

RIVER STREET COMMUNITY PRECINCT MACLEAN (PHASE 1)

48 AND 50 RIVER STREET MACLEAN NSW 2463

TRAFFIC IMPACT INVESTIGATION

TIA REPORT 001 (ISSUE 3)

STAGE 2 - DETAILED DESIGN 50%

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1 INTRODUCTION

1.1 Background

RoadNet Consulting has been engaged by Nimbus Architecture and Heritage to undertake a Traffic Impact Assessment (TIA) for the proposed new Maclean Civic Hall 48 and 50 River Street MACLEAN NSW 2463, referred to as “the Development, or as the “subject Site’ in this report.

1.2 Scope of Report and Deliverables

Refer below for the scope of report and associated deliverables.

Table 1.1: Scope of Report and Deliverables

| Work Activities and Tasks | Deliverables |
|--|--|
| <ul style="list-style-type: none"> Obtain and review background information in relation to proposed development and associated road network, access, land zoning, suitable transport proximate to the development, predicted development operation and usage profile, parking requirements, existing nearby on-street parking, etc. Estimate background traffic growth; Calculate operational traffic generation of proposed development. Calculate traffic generation from adjacent areas if applicable. Estimate background traffic growth over the period of analysis to be agreed with client (typically 10-year design horizon from proposed opening year of the development). Calculate future operational traffic volumes, with and without the development. Assess the future requirements for the proposed site access, for the agreed design year based on Austroads design guidelines. Assess the operational impacts of the proposed development on road capacity using SIDRA Intersection software for the opening year and design horizon year (if required); Assess requirements for pedestrians and cyclists to/from and within the site and accessibility to public transport services (including public and school bus routes). Determine visitor and staff numbers/profile and applicable parking rates. Liaise with NIMBUS Architecture + Heritage as required; Prepare draft TIA report to document the assessments and outcomes and submit to client for comment; Prepare final TIA report to incorporate comments from the draft report. | <ul style="list-style-type: none"> 1 x draft TIA report to document the assessments and outcomes and submit to client for comment. 1 x final TIA report to incorporate comments from the draft report. |

1.3 Limitations

While the calculations and analysis undertaken as part of the assessment and documented in this report are considered appropriate for the assessment, the following limitations should be noted:

- background traffic count data utilised in the assessment has been based on traffic counts which may not be 100% representative of the typical traffic volumes on the external road network, and
- background growth rates adopted for this study have been based on a nominal 2.0% growth rate. While the use of these growth rates to establish traffic forecasts is considered acceptable for the short term (10-20 years), estimates become less reliable the further out they are calculated. This is due to potential changes in traffic conditions as a result of changes to the wider road network and different shifts in traffic generators and attractors and route choices. As such the assessment contained in this report should be revisited should any significant changes in volumes at the intersections or adjacent road links be identified.

2 SITE DETAILS

2.1 Site Details Summary

Refer table for below for site details summary including details of the proposed development.

Table 2.1: Site Details Summary

| Item | Details |
|---------------------------|---|
| Applicable Legislation | Clarence Valley Council DCP 2011 |
| Applicant | Clarence Valley Council |
| Address | 48 River Street MACLEAN NSW 2463 50 River Street MACLEAN NSW 2463 |
| Property Description | <u>48 River Street MACLEAN NSW 2463</u> <ul style="list-style-type: none"> Lot 1 DP 667217 Lot 8 Sec 1A DP 758631 Lot 9 Sec 1A DP 758631 <u>50 River Street MACLEAN NSW 2463</u> <ul style="list-style-type: none"> Lot 1 DP 821976 Lot 10 DP 813746 |
| Local Government Area | Clarence Valley Council |
| Zoning | B2 – Local Centre |
| Proposed Development Type | Construction of a new Maclean Civic Hall |

The subject site location is shown in Figure 2.1.



Figure 2.1: Subject Site Location

2.2 Current Site Use

The existing site is currently improved with the following structures:

Table 2.2: Current Site Use Summary

| Location | Improvements | Actions as part of proposed development |
|-----------------|--|---|
| 48 River Street | <ul style="list-style-type: none"> Existing Community Hall Office buildings south of the Community Hall Adjoining structure to rear and side of the Community Hall Community Hall Front Façade Trees and vegetation | All to be demolished as part of the proposed development. |
| 50 River Street | <ul style="list-style-type: none"> Centrelink, Service NSW, Clarence Valley Council Offices (B2 Zoning) | All to be retained as part of the proposed development. |

Limited parking is available around the site and the surrounding on-street parking cannot be easily accessed by the elderly or people with disabilities.

Refer Figure 2.2 for closeup aerial image of the subject site.

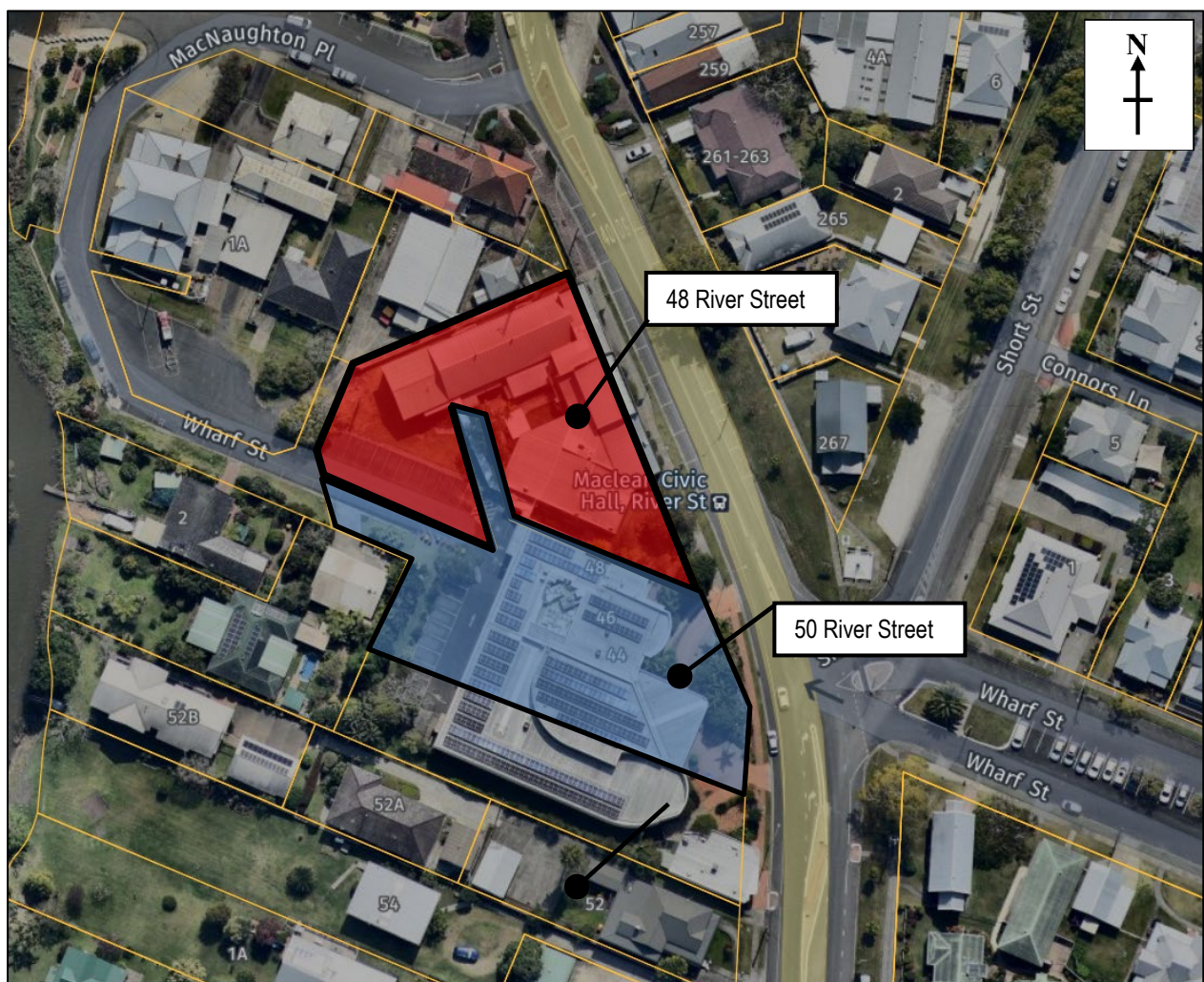


Figure 2.2: Nearmap Image of Subject Site dated 11 September 2022

The site is surrounded by the following:

- **North:** A Court House, Post Office, Maclean Police Station (B2 Zoning)
- **East:** River Street, and further east B2 Zoned area
- **South:** Centrelink, Service NSW, Clarence Valley Council Offices (B2 Zoning) – Remaining part of 50 River Street
- **West:** MacNaughton Street and the Clarence River

Refer Figure 2.3 for zoning map.

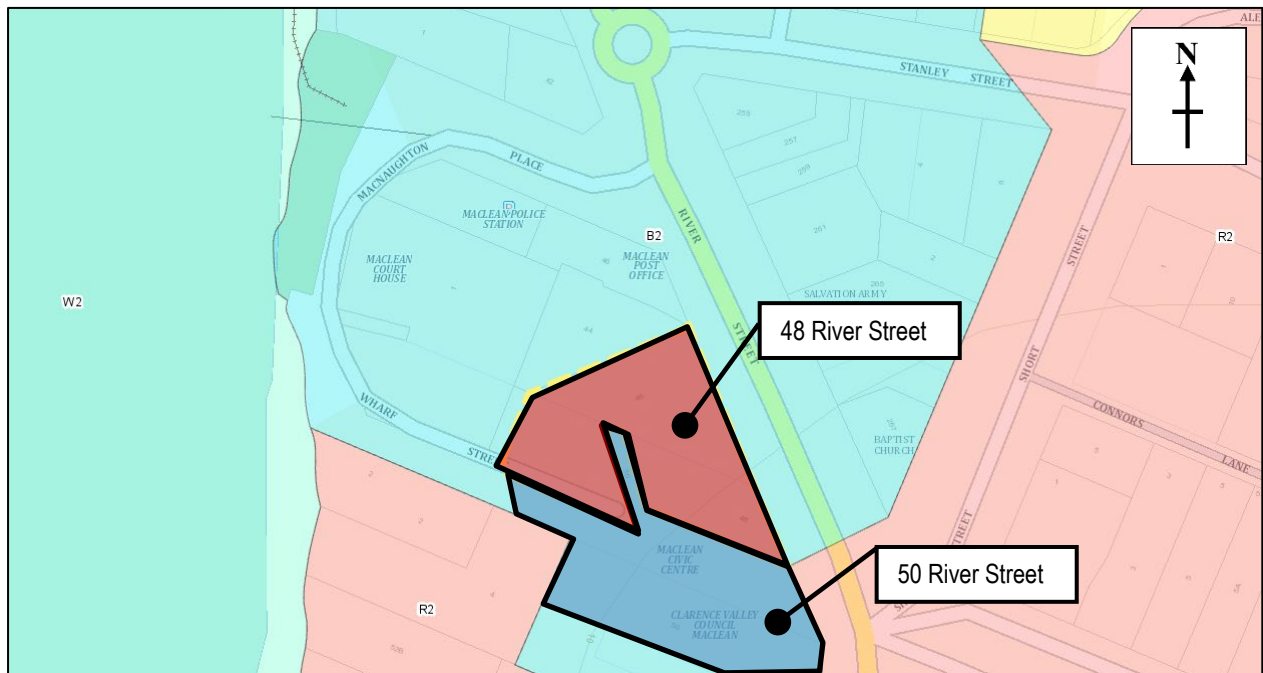


Figure 2.3: Zoning Map (extracted from NSW ePlanning)

2.3 Proposed Development

This proposal aims to develop a community hub in the heart of Maclean on a site which borders the eastern edge of the Clarence River. Phase 1 of the project is the first stage of what is envisaged to be a larger site redevelopment which adaptively reuses Council-owned buildings and develops a localised landscape specific to the unique nature of the site.

Phase 1 includes the removal of existing building stock that is either poorly used or no longer fit for purpose, replacement of the existing Maclean Civil Hall, and creation of new open public parkland with visual links to the river and opportunities to create pedestrian links between the site and the river shoreline.

The overall intent is to upgrade facilities for public benefit. New amenities will replace those that are poorly functioning and do not comply with disability access standards, seating capacity in the auditorium will be increased, kitchen facilities will be upgraded to serve larger numbers with the option of external service access to the newly created public open space adjacent; and the stage and back-stage areas will be made larger and improved for performance artists and props.

The covered deck area and open space will provide an immediately accessible spill-over space during large events at the Hall and will also create a visual connection to the Clarence River through the site from the busy River Street frontage. The new facility will serve the day-to-day needs of the community.

A new basement carpark will be provided underneath the civil centre sufficient for 40 cars.

The development plans have been provided in Appendix A.

3 EXISTING CONDITIONS

3.1 Surrounding Road Network

To manage the extensive network of roads for which councils are responsible under the Roads Act 1993, TfNSW in partnership with local governments established an administrative framework of State, Regional, and Local Road categories summarized below:

- **State Roads:** State Roads are the major arterial links through NSW and within major urban areas. These are the responsibility of the Roads and Traffic Authority (i.e. State Government) to fund, prioritise and carry out works
- **Regional Roads:** Regional Roads comprise the secondary road network which, together with State Roads, provide for travel between smaller towns and districts and perform a sub-arterial function within major urban centres. These roads are the responsibility of councils (including determining priorities and carrying out works) but receive a block grant of funding from the State Government. This category generally includes those roads classified as Secondary Roads and many of the less significant Main Roads, plus many roads not classified under the Roads Act. The Regional Road category comprises two subcategories: those Regional Roads that are classified pursuant to the Roads Act 1993, and those Regional Roads that are unclassified.
- **Local Roads:** comprise those roads not classified under the Roads Act 1993 and some classified roads that now provide for only local access and communication. These roads are the responsibility of Local Government authorities with only limited funding assistance from the State Government.

The road network immediately surrounding the subject site is comprised of Local Roads and a Regional Road (River Street), both under the jurisdiction of Clarence Valley Council (Refer to Figure 3.1).

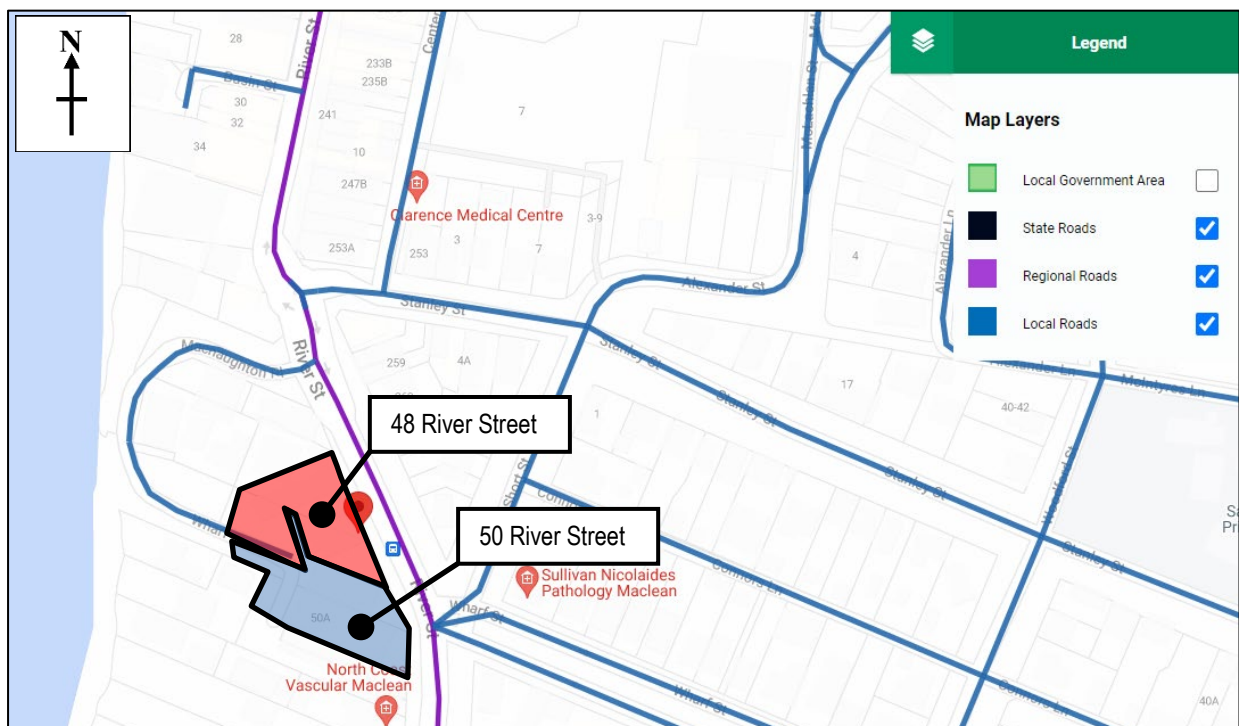


Figure 3.1: Transport for NSW Road Network Classifications adjacent to the subject site

Refer below for details of the Regional Road fronting the site (River Street)

Table 3.1: Details of the Regional Road fronting the site (River Street)

| Item | Details |
|---|---|
| Classified / Unclassified Road | Classified Road |
| Gazetted Road Number | 152 |
| Gazetted Name and Description | From The Summerland Way, at Grafton, via Lawrence and Maclean to Yamba, With a branch from Maclean southerly to the Pacific Highway near Edwards Creek. |
| Class: | Main Road (MR) |
| Administrative Category | Regional |
| Most recent Gazetted (Government Gazette Number and date) | GG15 2/2/96 RNIM 90M1533 |

Refer below table for a summary of the surrounding road network. Refer Figure 2.1 for road locations relative to the development.

Table 3.2: Surrounding Road Network Summary

| Road Name | Jurisdiction | Hierarchy | Speed Limit | Reserve Width | Total Sealed Width | Lane Summary |
|--|--------------|-----------|-------------------|---------------|--------------------|--|
| River Street | Council | Regional | 40km/h and 50km/h | 27m | 11m | Two Traffic Lanes - 3.0m Lanes - on street parking - kerb and channel - median islands |
| MacNaughton Place | Council | Local | 40km/h | 20m | 12m to 9m | Two Traffic Lanes - no linemarking - kerb and channel - on street parking |
| Wharf Street west of River Street | Council | Local | 40km/h | N/A | 6m to 12.5m | Two Traffic Lanes - linemarking |
| Wharf Street east of River Street | Council | Local | 50km/h** | 30m | 21m | Two Traffic Lanes - lanes separated by median - parking in median - on street parking - no linemarking - kerb and channel |
| Stanley Street | Council | Local | 50km/h** | 20m | 11.7m | Two Traffic Lanes - linemarking - kerb and channel - on street parking |
| Short Street | Council | Local | 50km/h** | 30m | 11.5m | Two Traffic Lanes - linemarking - kerb and channel - on street parking |
| ** default speed limit for built up area | | | | | | |



Figure 3.2: River Street facing North (Google Street View September 2016)



Figure 3.3: MacNaughton Place facing West (Google Street View September 2016)



Figure 3.4: Short Street facing North (Google Street View March 2008)



Figure 3.5: Stanley Street facing West (Google Street View September 2016)



Figure 3.6: Wharf Street facing east from Corner Wharf Street / River Street (Google Street View September 2016)

3.2 Public Transport

The following bus stops and routes have been identified in the vicinity of the proposed site.

Table 3.3: Summary of Existing Bus Stops and Routes

| Bus Stop | Routes From this Stop | Distance from Subject Site |
|--|--|----------------------------|
| Maclean Civic Hall, River St (Stop ID 24635) | 380 - Grafton to Yamba via Angourie 380 - Yamba to Grafton via Angourie 385 - Lawrence to Maclean 386 - Maclean to Illuka (Loop Service) | 50m (approx. 1 mins) |
| 56 River St Maclean River St at Taloumbi Lane (Stop ID 246313) | 380 - Grafton to Yamba via Angourie 380 - Yamba to Grafton via Angourie 385 - Maclean to Lawrence 386 - Maclean to Illuka (Loop Service) S662 - Yamba to South Grafton S693 - Maclean to Pacific Valley Christian | 160 (approx. 2 mins) |

Refer to Figure 3.7 for the location of the bus stops within proximity to the subject site.

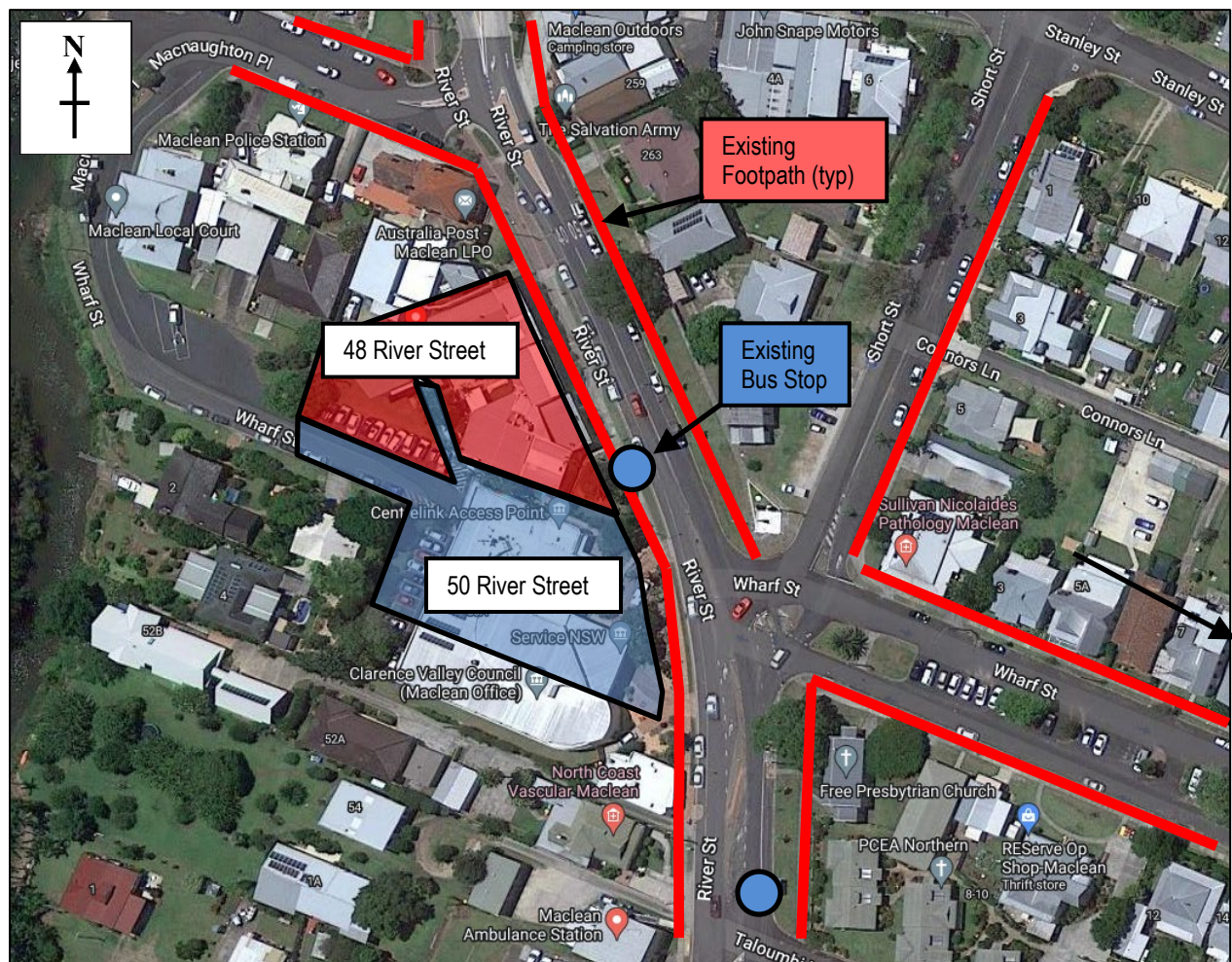


Figure 3.7: Location Plan of Bus Stops and Footpaths

3.3 Active Transport

Active transport facilities in the form of footpaths and shared paths in proximity to the subject site are documented in Figure 3.7.

4 TRAFFIC ASSESSMENT

4.1 Overview

The purpose of this traffic assessment is to determine the impacts of the proposed development on the external road network. Development related impacts have been considered at the MacNaughton Place and River Street intersection at the 'year of opening' (year 2024) and a 10-year 'design horizon' (year 2034).

4.2 Background Traffic

4.2.1 Traffic Survey Data

Traffic survey data was provided by Clarence Valley Council in November 2022. Refer table below for the information provided.

Table 4.1: Traffic Survey Data provided by Council

| Road Name | Location | Average Daily Vehicles | Average Speed (km/h) | Heavy Vehicle (%) | Survey Period |
|-------------------|----------|------------------------|----------------------|-------------------|-------------------------|
| River Street | Maclean | 4339 | 57.3 | 8.9 | 19/10/2022 - 02/11/2022 |
| MacNaughton Place | Maclean | 550 | No Data | No Data | 01/07/1997 - 25/07/1997 |
| Short Street | Maclean | 1473 | No Data | No Data | 15/05/1997 - 22/05/1997 |
| Alexander Street | Maclean | 1828 | 33.9 | No Data | 16/02/2010 - 09/03/2010 |
| Stanley Street | Maclean | 499 | 35.1 | 6.1 | 05/02/2016 - 12/02/2016 |
| Centenary Drive | Maclean | 740 | 16.7 | No Data | 09/02/2010 - 09/03/2010 |
| Wharf Street | Maclean | 526 | 27.1 | 2.6 | 05/02/2016 - 12/02/2016 |

4.2.2 Peak Hour

As no peak hour data was provided, it has been assumed that the design peak hour volume equals 10% of the AADT for urban situations as per Section 3.3.6 of Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management

4.2.3 Traffic Volumes

The background traffic volumes were determined by forecasting the traffic survey data to future years using a compounding rate of 2% per annum. Background traffic volumes were determined for the 'current year' 2022, 'year of opening' (year 2024) and a 10-year 'design'.

4.3 Development Traffic

4.3.1 Traffic Generation

The Roads and Maritime Services' (Roads and Maritime) Guide to Traffic Generating Developments (2002 and 2013) provide no guidance for traffic generation for civil halls and auditorium. The table below outlines the estimated traffic generation of the proposed development.

Table 4.2: Peak Hour Development Traffic Generation

| Land Use | Assumptions | Additional Peak hour vehicle trips |
|---------------------------|---|--|
| Civil Hall and Auditorium | It is assumed immediately prior to or after performances at the civil centre the whole carpark fills up or empty. | 42 vph <i>Based on the proposed carspaces provided plus 2 additional. Refer Section 5.2</i> |

As shown, the proposed development is estimated to generate an additional 42 peak hour vehicle trips. The expected directionality split of peak hour trips is outlined in Table 4.3.

Table 4.3: Development Traffic Directionality

| Item | Split (%) prior to performance | | Split (%) post performance | |
|---------------------------|-----------------------------------|-----|-------------------------------|------|
| | In | Out | In | Out |
| Civil Hall and Auditorium | 100% | 0% | 0% | 100% |

4.3.2 Distribution and Assignment

The distributions to the road network have been based on the assumptions that

- turn movements for vehicles entering MacNaughton Place are split 50% left and 50% right.
- turn movements for vehicles exiting MacNaughton Place are split 100% left.

4.4 Design Traffic

The design traffic volumes were determined by combining the background traffic volumes at the anticipated year of opening (year 2024) and 10-year 'design horizon' (year 2034). The table below summaries the adopted design traffic. Traffic generation calculations have been provided in Appendix D.

Table 4.4: Adopted Design Traffic

| Road Name | AADT | Survey Year | Background AADT** | Background Peak Hour* | 2024 AADT** | 2024 Peak Hour* | 2034 AADT** | 2034 Peak Hour* |
|-------------------|------|-------------|-------------------|-----------------------|-------------|-----------------|-------------|-----------------|
| River Street | 4339 | 2022 | 4339 | 434 | 4514 | 451 | 5503 | 550 |
| MacNaughton Place | 550 | 1997 | 902 | 90 | 939 | 94 | 1144 | 114 |
| Stanley Street | 499 | 2016 | 562 | 56 | 585 | 59 | 713 | 71 |

* As no peak hour data was provided, it has been assumed that the design peak hour volume equals 10% of the AADT for urban situations as per Section 3.3.6 of Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management

** The background traffic volumes were determined by forecasting the traffic survey data to future years using a compounding rate of 2% per annum. Background traffic volumes were determined for the 'year of opening' (year 2024) and a 10-year 'design'.

4.5 SIDRA Assessment

4.5.1 Methodology

SIDRA Intersection 9 was used to assess the impact of development trips on the surrounding road network, and the key intersections being the

- MacNaughton Place / River Street Intersection, and the
- River Street / Stanley Street Roundabout

This assessment was undertaken for the peak hour calculations. Detailed SIDRA outputs for both the background traffic, the 'year of opening' (year 2024) and a 10-year 'design' (year 2034) are provided in Appendix E, Appendix F and Appendix G. The assessment is outlined in the following sections.

4.5.2 Intersection Performance Criteria

Principal criteria against which intersection performance is assessed are:

- the intersection degree of saturation (DOS), which is the ratio of maximum movement demand volume to capacity at an intersection
- Level of Service (LOS) expressed as a function of movement delay, and
- queue lengths on intersection legs.

For the purposes of this assessment, criteria outlined in Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis (2020) have been adopted. Austroads suggests that for intersections, LOS and DOS are the criteria upon which performance is measured. Table 4.5 shows the maximum degree of saturation for various intersection types.

Table 4.5: Maximum Degree of Saturation for Road Intersections

| Road Network Item | Maximum Degree of Saturation |
|----------------------------|------------------------------|
| Roundabouts | 0.85 |
| Unsignalised Intersections | 0.8 |

While DOS is an important measure of the capacity and operational performance of an intersection, several other factors are also important, in particular, intersection and individual movement level of service (LOS) and delay, as well as the impact of identified vehicle queue lengths. While delay is calculated for all types of intersections, it is most critical for priority or sign controlled intersections, where excessive delays to vehicle movements exiting minor side roads can lead to motorists accepting smaller gaps in the high-speed opposing traffic flows thereby increasing the risk of vehicle conflicts occurring.

The LOS and delay criteria adopted for this assessment have been taken from the Austroads Guide to Traffic Management Part 3: Traffic Studies and Analysis (2020) and for ease of reference are summarised below

Table 4.6: LOS Criteria for Road Intersections using Delay

| Level of Service | Average delay per vehicle (d) in seconds | | |
|------------------|--|---------------------|--------------------------------------|
| | Signalised intersections (SIDRA) | Roundabouts (SIDRA) | Unsignalised intersections (RTA NSW) |
| A | $d \leq 10$ | $d \leq 10$ | $d < 14.5$ |
| B | $10 < d \leq 20$ | $10 < d \leq 20$ | $14.5 < d < 28.5$ |
| C | $20 < d \leq 35$ | $20 < d \leq 35$ | $28.5 < d < 42.5$ |
| D | $35 < d \leq 55$ | $35 < d \leq 50$ | $42.5 < d < 56.5$ |
| E | $55 < d \leq 80$ | $50 < d \leq 70$ | $56.5 < d < 70.5$ |
| F | $80 < d$ | $70 < d$ | $70.5 < d$ |

For this assessment, where an intersection has been analysed and the outcome from that analysis indicates a level of service of LOS C or better based on the average delay per vehicle, then that intersection has been deemed to perform in a satisfactory or better manner. Delays producing a LOS D or LOS E have been deemed to be excessive and are considered to increase the potential for both unsafe operation and capacity constraints of the intersection.

4.5.3 Intersection Assessment

The existing intersection configuration is shown in Figure 4.1 and the layout modelled in SIDRA is shown in Figure 4.2 summary of the key performance indicators is provided Figure 4.3.

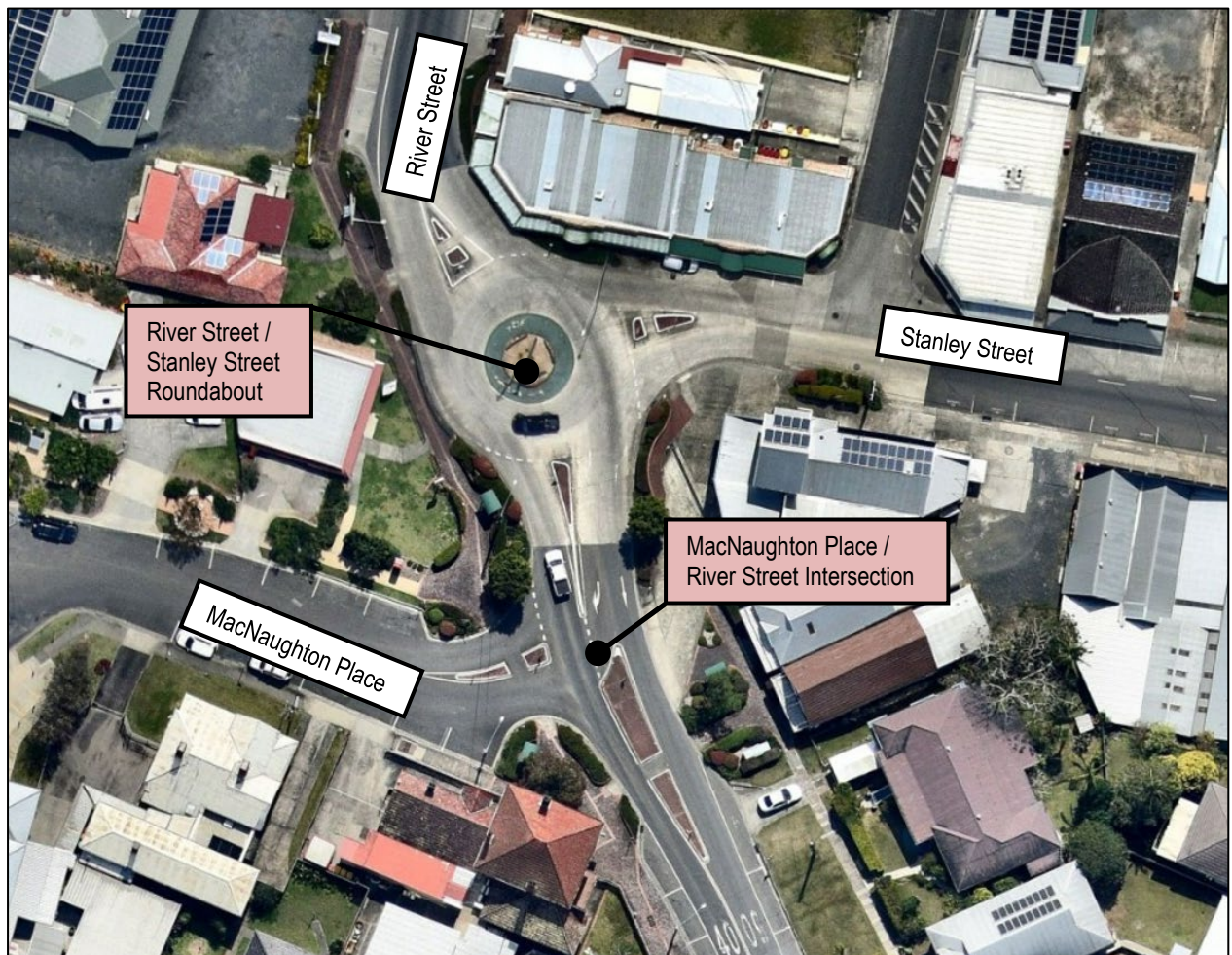


Figure 4.1: Existing Intersection Layout

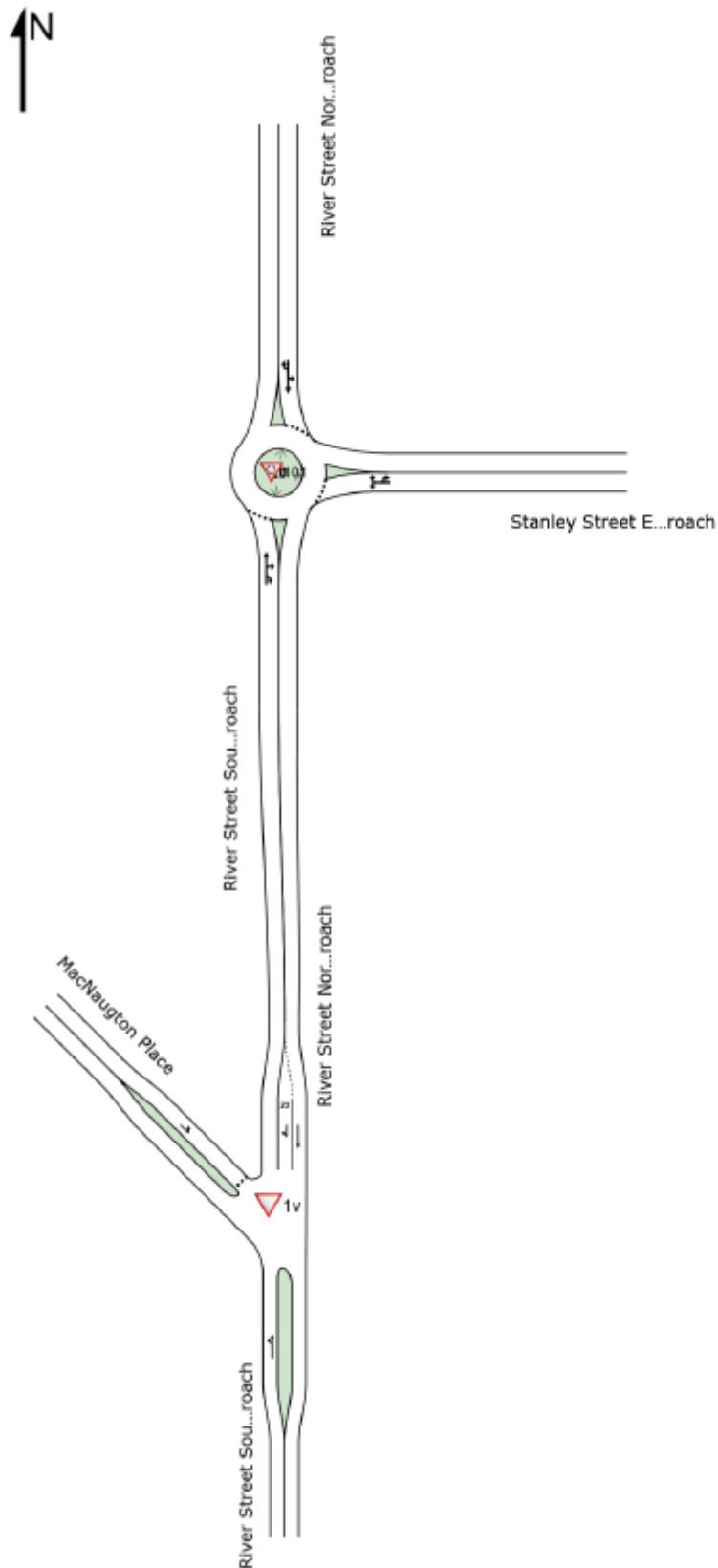


Figure 4.2: Existing Intersection SIDRA layout

Figure 4.3: SIDRA Results – MacNaughton Place / River Street Intersection

| Approach | DOS | Ave Delay (s) | LOS | 95%ile Queue (m) |
|--|-------|---------------|-----|------------------|
| Background Traffic | | | | |
| River Street – South Approach | 0.139 | 0.4 | A | 0 |
| River Street – North Approach through lane | 0.127 | 0.0 | A | 0 |
| River Street – North Approach (right turn into MacNaughton Place) | 0.017 | 4.0 | A | 0.5 |
| MacNaughton Place | 0.036 | 5.6 | A | 1.0 |
| Anticipated year of opening (year 2024) | | | | |
| River Street – South Approach | 0.169 | 0.8 | A | 0 |
| River Street – North Approach through lane | 0.131 | 0.0 | A | 0 |
| <i>River Street – North Approach (right turn into MacNaughton Place)</i> | 0.054 | 4.3 | A | 1.6 |
| MacNaughton Place | 0.054 | 5.6 | A | 1.5 |
| 10-year 'design horizon' (year 2034) | | | | |
| River Street – South Approach | 0.187 | 0.6 | A | 0.0 |
| River Street – North Approach through lane | 0.161 | 0 | A | 0.0 |
| <i>River Street – North Approach (right turn into MacNaughton Place)</i> | 0.041 | 4.4 | A | 1.2 |
| MacNaughton Place | 0.085 | 5.9 | A | 2.4 |

The results from the SIDRA analysis demonstrate that the intersections both operate within acceptable key performance indicators for a priority-controlled intersection. SIDRA outputs for the assessment are provided in Appendix E, Appendix F and Appendix G.

5 SITE ACCESS, LAYOUT AND SERVICING ASSESSMENT

5.1 Relevant Reference Material

Refer table below for a summary of the relevant policies determining the internal site layout requirements.

Table 5.1: Relevant Policy References

| Relevant Policy / Document | Source | Reference |
|--|---------------------------------|---------------|
| Clarence Valley Council DCP 2011 | Clarence Valley Council Website | DCP 2011 |
| Request for Tender Document RFT 22/10 March 2022 | Clarence Valley Council | RFT22/10 |
| AS/NZS 2890.1:2004 Part 1: Parking facilities - Off-street car parking | Standards Australia | AS/NZS 2890.1 |
| AS 2890.2:2018 Part 2: Off-street commercial vehicle facilities | Standards Australia | AS 2890.2 |
| AS 2890.5-2020 Parking facilities On-Street parking | Standards Australia | AS 2890.5 |
| AS 2890.6:2009 Part 6: Off-street parking for people with disabilities | Standards Australia | AS 2890.6 |

5.2 DCP 2011 / AS2890 Assessment (Provision of Spaces)

Refer below for the assessment for provision of parking spaces for the project.

Table 5.2: Provision of Spaces

| Element and Requirement | Requirement | Provision / Compliance |
|--|--|---|
| <p>Standard Parking Spaces (Table F1)</p> <ol style="list-style-type: none"> 1. Restaurant or café: 1 space per 30m² GFA, except for Grafton/South Grafton 1 space per 5m² GFA or 1 space per 6 seats 2. Place of public entertainment: 1 space per 10 seats or 1 space per 15m² of main assembly area, whichever is the greater. | <p><i>1. Restaurant/Café = 8 spaces [GFA 231m² / 1 space per 30m²]</i></p> <p><i>2. Hall main assembly area = 31 spaces [GFA 304 seats / 1 space per 10 seats]</i></p> <p><i>Sum 39 spaces is required</i></p> | <p><i>Complies</i></p> <p><i>40 spaces have been provided in the basement</i></p> |
| <p>Delivery Service Vehicles (Table F2)</p> <ol style="list-style-type: none"> 3. Retail premises, including restaurants: 1 per 400m² of gross floor area up to 2000m², plus 1 per 1000m² thereafter. | <p><i>3. Restaurant has 231m² of GFA</i></p> <p><i>1 space is required</i></p> | <p><i>Complies</i></p> <p><i>3 loading zone spaces have been provided</i></p> |
| <p>Disabled Parking Spaces</p> <ol style="list-style-type: none"> 4. AS2890.6 notes that provisions for Australia are given in the Building Code of Australia 5. NCC 2019 Building Code of Australia - Volume One D3.5 | <p><i>5. Assessable Carparking 1 space for every 100 carparking spaces or park thereof.</i></p> <p><i>Sum of 1 space is required</i></p> | <p><i>Complies</i></p> <p><i>2 spaces have been provided</i></p> |

The following is noted:

- Approximately 10 standard carpark spaces will be lost in MacNaughton Street as a result of the development.
- 2 standard carpark spaces will be lost for the Loading Zone space provision in River Street (Location 2).
- 1 standard carpark space will be lost for the Loading Zone space provision in the Council Carpark (Location 1)
- Considering this, the proposal still provides a net gain of 27 carparking spaces.

Refer to Appendix A for proposed development plans and to Appendix H for swept path and sight distance assessments.

5.3 Service and Loading Zone Requirements

As advised by the client, no service bays are required for this project. Service and Loading zones have been confirmed with Clarence Valley Council as follows:

Table 5.3: Summary of Loading Zone Requirements

| Location | Requirement / Discussion | Proposed Design Vehicle | Australian Standard Requirement |
|------------|--|-----------------------------|---|
| Location 1 | <ul style="list-style-type: none"> • There will be a 15min max loading zone to the Council Carpark (ex. 2200mm max height), next to the Goods Lift for smaller deliveries (utes, vans etc.) • Note that there will be a net gain of 27 number of car parks across the two sites (48 and 50 River Street) which can allow for possible re-organisation / re-allocation of car parks (i.e. Council's current and future vehicle fleet) between the 2 sites. • The net gain in car parks is a shared use outcome for both 48 and 50 River St | B99 | <u>AS2890.1: Off-street car parking</u> Special Loading/Unloading Parking Spaces <ul style="list-style-type: none"> • A 3.0W x 7.4L is required |
| Location 2 | <ul style="list-style-type: none"> • This loading zone will be used for bus drop offs for groups using the facility for larger events. • Consideration has been made to the existing bowls club possibly being used as a secondary drop off area for large buses. • This loading zone will replace 2 parallel parking spots on River Street (15min max loading zone) | Long Rigid Bus 14.5m length | <u>AS2890. 5: On-street parking</u> <ul style="list-style-type: none"> • Width: Large vehicle space width requirement on 50km/h road = 2.6m Kerb widening to be provided to achieve a minimum 2.6 width for the loading zone. • Length: Allowance for length of design vehicle and their draw in / draw out requirements. |
| Location 3 | <ul style="list-style-type: none"> • This area is only nominated as a secondary loading area for necessary level loading needs (unloading of heavy performance, workshop equipment) and will only be used outside of business hours to ensure Council operations and public access to the Council building is not disrupted. | SRV | <u>AS2890.1: Off-street car parking</u> Special Loading/Unloading Parking Spaces <ul style="list-style-type: none"> • A 3.0W x 8.4L is required |

5.4 AS / NZS 2890.1 Assessment (Off-street car parking)

Refer below for the AS / NZS 2890.1 geometric assessment (Off-street car parking)

Table 5.4: AS2890.1 Assessment

| Element | Requirement | Provision / Compliance |
|---|--|---|
| Design Vehicle | | |
| Design Vehicle | | <i>B85 (85th Percentile) Car B99 (99.8th Percentile) Car</i> |
| Access Driveway | | |
| Access Driveway Width | <ul style="list-style-type: none"> Class of Parking Facility: 2 (Table 1.1) Frontage Road Classification: Local 25 to 100 parking spaces Access Facility Category No. 2 (Table 3.1) Access Driveway Width (6.0 to 9.0m combined entry and exit) Table 3.2) | <i>Complies Provision of an 8.5 width combined entry and exit driveway.</i> |
| Access driveway location | <ul style="list-style-type: none"> At unsignalized intersections of sub-arterial, collector or local streets with each other or with an arterial road, access driveways in Categories 1 and 2 (see Table 3.1) shall not be located in the sections of kerb shown by heavy lines in Figure 3.1 | <i>Complies</i> |
| Sight distance at access driveway exits | Road Frontage Speed = 40km/h <ul style="list-style-type: none"> Desirable 5 second gap = 55m SISD Minimum SSD = 35m SISD | <i>SSD achieved to the right SSD not achieved to the left, however there is an existing underground carpark preventing SSD being achieved. The speed from the existing carpark is considered to be 20km/h, requiring a 28m SISD for a 5 second gap.</i> |
| Gradients of Access Driveways | At entry and exit points, the access driveway should be graded to minimize problems associated with crossing the footpath and entering the traffic in the frontage road. <ul style="list-style-type: none"> max. 1 in 20 (5%) between edge of frontage road and the property line / building alignment and for at least the first 6 m into the car park The grade of the first 6 m into the car park may be increased to 1 in 8 (12.5%) for user Class 2 | <i>Grade of road frontage is approximately 12%. Access can be achieved. Grading of access driveway to be refined during design to ensure grades are compliant with relevant standards.</i> |
| Circulation Roadway | | |
| | | <i>Not applicable</i> |
| Ramp | | |
| | | <i>Not applicable</i> |
| Parking Aisles and Modules | | |
| Car Parking Classification | <ul style="list-style-type: none"> User Class: 2 Required door opening: Full opening, all doors Required aisle width: Minimum for single manoeuvre entry and exit Examples of Uses: Long-term city and town centre parking, sports facilities, entertainment centres, hotels, motels, airport visitors (generally medium-term parking) | <i>Complies</i> |

| Element | Requirement | Provision / Compliance |
|----------------------------------|--|---|
| Parking Aisle Width | <ul style="list-style-type: none"> Minimum 5.8m | <i>Complies</i> |
| Parking Aisle Length | <ul style="list-style-type: none"> Aisles longer than 100m in length require traffic control devices | <i>Not Applicable</i> |
| Standard Parking Spaces | 90-degree angle parking <ul style="list-style-type: none"> Minimum 2.5m width x 5.4m length for bays at 90 degrees (parking is to a wall or high kerb not allowing any overhang) | <i>Complies</i> |
| Disabled Parking Spaces | <ul style="list-style-type: none"> 2.4m x 5.4m dedicated parking space 2.4m x 5.4m shared area adjacent | <i>Complies</i> |
| Blind Aisle | <ul style="list-style-type: none"> 1.0m extension past the last parking space | <i>Complies</i> |
| Height Clearance to structures | <ul style="list-style-type: none"> Standard parking spaces: 2.2m Disabled parking spaces: 2.5m | <i>Complies</i> - Basement Level = 7.35m AHD - Ground Floor = 11m AHD - 3.65m height difference. (minus 0.5m for slab = 3.1m height. |
| Gradients within parking modules | Maximum gradients <ul style="list-style-type: none"> Measured parallel to the angle of parking – 1 in 20 (5%). Measured in any other direction – 1 in 16 (6.25%). Within parking spaces for people with disabilities see AS/NZS 2890.6*. Minimum gradients <ul style="list-style-type: none"> So that parking floors will drain adequately, the minimum gradient shall be 1 in 100 (1.0%) for outdoor areas and 1 in 200 (0.5%) for covered areas. | <i>Complies for covered area</i> |

5.5 Refuse Collection

It is understood refuse will be collected from Wharf Street and that wheelie bins will be placed on Wharf Street by the building manager.

6 CONCLUSIONS

6.1 Summary

This report presents the findings related to assessment of traffic and transport related matters for the proposed new Maclean Civic Hall located at 48 River Street MACLEAN NSW 2463

6.2 Findings

The following conclusions can be reached from the findings of this assessment:

Existing Development

- The existing site is all to be demolished as part of the proposed development:
- Limited parking is available around the site and the surrounding on-street parking cannot be easily accessed by the elderly or people with disabilities.

Proposed Development

- The overall intent is to upgrade facilities for public benefit. New amenities will replace those that are poorly functioning and do not comply with disability access standards,
- A new basement carpark will be provided underneath the civil centre sufficient for 40 cars.

Traffic Assessment

- SIDRA Intersection 9 was used to assess the impact of development trips on the MacNaughton Place / River Street Intersection, and the River Street / Stanley Street Roundabout
- The results from the SIDRA analysis demonstrate that the intersections both operate within acceptable key performance indicators for a priority-controlled intersection.

Service and Loading Zone Requirements

Service and Loading zones have been confirmed with Clarence Valley Council as follows:

- Location 1: There will be a 15min max Loading Zone to the Council Carpark (ex. 2200mm max height), next to the Goods Lift for smaller deliveries (utes, vans etc.)
 - There will be a net gain of 27 number of car parks across the two sites (48 and 50 River Street) which can allow for possible re-organisation / re-allocation of car parks (i.e. Council's current and future vehicle fleet) between the 2 sites.
 - The net gain in car parks is a shared use outcome for both 48 and 50 River St.
- Location 2: A 15 min max loading zone has been nominated on River Street (taking up 2 parallel parking spots)
 - This loading zone will be used for bus drop offs for groups using the facility for larger events.
 - Consideration has been made to the existing bowls club possibly being used as a secondary drop off area for large buses.
 - This loading zone will replace 2 parallel parking spots on River Street (15min max loading zone)
 - Kerb widening to be provided to achieve a minimum 2.6 width for the loading zone.
- Location 3: The Council Driveway on River Street will be utilised for Large Vehicle drop-offs.
 - This area is only nominated as a secondary loading area for necessary level loading needs (unloading of heavy performance, workshop equipment) and will only be used outside of business hours to ensure Council operations and public access to the Council building is not disrupted.

Site Access and Layout

- A requirement of 39 car spaces has been calculated in accordance with Councils DCP. A provision of 40 car spaces has been allocated.
- It is noted that approximately:
 - 10 standard carpark spaces will be lost in Wharf Street as a result of the development:
 - 2 standard carpark spaces lost for the Loading Zone in Location 2
 - 1 standard carpark will be lost for the Loading Zone in Location 1.
 - However, the proposal still provides a net gain of 27 carparking spaces.
- Grade of road frontage is approximately 12%. Access can be achieved into the carpark, however grading of access driveway to be refined during design to ensure grades are compliant with relevant standards.

Refuse

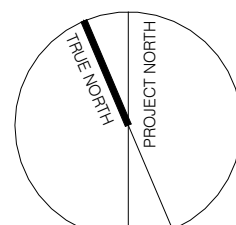
- Wheelie bins will be placed on Wharf Street for collection by the building manager.

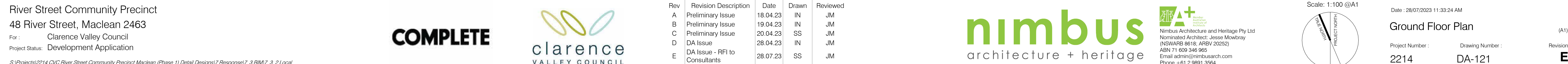
7 APPENDICES

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Appendix A Development Plans

| Rev | Revision Description | Date | Drawn | Reviewed |
|-----|-------------------------------|----------|-------|----------|
| B | Preliminary Issue | 19.04.23 | IN | JM |
| C | Preliminary Issue | 20.04.23 | SS | JM |
| D | DA Issue | 28.04.23 | IN | JM |
| E | DA Issue - RFI | 13.07.23 | SS | JM |
| F | DA Issue - RFI to Consultants | 28.07.23 | SS | JM |





Appendix B Bus Routes

Route map

Yamba to Grafton via Angourie

Today (Thu)

Stops

Market Square, Prince St
Grafton (Stop ID 246025)

Fitzroy St after Prince St
Grafton (Stop ID 246061)

Grafton Shoppingworld, Fitzroy St
Grafton (Stop ID 246062)

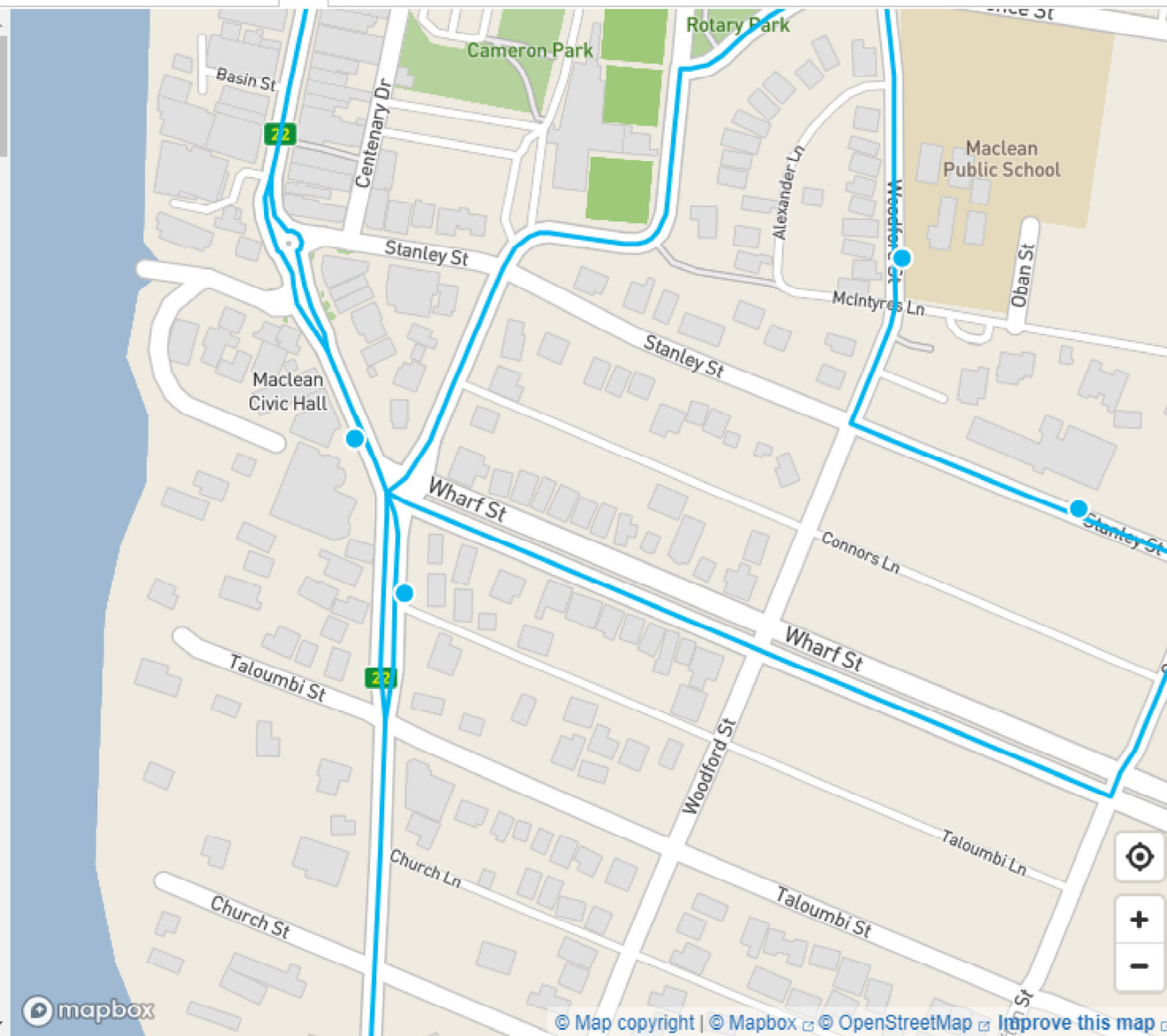
TAFE NSW Grafton, Craig St
Grafton (Stop ID 246063)

Bent St at Through St
South Grafton (Stop ID 246064)

Grafton Station, Coach Bay
South Grafton (Stop ID 246021)

Through St at Wharf St
South Grafton (Stop ID 246065)

Through St before Skinner St
South Grafton (Stop ID 246066)



Please Note: At various times of the day, the route may divert or have a different stop sequence. This route shows all variations throughout the day. Use the [Trip Planner](#) to view the stop sequence and accessibility information.

How to use this timetable

This timetable provides a snapshot of service information in 24-hour time (e.g. 5am = 05:00, 5pm = 17:00). Information contained in this timetable is subject to change without notice. Please note that timetables do not include minor stops, additional trips for special events, short term changes, holiday timetable changes, real-time information or any disruption alerts.

For the most up-to-date times, use the Trip Planner or Departures at transportsw.info

Real-time planning


You can plan your trip with real-time information using the Trip Planner or Departures at transportsw.info or by downloading travel apps on your smartphone or tablet.

The Trip Planner, Departures and travel apps offer various features:

- favourite your regular trips
- see where your service is on the route
- get estimated pick-up and arrival times
- receive service updates
- find nearby stations, stops, wharves and routes
- check accessibility information.

Find the latest apps at transportsw.info/apps

Accessible services

All new buses are wheelchair-accessible with low-level floors and space for wheelchairs, prams or strollers. Look for the  symbol in this timetable. Some older buses may not have all the features you need. There will be more accessible services as older buses are replaced.

Who is providing my bus services?

The bus services shown in this timetable are run by Busways.

Fares

In Sydney and surrounding regions, fares are based on:

- the distance you travel from tap on to tap off
- the mode of transport you choose
- whether you're eligible for a concession fare or free travel
- any Opal benefits such as discounts and capped fares that apply.

You can use an Opal card or a contactless payment to pay for your travel.

Opal cards

An Opal card is a smartcard you keep and reuse. Add value before you travel, and tap on and tap off to pay your fares throughout Sydney, the Blue Mountains, the Central Coast, the Hunter and the Illawarra.

Which Opal card is right for you?

Adult – Customers 16 years or older who are not entitled to any concessions and normally pay full fare.

Child/Youth – For customers aged 4-15 (inclusive), or customers 16 years or older who hold a NSW/ACT Senior Secondary Student Concession Card.

Gold Senior/Pensioner – For eligible NSW and interstate seniors, pensioners, war widows/ers and asylum seekers.

Concession – For eligible tertiary students, job seekers, apprentices and trainees.

How to get an Opal card

You can get an Adult or Child/Youth Opal card over the counter at Opal retailers that display the Opal sign . To find your nearest retailer visit transportsw.info/opal.

If you are eligible to travel with concession fares, you can apply for a Gold Senior/Pensioner or Concession Opal card online. Visit transportsw.info/opal for more information.

Contactless payments

If you have an American Express, Mastercard, Visa card or linked device, you can use it to pay for all public transport on the Opal network. Just make sure to tap on and tap off at Opal readers at the beginning and end of your trip.

Always separate your cards when you tap on and tap off so your preferred card is charged.

You will receive the same travel benefits of an Adult Opal card when you tap on and tap off consistently with the same credit card, debit card or linked device. This includes daily, weekly and weekend travel caps, and a \$2 transfer discount when you change between metro/train, ferry, bus and light rail services within 60 minutes. Adult Opal fare pricing applies.

Find out more at transportsw.info/contactless

Explanation of definitions and symbols



Wheelchair Accessible

S

Bus operates public school days only

W

Bus operates to Wooloweyah & Angourie on request only

F

Public school days bus diverts from Fitzroy St via Villiers St & Victoria St to Prince St, omitting part of Fitzroy St

380

Grafton to Yamba via Angourie

B

Valid from: 08 Nov 2022

Creation date: 17 Nov 2022

NOTE: Information is correct on date of download.

| Monday to Friday | | | | | | | | | |
|--|-------|-------|--------|-------|--|--|--|--|--|
| Service Information | S | | | | | | | | |
| Market Square, Prince St, Grafton | 06:05 | 13:30 | 17:50 | 18:50 | | | | | |
| Fitzroy St after Prince St, Grafton | 06:06 | 13:32 | 17:52 | 18:51 | | | | | |
| Spring St at Zuber Lane, South Grafton | 06:12 | 13:40 | 18:00 | 18:57 | | | | | |
| Ulmarra Public School, Big River Way, Ulmarra | 06:23 | 13:53 | 18:13 | 19:08 | | | | | |
| Cowper Public School, Clarence St, Cowper | 06:31 | 14:01 | 18:21 | 19:16 | | | | | |
| Tyndale Coach Stop, Tyndale | 06:37 | 14:07 | 18:27 | 19:22 | | | | | |
| Maclean Cemetery, Cameron St, Maclean | 06:48 | 14:19 | 18:39 | 19:33 | | | | | |
| McLachlan Park, River St, Maclean | 06:51 | 14:23 | 18:43 | 19:36 | | | | | |
| Yamba Rd at Pacific Hwy Bridge, Maclean | 06:54 | 14:29 | 18:47 | 19:39 | | | | | |
| Palmers Island Public School, Yamba Rd, Palmers Island | 06:59 | 14:34 | 18:52 | 19:44 | | | | | |
| Yamba Rd before Treelands Dr, Yamba | 07:03 | 14:38 | 18:56 | 19:48 | | | | | |
| Shores Dr opp Park Ave, Yamba | 07:06 | 14:41 | 18:59 | 19:51 | | | | | |
| Coldstream St after River St, Yamba | 07:12 | 14:48 | 19:06 | 19:57 | | | | | |
| Clarence St at Coldstream St, Yamba | - | 14:54 | 19:10 | - | | | | | |
| Coldstream St at River St, Yamba | - | 15:02 | W19:12 | - | | | | | |
| Yamba Public School, Angourie Rd, Yamba | - | 15:05 | - | - | | | | | |
| Saturday | | | | | | | | | |
| Market Square, Prince St, Grafton | 09:25 | 12:48 | 16:25 | 18:25 | | | | | |
| Fitzroy St after Prince St, Grafton | 09:27 | 12:50 | 16:27 | 18:26 | | | | | |
| Spring St at Zuber Lane, South Grafton | 09:35 | 12:58 | 16:35 | 18:32 | | | | | |
| Ulmarra Public School, Big River Way, Ulmarra | 09:48 | 13:11 | 16:48 | 18:43 | | | | | |
| Cowper Public School, Clarence St, Cowper | 09:56 | 13:19 | 16:56 | 18:51 | | | | | |
| Tyndale Coach Stop, Tyndale | 10:02 | 13:25 | 17:02 | 18:57 | | | | | |
| Maclean Cemetery, Cameron St, Maclean | 10:14 | 13:37 | 17:14 | 19:08 | | | | | |
| McLachlan Park, River St, Maclean | 10:18 | 13:41 | 17:18 | 19:11 | | | | | |
| Yamba Rd at Pacific Hwy Bridge, Maclean | 10:24 | 13:47 | 17:24 | 19:14 | | | | | |
| Palmers Island Public School, Yamba Rd, Palmers Island | 10:29 | 13:52 | 17:29 | 19:19 | | | | | |
| Yamba Rd before Treelands Dr, Yamba | 10:33 | 13:56 | 17:33 | 19:23 | | | | | |
| Shores Dr opp Park Ave, Yamba | 10:36 | 13:59 | 17:36 | 19:26 | | | | | |
| The Crescent at Bay St, Angourie | 10:47 | - | - | - | | | | | |
| Honeyman Park, Lakes Bvd, Wooloweyah | 10:53 | - | - | - | | | | | |
| Coldstream St after River St, Yamba | 11:03 | 14:05 | 17:43 | 19:32 | | | | | |
| Clarence St at Coldstream St, Yamba | 11:09 | - | 17:49 | - | | | | | |
| Coldstream St at River St, Yamba | 11:11 | - | W17:51 | - | | | | | |

380

Grafton to Yamba via Angourie

B

Sunday & Public Holidays

| |  |  |
|--|---|---|
| Market Square, Prince St, Grafton | 09:25 | 16:25 |
| Fitzroy St after Prince St, Grafton | 09:28 | 16:28 |
| Spring St at Zuber Lane, South Grafton | 09:35 | 16:35 |
| Ulmarra Public School, Big River Way, Ulmarra | 09:48 | 16:48 |
| Cowper Public School, Clarence St, Cowper | 09:56 | 16:56 |
| Tyndale Coach Stop, Tyndale | 10:02 | 17:02 |
| Maclean Cemetery, Cameron St, Maclean | 10:14 | 17:14 |
| McLachlan Park, River St, Maclean | 10:18 | 17:18 |
| Yamba Rd at Pacific Hwy Bridge, Maclean | 10:24 | 17:24 |
| Palmers Island Public School, Yamba Rd, Palmers Island | 10:29 | 17:29 |
| Yamba Rd before Treelands Dr, Yamba | 10:33 | 17:33 |
| Shores Dr opp Park Ave, Yamba | 10:36 | 17:36 |
| The Crescent at Bay St, Angourie | 10:47 | – |
| Honeyman Park, Lakes Bvd, Wooloweyah | 10:53 | – |
| Coldstream St after River St, Yamba | 11:03 | 17:43 |
| Clarence St at Coldstream St, Yamba | 11:09 | 17:49 |
| Coldstream St at River St, Yamba | 11:11 | W 17:51 |

380

Yamba to Grafton via Angourie

B






| Monday to Friday | ♿ | ♿ | ♿ | ♿ | ♿ | ♿ | ♿ | ♿ | ♿ |
|--|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Service Information | | S | | | | | | | |
| Market Square, Prince St, Grafton | - | - | 07:20 | 09:10 | 11:30 | - | 15:30 | 16:50 | - |
| Fitzroy St after Prince St, Grafton | - | - | 07:22 | 09:12 | 11:32 | - | 15:32 | 16:52 | - |
| Grafton Station, South Grafton | - | - | - | - | 11:36 | - | - | - | - |
| Spring St at Zuber Lane, South Grafton | - | - | 07:30 | 09:20 | 11:40 | - | 15:40 | 17:00 | - |
| Big River Way at Greens Lane, Swan Creek | - | - | 07:40 | - | - | - | - | - | - |
| Ulmarra Public School, Big River Way, Ulmarra | - | - | 07:43 | 09:33 | 11:53 | - | 15:53 | 17:13 | - |
| Cowper Public School, Clarence St, Cowper | - | - | 07:51 | 09:41 | 12:01 | - | 16:01 | 17:21 | - |
| Tyndale Coach Stop, Tyndale | - | - | 07:57 | 09:47 | 12:07 | - | 16:07 | 17:27 | - |
| Maclean Cemetery, Cameron St, Maclean | - | - | 08:12 | 09:59 | 12:19 | - | 16:19 | 17:39 | - |
| Maclean High School, Woombah St, Maclean | - | - | 08:12 | - | - | - | - | - | - |
| Maclean Public School, Woodford St, Maclean | - | - | 08:15 | - | - | - | - | - | - |
| St Joseph's Primary School, Stanley St, Maclean | - | - | 08:17 | - | - | - | - | - | - |
| McLachlan Park, River St, Maclean | - | - | 08:23 | 10:03 | 12:23 | - | 16:23 | 17:43 | - |
| Yamba Rd at Pacific Hwy Bridge, Maclean | - | - | 08:29 | 10:09 | 12:29 | - | 16:29 | 17:47 | - |
| Palmers Island Public School, Yamba Rd, Palmers Island | - | - | 08:34 | 10:14 | 12:34 | - | 16:34 | 17:52 | - |
| Yamba Rd before Treelands Dr, Yamba | - | - | 08:38 | 10:18 | 12:38 | - | 16:38 | 17:56 | - |
| Shores Dr opp Park Ave, Yamba | - | - | 08:41 | 10:21 | 12:41 | - | 16:41 | 17:59 | - |
| Yamba Public School, Angourie Rd, Yamba | - | - | 08:45 | - | - | 15:05 | - | - | - |
| Pacific St at Lake St, Angourie | - | 06:51 | - | - | - | - | - | - | - |
| The Crescent at Bay St, Angourie | - | 06:52 | - | 10:32 | - | - | - | - | - |
| Honeyman Park, Lakes Bvd, Wooloweyah | - | 06:57 | - | 10:38 | - | 15:12 | - | - | - |
| Coldstream St after River St, Yamba | 05:45 | 07:05 | 08:48 | 10:48 | 12:48 | - | 16:48 | 18:06 | 19:57 |
| Clarence St at Coldstream St, Yamba | 05:50 | 07:10 | 08:54 | 10:54 | 12:54 | - | 16:54 | 18:10 | 20:01 |
| Coldstream St at River St, Yamba | 05:52 | 07:12 | 09:02 | 11:02 | 13:02 | - | 17:02 | 18:12 | 20:03 |
| Yamba Public School, Angourie Rd, Yamba | - | - | 09:04 | - | - | - | - | - | - |
| Honeyman Park, Lakes Bvd, Wooloweyah | - | - | 09:12 | 11:12 | 13:12 | - | 17:12 | 18:18 | - |
| The Crescent at Bay St, Angourie | - | - | 09:18 | 11:18 | 13:18 | 15:18 | 17:18 | 18:24 | - |
| Shores Dr at Park Ave, Yamba | 05:57 | 07:17 | 09:27 | 11:27 | 13:27 | 15:27 | 17:27 | 18:32 | 20:08 |
| Yamba West Coach Stop, Yamba | 06:02 | 07:22 | 09:32 | 11:32 | 13:32 | 15:32 | 17:32 | 18:37 | 20:13 |
| Palmers Island Public School, Yamba Rd, Palmers Island | 06:07 | 07:27 | 09:37 | 11:37 | 13:37 | 15:37 | 17:37 | 18:42 | 20:18 |
| Yamba Rd at Pacific Hwy Bridge, Maclean | 06:11 | 07:31 | 09:41 | 11:41 | 13:41 | 15:41 | 17:41 | 18:46 | 20:22 |
| Maclean Coach Stop, Maclean | 06:16 | 07:36 | 09:46 | 11:46 | 13:46 | 15:46 | 17:46 | 18:51 | 20:27 |
| Maclean High School, Woombah St, Maclean | - | - | - | - | - | 15:51 | - | - | - |
| Maclean Cemetery, Cameron St, Maclean | 06:21 | 07:41 | 09:51 | 11:51 | 13:51 | 15:52 | 17:50 | 18:55 | 20:31 |
| Tyndale Coach Stop, Tyndale | 06:34 | 07:54 | 10:04 | 12:04 | 14:04 | 16:04 | 18:01 | 19:06 | 20:42 |
| Cowper Public School, Clarence St, Cowper | 06:41 | 08:01 | 10:11 | 12:11 | 14:11 | 16:11 | 18:08 | 19:13 | 20:49 |
| Ulmarra Public School, Big River Way, Ulmarra | 06:50 | 08:10 | 10:20 | 12:20 | 14:20 | 16:20 | 18:16 | 19:21 | 20:57 |
| Spring St opp Zuber Lane, South Grafton | 07:02 | 08:22 | 10:32 | 12:32 | 14:32 | 16:32 | 18:28 | 19:33 | 21:09 |
| Clarence Valley Anglican Junior School, Grafton | - | 08:32 | - | - | - | - | - | - | - |
| Prince St at Fitzroy St, Grafton | 07:11 | 08:35 | 10:41 | 12:41 | 14:41 | 16:41 | 18:35 | 19:40 | 21:16 |
| Market Square, Prince St, Grafton | 07:13 | - | 10:43 | 12:43 | 14:43 | 16:43 | - | - | 21:18 |

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Yamba to Grafton via Angourie

B

Saturday





| |  |  |  |  |  | |
|--|---|---|---|---|---|-------|
| Market Square, Prince St, Grafton | - | 07:25 | - | - | 14:25 | - |
| Fitzroy St after Prince St, Grafton | - | 07:27 | - | - | 14:27 | - |
| Spring St at Zuber Lane, South Grafton | - | 07:35 | - | - | 14:35 | - |
| Ulmarra Public School, Big River Way, Ulmarra | - | 07:48 | - | - | 14:48 | - |
| Cowper Public School, Clarence St, Cowper | - | 07:56 | - | - | 14:56 | - |
| Tyndale Coach Stop, Tyndale | - | 08:02 | - | - | 15:02 | - |
| Maclean Cemetery, Cameron St, Maclean | - | 08:14 | - | - | 15:14 | - |
| McLachlan Park, River St, Maclean | - | 08:18 | - | - | 15:18 | - |
| Yamba Rd at Pacific Hwy Bridge, Maclean | - | 08:24 | - | - | 15:24 | - |
| Palmers Island Public School, Yamba Rd, Palmers Island | - | 08:29 | - | - | 15:29 | - |
| Yamba Rd before Treelands Dr, Yamba | - | 08:33 | - | - | 15:33 | - |
| Shores Dr opp Park Ave, Yamba | - | 08:36 | - | - | 15:36 | - |
| The Crescent at Bay St, Angourie | - | 08:47 | - | - | 15:47 | - |
| Honeyman Park, Lakes Bvd, Wooloweyah | - | 08:53 | - | - | 15:53 | - |
| Coldstream St after River St, Yamba | 07:05 | 09:03 | - | 14:05 | 16:03 | 19:32 |
| Clarence St at Coldstream St, Yamba | 07:09 | 09:09 | - | 14:09 | 16:09 | 19:36 |
| Coldstream St at River St, Yamba | 07:11 | 09:11 | 11:11 | 14:11 | 16:11 | 19:38 |
| Honeyman Park, Lakes Bvd, Wooloweyah | 07:21 | 09:21 | - | 14:21 | 16:21 | - |
| The Crescent at Bay St, Angourie | 07:27 | 09:27 | - | 14:27 | 16:27 | - |
| Shores Dr at Park Ave, Yamba | 07:36 | 09:36 | 11:16 | 14:36 | 16:36 | 19:43 |
| Yamba West Coach Stop, Yamba | 07:41 | 09:41 | 11:21 | 14:41 | 16:41 | 19:48 |
| Palmers Island Public School, Yamba Rd, Palmers Island | 07:46 | 09:46 | 11:26 | 14:46 | 16:46 | 19:53 |
| Yamba Rd at Pacific Hwy Bridge, Maclean | 07:50 | 09:50 | 11:30 | 14:50 | 16:50 | 19:57 |
| Maclean Coach Stop, Maclean | 07:55 | 09:55 | 11:35 | 14:55 | 16:55 | 20:02 |
| Maclean Cemetery, Cameron St, Maclean | 08:00 | 10:00 | 11:40 | 15:00 | 17:00 | 20:06 |
| Tyndale Coach Stop, Tyndale | 08:13 | 10:13 | 11:53 | 15:13 | 17:13 | 20:17 |
| Cowper Public School, Clarence St, Cowper | 08:20 | 10:20 | 12:00 | 15:20 | 17:20 | 20:24 |
| Ulmarra Public School, Big River Way, Ulmarra | 08:29 | 10:29 | 12:09 | 15:29 | 17:29 | 20:30 |
| Spring St opp Zuber Lane, South Grafton | 08:41 | 10:41 | 12:21 | 15:41 | 17:41 | 20:42 |
| Prince St at Fitzroy St, Grafton | 08:50 | 10:50 | 12:30 | 15:50 | 17:50 | 20:51 |

380

Yamba to Grafton via Angourie

B

Sunday & Public Holidays

| |  |  |  |  |
|--|---|---|---|--|
| Market Square, Prince St, Grafton | - | 07:25 | - | 14:25 |
| Fitzroy St after Prince St, Grafton | - | 07:28 | - | 14:28 |
| Spring St at Zuber Lane, South Grafton | - | 07:35 | - | 14:35 |
| Ulmarra Public School, Big River Way, Ulmarra | - | 07:48 | - | 14:48 |
| Cowper Public School, Clarence St, Cowper | - | 07:56 | - | 14:56 |
| Tyndale Coach Stop, Tyndale | - | 08:02 | - | 15:02 |
| Maclean Cemetery, Cameron St, Maclean | - | 08:14 | - | 15:14 |
| McLachlan Park, River St, Maclean | - | 08:18 | - | 15:18 |
| Yamba Rd at Pacific Hwy Bridge, Maclean | - | 08:24 | - | 15:24 |
| Palmers Island Public School, Yamba Rd, Palmers Island | - | 08:29 | - | 15:29 |
| Yamba Rd before Treelands Dr, Yamba | - | 08:33 | - | 15:33 |
| Shores Dr opp Park Ave, Yamba | - | 08:36 | - | 15:36 |
| Pacific St at Lake St, Angourie | 06:56 | - | - | - |
| The Crescent at Bay St, Angourie | 06:57 | 08:47 | - | - |
| Honeyman Park, Lakes Bvd, Wooloweyah | 07:01 | 08:53 | - | - |
| Coldstream St after River St, Yamba | 07:09 | 09:03 | 13:49 | 15:43 |
| Clarence St at Coldstream St, Yamba | 07:14 | 09:09 | 13:54 | 15:49 |
| Coldstream St at River St, Yamba | 07:16 | 09:16 | 13:56 | 15:56 |
| Honeyman Park, Lakes Bvd, Wooloweyah | - | - | 14:06 | 16:06 |
| The Crescent at Bay St, Angourie | - | - | 14:12 | 16:12 |
| Shores Dr at Park Ave, Yamba | 07:21 | 09:21 | 14:21 | 16:21 |
| Yamba West Coach Stop, Yamba | 07:26 | 09:26 | 14:26 | 16:26 |
| Palmers Island Public School, Yamba Rd, Palmers Island | 07:31 | 09:31 | 14:31 | 16:31 |
| Yamba Rd at Pacific Hwy Bridge, Maclean | 07:35 | 09:35 | 14:35 | 16:35 |
| Maclean Coach Stop, Maclean | 07:40 | 09:40 | 14:40 | 16:40 |
| Maclean Cemetery, Cameron St, Maclean | 07:45 | 09:45 | 14:45 | 16:45 |
| Tyndale Coach Stop, Tyndale | 07:58 | 09:58 | 14:58 | 16:58 |
| Cowper Public School, Clarence St, Cowper | 08:05 | 10:05 | 15:05 | 17:05 |
| Ulmarra Public School, Big River Way, Ulmarra | 08:14 | 10:14 | 15:14 | 17:14 |
| Spring St opp Zuber Lane, South Grafton | 08:24 | 10:24 | 15:24 | 17:24 |
| Prince St at Fitzroy St, Grafton | 08:33 | 10:33 | 15:33 | 17:33 |
| Market Square, Prince St, Grafton | 08:35 | 10:35 | - | - |

Route map

Today (Thu)

Stops

Maclean District Hospital, Union St
Maclean (Stop ID 246312)

Maclean Civic Hall, River St
Maclean (Stop ID 24635)

McLachlan Park, River St
Maclean (Stop ID 24633)

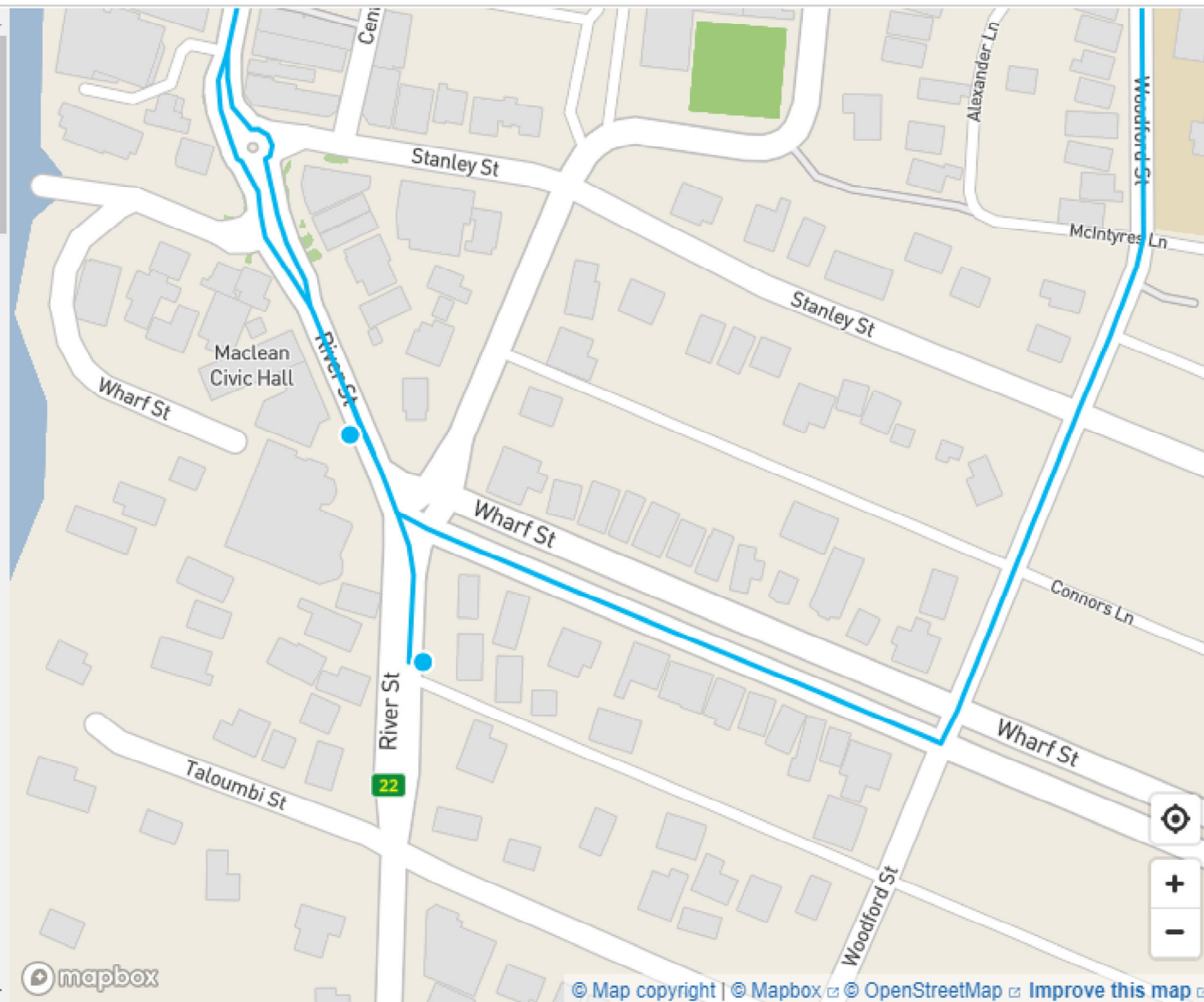
River St after Bakers Lane
Maclean (Stop ID 24636)

River St before Hogues Lane
Maclean (Stop ID 24637)

Harwood Island Post Office, Morpeth St
Harwood (Stop ID 24651)

Chatsworth Island Coach Stop, Chatsworth Rd
Chatsworth (Stop ID 24699)

Iluka Rd opp Woombah Woods Caravan Park
Woombah (Stop ID 246910)



Please Note: At various times of the day, the route may divert or have a different stop sequence. This route shows all variations throughout the day. Use the [Trip Planner](#) to view the stop sequence and accessibility information.

How to use this timetable

This timetable provides a snapshot of service information in 24-hour time (e.g. 5am = 05:00, 5pm = 17:00). Information contained in this timetable is subject to change without notice. Please note that timetables do not include minor stops, additional trips for special events, short term changes, holiday timetable changes, real-time information or any disruption alerts.

For the most up-to-date times, use the Trip Planner or Departures at **transportsw.info**

Real-time planning


You can plan your trip with real-time information using the Trip Planner or Departures at **transportsw.info** or by downloading travel apps on your smartphone or tablet.

The Trip Planner, Departures and travel apps offer various features:

- favourite your regular trips
- see where your service is on the route
- get estimated pick-up and arrival times
- receive service updates
- find nearby stations, stops, wharves and routes
- check accessibility information.

Find the latest apps at **transportsw.info/apps**

Accessible services

All new buses are wheelchair-accessible with low-level floors and space for wheelchairs, prams or strollers. Look for the  symbol in this timetable. Some older buses may not have all the features you need. There will be more accessible services as older buses are replaced.

Who is providing my bus services?

The bus services shown in this timetable are run by Busways.

Fares

In Sydney and surrounding regions, fares are based on:

- the distance you travel from tap on to tap off
- the mode of transport you choose
- whether you're eligible for a concession fare or free travel
- any Opal benefits such as discounts and capped fares that apply.

You can use an Opal card or a contactless payment to pay for your travel.

Opal cards

An Opal card is a smartcard you keep and reuse. Add value before you travel, and tap on and tap off to pay your fares throughout Sydney, the Blue Mountains, the Central Coast, the Hunter and the Illawarra.

Which Opal card is right for you?

Adult – Customers 16 years or older who are not entitled to any concessions and normally pay full fare.

Child/Youth – For customers aged 4-15 (inclusive), or customers 16 years or older who hold a NSW/ACT Senior Secondary Student Concession Card.

Gold Senior/Pensioner – For eligible NSW and interstate seniors, pensioners, war widows/ers and asylum seekers.

Concession – For eligible tertiary students, job seekers, apprentices and trainees.

How to get an Opal card

You can get an Adult or Child/Youth Opal card over the counter at Opal retailers that display the Opal sign . To find your nearest retailer visit **transportsw.info/opal**.

If you are eligible to travel with concession fares, you can apply for a Gold Senior/Pensioner or Concession Opal card online. Visit **transportsw.info/opal** for more information.

Contactless payments


If you have an American Express, Mastercard, Visa card or linked device, you can use it to pay for all public transport on the Opal network. Just make sure to tap on and tap off at Opal readers at the beginning and end of your trip.

Always separate your cards when you tap on and tap off so your preferred card is charged.

You will receive the same travel benefits of an Adult Opal card when you tap on and tap off consistently with the same credit card, debit card or linked device. This includes daily, weekly and weekend travel caps, and a \$2 transfer discount when you change between metro/train, ferry, bus and light rail services within 60 minutes. Adult Opal fare pricing applies.

Find out more at **transportsw.info/contactless**

Explanation of definitions and symbols

| | |
|---|---|
|  | Wheelchair Accessible |
| S | Bus operates public school days only |
| I | Bus operates between Maclean & Iluke Rd via Pacific Hwy direct, omitting Harwood & Chatsworth |
| M | Bus operates from Marandowie Dr via Johnsons La to Iluke Rd, omiiting Loxton Av, Crompton St, Riverview St, Duke St, Micalo St, Spenser St, Owen St & part of Iluke Rd |
| B | Bus operates public school holidays through timing point 6 minutes later then time shown |
| U | U - Bus operates public school holidays through timing point 6 minutes later then time shown. L - Bus diverts public school days from Marandowie Dr via Melville St, Sovereigh St & Loxton Av to Compton St, omitting part of Loxton Av |
| C | Bus continues to Maclean Council Chambers |
| T | Public school holidays bus operates through timing point 10 minutes later then time shown |
| L | Bus diverts public school days from Marandowie Dr via Melville St, Sovereigh St & Loxton Av to Compton St, omitting part of Loxton Av |
| J | Bus diverts from Iluke Rd via Johnsons La, Marandowie Dr, Loxton Av to Compton St, then standard route to spenser St, then via Crown St, Charles St & Owen St to opposite the information Bay |

Valid from: 08 Nov 2022

Creation date: 17 Nov 2022
NOTE: Information is correct on date of download.

| Monday to Friday | | | | | | | | | |
|---|--------|--------|--------|--------|--|--|--|--|--|
| Service Information | S | S | S | S | | | | | |
| Maclean District Hospital, Union St, Maclean | - | - | T14:18 | - | | | | | |
| Maclean Civic Hall, River St, Maclean | - | - | T14:23 | - | | | | | |
| McLachlan Park, River St, Maclean | I06:11 | B08:00 | T14:26 | 16:24 | | | | | |
| Harwood Island Post Office, Morpeth St, Harwood | - | B08:07 | T14:33 | - | | | | | |
| Chatsworth Island Coach Stop, Chatsworth Island | - | B08:14 | T14:40 | 16:40 | | | | | |
| Woombah Woods Caravan Park, Iluka Rd, Woombah | 06:27 | B08:18 | T14:44 | 16:52 | | | | | |
| West St before Middle St, Woombah | - | B08:21 | - | 16:54 | | | | | |
| Middle St opp Wharf St, Woombah | 06:30 | B08:24 | T14:48 | J16:56 | | | | | |
| Ken Leeson Oval, Owen St, Iluka | 06:40 | B08:36 | T15:00 | - | | | | | |
| Iluka Public School, Charles St, Iluka | - | - | 15:05 | - | | | | | |
| Iluka Coach Stop, Iluka | 06:43 | B08:39 | 15:10 | - | | | | | |
| Marandowie Dr opp Loxton Ave, Iluka | M06:48 | U08:43 | L15:14 | - | | | | | |
| Marandowie Dr at Loxton Ave, Iluka | - | - | - | J17:08 | | | | | |
| Duke St at Micalo St, Iluka | - | 08:48 | 15:19 | J17:10 | | | | | |
| Iluka Coach Stop, Iluka | - | - | - | J17:15 | | | | | |
| Iluka Public School, Charles St, Iluka | - | 08:53 | - | - | | | | | |
| Ken Leeson Oval, Owen St, Iluka | - | 08:55 | 15:23 | J17:16 | | | | | |
| Woombah Coach Stop, Woombah | 07:00 | 09:07 | 15:35 | 17:26 | | | | | |
| West St before Middle St, Woombah | 07:02 | - | 15:37 | - | | | | | |
| Woombah Woods Caravan Park, Iluka Rd, Woombah | 07:05 | 09:12 | 15:40 | I17:29 | | | | | |
| General Store, Chatsworth Rd, Chatsworth | 07:17 | 09:17 | 15:45 | - | | | | | |
| River St opp Morpeth St, Harwood | - | 09:26 | 15:54 | - | | | | | |
| North Arm Dr opp Old Murrayville Rd, Chatsworth | 07:20 | - | - | - | | | | | |
| Maclean District Hospital, Union St, Maclean | - | 09:39 | 16:07 | 17:44 | | | | | |
| Maclean Coach Stop, Maclean | 07:35 | C09:42 | 16:10 | 17:45 | | | | | |
| River St at Taloumbi Lane, Maclean | - | 09:45 | - | - | | | | | |
| Saturday | | | | | | | | | |
| Maclean District Hospital, Union St, Maclean | 07:57 | 15:12 | | | | | | | |
| Maclean Civic Hall, River St, Maclean | 08:02 | 15:17 | | | | | | | |
| McLachlan Park, River St, Maclean | 08:05 | 15:20 | | | | | | | |
| Harwood Island Post Office, Morpeth St, Harwood | 08:12 | 15:27 | | | | | | | |
| Chatsworth Island Coach Stop, Chatsworth Island | 08:19 | 15:34 | | | | | | | |
| Woombah Woods Caravan Park, Iluka Rd, Woombah | 08:23 | 15:38 | | | | | | | |
| Middle St opp Wharf St, Woombah | 08:27 | 15:42 | | | | | | | |
| Ken Leeson Oval, Owen St, Iluka | 08:39 | 15:54 | | | | | | | |
| Iluka Coach Stop, Iluka | 08:42 | 15:57 | | | | | | | |
| Marandowie Dr opp Loxton Ave, Iluka | 08:46 | 16:01 | | | | | | | |
| Duke St at Micalo St, Iluka | 08:48 | 16:03 | | | | | | | |
| Ken Leeson Oval, Owen St, Iluka | 08:52 | 16:07 | | | | | | | |
| Woombah Coach Stop, Woombah | 09:04 | 16:19 | | | | | | | |
| Woombah Woods Caravan Park, Iluka Rd, Woombah | 09:09 | 16:24 | | | | | | | |
| General Store, Chatsworth Rd, Chatsworth | 09:14 | 16:29 | | | | | | | |
| River St opp Morpeth St, Harwood | 09:22 | 16:37 | | | | | | | |
| Maclean District Hospital, Union St, Maclean | 09:35 | 16:50 | | | | | | | |
| Maclean Coach Stop, Maclean | C09:38 | C16:53 | | | | | | | |
| River St at Taloumbi Lane, Maclean | 09:42 | 16:58 | | | | | | | |

Appendix C Traffic Data

Kyle Buis

From: James Fuller <James.Fuller@clarence.nsw.gov.au>
Sent: Friday, 11 November 2022 7:34 AM
To: Kyle Buis
Cc: Troy Ingram
Subject: Re: 22055 - Existing Traffic Surveys - River Street Maclean Community Precinct
Attachments: Traffic Count Locations 1.png; Traffic Count Locations 2.png

Categories: 22055 - Maclean Community Precinct TIA and Stormwater

Hi Kyle,

I have marked the traffic count locations on the attached 2 maps.

Our traffic count location for River St. is some distance away from your enquiry area (approx. 2.5km, where River Street turns into Yamba Road), hopefully it is still of value, I couldn't locate any traffic count data from areas on River St. closer to your location.

Cheers mate.

James Fuller
Support Officer (Depot)
02 6645 0301
www.clarence.nsw.gov.au



We acknowledge the Bundjalung, Gumbaynggirr and Yaegl people as the Traditional Owners of the land on which we live and work. We honour the First Nations peoples culture and connection to land, sea and community. We pay our respects to their Elders past, present and emerging.



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From: Kyle Buis <kyle.buis@roadnet.net.au>
Sent: Thursday, 10 November 2022 9:38 AM
To: James Fuller <James.Fuller@clarence.nsw.gov.au>
Cc: Troy Ingram <troy.ingram@roadnet.net.au>
Subject: RE: 22055 - Existing Traffic Surveys - River Street Maclean Community Precinct

Thanks James,

Could you please provide the traffic survey locations on a map or similar?

Kyle

Kyle Buis
Engineer



8 Sixth Avenue, Palm Beach QLD 4221 |
ABN 51 522 449 578 | **T:** +61 7 5525 7377 |
E: Kyle.Buis@roadnet.com.au | **W:** www.roadnet.com.au |



Please consider the environment before printing this e-mail

From: James Fuller <James.Fuller@clarence.nsw.gov.au>
Sent: Thursday, 10 November 2022 7:06 AM
To: Kyle Buis <kyle.buis@roadnet.net.au>
Cc: Troy Ingram <troy.ingram@roadnet.net.au>
Subject: Re: 22055 - Existing Traffic Surveys - River Street Maclean Community Precinct

Hi Kyle,

Below is the data I was able to gather from our records.

Unfortunately some of the data is quite old, a lot of these smaller roads don't have traffic counts done very often, but at least the main street (River St.) was only done last month.

The data for the other roads however was collected in 2016, 2010 & 1997, so I am not sure how useful that is to you.

I'd imagine being a small town the data from 2016 would still be fairly comparable to now.

| Road Name | Location | Average Daily Vehicles | Average Speed (km/h) | Heavy Vehicle (%) | Survey Period |
|------------------|----------|------------------------|----------------------|-------------------|-------------------------|
| River Street | Maclean | 4339 | 57.3 | 8.9 | 19/10/2022 - 02/11/2022 |
| McNaughton Place | Maclean | 550 | No Data | No Data | 01/07/1997 - 25/07/1997 |
| Short Street | Maclean | 1473 | No Data | No Data | 15/05/1997 - 22/05/1997 |
| Alexander Street | Maclean | 1828 | 33.9 | No Data | 16/02/2010 - 09/03/2010 |
| Stanley Street | Maclean | 499 | 35.1 | 6.1 | 05/02/2016 - 12/02/2016 |
| Centenary Drive | Maclean | 740 | 16.7 | No Data | 09/02/2010 - 09/03/2010 |
| Wharf Street | Maclean | 526 | 27.1 | 2.6 | 05/02/2016 - 12/02/2016 |

If there is anything else I can help with just let me know.

Cheers.

James Fuller
Support Officer (Depot)
02 6645 0301
www.clarence.nsw.gov.au

We acknowledge the Bundjalung, Gumbaynggirr and Yaegl people as the Traditional Owners of the land on which we live and work. We honour the First Nations peoples culture and connection to land, sea and community. We pay our respects to their Elders past, present and emerging.



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From: Kyle Buis <kyle.buis@roadnet.net.au>

Sent: Wednesday, 9 November 2022 5:15 PM

To: James Fuller <James.Fuller@clarence.nsw.gov.au>

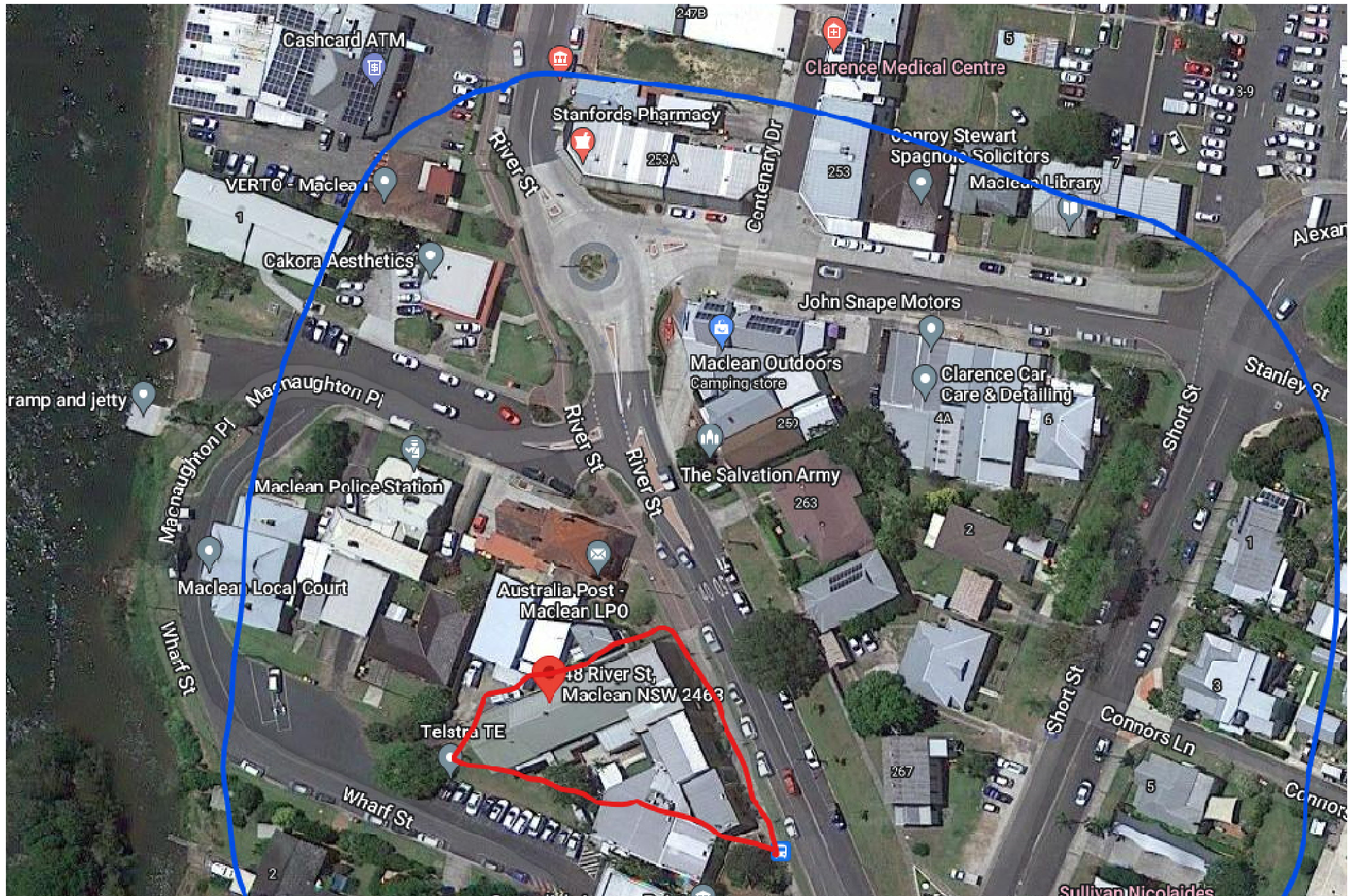
Cc: Troy Ingram <troy.ingram@roadnet.net.au>

Subject: 22055 - Existing Traffic Surveys - River Street Maclean Community Precinct

Hi James,

Yes please mate. Please including the following.

- River Street
- Macnaughton Place
- Short Street / Alexander Street
- River Street
- Stanley Street
- Centenary Drive
- Wharf Street



Kyle Buis
Engineer



8 Sixth Avenue, Palm Beach QLD 4221 |
ABN 51 522 449 578 | T: +61 7 5525 7377 |
E: Kyle.Buis@roadnet.com.au | W: www.roadnet.com.au |



Please consider the environment before printing this e-mail

From: James Fuller <James.Fuller@clarence.nsw.gov.au>
Sent: Wednesday, 9 November 2022 2:51 PM
To: Kyle Buis <kyle.buis@roadnet.net.au>
Subject: Traffic Surveys for Maclean

Hi Kyle,

Our customer service team forwarded me your enquiry regarding the traffic counts, apologies for not getting back to you yesterday.

I can provide you with our latest traffic counts for the roads on the map you sent.

Just to clarify, would this be the complete list of roads you were seeking:

River St.
Stanley St.
Short St.
MacNaughton Pl.
Wharf St.
Connors Ln.
Centenary Dr.

If you have any others you need just let me know and I will get the data to you.

Cheers mate.

James Fuller
Support Officer (Depot)
02 6645 0301
www.clarence.nsw.gov.au

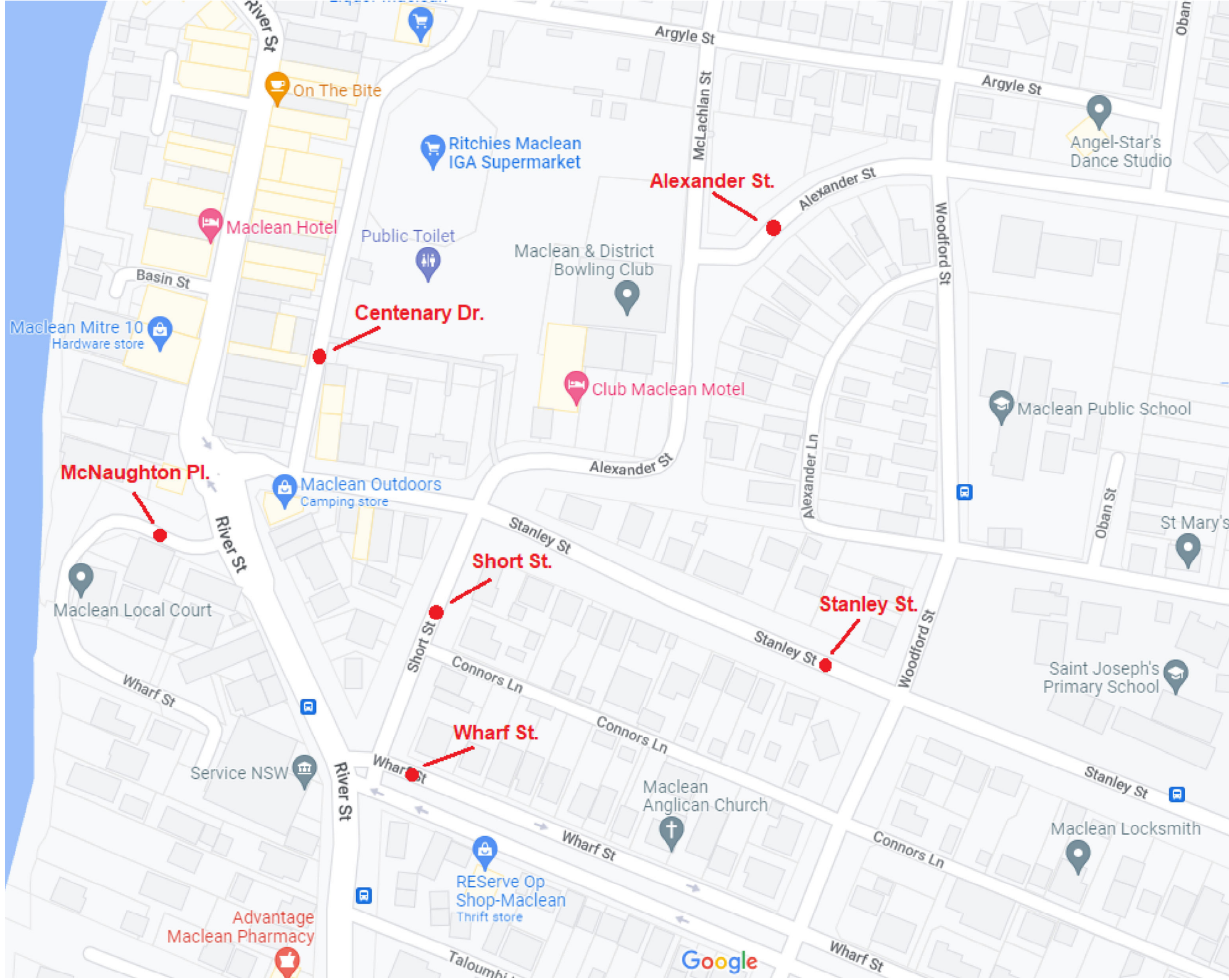


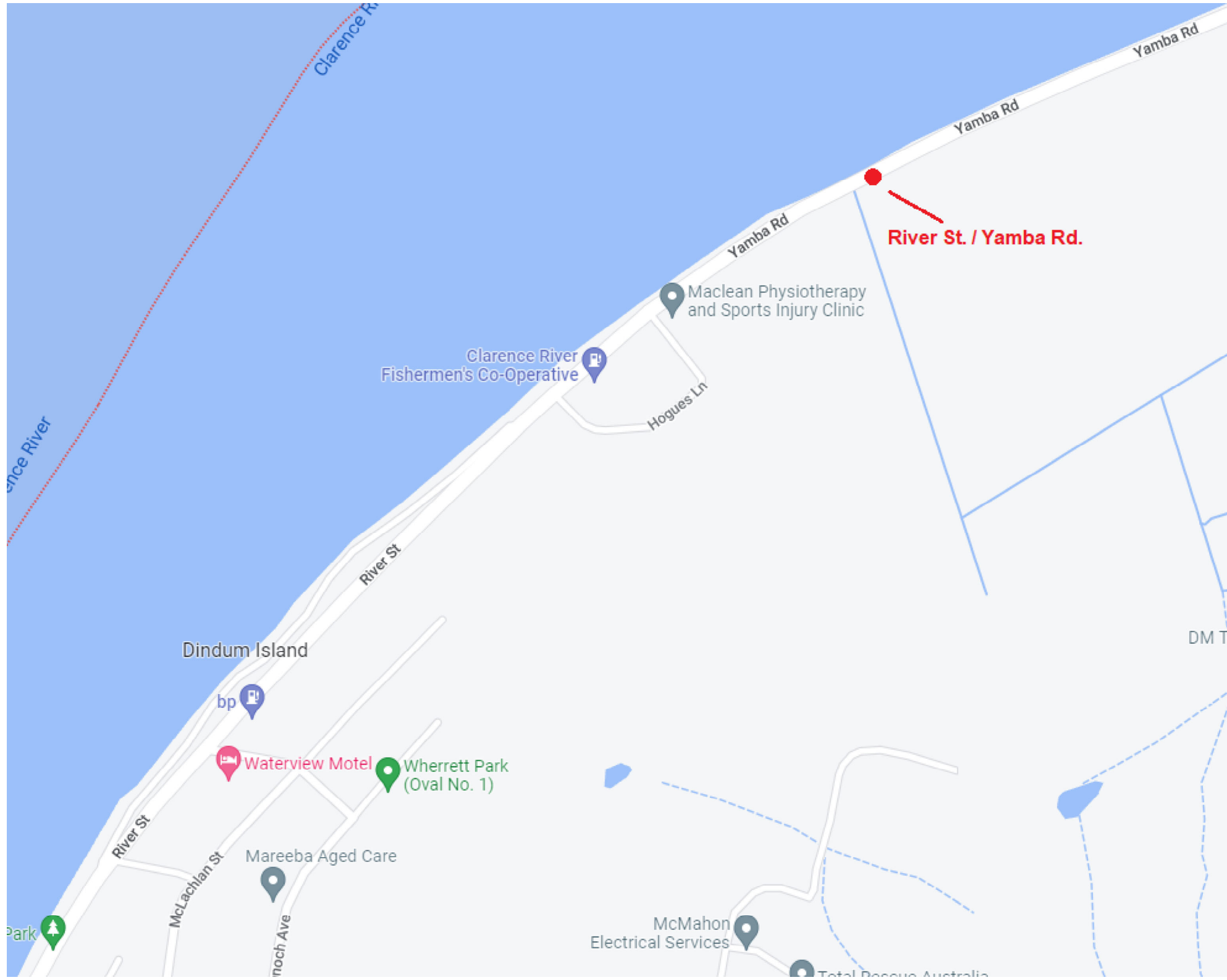
We acknowledge the Bundjalung, Gumbaynggirr and Yaegl people as the Traditional Owners of the land on which we live and work. We honour the First Nations peoples culture and connection to land, sea and community.
We pay our respects to their Elders past, present and emerging.



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Appendix D Traffic Generation Calculations

Project No.:

22056

Project Name:

MacLean Community Precinct

Revision

1

Date:

21/11/2022

Prepared By:

Kyle Buis

Verified By:

Troy Ingram

References:
AUSTROADS: Guide To Pavement Technology Part 2: Pavement Structural Design
Austroads 2017

Design Traffic - Background Traffic (year 2022)

| Location | River Street | MacNaughton Place | Stanley Street | Notes |
|------------------------|--------------|-------------------|----------------|---|
| AADT | 4339 | 550 | 499 | Data Provided by Local Council |
| AADT Traffic Year | 2022 | 1997 | 2016 | Data Provided by Local Council |
| Year of Opening | 2022 | 2022 | 2022 | Assumed |
| Years to Opening | 0 | 25 | 6 | |
| Annual Growth Rate (R) | 2 | 2 | 2 | Estimate |
| Design AADT | 4339 | 902 | 562 | Equation 7.4.4(a) – Traffic growth factor PDS |
| %HV | 8.9 | | 6.1 | Data Provided by Local Council |
| Peak Hour | 434 | 90 | 56 | Assumed 10% of AADT |

Design Traffic - Year of opening (year 2024)

| Location | River Street | MacNaughton Place | Stanley Street | Notes |
|------------------------|--------------|-------------------|----------------|---|
| AADT | 4339 | 550 | 499 | Data Provided by Local Council |
| AADT Traffic Year | 2022 | 1997 | 2016 | Data Provided by Local Council |
| Year of Opening | 2024 | 2024 | 2024 | Assumed |
| Years to Opening | 2 | 27 | 8 | |
| Annual Growth Rate (R) | 2 | 2 | 2 | Estimate |
| Design AADT | 4514 | 939 | 585 | Equation 7.4.4(a) – Traffic growth factor PDS |
| %HV | 8.9 | | 6.1 | Data Provided by Local Council |
| Peak Hour | 451 | 94 | 59 | Assumed 10% of AADT |

Design Traffic - 10-year ‘design horizon’ (year 2034)

| Location | River Street | MacNaughton Place | Stanley Street | Notes |
|------------------------|--------------|-------------------|----------------|---|
| AADT | 4339 | 550 | 499 | Data Provided by Local Council |
| AADT Traffic Year | 2022 | 1997 | 2016 | Data Provided by Local Council |
| Year of Opening | 2034 | 2034 | 2034 | Assumed |
| Years to Opening | 12 | 37 | 18 | |
| Annual Growth Rate (R) | 2 | 2 | 2 | Estimate |
| Design AADT | 5503 | 1144 | 713 | Equation 7.4.4(a) – Traffic growth factor PDS |
| %HV | 8.9 | | 6.1 | Data Provided by Local Council |
| Peak Hour | 550 | 156 | 71 | Assumed 10% of AADT |

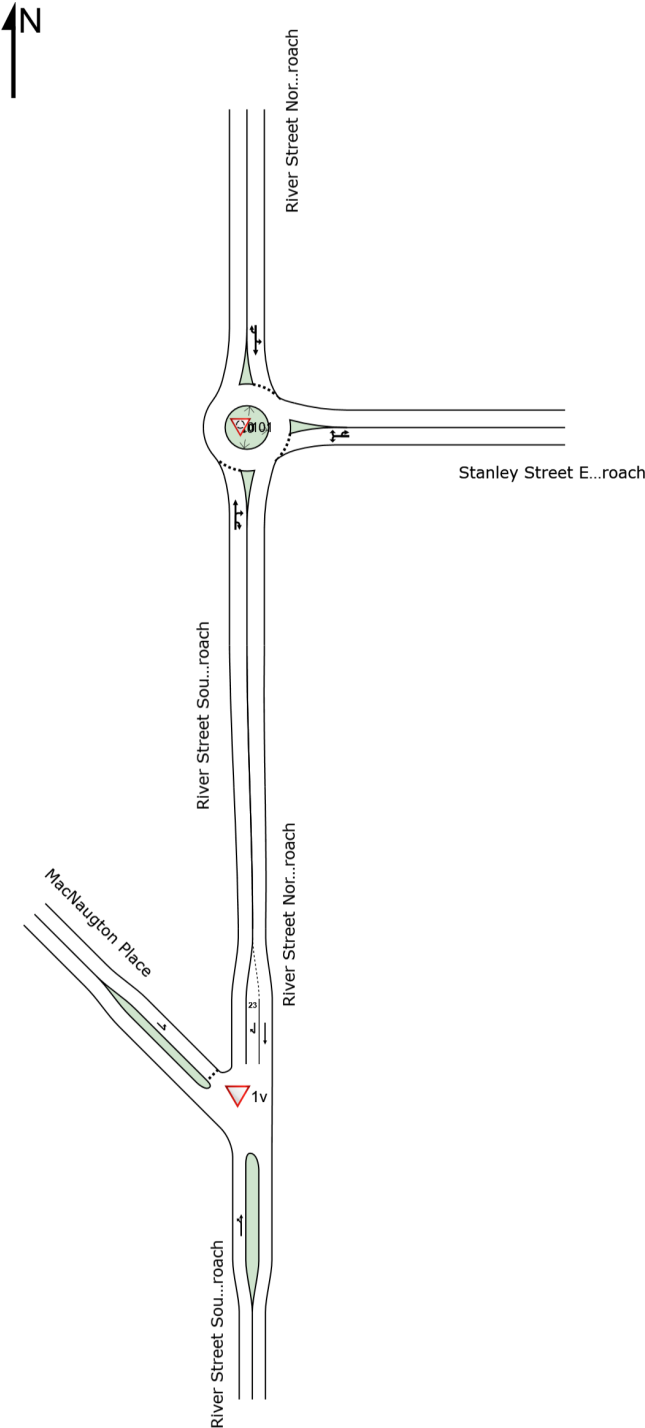
Appendix E SIDRA Results – Background Traffic (year 2022)

NETWORK LAYOUT

Network: N101 [Network1 (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



| SITES IN NETWORK | | |
|------------------|--------|---|
| Site ID | CCG ID | Site Name |
| ▽101 | NA | Roundabout - [River / Stanley] |
| ▽1v | NA | T Intersection [MacNaughton / River] - Conversion |

MOVEMENT SUMMARY

 **Site: 101 [Roundabout - [River / Stanley] (Site Folder: General)]**

Roundabout - [River / Stanley]
Site Category: Existing Design
Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | v/c | sec | | [Veh. veh | Dist] m | | | | km/h |
| South: River Street South Approach | | | | | | | | | | | | | | |
| 2 | T1 | 217 | 8.9 | 228 | 8.9 | 0.173 | 1.7 | LOS A | 1.0 | 7.6 | 0.11 | 0.32 | 0.11 | 39.2 |
| 3 | R2 | 15 | 8.9 | 16 | 8.9 | 0.173 | 4.5 | LOS A | 1.0 | 7.6 | 0.11 | 0.32 | 0.11 | 37.1 |
| 3u | U | 1 | 8.9 | 1 | 8.9 | 0.173 | 5.8 | LOS A | 1.0 | 7.6 | 0.11 | 0.32 | 0.11 | 25.9 |
| Approach | | 233 | 8.9 | 245 | 8.9 | 0.173 | 1.9 | LOS A | 1.0 | 7.6 | 0.11 | 0.32 | 0.11 | 39.2 |
| East: Stanley Street East Approach | | | | | | | | | | | | | | |
| 4 | L2 | 15 | 6.1 | 16 | 6.1 | 0.032 | 5.9 | LOS A | 0.2 | 1.1 | 0.39 | 0.61 | 0.39 | 28.9 |
| 6 | R2 | 15 | 6.1 | 16 | 6.1 | 0.032 | 9.2 | LOS A | 0.2 | 1.1 | 0.39 | 0.61 | 0.39 | 48.0 |
| 6u | U | 1 | 6.1 | 1 | 6.1 | 0.032 | 10.8 | LOS B | 0.2 | 1.1 | 0.39 | 0.61 | 0.39 | 32.9 |
| Approach | | 31 | 6.1 | 33 | 6.1 | 0.032 | 7.7 | LOS A | 0.2 | 1.1 | 0.39 | 0.61 | 0.39 | 42.5 |
| North: River Street North Approach | | | | | | | | | | | | | | |
| 7 | L2 | 15 | 8.9 | 16 | 8.9 | 0.173 | 4.8 | LOS A | 0.9 | 6.9 | 0.10 | 0.47 | 0.10 | 50.0 |
| 8 | T1 | 217 | 8.9 | 228 | 8.9 | 0.173 | 4.9 | LOS A | 0.9 | 6.9 | 0.10 | 0.47 | 0.10 | 50.1 |
| 9u | U | 1 | 8.9 | 1 | 8.9 | 0.173 | 9.7 | LOS A | 0.9 | 6.9 | 0.10 | 0.47 | 0.10 | 54.5 |
| Approach | | 233 | 8.9 | 245 | 8.9 | 0.173 | 4.9 | LOS A | 0.9 | 6.9 | 0.10 | 0.47 | 0.10 | 50.2 |
| All Vehicles | | 497 | 8.7 | 523 | 8.7 | 0.173 | 3.7 | LOS A | 1.0 | 7.6 | 0.12 | 0.41 | 0.12 | 44.1 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\2022Jobs\22055 - Maclean Community Precinct TIA and Stormwater\DESIGN\SIDRA\22055 - 01_Background Traffic.sip9

MOVEMENT SUMMARY

▼ Site: 1v [T Intersection [MacNaughton / River] - Conversion
(Site Folder: General)]

T Intersection [MacNaughton Place / River Street]
Site Category: Existing Design
Give-Way (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|---------------------------------------|------|---------------|--------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| South: River Street Southern Approach | | | | | | | | | | | | | | |
| 21a | L1 | 23 | 0.0 | 24 | 0.0 | 0.139 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 39.3 |
| 22 | T1 | 217 | 8.9 | 228 | 8.9 | 0.139 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 39.7 |
| Approach | | 240 | 8.0 | 253 | 8.0 | 0.139 | 0.4 | NA | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 39.6 |
| North: River Street North Approach | | | | | | | | | | | | | | |
| 28 | T1 | 217 | 8.9 | 228 | 8.9 | 0.127 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| 29b | R3 | 23 | 0.0 | 24 | 0.0 | 0.017 | 4.0 | LOS A | 0.1 | 0.5 | 0.35 | 0.57 | 0.35 | 26.0 |
| Approach | | 240 | 8.0 | 253 | 8.0 | 0.127 | 0.4 | NA | 0.1 | 0.5 | 0.03 | 0.05 | 0.03 | 58.6 |
| NorthWest: MacNaughton Place | | | | | | | | | | | | | | |
| 10b | L3 | 45 | 0.0 | 47 | 0.0 | 0.036 | 5.6 | LOS A | 0.1 | 1.0 | 0.31 | 0.59 | 0.31 | 26.4 |
| Approach | | 45 | 0.0 | 47 | 0.0 | 0.036 | 5.6 | LOS A | 0.1 | 1.0 | 0.31 | 0.59 | 0.31 | 26.4 |
| All Vehicles | | 525 | 7.4 | 553 | 7.4 | 0.139 | 0.8 | NA | 0.1 | 1.0 | 0.04 | 0.10 | 0.04 | 46.3 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix F SIDRA Results – Year of opening (year 2024)

MOVEMENT SUMMARY

 **Site: 101 [Roundabout - [River / Stanley] (Site Folder: General)]**

Roundabout - [River / Stanley]
Site Category: Existing Design
Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: River Street South Approach | | | | | | | | | | | | | | |
| 2 | T1 | 225 | 8.9 | 237 | 8.9 | 0.178 | 1.7 | LOS A | 1.0 | 7.9 | 0.11 | 0.32 | 0.11 | 39.2 |
| 3 | R2 | 15 | 8.9 | 16 | 8.9 | 0.178 | 4.5 | LOS A | 1.0 | 7.9 | 0.11 | 0.32 | 0.11 | 37.1 |
| 3u | U | 1 | 8.9 | 1 | 8.9 | 0.178 | 5.8 | LOS A | 1.0 | 7.9 | 0.11 | 0.32 | 0.11 | 25.9 |
| Approach | | 241 | 8.9 | 254 | 8.9 | 0.178 | 1.9 | LOS A | 1.0 | 7.9 | 0.11 | 0.32 | 0.11 | 39.2 |
| East: Stanley Street East Approach | | | | | | | | | | | | | | |
| 4 | L2 | 15 | 6.1 | 16 | 6.1 | 0.033 | 5.9 | LOS A | 0.2 | 1.1 | 0.39 | 0.61 | 0.39 | 28.9 |
| 6 | R2 | 15 | 6.1 | 16 | 6.1 | 0.033 | 9.3 | LOS A | 0.2 | 1.1 | 0.39 | 0.61 | 0.39 | 48.0 |
| 6u | U | 1 | 6.1 | 1 | 6.1 | 0.033 | 10.9 | LOS B | 0.2 | 1.1 | 0.39 | 0.61 | 0.39 | 32.9 |
| Approach | | 31 | 6.1 | 33 | 6.1 | 0.033 | 7.7 | LOS A | 0.2 | 1.1 | 0.39 | 0.61 | 0.39 | 42.4 |
| North: River Street North Approach | | | | | | | | | | | | | | |
| 7 | L2 | 15 | 8.9 | 16 | 8.9 | 0.178 | 4.8 | LOS A | 1.0 | 7.2 | 0.10 | 0.47 | 0.10 | 50.0 |
| 8 | T1 | 225 | 8.9 | 237 | 8.9 | 0.178 | 4.9 | LOS A | 1.0 | 7.2 | 0.10 | 0.47 | 0.10 | 50.1 |
| 9u | U | 1 | 8.9 | 1 | 8.9 | 0.178 | 9.7 | LOS A | 1.0 | 7.2 | 0.10 | 0.47 | 0.10 | 54.5 |
| Approach | | 241 | 8.9 | 254 | 8.9 | 0.178 | 4.9 | LOS A | 1.0 | 7.2 | 0.10 | 0.47 | 0.10 | 50.2 |
| All Vehicles | | 513 | 8.7 | 540 | 8.7 | 0.178 | 3.7 | LOS A | 1.0 | 7.9 | 0.12 | 0.41 | 0.12 | 44.1 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: SIDRA Roundabout LOS.
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

▼ Site: 1v [T Intersection [MacNaughton / River] - Conversion
(Site Folder: General)]

T Intersection [MacNaughton Place / River Street]
Site Category: Existing Design
Give-Way (Two-Way)

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|---------------------------------------|------|---------------|--------|---------------|--------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV] % | [Total veh/h | HV] % | | | | [Veh. veh | Dist] m | | | | |
| South: River Street Southern Approach | | | | | | | | | | | | | | |
| 21a | L1 | 34 | 0.0 | 36 | 0.0 | 0.150 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.06 | 0.00 | 39.2 |
| 22 | T1 | 225 | 8.9 | 237 | 8.9 | 0.150 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.06 | 0.00 | 39.6 |
| Approach | | 259 | 7.7 | 273 | 7.7 | 0.150 | 0.5 | NA | 0.0 | 0.0 | 0.00 | 0.06 | 0.00 | 39.5 |
| North: River Street North Approach | | | | | | | | | | | | | | |
| 28 | T1 | 225 | 8.9 | 237 | 8.9 | 0.131 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| 29b | R3 | 34 | 0.0 | 36 | 0.0 | 0.026 | 4.1 | LOS A | 0.1 | 0.8 | 0.36 | 0.58 | 0.36 | 25.8 |
| Approach | | 259 | 7.7 | 273 | 7.7 | 0.131 | 0.5 | NA | 0.1 | 0.8 | 0.05 | 0.08 | 0.05 | 58.1 |
| NorthWest: MacNaughton Place | | | | | | | | | | | | | | |
| 10b | L3 | 68 | 0.0 | 72 | 0.0 | 0.054 | 5.6 | LOS A | 0.2 | 1.5 | 0.32 | 0.60 | 0.32 | 26.3 |
| Approach | | 68 | 0.0 | 72 | 0.0 | 0.054 | 5.6 | LOS A | 0.2 | 1.5 | 0.32 | 0.60 | 0.32 | 26.3 |
| All Vehicles | | 586 | 6.8 | 617 | 6.8 | 0.150 | 1.1 | NA | 0.2 | 1.5 | 0.06 | 0.13 | 0.06 | 45.6 |

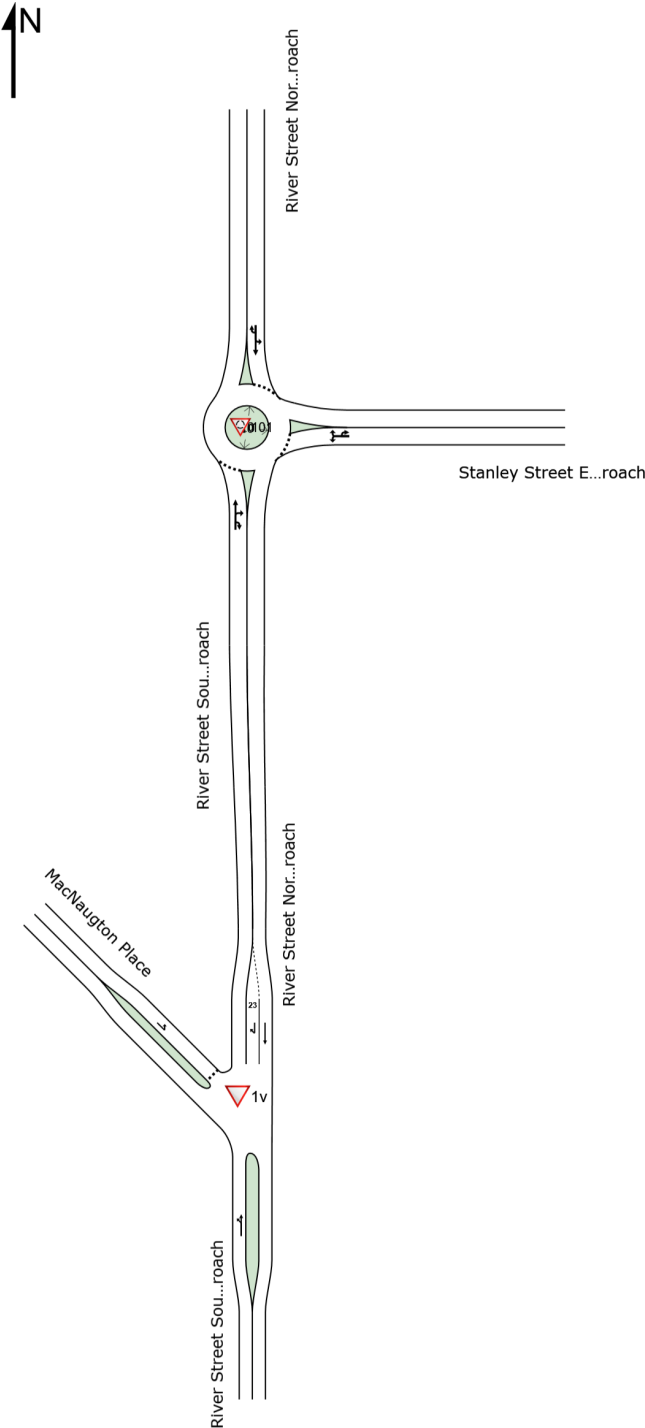
Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

NETWORK LAYOUT

■ Network: N101 [Network1 (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



| SITES IN NETWORK | | |
|------------------|--------|---|
| Site ID | CCG ID | Site Name |
| ▽101 | NA | Roundabout - [River / Stanley] |
| ▽1v | NA | T Intersection [MacNaughton / River] - Conversion |

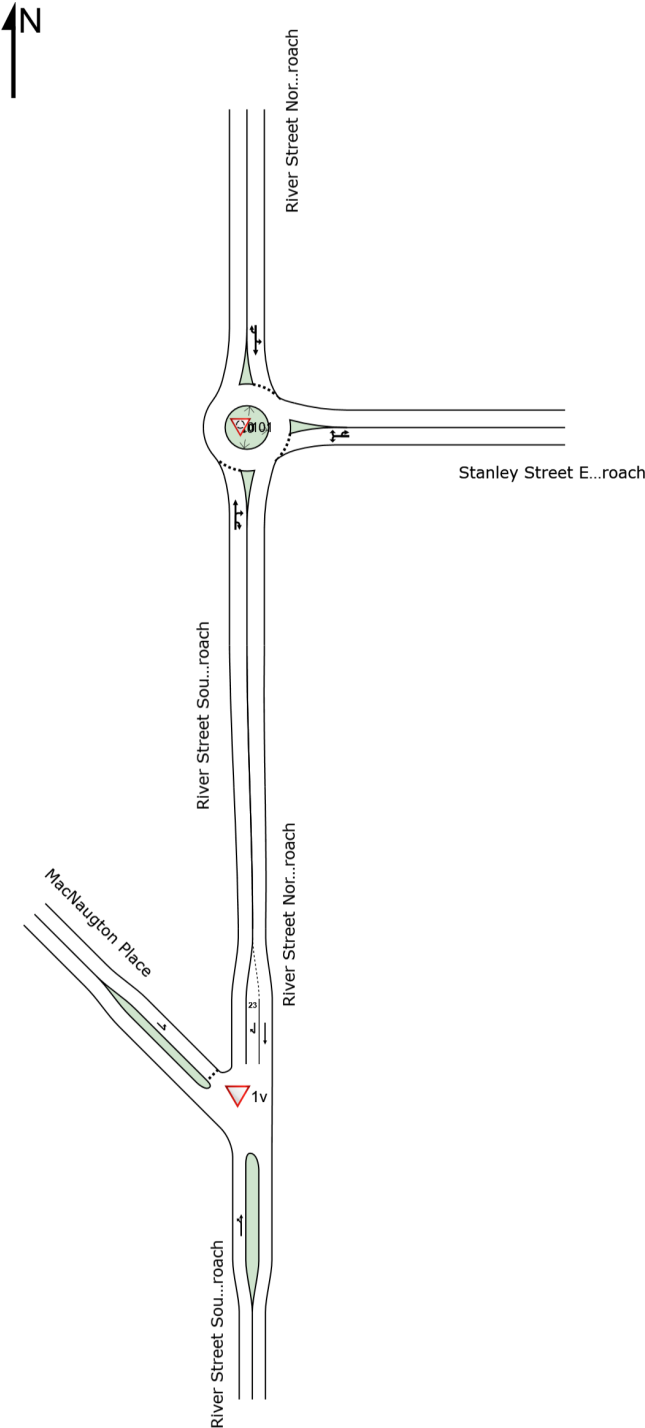
Appendix G SIDRA Results – 10-year ‘design horizon’ (year 2034)

NETWORK LAYOUT

■ Network: N101 [Network1 (Network Folder: General)]

New Network
Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



| SITES IN NETWORK | | |
|------------------|--------|---|
| Site ID | CCG ID | Site Name |
| ▽101 | NA | Roundabout - [River / Stanley] |
| ▽1v | NA | T Intersection [MacNaughton / River] - Conversion |

MOVEMENT SUMMARY

 **Site: 101 [Roundabout - [River / Stanley] (Site Folder: General)]**

Roundabout - [River / Stanley]
Site Category: Existing Design
Roundabout

| Vehicle Movement Performance | | | | | | | | | | | | | | |
|------------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: River Street South Approach | | | | | | | | | | | | | | |
| 2 | T1 | 275 | 8.9 | 289 | 8.9 | 0.218 | 1.8 | LOS A | 1.3 | 10.2 | 0.13 | 0.32 | 0.13 | 39.2 |
| 3 | R2 | 18 | 8.9 | 19 | 8.9 | 0.218 | 4.6 | LOS A | 1.3 | 10.2 | 0.13 | 0.32 | 0.13 | 37.0 |
| 3u | U | 1 | 8.9 | 1 | 8.9 | 0.218 | 5.8 | LOS A | 1.3 | 10.2 | 0.13 | 0.32 | 0.13 | 25.7 |
| Approach | | 294 | 8.9 | 309 | 8.9 | 0.218 | 1.9 | LOS A | 1.3 | 10.2 | 0.13 | 0.32 | 0.13 | 39.1 |
| East: Stanley Street East Approach | | | | | | | | | | | | | | |
| 4 | L2 | 18 | 6.1 | 19 | 6.1 | 0.041 | 6.3 | LOS A | 0.2 | 1.4 | 0.44 | 0.63 | 0.44 | 28.5 |
| 6 | R2 | 18 | 6.1 | 19 | 6.1 | 0.041 | 9.6 | LOS A | 0.2 | 1.4 | 0.44 | 0.63 | 0.44 | 47.8 |
| 6u | U | 1 | 6.1 | 1 | 6.1 | 0.041 | 11.2 | LOS B | 0.2 | 1.4 | 0.44 | 0.63 | 0.44 | 32.6 |
| Approach | | 37 | 6.1 | 39 | 6.1 | 0.041 | 8.0 | LOS A | 0.2 | 1.4 | 0.44 | 0.63 | 0.44 | 42.2 |
| North: River Street North Approach | | | | | | | | | | | | | | |
| 7 | L2 | 18 | 8.9 | 19 | 8.9 | 0.218 | 4.8 | LOS A | 1.2 | 9.2 | 0.12 | 0.47 | 0.12 | 50.0 |
| 8 | T1 | 275 | 8.9 | 289 | 8.9 | 0.218 | 4.9 | LOS A | 1.2 | 9.2 | 0.12 | 0.47 | 0.12 | 50.0 |
| 9u | U | 1 | 8.9 | 1 | 8.9 | 0.218 | 9.8 | LOS A | 1.2 | 9.2 | 0.12 | 0.47 | 0.12 | 54.5 |
| Approach | | 294 | 8.9 | 309 | 8.9 | 0.218 | 4.9 | LOS A | 1.2 | 9.2 | 0.12 | 0.47 | 0.12 | 50.1 |
| All Vehicles | | 625 | 8.7 | 658 | 8.7 | 0.218 | 3.7 | LOS A | 1.3 | 10.2 | 0.14 | 0.41 | 0.14 | 44.0 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: SIDRA Roundabout LOS.

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout Capacity Model: SIDRA Standard.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: X:\2022Jobs\22055 - Maclean Community Precinct TIA and Stormwater\DESIGN\SIDRA\22055 - 03_10-year 'design horizon' (year 2034).sip9

MOVEMENT SUMMARY

▼ Site: 1v [T Intersection [MacNaughton / River] - Conversion
(Site Folder: General)]

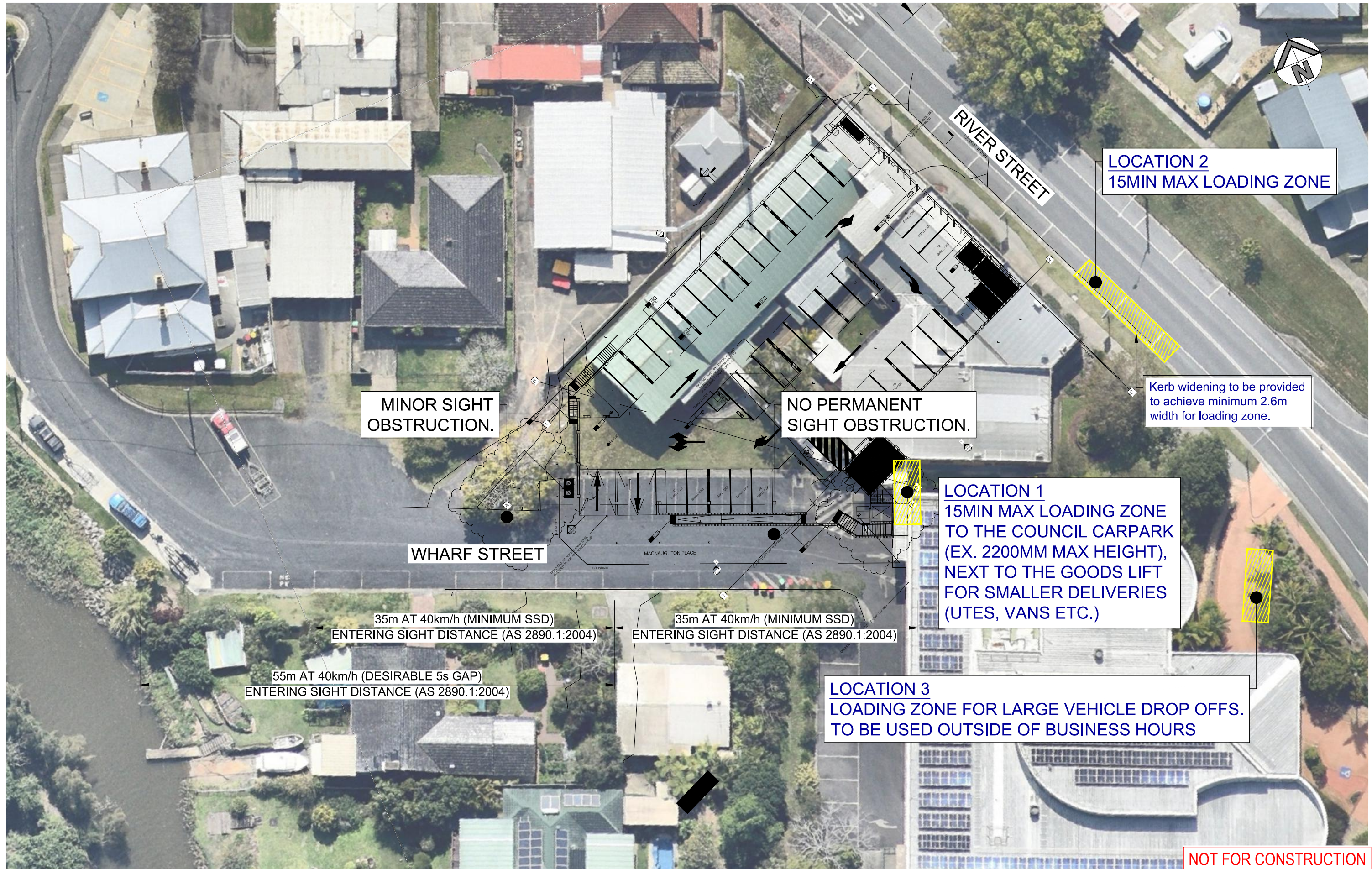
T Intersection [MacNaughton Place / River Street]
Site Category: Existing Design
Give-Way (Two-Way)


| Vehicle Movement Performance | | | | | | | | | | | | | | |
|---------------------------------------|------|---------------|------|---------------|------|-----------|-------------|------------------|-------------------|----------|-----------|---------------------|------------------|-------------|
| Mov ID | Turn | INPUT VOLUMES | | DEMAND FLOWS | | Deg. Satn | Aver. Delay | Level of Service | 95% BACK OF QUEUE | | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed |
| | | [Total veh/h | HV % | [Total veh/h | HV % | | | | [Veh. veh | Dist] m | | | | |
| South: River Street Southern Approach | | | | | | | | | | | | | | |
| 21a | L1 | 50 | 0.0 | 53 | 0.0 | 0.187 | 3.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.2 |
| 22 | T1 | 275 | 8.9 | 289 | 8.9 | 0.187 | 0.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.5 |
| Approach | | 325 | 7.5 | 342 | 7.5 | 0.187 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.07 | 0.00 | 39.4 |
| North: River Street North Approach | | | | | | | | | | | | | | |
| 28 | T1 | 275 | 8.9 | 289 | 8.9 | 0.161 | 0.0 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 59.9 |
| 29b | R3 | 50 | 0.0 | 53 | 0.0 | 0.041 | 4.4 | LOS A | 0.2 | 1.2 | 0.42 | 0.61 | 0.42 | 25.1 |
| Approach | | 325 | 7.5 | 342 | 7.5 | 0.161 | 0.7 | NA | 0.2 | 1.2 | 0.06 | 0.09 | 0.06 | 57.6 |
| NorthWest: MacNaughton Place | | | | | | | | | | | | | | |
| 10b | L3 | 100 | 0.0 | 105 | 0.0 | 0.085 | 5.9 | LOS A | 0.3 | 2.4 | 0.37 | 0.63 | 0.37 | 26.0 |
| Approach | | 100 | 0.0 | 105 | 0.0 | 0.085 | 5.9 | LOS A | 0.3 | 2.4 | 0.37 | 0.63 | 0.37 | 26.0 |
| All Vehicles | | 750 | 6.5 | 789 | 6.5 | 0.187 | 1.3 | NA | 0.3 | 2.4 | 0.08 | 0.16 | 0.08 | 45.2 |

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Queue Model: SIDRA Standard.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix H Swept Path and Sight Distance Assessments

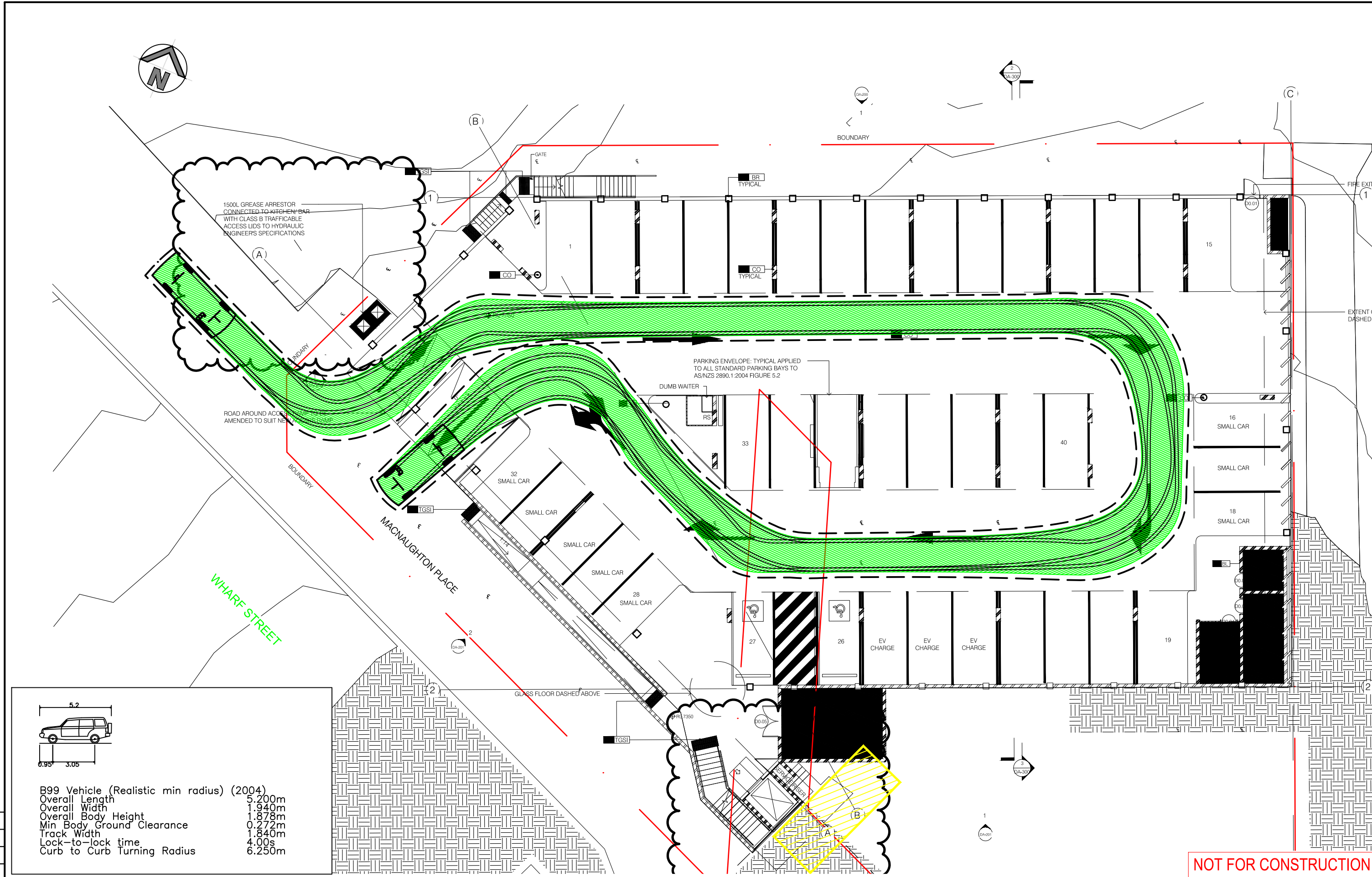
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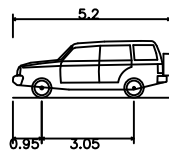
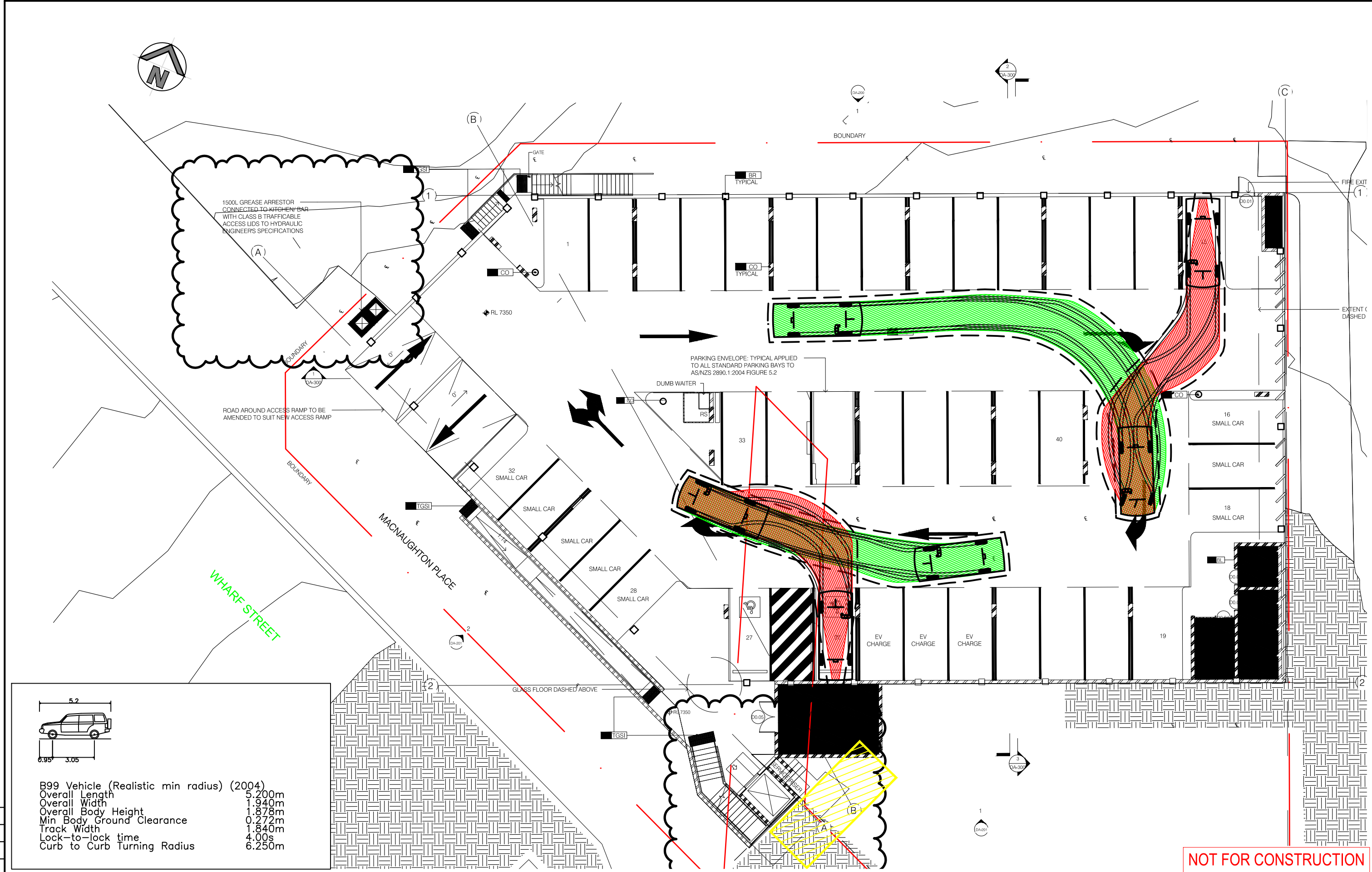
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| EXTERNAL REFERENCE FILES | | REV | DATE | AMENDMENT / REVISION DESCRIPTION | | WVR No. | APPROVAL | SCALES ON A3 SIZE DRAWING | | DRAWINGS / DESIGN PREPARED BY | | TITLE | | NAME | DATE | | | | | | | |
| | | 1 | 22.11.2022 | INITIAL ISSUE | | | | <div>SCALE 1:200</div> <div><div>012345</div><div>AT A3</div></div> | | <div> RoadNet</div> <div>ABN 51 522 449 578 P: 07 5525 7377 8 Sixth Avenue F: 07 5525 7388 Palm Beach QLD 4221 E: gold.coast@roadnet.com.au</div> | | DRAWN | | D.KERWICK | 22.11.22 | | | | | | | |
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| | | 2 | 28.04.2023 | DETAILED DESIGN (50%) | | | | | | | | *** | | *** | *** | PREPARED FOR | | RMS REGISTRATION No. - | | PART 1 | | |
| | | 3 | 03.08.2023 | DETAILED DESIGN (50%) | | | | CO-ORDINATE SYSTEM | | HEIGHT DATUM | | *** | | *** | *** | | | | | | | |
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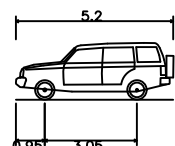
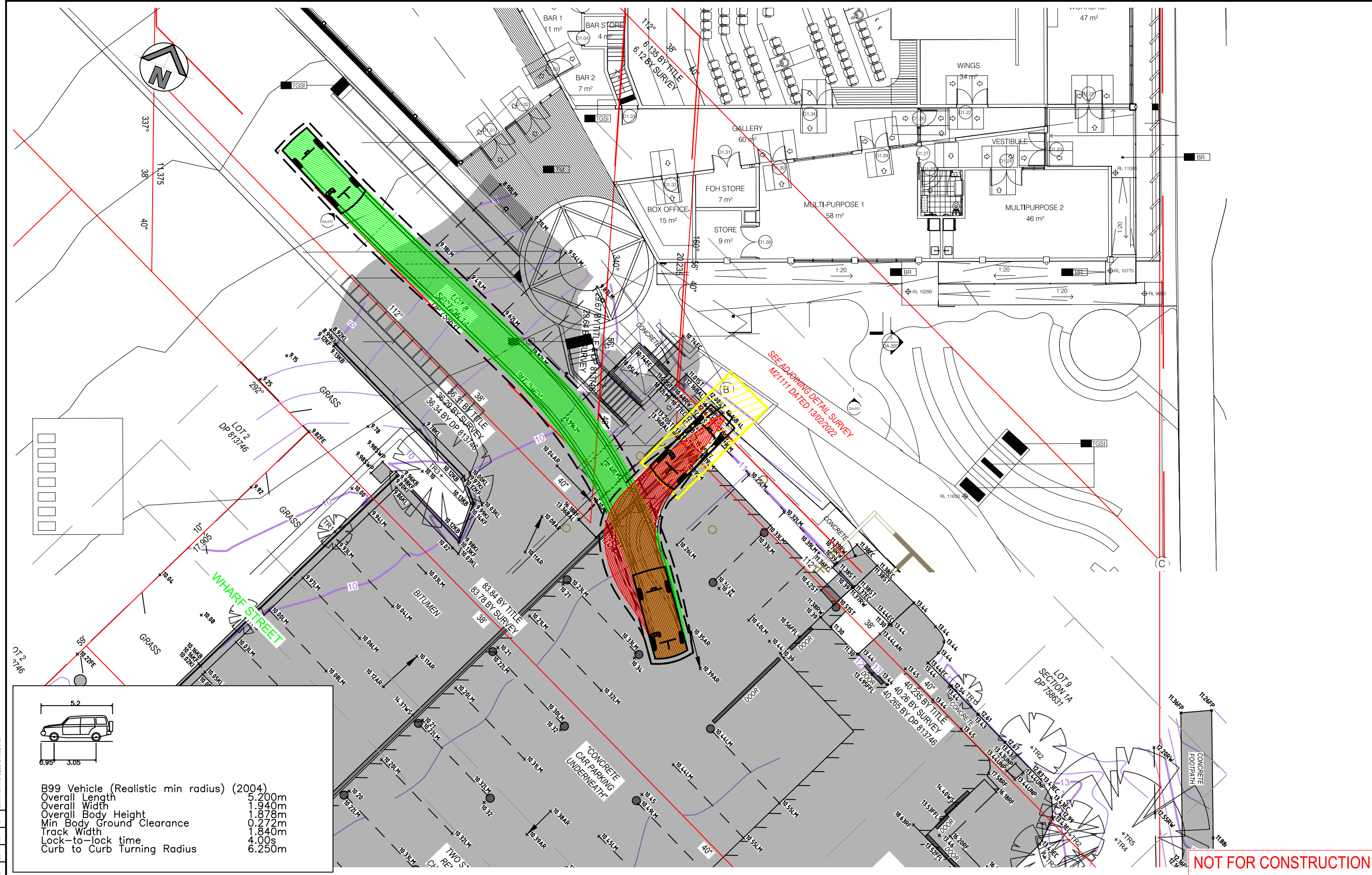
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B99 Vehicle (Realistic min radius) (2004)
Overall Length 5.200m
Overall Width 1.940m
Overall Body Height 1.878m
Min Body Ground Clearance 0.272m
Track Width 1.840m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 6.250m


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| | | 1 | 22.11.2022 | INITIAL ISSUE | | | <div>SCALE 1:200</div> <div><div><div>0</div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div></div><div>AT A3</div></div> | | <div></div> <div>ABN 51 522 449 578 P: 07 5525 7377</div> <div>8 Sixth Avenue F: 07 5525 7388</div> <div>Palm Beach QLD 4221 E: gold.coast@roadnet.com.au</div> | | | | DRAWN | D.KERWICK | | | | | 22.11.22 | | | |
| | | 2 | 28.04.2023 | DETAILED DESIGN (50%) | | | | | | | | | *** | *** | | | | | *** | | | |
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| | | | | | | | CO-ORDINATE SYSTEM - | | HEIGHT DATUM - | | | | | | *** | *** | *** | ISSUE STATUS DETAILED DESIGN (50%) | | EDMS No. - | SHEET No. TP-04 | ISSUE 3 |
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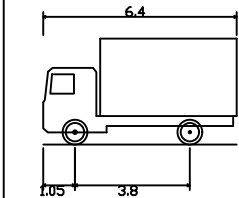
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50mm ON A3 SIZE ORIGINAL



SRV - Small Rigid Vehicle
Overall Length 6.400m
Overall Width 2.330m
Overall Body Height 3.500m
Min Body Ground Clearance 0.398m
Track Width 2.330m
Lock-to-lock time 4.00s
Curb to Curb Turning Radius 7.100m



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