

## **Traffic & Parking Assessment Report**

Lots 101 & 103 DP 1170190 Ironbark Rd, Muswellbrook

Proposed Masterplan & Stage 1 DA Subdivision

Ref 23206

17<sup>th</sup> May 2024

## CJP | CONSULTING ENGINEERS



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### 1. Introduction

### 1.1 Project Background

CJP has been engaged by Freedom Development Group to prepare a Traffic & Parking Assessment Report (TPAR) in support of a concurrent Masterplan and Stage 1 Development Application (DA) to Muswellbrook Shire Council, involving the establishment of a subdivision situated at Lots 101 and 103 DP 1170190 Ironbark Road, Muswellbrook.

By way of background, in 2010, Council commissioned Parsons Brinkerhoff to conduct the 'Muswellbrook Traffic Study', aimed at identifying the necessary strategic upgrades to accommodate anticipated residential and commercial growth in Muswellbrook until 2037. The study projected the construction of 3,954 new dwellings across 11 designated areas known as the 'Future Muswellbrook Residential Area.'

The report concluded that the additional lots attributable to future development within the subject land in the context of the overall growth expected in Muswellbrook would *"have a negligible impact upon the road network upgrades identified in the Muswellbrook Traffic Study. Further, it is considered that no additional road upgrades over and above those identified in the Muswellbrook Traffic Study will be required due to this proposed development".* 

A map extract of the study area is reproduced below, which highlights the subject site, Lots 101 & 103.



Figure 1.1 – Future Muswellbrook Residential Area (Source: Muswellbrook Traffic Study 2010)

In this regard, the Muswellbrook Traffic Study recommended the following upgrades to the surrounding road network in order to accommodate the increase in traffic movements as a consequence of the future housing and redevelopment within the study area: 23206 | Lots 101 and 103 Ironbark Road, Muswellbrook | 17.05.24



- Upgrading of Bimbadeen Road & New England Highway from a Give-way intersection to signals;
- Widening of Acacia Road & Bloodwood Avenue;
- Upgrading of Rutherford Road & New England Highway from a Give-way intersection to signals or a seagull intersection;
- Upgrading of Rutherford Road & Acacia Drive from a Give-way intersection to a roundabout;
- Upgrading of Rutherford Road & Ironbark Road from a Give-way intersection to a roundabout;
- Upgrading of Thompson Street & New England Highway from Give-way intersection to signals or a seagull intersection;
- Upgrading of Sydney Street and Skellatar Stock Route from a Give-way intersection to a seagull intersection;
- Extending the turning lanes at Maitland Road & Sydney Street;
- Providing an additional turning lane at the Haydon Street & New England Highway;
- Extending the turning lanes at Bell Street & New England Highway;
- Providing a pedestrian precinct on the eastern leg of the Bridge Street & William Street roundabout;
- Extending the turning lanes at the Bridge Street & Brook Street intersection;
- Upgrading the Hunter Street & New England Highway from a Give-way intersection to a seagull intersection;
- Providing Local Area Traffic Management measures at the Brecht Street & Brentwood Street intersection;
- The introduction of a left-in/left-out or seagull intersection at Knapman Drive & New England Highway;
- The introduction of a Give-way intersection at Ironbark Road & Knapman Drive;
- The introduction of a Give-way intersection at Bimbadeen Drive & Calgaroo Avenue;
- The introduction of painted channelisation at the intersection of Sydney Street & Skellatar Street;
- The introduction of a small roundabout at the intersection of Skellatar Street & Lorne Street;
- The introduction of painted channelisation at the intersection of Adams Street & Ironbark Road; and
- The introduction of auxiliary lanes at Weemala Place & Bloodwood Road.

In late 2021, Planning Proposal PP\_2014\_MUSWE\_003\_00 received Gateway determination, involving the rezoning of Lots 101 & 103 DP 1170190 Ironbark Road, Muswellbrook, from E3 Environmental Management to part R1 General Residential, part R5 Large Lot Residential and part E3 Environmental Management. The intended outcome of the Planning Proposal was to:

- Allow subdivision into a range of residential lot sizes, consistent with adjoining land use;
- Provide land for a variety of residential development to be undertaken and thereby contribute towards the supply of housing in Muswellbrook;
- Enable the logical extension of and connection between existing residential areas; and
- Provide for the efficient use of existing and proposed servicing infrastructure.

A response from the Roads and Maritime Services (now Transport for NSW) to the Planning Proposal confirmed no objection to the (then) proposed (and now gazetted) rezoning – all future subdivision proposals will require a Traffic Impact Study. RMS also noted that as the site will connect to Bimbadeen Drive, there may be a requirement for a future contribution to the upgrade of the intersection of Bimbadeen Drive and Maitland Street.

A map extract from the Planning Proposal of the conceptual lot layout within the subject site, Lots 101 & 103, is reproduced below. As noted in the map extract, the concept lot layout comprised 413 x R1 General Residential lots, 57 x R5 Large Lot Residential lots, pockets of E3 Environmental Management zoned areas, and a new public road network which connects to the existing road network at Ironbark Road, Bimbadeen Drive and Calgaroo Avenue.



Figure 1.2 – Approved Conceptual Lot Layout of Lots 101 & 103 (Source: Muswellbrook Council Planning Report)

### 1.2 Project Summary

This new proposal involves the lodgement of concurrent Masterplan and Stage 1 Development Applications (DA) to Muswellbrook Shire Council, involving the establishment of a largely residential subdivision situated at Lots 101 and 103 DP 1170190 Ironbark Road, Muswellbrook.

In this regard, the new Masterplan proposal involves the creation of a 14-staged concept subdivision plan, comprising development of 327 general residential lots (327 dwellings), 57 large lots (57 dwellings), 240 attached dual occupancy dwellings and associated public open space.



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A new public road network also forms part of the Masterplan DA which connects to the existing road network at Ironbark Road, Bimbadeen Drive, Calgaroo Avenue and Acacia Drive.



Figure 1.3 – Proposed subdivision plan of Lots 101 & 103 (Source: Spiire)

In addition to the proposed Masterplan of the subject site, a separate but concurrent DA for Stage 1 is also to be lodged, as follows:

- 1. Subdivision of the first stage of development, as follows:
  - 17 general residential lots,
  - 2 large residential lots,
  - 1 residential superlot, and
  - 1 non-residential lot accommodating childcare centre, café and recreational areas.
- 2. Development of the Stage 1 residential superlot for 94 attached dual occupancy dwellings with associated common open space

The Stage 1 DA also involves the construction of a new public road network which connects to the existing road network at Ironbark Road & Bimbadeen Drive.

It should be noted that approval for construction of dwellings on the 17 general residential lots, construction of childcare centre and café that forms part of Stage 1 development will be the subject of separate development applications.

Based on State Environmental Policy (Transport & Infrastructure) 2021, Schedule 3 – Traffic Generating Development, the proposed Masterplan application is classified as a traffic generating development, as the proposal comprises more than 200 new allotments and more than 300 future dwellings. Referral to Transport for NSW (TfNSW) is therefore required for the Masterplan application, however, not the Stage 1 DA as they do not meet the thresholds for referral.



A copy of the proposed new Masterplan concept subdivision plan prepared by Spiire is reproduced below as well as in Appendix A. A copy of the proposed DA architectural plans for Stage 1 are provided in Appendix B.

### **1.2** Assessment Tasks

The purpose of this TPAR is to assess the traffic, parking, access, transport and servicing characteristics of the Masterplan and Stage 1 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/servicing/access requirements and provisions
- Design of access driveways and parking area layouts for the Stage 1 DA

### 1.4 Relevant Planning Controls

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

- Muswellbrook Local Environmental Plan 2009
- Muswellbrook Shire Development Control Plan 2009
- Muswellbrook Shire Local Strategic Planning Statement 2020-2040
- Muswellbrook Shire Community Strategic Plan 2022-2032
- Muswellbrook Traffic Study (March 2010) Parsons Brinkerhoff

### 1.5 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)
- Australian Standards 2890.3:2015 Bicycle Parking (AS2890.3)
- Australian Standards 2890.6:2022 Off-Street Parking for People with Disabilities (AS2890.6)
- Rural Fire Service Planning for Bushfire Protection (November 2019)
- NSW Government's Planning Guidelines for Walking & Cycling (December 2004)
- National Construction Code (NCC)
- Building Code of Australia (BCA)



### 2. Existing Conditions

### 2.1 Site Location & Description

The development site is a vast area of land that covers approximately 81.23ha, spanning the southern sides of Calgaroo Avenue, Mahogany Avenue, Acacia Drive, John Howe Circuit, and Wanaruah Circuit, as well as to the east of Ironbark Road.

Presently, the site is devoid of any structures and is characterised by natural landscape of trees, grass and retained bodies of water.

A copy of the survey plan, prepared by Positive Survey Solutions is reproduced below, as well as Appendix C. A recent aerial image of the site and its surroundings, along with a series of Streetview images, are reproduced on the following pages.



Figure 2.1 – Survey plan (Source: Positive Survey Solutions)



Figure 2.2 – Site Location (Source: OpenStreetMap) 23206 | Lots 101 and 103 Ironbark Road, Muswellbrook| 17.05.24





Figure 2.3 – Aerial map (Source: Nearmap)



Figure 2.4 – Streetview image of Calgaroo Avenue cul-de-sac, looking south (Source: Google Maps)



Figure 2.5 – Streetview image of Bimbadeen Dr & John Howe Cct intersection, looking south (Source: Google Maps)





Figure 2.6 – Streetview image of Acacia Drive cul-de-sac, looking south (Source: Google Maps)



Figure 2.7 – Streetview image of John Howe Cct & Jenkins St intersection, looking south (Source: Google Maps)



Figure 2.8 – Streetview image of Ironbark Rd, looking south-east (Source: Google Maps)



### 2.2 Planning Context

Following on from the gazettal of the rezoning Planning Proposal, the site is now zoned part R1 General Residential, part R5 Large Lot Residential and part E3 Environmental Management. Additionally, the maximum height of building control is 8.5m whilst the maximum floor space ratio control is 0.5:1, as indicated in the maps below. The proposed subdivision and Stage 1 development is permissible in the zone, subject to development consent.



Figure 2.9 – Land zoning map (Source: ePlanning Spatial Viewer)



Figure 2.10 – Height of building map (Source: ePlanning Spatial Viewer)



Figure 2.11 - Floor space ratio map (Source: ePlanning Spatial Viewer)



### 2.3 Strategic Planning

Both the Muswellbrook Shire Local Strategic Planning Statement 2020-2040 and the Muswellbrook Shire Community Strategic Plan 2022-2032 are strategic documents which set out a 10-20 year vision for land use planning in the Shire. They outline how growth and change will be managed to ensure high levels of liveability, prosperity and environmental protection are achieved in Muswellbrook.

Those that move into the region are attracted to the rural/regional lifestyle, noting that many people leave the region for better job security. As such, the region is experiencing slow but sustained growth. According to 2016 census data, Muswellbrook Shire had a population of approximately 16,000 people at the time, with a projected population of approximately 20,000 people by 2038.

Since non-Aboriginal settlement, the Shire has become a location for agricultural and mining activity, and the Muswellbrook township, a location to access shops, services and education facilities. There were 11,364 jobs in the Shire in 2016 and this is projected to increase to approximately 13,500 jobs by 2038.

The largest industry sector of employment is mining, representing 23.0% of total working residents. Many of the mining jobs available in the Shire are filled by people who reside outside the Shire. The next two highest employment categories are retail, and health care & allied services. This reflects the role of Muswellbrook as a regional service centre that supports a wider catchment of people.

Council's two strategic documents take into account the State and Regional Planning framework and builds on the communities' priorities outlined in the Community Strategic Plan and Local Strategic Planning Statement to outline how the Shire will continue to evolve in a way that protects the local character, natural areas and landscapes in accordance with the communities' expectations.

In total there are 19 "Planning Priorities", as follows, all with their own set of actions:

- 1. Technology & innovation
- 2. Plan for the transition of mine and power station sites before their closure
- 3. The mineral resource and power generation industry is productive
- 4. Important agricultural land is protected
- 5. Land uses in rural areas are protected from incompatible land uses
- 6. A variety of niche tourism opportunities are encouraged
- 7. Industrial land is developed in an orderly manner which meets future needs
- 8. Town Centres and Villages are places of economic growth and business diversification
- 9. Housing is diverse, adaptable and affordable and urban areas facilitate affordable living
- 10. The character and vitality of the Town Centre & Villages is protected and enhanced
- 11. The community is safe, healthy and active
- 12. Urban development is focused in areas with existing infrastructure and new infrastructure and services required for urban growth are funded
- 13. Opportunities for rural, large lot and environmental living are provided in appropriate locations
- 14. Aboriginal and Non-Aboriginal cultural heritage is protected and celebrated



- 15. Protect and enhance land and habitats of environmental value and strengthen and protect biodiversity corridors
- 16. Natural and rural landscapes are retained and enhanced
- 17. Rehabilitate waterways, improve water quality and water security
- 18. Adapt to climate change and build climate and hazard resilience
- 19. Development is suitable for the location, minimises environmental impact and responds to environmental characteristics

The Masterplan and Stage 1 DA therefore achieves many of the objectives of the Local Strategic Planning Statement 2020-2040 and the Community Strategic Plan, including providing residential housing, providing employment opportunities (during construction), and promoting a happy and healthy lifestyle.

### 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 2.12 – Road Hierarchy (Source: Transport for NSW)

- Maitland Street/New England Highway (A15) is classified by TfNSW as a State Road and provides a key north-south road link through inland NSW. In the vicinity of the site it comprises one to two traffic lanes in each direction, with turning lanes provided at key intersections and a posted speed limit of 60km/hr.
- Denman Road & Sydney Street are also classified by TfNSW as State Roads which provide the key road link between the New England Highway and the Golden Highway. It carries one traffic lane in each direction with turning lanes provided at key intersections.

- Rutherford Road is a Local Road which performs the function of a collector route through the local area, intersecting with traffic signals at Maitland Street. It carries one lane of traffic in each direction, with a central median island that divides opposing traffic. Additionally, turning lanes are provided at the Rutherford Road/Maitland Street intersection whilst kerbside parking is general permitted.
- Bimbadeen Drive is also a Local Road which performs the function of a collector route through the local area, intersecting with Maitland Street by way of a Give-way treatment with CHR/CHS turning lanes. Notably, the northern segment of Bimbadeen Drive incorporates a central island adorned with small trees, serving to divide opposing traffic flows. Kerbside parking is typically permitted on both sides of Bimbadeen Drive.
- Ironbark Road and Skellatar Stock Route are both Local Roads which also perform the function of a collector route through the local area, intersecting with Sydney Street by way of a Give-way treatment with CHR/CHS turning lanes. They carry one traffic lane in each direction, with kerbside parking generally permitted.

### 2.5 Public & Active Transport

The existing public transport services available in Muswellbrook are illustrated on Figure 2.13.

Conveniently, the nearest bus stops are located on Ironbark Road, Bloodwood Road, and John Howe Circuit which are all within 400m walking distance from the proposed subdivision. These bus stops service the route 418 loop service, operating from Muswellbrook Town Centre to Muswellbrook Eastlinks. Route 418 operates only from Mondays to Saturdays.

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.

An additional bus stop is also located on Maitland Street, approximately 1km north of the site, and serviced by the 413 bus.

The nearest railway station to the site is Muswellbrook station, situated approximately 3.5km to 3.8km north-west of the site, which translates to an approximate 6-7 minute driving distance. Muswellbrook railway station lies on the Hunter Line, operating between Scone and Newcastle Interchange. It offers train services with a 30-minute to 1-hour interval during weekdays and on weekends and public holidays. Additionally, it also serves the North Western NSW Train, operating from Sydney (Central) to Armidale and Moree.





Figure 2.13 – Existing Public Transport Map within Muswellbrook (Source: Muswellbrook Shire Council)

Pedestrian connectivity within the site's vicinity is existent but not extensive, and consistent with a typical low density residential suburban environment. In this regard, footpaths are provided along one side of Bimbadeen Drive and Ironbark Road which connect to footpaths along Maitland Street and Rutherford Road and ultimately the Town Centre.

Figure 2.14 shows the existing and future proposed cycle routes within Muswellbrook. Near the site, existing cycleways exist along the residential areas above the subject site. On-road bikeways are proposed along Bimbadeen Drive, Maitland Street/New England Highway, Ironbark Road, and Rutherford Road.





Figure 2.14 - Existing cycling network map (Source: Muswellbrook Shire Council)

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.

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 New England Highway (Maitland Street) & Bimbadeen Drive intersection during the weekday AM & PM road network peak periods on Wednesday 15<sup>th</sup> November 2024. The results of the surveys are reproduced in Appendix D 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 CHR/CHL turning lanes, a central holding area for right-turn movements, and an acceleration lane for left-turn movements.





Figure 2.15 – New England Hwy & Bimbadeen Dr existing peak period traffic volumes (Source: Trans Traffic Surveys)



Figure 2.16 – New England Hwy & Bimbadeen Dr intersection (Source: Nearmap)

### 2.7 Existing Surrounding Traffic Controls

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

- A 60km/h speed limit which applies to Maitland Street/New England Highway, which reduces down to 50km/h on the curved segment between 116 Maitland Street and 124 Maitland Street.
- 50km/h speed limit which applies to Ironbark Road and all other local roads in the area
- Stop-sign controlled intersection at Ironbark Road and Edinglassie Drive.
- A roundabout at the intersection of Jillaroo Way and Ironbark Road.
- A roundabout at the intersection of Ironbark Road and Yammanie Way.
- A roundabout at the intersection of Bimbadeen Drive and Henry Dangar Drive.
- A roundabout at the intersection of Bloodwood Road and Bimbadeen Drive.
- Give-way sign-controlled intersection of Maitland Street/New England Highway and Bimbadeen Drive.
- Traffic signals at the intersection of Maitland Street/New England Highway and Rutherford Road, with all movements permitted, dedicated turning lanes provided, and pedestrian crossings on all approaches.



### 3. Proposed Development

### 3.1 Masterplan Development Description

The proposal involves the lodgement of a concurrent Masterplan and Stage 1 DA to Muswellbrook Shire Council, involving the establishment of a largely residential subdivision situated at Lots 101 and 103 DP 1170190 Ironbark Road, along with a number of complimentary land uses including a café and a childcare centre.

The Masterplan is separated into 14 Stages, as indicated in the proposed subdivision plan below, and includes a mix of low density free-standing and duplex lots, large residential lots, a café, childcare centre and open space. In total, the Masterplan subdivision involves the creation of 327 x R1 General Residential lots, 120 x R1 General Residential dual occupancy lots (accommodating 240 dwellings), 57 x R5 Large Lot Residential lots, pockets of E3 Environmental Management zoned areas, and a new public road network which connects to the existing road network at Ironbark Road, Bimbadeen Drive, Calgaroo Avenue and Acacia Drive.

The low density free-standing lots range in size from approximately 600m<sup>2</sup> to 1,100m<sup>2</sup>, the low density duplex lots range in size from approximately 375m<sup>2</sup> to 670m<sup>2</sup>, whilst the large residential lots range in size from approximately 2,000m<sup>2</sup> to 5,000m<sup>2</sup>.

The Masterplan 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 proposed Masterplan concept subdivision plan, prepared by Spiire, is reproduced below.



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

### 3.2 Stage 1 Development Description

A separate but concurrent DA is also proposed for Stage 1 of the Masterplan, involving the subdivision of Stage 1 into 17 x R1 General Residential lots, 2 x R5 Large Lot Residential lots, 1 x R1 General Residential superlot and 1 x non-residential lot accommodating childcare centre, café and recreational areas. Approval for construction of the dwellings on the 17 x R1 General Residential lots, construction of the childcare centre and café that form part of the Stage 1 development, will be the subject of separate development applications.

In this regard, the Stage 1 R1 General Residential superlot includes the construction of 94 attached dual occupancy dwellings with associated common open space.

The Stage 1 DA also includes the construction of a new public road network which connects to the existing road network at Ironbark Road & Bimbadeen Drive.



Figure 3.2 – Proposed Stage 1 layout and built form (Source: Skyline Architects)

### 3.3 Stage 1 Parking & Vehicular Access Arrangements

Off-street parking for Stage 1 is proposed to be provided for 94 cars – i.e. one car space per dwelling – in the form of a carport structure adjoining the respective dwellings. Vehicular access to the new allotments is proposed to be provided via respective driveways off the proposed new internal road network.

Off-street parking for the remaining lots within Stage 1 as well as the remaining stages 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.

In addition, 50 public car parking spaces are also proposed to be provided in a 90° arrangement surrounding the triangular public reserve in the centre of Stage 1.

### 3.4 Waste Collection

Waste collection is proposed to be undertaken by Council's contractor using a 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.

### 3.5 Future Internal Road Network

Muswellbrook Council's Development Design Specification – AUS-SPEC (Cot 09) – 0041 Geometric Road Layout, 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 and Local Sub-Arterial Road, which represented diagrammatically below.



Figure 3.3 – Typical road hierarchy (Source: Muswellbrook Council – Development Design Specification)

As part of the Masterplan DA, a new internal road network is proposed to provide vehicular and pedestrian access to the new lots and provide connectivity to the existing road network. As can be seen in Figure 3.1, the following road connections are proposed:

- North-south extension of Bimbadeen Drive through the site to connect to Ironbark Road,
- East-west extension of Ironbark Road through the site, temporarily terminating at the eastern boundary until such time the adjoining site is redeveloped and the road continued,
- East-west extension of Calgaroo Avenue through the site to connect to the new Bimbadeen Drive extension, and
- North-south extension of Acacia Drive to connect to the new Calgaroo Avenue extension.

In this regard, a review of the surrounding existing road network adjoining the subject site indicates the following road profile characteristics (based on measurements from aerial images):

- Bimbadeen Drive: Collector Street
  - 27m wide road reserve, north of Henry Dangar Drive
    - 2 x 6.7m wide road carriageways with a 4.4m wide central island
    - 4.4m wide verges (with 1.2m footpath along one side only)
  - o 20m wide road reserve, south of Henry Dangar Drive
    - 11m wide road carriageway
    - 4.5m wide verges (with 1.2m footpath along one side only)
- Ironbark Road: Collector Street
  - o 25m wide road reserve
  - o 10.5m wide road carriageway
  - 5m wide southern verge (without footpath)
  - o 9.5m wide northern verge (one side with 2m-3m wide footpath)
- Calgaroo Avenue: Local Street
  - 20m wide road reserve
  - 11m wide road carriageway
  - 4.5m wide verges (both sides without footpaths)
- Acacia Drive: Local Street
  - 20m wide road reserve
  - 9m wide road carriageway
  - 5.5m wide verges (both sides without footpaths)
- Proposed Roads: Typical Local Streets
  - 18m wide road reserve
  - 7.5m wide road carriageway
  - 5.25m wide verges (with 1.2m footpath along one side only)

There are three proposed new roads through the Masterplan site that terminate at the eastern and southern boundaries, including the Ironbark Road extension. These three roads will ultimately be designed with a temporary cul-de-sac turning head until such time that the adjoining properties are redeveloped, and the roads continued.

Notwithstanding the above, functional layout civil plans have been prepared by Spiire and are reproduced in Appendix E, with an extract of the road profiles provided on the following page.





Figure 3.4 – Proposed function layout civil road profiles plan (Source: Spiire)

### 3.6 Proposed Amendments to Future Internal Road Network

It is noted that there are several minor variations to the proposed internal road network compared to the approval concept road network. Extract copies of both subdivision plans are provided below and on the following page for ease of comparison.



Figure 3.5 – Approved Conceptual Lot Layout of Lots 101 & 103 (Source: Muswellbrook Council Planning Report) 23206 | Lots 101 and 103 Ironbark Road, Muswellbrook | 17.05.24

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Figure 3.6 – Proposed Masterplan site subdivision plan (Source: Spiire)

In this regard, east of the Bimbadeen Drive extension, the approved concept road layout included one local street connection, whilst the proposed road layout includes two local street connections in a similar location. All other aspects of the road layout on the eastern side of the Bimbadeen Drive extension remain as per the concept approval.

Similarly, on the western side of the Bimbadeen Drive extension, the concept approval included two local street connections, whilst the proposed road layout includes three local street connections. The most significant change to the road network comprises the proposed extension of Calgaroo Avenue to connect to the Bimbadeen Drive extension, as well as the proposed extension of Acacia Drive to connect to the Calgaroo Avenue extension. By way of comparison, both Calgaroo Avenue and Acacia Drive terminated in the approved concept layout by way of a cul-de-sac turning head.

It is pertinent to note, however, that the approved concept layout specifically noted that the , "plan is conceptual only to provide an indicative lot layout and will be subject to changes as detailed studies occur for a future Subdivision Application".

It is considered that the proposed amendments to the concept road layout will not increase traffic activity within Calgaroo Avenue and/or Acacia Drive to any appreciable extent than what they have been designed for. As such, Calgaroo Avenue and Acacia Drive are both expected to continue to operate at existing Levels of Service and within Environmental Capacity limits for local residential streets.

Other than these two changes, the proposed road layout is generally consistent with the approved concept layout.



### 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 Concept Development Traffic Generation – Masterplan

The proposed Masterplan design envisages the subdivision of the site into R1 & R5 residential lots of various sizes, ultimately consisting of a total of 624 dwellings.

The Masterplan and Stage 1 DA also includes a childcare centre and café which are intended to service the local community, both within the new subdivision as well as the existing surrounding area. The built form of the childcare centre and café do not form part of either application (i.e. the Masterplan application or the Stage 1 DA), they will both be designed and assessed as part of future respective DAs. Any future traffic activity associated with the childcare centre and café will largely be internal to the proposed and existing surrounding subdivision and not via the arterial roads of New England Highway/Maitland Street and Sydney Street/Denman Road.

For the purposes of this assessment therefore, and in the interest of sensitivity testing and consistency with the Muswellbrook Traffic Study in 2010, the abovementioned maximum residential trip rates have been adopted. Accordingly, based on the above maximum trip rates for regional areas, the entire proposed residential subdivision with 624 future dwellings has a traffic generation potential of 530 vehicle trips during the weekday morning peak period and 562 vehicle trips during the weekday afternoon peak period, as set out in the table below.

Notwithstanding, reference to the RMS Guide Section 3.3.1, notes that with respect to residential trips, "not all trips are external trips. As a guide, about 25% of trips are internal to the subdivision, involving local shopping, school and local social visits. When reviewing the impact of the traffic generated on sub-regional and regional roads, some adjustment is necessary, depending on the location of shops, schools and recreational facilities". As such, this 25% reduction factor has been applied to the overall trips, as indicated in Table 4.1.



Table 4.1 – Envisaged Weekday Peak Trip Rates & Traffic Generation Potential - Masterplan								
Land Use Period Trip rate Total Total peak External								
			peak trips	external trips	trip split			
Residential	AM	0.85/dwelling	530 trips	398 trips	80 in/318 out			
(624 future dwellings)	PM	0.90/dwelling	562 trips	421 trips	337 in/84 out			

### 4.3 Proposed Development Traffic Generation – Stage 1

Included within the Masterplan's 14 stages, is Stage 1 which comprises 113 future dwellings, including 94 dual-occupancy dwellings.

Accordingly, based on the above maximum trip rates for regional areas, the Stage 1 subdivision with 113 future dwellings has a traffic generation potential of 96 vehicle trips during the weekday morning peak period and 102 vehicle trips during the weekday afternoon peak period, as set out in the table below.

Table 4.2 – Envisaged Weekday Peak Trip Rates & Traffic Generation Potential – Stage 1								
Land Use	e Period Trip rate Total Total peak Externa							
			peak trips	external trips	trip split			
Residential	AM	0.85/dwelling	96 trips	72 trips	14 in/58 out			
(113 future dwellings)	PM	0.90/dwelling	102 trips	76 trips	61 in/15 out			

### 4.4 Approved Planning Proposal Traffic Generation

As noted in the foregoing, in late 2021, Planning Proposal PP\_2014\_MUSWE\_003\_00 received Gateway determination, involving the rezoning of the entire subject site known as Lots 101 & 103 DP 1170190 Ironbark Road, from E3 Environmental Management to part R1 General Residential, part R5 Large Lot Residential and part E3 Environmental Management.

In terms of traffic generating lots, the PP comprised 413 x R1 General Residential lots and 57 x R5 Large Lot Residential lots.

Accordingly, based on the above maximum trip rates for regional areas, the gazetted PP with 470 lots had a traffic generation potential of 400 vehicle trips during the weekday morning peak period and 423 vehicle trips during the weekday afternoon peak period, as set out in the table below.

Table 4.3 – Approved Weekday Peak Trip Rates & Traffic Generation Potential – Planning Proposal								
Land Use Period Trip rate Total Total peak Exter								
			peak trips	external trips	trip split			
Residential (470 lots)	AM	0.85/dwelling	400 trips	300 trips	60 in/240 out			
	PM	0.90/dwelling	423 trips	317 trips	254 in/63 out			



### 4.5 Traffic Impact – Road Network & Environmental Capacity

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.

Based on the trip generation rates and the above tables, the proposed Masterplan is expected to result in a *nett increase* of approximately 98 external vehicle trips during the weekday morning peak period and 104 external vehicle trips during the weekday afternoon peak period, when compared to the gazetted Planning Proposal scheme, as set out in Table 4.4.

Table 4.4 – Nett Change in External Peak Traffic Generation								
Period	Proposed Masterplan External Peak Trips	Previously Approved Planning Proposal External Peak Trips	Nett Change in External Peak Trips*					
AM Peak Hour	398 vph	-300 vph	+98 peak trips					
PM Peak Hour	421 vph	-317 vph	+104 peak trips					

\* entry/exit combined

As part of the Planning Proposal scheme, a response was received from the Roads and Maritime Services (now TfNSW) confirming no objection to the (then) proposed (and now gazetted) rezoning, noting all future subdivision proposals will require a Traffic Impact Study. RMS also noted that as the site will connect to Bimbadeen Drive, there may be a requirement for a future contribution to the upgrade of the intersection of Bimbadeen Drive and Maitland Street.

Accordingly, a key consideration of the Masterplan DA is the impact that any additional traffic will have on the New England Highway (Maitland Street) & Bimbadeen Drive intersection.

It is pertinent to note in this regard that there are three primary intersections that connect the existing and proposed subdivision to the arterial road network:

- New England Highway (Maitland Street) & Bimbadeen Drive,
- New England Highway (Maitland Street) & Rutherford Road, and
- Sydney Street & Skellatar Stock Route.

In order to provide a rigorous assessment, given the New England Highway (Maitland Street) & Bimbadeen Drive intersection is the shortest route between the proposed subdivision and the arterial road network, for the purposes of this assessment is has been assumed that all of the associated traffic will use that intersection during the morning and afternoon peak periods. In reality, this is unlikely to occur, such that the assessment is considered very conservative.

Furthermore, the assessment has been undertaken using 100-dwelling increments in order to appreciate the incremental impacts, up to and including a 500 new dwelling scenario.

An 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 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.

Tabl	Table 4.5 – 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						
А	<14	Good operation	Good operation						
В	15 to 28	Good with acceptable delays	Acceptable delays & spare						
		& spare capacity	capacity						
С	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,	At capacity, requires other						
		incidents will cause excessive	control mode						
		delays.							
		Roundabouts require other							
		control mode							
F	>70	Unsatisfactory, requires	Unsatisfactory, requires other						
		additional capacity	control mode or major						
			treatment						

In terms of trip distribution applied, they have been based on the existing splits determined from the existing traffic surveys. Somewhat unsurprisingly, the existing turning movements in/out of Bimbadeen Drive are 90-95% to/from the west during the morning peak and 80-90% to/from the west during the afternoon peak period.

The SIDRA movement summaries of the New England Highway (Maitland Street) & Bimbadeen Drive intersection are reproduced in Appendix F and summarised in Table 4.6 below. In essence, the SIDRA modelling confirms that the intersection is currently operating at an overall Level of Service A and will continue to do so, even under the +500 dwelling scenario.

Notwithstanding, the right-turn movement from Bimbadeen Drive onto the New England Highway is currently operating at Level of Service B during the morning peak period, and will continue to do so, even under the +500-dwelling scenario. During the afternoon peak period, however, the right-turn movement from Bimbadeen Drive onto the New England Highway will steadily reduce from Level of Service B during the existing and +100-dwelling scenario, to Level of Service C during the +200/+300/+400-dwelling scenarios, and finally, Level of Service D during the +500-dwelling scenario.

Given the assessment has assumed that the entire external traffic generation of the proposed subdivision will use the New England Highway & Bimbadeen Drive intersection to access the arterial road network, which in reality is very unlikely given there are three options to choose from, the proposed Masterplan is considered acceptable and confirms that the intersection has a significant amount of spare capacity before requiring an upgrade. Consequently, the proposal is deemed supportable on traffic grounds.



Table 4.6 – Summary of SIDRA analysis of the New England Highway & Bimbadeen Drive intersection												
	Existing		Existing Existing Scenario		Existing	Existing Scenario Existing Sce		Existing Scenario with Existing Sce		cenario with Existing Scenario with		enario with
	Base Case	Scenario	with +100	dwellings	with +200	dwellings	+300 d	wellings	+400 d\	vellings	+500 dv	vellings
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Bimbadeen Dr (S)												
LOS	A(B)	A(B)	A(B)	A(B)	A(B)	A(C)	A(B)	A(C)	A(B)	A(C)	A(B)	A(D)
DOS	0.248	0.150	0.323	0.170	0.398	0.191	0.473	0.211	0.548	0.231	0.623	0.279
AVD (sec/veh)	7.9(15.9)	9.1(24.1)	8.4(16.6)	9.5(27.3)	8.9(17.2)	9.9(30.8)	9.5(17.9)	10.5(35.6)	10.1(18.8)	11.2(41.7)	11.0(19.9)	12.1(49.2)
New England Hwy (E)												
LOS	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
DOS	0.225	0.238	0.225	0.238	0.225	0.238	0.225	0.238	0.225	0.238	0.225	0.238
AVD (sec/veh)	0.1(5.7)	0.5(5.8)	0.1(5.7)	0.7(5.9)	0.1(5.7)	0.8(6.0)	0.2(5.7)	1.0(6.2)	0.2(5.8)	1.2(6.3)	0.2(5.8)	1.3(6.5)
New England Hwy (W)												
LOS	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)	A(A)
DOS	0.088	0.190	0.106	0.264	0.124	0.340	0.142	0.419	0.160	0.501	0.179	0.586
AVD (sec/veh)	17(78)	2 4(8 4)	19(78)	3 1 (8 7)	2 2(7 8)	3 8(9 4)	2 4(7 9)	4 6(10 2)	2 6(7 9)	5 4(11 0)	2 9(8 0)	6 4(12 2)

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

Worst turning movements and respective delays indicated in brackets



### 5. Access & Parking Assessment

### 5.1 Applicable Car Parking Rates

The off-street parking rates applicable to the Stage 1 duplex dwellings and ultimately any future residential development within the Masterplan, are specified in Council's DCP 2009, Section 16 – Car Parking and Access, Item 16.6 Car Parking Schedule for Specific Land Uses, as set out below.

Land Use	Parking Requirement	Comments
Residential Accommodation		
Dual occupancy	1 space per dwelling if the GFA of the dwelling is less than 125m2 OR 2 spaces per dwelling if the GFA of the dwelling is 125m2 or more	The space shall be located in accordance with Section 6 of this DCP.
Dwelling house	1 space per dwelling if the GFA of the dwelling is less than 125m2 OR 2 spaces per dwelling if the GFA of the dwelling is 125m2 or more	The space shall be located in accordance with Section 6 of this DCP.

(Source: Muswellbrook Shire DCP 2009, Section 16, Item 16.6)

### 5.2 Car Parking Requirements

Based on the Stage 1 built form proposal for 47 duplex (i.e. dual occupancy) lots and 94 x twobedroom dwellings, all with a floor area of less than 125m<sup>2</sup>, the Stage 1 duplexes require the provision of 94 car parking spaces.

The remaining R1 & R5 lots within Stage 1, as well as throughout the Masterplan site, do not include any built form as part of either application.

### 5.3 Proposed Car Parking Provisions

The proposed duplexes within Stage 1 all make provision for 1 car space per dwelling, thereby satisfying Council's DCP 2009's numerical requirements.

Furthermore, any built form on the remaining R1 & R5 lots within Stage 1 will be subject to further assessment as part of any respective DA/CDC application for those dwellings. Similarly, for the remaining Stages within the Masterplan in the future.

Nevertheless, the size and dimensions of the future proposed allotments have been planned in such a way that they will be able to accommodate the off-street parking requirements for each respective allotment.

In addition, 50 public car parking spaces are also proposed to be provided in a  $90^{\circ}$  arrangement surrounding the triangular public reserve in the centre of Stage 1.



### 6. Design Assessment

### 6.1 Applicable Design Standards

The following design standards will ultimately be used as the basis for compliance with respect to the vehicular access, parking and loading requirements of any future built form within the Masterplan site:

- Australian Standards 2890.1:2004 Off-Street Car Parking (AS2890.1)
- Australian Standards 2890.2:2018 Off-Street Commercial Vehicle Facilities (AS2890.2)
- Australian Standards 2890.3:2015 Bicycle Parking (AS2890.3)
- Australian Standards 2890.6:2022 Off-Street Parking for People with Disabilities (AS2890.6)

Notwithstanding, the Stage 1 DA does include the 94 dual occupancy dwellings, all with an offstreet parking space, such that they have been designed in accordance with AS2890.1:2004.

Whilst the vehicular access and parking areas have been designed in accordance with the above Australian Standards, it is expected that a condition(s) of consent would be imposed requiring reconfirmation of compliance at the Construction Certificate stage (CC). Any minor amendments required to the DA design can therefore be addressed at the CC stage.

### 6.2 Vehicular Access & Parking Design – Stage 1

The following key compliances are noted with respect to the proposed vehicular access and parking design for the Stage 1 duplexes:

- 1 x off-street parking space per dwelling, located behind the front building line
- minimum 5.4m long car parking spaces for all duplex types
- 2.4m wide parking spaces in accordance with User Class 1A requirements
- minimum 300mm additional width for car spaces located adjacent to walls/fences (all spaces, in this instance)
- minimum 2.2m overhead clearance provided above all parking spaces (i.e. underneath all carports)
- 2.7m opening width between carport posts leading to the parking spaces
- no obstructions within the "design envelope" of any car parking spaces.
- Driveways located outside the 6m "prohibited area" of intersections.

### 6.3 Subdivision & Road Design

Muswellbrook Shire Council refers to AUS-SPEC for its design standards applicable for the proposed subdivision. The following key compliances are noted with respect to the proposed development:

- Width to depth ratio of allotments not exceeding 1:4
- Minimum 5.5m road width between kerbs for two lane
- Minimum crossfall of 3% on road carriageways
- 2%-5% crossfalls on pathways, cycleways, or shared use pathways
- 1.2m minimum width for pathways
- Streets intersect at not less than 70°

### 7. Conclusion

In summary, the proposal involves the lodgement of concurrent Masterplan and Stage 1 DAs to Council, involving the establishment of a largely residential subdivision situated at Lots 101 and 103 DP 1170190 Ironbark Road, Muswellbrook.

The Masterplan proposal involves the creation of 329 x R1 General Residential lots, 120 x R1 General Residential dual occupancy lots, 57 x R5 Large Lot Residential lots, pockets of E3 Environmental Management zoned areas, and a new public road network which connects to the existing road network at Ironbark Road, Bimbadeen Drive, Calgaroo Avenue and Acacia Drive.

The Stage 1 DA involves the subdivision of Stage 1 into 16 x R1 General Residential lots, 47 x R1 General Residential dual occupancy lots, 2 x R5 Large Lot Residential lots, an E3 Environmental Management lot, 2 x non-residential lots (comprising a potential future childcare centre and café), and a new public road network which connects to the existing road network at Ironbark Road & Bimbadeen Drive. The Stage 1 DA also includes the built form on the dual occupancy lots only.

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

- the site is located within 400m walking distance to the nearest bus stops which are located on Ironbark Road, Bloodwood Road, and John Howe Circuit, and serviced by route 418 loop service, operating from Muswellbrook Town Centre to Muswellbrook Eastlinks.
- the proposed development is expected to result in approximately 530 vehicle trips during the weekday morning peak period (including 96 Stage 1 trips) and 562 vehicle trips during the weekday afternoon peak period (including 102 Stage 1 trips), 25% of which is expected to comprise internal trips within the subdivision.
- When compared to the gazetted Planning Proposal for the subject site, the proposed Masterplan represents a theoretical *nett increase* of 98 external vehicle trips during the morning peak period and 104 external vehicle trips during the afternoon peak period.
- The existing New England Highway & Bimbadeen Drive has a significant amount of spare capacity in it, and should comfortably accommodate the proposed Masterplan traffic, noting there are two other existing options which provide access to the arterial road network.
- the proposed road design and sections the future internal roads are all in accordance with Council's requirements.
- the proposed amendments to the approved internal road concept layout are minor and acceptable.

In light of the foregoing assessment, it is therefore concluded that the proposed Masterplan and Stage 1 DAs, involving the subdivision of the site and construction of duplexes within Stage 1 is supportable on vehicular access, traffic, parking and servicing grounds and will not result in any unacceptable implications.



Appendix A

Proposed Masterplan subdivision plan

### LAND BUDGET

Site Area	81.23		
	Area (ha)	%Site	% NDA
Non Developable			
Open Space			
Offset Areas	11.91	14.66%	17.18%
Subtotal	11.91	14.66%	17.18%
Total	11.91	14.66%	17.18%
NDA	69.32	85.34%	100.00%
Land Use			
General Residential	29.82	36.71%	43.01%
Large Residential	23.08	28.42%	33.30%
Roads	15.66	19.28%	22.59%
Café	0.09	0.11%	0.13%
Childcare	0.22	0.28%	0.32%
Non Credited Open Space	0.45	0.55%	0.64%
Total	69.32	85.34%	100.00%
Note: Numbers are rounded to	two decimal	places	
Number Lots	504		
Lots/NDHa	7.27		
Average Lot Size	1,050m <sup>2</sup>		
Potential Duplex Yield	240		

Lot Type	Lots	Yield	Avg. Lot Size	% Lot Breakdown
General Residential	327	327	734m <sup>2</sup>	65%
Large Lots	57	57	4,076m <sup>2</sup>	11%
Duplex lots	120	240	456m <sup>2</sup>	24%
TOTAL	504	624		100%

#### LIMITATION OF PLAN

This plan is an illustrative drawing of plan 205116\_layout\_Rezoning lots sewer\_v5.dwg

#### LEGEND



### SUBDIVISION PLAN IRONBARK RD MUSWELLBROOK

DATE 03/05/2024 DRG NO. **321570 UD ID 01** Cad Rev. **10** DES/DOC AC 10



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SCALE 1:5000@A3



### Appendix B

Proposed Stage 1 plan



	COMP	LIANC	E TAB	LE	
LOT NUMBER	LOT SIZE	FLOOR AREA	LANDSCAPING	CAR SPACES	ADAPTABLE
LOT 1B	485 m2	77 m2	345 m2	1 SPACE	NO
LOT 1A	264 m2	77 m2	125 m2	1 SPACE	NO
LOT 2A	264 m2	<u>77 m2</u>	<u>125 m2</u>	1 SPACE	NO
	<u>264 m2</u>	<u>77 m2</u>	<u>125 m2</u>	<u> 1 SPACE</u>	NO
	264 m2	<u> </u>	<u>125 m2</u>	<u> 1 SPACE</u>	NO
	<u>264 m2</u>	<u> </u>	<u>125 m2</u>	<u>1 SPACE</u>	
	<u>264 m2</u>	<u>77 m2</u>	125 m2		NO NO
	204 m2	<u>77 m2</u>	125 m2		
	204 III2 264 m2	77 m2	125 III2		
	204 III2 308 m2	87 m2	147 m2		
LOT 6A	308 m2	87 m2	147 m2		VES
LOT 7A	264 m2	77 m2	125 m2		NÕ
LOT 7B	264 m2	77 m2	125 m2	1 SPACE	ŇŎ
LOT 8A	264 m2	77 m2	125 m2	1 ŠPAČE	ŇŎ
LOT 8B	264 m2	77 m2	125 m2	1 ŠPAČE	ŇŎ
LOT 9	793 m2	N/A	N/A	N/A	N/A
LOT 10A	216 m2	77 m2	76 m2	1 SPACE	NO
LOT 10B	<u>373 m2</u>	<u>77 m2</u>	230 m2	1 SPACE	NO
LOT 11A	216 m2	<u> </u>	<u>76 m2</u>	<u> 1 SPACE</u>	NO
	216 m2	<u> </u>	<u>76 m2</u>	<u> 1 SPACE</u>	NO
	216 m2	<u> </u>	<u>76 m2</u>	<u> 1 SPACE</u>	NO
	216 m2	<u>// m2</u>	<u>76 m2</u>	<u>1 SPACE</u>	
	<u>252 m2</u>	<u>87 m2</u>	90 m2		
	252 [[]2 216 m2	<u>8/ III2</u> 77 m2	90 III2 76 m2		
	210 III2 216 m2	<u>77 m2</u>	70 III2 76 m2		
LOT 15A	210 m2	77 m2	70 m2		NO
LOT 15B	216 m2	77 m2	76 m2		NŎ
LOT 16A	216 m2	77 m2	76 m2		Nŏ
LOT 16B	216 m2	77 m2	76 m2	1 ŠPÁČĒ	ŇŎ



	COMP	LIANC	E TAB	LE	
R	LOT SIZE	FLOOR AREA	LANDSCAPING	CAR SPACES	ADAPTABLE
	380 m2	77 m2	241 m2	1 SPACE	NÔ
	217 m2	77 m2	76 m2	1 SPACE	NÕ
	215 m2	77 m2	76 m2	1 SPACE	NO
	261 m2	77 m2	124 m2	1 SPACE	NO
	216 m2	<u>77 m2</u>	<u>76 m2</u>	1 SPACE	NO
	<u>216 m2</u>	<u>77 m2</u>	76 m2	1 SPACE	NO
	<u>254 m2</u>	<u>77 m2</u>	114 m2	1 SPACE	NO
	<u>253 m2</u>	<u>77 m2</u>	<u>114 m2</u>	1 SPACE	NO
	<u>307 m2</u>	<u>77 m2</u>	<u>171 m2</u>	1 SPACE	NO
	254 m2	<u>// m2</u>	114 m2	1 SPACE	NQ
	<u>238 m2</u>	<u>// m2</u>	90 m2	1 SPACE	NO
	451 m2	<u>// m2</u>	292 m2	1 SPACE	NO
	223 m2	<u>// m2</u>	<u>/6 m2</u>	1 SPACE	NQ NO
	216 m2	<u>77 m2</u>	<u>76 m2</u>	1 SPACE	NO NO
	216 m2	<u>77 m2</u>	<u>76 m2</u>	1 SPACE	NO
	<u>216 m2</u>	<u> </u>	<u>76 m2</u>		
	<u>252 m2</u>	<u>87 m2</u>	<u>90 m2</u>		
	<u>252 m2</u>	<u>87 m2</u>	<u>90 m2</u>		
	<u>216 m2</u>	<u> </u>	<u>76 m2</u>		
	210 III2	<u>// [[]2</u> 77 m2	70 1112		
	210 III2 216 m2	<u>// [[]2</u> 77 m2	<u>/0 III2</u> 76 m2		
	210 III2 272 m2	<u> </u>	<u>/0    2</u> 220 m2		
	3/3/11/2 216 m2	<u> </u>	<u>Z30 IIIZ</u> 76 m2		
	210 III2 216 m2	77 m2	70 IIIZ 76 m2		
	210 III2 365 m2	77 m2	10 III2 222 m2		
	216 m2	77 m2	76 m2		
	210 III2 216 m2	77 m2	76 m2		
	210 m2	77 m2	76 m2		NĂ
	210 m2	77 m2	76 m2		NĂ
	210 m2	77 m2	76 m2		NĂ
	210 m2	77 m2	76 m2		NŎ

	COMP	LIANC	E TAE
LOT NUMBER	LOT SIZE	FLOOR AREA	LANDSCAPING
LOT 33A	252 m2	87 m2	90 m2
LOT 33B	<u>252 m2</u>	<u>87 m2</u>	<u>90 m2</u>
LOT 34A	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
LOT 34B	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
LOT 35A	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
LOT 35B	216 m2	<u>77 m2</u>	<u>76 m2</u>
LOT 36A	216 m2	<u> </u>	<u>76 m2</u>
LOT 36B	216 m2	<u><u>77 m2</u></u>	<u>/6 m2</u>
	<u>261 m2</u>	<u>77 m2</u>	122 m2
	<u>215 m2</u>	<u> </u>	<u>76 m2</u>
	<u>215 m2</u>	<u>77 m2</u>	<u>76 m2</u>
	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
		77 m2	<u>/0 m2</u>
	209 1112	77 m2	<u>122   12</u> 76 m2
	<u>215 III2</u> 261 m2	77 m2	121 m2
	201 III2 216 m2	77 m2	76 m2
	216 m2	77 m2	70 m2
1 OT 42A	216 m2	77 m2	70 m2
LOT 42B	216 m2	77 m2	76 m2
LOT 43A	216 m2	77 m2	76 m2
LOT 43B	216 m2	77 m2	76 m2
LOT 44A	252 m2	87 m2	90 m2
LOT 44B	252 m2	87 m2	90 m2
LOT 45A	216 m2	77 m2	76 m2
LOT 45B	216 m2	77 m2	76 m2
LOT 46A	216 m2	77 m2	76 m2
LOT 46B	216 m2	77 m2	76 m2
LOT 47A	216 m2	77 m2	76 m2
LOT 47B	216 m2	77 m2	76 m2
LOT 48A	336 m2	<u>77 m2</u>	195 m2
LOT 48B	216 m2	77 m2	76 m2





Notes 1. CONTRACTOR MUST VERIFY ALL DIMENSIONS ON SITE BEFORE COMMENCING WORK OR PREPARING SHOP DRAWINGS. 2. DO NOT SCALE DRAWINGS. 3. CONTRACTOR TO CHECK UNDERGROUND SERVICES BEFORE COMMENCING WORKS BY CONTACTING DIAL BEFORE YOU DIG. IF DIAL BEFORE YOU DIG INFORMATION IS PROVIDED WITH THIS DOCUMENTATION IT SHALL BE ASSUMED NOT TO BE CURRENT AND CONTRACTOR SHALL MAKE THEIR OWN ENQUIRES. 0 ●72.3 0 ●<sub>16.39</sub> ●<sub>18.00</sub> •1423 **•**<sub>13.8</sub>. ●<sub>12.44</sub> 12.27 6 e. ●n.28 ●<sub>10,0</sub>, • 02.54 • 02.54 S 1 •.... 20, 749 m<sup>2</sup> 2,167 m<sup>2</sup> 194 ROAD 1



		>/	
H	ISSUED TO COUNCIL FOR DA APPROVAL	13.05.24	
6 F	ISSUED FOR REVIEW	<u>08.04.24</u>	
E D	ISSUED FOR REVIEW ISSUED FOR REVIEW	07.04.24 25.03.24	
C B	ISSUED FOR REVIEW REDESIGN MASTER LAYOUT FOR NEW MODULES	21.03.24 18.03.24	
A	SKETCH DESIGN	22.02.24	
Rev	Description	Date	App

### Project INTERGRATED HOUSING

LOT 1, 101-103 IRONBARK ROAD, #Site City NSW





	COMP	LIANC	<b>E TAB</b>	LE	
LOT NUMBER	LOT SIZE	FLOOR AREA	LANDSCAPING	CAR SPACES	ADAPTABLE
LOT 1B	485 m2	77 m2	345 m2	1 SPACE	NO
LOT 1A	264 m2	77 m2	125 m2	1 ŠPAČE	ŇŎ
LOT 2A	264 m2	77 m2	125 m2	1 ŠPAČE	ŇŎ
LOT 2B	264 m2	77 m2	125 m2	1 SPACE	ŇŎ
LOT 3A	264 m2	77 m2	125 m2	1 SPACE	NÔ
LOT 3B	264 m2	<u>77 m2</u>	125 m2	1 SPACE	NO
LOT 4A	264 m2	<u>77 m2</u>	125 m2	1 SPACE	NO
LOT 4B	<u>264 m2</u>	<u>77 m2</u>	<u>125 m2</u>	1 SPACE	NO
LOT 5A	<u>264 m2</u>	<u>77 m2</u>	<u>125 m2</u>	<u> 1 SPACE</u>	NO
	<u>264 m2</u>	<u>// m2</u>	<u>125 m2</u>	<u> 1 SPACE</u>	<u>NO</u>
	<u>308 m2</u>	<u>87 m2</u>	<u>147 m2</u>	<u> 1 SPACE</u>	YES
	<u>308 m2</u>	<u>87 m2</u>	<u>147 m2</u>	1 SPACE	YES
	<u>264 m2</u>	<u> </u>	<u>125 m2</u>		
	<u>264 m2</u>	<u> </u>	125 m2		
	204 m2	77 m2			
	204 1112	11 1112		ISPACE	NU
LOT 9	793 m2	N/A	N/A	N/A	N/A
LOT 10A	216 m2	77 m2	76 m2	1 SPACE	NO
LOT 10B	373 m2	77 m2	230 m2	1 SPACE	NÔ
LOT 11A	216 m2	77 m2	76 m2	1 SPACE	NO
LOT 11B	216 m2	<u>77 m2</u>	76 m2	1 SPACE	NO
LOT 12A	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>	1 SPACE	NO
LOT 12B	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>	1 SPACE	NO
LOT 13A	<u>252 m2</u>	<u>87 m2</u>	<u>90 m2</u>	1 SPACE	YES
	<u>252 m2</u>	<u>87 m2</u>	<u>90 m2</u>	<u> 1 SPACE</u>	YES
	216 m2	<u> </u>	<u>/6 m2</u>	<u> 1 SPACE</u>	NO
	216 m2	<u> </u>	<u><u>/6 m2</u></u>	1 SPACE	NQ
LOT 15A	216 m2	<u>// m2</u>	<u>/6 m2</u>	1 SPACE	NU
	216 m2	<u>// m2</u>	<u>/6 m2</u>	1 SPACE	
	216 m2	<u>// m2</u>	<u>/6 m2</u>		
				LOPACE	NU

LOT NUM
LOT 17B
LOT 18B
LUT 32B

GROUND FLOOR PLAN



	COMP	LIANC	E TAB
LOT NUMBER	LOT SIZE	FLOOR AREA	LANDSCAPING
LOT 33A	252 m2	87 m2	90 m2
LOT 33B	<u>252 m2</u>	<u>87 m2</u>	<u>90 m2</u>
LOT 34A	216 m2	<u>77 m2</u>	<u>76 m2</u>
LOT 34B	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
LOT 35A	216 m2	<u>77 m2</u>	<u>76 m2</u>
	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
LOT 36A	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
	<u>216 m2</u>	<u>77 m2</u>	<u>/6 m2</u>
LOT 37R	<u>201 m2</u>	77 m2	<u>122 (f)2</u> 76 m2
	215 m2	<u>77 m2</u>	70 m2
	215 m2	77 m2	<u>70 m2</u>
LOT 39A	215 m2	77 m2	70 m2
LOT 39B	250 m2	77 m2	122 m2
LOT 40A	215 m2	77 m2	76 m2
LOT 40B	261 m2	77 m2	124 m2
LOT 41A	216 m2	77 m2	76 m2
LOT 41B	216 m2	77 m2	76 m2
LOT 42A	216 m2	77 m2	76 m2
LOT 42B	216 m2	77 m2	76 m2
LOT 43A	216 m2	77 m2	76 m2
LOT 43B	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
LOT 44A	252 m2	<u>87 m2</u>	<u>90 m2</u>
LOT 44B	<u>252 m2</u>	<u>87 m2</u>	<u>90 m2</u>
LOT 45A	216 m2	<u><u> </u></u>	<u><u>76 m2</u></u>
	<u>216 m2</u>	<u>77 m2</u>	<u>76 m2</u>
	216 m2	<u>// m2</u>	<u>/6 m2</u>
	210 m2	<u>// m2</u>	<u>/6 m2</u>
	<u>210 III2</u>	<u>// [[]2</u> 77 m2	<u>/0 [[]2</u> 76 m2
	<u>210 III2</u>	<u>77 m2</u>	105 m2
LOT 48B	216 m2	77 m2	76 m2
		11112	101112

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Notes
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COMMENCING WORK OR PREPARING SHOP DRAWINGS.

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H	ISSUED TO COUNCIL FOR DA APPROVAL
5	ISSUED FOR REVIEW

Rev Description

- GISSUED FOR REVIEW24.04.24FISSUED TO CONSULTANTS08.04.24EISSUED FOR REVIEW07.04.24DISSUED FOR REVIEW25.03.24CISSUED FOR REVIEW21.03.24BREDESIGN MASTER LAYOUT FOR NEW MODULES18.03.24
- A SKETCH DESIGN

## 13.05.24 24.04.24 08.04.24 07.04.24 25.03.24 22.02.24

Date App'd

### Project INTERGRATED HOUSING

LOT 1, 101-103 IRONBARK ROAD, #Site City NSW



230-82 Status DA



Appendix C

Survey plan





& PROPERTY SURVEYS	<ul> <li>ENGINEERING &amp; INFRASTRUCTURE SURVEYS</li> </ul>	Revision	Amendment	Date	SC
ECT MANAGEMENT	STRATA & COMMUNITY TITLE SURVEYS	А	INITIAL ISSUE	12.12.23	
DEVELOPMENT SER SCANNING	• VOLUMETRIC SURVEYS & MODELLING     • DRONE SURVEYS & IMAGERY	В			
ADMEADOW ROAD, BROADMEAD	2000  NSW  2292  T  02 4960  1111	С			รเ
(1273, NEWCASTLE NSW 2300	E enquiry@psurveys.com.au	D			
t in the drawings, information and data recorde uced in whole or part for any purpose other tha	d hereon is the property of Positive Survey Solutions and may not be used, copied or n that for which it is supplied without the prior consent of Positive Survey Solutions.	E			

reprod

REGISTERED SURVEYOR



### Appendix D

Traffic survey results

## TRANS TRAFFIC SURVEY

Intersec	LIOH OF NEW LINE	gianu nwy a	iu Access Driveway	, muswenbic	<u>, , , , , , , , , , , , , , , , , , , </u>	
GPS	-32.282613, 150.9062	47				
Date:	Wed 15/11/23	North:	Access Driveway	Survey	AM:	6:30 AM-9:30 AM
Weather:	Overcast	East:	New England Hwy	Period	PM:	3:30 PM-6:30 PM
Suburban:	Muswellbrook	South:	Bimbadeen Dr	Traffic	AM:	8:00 AM-9:00 AM
Customer:	CJP	West:	New England Hwy	Peak	PM:	4:00 PM-5:00 PM

All Vehicles																			
Ti	me	North A	pproach	Access D	Priveway	East Ap	proach M	lew Engl	and Hwy	South	Approac	h Bimbao	leen Dr	West A	pproach I	New Engl	and Hwy	Houri	y Total
Period Star	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	Hour	Peak
6:30	6:45	0	0	0	0	0	0	68	3	0	17	0	23	0	11	90	0	719	
6:45	7:00	0	0	0	0	0	0	83	6	0	4	0	15	0	4	57	0	710	
7:00	7:15	0	0	0	0	1	0	58	5	0	3	0	19	0	18	65	0	772	
7:15	7:30	0	0	0	0	0	0	73	2	0	4	0	21	0	11	58	0	860	
7:30	7:45	0	0	0	0	0	1	84	3	0	4	0	27	0	11	73	0	940	
7:45	8:00	0	2	0	0	0	0	117	2	0	1	0	32	0	14	63	0	970	
8:00	8:15	0	0	0	0	0	0	126	0	0	5	0	46	0	16	64	0	1004	Peak
8:15	8:30	0	3	0	0	0	0	95	2	0	5	0	58	0	11	73	2	941	
8:30	8:45	0	0	0	0	0	0	90	2	1	5	0	53	0	15	67	0	925	
8:45	9:00	0	0	0	0	0	0	92	0	0	5	0	48	0	36	81	3		
9:00	9:15	0	0	0	0	0	0	56	1	0	2	0	37	0	31	67	0		
9:15	9:30	0	2	0	0	0	0	73	2	0	7	0	27	0	29	92	1		
15:30	15:45	0	1	0	0	0	1	94	6	3	0	0	30	0	44	93	0	1117	
15:45	16:00	0	1	0	0	0	0	90	7	0	5	0	35	0	43	89	1	1147	
16:00	16:15	0	2	0	1	0	0	102	12	0	5	0	27	0	27	113	2	1180	Peak
16:15	16:30	0	0	0	0	0	0	111	4	0	2	0	26	0	38	101	1	1166	
16:30	16:45	0	0	0	0	0	0	123	12	0	4	0	30	0	38	94	1	1162	
16:45	17:00	0	0	0	0	0	0	105	9	0	4	0	36	0	54	95	1	1144	
17:00	17:15	0	1	0	0	0	0	111	9	0	5	0	20	0	37	94	0	1083	
17:15	17:30	0	0	0	0	0	0	76	11	1	9	0	27	0	48	106	1	1080	
17:30	17:45	0	0	0	0	0	0	117	16	0	3	0	24	0	48	76	0	1026	
17:45	18:00	0	0	0	0	0	0	96	10	0	9	0	31	0	35	62	0		
18:00	18:15	0	0	0	0	0	0	95	9	0	0	0	36	0	52	82	0		
18:15	18:30	0	1	0	0	0	1	99	7	0	2	0	29	0	34	52	0		
Peak	Time	North A	honroach	Access [	riveway	East Ar	oproach M	lew Engl	and Hwy	South	Approac	h Bimbar	ieen Dr	West A	nnroach l	New Engl	and Hwy	Poak	1
Period Star	Period End	11	R	SB	l l	11	R	WB	1 1		R	NB			R	FB		total	
8:00	9:00	0	3	0	0	0	0	403	4	1	20	0	205	0	78	285	5	1004	
16:00	17:00	0	2	0	1	0	0	441	37	0	15	0	119	0	157	403	5	1180	

Pedestriar	ns Crossing	7								
Ti Desired Chev	me Designed Fran	pproach	Access D	proach N	lew Engla	Approac	h Bimbad	proach I	New Engla	ourly To
Period Star	Pendu End	vestoour	astooun	Dutinboui	onnboui	vestbour	astooun	outribou	onnbour	
6:30	6:45	0	0	0	0	0	1	0	0	3
6:45	7:00	0	0	0	0	0	1	0	0	3
7:00	7:15	0	0	0	0	0	1	0	0	5
7:15	7:30	0	0	0	0	0	0	0	0	6
7:30	7:45	0	0	0	0	0	1	0	0	6
7:45	8:00	0	0	0	0	3	0	0	0	5
8:00	8:15	0	0	0	0	2	0	0	0	6
8:15	8:30	0	0	0	0	0	0	0	0	4
8:30	8:45	0	0	0	0	0	0	0	0	5
8:45	9:00	0	0	0	0	4	0	0	0	
9:00	9:15	0	0	0	0	0	0	0	0	
9:15	9:30	0	0	0	0	0	1	0	0	
15:30	15:45	0	0	0	0	0	1	0	0	3
15:45	16:00	0	0	0	0	0	1	0	0	3
16:00	16:15	0	0	0	0	0	0	0	0	2
16:15	16:30	0	0	0	0	0	1	0	0	2
16:30	16:45	0	0	0	0	1	0	0	0	1
16:45	17:00	0	0	0	0	0	0	0	0	1
17:00	17:15	0	0	0	0	0	0	0	0	1
17:15	17:30	0	0	0	0	0	0	0	0	1
17:30	17:45	0	0	0	0	0	1	0	0	2
17:45	18:00	0	0	0	0	0	0	0	0	
18:00	18:15	0	0	0	0	0	0	0	0	
18:15	18:30	0	0	0	0	0	1	0	0	
Peak	Time	nnroach	Access D	proach N	ew Engla	Annroac	h Bimbad	proach I	New Engl	Poak
Period Star	Period End	Vestbour	Fasthoun	buthhow	orthhou	Vesthour	Fasthoun	outhhou	orthhow	bour
8:00	9:00	0	0	0	0	6	0	0	0	6
16:00	17:00	0	0	0	0	1	1	0	0	2

is indicative only, drawing is not to scale and not an exact streets co. ng traffic flows. Di





Tir	me	North A	nnroach	Access D	rivewav	Fast Ar	pproach N	lew Engla	nd Hwy	South	Annroac	h Bimbad	leen Dr	West A	pproach l	New Engl	and Hwy	1
Period Start	Period End	U	R	SB	L	U	R	WB	L	U	R	NB	L	U	R	EB	L	
6:30	6:45	0	0	0	0	0	0	57	3	0	17	0	22	0	10	83	0	
6:45	7:00	0	0	0	0	0	0	67	6	0	4	0	15	0	4	50	0	
7:00	7:15	0	0	0	0	1	0	47	5	0	3	0	19	0	18	59	0	
7:15	7:30	0	0	0	0	0	0	60	2	0	4	0	21	0	11	54	0	
7:30	7:45	0	0	0	0	0	1	75	3	0	4	0	27	0	10	63	0	
7:45	8.00	0	2	0	0	0		95	2	0	1	0	32	0	13	55	0	
0.00	0.00	0	2	0	0	0	0	35	2	0	-	0	52	0	10	55	0	
8:00	8:15	0	0	0	0	0	0	105	0	0	5	0	45	0	16	50	0	
8:15	8:30	0	3	0	0	0	0	80	2	0	5	0	56	0	11	62	2	
8:30	8:45	0	0	0	0	0	0	76	2	1	5	0	51	0	14	56	0	
8:45	9:00	0	0	0	0	0	0	83	0	0	5	0	47	0	35	75	3	
9:00	9:15	0	0	0	0	0	0	44	1	0	2	0	36	0	31	57	0	
9:15	9:30	0	2	0	0	0	0	57	1	0	7	0	26	0	28	76	1	
15:30	15:45	0	1	0	0	0	1	87	6	3	0	0	30	0	43	84	0	
15:45	16:00	0	1	0	0	0	0	78	7	0	5	0	33	0	41	76	1	
16:00	16:15	0	2	0	1	0	0	93	12	0	5	0	26	0	26	103	2	
16:15	16:30	0	0	0	0	0	0	100	4	0	2	0	24	0	37	88	1	
16:30	16:45	0	0	0	0	0	0	116	12	0	4	0	28	0	38	77	1	
16:45	17:00	0	0		0	0	0	05	0	0	-	0	26		E4	97	4	
10.45	17.00	0	4	0	0	0	0	90	9	0	4	0	20	0	27	0/		
17:00	17:15	U	1	0	0	0	U	103	9	0	5	U	20	0	37	88	U	
17:15	17:30	0	0	0	0	0	0	69	11	1	9	0	27	0	48	94	1	
17:30	17:45	0	0	0	0	0	0	111	15	0	3	0	24	0	48	66	0	
17:45	18:00	0	0	0	0	0	0	88	10	0	9	0	31	0	34	55	0	
18:00	18:15	0	0	0	0	0	0	93	9	0	0	0	36	0	52	74	0	
18:15	18:30	0	1	0	0	0	1	91	7	0	2	0	29	0	34	47	0	
Deals	<b>T</b> 1	No. ath		A						0 au th		. Dimber		14/				
Peak Period Start	Period End	North A	R	SB	L	East Ap	R R	WB	Ind Hwy	U	Approac R	NB	L L	U U	pproach r R	EB	and Hwy	Peak total
8:00	9:00	0	3	0	0	0	0	344	4	1	20	0	199	0	76	249	5	901
16:00	17:00	0	2	0	1	0	0	404	37	0	15	0	114	0	155	355	5	1088
Heavy Vehic	cles																	
Tir	me																	
		North A	pproach	Access D	riveway	East Ap	proach N	lew Engla	nd Hwy	South	Approac	h Bimbad	leen Dr	West A	oproach I	New Engl	and Hwy	
Period Start	Period End	North A	R R	Access D SB	Driveway	East Ap	R R	WB	Ind Hwy	South	Approac R	h Bimbad NB	L	West A	R R	EB	and Hwy	
Period Start 6:30	Period End 6:45	North A U 0	R 0	Access D SB 0	Driveway L 0	East Ap	R 0	WB 11	nd Hwy L 0	South U 0	Approac R 0	h Bimbad NB 0	leen Dr L 1	West Ap	R 1	New Engla EB 7	and Hwy L 0	
Period Start 6:30 6:45	Period End 6:45 7:00	North A U 0	R 0 0	Access D SB 0 0	Driveway L 0 0	East Ap	R R 0 0	lew Engla WB 11 16	nd Hwy L 0	South U 0	Approac R 0	h Bimbad NB 0 0	leen Dr L 1 0	West Aj U 0	proach I R 1 0	New Engla EB 7 7	and Hwy L 0	
Period Start 6:30 6:45 7:00	Period End 6:45 7:00 7:15	North A           U           0           0           0           0	pproach R 0 0	Access D SB 0 0	Driveway L 0 0 0	East Ap U 0 0	R 0 0 0	lew Engla WB 11 16 11	nd Hwy L 0 0	<b>South</b> U 0 0 0 0	Approac R 0 0	h Bimbad NB 0 0	een Dr L 1 0	West Aj U 0 0	R 1 0 0	New Engl EB 7 7 6	and Hwy L 0 0	
Period Start 6:30 6:45 7:00 7:15	Period End           6:45           7:00           7:15           7:30	North A           U           0           0           0           0           0	pproach R 0 0 0 0	Access E SB 0 0 0 0	Driveway           L           0           0           0           0           0           0	East Ap U 0 0 0	oproach N R 0 0 0 0	lew Engla WB 11 16 11 13	nd Hwy L 0 0 0 0 0 0 0	<b>South</b> U 0 0 0 0 0 0	Approac R 0 0 0	h Bimbad NB 0 0 0 0	een Dr L 1 0 0	West Aj           U           0           0           0           0           0	Proach P R 1 0 0	New Engli EB 7 7 6 4	and Hwy L 0 0 0 0	
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### Appendix E

Proposed Stage 1 functional layout civil plans

# **IRONBARK ROAD STAGE 1** 101/103 IRONBARK RD, MUSWELLBROOK FREEDOM DEVELOPMENT GROUP PTY LTD

## GENERAL NOTES:

- ALL LEVELS ARE TO AUSTRALIAN HEIGHT DATUM AND ALL COORDINATES ARE TO MAP GRID OF AUSTRALIA (MGA) ZONE 56.
- ALL EXISTING SURFACE LEVELS SHOWN ON THE ENGINEERING DRAWINGS HAVE BEEN INTERPOLATED FROM A DIGITAL TERRAIN MODEL. THESE LEVELS HAVE BEEN USED AS THE BASIS FOR ALL ENGINEERING DESIGN AND DETERMINATION OF QUANTITIES AND ARE ACCURATE TO WITHIN ±0.05m.
- ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AS2124-1992 GENERAL CONDITIONS OF CONTRACT, THE ROAD & DRAINAGE SPECIFICATION, APPROVED MUNICIPALITY SPECIFICATIONS AND STANDARD DRAWINGS AND TO THE SATISFACTION OF THE SUPERINTENDENT AND THE MUNICIPAL ENGINEER OR HIS REPRESENTATIVE.
- ROAD CHAINAGES REFER TO ROAD CENTRELINES. CHAINAGES FOR INTERSECTIONS AND CUL-DE-SACS REFER TO THE LIP OF KERB
- THE LOCATION OF EXISTING SERVICES SHOULD BE DETERMINED BY THE CONTRACTOR PRIOR TO COMMENCING ANY EXCAVATION BY CONTACTING ALL LOCAL SERVICE AUTHORITIES. ANY EXISTING SERVICES SHOWN ON THESE DRAWINGS ARE OFFERED AS A GUIDE ONLY AND ARE NOT GUARANTEED AS CORRECT.
- WHERE REQUIRED ANY BUILDINGS, TROUGHS, FENCES AND OTHER STRUCTURES ON SITE ARE TO BE REMOVED AS DIRECTED BY THE ENGINEER. THE COST OF REMOVAL IS TO BE INCLUDED IN THE OVERALL EARTHWORKS FIGURE UNLESS A SPECIFIC ITEM FOR REMOVAL IS DENOTED IN THE SCHEDULE.
- ALL EXCAVATED ROCK AND SURPLUS SPOIL TO BE REMOVED AND DISPOSED OFF SITE UNLESS NOTED OTHERWISE.
- 8. ALL FILLING SHALL BE TO A LEVEL150mm BELOW THE FINISHED SURFACE LEVEL SHOWN AND COMPACTED AS PER AS-3798-1998. FILLING MATERIAL IS TO BE IN ACCORDANCE WITH THE SPECIFICATION & TO THE SATISFACTION OF COUNCIL AND THE SUPERINTENDENT.
- ALL BATTERS SHALL BE 1 IN 6, UNLESS OTHERWISE SHOWN.
- 10. NO FILL OR STOCKPILING OF MATERIAL IS TO BE PLACED ON ANY RESERVE FOR PUBLIC OPEN SPACE UNLESS OTHERWISE DIRECTED OR APPROVED BY THE SUPERINTENDENT
- 11. TBM'S TO BE RE-ESTABLISHED BY THE LICENSED SURVEYOR IF FOUND TO BE MISSING AT THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR WILL BE RESPONSIBLE FOR CARE AND MAINTENANCE OF T.B.M.'S THEREAFTER.
- 12. AT LEAST 3 DAYS PRIOR TO COMMENCING WORK ON EXCAVATIONS IN EXCESS OF 1.50m DEEP, A NOTIFICATION FORM MUST BE SENT TO WORKSAFE. THE CONTRACTOR IS TO COMPLY WITH WORKSAFE, THE MINES (TRENCHES) REGULATION 1982, THE MINES ACT 1958 AND OCCUPATIONAL HEALTH AND SAFETY ACT 1985, 2004.
- 13. ALL SERVICE TRENCHES UNDER DRIVEWAYS, FOOTPATHS AND PARKING BAYS TO BE BACKFILLED WITH CLASS 2 CRUSHED ROCK. SERVICE TRENCHES LESS THAN 750mm BEHIND KERB AND CHANNEL OR PAVED TRAFFIC AREAS ARE ALSO TO BE BACKFILLED WITH COMPACTED CLASS 2 CRUSHED ROCK.
- 14. WHERE REQUIRED, ALL EXISTING DAMS, DEPRESSIONS AND DRAINS ARE TO BE BREACHED, DRAINED, DESLUDGED AND SHALL BE EXCAVATED TO A CLEAN FIRM BASE THE SURFACE SHALL BE INSPECTED. APPROVED AND LEVELED BY THE ENGINEER PRIOR TO COMMENCEMENT OF FILLING. THE FILL SHALL BE APPROVED SELECTED ON SITE MATERIAL OR APPROVED IMPORTED MATERIAL. THE FILL SHALL BE PLACED UNDER CONTROLLED MOISTURE CONDITIONS IN ACCORDANCE WITH THE SPECIFICATION
- 15. NO BLASTING TO BE CARRIED OUT WITHIN THE MUNICIPALITY WITHOUT OBTAINING COUNCILS PERMISSION.
- 16. GAS AND WATER CONDUITS ARE TO BE . Ø50mm . CLASS 12 P.V.C. – SINGLE SERVICE Ø100mm . CLASS 12 P.V.C. – DUAL SERVICE (DRINKING AND NON DRINKING WATER) WITH THE FOLLOWING MINIMUM COVER TO FINISHED SURFACE LEVELS: ROAD PAVEMENT – 0.80m
- VERGE, FOOTPATHS 0.45m 17. ALL SERVICE CONDUIT TRENCHES UNDER ROAD PAVEMENTS TO BE BACKFILLED IN
- ACCORDANCE WITH RELEVANT MUNICIPALITY OR ROAD AUTHORITY SPECIFICATION
- 18. AG/SUBSOIL DRAIN TO BE LAID BEHIND KERB WHERE REQUIRED IN ACCORDANCE WITH THE COUNCIL STANDARD DRAWINGS AND CONNECTED TO UNDERGROUND DRAINAGE.
- 19. WHERE CURVED PIPES ARE SHOWN ON THE FACE PLANS THEY ARE TO BE LAID PARALLEL TO THE BACK OF KERB, EXCEPT WHERE A RADIUS HAS BEEN SPECIFICALLY NOMINATED. CURVED PIPES ARE TO BE APPROVED BY COUNCIL AND IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- 20. WATER TAPPINGS TO BE LOCATED IN CENTRE OF ALLOTMENTS UNLESS OTHERWISE SHOWN.
- 21. TELSTRA ARE TO BE NOTIFIED 7 DAYS PRIOR TO PLACEMENT OF CONCRETE WORKS.
- PAVEMENT DEPTHS MAY BE MODIFIED AS DIRECTED BY THE SUPERINTENDENT. PAVEMENT TO BE BOXED OUT TO MINIMUM DEPTH DENOTED, INSPECTED AND IF SUBGRADE IS IN QUESTION, FURTHER TESTING CARRIED OUT TO DETERMINE FINAL PAVEMENT DEPTH.
- WHERE PAVEMENT IS CONSTRUCTED ON FILLING, FILL MATERIAL IS TO BE APPROVED BY THE SUPERINTENDENT AND COUNCIL. FILLING TO BE CONSTRUCTED IN LAYERS 150mm THICK WITH COMPACTION ACHIEVING 95% AUSTRALIAN STANDARD DENSITY.
- 24. WHEN PAVEMENT EXCAVATION IS IN ROCK ALL LOOSE MATERIAL (INCLUDING ROCKS AND

CLAY) MUST BE REMOVED. THE SUB-GRADE MUST THEN BE REGULATED WITH COUNCIL APPROVED MATERIAL

- 25. LINEMARKING AND SIGNAGE TO BE INSTALLED IN ACCORDANCE WITH AS 1742 SERIES UNLESS NOTED OTHERWISE. STREET SIGNS ARE TO BE INSTALLED IN ACCORDANCE WITH COUNCIL STANDARDS.
- 26. ALL TEMPORARY WARNING SIGNS USED DURING CONSTRUCTION SHALL BE SUPPLIED AND MAINTAINED IN ACCORDANCE WITH AS 1742-3.
- 27. TACTILE GROUND SURFACE INDICATORS ARE TO BE INSTALLED IN ACCORDANCE WITH THE DISABILITY DISCRIMINATION ACT AND RELEVANT COUNCIL STANDARD DRAWINGS.
- 28. CONTRACTOR TO PROVIDE AN ENVIRONMENTAL MANAGEMENT PLAN INCLUDING SILT AND SEDIMENT RUNOFF PROTECTION ETC. PRIOR TO THE COMMENCEMENT OF WORKS.
- 29. ALL TREES AND SHRUBS ARE TO BE RETAINED UNLESS OTHERWISE SHOWN. IF ROAD AND DRAINAGE CONSTRUCTION NECESSITATES THEIR REMOVAL. WRITTEN PERMISSION MUST BE OBTAINED FROM THE SUPERINTENDENT.
- 30. TREES NOT SPECIFIED FOR REMOVAL ARE TO BE PROTECTED WITH APPROPRIATE EXCLUSION FENCING PRIOR TO COMMENCEMENT OF ANY WORKS.



### WARNING

BEWARE OF UNDERGROUND/OVERHEAD SERVICES THE LOCATION OF SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN. SPECIAL CONSIDERATION SHOULD BE GIVEN TO CONSTRUCTION PROCEDURES UNDER OVERHEAD ELECTRICITY TRANSMISSION LINES.

А	PRELIMINARY ISSUE TO CLIENT	AW	MAY 2024
Rev	Amendments	Approved	Date





LOCALITY PLAN SCALE: NOT TO SCALE

## DRAWING SCHEDULE

DRAWING	DESCRIPTION	SHEET No.	REVISION
CF100	FACE SHEET – SHEET 1	1	А
CF200	KEY MAP – SHEET 1	2	А
CF201	DESIGN DRAWINGS – SHEET 2	3	А
CF202	DESIGN DRAWINGS – SHEET 3	4	А
CF203	DESIGN DRAWINGS – SHEET 4	5	А
CF300	CROSS SECTIONS - SHEET 1	6	А
CF400	TURNING TEMPLATES - SHEET 1	7	А
CF400	TURNING TEMPLATES – SHEET 2	8	А

## SERVICE LOCATION TABLE

		ROA
ROAD	1 (WESTERN)	
ROAD	1 (EASTERN)	
ROAD	2	
ROAD	3	
ROAD	4	
ROAD	5	
ROAD	6	
ROAD	7	
. TE	ELECOMMUNIC	ATIONS

AUTHORITY STANDARD DRG's. 2. × = OFFSET FROM BACK OF KERB



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16 BRIDGE STREET BENDIGO VICTORIA 3550 AUSTRALIA T 61 3 5448 2500 ABN 55 050 029 635 spiire.com.au

Designed C GYORFFY Authorised A WILKIE

Checked M RULE Date MAY 2024

## LEGEND

### DESCRIPTION WATER MAIN, VALVE AND HYDRANT WATER RECYCLED UNDERGROUND ELECTRICITY **OVERHEAD ELECTRICITY & POLE TELECOMMUNICATIONS & SERVICE PIT** OPTIC FIBRE OVERHEAD TELECOMMUNICATIONS GAS MAIN BRANCH SEWER & MAINTENANCE STRUCTURE SEWER & MAINTENANCE STRUCTURE SEWER RISING MAIN CENTRAL INVERT COUNCIL STORM WATER DRAIN AND PIT STORM WATER DRAINAGE PROPERTY INLETS COUNCIL STORMWATER PITS HOUSE DRAIN AG DRAIN AND FLUSHER MWC STORMWATER DRAIN & PIT MWC STORMWATER PITS GAS & WATER CONDUITS CONCRETE VEHICLE CROSSING

RIDGE / CHANGE OF GRADE LINE SURFACE CONTOUR MINOR SURFACE CONTOUR MAJOR SIGN AND POST PERMANENT SURVEY MARK

TEMPORARY BENCH MARK

BOLLARD

LIMIT OF WORKS

RETAINING WALL FENCE – TREE PROTECTION FENCE - VEHICLE EXCLUSION

FENCES

GUARD RAIL

OVERLAND FLOW PATH

LOT FALL DIRECTION LOT DIMENSION LOT AREA PARKED PASSENGER VEHICLE

KERB TRANSITION

— — — G — — —
<b>— — S — — —</b>
so
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EXISTING

— — — OT — — —

PROPOSED



 $\longrightarrow$ 16.94 451m<sup>2</sup> B2 - SM2

) NAME	POT/ WA	ABLE TER	NE (tele	BN ECOM)		ELECT	RICITY		
	CIDE	OFFCET	CIDE	OFFCET	PO	LE	U/G CABLE		
	SIDE	UFFSEI	SIDE	UFFSEI	SIDE	OFFSET	SIDE	OFFSET	
	WEST	1.60	WEST	1.00	WEST	1.0x	WEST	0.50	
	EAST	1.60	EAST	1.00	EAST	1.0x	EAST	0.50	
	NORTH	1.60	SOUTH	1.00	SOUTH	1.0x	SOUTH	0.50	
	NORTH	0.50	SOUTH	1.00	SOUTH	1.0 x	SOUTH	0.50	
	NORTH	0.50	SOUTH	1.00	SOUTH	1.0x	SOUTH	0.50	
	NORTH	1.60	SOUTH	1.00	SOUTH	1.0x	SOUTH	0.50	
	NORTH	0.50	SOUTH	1.00	SOUTH	1.0x	SOUTH	0.50	
	WEST	1.60	EAST	1.00	EAST	1.0 x	EAST	0.50	

S AND ELECTRICITY CABLES TO BE CONSTRUCTED IN A COMMON TRENCH IN ACCORDANCE WITH ELECTRICITY





Designed
C GYORFFY
Authorised

Checked
M RULE
Date

![](_page_45_Figure_0.jpeg)

				Scale								
				H 1:5	00	0	5	10	15	20	25	
				SLAL	ιωAI							
А	PRELIMINARY ISSUE TO CLIENT	MR	MAY 24									
Rev	Amendments	Approved	Date									
												—

![](_page_45_Picture_3.jpeg)

![](_page_45_Picture_5.jpeg)

![](_page_45_Picture_8.jpeg)

![](_page_46_Figure_0.jpeg)

esigned		
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![](_page_47_Figure_0.jpeg)

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![](_page_48_Figure_0.jpeg)

ted by Car \ACAD plo

Α

![](_page_48_Figure_2.jpeg)

![](_page_48_Figure_3.jpeg)

![](_page_48_Figure_5.jpeg)

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Designed C GYORFFY Authorised A WILKIE

![](_page_48_Picture_8.jpeg)

![](_page_48_Figure_9.jpeg)

![](_page_48_Picture_10.jpeg)

![](_page_49_Figure_0.jpeg)

ted by Carl VACAD plot

![](_page_50_Figure_0.jpeg)

![](_page_50_Figure_1.jpeg)

				Scale
А	PRELIMINARY ISSUE TO CLIENT	AW	MAY 2024	
Rev	Amendments	Approved	Date	

![](_page_50_Figure_4.jpeg)

Service Vehicle (8.8 m) Overall Length Overall Width Overall Body Height Min Body Ground Clearance Track Width Lock-to-lock time Curb to Curb Turning Radius

![](_page_50_Picture_6.jpeg)

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![](_page_50_Picture_8.jpeg)

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Checked
M RULE
Date
MAY 2024

![](_page_50_Picture_12.jpeg)

## 8.800m 2.500m 4.300m 0.427m 2.500m 4.00s 12.500m

VEHICLE WHEEL TRACK LINES VEHICLE OVERHANG LINES

IRONBARK ROAD STAGE 1 101/103 IRONBARK RD, MUSWELLBRO FUNCTIONAL LAYOUT PLAN TURNING TEMPLATES - SHEET 2	OK
MUSWELLBROOK SHIRE COUNCIL FREEDOM DEVELOPMENT GROUP PTY LTD	
Drg No	Rev
322142-001CF401	Α

![](_page_51_Picture_0.jpeg)

Appendix F

SIDRA movement summaries

### SITE LAYOUT

#### V Site: 101 [New England Hwy & Bimbadeen Dr Existing AM 2023 (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.

![](_page_52_Figure_4.jpeg)

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## V Site: 101 [New England Hwy & Bimbadeen Dr Existing AM 2023 (Site Folder: General)]

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

Vehi	icle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU	UT IMES	DEM/ FLO	AND WS	Deg. Satn	Aver. Delay	Level of Service	95% BA QUI	ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	h: Bim	badeen D	r (S)											
1	L2	205	3.0	205	3.0	0.248	7.1	LOS A	1.0	6.9	0.50	0.72	0.50	48.0
3	R2	20	0.0	20	0.0	0.074	15.9	LOS B	0.2	1.7	0.73	0.87	0.73	43.1
Appr	oach	225	2.7	225	2.7	0.248	7.9	LOS A	1.0	6.9	0.52	0.74	0.52	47.6
East	New	England H	Hwy (E)											
4	L2	4	0.0	4	0.0	0.002	5.7	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	403	14.0	403	14.0	0.225	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	407	13.9	407	13.9	0.225	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West	t: New	England	Hwy (W)											
11	T1	285	12.0	285	12.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	78	2.0	78	2.0	0.088	7.8	LOS A	0.3	2.4	0.47	0.69	0.47	48.5
Appr	oach	363	9.9	363	9.9	0.088	1.7	NA	0.3	2.4	0.10	0.15	0.10	57.1
All Vehio	cles	995	9.9	995	9.9	0.248	2.5	NA	1.0	6.9	0.16	0.22	0.16	55.6

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Existing PM 2023 (Site Folder: General)]

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

Vehi	icle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VO <u>LL</u>	UT IMES	DEM FLO	AND WS	Deg. Satn	Aver. Dela <u>y</u>	Level of Service	95% BA Q <u>UI</u>	ACK OF EUE	Prop. Qu <u>e</u>	Effective Stop	Aver. No.	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	h: Bim	badeen D	)r (S)											
1	L2	119	4.0	119	4.0	0.150	7.2	LOS A	0.5	3.9	0.49	0.71	0.49	48.0
3	R2	15	0.0	15	0.0	0.088	24.1	LOS B	0.3	1.9	0.83	0.92	0.83	39.3
Appr	oach	134	3.6	134	3.6	0.150	9.1	LOS A	0.5	3.9	0.53	0.73	0.53	46.8
East	: New I	England H	Hwy (E)											
4	L2	37	0.0	37	0.0	0.020	5.8	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	441	8.0	441	8.0	0.238	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	478	7.4	478	7.4	0.238	0.5	NA	0.0	0.0	0.00	0.04	0.00	59.3
West	t: New	England	Hwy (W)	1										
11	T1	403	12.0	403	12.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	157	2.0	157	2.0	0.190	8.4	LOS A	0.8	5.4	0.53	0.75	0.53	48.1
Appr	oach	560	9.2	560	9.2	0.190	2.4	NA	0.8	5.4	0.15	0.21	0.15	56.1
All Vehio	cles	1172	7.8	1172	7.8	0.238	2.4	NA	0.8	5.4	0.13	0.20	0.13	56.1

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 100 lots AM 2023 (Site Folder: General)]

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

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INF VOLL	PUT JMES	DEM, FLO	AND WS	Deg. Satn	Aver. Delay	Level of Service	95% BA QUI	ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist ] m		Rate	Cycles	km/h
Sout	h: Bim	badeen D	Dr (S)											
1	L2	267	3.0	267	3.0	0.323	7.6	LOS A	1.5	10.5	0.53	0.78	0.59	47.8
3	R2	26	0.0	26	0.0	0.099	16.6	LOS B	0.3	2.2	0.74	0.88	0.74	42.8
Appr	oach	293	2.7	293	2.7	0.323	8.4	LOS A	1.5	10.5	0.55	0.79	0.61	47.3
East:	New I	England I	Hwy (E)											
4	L2	5	0.0	5	0.0	0.003	5.7	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	403	14.0	403	14.0	0.225	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	408	13.8	408	13.8	0.225	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West	: New	England	Hwy (W)											
11	T1	285	12.0	285	12.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	94	2.0	94	2.0	0.106	7.8	LOS A	0.4	2.9	0.48	0.69	0.48	48.4
Appr	oach	379	9.5	379	9.5	0.106	1.9	NA	0.4	2.9	0.12	0.17	0.12	56.6
All Vehic	cles	1080	9.3	1080	9.3	0.323	3.0	NA	1.5	10.5	0.19	0.28	0.21	54.8

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 100 lots PM 2023 (Site Folder: General)]

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

Vehi	cle M	ovemen	t Perfor	mance										
Mov	Turn	INF	UT	DEM	AND	Deg.	Aver.	Level of	95% BA	ACK OF	Prop.	Effective	Aver.	Aver.
ID		VOLL	JMES	FLO	WS	Satn	Delay	Service	QUE	EUE	Que	Stop	No.	Speed
		[ Total	HV ]	[ Total	HV ]				[Veh.	Dist ]		Rate	Cycles	1 /1
		ven/h	%	ven/n	%	V/C	sec		ven	m				Km/h
Sout	h: Bim	badeen L	)r (S)											
1	L2	135	4.0	135	4.0	0.170	7.2	LOS A	0.6	4.5	0.49	0.72	0.49	48.0
3	R2	17	0.0	17	0.0	0.113	27.3	LOS B	0.3	2.4	0.86	0.93	0.86	38.0
Appr	oach	152	3.6	152	3.6	0.170	9.5	LOS A	0.6	4.5	0.53	0.74	0.53	46.6
East	New I	England I	Hwy (E)											
4	L2	51	0.0	51	0.0	0.027	5.9	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	441	8.0	441	8.0	0.238	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	492	7.2	492	7.2	0.238	0.7	NA	0.0	0.0	0.00	0.06	0.00	59.2
West	: New	England	Hwy (W)											
11	T1	403	12.0	403	12.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	215	2.0	215	2.0	0.264	8.7	LOS A	1.1	8.1	0.56	0.79	0.58	47.8
Appr	oach	618	8.5	618	8.5	0.264	3.1	NA	1.1	8.1	0.20	0.28	0.20	55.1
All Vehic	cles	1262	7.4	1262	7.4	0.264	2.9	NA	1.1	8.1	0.16	0.25	0.16	55.4

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.

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 200 lots AM 2023 (Site Folder: General)]

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

Vehi	icle M	ovemen	t Perfor	mance										
Mov	Turn	INF	UT	DEM	AND	Deg.	Aver.	Level of	95% BA	ACK OF	Prop.	Effective	Aver.	Aver.
ID		VOLL	JMES	FLO	WS	Satn	Delay	Service	QUI	EUE	Que	Stop	No.	Speed
		[ Total	HV ]	[ Total	HV ]				[Veh.	Dist ]		Rate	Cycles	I
Sout	h∙ Rim	ven/n badeen F	%)r (S)	ven/n	%	V/C	sec	_	ven	m	_	_	_	Km/n
Sout			л (O)											
1	L2	329	3.0	329	3.0	0.398	8.1	LOS A	2.1	15.1	0.55	0.83	0.70	47.5
3	R2	32	0.0	32	0.0	0.126	17.2	LOS B	0.4	2.9	0.76	0.89	0.76	42.5
Appr	oach	361	2.7	361	2.7	0.398	8.9	LOS A	2.1	15.1	0.57	0.84	0.70	47.0
East	: New I	England I	Hwy (E)											
4	L2	6	0.0	6	0.0	0.003	5.7	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	403	14.0	403	14.0	0.225	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	409	13.8	409	13.8	0.225	0.1	NA	0.0	0.0	0.00	0.01	0.00	59.8
West	t: New	England	Hwy (W)											
11	T1	285	12.0	285	12.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	110	2.0	110	2.0	0.124	7.8	LOS A	0.5	3.5	0.49	0.70	0.49	48.4
Appr	oach	395	9.2	395	9.2	0.124	2.2	NA	0.5	3.5	0.14	0.20	0.14	56.2
All Vehio	cles	1165	8.8	1165	8.8	0.398	3.5	NA	2.1	15.1	0.22	0.33	0.26	54.1

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 200 lots PM 2023 (Site Folder: General)]

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

Vehi	icle M	ovemen	t Perfor	mance										
Mov	Turn	INF	PUT	DEM	AND	Deg.	Aver.	Level of	95% BA	ACK OF	Prop.	Effective	Aver.	Aver.
ID		VOLL	JMES	FLO	WS	Satn	Delay	Service	QUI	EUE	Que	Stop	No.	Speed
		[ Total	HV ]	[ Total	HV ]				[Veh.	Dist ]		Rate	Cycles	1 /1
		ven/n	%	ven/n	%	V/C	sec		ven	m				Km/h
Sout	h: Bim	badeen L	or (S)											
1	L2	151	4.0	151	4.0	0.191	7.3	LOS A	0.7	5.1	0.50	0.72	0.50	47.9
3	R2	19	0.0	19	0.0	0.144	30.8	LOS C	0.4	3.0	0.88	0.94	0.88	36.7
Appr	oach	170	3.6	170	3.6	0.191	9.9	LOS A	0.7	5.1	0.54	0.75	0.54	46.4
East:	: New I	England I	Hwy (E)											
4	L2	65	0.0	65	0.0	0.035	6.0	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	441	8.0	441	8.0	0.238	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	506	7.0	506	7.0	0.238	0.8	NA	0.0	0.0	0.00	0.07	0.00	59.0
West	t: New	England	Hwy (W)											
11	T1	403	12.0	403	12.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	273	2.0	273	2.0	0.340	9.4	LOS A	1.7	12.3	0.59	0.86	0.70	47.4
Appr	oach	676	8.0	676	8.0	0.340	3.8	NA	1.7	12.3	0.24	0.35	0.28	54.2
All Vehic	cles	1352	7.0	1352	7.0	0.340	3.5	NA	1.7	12.3	0.19	0.29	0.21	54.7

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 300 lots AM 2023 (Site Folder: General)]

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

Vehi	icle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VOLL	UT IMES	DEM. FLO	AND WS	Deg. Satn	Aver. Delay	Level of Service	95% B/ QU	ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	h: Bim	badeen D	)r (S)											
1	L2	391	3.0	391	3.0	0.473	8.6	LOS A	2.9	20.7	0.59	0.89	0.81	47.1
3	R2	38	0.0	38	0.0	0.154	17.9	LOS B	0.5	3.5	0.77	0.89	0.77	42.2
Appr	oach	429	2.7	429	2.7	0.473	9.5	LOS A	2.9	20.7	0.60	0.89	0.81	46.6
East	New I	England I	Hwy (E)											
4	L2	7	0.0	7	0.0	0.004	5.7	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	403	14.0	403	14.0	0.225	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	410	13.8	410	13.8	0.225	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.8
West	t: New	England	Hwy (W)	1										
11	T1	285	12.0	285	12.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	126	2.0	126	2.0	0.142	7.9	LOS A	0.6	4.0	0.49	0.71	0.49	48.4
Appr	oach	411	8.9	411	8.9	0.142	2.4	NA	0.6	4.0	0.15	0.22	0.15	55.9
All Vehio	cles	1250	8.4	1250	8.4	0.473	4.1	NA	2.9	20.7	0.26	0.38	0.33	53.4

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.

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 300 lots PM 2023 (Site Folder: General)]

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

Vehi	icle M	ovemen	t Perfor	mance										
Mov	Turn	INF	PUT	DEM	AND	Deg.	Aver.	Level of	95% BA	ACK OF	Prop.	Effective	Aver.	Aver.
ID		VOLL	JMES	FLO	WS	Satn	Delay	Service	QUI	EUE	Que	Stop	No.	Speed
		[ Total	HV ]	[ Total	HV ]				[Veh.	Dist ]		Rate	Cycles	I
Sout	h <sup>.</sup> Bim	ven/n badeen F	% )r (S)	ven/n	%	V/C	sec	_	ven	m	_	_	_	Km/n
Cout			, (0)											
1	L2	167	4.0	167	4.0	0.211	7.3	LOS A	0.8	5.7	0.50	0.73	0.50	47.9
3	R2	21	0.0	21	0.0	0.180	35.6	LOS C	0.5	3.8	0.90	0.96	0.93	35.0
Appr	oach	188	3.6	188	3.6	0.211	10.5	LOS A	0.8	5.7	0.55	0.76	0.55	46.0
East	: New I	England I	Hwy (E)											
4	L2	79	0.0	79	0.0	0.043	6.2	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	441	8.0	441	8.0	0.238	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	520	6.8	520	6.8	0.238	1.0	NA	0.0	0.0	0.00	0.09	0.00	58.8
West	t: New	England	Hwy (W)											
11	T1	403	12.0	403	12.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	331	2.0	331	2.0	0.419	10.2	LOS A	2.4	17.3	0.63	0.92	0.84	47.0
Appr	oach	734	7.5	734	7.5	0.419	4.6	NA	2.4	17.3	0.28	0.41	0.38	53.3
All Vehic	cles	1442	6.7	1442	6.7	0.419	4.1	NA	2.4	17.3	0.22	0.34	0.26	54.0

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 400 lots AM 2023 (Site Folder: General)]

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

Vehi	cle M	ovemen	t Perfor	mance										
Mov	Turn	INF	TUY	DEM	AND	Deg.	Aver.	Level of	95% BA	ACK OF	Prop.	Effective	Aver.	Aver.
ID		VOLL	JMES	FLO	WS	Satn	Delay	Service	QUI	EUE	Que	Stop	No.	Speed
		[ Total	HV ]	[ Total	HV ]				[Veh.	Dist ]		Rate	Cycles	
		veh/h	%	veh/h	%	V/C	sec		veh	m				km/h
Sout	h: Bim	badeen D	0r (S)											
1	L2	453	3.0	453	3.0	0.548	9.3	LOS A	3.9	27.6	0.62	0.96	0.95	46.7
3	R2	44	0.0	44	0.0	0.184	18.8	LOS B	0.6	4.3	0.78	0.90	0.80	41.7
Appr	oach	497	2.7	497	2.7	0.548	10.1	LOS A	3.9	27.6	0.64	0.96	0.94	46.2
East:	New I	England I	Hwy (E)											
4	L2	8	0.0	8	0.0	0.004	5.8	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	403	14.0	403	14.0	0.225	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	411	13.7	411	13.7	0.225	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.7
West	: New	England	Hwy (W)											
11	T1	285	12.0	285	12.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	142	2.0	142	2.0	0.160	7.9	LOS A	0.6	4.6	0.50	0.72	0.50	48.3
Appr	oach	427	8.7	427	8.7	0.160	2.6	NA	0.6	4.6	0.17	0.24	0.17	55.5
All Vehic	cles	1335	8.0	1335	8.0	0.548	4.7	NA	3.9	27.6	0.29	0.44	0.40	52.7

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 400 lots PM 2023 (Site Folder: General)]

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

Vehi	icle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VOLL	UT IMES	DEM, FLO	AND WS	Deg. Satn	Aver. Delay	Level of Service	95% B/ QUI	ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[ Total veh/h	HV ] %	[ Total veh/h	HV ] %	v/c	sec		[ Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	h: Bim	badeen D	)r (S)											
1	L2	183	4.0	183	4.0	0.231	7.4	LOS A	0.9	6.4	0.51	0.74	0.51	47.9
3	R2	23	0.0	23	0.0	0.225	41.7	LOS C	0.7	4.8	0.91	0.98	0.98	33.1
Appr	oach	206	3.6	206	3.6	0.231	11.2	LOS A	0.9	6.4	0.56	0.76	0.56	45.6
East	New I	England I	Hwy (E)											
4	L2	93	0.0	93	0.0	0.050	6.3	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	441	8.0	441	8.0	0.238	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	534	6.6	534	6.6	0.238	1.2	NA	0.0	0.0	0.00	0.10	0.00	58.7
West	t: New	England	Hwy (W)	1										
11	T1	403	12.0	403	12.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	389	2.0	389	2.0	0.501	11.0	LOS A	3.3	23.7	0.66	0.97	0.99	46.4
Appr	oach	792	7.1	792	7.1	0.501	5.4	NA	3.3	23.7	0.33	0.48	0.49	52.4
All Vehio	cles	1532	6.4	1532	6.4	0.501	4.7	NA	3.3	23.7	0.24	0.38	0.33	53.3

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 500 lots AM 2023 (Site Folder: General)]

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

Vehi	cle M	ovemen	t Perfor	mance										
Mov	Turn	INF	TUY	DEM	AND	Deg.	Aver.	Level of	95% BA	ACK OF	Prop.	Effective	Aver.	Aver.
ID		VOLL	JMES	FLO	WS	Satn	Delay	Service	QUI	EUE	Que	Stop	No.	Speed
		[ Total	HV ]	[ Total	HV ]				[Veh.	Dist ]		Rate	Cycles	
		veh/h	%	veh/h	%	V/C	sec		veh	m				km/h
Sout	h: Bim	badeen D	)r (S)											
1	L2	515	3.0	515	3.0	0.623	10.1	LOS A	5.1	36.6	0.66	1.04	1.12	46.2
3	R2	50	0.0	50	0.0	0.215	19.9	LOS B	0.7	5.2	0.80	0.92	0.85	41.2
Appr	oach	565	2.7	565	2.7	0.623	11.0	LOS A	5.1	36.6	0.68	1.03	1.10	45.7
East:	New I	England I	Hwy (E)											
4	L2	9	0.0	9	0.0	0.005	5.8	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	403	14.0	403	14.0	0.225	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Appr	oach	412	13.7	412	13.7	0.225	0.2	NA	0.0	0.0	0.00	0.01	0.00	59.7
West	: New	England	Hwy (W)											
11	T1	285	12.0	285	12.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	60.0
12	R2	158	2.0	158	2.0	0.179	8.0	LOS A	0.7	5.2	0.50	0.72	0.50	48.3
Appr	oach	443	8.4	443	8.4	0.179	2.9	NA	0.7	5.2	0.18	0.26	0.18	55.2
All Vehic	cles	1420	7.7	1420	7.7	0.623	5.3	NA	5.1	36.6	0.33	0.49	0.49	52.1

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.

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## V Site: 101 [New England Hwy & Bimbadeen Dr Proposed 500 lots PM 2023 (Site Folder: General)]

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

Vehicle Movement Performance														
Mov Turn		INPUT		DEMAND		Deg.	Aver.	Level of	95% BA	ACK OF	Prop.	Effective	Aver.	Aver.
ID		VOLUMES		FLOWS		Satn	Delay	Service	QUI	EUE	Que	Stop	No.	Speed
		[ Total	HV ]	[ Total	HV ]				[Veh.	Dist ]		Rate	Cycles	1 /1
0 11		ven/n	%	ven/h	%	V/C	sec		ven	m				Km/h
Sout	h: Bim	badeen L	or (S)											
1	L2	199	4.0	199	4.0	0.251	7.4	LOS A	1.0	7.1	0.52	0.75	0.52	47.8
3	R2	25	0.0	25	0.0	0.279	49.2	LOS D	0.9	6.0	0.93	0.99	1.03	31.0
Appr	oach	224	3.6	224	3.6	0.279	12.1	LOS A	1.0	7.1	0.56	0.77	0.58	45.1
East: New England Hwy (E)														
4	L2	107	0.0	107	0.0	0.058	6.5	LOS A	0.0	0.0	0.00	0.58	0.00	53.6
5	T1	441	8.0	441	8.0	0.238	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
Approach		548	6.4	548	6.4	0.238	1.3	NA	0.0	0.0	0.00	0.11	0.00	58.5
West: New England Hwy (W)														
11	T1	403	12.0	403	12.0	0.112	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	59.9
12	R2	447	2.0	447	2.0	0.586	12.2	LOS A	4.5	31.8	0.70	1.04	1.19	45.8
Appr	oach	850	6.7	850	6.7	0.586	6.4	NA	4.5	31.8	0.37	0.55	0.63	51.6
All Vehic	cles	1622	6.2	1622	6.2	0.586	5.5	NA	4.5	31.8	0.27	0.43	0.41	52.6

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.

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