

Construction Traffic Management Plan

Project: Northern Corridor Works Portion 7A+7B	Project No: K38	Date: 08 February 2018	Rev: Final (Rev 04)
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Sydney Metro City and Southwest Portion 7A+7B - Northern Corridor Works P7 – RS – SC – WP003: Construction Traffic Management Plan

Document and revision history

Document details	
Title	Construction Traffic Management Plan
Client	Sydney Metro
Client reference no.	00013/10604
Laing O'Rourke contract no.	K38

Revisions

Revision	Date	Description	Prepared by	Approved by
1	19 September 2018	NCW P7a plan revised for 7b. Issued to SM, RMS for comment	Bitzios Consulting	AD
2	12 November 2018	Plan revised following comments from RMS, SCO, WCC, Sydney Metro and the ER and submitted for approval	CS	AD
3	7 December 2018	Plan revised for TCPs and vehicle movement for Nelson Street Bridge removal	CS	AD
4	8 February 2019	Plan revised following comments from RMS, SCO, WCC, Sydney Metro and the ER and submitted for approval	CS	AD

Management reviews

Review date	Details	Reviewed by

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Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

Project No:
K38

Date:
08 February 2018

Rev:
Final (Rev 04)

CTMF, MCoA, and REMM Compliance Matrix

The Project was assessed as a Critical State Significance Infrastructure (CSSI) by the Minister for Planning and Environment under Section 115ZB of the EP&A Act. The Minister's Conditions of Approval (CoA) were granted on 9 January 2017 with conditions. A construction traffic management sub-plan is required as part of the Construction Environmental Management Plan (CEMP) for the project under CoA C3 (h). The construction traffic conditions of approval are outlined in conditions E75-91 and addressed in the Northern Corridor Works (NCW) Construction Traffic Management Sub-plan as outlined below. Additionally, the Revised Environmental Mitigation Measures also provides guidance on required actions during construction works and have been referenced accordingly below.

CoA	Requirement	Document Reference
C3	The following CEMP sub-plans must be prepared in consultation with the relevant government agencies identified for each CEMP sub-plan and be consistent with the CEMF and CEMP referred to in Condition C1. The Construction Traffic Management Plan must also be prepared in accordance with the Construction Traffic Management Framework as required by Condition E81. (a) Noise and Vibration (b) Biodiversity (c) Air Quality (d) Soil and Water (e) Groundwater (g) Heritage	This document
C4	The CEMP sub-plans must state how: (a) the environmental performance outcomes identified in the EIS as amended by the documents listed in A1 will be achieved; (b) the mitigation measures identified in the EIS as amended by documents listed in A1 will be implemented; (c) the relevant terms of this approval will be complied with; and (d) issues requiring management during construction, as identified through ongoing environmental risk analysis, will be managed	Refer to Section 1.2 Refer to Section 2.1 Refer to Section 3.1, 3.2
C5	The CEMP sub-plans must be developed in consultation with relevant government agencies. Where an agency(ies) request(s) is not included, the Proponent must provide the Secretary justification as to why. Details of all information requested by an agency to be included in a CEMP sub-plan as a result of consultation and copies of all correspondence from those agencies, must be provided with the relevant CEMP sub-plan.	Refer to Section 7.0 Refer to Appendix F
C6	Any of the CEMP sub-plans may be submitted to the Secretary along with, or subsequent to, the submission of the CEMP but in any event, no later than one (1) month before commencement of construction.	Refer to Section 1.3
C7	The CEMP must be endorsed by the ER and then submitted to the Secretary for approval no later than one (1) month before the commencement of construction or within another timeframe agreed with the Secretary.	Refer to Section 1.3
C8	Construction must not commence until the CEMP and all CEMP sub-plans have been approved by the Secretary. The CEMP and CEMP sub-plans, as approved by the Secretary, including any minor amendments approved by the ER, must be implemented for the duration of construction. Where the CSSI is being staged, construction of that stage is not to commence until the relevant CEMP and sub-plans have been approved by the Secretary.	Refer to Section 1.3
E36	Construction, except as allowed by Condition E48 (excluding cut and cover tunnelling), must only be undertaken during the following standard construction hours: (a) 7:00am to 6:00pm Mondays to Fridays, inclusive; (b) 8:00am to 1:00pm Saturdays; and (c) at no time on Sundays or public holidays.	Refer to Section 1.4
E44	Notwithstanding Condition E36 construction associated with the CSSI may be undertaken outside the hours specified under those conditions in the following circumstances: (a) for the delivery of materials required by the NSW Police Force or other authority for safety reasons; or (b) where it is required in an emergency to avoid injury or the loss of life, to avoid damage or loss of property or to prevent environmental harm; or (c) where different construction hours are permitted or required under an EPL in force in respect of the construction; or (d) construction that causes LAeq(15 minute) noise levels: i. no more than 5 dB(A) above the rating background level at any residence in accordance with the Interim Construction Noise Guideline (DECC, 2009), and ii. no more than the noise management levels specified in Table 3 of the Interim Construction Noise Guideline (DECC, 2009) at other sensitive land uses, and	CEMP Section 4.2 outlines that the project will be constructed under Sydney Trains Environment Protection Licence (EPL) 12208, thereby CoA E44 does not apply.

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	iii. continuous or impulsive vibration values, measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.2 of Assessing Vibration: a technical guideline (DEC, 2006), and iv. intermittent vibration values measured at the most affected residence are no more than those for human exposure to vibration, specified in Table 2.4 of Assessing Vibration: a technical guideline (DEC, 2006); or (e) where a negotiated agreement has been reached with a substantial majority of sensitive receivers who are within the vicinity of and may be potentially affected by the particular construction, and the noise management levels and/or limits for ground-borne noise and vibration (human comfort) cannot be achieved. All agreements must be in writing and a copy forwarded to the Secretary at least one (1) week before the works commencing; or (f) construction approved through an Out of Hours Work Protocol referred to in Condition E47, provided the relevant council, local residents and other affected stakeholders and sensitive receivers are informed of the timing and duration at least five (5) days and no more than 14 days before the commencement of the works. Note: This condition does not apply where an EPL is in force in respect of the construction.	
E47	An Out of Hours Work Protocol for the assessment, management and approval of work outside of standard construction hours, as defined in Condition E36 of this approval, must be prepared in consultation with the EPA and submitted to the Secretary for approval before construction commences for works not subject to an EPL. The protocol must include: (a) the identification of low and high risk construction activities; (b) a risk assessment process in which the AA reviews all proposed out of hours activities and identifies their risk levels; (c) a process for the endorsement of out of hours activities by the AA and approval by the ER for construction activities deemed to be of: i. low environmental risk; or ii. high risk where all construction works cease by 9pm. All other high risk out of hours construction must be submitted to the Secretary for approval unless otherwise approved through an EPL. The protocol must detail standard assessment, mitigation and notification requirements for high and low risk out of hours works, and detail a standard protocol for referring applications to the Secretary.	Refer to Construction Noise and Environmental Management Plan
E48	Notwithstanding Condition E36 of this approval and subject to Condition E47, the following activities may be undertaken 24 hours per day, seven (7) days per week: (a) tunnelling and associated support activities (excluding cut and cover tunnelling); (b) excavation within an acoustic enclosure; (c) excavation at Central (excluding Central Walk works at 20-28 Chalmers Street, Surry Hills) without an acoustic enclosure; (d) station and tunnel fit out; and (a) (e) haulage and delivery of spoil and materials	Refer to Section 1.4
E75	The CSSI must be designed, constructed and operated with the objective of integrating with existing and proposed road and related transport networks and minimising adverse changes to the safety, efficiency and, accessibility of the networks, and facilitate an improved level of service in relation to permanent and operational changes. Detailed design and assessment of related traffic, parking, pedestrian and cycle accessibility impacts and changes shall be undertaken: (a) in consultation with, and to the reasonable requirements of the Traffic and Transport Liaison Group(s) established under Condition E77; (b) in consideration of existing and future demand, connectivity (in relation to permanent changes), performance and safety requirements; (c) to minimise and manage local area traffic impacts; permanent (d) to ensure access is maintained to property and infrastructure; and (e) to meet relevant design, engineering and safety guidelines, including Austroads, Australian Standards, and RMS (RTA) requirements. Copies of civil, structural and traffic signal design plans shall be submitted to the Relevant Road Authority for consultation before the commencement of the relevant works.	Refer to Section 2.0 Refer to Section 7.0
E76	Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclists, and public transport users must be subject to safety audits demonstrating consistency with relevant design, engineering and safety standards and guidelines. Safety audits must be prepared in consultation with the Traffic and Transport Liaison Group before the completion and use of the subject infrastructure and must be made available to the Secretary upon request.	Permanent works Safety Audit will be undertaken by design consultant as part of Critical Design Review (CDR) submission. Refer to Section 8.1
E77	The Proponent must establish a Traffic and Transport Liaison Group(s) (TTLGs) to inform traffic and transport management measures during construction and operation of the CSSI. Management measures must be coordinated with and approved by the RMS following endorsement by the Sydney Coordination Office and consultation with the Relevant Roads Authority. The TTLG must comprise representatives from the Relevant Road Authority(ies) (including the RMS, relevant Councils, and the Barangaroo Delivery Authority as appropriate), transport operators (including	TTLG/TCG instigated by Sydney Metro, LORAC in attendance Refer to Appendix F Refer to Section 7.0

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	bus and taxi operators), emergency services and Port Authority of NSW as required. The TTLG must be consulted on to inform the preparation of the Construction Traffic Management Plan(s) and Interchange Access Plan(s).	
E78	The Proponent must undertake supplementary analysis and modelling as required by the TTLG to demonstrate that construction and operational traffic can be managed to minimise disruption to traffic network operations, public including changes to and the management of pedestrian, bicycle and public transport networks transport services, pedestrian and cyclist movements. Revised traffic management measures, must be incorporated into the Construction Traffic Management Plan(s), Interchange Access Plan(s) and Station Design and Precinct Plan(s).	CTMP required approval by RMS / TMC / CoS / Sydney Metro, refer Section 7.0 for stakeholder engagement
E79	The Proponent must consult with the Relevant Road Authority regarding the use of any weight restricted road by heavy vehicles.	Refer to Section 12
E80	The Proponent must minimise truck movements during peak periods within commercial centres. Peak periods are from 7am to 10am and 4pm to 7pm Monday to Friday.	Refer to Section 1.4
E81	The Proponent must prepare and implement a Construction Traffic Management Framework (CTMF). The CTMF must be prepared in consultation with TTLG(s) and submitted to the Secretary for approval no later than one (1) month before the commencement of construction (or within any other timeframe agreed with the Secretary). The CTMF will set out the approach to managing issues across the CSSI and include but not be limited to: a) construction site access, including the efficient and safe egress and ingress of vehicles, consistent relevant Austroads, Australian Standards and RMS requirements; b) the erection and maintenance of hoardings, scaffolds and associated structures on roads; c) short and long term lane and road closures including those associated with plant, crane and other operations between the road reservation and construction site; d) cumulative construction vehicle management from surrounding developments; e) bus stop and associated facilities relocation and service rerouting; f) short and long term works zones on roads adjacent to the construction site; g) mail zone and associated facilities relocation; h) short and long term works within the road reservation; i) regulatory, advisory and other signage changes and modifications; j) parking management, including on and off street and remote parking and access; k) heavy vehicle management, the restriction (unless otherwise approved) of heavy vehicles to certain routes and the minimisation of heavy vehicle traffic in peak traffic periods; l) special event management; m) the retention and reinstatement of emergency and property access; n) the retention of user and passenger safety, including pedestrians, cyclists, public transport users, including at stops and related facilities; o) incident response planning around construction worksites; and p) monitoring of transport and access related impacts attributable to the CSSI.	CTMF completed by Sydney Metro. Refer to compliance matrix below
E82	Construction Traffic Management Plans (CTMPs), consistent with the CEMF and CTMF required in Condition E81, must be prepared for each construction site in consultation with the TTLG(s), and submitted to the RMS for approval following Sydney Coordination Office endorsement before construction commences at the relevant construction site. A copy of any Construction Traffic Management Plans approved by the RMS must be submitted to the Secretary for information	Refer to Section 7.0 Refer to Appendix F
E83	Where construction results in a worsening of the matters identified in Condition E81(a)-(o), the Proponent must review the measures identified in the CTMPs in consultation with the TTLG(s), as relevant. Any changes to conditions as part the CTMPs must be submitted to the RMS for approval following Sydney Coordination Office endorsement and implemented.	Refer to Section 1.3 Refer to Section 2.1.13
E85	Heavy vehicle haulage must not use local roads unless no feasible alternatives are available.	Refer Appendix A Refer Appendix B
E86	During construction, measures must be implemented to maintain pedestrian and vehicular access to, and parking in the vicinity of, businesses and affected properties. Alternative pedestrian and vehicular access, and parking arrangements must be developed in consultation with affected businesses. Such arrangements must be outlined in the Business Management Plan required in Condition E64 and implemented as required. Adequate signage and directions to businesses must be provided before, and for the duration of, any disruption.	Refer to Section 2.1.4 Refer to Section 7.3 Refer to Appendix C
E87	Permanent road works, including vehicular access, signalised intersection works, and works relating to pedestrians, cyclists and public transport users will be subject to safety audits demonstrating consistency with relevant design, engineering and safety standards and guidelines. Safety audits must be included within each relevant CTMP and carried out in consultation with the TTLG before the completion and use of the subject infrastructure and must be made available to the Secretary on request.	Refer to Section 8.1 Refer to Appendix E
E88	Details of haulage routes and heavy vehicle sizes to transport material to and from any construction site must be specified in the Construction Traffic Management Plan(s) and be approved by the RMS following endorsement by Sydney Coordination Office and consultation with the TTLG(s).	Refer Appendix A
E90	A Road Dilapidation Report must be prepared for local roads proposed to be used by heavy vehicles for the purposes of the CSSI before the commencement of use by such vehicles. Copies of the Road	Refer to Section 2.1.13

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	Dilapidation Report must be provided to the Relevant Council within three (3) weeks of completing the surveys and no later than one (1) month before the use of local roads by heavy vehicles.	
E91	If damage to roads occurs as a result of construction of CSSI, the Proponent must either (at the landowner's discretion): a) compensate the landowner for the damage so caused. The amount of compensation may be agreed with the landowner; or b) rectify the damage so as to restore the road to at least the condition it was before construction commenced as identified in the Road Dilapidation Report(s).	Refer to Section 2.1.13
E95	The Proponent must in consultation with the TTLG review the need and opportunities for a pedestrian and cycle bridge across the rail corridor to replace the Nelson Street Bridge. The review must be presented in the Interchange Access Plan(s) and the findings implemented by the Proponent.	Refer to Section 7 CTMP to be reviewed

Note: CoA E84, E86.1, E89, E92 to E98 - are not applicable to NCW Portion 7B works

Construction Traffic Management Framework		
2.1	All Sydney Metro City & Southwest construction activity must comply with the following principles: (a) A safe road and pathway network for construction personnel and the public (vehicular, cyclist and pedestrian) must be made at all work sites including alternative movement paths as a result of site works. (b) Minimise delays to traffic and pedestrians in the immediate vicinity of work sites as much as practicable. (c) Minimise construction traffic generation during network peak periods to the maximum numbers outlined in the EIS, unless otherwise agreed by the relevant authorities (such as Sydney Coordination Office (SCO), RMS or local council). It is an RMS operational imperative that the capacity and efficiency of the network is not reduced, particularly during the peak periods of 6:00am to 10:00am and 3:00pm to 7:00pm, Monday to Friday (excluding public holidays). (d) Coordinate works so that road users do not encounter a series of delays in quick succession and so that the cumulative impact of multiple closures does not lead to unexpected congestion. (e) Implement appropriate operational and other measures to ensure the safety of vulnerable road users (refer to Section 9.5). (f) Maintain access for residents and businesses. (g) Keep road users (vehicular, cyclists and pedestrians) informed about: i. The location, date, time and duration of works, to enable informed decisions by the road user regarding times and routes of travel. ii. Likely travel delays. iii. Alternative routes, if applicable. (h) Present a professional and helpful interface with road users during all parts of the construction process. (i) Consider potential impacts on pedestrians and cyclists. (j) Keep public transport users informed of changes, due to construction. Meet other RMS and SCO operational imperatives listed in Appendix C.	Refer to Section 1.0 Refer to Section 2.1.4 Refer to Section 4.0 Refer to Section 5.0 Refer to Section 6.0 Refer to Section 5.0 Refer to Section 7.0
2.2	Priority will be given to providing adequate guidance to pedestrians, cyclists, drivers and the community prior to the commencement of any works. Priority will also be given to responding appropriately to issues and events that may arise during the works. As part of this strategy, some key traffic management measures include: (a) The provision of directional signage and line marking to direct and guide drivers, cyclists and pedestrians past work sites and to suitable alternative routes (if required) on the surrounding road network. (b) Notification of proposed changes and duration using newspapers (local or majors), radio, project website, social media and direct community engagement (as required). (c) On-going or direct co-ordination with the Transport Management Centre (TMC) and the SCO, to mitigate congestion and provide rapid response should incidents or increased congestion occur as a direct result of the works. Notification of incidents or congestion should also be relayed to the Sydney Metro Delivery Office immediately (refer to Section 8.3). The direct contact numbers of the contract-wide and site-specific lead contractors should be provided to the TMC and SCO. The contract-wide lead contractor is responsible for ensuring the direct contact numbers are current during any stage of construction. (d) Management and coordination of construction vehicle access to and from the work sites across pedestrian paths. The type of traffic management to be employed will be dependent on, and adjusted according to, the volume of pedestrians, passing traffic and the volume of construction vehicle activities for the site. The types of management could include manual supervision, physical barriers, temporary/portable traffic signals (where approved by RMS, BDA or council) or modification to existing traffic signals (where approved by RMS). (e) Ensuring that access to existing properties and businesses is maintained during the period of the works, or suitable alternative. Retain existing on-street parking and restrictions, as far as is practicable.	Refer to Section 2.1.4 Refer to Section 3.0 Refer to Section 6.0 Refer to Section 7.0
2.3	In identifying the most appropriate form of traffic management for each site, consideration should be given to the priorities of the potential different users.	Refer to Section 1.9

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Construction Traffic Management Framework		
3.3.1	This CTMF provides the framework within which subsequent contract-specific and site-specific CTMPs will be prepared.	Refer to Section 1.0
3.3.2	A contract-wide Construction Traffic Management Plan (CTMP) will be prepared by contractors, covering the full spatial extent of their works and multiple sites.	Refer to Section 1.0
3.3.3	Contractors will also prepare more detailed site-specific Construction Traffic Management Plans (CTMPs). These will be developed by the contractor for each work site and identify proposed heavy vehicle routes, traffic and parking management measures. These plans will be developed in consultation with the TTLG and TCG meetings.	NCW Portion 7 involves only 1 worksite. Therefore a singular CTMP is appropriate
3.3.4	The site-specific CTMPs provide the basis for preparation of the Traffic Control Plans (TCP) and Road Occupancy Licence (ROL) applications. Vehicle movement plans should be included in site-specific CTMPs prepared by a suitably qualified person for the contractor. The VMP should also include the proposed site access points and how these are to be managed. Wherever it is necessary to divert or warn pedestrians of works the PMP should be included in the CTMP prepared by the contractor. This may be a stand-alone document.	Refer to Section 2.0 Refer to Section 3.0 Refer to Appendix B ROLs to be developed/obtained for specific works
4.1	Traffic and Transport Liaison Group (TTLG)	Refer to Section 7.0
4.2	Traffic Control Group (TCG)	Refer to Section 7.0
4.3	Government Stakeholders	Refer to Section 7.0
5	All external communication with the community, including businesses, must follow the guidelines set out in the Sydney Metro City & Southwest Community Communication Strategy.	Refer to Section 7.0
5.1	Owners and operators of potentially affected properties and businesses will be consulted throughout the delivery of the Project and notified well in advance of any works that may potentially disrupt access to their property.	Refer to Section 7.0
5.2	Activity specific communications strategies are required to be developed prior to any traffic event. These strategies should include details of the work, impacts and proposed mitigation measures	Refer to Section 7.0
5.3	The contractor's Stakeholder and Community Manager will be responsible for ensuring a system is in place to advise the Sydney Metro City & Southwest Project Communications Team, the TTLG and other key stakeholders each time proposed changes are to be made to traffic arrangements	Refer to Section 7.0
5.4	Appropriate signposting, whether static or Variable Message Signs (VMS), should be located and installed to provide for the easy and safe passage of vehicles, pedestrians and cyclists. This also includes public transport users accessing facilities such as bus stops.	Refer to Section 3.0
6.1	Notwithstanding the Project SSI Approval being secured under Part 5.1 of the EP&A Act, Sydney Metro contractors will be required to secure all required statutory approvals prior to the commencement of works.	Refer to Section 2.0
6.2	The agencies that may have a potential interest in the traffic management measures proposed for each Project construction site are outlined in table 6-1 (CTMF).	Refer to Section 7.0
6.3	Construction Traffic Management Plans will require approval and consideration by several key stakeholders. Contractors should assess the overall required approval times at the beginning of the Project to provide adequate scheduling of the preparation and submission of the CTMPs. Condition E82 requires "Construction Traffic Management Plans (CTMPs), consistent with the CTMF required in Condition E81, must be prepared for each construction site in consultation with the TTLG(s), and submitted to RMS for approval following Sydney Coordination Office endorsement before construction commences at the relevant construction site." In addition, Condition E83 requires that "Where construction results in a worsening of the matters identified in Condition E81 (a)-(o), the Proponent must review the measures identified in the CTMPs in consultation with the TTLG(s), as relevant. Any changes to the CTMPs must be submitted to RMS for approval following Sydney Coordination Office endorsement and implemented."	This document
6.4	Whenever it is proposed to occupy or close a lane or road during the construction program for each of the sites, the approval of the closure will require the contractor to apply for a Road Occupancy Licence (ROL) from the Transport Management Centre (TMC) and/or the local council.	Refer to Section 2.1.2 and 2.1.3
6.5	An application must be made to RMS for any proposed adjustment of the speed limit on the road network, whether they are proposed as temporary measures for work zones and road occupancies or for longer periods such as the duration of the construction works at a site	Refer to Section 2.1.3
6.6	Special event coordination	Refer to Section 7.4
6.7	All Traffic Control Plans (TCPs) prepared for construction activities will be developed in accordance with Australian Standard AS1742.3 and Traffic Control at Worksites Manual (RMS).	Refer to Section 2.1.2
6.8	Any temporary or permanent works that impact on the operation of, or require the reconstruction or adjustments to, traffic signals require close consultation with RMS and approval of the traffic signal design plans, prior to the commencement of any work. This will require entering in to a Works Authorisation Deed (WAD) with RMS.	Refer to Section 2.1.3

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Construction Traffic Management Framework		
6.9	Prior approval for the passage of any proposed over-size or over-mass vehicles is required from the National Heavy Vehicle Regulator, RMS for state roads, or councils for regional or local roads, and an authorisation permit issued prior to the operation of the vehicle.	Refer to Section 8.0
6.10	Consultation regarding the relocation and/or adjustments to post boxes and the associated kerbside 'mail zone' will be required to be undertaken with Australia Post and the relevant road authority prior to any relocations occurring. In some instances, post boxes may be able to be relocated, however there will be instances where the post box, for heritage requirements, will not be able to be relocated. These post boxes will need to be protected to ensure that they are not damaged during construction works. Adjustments or relocation of other roadside furniture or modifications to signposting such as advisory signs or regulatory signs will require consultation and approval of the owner. In most cases this will be the local council. Changes to regulatory signposting and linemarking on local and Regional roads will require a submission to the Local Traffic Committee for agreement.	Refer to Section 2.4 Refer to Section 3.1.1
6.11	Where possible, the contractor should endeavour to secure all necessary council approvals under delegation to avoid the need for approvals to be secured through the Local Traffic Committee and council meetings.	Refer to Section 2.1.1 Refer to Section 7.0
6.12.1	Condition E90 of the conditions of approval states "Road Dilapidation Report must be prepared for local roads proposed to be used by heavy vehicles for the purposes of the CSSI before the commencement of use by such vehicles. Copies of the Road Dilapidation Report must be provided to the Relevant Council within three (3) weeks of completing the surveys and no later than one (1) month before the use of local roads by heavy vehicles."	Refer to Section 2.1 Refer to Section 7.0 Refer to Section 8.0
6.13.2	Condition E90 of the conditions of approval states "Road Dilapidation Report must be prepared for local roads proposed to be used by heavy vehicles for the purposes of the CSSI before the commencement of use by such vehicles. Copies of the Road Dilapidation Report must be provided to the Relevant Council within three (3) weeks of completing the surveys and no later than one (1) month before the use of local roads by heavy vehicles."	Refer to Section 2.1.13
7.1	Designated access routes for heavy vehicle movements during demolition, construction and spoil removal will be along the arterial (state) road network as much as practically possible. Condition E85 requires that heavy vehicles must not use local roads unless no feasible alternatives are available. Details of any proposed routes for heavy vehicle access will be developed in consultation with the relevant state or local government authority and detailed in the appropriate section of the site-specific CTMP (Condition E88).	Refer to Section 2.1.4 Refer to Section 2.1.10 Refer to Section 2.1.12 Refer to Appendix A
7.2	Heavy vehicle movements must be managed in accordance with construction and traffic management principles of the CTMP. Each site-specific CTMP will need to demonstrate how marshalling facilities will need to be used to manage truck movements and reduce congestion.	Refer to Section 2.1.4
7.4	To minimise the number of heavy vehicle movements on the road network, the selection of vehicle size will consider the number of movements required, the impact of the quantity of vehicles on road and pedestrian movements, road geometry and safety. It is recognised that the Sydney and North Sydney CBD sites will have constraints on access routes, safety considerations and site constraints. The types of truck to be used for the transporting of materials will be assessed in consultation with the relevant authorities in the preparation of the contract wide and site specific CTMPs. Heavy vehicles used on the project must comply with the relevant standards including the safety requirements outlined in the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard. Higher mass and longer heavy vehicles will be required to transport certain materials to and from the sites (some under permit) and these would be subject to separate approvals. Daytime (7am-7pm) weekday use of 'truck and dog' combinations within the Sydney CBD is not supported. It is anticipated that contractors will need to make greater use of truck and dog heavy vehicle combinations than envisaged in the EIS. Details of proposed truck and dog use is to be provided in the CTMPs.	Refer to Appendix A Table 5 Refer to Section 8.0 There is expected to be use of 'truck and dog' heavy vehicle combinations, however the extent of the use is unknown at this stage.
7.4.1	The constrained nature of the sites means car parking for construction personnel will not be possible at most sites. Except for the Northern and Southern Dive Structure sites there may be the opportunity to provide minimal light vehicle parking spaces for engineers and other site management staff use. The Northern and Southern Dive Structure sites could provide car parking spaces within the site. These parking facilities may provide the opportunity to be used as park and ride locations for workers from other sites with shuttle buses operating from the dive sites to other work sites. The contractor may also be required to identify remote parking areas for workers, to minimise any impacts of workers parking on-street. Willoughby Council considers that the capacity and management arrangement for the provision of some level of on-site car parking spaces in the Northern Dive Site needs to be developed in consultation with Council as part of the CTMP. The assumption for all site specific CTMPs is that there will be no provision, either on the road or within the work site, for worker parking. Workers should be encouraged to use public transport in travelling to and from the work sites.	Refer to Section 2.1.4 Refer to Section 2.1.6 During rail possessions, some road occupancy may be required. WCC approval will be sought as well as consultation with local residents. Provision of on-site car parking is not required as the Northern Dive Site is not part of the scope of NCW.

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Construction Traffic Management Framework		
7.4.2	To mitigate the potential impact of construction traffic the provision of a centralised Project centre should be considered. This centre could receive deliveries and arrange for combining of loads and materials for distribution to the various worksites. This may be incorporated into the truck marshalling and logistics facility and should address the intent of planning condition E81.	Refer to Section 2.1.4
7.4.3	Heavy vehicle drivers should be made fully aware by the contractor of the worksite traffic management arrangements and site-access requirements, including approach and departure routes, and any heavy vehicle noise management measures required. Driver training should consider current best practice and information, including cycle awareness training. The contractor is to ensure that regular briefings are provided to drivers on routes, potential changes and impacts on the routes in the form of toolbox talks. Contractors must ensure mandatory completion of the Sydney Metro City & Southwest project-specific heavy vehicle driver introduction training. Contractors are required to have systems in place to monitor vehicle locations at all times and address any identified non-conformances.	Refer to Section 1.8.5 Refer to Section 2.1.4 Refer to Section 2.1.12 Refer to Section 6.1
7.4.4	Contractors must have systems in place to ensure compliance with 'chain of responsibility' legislation, including the Heavy Vehicle National Law and regulations, at all times. All necessary heavy vehicle approvals and permits (for example, over-size, over-mass, etc.) must be obtained from the relevant road manager. Specific 'chain of responsibility' requirements are further outlined in Sydney Metro Principal Contractor Health and Safety Standard.	Refer to Section 1.8.5 Refer to Section 2.1.10
8.1	The contractor must develop and implement Construction Traffic Management Plans (CTMPs) to minimise and mitigate traffic impacts, including road safety impacts, caused by the contractor's activities (Condition E82). In consultation with the TMC, RMS, SCO, BDA and the relevant local council, the contractor must develop, formalise and implement traffic management, control and operational protocols, procedures, processes, systems and communication between the contractor and the TMC and SCO. Works within the road reservation will be identified in the CTMP. This consultation will be initiated through the TTLG and TCG.	This document Refer to Section 7.0
8.2	For long-term works, that is, longer than one shift, traffic management road inspections will be carried out regularly to ensure the safe movement of traffic and the protection of persons and property through and/or around the worksite.	Refer to Section 1.4 Refer to Section 1.5.2
8.3	Incident management planning must be carried out in accordance with the Sydney Metro Principal Contractor Health and Safety Standard, and must include incidents that could occur on roads. An Incident Management Plan for on-road incidents, or incidents that impact on the public transport network should be submitted to the TMC Emergency Transport Operation section for review and comment.	Refer to Section 1.5.2 Refer to Section 2.1.11 Refer to Section 2.1.12 Refer to Section 2.5
8.4	The use of traffic controllers and/or temporary traffic signals to control traffic at worksites is to be in accordance with the Traffic Control at Work Sites Manual (RMS) and the Sydney Metro Principal Contractor Health and Safety Standard.	Refer to Section 1.8.5 Refer to Section 2.1.3 Refer to Section 6.1
9.1	Details of the proposed erection and maintenance of hoardings, scaffolds and associated structures shall be documented in the Construction Traffic Management Plans in accordance with the SSI approval (Condition E81). Where reasonable and feasible, all worksite boundaries will be clearly defined with the use of hoardings. The CTMPs will identify the boundaries and detail accesses for the site, the footpath and road controls. Activities within the worksite are excluded from the CTMPs, except in relation to ensuring the movement of construction traffic in and out of the worksite is physically possible and can be done safely. Worksites include any gantries or other structures associated with the site layouts. The site specific CTMPs will consider these interactions and the impacts of gantries, etc. on the road and footpaths.	Refer to Section 1.7 Site boundary and access points identified in Appendix B and C.
9.2	Hoardings will be required to be erected around the construction sites to protect the site and any passing pedestrians and vehicles. These may also need to provide site facilities for the workers on the site due to the constrained nature of the sites. The erection of hoardings around the sites will require the consideration and approval of the local council, and BDA for sites at Barangaroo.	Refer to Section 1.7
9.3	The worksites will have appropriate arrangements to discourage entry without approval and minimise vandalism. All access points to worksites will have lockable gates. Appropriate information signs will be provided at worksites to identify the Project and contact persons. Contractors will be required to develop and prepare Security Management Plans based on the site-specific security threats (hazards) identified. Requirements for Security Management Plans are outlined in the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard.	Refer to Section 1.8.5 Refer to Section 6.1
9.4	The consideration of safety and security issues for pedestrians will be considered at all worksites. Any hoardings or other structures on the site boundaries will have lighting in accordance with current standards, particularly where existing street lighting is removed or obscured because of the site works. In those locations where this occurs, supplementary lighting is to be provided to meet the current standards.	Refer to Section 1.8.4 Refer to Section 6.1

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9.5	The contractor is to adopt applicable vulnerable road user safety measures, as per the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard, to minimise the road safety risks to pedestrians, cyclists and motorcyclists on route to, and near, construction sites. - The deployment of speed awareness signs in conjunction with variable message signs. - Heavy vehicles equipped with safety technology and equipment to improve vehicle safety, visibility and the detection of vulnerable road users. - Provision of driver training, instruction and information of the haulage routes, potential changes, common road users and hazards/risks along the routes. - Mandatory completion of Sydney Metro City & Southwest project-specific heavy vehicle driver introduction training. - Contractor engagement in shared experience educational events and involvement in promoting road safety awareness in collaboration with TfNSW. Where worksites have an impact on footpaths, consideration must be given to the requirements of all pedestrians and especially where there is the potential for vulnerable road users, such as school children, elderly people and mobility impaired people. This is to include condition surveys of affected footpath areas to ensure that they are suitable and appropriate for use. DDA requirements will be adopted with kerb ramps or other measures provided at road crossings. Footpath widths are required to provide for two-way pedestrian traffic allowing for prams or strollers and wheelchairs to pass each other without requiring temporary widening from their existing width prior to construction commencement. Narrowing of the footpath width, if required, is to be approved by the relevant authorities. Where high numbers of vulnerable road users are using a footpath, special provision and design consideration may be required to mitigate any impacts.	Refer to Section 1.8.5 Refer to Section 6.1 Refer to Section 6.2 Refer to Section 6.3.5 Refer to Section 7.2
10.2	Road Safety Audits will be undertaken by the contractor during the four stages outlined below. - Detailed design phase - Pre-opening phase - Road Safety Audits of temporary work/Construction Traffic Management Plans - Road Safety Audit procedure	Refer to Appendix E
11.1	The individual CTMPs for each of the sites will provide details on the various construction and traffic related issues, and measures to mitigate those issues (where possible)	NCW involves only one worksite. Therefore this CTMP is an individual site CTMP

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3.4	Construction Environmental Management Sub-Plans - Subject to Section 3.3(c) and Section 3.2(c) the Principal Contractor will prepare issue-specific environmental sub-plans to the CEMP and SMP which address each of the relevant environmental impacts at a particular site or stage of the project. Issue specific sub-plans will include: - Spoil management. - Groundwater management. - Soil and water management. - Traffic and transport management. - Noise and vibration management. - Heritage management. - Flora and fauna management. - Visual amenity management. - Carbon and energy management. - Air quality management. - Waste management. - Additional detail on the minimum requirements for these sub plans is provided in Sections 6-17 of this CEMF.	This CTMP is a sub plan of the NCW CEMP.
3.7	Prior to the commencement of construction the Principal Contractor will prepare a Road Dilapidation Report for all local public roads proposed to be used by heavy vehicles.	Refer to Section 2.1.13
3.8	Principal Contractors will identify hold points, beyond which approval is required to proceed with a certain activity. Example activities include vegetation removal and water discharge. Hold points will be documented in relevant CEMPs.	Hold points are to be identified in NCW CEMP.
3.9	Principal Contractors will be responsible for determining the training needs of their personnel. As a minimum this will include site induction, regular toolbox talks and topic specific environmental training as follows: The site induction will be provided to all site personnel and will include, as a minimum:	Site induction to be in accordance with NCW CEMP.

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	– Training purpose, objectives and key issues. – Contractor's environmental policy and key performance indicators. – Due diligence, duty of care and responsibilities. – Relevant conditions of any environmental licence and/or the relevant conditions of approval – Site specific issues and controls including those described in the environmental procedures – Reporting procedure for environmental hazards and incidents – Communication protocols. b. Toolbox talks will be held on a regular basis in order to provide a project or site wide update, including any key or recurring environmental issues. c. Topic specific environmental training, e.g. erosion and sediment control training will be undertaken for relevant site personnel as determined by the Principal Contractor. d. Principal Contractors will conduct a Training Needs Analysis which: a. Identifies the competency requirements of staff that hold environmental roles and responsibilities documented within the Construction Environmental Management Plan and sub-plans b. Identifies appropriate training events and the frequency of training to achieve and/or maintain these competency requirements. c. Implements a documented training schedule which plans attendance at training events, provides mechanisms to notify staff of their training requirements, and identifies staff that fail to attend scheduled training events or who have overdue training requirements. d. Identifies that all staff are to receive an environmental induction and undertake environmental incident management training.	
3.13	a. Issue specific environmental monitoring will be undertaken as required or as additionally required by approval, permit or licence conditions. b. The results of any monitoring undertaken as a requirement of the EPL will be published on the Principal Contractor's, or a project specific, website within 14 days of obtaining the results. c. Environmental inspections will include: – Surveillance of environmental mitigation measures by the Site Supervisor. – Periodic inspections by the Principal Contractor's Environmental Manager (or delegate) to verify the adequacy of all environmental mitigation measures. This will be documented in a formal inspection record. d. Regular site inspections by the ERs and TfNSW representatives at a frequency to be agreed with the Principal Contractor. e. Principal Contractors will be required to undertake internal environmental audits. Internal audits will include: – Compliance with approval, permit and licence conditions. – Compliance with the E&SMS, CEMP, SMP, sub-plans and procedures. – Community consultation and complaint response. – Environmental training records. – Environmental monitoring and inspection results. f. TfNSW (or an independent environmental auditor) will also undertake periodic audits of the Principal Contractor's E&SMS and compliance with the environmental aspects of contract documentation, including this Construction Environmental Management Framework.	Environmental monitoring to be undertaken in accordance with approved CEMP processes.
3.14	a. Principal Contractors will document and detail any non-compliances arising out of the above monitoring, inspections and audits. TfNSW will be made aware of all non-compliances in a timely manner. b. Principal Contractors will develop and implement corrective actions to rectify the non-compliances and preventative actions in order to prevent the re-occurrence of the non-compliance. Contractors will also maintain a register non compliances, corrective actions and preventative actions. c. TfNSW or the Environmental Representative may raise non-compliances against environmental requirements.	The process of handling non-compliances is outlined in the CEMP. Refer to Section 15 of the CEMP
3.15	a. Principal Contractors will maintain appropriate records of the following: – Site inspections, audits, monitoring, reviews or remedial actions. – Documentation as required by performance conditions, approvals, licences and legislation. – Modifications to site environmental documentation (eg CEMP, sub-plans and procedures). – Other records as required by this Construction Environmental Management Framework. b. Records will be retained onsite for the duration of works. c. Additionally records will be retained by the Principal Contractor for a period of no less than 7 years in total. Records will be made available in a timely manner to TfNSW (or their representative) upon request. Compliance reports detailing the outcome of any environmental surveillance activity including internal and external audits (refer to Section 3.13) will be produced by the Principal Contractors Environmental Manager or delegate. These reports will be submitted to TfNSW at an agreed frequency.	All records of work will be help in accordance with the CEMP.

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- 4.1**
- a. Throughout construction, Sydney Metro and the Principal Contractors will work closely with stakeholders and the community to ensure they are well informed regarding the construction works.
 - b. Stakeholders and the community will be informed of significant events or changes that affect or may affect individual properties, residences and businesses. These will include:
 - Significant milestones.
 - Design changes.
 - Changes to traffic conditions and access arrangements for road users and the affected public.

Construction operations which will have a direct impact on stakeholders and the community including noisy works, interruptions to utility services or construction work outside of normal work hours.

- 5.1** Working Hours Refer to Section 1.4
- a. The following Standard working hours are between 7am – 6pm on weekdays and 8am – 1pm on Saturdays.
 - b. Works which can be undertaken outside of standard construction hours without any further approval include:
 - Those which have been described in respective environmental assessments as being required to take place 24/7. For example, tunnelling and underground excavations and supporting activities will be required 24/7.
 - Works which are determined to comply with the relevant Noise Management Level at sensitive receivers.
 - The delivery of materials outside of approved hours as required by the Police or other authorities (including RMS) for safety reasons.
 - Where it is required to avoid the loss of lives, property and / or to prevent environmental harm in an emergency.
 - Where written agreement is reached with all affected receivers.

Principal Contractors may apply for EPA approval to undertake works outside of normal working hours under their respective Environment Protection Licences.

- 5.2** Site Layout Refer to Section 2.1.4
- a. Principal Contractors will consider the following in the layout of construction sites:
Aim to minimise the requirement for reversing, especially of heavy vehicles.

- 6.3** Spoil Mitigation Refer to Section 2.1.12
- a. Examples of spoil mitigation measures include:
 - Implementing the spoil re-use hierarchy.
 - Handling spoil to minimise potential for air or water pollution.
- Minimise traffic impacts associated with spoil removal

- 8.1** Construction Traffic Management Objectives Refer to Section 2.1
- a. The following traffic management objectives will apply to the construction of the project: Refer to Section 7.3
 - Minimise disruption to traffic operation, road users, pedestrians, cyclists and access to adjoining properties (private and public)
 - Maximise the safety for the workers, by isolating work areas from traffic flows, applying low exposure work methods, education and the installation of appropriate traffic control
 - Limit obstructions and restrictions, and when required, provide alternatives to maintain access for local community, transport operators (buses) including over-dimension load movements and commercial developments
 - Encourage sustainable transport options by site workers.

- 8.2** Construction Traffic Management Implementation Refer to Section 2.1
- a. Principal Contractors will develop and implement a Construction Traffic Management Plan for their scope of works. The Construction Traffic Management Plan will as a minimum: Refer to Section 7.0
 - Implement the traffic and transport mitigation measures as detailed in the environmental approval documentation. Refer to Appendix A
 - be developed in consultation with the relevant road authority, Central Business District Co-ordination Group (CBD CG) and / or transport operator. Refer to Appendix B
 - set out the overall traffic management resources, processes and procedures for the management of traffic and transport during construction of the Project Works and Temporary Works. Refer to Section 2.1.6
 - include Construction Traffic Control Plans setting out the specific traffic and transport management arrangements to be implemented at specific locations during the construction of the Project Works and Temporary Works. Refer to Appendix C
 - includes a Traffic Route Management Plan that identifies:

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	- traffic generation from other major infrastructure developments, impacts from construction traffic and haulage routes, - types and volumes of construction vehicles and associated route and time restrictions, - potential traffic disruptions and temporary and permanent detours, and - management, mitigation and restoration measures.	
	- Includes a Parking Management Plan that identifies: - parking requirements and on and offsite parking arrangements and associated impacts, - remote parking arrangements and associated access between sites and public transport nodes, - alternate parking arrangements for displaced parking, and - communication and parking management measures. - Includes Site Specific Traffic Access and Management Plans which detail: - Site access and associated route and turning movements and the design and signalisation of intersections, - Potential activities that could result in the disruption to traffic and transport networks, including pedestrian, cyclist and public transport networks and during special events. - The timing to limit disruptions to the road and transport networks, - The maintenance of access to and safety of transport networks, parking and property. - Service facilities and station sites, and other locations identified by the relevant road authority or transport regulator. - details responses to the management of an event that directly involves or impacts on traffic and transport networks.	
8.2	b. TfNSW and its Contractors will undertake liaison with agencies and the community regarding traffic management. This may involve: - Establishment of a Traffic and Transport Liaison Group which could consist of representatives from Sydney Metro Contractors, TfNSW, CBD CG, Westconnex, RMS, NSW Police, relevant councils, emergency services, and bus operators the group would review: - o Road Occupancy Licence (ROL) applications to monitor potential cumulative impacts from multiple ROLs operating concurrently in one area. - o be consulted on the preparation of the Construction Traffic Management Plan. - Consultation with the CBD CG in relation to the approval of Construction Traffic Management Plans, supporting plans, or related licences for works in the CBD.	Refer to Section 7.0
8.3	Construction Traffic Mitigation a. Examples of traffic mitigation measures include: - Minimising heavy vehicle movements during peak traffic times. - Avoidance of local road for heavy vehicle routes, where feasible. - Providing safe pedestrian and cyclist movements around the worksites.	Refer to Appendix A Refer to Appendix C

Revised environmental mitigation measures (REMMs)		Document Reference
T1	Ongoing consultation would be carried out with (as relevant to the location) the CBD Coordination Office, Roads and Maritime Services, Sydney Trains, NSW Trains, the Port Authority of NSW, Barangaroo Delivery Authority, local councils, emergency services and bus operators in order to minimise traffic and transport impacts during construction.	Refer Section 7.0
T2	Road Safety Audits would be carried out at each construction site. Audits would address vehicular access and egress, and pedestrian, cyclist and public transport safety.	Refer to Section 8.1 Refer to Appendix E
T3	Directional signage and line marking would be used to direct and guide drivers and pedestrians past construction sites and on the surrounding network. This would be supplemented by Variable Message Signs to advise drivers of potential delays, traffic diversions, speed restrictions, or alternate routes.	Refer Appendix B for TCPs
T4	In the event of a traffic related incident, co-ordination would be carried out with the CBD Coordination Office and / or the Transport Management Centre's Operations Manager.	Refer Section 2.5
T5	The community would be notified in advance of proposed road and pedestrian network changes through media channels and other appropriate forms of community liaison.	Refer Section 7.2
T6	Vehicle access to and from construction sites would be managed to ensure pedestrian, cyclist and motorist safety. Depending on the location, this may require manual supervision, physical barriers, temporary traffic signals and modifications to existing signals or, on occasions, police presence.	Refer Appendix B for TCPs
T7	Additional enhancements for pedestrian, cyclist and motorist safety in the vicinity of the construction sites would be implemented during construction. This would include measures such as: (1) Use of speed awareness signs in conjunction with variable message signs near construction sites to provide alerts to drivers (2) Community educational events that allow pedestrians, cyclists or motorists to sit in trucks and understand the visibility restrictions of truck drivers, and for truck drivers to understand the visibility	Refer Section 1.8.4 Refer Section 1.8.5 Refer Section 2.1.4 Refer Section 2.1.12 Refer Section 6.1

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Revised environmental mitigation measures (REMMs)		Document Reference
	from a bicycle; and a campaign to engage with local schools to educate children about road safety and to encourage visual contact with drivers to ensure they are aware of the presence of children	Refer Section 6.3
	(3) Specific construction driver training to understand route constraints, expectations, safety issues, human error and its relationship with fitness for work and chain of responsibility duties, and to limit the use of compression braking	
	(4) Use of In Vehicle Monitoring Systems (telematics) to monitor vehicle location and driver behaviour	
	Safety devices on construction vehicles that warn drivers of the presence of a vulnerable road user located in the vehicles' blind spots and warn the vulnerable road user that a vehicle is about to turn.	
T8	Access to existing properties and buildings would be maintained in consultation with property owners.	Refer Section 7.2
T9	All trucks would enter and exit construction sites in a forward gear, where feasible and reasonable.	Refer to Section 2.1.4
T10	Any relocation of bus stops would be carried out by Transport for NSW in consultation with Roads and Maritime Services, the CBD Coordination Office (for relevant locations), the relevant local council and bus operators. Wayfinding and customer information would be provided to notify customers of relocated bus stops.	Refer to Section 2.6
T12	Construction sites would be managed to minimise construction staff parking on surrounding streets. The following measures would be implemented: – Encouraging staff to use public or active transport – Encouraging ride sharing – Provision of alternative parking locations and shuttle bus transfers where feasible and reasonable. Transport for NSW would work with local councils to minimise adverse impacts of construction on parking and other kerbside use in local streets, such as loading zones, bus zones, taxi zones and coach zones.	Refer Section 2.1.4 Refer Section 2.1.6
T13	Construction site traffic would be managed to minimise movements in the AM and PM peak periods.	Refer Section 1.4
T14	Construction site traffic immediately around construction sites would be managed to minimise movements through school zones during pick up and drop off times.	Refer Section 1.4
T19	Where existing parking is removed to facilitate construction activities, alternative parking facilities would be provided where feasible and reasonable.	Refer Section 2.1.4
T21	The potential combined impact of trucks from multiple construction sites would be further considered during the development of Construction Traffic Management Plans.	This will be managed through the weekly TCG and monthly TTLG meetings Refer to Section 7.0 and Appendix F
T22	Where existing footpath routes used by pedestrians and / or cyclists are affected by construction, a condition survey would be carried out to confirm they are suitable for use (eg suitably paved and lit), with any necessary modifications to be carried out in consultation with the relevant local council.	Refer to Section 2.1.13 Refer to Section 7.0 Surveys to be undertaken prior to commencing works. Works approval to be sought in consultation with WCC.
BI1	Specific consultation would be carried out with businesses potentially impacted during construction. Consultation would aim to identify and develop measures to manage the specific construction impacts for individual businesses.	Refer to Section 7.0. NCW to provide Sydney Metro required information to consult with businesses and identify measures to manage impacts.
BI2	A business impact risk register would be developed to identify, rate and manage the specific construction impacts for individual businesses.	Refer to Section 7.0. NCW to provide Sydney Metro required information to consult with businesses and identify measures to manage impacts.
BI3	Appropriate signage would be provided around construction sites to provide visibility to retained businesses.	Refer to Section 2.0 Refer to Section 3.0
SO2	Specific consultation would be carried out with sensitive community facilities (including aged care, child care centres, educational institutions and places of worship) potentially impacted during construction. Consultation would aim to identify and develop measures to manage the specific construction impacts for individual sensitive community facilities.	Refer to Section 7.0 NCW to provide Sydney Metro required information to consult with community members and identify measures to manage impacts.

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Revised environmental mitigation measures (REMMs)		Document Reference
AQ1	The engines of all on-site vehicles and plant would be switched off when not in use for an extended period.	Refer to Section 1.4
AQ2	Plant would be well maintained and serviced to minimise emissions. Emissions from plant would be considered as part of pre-acceptance checks.	Refer to Section 1.4
AQ3	Construction site layout and placement of plant would consider air quality impacts to nearby receivers.	Refer to Section 1.4
AQ6	All vehicles carrying loose or potentially dusty material to or from the site would be fully covered.	Refer to Section 1.4

Revised Environmental Performance Outcomes		Document Reference
Construction Traffic and transport	The project would minimise impacts to the road network Pedestrian and cyclist safety would be maintained Effective coordination would be carried out to minimise cumulative network impacts Access to properties would be maintained.	Refer to Section 7.0 The Northern Corridor Works project CTMP has been prepared in consultation with the TTLG and TCG. The CTMP has been endorsed by RMS in consultation with Sydney Coordination Office and Willoughby City Council. Any modification to WCC or RMS infrastructure is undertaken through consultation and review.

Management Requirements Minor – Stakeholder and Community Liaison		Document Reference
7.3 (e)	The Contractor must issue the Notifications for the following: (v) changes to traffic conditions requiring traffic alerts;	Refer Section 7.1
7.3 (f)	The Contractor must ensure that all Notifications include all required details, including the following: (v) the type of equipment used and likely impacts of the work including noise, vibration, traffic, access and dust;	Refer Section 7.1
7.3 (g)	The Contractor must issue traffic alerts by email, seven days before changes to traffic and access arrangements are made, to all key traffic and transport stakeholders including: (i) relevant Authorities; and (ii) transport operators, including bus, coach and taxi operators.	Refer Section 7.1
7.3 (h)	The Contractor must provide and erect signage that identifies changes to traffic and access arrangements, seven days before the changes take place, for the following events: (i) making changes to pedestrian routes; (ii) impacting on cycle ways; (iii) changing traffic conditions; and (iv) disrupting access to bus stops.	Refer Section 7.1
7.4 (b)	The Contractor must advertise all significant traffic management changes, detours, traffic disruptions and work outside any working hours contained in the Planning Approvals at least seven days before any detour, disruption, work or change occurs. These adverts must be placed in local newspapers that cover the geographical areas of the Contractors Activities.	Refer Section 7.1
7.8.1(b)	The Contractor must only publish on the website: (iv) environmental, sustainability, transport, traffic and noise and vibration reports (and the executive summaries of these reports) that are publicly available.	Refer Section 7.1

Management Requirements Minor – PA		Document Reference
2.2	The timing for the initial submission of the Management Plans to the Principal's Representative for review in accordance with the requirements of the Contract is nominated below in Table 2.2 of this MR-minor PA.	Refer Section 1.3

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Construction Traffic Management Plan

Project:

Northern Corridor Works Portion 7A+7B

Project No:

K38

Date:

08 February 2018

Rev:

Final (Rev 04)

1.0 Purpose

1.1 Purpose

The purpose of this Construction Traffic Management Plan is to ensure the safety of the public and maintain an accessible and efficient road network for all road users.

This document has been prepared to assist Laing O'Rourke Australia Construction (LORAC) staff to implement traffic and pedestrian / passenger management control measures when carrying out construction and related works located at the **Northern Corridor Works – Portion 7A+7B (NCW)** project sites. This Construction Traffic Management Plan (CTMP) has been prepared as a sub-plan to the Construction Environmental Management Plan (CEMP) and Construction and Site Management Plan (CSMP).

The term 'traffic', wherever used in this CTMP, encompasses both vehicles and pedestrians movement. A vehicle is defined as a motor car, bus, truck, motorcycle and bicycle.

Traffic management shall be undertaken in a manner that shall provide for the safety of all LORAC staff, subcontractors and the public and ensure that road and footpath users are not exposed to foreseeable risks and issues. The aim of the plan is to understand the works involved and their locations and determine the management requirements to mitigate pedestrian and traffic related impacts, if any, as a result of the works for the NCW project.

This document has been prepared in line with the Critical State Significant Infrastructure (CSSI) approval of January 2017 and is in line with the Construction Traffic Management Framework and Construction Environmental Management Framework produced for the project. Refer to Section 9.0 for Reference Documents.

1.2 Scope

The intent of the Northern Corridor Works is the realignment of the T1 North Shore Line between Chatswood Station and Brand St, Artarmon, approximately 1 kilometre in length. This is to accommodate the new metro tracks to be constructed between the country and city rail lines, and the future construction of the Chatswood tunnelling dive site – which is not part of this CTMP.

Northern Corridor Works Portion 7 has been divided into two separate sections, 7A and 7B. It should be noted that this CTMP has been developed for the scope of Portion 7A +7B and is referred to as NCW throughout. The portions refer to the following works;

Portion 7A:

1. Geotechnical investigations
2. Installation of footings
3. Detention basin construction

Portion 7B:

1. Drainage Works
2. Hopetoun Ave Access Ramp removal
3. Placement of noise walls and construction of retaining walls
4. Track slews
5. Nelson Street Bridge removal (additional information provided in Appendix G)

The NCW Site Layout and Works Location are highlighted in Figure 1.

This document provides guidance on the systems and procedures that should be followed to warn, inform, guide, and manage Traffic past, through or around all works related to project site. Specifically the deliveries of materials and plant/equipment to/from the proposed project access/egress points, as well as bicycle and pedestrian management at these key interfaces.

All workers, employees, subcontractors, employers and the management team, involved in the construction of the project shall adhere to this Construction Traffic Management Plan.

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Northern Corridor Works
Project Area & Ancillary Facilities

Legend

- ★ Access Gate
- Cleland Road Ancillary Facility
- Elizabeth Street Ancillary Facility
- Laydown Areas
- Northern Corridor Works Project Area
- Orchard Rd Ancillary Facility

2 Orchard Road Ancillary Facility

EIS approved project area

Gorehill Freeway to Artarmon Mosque Laydown Area

Chandos Street Laydown Area

Cleland Road Ancillary Facility

Elizabeth Street Laydown Area

Elizabeth Street Ancillary Facility

Brand St Bridge to Artarmon Station Laydown Area

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1.3 Review and Update

As per the requirements of MR Project Administration, Section 2.2, the plan will be reviewed at periods not exceeding 12 months, or if issues relating to compliance are raised (e.g. following audits).

The CTMP shall be amended to include all significant changes to traffic management requirements and will be submitted to the relevant authorities for their approval as follows.

1. Willoughby City Council (WCC)
2. Roads and Maritime (RMS)
3. Transport Management Centre (TMC)
4. Sydney Coordination Office (SCO)
5. Environmental Representative (ER)
6. Sydney Trains (for information)
7. STA Buses (for information)

Construction Traffic Management Plans (CTMPs), consistent with the CEMF and CTMF required in Condition E81, must be prepared for each construction site in consultation with the TTLG(s), and submitted to the RMS for approval following Sydney Coordination Office endorsement before construction commences at the relevant construction site. A copy of any Construction Traffic Management Plans approved by the RMS must be submitted to the Secretary for information .

This Sub-plan as approved by the secretary, whilst including any minor amendments approved by the ER, must be implemented for the duration of construction.

Where construction results in a worsening of the matters identified in Condition E81(a)-(o), the measures identified in the CTMP shall be reviewed in consultation with the Traffic and Transport Liaison Group (TTLG), as relevant. Any changes to conditions as part the CTMP must be submitted to the RMS for approval following Sydney Coordination Office and Environmental Representative endorsement and implemented

1.4 General Requirements

- The selected Traffic Control subcontractor will be responsible for the management of all traffic throughout the delivery phase, any issues raised are to be issued to LORAC who will resolve these with the assistance of our specialist Traffic Control subcontractor.
- Construction must only be undertaken during the following standard construction hours (except as allowed by MCoA E48):
 - o 7:00am to 6:00pm Mondays to Fridays, inclusive;
 - o 8:00am to 1:00pm Saturdays; and
 - o At no time on Sundays or public holidays.
- Where possible, deliveries will be scheduled to occur outside the following periods:
 - o Peak period traffic between (morning (6:00am -10:00am) and afternoon (3:00pm -7:00pm)).
 - o To avoid school start and finish times (start (8:00am – 9:30am) and finish (2:30pm to 4:00pm))
- The following activities can be undertaken 24 hours a day, seven days a week (notwithstanding MCoA E36 and subject to MCoA E47):
 - o Tunnelling and associated support activities (excluding cut and cover tunnelling);
 - o Excavation within an acoustic enclosure;
 - o Excavation at Central (excluding Central Walk works at 20-28 Chalmers Street, Surry Hills) without an acoustic enclosure;
 - o Station and tunnel fit out; and
 - o Haulage and delivery of spoil and materials
- Works which can be undertaken outside of standard construction hours without further approval are indicated in CEMF Section 5.1, and include:
 - o Those which have been described in respective environmental assessments as being required to take place 24/7, such as tunnelling and underground excavations and supporting activities will be required 24/7;
 - o Work which are determined to comply with the relevant Noise Management Level at sensitive receivers (refer to CEMP or relevant CEMP sub-plan);
 - o The delivery of materials outside of approved hours as required by the Police or other authorities (including RMS) for safety reasons;
 - o Where it is required to avoid the loss of lives, property and/or to prevent environmental harm in an emergency; and
 - o Where written agreement is reached with all affected receivers.

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- Due to the residential nature of the surrounding area, circulation, queuing and idling of heavy/construction vehicles on surrounding road network will not be permitted. This shall be managed by engaging trusted suppliers and scheduling deliveries and heavy vehicle movements. Vehicles may only 'wait' inside the worksite.
- All traffic controllers shall hold Roads and Maritime Services (RMS) Traffic Controller 'Blue Card' and wear the required Personal Protective Equipment (PPE) at all times (e.g. helmets, safety boots and high visibility vests, etc).
- During all works on site, the following precautions shall be taken:
 - A traffic controller shall direct traffic and excavation trucks using a **"STOP / SLOW"** sign.
 - All trucks involved in the works shall follow a set route to minimise traffic disruption
- Prior to any work taking place that affects pedestrians and traffic safety, accessibility, and efficient movement (e.g. hoarding, work to footpath and driveway, work above footpath, etc.), all required notification are to be given to the relevant authorities (e.g. Police, Councils, State Transport Department) and/or permits / licences obtained and the work is to be adequately supervised to ensure the required conditions of any applicable permits are met at all times. Ensure that adequate time is allowed to obtain all necessary approvals.
- All access gates to the construction site must be always either manned or locked to prevent public access into the site / Rail Corridor.
- Engineer-certified crash attenuators are to be fitted to all shadow vehicles
- For works lasting longer than one shift, regular traffic management road inspections are to be carried out. This is to ensure safe movement of traffic and protection of persons and property is maintained through and/or around the worksite.
- The engines of all on-site vehicles and plant are to be switched off when not in use for an extended period.
- Plant should be well maintained and serviced to minimise emissions. Emissions from plant are to be considered as part of pre-acceptance check.
- Construction site layout and placement of plant are to consider air quality impacts to nearby receivers
- Hard surfaces are to be installed on long term haul routes and regularly cleaned
- All vehicles carrying loose or potentially dusty material to or from the site are to be fully covered.

1.5 Responsibilities

1.5.1 Key Personnel

Name	Position	Role	Responsibilities	Phone Number
Paul Ryan	Superintendent	Safe Implementation of Traffic Control	Ensure traffic controls are in place according to the specific work location TCPs and the project CTMP	0418 637 978
Martin O'Brien	Construction Manager	Out of Hours contact for incidents and complaints	Act as the direct contact between the Sydney Metro Community manager and the Managing Contractor in the event of an incident or complaint	0457 560 728
D&D Traffic Management	Blue Card	Traffic Controller	Control and manage traffic according to the TCP	TBC
D&D Traffic Management	Yellow Card	Implement Traffic Control Plans	Apply traffic control to worksite location as per the TCP	TBC
D&D Traffic Management	Red Card	Select / Modify Traffic Control Plans	Select traffic control plans for the specific works location and apply them. If required modify TCPs for specific works locations	TBC
D&D Traffic Management	Orange	Design Traffic Control Plans	Design and certify traffic control plans to be used at worksites	TBC

Note: Names will be provided on placement of subcontract for Traffic Control.

1.5.2 LORAC Foremen

LORAC Foremen have responsibilities for two areas of traffic management, the **Work Area (anywhere where works are being undertaken)**, including areas covered by Traffic Control Plans (TCPs) and **Employees** under their control.

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For any long-term works (longer than a shift) the LORAC foreman will continually conduct traffic management inspections to ensure that safe movement of traffic and the protection of persons and property through and/or around the worksite.

LORAC Foreman shall ensure the following for each area of responsibility:

1.6 Work Area

- A documented traffic management risk assessment is completed by relevant Traffic Management Subcontractor engaged by LORAC and the procedures and control measures implemented on site.
- Approval is obtained from the relevant authority before any work in a road reserve (public areas on and surrounding the road) is commenced by LORAC or a person working on the LORAC's behalf.
- Road users, pedestrians and LORAC staff can continue with their respective undertakings in relative safety and with the minimum of inconvenience.
- All site related works are correctly barricaded and sign-posted using the relevant approved signs.
- All signs and devices used are in good condition and are removed at the completion of the work.
- All site related works do not commence until all signage is in place, even in an emergency it is essential that safety is observed for both staff and road/footpath users.
- All lamps are:
 - Switched off during daylight hours.
 - Checked at night time to confirm they are working and correctly aligned.
- The Construction Traffic Management Plan is reviewed regularly to ensure it is still suitable.
- If any person is injured / traffic is affected the incident is reported to the Project Manager (LORAC), Project Manager (Sydney Metro), TMC (Operations Manager, if applicable).
- In the event of an incident/accident, the following information is recorded using E-T-8-0918 Incident Investigation:
 - Names and addresses of those involved.
 - Names and addresses of any witnesses.
 - Actual types of signs and devices at the site.
 - Photographs of signs and devices at the site at the time of the incident.
 - Details of the surface and the width dimension of the travelled path.
 - Details of any hazard at the site.
 - Details of the prevailing weather.

Under MCoA, Condition A43, any requirements on the Secretary or Relevant Public Authority (as determined by the Secretary) to address the cause or impact of an incident reported in accordance with MCoA, Condition A41 must be met within the timeframe determined by the Secretary or relevant public authority.

Under MCoA, Condition A44, if statutory notification is given to the EPA as required under the POEO Act in relation to the CSSI, such notification must also be provided to the Secretary for information within 24 hours after the notification was given to the EPA.

1.7 Hoardings

- Hoardings will be required around work areas located at Brand Street, Nelson Street and Hopetoun Avenue
- Hoarding and gantry structures, consideration will be given to ensuring sight-lines for side roads, vehicle accesses, signposting, and traffic signals are maintained.
- branding and visual aspects of the hoarding are to be in line with TfNSW/Sydney Metro requirements
- Application to local council prior to establishment to determine specific requirements and approvals
- Other approvals or requirements may include;
 - o An engineer's statement on the proposed hoarding and any facilities to be provided.
 - o Approval from NSW Police.
 - o Approval from RMS (for sites located on a state road or on any road within 100 metres of traffic signals).
 - o Structural certificate (for Class B hoarding)

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Refer to **Appendix D** for relevant hoarding plans.

1.8 Employees

- Workers are competent to work on or near the roadways.
- Workers have a general awareness of traffic safety, accessibility, and efficient movement issues.
- Workers are informed of the public relations aspect of their work and instructed they should not allow themselves to be provoked by members of the public. Workers will be provided with cards detailing the correct number to call in the event of a public enquiry.
- Workers are to provide appropriate notification of deliveries to nominated Site Contact.
- All workers have access to and will use the following safety equipment and PPE:
 - High visibility vest or shirt.
 - UV protection eyewear and sunscreen (SPF 30 standard or better).
 - Wide brimmed hat/safety helmet.
 - Steel cap safety footwear.
 - Appropriate clothing to protect against UV radiation.
 - Hearing protection (where appropriate).
 - Eye protection (where appropriate).
- Ensure workers associated with the site will not occupy public on-street parking spaces.

1.8.1 All Other Persons

All other persons carrying out work activities on or immediately adjacent to the site shall:

- Always take reasonable care for their safety and that of those around them.
- Follow the applicable requirements of this Construction Traffic Management Plan.
- Prior to proceeding with any work, contact their supervisor or a LORAC Site Management Team member for clarification of any requirement applicable under this Construction Traffic Management Plan, and any other relevant permits, plans or approvals.
- Provide appropriate notification of deliveries to the nominated Site Contact.
- Wear high visibility vest or shirt where required under this CTMP.
- Always obey the applicable road rules for pedestrians, riders, and drivers.
- Always follow safe driving practices, including using the correct thoroughfare in accordance with any posted speed limits and safety requirements in a manner that does not put at risk their safety or that of any other persons (e.g. passengers, fellow workers or members of the public).
- Always avoid creating any form of safety hazard or unreasonable delays when parking or parked, and adhering to the LORAC identified Restricted Parking Zones (refer to **Figure 10 and 11**). Any workers associated with the construction site must park their vehicles wholly within the site boundaries. Workers associated with the site will not occupy public on-street parking spaces.

1.8.2 Environmental Representative (ER)

- Works must not commence until an ER nominated under Condition A22 of the Minister's Conditions of Approval (MCoA) in respect of such works has been approved by the secretary.
- The approved ER must perform the actions set out in the MCoA, Condition A24 from commencement of construction until completion of construction.

1.8.3 Acoustics Advisor (AA)

- Under the MCoA, Condition A25, a suitably qualified and experienced AA who is independent of the design and construction personnel, must be nominated by the Proponent and engaged for the duration of construction and for no less than six (6) months following operation of the CSSI.
- In accordance with MCoA, Condition A25, the details of the nominated AA are to be submitted to the Secretary for approval no later than one (1) month before commencement of works, or within another timeframe as agreed with the Secretary
- Under MCoA, Condition A25, the Proponent must cooperate with the AA by:

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- Providing access to noise and vibration monitoring activities as they take place;
 - Providing for review of noise and vibration plans, assessment, monitoring reports, data and analyses undertaken; and
 - Considering any recommendations to improve practices and demonstrating, to the satisfaction of the AA why any recommendation is not adopted.
- Under MCoA, Condition A26, any activities generating noise and vibration in excess of the Noise Management Level derived from the Interim Construction Noise Guideline must not commence until an AA, nominated under Condition A25 of this approval, has been approved by the Secretary.
- The approved AA must perform the actions set out in the MCoA, Condition A27.

1.8.4 Security

NCW will be conducted within an existing rail corridor, the site boundary and access points will be the rail corridor as identified in **Figure 1**.

- The access points have lockable gates (rail corridor gates)
- Site boundary fence to be covered with a visual screen
- Appropriate information signs will be provided at worksites to identify the Project and contact persons
- Pedestrian safety and security managed in accordance with the relevant TCP – **Appendix B**
- Security cameras to be installed as appropriate

1.8.5 Safety Requirements

The safety requirements are as follows:

- Chain of Responsibility – refer K38-LORAC-PLN-013 Work Health and Safety Management Plan (Approved by Sydney Metro)
- Driver training – refer K38-LORAC-PLN-007 Workforce Development, Industry Development and Training Management Plan (Approved by Sydney Metro) – mandatory completion from drivers
- Requirements for safety accessories for trucks – refer SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard
- Traffic Controllers must follow the Traffic Control at Work Sites Manual (RMS)
- Heavy vehicles are to be equipped with safety technology and equipment

1.9 Hierarchy of Access

The Construction Traffic Management Framework (CTMF) outlines a Hierarchy of Access, which is ranked as follows (highest to lowest):

1. Incidents and emergency Services access
2. Events (special and unplanned)
3. Pedestrians
4. Cyclists
5. Other public transport users – buses, coaches and light rail
6. Service vehicles
7. Coaches
8. Taxis
9. Kiss and ride and rideshare
10. Private cars

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2.0 Traffic Management

2.1 Traffic Management

When LORAC Site Management Team members, subcontractors or their workers conduct work on the road or footpath it creates an abnormal situation that requires the provision of suitable signage, barricading, guarding, etc. for users including vehicles, bicycles, and pedestrians.

Regardless of the nature of the works, the complexity or how long it shall take, the purpose of this CTMP is to ensure the safety of the Site Management Team, subcontractors, their workers, members of the public, other users of the road and pathways/footpaths, and to minimise the inconvenience (loss of accessibility, increased delays) to all parties.

The basic communication requirements of the Construction Traffic Management Plan and TCPs are to provide:

- Advance warning of a change in traffic conditions in time for the users to adjust.
- Information and Guidance as to where to go to safely negotiate the work site. That is delineation of travel path and its separation from the work site and any necessary barricading.
- Appropriately advise the nominated site contact in advance to arrange deliveries.

2.1.1 Main Works Guidelines

The following general principles will be adopted and used prior to/during the works:

- Heavy and construction vehicles should follow the approved haulage routes in the EIS.
- It is important that no construction vehicles use streets and footpaths that have not been approved for use by RMS and the relevant Local Authority (Willoughby City Council). Should vehicles exceed the prescribed restrictions of any subject roads proposed for construction usage, the appropriate permission and/or approval from the governing authority will be required.
- Due consideration and caution must be exercised for the safety of other road users that may be in the vicinity.
- The movement of materials and plant/equipment in the proximity of pedestrians/commuters and other road users should consider implementing a spotter that is able to direct and guide, not only the labour, but pedestrians around the works.
- Under CTMF Clause 6.11, the contractor should endeavour to secure all council approvals under delegation to avoid the need for approvals to be secured through the Local Traffic Committee and council meetings.

2.1.2 Road Occupancy Licences

Road Occupancy Licences (ROL) will be required to undertake traffic control restricting flow of traffic in locations listed in Section 8.0. This will be applied 10 days prior to works commencing using RMS Online Planned Incident System (OPLINC) under the guidance of SM ES-FT-460 ROL Application. The lodgement and approval procedure will be as per the CTMF.

- ROLs must be approved by the relevant authority (RMS or WCC) 10 business days prior to undertaking any works.
- The ROL must be applied in conjunction with the approved TCP
- All works associated with the ROL should be conducted in accordance with the approval conditions, for example;
 - o Do not obstruct driveways, and access to, adjacent properties
 - o A minimum clearance of 3.0 metres for the clear lane must be ensured at all times for traffic
 - o Traffic controllers are to conduct slow/stop procedures to assist with vehicle movements
 - o Traffic controllers are to assist pedestrians around the work area

2.1.3 Traffic Control Plans

- Traffic Control Plans (TCP) will be generated by the relevant Traffic Control Subcontractor in reference to SM ES-ST-214: G10 – Traffic and Transport Management, Australian Standard AS1742.3 and Traffic Control at Worksites Manual (RMS).
- TCPs must be approved by the relevant authorities prior to undertaking any works.
- The TCP will be used to indicate the worksite arrangements.
- The TCP shall be prepared by the designated traffic control subcontractor, and should be developed based on construction layout drawings, Traffic Control at Works Sites manual (TCWS) and works programs supplied by LORAC and prepared by RMS accredited personnel with the appropriate and current qualification as outlined RMS G10 clause 1.5.3.
- For any proposed adjustment of the speed limit, an application must be made to RMS for a roadwork speed limit zone.
- For any works that impact on the operation of, or require the reconstruction or adjustments to, traffic signals, consultation with RMS and approval of the traffic signal design plans is required prior to the commencement of any work. This will require entering in to a Works Authorisation Deed (WAD) with RMS.
- Traffic control signs shall be erected in accordance with the standard distances as specified in the RMS Traffic Control at Work Sites Manual.
- Due diligence should be exercised when erecting traffic control signs within the vicinity of potential obstructions, such as adjacent roadside objects or parked vehicles on-street. Traffic Controllers to position signs that are clearly visible for road users providing adequate information.

TCP's for Drake St and Hopetoun Ave have been drafted and are available within **Appendix B**.

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2.1.4 Site Access

The following site access points will be utilised in the NCW works:

- Hopetoun Avenue
- Drake Street
- Brand Street
- Orchard Road
- Chandos Street
- Cleland Road
- Francis Street
- Elizabeth Street Site Office
- Burra Road (Elizabeth Street)
- Lambs Road

Additional work areas are:

- Nelson Street Bridge
- Hopetoun Avenue (Crane Pad) and removal of rail corridor access ramp

The most hazardous movement for construction vehicles occurs when the vehicle is entering or exiting the construction site, whereby drivers and pedestrians do not anticipate vehicles to be turning into, or entering, traffic flows.

The Cleland Road compound will be the main sign-on point for the NCW project as well as equipment deliveries. This will be the principal point of entry for the Project. It will receive deliveries and arrange for combining of loads and materials for distribution to the various worksites to mitigate the potential impact of construction traffic.

Access gates to the rail corridor are located on Cleland Road, Brand Street, Burra Road, Lambs Road, Hopetoun Avenue, and Drake Street. Refer **Appendix B** for further details.

To provide a safe entry and exit to the work site from safe access points or gates LORAC will:

- Monitor the number of access points in use – There are vehicle rail corridor access points (Cleland Road, Brand Street, Burra Road, Lambs Road, Hopetoun Avenue, and Drake Street). The access points are currently in use by Sydney Trains. Impacts are assessed through PACT and planned accordingly to minimise cumulative traffic impacts.
- Ensure the access points nominated can accommodate the turning movement of the largest vehicles that will be accessing the site as required. The entry points at Cleland Road, Brand Street, Burra Road, Lambs Road, Hopetoun Avenue, and Drake Street are sufficient for heavy vehicle access.
- Segregation of pedestrians and cyclists from site access points will not be feasible. Traffic control will be utilised to manage this interface. Where required, Pedestrians and Cyclists will be held briefly to allow safe vehicle movements as per TCP (refer **Appendix B**)
- Ensure all access points are clearly visible to approaching traffic and signposted accordingly.
- The access gates are located on narrow residential streets with cars parked on both sides of the road, which restricts the road width available for construction vehicles to manoeuvre. Parking may have to be removed on one side of the road and this may affect the parking options for residents and visitors of the street. If required further consultation with residents and Council's approval will be obtained.
- Access gates are located on residential streets, construction vehicles must not queue on these roads, but enter through the gate as soon as possible after arriving. Vehicle arrivals will be managed to avoid any 'waiting' outside the worksite.
- Minimise the reverse movements of heavy vehicles into and out of work sites. Forward in and forward out is to be used if practical.

The Nelson Street bridge removal will require road closure to Nelson Street, but access to residential properties will be maintained at all times. Reverse movements will be required from Orchard Road and the Pacific Highway during the bridge removal, these will be conducted under approved traffic control regimes (refer to **Appendix B**)

The Crane Pad on Hopetoun Avenue associated with the removal of the rail corridor access ramp will require temporary road occupancy while maintaining access to residential properties will be maintained at all times.

The Drake Street and Hopetoun Ave access points are existing railway access gate via existing easements and will not need to be modified.

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The proposed haulage route indicates that heavy construction vehicles will travel south on Hampden Ave from Mowbray Road, turn left into Brand Street, left into Elizabeth Street and then left into Drake Street. Via Mowbray Road heavy vehicles will travel along Orchard Rd to Nelson Street and Hopetoun Ave.

For Nelson Street bridge removal, heavy vehicles will travel south along Pacific Highway and under traffic control, reverse back into Nelson Street. Heavy vehicles will then exit Nelson Street to the left following Pacific Highway.

In all cases, traffic controllers will manage residential access to the properties during construction in order to safely manage residential vehicles.

Displaced Car Spaces

During possessions indicated in Table 1, the residential street of Drake Street and Hopetoun Avenue will be affected. It is expected that approximately 7 spaces on Drake Street and 10 spaces on Hopetoun Avenue will be affected. This will be to provide access for heavy vehicles. The road occupancy during rail possessions is not to be used for parking. Note that at one time, the displaced parking spaces on Drake Street and Hopetoun Avenue will be limited to only one side of the street. Refer to **Appendix B – TCPs**.

It should be noted that any road occupancy will require approval from Willoughby City Council with local residents also being consulted prior to activities commencing. The Local Traffic Committee will be consulted upon direction from council. No private workers vehicles will be allowed to park on surrounding residential streets.

Work Areas and Haulage Routes

Due to the restricted size of the contract scope of works, there will be only two main access points to the project as shown in Figure 2 and Figure 3. Further details of haulage routes are contained in Appendix A.

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Figure 2 – Hopetoun Avenue Site and Haulage Routes

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Figure 3 – Drake Street Access Gate Site and Haulage Routes

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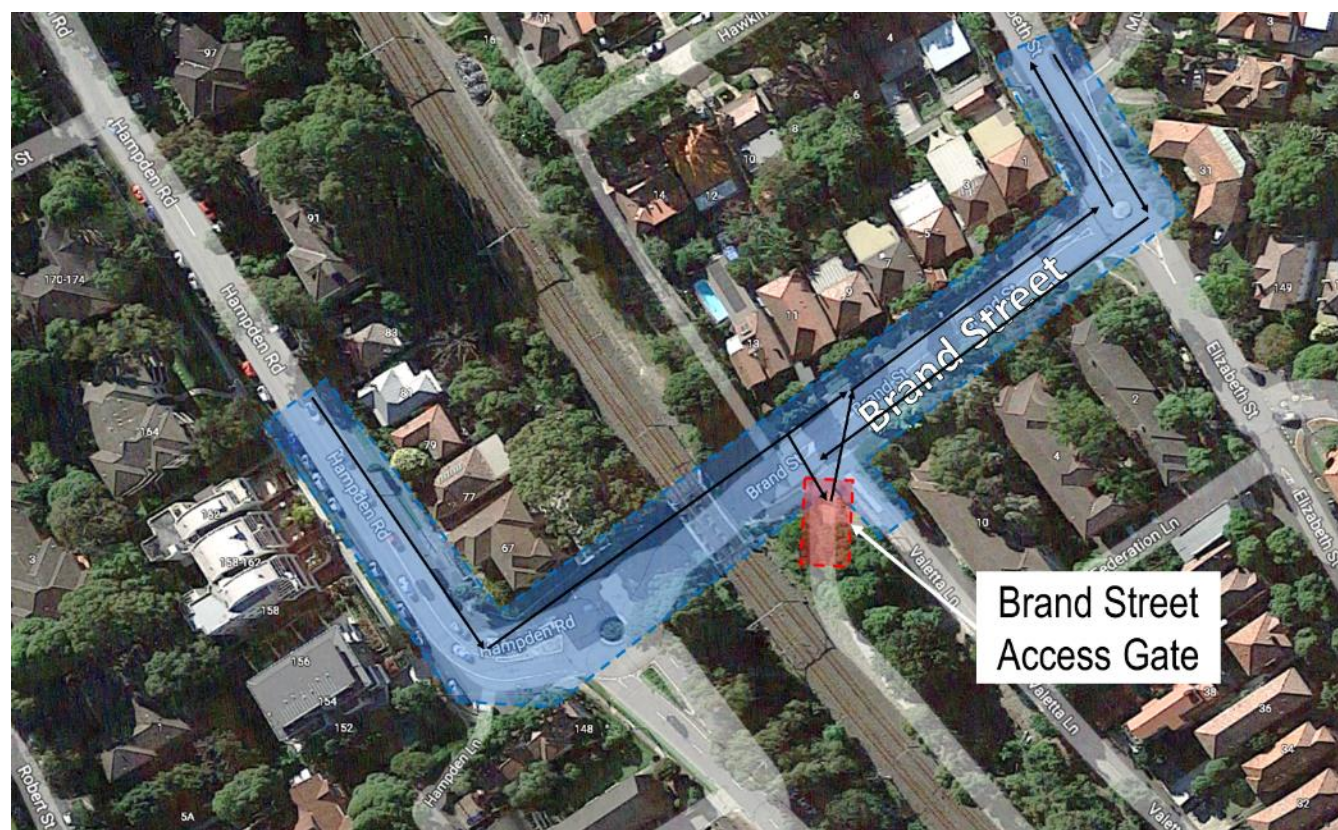


Figure 4 – Brand Street Access Gate Site and Haulage Routes



Figure 5 – Nelson Street Access and Haulage Routes

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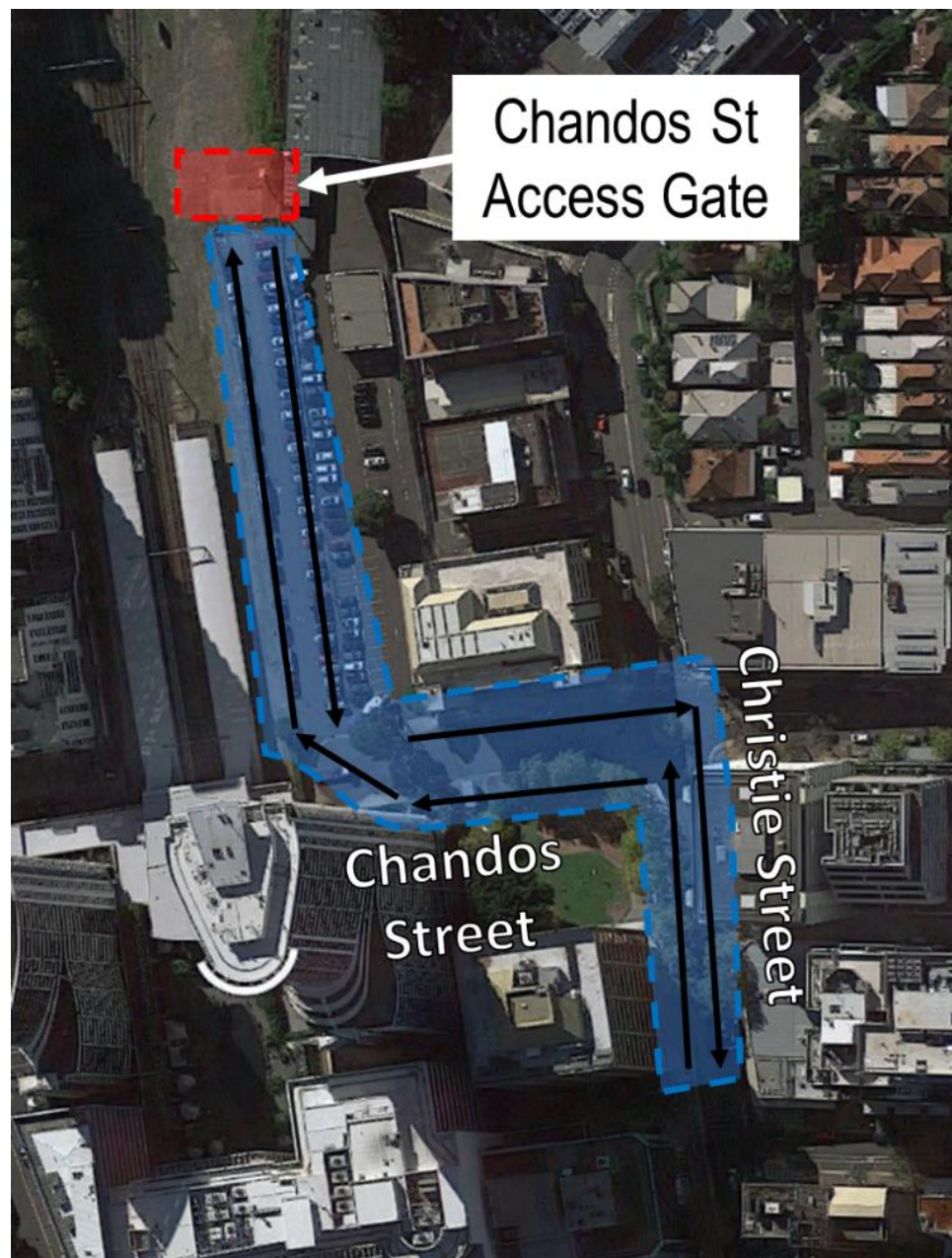


Figure 6 – Chandos Street Access Gate Site and Haulage Routes

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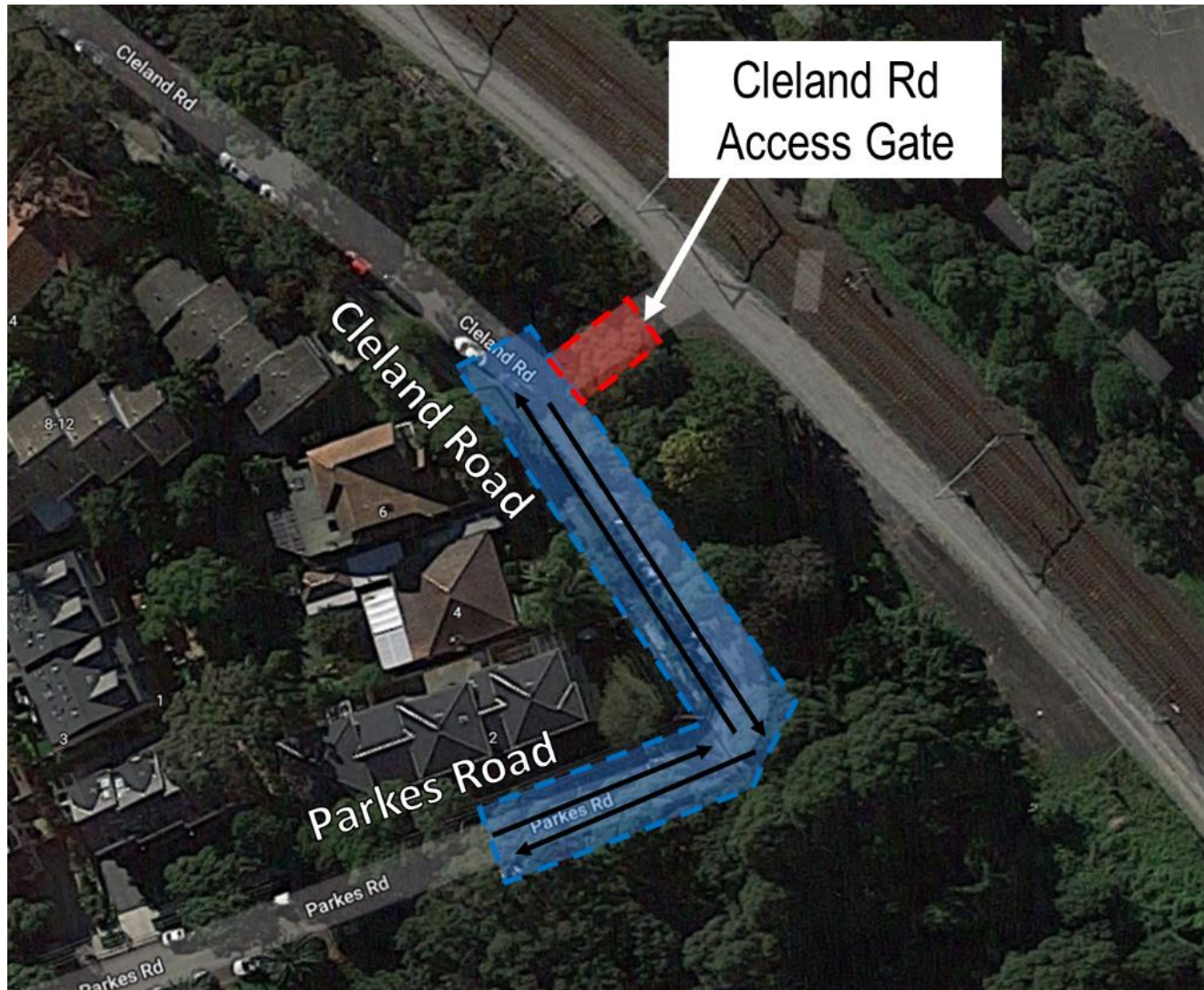


Figure 7 – Cleland Road Access Gate Site and Haulage Routes

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Figure 8 – Elizabeth Street Site Office Access and Haulage Routes

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Figure 9 – Elizabeth Street Laydown Access Gate Site and Haulage Routes

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Figure 10 – Lambs Road Laydown Access Gate Site and Haulage Routes

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Traffic Demand

The relevant person for LORAC/subcontractor shall determine the most suitable time of the day (in accordance with the approved working hours) to conduct any work this CTMP is applicable to, and ensure that sufficient road reserve space remains open to provide an acceptable level of service, safety, and convenience to all users taking into account normal and peak hour traffic.

2.1.5 Traffic Routing

There are a number of mobility restrictions in and around the project site, including weight limits shown in **Figure 13** and **Figure 14** and banned turns shown in **Figure 15**. There are also a number of height restrictions, including a clearance of 4.5m at Brand Street Bridge and 4.6m at Albert Avenue Bridge. These restrictions have been alleviated by planning heavy movements in accordance with **Appendix A-2: Heavy Vehicle Haulage Routes**. Where a delivery or transport company is required to attend a certain access/egress point on the site, the LORAC Site Manager/Relevant Foreman shall advise on the most effective means of routing that complies with the approved routes.

In instances of road closures and emergency events that impact upon the heavy vehicle haulage routes, Laing O'Rourke will work with Emergency Services and transport companies to determine suitable, alternative routes.

2.1.6 Parking

Access shall only be granted to vehicles that comply with the site requirements of flashing light, reversing alarm and reversing camera, personal vehicles will not be permitted onto the worksite.

As the construction works are adjacent to commercial, industrial and residential areas, to minimise impact to the surrounding areas, street parking of private vehicles will not be permitted, LORAC employees and Subcontract staff will utilise public transport whenever possible. This will form part of the Site Induction and will be policed by the LORAC Superintendent. Parked cars outside residential properties cause the streets adjacent to the access points (Drake Street, and Hopetoun Avenue) to become very narrow. If required parking may have to be removed on one side of the road to allow construction vehicles to enter the site. In this instance further agreement with local residences will be sought and approval from Willoughby City Council.

No parking of private workers vehicles will be permitted within surrounding residential streets surrounding the identified key site points of access, or, within surrounding commercial, industrial or retail areas to the site points of access. This applies to street parking as well as public car parks within the nominated areas. This is defined in

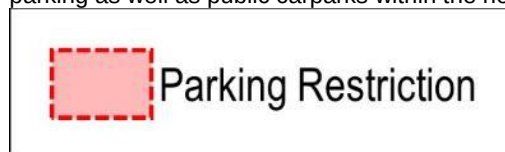


Figure 11 where the red area indicates the Restricted Parking Zones to be adhered to by workers during the project.

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Figure 11 – Northern Site Restricted Parking Zones

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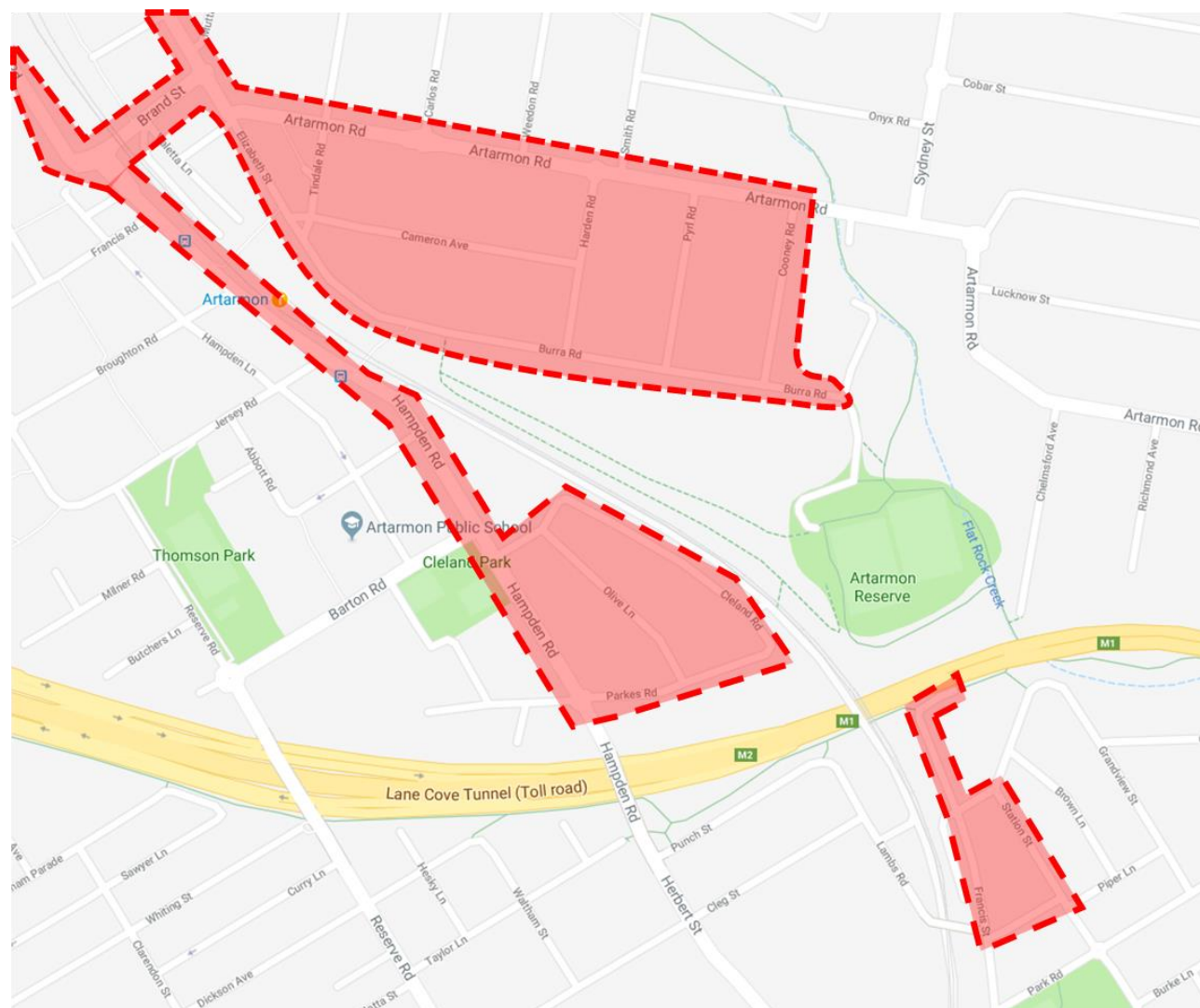


Figure 12 – Southern Site Restricted Parking Zones

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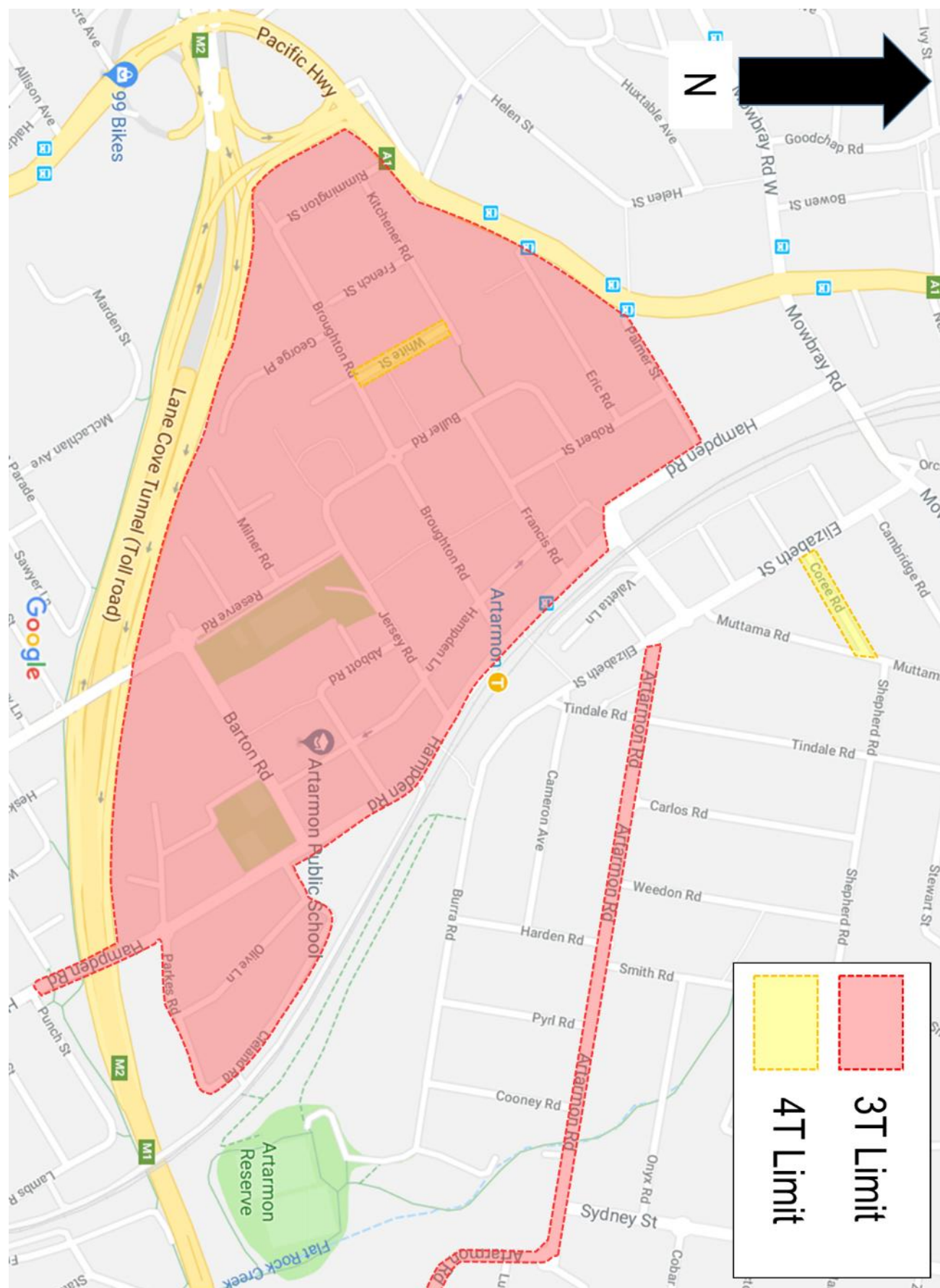


Figure 13 – Tonnage Limits for Northern Site Surrounding Roads

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Figure 14 – Tonnage Limits for Southern Site Surrounding Roads

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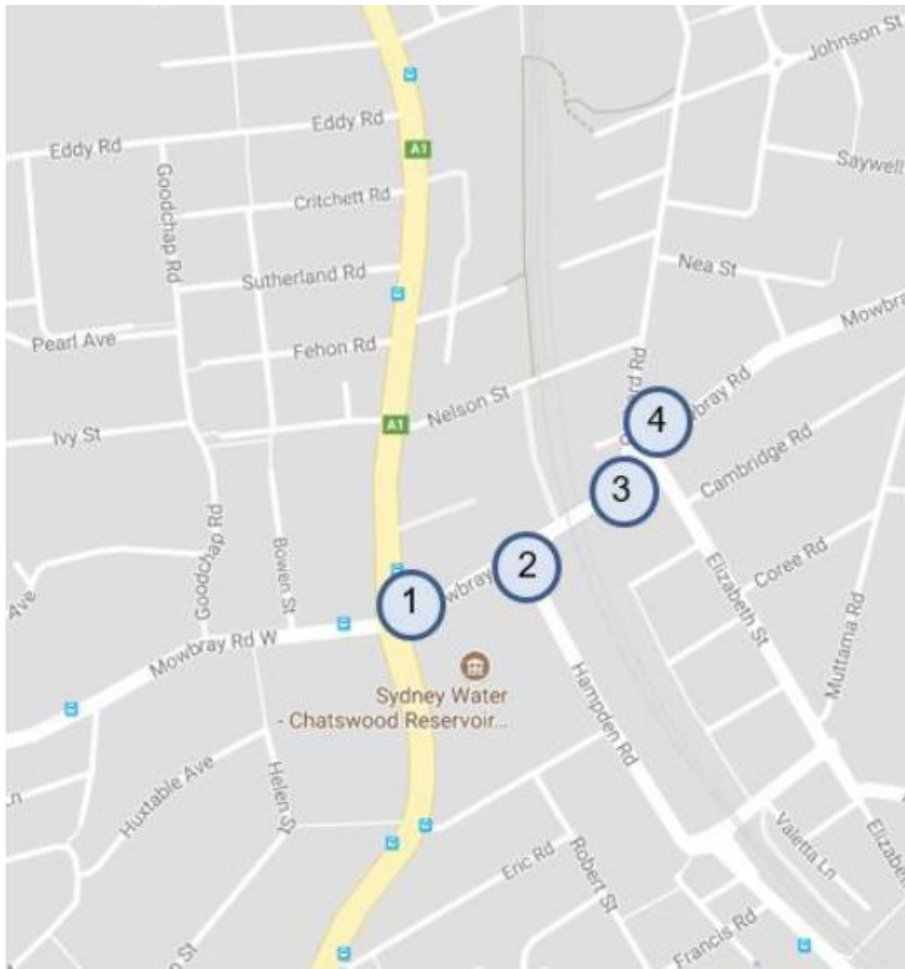


Figure 15 – Traffic Mobility Restrictions

1. No Right Turn from Pacific Highway to Mowbray Road West (buses excepted)

Vehicles will turn left onto Pacific Highway and travel south bound along Pacific Highway.

2. No right turn from Hampden Road to Mowbray Road

Heavy vehicle will not travel north along Hampden Rd. Light vehicles to only turn left onto Mowbray Road.

3. No Right Turn from Mowbray Road to Elizabeth Street (buses excepted)

No vehicles to turn right onto Elizabeth Street from Mowbray Road. Vehicles may only travel north along Elizabeth St and turn left onto Mowbray Road.

4. No Right Turn from Mowbray Road to Orchard Road (buses excepted)

No vehicles to travel along Mowbray Road from Willoughby. Vehicles to access via Pacific Highway and turn left from Mowbray Road.

2.1.7 Traffic Control (LORAC Works on Carriageways)

Traffic control shall be provided by the relevant LORAC Site Management Team member or subcontractor, as applicable, where required under this CTMP or the Safe Work Method Statement (SWMS) for the activity undertaken.

Traffic control and the relevant plans must be approved by RMS.

The relevant person for LORAC/subcontractor shall ensure:

- The level of control implemented is suitable for all traffic conditions occurring during the work activity e.g. traffic controller, police, other means of traffic control.
- Traffic control measures take into consideration emergency vehicles and vehicles with special requirements such as buses, their stops and terminals.
- Specific Traffic Control plan shall be developed if, and when, road or footpath occupancy is required to complete project scope works.

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2.1.8 Non-Vehicular Traffic

LORAC's Site Manager/Relevant Foreman shall ensure traffic management includes provisions for all pedestrians and cyclists, including the following where applicable:

- Pedestrians, including those with disabilities;
- School children;
- Bicycles, skateboards.

2.1.9 Schedule of Possession Work

The following Possessions have been nominated for the delivery of the works and will coincide with the peak traffic control requirements for the project. The minimum traffic control required for each possession can be seen in **Appendix B** for Drake St and Hopetoun Ave site access points. It is noted that during standard construction hours there will be works ongoing within the rail corridor, however majority of work required to complete the project will be during the possession dates below.

Table 1 – Indicative Schedule of Possession Work

WE	Date of Possession	Proposed Rail Corridor Access Points or works locations
20	17/11/18 – 18/11/18	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St
25	22/12/18 – 23/12/18	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St
27	03/01/19 – 06/01/19	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St
34	23/02/19 – 24/02/19	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St, Nelson Street
38	23/03/19 – 24/03/19	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St, Nelson Street
51	22/06/19 – 23/06/19	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St, Nelson Street
05	03/08/19 – 04/08/19	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St, Nelson Street
12	21/09/19 – 22/09/19	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St, Nelson Street
20	17/11/19 – 17/11/19	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St, Nelson Street
32	08/02/20 – 09/02/20	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St
37	14/03/20 – 15/03/20	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St
44	02/05/20 – 03/05/20	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St
51	20/06/20 – 21/06/20	Drake St, Hopetoun Ave, Brand St, Burra Rd, Cleland Rd, Lambs Rd and Chandos St

2.1.10 Deliveries for works

Deliveries are classed as either Light Vehicles (site utes), Standard Construction Plant (delivery of excavators, piling rigs, pothole trucks, bogies, concrete agis, etc.), Heavy Construction Plant (beam and girder deliveries, precast deliveries, tower crane deliveries). Refer to **Appendix A** for a summary of expected vehicles.

Considerations for Deliveries are as follows:

- Material Deliveries may be required 2-4 weeks prior to these possessions outlined in **Table 1**.
- Spoil disposal will be required up to 1-2 weeks following these possessions.
- All deliveries will occur under normal traffic conditions and will not require traffic control apart from oversized vehicles and deliveries during possession works. Oversized deliveries and deliveries that will occur during possession works will be controlled in accordance with the Traffic Control Plans included in **Appendix B**.
- All deliveries shall be coordinated with the relevant Site Contact in advance of the delivery to ensure queuing of vehicles does not occur.
- Out of Hours Works (OOHW) notifications will be organised in advance of the delivery if required. Appropriate licences for oversized loads will be in place prior to delivery. All Heavy Vehicles will be managed in accordance with the Chain of Responsibility, National Heavy Vehicle Regulator (refer WHSMP).

2.1.11 Emergency Response following Construction Traffic Incidents

The Emergency Response Plan contained within Appendix 8 of the Construction Health and Safety Management Plan (CHSMP) shall be implemented for construction traffic incidents and in consultation with relevant stakeholders including Sydney Trains and the Rail Safety Management System. The Emergency Response Plan has been developed in accordance with the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard.

In the case of an emergency, any closures that may be required will be in short duration and will avoid any impact to the operation of emergency and service vehicles. The delivery of materials and plant/equipment are expected to occur during designated loading zone hours and locations (through existing access gates to the rail corridor); therefore, the impacts to emergency and service vehicles are expected to be negligible.

2.1.12 Haulage, Delivery Options, and Spoil Removal

LORAC recognises the effective management of haulage and delivery operations is not only integral to the success of the NCW project, but additionally necessary to minimise the impact on the road network and community.

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Haul and delivery truck routes to and from construction sites and access points have been developed in key consideration of minimising impacts on local streets and maximising use of arterial roads using Higher Mass Limit (HML) routes as outlined by Roads and Maritime Service (RMS) as part of their Intelligent Access Program (IAP) and Restricted Access Vehicle (RAV) routes. RMS has roads and zones throughout Sydney that are approved for RAV and HML for certain heavy vehicles to travel along.

Refer to **Appendix A** for Heavy Vehicle Haul Routes. Note that relevant local councils and/or RMS permission is required should construction vehicles greater than the allowable load limit require access to roads that contain restrictions.

The locations of schools and childcare centres along haulage routes would be considered during the route identification. Where schools and childcare centres are identified on proposed haulage routes, these roads would be avoided wherever feasible and reasonable to do so. This will be achieved by:

- Assessing alternative access routes around the school or childcare.
- Determining if they are suitable for heavy construction traffic (road weight limits, surface conditions, grades, road geometry and other accessibility considerations).
- Identifying and assessing the potential sensitivity of other receivers along the alternate routes.

Where passing schools and childcare centres cannot be avoided, the presence of the sensitive area will be communicated to the vehicle driver and need for safe and careful driving in accordance with all applicable road rules will be reinforced. Wherever practicable, high volume usage of haulage routes will be avoided during school pick up and drop off periods.

LORAC uses an in vehicle monitoring system (IVMS) to monitor compliance with road rules etc. There is also a GIS component to track location. The below figures (refer to Appendix A) identify LORAC's proposed Heavy Vehicle Access Routes for site arrival and departure for the identified key points of site access. Refer to **Appendix A – Heavy Vehicle Access Route Detail** for narrative detail of these proposed routes.

The rail corridor is not able to be used for spoil removal due to the construction works on the rail line. Spoil removal will be undertaken using trucks, operating primarily via the Pacific Highway. This will minimise truck movement on local and residential roads.

2.1.13 Dilapidation Surveys

As required in condition E90, a Road Dilapidation Report must be prepared for local roads proposed to be used by heavy vehicles for the purposes of the CSSI before the commencement of use by such vehicles. The report will record the condition of roads, footpaths, stormwater pits and pipes, and kerb and gutter assets. Copies of the Road Dilapidation Report must be provided to WCC within three (3) weeks of completing the surveys and no later than one (1) month before the use of local roads by heavy vehicles. Refer to **Figure 15** and **Figure 17**.

The proposed roads and footpaths to be surveyed are as follows:

1. Pacific Highway (A1)
2. Mowbray Road
3. Elizabeth Street
4. Orchard Road
5. Drake Street
6. Nelson Street
7. Hopetoun Avenue
8. Cleland Road
9. Parkes Road
10. Ellis St
11. Gordon Avenue
12. Frank Channon Walk
13. Lambs Road
14. Cleg Street
15. Reserve Road
16. Hampden Road
17. Campbell Street
18. Dickson Avenue
19. Waltham Street

For any damage to the road that occurs as result of the works and is agreed with RMS and/or WCC, the damage shall be rectified by LORAC so as to restore the road to at least the condition it was before construction commenced as identified in the Road Dilapidation Report(s).

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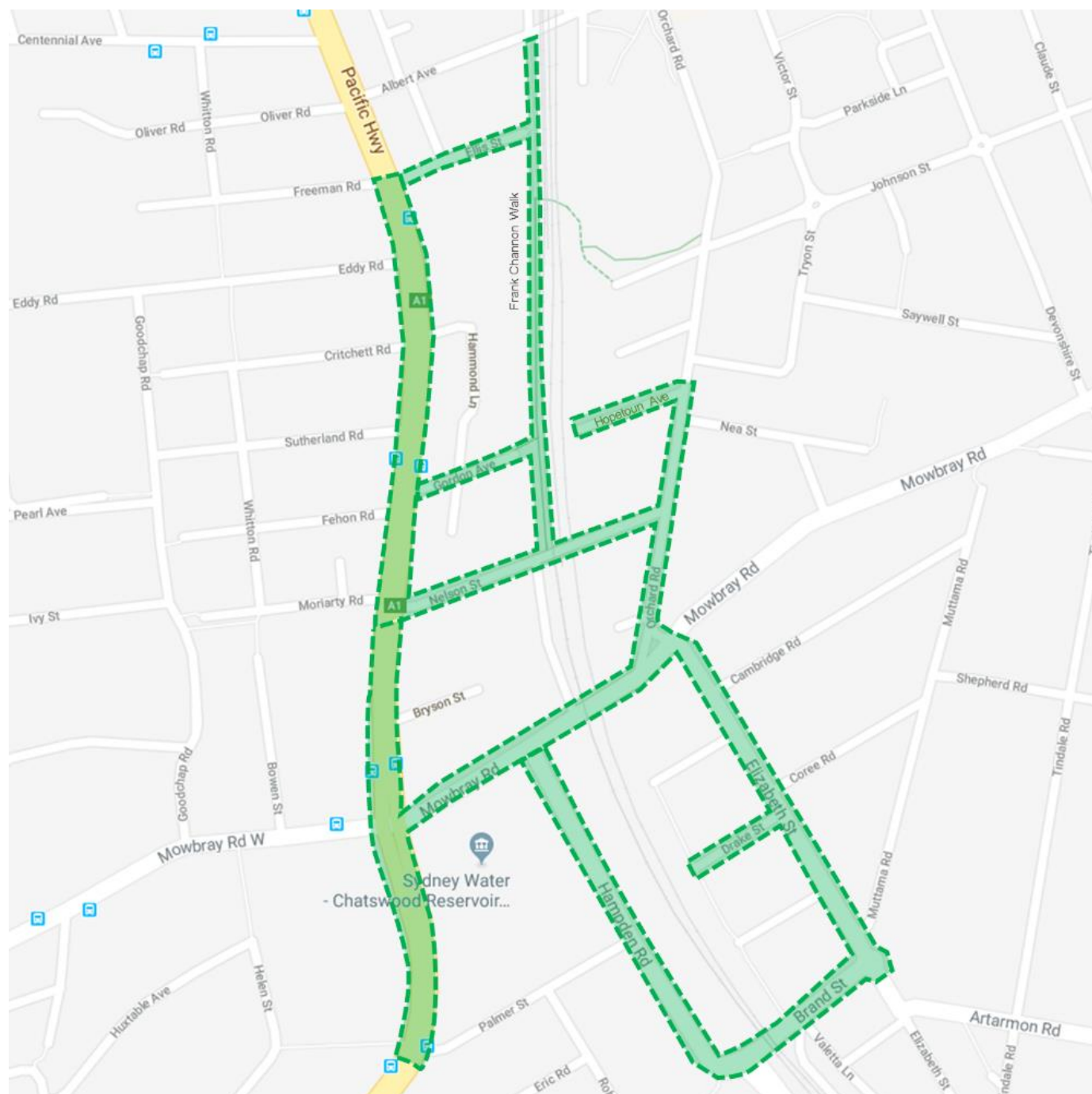


Figure 16 – Dilapidation Survey Report Scope

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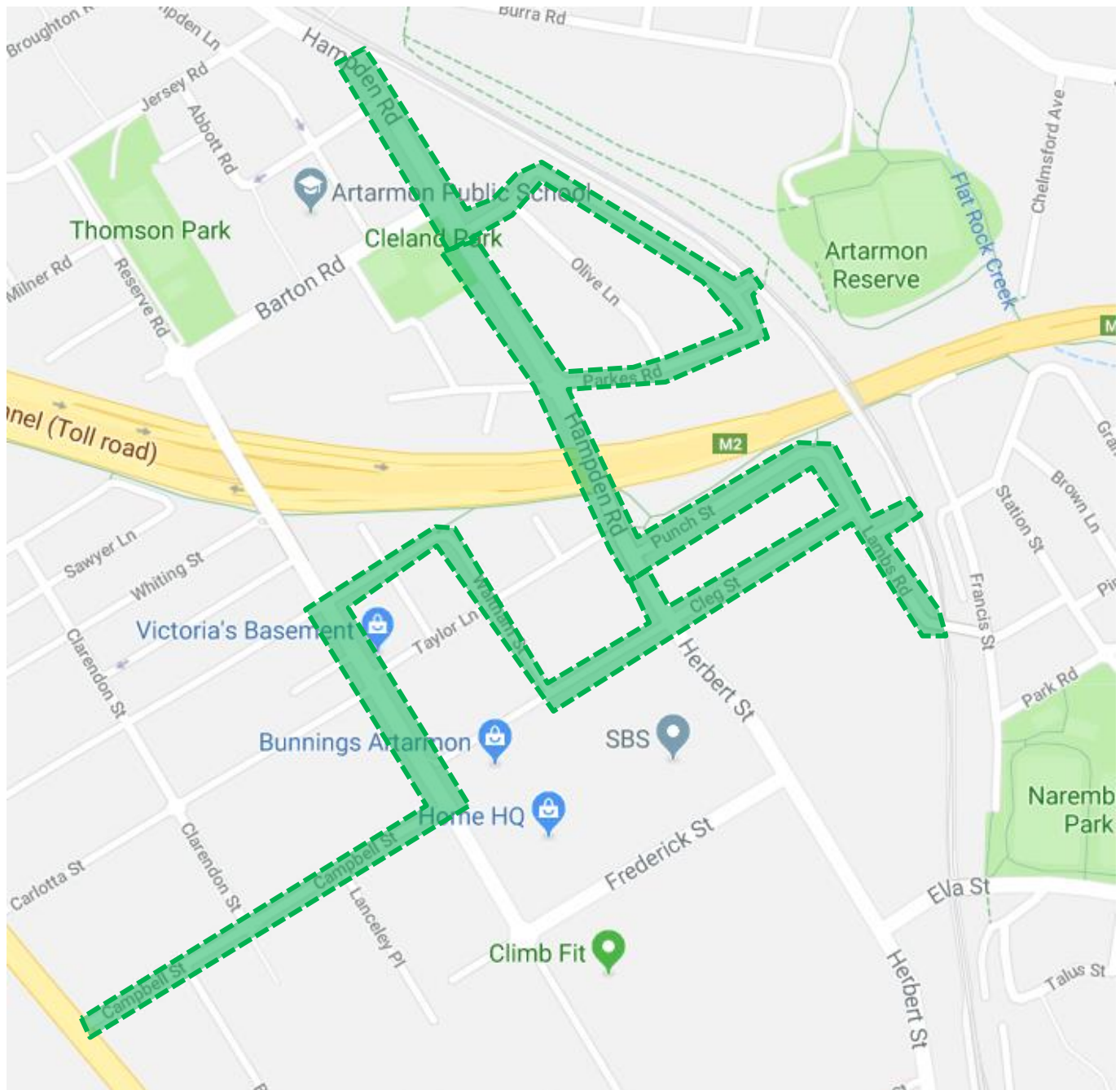


Figure 17 – Dilapidation Survey Report Scope

2.2 LORAC Works on the Roadway

2.2.1 LORAC Controlled Work

This section applies to LORAC controlled work that requires partial closure of parking areas on local roads to allow pedestrians to pass the work site and facilitate movement of large vehicles. The Site Manager/Relevant Foreman shall ensure that for work involving a lane closure:

- An ROL must be approved and received from the appropriate consent authority
- A TCP is completed showing all protective devices, their delineation.
- A written list is prepared of all devices required for the task.
- Approval from RMS/WCC which includes construction approvals from WCC, details of requirements and applications here <http://www.willoughby.nsw.gov.au/Development/Construction-Certificate/>

All the above documents and approvals are to be filed on site with this CTMP.

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2.2.2 Vehicular Traffic Safety and Convenience

To achieve the least disruption and inconvenience to vehicular traffic, LORAC's Site Manager/Relevant Foreman shall ensure:

- Only the minimum practicable length and width of road is closed off at any given time.
- The control measures used provide sufficient width within the work area for the safety of the workers i.e. at least 1.2m clearance between edge of work area and edge of adjacent traffic lane.

2.3 Typical Roadwork Control Layout

The figure below illustrates a typical roadwork control layout plan for a work site.

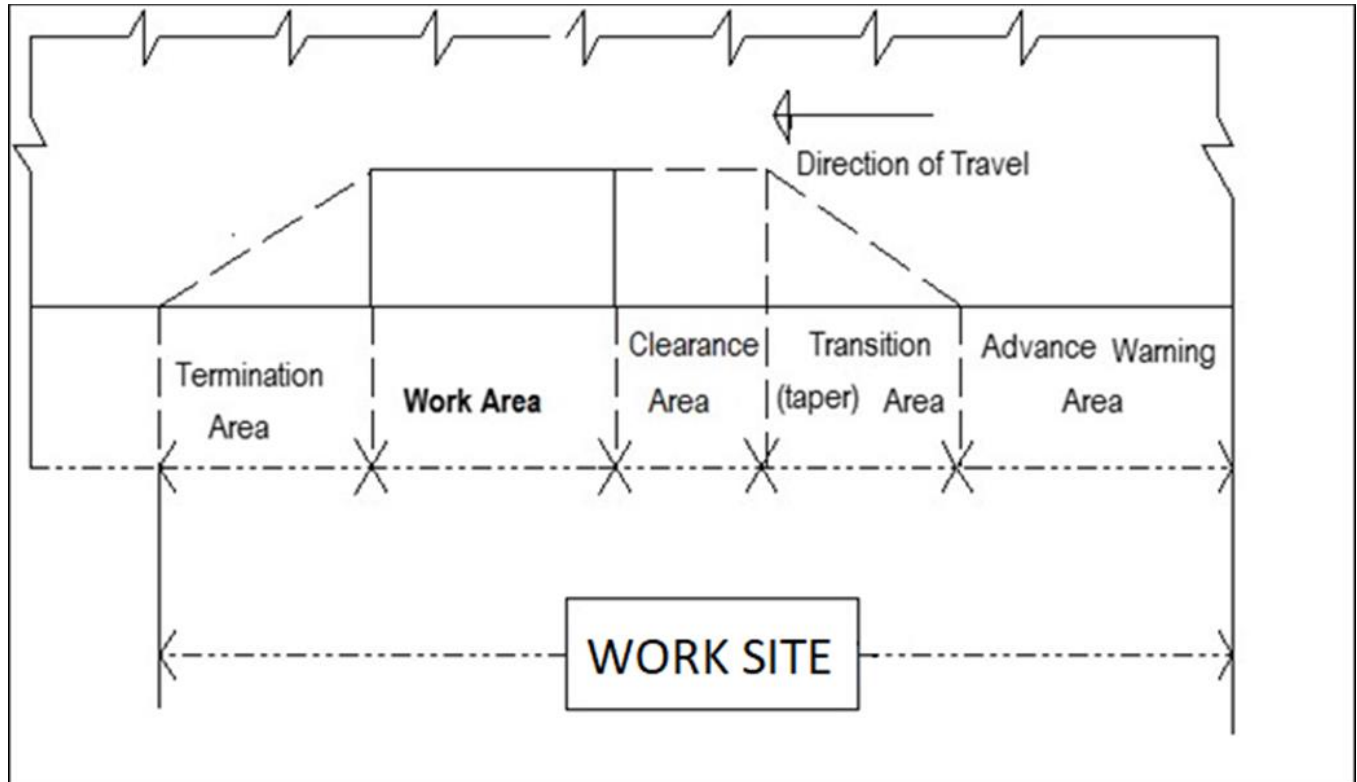


Figure 18 – Typical TCP Layout

LORAC's Site Manager/Relevant Foreman shall ensure that those components that are relevant to their work site are identified and the appropriate traffic management scheme applied in each particular case.

2.4 Post Boxes and Street Furniture

There are two post boxes that are nearby the NCW work areas:

- Mowbray Road, Artarmon, east of the intersection of Mowbray Road and the Pacific Highway. (approx. -33.805133, 151.179807); and
- Outside 28 Elizabeth Street, Artarmon (approx. -33.807848, 151.185070)

It is not expected that these post boxes will be affected during construction. The location of the Mowbray Road post box will fall outside the Mowbray Road bridge closure and road works. Access to both post boxes will be maintained at all times during construction.

It is not expected that any changes to street furniture will be required to undertake the construction works.

2.5 Incident Management

- Incident management is to be undertaken in accordance with the NCW CEMP main document.
- It must be carried out in accordance with the Sydney Metro Principal Contractor Health and Safety Standard
- Incident co-ordination would be carried out with the CBD Coordination Office and / or the Transport Management Centre's Operations Manager

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2.6 Buses

No bus routes or bus stops will be affected by the construction works. No bus routes operate via the Mowbray Road bridge or the Nelson Street bridge.

If any relocation of bus stops is required, this would be carried out by Transport for NSW in consultation with Roads and Maritime Services, Willoughby Council and bus operators. Wayfinding and customer information would be provided to notify customers of relocated bus stops.

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3.0 Traffic Signage and Control

Traffic signage and control must be in accordance with the RMS Traffic Control at Work Sites Manual.

3.1 *Appropriate Signing*

3.1.1 *Principles of Signing*

LORAC's Site Manager/Relevant Foreman shall ensure, no matter how briefly the work site is occupied, careful consideration is given to signing of the site to:

- Provide advance warnings to drivers of changes in the surface of the roadway and/or in the changed traffic conditions and that personnel and/or plant are engaged in work.
- Adequately instruct and guide traffic safely through, past or around the work site.
- Provide separation of the travel path and the works area.

In accordance with CTMF clause 6.10, any changes to regulatory signage and linemarking on local and regional roads will require a submission to the Local Traffic Committee for agreement.

LORAC's Site Manager/Relevant Foreman shall ensure the following important principles are observed regarding traffic management signage:

- Signs and devices comply with those listed in AS 1742.3
- Signs and devices are to be erected and displayed before work commences.
- On approaches to the work area signs are erected in the following sequence and then removed in the reverse order.
 - Advance warning signs.
 - Other warning signs.
 - Instruction signs
- Signs are placed within the driver's line of sight and at the same time not obscure other traffic devices from the driver's line of sight.
- All signs and devices are placed in the most advantageous positions having regard for the location and nature of the hazard, and the warning being conveyed, to provide the maximum visual impact for approaching traffic. Such signs and devices shall have an adequate clear view in advance of them (minimum 50m for 60 km/h, minimum 100m for 100 km/h).
- Signs and devices are placed in a manner and position so they are not obscured from view by vegetation or parked vehicles.
- Signs and devices are placed in a manner and position so as not to become a possible hazard to workers, pedestrians or vehicles (e.g. divert traffic into an undesirable path).
- Signs and devices shall be regularly checked for effectiveness and maintained in a satisfactory condition.
- Signs and devices are selected and placed in a manner so as not to require a driver to disobey a law unless so directed by an authorised officer such as a police officer.
- Permanent signs which conflict with the signs required for the temporary work situation are covered or removed.
- Signs and devices are removed from the site when practical once the hazard ceases to exist. This not only restores the road/footpath to normal but is also an essential part of maintaining the credibility of the signs.

3.1.2 *Erection and Location of Signs*

LORAC's Site Manager/Relevant Foreman and the nominated Traffic Controller shall ensure:

- All road signs are used with approved stands or erected on posts set into the ground, where permitted by the relevant authorities.
- All signs are placed in the most advantageous position, having regard for the nature of the hazard and the warning being conveyed, to provide the maximum visual impact for approaching drivers.
- Where signs are erected on posts set into the ground the following applies:
 - On kerbed roads signs should be located back from the face of the kerb not less than 300mm, and no more than 1.0m.
 - The lower edge of the height of the sign should be at least 2.2m above the kerb or footpath to avoid being struck by pedestrians or cyclists and to be visible above parked cars.
- Where the signs are erected on temporary stands for short term work, if they are erected in kerbed areas, the provisions outlined above for post-mounted signs shall be followed.

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3.1.3 Advance and Intermediate Advance Warning Signs

Advance and Intermediate Advance Warning Signs alert approaching vehicles of changed road conditions so road users may negotiate any travel path at an acceptable level of risk.

- For LORAC purposes the Advance Warning Signs are limited to:
 - Workers Ahead
 - Roadwork Ahead
- Intermediate Advance Warning Signs are used where, in addition to a general warning of the onset of the roadwork, a warning is needed either of a specific action of a driver or of the condition of the road. The intermediate advance warning signs for LORAC purposes are:
 - Detour Ahead
 - Prepare to Stop
- The minimum distance for positioning of the advance warning signs shall be $2 \times D$ metres where D is the speed limit in km/h or the approach speed where it is significantly different from the speed limit, e.g. if the approach speed is about 60 km/h then the sign is placed at about 120m.
- The distance shall be measured from the sign position to the beginning of the taper area or the beginning of the diversion associated with the work site.
- Where there is more than one advance sign position, such as for Detours, etc., then the advance sign nearest the work area shall be placed $2 \times D$ metres from the transition area, and the other advance sign positions at spacing of D metres further in advance of work area. e.g. “Detour Ahead” sign would be at the $2 \times D$ spacing with the “Roadwork Ahead” sign at the D metres spacing.
- Advance warning signs for vehicular traffic are not required in the following situations:
 - Where work is sufficiently remote from the roadway that no action or extra vigilance is required of a driver other than would be normally required on that section of road.
 - Where approach speeds are so low that no devices are needed to give advance warning; i.e. signs and devices can be seen in plenty of time for drivers to take necessary action.

3.2 Traffic Control

3.2.1 Approach Taper Partially Closed Lane

If a roadway has to be partially closed, an appropriate taper should be marked in the transition (taper) area and, wherever possible, should be located so that its full length is visible to approaching traffic.

Traffic cones or bollards are used after the appropriate advance signs on the approach side of the hazard, forming a taper from the kerb to the outer limits of the clearance area. Table 2 below provides a guide to the recommended taper length for two-lane, two-way roads to be closed for various approach speeds based on a lane width of 3.5m. This is sourced from Table 5.2 of the Traffic Control at Work Sites Manual.

The distances in the columns in the Table 2 are applied as follows:

Table 2 – RMS Recommended Taper Lengths

Approximate speed of traffic km/h	Recommended taper length, m		
	Traffic control at beginning of taper	Lateral shift taper	Merge taper
45 or less	15	0	15
46 - 55	15	15	30
56 – 65	30	30	60
66 - 75	N/A	70	115
76 - 85	N/A	80	130
86 – 95	N/A	90	145
96 – 105	N/A	100	160
Greater than 105	N/A	110	180

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LORAC's Site Manager/Relevant Foreman shall ensure the requirements and recommendations for signs and devices in each of the areas identified above are as follows:

Advance Warning Area - General Requirements for the display of advance warning signs and devices will vary according to factors such as the speed of approaching traffic, the degree to which the hazard requires modification of speed or diversion of travel path, or extra vigilance for other reasons, and the sight distance available to the hazard, including sight obstruction caused by other traffic.

Transition (Taper) Area - If a roadway has to be partially closed, an appropriate taper should be marked in the transition (taper) area (see **Figure 18**) and, wherever possible, should be located so that its full length is visible to approaching traffic.

Work Area/Clearance Area

- The work area is where the work is physically being carried out and is preceded by a clearance area that provides a safety barrier.
- The clearance area should be large enough to accommodate any work trucks or plant etc., however, if the work is hidden from approaching traffic (e.g. by a crest or curve) the clearance area should extend back to a point where it can be adequately seen by approaching traffic.

Termination Area - Signs indicating the end of the works and where appropriate, terminating a roadwork speed limit zone, are placed at the end of the termination.

Note: For further details see Section 3 - Traffic Signage and Control.

Traffic control at beginning of taper

Applicable at a location where there is a traffic controller just prior to a taper. (e.g. into a single lane that is being controlled by a controller).

Diverge taper (lateral shift)

Applicable where traffic is simply required to shift laterally without conflict with another stream of traffic.

Merge taper

Applicable where one lane of traffic is required to merge onto another lane of traffic.

3.2.2 Traffic Controller's Check

Traffic Controllers shall record that all the appropriate signs and traffic control requirements have been implemented according to the approved traffic control plan in place.

3.2.3 Termination Taper

This is the area indicating the end of the works. The use of three traffic cones or bollards should be sufficient in a taper. The typical spacing would be 5.0 to 15.0m.

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4.0 Delineation at Work Site - Travel Paths

4.1 Delineation of the Travel Path

Suitable, adequate and appropriate delineation of the travel path is perhaps the greatest need of road users and pedestrians. To give satisfactory guidance for road users and pedestrians, traffic control measures shall provide for both short and long range delineation for the travel path and must be continuous and unambiguous.

Long range delineation provides drivers with an advance view of the site indicating the general direction of the trafficable path and short range delineation guides the driver through the works once they have entered.

Depending on the circumstances, movement of traffic in connection with a work site shall be achieved in one of the following ways:

- Through the work area.
- Past the work the area

It should be noted that for NCW, there will no delineations from travel paths required. Minor alterations may be necessary during possessions as detailed in **Table 2**.

4.1.1 Through the Work Area

This will be applicable only on the actual worksite, and will not be used for traffic of the general public.

4.1.2 Past the Work Area

Where the traffic is conducted past the work area there needs to be a minimum distance of 1.2m clearance between the edge of the work area and the edge of the travel path as a no-go buffer zone. This clearance shall be defined on both sides of the travel path to avoid inadvertent intrusion by any persons and shall be provided by the use of containment fences such as barrier tapes, mesh fences, interconnected lightweight units or bollard fences.

4.2 Worksites

If workers are present at the work site at all times then the bollard and tape type barriers are sufficient. It is proposed under this CTMP that diversion of pedestrians onto lane closures will be required; however, a risk assessment will be undertaken for each TCP when they are developed to determine the appropriateness of using bollards and tape type barriers.

4.3 Vehicle Movement Plan (VMP) and Pedestrian Movement Plan (PMP)

Vehicle Movement Plans will be developed with pedestrian movements incorporated in them. It is envisaged that the following plans will be required. VMP / PMP for Hopetoun Avenue, Drake Street, Brand Street and Burra Road will be incorporated in the TCP for the site entrances. Refer to **Appendix C**.

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5.0 Traffic Controllers

5.1 Traffic Controllers

Where LORAC works require vehicles to be stopped or slowed down to navigate through or past the work site then it shall be necessary to use qualified RMS Blue Card Holding Traffic Controllers. The selected Traffic Controller Subcontractor will be responsible for the management of all traffic throughout the delivery phase.

A Traffic Controller is a person who has graduated from an accredited course to Traffic Controller. Traffic controllers are also required to maintain a log book of traffic control related information. Traffic Controllers are required to implement the approved TCP for the subject work area. All activities should be conducted in accordance with Section 3. A summary of expectations of traffic controllers is listed in 5.1.3 below.

Traffic Controllers will manage access to residential properties that are affected by road closures due to road and bridge works.

5.1.1 Use of Traffic Controllers

Some typical situations where traffic controllers can be used are shown in Table 3 below.

Table 3 - Traffic Controllers	
SITUATION	PURPOSE
One lane of a two-lane/two-way road is closed.	Restrict traffic flow to a single direction and alternate direction of flow over available width of carriageway.
Conditions at the work site are such that low speed operations are essential.	Warn or slow down the traffic.
Construction machinery regularly crosses or enters an existing road.	Avoid conflict between construction and road traffic.
Sight distance to the work site is limited.	Control and warn motorists of the presence of works machinery and/or personnel.

5.1.2 Number of Traffic Controllers

One (1) Traffic Controller may be used operating alone with a STOP/SLOW bat and any other relevant signs provided that all of the following conditions are met:

- Will be utilised only for management of pedestrians / cyclists on footpath

Two (2) or more Traffic controllers equipped with two-way radios should be used for all other conditions.

5.1.3 Traffic Controller(s) Role and Responsibility

- Ensure that all relevant signs and devices are in place before commencing traffic control.
- Where possible, limit the delay to traffic to a desirable maximum of about 15 minutes.
- Wear high visibility clothing and carry their traffic control identification.
- Maintain an approved logbook to record experience gained as a trainee Traffic Controller.
- Not obstruct drivers' view of or be partially hidden by other road signs and devices.
- Give definite and clear signals.
- When two traffic controllers are used, be visible to one another or have radio communication so that the flow of traffic from each direction can be co-ordinated.
- Traffic will be held only to allow single HV movements to be made and then released.
- Follow all other relevant procedures and requirements contained in the relevant TCP or JSA/SWMS for the activity undertaken.

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6.0 Work on Footpaths

6.1 Pedestrian Considerations

Due consideration to pedestrians shall be given before proceeding with LORAC works on or adjacent to footpaths. By definition, catering for pedestrians means catering for the different modes of travel used such as walking, cycling or for people with different characteristics such as disabilities or mobility scooters. It also means that LORAC shall take into account the fact that pedestrians are often distracted or in a hurry.

Vulnerable road users will be specifically targeted with safety measures as per the SM PS-ST-221 Sydney Metro Principal Contractor Health and Safety Standard to minimise the road safety risks to pedestrians, cyclists and motorcyclists in the vicinity of the NCW construction sites. Measures specific to NCW include, but are not limited to:

- Heavy vehicles equipped with systems to improve vehicle safety, visibility and the detection of vulnerable road users;
- Mandatory completion of Sydney Metro City & Southwest project specific Heavy Vehicle Driver Introduction Training for frequent deliveries.

It is expected that for NCW Portion, pedestrian interactions will be minimal. The majority of plant movements will occur during the specified possessions in **Table 1**. All works will be confined to the rail corridor, with pedestrians/cyclist impacts as follows:

- Nelson Street – closure of the footpath due to demolition of the bridge;
- Hopetoun Avenue – interface of vehicles crossing footpath only, managed by traffic controllers as required.
- Drake Street – interface of vehicles crossing footpath only, managed by traffic controllers as required.
- Brand Street – interface with pedestrian crossing Brand Street. Priority given to pedestrians, managed by traffic controllers as required.
- Burra Road – interface of vehicles crossing footpath only, managed by traffic controllers as required.

Pedestrian / cyclists will be held by traffic controllers to allow single movements only and then released, consideration of this will be taken in any design and plan for travel paths.

6.2 Width of Travel Path

- People with ambulant disabilities (i.e. using a walking aid) require a clear width of 1,000 mm.
- People who use wheel chairs require a clear width of 1,200 mm.
- If it is not practical to provide the above widths on the footpath it may be necessary to consider part closure of the road together with appropriate barriers, etc.
- Appropriate ramps are to be implemented if pedestrians are directed onto another footpath.
- Appropriate shared path widths to be implemented as per Australian/Austrroads Standard.
- TCP and ROL's will provide details required for any approvals by RMS / TMC / WCC.
- Where worksites have an effect on footpaths, conditions surveys of the affected footpath areas are to be undertaken to ensure that they are suitable and appropriate for use.
- Any narrowing of footpaths is to be approved by the relevant authorities.

6.3 Pedestrian Safety Points

The following pedestrian safety points should be included in the final control measures by the LORAC supervisor. These points should be observed before the work is commenced. This is not an exhaustive list and should be updated by the supervisor according to the circumstances at the work site.

6.3.1 All pedestrians

- Always look at the pedestrian's routes.
 - Routes are free of any slip or trip hazards
 - Pedestrians safely negotiate the work site
 - Pedestrians can safely negotiate any "squeeze" points in and around the work site.
- Check that the pedestrian's routes are continuous through/adjacent to the work site.
- Determine the most applicable time of the day to conduct the works taking into account both normal and peak hour times.
- Determine what is the most appropriate means for pedestrians to negotiate (through, past or around) the worksite.
- Where applicable ensure that any barriers erected do not force pedestrians to cross at an inappropriate location.

6.3.2 Elderly Pedestrians

- Travel path is relatively smooth and clear of overhanging foliage.
- The work site adequately illuminated.

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6.3.3 Young Pedestrians

- Barriers have been erected to guide children past or through the work site.
- Travel paths remain continuous through the scheme.
- Ensure that no road signs/devices obstruct the vision of or visibility to younger pedestrians.
- Manage parking of LORAC vehicles to maximise the sight lines.

6.3.4 Intoxicated Pedestrians

- Assess whether there is potential for intoxicated pedestrians in the area.
- Ensure appropriate barriers in place to guide them past or through the work site.
- Ensure drivers given every chance of seeing pedestrians.
- Manage parking of LORAC vehicles to maximise the sight lines.

6.3.5 People with Disabilities or Prams

- Ensure the work site be identified by visually impaired people.
- The travel path must be sufficient to cater for wheelchairs, prams, etc.
- DDA requirements will be adopted for NCW for works on footpaths
- Kerb ramps are to be provided at road crossings
- Footpath widths are to provide for two-way movement of pedestrian traffic, allowing for prams, strollers and wheelchairs to pass each other without requiring temporary widening from their existing width prior to construction

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7.0 Consultation with Relevant Stakeholders

Communication with Stakeholders is primarily to be through Sydney Metro Delivery Office. LORAC's engagement strategy aims to inform and engage community and relevant stakeholders in a constructive, transparent and fair process. To ensure this happens, detailed and timely information will be provided to Sydney Metro to assist them with fulfilling the consultation and notification requirements. Further details of LORAC's commitment to community consultation can be obtained from the Sydney Metro Community Consultation Strategy – Early Works (CCS-EW). The CCS-EW describes the approach Transport for NSW will use to manage engagement and ongoing consultation with stakeholders and the community with an interest in, or potentially affected by Sydney Metro City & Southwest early works between Chatswood and Sydenham.

Prior to undertaking any works associated with partial closure of any road or footpath or any other interaction with transport infrastructure, the following stakeholders must be appropriately considered for consultation in relation to the road occupancy to ensure that all requirements are addressed.

Station / Site	SCO	BDA	Sydney Trains	RMS	WCC	NSC	CoS	IWC	TMC
Northern Corridor Works	TCG/ TTLG	N/A	TCG/TTLG	TCG/ TTLG	TCG/ TTLG	N/A	N/A	N/A	TCG/ TTLG

Legend:

SCO–Sydney Coordination Office; **BDA** – Barangaroo Delivery Authority; **RMS** – Roads and Maritime Services; **WCC** – Willoughby City Council; **NSC** – North Sydney Council; **CoS** – City of Sydney Council; **IWC** – Inner West Council; **TMC** – Transport Management Centre, **CfRS** – Transport for New South Wales, Centre for Road Safety

The stakeholders have been consulted in the following forums: Traffic Transport & Liaison Group TTLG (monthly) & Traffic Control Group TCG (weekly). A summary of this is provided below and further in **Appendix F**.

Date	Interaction	Subject	Stakeholder	Comments
30/05/18	Meeting	Presentation of amended CTMP – Portion 7a+7b	TTLG	Nil
03/07/18	Meeting	Presentation of amended CTMP – Portion 7a+7b	TCG	Nil
26/10/18	Meeting	Presentation of CTMP – Portion 7a+7b CTMP – Portion 7a+7b submitted for review	TTLG/TCG	Nil
06/11/18	Email	Comments received on Portion 7a+7b CTMP	RMS	Refer to Appendix F
07/11/18	Email	Comments received on Portion 7a+7b CTMP	SCO	Refer to Appendix F
12/11/18	Email	Comments received on Portion 7a+7b CTMP	SM	Refer to Appendix F
12/11/18	Email	Comments received on Portion 7a+7b CTMP	WCC	Refer to Appendix F
12/11/18	Email	CTMP – Portion 7a+7b submitted for approval	TCG	Nil
16/11/18	Email	CTMP approved by RMS	RMS	Note
18/12/18	Presentation	Nelson Street Bridge Demo methodology	TCG	Nil
19/12/18	Presentation	Nelson Street Bridge Demo methodology	TTLG	Nil
08/11/18	Email	CTMP – Nelson Street Bridge revision submitted for review	TTLG/TCG	Refer to Appendix F
29/01/19	Presentation	Nelson Street Bridge Demo Briefing	Sydney trains/ Sydney Metro	Nil
09/02/19	Presentation	Nelson Street Bridge Demo methodology	TCG	Nil
08/02/19	Email	CTMP – Nelson Street Bridge revision submitted for review	TTLG/TCG	

Refer to **Appendix E** – Stakeholder comment tracker for further detail.

7.1 Notifications

It should be noted that notifications will include details of the type and extent of works being undertaken as well as the expected disruption to community in relation to traffic and transport. Any changes to conditions will be provided to the relevant stakeholders alerts by email, seven days before changes to traffic and access arrangements are made including:

Significant traffic management changes, detours, traffic disruptions and work outside any working hours contained in the Planning Approvals at least seven days before any detour, disruption, work or change occurs. These adverts will be placed in local newspapers that cover the geographical areas of the project site.

Copies of these notifications will also be sent to Willoughby City Council via email@Willoughby.nsw.gov.au.

7.2 Community

The community will be notified of any current and upcoming changes to the traffic conditions that have the potential to impact them, prior to their occurrence. This will be done via community notifications and distributed to directly affected properties within 100 metres of any proposed traffic changes. Notifications to the community will be done for the following:

- Changes to traffic conditions requiring traffic alerts

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- Modifications to pedestrian routes, cycle ways and bus stops
- Construction commencement
- Changes to the scope of work

7.3 Businesses

Impacts to businesses are expected to be minimal from the NCW project.

LORAC will, however, continue to consult with Sydney Metro in conjunction with the Sydney Metro City and South West Business Management Plan. Where appropriate LORAC will interact with the business consultation forum to advise of specific strategies and mitigation measures to minimise impacts to local businesses.

LORAC will provide monitoring and performance data as requested by Sydney Metro.

7.4 Special Events

There are no special events currently organised within the area for the duration of NCW works. If any special events are planned, works will coordinated with those events and any specific road closures.

Any modifications required to haulage routes due to special event, emergencies or road closures will be made in consultation with WCC and RMS.

7.5 Cumulative Impacts

Cumulative traffic impacts will be assessed ensuring vehicle management from surrounding developments and project sites in accordance with CoA E81. LOR interface with a number of other contractors and stakeholders that may have works impacting the roads at the same time. Through the TCG and TTLG and additional Sydney Metro interface meetings, LOR will work to minimise cumulative impacts and combine traffic management sites where possible. In addition other cumulative impacts may include, but are not limited to;

- bus stop and associated facilities relocation and service rerouting;
- short and long term works zones on roads adjacent to the construction site;
- mail zone and associated facilities relocation;
- short and long term works within the road reservation;
- regulatory, advisory and other signage changes and modifications;
- parking management, including on and off street and remote parking and access;
- heavy vehicle movements
- special event management

The application of traffic control will be communicated with TSE and NRT and other contractors in accordance with CoA E81 through weekly Sydney Metro interface meetings.

The implementation of this management plan will be coordinated with TSE and their approved traffic management plans SMCSWTSE-JCG-DCH-TM-PLN-002354 (Construction) and SMCSWTSE-JCG-DCH-TM-PLN-002356 (Closure of Nelson Street Bridge). As per section 4.1 of the approved TSE plan the TSE Contractor is to make all arrangements for the permanent closure of Nelson Street either side of the rail corridor prior to the bridge deck removal by others. The permanent closure will remove access to vehicles and pedestrians to facilitate the safe demolition and removal of Nelson Street Bridge.

The introduction of traffic signals at the Hampden, Mowbray Road intersection will have minimal impact of Portion works. Heavy vehicle use of this intersection is restricted to time outside of peak and during times leading up to a rail possession, refer to Table 1. Vehicles movements will follow the revised traffic signal arrangement when accessing site.

8.0 Required Documentation

It is proposed that the Traffic Control Plans (TCP) for the NCW project will be developed further as required with the Traffic Control Supplier as the works progress. TCPs are located in Appendix B and will be updated as they are developed if necessary:

Road Occupancy Licences (ROL) will be required to undertake traffic control restricting flow of traffic in locations listed above. This will be applied for prior to works commencing using OPLINC 2 under the guidance of SM ES-FT-460 ROL Application for ROL's from the TMC. Occupancies on local Council controlled roads and which would not impact on traffic signals or RMS roads would be made directly to the Council. The lodgement and approval procedure will be as per the CTMF.

Permits for oversized or over mass limit vehicles (OSOM) will be required for the following:

- Girder Delivery;
- Precast Concrete Delivery; and

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- Craneage as required.

These will be supplied in advance of the planned movement and will dictate the path that the vehicle must take. A separate TMP will be provided for oversized or over mass limit vehicles (OSOM).

8.1 Road Safety Audit

Road Safety Audits are required as follows:

- The Road Safety Assessments were completed for NCW scope. They will be issued as part of the Road Safety Audit results within a report prepared by the third party auditor.
- The Road Safety Audits required for the TCPs will be undertaken on initial implementation by the Traffic Control Site Supervisors, who will audit that the setup is as per the TCP and is in line with road safety requirements.
- Road Safety Audit on this CTMP attached in **Appendix E**

Two Road Safety Audits were undertaken for portion 7A:

- The first was undertaken on 21 December 2017 covering the areas surrounding the Hopetoun Avenue, Drake Street, and Cleland Road access gates.
- The second was undertaken on 8 March 2018 for the temporary closure of the Frank Channon Walk and the accompanying Pedestrian Traffic Control Plan.

9.0 Reference Documentation

- SM ES-ST-214: G10Traffic and Transport Management
- SM PS-ST-221: Sydney Metro Principal Contractor Health and Safety Standard
- SM ES-FT-460 ROL Application
- RMS Traffic Control at Worksites Manual. Version 4
- Relevant Austroads Guides
- RMS Supplements to Austroads and Australian Standards
- RMS Traffic Control at Worksite Manual
- AS 1742.3 Manual of uniform traffic control devices Part 3: Traffic control devices for works on roads
- Construction Environmental Management Framework - Sydney Metro City and Southwest
- Construction Traffic Management Framework - Sydney Metro City and Southwest
- Staging Report - Sydney Metro City and Southwest

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10.0 Appendices

Appendix A – Heavy Vehicle Access Route Details

1. Proposed Heavy Haul Route – Hopetoun Ave
2. Proposed Heavy Haul Route – Drake Street
3. Proposed Heavy Haul Route – Brand Street minor ancillary facility and laydown area
4. Proposed Heavy Haul Route – Chandos Street Laydown Area
5. Proposed Heavy Haul Route – Cleland Road Compound
6. Proposed Heavy Haul Route – Burra Road (Elizabeth Street)
7. Proposed Heavy Haul Route – Lambs Road
8. Proposed Heavy Haul Route – Nelson Street Bridge
9. Proposed Heavy Haul Route – Mowbray Road Bridge

Table 4: Access Information

Work Area	Access Gate	Arrival Information	Departure Information
Work Area – Hopetoun Avenue	Gate 2	Left in from Mowbray Road, North onto Orchard Road Left into Hopetoun Avenue into the worksite	Exit right (north bound only) onto Orchard Road Head South on Orchard Road, under existing signage and traffic lights turn right onto Mowbray Road Head West on Mowbray Road towards Pacific Highway
Work Area – Drake Street	Gate 1	Right in from Mowbray Road, left onto Orchard Road, turn around at Hopetoun Avenue, head south on Orchard Road, continue onto Elizabeth Street. Turn right into Drake Street into the worksite	Exit left (north bound only) onto Elizabeth Street, then left onto Mowbray Road toward Pacific Highway
Brand Street minor ancillary facility and laydown area	Brand Street	From the Pacific Highway, turn onto Mowbray Road, left onto Orchard Road, turn around at Hopetoun Avenue, head south on Orchard Road, continue onto Elizabeth Street, right onto Brand Street and turn right into the laydown area.	From the laydown area, turn right onto Brand Street, turn left onto Elizabeth Street, turn left onto Mowbray Road and turn onto the Pacific Highway.
Chandos Street Laydown Area	Chandos Street	From the Pacific Highway, turn north onto Christie Street, turn left onto Chandos Street then into the laydown area.	From the layout area, exit onto Chandos Street, turn right onto Christie Street, turn onto Pacific Highway.
Cleland Road compound	Compound Gate	From the Pacific Highway, turn onto Campbell Street, left onto Reserve Road, right onto Dickson Avenue, right onto Waltham Street, left to Cleg Street, left to Herbert Street, onto Hampden Road, right to Parkes Road, and turn right from Cleland Road into the compound.	Right from Cleland Road compound, then via Parkes Road, left onto Hampden Road, then Herbert Street, right to Cleg Street, right onto Waltham Street, left onto Dickson Avenue, left onto Reserve Road, right onto Campbell Street, and right at the traffic lights at the Pacific Highway. Follow the Pacific Highway and the above haul routes shown in Appendix A-2 to Hopetoun Avenue or Drake Street.
Burra Road (Elizabeth Street)	Burra Road	From Pacific Highway, turn onto Mowbray Road, left onto Orchard Road, turn around at Hopetoun Avenue, head south on Orchard Road, continue onto Elizabeth Street, continue onto Burra Road, then turn right into site.	From site, turn left onto Burra Road, continue onto Elizabeth Street, turn left onto Mowbray Road and turn onto the Pacific Highway.
Lambs Road	Lambs Road	From Pacific Highway, turn onto Herbert Street, then right onto Cleg Street, then right onto Lambs Road, then left into site.	From site, right onto Lambs Road, left onto Cleg Street, Left onto Herbert Street, then onto Pacific Highway
Nelson Street Bridge		From Pacific Highway, left into Nelson Street. From Pacific Highway, onto Mowbray Road, left onto Orchard Road, left into Nelson Street From Pacific Highway, reverse back into Nelson Street. From Orchard Road, reverse back into Nelson Street.	From Nelson Street, turn left onto Pacific Highway From Nelson Street, right onto Orchard Road, right onto Mowbray Road, then onto Pacific Highway
Mowbray Road Bridge		From Pacific Highway, onto Mowbray Road. For vehicles ≤ 12.5m: From Pacific Highway, turn onto Mowbray Road, then right onto Hampden Road, left onto Brand Street, left on Elizabeth Street and left onto Mowbray Road. For vehicles > 12.5m: From Pacific Highway, onto Boundary Street, right onto Archer Street, right onto Mowbray Road, straight into site.	From Mowbray Road, onto Pacific Highway. For vehicles ≤ 12.5m: From site, onto Mowbray Road, left onto Archer Street, left onto Boundary Street, then onto Pacific Highway For vehicles > 12.5m: From site, onto Mowbray Road, left onto Penshurst Road, left onto Boundary Street, then onto Pacific Highway

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Table 5: Planned Vehicles

Vehicle	Vehicle Classification	Vehicle Details	Carrying	Access										Designation	Estimated Volumes
				Drake Street	Hopetoun Ave	Cleland Road	Brand Street	Chandos Street	Cleland Road	Burra Road	Lambs Road	Nelson Street Bridge	Mowbray Road Bridge		
Concrete Agi	General Access Vehicle (GAV)	H – 3.550m W – 2.460 L - 7.800	Concrete	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	GAV	>5
Low Loader	Restricted Access Vehicle (RAV) Class 1	H – varies subject to load W – 2.500m to 4.500m L – 17.500m to 20.000m	Piling Rig Excavators Manitou EWP Bobcat	N/A	From / To East From / To West	N/A	N/A	N/A	N/A	N/A	From / To East From / To West	From / To East From / To West	From / To East From / To West	RAV Class 1	<5 (Deliveries only) pre possession
Line Pump	GAV	H – 3.25m W – 2.5m L – 11.2m	N/A	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	GAV	>5
16m Concrete Pump	GAV	H – 3.25m W – 2.5m L – 11.9m	N/A	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	GAV	>5
Bogie Tipper	GAV	H – 2.900m W – 2.465m L – 11.345m	Quarry Products	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	GAV	>5
12m Rigid (including HIAB)	GAV	H – 3.550m W – 2.500m L – 11.200m	Pile Cages Precast Concrete Products Smaller site sheds	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	From / To North From / To South	From / To East From / To West	From / To East From / To West	From / To East From / To West	GAV (unless modified by load carried)	<5 (Deliveries only) pre possession
Semi-Trailer	Restricted Access Vehicle (RAV) Class 1	H – 4.25m W – 3m L – 19m	Site Sheds (3m width) Steel Reinforcement Precast Concrete Products Tower Crane sections Piling Rig Excavators Manitou EWP Bobcat	N/A	From / To East From / To West	N/A	N/A	N/A	N/A	N/A	From / To East From / To West	From / To East From / To West	From / To East From / To West	RAV Class 1	<5 (Deliveries only) pre possession 15-20 over 24hrs during Nelson Street Bridge removal
Truck and Dog	Restricted Access Vehicle (RAV) Class 1	H – 2.900m W – 2.465m L – 11.345m	Excavated material Quarry Products	From / To East From / To West	From / To East From / To West	From / To North From / To South	TBD	TBD	TBD	From / To North From / To South	TBD	TBD	TBD	RAV Class 1	5-10 per day OSD tank excavation

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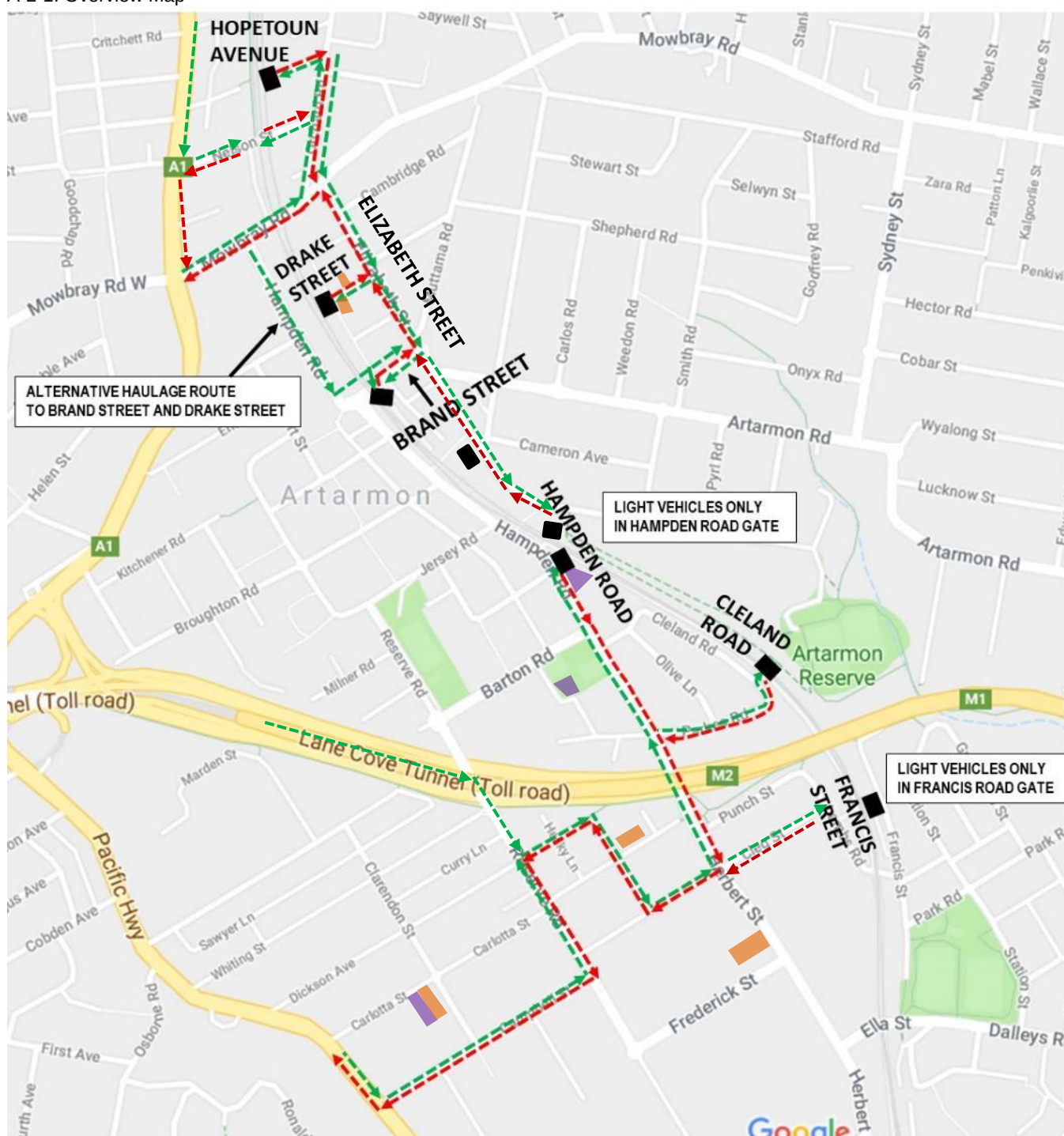
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Appendix A-2: Heavy Vehicle Haulage Routes A-2-1: Overview Map



Legend:

- > Arrival Route
- > Departure Route
- Site Access Gate
- Childcare Centre
- Place of Worship

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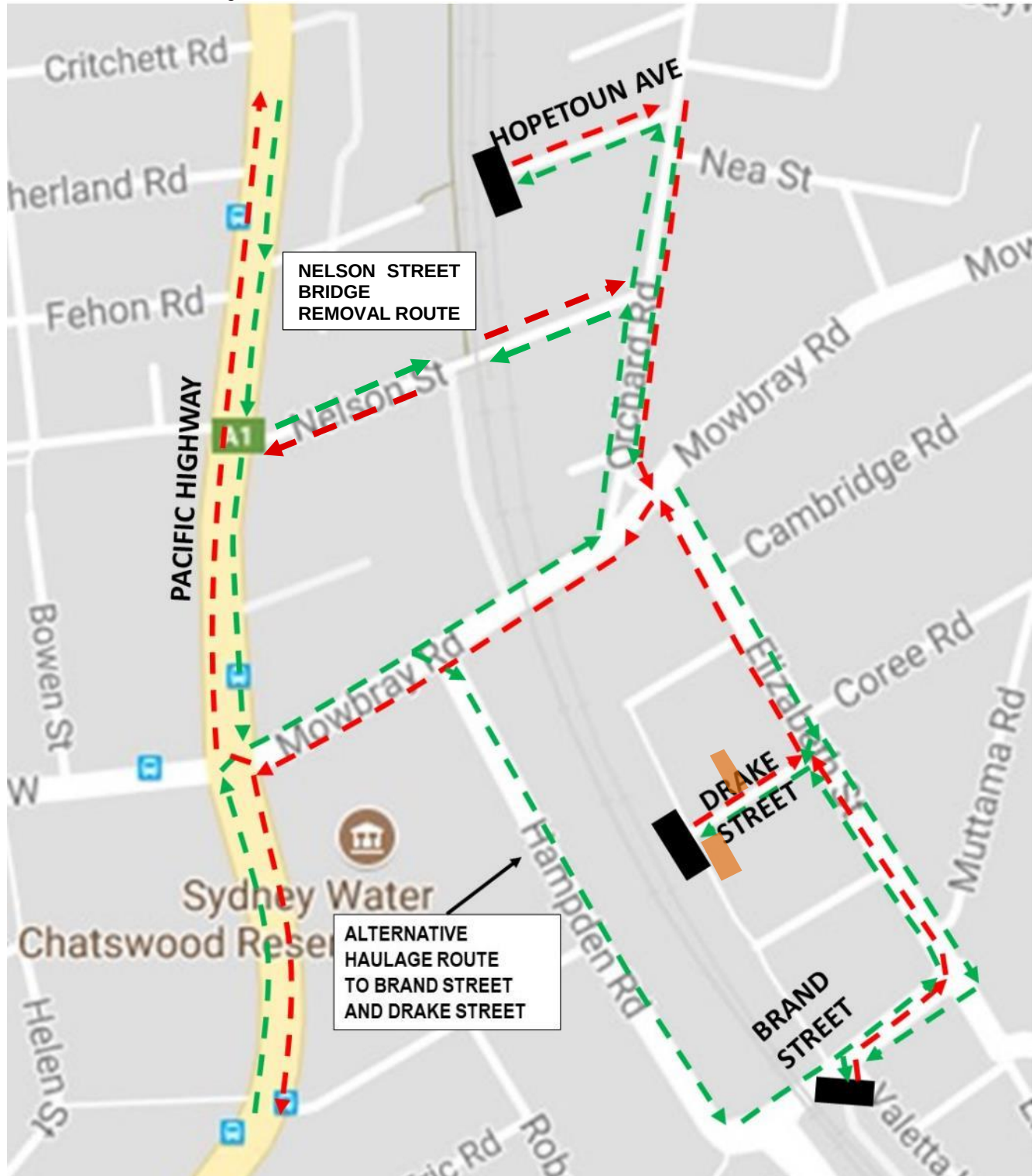
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A-2-2: Northern Site Haulage Routes



Legend:

- - - - - Arrival Route
- - - - - Departure Route
- Site Access Gate
- Childcare Centre

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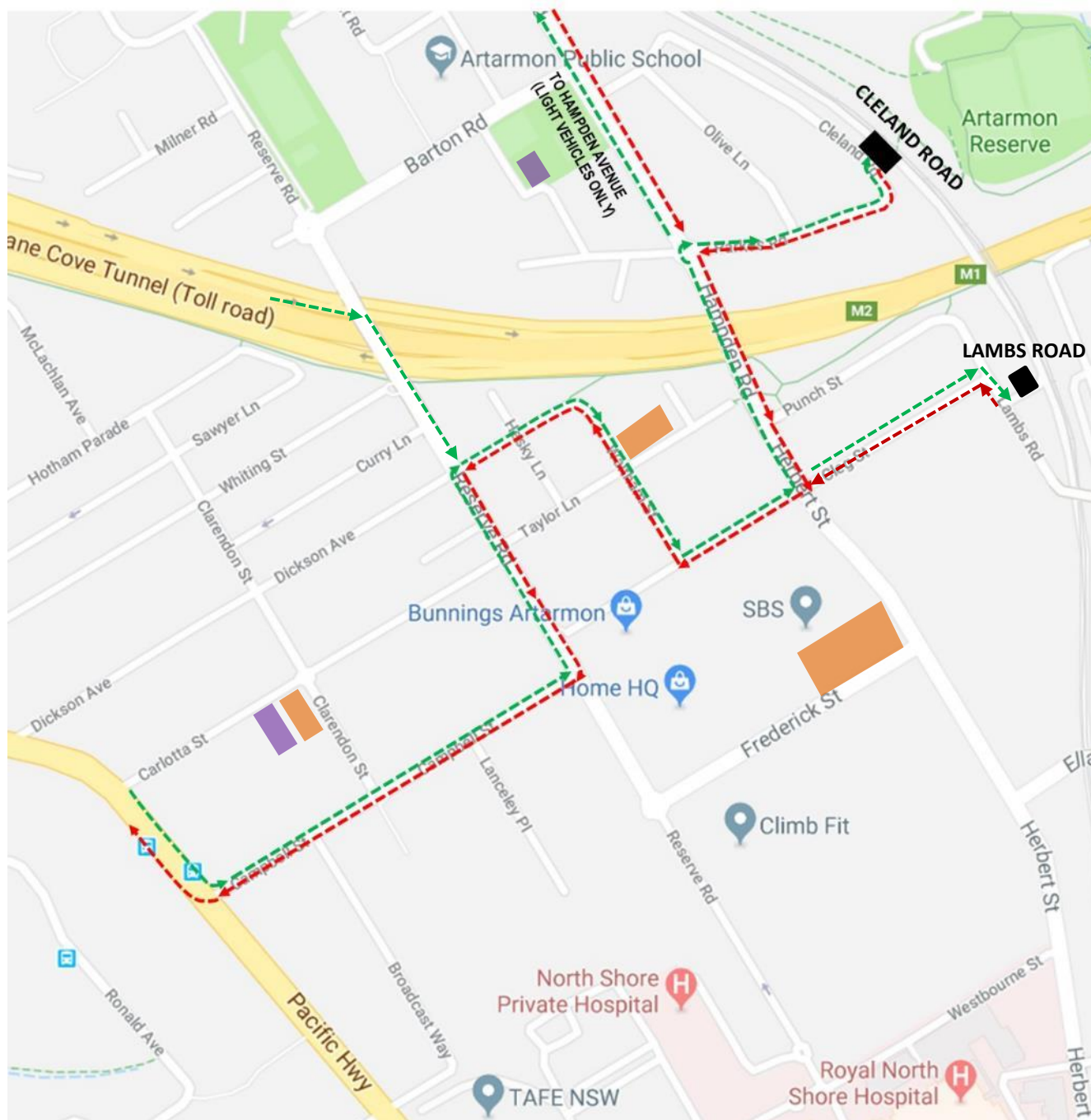
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A-2-3: Cleland Road Site Haulage Route



Legend:

- | | |
|--|--|
|  Arrival Route |  Childcare Centre |
|  Departure Route |  Place of Worship |
|  Site Access Gate |  Hospital |

Construction Traffic Management Plan

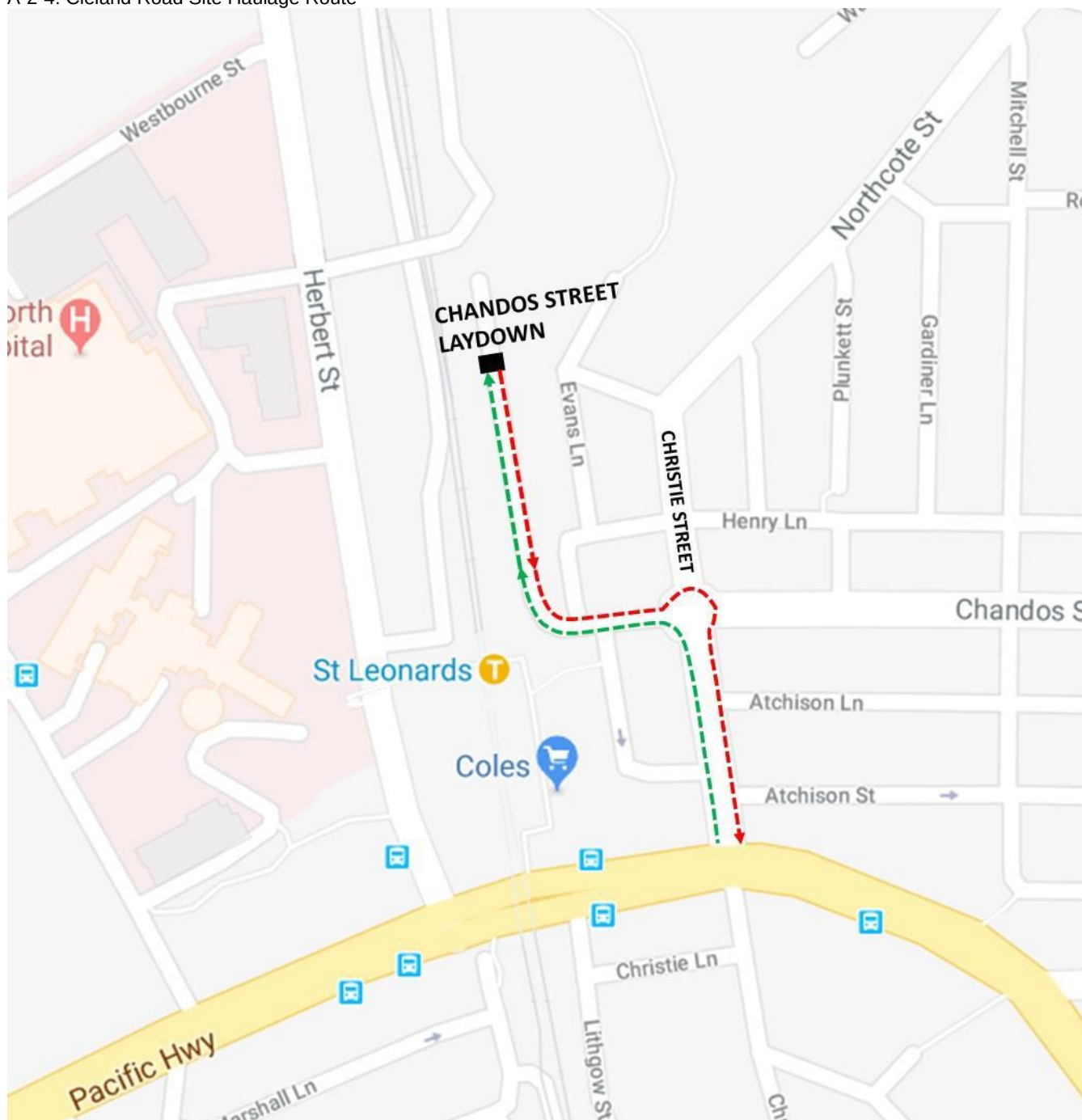
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A-2-4: Cleland Road Site Haulage Route



Legend:

—→ Arrival Route

—→ Departure Route

■ Site Access Gate

■ Hospital

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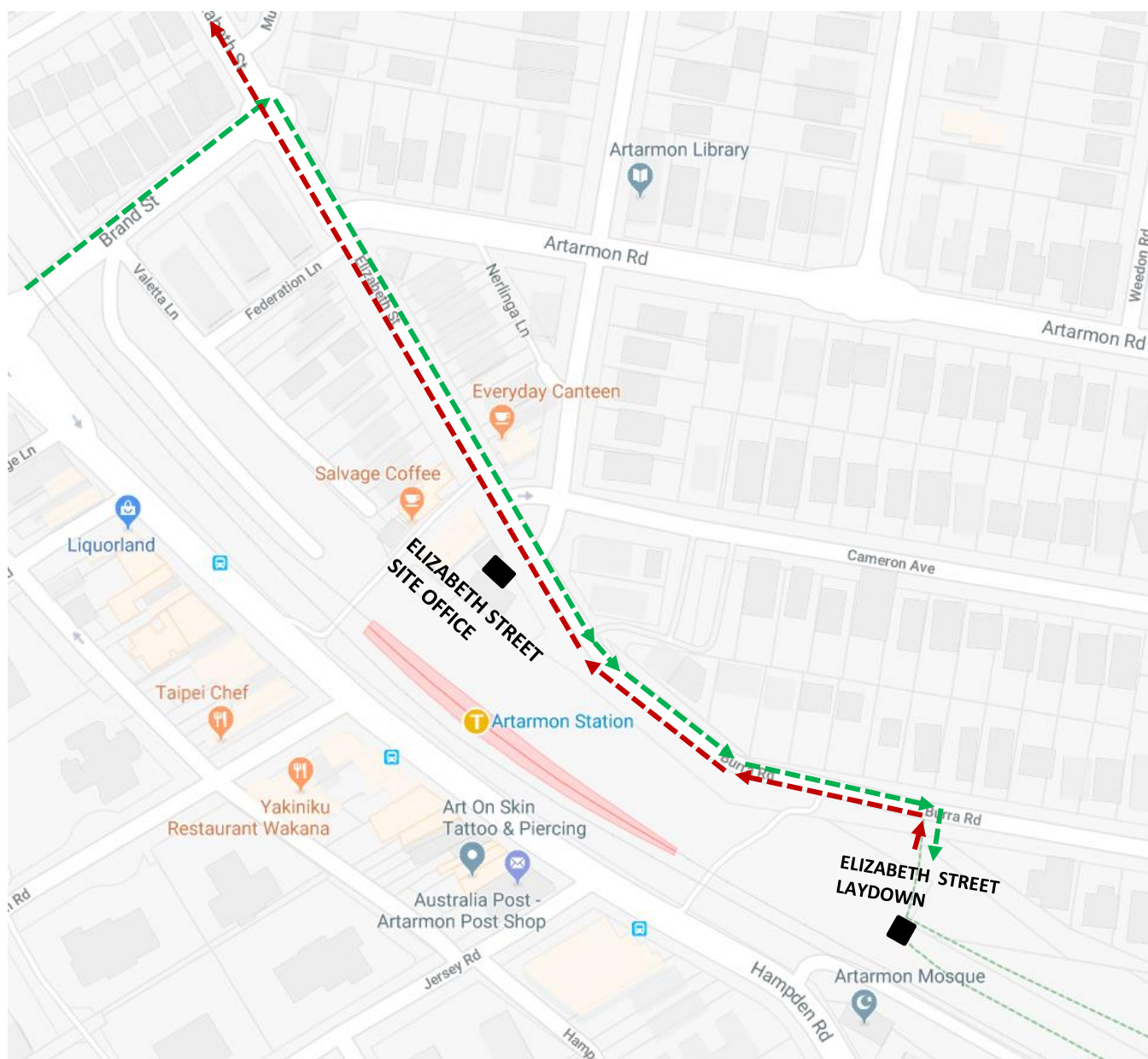
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A-2-5: Burra Road Site Haulage Route



Legend:

- > Arrival Route
- > Departure Route
- Site Access Gate
- Local centre

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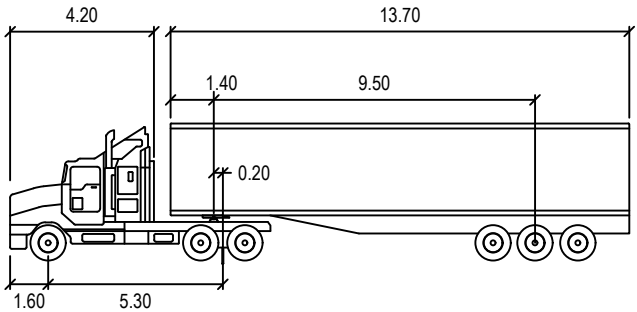
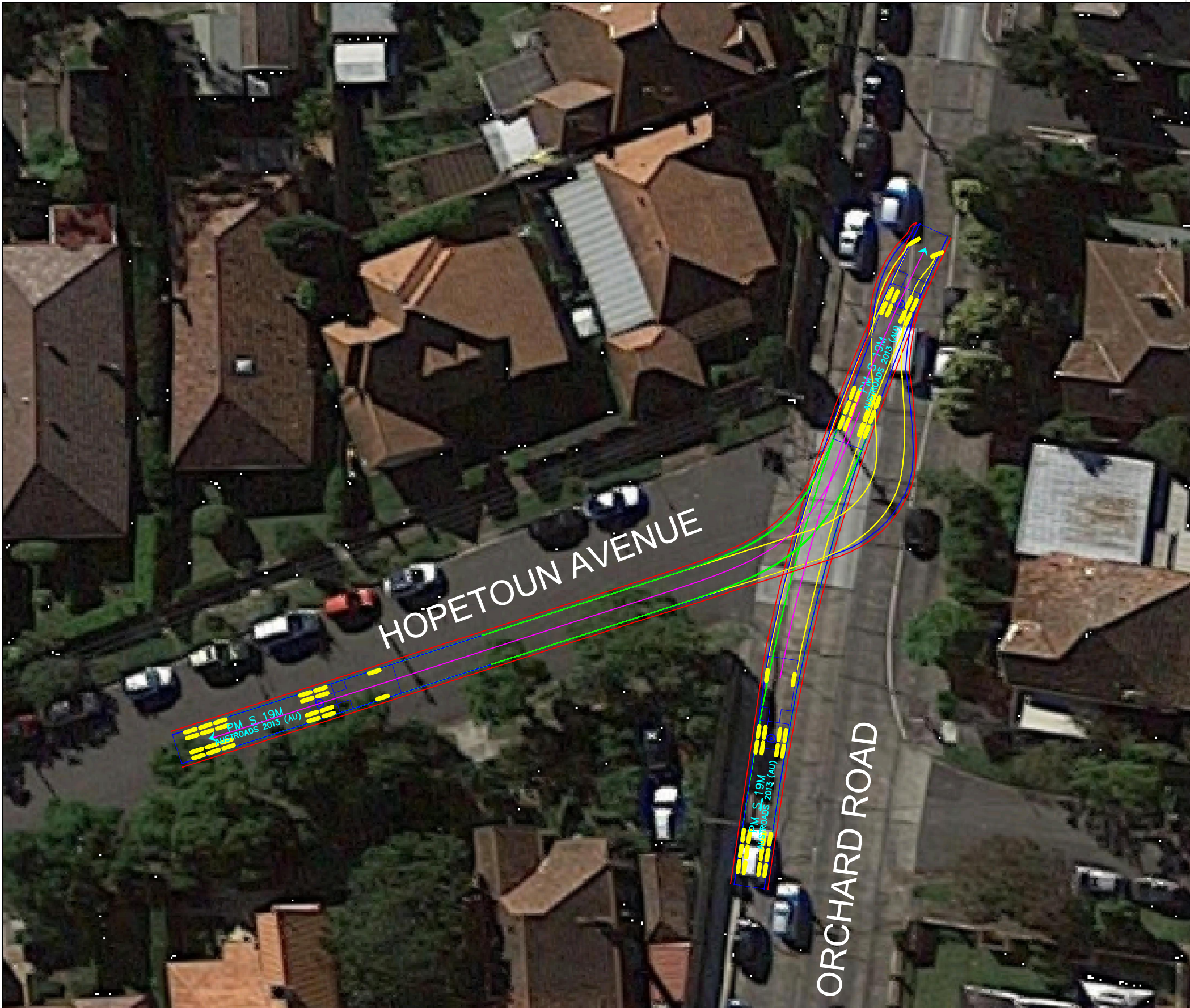
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Appendix A-3: Heavy Vehicle Swept Paths

The following swept paths are provided to demonstrate the spatial requirements for heavy vehicles at the following locations:

- Accessing the site from Hopetoun Avenue;
- Accessing the site from Drake Street;
- Accessing the Cleland Road compound;
- Accessing the site from Brand Street;
- Accessing the site from Chandos Street;
- Accessing the site from Lambs Road; and
- Accessing the site from Burra Road.

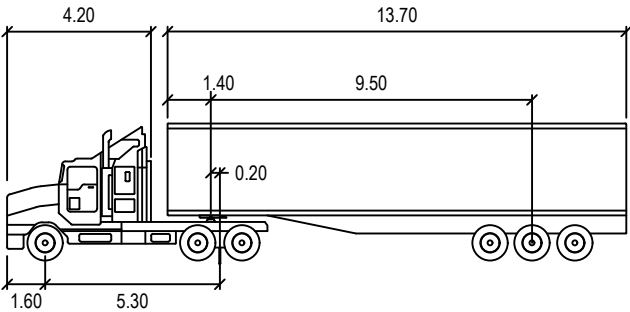
Sheet Number	Location	Description of Control
100	Hopetoun Avenue	19.0m Articulated Vehicle – Reverse to Hopetoun Avenue from Orchard Road
101	Hopetoun Avenue	19.0m Articulated Vehicle - Right turn exiting Hopetoun Avenue
102	Hopetoun Avenue	12.5m Heavy Rigid Vehicle - Left turn entering Hopetoun Avenue
103	Hopetoun Avenue	12.5m Heavy Rigid Vehicle - Right turn exiting Hopetoun Avenue
104	Hopetoun Avenue	12.5m Heavy Rigid Vehicle - Right turn entering gate from Hopetoun Avenue
105	Hopetoun Avenue	12.5m Heavy Rigid Vehicle - Left turn exiting gate to Hopetoun Avenue
106	Hopetoun Avenue	12.5m Heavy Rigid Vehicle - Reversing to Hopetoun Avenue to turn around
107	Drake Street	12.5m Heavy Rigid Vehicle - Right turn entering Drake Street
108	Drake Street	12.5m Heavy Rigid Vehicle - Left turn entering Drake Street
109	Drake Street	12.5m Heavy Rigid Vehicle - Left turn exiting Drake Street
110	Drake Street	12.5m Heavy Rigid Vehicle - Left turn entering gate from Drake Street
111	Drake Street	12.5m Heavy Rigid Vehicle - Right turn entering gate from Drake Street
112	Drake Street	12.5m Heavy Rigid Vehicle - Left turn exiting gate to Drake Street
113	Drake Street	12.5m Heavy Rigid Vehicle - Right turn exiting gate to Drake Street
114	Hampden Road	12.5m Heavy Rigid Vehicle - Right turn to Parkes Road
115	Parkes Road	12.5m Heavy Rigid Vehicle - Left turn to Hampden Road
116	Cleland Road	12.5m Heavy Rigid Vehicle - Right turn entering compound
117	Cleland Road	12.5m Heavy Rigid Vehicle - Left turn exiting compound
118	Elizabeth Street	12.5m Heavy Rigid Vehicle - Left turn to Brand Street
119	Brand Street	12.5m Heavy Rigid Vehicle - Left turn to gate
120	Brand Street	12.5m Heavy Rigid Vehicle - Right turn exit to Brand Street
121	Brand Street	12.5m Heavy Rigid Vehicle - Left turn to Elizabeth Street
122	Elizabeth Street	12.5m Heavy Rigid Vehicle - Elizabeth Street Left to Mowbray Road
123	Orchard Road	19.0m Articulated Vehicle - Right turn to Mowbray Road
124	Orchard Road	12.5m Heavy Rigid Vehicle - Right turn to Mowbray Road
125	Mowbray Road	12.5m Heavy Rigid Vehicle - Right turn to Hampden Road
126	Hampden Road	12.5m Heavy Rigid Vehicle - Left turn to Brand Street
127	Christie Street	12.5m Heavy Rigid Vehicle - Left turn to Chandos Street
128	Christie Street	12.5m Heavy Rigid Vehicle - Right turn to Christie Street
129	Chandos Street	12.5m Heavy Rigid Vehicle - Right turn to gate from Chandos Street
130	Chandos Street	12.5m Heavy Rigid Vehicle - Left turn to Chandos Street
131	Lambs Road	12.5m Heavy Rigid Vehicle – Lambs Road Gate Entry
132	Lambs Road	12.5m Heavy Rigid Vehicle – Lambs Road Gate Exit
133	Burra Road	12.5m Heavy Rigid Vehicle – Burra Road Gate Entry
134	Burra Road	12.5m Heavy Rigid Vehicle – Burra Road Gate Exit
135	Boundary Road	19.0m Articulated Vehicle – Right turn from Boundary Road onto Archer Street
136	Archer Street	19.0m Articulated Vehicle – Left turn from Archer Street onto Mowbray Road
137	Nelson Street	12.5m Heavy Rigid Vehicle – Reverse back from Orchard Road
138	Nelson Street	12.5m Heavy Rigid Vehicle – Right turn from Nelson Street onto Orchard Road
139	Nelson Street	19.0m Articulated Vehicle – Reverse back from Pacific Highway
140	Nelson Street	19.0m Articulated Vehicle – Left turn from Nelson Street onto Pacific Highway



S ARTICULATED 19M		metres	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

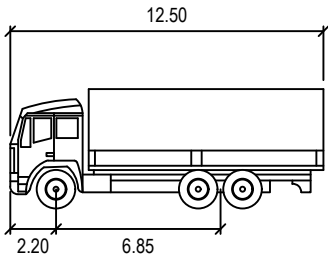
BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	Issue	REVISIONS		Drawn	Date	Project				Design	Drawn	Checked		
		001	SWEPT PATH		M.H	12.07.2018	LOR SYDNEY METRO NCW PORTION 7B CTMP				M.H	M.H	T.W		
											NOT FOR CONSTRUCTION				
														Date	12.07.2018
							ENGINEERING CERTIFICATION (RPEQ)				Title SWEPT PATH 19.0 M AV HOPETOUN AVENUE REVERSE FROM ORCHARD ROAD				
							Name	Signature	No.	Date	Project Number			Sheet Number	Issue
											P3318			100	001



S ARTICULATED 19M		metres	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

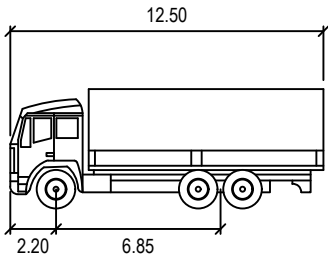
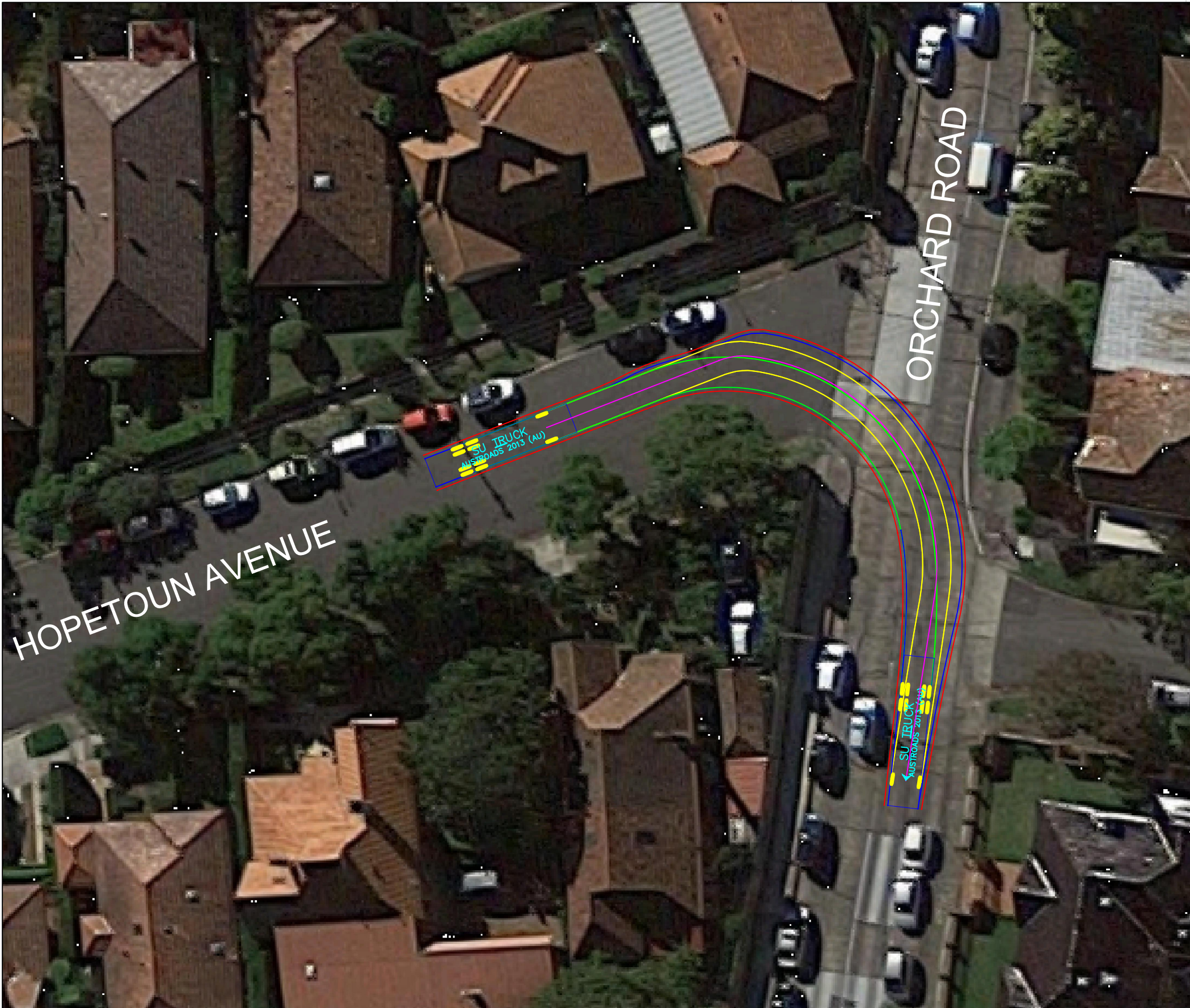
BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project		Design	Drawn	Checked	
		Issue	Revisions/Descriptions		Drawn	Date					LOR SYDNEY METRO NCW PORTION 7B CTMP		M.H	M.H	T.W
		001	SWEPT PATH		M.H	12.07.2018							NOT FOR CONSTRUCTION		
													Date		
													12.07.2018		
													Project Number		
													Sheet Number		
													Issue		
													P3318		
													101		
											001				



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

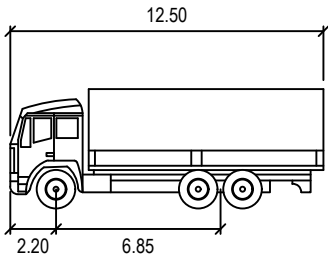
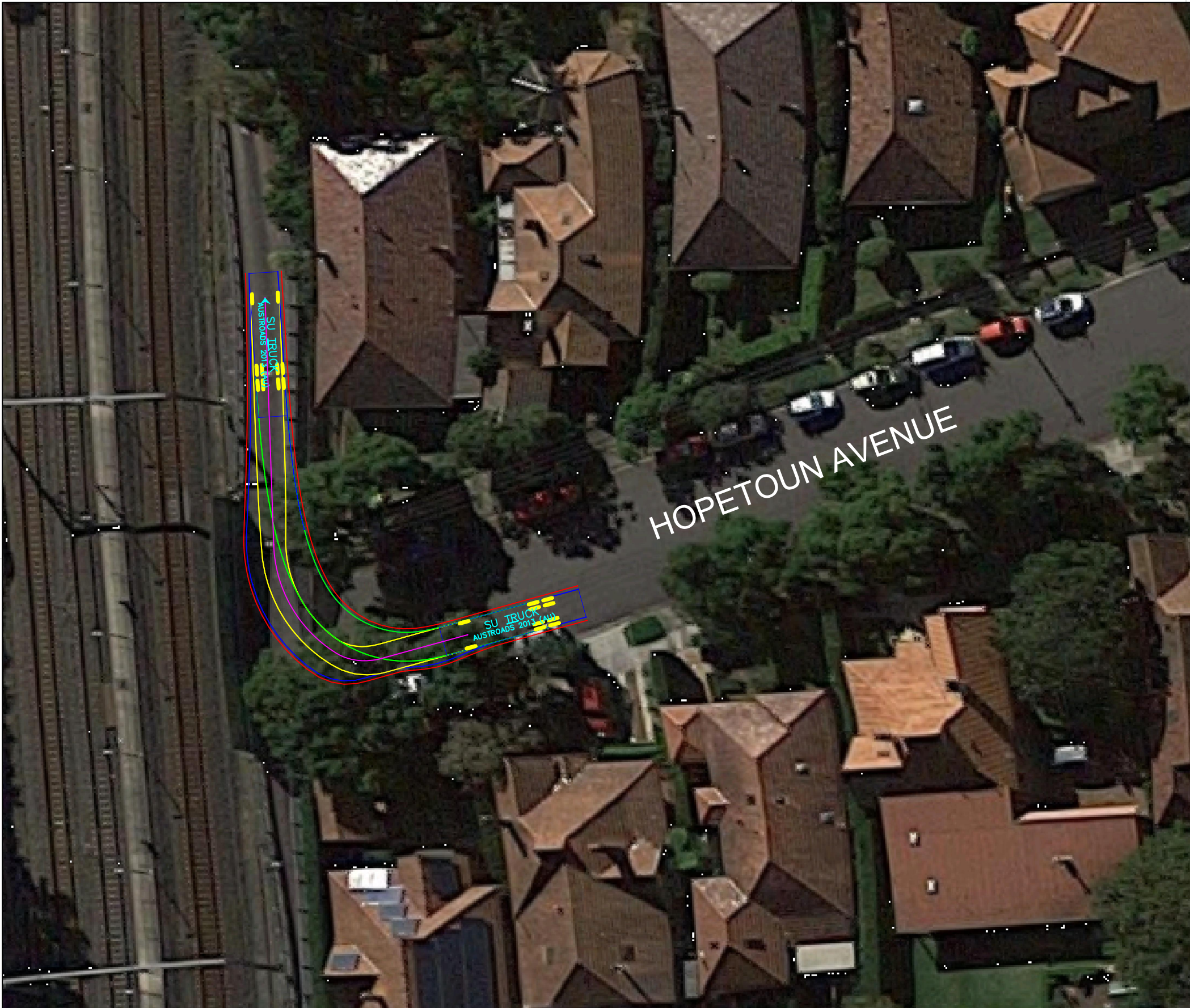
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		Issue	Revisions/Descriptions	Drawn	Date						ENGINEERING CERTIFICATION (RPEQ)
		001	SWEPT PATH	M.H	12.07.2018						
				Name	Signature	No.	Date	Title	SWEPT PATH 12.5 M HRV ORCHARD ROAD LEFT TO HOPETOUN AVENUE	NOT FOR CONSTRUCTION	Date 12.07.2018
								Project Number	Sheet Number	Issue	
								P3318	102	001	



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

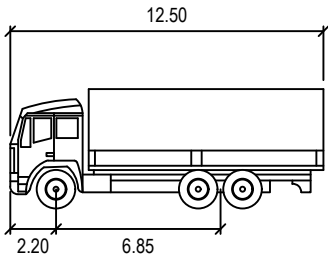
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		Revisions/Descriptions				LOR SYDNEY METRO NCW PORTION 7B CTMP				M.H	M.H	T.W
		Issue				Drawn	Date			NOT FOR CONSTRUCTION		
		001	SWEPT PATH			M.H	12.07.2018			Date		
										12.07.2018		
ENGINEERING CERTIFICATION (RPEQ)				Title				SWEPT PATH		Date		
								12.5 M HRV		12.07.2018		
								HOPETOUN AVENUE RIGHT TO		Issue		
								ORCHARD ROAD		001		



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

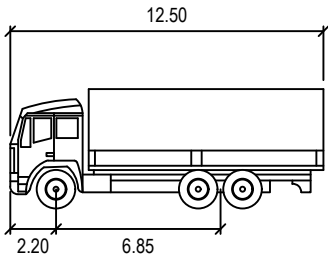
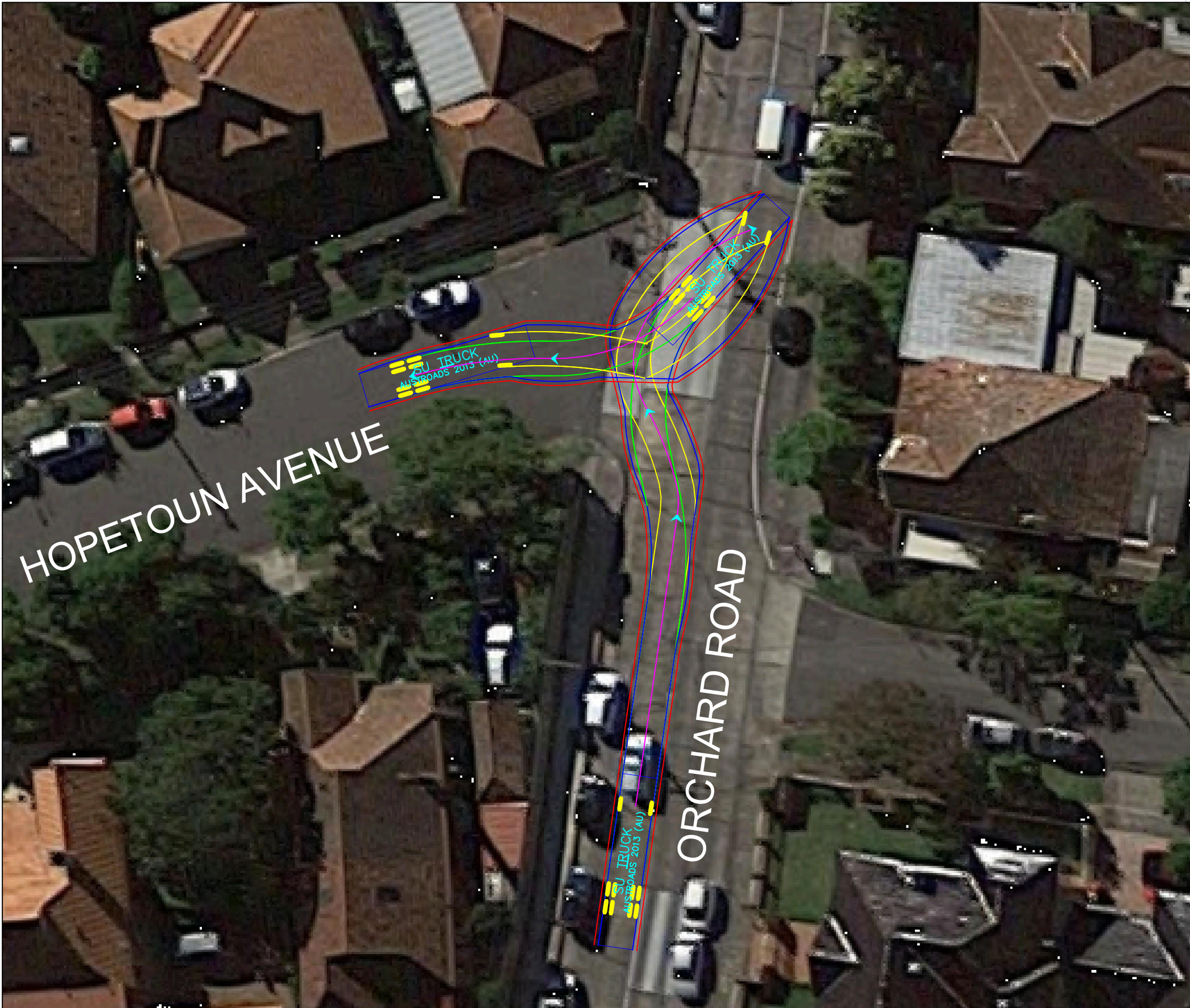
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		Issue	Revisions/Descriptions		Drawn							Date	M.H		M.H		T.W									
		001	SWEPT PATH		M.H	12.07.2018					Title		LOR SYDNEY METRO NCW PORTION 7B CTMP		NOT FOR CONSTRUCTION		Date									
							Name				Signature				No.		Date		SWEPT PATH 12.5 M HRV HOPETOUN AVENUE GATE RIGHT ENTRANCE		P3318		104		Issue	



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

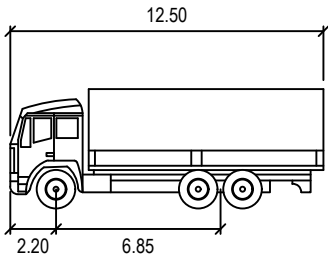
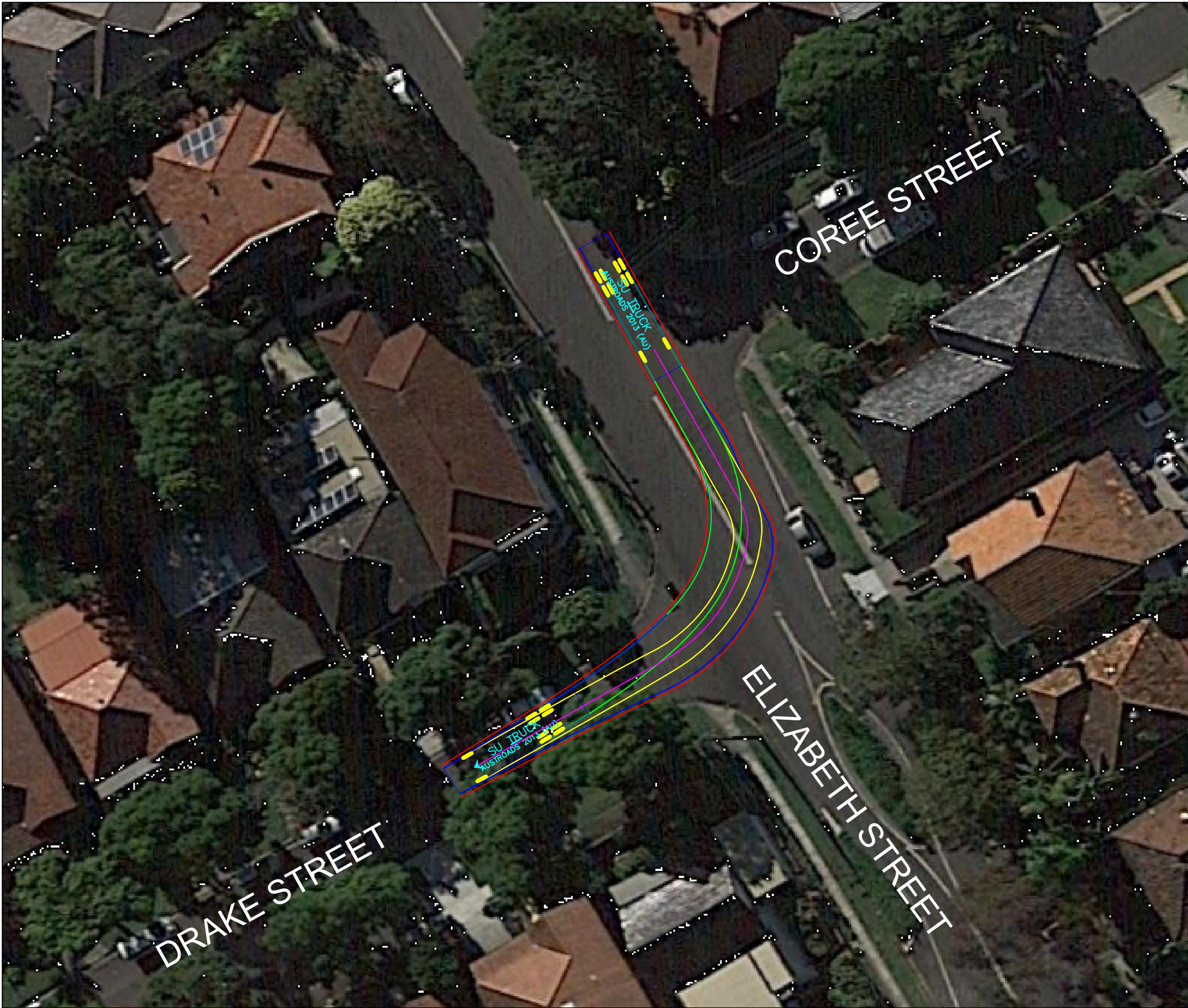
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		Issue	Revisions/Descriptions	Drawn	Date											
		001	SWEPT PATH	M.H	12.07.2018	Name						Title	SWEPT PATH 12.5 M HRV HOPETOUN AVENUE SITE LEFT EXIT	NOT FOR CONSTRUCTION		Date
						Signature								Project Number	Sheet Number	Issue
						No.										
						Date										



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

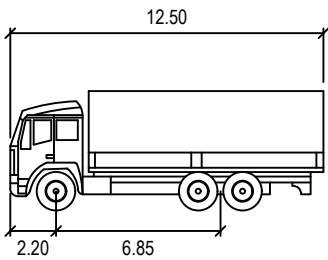
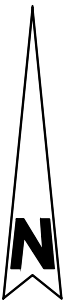
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		Issue	Revisions/Descriptions		Drawn	Date		Title				M.H	M.H	T.W		
		001	SWEPT PATH		M.H	12.07.2018										
								SWEPT PATH 12.5 M HRV HOPETOUN AVENUE TURN AROUND				NOT FOR CONSTRUCTION		Date 12.07.2018		
								Name	Signature	No.	Date	Project Number P3318		Sheet Number 106		Issue 001



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

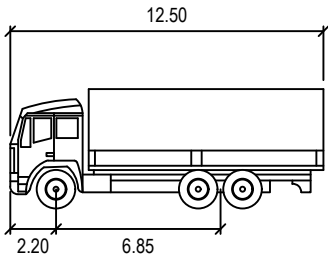
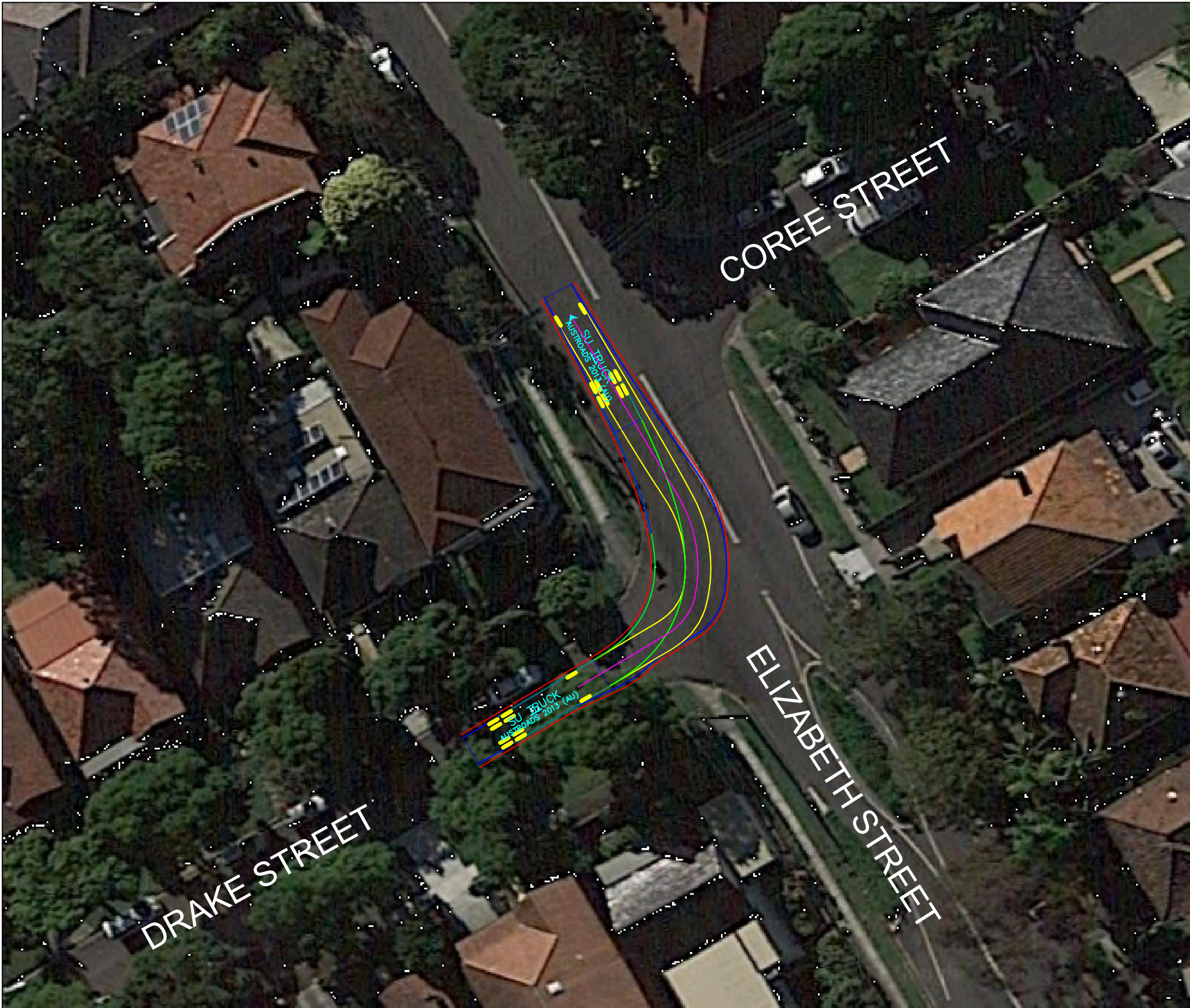
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		Issue	Revisions/Descriptions		Drawn	Date									
		001	SWEPT PATH		M.H	12.07.2018									



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

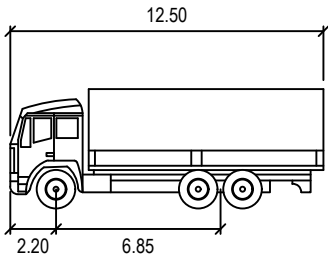
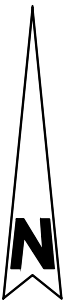
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		Issue	Revisions/Descriptions		Drawn	Date	M.H		M.H			T.W										
		001	SWEPT PATH		M.H	12.07.2018					LOR SYDNEY METRO NCW PORTION 7B CTMP		M.H		M.H		T.W					
											Title		SWEPT PATH 12.5 M HRV ELIZABETH STREET LEFT TO DRAKE STREET		NOT FOR CONSTRUCTION		Date 12.07.2018					
									Name		Signature		No.		Date		P3318		108		001	



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

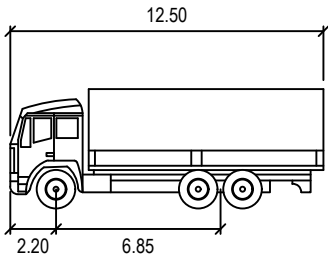
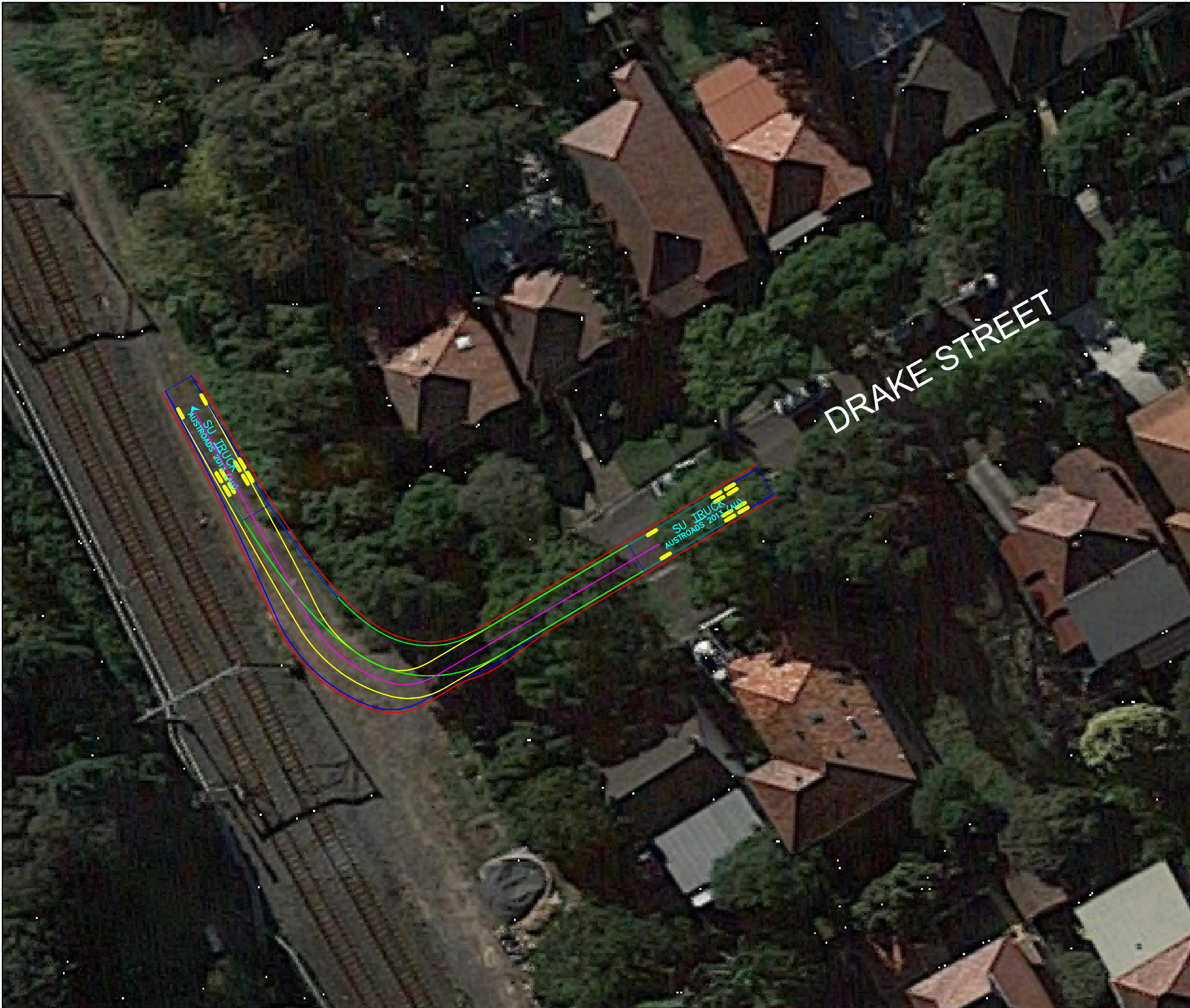
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		Issue		Revisions/Descriptions		Drawn		Date		LOR SYDNEY METRO NCW PORTION 7B CTMP				M.H		M.H		T.W	
		001		SWEPT PATH		M.H		12.07.2018											



SU TRUCK	metres
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

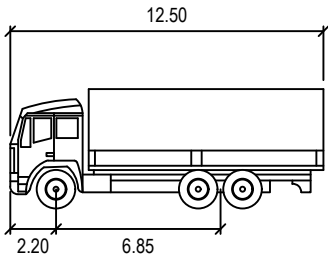
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		001	SWEPT PATH		M.H	12.07.2018					Title		SWEPT PATH 12.5 M HRV DRAKE STREET SITE LEFT ENTRANCE		NOT FOR CONSTRUCTION		Date 12.07.2018	



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

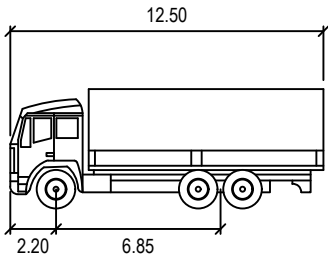
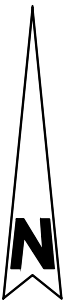
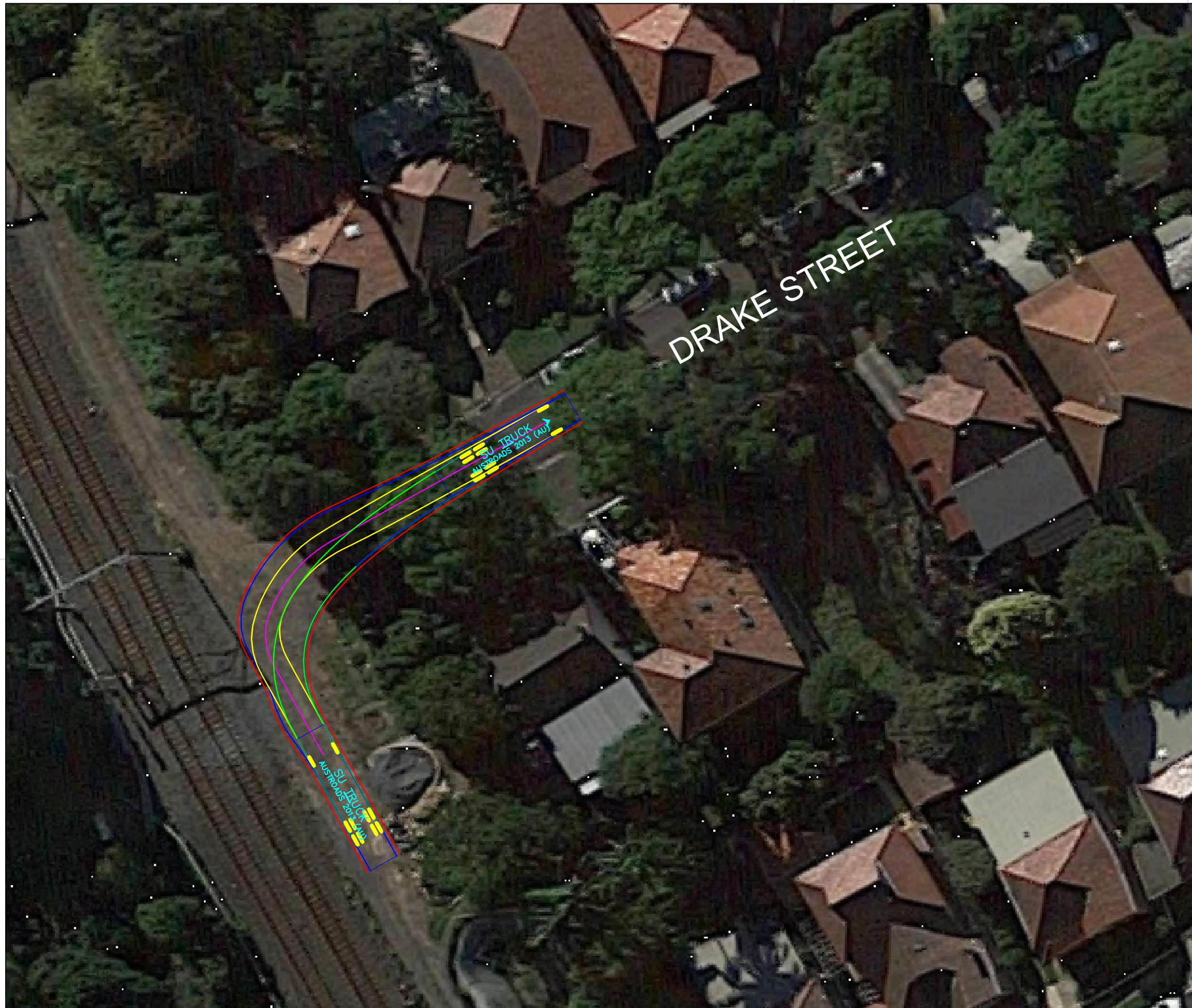
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		001	SWEPT PATH		M.H	12.07.2018	LOR SYDNEY METRO NCW PORTION 7B CTMP				NOT FOR CONSTRUCTION		
							ENGINEERING CERTIFICATION (RPEQ)				Title		
							SWEPT PATH 12.5 M HRV DRAKE STREET SITE RIGHT ENTRANCE				Date 12.07.2018		
							Name				Project Number		
					No.			Issue					
										Date			P3318
								111					
													001
					</								



SU TRUCK	metres
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

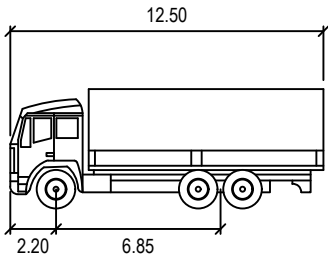
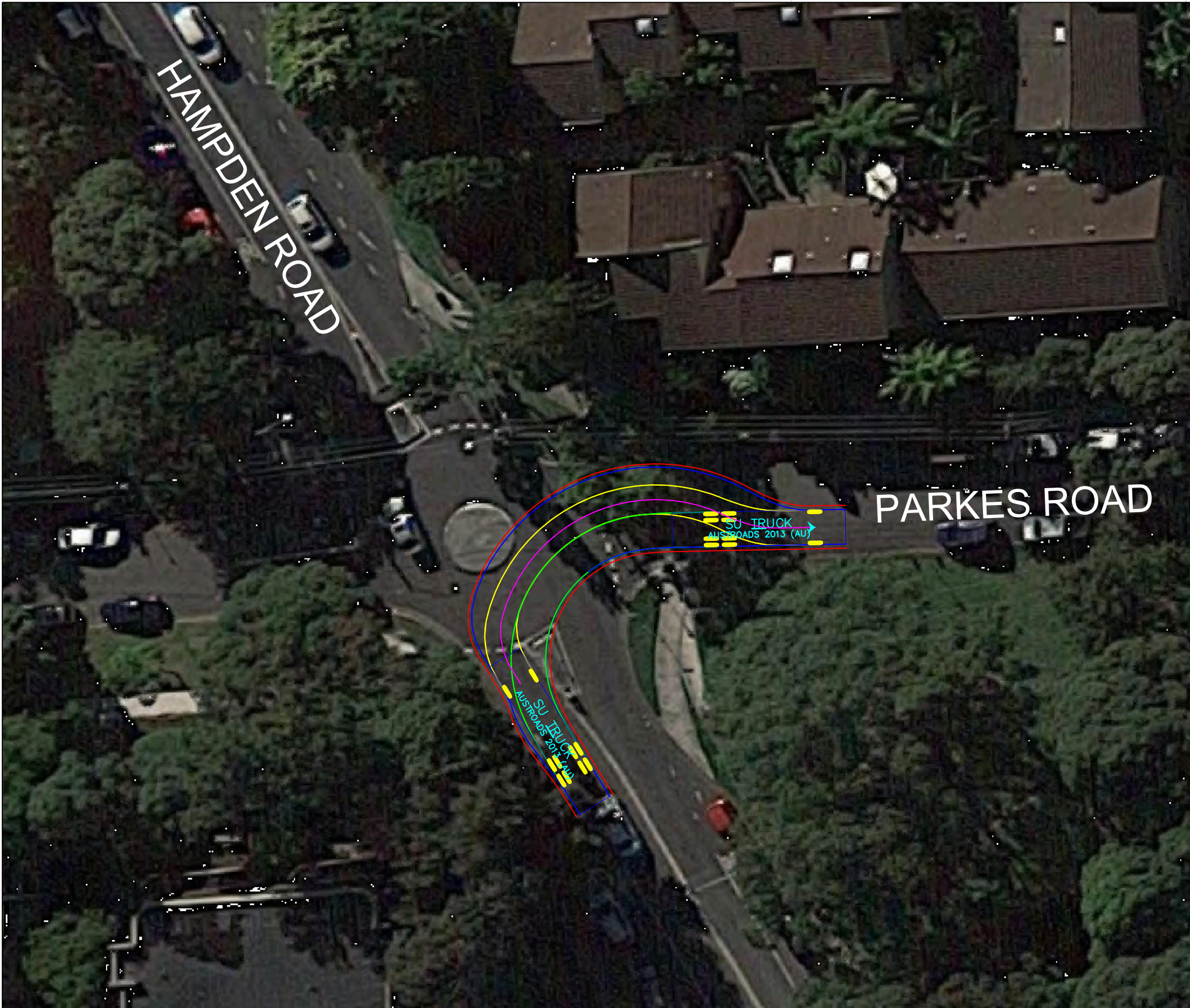
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		Issue	Revisions/Descriptions		Drawn	Date					LOR SYDNEY METRO NCW PORTION 7B CTMP		M.H	M.H	T.W
		001	SWEPT PATH		M.H	12.07.2018									
	</														



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

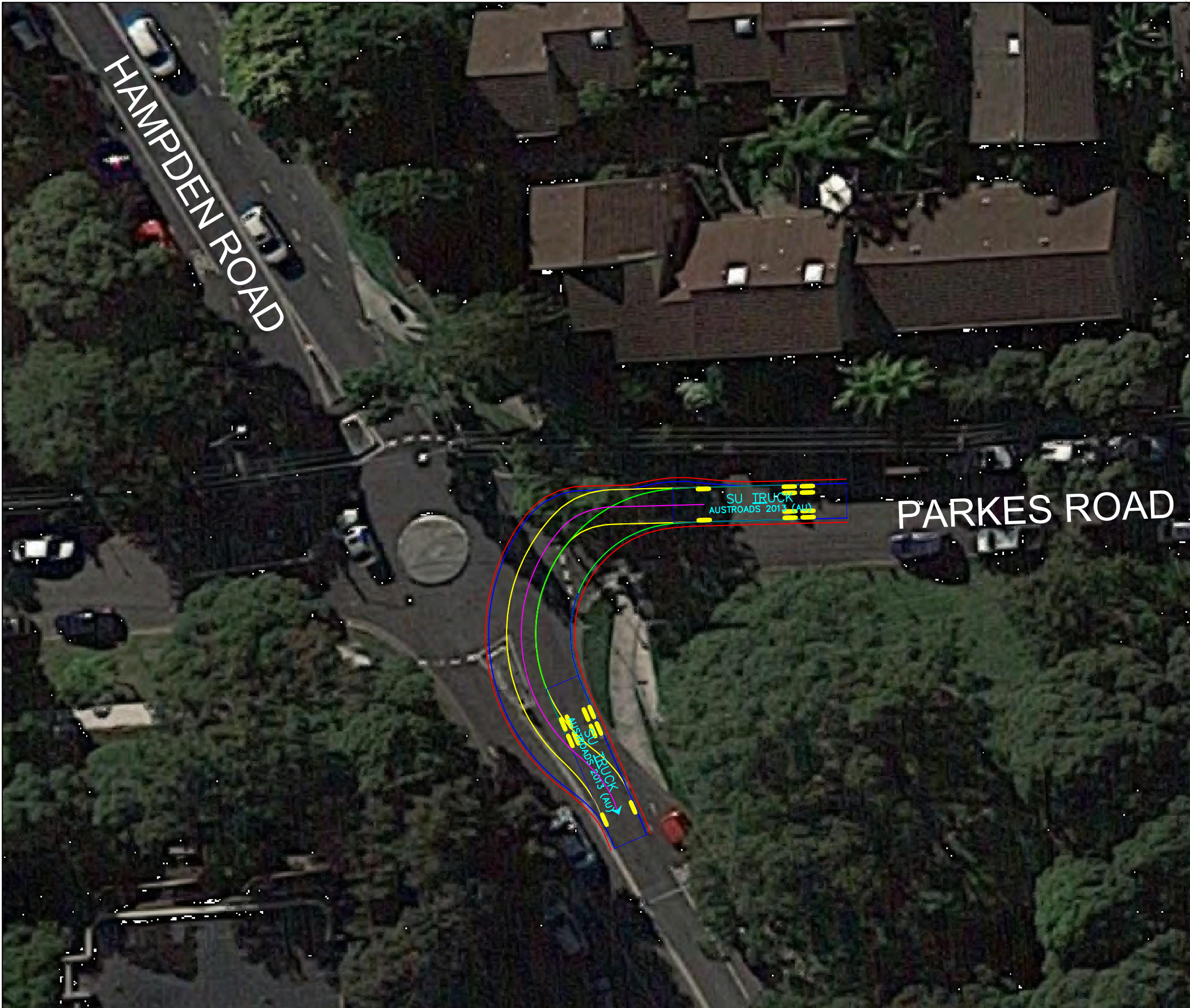
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		001		SWEPT PATH		M.H		12.07.2018						



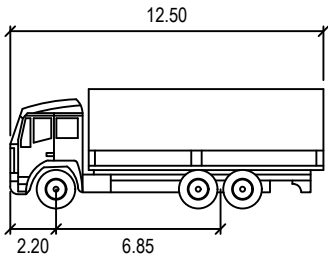
SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project		Design		Drawn		Checked						
		Issue	Revisions/Descriptions		Drawn													Date				
		001	SWEPT PATH		M.H													12.07.2018				
															Title		SWEPT PATH 12.5 M HRV HAMPDEN ROAD RIGHT TO PARKES ROAD		NOT FOR CONSTRUCTION		Date 12.07.2018	



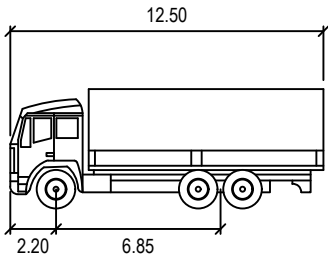
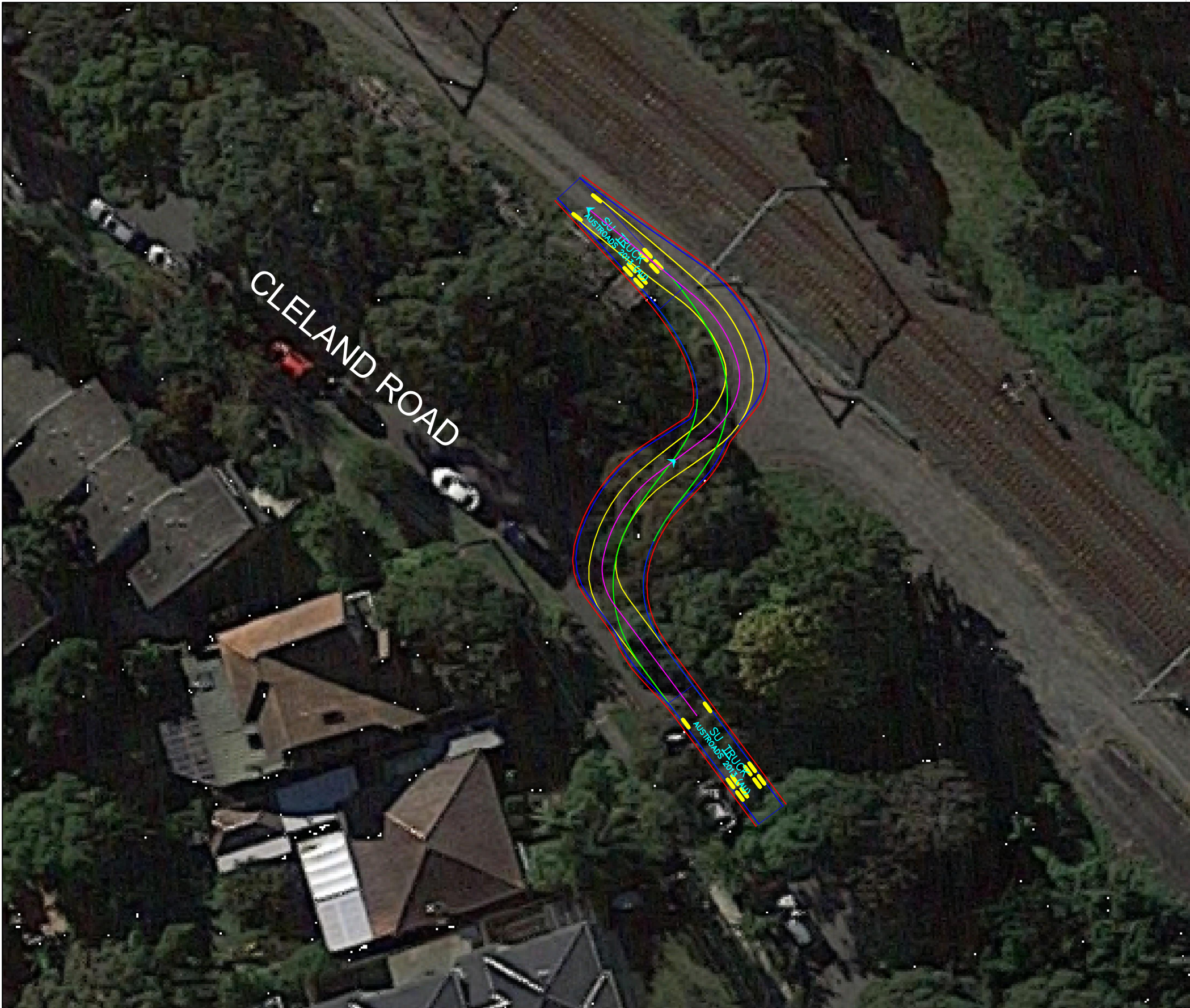
NOTE: "KEEP LEFT" SIGN ON SOUTHERN MEDIAN IN ROUNDABOUT
MUST BE REMOVED BY TRAFFIC CONTROLLER PRIOR TO MANOEUVRE
BEING UNDERTAKEN AND REPLACED ONCE COMPLETE



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project	LOR SYDNEY METRO NCW PORTION 7B CTMP	Design	Drawn	Checked				
		Issue	Revisions/Descriptions	Drawn	Date													
		001	SWEPT PATH	M.H	12.07.2018	Name									Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018
						Signature				Project Number	Sheet Number	Issue						
						No.				Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018					
				Date				Project Number	Sheet Number	Issue								
				Name				Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018							
				Signature				Project Number	Sheet Number	Issue								
				No.				Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018							
				Date				Project Number	Sheet Number	Issue								
				Name				Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018							
				Signature				Project Number	Sheet Number	Issue								
				No.				Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018							
				Date				Project Number	Sheet Number	Issue								
				Name				Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018							
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				Date				Project Number	Sheet Number	Issue								
				Name				Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018							
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				Date				Project Number	Sheet Number	Issue								
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				Name				Title	SWEPT PATH 12.5 M HRV PARKES ROAD LEFT TO HAMPDEN ROAD	NOT FOR CONSTRUCTION	Date 12.07.2018							
				Signature				Project Number	Sheet Number	Issue								
				No.														



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

BITZIOS

consulting

traffic engineering ■ transport planning

Gold Coast

Suite 26, 58 Riverwalk Avenue, Robina QLD 4226.

P: (07) 5562-5377

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Brisbane

Level 2, 428 Upper Edward Street, Spring Hill 4000.

P: (07) 3831-4442

E: admin@bitziosconsulting.com.au

Sydney

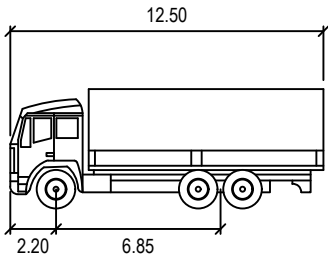
Studio 203, 3 Gladstone Street, Newtown NSW 2042.

P: (02) 9557 6202

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	12.07.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

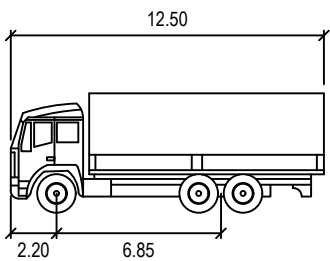
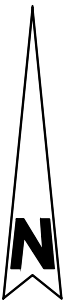
Project LOR SYDNEY METRO NCW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		Date 12.07.2018
	Project Number P3318	Sheet Number 116	Issue 001
Title SWEPT PATH 12.5 M HRV CLELAND ROAD SITE RIGHT ENTRANCE			



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

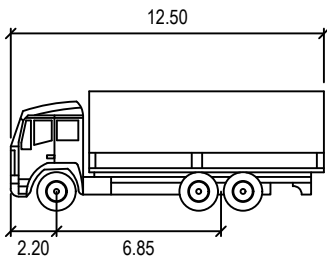
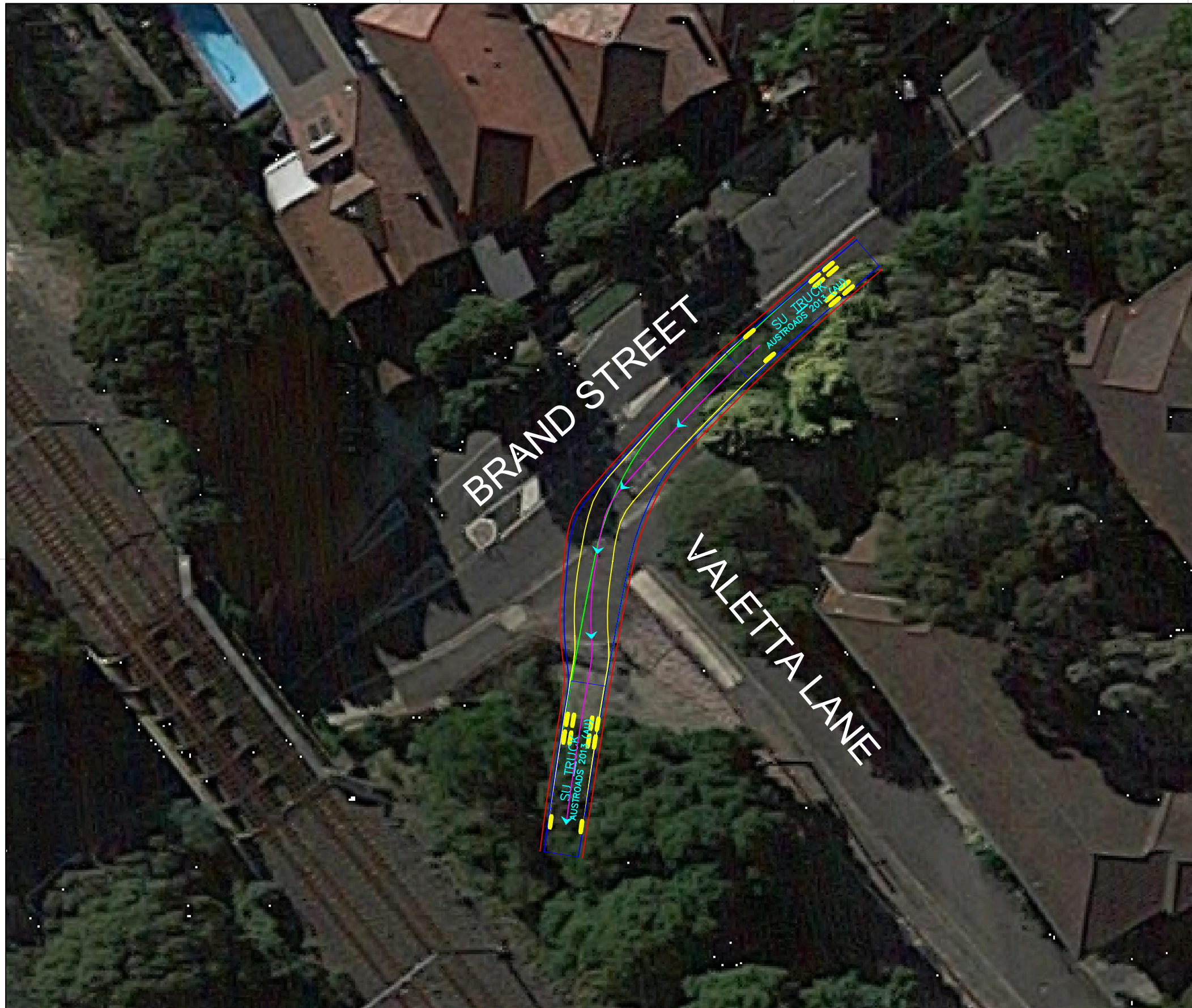
BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project		Design	Drawn	Checked									
		Issue	Revisions/Descriptions	Drawn	Date							M.H	M.H	T.W									
		001	SWEPT PATH	M.H	12.07.2018					NOT FOR CONSTRUCTION			Date										
												Title				Date							
														Project Number	Sheet Number	Issue							
												SWEPT PATH				P3318		117	001				
												12.5 M HRV											
												CLELAND ROAD SITE RIGHT EXIT											



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

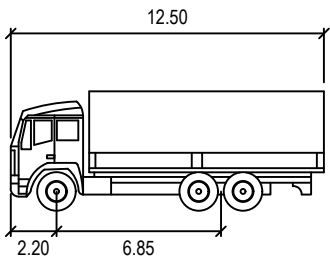
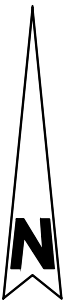
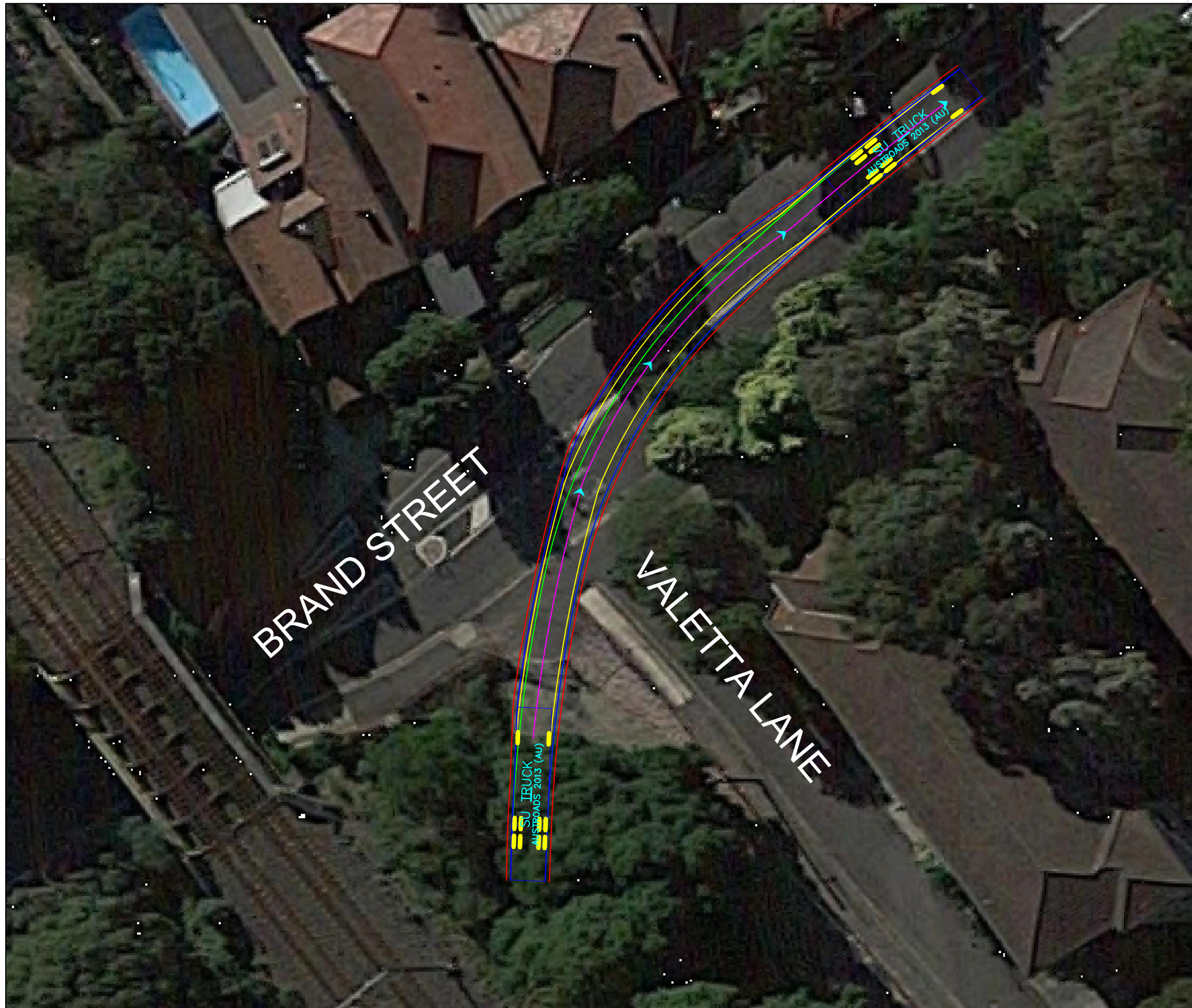
BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project		Design	Drawn	Checked	
		Issue		Revisions/Descriptions		Drawn	Date	LOR SYDNEY METRO NCW PORTION 7B CTMP				M.H	M.H	T.W	
		001	SWEPT PATH		M.H	12.07.2018									



SU TRUCK	metres
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

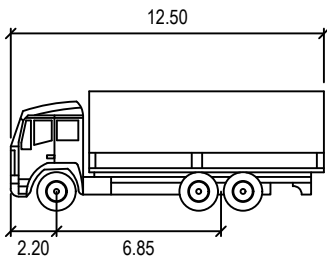
BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project		Design	Drawn	Checked	
		Issue	Revisions/Descriptions	Drawn	Date							M.H	M.H	T.W	
		001	SWEPT PATH	M.H	12.07.2018					NOT FOR CONSTRUCTION			Date		
													Project Number	Sheet Number	Issue
													P3318	119	001
		Name		Signature		No.		Date		Title		LOR SYDNEY METRO NCW PORTION 7B CTMP		SWEPT PATH 12.5 M HRV BRAND STREET GATE ENTRY	



SU TRUCK		metres
Width	:	2.50
Track	:	2.50
Lock to Lock Time	:	6.0
Steering Angle	:	36.6

DESIGN VEHICLE

BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project LOR SYDNEY METRO NCW PORTION 7B CTMP		Design	Drawn	Checked	
		Issue	Revisions/Descriptions		Drawn							Date	M.H	M.H	T.W
		001	SWEPT PATH		M.H					12.07.2018	NOT FOR CONSTRUCTION			Date	12.07.2018
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													P3318	120	001
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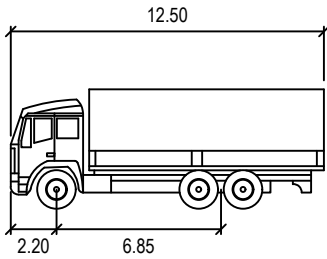
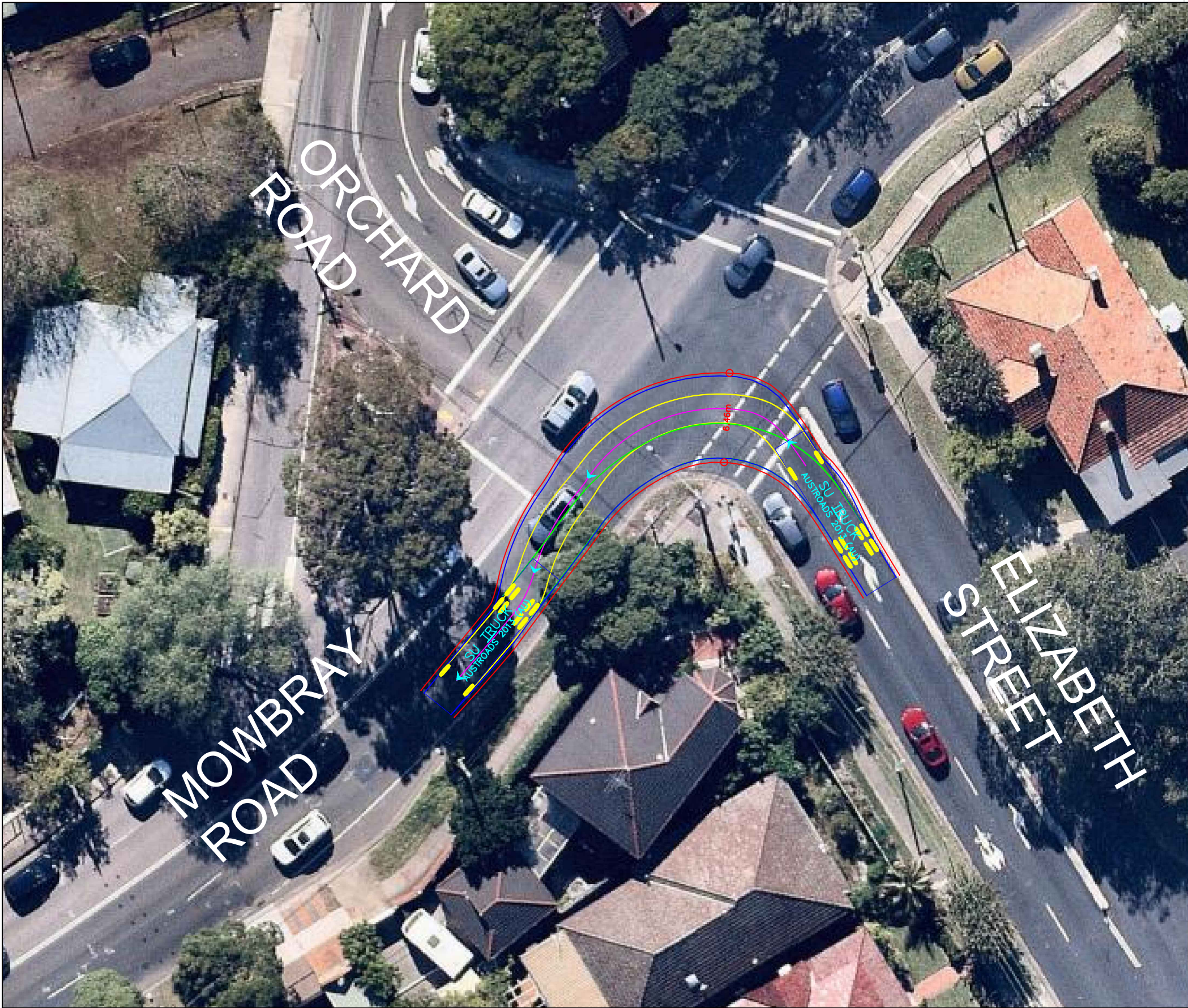


SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project LOR SYDNEY METRO NCW PORTION 7B CTMP		Design M.H	Drawn M.H	Checked T.W				
		Issue	Revisions/Descriptions		Drawn										Date			
		001	SWEPT PATH		M.H										12.07.2018			
											Title SWEPT PATH 12.5 M HRV BRAND STREET LEFT TO ELIZABETH STREET				NOT FOR CONSTRUCTION		Date 12.07.2018	
															Name	Signature	No.	Date
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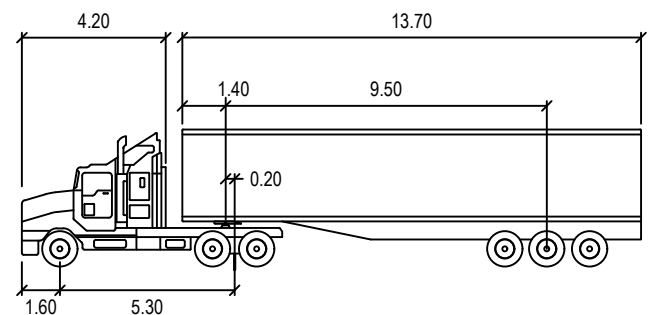
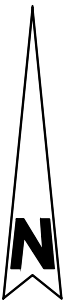
Project Number P3318		Sheet Number 121		Issue 001	
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SU TRUCK	meters
Width	: 12.50
Track	: 6.85
Lock to Lock Time	: 2.20
Steering Angle	: 36.6

DESIGN VEHICLE

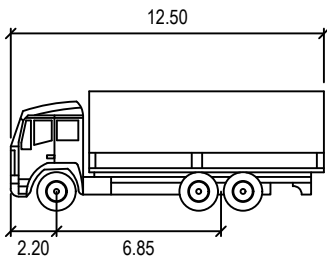
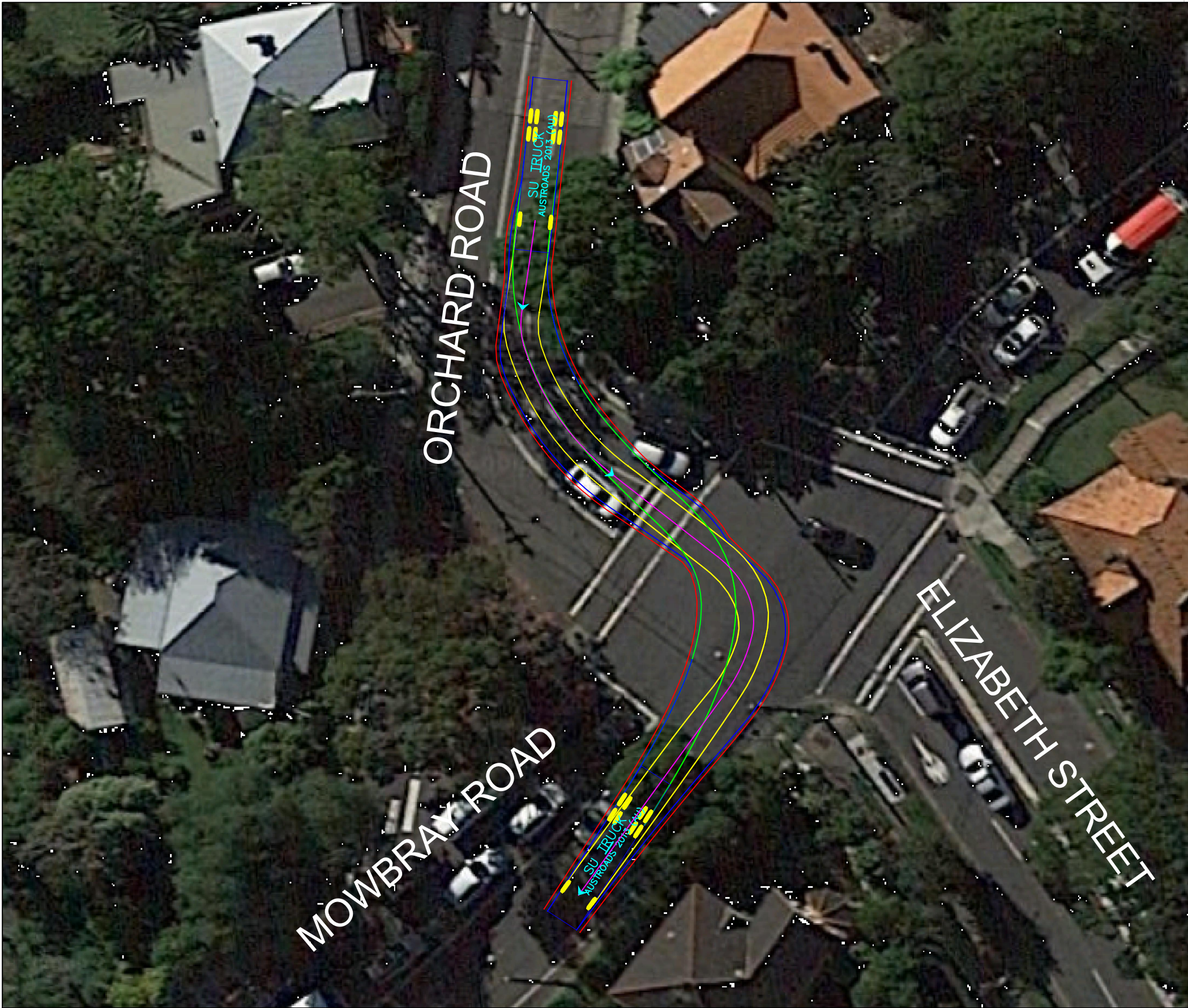
BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project		Design	Drawn	Checked			
		Issue		Revisions/Descriptions		Drawn		Date		LOR SYDNEY METRO NCW PORTION 7B CTMP		M.H		J.Y		T.W	
		001		SWEPT PATH		M.H		12.07.2018				NOT FOR CONSTRUCTION				Date	
										03.08.2018							
										Title		Project Number		Sheet Number		Issue	
												P3318		122		001	



S ARTICULATED 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				ENGINEERING CERTIFICATION (RPEQ)				Project		Design	Drawn	Checked		
		Issue		Revisions/Descriptions		Drawn		Date		LOR SYDNEY METRO NCW PORTION 7B CTMP				M.H	J.Y	T.W
		001		SWEPT PATH		M.H		12.07.2018								



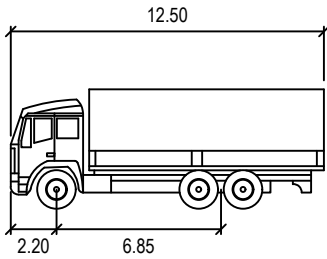
SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	12.07.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

Project LOR SYDNEY METRO NCW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		
	Project Number P3318	Sheet Number 124	Date 12.07.2018
Title SWEPT PATH 12.5 M HRV ORCHARD ROAD RIGHT TO MOWBRAY ROAD		Issue 001	



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

BITZIOS

consulting

traffic engineering ■ transport planning

Gold Coast

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Sydney

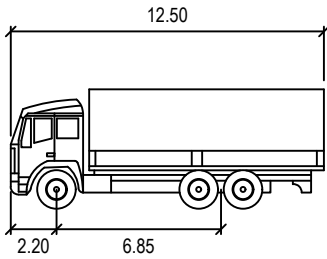
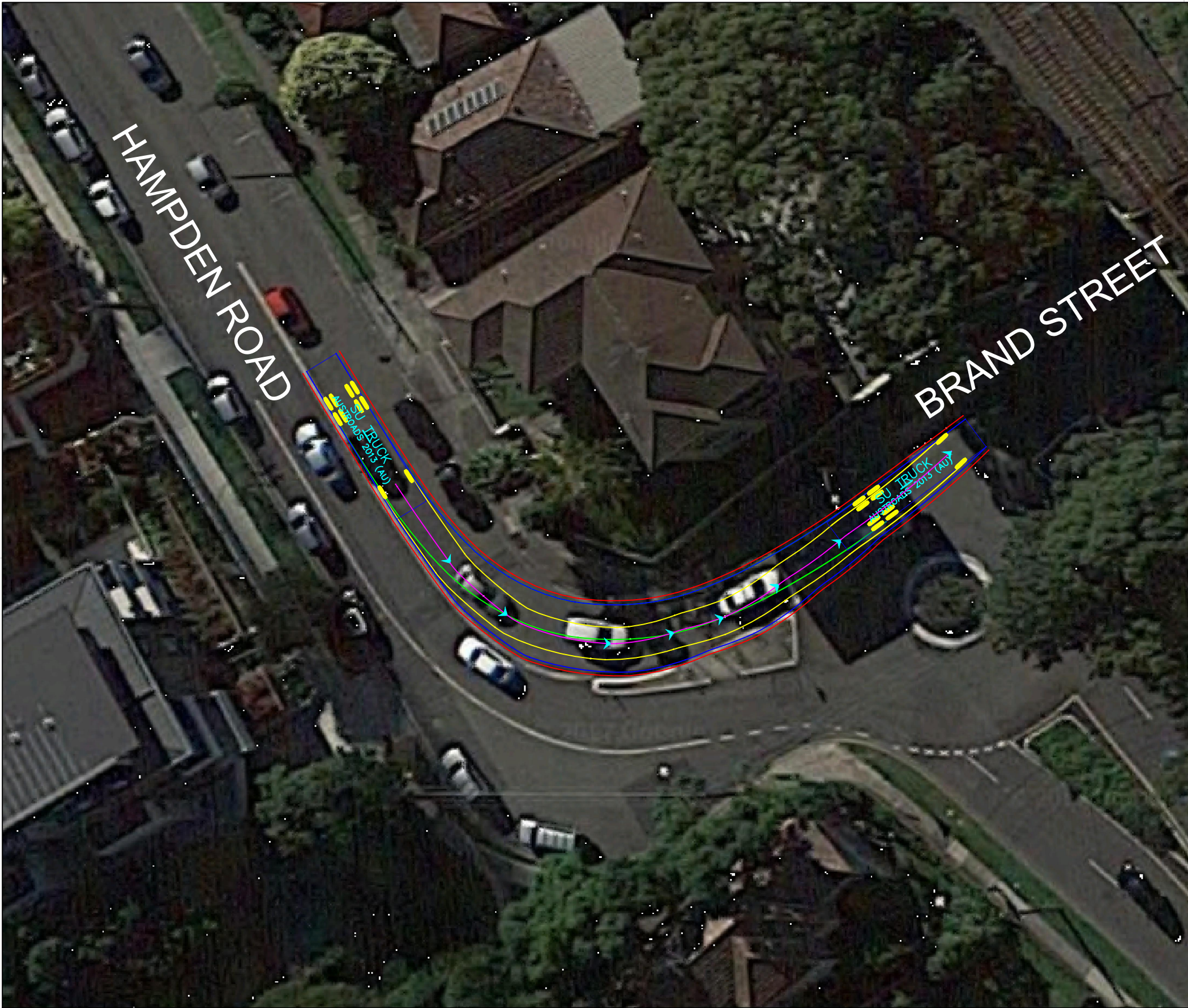
Studio 203, 3 Gladstone Street, Newtown NSW 2042.

P: (02) 9557 6202

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	12.07.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

Project	Design	Drawn	Checked
LOR SYDNEY METRO NCW PORTION 7B CTMP	M.H	J.Y	T.W
Title		NOT FOR CONSTRUCTION	
		Date	12.07.2018
SWEPT PATH 12.5 M HRV MOWBRAY ROAD RIGHT TO HAMPDEN ROAD		Project Number	Issue
		P3318	001
		Sheet Number	
		125	



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

BITZIOS

consulting

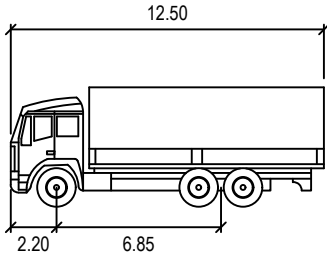
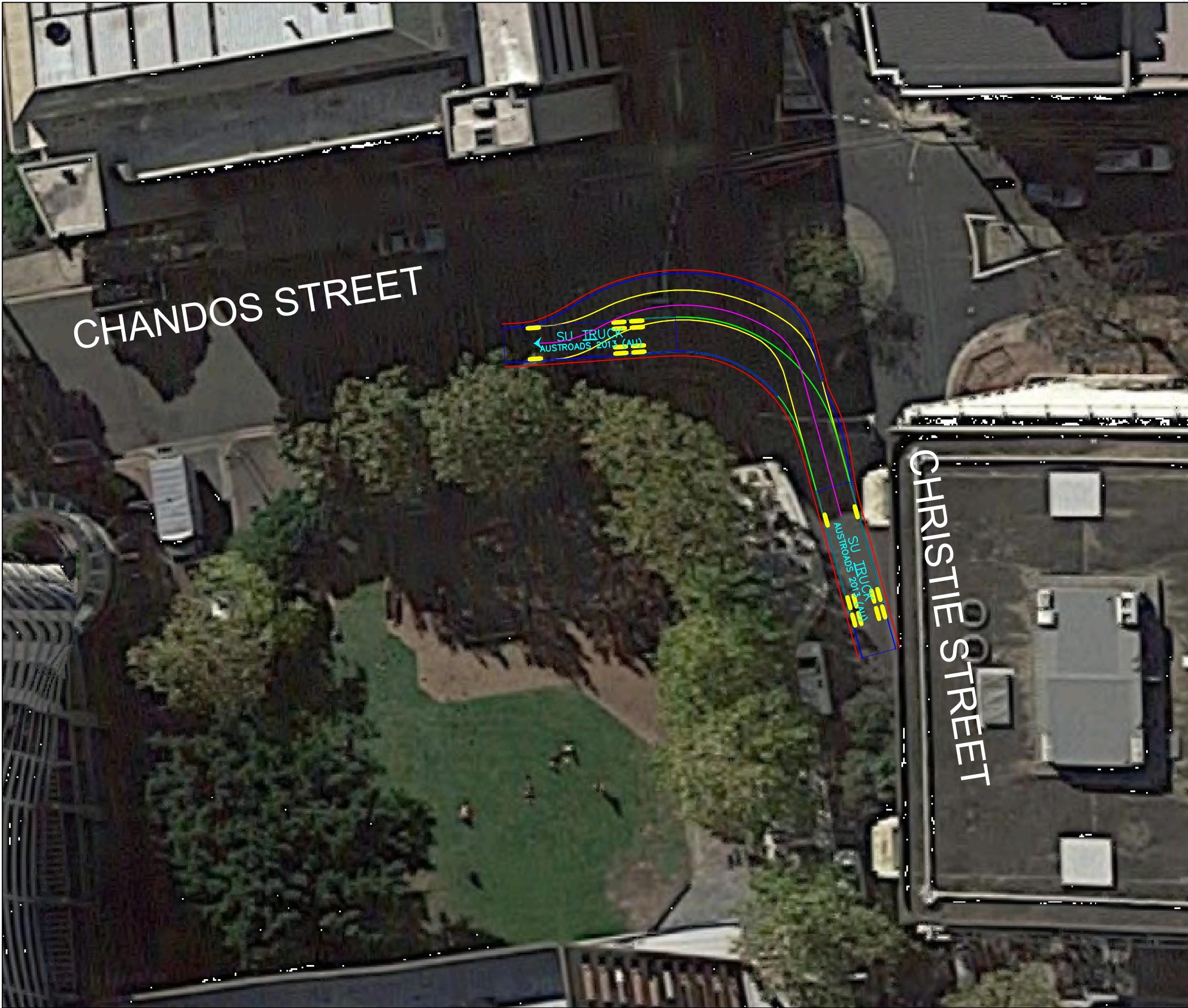
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REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	12.07.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

Project LOR SYDNEY METRO NCW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		Date 12.07.2018
	Project Number P3318	Sheet Number 126	Issue 001



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

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Sydney

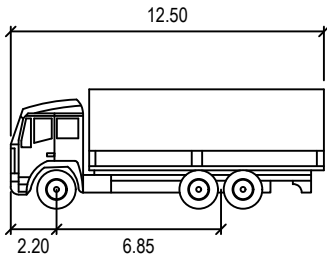
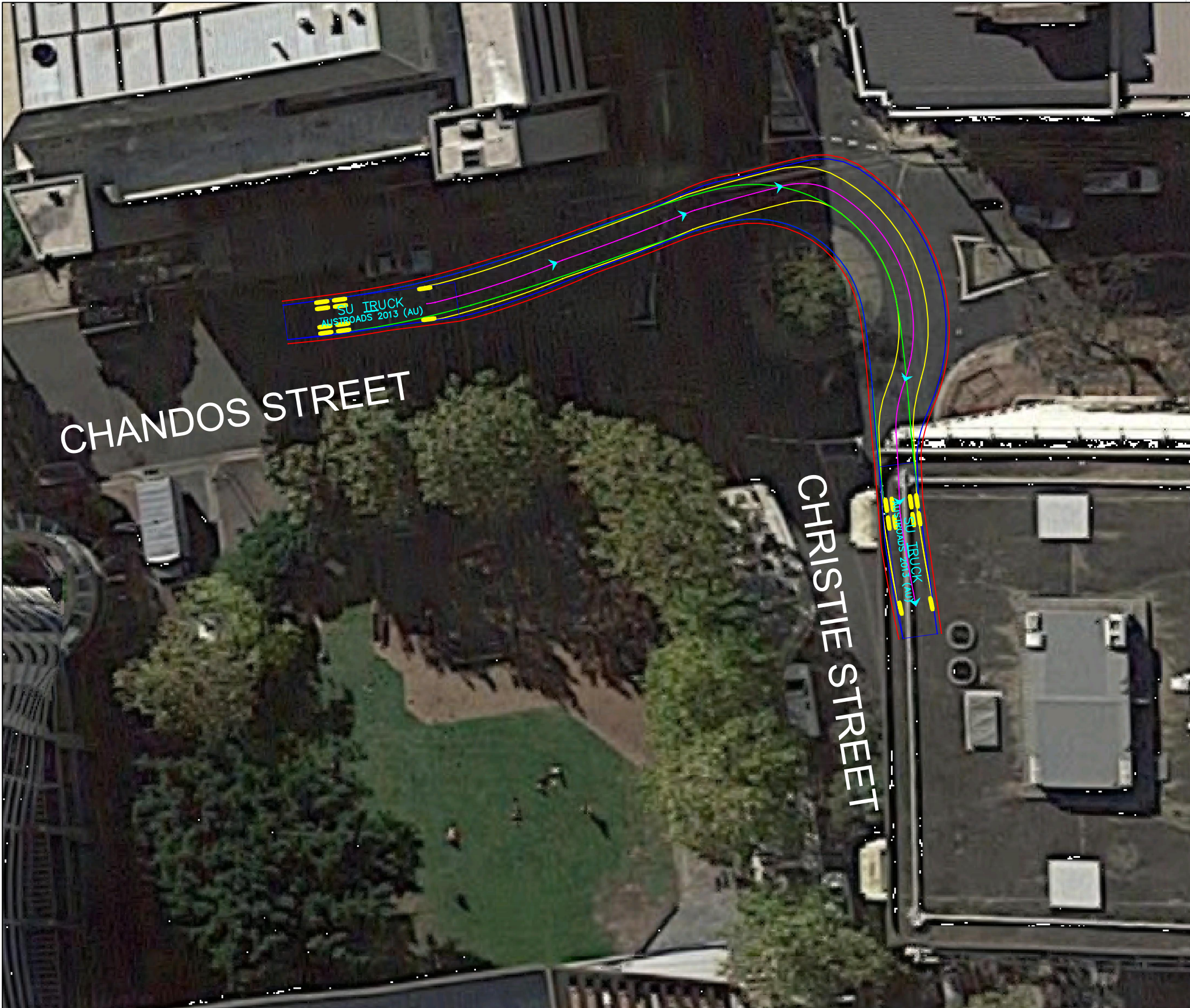
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REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	12.07.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

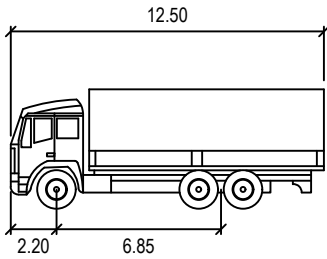
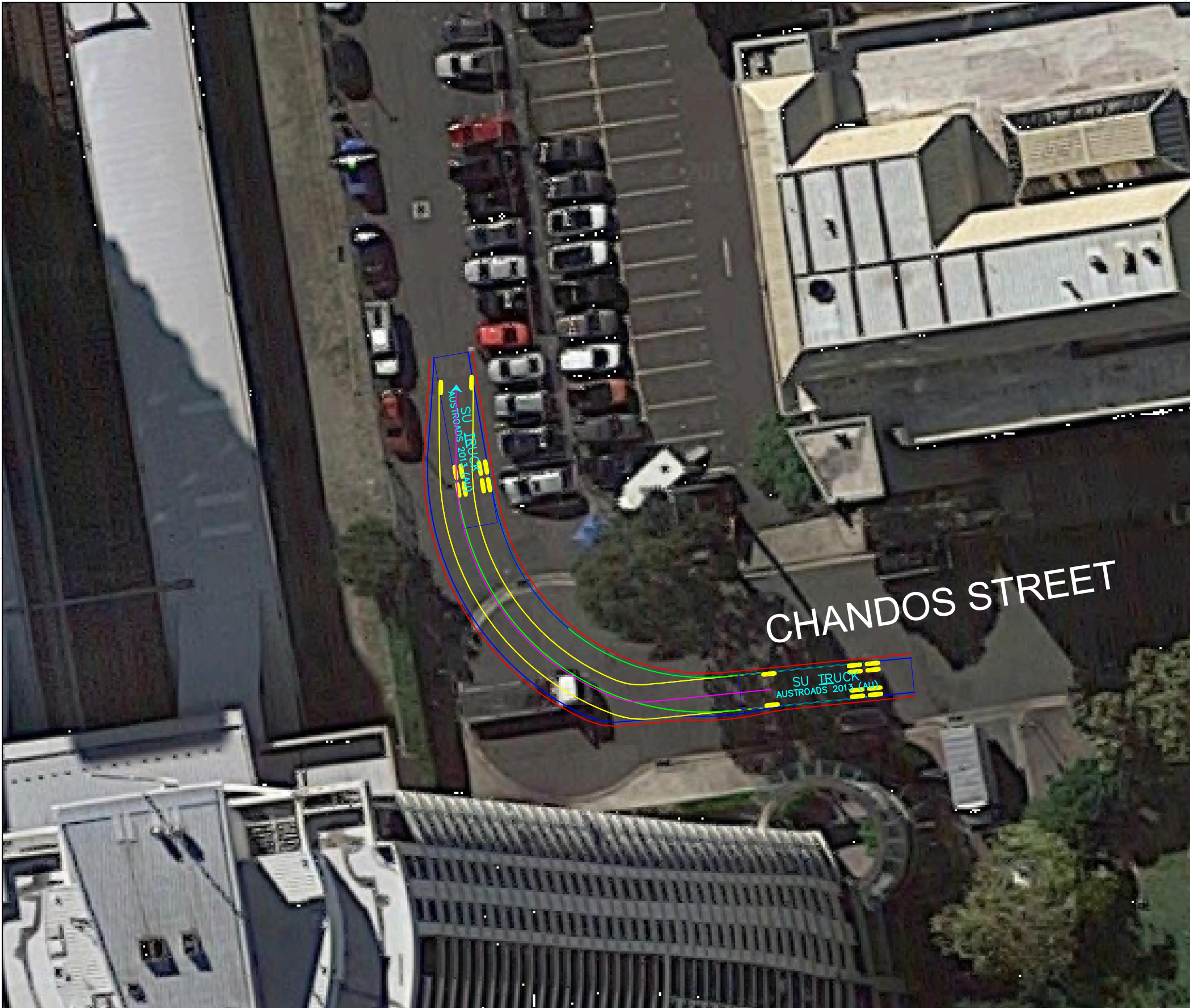
Project LOR SYDNEY METRO NCW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		Date 12.07.2018
	Project Number P3318	Sheet Number 127	Issue 001



SU TRUCK	metres
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

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		Issue	Revisions/Descriptions		Drawn													Date
		001	SWEPT PATH		M.H	12.07.2018					LOR SYDNEY METRO NCW PORTION 7B CTMP		M.H		M.H		T.W	
											Title		SWEPT PATH 12.5 M HRV CHANDOS STREET RIGHT TO CHRISTIE STREET		NOT FOR CONSTRUCTION		Date 12.07.2018	
											Name		Signature		No.		Date	



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

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consulting

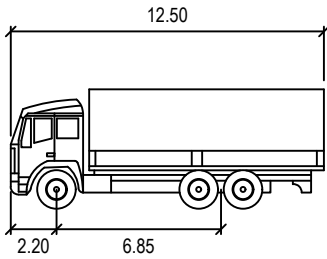
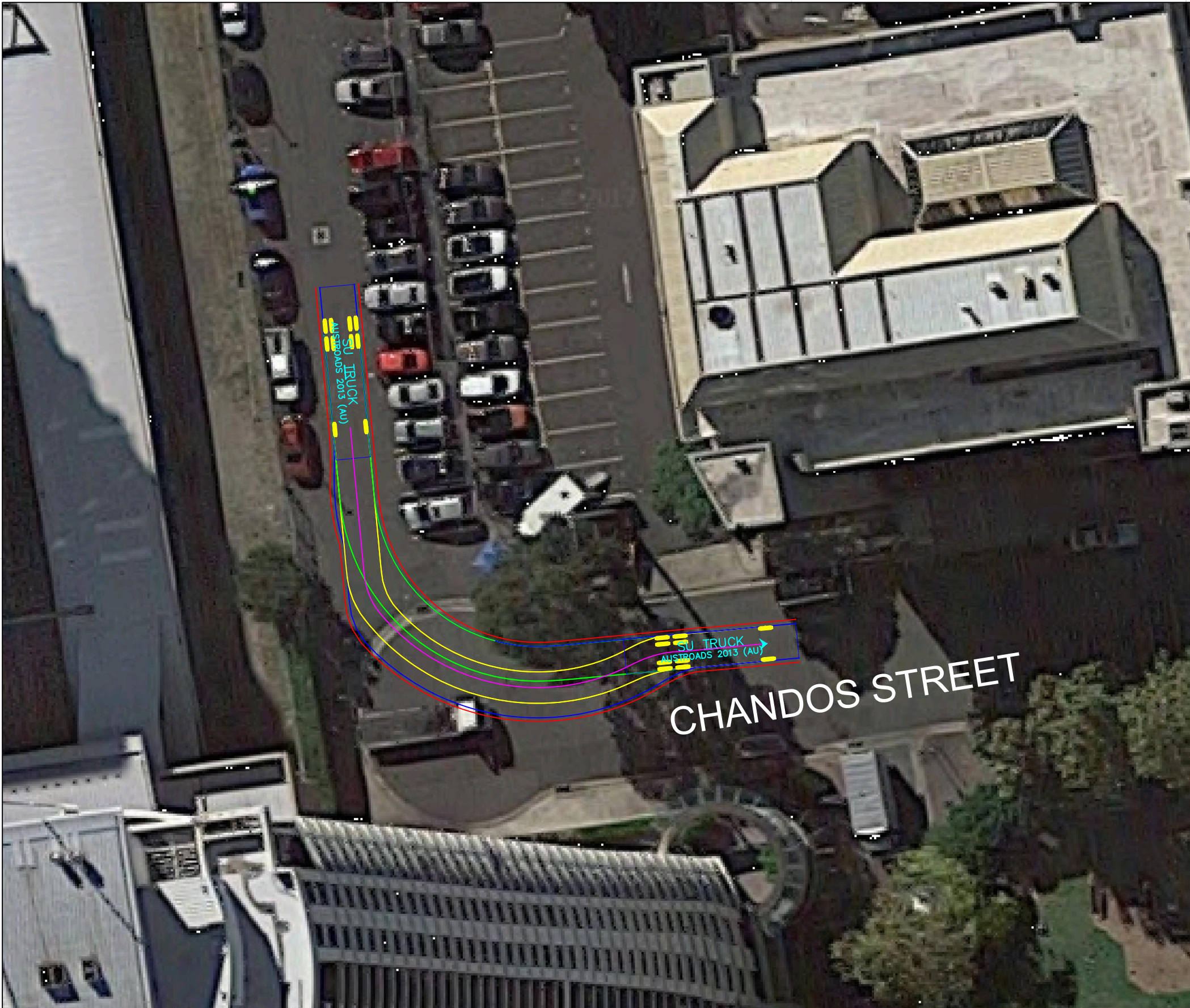
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REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	12.07.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

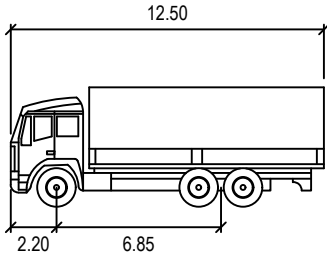
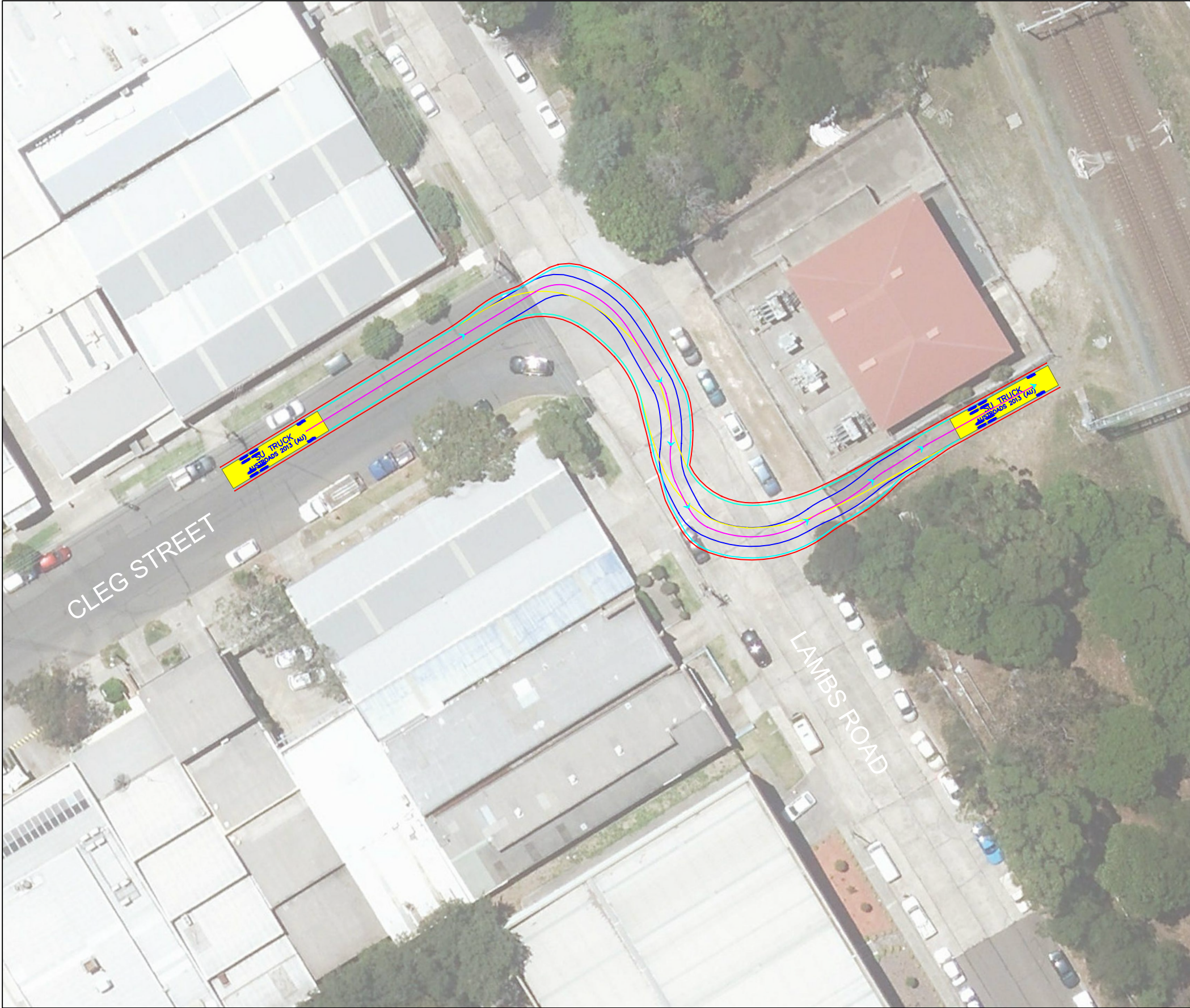
Project LOR SYDNEY METRO NCW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		Date 12.07.2018
	Project Number P3318	Sheet Number 129	Issue 001



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

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		Issue	Revisions/Descriptions		Drawn	Date	LOR SYDNEY METRO NCW PORTION 7B CTMP				M.H	M.H	T.W
		001	SWEPT PATH		M.H	12.07.2018							
					</								



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

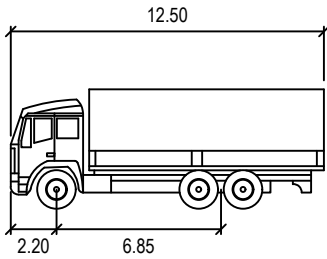
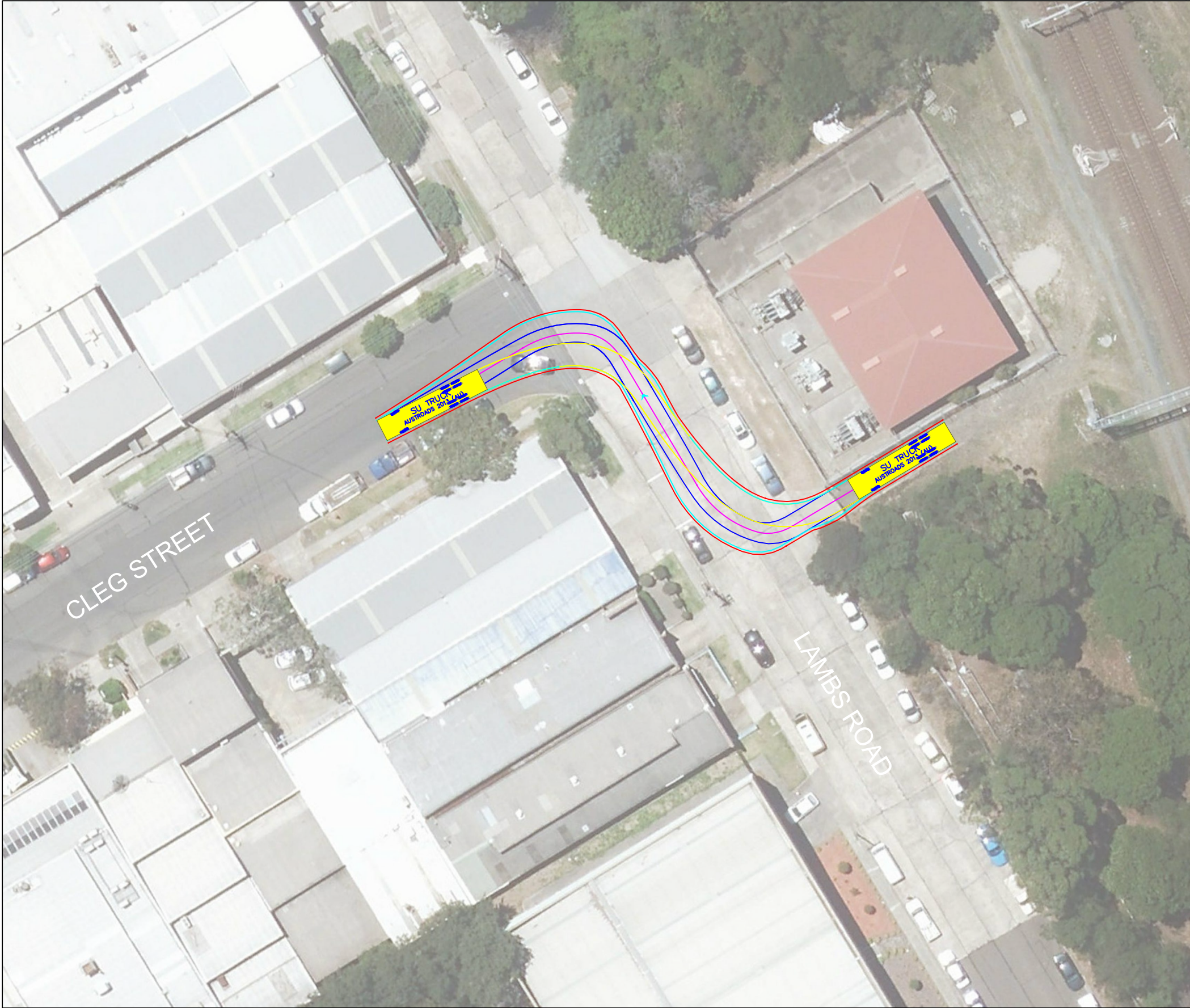
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REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	12.07.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

Project LOR SYDNEY METRO NW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		Date 12.07.2018
	Project Number P3318	Sheet Number 131	Issue 001



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

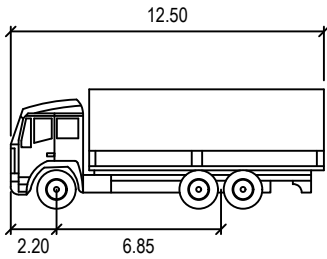
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REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	12.07.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

Project LOR SYDNEY METRO NW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		
	Project Number P3318	Sheet Number 132	Date 12.07.2018
Title SWEPT PATH 12.5 M HRV LAMBS ROAD GATE EXIT		Issue 001	



SU TRUCK	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

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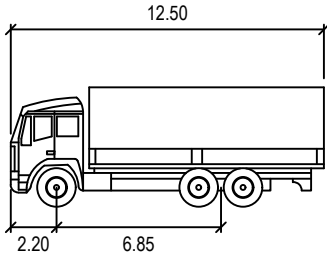
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REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	29.06.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

Project LOR SYDNEY METRO NW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		Date 29.06.2018
	Project Number P3318	Sheet Number 133	Issue 001



SU TRUCK meters
Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 36.6

DESIGN VEHICLE

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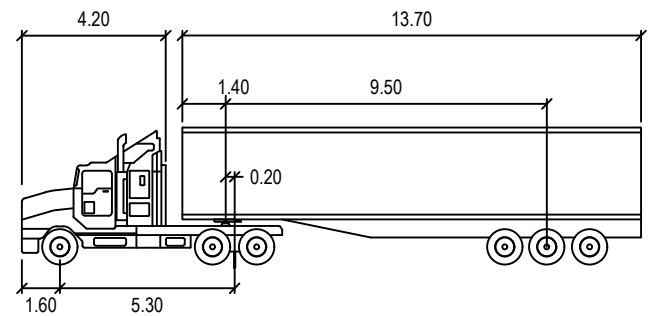
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REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	29.06.2018

ENGINEERING CERTIFICATION (RPEQ)			
Name	Signature	No.	Date

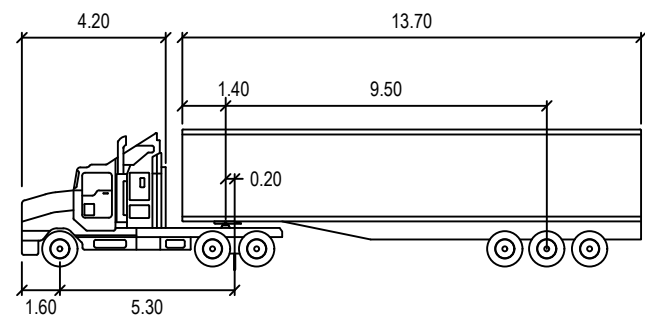
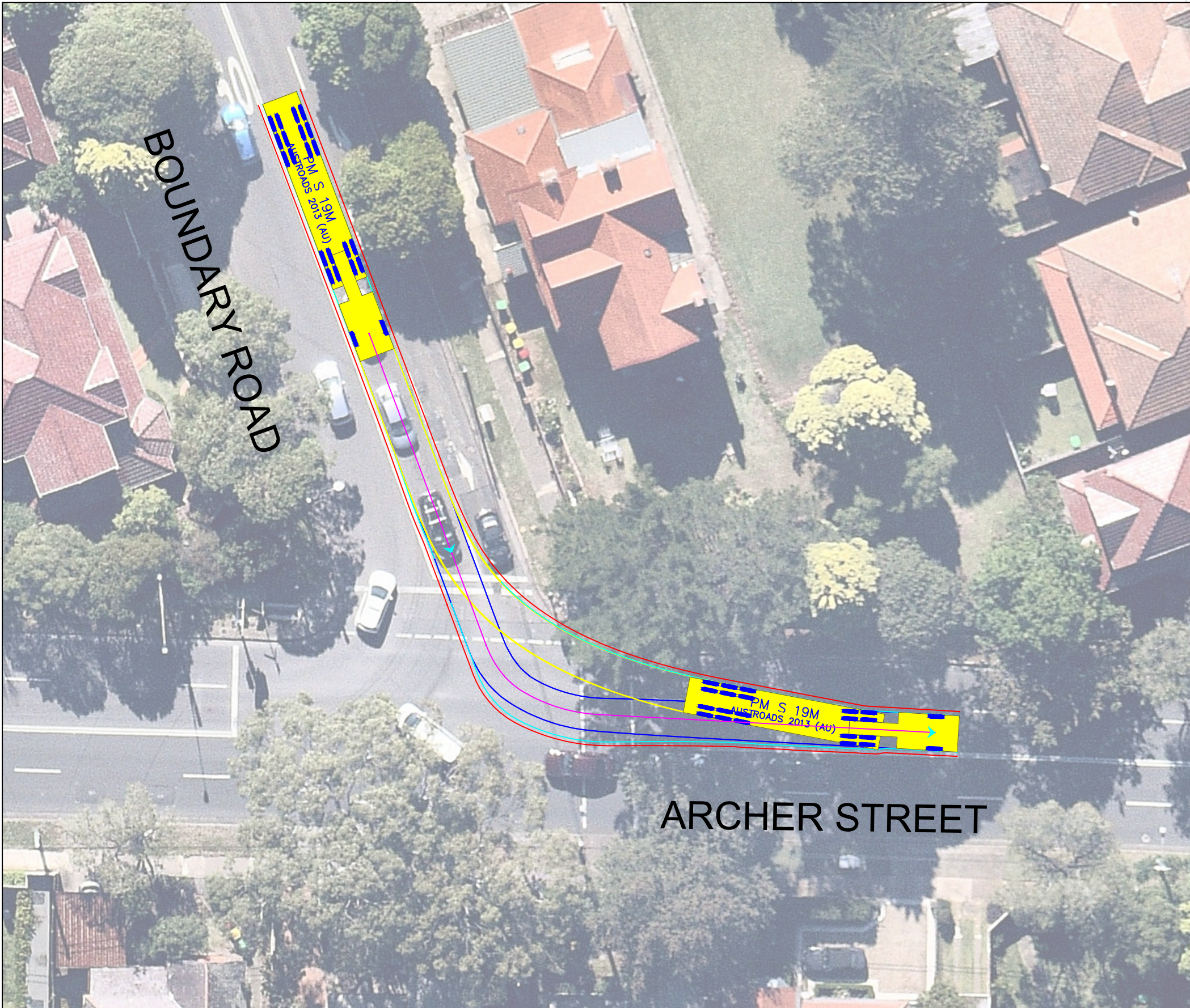
Project LOR SYDNEY METRO NW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		Date 29.06.2018
	Project Number P3318	Sheet Number 134	Issue 001



S ARTICULATED 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

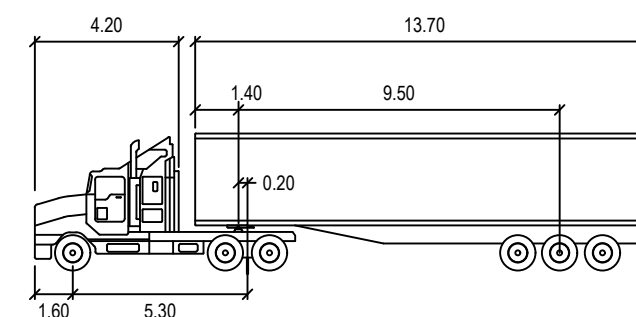
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		Issue	Revisions/Descriptions		Drawn	Date					LOR SYDNEY METRO NW PORTION 7B CTMP		M.H	M.H	T.W
		001	SWEPT PATH		M.H	13.07.2018							NOT FOR CONSTRUCTION		Date
															13.07.2018



S ARTICULATED 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

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		Issue	Revisions/Descriptions	Drawn	Date									
		001	SWEPT PATH	M.H	13.07.2018	Name				Title	LOR SYDNEY METRO NW PORTION 7B CTMP	M.H	M.H	T.W
						Signature								
						No.								
						Date				SWEPT PATH 12.5 M HRV BURRA ROAD GATE EXIT	P3318	136	001	
										Date		13.07.2018		
								Issue						



S ARTICULATED 19M		metres	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

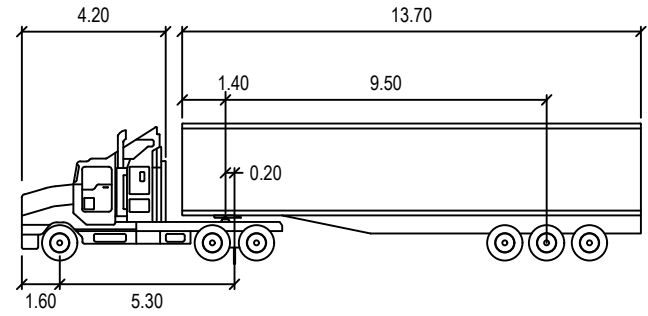
DESIGN VEHICLE

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH	M.H	03.07.2018

ENGINEERING CERTIFICATION (RPEQ)

Name	Signature	No.	Date

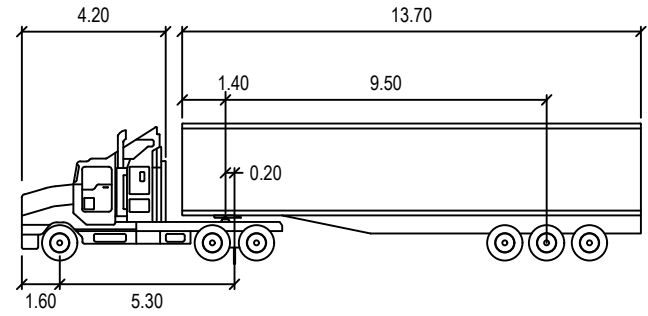
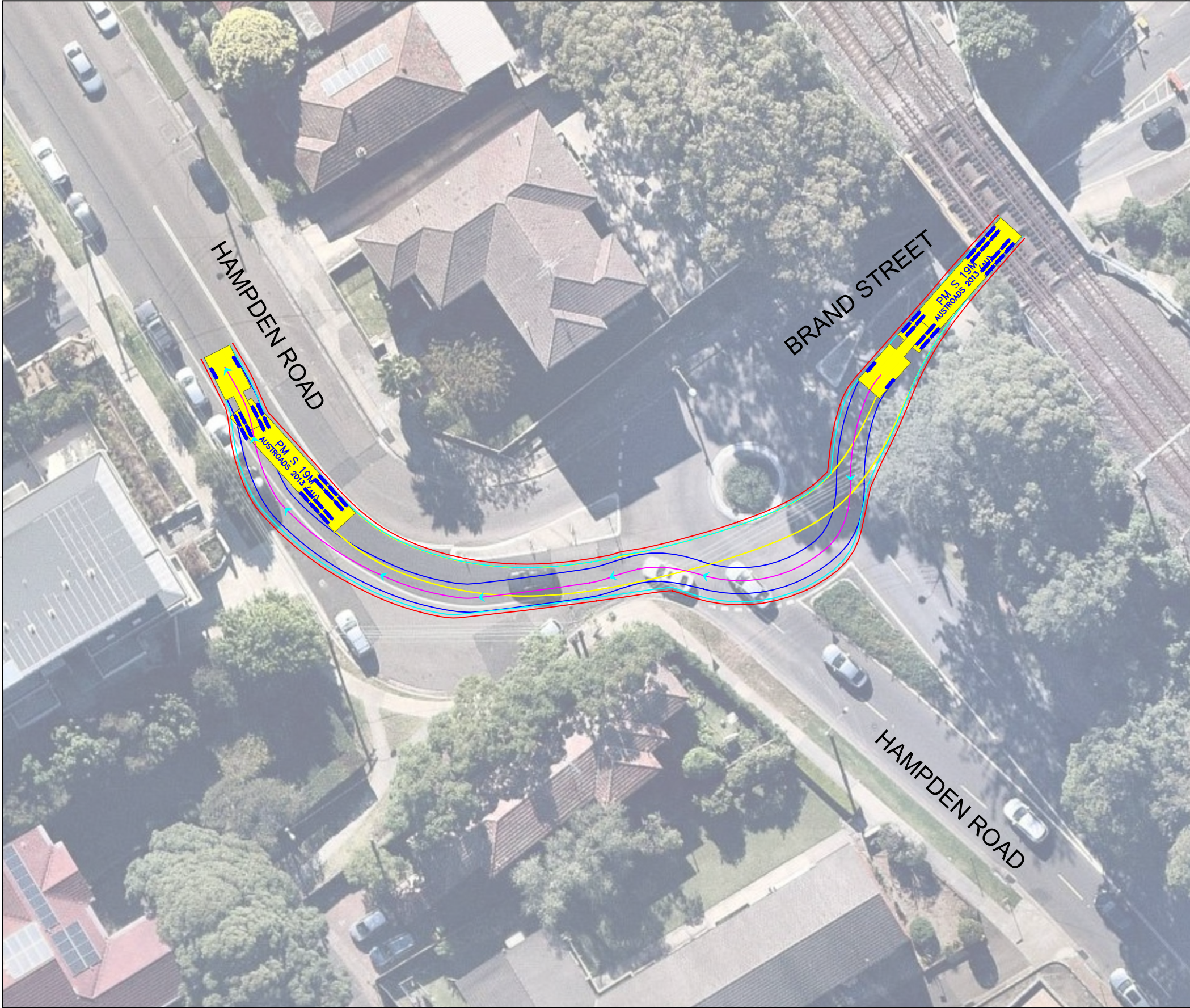
Project LOR SYDNEY METRO NW PORTION 7B CTMP	Design M.H	Drawn M.H	Checked T.W
	NOT FOR CONSTRUCTION		
	Project Number P3318	Sheet Number 100	Date 03.07.2018
Title SWEPT PATH 19.0m AV MOWBRAY ROAD LEFT ONTO ELIZABETH STREET		Issue 001	



S ARTICULATED 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

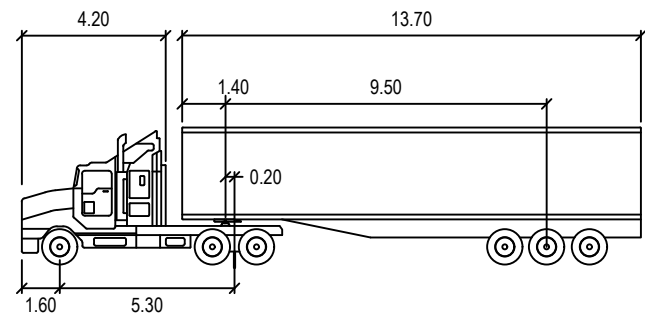
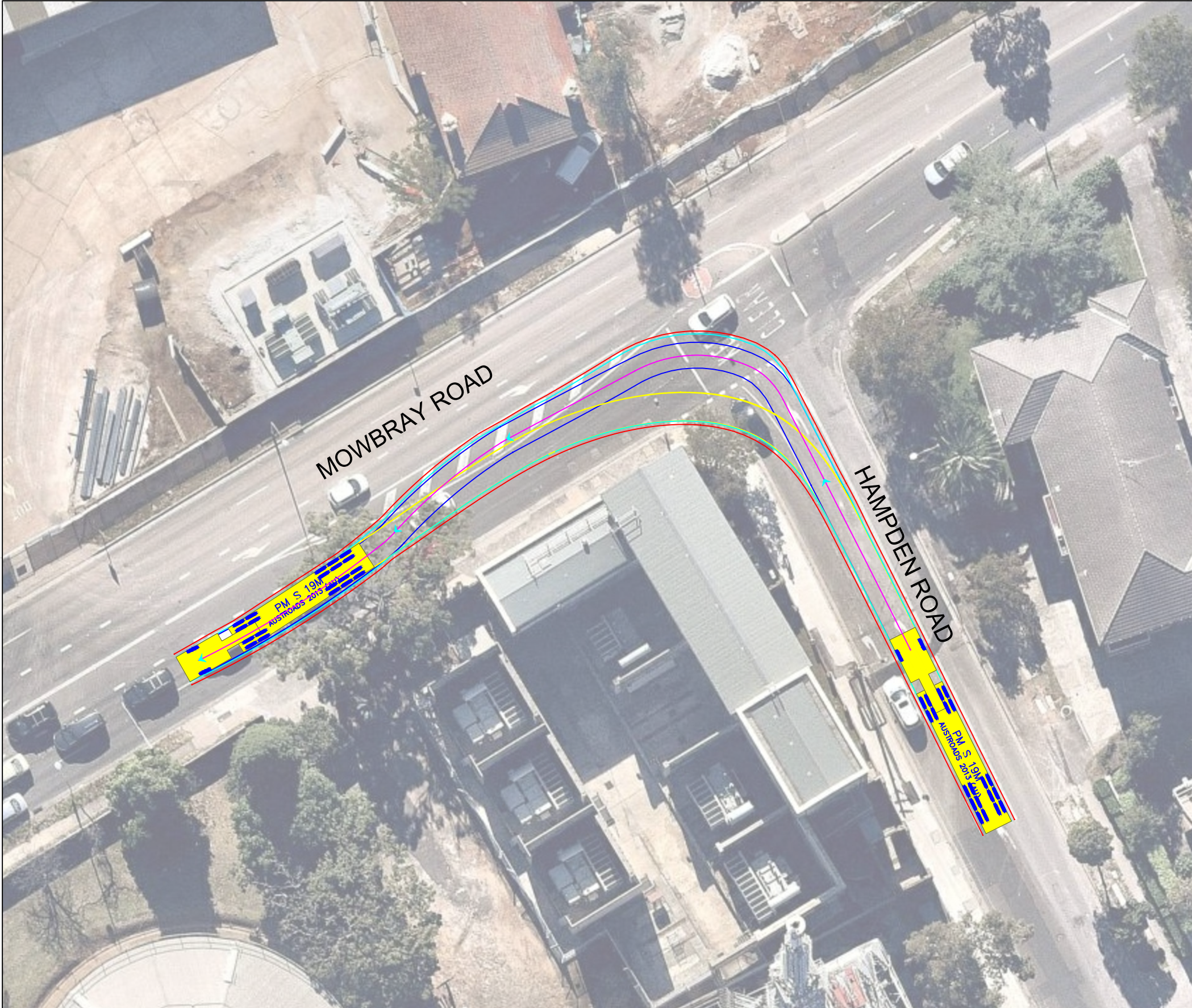
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		Issue	Revisions/Descriptions		Drawn	Date								
		001	SWEPT PATH		M.H	03.07.2018					NOT FOR CONSTRUCTION			
														Date 03.07.2018
											Title SWEPT PATH 19.0m AV ELIZABETH STREET RIGHT ONTO BRAND STREET			
														Project Number P3318



S ARTICULATED 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

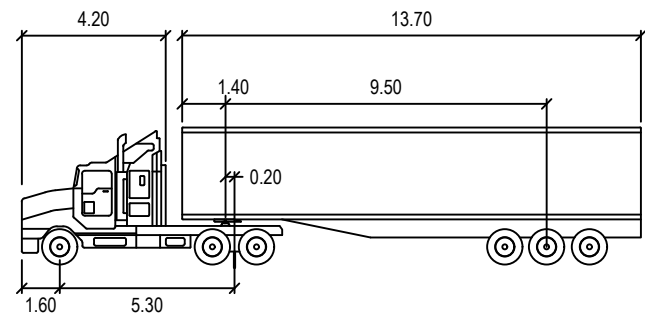
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		Issue	Revisions/Descriptions		Drawn	Date								Title SWEPT PATH 19.0m AV BRAND STREET RIGHT ONTO HAMPDEN ROAD	NOT FOR CONSTRUCTION
		001	SWEPT PATH		M.H	03.07.2018					Project Number P3318	Sheet Number 102	Issue 001		



S ARTICULATED 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

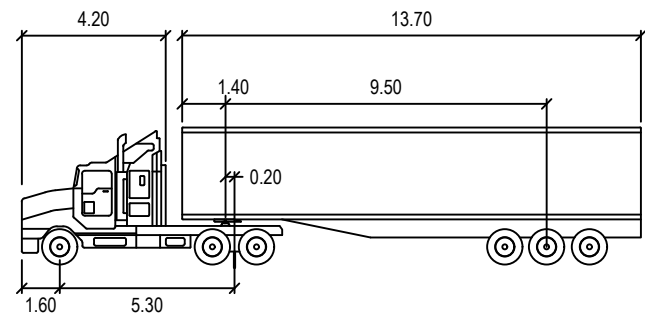
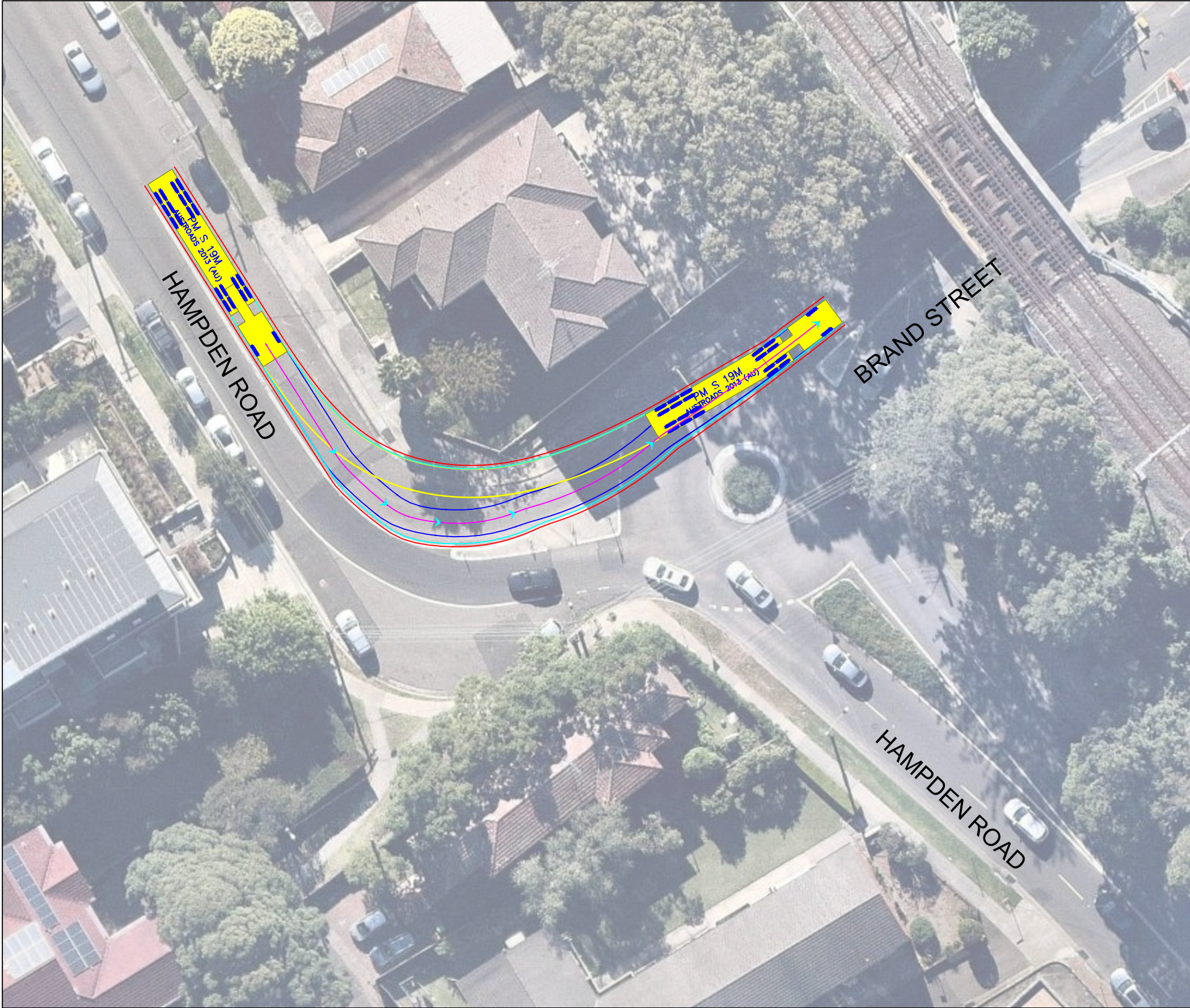
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		Revisions/Descriptions		Drawn	Date	LOR SYDNEY METRO NW PORTION 7B CTMP				M.H	M.H	T.W		
		Issue								NOT FOR CONSTRUCTION				
		001	SWEPT PATH	M.H	03.07.2018								Date	03.07.2018



S ARTICULATED 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

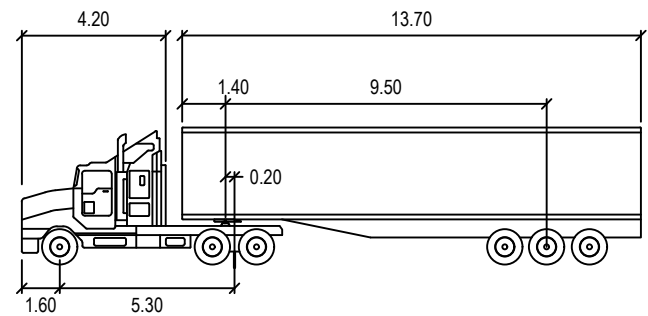
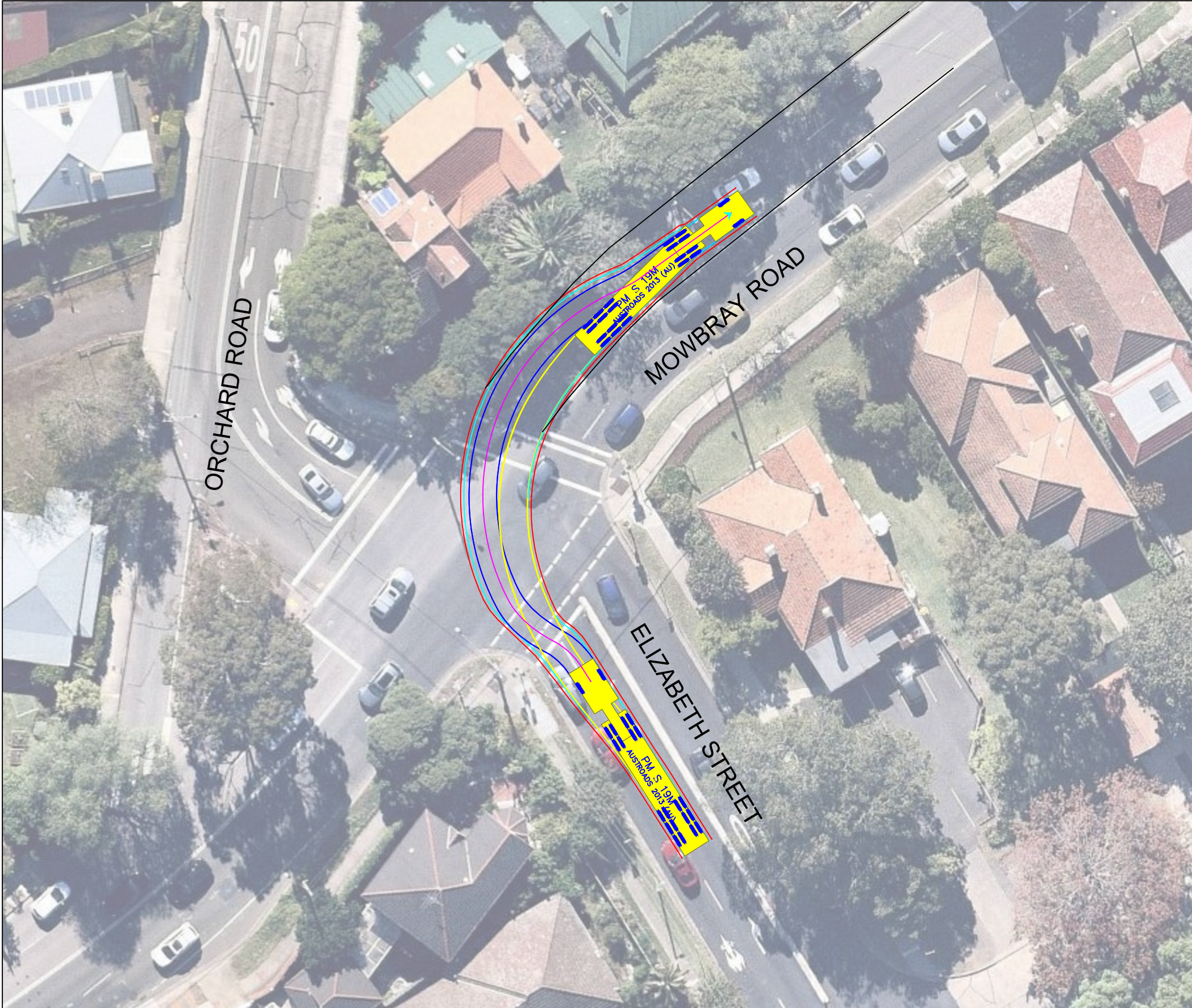
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		Issue	Revisions/Descriptions	Drawn	Date	LOR SYDNEY METRO NW PORTION 7B CTMP			
		001	SWEPT PATH	M.H	03.07.2018	ENGINEERING CERTIFICATION (RPEQ)			
						Title			
						SWEPT PATH			
						19.0m AV			
						MOWBRAY ROAD RIGHT ONTO			
						HAMPDEN ROAD			
						Project Number			
						P3318			
						Sheet Number			
						104			
				Issue					
				001					



S ARTICULATED 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

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		Issue	Revisions/Descriptions		Drawn									Date
		001	SWEPT PATH		M.H									03.07.2018
											NOT FOR CONSTRUCTION			
											Date 03.07.2018			
											Project Number			
											Sheet Number			
											Issue			
											P3318			
											105			
											001			



S ARTICULATED 19M		metres	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.7
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	Issue	REVISIONS		Drawn	Date	Project LOR SYDNEY METRO NW PORTION 7B CTMP	Title SWEPT PATH 19.0m AV ELIZABETH STREET RIGHT ONTO MOWBRAY ROAD	Design	Drawn	Checked		
		001	SWEPT PATH		M.H	03.07.2018			M.H	M.H	T.W		
									NOT FOR CONSTRUCTION		Date		
											03.07.2018		
											Project Number	Sheet Number	Issue
											P3318	107	001
ENGINEERING CERTIFICATION (RPEQ)						Name	Signature	No.	Date				

Construction Traffic Management Plan

Project:

Northern Corridor Works Portion 7A+7B

Project No:

K38

Date:

08 February 2018

Rev:

Final (Rev 04)

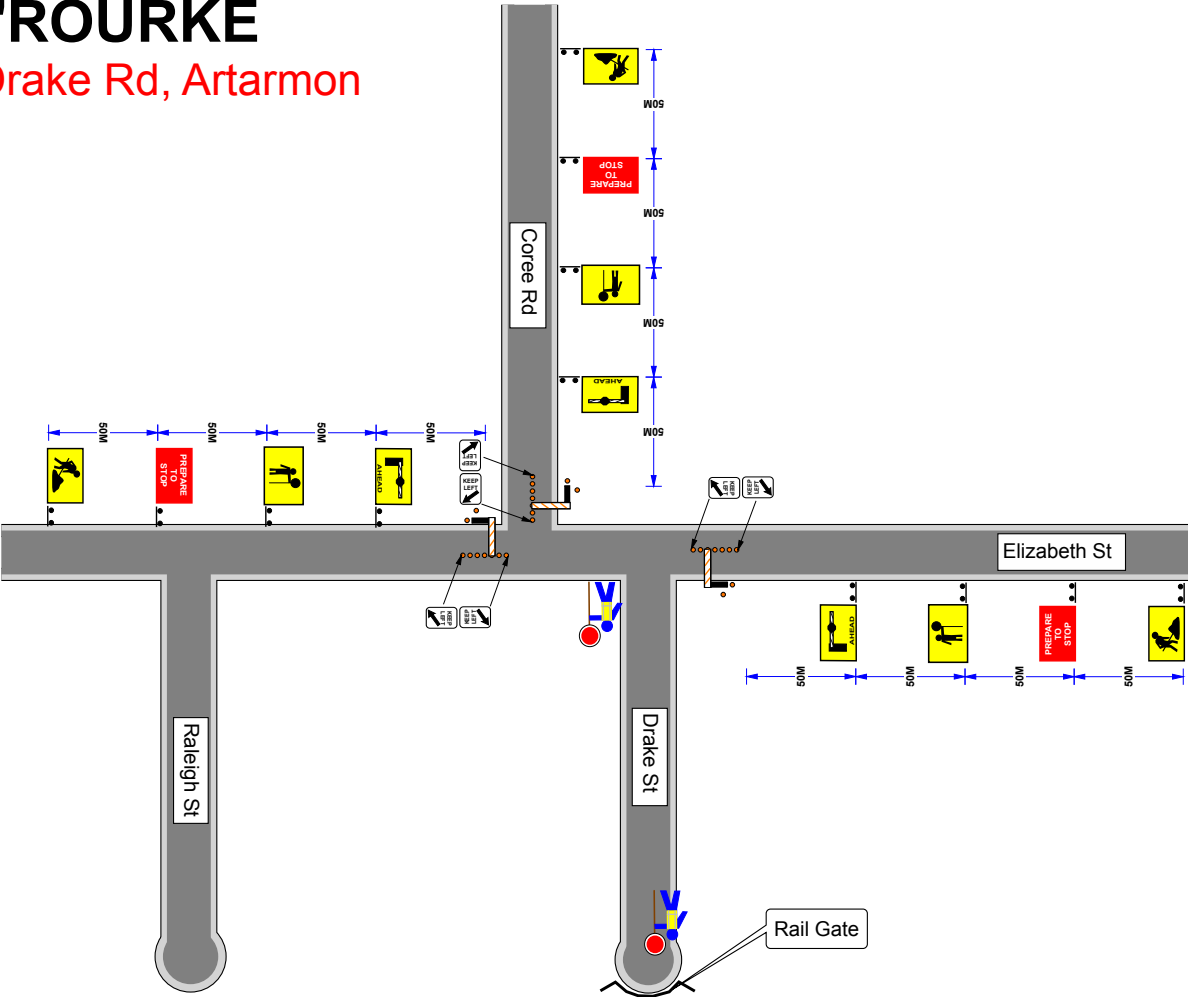
Appendix B – Traffic Control Plans, ROLs, and Haulage Routes

The following Traffic Control Plans will be further developed with the Traffic Control Supplier as the works progress. These will be updated if necessary and resubmitted if changed, for approval:

TCP No	Location	Description of Control
K38-TCP01	Drake Street	Access and gate control. Guiding vehicles traversing Drake Street
K38-TCP02	Hopetoun Avenue	Access and gate control. Guiding vehicles traversing Hopetoun Avenue
K38-TCP03	Cleland Road	Access. Guiding vehicles traversing Cleland Road
K38-TCP101-54	Chandos Street	Access and gate control. Guiding vehicles traversing Chandos Street
K38-TCP63	Christie Street	Access and gate control. Guiding vehicles traversing Christie Street
K38-TCP83	Nelson Street	Guiding vehicles traversing and pedestrian movement during works on Nelson Street.
K38-TCP-J15728.3	Nelson Street	Works on during closure of Nelson Street (following permanent closure)
K38-TCP54	Gillam Street	Works on during closure of Gillam Street
K38-TCP-J15728	Brand Street	Guiding vehicles traversing and pedestrian movement during works on Brand Street.
K38-TCP-J15008	Lambs Road	Access and gate control. Guiding vehicles traversing Lambs Road
K38-TCP-J15728	Burra Road	Access and gate control. Guiding vehicles traversing Burra Road
K38-TCP-3318-001	Nelson Street	Nelson Street reverse back, exit manoeuvre from Pacific Highway
K38-TCP-3318-001	Nelson Street	Nelson Street reverse back, exit manoeuvre from Orchard Road

LAING O'ROURKE

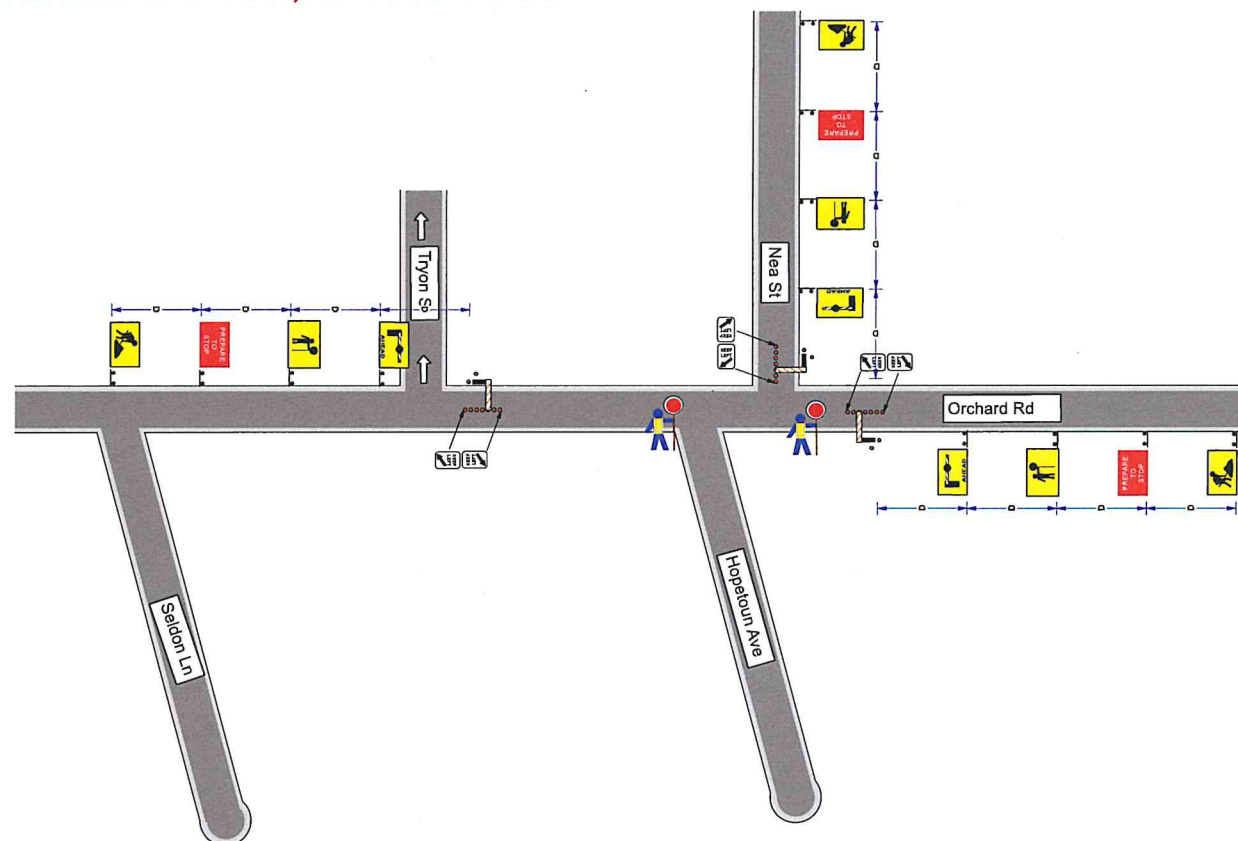
Location - Drake Rd, Artarmon

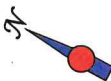


Client: Laing O'Rourke			WORKERS ON FOOT		Implemented By				D = THE SPEED OF TRAFFIC MEASURED IN KM/H EG: 80KM = 80M 70KM = 70M 60KM = 60M 50KM = 50M SEE SECTION 4.2 TRAFFIC CONTROL AT WORK SITES MANUAL WORK AREA = 	 Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622 D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation		
Scope of Works: Construction works			NO GO ZONE = 		Name -	Approximate speed of traffic	Traffic control at beginning of taper	Lateral shift taper				Merge taper
Job location: Drake Rd, Artarmon			RESTRICTED ZONE = 		Cert No -	45 or less	15	0				15
			SHARED ZONE = 			46 - 55	15	15				30
			SITE EXIT = 			56 - 65	30	30				60
Author: Benjamin Wiffen			TCP - 83 USED AS A GUIDE		Date -	66 - 75	N/A	70	115			
Cert. No: 0040970460			PLAN NOT TO SCALE			76 - 85	N/A	80	130			
						86 - 95	N/A	90	145			
					Signed -	96 - 105	N/A	100	160			
						Greater than 105	N/A	110	180			

Laing O'Rourke

Location - Hopetoun Avenue, Chatswood

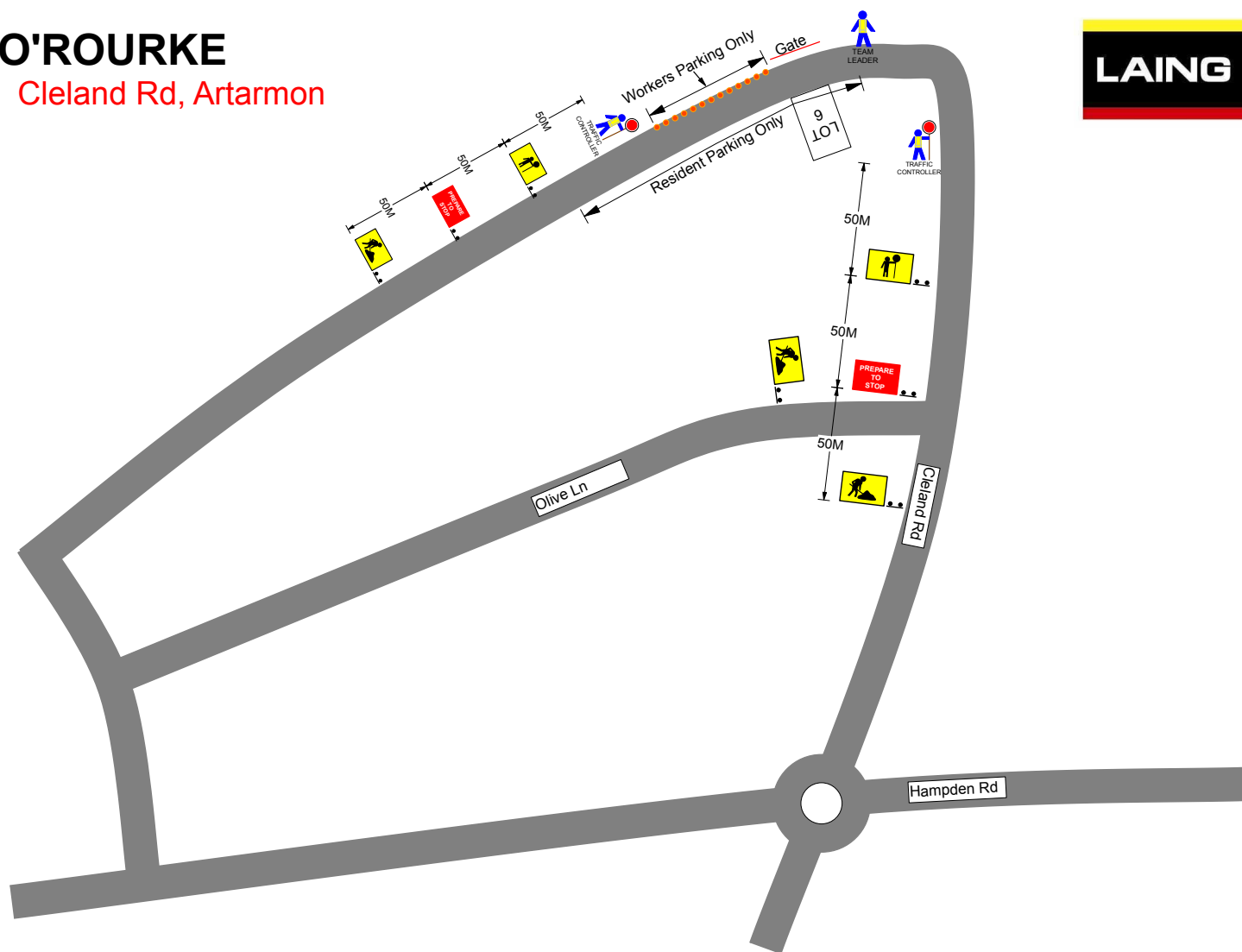


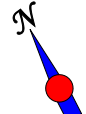
Client: Laing O'Rourke		WORKERS ON FOOT NO GO ZONE =  RESTRICTED ZONE =  SHARED ZONE =  SITE EXIT =  SITE ENTRY =  EVACUATION POINT = 	Implemented By	Approximate speed of traffic at beginning of taper	Traffic control at beginning of taper	Lateral shift	Merge taper	D = THE SPEED OF TRAFFIC MEASURED IN KM/H 80KM = 80M EG: 70KM = 70M 60KM = 60M 50KM = 50M SEE SECTION 4.2 TRAFFIC CONTROL AT WORK SITES MANUAL WORK AREA = 	 Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622 D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation	
Scope of Works: Construction works			Name -	45 or less	15	0	15			
Job location: Hopetoun Avenue, Chatswood			Cert No -	46 - 55	15	15	30			
			Date -	56 - 65	30	30	60			
			Signed -	66 - 75	N/A	70	115			
Author: Benjamin Wiffen	Plan No: Hopetoun-tcp-002 PLAN NOT TO SCALE	TCP - 83 USED AS A GUIDE		76 - 85	N/A	80	130			
Cert. No: 0040970460				86 - 95	N/A	90	145			
				96 - 105	N/A	100	160			
				Greater than 105	N/A	110	180			

LAING O'ROURKE

Location - Cleland Rd, Artarmon

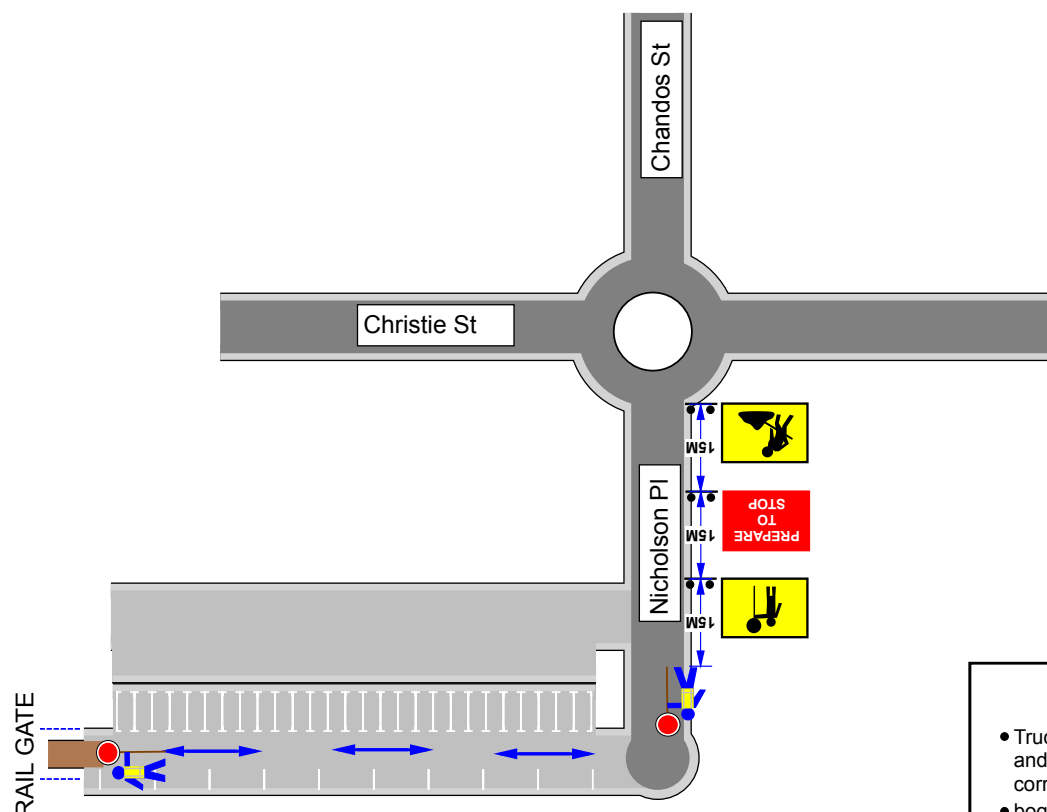
LAING O'ROURKE



Client: Laing O'Rourke	Revisions	Description	Date	WORKERS ON FOOT	Implemented By	Approximate speed of traffic	Traffic control at beginning of taper	Lateral shift taper	Merge taper	D = THE SPEED OF TRAFFIC MEASURED IN KM/H	 Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622 D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation	
Scope of Works: Gate Control				NO GO ZONE =	Name -	45 or less	15	0	15	80KM = 80M		
Job location: Cleland Rd, Artarmon				RESTRICTED ZONE =	Cert No -	46 - 55	15	15	30	EG: 70KM = 70M		
Author: Benjamin Wiffen	Plan No:XXXXXXXXX	TCP - 101 USED AS A GUIDE		SHARED ZONE =	Date -	56 - 65	30	30	60	60KM = 60M		
Cert. No: 5293016768	PLAN NOT TO SCALE			SITE EXIT = (X)	Signed -	66 - 75	N/A	70	115	50KM = 50M		
				SITE ENTRY = (E)		76 - 85	N/A	80	130	SEE SECTION 4.2 TRAFFIC CONTROL AT WORK SITES MANUAL		
				EVACUATION POINT = (EP)		86 - 95	N/A	90	145	WORK AREA =		
						96 - 105	N/A	100	160			
						Greater than 105	N/A	110	180			

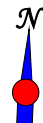
Sydney Trains

Location - Chandos St, St Leonards



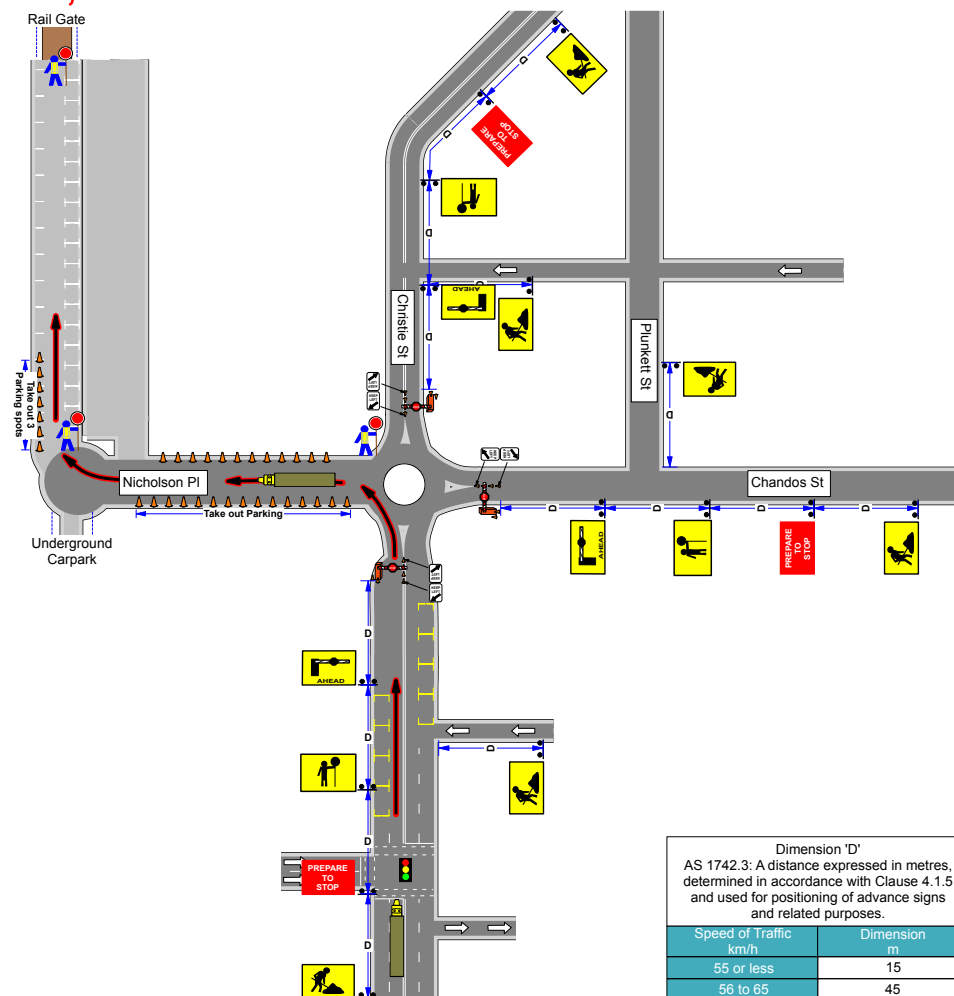
TCP NOTE'S

- Trucks shall be accessing the area via Chandos St, and the paid carpark between Chandos St and the corridor access gate at the north end of the carpark
- bogie tipper trucks shall be arriving and departing cyclically throughout the duration of the works
- Traffic Controllers will stop all vehicles entering car park when Bogie coming out

Client: Sydney Trains			WORKERS ON FOOT NO GO ZONE =  RESTRICTED ZONE =  SHARED ZONE =  SITE EXIT =  SITE ENTRY =  EVACUATION POINT = 		Implemented By	Approximate speed of traffic	Traffic control at beginning of taper	Lateral shift taper	Merge taper	D = THE SPEED OF TRAFFIC MEASURED IN KM/H 80KM = 80M EG: 70KM = 70M 60KM = 60M 50KM = 50M SEE SECTION 4.2 TRAFFIC CONTROL AT WORK SITES MANUAL WORK AREA = 	 Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622 D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation	
Scope of Works: Construction works			Name -			45 or less	15	0	15			
Job location: Chandos St, St Leonards			Cert No -			46 - 55	15	15	30			
Author: Benjamin Wiffen			Date -			56 - 65	30	30	60			
Cert. No: 0040970460			Signed -			66 - 75	N/A	70	115			
Plan No: J14925						76 - 85	N/A	80	130			
PLAN NOT TO SCALE						86 - 95	N/A	90	145			
TCP - 101-54 USED AS A GUIDE						96 - 105	N/A	100	160			
						Greater than 105	N/A	110	180			

Laing O'Rourke

Location - **Christie Street, St Leonards**



Dimension 'D'		Taper Lengths			
AS 1742.3: A distance expressed in metres, determined in accordance with Clause 4.1.5 and used for positioning of advance signs and related purposes.		Approximate speed of traffic at beginning of taper	Traffic control	Lateral shift taper	Merge taper
Speed of Traffic km/h	Dimension m				
55 or less	15	15	0	15	
56 to 65	45	15	15	30	
Greater than 65	speed of traffic, in Km/h	30	30	60	
		60 - 75	N/A	70	115
		76 - 85	N/A	80	130
		86 - 95	N/A	90	145
		96 - 105	N/A	100	160
		Greater than 106	N/A	110	180

Client: **Laing O'Rourke**
 Scope of Works: **Construction works**
 Job location: **Christie Street, St Leonards**

Author: **Benjamin Wiffen**
 Cert. No: **0040970460**



Plan No: **J15728**
 PLAN NOT TO SCALE

TCP - 83
 USED AS A GUIDE

WORKERS ON FOOT
 NO GO ZONE =
 RESTRICTED ZONE =
 SHARED ZONE =
 SITE EXIT =
 SITE ENTRY =
 EVACUATION POINT =
 WORK AREA =

Implemented By

Name -

Cert No -

Date -

Signed -



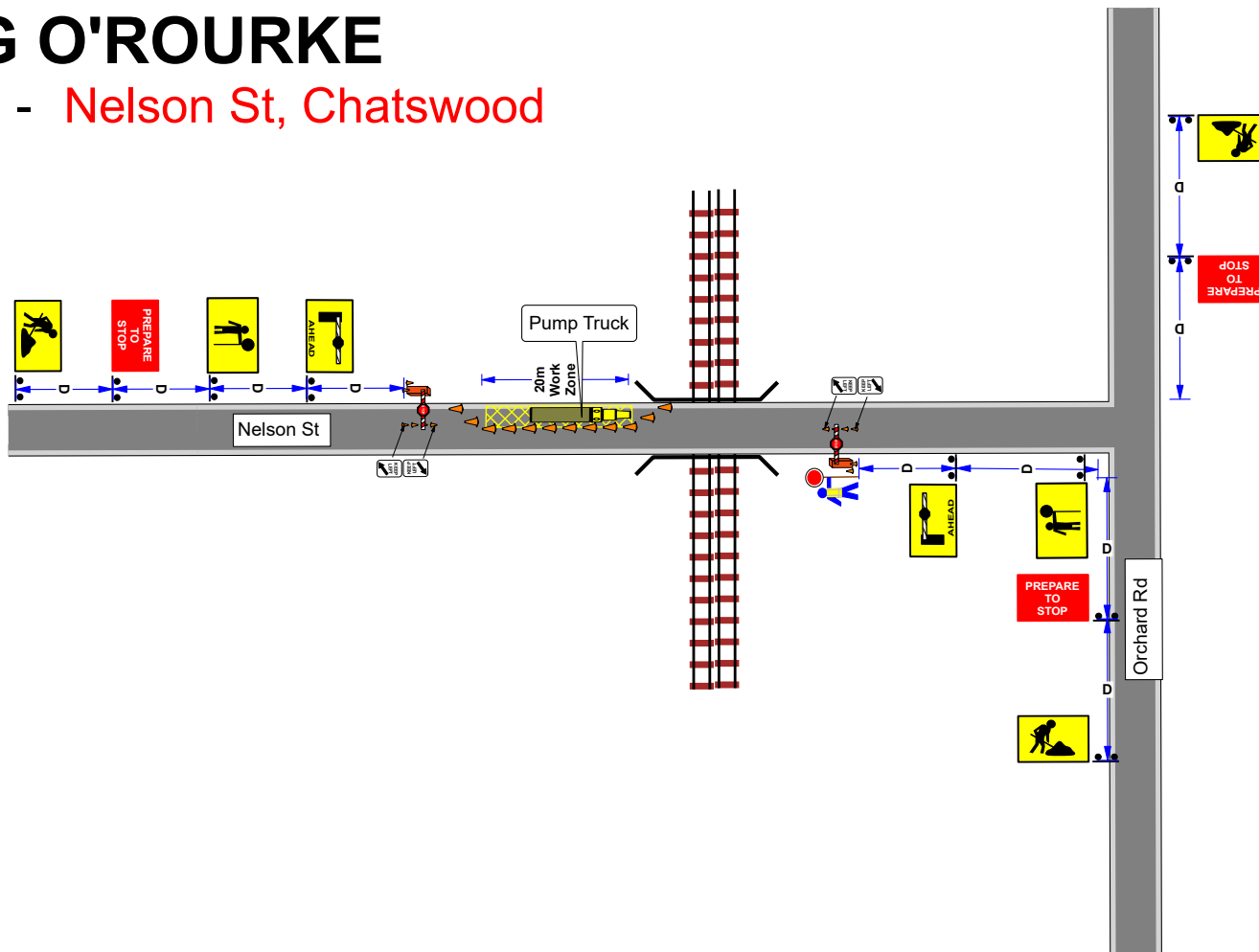
Web: www.ddtraffic.com.au
 Email: sydney@dd-group.com.au
 Phone: 1300 597 622

D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation



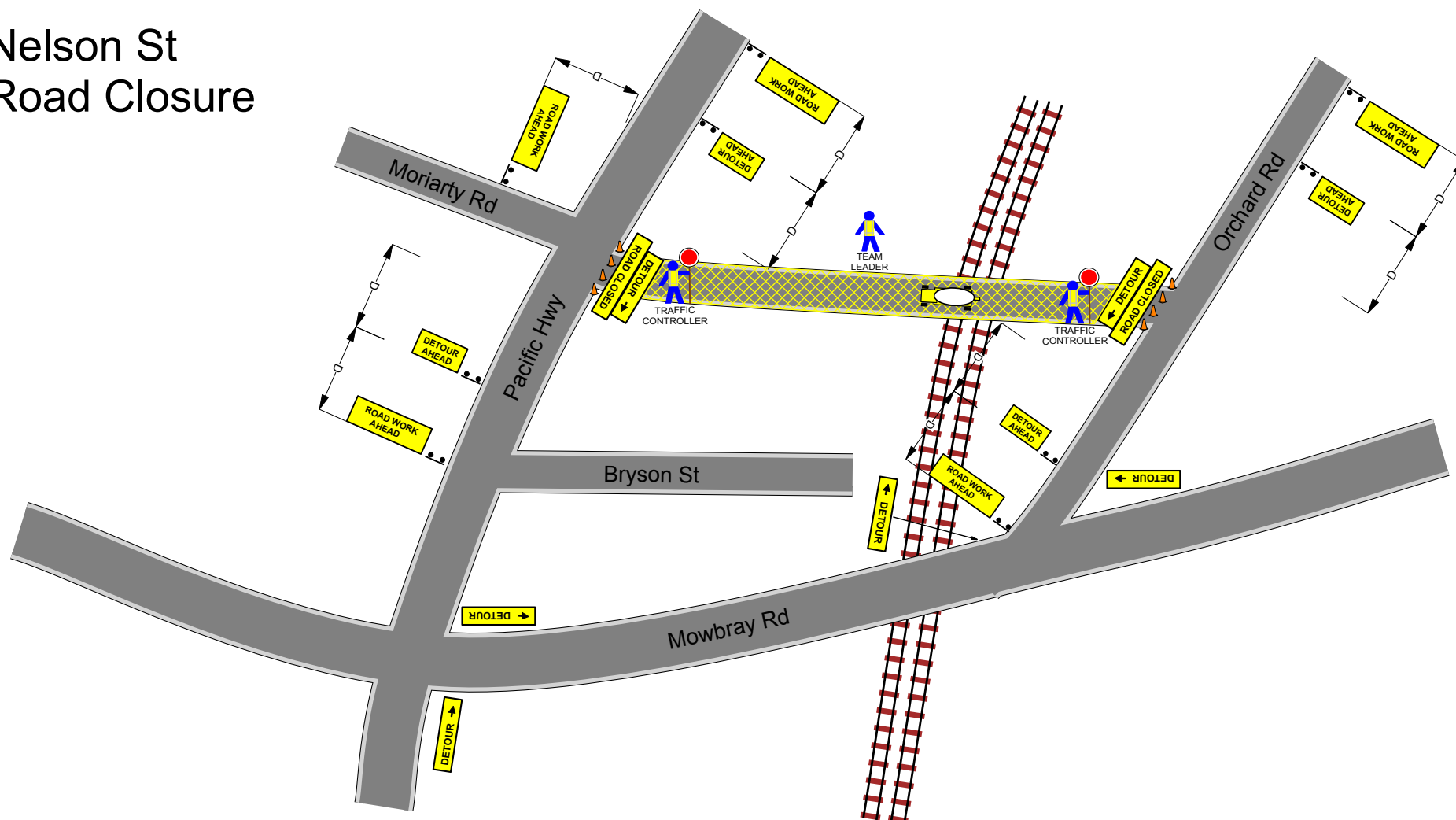
LAING O'ROURKE

Location - **Nelson St, Chatswood**



Client: Laing O'Rourke		LAING O'ROURKE		WORKERS ON FOOT		Implemented By		AS 1742.3: A distance expressed in metres, determined in accordance with Clause 4.1.5 and used for positioning of advance signs and related purposes.		Taper Lengths				D& Traffic Management Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622 D&D Traffic Management does not accept liability for implementation of this top if not directly involved in its implementation			
Scope of Works: Construction works				NO GO ZONE =		Name -				Approximate speed of traffic at beginning of taper							
Job location: Nelson St, Chatswood				RESTRICTED ZONE =		Cert No -				Lateral shift taper							
Author: Benjamin Wiffen Cert. No: 0040970460				SHARED ZONE =		Date -				Merge taper							
Plan No: J15728.2 PLAN NOT TO SCALE		TCP-83 USED AS A GUIDE		SITE EXIT =		Speed of Traffic km/h		Dimension m		45 or less 15 0 15							
				SITE ENTRY =		55 or less 15		15		46 - 55 15 15 30							
				EVACUATION POINT =		56 to 65 45		45		56 - 65 30 30 60							
						Greater than 65 speed of traffic, in Km/h		speed of traffic, in Km/h		66 - 75 N/A 70 115							
								WORK AREA =		76 - 85 N/A 80 130							
										86 - 95 N/A 90 145							
										96 - 105 N/A 100 160							
										Greater than 105 N/A 110 180							

Nelson St Road Closure

Client: **Laing O'Rourke**Scope of Works: **Construction works**Job location: **Nelson St, Chatswood**Author: **Nathan Mitchell**
Cert. No: **0032736280**Plan No: **J15728.3**
PLAN NOT TO SCALETCP-83
USED AS
A GUIDE**WORKERS ON FOOT**

NO GO ZONE =

RESTRICTED ZONE =

SHARED ZONE =

SITE EXIT =

SITE ENTRY =

EVACUATION POINT =

Implemented By

Name -

Cert No -

Date -

Signed -

Dimension 'D'
AS 1742.3: A distance expressed in metres,
determined in accordance with Clause 4.1.5
and used for positioning of advance signs
and related purposes.

Speed of Traffic km/h	Dimension m
55 or less	15
56 to 65	45
Greater than 65	speed of traffic, in Km/h

WORK AREA =

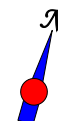
Taper Lengths

Approximate speed of traffic km/h	Traffic control beginning of taper	Lateral shift taper	Merge taper
45 or less	15	0	15
46 - 55	15	15	30
56 - 65	30	30	60
66 - 75	N/A	70	115
76 - 85	N/A	80	130
86 - 95	N/A	90	145
96 - 105	N/A	100	160
Greater than 105	N/A	110	180



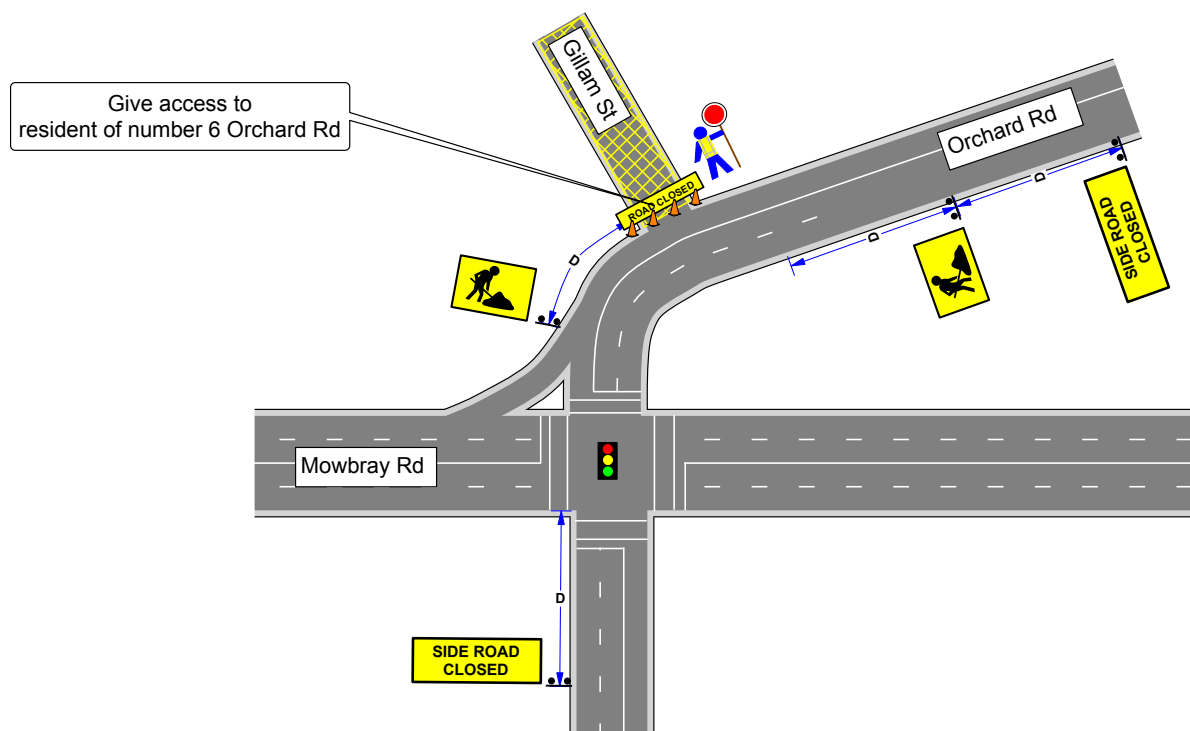
Web: www.ddtraffic.com.au
Email: sydney@dd-group.com.au
Phone: 1300 597 622

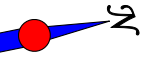
D&D Traffic Management does not accept
liability for implementation of this top
if not directly involved in its implementation



LAING O'ROURKE

Location - Gillam Street, Artarmon

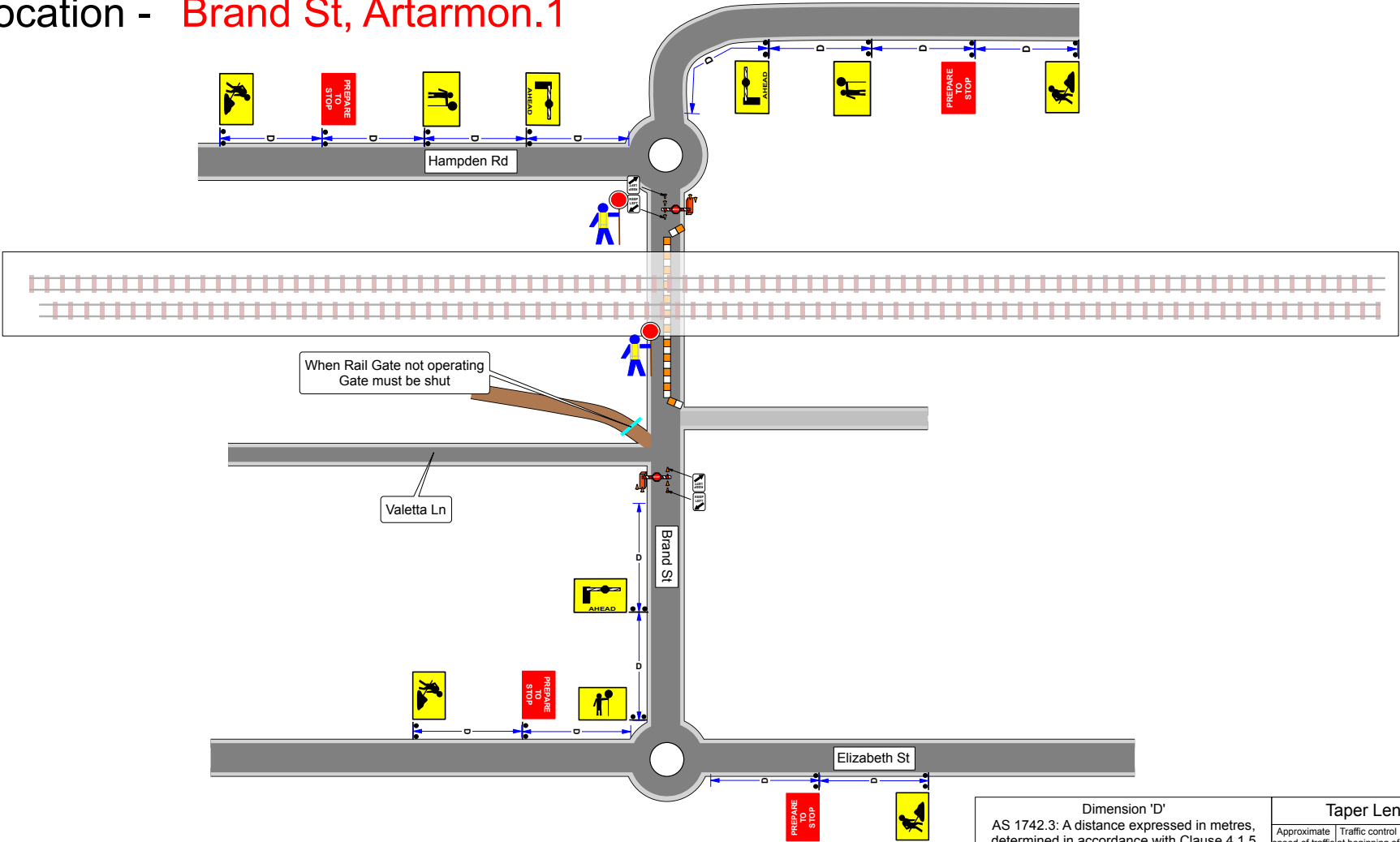


Client: Laing O'Rourke Scope of Works: Construction works Job location: Gillam Street, Artarmon Author: Benjamin Wiffen Cert. No: 0040970460	 Plan No: J15728 PLAN NOT TO SCALE	WORKERS ON FOOT NO GO ZONE =  RESTRICTED ZONE =  SHARED ZONE =  SITE EXIT =  SITE ENTRY =  EVACUATION POINT =  WORK AREA = 	Implemented By Name - Cert No - Date - Signed -	 Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622 D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation	
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Laing O'Rourke

Location - Brand St, Artarmon.1

Weekday



Client: **Laing O'Rourke**

Scope of Works: **Construction works**

Job location: **Brand St, Artarmon**

Author: **Benjamin Wiffen**

Cert. No: **0040970460**

Plan No: **K38-TCP-014.3**

TCP - 63 USED AS A GUIDE

PLAN NOT TO SCALE

WORKERS ON FOOT

NO GO ZONE = [red line]

RESTRICTED ZONE = [yellow line]

SHARED ZONE = [green line]

SITE EXIT = [blue arrow]

SITE ENTRY = [blue arrow]

EVACUATION POINT = [blue circle]

WORK AREA = [hatched box]

Implemented By

Name -

Cert No -

Date -

Signed -

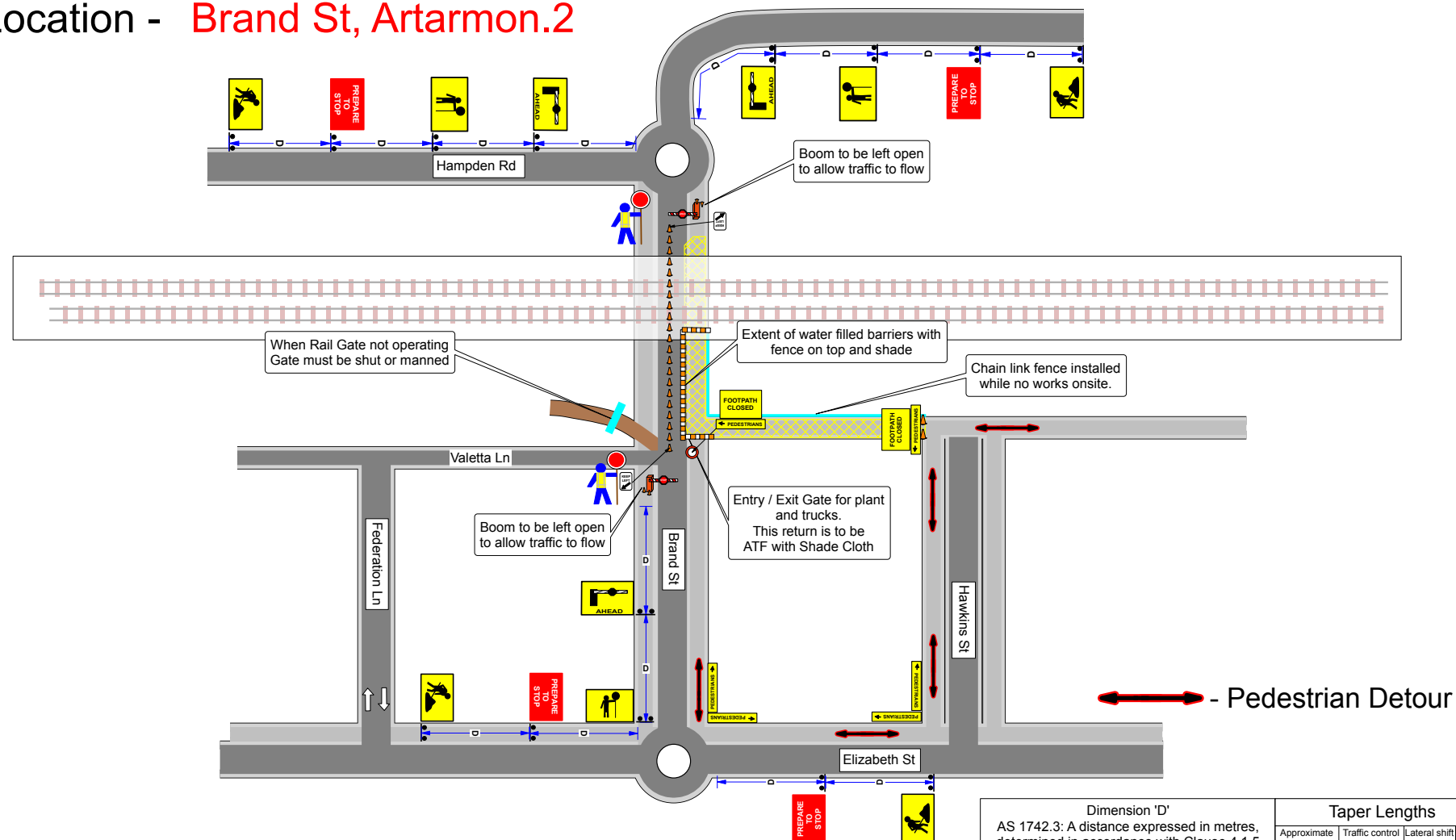
Web: www.ddtraffic.com.au
Email: sydney@dd-group.com.au
Phone: 1300 557 622

D&D Traffic Management does not accept liability for implementation of this top if not directly involved in its implementation

Dimension 'D'		Taper Lengths			
AS 1742.3: A distance expressed in metres, determined in accordance with Clause 4.1.5 and used for positioning of advance signs and related purposes.		Approximate speed of traffic	Traffic control at beginning of taper	Lateral shift taper	Merge taper
Speed of Traffic km/h	Dimension m				
45 or less	15	15	0	15	
46 - 55	15	15	15	30	
56 - 65	30	30	60	115	
66 - 75	N/A	70	130		
76 - 85	N/A	80	145		
86 - 95	N/A	90	160		
96 - 105	N/A	100	180		
Greater than 106	N/A	110			

Laing O'Rourke

Location - Brand St, Artarmon.2



Client: **Laing O'Rourke**

Scope of Works: **Construction works**

Job location: **Brand St, Artarmon**

Author: **Benjamin Wiffen**

Cert. No: **0040970460**



Plan No: **K38-TCP-014.6**
PLAN NOT TO SCALE

TCP - 83
USED AS
A GUIDE

WORKERS ON FOOT

NO GO ZONE =
RESTRICTED ZONE =
SHARED ZONE =
SITE EXIT =
SITE ENTRY =
EVACUATION POINT =
WORK AREA =

Implemented By

Name -

Cert No -

Date -

Signed -



Web: www.ddtraffic.com.au
Email: sydney@dd-group.com.au
Phone: 1300 597 622
D&D Traffic Management does not accept liability for implementation of this top if not directly involved in its implementation

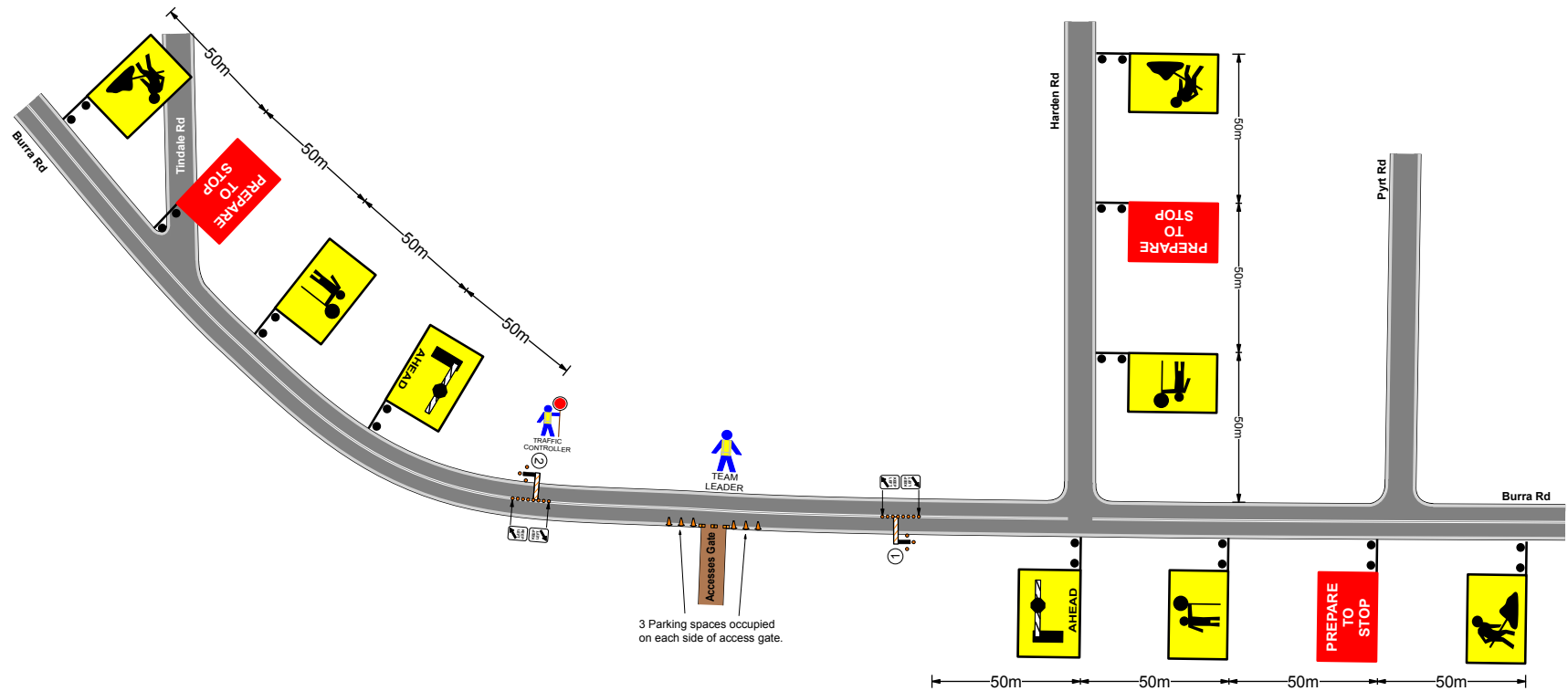


Dimension 'D'
AS 1742.3: A distance expressed in metres, determined in accordance with Clause 4.1.5 and used for positioning of advance signs and related purposes.

Speed of Traffic km/h	Dimension m
55 or less	15
56 to 65	45
Greater than 65	speed of traffic, in Km/h

Taper Lengths

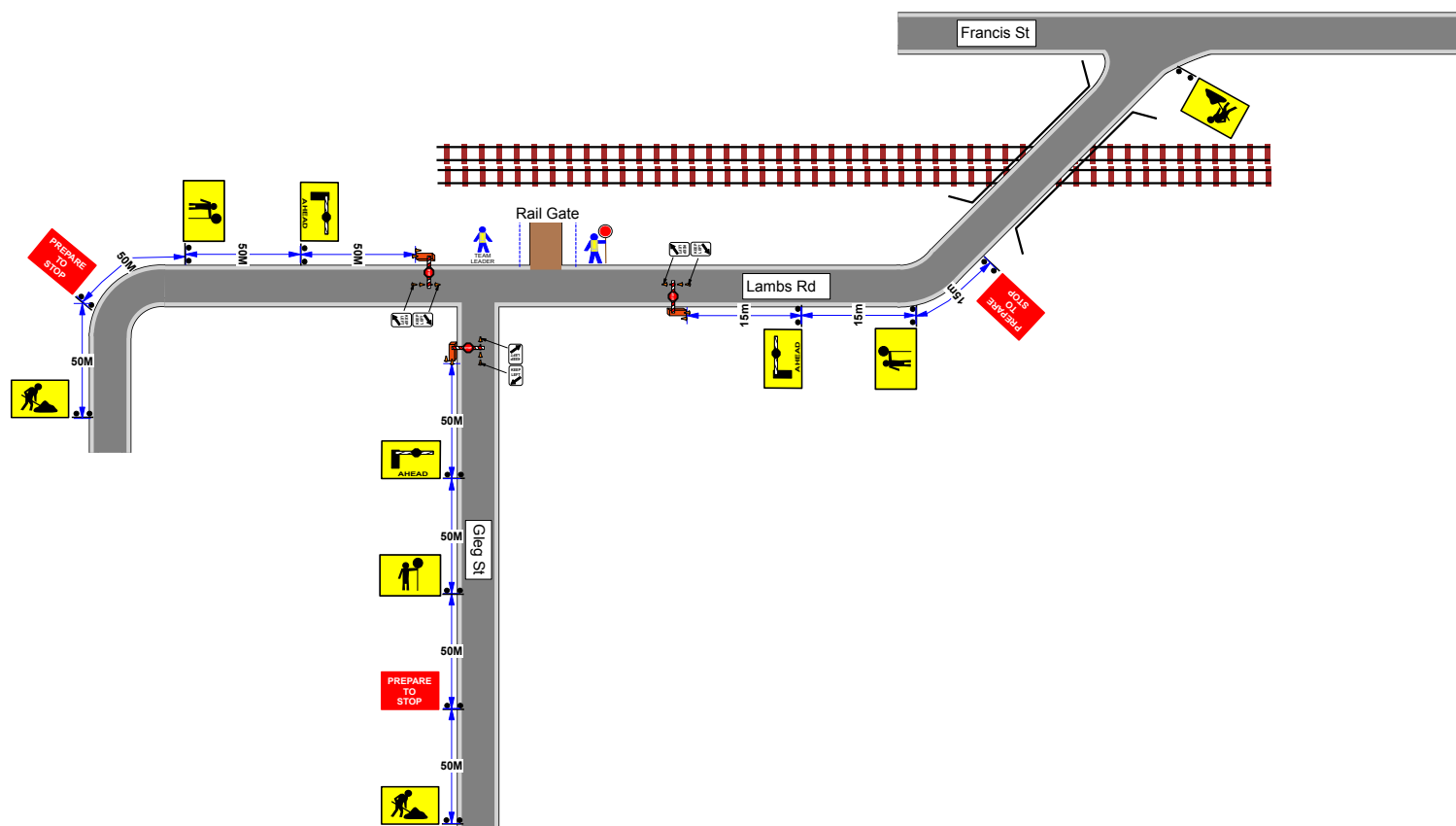
Approximate speed of traffic at beginning of taper	Traffic control at beginning of taper	Lateral shift taper	Merge taper
45 or less	15	0	15
46 - 55	15	15	30
56 - 65	30	30	60
66 - 75	N/A	70	115
76 - 85	N/A	80	130
86 - 95	N/A	90	145
96 - 105	N/A	100	160
Greater than 106	N/A	110	180



Client: Laing O'Rourke				WORKERS ON FOOT		Implemented By		Dimension 'D' AS 1742.3: A distance expressed in metres, determined in accordance with Clause 4.1.5 and used for positioning of advance signs and related purposes.		Taper Lengths <table><tr><th>Approximate speed of traffic</th><th>Control beginning of taper</th><th>Lateral shift taper</th><th>Change lane taper</th></tr><tr><td>45 or less</td><td>15</td><td>0</td><td>15</td></tr><tr><td>45 - 55</td><td>15</td><td>15</td><td>30</td></tr><tr><td>55 - 65</td><td>30</td><td>30</td><td>60</td></tr><tr><td>65 - 75</td><td>N/A</td><td>70</td><td>115</td></tr><tr><td>75 - 85</td><td>N/A</td><td>80</td><td>130</td></tr><tr><td>85 - 95</td><td>N/A</td><td>90</td><td>145</td></tr><tr><td>95 - 105</td><td>N/A</td><td>100</td><td>160</td></tr><tr><td>105 or more</td><td>N/A</td><td>110</td><td>180</td></tr></table>				Approximate speed of traffic	Control beginning of taper	Lateral shift taper	Change lane taper	45 or less	15	0	15	45 - 55	15	15	30	55 - 65	30	30	60	65 - 75	N/A	70	115	75 - 85	N/A	80	130	85 - 95	N/A	90	145	95 - 105	N/A	100	160	105 or more	N/A	110	180	 Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622			
Approximate speed of traffic	Control beginning of taper	Lateral shift taper	Change lane taper																																																		
45 or less	15	0	15																																																		
45 - 55	15	15	30																																																		
55 - 65	30	30	60																																																		
65 - 75	N/A	70	115																																																		
75 - 85	N/A	80	130																																																		
85 - 95	N/A	90	145																																																		
95 - 105	N/A	100	160																																																		
105 or more	N/A	110	180																																																		
Scope of Works: Construction works				NO GO ZONE = 		Name -																																															
Job location: Burra Rd, Artarmon				RESTRICTED ZONE = 		Cert No -																																															
Author: Imran Ali Syed				SHARED ZONE = 		Date -																																															
Cert. No: 0047966612				SITE EXIT = 																																																	
				SITE ENTRY = 																																																	
				EVACUATION POINT = 																																																	
Plan No: J15728		TCP .83 USED AS A GUIDE		PLAN NOT TO SCALE		Signed -		WORK AREA = 																																													
										D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation																																											

Laing O'Rourke

Location - **Lambs Road, Artarmon**



Client: Laing O'Rourke		LAING O'ROURKE		WORKERS ON FOOT NO GO ZONE = RESTRICTED ZONE = SHARED ZONE = SITE EXIT = X SITE ENTRY = E EVACUATION POINT = EP		Implemented By		Approximate speed of traffic	Traffic control at beginning of taper	Lateral shift taper	Merge taper	D = THE SPEED OF TRAFFIC MEASURED IN KM/H 80KM = 80M EG: 70KM = 70M 60KM = 60M 50KM = 50M SEE SECTION 4.2 TRAFFIC CONTROL AT WORK SITES MANUAL WORK AREA =	D&D Traffic Management Web: www.ddtraffic.com.au Email: sydney@dd-group.com.au Phone: 1300 597 622 D&D Traffic Management does not accept liability for implementation of this tcp if not directly involved in its implementation	N
Scope of Works: Construction works						Name -	45 or less	15	0	15				
Job location:							Cert No -	46 - 55	15	15	30			
Author: Benjamin Wiffen		Date -	56 - 65	30	30	60								
Cert. No: 0040970460			Signed -	66 - 75	N/A	70	115							
				76 - 85	N/A	80	130							
				86 - 95	N/A	90	145							
				96 - 105	N/A	100	160							
				Greater than 105	N/A	110	180							

Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

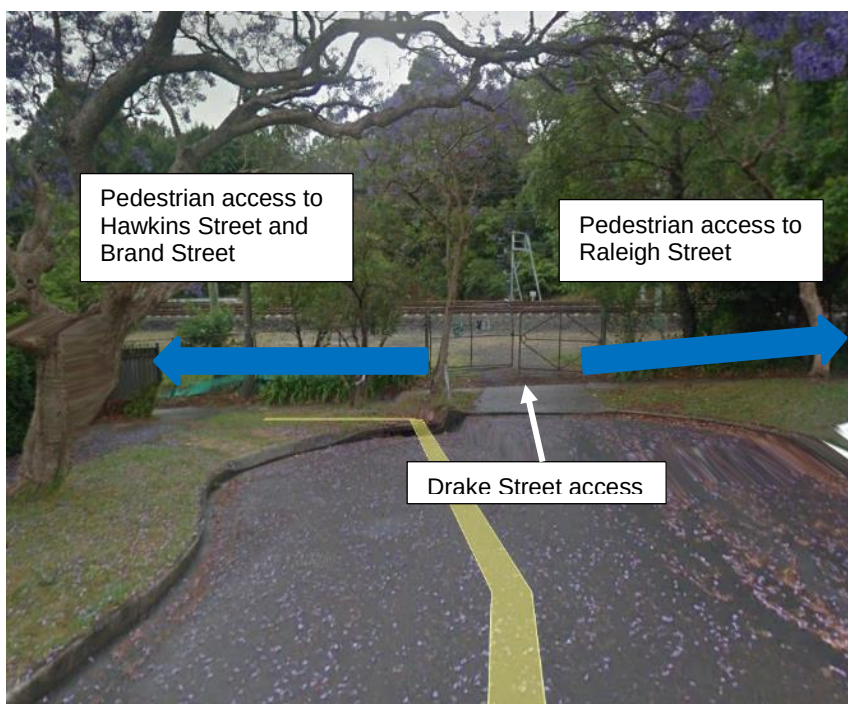
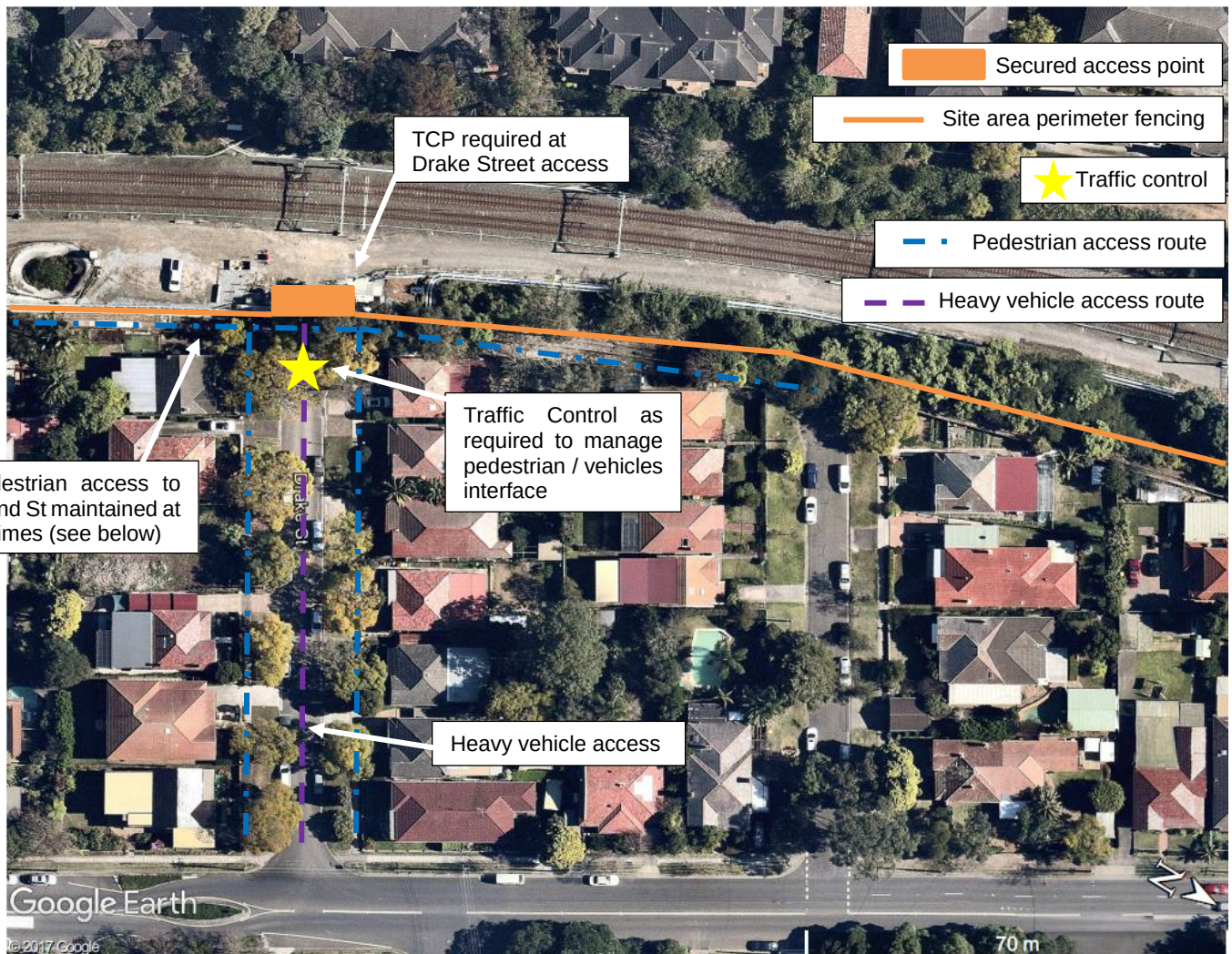
Project No:
K38

Date:
08 February 2018

Rev:
Final (Rev 04)

Appendix C – Vehicle Management Plans and Pedestrian Management Plans

Gate 1: Drake Street VMP / PMP



Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

Project No:
K38

Date:
08 February 2018

Rev:
Final (Rev 04)

Gate 2: Hopetoun Avenue VMP / PMP



Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

Project No:
K38

Date:
08 February 2018

Rev:
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Gate 3: Brand Street/Valetta Lane VMP / PMP



Construction Traffic Management Plan

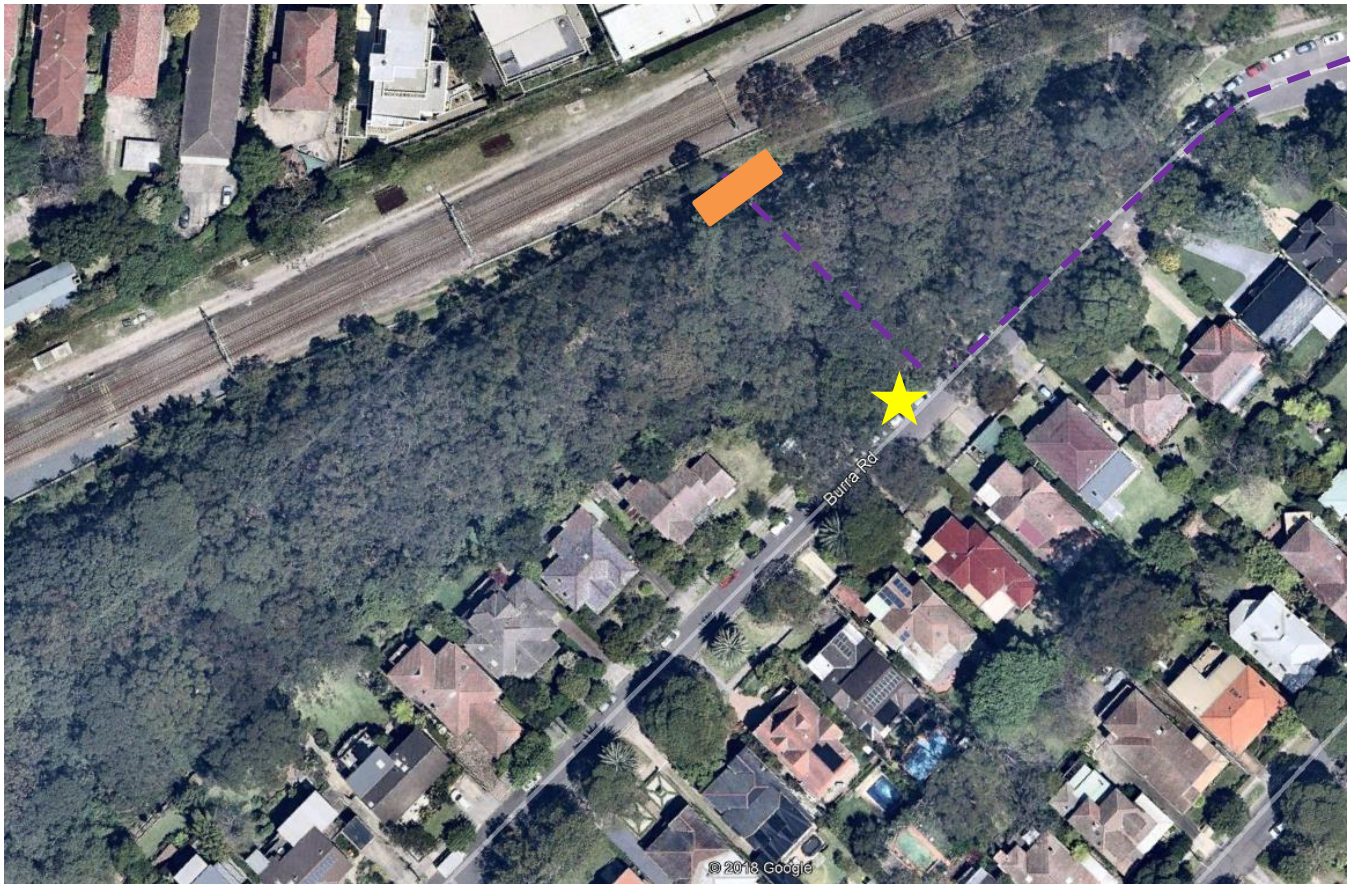
Project:
Northern Corridor Works Portion 7A+7B

Project No:
K38

Date:
08 February 2018

Rev:
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Gate 4: Burra Road VMP / PMP



Construction Traffic Management Plan

Project:	Project No:	Date:	Rev:
Northern Corridor Works Portion 7A+7B	K38	08 February 2018	Final (Rev 04)

Appendix D – Hoarding Plans

Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

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Appendix E - Road Safety Audit

A Road Safety Audit was undertaken on the NCW CTMP and TCPs by Bitzios Consulting staff with no previous involvement in the project. The audit was undertaken on 21 December 2017. The issued raised and LORAC's responses to the issues are recorded in the table below.

Item	Details	LORAC Response	Status
1	Cleland Road site– there is a vertical curve (crest) north of the access gate to the rail corridor. The proposed T1-5 sign should be located on this crest (not south of it) to ensure visibility to southbound drivers. Recommend sign be placed opposite house number 18.	TCP updated to show T1-5 sign opposite house number 18.	Closed
2	Cleland Road site– the kink at the northern end at the 90 degree bend makes this section unsuitable for heavy vehicles.	Noted. Heavy vehicles will enter and leave via Parkes Road.	Closed
3	Drake Street site – In general it is noted that parked vehicles in Elizabeth Street and Coree Road may obscure the temporary road work signs. Care will need to be taken when placing the signs in order to ensure maximum visibility to approaching drivers.	Noted. Traffic control personnel to ensure maximum visibility of signs near parked vehicles.	Closed
4	Drake Street site – the drawing does not accurately reflect the very short distance between Drake Street and Coree Road. As such, the northern boom gate may need to be located north of Coree Road in order to provide sufficient manoeuvring space for turning trucks.	TCP updated to reflect the short distance between Drake Street and Coree Road.	Closed
5	Drake Street site – it would be helpful if the drawing showed other intersecting streets on the western side of Elizabeth Street (Hawkins Street and Brand Street). This would assist in placement of the roadworks signs.	TCP updated to show other intersecting streets along Elizabeth Street.	Closed
6	Drake Street site – the cross section drawing has incorrect directions for Drake Street (it runs east-west).	Cross-section drawing updated to show correct directions.	Closed
7	Drake Street site – for truck access to Drake Street via Elizabeth Street, it is noted that the Brand Street railway underpass has a height limit of 4.5m. Therefore, any trucks exceeding this height would need to use Elizabeth Street only, not Hampden Road. Further, we note that there is a No Right Turn restriction from Mowbray Road (eastbound) to Elizabeth Street. Inbound trucks may need to do a 'G' turn via Young Street, Nea Street and Orchard Road, subject to Council approval.	Over-height vehicles are not expected to use Brand Street. Therefore, the alternative route is not needed. The suggested route will be considered if the need to use over-height vehicles arises.	Closed
8	Hopetoun Avenue site - In general, it is noted that parked vehicles in Orchard Road and Nea Street may obscure the temporary road work signs. Care will need to be taken when placing the signs in order to ensure maximum visibility to approaching drivers.	Noted. Traffic control personnel to ensure maximum visibility of signs near parked vehicles.	Closed
9	Hopetoun Avenue site - it would be helpful if the drawing showed the other intersecting street on the western side of Elizabeth Street (Nelson Street). This would assist in placement of the roadworks signs.	TCP updated to show other intersecting streets along Orchard Road.	Closed
10	Hopetoun Avenue site – The drawing shows removal of northern side parking during construction, but is this really necessary given the generous width of Hopetoun Avenue?	TCP updated to show parking is not removed. Swept paths show parking is able to be left in place during access movements.	Closed
11	Hopetoun Avenue site – Tryon Lane is one-way eastbound (bicycles excepted) to Tryon Street. Therefore it appears unnecessary to provide roadworks warning signs for an expected low number of westbound cyclists. Such signs would need to be placed in the bicycle lane, causing cyclists to cross into opposing traffic.	TCP updated to not provide signs on Tyron Lane and Tyron Street.	Closed

Construction Traffic Management Plan

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Appendix F – Stakeholder Consultation

Sydney Metro City & Southwest Stakeholder Comment Tracker



**Transport
for NSW**



**Transport
Roads & Maritime
Services**

Document: CTMP 7A/7B
Version: Rev 3 - 7 Dec 2018
Date of review: 11/01/2019

RESPONSE STATUS
O Open
C Closed
CS Closed subject to additional action / information

Item No	Contract	Contractor	Doc Rev	Requirement Ref (C&A or REMM)	Stakeholder	Reviewer	Date	Item Description, Page, Para, Org ref	RMS comment	Contractor Response	Date	Response Status (date)	RMS response (date)	Contractor Response	Response Status (date)
1	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	Page 28 and 29 of 117	Description of works is probably not sufficient to describe the works. Please provide hour by hour program for review.	High level scope, program provided in Appendix G.	04-Feb-2019				
2	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	Page 28 of 117	Regarding reverse movement - please indicate how reversing movement will be conducted. Please provide estimate of each movement in minutes.	3/5 minutes per reverse. Reverse movements. Approx 25 from Pac Hwy	04-Feb-2019				
3	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	Page 28 of 117 in conjunction with page 7 of 8 of TCP	Depending on the final position for the truck - truck overhang may clash/overlap onto NB Pacific Hwy. Please show how this will be managed on site.	Nelson street length will provide sufficient stabling. There will be no overhang. If there is no room they will be stabled elsewhere. As indicated this will be either Albert Ave or Chandos Street carpark.	04-Feb-2019				
4	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	TCP Page 1	3 vehicles proposed - please provide details, frequency and provide detailed program on each reversing operations	Feedback at TCO was to undertake a singular reverse back. 1 truck movement approximately every 1.5 hrs. Frequency may change subject to performance of grider removal.	04-Feb-2019				
5	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	TCP Page 1	Have LORAC considered shock wave traffic queue from the operations?	Yes, as such we are mitigating the impact by undertaking 1 reverse back only.	04-Feb-2019				
6	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	TCP Page 1	Have LORAC consider impact to buses replacing train?	Yes, as such we are mitigating the impact by undertaking 1 reverse back. Methodology has been presented to Sydney Trains and has been agreed/ no objections received.	04-Feb-2019				
7	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	TCP Page 1	Have LORAC consider impacts to emergency services?	Yes, emergency services will be managed in accordance with section 2.1.11 and Appendix 8 of the project Safety MP. Coordination with TMC will be maintained at all times. In the event emergency services are required to enter the works area. Works will be suspended providing access. Works will re-commence until directed as safe to do so by Emergency Services.	04-Feb-2019				
8	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	TCP Page 1	Have LORAC consider potential impact to traffic queue from the intersection across Nelson St	Reverse back will not be undertaken unless adequate room available, intersection is clear.	04-Feb-2019				
9	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	TCP Page 8	Truck exiting Nelson St appears unsafe (crossing 3 lanes of SB Pacific Hwy)	Gap in lights to be utilised to minimise delay and assist movement in conjunction with control in TCP. Swept path analysis indicates we must use 3 lanes.	04-Feb-2019				
10	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	General	Please show crane establishment program	Crane to be established out of peak hours. Arrive at 0400, approximately 2 hrs to rig. Two trucks, and crane to undertake mobilisation operations.	04-Feb-2019				
11	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	General	Please provide details in CTMP - how many graders are to be filled on Pacific Hwy side and Orchard Rd Side	Refer to Appendix G Graders to be filled in manageable sections, and in accordance with local road limits.	04-Feb-2019				
12	Northern Corridor Works	Laing O'Rourke			RMS	VS	11-Jan-2019	General	Consider minimising grider lift from Pacific Hwy side.	Work crews/trains within rail corridor restrict movements across corridor to Pac Hwy.	04-Feb-2019				
13	Northern Corridor Works	Laing O'Rourke			RMS	ZA	14-Jan-2019	General	minor alteration where the TCP on Page 2 mentions the use of a non-standard sign to show the Boom Barrier. RMS has an sign in the register (T1-35N) that can be used.	Noted - to be adopted. Refer to revised plans.	04-Feb-2019				
14	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2018		SM	PAB	16-Jan-2019	Section 1.1	Are the works being carried out as part of the Linewide contract? If so, this may need to be acknowledged?	No they are not, they are NCW Portion 7, it is a separate contract.	04-Feb-2019				
15	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2018		SM	PAB	16-Jan-2019	Section 1.2	Would be worthwhile clarifying if the CTMP seeks to cover early works associated with the scope items listed under portion 7A and 7B. That is, SCO and RMS need to be assured that any early or preparatory works that may have traffic impacts are managed in the CTMP.	The prep works is covered under the approved CTMP - Rev 02. These works are to be undertaken at night, with no impact to traffic.	04-Feb-2019				
16	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2018		SM	PAB	16-Jan-2019	Section 1.2	Make clear up front that works will be undertaken both during and outside rail possessions. Can this be explained in a table?	Nelson street bridge removal is during possession only.	04-Feb-2019				
17	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2018		SM	PAB	16-Jan-2019	Section 2.1.4	Displaced car spaces - make clear the estimated time period during which the car spaces will be impacted.	Weekend 34 only (23/24 Feb) - approximately 20 spaces.	04-Feb-2019				
18	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2018		SM	PAB	16-Jan-2019	Section 6.0	Make clear that pedestrian and cyclist access across the Nelson St bridge has been closed since TSE closed the road to through traffic in November 2018. Clarify what, if any, changes NCW contractor will make to access across the bridge during the works.	The bridge has been closed since 3 Nov. The bridge will be removed.	04-Feb-2019				
19	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2018		SM	PAB	16-Jan-2019	General	Note that the changes to the intersection of Mowbray Rd / Hampden Rd are forecast to result in delays during and possibly outside peak periods. This may impact heavy vehicle access to and from the NCW work sites.	Noted. Works associated with Nelson Street Bridge removal are not expected to be impacted as they will be conducted during a possession, outside of TSE work hours.	04-Feb-2019				
20	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2018		SM	PAB	16-Jan-2019	Section 8.0 & table 5	It may be advisable to contact the TSE IG team to clarify the status of OSCM and PBS heavy vehicles in the vicinity of the Chateau drive site (including Mulgoona County's requirements/expectations) that may have an impact on the northern corridor works.	Noted, interface is conducted with TSE regularly including traffic movements. They are aware of our access requirements for the weekend and are facilitating the works.	04-Feb-2019				
21	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2019		SCO	JC	17-Jan-2019	2.1.4	The SCO considers the reversing movements and associated traffic arrangements to facilitate the delivery Nelson St Bridge removal to be a significant traffic and transport impact, please provide a schedule of works for the activity including inductive truck schedule/reversing.	Noted, schedule to be provided.	04-Feb-2019				
22	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2019		SCO	JC	17-Jan-2019	2.1.4 and Appendix B	Please provide TCPs showing arrangements in Nelson St (east and west) during the bridge removal works, indicating local pedestrian, vehicle and parking management. Also indicate the position of the trucks within the site during loading.	Noted	04-Feb-2019				
23	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2019		SCO	JC	17-Jan-2019	2.1.4 and Appendix B	How will vehicles exiting onto the Pacific Hwy from Nelson St be managed?	26 movements. Note spans in Appendix G.	04-Feb-2019				
24	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2019		SCO	JC	17-Jan-2019	2.1.9	Is the extent of the bridge removal works limited to weekend 34?	Yes, if there is an unexpected delay work may occur on WE38 (contingency only).	04-Feb-2019				
25	Northern Corridor Works	Laing O'Rourke	7A/7B, Rev 3, 7 Dec 2019		SCO	JC	17-Jan-2019	General	As per the minutes of the TCO meeting held 18 December 2018, please establish the conference call for the program update over the weekend.	Noted. This will be established.	04-Feb-2019				

Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

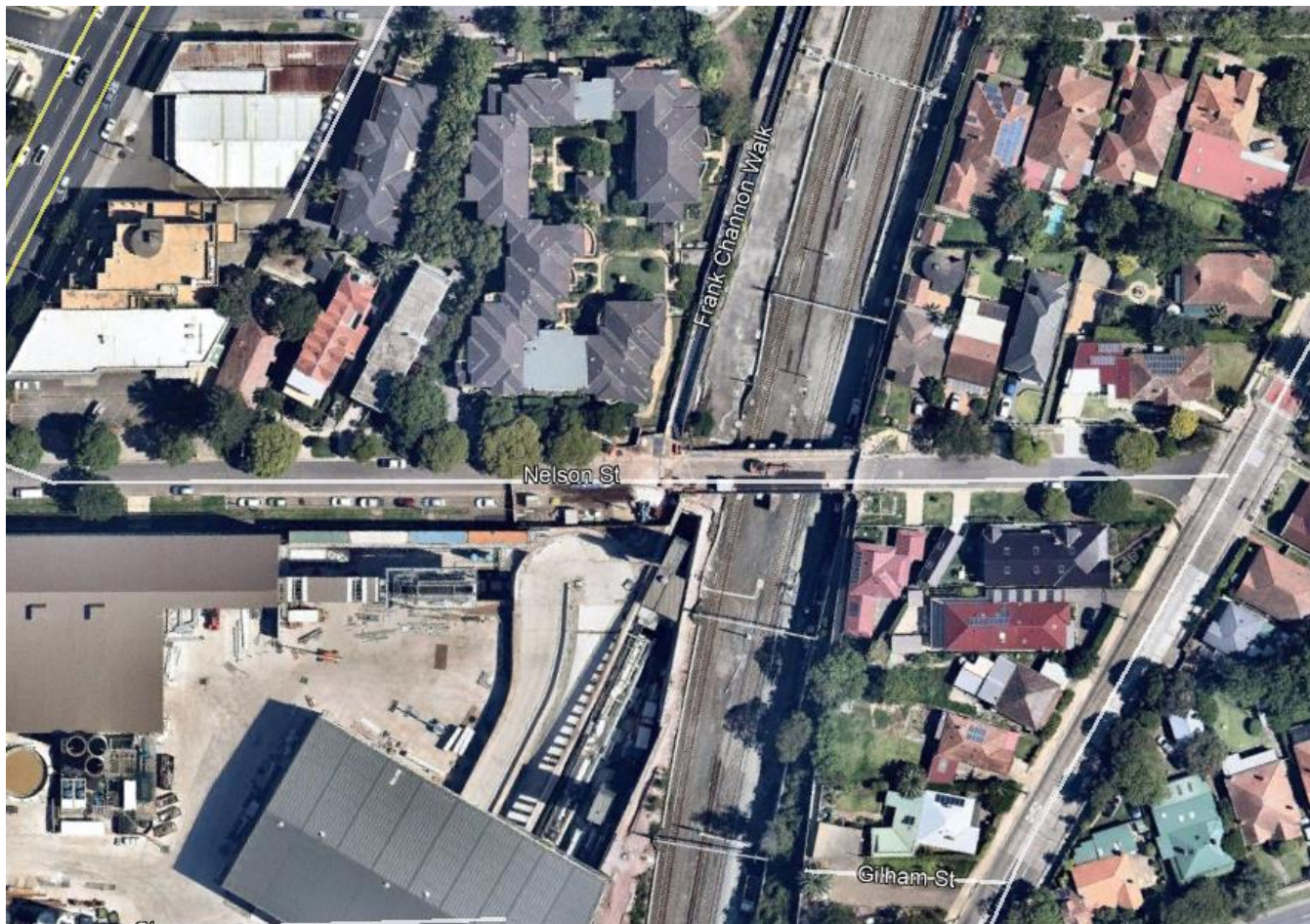
Project No:
K38

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Appendix G – Nelson Street Bridge Removal

Nelson Street Bridge is located between Pacific Highway and Orchard Road in Chatswood NSW. The Bridge comprises of 3 spans each containing multiple concrete planks. The bridge is supported by 3 piers, two of which are exposed on the middle and western sections of the bridge. The bridge is to be removed to facilitate the City and South West Metro Northern Transfer Structure site.



Nelson Street Bridge worksite

The demolition will be completed in a number of stages;

WE / WEEK	DATES	WORKS ACTIVITIES
32	11/02/2019 – 15/02/2019	Day shift – Prep deck slab and partial saw cut/core slab. * Night Shift – Remove service trench slab & bridge screens *
33	18/02/2019 – 22/02/2019	Day shift – Prep deck slab and partial saw cut/core slab. Night Shift – Remove service trench slab & bridge screens
34	23/02/2019 - 24/02/2018	Demolition of Nelson Street Bridge: - Mobilisation of cranes on Nelson Street (East & West) - Removal of spans 1, 2 and 3 - Truck movements via Orchard and Pacific Hwy - Demobilisation of cranes
38, 51, 03, 05, 12 or 20		Demolition of Existing Piers 1 & 2 *

*minimal impact to traffic, works contained within the rail corridor

Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

Project No:
K38

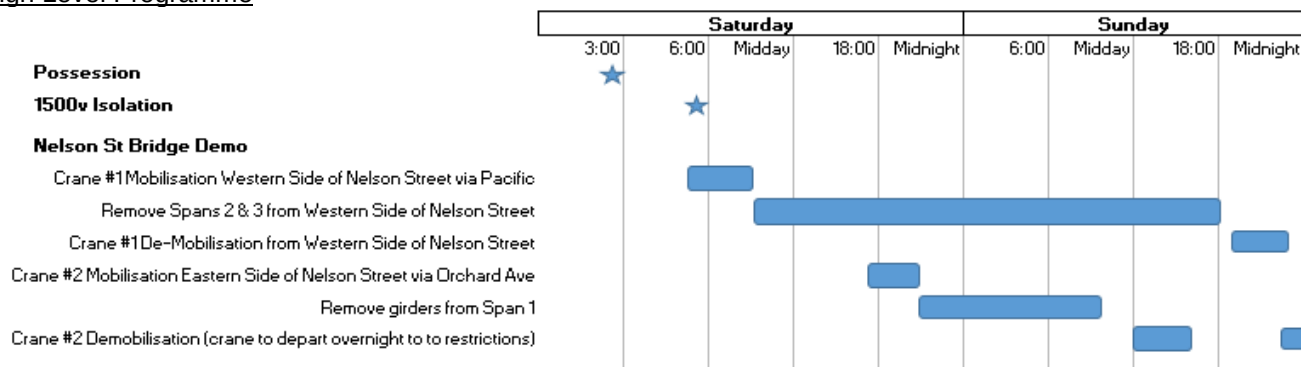
Date:
08 February 2018

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Weekend 34 Demolition/ Deck Removal

- Nelson Street Traffic Control from Thursday to restrict parking. Resident parking to be maintained.
- Crane to mobilise 0400 23/2/19
- Plank lifts to take place between 0800 23/2/19 to 1800 24/2/19
- 26 Reversing movements for plank removals – 1 hour per lift (2 hours for initial planks)
- Minimise impact to Pacific Highway
 - Store semi-trailers before morning peak on Nelson Street
 - One reverse movement at a time to minimise shock wave to traffic flows
 - Reversing movements to coincide with exit of trucks
 - Propose to use Scats to assist truck movements – Albert Ave
 - Propose to close kerb side lane of Pacific Highway between during non-peak (night) to minimise disruption to local roads in Chatswood
- Truck Attenuators to stable in Ellis Street
- Semi-trailers to stable in Albert Ave with weekend closure of on street parking or at Chandos Street car park

High Level Programme



Deck Removal Sequence

Span 1 – Orchard Road

- Restricted to plank removal from 2100 23/02/19 to 1000 24/02/19 due to train movements on the up main
- Minimum 8 semi trailer reversing movements for plank removal.
- Semi trailer movement from Mowbray Road and reverse to site
- Crane + 3 support vehicles for crane mobilisation and demobilisation

Spans 2 and 3 – Pacific Highway

- Plank removal from 0800 23/02/19 to 1800 24/02/19
- Up to 26 semi trailer reversing movements for plank removal in a fully coordinated movement.
- Based on 1 hour per lift
- Crane + 3 support vehicles for crane mobilisation and demobilisation. Crane to mobilise / demobilise out of hours
- Stabilise as many Semi trailers as possible in Nelson Street prior to peak hour on Saturday.
- Maintain access to 9 Nelson Street

Construction Traffic Management Plan

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Nelson Street Bridge Span 2 and 3 Plank Removal times

Task Name	Duration	Start	Finish
Western End Works (Span 2 and 3)			
Crane Mobilisation on Western End	2 hrs	Sat 23/02/19 4:00 AM	Sat 23/02/19 6:00 AM
Prep for removal of Span 2	3 hrs	Sat 23/02/19 6:00 AM	Sat 23/02/19 7:00 AM
Semi Mobilisation on Nelson Street	2 hrs	Sat 23/02/19 7:00 AM	Sat 23/02/19 9:00 AM
Span 2 Removal	14 hrs	Sat 23/02/19 9:00 AM	Sat 23/02/19 11:00 PM
Plank 1	2 hrs	Sat 23/02/19 9:00 AM	Sat 23/02/19 10:00 AM
Plank 2	1 hr	Sat 23/02/19 11:00 AM	Sat 23/02/19 12:00 PM
Plank 3	1 hr	Sat 23/02/19 12:00 PM	Sat 23/02/19 1:00 PM
Plank 4	1 hr	Sat 23/02/19 1:00 PM	Sat 23/02/19 2:00 PM
Plank 5	1 hr	Sat 23/02/19 2:00 PM	Sat 23/02/19 3:00 PM
Plank 6	1 hr	Sat 23/02/19 3:00 PM	Sat 23/02/19 4:00 PM
Plank 7	1 hr	Sat 23/02/19 4:00 PM	Sat 23/02/19 5:00 PM
Plank 8	1 hr	Sat 23/02/19 5:00 PM	Sat 23/02/19 6:00 PM
Plank 9	1 hr	Sat 23/02/19 6:00 PM	Sat 23/02/19 7:00 PM
Plank 10	1 hr	Sat 23/02/19 7:00 PM	Sat 23/02/19 8:00 PM
Plank 11	1 hr	Sat 23/02/19 8:00 PM	Sat 23/02/19 9:00 PM
Plank 12	1 hr	Sat 23/02/19 9:00 PM	Sat 23/02/19 10:00 PM
Plank 13	1 hr	Sat 23/02/19 10:00 PM	Sat 23/02/19 11:00 PM
Span 2 Removal Complete		Sat 23/02/19 11:00 PM	
Span 3 Removal		Sat 23/02/19 11:00 PM	Sun 24/02/19 4:00 PM
Prep for removal of Span 3	3 hrs	Sat 23/02/19 11:00 PM	Sun 24/02/19 2:00 AM
Plank 1	2 hrs	Sat 23/02/19 2:00 AM	Sun 24/02/19 4:00 AM
Plank 2	1 hr	Sun 24/02/19 4:00 AM	Sun 24/02/19 5:00 AM
Plank 3	1 hrs	Sun 24/02/19 5:00 AM	Sun 24/02/19 6:00 AM
Plank 4	1 hrs	Sun 24/02/19 6:00 AM	Sun 24/02/19 7:00 AM
Plank 5	1 hrs	Sun 24/02/19 7:00 AM	Sun 24/02/19 8:00 AM
Plank 6	1 hrs	Sun 24/02/19 8:00 AM	Sun 24/02/19 9:00 AM
Plank 7	1 hrs	Sun 24/02/19 9:00 AM	Sun 24/02/19 10:00 AM
Plank 8	1 hrs	Sun 24/02/19 10:00 AM	Sun 24/02/19 11:00 AM
Plank 9	1 hrs	Sun 24/02/19 11:00 AM	Sun 24/02/19 12:00 PM
Plank 10	1 hrs	Sun 24/02/19 12:00 PM	Sun 24/02/19 1:00 PM
Plank 11	1 hrs	Sun 24/02/19 1:00 PM	Sun 24/02/19 2:00 PM
Plank 12	1 hrs	Sun 24/02/19 2:00 PM	Sun 24/02/19 3:00 PM
Plank 13	1 hrs	Sun 24/02/19 3:00 PM	Sun 24/02/19 4:00 PM
Span 3 Removal Complete		Sun 24/02/19 4:00 PM	

* Note timings subject to change due to unknown bridge conditions*

Reporting

- Hour by hour programme
- Regular project updates and reports including conference calls
- RMS reporting Saturday & Sunday
- Go No/Go's included in programme for cessation of works and installation of temporary works. Note that the bridge demolition can be stopped at any time and structure secured during the weekend possession.

Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

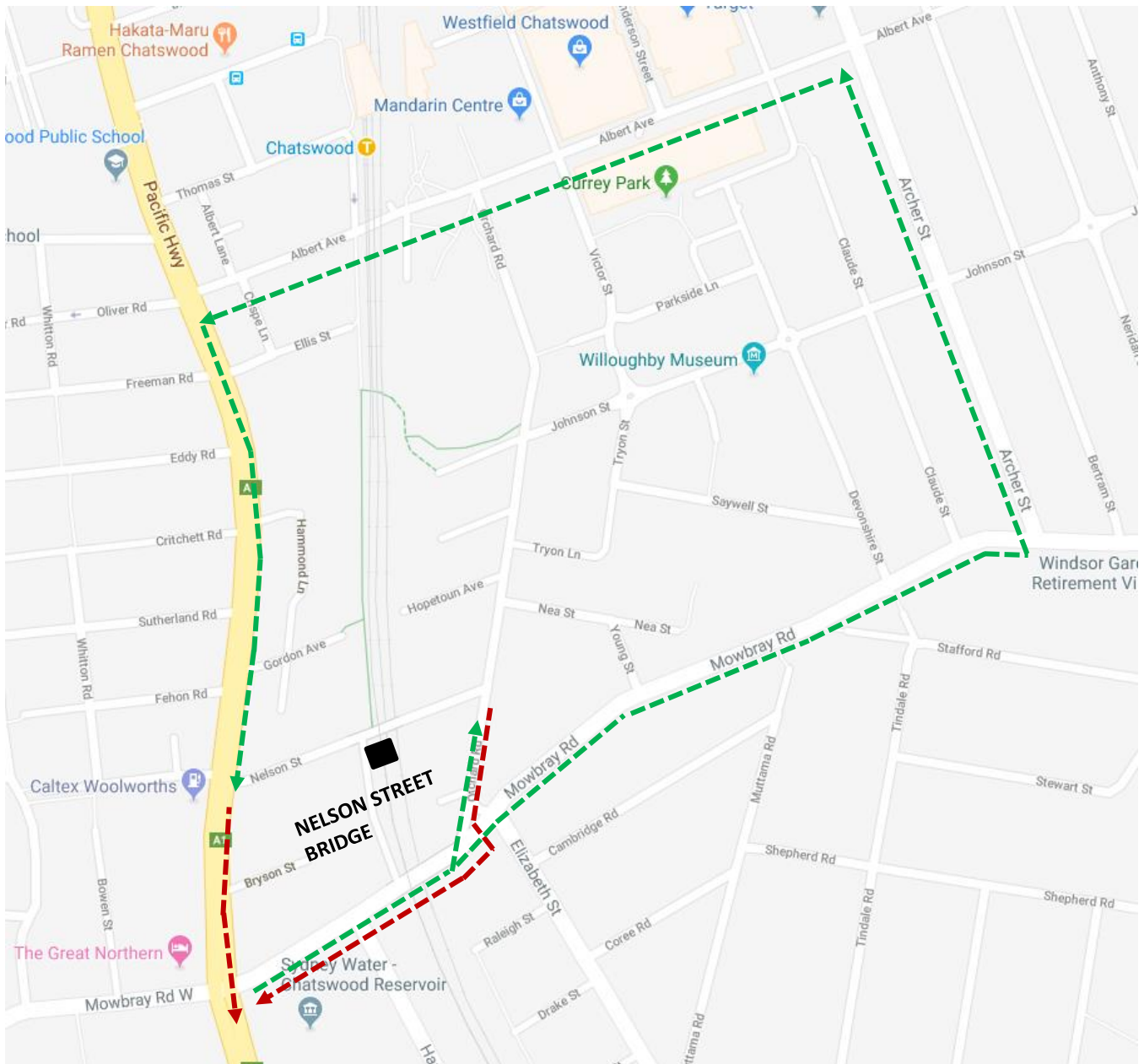
Project No:
K38

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Haulage Route

Access to Nelson Street Bridge



Legend:

- > Arrival Route
- > Departure Route
- Site Access Gate
- Local centre

Construction Traffic Management Plan

Project:
Northern Corridor Works Portion 7A+7B

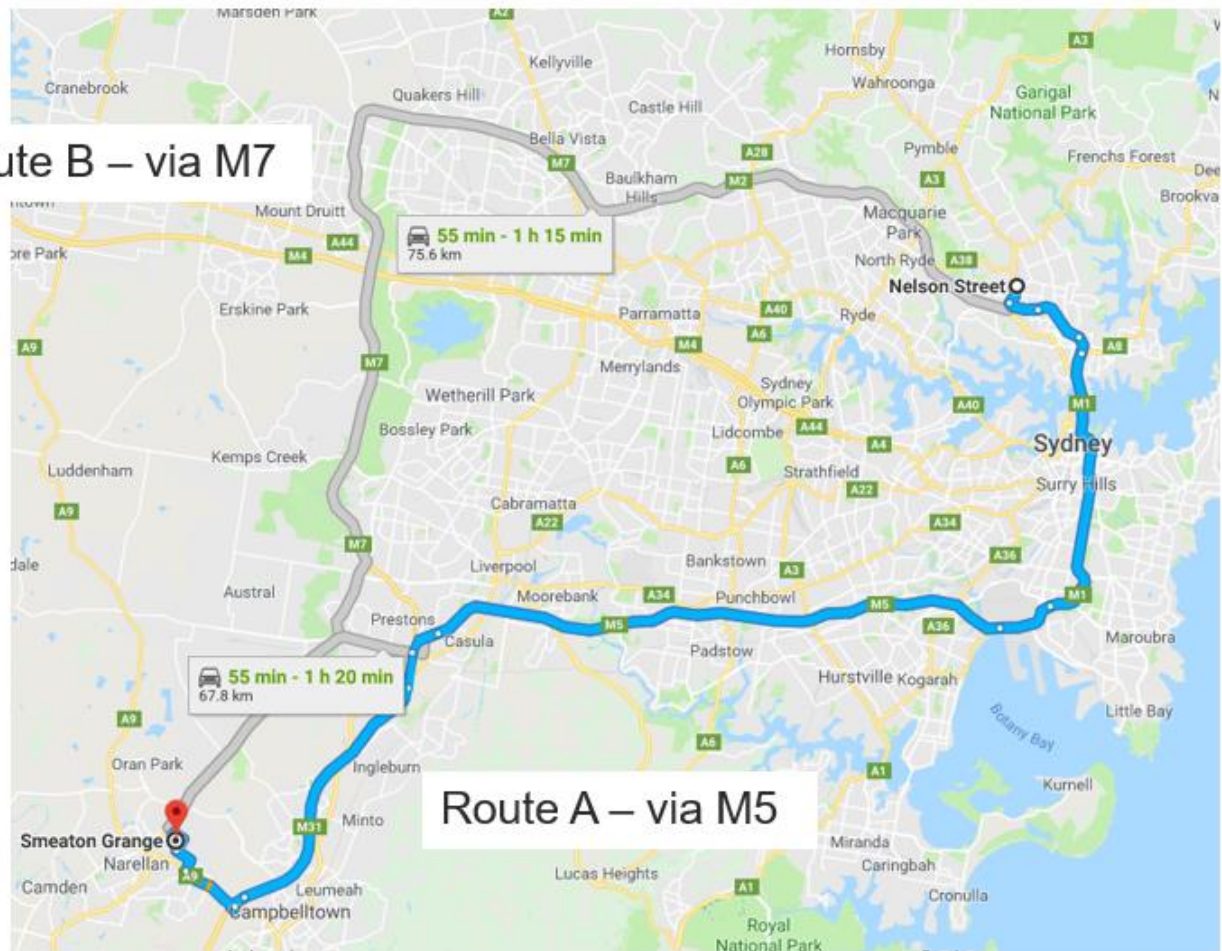
Project No:
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Transport of Material from Nelson Street Bridge

Route B – via M7



Construction Traffic Management Plan

Project:

Northern Corridor Works Portion 7A+7B

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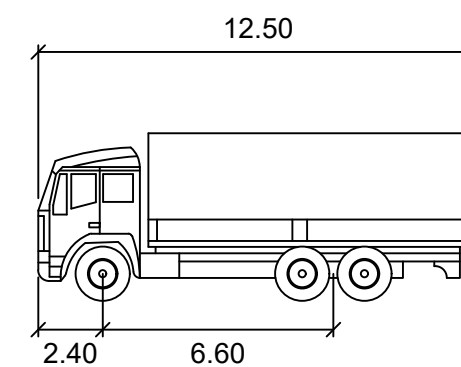
Final (Rev 04)

Swept Paths

Sheet Number	Location	Description of Control
1	Nelson Street	12.5m Heavy Rigid Vehicle – Reverse back from Orchard Road
2	Nelson Street	12.5m Heavy Rigid Vehicle – Right turn from Nelson Street onto Orchard Road
3	Nelson Street	19.0m Articulated Vehicle – Reverse back from Orchard Road
4	Nelson Street	19.0m Articulated Vehicle – Right turn from Nelson Street onto Orchard Road
5	Nelson Street	19.0m Articulated Vehicle – Reverse back from Pacific Highway
6	Nelson Street	19.0m Articulated Vehicle – Left turn from Nelson Street onto Pacific Highway



NOTE:
REFER TO ORCHARD ROAD TO NELSON STREET
TRAFFIC CONTROL PLAN



HRV	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

DESIGN VEHICLE

BITZIOS
— consulting
traffic engineering ■ transport planning

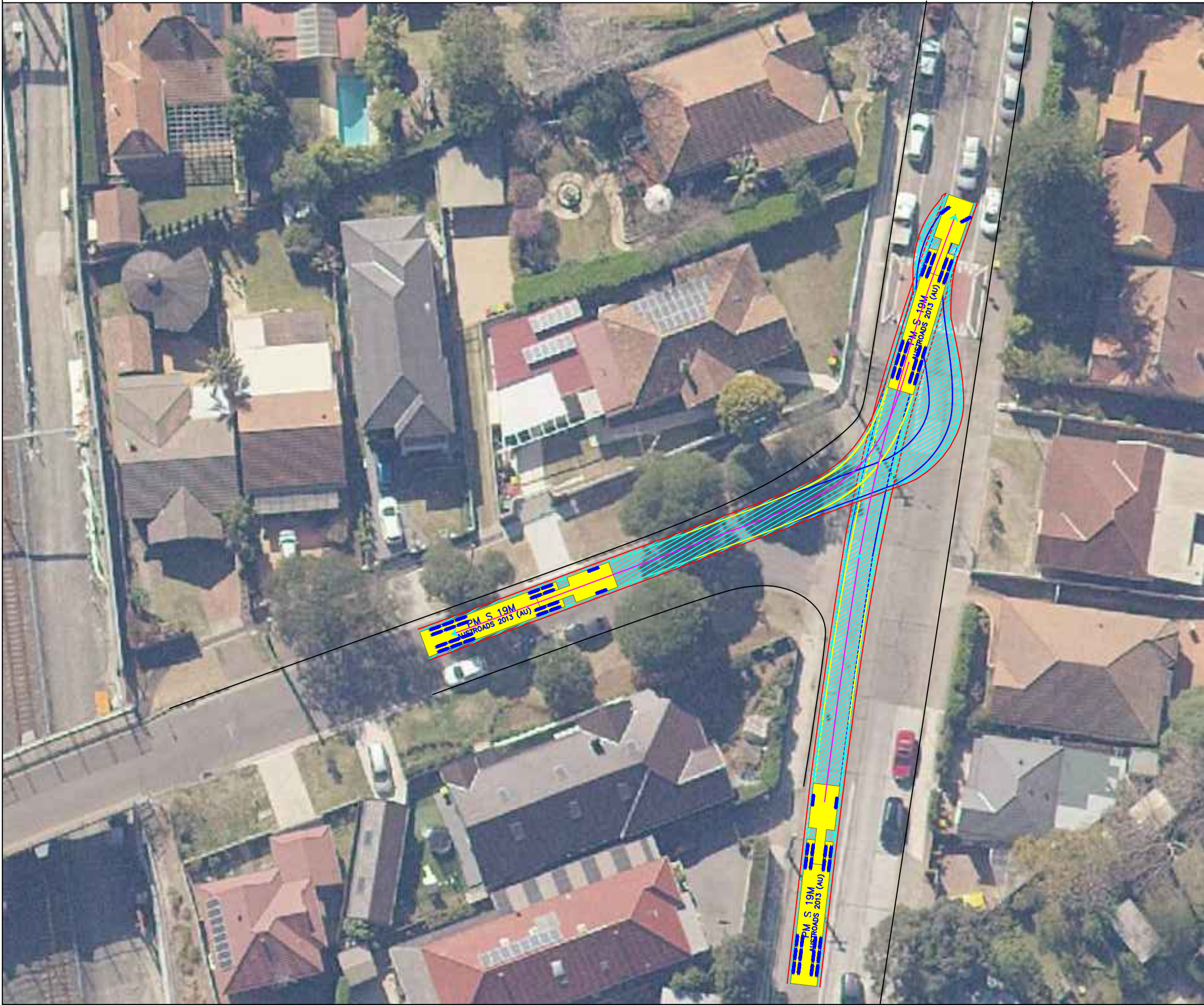
Gold Coast
Suite 26, 58 Riverwalk Avenue, Robina QLD 4226.
P: (07) 5562-5377
W: www.bitizosconsulting.com.au

Brisbane
Level 2, 428 Upper Edward Street, Spring Hill 4000.
P: (07) 3831-4442
E: admin@bitizosconsulting.com.au

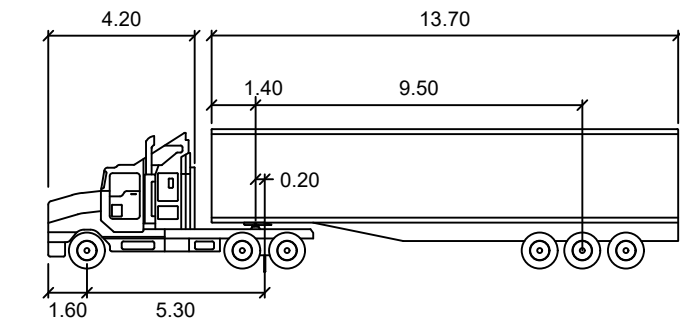
Sydney
Studio 203, 3 Gladstone Street, Newtown NSW 2042.
P: (02) 9557 6202

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Project		Design	Drawn	Checked
LOR SYDNEY METRO NW PORTION 7B CTMP		M.H	M.H	A.G
Title	SWEPT PATH 12.5m Heavy Rigid Vehicle (HRV) FROM SOUTH ORCHARD ROAD REVERSE ONTO NELSON STREET	FOR INFORMATION ONLY		Date
				07.12.2018
		Project Number	Sheet Number	Issue
		P3318	102	001



NOTE:
REFER TO ORCHARD ROAD TO NELSON STREET
TRAFFIC CONTROL PLAN



PM S 19M	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

BITZIOS

consulting

traffic engineering ■ transport planning

Gold Coast

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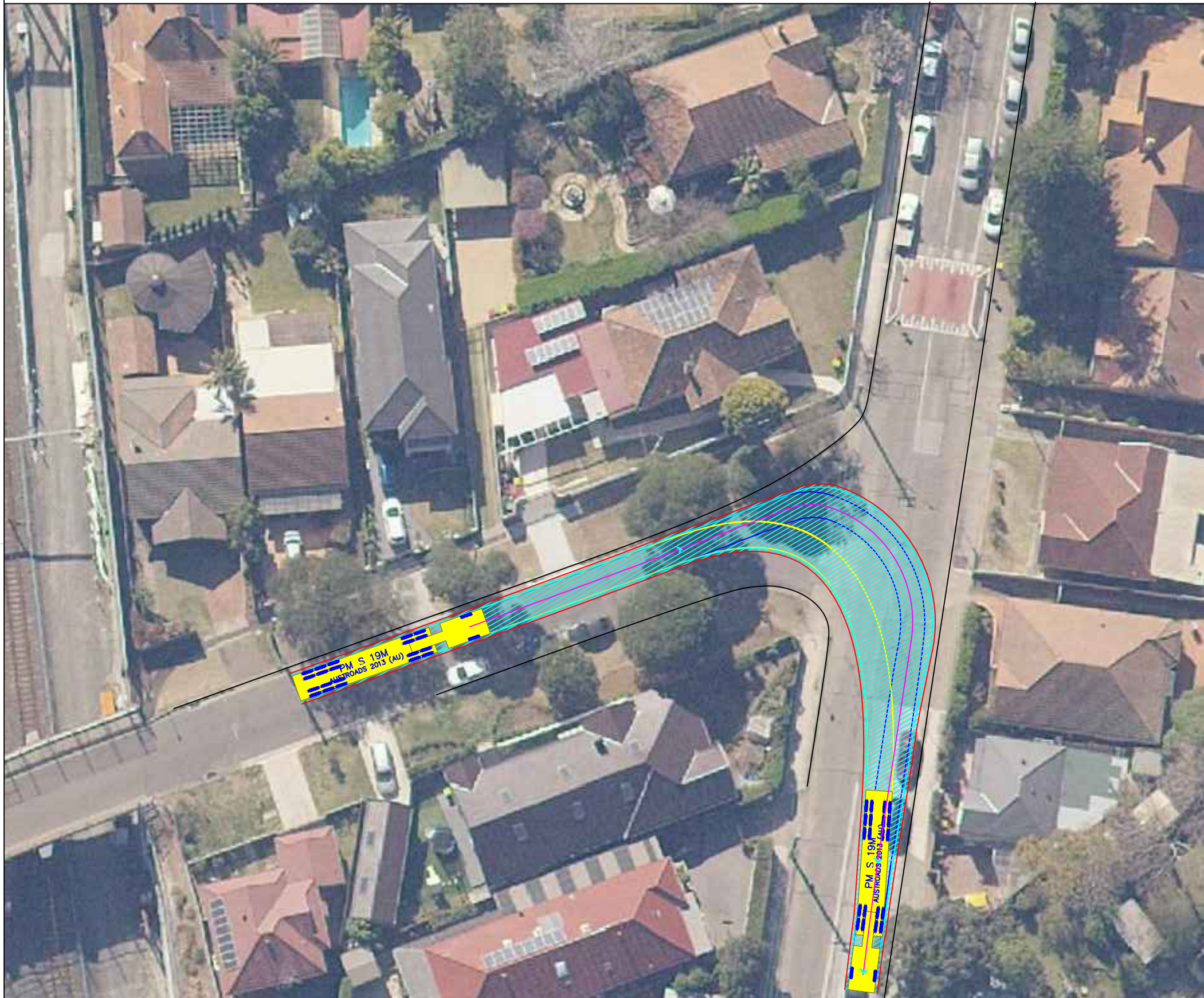
Sydney

Studio 203, 3 Gladstone Street, Newtown NSW 2042.

P: (02) 9557 6202

REVISIONS			
Issue	Revisions/Descriptions	Drawn	Date
001	SWEPT PATH ANALYSIS	M.H	07.12.2018

Project	LOR SYDNEY METRO NW PORTION 7B CTMP	Design	M.H	Drawn	M.H	Checked	T.W
Title	SWEPT PATH 19m SEMI-TRAILER FROM ORCHARD STREET REVERSE ONTO NELSON STREET	FOR INFORMATION ONLY				Date	07.12.2018
		Project Number	P3318	Sheet Number	104	Issue	001



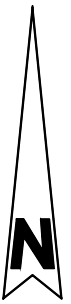
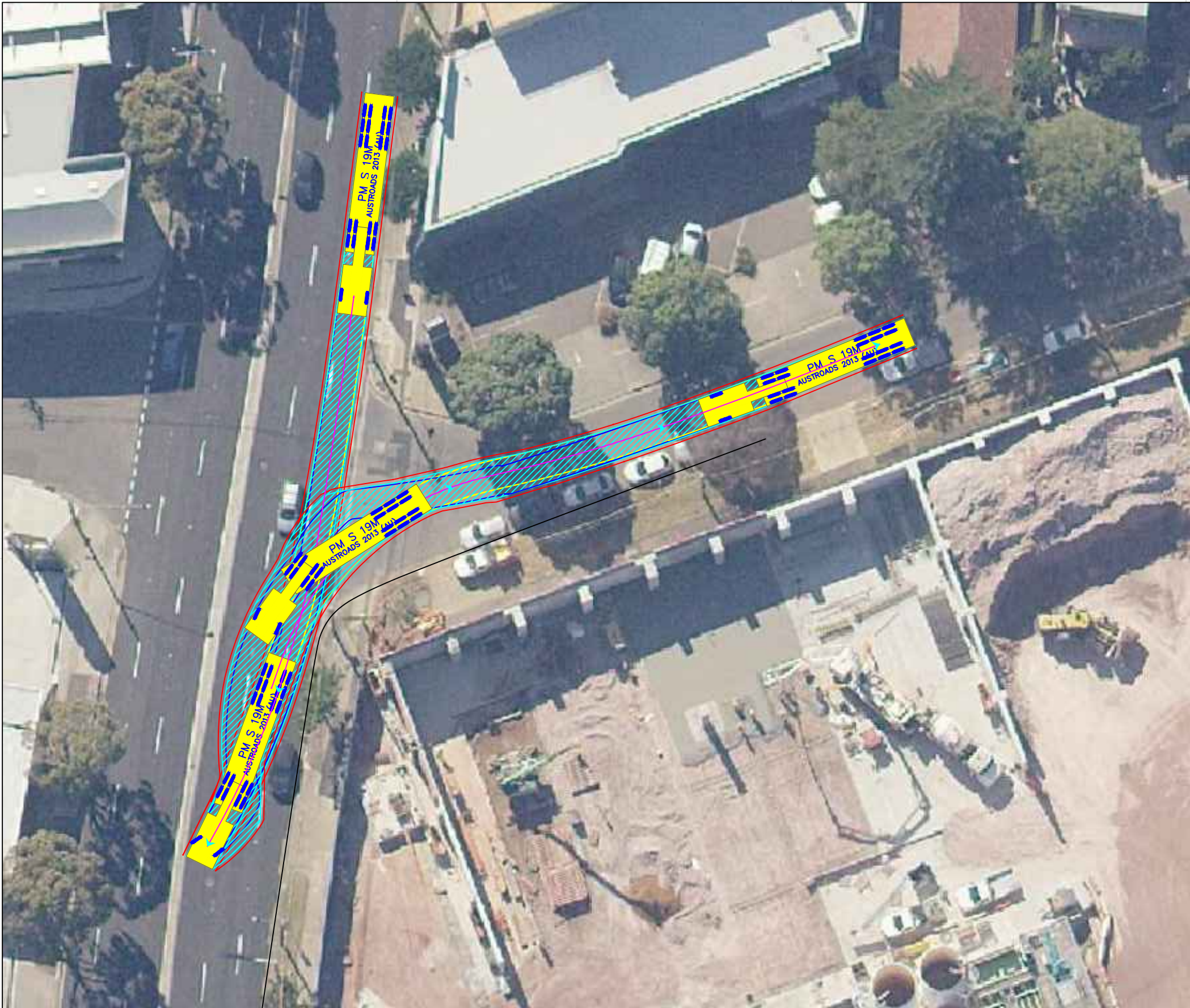
Technical drawing of a truck with the following dimensions:

- Overall length: 13.70
- Overall height: 4.20
- Height of the cargo area: 1.40
- Length of the cargo area: 9.50
- Height of the front overhang: 0.20
- Wheelbase (distance between front and rear axles): 5.30
- Front overhang (distance from front wheel to front of cargo area): 1.60

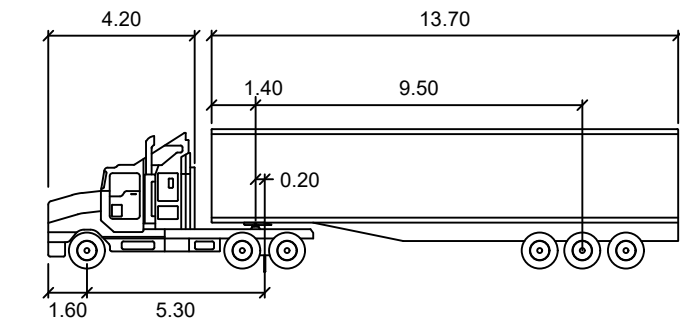
DESIGN VEHICLE

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Project	LOR SYDNEY METRO NW PORTION 7B CTMP	Design	M.H	Drawn	M.H	Checked	T.W
Title	SWEPT PATH 19m SEMI-TRAILER FROM ORCHARD STREET RIGHT ONTO NELSON STREET	FOR INFORMATION ONLY				Date	07.12.2018
		Project Number	P3318	Sheet Number	105	Issue	001



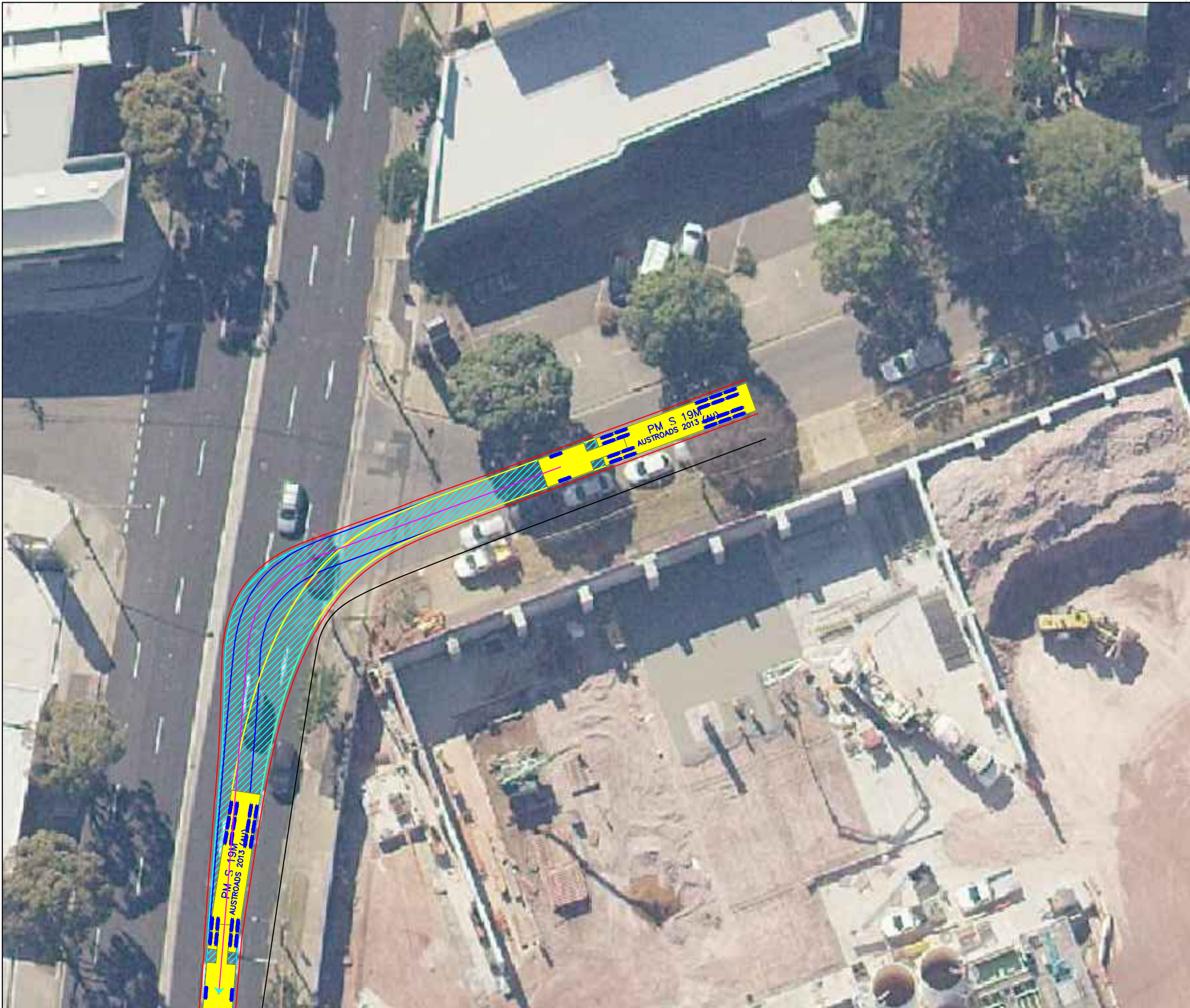
NOTE:
REFER TO PACIFIC HIGHWAY TO NELSON STREET
TRAFFIC CONTROL PLAN



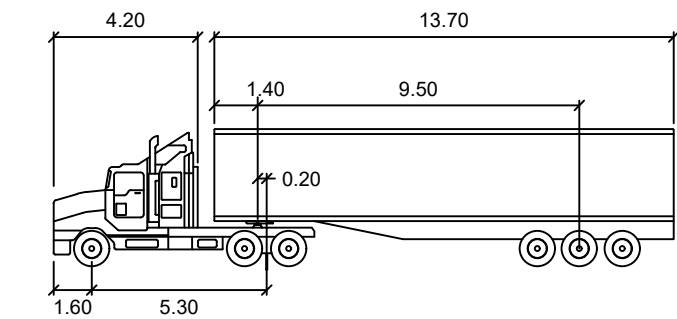
PM S 19M	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

BITZIOS consulting traffic engineering ■ transport planning	Gold Coast Suite 26, 58 Riverwalk Avenue, Robina QLD 4226. P: (07) 5562-5377 W: www.bitziosconsulting.com.au Brisbane Level 2, 428 Upper Edward Street, Spring Hill 4000. P: (07) 3831-4442 E: admin@bitziosconsulting.com.au Sydney Studio 203, 3 Gladstone Street, Newtown NSW 2042. P: (02) 9557 6202	REVISIONS				Project LOR SYDNEY METRO NW PORTION 7B CTMP	Design	Drawn	Checked
		Issue	Revisions/Descriptions	Drawn	Date		M.H	M.H	A.G
		001	SWEPT PATH ANALYSIS	M.H	07.12.2018		FOR INFORMATION ONLY		Date
							Project Number	Sheet Number	Issue
							P3318	106	001
Title SWEPT PATH 19m SEMI-TRAILER FROM NORTH PACIFIC HIGHWAY REVERSE ONTO NELSON STREET									



NOTE:
REFER TO PACIFIC HIGHWAY TO NELSON STREET
TRAFFIC CONTROL PLAN



PM S 19M		meters	
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 2.50	Steering Angle	: 27.8
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

DESIGN VEHICLE

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		Issue	Revisions/Descriptions	Drawn	Date				
		001	SWEPT PATH ANALYSIS	M.H	07.12.2018		Date		
Title SWEPT PATH 19m SEMI-TRAILER FROM NELSON STREET TURNING LEFT ONTO PACIFIC HIGHWAY					Project Number P3318	Sheet Number 107	Issue 001		

Construction Traffic Management Plan

Project:

Northern Corridor Works Portion 7A+7B

Project No:

K38

Date:

08 February 2018

Rev:

Final (Rev 04)

Traffic Control Plans

TCP No	Location	Description of Control
DWBF15119	Albert Ave	Vehicle movements under traffic control
DWBF15119	Nelson Street	Entry/Exit including reverse back via Pacific Highway
DWBF15119	Pacific Highway	Vehicle movements under traffic control, lane Closure (night only)
DWBF15119	Orchard Road	Entry/Exit including reverse back via Orchard Road



- GENERAL NOTES**
- ENSURE THAT ALL REQUIREMENTS OF TRAFFIC CONTROL AT WORKSITES MANUAL ARE MET AT ALL TIMES
 - EXTRA SIGNS TO BE INSTALLED IF REQUIRED
 - SIZE B SIGNS TO BE USED FOR ADVANCE WARNING
 - TRAFFIC CONTROLLERS TO WATCH OVER DRIVEWAYS AND ESCORT VEHICLES IN AND OUT WHERE APPLICABLE
- THE TRAFFIC MANAGER SHOULD:
- MAKE THE DECISION ON THE SUITABILITY OF THIS TRAFFIC CONTROL PLAN DURING THE WORKS
 - INSTALL/REMOVE TRAFFIC CONTROL SIGNS AND DEVICES AS REQUIRED.
 - PERIODICALLY REVIEW TRAFFIC CONDITIONS AND THE TCP.
 - ENSURE SIGNS ARE IN A GOOD CONDITION
 - ENSURE SIGHT DISTANCES ARE MAINTAINED FOR PEDESTRIANS AT ALL TIMES
 - ALL LANES AND ROAD LAYOUTS MUST BE VERIFIED ON SITE PRIOR TO THE IMPLEMENTATION OF THE TCP

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REVISIONS		Drawn	Date
Issue	Revisions/Descriptions		
001	DRAFT TCP	M.H	07.12.2018

Project

LOR SYDNEY METRO NW
PORTION 7B CTMP

Title

TRAFFIC CONTROL PLAN
ORCHARD ROAD TO NELSON STREET
19.0M ARTICULATED VEHICLE
REVERSE MOVEMENT

Design

M.H

Drawn

M.H

Checked

A.G

DRAFT ISSUE

Date

07.12.2018

Project Number

P3318

Sheet Number

101

Issue

001

DRAFT FOR DISCUSSION

(02) 9603 38 20



Client: Brefni

Location: Albert Ave Chatswood

Activity: Straddling Trucks

Traffic ID plan: 1 of 2 lane closure

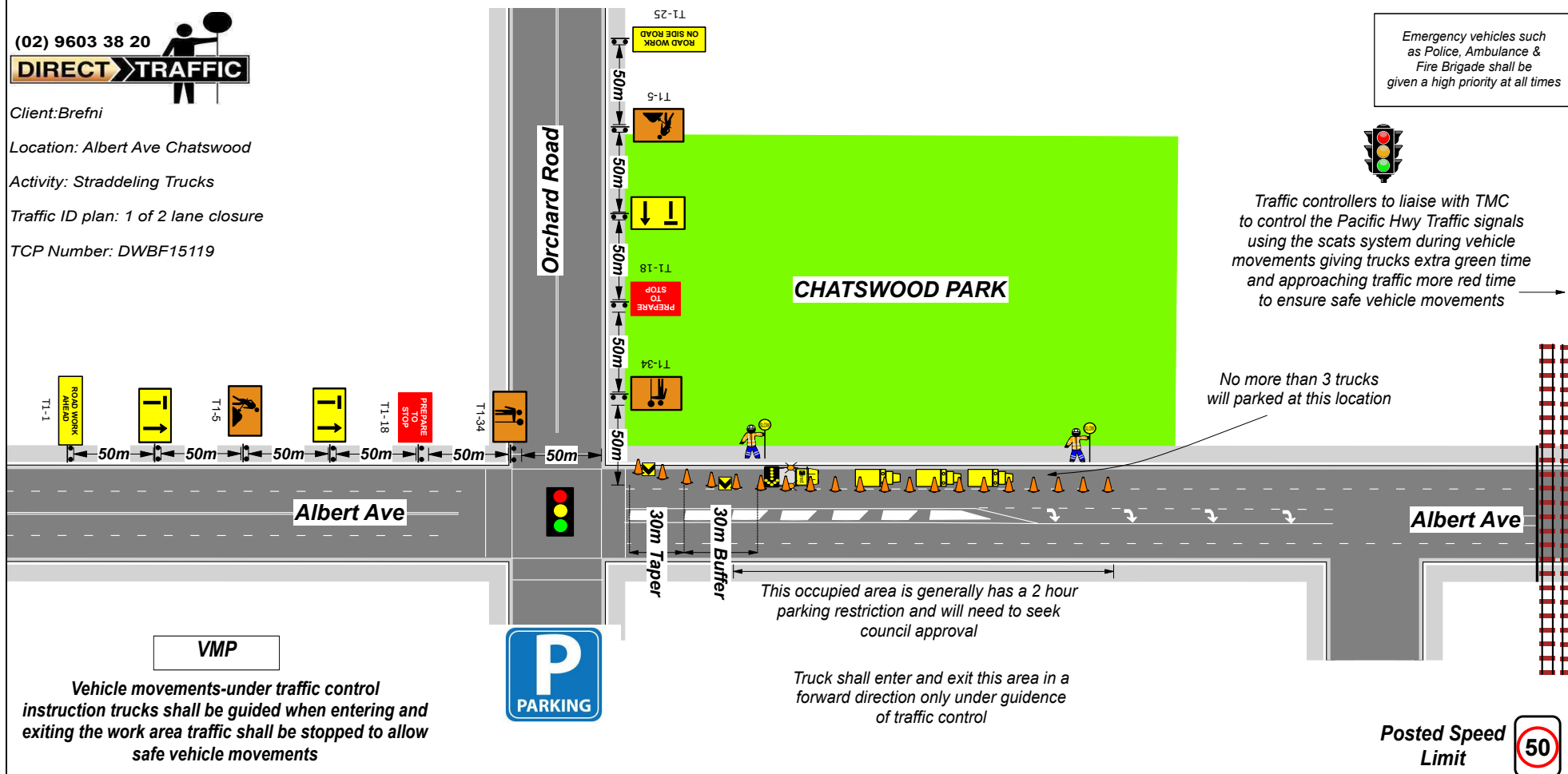
TCP Number: DWBF15119

Emergency vehicles such as Police, Ambulance & Fire Brigade shall be given a high priority at all times



*Traffic controllers to liaise with TMC
to control the Pacific Hwy Traffic signals
using the scats system during vehicle
movements giving trucks extra green time
and approaching traffic more red time
to ensure safe vehicle movements*

No more than 3 trucks
will parked at this location



Name:.....

Date of Modification:.....

Implement TMP No:.....

Expiry Date:.....

Signature:.....

This TCP has been prepared in accordance with AS 1742.3-2009 Traffic Control for Works on Roads and the RMS Traffic Control for Work Sites manual Vers 5-2018.

Date: 15.1.19 **Author:** Dean Woodward **Project:** Brefni
Qualification: Prepare a Work Zone TMP - RIICWD503D **Ticket No:** 0033347879 **Expiry Date:** 19/08/2019

Comments:

The Author has drawn this TCP based on the information provided by the client. Prior to the implementation of TCP a Safe Work Method Statement must be prepared in consultation with the personnel carrying out the work. Person(s) implementing this TCP must hold current Implement Traffic Management Plans - RIWHWS302D training. Modifications to this TCP must comply with the requirements of the RMS Traffic Control at Work Sites manual version 5 and AS 1742.3 - 2009 Traffic Control for Works on Roads.

Direct Traffic Pty Ltd accepts no liability for the implementation or execution of this TCP unless implemented by authorised Direct Traffic Pty Ltd personnel. This TCP maintains the property of Direct Traffic Pty Ltd and is not transferable unless express permission is granted by management from Direct Traffic Pty Ltd.



DEAN
WOODWARD

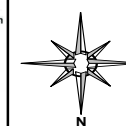
Expiry Date:
19/08/2019

Prepare a Work Zone
Traffic Management Plan
Card No. 0033347879

Traffic Management Plans and Management Plans



This card is not a proof of identity.



NOT TO SCALE

Legend



Cone



← North Arrow

 Traffic Controller

Traffic Signals



(02) 9603 38 20

DIRECT TRAFFIC

Client: Brefni

Location: Nelson St Chatswood

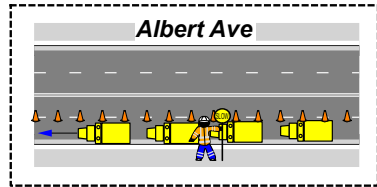
Activity: Bridge Removal

Traffic ID plan: Vehicle Movement Plan

TCP Number: DWBF15119



Traffic controllers to liaise with TMC to control the Pacific Hwy Traffic signals using the scats system during vehicle movements giving trucks extra green time and approaching traffic more red time to ensure safe vehicle movements



Trucks to Straddle in the parking area on Albert Ave in front of the Chatswood Park

Fehon Rd

EMERGENCY SERVICES

Emergency vehicles such as Police/Ambulance & Fire Brigade shall be given a high priority at all times & shall be notified of the works prior to commencement

Moriarty Rd

Mowbray Rd W

Pacific Hwy

Nelson St

Ellis St

Gordon Ave

Bump trucks to wait on Ellis St, 2 way traffic shall be maintained

All 3 lanes shall be stopped by bump trucks to allow trucks to safely enter & exit Nelson St

Legend

- Bump Truck
- Cone
- Crane
- North Arrow
- Traffic Controller
- Traffic Signals
- truck
- Work Area

Name:

Date of Modification:

Implement TMP No:

Expiry Date:

Signature:

This TCP has been prepared in accordance with AS 1742.3-2009 Traffic Control for Works on Roads and the RMS Traffic Control for Work Sites manual Vers 5-2018.

Date: 15.1.19 Author: Dean Woodward Project: Brefni
Qualification: Prepare a Work Zone TMP - RIICWD503D Ticket No: 0033347879 Expiry Date: 19/08/2019

Comments:

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Prepare a Work Zone
Traffic Management Plan
Card No. 0033347879

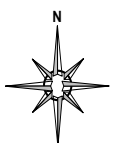
This qualification enables you to prepare Traffic Management Plans and conduct inspections on Traffic Management Plans.

DEAN
WOODWARD

Expiry Date:
19/08/2019



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**NOT TO SCALE**

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DIRECT TRAFFIC



TCP 1 OF 2

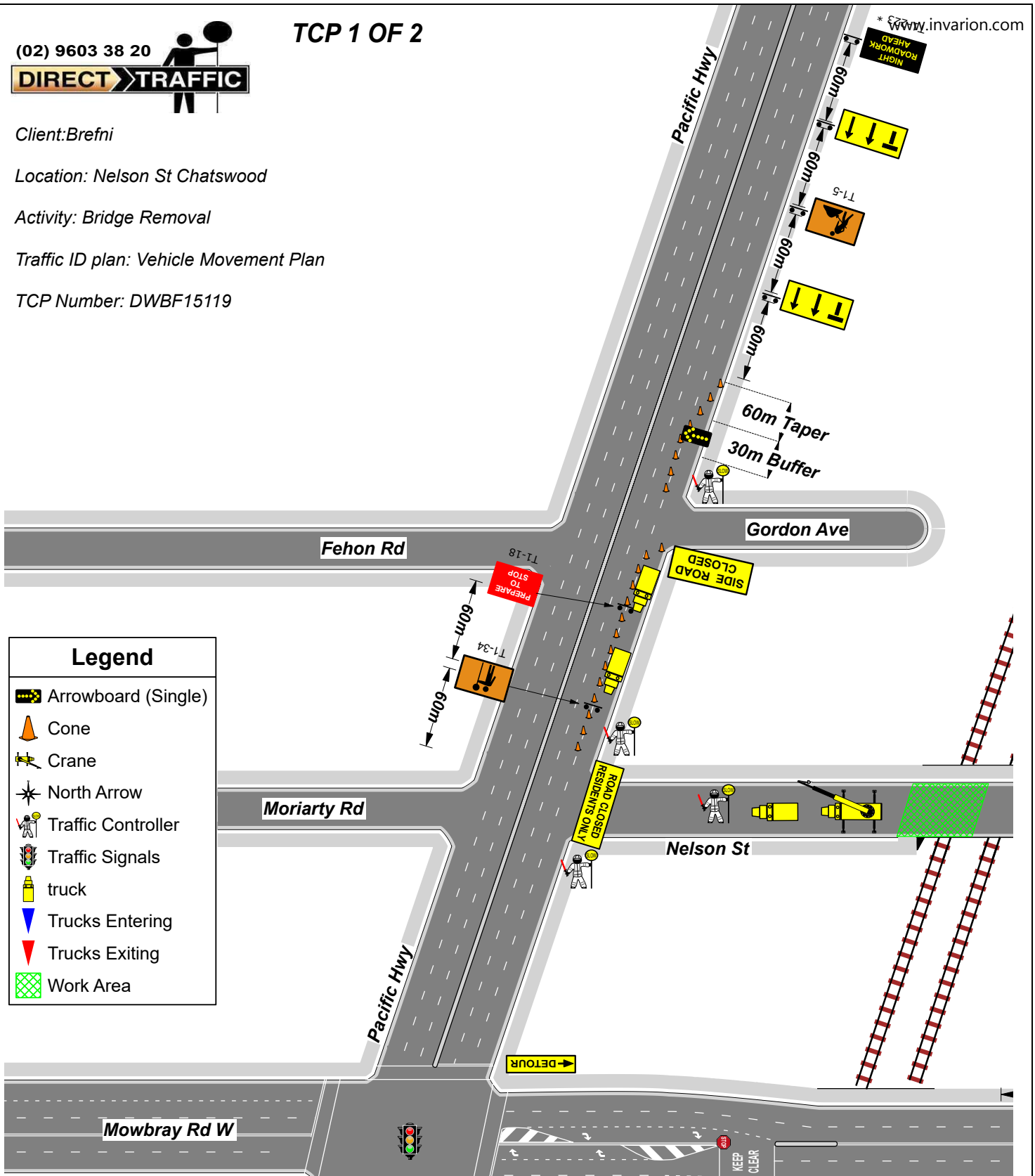
Client: Brefni

Location: Nelson St Chatswood

Activity: Bridge Removal

Traffic ID plan: Vehicle Movement Plan

TCP Number: DWBF15119



This TCP has been prepared in accordance with AS 1742.3-2009 Traffic Control for Works on Roads and the RMS Traffic Control for Work Sites manual Vers 5-2018.

Name:

Date of Modification:

Implement TMP No:

Expiry Date:

Signature:

Date: 15.1.19 Author: Dean Woodward Project: Brefni

Qualification: Prepare a Work Zone TMP - RIICWD503D Ticket No: 0033347879 Expiry Date: 19/08/2019

Comments:

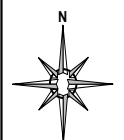
The Author has drawn this TCP based on the information provided by the client. Prior to the implementation of TCP a Safe Work Method Statement must be prepared in consultation with the personnel carrying out the work. Person(s) implementing this TCP must hold current Implement Traffic Management Plans - RIWH302D training. Modifications to this TCP must comply with the requirements of the RMS Traffic Control at Work Sites manual version 5 and AS 1742.3 - 2009 Traffic Control for Works on Roads.

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Prepare a Work Zone
Traffic Management Plan
Case no. 0033347879

DEAN
WOODWARD
Expiry Date:
19/08/2019



NOT TO SCALE

(02) 9603 38 20

DIRECT TRAFFIC

Client: Brefni

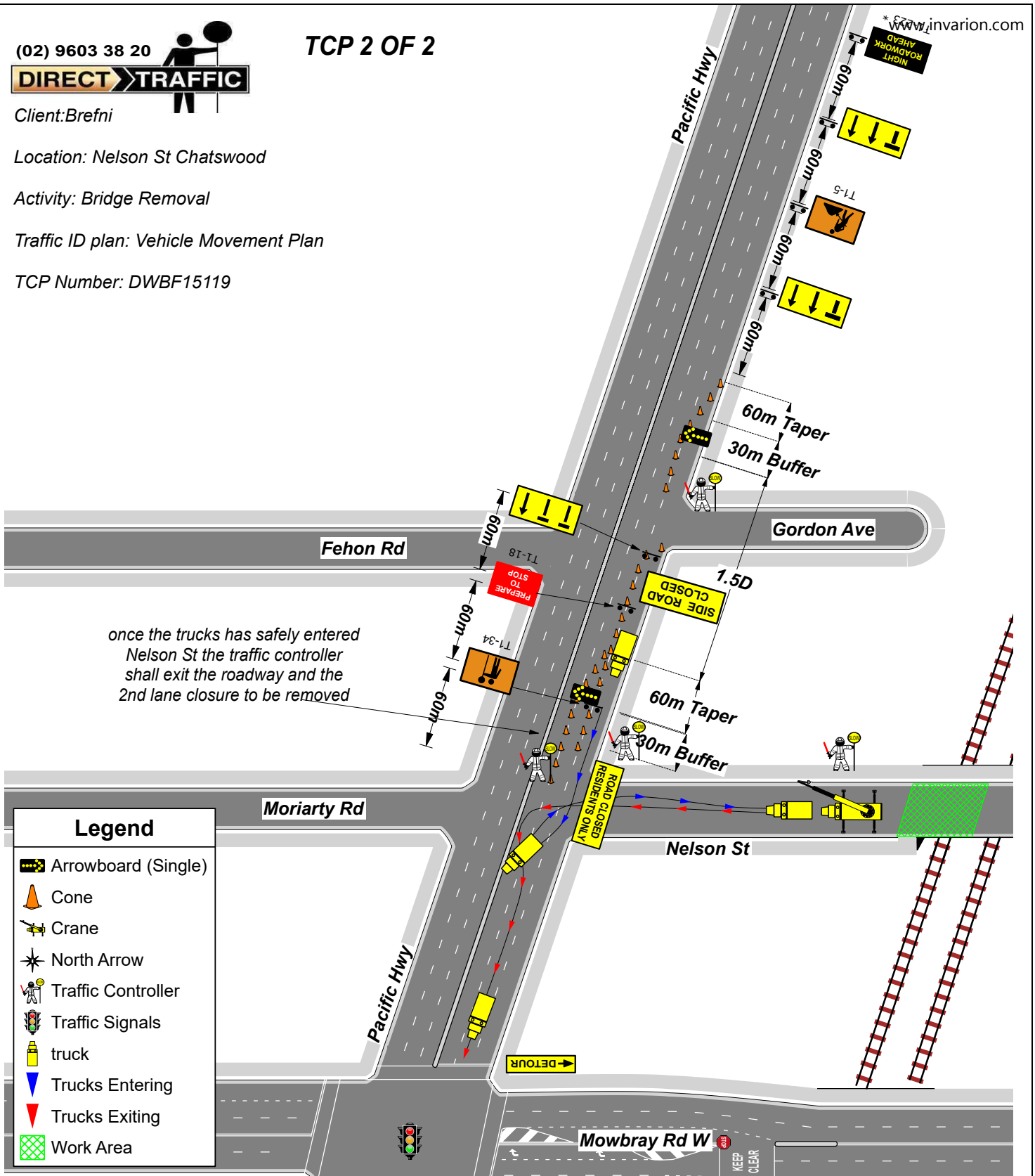
Location: Nelson St Chatswood

Activity: Bridge Removal

Traffic ID plan: Vehicle Movement Plan

TCP Number: DWBF15119

TCP 2 OF 2



Name:

Date of Modification:

Implement TMP No:

Expiry Date:

Signature:

This TCP has been prepared in accordance with AS 1742.3-2009 Traffic Control for Works on Roads and the RMS Traffic Control for Work Sites manual Vers 5-2018.

Date: 15.1.19 Author: Dean Woodward Project: Brefni

Qualification: Prepare a Work Zone TMP - RIICWD503D Ticket No: 0033347879 Expiry Date: 19/08/2019

Comments:

The Author has drawn this TCP based on the information provided by the client. Prior to the implementation of TCP a Safe Work Method Statement must be prepared in consultation with the personnel carrying out the work. Person(s) implementing this TCP must hold current Implement Traffic Management Plans - RI1WHS302D training. Modifications to this TCP must comply with the requirements of the RMS Traffic Control at Work Sites manual version 5 and AS 1742.3 - 2009 Traffic Control for Works on Roads.

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Transport
Roads & Maritime
Services

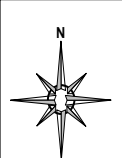
Prepare a Work Zone
Traffic Management Plan
Case no. 0033347879

This qualification enables you to prepare Traffic Management Plans and conduct inspections on Traffic Management Plans.

DEAN
WOODWARD
Expiry Date:
19/08/2019



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NOT TO SCALE