BEFORE THE INVERCARGILL CITY COUNCIL

IN THE MATTER OF	the Resource Management Act 1991
AND	an application to the Invercargill City Council by HWCP Management Ltd for resource consent to demolish, alter and redevelop land and buildings in the Central Business District in a block bound by the east side of Dee Street, the south side of Esk Street, the west side of Kelvin Street and the north side of Tay Street

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STATEMENT OF EVIDENCE OF JAY BATHTHANA ON BEHALF OF HWCP MANAGEMENT LTD

TRAFFIC & TRANSPORTATION EVIDENCE

11 March 2019

Introduction

1. My name is Jay Baththana. I am a Senior Transportation Engineer at Abley Limited (Abley). I have seven years of traffic and transportation engineering experience in New Zealand, Australia and the United Kingdom. I have worked in both private and public sectors and have been involved in a number of mixed-use development projects.

2. I have a Bachelor of Science degree majoring in Operations Research and a Master of Transportation Studies (First Class Honours) from the University of Auckland. I am a member of Engineering New Zealand and a member of the Engineering New Zealand Transportation-Group.

Code of Conduct for Expert Witnesses

3. I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note 2014 and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from opinions that I express, and that this evidence is within my areas of expertise.

Scope of evidence

4. My evidence will cover:

   (a) The existing transportation environment;

   (b) The proposed vehicle access strategy;

   (c) The assessment of traffic and transportation effects including mitigation measures;

(d) Transport related matters raised through submissions; and

(e) The Officer's report and draft conditions of consent.

5. I prepared the Integrated Transport Assessment (ITA) for the HWCP mixed-use development, which was issued on 10th September 2018. In response to the transport related comments of the Request For Information (RFI) issued on 28 November 2018, a revised ITA was issued on 11th Febraury 2019. In the revised ITA I reassessed traffic and car parking related matters following changes made to the application after lodgement.

6. Following the submission of the revised ITA, a level one car park providing 15 parking spaces has been added to the development. The additional car park is intended for residential parking and the trip generation of the land use associated with this car park was captured in the revised ITA trip generation, although the 15 parking spaces was not included in the total car parking provision of the ITA. This means that the traffic effects on the local and wider network resulting from the use of these 15 parking spaces has been captured in the revised ITA.

7. I have also read the Section 42A Report and the submissions.

8. I conducted a site visit on Friday 13th and Saturday 14th April 2018. During my site visit I observed the traffic and parking conditions of the existing site as well as the surrounding transport network. My site visit observations informed my assessment and consequent traffic and parking advice.

Executive summary

9. It is my view that with respect to the traffic and transportation effects of the proposed development:

(a) The proposed car parking provision of 874 parking spaces will be more than sufficient to cater to the parking demand generated by the development.

(b) The surrounding road environment has sufficient capacity to accommodate the anticipated trip generation of the development.

(c) The vehicle accesses are designed such that they will not compromise pedestrian safety or the safety of other road users.

Existing Transport Environment

10. The mixed-use development covers most of the city block bounded by Tay, Dee, Esk and Kelvin Streets. Vehicle access to the development is proposed via vehicle crossings on Tay, Dee and Esk Streets.

11. Tay Street and Dee Street are part of the State Highway network and are median divided dual carriageways. There is a wide (approximately five metres) footpath on all perimeter roads except Kelvin Street and the site also sits within the Pedestrian Friendly Frontages Precinct (PFFP). The PFFP has been implemented to provide safe, comfortable and attractive pedestrian infrastructure.

12. Esk Street is a local road and operates as a one-way single carriageway in an eastbound direction. Esk Street is a shared space street with a six metre wide footpath provided along the site frontage and a 20km/h speed limit.

13. The intersection between Tay Street and Kelvin Street is a signalised intersection. Tay Street carries approximately 14,000 vehicle movements a day with approximately 13% heavy vehicles. Traffic surveys conducted in April 2018 recorded a peak hourly flow of 1298 vehicles with a 50:50 eastbound/ westbound split. Each eastbound lane carries approximately 300 vehicles an

hour or five vehicles a minute. Dee Street carries approximately 16,000 vehicles per day.

The Proposed Development

14. The proposed development is set out in the application. In summary it is a mixed-use development of office, retail, food and beverage, medical, civic and child care activities and associated car parking.

Assessment of Transport Effects

15. The additional 15 parking spaces will increase the total parking supply of the development to 874 spaces, which equates to a rate of 2.77 spaces per 100m^2. I stand by my initial conclusion that the proposed parking supply is more than adequate to accommodate the parking demand of the development as the parking supply has increased from the revised ITA.

16. Vehicle access to the 15 space car park will be provided by a traffic signal controlled one-lane vehicle access ramp on Dee Street 15 metres south of the Dee Street and Esk Street intersection as shown in the site plan. It is my view that a one-way ramp is appropriate for a car park of this capacity and vehicle flow can be managed by the use of traffic signals due to the low trip generation and the vehicle arrival and departure profile expected from residential use. Residential trips are typically outbound in the morning and inbound in the afternoon and these directional movements are helpful in minimising conflict between vehicles accessing and egressing the development.

17. The five metre footpath in the vicinity of the Dee Street access provides the opportunity for incoming vehicles to wait if the one-lane access is occupied by an outgoing vehicle. The waiting vehicle will not impede pedestrian flow as a three metre corridor will be maintained at all times for pedestrian movements.

As requested by NZTA, pedestrian visibility splays will be provided on both sides of the access to mitigate any effects on pedestrian safety.

18. Seven on street car parking spaces on Tay Street will need removal as a result of the proposed main car park access arrangement. The main car park includes 859 car parking spaces therefore any loss of parking will have minimal impact on the overall parking supply of the city centre.

19. The car park will be accessed via a multi-lane entry/ exit arrangement. The arrangement provides three lanes, one entry lane, one exit lane and a central inter-changeable lane providing opportunities for tidal flow demand management. The default would be to have two inbound lanes in the morning peak period to ensure vehicles do not queue along Tay Street and switch to two exit lanes in the evening peak period to provide more capacity to clear the car park. The greatest benefit of this system is that vehicle flow can be controlled by switching the central lane which offers flexibility.

Submissions

20. I have read the submissions and respond to the transport related matters as follows.

Bob Simpson

21. Mr Simpson's main transport related concern is that the proposed car park and its entry/ exit will create congestion.

22. I acknowledge Mr Simpson's concerns however the traffic modelling assessment of the revised ITA concluded that the trip generation of the development can be accommodated by the receiving transport network with acceptable delays and queues. Furthermore, the NZTA has reviewed the proposed car park access location and agree with its suitability. In paragraph

14 of the NZTA submission Mr. Richard Shaw states "*The main car park entrance further along Tay Street has been relocated to the west to provide more separation from the Tay Street/Kelvin Street intersection. This change in the location of this key access is supported by the Transport Agency and goes some way to address the concerns raised through our previous consultation on the proposal. The detailed design of the access should include measures to reinforce the priority for pedestrians including appropriate visibility splays*".

Neil and Denise Andrews

23. Mr and Mrs Andrews' concerns relate to mitigating effects on vehicle flow and access, car parking and pedestrian access (that is the link through the site from Esk to Tay Street).

24. Figure 5.8 of the revised TA issued on 11th February 2019 shows the pedestrian connections through the proposed development which outlines a pedestrian connection between Tay Street and Esk Street dissecting the development.

25. The design of vehicle crossings/ accesses will encourage slow vehicle speeds and drivers will be crossing the footpath at right angles, maximising intervisibility between drivers and pedestrians. The accesses have been designed so that vehicles can leave the traffic lane and not block pedestrian thoroughfare. Surface differentiation will be used to maintain pedestrian priority and to define the changing speed environment. All vehicle accesses will operate at 10km/h.

26. The three accesses on Tay Street and Dee Street provide left-in left-out only traffic movements which means pedestrians will only need to be aware of two vehicle movements, minimising the potential for conflict.

27. Mr Leckie giving transportation evidence for Resource Consent Application RMA/2018/111, by the Invercargill Licencing Trust, conducted a pedestrian

survey in October 2018 which showed an average pedestrian flow of one pedestrian per minute along Dee Street in the weekday peak[1]. Based on my site visit observations Dee Street and Tay Street are similar environments and a similar pedestrian flow can be assumed for Tay Street.

28. My view is that the Tay Street and Dee Street car park access designs will provide for efficient vehicle flow with minimal effect on pedestrian movement or on traffic on the frontage road. The traffic and parking concerns related to the demolition and construction phases will be addressed in a Traffic Management Plan (TMP) as detailed in paragraph 29 of this statement.

Downtown Invercargill

H&J Smith

Rob McMurdo Wensleys Cycles

29. The traffic and parking concerns raised by Downtown Invercargill, H&J Smith and Mr. McMurdo are associated with the demolition and construction stage of the development. I agree with the s 42A report that a detailed TMP in accordance with NZTA guidance and agreed with the Council prior to commencement of construction works is required. The TMP will minimise the impacts of construction related vehicle movements on adjacent land uses and road users and facilitate sustainable construction travel to and from the site. This is reflected in proposed conditions 8 and 15 of the s 42A report.

30. In my view the detailed TMP should incorporate the following good practice; encouraging construction workers to travel by non-car modes to the site, promoting smarter operations that reduce the need for construction travel overall or that reduce or eliminate trips particularly those in peak periods, encouraging greater use of sustainable freight modes and the use of greener vehicles and encouraging the most efficient use of construction freight vehicles and routes.

[1] Leckie S.O.E (4.25)

NZTA

31. NZ Transport Agency as the Road Controlling Authority for Tay Street and Dee Street, raised concerns in its submission regarding effects on pedestrians from the three Tay Street access ways, the use of audio warning devices, visibility splays, the service lane access location and approval required under Government Roading Powers Act 1989 (GRPA).

32. The proposal was discussed with NZTA and Invercargill City Council's Roading Engineer in April 2018. The main concern raised by both parties was the safety of pedestrians in the vicinity of the vehicle accesses and the interaction of the proposed vehicle crossing and the adjacent Tay Street/ Kelvin Street intersection.

33. In response to the NZTA concerns, visibility splays will be provided on both sides of the west service vehicle access to mitigate effects on pedestrian safety. The dimensions of the visibility splay will be five metres by two metres, which deviates from the visibility splay of five metres by 2.5 metres put forward in the ITA. The reason for this adjustment is due to conflicting information in NZTA Guidelines for Visibility at Driveways (RTS6) guidelines.

34. The first paragraph of page 20 of RTS6 states "*This document has not developed any guidelines for this. However, Building Industry Authority DI Access Routes [5] recommends a 5.0 x 2.0 metre visibility splay for vehicle routes crossing a pedestrian route. This is indicated in the diagram below and should be considered for high volume driveways crossing footpaths in areas with high pedestrian activity*" however Figure 5 of RTS6 shows a five metre by 2.5 metre visibility splay.

35. In order to clarify this discrepancy I have referenced the NZTA Pedestrian Planning and Design Guide (PPDG). Figure 14.11 of the PPDG provides guidance

regarding driveway visibility splays for high volume driveways. On page 14-19 of the PPDG a visibility splay of five metres by two metres is recommended. The PPDG classifies a high volume driveway as a driveway with an expected daily vehicle flow of 200 vehicles. The subject service access is not expected to generate 200 vehicle movements a day therefore a five metre by two metre visibility splay is more than adequate to ensure pedestrian safety is not compromised.

36. I have not commented on the approriateness of using an audio warning device for the west service access as the applicant is willing to provide visibility splays that comply with NZTA requirements and in my view precludes the need for the installation of an audio warning device.

37. I acknowledge NZTA's concerns regarding the location of the west service access on Tay Street. However, considering that the access is only used by a low volume of delivery and service vehicles the likelihood of pedestrian and delivery vehicle conflict is minimised. Following receipt of NZTA submission I have redrawn the swept paths and outputs are included as Appendix A. I have used a vehicle clearance of 0.5m on both sides of the delivery vehicle and have added an aerial base map to track the turning manoeuvre along the outside lane. The output show the tracked path of an 11.5m truck entering and exiting the service lane whilst remaining within the outside lane. The planter box is in place to prevent pedestrians from cutting across the vehicle access and trimming the east edge to provide vehicle clearance would not deviate from its purpose. The service access can accommodate the swept paths of a 11.5 metre Aerial snorkel fire truck however, the height and vertical clearance requirements for a fire access sits outside of my expertise.

38. I agree with NZTA that a "*comprehensive Demolition and Construction Management Plans including the traffic management planning requirements*" should be prepared and no work should be undertaken within the State Highway road reserve without the prior approval from NZTA pursuant to the

GRPA. This plan should address the recommendations listed in paragraph 30 of this statement of evidence.

Officer's report

39. The planner confirms that the proposed development complies with all transportation rules of the Proposed District Plan, with the exception that resource consent is required for the construction and use of a new vehicle access from Tay Street.

40. I agree with the planner that the transport elements of the proposal are consistent with the objectives and policies of the Proposed District Plan.

41. In paragraph 7.86 of the Section 42A report Mr.Clease discusses the Queenstown Land Holdings Limited (QLHL) submission which raises concerns regarding the retention of access to the western service yard on Tay Street. from Reading Cinemas.

42. The west service access will cater for significantly fewer vehicle movements than the car park access. The service yard will not be used by the anchor retail deliveries which are expected to be associated with lengthy dwell times. The anchor retail will be serviced by the service lane to the east of the car park entrance.

43. Delivery and service vehicle trip rates are not commonly captured in New Zealand trip rate databases and the District Plan does not specify loading requirements for the specific land use. I believe the methodology of using the service bay requirements of three other New Zealand district plans to derive a loading bay provision is appropriate. I have compared the proposed loading facility to two similar central city developments. Meridian Mall in Dunedin provides two loading areas with capacity for approximately 6-8 vehicles with three anchor retail tenants and The Crossing in Christchurch provides three loading bays with two anchor retail tenants.

44. The western service yard has five loading bays. From similar developments in New Zealand and overseas a 20 minute dwell time is generally sufficient for an 11.5 metre truck or smaller vehicle to be unloaded at shopping centres. If each vehicle spends 20 minutes on site, theoretically 15 vehicles could be accommodated in an hour, which over an 8 hour period (7am – 3pm) is 120 vehicles. The mixed-use development is not anticipated to generate this many service/ delivery vehicle trips a day.

45. Therefore, there will be ample capacity within the service yard to accommodate the servicing/ delivery needs of the Reading Cinema.

Conclusion

46. I conclude that the proposed mixed-use development will generate a noticeable volume of traffic movements throughout the day and the three-lane entry/exit arrangement will be appropriate to safely and efficiently manage the vehicle flow in and out of the car park.

47. The trip generation of the development can be accommodated by the receiving transport network and will not significantly impact the operation of nearby intersections.

48. The vehicle crossings and access have been designed such that it will not have an adverse impact on pedestrian safety and amenity.

49. The proposed car parking provision will cater for the parking demand created by the development.

50. I have addressed the key transport elements raised by submissions and conclude that if the proposed consent conditions 8h, 15b, 26 (as amended), 27

and 28 are implemented there are no transport reasons that the proposal should not be approved.

Jay Baththana

Traffic & Transportation

Abley

Date: 11 March 2019

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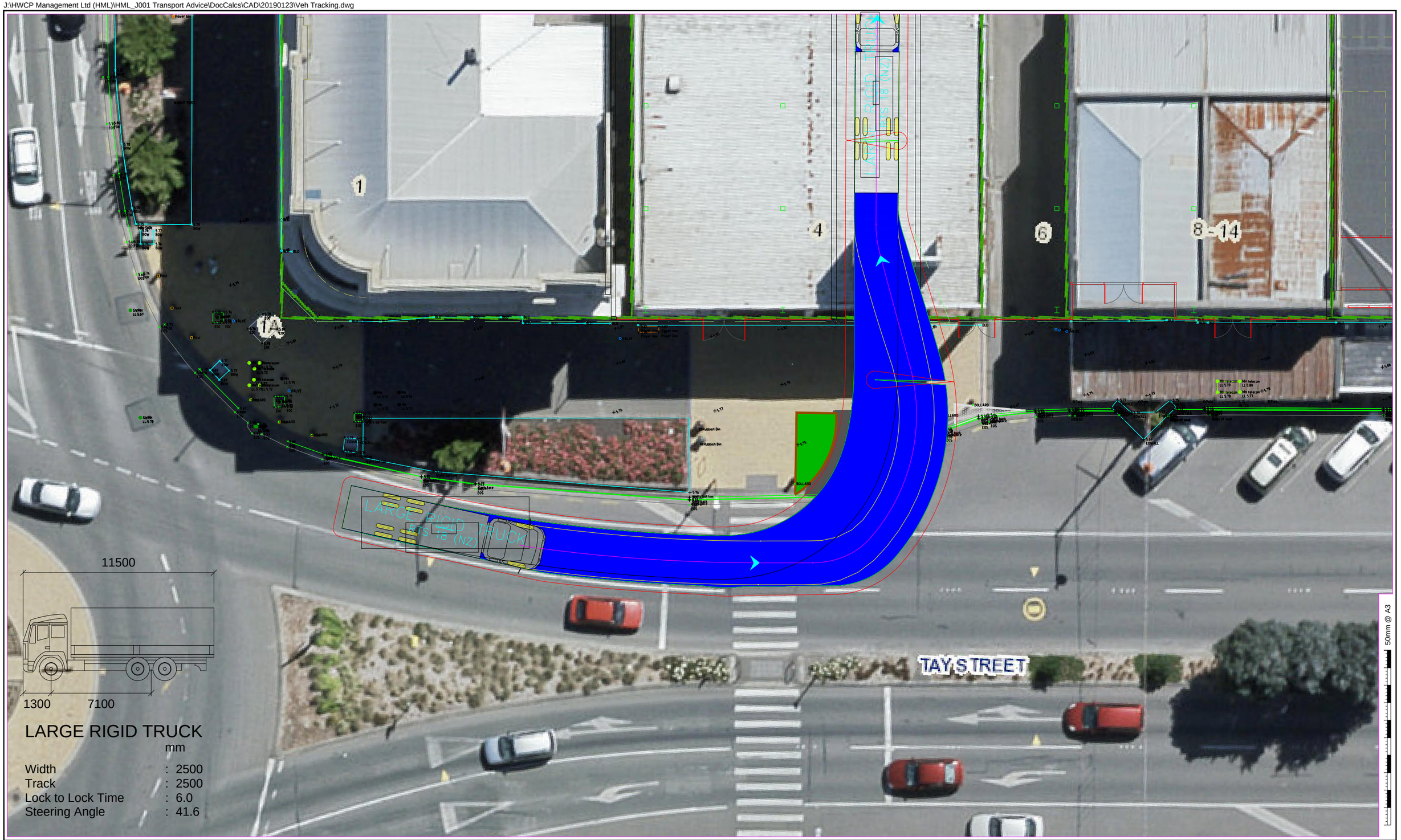

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Scale	1:200

Invercargill Central - Mixed Use Development

Loading Bay Tracking Assessment

11.5m Rigid Truck Swept Paths

Project No.	HML-J001
Dwg #	VEH TRACKING
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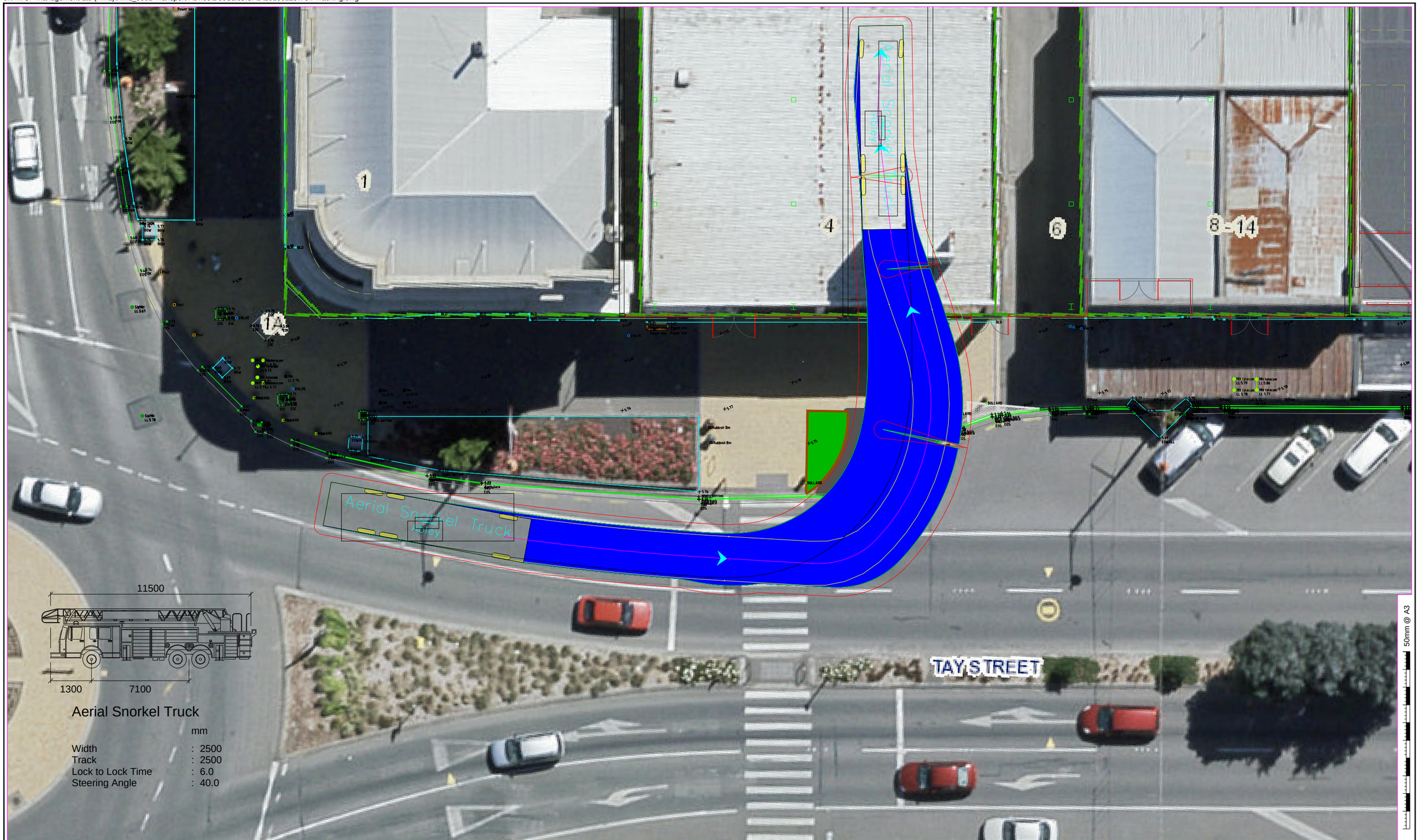

Aerial Snorkel Truck

	mm
Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

50mm @ A3

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Invercargill Central - Mixed Use Development

Loading Bay Tracking Assessment

Aerial Snorkel Fire Truck Swept Paths

Project No.	HML-J001
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