
ARM NPUT / E - - R D D A Q Q Q C UTP S S K X2	F PAR/ = = = = = = = UT PA = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		143.76321 (ARM B)					
ARM NPUT / = - - - - - - - - - - - - - - - - - -	- PAR/ = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		143.76321 (ARM B)					
ARM NPUT / = - - - - - - - - - - - - - - - - - -	- PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		143.76321 (ARM B)					
ARM NPUT V E L D A Q Q C OUTP S K X2 M F Td	- PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37		143.76321 (ARM B)					
ARM INPUT V E L R D A Q Q c OUTP S K X2 M F T d E c	- PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69		143.76321 (ARM B)					
ARM INPUT V E L R D A Q Q C S K X2 V T T C C C C	- PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(E-ErCOc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69		143.76321 (ARM B)	2351 42	PCI			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Q e	UT PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1557 1032 2069 1399		143.76321 (ARM B)	2351.43	PCU			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Q e	UT PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 732 144 1309 764 1203 792 542 1069 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1557 1032 2069 1399		143.76321 (ARM B)	2351.43	PCU			

TRAFFIC SIGNAL CALCULATION					INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	d, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flow		FILENAME 1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case			REFERENCE NO.:	Reviewed By:	OC	3-5-2011
(3) 256 (3) 35 (3) 35 (3) 181 (2) (2) (2) (3) (2) (3) (2) (3) (3) (3) (3) (3) (3) (3) (3	Wing Tai Road 424 (1) Wan Road		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	$\begin{array}{cccc} N = & 2 \\ C = & 100 \\ Y = & 0.208 \\ L = & 10 \\ = & 1417 \\ = & 25.3 \\ = & 12.6 \\ = & 0.825 \\ = & 296.2 \\ = & 13.0 \\ = & 0.900 \\ = & 289.0 \end{array}$	sec pcu sec sec % sec %	
(4) (4) (5) (3) (3) (3) (6) (6) (6) (6)						
Move- ment Stage Lane Phase No. of Radius Opposing Near- width m. Iane m. Traffic? side Iane m.	r- Straight- Movement Total Proportion e Ahead Left Straight Right Flow of Turning ? Sat. Flow pcu/h pcu/h pcu/h pcu/h Vehicles	Sat. Flare lane Sh Flow Length Et pcu/h m. pc	hare Revised ftect Sat. Flow y Greater L su/hr pcu/h y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Averag Length Delay (m / lane) (secon
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 4 <td>4120 424 424 1.00 4310 181 181 1.00 4070 520 520 1.00 4070 256 256 0.00 4270 35 35 1.00</td> <td>3857 4056 3582 4070 3828</td> <td>10 3857 0.110 4056 0.045 3582 0.145 0.145 4070 0.063 0.063 3828 0.009</td> <td>48 63 19 63 63 63 27 27 4 27</td> <td>0.175 0.071 0.231 0.231 0.033</td> <td>12 6 3 6 15 6 15 23 0 24</td>	4120 424 424 1.00 4310 181 181 1.00 4070 520 520 1.00 4070 256 256 0.00 4270 35 35 1.00	3857 4056 3582 4070 3828	10 3857 0.110 4056 0.045 3582 0.145 0.145 4070 0.063 0.063 3828 0.009	48 63 19 63 63 63 27 27 4 27	0.175 0.071 0.231 0.231 0.033	12 6 3 6 15 6 15 23 0 24
		NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m	n/s QUEUING	LENGTH = A'	/ERAGE QUEUE * 6r

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (1) 102 (2) (2) (2) (3) (1) 420 (1) (1	N	No. of stages per cycleN =3Cycle timeC =100 sSum(y)Y =0.253Loss timeL =48 sTotal Flow=1430 rCo= (1.5*L+5)/(1-Y)=103.1 sCm= L/(1-Y)=64.2 sYult=0.540R.C.ult= (Yult-Y)/Y*100%=113.5 sCp= 0.9*L/(0.9-Y)=66.8 sYmax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=85.1 s	;ec ;ec ;cu ;ec ;ec %
$(1) \xrightarrow{(1)} (1) (1)$	= 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem ment Width Iane Traffic? side Ahead Left Straight- m. m. m. Iane? Sat. Flow pcu/h pcu/h	ent Total Proportion Sat. Flare la t Right Flow of Turning Flow Lengt 1 pcu/h pcu/h Vehicles pcu/h m.	the Share Revised g g th Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Saturation Queue Average X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 102 152 ST A 3.20 1 1 1 y 3970 661 ST A 3.00 1 2 y 3970 661 LT C 3.75 2 1 12 y 1990 83 RT C 3.75 2 1 12 y 1990 83 Ped B 11.00 3 -	254 0.40 1844 268 0.00 2075 661 0.00 3970 83 1.00 1769 164 164 1.00 1893	1844 0.138 28 34 2075 0.129 27 34 3970 0.166 0.166 34 34 1769 0.047 10 18 1893 0.086 0.086 18 18 1 1 1 1 1	0.403 24 19 0.378 24 18 0.486 36 17 0.263 6 31 0.486 18 32
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

																							1		
TRAFFIC S	IGNAL CA	LCULAT	ION																				INITIALS	DATE	
TIA Stud	dy for Col	umbariu	ım Deve	lopment	at Cape	Collinsor	n Road,	Chai Wan									PROJECT N	0.:	CTLDQS		Prepared	l By:	KC	29-4-2011	
J7: Junc	tion of Si	u Sai Wa	n Road	and Harı	mony Ro	ad(N)					J7LV2 -	Peak Hou	r Traffic Flows				FILENAME	1_Ref_J2	_J5_J6_J7	_J8.xls	Checked	By:	OC	29-4-2011	
2021 Le	vel 2 Pea	ık Hour -	Refere	nce Case	2												REFERENC	E NO.:		_	Reviewed	d By:	OC	3-5-2011	
																	No. of stag	es per cyo	cle		N =	4			
						Bus Tern	ninal						N				Cycle time				C =	105	sec		
							()	((\sim				Sum(y)				Y =	0.379			
							(4)	(4) 76	(4) 138				/				Loss time Total Flow				L =	18 1251	sec		
				(1)	34 -		1/0	1	130								Co	= (1.5*L+	+5)/(1-Y)		=	51.5	sec		
				(1)	153 -			Ļ									Cm	= L/(1-Y)			=	29.0	sec		
				(1)	159 -	★	•	•									Yult				=	0.765			
					Ļ	ļ				Siu Sai	Wan Ro	ad					R.C.ult	= (Yult-Y)/Y*100%		=	101.8	%		
								τ	130	(5)							Ср	= 0.9*L/((0.9-Y)		=	31.1	sec		
					128	29		←	135 97	(5)							$P \cap C$	= 1-L/C = (0.9*V)	may_V)/V*	100%	=	0.829	%		
					(3)	(2)		¥	57	(3)							11.0.(0)	(0.5 11		100/0		50.0	70		
					(-)	. ,																			
						Harmony	y Road																		
																1									
			(6)		(7)		(6)	()			(()											
(1	1)	•						(7)	(4)	(4)	(4)		4	(6)											
(1	1)	•											•	•											
(-	<u>'</u> ′ ↓							•		+ L	-														
					•									(5)											
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	I				(3)	(2)							·	(5)											
	(3)												*												
Sta		1-	E	Sta	go P	1-	E	Stag		1-	6	Stag		6	_										
Sla	ige A	1-		Jld	ве в	1-	5	Jidge	e C	1-	0	Jiage		0											
Move-	- Stage	Lane	Phase	No. of	Radius	Opposing	Near-	Straight-	Μ	oveme	nt	Total	Proportion	Sat.	Flare lane	Share	Revised				g	g	Degree of	Queue	Average
ment		Width		lane	m	Traffic?	side	Ahead	Left	Straight	Right	Flow	of Turning	Flow	Length	Effect	Sat. Flow	У	Greater	L	required	(input)	Saturation	Length	Delay (seconds)
							lane:	Jat. FIUW	pcu/ii	pcu/ii	pcu/ii	pcu/ii	venicies	pcu/ii		pcu/m	pcu/n		У	3ec 18	Sec	SEL	^		(seconds)
IT/ST	А	3,30	1	1	11		v	1945	34	81		115	0.30	1869			1869	0.062		10	14	28	0.234	12	25
ST/RT	A	3.30	1	1	12		,	2085		72	159	231	0.69	1920			1920	0.120	0.120		28	28	0.457	24	25
RT	В	3.50	2	1	12			2105			29	29	1.00	1871			1871	0.016	0.016		4	4	0.457	0	65
LT	А,В	3.75	3	1	13		у	1990	128			128	1.00	1784			1784	0.072			16	36	0.208	12	19
RT	С	3.50	4	1	12			2105			170	170	1.00	1871			1871	0.091			21	27	0.353	18	26
LT/ST	С	3.50	4	1	12		У	1965	138	76		214	0.64	1818			1818	0.118	0.118		27	27	0.457	24	26
ST/RT	D	3.50	5	1	12			2105		0	130	130	1.00	1871			1871	0.070			16	16	0.457	18	36
LT/ST	D	3.50	5	1	11		У	1965	97	135		233	0.42	1859			1859	0.125	0.125		29	29	0.457	24	24
Ped	D,A,B	4.00	6																						
Ped	B,C	4.00	7																						
	1	1	I	1	1		I	1	l					1	1		1	1	1	I	1	1	1		
																NOTES :	PEDESTRA	N WALKI	NG SPEED	= 1.2m	n/s	QUEUING	LENGTH = A	VERAGE QU	EUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepa	ared By: KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Check	(ed By: OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Review	wed By: OC 3-5-2011
$(1) 895 \\ (1) 583 \\ (1) 583 \\ (1) 583 \\ (1) 583 \\ (1) 583 \\ (1) 583 \\ (2) \\ (3) \\ $	N 🚽	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	V = 3 C = 105 sec Y = 0.705 L = 18 sec = 3081 pcu = 108.5 sec = 61.0 sec = 0.765 = 8.5 % = 83.1 sec = 0.829 = 5.8 %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) $	 ← → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Moven	ent Total Proportion Sat. Flare lane	Share Revised g	g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	It Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L requir	red (input) Saturation Length Delay
ST A 3.50 1 2 y 4070 895 RT A 3.50 1 1 13 2105 544 ST B 3.50 2 2 4210 544 LT B 3.10 2 1 12 y 1925 84 LT C 4.00 3 1 15 y 2015 489 LT/RT C 4.00 3 1 15 2155 163 Ped A 4.50 4 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 Ped B,C 3.50 7 4 4 4 4 4 Ped A,B 3.50 7 4 4 4 4 4 4 4 Ped A,B 3.50 7 4	Solution Solution	yearn yearn <th< td=""><td>27 0.851 57 38 27 1.195 72 34 16 0.851 39 44 16 0.321 12 35 33 0.851 54 29 33 0.792 54 27</td></th<>	27 0.851 57 38 27 1.195 72 34 16 0.851 39 44 16 0.321 12 35 33 0.851 54 29 33 0.792 54 27
	١	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO CTI DOS Prepared By:	INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	1101 V2 - Peak Hour Traffic Flows	FILENAME 1 Ref. 12 15 16 17 18 xls Checked By:	0C 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 701 \longrightarrow \\ 26 \longrightarrow \\ 505 (1) \longrightarrow \\ 227 \qquad (2) \qquad San Ha Street$	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.309Loss timeL =10Total Flow=1460Co= (1.5*L+5)/(1-Y)=28.9Cm= L/(1-Y)=14.5Yult=0.8258.C.ult=R.C.ult= (Yult-Y)/Y*100%=167.1Cp= 0.9*L/(0.9-Y)=15.2Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=162.3	sec pcu sec sec sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$			
ment Width Iane m. Straight Width So in Kadius O in Straight Movem m. Straight Strai	TRIGHT Flow of Turning Flow Length Effect pcu/h pcu/h Vehicles pcu/h m. pcu/h	re Revised g g g ct Sat. Flow y Greater L required (input) 'hr pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 701 ST A 3.50 1 2 10 N 4070 505 LT B 3.00 2 1 10 N 1915 227 RT B 3.50 2 1 12 Image: Constraint of the second	701 0.00 4070 505 0.00 4070 227 1.00 1665 26 26 1.00 1871	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.367 30 11 0.264 21 11 0.258 12 9 0.027 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPE	EED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION	ChaiWan			INITIALS DATE	
111: Junction of Chai Wan Road, Sheung On Street 9, Wing Ring St	Cildi Wdii reat I111/2 - Deak Hour Traffic	Flows	EILENAME 1 Ref 12 15 16 17 19 vic	Checked By: 0C 29-4-2011	
2021 Level 2 Peak Hour - Reference Case		110W3	REFERENCE NO :	Beviewed By: OC 3-5-2011	
(1) 100 (1) 595 (1) 59	Pung On Street (4) (4) 386 48 Chai Wan Road 720 (2) t	+	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	N = 4 C = 120 sec Y = 0.280 L = 37 sec = 1991 pcu = 84.0 sec = 0.623 = 122.3 % = 53.7 sec = 0.692 = 122.3 %	
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} (5) \underbrace{(5)}_{(3)} \underbrace{(6)}_{(3)} \underbrace{(6)}_{(3)}$	(5) •• (4) (4) (4) (4) (4) (4) (4) (4) (4) (4)	i) →			
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C	I = 6			
Move- ment Stage Lane Width m. Phase Iane No. of Iane Radius Traffic? Opposing Side Iane? Near- Side Iane?	Straight- Movement Total Propose Ahead Left Straight Right Flow of Tur Sat. Flow pcu/h pcu/h pcu/h Vehic	tion Sat. Flare lane Sha ning Flow Length Eff les pcu/h m. pcu	nare Revised itect Sat. Flow y Greater L u/hr pcu/h y sec	g g Degree of Queue A required (input) Saturation Length sec sec X (m / lane) (r	Average Delay seconds)
LT/ST A 3.50 1 3 12 Y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT B 3.50 3 1 9 Y LT/RT D 3.75 4 2 10 Y Ped B,C 4.00 5 - - - Ped B,C 5.00 6 - - - - Ped C 3.00 7 - - - - - Image: Ped C 3.00 7 - - - - - Image: Ped G 3.00 7 - - - - -	6175 100 595 696 6115 105 720 825 1965 37 37 4120 48 386 434	0.14 6066 0.13 6019 1.00 1684 1.00 3583	6066 0.115 22 6019 0.137 0.137 1684 0.022 0.022 3583 0.121 0.121 15 15	34 0.000 46 41 0.000 54 7 0.000 6 36 0.000 42	54 54 54 54
		NOT	TES : PEDESTRAIN WALKING SPEED = 1.2m,	/s QUEUING LENGTH = AVERAGE QUEU	JE * 6m

Agreement No. CPM301_15/10 - Traffic Impact As	sessment	t Study For Columbarium Development	a Prepared By:	KU
Junction Capacity Analysis			Checked By:	00
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 2 - Site 1 Time - Level 2 Peak Hour ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS		
N 364 4 672		W ₁ = (metres)	GEOMETRIC PARAM	ETERS
		$W_2 = 6.00 \text{ (metres)}$	X _A =	0.922
		$W_3 = 3.00 \text{ (metres)}$	X _B =	1.039
		$W_4 = 3.00 \text{ (metres)}$	X _C =	0.586
\\/ \/	ARM A	W = 6.00 (metres)	X _D =	0.827
vv ₁ vv ₃		$VV_{cr1} = 0.00$ (metres)	Ý =	0.793
	Cape	$VV_{cr2} = 0.00$ (metres)	∠ _B =	1.005
	Collins	$vv_{cr} = 0.00$ (metres)	Z _D =	0.905
	on			
$d' = 0 = vv_4$	Road			
	(⊏)	$W_{a-d} = 3.00$ (metres)	Q _{b-a} =	740
		$v_{1_{a}\cdot d} = 100$ (metres)	$Q_{b-c} =$	
		$q_{a-b} = 0$ (pcu/hr)		611
108 170 12		$q_{a-c} = 0$ (pcu/m)	Q _{b-d} =	674
130 173 12		$q_{a-d} = \frac{1}{2} (pcu/m)$	Q _{d-a} = O is nearside =	
ARM B / in Shing Rd (S)				532
		$W_{ob} = (metres)$	Q do =	427
ARK: (GEOMETRIC INPUT DATA)		Vr = (metres)	Q =	437
W = AVERAGE MAJOR ROAD WIDTH		$q_{ca} = 0$ (pcu/hr)	Q and =	616
W ar = AVERAGE CENTRAL RESERVE WIDTH		$q_{ch} = 0$ (pcu/hr)	8-0	
W and = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D		$q_{cd} = 0$ (pcu/hr)	COMPARISION OF D	ESIGN FLOW
$W_{b,a}$ = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A			TO CAPACITY	
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C		MINOR ROAD (ARM B)	DFC _{b-a} =	0.030
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B		$W_{b-a} = 5.00$ (metres)	DFC b-c =	0.264
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A		$W_{b-c} = 5.00$ (metres)	DFC b-d =	0.292
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C		VI _{b-a} = 100 (metres)	DFC _{d-a} =	0.997
Vr a-d = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D		Vr _{b-a} = 65 (metres)	DFC _{d-b} =	0.007
VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A		Vr _{b-c} = 0 (metres)	DFC _{d-c} =	0.853
Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A		q _{b-a} = <mark>11.633</mark> (pcu/hr)	DFC _{c-b} =	0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	I	q _{b-c} = <mark>197.53</mark> (pcu/hr)	DFC a-d =	0.003
$Vr_{c:b}$ = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	I	q _{b-d} = <mark>178.53</mark> (pcu/hr)		
VI _{d-c} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	I		Critical DFC =	0.997
Vr_{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C		MINOR ROAD (ARM D)		
Vr_{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	I	$W_{d-a} = 3.00$ (metres)		
X_A = GEOMETRIC PARAMETERS FOR STREAM A-D	I	$W_{d-c} = 3.00$ (metres)		
X_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A		$VI_{d-c} = 50$ (metres)		
$X_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B	I	$Vr_{d-c} = 50$ (metres)		
X_{D} = GEOMETRIC PARAMETERS FOR STREAM D-C		$Vr_{d-a} = 80$ (metres)		
Z_{B} = GEOMETRIC PARAMETERS FOR STREAM B-C	I	$q_{d-a} = 672.35 (pcu/hr)$		
Z_D = GEOMETRIC PARAMETERS FOR STREAM D-A		$q_{d-b} = 3.909 (pcu/hr)$		
Y = (1-0.0345W)		q _{d-c} = <mark>363.85</mark> (pcu/hr)		
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011	
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J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME n1 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011	
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011	
(1) 125 2	N Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120 sSum(y)Y =0.676Loss timeL =25 sTotal Flow=131.0 sCo= (1.5*L+5)/(1-Y)=131.0 sCm= L/(1-Y)=77.1 sYult=0.713R.C.ult= (Yult-Y)/Y*100%=5.4 sCp= 0.9*L/(0.9-Y)=100.3 sYmax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=5.4 s	sec pcu sec sec sec %	
(1) (3	=			
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Moven m. Iane m. Sat. Flow pcu/h pcu/h pcu/h	ent Total Proportion Sat. Flare lane at Right Flow of Turning Flow Length h pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)	
ST A 3.00 1 1 N 1915 125	125 0.00 1915	1915 0.065 5 9 95	0.082 0 2	
ST/LT A 4.00 1 1 10 N 2015 1142 49 Ped B 6.0 3 Image: Constraint of the second	1190 0.96 1762	1762 0.676 0.676 95 95 20 20 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100	0.854 48 4	
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKII	NG SPEED = 1.2m/s QUEUING LENGTH = AVERA	GE QUEUE * 6m	

Valer	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at				
	Junction Capacity Analysis		Checked By:	00	
Junction layout Desi	sketch - J3: J/O Cape Collinson Road and Lin Shing Road gn Year - 2021 Level 2 - Site 1 Time - Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAM	IETERS	
N W ₁ O Noad (N)	ARM B Cape Collinson Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D E = F = Y =	0.626 0.996 1.109 0.705	
ARM A W ₂	← 317 W ₄ ARM	$ \begin{array}{rcl} MAJOR \ ROAD & (ARM \ A) \\ q_{a \cdot b} &= & 0 & (pcu/hr) \\ q_{a \cdot c} &= & 421.95 & (pcu/hr) \\ \end{array} $	THE CAPACITY OF N Q _{b-c} = Q _{c-b} = Q _{b-a} =	00VEMENT 634 706 293	
		MAJOR ROAD (ARM C) W _{c-b} = 4.50 (metres)	COMPARISION OF D	ESIGN FLOW	
REMARK: (GEOMET W = W _{cr} =	RIC INPUT DATA) AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150 \text{ (metres)}$ $q_{c-a} = 317.26 \text{ (pcu/hr)}$ $q_{c-b} = 0 \text{ (pcu/hr)}$	$\begin{array}{rcl} DFC_{b\text{-}a} & = \\ DFC_{b\text{-}c} & = \\ DFC_{c\text{-}b} & = \end{array}$	1.972 0.022 0.000	
$W_{b-a} = W_{b-c} = W_{c-b} = U_{c-b} = V_{r_{b-a}} = V_{r_{b-a}} = V_{r_{b-c}} = V_{r_{c-b}} = U_{r_{c-b}} = U_$	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM B-A	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	1.972	
affic Impact Assessme ctober 2007	ent Report			Page 3 of	

ROUNDABOUT CAPACITY ASSESSMENT					INITIALS	DATE			
TIA S	tudy fo	r Columbarium Development at Cape Collinson Road				PROJECT NO.: 80510	PREPARE	D BY: KC	Sep-1
Juncti	on 4: C	Chai Wan Road Roundabout	J4LV2 Peak	(Hour	F	FILENAME: LV2_Sen1_S1_J2_J5	5_J6_J7_J8.X03HECKE	D BY: OC	Sep-1
J4LV2	2 Peak	Hour					REVIEWE	D BY: OC	Sep-1
						(ARM D)			
		(ARM D)			Ν	805.12626			
		Island Easter Corri	dor		•				
		+							
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		[15] 418	7 173	478 148		00			
		[14] 603				0 0)		
			Î I I			0 0	0		
Chai \	Nan R	oad 🚽 🔪				0	0		
(ARN	1 C)	((ARM A)	1346.58	575 O	O 1274.09	776.221	
	,			Chan Wan Road	(ARM C)	0	0		
		\checkmark		Chan Wan Koad	(ARM 0)	j G			
			8 [o]			0 (0		
						0 0			
			427 [6]			00			
		12 60 64 10	← 218 [7]			837			
		[12] [11] [10] [9]	124 [8]						
			1						
			V						
		Were Terri Deed	*			444 04044			
		Wan Tsui Road	,			144.64214			
		Wan Tsui Road (ARM B)	•			144.64214 (ARM B))		
		Wan Tsui Road (ARM B)	,			144.64214 (ARM B))		
ARM		Wan Tsui Road (ARM B)	, А В	C D		144.64214 (ARM B))		
ARM INPU ⁻	Γ PAR	Wan Tsui Road (ARM B) AMETERS:	A B	C D		144.64214 (ARM B))		
ARM INPU ⁻	ΓPAR	Wan Tsui Road (ARM B) AMETERS:	A B	C D		144.64214 (ARM B))		
ARM INPU ⁻	ΓPAR/ =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m)	A B 7.00 4.00 7.0	C D		144.64214 (ARM B))		
ARM INPU ⁻ V E	Γ PAR/ = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m)	A B 7.00 4.00 7.0 9.00 7.00 10	C D 10 7.00 .00 7.00		144.64214 (ARM B))		
ARM INPU ⁻ V E	Г РАВА = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0	C D 10 7.00 10 7.00 10 6.00		144.64214 (ARM B))		
ARM INPU ⁻ V E L R	Γ PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40	C D 00 7.00 .00 7.00 10 6.00 .00 25.00		144.64214 (ARM B))		
ARM INPU ⁻ V E L R D	Γ PAR/ = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50	C D 00 7.00 .00 7.00 10 6.00 .00 25.00 .00 50.00		144.64214 (ARM B))		
ARM INPU ⁻ V E L R D A	Γ PAR/ = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36	C D 00 7.00 00 7.00 10 6.00 10 6.00 10 50.00 10 50.00 10 30.00		144.64214 (ARM B))		
ARM NPU ⁻ V E L R R D A A Q	Γ PAR/ = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145	C D 00 7.00 00 7.00 10 6.00 10 50.00 10 50.00 1347 805		144.64214 (ARM B))		
ARM INPU ⁻ V E L R D A Q Q c	Γ PAR/ = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274	C D 00 7.00 00 7.00 10 6.00 10 50.00 10 50.00 1347 805 575 1107		144.64214 (ARM B))		
ARM INPU ^T V E L R D A Q Q Q c	Γ PAR/ = = = = = = = = =	Wan Tsui Road (ARM B)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274	C D 00 7.00 .00 7.00 .00 5.00 .00 50.00 .00 30.00 1347 805 575 1107		144.64214 (ARM B))		
ARM INPU ⁻ V E L R D A Q Q Q C	Γ PAR/ = = = = = = = UUT PA	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274	C D 00 7.00 .00 7.00 .00 5.00 .00 50.00 .00 30.00 1347 805 575 1107		144.64214 (ARM B))		
ARM NPU ⁻ V E L R D A Q Q Q C OUTF S	Γ PAR/ = = = = = = = UUT PA	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) NRAMETERS: Sharpness of flare = 1.6(E-V)/L	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 0.53 0.96 145	C D 00 7.00 .00 7.00 .00 50.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00		144.64214 (ARM B))		
ARM NPU ^T V E L R D A Q Q C OUTF S S K	Г РАК/ = = = = = = = - - - - - - - - -	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 0.53 0.96 1.02	C D 00 7.00 .00 7.00 .00 50.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.01 1.01		144.64214 (ARM B))		
ARM NPUT E L R D A Q Q Q C UTF S S K X2	Г РАК/ = = = = = = = = = = UUT РА = = =	Wan Tsui Road (ARM B)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 837 0.53 0.96 1.02 0.97 7.97 5.03	C D 00 7.00 .00 7.00 .00 6.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.00 1.01 8.15 7.00		144.64214 (ARM B))		
ARM NPU ^T E L R D A Q Q Q Q C UTF S S K X2 M	Γ PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry adjus (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP(ID-60)/10)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 837 0.53 0.96 1.02 0.97 7.97 5.03 0.37 0.37	C D 00 7.00 .00 7.00 .00 6.00 .00 50.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.00 1.01 8.15 7.00 0.37 0.37		144.64214 (ARM B))		
ARM NPU ^T E L R D A Q Q C D UTF S K X2 M F	Г РАК, = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*Z2	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 837 0.53 0.96 1.02 0.97 7.97 5.03 0.37 0.37 2414 1523	C D 00 7.00 00 7.00 00 6.00 00 25.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.00 1.01 8.15 7.00 0.37 0.37 2471 2121		144.64214 (ARM B))		
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F Td	Г РАК, = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 837 0.53 0.96 1.02 0.97 7.97 5.03 0.37 0.37 2414 1523 1.37 1.37	C D 00 7.00 .00 7.00 .00 6.00 .00 25.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.00 1.01 8.15 7.00 0.37 0.37 2471 2121 1.37 1.37		144.64214 (ARM B))		
ARM INPU ^T V E L R D A Q Q c OUTF S K X2 M F T d F C	Г РАК, = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 837 0.53 0.96 1.02 0.97 7.97 5.03 0.37 0.37 2414 1523 1.37 1.37 0.74 0.58	C D 00 7.00 .00 7.00 .00 7.00 .00 50.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.00 1.01 8.15 7.00 0.37 0.37 2471 2121 1.37 1.37 0.75 0.69		144.64214 (ARM B))		
ARM INPU ⁻ V E L R D A Q C OUTP S K X2 M F T d F C G e	Γ PAR, = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 837 0.53 0.96 1.02 0.97 7.97 5.03 0.37 0.37 2414 1523 1.37 1.37 0.74 0.58	C D 00 7.00 .00 7.00 .00 7.00 .00 5.00 .00 25.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.00 1.01 8.15 7.00 0.37 0.37 2471 2121 1.37 1.37 0.75 0.69 2044 1373		144.64214 (ARM B))	8 06 PCU	
ARM INPU ^T V E L R D A Q C OUTP S K X2 M F T d F C Qe	Γ PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 837 0.53 0.96 1.02 0.97 7.97 5.03 0.37 0.37 2414 1523 1.37 1.37 0.74 0.58 1503 1007	C D 00 7.00 .00 7.00 .00 7.00 .00 5.00 .00 25.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.00 1.01 8.15 7.00 0.37 0.37 2471 2121 1.37 1.37 0.75 0.69 2044 1373		144.64214 (ARM B))	88.06 PCU	
ARM INPU ⁻ V E L R D A Q C OUTF S K X2 M F T d F C Qe	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B 7.00 4.00 7.0 9.00 7.00 10 6.00 5.00 6.0 40.00 15.00 40 50.00 50.00 50 30.00 35.00 36 776 145 1274 837 0.53 0.96 1.02 0.97 7.97 5.03 0.37 0.37 2414 1523 1.37 1.37 0.74 0.58 1503 1007	C D 00 7.00 .00 7.00 .00 7.00 .00 6.00 .00 25.00 .00 50.00 .00 30.00 1347 805 575 1107 0.80 0.00 1.00 1.01 8.15 7.00 0.37 0.37 2471 2121 1.37 1.37 0.75 0.69 2044 1373		Total In Sum =	246	38.06 PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(3) 268 (3) 35 (3) 35 (2) 524 (2) Chai Wan Road	N 📡 Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.212Loss timeL =10Total Flow=1436Co= (1.5*L+5)/(1-Y)=ZZ=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=Z=0.9*L/(0.9-Y)=Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=Z=0.900	sec pcu sec sec % sec %
(4) (4) (5) (3) (3) (6) (6) (6) (6)			
Stage A I= 7 Stage B I= 5			
Move- ment Stage Lane Phase No. of lane Radius Opposing Traffic? Near- side Straight- Ahead Mov Left m. m. m. m. Traffic? Straight- lane? Straight- Straight- lane? Mov	ement Total Proportion Sat. Flare lane sight Right Flow of Turning Flow Length u/h pcu/h pcu/h Vehicles pcu/h m.	Share Revised y Greater L g g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h sec sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT A 3.75 1 2 22 y 4120 424 LT A 4.00 2 2 24 4310 185 RT A 3.50 2 2 11 y 4070 ST B 3.50 3 2 - y 4070 RT B 4.50 3 2 13 y 4270 Ped A 4.50 5 -<	424 1.00 3857 185 1.00 4056 524 524 1.00 3582 268 0.00 4070 35 35 1.00 3828	3857 0.110 47 62 4056 0.046 19 62 3582 0.146 0.146 62 62 4070 0.066 0.066 28 28 3828 0.009 4 28	0.177 12 6 0.073 3 6 0.236 15 6 0.236 15 22 0.033 0 23
	Ν	IOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME 11 S1 J2 J5 J6 J7 J8.xls Checked Bv:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
2021 Level 2 Peak Hour - Site 1 Harmony Road (1) 102 $$ (1) 424 $$ (1) $$	u Sai Wan Road	REFERENCE NO.: Reviewed By: No. of stages per cycle N = 3 Cycle time C = 100 Sum(y) Y = 0.254 Loss time L = 48 Total Flow = 1439 Co = (1.5*L+5)/(1-Y) = 103.2 Cm = L/(1-Y) = 64.4 Yult = 0.540 R.C.ult = (Yult-Y)/Y*100% = 112.5 Cp = 0.9*L/(0.9-Y) = 66.9 Ymax = 1-L/C = 0.520 R.C.(C) = (0.9*Ymax-Y)/Y*100% = 84.1 = 0.520	OC 3-5-2011 sec sec pcu sec sec % sec %
$(1) \longrightarrow (3) \qquad (2) \qquad (2) \qquad (3) \qquad (4) \qquad (2) \qquad (4) \qquad (5) \qquad (4) \qquad (4) \qquad (5) \qquad (5) \qquad (6) $)		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mo ment Width lane Traffic? side Ahead Left s	ement Total Proportion Sat. Flare lane aight Right Flow of Turning Flow Length	Share Revised g g Effect Sat. Flow y Greater L required (input)	Degree of Queue Average Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 102 ST A 3.20 1 1 11 y 1945 102 ST A 3.00 1 2 y 3970 y LT C 3.75 2 1 12 y 1990 83 RT C 3.75 2 1 12 y 1990 83 Ped B 11.00 3 - 102 - - - - - - - 102 - - - - - - - - - - -	Ising pearing p	pcd/m pcd/m y sec sec </td <td>A (iii / latie) (seconds) 0.402 24 18 0.382 24 18 0.489 36 17 0.264 6 31 0.489 18 32</td>	A (iii / latie) (seconds) 0.402 24 18 0.382 24 18 0.489 36 17 0.264 6 31 0.489 18 32
	Ν	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	.ENGTH = AVERAGE QUEUE * 6m

			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 11 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $(1) \ 34 \ (1) \ 153 \ (1) \ 159 \ (1) \ 159 \ (1) \ 159 \ (1) \ 159 \ (1) \ 159 \ (1) \ 128 \ 29 \ (3) \ (2) \ (2) \ (5) \ 135 \ (5) \ 97 \ (5) \ (5) \ Harmony Road$	N X	No. of stages per cycleN =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)Yult=R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=	4 05 sec 9 8 sec 51 pcu 5 sec 0 sec 5 8 % 1 sec 9 8 %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(7)} (3) (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (6) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (6)		
Move- ment Stage Width Lane Iane Phase No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Movem Straight- Iane m. m. m. Traffic? side Ahead Left Straight- Straight- Iane? Sat. Flow pcu/h pcu/h pcu/h	ent Total Proportion Sat. Flare lane t Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	Share Revised Effect Sat. Flow y Greater L required (input, pcu/hr pcu/h y sec sec sec	Degree of Saturation Queue Length Average Delay X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 34 81 ST/RT A 3.30 1 1 12 2085 72 RT B 3.50 2 1 12 2105 72 LT A,B 3.75 3 1 13 y 1990 128 RT C 3.50 4 1 12 2105 128 LT/ST C 3.50 4 1 12 2105 128 LT/ST C 3.50 5 1 12 2105 138 ST/RT D 3.50 5 1 12 2105 138 LT/ST D 3.50 5 1 11 y 1965 97 135 Ped D,A,B 4.00 6 1 1 1 1 1 1 1 1 1 1 1 <td>115 0.30 1869 159 231 0.69 1920 29 29 1.00 1871 128 1.00 1784 170 170 1.00 1871 214 0.64 1818 130 1.00 1871 233 0.42 1859</td> <td>1869 0.062 18 1920 0.120 0.120 28 28 1871 0.016 0.016 4 4 1784 0.072 16 36 1871 0.091 21 27 1818 0.118 0.118 27 27 1871 0.070 16 16 16 1859 0.125 0.125 29 29</td> <td>0.234 12 25 0.457 24 25 0.457 0 65 0.208 12 19 0.353 18 26 0.457 24 26 0.457 18 36 0.457 24 24</td>	115 0.30 1869 159 231 0.69 1920 29 29 1.00 1871 128 1.00 1784 170 170 1.00 1871 214 0.64 1818 130 1.00 1871 233 0.42 1859	1869 0.062 18 1920 0.120 0.120 28 28 1871 0.016 0.016 4 4 1784 0.072 16 36 1871 0.091 21 27 1818 0.118 0.118 27 27 1871 0.070 16 16 16 1859 0.125 0.125 29 29	0.234 12 25 0.457 24 25 0.457 0 65 0.208 12 19 0.353 18 26 0.457 24 26 0.457 18 36 0.457 24 24
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUIN	G LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	КС 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 949 \qquad \longrightarrow \qquad (1) 583 \qquad \checkmark \qquad $	N 🚽 Chai Wan Road 2) 2)	No. of stages per cycleN =Cycle timeC =1Sum(y)Y =0.74Loss timeL =1Total Flow=31Co= (1.5*L+5)/(1-Y)=20= (1.6*L+5)/(1-Y)=Yult=0.76R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=0.82R.C.(C)= (0.9*Ymax-Y)/Y*100%=	3 05 sec 13 18 sec 86 pcu .5 sec .0 sec 55 .0 % .1 sec 29 .4 %
$(1) \longrightarrow (5) \longrightarrow (5)$ $(4) \longrightarrow (7) \longrightarrow (2) \longrightarrow (3)$ (3) (3) $(4) \longrightarrow (7) \longrightarrow (2)$ (3) (3) (3)	 ← - → (6) I = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mov	ment Total Proportion Sat. Flare lane	e Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Str	ight Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L required (input) Saturation Length Delay
ST A 3.75 1 2 y 4100 900	19 949 0.00 4120 583 583 1.00 1842 55 565 0.00 4210 89 1.00 1711 536 1.00 1832 324 466 1.00 1959	pco/m pco/m y sec sec </td <td>0.897 60 39 1.231 72 35 0.897 45 45 0.346 12 36 0.897 66 28 0.729 54 23</td>	0.897 60 39 1.231 72 35 0.897 45 45 0.346 12 36 0.897 66 28 0.729 54 23
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUIN	IG LENGTH = AVERAGE QUEUE * 6m

Valo	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development a				
11010		Junction Capacity Analysis		Checked By:	00
Junction layo	out sketch - esign Year - Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road 2021 Level 2 - Site 1 Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARA	METERS
W ₁ Chai Wan Road W _{c11} (E)	€66 359	ARM B Wan Tsui Road	W_1 =10.90 (metres) W_2 =7.70 (metres) W_3 =10.60 (metres) W_4 =10.20 (metres) W =19.70 (metres) W_{cr1} =4.10 (metres) W_{cr2} =1.70 (metres) W_{cr} =2.90 (metres)	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂		← 590 ^W ₄ ARM C	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF	MOVEMENT 776 691 380
			MAJOR ROAD (ARM C) W _{c-b} = <mark>3.30</mark> (metres)	COMPARISION OF TO CAPACITY	DESIGN FLOW
REMARK: (GEOM	IETRIC INPUT	DATA)	Vr _{c-b} = <mark>150</mark> (metres)	DFC _{b-a} =	0.264
W W _{cr}	= AVERA = AVERA	GE MAJOR ROAD WIDTH GE CENTRAL RESERVE WIDTH	q _{c-a} = <mark>590.35</mark> (pcu/hr) q _{c-b} = <mark>97.293</mark> (pcu/hr)	DFC _{b-c} = DFC _{c-b} =	0.197 0.141
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE V LANE V LANE V LANE V VISIBIL VISIBIL VISIBIL VISIBIL GEOME GEOME GEOME GEOME 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B ITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.264
ctober 2007	sment keport	·			Page 9 of

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan	PROJECT NO · CTLDOS Prenared B	INTIALS DATE
110: Junction of Chai Wan Boad and San Ha Street	1101 V2 - Peak Hour Traffic Flows FILENAME 11 S1 12 15 16 17 18 xIs Checked By	v: OC 29-4-2011
2021 Level 2 Peak Hour - Site 1	REFERENCE NO.: Reviewed E	By: OC 3-5-2011
2021 Level 2 Peak Hour - Site 1	N Reference NO.: Reviewed E N $Cycle time$ C = Sum(y) Y = Loss time L = Total Flow = Co = (1.5*L+5)/(1-Y) = Chai Wan Road Pult = R.C.ult = (Yult-Y)/Y*100% = Yult = R.C.ult = (Yult-Y)/Y*100% = R.C.(C) = (0.9*Ymax-Y)/Y*100% =	3y: OC 3-5-2011 2 100 sec 0.330 10 sec 1512 pcu 29.9 sec 14.9 sec 0.825 150.0 % 15.8 sec 0.900 145.4 %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$		
Move- Stage Lane Phase No. of Radius O N Straight- Movem ment Width Iane Ahead Left Straight- Straight- Straight- Israight- Israight-	nt Total Proportion Sat. Flare lane Share Revised g Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required pcu/h pcu/h Vehicles pcu/h m. pcu/hr pcu/h y sec sec	g Degree of Queue Average (input) Saturation Length Delay sec X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 709 ST A 3.50 1 2 10 N 4070 517 LT B 3.00 2 1 10 N 1915 259 RT B 3.50 2 1 12 10 N 1915 259 Ped B 19.0 3 -	709 0.00 4070 4070 0.174 0.174 48 517 0.00 4070 0.127 35 259 1.00 1665 1665 0.156 42 26 26 1.00 1871 1871 0.014 4	47 0.371 30 11 47 0.270 21 11 53 0.294 18 9 53 0.027 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH	H = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION	hai Wan	INITIALS DATE
111: Junction of Chai Wan Road, Sheung On Street & Wing Ding Street	et I111V2 - Peak Hour Traffic Flows	EILENAME at St 12 15 16 17 18 visiChacked By: CC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO · Reviewed By: OC 2-9-4-2011
(1) 100 (1) 595 (1) 595 (3) Wing Ping Street	ng On Street (4) (4) 386 48 Chai Wan Road 720 (2) 105 (2)	No. of stages per cycleN =4Cycle timeC =120 secSum(y)Y =0.280Loss timeL =37 secTotal Flow=1991 pcuCo= (1.5*L+5)/(1-Y)=84.0 secCm= L/(1-Y)=51.4 secYult=0.623R.C.ult= (Yult-Y)/Y*100%=122.3 %Cp= 0.9*L/(0.9-Y)=53.7 secYmax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=122.3 %
$(1) \longrightarrow (5) \longleftarrow (6)$ $(1) \longrightarrow (6)$ $(2) \longrightarrow (3)$	(5) $\leftarrow \cdots \rightarrow$ (4) (4) (6) $\leftarrow \cdots \rightarrow$ (7)	
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I = 6	
Move- ment Stage Lane Phase No. of Radius Opposing Near- Width m. Iane m. Traffic? Sa Iane? Sa	Straight- Movement Total Proportion Sat. Ahead Left Straight Right Flow of Turning Flow sat. Flow pcu/h pcu/h pcu/h pcu/h vehicles pcu/h	Flare lane Share Revised y Greater g g Degree of Queue Average Length Effect Sat. Flow y Greater L required (input) Saturation Length Delay m. pcu/hr pcu/hr pcu/hr y sec sec sec X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 Y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT/RT D 3.75 4 2 10 Y Ped B,C 4.00 5 Ped B,C 5.00 6 Ped C 3.00 7	6175 100 595 696 0.14 6066 6115 105 720 825 0.13 6019 1965 37 37 1.00 1684 4120 48 386 434 1.00 3583	6066 0.115 34 0.000 46 54 6019 0.137 0.137 41 0.000 54 54 1684 0.022 0.022 7 0.000 6 54 3583 0.121 0.121 36 0.000 42 54 15 15 15 15 15 15 16 17 17
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact	Assessment	Study For Columbarium D	evelopment at	C Prepared By:	КС
Junction Capacity Analysis				Checked By:	00
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 3 - Reference Case Time - Level 3 Peak Hour ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS			
			()		
<i>W</i> 225 2 8		$VV_1 =$	(metres)	GEOMETRIC PARAM	AETERS
		$W_2 = 6.00$	(metres)	X _A =	0.922
		$VV_3 = 3.00$	(metres)	∧ _B =	1.039
		$VV_4 = 3.00$	(metres)	× _C =	0.007
14/		VV = 6.00	(metres)	X _D =	0.827
	vv ₃	$VV_{cr1} = 0.00$	(metres)	ř =	0.793
Cape M	Cape	$VV_{cr2} = 0.00$	(metres)	Δ _B =	1.005
Collins Vert	Collins	$VV_{cr} = 0.00$	(metres)	∠ _D =	0.905
on 0	on				
	W ₄ Road		(ARM A)	THE CAPACITY OF I	MOVEMENT
	(E)	$W_{a-d} = 3.00$	(metres)	Q _{b-a} =	615
		$Vr_{a-d} = 100$	(metres)	Q _{b-c} =	749
		$q_{a-b} = 0$	(pcu/hr)	Q_{b-d} is nearside =	IRUE
		$q_{a-c} = 0$	(pcu/hr)	Q _{b-d} =	611
2 0 0		$q_{a-d} = 0$	(pcu/hr)	Q _{d-a} =	674
				Q_{d-b} is nearside =	TRUE
ARM B Lin Shing Rd (S)		MAJOR ROAD	(ARM C)	Q _{d-b} =	533
		VV _{c-b} =	(metres)	Q _{d-c} =	518
		Vr _{c-b} =	(metres)	Q _{c-b} =	437
W = AVERAGE MAJOR ROAD WIDTH		$q_{c-a} = 0$	(pcu/hr)	Q _{a-d} =	616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH		$q_{c-b} = 0$	(pcu/hr)		
W _{a-d} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D		$q_{c-d} = 0$	(pcu/hr)	COMPARISION OF L	DESIGN FLOW
$W_{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A$				TO CAPACITY	0.000
$W_{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C$		MINOR ROAD	(ARM B)	DFC _{b-a} =	0.000
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B		$W_{b-a} = 5.00$	(metres)	DFC b-c =	0.003
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A		$VV_{b-c} = 5.00$	(metres)	DFC _{b-d} =	0.000
W_{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C		$VI_{b-a} = 100$	(metres)	DFC _{d-a} =	0.013
Vr _{a-d} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A	A-D	$Vr_{b-a} = 65$	(metres)	DFC _{d-b} =	0.004
$VI_{b-a} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-$	A	$Vr_{b-c} = 0$	(metres)	DFC _{d-c} =	0.434
$Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM E$	3-A	$q_{b-a} = 0$	(pcu/hr)	DFC _{c-b} =	0.000
Vr _{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM E	3-C	$q_{b-c} = 2$	(pcu/hr)	DFC _{a-d} =	0.000
$Vr_{cb} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM ($	с-В	$q_{b-d} = 0$	(pcu/hr)		0.404
VI _{d-c} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-				Critical DFC =	0.434
	J-C		(ARM D)		
VI da = VISIBILITY TO THE RIGHT FOR VEHICLES WATTING IN STREAM L)-А	$vv_{d-a} = 3.00$	(metres)		
$A_{A} = GEOMETRIC PARAMETERS FOR STREAM A-D$		$VV_{d-c} = 3.00$	(metres)		
x_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A		$VI_{d-c} = 50$	(metres)		
$x_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B		$Vr_{d-c} = 50$	(metres)		
X_{D} = GEOMETRIC PARAMETERS FOR STREAM D-C		$Vr_{d-a} = 80$	(metres)		
$z_{\rm B}$ = GEOMETRIC PARAMETERS FOR STREAM B-C		q _{d-a} = 8	(pcu/hr)		
$Z_{\rm D}$ = GEOMETRIC PARAMETERS FOR STREAM D-A		$q_{d-b} = 2$	(pcu/hr)		
Y = (1-0.0345W)		q _{d-c} = 225	(pcu/hr)		

			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan	I	PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 1 Ref J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 176 \qquad \qquad$	Wan Tsui Road	No. of stages per cycleN =Cycle timeC =12Sum(y)Y =0.452Loss timeL =25Total Flow=102Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=Yult=0.713R.C.ult=(Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)=Ymax=1-L/C=R.C.(C)=(0.9*Ymax-Y)/Y*100%=StateStateStateCp=57.5	2 0 sec 2 5 sec 4 pcu 5 sec 7 sec 8 6 % 8 sec 2 6 %
(1) (3) _	(4) ↓		
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Mod ment Width Iane Mod Ahead Left Sat. Flow pcu/h	vement Total Proportion Sat. Flare la raight Right Flow of Turning Flow Leng cu/h pcu/h pcu/h Vehicles pcu/h m.	ane Share Revised th Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
ST A 3.00 1 1 N 1915	176 176 0.00 1915	1915 0.092 5 19 95	0.116 6 2
ST/LT A 4.00 1 1 10 N 2015 420 Ped B 6.0 3 Image: Comparison of the second seco	429 849 0.49 1876	1876 0.452 0.452 95 95 20 20 10 10 10 100 100 100 100 100 100 100 100 100 100	0.571 30 3
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREE	N FG - FLASHING GREEN PEDESTRAIN W/	ALKING SPEED = 1.2m/s QUEUING LENGTH = AVE	RAGE QUEUE * 6m

Kal	C KOW	Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development	at Prepared By:	КС
		Junction Capacity Analysis		Checked By:	00
Junction lay	vout sketch - Design Year Time -	 J3: J/O Cape Collinson Road and Lin Shing Road 2021 Level 3 - Reference Case Level 3 Peak Hour 	GEOMETRIC DETAILS	GEOMETRIC PARAI	METERS
N W ₁ Shek O Road (N)	0 415	ARM B Cape Collinson Road	W_1 = 3.90 (metres) W_2 = 3.90 (metres) W_3 = 4.80 (metres) W_4 = 4.50 (metres) W = 8.55 (metres) W_{cr1} = 0.00 (metres) W_{cr2} = 0.00 (metres) W_{cr} = 0.00 (metres)	D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂		← 259 ^W ₄ ARM C	MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 415$ (pcu/hr) MAJOR ROAD (ARM C)	THE CAPACITY OF $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$ COMPARISION OF I	MOVEMENT 636 708 300 DESIGN FLOW
REMARK [.] (GEO		Τ ΠΑΤΑ)	$W_{c-b} = 4.50$ (metres) $Vr_{c+b} = 150$ (metres)	DEC =	0 702
W W _{cr}	= AVERA = AVERA	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$q_{c-b} = 259 (pcu/hr)$ $q_{c-b} = 0 (pcu/hr)$	$DFC_{b-c} = DFC_{c-b} =$	0.003
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F Y	 LANE LANE LANE VISIBI VISIBI VISIBI VISIBI GEOM GEOM GEOM GEOM (1-0.03) 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B METRIC PARAMETERS FOR STREAM B-C METRIC PARAMETERS FOR STREAM B-A METRIC PARAMETERS FOR STREAM C-B METRIC PARAMETERS FOR STREAM C-B	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 3.80(metres) $VI_{b-a} =$ 100(metres) $Vr_{b-a} =$ 100(metres) $Vr_{b-c} =$ 100(metres) $q_{b-a} =$ 210(pcu/hr) $q_{b-c} =$ 2(pcu/hr)	Critical DFC =	0.702

			ROUNDABOUT CAPACITY A	ASSESSM	ENI		INITIALS	DATE
TIA S	tudy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	КС	Sep-1
Juncti	on 4: C	Chai Wan Road Roundabout	J4LV3 Peak Hour		FILENAME:LV3_Sen1_Ref_J2_J5_J6_J	7_J8. CHECKED BY:	OC	Sep-1
J4LV3	8 Peak	Hour				REVIEWED BY:	OC	Sep-1
					(ARM D)			
		(ARM D)		N	946.38704			
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Chai \	Nan Ro	bad 🚽 🖊			0 0			
(ARN	I C)		(ARM A)	1361.71	735 O O	1163.26	887.467	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
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			•					
		Wan Tsui Road	•		212.56345			
		Wan Tsui Road (ARM B)	,		212.56345 (ARM B)			
		Wan Tsui Road (ARM B)	·		212.56345 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		212.56345 (ARM B)			
	Γ PAR/	Wan Tsui Road (ARM B)	A B C D		212.56345 (ARM B)			
ARM	Γ PAR/	Wan Tsui Road (ARM B) AMETERS:	A B C D		212.56345 (ARM B)			
ARM NPU ⁻	Γ PAR/	Wan Tsui Road (ARM B) AMETERS:	A B C D		212.56345 (ARM B)			
ARM INPU ⁻	Γ PAR/ = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		212.56345 (ARM B)			
ARM NPU ⁻	Γ PAR <i>i</i> = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		212.56345 (ARM B)			
<u>ARM</u> NPU ⁻ / = - -	Γ PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		212.56345 (ARM B)			
ARM INPU ⁻ V E L R D	Γ PARA = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		212.56345 (ARM B)			
ARM INPU ⁻ V E L R D A	Γ PAR/ = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00		212.56345 (ARM B)			
ARM INPU ⁻ E L R O A Q	Γ PAR/ = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 887 213 1362 946		212.56345 (ARM B)			
ARM INPU ⁻ V E - - R D A 2 2 2	Γ PAR/ = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045		212.56345 (ARM B)			
ARM NPU ⁻ Z Z Q Q Q Q C	Г РАК/ = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045		212.56345 (ARM B)			
ARM NPU ^T V E L R D A A Q Q C UTE	Γ PAR/ = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045		212.56345 (ARM B)			
ARM NPU ^T V E L R D D A Q Q Q C OUTF S	Γ PAR/ = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045		212.56345 (ARM B)			
ARM NPU ^T V E L R D A A Q Q C OUTF S S K	Г РАК/ = = = = = = = - - - - - - - -	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		212.56345 (ARM B)			
ARM NPU ^T E L R D D A Q Q Q C UTF S S K X2	= = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		212.56345 (ARM B)			
ARM NPUT E L R D D A Q Q Q C UTF S S K X2 M	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		212.56345 (ARM B)			
ARM NPUT E L R D A Q Q Q Q C UTF S S K X2 M F	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*Z2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414		212.56345 (ARM B)			
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F Td	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37		212.56345 (ARM B)			
ARM INPU ^T V E L R D A Q C OUTF S K X2 M F Td F C	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69		212.56345 (ARM B)			
ARM INPU ⁻ V E L R D A Q C OUTF S K X2 M F T d F C Qe	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) $303^{*}X2$ 1+(0.5/(1+M)) $0.21^{*}Td(1+0.2^{*}X2)$ K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1587 849 1923 1415		212.56345 (ARM B)	2648	PCU	
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F T d F C Q e	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) $303^{*}X2$ 1+(0.5/(1+M)) $0.21^{*}Td(1+0.2^{*}X2)$ $K(F-Fc^{*}Qc)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69 1587 849 1923 1415		212.56345 (ARM B)	2648	PCU	
ARM INPU ^T V E L R D A Q Q C OUTF S K X2 M F T d F C Qe	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry adjus (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = $1.6(E-V)/L$ 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) $303^{*}X2$ 1+(0.5/(1+M)) $0.21^{*}Td(1+0.2^{*}X2)$ $K(F-Fc^{*}Qc)$	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 887 213 1362 946 1163 1121 735 1045 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1587 849 1923 1415		Total In Sum =	2648	PCU	

TRAFFIC SIGNAL CALCULATION						INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Ch	nai Wan		PROJECT	IO.: CTLDQS	Prepared By:	КС	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak	k Hour Traffic Flows	FILENAME	1_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 3 Peak Hour - Reference Case			REFERENC	E NO.:	Reviewed By:	OC	3-5-2011
(3) 247 (3) 41 (3) 41 (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	Wing 408 (1) The main manual statement of the statement	N 🔪 <u>g Tai</u> Road	No. of sta Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	ges per cycle = (1.5*L+5)/(1-Y) = L/(1-Y) = (Yult-Y)/Y*100% = 0.9*L/(0.9-Y) = 1-L/C = (0.9*Ymax-Y)/Y*100%	$\begin{array}{cccc} N = & 2 \\ C = & 100 \\ Y = & 0.226 \\ L = & 10 \\ = & 1541 \\ = & 25.8 \\ = & 12.9 \\ = & 0.825 \\ = & 265.5 \\ = & 13.3 \\ = & 0.900 \\ = & 258.8 \end{array}$	sec pcu sec sec sec % sec %	
(4) (4) (5) (3) (3) (3) (6) (6) (6) (6) (6) (6)							
							. <u> </u>
Move- Stage Lane Phase No. of Radius Opposing Near- Stage ment Width Iane Traffic? side ////////////////////////////////////	Straight- Movement Tot Ahead Left Straight Right Flo at. Flow pcu/h pcu/h pcu/h pcu	otal Proportion Sat. Fl ow of Turning Flow u/h Vehicles pcu/h	lare lane Share Revised Length Effect Sat. Flow m. pcu/hr pcu/h	y Greater L y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Avera Length Dela (m / lane) (seco
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 5 - - - Ped A 4.50 6 - - - Ped B 4.50 6 - - - - Ped B 4.50 6 - - - - -	4120 408 40 4310 254 25 4070 591 59 4070 247 24 4270 41 41	08 1.00 3857 54 1.00 4056 91 1.00 3582 47 0.00 4070 11 1.00 3828	3857 4056 3582 4070 3828	0.106 0.063 0.165 0.165 0.061 0.061 0.011	42 66 25 66 66 66 24 24 4 24	0.161 0.095 0.251 0.251 0.045	9 5 6 5 15 5 15 25 0 26
			NOTES : PEDESTRA	IN WALKING SPEED = 1.2r	n/s QUEUING	LENGTH = A	/ERAGE QUEUE * (

TRAFFIC SIGNAL CALCULATION			INITIALS DATE	
TIA Study for Columbarium Development at Cape Collinson Road, C	Chai Wan		PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011	
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - I	- Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By: OC 29-4-2011	
2021 Level 3 Peak Hour - Reference Case			REFERENCE NO.: Reviewed By: OC 3-5-2011	
$(1) 105 \underbrace{(2)}_{41} \underbrace{(1) 441}_{441} \underbrace{(2)}_{41} \underbrace{(2)}_{4$	2) 34 Siu Sai Wan Rod (1)	N X	No. of stages per cycleN =3Cycle timeC =100 secSum(y)Y =0.202Loss timeL =48 secTotal Flow=1337 pcuCo= (1.5*L+5)/(1-Y)=96.5 secCm= L/(1-Y)=60.2 secYult=0.540R.C.ult= (Yult-Y)/Y*100%=167.2 %Cp=0.9*L/(0.9-Y)=61.9 secYmax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=131.5 %	
$(1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1)$ $(5) \xrightarrow{(3)} (4)$ $(5) \xrightarrow{(4)} (4)$ $(5) \xrightarrow{(5)} (5) \xrightarrow{(4)} (5)$ $(5) \xrightarrow{(5)} (5) \xrightarrow{(5)} (5)$	(2) (2) (2) (2) (2) (2) (2) (2) (3) (2) (4) (5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7			
Move- Stage Lane Phase No. of Radius Opposing Near- ment Width Jane Traffic? side	Straight- Movement Ahead Left [Straight] Right	Total Proportion Sat. F Flow of Turning Flow	Flare lane Share Revised g g Degree of Queue A Length Ettect Sat. Flow y Greater L required (input) Saturation Length	verage Delay
m. m. lane?	Sat. Flow pcu/h pcu/h pcu/h	pcu/h Vehicles pcu/h	m. pcu/hr pcu/h y sec sec sec X (m / lane) (s	econds)
LT/ST A 3.30 1 1 11 y ST A 3.20 1 1 1 y ST A 3.00 1 2 y LT C 3.75 2 1 12 y RT C 3.75 2 1 12 y Ped B 11.00 3 - - - Ped B 6.50 4 - - - Ped B 6.50 5 - - - Image: Comparison of the state of the sta	1945 105 152 2075 289 3970 716 1990 34 2130 41	257 0.41 1843 289 0.00 2075 716 0.00 3970 34 1.00 1769 41 1.00 1893	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	12 12 11 48 49
			NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE	* 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	N Siu Sai Wan Road 5) 5) 5)	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.351Loss timeL =18Total Flow=1027Co= (1.5*L+5)/(1-Y)=49.3Cm= L/(1-Y)Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=29.5Ymax= 1-L/CR.C.(C)= (0.9*Ymax-Y)/Y*100%=112.4	sec pcu sec sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4)$ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (3)$ $(3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2)$ $(4) \xrightarrow{(7)} (4)$ $(5) \xrightarrow{(7)} (4)$ $(5) \xrightarrow{(7)} (4)$ $(5) \xrightarrow{(7)} (4)$ $(7) \xrightarrow$	4) (4) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7		
Move- ment Stage Lane Width Phase No. of Iane Radius Traffic? Opposing Stage Near- Ahead Straight- Left m. m. m. m. Traffic? Side Iane? Sat. Flow Sat. Flow pcu/h	vement Total Proportion Sat. Flare lane S Straight Right Flow of Turning Flow Length E pcu/h pcu/h pcu/h Vehicles pcu/h m. p	Share Revised g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 11 y 1945 13 ST/RT A 3.30 1 1 12 2085 2 13 RT B 3.50 2 1 12 2085 2 2105 2 LT A,B 3.75 3 1 13 y 1990 95 RT C 3.50 4 1 12 2105 2 LT/ST C 3.50 4 1 12 y 1965 301 ST/RT D 3.50 5 1 12 y 1965 301 ST/RT D 3.50 5 1 11 y 1965 3 Ped D,A,B 4.00 6 <	81 94 0.14 1910 86 16 102 0.16 2045 10 10 1.00 1871 95 1.00 1784 118 118 0.01 26 328 0.92 0 206 206 10 1.00 1871 71 74 0.04	1910 0.049 18 12 12 2045 0.050 0.050 12 12 1871 0.005 0.005 1 1 1784 0.053 13 19 1871 0.063 16 46 1762 0.186 0.186 46 1871 0.110 27 27 1954 0.038 9 9	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
	NC	OTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	КС 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 1_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 745 \longrightarrow (1) 730 \longrightarrow (1) $	N ◀┥	No. of stages per cycleN =Cycle timeC =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Total Flow=Co=(1.5*L+5)/(1-Y)=Total Flow=Co=(1.5*L+5)/(1-Y)=Total Flow=Co=(1.5*L+5)/(1-Y)=Total Flow=Co=(1.5*L+5)/(1-Y)=Total Flow=Co=(1.5*L+5)/(1-Y)=Total Flow=Co=(0.9*Ymax-Y)/Y*100%=0.1Notation=Notation <td>sec sec pcu sec sec sec %</td>	sec sec pcu sec sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) $	 ← → (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Moven	nent Total Proportion Sat. Flare lane	e Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	ht Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L required (input)	Saturation Length Delay
ST A 3.50 1 2 y 4070 745 RT A 3.50 1 1 13 2105 745 ST B 3.50 2 2 4210 716 LT B 3.10 2 1 12 y 1925 120 LT C 4.00 3 1 15 y 2015 378 LT/RT C 4.00 3 1 15 2155 163 Ped A 4.50 4 4 4.50 4 4.5 4.5 4.5 4.5 Ped B,C 3.50 5 4.5 4.5 4.5 4.5 4.5 Ped B,C 3.50 7 4.5 4.5 4.5 4.5 Ped A,B 3.50 7 4.5 4.5 4.5 4.5 Ped A,B 3.50 7 4.5 4.5 4.5 4.5 Ped A,B 3.50 7 4.5	745 0.00 4070 730 730 1.00 1887 716 0.00 4210 120 1.00 1711 378 1.00 1832 206 369 1.00 1959	pcdyn pcdyn y sec sec </td <td>0.900 51 42 1.900 96 42 0.900 51 43 0.369 12 32 0.900 60 35 0.822 48 39</td>	0.900 51 42 1.900 96 42 0.900 51 43 0.369 12 32 0.900 60 35 0.822 48 39
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows FILENAME 1_Ref_12_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case	REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 845 53 (1) 845 (1) 845 (No. of stages per cycle $N = 2$ Cycle time $C = 100$ es Sum(y) $Y = 0.451$ Loss time $L = 10$ es Total Flow $= 1785$ g Co $= (1.5*L+5)/(1-Y) = 36.4$ es Cm $= L/(1-Y) = 18.2$ es Yult $= 0.825$ R.C.ult $= (Yult-Y)/Y*100\% = 0.825$ R.C.ult $= (Yult-Y)/Y*100\% = 20.1$ es Ymax $= 1-L/C = 0.900$ R.C.(C) $= (0.9*Ymax-Y)/Y*100\% = 79.5$ es	Sec Sec pcu Sec Sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (5)$ $(2) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$ $(2) \longrightarrow (6)$ $(3) \longrightarrow (6)$		
Move- Stage Lane Phase No. of Radius O N Straight- Mo	ement Total Proportion Sat. Flare lane Share Revised g g	Degree of Queue Average
ment Width lane Ahead Left S	raight Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required (input)	Saturation Length Delay
ST A 3.50 1 2 10 N 4070 ST A 3.50 1 2 10 N 4070 LT B 3.00 2 1 10 N 4070 RT B 3.50 2 1 12 2105 406 Ped B 19.0 3 -	Back in pedrift pedrift int. pedrift pedrift y see see </td <td>0.442 36 11 0.252 21 11 0.460 30 9 0.053 0 10</td>	0.442 36 11 0.252 21 11 0.460 30 9 0.053 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREE	I FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERA	GE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION	CheiMan			INI	ITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road,	Chai Wan	PR FI	CULEUNALE 1 DOF 12 15 16 17 19 16 16	hockod By:	KC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		VS FIL		necked By: eviewed By:	00 29-4-2011
		NE		eviewed by.	00 3-3-2011
(1) 79 (1) 685	eung On Street (4) (4) 307 24 ↓ Chai Wan Road (2) ↓ t	No Cyi Lo: To Co Cr Yu R.C Cp Yrr R.C	D. of stages per cycle rcle time im(y) sstime otal Flow D = (1.5*L+5)/(1-Y) m = L/(1-Y) ilt C.ult = (Yult-Y)/Y*100% D = 0.9*L/(0.9-Y) max = 1-L/C C.(C) = (0.9*Ymax-Y)/Y*100%	N = 4 C = 120 sec Y = 0.264 L = 37 sec = 1929 pcu = 82.2 sec = 0.623 = 135.9 % = 52.3 sec = 0.692 = 135.9 %	
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} (5) \underbrace{(5)}_{(3)} \underbrace{(6)}_{(3)} \underbrace{(6)}_{(3)}$	(5) <> (4) (4) (6) (7)				
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C	I = 6			
Move- ment Stage Lane Width Phase No. of Iane Radius Traffic? Opposing Side Near- Side m. m. m. m. Traffic? side	Straight- Movement Total Proportio Ahead Left Straight Right Flow of Turnin, Sat. Flow pcu/h pcu/h pcu/h vehicles	Sat. Flare lane Share R Flow Length Effect Sa pcu/h m. pcu/hr	Revised at. Flow y Greater L re pcu/h y sec	g g Deg equired (input) Satu sec sec	gree of Queue Average uration Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 Y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT B 3.50 3 1 9 Y LT B 3.50 3 1 9 Y LT/RT D 3.75 4 2 10 Y Ped B,C 4.00 5 - - - Ped B,C 5.00 6 - - - - Ped C 3.00 7 - - - - - Image: Ped C 3.00 7 - - - - - Image: Ped Image: Ped Image: Ped Image: Ped Image: Ped -	6175 79 685 765 0.1 6115 120 638 757 0.1 1965 76 76 1.0 4120 24 307 331 1.0	6096 5997 1684 3583	6096 0.125 22 5997 0.126 0.126 126 1684 0.045 0.045 3583 0.092 0.092 15 15 15 15 15	39 0. 40 0. 14 0. 29 0.	.000 50 54 .000 50 54 .000 12 54 .000 33 54
		NOTES : PE	DESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENG	GTH = AVERAGE QUEUE * 6m

141 C	ro	W Junction Consolity Analysis			Chooked B	<u>.</u>	00
		Junction Capacity Analysis	L		Checked B	y:	00
nction layo De	out ske esign ` T	etch - J1: J/O Cape Collinson Road and Lin Shing Road Year - 2021 Level 3 - Site 1 ime - Level 3 Peak Hour ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS				
				_			
	$\mathcal N$	192 2 8	W ₁ =	(metres)	GEOMETRIC I	PARAN	IETERS
			$W_2 = 6.00$	(metres)	X _A	=	0.922
	I		$W_3 = 3.00$	(metres)	X _B	=	1.039
			$W_4 = 3.00$	(metres)	Xc	=	0.586
		ARMA	W = 6.00	(metres)	X _D	=	0.827
W ₁		W ₃	$W_{cr1} = 0.00$	(metres)	Y	=	0.793
C		Capa	$W_{cr2} = 0.00$	(metres)	Z _B	=	1.005
W _{cr1}		W _{cr2} Collins	$W_{cr} = 0.00$	(metres)	Z _D	=	0.905
		t 0 on					
W ₂		• 0 W ₄ Road	MAJOR ROAD	(ARM A)	THE CAPACIT	Y OF N	IOVEMENT
		• 0 (E)	$W_{a-d} = 3.00$	(metres)	Q _{b-a}	=	619
			Vr _{a-d} = 100	(metres)	Q _{b-c}	=	749
			$q_{a-b} = 0$	(pcu/hr)	Q _{b-d} is nearsion	e =	TRUE
			q _{a-c} = 0	(pcu/hr)	Q _{b-d}	=	611
		2 0 0	$q_{a-d} = 0$	(pcu/hr)	Q _{d-a}	=	674
				(1511.0)	Q _{d-b} is nearsio	e =	TRUE
		ARM B Lin Shing Rd (S)	MAJOR ROAD	(ARM C)	Q _{d-b}	=	533
			VV _{c-b} =	(metres)	Q _{d-c}	=	518
RK: (GEON	IETRIC		Vr _{c-b} =	(metres)	Q _{c-b}	=	437
W	= /		$q_{c-a} = 0$	(pcu/hr)	Q _{a-d}	=	616
VV _{cr}	= /		$q_{c-b} = 0$	(pcu/hr)			
VV a-d	= L	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D	$q_{c-d} = 0$	(pcu/nr)	COMPARISIO	N OF D	ESIGN FLOW
VV _{b-a}	= L						0.000
VV b-c	= L	ANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C		(ARM B)	DFC b-a	=	0.000
VV _{c-b}	= L		$VV_{b-a} = 5.00$	(metres)		=	0.003
VV d-a	= L		$VV_{b-c} = 5.00$	(metres)		=	0.000
VV d-c	= L		$V_{b-a} = 100$	(metres)		-	0.013
VI.	- \	/ISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM R-A	Vr. – 00	(metres)		_	0.004
Vr.	= \	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	0 0	(ncu/hr)		_	0.000
Vr	= \	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{\rm ba} = 21151$	(pcu/hr)		=	0.000
Vrah	= \	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$q_{\rm bd} = 0$	(pcu/hr)	Di C a-d	-	0.000
VIda	= \	ISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	ין טיט –	(,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Critical DF	C =	0.370
Vrdec	= \	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD	(ARM D)			
Vrda	= \	/ISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	$W_{da} = 3.00$	(metres)			
X	= 0	GEOMETRIC PARAMETERS FOR STREAM A-D	$W_{dc} = 3.00$	(metres)			
X _R	= (GEOMETRIC PARAMETERS FOR STREAM B-A	$VI_{d-c} = 50$	(metres)			
Xc	= (GEOMETRIC PARAMETERS FOR STREAM C-B	Vr _{d-c} = 50	(metres)			
Xn	= (GEOMETRIC PARAMETERS FOR STREAM D-C	$Vr_{d-a} = 80$	(metres)			
ZB	= (GEOMETRIC PARAMETERS FOR STREAM B-C	$q_{da} = 8.4602$	(pcu/hr)			
Zn	= (GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d-b} = 2.1151$	(pcu/hr)			
Ň		1.0.0245\M	a <u>101.02</u>	(nou/br)			

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	-	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 176 \longrightarrow 0$ $(1) 176 \longrightarrow 0$ $(1) 176 \longrightarrow 0$ $(2) (2) (2) (2) (1)$ $(1) (1) (1) (1)$ $(2) (2) (2) (2) (2)$	N Van Tsui Road	No. of stages per cycleN =Cycle timeC =12Sum(y)Y =0.47Loss timeL =21Total Flow=107Co= (1.5*L+5)/(1-Y)=R.C.ult= (Yult-Y)/Y*100%=40.00Cp= 0.9*L/(0.9-Y)=Standard=1-L/C=9.01=(0.9*Ymax-Y)/Y*100%=49.02	2 20 sec 8 5 sec 76 pcu 4 sec 9 sec 3 0 % 3 sec 2 0 %
(1)	(4)		
Move- ment Stage Lane Phase No. of Radius O N Straight- Ahead Movem Left Straight- Straight m. m. m. Sat. Flow pcu/h pcu/h pcu/h	ent Total Proportion Sat. Fla t Right Flow of Turning Flow I pcu/h pcu/h Vehicles pcu/h	are lane Share Revised g g Length Effect Sat. Flow y Greater L required (input) m. pcu/hr pcu/h y sec sec sec	Degree of Saturation Queue Average X (m / lane) (seconds)
ST A 3.00 1 1 N 1915 176	176 0.00 1915	1915 0.092 5 18 95	0.116 6 2
ST/LT A 4.00 1 1 10 N 2015 421 480	900 0.47 1883	1883 0.478 0.478 95 95	0.604 36 3
Ped B 6.0 3		20	
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAI	N WALKING SPEED = 1.2m/s QUEUING LENGTH = AVE	RAGE QUEUE * 6m

Kalcro	Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development a	at Prepared By:	КС
	Junction Capacity Analysis		Checked By:	00
Junction layout sk Design	ketch - J3: J/O Cape Collinson Road and Lin Shing Road Year - 2021 Level 3 - Site 1 Time - Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAM	IETERS
N W ₁ O Road (N)	ARM B Cape Collinson Road	W_1 =3.90 (metres) W_2 =3.90 (metres) W_3 =4.80 (metres) W_4 =4.50 (metres) W =8.55 (metres) W_{cr1} =0.00 (metres) W_{cr2} =0.00 (metres) W_{cr} =0.00 (metres)	D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂	∠ 259 ¥4 ARM C	MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 414.55$ (pcu/hr) MAJOR ROAD (ARM C)	THE CAPACITY OF N $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$	40VEMENT 636 708 300
		$W_{cb} = 4.50 \text{ (metres)}$	TO CAPACITY	ESIGN FLOW
REMARK: (GEOMETRIC W = W _{cr} =	C INPUT DATA) AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 259.09$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	DFC _{b-a} = DFC _{b-c} = DFC _{c-b} =	0.612 0.003 0.000
$W_{b-a} = W_{b-c} = W_{c-b} = V_{c-b} = V_{b-a} = V_{rb-a} = V_{rb-a} = V_{rb-c} = V_{rc-b} = U_{rc-b} = E_{c-c-b} = E_{c-c-b} = E_{c-c-b} = E_{c-c-b} = E_{c-c-b-c-b} = E_{c-c-b-c-b-c-b-c-b-c-c-b-c-b-c-c-b-c-c-b-c$	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W)	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 3.80(metres) $V_{b-a} =$ 100(metres) $Vr_{b-a} =$ 100(metres) $Vr_{b-c} =$ 100(metres) $Vr_{b-c} =$ 183.31(pcu/hr) $q_{b-c} =$ 2.1151(pcu/hr)	Critical DFC =	0.612
attic Impact Assessment				Page <u>3 of</u>

			ROUNDABOU	Γ CAPACITY AS	SSESSM	ENT			INITIALS	DATE
TIA St	tudy fo	r Columbarium Development at Cape Collinson Road				PROJECT NO.: 80510		PREPARED BY:	KC	Sep-1
Juncti	on 4: C	Chai Wan Road Roundabout	J4LV3 Peak He	our	ľ	FILENAME: LV3_Sen1_S1_J2_J	J5_J6_J7	7_J8.X03HECKED BY:	OC	Sep-1
J4LV3	8 Peak	Hour			-			REVIEWED BY:	OC	Sep-1
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		(ARM D)			Ν	995.19575	5			
		Island Easter Corrig	dor		*					
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Chai V	Nan Ro	oad 🔶 🖌		L		0	0			
(ARM	1 C)	()		(ARM A)	1405.99	848 O	0	1224.57	1018.87	
				Chan Wan Road	(ARM C)	0	0		(ARM A)	
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		I	L L							
			,							
		Wan Tsui Road				212.56345	5			
		Wan Tsui Road (ARM B)				212.56345 (ARM)	5 B)			
		Wan Tsui Road (ARM B)				212.56345 (ARM I	5 B)			
ARM		Wan Tsui Road (ARM B)	АВС	D		212.56345 (ARM I	5 B)			
ARM		Wan Tsui Road (ARM B)	A B C	D		212.56345 (ARM I	5 B)			
ARM INPU1	Γ PAR/	Wan Tsui Road (ARM B) 	A B C	D		212.56345 (ARM I	5 B)			
ARM INPUT	Γ PAR/	Wan Tsui Road (ARM B) AMETERS:	A B C	D		212.56345 (ARM I	5 B)			
ARM INPUT V	Γ PAR/ = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m)	A B C	7.00 7.00		212.56345 (ARM I	5 B)			
ARM INPUT V E	Γ PAR/ = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00	D 7.00 7.00 6.00		212.56345 (ARM I	5 B)			
ARM INPUT V E L R	Γ PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00	D 7.00 7.00 6.00 25.00		212.56345 (ARM I	5 B)			
ARM INPUT V E L R	Γ PARA = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00	7.00 7.00 6.00 25.00 50.00		212.56345 (ARM I	5 B)			
ARM INPUT E L R D A	Γ PAR/ = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry anole (degree)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 30.00	D 7.00 7.00 6.00 25.00 50.00 30.00		212.56345 (ARM I	5 B)			
ARM INPUT V E L R D A D	Γ PAR/ = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406	D 7.00 7.00 6.00 25.00 50.00 30.00 995		212.56345 (ARM	5 B)			
ARM INPUT V E L R D A Q Q	Γ PAR/ = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077		212.56345 (ARM	5 B)			
ARM INPUT V E L L R D A A Q Q C	Γ PAR/ = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077		212.56345 (ARM	5 B)			
ARM INPUT V E L R D A Q Q C	Γ PAR/ = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077		212.56345 (ARM	5 B)			
ARM INPUT E L R D A Q Q Q C OUTP	Г РАК/ = = = = = = = -	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077		212.56345 (ARM	5 B)			
ARM INPUT E L R D A Q Q C OUTP S V	Г РАК/ = = = = = = = = -	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) .RAMETERS: Sharpness of flare = 1.6(E-V)/L 1 0.00247(A 20) 0.076(4/B 0.06)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077		212.56345 (ARM	5 B)			
ARM INPUT V E L R D A A Q Q C OUTP S K	Γ PAR/ = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848 0.53 0.96 0.80 1.02 0.97 1.00	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077 0.00 1.01 7.00		212.56345 (ARM	5 B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M	Γ PAR/ = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP(/C-E0)(40)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077 0.00 1.01 7.00 0.37		212.56345 (ARM	5 B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F	Γ PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 203*20	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077 0.00 1.01 7.00 0.37 2121		212.56345 (ARM	5 B)			
ARM INPUT V E L R D A Q C OUTP S K X2 M F T	Γ PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077 0.00 1.01 7.00 0.37 2121 1.37		212.56345 (ARM	5 B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F Td E	Γ PAR/ = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.24174(1.0.21Y2)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471 1.37 1.37 0.37	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077 0.00 1.01 7.00 0.37 2121 1.37 0.60		212.56345 (ARM)	5 <u>B)</u>			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Q	Γ PAR <i>J</i> = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K/(E Es*Co)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471 1.37 1.37 1.37 0.74 0.58 0.75	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077 0.00 1.01 7.00 0.37 2121 1.37 0.69 1202		212.56345 (ARM	5 <u>B)</u>		PCIL	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Q e	Γ PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471 1.37 1.37 1.37 0.74 0.58 0.75	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077 0.00 1.01 7.00 0.37 2121 1.37 0.69 1393		212.56345 (ARM	5 <u>B)</u>	2853.32	PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F Td F C Qe	Γ PAR <i>J</i> = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) KRAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C 7.00 4.00 7.00 9.00 7.00 10.00 6.00 5.00 6.00 40.00 15.00 40.00 50.00 50.00 50.00 30.00 35.00 36.00 1019 213 1406 1225 1262 848 0.53 0.96 0.80 1.02 0.97 1.00 7.97 5.03 8.15 0.37 0.37 0.37 2414 1523 2471 1.37 1.37 1.37 0.74 0.58 0.75 1540 771 1837	D 7.00 7.00 6.00 25.00 50.00 30.00 995 1077 0.00 1.01 7.00 0.37 2121 1.37 0.69 1393		212.56345 (ARM 1	5 <u>B)</u>	2853.32	PCU	

TRAFFIC SIGNAL CALCULATION						INITIALS	DATE	
TIA Study for Columbarium Development at Cape Collinson Rc	oad, Chai Wan			PROJECT NO.: CTLDQS	Prepared By:	КС	29-4-2011	
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 -	- Peak Hour Traffic Flows		FILENAME ::1_S1_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011	
2021 Level 3 Peak Hour - Site 1				REFERENCE NO.:	Reviewed By:	OC	3-5-2011	
(3) 265 (3) 41 (3) 41 (2) 5 (2) ((1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	408 (1) 599 (2) Nai Wan Road	N 🔀		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = (1.5*L+5)/(1-Y) Cm = L/(1-Y) Yult R.C.ult = (Yult-Y)/Y*100% Cp = 0.9*L/(0.9-Y) Ymax = 1-L/C R.C.(C) = (0.9*Ymax-Y)/Y*100%	$\begin{array}{cccc} N = & 2 \\ C = & 100 \\ Y = & 0.232 \\ L = & 10 \\ = & 1582 \\ = & 26.1 \\ = & 13.0 \\ = & 0.825 \\ = & 254.9 \\ = & 13.5 \\ = & 0.900 \\ = & 248.5 \end{array}$	sec pcu sec sec % sec %		
$(4) \downarrow \qquad (5) \qquad (6) \qquad (6$	(6)							
Stage A I = 7 Stage B I =	5							
Move- ment Vidth M. Phase No. of Radius Opposing Ne Iane M. Traffic? Si m.	ear- Straight- Movement side Ahead Left Straight Right ne? Sat. Flow pcu/h pcu/h pcu/h	TotalProportionSat.Flowof TurningFlowpcu/hVehiclespcu/h	Flare lane Share Length Effect m. pcu/hr	Revised Sat. Flow y Greater L pcu/h y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Ave Length De (m / lane) (sec	erage elay conds
LT A 3.75 1 2 22 LT A 4.00 2 2 24 RT A 3.50 2 2 11 ST B 3.50 3 2 13 RT B 4.50 4 13 Ped A 4.50 5 14 Ped B 4.50 6 14 Image: Ped B 4.50 6 14	y 4120 408 599 y 4070 265 599 y 4070 265 41	408 1.00 3857 268 1.00 4056 599 1.00 3582 265 0.00 4070 41 1.00 3828		10 3857 0.106 4056 0.066 3582 0.167 0.167 4070 0.065 0.065 3828 0.011	41 65 26 65 65 65 25 25 4 25	0.163 0.102 0.258 0.258 0.043	9 5 6 5 15 5 15 2 0 2	5 5 24 25
			NOTES :	PEDESTRAIN WALKING SPEED = 1.2m	n/s QUEUING	LENGTH = A	VERAGE QUEUE *	* 6m

TRAFFIC SIGNAL CALCULATION			ATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS	Prepared By: KC 29-4	1-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows FILENAME 11 S1 J2 J5 J6 J7 J8.xls	Checked By: OC 29-4	1-2011
2021 Level 3 Peak Hour - Site 1	REFERENCE NO.:	Reviewed By: OC 3-5-7	2011
Harmony Road (1) 105 (1) 449 (1)	N N N N N N N N N N N N N O Siu Sai Wan Road N N N N N N N N N N N N N	N = 3 C = 100 sec Y = 0.205 L = 48 sec = 1356 pcu = 96.8 sec = 0.540 = 163.5 % = 62.1 sec = 0.520 = 128.4 %	
$(1) \longrightarrow (2)$ $(1) \longrightarrow (1)$ $(1) \longrightarrow (1)$ $(5) \longrightarrow (4)$ (4) (2) $(5) \longrightarrow (4)$ $(5) $	(2) → 1= 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- N ment Width lane Traffic? side Ahead Left m. m. lane m. lane? Sat. Flow pcu/h	ovement Total Proportion Sat. Flare lane Share Revised Straight Right Flow of Turning Flow Length Effect Sat. Flow y Greater L r pcu/h pcu/h vehicles pcu/h m. pcu/hr pcu/h v sec	g g Degree of Qu required (input) Saturation Ler sec sec X (m/	ueue Average ngth Delay (Jane) (seconds)
LT/ST A 3.30 1 1 11 11 y 1945 105 ST A 3.20 1 1 1 1 2075 y 3970 LT C 3.75 2 1 12 y 1990 34 RT C 3.75 2 1 12 y 1990 34 Ped B 11.00 3 - - - - - 100 34 Ped B 6.50 4 -	152 257 0.41 1843 1843 0.139 28 297 297 0.00 2075 2075 0.143 3970 0.183 0.122 0.022 0.022 0.022 0.022 0.022 20 </td <td>35 46 0.300 1 36 46 0.308 2 46 46 0.394 3 5 6 0.346 0 6 6 0.394 0</td> <td>18 12 24 12 30 11 0 48 6 49</td>	35 46 0.300 1 36 46 0.308 2 46 46 0.394 3 5 6 0.346 0 6 6 0.394 0	18 12 24 12 30 11 0 48 6 49
	NOTES : PEDESTRAIN WALKING SPEED = 1.2m/	s QUEUING LENGTH = AVERA	GE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1711/2 Deak Hour Traffic Flows	FILENAME 21 S1 12 JE JE JE JE VIC Chacked By:	KC 29-4-2011
2021 Lovel 2 Deak Hour Site 1	J7LV3 - Peak Hour Traffic Flows	FILENAME: 11_S1_J2_J5_J6_J7_J8.XIS CHECKED BY:	00 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	00 3-5-2011
Bus Terminal $(1) 13 \qquad (4) (4) \qquad (4) \qquad (1) \qquad (1)$	N X	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.351Loss timeL =18Total Flow=1027Co= (1.5*L+5)/(1-Y)=Qm= L/(1-Y)=27.7Yult=0.765R.C.ult= (Yult-Y)/Y*100%=117.9Cp=0.9*L/(0.9-Y)=29.5Ymax=1-L/C=0.829R.C.(C)=(0.9*Ymax-Y)/Y*100%=	sec pcu sec sec % sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (3) (2)$ $(3) \xrightarrow{(3)} (3) = 5 \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (6)		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lane Sha	are Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straigh	Right Flow of Turning Flow Length Effe	rect Sat. Flow y Greater L required (input)	Saturation Length Delay
LT/ST A 3.30 1 1 111 y 1945 13 81 ST/RT A 3.30 1 1 11 12 2085 86 RT B 3.50 2 1 12 2105 86 LT A,B 3.75 3 1 13 y 1990 95 RT C 3.50 4 1 12 2105 12 LT/ST C 3.50 4 1 12 2105 12 LT/ST C 3.50 5 1 112 2105 12 LT/ST D 3.50 5 1 112 2105 12 LT/ST D 3.50 5 1 11 y 1965 301 26 ST/RT D 3.50 5 1 11 y 1965 3 71 Ped D,A,B 4.00 6 Integee Integee Integee Integee Integee Integee	94 0.14 1910 16 102 0.16 2045 10 10 1.00 1871 95 1.00 1784 118 118 0.01 1871 328 0.92 1762 206 206 1.00 1871 74 0.04 1954	Ann Party y set set <td>0.417 12 40 0.424 12 40 0.424 0 99 0.301 12 32 0.144 6 14 0.424 30 14 0.424 6 45</td>	0.417 12 40 0.424 12 40 0.424 0 99 0.301 12 32 0.144 6 14 0.424 30 14 0.424 6 45
	NOTE	ES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepare	ed By: KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME n1_S1_J2_J5_J6_J7_J8.xls Checke	ed By: OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Review	/ed By: OC 3-5-2011
$(1) & 801 \\ (1) & 730 \\ (1) & 730 \\ (1) & 730 \\ (1) & 730 \\ (1) & 730 \\ (1) & 730 \\ (1) & 768 \\ (2) & 768 \\ (3) & 131 \\ (3) & 768 \\ (3) $	N ◀↓ Chai Wan Road	No. of stages per cycle N Cycle time C Sum(y) Y Loss time L Total Flow C Co = (1.5*L+5)/(1-Y) Cm = L/(1-Y) Yult R.C.ult R.C.ult = (Yult-Y)/Y*100% Cp = 0.9*L/(0.9-Y) Ymax = 1-L/C R.C.(C) = (0.9*Ymax-Y)/Y*100%	= 3 = 105 sec = 0.756 = 18 sec = 3150 pcu = 131.4 sec = 73.9 sec = 0.765 = 1.1 % = 112.8 sec = 0.829 = -1.4 %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (3) \qquad (3)$ Stage A I = 7 Stage B I = 8 Stage C	 ← → (6) 1 = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Move	ment Total Proportion Sat. Fla	re lane Share Revised g	g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Stra m. m. lane? Sat. Flow pcu/h pci	ght Right Flow of Turning Flow Le i/h pcu/h pcu/h Vehicles pcu/h	ength Effect Sat. Flow y Greater L require m. pcu/hr pcu/h y sec sec	d (input) Saturation Length Delay sec X (m / lane) (seconds)
ST A 3.75 1 2 y 4120 8 RT A 3.00 1 1 13 2055 4210 7 LT B 3.10 2 1 12 y 1925 131 LT C 4.00 3 1 15 y 2015 372 LT/RT C 4.00 3 1 15 y 2015 372 LT/RT C 4.00 3 1 15 y 2155 142 Ped A 4.50 4 y 1255 142 Ped B,C 3.50 5 y 15 142 Ped B,B 3.50 7 y 140 y 141 Ped A,B 3.50 7 y 140 y 141	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4120 0.194 18 4120 0.194 22 1842 0.396 0.396 4210 0.182 0.182 1711 0.076 9 1832 0.203 23 1959 0.178 0.178	22 0.913 54 42 22 1.861 96 41 21 0.913 54 43 21 0.382 18 31 23 0.913 60 35 23 0.799 42 38
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m

Valo	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at								
11410		Junction Capacity Analysis		Checked By:	00				
Junction layo	out sketch - esign Year - Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road · 2021 Level 3 - Site 1 Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAM	NETERS				
W ₁ Chai Wan Road W _{cr1} (E)	9 0 1 484	ARM B Wan Tsui Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D E = F = Y =	0.675 1.109 0.993 0.320				
ARM A W ₂			MAJOR ROAD (ARM A) $q_{a-b} = \frac{89.89}{484.41}$ (pcu/hr) $q_{a-c} = \frac{484.41}{484.41}$ (pcu/hr)	THE CAPACITY OF I	MOVEMENT 759 673 353				
			MAJOR ROAD (ARM C) W _{c-b} = 3.30 (metres)	COMPARISION OF E	DESIGN FLOW				
REMARK: (GEOM	IETRIC INPUT	DATA)	Vr _{c-b} = 150 (metres)	DFC _{b-a} =	0.559				
W W _{cr}	= AVERA = AVERA	GE MAJOR ROAD WIDTH GE CENTRAL RESERVE WIDTH	q _{c-a} = <mark>768.88</mark> (pcu/hr) q _{c-b} = <mark>160.74</mark> (pcu/hr)	DFC _{b-c} = DFC _{c-b} =	0.479 0.239				
W b-a W c-b W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	= LANE V = LANE V = LANE V = VISIBIL = VISIBIL = VISIBIL = VISIBIL = GEOME = GEOME = GEOME	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B ITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.559				
ctober 2007	sment Report	· · · · · · · · · · · · · · · · · · ·			Page 9 of				

TIA Study for Columbarium Development at Cape Collinson Road. Chai Wan		PROJECT NO CTI DOS Prepared By:	KC 29-4-2011
110: Junction of Chai Wan Boad and San Ha Street	110I V3 - Peak Hour Traffic Flows	FILENAME 11 S1 12 15 16 17 18 xls Checked By:	0C 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 868 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.525Loss timeL =10Total Flow=1940Co= (1.5*L+5)/(1-Y)=42.1Cm= L/(1-Y)Yult=0.825R.C.ult= (Yult-Y)/Y*100%=ST.1Cp= 0.9*L/(0.9-Y)Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=54.3	sec sec sec sec sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ (2) (2) (2) (2) (2) (3)			
Move- Stage Lane Phase No. of Radius O N Straight- Movem	ent Total Proportion Sat. Flare lane Share	e Revised g g	Degree of Queue Average
ment Width lane Ahead Left Straigh	Right Flow of Turning Flow Length Effect	ct Sat. Flow y Greater L required (input)	Saturation Length Delay
ST A 3.50 1 2 10 N 4070 868 ST A 3.50 1 2 10 N 4070 868 ST A 3.50 1 2 10 N 4070 \$500 LT B 3.00 2 1 10 N 1915 519 RT B 3.50 2 1 12 2105 519 Ped B 19.0 3 -	Bodyn Dodyn Dodyn Inc. Dodyn 868 0.00 4070 500 0.00 4070 519 1.00 1665 53 53 1.00 1871	4070 0.213 0.213 10 4070 0.123 21 47 1665 0.312 0.312 53 53 1871 0.028 5 53 53	0.454 36 11 0.261 21 11 0.588 36 9 0.053 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPE	EED = 1.2m/s QUEUING LENGTH = AVER/	AGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road. Chai V	Wan	PROJECT NO CTI DOS Prepared By: KC 29-4-2011	
111: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	1111V3 - Peak Hour Traffic Flows	FILENAME 11 S1 12 15 16 17 18 xls Checked By: OC 29-4-2011	
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011	
(1) 79 - (4) 30 (4) (1) 685 - - - - - - - - -	On Street (4) (4) 107 24 Chai Wan Road (2) (2)	No. of stages per cycleN =4Cycle timeC =120 secSum(y)Y =0.264Loss timeL =37 secTotal Flow=1929 pcuCo= (1.5*L+5)/(1-Y)=82.2 secCm= L/(1-Y)=50.3 secYult=0.623R.C.ult= (Yult-Y)/Y*100%=135.9 %Cp= 0.9*L/(0.9-Y)=52.3 secYmax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=135.9 %	
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (3)$	(5) <> (4) (4) (6) (4) (4) (4) (4) (4) (5) (5) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7		
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Aher m. Iane m. Traffic? side Aher	aight- Movement Total Proportion Sat. Flare lan nead Left Straight Right Flow of Turning Flow Length . Flow pcu/h pcu/h pcu/h Vehicles pcu/h m.	e Share Revised Ettect Sat. Flow y Greater L required (input) Saturation Length pcu/hr pcu/h y sec sec sec X (m / Iane)	Average Delay (seconds)
LT/ST A 3.50 1 3 12 y 617 LT/ST A 3.30 2 3 12 Y 611 LT B 3.50 3 1 9 Y 196 LT/RT D 3.75 4 2 10 y 412 Ped B,C 4.00 5 5 10 y 412 Ped B,C 5.00 6 6 6 7 10	175 79 685 765 0.10 6096 115 120 638 757 0.16 5997 965 76 76 1.00 1684 120 24 307 331 1.00 3583	6096 0.125 39 0.000 50 5997 0.126 0.126 40 0.000 50 1684 0.045 14 0.000 12 3583 0.092 0.92 29 0.000 33 115	54 54 54 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUE	UE * 6m

Appendix B6

2021 Sensitivity Test 2 Peak Hour Junction Assessment Calculation Sheets

Agreement No. CPM301_15/10 - Traffic Impact A	ssessment	Study For Columbarium Development at	C Prepared By:	КС
Junction Capacity Analysis			Checked By:	00
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 1 - Reference Case Time - Level 1 Peak Hour ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS		
ar				FTEDO
y 331 3 338		$W_1 = (metres)$		EIEKS
		$W_2 = 0.00$ (metres)	× =	0.922
		$W_3 = 3.00$ (metree)	∧ _B =	1.039
		$W_4 = 3.00$ (metres)	× =	0.500
10/		W = 0.00 (metres)	×D =	0.027
	3	$W_{cr1} = 0.00$ (metres)	7	0.795
ARM C Cape M	Cape	$vv_{cr2} = 0.00$ (metres)	Δ _B =	1.005
	Collins	$vv_{cr} = 0.00$ (metres)	∠ _D =	0.905
	on			
Road v_2 -1 v_2	4 Road			
	(E)	$vv_{a-d} = 3.00$ (metres)	Q _{b-a} =	496
		$Vr_{a-d} = 100$ (metres)	Q _{b-c} =	749
		$q_{a-b} = 0$ (pcu/hr)	Q b-d is nearside =	IRUE
		$q_{a-c} = 1.269 (pcu/hr)$	Q _{b-d} =	607
34 301 24		$q_{a-d} = 12.421 (pcu/hr)$	Q _{d-a} =	674
			Q_{d-b} is nearside =	IRUE
ARM B Lin Shing Rd (S)		MAJOR ROAD (ARM C)	Q _{d-b} =	527
		W _{c-b} = (metres)	Q _{d-c} =	431
EMARK: (GEOMETRIC INPUT DATA)		Vr _{c-b} = (metres)	Q _{c-b} =	440
W = AVERAGE MAJOR ROAD WIDTH		q _{c·a} = 0 (pcu/hr)	Q _{a-d} =	616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH		$q_{c-b} = 0$ (pcu/hr)		
W _{a-d} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D		q _{c-d} = 0 (pcu/hr)	COMPARISION OF D	ESIGN FLOW
W_{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A			TO CAPACITY	
W _{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C		MINOR ROAD (ARM B)	DFC _{b-a} =	0.049
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B		W _{b-a} = 5.00 (metres)	DFC _{b-c} =	0.045
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A		W _{b-c} = 5.00 (metres)	DFC _{b-d} =	0.496
W_{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C		VI _{b-a} = 100 (metres)	DFC _{d-a} =	0.501
Vr a-d = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-E	D	Vr _{b-a} = 65 (metres)	DFC _{d-b} =	0.005
VI _{b-a} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A		Vr _{b-c} = 0 (metres)	DFC _{d-c} =	0.769
Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-4	4	q _{b-a} = <mark>24.112</mark> (pcu/hr)	DFC _{c-b} =	0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-0	C	q _{b-c} = <mark>34</mark> (pcu/hr)	DFC _{a-d} =	0.020
Vr_{c-b} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-	В	q _{b-d} = <mark>301.26</mark> (pcu/hr)		
VI d-c = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C			Critical DFC =	0.769
Vr_{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-(C	MINOR ROAD (ARM D)		
Vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	A	W _{d-a} = 3.00 (metres)		
X _A = GEOMETRIC PARAMETERS FOR STREAM A-D		$W_{d-c} = 3.00$ (metres)		
X _B = GEOMETRIC PARAMETERS FOR STREAM B-A		VI _{d-c} = 50 (metres)		
X _C = GEOMETRIC PARAMETERS FOR STREAM C-B		Vr _{d-c} = 50 (metres)		
X _D = GEOMETRIC PARAMETERS FOR STREAM D-C		Vr _{d-a} = 80 (metres)		
Z _B = GEOMETRIC PARAMETERS FOR STREAM B-C		q _{d-a} = <u>338</u> (pcu/hr)		
Z_D = GEOMETRIC PARAMETERS FOR STREAM D-A		$q_{d-b} = 3$ (pcu/hr)		
Y = (1-0.0345W)		$q_{d-c} = 331$ (pcu/hr)		

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TRAFFIC SI	GNAL CA	LCULAT	ON			0.11	<u> </u>	a									DDD	-	071555			_	INITIALS	DATE	
TIA Stud	y for Col	umbariu	m Deve	lopment	at Cape	e Collinsoi	n Road,	Chai Wan			121.24	Dealett	In Traffic Flags				PROJECT N	0.:	CTLDQS	101	Prepared	Ву:	KC	29-4-2011	
Junction	of Lin St	hing Koa	a and W	an Isui	коаа						JZLV1 ·	Реак Но	ur Traffic Flows				FILENAME	2_Ret_J2	_12_16_17	_J&'XI2	Checked	BA:		29-4-2011	
2021 Lev	и треа	K HOUr -	Refere	nce case	2												REFERENC	E NU.:			Reviewed	і Ву:	UL	3-5-2011	
					(1)	445 = 0 = 65 (2)	239 (2)	Lin Shing	— 336 - 814 Road	(1)		Wan Tsui	N 🔨				No. of stag Cycle time Sum(y) Loss time Total Flow Co Cm Yult R.C.ult Cp Ymax R.C.(C)	es per cy = (1.5*L- = L/(1-Y) = (Yult-Y = 0.9*L/ = 1-L/C = (0.9*Y	cle +5)/(1-Y))/Y*100% (0.9-Y) max-Y)/Y*	100%	N = C = L = = = = = =	2 120 0.631 25 1596 115.3 67.8 0.713 12.8 83.8 0.792 12.8	sec pcu sec sec % sec %		
(1) -	► ▼	 ↓ = 	7	Sta	ge B			(3)	1 e C	•	(4)														
Move- ment	Stage	Lane Width m.	Phase	No. of Iane	Radius m.	0	N	Straight- Ahead Sat. Flow	N Left pcu/h	loveme Straight pcu/h	nt Right pcu/h	Total Flow pcu/h	Proportion of Turning Vehicles	Sat. Flow pcu/h	Flare lane Length m.	e Share Effect pcu/hr	Revised Sat. Flow pcu/h	У	Greater y	L sec	g required sec	g (input) sec	Degree of Saturation X	Queue Length (m / lane)	Average Delay (seconds
																				5		a -			-
ST	A	3.00	1	1			N	1915		445		445	0.00	1915			1915	0.233			35	95	0.294	18	2
ST/LT	А	4.00	1	1	10		N	2015	814	336		1150	0.71	1822			1822	0.631	0.631		95	95	0.798	42	5
								_													-				-
Ped	В	6.0	3																	20					
NOTE :	NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m																								

Kal	C KOW	Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Developmer	nt at Prepared By: KC				
11010		Junction Capacity Analysis		Checked By:				
Junction lay E	rout sketch - Design Year Time -	- J3: J/O Cape Collinson Road and Lin Shing Road - 2021 Level 1 - Reference Case - Level 1 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS				
N W ₁ Shek O Road (N)	0 212	W ₃ Shek W ₀ W ₀ (S)	W_1 = 3.90 (metres) W_2 = 3.90 (metres) W_3 = 4.80 (metres) W_4 = 4.50 (metres) W = 8.55 (metres) W_{cr1} = 0.00 (metres) W_{cr2} = 0.00 (metres) W_{cr2} = 0.00 (metres) W_{cr} = 0.00 (metres)	E = 0.996 F = 1.109 Y = 0.705				
ARM A W ₂		∠ 218 W ₄ ARM C	MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 212$ (pcu/hr) MAJOR ROAD (ARM C) W = 4.50 (metres)	THE CAPACITY OF MOVEMENT $Q_{b-c} = 688$ $Q_{c-b} = 766$ $Q_{b-a} = 336$ COMPARISION OF DESIGN FLOW				
REMARK: (GEO	METRIC INPU	T DATA)	$Vr_{c-b} = 150$ (metres)	$DFC_{b-a} = 0.925$				
W W _{cr}	= AVERA = AVERA	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$q_{c-a} = 218 (pcu/hr)$ $q_{c-b} = 0 (pcu/hr)$	$DFC_{b-c} = 0.018$ $DFC_{c-b} = 0.000$				
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F Y	 LANE LANE LANE VISIBI VISIBI VISIBI VISIBI GEOM GEOM GEOM GEOM GEOM GEOM 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B ULITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A ULITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A ULITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C ULITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B METRIC PARAMETERS FOR STREAM B-C METRIC PARAMETERS FOR STREAM B-A METRIC PARAMETERS FOR STREAM B-A METRIC PARAMETERS FOR STREAM C-B	MINOR ROAD(ARM B) $W_{b-a} =$ 0.00(metres) $W_{b-c} =$ 3.80(metres) $VI_{b-a} =$ 100(metres) $Vr_{b-a} =$ 100(metres) $Vr_{b-c} =$ 100(metres) $q_{b-a} =$ 311(pcu/hr) $q_{b-c} =$ 12(pcu/hr)	Critical DFC = 0.925				
			ROUNDABOUT CAPACITY A	SSESSM	ENI		INITIALS	DATE
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TIA S	tudy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-
Juncti	on 4: C	Chai Wan Road Roundabout	J4LV1 Peak Hour		FILENAME_LV1_Sen2_Ref_J2_J5_J6_J	7_J8. CHECKED BY:	OC	Sep-
J4LV1	l Peak	Hour				REVIEWED BY:	OC	Sep-
					(ARM D)			
		(ARM D)		Ν	1245.6682			
		Island Easter Corri	dor	*				
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Chai \	Nan R	bad 🚽			0 0			
(ARN	1 C)		(ARM A)	1498.08	1275 O O	1362.5	1126.65	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
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		Wan Tsui Road			708.52016			
		Wan Tsui Road (ARM B)			708.52016 (ARM B)			
		Wan Tsui Road (ARM B)			708.52016 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		708.52016 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		708.52016 (ARM B)			
ARM	T PAR	Wan Tsui Road (ARM B) AMETERS:	A B C D		708.52016 (ARM B)			
ARM INPU ⁻	T PARA	Wan Tsui Road (ARM B) AMETERS:	A B C D		708.52016 (ARM B)			
ARM NPU ⁻	T PAR/ = _	Wan Tsui Road (ARM B) AMETERS: Approach half width (m)	A B C D		708.52016 (ARM B)			
ARM NPU ⁻	T PAR, = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		708.52016 (ARM B)			
ARM NPU ⁻	T PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00		708.52016 (ARM B)			
ARM NPU ⁻	T PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		708.52016 (ARM B)			
ARM NPU ⁻ Z	Γ PAR, = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00		708.52016 (ARM B)			
ARM NPU ⁻ - - - - - - - - - - - - - - - - - -	T PAR/ = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (ocu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1127 709 1498 1246		708.52016 (ARM B)			
4RM NPU ⁻ - - - - 2 2 2	T PAR/ = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1127 709 1498 1246 1362 982 1275 1307		708.52016 (ARM B)			
ARM INPU ^T V E L R D A Q Q Q c	T PAR/ = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1127 709 1498 1246 1362 982 1275 1307		708.52016 (ARM B)			
ARM NPU ^T V E L R R D A Q Q Q C	T PAR/ = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1127 709 1498 1246 1362 982 1275 1307		708.52016 (ARM B)			
ARM NPU ^T E L R D D A Q Q Q C OUTFP	T PAR/ = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307		708.52016 (ARM B)			
ARM NPU ⁻ - - R D A Q Q Q C UTF S	T PAR/ = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1 0.00247(A 20) 0.078(4/E 0.02)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307		708.52016 (ARM B)			
ARM NPU ⁻ V E - - R D D Q Q Q Q D UTF S S K	T PAR/ = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		708.52016 (ARM B)			
ARM NPU ⁻ V E - - R D D A Q Q Q C D UTF S S K X2 M	T PARJ = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP(/D_60)(40)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		708.52016 (ARM B)			
ARM NPU ^T / = - - R D D C UTF S S K X2 M =	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 2032Y2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2424		708.52016 (ARM B)			
ARM NPU ^T V E L R D A Q Q C OUTF S K X2 M F T	T PAR/ = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 4.(0.6(/1.1M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 1.37		708.52016 (ARM B)			
ARM NPU ^T V E L R D A Q Q C OUTF S K X2 M F T d	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.27		708.52016 (ARM B)			
ARM INPU ^T V E L R D A Q Q C UTF S S K Z V I T I C I C	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69		708.52016 (ARM B)			
ARM INPU ⁻ V E L R D A Q Q C JUTF S S K Z Q C I I I G I C I Q C	T PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1435 926 1515 1233		Total In Sum =	3282.95	PCU	
ARM NPU ⁻ V E L R D A Q Q C UTP S K2 W = Fd -c Qe	T PARJ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1127 709 1498 1246 1362 982 1275 1307 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1435 926 1515 1233		Total In Sum =	3282.95	PCU	

			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road	d, Chai Wan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	Wing Tai Road 598 (1) Wan Road	No. of stages per cycleN =Cycle timeC =Sum(y)Y =0.3Loss timeL =Total Flow=22Co= $(1.5*L+5)/(1-Y)$ Cm= $(1/(1-Y))$ Yult=No. cl=Yult=0.8R.C.ultCp=0.9*L/(0.9-Y)=Ymax=1-L/C=0.9R.C.(C)=(0.9*Ymax-Y)/Y*100%=126	2 .00 sec 58 10 sec 137 pcu 2 sec 6 sec 25 2 % 6 sec 00 0 %
(4) (4) (3) (3) (3) (6) (6) (6) (6)			
Move- ment Stage Lane Phase No. of Radius Opposing Near Width m. Iane m. Traffic? side m.	In- Straight- e Movement Total Proportion Sat. e Ahead Left Straight Right Flow of Turning Flow e? Sat. Flow pcu/h pcu/h pcu/h Vehicles pcu/h	Flare lane Share Revised g g g g g g g input g g g g g g input input <th< td=""><td>t) Degree of Queue Average Saturation Length Delay X (m / lane) (seconds</td></th<>	t) Degree of Queue Average Saturation Length Delay X (m / lane) (seconds
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 4 1 1 y Ped A 4.50 5 1 1 1 Ped B 4.50 6 1 1 1 Image: Ped ima	4120 598 598 1.00 3857 4310 312 312 1.00 4056 4070 928 928 1.00 3582 4070 405 405 0.00 4070 4270 95 95 1.00 3828 100 405 405 0.00 4070 4270 95 95 1.00 3828	3857 0.155 39 65 4056 0.077 19 65 3582 0.259 0.259 65 65 4070 0.099 0.099 25 25 3828 0.025 6 25	0.238 15 5 0.118 9 5 0.398 27 5 0.398 24 24 0.100 3 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUI	NG LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	N Siu Sai Wan Road	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.310Loss timeL =48Total Flow=1952Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=90.6Yult=0.540R.C.ult=(Yult-Y)/Y*100%=70.2Ymax=1-L/C90.520R.C.(C)=(0.9*Ymax-Y)/Y*100%=51.0	sec pcu sec sec % sec %
$(1) \xrightarrow{(1)} (1) (1)$	2)		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- N	vement Total Proportion Sat. Flare lane Share	e Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left m. lane? Sat. Flow pcu/h	traight Right Flow of Turning Flow Length Effect	t Sat. Flow y Greater L required (input) r pcu/h v sec sec sec	Saturation Length Delay X (m / Jane) (seconds)
LT/ST A 3.30 1 1 11 11 y 1945 164 ST A 3.20 1 1 1 1 2075 164 ST A 3.00 1 2 y 3970 164 LT C 3.75 2 1 12 y 1990 87 RT C 3.75 2 1 12 y 1990 87 Ped B 11.00 3 - - - - 130 Ped B 6.50 4 -<	152 316 0.52 1817 438 438 0.00 2075 1004 1004 0.00 3970 87 1.00 1769 108 108 1.00 1893	1817 0.174 28 2075 0.211 35 42 3970 0.253 0.253 42 42 1769 0.049 8 10 10 1893 0.057 0.057 10 10	0.410 30 14 0.497 36 14 0.596 48 13 0.513 12 45 0.596 12 48
	NOTES :	: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION		INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By: KC	29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME 2 Ref J2 J5 J6 J7 J8.xls Checked By: OC	29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By: OC	3-5-2011
2021 Level 1 Peak Hour - Reference Case Bus Terminal (1) 60 (1) 178 (1) 132 (1)	Siu Sai Wan Road (5) (5) (5)	REFERENCE NO.: Reviewed By: OC No. of stages per cycle N = 4 Cycle time C = 105 sec Sum(y) Y = 0.474 Loss time L = 18 sec Total Flow = 1666 pcu Co = (1.5*L+5)/(1-Y) = 60.8 sec Cm = L/(1-Y) = 34.2 sec Yult = 0.765 R.C.ult = (Yult-Y)/Y*100% = 61.6 % Cp = 0.9*L/(0.9-Y) = 38.0 sec Ymax = 1-L/C = 0.829 R.C.(C) = (0.9*Ymax-Y)/Y*100% = 57.5 %	3-5-2011
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4)$ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (4) (5) (5) (5) (5) (5) (5) (5) (5) (5) (5		
	Maxament Tatal Depending Cat Flag		0
ment Width Width Iane m. Traffic? Side Ahead Lar m. Iane? Sat. Flow pcc	Straight Right Flow of Turning Flow Lei h pcu/h pcu/h pcu/h pcu/h Vehicles pcu/h i	m. pcu/hr pcu/h y Greater L required (input) Saturation pcu/hr pcu/h y sec sec sec X	Length Delay (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 60 ST/RT A 3.30 1 1 12 2085 2055<	81 141 0.43 1838 97 132 228 0.58 1945 35 35 1.00 1871 185 1.00 1784 229 229 1.00 1871 100 354 0.72 1803 0 233 233 1.00 1871 139 260 0.47 1848	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$	18 30 30 32 6 78 18 23 24 19 36 20 30 31 30 28
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AV	'ERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 880 \longrightarrow (1) 463 \longrightarrow (1) $	N 🚽	No. of stages per cycleN =Cycle timeC =11Sum(y)Y =0.68Loss timeL =1Total Flow=30Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.76R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=9.5	3 05 sec 3 8 sec 38 pcu 0 sec 8 sec 55 0 % 7 sec 9 2 %
$(1) \longrightarrow (5) \longrightarrow (5)$ $(4) \longrightarrow (7) \longrightarrow (2)$ (3)	 ← → (6) = 6 		
Move- ment Vidth Phase No. of Radius Opposing Near- Traffic? Side Lane Ahead Left Straight-	nent Total Proportion Sat. Flare lane ht Right Flow of Turning Flow Length	Share Revised g g Effect Sat. Flow y Greater L required (input	Degree of Queue Average Saturation Length Delay
ST A 3.50 1 2 m. namer Sat. How pcu/n pcu/n pcu/n ST A 3.50 1 2 y 4070 880 RT A 3.50 1 1 13 2105 674 ST B 3.10 2 1 12 y 1925 69 LT C 4.00 3 1 15 y 2015 509 LT/RT C 4.00 3 1 15 2155 163 Ped A 4.50 4 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 4 Ped B,C 3.50 7 4 4 4 4 4 4 4 4 4 Ped A,B 3.50 7 4 4 4 4	n pcu/n pcu/n venicies pcu/n m. 0 880 0.00 4070 463 463 1.00 1887 463 463 1.00 4210 69 1.00 1711 509 1.00 1832 281 444 1.00 1959	pcu/m pcu/m y sec sec </td <td>x (m / tane) (seconds) 0.824 54 27 0.936 78 33 0.824 45 35 0.206 6 31 0.824 54 27 0.673 48 21</td>	x (m / tane) (seconds) 0.824 54 27 0.936 78 33 0.824 45 35 0.206 6 31 0.824 54 27 0.673 48 21
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUIN	IG LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION TIA Study for Columbarium Development at Cano Collinson Boad, Chai Wan			INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	1101 V1 - Peak Hour Traffic Flows	FILENAME 2 Ref. 12 15 16 17 18 vis Charled By:	00 29-4-2011
2021 Level 1 Peak Hour - Reference Case		REFERENCE NO : Reviewed By:	00 3-5-2011
		Reference from free free from free free free free free free free fre	00 332011
$(1) 1240 \longrightarrow \\ 28 \longrightarrow \\ 681 (1) $	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.572Loss timeL =10Total Flow=2394Co= (1.5*L+5)/(1-Y)=46.7Cm= L/(1-Y)Cm= L/(1-Y)=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=44.2Cp= 0.9*L/(0.9-Y)=Zmax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=41.6	sec pcu sec sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$	=		
Move Stage Lane Dhase No of Badivel O I N Straight Movem	ant Total Dranartian Sat Flara and Sh	have Devised	Degree of Queue Average
ment Width lane m. Stalgtr- Moven Angel Lane Moven Moven Angel Lane Moven Angel Lane Angel Lane Angel Lane Stalgtr- Moven Angel Lane Stalgtr- Moven Angel Lane Angel Lane Stalgtr- Moven Angel Lane An	t Right Flow of Turning Flow Length Eff n pcu/h pcu/h Vehicles pcu/h m. pcu	red Sat. Flow y Greater L required (input) ru/hr pcu/h y sec sec sec	Saturation Length Delay X (m / lane) (seconds)
ST A 3.50 1 2 10 N 4070 1240 ST A 3.50 1 2 10 N 4070 681 LT B 3.00 2 1 10 N 1915 445 RT B 3.50 2 1 12 N 2105 445 Ped B 19.0 3 -	1240 0.00 4070 681 0.00 4070 445 1.00 1665 28 28 1.00 1871	4070 0.305 0.305 48 47 4070 0.167 26 47 1665 0.267 0.267 42 53 1871 0.015 2 53	0.648 54 10 0.356 30 11 0.505 30 9 0.028 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING S	SPEED = 1.2m/s QUEUING LENGTH = AVER/	AGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			ALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Ch	hai Wan	FILENAME & Def. 12, 15, 16, 12, 19, 14, Checker & Bit	29-4-2011
J11: Junction of Chai Wan Road, Sneung On Street & Wing Ping Street		FILENAME 2_REF_J2_J5_J6_J7_J8.XIS Checked By: O	C 29-4-2011
		REFERENCE NO Reviewed By. O	C 3-3-2011
(1) 114 (1) 1135 (1) 1135 (1) 1135 (1) 1135 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	Ing On Street (4) (4) 406 25 Chai Wan Road 936 (2) 176 (2)	No. of stages per cycleN =4Cycle timeC =120 secSum(y)Y =0.349Loss timeL =37 secTotal Flow=2833 pcuCo= (1.5*L+5)/(1-Y)=92.9 secCm= L/(1-Y)Cm= L/(1-Y)=7ult=0.623R.C.ult= (Yult-Y)/Y*100%=7max= 1-L/C=9max= 1-L/C=9max= 1-L/C=7max= 1-L/C=7max= 3.3 %	
$(1) \longrightarrow (5) \longleftarrow (6)$ $(1) \longrightarrow (2)$ (3)	(5) <> (4) (4) (6) (6) (7)		
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side S m. Iane m. Traffic? side Iane? S	Straight- Movement Total Proportion Sat. Flare Ahead Left Straight Right Flow of Turning Flow Len Sat. Flow pcu/h pcu/h pcu/h Vehicles pcu/h m	lane Share Revised gth Effect Sat. Flow y Greater L required (input) Satur i. pcu/hr pcu/h y sec sec sec X	ee of Queue Average ation Length Delay (m / lane) (seconds)
LT/ST A 3.50 1 3 12 Y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT/RT D 3.75 4 2 10 Y Ped B,C 4.00 5 Ped B,C 5.00 6 Ped C 3.00 7	6175 114 1135 1249 0.09 6105 6115 176 936 1112 0.16 5996 1965 41 41 1.00 1684 4120 25 406 431 1.00 3583	6105 0.205 0.205 49 0.00 5996 0.185 44 0.00 1684 0.024 0.024 6 0.00 3583 0.120 0.120 29 0.00 15 15 15 15 15 15	00 82 54 00 74 54 00 6 54 00 42 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGT	H = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact A	ssessmen	it Study For Columparium Developmen	a Prepared By:	NU
Junction Capacity Analysis			Checked By:	00
unction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 1 - Site 1 Time - Level 1 Peak Hour ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS		
N 342 3 360		$W_1 = (metres)$	GEOMETRIC PARAM	ETERS
		$W_2 = 6.00 \text{ (metres)}$	X _A =	0.922
		$W_3 = 3.00 \text{ (metres)}$	X _B =	1.039
		$W_4 = 3.00 \text{ (metres)}$	X _C =	0.586
	ARM A	W = 6.00 (metres)	X _D =	0.827
W ₁ W ₃		$VV_{cr1} = 0.00$ (metres)	Y =	0.793
	Cape	$VV_{cr2} = 0.00$ (metres)	∠ _B =	1.005
s W _{cr1} W _{cr2}	Collins	$VV_{cr} = 0.00$ (metres)	∠ _D =	0.905
	on			
	Road			
	(二)	$V_{a-d} = 3.00$ (netres)	Q _{b-a} =	407
		$v_{1_{a-d}} = 100$ (netters)	$Q_{b-c} =$	
		$q_{a-b} = 000 (pcu/hr)$		607
36 321 24		$q_{a-c} = 13.421$ (pcu/hr)		674
50 521 24		$q_{a-d} = 10.421 (pcu/m)$	O is nearside –	
ARM B Lin Shina Rd (S)		MAJOR ROAD (ARM C)		526
		$W_{ab} = (metres)$	Q do =	426
RK: (GEOMETRIC INPUT DATA)		Vr _{eb} = (metres)	Q =	440
W = AVERAGE MAJOR ROAD WIDTH		$q_{\alpha\beta} = 0$ (pcu/hr)	Q and =	616
W ~ = AVERAGE CENTRAL RESERVE WIDTH		$q_{ch} = 0$ (pcu/hr)	a-u	
W and = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D		$q_{cd} = 0$ (pcu/hr)	COMPARISION OF DI	ESIGN FLOW
W b-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A			TO CAPACITY	
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C		MINOR ROAD (ARM B)	DFC _{b-a} =	0.050
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B		W _{b-a} = 5.00 (metres)	DFC b-c =	0.048
W d-a = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A		$W_{b-c} = 5.00$ (metres)	DFC b-d =	0.528
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C		VI _{b-a} = 100 (metres)	DFC _{d-a} =	0.534
Vr a-d = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D		Vr _{b-a} = 65 (metres)	DFC _{d-b} =	0.006
VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A		Vr _{b-c} = 0 (metres)	DFC _{d-c} =	0.803
Vr _{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A		q _{b-a} = 24.112 (pcu/hr)	DFC _{c-b} =	0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	I	q _{b-c} = <mark>35.726</mark> (pcu/hr)	DFC a-d =	0.022
Vr_{cb} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	I	q _{b-d} = <mark>320.6</mark> (pcu/hr)		
VI_{d-c} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	I		Critical DFC =	0.803
Vr _{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C		MINOR ROAD (ARM D)		
Vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	I	W _{d-a} = 3.00 (metres)		
X _A = GEOMETRIC PARAMETERS FOR STREAM A-D	I	W _{d-c} = 3.00 (metres)		
X_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A	I	VI _{d-c} = 50 (metres)		
$X_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B		$Vr_{d-c} = 50$ (metres)		
X _D = GEOMETRIC PARAMETERS FOR STREAM D-C		Vr _{d-a} = 80 (metres)		
Z_B = GEOMETRIC PARAMETERS FOR STREAM B-C		$q_{d-a} = 360.26$ (pcu/hr)		
Z_D = GEOMETRIC PARAMETERS FOR STREAM D-A		$q_{d-b} = 2.929 (pcu/hr)$		
Y = (1-0.0345W)		q _{d-c} = <u>341.8</u> (pcu/hr)		

TIA Study for Columbarium Development at Cape Collinson Road, C	Chai Wan	PROJECT NO.: CTLDQS Prepared By: GK 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By: KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC 3-5-2011
$(1) 445 \longrightarrow 0$	Wan Tsui Road 336 (1) Lin Shing Road	No. of stages per cycleN =2Cycle timeC =120 secSum(y)Y =0.650Loss timeL =25 secTotal Flow=1629 pcuCo= (1.5*L+5)/(1-Y)=Yult=0.713R.C.ult= (Yult-Y)/Y*100%=9.6%Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=Ymax= 1-L/C=9.6%
(1) _	(3) ↓ (4) ↓	
Move- Stage Lane Phase No. of Radius O N ment Width lane	Straight- Movement Total Proportion Sat. Ahead Left Straight Right Flow of Turning Flow	-lare lane Share Revised y Greater L g g Degree of Queue Averag Length Effect Sat. Flow y Greater L required (input) Saturation Length Delay
m. m.	Sat. Flow pcu/h pcu/h pcu/h pcu/h Vehicles pcu/h	m. pcu/nr pcu/h y sec sec sec X (m / lane) (second
ST A 3.00 1 1 N	1915 445 445 0.00 1915	1915 0.233 34 95 0.294 18 2
ST/LT A 4.00 1 1 10 N	2015 847 336 1183 0.72 1820	1820 0.650 0.650 95 95 0.822 48 6
Ped B 6.0 3 NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE 5	SG - STEADY GREEN FG - FLASHING GREEN PEDESTRA	IN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m

Kali	Agreement No. CPM301_15/10 - Traffic Impact Assess	ment Study For Columbarium Development a	Prepared By: KC
	Junction Capacity Analysis		Checked By: OC
Junction lay D	out sketch - J3: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 1 - Site 1 Time - Level 1 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
N Shek O Road (N)	ARM B Cape Collinson Road		D 0.626 E = 0.996 F = 1.109 Y = 0.705
ARM A W ₂	∠ 218 W ₄ (2)	MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 211.93$ (pcu/hr)	THE CAPACITY OF MOVEMENT Q_{b-c} =688 Q_{c-b} =766 Q_{b-a} =336
		MAJOR ROAD (ARM C) W _{c-b} = 4.50 (metres)	COMPARISION OF DESIGN FLOW TO CAPACITY
REMARK: (GEON W W _{cr}	METRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH = AVERAGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 218.27$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	$\begin{array}{rcl} {\sf DFC}_{{\rm b}{\text{-}a}} & = & 0.961 \\ {\sf DFC}_{{\rm b}{\text{-}c}} & = & 0.019 \\ {\sf DFC}_{{\rm c}{\text{-}b}} & = & 0.000 \end{array}$
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1.0.0345W) 	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC = 0.961
affic Impact ^r Asses ctober 2007	ssment Report		Page 3 of

			ROUNDABOUT CAPAC	ITY ASSESSMEN	NT		INITIALS	DATE
TIA S	tudy fo	r Columbarium Development at Cape Collinson Road		PR	OJECT NO.: 80510	PREPARED BY:	КС	Sep-1
Junct	on 4: (Chai Wan Road Roundabout	∃4LV1 Peak Hour	FIL	ENAMe: LV1_Sen2_S1_J2_J5_J6	J7_J8.X03HECKED BY:	OC	Sep-
J4LV [.]	Peak	Hour				REVIEWED BY:	OC	Sep-7
					(ARM D)			
		(ARM D)		Ν	1269.7935			
		Island Easter Corr	dor					
		4						
		[16] 534	[1] [2] [3] [4]	<u> </u>	1319			
			15 238 670 238	1	0.0			
					000			
					0 0			
					0 0			
Chai	Nan R	oad			0 0			
(ARN	I C)		(ARM A)	1507.21	1298 O C) 1394.11	1138.67	
			Chan Wan Roa	ad (ARM C)	0 0		(ARM A)	
		\mathbf{i}	14 [5]		0 0			
			↑		0 0			
			570 [6]		0.0			
		25 227 220 44			000			
		25 367 320 11	4 152 [7]		993			
		[12] [11] [10] [9]	403 [8]					
			*					
		Wan Tsui Road	l		724.53852			
		Wan Tsui Road (ARM B)			724.53852 (ARM B)			
		Wan Tsui Road (ARM B)			724.53852 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		724.53852 (ARM B)			
ARM	Γ PAR	Wan Tsui Road (ARM B) AMETERS:	A B C D		724.53852 (ARM B)			
ARM	ΓPAR	Wan Tsui Road (ARM B) AMETERS:	A B C D		724.53852 (ARM B)			
ARM INPU	Γ PAR, =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m)	A B C D		724.53852 (ARM B)			
ARM INPU V	Γ PAR. = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		724.53852 (ARM B)			
ARM INPU V E	Γ PAR, = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		724.53852 (ARM B)			
ARM INPU V E L R	Γ PAR, = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		724.53852 (ARM B)			
ARM INPU E L R	Γ PAR, = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 50.00		724.53852 (ARM B)			
ARM INPU E L R D A	Γ PAR. = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00		724.53852 (ARM B)			
ARM INPU V E L R D A Q	Γ PAR = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1139 725 1507 1270		724.53852 (ARM B)			
ARM INPU V E L R D A Q Q	Γ PAR = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1139 725 1507 1270 1394 993 1298 1319		724.53852 (ARM B)			
ARM INPU V E L R D A Q Q c	Γ PAR. = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Entry radius (m) Inscribed circle diameter (m) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1139 725 1507 1270 1394 993 1298 1319 1394 1394 1394		724.53852 (ARM B)			
ARM INPU V E L R D A Q Q C	Γ PAR. = = = = = = = = -	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1139 725 1507 1270 1394 993 1298 1319 1319 1319 1319		724.53852 (ARM B)			
ARM INPU V E L R D A Q Q C OUTF S	Γ PAR. = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1139 725 1507 1270 1394 993 1298 1319		724.53852 (ARM B)			
ARM INPU V E L R R D A Q Q C OUTF S K	Γ PAR. = = = = = = = = - = - = - - - 	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1139 725 1507 1270 1394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		724.53852 (ARM B)			
ARM INPU V E L R D A Q Q C OUTF S K X2	Γ PAR, = = = = = = = = - - 	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1139 725 1507 1270 1394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		724.53852 (ARM B)			
ARM NPU V E L R D A Q Q C OUTF S K X2 M	Γ PAR. = = = = = = = = - - - - - - - - - - -	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1139 725 1507 1270 1394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		724.53852 (ARM B)			
ARM INPU V E L R D A Q C OUTF S K X2 M F	Γ PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1139 725 1507 1270 1394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121		724.53852 (ARM B)			
ARM INPU V E L R D A Q C OUTF S K X2 M F Td	T PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry adius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1139 725 1507 1270 1394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37		724.53852 (ARM B)			
ARM INPU V E L R D A Q Q C OUTF S K X2 M F T d F C	T PAR, = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 11394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69		724.53852 (ARM B)			
ARM INPU V E L R D A Q Q C OUTF S K X2 M F Td Fc Qe	r PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 11394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1411 920 1497 1225	Tot	224.53852 (ARM B)	3341.11	PCU	
ARM INPU V E L R D A Q Q C OUTF S K X2 M F Td Fc Qe	T PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1139 725 1507 1270 1394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1411 920 1497 1225	Tot	224.53852 (ARM B)	3341.11	PCU	
ARM INPU V E L R D A Q Q C OUTFF S K X2 M F Td Fc Qe	T PAR. = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1139 725 1507 1270 1394 993 1298 1319 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.74 0.74 0.58 0.75 0.69 1411 920 1497 1225	Tot	al In Sum =		PCU	

TRAFFIC SIGNAL CALCULATION					INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road,	, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	GK	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV1 - Peak Hour Traffic Flows		FILENAME n2_S1_J2_J5_J6_J7_J8.xls	Checked By:	КС	29-4-2011
2021 Ching Ming Peak Hour - Site 1			REFERENCE NO.:	Reviewed By:	OC	3-5-2011
(3) 409 (3) 95 (3) 95 (2) (2) (2) (2) (1) (2) (2) (2) (1) (2) (2) (2) (2) (3) (3) (3) (3) (3) (3) (3) (3) (3) (3	Wing Tai Road		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	$\begin{array}{cccc} N = & 2 \\ C = & 100 \\ Y = & 0.360 \\ L = & 10 \\ = & 2346 \\ = & 31.2 \\ = & 15.6 \\ = & 0.825 \\ = & 129.4 \\ = & 16.7 \\ = & 0.900 \\ = & 125.2 \end{array}$	sec pcu sec sec % sec %	
(4) (4) (5) (5) (6) (6) (6) (6)						
Move- ment Stage Lane Phase No. of Radius Opposing Near- Width M. Iane m. Traffic? side Iane?	Straight- Movement Total Proportion Ahead Left Straight Right Flow of Turning 2 Sat. Flow pcu/h pcu/h pcu/h Vehicles I	at. Flare lane Share ow Length Ettect u/h m. pcu/h	re Revised ct Sat. Flow y Greater L hr pcu/h y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Avera Length Dela (m / lane) (seco
LT A 3.75 1 2 22 y LT A 4.00 2 2 24 y RT A 3.50 2 2 11 y ST B 3.50 3 2 y y RT B 4.50 3 2 13 y Ped A 4.50 5 - - - Ped B 4.50 6 - - - - Ped B 4.50 6 - - - - -	4120 598 598 1.00 4310 316 316 1.00 4070 928 928 1.00 4070 409 409 0.00 4270 95 95 1.00	57 56 82 70 28	3857 0.155 4056 0.078 3582 0.259 4070 0.100 3828 0.025	39 65 19 65 65 65 25 25 6 25	0.239 0.120 0.400 0.400 0.099	15 5 9 5 27 5 24 24 3 25
		NOTES	: PEDESTRAIN WALKING SPEED = 1.2n	n/s QUEUING	LENGTH = A	VERAGE QUEUE * (

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	÷	PROJECT NO.: CTLDQS Prepared By:	GK 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	N 🤸 ai Wan Road	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.310Loss timeL =48Total Flow=1954Co= (1.5*L+5)/(1-Y)=Total Flow=0.540Yult=0.540R.C.ult= (Yult-Y)/Y*100%=70Cp=0.9*L/(0.9-Y)Tmax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=50.8	sec pcu sec sec sec %
$(1) \xrightarrow{(1)} (2) (2)$ $(1) \xrightarrow{(1)} (5) \xrightarrow{(1)} (4)$ $(2) (2) (2)$ $(4) \xrightarrow{(1)} (5) \xrightarrow{(1)} (4)$ $(5) \xrightarrow{(1)} (2) (2)$ $(5) \xrightarrow{(1)} (4)$ $(5) \xrightarrow{(1)} (2) (2)$ $(5) \xrightarrow{(1)} (2)$	= 6		
Move Stage Lane Dhase No of Badive events Near Straight Move	pont Total Droportion Sat Flaro land Charo		
ment Width lane Traffic? side Ahead Left Straight	ht Right Flow of Turning Flow Length Effect	t Sat. Flow y Greater L required (input) r pcu/h y sec sec sec	Saturation Length Delay
LT/ST A 3.30 1 1 11 11 Y 1945 164 15 ST A 3.20 1 1 1 1 Y 1945 164 15 ST A 3.00 1 2 Y 3970 100 LT C 3.75 2 1 12 Y 1990 87 RT C 3.75 2 1 12 Y 1990 87 Ped B 6.50 4 -	316 0.52 1817 438 0.00 2075 5 1005 0.00 87 1.00 1769 108 1.00 1893	1817 0.174 28 29 42 2075 0.211 35 42 3970 0.253 0.253 42 42 1769 0.049 8 10 10 1893 0.057 0.057 10 10 10	0.410 30 14 0.498 42 14 0.597 48 13 0.514 12 45 0.597 12 48
	NOTES :	: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

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TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	GK 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal $(1) \ 60 \ (1) \ 178 \ (1) \ 132 \ (1) \ 132 \ (1) \ 132 \ (1) \ 132 \ (1) \ 132 \ (1) \ 135 \ 35 \ (3) \ (2) \ (2) \ (3) \ (2) \ (5) \ (3) \ (2) \ (5) \ (3) \ (2) \ (5) \ (3) \ (2) \ (5) $	N ××	No. of stages per cycleN =ACycle timeC =100Sum(y)Y =0.474Loss timeL =18Total Flow=166Co=(1.5*L+5)/(1-Y)=GoalCm=L/(1-Y)Yult=0.765R.C.ult=(Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)=Ymax=1-L/C=0.9*Ymax-Y)/Y*100%=57.5	1 5 sec 5 pcu sec sec 5 sec 5 sec
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) (4)$ $(1) \xrightarrow{(1)} (3) (2)$ $(3) \xrightarrow{(3)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	$(4) \qquad (6) \\ (5) \\ (5) \\ (5) \\ (5) \\ (5) \\ (6) \\ (6) \\ (7) $		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Straight- Ahead Move- Left m. m. m. m. Traffic? side Ahead Left Straight- Sat. Flow pcu/h	ment Total Proportion Sat. Flare lane ght Right Flow of Turning Flow Length /h pcu/h pcu/h Vehicles pcu/h m.	e Share Revised Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds
LT/ST A 3.30 1 1 11 y 1945 60 8 ST/RT A 3.30 1 1 11 12 2085 9 RT B 3.50 2 1 12 2105 9 LT A,B 3.75 3 1 13 y 1990 185 RT C 3.50 4 1 12 2105 9 LT/ST C 3.50 4 1 12 2105 185 LT/ST C 3.50 5 1 12 2105 19 ST/RT D 3.50 5 1 12 2105 11 ST/ST D 3.50 5 1 11 y 1965 121 13 Ped D,A,B 4.00 6 9 9 1965 121 13 Ped B,C 4.00 <t< td=""><td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td><td>18 18 18 14 22 1945 0.117 0.117 22 22 1871 0.019 0.019 3 3 1784 0.104 19 30 1871 0.123 23 36 1803 0.196 0.196 36 36 1871 0.125 23 23 18 1848 0.141 0.141 26 26</td><td>0.373 18 30 0.572 30 32 0.572 6 78 0.362 18 23 0.357 24 19 0.572 36 20 0.572 30 31 0.572 30 28</td></t<>	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	18 18 18 14 22 1945 0.117 0.117 22 22 1871 0.019 0.019 3 3 1784 0.104 19 30 1871 0.123 23 36 1803 0.196 0.196 36 36 1871 0.125 23 23 18 1848 0.141 0.141 26 26	0.373 18 30 0.572 30 32 0.572 6 78 0.362 18 23 0.357 24 19 0.572 36 20 0.572 30 31 0.572 30 28
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	; LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	GK 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV1 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) & 898 \\ (1) & 463 \\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	N ◀–	No. of stages per cycleN =Cycle timeC =Sum(y)Y = 0Loss timeL =Total Flow=Co= $(1.5*L+5)/(1-Y)$ =Cm= $L/(1-Y)$ =Yult=R.C.ult= $(Yult-Y)/Y*100\%$ =Cp= $0.9*L/(0.9-Y)$ =Ymax= $1-L/C$ =QR.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =	3 105 sec .706 18 sec 3071 pcu 08.9 sec 61.3 sec .765 8.3 % 83.6 sec .829 5.6 %
$(1) \longrightarrow (5) (5) (5) (7) (2) (3)$	 ← → (6) = 6 		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Straight- Mover ment Width Iane Traffic? side Ahead Left Straight- straight- m. m. m. m. Sat. Flow pcu/h pcu/h	ent Total Proportion Sat. Flare lane it Right Flow of Turning Flow Length h pcu/h pcu/h Vehicles pcu/h m.	e Share Revised g g Effect Sat. Flow y Greater L required (ing pcu/hr pcu/h y sec sec se	y Degree of Queue Average Dut) Saturation Length Delay C X (m / lane) (seconds
ST A 3.75 1 2 y 4120 898 RT A 3.00 1 1 13 2055 4210 680 ST B 3.50 2 2 4210 680 680 LT B 3.10 2 1 12 y 1925 70 LT C 4.00 3 1 15 y 2015 538 LT/RT C 4.00 3 1 15 2155 142 Ped A 4.50 4 4 4.50 4	463 463 1.00 4120 463 463 1.00 1842 680 0.00 4210 70 1.00 1711 538 1.00 1832 281 423 1.00 1959	4120 0.218 18 4120 0.218 27 2 1842 0.251 0.251 31 2 4210 0.161 0.161 20 2 1711 0.041 5 2 1832 0.293 0.293 36 3 1959 0.216 27 3	7 0.852 57 39 7 0.984 204 33 0 0.852 48 43 0 0.215 6 31 6 0.852 60 27 6 0.627 48 20
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEL	JING LENGTH = AVERAGE QUEUE * 6m

Kale	NUN	Agreement No. CPM301_15/10 - Traffic Impact Assessm	nent Study For Columbarium Development a	t Prepared By:	KC
		Junction Capacity Analysis		Checked By:	00
Junction layo	out sketch - esign Year Time -	 J9: Junciton of Chai Wan Road and Wan Tsui Road 2021 Level 1 - Site 1 Level 1 Peak Hour 	GEOMETRIC DETAILS	GEOMETRIC PARAM	NETERS
W ₁ Chai Wan Road W _{cr1} (E)	↓	ARM B Wan Tsui Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂		$4 632 \mathbf{W}_4 \mathbf{K} \mathbf{K} \mathbf{W}_4 \mathbf{K} \mathbf{W}_4 \mathbf{K} \mathbf{W}_4 \mathbf{K} \mathbf{K} \mathbf{W}_4 \mathbf{K} \mathbf{K} \mathbf$	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF I Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 781 692 357
			MAJOR ROAD (ARM C) W _{c-b} = <mark>3.30</mark> (metres)	COMPARISION OF E	DESIGN FLOW
REMARK: (GEON	METRIC INPUT	T DATA)	Vr _{c-b} = 150 (metres)	DFC _{b-a} =	0.107
W W _{cr}	= AVERA = AVERA	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	q _{c-a} = 632.31 (pcu/hr) q _{c-b} = 308.38 (pcu/hr)	DFC _{b-c} = DFC _{c-b} =	0.415 0.446
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F	= LANE \ = LANE \ = LANE \ = VISIBIL = VISIBIL = VISIBIL = VISIBIL = GEOM = GEOM = GEOM	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B WIETRIC PARAMETERS FOR STREAM B-C LETRIC PARAMETERS FOR STREAM B-A LITY CARAMETERS FOR STREAM C-B WIETRIC PARAMETERS FOR STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.446
ctober 2007	sinent Keport				Page 9 of

TRAFFIC SIGNAL CALCULATION TIA Study for Columbarium Development at Cane Collinson Road, Chai Wan		INITIALS DATE
110: Junction of Chai Wan Road and San Ha Street	I101V1 - Peak Hour Traffic Flows FILENAME 12 ST 12 IS 16 IT 18 xls Checked	I By: KC 29-4-2011
2021 Ching Ming Peak Hour - Site 1	REFERENCE NO.: Reviewer	ed By: OC 3-5-2011
$(1) 1245 \longrightarrow \\ 28 \qquad \checkmark \qquad $	N No. of stages per cycle N = Cycle time C = Sum(y) Y = Loss time L = Total Flow = Co = $(1.5*L+5)/(1-Y)$ = Cm = $L/(1-Y)$ = Yult = R.C.ult = $(Yult-Y)/Y*100\%$ = Cp = $0.9*L/(0.9-Y)$ = Ymax = $1-L/C$ = R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$ =	2 100 sec 0.578 10 sec 2411 pcu 47.4 sec 23.7 sec 0.825 42.7 % 27.9 sec 0.900 40.2 %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$		
Move- Stage Lane Phase No. of Radius O. N. Straight- Movem	ent Total Proportion Sat Flare lane Share Revised	g Degree of Queue Average
ment Width lane Ahead Left Straigh	Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required	(input) Saturation Length Delay
ST A 3.50 1 2 10 N 4070 1245 ST A 3.50 1 2 10 N 4070 685 LT B 3.00 2 1 10 N 1915 453 RT B 3.50 2 1 12 2105 1453 Ped B 19.0 3 1245 1453 1453 Ped A 8.0 4 1 10 1453	pcu/n ycu/n 1245 0.000 4070 0.168 0.306 0.306 0.306 142 26 28 28 1.00 1871 1871 0.015 142 2 2 28 28 1.00	sec X (m / lane) (seconds) 47 0.651 54 10 47 0.358 30 11 53 0.514 30 9 53 0.028 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENG	GTH = AVERAGE QUEUE * 6m

TIA Study for Columbarium Development at Cape Collinson Road	l Chai Wan	PROJECT NO · CTLDOS Prepared By: Gk	ALS DATE (29-4-2011
J11: Junction of Chai Wan Road. Sheung On Street & Wing Ping St	Street J11LV1 - Peak Hour Traffic Flows	FILENAME 12 S1 J2 J5 J6 J7 J8 xls Checked Bv: KC	29-4-2011
2021 Ching Ming Peak Hour - Site 1		REFERENCE NO.: Reviewed By: OC	3-5-2011
Sh (1) 114 (1) 1135 (1) 1135 (1) 1135 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	heung On Street $\begin{pmatrix} (4) & (4) \\ 406 & 25 \\ \hline & & \\ \hline \hline & & \\ \hline \hline & & \\ \hline & & \\ \hline & & \\ \hline \hline & & \\ \hline \hline \\ \hline & & \\ \hline \hline & & \\ \hline \hline \\ \hline & & \\ \hline \hline \\ \hline & & \\ \hline \hline \\ \hline \hline \\ \hline \\$	No. of stages per cycleN =4Cycle timeC =120 secSum(y)Y =0.349Loss timeL =37 secTotal Flow=2833 pcuCo= (1.5*L+5)/(1-Y)=92.9 secCm= L/(1-Y)Cm= L/(1-Y)=92.9 secCm=Yult=0.623R.C.ult= (Yult-Y)/Y*100%=7Max= 1-L/C=Ymax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=78.3 %	
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (3)$	$(5) \leftarrow \cdots \leftarrow (6) \qquad (4) (4) \qquad (4$		
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side m. Iane Traffic? side Iane? Traffic? side	- Straight- Movement Total Proportion Sat. Flare I Ahead Left Straight Right Flow of Turning Flow Leng ? Sat. Flow pcu/h pcu/h pcu/h Vehicles pcu/h m.	lane Share Revised th Ettect Sat. Flow y Greater L required (input) Satura pcu/hr pcu/h y sec sec sec X	e of Queue Average tion Length Delay (m / lane) (seconds)
LT/ST A 3.50 1 3 12 Y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT/RT D 3.75 4 2 10 Y Ped B,C 4.00 5 Ped B,C 5.00 6 Ped C 3.00 7 I	6175 114 1135 1249 0.09 6105 6115 176 936 1112 0.16 5996 1965 41 41 1.00 1684 4120 25 406 431 1.00 3583	6105 0.205 0.205 49 0.00 5996 0.185 44 0.00 1684 0.024 0.024 6 0.00 3583 0.120 0.120 29 0.00 15 15 15 15 15 15	0 82 54 0 74 54 0 6 54 0 42 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH	H = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment	t Study For Columbarium Development at	C Prepared By:	КС
Junction Capacity Analysis		Checked By:	00
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 2 - Reference Case Time - Level 2 Peak Hour ARM D Lin Shing Rd (N)	GEOMETRIC DETAILS		
ar 200 4 744	W (motros)		TEDO
S99 4 711	$W_1 = 6.00$ (metros)		0.022
	$W_2 = 0.00$ (metres)	× _A =	1.020
	$W_3 = 3.00$ (metres)	× _B =	0.586
	$W_4 = 6.00$ (metres)	X _C =	0.300
W. W.	W = 0.00 (metres)	× -	0.703
	$W_{cr1} = 0.00$ (metres)	7 -	1.005
Cape W Cape	$W_{cr2} = 0.00$ (metres)	∠ _B =	0.005
Collins	$vv_{cr} \equiv 0.00$ (metres)	2 _D =	0.905
	$W_{-} = 2.00$ (metros)		277
	$V_{ad} = 3.00$ (metres)	Q _{b-a} =	740
	$v_{1_{a-d}} = 100$ (fileties)	$Q_{b-c} =$	
	$q_{a-b} \equiv 0$ (pcu/hr)		611
234 103 14	$q_{a-c} = 0$ (pcu/hr)		674
204 188 14		Q _{d-a} –	
ARM B / in Shing Rd (S)			533
	$W_{ab} = (metres)$	Q d o =	414
			437
W = AVERAGE MA IOR ROAD WIDTH	$q_{\rm res} = 0 \qquad (ncu/br)$		616
W = AVERAGE CENTRAL RESERVE WIDTH	q = 0 (pcu/hr)	Ga a-d –	010
$W_{cr} = I ANF WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D$	$q_{cb} = 0$ (pcu/hr)	COMPARISION OF DE	SIGN FLOW
$W_{a,a} = IANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A$			
$W_{bac} = IANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C$	MINOR ROAD (ARM B)	DFC be =	0.037
W = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B	$W_{\rm bac} = 5.00$ (metres)	DFC =	0.313
	$W_{b-a} = 5.00$ (metres)		0.317
$W_{da} = IANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C$	$V_{l,b,c} = 100$ (metres)		1 054
Vr ad = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D	$Vr_{ba} = 65$ (metres)	DFC db =	0.008
VI ha = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A	$Vr_{bc} = 0$ (metres)		0.964
Vr be = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A	$a_{bc} = 13.959$ (pcu/hr)	DFC ob =	0.000
Vr be VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	$q_{bc} = 234$ (pcu/hr)	DFC and =	0.002
Vr VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	$a_{bd} = 193.45$ (pcu/hr)	au	
VI de = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	1 bu (1 · · · ·)	Critical DFC =	1.054
Vr _{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C	MINOR ROAD (ARM D)		
Vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	W _{d-a} = 3.00 (metres)		
$X_A = GEOMETRIC PARAMETERS FOR STREAM A-D$	$W_{d-c} = 3.00$ (metres)		
X_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A	$VI_{d-c} = 50$ (metres)		
X _C = GEOMETRIC PARAMETERS FOR STREAM C-B	$Vr_{d-c} = 50$ (metres)		
$X_{\rm D}$ = GEOMETRIC PARAMETERS FOR STREAM D-C	$Vr_{d-a} = 80$ (metres)		
$Z_{\rm B}$ = GEOMETRIC PARAMETERS FOR STREAM B-C	$q_{da} = 711$ (pcu/hr)		
$Z_{\rm D}$ = GEOMETRIC PARAMETERS FOR STREAM D-A	$q_{d,b} = 4$ (pcu/hr)		
Y = (1-0.0345W)	$q_{dc} = 399$ (pcu/hr)		

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	-	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 150 \underbrace{\qquad}_{3} \underbrace{\qquad}_{1236} (1)$ $(1) 150 \underbrace{\qquad}_{3} \underbrace{\qquad}_{1236} (1)$ $(2) (2) \text{Lin Shing Road}$	N X	No. of stages per cycleN =2Cycle timeC =120Sum(y)Y =0.735Loss timeL =25Total Flow=1444Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=Yult=0.713R.C.ult=(Yult-Y)/Y*100%=Cp=0.9*L/(0.9-Y)=136.0Ymax=1-L/C=0.792R.C.(C)=(0.9*Ymax-Y)/Y*100%=-3.0	sec pcu sec sec % sec %
$(1) \longrightarrow (3)$ (3)			
Move- ment Stage Width Lane Phase Iane No. of Iane Radius m. O N Straight- Ahead Moven Left Straight- Istraig Move- m. m. m. m. Sat. Flow pcu/h pcu/h	ent Total Proportion Sat. Flare lane tt Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	Share Revised g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec sec	Degree of SaturationQueueAverageXLengthDelayX(m / lane)(seconds)
ST A 3.00 1 1 N 1915 150	150 0.00 1915	1915 0.078 5 10 95	0.099 6 2
SI/LT A 4.00 1 1 10 N 2015 1236 58 Ped B 6.0 3 Image: Constraint of the second sec		1763 0.735 0.735 95 95 20	0.928 60 4
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKIN	NG SPEED = 1.2m/s QUEUING LENGTH = AVERA	AGE QUEUE * 6m

Kaler	Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development				
	Junction Capacity Analysis		Checked By: OC		
Junction layout Desi	sketch - J3: J/O Cape Collinson Road and Lin Shing Road gn Year - 2021 Level 2 - Reference Case Time - Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS		
𝔊 𝔊 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅 𝔅	ARM B Cape Collinson Road	$W_1 = 3.90$ (metres) $W_2 = 3.90$ (metres) $W_3 = 4.80$ (metres) $W_4 = 4.50$ (metres) W = 8.55 (metres) $W_{cr1} = 0.00$ (metres) $W_{cr2} = 0.00$ (metres) $W_{cr} = 0.00$ (metres)	D 0.626 E = 0.996 F = 1.109 Y = 0.705		
ARM A W2	← 381 ^{W4} ARM ($MAJOR ROAD (ARM A)$ $q_{a-b} = 0 (pcu/hr)$ $q_{a-c} = 506 (pcu/hr)$ $MAJOR ROAD (ARM C)$ $W_{a-c} = 450 (metres)$	THE CAPACITY OF MOVEMENT $Q_{b-c} = 613$ $Q_{c-b} = 682$ $Q_{b-a} = 273$ COMPARISION OF DESIGN FLOW TO CAPACITY		
REMARK: (GEOMET	RIC INPUT DATA)	$Vr_{ch} = 150$ (metres)	$DFC_{b-a} = 2.279$		
W = W _{cr} =	AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	$q_{c-a} = 381$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	$DFC_{b-c} = 0.025$ $DFC_{c-b} = 0.000$		
	LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W)	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC = 2.279		

			ROUNDABOUT CAPACITY /	ASSESSM	ENT		INITIALS	DATE
TIA St	udy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	КС	Sep-1
Junctio	on 4: C	hai Wan Road Roundabout	J4LV2 Peak Hour		FILENAME:LV2_Sen2_Ref_J2_J5_J6_J	7_J8.0HECKED BY:	OC	Sep-1
J4LV2	Peak	Hour				REVIEWED BY:	OC	Sep-1
						•		
					(ARM D)			
		(ARM D)		Ν	899.89486			
		Island Faster Corr	dor					
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(AKIVI	0)		(ARIVI A)	1539.01		1391.20	010.193	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
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			Ť		0 0			
			473 [6]		0.0			
					0.0			
		14 70 76 11	255 [7]		951			
		[12] [11] [10] [9]	137 [8]					
			+					
		Wan Tsui Road			172.15039			
		Wan Tsui Roac (ARM B)			172.15039 (ARM B)			
		Wan Tsui Roac (ARM B)			172.15039 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		172.15039 (ARM B)			
ARM NPUT	PAR	Wan Tsui Roac (ARM B) METERS:	A B C D		172.15039 (ARM B)			
ARM INPUT	PARA	Wan Tsui Roac (ARM B) AMETERS:	A B C D		172.15039 (ARM B)			
ARM INPUT	PAR/	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m)	A B C D 7.00 4.00 7.00 7.00		172.15039 (ARM B)			
ARM NPUT	PAR# = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		172.15039 (ARM B)			
ARM NPUT	PAR/ = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		172.15039 (ARM B)			
<u>ARM</u> NPUT / = -	PAR/ = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		172.15039 (ARM B)			
ARM NPUT 2 2 2 2	PAR/ = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		172.15039 (ARM B)			
	PAR/ = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00		172.15039 (ARM B)			
<u>IRM</u> NPUT	PAR/ = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 876 172 1539 900		172.15039 (ARM B)			
<u>ARM</u> NPUT : : : : : : : : : : : : : : : : : : :	PAR/ = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253		172.15039 (ARM B)			
RM NPUT , , , , , , , , , , , , , , , , , , ,	= = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253		172.15039 (ARM B)			
ARM NPUT - - R D D A Q Q C	= = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253		172.15039 (ARM B)			
ARM NPUT - - R D A Q Q Q C UTP	= = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharmness of flare = 1.6/E-V//l	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253		172.15039 (ARM B)			
ARM NPUT - - - - - - - - - - - - - - - - - - -	F PARA = = = = = = = = UT PA	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 140.00347(A-30).0.978(1/P.0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253		172.15039 (ARM B)			
ARM NPUT / E - - - - - - - - - - - - - - - - - -	- PARA = = = = = = = = = = UT PA	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		172.15039 (ARM B)			
<u>ARM</u> NPUT / = - - - - - - - - - - - - -	= = = = = = = = = UT PA = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXD(/D = 0.0(40)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		172.15039 (ARM B)			
<u>ARM</u> NPUT - - - - - - - - - - - - - - - - - - -	= = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry avidth (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) CaceNo	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		172.15039 (ARM B)			
ARM NPUT V E L C D A Q Q C C UTP S K X2 M F	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry avidth (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121		172.15039 (ARM B)			
ARM NPUT V E L R D A Q Q Q C S K X 2 M F T d -	- PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414 1523		172.15039 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F c	- PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69		172.15039 (ARM B)			
ARM NPUT V E L R D A Q Q C OUTP S K X2 M F Td F C Q e	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1409 944 1987 1271		172.15039 (ARM B)	2774.98	PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F Td F C Q e	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Roac (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 876 172 1539 900 1397 951 651 1253 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.37 0.74 0.58 0.75 0.69 1409 944 1987 1271		172.15039 (ARM B)	2774.98	PCU	

TRAFFIC SIGNAL CALCULATION						INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road	ad, Chai Wan			PROJECT NO.: CTLDQS	Prepared By:	KC	29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Pe	eak Hour Traffic Flows		FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case				REFERENCE NO.:	Reviewed By:	OC	3-5-2011
$(3) 305 \longrightarrow (3) 42 \longrightarrow (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)$	₩i 509 (1) 4) i Wan Road	N 🔭		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	$\begin{array}{cccc} N = & 2 \\ C = & 100 \\ Y = & 0.249 \\ L = & 10 \\ = & 1697 \\ = & 26.6 \\ = & 13.3 \\ = & 0.825 \\ = & 231.1 \\ = & 13.8 \\ = & 0.900 \\ = & 225.0 \end{array}$	sec pcu sec sec % sec %	
(4) (4) (5) (5) (6) (6) (6) (6) (6))						
Move- Stage Lane Phase No. of Radius Opposing Near ment Width Iane Traffic? side m. m. m. Iane Iane	ar- Straight- Movement T le Ahead Left Straight Right F e? Sat. Flow pcu/h pcu/h pcu/h p	Total Proportion Sat. I Flow of Turning Flow pcu/h Vehicles pcu/h	Flare lane Share Length Effect m. pcu/hr	Revised Sat. Flow y Greater L pcu/h y sec	g g (required (input) sec sec	Degree of Saturation X	Queue Averag Length Delar (m / lane) (secon
LT A 3.75 1 2 22 Y LT A 4.00 2 2 2 24 RT A 3.50 2 2 11 Y ST B 3.50 3 2 Y RT B 4.50 3 2 13 Y Ped A 4.50 4 Ped A 4.50 5 Ped B 4.50 6	4120 509 624 4310 217 624 4070 305 42 4270 42 42	509 1.00 3857 217 1.00 4056 624 1.00 3582 305 0.00 4070 42 1.00 3828		3857 0.132 10 4056 0.054 3582 0.174 0.174 4070 0.075 0.075 3828 0.011	48 63 19 63 63 63 27 27 4 27	0.210 0.085 0.277 0.277 0.040	15 6 6 6 18 5 18 23 0 24
			NOTES :	PEDESTRAIN WALKING SPEED = 1.2r	n/s QUEUING	LENGTH = A	VERAGE QUEUE * 61

TRAFFIC SIGNAL CALCULATION						INITIALS	DATE
TIA Study for Columbarium Development at Cape Collinson Road, C	Chai Wan			PROJECT NO.: C	TLDQS Prepared By:	КС	29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2	2 - Peak Hour Traffic Flows		FILENAME 2_Ref_J2_J	5_J6_J7_J8.xls Checked By:	OC	29-4-2011
2021 Level 2 Peak Hour - Reference Case				REFERENCE NO .:	Reviewed By:	OC	3-5-2011
(1) 123 (1) 505	2) 99 ↓ Siu Sai Wan R ↓ 793 (1)	N 🔨		No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y$ Cp = $0.9*L/(0.7)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Yma)$	N = C = 1 Y = 0.30 L = 4 = 17 /(1-Y) = 110 = 68 = 0.54 *100% = 77 9-Y) = 72 = 0.52 x-Y)/Y*100% = 54	3 00 sec 3 8 sec 16 pcu 5 sec 9 sec 0 9 % 4 sec 0 2 %	
$(1) \xrightarrow{(1)} (1) (1)$	(2) (2) Stage C = 6						
Move-Stage Lane Phase No. of Radius Opposing Near-	Straight- Movement	Total Proportion Sat.	Flare lane Share	Revised	g g	Degree of	Queue Avera
ment Width lane Traffic? side	Ahead Left Straight Right	t Flow of Turning Flow	Length Effect	Sat. Flow y G	ireater L required (input	Saturation	Length Dela
LT/ST A 3.30 1 1 11 y ST A 3.20 1 1 11 y ST A 3.20 1 1 11 y ST A 3.00 1 2 y LT C 3.75 2 1 12 y RT C 3.75 2 1 12 y Ped B 11.00 3 1 12 1 12 Ped B 6.50 4 1 1 1 12 1 Ped B 6.50 5 1 1 1 1 1	1945 123 152 2075 353 3970 793 1990 99 2130 196	275 0.45 1833 353 0.00 2075 793 0.00 3970 99 1.00 1769 5 196 1.00 1893		1833 0.150 2075 0.170 3970 0.200 0 1769 0.056 1893 0.104 0	y sec sec	0.438 0.496 0.584 0.315 0.584	30 19 36 18 42 17 12 31 24 34
			NOTES :	PEDESTRAIN WALKING	SPEED = 1.2m/s QUEUIN	G LENGTH = A	VERAGE QUEUE * 6

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal (1) 41 - (1) 184 - (1) 191 - (1) 191 - (1) 156 - (1) 166 - (u Sai Wan Road	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.396Loss timeL =18Total Flow=1501Co= (1.5*L+5)/(1-Y)=Sum(y)=29.8Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Qp=0.9*L/(0.9-Y)Ymax=1-L/CR.C.(C)=(0.9*Ymax-Y)/Y*100%=88.4	sec sec pcu sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) ($ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$) (4) (6) (
Move- ment Stage Lane Phase No. of Radius Opposing Near- Side Straight- Ahead Mode m. m. m. m. Traffic? side Sat. Flow pcu/h	rement Total Proportion Sat. Flare lane Sha raight Right Flow of Turning Flow Length Effe cu/h pcu/h pcu/h Vehicles pcu/h m. pcu	hare Revised g g fect Sat. Flow y Greater L required (input) u/hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT/ST A 3.30 1 1 11 Y 1945 41 ST/RT A 3.30 1 1 12 2085 2105 117 9 1965 166 2105 2105 117 9 1965 117 9 1965 117 9 1965 117 9 1965 117 9 1965 117 9 1965 117 11 9 1965 117 11 11 11 11 11 <td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td> <td>1860 0.066 18 14 33 1928 0.152 0.152 33 33 1871 0.019 0.019 4 4 1784 0.086 19 43 1871 0.109 24 31 1818 0.141 0.141 31 31 1871 0.083 0.083 18 18 1859 0.150 33 33 33</td> <td>0.206 12 21 0.478 30 21 0.478 6 63 0.212 12 16 0.369 24 23 0.478 30 23 0.478 18 34 0.478 30 21</td>	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1860 0.066 18 14 33 1928 0.152 0.152 33 33 1871 0.019 0.019 4 4 1784 0.086 19 43 1871 0.109 24 31 1818 0.141 0.141 31 31 1871 0.083 0.083 18 18 1859 0.150 33 33 33	0.206 12 21 0.478 30 21 0.478 6 63 0.212 12 16 0.369 24 23 0.478 30 23 0.478 18 34 0.478 30 21
	NOTE	TES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING I	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	•	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 1050 \longrightarrow (1) 699 \longrightarrow (1) 699 \longrightarrow (1) 699 \longrightarrow (1) 648 \longrightarrow (1) 100 \longrightarrow (1) 648 \longrightarrow (1) 100 \longrightarrow (1)$	N ++ Chai Wan Road 2) 2)	No. of stages per cycleN =Cycle timeC =10Sum(y)Y =0.85Loss timeL =1Total Flow=364Co= (1.5*L+5)/(1-Y)=214.Cm= L/(1-Y)=120.Yult=0.76R.C.ult= (Yult-Y)/Y*100%=-10.Cp= 0.9*L/(0.9-Y)=327.Ymax= 1-L/C=0.82R.C.(C)= (0.9*Ymax-Y)/Y*100%=-12.	3 15 sec 0 8 sec 14 pcu 0 sec 4 sec 5 0 % 0 sec 9 3 %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (7) \qquad (2) \qquad (3) $	 ←→ (6) 1 = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Mov	ement Total Proportion Sat. Flare lan	ne Share Revised g g	Degree of Queue Average
ment Width lane Traffic? side Ahead Left St m m lane? Sat Flow pcu/h p	aight Right Flow of Turning Flow Length	n Effect Sat. Flow y Greater L required (input)	Saturation Length Delay
ST A 3.50 1 2 y 4070 1 RT A 3.50 1 1 13 2105 1 1 ST B 3.50 2 2 4210 1 1 LT B 3.10 2 1 12 y 1925 100 LT C 4.00 3 1 15 y 2015 597 LT/RT C 4.00 3 1 15 2155 163 Ped A 4.50 4 4 4.50 4 4.50 4 4.50 Ped B,C 3.50 5 5 6 4.50 4 4.50 4 4.50 Ped B,C 3.50 7 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 4.50 4 <t< td=""><td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td><td>4070 0.258 18 4210 0.154 0.371 38 26 1887 0.371 0.371 38 26 4210 0.154 0.154 16 16 1711 0.059 6 16 16 1832 0.326 0.326 33 33 1959 0.280 29 33</td><td>1.026 66 42 1.473 90 37 1.026 48 46 0.391 12 36 1.026 66 29 0.883 60 29</td></t<>	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	4070 0.258 18 4210 0.154 0.371 38 26 1887 0.371 0.371 38 26 4210 0.154 0.154 16 16 1711 0.059 6 16 16 1832 0.326 0.326 33 33 1959 0.280 29 33	1.026 66 42 1.473 90 37 1.026 48 46 0.391 12 36 1.026 66 29 0.883 60 29
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUIN	G LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		INITIALS DATE
10: Junction of Chai Wan Boad and San Ha Street	1101 V2 - Peak Hour Traffic Flows FII ENAME 2 Ref. 12 15 16 17 18 xls Checked By:	00 29-4-2011
2021 Level 2 Peak Hour - Reference Case	REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) \begin{array}{c} 842 \\ 32 \\ \hline \\ \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	N N	sec sec sec sec % sec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$		
Move- Stage Lane Phase No. of Radius O N Straight- Movem	ent Total Proportion Sat. Flare lane Share Revised g g	Degree of Queue Average
ment Width lane Ahead Left Straight Straight Straight	Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required (input)	Saturation Length Delay X (m / Jane) (seconds)
ST A 3.50 1 2 10 N 4070 842 ST A 3.50 1 2 10 N 4070 603 LT B 3.00 2 1 10 N 1915 273 RT B 3.50 2 1 12 2105 N 1915 273 Ped B 19.0 3 12 10 N 1915 273 603 Ped A 8.0 4 1 12 10 N 1915 273 603 Ped A 8.0 4 1 12 10	842 0.00 4070 4070 0.207 0.207 50 47 603 0.00 4070 4070 0.148 36 47 273 1.00 1665 1665 0.164 0.164 40 53 32 32 1.00 1871 1871 0.017 4 53	0.440 36 11 0.315 24 11 0.309 18 9 0.032 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERA	GE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
IIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1111/2 Deals Hour Traffia Flaura	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	JIILV2 - Peak Hour Traffic Flows	FILENAME 2_RET_J2_J5_J6_J7_J8.XIS Checked By:	0C 29-4-2011
		REFERENCE NO Reviewed By.	00 3-3-2011
Sheung On St (1) 121 (1) 714 (1) 714 (1) 714 (1) 714 (1) 714 (1) 463 (1) 463 (1) 463 (1) 463 (1) 463 (1) 463 (1) 463 (1) 463 (1) 463 (1) 714 (1) 463 (1) 714 (1) 714	reet (4) 57 Chai Wan Road 864 (2) 126 (2)	No. of stages per cycleN =4Cycle timeC =120Sum(y)Y =0.336Loss timeL =37Total Flow=2389Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.623R.C.ult= (Yult-Y)/Y*100%=Sp=59.0Ymax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec %
$(1) \longrightarrow (5) \longleftarrow (6)$ $(1) \longrightarrow (2) \qquad (3)$	$(5) \leftarrow \cdots \leftarrow (4) (4) (4) (4) (6) (6) (7) (7) (7) (7) (7) (7) (7) (7) (7) (7$		
Stage A I = 8 Stage B I = 5 Stage	e C I = 7 Stage C I = 6		
Move- ment Stage Lane Width Phase No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Ahead m. m. m. m. side Ahead Sat. Flow	Movement Total Proportion Sat. Flare lane Left Straight Right Flow of Turning Flow Length pcu/h pcu/h pcu/h pcu/h m. pcu/h	Share Revised Effect Sat. Flow y Greater L required (input) pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 Y 6175 LT/ST A 3.30 2 3 12 Y 6115 LT B 3.50 3 1 9 Y 1965 LT/RT D 3.75 4 2 10 Y 4120 Ped B,C 4.00 5 - - - - - Ped B,C 5.00 6 -	121 714 835 0.14 6066 126 864 989 0.13 6019 44 44 1.00 1684 57 463 521 1.00 3583	6066 0.138 22 6019 0.164 0.164 41 1684 0.026 0.026 7 3583 0.145 0.145 36 15 15 15	0.000 54 54 0.000 64 54 0.000 6 54 0.000 51 54
	NO	OTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	ENGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact As	sessment	t Study For Columbarium Development	a Prepared By:	KU
Junction Capacity Analysis			Checked By:	00
Junction layout sketch - J1: J/O Cape Collinson Road and Lin Shing Road Design Year - 2021 Level 2 - Site 1 Time - Level 2 Peak Hour ARM D Lin Shing Rd (N)		GEOMETRIC DETAILS		
N 364 4 672		W ₁ = (metres)	GEOMETRIC PARAM	ETERS
		$W_2 = 6.00 \text{ (metres)}$	X _A =	0.922
		$W_3 = 3.00 \text{ (metres)}$	X _B =	1.039
		$W_4 = 3.00 \text{ (metres)}$	X _C =	0.586
\\/ \/	ARM A	W = 6.00 (metres)	X _D =	0.827
vv ₁ vv ₃		$VV_{cr1} = 0.00$ (metres)	Ý =	0.793
	Cape	$VV_{cr2} = 0.00$ (metres)	∠ _B =	1.005
	Collins	$vv_{cr} = 0.00$ (metres)	Z _D =	0.905
	on			
$d = 0 = vv_4$	Road			
	(⊏)	$W_{a-d} = 3.00$ (metres)	Q _{b-a} =	740
		$v_{1_{a}\cdot d} = 100$ (metres)	$Q_{b-c} =$	
		$q_{a-b} = 0$ (pcu/hr)		611
108 170 12		$q_{a-c} = 0$ (pcu/m)	Q _{b-d} =	674
130 173 12		$q_{a-d} = \frac{1}{2} (pcu/m)$	Q _{d-a} = O is nearside =	
ARM B / in Shing Rd (S)				532
		$W_{ob} = (metres)$	Q do =	427
ARK: (GEOMETRIC INPUT DATA)		Vr = (metres)	Q =	437
W = AVERAGE MAJOR ROAD WIDTH		$q_{ca} = 0$ (pcu/hr)	Q and =	616
W ar = AVERAGE CENTRAL RESERVE WIDTH		$q_{ch} = 0$ (pcu/hr)	8-0	
W and = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM A-D		$q_{cd} = 0$ (pcu/hr)	COMPARISION OF D	ESIGN FLOW
$W_{b,a}$ = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A			TO CAPACITY	
W b-c = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C		MINOR ROAD (ARM B)	DFC _{b-a} =	0.030
W _{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B		$W_{b-a} = 5.00$ (metres)	DFC b-c =	0.264
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-A		$W_{b-c} = 5.00$ (metres)	DFC b-d =	0.292
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM D-C		VI _{b-a} = 100 (metres)	DFC _{d-a} =	0.997
Vr a-d = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM A-D		Vr _{b-a} = 65 (metres)	DFC _{d-b} =	0.007
VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A		Vr _{b-c} = 0 (metres)	DFC _{d-c} =	0.853
Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A		q _{b-a} = <mark>11.633</mark> (pcu/hr)	DFC _{c-b} =	0.000
Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C	I	q _{b-c} = <mark>197.53</mark> (pcu/hr)	DFC a-d =	0.003
$Vr_{c:b}$ = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B	I	q _{b-d} = <mark>178.53</mark> (pcu/hr)		
VI _{d-c} = VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM D-C	I		Critical DFC =	0.997
Vr_{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-C		MINOR ROAD (ARM D)		
Vr_{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM D-A	I	$W_{d-a} = 3.00$ (metres)		
X_A = GEOMETRIC PARAMETERS FOR STREAM A-D	I	$W_{d-c} = 3.00$ (metres)		
X_{B} = GEOMETRIC PARAMETERS FOR STREAM B-A		$VI_{d-c} = 50$ (metres)		
$X_{\rm C}$ = GEOMETRIC PARAMETERS FOR STREAM C-B	I	$Vr_{d-c} = 50$ (metres)		
X_{D} = GEOMETRIC PARAMETERS FOR STREAM D-C		$Vr_{d-a} = 80$ (metres)		
Z_{B} = GEOMETRIC PARAMETERS FOR STREAM B-C	I	$q_{d-a} = 672.35 (pcu/hr)$		
Z_D = GEOMETRIC PARAMETERS FOR STREAM D-A		$q_{d-b} = 3.909 (pcu/hr)$		
Y = (1-0.0345W)		q _{d-c} = <mark>363.85</mark> (pcu/hr)		

TRAFFIC SIGNAL CALCULATION]		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 150 \longrightarrow 3$ $(1) 150 \longrightarrow 58 (1)$ $(1) 171 12$ $(2) (2) \text{Lin Shing Road}$	N Xuan Tsui Road	No. of stages per cycleN =2Cycle timeC =120 setSum(y)Y =0.768Loss timeL =25 setTotal Flow=1503 pcCo= (1.5*L+5)/(1-Y)=183.2 setCm= L/(1-Y)=107.8 setYult=0.713R.C.ult= (Yult-Y)/Y*100%Cp= 0.9*L/(0.9-Y)=170.5 setYmax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=-7.2 %	ec ec cu ec ec é é
$(1) \longrightarrow (3)$ $(3) $	(4)		
Move- ment Stage Width Lane Phase Iane No. of Iane Radius Movem O N Straight- Ahead Movem m. m. m. m. Sat. Flow pcu/h pcu/h pcu/h	ent Total Proportion Sat. Flare lan t Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	ine Share Revised g g D h Effect Sat. Flow y Greater L required (input) S pcu/hr pcu/h y sec sec sec	Degree of iaturationQueue LengthAverage DelayX(m / lane)(seconds)
ST A 3.00 1 1 N 1915 150 ST/LT A 4.00 1 1 10 N 2015 1295 58 Ped B 6.0 3 Image: Constraint of the second sec	150 0.00 1915 1353 0.96 1762	1915 0.078 10 95 1762 0.768 0.768 95 95 20 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 10 11 10 10 10 10 10 11 10 10 10 10 10 11 10 10 10 10 10 11 10 10 10 10 10 11 10 10 10 10 10 11 10 10 10 10 10 11 10 10 10 10 10 11 10 10 10 10 10 10 11 10 10 10 10 10 10 10 11 10 10 10 10 10 10 10 10 10 10 11 10	0.099 6 2 0.970 114 4
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WAI	LKING SPEED = 1.2m/s QUEUING LENGTH = AVERAG	GE QUEUE * 6m

Agreement No. CPM301_15/10 - Traffic Impact Assessment Study For Columbarium Development at				КС
1 1411	Junction Capacity Analysis		Checked By:	00
Junction layout Des	t sketch - J3: J/O Cape Collinson Road and Lin Shing Road ign Year - 2021 Level 2 - Site 1 Time - Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAM	IETERS
$\mathcal{N} \qquad \qquad$	ARM B Cape Collinson Road	$ \begin{array}{llllllllllllllllllllllllllllllllllll$	D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂	← 317 W ₄ ARM	$ \begin{array}{rcl} MAJOR \ ROAD & (ARM \ A) \\ q_{a\text{-}b} &= & 0 & (pcu/hr) \\ q_{a\text{-}c} &= & 421.95 & (pcu/hr) \\ \end{array} $	THE CAPACITY OF N $Q_{b-c} =$ $Q_{c-b} =$ $Q_{b-a} =$	10VEMENT 634 706 293
		MAJOR ROAD (ARM C) W _{c-b} = 4.50 (metres)	COMPARISION OF D TO CAPACITY	ESIGN FLOW
REMARK: (GEOMET W = W _{cr} =	IRIC INPUT DATA) AVERAGE MAJOR ROAD WIDTH AVERAGE CENTRAL RESERVE WIDTH	$Vr_{c\cdot b} = 150 \text{ (metres)}$ $q_{c\cdot a} = 317.26 \text{ (pcu/hr)}$ $q_{c\cdot b} = 0 \text{ (pcu/hr)}$	$\begin{array}{rcl} DFC_{b\text{-a}} & = \\ DFC_{b\text{-c}} & = \\ DFC_{c\text{-b}} & = \end{array}$	1.972 0.022 0.000
$W_{b-a} = W_{b-c} = W_{c-b} = W_{c$	 LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-C GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W) 	$\begin{array}{llllllllllllllllllllllllllllllllllll$	Critical DFC =	1.972
affic Impact 'Assessm ctober 2007				Page 3 of

			ROUNDABOUT CAPACITY /	ASSESSM	ENT		INITIALS	DATE
TIA St	udy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-1
Juncti	on 4: C	chai Wan Road Roundabout	J4LV2 Peak Hour		FILENAM	7_J8.X03HECKED BY:	OC	Sep-
J4LV2	Peak	Hour				REVIEWED BY:	OC	Sep-
					(ARM D)			
		(ARM D)		Ν	934.0343			
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(ARM	IC)		(ARM A)	1570.4	678 O O	1456.48	912.467	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
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		Wan Tsui Road			172.88283			
		Wan Tsui Road (ARM B)			172.88283 (ARM B)			
		Wan Tsui Road (ARM B)			172.88283 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		172.88283 (ARM B)			
ARM	[PAR/	Wan Tsui Road (ARM B)	A B C D		172.88283 (ARM B)			
ARM	Γ PAR/	Wan Tsui Road (ARM B) AMETERS:	A B C D		172.88283 (ARM B)			
ARM NPU1	۲ PAR	Wan Tsui Road (ARM B) AMETERS:	A B C D		172.88283 (ARM B)			
ARM NPUT	[PAR/ = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Fotry width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		172.88283 (ARM B)			
ARM NPUT	[PAR/ = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		172.88283 (ARM B)			
<u>ARM</u> NPU7 / = -	[PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 15.00		172.88283 (ARM B)			
ARM NPUT Z	[PAR/ = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		172.88283 (ARM B)			
ARM NPUT Z R R D A	[PAR/ = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00		172.88283 (ARM B)			
ARM INPUT Z Z Z	T PARA = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (ocu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 912 173 1570 934		172.88283 (ARM B)			
ARM INPUT V E - R D A Q Q C	F PAR/ = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 912 173 1570 934 1456 988 678 1285		172.88283 (ARM B)			
ARM NPUT E L R R Q Q Q c	[PARA = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 912 173 1570 934 1456 988 678 1285		172.88283 (ARM B)			
ARM INPUT E L R D A Q Q Q C	= = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 912 173 1570 934 1456 988 678 1285		172.88283 (ARM B)			
ARM NPUT E L R D A A Q Q C OUTP	= = = = = = = UT PAR/	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 912 173 1570 934 1456 988 678 1285		172.88283 (ARM B)			
ARM NPUT C C C C C C C C C C C C C C C C C C C	= = = = = = = = UUT PAR/	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 4 0.00247(A 20) 0.076(4/B 0.06)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 912 173 1570 934 1456 988 678 1285		172.88283 (ARM B)			
ARM NPUT V E - - R D D A A Q Q C D UTP S S K	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 912 173 1570 934 1456 988 678 1285 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		172.88283 (ARM B)			
ARM NPUT / E - - R D D A Q Q Q C D UTP S S K X2 M	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)(10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 912 173 1570 934 1456 988 678 1285 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37		172.88283 (ARM B)			
ARM NPUT = = - R D D Q C D UTP S S K 2 M =	[PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 2032Y2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 912 173 1570 934 1456 988 678 1285 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2414		172.88283 (ARM B)			
ARM NPUT V E L R D A Q Q c OUTP S K X2 M F T	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1.(0.5(11.M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 912 173 1570 934 1456 988 678 1285 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 2471 2121		172.88283 (ARM B)			
ARM NPUT V E L R D A A Q Q C OUTP S K X2 M F T d	[PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) O 20171(4:0.02X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 912 173 1570 934 1456 988 678 1285 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 0.37 0.37		172.88283 (ARM B)			
ARM INPUT E L R D A Q Q C S K X2 M = Td - c C	F PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 912 173 1570 934 1456 988 678 1285 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.40 0.74 0.58 0.75 0.69		172.88283 (ARM B)			
ARM INPUT E L R D A Q Q C S K X2 M = Td - c Q e	F PAR/ = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 912 173 1570 934 1456 988 678 1285 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69 1364 923 1966 1249		172.88283 (ARM B)		PCU	
ARM INPUT E L R D A Q Q C S K X2 M F Id F C Q e	UT PAR/ = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) RAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 912 173 1570 934 1456 988 678 1285 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69 1364 923 1966 1249		172.88283 (ARM B)	2872.18	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 315 \qquad \qquad$	N 🏷 Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.253Loss timeL =100Total Flow=1711Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=226.7Cp=Op= 0.9*L/(0.9-Y)=Ymax= 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=220.8	2) sec sec sec sec % sec %
(4) (4) (5) (5) (6) (6) (6) (6)			
Move- ment Stage Width m. Lane Phase No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left Mover Straight- Iane Mover m. m. m. Traffic? side Ahead Left Straight- Iane Sat. Flow pcu/h pcu,h	nent Total Proportion Sat. Flare lane ht Right Flow of Turning Flow Length h pcu/h pcu/h Vehicles pcu/h m.	Share EffectRevised Sat. Flow pcu/hryGreater yLggggg(input)ysecsecsec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
LT A 3.75 1 2 22 Y 4120 509 LT A 4.00 2 2 24 Y 4310 220 RT A 3.50 2 2 11 Y 4070 20 ST B 3.50 3 2 13 Y 4070 312 RT B 4.50 3 2 13 Y 4270 4120 509 Ped A 4.50 4 4.50 5 4 4.50 4 <	509 1.00 3857 220 1.00 4056 628 628 1.00 3582 315 0.00 4070 42 42 1.00 3828	10 10 3857 0.132 4056 0.054 3582 0.175 3582 0.175 62 4070 0.077 3828 0.011 4 28 3828 0.011	$ \begin{array}{c ccccc} 0.211 & 15 & 6 \\ 0.087 & 6 & 6 \\ 0.281 & 18 & 6 \\ 0.281 & 18 & 22 \\ 0.040 & 0 & 23 \\ \end{array} $
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	; LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	N Sai Wan Road 7	No. of stages per cycleN =3Cycle timeC =100Sum(y)Y =0.305Loss timeL =48Total Flow=1723Co= (1.5*L+5)/(1-Y)=110.7Cm= L/(1-Y)=69.0Yult=0.540R.C.ult= (Yult-Y)/Y*100%=77.3Cp= 0.9*L/(0.9-Y)=72.5Ymax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=53.7	sec pcu sec sec sec %
$(1) \underbrace{(1)}_{(1)} \underbrace{(1)}_{(1)}$	1 = 6		
Move- ment Stage Width m. Lane Phase Phase No. of Iane Radius Traffic? Opposing Side Near- Ahead Straight- Left TS Move- m. Mod Traffic? Side Ahead Left TS	ement Total Proportion Sat. Flare land aight Right Flow of Turning Flow Length u/h pcu/h pcu/h Vehicles pcu/h m.	ne Share Revised g g Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / lane) (seconds)
LT/ST A 3.30 1 1 11 y 1945 123 ST A 3.20 1 1 1 y 1945 123 ST A 3.00 1 2 y 3970 y LT C 3.75 2 1 12 y 1990 99 RT C 3.75 2 1 12 2130 2130 Ped B 11.00 3 -	52 275 0.45 1833 556 356 0.00 2075 97 797 0.00 3970 99 1.00 1769 196 196 1.00 1893	1833 0.150 28 26 34 2075 0.171 29 34 3970 0.201 0.201 34 34 1769 0.056 10 18 18 1893 0.104 0.104 18 18	0.437 30 19 0.500 36 18 0.586 42 17 0.316 12 31 0.586 24 34
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	.ENGTH = AVERAGE QUEUE * 6m
TRAFFIC SIGNAL CALCULATION			INITIALS DATE
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TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J/: Junction of Siu Sai Wan Road and Harmony Road(N)	J/LV2 - Peak Hour Traffic Flows	FILENAME 12_S1_J2_J5_J6_J7_J8.xis Checked By:	00 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	0C 3-5-2011
Bus Terminal (1) 41 (204 91 166) (1) 184 (1) (204 91 166) (1) 191 (N Tu Sai Wan Road 5) 5) 5)	No. of stages per cycleN =4Cycle timeC =105Sum(y)Y =0.396Loss timeL =18Total Flow=1501Co= $(1.5*L+5)/(1-Y)$ =SumeL/(1-Y)=Yult=0.765R.C.ult= $(Yult-Y)/Y*100\%$ =Qp= $0.9*L/(0.9-Y)$ =Ymax= $1-L/C$ =R.C.(C)= $(0.9*Ymax-Y)/Y*100\%$ =88.4	sec pcu sec sec % sec
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) ($ $(1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (3) \xrightarrow{(3)} (2)$	4) (4) (6) + (5) (5) (5) (5) (5) (5) (5) (5)		
Move-Stage Lane Phase No. of Radius Opposing Near-Straight-Mo ment Width Iane Traffic? Side Ahead Left : m. Iane? Sat. Flow pcu/h	vement Total Proportion Sat. Flare la traight Right Flow of Turning Flow Lengt ycu/h ocu/h Vehicles pcu/h m.	ane Share Revised th Effect Sat. Flow y Greater L required (input) pcu/hr pcu/h y sec sec sec	Degree of Queue Average Saturation Length Delay X (m / Jane) (seconds)
LT/ST A 3.30 1 1 11 Y 1945 41 ST/RT A 3.30 1 1 11 12 2085 <td>$\begin{array}{c ccccccccccccccccccccccccccccccccccc$</td> <td>180 18 1860 0.066 1928 0.152 1871 0.019 1784 0.086 1871 0.019 1871 0.019 1871 0.019 1871 0.019 1871 0.019 1871 0.019 1871 0.086 199 43 1871 0.003 1818 0.141 1817 0.083 1859 0.150 33 33 33 33</td> <td>0.206 12 21 0.478 30 21 0.478 6 63 0.212 12 16 0.369 24 23 0.478 30 23 0.478 18 34 0.478 30 21</td>	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	180 18 1860 0.066 1928 0.152 1871 0.019 1784 0.086 1871 0.019 1871 0.019 1871 0.019 1871 0.019 1871 0.019 1871 0.019 1871 0.086 199 43 1871 0.003 1818 0.141 1817 0.083 1859 0.150 33 33 33 33	0.206 12 21 0.478 30 21 0.478 6 63 0.212 12 16 0.369 24 23 0.478 30 23 0.478 18 34 0.478 30 21
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 1095 \longrightarrow (1) 699 \longrightarrow (1) 699 \longrightarrow (1) 699 \longrightarrow (1) 665 (2) (2) (2) 665 (2)$	N ◀	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.807Loss timeL =18Total Flow=3732Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=93.3Yult=Vult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Tmax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (2) \qquad (3)$ Stage A I = 7 Stage B I = 8 Stage C	 ← - → (6) = 6 		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Side Straight- Ahead Mover m. m. m. m. Traffic? side Ahead Left Straight- Sat. Flow Convert	nent Total Proportion Sat. Flare lane Shar. htt Right Flow of Turning Flow Length Effec 'n pcu/h pcu/h Vehicles pcu/h m. pcu/r	re Revised ect Sat. Flow y Greater L required (input) /hr pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
ST A 3.75 1 2 y 4120 105 RT A 3.00 1 1 13 2055 4210 66 LT B 3.10 2 1 12 y 1925 104 LT C 4.00 3 1 15 y 2015 640 LT/RT C 4.00 3 1 15 y 2155 142 Ped A 4.50 4 4 4.50 4 4 4.50 4 4 4.50 4 4 4.50 4 4.4	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	4120 0.266 18 4120 0.380 0.380 41 29 1842 0.380 0.380 41 29 4210 0.158 0.158 17 17 1711 0.061 7 17 1832 0.349 38 38 1959 0.270 0.270 29 38	0.974 99 40 1.390 84 34 0.974 87 45 0.376 12 35 0.974 144 26 0.752 54 21
	NOTES	S: PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Valo		Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development a	t Prepared By:	KC
11010		Junction Capacity Analysis		Checked By:	00
Junction layo	out sketch - esign Year - Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road 2021 Level 2 - Site 1 Level 2 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARA	METERS
W ₁ Chai Wan Road W _{c11} (E)	€66 359	ARM B Wan Tsui Road	W_1 =10.90(metres) W_2 =7.70(metres) W_3 =10.60(metres) W_4 =10.20(metres) W =19.70(metres) W_{cr1} =4.10(metres) W_{cr2} =1.70(metres) W_{cr} =2.90(metres)	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂		← 590 ^W ₄ ARM C	$\begin{array}{llllllllllllllllllllllllllllllllllll$	THE CAPACITY OF	MOVEMENT 776 691 380
			MAJOR ROAD (ARM C) W _{c-b} = <mark>3.30</mark> (metres)	COMPARISION OF TO CAPACITY	DESIGN FLOW
REMARK: (GEOM	IETRIC INPUT	DATA)	Vr _{c-b} = <mark>150</mark> (metres)	DFC _{b-a} =	0.264
W W _{cr}	= AVERA = AVERA	GE MAJOR ROAD WIDTH GE CENTRAL RESERVE WIDTH	q _{c-a} = <mark>590.35</mark> (pcu/hr) q _{c-b} = <mark>97.293</mark> (pcu/hr)	DFC _{b-c} = DFC _{c-b} =	0.197 0.141
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b D E F	 LANE V LANE V LANE V LANE V VISIBIL VISIBIL VISIBIL VISIBIL GEOME GEOME GEOME GEOME 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B ITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C ITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.264
ctober 2007	sment keport	·			Page 9 of

TIA Study for Columbarium Development at Cane Collinson Road, Chai Wan		TIDOS Prepared By: KC 29-4-2011
110: Junction of Chai Wan Road and San Ha Street	I101V2 - Peak Hour Traffic Flows FILENAME 12 S1 12 U	15 16 17 18 xls Checked By: OC 29-4-2011
2021 Level 2 Peak Hour - Site 1	REFERENCE NO.:	Reviewed By: OC 3-5-2011
$(1) 848 \longrightarrow 613 (1)$	N N Chai Wan Road N Chai Wan Road N N N N N N N N N N N N N	N = 2 $C = 100 sec$ $Y = 0.388$ $L = 10 sec$ $= 1792 pcu$)/(1-Y) = 32.7 sec = 0.825 Y*100% = 112.5 % .9-Y) = 17.6 sec = 0.900
$(1) \longrightarrow (4)$	<u>K.C.(C)</u> = (0.9*Yma	<u>3X-Y)/Y*100% = 108.6 %</u>
Stage A I = 6 Stage B I = 6 Stage C I		
Move- ment Stage Lane Phase No. of lane Radius O N Straight- Ahead Movem m. m. m. m. Sat. Flow pcu/h pcu/h pcu/h	nt Total Proportion Sat. Flare lane Share Revised Right Flow of Turning Flow Length Effect Sat. Flow y C pcu/h pcu/h Vehicles pcu/h m. pcu/hr pcu/h	Greater L required (input) Saturation L sec sec Sec X (m / lane) (seconds
ST A 3.50 1 2 10 N 4070 848 ST A 3.50 1 2 10 N 4070 613 LT B 3.00 2 1 10 N 1915 300 RT B 3.50 2 1 12 Image: Constraint of the state of th	848 0.00 4070 4070 0.208 613 0.00 4070 4070 0.151 300 1.00 1665 1665 0.180 32 32 1.00 1871 1871 0.017	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s	QUEUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai	ai Wan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J11: Junction of Chai Wan Road, Sheung On Street & Wing Ping Street	t J11LV2 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	0C 29-4-2011
2021 Level 2 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	00 3-5-2011
(1) 121 (1) 121 (1) 714 (1) 71	ng On Street (4) (4) 463 57 Chai Wan Road 864 (2) 126 (2)	No. of stages per cycleN =4Cycle timeC =120 setSum(y)Y =0.336Loss timeL =37 setTotal Flow=2389 pciCo= (1.5*L+5)/(1-Y)=Qm= L/(1-Y)=Struct=0.623R.C.ult= (Yult-Y)/Y*100%=Struct=0.692Ymax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=85.2 %	C :C :U :C :C
$(1) \longrightarrow (5) \longleftarrow (6)$ $(1) \longrightarrow (6)$ $(2) \longrightarrow (3)$	$(5) \leftarrow \cdots \leftarrow (6) \qquad (4) (4) \qquad (4$		
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Width m. Phase No. of Iane Radius Traffic? Opposing Side Near- AI Iane? Str.	traight- <u>Movement</u> Total Proportion Sat. Flare Ahead Left Straight Right Flow of Turning Flow Len at. Flow pcu/h pcu/h pcu/h Vehicles pcu/h m	e lane Share Revised ngth Ettect Sat. Flow y Greater L required (input) Sa n. pcu/hr pcu/h y sec sec sec	legree of Queue Average aturation Length Delay X (m / lane) (seconds)
LT/ST A 3.50 1 3 12 y 63 LT/ST A 3.30 2 3 12 Y 63 LT B 3.50 3 1 9 Y 19 LT/RT D 3.75 4 2 10 y 43 Ped B,C 4.00 5 10 y 43 Ped B,C 5.00 6 10 14 14 Ped C 3.00 7 10 14 14 LT/RT D 3.75 4 2 10 14 14 Ped B,C 5.00 6 10 14 14 14 Ped C 3.00 7 10 14 14 14 Image: Devel Image: Devel Image: Devel 10 14 14 14	6175 121 714 835 0.14 6066 6115 126 864 989 0.13 6019 1965 44 44 1.00 1684 4120 57 463 521 1.00 3583	6066 0.138 22 6019 0.164 0.164 41 1684 0.026 0.026 7 3583 0.145 0.145 36 15 15 15	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LEN	NGTH = AVERAGE QUEUE * 6m

Agreement No. CPM301_15/10 -	Traffic Impact Assessment S	Study For Colum	nbarium I	Developmen	t at C P	repared B	y:	КС
Junction Capacity Analysis					C	hecked By	/:	00
Junction layout sketch - J1: J/O Cape Collinson Road and L Design Year - 2021 Level 3 - Reference Case Time - Level 3 Peak Hour ARM D Lin Shing Rd (N)	in Shing Road	GEOMETRIC DE	TAILS					
a		14/		(0			TEDO
yv 252 3 10		VV 1 =	=	(metres)	G		ARAIVI	11ERS
		VV ₂	= 0.00	(metres)		∧ _A ∨	=	0.922
		VV3	= 3.00	(metres)		∧ _B ∨	=	0.5%
		VV4	= 5.00	(metres)		∧c v	_	0.000
147		VV -	= 0.00	(metres)		∧ _D	=	0.027
	۷۷ ₃	VV cr1	= 0.00	(metres)		7	=	0.795
	Cape	VV cr2	= 0.00	(metres)		∠ _B 7	=	1.005
Collins	Collins	VV _{cr}	= 0.00	(metres)		ΖD	=	0.905
					-			
Road W ₂	\sim 0 VV_4 Road	MAJOR		(ARIVI A)	11			
	0 (E)	VV _{a-d} =	= 3.00	(metres)		Q _{b-a}	=	610
		vr _{a-d} :	= 100	(metres)			=	749
		q _{a-b}	= 0	(pcu/nr)	C	is nearsid	e =	
		q _{a-c}	= 0	(pcu/nr)		Q _{b-d}	=	011
3 0 0		q _{a-d} :	= 0	(pcu/nr)		Q _{d-a}	=	674 TDUE
ADM D / in Ching Dd (C)					L.	¿ d-b is nearsid	e =	TRUE
ARM B Lin Sning Ra (S)		MAJOR	RUAD	(ARIVI C)		Q _{d-b}	=	533
		VV _{c-b}	-	(metres)		Q _{d-c}	=	518
		Vr _{c-b}	=	(metres)		Q _{c-b}	=	437
W = AVERAGE MAJOR ROAD WIDTH		q _{c-a}	= 0	(pcu/hr)		Q _{a-d}	=	616
W _{cr} = AVERAGE CENTRAL RESERVE WIDTH		q _{c-b}	= 0	(pcu/hr)				
W_{a-d} = LANE WIDTH AVAILABLE TO VEHICLE WAITING	GIN STREAM A-D	q _{c-d}	= 0	(pcu/hr)	С –	OMPARISION	1 OF DE	SIGN FLOW
$W_{b-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING$	GIN STREAM B-A			(10	J CAPACITY		
$W_{b-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING$	G IN STREAM B-C	MINOR	ROAD	(ARM B)		DFC _{b-a}	=	0.000
W_{c-b} = LANE WIDTH AVAILABLE TO VEHICLE WAITING	GIN STREAM C-B	W _{b-a}	= 5.00	(metres)		DFC b-c	=	0.003
W _{d-a} = LANE WIDTH AVAILABLE TO VEHICLE WAITING	G IN STREAM D-A	W _{b-c}	= 5.00	(metres)		DFC b-d	=	0.000
W _{d-c} = LANE WIDTH AVAILABLE TO VEHICLE WAITING	G IN STREAM D-C	VI _{b-a}	= 100	(metres)		DFC _{d-a}	=	0.015
Vr _{a-d} = VISIBILITY TO THE RIGHT FOR VEHICLES WAI	FING IN STREAM A-D	Vr _{b-a}	= 65	(metres)		DFC _{d-b}	=	0.005
VI b-a = VISIBILITY TO THE LEFT FOR VEHICLES WAIT	NG IN STREAM B-A	Vr _{b-c} =	= 0	(metres)		DFC _{d-c}	=	0.487
$Vr_{b-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAI$	FING IN STREAM B-A	q _{b-a}	= 0	(pcu/hr)		DFC _{c-b}	=	0.000
$Vr_{b-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAI$	FING IN STREAM B-C	q _{b-c}	= 3	(pcu/hr)		DFC _{a-d}	=	0.000
Vr _{c-b} = VISIBILITY TO THE RIGHT FOR VEHICLES WAI	FING IN STREAM C-B	q _{b-d} =	= 0	(pcu/hr)	-			· ·
VI_{d-c} = VISIBILITY TO THE LEFT FOR VEHICLES WAIT	NG IN STREAM D-C				C	ritical DFC	; =	0.487
Vr_{d-c} = VISIBILITY TO THE RIGHT FOR VEHICLES WAI	FING IN STREAM D-C	MINOR I	ROAD	(ARM D)				
Vr _{d-a} = VISIBILITY TO THE RIGHT FOR VEHICLES WAI	FING IN STREAM D-A	W _{d-a}	= 3.00	(metres)				
X_A = GEOMETRIC PARAMETERS FOR STREAM A-D		W _{d-c}	= 3.00	(metres)				
X_B = GEOMETRIC PARAMETERS FOR STREAM B-A		VI _{d-c}	= 50	(metres)				
X _C = GEOMETRIC PARAMETERS FOR STREAM C-B		Vr _{d-c}	= 50	(metres)				
X _D = GEOMETRIC PARAMETERS FOR STREAM D-C		Vr _{d-a} =	= 80	(metres)				
Z _B = GEOMETRIC PARAMETERS FOR STREAM B-C		q _{d-a}	= 10	(pcu/hr)				
Z _D = GEOMETRIC PARAMETERS FOR STREAM D-A		q _{d-b}	= 3	(pcu/hr)				
Y = (1-0.0345W)		q _{d-c}	= 252	(pcu/hr)				

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 211 \longrightarrow \\ 0 \longrightarrow 0 (1) 211 \longrightarrow 0 (1) 211 \longrightarrow 0 (1) 211 21$	N Wan Tsui Road	No. of stages per cycleN =2Cycle timeC =120Sum(y)Y =0.514Loss timeL =25Total Flow=1176Co= (1.5*L+5)/(1-Y)=87.5Cm= L/(1-Y)=51.5Yult=0.713R.C.ult= (Yult-Y)/Y*100%=38.5Cp= 0.9*L/(0.9-Y)=58.3Ymax= 1-L/C=0.792R.C.(C)= (0.9*Ymax-Y)/Y*100%=38.5	sec pcu sec sec %
$(1) \longrightarrow (3)$ (3)	(4)		
Move- Stage Lane Phase No. of Radius O N Straight- Moven ment Width Iane m. Sat. Flow pcu/h pcu/	ent Total Proportion Sat. Flare lane Shar t Right Flow of Turning Flow Length Effer 1 pcu/h pcu/h Vehicles pcu/h m. pcu/	rec Revised g g ect Sat. Flow y Greater L required (input) /hr pcu/h y sec sec sec	Degree of SaturationQueueAverageX(m / lane)(seconds)
ST A 3.00 1 1 N 1915 211 ST/LT A 4.00 1 1 10 N 2015 472 493 Ped B 6.0 3 - - - - - - - - - - - - - - 493	211 0.00 1915 965 0.49 1877	1915 0.110 5 20 95 1877 0.514 0.514 95 95 20 20 20 20	0.139 6 2 0.650 36 3
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SP	PEED = 1.2m/s OUFUING LENGTH = AVER	AGE QUEUE * 6m

Kale	Agreement No. CPM301_15/10 - Traffic Impact Assess	ment Study For Columbarium Development at	Prepared By: KC
	Junction Capacity Analysis		Checked By: OC
Junction layo	out sketch - J3: J/O Cape Collinson Road and Lin Shing Road esign Year - 2021 Level 3 - Reference Case Time - Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAMETERS
N W ₁ Shek O Road (N)	ARM B Cape Collinson Road	$ \begin{array}{rcrcrc} W_1 & = & 3.90 & (metres) \\ W_2 & = & 3.90 & (metres) \\ W_3 & = & 4.80 & (metres) \\ W_4 & = & 4.50 & (metres) \\ W & = & 8.55 & (metres) \\ W_{cr1} & = & 0.00 & (metres) \\ W_{cr2} & = & 0.00 & (metres) \\ W_{cr} & = & 0.00 & (metres) \\ \end{array} $	D 0.626 E = 0.996 F = 1.109 Y = 0.705
ARM A W ₂		C MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 497$ (pcu/hr)	THE CAPACITY OF MOVEMENT Q_{b-c} =615 Q_{c-b} =685 Q_{b-a} =281
		MAJOR ROAD (ARM C)	COMPARISION OF DESIGN FLOW TO CAPACITY
REMARK: (GEON W W _{cr}	IETRIC INPUT DATA) = AVERAGE MAJOR ROAD WIDTH = AVERAGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150 \text{ (metres)}$ $q_{c-a} = 311 \text{ (pcu/hr)}$ $q_{c-b} = 0 \text{ (pcu/hr)}$	$DFC_{b-a} = 0.842$ $DFC_{b-c} = 0.004$ $DFC_{c-b} = 0.000$
W _{b-a} W _{b-c} W _{c-b} VI _{b-a} Vr _{b-a} Vr _{b-c} Vr _{c-b} D E F Y	 LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C LANE WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B VISIBILITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C VISIBILITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM B-A GEOMETRIC PARAMETERS FOR STREAM C-B (1-0.0345W) 	$\begin{array}{llllllllllllllllllllllllllllllllllll$	Critical DFC = 0.842

			ROUNDABOUT CAPACITY	<u>ASSESSM</u>	ENI		INITIALS	DATI
TIA S	tudy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	KC	Sep-
Junct	on 4: C	Chai Wan Road Roundabout	J4LV3 Peak Hour		FILENAME_:LV3_Sen2_Ref_J2_J5_J6_J	7_J8. 28 HECKED BY:	OC	Sep-
J4LV:	3 Peak	Hour				REVIEWED BY:	OC	Sep-
					(ARM D)			
		(ARM D)		Ν	1117.0893			
		Island Easter Corri	dor					
		+						
		[16] 484	[1] [2] [3] [4]	+-	1222			
		[15] 593	13 329 480 296		0.0			
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		[14] 509			0 0			
					0 0			
Chai	Nan R	bad 🚽 🖊			0 0			
(ARN	1 C)		(ARM A)	1592.7	869 O O	1345.9	1049.38	
			Chan Wan Road	(ARM C)	0 0		(ARM A)	
		\downarrow	11 [5]		0 0			
			↑		0 0			
			646 [6]		00			
			040 [0]		00			
		56 98 93 9	→ 327 [7]		1332			
		[12] [11] [10] [9]	65 [8]					
			+					
		Wan Taui Bood						
		Wall I Sul Rodu			255.07614			
		(ARM B)			255.07614 (ARM B)			
		(ARM B)			255.07614 (ARM B)			
ARM		(ARM B)	A B C D		255.07614 (ARM B)			
ARM		(ARM B)	A B C D		255.07614 (ARM B)			
ARM	T PAR	(ARM B)	A B C D		255.07614 (ARM B)			
ARM INPU	T PAR	AMETERS:	A B C D		255.07614 (ARM B)			
ARM INPU V	T PAR/ = =	AMETERS: Approach half width (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00		255.07614 (ARM B)			
ARM NPU V	T PAR/ = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		255.07614 (ARM B)			
<u>ARM</u> NPU / = - -	T PAR/ = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 25.00		255.07614 (ARM B)			
ARM INPU E L R	T PAR/ = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 40.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00		255.07614 (ARM B)			
ARM INPU E L R D A	Γ PAR/ = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00		255.07614 (ARM B)			
ARM INPU E L R D A Q	T PAR/ = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1049 255 1593 1117		255.07614 (ARM B)			
ARM INPU E L R D A A Q c	T PAR/ = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1049 255 1593 1117 1346 1332 869 1222		255.07614 (ARM B)			
ARM INPU E L R D A Q Q C	T PAR/ = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222		255.07614 (ARM B)			
ARM INPU V E L R D A Q Q C	T PAR/ = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) BRAMETERS:	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222		255.07614 (ARM B)			
ARM INPU V E L R R D A Q Q C OUTF	= = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V/J)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222		255.07614 (ARM B)			
ARM NPU E L R D A Q Q Q C OUTF S S K	T PAR/ = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/B-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		255.07614 (ARM B)			
ARM NPU / E C C A Q Q C C C C C C C C C C C C C C C	T PAR/ = = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		255.07614 (ARM B)			
ARM NPU / = - - - - - - - - - - - - - - - - - -	T PAR/ = = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		255.07614 (ARM B)			
ARM NPU V E L R D A A Q Q C U U T F	T PAR, = = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*Z2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		255.07614 (ARM B)			
ARM INPU E L R D A Q Q C OUTF S K X2 M F Td	T PAR, = = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303'X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37		255.07614 (ARM B)			
ARM INPU V E L R D A Q Q C OUTF S K X2 M F Td Fc	T PAR, = = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-0.0-9.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.69		255.07614 (ARM B)			
ARM INPU E L R D A Q Q C UTF S K X2 M F Td -c Qe	T PAR, = = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1448 732 1822 1293		255.07614 (ARM B)	3113.64	PCU	
ARM INPU V E L R D A Q C OUTF S K X2 M F T d F C Qe	T PAR/ = = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1448 732 1822 1293		255.07614 (ARM B)	3113.64	PCU	
ARM INPU V E L R D A Q Q C OUTF S K X2 M F T d F C Qe	T PAR/ = = = = = = = = = = = = = = = = = = =	AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M)) 0.21*Td(1+0.2*X2) K(F-Fc*Qc)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1049 255 1593 1117 1346 1332 869 1222 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1448 732 1822 1293		Total In Sum =	3113.64	PCU	

TRAFFIC SIGNAL CALCULATION					INITIALS DATE	
TIA Study for Columbarium Development at Cape Collinson Road	d, Chai Wan		PROJECT NO.: CTLDQS	Prepared By:	KC 29-4-2011	
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flow	/S	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls	Checked By:	OC 29-4-2011	
2021 Level 3 Peak Hour - Reference Case			REFERENCE NO.:	Reviewed By:	OC 3-5-2011	
(3) 293 (3) 49 (3) 49 (3) 49 (2) (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	Wing Tai Road + 490 (1) Wan Road	×	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$	$\begin{array}{cccc} N = & 2 \\ C = & 100 \ \text{sc} \\ Y = & 0.270 \\ L = & 10 \ \text{sc} \\ = & 1844 \ \text{p} \\ = & 27.4 \ \text{sc} \\ = & 13.7 \ \text{sc} \\ = & 0.825 \\ = & 205.4 \ \text{sc} \\ = & 14.3 \ \text{sc} \\ = & 0.900 \\ = & 199.8 \ \text{sc} \end{array}$	2C 2C CU 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C 2C	
(4) (4) (5) (5) (6) (6) (6) (6)						
Move- ment Stage Lane Phase No. of Radius Opposing Near Midth Iane Traffic? side side nane Iane Ian	r- Straight- Movement Total Proportion e Ahead Left Straight Right Flow of Turning ?? Sat. Flow pcu/h pcu/h pcu/h pcu/h Vehicles	n Sat. Flare lane g Flow Length pcu/h m. p	Share Revised Effect Sat. Flow y Greater L pcu/hr pcu/h y sec	g g [[required (input) S sec sec	Degree of Queue Ave aturation Length D X (m / Iane) (se	verage Delay econds
LT A 3.75 1 2 22 Y LT A 4.00 2 2 24 Y RT A 3.50 2 2 11 Y ST B 3.50 3 2 Y Y RT B 4.50 3 2 13 Y Ped A 4.50 4 Image: Constraint of the second	4120 490 490 1.0 4310 302 302 1.0 4070 709 709 1.0 4070 293 293 0.0 4270 49 49 1.0 4120 49 49 1.0 4070 293 293 0.0 4270 49 49 1.0	0 3857 0 4056 0 3582 0 4070 0 3828	10 3857 0.127 4056 0.074 3582 0.198 0.198 4070 0.072 0.072 3828 0.013	42 66 25 66 66 66 24 24 4 24	0.192 12 0.113 6 0.300 18 0.300 18 0.054 3	5 5 4 25 26
		N	OTES : PEDESTRAIN WALKING SPEED = 1.2m	n/s QUEUING LE	NGTH = AVERAGE QUEUE	* 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Harmony Road $(1) 126 \xrightarrow{49} 41$ $(1) 529 \xrightarrow{5iu Sa}$ $(1) 529 \xrightarrow{5iu Sa}$ $(1) 859$	N S i Wan Road	No. of stages per cycleN =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)Yult=R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=	3 100 sec 0.243 48 sec 1604 pcu 101.7 sec 63.4 sec 0.540 122.6 % 65.7 sec 0.520 93.0 %
$(1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (2) (2)$	= 6		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lan	e Share Revised g	g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straigh	t Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L required (in	nput) Saturation Length Delay
LT/ST A 3.30 1 1 11 y 1945 126 152 ST A 3.20 1 1 11 y 1945 126 152 ST A 3.00 1 2 y 3970 859 LT C 3.75 2 1 12 y 1990 41 RT C 3.75 2 1 12 y 1990 41 Ped B 11.00 3 - - - - - 100 41 Ped B 6.50 4 - <	278 0.45 1832 377 0.00 2075 859 0.00 3970 41 1.00 1769 49 49 1.00 1893	1832 0.152 28 2075 0.182 39 3970 0.216 0.216 1893 0.026 0.026 200 20	46 0.327 24 12 46 0.392 30 12 46 0.466 36 11 6 0.410 6 51 6 0.466 6 52
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUE	EUING LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION					INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan			PROJECT NO.:	CTLDQS Prepared By:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour	Traffic Flows	FILENAME 2_Ref_J2	_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case			REFERENCE NO.:	Reviewed By:	OC 3-5-2011
Bus Terminal $ \begin{array}{ccccccccccccccccccccccccccccccccccc$	(4) 362 ► Siu Sai Wan Road 247 (5) 35 (5) ↓ (5)	N X	No. of stages per cyc Cycle time Sum(y) Loss time Total Flow Co = (1.5*L-Cm Cm = L/(1-Y) Yult R.C.ult = (Yult-Y) Ymax = 1-L/C R.C.(C) = (0.9*Y)	cle N = C C = 100 Y = 0.429 L = 18 = 123: +5)/(1-Y) = 56.1 = 31.5)/Y*100% = 78.3 (0.9-Y) = 34.4 = 0.829 max-Y)/Y*100% = 73.8	sec sec 2 pcu sec sec sec %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (6)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(1)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (4) (4) ↓ ↓ ↓ C I = 6 Stage 0	(6) (5) (5) (5) (5) (5) (5) (5) (5			
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Straight- Ahead m. Iane Traffic? side Ahead Iane m. m. Sat. Flow	Movement Total Left Straight Right Flow pcu/h pcu/h pcu/h	Proportion Sat. Flare of Turning Flow Leng Vehicles pcu/h m	e lane Share Revised ngth Ettect Sat. Flow y n. pcu/hr pcu/h	Greater L required (input) y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(second-
LT/ST A 3.30 1 1 11 11 y 1945 ST/RT A 3.30 1 1 12 2085 RT B 3.50 2 1 12 2105 LT A,B 3.75 3 1 13 y 1990 RT C 3.50 4 1 12 2105 2105 LT/ST C 3.50 4 1 12 y 1965 ST/RT D 3.50 5 1 12 y 1965 ST/RT D 3.50 5 1 11 y 1965 ST/RT D 3.50 5 1 11 y 1965 LT/ST D 3.50 5 1 11 y 1965 Ped D,A,B 4.00 6 Ped B,C 4.00 7 Im Im Im <	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	0.16 1904 0.14 2050 1.00 1871 1.00 1784 1.00 1871 0.92 1762 1.00 1871 0.92 1762 1.00 1871 0.04 1954	1904 0.051 2050 0.068 1871 0.006 1784 0.064 1871 0.076 1762 0.223 1871 0.132 1954 0.045	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
			NOTES : PEDESTRAIN WALKI	NG SPEED = 1.2m/s QUEUING	i LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME 2_Ref_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Reference Case		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 872 \\ (1) 876 \\ \hline \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $	N ◀┥	No. of stages per cycleN =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=Cp= 0.9*L/(0.9-Y)=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=R.C.(C)= (0.9*Ymax-Y)/Y*100%=	3 105 sec 0.923 18 sec 3617 pcu 417.4 sec 234.8 sec 0.765 -17.1 % 694.0 sec 0.829 -19.2 %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (3)$ $Stage A \qquad I = 7 \qquad Stage B \qquad I = 8 \qquad Stage C \qquad I$	 ←→ (6) = 6 		
Move- Stage Lane Phase No. of Radius Opposing Near- Straight- Movem	ent Total Proportion Sat. Flare lane	Share Revised g	g Degree of Queue Average
ment Width lane Traffic? side Ahead Left Straig	nt Right Flow of Turning Flow Length	Effect Sat. Flow y Greater L required (in	put) Saturation Length Delay
ST A 3.50 1 2 y 4070 872 RT A 3.50 1 1 13 2105 872 ST B 3.50 2 2 4210 845 LT B 3.10 2 1 12 y 1925 143 LT C 4.00 3 1 15 y 2015 474 LT/RT C 4.00 3 1 15 2155 163 Ped A 4.50 4 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 Ped A,B 3.50 7 4 4 4 4 4 Ped A,B 3.50 7 4 4 4 4 4 4 4 Ped A,B 3.50 7 4 <td>872 0.00 4070 876 876 1.00 1887 845 0.00 4210 143 1.00 1711 474 1.00 1832 244 407 1.00 1959</td> <td>4070 0.214 18 4070 0.214 20 1887 0.464 0.464 44 4210 0.201 0.201 19 1711 0.084 8 1 1832 0.259 0.259 24 1959 0.208 20 20</td> <td>20 1.114 60 45 20 2.413 120 45 19 1.114 60 46 19 0.466 18 34 24 1.114 60 36 24 0.895 60 35</td>	872 0.00 4070 876 876 1.00 1887 845 0.00 4210 143 1.00 1711 474 1.00 1832 244 407 1.00 1959	4070 0.214 18 4070 0.214 20 1887 0.464 0.464 44 4210 0.201 0.201 19 1711 0.084 8 1 1832 0.259 0.259 24 1959 0.208 20 20	20 1.114 60 45 20 2.413 120 45 19 1.114 60 46 19 0.466 18 34 24 1.114 60 36 24 0.895 60 35
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUE	UING LENGTH = AVERAGE QUEUE * 6m



TRAFFIC SIGNAL CALCULATION		INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Trattic Flows FILENAME 2_Ret_J2_J5_J6_J7_J8.xls Checked By:	00 29-4-2011
2021 Level 3 Peak Hour - Reference Case	REFERENCE NO.: Reviewed By:	OC 3-5-2011
(1) 1011 63 63 63 63 63 63 63 63 63 63 63 63 63 63 63 63 63 63 63 64 64 64 65	No. of stages per cycle N = 2 Cycle time C = 100 st Sum(y) Y = 0.533 Loss time L = 10 st Total Flow = 2124 p Co = $(1.5*L+5)/(1-Y)$ = 42.8 st Cm = $L/(1-Y)$ = 21.4 st Cm = $L/(1-Y)$ = 21.4 st Yult = 0.825 R.C.ult = $(Yult-Y)/Y*100\%$ = 54.7 % Cp = $0.9*L/(0.9-Y)$ = 24.5 st Ymax = $1-L/C$ = 0.900 R.C.(C) = $(0.9*Ymax-Y)/Y*100\%$ = 51.9 %	ec ec icu ec iec %
$(1) \longrightarrow (2) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(3) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(2) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(4) \longrightarrow (4)$ $(5) \longrightarrow (4)$		
Move- Stage Lane Phase No of Radius O N Straight- Move	nent Total Proportion Sat Flare land Share Revised g g g	Degree of Queue Average
ment Width lane Ahead Left Strain	the Right Flow of Turning Flow Length Effect Sat. Flow y Greater L required (input) S	Saturation Length Delay
ST A 3.50 1 2 10 N 4070 101 ST A 3.50 1 2 10 N 4070 57 LT B 3.00 2 1 10 N 1915 474 RT B 3.50 2 1 12 10 N 1915 Ped B 19.0 3 - - - - Ped A 8.0 4 - - - - Image: Construction of the state	1 1011 0.00 4070 0.248 0.248 24 47 1 575 0.00 4070 0.141 24 47 63 63 1.00 1871 1871 0.034 6 53	A (m/ rane) (seconds) 0.529 42 10 0.301 24 11 0.537 36 9 0.064 0 10
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN	FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAG	GE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION	Wer		INITIALS DATE
IA Study for Columbarium Development at Cape Collinson Road, Chai	I Wall	FILENAME 2 Rof 12 IF IG 17 IP via Charled By:	NC 29-4-2011
2021 Level 3 Peak Hour - Reference Case	JILLVS - PEAK HOUL TRAILC FIOWS	REFERENCE NO · Reviewed By:	00 3-5-2011
		Reference no Reference by.	5-5-2011
$(1) 95 _{(1)} 822 _{(1)} 822 _{(3)} _{$	On Street (4) (4) 368 29 Chai Wan Road (2) (4) (4) (4) (4) (5) (6) (765 (2) (765 (2) (765 (2)) (765 (2)) (No. of stages per cycleN =4Cycle timeC =120 seSum(y)Y =0.317Loss timeL =37 seTotal Flow=2315 peCo= (1.5*L+5)/(1-Y)=88.5 seCm= L/(1-Y)=54.1 seYult=0.6238.C.ult=R.C.ult= (Yult-Y)/Y*100%=96.6 %Cp= 0.9*L/(0.9-Y)=57.1 seYmax= 1-L/C=0.692R.C.(C)= (0.9*Ymax-Y)/Y*100%=96.6 %	
$(1) \xrightarrow{(1)} (2) \xrightarrow{(2)} (2) \xrightarrow{(3)} (3)$	(5) <> (4) (4) (6) (4) (7)		
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stage C I = 6		
Move- ment Stage Lane Phase No. of Radius Opposing Near- Stra Ah m. m. m. m. Traffic? side Ah	aight- Movement Total Proportion Sat. Flare lai nead Left Straight Right Flow of Turning Flow Length . Flow pcu/h pcu/h pcu/h Vehicles pcu/h m.	ne Share Revised h Ettect Sat. Flow y Greater L required (input) Si pcu/hr pcu/h y sec sec sec	Degree of Queue Average aturation Length Delay X (m / Iane) (seconds)
LT/ST A 3.50 1 3 12 y 61 LT/ST A 3.30 2 3 12 Y 61 LT B 3.50 3 1 9 Y 61 LT B 3.50 3 1 9 Y 19 LT/RT D 3.75 4 2 10 Y 41 Ped B,C 4.00 5 - - - - - 41 Ped B,C 5.00 6 - - - - - - - - - - - - 41 - - - - - - - - - - 41 -	175 95 822 918 0.10 6096 115 143 765 909 0.16 5997 965 91 91 1.00 1684 120 29 368 397 1.00 3583	6096 0.151 39 5997 0.152 0.152 40 1684 0.054 0.054 14 3583 0.111 0.111 29 15 15 15 15	0.000 60 54 0.000 60 54 0.000 18 54 0.000 39 54
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LEI	NGTH = AVERAGE QUEUE * 6m

	NUN	Agreement No. CPM30	01_15/10 - Traffic	: Impact As	ssessmei	nt Study For Co	lumba	arium	Developm	ent a Pre	pared B	y:	KC
		Junction Capacity Ana	alysis							Che	cked B	y:	00
unction layo D	out sketch - esign Year - Time -	J1: J/O Cape Collinson F 2021 Level 3 - Site 1 Level 3 Peak Hour	Road and Lin Shing	g Road		GEOMETRIC		9					
			-			GEOMETRIC		5					
	${\mathcal N}$	225 3	10			W ₁	-		(metres)	GEO	METRIC F	PARAM	ETERS
	\mathbf{A}					W ₂	=	6.00	(metres)		X _A	=	0.922
						W ₃	=	3.00	(metres)		X _B	=	1.039
	-	」 ⊷ ↓	_ └→ L			W_4	=	3.00	(metres)		Xc	=	0.586
					ARM A	W	= (6.00	(metres)		X _D	=	0.827
W ₁				W_3		W cr1	=	0.00	(metres)		Y	=	0.793
1 C		_				W cr2	=	0.00	(metres)		ZB	=	1.005
W _{cr1}				W _{cr2}	Cape	W _{cr}	- (0.00	(metres)		ZD	=	0.905
113			t	0	on								
W ₂			< <u>←</u>	0 W ₄	Road	MAJO	R ROAE)	(ARM A)	THE	CAPACIT	Y OF M	OVEMENT
)		•	↓	0	(E)	W _{a-d}	=	3.00	(metres)		Q _{b-a}	=	614
						Vr _{a-d}	-	100	(metres)		Q b-c	=	749
						q _{a-b}	-	0	(pcu/hr)	Q _{b-d}	is nearsic	le =	TRUE
						q _{a-c}	-	0	(pcu/hr)		Q _{b-d}	=	611
		3 0 0				q _{a-d}	-	0	(pcu/hr)		Q _{d-a}	=	674
										Q _{d-b}	is nearsic	le =	TRUE
		ARM B Lin S	Shing Rd (S)			MAJO	R ROAE)	(ARM C)		Q _{d-b}	=	533
						W _{c-b}	-		(metres)		Q _{d-c}	=	518
ARK: (GEON	METRIC INPU	Γ DATA)				Vr _{c-b}	-		(metres)		Q _{c-b}	=	437
W	= AVERA	GE MAJOR ROAD WIDTH				q _{c•a}	-	0	(pcu/hr)		Q _{a-d}	=	616
W _{cr}	= AVERA	GE CENTRAL RESERVE WID	DTH			q _{c∙b}	-	0	(pcu/hr)				
W _{a-d}	= LANE \	WIDTH AVAILABLE TO VEHIC	LE WAITING IN STRE	AM A-D		q _{c·d}	=	0	(pcu/hr)	COM	PARISIO	N OF DI	ESIGN FLOW
W _{b-a}	= LANE \	WIDTH AVAILABLE TO VEHIC	LE WAITING IN STRE	AM B-A						TO C	APACITY		
W b-c	= LANE \	WIDTH AVAILABLE TO VEHIC	LE WAITING IN STRE	AM B-C		MINO	R ROAD)	(ARM B)		DFC _{b-a}	=	0.000
W _{c-b}	= LANE \	WIDTH AVAILABLE TO VEHIC	LE WAITING IN STRE	AM C-B		W _{b-a}	=	5.00	(metres)		DFC _{b-c}	=	0.003
W _{d-a}	= LANE \	WIDTH AVAILABLE TO VEHIC	LE WAITING IN STRE	AM D-A		W _{b-c}	=	5.00	(metres)		DFC b-d	=	0.000
W _{d-c}	= LANE	WIDTH AVAILABLE TO VEHIC	LE WAITING IN STRE	EAM D-C		VI _{b-a}	-	100	(metres)		DFC _{d-a}	=	0.015
Vr _{a-d}	= VISIBIL	ITY TO THE RIGHT FOR VEH	HICLES WAITING IN S	TREAM A-D		Vr _{b-a}	-	65	(metres)			=	0.005
VI _{b-a}		ITY TO THE LEFT FOR VEHIC	CLES WAITING IN ST			Vr _{b-c}	-	0	(metres)			=	0.434
∨r _{b•a}		ITY TO THE RIGHT FOR VEH	HICLES WAITING IN S	TREAM B-A		Q b-a	=	0	(pcu/nr)			=	0.000
Vr _{b-c}		ITY TO THE RIGHT FOR VEH	HICLES WAITING IN S	TREAM B-C		q _{b-c}	= 2.	.5381	(pcu/nr)		DFC a-d	=	0.000
Vr _{c-b}			AICLES WAITING IN S			q _{b-d}	=	0	(pcu/nr)	Crit		~	0 424
VI _{d-c}						MINIO				Grit			0.434
vr _{d-c}			HOLES WAITING IN S					, 2.00	(ARIM D)				
vr _{d-a}			TREAM A D	IREAM D-A		VV _{d-a}	=	3.00	(metres)				
^ _A						VV _{d-c}		5.00	(metres)				
^B V						VI _{d-c}		50	(metres)				
×C V						Vr _{d-c}		50 80	(metres)				
∧ _D 7						vi _{d-a}		0.152	(meues) (ncu/br)				
,	= GEOM	ETRIC PARAMETERS FUR ST				Q d−a	= 1	0.152	(pcu/m)				
Ζ _B 7						~		E204	(nou/hr)				

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J2: Junction of Lin Shing Road and Wan Tsui Road	J2LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 211 \longrightarrow \\ 0 \longrightarrow \\ 0 0 \longrightarrow \\ 0 0 0 \bigoplus \\ (2) (2) \text{Lin Shing}$	N X Wan Tsui Road - 536 (1) 473	No. of stages per cycleN =Cycle timeC =1Sum(y)Y =0.53Loss timeL =2Total Flow=12Co=(1.5*L+5)/(1-Y)=Cm=L/(1-Y)=SYult=0.71R.C.ult=(Yult-Y)/Y*100%=Ymax=1-L/C=Op=0.9*L/(0.9-Y)=G1Ymax=1-L/CS=0.7933	2 20 sec 16 15 sec 19 pcu .5 sec .8 sec .3 .0 % .8 sec .2 .0 %
$(1) \longrightarrow (3)$	(4) (4) C 1 =		
Move- ment Stage Width Lane Phase Iane No. of Iane Radius O N Straight- Ahead Move- m. Midth Iane m. Sat. Flow	Movement Total Proportion Sat. Left Straight Right Flow of Turning Flow bcu/h pcu/h pcu/h velicles pcu/h	Flare lane Share Revised g g Length Effect Sat. Flow y Greater L required (input m. pcu/hr pcu/h y sec sec sec) Degree of Queue Average Saturation Length Delay X (m / lane) (seconds
ST A 3.00 1 1 N 1915	211 211 0.00 1915	1915 0.110 5 20 95	0.139 6 2
ST/LT A 4.00 1 1 10 N 2015 Ped B 6.0 3 I I II III IIII IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	473 536 1009 0.47 1883	1883 0.536 0.536 95 95 20 20 10 10 10 100 100 100 100 100 100 100 100 100 100	0.677 42 3
NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEA	Y GREEN FG - FLASHING GREEN PEDESTRA	NIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AV	ERAGE QUEUE * 6m

Val	CROW	Agreement No. CPM301_15/10 - Traffic Impact Assessme	ent Study For Columbarium Development a	t Prepared By:	КС
		Junction Capacity Analysis		Checked By:	00
Junction lay D	out sketch - Design Year - Time -	J3: J/O Cape Collinson Road and Lin Shing Road - 2021 Level 3 - Site 1 Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARA	METERS
N N N N N N N N N N	0Î 497	ARM B Cape Collinson Road	W_1 =3.90(metres) W_2 =3.90(metres) W_3 =4.80(metres) W_4 =4.50(metres) W =8.55(metres) W_{cr1} =0.00(metres) W_{cr2} =0.00(metres) W_{cr} =0.00(metres)	D E = F = Y =	0.626 0.996 1.109 0.705
ARM A W ₂		→ 311 W ₄ ARM C	MAJOR ROAD (ARM A) $q_{a-b} = 0$ (pcu/hr) $q_{a-c} = 497.46$ (pcu/hr)	THE CAPACITY OF Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 615 685 281
			MAJOR ROAD (ARM C) W _{c-b} = <mark>4.50</mark> (metres)	COMPARISION OF TO CAPACITY	DESIGN FLOW
REMARK: (GEON W W _{cr}	METRIC INPUT = AVERA = AVERA	T DATA) AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	$Vr_{c-b} = 150$ (metres) $q_{c-a} = 310.91$ (pcu/hr) $q_{c-b} = 0$ (pcu/hr)	$\begin{array}{rcl} DFC_{b\text{-}a} & = \\ DFC_{b\text{-}c} & = \\ DFC_{c\text{-}b} & = \end{array}$	0.762 0.004 0.000
W b-a W b-c W c-b VI b-a Vr b-a Vr b-c Vr c-b E F	 LANE V LANE V LANE V VISIBIL VISIBIL VISIBIL GEOMI GEOMI GEOMI GEOMI 	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B ETRIC PARAMETERS FOR STREAM B-C ETRIC PARAMETERS FOR STREAM B-A ETRIC PARAMETERS FOR STREAM B-A	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.762
affic Impact ^Y Asses <u>ctober 2007</u>	ssment Report	45\v)			Page 3 of

			ROUNDABOUT CAPACITY	ASSESSM	ENT		INITIALS	DATE
TIA St	udy fo	r Columbarium Development at Cape Collinson Road			PROJECT NO.: 80510	PREPARED BY:	КС	Sep-1
Juncti	on 4: C	Chai Wan Road Roundabout	J4LV3 Peak Hour		FILENAME: LV3_Sen2_S1_J2_J5_J6_J	7_J8.X03HECKED BY:	OC	Sep-1
J4LV3	Peak	Hour				REVIEWED BY:	OC	Sep-1
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					(ARM D)			
		(ARM D)		Ν	1157.7632			
		Island Easter Corrie	dor					
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		[15] 609	13 342 507 296		00			
		[14] 520			0 0			
		[13] 6			0 0			
Chai V	Van Ro	oad 🚽 🔪			0 0			
(ARM	C)	()	(ARM A)	1629.61	963 O O	1396.99	1158.88	
		$\langle \rangle$	Chan Wan Road	(ARM C)	0 0		(ARM A)	
		\checkmark					(7 U UNI 74)	
			▲ [5]		0 0			
					0 0			
			740 [6]		00			
		56 98 93 9	→ 337 [7]		1450			
		[12] [11] [10] [9]	71 [8]					
		I	Ļ					
			•					
		Wan Tsui Road			255 07614			
		Wan Tsui Road			255.07614 (ARM B)			
		Wan Tsui Road (ARM B)			255.07614 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		255.07614 (ARM B)			
ARM		Wan Tsui Road (ARM B)	A B C D		255.07614 (ARM B)			
ARM INPUT	PAR	Wan Tsui Road (ARM B) AMETERS:	A B C D		255.07614 (ARM B)			
	PARA	Wan Tsui Road (ARM B) AMETERS:	A B C D		255.07614 (ARM B)			
ARM INPUT	PARA =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m)	A B C D		255.07614 (ARM B)			
ARM INPUT V E	• PAR/ = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Efforting Leagth of flore (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		255.07614 (ARM B)			
ARM INPUT E L	- PARA = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Estru rediun (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00		255.07614 (ARM B)			
ARM INPUT V E L R	[•] PAR/ = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Ieneriyed eirele diremeter (m)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00		255.07614 (ARM B)			
ARM INPUT E L R	PAR/ = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Estru onelo (degroo)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 20.00		255.07614 (ARM B)			
ARM INPUT E L R D A	PARA = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (ocu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00		255.07614 (ARM B)			
ARM INPUT E L R D A Q Q	PARA = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulation flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1307 1450 963 1248		255.07614 (ARM B)			
ARM INPUT E L L R D A Q Q Q c	- PARA = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248		255.07614 (ARM B)			
ARM INPUT V E L L R D A Q Q Q C	= = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248		255.07614 (ARM B)			
ARM INPUT V E L R R Q Q Q C	= = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Effective length of flare (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248		255.07614 (ARM B)			
ARM INPUT V E L C A A Q Q C OUTP S	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) NRAMETERS: Sharpness of flare = 1.6(E-V)/L	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248		255.07614 (ARM B)			
ARM INPUT V E L C C C C C C C C C C C C C C C C C C	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 3159 255 1630 1158 1397 1450 963 1248 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01		255.07614 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2	= = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00		255.07614 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M -	- PARA 	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) EXP((D-60)/10)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37		255.07614 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F -	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 50.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121		255.07614 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B) AMETERS: Approach half width (m) Entry width (m) Entry width (m) Entry radius (m) Inscribed circle diameter (m) Entry angle (degree) Entry flow (pcu/h) Circulating flow across entry (pcu/h) ARAMETERS: Sharpness of flare = 1.6(E-V)/L 1-0.00347(A-30)-0.978(1/R-0.05) V + ((E-V)/(1+2S)) EXP((D-60)/10) 303*X2 1+(0.5/(1+M))	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 3159 255 1630 1158 1397 1450 963 1248 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37		255.07614 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.58		255.07614 (ARM B)			
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Q e	- PARA = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 30.00 35.00 36.00 30.00 1159 255 1630 1158 1397 1450 963 1248 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 0.37 0.74 0.58 0.75 0.69 1409 666 1750 1274		255.07614 (ARM B)	3284.74	PCU	
ARM INPUT V E L R D A Q Q C OUTP S K X2 M F T d F C Qe	- PARA = = = = = = = = = = = = = = = = = = =	Wan Tsui Road (ARM B)	A B C D 7.00 4.00 7.00 7.00 9.00 7.00 10.00 7.00 6.00 5.00 6.00 6.00 40.00 15.00 40.00 25.00 50.00 50.00 50.00 30.00 1159 255 1630 1158 1397 1450 963 1248 0.53 0.96 0.80 0.00 1.02 0.97 1.00 1.01 7.97 5.03 8.15 7.00 0.37 0.37 0.37 0.37 2414 1523 2471 2121 1.37 1.37 1.37 1.37 0.74 0.58 0.75 0.69 1409 666 1750 1274		255.07614 (ARM B)	3284.74	PCU	

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J5: Junction of Chai Wan Road and Wing Tai Road	J5LV3 - Peak Hour Traffic Flows	FILENAME :12_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(3) 308 \qquad \longrightarrow \qquad (3) 49 \qquad \longrightarrow \qquad (4) 40 \qquad \longrightarrow \qquad (4) 40 \qquad \longrightarrow \qquad (4) 40 \qquad \longrightarrow \qquad (5) 40 \qquad \qquad (5) 40$	N X Wing Tai Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.276Loss timeL =10Total Flow=1878Co= (1.5*L+5)/(1-Y)=Cm= L/(1-Y)=Yult=0.825R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=14.4Ymax= 1-L/CSundard Color=193.7	sec sec pcu sec sec %
$(4) \begin{array}{c} (3) \\ (3) \\ (3) \\ (3) \\ (2) \\ (2) \\ (2) \\ (2) \\ (2) \\ (2) \\ (2) \\ (2) \\ (2) \\ (2) \\ (3) \\ (6) \\ ($			
Stage A I - 7 Stage B I - 5			
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Straight- Ahead m. m. ane m. Traffic? side Ahead Le	Aovement Total Proportion Sat. Flare Straight Right Flow of Turning Flow Leng pcu/h pcu/h pcu/h Vehicles pcu/h m	laneShareRevisedgggthEffectSat. FlowyGreaterLrequiredn.pcu/hrpcu/hysecsecsec	Degree of Saturation Queue Length Average Delay X (m / lane) (seconds)
LT A 3.75 1 2 22 y 4120 49 LT A 4.00 2 2 24 y 4310 31 RT A 3.50 2 2 11 y 4070 31 ST B 3.50 3 2 13 y 4070 RT B 4.50 3 2 13 y 4270 Ped A 4.50 5 -<	490 1.00 3857 314 1.00 4056 716 716 1.00 3582 308 308 0.00 4070 49 49 1.00 3828	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	0.195 12 5 0.119 9 5 0.306 18 5 0.306 18 24 0.052 3 25
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING L	.ENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE	
TIA Study for Columbarium Development at Cape Collinson Road, C	hai Wan		PROJECT NO.: CTLDQS Prepared By: KC 29-4-2011	
J6: Junction of Siu Sai Wan Road and Harmony Road	J6LV3 -	- Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By: OC 29-4-2011	
2021 Level 3 Peak Hour - Site 1			REFERENCE NO.: Reviewed By: OC 3-5-2011	
$(1) 126 \underbrace{ \begin{array}{c} 1 \\ 1 \end{array}}_{(1)} 536 \underbrace{ \begin{array}{c} 2 \\ 49 \\ 1 \\ 1 \end{array}}_{(1)} 536 \underbrace{ \begin{array}{c} 2 \\ 49 \\ 1 \\ 1 \\ 1 \end{array}}_{(1)} 536 \underbrace{ \begin{array}{c} 2 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\$	(2) 41 Siu Sai Wan Ro (1) 868	N Xoad	No. of stages per cycleN =3Cycle timeC =100 secSum(y)Y =0.245Loss timeL =48 secTotal Flow=1620 pcuCo= (1.5*L+5)/(1-Y)=102.0 secCm= L/(1-Y)=63.6 secYult=0.540R.C.ult= (Yult-Y)/Y*100%=120.5 %Cp= 0.9*L/(0.9-Y)=65.9 secYmax= 1-L/C=0.520R.C.(C)= (0.9*Ymax-Y)/Y*100%=91.1 %	
$(1) \qquad (3) \qquad (3) \qquad (4)$ $(5) \qquad (4)$ $(5) \qquad (4)$ $(5) \qquad (5) \qquad (5)$	(2) (2) (2) (2) (2) (2) (2) (3) (2) (3) (4) (5) (5) (6) (7) (7) (7) (7) (7) (7) (7) (7			
Move- Stage Lane Phase No. of Radius Opposing Near- ? ment Width lane Traffic? side	Straight- Movement Ahead Left Straight Right	Total Proportion Sat. I Flow of Turning Flow	Flare lane Share Revised g g Degree of Queue A Length Effect Sat. Flow y Greater L required (input) Saturation Length	verage Delay
LT/ST A 3.30 1 1 11 Y ST A 3.20 1 1 11 Y ST A 3.00 1 2 Y LT C 3.75 2 1 12 Y RT C 3.75 2 1 12 Y Ped B 11.00 3 - - - Ped B 6.50 4 - - - - Ped B 6.50 5 - - - -	1945 126 152 2075 384 3970 868 1990 41 2130 49	1 pcu/n venicles pcu/h 278 0.45 1832 384 0.00 2075 868 0.00 3970 41 1.00 1769 49 1.00 1893	m. pcu/nr pcu/nr y sec sec sec x (m/ lane) (s 1832 0.152 28 32 46 0.326 24 30 2075 0.185 39 46 0.398 30 30 3970 0.219 0.219 46 46 0.471 36 1769 0.023 5 6 0.414 6 1893 0.026 0.026 6 6 0.471 6	12 12 11 51 53
			NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUI	: * 6m

			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	1	PROJECT NO.: CTLDQS Prepared Bv:	KC 29-4-2011
J7: Junction of Siu Sai Wan Road and Harmony Road(N)	J7LV3 - Peak Hour Traffic Flows	FILENAME 12 S1 J2 J5 J6 J7 J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
Bus Terminal (1) 15 (1) 201 (1) 19 (1) 19 (1) 19 (1) 19 (1) 19 (1) 19 (1) 19 (1) 19 (1) 114 (1) (1) (1) 19 (1) 114 (1) (1) (1) 114 (1) (1) (1) (1) (1) (1) (1) (1) (1) (1)	N M	No. of stages per cycleN =Cycle timeC =Sum(y)Y =Loss timeL =Total Flow=Co= (1.5*L+5)/(1-Y)=Co= (1.5*L+5)/(1-Y)=Yult=0.7R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=0.8R.C.(C)= (0.9*Ymax-Y)/Y*100%=	4 105 sec 29 18 sec 232 pcu 5.1 sec 1.5 sec 65 3.3 % 4.4 sec 29 3.8 %
$(1) \xrightarrow{(6)} (7) \xrightarrow{(6)} (7) \xrightarrow{(7)} (4) \xrightarrow{(4)} (4)$ $(1) \xrightarrow{(1)} (1) \xrightarrow{(3)} (3) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$ $(3) \xrightarrow{(3)} (2) \xrightarrow{(3)} (2)$	(4) (6) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (5) ↓ (6)		
Move- ment Stage Lane Phase No. of lane Radius Opposing Near- side Straight- Ahead Movem ment Width Iane Traffic? side Ahead Left Straight- straight m. m. m. No Movem Sat. Flow pcu/h pcu/h	ent Total Proportion Sat. Flare lane at Right Flow of Turning Flow Length pcu/h pcu/h Vehicles pcu/h m.	Share Revised Ettect Sat. Flow y Greater L required (inpu pcu/hr pcu/h y sec sec sec	t) Saturation X (m / lane) (seconds
LT/ST A 3.30 1 1 11 11 y 1945 15 81 ST/RT A 3.30 1 1 12 2085 120 RT B 3.50 2 1 12 2105 120 LT A,B 3.75 3 1 13 y 1990 114 RT C 3.50 4 1 12 2105 14 LT/ST C 3.50 5 1 12 2105 14 LT/ST C 3.50 5 1 12 2105 14 LT/ST D 3.50 5 1 12 2105 12 LT/ST D 3.50 5 1 11 y 1965 362 32 ST/RT D 3.50 5 1 11 y 1965 4 85 Ped D,A,B <	96 0.16 1904 19 139 0.14 2050 11 11 1.00 1871 114 1.00 1784 142 142 1.00 1871 393 0.92 1762 247 247 1.00 1871 89 0.04 1954	1904 0.051 18 2050 0.068 0.068 14 14 1871 0.006 0.066 1 1 1784 0.064 13 20 1871 0.076 15 45 1762 0.223 0.223 45 45 1871 0.132 0.132 27 27 1954 0.045 9 9 9	0.387 12 38 0.518 18 40 0.518 0 125 0.337 12 31 0.176 12 15 0.518 36 14 0.518 30 26 0.518 12 48
		NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUI	NG LENGTH = AVERAGE QUEUE * 6m

TRAFFIC SIGNAL CALCULATION			INITIALS DATE
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan	•	PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011
J8: Junction of Chai Wan Road and Tai Tam Road	J8LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011
$(1) 918 \\ (1) 876 \\ (1) 876 \\ (1) 876 \\ (1) 876 \\ (1) 876 \\ (1) 876 \\ (2) 153 (2) \\ (3) (3) 153 (2) \\ (3) 153 (3) \\ (3) 153 (3) $	N 🚽	No. of stages per cycleN =3Cycle timeC =105Sum(y)Y =0.883Loss timeL =18Total Flow=3693Co= (1.5*L+5)/(1-Y)=Zm= L/(1-Y)=Yult=0.765R.C.ult= (Yult-Y)/Y*100%=Cp= 0.9*L/(0.9-Y)=Ymax= 1-L/C=0.829R.C.(C)= (0.9*Ymax-Y)/Y*100%=	sec pcu sec sec sec %
$(1) \longrightarrow (5) \qquad (5) \qquad (5) \qquad (6) \qquad (7) \qquad (2) \qquad (3)$ Stage A I = 7 Stage B I = 8 Stage C	 ← - → (6) = 6 		
Move- ment Stage Lane Phase No. of Radius Opposing Near- side Straight- Ahead Mover m. m. m. m. Traffic? side Ahead Left Strai	nent Total Proportion Sat. Flare lane Share sht Right Flow of Turning Flow Length Ettect /h pcu/h pcu/h Vehicles pcu/h m. pcu/h	Revised Sat. Flow y Greater L required (input) pcu/h y sec sec sec	Degree of SaturationQueue LengthAverage DelayX(m / lane)(seconds)
ST A 3.75 1 2 y 4120 91 RT A 3.00 1 1 13 2055 4210 88 ST B 3.50 2 2 4210 88 LT B 3.10 2 1 12 y 1925 153 LT C 4.00 3 1 15 y 2015 473 LT/RT C 4.00 3 1 15 2 14 14 Ped A 4.50 4 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 Ped B,C 3.50 5 4 4 4 4 4 Ped C 3.50 5 4 4 4 4 4 Ped A,B 3.50 7 4 4 4 4 4 Ped A,B 3.50 7 4	8 918 0.00 4120 8 876 1.00 1842 8 888 0.00 4210 153 1.00 1711 473 1.00 1832 244 386 1.00 1959	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1.066 63 44 2.273 120 43 1.066 60 45 0.451 18 32 1.066 60 35 0.815 48 37
	NOTES :	PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING	LENGTH = AVERAGE QUEUE * 6m

Val	CROW	Agreement No. CPM301_15/10 - Traffic Impact Assessm	ent Study For Columbarium Development a	t Prepared By:	КС
		Junction Capacity Analysis		Checked By:	00
Junction la	yout sketch - Design Year Time -	J9: Junciton of Chai Wan Road and Wan Tsui Road - 2021 Level 3 - Site 1 Level 3 Peak Hour	GEOMETRIC DETAILS	GEOMETRIC PARAM	IETERS
W ₁ Chai Wan Road W _{cr1} (E)	108 571	ARM B Wan Tsui Road	W_1 =10.90(metres) W_2 =7.70(metres) W_3 =10.60(metres) W_4 =10.20(metres) W =19.70(metres) W_{cr1} =4.10(metres) W_{cr2} =1.70(metres) W_{cr} =2.90(metres)	D E = F = Y =	0.675 1.109 0.993 0.320
ARM A W ₂		← 880 ^{VV} 4 ARM C	MAJOR ROAD (ARM A) q _{a-b} = <mark>107.87</mark> (pcu/hr) q _{a-c} = <mark>571.19</mark> (pcu/hr)	THE CAPACITY OF N Q _{b-c} = Q _{c-b} = Q _{b-a} =	MOVEMENT 747 661 337
			MAJOR ROAD (ARM C) W _{c-b} = <mark>3.30</mark> (metres)	COMPARISION OF D	ESIGN FLOW
REMARK: (GEO	METRIC INPU	T DATA)	$Vr_{c-b} = 150$ (metres)	DFC _{b-a} =	0.668
W W _{cr}	= AVERA = AVERA	AGE MAJOR ROAD WIDTH AGE CENTRAL RESERVE WIDTH	q _{c-a} = <mark>880.37</mark> (pcu/hr) q _{c-b} = <mark>192.89</mark> (pcu/hr)	DFC _{b-c} = DFC _{c-b} =	0.547 0.292
W b-a W b-c W c-b VI b-a Vr b-a Vr b-a Vr c-b D E F	= LANE = LANE = LANE = VISIBII = VISIBII = VISIBII = VISIBII = GEOM = GEOM = GEOM	WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-A WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM B-C WIDTH AVAILABLE TO VEHICLE WAITING IN STREAM C-B LITY TO THE LEFT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-A LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM B-C LITY TO THE RIGHT FOR VEHICLES WAITING IN STREAM C-B WITT TO THE RIGHT FOR STREAM B-C LITY TO THE RIGHT FOR STREAM B-C WITTIC PARAMETERS FOR STREAM B-A LITRIC PARAMETERS FOR STREAM C-B	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	Critical DFC =	0.668
ctober 2007	essment Report	,			Page 9 of 1

TRAFFIC SIGNAL CALCULATION			INITIALS DATE		
TIA Study for Columbarium Development at Cape Collinson Road, Chai Wan		PROJECT NO.: CTLDQS Prepared By:	KC 29-4-2011		
J10: Junction of Chai Wan Road and San Ha Street	J10LV3 - Peak Hour Traffic Flows	FILENAME n2_S1_J2_J5_J6_J7_J8.xls Checked By:	OC 29-4-2011		
2021 Level 3 Peak Hour - Site 1		REFERENCE NO.: Reviewed By:	OC 3-5-2011		
$(1) 1030 \longrightarrow \\ 63 \longrightarrow \\ 63 \longrightarrow \\ 569 \qquad \qquad$	N Chai Wan Road	No. of stages per cycleN =2Cycle timeC =100Sum(y)Y =0.595Loss timeL =10Total Flow=2253Co= (1.5*L+5)/(1-Y)=49.3Cm= L/(1-Y)Yult=0.825R.C.ult= (Yult-Y)/Y*100%=A8.7Cp=O.9 = 1-L/C=0.900R.C.(C)= (0.9*Ymax-Y)/Y*100%=36.2	sec pcu sec sec % sec %		
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NOTE : O - OPPOSING TRAFFIC N - NEAR SIDE LANE SG - STEADY GREEN FG - FLASHING GREEN PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6m					

TRAFFIC SIGNAL CALCULATION	ChaiWan			Dropprod Byg	INITIALS	DATE
111: Junction of Chai Wan Road, Sheung On Street & Wing Ding Str		Iour Traffic Flows		vis Checked By:		29-4-2011 20_1_2011
2021 Level 3 Peak Hour - Site 1			REFERENCE NO ·	Reviewed By:		29-4-2011
			REFERENCE NO.:	neviewed by.		5 5 2011
(1) 95 (1) 822 91 (3) Wing Ping Street	eung On Street (4) (4) 368 29 Chai Wa Chai Wa This (2) t	N A A A A A A A A A A A A A A A A A A A	No. of stages per cycle Cycle time Sum(y) Loss time Total Flow Co = $(1.5*L+5)/(1-Y)$ Cm = $L/(1-Y)$ Yult R.C.ult = $(Yult-Y)/Y*100\%$ Cp = $0.9*L/(0.9-Y)$ Ymax = $1-L/C$ R.C.(C) = $(0.9*Ymax-Y)/Y*100$	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	sec sec pcu sec sec sec %	
$(1) \underbrace{(1)}_{(1)} \underbrace{(2)}_{(2)} \underbrace{(5)}_{(3)} \underbrace{(6)}_{(3)}$	(5) <> (6) <> (7)					
Stage A I = 8 Stage B I = 5	Stage C I = 7 Stag	ge C I = 6				
Move- ment Stage Lane Width m. Phase No. of Iane Radius Traffic? Opposing Side Iane ? Near- Traffic?	Straight- Movement Total Ahead Left Straight Right Flow Sat. Flow pcu/h pcu/h pcu/h pcu/h	ProportionSat.Flare laof TurningFlowLengtlVehiclespcu/hm.	ane Share Revised th Effect Sat. Flow y Greater pcu/hr pcu/h y su	g g (required (input) ec sec sec	Degree of Saturation X	Queue Average Length Delay (m / lane) (seconds
LT/ST A 3.50 1 3 12 Y LT/ST A 3.30 2 3 12 Y LT B 3.50 3 1 9 Y LT/RT D 3.75 4 2 10 y Ped B,C 4.00 5 Ped B,C 5.00 6 Ped C 3.00 7 I I	6175 95 822 918 6115 143 765 909 1965 91 91 4120 29 368 397	0.10 6096 0.16 5997 1.00 1684 1.00 3583	6096 0.151 5997 0.152 0.152 1684 0.054 0.054 3583 0.111 0.111	22 39 40 14 29 5	0.000 0.000 0.000 0.000	60 54 60 54 18 54 39 54
NOTES : PEDESTRAIN WALKING SPEED = 1.2m/s QUEUING LENGTH = AVERAGE QUEUE * 6						ERAGE QUEUE * 6m

Appendix C

Level of Services Guidelines

LOS	Flow Rate (ped/min/m)	Description
А	≤ 16	Pedestrians basically move in desired paths without altering their movements in response to other pedestrians. Walking speeds are freely selected, and conflicts between pedestrians are unlikely.
В	16 - 23	Sufficient space is provided for pedestrians to freely select their walking speeds, to bypass other pedestrians and to avoid crossing conflicts with others. At this level, pedestrians begin to be aware of other pedestrians and to respond to their presence in the selection of walking paths.
С	23 - 33	Sufficient space is available to select normal walking speeds and to bypass other pedestrians primarily in unidirectional stream. Where reverse direction or crossing movement exists, minor conflicts will occur, and speed and volume will be somewhat lower.
D	33 - 49	Freedom to select individual walking speeds and bypass other pedestrians is restricted. Where crossing or reverse- flow movements exist, the probability of conflicts is high and its avoidance requires changes of speeds and position. The LOS provides reasonable fluid flow; however considerable friction and interactions between pedestrians are likely to occur.
E	49 - 75	Virtually, all pedestrians would have their normal walking speeds restricted. At the lower range of this LOS, forward movement is possible only by shuffling. Space is insufficient to pass over slower pedestrians. Cross- and reverse-movement are possible only with extreme difficulties. Design volumes approach the limit of walking capacity with resulting stoppages and interruptions to flow.
F	> 75	Walking speeds are severely restricted. Forward progress is made only by shuffling. There are frequent and unavoidable conflicts with other pedestrians. Cross- and reverse-movements are virtually impossible. Flow is sporadic and unstable. Space is more characteristics of queued pedestrians than of moving pedestrian streams.

Appendix C Description of Level-of-Service (LOS)

Graph 3-3: Graphical Presentation of LOS



Appendix D

Reference Drawings extracted from 2012 TIA Study





E:*proj*CTLDQS*Figure*TIA*CCR_FIG_5_3a_1_TIAR.dgn



E:*proj*CTLDQS*Figure*TIA*CCR_FIG_5_3b_0_TIAR.dgn

ISSUE NO.:Issue 1ISSUE DATE:AUG 2016PROJECT NO.:1336

PRELIMINARY VISUAL IMPACT ASSESSMENT

FOR

PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN

COMMERCIAL-IN-CONFIDENCE

Prepared By:

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ISSUE NO.:Issue 1ISSUE DATE:AUG 2016PROJECT NO.:1336

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COMMERCIAL-IN-CONFIDENCE

Prepared By:

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This report has been prepared by Allied Environmental Consultants Limited with all reasonable skill, care and diligence within the terms of the Agreement with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

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1. INTRODUCTION

- 1.1.1. The proposed site for the columbarium block is located on a sloping ground in the northern side of Cape Collinson Road opposite to an existing columbarium building of Chai Wan Chinese Permanent Cemetery (CWCPC).
- 1.1.2. The site is bounded by the existing Cape Collinson Road along south to east. The remaining two straight boundaries follow the alignment of the existing zoning plan and facing an open greenery area to the North-West. The site lies on a sloping hillside of unallocated Government land from 48.0mPD to 68.00mPD at Cape Collinson Road. The site is a virgin site with densely grown trees and there are three existing stream courses running across to the north-west of the site and ended with an existing open culvert. The site originally covers an area of about 3,400m². Notional development plan of the proposed Project is shown in *Appendix A*. Basic parameters of the Project are summarised in *Table 1* below.

Plot Ratio	< 2.1
Number of Storeys	Maximum 5-storey above street level
Gross Floor Area	$< 7,150 \text{ m}^2$
Site Coverage	Approx. 60%
Floor Uses	Approx. 25,000 niches

 Table 1 Basic Development Parameter of the Project

- 1.1.3. The hillside slope is ascending from the residential area at San Ha Street in the north towards the proposed columbarium site at Cape Collinson Road in the south. The proposed columbarium block together with other existing columbarium of CWCPC could be seen by existing resident developments, i.e. Wan Tsui Estate, Yuet Chui Court, Yan Tsui Court and Lok Hin Terrace at San Ha Street. The visual character of the area is dominated by the concrete structures of the existing cemetery office and the cemeteries along the high portion of the mountain slope, while low portion of the slope is dominated by hillside vegetation. Appropriate architectural design and landscape proposal will be adopted to minimize visual impact of the columbarium.
- 1.1.4. A landscape consultant will be appointed at the detailed design stage to prepare the landscape proposal, including potential tree felling and transplanting.
- 1.1.5. The significance of visual impact is derived from the combined analysis of the magnitude of change and the sensitivity of the visually sensitive receivers (VSRs) at key public viewpoint (VP) to the change as shown in *Table 2*.

1

ıge		Sensitivity of Resource		
har		Low	Medium	High
Magnitude of C	Large	Slight/Moderate	Moderate/Significant	Significant
	Intermediate	Slight	Slight/Moderate	Moderate/Significant
	Small	Slight	Slight	Slight/Moderate
	Negligible	Insubstantial	Insubstantial	Insubstantial

 Table 2 Matrix for Appraisal of Significance of Visual Impact

2. VISUAL SENSITIVE RECEIVERS

- 2.1.1. Key VSRs are identified according to the nature of settlement as follows:
 - Residential VSRs that view the proposed Project from homes, including Lok Hin Terrace, Wan Tsui Estate, Yan Tsui Court and Yuet Chui Court
 - Occupational VSRs that view the proposed Project from workplaces, institutional and educational buildings, including The Salvation Army Centaline Charity Fund School
 - Recreational VSRs that view the proposed Project from recreational landscapes, such as Wan Tsui Estate Park; and
 - Travelling VSRs that view the proposed Project from public roads during travelling on vehicles or on foot.

3. DESCRIPTION OF KEY VIEWPOINTS

3.1. VIEWPOINT A (VP A)

3.1.1. Viewpoint A (**VP** A) is at a distance of about 70m from the Cape Collinson Road from western side as indicated in *Appendix B*. The existing visual character and visual elements of the area would be roadside vegetation along Cape Collinson Road and existing hillside cemetery view and Cape Collinson Chinese Permanent Cemetery building view. It represents the transient passers travelling along Cape Collinson Road, as it is located at prominent travel routes that are close to the Project site and have a direct view of the Project site. The potential affected population of these VSRs are expected to be low.

3.2. <u>VIEWPOINT B (VP B)</u>

3.2.1. Viewpoint B (**VP B**) is at a distance of about 72m from the Wan Tsui Estate Park as indicated in *Appendix B*. It represents the transient users of the Park. The existing visual

character and visual elements of the area would be densely-grown trees inside the Park and existing hillside cemetery view and existing cemetery building view.

3.3. <u>VIEWPOINT C (VP C)</u>

3.3.1. Viewpoint C (**VP** C) is from the pavement near Fu Tsui House at Yan Tsui Street as indicated in *Appendix B*, which is about 230m away from the proposed site at Western side. It represents the view of the Project site from transient passers on the West. The existing visual character and visual elements of the area is dominated by hillside trees and existing hillside cemetery view.

3.4. <u>VIEWPOINT D (VP D)</u>

3.4.1. Viewpoint D (**VP D**) is from the playground at podium level in front of Hei Tsui House as indicated in *Appendix B*, which is about 196m away from the Site. It represents the view of the Project site from recreational users of the Playground on the northwest. The location of viewpoint is easily accessible and frequently visited by the public for outdoor activities, recreation, rest, leisure that have relatively high viewing frequency and potential affected population as compared with transient VSRs at VP A and VP C. The existing visual character and visual elements of the area is dominated by hillside trees and small portion of existing hillside cemetery view.

4. IMPACT ON KEY VIEWPOINTS

$4.1. \qquad \underline{\text{VIEWPOINT A (VP A)}}$

- 4.1.1. At VP A, the proposed development will be seen in views looking northeast from the Cape Collinson Road at a distance of about 70m. The existing view of the Project site, which is dominated by background existing cemetery view and natural hill slope, will change to a construction site during construction phase and the proposed columbarium building during operation phase that will be partially obstructed by the roadside densely-grown trees.
- 4.1.2. Given that the ground floor of the proposed columbarium sits at the lower level of the hill slope, large portion of the view of the Project site will be screened off by the existing roadside trees. It is anticipated that only slight visual obstruction of the existing cemetery view, which has low amenity value, will be experienced by the VSRs at VP A due to the proposed Project, and thus the visual openness experienced at VP A will not be significantly affected by the proposed Project. Although felling of a small portion of hillside vegetation would occur, the VSRs at VP A will be easily distracted by other hillside and roadside vegetation that have higher amenity value and will not be blocked by the proposed Project. In addition, the soft landscaping provided by the proposed Project will soften the concrete structure of the existing cemetery view, and blending the proposed columbarium building into the surrounding visual context that comprises of hillside vegetation and building groups as similar to the existing cemetery in order to

maintain compatibility with the surrounding visual character. Hence, the magnitude of visual change during construction and operation phase is anticipated to be <u>adversely</u> <u>intermediate</u>. *Figure 1* illustrates the comparison by photomontage.

4.1.3. Given the transient nature of the VSRs at VP A and their views of the Project site are rare in order to focus on the travelling activity, the sensitivity to visual change is <u>low</u>. The resultant visual impact is considered as **slightly adverse** during both construction and operation phase.

4.2. VIEWPOINT B (VP B)

- 4.2.1. The proposed development will be seen in views looking northeast from VP B, which is from the sitting out area of Wan Tsui Estate Park at a distance of about 72m. The existing view of the Project site, which is dominated by background existing cemetery view and natural hill slope, will change to a construction site during construction phase and the proposed columbarium building during operation phase.
- 4.2.2. The impact from the loss of small portion of hillside vegetation is anticipated to be minor since the densely-grown vegetation in foreground will not be affected by the proposed Project and shall easily attracts the view of the VSRs at VP B. Given that the ground floor of the proposed columbarium sits at the lower level of the hill slope, large portion of the view of the proposed Project will be screened off by the existing hillside vegetation and the densely-grown trees inside the Park. It is anticipated that only slight visual obstruction of the existing cemetery view, which has low amenity value, will be experienced by the VSRs at VP B due to the proposed Project, and thus the visual openness experienced at VP B will not be significantly affected by the proposed Project. The view of the existing cemetery office building that has low amenity value will be substantially blocked by the proposed columbarium building, while the soft landscape design of the proposed Project allows the proposed columbarium building to blend into the surrounding visual context that comprises of hillside vegetation and building groups as similar to the existing cemetery in order to maintain compatibility with the surrounding visual character. In this connection, the magnitude of the visual change during construction and operation phase is anticipated to be adversely small. Figure 2 illustrates the comparison by photomontage.
- 4.2.3. With consideration that the sensitivity of recreational user is <u>medium</u>, the resultant visual impact is therefore considered as **slightly adverse** during both construction and operation phase.

4.3. <u>VIEWPOINT C (VP C)</u>

4.3.1. The proposed development will be seen in views looking southeast from VP C, i.e. the pavement near Fu Tsui House at Yan Tsui Street, at a distance of about 230m. The Project site is located at the backdrop of the existing cemetery view, which has the same visual character as the Project site. The existing view of the Project site, which is dominated by the existing cemetery view and hillside vegetation, will change to a construction site during construction phase and eventually a columbarium building as

similar to the existing cemetery during operation phase that remains partially blocked by the existing hillside vegetation in foreground.

- 4.3.2. Given that the ground floor of the proposed columbarium sits at the lower level of the hill slope, a significant portion of the view of the proposed Project will be screened off by the existing hillside vegetation. It is anticipated that only slight visual obstruction of the existing cemetery view, which has low amenity value, will be experienced by the VSRs at VP C due to the proposed Project, and thus the visual openness experienced at VP C will not be significantly affected by the proposed Project. The impact from the potential loss of small portion of hillside vegetation is anticipated to be minor since the views of the VSRs at VP C are easily distracted by the undisturbed hillside trees, which have high amenity value and will not be blocked by the proposed Project. In addition, the soft landscaping provided by the proposed Project will soften the concrete structure of the existing cemetery view, and blending the proposed columbarium building into the surrounding visual context that comprises of hillside vegetation and building groups as similar to the existing cemetery in order to maintain compatibility with the surrounding visual character. Given the long viewing distance, the magnitude of visual change during construction and operation phase is anticipated to be adversely small. Figure 3 displays the photomontage showing the views of the proposed development.
- 4.3.3. Given the transient nature of the VSRs at VP C and their views of the Project site are rare in order to focus on the travelling activity, the sensitivity to visual change is <u>low</u>. Therefore, the resultant visual impact is **slightly adverse** during both construction and operation phase.

4.4. <u>VIEWPOINT D (VP D)</u>

- 4.4.1. The proposed development will be seen in views looking southeast from VP D from the podium in front of Hei Tsui House at a distance of about 196m. The Project site is located at the backdrop of the existing cemetery view, which has the same visual character as the Project site. The existing view of the Project site, which is dominated by the existing cemetery view and hillside vegetation, will change to a construction site and eventually a columbarium building as similar to the existing cemetery during operation phase that remains partially blocked by the existing hillside vegetation in foreground.
- 4.4.2. Given that the ground floor of the proposed columbarium sits at the lower level of the hill slope, a significant portion of the view of the proposed Project will be screened off by the existing hillside vegetation. It is anticipated that only slight visual obstruction of the existing cemetery view, which has low amenity value, will be experienced by the VSRs at VP D due to the proposed Project, and thus the visual openness experienced at VP D will not be significantly affected by the proposed Project. The impact from the potential loss of small portion of hillside vegetation is anticipated to be minor since the views of the VSRs at VP D are easily distracted by the undisturbed hillside trees, which have high amenity value and will not be blocked by the proposed Project. In addition, the soft landscaping provided by the proposed Project will soften the concrete structure of the existing cemetery view, and blending the proposed columbarium building into the surrounding visual context that comprises of hillside vegetation and building groups as similar to the existing cemetery in order to maintain compatibility with the surrounding

visual character. With consideration of the combined impact of the long viewing distance and the considerable length of the façade of the proposed columbarium building fronting VP D, the magnitude of visual change during construction and operation phase is anticipated to be <u>adversely small</u>. *Figure 4* displays the photomontage showing the views of the proposed development.

4.4.3. Since the sensitivity of recreational user is <u>medium</u>, the resultant visual impact is **slightly adverse** during both construction and operation phase.

5. MITIGATION MEASURES DURING CONSTRUCTION

5.1. <u>CONSTRUCTION SITE HOARDING</u>

5.1.1. Hoardings should be provided with aesthetic treatment and designed to be subtle and camouflaged. It should be compatible with the surrounding landscape and visually "impermeable" to block the view of construction activities from VSRs. The visual quality and amenity value of the Project site would be enhanced as compared to the condition of the Project site that consists of temporary works area surrounded by grey hoarding.

5.2. <u>TEMPORARY LANDSCAPE TREATMENT</u>

5.2.1. Temporary landscape treatment, such as the provision of temporary planting around the Site office in ornamental pots and application of green roof for Site office, should be considered during construction phase. Landscape planting in movable planters should also be considered as a temporary greening measure for the Project area (i.e. along Site hoarding). Design of the green roof and the type of species to be used shall be reviewed and confirmed during detailed design stage. The visual quality and amenity value of the Project site is considered to be enhanced by the provision of a more greenery view to the neighbourhood as compared to the existing condition of the Project site that consists of trees.

5.3. <u>Proper Management of Construction Works</u>

5.3.1. Proper planning and management will be carried out before commencement of construction works. Works area should be selected only as necessary with the view to reduce visual impact and minimise potential disturbance to surrounding area during construction stage. Construction activities should be controlled and supervised to minimise potential impact on existing vegetation, particularly during any slope work if found necessary.

6. MITIGATION MEASURES DURING OPERATION

6.1. <u>Compensatory Planting</u>

6.1.1. Compensatory planting should be provided in the landscape area. The planting would follow the requirements as stipulated in DEVB TC(W) No. 10/2013. The planting location and the type of compensatory plant species will be reviewed and confirmed during detailed design stage. The planting should be commenced during construction stage and be completed before the completion of construction stage to ensure the measure will be implemented on Day 1 of operation stage. Since on-site trees compensation may not be technically feasible due to the limited site area, off-site trees compensation may be considered and confirmation of available planting ground from FEHD shall be sought.

6.2. HARD LANDSCAPE FEATURE AND LIGHTING DESIGN

- 6.2.1. In order to blend in with the surrounding environment, the exterior of the permanent structure of the proposed Project should use non-reflective external finishes in light colour that is visually unobtrusive with surrounding context. Non-reflective paving materials should be considered to reduce potential glare from surface reflectance. The appearance should be kept sufficiently low-key so as to avoid disturbing feelings to the residents of local housing estates as well as maintaining visual compatibility with the surrounding visual character. The finishing material and colour will be reviewed and confirmed during detailed design stage.
- 6.2.2. Lighting should be efficiently designed so that minimum amount of lighting is required for safety and security. The design may make reference to the *Guidelines on Industry Best Practices for External Lighting Installations* by Environmental Bureau, EPD and EMSD. The mounting height and direction of exterior lighting fixtures shall be designed and arranged to point away from sensitive receivers where possible. Specification of lighting operation schedule shall be formed by the operator to impose restriction on lighting operation after business hours, such as limiting the operation of lighting except for security lighting only, and in areas with necessary night-time operation where applicable.

6.3. <u>Soft Landscape Design</u>

6.3.1. Landscape planting will be provided on ground floor and roof floor to improve visual quality of the development. Trees, shrub/groundcover and lawn will be provided to further enhance visual amenity. Fragrant species of soft landscaping works at suitable location shall be incorporated. The design shall integrate with the existing topography and vegetation. The construction of the new building should aim at preserving the existing vegetation and enhancing the original local landscape character as far as practicable.

7. CONCLUSION

- 7.1.1. As the views of the proposed development at VP A, VP B, VP C and VP D will be screened off by the existing trees or distracted by visual resources of the same visual character and amenity value, i.e. existing cemetery and vegetation, the visual impacts experienced by the receivers at key public viewpoints are slightly adverse.
- 7.1.2. Although the columbarium would unavoidably result in loss of existing vegetation and natural green slopes, the proposed Project is not incompatible with the surrounding visual character in terms of nature and height. Furthermore, significant adverse visual effects to the identified key public viewing points is not anticipated with the application of the proposed mitigation measures.

Appendix A

Notional Development Plan











Appendix B

Locations of the Selected Viewpoints



Figure 1 Photomontage at Viewpoint A (VP A) Set A - 50mm focal length



Without project



With project

Figure 2 Photomontage at Viewpoint B (VP B) Set A - 50mm focal length



Without project



With project

Figure 3 Photomontage at Viewpoint C (VP C) Set A - 50mm focal length



Without project



With project

Figure 4 Photomontage at Viewpoint D (VP D) Set A - 50mm focal length



Without project



With project

Provision of Columbarium at Cape Collinson Road in Chai Wan

Landscape and Tree Preservation Proposal

ADI

Project Title	Provision of Columbarium at Cape Collinson Road in Chai Wan
Report Title	Landscape and Tree Preservation Proposal
Date of Issue	8 April 2016

	Name	Signature	Date
Compiled by	C. K. Lee		8 April 2016
Checked by	Alison Lee		8 April 2016
Approved by	Christopher Chung		8 April 2016

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- 2. Site Context
- 3. The Development
- 4. Tree Preservation Proposal
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 - 4.2 Tree Retention and Felling Proposal
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1. Introduction

This report serves to describe the tree preservation and landscaping proposal for zoning amendment application of the proposed provision of Columbarium at Cape Collinson Road in Chai Wan, Hong Kong.

The landscaping proposal is prepared based on the latest architectural scheme prepared by the Project Architect.

2. Site Context (Refer to Appendix I - Site Location Plan)

The Site is located at Collinson Road opposite to the existing Cape Collinson Chinese Permanent Cemetery at Chai Wan, Hong Kong. Directly facing south-west is the existing octagonal Cape Collinson columbarium with terraced cemetery and woodland peak behind. Around east, north and west of the Site are woodland natural slopes or man-made slopes with football field and Wan Tsui Park and Wan Tsui Estate beyond.

The site is currently on formed slopes with densely grown trees with site area about $3,400m^2$.

3. The Development

The development involves construction of a 5 floors above Cape Collinson Road and 1 lower ground floor columbarium building for the provision of about 25,000 nos. of niches and ancillary facilities as well as landscaping area.

Footpath widening work is also required outside Site along portion of Collinson Road at north-eastern corner of the Site to accommodate the pedestrian flow at peak days.

4. Tree Preservation Proposal

4.1 Existing Trees

- 4.1.1 The tree survey and tree preservation proposal is prepared in accordance with DEVB TC(W) No. 10/2013 Tree Preservation. The site survey was undertaken in March 2016 and the location of trees was based on the topographic survey prepared by Chartered Land Surveyor.
- 4.1.2 A total of 177 trees were identified within the application boundary and in close proximity to Site within 3m from site boundary. Among which 150 nos. including 4 nos. dead trees (T190A, T198A, T210A & T214) are located within the application site and 27 nos. are outside application boundary on adjacent slopes.
- 4.1.3 The existing tree locations are illustrated on *Appendix II Tree Location Plan*. Identification of tree species and the recommendation for these trees as a result of implementation of the current scheme are reviewed in the following paragraphs and listed in *Appendix III - Tree Survey/Assessment Schedule* and the photographic records of the existing trees are shown in *Appendix IV*.
- 4.1.4 A total of 26 species were identified and 11 of them are exotic species and 15 of them are native species. No protected species under the Protection of Endangered Species of Animals and Plant Ordinance (Cap. 586). No Champion Trees (identified in the book 'Champion Trees in Urban Hong Kong') or Old and Valuable Trees were found to exist within and adjacent to the site. Table 4.1 below summarises tree species on Site.

Botanical Name	Chinese Name	Quantity	Native (N) or Exotic (E)
Aleurites moluccana	石栗	12	E
Artocarpus heterophyllus	菠蘿蜜	6	E
Bischofia javanica	秋楓	2	N
Bridelia tomentosa	土蜜樹	2	N
Bombax ceiba	木棉	2	E
Caryota ochlandra	魚尾葵	3	E
Celtis sinensis	朴樹	4	N
Choerospondias axillaris	南酸棗	7	N
Cinnamomum camphora	樟樹	1	N
Clausena lansium	黃皮	4	E
Delonix regia	鳳凰木	3	E
Dimocarpus longan	龍眼	48	E
Elaeocarpus decipiens	杜英	1	N
Ficus hispida	對葉榕	2	N
Liquidambar formosana	楓香	2	N
Litchi chinensis	荔枝	28	E
Litsea monopetala	假柿樹	3	N
Lophostemon confertus	紅膠木	3	E
Macaranga tanarius	血桐	10	N
Mallotus paniculatus	白楸	8	N
Mangifera indica	芒果	7	E
Microcos nervosa	布渣葉	1	N
Murraya paniculata	九里香	1	E
Pinus elliottii	濕地松	1	E
Sapindus saponaria	無患子	8	N
Sterculia lanceolata	假蘋婆	4	N
Dead Tree	死樹	4	-
	Total	177	

Table 4.1 Existing Tree Species Summary

- 4.1.5 The average DBH of the surveyed trees is 0.25m with average height of 8.31m and average crown spread of 4.65 m. These sizes are indicative of a combination of a middle-aged and mature amenity trees. 4 nos. trees DBH are larger than 0.7m, including T27, T65, T103 and T134.
- 4.1.6 A high percentage of the trees have a fair or poor form and health condition, and exhibit low amenity value. This includes a number of trees with two dominant trunks, leaning, open cavity, decay on root or trunk, restricted crown or root.

Assessment Criteria	Status of Trees	% Trees
Health Condition	Good	0%
	Fair	89%
	Poor	11%
Tree Form	Good	0%
	Fair	86%
	Poor	14%
Structural Condition	Good	0%
	Fair	92%
	Poor	8%
Amenity Value	High	0%
	Medium	69%
	Low	31%

Table 4.2 Summary of Existing Tree Condition

4.2 Tree Retention and Felling Proposal

- 4.2.1 Within the sloping site and densely grown trees and site access from Collinson Road at upper level, to ensure barrier free access at site arrival and to accommodate various functional and operational requirements of the development and to minimize visual intrusion of the development by limiting the total no. of storeys, the architectural ground floor plan require full site coverage at +68.00. For security purpose, boundary fence is also required around the site boundary.
- 4.2.2 All of the existing trees within Site and a number of trees outside Site but in close proximity shall unavoidably be affected by the development and require removal. There are in total 166 trees including 4 nos. of dead trees (94%) being affected and to be removed and remaining 11 trees (6%) are to be retained.
- 4.2.3 Opportunity for transplanting of the existing trees affected by the development is critically reviewed where a number of factors are considered as follows:
 - **Species:** Previous experience and arboriculture knowledge points to some species having a higher tolerance to the effects of transplantation than others. For example woodland species such as *Mallotus paniculatus* is not tolerant to the transplantation operation.
 - **Condition of the tree:** Trees with balanced form, in good health and with high amenity value are considered for transplanting whereas trees with fair to poor tree condition and tree form do not make good specimens when transplanted.
 - Age of the tree: Younger trees have a greater chance of surviving the transplantation operation than older trees. During their juvenile phase trees have their greatest vigour and so are more able to tolerate change. In addition energy reserves are available for sealing off wounds and so the tree is better able to recover from the pruning of roots and branches required during the transplanting operation. As the tree matures its ability to tolerate change decreases and so the maintenance of a stable environment around the tree is vital to its continued health.
 - Access: Large machinery is required to lift the trees as part of the transplantation procedure and so ease of access is important. The existing trees are located on the slope that is inaccessible for the large machinery.

- 4.2.4 Based on the above assessment, all 166 affected trees (including 4 dead trees) specimens are not recommended for transplanting owing to the following reasons and proposed for felling:
 - Trees with leaning form, twisting trunk and co-dominant trunk that may pose structural problem after transplanting;
 - Trees are growing on slopes densely with others with formation of individual rootball of reasonable size not possible. Accessibility of machinery and safety during the transplanting operation is also in doubt.
 - Trees densely grown have very narrow crown development or confined to the tree top with very low amenity value and crown pruning to facilitate tree transplanting may remove all the crown and adversely affecting survival rate and amenity value of the tree after transplanting.
 - Trees mature in size with low survival rate after transplanting.
 - No available receptor site for direct directly and transplanting off-site shall require substantial crown and root pruning and degradation in amenity value of the trees and rendered transplanting not worthy.

Details of the tree felling and retention proposal refer to *Tree Survey/Assessment Schedule* in *Appendix III*, *Photographic Record of Existing Trees* in *Appendix IV* and *Tree Recommendation Plan* in *Appendix V*.

4.3 Compensatory Planting Proposal

- 4.3.1 The Site is fully covered by densely grown existing trees. The development shall require provisions of facilities to meet the Schedule of Accommodation and statutory requirements. The landscape design will comply with the prescriptive requirements such as Site Coverage of Greenery in accordance with DEVB TC (W) No. 3/2012 . Whilst the magnitude of tree compensation would still be subject to the future detail design layout, the project team will explore different options, such as offsite compensatory planting at available land, to maximize the compensation ratio.
- 4.3.2 With the accommodation of various functional uses and statutory requirements and to allow adequate external areas for pedestrian circulation in peak seasons and to establish an outdoor landscape setting that is tranquil yet open to avoid too much shade that would pose a sorrow and sad atmosphere, tree planting proposed on Site shall serve mainly for peripheral buffer planting, entrance features and definition of space. Indicative tree planting proposal (location, quantity and species subject to detailed design) refers to **Notional Compensatory Planting Plan** (subject to detailed design) at **Appendix VI.**
- 4.3.3 In order to establish the proposed compensatory planting, it is envisaged that a minimum soil depth of 1200mm will be incorporated into the design of all tree planting areas. Where possible, the trees will be planted in continuous at-grade planters to maximise the volume of soil available for their future growth. All planting areas on slab would be provided with sub-soil drainage with drainage cells and filter fabric.
- 4.3.5 The tree planting works shall be carried out in accordance with Section 25 of the General Specifications for Building Works by ArchSD (2012 edition). Upon practical completion of the tree planting works, a 12-months establishment works shall be undertaken by the specialist landscaping contractor, thereafter, the trees shall be handed over to the user department, FEHD for future maintenance.

5. Notional Landscape Proposal (subject to detailed design)

The landscape design would serve to create a pleasant outdoor environment for the visitors and staffs and general amenity to the adjoining neighborhood with the following design objectives:

- a) To create tranquil outdoor rooms for visitors to awaken their memories to the departed by different spatial experience.
- b) To integrate coherently with the building, create sense of arrival, amenity and identity for the development that unlike a "conventional columbarium".
- c) To maximize opportunity for greenery on various levels to create a pleasant environment.
- d) To adopt environmental friendly landscape design elements including the selection of native plant species.
- e) To ensure that all landscaped areas are designed and finished to minimize future maintenance requirements.
- f) To ensure that all landscaped areas meet government recognized safety standards.
- g) To ensure barrier free access routes to the main landscaped areas.

5.1 Landscape Concept (Refer to Appendix VII - Notional Landscape Master Plans)

The notional landscaping proposal involves arrival courtyard, open lawn, tree grove, peripheral planting and green roof.

5.1.1 Ground Floor Landscaped Area

Key landscaped areas are located on ground floor along Collinson Road where both the vehicular access and pedestrian entrance are located. Tree planting is proposed along the site boundary to establish a pleasant arrival experience to the visitors who would be approaching the Site. An entrance courtyard signified by two flowering feature trees and feature walls (with signage incorporated) integrated with the boundary fence is proposed to create strong sense of arrival. Open spaces beside the grand staircase connected to the niches halls possess contrasting spatial setting in the form of open lawn defined by tree row and geometric tree grove surrounded by loose pebbles, creating different emotional experience to the visitors.

Evergreen trees with dense foliage shall be proposed as peripheral tree planting and flowering trees with architectural form as feature trees. Shrubs and groundcover with blossoms, contrasting texture and forms including scented species would be proposed to provide various senses of enjoyment.

5.1.2 Inaccessible Green Roof

To maximize greenery and mitigate solar heat gain to niches hall below, extensive green roof is proposed on the main roof. Owing to the concern of high risk of suicide of the visitor, the roof area is designated as inaccessible green roof only. Hardy drought tolerant groundcover shall be proposed to minimize water consumption for irrigation and horticultural maintenance.

5.1.3 Boundary Treatment

The site boundary abutting Collinson Road would be defined by transparent metal fencing with planting areas integrated as far as spatially and technically feasible. Along the northern and western site boundary are existing slopes with level drop between the Site and the slopes. Boundary fencing along these areas would merge with existing vegetation of adjoining slopes.

5.2 Passive Recreational Facilities

Owing the nature of the development, the landscape proposal provides high quality passive recreational facilities for the use of the visitors only. Passive recreational areas shall include open lawn, seating facilities and meditation tree grove with amenity planting and shade of trees to create a comfortable landscaped environment. Seating and other site furniture will be in sufficient quantity and of high quality.

5.3 Lighting

As the columbarium would be closed in night time, all the accessible points and open space areas will be provided with sufficient illumination mainly for security purpose. The lighting proposal includes two types of lighting as follows:

(a) AREA lighting

Pole light will be proposed at main entrance and driveway to provide adequate and effective security lighting. Low level lighting like wall recessed light and bollard lighting shall be proposed at general landscaped areas.

(b) SAFETY lighting

The minimum lux level lighting for safety reasons which will be lasted between midnight until early morning.

5.4 Soil Depth for Planting

For planting areas in general, minimum 300mm, 600 mm and 1200mm clear soil depth (waterproofing, screeding and drainage layer exclusive) would be allowed for lawn/groundcover, shrub and tree planting respectively.

5.5 Irrigation

The proposed irrigation system will be manual operation. Lockable water points are provided at maximum 40m apart covering all planting areas. The proposed source of water supply is subject to final approval from the Water Supplies Department.

5.6 Material Proposal

All pavements are specifically designed to suit the functional use of the areas with the proposed finishes and materials summarized below:

- Driveway: Material that requires low maintenance such as in-situ concrete or recycled concrete pervious pavers.
- Pedestrian pavement: Non-slip materials in a combination of natural granite, artificial granite tiles, homogeneous tiles or recycled concrete pervious pavers (for on-grade paving)

5.7 Planting Scheme

The planting design aims to create a lush and naturalistic environment. Combinations of textural, foliage and flowering plants together with feature trees will be used to create a harmonic planting palette at the landscaped areas. In order to achieve an instant effect of the soft landscaping works, tree planting within the amenity areas will be specified no smaller than heavy standard size. Different tree species such as *llex rotunda, Schima superba* and *Liquidambar formosana*, etc. shrub and groundcover species such as *Gordonia, axillaris, Michelia figo, Rhododendron pulchrum, Liriope spicata* and *Nephrolepis acriculata* etc. and lawn species of Axonopus compressus will be included in the proposed planting palette and exact species to be further explored in detail design.

5.8 Future Maintenance

Hard Landscape Elements

Maintenance for hard landscape elements shall be carried out by management office of the development with maintenance intention as follows:

I - Routine Maintenance (Daily – Weekly)

- a) Rubbish and litter removal;
- b) Sweeping and cleaning; and
- c) Damage inspection and repair for site furniture and light bulb replacement.

II - Annual/Long Term Maintenance

- a) Repainting;
- b) Resurfacing of worn pavements;
- c) Replacing worn parts site furniture, lighting fixture and other facilities; and
- d) Replacement of worn landscape furniture.

Soft Landscape Elements

The Softworks Sub-Contractor appointed by the Main Contractor will be responsible for a 12-month establishment period of plants after practical completion of the planting works. It allows a period of time for proper establishment of the plants. All soft landscaping works will be carried out in accordance with the General Specifications for Building Works by ArchSD (2012 edition). Upon the end of the 12-months establishment period, the Management Office of the Departmental Quarters will employ maintenance staff to take care of all landscape areas within the development.

<u>APPENDIX I</u>

SITE LOCATION PLAN



<u>APPENDIX II</u>

TREE LOCATION PLAN


	871	
-1297		
		APPLICATION BOUNDARY
	62.98	EXISTING LEVEL
T178 3	T1۹	98
¹⁶⁴⁵⁰ T177		EXISTING TREE
T18%		984
- 1182 - 1176 🐭		
- 1175		
- †197 - T185		
DESIGNED	設計 TEAM	
DRAWN	繪圖 CADD	
	審批	
	un 199	
頃 國 際 設計有限公司 !,城市規劃及設計,國境建築顧問服務 !西街十八號盤谷銀行大厦十樓 二) 二一三一 八六三零 傳真: (八五二) 二	-三- 八六零九 CAD CUENAUS	SKAL 12A-TLO1 dwg
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APPENDIX III

TREE SURVEY/ASSESSMENT SCHEDULE

Tree Survey/Assessment Schedule

Tree	Defenies News	Chinese	Tr	ee Size		Tree Fo	orm	Heal	Ith Condi	tion	Si C	tructur onditic	al on	А	menity Va	alue	Sur Tra	vival Rate A ansplantatio	fter on	Pro	oposed Treatn	nent	On S	Slope	Ground Level	Justification for	Remarks
No.	Botanical Name	Name	DBH (m)	Height (m)	Spread (m)	Good Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	High	Medium	Low	High	Medium	Low	Retain	Transplant	Fell	Yes	No	(mPD)	Tree Felling	
T 7	Macaranga tanarius	血桐	0.11	6.0	3.0		1		1			1				1			1	1			1		65.38		
T 8	Mallotus paniculatus	白楸	0.12	6.0	4.0	1			1			1			1			1				1	1		65.28	b.c.a	
T 9	Mallotus paniculatus	白楸	0.12	4.0	3.0	1			1			1			1			1				1	1		65.38	b.c.q	
T10	Macaranga tanarius	血桐	0.13	5.5	4.0		1			1		1				1			1			1	1		65.62	b.c.a	Dead branches
T11	Ficus hispida	對葉榕	0.12	5.0	4.5		1		1			1				1			1			1	1		66.45	bcq	Dead branches
T12	Macaranga tanarius	血桐	0.17	6.5	4.5	1				1		1				1			1			1	1		64.01	b.c,g	Die-back branches , Cavity
T18	Aleurites moluccana	石栗	0.34	15.0	6.5	1			1			1				1			1	1			1		60.70		
T19	Lophostemon confertus	紅膠木	0.64	11.0	8.0	1			1			1			1				1			1	1		59.84	b.c,g	Rooting area restricted
T20	Macaranga tanarius	血桐	0.17	7.5	4.5	1			1			1				1			1			1	1		58.59	b.c,g	Leaning
T25	Mallotus paniculatus	白楸	0.12	6.0	4.0	1			1			1				1			1			1	1		63.25	b.c.q	
T26	Ficus hispida	對葉榕	0.12	5.0	4.0		1			1		1				1			1			1	1		61.33	bca	Dead branches
T27	Aleurites moluccana	石栗	0.70	14.0	8.5	1			1			1			1				1			1	1		58.00	bca	Heavy crown weight
T28	Mallotus paniculatus	白楸	0.16	8.5	5.5				1			1			1				1			1	1		49.77	h a	Rooting area restricted
T29	Sapindus saponaria	無患子	0.46	14.0	8.0				1			1			1			1				1		1	50.27		Co-dominant trunk
T30	l itchi chinensis	艺枯	0.30	8.0	4.5	1			1			1			1			1				1		1	50.30	b	
T31	Dimocarpus longan	龍眼	0.40	10.0	5.5				1			1				1			4			1			50.34	ba	
T32	Mangifora indica	土田	0.31	9.0	5.0				1			1			1			1	1			1		1	50.29	b.c	
T33	Mangifera indica		0.40	8.0	5.0		1		1	4		1			1	4		· ·	4			1			50.21	bo	
T34		 紅膠木	0.14	6.0	4.5					1						1			1			1			50.28	0.0	Decay of root, Leaning
T35	Lopnostemon confertus	桐岙	0.38	9.0	4.0	1			1			1			1			1		1				1	50.27	D	
T36	Lophostemon confertus	紅膠木	0.20	5.0	4.5		1		1			1			1			1		1				1	50.16		
T41	Liquidambar formosana	楓香	0.24	12.4	4.5	1			1			1			1			1		1				1	50.37		
T42	Dimocarpus longan	龍眼	0.22	7.0	5.0	1			1			1			1				1			1	1		52.37	b,c,g	
T43	Macaranga tanarius	血桐	0.17	6.0	5.0		1		1			1			1			1				1		1	53.88	b	
144 T45	Litchi chinensis	<u> </u>	0.13	7.0	4.0				1			1			1			1				1	1		54.35	b,g b	Posting area restricted
145 T46	Litchi chinensis		0.39	12.0	3.0	1			1			1			1			1				1	1	1	53.95	b.a	Rooting area restricted
T47	Celtis sinensis	赤樹	0.55	10.0	6.0	1			1			1			1				1			1	1		53.60	b,g	Rooting area restricted
T48	Aleurites moluccana	石栗	0.13	7.0	4.0	1			1			1			1			1				1	1		53.50	b,g	
T49	Aleurites moluccana	石栗	0.35	14.0	7.0	1			1			1				1			1			1		1	55.26	b	Co-dominant trunk, Rooting area restricted
T51	Dimocarpus longan	龍眼	0.41	12.0	8.0	1			1			1			1			1		1			1		53.62		
T59	Macaranga tanarius	血桐	0.11	7.0	4.0		1		1			1				1			1			1	1		57.49	b,c,g	
T60	Macaranga tanarius	血桐	0.14	6.0	5.5		1			1			1			1			1			1		1	56.29	b.c	Die-back branches
165 Tee	Microcos nervosa	<u> </u>	0.70	14.0	9.0		1			1			1			1		1		1			1		4/.44		
	Ceitis sinensis	<u></u>	0.13	6.0	4.5	1			1			1			1			1				1	1		47.00	bca	Co-dominant trunk
<u>190</u> T01	Dimocarpus longan Dimocarpus longan	<u>爬</u> 肥	0.42	11.0	<u>5.5</u>				1			1			1			1	1			1	1	4	48.30	b,0,9	Climber
T05	Mallatua papiaulatua	白楸	0.51	6.5	5.0	1			1			1			1	4		1	4			1	1	1	40.00	bca	Chiribei
T96	Delonix regia	 ■ ■ ■	0.10	7.0	3.5		1		1			1			1	1		1				1	1		66.13	b.g	
T97	Macaranga tanarius	前桐	0.10	4.5	2.5	1			1			1				1			1			1	1		66.19	b.c.q	
T98	Delonix regia	鳳凰木	0.10	6.0	2.5		1		1			1			1	· ·		1				1	1		66.12	b, g	
T99	Aleurites moluccana	石栗	0.56	14.0	7.0	1	1		1			1			1				1			1	1		67.78	b,c,g	Co-dominant trunk
T100	Delonix regia	鳳凰木	0.60	14.0	7.0	1				1			1			1			1			1	1		67.92	b,c,g	Open Cavity
T101	Aleurites moluccana	石栗	0.65	15.0	7.0	1			1			1			1				1			1	1		67.44	b,c,g	Dead branches
T102	Aleurites moluccana	石栗	0.60	15.0	7.0	1			1			1			1				1			1	1		67.70	b,c,g	
T103	Aleurites moluccana	石栗	0.80	13.0	11.0	1			1				1		1				1			1	1		67.35	b,c,g	Wire gird on trunk, Heavy crown weight
T104	Macaranga tanarius	血桐	0.22	7.0	5.0		1			1		1				1			1			1	1		64.49	b,c,g	Dead branches
T105	Aleurites moluccana	石栗	0.14	6.5	4.0	1			1			1			1			1				1	1		66.06	b, g	
T106	Aleurites moluccana	石栗	0.52	16.0	6.0	1			1			1			1			1				1	1		64.77	b, g	
T107	Litchi chinensis	荔枝	0.26	6.5	4.5	1			1			1			1			1				1	1		64.04	b, g	

Tree Survey/Assessment Schedule

Tree	Rotanical Namo	Chinese	Ті	ree Size		Tr	ee For	rm	Hea	Ith Condi	ition	S C	tructura onditio	al n	A	menity Va	lue	Sur Tra	vival Rate Af ansplantatio	fter on	Pr	oposed Treatm	nent	On S	lope	Ground Level	Justification for	Remarks
No.	Botanical Name	Name	DBH (m)	Height (m)	Spread (m)	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	High	Medium	Low	High	Medium	Low	Retain	Transplant	Fell	Yes	No	(mPD)	Tree Felling	
T108	Caryota ochlandra	魚尾葵	0.13	6.0	4.0		1			1			1			1			1				1	1		62.18	b, g	
T109	Caryota ochlandra	魚尾葵	0.12	6.0	3.5		1			1			1			1			1				1	1		63.20	b, g	
T110	Bridelia tomentosa	土蜜樹	0.12	6.5	3.5		1			1			1			1			1				1	1		61.57	b, g	
T111	Litchi chinensis	荔枝	0.27	7.5	4.5		1			1			1			1			1				1	1		62.67	b, g	
T112	Dimocarpus longan	龍眼	0.27	7.5	4.5		1			1			1			1			1				1	1		63.02	b, g	
T113	Sterculia lanceolata	假蘋婆	0.26	5.5	4.5			1		1			1			1				1			1	1		62.97	b,c,g	
T114	Mangifera indica	芒果	0.12	5.0	3.0		1			1			1			1				1			1	1		61.83	b,c,g	Decay on root
T115	Litsea monopetala	假柿樹	0.12	5.0	3.0		1			1			1			1				1			1	1		61.03	b,c,g	Decay on root
T116	Dimocarpus longan	龍眼	0.40	14.0	7.0		1			1				1			1			1			1	1		61.43	b,c,g	Rooting area restricted
T117	Dimocarpus longan	龍眼	0.10	5.0	3.0		1			1			1			1			1				1	1		61.05	b, g	
T118	Dimocarpus longan	龍眼	0.10	5.0	3.0		1			1			1			1			1				1	1		60.79	b, g	
T119	Litchi chinensis	荔枝	0.11	5.0	3.0		1			1			1			1			1				1	1		61.30	b, g	
T120	Litchi chinensis	荔枝	0.11	5.0	3.0		1			1			1			1			1				1	1		59.42	b, g	
T121	Dimocarpus longan	龍眼	0.12	6.5	3.5		1			1			1			1			1				1	1		57.67	b, g	
T122	Mangifera indica	芒果	0.26	6.0	3.5		1				1		1				1		1				1	1		57.51	b, g	Climber
1123	Litchi chinensis	荔枝	0.11	7.0	3.5		1			1			1			1			1		-		1	1		58.05	b, g	
1124	Dimocarpus longan	7月1日日	0.40	14.5	7.0		1			1			1			1				1			1	1		57.43	b,c,g	
T125	Dimocarpus longan	月目日に	0.30	10.0	5.5	-	1			1			1				1			1	-		1	1		57.52	b,c,g	
T126	Dimocarpus longan	彩印	0.23	10.0	4.5		1			1			1			1							1	1		57.50	b, g	
T127	Bischofia javanica	形板	0.13	7.0	3.5 5.0		1	1		1			1			1	1		1	1			1	1		55 30	b, g	Decay on trunk Climber
T120	Bischofia javanica	秋烟	0.23	5.0	3.0			1		1	1		1				1			1			1	1		53.83	b,c,g	Climber
T129	Choorospondias avillaris	古嚴束	0.13	6.0	3.5		1	1		1	1		1			1	1		1	I			1	1		55.40	b,c,g	Pooting area restricted
T130	Choerospondias axillaris	古酸束	0.12	8.0	4.0		1			1			1			1			1				1	1		55.90	b, g	Rooting area restricted
T132	Choerospondias axillaris	南酸東	0.18	8.5	4.0		1			1			1				1			1			1	1		56.21	b.c.g	Rooting area restricted
T133	Choerospondias axillaris	南酸棗	0.19	7.0	4.0		1			1			1			1			1				1	1		55.47	b, q	Climber
T134	Dimocarpus longan	龍眼	0.70	13.0	8.5		1			1				1			1			1			1	1		55.10	b,c,g	Open cavity, Dead branches
T135	Dimocarpus longan	龍眼	0.21	7.5	5.0		1			1			1			1			1				1	1		56.02	b, g	
T136	Sapindus saponaria	無患子	0.14	6.0	4.0		1			1			1			1			1				1	1		58.05	b, g	
T137	Clausena lansium	黃皮	0.24	12.0	6.0		1			1			1			1				1			1	1		55.80	b,c,g	Rooting area restricted
T138	Dimocarpus longan	龍眼	0.11	6.0	3.0		1			1			1			1				1			1	1		56.44	b,c,g	
T139	Caryota ochlandra	魚尾葵	0.11	7.0	4.0		1			1			1			1			1				1	1		57.40	b, g	
T140	Dimocarpus longan	龍眼	0.12	6.5	3.0		1			1			1			1			1				1	1		58.89	b, g	
T141	Dimocarpus longan	龍眼	0.12	8.0	4.5		1			1			1			1				1			1	1		58.26	b,c,g	Rooting area restricted
T142	Bridelia tomentosa	土蜜樹	0.14	8.0	3.5		1			1			1			1			1				1	1		59.71	b, g	
T143	Mangifera indica	芒果	0.17	8.5	4.0		1			1			1				1			1			1	1		59.78	b,c,g	Decay on trunk
T144	Litchi chinensis	荔枝	0.55	15.5	7.5		1			1			1				1			1			1	1		61.05	b,c,g	Decay on root
T145	Artocarpus heterophyllus	菠蘿蜜	0.23	7.5	3.5		1				1		1				1			1			1	1		60.44	b,c,g	Exposed root
T146	Artocarpus heterophyllus	菠蘿蜜	0.26	10.0	5.0		1			1			1			1			1				1	1		61.21	b, g	
T147	Artocarpus heterophyllus	波羅蜜	0.13	6.0	4.5		1			1			1			1				1			1	1		60.55	b,c,g	Dead beanches, Decay on root
1148	Litsea monopetala	版种樹	0.13	6.0	4.5			1		1			1				1			1			1	1		58.2/	D,C,G	Leaning
T149	Dimocarpus longan	月1日日	0.22	8.5	4.0		1			1			1			1			1		-		1	1		59.19	b, g	
T150 T151		11年1月11日1月11日1月11日1月11日11日11日11日11日11日11日11	0.41	16.0	8.5		1			1			1			1			1		-		1	1		56 37	b, g	
T151	Dimocarnus Iongan	波維重 	0.19	0.0	5.5		1			1			1			1			1	4			1	1		56.02	b, g	
T152	Dimocarpus longan	音記	0.32	11.0	2.0		1	4		1	4		1			1	4			1			1	1		55.81	b,c,g	Topped crown Enjcormics
T153	Dimocarpus longan	着眼	0.12	4.5	3.0		1			1			1			1	1		1	I	1		1	1		55.82	b,c,g	
T155	Dimocarpus longan	龍眼	0.12	8.0	4.0		1			1			1			1			1				1	1		53.64	b. a	
T156	Sapindus saponaria	毎患子	0.17	7.5	3.0		1			1			1				1		1				1	1		52.74	b, g	
T157	Dimocarpus longan	龍眼	0.18	9.5	4.0		1			1			1			1			1				1	1		52.82	b, g	
T158	Litchi chinensis	荔枝	0.10	6.0	3.0			1		1			1				1			1			1	1		52.90	b,c,g	
T159	Litchi chinensis	荔枝	0.25	5.5	3.0		1	1		1	1		1			1				1			1	1		52.72	b,c,g	Climber
T160	Litchi chinensis	荔枝	0.47	11.0	8.0		1			1			1			1				1			1	1		51.15	b,c,g	
<u>T16</u> 1	Litchi chinensis	荔枝	0.36	11.0	7.0		1			1			1			1			1				1	1		52.08	b, g	Decay on root, Dead branches
T162	Dimocarpus longan	龍眼	0.35	9.5	4.5		1			1			1			1			1				1	1		51.89	b, g	Decay on root, Dead branches
T163	Choerospondias axillaris	南酸棗	0.14	7.5	3.0		1			1			1			1			1				1	1		52.18	b, g	
T164	Choerospondias axillaris	南酸棗	0.17	7.5	4.5		1			1			1				1			1			1	1		52.33	b,c,g	Cavity
T165	Dimocarpus longan	龍眼	0.11	6.5	3.0		1			1			1				1			1			1	1		52.74	b,c,g	
T166	Dimocarpus longan	龍眼	0.42	13.0	6.5		1			1			1			1			1		<u> </u>		1	1		52.94	b, g	Dead branches
T167	Sterculia lanceolata	假蘋婆	0.10	6.0	4.0	1	1			1			1			1			1				1	1		64.09	b, g	

Tree Survey/Assessment Schedule

Tree	Deteriori Nome	Chinese	Tr	ree Size	т	ree Fo	rm	Hea	Ith Condi	tion	Si C	tructura onditio	al n	A	menity Va	lue	Surv Tra	vival Rate A ansplantatio	fter on	Pr	oposed Treatm	nent	On S	Slope	Ground Level	Justification for	Remarks
No.	Botanical Name	Name	DBH (m)	Height (m)	Spread (m) Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	High	Medium	Low	High	Medium	Low	Retain	Transplant	Fell	Yes	No	(mPD)	Tree Felling	
T168	Mangifera indica	芒果	0.17	9.0	5.0	1			1			1			1			1				1	1		64.30	b, g	
T169	Sterculia lanceolata	假蘈婆	0.13	5.5	3.5	1			1			1			1			1				1	1		64.42	b, g	
T170	Mallotus paniculatus	白楸	0.13	6.0	4.0	1			1			1			1			1				1	1		64.36	b, g	
T171	Aleurites moluccana	石栗	0.12	7.0	3.5	1			1			1			1			1				1	1		63.13	b, g	
T172	Bombax ceiba	木棉	0.47	12.0	5.5		1		1			1				1			1			1		1	69.48	b,c, g	Rooting area restricted, Co-dominant trunk
T173	Clausena lansium	黄皮	0.12	6.0	4.0	1			1			1			1			1				1	1		68.97	b, g	Dead branches
T174	Dimocarpus longan	龍眼	0.22	6.5	5.0	1			1			1			1			1				1	1		68.46	b, g	Restricted grow of crown
T175	Pinus elliottii	濕地松	0.42	14.0	7.5	1			1			1			1			1				1	1		68.23	b, g	
T176	Macaranga tanarius	而桐	0.10	5.5	3.5		1		1			1				1		1				1	1		68.80	b, g	Dead branches. Dead stub
T177	Bombax ceiba	木棉	0.41	12.0	4.5	1			1			1			1				1			1		1	69.62	b,c, q	Rooting area restricted
T178	Dimocarpus longan	龍眼	0.40	8.5	7.0	1			1			1			1			1				1	1		69.41	b, q	Crossing branche with T177
T181	Litchi chinensis	荔枝	0.12	6.0	4.0	1			1			1			1			1				1	1		67.16	b, q	Restricted grow of crown
T182	Choerospondias axillaris	南酸棗	0.11	6.5	3.0	1			1			1			1			1				1	1		66,46	b, q	
T183	Dimocarpus longan	龍眼	0.19	8.0	4.0	1			1			1			1			1				1	1		66.27	b. a	Decay on root
T184	Dimocarpus longan	龍眼	0.26	9.0	6.0	1			1			1			1			1				1	1		65.90	b. a	Decay on root
T185	Murrava paniculata	力田香	0.11	5.0	3.0	1			1			1				1		1				1	1		65.99	b, g	Decay on root
T186	Artocarpus macrocarpus	法建密	0.17	8.0	4.0	1			1			1				1		1				1	1		66.07	b.g	Dead branches. Decay on root
T187	Clausena lansium	<u>次維虫</u>	0.30	7.0	6.0	1			1			1				1		1				1	1		65.83	b.a	Rooting area restricted
T188	Litchi chinensis	<u></u> 英戊 芳枯	0.29	9.0	4.5	1			1			1				1		1				1	1		64.82	≥, g	Dead branches
T180	Sanindus sanonaria		0.23	6.5	3.0	<u> </u>	1		1			1				1		1				1	1		64.05	b,g	Bending trunk
T109	Litchi chinonoio	無志] 芳母	0.10	0.5	3.0	4			1			1			4	1		1				1	1		64.60	b, g	
T100A	Dood Troo	- 新牧 - 五母	0.23	5.0	4.0	1			I	1		1	4		1	4			4			1	1		04.02	b, g	Dood troo
T190A	Deau Tiee	多日因	0.14	5.0	5.0								1			1			1			1	1		64.69	b,c,g	
T191	Litrocarpus iongan	月目に区	0.36	9.0	5.0	1	+ +		1			1			1			1				1	1		64.07	b, g	Epicormics
T192	Litsea monopetaia	版 中 団 第 日	0.13	7.0	3.0	1	+ +		1			1			1			1				1	1		04.71	b, g	Deedetat
1193	Dimocarpus longan	25-11日	0.25	11.0	4.5	1			1			1			1				1			1	1		02.4/	b,c,g	Dead stub
T194	Dimocarpus iorigan	旭 収	0.29	8.5	4.5	1			1			1			1				1			1	1		62.34	b,c,g	Root flare not visible
1195	Clausena lansium	貢皮	0.27	8.0	4.5		1		1			1				1			1			1	1		62.31	b,c,g	on root, Open cavity
1196	Mangitera indica	亡果	0.27	9.0	4.5	1	+ +		1			1			1				1			1	1		61.42	D,C,G	Rooting area restricted
T197	Dimocarpus iongan	龍眼	0.36	9.0	5.5	1	+ +		1			1			1			1				1	1		60.65	D, g	Dead branches
T198	Dimocarpus iongan	龍眼	0.39	9.0	6.0	1	+		1			1			1			1				1	1		62.51	D, g	-
1198A	Dead Tree	<u> </u>	0.19	5.0	0.2	1	+ +			1			1			1			1			1	1		(0.05	D,C,G	Dead tree
T199	Dimocarpus longan	龍眼	0.16	9.0	4.0		1		1				1			1			1			1	1		62.85	b,c,g	V-shaped crotch
T200	Dimocarpus longan	龍眼	0.14	9.0	4.0	1	+ +		1			1			1			1				1	1		59.81	b, g	Decay on trunk, cavity
T201	Dimocarpus longan	龍眼	0.50	10.5	6.5	1			1			1			1			1				1	1		59.37	b, g	Dead branches
T202	Litchi chinensis	荔枝	0.25	8.0	4.0		1		1			1				1			1	1			1		59.26		Restricted grow of crown
T203	Litchi chinensis	荔枝	0.37	11.0	5.0	1			1			1			1				1			1	1		59.55	b, g	Decay on root
T204	Litchi chinensis	荔枝	0.36	10.0	7.0	1			1			1			1			1				1	1		59.42	b, g	Girdling roots, V-shaped crotch
T205	Artocarpus heterophyllus	菠蘿蜜	0.25	8.5	4.5	1			1			1			1			1				1	1		60.22	b, g	Dead branches
T206	Litchi chinensis	荔枝	0.30	7.0	4.0	1			1			1			1			1				1	1		59.09	b, g	Dead branches
T207	Dimocarpus longan	龍眼	0.50	11.0	7.5	1			1			1			1			1				1	1		59.21	b, g	Decay on root
T208	Sapindus saponaria	無患子	0.43	10.0	7.0	1			1			1			1				1			1	1		59.48	b,c,g	Rooting area restricted
T209	Mallotus paniculatus	白楸	0.11	6.0	3.5	1			1			1			1				1			1	1		58.62	b,c,g	Decay on root
T210	Sapindus saponaria	無患子	0.16	7.5	4.0	1			1				1			1			1			1	1		57.19	b,c,g	Decay on trunk
T210A	Dead Tree	死樹	0.17	6.0	0.5	1	_ │			1			1			1			1			1	1			b,c,g	Dead tree
T211	Celtis sinensis	朴樹	0.26	8.5	4.0	1			1			1			1				1			1	1		56.38	b,c,g	Decay on trunk
T212	Celtis sinensis	朴樹	0.21	6.5	4.5	1			1			1			1			1				1	1		55.82	b, g	Dead branches
T213	Litchi chinensis	荔枝	0.17	8.5	4.0	1			1			1			1			1				1	1		54.67	b, g	
T214	Dead Tree	死樹	0.17	6.0	3.5	1				1			1			1			1			1	1		53.97	b,c,g	Dead Tree
T215	Litchi chinensis	荔枝	0.33	7.0	4.5	1				1			1			1			1			1	1		53.45	b,c,g	Decay on trunk
T216	Dimocarpus longan	龍眼	0.19	8.0	4.0	1			1			1			1			1				1	1		53.80	b, g	Dead branches
T217	Sterculia lanceolata	假蘋婆	0.10	5.5	3.0	1			1			1			1			1				1	1		52.94	b, g	
T218	Sapindus saponaria	無患子	0.23	6.0	4.0	1				1		1				1			1			1	1		52.08	b,c,g	Decay on trunk
T219	Mallotus paniculatus	白楸	0.28	7.0	4.5	1			1				1		1				1			1	1		51.50	b,c,g	
T220	Litchi chinensis	荔枝	0.37	8.5	5.0	1			1			1			1				1			1	1		52.62	b,c,g	Girdling roots
T221	Litchi chinensis	荔枝	0.19	7.0	4.0	1				1		1			1			1				1	1		53.73	b, g	Die-back beanches
T222	Litchi chinensis	荔枝	0.18	6.5	4.0	1			1			1				1		1				1	1		53.67	b, g	Dead branches
T223	Litchi chinensis	荔枝	0.37	11.0	9.5	1			1			1			1			1				1	1		53.36	b, g	
T238	Dimocarpus longan	龍眼	0.15	8.5	3.5	1			1			1			1			1		1			1		54.71		
T239	Litchi chinensis	荔枝	0.10	5.0	1.5	1			1			1			1			1				1	1		54.74	b, g	
T240	Dimocarpus longan	龍眼	0.17	8.5	3.5	1			1			1			1			1				1	1		54.93	b, g	Rooting area restricted

Tree Survey/Assessment Schedule

Tree	Potenical Namo	Chinese	Tr	ee Size		т	ree For	m	Hea	Ith Condi	tion	S C	tructur	al on	4	menity V	alue	Sur Tr	vival Rate A ansplantati	After on	Р	roposed Treatr	nent	Ons	Slope	Ground Level	Justification for	Remarks
No.		Name	DBH (m)	Height (m)	Spread (m)	Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	High	Medium	Low	High	Medium	Low	Retain	Transplant	Fell	Yes	No	(mPD)	Tree Felling	
T241	Dimocarpus longan	龍眼	0.34	11.5	7.0		1			1			1			1				1			1	1		55.81	b,c,g	Rooting area restricted
T242	Dimocarpus longan	龍眼	0.10	8.5	3.5		1			1			1				1		1				1	1		49.68	b, g	Dead branches
T243	Elaeocarpus decipiens	杜英	0.10	7.0	3.0		1			1			1			1			1				1	1		48.87	b, g	Restricted grow of crown, Leaning
T244	Litchi chinensis	荔枝	0.11	7.0	3.0		1			1				1			1			1			1	1		49.15	b,c,g	Decay on trunk
T245	Sapindus saponaria	無患子	0.32	10.5	6.0		1			1			1			1			1		1			1		49.01		
T296	Cinnamomum camphora	樟樹	0.32	10.0	7.0		1			1			1			1				1			1	1		66.18	b, g	Deda branches
T297	Dimocarpus longan	龍眼	0.48	14.0	8.5		1			1			1			1			1				1	1		64.56	b,c,g	
			44	1470	823	0	152	25	0	158	19	0	162	15	0	123	54	0	101	76	11	0	166	161	16			
	Statistics					0%	86%	14%	0%	89%	11%	0%	92%	8%	0%	69%	31%	0%	57%	43%	6%	0%	94%	91%	9%			
						Good	Fair	Poor	Good	Fair	Poor	Good	Fair	Poor	High	Medium	Low	High	Medium	Low	Retain	Transplant	Fell	Yes	No			

Note

Tree outside application boundary

Justification for Felling

a Existing dead tree to be felled.

- b Recommend to fell as the existing tree is in conflict with the proposed engineering works and architectural layout.
- c Recommend to fell as the existing tree has an anticipated low survial rate if transplanted.
- d Recommend to fell as the existing tree has poor tree form, broken or damaged branch and trunk or in poor health condition as being attacked by fungi/insects.
- e Recommend to fell as the tree is growing very close to other trees and in very stressful site condition.
- f Recommend to fell as the existing tree is undesirable species.
- g Recommend to fell as the tree is located on sloping ground with formation of balanced rootball for transplanting technically not feasible.

Top of Soil Level at the base of the Tree

It should be noted that this figure provides the existing soil level and that where these trees are to be retained in-situ the soil level will be maintained at the base of the tree and not cover the root collar.

Tree Diameter Breast Height (DBH)

DBH of a tree refers to its trunk diameter at breast height (i.e. measured at 1,300mm above ground level)

No. of trees to be retained: 11 No. of trees to be transplanted: 0 No. of trees to be felled: 166 (including 4 dead trees)

Tree surveyor(s):Leung Hoi Gok, Regine (ISA No. HK-0481A)Field survey was conducted on:Mar-16To be read in conjunction with drawings:SKAL12A-TL01 & SKAL12A-TR01

Provision of Columbarium at Cape Collinson Road in Chai Wan Landscape and Tree Preservation Proposal

APPENDIX IV

PHOTOGRAPHIC RECORDS OF EXISTING TREES





29/03/2016 R



29/03/2016

R

T7 (Crown)

R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-1

29/03/2016

T7 (Trunk)

R



		N-P		anspiant	I-LEII	<u> </u>	-Deau nee
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	1		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-2		REV		ADI



T9 (Crown)

		K-F	ketain I-I	ransplant	⊦-⊦ell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-3		REV		ADI



				· · ·		
	SCALE	N.T.S	DATE	29 March 2	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-4		REV	А









T11 (Base)





F



29/03/2016	-				29/03/	<u>20</u>	16
T11 (Trunk)		T	11 (Cro	own)	E Eoll		
	SCALE	N.T.S	DATE	29 March	2016	Γ	
PROPOSED RESIDENTIAL DEVELOPMENT AT RBI_NO_1019_35 BARKER ROAD_HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NO). SKAL	12A-TS-5		REV		ADI



		K-F	Retain I-I	ransplant	⊦-⊦ell	D-	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-6		REV		ADI



		R-F	Retain I-I	ransplant	⊦-⊦ell	D	-Dead Iree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-7		REV		ADI



		R-R	tetain T-T	ransplant	F-Fell	D-	Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-8		REV		ADI





T20 (Base)



T20 (Crown)

		R-I	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL	.12A-TS-9		REV		ADI

29/03/2016 F T20 (Overall view)





		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-10		REV		ADI





T26 (Base)



T26 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-11		REV		ADI





T27 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l			
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-12		REV		ADI	







T28 (Base)



T28 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I			
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-13		REV		ADI	



T29 (Base)





T29 (Crown)



T29 (Overall view)



29/03/2016 F

F

T29 (Trunk)

R-Retain T-Transplant F-Fell D-Dead Tree

DRODOOFD DEOLDENTIAL DEVELODMENT	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l	
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-14		REV	ADI



				anopiant		-	Bodd Hoo
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-15		REV		ADI



T31 (Crown)

		K-F	ketain I-I	ransplant	⊦-⊦ell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	29 March 2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-16		REV		ADI



		11.		lanspiant		·	-Deau fiee
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-17		REV		ADI



		K-F	ketain I-I	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-18		REV		ADI



		R-F	Retain I-I	ransplant	⊦-⊦ell	D-	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-19		REV		ADI



		K-h	tetain I-I	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-20		REV		ADI





T36 (Base)



T36 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG		ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-21		REV		ADI

R

T36 (Trunk)









Image: select select

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-22				ADI



T42 (Crown)

F

		R-R	letain I-I	ransplant	⊦-⊦ell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	CHECKED	ALL	DRAWN	HEH	l			
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-23		REV		ADI	





		R-R	Retain T-T	ransplant	F-Fell	D-	Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-25		REV		ADI



				ranspiant		Dedd ffee
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016	
	CHECKED	ALL	DRAWN	HEH	I	
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-26		REV	ADI





T46 (Crown)

2016

F

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-27		REV		ADI

F

T46 (Trunk)





T47 (Base)



	147 (Crown)									
	R-F	Retain T-T	ransplant	F-Fell	D	-D				
ALE	N.T.S	DATE	29 March	n 2016						

F

		R-	Retain T-T	ransplant	F-Fell	D-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016	
	CHECKED	ALL	DRAWN	HEH	1	
Tree Photographic Records	FIGURE NC). SKAI	12A-TS-28		REV	ADI

T47 (Trunk)



PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016				
	CHECKED	ALL	DRAWN	HEH					
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-29		REV		ADI		


R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-30



T51 (Trunk)

T51 (Crown)

		K-F	Retain I-I	ransplant	⊦-⊦ell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	EH		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-31		REV		ADI



T59 (Overall view)



T59 (Trunk)



T59 (Base)



T59 (Crown)

		R-R	tetain T-T	ransplant	F-Fell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH				
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-32		REV		ADI	





T60 (Base)



T60 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-33		REV		ADI

F

T60 (Trunk)



T65 (Overall view)









29/03/<u>2016</u> R

T65 (Crown)

		R-R	tetain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l	
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-34		REV	ADI





T66 (Overall view)



T66 (Trunk)



29/03/2016

R

29/03/2016 R

T66 (Crown)

T66 (Base)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL ²	12A-TS-35		REV		ADI

29/03/2016 F T90 (Overall view) T90 (Base) F T90 (Trunk) T90 (Crown)

		R-R	letain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-36		REV		ADI



		N-D		anspiant	L-LGI	υ.	-Deau nee
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-37		REV		ADI



				anopiant		-	Bodd Hoo
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-38		REV		ADI



		N-P		anspiant	I-LEII	<u> </u>	-Deau fiee
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-39		REV		ADI



T97 (Overall view)







29/03/2016 F

T97 (Base)





T97 (Crown)

R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED DRAWN HEH ALL AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-40





29/03/2016 F

T98 (Base)





T98 (Crown)

		R-	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł	
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-41		REV	ADI





T99 (Overall view)



T99 (Trunk)







T99 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-42		REV		ADI



T100 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	1		
Tree Photographic Records	FIGURE NC). SKAL´	12A-TS-43		REV		ADI



				ranopiant	1 1 01	Doud noo
	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł	
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-44		REV	ADI



FIGURE NO.

Tree Photographic Records

SKAL12A-TS-45

REV ADI



T103 (Overall view)



T103 (Trunk)



29/03/2016 F

T103 (Base)



29/03/<u>2016</u> F

T103 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-46		REV		ADI



	SCALE	N.T.S	DATE	29 March	2016	
RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I	
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-47		REV	ADI



T105 (Trunk)

T105 (Crown)

		R-R	etain T-T	ransplant	F-Fell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH				
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-48		REV		ADI	

29/03/2016 F





T106 (Crown)

29/03/2016

F

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-49		REV		ADI









F107 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł	
Tree Photographic Records	FIGURE NC). SKAL [*]	12A-TS-50		REV	ADI



T108 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l	
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-51		REV	ADI









T109 (Base)



		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-52		REV		ADI



T110 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-D	ead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-53		REV	4	ADI





T111 (Overall view)



T111 (Trunk)



T111 (Base)





T111 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I	
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-54		REV	ADI



T112 (Crown)

F

F

		R-R	Retain T-T	ransplant	F-Fell	D.	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH				
Tree Photographic Records	FIGURE NC	SKAL1	12A-TS-55		REV		ADI	



T113 (Overall view)







T113 (Base)



		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-56		REV		ADI









T114 (Base)



T114 (Crown)

		R-R	tetain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	h 2016;		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NO. REV				REV		ADI



T115 (Trunk)

T115 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D.	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-58			ADI	



T116 (Crown)

16 F

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	29 March 2016			
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	CHECKED	ALL	DRAWN	HEH	l			
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-59				ADI	



F T116 (Trunk)



T117 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l	
Tree Photographic Records	FIGURE NO. SKAL12A-TS-60			REV	ADI	



T118 (Trunk)

T118 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D-	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	h 2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG		ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-61		REV		ADI



T119 (Overall view)



T119 (Trunk)



T119 (Base)



29/03/2016

F

T119 (Crown)

R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED DRAWN HEH ALL AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG ADI Tree Photographic Records FIGURE NO. REV SKAL12A-TS-62





T120 (Trunk)



29/03/2016 F

T120 (Base)



29/03/<u>2016</u> F

T120 (Crown)

		R-F	letain I-I	ransplant	⊦-⊦ell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NO. REV			REV		ADI	



		K-F	Retain I-I	ransplant	⊦-⊦ell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-64				ADI



PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	2016			
	CHECKED	ALL	DRAWN	HEH	1			
	FIGURE NC). SKAL1	12A-TS-65		REV		ADI	


		R-F	Retain I-I	ransplant	F-⊦ell	D	-Dead Iree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-66		REV		ADI



T124 (Trunk)

T124 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	1			
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-67		REV		ADI	



		K-P	(etalli i-i	ranspiant	г-геп	D	-Deau nee
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG		ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-68		REV		ADI



T126 (Overall view)







T126 (Base)



T126 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D.	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-69		REV		ADI



T127 (Overall view)







T127 (Base)



T127 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-70		REV		ADI



T128 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-[Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I			
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-71		REV		ADI	







T129 (Base)



29/03/<u>2016</u> F

T129 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL´	12A-TS-72		REV		ADI





T130 (Base)



T130 (Trunk)



T130 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D.	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-73		REV		ADI



T131 (Overall view)



T131 (Base)



T131 (Trunk)



T131 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-74		REV		ADI



T132 (Overall view)



T132 (Trunk)





T132 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-75		REV		ADI





T133 (Trunk)



29/03/2016 F

T133 (Base)



29/03/<u>2016</u> F

T133 (Crown)

		K-R	ketain I-I	ransplant	F-⊦ell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	1		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-76		REV		ADI



T134 (Overall view)







T134 (Base)



29/03/<u>2016</u> F

T134 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-77		REV		ADI



T135 (Overall view)



T135 (Trunk)



T135 (Base)



29/03/2016 F

T135 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH			
	FIGURE NO). SKAL	12A-TS-78		REV		ADI



F T136 (Crown)

		K-R	tetain I-I	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	29 March 2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC	SKAL1	12A-TS-79		REV		ADI

T136 (Trunk)



T137 (Overall view)



T137 (Trunk)



29/03/2016 F

T137 (Base)





T137 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-80		REV		ADI



T138 (Overall view)



T138 (Trunk)



T138 (Base)



T138 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D-	Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-81		REV		ADI



T139 (Trunk)



T139 (Base)



T139 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-82		REV		ADI



R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-83









T141 (Base)



T141 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-84				ADI





T142 (Base)



T142 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-85		REV		ADI





T143 (Overall view)



T143 (Trunk)



T143 (Base)





T143 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL´	12A-TS-86		REV		ADI



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	SCALE
PROPOSED RESIDENTIAL DEVELOPMENT	CHECKE
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	
Tree Photographic Records	FIGURE

T144 (Trunk)

R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
.S	DATE	29 March	2016	
L	DRAWN	HEH	l	
SKAL1	12A-TS-87		REV	ADI

T144 (Crown)





T145 (Base)



T145 (Crown)

29/03/2016 F

		R-R	Retain I-I	ransplant	⊦-⊦ell	D-	Dead Tree	
PROPOSED RESIDENTIAL DEVELOPMENT	SCALE	N.T.S	DATE	29 March	arch 2016			
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l			
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-88		REV		ADI	







T146 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-89		REV		ADI

T146 (Trunk)



		K-F	Retain I-I	ransplant	⊦-⊦ell	D-	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT	SCALE	N.T.S	DATE	29 March	ch 2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG		ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-90		REV		ADI









T149 (Overall view)



T149 (Trunk)



T149 (Base)



		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	arch 2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-92		REV		ADI







T150 (Base)



T150 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT	SCALE	N.T.S	DATE	29 March	larch 2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-93		REV		ADI



T151 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG		ALL	DRAWN	HEH	ł			
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-94		REV		ADI	



T152 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree	
PROPOSED RESIDENTIAL DEVELOPMENT	SCALE	N.T.S	DATE	29 March	2016			
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG		ALL	DRAWN	HEH				
Tree Photographic Records	FIGURE NC	SKAL1	12A-TS-95		REV		ADI	



T153 (Overall view)



T153 (Trunk)



T153 (Base)





T153 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL´	12A-TS-96		REV		ADI









T154 (Base)



T154 (Crown)

_

		R-F	Retain I-I	ransplant	⊦-⊦ell	D	-Dead Iree
PROPOSED RESIDENTIAL DEVELOPMENT	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-97		REV		ADI



T155 (Crown)

		R-	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG		ALL	DRAWN	HEH		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-98		REV	ADI



T156 (Trunk)

T156 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D-	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	12A-TS-99		REV		ADI



T156 (Base)





T157 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-100		REV		ADI



		1.1.1		ranspiant		D Dedd Hee
PROPOSED RESIDENTIAL DEVELOPMENT	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	1	
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-101		REV	ADI


T159 (Trunk)





T159 (Crown)

		R-R	letain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1:	2A-TS-102		REV		ADI





		1.1-1-		lanspiant		·	-Deau filee
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-104		REV		ADI



		R-R	Retain T-T	ransplant	F-Fell	D-	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-105		REV		ADI



T163 (Crown)

F

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-106		REV		ADI



T164 (Crown)

R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-107

T164 (Trunk)



T165 (Overall view)







T165 (Base)



T165 (Crown)

		R-R	letain T-T	ransplant	F-Fell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	2016			
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I			
Tree Photographic Records	FIGURE NC). SKAL1:	2A-TS-108		REV		ADI	



T166 (Crown)

F

F

		R-I	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL	12A-TS-109)	REV		ADI



T167 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-110)	REV		ADI



T168 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-111		REV		ADI



T169 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l	
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-112		REV	ADI



T170 (Crown)

F

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-113		REV		ADI

T170 (Trunk)



		K-R	tetain I-I	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-114		REV		ADI



		R-R	Retain I-I	ransplant	⊦-⊦ell	D-D	ead Iree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-115		REV		ADI



		R-R	Retain T-T	ransplant	F-Fell	D-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016	
	CHECKED	ALL	DRAWN	HEH	l	
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-116		REV	ADI



T174 (Overall view)







29/03/2016 F

T174 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016	
	CHECKED	ALL	DRAWN	HEH		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-117		REV	ADI



PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE 29 March 2016			
	CHECKED	ALL	DRAWN	HEH		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-118		REV	Α

DI







T176 (Base)





T176 (Crown)

		R-R	letain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-119				ADI



T177 (Trunk)





T177 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT	SCALE	N.T.S	DATE	29 March 2016			
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-120		REV		ADI



T178 (Base)



T178 (Trunk)



T178 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-121				ADI



T181 (Trunk)





T181 (Base)



29/03/2016 F

T181 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	SKAL12A-TS-122				ADI



AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO.

SKAL12A-TS-123

ADI

REV









T183 (Crown)

		R-	Retain T-T	ransplant	F-Fell	D-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	2016	
	CHECKED	ALL	DRAWN	HEH		
	FIGURE NC	FIGURE NO. REV			REV	ADI

F

T183 (Trunk)



CHECKED

FIGURE NO.

ALL

DRAWN

SKAL12A-TS-125

29 March 2016 HEH REV ADI

29/03/<u>2016</u>

F

29/03/2016

F

PROPOSED RESIDENTIAL DEVELOPMENT
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG
Tree Photographic Records



T185 (Overall view)



T185 (Trunk)



29/03/2016 F

T185 (Base)



29/03/2016

F

T185 (Crown)

R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED DRAWN HEH ALL AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-126





T186 (Trunk)





T186 (Base)



29/03/<u>2016</u> F

T186 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	l		
	FIGURE NO. SKAL12A-T				REV		ADI





T187 (Trunk)



29/03/2016 F

T187 (Base)



29/03/<u>2016</u> F

T187 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NO	SKAL1	2A-TS-128		REV		ADI



R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-129







T190 (Trunk)



29/03/2016 F

T190 (Base)



29/03/<u>2016</u> F

T190 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NO	SKAL1	SKAL12A-TS-131		REV		ADI



T190A (Overall view)



T190A (Trunk)



T190A (Base)





T190A (Crown)

R-Retain T-Transplant F-Fell D-Dead Tree

PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	March 2016		
	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-132		REV		ADI



T191 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
	FIGURE NC). SKAL1	KAL12A-TS-133				ADI



T192 (Overall view)







29/03/2016 F

T192 (Base)



T192 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	ч		
Tree Photographic Records	FIGURE NC). SKAL1	.12A-TS-134		REV		ADI



T193 (Overall view)



T193 (Trunk)



29/03/2016 F

T193 (Base)



29/03/2016 F

T193 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC	FIGURE NO. SKAL12A-TS-135		REV		ADI	



T194 (Trunk)

T194 (Base)



T194 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC	FIGURE NO. SKAL12A-TS-136 RI		REV		ADI	





T195 (Trunk)



T195 (Base)



T195 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-137		REV		ADI


T196 (Trunk)



T196 (Base)



T196 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-138		REV		ADI



T197 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-139		REV		ADI



		R-F	Retain T-T	ransplant	F-Fell	D٠	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-140)	REV		ADI





T198A (Trunk)



T198A (Base)





T198A (Crown)

		R-F	Retain I-I	ransplant	⊦-⊦ell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-141	-	REV		ADI





T199 (Base)



T199 (Trunk)



T199 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1:	2A-TS-142		REV		ADI



T200 (Crown)

F

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-143	5	REV		ADI



		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-144		REV		ADI





T202 (Trunk)



T202 (Base)



R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-145





T203 (Base)



T203 (Trunk)



T203 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-146	;	REV		ADI



		R-R	Retain T-T	ransplant	F-Fell	D.	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1:	2A-TS-147		REV		ADI



T205 (Trunk)





T205 (Crown)

		R-R	tetain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1:	2A-TS-148		REV		ADI





T206 (Base)



T206 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	1		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-149)	REV		ADI

F

T206 (Trunk)





T207 (Base)



T207 (Trunk)



T207 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-150		REV		ADI



T208 (Overall view)



T208 (Trunk)



T208 (Base)



T208 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D-	Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-151		REV		ADI



T209 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-152		REV		ADI



T210 (Trunk)

T210 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l		
Tree Photographic Records	FIGURE NC). SKAL1:	2A-TS-153	5	REV		ADI



T210A (Overall view)



T210A (Trunk)





T210A (Base)





T210A (Crown)

R-Retain T-Transplant F-Fell D-Dead Tree

	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	l	
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-154		REV	ADI



		R-R	tetain T-T	ransplant	F-Fell	D	-Dead Tree	
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016			
	CHECKED	ALL	DRAWN	HEH	I			
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-155		REV		ADI	



T212 (Trunk)



T212 (Base)



T212 (Crown)

		R-R	etain T-T	ransplant	F-Fell	D-	Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1:	2A-TS-156		REV		ADI





T213 (Base)



T213 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	HEH		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-157	,	REV		ADI

F

T213 (Trunk)



		R-R	letain T-T	ransplant	F-Fell	D-	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1:	2A-TS-158		REV		ADI



T215 (Crown)

F

		R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	I	
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-159		REV	ADI



T216 (Trunk)



T216 (Base)



T216 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-160)	REV		ADI



T217 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-161		REV		ADI

T217 (Trunk)



T218 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-162	2	REV		ADI



T219 (Trunk)

F T219 (Base)



T219 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D٠	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG		ALL	DRAWN	HEH	I		
Tree Photographic Records	FIGURE NO.		SKAL12A-TS-163				ADI





T220 (Base)



R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records ADI FIGURE NO. REV SKAL12A-TS-164

T220 (Trunk)





T221 (Base)



T221 (Trunk)



T221 (Crown)

		R-R	letain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH			
	FIGURE NC). SKAL1:	2A-TS-165	65 REV			ADI





T222 (Base)



T222 (Trunk)



		R-R	Retain T-T	ransplant	F-Fell	D	-Dead Tree	
	SCALE	N.T.S	DATE	29 March	rch 2016			
AT RBL NO. 1019. 35 BARKER ROAD. HONG KONG	CHECKED	ALL	DRAWN	HEH	I			
Tree Photographic Records	FIGURE NC	SKAL1	2A-TS-166		REV		ADI	



T223 (Crown)

		R-I	Retain T-T	ransplant	F-Fell	D	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
	FIGURE NC	GURE NO. REV SKAL12A-TS-167			REV		ADI



		K-F	ketain I-I	ransplant	⊦-⊦ell	D	-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019. 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	HEH		
Tree Photographic Records	FIGURE NO. SKAL12A-TS-168			REV		ADI	



T239 (Trunk)



T239 (Base)



R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-169

F



R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED ALL DRAWN HEH AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-170



T241 (Crown)

		R-R	Retain T-T	ransplant	F-Fell	D-	-Dead Tree
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	I		
	FIGURE NC). SKAL1:	KAL12A-TS-171			ADI	



PROPOSED RESIDENTIAL DEVELOPMENT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records	SCALE	N.T.S	DATE	29 March 2016		
	CHECKED	ALL	DRAWN	HEH		
	FIGURE NO. SKAL12A-TS-172				REV	ł

١D



		N-P		lanspiant	L-LGII	0	-Deau nee
PROPOSED RESIDENTIAL DEVELOPMENT AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	SCALE	N.T.S	DATE	29 March	2016		
	CHECKED	ALL	DRAWN	HEH	ł		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-173		REV		ADI


T244 (Trunk)



29/03/2016 F

T244 (Base)



29/03/2016

F

T244 (Crown)

R-Retain T-Transplant F-Fell D-Dead Tree SCALE N.T.S DATE 29 March 2016 PROPOSED RESIDENTIAL DEVELOPMENT CHECKED DRAWN HEH ALL AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG Tree Photographic Records FIGURE NO. REV ADI SKAL12A-TS-174



T245 (Overall view)







29/03/2016 R

T245 (Base)



T245 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH		
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-175		REV	ADI



T296 (Overall view)









T296 (Crown)

		R-F	Retain T-T	ransplant	F-Fell	D-	Dead Tree
	SCALE	N.T.S	DATE	29 March	2016		
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH			
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-176		REV		ADI



T297 (Overall view)









T297 (Base)



T297 (Crown)

		R-I	Retain T-T	ransplant	F-Fell	D-Dead Tree
	SCALE	N.T.S	DATE	29 March	2016	
AT RBL NO. 1019, 35 BARKER ROAD, HONG KONG	CHECKED	ALL	DRAWN	HEH	ł	
Tree Photographic Records	FIGURE NC). SKAL1	2A-TS-177		REV	ADI

Provision of Columbarium at Cape Collinson Road in Chai Wan Landscape and Tree Preservation Proposal

APPENDIX V

TREE RECOMMENDATION PLAN



K:\Projects\SKAL12A=P126\Tree survey\SKAL12A-TR01.dwg, ISO full bleed A3 (420.00 x 297.00 MM), 1:1

		\
Market Pictors		LEGEND
C2.98 EXISTING LEVEL	ila ofice	APPLICATION BOUNDARY
		62.98 EXISTING LEVEL
	T178 262	T198
	T187	TREES TO BE FELLED
	1176 1175 1175	T202 TREES TO BE
	-†192 -T184 -T193 -T195	RETAINED T198A
Основности Основности Основности Пелим Маш САDD СНЕСКЕД ТАК СНЕСКЕД ТАК АРРОУЕЛ ТАК		DEAD TREE
CAD		
DESIGNED 股計 TEAM DESIGNED 股計 TEAM DRAWN 總圖 CADD CADD CLECKED 審核 CADD CLECKED 審核 CADD CLECKED 審核 DRAWN 總圖 CADD CLECKED 審核 DRAWN 總圖 CADD CLECKED 審核		-
Основания Праким наш САDD СНЕСКЕВ жак		
DESIGNED 設計 TEAM DESIGNED 設計 TEAM DRAWN 總面 CADD CADD CHECKED 審核 APPROVED 審批		
DESIGNED 設計 TEAM DESIGNED 設計 TEAM DRAWN 摘聞 CADD CADD CHECKED 審核 APPROVED 審批		
ESIGNED 設計 TEAM DRAWN 絵圖 CADD CHECKED 審核 APPROVED 審批		
DESIGNED 設計 TEAM DRAWN 繪圖 CADD CHECKED 審核 APPROVED 審批 記國際 設計有限公司 #A#MALO221,個後建業網問題務		
DESIGNED 設計 TEAM DRAWN 繪圖 CADD CHECKED 審核 APPROVED 審批 Q國際 設計有限公司 MAXBALQ21,個後里美術同點		
DESIGNED 設計 TEAM DRAWN 繪圖 CADD CHECKED 審核 APPROVED 審批 這國際 設計有限公司 編先規劃及設計,個後建業範囲路		
DESIGNED 設計 TEAM DRAWN 繪圖 CADD CHECKED 審核 APPROVED 審批		
DESIGNED 設計 TEAM DRAWN 繪圖 CADD CHECKED 審核 APPROVED 審批 和PROVED 審批		
DESIGNED 設計 TEAM DRAWN 繪圖 CADD CHECKED 審核 APPROVED 審批		
DESIGNED 設計 TEAM DRAWN 繪圖 CADD CHECKED 審核 APPROVED 審批		
ICAIVI DRAWN 繪圖 CADD CHECKED 審核 APPROVED 審批 顧際 設計有限公司 城市旅費及設計個境證素響問題務	DESIGNED 設計 ㅜㄷ~	\\\\
CHECKED 審核 APPROVED 審批 通國際 設計有限公司 城市城省及設計圓境建業員同業務	ーレート DRAWN 繪圖	
APPROVED 審批 1. 國際設計有限公司 城市規劃及設計個境建業額問題務	CA CHECKED 審核	
■ ■國際設計有限公司 城市規劃及設計個塊建業團問題務	APPROVED 審 担	t
城市规劃及設計,國境建築顧問跟務	國際設計有限公司	
西街十八號盤谷銀行大慶十樓	城市規劃及設計,圓境建築顧問服務 55街十八號整谷銀行大慶十樓	

Provision of Columbarium at Cape Collinson Road in Chai Wan Landscape and Tree Preservation Proposal

<u>APPENDIX VI</u>

NOTIONAL COMPENSATORY PLANTING PLAN (subject to detailed design)





PROVISION OF COLUMBARIUM AT CAPE COLLINSON ROAD IN CHAI WAN LOCATION PLAN OF THE PROPOSED COLUMBARIUM & PEDESTRIAN ACCESS ROUTE (SUBJECT TO DETAIL DESIGN) AND EXISTING CREMATORIUM & COLUMBARIUM AT CAPE COLLINSON Dwg.no. J505 / 20160810 / SL / SK03 Scale : N.T.S.



KEY PLAN

					_
Provision of Columbarium at Cape Collinson Road in Chai Wan	SCALE	1:1500(A3)	DATE	AUG 20)1 6
		ALL	DRAWN	TEAM	Л
Compensatory Planting Plan (Cape Collinson Crematorium & Columbarium)	FIGURE NO.	SKAL12	A /CC/CP0	1	_
					_

Boundary of Cape Collinson Crematorium & Columbarium

Proposed Compensatory Tree

e	es Schedule								
	Chinense	Size	Plant	Spacing					
	Name		No.						
	黃槐	Heavy standard	5	as shown					
	大花紫薇	Heavy standard	6	as shown					
	假蘋婆	Heavy standard	25	as shown					
	金蒲桃	Heavy standard	14	as shown					
		Total	50						

100M



ADILIMITED LANDSCAPE ARCHITECTURE, URBAN DESIGN AND MASTER PL 100F BANGKOK BANK BUILDING, 18 BONHAM STRAND WEST, H TELEPHORE 218 1860 PACSMEE 218 1860 雅 博 奥 頓 圀 陈 設計 者 限 公 司 国際環境管境, 城市観察公園計 香 限 公 司 電源は環境実施 同十八 鉄道名 優 行大 属 十個 電路: (ハ五二) ニーニー 八水三零 樽算: (ハ五二) ニーニー 八水零九 URE, URBAN DESIGN AND MASTER PLANNING ILDING, 18 BONHAM STRAND WEST, HONG KONG





VIEW POINT (V2)



VIEW POINT (V1)

Note: View Points refer to figure No. SKAL12A/CC/CP01

VIEW POINT (V3)

Provision of Columbarium at Cape Collinson Road in Chai Wan		-	DATE	JUNE 20)1
cities and the contribution of contribution at cape contribution Road in cital wait			DRAWN	TEAN	٨
Compensatory Planting Plan (Cape Collinson Crematorium & Columbarium)	FIGURE NO.	SKAL12	A/CC/CP0	2	

LEGEND:



ADILIMITED LANDSCAPE ARCHITECTURE, URBAN DESIGN AND MASTER PLANNING 10/F BANGKOK BANK BUILDING, 18 BONHAM STRAND WEST, HONG KONG TELEPHOR 2018 BR PASAMMER 2018 600 世 作為 401 周路 投入計 石田 公子 開席電電管査, 秋日朝起記, 社会登録 計 石田 公子 開席電電管査, 秋日朝起記, 社会整理新型報告 書走上電之業百賢十人覧盘 5歳 日大賞 十個 電話: (八五二) ニーニー 人大三等 構成: (八五二) ニーニー 人大等九

Proposed compensatory tree location





VIEW POINT (V6)

VIEW POINT (V4)





VIEW POINT (V5)

Note: View Points refer to figure No. SKAL12A/CC/CP01

					_
Provision of Columbarium at Cape Collinson Road in Chai Wan	SCALE	24 C	DATE	JUNE 2	01
Frovision of Columbandin at Cape Collinson Road in Char Wan	CHECKED	ALL	DRAWN	TEA	N
Compensatory Planting Plan (Cape Collinson Crematorium & Columbarium)	FIGURE NO.	SKAL12	A /CC/CP0	3	

LEGEND:



Proposed compensatory tree location

ADILIMITED LANDSCAPE ARCHITECTURE, URBAN DESIGN AND MASTER PLANNING 10/F BANGKOK BANK BUILDINO, 18 BONHAM STRAND WEST, HONG KONG TELEPHORE 2013 BASE PARZIMALE 2131 BAD 世 作 気 何 固 府 没 計 石 茂 公 可 展示電電管査, 紙寸単見及計, 作 男生者軍軍皆形 零走上電之業百動十人賞 監 号進行大算十層 電話: (八五二) 二一三一 八六三等 体許:(八五二) 二一三一 八六零九









VIEW POINT (V11)

Note: View Points refer to figure No. SKAL12A/CC/CP01

Provision of Columbarium at Cape Collinson Road in Chai Wan	SCALE	-	DATE	JUNE 2	010
Provision of Columbanum at Cape Collinson Road in Char Wan	CHECKED	ALL	DRAWN	TEAN	٨
Compensatory Planting Plan (Cape Collinson Crematorium & Columbarium)	FIGURE NO.	SKAL12	A/CC/CP0	4	F

VIEW POINT (V8)

LEGEND:

Proposed compensatory tree location



ADILIMITED LANDSCAPE ARCHITECTURE, URBAN DESIGN AND MASTER PLANNING 10/F BANGKOK BANK BUILDING, 18 BONHAM STRAND WEST, HONG KONG TELEPHORE 2018 BER PARAMMER 2013 6009 世 作 気 何 固 明 読 投 計 石 顶 公 可 展示項項目中, 地方相對見免許, 原要遵用單項最高 書 走上更元或者 局計 十八 積 世 命 現 广大 重 十 欄 電話: (パ五二) 二一三一 八大三尊 樽賞: (パ五二) 二一三一 八六章丸



VIEW POINT (V12)





VIEW POINT (V13)

Note: View Points refer to figure No. SKAL12A/CC/CP01

Provision of Columbarium at Cane Collinson Road in Chai Wan		(e.)	DATE	JUNE 20
Provision of Columbandin at Cape Collinson Road in Chai Wan	CHECKED	ALL	DRAWN	TEAM
Compensatory Planting Plan (Cape Collinson Crematorium & Columbarium)	FIGURE NO.	SKAL12	A /CC/CP0	5 -

VIEW POINT (V14)

LEGEND:

Proposed compensatory tree location



ADI

ADILIMITED LANDSCAPE ARCHITECTURE, URBAN DESIGN AND MASTER PLANNING 10/P BANGKOK BANK BUILDING, 18 BONHAM STRAND WEST, HONG KONG TELEPHORE 2018 BR PACIMUME 2131 8080 位 作気 何 回 何 回 序 起注 升 页 요之 可 展示或信号, 地子相對見合批 计 原基理警察程序系 考走上 夏 スズ 月 四 十 八 教 任 合 現 十 元 十 年 電話: (八五二) 二 一 三 一 八 六二等 体質: (八五二) 二 一 三 一 八 六等 九 Provision of Columbarium at Cape Collinson Road in Chai Wan Landscape and Tree Preservation Proposal

APPENDIX VII

NOTIONAL LANDSCAPE MASTER PLANS (subject to detailed design)







Attachment XV of <u>MPC Paper No. 13/16</u>

Provision of Major Community Facilities in Chai Wan Area

Type of Facilities	Hong Kong Planning Standards	HKPSG Requirement	Prov	vision	Surplus/ Shortfall
	and Guidelines (HKPSG)	(based on planned population)	Existing Provision	Planned Provision	(against planned provision)
District Open Space	10 ha per 100,000 persons	17.08ha	14.34	15.52	-1.56ha
Local Open Space	10 ha per 100,000 persons	17.08ha	23.20	25.31	+8.23ha
Secondary School	1 whole-day classroom for 40 persons aged 12-17	189 classrooms	418	418	+229 classrooms
Primary School	1 whole-day classroom for 25.5 persons aged 6-11	261 classrooms	210	210	-51 classrooms
Kindergarten/ Nursery	26 classrooms for 1,000 children aged 3 to 6	69 classrooms	127	127	+58 classrooms
District Police Station	1 per 200,000 to 500,000 persons	0	0	0	0
Divisional Police Station	1 per 100,000 to 200,000 persons	1	1	1	0
Clinic/Health Centre	1 per 100,000 persons	2	3	4	+2
Post Office	No set standard	NA	3	3	NA
Magistracy (with 8 courtrooms)	1 per 660,000 persons	0	0	0	0
Integrated Children and Youth Services Centre	1 for 12,000 persons aged 6-24	2	4	4	+2
Integrated Family Services Centre	1 for 100,000 to 150,000 persons	1	2	2	+1
Library	1 district library for every 200,000 persons	1	2	2	+1

Sport Centre	1 per 50,000 to 65,000 persons	2	2	2	0
Sports Ground/ Sport Complex	1 per 200,000 to 250,000 persons	1	1	1	0
Swimming Pool Complex - standard	1 complex per 287,000 persons	1	1	1	0

Note:

The planned population for the area is 178,509 (usual residents, mobile residents and transients).

東區區議會文件第 50/16 號

東區區議會轄下 規劃、工程及房屋委員會 <u>第四次委員會會議紀要</u>

上述會議已於2016年6月27日舉行,討論的事項摘錄如下:

I. **灣仔北及北角海濱城市設計研究 - 第二階段公眾參與** (規劃、工程及房屋委員會文件第 22/16 號)

委員樂見部門制定優化海濱建議。有委員希望部門避免採用過分花巧 的設計,盡快建設務實及完善的海濱,並加強海濱的行人連接,以及研究 增設連貫單車徑的可行性,以增加海濱的連貫性,為市民增加休憩空間。

II. 柴灣道公共房屋發展計劃

(規劃、工程及房屋委員會文件第 25/16 號)

III. 擬議修訂 〈柴灣分區計劃大綱核准圖編號S/H20/21〉 (規劃、工程及房屋委員會文件第 26/16 號)

委員普遍同意將柴灣道的用地撥作公共房屋發展,以善用土地資源及 應付社會對公共房屋的殷切需求。有委員希望政府補償休憩用地的損失、 加強交通配套措施、提供足夠停車位,以及設法減低鄰近高速公路的噪音 滋擾等。此外,委員亦同意《柴灣分區計劃大綱核准圖編號 S/H20/21》的 擬議修訂。

IV. 要求鰂魚涌公園二期旁空地興建綜合體育館

(規劃、工程及房屋委員會文件第 23/16 號)

有委員認為區內的體育場館不足,建議政府於題述用地增設綜合體育 館,並設置標準室內游泳池,供市民享用。相反,有委員擔心多層體育館 會影響地基結構及附近景觀,認為政府應先諮詢區內持份者的意見。經討 論後,委員會通過以下修訂動議,亦同意將議題列人跟進事項:

「東區區議會轄下規劃、工程及房屋委員會要求政府在鰂魚涌公園二期旁邊的休憩用地探討研究興建一個三至四層的綜合體育館,內設標準室內公共泳池供市民使用,以改善區內市民的生活環境。」

東區區議會秘書處 2016年6月





















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		傑灣華人 CAPE CO CHINESE PERMAN	永證項码 LUINSON NENT CEMETERY	
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擬議把「其他指定 改劃為「其他指定 及訂定建築物高度	E用途」註明「殯儀館」 E用途」註明「靈灰安置所」 E限制於5層			
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地點界線只作識別用 SITE BOUNDARY FOR IDENTIFICATION PURPOSE ONLY

本圖於2016年7月22日擬備,所根據的 資料為攝於2016年7月5日的實地照片	實地照片 SITE PHOTO 柴灣分區計劃大綱核准圖編號S/H20/21的擬議修訂項目 PROPOSED AMENDMENTS TO	規 劃 署 PLANNING DEPARTMENT	2
EXTRACT PLAN PREPARED ON 22.7.2016 BASED ON SITE PHOTO TAKEN ON 5.7.2016	APPROVED CHAI WAN OZP No. S/H20/21 修訂項目B AMENDMENT ITEM B	参考編號 REFERENCE No.	圖 PLAN
		M/H20/16/1	11





現有景觀 EXISTING VIEW



擬議發展 PROPOSED DEVELOPMENT

合成照片 PHOTOMONTAGE

本圖於2016年8月19日擬備, 所根據的資料由建築署提供 PLAN PREPARED ON 19.8.2016 BASED ON PLAN PROVIDED BY ARCHITECTURAL SERVICES DEPARTMENT

觀景點A - 歌連臣角道 **VP A - CAPE COLLINSON ROAD** 柴灣分區計劃大綱核准圖編號S/H20/21的擬議修訂項目 PROPOSED AMENDMENTS TO APPROVED CHAI WAN OZP No. S/H20/21 修訂項目B AMENDMENT ITEM B

規劃署 PLANNING DEPARTMEN	
參考編號 REFERENCE No	圖 PLAN

13

REFERENCE No.

M/H20/16/1



現有景觀 EXISTING VIEW



合成照片 PHOTOMONTAGE

本圖於2016年8月19日擬備, 所根據的資料由建築署提供 PLAN PREPARED ON 19.8.2016 BASED ON PLAN PROVIDED BY ARCHITECTURAL SERVICES DEPARTMENT 觀景點B - 環翠邨公園 VP B - WAN TSUI ESTATE PARK 柴灣分區計劃大綱核准圖編號S/H20/21的擬議修訂項目 PROPOSED AMENDMENTS TO APPROVED CHAI WAN OZP No. S/H20/21 修訂項目B AMENDMENT ITEM B のである。 PLANNING DEPARTMENT 参考編號 REFERENCE No. 岡 PLAN

M/H20/16/1

14

規劃署



現有景觀 EXISTING VIEW



擬議發展 PROPOSED DEVELOPMENT

合成照片 PHOTOMONTAGE

本圖於2016年8月19日擬備, 所根據的資料由建築署提供 PLAN PREPARED ON 19.8.2016 BASED ON PLAN PROVIDED BY ARCHITECTURAL SERVICES DEPARTMENT 觀景點C - 富翠樓旁行人路 VP C - PAVEMENT NEAR FU TSUI HOUSE 柴灣分區計劃大綱核准圖編號S/H20/21的擬議修訂項目 PROPOSED AMENDMENTS TO APPROVED CHAI WAN OZP No. S/H20/21 修訂項目B AMENDMENT ITEM B



參考編號 REFERENCE No. M/H20/16/1




現有景觀 EXISTING VIEW

柴灣華人永遠墳場 CAPE COLLINSON CHINESE PERMANENT CEMETERY 修訂項目B AMENDMENT ITEM B

擬議發展 PROPOSED DEVELOPMENT

合成照片 PHOTOMONTAGE

本圖於2016年8月19日擬備, 所根據的資料由建築署提供 PLAN PREPARED ON 19.8.2016 BASED ON PLAN PROVIDED BY ARCHITECTURAL SERVICES DEPARTMENT 觀景點D - 環翠邨平台遊樂場 VP D - WAN TSUI ESTATE PODIUM PLAYGROUND 柴灣分區計劃大綱核准圖編號S/H20/21的擬議修訂項目 PROPOSED AMENDMENTS TO APPROVED CHAI WAN OZP No. S/H20/21 修訂項目B 規劃署 PLANNING DEPARTMENT

REFERENCE No. M/H20/16/1



11回月月日 AMENDMENT ITEM B