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APPLICATION REF
A007090287

Velocity Traffic Engineering

Information Request Response

To	Bonaventura Developments	**Date**	2 October 2026
Prepared by	Casey Schackow, Velocity, Director	**Approved by**	Harj Singh, Traffic Engineering Advisor (RPEQ 22364)
Location	171-173 Upper Kedron Rd, Ferny Grove		
Status	Final	**Attachments**	**Appendix A:** Information Request **Appendix B:** Updated TIA Report

Introduction

Overview

Velocity has been commissioned by Bonaventura Developments to provide traffic and transport advice in response to the items within the Information Request (IR), for the site located at 171-173 Upper Kedron Rd, Ferny Grove.

The issues have been extracted from the IR and replicated below, responses to each item have been summarised in this Information Request Response.

The updated Traffic Impact Assessment (TIA) Report is attached at **Appendix B**.

References

- Brisbane City Council (BCC), Transport, Access, Parking and Servicing Planning Scheme Policy, 2021 (BCC TAPS)
- BCC, Refuse Planning Scheme Policy, 2022 (BCC RPSP)
- BCC City Plan, 2014 (CP)
- AS2890.1 Australian Standards (AS) Parking Facilities Part 1: Off Street Car Parking (AS2890.1)
- AS2890.2 Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities, 2002 (AS2890.2)

Item 3 – Traffic Impact Assessment

The proposed development relies on several performance outcomes under the Transport, access, parking and servicing code. However, the submitted traffic impact assessment has not been certified by a suitably experienced Registered Professional Engineer of Queensland. These performance outcomes will only be considered if supported by an appropriately certified report.

Item 4 – Site intersection

The revised subdivision layout across the consolidated sites has changed the site access, road layout and servicing arrangements. The proposed major-to-minor road intersection, designed in accordance with BSD-3003, is generally consistent with the previous approval and can be supported. However, the proposed Basic Auxiliary Right treatment at the new Upper Kedron Road intersection, as discussed in section 7.1.3 of the Traffic impact assessment report, is not supported. In accordance with the Subdivision code and Transport, access, parking and servicing code, provide the following as part of an updated RPEQ-certified Traffic Impact Assessment:

a) Provide an intersection treatment consistent with condition 30 of the initial approval A005612840 and the previously approved Preliminary Intersection Layout Plan, PO2, Rev H.

Item 5 – Road connections

Road connections 5. The proposed non-standard rear road reserve 'auto court' serving Lots 4–6 is not supported. It does not adequately respond to Sections C and D of the Road hierarchy overlay code, AO9/PO9 of the Subdivision code or the Infrastructure design code. The current configuration would also restrict access from a lower order road for any future development on the adjoining site and limit access to a potential linear open space network along the waterway corridor.

a. Provide a standard 14-metre-wide local road reserve, consistent with BSD-1021, in place of the proposed auto court. This is required to provide suitable road frontage to Lots 4–6 and a standard road connection to 169 Upper Kedron Road.

Item 6 – Servicing

Proposed 'New Road 02' is a stub road however, a turnaround facility for refuse collection has not been provided. A turnaround facility for Lots 1, 2, 32 and 33 will be required until such time as the road network to the west is completed. Similarly, this is expected to be mirrored in the eastern stub road to 196 Upper Kedron Road. Inconsistencies between plans regarding the northern T-head additionally need to be rectified

In accordance with PO9/AO9c of the Subdivision code and PO1/AO1 of the Transport, Access, Parking and Servicing code (TAPS code), provide the following:

a. A turnaround facility on New Road 02 for Lots 1, 2, 32 and 33. A turn around facility on the eastern stub road.
b. Utilising amended plans, provide a RPEQ certified and scaled swept path analysis for a side loading Refuse Collection Vehicle (RCV) as specified in BSD 3004, demonstrating the RCV can safely and efficiently utilise the turnaround facility. Note: A turnaround facility has been demonstrated on the current approval (A005612840).
c. Update the subdivision site plans to show the proposed temporary 'T-head' turnaround area to the north. In accordance with PO4/AO4.1 and PO9/AO9c of the Subdivision code, the amended plans must clearly label and dimension the 'Thead' and align it with the easement shown on the engineering plans.
d. The submitted Refuse Collection Vehicle swept path analysis does not clearly show the road or T-head. It also uses a steering angle instead of the required 9.757-metre kerb-to-kerb turning radius. In accordance with PO4/AO4.1 and PO9/AO9c of the Subdivision code and PO1/AO1 of the Transport, access, parking and servicing code, provide the following:
    a. An updated RPEQ endorsed swept path analysis demonstrating a RCV as per BSD 3004 can safely and efficiently service the development, including the T Head and the turnaround facility.
    b. Ensure the swept path analysis is overlaid on clear plans.
    c. The swept path must utilise a 9.757m kerb to kerb turning radius or clarify the provided steering angle is equivalent.
e. The Traffic survey Data in Appendix C has not been clearly displayed. Provide an updated Appendix C that clearly shows all information.

Velocity Responses

Velocity Response 3)

The TIA has been updated to address the relevant traffic and transport matters raised within the IR.

The updated TIA is provided at **Appendix B** and has been reviewed and certified by a suitably experienced Registered Professional Engineer of Queensland. The performance-based assessments contained within the TIA are therefore supported by RPEQ certification as requested by Council.

Velocity Response 4)

The TIA has been updated to assess the appropriate turn treatments at the Road A / Upper Kedron Road intersection, having regard to the background/development traffic, Austroads turn warrant assessment and the intersection arrangement previously approved under development approval A005612840.

The updated assessment identifies the following proposed intersection treatments:

- A Short Channelised Right-turn treatment [CHR(s)] on Upper Kedron Road; and
- A Basic Left-turn treatment (BAL) on Upper Kedron Road.

The Austroads turn warrant assessment identifies a CHR and AUL(S) from a traffic-flow perspective. The proposed CHR(s) and BAL treatments have been assessed on a performance basis within the updated RPEQ-certified TIA, including consideration of the low frequency of development turning movements, available sight distance, right-turn storage and expected queueing, intersection operating conditions and the characteristics of comparable accesses along Upper Kedron Road.

The proposed CHR(s) and BAL arrangement is consistent with Condition 30 of development approval A005612840 and the previously approved Preliminary Intersection Layout Plan P02, Rev H, as requested by Council.

The civil engineering plans have also been updated to reflect the CHR(s) and BAL treatments assessed within the updated TIA. The intersection treatment shown within the updated civil engineering package is therefore consistent with the traffic engineering assessment and the previously approved intersection arrangement.

Velocity Response 5)

The access arrangement serving Lots 4–6 has been revised as part of the amended subdivision plans. The previously proposed public-road ‘auto court’ has been removed and replaced with a private rear lot access arrangement extending from Road A, with

access easements benefiting the respective rear lots and individual future lot crossovers provided from the shared access.

The rear lot access has been designed in accordance with Table 11 of BCC TAPS. Further details are provided in Section 3.4.4 of the updated TIA at **Appendix B**.

The planning basis for not providing a future road connection to the adjoining property at 169 Upper Kedron Road is addressed separately within the planning material.

Velocity Response 6a)

A dedicated RCV turnaround facility is not proposed within New Road 02, as the refuse collection strategy has been configured so that the side-loading RCV is not required to enter this road.

Bins associated with Lots 1–3 and Lots 31–33 will instead be transferred to a consolidated kerbside presentation area along the main internal road frontage of Lot 31. The presentation area accommodates the 12 mobile garbage bins required for these lots and is positioned so that the bins can be collected directly by the side-loading RCV while it remains on the main internal road.

The proposed bin presentation arrangement has been assessed against the relevant provisions of Council's Refuse Planning Scheme Policy (RPSP). Section 4.1 requires each dwelling to be provided with two mobile garbage bin presentation areas, each measuring a minimum of 0.9m x 0.9m. The nominated consolidated presentation area provides sufficient space for the required number of bins. The RPSP also permits mobile garbage bins to be transferred between the storage area and collection point where the transfer distance does not exceed 50m. The proposed bin presentation locations are within this maximum transfer distance.

The eastern rear lots serving Lots 5 and 6 will be serviced on the same basis. The bins for these lots will be transferred to a nominated presentation area along the adjoining main internal road, allowing collection by the side-loading RCV without the vehicle entering the rear lot access. A separate refuse turnaround facility is therefore not required at this location.

Accordingly, the RCV can service western minor stub road and eastern rear lot access without entering or reversing within them. While the previous approval incorporated a temporary RCV turnaround within New Road 02, that facility is not required under the current refuse collection strategy. The proposed arrangement provides the required bin presentation capacity and compliant transfer distances while avoiding unnecessary RCV manoeuvring within the minor road.

Velocity Response 6b)

As detailed in Response 6a, the side-loading RCV is not required to enter New Road 02 and no turnaround facility is proposed within that road. Accordingly, a swept path assessment for an RCV turnaround within New Road 02 is not required.

The swept path assessment has instead been updated to reflect the proposed overall refuse collection operation. This demonstrates the side-loading RCV collecting the consolidated bins from the nominated presentation area adjoining the main internal road and subsequently using the northern T-head turnaround before departing the subdivision in a forward direction.

The assessment adopts the BCC BSD-3004 side-loading RCV, including a 9.757m kerb-to-kerb turning radius and 6s lock-to-lock time, the updated swept path is included within the RPEQ-certified updated TIA at **Appendix B**.

Velocity Response 6c)

The amended subdivision plans have been updated so that the location, extent and configuration of the northern T-head turnaround are consistent with the civil engineering design.

The amended subdivision plans now clearly identify and dimension the turnaround facility in the same location as shown on the civil drawings. Refer to the updated civil engineering drawing package for the detailed civil design and associated turnaround geometry.

Velocity Response 6d)

The RCV swept path assessment has been updated and RPEQ certified.

The assessment is overlaid on the updated road and turnaround plans so that the pavement edges, T-head geometry and surrounding constraints are clearly identifiable. The assessment adopts the BCC BSD-3004 side-loading RCV, including:

- 9.757m kerb-to-kerb turning radius;
- 6s lock-to-lock time; and

The updated swept path demonstrates that the RCV can safely undertake the required collection movements, utilise the northern T-head turnaround and depart the development in a forward direction while remaining within the available manoeuvring area.

The RCV vehicle parameters and swept path inputs are identified directly on the swept path drawings within the updated TIA at **Appendix B**.

Velocity Response 6e)

The updated TIA has been amended to include the complete traffic survey data in a clear and legible format.

The traffic survey data is provided at **Appendix C** within the updated TIA at **Appendix B**.

Conclusion

The traffic and transport matters raised within Items 3, 4 and 6 of Council's Information Request have been addressed through the amended subdivision plans, civil engineering drawing package and updated RPEQ-certified TIA.

The Road A / Upper Kedron Road intersection is proposed with a CHR(S) and BAL treatment, consistent with the intersection arrangement previously approved under development approval A005612840. The updated TIA provides the supporting performance assessment for these turn treatments.

The refuse collection strategy has also been revised so that the side-loading RCV is not required to enter or turn into the western stub road. Consolidated bin presentation areas provide the required capacity and compliant transfer distances, while the amended subdivision plans now coordinate the northern temporary T-head with the civil engineering design. Updated scaled swept path assessments using the BCC BSD-3004 side-loading RCV confirm that the vehicle can undertake the required collection and turnaround movements and depart the subdivision in a forward direction.

The complete traffic survey data has also been incorporated into the updated TIA. The revised rear-lot access arrangement associated with Item 5 is shown on the amended subdivision plans, with the planning basis regarding the requested future connection to 169 Upper Kedron Road addressed separately within the planning response.

On this basis, the traffic and transport matters raised within the IR are considered appropriately addressed and the amended proposal is supportable from a traffic engineering perspective.

Author:

Casey Schackow
Director

Effective Date 2/10/2026



Approved By:

Harj Singh
Transport Advisor RPEQ 22364

Date Approved 2/10/2026



VELOCITY
TRAFFIC
ENGINEERING

APPENDIX A

INFORMATION REQUEST



Brisbane City Council ABN 72 002 765 795

City Planning and Economic Development Services
Development Services
Brisbane Square, 266 George Street, Brisbane Qld 4000
GPO Box 1434 Brisbane QLD 4001
T 07 3403 8888
brisbane.qld.gov.au

Dedicated to a better Brisbane

18 September 2026

Bonaventura Developments Pty Ltd
C/- Sage Planning & Development Pty Ltd
PO Box 210
WILSTON QLD 4051

ATTENTION: **Steve O'Leary**
Application Reference: A007090287
Address of Site: 24 PERSIMMON ST FERNY GROVE QLD 4055

Dear Steve

RE: Information request in accordance with the Development Assessment Rules

Council has carried out an initial review of the above application and has identified that further information is required to fully assess the proposal.

Net developable area

1. For the Emerging community zone, dwelling density is calculated based on the net developable area of the site. The net developable area is to only include land capable of being developed for residential purposes and is separate to any lot yield calculations under the Subdivision code. Land required for trunk infrastructure, such as a trunk road or pathway, does not form part of the net developable area where it is not capable of being developed.
    a. Provide a detailed net developable area calculation which clearly identifies the land included and excluded from the calculation, including any land required for trunk infrastructure and Lot 42.
    b. The response must justify how the proposed net developable area and density of 16 dwellings per hectare satisfy PO22 of the Subdivision code and the relevant overall outcomes of the Emerging community zone code, having regard to the Ferny Grove – Upper Kedron neighbourhood plan code, which identifies the site in Figure A as Low density residential with a yield of 12 dwellings per hectare.
    c. Where reliance is placed on a performance outcome to support a higher density, provide a further planning justification demonstrating that the site constraints can be appropriately managed and that the resulting development achieves an appropriate residential form and intensity. The response should also address how the proposed density is justified where the development does not provide lots within a comfortable walking distance of an existing or future bus stop as intended by PO20 of the Subdivision code.

Ecological Reporting

2. The proposed development encroaches into mapped local waterway corridors, mapped high ecological significance areas and State-mapped koala habitat. No ecological reporting has been provided to demonstrate compliance with the Waterway corridor overlay code, Biodiversity areas overlay code, or the requirements for exempted development under the *Planning Regulation 2017* for koala habitat impacts associated with proposed services, including sewer and stormwater infrastructure.

…/2

The revised Tree Retention Plan also does not show a consolidated layout reflecting the revised Lot 1 layout on RP185509, tree impacts from proposed services on Lot 43 on RP167933, or any significant residual impacts within mapped high ecological significance areas.

a. Provide an Ecological Assessment that demonstrates that the proposed development complies with the requirements of the Biodiversity Areas overlay code, Waterway Corridors overlay code and the *Planning Regulation 2017* (QLD) in relation to impacts to koala habitat associated with the proposed services. The Ecological assessment must quantify any proposed significant residual impacts (as defined in the Offsets Planning Scheme Policy) associated with proposed vegetation removal within mapped areas of high ecological significance.
b. Provide a revised Vegetation Retention Plan that includes the updated subdivision layout in addition to proposed impacts associated with the proposed services (e.g. sewer and stormwater). Where any works encroach into the NRZs of any trees identified to be retained, a report from a qualified arborist (minimum AQF level 5 Arboriculture) is required to demonstrate no negative impacts on the long-term health of the trees.

Traffic Impact Assessment

3. The proposed development relies on several performance outcomes under the Transport, access, parking and servicing code. However, the submitted traffic impact assessment has not been certified by a suitably experienced Registered Professional Engineer of Queensland. These performance outcomes will only be considered if supported by an appropriately certified report.

Site intersection

4. The revised subdivision layout across the consolidated sites has changed the site access, road layout and servicing arrangements. The proposed major-to-minor road intersection, designed in accordance with BSD-3003, is generally consistent with the previous approval and can be supported. However, the proposed Basic Auxiliary Right treatment at the new Upper Kedron Road intersection, as discussed in section 7.1.3 of the Traffic impact assessment report, is not supported. In accordance with the Subdivision code and Transport, access, parking and servicing code, provide the following as part of an updated RPEQ-certified Traffic Impact Assessment:
    a. Provide an intersection treatment consistent with condition 30 of the initial approval A005612840 and the previously approved Preliminary Intersection Layout Plan, PO2, Rev H.

Road connections

5. The proposed non-standard rear road reserve ‘auto court’ serving Lots 4–6 is not supported. It does not adequately respond to Sections C and D of the Road hierarchy overlay code, AO9/PO9 of the Subdivision code or the Infrastructure design code. The current configuration would also restrict access from a lower order road for any future development on the adjoining site and limit access to a potential linear open space network along the waterway corridor.
    a. Provide a standard 14-metre-wide local road reserve, consistent with BSD-1021, in place of the proposed auto court. This is required to provide suitable road frontage to Lots 4–6 and a standard road connection to 169 Upper Kedron Road.

Servicing

6. Proposed ‘New Road 02’ is a stub road however, a turnaround facility for refuse collection has not been provided. A turnaround facility for Lots 1, 2, 32 and 33 will be required until such time as the road network to the west is completed. Similarly, this is expected to be mirrored in the eastern stub road to 196 Upper Kedron Road. Inconsistencies between plans regarding the northern T-head additionally need to be rectified.

In accordance with PO9/AO9c of the Subdivision code and PO1/AO1 of the Transport, Access, Parking and Servicing code (TAPS code), provide the following:

a. A turnaround facility on New Road 02 for Lots 1, 2, 32 and 33. A turn around facility on the eastern stub road.
b. Utilising amended plans, provide a RPEQ certified and scaled swept path analysis for a side loading Refuse Collection Vehicle (RCV) as specified in BSD 3004, demonstrating the RCV can safely and efficiently utilise the turnaround facility.
   Note: A turnaround facility has been demonstrated on the current approval (A005612840).
c. Update the subdivision site plans to show the proposed temporary 'T-head' turnaround area to the north. In accordance with PO4/AO4.1 and PO9/AO9c of the Subdivision code, the amended plans must clearly label and dimension the 'T-head' and align it with the easement shown on the engineering plans.
d. The submitted Refuse Collection Vehicle swept path analysis does not clearly show the road or T-head. It also uses a steering angle instead of the required 9.757-metre kerb-to-kerb turning radius. In accordance with PO4/AO4.1 and PO9/AO9c of the Subdivision code and PO1/AO1 of the Transport, access, parking and servicing code, provide the following:
   i. An updated RPEQ endorsed swept path analysis demonstrating a RCV as per BSD 3004 can safely and efficiently service the development, including the T Head and the turnaround facility.
   ii. Ensure the swept path analysis is overlaid on clear plans.
   iii. The swept path must utilise a 9.757m kerb to kerb turning radius or clarify the provided steering angle is equivalent.
e. The Traffic survey Data in Appendix C has not been clearly displayed. Provide an updated Appendix C that clearly shows all information.

Stormwater

7. The revised stormwater drainage layout for the consolidated development no longer demonstrates a lawful point of discharge. While the submitted Site based stormwater management plan identifies the existing creek as the lawful point of discharge, this is not demonstrated by the proposed outlet arrangement. Provide an amended RPEQ-certified Site based stormwater management plan demonstrating compliance with AO3.2, AO3.3, AO3.4/PO3 of the Stormwater code and AO4.2/PO4 of the Subdivision code.
   a. The proposed localised earthworks to direct the bio-basin stormwater outlet pipe discharge to the neighbouring property is not supported as it has the potential to create adverse impacts on the neighbouring lot. Extend the stormwater outlet to the existing creek as the lawful point via a channel/rock chute or appropriate alternative.
   b. Provide the 1% AEP hydraulic calculations for the proposed outlet channel/rock chute to determine its minimum required sizing and demonstrate the proposed capacity.
   c. Provide an amended easement for underground drainage and open cut over the proposed stormwater pipe and channel outlet to the Creek invert, sized as required to ensure the channel is entirely contained within the easement. An additional 1.2 metres of width is to be provided as part of the easement for inspection and access.
   d. Demonstrate how emergency overflow and spillway flows from the proposed bio-basin are conveyed to the existing creek as the lawful point of discharge. Where a swale or earthwork channel is proposed provide the supporting earthworks details. Demonstrate the proposed levels, grade and how flows are to be contained within the development site to the lawful point of discharge.
   Note: the proposed alignment may result in conflicts with vegetation, as such it is recommended that a holistic approach is taken by the applicant to minimum impacts on existing vegetation.

Bio Basin

8. Provide the following as part of an updated (RPEQ certified) Site Based Stormwater Management plan to demonstrate that the proposed Bio-retention basin demonstrates compliance with PO1, AO6.1, AO6.2 /PO6 of the Stormwater code and Infrastructure design planning scheme policy.
    a. The hydrological analysis for existing conditions would typically use a Tc value based on overland sheet flow over a >200metre flowpath with averaged grass surfaces likely resulting in a TC >10 minutes for pervious catchments. That the use of standard inlet times is not suitable for detention sizing where detailed hydrological calculations are required. Provide a recalculate detention sizing based on detailed hydrological calculations as per QUDM standards.
    b. Confirm that all storm events from 5 minutes to 4.5 hours has been modelled in DRAINS and confirm the critical storm duration for the highest basin stage/outflow.
    c. The new road that conveys flows to the basin must provide a sag point (low-point) at the basin location in order to ensure all flows can be captured by the basin.
    d. The proposed basin embankment width of 1 metre does not meet Councils Infrastructure Design Planning Scheme Policy requirements and is required to be a minimum width of 2.5 metres.
    e. Basin spillway must be in a location where the embankment meets existing levels (eg lowest level difference) to minimise the likelihood of embankment scour, failure and excessive maintenance.
    f. Provide earthwork plans, including a long section and cross sections at critical points, for the channel to creek given it will involve significant cut below the existing levels along the boundary of that site to demonstrate no flows will spill and adversely impact neighbouring properties.
9. Proposed Lots 7–19 are not graded towards proposed Road 1, which may obstruct the free movement of surface flows during a major storm event, including where domestic fencing or structures are later installed. Lots 7–19 must be graded towards proposed Road 1 to ensure 1% AEP flows can be conveyed to the proposed bio-basin.

Earthworks

10. Earthworks are required within Council's road reserve as part of the proposed intersection works to achieve a standard road pavement width. The Concept Earthworks Plan, SK02, Issue E, identifies the general cut area but provides limited detail on the proposed final levels and grades. Provide additional information to demonstrate how the proposed works comply with the Infrastructure design code, Infrastructure design planning scheme policy and Earthworks code.
    a. Provide a Detail and Cross-sections of the proposed earthworks within the verge and clearly indicate the proposed grades, retaining structure and if any existing street trees are affected.
    b. If any Earth-retaining structure are proposed, they are required to meet the requirements outlined in Section 8.5 of the infrastructure Design Planning Scheme Policy.

Urban Utilities (UU)

Council does not undertake water and sewer assessment of any planning applications. Contact UU on (07) 3432 2200 to discuss any water and sewer issues and whether you are required to submit an application to UU for assessment.

Responding to this request

Your response should include a summary table which outlines any changes to performance outcomes and plans that have resulted from addressing the issues outlined above. The table should also include details of any supporting documentation.

If a response is not provided within the prescribed response period of three (3) months assessment of the application will continue from the day after the day on which the response period would have otherwise ended.

Email your response to DSPlanningSupport@brisbane.qld.gov.au quoting the application reference number A007090287.

Please phone me on the telephone number below during normal business hours if you have any queries regarding this matter.

Yours sincerely



Laura Urbina
Senior Urban Planner
Planning Services North
Phone: 31785047
Email: Laura.Urbina@brisbane.qld.gov.au
Development Services
Brisbane City Council

VELOCITY
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ENGINEERING

APPENDIX B

UPDATED TIA



Contact and Document Information

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Prepared for Bonaventura Developments	**Project:** 171-173 Upper Kedron Road, Ferny Grove

Document Control

Version	Date	Description of Revision	Prepared by	Approved By
D1	11/08/2026	DRAFT for review and comments	CS	HS (RPEQ: 22364)
F	2/10/2026	FINAL for Submission	CS	HS (RPEQ: 22364)

Author:

Casey Schackow
Director

Effective Date 2/10/2026



Approved By:

Harj Singh
Transport Advisor RPEQ 22364

Date Approved 2/10/2026



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1 Introduction

1.1 Overview

Velocity has been commissioned by Bonaventura Developments to provide a Traffic Impact Assessment (TIA) report in relation to the proposed development located at 171-173 Upper Kedron Road, Ferny Grove.

1.2 References

- Brisbane City Council (BCC), Transport, Access, Parking and Servicing Planning Scheme Policy, 2014 v36 – 12 June 2026 (BCC TAPS v36)
- BCC, Refuse Planning Scheme Policy, 2022 (BCC RPSP)
- AS2890.1 Australian Standards (AS) Parking Facilities Part 1: Off Street Car Parking (AS2890.1)
- AS2890.2 Parking Facilities Part 2: Off-Street Commercial Vehicle Facilities, 2002 (AS2890.2)
- Roads and Traffic Authority, Guide to Traffic Generating Developments, 2013 Update, (RTA GTGD)

1.3 Limitations

This traffic report was prepared with the usual care and diligence of the consulting profession. It follows accepted traffic engineering practices and standards that were in place at the time of the assessment. However, Velocity cannot be held responsible for any changes to project planning or road conditions that may happen after the assessment is completed.

2 Existing Conditions

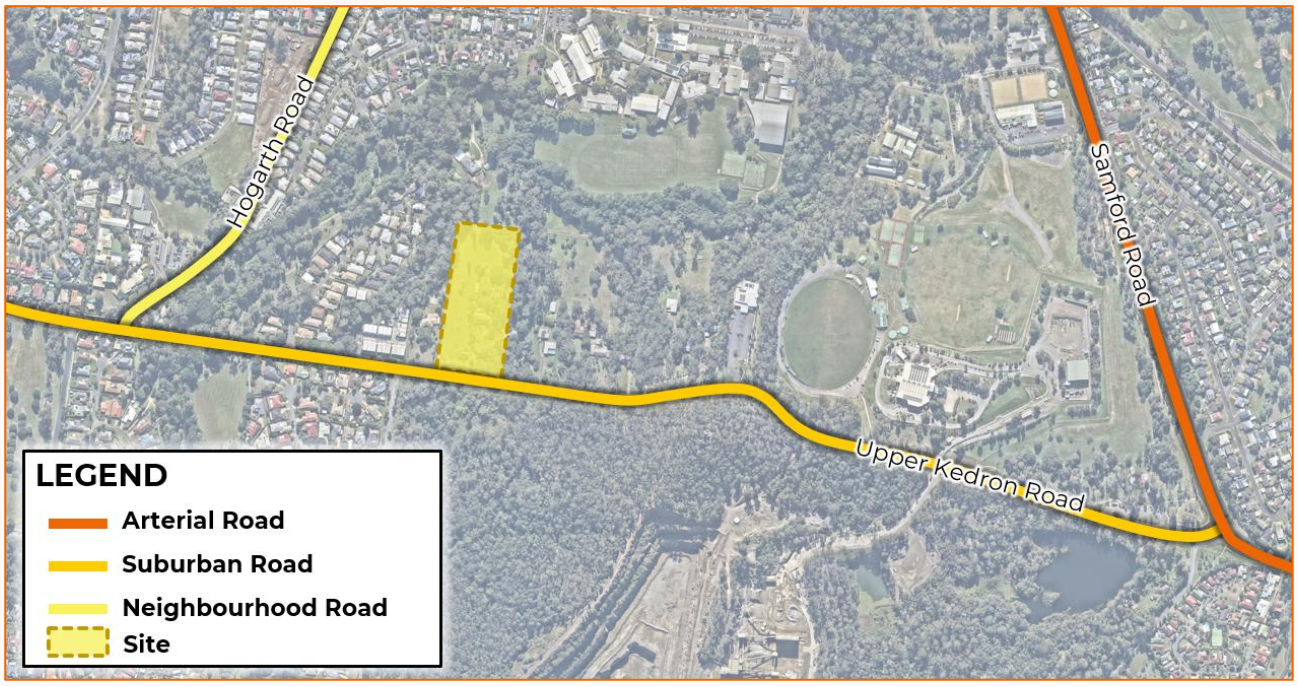
2.1 Site Location

The subject site at 171-173 Upper Kedron Road, Ferny Grove and is exclusively bound by Upper Kedron Road to the south.

The site is identified within Council's Planning Scheme as an Emerging community zone is surrounded by similar zones and Environmental management zones. The lots currently house a single detached dwelling.

The site is well located and features a direct link to the higher order road of Samford Road to the east, providing access to the broader network. The site location and road hierarchy are shown on Figure 2-1 and Table 2-1.

Figure 2-1 Site Location



Source: Nearmap

Table 2-1 Key Road Characteristics

Road	Hierarchy	Speed	Typical Form
Upper Kedron Road	Suburban Road - BCC	60km/h	Two lanes, divided
Hogarth Road	Neighbourhood Road - BCC	50km/h	Two lanes, undivided
Samford Road	Arterial Road - TMR	70km/h	Four lanes, undivided

2.2 Active Transport Network

Upper Kedron Road features an off-road footpath along one side of the road and exists along the site frontage. This path supports walking and cycling trips for al user groups and connects with established recreational paths within the surrounding parks. The path also connects to the higher order facilities along Samford Road.

Ata strategic level, Upper Kedron Road, Hogarth Road and Samford Road are all identified on Council Bicycle Network as Secondary Cycle Routes, there is also a future Secondary Cycle Route which runs through the north of the development site which connects to existing facilities through Nelson Place Park and Tramway Street.

2.3 Public Transport Network

Although there are no bus stops located within a comfortable 400m walking radius of the site, the Ferny Grove Train station is located ~1km from the site, access to the north through the future cycle network activation will improve access to the high quality public transport facility.

2.4 Future Network Upgrades

Review of Council's current Local Government Infrastructure Plan (LGIP) identifies a planned four-lane upgrade of Upper Kedron Road between Nelson Place and the access to the Ferny Grove Resource Recovery Centre, referred to as "Transfer Station Road" (project UKE-RC-003). The project is planned for delivery between 2031 and 2036 and includes the section of Upper Kedron Road along the site frontage.

The planned duplication would increase the capacity of Upper Kedron Road and improve its ability to accommodate future traffic growth within the broader Upper Kedron and Ferny Grove catchment. As the works extend along the site frontage, the site would directly benefit from the increased capacity of the frontage road.

The LGIP also identifies the following active transport projects within the wider Ferny Grove and Upper Kedron area:

- Cedar Creek Bikeway between Keperra Picnic Ground Park and Nelson Place Park (FGR-SP-006).
- Cedar Creek Bikeway between Levitt Road and Canvey Road (UKE-SP-007).
- Cedar Creek Bikeway between Levitt Road and Kirralee Crescent (UKE-SP-008).

The FGR-SP-006 project is the most directly relevant to the site, as it would extend the Cedar Creek active transport corridor toward Nelson Place and improve pedestrian and cycling connectivity within the surrounding area.

Council is also delivering the Minnie Street upgrade in Upper Kedron, with completion anticipated in late 2026. The works include road widening and realignment, modifications to the Cedar Creek Road intersection, new bicycle lanes and

reconstruction of the existing footpath. This project will improve broader local road and active transport connectivity within the Upper Kedron catchment.

The LGIP identifies strategic infrastructure intentions only, with the final scope, timing and delivery of each project remaining subject to detailed planning, approvals and funding.

2.5 Existing Development Approval

Council approved development application A005612840 on 5 April 2024 for the reconfiguration of Lot 1 on RP185509 at 173 Upper Kedron Road into 11 residential lots. The approved development is serviced by a new internal public road connecting with Upper Kedron Road.

The approved intersection provides all-movement access and includes:

- A basic left-turn treatment (BAL) on Upper Kedron Road; and
- A short channelised right-turn treatment [CHR(S)] on Upper Kedron Road.

The approved plans also provide a separate driveway crossover to 171 Upper Kedron Road.

2.6 Existing Access Arrangements

The two lots currently have a single access crossover directly onto Upper Kedron Road which permits access in all directions for all vehicle types.

2.7 Crash History Assessment

A review of the Queensland Crash Data identified two reported crashes along Upper Kedron Road during the five-year period ending June 2025. These were the only recorded crashes along Upper Kedron Road within the reviewed dataset.

The recorded crashes are detailed in Table 2-2.

Table 2-2 Upper Kedron Road Crash History

ID	Location	Year	Severity	Conditions	Road geometry	Crash description
1	Driveway to 165 Upper Kedron Road	2023	Medical treatment	Sunday, 10:00am; daylight; clear; sealed and dry	Curved alignment with open visibility; dip	Single vehicle left the carriageway on a right-hand bend and struck an object
2	Driveway to 131 Upper Kedron Road	2023	Medical treatment	Tuesday, 3:00am; darkness with street lighting; raining; sealed and wet	Curved alignment with obscured visibility; grade	Single vehicle left the carriageway on a right-hand bend and struck an object

Crash 1 occurred near the driveway to 165 Upper Kedron Road, toward the lower end of the road crest. The road geometry at this location includes a horizontal curve and vertical dip, with limited visibility toward the west due to the crest location. The available crash record indicates that the vehicle departed the carriageway while negotiating the bend under clear, dry and daylight conditions, suggesting that vehicle control or driver behaviour was the principal contributing factor.

Crash 2 occurred near the driveway to the Baptist church at 131 Upper Kedron Road. This location is positioned on a pronounced horizontal curve with obscured visibility and a graded road alignment. The crash also occurred during darkness, rainfall and wet pavement conditions. The church generates concentrated and strongly directional traffic movements during short periods; however, the recorded crash itself involved a single vehicle leaving the carriageway rather than a conflict with traffic entering or exiting the property.

The crash history therefore reflects isolated loss-of-control events associated with curved road geometry and, in one instance, adverse weather and lighting conditions. No recurring crash pattern associated with access movements or intersection operation was identified along Upper Kedron Road.

3 Proposed Development

3.1 Proposed Yield

The development proposes a subdivision across the two lots to create 33 new lots, with the removal of the existing dwelling.

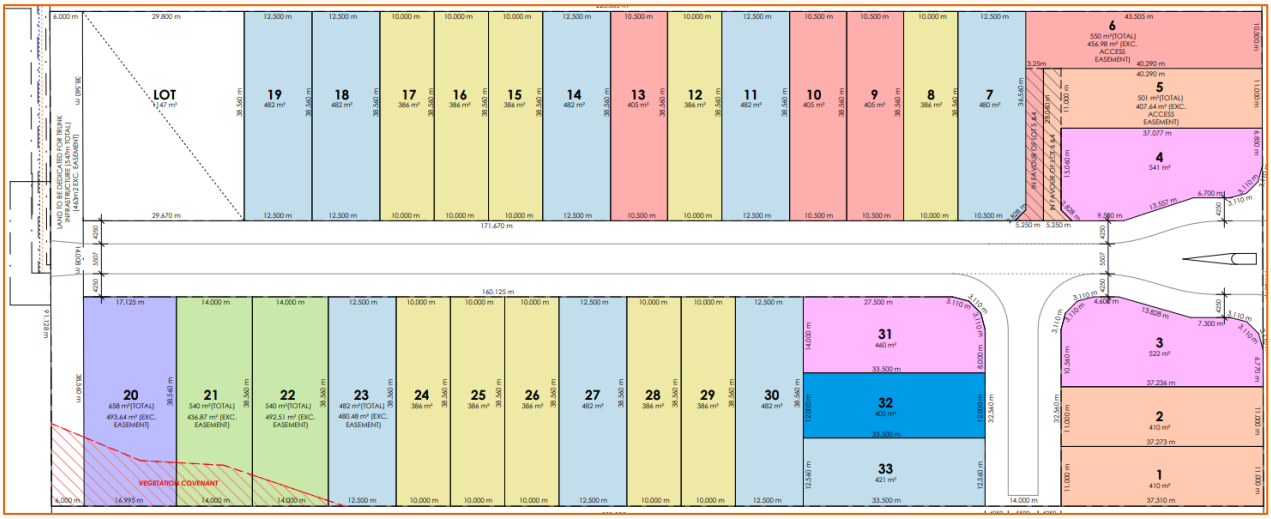
Figure 3-1 illustrates the proposed development plans and Table 3-1 details a breakdown of the land uses.

A copy of the development plans can be found at **Appendix A**.

Table 3-1 Total Development Yield

Land use	Yield
Low Density Residential Lots	33x lots

Figure 3-1 Development Plans



Source: Wink + Co, SITE PLAN, REV E

3.2 Access and Internal Road Arrangement Overview

Vehicle access to the subdivision is proposed via a new priority-controlled public road intersection with Upper Kedron Road. The intersection will provide unrestricted all-movement access and connect directly to the proposed internal road network, which distributes traffic throughout the subdivision.

As illustrated in Figure 3-2, the internal road network comprises:

- Road A, which forms the primary road extending west through the site and provides access to Lots 7–30;
- Road B, which extends south from Road A and provides access to Lots 1–3 and Lots 31–33; and
- Road C, which extends north from Road A as a lower-order laneway and provides access to Lots 4–6.

Figure 3-2 Internal Road Network



Road A will temporarily terminate at the northern boundary with a T-head turnaround facility, while maintaining access provision through the adjoining land.

All residential, refuse and commercial service vehicles will enter and exit the subdivision via the Upper Kedron Road intersection.

3.3 Upper Kedron Road Intersection

3.3.1 Intersection Arrangement

The proposed Road A / Upper Kedron Road intersection will operate as a priority-controlled T-intersection and permit unrestricted entry/exit movements.

The intersection is located slightly west of the intersection approved under development application A005612840 but remains within the same general section of the Upper Kedron Road frontage.

The proposed frontage treatment comprises:

- A short channelised right-turn treatment [CHR(s)] on Upper Kedron Road; and
- A basic left-turn treatment (BAL) on Upper Kedron Road.

The adopted treatments are supported by the turn warrant assessment contained within **Section 7 Turn Warrant Assessment**.

3.3.2 Minor Road Connection Design

The Road A approach has been designed generally in accordance with Council's ID PSP and BSD-3003 for a minor-road connection to a major road. The arrangement includes the required intersection flaring, kerb returns, splitter island and pedestrian provisions and is consistent with the general form of the Nelson Place subdivision intersection located to the west.

The detailed design of the Road A / Upper Kedron Road intersection, including the intersection geometry, earthworks and drainage design, has been undertaken as part of the civil engineering design and is documented the respective civil engineering reporting.

3.3.3 Intersection Spacing

Council's ID PSP requires a minimum separation of 40m between Local Road intersections located on opposite sides of a through road.

The proposed Road A / Upper Kedron Road intersection is located approximately 95m east of O'Quinn Road and therefore exceeds the applicable minimum intersection spacing requirement. This is detailed in Table 3-2.

Table 3-2 Intersection Spacing

Intersection relationship	Requirement	Proposed Separation	Outcome
O'Quinn Road to Road A	40m	~95m	✓

The proposed intersection location therefore provides appropriate separation from O'Quinn Road.

3.4 Internal Road Network

3.4.1 Road Hierarchy and Cross-Sections

The internal public road network comprises two Local Streets in accordance with the road hierarchy established by Council's ID PSP.

Roads A and B are proposed as Local Streets. The proposed road cross-sections are summarised in Table 3-3.

Table 3-3 Road Hierarchy and Cross-Sections

Road	Classification	Requirement	Proposed arrangement	Outcome
Road A	Local Street	14m reserve, 5.5m carriageway and 4.25m verges	14m reserve, 5.5m carriageway and 4.25m verges	✓
Road B	Local Street	14m reserve, 5.5m carriageway and 4.25m verges	14m reserve, 5.5m carriageway and 4.25m verges	✓

Roads A and B comply with the applicable Local Street requirements of Council's ID PSP and provide standard cross-sections suitable for direct residential access.

3.4.2 Internal Intersection Arrangement

Road B connects with Road A and a rear lot arrangement to the east to form a four-leg intersection north of the proposed Road A / Upper Kedron Road intersection.

The intersection will operate within a low-speed residential environment and provide access to a limited number of dwellings. Its geometry will naturally moderate vehicle speeds and provide clear priority between the adjoining roads.

3.4.3 Internal Intersection Spacing

The IPWEA Street Design Manual has been adopted to assess the spacing of the internal intersection from the Upper Kedron Road intersection.

Under the Street Design Manual, Road B is classified as a Local Access and Rear Lot Access is classified as a Laneway, for which no specific intersection spacing criterion is prescribed so the Local Access classification has been adopted. The requirements and provision are detailed in Table 3-4.

Table 3-4 Internal Intersection Spacing

Road	Applicable requirement	Proposed separation	Outcome
Road B	40m	40m	✓
Rear Lot Access	40m	40m	✓

As detailed in Table 3-4, both proposed roads provide suitable separation to the intersection of Road A / Upper Keron Road.

3.4.4 Rear Lot Access Arrangement

Lots 4–6 are proposed to be accessed via a shared rear lot access arrangement extending from Road A. The access is contained within access easements benefiting the respective rear lots, with individual future lot crossovers provided from the shared access handle.

The rear lot access has a total length of approximately 28m from the dedicated road and is therefore within the ≤40m category identified in Table 11 of BCC TAPS. As the access serves three dwelling lots, Table 11 requires a minimum 3.5m easement width and 2.5m wide driveway pavement. The proposed arrangement provides a 6.5m wide access easement with approximately 6m of pavement and therefore exceeds the applicable dimensional requirements.

The proposed rear lot access is therefore considered suitably dimensioned for the three lots it serves.

3.5 Sight Distance Assessment

3.5.1 Upper Kedron Road Intersection

As outlined in Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections (AGRD P4), provision of SISD is required to be achieved in both travel directions at approaches of intersections to ensure adequate visibility of oncoming vehicles.

As Upper Kedron Road has a posted speed of 60km/h, it has a design speed of 70km/h.

A reaction time of 2 seconds has been adopted and measurements have been taken 5m back from the kerb as per AGRD P4. The requirements for sight distance and what the external intersection achieves has been outlined in Table 3-5.

Table 3-5 External Intersection Sight Distance Requirements

AGRD P4 Req.	Proposed Sight Distance		Compliant	
	Left	Right	Left	Right
151m	+300m	+300m	✓	✓

As detailed in Table 3-5, the available SISD at the proposed intersection substantially exceeds the applicable requirement in both directions. The intersection is located in a similar general position to the previously approved access location, but has been shifted slightly west toward the higher section of the road crest. This position provides clearer and more extended sight lines to approaching vehicles from both directions. It is noted the existing trees are proposed to be removed to improve sightlines and enable the provision of the frontage footpath network.

The available visibility is also relevant to the proposed CHR(s) treatment. A vehicle waiting to turn right into the site has clear visibility to opposing traffic along the gradual uphill approach, with the available sight distance substantially exceeding the

applicable SISD requirement. This provides right-turning drivers with sufficient distance to observe opposing traffic and identify an acceptable gap before completing the turn.

3.5.2 Internal Intersection Sight Distance

Road B is a public road approach and has therefore been assessed against the SISD criteria in Austroads Guide to Road Design Part 4A.

The Rear Lot Access is not a public road and has therefore been assessed as an access driveway in accordance with AS2890.1The assessment outcomes are outlined in Table 3-6.

Table 3-6 Internal Intersection Sight Distance Requirements

Location	AGRD P4 Req.	Proposed Sight Distance		Compliant	
		Left	Right	Left	Right
Road B	97m	+100m	56m	PO	PO
Rear Lot Access	45m	+100m	65m	✓	✓

As detailed in Table 3-6, the Rear Lot Access exceeds the applicable AS2890.1 sight distance requirement in both directions.

Road B achieves the applicable SISD requirement to the left but does not strictly achieve the 97m requirement to the right. The Road B approach has therefore been assessed on a performance basis.

Road B serves only a limited number of residential lots and will generate very low traffic volumes. Through traffic within the subdivision will also be limited, with the intersection functioning primarily as a low-volume residential access point rather than a conventional higher-order road intersection.

The limiting sight distance applies to vehicles approaching the intersection from the Upper Kedron Road direction. These vehicles will have only recently entered the subdivision and negotiated the Road A intersection and adjoining horizontal geometry, with entry speeds expected to be below 40km/h. These lower approach speeds increase the time available for a vehicle waiting on Road B to perceive and react to an approaching vehicle.

Table 7 of BCC TAPS identifies 50m of sight distance for the lowest nominated assessment speed of 50km/h. The available 56m sight distance from Road B exceeds this criterion, notwithstanding that the internal road network will operate at a posted speed of 40km/h.

It is also noted that the previous subdivision approval incorporated a minor road approach in a similar location, with the associated sight distance arrangement considered acceptable as part of that approval.

Having regard to the very low traffic demand, limited through traffic, expected approach speeds, available sight distance and the previous approved arrangement, Road B is considered to provide adequate and safe visibility and represents a suitable performance solution.

3.6 Future Lot Accesses

3.6.1 Standard Crossover Provision

Direct residential access is permitted from all of the road types proposed under Council's ID PSP.

The proposed lots provide sufficient frontage to accommodate standard residential crossovers generally in accordance with BSD-2022. Crossovers will be a minimum of 2.5m wide with standard 600mm x 900mm Type A tapers.

The final crossover locations for most lots will be coordinated during detailed design having regard to future dwelling layouts, street trees, power poles, stormwater infrastructure and other frontage services.

3.6.2 Crossovers Resolved at Development Application Stage

The indicative crossover locations for Lots 3–7 and Lot 31 have been resolved at the development application stage due to their proximity to the internal intersection or the lot access requirements associated with Road C.

The crossovers for Lots 3, 7 and 31 are proposed at 2.5m wide in accordance with BSD-2022. The crossovers for Lots 4–6 are proposed at 3m wide to support the required manoeuvring from the rear lot access. Standard Type A tapers will be provided to all crossovers.

A swept path assessment has been undertaken for the B85 design vehicle for Lots 4–6 to demonstrate that vehicles can enter and exit each lot in a forward direction, without reversing into Road A.

For Lots 4 and 5, the 5.5m pavement along with the proposed crossovers provides sufficient width for vehicles to manoeuvre between the crossover and laneway and complete the required forward entry and exit movements.

For Lot 6, additional manoeuvring area is required within the lot. The swept path assessment defines the minimum area that must remain clear to allow a vehicle to enter the lot, undertake a three-point turn and return to the rear lot access in a forward direction.

At detailed design and future dwelling construction stage, this manoeuvring area is to remain free of buildings and other permanent structures. The Building Location Envelope is therefore to commence beyond the swept path manoeuvring area identified on Drawing SK03 at Appendix B, ensuring the required vehicle manoeuvring space is preserved within the final lot layout.

The relevant crossover and swept path arrangements are illustrated in **Appendix B**.

3.6.3 Crossover Separation Requirements

Council's TAPS requires residential crossovers to be located at least 10m from the property boundary of an intersecting minor road. AS2890.1 also identifies a minimum separation of 6m from the tangent point of the intersecting road. Crossovers are also required to be separated 3m from one another and 600mm from stormwater gully pits.

The proposed crossover separations are detailed in Table 3-7.

Table 3-7 Crossover Separation from Internal Intersections

Lot	TAPS Intersections	TAPS Crossovers	Proposed separation		Outcome	
			Intersection	Crossover	In	Cr
Lot 3	10m	3m	~10.9m	+3m	✓	✓
Lot 4			~12.9m	+3m	✓	✓
Lot 5			~20m	+3m	✓	✓
Lot 6			~28m	+3m	✓	✓
Lot 31			~11m	+3m	✓	✓

As detailed in Table 3-7, all nominated crossover locations satisfy the applicable intersection and crossover separation requirements.

All crossovers also achieve adequate separation from stormwater gully pits and are therefore considered suitably located.

The crossover arrangements serve individual residential lots within a low-speed, low-volume internal road environment. Given the limited traffic generation and infrequent interaction between crossover and through movements, the proposed access arrangements are considered appropriate for the development.

3.7 Temporary Road Termination and Future Connection

Road A will temporarily terminate at the northern boundary with a T-head turnaround facility. The road alignment maintains provision for future extension through the adjoining land if that land is developed.

The operation of the temporary turnaround for refuse collection and service vehicles is addressed further in **Section 3.9**.

The location and configuration of the temporary T-head shown on the amended subdivision plans has been coordinated with the civil engineering design. Refer to the civil engineering drawing package for the detailed T-head geometry and associated easement arrangement.

3.8 Pedestrian and Active Transport Facilities

A pedestrian path is proposed along both verges of Road A and Road B and will connect with the existing/proposed pedestrian infrastructure along Upper Kedron Road.

The path will extend through the subdivision and connect with the 6m-wide easement provided along the northern boundary. This easement preserves a future connection to the Cedar Creek Bikeway corridor identified in Council's LGIP.

The development therefore provides an internal pedestrian connection to Upper Kedron Road while also making provision for the future active transport network.

3.9 Servicing Arrangements

3.9.1 Design Vehicles Required

In accordance with *BCC TAPS* and the BCC RPSP, the servicing requirements are as follows:

Refuse Collection

- Side Loading Refuse Collection Vehicle (RCV)

Commercial Servicing

- Medium Rigid Vehicle (MRV) – Occasional Use

3.9.2 Servicing Provision

Refuse Collection

The development will be serviced by a standard side-loading RCV undertaking kerbside collection within the subdivision. The RCV will enter from Upper Kedron Road, undertake collection along the main internal road and use the northern T-head turnaround before departing the subdivision in a forward direction.

For most lots, two 900mm x 900mm mobile garbage bin presentation areas can be accommodated along the respective lot frontages clear of future driveway crossovers, allowing conventional kerbside collection.

Dedicated consolidated presentation areas are proposed for lots located on the minor stub road to the west and rear lots on the right so that the RCV is not required to enter these roads. The following arrangements are proposed:

- Lots 1–3 and Lots 31–33: all 12 bins will be transferred to and presented along the main internal road frontage of Lot 31 for sequential collection by the side-loading RCV

Lots 5 and 6: the four bins associated with these lots will be transferred to the nominated presentation area adjoining the main internal road for collection by the side-loading RCV. All consolidated bin presentation areas are located within the maximum 50m transfer distance identified by the Refuse Planning Scheme Policy.

The previous subdivision approval incorporated a temporary easement and turnaround facility to enable the RCV to enter the minor stub road and turn before returning to the main internal road. Under the current proposal, this arrangement is no longer required because the bins associated with the stub road and rear lots are transferred to consolidated presentation areas accessible directly from the main internal road.

This arrangement removes the need for the RCV to enter, reverse or undertake awkward turning manoeuvres within the western stub road. It therefore reduces unnecessary heavy vehicle movements within the residential road network and

provides a simpler collection operation, with the RCV able to service the consolidated bin groups directly while progressing along the main internal road.

Accordingly, a temporary refuse turnaround easement within New Road 02, or a separate refuse turnaround within the eastern rear access, is not required. The proposed collection strategy provides compliant bin presentation capacity and transfer distances while allowing refuse collection to occur in a direct and streamlined manner before the RCV continues to the northern T-head turnaround. Overall, the proposed refuse collection arrangements are considered amenable and suitable for the proposed development.

Commercial Servicing

Although the Heavy Rigid Vehicle (HRV) is the required design service vehicle under BCC TAPS, a MRV is expected to be the largest commercial servicing vehicle expected to undertake delivery activities associated with the subdivision, including household moves, furniture and whitegoods deliveries.

Servicing will occur from the kerb, consistent with standard practice for residential subdivisions of this nature. Service vehicles will enter the subdivision from Upper Kedron Road, use the temporary T-head turning facility and exit the site in a forward direction.

Based on 2021 ABS Census data, 14.3% of Australians moved within the previous year. Applied to the proposed 33 lots, this equates to approximately five move-ins and five move-outs per annum, or approximately 10 total moving events each year. Move-in and move-out activity will therefore occur infrequently and can be readily accommodated by the proposed servicing arrangement. Other occasional bulky deliveries are also expected to be undertaken by smaller vehicles.

3.9.3 Swept Path Assessment

A swept path assessment has been undertaken using the BCC BSD-3004 side-loading RCV, as the controlling refuse collection vehicle for the subdivision.

The assessment adopts a 9.757m kerb-to-kerb turning radius and 6s lock-to-lock time in accordance with the BSD-3004 vehicle parameters.

The swept path assessment is overlaid on the proposed road and turnaround layout and demonstrates that the RCV can undertake the required kerbside collection movements, traverse the main internal road, utilise the northern T-head turnaround and subsequently depart the subdivision in a forward direction.

The vehicle wheels and clearance envelope remain within the available manoeuvring area and clear of surrounding obstructions throughout the assessed movements.

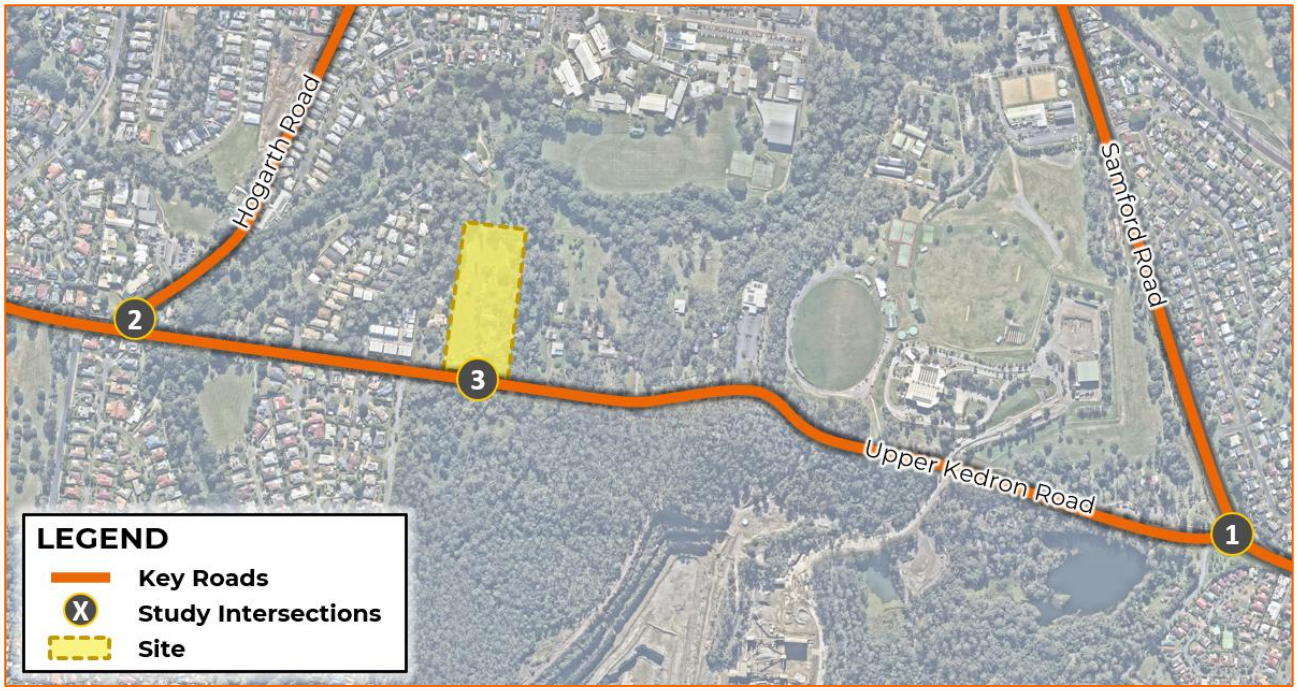
The updated swept path assessment is provided at **Appendix B**.

4 Traffic Assumptions and Characteristics

4.1 Study Intersections

Figure 4-1 shows the intersections under investigation, detail is provided in Table 4-1.

Figure 4-1 Study Intersections



Source: Nearmap

Table 4-1 Study Intersections

ID	Intersection	Control
1	Samford Road / Upper Kedron Road	Signalised Intersection
2	Hogarth Road / Upper Kedron Road	Signalised Intersection
3	Upper Kedron Road / Site Access	Priority Intersection

4.2 Background Traffic Volumes

To understand the current up-to-date existing traffic conditions, intersection traffic counts were sourced from Matrix from the 14th of July 2026. Collection of recent data ensures conclusions drawn from the following investigations are accurately supported. Data from the following intersections were recorded:

- Samford Road / Upper Kedron Road
- Hogarth Road / Upper Kedron Road
- Two-way site frontage counts

A copy of the traffic survey data is enclosed in **Appendix C**.

The survey peak periods and the adopted network peak are summarised in Table 4-2.

Table 4-2 Assessment Peak Periods

Intersection ID	Surveyed Peak Period	
	AM	PM
Samford Road / Upper Kedron Road	7:30 – 8:30am	4:15 – 5:15pm
Hogarth Road / Upper Kedron Road	7:30 – 8:30am	4:30 – 5:30pm
Upper Kedron Road / Site Access	7:30 – 8:30am	4:15 – 5:15pm
Adopted Site Peaks	**7:30 – 8:30am**	**4:30 – 5:30pm**

4.3 Traffic Growth

To understand traffic growth within the transport network near the development site, TMR's 2025 Segment Reports were consulted. These reports provide information on the Average Annual Daily Traffic (AADT) on State Controlled Roads in Queensland.

AADT data from one nearby location was used to provide insight into traffic near the development site. The 5-year growth rate was adopted (in lieu of non-available 10-year rate for the specific site) for the development.

Table 4-3 outlines the location of the AADT counter and the average growth rates over the last 5-years from the 2025 traffic volumes.

Table 4-3 2025 TMR AADT – 5-year Average Growth Rates

ID	Segment Site	5 Year Average Growth Rate
135714	Samford Road - 350m South of Tramway St	0.89% p.a

NOTE: Counter contains no data for 10-year growth.

As outlined in Table 4-3, the average growth rate in the surrounding area over the last 5 years is 0.89% p.a. It is also noted that a growth rate of 1.5%p.a was adopted within the previous reporting undertaken by PTT.

As such, to provide a conservative and consistent assessment, a growth rate of **1.5% p.a**. has been adopted for this assessment. The adoption of this rate is considered conservative and is expected to provide an accurate representation of traffic advancements.

5 Traffic Generation

5.1 Development Traffic Generation

To determine the net traffic demand for the proposed use, reference has been made to the RTA GTGD 2002. The existing yield has been removed to illustrate the net increase.

Table 5-1 summarises the adopted trip generation rates for the land uses.

Table 5-1 Adopted Generation Rates

Land Use	Yield	Trip Generation Rates		Trip Generation	
		AM	PM	AM	PM
Existing Use					
Low Density Residential	1 dwelling	0.85 trips per dwelling	0.85 trips per dwelling	0.85 vph	0.85 vph
Proposed Use					
Low Density Residential	33 dwellings	0.85 trips per dwelling	0.85 trips per dwelling	28.1 vph	28.1 vph
TOTAL				**27.2 vph**	**27.2 vph**

As outlined in Table 5-1, a net increase of ~27 vph is expected during both the AM and PM peaks.

Table 5-2 and Table 5-3 shows the peak hour traffic directional distribution and the resulting directional trips for the proposed development.

Table 5-2 Directional Distribution

Land Use	AM		PM	
	IN	OUT	IN	OUT
Low Density Residential	30%	70%	70%	30%

Table 5-3 Directional Trips

Land Use	Yield	AM		PM	
		IN	OUT	IN	OUT
Existing Use					
Low Density Residential	1 dwelling	0.2 vph	0.6 vph	0.6 vph	0.2 vph
Proposed Use					
Low Density Residential	33 dwellings	8.4 vph	19.6 vph	19.6 vph	8.4 vph
NET INCREASE		**8.2 vph**	**19 vph**	**19 vph**	**8.2 vph**
		27.2 vph		**27.2 vph**	

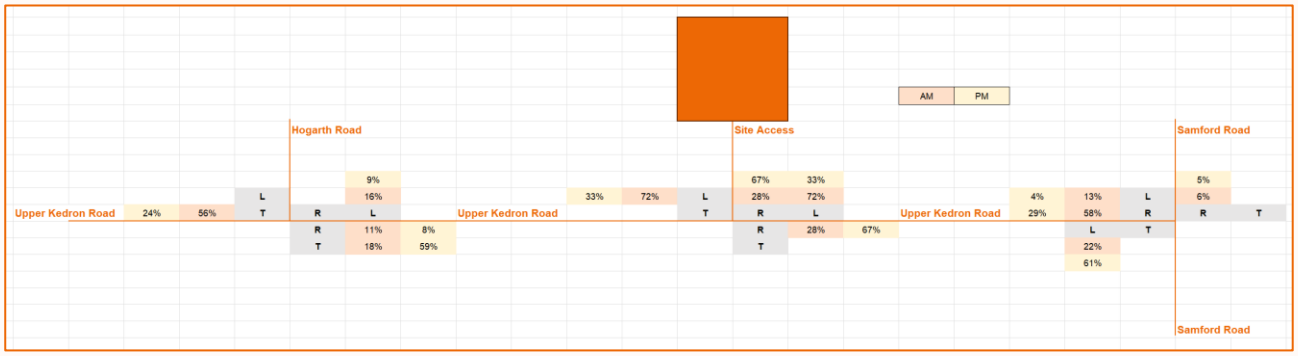
As indicated in Table 5-3, the proposed development is anticipated to generate up to ~8 vph entering and 19 vph exiting the development in the AM peak, the opposite is true of the PM peak.

5.2 External Directional Trip Distribution

The external directional trip distribution on the surrounding existing intersections has been adopted based on the approved traffic distributions detailed within the PTT TIA for the previously approved development.

As such, the adopted distribution for the proposed development traffic during the in/out movements are shown in Figure 5-1.

Figure 5-1 External Directional Trip Distribution



Source: PTT

6 Traffic Assessment Criteria

6.1 Assessment Scenarios

To evaluate the impact of the proposed development on the existing road network, each intersection has been analysed during the AM and PM peak periods, using the proposed yields detailed in Table 5-3.

As required by TMR's GTIA, the impact assessment year for external intersections should be the year of opening, while the impact assessment year for site accesses should be 10 years after the year of opening.

Information from the client depicts that the total development will be completed by 2028, thereby making a 10-year design horizon of 2038. SIDRA results and layouts can be found in **Appendix D**.

Table 6-1 summarises the impact assessment scenarios.

Table 6-1 Assessment Scenarios

Impact Assessment Scenario	Study Intersections
2026 Current Background	All
2028 BG (year of opening)	All
2028 BG + DEV	All
2038 BG	3
2038 BG (design horizon) + DEV	3

*Note: BG = **B**ack**g**round, Dev = **Dev**elopment Traffic*

6.2 Assessment Criteria

6.2.1 Intersection Degree of Saturation

The performance of each study intersection has been analysed using SIDRA Intersection 10 to determine the Degree of Saturation (DOS), queuing and delays. DOS is a measure of the intersection's capacity. TMR's DOS thresholds are listed in Table 6-2.

Table 6-2 Intersection DOS Thresholds

Intersection Treatment	DOS Threshold
Signalised Intersections	Less than or equal to 0.90
Priority Intersections	Less than or equal to 0.80

Source: TMR Guidelines for Assessment of Road Impacts Development

If the DOS exceeds the values in Table 6-2, it means that the intersection is approaching its practical capacity and upgrade works may be necessary. Above these threshold values, users of the intersection are likely to experience increased delays and queueing.

6.2.2 Intersection Delay

According to the *GTIA*, delay is a more important indicator of intersection performance than the DOS, as outlined in the previous TMR Guidelines for Assessment of Road Impacts of Development (GARID).

The GTIA aims to prevent intersection delays on the basis of traffic from getting worse by more than 5% on average as a result of the development. Measures to avoid, manage, or mitigate intersection delays must be considered if delays are expected to exceed this threshold. Velocity Traffic has provided additional comments if this threshold has been exceeded.

For priority-controlled intersections, if the average peak hour delay for any movement exceeds 42 seconds, as stated in the GTIA, the intersection should be upgraded for safety reasons. For signalised intersections, the DOS is still considered, as delay depends on the cycle length and phasing arrangement.

6.2.3 95th Percentile Queuing

The 95th percentile queue length is the one that 95% of all observed queue lengths during the assessment hour fall under. This value indicates the maximum queue length that should be designed for to prevent negative impacts on upstream lanes.

6.2.4 Modelling Parameters

A summary of the SIDRA parameters adopted for the study intersection is summarised below:

- Peak Flow Factor – 0.95 (30min/60min)
- Basic Saturation Flow – 1,950tcu/hr

6.3 Intersection 1: Samford Road / Upper Kedron Road

The Samford Road / Upper Kedron Road intersection is a three-way signalised intersection as shown in Figure 6-1. Results from the SIDRA analysis are summarised in Table 6-3 and Table 6-4.

Full SIDRA results for this assessment can be found in **Appendix D.**

Figure 6-1 Samford Road / Upper Kedron Road intersection - SIDRA Layout

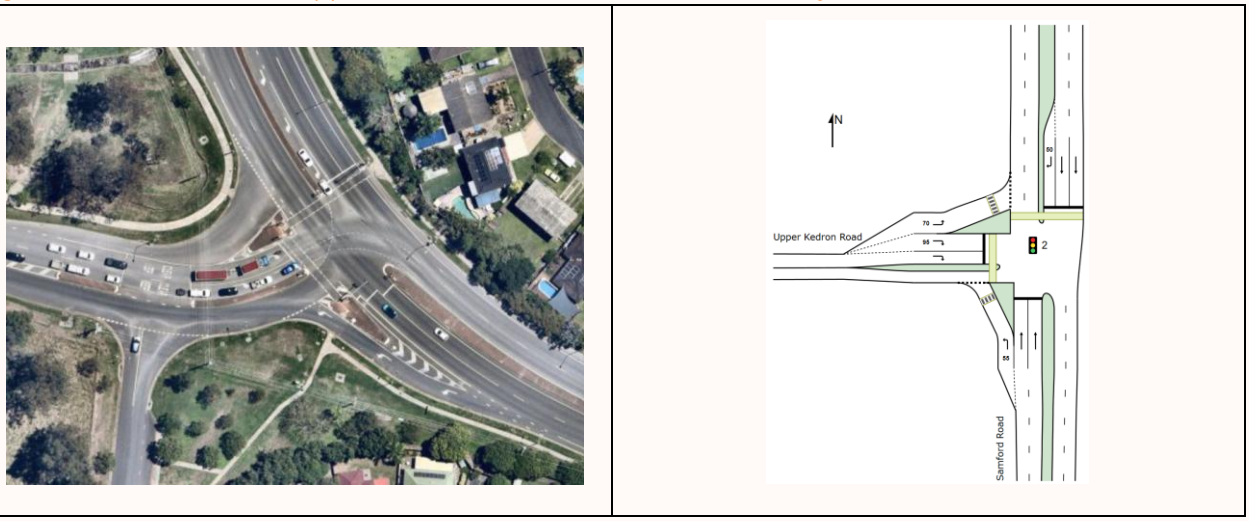


Table 6-3 Samford Road / Upper Kedron Road intersection - SIDRA Summary (AM)

Scenario	DOS	Critical Delay	95th %ile Queue	Critical Movement
2026 BG	0.708	33.8 sec	115.4m	Northen Approach
2028 BG	0.730	34.2 sec	123.6m	Northen Approach
2028 BG + DEV	0.730	34.3 sec	123.7m	Northen Approach

Table 6-4 Samford Road / Upper Kedron Road intersection - SIDRA Summary (PM)

Scenario	DOS	Critical Delay	95th %ile Queue	Critical Movement
2026 BG	0.653	61.9 sec	178.1m	Northen Approach
2028 BG	0.669	61.3 sec	188.3m	Northen Approach
2028 BG + DEV	0.686	60.4 sec	195.6m	Northen Approach

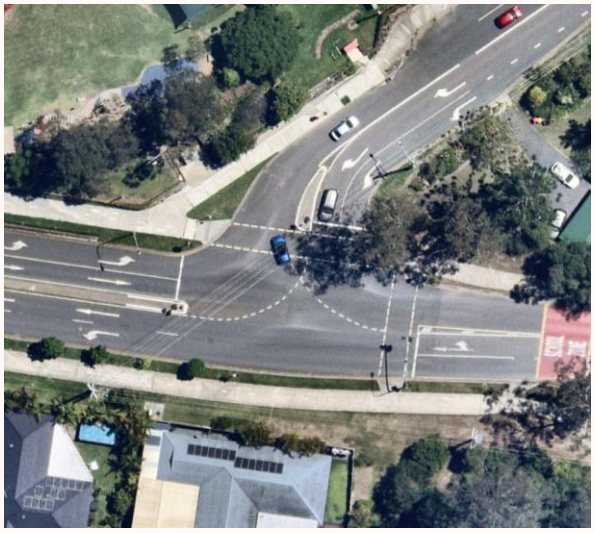
The results presented in Table 6-3 and Table 6-4 above suggest that the intersection is within acceptable performance thresholds for a signalised intersection (i.e. DOS less than 0.9) in all scenarios.

6.4 Intersection 2: Hogarth Road / Upper Kedron Road

The Hogarth Road / Upper Kedron Road is a three-way signalised intersection as shown in Figure 6-2. Results from the SIDRA analysis are summarised in Table 6-5 and Table 6-6.

Full SIDRA results for this assessment can be found in **Appendix D.**

Figure 6-2 Hogarth Road / Upper Kedron Road intersection - SIDRA Layout



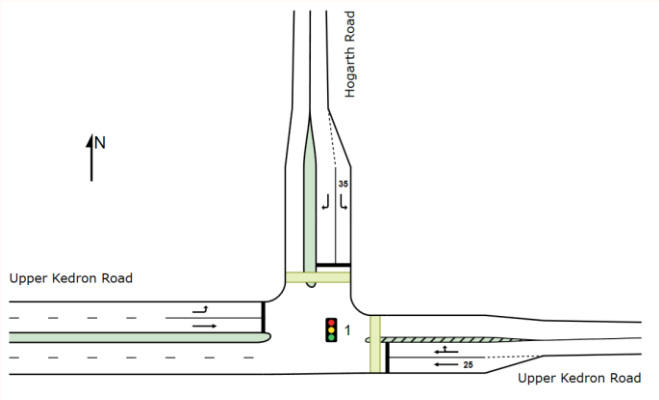


Table 6-5 Hogarth Road / Upper Kedron Road intersection - SIDRA Summary (AM)

Scenario	DOS	Critical Delay	95th %ile Queue	Critical Movement
2026 BG	0.597	54.3 sec	145.6m	Northen Approach
2028 BG	0.645	51.8 sec	162.9m	Northen Approach
2028 BG + DEV	0.650	51.8 sec	164.8m	Northen Approach

Table 6-6 Hogarth Road / Upper Kedron Road intersection - SIDRA Summary (PM)

Scenario	DOS	Critical Delay	95th %ile Queue	Critical Movement
2026 BG	0.446	61.4 sec	76.6m	Eastern Approach
2028 BG	0.461	61.9 sec	80.8m	Eastern Approach
2028 BG + DEV	0.466	61.8 sec	81.7m	Eastern Approach

The results presented in Table 6-5 and Table 6-6 above suggest that the intersection within acceptable performance thresholds for a signalised intersection (i.e. DOS less than 0.9) in all scenarios.

6.5 Intersection 3: Upper Kedron Road / Site Access

The Upper Kedron Road / Site Access intersection is a three-way priority controlled as shown in Figure 6-3. Results from the SIDRA analysis are summarised in Table 6-7 and Table 6-8.

Full SIDRA results for this assessment can be found in **Appendix D.**

Figure 6-3 Upper Kedron Road / Site Access intersection - SIDRA Layout

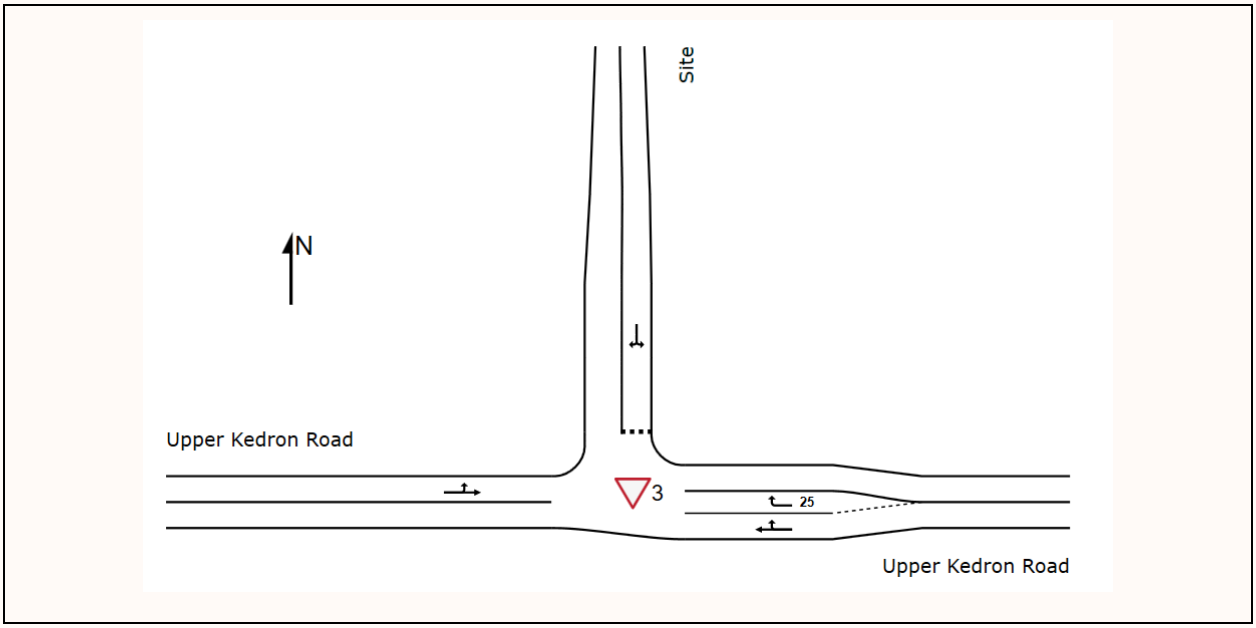


Table 6-7 Upper Kedron Road / Site Access intersection - SIDRA Summary (AM)

Scenario	DOS	Critical Delay	95th %ile Queue	Critical Movement
2028 BG + DEV	0.480	24.9 sec	1.4m	Northen Approach
2038 BG + DEV	0.556	39.1 sec	1.8m	Northen Approach

Table 6-8 Upper Kedron Road / Site Access intersection - SIDRA Summary (PM)

Scenario	DOS	Critical Delay	95th %ile Queue	Critical Movement
2028 BG + DEV	0.377	20 sec	0.6m	Northen Approach
2038 BG + DEV	0.437	28.8 sec	0.9m	Northen Approach

The results presented in Table 6-7 and Table 6-8 above suggest that the intersection is within acceptable performance thresholds for an unsignalised intersection (i.e. DOS less than 0.8, Delay <42s) in all scenarios.

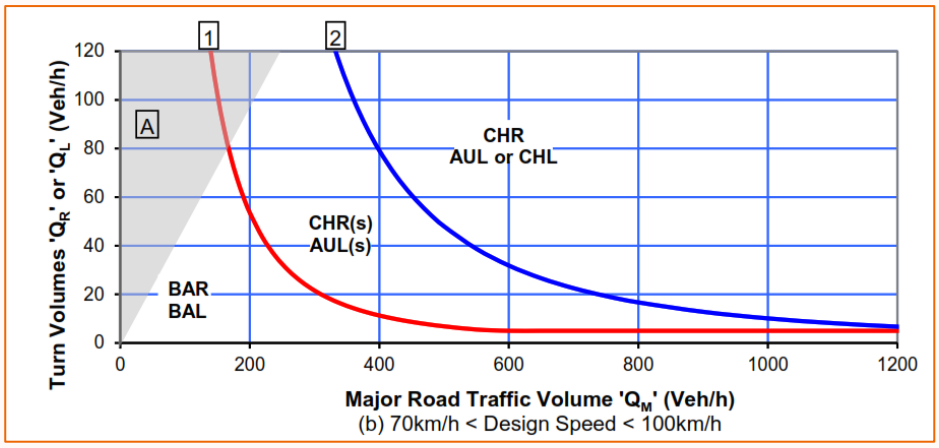
7 Turn Warrant Assessment

The turn lane configurations for the intersections have been assessed in correlation to the method set out in *Austroad's Guide to Traffic Management* (AGTM) Part 6.

7.1 Upper Kedron Road / Site Access

Figure 7-1 illustrates the turn warrant requirements for the turn facilities at the intersection.

Figure 7-1 Turn Warrant Assessment - Design speed of 70-100km/h, Major Road Frontage



Source: AGTM Part 6, Figure 3.25

7.1.1 2028 (Year of Opening)

The required turn warrant treatments for each peak for the year of opening with development traffic are shown on Figure 7-2 and Figure 7-3.

Figure 7-2 2028 BG + DEV AM

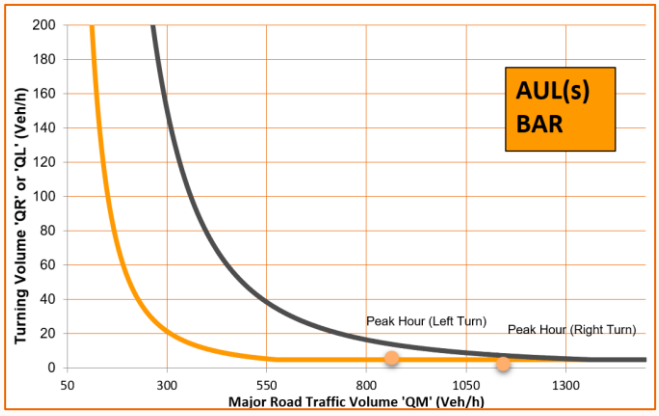
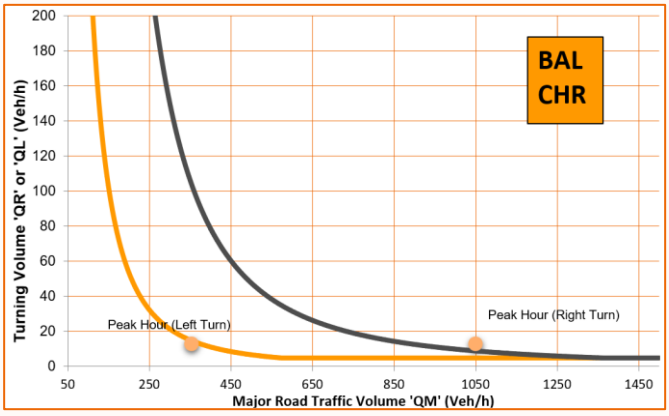


Figure 7-3 2028 BG + DEV PM



As shown in the figures above, the assessment resulted in a auxiliary Left turn (short) [AUL(S)], treatment and a Channelised Right (CHR) turn treatment from a traffic flow perspective.

7.1.2 2038 (Design Horizon)

The required turn warrant treatments for each peak for the year of opening with development traffic are shown on Figure 7-4 and Figure 7-5.

Figure 7-4 2038 BG + DEV AM

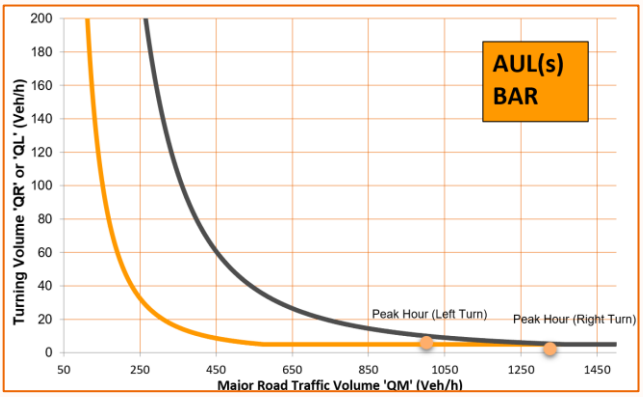
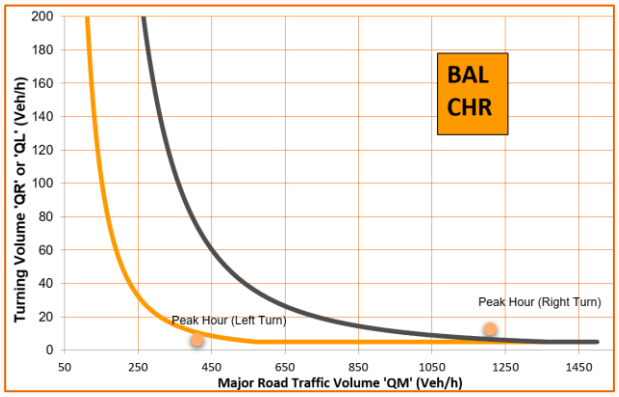


Figure 7-5 2038 BG + DEV PM



As shown in the figures above, the assessment resulted in an AUL(s) treatment, and a CHR turn treatment from a traffic flow perspective.

7.1.3 Turn Warrant Discussion

The Austroads turn warrant assessment identifies a CHR and AUL(s) treatment from a traffic-flow perspective under both the 2028 year-of-opening and 2038 design-horizon scenarios. The proposed intersection instead incorporates a CHR(s) and BAL, with both treatments assessed on a performance basis having regard to the forecast turning demand, available sight distance, operational performance and physical constraints of the Upper Kedron Road frontage.

CHR(s) Right-turn Treatment

The maximum forecast right-turn demand is approximately 13 vph during the PM peak, equivalent to an average of one right-turning vehicle approximately every 4.6 minutes.

The proposed CHR(s), consistent with the form previously approved at the site, is expected to provide approximately 17m of full-width storage with a further approximately 8m available through the widening taper. This provides capacity for approximately four passenger vehicles based on a nominal 6m queued vehicle length.

SIDRA modelling indicates that the 95th percentile queue for the right-turn movement is only 0.4m under the worst-case 2038 PM peak scenario. The forecast queue is therefore negligible relative to the available CHR(s) storage, demonstrating that the shorter treatment provides more than sufficient capacity for the expected right-turn demand.

Sight distance also strongly supports the proposed treatment. Greater than 300m of sight distance is available along the opposing approach, substantially exceeding the applicable 151m SISD requirement. The approach remains clearly visible along the

gradual road grade, providing right-turning drivers with substantial opportunity to observe opposing traffic and select an appropriate gap.

Provision of a full CHR would require additional widening within the southern verge of Upper Kedron Road, which is constrained by substantial earth retaining works and existing utility infrastructure. Given the very low right-turn demand, negligible modelled queue, substantial available sight distance and sufficient storage within the proposed CHR(s), the additional works associated with a full CHR are not considered warranted.

The CHR(s) is also consistent with the right-turn treatment previously approved under development approval A005612840 and with other comparable residential accesses along Upper Kedron Road. On this basis, the proposed CHR(s) is considered to provide an appropriate and safe performance solution.

BAL Left-turn Treatment

The Austroads assessment identifies an AUL(s) treatment for the left-turn movement. However, the treatment is triggered by only six left-turn vehicles during the peak hour, equivalent to approximately one movement every 10 minutes. The proposed BAL has therefore been assessed on a performance basis having regard to the low turning frequency, extensive approach visibility, comparable nearby accesses and the physical impacts associated with additional road widening.

Approach Visibility

Austroads identifies an Approach Sight Distance (ASD) of 92m for a 70km/h design-speed environment.

For eastbound vehicles approaching from the west, the proposed intersection is positioned toward the top of the Upper Kedron Road crest. From this direction, approximately 500m of ASD is available, with Upper Kedron Road maintaining an extended straight horizontal alignment toward the intersection.

Accordingly, eastbound drivers will be able to observe a vehicle indicating, slowing and turning left into Road A from a substantial distance. This provides ample opportunity for following drivers to perceive the turning vehicle, adjust their speed and respond safely. The ASD is illustrated visually on Figure 7-6.

Figure 7-6 Eastbound Approach Sight Distance to Proposed Intersection



Proposed BAL

Although the Austroads warrant recommends an AUL(s), the proposal includes a BAL treatment rather than an unmodified left-turn arrangement.

The BAL provides additional pavement width for an entering vehicle to decelerate and move partially clear of the eastbound through-traffic path while completing the turn into Road A. Combined with the approximately 500m of available approach visibility, this provides following drivers with sufficient time and space to respond to an isolated turning vehicle.

The detailed BAL geometry is documented within the civil engineering drawings. The proposed central chevron treatment also provides additional separation within the roadway and increases the effective width available to negotiate around a slowing vehicle in the unlikely event that a following driver needs to pass.

Given that only one left-turn movement is forecast approximately every 10 minutes during the peak hours, the frequency of interaction between a through vehicle and a vehicle turning into the subdivision will be low. The likelihood of a following driver needing to pass the turning vehicle is lower again and would generally arise only arise from tailgating or late turn indicating combined with minimal entry speed reduction, both scenarios are not expected to occur often or be a typical trend.

Comparable Developments

The Nelson Place subdivision intersection to the west provides access to 41 residential lots, being eight more lots than the proposed development. The intersection is provided with a CHR(S) right-turn treatment and a simple left-turn arrangement, without the additional pavement associated with a BAL treatment.

A review of all years of available DTMR crash data did not identify any recorded crashes at the Nelson Place / Upper Kedron Road intersection since its inception. The absence of any recorded crash history indicates that the lac of formal turning provision serving the larger residential catchment has not resulted in an identified operational or safety deficiency.

A further comparable development is located at 181 Upper Kedron Road. That development comprises 21 townhouses accessed through a single driveway and was completed in 2024. The access includes a CHR(s) right-turn treatment but no dedicated left-turn treatment.

No recorded crashes were identified at this access within the available crash database since it's completion. While the development has a shorter operational history, it provides another comparable residential access on the same road frontage operating without an auxiliary left-turn lane (or any facility in this case).

Both developments are exposed to similar background traffic conditions along Upper Kedron Road and would generate comparable concentrated turning movements at their respective access points. The proposed BAL therefore represents a higher level of left-turn provision than is currently operating at either nearby development.

Physical and Active Transport Constraints

Provision of an AUL(s) would require additional widening along the northern side of Upper Kedron Road, encroaching into the area allocated to the proposed pedestrian connection to the internal road network and future LGIP active transport corridor.

Accommodating the additional lane while retaining this connection may require the Road A intersection and adjoining through lanes to be shifted further south, bringing the works closer to existing underground services and overhead electricity infrastructure. More importantly, this would introduce a change in the horizontal alignment near the top of the road crest for the benefit of an infrequent left-turn movement, while affecting the alignment experienced by the overwhelming majority of vehicles continuing through on Upper Kedron Road. Introducing lateral deflection at this location would be undesirable from a road safety perspective and disproportionate to the limited turning demand.

The AUL(s) would therefore create additional civil, utility, active transport and through-traffic impacts despite the turning movement already being accommodated by extensive approach visibility and the proposed BAL treatment.

Design-Horizon Assessment

A conservative annual background traffic growth rate of 1.5% has been adopted within the assessment, exceeding the recorded five-year average growth rate of 0.89% per annum.

Despite this conservative growth allowance, the 2038 design-horizon assessment does not result in a higher-order left-turn treatment than the 2028 scenario. The warrant

outcome remains an AUL(S) and does not progress to a full AUL or channelised left-turn treatment.

A high-level review of the surrounding catchment also indicates that much of the land presently served by Upper Kedron Road is already developed, with only limited remaining development land available within Upper Kedron. The existing road-reserve pattern also preserves the potential for a future connection toward Mount Nebo Road. Should that connection be delivered, it would provide an alternative and convenient route for part of the future catchment, reducing reliance on Upper Kedron Road.

Accordingly, the 10-year assessment does not identify any material escalation in the nature of the left-turn demand or the treatment recommended by the Austroads methodology, while the broader network context indicates limited potential for substantial additional growth beyond that already conservatively assessed.

Conclusion

The Austroads turn-warrant assessment identifies an AUL(s) treatment based on the forecast left-turn demand. The warrant is triggered by approximately six left-turn movements during the peak hour, equivalent to one movement approximately every 10 minutes.

The proposed BAL provides additional pavement width for left-turning vehicles to decelerate and move partially clear of the eastbound through-traffic path. This occurs within an approach environment providing approximately 500m of available visibility, compared with an adopted ASD requirement of 92m.

The 2038 assessment, which incorporates a conservative background traffic growth rate of 1.5% per annum, does not identify an escalation to a higher-order left-turn treatment. Provision of an AUL(s) would also require additional widening with associated impacts to the pedestrian connection, road geometry and existing infrastructure.

Having regard to the low left-turn demand, available approach visibility, BAL geometry, design-horizon traffic assessment and physical constraints associated with further widening, the proposed BAL is considered to provide a suitable performance solution for the development.

8 Road Link Capacity Assessment

The proposed development will generate approximately 9 vehicle trips per day per dwelling. Applied to the proposed 33 residential lots, this equates to approximately 297 vpd.

The existing daily traffic volume along Upper Kedron Road has been estimated using the standard relationship of the average AM and PM peak-hour volumes multiplied by 10. This results in an estimated existing daily traffic volume of approximately 10,325 vpd.

The resulting traffic volume with the proposed development is summarised in Table 7-1.

Table 71 Environmental Capacity Assessment

Road Name	Road Type	Theoretical Capacity	Anticipated Daily Volume
Upper Kedron Road	Suburban Road	15,000–30,000 vpd	10,622 vpd

The resulting daily traffic volume remains well below the theoretical capacity range for a Suburban Road. The additional traffic associated with the proposed development represents only a minor increase in overall traffic demand and can be readily accommodated by the existing Upper Kedron Road formation.

Accordingly, no road link capacity upgrades are required as a result of the proposed development.

9 Summary

Findings for the development at 171-173 Upper Kedron Road, Ferny Grove are as follows:

Item	Findings
Existing conditions	The site comprises two lots fronting Upper Kedron Road and currently contains one dwelling. Upper Kedron Road is a Council-controlled Suburban Road with a posted speed limit of 60km/h.
Proposed development	The proposal involves reconfiguring the site into 33 low-density residential lots serviced by a new public road network.
Access arrangement	All-movement access is proposed via a new priority-controlled Road A / Upper Kedron Road intersection incorporating CHR(s) and BAL treatments.
Internal road network	Roads A and B comply with the applicable Local Street cross-section requirements. Lots 4–6 are accessed via a shared rear lot access comprising a 6.5m wide access easement with approximately 6m of pavement, exceeding the applicable BCC TAPS dimensional requirements.
Intersection spacing	Road B and the Rear Lot Access provide the applicable 40m separation from the Road A / Upper Kedron Road intersection.
Sight distance	The Upper Kedron Road intersection substantially exceeds the applicable SISD requirement. The Rear Lot Access complies with the applicable AS2890.1 sight distance requirement, while Road B is considered suitable on a performance basis having regard to the low traffic demand, low-speed environment and available sight distance.
Future lot access	Standard residential crossovers can be accommodated throughout the subdivision. All nominated crossover locations satisfy the applicable intersection and crossover separation requirements, with B85 swept paths confirming suitable forward entry and exit for Lots 4–6.
Pedestrian connectivity	Footpaths are proposed through the subdivision and connect Upper Kedron Road with the future Cedar Creek Bikeway corridor.
Refuse and servicing	Kerbside refuse collection is proposed, with consolidated bin presentation areas allowing the RCV to service Road B and the rear-lot access without entering or turning within these areas. Updated swept paths confirm the BCC BSD-3004 side-loading RCV can undertake collection, utilise the northern T-head turnaround and depart in a forward direction.
Crash history	The two recorded crashes on Upper Kedron Road were isolated single-vehicle loss-of-control incidents on curved sections. No recurring access or intersection-related crash pattern was identified.
Traffic generation	The proposal is expected to generate a net increase of approximately 27vph during the AM and PM peak periods.
Intersection performance	SIDRA analysis confirms all assessed intersections operate within the applicable performance thresholds under the year-of-opening and design-horizon scenarios.
Turn warrant assessment	Austroads identifies CHR and AUL(s) treatments from a traffic-flow perspective. The proposed CHR(s) and BAL are supported as performance solutions having regard to the low turning demand, negligible right-turn queue, available storage, extensive sight distance, physical road constraints and comparable nearby access arrangements.

Road link capacity	Upper Kedron Road is expected to carry approximately 10,622vpd with the development, remaining below the theoretical capacity of a Suburban Road. No road link capacity upgrade is required.

Velocity is of the opinion the proposal is compliant with relevant codes and standards.

The identified departures from the acceptable outcomes have been assessed on a performance basis and are considered suitable performance solutions. Velocity Traffic considers the proposal to satisfy the relevant performance outcomes of the Transport, access, parking and servicing code and to be supportable from a traffic and transport perspective.

VELOCITY
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APPENDIX A

CONCEPT PLANS



LOT SCHEDULE

LOT	LOT WIDTH	Area	LOT	LOT WIDTH	Area
1	11m	410 m²	18	12.5m	482 m²
2	11m	410 m²	19	12.5m	482 m²
3	CORNER	522 m²	20	17m	658 m²
4	CORNER	541 m²	21	15m	540 m²
5	11m	501 m²	22	15m	540 m²
6	10.5m	550 m²	23	12.5m	482 m²
7	12.5m	480 m²	24	10m	386 m²
8	10m	386 m²	25	10m	386 m²
9	10.5m	405 m²	26	10m	386 m²
10	10.5m	405 m²	27	12.5m	482 m²
11	12.5m	482 m²	28	10m	386 m²
12	10m	386 m²	29	10m	386 m²
13	10.5m	405 m²	30	12.5m	482 m²
14	12.5m	482 m²	31	CORNER	460 m²
15	10m	386 m²	32	12m	402 m²
16	10m	386 m²	33	12.5m	421 m²
17	10m	386 m²			



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QBCC 1194316 | TAS - CC7004

BONAVENTURA DEVELOPMENTS
LAND | VISION | COMMUNITY

CLIENT: BONAVENTURA DEVELOPMENTS

DRAWING TITLE: SITE PLAN

SCALE: 1 : 500

PROJECT: 33x LOT DEVEOPMENT
LOT 1 & 2 [RP185509]
171-173 UPPER KEDRON RD, FERNY GROVE, QLD 4055

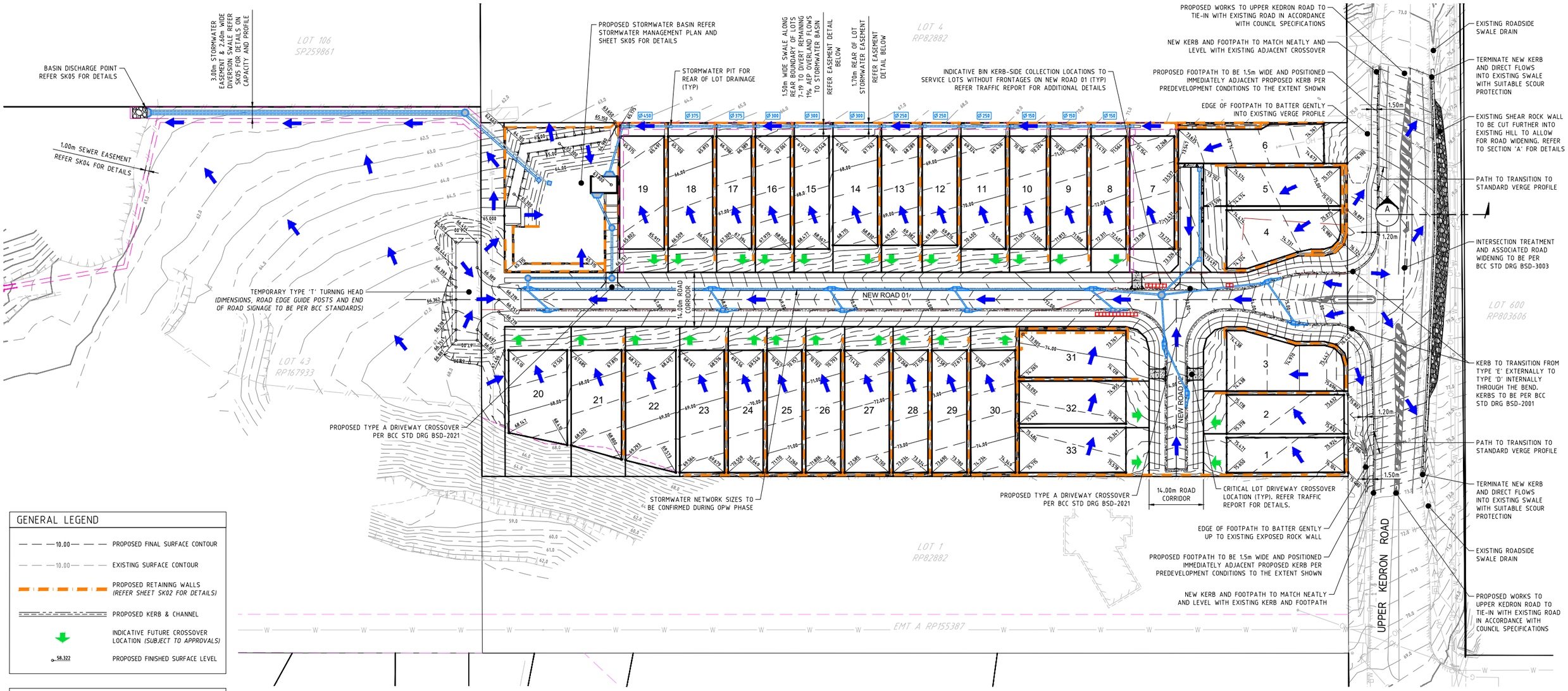
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JOB No: TBA
WINK + CO
Job No: 094-26

Date: 17/07/2026

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B	AMENDMENTS	04/08/26	TD	SW
C	AMENDMENTS	06/08/26	TD	SW
D	AMENDMENTS	21/09/26	TD	SW
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GENERAL LEGEND

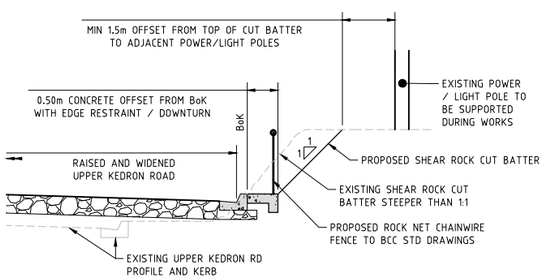
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- EXISTING SURFACE CONTOUR
- PROPOSED RETAINING WALLS *(REFER SHEET SK02 FOR DETAILS)*
- PROPOSED KERB & CHANNEL
- INDICATIVE FUTURE CROSSOVER LOCATION *(SUBJECT TO APPROVALS)*
- PROPOSED FINISHED SURFACE LEVEL

EXISTING SERVICE LEGEND

- GAS MAIN / VALVE
- STORMWATER MAIN / PIT
- WATER MAIN / VALVE & HYDRANT
- SEWER MAIN / MANHOLE
- O/H ELECTRICITY / POWER POLE
- NBN / JUNCTION & PIT
- UNDERGROUND ELECTRICITY

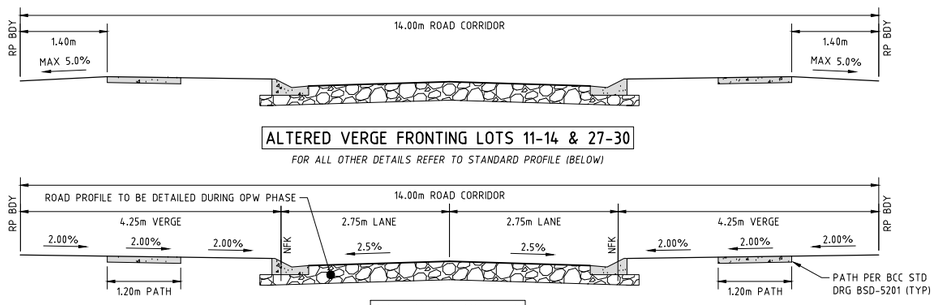
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- PROPOSED STORMWATER STRUCTURES
- OVERLAND FLOW DIRECTION



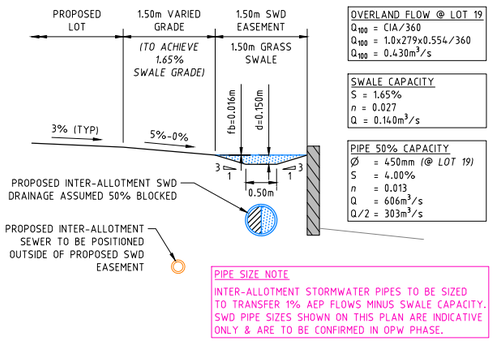
SECTION A - TYPICAL ROCK WALL DETAIL

SCALE 1:50 (A1)



TYPICAL ROAD 01 & ROAD 02 SECTIONS

SCALE 1:50 (A1)



TYPICAL REAR OF LOT CONFIGURATION (LOTS 7-19)

SCALE 1:50 (A1)

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ISSUE	DESCRIPTION	DATE	DRAWN	AUTH.
A	PRELIMINARY ISSUE	31.07.2026	KR	AR
B	PRELIMINARY ISSUE REVISED	06.08.2026	KR	AR
C	APPROVAL ISSUE	07.08.2026	KR	AR
D	RFI RESPONSE	30.09.2026	KR	AR

ISSUE STAMP: **ISSUE FOR APPROVAL** — NOT FOR CONSTRUCTION WITHOUT COUNCIL APPROVAL

NORTH

CITY COUNCIL APPROVAL NUMBER: -

SURVEY INFORMATION: PM - RL -

SURVEYOR: FOCUS ON SURVEYING

FILE NAME: SOL-411.DET.01

RP DESCRIPTION: LOTS 1-2 ON RP185509

LAND SIZE: -

SCALE BAR: 0 10 20 30m — SCALE 1:500 @ A1

CLIENT: BONAVENTURA DEVELOPMENTS PTY LTD

PROJECT TITLE: PROPOSED MULTI-LOT SUBDIVISION AT 171 - 173 UPPER KEDRON ROAD, FERNY GROVE, QLD 4055

DRAWING TITLE: CONCEPT STORMWATER DRAINAGE PLAN

DESIGN:	DATE:	DESIGN CHECK:	DATE:
KR		AR	
DRAWN:	DATE:	DWG CHECK:	DATE:
KR		AR	

AUTHORISED FOR ISSUE: Signed by: - RPEQ No. 31882

ORIG. SIZE: A1

PROJECT NUMBER / SHEET: C26062 SK01

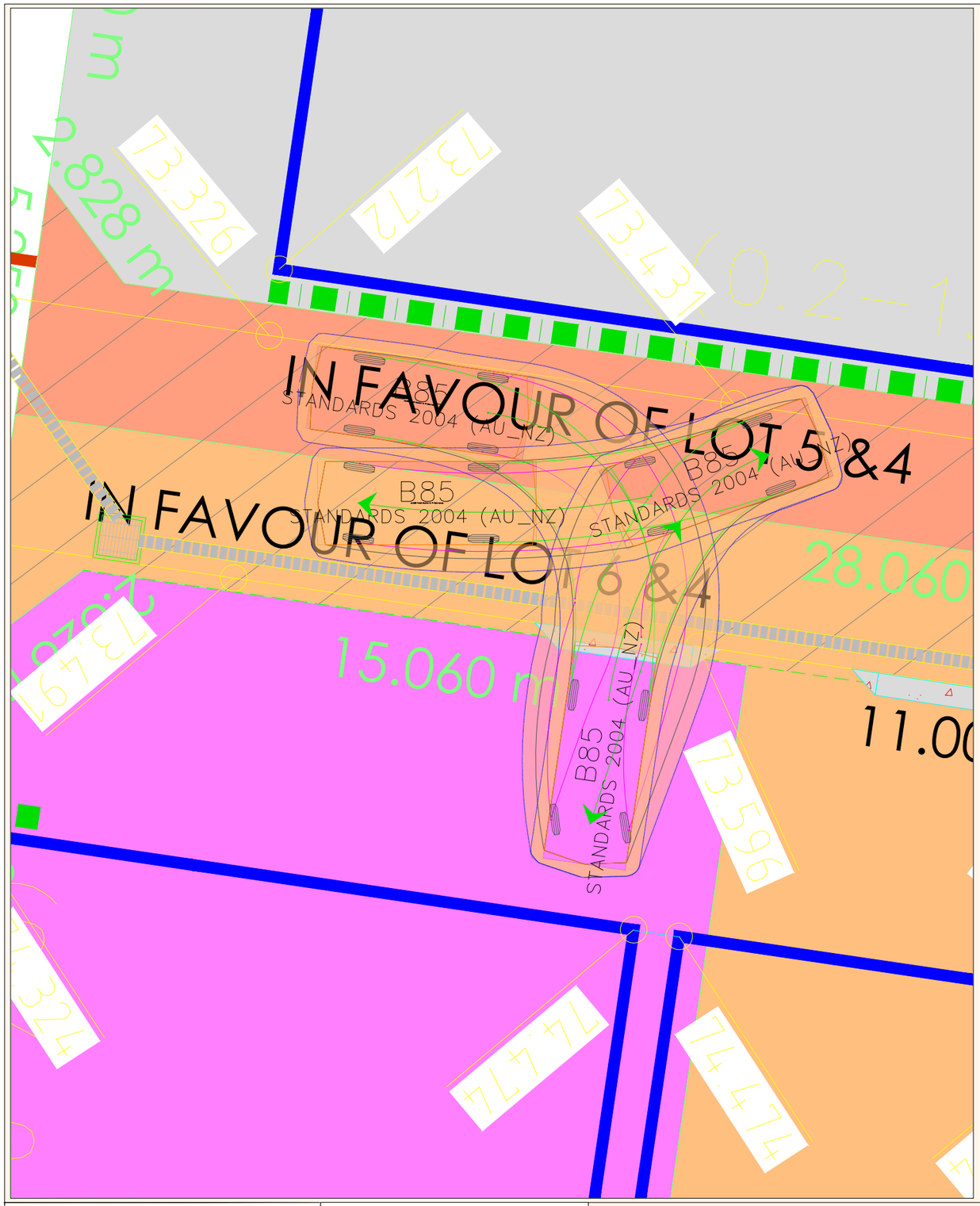
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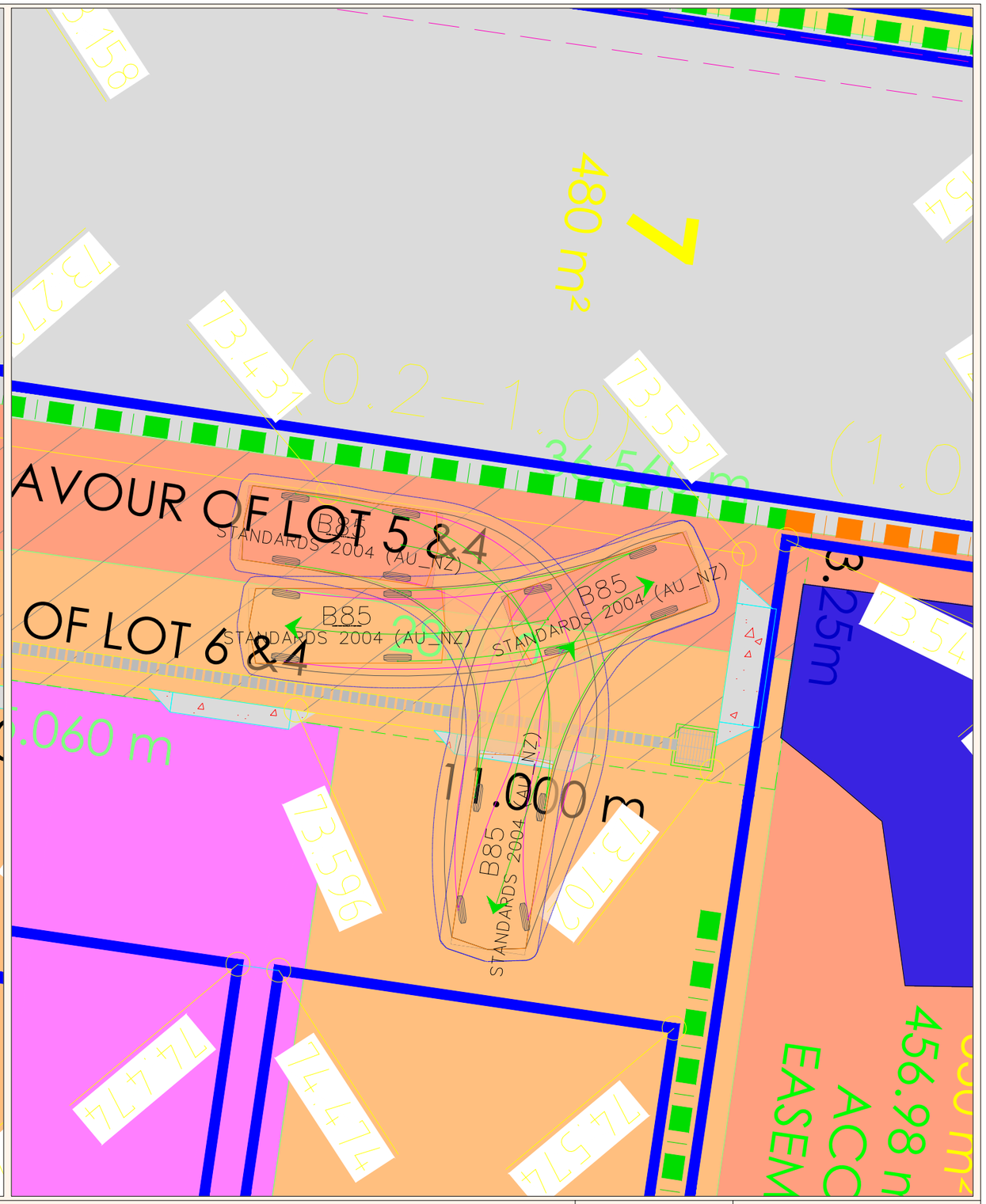
VELOCITY TRAFFIC ENGINEERING

APPENDIX B

SIDRA PATH ASSESSMENT

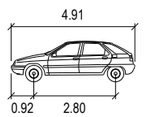






SWEPT PATH LEGEND

- VEHICLE BODY
- FRONT TIRES
- REAR TIRES
- VEHICLE PATH
- VEHICLE CLEARANCE (300mm)
- VEHICLE



B85 - AS2890.1

	Meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

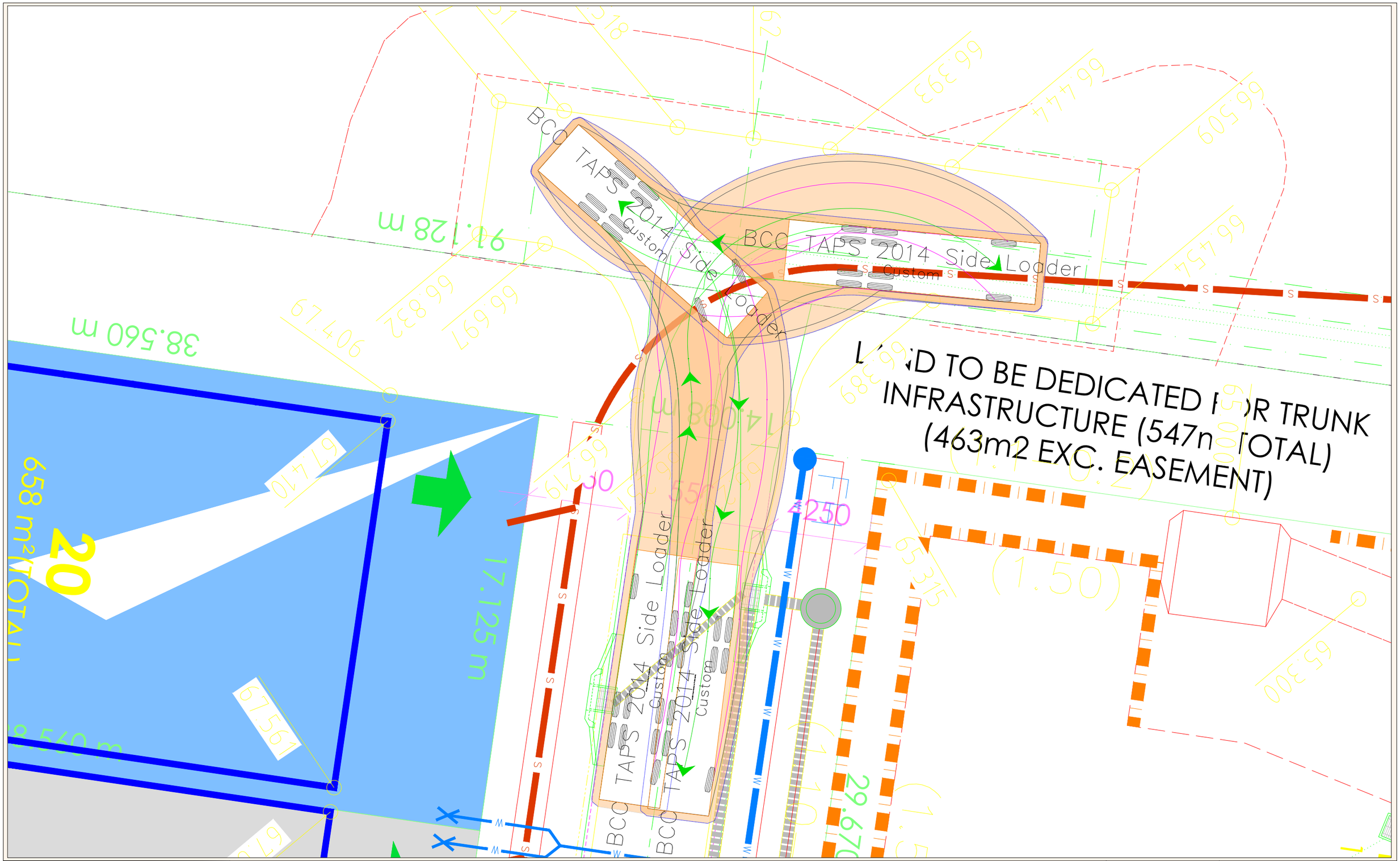
Velocity Traffic Engineering

Velocity Traffic Engineering
T 0413482746
ABN 94 658 980 208

BONADVENTURA DEVELOPMENTS
171-173 UPPER KEDRON ROAD, FERNY GROVE
SWEPT PATH -B85
LEFT: LOT 4
RIGHT: LOT 5

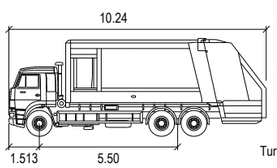
Drawn	Date	Scale	Size
C.Schackow	02/10/2026	1:100	A3

Drawing Number SK01 | Rev B



SWEPT PATH LEGEND

- VEHICLE BODY
- FRONT TIRES
- REAR TIRES
- VEHICLE PATH
- VEHICLE CLEARANCE (300mm)
- VEHICLE



TAPS Code Rear Lift

Meters

Width	:	2.50
Track	:	2.50
Lock to Lock Time	:	6.0
Travel Height	:	3.6
Operating Height	:	3.6
Turning radius (kerb-to-kerb)	:	9.757

Velocity Traffic Engineering
T 0413482746
ABN 94 658 980 208

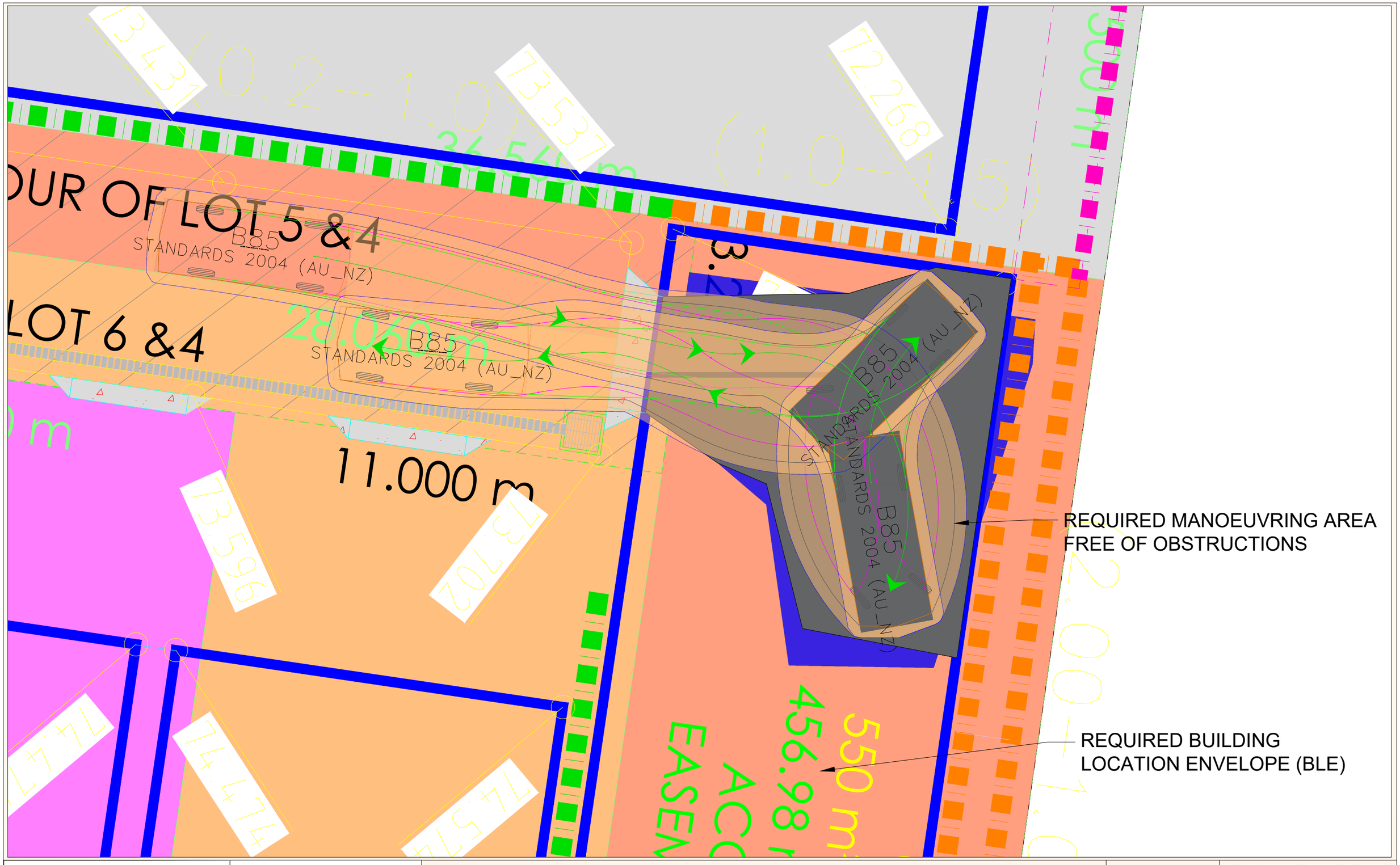
BONADVENTURA DEVELOPMENTS

171-173 UPPER KEDRON ROAD, FERNY GROVE

SWEPT PATH - RCV TURNAROUND

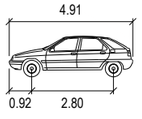
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Drawing Number SK02 Rev B



SWEPT PATH LEGEND

- VEHICLE BODY
- FRONT TIRES
- REAR TIRES
- VEHICLE PATH
- VEHICLE CLEARANCE (300mm)
- VEHICLE



B85 - AS2890.1

	Meters
Width	1.87
Track	1.77
Lock to Lock Time	6.0
Steering Angle	40.0

Velocity Traffic Engineering
T 0413482746
ABN 94 658 980 208

BONADVENTURA DEVELOPMENTS
171-173 UPPER KEDRON ROAD, FERNY GROVE
SWEPT PATH -B85 LOT 6

Drawn	Date	Scale	Size
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Drawing Number SK03 Rev B

VELOCITY
TRAFFIC
ENGINEERING

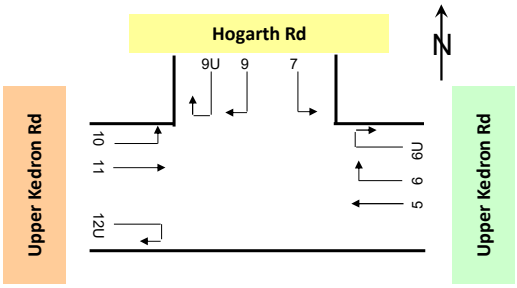
APPENDIX C

TRAFFIC SURVEYS



Job No. : AUQLD16215
Client : Velocity Traffic Engineering
Suburb : Ferny Grove
Location : 1. Upper Kedron Rd & Hogarth Rd

Day/Date : Tuesday, 14 July 2026
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

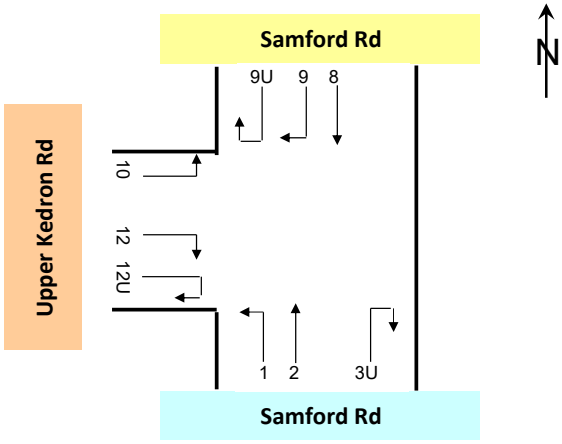


	Approach		Upper Kedron Rd			Hogarth Rd			Upper Kedron Rd			Grand Total
	Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	7:30 to 8:30		271	10	**281**	240	15	**255**	805	35	**840**	**1,376**
PM	16:30 to 17:30		609	4	**613**	271	1	**272**	391	2	**393**	**1,278**

Approach		Upper Kedron Rd			Hogarth Rd			Upper Kedron Rd			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
6:30 to 7:30		152	46	**198**	98	7	**105**	705	33	**738**	**1,041**
6:45 to 7:45		180	43	**223**	143	5	**148**	777	41	**818**	**1,189**
7:00 to 8:00		195	31	**226**	163	7	**170**	804	48	**852**	**1,248**
7:15 to 8:15		218	16	**234**	198	8	**206**	778	41	**819**	**1,259**
7:30 to 8:30		271	10	**281**	240	15	**255**	805	35	**840**	**1,376**
7:45 to 8:45		289	9	**298**	260	14	**274**	728	31	**759**	**1,331**
8:00 to 9:00		297	11	**308**	295	13	**308**	647	22	**669**	**1,285**
8:15 to 9:15		293	11	**304**	267	11	**278**	550	25	**575**	**1,157**
8:30 to 9:30		251	18	**269**	215	5	**220**	428	21	**449**	**938**
AM Totals		**674**	**74**	**748**	**553**	**27**	**580**	**1,938**	**89**	**2,027**	**3,355**
16:00 to 17:00		586	1	**587**	262	0	**262**	365	7	**372**	**1,221**
16:15 to 17:15		613	2	**615**	263	1	**264**	378	4	**382**	**1,261**
16:30 to 17:30		609	4	**613**	271	1	**272**	391	2	**393**	**1,278**
16:45 to 17:45		592	6	**598**	261	1	**262**	363	5	**368**	**1,228**
17:00 to 18:00		562	6	**568**	259	1	**260**	352	4	**356**	**1,184**
17:15 to 18:15		501	4	**505**	249	1	**250**	312	6	**318**	**1,073**
17:30 to 18:30		469	2	**471**	212	1	**213**	288	7	**295**	**979**
17:45 to 18:45		429	0	**429**	171	1	**172**	270	4	**274**	**875**
18:00 to 19:00		406	0	**406**	142	1	**143**	248	5	**253**	**802**
PM Totals		**1,554**	**7**	**1,561**	**663**	**2**	**665**	**965**	**16**	**981**	**3,207**

Job No. : AUQLD16215
Client : Velocity Traffic Engineering
Suburb : Ferny Grove
Location : 2. Upper Kedron Rd & Samford Rd

Day/Date : Tuesday, 14 July 2026
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

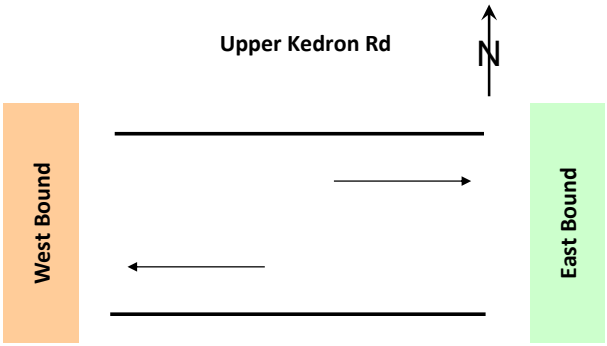


	Approach	Samford Rd				Samford Rd			Upper Kedron Rd			Grand Total
	Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
AM	7:30 to 8:30	660	30	**690**		1,372	25	**1,397**	773	44	**817**	2,904
PM	16:15 to 17:15	1,849	14	**1,863**		705	20	**725**	348	6	**354**	2,942

Approach	Samford Rd				Samford Rd			Upper Kedron Rd			Grand Total
Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
6:30 to 7:30	438	90	**528**		1,194	34	**1,228**	662	32	**694**	2,450
6:45 to 7:45	486	72	**558**		1,260	30	**1,290**	692	47	**739**	2,587
7:00 to 8:00	523	55	**578**		1,368	31	**1,399**	752	50	**802**	2,779
7:15 to 8:15	575	39	**614**		1,418	31	**1,449**	730	51	**781**	2,844
7:30 to 8:30	660	30	**690**		1,372	25	**1,397**	773	44	**817**	2,904
7:45 to 8:45	725	39	**764**		1,299	28	**1,327**	755	34	**789**	2,880
8:00 to 9:00	776	41	**817**		1,183	35	**1,218**	691	25	**716**	2,751
8:15 to 9:15	792	51	**843**		1,035	36	**1,071**	616	23	**639**	2,553
8:30 to 9:30	775	64	**839**		955	36	**991**	523	31	**554**	2,384
AM Totals	**1,873**	**184**	**2,057**		**3,521**	**95**	**3,616**	**1,958**	**107**	**2,065**	**7,738**
16:00 to 17:00	1,821	22	**1,843**		697	19	**716**	363	10	**373**	2,932
16:15 to 17:15	1,849	14	**1,863**		705	20	**725**	348	6	**354**	2,942
16:30 to 17:30	1,814	15	**1,829**		714	16	**730**	370	5	**375**	2,934
16:45 to 17:45	1,826	15	**1,841**		706	16	**722**	341	8	**349**	2,912
17:00 to 18:00	1,764	14	**1,778**		666	13	**679**	302	6	**308**	2,765
17:15 to 18:15	1,625	12	**1,637**		638	11	**649**	302	9	**311**	2,597
17:30 to 18:30	1,507	8	**1,515**		558	8	**566**	268	8	**276**	2,357
17:45 to 18:45	1,353	2	**1,355**		494	8	**502**	249	5	**254**	2,111
18:00 to 19:00	1,221	2	**1,223**		453	6	**459**	227	7	**234**	1,916
PM Totals	**4,806**	**38**	**4,844**		**1,816**	**38**	**1,854**	**892**	**23**	**915**	**7,613**

Job No. : AUQLD16215
Client : Velocity Traffic Engineering
Suburb : Ferny Grove
Location : 3. Midblock at 171 Upper Kedron Rd

Day/Date : Tuesday, 14 July 2026
Weather : Fine
Description : Mid-block Count
: Peak Hour Summary



	Approach	West Bound			East Bound			Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	
AM	7:30 to 8:30	256	10	**266**	810	28	**838**	**1,104**
PM	16:15 to 17:15	670	2	**672**	331	5	**336**	**1,008**

Approach	West Bound			East Bound			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	
6:30 to 7:30	148	46	**194**	646	22	**668**	**862**
6:45 to 7:45	175	42	**217**	725	31	**756**	**973**
7:00 to 8:00	190	32	**222**	755	39	**794**	**1,016**
7:15 to 8:15	212	17	**229**	757	39	**796**	**1,025**
7:30 to 8:30	256	10	**266**	810	28	**838**	**1,104**
7:45 to 8:45	284	9	**293**	748	23	**771**	**1,064**
8:00 to 9:00	300	11	**311**	699	10	**709**	**1,020**
8:15 to 9:15	290	11	**301**	603	8	**611**	**912**
8:30 to 9:30	270	18	**288**	481	11	**492**	**780**
AM Totals	**674**	**74**	**748**	**1,937**	**61**	**1,998**	**2,746**
16:00 to 17:00	642	2	**644**	334	5	**339**	**983**
16:15 to 17:15	670	2	**672**	331	5	**336**	**1,008**
16:30 to 17:30	659	4	**663**	340	3	**343**	**1,006**
16:45 to 17:45	650	6	**656**	306	6	**312**	**968**
17:00 to 18:00	615	5	**620**	281	5	**286**	**906**
17:15 to 18:15	551	4	**555**	259	7	**266**	**821**
17:30 to 18:30	503	2	**505**	246	8	**254**	**759**
17:45 to 18:45	452	0	**452**	235	5	**240**	**692**
18:00 to 19:00	432	0	**432**	219	6	**225**	**657**
PM Totals	**1,689**	**7**	**1,696**	**834**	**16**	**850**	**2,546**

VELOCITY
TRAFFIC
ENGINEERING

APPENDIX D

SIDRA ANALYSIS

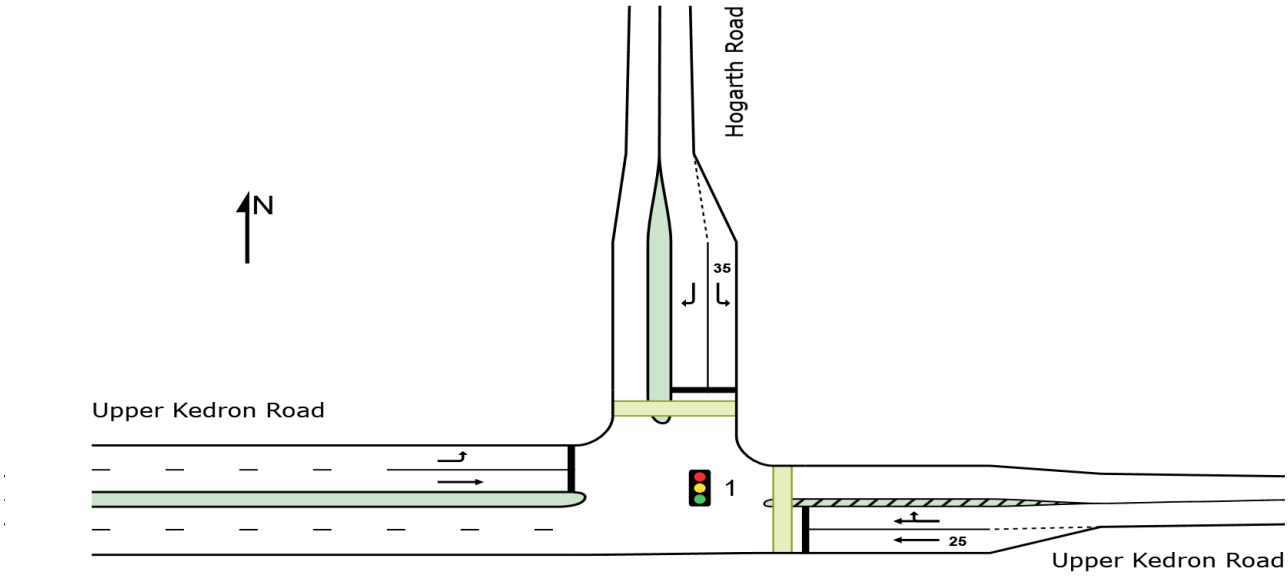


SITE LAYOUT

Site: [1] Upper Kedron / Hogarth - 2026 BG AM (Folder1)

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

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



SIDRA INTERSECTION 10.0 | Copyright © 2000-2025 Akcelik and Associates Pty Ltd | sidrasolutions.com
Organisation: MODUS TRAFFIC ENGINEERING PTY LTD | Licence: NETWORK / 1PC | Created: Tuesday, 21 July 2026 10:26:40 AM
Project: C:\Users\Casey\Modus Engineering\Projects 2022 - 2023 - Documents\General\Projects 2022-2023\ACT\JOBS\Bonadventura Developments\171-173 Upper Kedron Rd, Ferny Grove\3 ANALYSIS\SIDRA\171-173 Upper Kedron Road.sipx

MOVEMENT SUMMARY

Site: [1] Upper Kedron / Hogarth - 2026 BG AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	189	5.3	189	5.3	0.138	4.2	LOS A	2.7	19.8	0.32	0.27	0.32	53.4
6	R2	All MCs	106	1.0	106	1.0	0.562	53.9	LOS D	5.2	36.7	1.00	0.78	1.00	31.2
Approach			296	3.8	296	3.8	0.562	22.1	LOS C	5.2	36.7	0.56	0.45	0.56	39.4
North: Hogarth Road															
7	L2	All MCs	113	1.4	113	1.4	* 0.597	54.3	LOS D	5.5	39.3	1.00	0.80	1.03	31.0
9	R2	All MCs	156	13.8	156	13.8	* 0.597	50.1	LOS D	7.4	57.7	0.98	0.81	0.98	23.6
Approach			268	8.6	268	8.6	0.597	51.9	LOS D	7.4	57.7	0.99	0.80	1.00	27.3
West: Upper Kedron Road															
10	L2	All MCs	236	4.2	236	4.2	0.239	16.6	LOS B	5.9	43.0	0.56	0.72	0.56	38.2
11	T1	All MCs	648	4.4	648	4.4	* 0.597	14.2	LOS B	20.1	145.6	0.69	0.63	0.69	42.3
Approach			884	4.3	884	4.3	0.597	14.9	LOS B	20.1	145.6	0.66	0.65	0.66	41.1
All Vehicles			1448	5.0	1448	5.0	0.597	23.2	LOS C	20.1	145.6	0.70	0.64	0.70	36.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (5)] Upper Kedron / Hogarth - 2028 BG AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	195	5.3	195	5.3	0.141	4.1	LOS A	2.7	20.0	0.31	0.26	0.31	53.6
6	R2	All MCs	109	1.0	109	1.0	0.440	49.8	LOS D	5.1	35.9	0.96	0.78	0.96	32.3
Approach			304	3.8	304	3.8	0.440	20.5	LOS C	5.1	35.9	0.55	0.45	0.55	40.3
North: Hogarth Road															
7	L2	All MCs	160	1.4	160	1.4	* 0.645	51.8	LOS D	7.8	55.0	1.00	0.82	1.04	31.7
9	R2	All MCs	116	13.8	116	13.8	* 0.459	49.5	LOS D	5.4	42.0	0.96	0.79	0.96	23.8
Approach			276	6.6	276	6.6	0.645	50.8	LOS D	7.8	55.0	0.98	0.81	1.01	28.9
West: Upper Kedron Road															
10	L2	All MCs	243	4.2	243	4.2	0.263	18.6	LOS B	6.6	47.8	0.60	0.73	0.60	36.8
11	T1	All MCs	668	4.4	668	4.4	* 0.645	16.5	LOS B	22.4	162.9	0.75	0.68	0.75	40.5
Approach			912	4.3	912	4.3	0.645	17.0	LOS B	22.4	162.9	0.71	0.69	0.71	39.4
All Vehicles			1492	4.6	1492	4.6	0.645	24.0	LOS C	22.4	162.9	0.73	0.66	0.73	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (3)] Upper Kedron / Hogarth - 2028 BG + DEV AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	199	5.3	199	5.3	0.144	4.1	LOS A	2.8	20.5	0.31	0.27	0.31	53.6
6	R2	All MCs	112	1.0	112	1.0	0.446	49.8	LOS D	5.2	36.6	0.96	0.78	0.96	32.3
Approach			311	3.8	311	3.8	0.446	20.5	LOS C	5.2	36.6	0.55	0.45	0.55	40.3
North: Hogarth Road															
7	L2	All MCs	162	1.4	162	1.4	* 0.650	51.8	LOS D	7.9	55.8	1.00	0.83	1.04	31.7
9	R2	All MCs	116	13.8	116	13.8	* 0.459	49.5	LOS D	5.4	42.0	0.96	0.79	0.96	23.8
Approach			278	6.6	278	6.6	0.650	50.9	LOS D	7.9	55.8	0.98	0.81	1.01	28.9
West: Upper Kedron Road															
10	L2	All MCs	243	4.2	243	4.2	0.263	18.6	LOS B	6.6	47.9	0.60	0.73	0.60	36.8
11	T1	All MCs	673	4.4	673	4.4	* 0.650	16.6	LOS B	22.7	164.8	0.75	0.68	0.75	40.4
Approach			916	4.3	916	4.3	0.650	17.1	LOS B	22.7	164.8	0.71	0.69	0.71	39.4
All Vehicles			1504	4.6	1504	4.6	0.650	24.1	LOS C	22.7	164.8	0.73	0.67	0.73	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (2)] Upper Kedron / Hogarth - 2026 BG PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	562	0.8	562	0.8	0.434	13.6	LOS B	10.9	76.6	0.59	0.52	0.59	42.7
6	R2	All MCs	83	0.0	83	0.0	* 0.434	61.4	LOS E	7.5	52.8	0.85	0.74	0.85	38.1
Approach			645	0.7	645	0.7	0.434	19.7	LOS B	10.9	76.6	0.62	0.55	0.62	39.1
North: Hogarth Road															
7	L2	All MCs	84	0.0	84	0.0	0.161	34.4	LOS C	3.1	21.6	0.79	0.74	0.79	37.3
9	R2	All MCs	202	0.5	202	0.5	* 0.446	41.1	LOS D	8.5	59.9	0.90	0.80	0.90	26.4
Approach			286	0.4	286	0.4	0.446	39.1	LOS D	8.5	59.9	0.87	0.78	0.87	30.2
West: Upper Kedron Road															
10	L2	All MCs	146	0.0	146	0.0	0.216	27.4	LOS C	4.9	34.3	0.73	0.75	0.73	31.9
11	T1	All MCs	267	0.8	267	0.8	* 0.446	29.6	LOS C	10.4	73.6	0.85	0.72	0.85	32.1
Approach			414	0.5	414	0.5	0.446	28.8	LOS C	10.4	73.6	0.81	0.73	0.81	32.0
All Vehicles			1345	0.6	1345	0.6	0.446	26.7	LOS C	10.9	76.6	0.73	0.65	0.73	34.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (6)] Upper Kedron / Hogarth - 2028 BG PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	579	0.8	579	0.8	0.453	14.1	LOS B	11.5	80.8	0.60	0.53	0.60	42.7
6	R2	All MCs	85	0.0	85	0.0	* 0.453	61.9	LOS E	7.7	54.0	0.85	0.75	0.85	38.0
Approach			664	0.7	664	0.7	0.453	20.2	LOS C	11.5	80.8	0.63	0.56	0.63	38.8
North: Hogarth Road															
7	L2	All MCs	86	0.0	86	0.0	0.164	34.3	LOS C	3.2	22.1	0.79	0.74	0.79	37.3
9	R2	All MCs	208	0.5	208	0.5	* 0.461	41.3	LOS D	8.8	62.1	0.91	0.80	0.91	26.3
Approach			295	0.4	295	0.4	0.461	39.3	LOS D	8.8	62.1	0.87	0.79	0.87	30.1
West: Upper Kedron Road															
10	L2	All MCs	151	0.0	151	0.0	0.223	27.6	LOS C	5.1	35.5	0.73	0.75	0.73	31.8
11	T1	All MCs	276	0.8	276	0.8	* 0.461	29.8	LOS C	10.8	76.5	0.85	0.72	0.85	32.0
Approach			426	0.5	426	0.5	0.461	29.0	LOS C	10.8	76.5	0.81	0.73	0.81	31.9
All Vehicles			1385	0.6	1385	0.6	0.461	27.0	LOS C	11.5	80.8	0.74	0.66	0.74	34.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (4)] Upper Kedron / Hogarth - 2028 BG +DEV PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	584	0.8	584	0.8	0.457	14.1	LOS B	11.6	81.7	0.60	0.53	0.60	42.8
6	R2	All MCs	86	0.0	86	0.0	* 0.457	61.8	LOS E	7.7	54.2	0.86	0.75	0.86	37.9
Approach			671	0.7	671	0.7	0.457	20.2	LOS C	11.6	81.7	0.63	0.56	0.63	38.8
North: Hogarth Road															
7	L2	All MCs	88	0.0	88	0.0	0.168	34.3	LOS C	3.2	22.6	0.79	0.75	0.79	37.4
9	R2	All MCs	208	0.5	208	0.5	* 0.466	41.5	LOS D	8.9	62.3	0.91	0.81	0.91	26.3
Approach			297	0.4	297	0.4	0.466	39.4	LOS D	8.9	62.3	0.87	0.79	0.87	30.1
West: Upper Kedron Road															
10	L2	All MCs	151	0.0	151	0.0	0.223	27.7	LOS C	5.1	35.5	0.73	0.75	0.73	31.7
11	T1	All MCs	280	0.8	280	0.8	* 0.466	29.8	LOS C	11.0	77.7	0.85	0.72	0.85	32.1
Approach			431	0.5	431	0.5	0.466	29.0	LOS C	11.0	77.7	0.81	0.73	0.81	31.9
All Vehicles			1398	0.6	1398	0.6	0.466	27.0	LOS C	11.6	81.7	0.74	0.66	0.74	34.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

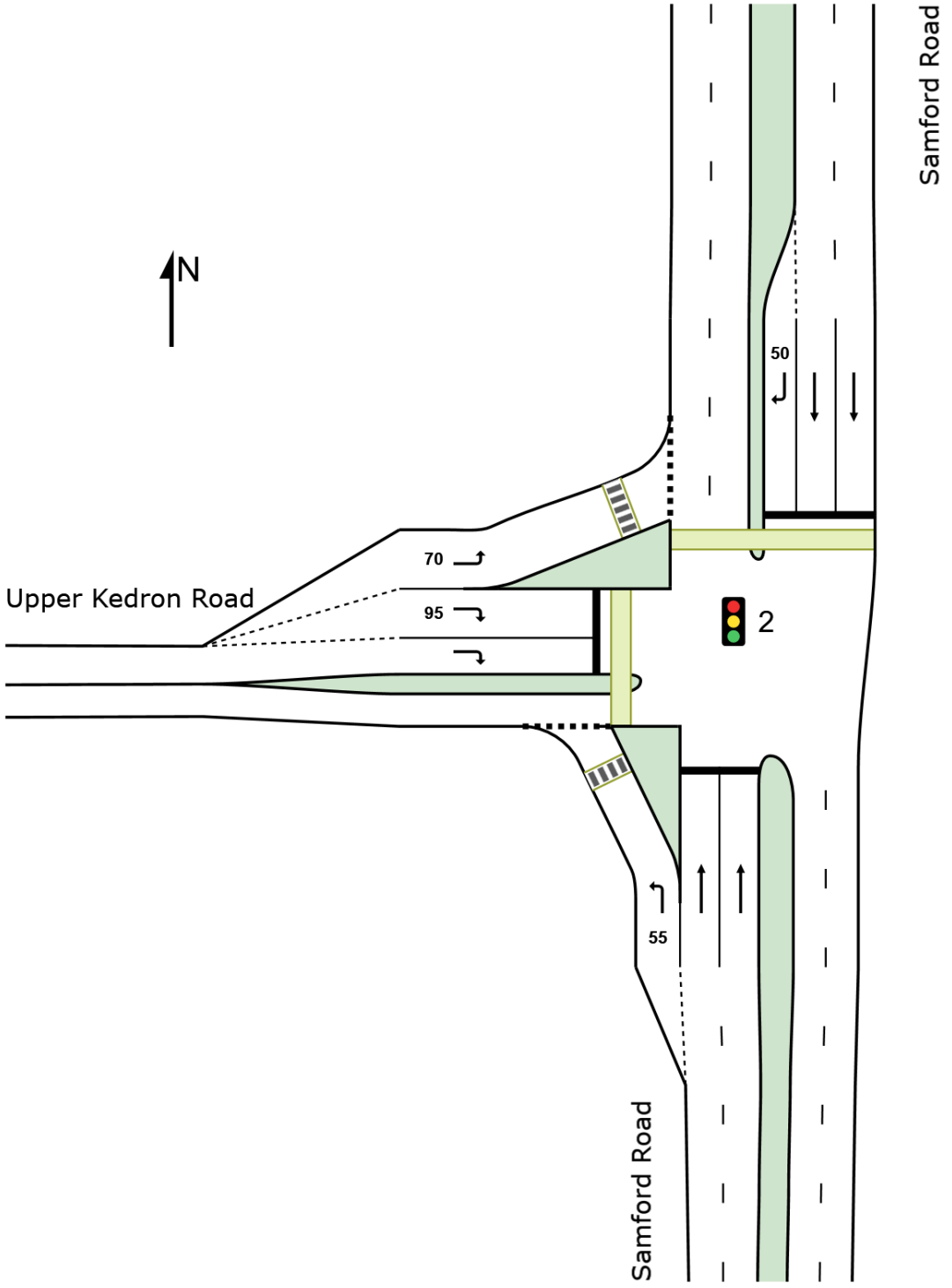
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: [2] Upper Kedron / Samford - 2026 BG AM (Folder1)

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [2] Upper Kedron / Samford - 2026 BG AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	224	7.0	224	7.0	0.171	6.6	LOS A	1.1	8.3	0.18	0.81	0.18	43.7
2	T1	All MCs	502	3.5	502	3.5	* 0.511	21.6	LOS C	6.5	47.2	0.91	0.75	0.91	46.7
Approach			726	4.6	726	4.6	0.511	17.0	LOS B	6.5	47.2	0.69	0.77	0.69	45.8
North: Samford Road															
8	T1	All MCs	1397	1.5	1397	1.5	0.708	14.0	LOS B	16.3	115.4	0.83	0.75	0.84	51.3
9	R2	All MCs	74	7.7	74	7.7	* 0.279	33.8	LOS C	2.0	15.1	0.93	0.75	0.93	40.1
Approach			1471	1.8	1471	1.8	0.708	15.0	LOS B	16.3	115.4	0.84	0.75	0.84	50.0
West: Upper Kedron Road															
10	L2	All MCs	123	8.3	123	8.3	0.122	7.7	LOS A	0.9	6.9	0.27	0.90	0.27	44.7
12	R2	All MCs	737	5.3	737	5.3	* 0.648	26.1	LOS C	10.0	73.3	0.92	0.84	0.94	42.4
Approach			860	5.7	860	5.7	0.648	23.5	LOS C	10.0	73.3	0.83	0.85	0.84	42.7
All Vehicles			3057	3.6	3057	3.6	0.708	17.8	LOS B	16.3	115.4	0.80	0.78	0.81	46.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
West: Upper Kedron Road												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
All Pedestrians		150	105	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (3)] Upper Kedron / Samford - 2028 BG AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	231	7.0	231	7.0	0.176	6.7	LOS A	1.2	8.7	0.19	0.81	0.19	43.6
2	T1	All MCs	517	3.5	517	3.5	* 0.525	21.7	LOS C	6.8	48.8	0.91	0.76	0.91	46.6
Approach			747	4.6	747	4.6	0.525	17.1	LOS B	6.8	48.8	0.69	0.78	0.69	45.7
North: Samford Road															
8	T1	All MCs	1439	1.5	1439	1.5	0.730	14.9	LOS B	17.4	123.6	0.85	0.78	0.87	50.9
9	R2	All MCs	76	7.7	76	7.7	* 0.287	34.2	LOS C	2.1	15.6	0.93	0.75	0.93	40.1
Approach			1515	1.8	1515	1.8	0.730	15.9	LOS B	17.4	123.6	0.85	0.78	0.87	49.5
West: Upper Kedron Road															
10	L2	All MCs	127	8.3	127	8.3	0.126	7.8	LOS A	1.0	7.3	0.28	0.91	0.28	44.5
12	R2	All MCs	759	5.3	759	5.3	* 0.668	26.5	LOS C	10.5	76.7	0.93	0.85	0.96	42.2
Approach			886	5.7	886	5.7	0.668	23.8	LOS C	10.5	76.7	0.84	0.86	0.86	42.5
All Vehicles			3148	3.6	3148	3.6	0.730	18.4	LOS B	17.4	123.6	0.81	0.80	0.83	46.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
West: Upper Kedron Road												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
All Pedestrians		150	105	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (2)] Upper Kedron / Samford - 2028 BG + DEV AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	233	7.0	233	7.0	0.178	6.7	LOS A	1.2	8.8	0.19	0.81	0.19	43.5
2	T1	All MCs	517	3.5	517	3.5	* 0.525	21.7	LOS C	6.8	48.8	0.91	0.76	0.91	46.6
Approach			749	4.6	749	4.6	0.525	17.0	LOS B	6.8	48.8	0.69	0.78	0.69	45.7
North: Samford Road															
8	T1	All MCs	1439	1.5	1439	1.5	0.730	14.9	LOS B	17.4	123.7	0.85	0.78	0.87	50.9
9	R2	All MCs	77	7.7	77	7.7	* 0.291	34.3	LOS C	2.1	15.8	0.93	0.75	0.93	40.1
Approach			1516	1.8	1516	1.8	0.730	15.9	LOS B	17.4	123.7	0.85	0.78	0.87	49.5
West: Upper Kedron Road															
10	L2	All MCs	129	8.3	129	8.3	0.128	7.8	LOS A	1.0	7.5	0.28	0.91	0.28	44.5
12	R2	All MCs	771	5.3	771	5.3	* 0.678	26.7	LOS C	10.7	78.6	0.93	0.85	0.97	42.1
Approach			900	5.7	900	5.7	0.678	24.0	LOS C	10.7	78.6	0.84	0.86	0.87	42.4
All Vehicles			3165	3.6	3165	3.6	0.730	18.5	LOS B	17.4	123.7	0.81	0.80	0.83	46.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
West: Upper Kedron Road												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
All Pedestrians		150	105	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (4)] Upper Kedron / Samford - 2026 BG PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	616	1.2	616	1.2	0.456	7.3	LOS A	5.5	39.1	0.24	1.21	0.24	35.0
2	T1	All MCs	1309	0.6	1309	0.6	* 0.645	16.3	LOS B	25.3	178.1	0.71	0.64	0.71	49.4
Approach			1925	0.8	1925	0.8	0.645	13.4	LOS B	25.3	178.1	0.56	0.82	0.56	44.0
North: Samford Road															
8	T1	All MCs	692	2.3	692	2.3	0.255	6.9	LOS A	6.7	48.0	0.42	0.36	0.42	55.0
9	R2	All MCs	77	1.4	77	1.4	* 0.653	61.9	LOS E	4.2	29.6	1.00	0.82	1.11	31.0
Approach			768	2.2	768	2.2	0.653	12.4	LOS B	6.7	48.0	0.47	0.41	0.48	51.4
West: Upper Kedron Road															
10	L2	All MCs	60	1.8	60	1.8	0.093	29.9	LOS C	2.1	14.6	0.72	1.16	0.72	36.5
12	R2	All MCs	335	1.3	335	1.3	* 0.419	45.2	LOS D	7.8	55.1	0.92	0.79	0.92	35.5
Approach			395	1.4	395	1.4	0.419	42.8	LOS D	7.8	55.1	0.89	0.85	0.89	35.6
All Vehicles			3088	1.2	3088	1.2	0.653	16.9	LOS B	25.3	178.1	0.58	0.72	0.58	44.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
West: Upper Kedron Road												
P4	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians		150	105	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (5)] Upper Kedron / Samford - 2028 BG PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	635	1.2	635	1.2	0.470	7.4	LOS A	5.8	41.0	0.25	1.22	0.25	35.1
2	T1	All MCs	1349	0.6	1349	0.6	* 0.669	16.8	LOS B	26.8	188.3	0.73	0.66	0.73	49.1
Approach			1984	0.8	1984	0.8	0.669	13.8	LOS B	26.8	188.3	0.57	0.84	0.57	43.8
North: Samford Road															
8	T1	All MCs	713	2.3	713	2.3	0.263	6.9	LOS A	7.0	49.7	0.42	0.37	0.42	55.0
9	R2	All MCs	79	1.4	79	1.4	* 0.640	61.3	LOS E	4.3	30.2	1.00	0.81	1.09	31.1
Approach			792	2.2	792	2.2	0.640	12.3	LOS B	7.0	49.7	0.48	0.41	0.49	51.4
West: Upper Kedron Road															
10	L2	All MCs	62	1.8	62	1.8	0.096	31.0	LOS C	2.1	15.0	0.72	1.19	0.72	36.0
12	R2	All MCs	345	1.3	345	1.3	* 0.432	45.3	LOS D	8.1	57.1	0.92	0.80	0.92	35.5
Approach			407	1.4	407	1.4	0.432	43.1	LOS D	8.1	57.1	0.89	0.86	0.89	35.5
All Vehicles			3183	1.2	3183	1.2	0.669	17.2	LOS B	26.8	188.3	0.59	0.73	0.59	44.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
West: Upper Kedron Road												
P4	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians		150	105	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (6)] Upper Kedron / Samford - 2028 BG +DEV PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	646	1.2	646	1.2	0.479	7.5	LOS A	6.1	42.8	0.25	1.22	0.25	35.1
2	T1	All MCs	1349	0.6	1349	0.6	* 0.686	17.2	LOS B	27.8	195.6	0.74	0.67	0.74	48.9
Approach			1996	0.8	1996	0.8	0.686	14.0	LOS B	27.8	195.6	0.58	0.85	0.58	43.7
North: Samford Road															
8	T1	All MCs	713	2.3	713	2.3	0.263	6.9	LOS A	7.0	49.7	0.42	0.37	0.42	55.0
9	R2	All MCs	80	1.4	80	1.4	* 0.608	60.4	LOS E	4.3	30.3	1.00	0.80	1.06	31.3
Approach			793	2.2	793	2.2	0.608	12.3	LOS B	7.0	49.7	0.48	0.41	0.48	51.4
West: Upper Kedron Road															
10	L2	All MCs	62	1.8	62	1.8	0.095	29.6	LOS C	2.1	14.9	0.71	1.16	0.71	36.5
12	R2	All MCs	347	1.3	347	1.3	* 0.435	45.3	LOS D	8.1	57.4	0.92	0.80	0.92	35.4
Approach			409	1.4	409	1.4	0.435	42.9	LOS D	8.1	57.4	0.89	0.85	0.89	35.6
All Vehicles			3198	1.2	3198	1.2	0.686	17.3	LOS B	27.8	195.6	0.59	0.74	0.60	44.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
West: Upper Kedron Road												
P4	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians		150	105	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

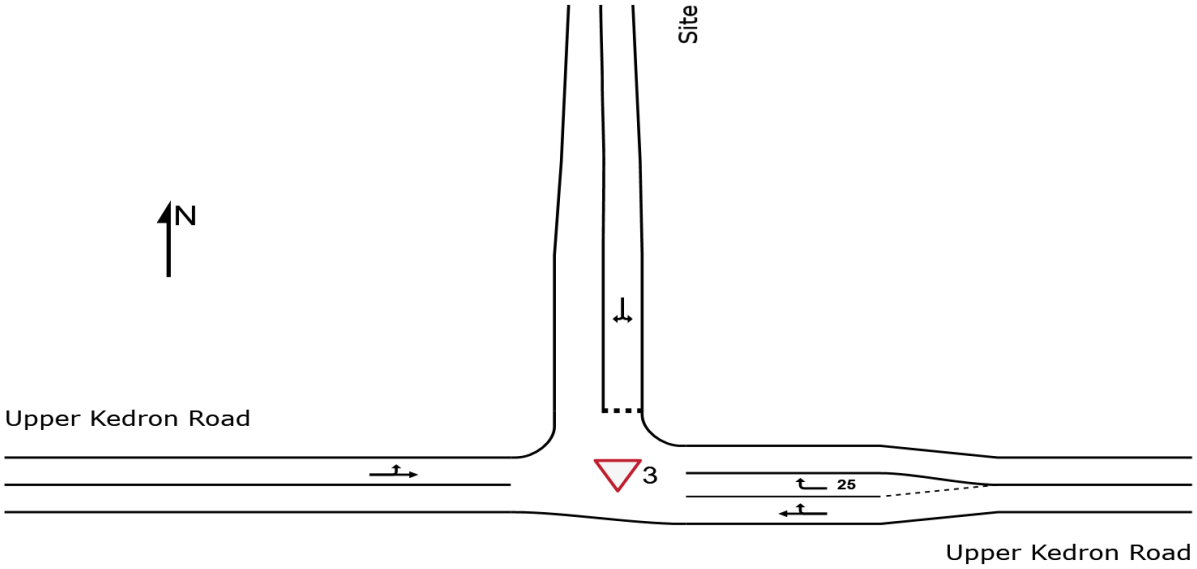
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: [3] Upper Kedron Road / Site - 2028 BG + DEV AM
(Folder1)

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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



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MOVEMENT SUMMARY

Site: [3] Upper Kedron Road / Site - 2028 BG + DEV AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	288	5.0	288	5.0	0.151	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	All MCs	2	5.0	2	5.0	0.004	11.4	LOS B	0.0	0.1	0.69	0.70	0.69	42.5
Approach			291	5.0	291	5.0	0.151	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.8
North: Site															
7	L2	All MCs	15	5.0	15	5.0	0.060	10.0	LOS A	0.2	1.4	0.76	0.89	0.76	40.1
9	R2	All MCs	5	5.0	5	5.0	0.060	24.9	LOS C	0.2	1.4	0.76	0.89	0.76	40.0
Approach			20	5.0	20	5.0	0.060	13.9	LOS B	0.2	1.4	0.76	0.89	0.76	40.1
West: Upper Kedron Road															
10	L2	All MCs	6	5.0	6	5.0	0.480	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	30.4
11	T1	All MCs	908	5.0	908	5.0	0.480	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
Approach			915	5.0	915	5.0	0.480	0.2	NA	0.0	0.0	0.00	0.00	0.00	59.4
All Vehicles			1225	5.0	1225	5.0	0.480	0.4	NA	0.2	1.4	0.01	0.02	0.01	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [3 (2)] Upper Kedron Road / Site - 2028 BG + DEV PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	719	5.0	719	5.0	0.377	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
6	R2	All MCs	14	5.0	14	5.0	0.011	6.9	LOS A	0.0	0.4	0.43	0.58	0.43	46.5
Approach			733	5.0	733	5.0	0.377	0.3	NA	0.0	0.4	0.01	0.01	0.01	59.6
North: Site															
7	L2	All MCs	3	5.0	3	5.0	0.028	5.2	LOS A	0.1	0.6	0.70	0.75	0.70	39.7
9	R2	All MCs	5	5.0	5	5.0	0.028	20.0	LOS C	0.1	0.6	0.70	0.75	0.70	39.5
Approach			8	5.0	8	5.0	0.028	14.4	LOS B	0.1	0.6	0.70	0.75	0.70	39.6
West: Upper Kedron Road															
10	L2	All MCs	6	5.0	6	5.0	0.198	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	30.5
11	T1	All MCs	372	5.0	372	5.0	0.198	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			378	5.0	378	5.0	0.198	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.3
All Vehicles			1119	5.0	1119	5.0	0.377	0.3	NA	0.1	0.6	0.01	0.02	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [3 (4)] Upper Kedron Road / Site - 2038 BG + DEV AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	335	5.0	335	5.0	0.175	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	All MCs	2	5.0	2	5.0	0.005	14.2	LOS B	0.0	0.1	0.77	0.77	0.77	40.1
Approach			337	5.0	337	5.0	0.175	0.1	NA	0.0	0.1	0.00	0.00	0.00	59.8
North: Site															
7	L2	All MCs	15	5.0	15	5.0	0.082	12.9	LOS B	0.2	1.8	0.83	0.92	0.83	36.6
9	R2	All MCs	4	5.0	4	5.0	0.082	39.1	LOS E	0.2	1.8	0.83	0.92	0.83	36.5
Approach			19	5.0	19	5.0	0.082	18.7	LOS C	0.2	1.8	0.83	0.92	0.83	36.6
West: Upper Kedron Road															
10	L2	All MCs	6	5.0	6	5.0	0.556	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	30.3
11	T1	All MCs	1055	5.0	1055	5.0	0.556	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
Approach			1061	5.0	1061	5.0	0.556	0.3	NA	0.0	0.0	0.00	0.00	0.00	59.3
All Vehicles			1417	5.0	1417	5.0	0.556	0.5	NA	0.2	1.8	0.01	0.02	0.01	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [3 (3)] Upper Kedron Road / Site - 2038 BG + DEV PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	835	5.0	835	5.0	0.437	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
6	R2	All MCs	14	5.0	14	5.0	0.012	7.2	LOS A	0.1	0.4	0.47	0.60	0.47	46.4
Approach			848	5.0	848	5.0	0.437	0.3	NA	0.1	0.4	0.01	0.01	0.01	59.5
North: Site															
7	L2	All MCs	3	5.0	3	5.0	0.041	5.5	LOS A	0.1	0.9	0.76	0.83	0.76	35.7
9	R2	All MCs	5	5.0	5	5.0	0.041	28.8	LOS D	0.1	0.9	0.76	0.83	0.76	35.6
Approach			8	5.0	8	5.0	0.041	20.1	LOS C	0.1	0.9	0.76	0.83	0.76	35.7
West: Upper Kedron Road															
10	L2	All MCs	6	5.0	6	5.0	0.230	5.7	LOS A	0.0	0.0	0.00	0.01	0.00	30.5
11	T1	All MCs	432	5.0	432	5.0	0.230	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			438	5.0	438	5.0	0.230	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.3
All Vehicles			1295	5.0	1295	5.0	0.437	0.4	NA	0.1	0.9	0.01	0.01	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: C:\Users\Casey\Modus Engineering\Projects 2022 - 2023 - Documents\General\Projects 2022-2023\ACT\JOBS\Bonadventura Developments\171-173 Upper Kedron Rd, Ferny Grove\3 ANALYSIS\SIDRA\171-173 Upper Kedron Road.sipx

VELOCITY
TRAFFIC
ENGINEERING

APPENDIX A

CONCEPT PLANS



LOT SCHEDULE

LOT	LOT WIDTH	Area	LOT	LOT WIDTH	Area
1	11m	410 m²	18	12.5m	482 m²
2	11m	410 m²	19	12.5m	482 m²
3	CORNER	522 m²	20	17m	658 m²
4	CORNER	541 m²	21	15m	540 m²
5	11m	501 m²	22	15m	540 m²
6	10.5m	550 m²	23	12.5m	482 m²
7	12.5m	480 m²	24	10m	386 m²
8	10m	386 m²	25	10m	386 m²
9	10.5m	405 m²	26	10m	386 m²
10	10.5m	405 m²	27	12.5m	482 m²
11	12.5m	482 m²	28	10m	386 m²
12	10m	386 m²	29	10m	386 m²
13	10.5m	405 m²	30	12.5m	482 m²
14	12.5m	482 m²	31	CORNER	460 m²
15	10m	386 m²	32	12m	402 m²
16	10m	386 m²	33	12.5m	421 m²
17	10m	386 m²			



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PLANS BY
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QBCC 1194316 | TAS - CC7004

BONAVENTURA DEVELOPMENTS
LAND | VISION | COMMUNITY

CLIENT: BONAVENTURA DEVELOPMENTS

DRAWING TITLE: SITE PLAN

SCALE: 1 : 500

PROJECT: 33x LOT DEVEOPMENT
LOT 1 & 2 [RP185509]
171-173 UPPER KEDRON RD, FERNY GROVE, QLD 4055

PAGES: 1 of 3 | SHEET SIZE: A2

JOB No: TBA
WINK + CO
Job No: 094-26

Date: 17/07/2026

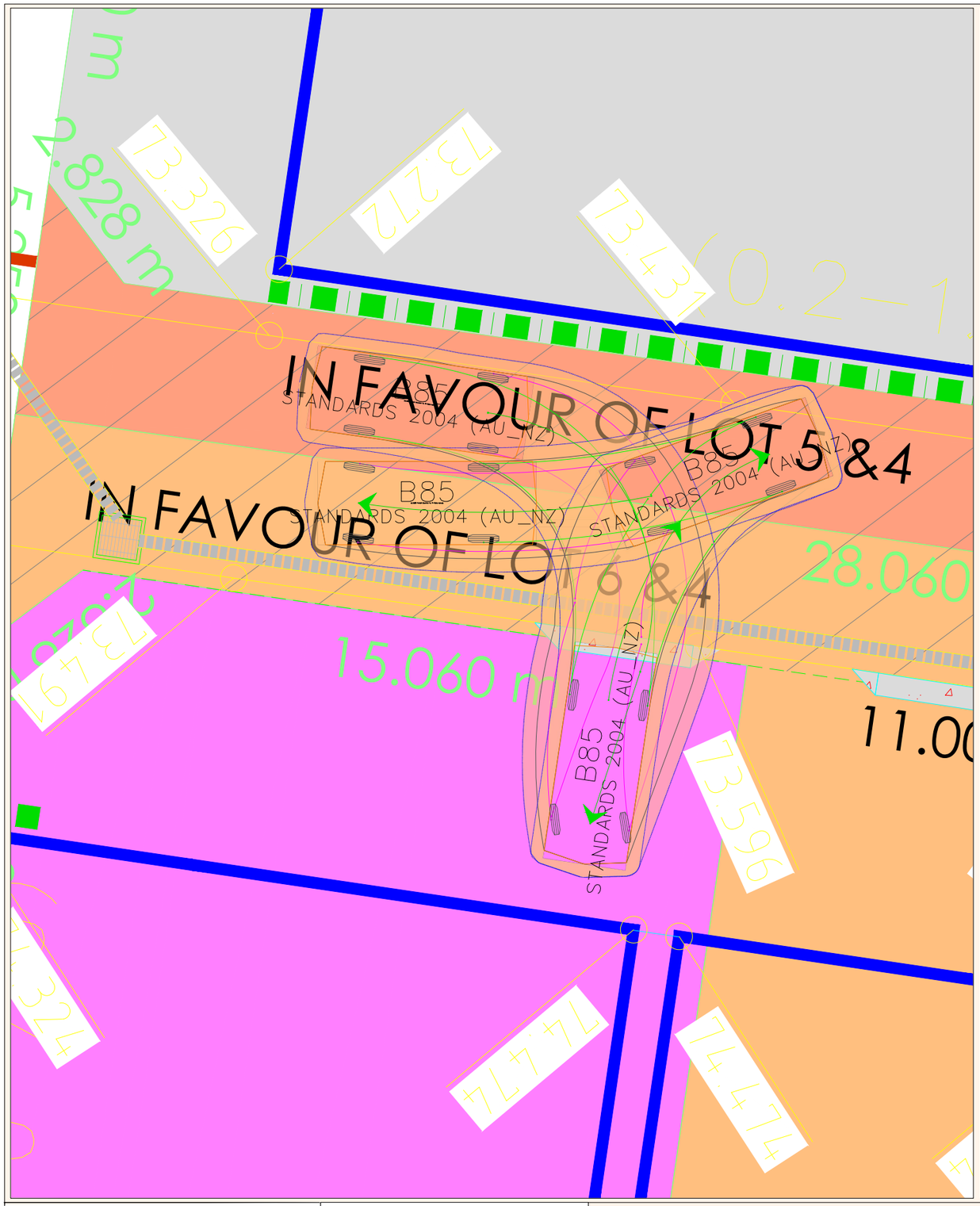
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A	SITE LAYOUT	17/07/26	EK	SW
B	AMENDMENTS	04/08/26	TD	SW
C	AMENDMENTS	06/08/26	TD	SW
D	AMENDMENTS	21/09/26	TD	SW
E	AMENDMENTS	22/09/26	TD	SW
F				
G				

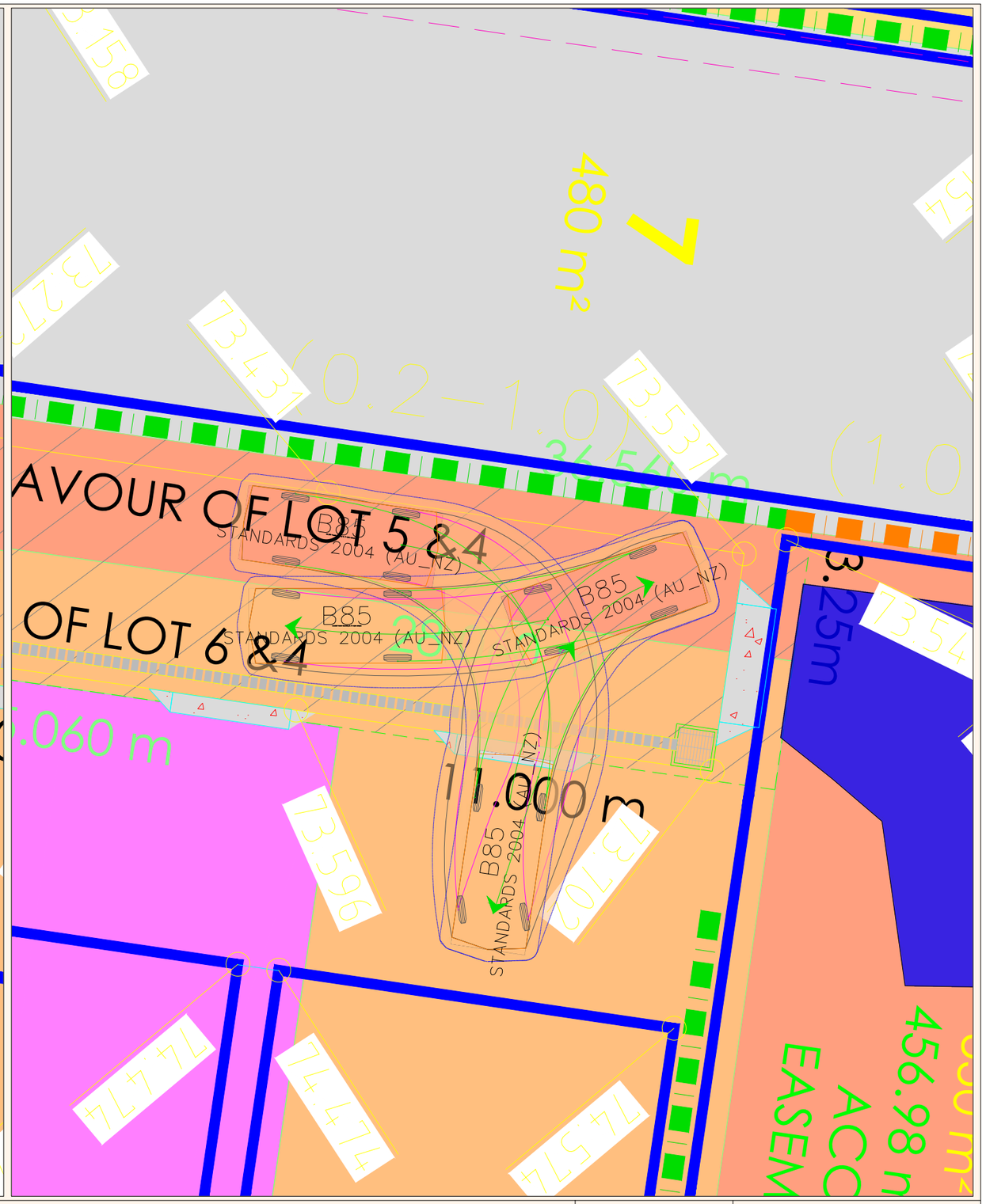
VELOCITY TRAFFIC ENGINEERING

APPENDIX B

SIDRA PATH ASSESSMENT

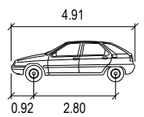






SWEPT PATH LEGEND

- VEHICLE BODY
- FRONT TIRES
- REAR TIRES
- VEHICLE PATH
- VEHICLE CLEARANCE (300mm)
- VEHICLE



B85 - AS2890.1

	Meters
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 40.0

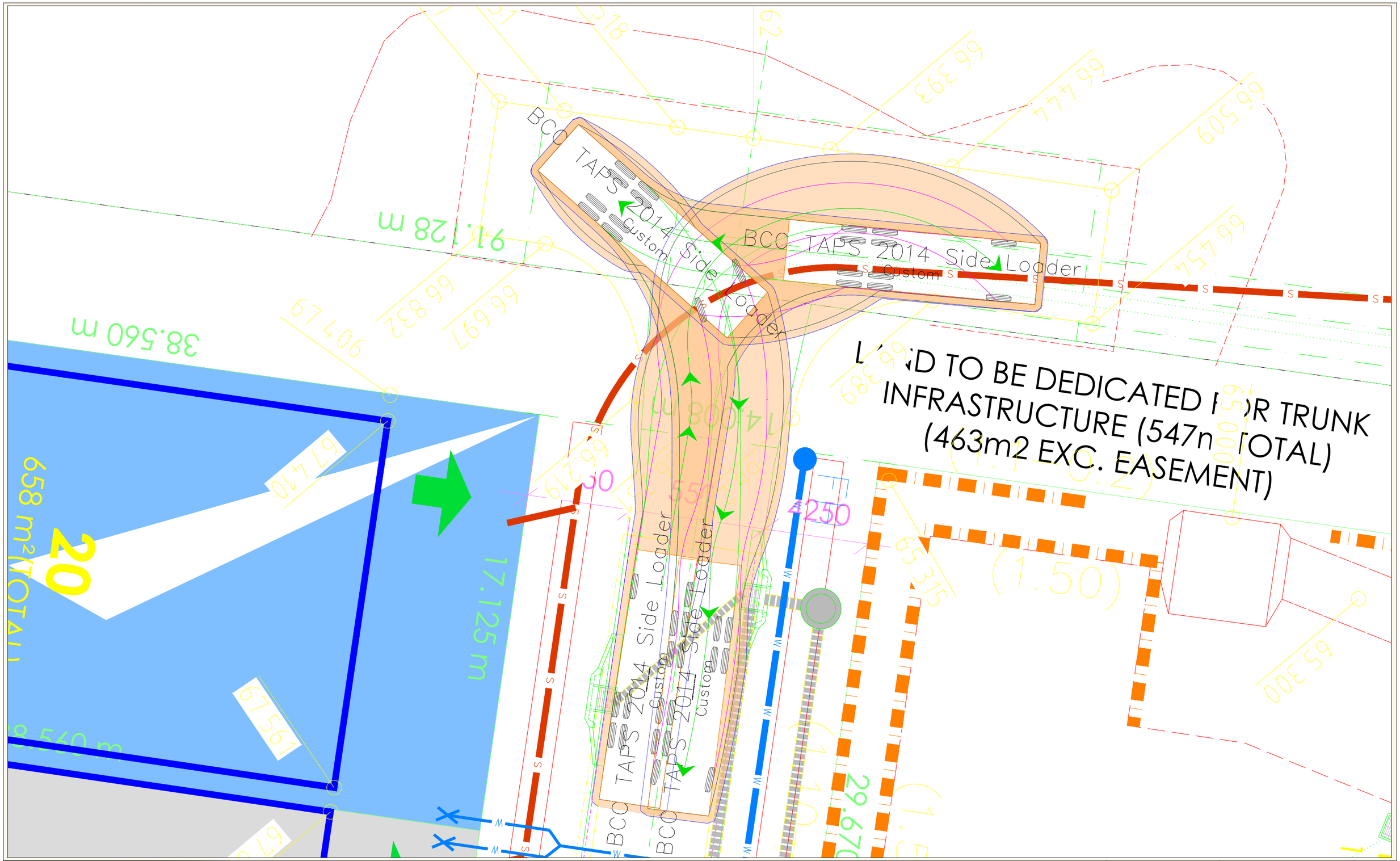
Velocity Traffic Engineering

Velocity Traffic Engineering
T 0413482746
ABN 94 658 980 208

BONADVENTURA DEVELOPMENTS
171-173 UPPER KEDRON ROAD, FERNY GROVE
SWEPT PATH -B85
LEFT: LOT 4
RIGHT: LOT 5

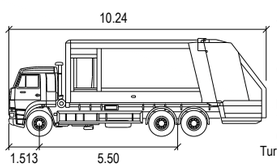
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C.Schackow	02/10/2026	1:100	A3

Drawing Number SK01 | Rev B



SWEPT PATH LEGEND

- VEHICLE BODY
- FRONT TIRES
- REAR TIRES
- VEHICLE PATH
- VEHICLE CLEARANCE (300mm)
- VEHICLE



TAPS Code Rear Lift

Meters

Width	:	2.50
Track	:	2.50
Lock to Lock Time	:	6.0
Travel Height	:	3.6
Operating Height	:	3.6
Turning radius (kerb-to-kerb)	:	9.757

Velocity Traffic Engineering
T 0413482746
ABN 94 658 980 208

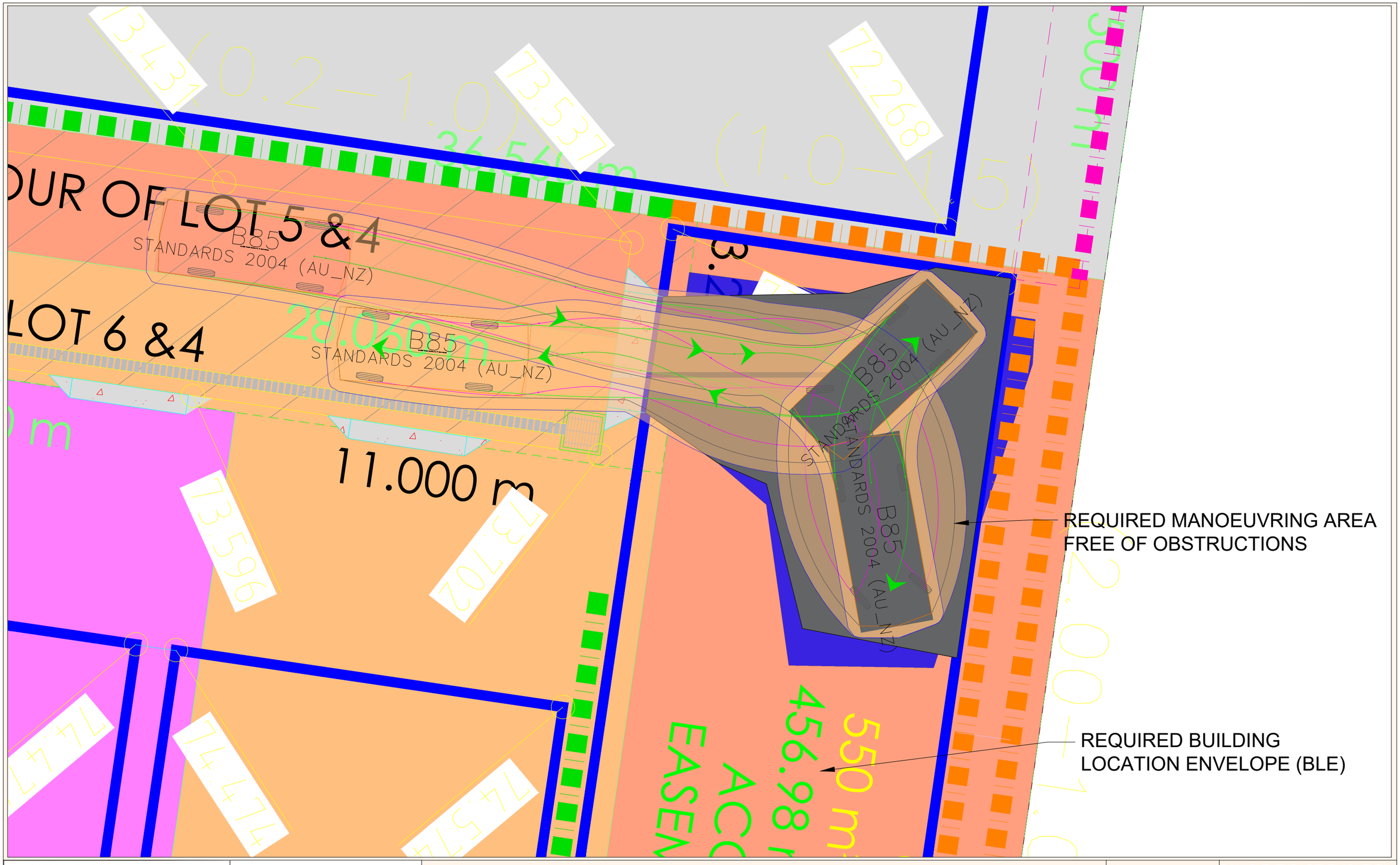
BONADVENTURA DEVELOPMENTS

171-173 UPPER KEDRON ROAD, FERNY GROVE

SWEPT PATH - RCV TURNAROUND

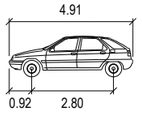
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C.Schackow	02/10/2026	1:100	A3

Drawing Number SK02 Rev B



SWEPT PATH LEGEND

- VEHICLE BODY
- FRONT TIRES
- REAR TIRES
- VEHICLE PATH
- VEHICLE CLEARANCE (300mm)
- VEHICLE



B85 - AS2890.1

	Meters
Width	1.87
Track	1.77
Lock to Lock Time	6.0
Steering Angle	40.0

Velocity Traffic Engineering
T 0413482746
ABN 94 658 980 208

BONADVENTURA DEVELOPMENTS
171-173 UPPER KEDRON ROAD, FERNY GROVE
SWEPT PATH -B85 LOT 6

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Drawing Number SK03 Rev B

VELOCITY
TRAFFIC
ENGINEERING

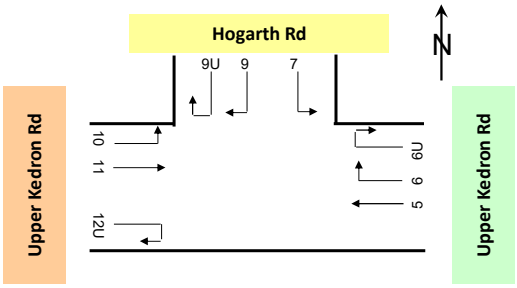
APPENDIX C

TRAFFIC SURVEYS



Job No. : AUQLD16215
Client : Velocity Traffic Engineering
Suburb : Ferny Grove
Location : 1. Upper Kedron Rd & Hogarth Rd

Day/Date : Tuesday, 14 July 2026
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

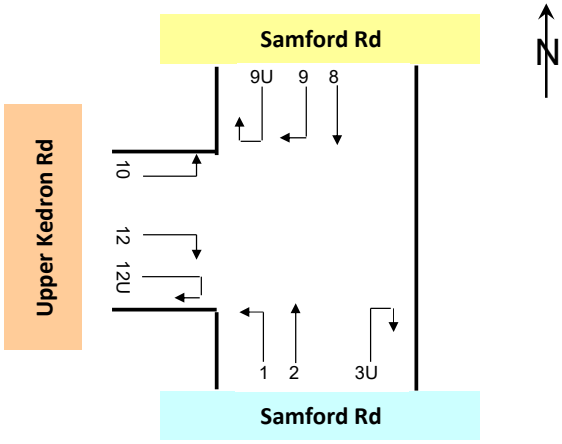


	Approach		Upper Kedron Rd			Hogarth Rd			Upper Kedron Rd			Grand Total
	Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
AM	7:30 to 8:30		271	10	**281**	240	15	**255**	805	35	**840**	**1,376**
PM	16:30 to 17:30		609	4	**613**	271	1	**272**	391	2	**393**	**1,278**

Approach		Upper Kedron Rd			Hogarth Rd			Upper Kedron Rd			Grand Total
Time Period		Lights	Heavies	Total	Lights	Heavies	Total	Lights	Heavies	Total	
6:30 to 7:30		152	46	**198**	98	7	**105**	705	33	**738**	**1,041**
6:45 to 7:45		180	43	**223**	143	5	**148**	777	41	**818**	**1,189**
7:00 to 8:00		195	31	**226**	163	7	**170**	804	48	**852**	**1,248**
7:15 to 8:15		218	16	**234**	198	8	**206**	778	41	**819**	**1,259**
7:30 to 8:30		271	10	**281**	240	15	**255**	805	35	**840**	**1,376**
7:45 to 8:45		289	9	**298**	260	14	**274**	728	31	**759**	**1,331**
8:00 to 9:00		297	11	**308**	295	13	**308**	647	22	**669**	**1,285**
8:15 to 9:15		293	11	**304**	267	11	**278**	550	25	**575**	**1,157**
8:30 to 9:30		251	18	**269**	215	5	**220**	428	21	**449**	**938**
AM Totals		**674**	**74**	**748**	**553**	**27**	**580**	**1,938**	**89**	**2,027**	**3,355**
16:00 to 17:00		586	1	**587**	262	0	**262**	365	7	**372**	**1,221**
16:15 to 17:15		613	2	**615**	263	1	**264**	378	4	**382**	**1,261**
16:30 to 17:30		609	4	**613**	271	1	**272**	391	2	**393**	**1,278**
16:45 to 17:45		592	6	**598**	261	1	**262**	363	5	**368**	**1,228**
17:00 to 18:00		562	6	**568**	259	1	**260**	352	4	**356**	**1,184**
17:15 to 18:15		501	4	**505**	249	1	**250**	312	6	**318**	**1,073**
17:30 to 18:30		469	2	**471**	212	1	**213**	288	7	**295**	**979**
17:45 to 18:45		429	0	**429**	171	1	**172**	270	4	**274**	**875**
18:00 to 19:00		406	0	**406**	142	1	**143**	248	5	**253**	**802**
PM Totals		**1,554**	**7**	**1,561**	**663**	**2**	**665**	**965**	**16**	**981**	**3,207**

Job No. : AUQLD16215
Client : Velocity Traffic Engineering
Suburb : Ferny Grove
Location : 2. Upper Kedron Rd & Samford Rd

Day/Date : Tuesday, 14 July 2026
Weather : Fine
Description : Classified Intersection Count
: Peak Hour Summary

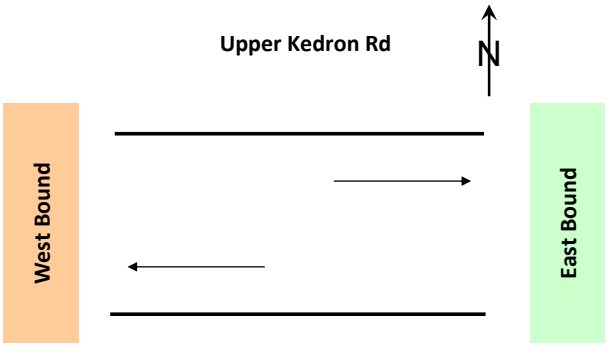


	Approach	Samford Rd				Samford Rd			Upper Kedron Rd			Grand Total
	Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
AM	7:30 to 8:30	660	30	**690**		1,372	25	**1,397**	773	44	**817**	2,904
PM	16:15 to 17:15	1,849	14	**1,863**		705	20	**725**	348	6	**354**	2,942

Approach	Samford Rd				Samford Rd			Upper Kedron Rd			Grand Total
Time Period	Lights	Heavies	Total		Lights	Heavies	Total	Lights	Heavies	Total	
6:30 to 7:30	438	90	**528**		1,194	34	**1,228**	662	32	**694**	2,450
6:45 to 7:45	486	72	**558**		1,260	30	**1,290**	692	47	**739**	2,587
7:00 to 8:00	523	55	**578**		1,368	31	**1,399**	752	50	**802**	2,779
7:15 to 8:15	575	39	**614**		1,418	31	**1,449**	730	51	**781**	2,844
7:30 to 8:30	660	30	**690**		1,372	25	**1,397**	773	44	**817**	2,904
7:45 to 8:45	725	39	**764**		1,299	28	**1,327**	755	34	**789**	2,880
8:00 to 9:00	776	41	**817**		1,183	35	**1,218**	691	25	**716**	2,751
8:15 to 9:15	792	51	**843**		1,035	36	**1,071**	616	23	**639**	2,553
8:30 to 9:30	775	64	**839**		955	36	**991**	523	31	**554**	2,384
AM Totals	**1,873**	**184**	**2,057**		**3,521**	**95**	**3,616**	**1,958**	**107**	**2,065**	**7,738**
16:00 to 17:00	1,821	22	**1,843**		697	19	**716**	363	10	**373**	2,932
16:15 to 17:15	1,849	14	**1,863**		705	20	**725**	348	6	**354**	2,942
16:30 to 17:30	1,814	15	**1,829**		714	16	**730**	370	5	**375**	2,934
16:45 to 17:45	1,826	15	**1,841**		706	16	**722**	341	8	**349**	2,912
17:00 to 18:00	1,764	14	**1,778**		666	13	**679**	302	6	**308**	2,765
17:15 to 18:15	1,625	12	**1,637**		638	11	**649**	302	9	**311**	2,597
17:30 to 18:30	1,507	8	**1,515**		558	8	**566**	268	8	**276**	2,357
17:45 to 18:45	1,353	2	**1,355**		494	8	**502**	249	5	**254**	2,111
18:00 to 19:00	1,221	2	**1,223**		453	6	**459**	227	7	**234**	1,916
PM Totals	**4,806**	**38**	**4,844**		**1,816**	**38**	**1,854**	**892**	**23**	**915**	**7,613**

Job No. : AUQLD16215
Client : Velocity Traffic Engineering
Suburb : Ferny Grove
Location : 3. Midblock at 171 Upper Kedron Rd

Day/Date : Tuesday, 14 July 2026
Weather : Fine
Description : Mid-block Count
: Peak Hour Summary



	Approach	West Bound			East Bound			Grand Total
	Time Period	Lights	Heavies	Total	Lights	Heavies	Total	
AM	7:30 to 8:30	256	10	**266**	810	28	**838**	**1,104**
PM	16:15 to 17:15	670	2	**672**	331	5	**336**	**1,008**

Approach	West Bound			East Bound			Grand Total
Time Period	Lights	Heavies	Total	Lights	Heavies	Total	
6:30 to 7:30	148	46	**194**	646	22	**668**	**862**
6:45 to 7:45	175	42	**217**	725	31	**756**	**973**
7:00 to 8:00	190	32	**222**	755	39	**794**	**1,016**
7:15 to 8:15	212	17	**229**	757	39	**796**	**1,025**
7:30 to 8:30	256	10	**266**	810	28	**838**	**1,104**
7:45 to 8:45	284	9	**293**	748	23	**771**	**1,064**
8:00 to 9:00	300	11	**311**	699	10	**709**	**1,020**
8:15 to 9:15	290	11	**301**	603	8	**611**	**912**
8:30 to 9:30	270	18	**288**	481	11	**492**	**780**
AM Totals	**674**	**74**	**748**	**1,937**	**61**	**1,998**	**2,746**
16:00 to 17:00	642	2	**644**	334	5	**339**	**983**
16:15 to 17:15	670	2	**672**	331	5	**336**	**1,008**
16:30 to 17:30	659	4	**663**	340	3	**343**	**1,006**
16:45 to 17:45	650	6	**656**	306	6	**312**	**968**
17:00 to 18:00	615	5	**620**	281	5	**286**	**906**
17:15 to 18:15	551	4	**555**	259	7	**266**	**821**
17:30 to 18:30	503	2	**505**	246	8	**254**	**759**
17:45 to 18:45	452	0	**452**	235	5	**240**	**692**
18:00 to 19:00	432	0	**432**	219	6	**225**	**657**
PM Totals	**1,689**	**7**	**1,696**	**834**	**16**	**850**	**2,546**

VELOCITY
TRAFFIC
ENGINEERING

APPENDIX D

SIDRA ANALYSIS

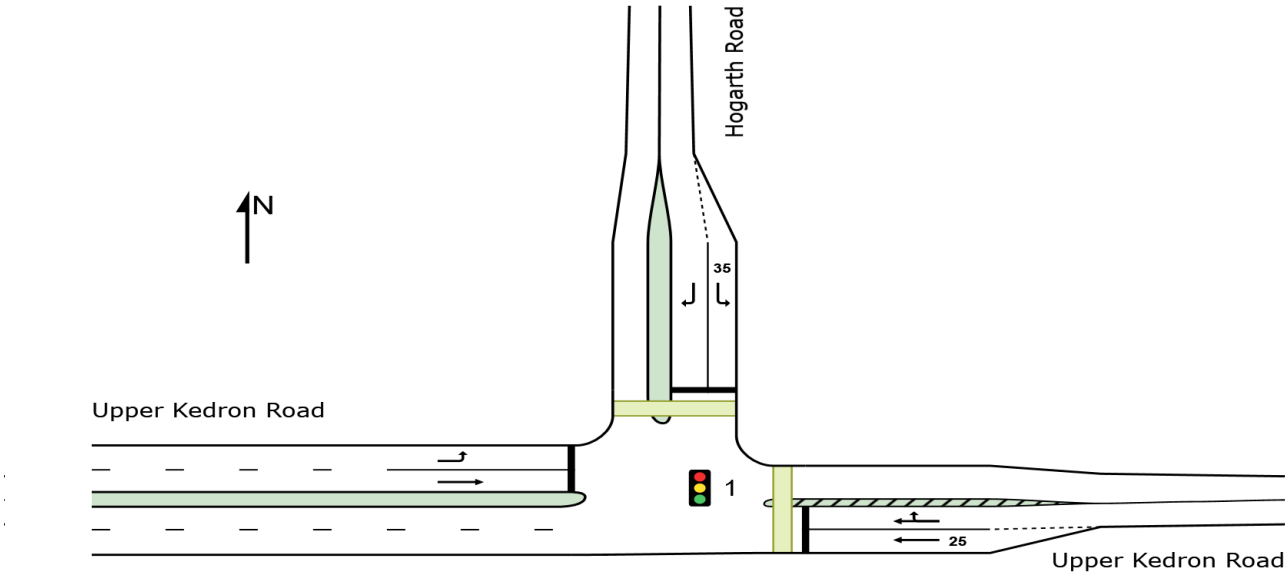


SITE LAYOUT

Site: [1] Upper Kedron / Hogarth - 2026 BG AM (Folder1)

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

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



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Organisation: MODUS TRAFFIC ENGINEERING PTY LTD | Licence: NETWORK / 1PC | Created: Tuesday, 21 July 2026 10:26:40 AM
Project: C:\Users\Casey\Modus Engineering\Projects 2022 - 2023 - Documents\General\Projects 2022-2023\ACT\JOBS\Bonadventura Developments\171-173 Upper Kedron Rd, Ferny Grove\3 ANALYSIS\SIDRA\171-173 Upper Kedron Road.sipx

MOVEMENT SUMMARY

Site: [1] Upper Kedron / Hogarth - 2026 BG AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	189	5.3	189	5.3	0.138	4.2	LOS A	2.7	19.8	0.32	0.27	0.32	53.4
6	R2	All MCs	106	1.0	106	1.0	0.562	53.9	LOS D	5.2	36.7	1.00	0.78	1.00	31.2
Approach			296	3.8	296	3.8	0.562	22.1	LOS C	5.2	36.7	0.56	0.45	0.56	39.4
North: Hogarth Road															
7	L2	All MCs	113	1.4	113	1.4	* 0.597	54.3	LOS D	5.5	39.3	1.00	0.80	1.03	31.0
9	R2	All MCs	156	13.8	156	13.8	* 0.597	50.1	LOS D	7.4	57.7	0.98	0.81	0.98	23.6
Approach			268	8.6	268	8.6	0.597	51.9	LOS D	7.4	57.7	0.99	0.80	1.00	27.3
West: Upper Kedron Road															
10	L2	All MCs	236	4.2	236	4.2	0.239	16.6	LOS B	5.9	43.0	0.56	0.72	0.56	38.2
11	T1	All MCs	648	4.4	648	4.4	* 0.597	14.2	LOS B	20.1	145.6	0.69	0.63	0.69	42.3
Approach			884	4.3	884	4.3	0.597	14.9	LOS B	20.1	145.6	0.66	0.65	0.66	41.1
All Vehicles			1448	5.0	1448	5.0	0.597	23.2	LOS C	20.1	145.6	0.70	0.64	0.70	36.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (5)] Upper Kedron / Hogarth - 2028 BG AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	195	5.3	195	5.3	0.141	4.1	LOS A	2.7	20.0	0.31	0.26	0.31	53.6
6	R2	All MCs	109	1.0	109	1.0	0.440	49.8	LOS D	5.1	35.9	0.96	0.78	0.96	32.3
Approach			304	3.8	304	3.8	0.440	20.5	LOS C	5.1	35.9	0.55	0.45	0.55	40.3
North: Hogarth Road															
7	L2	All MCs	160	1.4	160	1.4	* 0.645	51.8	LOS D	7.8	55.0	1.00	0.82	1.04	31.7
9	R2	All MCs	116	13.8	116	13.8	* 0.459	49.5	LOS D	5.4	42.0	0.96	0.79	0.96	23.8
Approach			276	6.6	276	6.6	0.645	50.8	LOS D	7.8	55.0	0.98	0.81	1.01	28.9
West: Upper Kedron Road															
10	L2	All MCs	243	4.2	243	4.2	0.263	18.6	LOS B	6.6	47.8	0.60	0.73	0.60	36.8
11	T1	All MCs	668	4.4	668	4.4	* 0.645	16.5	LOS B	22.4	162.9	0.75	0.68	0.75	40.5
Approach			912	4.3	912	4.3	0.645	17.0	LOS B	22.4	162.9	0.71	0.69	0.71	39.4
All Vehicles			1492	4.6	1492	4.6	0.645	24.0	LOS C	22.4	162.9	0.73	0.66	0.73	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (3)] Upper Kedron / Hogarth - 2028 BG + DEV AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	199	5.3	199	5.3	0.144	4.1	LOS A	2.8	20.5	0.31	0.27	0.31	53.6
6	R2	All MCs	112	1.0	112	1.0	0.446	49.8	LOS D	5.2	36.6	0.96	0.78	0.96	32.3
Approach			311	3.8	311	3.8	0.446	20.5	LOS C	5.2	36.6	0.55	0.45	0.55	40.3
North: Hogarth Road															
7	L2	All MCs	162	1.4	162	1.4	* 0.650	51.8	LOS D	7.9	55.8	1.00	0.83	1.04	31.7
9	R2	All MCs	116	13.8	116	13.8	* 0.459	49.5	LOS D	5.4	42.0	0.96	0.79	0.96	23.8
Approach			278	6.6	278	6.6	0.650	50.9	LOS D	7.9	55.8	0.98	0.81	1.01	28.9
West: Upper Kedron Road															
10	L2	All MCs	243	4.2	243	4.2	0.263	18.6	LOS B	6.6	47.9	0.60	0.73	0.60	36.8
11	T1	All MCs	673	4.4	673	4.4	* 0.650	16.6	LOS B	22.7	164.8	0.75	0.68	0.75	40.4
Approach			916	4.3	916	4.3	0.650	17.1	LOS B	22.7	164.8	0.71	0.69	0.71	39.4
All Vehicles			1504	4.6	1504	4.6	0.650	24.1	LOS C	22.7	164.8	0.73	0.67	0.73	36.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (2)] Upper Kedron / Hogarth - 2026 BG PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	562	0.8	562	0.8	0.434	13.6	LOS B	10.9	76.6	0.59	0.52	0.59	42.7
6	R2	All MCs	83	0.0	83	0.0	* 0.434	61.4	LOS E	7.5	52.8	0.85	0.74	0.85	38.1
Approach			645	0.7	645	0.7	0.434	19.7	LOS B	10.9	76.6	0.62	0.55	0.62	39.1
North: Hogarth Road															
7	L2	All MCs	84	0.0	84	0.0	0.161	34.4	LOS C	3.1	21.6	0.79	0.74	0.79	37.3
9	R2	All MCs	202	0.5	202	0.5	* 0.446	41.1	LOS D	8.5	59.9	0.90	0.80	0.90	26.4
Approach			286	0.4	286	0.4	0.446	39.1	LOS D	8.5	59.9	0.87	0.78	0.87	30.2
West: Upper Kedron Road															
10	L2	All MCs	146	0.0	146	0.0	0.216	27.4	LOS C	4.9	34.3	0.73	0.75	0.73	31.9
11	T1	All MCs	267	0.8	267	0.8	* 0.446	29.6	LOS C	10.4	73.6	0.85	0.72	0.85	32.1
Approach			414	0.5	414	0.5	0.446	28.8	LOS C	10.4	73.6	0.81	0.73	0.81	32.0
All Vehicles			1345	0.6	1345	0.6	0.446	26.7	LOS C	10.9	76.6	0.73	0.65	0.73	34.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (6)] Upper Kedron / Hogarth - 2028 BG PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	579	0.8	579	0.8	0.453	14.1	LOS B	11.5	80.8	0.60	0.53	0.60	42.7
6	R2	All MCs	85	0.0	85	0.0	* 0.453	61.9	LOS E	7.7	54.0	0.85	0.75	0.85	38.0
Approach			664	0.7	664	0.7	0.453	20.2	LOS C	11.5	80.8	0.63	0.56	0.63	38.8
North: Hogarth Road															
7	L2	All MCs	86	0.0	86	0.0	0.164	34.3	LOS C	3.2	22.1	0.79	0.74	0.79	37.3
9	R2	All MCs	208	0.5	208	0.5	* 0.461	41.3	LOS D	8.8	62.1	0.91	0.80	0.91	26.3
Approach			295	0.4	295	0.4	0.461	39.3	LOS D	8.8	62.1	0.87	0.79	0.87	30.1
West: Upper Kedron Road															
10	L2	All MCs	151	0.0	151	0.0	0.223	27.6	LOS C	5.1	35.5	0.73	0.75	0.73	31.8
11	T1	All MCs	276	0.8	276	0.8	* 0.461	29.8	LOS C	10.8	76.5	0.85	0.72	0.85	32.0
Approach			426	0.5	426	0.5	0.461	29.0	LOS C	10.8	76.5	0.81	0.73	0.81	31.9
All Vehicles			1385	0.6	1385	0.6	0.461	27.0	LOS C	11.5	80.8	0.74	0.66	0.74	34.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [1 (4)] Upper Kedron / Hogarth - 2028 BG +DEV PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 100.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	584	0.8	584	0.8	0.457	14.1	LOS B	11.6	81.7	0.60	0.53	0.60	42.8
6	R2	All MCs	86	0.0	86	0.0	* 0.457	61.8	LOS E	7.7	54.2	0.86	0.75	0.86	37.9
Approach			671	0.7	671	0.7	0.457	20.2	LOS C	11.6	81.7	0.63	0.56	0.63	38.8
North: Hogarth Road															
7	L2	All MCs	88	0.0	88	0.0	0.168	34.3	LOS C	3.2	22.6	0.79	0.75	0.79	37.4
9	R2	All MCs	208	0.5	208	0.5	* 0.466	41.5	LOS D	8.9	62.3	0.91	0.81	0.91	26.3
Approach			297	0.4	297	0.4	0.466	39.4	LOS D	8.9	62.3	0.87	0.79	0.87	30.1
West: Upper Kedron Road															
10	L2	All MCs	151	0.0	151	0.0	0.223	27.7	LOS C	5.1	35.5	0.73	0.75	0.73	31.7
11	T1	All MCs	280	0.8	280	0.8	* 0.466	29.8	LOS C	11.0	77.7	0.85	0.72	0.85	32.1
Approach			431	0.5	431	0.5	0.466	29.0	LOS C	11.0	77.7	0.81	0.73	0.81	31.9
All Vehicles			1398	0.6	1398	0.6	0.466	27.0	LOS C	11.6	81.7	0.74	0.66	0.74	34.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
East: Upper Kedron Road												
P2	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
North: Hogarth Road												
P3	Full	50	53	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01
All Pedestrians		100	105	44.3	LOS E	0.1	0.1	0.94	0.94	198.1	200.0	1.01

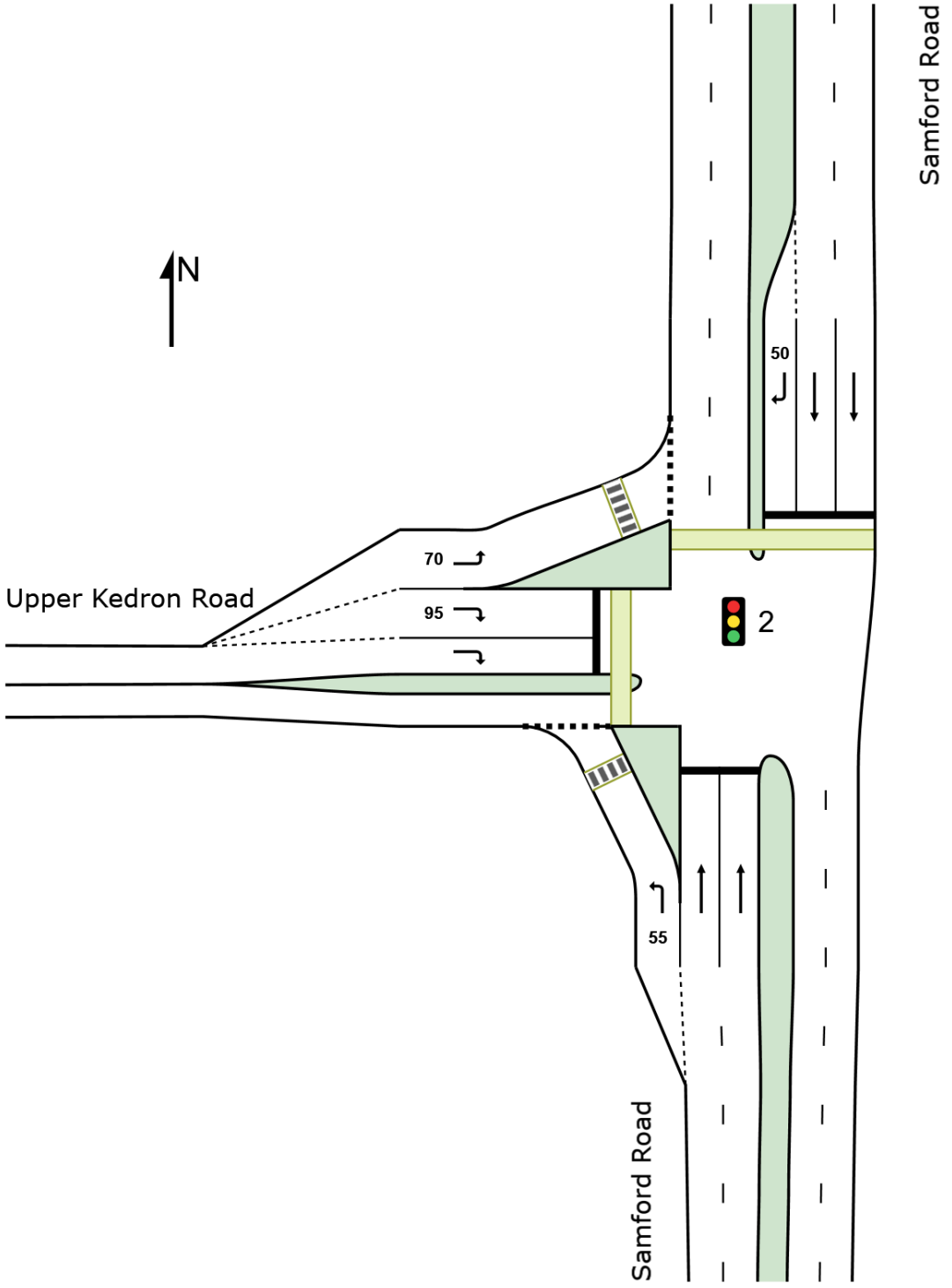
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: [2] Upper Kedron / Samford - 2026 BG AM (Folder1)

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated
Site Scenario: 1 | Local Volumes

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



MOVEMENT SUMMARY

Site: [2] Upper Kedron / Samford - 2026 BG AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	224	7.0	224	7.0	0.171	6.6	LOS A	1.1	8.3	0.18	0.81	0.18	43.7
2	T1	All MCs	502	3.5	502	3.5	* 0.511	21.6	LOS C	6.5	47.2	0.91	0.75	0.91	46.7
Approach			726	4.6	726	4.6	0.511	17.0	LOS B	6.5	47.2	0.69	0.77	0.69	45.8
North: Samford Road															
8	T1	All MCs	1397	1.5	1397	1.5	0.708	14.0	LOS B	16.3	115.4	0.83	0.75	0.84	51.3
9	R2	All MCs	74	7.7	74	7.7	* 0.279	33.8	LOS C	2.0	15.1	0.93	0.75	0.93	40.1
Approach			1471	1.8	1471	1.8	0.708	15.0	LOS B	16.3	115.4	0.84	0.75	0.84	50.0
West: Upper Kedron Road															
10	L2	All MCs	123	8.3	123	8.3	0.122	7.7	LOS A	0.9	6.9	0.27	0.90	0.27	44.7
12	R2	All MCs	737	5.3	737	5.3	* 0.648	26.1	LOS C	10.0	73.3	0.92	0.84	0.94	42.4
Approach			860	5.7	860	5.7	0.648	23.5	LOS C	10.0	73.3	0.83	0.85	0.84	42.7
All Vehicles			3057	3.6	3057	3.6	0.708	17.8	LOS B	16.3	115.4	0.80	0.78	0.81	46.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
West: Upper Kedron Road												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
All Pedestrians		150	105	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (3)] Upper Kedron / Samford - 2028 BG AM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	231	7.0	231	7.0	0.176	6.7	LOS A	1.2	8.7	0.19	0.81	0.19	43.6
2	T1	All MCs	517	3.5	517	3.5	* 0.525	21.7	LOS C	6.8	48.8	0.91	0.76	0.91	46.6
Approach			747	4.6	747	4.6	0.525	17.1	LOS B	6.8	48.8	0.69	0.78	0.69	45.7
North: Samford Road															
8	T1	All MCs	1439	1.5	1439	1.5	0.730	14.9	LOS B	17.4	123.6	0.85	0.78	0.87	50.9
9	R2	All MCs	76	7.7	76	7.7	* 0.287	34.2	LOS C	2.1	15.6	0.93	0.75	0.93	40.1
Approach			1515	1.8	1515	1.8	0.730	15.9	LOS B	17.4	123.6	0.85	0.78	0.87	49.5
West: Upper Kedron Road															
10	L2	All MCs	127	8.3	127	8.3	0.126	7.8	LOS A	1.0	7.3	0.28	0.91	0.28	44.5
12	R2	All MCs	759	5.3	759	5.3	* 0.668	26.5	LOS C	10.5	76.7	0.93	0.85	0.96	42.2
Approach			886	5.7	886	5.7	0.668	23.8	LOS C	10.5	76.7	0.84	0.86	0.86	42.5
All Vehicles			3148	3.6	3148	3.6	0.730	18.4	LOS B	17.4	123.6	0.81	0.80	0.83	46.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
West: Upper Kedron Road												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
All Pedestrians		150	105	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (2)] Upper Kedron / Samford - 2028 BG + DEV AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 60.0 seconds (Site Practical Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	233	7.0	233	7.0	0.178	6.7	LOS A	1.2	8.8	0.19	0.81	0.19	43.5
2	T1	All MCs	517	3.5	517	3.5	* 0.525	21.7	LOS C	6.8	48.8	0.91	0.76	0.91	46.6
Approach			749	4.6	749	4.6	0.525	17.0	LOS B	6.8	48.8	0.69	0.78	0.69	45.7
North: Samford Road															
8	T1	All MCs	1439	1.5	1439	1.5	0.730	14.9	LOS B	17.4	123.7	0.85	0.78	0.87	50.9
9	R2	All MCs	77	7.7	77	7.7	* 0.291	34.3	LOS C	2.1	15.8	0.93	0.75	0.93	40.1
Approach			1516	1.8	1516	1.8	0.730	15.9	LOS B	17.4	123.7	0.85	0.78	0.87	49.5
West: Upper Kedron Road															
10	L2	All MCs	129	8.3	129	8.3	0.128	7.8	LOS A	1.0	7.5	0.28	0.91	0.28	44.5
12	R2	All MCs	771	5.3	771	5.3	* 0.678	26.7	LOS C	10.7	78.6	0.93	0.85	0.97	42.1
Approach			900	5.7	900	5.7	0.678	24.0	LOS C	10.7	78.6	0.84	0.86	0.87	42.4
All Vehicles			3165	3.6	3165	3.6	0.730	18.5	LOS B	17.4	123.7	0.81	0.80	0.83	46.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
West: Upper Kedron Road												
P4	Full	50	53	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12
All Pedestrians		150	105	24.4	LOS C	0.1	0.1	0.90	0.90	178.2	200.0	1.12

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (4)] Upper Kedron / Samford - 2026 BG PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105.0 seconds (Site Optimum Cycle Time - Minimum Delay)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	616	1.2	616	1.2	0.456	7.3	LOS A	5.5	39.1	0.24	1.21	0.24	35.0
2	T1	All MCs	1309	0.6	1309	0.6	* 0.645	16.3	LOS B	25.3	178.1	0.71	0.64	0.71	49.4
Approach			1925	0.8	1925	0.8	0.645	13.4	LOS B	25.3	178.1	0.56	0.82	0.56	44.0
North: Samford Road															
8	T1	All MCs	692	2.3	692	2.3	0.255	6.9	LOS A	6.7	48.0	0.42	0.36	0.42	55.0
9	R2	All MCs	77	1.4	77	1.4	* 0.653	61.9	LOS E	4.2	29.6	1.00	0.82	1.11	31.0
Approach			768	2.2	768	2.2	0.653	12.4	LOS B	6.7	48.0	0.47	0.41	0.48	51.4
West: Upper Kedron Road															
10	L2	All MCs	60	1.8	60	1.8	0.093	29.9	LOS C	2.1	14.6	0.72	1.16	0.72	36.5
12	R2	All MCs	335	1.3	335	1.3	* 0.419	45.2	LOS D	7.8	55.1	0.92	0.79	0.92	35.5
Approach			395	1.4	395	1.4	0.419	42.8	LOS D	7.8	55.1	0.89	0.85	0.89	35.6
All Vehicles			3088	1.2	3088	1.2	0.653	16.9	LOS B	25.3	178.1	0.58	0.72	0.58	44.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
West: Upper Kedron Road												
P4	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians		150	105	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (5)] Upper Kedron / Samford - 2028 BG PM (Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	635	1.2	635	1.2	0.470	7.4	LOS A	5.8	41.0	0.25	1.22	0.25	35.1
2	T1	All MCs	1349	0.6	1349	0.6	* 0.669	16.8	LOS B	26.8	188.3	0.73	0.66	0.73	49.1
Approach			1984	0.8	1984	0.8	0.669	13.8	LOS B	26.8	188.3	0.57	0.84	0.57	43.8
North: Samford Road															
8	T1	All MCs	713	2.3	713	2.3	0.263	6.9	LOS A	7.0	49.7	0.42	0.37	0.42	55.0
9	R2	All MCs	79	1.4	79	1.4	* 0.640	61.3	LOS E	4.3	30.2	1.00	0.81	1.09	31.1
Approach			792	2.2	792	2.2	0.640	12.3	LOS B	7.0	49.7	0.48	0.41	0.49	51.4
West: Upper Kedron Road															
10	L2	All MCs	62	1.8	62	1.8	0.096	31.0	LOS C	2.1	15.0	0.72	1.19	0.72	36.0
12	R2	All MCs	345	1.3	345	1.3	* 0.432	45.3	LOS D	8.1	57.1	0.92	0.80	0.92	35.5
Approach			407	1.4	407	1.4	0.432	43.1	LOS D	8.1	57.1	0.89	0.86	0.89	35.5
All Vehicles			3183	1.2	3183	1.2	0.669	17.2	LOS B	26.8	188.3	0.59	0.73	0.59	44.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
West: Upper Kedron Road												
P4	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians		150	105	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: [2 (6)] Upper Kedron / Samford - 2028 BG +DEV PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 105.0 seconds (Site User-Given Cycle Time)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
South: Samford Road															
1	L2	All MCs	646	1.2	646	1.2	0.479	7.5	LOS A	6.1	42.8	0.25	1.22	0.25	35.1
2	T1	All MCs	1349	0.6	1349	0.6	* 0.686	17.2	LOS B	27.8	195.6	0.74	0.67	0.74	48.9
Approach			1996	0.8	1996	0.8	0.686	14.0	LOS B	27.8	195.6	0.58	0.85	0.58	43.7
North: Samford Road															
8	T1	All MCs	713	2.3	713	2.3	0.263	6.9	LOS A	7.0	49.7	0.42	0.37	0.42	55.0
9	R2	All MCs	80	1.4	80	1.4	* 0.608	60.4	LOS E	4.3	30.3	1.00	0.80	1.06	31.3
Approach			793	2.2	793	2.2	0.608	12.3	LOS B	7.0	49.7	0.48	0.41	0.48	51.4
West: Upper Kedron Road															
10	L2	All MCs	62	1.8	62	1.8	0.095	29.6	LOS C	2.1	14.9	0.71	1.16	0.71	36.5
12	R2	All MCs	347	1.3	347	1.3	* 0.435	45.3	LOS D	8.1	57.4	0.92	0.80	0.92	35.4
Approach			409	1.4	409	1.4	0.435	42.9	LOS D	8.1	57.4	0.89	0.85	0.89	35.6
All Vehicles			3198	1.2	3198	1.2	0.686	17.3	LOS B	27.8	195.6	0.59	0.74	0.60	44.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options tab).
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.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Green.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Input Vol. ped/h	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Qued	Eff. Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
North: Samford Road												
P3	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
West: Upper Kedron Road												
P4	Full	50	53	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00
All Pedestrians		150	105	46.8	LOS E	0.1	0.1	0.94	0.94	200.6	200.0	1.00

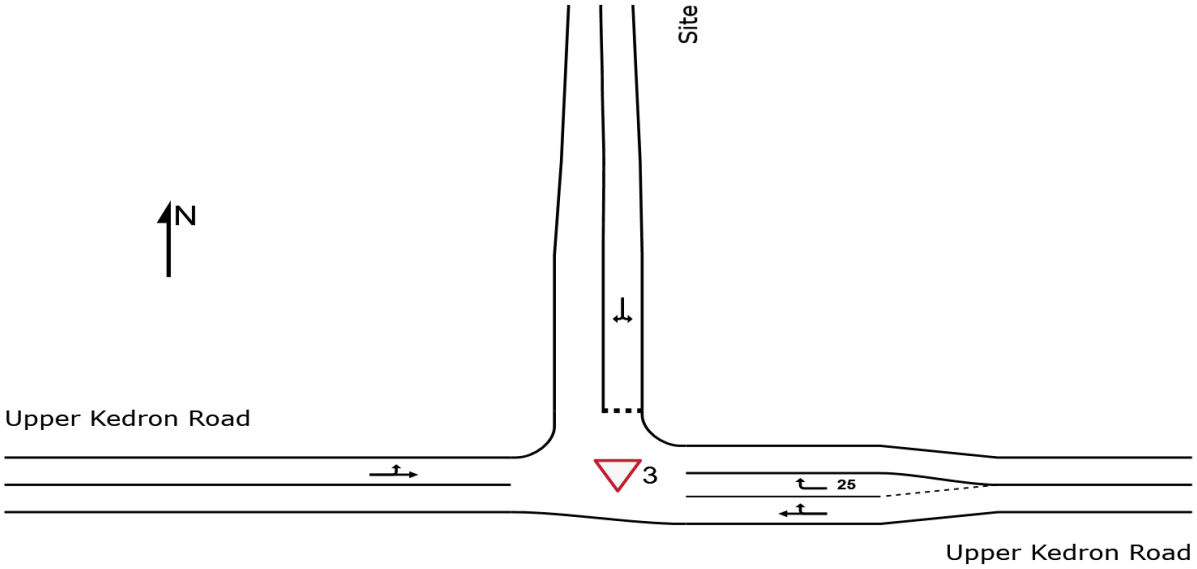
Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

SITE LAYOUT

Site: [3] Upper Kedron Road / Site - 2028 BG + DEV AM
(Folder1)

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

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



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MOVEMENT SUMMARY

Site: [3] Upper Kedron Road / Site - 2028 BG + DEV AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	288	5.0	288	5.0	0.151	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	All MCs	2	5.0	2	5.0	0.004	11.4	LOS B	0.0	0.1	0.69	0.70	0.69	42.5
Approach			291	5.0	291	5.0	0.151	0.1	NA	0.0	0.1	0.00	0.01	0.00	59.8
North: Site															
7	L2	All MCs	15	5.0	15	5.0	0.060	10.0	LOS A	0.2	1.4	0.76	0.89	0.76	40.1
9	R2	All MCs	5	5.0	5	5.0	0.060	24.9	LOS C	0.2	1.4	0.76	0.89	0.76	40.0
Approach			20	5.0	20	5.0	0.060	13.9	LOS B	0.2	1.4	0.76	0.89	0.76	40.1
West: Upper Kedron Road															
10	L2	All MCs	6	5.0	6	5.0	0.480	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	30.4
11	T1	All MCs	908	5.0	908	5.0	0.480	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.6
Approach			915	5.0	915	5.0	0.480	0.2	NA	0.0	0.0	0.00	0.00	0.00	59.4
All Vehicles			1225	5.0	1225	5.0	0.480	0.4	NA	0.2	1.4	0.01	0.02	0.01	59.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [3 (2)] Upper Kedron Road / Site - 2028 BG + DEV PM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	719	5.0	719	5.0	0.377	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.8
6	R2	All MCs	14	5.0	14	5.0	0.011	6.9	LOS A	0.0	0.4	0.43	0.58	0.43	46.5
Approach			733	5.0	733	5.0	0.377	0.3	NA	0.0	0.4	0.01	0.01	0.01	59.6
North: Site															
7	L2	All MCs	3	5.0	3	5.0	0.028	5.2	LOS A	0.1	0.6	0.70	0.75	0.70	39.7
9	R2	All MCs	5	5.0	5	5.0	0.028	20.0	LOS C	0.1	0.6	0.70	0.75	0.70	39.5
Approach			8	5.0	8	5.0	0.028	14.4	LOS B	0.1	0.6	0.70	0.75	0.70	39.6
West: Upper Kedron Road															
10	L2	All MCs	6	5.0	6	5.0	0.198	5.6	LOS A	0.0	0.0	0.00	0.01	0.00	30.5
11	T1	All MCs	372	5.0	372	5.0	0.198	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			378	5.0	378	5.0	0.198	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.3
All Vehicles			1119	5.0	1119	5.0	0.377	0.3	NA	0.1	0.6	0.01	0.02	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [3 (4)] Upper Kedron Road / Site - 2038 BG + DEV AM

(Folder1)

Output produced by SIDRA INTERSECTION Version: 10.0.5.217

New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	335	5.0	335	5.0	0.175	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
6	R2	All MCs	2	5.0	2	5.0	0.005	14.2	LOS B	0.0	0.1	0.77	0.77	0.77	40.1
Approach			337	5.0	337	5.0	0.175	0.1	NA	0.0	0.1	0.00	0.00	0.00	59.8
North: Site															
7	L2	All MCs	15	5.0	15	5.0	0.082	12.9	LOS B	0.2	1.8	0.83	0.92	0.83	36.6
9	R2	All MCs	4	5.0	4	5.0	0.082	39.1	LOS E	0.2	1.8	0.83	0.92	0.83	36.5
Approach			19	5.0	19	5.0	0.082	18.7	LOS C	0.2	1.8	0.83	0.92	0.83	36.6
West: Upper Kedron Road															
10	L2	All MCs	6	5.0	6	5.0	0.556	5.8	LOS A	0.0	0.0	0.00	0.00	0.00	30.3
11	T1	All MCs	1055	5.0	1055	5.0	0.556	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	59.5
Approach			1061	5.0	1061	5.0	0.556	0.3	NA	0.0	0.0	0.00	0.00	0.00	59.3
All Vehicles			1417	5.0	1417	5.0	0.556	0.5	NA	0.2	1.8	0.01	0.02	0.01	59.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: [3 (3)] Upper Kedron Road / Site - 2038 BG + DEV PM

(Folder1)

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New Site
Site Category: (None)
Give-Way (Two-Way)
Site Scenario: 1 | Local Volumes

Vehicle Movement Performance

Mov ID	Turn	Mov Class	Demand Flows [Total veh/h	HV] %	Arrival Flows [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh	Dist] m	Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed km/h
East: Upper Kedron Road															
5	T1	All MCs	835	5.0	835	5.0	0.437	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	59.7
6	R2	All MCs	14	5.0	14	5.0	0.012	7.2	LOS A	0.1	0.4	0.47	0.60	0.47	46.4
Approach			848	5.0	848	5.0	0.437	0.3	NA	0.1	0.4	0.01	0.01	0.01	59.5
North: Site															
7	L2	All MCs	3	5.0	3	5.0	0.041	5.5	LOS A	0.1	0.9	0.76	0.83	0.76	35.7
9	R2	All MCs	5	5.0	5	5.0	0.041	28.8	LOS D	0.1	0.9	0.76	0.83	0.76	35.6
Approach			8	5.0	8	5.0	0.041	20.1	LOS C	0.1	0.9	0.76	0.83	0.76	35.7
West: Upper Kedron Road															
10	L2	All MCs	6	5.0	6	5.0	0.230	5.7	LOS A	0.0	0.0	0.00	0.01	0.00	30.5
11	T1	All MCs	432	5.0	432	5.0	0.230	0.1	LOS A	0.0	0.0	0.00	0.01	0.00	59.8
Approach			438	5.0	438	5.0	0.230	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.3
All Vehicles			1295	5.0	1295	5.0	0.437	0.4	NA	0.1	0.9	0.01	0.01	0.01	59.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).
Two-Way Sign Control Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Control Delay: Geometric Delay is included).
Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.
Gap-Acceptance Capacity Formula: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.
Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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