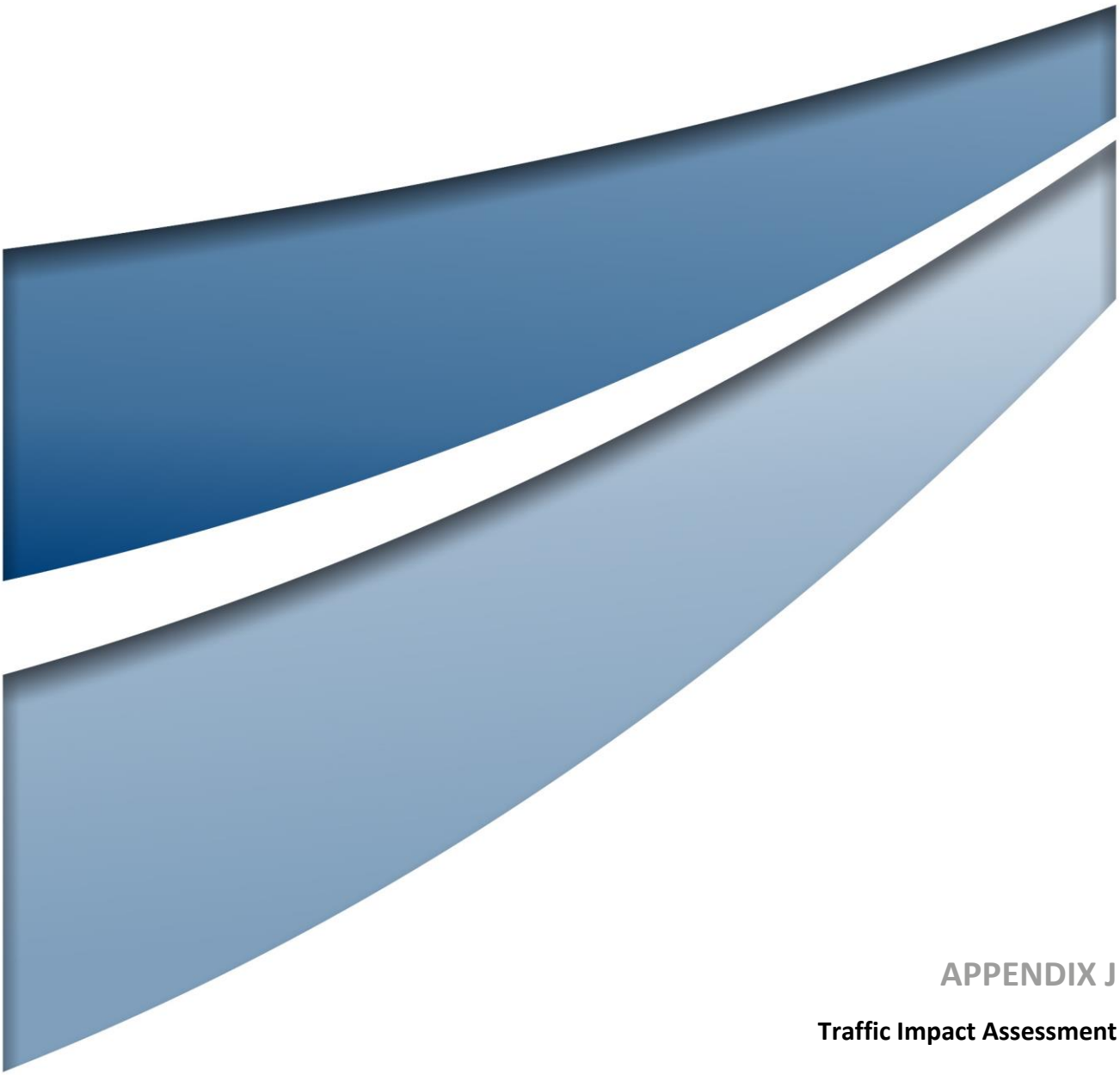

APPENDIX J

Traffic Impact Assessment

BETTER TRANSPORT FUTURES
MARK WAUGH

Throughput Capacity Expansion Project

Concrush Pty Ltd

Traffic Impact Statement
November 2018

Mark Waugh Pty Ltd

ABN 67 106 169 180

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1 Introduction

This Traffic Impact Statement (TIS) has been prepared to accompany an Environmental Impact Statement (EIS) for the proposed expansion of operations at the subject site.

1.1 The Project

Concrush currently operates a resource recovery facility at 21 Racecourse Road Teralba, a suburb of the City of Lake Macquarie NSW. The operation has approval to recycle waste building materials, primarily consisting of waste concrete with secondary processing of waste timber and recovery of steel (the reinforcing steel). The facility currently recycles approximately 9,000 tonnes per month of waste material and stores up to 40,000 tonnes of waste material on site at any one time.

Concrush are seeking an increase to the processing and approved storage capacity for the facility. Specifically approval is being sought for a throughput capacity of up to 250,000 tonnes per annum.

1.2 Scope of Work

These investigations have assessed the range of traffic and transport features of the subject site and its surrounds with specific reference to the requirements of the Guide to Traffic Generating Developments (Version 2.2, RTA October 2002) (Herein after referred to as the Guide) The work is required to accompany the Environmental Impact Statement supporting the Development Application for the subject site and development. Specific work tasks have included:

1. SITE INVESTIGATIONS – Consideration of the existing form and features of the surrounding road system.
2. TRAFFIC COUNTS - Traffic counts for three consecutive days (Thurs, Fri, Sat) at the intersections along the approach routes from the site to the main road network, at;
    a. Wakefield Road/ Northville Road
    b. Northville Road / The Weir Road
    c. York Street / Short Street

    Confirming AM and PM peak periods
    Monitoring any local queuing, and the presence of industrial (truck) traffic.
3. An automatic counter was also placed on Racecourse Road in the vicinity of the subject site from Saturday 16th September to Saturday 23rd September 2017.
4. DESIGN REVIEW – One review of the proposed site access design and layout, from a technical capacity, movement and also road safety perspective.
5. ASSESSMENT - Traffic Impact Assessment in accordance with the Guide to Traffic Generating Development (RTA 2002)
6. TIS REPORT - Prepare a Traffic Impact Statement (TIS) incorporating the findings from the above assessments, suitable for lodging with the road authorities for approval.

The TIS report is set out as follows:

- Chapter 2 describes the existing situation
- Chapter 3 details the traffic and transport aspects of the subject site and development proposal
- Chapter 4 presents the traffic impact assessment of the proposal
- Chapter 5 summaries the conclusions and recommendations from the investigations.

2 Project Background

2.1 Site Description and Local Context

The subject site is the existing Concrush site and the land immediately to the south at 21 Racecourse Road Teralba NSW. It comprises part of Lot 2 DP 220347, and is privately owned and leased by Concrush Pty Ltd.

The approved disturbance footprint for the site is approximately 2.4 ha which is proposed to be increased to approximately 4.8 hectares.

Concrush operates the existing recycling facility in accordance with the existing site Environmental Protection License (EPL) 13351. The approved disturbance footprint for the site is approximately 2.5 ha which is proposed to be increased to approximately 5 hectares.

The local environment surrounding the Project includes a range of different land uses. Cockle Creek and Racecourse Road are to the east of the site, the Main Northern Railway skirts the west and north of the site. There is also a car wrecker's yard to the north. Teralba Colliery and West Wallsend Colliery are to the west, and there is a scrap metal yard south of the site.

To the east of the Project and across Cockle Creek is the Bunderra Estate, which is the site of the former Pasminco lead smelter. This land has been remediated following demolition of the smelter and is now zoned R3 – medium density residential under the Lake Macquarie Local Environmental Plan (LEP). When completed there will be residential development within about 200 metres of the Project.

The site location and local road network are shown in **Figures 1 and 2** below and overleaf.

Figure 1 – Local Road Network
Source: UBD Australian City Streets Version 5.0
Note: Intersection of Lake Rd / T C Frith Ave & Main Rd Boolaroo was upgraded to roundabout control as part of the Bunderra Estate project

Figure 2 – Locality Plan (Show Expansion Area – need updated figure from Lachlan
Source: Umwelt Australia 2018

2.2 Road Network

The roads leading from the subject site are identified as Collector Roads in Council's road hierarchy.

Access for trucks carrying all raw materials and product will be transported to the site via Racecourse Road, then proceed to the main road network at Five Islands Road/Toronto Road via York Street and Toronto Road North.

Smaller vehicles may access the site via a northern route comprising Racecourse Road, The Weir Road, Northville Road and then Wakefield Road to the west which leads to connections with the M1 Motorway and the Newcastle Link Road providing main road connections to the north and south of Teralba.

Roads used to access the main road network include:

<u>For M1 Motorway and Newcastle Link Road</u>

- Racecourse Road
- The Weir Road
- Wakefield Road

<u>For Five Islands Road</u>

- Racecourse Road
- York Street
- Toronto Road

Each of these roads / local streets are described below.

Racecourse Road

Truck movements are allowed on Racecourse Road south of the site entrance. Movements north of the site entrance are restricted by the low clearance (4.2 metres) under the Main Northern Railway, but there is no weight restriction noted on the road. There is also flood warning signage in place to alert drivers to closure of the weir crossing of Cockle Creek to the west on The Weir Road. The road is built as a rural standard two lane two way road, with part of its length near the subject site signposted at 80 kph.

Photo Plate 1 – Racecourse Road North of Blair Street – Weir Flood warning sign on left.

Photo Plate 2 – Racecourse Road North south of subject site – At commencement of 80 kph speed zone.

Photo Plate 3 – Entrance to the subject site on Racecourse Road

Photo Plate 4 – Racecourse Road looking south from site entrance

Photo Plate 5 –Racecourse Road looking north from site entrance toward Main Northern Railway overbridge

Photo Plate 6 –Racecourse Road approaching Main Northern Railway overbridge

Weir Road

Weir Road is effectively a continuation of the road connecting Racecourse Road to Northville Drive at Barnsley to the west of the site. It is built to the same general standard as Racecourse Road. It also has a series of guard rail treatments for safety reasons due to the curvilinear nature of the road alignment. Weir Road is so named because of the low level concrete weir crossing of Cockle Creek, which is subject to flooding, and closure by emergency services during significant rain events.

Photo Plate 7 – Weir Road west of Racecourse Road

Photo Plate 8 – Weir Road approaching Cockle Creek weir

Photo Plate 9 – Weir Road approaching Cockle Creek weir

Photo Plate 10 – Weir Road at Cockle Creek weir looking west

Photo Plate 11 – Weir Road at Cockle Creek weir looking east

Photo Plate 12 – Weir Road approaching Northville Drive – Barnsley Public School is on right

Northville Drive

Northville Drive connects Wakefield Road at Barnsley to George Booth Drive (B89) at Edgeworth Heights. It is a two lane two way road of varying construction standard, some rural with sealed shoulders, some urban with sealed parking lanes and kerb and gutter drainage. Its connection from Weir Road to George Booth Drive is an alternative route to the main road network from the subject site. Whilst it is possible for heavy vehicles that can fit under the 4.2 metre height restriction at the Main Northern Railway overbridge, it is expected that the Cockle Creek Weir, and the more direct access to the main road network available via Five Islands Road at Teralba, will accommodate the heavy vehicle access to and from the subject site.

Photo Plate 13 –Northville Drive looking east to Weir Road on right

Photo Plate 14 – Northville Drive looking east from Weir Road

Photo Plate 15 – Northville Drive (Truck route) looking east toward Edgeworth Heights where it connects to the B89

Photo Plate 16 –Northville Drive Barnsley looking west toward Burkes Creek Bridge

Photo Plate 17 –Northville Drive approaching Barnsley village centre

Photo Plate 18 – Northville Drive roundabout (5 way) junction approaching Barnsley village centre

Wakefield Road

Wakefield Road is a two lane two way rural standard road that is capable of accommodating heavy vehicles, should the Weir Road route be utilised. Whilst this is considered unlikely, it is available as an alternate route to the M1 Pacific Motorway via the Palmers Road interchange to the south.

Photo Plate 19 – Wakefield Road (Truck route) looking south from roundabout (5 way) junction at Northville Drive

Photo Plate 14 – Wakefield Road looking north toward Rhondda Road intersection

Photo Plate 15 – Wakefield Road south of Rhondda Road

York Street, Toronto Road

The local urban street system within Teralba allows access to the main road network at the Five Islands Road / Toronto Road roundabout. There is a mixture of abutting land use, with detached residential dwellings, the Teralba village, and some industrial land uses on Toronto Road close to Five Islands Road.

Within the Teralba local street system, both William Street south of Short Street, and Anzac Parade south-east of York Street have vehicle weight restrictions (5 tonne limits) to prevent intrusion of heavy vehicles into these streets.

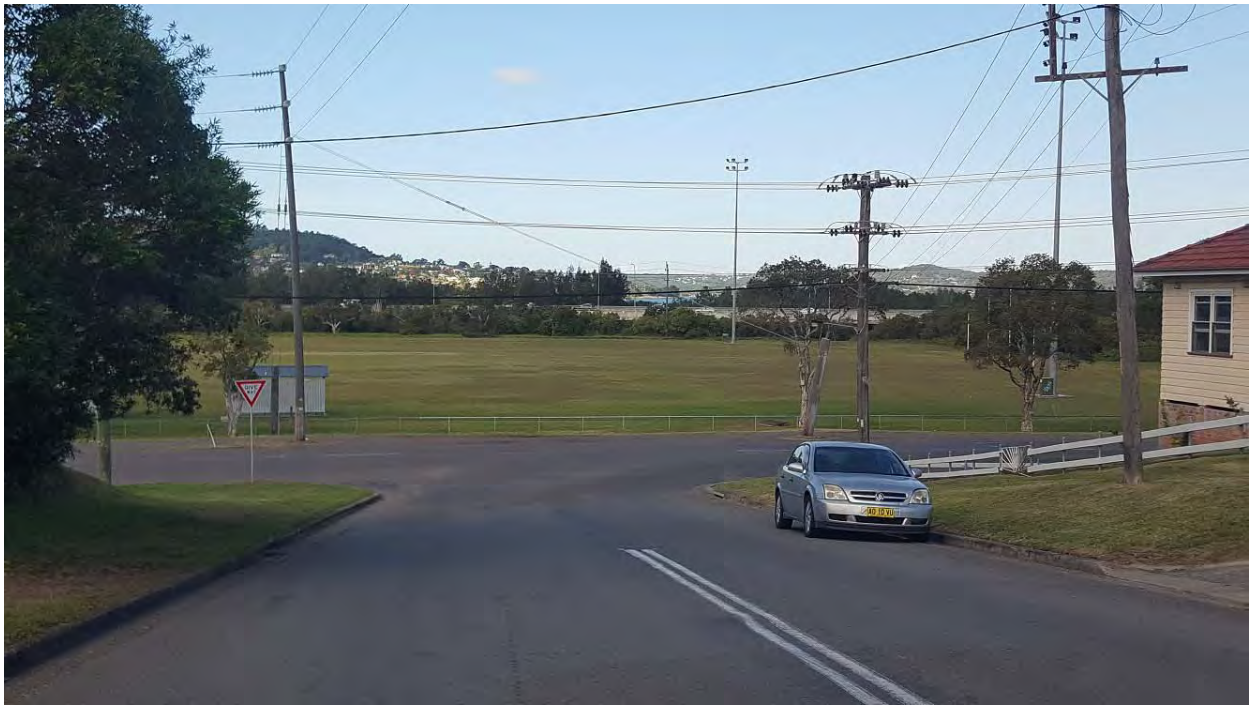


Photo Plate 24 –Short Street / York Street intersection

Photo Plate 25 –Short Street Teralba from York Street

Photo Plate 26 –York Street showing active truck movements

Photo Plate 27 –York Street showing School Zone adjacent to Teralba Public School. Note also Anzac Parade load limit signage.

Photo Plate 28 –York Street showing School Zone adjacent to Teralba Public School and active truck movements

Photo Plate 29 –York Street Teralba

Photo Plate 30 –Truck Activity in the vicinity of York Street / Toronto Road Teralba

Photo Plate 31 –Truck Activity on Toronto Road Teralba heading toward Five Islands Road

Five Islands Road

Also of significance is the nearby arterial road Five Island Road/Toronto Road which form part of the 'B53' arterial road providing an important north / south traffic corridor serving the western side of Lake Macquarie.

Five Islands Road is a major north south arterial road in the west Lake Macquarie road network. It is built to a 4 lane dual carriageway standard in the vicinity of Toronto Road, with the intersection controlled by two lane roundabout operation.

Toronto Road is predominately a 2 lane arterial road connecting the Teralba/ Booragul locality to Toronto.

Photo Plate 32 –Toronto Road approach to Five Islands Road at Teralba

2.3 Traffic Surveys and Site Observations

1. Traffic Surveys

Monitoring of traffic movements was conducted over the AM and PM peak for three consecutive days. Traffic data for the York Street / Short Street junction was collected on Thursday 4th May 2017 to Saturday 6th May 2017, and for the intersections on the northern route 19th September to 21st September 2017. Intersections covered were:

- York Street / Short Street (May 2017)
- Wakefield Rd / Northville Dr (Sep 2017)
- The Weir Rd / Northville Dr (Sep 2017)

Confirming AM and PM peak periods, and monitoring any local queuing, and the presence of industrial (truck) traffic. An automatic counter was also placed on Racecourse Road in the vicinity of the Concrush site from 19th September to 21st September 2017.

The survey data is included in **Appendix A – Traffic Survey Data**.

2. General Site Observations

The most significant observations from a traffic movement, efficiency and road safety perspective that were observed from the data monitoring and subsequent site observations were:

1. Local network traffic flows appear to be well within technical capacity limits of the road system;
2. Heavy vehicles are prominent within the traffic stream on Racecourse Road / York Street / Toronto Road through Teralba as is to be expected given the land use activities in the area;
3. Some on street parking was observed within the local Teralba urban limits, but this did not appear to disrupt general traffic flows;
4. Bus movements were observed along York Street
5. Site turning movements (in and out) and on the local road network, including heavy vehicles, operate well.
6. The northern route carries quite low traffic volumes and has clearance restrictions (4.2 metres under the main northern railway overbridge), and also several floodway crossings due to the low terrain close to Cockle Creek and Lake Macquarie.
7. All local intersections currently operate at volume levels below which intersection analysis is considered unnecessary and essentially at free flow conditions. (Austroads 2009) (See also Section 4 of this report.)

The above observations have been taken into account when considering the project.

2.4 Cycling Facilities

Within the Teralba urban limits no specific cycling facilities have been noted. (The nearest specific cycling facility is built along the eastern side of Five Islands Road as part of the Lake Macquarie cycle path). The route to the north (Racecourse Road, The Weir Road, and Northville Drive to Wakefield Road) is rural in character and requires cyclists to utilise shoulder space on each road.

2.5 Public Transport Services

The locality of Teralba is served by both rail and bus public transport. Teralba Station is located on Railway Street approximately 3.2 kilometres from the subject site.

The nearest available bus service is the 271 Glendale – Teralba – Toronto service operated by Hunter Valley Buses. A full map of the public transport network in Lake Macquarie in the Teralba locality is illustrated in **Appendix B Public Transport network Lake Macquarie.**

2.6 Authority Liaison

Liaison has been undertaken by the project planners with the NSW Department of Planning and Environment with respect to the Secretary's Environmental Assessment Requirements (SEARs) for the preparation of an Environmental Impact Statement for the subject site. In preparing the SEARs NSW Roads and Maritime Services were consulted as part of this process and the following matters were noted as assessment requirements from a traffic and transport perspective:

The Department of Planning & Environment has issued Secretary's Environmental Assessment Requirements (SEAR's) under Section 78A(8A) of the *Environmental Planning and Assessment Act 1979* Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*

Traffic and Transport is noted as a key issue that the EIS must address including the following matters:

- details of all traffic types and volumes likely to be generated during construction and operation, including a description of haul routes;
- an assessment of the predicted impacts of this traffic on road safety and the capacity of the road network, including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model. This is to include the identification and consideration of approved and/or proposed developments in the vicinity;
- detailed plans of the proposed layout of the internal road and pedestrian network and parking on site in accordance with the relevant Australian Standards;
- plans of any proposed road upgrades, infrastructure works or new roads required for the development;
- plans demonstrating how all vehicles associated with construction and operation awaiting loading, unloading or servicing can be accommodated on the site to avoid queuing in the street network; and
- swept path diagrams depicting vehicles entering, exiting and manoeuvring throughout the site for both heavy and light vehicles.

The above matters raised in the project SEARs have been considered in preparing this Traffic Impact Statement.

3 Proposed Development

3.1 Site Layout

The site layout plan for the Project showing site boundary, internal roads into and out of site and location of processing and stockpile areas, buildings and operations is illustrated in **Figure 3.1 – Conceptual Site Layout** and **Figure 3.2 – Stage 2 and Stage 3 Conceptual Layout** (Also at **Appendix C – Conceptual Site Plans.**)

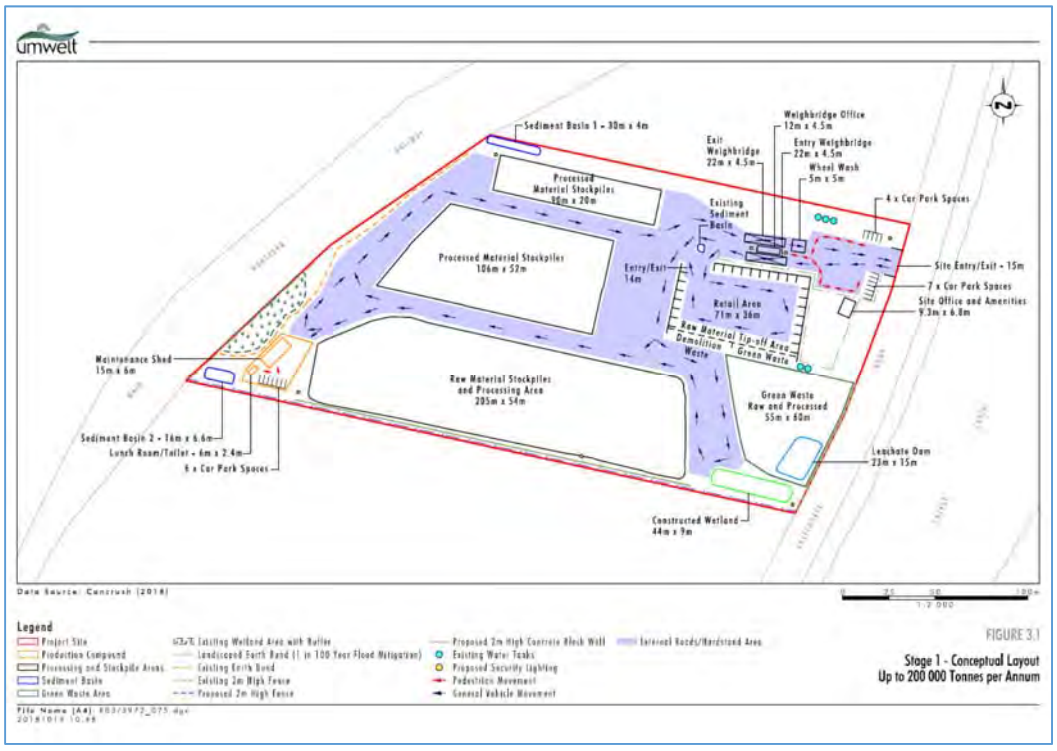


Figure 3.1 – Conceptual Site Layout
Source: (Umwelt Australia 2018)

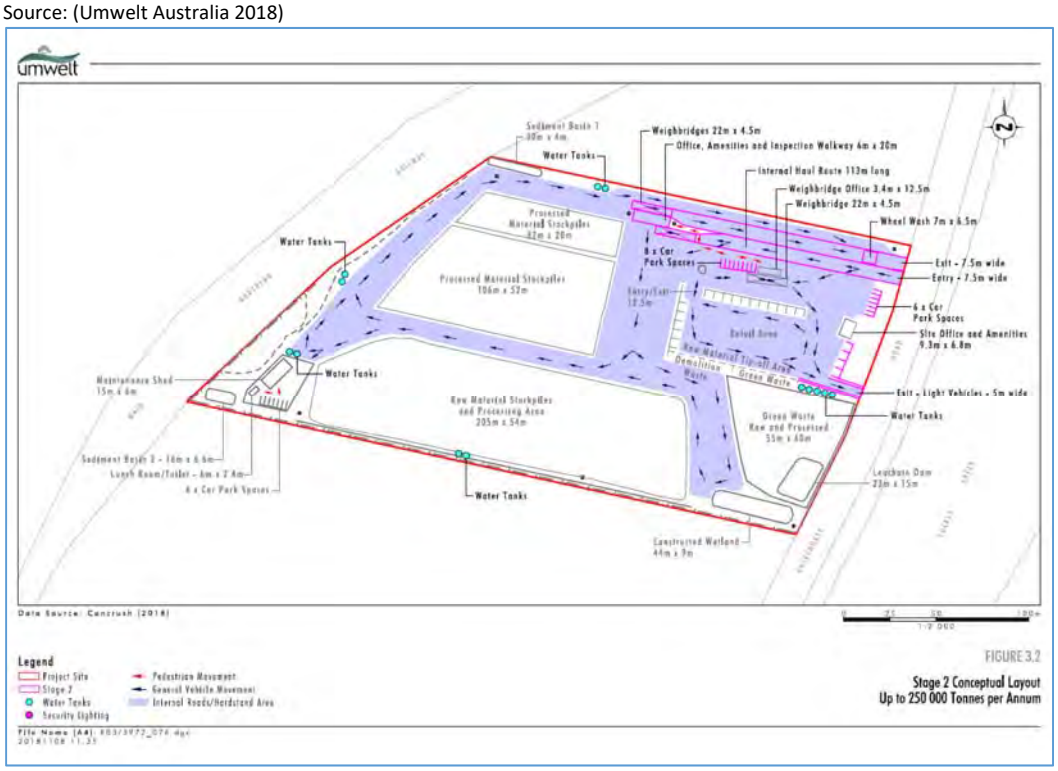


Figure 3.2 – Stage 2 and Stage 3 Conceptual Layout
Source: (Umwelt Australia 2018)

3.2 Project Description

Concrush Pty Ltd (Concrush) is seeking development consent to increase the processing and storage capacity of the existing resource recovery facility located on part of Lot 2 DP 220347 at 21 Racecourse Road, Teralba NSW. The Concrush increase to capacity project (the Project) will involve alterations and additions to the existing facility in order to provide greater on-site storage capacity that is sufficient for the increased level of throughput.

The Project is a State Significant Development (SSD) and requires approval under Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), for which the Minister for Planning is the consent authority.

3.2.1 The Proponent

The proponent for the Project is Concrush. Concrush was established in 2002 after recognising the need for a construction and demolition recycling facility in the Lake Macquarie region. Concrush is a locally owned and operated business based at Teralba.

The Concrush facility provides cost effective options for recycling of concrete, asphalt, bricks, pavers, roof tiles, wall and floor tiles, rock, sand, plasterboard and green waste for domestic households and commercial industry. These materials are then recycled into specification and non-specification quality products such as: road base, drainage aggregates, pipe bedding and haunch, packing fines, decorative aggregates and mulches. These products are used within the civil and construction industries or for commercial, domestic and household applications.

3.2.2 Description of the Project

Following strong demand for their recycling service, Concrush is seeking an increase to the processing and storage capacity of the existing facility. Concrush currently recycles approximately 108,000 tonnes of waste material per annum. Concrush is seeking approval for an increase in throughput capacity to up to 250,000 tonnes of waste material recycled per annum, including both construction and demolition waste and green waste. Concrush will require a waste storage capacity on-site that is sufficient for this level of throughput.

The Project will be constructed over two stages to allow for the proposed Project elements to come online as required in line with increasing production.

A description of the individual elements of the proposed Project including additional plant and equipment are summarised below.

Table 3.1 Proposed Project Components

Component	Description
Hardstand areas	Hardstands will be constructed in material processing areas and stockpile areas (will require some site levelling). Hardstands will consist of 200 mm thick recycled road base). Internal access roads will have a two coat seal.
Material Processing Areas	Processing areas for the crushers and screens.
Waste and Product Stockpile Areas	Waste and product stockpiles will be established with a stockpile height of up to 10 m. It is anticipated that up to 150,000 tonnes of material will be stored onsite.
Upgrade of existing facilities	The existing weighbridge and office will be upgraded, and the existing lunch room and maintenance shed will be relocated to facilitate the new site layout.
Waste Tracking System	The existing Wasteman software will be used to track the details of all inbound and outbound loads
Production Compound	The relocated lunch room, toilet and maintenance shed will be grouped together to form a compound for production staff.
Retail Area	This area will be restricted to light vehicles and small trucks and will include an area for tipping and an area containing concrete bays of products for sale.

Storage Bays	Concrete storage bays will be constructed using 1 m^3 concrete blocks.
Concrete Walls	A two metre high concrete wall will be constructed close to the southern Project site boundary using 1 m^3 concrete blocks. The wall will prevent stockpiled material encroaching on swale drains and moving offsite. Concrete walls may also be used to delineate other areas of the site.
Green Waste Pasteurisation	An aeration system using four electronically driven and computer controlled fans to push air through movable perforated pipes underneath the pasteurisation piles will be implemented in the green waste area. This system allows more control of oxygen levels in the pasteurisation process compared to the tradition turnover process.
Wheel Wash	A vehicle wheel wash bay will be constructed immediately after the exit weighbridge to reduce tracking of material onto public roads.
Concrete Washout Bay	A wet concrete washout bay will be constructed consisting of a bunded, impermeable area with an isolated catchment. Wet concrete and agitator washout will be captured in the concrete washout bay.
Water Management System	The existing Water Management System (WMS) will be upgraded involving resizing of existing sediment basins, new sediment basins, swale drains and a leachate dam and artificial wetland to treat nutrient runoff. Water tanks and associated poly pipe and pumps will be installed to allow collection and re-use of stormwater for dust suppression.
Trommel Screening Machine	Addition of a Trommel screening machine for sorting of green waste.
Primary Jaw Crusher	The primary jaw crusher will be replaced on a like for like basis as part of future operations.
Perimeter Landscaping - Mounds, Fencing and Lighting	Landscape mounds will be established on the perimeter to limit visibility. 1.8 m high security fencing and security lighting are also to be installed.
Utilities	The existing Ausgrid connection is via a power pole in the north east corner of the site. The power supply will be extended to the south west corner of the site via an underground connection.
Pug mill	A pug mill may be installed in the future to allow fast mixing of materials to produce products such as road base.
Ballast wash facility	A processing area may be dedicated to a ballast wash facility to allow for processing of rail ballast.

Source: (Umwelt Australia 2018)

3.2.3 Project Staging

It is anticipated that the volume of materials recycled and products sold will increase over a period of time up to the maximum production level of 250,000 tpa. To most efficiently meet the increase in demand for recycling of materials and Concrush products, it is proposed to stage the Project by undertaking some elements of the site upgrade early and implementing other elements of the Project as required when a certain production level is reached. Two Project stages and the associated approximate production level have been identified as follows:

- Stage 1 – upon receipt of all approvals required for the Project
- Stage 2 – at approximately 200,000 tpa up to 250,000 tpa.

The key components of the two Project stages are described below.

Stage 1

Stage 1 would be implemented once all approvals have been granted. The key elements of Stage 1 are:

- Construction of all hardstand areas (processing areas and waste and product stockpiles)
- Creation of the retail area

- Widen site access and install sliding gate
- Re-configuration of existing exit only weighbridge to allow for vehicle exit and entry to facilitate entry to the site
- Construct production compound by relocating maintenance shed and lunch room and toilet
- Augment the existing water management system to incorporate the leachate dam, constructed wetland, additional sediment basins, drainage swales, flood mitigation bund, water storage tanks and sprinkler systems
- Establish wheel wash, landscaping mounds, fencing, power line extension and lighting
- Two coat seal of internal access roads
- Replace primary jaw crusher.

Stage 2

Stage 2 would be implemented when production reaches approximately 200,000 tpa up to the Project limit of 250,000 tpa. The key elements of Stage 2 are:

- Relocation of the existing exit weighbridge, construction of a new entry weighbridge and establishment of the new weighbridge office
- The existing entry weighbridge becomes the retail area weighbridge and the existing weighbridge office becomes the retail area weighbridge office
- Construction of a new exit onto Racecourse Road from the retail area for light vehicles (less than 2 tonnes) only
- Establish pug mill
- Establish ballast wash facility
- Establish trommel screening machine for green waste
- Establish aeration system for green waste pasteurisation.

3.3 Estimated Project Construction Timeline

The proposed construction program will not require mobilisation of a major construction workforce. Rather the work will be completed in small steps by small teams to suit equipment availability and the anticipated product demand. Construction activities for the Project are planned to be undertaken between the hours of 7:00 am to 6:00 pm Monday to Friday and 8:00 am to 1:00 pm on Saturdays.

The total construction period for the Project is anticipated to be approximately 12 weeks.

3.4 Plant and Equipment Details

Features of the Project relevant to traffic and transport issues are detailed in **Table 3-1 Description of Proposed Development.**

Table 3-1 Description of Proposed Development.

Operational Aspect	Description
Number of full time staff and part time staff for existing operations	7 employees
Number of full time staff and part time staff for Proposed operations	9 employees
Production for the existing operation	9,000 tonnes per month
Production for the proposed operation	250,000 tonnes per year

Operational Aspect	Description
Primary traffic routes to and from site	Racecourse Rd, York St to Toronto Rd and Five Islands Rd.
Car Parking	Existing car parking for 12 light vehicles is available at the site. There will be no change for light vehicle parking for the Project.
Expected markets for product (i.e. locations) which will determine road transport to and from the site	Regions of supply are Lake Macquarie, Newcastle and Central Coast.
Hours of operation	7am to 5pm Monday to Friday and 7am to 3:45pm Saturdays, closed Sunday. The site may operate on a 24 hour, 7 days per week basis to meet short term campaign and emergency needs as required.
Details of construction	The proposed construction program will not require mobilisation of a major construction workforce. Construction activities for the Project are planned to be undertaken between the hours of 7:00 am to 6:00 pm Monday to Friday and 8:00 am to 1:00 pm on Saturdays. The key construction activities would be undertaken over an approximately 12 week period.

Source: Umwelt Australia 2018

3.5 Traffic Generation

Traffic Generation for the subject site has been recorded by the proponent over a period of three weeks from 1st November 2017 to 22nd November 2017. The data collected monitored vehicle types over the weighbridge **on a daily basis. The full dataset is included in Appendix D – Recorded Site Weighbridge Traffic Flows.** This data was used to derive an average daily forecast flow pattern, based on the existing vehicle profiles, and applying a pro rata increase in throughput from 9,000 per month to the projected 250,000 tonnes per annum. **Table 3-2 Average Daily Traffic Generation** below summarises the analysis and forecasting of Average Daily traffic flows generated by the subject site.

Table 3-2 Average Daily Traffic Generation

	AVERAGE FORECAST FLOWS (DAILY)						**AVERAGE WEEKDAY**
VEHICLE	MON	TUE	WED	THU	FRI	SAT	
HEAVY	208	257	200	252	184	103	222
LIGHT	86	96	69	91	103	108	89
	PEAK FORECAST FLOWS (DAILY)						
VEHICLE	MON	TUE	WED	THU	FRI	SAT	
HEAVY	275	278	271	326	213	130	276
LIGHT	93	111	90	100	113	106	101
	EXISTING FLOWS (DAILY)						
VEHICLE	MON	TUE	WED	THU	FRI	SAT	
HEAVY	90	111	86	93	80	57	92
LIGHT	39	42	30	41	44	45	39

Table 3-3 Traffic Generation Characteristics overleaf highlights some of the features the traffic generation profile.

Table 3-3 Traffic Generation Characteristics

Plant Traffic Movements -	Estimated volumes
Light vehicles (Guests, staff etc.) movements During operation, average hourly and peak hourly light vehicle movements (total): - daytime (7am to 5pm) M-F - daytime (7am to 4:00pm) S - evening (6pm to 10pm) (Campaign Basis)	- OUT – 5 cars per hour (PM peak) - IN - 5 cars AM peak
Truck (HEAVY) movements. During operation, average hourly and peak hourly truck movements (total): - daytime (7am to 5pm) M-F - daytime (7am to 4:00pm) S - evening (6pm to 10pm) (Campaign Basis)	- OUT – 13 trucks per hour (PM peak) - IN - 13 trucks AM peak
TOTAL Forecast Movements	**TOTAL Forecast movements = 18 vehicles OUT (PM)** **18 vehicles IN (AM)**

Based on the supplied data the peak forecast volumes assumed for impact assessment are maximum of:

- 50 car movements per day (5 light vehicles per hour), into the site.
- 130 truck movements per day (13 trucks per hour), into the site.

These numbers equate to an average daily increase (based on averaging the movements over the operating day) (N.B. Operations nominated as 7 AM to 5 PM Monday to Friday) to:

- 5 car movements per hour, into the site.
- 13 truck movements per hour, into the site.

The vehicle numbers identified above relate to the average recorded daily generation rate to meet the expanded operational needs.

If the peak flows (as set out above in Table 3-2) are used rather than average weekday flows the peak forecast volumes assumed for impact assessment are maximum of:

- 62 car movements per day (6 light vehicles per hour), into the site.
- 184 truck movements per day (18 trucks per hour), into the site.

If the operations are extended to 24 hours the hourly rates drop further from these values, to around 7 truck movements per hour and 2 car movements per hour (assuming a uniform generation profile).

These numbers have been used to assess the expected impacts on the local road network.

3.6 Site Access Routes, Circulation and Parking

The existing site access driveway will be widened and moved slightly to the north. The standard of access driveway proposed is that of an Austroads **BA**sic **L**eft turn treatment (BAL) as depicted in **Figure 5 Rural basic left turn treatment** overleaf. A new site exit only driveway will be established from the retail area to be used by light vehicles only (less than two tonnes). This will facilitate the separation of light and heavy vehicles throughout the site and will also be provided as an Austroads BAL treatment.

A site inspection was conducted to confirm the adequacy of the available sight distance for turning movements out of the site access points. For an approach speed of 80 kph for approaching vehicles (the posted speed limit being 80 kph) and a right turning vehicle out of the site into a two lane two way road requires a minimum gap sight distance of around 110 metres. For both access points the available sight distance for vehicles approaching from the south is in the order of 130 metres. For the northern approach the available sight distance was taken as the distance to the railway overhead bridge, which is about 200 metres. This equates to a critical gap acceptance time of 9 seconds for an approach speed of 80 kph.

All waste materials will be transported to the site via the Racecourse Road / York Street / Toronto Road route. The Project layout allows for several areas on site where vehicles will be able to wait without impacting on external road system. There are also vehicle wash facilities to aid in the prevention of material being transferred onto the external road network.

Traffic movements from the site will be again via the Racecourse Road/York Street/Toronto Road route for all truck movements; for car movements there is the alternate access available via The Weir Road to the north.

For the purposes of this analysis a conservative assumption has been assumed that all traffic would use the southern route to Five Islands Road.

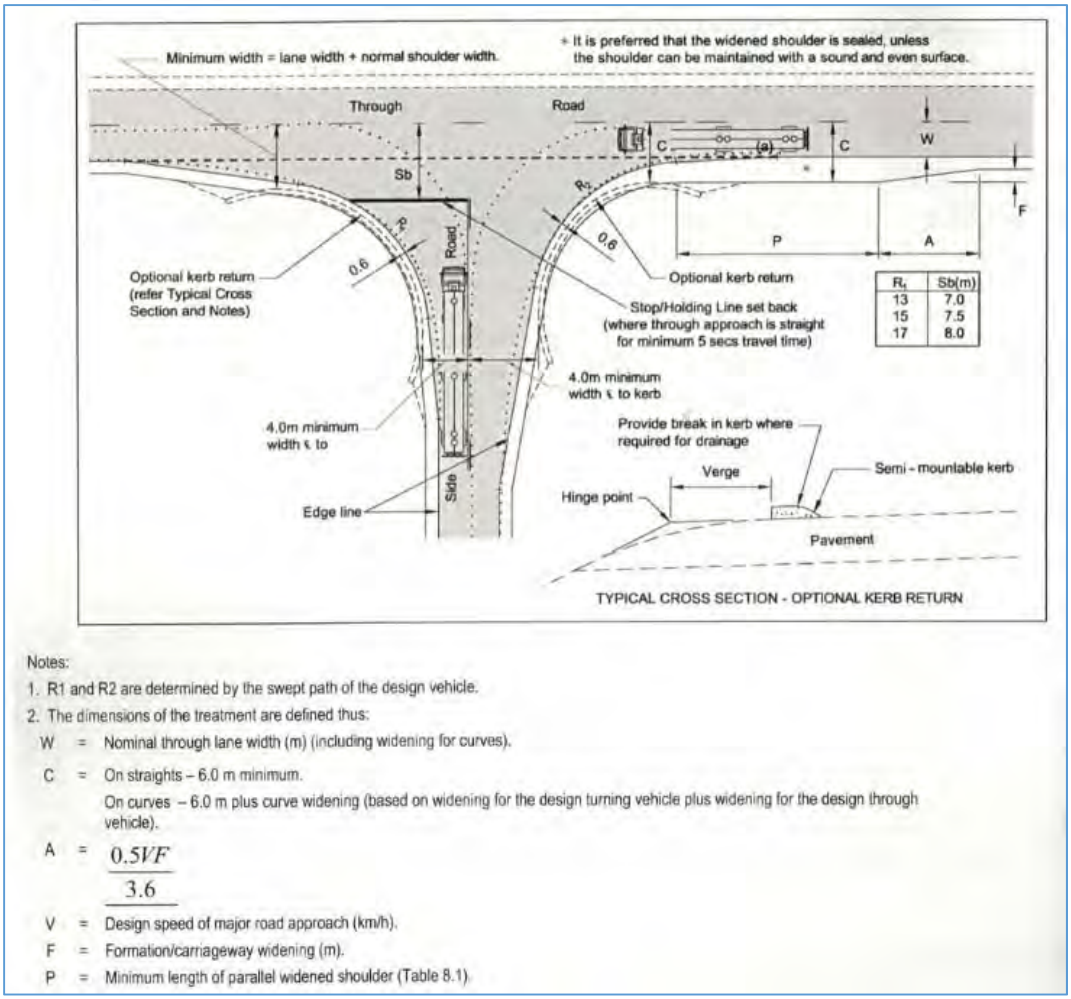
Truck movements will mainly consist of truck and dog trailer configurations as for existing operations, although there are a number of smaller trucks sizes that access the site.

There are currently 12 light vehicle parking spaces at the site. No additional long term parking is required or proposed on site. However the proposed site layout allows for several short term waiting bays to allow for removing and recovering (tarping) loads.

Of note in the Project is the proposal to relocate the weighbridge further into the site, thereby creating additional on-site queuing space and reducing the potential for queuing onto Racecourse Road.

Swept path analysis has been performed by McLaren Traffic Engineering to verify vehicle manoeuvring into and within the subject site. The results and recommendations of this analysis are included at **Appendix E – Swept Path Analysis**.

All vehicle movements (car and truck) into and from the site are able to be performed in a forward direction. There is ample space on site to cater for large vehicle manoeuvring.



Notes:

1. R1 and R2 are determined by the swept path of the design vehicle.
2. The dimensions of the treatment are defined thus:

W = Nominal through lane width (m) (including widening for curves).

C = On straights – 6.0 m minimum.
On curves – 6.0 m plus curve widening (based on widening for the design turning vehicle plus widening for the design through vehicle).

$$A = \frac{0.5VF}{3.6}$$

V = Design speed of major road approach (km/h).

F = Formation/carriageway widening (m).

P = Minimum length of parallel widened shoulder (Table 8.1).

Figure 5 Rural basic left turn treatment
Source: Austroads 2009)

3.7 Traffic Assignment and Distribution

For the purposes of this analysis a conservative assumption has been assumed that all (100%) of the site traffic would use the southern route to Five Islands Road.

4 Traffic Impact Assessment

4.1 Existing Traffic Flows

Monitoring of traffic movements was conducted over the AM and PM peak for three consecutive days. Traffic data for the York Street / Short Street junction was collected on Thursday 4th May 2017 to Saturday 6th May 2017, and for the intersections on the northern route 19th September to 21st September 2017. Intersections covered were:

- York Street / Short Street (May 2017)
- Wakefield Rd / Northville Dr (Sep 2017)
- The Weir Rd / Northville Dr (Sep 2017)

The purpose of the surveys was to confirm AM and PM peak periods, monitor any local queuing, and the presence of industrial (truck) traffic in the traffic stream.

An automatic counter was also placed on Racecourse Road in the vicinity of the Concrush site from 19th September to 21st September 2017.

The capacity and level of service results presented are drawn from the urban flow conditions and Levels of Service definitions as presented in the Guide to Traffic Generating Developments (NSW RTA October 2002). These are reproduced below as **Table 4.1 – Urban Road peak hour flows per direction** and **Table 4.2 – Environmental Capacity performance standards on residential Streets.** It can be seen that the ultimate capacity for a one lane local street is 900 vph at the acceptable technical limit of flow conditions under urban conditions of Level of Service 'D'. For the current observed traffic flows along local roads (refer to **Table 4.3 – Existing Traffic Volumes** overleaf) it can be seen that the level of service for road users is very good and above this at LoS 'A'.

Table 4.1 - Urban Road peak hour flows per direction

Level of service	One Lane (vph)	Two Lanes (vph)
A	200	900
B	380	1400
C	600	1800
D	900	2200
E	1400	2800

Source: RTA Guide to Traffic Generating Developments, version 2.2 dated October 2002.

Table 4.2 – Environmental Capacity performance standards on residential streets sets out the recommended Environmental Capacity performance standard that are also relevant to streets with direct access to residential properties. Existing flow levels observed are at least within the environmental goal of local street performance, and in many cases at the lower, ideal performance standard.

Table 4.2 – Environmental Capacity performance standards on residential streets

Road Class	Road Type	Maximum Speed (km/hr)	**Maximum peak hour volume (veh/hr)**
Local	Access way	25	100
	Street	40	200 environmental goal
			300 maximum
Collector	Street	50	200 environmental goal
			300 maximum

Source: RTA Guide to Traffic Generating Developments, version 2.2 dated October 2002.

Table 4.3 – Existing Traffic Volumes

Road	Location	Peak Period	Peak flow[1]	Mid-Block Road Capacity	Level of Service
Appletree Road	North of Northville Drive	AM peak	96 N/B 177 S/B	200 (one-way) [2] 200 (one-way) [2]	A A
		PM peak	191 N/B 225 S/B	200 (one-way) [2] 380 (one-way) [2]	A B
Charlton Street	West of Wakefield Rd	AM peak	29 E/B 19 W/B	200 (one-way) [2] 200 (one-way) [2]	A A
		PM peak	21 E/B 42 W/B	200 (one-way) [2] 380 (one-way) [2]	A B
Northville Drive	East of Wakefield Road	AM peak	266 E/B 212W/B	380 (one-way) [2] 380 (one-way) [2]	B B
		PM peak	178 E/B 279 W/B	200 (one-way) [2] 380 (one-way) [2]	A B
Northville Drive	West of The Weir Road	AM peak	326 E/B 240 W/B	600 (one-way) [2] 380 (one-way) [2]	C B
		PM peak	270 E/B 322 W/B	380 (one-way) [2] 600 (one-way) [2]	B C
Northville Drive	East of The Weir Road	AM peak	295 E/B 306 W/B	380 (one-way) [2] 380 (one-way) [2]	B B
		PM peak	295 E/B 326 W/B	200 (one-way) [2] 200 (one-way) [2]	B B
The Weir Road	South of Northville Drive	AM peak	109 N/B 206 S/B	200 (one-way) [2] 380 (one-way) [2]	A B
		PM peak	211 N/B 190 S/B	380 (one-way) [2] 200 (one-way) [2]	B A
Racecourse Road	South of Concrush site	AM peak	110 N/B 169 S/B	200 (one-way) [2] 200 (one-way) [2]	A A
		PM peak	184 N/B 180 S/B	200 (one-way) [2] 200 (one-way) [2]	A A
York Street	North of Short Street	AM peak	210 N/B 221 S/B	380 (one-way) [2] 380 (one-way) [2]	B B
		PM peak	203 N/B 190 S/B	380 (one-way) [2] 200 (one-way) [2]	B A
York Street	South of Short Street	AM peak	319 N/B 381 S/B	380 (one-way) [2] 600 (one-way) [2]	B C
		PM peak	301 N/B 333 S/B	380 (one-way) [2] 380 (one-way) [2]	B B

Notes: 1. Peak flow from 11th May and 19th September 2017 traffic survey results by TTS for Mark Waugh Pty Ltd
2. RTA 2002, Urban Road Conditions, One Lane, Level of Service (Refer Table 4.1 above)

Table 4.3 demonstrates that the roads serving as the main access routes for the subject site currently operate well within their technical, functional and environmental capacity levels as described by Austroads and NSW RMS guidelines.

The road traffic flows are well within Level of Service 'C' operations, many segments as high as LoS 'A'. York Street is generally operating at an acceptable LoS 'B' or 'C' range, and on Racecourse Road near the Concrush Property road service levels were observed as being within the LoS 'A' range'. All in all the local road network serving the subject site is operating well within the technical lane capacity of the approach road system at very satisfactory performance levels.

4.2 Existing Intersection Performance

There are a number of intersections and local access streets serving the subject site. Intersections of and with the local streets all operate under priority control. This reflects the relatively low volume local function of these roads.

For the assessment of intersection performance it is useful to firstly consider the Austroads threshold levels for intersection capacity under uninterrupted flow conditions, below which intersection analysis is considered unnecessary. **Table 4.4 Intersection volumes below which capacity analysis is unnecessary** presents these thresholds. Where traffic flows fall within these limits intersection performance is essentially operating with little or no delay for approaching drivers other than to obey the requisite road rules.

Table 4.4 Intersection volumes below which capacity analysis is unnecessary

Road Type	Light Crossing or turning volumes Maximum Design Hour Volumes, Two-way (vph)		
Two Lane through Roadway	400	500	650
Cross Road	250	200	100
Four Lane through roadway	1000	1500	2000
Cross road	100	50	25

Source: Guide to Traffic Management - Part 3 Traffic Studies and Analysis, Austroads 2009

For both the morning and afternoon peak periods, the survey results at The Weir Road / Northville Road intersection are illustrated in **Figure 6 – The Weir Road / Northville Drive Existing Traffic Volumes** below. These volumes indicate that these limits are not met for the turning volumes opposed by the main road volumes. Essentially, traffic is required to slow down to negotiate turns with little if any delay for the through traffic movements. This is consistent with the site observations.

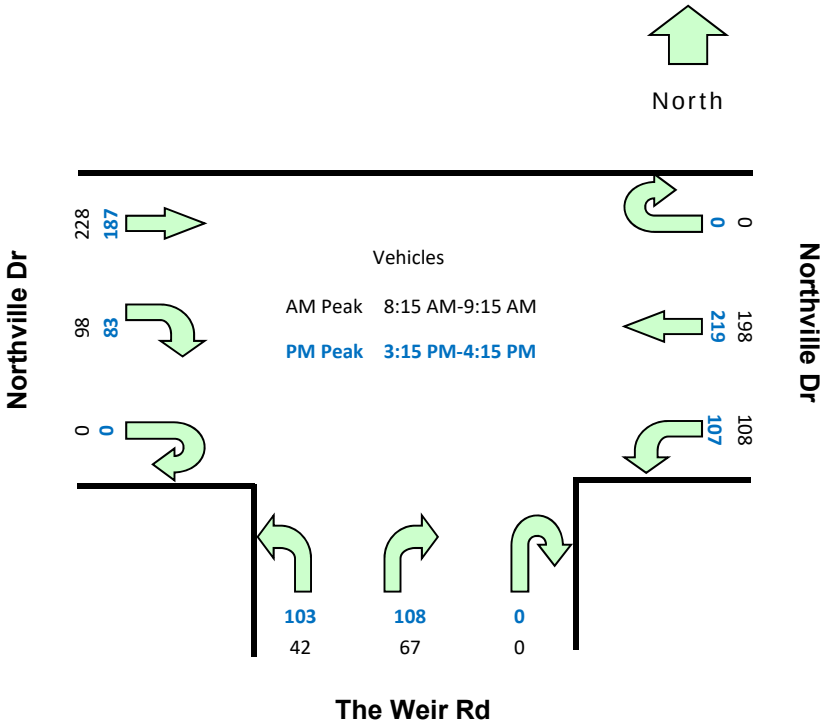


Figure 6 – The Weir Road / Northville Drive Existing Traffic Volumes
Source TTS for BTF 2017

For both the morning and afternoon peak periods, the survey results at the Wakefield Rd / Northville Drive intersection are illustrated in **Figure 7 – Wakefield Rd / Northville Drive – Existing Traffic Volumes** overleaf. The intersection operates under roundabout control. Site observations and the recorded volumes indicate that while the free flow limits are exceeded on some legs at peak times the roundabout control performs well.

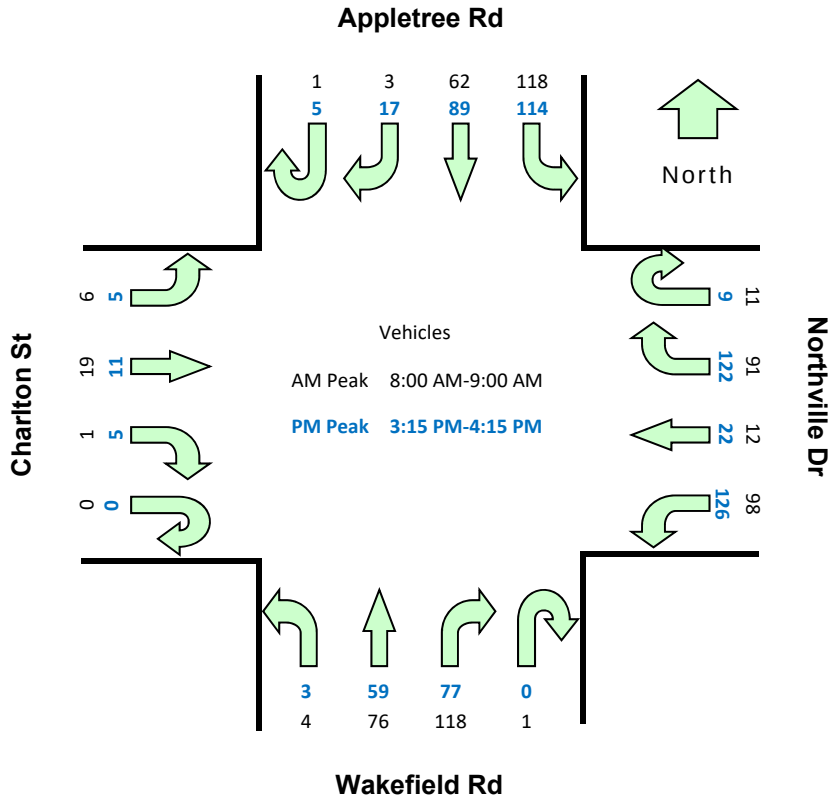


Figure 7 - Wakefield Rd / Northville Drive - Existing Traffic Volumes
Source TTS for BTF 2017

Finally for the morning and afternoon peak periods, the survey results at the Short Street / York Street intersection are illustrated in **Figure 8 – Short St / York St Existing Traffic Volumes** below. These volumes indicate that these limits are not met on all the local street priority junctions involving local streets only. Essentially, traffic is required to slow down to negotiate turns with little if any delay for the through traffic movements. This is consistent with the site observations.

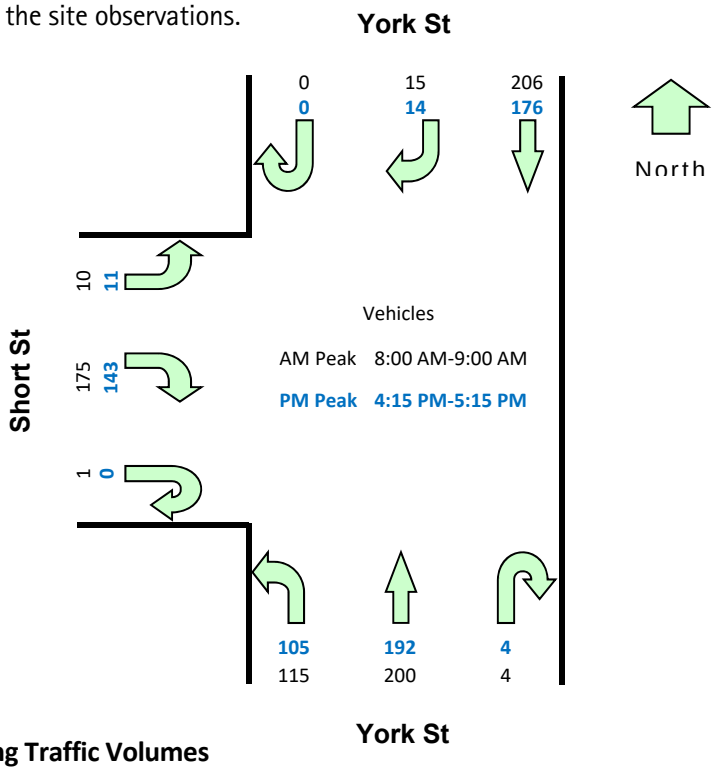


Figure 8 Short St / York St - Existing Traffic Volumes
Source TTS for BTF 2017

The intersection of Five Islands Road / Toronto Road was not monitored given its high (2 lane) capacity and the relatively small additional peak traffic volumes expected from the Project. (I.e. no upgrade works are contemplated for this intersection.) Traffic flows were last recorded by NSW RMS on Five Islands Road north of the Toronto Road roundabout at a weekday flow of 40,000 vehicle per day, with just over 20,000 northbound. The level of cumulative growth from the project and the proposed Teralba Asphalt Plant project is only around 60 vehicles in the peak hour and is considered to be well within the limits of normal fluctuations that occur in the traffic stream from day to day, hour to hour etc.

Based on the site observations and recorded existing peak traffic volumes, the conservative assumption that all traffic will use the Racecourse Road, York Street / Toronto Road route to access the main road network, the York Street intersection remains below free flow thresholds (the combined flows at each intersection are less than the capacity levels below which intersection analysis is unnecessary as per the Austroads Guidelines. (AustRoads 2009) As such no intersection analysis modelling has been conducted.

4.3 Traffic Planning and Management Issues

Background Growth

NSW RMS has for some time considered it necessary to make allowance for 'background growth' along its road corridors. This is slated as being required to take account of additional traffic flows from unknown sources that add to the base traffic flows.

In the case of the subject site, and with existing performance levels at LoS "A' to 'C' for the observed intersections, even if a conservatively high background growth level of 30% (i.e. 3% per annum) were to be assumed, performance would still remain at satisfactory service levels. (A more typical rate is 2% per annum.))

Cumulative Impacts

Traffic flows were last recorded by NSW RMS on Five Islands Road north of the Toronto Road roundabout in 2010 at a weekday flow of 40,000 vehicle per day, with just over 20,000 northbound. Allowing a factor for background growth as above (at 2%) would mean this daily flow could be around 46,000 vehicles per day.

With peak hour flows typically in the range of 8% to 12 % and as exhibited with a fairly even 50/50 directional split this places the peak hour flows at around Level of Service 'D' conditions (Austroads (2009).

The forecast level of cumulative growth from the project and the proposed Teralba Asphalt Plant project is only around 60 vehicles in the peak hour and only 1.5% is considered to be well within the limits of normal fluctuations that occur in the traffic stream from day to day, hour to hour etc. If a growth rate is applied at the same rate as above for background growth this means the portion of flow is closer to 1%

Based on the site observations and recorded existing peak traffic volumes, the conservative assumption that all traffic will use the Racecourse Road, York Street / Toronto Road route to access the main road network, the York Street intersection remains below free flow thresholds (the combined flows at each intersection are less than the capacity levels below which intersection analysis is unnecessary as per the Austroads Guidelines. (AustRoads 2009) As such no intersection analysis modelling has been conducted.

Construction Traffic Management

As with operational traffic it is proposed that construction traffic be directed to use the Racecourse Road / York Street / Toronto Road route to access the main road network.

The proposed construction program will not require mobilisation of a major construction workforce. Rather the work will be completed in small steps by small teams to suit equipment availability and the anticipated product demand. Construction activities for the Project are planned to be undertaken between the hours of 7:00 am to 6:00 pm Monday to Friday and 8:00 am to 1:00 pm on Saturdays.

As such, construction traffic impacts are not expected as a result of the Project.

4.4 Forecast Local Road and Intersection Performance

The calculated traffic generation levels from the subject site are of the order of only 5 car movements per hour and 13 truck movements per hour into the site and out of the site. A total of 36 vehicles trips per hour. Even if this level of traffic is added to every one of the road segments on the approach and departure routes reproduced overleaf as **Table 4.5 – Forecast Mid-Block Traffic Volumes**, and with an allowance for conversion of truck volumes to passenger car units (PCU's) at an average of 2.5, (2 for rigid and 3 for

articulated vehicles) Level of Service remains high and generally in the Austroads B/C range for mid-block performance along the approach / transport routes.

Table 4.5 demonstrates that the roads surrounding the subject site will continue to operate well within their technical and functional lane capacity levels as described by Austroads and NSW RMS guidelines. The forecasts even based on the very conservative assignment assumptions noted in this statement suggest all local streets will remain at acceptable peak period levels of service.

With the minimal change in forecast traffic flows in any one hour this will apply also to the operation of intersections and particularly the intersection of Racecourse Road / York Street / Short Street. The change in levels of flows on the main road network is also noted as being minimal.

Overall the forecast from the assessment is for continued satisfactory performance. Even if all the predicted traffic were to access the site via this Racecourse Road / York Street / Toronto Road corridor the level of flows is such that there would be no discernible change in operations.

Table 4.5 – Forecast Mid-Block Traffic Volumes

Road	Location	Peak Period	Peak flow[1]	Mid-Block Road Capacity	Level of Service
Appletree Road	North of Northville Drive	AM peak	136 N/B 217 S/B	200 (one-way) [2] 200 (one-way) [2]	A A
		PM peak	231 N/B 265 S/B	200 (one-way) [2] 380 (one-way) [2]	A B
Charlton Street	West of Wakefield Rd	AM peak	69 E/B 59 W/B	200 (one-way) [2] 200 (one-way) [2]	A A
		PM peak	61 E/B 82 W/B	200 (one-way) [2] 380 (one-way) [2]	A B
Northville Drive	East of Wakefield Road	AM peak	306 E/B 252W/B	380 (one-way) [2] 380 (one-way) [2]	B B
		PM peak	218 E/B 319 W/B	200 (one-way) [2] 380 (one-way) [2]	A B
Northville Drive	West of The Weir Road	AM peak	366 E/B 280 W/B	600 (one-way) [2] 380 (one-way) [2]	C B
		PM peak	310 E/B 362 W/B	380 (one-way) [2] 600 (one-way) [2]	B C
Northville Drive	East of The Weir Road	AM peak	335 E/B 346 W/B	380 (one-way) [2] 380 (one-way) [2]	B B
		PM peak	295 E/B 366 W/B	200 (one-way) [2] 200 (one-way) [2]	B B
The Weir Road	South of Northville Drive	AM peak	149 N/B 246 S/B	200 (one-way) [2] 380 (one-way) [2]	A B
		PM peak	251 N/B 230 S/B	380 (one-way) [2] 200 (one-way) [2]	B A
Racecourse Road	South of Concrush site	AM peak	150 N/B 209 S/B	200 (one-way) [2] 200 (one-way) [2]	A A
		PM peak	224 N/B 220 S/B	200 (one-way) [2] 200 (one-way) [2]	B B
York Street	North of Short Street	AM peak	250 N/B 261 S/B	380 (one-way) [2] 380 (one-way) [2]	B B
		PM peak	243 N/B 230 S/B	380 (one-way) [2] 380 (one-way) [2]	B B
York Street	South of Short Street	AM peak	359 N/B 421 S/B	380 (one-way) [2] 600 (one-way) [2]	B C
		PM peak	341 N/B 373 S/B	380 (one-way) [2] 380 (one-way) [2]	B B

Notes: 1. Peak flow from 11th May and 19th September 2017 traffic survey results by TTS for Mark Waugh Pty Ltd
2. RTA 2002, Urban Road Conditions, One Lane, Level of Service (Refer Table 4.1 above)

4.5 Changes to Intersection Layouts

As a result of the analysis of forecast traffic flows no changes are planned or recommended for the intersections on the road network supporting the subject site.

4.6 Recommended Access Strategy

The primary access route for the subject site of Racecourse Road, York Street and Toronto Road to the Five Islands Road roundabout is an appropriate access route to the main road network. It is used already by this site and others for general access as well as heavy vehicle access. The local access requirements of the subject site remain unchanged, waiting and with minimal changes to predicted hourly traffic volumes on the local road network under the expansion proposal.

It is recommended that the subject site be approved on traffic and transport considerations.

5 Summary and Conclusions

4.7 Summary

Concrush are seeking an increase to the processing and approved storage capacity for the facility. Specifically approval is being sought for a throughput capacity of up to 250,000 tonnes per annum, up from the existing 9,000 tonnes per month. The operation has approval to recycle waste building materials, primarily consisting of waste concrete with secondary processing of waste timber and recovery of steel (the reinforcing steel). The facility currently stores up to 40,000 tonnes of waste material on site at any one time.

Existing Conditions

a. The subject site is located north of Teralba with access from Racecourse Road.
b. There is an existing recycling operation in place.
c. Existing flow conditions on the local road system supporting the site are well within the technical and functional capacity limits of local roads.
d. Surveys of intersection flows indicate that junctions along the primary access route operate, essentially under free flow conditions.

Proposed Development

e. The works required to allow the proposed increase to throughput include:
   - Construction of a hardstand area (no excavation required)
   - Construction of concrete walls and concrete material storage bays
   - Construction of two vehicle washing bays
   - Installation of three water tanks and
   - Establishing waste stockpiles and increasing the size of existing stockpiles.

f. Heavy vehicles are used to transport waste/products to and from the site (primarily truck and dog trailers). Truck movements will increase as a result of the Project.

g. It is proposed to maintain the ability to operate 24 hours per day, 7 days per week, to be able to respond to customer needs. The existing site access driveway will be widened and moved slightly to the north. A new site exit only driveway will be established for light vehicles only

Car Parking Provision:

h. Existing car parking for 12 light vehicles is available at the site.
i. Future car parking will retain the 12 spaces for light vehicles at the site.

Future Peak Trip Generation (Peak):

j. Car Movements – 5 cars per hour IN / OUT (peak)
   Truck Movements –13 trucks per hour IN / OUT (peak)

k. The capacity throughput increase will result in the operational staff increasing from 7 to 9 employees.

l. The assumed maximum forecast traffic volumes are not anticipated to be more than 36 (18 movements OUT and 18 movements IN) in any one hour of operation.

m. Even allowing for the cumulative impact of the proposed changes to the Teralba Asphalt Plant which is forecast to result in an additional 4 trucks per hour, and around 20 car movements this is a total flow increase of 60 vehicle movements in the peak hour which represents about

n. The proposed layout of the new plant will be capable of allowing all vehicles to enter and leave the site in a forward direction, and to provide for the requisite parking levels.

o. Assignment of trips has been assumed to follow the existing route south on Racecourse Road to Five Islands Road via York Street and Toronto Road (conservatively 100%). All supply and delivery routes from that point are assumed to utilise the main road network.

Future Performance

p. The level of traffic generation predicted for the proposal will remain well within the technical capacity limits and at high performance (LoS) levels for both mid-block capacity and intersection operations.

q. The relatively small magnitude of hourly traffic volumes from the development proposal will not have an adverse impact on existing local road and intersections.

r. No truck movements north along Racecourse Road have been assumed because of height and flooding restrictions on the Weir Road route.

4.8 Conclusion and Recommendations

Concrush are seeking an increase to the processing and storage capacity for the Teralba facility to meet market demand. Specifically approval is being sought for a throughput capacity of up to approximately 250,000 tonnes per annum, up from the existing 9,000 tonnes per month. Whilst the throughput capability of the site will increase in the long term the projected operational levels and predicted traffic flows generated by the proposal will remain relatively small and well within the technical mid-block and intersection capacities available to access the main road network.

The type of traffic remains consistent with the existing and surrounding land use in the Teralba area.

The local access requirements of the subject site remain unchanged, and with minimal changed to predicted hourly traffic volumes it is recommended that the subject site be approved on traffic and transport considerations.

Appendix A. Traffic Survey Data

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

T. 1300 82 88 82 - F. 1300 83 88 83 - E. traffic@trafficsurvey.com.au - W. www.trafficsurvey.com.au

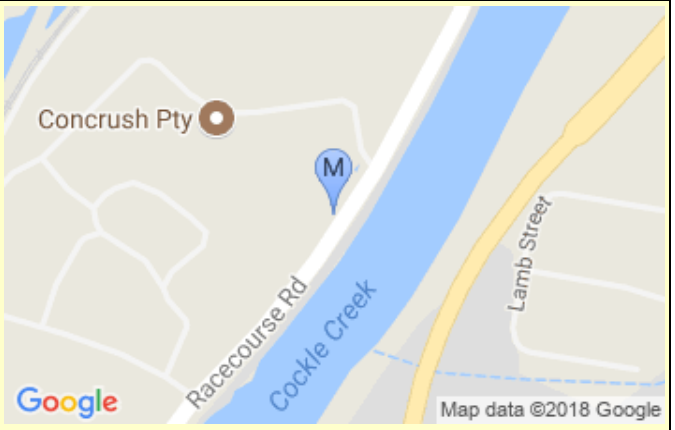
AUTOMATIC COUNT SUMMARY

Street Name :	Racecourse Rd	**Location :**	Near Property 21
Suburb :	Teralba	**Start Date :**	00:00 Sat 16-September-2017
Metrocount ID	U494ZFNP	**Finish Date :**	00:00 Sat 23-September-2017
Site ID Number :	585	**Speed Zone :**	80 km/h
Prepared By :	Vo Son Binh	**Email:**	binh@trafficsurvey.com.au

GPS information		Lat 32° 56' 51.58 North Long 151° 37' 6.47 East	Direction of Travel		
			Combined	**Northbound**	**Southbound**
Traffic Volume :		Weekdays Average	3,362	1,623	1,739
(Vehicles/Day)		7 Day Average	3,071	1,486	1,585
Weekday	**AM**	08:00	279	110	169
Peak hour starts	**PM**	15:00	364	184	180
Speeds :		85th Percentile	85.3	85.7	84.8
(Km/Hr)		Average	75.9	76.2	75.7
Classification % :		Light Vehicles up to 5.5m	90.8%	91.0%	90.5%

Location

GPS Information	Load Google Map (internet required)
(Latitude, Longitude)	-32.947662,+151.618465



Speed Data | Speed Graph | Speed Bin
Volume Data | Volume Graph | Classification

QUALITY SYSTEM CERTIFICATION DNV·GL ISO 9001
SAFETY SYSTEM CERTIFICATION DNV·GL AS/NZS 4801
ENVIRONMENTAL SYSTEM CERTIFICATION DNV·GL ISO 14001

QUALITY ASSURED COMPANY BY ISO 9001:2015
OH&S SYSTEM CERTIFIED TO ISO 4801:2001
ENVIRONMENT MANAGEMENT SYSTEM CERTIFIED TO ISO14001:2015

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Appletree Rd and Northville Dr, Teralba

Date:	Tue 19-09-17
Weather:	Overcast
Suburban:	Teralba
Customer:	BTF

North:	Appletree Rd
East:	Northville Dr
South:	Wakefield Rd
West:	Charlton St

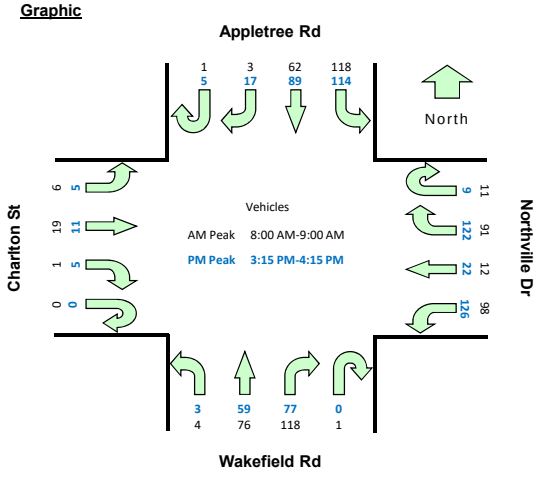
Survey Start	AM:	6:00	PM:	15:00
Vehicular Peakhour		**Pedestrians Peakhour**		
AM:	8:00 AM-9:00 AM	AM:	N/A	
PM:	3:15 PM-4:15 PM	PM:	N/A	

All Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St				Hourly Total	
Period Start	**Period End**	**U**	**R**	**SB**	**L**	**U**	**R**	**WB**	**L**	**U**	**R**	**NB**	**L**	**U**	**R**	**EB**	**L**	**Hour**	**Peak**
6:00	6:15	0	0	8	10	0	5	1	21	0	11	9	0	0	1	9	2	312	
6:15	6:30	0	0	10	7	0	6	0	23	0	18	11	1	0	0	5	4	328	
6:30	6:45	0	0	5	8	1	10	1	11	0	30	7	0	0	0	2	1	341	
6:45	7:00	0	2	11	12	1	10	1	11	0	17	7	0	0	0	2	0	372	
7:00	7:15	0	0	9	11	1	12	1	17	0	23	12	0	0	1	5	1	423	
7:15	7:30	0	0	8	13	1	7	1	19	0	22	17	0	0	1	7	2	465	
7:30	7:45	0	1	13	12	2	9	1	19	0	26	19	0	0	0	3	2	521	
7:45	8:00	0	1	17	18	3	13	1	19	0	36	10	0	0	0	6	1	570	
8:00	8:15	0	1	10	16	1	19	4	20	1	40	18	1	0	0	4	0	621	Peak
8:15	8:30	1	1	18	25	4	23	1	35	0	23	18	0	0	0	2	3	619	
8:30	8:45	0	1	20	32	2	21	3	27	0	26	15	2	0	1	3	3	571	
8:45	9:00	0	0	14	45	4	28	4	16	0	29	25	1	0	0	10	0	513	
9:00	9:15	0	0	6	34	5	32	1	14	0	19	13	0	0	0	7	2	426	
9:15	9:30	0	0	7	29	1	13	3	16	0	17	12	1	0	0	6	1		
9:30	9:45	0	1	11	15	0	19	4	19	0	14	10	1	0	1	3	0		
9:45	10:00	0	1	11	13	4	12	2	11	0	21	8	0	0	0	2	4		
15:00	15:15	3	1	10	16	0	44	6	30	0	23	13	0	0	0	4	2	659	
15:15	15:30	2	8	29	29	3	50	5	25	0	15	15	2	0	2	3	2	664	Peak
15:30	15:45	3	3	26	36	1	25	4	38	0	19	19	1	0	0	4	0	631	
15:45	16:00	0	2	13	20	3	24	5	29	0	21	15	0	0	1	2	3	622	
16:00	16:15	0	4	21	29	2	23	8	34	0	22	10	0	0	2	2	0	630	
16:15	16:30	0	5	26	20	3	18	7	30	0	19	23	0	0	1	2	3	613	
16:30	16:45	1	3	20	24	7	33	2	28	0	29	21	0	0	0	2	0	589	
16:45	17:00	1	3	21	22	2	24	8	34	0	17	8	1	0	0	4	1	560	
17:00	17:15	0	3	32	13	5	22	6	21	0	21	12	1	0	0	3	1	546	
17:15	17:30	0	3	17	17	5	22	5	32	0	20	8	1	0	0	2	1	553	
17:30	17:45	1	5	12	19	8	25	3	24	1	19	14	0	0	2	7	1	511	
17:45	18:00	0	0	12	30	5	25	4	19	0	23	9	0	0	0	4	1	440	
18:00	18:15	0	5	14	27	2	24	5	29	0	18	16	1	0	0	6	0	384	
18:15	18:30	0	2	10	16	5	20	4	18	0	7	5	0	0	0	3	1		
18:30	18:45	0	0	5	14	3	4	5	19	0	12	4	0	0	1	2	1		
18:45	19:00	0	0	11	8	2	11	1	15	0	14	11	0	0	1	1	1		

Peak Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St				Peak
Period Start	**Period End**	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	**total**
8:00	9:00	1	3	62	118	11	91	12	98	1	118	76	4	0	1	19	6	621
15:15	16:15	5	17	89	114	9	122	22	126	0	77	59	3	0	5	11	5	664

Graphic



Light Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:00	6:15	0	0	8	10	0	4	1	18	0	11	9	0	0	1	9	2
6:15	6:30	0	0	10	7	0	6	0	22	0	17	11	1	0	0	5	4
6:30	6:45	0	0	5	7	1	10	1	11	0	25	7	0	0	0	2	1
6:45	7:00	0	1	10	12	1	10	1	10	0	15	7	0	0	0	2	0
7:00	7:15	0	0	8	10	1	12	1	12	0	17	12	0	0	1	5	1
7:15	7:30	0	0	8	13	1	7	1	18	0	18	17	0	0	1	7	2
7:30	7:45	0	1	13	12	1	9	1	15	0	26	19	0	0	0	3	2
7:45	8:00	0	1	16	18	3	13	1	14	0	34	10	0	0	0	6	1
8:00	8:15	0	1	10	14	0	18	4	16	1	35	18	1	0	0	4	0
8:15	8:30	1	1	17	23	3	22	1	33	0	21	16	0	0	0	2	3
8:30	8:45	0	1	20	31	1	21	3	24	0	23	15	1	0	0	3	2
8:45	9:00	0	0	13	44	4	27	4	13	0	28	25	1	0	0	9	0
9:00	9:15	0	0	5	33	4	30	1	12	0	19	13	0	0	0	6	2
9:15	9:30	0	0	7	28	0	10	1	15	0	17	11	1	0	0	6	0
9:30	9:45	0	1	10	14	0	17	4	16	0	14	10	1	0	1	3	0
9:45	10:00	0	1	11	12	4	11	2	10	0	16	8	0	0	0	2	4
15:00	15:15	2	1	10	16	0	44	5	29	0	20	13	0	0	0	4	2
15:15	15:30	2	8	28	28	3	49	5	25	0	13	15	2	0	1	3	2
15:30	15:45	1	3	26	35	1	23	4	34	0	16	17	1	0	0	4	0
15:45	16:00	0	2	12	18	1	22	5	24	0	19	13	0	0	1	2	3
16:00	16:15	0	4	20	28	1	21	8	33	0	21	10	0	0	2	2	0
16:15	16:30	0	5	25	20	3	17	7	29	0	18	23	0	0	1	2	3
16:30	16:45	1	3	19	24	5	30	2	26	0	29	21	0	0	0	2	0
16:45	17:00	1	3	20	21	1	23	8	33	0	14	7	1	0	0	4	1
17:00	17:15	0	3	32	13	4	22	6	20	0	21	12	1	0	0	3	1
17:15	17:30	0	3	17	17	4	21	5	31	0	16	8	1	0	0	2	1
17:30	17:45	1	5	11	19	8	25	3	22	1	18	14	0	0	2	7	1
17:45	18:00	0	0	12	30	4	25	4	18	0	23	9	0	0	0	4	1
18:00	18:15	0	5	14	27	2	24	5	29	0	18	16	1	0	0	6	0
18:15	18:30	0	2	10	16	4	20	4	17	0	7	5	0	0	0	3	1
18:30	18:45	0	0	5	14	2	4	5	17	0	12	4	0	0	1	2	1
18:45	19:00	0	0	11	8	1	11	1	14	0	13	9	0	0	1	1	1

Heavy Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:00	6:15	0	0	0	0	0	1	0	3	0	0	0	0	0	0	0	0
6:15	6:30	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0
6:30	6:45	0	0	0	1	0	0	0	0	0	5	0	0	0	0	0	0
6:45	7:00	0	1	1	0	0	0	0	1	0	2	0	0	0	0	0	0
7:00	7:15	0	0	1	1	0	0	0	5	0	6	0	0	0	0	0	0
7:15	7:30	0	0	0	0	0	0	0	1	0	4	0	0	0	0	0	0
7:30	7:45	0	0	0	0	1	0	0	4	0	0	0	0	0	0	0	0
7:45	8:00	0	0	1	0	0	0	0	5	0	2	0	0	0	0	0	0
8:00	8:15	0	0	0	2	1	1	0	4	0	5	0	0	0	0	0	0
8:15	8:30	0	0	1	2	1	1	0	2	0	2	2	0	0	0	0	0
8:30	8:45	0	0	0	1	1	0	0	3	0	3	0	1	0	1	0	1
8:45	9:00	0	0	1	1	0	1	0	3	0	1	0	0	0	0	1	0
9:00	9:15	0	0	1	1	1	2	0	2	0	0	0	0	0	0	1	0
9:15	9:30	0	0	0	1	1	3	2	1	0	0	1	0	0	0	0	1
9:30	9:45	0	0	1	1	0	2	0	3	0	0	0	0	0	0	0	0
9:45	10:00	0	0	0	1	0	1	0	1	0	5	0	0	0	0	0	0
15:00	15:15	1	0	0	0	0	0	1	1	0	3	0	0	0	0	0	0
15:15	15:30	0	0	1	1	0	1	0	0	0	2	0	0	0	1	0	0
15:30	15:45	2	0	0	1	0	2	0	4	0	3	2	0	0	0	0	0
15:45	16:00	0	0	1	2	2	2	0	5	0	2	2	0	0	0	0	0
16:00	16:15	0	0	1	1	1	2	0	1	0	1	0	0	0	0	0	0
16:15	16:30	0	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0
16:30	16:45	0	0	1	0	2	3	0	2	0	0	0	0	0	0	0	0
16:45	17:00	0	0	1	1	1	1	0	1	0	3	1	0	0	0	0	0
17:00	17:15	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	1	1	0	1	0	4	0	0	0	0	0	0
17:30	17:45	0	0	1	0	0	0	0	2	0	1	0	0	0	0	0	0
17:45	18:00	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
18:00	18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:15	18:30	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0
18:30	18:45	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0
18:45	19:00	0	0	0	0	1	0	0	1	0	1	2	0	0	0	0	0

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au

Intersection of Appletree Rd and Northville Dr, Teralba

Date:	Wed 20-09-17
Weather:	Overcast
Suburban:	Teralba
Customer:	BTF

North:	Appletree Rd
East:	Northville Dr
South:	Wakefield Rd
West:	Charlton St

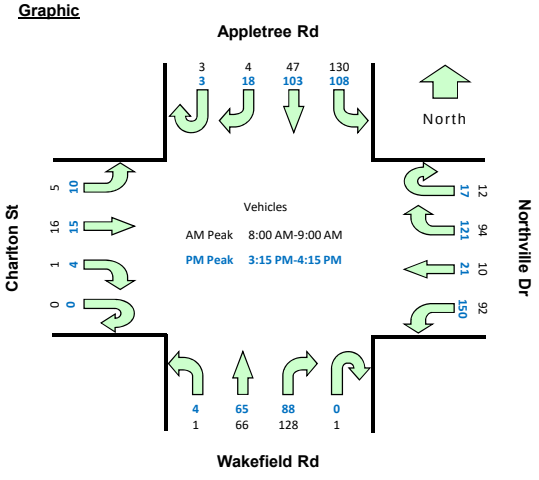
Survey Start	AM:	6:00	PM:	15:00
Vehicular Peakhour		**Pedestrians Peakhour**		
AM:	8:00 AM-9:00 AM	AM:	N/A	
PM:	3:15 PM-4:15 PM	PM:	N/A	

All Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St				Hourly Total	
Period Start	**Period End**	**U**	**R**	**SB**	**L**	**U**	**R**	**WB**	**L**	**U**	**R**	**NB**	**L**	**U**	**R**	**EB**	**L**	**Hour**	**Peak**
6:00	6:15	0	0	16	11	0	6	2	20	0	9	11	0	0	4	4	5	329	
6:15	6:30	0	1	10	7	0	10	0	18	0	18	13	1	0	1	3	0	330	
6:30	6:45	0	1	12	9	0	4	1	12	0	22	7	0	0	0	5	1	346	
6:45	7:00	0	0	12	10	2	7	2	16	0	20	12	0	0	1	2	1	373	
7:00	7:15	0	1	11	12	2	8	2	21	0	25	3	0	0	0	4	0	416	
7:15	7:30	0	1	3	13	1	3	1	25	0	27	11	0	0	0	8	5	458	
7:30	7:45	1	0	10	11	4	12	1	13	0	34	11	0	0	0	3	1	504	
7:45	8:00	1	1	19	20	2	12	1	15	1	31	18	0	0	0	6	1	555	
8:00	8:15	0	0	8	18	2	18	4	16	0	42	20	0	0	0	3	0	610	Peak
8:15	8:30	0	1	10	25	4	18	2	28	1	33	15	0	0	0	5	2	606	
8:30	8:45	1	1	15	39	4	19	2	22	0	29	13	1	0	0	4	2	582	
8:45	9:00	2	2	14	48	2	39	2	26	0	24	18	0	0	1	4	1	529	
9:00	9:15	0	0	8	22	2	26	3	20	0	27	10	0	0	1	6	2	433	
9:15	9:30	0	1	11	19	8	17	3	25	0	22	8	0	0	0	5	1		
9:30	9:45	0	3	7	20	2	8	2	19	0	21	10	1	0	0	2	4		
9:45	10:00	0	1	9	9	2	11	4	15	0	16	12	0	0	2	4	2		
15:00	15:15	0	4	12	23	2	27	6	38	0	26	10	1	0	1	0	1	707	
15:15	15:30	0	5	27	40	2	37	5	36	0	22	13	2	0	2	7	2	727	Peak
15:30	15:45	1	6	26	22	6	30	7	41	0	22	19	0	0	0	2	3	677	
15:45	16:00	0	4	29	27	6	32	4	25	0	23	15	0	0	0	3	3	646	
16:00	16:15	2	3	21	19	3	22	5	48	0	21	18	2	0	2	3	2	635	
16:15	16:30	0	2	25	20	4	19	7	31	0	22	12	2	0	0	5	1	634	
16:30	16:45	0	1	24	18	4	29	4	37	0	17	14	2	0	0	2	2	611	
16:45	17:00	0	1	19	15	2	31	3	34	0	27	20	1	0	2	3	2	595	
17:00	17:15	0	1	26	28	5	16	7	38	0	31	16	0	0	0	2	0	543	
17:15	17:30	0	4	23	22	3	18	2	21	1	18	9	1	0	1	3	1	473	
17:30	17:45	1	2	17	18	1	18	6	29	0	28	14	0	0	0	2	2	452	
17:45	18:00	0	0	12	16	5	18	5	27	0	12	8	0	0	0	5	0	365	
18:00	18:15	0	1	13	14	0	14	3	27	0	20	6	0	0	0	2	0	317	
18:15	18:30	0	0	9	18	3	17	3	24	0	16	11	0	0	0	4	1		
18:30	18:45	0	0	7	5	3	9	1	9	0	6	8	2	0	0	0	1		
18:45	19:00	0	1	9	9	2	8	3	11	0	9	5	0	0	1	1	1		

Peak Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St				Peak
Period Start	**Period End**	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	**total**
8:00	9:00	3	4	47	130	12	94	10	92	1	128	66	1	0	1	16	5	610
15:15	16:15	3	18	103	108	17	121	21	150	0	88	65	4	0	4	15	10	727

Graphic



Light Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:00	6:15	0	0	15	11	0	6	2	16	0	9	9	0	0	4	4	5
6:15	6:30	0	1	10	7	0	10	0	17	0	17	13	0	0	1	3	0
6:30	6:45	0	1	12	6	0	4	1	10	0	19	6	0	0	0	5	1
6:45	7:00	0	0	12	10	2	7	2	15	0	18	12	0	0	1	2	1
7:00	7:15	0	1	10	12	2	7	2	16	0	24	3	0	0	0	4	0
7:15	7:30	0	1	3	13	1	2	1	21	0	24	11	0	0	0	8	5
7:30	7:45	1	0	10	11	3	11	1	11	0	33	11	0	0	0	3	1
7:45	8:00	1	1	18	19	2	12	1	12	1	28	18	0	0	0	6	1
8:00	8:15	0	0	8	17	2	17	4	13	0	39	19	0	0	0	3	0
8:15	8:30	0	1	9	24	3	18	2	26	1	29	15	0	0	0	5	2
8:30	8:45	1	1	15	38	3	19	2	20	0	25	13	0	0	0	4	1
8:45	9:00	2	2	13	48	2	38	2	25	0	21	18	0	0	1	4	1
9:00	9:15	0	0	8	22	2	26	3	17	0	26	10	0	0	1	6	2
9:15	9:30	0	1	10	19	7	17	3	22	0	19	8	0	0	0	5	1
9:30	9:45	0	3	6	19	0	8	2	16	0	19	10	1	0	0	2	4
9:45	10:00	0	1	9	9	2	11	4	11	0	14	12	0	0	2	4	2
15:00	15:15	0	4	11	23	1	26	6	36	0	21	10	1	0	1	0	1
15:15	15:30	0	5	27	39	2	36	4	32	0	22	13	2	0	1	7	2
15:30	15:45	1	6	25	21	5	29	5	39	0	19	18	0	0	0	2	3
15:45	16:00	0	4	28	26	5	30	4	21	0	21	13	0	0	0	3	3
16:00	16:15	2	3	20	19	3	22	5	45	0	16	18	2	0	2	3	2
16:15	16:30	0	1	25	19	3	19	7	28	0	19	11	2	0	0	5	1
16:30	16:45	0	1	23	18	4	28	4	35	0	14	13	2	0	0	2	2
16:45	17:00	0	1	19	15	1	30	3	30	0	26	19	1	0	2	3	2
17:00	17:15	0	1	26	28	5	16	7	35	0	30	16	0	0	0	2	0
17:15	17:30	0	4	23	22	2	18	2	19	1	18	9	1	0	1	3	1
17:30	17:45	1	2	17	18	1	17	6	28	0	25	14	0	0	0	2	2
17:45	18:00	0	0	12	16	4	18	5	27	0	11	8	0	0	0	5	0
18:00	18:15	0	1	13	14	0	12	3	27	0	20	6	0	0	0	2	0
18:15	18:30	0	0	9	18	2	16	3	22	0	15	11	0	0	0	4	1
18:30	18:45	0	0	7	5	2	9	1	8	0	6	7	2	0	0	0	1
18:45	19:00	0	1	9	9	1	8	3	11	0	8	5	0	0	1	1	1

Heavy Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:00	6:15	0	0	1	0	0	0	0	4	0	0	2	0	0	0	0	0
6:15	6:30	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0
6:30	6:45	0	0	0	3	0	0	0	2	0	3	1	0	0	0	0	0
6:45	7:00	0	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0
7:00	7:15	0	0	1	0	0	1	0	5	0	1	0	0	0	0	0	0
7:15	7:30	0	0	0	0	0	1	0	4	0	3	0	0	0	0	0	0
7:30	7:45	0	0	0	0	1	1	0	2	0	1	0	0	0	0	0	0
7:45	8:00	0	0	1	1	0	0	0	3	0	3	0	0	0	0	0	0
8:00	8:15	0	0	0	1	0	1	0	3	0	3	1	0	0	0	0	0
8:15	8:30	0	0	1	1	1	0	0	2	0	4	0	0	0	0	0	0
8:30	8:45	0	0	0	1	1	0	0	2	0	4	0	1	0	0	0	1
8:45	9:00	0	0	1	0	0	1	0	1	0	3	0	0	0	0	0	0
9:00	9:15	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0
9:15	9:30	0	0	1	0	1	0	0	3	0	3	0	0	0	0	0	0
9:30	9:45	0	0	1	1	2	0	0	3	0	2	0	0	0	0	0	0
9:45	10:00	0	0	0	0	0	0	0	4	0	2	0	0	0	0	0	0
15:00	15:15	0	0	1	0	1	1	0	2	0	5	0	0	0	0	0	0
15:15	15:30	0	0	0	1	0	1	1	4	0	0	0	0	0	1	0	0
15:30	15:45	0	0	1	1	1	1	2	2	0	3	1	0	0	0	0	0
15:45	16:00	0	0	1	1	1	2	0	4	0	2	2	0	0	0	0	0
16:00	16:15	0	0	1	0	0	0	0	3	0	5	0	0	0	0	0	0
16:15	16:30	0	1	0	1	1	0	0	3	0	3	1	0	0	0	0	0
16:30	16:45	0	0	1	0	0	1	0	2	0	3	1	0	0	0	0	0
16:45	17:00	0	0	0	0	1	1	0	4	0	1	1	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0	3	0	1	0	0	0	0	0	0
17:15	17:30	0	0	0	0	1	0	0	2	0	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	1	0	1	0	3	0	0	0	0	0	0
17:45	18:00	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0
18:00	18:15	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0
18:15	18:30	0	0	0	0	1	1	0	2	0	1	0	0	0	0	0	0
18:30	18:45	0	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0
18:45	19:00	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

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Intersection of Appletree Rd and Northville Dr, Teralba

Date:	Thu 21-09-17
Weather:	Overcast
Suburban:	Teralba
Customer:	BTF

North:	Appletree Rd
East:	Northville Dr
South:	Wakefield Rd
West:	Charlton St

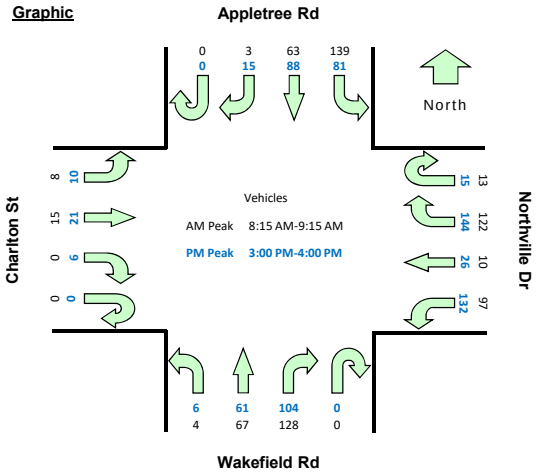
Survey Start	AM:	6:00	PM:	15:00
Vehicular Peakhour		**Pedestrians Peakhour**		
AM:	8:15 AM-9:15 AM	AM:	N/A	
PM:	3:00 PM-4:00 PM	PM:	N/A	

All Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St				Hourly Total	
Period Start	**Period End**	**U**	**R**	**SB**	**L**	**U**	**R**	**WB**	**L**	**U**	**R**	**NB**	**L**	**U**	**R**	**EB**	**L**	**Hour**	**Peak**
6:00	6:15	0	0	5	11	0	4	1	17	1	12	9	0	0	0	4	3	317	
6:15	6:30	0	1	13	4	0	10	0	20	0	12	16	0	0	1	5	2	343	
6:30	6:45	0	1	12	8	0	4	2	13	0	28	11	0	0	0	8	0	375	
6:45	7:00	0	1	9	6	3	5	0	11	0	26	13	0	0	0	5	0	402	
7:00	7:15	0	0	10	12	0	11	1	21	0	22	8	0	0	1	7	0	427	
7:15	7:30	0	0	7	20	1	11	2	28	0	29	12	0	0	0	5	1	459	
7:30	7:45	0	1	15	16	3	17	2	17	0	27	12	0	0	0	4	0	492	
7:45	8:00	2	1	13	13	4	13	0	12	0	33	11	0	0	1	1	0	557	
8:00	8:15	0	2	15	14	3	22	2	11	0	29	22	0	0	0	3	2	641	
8:15	8:30	0	1	28	29	3	15	1	25	0	27	14	1	0	0	4	1	669	Peak
8:30	8:45	0	0	11	35	2	39	1	29	0	32	21	2	0	0	4	3	644	
8:45	9:00	0	1	16	40	5	36	4	23	0	42	19	1	0	0	0	1	542	
9:00	9:15	0	1	8	35	3	32	4	20	0	27	13	0	0	0	7	3	458	
9:15	9:30	0	1	7	16	5	26	4	19	0	24	18	0	0	0	1	3		
9:30	9:45	0	0	7	13	3	8	2	16	0	13	11	1	0	0	2	1		
9:45	10:00	0	1	8	21	1	14	1	24	0	25	4	1	0	1	2	1		
15:00	15:15	0	4	17	25	6	33	5	30	0	25	11	1	0	1	2	3	709	Peak
15:15	15:30	0	4	19	16	5	44	6	31	0	31	19	1	0	2	6	4	708	
15:30	15:45	0	5	23	21	3	33	6	33	0	27	16	2	0	2	6	2	667	
15:45	16:00	0	2	29	19	1	34	9	38	0	21	15	2	0	1	7	1	639	
16:00	16:15	2	3	18	27	4	32	3	34	0	13	17	2	0	0	4	3	635	
16:15	16:30	0	2	17	19	4	25	7	29	0	22	19	0	0	0	2	1	637	
16:30	16:45	1	5	17	22	2	24	6	33	0	19	19	1	0	0	1	1	624	
16:45	17:00	0	3	20	26	1	33	4	42	0	20	17	2	0	2	4	1	604	
17:00	17:15	0	1	26	25	1	29	5	40	0	21	11	2	0	1	0	2	567	
17:15	17:30	2	2	12	22	1	25	3	24	0	27	10	0	0	1	3	2	512	
17:30	17:45	1	3	16	23	4	17	2	30	0	17	13	0	0	0	4	1	476	
17:45	18:00	0	1	18	16	3	20	3	41	0	21	9	0	0	1	4	1	418	
18:00	18:15	0	2	10	13	2	11	12	24	0	21	12	0	0	0	1	1	355	
18:15	18:30	0	2	10	13	5	6	3	21	0	24	7	0	0	1	3	3		
18:30	18:45	0	0	10	11	1	7	5	17	0	17	3	0	0	0	2	0		
18:45	19:00	0	1	6	16	2	9	3	15	0	12	7	0	0	0	3	1		

Peak Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St				Peak
Period Start	**Period End**	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	**total**
8:15	9:15	0	3	63	139	13	122	10	97	0	128	67	4	0	0	15	8	669
15:00	16:00	0	15	88	81	15	144	26	132	0	104	61	6	0	6	21	10	709

Graphic



Light Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:00	6:15	0	0	4	10	0	4	1	11	1	11	7	0	0	0	3	3
6:15	6:30	0	1	12	4	0	9	0	16	0	11	15	0	0	1	5	2
6:30	6:45	0	1	12	7	0	4	2	11	0	22	11	0	0	0	8	0
6:45	7:00	0	0	8	6	3	5	0	11	0	21	13	0	0	0	5	0
7:00	7:15	0	0	10	10	0	11	1	18	0	20	8	0	0	1	7	0
7:15	7:30	0	0	7	20	1	9	2	24	0	24	12	0	0	0	5	1
7:30	7:45	0	1	14	15	2	16	2	12	0	26	12	0	0	0	4	0
7:45	8:00	2	1	13	13	4	12	0	9	0	32	9	0	0	1	1	0
8:00	8:15	0	2	14	13	3	19	2	9	0	26	21	0	0	0	3	2
8:15	8:30	0	1	27	28	2	14	1	20	0	24	14	0	0	0	4	1
8:30	8:45	0	0	10	34	1	37	1	29	0	28	20	0	0	0	4	1
8:45	9:00	0	1	15	40	5	36	4	20	0	38	18	1	0	0	0	1
9:00	9:15	0	1	7	35	3	32	4	17	0	23	13	0	0	0	7	3
9:15	9:30	0	1	6	16	5	26	4	13	0	21	18	0	0	0	1	3
9:30	9:45	0	0	7	13	2	8	2	13	0	13	10	1	0	0	2	1
9:45	10:00	0	1	8	21	1	14	1	20	0	18	4	1	0	1	2	1
15:00	15:15	0	4	17	25	5	32	4	27	0	24	11	1	0	1	2	3
15:15	15:30	0	4	19	16	5	44	4	28	0	26	18	1	0	2	6	4
15:30	15:45	0	5	22	21	2	32	5	30	0	23	15	2	0	2	6	2
15:45	16:00	0	2	29	18	1	32	9	34	0	16	13	2	0	1	7	1
16:00	16:15	2	3	18	27	4	29	3	33	0	12	16	2	0	0	4	3
16:15	16:30	0	2	17	19	4	24	7	25	0	21	19	0	0	0	2	1
16:30	16:45	0	5	17	22	1	24	6	30	0	19	19	1	0	0	1	1
16:45	17:00	0	3	19	26	0	33	3	40	0	18	17	2	0	2	4	1
17:00	17:15	0	1	26	25	1	29	5	40	0	20	11	2	0	1	0	2
17:15	17:30	2	2	11	21	1	24	3	22	0	25	10	0	0	1	3	2
17:30	17:45	1	3	16	23	4	17	2	29	0	16	12	0	0	0	4	1
17:45	18:00	0	1	18	16	2	20	3	41	0	21	9	0	0	1	4	1
18:00	18:15	0	1	9	13	2	11	12	24	0	20	12	0	0	0	1	1
18:15	18:30	0	2	10	13	4	6	3	19	0	23	7	0	0	1	3	3
18:30	18:45	0	0	10	11	0	6	5	16	0	16	3	0	0	0	2	0
18:45	19:00	0	1	6	16	1	9	3	15	0	10	7	0	0	0	3	1

Heavy Vehicles

Time		North Approach Appletree Rd				East Approach Northville Dr				South Approach Wakefield Rd				West Approach Charlton St			
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L
6:00	6:15	0	0	1	1	0	0	0	6	0	1	2	0	0	0	1	0
6:15	6:30	0	0	1	0	0	1	0	4	0	1	1	0	0	0	0	0
6:30	6:45	0	0	0	1	0	0	0	2	0	6	0	0	0	0	0	0
6:45	7:00	0	1	1	0	0	0	0	0	0	5	0	0	0	0	0	0
7:00	7:15	0	0	0	2	0	0	0	3	0	2	0	0	0	0	0	0
7:15	7:30	0	0	0	0	0	2	0	4	0	5	0	0	0	0	0	0
7:30	7:45	0	0	1	1	1	1	0	5	0	1	0	0	0	0	0	0
7:45	8:00	0	0	0	0	0	1	0	3	0	1	2	0	0	0	0	0
8:00	8:15	0	0	1	1	0	3	0	2	0	3	1	0	0	0	0	0
8:15	8:30	0	0	1	1	1	1	0	5	0	3	0	1	0	0	0	0
8:30	8:45	0	0	1	1	1	2	0	0	0	4	1	2	0	0	0	2
8:45	9:00	0	0	1	0	0	0	0	3	0	4	1	0	0	0	0	0
9:00	9:15	0	0	1	0	0	0	0	3	0	4	0	0	0	0	0	0
9:15	9:30	0	0	1	0	0	0	0	6	0	3	0	0	0	0	0	0
9:30	9:45	0	0	0	0	1	0	0	3	0	0	1	0	0	0	0	0
9:45	10:00	0	0	0	0	0	0	0	4	0	7	0	0	0	0	0	0
15:00	15:15	0	0	0	0	1	1	1	3	0	1	0	0	0	0	0	0
15:15	15:30	0	0	0	0	0	0	2	3	0	5	1	0	0	0	0	0
15:30	15:45	0	0	1	0	1	1	1	3	0	4	1	0	0	0	0	0
15:45	16:00	0	0	0	1	0	2	0	4	0	5	2	0	0	0	0	0
16:00	16:15	0	0	0	0	0	3	0	1	0	1	1	0	0	0	0	0
16:15	16:30	0	0	0	0	0	1	0	4	0	1	0	0	0	0	0	0
16:30	16:45	1	0	0	0	1	0	0	3	0	0	0	0	0	0	0	0
16:45	17:00	0	0	1	0	1	0	1	2	0	2	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
17:15	17:30	0	0	1	1	0	1	0	2	0	2	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0
17:45	18:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
18:00	18:15	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0
18:15	18:30	0	0	0	0	1	0	0	2	0	1	0	0	0	0	0	0
18:30	18:45	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0
18:45	19:00	0	0	0	0	1	0	0	0	0	2	0	0	0	0	0	0

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of The Weir Rd and Northville Dr, Teralba

Date:	Tue 19-09-17
Weather:	Overcast
Suburban:	Teralba
Customer:	BTF

North:	N/A
East:	Northville Dr
South:	The Weir Rd
West:	Northville Dr

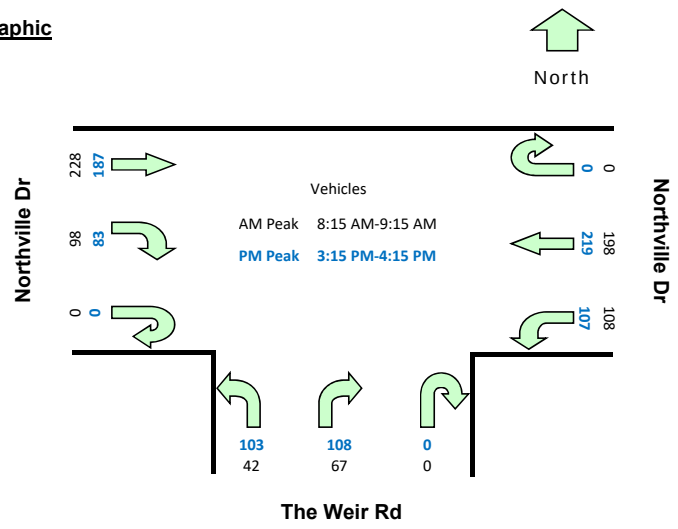
Survey Start	AM:	6:00	PM:	15:00
Vehicular Peakhour		**Pedestrians Peakhour**		
AM:	8:15 AM-9:15 AM	AM:	N/A	
PM:	3:15 PM-4:15 PM	PM:	N/A	

All Vehicles

Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr			Hourly Total	
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	Hour	Peak
6:00	6:15	0	27	17	0	10	4	0	9	33	391	
6:15	6:30	0	27	10	0	10	6	0	9	21	386	
6:30	6:45	0	17	20	0	12	8	0	12	42	401	
6:45	7:00	0	25	11	0	18	9	0	8	26	390	
7:00	7:15	0	26	11	0	4	5	0	12	37	464	
7:15	7:30	0	24	14	0	9	10	0	7	34	513	
7:30	7:45	0	30	10	0	9	6	0	8	37	579	
7:45	8:00	0	36	25	0	13	9	0	22	66	676	
8:00	8:15	0	29	12	0	17	13	0	18	55	700	
8:15	8:30	0	52	35	0	13	8	0	14	42	741	Peak
8:30	8:45	0	52	29	0	20	11	0	22	63	709	
8:45	9:00	0	46	25	0	17	10	0	31	66	618	
9:00	9:15	0	48	19	0	17	13	0	31	57	514	
9:15	9:30	0	32	12	0	15	11	0	23	39		
9:30	9:45	0	37	5	0	11	9	0	10	34		
9:45	10:00	0	30	9	0	7	11	0	10	24		
15:00	15:15	0	67	30	0	24	26	0	19	40	805	
15:15	15:30	0	63	24	0	37	41	0	18	41	807	Peak
15:30	15:45	0	52	28	0	23	22	0	24	60	749	
15:45	16:00	0	48	24	0	25	20	0	13	36	729	
16:00	16:15	0	56	31	0	23	20	0	28	50	756	
16:15	16:30	0	59	23	0	19	11	0	6	48	710	
16:30	16:45	0	49	29	0	27	16	0	16	52	712	
16:45	17:00	0	61	36	0	25	20	0	10	41	699	
17:00	17:15	0	47	24	0	22	13	0	12	44	657	
17:15	17:30	0	61	18	0	15	16	0	14	44	667	
17:30	17:45	0	53	24	0	17	18	0	12	52	618	
17:45	18:00	0	52	21	0	10	14	0	15	39	521	
18:00	18:15	0	52	16	0	21	14	0	12	57	440	
18:15	18:30	0	50	8	0	14	8	0	10	29		
18:30	18:45	0	30	9	0	4	5	0	6	25		
18:45	19:00	0	24	11	0	4	7	0	5	19		

Peak Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr			Peak
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	total
8:15	9:15	0	198	108	0	67	42	0	98	228	741
15:15	16:15	0	219	107	0	108	103	0	83	187	807

Graphic



Light Vehicles

Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
6:00	6:15	0	25	16	0	10	4	0	7	30
6:15	6:30	0	27	10	0	10	6	0	9	21
6:30	6:45	0	17	19	0	10	8	0	12	34
6:45	7:00	0	24	11	0	17	8	0	8	22
7:00	7:15	0	21	10	0	4	5	0	11	31
7:15	7:30	0	23	11	0	8	9	0	7	30
7:30	7:45	0	25	10	0	9	6	0	8	34
7:45	8:00	0	30	23	0	13	8	0	22	61
8:00	8:15	0	24	11	0	17	12	0	17	51
8:15	8:30	0	47	35	0	13	8	0	13	35
8:30	8:45	0	47	29	0	18	11	0	21	57
8:45	9:00	0	42	21	0	17	9	0	30	62
9:00	9:15	0	43	19	0	16	13	0	30	55
9:15	9:30	0	28	12	0	15	10	0	22	36
9:30	9:45	0	33	4	0	11	8	0	9	33
9:45	10:00	0	25	8	0	7	11	0	9	20
15:00	15:15	0	64	30	0	23	26	0	19	38
15:15	15:30	0	60	23	0	37	41	0	16	40
15:30	15:45	0	46	28	0	23	22	0	23	55
15:45	16:00	0	41	23	0	25	17	0	13	32
16:00	16:15	0	53	29	0	23	20	0	27	49
16:15	16:30	0	56	21	0	19	11	0	6	45
16:30	16:45	0	45	28	0	26	15	0	16	51
16:45	17:00	0	58	34	0	25	20	0	9	38
17:00	17:15	0	46	23	0	21	13	0	12	43
17:15	17:30	0	56	16	0	15	16	0	14	40
17:30	17:45	0	50	24	0	15	18	0	12	51
17:45	18:00	0	50	20	0	10	14	0	15	39
18:00	18:15	0	52	16	0	21	14	0	12	57
18:15	18:30	0	49	8	0	13	8	0	10	29
18:30	18:45	0	27	9	0	4	5	0	6	24
18:45	19:00	0	23	11	0	4	7	0	4	18

Heavy Vehicles

Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
6:00	6:15	0	2	1	0	0	0	0	2	3
6:15	6:30	0	0	0	0	0	0	0	0	0
6:30	6:45	0	0	1	0	2	0	0	0	8
6:45	7:00	0	1	0	0	1	1	0	0	4
7:00	7:15	0	5	1	0	0	0	0	1	6
7:15	7:30	0	1	3	0	1	1	0	0	4
7:30	7:45	0	5	0	0	0	0	0	0	3
7:45	8:00	0	6	2	0	0	1	0	0	5
8:00	8:15	0	5	1	0	0	1	0	1	4
8:15	8:30	0	5	0	0	0	0	0	1	7
8:30	8:45	0	5	0	0	2	0	0	1	6
8:45	9:00	0	4	4	0	0	1	0	1	4
9:00	9:15	0	5	0	0	1	0	0	1	2
9:15	9:30	0	4	0	0	0	1	0	1	3
9:30	9:45	0	4	1	0	0	1	0	1	1
9:45	10:00	0	5	1	0	0	0	0	1	4
15:00	15:15	0	3	0	0	1	0	0	0	2
15:15	15:30	0	3	1	0	0	0	0	2	1
15:30	15:45	0	6	0	0	0	0	0	1	5
15:45	16:00	0	7	1	0	0	3	0	0	4
16:00	16:15	0	3	2	0	0	0	0	1	1
16:15	16:30	0	3	2	0	0	0	0	0	3
16:30	16:45	0	4	1	0	1	1	0	0	1
16:45	17:00	0	3	2	0	0	0	0	1	3
17:00	17:15	0	1	1	0	1	0	0	0	1
17:15	17:30	0	5	2	0	0	0	0	0	4
17:30	17:45	0	3	0	0	2	0	0	0	1
17:45	18:00	0	2	1	0	0	0	0	0	0
18:00	18:15	0	0	0	0	0	0	0	0	0
18:15	18:30	0	1	0	0	1	0	0	0	0
18:30	18:45	0	3	0	0	0	0	0	0	1
18:45	19:00	0	1	0	0	0	0	0	1	1

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of The Weir Rd and Northville Dr, Teralba

Date:	Wed 20-09-17
Weather:	Overcast
Suburban:	Teralba
Customer:	BTF

North:	N/A
East:	Northville Dr
South:	The Weir Rd
West:	Northville Dr

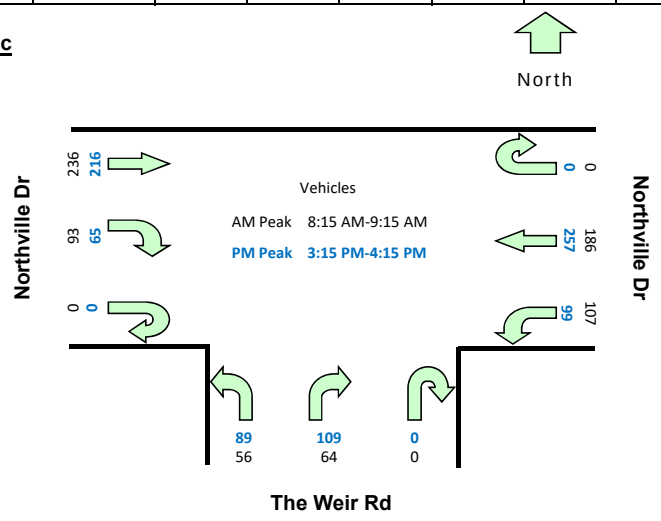
Survey Start	AM:	6:00	PM:	15:00
Vehicular Peakhour		**Pedestrians Peakhour**		
AM:	8:15 AM-9:15 AM	AM:	N/A	
PM:	3:15 PM-4:15 PM	PM:	N/A	

All Vehicles

Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr			Hourly Total	
Period Start	**Period End**	**U**	**WB**	**L**	**U**	**R**	**L**	**U**	**R**	**EB**	**Hour**	**Peak**
6:00	6:15	0	23	16	0	7	4	0	7	30	362	
6:15	6:30	0	26	9	0	13	6	0	7	26	369	
6:30	6:45	0	19	20	0	14	6	0	11	30	393	
6:45	7:00	0	21	13	0	13	7	0	9	25	422	
7:00	7:15	0	30	7	0	5	9	0	12	31	474	
7:15	7:30	0	31	9	0	10	6	0	8	47	526	
7:30	7:45	0	31	14	0	12	9	0	11	52	586	
7:45	8:00	0	23	22	0	13	10	0	12	60	651	
8:00	8:15	0	31	27	0	12	10	0	17	49	728	
8:15	8:30	0	45	32	0	13	7	0	21	53	742	Peak
8:30	8:45	0	38	35	0	13	14	0	31	63	715	
8:45	9:00	0	58	27	0	20	18	0	26	68	630	
9:00	9:15	0	45	13	0	18	17	0	15	52	519	
9:15	9:30	0	46	11	0	14	10	0	11	52		
9:30	9:45	0	29	17	0	9	8	1	11	34		
9:45	10:00	0	34	9	0	12	7	0	11	33		
15:00	15:15	0	63	27	0	15	20	0	18	40	811	
15:15	15:30	0	61	12	0	41	29	0	23	58	835	Peak
15:30	15:45	0	65	25	0	22	22	0	4	54	779	
15:45	16:00	0	59	29	0	24	20	0	22	58	767	
16:00	16:15	0	72	33	0	22	18	0	16	46	741	
16:15	16:30	0	46	22	0	23	17	0	15	45	721	
16:30	16:45	0	61	26	0	28	23	0	6	36	714	
16:45	17:00	0	51	27	1	27	19	0	15	46	678	
17:00	17:15	0	56	22	0	17	13	0	22	57	629	
17:15	17:30	0	51	18	0	24	15	0	18	35	563	
17:30	17:45	0	43	20	0	17	8	0	15	41	509	
17:45	18:00	0	55	20	0	15	13	0	6	28	435	
18:00	18:15	0	40	15	0	12	10	0	10	34	365	
18:15	18:30	0	39	6	0	8	11	0	11	32		
18:30	18:45	0	18	13	0	9	8	0	3	19		
18:45	19:00	0	28	5	0	8	5	0	4	17		

Peak Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr			Peak
Period Start	**Period End**	U	WB	L	U	R	L	U	R	EB	**total**
8:15	9:15	0	186	107	0	64	56	0	93	236	742
15:15	16:15	0	257	99	0	109	89	0	65	216	835

Graphic



Light Vehicles

Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
6:00	6:15	0	21	14	0	7	4	0	7	27
6:15	6:30	0	23	9	0	12	6	0	6	25
6:30	6:45	0	19	20	0	12	6	0	9	27
6:45	7:00	0	19	11	0	11	7	0	9	21
7:00	7:15	0	25	7	0	5	9	0	11	28
7:15	7:30	0	27	8	0	9	5	0	8	46
7:30	7:45	0	26	13	0	12	8	0	11	47
7:45	8:00	0	18	21	0	13	10	0	12	55
8:00	8:15	0	29	26	0	12	10	0	16	46
8:15	8:30	0	42	30	0	13	7	0	21	51
8:30	8:45	0	35	35	0	13	14	0	31	55
8:45	9:00	0	57	27	0	20	17	0	26	65
9:00	9:15	0	42	13	0	18	17	0	15	50
9:15	9:30	0	40	11	0	11	10	0	11	48
9:30	9:45	0	24	15	0	9	8	0	11	32
9:45	10:00	0	31	8	0	12	7	0	11	29
15:00	15:15	0	61	26	0	14	19	0	18	35
15:15	15:30	0	54	10	0	38	28	0	23	57
15:30	15:45	0	59	25	0	21	21	0	4	49
15:45	16:00	0	54	27	0	22	18	0	21	54
16:00	16:15	0	68	32	0	21	18	0	16	42
16:15	16:30	0	42	21	0	21	17	0	15	42
16:30	16:45	0	57	25	0	27	22	0	6	34
16:45	17:00	0	46	26	1	26	19	0	15	44
17:00	17:15	0	54	21	0	17	12	0	22	55
17:15	17:30	0	48	17	0	24	14	0	18	35
17:30	17:45	0	43	20	0	17	8	0	15	40
17:45	18:00	0	53	20	0	15	13	0	5	27
18:00	18:15	0	40	15	0	12	9	0	10	34
18:15	18:30	0	36	6	0	8	11	0	10	32
18:30	18:45	0	16	13	0	9	8	0	3	18
18:45	19:00	0	27	5	0	8	5	0	4	16

Heavy Vehicles

Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
6:00	6:15	0	2	2	0	0	0	0	0	3
6:15	6:30	0	3	0	0	1	0	0	1	1
6:30	6:45	0	0	0	0	2	0	0	2	3
6:45	7:00	0	2	2	0	2	0	0	0	4
7:00	7:15	0	5	0	0	0	0	0	1	3
7:15	7:30	0	4	1	0	1	1	0	0	1
7:30	7:45	0	5	1	0	0	1	0	0	5
7:45	8:00	0	5	1	0	0	0	0	0	5
8:00	8:15	0	2	1	0	0	0	0	1	3
8:15	8:30	0	3	2	0	0	0	0	0	2
8:30	8:45	0	3	0	0	0	0	0	0	8
8:45	9:00	0	1	0	0	0	1	0	0	3
9:00	9:15	0	3	0	0	0	0	0	0	2
9:15	9:30	0	6	0	0	3	0	0	0	4
9:30	9:45	0	5	2	0	0	0	1	0	2
9:45	10:00	0	3	1	0	0	0	0	0	4
15:00	15:15	0	2	1	0	1	1	0	0	5
15:15	15:30	0	7	2	0	3	1	0	0	1
15:30	15:45	0	6	0	0	1	1	0	0	5
15:45	16:00	0	5	2	0	2	2	0	1	4
16:00	16:15	0	4	1	0	1	0	0	0	4
16:15	16:30	0	4	1	0	2	0	0	0	3
16:30	16:45	0	4	1	0	1	1	0	0	2
16:45	17:00	0	5	1	0	1	0	0	0	2
17:00	17:15	0	2	1	0	0	1	0	0	2
17:15	17:30	0	3	1	0	0	1	0	0	0
17:30	17:45	0	0	0	0	0	0	0	0	1
17:45	18:00	0	2	0	0	0	0	0	1	1
18:00	18:15	0	0	0	0	0	1	0	0	0
18:15	18:30	0	3	0	0	0	0	0	1	0
18:30	18:45	0	2	0	0	0	0	0	0	1
18:45	19:00	0	1	0	0	0	0	0	0	1

TRANS TRAFFIC SURVEY

trafficsurvey.com.au

TURNING MOVEMENT SURVEY

Intersection of The Weir Rd and Northville Dr, Teralba

Date:	Thu 21-09-17
Weather:	Overcast
Suburban:	Teralba
Customer:	BTF

North:	N/A
East:	Northville Dr
South:	The Weir Rd
West:	Northville Dr

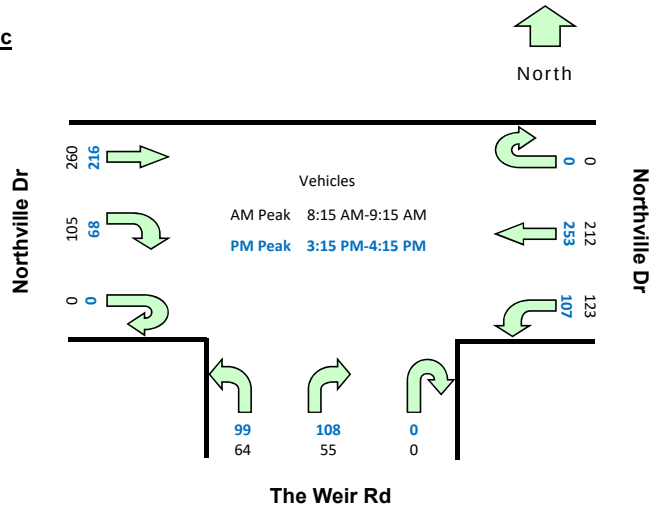
Survey Start	AM:	6:00	PM:	15:00
Vehicular Peakhour		**Pedestrians Peakhour**		
AM:	8:15 AM-9:15 AM	AM:	N/A	
PM:	3:15 PM-4:15 PM	PM:	N/A	

All Vehicles

Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr			Hourly Total	
Period Start	**Period End**	**U**	**WB**	**L**	**U**	**R**	**L**	**U**	**R**	**EB**	**Hour**	**Peak**
6:00	6:15	0	23	11	0	15	2	0	6	28	375	
6:15	6:30	0	22	17	0	10	6	0	7	21	392	
6:30	6:45	0	22	14	0	8	4	0	10	44	417	
6:45	7:00	0	26	16	0	19	6	0	8	30	447	
7:00	7:15	0	27	8	0	8	7	0	10	42	476	
7:15	7:30	0	32	10	0	10	11	0	5	40	501	
7:30	7:45	0	32	17	0	13	6	0	17	47	554	
7:45	8:00	0	21	16	0	18	15	0	14	50	616	
8:00	8:15	0	37	18	0	11	9	0	18	34	715	
8:15	8:30	0	46	29	0	9	7	0	17	53	819	Peak
8:30	8:45	0	51	28	0	16	14	0	25	60	803	
8:45	9:00	0	66	38	0	12	15	0	29	73	705	
9:00	9:15	0	49	28	0	18	28	0	34	74	594	
9:15	9:30	0	47	14	0	22	9	0	17	36		
9:30	9:45	0	32	13	0	9	8	0	8	26		
9:45	10:00	0	32	12	0	11	12	0	17	38		
15:00	15:15	0	25	13	0	7	6	0	9	42	753	
15:15	15:30	0	57	22	0	41	40	0	16	59	851	Peak
15:30	15:45	0	56	30	0	23	21	0	19	60	807	
15:45	16:00	0	72	31	0	17	21	0	14	52	766	
16:00	16:15	0	68	24	0	27	17	0	19	45	752	
16:15	16:30	0	61	29	0	19	16	0	15	51	744	
16:30	16:45	0	55	21	0	23	15	0	11	43	732	
16:45	17:00	0	64	23	0	31	13	0	11	51	722	
17:00	17:15	0	63	27	0	32	13	0	17	40	689	
17:15	17:30	0	58	24	0	24	13	0	17	43	632	
17:30	17:45	0	49	29	0	19	13	0	11	37	569	
17:45	18:00	0	64	21	0	15	6	0	13	41	500	
18:00	18:15	0	58	9	0	13	9	0	11	35	427	
18:15	18:30	0	32	14	0	6	7	0	10	47		
18:30	18:45	0	34	10	0	2	5	0	3	35		
18:45	19:00	0	32	6	0	11	6	0	7	25		

Peak Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr			Peak
Period Start	**Period End**	U	WB	L	U	R	L	U	R	EB	**total**
8:15	9:15	0	212	123	0	55	64	0	105	260	819
15:15	16:15	0	253	107	0	108	99	0	68	216	851

Graphic



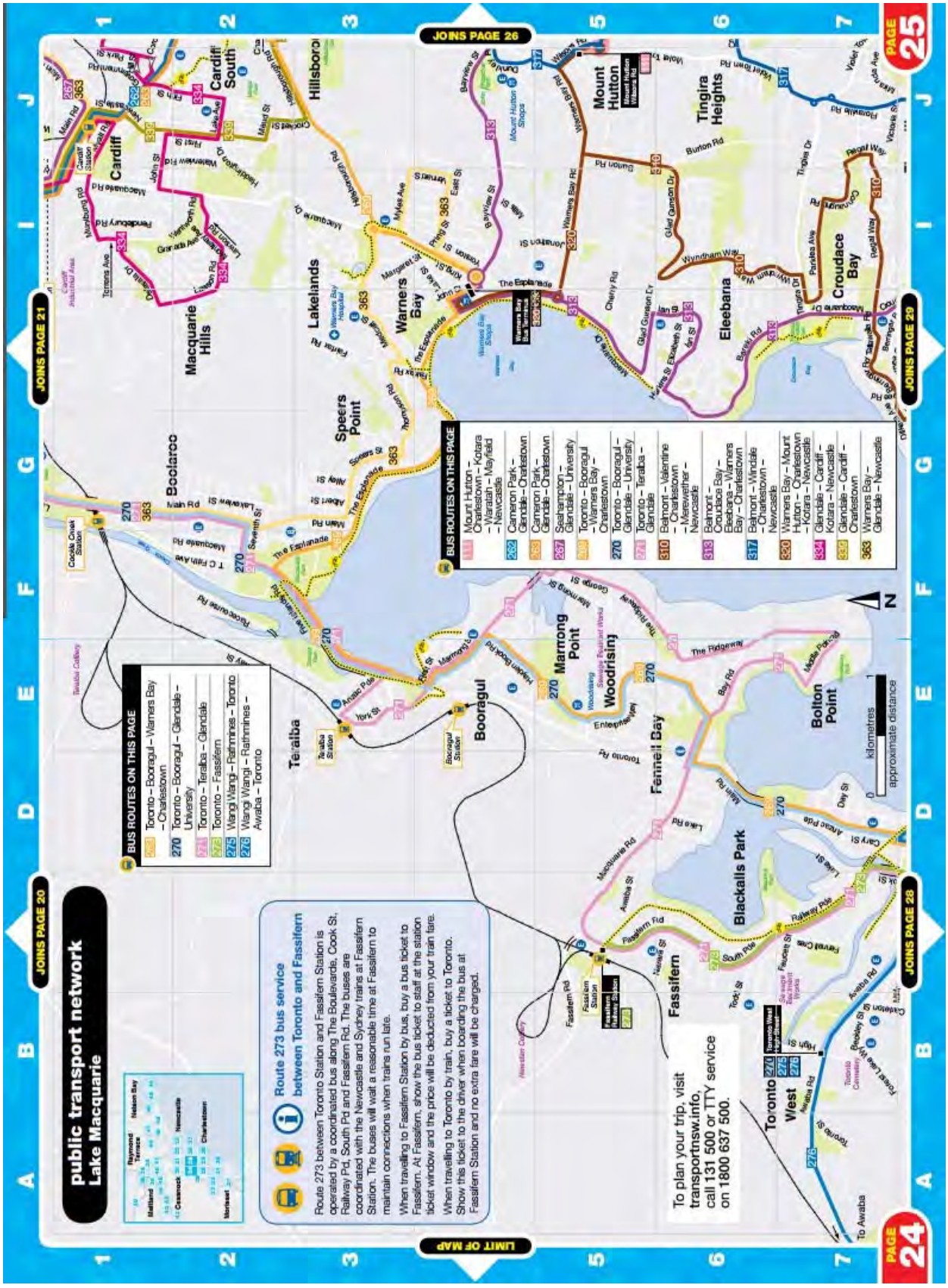
Light Vehicles

Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
6:00	6:15	0	20	9	0	15	2	0	5	24
6:15	6:30	0	21	16	0	9	5	0	7	20
6:30	6:45	0	20	12	0	6	4	0	9	37
6:45	7:00	0	24	16	0	16	6	0	8	25
7:00	7:15	0	24	7	0	7	7	0	9	38
7:15	7:30	0	29	8	0	10	10	0	5	37
7:30	7:45	0	26	17	0	13	6	0	16	43
7:45	8:00	0	18	15	0	18	15	0	14	47
8:00	8:15	0	31	18	0	11	9	0	17	32
8:15	8:30	0	38	28	0	8	6	0	17	49
8:30	8:45	0	51	27	0	16	13	0	25	53
8:45	9:00	0	63	38	0	12	15	0	29	70
9:00	9:15	0	45	26	0	18	28	0	33	69
9:15	9:30	0	42	14	0	22	9	0	17	34
9:30	9:45	0	28	12	0	9	8	0	8	24
9:45	10:00	0	28	10	0	10	12	0	17	31
15:00	15:15	0	22	12	0	7	6	0	9	39
15:15	15:30	0	51	22	0	41	40	0	15	56
15:30	15:45	0	51	28	0	22	19	0	19	51
15:45	16:00	0	66	31	0	16	20	0	14	47
16:00	16:15	0	66	24	0	27	16	0	19	43
16:15	16:30	0	57	28	0	19	16	0	15	48
16:30	16:45	0	51	19	0	23	15	0	11	43
16:45	17:00	0	61	22	0	30	13	0	11	50
17:00	17:15	0	62	26	0	29	13	0	17	38
17:15	17:30	0	55	24	0	24	13	0	17	41
17:30	17:45	0	48	29	0	19	13	0	11	36
17:45	18:00	0	63	20	0	15	6	0	13	41
18:00	18:15	0	57	9	0	12	9	0	11	35
18:15	18:30	0	30	14	0	6	7	0	9	46
18:30	18:45	0	32	9	0	2	4	0	3	33
18:45	19:00	0	31	6	0	11	6	0	7	24

Heavy Vehicles

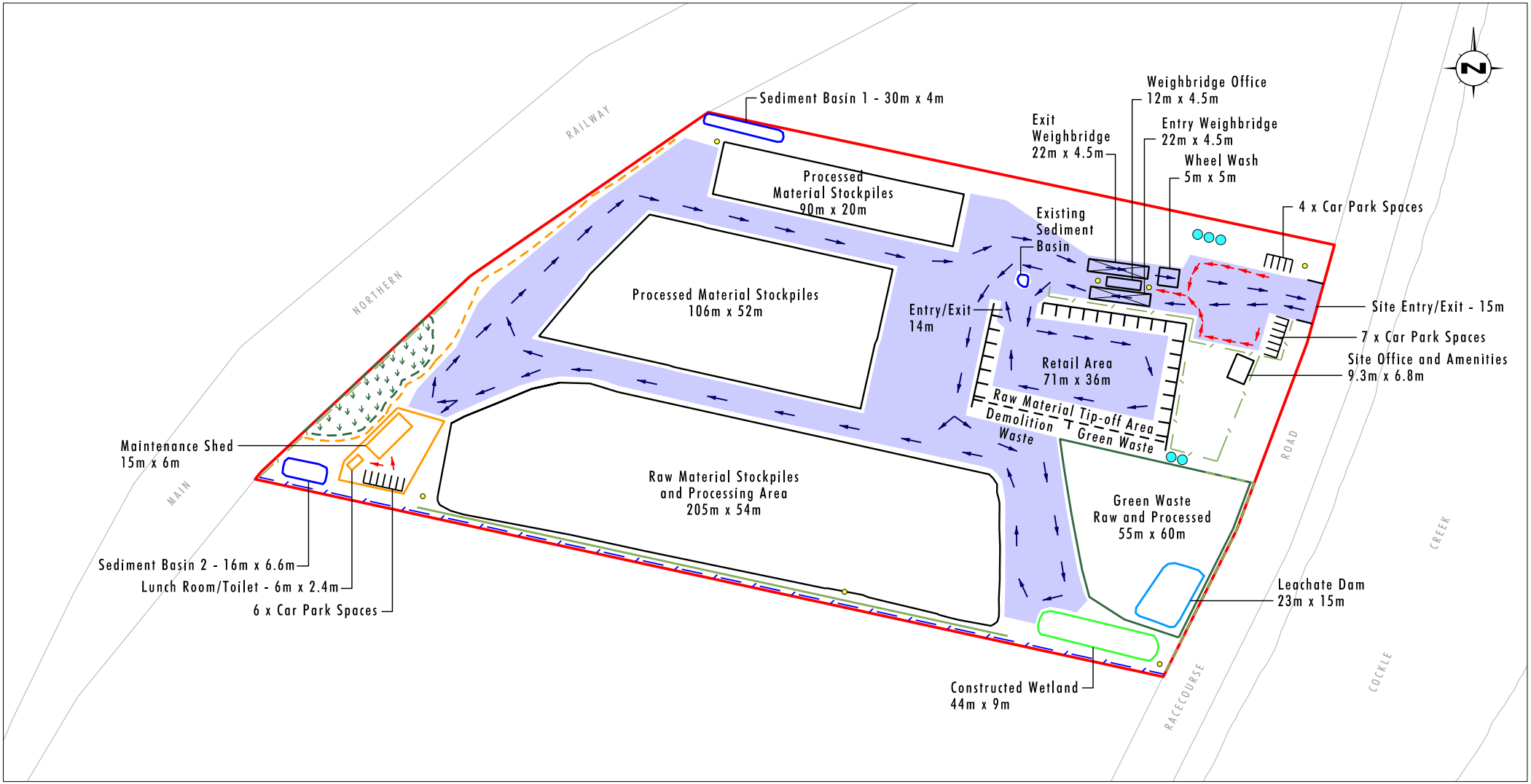
Time		East Approach Northville Dr			South Approach The Weir Rd			West Approach Northville Dr		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
6:00	6:15	0	3	2	0	0	0	0	1	4
6:15	6:30	0	1	1	0	1	1	0	0	1
6:30	6:45	0	2	2	0	2	0	0	1	7
6:45	7:00	0	2	0	0	3	0	0	0	5
7:00	7:15	0	3	1	0	1	0	0	1	4
7:15	7:30	0	3	2	0	0	1	0	0	3
7:30	7:45	0	6	0	0	0	0	0	1	4
7:45	8:00	0	3	1	0	0	0	0	0	3
8:00	8:15	0	6	0	0	0	0	0	1	2
8:15	8:30	0	8	1	0	1	1	0	0	4
8:30	8:45	0	0	1	0	0	1	0	0	7
8:45	9:00	0	3	0	0	0	0	0	0	3
9:00	9:15	0	4	2	0	0	0	0	1	5
9:15	9:30	0	5	0	0	0	0	0	0	2
9:30	9:45	0	4	1	0	0	0	0	0	2
9:45	10:00	0	4	2	0	1	0	0	0	7
15:00	15:15	0	3	1	0	0	0	0	0	3
15:15	15:30	0	6	0	0	0	0	0	1	3
15:30	15:45	0	5	2	0	1	2	0	0	9
15:45	16:00	0	6	0	0	1	1	0	0	5
16:00	16:15	0	2	0	0	0	1	0	0	2
16:15	16:30	0	4	1	0	0	0	0	0	3
16:30	16:45	0	4	2	0	0	0	0	0	0
16:45	17:00	0	3	1	0	1	0	0	0	1
17:00	17:15	0	1	1	0	3	0	0	0	2
17:15	17:30	0	3	0	0	0	0	0	0	2
17:30	17:45	0	1	0	0	0	0	0	0	1
17:45	18:00	0	1	1	0	0	0	0	0	0
18:00	18:15	0	1	0	0	1	0	0	0	0
18:15	18:30	0	2	0	0	0	0	0	1	1
18:30	18:45	0	2	1	0	0	1	0	0	2
18:45	19:00	0	1	0	0	0	0	0	0	1

Appendix B. Public Transport Network Lake Macquarie



Source: Lower Hunter Transport Guide: Effective 2015. City of Newcastle Website

Appendix C. Conceptual Site Layout Plans



Data Source: Concrush (2018)

0 25 50 100m
1:2 000

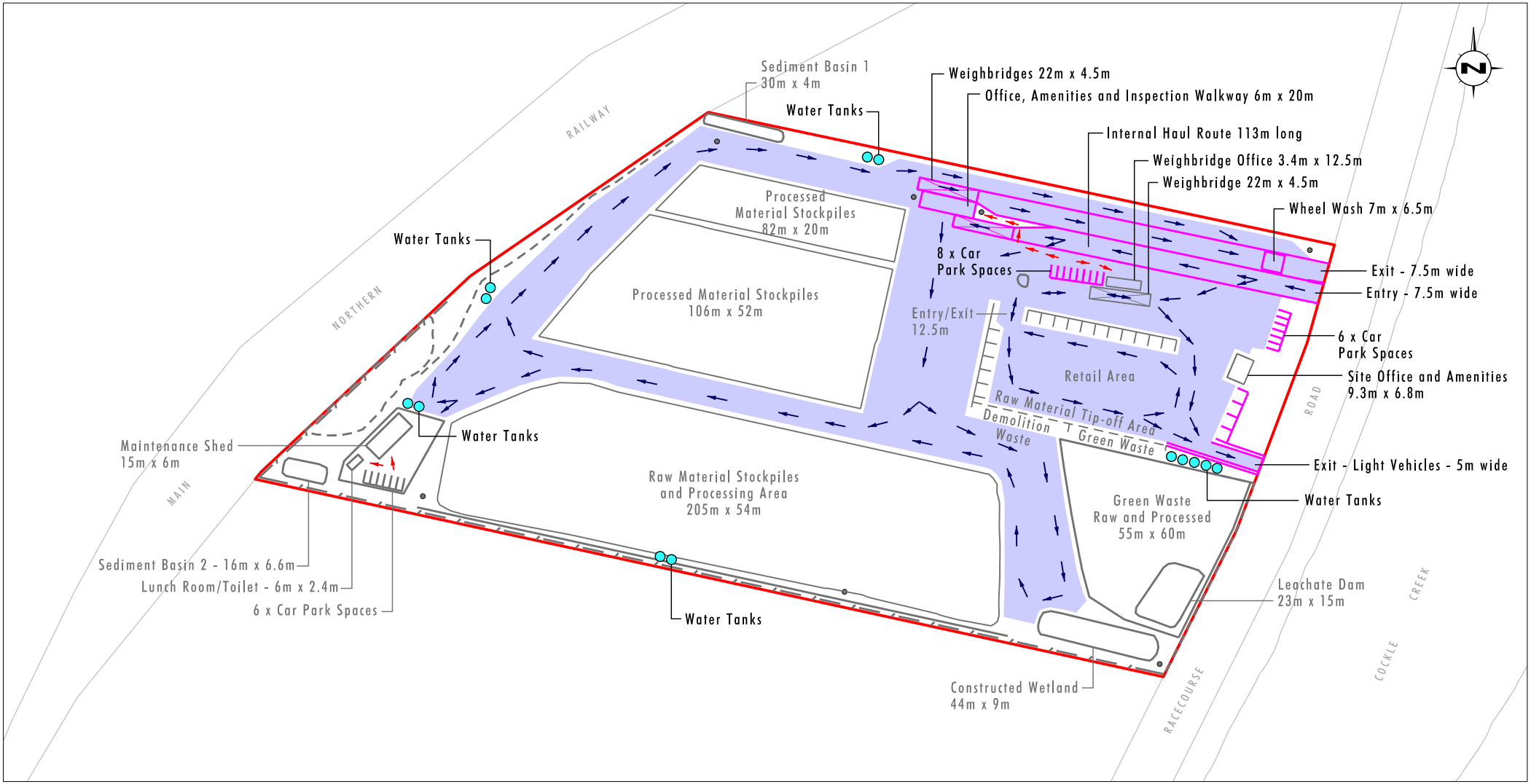
Legend

- Project Site
- Production Compound
- Processing and Stockpile Areas
- Sediment Basin
- Green Waste Area
- Existing Wetland Area with Buffer
- Landscaped Earth Bund (1 in 100 Year Flood Mitigation)
- Existing Earth Bund
- Existing 2m High Fence
- Proposed 2m High Fence
- Proposed 2m High Concrete Block Wall
- Existing Water Tanks
- Proposed Security Lighting
- Pedestrian Movement
- General Vehicle Movement
- Internal Roads/Hardstand Area

FIGURE 3.1

Stage 1 - Conceptual Layout
Up to 200 000 Tonnes per Annum

File Name (A4): R03/3972_075.dgn
20181019 10.48



Data Source: Concrush (2018)

0 25 50 100m
1:2 000

Legend

- Project Site
- Stage 2
- Water Tanks
- Security Lighting
- Pedestrian Movement
- General Vehicle Movement
- Internal Roads/Hardstand Area

FIGURE 3.2

Stage 2 Conceptual Layout
Up to 250 000 Tonnes per Annum

File Name (A4): R03/3972_076.dgn
20181108 11.35

Appendix D. Recorded Site Weighbridge Traffic Flows

date		custom_data2	Trip	count()	Daily	250000	9000			
complete			Purpose			20833	2.3			
01-11-17	WED	Truck & Dog		4		9	EXISTING	VEHICLE TYPE		FORECAST
01-11-17		12T Truck		1		2	112	HEAVY		259
01-11-17		14T Truck		3		7	36	LIGHT		83
01-11-17		Car & Trailer		28		65				343
01-11-17		Utility		8		19				
01-11-17		2.5T Truck		24		56				
01-11-17		5T Tuck		36		83				
01-11-17		8T Truck		14		32				
01-11-17		9TTruck		7		16				
01-11-17		12T Truck		18		42	Daily			
01-11-17		14T Truck		5	148	12	343	2.3		
02-11-17	THU	Car		1		2	EXISTING	VEHICLE TYPE		FORECAST
02-11-17		Truck & Dog		46		106	141	HEAVY		326
02-11-17		Car & Trailer		30		69	43	LIGHT		100
02-11-17		Utility		12		28				426
02-11-17		2.5T Truck		37		86				
02-11-17		5T Tuck		19		44				
02-11-17		8T Truck		8		19				
02-11-17		9TTruck		12		28				
02-11-17		12T Truck		17		39				
02-11-17		14T Truck		2	184	5	426	2.3		
03-11-17	FRI	Truck & Dog		17		39	EXISTING	VEHICLE TYPE		FORECAST
03-11-17		Semi-Trailer		1		2	92	HEAVY		213
03-11-17		Car & Trailer		30		69	49	LIGHT		113
03-11-17		Utility		19		44				326
03-11-17		2.5T Truck		21		49				
03-11-17		5T Tuck		24		56				
03-11-17		8T Truck		8		19				
03-11-17		9TTruck		4		9				
03-11-17		12T Truck		13		30				
03-11-17		14T Truck		4	141	9	326	2.3		
04-11-17	SAT	Car		3		7	EXISTING	VEHICLE TYPE		FORECAST
04-11-17		Truck & Dog		5		12	36	HEAVY		83
04-11-17		Semi-Trailer		1		2	43	LIGHT		100
04-11-17		Car & Trailer		35		81				183
04-11-17		Utility		5		12				
04-11-17		2.5T Truck		14		32				
04-11-17		5T Tuck		10		23				
04-11-17		8T Truck		3		7				
04-11-17		12T Truck		3	79	7	183	2.3		
06-11-17	MON	Car		3		7	EXISTING	VEHICLE TYPE		FORECAST
06-11-17		Truck & Dog		2		5	59	HEAVY		137
06-11-17		Semi-Trailer		1		2	31	LIGHT		72
06-11-17		Car & Trailer		15		35				208
06-11-17		Utility		13		30				
06-11-17		2.5T Truck		16		37				
06-11-17		5T Tuck		14		32				
06-11-17		8T Truck		10		23				
06-11-17		9TTruck		2		5				
06-11-17		12T Truck		12		28				
06-11-17		14T Truck		2	90	5	208	2.3		
07-11-17	TUE	Car		1		2	EXISTING	VEHICLE TYPE		FORECAST
07-11-17		Truck & Dog		10		23	94	HEAVY		218
07-11-17		Car & Trailer		27		63	36	LIGHT		83
07-11-17		Utility		8		19				301
07-11-17		2.5T Truck		19		44				
07-11-17		5T Tuck		17		39				
07-11-17		8T Truck		10		23				
07-11-17		9TTruck		12		28				
07-11-17		12T Truck		22		51				
07-11-17		14T Truck		4	130	9	301	2.3		
08-11-17	WED	Truck & Dog		21		49	EXISTING	VEHICLE TYPE		FORECAST
08-11-17		Semi-Trailer		1		2	69	HEAVY		160
08-11-17		12T Truck		1		2	24	LIGHT		56
08-11-17		Car & Trailer		18		42				215
08-11-17		Utility		6		14				

08-11-17		2.5T Truck		8		19				
08-11-17		5T Tuck		8		19				
08-11-17		8T Truck		7		16				
08-11-17		9TTruck		4		9				
08-11-17		12T Truck		16		37				
08-11-17		14T Truck		2		5				
08-11-17		14T Truck		1	93	2	215	2.3		
09-11-17	THU	Truck & Dog		36		83	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
09-11-17		Semi-Trailer		1		2	93	HEAVY		215
09-11-17		Car & Trailer		25		58	38	LIGHT		88
09-11-17		Utility		13		30				303
09-11-17		2.5T Truck		12		28				
09-11-17		5T Tuck		12		28				
09-11-17		8T Truck		5		12				
09-11-17		9TTruck		5		12				
09-11-17		12T Truck		19		44				
09-11-17		14T Truck		3	131	7	303	2.3		
10-11-17	FRI	Car		2		5	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
10-11-17		Truck & Dog		5		12	80	HEAVY		185
10-11-17		Car & Trailer		21		49	35	LIGHT		81
10-11-17		Utility		12		28				266
10-11-17		2.5T Truck		16		37				
10-11-17		5T Tuck		24		56				
10-11-17		8T Truck		6		14				
10-11-17		9TTruck		11		25				
10-11-17		12T Truck		13		30				
10-11-17		14T Truck		5	115	12	266	2.3		
11-11-17	SAT	Car		5		12	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
11-11-17		Truck & Dog		2		5	56	HEAVY		130
11-11-17		Car & Trailer		26		60	46	LIGHT		106
11-11-17		Utility		15		35				236
11-11-17		2.5T Truck		10		23				
11-11-17		5T Tuck		26		60				
11-11-17		8T Truck		7		16				
11-11-17		9TTruck		8		19				
11-11-17		12T Truck		3	102	7	236	2.3		
13-11-17	MON	Car		1		2	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
13-11-17		Truck & Dog		4		9	92	HEAVY		213
13-11-17		Car & Trailer		24		56	41	LIGHT		95
13-11-17		Utility		16		37				308
13-11-17		2.5T Truck		17		39				
13-11-17		5T Tuck		24		56				
13-11-17		8T Truck		12		28				
13-11-17		9TTruck		17		39				
13-11-17		12T Truck		18	133	42	308	2.3		
14-11-17	TUES	Car		1		2	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
14-11-17		Truck & Dog		25		58	120	HEAVY		278
14-11-17		Car & Trailer		36		83	48	LIGHT		111
14-11-17		Utility		11		25				389
14-11-17		2.5T Truck		16		37				
14-11-17		5T Tuck		24		56				
14-11-17		8T Truck		14		32				
14-11-17		9TTruck		16		37				
14-11-17		12T Truck		21		49				
14-11-17		14T Truck		4	168	9	389	2.3		
15-11-17	WED	Truck & Dog		20		46	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
15-11-17		Semi-Trailer		2		5	117	HEAVY		271
15-11-17		Car & Trailer		30		69	39	LIGHT		90
15-11-17		Utility		9		21				361
15-11-17		2.5T Truck		25		58				
15-11-17		5T Tuck		22		51				
15-11-17		8T Truck		8		19				
15-11-17		9TTruck		12		28				
15-11-17		12T Truck		26		60				
15-11-17		14T Truck		2	156	5	361	2.3		
16-11-17	THU	Car		6		14	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
16-11-17		Truck & Dog		12		28	93	HEAVY		215
16-11-17		Semi-Trailer		4		9	37	LIGHT		86

16-11-17		14T Truck		3		7				301
16-11-17		Car & Trailer		23		53				
16-11-17		Utility		8		19				
16-11-17		2.5T Truck		27		63				
16-11-17		5T Tuck		16		37				
16-11-17		8T Truck		4		9				
16-11-17		9TTruck		7		16				
16-11-17		12T Truck		18		42				
16-11-17		14T Truck		1		2				
16-11-17		14T Truck		1	130	2	301	2.3		
17-11-17	FRI	Car		3		7	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
17-11-17		Truck & Dog		8		19	67	HEAVY		155
17-11-17		Semi-Trailer		1		2	49	LIGHT		113
17-11-17		14T Truck		4		9				269
17-11-17		Car & Trailer		22		51				
17-11-17		Utility		24		56				
17-11-17		2.5T Truck		11		25				
17-11-17		5T Tuck		13		30				
17-11-17		8T Truck		6		14				
17-11-17		9TTruck		8		19				
17-11-17		12T Truck		14		32				
17-11-17		14T Truck		2	116	5	269	2.3		
18-11-17	SAT	Truck & Dog		7		16	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
18-11-17		Car & Trailer		38		88	42	HEAVY		97
18-11-17		Car & Trailer		1		2	51	LIGHT		118
18-11-17		Utility		12		28				215
18-11-17		2.5T Truck		14		32				
18-11-17		5T Tuck		9		21				
18-11-17		8T Truck		5		12				
18-11-17		9TTruck		2		5				
18-11-17		12T Truck		5	93	12	215	2.3		
20-11-17	MON	Car		2		5	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
20-11-17		Truck & Dog		28		65	119	HEAVY		275
20-11-17		14T Truck		1		2	40	LIGHT		93
20-11-17		Car & Trailer		22		51				368
20-11-17		Utility		16		37				
20-11-17		2.5T Truck		25		58				
20-11-17		5T Tuck		20		46				
20-11-17		8T Truck		13		30				
20-11-17		9TTruck		8		19				
20-11-17		12T Truck		23		53				
20-11-17		14T Truck		1	159	2	368	2.3		
21-11-17	TUE	Car		5		12	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
21-11-17		Truck & Dog		15		35	119	HEAVY		275
21-11-17		Car & Trailer		26		60	41	LIGHT		95
21-11-17		Utility		10		23				370
21-11-17		2.5T Truck		41		95				
21-11-17		5T Tuck		15		35				
21-11-17		8T Truck		13		30				
21-11-17		9TTruck		9		21				
21-11-17		12T Truck		25		58				
21-11-17		14T Truck		1	160	2	370	2.3		
22-11-17	WED	Car		3		7	**EXISTING**	**VEHICLE TYPE**		**FORECAST**
22-11-17		Truck & Dog		8		19	47	HEAVY		109
22-11-17		Car & Trailer		11		25	20	LIGHT		46
22-11-17		Utility		6		14				155
22-11-17		2.5T Truck		20		46				
22-11-17		5T Tuck		4		9				
22-11-17		8T Truck		7		16				
22-11-17		9TTruck		3		7				
22-11-17		12T Truck		5	67	12	155	2.3		

	AVERAGE DAILY FORECAST FLOWS						AVERAGE
VEHICLE	MON	TUE	WED	THU	FRI	SAT	**WEEKDAY**
HEAVY	208	257	200	252	184	103	222
LIGHT	86	96	69	91	103	108	89
	PEAK FORECAST FLOWS (DAILY)						
VEHICLE	MON	TUE	WED	THU	FRI	SAT	
HEAVY	275	278	271	326	213	130	276
LIGHT	93	111	90	100	113	106	101
	EXISTING FLOWS (DAILY)						
VEHICLE	MON	TUE	WED	THU	FRI	SAT	
HEAVY	90	111	86	93	80	57	92
LIGHT	39	42	30	41	44	45	39

Appendix E. Swept Path Analysis

M^CLAREN TRAFFIC ENGINEERING

Address: Shop 7, 720 Old Princes Highway Sutherland NSW 2232
Postal: P.O Box 66 Sutherland NSW 1499

Telephone: +61 2 8355 2440
Fax: +61 2 9521 7199
Web: www.mclarentraffic.com.au
Email: admin@mclarentraffic.com.au

Division of RAMTRANS Australia ABN: 45067491678 RPEQ 19457

Transport Planning, Traffic Impact Assessments, Road Safety Audits, Expert Witness

3rd October 2018 Reference: 18332.01FB

Umwelt (Australia) Pty Limited
75 York Street
Teralba, NSW 2284
Attention: Lachlan Sweeney

SWEPT PATH ANALYSIS FOR
RECYCLING FACILITY
AT 21 RACECOURSE ROAD, TERALBA

Dear Lachlan,

Reference is made to your request to provide a swept path analysis for the proposed expansion of the Concrush Construction and Demolition Recycling Facility at 21 Racecourse Road, Teralba as depicted in **Annexure A** for reference.

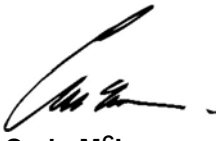
1 Swept Path Analysis

The adopted design vehicle for manoeuvring around the site is a Light Vehicle with 5 Metre Trailer, an Articulated Vehicle (AV) as per Clause 2.2(d) of AS2890.2:2002 and a 19m Truck and Dog. The swept path analysis has been performed using AutoCAD's Vehicle Tracking 2016 software package.

The swept path results and recommendations are provided in **Annexure B** for reference.

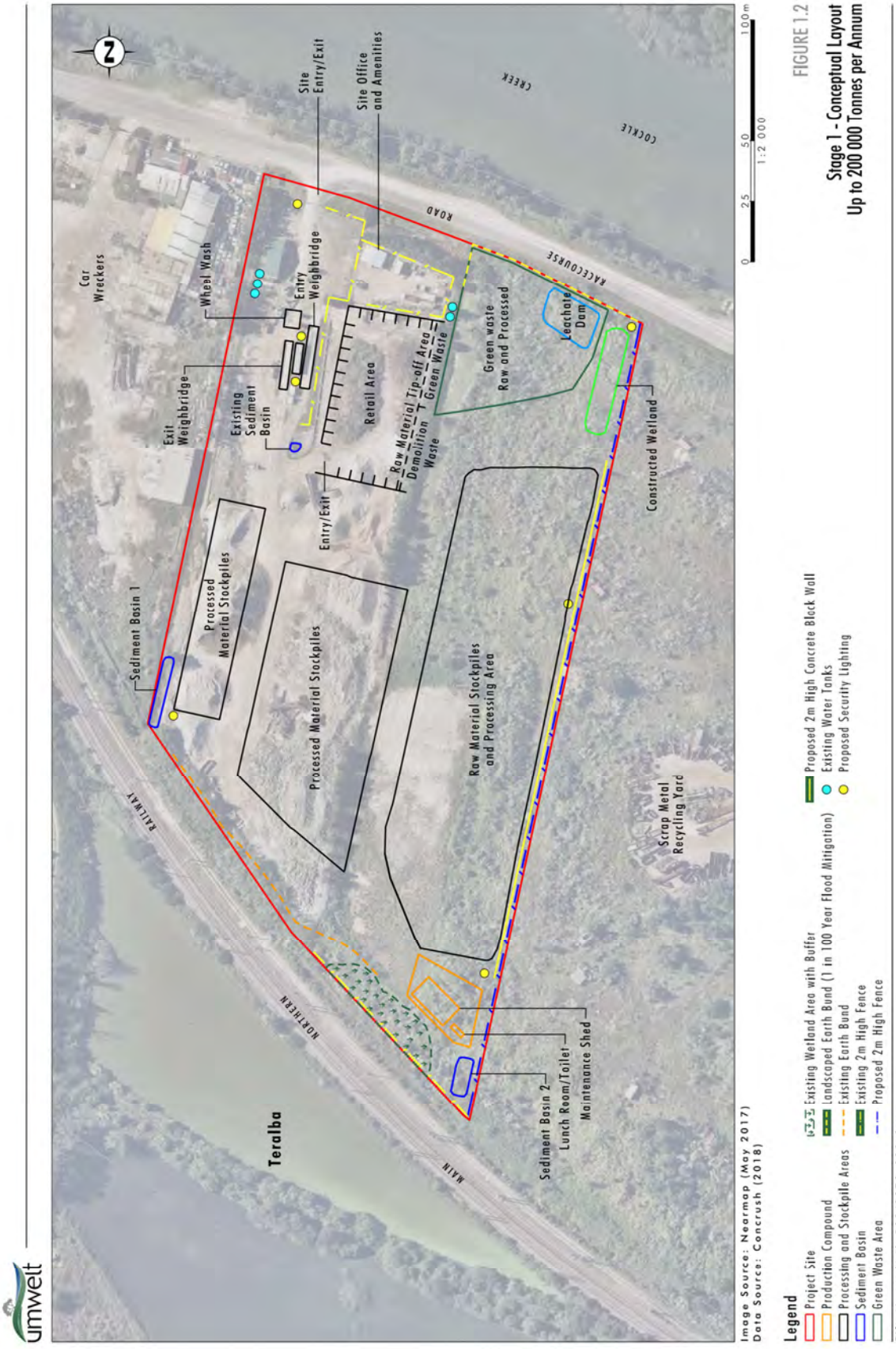
Please contact Mr Matthew M^CCarthy or undersigned should you require further information or assistance.

Yours faithfully
M^cLaren Traffic Engineering

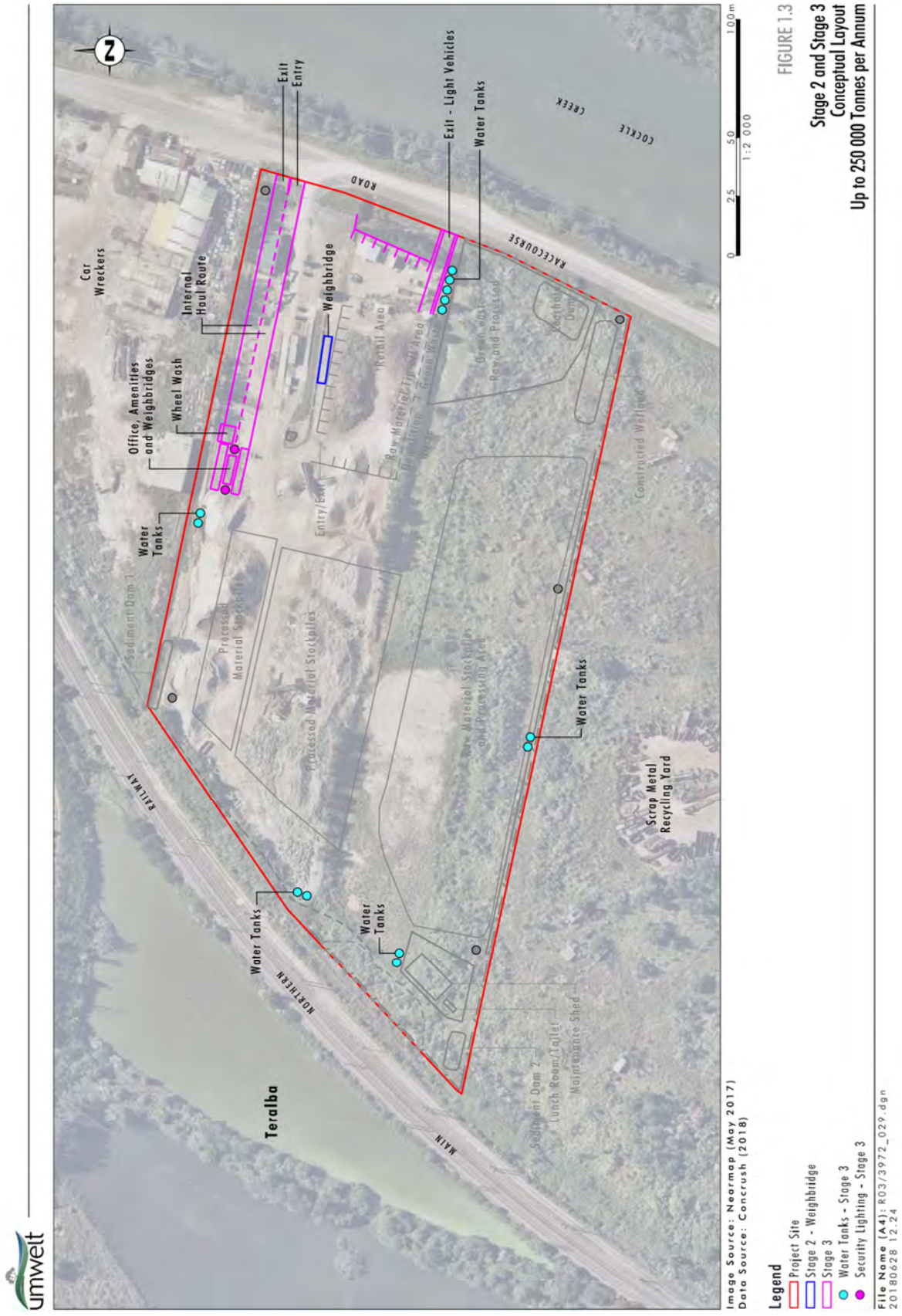


Craig M^CLaren
Director
BE Civil. Graduate Diploma (Transport Eng) MAITPM MITE RPEQ 19457
RMS Accredited Level 3 Road Safety Auditor [1998]
RMS Accredited Traffic Management Plan Designer [2018]

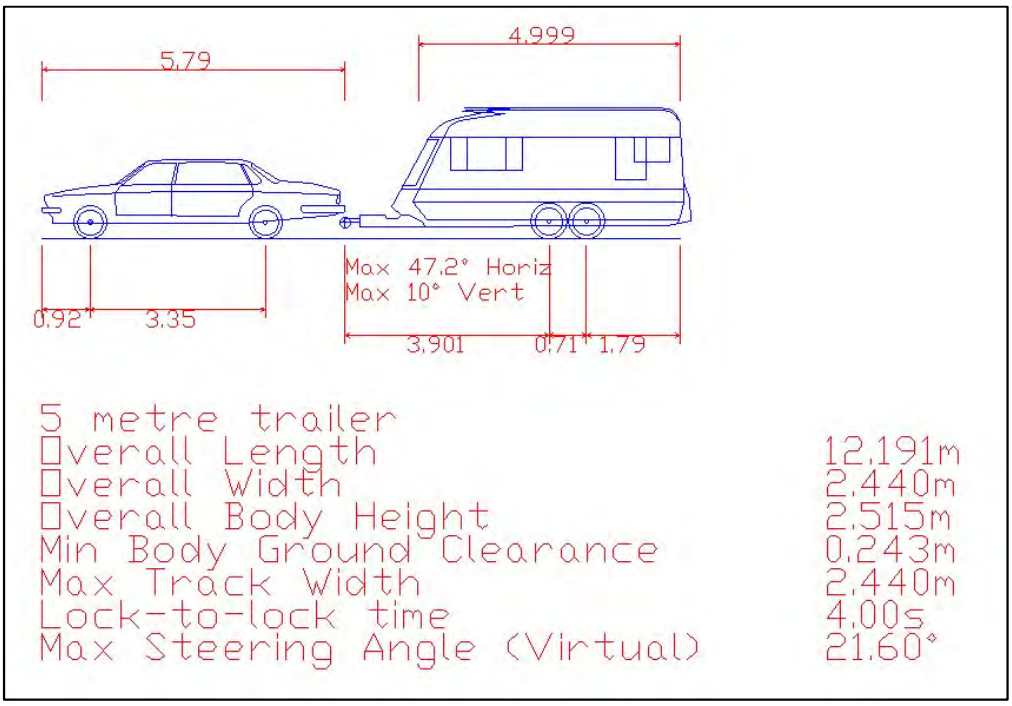
ANNEXURE A: PROPOSED PLAN
(SHEET 1 OF 2)



ANNEXURE A: PROPOSED PLAN
(SHEET 2 OF 2)



ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 1 of 18)

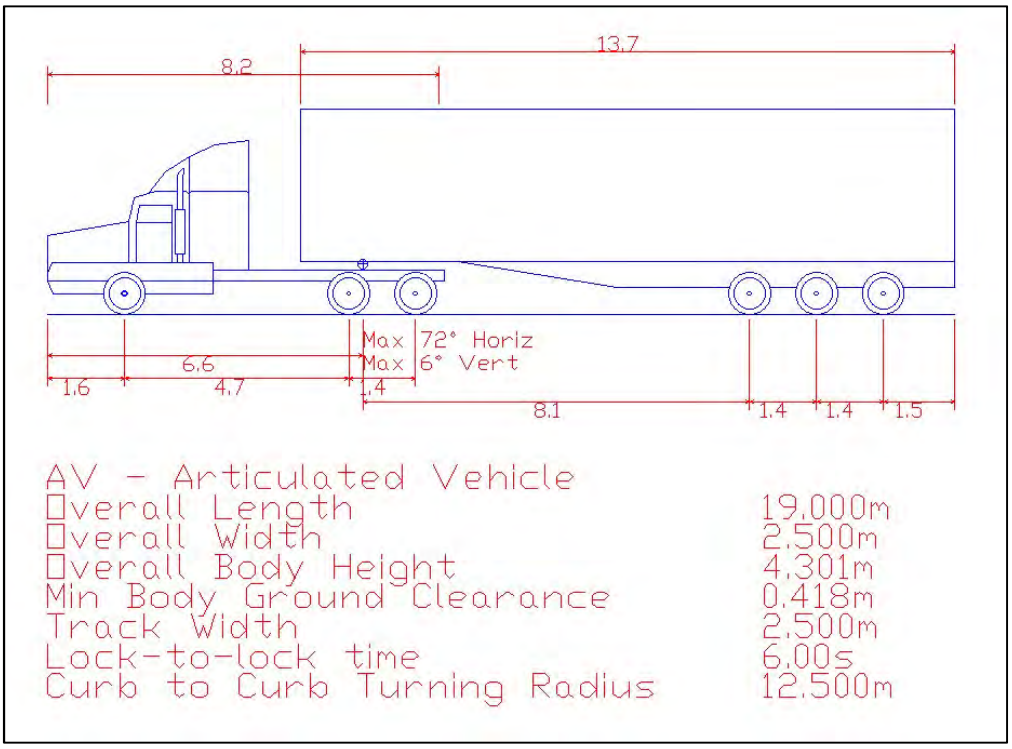


Light Vehicle with 5 Metre Trailer

Blue – Wheels

Green – Vehicle body

Red – 500mm clearance



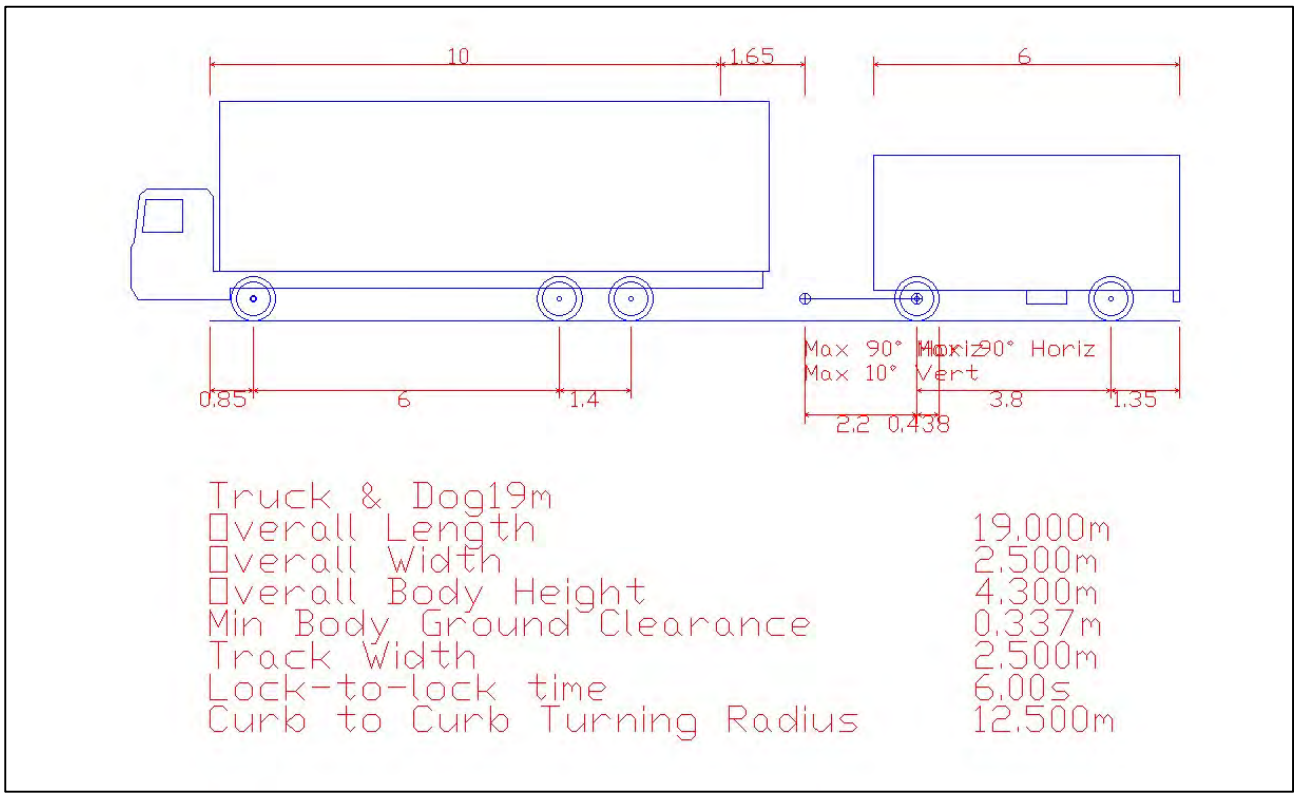
Articulated Vehicle (HRV)

Blue – Wheels

Green – Vehicle body

Red – 500mm clearance

ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 2 of 18)



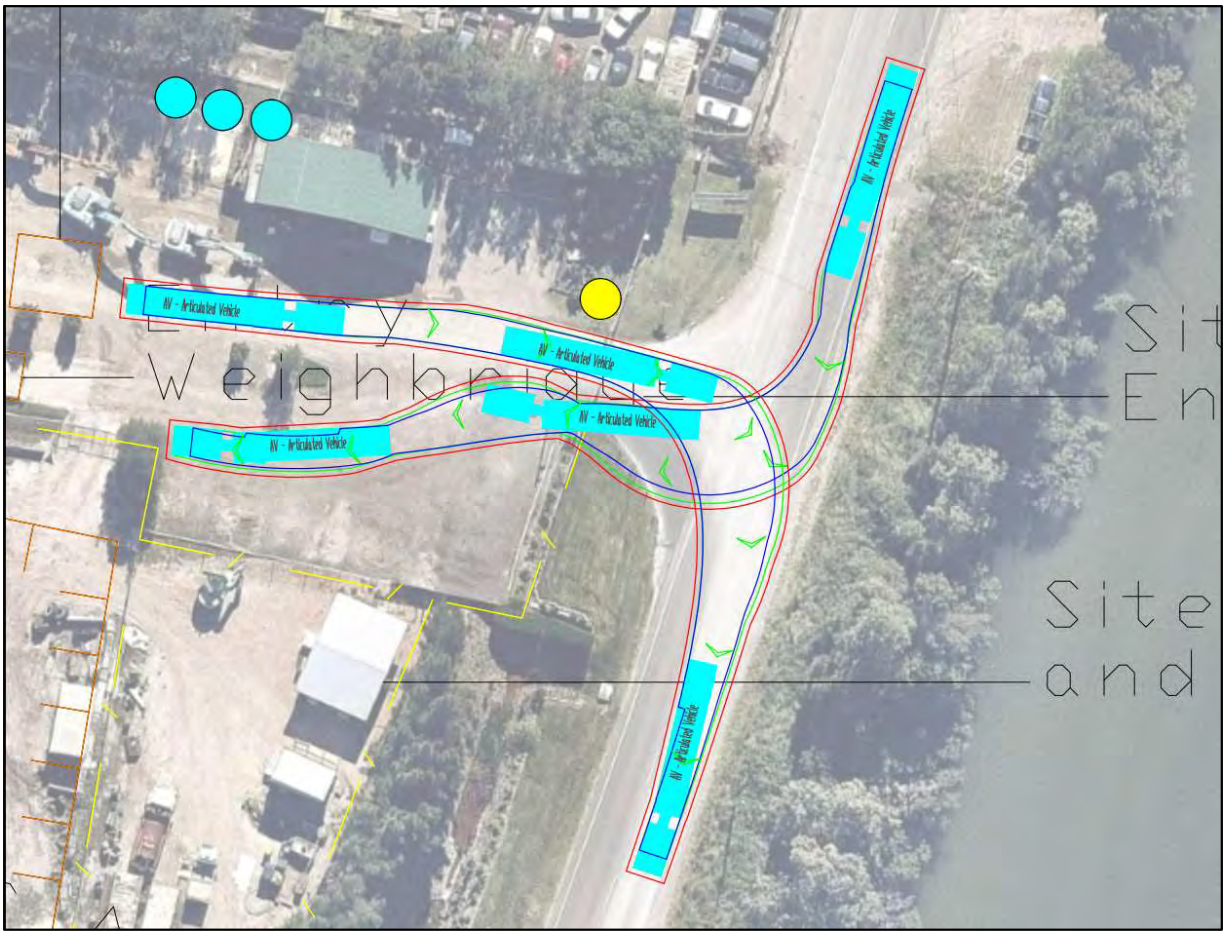
19m Truck and Dog

Blue – Wheels

Green – Vehicle body

Red – 500mm clearance

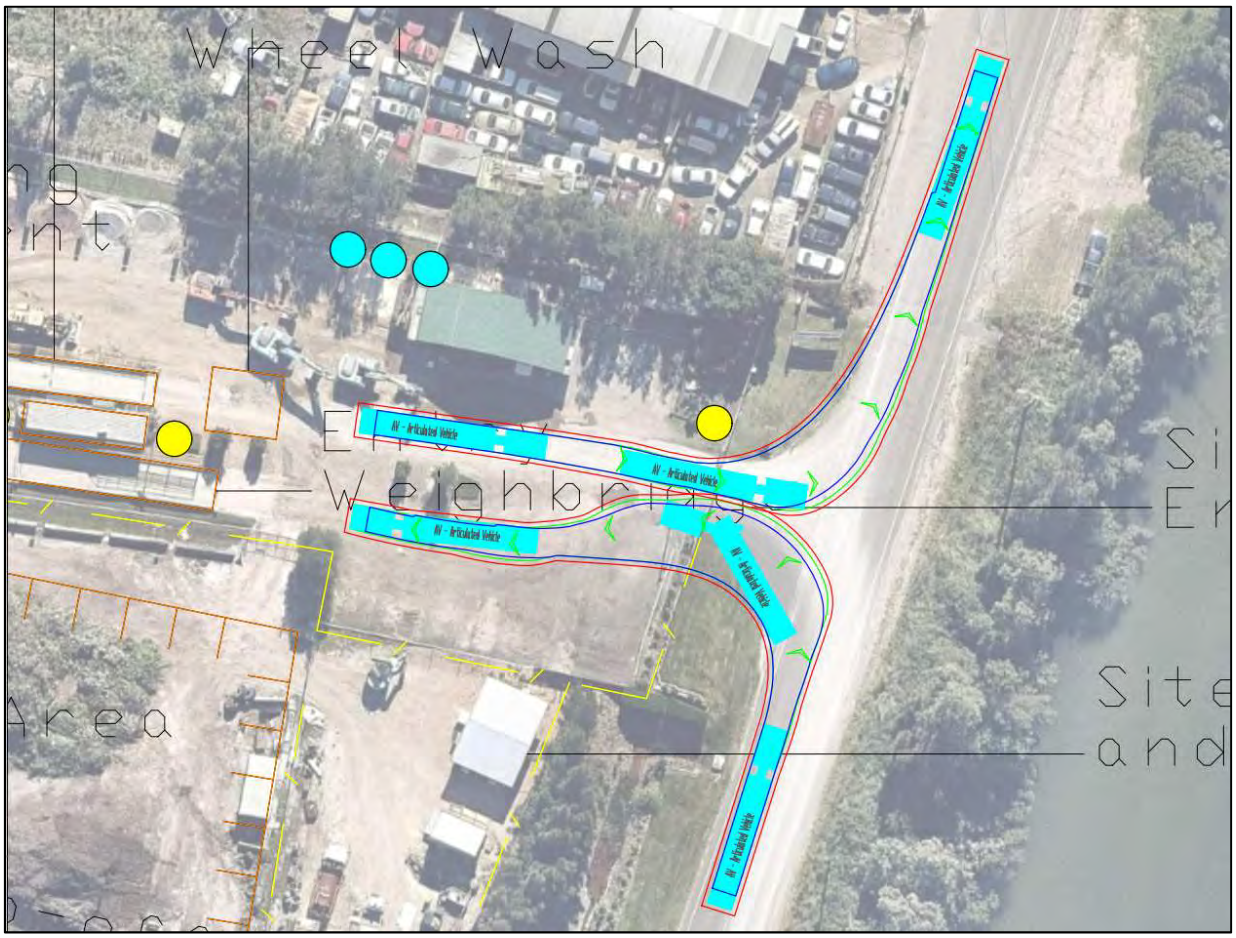
ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 3 of 18)



STAGE 1 - AV RIGHT IN / RIGHT OUT onto Racecourse Road
SUCCESSFUL – Subject to driveway being amended to provide a 13m entry to facilitate two-way passing. (as per swept paths below)

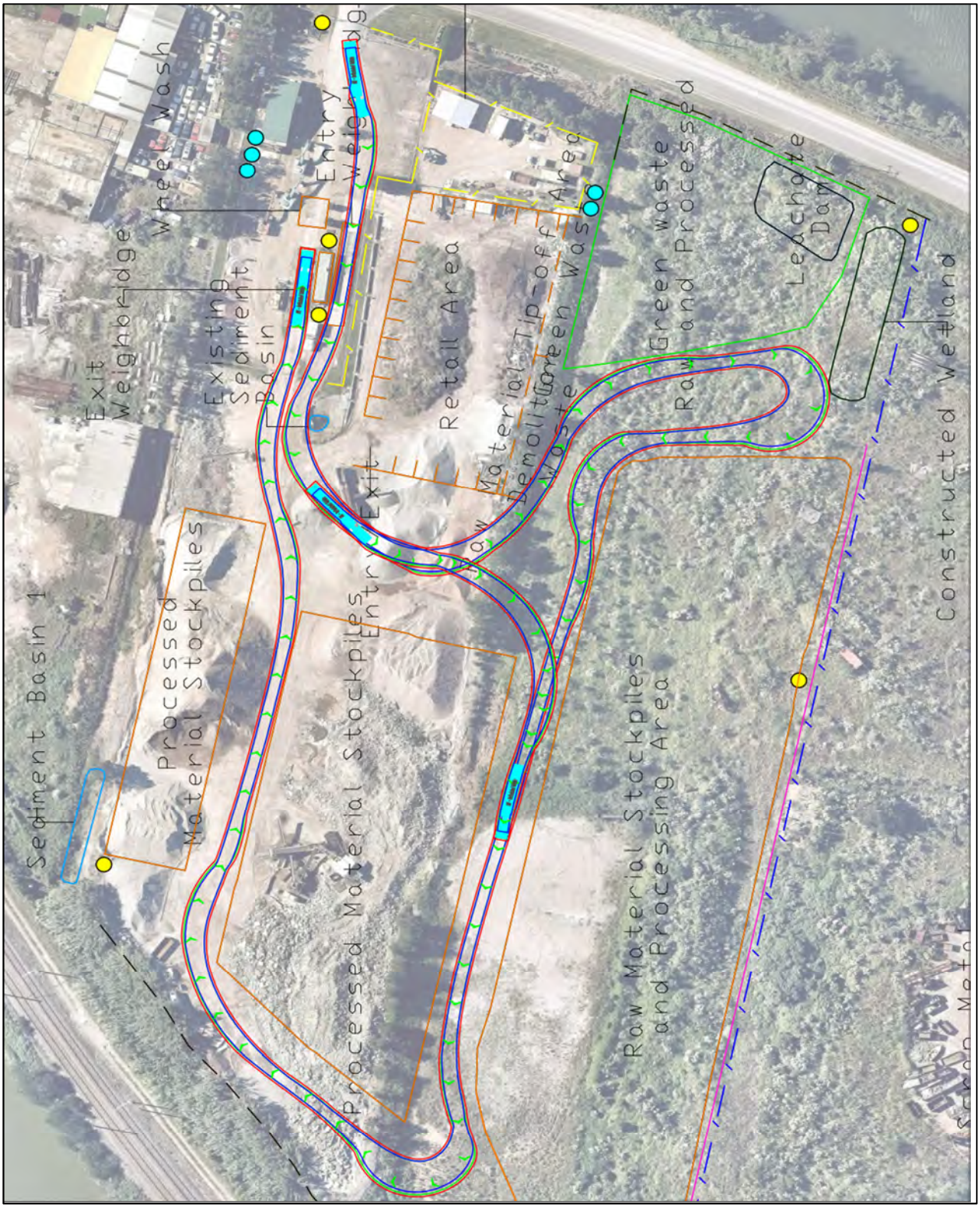
Note: Works within the road reserve will be required to formalise the driveway.

ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 4 of 18)



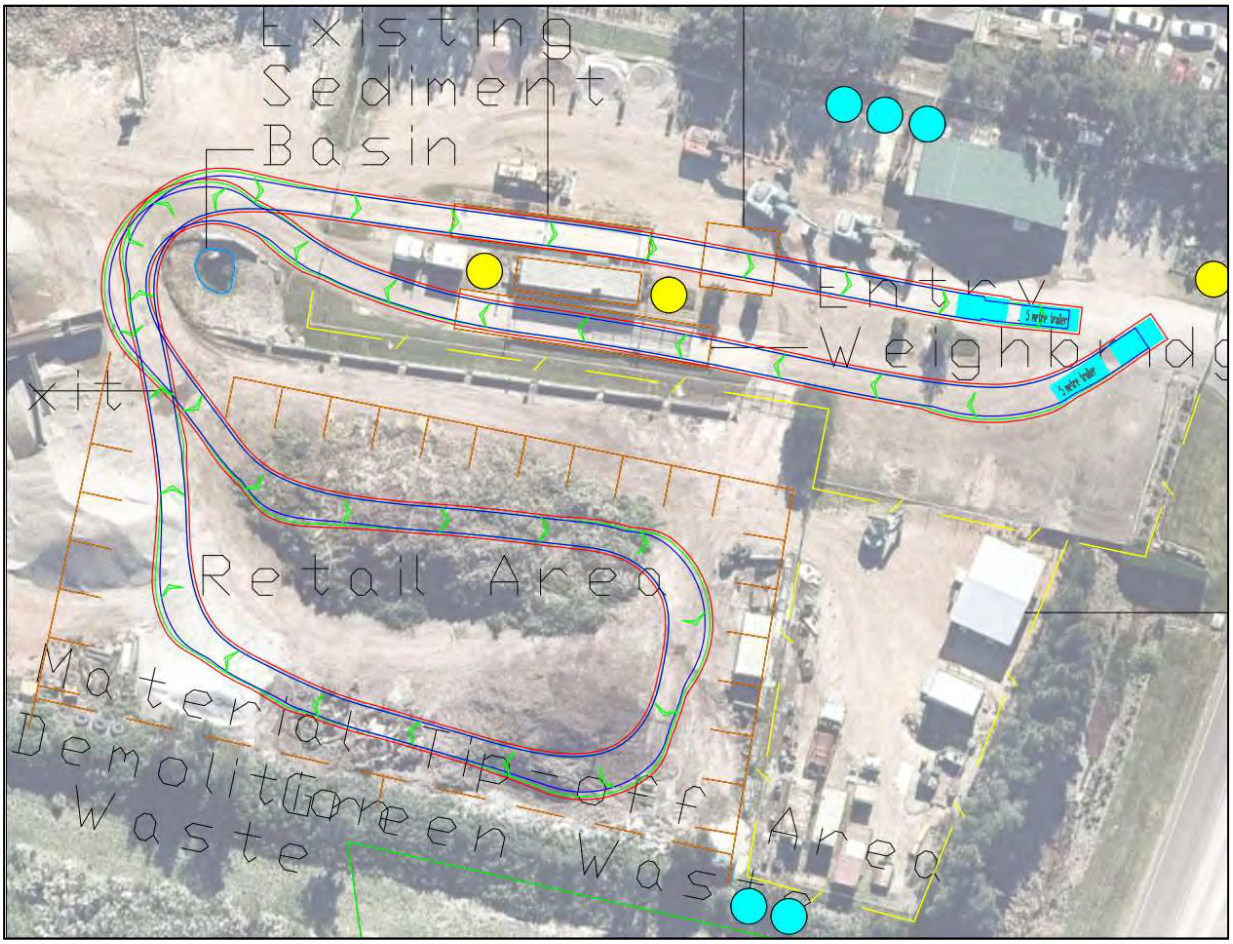
STAGE 1 - AV LEFT IN / LEFT OUT onto Racecourse Road
SUCCESSFUL – Subject to driveway being amended to provide a 13m entry to facilitate two-way passing.

Note: Works within the road reserve will be required to formalise the driveway.



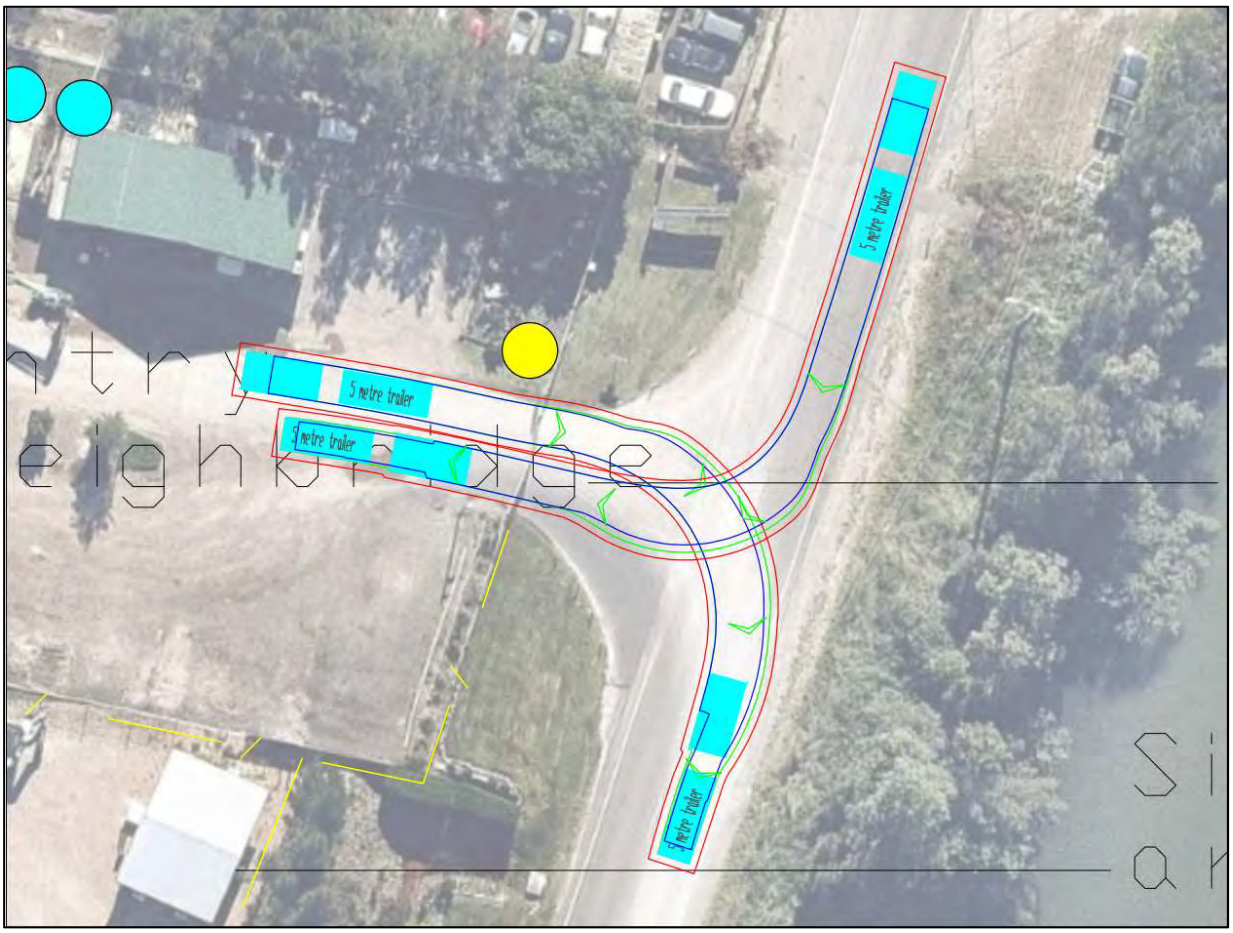
STAGE 1 – AV Internal Circulation
SUCCESSFUL

ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 6 of 18)



STAGE 1 – Light Vehicle with 5 Metre Trailer Circulation
SUCCESSFUL

ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 7 of 18)



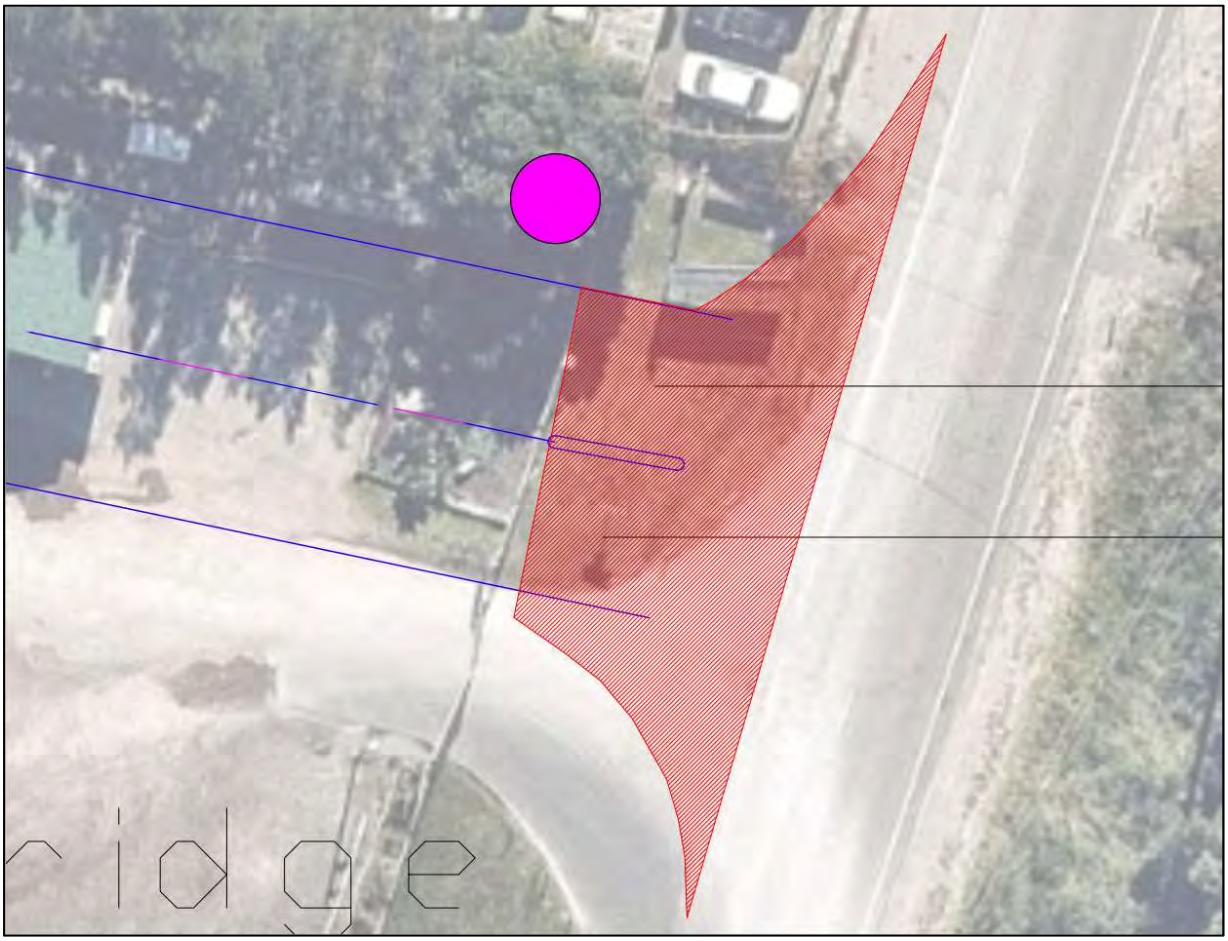
Stage 1 – Light Vehicle with 5 Metre Trailer RIGHT IN / RIGHT OUT onto Racecourse Road SUCCESSFUL

ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 8 of 18)

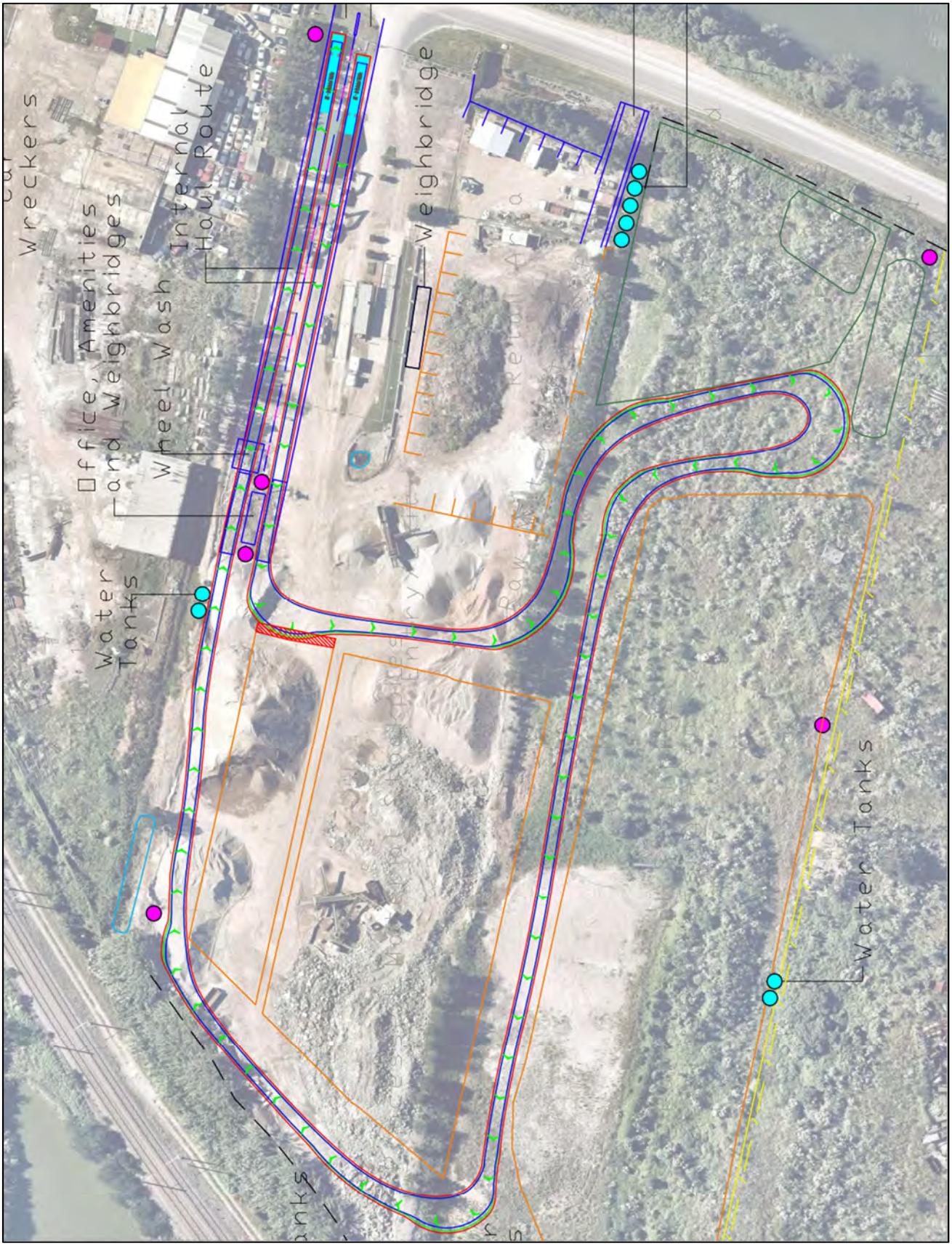
Stage 1 – Light Vehicle with 5 Metre Trailer LEFT IN / LEFT OUT onto Racecourse Road SUCCESSFUL

STAGE 2 - AV ENTRY / EXIT onto Racecourse Road
SUCCESSFUL – Subject to driveway splay as shown in red below.

ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 10 of 18)

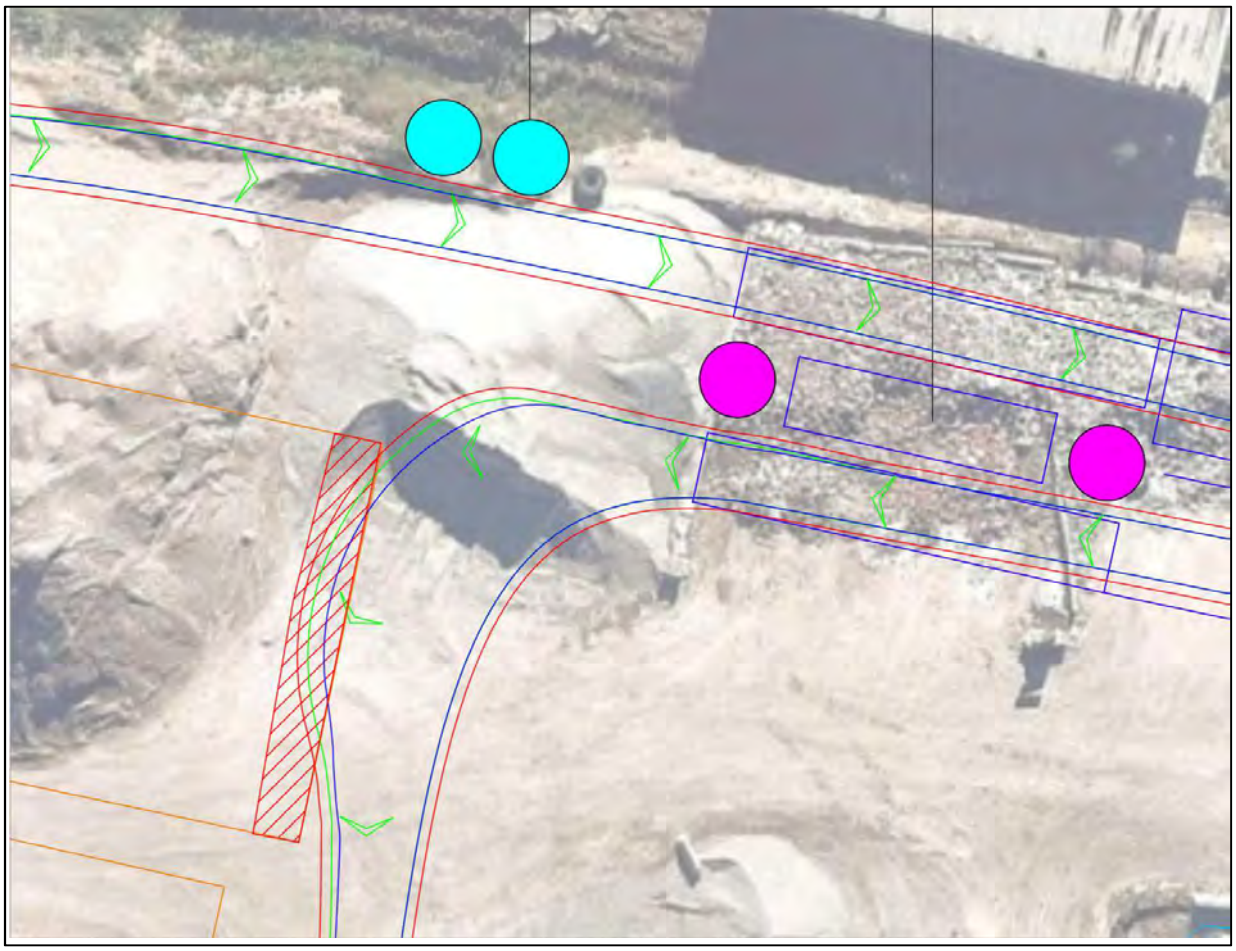


Splay to be added to driveway on entry and exit side. (shown as red hatch)

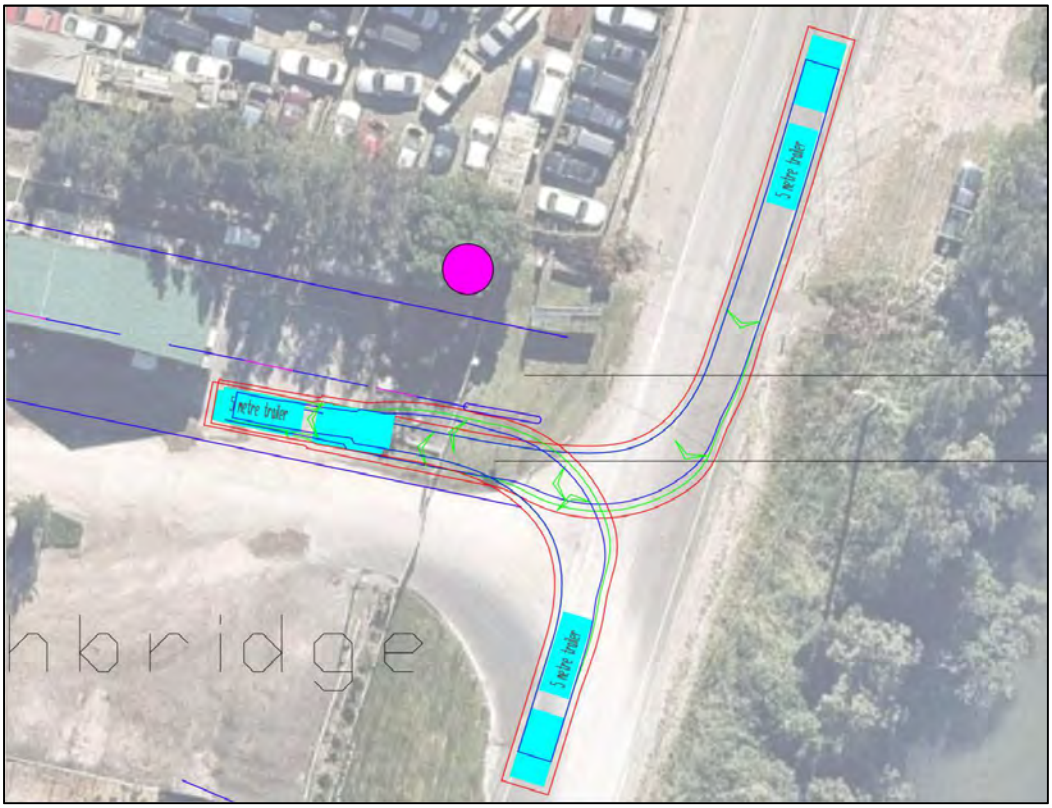


STAGE 2 – AV Circulation
SUCCESSFUL – Subject to reduction in stockpile area (shown below)

ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 12 of 18)



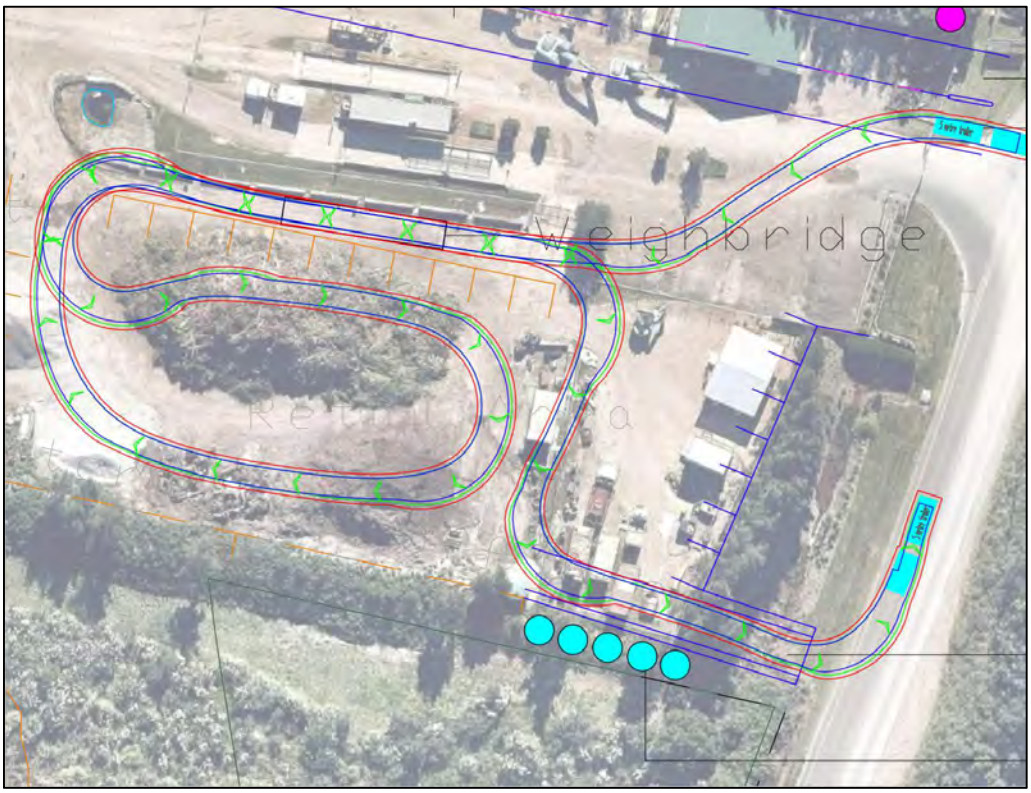
STAGE 2 – AV Left turn out of weighbridge into site
SUCCESSFUL – Subject to reduction in stockpile area by 2.6m (shown as red hatch)



STAGE 2 - Light Vehicle with 5 Metre Trailer RIGHT IN / LEFT IN from Racecourse Road SUCCESSFUL

STAGE 2 - Light Vehicle with 5 Metre Trailer RIGHT OUT / LEFT OUT onto Racecourse Road SUCCESSFUL

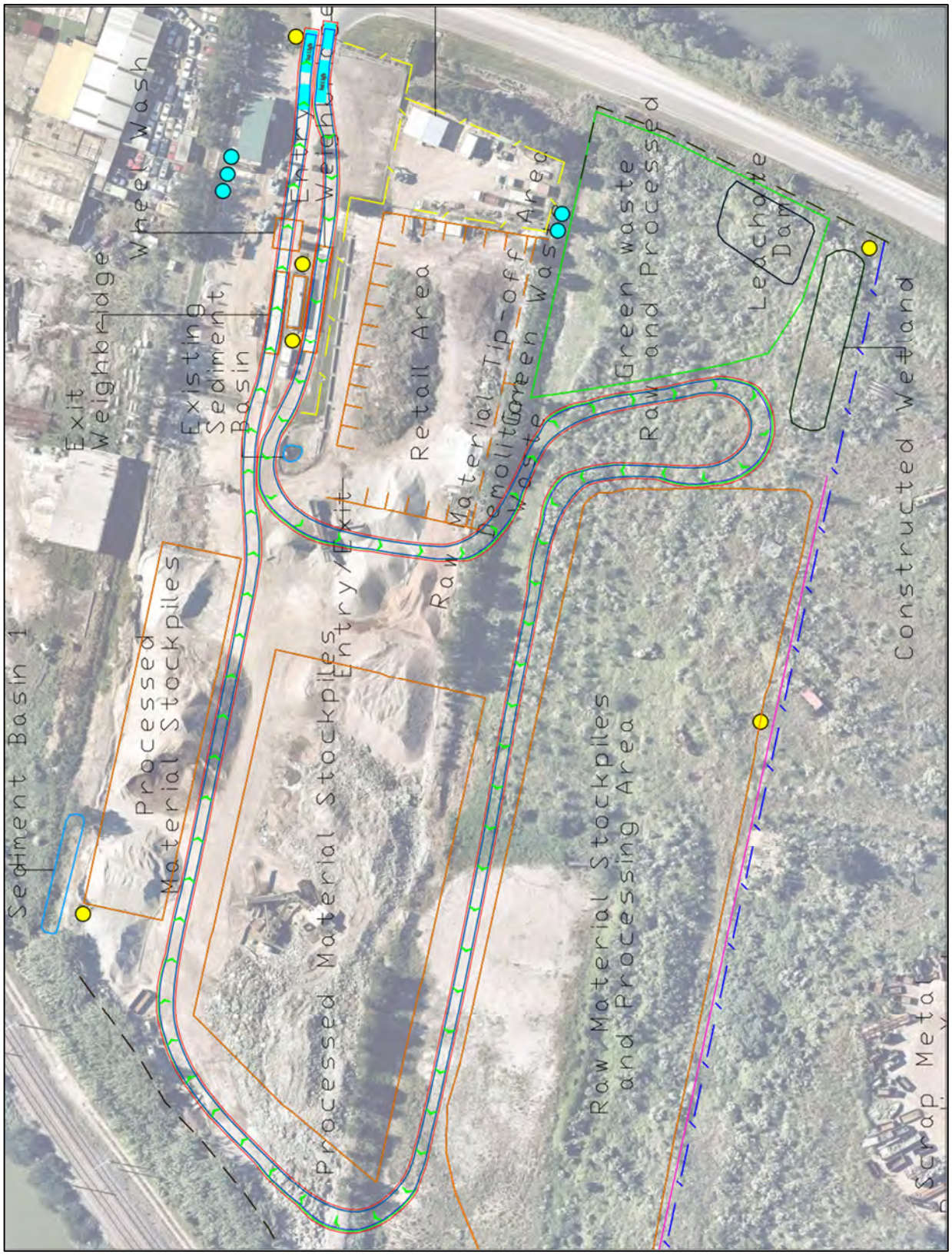
ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 14 of 18)



STAGE 2 - Light Vehicle with 5 Metre Trailer circulation
SUCCESSFUL – subject to driveway splay (See Below)

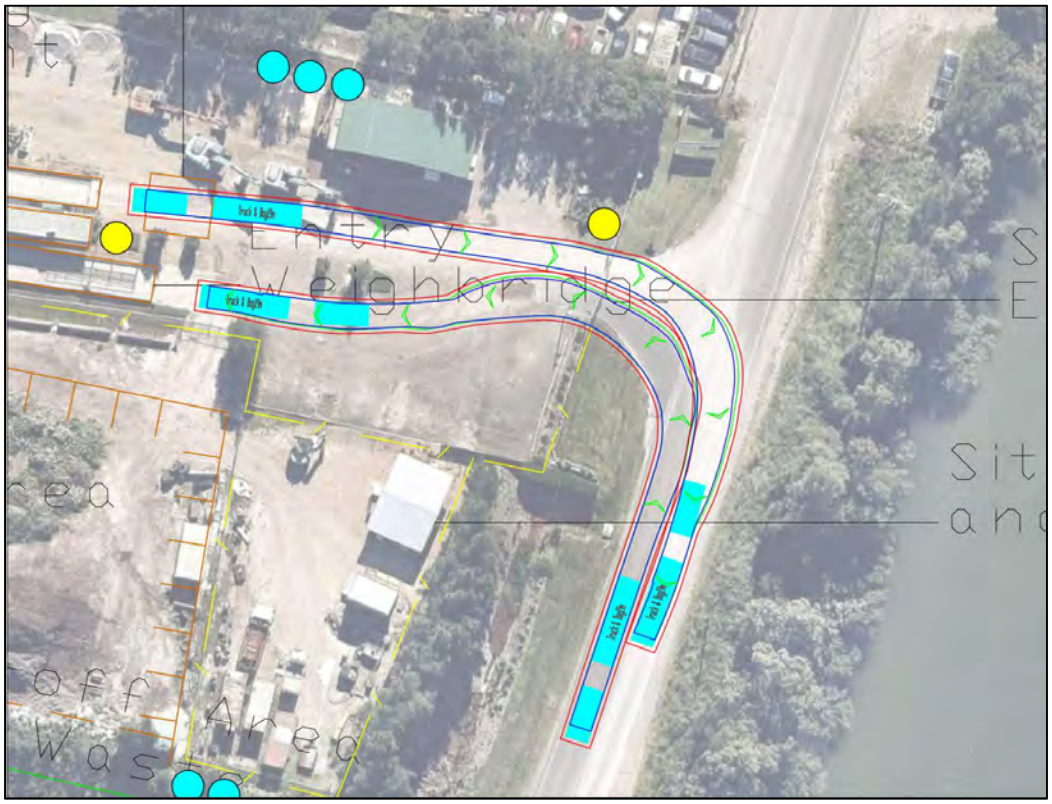
Splay added to entrance of light vehicle exit driveway to accommodate Light Vehicle with 5 Metre Trailer

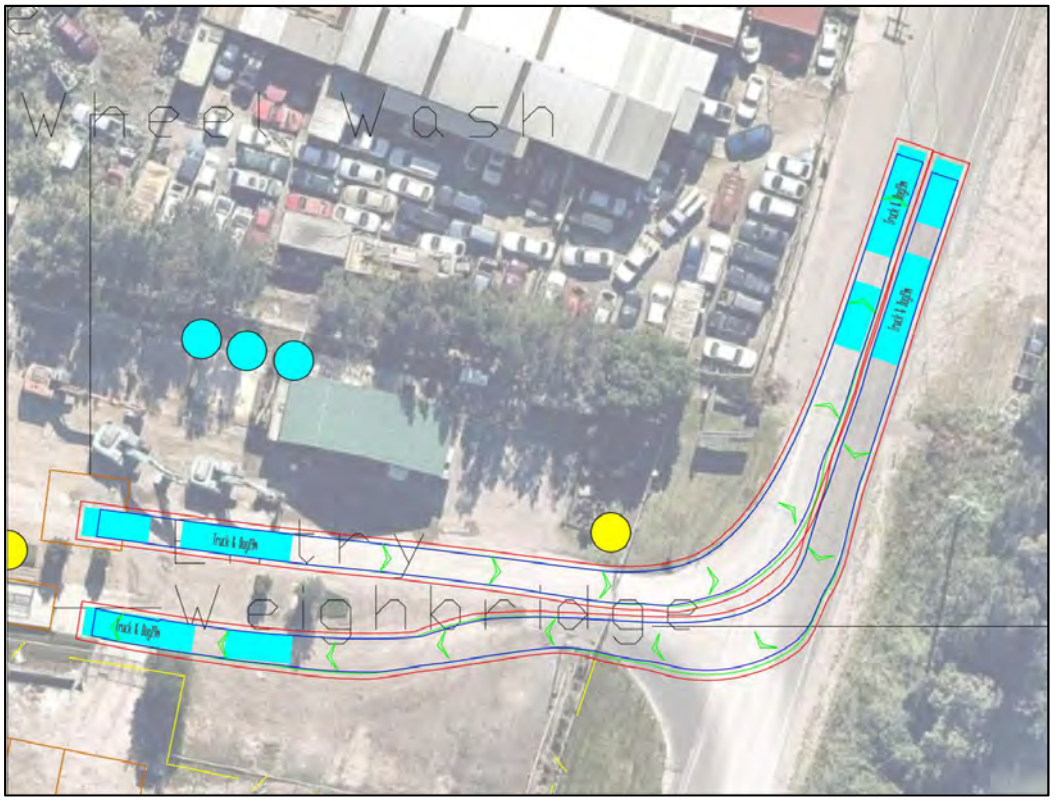
ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 15 of 18)



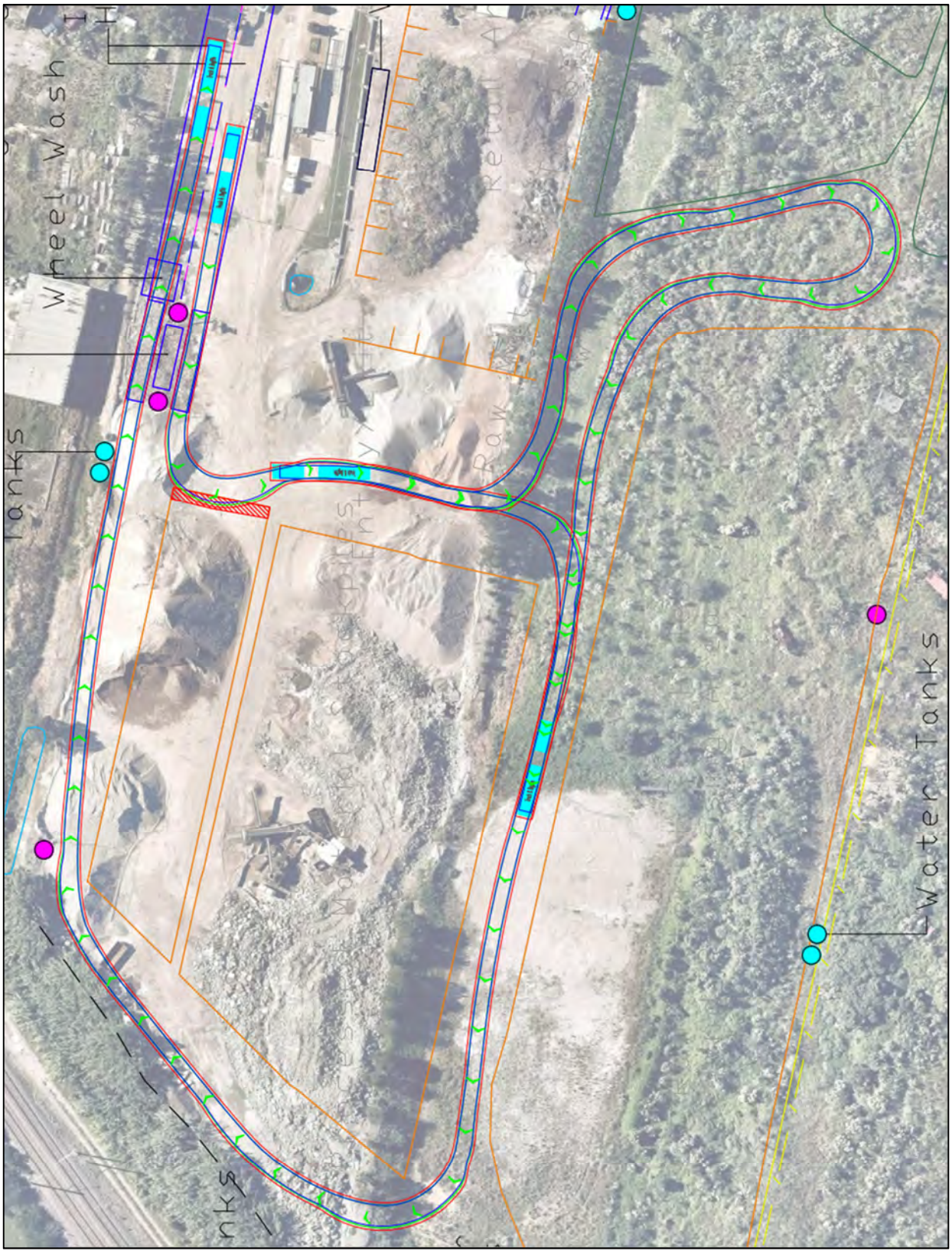
STAGE 1 – 19m Truck and Dog Circulation
SUCCESSFUL

ANNEXURE B: SWEPT PATH ANALYSIS
(Sheet 16 of 18)

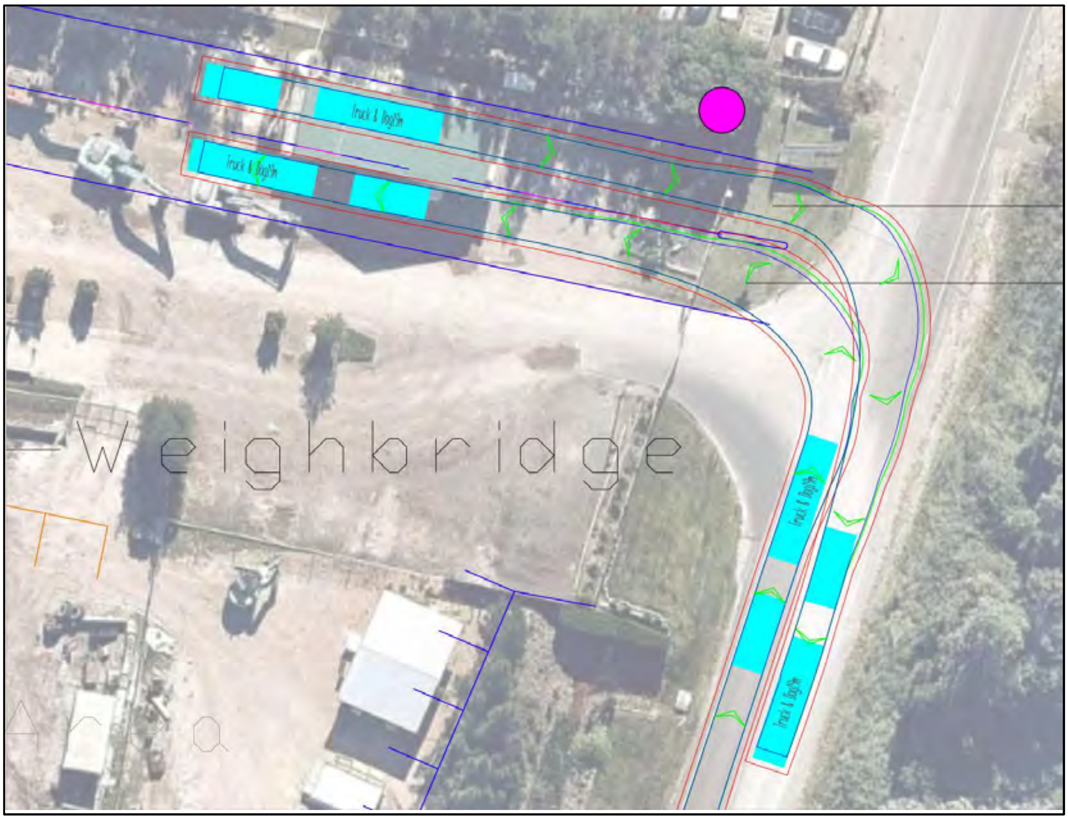


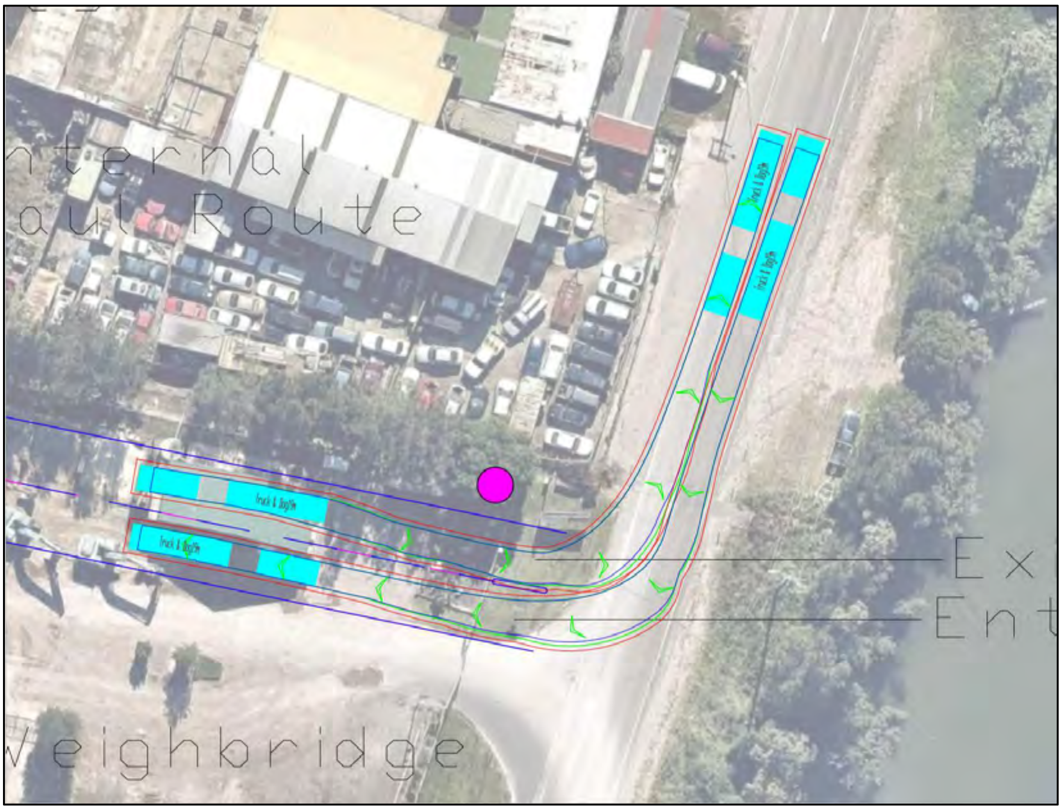


STAGE 1 – 19m Truck and Dog access onto Racecourse Road
SUCCESSFUL – Subject to driveway splay proposed for AV



STAGE 2 – 19m Truck and Dog Circulation
SUCCESSFUL – Subject to reduction of stockpile proposed for AV.





STAGE 2 – 19m Truck and Dog access onto Racecourse Road
SUCCESSFUL – Subject to driveway splay proposed for AV