



Traffic & Parking Assessment Report

18-50 Mayne Drive, Westdale

Proposed Residential Subdivision

Ref 23199

30th October 2024



CONSULTING
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- Appendix A:** Proposed subdivision concept plan
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1. Introduction

1.1 Project Summary

CJP has been engaged by [REDACTED] to prepare a Traffic & Parking Assessment Report (TPAR) in support of a Development Application (DA) to Tamworth Regional Council, involving the establishment of a residential subdivision situated at 18-50 Mayne Drive in Westdale.

In summary, the proposed DA involves the subdivision of the subject site into 46 new large residential lots, with the majority in the vicinity of 4,000m²-5,000m² each. The proposed works also include the construction of a new internal public road network connecting to Mayne Drive, and the retention of the existing dwelling with its own defined boundaries.

It is important to note that this DA does not seek approval for the design of any built form on the new lots. Any new building on any or all of the new lots will require the submission of a separate DA/CDC application.

A copy of the proposed concept subdivision plan has been prepared by Spiire and is provided in Appendix A.

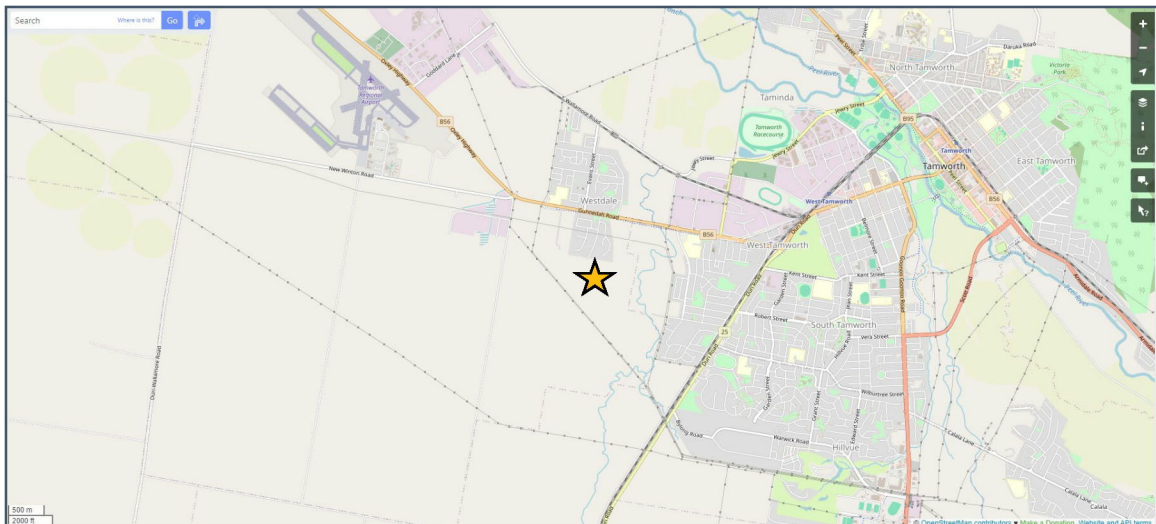


Figure 1.1 – Site Location (Source: OpenStreetMap)

Based on State Environmental Planning Policy (Transport & Infrastructure) 2021, Schedule 3 – Traffic Generating Development, the proposed residential subdivision development is not classified as a traffic generating development, as it does not involve the subdivision of 200 or more allotments. Referral to Transport for NSW (TfNSW) is therefore not required.

1.2 Assessment Tasks

The purpose of this TPAR is to assess the traffic, parking, access, transport and servicing characteristics of the DA, and the associated impacts of the proposal on the surrounding road network, parking and transport environment. This can be briefly summarised below:

- Description of the existing site and its location
- Existing traffic conditions
- Public and active transport infrastructure

- Traffic generation potential of the proposal and its impacts on the surrounding road network
- Off-street parking/loading/access requirements and provisions
- Design of new internal public road network
- Design of access driveway and parking area layout

1.3 Relevant Planning Controls

The site lies within the Tamworth Regional Council (Council) Local Government Area (LGA), such that the relevant Council planning controls and strategies referenced in this TPAR include:

- Tamworth Regional Local Environmental Plan 2010
- Tamworth Regional Development Control Plan 2010
- Tamworth Regional Council Local Strategic Planning Statement 2020

1.4 Traffic, Transport & Parking Guidelines & Standards

In preparing this TPAR, references are also made to the following site access, traffic and parking guidelines:

- Roads & Maritime Service's Guide to Traffic Generating Developments 2002 (RMS Guide)
- Roads & Maritime Service's Technical Direction Updated Traffic Surveys 2013 (TDT)
- Australian Standards 2890.1:2004 – Off-Street Car Parking (AS2890.1)
- Australian Standards 2890.2:2018 – Off-Street Commercial Vehicle Facilities (AS2890.2)
- NSW Government's Planning Guidelines for Walking & Cycling (December 2004)
- National Construction Code (NCC)
- Tamworth Regional Council Standard Drawings

2. Existing Conditions

2.1 Site Location & Description

The development site is situated at the far southern end of Mayne Drive, commencing from 16 Mayne Drive and extending southward beyond the end of Mayne Drive. Presently, the site is occupied by a single residential dwelling with a number of ancillary outbuildings. The remainder of the site is predominantly characterised by a natural landscape of trees and grass.

The site occupies an area of 29.21ha, and is referred to as Lot 1, as indicated in the subdivision plan below which is also reproduced in Appendix B.

Vehicular access to the site is provided by a gravel road which extends south of the existing Mayne Drive roadway and lies within a 20m wide easement along the western side of Lot 2's access handle.

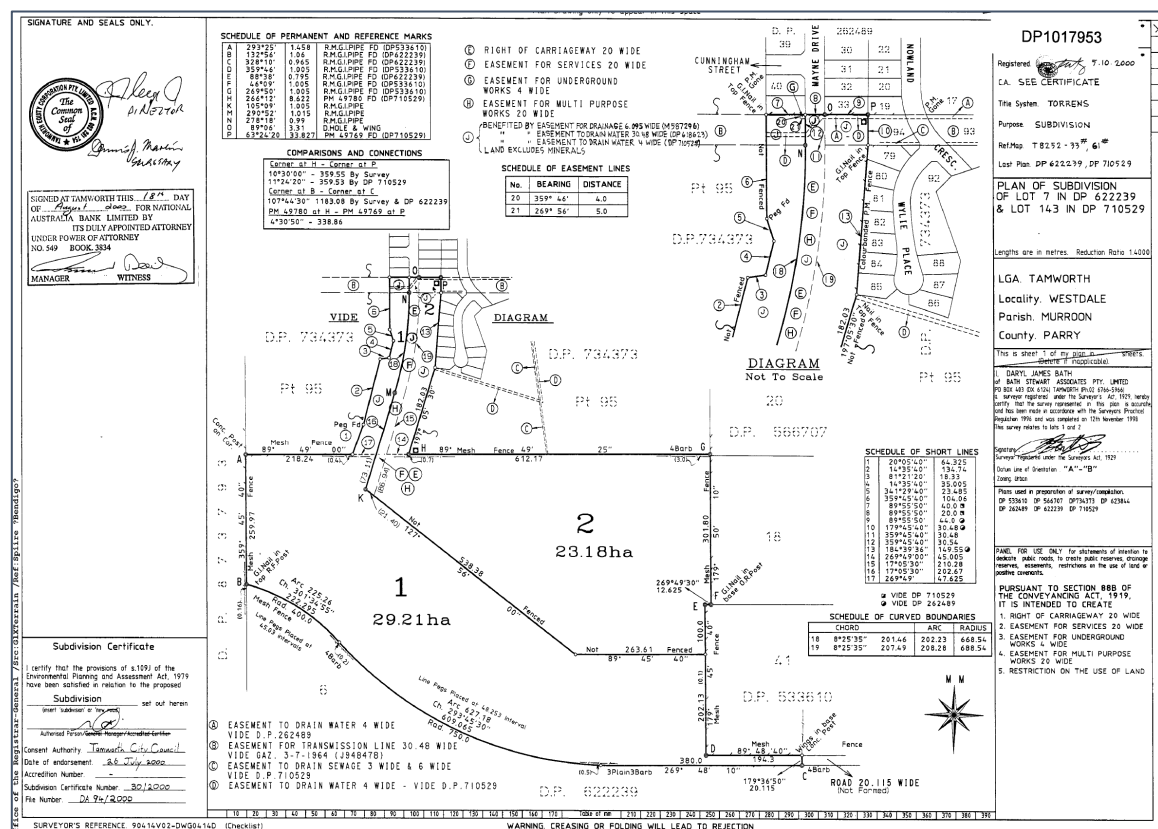


Figure 2.1 – Subdivision plan

A recent aerial image of the site and its surroundings, along with a series of Streetview images, are reproduced on the following page.



Figure 2.2 – Aerial map (Source: Nearmap)



Figure 2.3 – Streetview image of Mayne Drive, looking south (Source: Google Maps)



Figure 2.4 – Streetview image of Mayne Drive, looking north (Source: Google Maps)

2.2 Planning Context

The majority of the site is zoned R2 Low Density Residential under Tamworth Regional LEP 2010, whilst the south-eastern corner of the site is zoned RU4 Primary Production Small Lots, as indicated in the map below. The proposed residential subdivision development is permissible in the zone, subject to development consent.

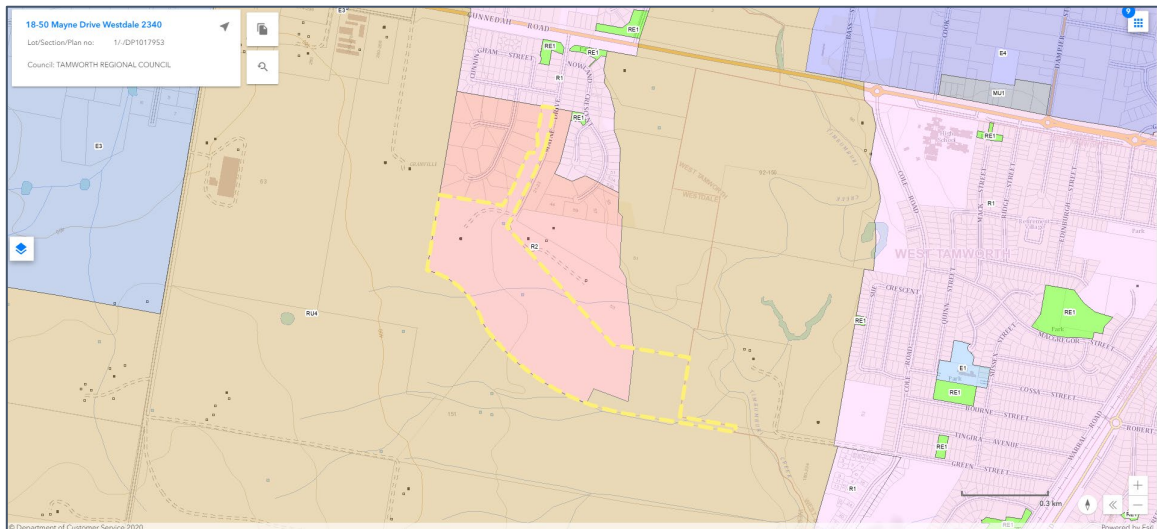


Figure 2.5 – Land zoning map (Source: ePlanning Spatial Viewer)

2.3 Strategic Planning

Tamworth Regional Council's strategic planning framework for the next two decades is outlined in the Tamworth Regional Council Local Strategic Planning Statement 2020 (LSPS). It guides the character of the centres and neighbourhoods into the future. It is developed in accordance with Section 3.9 of Environmental Planning and Assessment Act 1979 and is aligned with the goals of the New England North West Regional Plan 2036.

The LSPS is part of the Land Use and Infrastructure Strategic Planning framework, forming a key component of the Blueprint 100 strategy. Blueprint 100 provides an integrated approach to strategic planning, aiming to fulfill the outcomes outlined in the Community Strategic Plan.

In 2019, the population of the Tamworth Regional LGA stood at approximately 63,000. Through Blueprint 100, the Council explores the implications and opportunities associated with potential growth to a population of 100,000 by 2041, driven by significant infrastructure investments and development initiatives.

The Council's Land Use vision includes the following themes and planning priorities:

- Facilitate smart growth and housing choices
- Create a prosperous region
- Connect the region and its citizens
- Build resilient communities
- Design with nature
- Celebrate the culture and heritage
- Deliver durable infrastructure

The proposal therefore aligns with the Tamworth Regional Council's objective of building resilient communities. Specifically, the proposed development supports the Council's aim of enhancing the growth and vitality of towns and rural centres by providing housing opportunities and promoting aging-in-place initiatives.

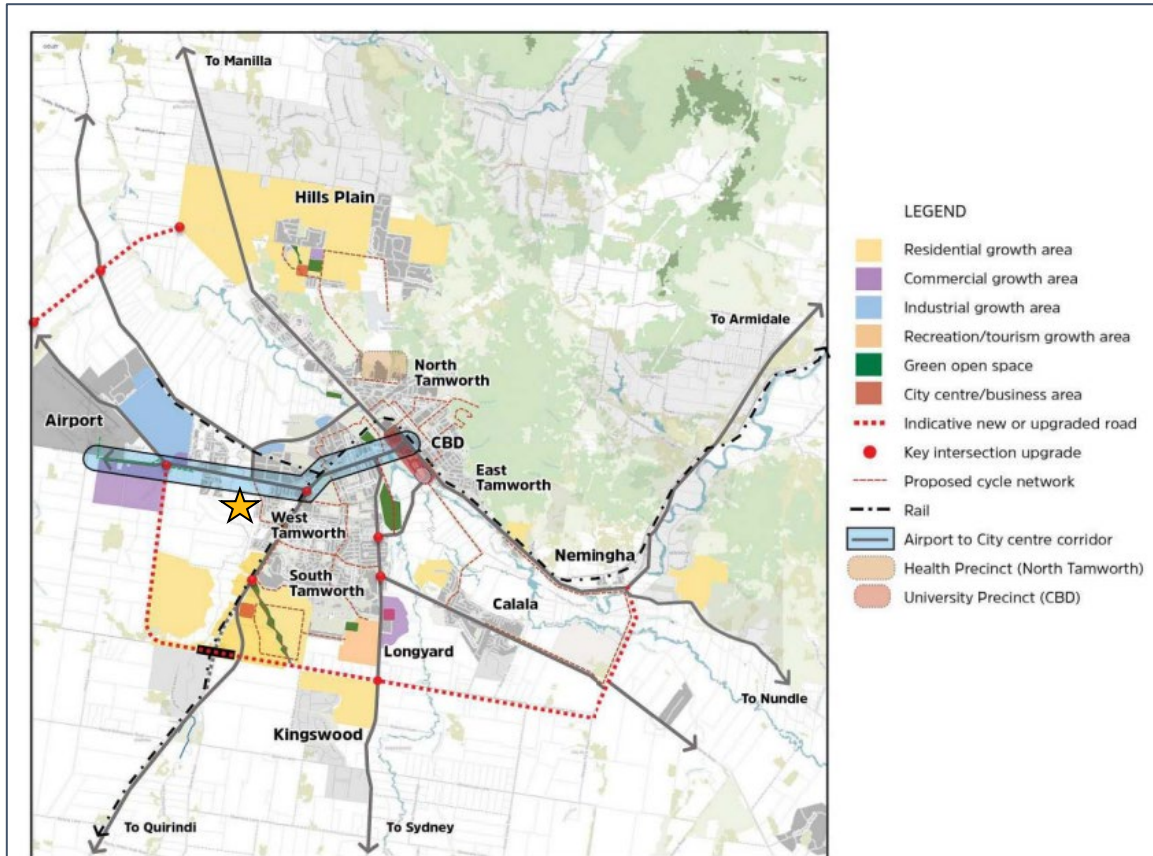


Figure 2.6 – Growth Strategy Components (Source: Tamworth Regional Council LSPS 2020)

2.4 Existing Road Network

The Transport for NSW (TfNSW) road hierarchy comprises the following road classifications:

- State Roads: Freeways, Motorways and Primary Arterial Roads (TfNSW managed)
- Regional Roads: Secondary or Sub-Arterial (Council managed, partly funded by the State)
- Local Roads: Collector and Local Access Roads (Council managed)

The existing road hierarchy in the vicinity of the site is shown in the figure below, whilst the key roads and intersections are summarised as follows:

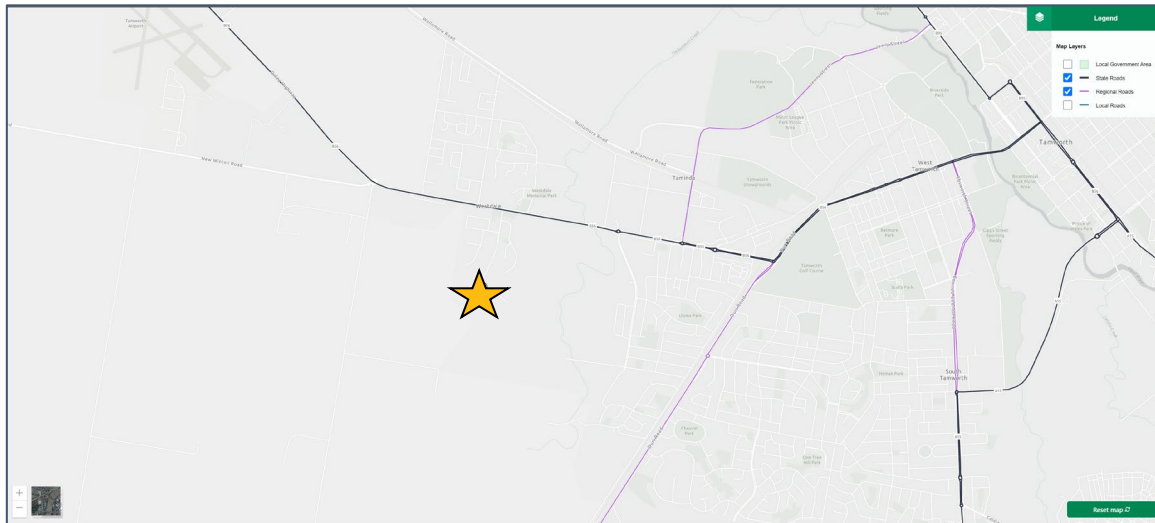


Figure 2.7 – Road Hierarchy (Source: Transport for NSW)

- Oxley Highway is classified as a State Road which connects the Newell Highway at Coonabarabran to Port Macquarie town centre. In the vicinity of the site it is also referred to as Gunnedah Road and typically consists of one traffic in each direction, along with turning treatments at most intersections. The signposted speed limit is 60km/hr.
- Duri Road is classified as a Regional Road which performs the function of a north-south collector route through the area, linking Warral to West Tamworth. It carries one traffic lane in each direction and also subject to a 60km/h speed limit.
- Mayne Drive is a Local Road that accommodates one lane of traffic per direction. Kerbside parking is generally permitted on both sides of the road, whilst its signposted speed limit is 50km/hr, reflective of its low density residential nature.

2.5 Public & Active Transport

The existing public transport services available near the vicinity of the site are illustrated on Figure 2.8.

The nearest bus stop is located on Gunnedah Road, approximately 300m walking distance from the northern end of the site near 16 Mayne Drive. The bus stop services routes 437 and 438 loop services, operating Monday to Saturday, with stops in Tamworth, Westdale, and Coledale.

Research suggests that proximity to bus services influence the travel mode choice for areas within 400m (approximately 5 minutes) of a bus stop. As such, the proposed development has potential for future residents to utilise bus for their commute to/from work or other key points of interest.



Figure 2.8 – Existing Public Transport Map within Tamworth near the site (Source: Transport for NSW)

Tamworth railway station is also situated approximately 6.6km east of the site, which is approximately 12 minutes' driving distance. Tamworth railway station operates along the North West NSW Line, facilitating travel between Sydney (Central) and destinations such as Moree or Armidale, with the latter being part of the route serviced by Tamworth railway station. The first train departing from Sydney at 9:30am arrives in Armidale at 5:35pm, while the return journey from Armidale at 8:40am reaches Sydney at 4:39pm.

Pedestrian connectivity within the site's vicinity in the form of formal footpaths is limited, with the area being heavily reliant on motor vehicle usage rather than walking.

Notwithstanding, Figure 2.9 shows the existing, future proposed, and long-term planned cycle routes near the site. Existing cycleways exist along Gunnedah Road and Cole Road.

The *Planning Guidelines for Walking and Cycling* identifies a number of city-scale design principles that can assist the creation of walkable and cyclable cities and neighbourhoods. These principles emphasise urban renewal and the creation of compact, mixed use, accessible centres around public transport stops. At the neighbourhood scale, design principles can be reinforced through the creation of local and accessible centres and neighbourhoods with connected street patterns and road design which aim to reinforce local walking and cycling networks.

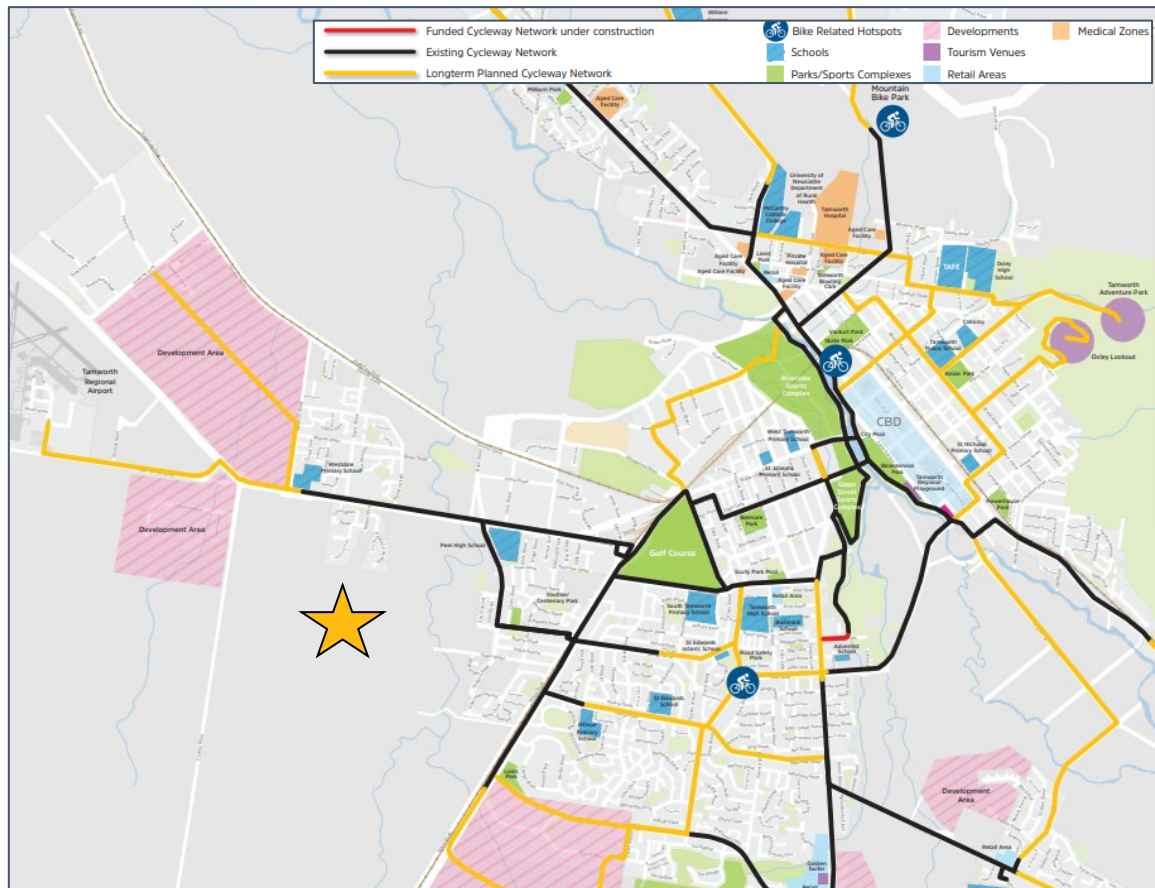


Figure 2.9 – Existing cycling network map (Source: Tamworth Regional Council)

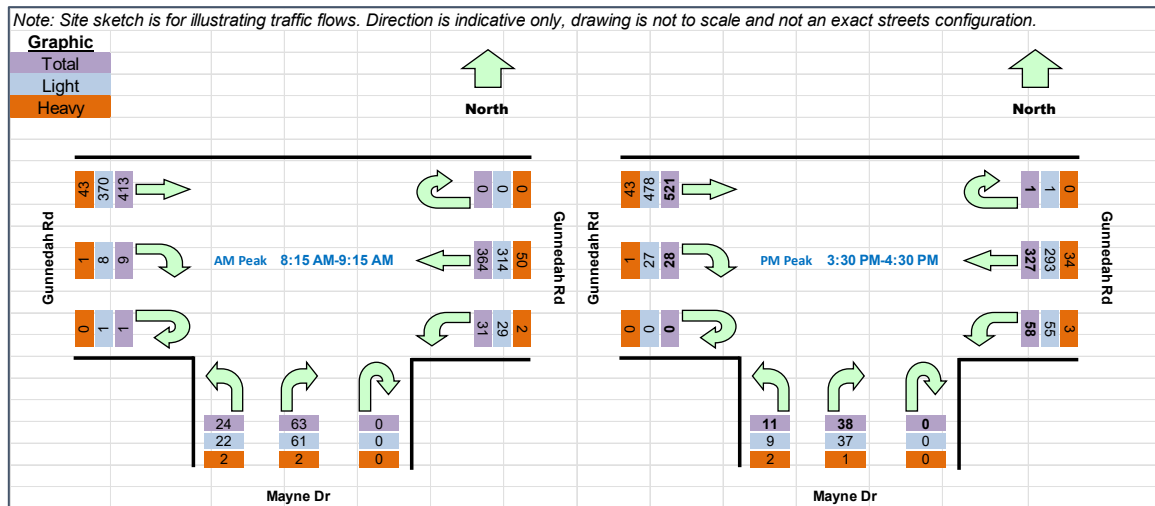
In particular, the *Guidelines* note that increased population density is an important element in creating a walkable and cyclable city. A compact development brings activities close together, making them more accessible by foot or by bicycle, without the need to use a car. Increased population density also enhances the viability of public transport services.

2.6 Existing Traffic Volumes

In order to understand the existing traffic volumes on the surrounding road network, traffic surveys were undertaken at the Oxley Highway (Gunnedah Road) & Mayne Drive intersection during the weekday AM & PM road network peak periods on Wednesday 13th December 2023.

The results of the surveys are reproduced in Appendix C and summarised in the diagram on the following page, along with an aerial image of the intersection for context. As can be seen, the existing intersection is configured with a BAR – i.e. a sealed passing shoulder for eastbound movements and right-turn movements into Mayne Drive, as well as a CHL – i.e. a channelised left-turn lane for westbound left-turn movements into Mayne Drive.

Based on the existing traffic volumes from the surveys, it seems that approximately 75% of traffic arrives/departs to/from the east, which isn't surprising given Tamworth is located approximately 10 minutes' drive to the east, whilst the nearest large township to the west is Gunnedah, approximately 50 minutes' driveway away.



2.7 Existing Surrounding Traffic Controls

The existing traffic controls in the vicinity of the site comprise:

- 50km/h speed limit which applies to Mayne Drive
- 60km/h speed limit which applies to Gunnedah Road
- A priority-controlled intersection treatment at Gunnedah Road & Mayne Drive, including a sealed BAR and CHL

2.8 Existing Surrounding Parking Restrictions

The existing parking restrictions in the vicinity of the site comprise:

- Kerbside parking is generally permitted on both sides of Mayne Drive
- Bus Zones located at regular intervals along Gunnedah Road

3. Proposed Development

3.1 Development Description

The proposed development involves subdividing the site into 46 new large residential lots, with the majority ranging between 4,000m²-5,000m². The proposed works also include the construction of a new internal public road network connecting to Mayne Drive, and the retention of the existing dwelling with its own defined boundaries.

This DA does not include the design of any built form on the new lots. Any new building on any or all of the new lots will require the submission of a separate DA/CDC application.

A copy of the subdivision plan, prepared by Spiire, is reproduced below.

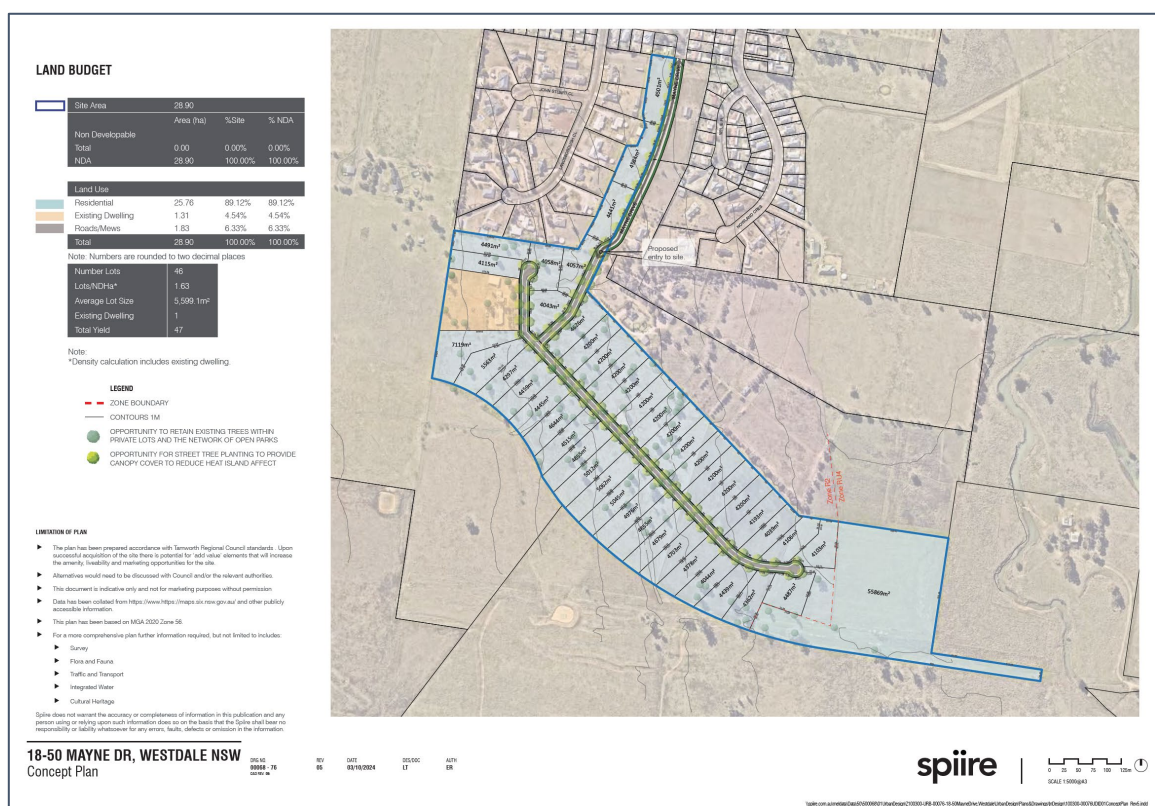


Figure 3.1 – Proposed subdivision concept plan (Source: Spiire)

3.2 Future Internal Road Network

Tamworth Regional Council’s Standard Drawings General and Road Index provides urban design criteria for the hierarchical road network, with each class of road serving a distinct set of functions essential to maximising road safety, residential amenity and legibility. The four distinct levels of roads are Access Street, Local Street, Collector Street, Sub-Arterial Road and Arterial Road.

An extract of the various road classifications and associated design criteria is reproduced on the following page.

Road Classification	Indicative Design Traffic ²	RU1, RU4 Primary Production, Rural Small Holdings	RU5 Village	R1 General Residential	R2 Low Density Residential RSD1/RDS2	R2 Low Density Residential RSD3-RDS5	R5 Large Lot Residential	B1-B7, IN1, IN3 Business, Industrial
Arterial	As determined per pavement design.	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 2.5m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 2.5m wide ¹	34m Road Reserve 4 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 3.0m wide ¹	34m Road Reserve 4 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 3.0m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.5m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.5m wide ¹	32m Road Reserve 4 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 4.0m wide ¹
Sub-Arterial	As determined per pavement design.	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 2.0m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.5m wide ¹	32m Road Reserve 4 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 3.0m wide ¹	32m Road Reserve 4 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 3.0m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.5m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.5m wide ¹	30m Road Reserve 4 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 3.0m wide ¹
Collector	Min 2 x 10 ⁶ ESA	25m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.5m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.0m wide ¹	25m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 3.0m wide ¹	25m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 3.0m wide ¹	25m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.0m wide ¹	25m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.0m wide ¹	28m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 5.5m wide ¹
Local	Min 3 x 10 ⁵ ESA	24m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 1.0m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 0.5m wide ¹	20m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 2.0m wide ¹	20m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 2.0m wide ¹	25m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 0.5m wide ¹	25m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Shoulder, 0.5m wide ¹	25m Road Reserve 2 x Travel Lanes, 3.5m wide 2 x Parking Lanes, 4.5m wide ¹
Access	Min 8 x 10 ³ ESA	22m Road Reserve 2 x Travel Lanes, 3.0m wide 2 x Shoulder, 0.5m wide ¹	30m Road Reserve 2 x Travel Lanes, 3.0m wide 2 x Shoulder, 0.5m wide ¹	17m Road Reserve 2 x Travel Lanes, 3.0m wide 1 x Parking Lane, 2.0m wide ¹	17m Road Reserve 2 x Travel Lanes, 3.0m wide 1 x Parking Lane, 2.0m wide ¹	22m Road Reserve 2 x Travel Lanes, 3.0m wide 2 x Shoulder, 0.5m wide ¹	22m Road Reserve 2 x Travel Lanes, 3.0m wide 2 x Shoulder, 0.5m wide ¹	

Note 1: Shoulders and parking lanes are to be constructed to the same standard as travel lanes.

Note 2: The Indicative Design Traffic is based on those specified in Austroads Guide to Pavement Design. The Design Traffic to be adopted in the pavement design should be consistent with traffic counts on similar roads within the neighbourhood or development where appropriate.

Doc Set 1265367

Engineering Design Minimum Standards

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Figure 3.2 – Tamworth Council road classifications, formation widths and design traffic (Source: Tamworth Council)

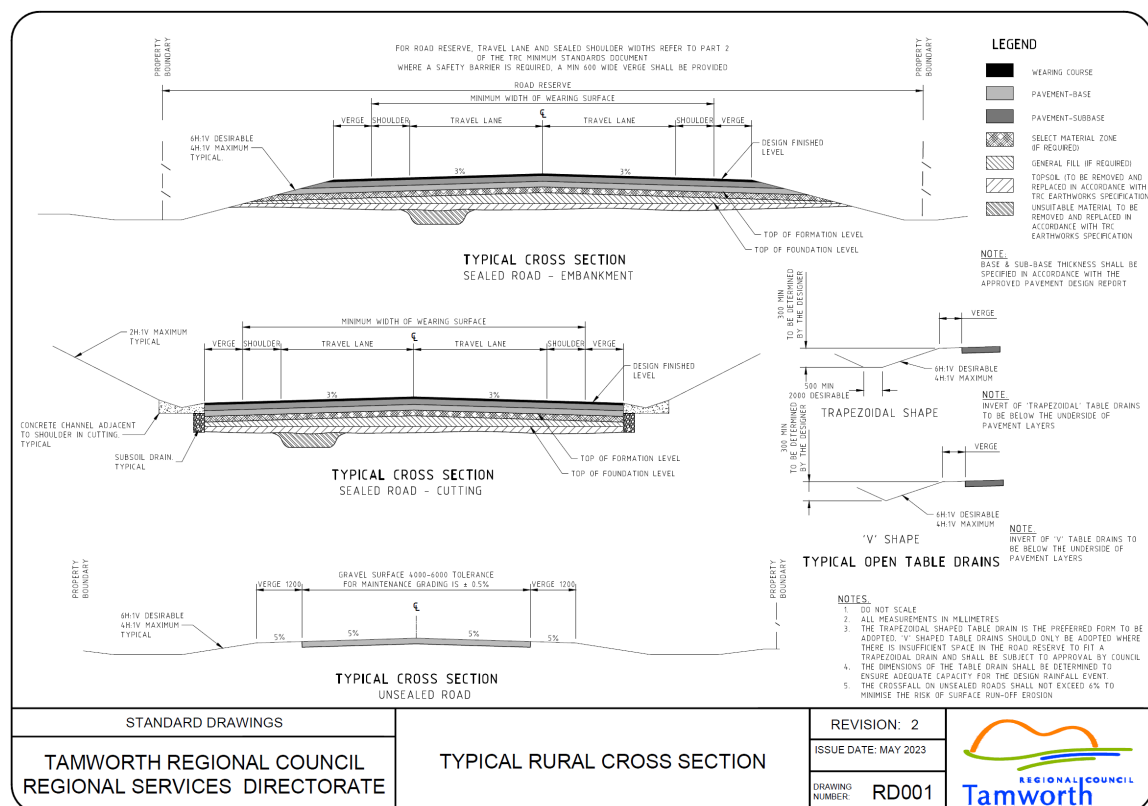


Figure 3.3 – Tamworth Council typical rural road cross section (Source: Tamworth Council)

3.2 Parking & Vehicular Access Arrangements

Off-street parking will ultimately be provided on each individual allotment, subject to future respective applications, in accordance with Council's DCP requirements.

Vehicular access to the new allotments will ultimately be provided via respective driveways off the proposed internal road network and off the existing easement for the northern allotments.

3.3 Waste Collection

Waste collection will ultimately be undertaken by Council's contractor using a 10.5m long side-loading garbage truck. In this regard, bins will be lined up along the kerbside area outside each respective allotment on "bin night" for collection the following day.

4. Traffic Impact Assessment

4.1 Traffic Generation Guidelines

The traffic implications of development proposals primarily concern the *nett change* in the traffic generation potential of a site compared to its existing and/or approved uses, and its impact on the operational performance of the surrounding road network, particularly during the weekday morning and afternoon road network peak periods.

An indication of the traffic generation potential of the existing and proposed uses on the site is provided by reference to the following documents:

- RMS Guide to Traffic Generating Developments 2002 (RMS Guide)
- RMS Technical Direction 2013/04a (TDT)

In this regard, the TDT provides trip generation rates for low density residential dwellings in regional areas, as follows:

- Weekday AM road network peak: average 0.71 trips/dwelling
maximum 0.85 trips/dwelling
- Weekday PM road network peak: average 0.78 trips/dwelling
maximum 0.9 trips/dwelling

4.2 Proposed Development Traffic Generation

As noted in the foregoing, the proposed development involves the subdivision of the site into 46 new large residential lots, whilst retaining the existing dwelling.

Accordingly, based on the above maximum trip rates for regional areas, the proposed subdivision with 46 future dwellings has a traffic generation potential of 39 vehicle trips during the weekday morning peak period and 41 vehicle trips during the weekday afternoon peak period, as set out in the table below.

Table 4.1 – Envisaged Weekday Peak Trip Rates & Traffic Generation Potential				
Land Use	Period	Trip rate	Total peak trips	Trip split
Residential (46 future dwellings)	AM	0.85/dwelling	39 trips	8 in/31 out
	PM	0.90/dwelling	41 trips	33 in/8 out

4.3 Traffic Impact – Road Network & Environmental Capacity

Research undertaken by the former Roads and Maritime Services has identified a number of environmental capacity performance standards for different types of residential streets, as set out in Table 4.2 on the following page.

As identified in Figure 2.10 of this TPAR, existing traffic flows in Mayne Drive are typically in the order of 127-135 peak trips, whilst the proposed subdivision is expected to generate a *nett increase* of 39-41 peak trips.

Table 4.2 Environmental capacity performance standards on residential streets (Table 4.6 of RMS Guide)			
Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal
			300 maximum
Collector	Street	50	300 environmental goal
			500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

The cumulative traffic flows in Mayne Drive as a consequence of the development proposal are therefore expected to be below the threshold of 200 vph which is the environmental goal for a local residential street.

Another important consideration in determining the impact of a development proposal on the road network is to assess the effect on traffic efficiency, the objective of which is to maintain the existing level of service. Adverse effects must be identified and corrective measures designed. The level of service is used as the performance standard and is broken down into six ratings. This is a qualitative assessment of the quantitative effect of factors such as speed, volume of traffic, geometric features, traffic interruptions, delays and freedom of manoeuvres.

The traffic implications of development proposals primarily concern the effects that any additional traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA 9.1 program which is widely used by TfNSW and most LGAs for this purpose. TfNSW's criteria for evaluating the results of SIDRA analysis are summarised in the table below.

Table 4.3 – Level of Service Criteria for Intersections (Table 4.2 of RMS Guide)			
Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way & Stop Signs
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	>70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode or major treatment

The traffic implications of development proposals primarily concern the *nett change* in the traffic generation potential of a site compared to its existing and/or approved uses.

Accordingly, a key consideration of the proposed DA is the impact that any additional traffic will have on the Oxley Highway (Gunnedah Road) & Mayne Drive intersection, particularly noting this is the only existing means of accessing the broader road network.

In order to provide a rigorous assessment, reference is made to an earlier subdivision scheme of 115 lots within the site, noting this is no longer proposed. Notwithstanding, CJTP conducted preliminary SIDRA modelling of this earlier scheme, based on the trip rates applied in Table 4.1. Based on those peak trip rates, the earlier scheme was expected to generate 98 trips during the weekday AM peak and 104 trips during the weekday PM peak.

In terms of direction splits, 75% was distributed to/from the east, as per the existing distribution, whilst 25% was distributed to/from the west.

The SIDRA movements summaries of the Oxley Highway & Mayne Drive intersection are reproduced in Appendix D and summarised in Table 2 below.

Based on the SIDRA testing, there is a minor increase in delay to the RT OUT movement during both AM & PM, with negligible/zero increases on all other movements.

In addition, a 2033 (i.e. +10 year) scenario with a 2% p.a. increase in through traffic along Gunnedah Rd (east-west movements only) was also tested. In that instance, the RT OUT delays increased by ~10 seconds during both the AM & PM, however, remained at Level of Service B – well within acceptable limits.

Table 4.4 – Summary of SIDRA analysis of the Gunnedah Road & Mayne Drive intersection						
	Existing Base Case Scenario		Proposed Scenario with Development (115 New Lots)		Proposed Scenario with Development (115 New Lots) +10 Year	
	AM	PM	AM	PM	AM	PM
Oxley Hwy (W)						
LOS	A	A	A	A	A	A
DOS	0.172	0.227	0.176	0.245	0.214	0.294
AVD (sec/veh)	0.5	0.8	0.6	1.4	0.7	1.5
Mayne Dr (S)						
LOS	A	A	B	B	B	B
DOS	0.191	0.135	0.374	0.210	0.517	0.302
AVD (sec/veh)	12.5	14.1	14.8	15.8	21.8	23.0
Oxley Hwy (E)						
LOS	A	A	A	A	A	A
DOS	0.204	0.179	0.204	0.179	0.248	0.218
AVD (sec/veh)	0.5	0.9	0.6	1.5	0.6	1.3

LOS – Level of Service; DOS – Degree of Saturation; AVD – Average Vehicle Delays

In summary, the intersection has a significant amount of spare capacity before any upgrades are required, on the basis that Level of Service C to D is the acceptable threshold. Consequently, the proposal is deemed supportable on traffic grounds.

5. Access, Parking & Servicing Assessment

5.1 Applicable Car Parking Rates

Whilst the proposed residential subdivision does not include any built form on the site, any future development of the subdivided lots will be required to provide off-street car parking. The off-street parking rates applicable to any future development are specified in Tamworth Council's DCP 2010, Appendix A – Parking Requirements Schedule, as set out below.

LAND USE	PARKING	COMMENTS
Dwelling House	2 spaces per dwelling	These spaces shall be located behind the building line as set by Council.

(Source: Tamworth Regional DCP 2010, Appendix A)

5.2 Car Parking Requirements

Based on the proposal for 46 new large residential lots, the proposed development requires the provision of 92 car parking spaces, as set out in the table below.

Table 5.1 – Off-street Car Parking Requirements			
Land Use	Rate	Quantity	Requirement
Dwelling House	2 spaces / dwelling	46	92 spaces

5.3 Proposed Car Parking Provisions

As noted in the foregoing, it is important to clarify that this DA pertains to the subdivision of the land only, and not for the design or approval of the individual dwellings. The design of the dwellings will be addressed by future respective applications.

Nevertheless, the size and dimensions of the future dwellings will be designed in such a way that they will be able to accommodate the off-street parking requirements for each respective property.

6. Design Assessment

6.1 Applicable Design Standards

The following design standards are used as the basis for compliance with respect to the vehicular access and parking requirements:

- Australian Standards 2890.1:2004 – Off-Street Car Parking (AS2890.1)
- Australian Standards 2890.2:2018 – Off-Street Commercial Vehicle Facilities (AS2890.2)

Notwithstanding, the proposed DA is limited to the subdivision of the subject site and associated infrastructure works, including the construction of a new internal road network, not the design of the future dwellings themselves. Whilst the vehicular access and parking areas will ultimately be designed in accordance with the above Australian Standards, they will be done so at the respective DA/CDC stages of each new allotment.

6.2 Subdivision & Road Design

Tamworth Regional Council adheres to the *Engineering Design Minimum Standards for Subdivision and Developments Version 2* document for its procedural and design requirements concerning subdivisions. The following key compliances are noted with respect to the proposed development:

- 3m x 3m splay corners
- 8m kerb return radii
- 3% crossfalls on road carriageways
- 20m road reserve to match existing
- 2 x travel lanes; 3.5m wide each
- 2 x shoulders (to the same standard as the travel lanes); 0.5m wide each
- New intersection is a T-junction which meet at 90°
- 20m diameter cul-de-sac turning heads.

Further to the above, the proposed new internal road network has been designed to accommodate the swept turning path requirements of an 11m rigid truck, allowing it to enter and exit the site in a forward direction at all times, and circulate through the site without difficulty, including a three-point-turn within the cul-de-sac turning heads.

Swept turn path diagrams are reproduced in Appendix E.

7. Conclusion

In summary, the proposed development at 18-50 Mayne Drive in Westdale involves the establishment of a residential subdivision with 46 new large lots as well as the retention of the existing dwelling on a new separate lot. The proposal also includes the establishment of a new internal road network to Council's standard requirements.

It is important to note that this DA does not seek approval for the design of any built form on the new lots. Any new building on any or all of the new lots will require the submission of a separate DA/CDC application.

Based on the findings contained within this report, the following conclusions are made:

- the site is located approximately 300m walking distance to the nearest bus stop which is located on Gunnedah Road and serviced by routes 437 and 438 loop service, operating in Tamworth, Westdale, and Coledale.
- the proposed development is expected to generate in the order of 39-41 vehicle trips during the weekday morning and afternoon peak periods.
- the proposed *nett increase* in traffic does not result in any unacceptable traffic or environmental capacity implications to the surrounding road network, nor will any intersection upgrades be required
- the proposed road design and sections the future internal roads are all in accordance with Council's requirements.
- the proposed lot layout and road design can accommodate the swept turn path requirements of a 10.5-m truck.

In light of the foregoing assessment, it is therefore concluded that the proposed residential subdivision development is supportable on vehicular access, traffic, parking and servicing grounds and will not result in any unacceptable implications.

Appendix A

Proposed subdivision concept plan

LAND BUDGET

Site Area	28.90		
	Area (ha)	%Site	% NDA
Non Developable			
Total	0.00	0.00%	0.00%
NDA	28.90	100.00%	100.00%

Land Use			
Residential	25.76	89.12%	89.12%
Existing Dwelling	1.31	4.54%	4.54%
Roads/Mews	1.83	6.33%	6.33%
Total	28.90	100.00%	100.00%

Note: Numbers are rounded to two decimal places

Number Lots	46
Lots/NDHa*	1.63
Average Lot Size	5,599.1m²
Existing Dwelling	1
Total Yield	47

Note:
*Density calculation includes existing dwelling.

LEGEND

- ZONE BOUNDARY
- CONTOURS 1M
- OPPORTUNITY TO RETAIN EXISTING TREES WITHIN PRIVATE LOTS AND THE NETWORK OF OPEN PARKS
- OPPORTUNITY FOR STREET TREE PLANTING TO PROVIDE CANOPY COVER TO REDUCE HEAT ISLAND AFFECT

LIMITATION OF PLAN

- ▶ The plan has been prepared accordance with Tamworth Regional Council standards . Upon successful acquisition of the site there is potential for 'add value' elements that will increase the amenity, liveability and marketing opportunities for the site.
- ▶ Alternatives would need to be discussed with Council and/or the relevant authorities.
- ▶ This document is indicative only and not for marketing purposes without permission
- ▶ Data has been collated from <https://www.https://maps.six.nsw.gov.au/> and other publicly accessible information.
- ▶ This plan has been based on MGA 2020 Zone 56.
- ▶ For a more comprehensive plan further information required, but not limited to includes:
 - ▶ Survey
 - ▶ Flora and Fauna
 - ▶ Traffic and Transport
 - ▶ Integrated Water
 - ▶ Cultural Heritage

Spiire does not warrant the accuracy or completeness of information in this publication and any person using or relying upon such information does so on the basis that the Spiire shall bear no responsibility or liability whatsoever for any errors, faults, defects or omission in the information.



Appendix B

Existing subdivision plan



SIGNED AT TAMWORTH THIS 18th DAY
OF August 2000 FOR NATIONAL
AUSTRALIA BANK LIMITED BY
ITS DULY APPOINTED ATTORNEY
UNDER POWER OF ATTORNEY
NO. 549 BOOK 3834

SCHEDULE OF PERMANENT AND REFERENCE MARKS

A	293°25'	1.458	R.M.G.I.P.I.P.E. FD (DP533610)
B	132°56'	1.06	R.M.G.I.P.I.P.E. FD (DP622239)
C	328°10'	0.965	R.M.G.I.P.I.P.E. FD (DP622239)
D	359°46'	1.005	R.M.G.I.P.I.P.E. FD (DP533610)
E	88°38'	0.795	R.M.G.I.P.I.P.E. FD (DP622239)
F	46°09'	1.005	R.M.G.I.P.I.P.E. FD (DP533610)
G	269°50'	1.005	R.M.G.I.P.I.P.E. FD (DP533610)
H	266°12'	8.622	PM 49780 FD (DP710529)
I	105°09'	1.005	R.M.G.I.P.I.P.E. FD (DP533610)
J	290°52'	1.015	R.M.G.I.P.I.P.E. FD (DP533610)
K	278°18'	0.99	R.M.G.I.P.I.P.E. FD (DP533610)
L	89°06'	3.31	D.HOLE & WING
M	63°24'20"	33.827	PM 49769 FD (DP710529)

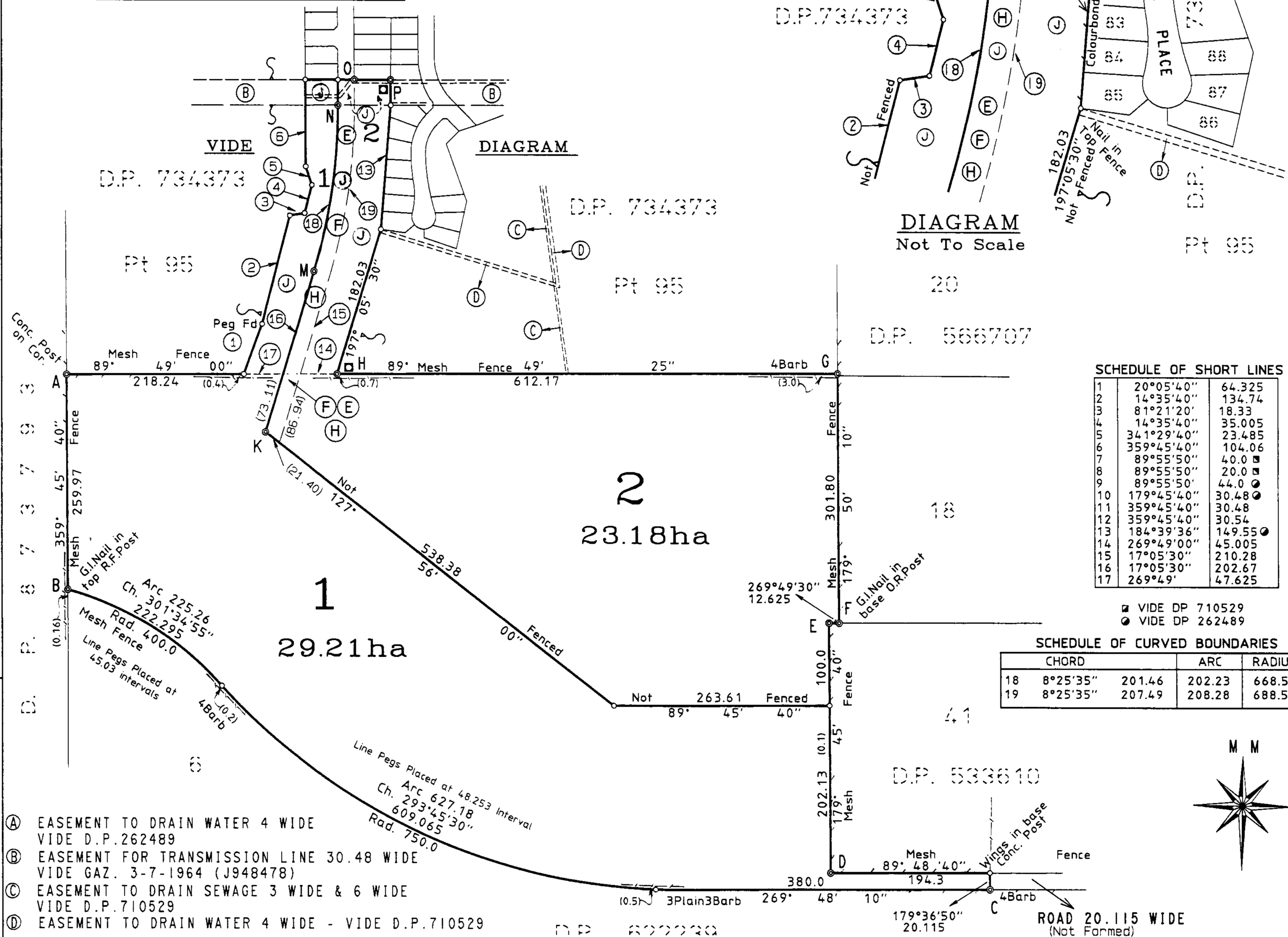
COMPARISONS AND CONNECTIONS

Corner at H - Corner at P
10°30'00" - 359.55 By Survey
11°24'20" - 359.53 By DP 710529
Corner at B - Corner at C
107°44'30" 1183.08 By Survey & DP 622239
PM 49780 at H - PM 49769 at P
4°30'50" - 338.86

- (E) RIGHT OF CARRIAGEWAY 20 WIDE
(F) EASEMENT FOR SERVICES 20 WIDE
(G) EASEMENT FOR UNDERGROUND
WORKS 4 WIDE
(H) EASEMENT FOR MULTI PURPOSE
WORKS 20 WIDE
(J) BENEFITED BY EASEMENT FOR DRAINAGE 6.095 WIDE (M587296)
" " EASEMENT TO DRAIN WATER 30.48 WIDE (DP618623)
" " EASEMENT TO DRAIN WATER 4 WIDE (DP710529)
LAND EXCLUDES MINERALS

SCHEDULE OF EASEMENT LINES

No.	BEARING	DISTANCE
20	359° 46'	4.0
21	269° 56'	5.0



SCHEDULE OF SHORT LINES

1	20°05'40"	64.325
2	14°35'40"	134.74
3	81°21'20"	18.33
4	14°35'40"	35.005
5	34°12'40"	23.485
6	359°45'40"	104.06
7	89°55'50"	40.0
8	89°55'50"	20.0
9	89°55'50"	44.0
10	179°45'40"	30.48
11	359°45'40"	30.48
12	359°45'40"	30.54
13	184°39'36"	149.55
14	269°49'00"	45.005
15	17°05'30"	210.28
16	17°05'30"	202.67
17	269°49'	47.625

SCHEDULE OF CURVED BOUNDARIES

CHORD	ARC	RADIUS
18	8°25'35"	201.46
19	8°25'35"	207.49

VIDE DP 710529
VIDE DP 262489

DP1017953

Registered: 17.10.2000
C.A. SEE CERTIFICATE
Title System: TORRENS
Purpose: SUBDIVISION
Ref. Map: T8252-33, 61#
Last Plan: DP 622239, DP 710529

PLAN OF SUBDIVISION
OF LOT 7 IN DP 622239
& LOT 143 IN DP 710529

Lengths are in metres. Reduction Ratio 1:4000

LGA. TAMWORTH
Locality. WESTDALE
Parish. MURROON
County. PARRY

This is sheet 1 of my plan in sheets.
(Delete if inapplicable).

I, DARYL JAMES BATH
of BATH STEWART ASSOCIATES PTY. LIMITED
PO BOX 403 (DX 6124) TAMWORTH (Ph 02 6766-5966)
a surveyor registered under the Surveyors Act, 1929, hereby
certify that the survey represented in this plan is accurate
and has been made in accordance with the Surveyors (Practice)
Regulation 1996 and was completed on 12th November 1998
This survey relates to lots 1 and 2.

Signature: [Redacted]
Surveyor registered under the Surveyors Act, 1929
Datum Line of Orientation: "A"-"B"
Zoning: Urban

Plans used in preparation of survey/compilation:
DP 533610 DP 566707 DP 734373 DP 623844
DP 262489 DP 622239 DP 710529

PANEL FOR USE ONLY for statements of intention to
dedicate public roads, to create public reserves, drainage
reserves, easements, restrictions on the use of land or
positive covenants.

PURSUANT TO SECTION 88B OF
THE CONVEYANCING ACT, 1919,
IT IS INTENDED TO CREATE

1. RIGHT OF CARRIAGEWAY 20 WIDE
2. EASEMENT FOR SERVICES 20 WIDE
3. EASEMENT FOR UNDERGROUND
WORKS 4 WIDE
4. EASEMENT FOR MULTI PURPOSE
WORKS 20 WIDE
5. RESTRICTION ON THE USE OF LAND

Subdivision Certificate

I certify that the provisions of s.109J of the
Environmental Planning and Assessment Act, 1979
have been satisfied in relation to the proposed

Subdivision [Redacted] set out herein

Consent Authority: Tamworth City Council
Date of endorsement: 26 July 2000
Accreditation Number: -
Subdivision Certificate Number: 30/2000
File Number: DA 94/2000

Appendix C

Traffic survey results

TRANS TRAFFIC SURVEY

TURNING MOVEMENT SURVEY

trafficsurvey.com.au



Intersection of Gunnedah Rd and Mayne Dr, Westdale

GPS -31.095920, 150.880023

Date:	Wed 13/12/23
Weather:	Fine
Suburban:	Westdale
Customer:	CJP

North:	N/A
East:	Gunnedah Rd
South:	Mayne Dr
West:	Gunnedah Rd

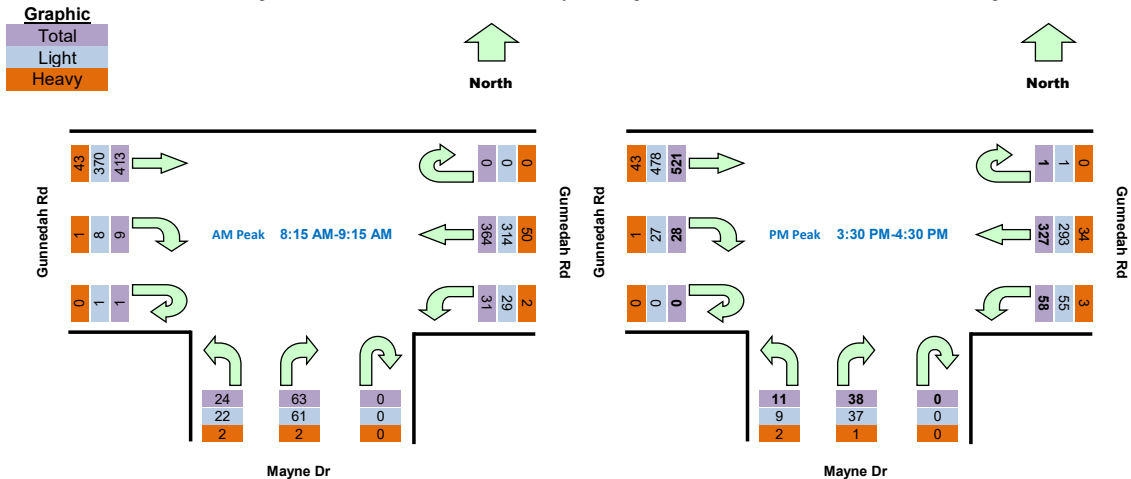
Survey	AM:	6:30 AM-9:30 AM
Period	PM:	3:30 PM-6:30 PM
Traffic	AM:	8:15 AM-9:15 AM
Peak	PM:	3:30 PM-4:30 PM

All Vehicles

Time		East Approach Gunnedah Rd			South Approach Mayne Dr			West Approach Gunnedah Rd			Hourly Total	
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	Hour	Peak
6:30	6:45	0	79	4	0	14	0	0	0	48	582	
6:45	7:00	0	82	1	0	10	2	0	0	45	614	
7:00	7:15	0	65	5	0	6	2	0	0	61	675	
7:15	7:30	0	71	3	0	10	5	0	2	67	734	
7:30	7:45	0	84	8	0	15	2	0	1	67	778	
7:45	8:00	0	95	7	0	14	2	0	0	83	847	
8:00	8:15	0	79	5	0	19	4	0	2	89	891	
8:15	8:30	0	73	3	0	17	5	0	5	99	905	Peak
8:30	8:45	0	102	10	0	17	10	1	2	104	892	
8:45	9:00	0	103	12	0	16	7	0	1	106		
9:00	9:15	0	86	6	0	13	2	0	1	104		
9:15	9:30	0	73	6	0	12	5	0	0	93		
15:30	15:45	0	89	19	0	8	3	0	13	154	984	Peak
15:45	16:00	0	87	13	0	9	1	0	2	129	961	
16:00	16:15	0	66	11	0	10	5	0	9	111	945	
16:15	16:30	1	85	15	0	11	2	0	4	127	976	
16:30	16:45	0	89	15	0	8	3	0	6	142	973	
16:45	17:00	0	92	18	0	8	0	0	3	104	883	
17:00	17:15	0	96	16	0	13	1	0	2	115	798	
17:15	17:30	0	79	17	0	3	1	0	8	134	717	
17:30	17:45	0	55	13	0	10	4	0	9	82	612	
17:45	18:00	0	55	12	0	7	1	0	7	58		
18:00	18:15	0	52	16	0	5	5	0	4	80		
18:15	18:30	0	50	8	0	11	1	0	2	65		

Peak Time		East Approach Gunnedah Rd			South Approach Mayne Dr			West Approach Gunnedah Rd			Peak total
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	
8:15	9:15	0	364	31	0	63	24	1	9	413	905
15:30	16:30	1	327	58	0	38	11	0	28	521	984

Note: Site sketch is for illustrating traffic flows. Direction is indicative only, drawing is not to scale and not an exact streets configuration.



Light Vehicles

Time		East Approach Gunnedah R			South Approach Mayne Dr			West Approach Gunnedah R		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
6:30	6:45	0	64	3	0	13	0	0	0	40
6:45	7:00	0	74	0	0	10	1	0	0	39
7:00	7:15	0	53	5	0	6	2	0	0	46
7:15	7:30	0	58	3	0	9	5	0	2	57
7:30	7:45	0	67	8	0	14	2	0	1	52
7:45	8:00	0	87	7	0	14	2	0	0	76
8:00	8:15	0	65	5	0	19	4	0	2	73
8:15	8:30	0	65	3	0	16	5	0	4	87
8:30	8:45	0	85	10	0	17	9	1	2	96
8:45	9:00	0	89	11	0	16	6	0	1	95
9:00	9:15	0	75	5	0	12	2	0	1	92
9:15	9:30	0	65	6	0	12	5	0	0	87
15:30	15:45	0	79	17	0	7	1	0	12	140
15:45	16:00	0	80	13	0	9	1	0	2	119
16:00	16:15	0	62	11	0	10	5	0	9	99
16:15	16:30	1	72	14	0	11	2	0	4	120
16:30	16:45	0	79	15	0	8	3	0	6	133
16:45	17:00	0	82	18	0	8	0	0	3	98
17:00	17:15	0	91	16	0	13	1	0	2	107
17:15	17:30	0	76	17	0	3	1	0	8	128
17:30	17:45	0	52	13	0	10	4	0	9	78
17:45	18:00	0	50	12	0	7	1	0	7	54
18:00	18:15	0	45	16	0	5	5	0	4	75
18:15	18:30	0	45	8	0	11	1	0	2	61

Peak Time		East Approach Gunnedah R			South Approach Mayne Dr			West Approach Gunnedah R			Peak total
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	
8:15	9:15	0	314	29	0	61	22	1	8	370	805
15:30	16:30	1	293	55	0	37	9	0	27	478	900

Heavy Vehicles

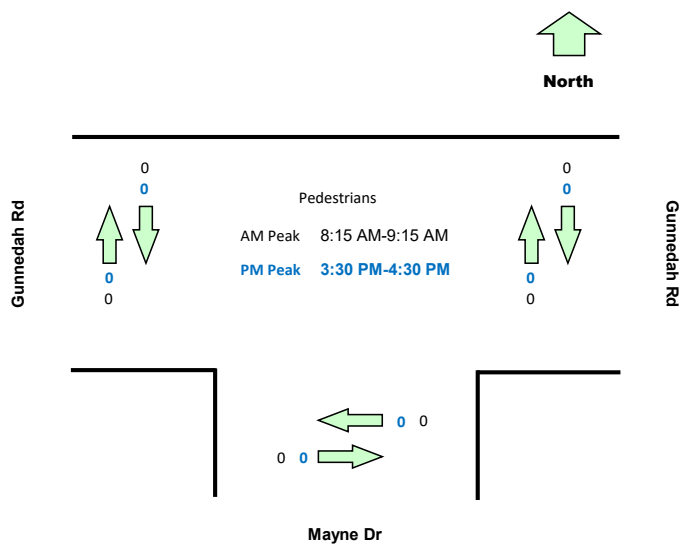
Time		East Approach Gunnedah R			South Approach Mayne Dr			West Approach Gunnedah R		
Period Start	Period End	U	WB	L	U	R	L	U	R	EB
6:30	6:45	0	15	1	0	1	0	0	0	8
6:45	7:00	0	8	1	0	0	1	0	0	6
7:00	7:15	0	12	0	0	0	0	0	0	15
7:15	7:30	0	13	0	0	1	0	0	0	10
7:30	7:45	0	17	0	0	1	0	0	0	15
7:45	8:00	0	8	0	0	0	0	0	0	7
8:00	8:15	0	14	0	0	0	0	0	0	16
8:15	8:30	0	8	0	0	1	0	0	1	12
8:30	8:45	0	17	0	0	0	1	0	0	8
8:45	9:00	0	14	1	0	0	1	0	0	11
9:00	9:15	0	11	1	0	1	0	0	0	12
9:15	9:30	0	8	0	0	0	0	0	0	6
15:30	15:45	0	10	2	0	1	2	0	1	14
15:45	16:00	0	7	0	0	0	0	0	0	10
16:00	16:15	0	4	0	0	0	0	0	0	12
16:15	16:30	0	13	1	0	0	0	0	0	7
16:30	16:45	0	10	0	0	0	0	0	0	9
16:45	17:00	0	10	0	0	0	0	0	0	6
17:00	17:15	0	5	0	0	0	0	0	0	8
17:15	17:30	0	3	0	0	0	0	0	0	6
17:30	17:45	0	3	0	0	0	0	0	0	4
17:45	18:00	0	5	0	0	0	0	0	0	4
18:00	18:15	0	7	0	0	0	0	0	0	5
18:15	18:30	0	5	0	0	0	0	0	0	4

Peak Time		East Approach Gunnedah R			South Approach Mayne Dr			West Approach Gunnedah R			Peak total
Period Start	Period End	U	WB	L	U	R	L	U	R	EB	
8:15	9:15	0	50	2	0	2	2	0	1	43	100
15:30	16:30	0	34	3	0	1	2	0	1	43	84

Pedestrians Crossing

Time		Approach Gunnedah		Approach Mayra		Approach Gunnedah		Hourly Total
Period Start	Period End	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	
6:30	6:45	0	0	0	0	0	0	0
6:45	7:00	0	0	0	0	0	0	0
7:00	7:15	0	0	0	0	0	0	0
7:15	7:30	0	0	0	0	0	0	0
7:30	7:45	0	0	0	0	0	0	0
7:45	8:00	0	0	0	0	0	0	0
8:00	8:15	0	0	0	0	0	0	0
8:15	8:30	0	0	0	0	0	0	0
8:30	8:45	0	0	0	0	0	0	0
8:45	9:00	0	0	0	0	0	0	
9:00	9:15	0	0	0	0	0	0	
9:15	9:30	0	0	0	0	0	0	
15:30	15:45	0	0	0	0	0	0	0
15:45	16:00	0	0	0	0	0	0	0
16:00	16:15	0	0	0	0	0	0	0
16:15	16:30	0	0	0	0	0	0	0
16:30	16:45	0	0	0	0	0	0	0
16:45	17:00	0	0	0	0	0	0	0
17:00	17:15	0	0	0	0	0	0	0
17:15	17:30	0	0	0	0	0	0	0
17:30	17:45	0	0	0	0	0	0	0
17:45	18:00	0	0	0	0	0	0	
18:00	18:15	0	0	0	0	0	0	
18:15	18:30	0	0	0	0	0	0	

Peak Time		Approach Gunnedah		Approach Mayra		Approach Gunnedah		Peak total
Period Start	Period End	Southbound	Northbound	Westbound	Eastbound	Southbound	Northbound	
8:15	9:15	0	0	0	0	0	0	0
15:30	16:30	0	0	0	0	0	0	0



Appendix D

SIDRA movement summaries

SITE LAYOUT

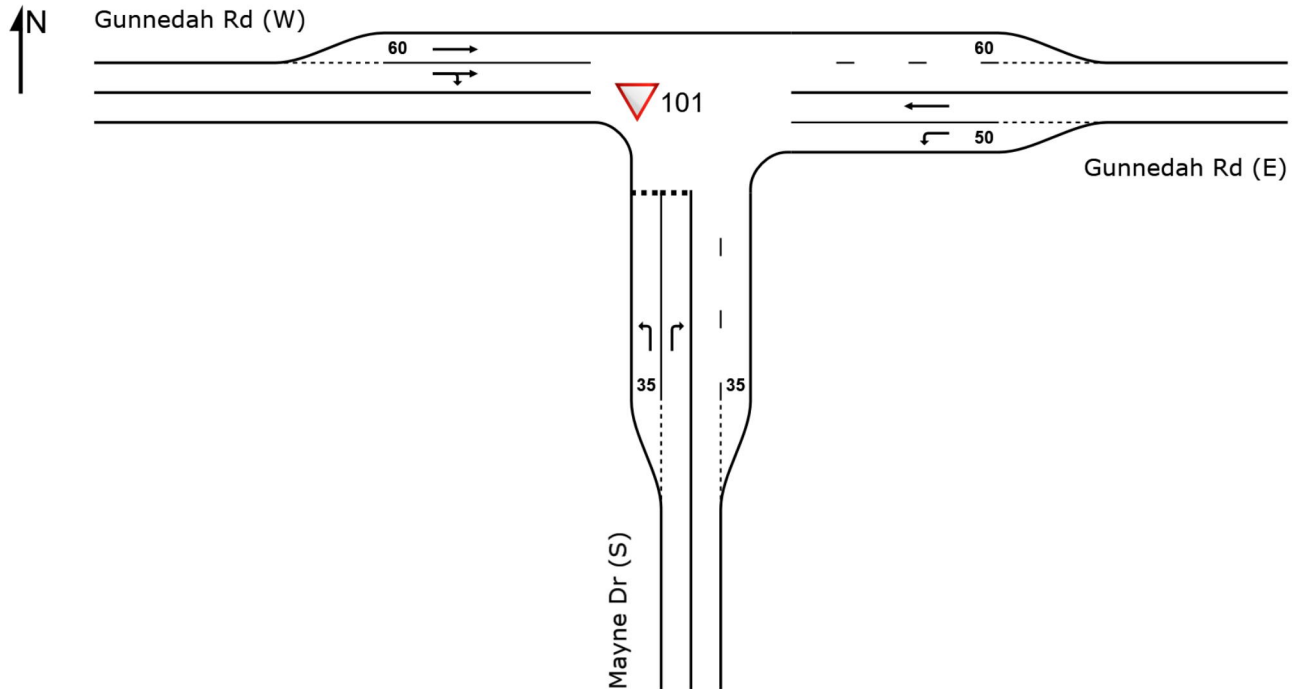
▽ Site: 101 [Gunnedah Rd & Mayne Dr Existing AM (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

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



MOVEMENT SUMMARY

▼ Site: 101 [Gunnedah Rd & Mayne Dr Existing AM (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mayne Dr (S)														
1	L2	24	0.0	24	0.0	0.027	6.3	LOS A	0.1	0.6	0.41	0.60	0.41	45.1
3	R2	63	0.0	63	0.0	0.191	14.8	LOS B	0.7	4.8	0.74	0.88	0.75	39.2
Approach		87	0.0	87	0.0	0.191	12.5	LOS A	0.7	4.8	0.65	0.80	0.66	40.7
East: Gunnedah Rd (E)														
4	L2	31	0.0	31	0.0	0.017	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	51.3
5	T1	364	14.0	364	14.0	0.204	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		395	12.9	395	12.9	0.204	0.5	NA	0.0	0.0	0.00	0.05	0.00	58.6
West: Gunnedah Rd (W)														
11	T1	413	10.0	413	10.0	0.172	0.3	LOS A	0.1	0.9	0.03	0.01	0.03	59.4
12	R2	9	0.0	9	0.0	0.172	7.9	LOS A	0.1	0.9	0.04	0.02	0.04	51.2
Approach		422	9.8	422	9.8	0.172	0.5	NA	0.1	0.9	0.03	0.01	0.03	59.0
All Vehicles		904	10.2	904	10.2	0.204	1.6	NA	0.7	4.8	0.08	0.10	0.08	55.1

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

MOVEMENT SUMMARY

▼ Site: 101 [Gunnedah Rd & Mayne Dr Existing PM (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mayne Dr (S)														
1	L2	11	0.0	11	0.0	0.012	6.0	LOS A	0.0	0.3	0.38	0.56	0.38	45.2
3	R2	38	0.0	38	0.0	0.135	16.5	LOS B	0.5	3.2	0.77	0.89	0.77	38.3
Approach		49	0.0	49	0.0	0.135	14.1	LOS A	0.5	3.2	0.68	0.82	0.68	39.6
East: Gunnedah Rd (E)														
4	L2	58	0.0	58	0.0	0.031	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	51.3
5	T1	327	10.0	327	10.0	0.179	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		385	8.5	385	8.5	0.179	0.9	NA	0.0	0.0	0.00	0.09	0.00	57.7
West: Gunnedah Rd (W)														
11	T1	521	8.0	521	8.0	0.227	0.5	LOS A	0.4	2.6	0.07	0.03	0.07	58.5
12	R2	28	0.0	28	0.0	0.227	7.9	LOS A	0.4	2.6	0.10	0.05	0.10	50.7
Approach		549	7.6	549	7.6	0.227	0.8	NA	0.4	2.6	0.07	0.03	0.07	57.8
All Vehicles		983	7.6	983	7.6	0.227	1.5	NA	0.5	3.2	0.07	0.09	0.07	55.7

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

SITE LAYOUT

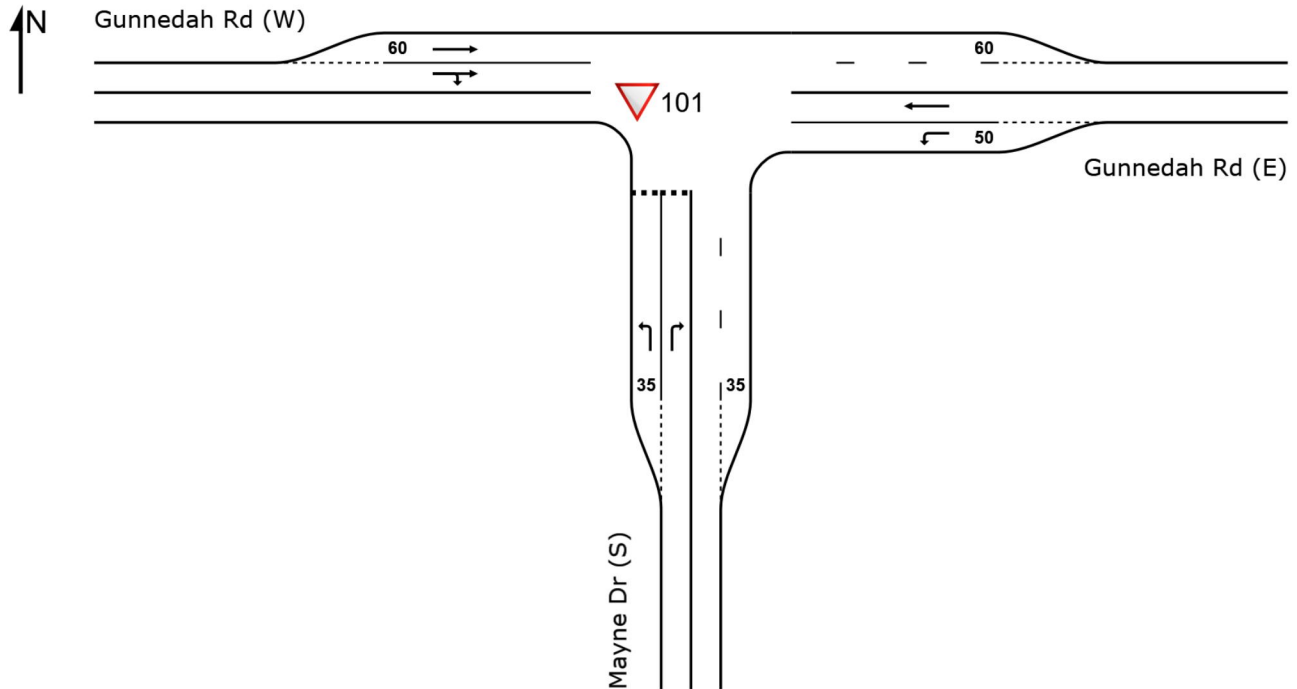
▽ Site: 101 [Gunnedah Rd & Mayne Dr Proposed AM - 115 lots
(Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

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



MOVEMENT SUMMARY

▽ Site: 101 [Gunnedah Rd & Mayne Dr Proposed AM - 115 lots
(Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mayne Dr (S)														
1	L2	43	0.0	43	0.0	0.048	6.3	LOS A	0.2	1.2	0.42	0.62	0.42	45.1
3	R2	121	0.0	121	0.0	0.374	17.9	LOS B	1.6	11.4	0.79	0.98	1.03	37.5
Approach		164	0.0	164	0.0	0.374	14.8	LOS B	1.6	11.4	0.69	0.88	0.87	39.2
East: Gunnedah Rd (E)														
4	L2	46	0.0	46	0.0	0.025	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	51.3
5	T1	364	14.0	364	14.0	0.204	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		410	12.4	410	12.4	0.204	0.6	NA	0.0	0.0	0.00	0.06	0.00	58.2
West: Gunnedah Rd (W)														
11	T1	413	10.0	413	10.0	0.176	0.4	LOS A	0.2	1.3	0.05	0.02	0.05	59.0
12	R2	14	0.0	14	0.0	0.176	8.0	LOS A	0.2	1.3	0.06	0.03	0.06	51.0
Approach		427	9.7	427	9.7	0.176	0.6	NA	0.2	1.3	0.05	0.02	0.05	58.5
All Vehicles		1001	9.2	1001	9.2	0.374	3.0	NA	1.6	11.4	0.13	0.18	0.16	52.2

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

MOVEMENT SUMMARY

▽ Site: 101 [Gunnedah Rd & Mayne Dr Proposed PM - 115 lots
(Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mayne Dr (S)														
1	L2	16	0.0	16	0.0	0.017	6.0	LOS A	0.1	0.4	0.38	0.57	0.38	45.2
3	R2	54	0.0	54	0.0	0.210	18.8	LOS B	0.7	5.2	0.80	0.92	0.85	37.0
Approach		70	0.0	70	0.0	0.210	15.8	LOS B	0.7	5.2	0.71	0.84	0.74	38.6
East: Gunnedah Rd (E)														
4	L2	120	0.0	120	0.0	0.065	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	51.3
5	T1	327	10.0	327	10.0	0.179	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		447	7.3	447	7.3	0.179	1.5	NA	0.0	0.0	0.00	0.15	0.00	56.3
West: Gunnedah Rd (W)														
11	T1	521	8.0	521	8.0	0.245	0.7	LOS A	0.7	4.9	0.12	0.06	0.12	57.4
12	R2	49	0.0	49	0.0	0.245	8.4	LOS A	0.7	4.9	0.18	0.08	0.18	49.9
Approach		570	7.3	570	7.3	0.245	1.4	NA	0.7	4.9	0.13	0.06	0.13	56.3
All Vehicles		1087	6.8	1087	6.8	0.245	2.4	NA	0.7	5.2	0.11	0.15	0.11	53.9

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

SITE LAYOUT

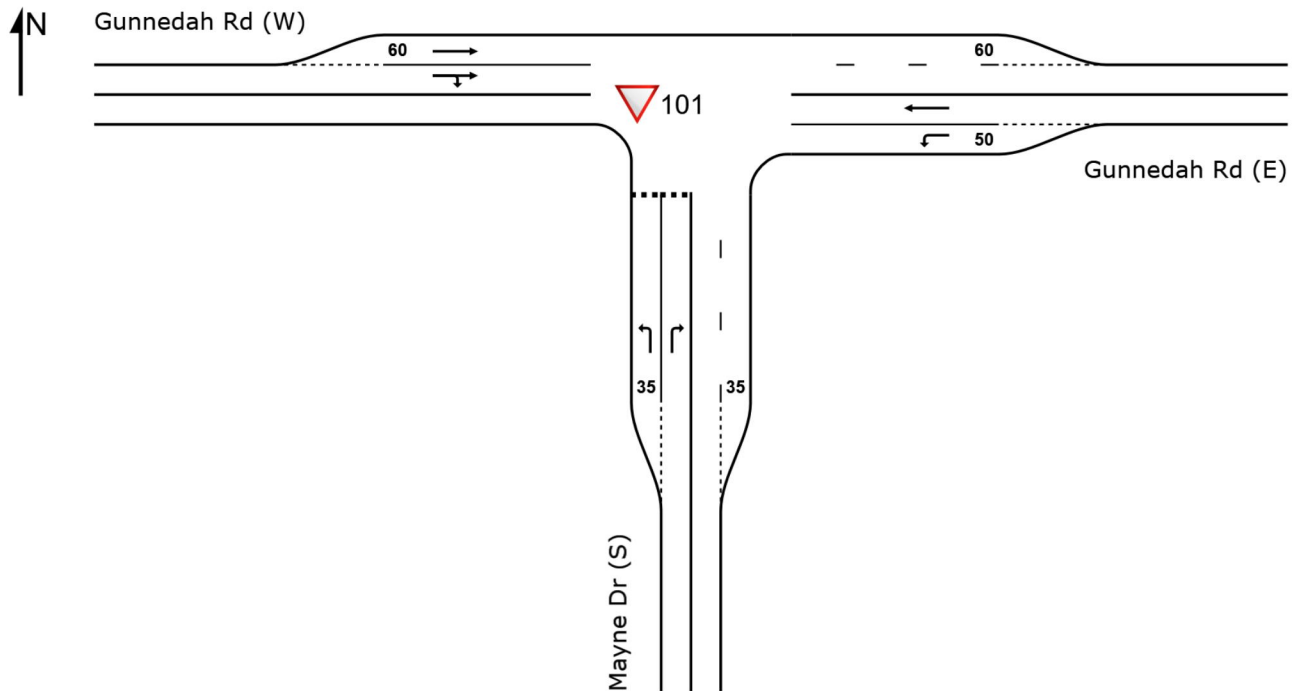
▽ Site: 101 [Gunnedah Rd & Mayne Dr Proposed AM 2033 - 115
lots (Site Folder: General)]

New Site

Site Category: (None)

Give-Way (Two-Way)

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



MOVEMENT SUMMARY

Site: 101 [Gunnedah Rd & Mayne Dr Proposed AM 2033 - 115 lots (Site Folder: General)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mayne Dr (S)														
1	L2	43	0.0	43	0.0	0.054	6.9	LOS A	0.2	1.3	0.47	0.66	0.47	44.6
3	R2	121	0.0	121	0.0	0.517	27.0	LOS B	2.3	16.2	0.88	1.07	1.31	33.1
Approach		164	0.0	164	0.0	0.517	21.8	LOS B	2.3	16.2	0.77	0.97	1.08	35.5
East: Gunnedah Rd (E)														
4	L2	46	0.0	46	0.0	0.025	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	51.3
5	T1	444	14.0	444	14.0	0.248	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		490	12.7	490	12.7	0.248	0.6	NA	0.0	0.0	0.00	0.05	0.00	58.4
West: Gunnedah Rd (W)														
11	T1	504	10.0	504	10.0	0.214	0.5	LOS A	0.2	1.6	0.04	0.02	0.04	59.0
12	R2	14	0.0	14	0.0	0.214	8.9	LOS A	0.2	1.6	0.06	0.02	0.06	51.0
Approach		518	9.7	518	9.7	0.214	0.7	NA	0.2	1.6	0.04	0.02	0.04	58.6
All Vehicles		1172	9.6	1172	9.6	0.517	3.6	NA	2.3	16.2	0.13	0.17	0.17	51.4

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

MOVEMENT SUMMARY

Site: 101 [Gunnedah Rd & Mayne Dr Proposed PM 2033 - 115
lots (Site Folder: General)]

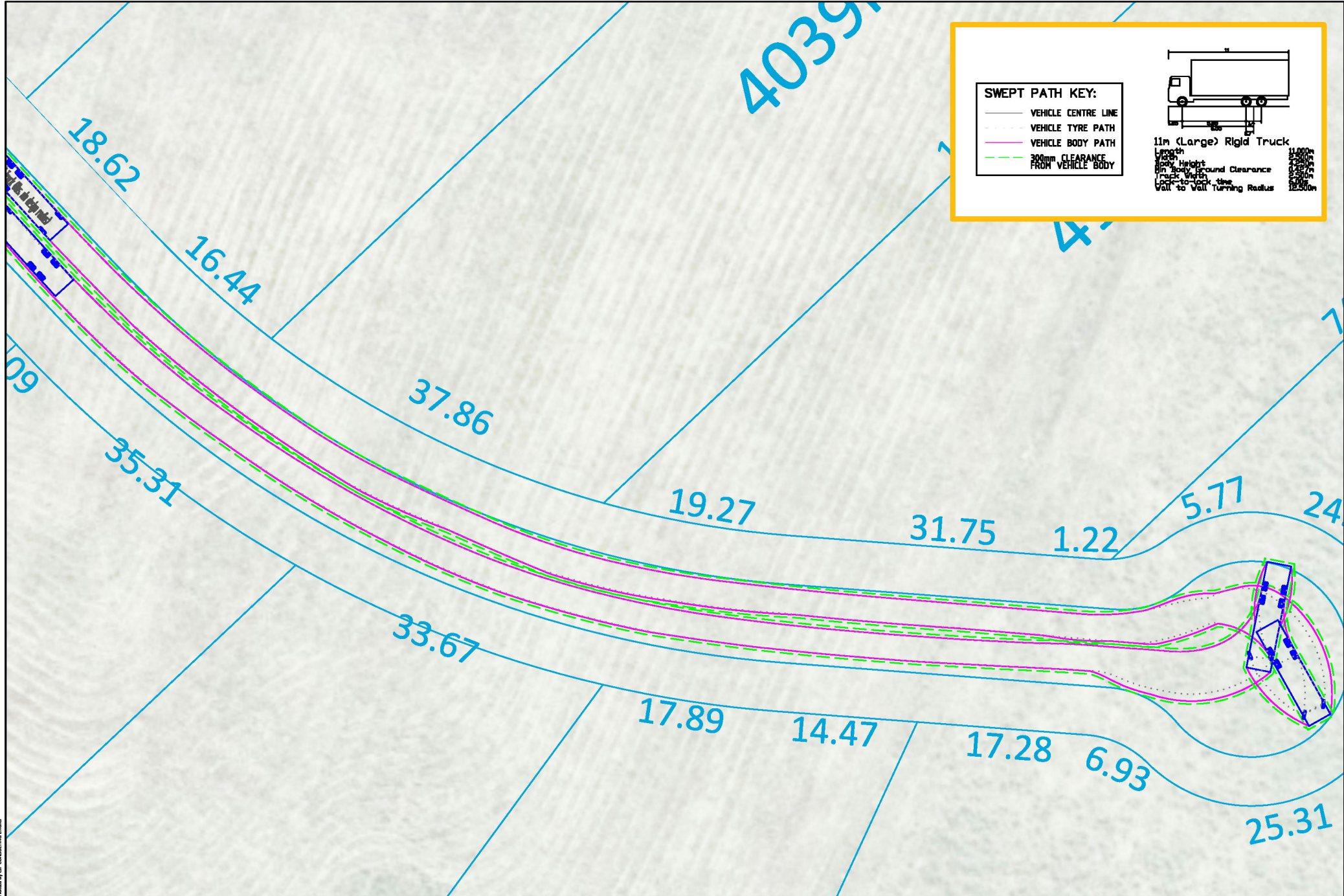
New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES		DEMAND FLOWS		Deg. Satn	Aver. Delay	Level of Service	95% BACK OF QUEUE		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		[Total veh/h	HV] %	[Total veh/h	HV] %				[Veh. veh	Dist] m				
South: Mayne Dr (S)														
1	L2	16	0.0	16	0.0	0.019	6.4	LOS A	0.1	0.4	0.43	0.60	0.43	45.0
3	R2	54	0.0	54	0.0	0.302	27.9	LOS B	1.1	7.5	0.88	0.98	1.02	32.7
Approach		70	0.0	70	0.0	0.302	23.0	LOS B	1.1	7.5	0.78	0.90	0.89	34.9
East: Gunnedah Rd (E)														
4	L2	120	0.0	120	0.0	0.065	5.6	LOS A	0.0	0.0	0.00	0.58	0.00	51.3
5	T1	399	10.0	399	10.0	0.218	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		519	7.7	519	7.7	0.218	1.3	NA	0.0	0.0	0.00	0.13	0.00	56.7
West: Gunnedah Rd (W)														
11	T1	635	8.0	635	8.0	0.294	0.9	LOS A	0.9	6.3	0.12	0.05	0.13	57.3
12	R2	49	0.0	49	0.0	0.294	9.4	LOS A	0.9	6.3	0.18	0.07	0.20	49.8
Approach		684	7.4	684	7.4	0.294	1.5	NA	0.9	6.3	0.12	0.05	0.14	56.3
All Vehicles		1273	7.1	1273	7.1	0.302	2.6	NA	1.1	7.5	0.11	0.13	0.12	53.7

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

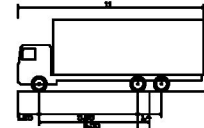
Appendix E

Swept turn paths



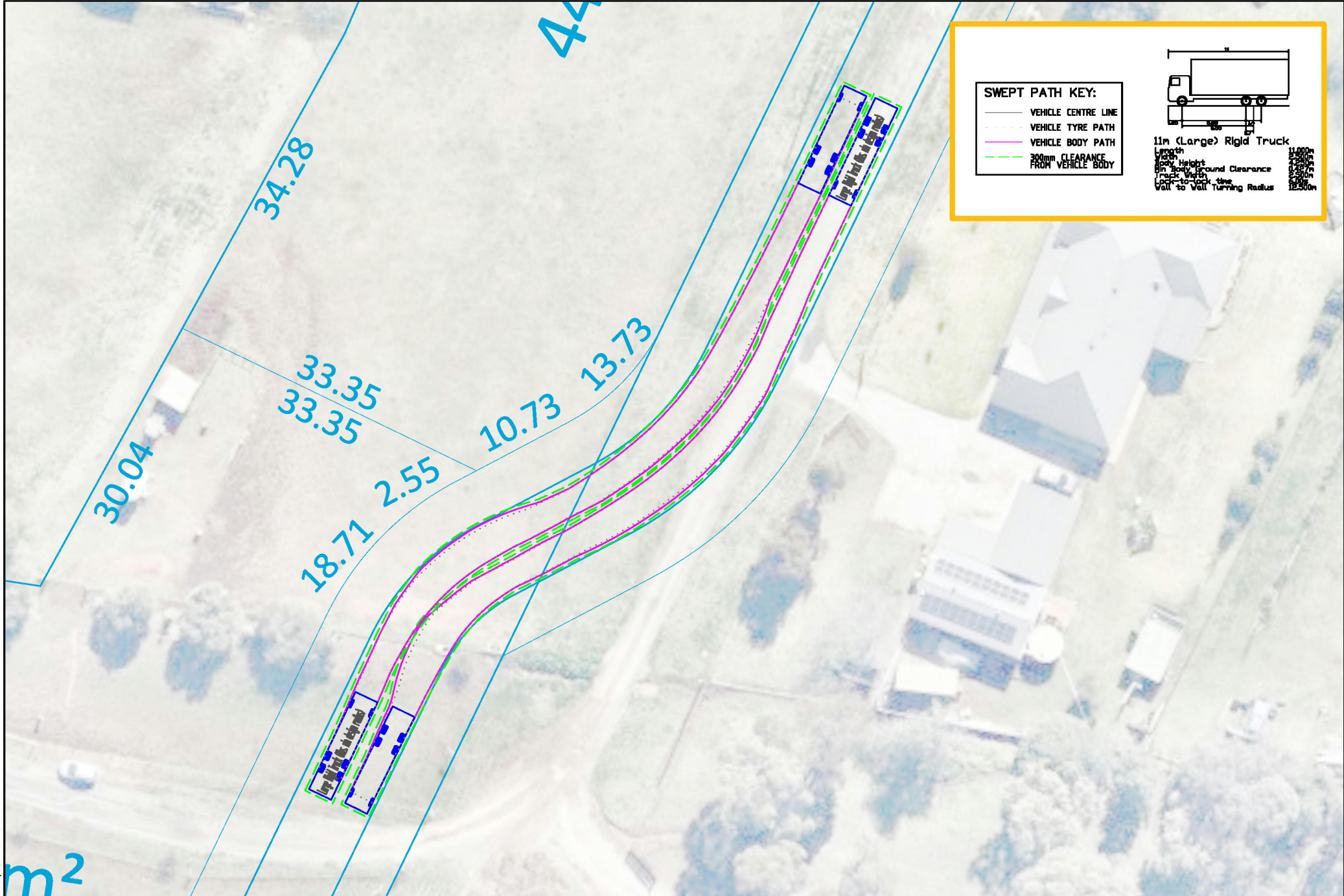
SWEPT PATH KEY:

- VEHICLE CENTRE LINE
- - - VEHICLE TYRE PATH
- VEHICLE BODY PATH
- - - 300mm CLEARANCE FROM VEHICLE BODY



11m (Large) Rigid Truck
Length 11.000m
Body Height 3.000m
Min. Body Ground Clearance 0.300m
Track Width 2.500m
Lock-to-lock Wheel-to-Wheel Turning Radius 12.500m

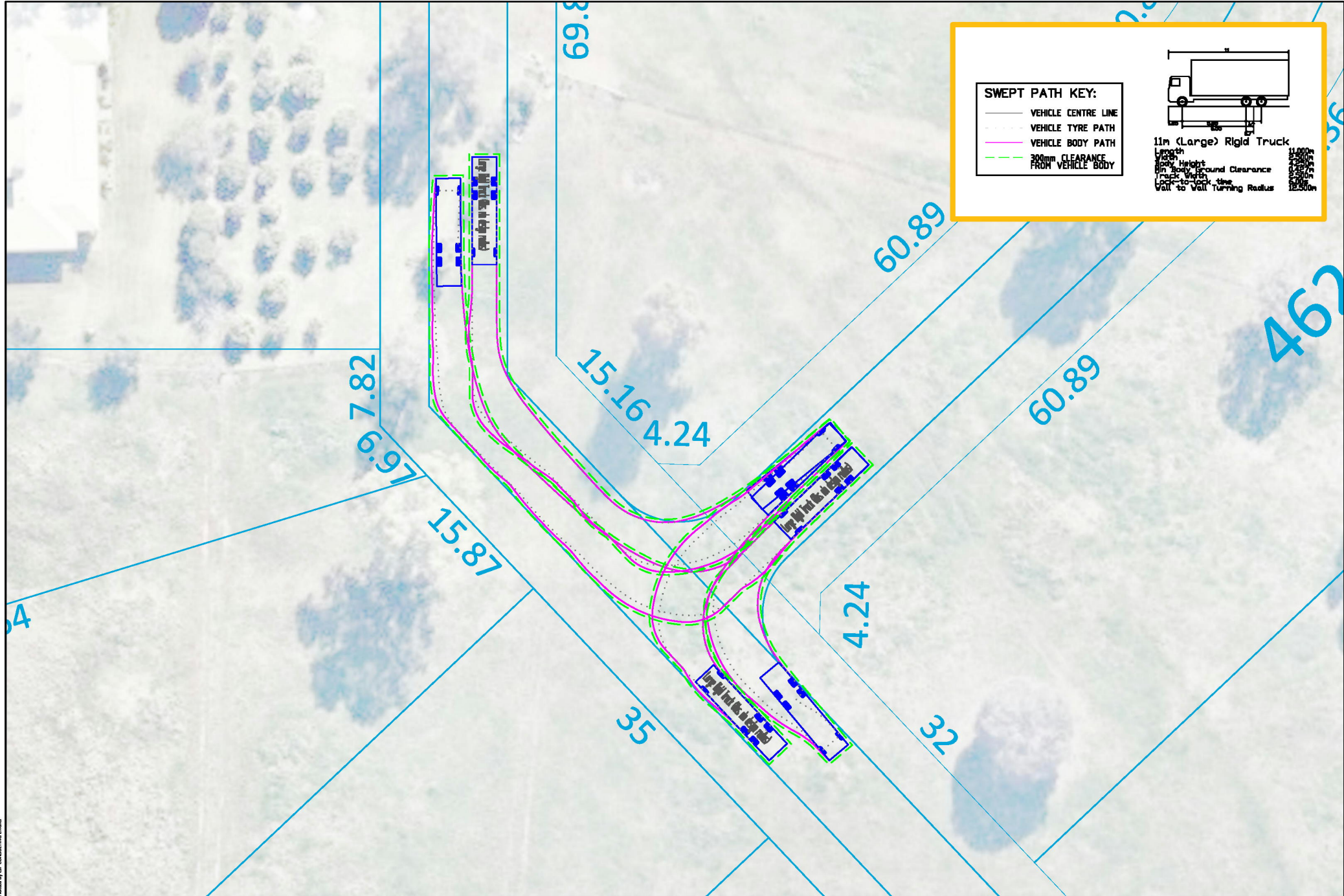




SWEPT PATH KEY:

- VEHICLE CENTRE LINE
- - - VEHICLE TYRE PATH
- VEHICLE BODY PATH
- - - 300mm CLEARANCE FROM VEHICLE BODY

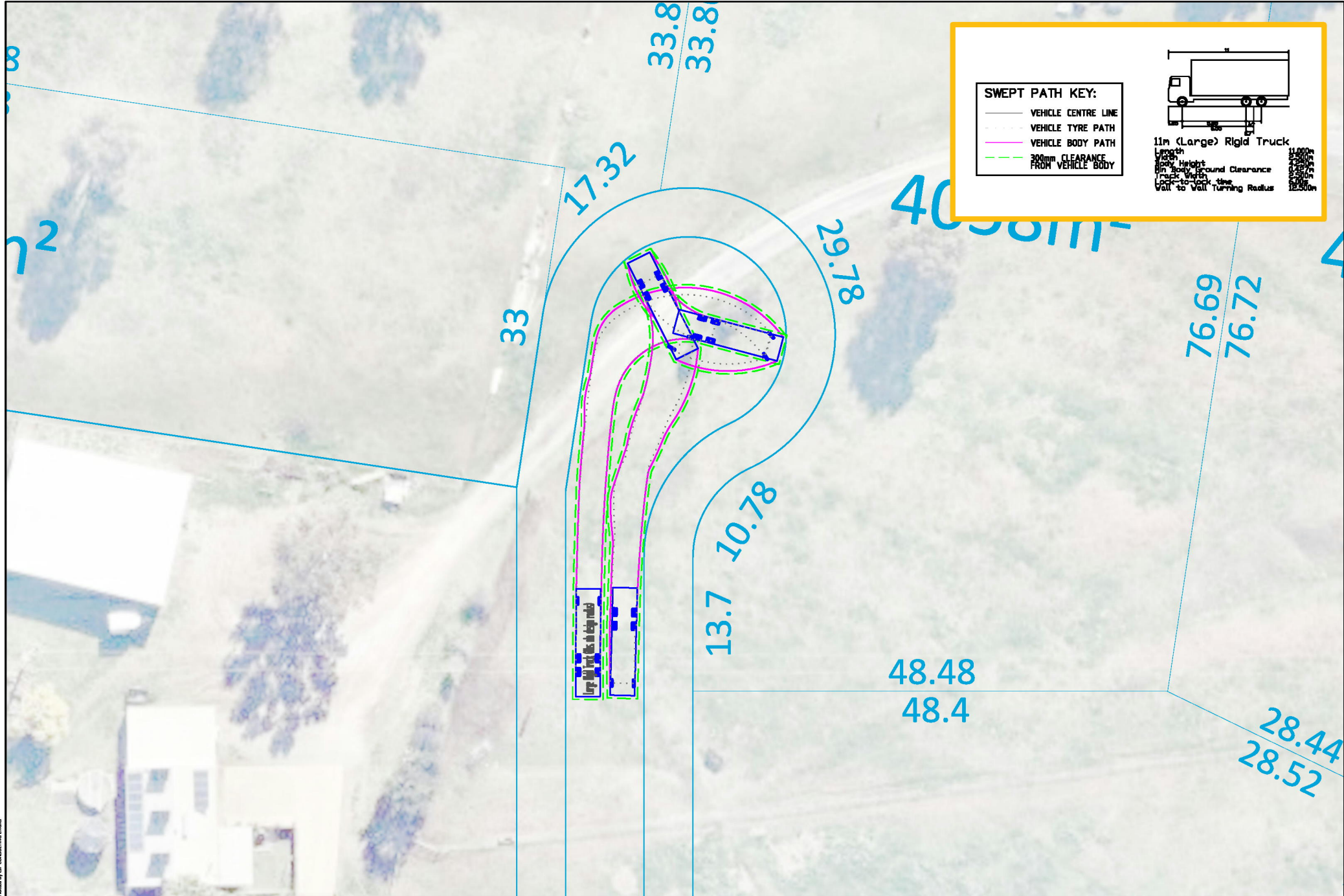
11m (Large) Rigid Truck
Length 11.00m
Tyre Height 1.05m
Body Height 3.00m
Track Width 2.55m
Wheel-to-wheel Clearance 1.00m
Wall-to-Wall Turning Radius 12.50m



SWEPT PATH KEY:

- VEHICLE CENTRE LINE
- - - VEHICLE TYRE PATH
- VEHICLE BODY PATH
- - - 300mm CLEARANCE FROM VEHICLE BODY

11m (Large) Rigid Truck
Length 11.00m
Body Height 3.00m
Body Ground Clearance 0.50m
Track Width 2.50m
Lock-to-lock time 12.50m
Wall to Wall Turning Radius 12.50m



Prepared by CJP CONSULTING ENGINEERS

