SUBMISSION TO CAMPBELLTOWN CITY COUNCIL – PLANNING PROPOSAL REQUEST

Various Parcels of Land Situated between Taber Street, Racecourse Avenue, Fitzpatrick Street and Cummins Road, MENANGLE PARK

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MENANGLE PARK (EAST VILLAGE) PLANNING PROPOSAL REQUEST

The Menangle Park (East Village) Planning Proposal Request (EVPPR) has been prepared based on agreed requirements as understood by Michael Brown Planning Strategies Pty Ltd at the time of commissioning and investigation.

The conclusions and recommendations contained in this report are based on an honest appraisal of the opportunities and constraints existing on the site at the time of investigation and were subject to the limited scope and resources available.

The report applies only to the land defined by the Menangle Park (East Village) Planning Proposal Request and other interpretations should not be made, including changes in scale or application to other projects. Within the confines of the above statements, this report does not contain any incomplete or misleading information.

Report prepared by Michael Brown

Director, Michael Brown Planning Strategies Pty Ltd

Date December 2021

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APPENDICES

1 Executive Summary

The Menangle Park Urban Release Area (MPURA) was rezoned in November 2017 after more than a decade long planning phase. The relevant LEP amendment and site-specific Development Control Plan amendment provided comprehensive planning controls for development of approximately 3,400 dwellings, support infrastructure and conservation outcomes.

Since the rezoning of the MPURA, the Dahua Group (DG) lodged a Planning Proposal with Campbelltown Council to rezone the lands within the DG landholding as follows:

"Amend planning controls as applicable to the Menangle Park Urban Release Area to expand and rationalise current urban zonings, realign some existing zones, introduce the R4 High Density zone, relocate the B2 Local Centre, introduce a B1 Neighbourhood Centre zone and two critically endangered communities for conservation".

The Dahua Group Planning Proposal was placed on public exhibition in September 2021 and the exhibition period closed in September 2021. This firm made a submission to the public exhibition on behalf of the group of owners that form part of the EVPPR in support of the DG proposal to rezone their landholding.

1.1 PREAMBLE

The Menangle Park (East Village) Planning Proposal Request (EVPPR) (Amendment 2021) identifies a number of strategic documents which have been prepared by State and local government that are generally applicable to the south-west region of Sydney and/or Campbelltown Council itself. It is emphasised that these reports are only summarised as a contextual reference to the development that may occur at Menangle Park.

The purpose of this submission is to request that Campbelltown City Council support and prepare a Planning Proposal that amends Campbelltown Local Environmental Plan 2015 by amending the zoning of the lands identified below in **Table 1** from R2 Low Density Residential to part R3 Medium Density Residential, part R4 High Density Residential and part RE1 Public Recreation. The proposal also involves amending the heights of building map and including a floor space ratio (FSR).

Menangle Park is on the cusp of major change. With the Glenfield to Macarthur Urban Renewal Corridor Strategy now in place, a catalyst project is needed to jumpstart activity. With the site sitting along the existing Main Southern Railway Line, there is an opportunity to set the tone for positive change in Menangle Park, particularly as the land adjoins the proposed Dahua Group Town Centre site.

The proposed design response, which is outlined in detail in this report, can act as a catalyst for the long-term vision of Menangle Park to transition from a low-density residential area to a medium and high-density residential precinct that is vibrant and pedestrian friendly for both locals and visitors.

The site is bound by:

- Fitzpatrick Street along the full extent of the northern boundary,

- Taber Street along the full extent of the southern boundary with dwellings on both sides and significant trees,
- Racecourse Avenue to the west and Cummins Road to the east, both of which further connects to Menangle Road and leads to Macarthur and Campbelltown.

The land consists of 19 parcels and is legally described as below (refer to **Figure 1)**:

- Lot 1 DP 389348, Lot 56 DP 1102480, Lot 52 & 55 DP 10718, Lot A & B DP 364350 and Lot A DP 341800 No's 12-46 Fitzpatrick Street.
- Lot 40, 41, 47, 48, 49, 50 & 51 DP 10718 No's 182 - 232 Racecourse Avenue.
- Lot 39, 42, 43, 44, 45 and 46 DP 10718 No's 1 - 41 Taber Street.
- Lot 58 & 57 DP 10718 No's 111 and 121 Cummins Street.

The site has a gentle slope from the south-east to the north-west. It is low lying within the wider landscape with creek corridors to the north-east and west, and local ridgelines towards the north, south-east and the southwest. It is predominantly rural in character and includes small rural land holdings with residential development of low height and density. Lots are typically large with single dwellings separated by wide open setbacks. The dwellings generally have a large front setback to the street and are predominantly single storey brick buildings with pitched roofs.

A large portion of the site is relatively open and grassed, with scattered trees and groups of established vegetation including: a cluster of mature vegetation on the corner of Cummins Road and Fitzpatrick Street, treed boundary lines separating the lots along the southern edge of the site and a visually significant stand of mature trees towards the centre of the northern boundary separating 12 and 26 Fitzpatrick Street.

Parts of the open space is used for grazing by small hobby farmers, associated open shelters for these animals are present particularly along Fitzpatrick Street.

1.2 OVERVIEW

This Report represents the formative phase in the development of a Planning Proposal geared toward the rezoning of the lands at Menangle Park (East Village), Menangle Park, as detailed in Section 4 below. The rezoning is to be effected through the preparation of a relevant Local Environmental Plan (LEP) amendment, it being proposed to amend Campbelltown LEP 2015.

The site adjoins the Menangle Park Railway Station and is accessed off Menangle Road and Cummins Road.

1.3 SCOPE OF REPORT

The preparation of a local environmental plan now starts with a Planning Proposal (PP). The PP is a document which explains the objectives, intended effect of, and justification for a rezoning proposal.

This PP has been prepared in accordance with section 3.33 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and relevant Department of Planning and Infrastructure Guidelines including "*A Guide to Preparing Local Environmental Plans*" and "*A Guide to Preparing Planning Proposals*".

As outlined in '*A Guide to Preparing Planning Proposals*' the Planning Proposal will evolve throughout the course of preparing the amending LEP as relevant sections will be updated and amended in response to the outcomes of technical investigations and consultation.

The latter document requires the Planning Proposal to be provided in six (6) parts, being:

Part 1 Objectives and intended outcomes of the proposed instrument.

Part 2 Explanation of provisions that are to be included in the proposed instrument.

Part 3 Justification for those objectives, outcomes and the process for their implementation.

Part 4 Mapping to identify the intent of the planning proposal and the area to which it applies.

Part 5 Details of the community consultation that is to be undertaken on the planning proposal.

Part 6 Project timeline for the planning proposal.

The justification for the Planning Proposal can also be understood in the context of meeting State Government targets for housing, particularly within an urban release area such as Menangle Park with ready access to public transport.

This submission discusses a number of key findings and observations MBPS have identified during the literature review of all relevant planning documents with a special focus on the future vision and built form outcome for the '*Town Centre*' to the east of the subject site. Our conclusion is that there is an opportunity for the sites located in Menangle Park (East Village) to form a 'Northern Gateway' and centre focal node that provides an improved 'sense of arrival' into the Town Centre area and announces and anchors the northern end. We consider this strategy will assist in actively tying the area into one visually as well as in the future, physically.

Translation of the existing and proposed scale and reinforce the sense of place and create a vibrant and sustainable community in the northern part of the Menangle Park Village. This approach will support the infrastructure upgrades as required by State Government and Campbelltown City Council, including the Spring Farm Parkway, which is a vital transport link from the Camden Bypass to the Hume Highway and Appin Road.

The detailed vision for the 'East Village' precinct and the potential built form and height strategy for the subject site is discussed in the later section of this submission and included in the documents prepared by Urbis that accompany this EVPPR at **Appendix A**.

1.4 REPORT STRUCTURE

This report, in preparing an outline Planning Proposal (PP), is structured in the following manner:

Section A - Need for the Planning Proposal.
Section B - Relationship to strategic planning framework.
Section C - Environmental, social and economic impact.
Section D - State and Commonwealth interests.

These Guidelines will be addressed below under the various headings. This report is the initial Planning Proposal report to be submitted to enable Council to formally resolve to proceed with the rezoning of the land in accordance with the requirements of the EP& A Act.

2 The Subject Land

2.1 LAND DESCRIPTION

The subject site is described as various properties in Menangle Park (East Village), Menangle Park (refer to Section 1.1 above and **Figure 1** below).

2.2 CONTEXT

Menangle Park is located approximately 5 km from Campbelltown CBD and is located on Railway Stations on the Cumberland, Airport, Inner West and South Lines.

The site is generally bound by the Nepean River to the south and west, the Hume Highway (M31) to the east and The Australian Botanic Gardens Mount Annan to the north. The Main Southern Railway Line dissects the MPURA in a north south direction and the planned Spring Farm Parkway is planned to be constructed along the northern edge of Howes Creek.

The site comprises a number of allotments of variable size and has a total area of 19 hectares. The site in Menangle Park is an ideal location for a new medium-to-high density precinct for living and adjoins the proposed Town Centre to the east on the opposite side of Cummins Road. The precinct's current semi-rural character must evolve and diversify to respond to demands for improved urban environments and accommodate a growing population within the MPURA.

The landscape directly surrounding the site is characterised by relatively open rural land and typical features for example, unformed rural road edges and turfed swales, post and wire fences, isolated groups of remnant vegetation, riparian corridors that are identifiable by associate vegetation, hobby farms and shed structures.

Opportunities

- The visually significant stand of vegetation at the north-east corner of the site is retained and incorporated into the open-space strategy.
- A wide spatial separation between north-south aligned buildings is proposed approximately mid-way along Fitzpatrick Street. This separation creates a potential view corridor through the northern part of the site and allows for access to views of scenic features to the north.
- There is an opportunity for retention of some existing 'rural-character' streetscapes along the southern Taber Street boundary. Also, proposing lower development at this location will provide a better interface with the low-density zones within the southern block.
- The town centre proposed by Dahua presents greater development opportunities towards the northeastern corner of the site because of the proximity to amenities and employment.

FIGURE 1 – LOCATION OF SUBJECT SITE – AERIAL PHOTOGRAPH

2.3 CURRENT ZONING

The subject lands are zoned R2 Low Density Residential under the provisions of Campbelltown LEP 2015 (refer to **Figure 2** below). The zoning of the land contains a floor space ratio (FSR) restriction, minimum lot size and a height control (refer to **Figure 3** below).

Objectives of zone are:

- To provide for the housing needs of the community within a low-density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To enable development for purposes other than residential only if that development is compatible with the character of the living area and is of a domestic scale.
- To minimise overshadowing and ensure a desired level of solar access to all properties.
- To facilitate diverse and sustainable means of access and movement.

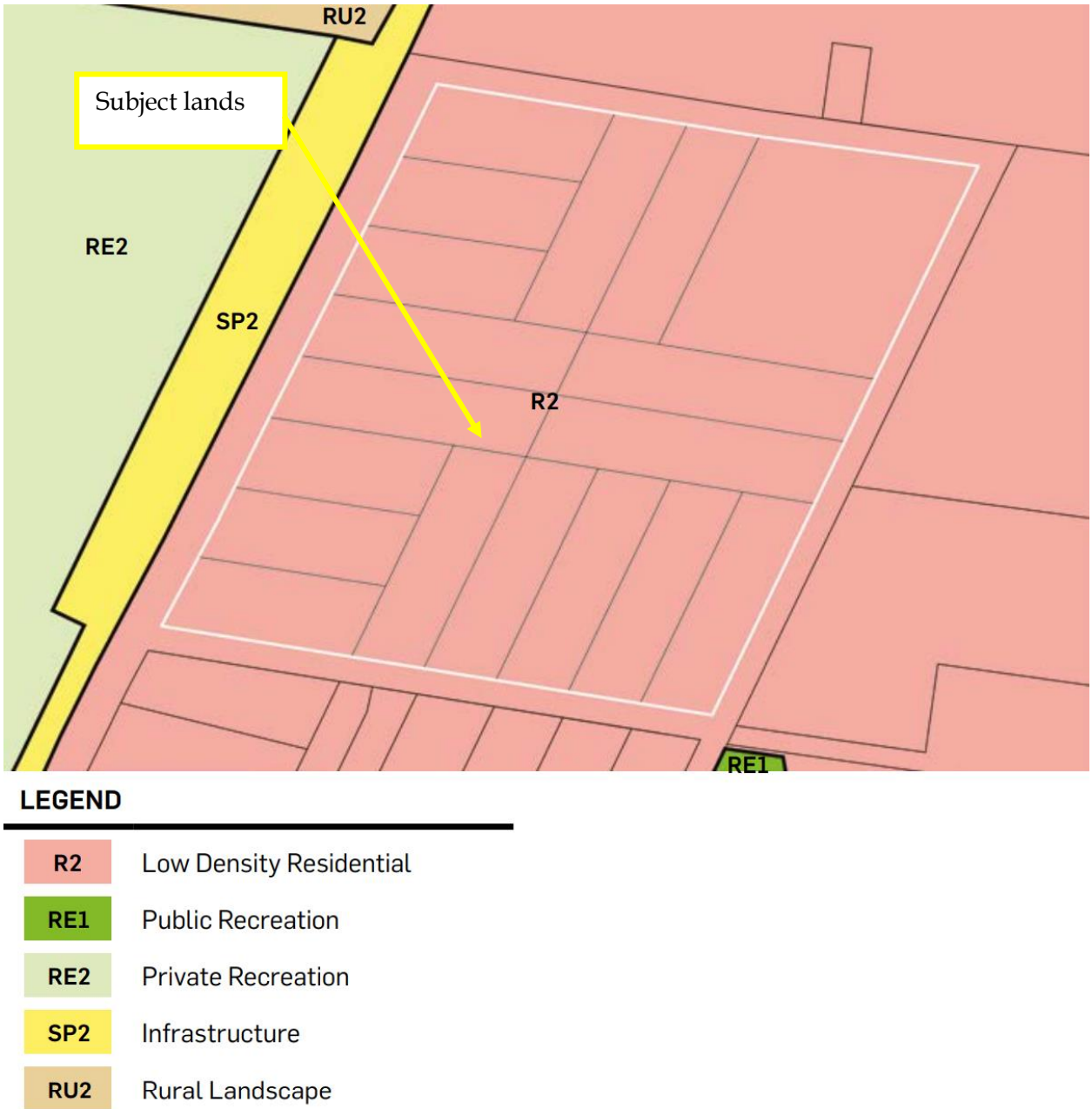
Permitted with consent

Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Home businesses; Home industries; Oyster aquaculture; Places of public worship; Pond-based aquaculture; Recreation areas; Recreation facilities (outdoor); Respite day care centres; Roads; Schools; Semi-detached dwellings; Tank-based aquaculture.

Prohibited

Any other development not specified in item 2 or 3.

FIGURE 2 – CURRENT ZONE



Under Clause 4.1 of the CLEP, a minimum lot size of 420m² applies. Under Clause 4.3, the CLEP provides for a height control of 8.5m, which is the same as a two-storey building (refer to **Figure 3** below).

FIGURE 3 – HEIGHTS OF BUILDING MAP

Under Clause 4.4, a FSR of 0.55:1 applies (**Figure 4**).

FIGURE 4 – FLOOR SPACE RATIO MAP

2.4 STRUCTURE PLAN

While this Planning Proposal seeks to amend the Campbelltown LEP 2015 by way of an amendment to the principal development controls through rezoning of the site to part R3 Medium Density Residential, R4 High Density Residential and part RE1 Public Recreation, including an increase in the height controls from 9m to 27.5m (tallest buildings), a Vision Report that includes massing and building forms has been prepared by Urbis to inform the desired height and density.

A copy of the report is included in **Appendix A** and a structure plan is provided in **Figure 5** below. The potential number of units is 2,179, an increase of 1,838 units above that potentially generated by the subdivision of the land in 420m² lots. The development scheme has allowed the testing of the performance of the scheme against the Apartment Design Guideline (ADG) requirements, including solar access and building separation. It also allows the calculation of an indicative yield, which is provided in **Table 1** below.

FIGURE 5 – STRUCTURE PLAN

The Structure Plan opens up a private site and transforms it into a public neighbourhood supported by close by retail, commercial and community uses. A diverse community for all benefited from access to public transport, major arterial roads, jobs and schools.

Establish a network of open spaces including:

- A Village Park at the northeastern corner of the site for enough buffer space to preserve the retained trees and family activities. A Central Park at the mid-point of Fitzpatrick Street for civic gatherings. Communal Open Spaces within each development lots.
- Landscape Zone along Taber Street to retain and enhance the current streetscape character.
- Wider Main Boulevard preserving view to the northern hills from Taber Street.
- Align the proposed development blocks and buildings with current ownership boundaries for the convenience of development to occur in stages.

TABLE 1 – YIELD ANALYSIS BY LOTS

Lot No.	Lot Size (sqm)	Building Type	GFA (sqm)	Terraces	No. of Dwellings
Lot 1	20,713	Apartments	11,888		347
			17,619		
Lot 2	5,968	Apartments	11,197		132
Lot 3	5,957	Apartments	12,308		145
Lot 4	25,658	Apartments	5,115		524
			15,786		
			23,674		
Lot 5	10,944	Apartments	6,881		101
		Terraces	4,084	20	
Lot 6	3,543	Apartments	5,010		59
Lot 7	3,546	Apartments	8,912		105
Lot 8	13,241	Apartments	9,918		249
		Apartments	11,281		
Lot 9	8,988	Terraces	6,409	34	34
Lot 10	2,887	Apartments	4,959		58
Lot 11	2,895	Apartments	4,972		58
Lot 12	10,846	Apartments	3,826		268
		Apartments	18,984		
Lot 13	13,095	Terraces	9,255	46	46
Lot 14	14,630	Terraces	10,429	52	52
Total	**142,909**		**202,507**	**152**	**2,179**

Table 3 Development Capacity Comparison

	No. of Dwellings
Development Capacity Under Current Zoning (R2)	340
Development Capacity Under Proposed Scheme	2,179
Proposed Uplift	**1,838**

Establish built forms that are responsive to the context:

- Locate taller forms closer to the future town centre and lower townhouses facing the future R2 zone.
- Establish edge-defining built forms facing the open spaces and main corridors to enable greater legibility and also maximize view to green spaces.

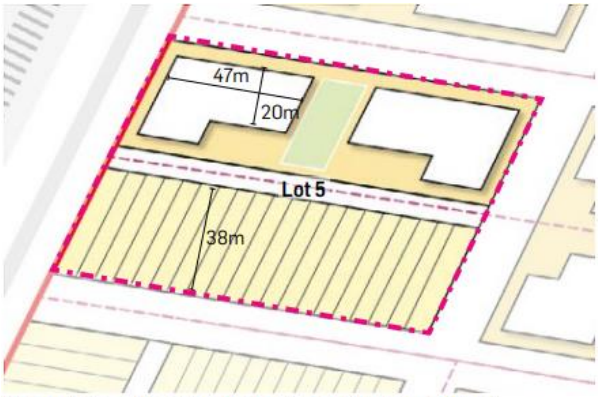
Increase site's permeability with a tier of proposed streets:

- Active Transport network including a primary green Main Boulevard with cycleways connecting Taber Street and the Central Park, active transport links connecting Racecourse Avenue and the Future Town Centre via Village Park and Central Park.
- Distributing vehicular traffic across a grid of local streets for greater connectivity.
- Access Laneways rear lane access within the townhouse zones.
- Through-site connection to further augment the permeability of the developable blocks.

2.4.1 BLOCK TYPOLOGY ANALYSIS

The dimensions of the proposed blocks have left the flexibility for the development to take place in various typologies, subject to the market demand. In the cases of Lot 5 and Lot 8 for example, following scenarios are considered:

- **Scenario 1**: The apartment is located to the north and terraces dwellings to the south.
- **Scenario 2:** Higher density version with apartments across the entire block.
- **Scenario 3:** Lower density version with terraces across the entire block.



Scenario 1 - Apartments to the north and a row of terraces to the south

3 Part 1 – Statement of Objectives or Intended Outcomes of the Planning Proposal Request

This section of the Planning Proposal Request sets out the objectives and intended outcomes of the proposed amendment to Campbelltown LEP 2015.

This Menangle Park (East Village) Planning Proposal Request (EVPPR) has the express purpose of facilitating the development of the site from a semi-rural site to a modern residential development, with a diverse mixed built form typologies that will activate the site nestled within a scenic landscaped setting. In this regard, Menangle Park (East Village) will complement the form of development that will occur within the Menangle Park Town Centre.

Therefore, the objectives of the Planning Proposal are:

- Facilitate the provision of additional housing close to public transport, the arterial road network, employment opportunities in the various centres, including Menangle Park Town Centre.
- Provide for a residential development that is compatible with future surrounding character.
- Retain and enhance the leafy character along Taber Street and preserve the trees at the northeastern corner of the site.
- Create walkability to transport and employment and increase permeability.
- Establish a rural-style landscape zone along Taber Street to enhance local streetscape.
- Create an open space at the Fitzpatrick Street and Cummins Road intersection around the retained tree group.
- Protect the critically endangered *Elderslie Banksia Scrub.*
- Promote use of public transport and decrease the reliance on private motor vehicles.
- Create an opening around the mid-way location of Fitzpatrick Street as a place for community to meet and gather.
- Introduce a wider central north-south running corridor and preserve a view corridor to the further northern scenic features.
- Create active transport network that connect the proposed landscape features and establish a sense of place.
- Provide appropriate development controls for the site to facilitate a high-density residential development that is consistent with the outcomes of the Menangle Park Precinct.
- Arrange taller apartment forms close to the future town centre proposed by Dahua's planning proposal at the northeastern corner of the site.
- Locate lower townhouses towards the southern boundary of the site to provide a smoother transition in scale to the proposed future low-density zones within the block to the south of the site.
- The landscape strip along Taber Street will contribute to mitigating the impacts brought by the developments within the site.
- The scale of the blocks are determined by the establishment of an urban grain that is permeable to pedestrians and cyclists.
- Additional through-site links within private development lots further augment the permeability of the precinct.
- Align the road with current land ownership to allow the development to occur in stages.
- Support Campbelltown's role as a regional city.

4 Part 2 – Explanation of Provisions

The provisions of the Plan involve amendment of Campbelltown Local Environmental Plan 2015 by:

- Amending the land use zoning and the principal development standards of the site to part R3 Medium Density Residential, part R4 High Density Residential and part RE1 Public Recreation – LZN_003.
- Amending the Heights of Building Map HOB_003 to (I), (J), (M), (N), (R), (S) and (T).
- Amending the Floor Space Ratio Map FSR_003 to (E), (I), (N), (R) and (S).
- Amending the Minimum Lot Size Map LSZ_003.

The EVPPR will be the subject of a future amendment to the prevailing Development Control Plan. This companion planning document will be the subject of separate public consultation.

The above amendments will facilitate the future redevelopment of the site in accordance with the objectives of the R3 Medium Density Residential, R4 High Density Residential and RE1 Public Recreation and the permissible land uses, with the consent of Council and the Department of Planning, Industry and Environment. The objectives and permitted uses are provided below:

Zone R3 Medium Density Residential

1 Objectives of zone

- To provide for the housing needs of the community within a medium density residential environment.
- To provide a variety of housing types within a medium density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To provide for a wide range of housing choices in close proximity to commercial centres, transport hubs and routes.
- To enable development for purposes other than residential only if that development is compatible with the character and scale of the living area.
- To minimise overshadowing and ensure a desired level of solar access to all properties.

2 Permitted without consent

Nil

3 Permitted with consent

Attached dwellings; Boarding houses; Building identification signs; Business identification signs; Car parks; Centre-based child care facilities; Community facilities; Dual occupancies; Dwelling houses; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Group homes; Home-based child care; Home businesses; Home occupations; Multi dwelling housing; Neighbourhood shops; Oyster aquaculture; Places of public worship; Recreation areas; Recreation facilities (outdoor); Respite day care centres; Roads; Semi-detached dwellings; Seniors housing; Shop top housing; Tank-based aquaculture

4 Prohibited

Pond-based aquaculture; Any other development not specified in item 2 or 3

Zone R4 High Density Residential

1 Objectives of zone

- To provide for the housing needs of the community within a high density residential environment.
- To provide a variety of housing types within a high density residential environment.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To encourage high density residential development in close proximity to centres and public transport hubs.
- To maximise redevelopment and infill opportunities for high density housing within walking distance of centres.
- To enable development for purposes other than residential only if that development is compatible with the character and scale of the living area.

- To minimise overshadowing and ensure a desired level of solar access to all properties.

2 Permitted without consent
Nil

3 Permitted with consent

Boarding houses; Building identification signs; Business identification signs; Car parks; Centre-based child care facilities; Community facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Exhibition homes; Exhibition villages; Flood mitigation works; Home businesses; Home occupations; Neighbourhood shops; Places of public worship; Recreation areas; Recreation facilities (outdoor); Residential flat buildings; Respite day care centres; Roads; Serviced apartments; Shop top housing

4 Prohibited
Any development not specified in item 2 or 3

Zone RE1 Public Recreation

1 Objectives of zone

- To enable land to be used for public open space or recreational purposes.
- To provide a range of recreational settings and activities and compatible land uses.
- To protect and enhance the natural environment for recreational purposes.
- To provide for land uses compatible with the ecological, scientific, cultural or aesthetic values of land in the zone.
- To facilitate the multiple use of certain open space areas.
- To facilitate development that is ancillary or incidental to the special land uses provided for in this zone.
- To provide for the sufficient and equitable distribution of public open space to meet the needs of the local community.
- To preserve and rehabilitate bushland, wildlife corridors and natural habitat, including waterways and riparian lands, and facilitate public enjoyment of these areas.
- To provide for the retention and creation of view corridors.
- To protect and enhance areas of scenic value and the visual amenity of prominent ridgelines.
- To preserve land that is required for public open space or recreational purposes.
- To maximise public transport patronage and encourage walking and cycling.

2 Permitted without consent
Nil

3 Permitted with consent
Aquaculture; Boat launching ramps; Camping grounds; Car parks; Community facilities; Emergency services facilities; Environmental facilities; Environmental protection works; Flood mitigation works; Heliports; Information and education facilities; Jetties; Kiosks; Markets; Recreation areas; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Restaurants or cafes; Roads; Signage; Small bars; Water recreation structures; Water supply systems

4 Prohibited
Any development not specified in item 2 or 3

5 Part 3 – Justification

5.1 INTRODUCTION

The *Guide to preparing Planning Proposals* states that the overarching principles that guide the preparation of planning proposals are:

1. The level of justification should be proportionate to the impact the planning proposal will have;
2. It is not necessary to address a question (see Section 2.3(a)) if it is not considered relevant to the planning proposal. In such cases the reason why it is not relevant should be briefly explained; and
3. The level of justification should be sufficient to allow a Gateway determination to be made with the confidence that the LEP can be finalised within the time frame proposed.

This overview establishes the case for the LEP amendment. It should be noted that the level of justification is commensurate with the impact of the rezoning proposal.

5.2 SECTION A – NEED FOR THE PLANNING PROPOSAL

5.2.1 IS THE PLANNING PROPOSAL A RESULT OF ANY STRATEGIC STUDY OR REPORT

The Menangle Park Urban Release Area (MPURA) has been identified for urban development since 1973. Its role as an urban release area has been reinforced in district level planning including most recently the Western Parkland City District Plan. The MPURA was subject of a rezoning that occurred in 2017 after a decade long planning process that commenced several times but was delayed for a number of reasons. The suite of planning controls adopted, including provisions in *Campbelltown Local Environmental Plan (CLEP) 2015*, *Campbelltown (Sustainable City) Development Control Plan (CDCP)* (Part 8 Volume 2 – Menangle Park), and the Menangle Park Contributions Plan has informed the initial stages of development in the MPURA.

A comprehensive review of the existing planning framework has been undertaken in response to market developments and more detailed environment and infrastructure studies associated with the initial development planning for the MPURA, including the Dahua Group Planning Proposal that has recently completed public exhibition. In light of the above, this EVPPR has been supported by the following technical studies and reports as detailed below in **Table 2**.

TABLE 2 – PROJECT TEAM

The Project Team	
Vision Report	Urbis – (**Appendix A**)
Preliminary Traffic Impact Study	SCT Consulting – (**Appendix B**)
Stormwater Drainage	Northrop – (**Appendix C**)
Services	Power Line Design & Qalchek – (**Appendix D**)
Social Infrastructure Summary Report	Urbis – (**Appendix E**)

5.2.2 IS THE PLANNING PROPOSAL THE BEST MEANS OF ACHIEVING THE OBJECTIVES OR INTENDED OUTCOMES, OR IS THERE A BETTER WAY?

Yes, the current zoning permits basically low-density residential development. The proposal is to amend LEP 2015 and is the best means of achieving the key objectives of the Planning Proposal and facilitating medium and high-density development on the subject site. The Planning Proposal seeks to amend the zoning, minimum lot size, floor space ratio and the height controls.

This represents the most logical way of achieving the intended objectives and outcomes under the prevailing legislation to rezoning of the land.

The proposal is consistent with a number of Strategies discussed below.

5.3 SECTION B – RELATIONSHIP TO STRATEGIC PLANNING FRAMEWORK

5.3.1 IS THE PLANNING PROPOSAL CONSISTENT WITH THE OBJECTIVES AND ACTIONS CONTAINED WITHIN THE APPLICABLE REGIONAL OR SUB-REGIONAL STRATEGY?

5.3.2 GREATER SYDNEY REGION PLAN

A Plan for Growing Sydney has been prepared by the NSW State Government to guide land use planning decisions for the next 20 years. The Plan sets a strategy for accommodating Sydney's future population growth and identifies the need to deliver 817,000 new jobs and 725,000 new homes by 2031. The Plan identifies that the most suitable areas for new housing are in locations close to jobs, public transport, community facilities and services.

An assessment of the EVPPR against the relevant Directions and Objectives of the GSRP is provided below. The Planning Proposal is generally consistent with the GSRP particularly as the proposal seeks to ensure that development outcomes meet contemporary expectations.

Assessment Criteria

a) Does the proposal have strategic merit? Is it:

- *Consistent with the relevant regional plan outside of the Greater Sydney Region, the relevant district plan within the Greater Sydney Region, or corridor/precinct plans applying to the site, including any draft regional, district or corridor/precinct plans released for public comment; or*
- *Consistent with a relevant local council strategy that has been endorsed by the Department; or*
- *Responding to a change in circumstances, such as the investment in new infrastructure or changing demographic trends that have not been recognised by existing planning controls.*

The EVPPR is considered generally consistent with the objectives, principles, actions and initiatives of the Metropolis of Three Cities – The Greater Sydney Region Plan and the Western City District Plan. The Plan is built on a vision of three cities where most residents live within 30 minutes of their jobs, education and health facilities, services and great places. This is consistent with the 10 Directions in *Directions for a Greater Sydney*, which establish the aspirations for the region over the next 40 years and are a core component of the vision and a measure of the Plan's performance.

To meet the needs of a growing and changing population, the vision seeks to transform Greater Sydney into a metropolis of three cities:

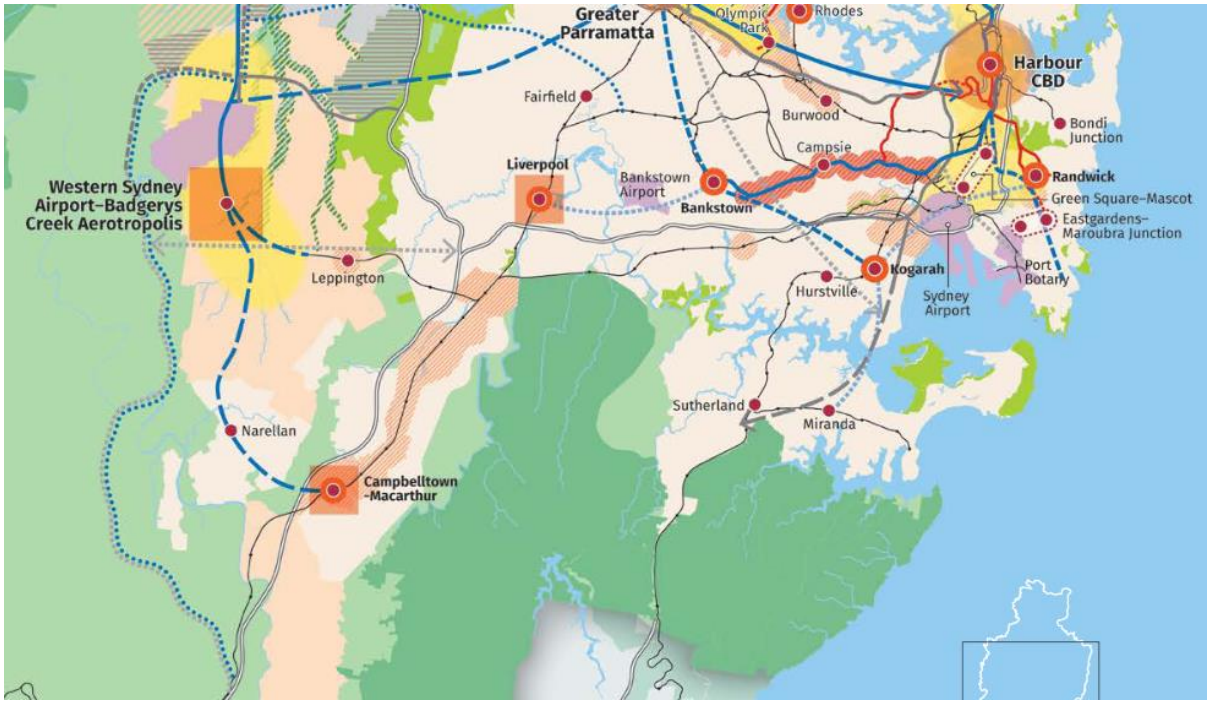
- The Western Parkland City;
- The Central River City; and
- The Eastern Harbour City.

The site is located within the Western City District. Campbelltown is designated as a 'metropolitan centre' in the Plan. The Plan projects the population of Greater Sydney to grow to 8 million over the next 40 years, half of which will reside west of Parramatta. The Plan seeks to rebalance the economic and social opportunities and leverage that growth and deliver the benefits more equitable across Greater Sydney. The goals are for:

- Residents to have quick and easy access to jobs and essential services;
- Housing supply and choice to increase and meet the growing and changing needs of the community;
- The environment and precious resources to be protected; and
- Infrastructure to be sequenced to support growth and to be delivered concurrently with new homes and jobs.

The Plan sets out a new urban corridor for land release areas from Greater Macarthur in the southwest through Bringelly and Penrith in the west to Rouse Hill in the northwest. The Plan also envisages infill development and urban renewal to play an important role in delivering growth balanced with local character (refer to **Figure 6** below).

FIGURE 6 – EXTRACT OF STRUCTURE PLAN FOR THE GREATER SYDNEY REGION



The Western Parkland City will be established on the strength of the new international Western Sydney Airport at Badgerys Creek. It will be a polycentric city capitalizing on the established centres of Liverpool, Greater Penrith and Campbelltown-Macarthur.

The Plan:

- Establishes a 40-year vision (to 2056) and establishes a 20-year plan to manage growth and change for Greater Sydney in the context of social, economic and environmental matters.

- Informs district and local plans and the assessment of planning proposals.
- Assists the integration of infrastructure plans.
- Outlines Government growth management and infrastructure investment intentions.

The EVPPR is consistent with the following Directions and Objectives:

Direction: A City supported by Infrastructure

Objective 1: Infrastructure use is optimised.
Objective 2: Infrastructure aligns with forecast growth – growth infrastructure compact.
Objective 3: Infrastructure adapts to meet future needs.
Objective 4: Infrastructure use is optimised.

The proposal will optimise use of the infrastructure servicing the existing Menangle Park Precinct. Campbelltown-Macarthur is identified as a Metropolitan Centre, with current and future transport infrastructure. The Planning Proposal leverages off current existing infrastructure, including the high frequency rail service to Sydney and beyond via the T8 Airport and South Line, and Liverpool.

The requisite social and physical infrastructure required to support the proposal have been identified in the Social Infrastructure Strategy for their delivery provided, as detailed in **Appendix E**. The current Developer Contribution Plan (CP) will need to be amended or a separate Voluntary Planning Agreement (VPA) prepared to deliver such infrastructure, including upgrades to roads (refer to **Appendix B**).

Direction: A City for People

Objective 6: Services and infrastructure meet communities changing needs.
Objective 7: Communities are healthy, resilient and socially connected.
Objective 8: Greater Sydney's communities are culturally rich with diverse neighbourhoods
Objective 9: Greater Sydney celebrates the arts and supports creative industries and innovation

The Planning Proposal seeks to redevelop a largely undeveloped semi-rural site, with emphasis on increasing access to public open space through site links and new passive and active spaces. The Proposal would create a new precinct to reflect the development that is proposed in the Menangle Park Town Centre that brings together people, jobs, connectivity and recreation.

Direction: Housing the City

Objective 10: Greater housing supply.
Objective 11: Housing is more diverse and affordable

The Planning Proposal seeks to provide more housing with mixed residential density that supports the significant employment and housing choice required to support the vision of growth and jobs for Campbelltown.

A central foundation of the proposal is increased housing diversity in a local market that is relatively already affordable in comparison with metropolitan Sydney. The proposed introduction of a R3 Medium Density Residential & R4 High Density Residential zone would support additional dwellings proposed by this PPR.

Direction: A City of Great Places

Objective 12: Great places that bring people together

The Planning Proposal seeks to provide new open space linkages and better access to open space, when compared to the current site. The built scale would be sympathetic to the human environment. Enhanced access to diverse open space resources would be available, sensitive ecologically communities conserved and broad ranging infrastructure generally provided.

Direction: A well-connected City

Objective 14: A Metropolis of Three Cities – integrated land use and transport creates walkable and 30-minute cities.

The site is located adjoining the Menangle Park Railway Station and employment is within walking distance in the proposed Town Centre. A hierarchical, fine grained accessibility strategy underpins the proposal. Direct access is proposed to higher order roads, existing roads are to be upgraded, intersections enhanced and alternate movement means (pedestrian/cycle) integrated to provide a highly permeable structure, facilitating appropriate public transport service levels.

Direction: Jobs and skills for the City

Objective 23 Industrial and urban services land is planned retained and managed.

The proposal seeks to retain the residential zone in accordance with the provision of the LEP and vision and objectives of Council and NSW State Government. It aims to create and build upon the existing residential zoned area of Menangle Park. Additionally, significant local construction and maintenance employment opportunities will evolve and the proposal will support the proposed Town Centre.

Direction: Sustainability

Objective: A City in its Landscape – Biodiversity is protected, urban bushland and remnant vegetation is enhanced.

The proposal seeks to conserve and embellish sensitive remnant ecological communities located in the northeastern part of the site.

Additionally, it provides a green grid dimension through structured and informal recreation areas and linkages, including the proposed iconic north/south active green pedestrian link and an east/west pedestrian link. Existing vegetation along the Taber Road frontage is proposed to be retained within a landscaped setback and enhanced.

Direction: An efficient City

Objective 34: Energy and water flows are captured, used and re-used.
Objective 35: More waste is re-used and recycled to support the development of a circular economy.

The Planning Proposal seeks to amend the zoning and maximum building height control as it relates to the subject site. While indicative massing, built form analysis and ADG compliance has been undertaken to ensure future development will comply with applicable requirements, specific building design elements have yet to be formally advanced. Notwithstanding, it is the intention to create a sustainable development in accordance with the objective, which will also include greening and softening the visual impact of the development to contribute to the development that is likely to occur at Menangle Park.

To improve livability, the Plan seeks to create new great places, with well-connected communities which have access to a range of jobs and services, starting with public places, open spaces and transit-orientated developments. The Planning Proposal seeks to create a range of jobs and services, and open space accessible to the public, particularly walking and cycling. The new community will be located within a site that encourages and supports the development of social connections, which will create vibrancy and activation and improve livability.

The proposal pursues an objective of balancing additional housing supply with high standards of amenity and design. In doing so, it creates criteria for where housing supply is to be located; aligned with existing infrastructure, accessibility to jobs, with 5 minute walking distance to regional transport, efficient interchanges with comprehensive walking and cycling tracks, and areas with good access to services, transport and jobs.

5.3.2.1 WESTERN CITY DISTRICT PLAN – CONNECTING COMMUNITIES

This Plan provides a guide to implementing A Metropolis of Three Cities – The Greater Sydney Region Plan at a district level and is structured around the strategies for infrastructure and collaboration, liveability, productivity, sustainability, and implementation. Amongst other things, it is intended to inform the assessment of planning proposals.

Specifically, it forms a 20-year plan to manage growth and achieve the 40-year vision, while enhancing Greater Sydney, liveability, productivity and sustainability into the future. The EVPPR is consistent with the relevant Planning Priorities and Actions as summarised below.

The Plan has 10 Directions and 20 Planning Priorities. The following Planning Priorities are relevant to the current proposal.

- W1 Planning for a city supported by infrastructure
- W2 Working through collaboration
- W3 Providing services and social infrastructure to meet people's changing needs
- W4 Fostering healthy, creative, culturally rich and socially connected communities
- W5 Providing housing supply, choice and affordability with access to jobs, services and public transport
- W6 Creating and renewing great places and local centres
- W7 Establishing the land use and transport structure to deliver a liveable, productive and sustainable Western Parkland City
- W11 Growing investment, business opportunities and jobs in strategic centres
- W18 Delivering high quality open space
- W19 Reducing carbon emissions and managing energy, water and waste efficiently

The District Plan identifies Menangle Park as a Land Release Area within the Greater Macarthur Growth Area. The majority of new communities in land release areas identified by the District Plan are located within precincts contained within State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

Unlike the majority of land release areas, CLEP 2015 is the principal environmental planning instrument that applies to the land. An assessment of the Planning Proposal against the relevant Directions and Priorities District Plan was provided above. The Planning Proposal is generally consistent with the District Plan particularly as the proposal seeks to ensure that development outcomes meet contemporary expectations.

5.3.3 GREATER MACARTHUR 2040

Greater Macarthur 2040 (GM 2040) is a landuse and infrastructure implementation plan for delivery of the Greater Macarthur Growth Area, prepared by the Department of Planning, Industry and Environment (DPIE) in 2018.

This Plan provides a framework for the identified land release areas of South Campbelltown and sets out a land use and infrastructure implementation plan for the Greater Macarthur Growth Area, including Menangle Park. An extract of the Structure Plan for such area, including the subject land, is reproduced as **Figure 7** following.

The subject land and neighbouring land is noted to form part of the Menangle Park Precinct, as reflected in the extract from the Precinct Plan also produced following in **Figure 8**.

Greater Macarthur 2040 identifies that Menangle Park will be:

- Rezoned and release land for urban development,
- Deliver around 4,000 new homes,
- Create a new town centre providing local retail and commercial services.

FIGURE 7 – EXTRACT OF GREATER MACARTHUR STRUCTURE PLAN (LAND RELEASE AREAS)

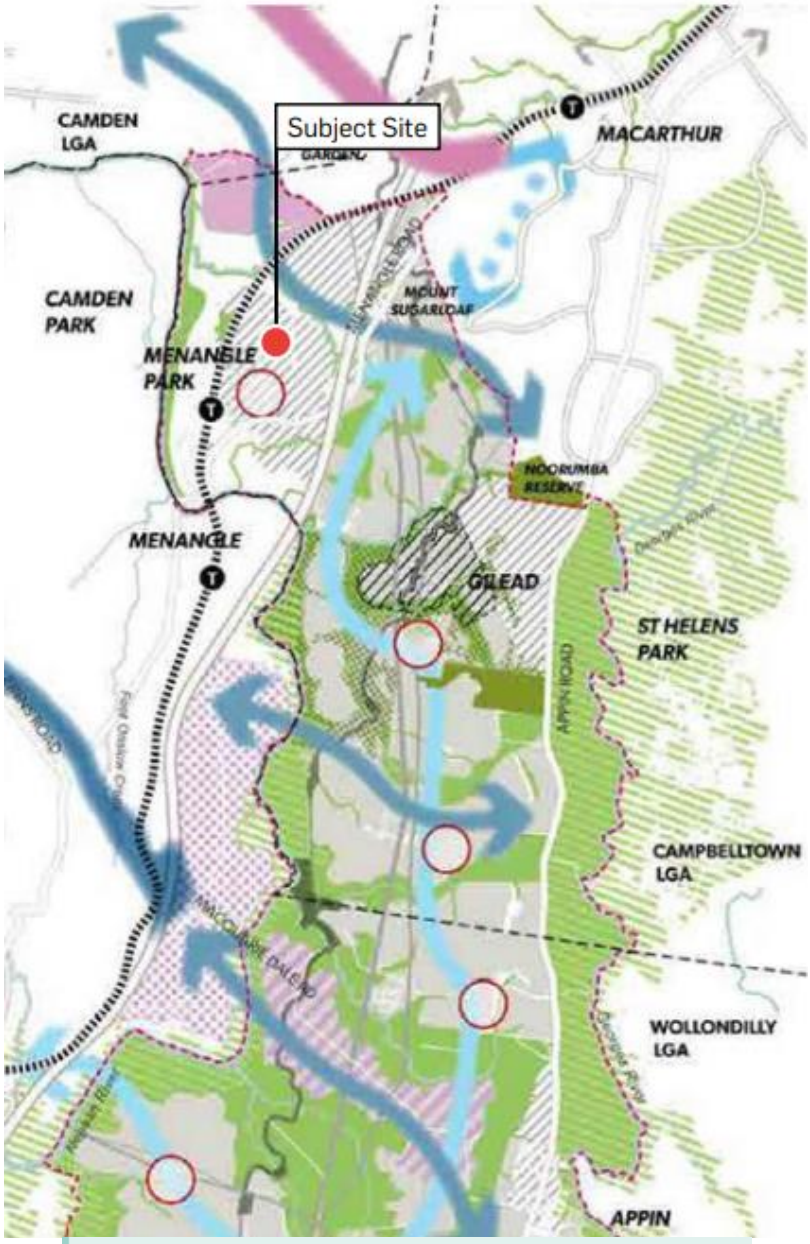
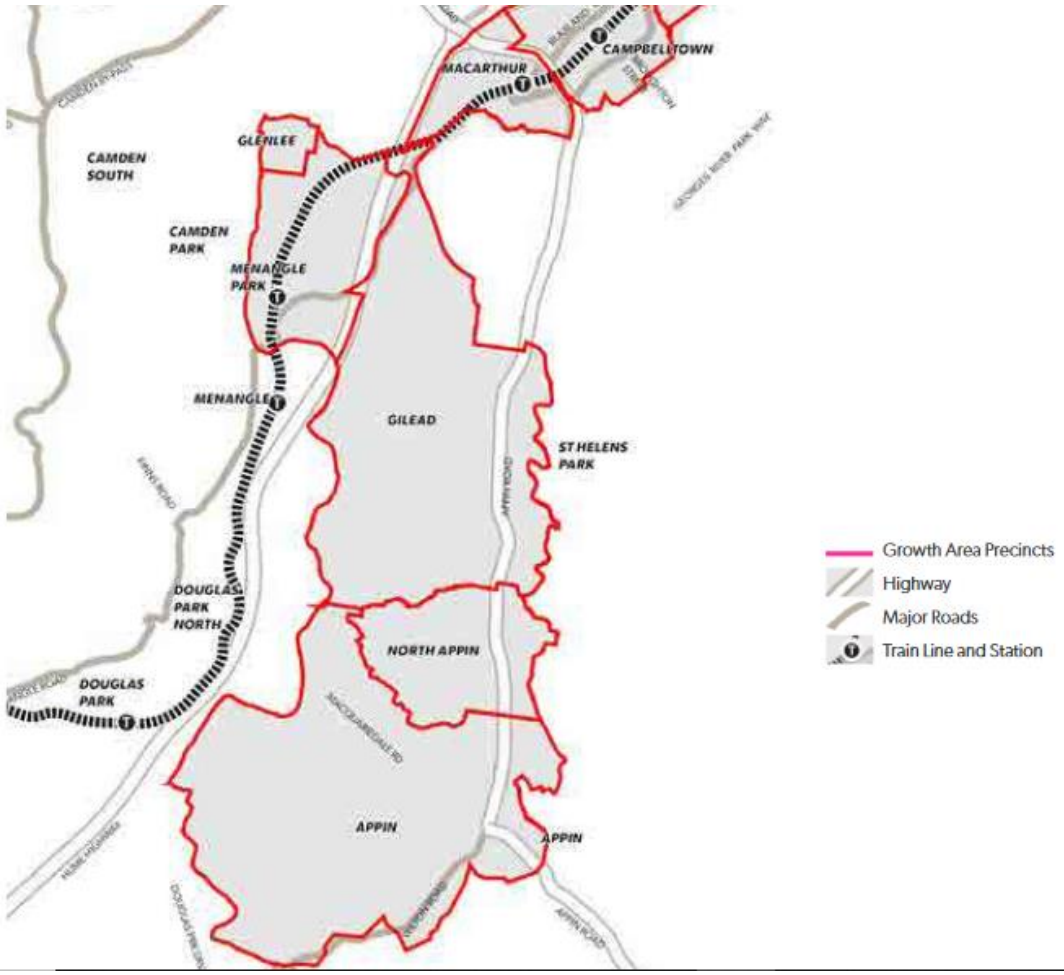


FIGURE 8 – EXTRACT OF GREATER MACARTHUR PRECINCT PLAN



5.3.4 LOCAL STRATEGIC PLANNING STATEMENT

Campbelltown City Council adopted the Campbelltown Local Strategic Planning Statement (20-year vision) (CLSPS). This document has a series of generalist plans, a host of actions and rationale that is limited as an evidence base.

The Local Strategic Planning Statement (LSPS) sets up the 20-year Vision for land use in the LGA, the special character of the area and the approach to manage the changes. It establishes 4 planning themes that underpin the community's vision for Campbelltown. They are *a vibrant liveable city, a respected and protected natural environment, a thriving attractive city, and a successful city*. The themes will be implemented through 16 planning priorities and related actions.

Council will also deliver an *Economic Development Strategy* for the LGA and an *Economic Master Plan for the City Centre* in the short-term. The Local Housing Strategy is also part of the suite of documents to be produced.

The LSPS responds to the District and Regional Plans and to the community's documented aspirations. The document establishes planning priorities to ensure that the LGA thrives now and remains prosperous in the future, having regard to the local context. The proposal is consistent with the LSPS as the proposal has good alignment with Council's Community Strategic Plan and the relevant Directions, Objectives and Priorities of the District Plan.

FIGURE 9 – STRUCTURE PLAN – LSPS 2040

5.3.5 LOCAL HOUSING STRATEGY

The Local Housing Strategy examines the housing needs of Campbelltown's current and future residents and puts forward an evidence based approach to managing sustainable housing growth to 2036.

5.3.6 RESIDENTIAL DEVELOPMENT STRATEGY 2014

This Strategy (RDS) accompanies a suite of planning documents to support draft LEP 2014 (now LEP 2015). Note this document will be replaced by the Local Housing Strategy when finalised. The Strategy has the following recommendations:

"The Residential Strategy Review and this emergent Strategy indicate that future dwelling targets for 2031 can be achieved with current zonings, their minor rationalisation and the release of identified greenfields and incremental phasing of new centres and transit focused infill growth nodes. Additionally, the need for diverse housing forms, adaptable housing and more affordable housing should be acknowledged.

In such context it is accordingly recommended that Council:

- *Complete the Comprehensive LEP reinforcing higher density residential zones and the adoption of a transitionary medium density housing model, zoning appropriately identified growth nodes capable of short term development and servicing and similarly placed new identified greenfields.*
- *Review the zoning of future greenfields and growth nodes when more favourable market, development and servicing circumstances are likely to emerge.*
- *Continue to ensure that appropriate structure planning/masterplanning informs the release of future urban precincts.*
- *Encourage a variety of housing choices including, in particular, smaller dwellings.*
- *Support affordable "entry price" housing.*
- *Encourage construction of adaptable housing.*
- *Encourage secondary dwellings and dual occupancies.*
- *Commit to a regular review of the Strategy.*

It is considered that the proposed rezoning of the land is consistent with the above recommendations, although it is noted that the subject land is not listed in the Strategy. Council's RDS proposes a number of infill 'growth nodes' that focus future development close to railway stations and existing commercial centres.

5.3.7 CAMPBELLTOWN LOCAL ENVIRONMENTAL PLAN 2015 (CLEP 2015)

The Campbelltown Local Environmental Plan 2015 (CLEP 2015) is the principal environmental planning instrument for the City of Campbelltown. A summary of the existing planning framework and proposed amendment are discussed below in **Table 3**:

TABLE 3 – CLEP 2015 – PROPOSED AMENDMENTS

CLEP 2015	Proposed Amendments
Mapping	
Zoning The zoning of the site is R2 Low Density Residential	The Planning Proposal seeks to introduce or amend the land use zones to: • Introduce the R3 Medium Density Residential zone. • Introduce the R4 High Density Residential zone. • Introduce the RE1 Public Recreation zone

CLEP 2015	Proposed Amendments
	The proposed zoning amendments are shown in **Appendix F**
Minimum Lot Size The current minimum lot size is R2 Zone: 420m^2	The Planning Proposal seeks to amend the Minimum Lot Size Map as follows: • R3 Zone: NA • R4 Zone: NA • RE1 Zone: NA The proposal to have no minimum lot size within the R3 Medium Density Residential and R4 High Density Residential zones is to provide consistency with a proposed new subdivision clause to provide for a diversity of dwelling types within the zone. This approach is consistent with other council Growth Area controls.
Building Heights The current maximum buildings height is I: 8.5m.	The Planning Proposal seeks to amend the Height of Buildings Map as follows: • J: 9m • M: 12m (R3 Zone) • O: 15m (R3 Zone) • R: 21m (R4 Zone) • S: 24m (R4 Zone) • T: 27.5m (R4 Zone) This would involve updating all HOB map sheets to reflect the updated legend. The proposed building heights amendments are shown in **Appendix G**.
Floor Space Ratio The current maximum floor space ratio is: R2 Zone: 0.55:1	The Planning Proposal seeks to amend the Floor Space Ratio Map to provide the following FSR for any building that the proposal relates to. • I: 0.75 • N: 1.0 • R: 1.4 • S: 1.9
Clauses	
Other than the requirements of Clause 4.1 (Minimum subdivision lot size) of CLEP 2015, Clause 4.1C also applies in respect to defining the	The Planning Proposal seeks to insert additional subdivision clauses to enable development consent to be granted for subdivision of land to achieve the following:

CLEP 2015	Proposed Amendments
minimum lot size for the following form of development: • Dual occupancy • Semi-detached dwelling • Attached dwelling • Multi Dwelling Housing • Centre based child care facilities • Residential Flat Buildings The minimum lot sizes established by this clause currently only apply to land in the R2, R3 and R4 zones and apply city wide.	On R3 Medium Density Residential and R4 High Density Residential zoned land, to permit a variety of low and high rise dwelling types with the following minimum lot sizes: • Dwelling House: 250m^2 • Semi-detached dwellings: 250m^2 • Dual Occupancy: 500m^2 • Secondary Dwellings: 450m^2 • Attached Dwellings: 200m^2 • Multi Dwelling Housing: 1,500m^2 It is intended that the Menangle Park Development Control Plan guide the applicable built form and site requirements in relation to driveways, parking and access.
Clause 4.4 Floor Space Ratio sets out specific floor area controls for the following purposes. Dwelling houses in Zone R2 Low Density Residential, Zone R3 Medium Density Residential and Zone R5 Large Lot Residential: 0.55:1 Dual occupancies in Zone R2 Low Density Residential, Zone R3 Medium Density Residential and Zone R5 Large Lot Residential: 0.45:1 Multi dwelling housing in Zone R2 Low Density Residential: 0.45:1 Multi dwelling housing in Zone R3 Medium Density Residential: 0.75:1	Currently, Clause 4.4(2A) is drafted such that the defined floorspace controls are in addition to the Floor Space Ratio Map. Under the current CLEP 2015, this would result in future dwellings having a permissible floor space ratio of 0.55 (map) + 0.55 (Clause 4.4(2A) being 1.1:1 which is excessive. This outcome would be an unintended consequence arising from the translation of Council's LEP into the standard format in 2015 and gazettal of the MPURA in 2017. Therefore, it is recommended that Clause 4.4(2A) be amended to exclude its application for areas shown on the Urban Release Area Map.

5.3.8 CAMPBELLTOWN (SUSTAINABLE CITY) DEVELOPMENT CONTROL PLAN 2015

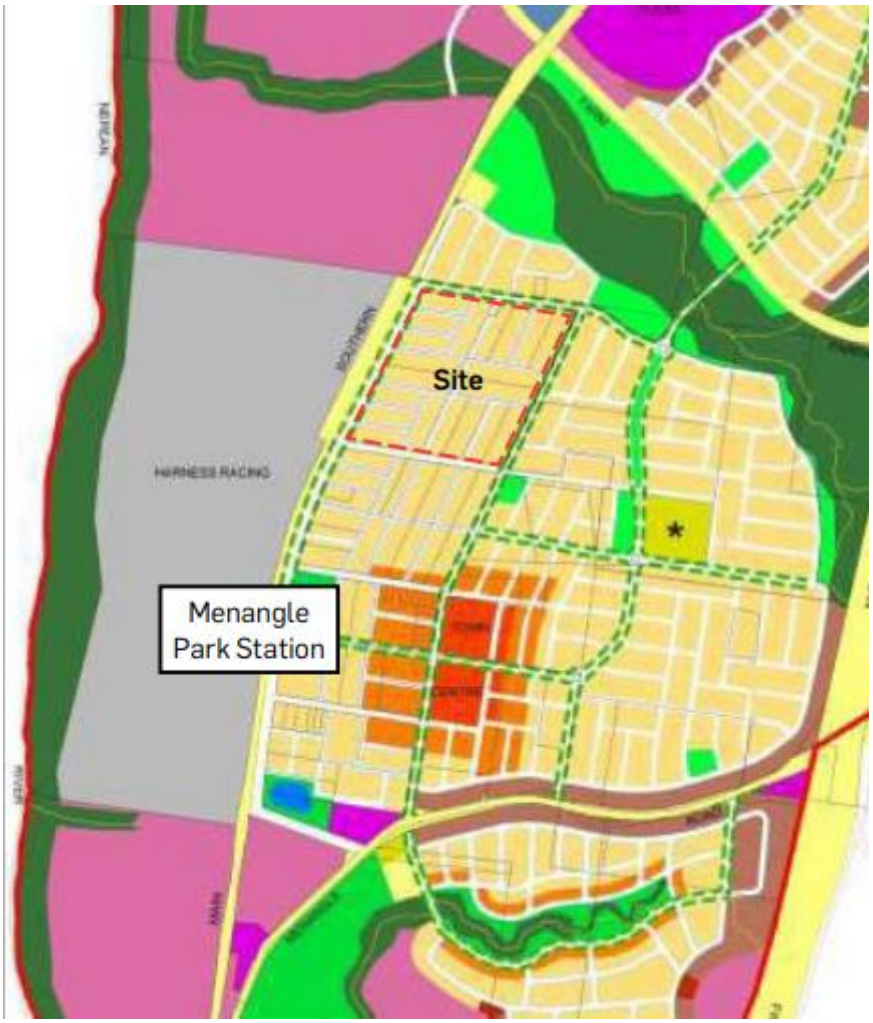
The Campbelltown (Sustainable City) Development Control Plan 2015 (CSCDCP) provides development guidelines and site-specific controls to support the delivery of CLEP 2015.

Volume 2, Part 8 of the CSCDCP contains a structure plan and series of development controls to guide delivery of the MPURA. The subject provisions will be revised to support achievement of the objectives of the proposed CLEP 2015 amendment.

The DCP proposes the following:

- A structure plan that suggests a town centre close to Menangle Park Station. The town centre is entitled to a maximum commercial floor space of 20,000m^2 and maximum building height of 4 storeys.
- Impacts of views to and from Glenlee House are minimised.
- 3,500 new dwellings.
- The subject site is proposed as standard lots with maximum height of 8.5m and FSR of 0.55:1 (Campbelltown LEP).
- Trees at the northeastern corner of the site is identified as Moderate Quality Vegetation

FIGURE 10 – STRUCTURE PLAN – DCP 2015



5.3.9 IS THE PLANNING PROPOSAL CONSISTENT WITH LOCAL COUNCIL'S COMMUNITY STRATEGIC PLAN, OR OTHER LOCAL STRATEGIC PLAN?

The local strategic planning context was summarised at 5.3.4 above and clearly identifies the growth that will occur in Campbelltown in the ensuing years.

The subject planning framework has importantly identified opportunities for the development in Campbelltown, leveraging off the existing infrastructure and the prevailing sense of community, but does not identify the subject land given the location outside nominated growth areas.

5.3.9.1 CAMPBELLTOWN COMMUNITY STRATEGIC PLAN 2017-2027

The Campbelltown Community Strategic Plan 2017-2027 is a document which will guide Campbelltown over the next ten years through a series of goals and strategies including, but not limited to local employment, and strengthening the local economy.

The proposed rezoning is consistent with this document by providing for local employment opportunities. Essentially, there are no changes to the zoning of the land or the development consent, except the removal of the restrictions. The Planning Proposal is consistent with the CSP and will specifically facilitate delivery of the key outcomes as detailed below in **Table 4**.

TABLE 4 – CONSISTENCY WITH CAMPBELLTOWN COMMUNITY STRATEGIC PLAN

CLEP 2015	Proposed Amendments
Outcome 1	
A vibrant, liveable city	• The community will be afforded the opportunity to review the Planning Proposal and engage at key stages in the decision-making process. • The proposal seeks to establish a framework to inform the future review of the masterplan to improve placemaking, public domain and open space outcomes. • Provides for greater housing choice and diversity.
Outcome 2	
A respected and protected natural environment	The proposal seeks to preserve additional areas of critically endangered ecological communities that were incorrectly identified during the previous plan making process.
Outcome 3	
A thriving, attractive city	Delivery of infrastructure is supported by Council's Menangle Park Development Contributions Plan and the proponents will offer to enter into a Voluntary Planning Agreement.
Outcome 4	
A successful city	• The proposal seeks to provide a framework for a more permeable road network and transport system that will serve a greater walking catchment within the site. • The proposal seeks to implement an iconic 'Green Spine' to provide a connected pedestrian link through the site with opportunity to form part of a regional connection to the Western Sydney Parklands.

5.3.10 IS THE PLANNING PROPOSAL CONSISTENT WITH APPLICABLE STATE ENVIRONMENTAL PLANNING POLICIES?

The lands are subject to the provisions of a raft of State Environmental Planning Policies. The subject policies are noted below in **Table 5** and importantly do not prohibit and/or significantly constrain the Planning Proposal.

TABLE 5 – CONSISTENCY WITH APPLICABLE STATE POLICIES

MENANGLE PARK (EAST VILLAGE) PLANNING PROPOSAL ASSESSMENT OF CONSISTENCY WITH STATE ENVIRONMENTAL PLANNING POLICIES		
SEPP No. / Name	**Summary of SEPP**	**Consistency of planning proposal**
SEPP No 1 **Development Standards**	SEPP 1 aims to provide flexibility in the application of planning controls where strict compliance of development standards would be unreasonable, unnecessary or hinder the attainment of specified objectives of the Act.	SEPP 1 generally applies to development across NSW. However, SEPP 1 was repealed by Campbelltown LEP 2015 (clause 1.9) and does not apply to Campbelltown LGA. Clause 4.6 in respect of Exemptions to Development Standards precludes the need for consistency with SEPP 1. **EVPPR considered to be consistent**
SEPP No 4 **Development Without Consent and Miscellaneous Exempt and Complying Development**	SEPP 4 aims to permit development for a purpose which is of minor environmental significance, development for certain purposes by public utility undertakings and development on certain land reserved or dedicated under the *National Parks and Wildlife Act 1974* without the necessity for development consent. Also regulates complying development for conversion of fire alarms.	SEPP 4 generally applies to development across NSW. **EVPPR considered to be consistent**
SEPP No 6 **Number of Storeys in a Building**	SEPP 6 aims to remove confusion arising from the interpretation of provisions in EPIs controlling the height of buildings.	In accordance with current best planning guidance and practice in LEPs and DCPs, building heights are calculated and shown in metres (m) and not storeys.

		A maximum height is proposed in a manner consistent with prevailing local building height controls. **EVPPR considered to be not inconsistent**
SEPP No 14 **Coastal Wetlands**	Aims to ensure NSW coastal wetlands are preserved and protected.	**Does not apply to the Campbelltown LGA.**
SEPP 15 **Rural Landsharing Communities**	Aims to facilitate the development of rural landsharing communities committed to environmentally sensitive and sustainable land use practices.	**Does not apply to the Campbelltown LGA.**
SEPP No 19 **Bushland in Urban Areas**	SEPP19 aims to protect bushland within urban areas. Specific attention to bushland, remnant and endangered vegetation and bushland zoned or reserved for public open space.	**Does not apply to the Campbelltown LGA.**
SEPP No 21 **Caravan Parks**	Aims to facilitate the proper management and development of land used for caravan parks catering to the provision of accommodation to short and long term residents. SEPP 21 applies across NSW except land to which SEPP (Western Sydney Parklands) applies.	SEPP applies across NSW, but is not relevant to the EVPPR. The EVPPR does not change the current provisions of the LEP in relation to Caravan Parks. **EVPPR is accordingly not inconsistent**
SEPP No 22 **Shops and Commercial Premises**	Aims to permit change of use from commercial premises to commercial premises, and shop to shop even if the change is prohibited by another EPI, provided only minor effect and consent is obtained from relevant authorities. Applies to NSW but excludes specified land	SEPP applies across NSW and would apply to certain developments once rezoning has occurred. **Does not apply to the EVPPR**

	under Parramatta LEP and Penrith LEP.	
SEPP No 26 **Littoral Rainforests**	Aims to protect littoral rainforests from development.	**Does not apply to the Campbelltown LGA.**
SEPP 29 **Western Sydney Recreation Area**	Aims to enable the carrying out of development for recreational, sporting and cultural purposes within the Western Sydney Recreation Area. SEPP 29 only applies to land within Western Sydney Parklands - Eastern Creek, Prospect, Horsley Park and Hoxton Park.	**Does not apply to the Campbelltown LGA**
SEPP No 30 **Intensive Agriculture**	Establishes the requirement for development consent and additional requirements for cattle feedlots and piggeries.	**Does not apply to the EVPPR.**
SEPP No 32 **Urban Consolidation (Redevelopment of Urban Land)**	SEPP 32 seeks to promote the orderly and economic use and development of land by enabling urban land which is no longer required for the purpose for which it is currently zoned or used to be redeveloped for multi-unit housing and related development.	SEPP applies across NSW to all urban land, except Western Sydney Parklands under that SEPP. **Does not apply to the EVPPR.**
SEPP No 33 **Hazardous and Offensive Development**	Aims to provide additional support and requirements for hazardous and offensive development	SEPP 33 applies across NSW but is not relevant to the planning proposal. **EVPPR considered consistent**
SEPP No 36 **Manufactured Home Estates**	Aims to facilitate the establishment of manufactured home estates as a contemporary form of residential housing. SEPP applies to land outside the Sydney Region.	**Does not apply to the Campbelltown LGA.**
SEPP No 39 **Spit Island Bird Habitat**	Aims to enable development for the purposes of creating and protecting bird habitat. Applies to land comprising Spit Island, Towra Point and Kurnell	**Does not apply to the Campbelltown LGA.**

SEPP No 44 **Koala Habitat Protection**	Aims to encourage proper conservation and management of areas of natural vegetation that provide habitat for koalas. Campbelltown LGA listed in Schedule 1.	**Repealed.**
SEPP No 47 **Moore Park Showground**	Aims to enable redevelopment of Moore Park Showground consistent with its status as being of State and regional planning importance.	**Does not apply to the Campbelltown LGA.**
SEPP No 50 **Canal Estate Development**	SEPP prohibits canal estate development in NSW.	**Does not apply to the Campbelltown LGA.**
SEPP No 52 **Farm Dams and other works in land management areas**	Requires environmental assessment under Part 4 of the EPA for artificial water bodies carried out under farm plans that implement land and water management plans.	**Does not apply to the EVPPR.**
SEPP No 55 **Remediation of Land**	SEPP 55 requires that a consent authority must not consent to the carrying out of any development on land unless it has considered whether the land is contaminated and, if so, whether it is satisfied that the land is suitable in its contaminated state, or can and will be remediated to be made suitable for the purpose for which the development is proposed to be carried out.	SEPP applies across the state. Previous studies did not detect any contamination. However, post Gateway Determination a Detailed Site Investigation (DSI) will be undertaken. **The EVPPR can be remediated to be consistent with the provisions of SEPP 55.**
Central Western Sydney Regional Open Space and Residential	Aims to provide for residential development on suitable land as identified in the Policy to assist in accommodating the projected population growth of Western Sydney. Applies to land identified as Regional Open Space Zone and Residential Zone within the Western Sydney Parklands	**Does not apply to the Campbelltown LGA.**

SEPP No 62 **Sustainable Aquaculture**	Aims to encourage and regulate sustainable aquaculture development	**SEPP applies across NSW and is not relevant to the EVPPR.**
SEPP No 64 **Advertising and Signage**	Aims to regulate signage (but not content) and ensure signage is compatible with desired amenity and visual character of the area.	Should the EVPPR proceed, appropriate signage applications can be made and assessed against the SEPP 64 controls, if necessary. **EVPPR considered consistent**
SEPP No 65 **Design Quality of Residential Apartment Development**	Aims to improve the design qualities of residential flat building development in New South Wales. SEPP 65 and the accompanying Apartment Design Guide aim to improve the design quality of apartments across New South Wales. Clause 28 of SEPP 65 requires that a consent authority should take into consideration include provisions to ensure that the design quality principles and the Apartment Design Guide.	SEPP applies across NSW. Applies to the EVPPR, refer to Urban Design at **Appendix A** has considered the potential development concept facilitated by this Planning Proposal against objectives of SEPP 65. Further detailed analysis and compliance against the detailed requirements will be undertaken as part of the DA process. Notwithstanding, the proposal was designed to ensure that solar access, cross ventilation, open space would comply. This has been detailed in the Vision Report.
SEPP No.70 **Affordable Housing (Revised Schemes)**	Aims to insert affordable housing provisions into EPIs and to address expiry of savings made by EP&A Amendment (Affordable Housing) Act 2000. Applies specifically to land within the Greater Metropolitan Region, including Ultimo/Pyrmont, City of Willoughby and Green Square.	**Does not apply to the Campbelltown LGA. Notwithstanding, the Planning Proposal does not contain any provisions that would hinder the application of this SEPP.**
SEPP No.71 **Coastal Protection**	Aims to protect and manage the natural, cultural, recreational and economic attributes of the New South Wales coast. Applies to land within the NSW coastal zone, as defined by SEPP maps.	**Does not apply to the Campbelltown LGA.**
Penrith Lakes Scheme 1989	Aims to provide a development control process establishing environmental	**Does not apply to the Campbelltown LGA.**

	and technical matters, which must be taken into account in implementing the Penrith Lakes Scheme in order to protect the environment.	
SEPP (Housing for Seniors or People with a Disability) 2004	Aims to encourage the provision of housing to meet the needs of seniors or people with a disability.	SEPP applies across NSW. The proposal does not preclude future merit based provisions of housing for seniors and people with a disability. **Applies to the EVPPR and is considered consistent.**
SEPP (BASIX) 2004	Aims to ensure consistency in the implementation of the BASIX scheme throughout the State	SEPP applies to residential development. The proposal is not inconsistent with the application of the SEPP to residential development. **Applies to the EVPPR and is considered consistent.**
Kurnell Peninsula 1989	Applies to the land within Sutherland Shire known as Kurnell Peninsula. Excludes some land under Sutherland Shire LEP 2006.	**Does not apply to the Campbelltown LGA.**
SEPP (Major Development) 2005	Aims to facilitate the development or protection of important urban, coastal and regional sites of economic, environmental or social significance to the State. Also to facilitate service delivery outcomes for a range of public services.	SEPP applies to sites across NSW but is not relevant to the EVPPR. **EVPPR is considered consistent**
Sydney Region Growth Centres 2006	Aims to co-ordinate the release of land for development in the Sydney's Growth Centre and applies to all land in a 'growth centre'.	**The Sydney Region Growth Centres 2006 SEPP does not apply.**
Temporary Structures 2007	Aims to encourage protection of the environment at the location/vicinity of temporary structures by managing noise, parking and traffic impacts and ensuring heritage protection	SEPP applies across NSW and the EVPPR does not affect the application of this SEPP. **EVPPR is considered consistent**

SEPP (Exempt and Complying Development Codes) 2008	Aims to provide streamlined assessment process for development that complies with specified development standards.	SEPP applies across NSW and the EVPPR does not affect the application of this SEPP. The proposal is not inconsistent with the SEPP and the provisions of which would apply to future developments. **EVPPR is considered consistent**
SEPP (Infrastructure) 2007	Aims to facilitate the effective delivery of infrastructure across the State. Specifies exempt and complying development controls to apply to the range of development types listed in the SEPP.	SEPP applies across NSW. **The EVPPR is affected by the application of this SEPP and is considered consistent.**
SEPP (Mining, Petroleum Production and Extractive Industries) 2007	Aims to provide for the proper management and development of mineral, petroleum and extractive material resources.	SEPP applies across NSW. The EVPPR does not affect the application of this SEPP. **EVPPR is considered consistent**
SEPP (Miscellaneous Consent Provisions) 2007	Not applicable	SEPP applies across NSW. The EVPPR does not affect the application of this SEPP. **EVPPR is considered consistent**
SEPP (Rural Lands) 2008	Aims to facilitate the orderly and economic use and development of rural lands for rural and related purposes	**Does not apply to the Campbelltown LGA**
SEPP (State and Regional Development) 2015	Aims to identify State significant development and State significant infrastructure. Also to confer functions on joint regional planning panels to determine development applications.	**Does not apply to the Campbelltown LGA**
Western Sydney Employment Area 2009	Aims to promote economic development and the creation of employment in the Western Sydney Employment Area by providing for development	**Does not apply to the Campbelltown LGA**
Western Sydney Parklands	Aims to ensure the Western Sydney Parkland can be developed as urban parkland	**Does not apply to the Campbelltown LGA**

	to serve the Western Sydney Region. Applies to land within the Blacktown, Fairfield and Holroyd LGAs (Quakers Hill to West Hoxton)	
Affordable Rental Housing 2009	Aims to provide a consistent planning regime for the provision of affordable rental housing and facilitate the effective delivery of affordable housing	The proposal does not prejudice the application of the SEPP and development of the various forms of affordable housing.
SEPP (Educational Establishments & Child Care Facilities) 2017	Provides guidelines for establishment of schools and child-care centres.	The proposal recognises that a school will be situated within the site with appropriate road and site planning to suit. An assessment of the school and any childcare centres would be subject to assessment at the development assessment stage, in accordance with the SEPP.
Urban Renewal 2010	Aims to facilitate the orderly and economic development and redevelopment of sites in and around urban renewal precincts. Applies to land within a potential precinct – land identified as a potential urban renewal precinct. This includes Redfern-Waterloo, Granville and Newcastle.	Does not apply to the Campbelltown LGA, given the absence of urban renewal precincts. EVPPR would be considered not to be inconsistent.
Sydney Drinking Water Catchment 2015	Aims to provide for healthy water catchments that will deliver high quality water while permitting development that is compatible with that goal. Applies to land within the Sydney drinking water catchment.	**Does not apply to the Campbelltown LGA**
SEPP 53 **Transitional Provisions 2015**	Aims to enact transitional provisions consequent on the repeal of SEPP 53 - Metropolitan Residential Development. Only applies to specified land in Ku-ring-gai LGA.	**Does not apply to the Campbelltown LGA**

Port Botany and Port Kembla 2013	Aims to provide consistent planning regime for the development and delivery of port infrastructure. Applies to the land within Botany City Council in the area known as Port Botany and land at Port Kembla in Wollongong City Council LGA.	**Does not apply to the Campbelltown LGA**
SEPP (Primary Production and Rural Development) 2019	Provides requirements to retain such lands.	The site is zoned R2 Low Density Residential and therefore the SEPP does not apply.
SEPP (Vegetation in Non - Rural Areas) 2017	Requires approval for vegetation removal.	Vegetation removal is minimised by the proposal. Any vegetation proposed for removal would need to comply with the provisions of the SEPP and other companion legislation.
SEPP (Koala Habitat Protection) 2021	Protection of areas identified as Core Koala Habitat	The Planning Proposal is consistent with SEPP (Koala Habitat Protection) 2021 and provides for additional public open space to protect any Koala habitat areas. There have been no sightings of koalas in the area.
STATE REGIONAL ENVIRONMENTAL PLANS (DEEMED SEPPS)		
SREP Number | Name	**Summary of SREP**	**Consistency of planning proposal with SREP**
SREP 5 **Chatswood Town Centre**	Aims to facilitate development of land within the Chatswood Town Centre in the Willoughby LGA.	**Does not apply to the Campbelltown LGA**
SREP 8 **Central Coast Plateau**	Aims to implement the state's urban consolidation policy only in the NSW Central Coast.	**Does not apply to the Campbelltown LGA**
SREP 9 **Extractive Industry No. 2 1995**	Aims to facilitate development of extractive industries in proximity to the population of the	**Does not apply to the EVPPR**

	Sydney Metropolitan Area and only applies to LGAs listed in Schedule 4 of the SREP.	
SREP 11 **Penrith Lakes**	Aims to permit implementation of the Penrith Lakes Scheme in the Penrith LGA.	**Does not apply to the Campbelltown LGA**
SREP 16 **Walsh Bay**	Aims to regulate the use and development of the Walsh Bay area within the City of Sydney and on Sydney Harbour.	**Does not apply to the Campbelltown LGA**
SREP 18 **Public transport corridors**	Aims to protect provision for future public transport facilities in the Fairfield, Parramatta, Holroyd and Baulkham Hills LGAs.	**Does not apply to the Campbelltown LGA**
SREP 19 **Rouse Hill Development Area**	Aims to provide for the orderly and economic development of Rouse Hill Town Centre in The Hills and Blacktown LGAs.	**Does not apply to the Campbelltown LGA**
SREP 20 **Hawkesbury Nepean**	Aims to protect the Hawkesbury-Nepean River System and applies to certain LGAs within Greater Metropolitan Region.	The aim of the SREP is to protect and enhance the Hawkesbury-Nepean River. As the EVPPR site is located within the water catchment for Hawkesbury-Nepean River System, SREP 20 applies. **EVPPR is considered capable of being consistent with the provision of SREP 20.**
SREP No 24 **Homebush Bay Area**	Aims to encourage the co-ordinated and environmentally sensitive development of the Homebush Bay area.	**Does not apply to the Campbelltown LGA**
SREP 25 **Orchard Hills**	Aims to protect the prime agricultural land of Orchard Hills within the City of Penrith.	**Does not apply to the Campbelltown LGA**
SREP 26 **City West**	Aims to promote the orderly and economic use and development of land	**Does not apply to the Campbelltown LGA**

	within the City West area (Pyrmont and Ultimo).	
SREP 28 **Parramatta**	Aims to establish regional planning aims for the Parramatta Primary Centre within Parramatta City Council and City of Holroyd.	**Does not apply to the Campbelltown LGA**
SREP30 **St Marys**	Aims to support the redevelopment of St Marys by providing a framework for sustainable development. Applies to land within the Blacktown and Penrith LGAs.	**Does not apply to the Campbelltown LGA**
SREP 33 **Cooks Cove**	Establishes the zoning and development controls for the Cooks Cove site in Rockdale LGA.	**Does not apply to the Campbelltown LGA**

Subdivision 2 of Division 17 addresses development in or adjacent to rail and road corridors and road reservations.

Clauses 87 and 101 contains objectives to ensure the effective and ongoing operation of a classified road and to minimise the impact of rail and traffic noise and vehicle emissions on adjacent development. A range of matters are required to be considered by a consent authority. These are addressed in Section 5.4.2.

5.3.11 IS THE PLANNING CONSISTENT WITH APPLICABLE MINISTERIAL DIRECTIONS (S 9.1 DIRECTIONS)?

The planning proposal is consistent with the applicable Ministerial Directions (s.9.1 Directions) see **Table 6** below.

TABLE 6– CONSIDERATION OF MINISTERIAL DIRECTIONS

s.9.1 Direction Title	Applicable	Consistent	Comments
1. Employment & Resources			
1.1 Business and Industrial Zones	Not applicable	Consistent. Development provides a mixed-use development with proposed B4 zoning, changing from B5 Business Development.	Not applicable, as the site is proposed to be rezoned from R2 to R3 & R4.
1.2 Rural Zones	Not applicable	The objective of this direction is to protect the agricultural production value of rural land.	Not applicable, as the site was zoned for urban purposes in 2017.

s.9.1 Direction Title	Applicable	Consistent	Comments
		1.2 (4) (a) states a Planning Proposal must not rezone land from a rural zone to a residential, business, industrial, village or tourist zone.	
1.3 Mining, Petroleum Production and Extractive Industries	Applicable	Yes	S.9.1. The proposal does not propose additional constraints to the subject resources. The matters regarding coal deposits, coal bed methane and sand and soil deposits were adequately considered in the original rezoning of the site for urban purposes in November 2017.
1.5. Rural lands	Not Applicable		Not applicable.
2. Environment & Heritage			
2.1 Environment Protection Zones	Applicable	Yes	Not applicable.
2.6 Remediation of Contaminated Land	Applicable.	Yes.	Land Capability Studies were undertaken as part of the MPURA rezoning in 2017 and concluded it would be suitable for residential purposes. However, more detailed investigation, remediation action plans and unexpected finds protocols should be pursued as part of the usual subdivision process.
3. Housing Infrastructure & Urban Development			
3.1 Residential Zones	Applicable	The objectives of this direction are: • to encourage a variety and choice of housing types to provide for existing and future housing needs, • to make efficient use of existing infrastructure and services and ensure	The proposal seeks to introduce the R4 High Density Residential zone to facilitate residential flat building development and expand the R3 Medium Density Residential zone for terrace and small lot housing product.

s.9.1 Direction Title	Applicable	Consistent	Comments
		that new housing has appropriate access to infrastructure and services, and • to minimise the impact of residential development on the environment and resource lands. 3.1 (5) (b) states a Planning Proposal must not contain provisions which will reduce the permissible residential density of land.	Additionally, provision is made for increased diversity in allotment sizes which would increase development yield and support the feasible delivery of essential infrastructure. Existing services will need to be upgraded to service the development site. This direction applies as it affects land within a zone in which significant residential development is proposed to be permitted. The objectives of the Direction have been listed in the 'Consistent Column". Having regard to these objectives, the Planning Proposal is consistent with this 9.1 Direction as follows: • The proposal will broaden the choice and housing choice available in the housing market; • The proposal will make more efficient use of existing infrastructure and services. The site is located adjoining Menangle Park Railway Station and can be readily serviced by a full range of utility services, including water, sewer, electricity. • The proposal will reduce the consumption of land for housing on the urban fringe by developing a site to a greater density that that

s.9.1 Direction Title	Applicable	Consistent	Comments
			currently occupied by semi-rural related activities. • The proposal will be of good design as detailed in the Vision Report.
3.3 Home Occupations	Applicable	The objective of this direction is to encourage the carrying out of low-impact small businesses in dwelling houses.	The proposal includes standard provisions to facilitate home occupations.
3.4 Integrating Land Use & Transport	Applicable	The objective of this direction is to ensure that urban structures, building forms, land use locations, development designs, subdivision and street layouts achieve the following planning objectives: • improving access to housing, jobs and services by walking, cycling and public transport, • increasing the choice of available transport and reducing dependence on cars, • reducing travel demand including the number of trips generated by development and the distances travelled, especially by car, • supporting the efficient and viable operation of public transport services, and • providing for the efficient movement of freight.	The land is located close to existing transport networks. The Planning Proposal is consistent with this 9.1 Direction as it provides an opportunity to integrate land use and transport through its location adjoining Menangle Park Railway Station and bus networks. The suggested walkable catchment for a railway station under the Government's publication "Improving Transport Choice – Guidelines for Planning and Development (DUAP 2001) is 800-1000 metres. The station is within 500m walking distance. A traffic report has been prepared by SCT Consulting Pty Ltd in support of the proposal. The report has addressed the likely impacts of the development on intersections. The proposal provides a sensitive juxtaposition of land uses, with appropriate accessibility.

s.9.1 Direction Title	Applicable	Consistent	Comments
4.Hazard & Risk			
4.1 Acid Sulphate Soils	Not applicable		Subject land not identified as being subject to acid soils. However, this aspect will be considered at the detailed design stage.
4.2 Mine Subsidence and Unstable land	Not applicable	Yes.	The land is in the south Campbelltown Mine Subsidence district. The relevant mine subsidence considerations underpinned the zoning for urban purposes in 2017. The current proposal is generally consistent in terms of the development impacts apart from the introduction of medium rise residential apartments which can be addressed via further consultation.
4.3 Flood Prone Land	Applicable	The objectives of this direction are: • to ensure that development of flood prone land is consistent with the NSW Government's Flood Prone Land Policy and the principles of the Floodplain Development Manual 2005, and • to ensure that the provisions of an LEP on flood prone land is commensurate with flood hazard and includes consideration of the potential flood impacts both on and off the subject land. 4.3 (5) states a Planning Proposal must not rezone land within the flood planning areas from Special Use, Special Purpose,	Land is not flood prone and the concept has considered this aspect. Drainage has been addressed by Northrop and addressed above in Section 5.4.2.

s.9.1 Direction Title	Applicable	Consistent	Comments
		Recreation, Rural or Environmental Protection Zones to a Residential, Business, Industrial, Special Use or Special Purpose Zone.	
4.4 Planning for Bush Fire Protection	Applicable	The objectives of this direction are: • to protect life, property and the environment from bush fire hazards, by discouraging the establishment of incompatible land uses in bush fire prone areas, and • to encourage sound management of bush fire prone areas.	Not bushfire prone.
5. Regional Planning			
5.10 Implementation of Regional Plans	Applicable.	Consistent.	The proposal is consistent with the Western Cities Regional Plan.
6. Local Plan Making			
6.1 Approval and Referral Requirements	Applicable	The objective of this direction is to ensure that LEP provisions encourage the efficient and appropriate assessment of development.	The EVPPR will be considered by RMS and CityRail for concurrence and consultation.
6.2 Reserving Land for Public Purposes	Applicable		The EVPPR will not affect and does not include any land reserved or identified for public purposes.
6.3 Site Specific Provisions	Applicable	The objective of this direction is to discourage unnecessarily restrictive site specific planning controls. 6.3 (4) (c) states a Planning Proposal that will amend another environmental planning instrument in order to allow a particular development proposal to be	It is not proposed to introduce controls for this land. The proposed uses would be permissible under the proposed zones.

s.9.1 Direction Title	Applicable	Consistent	Comments
		carried out must either: • allow that land use to be carried out in the zone the land is situated on, or • rezone the site to an existing zone already applying in the environmental planning instrument that allows that land use without imposing any development standards or requirements in addition to those already contained in that zone, or • allow that land use on the relevant land without imposing any development standards or requirements in addition to those already contained in the principal environmental planning instrument being amended.	
7. Metropolitan Planning			
7.1 Implementation of the Metropolitan Strategy	Applicable	The objective of this direction is to give legal effect to the vision, transport and land use strategy, policies, outcomes and actions contained in the Metropolitan Plan for Sydney 2036. (Please note: The State Government has exhibited a Draft Metropolitan Strategy for Sydney to 2031 for community input).	Yes. Assessment against 'A Metropolis of Three Cities' was considered in detail under Section 5.3.1.1.
7.12 Implementation of Greater Macarthur 2040	Applicable	Consistent	The proposal is generally consistent with the Greater Macarthur 2040: An Interim Plan for the Greater Macarthur Greater Area. Minor departures previously documented are considered acceptable.

s.9.1 Direction Title	Applicable	Consistent	Comments
			The EVPPR supports the vision by providing a range of building heights, with increased heights closest to the Town Centre to maximise pedestrian activity and increase trade for local businesses. The vision: • Provide a variety of housing types within walking distance of the station; • Provide a range of building heights, with increase heights closest to the Town Centre and maximise pedestrian activity; • Promote cycling and walking; • Promote ecological corridors;

5.4 SECTION C – ENVIRONMENTAL, SOCIAL AND ECONOMIC IMPACT

5.4.1 IS THERE ANY LIKELIHOOD THAT CRITICAL HABITAT OR THREATENED SPECIES, POPULATIONS OR ECOLOGICAL COMMUNITIES, OR THEIR HABITATS, WILL BE ADVERSELY AFFECTED AS A RESULT OF THE PROPOSAL?

The site is located in an urban environment proposed to be developed for mainly residential land uses. The northeastern corner of the site is known to contain critical habitat, being the Elderslie Banksia Scrub and will be retained and incorporated into the open space area. The current planning controls for Menangle Park seek to ensure appropriate biodiversity conservation outcomes in an urban release area context. Council's review of a development application to subdivide land within the site confirmed the presence of significant additional patches of the critically endangered Elderslie Banksia Scrub community that require specific protection and management measures.

It is proposed that the conservation of the Elderslie Banksia Scrub community include supplementary planning and the forging of linkages to proximate remnants, together with perimeter buffering. Conservation protection measures for this land may be either be via stewardship sites, positive covenant or zoning with related Vegetation Management Plans. Any open space opportunities within close proximity of the subject conservation areas shall be clearly delineated.

The current controls in respect of terrestrial biodiversity are contained principally in Clause 7.20 of the Campbelltown Local Environmental Plan 2015 and the associated Terrestrial Biodiversity Map.

Assessment of biodiversity impacts for the northeastern site is currently ongoing with respect to a separate development application lodged with Council, which has been withdrawn, but there have been ongoing discussions with Council officers in respect of the retention of the vegetation species.

5.4.2 ARE THERE ANY OTHER LIKELY ENVIRONMENTAL EFFECTS AS A RESULT OF THE PLANNING PROPOSAL AND HOW ARE THEY PROPOSED TO BE MANAGED?

The Planning Proposal will adopt the local provisions to the Standard Instrument Local Environmental Plan (SI LEP) to minimise the likely environmental impacts of future development. Water quality is a potential issue associated with the site, but can be managed and improved.

5.4.2.1 VISION REPORT

Urbis undertook a Vision Report of the potential development of the site for mainly residential development at **Appendix A**. A number of strategic documents were considered as part of the assessment. These included:

- Greater Macarthur 2040.
- Campbelltown Local Strategic Planning Statement.
- Campbelltown (Sustainable City) Development Control Plan 2015.
- Dahua Planning Proposal.

These documents were addressed in the Vision Report at **Appendix A**. The Vision report provides a layered strategy for the development of the site, as follows (refer to **Figure 11** below):

Open Space Network

Establish a network of open spaces including:

- A Village Park at the northeastern corner of the site for enough buffer space to preserve the retained trees and family activities. A Central Park at the mid-point of Fitzpatrick Street for civic gatherings. Communal Open Spaces within each development lots.
- Landscape Zone along Taber Street to retain and enhance the current streetscape character.
- Wider Main Boulevard preserving view to the northern hills from Taber Street.

Alignment with Ownership

Align the proposed development blocks and buildings with current ownership boundaries for the convenience of development to occur in stages.

Building Height

Establish built forms that are responsive to the context:

- Locate taller forms closer to the future town centre and lower townhouses facing the future R2 zone.
- Establish edge-defining built forms facing the open spaces and main corridors to enable greater legibility and also maximize view to green spaces

Movement

Increase site's permeability with a tier of proposed streets:

- Active Transport network including a primary green Main Boulevard with cycleways connecting Taber Street and the Central Park, active transport links connecting Racecourse Avenue and the Future Town Centre via Village Park and Central Park.
- Distributing vehicular traffic across a grid of local streets for greater connectivity.
- Access Laneways rear lane access within the townhouse zones.
- Through-site connection to further augment the permeability of the developable blocks.

FIGURE 11 – LAYERED VISION APPROACH

5.4.2.2 TRAFFIC AND TRANSPORT IMPACT APPRAISAL

The site is well serviced by public transport as discussed in the accompanying traffic report prepared by SCT Consulting at **Appendix B**. The following summarises the assessment report.

5.4.2.2.1 TRIP GENERATION AND DISTRIBUTION

Trip generation assumptions used in the Menangle Park Planning Proposal Traffic Impact Assessment Report, have been adopted in the preparation of this traffic assessment. Table 5-3 details the assumptions of trip generation used in this assessment. According to the density definition in the Menangle Park Planning Proposal Traffic Impact Assessment Report, high-density dwellings would incorporate small terrace/townhouse products on subject 200m² lots and medium-density would include townhouses and small-lot detached dwellings. Hence, all unit types for the site are categorised as high-density residential.

As discussed in Section 2.4, future background traffic volumes for Menangle Road and Spring Farm Parkway in 2026 were estimated based on the TMAP. It is assumed that the TMAP modelled 340 low-density residential dwellings for the subject site under the current land use zoning (R2), which would generate 323 and 337 vehicle trips during AM and PM peak hours (assuming 0.95 and 0.99 trips per dwelling for AM and PM peak hour). Hence, the net increase of the proposal would be 766 and 752 vehicle trips for AM and PM peak hours, respectively.

The traffic distributions are shown in **Table 7,** which are generally consistent with the Menangle Park Planning Proposal Traffic Impact Assessment Report.

TABLE 7 – TRAFFIC DISTRIBUTION

Directions	Routes	Inbound	Outbound
Northeast	North-south collector - Spring Farm Parkway (e)	50%	65%
Northwest	North-south collector - Spring Farm Parkway (w)	25%	20%
Southwest	Cummins Road – Menangle Road (w)	15%	10%
Southeast	North-south collector - Menangle Road (e)	10%	5%

5.4.2.2.2 ROAD NETWORK IMPACT

The net increased vehicle trips of the development were assigned to the surrounding road network and intersections based on the calculations in Section 0. The impact of the mid-blocks and intersections were analysed as follows.

Mid-block Traffic Impact

In consistent with the assessment undertaken in the Menangle Park Planning Proposal Traffic Impact Assessment Report, the capacity for Menangle Road and Spring Farm Parkway were 1,200 passenger cars while the capacity for collectors such as Cummins Road and North-South Collector was 1,000 passenger cars per hour per lane based on Table 5.1 of Austroads Guide to Traffic Management – Part 3: Traffic Studies and Analysis.

Figure 5-1 shows the locations for the mid-block analysis which cover Spring Farm Parkway, Menangle Road, Cummins Road and North-South Collector.

Given the intersection of Spring Farm Parkway / North-South Collector Road is the main gateway to Menangle Park connecting with not only Spring Farm Parkway but also the Hume Motorway and Menangle Road, the development traffic would worsen the mid-block performance of North-South Collector (close to Spring Farm Parkway) during the peak periods.

It is expected that in reality, some traffic would be diverted to use Menangle Road via North-South Collector where there is spare capacity to deal with the development traffic.

All other mid-block locations considered in this assessment in the vicinity of Menangle Park, have the capacity to cater for the additional traffic.

5.4.2.2.3 INTERSECTION TRAFFIC IMPACT

Future Year Base

As discussed in Section 5.1, the future year base models were developed based on available information from the Menangle Park Planning Proposal Traffic Impact Assessment Report such as geometry, and traffic volumes. It was not possible to find out the exact settings for signal plans and phase times and any other vehicle movement data settings. Hence, the traffic models for this assessment have been calibrated using vehicle movement data to maximise the consistency with the traffic models developed by GTA.

The results for future year base are shown in Table 5-6 which indicate similar LoS output compared to the GTA models. The three intersections proposed in the Menangle Park Planning Proposal Traffic Impact Assessment Report, operate at satisfactory levels in both modelled periods. However, the intersection of Spring Farm/North-South Collector Road would operate close to capacity given the DoS.

Future Year with Additional Development

With the additional development traffic generated by the subject site, the Spring Farm/North-South Collector Road intersection is forecast to operate over capacity during the peak hours assessed with a LoS F in both peak hours. The other two intersections would still operate at acceptable LoS as shown in **Table 8**.

TABLE 8 – INTERSECTION FORECAST

Intersection	Future year base			Future year base with development		
	Delay	LoS	DoS	Delay	LoS	DoS
Weekday AM Peak						
Menangle Road/North-South Collector Road	28s	B	0.89	28.5s	C	0.89
Spring Farm Parkway/North-South Collector Road	56.1s	D	0.94	134.2s	F	1.13
Menangle Road/Cummins Road	17.2s	B	0.51	15.7s	B	0.51
Weekday PM Peak						
Menangle Road/North-South Collector Road	17.8s	B	0.70	18.3s	B	0.74
Spring Farm Parkway/North-South Collector Road	44.4s	D	0.96	158.9s	F	1.37
Menangle Road/Cummins Road	14.7s	B	0.54	14.8s	B	0.54

Future Year with Additional Development and Upgraded Infrastructure

Further intersection upgrade for Spring Farm Parkway/North-South Collector Road is shown in Figure 5-2 including an addition of a through lane for the north and south approach and addition of a left-turn slip lane for the east approach (signalised) to improve the capacity and overall level of service.

This scope of infrastructure upgrade is considered to be limited given the site constraints surrounded by urban development.

Given about 75-85 per cent of the additional development traffic, i.e. nearly 600 cars, would use this intersection during the peak hours, the further upgrade would only improve the performance of the intersection to LoS E in the AM peak. The PM peak hour would see a reduction of delay by 50 per cent, despite a LoS F.

It is acknowledged that this intersection is the only access point to the north for the entire precinct (including Menangle Park URA and the subject site) where the majority of the traffic would use. It is expected that in reality, some traffic would be diverted to use Menangle Road/North-South Collector intersection where there is spare capacity to deal with the development traffic.

Sensitivity Test

A sensitivity test was further carried out for the intersection of Spring Farm Parkway/North-South Collector Road. It is acknowledged that the GTA report does not provide the flow diagram details, which makes it difficult to find out the traffic demand for specific turning movements generated by Menangle Park URA. However, up to 30 per cent of the total trips would travel to/from Menangle Road (northeast) via this intersection. With the long delays at this bottleneck, traffic using Menangle Road would likely reroute to ensure more reliable travel times.

The sensitivity test aims to divert one-third of the Menangle Park URA traffic (to/from the northeast on Menangle Road) from this intersection to the intersection of Menangle Road/North-South Collector Road. There is no change for the traffic using M31. The new routings are:
– Outbound traffic uses the North-South Collector southbound and turns left to Menangle Road instead of travelling along North-South Collector northbound and turning right to Spring Farm Parkway.
– The reversed route applies to the inbound traffic, i.e. traffic from the northeast on Menangle Road turns right at North-South Collector and access to the precinct from the south.

The rerouted traffic demand for Menangle Park URA was calculated based on the trip generation in the Menangle Park Planning Proposal Traffic Impact Assessment Report which would be redirected from the intersection of Spring Farm Parkway/North-South Collector Road. It is noted that the reduction of the PM peak hour demand is approaching the vehicle trips generated by the subject site.

5.4.2.2.4 PUBLIC TRANSPORT IMPACT

As stated in Section 2.3, a number of key roads to the north, west and east would become bus capable, enabling the site to be covered by bus services. With the proposed relocation of Menangle Park Town Centre to the nearby land parcels between the site and North-South Collector Road, it is expected that the bus frequency and bus route might increase.

The on-demand minibus service would link the users of the development closely with the public transport hub, activity centres and the Greater Macarthur. This would not only facilitate the public transport user group but also encourage mode shift of those car users to sustainable transport. It is envisaged that the minibus passengers would use online booking or mobile applications to ensure access to the service.

As discussed in Section 2.2, the extension of electric train suburban services to Menangle Park would improve train accessibility and availability for the site residents such that a wider 30-minute coverage by public transport can be realised.

The public transport network is expected to be able to cope with the additional trips generated by the proposed development given a relatively low net increase of the public transport demand.

5.4.2.2.5 ACTIVE TRANSPORT IMPACT

Active transport can be one of the most convenient modes for short-distance trips given the relocation of the Town Centre. The road network within the site is grid-like in structure, providing numerous crossing opportunities and reducing travel distance between residential areas and the Town Centre. The roads to the north, west and east are proposed to accommodate off-road cycle paths, which facilitates the site residents to cycle to a wider area.

5.4.2.3 CONCLUSION

The proposal would see an uplift of 1,838 residential dwellings from the development scale permitted zoning under the R2. In summary:

- The rezoning of the site to medium-high density responds to the housing target for the Greater Macarthur Growth Area and the vision for promoting development opportunities close to public transport, local centres and employment.
- The site will benefit from upgrades to roads, public transport, and active transport networks as considered in the Greater Macarthur 2040. They include a connection between the Hume Motorway and Appin Road in Rosemeadow (Spring Farm Parkway), a public transport and walking and cycling extension of Menangle Road, a transport corridor running north-south through the land release precincts and connected to the rail line at Douglas Park, and local walking and cycling network facilities.
- *Campbelltown Local Strategic Planning Statement's* consideration of providing electric train suburban services to Menangle Park and south-facing ramps from the Spring Farm Parkway to the M31 Hume Motorway will further benefit the site's connectivity to the wider region, its communities, and its place.
- The proposed development would generate a net increase of over 750 vehicle trips during AM and PM peak hours respectively, which will have an impact on the surrounding road corridors and precinct access points.
- For future year without development in 2026, the three intersections assessed would operate at satisfactory levels in both peak hours. However, the intersection of Spring Farm/North-South Collector Road would operate close to capacity given the DoS. This is consistent with the findings from the Menangle Park Planning Proposal Traffic Assessment.

- With the additional development traffic, the Spring Farm/North-South Collector Road intersection is forecast to operate over capacity during the peak hours assessed with a LoS F for both peak hours.
- Given about 75-85 per cent of the additional development traffic would use this intersection during the peak hours, further upgrades of this intersection has been considered at this gateway intersection, that would improve the performance of the intersection to LoS E in the AM peak hour. The PM peak hour would see a reduction of delay by 50 per cent, despite a LoS F.
- A sensitivity test aims to divert one-third of the Menangle Park URA traffic (to/from the northeast on Menangle Road) from this intersection to the intersection of Menangle Road/North-South Collector Road. With the reduced traffic volumes by about 400 to 500 cars, traffic modelling confirms that the intersection would operate satisfactorily for both peak hours.
- The additional development traffic would also worsen the mid-block performance especially on North-South Collector (close to Spring Farm Parkway) during the peak periods. Through the sensitivity test, it is expected the diverted traffic from Menangle Park URA would also result in better LoS for the mid-block performance on North-South Collector.
- An alternative infrastructure upgrade is to propose a flyover for Spring Farm Parkway (through movements only) at the intersection with North-South Collector Road with signals or roundabouts at grade for all other turning movements.
- It should be noted that this current traffic study has not considered the full benefits of the additional east-west connections as suggested by Greater Macarthur 2040. The additional capacity of the east-west connections could reduce traffic demands along the Spring Farm Parkway and provide additional capacity for turning traffic at the intersection of Spring Farm Parkway/North-South Collector Road.
- Further modelling of the upgraded intersection is recommended post gateway to confirm the performance and the contribution to a wider road network efficiency.
- The road network surrounding the site would be bus-capable whereas the internal street network increases permeability and accessibility for active transport, encouraging green transport use for the site.

5.4.3 STORMWATER ASSESSMENT

In respect of stormwater generated by the proposed development, Northrop at **Appendix C** have undertaken an assessment of the potential impacts of the proposed rezoning on the stormwater system.

5.4.3.1 STORMWATER DESIGN

5.4.3.1.1 EXISTING CATCHMENT FLOW RATES

The existing site topography and catchments have been delineated using LiDAR contours (Figure 12). The site has a 5.4 Ha upstream catchment conveying overland flows to Taber Street, along the southern boundary of the site.

Currently there is a grassed swale on the south side of the Taber Street that drives these flows westward towards the existing pit and pipe system located on the corner of Racecourse Avenue and Taber Street. Further hydraulic analysis is required at detailed design stage to determine existing road drainage capacity of Taber Street and whether any of these flows bypass into the site, if so and identify management options.

The site itself is split into two catchments whereby 12.6 Ha drain towards Fitzpatrick Street and 6.5 ha falls in the direction of Racecourse Avenue. Each of the site catchments eventually drains to an existing drainage point in the road.

The Fitzpatrick Street catchment drains to an existing 900x900 grated pit in the northeast corner of the site and pipes flows northward to the creek downstream, while the Racecourse Avenue catchment drains to an existing 900x900mm raised grated pit at the southwest corner of the site and pipes flows south along Racecourse Avenue.

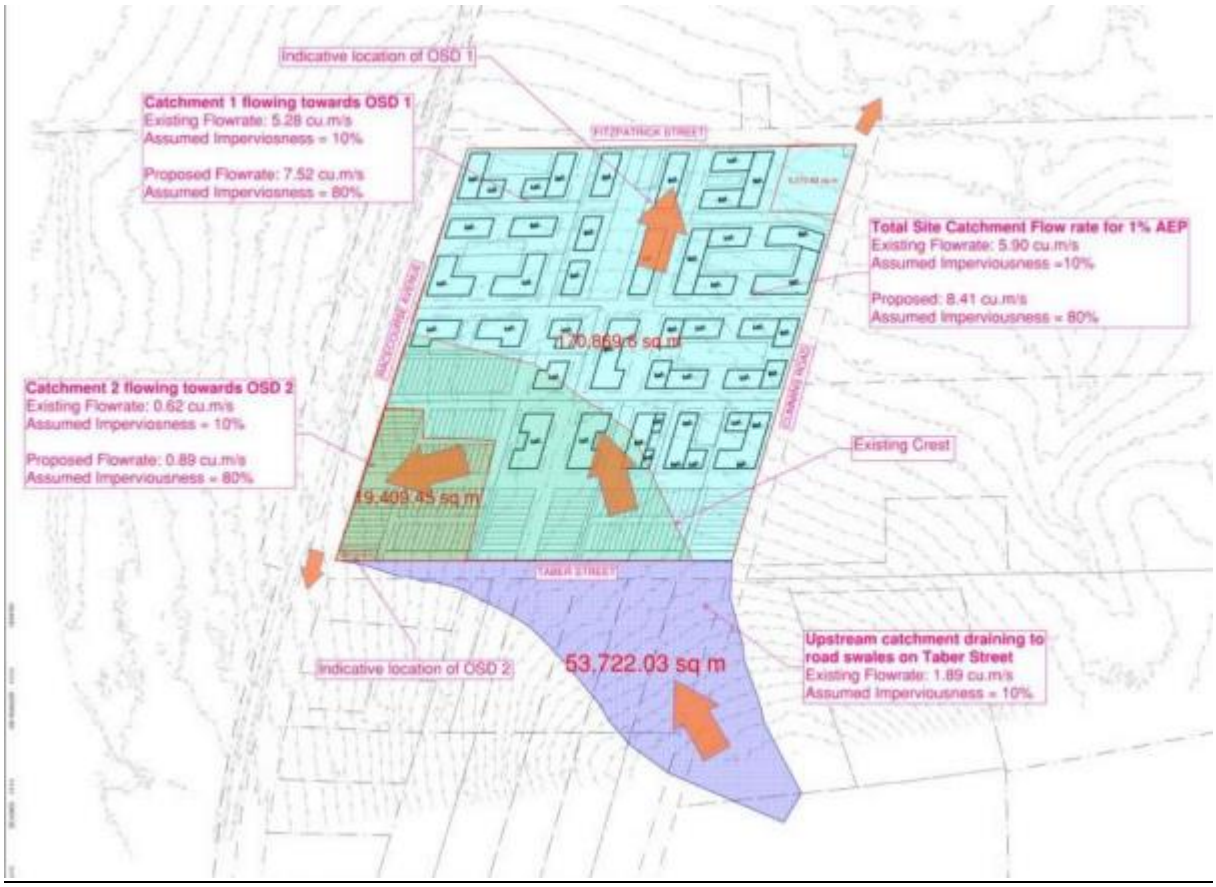
A DRAINS model was established to determine existing catchment flowrates. Since the area is currently mostly grassed and has very little paved and roofed area, an imperviousness of 10% was adopted for the existing model. This resulted in an existing peak flowrate of 5.90 cu.m/s for the 19ha site catchment in the 1% AEP event (100-year storm), and 1.89 cu.m/s for the 5.4 ha upstream catchment.

5.4.3.1.2 PROPOSED CATCHMENTS

As part of the redevelopment strategy, the site is anticipated to be divided into two catchments to imitate the existing topography and natural fall of the area, where majority of the site shall be graded towards Fitzpatrick Street and the southwest portion shall fall to the corner of Racecourse Avenue and Taber Street as shown in **Figure 12**.

Cut / fill of levels in the southwest corner of the site shall be minimised and existing levels retained where possible to reduce impacts to existing flood storage in this flood affected portion of the site.

FIGURE 12 – PROPOSED SITE CATCHMENTS AND FLOW RATES



5.4.3.1.3 PROPOSED FLOW RATES

For the proposed concept works, it is expected that the site imperviousness shall be increased to 80% to account for the higher density of residential dwellings, new internal roads, driveways and paved areas throughout the site. This ultimately results in a proposed site peak flow rate of 8.41 cu.m/s in the 1% AEP storm. Proposed catchments and individual catchment flowrates comparison are shown in **Table 9**.

TABLE 9 – EXISTING SOCIAL INFRASTRUCTURE

	Catchment to Fitzpatrick Street	Catchment to Racecourse Avenue	Total Site Catchment
Area (ha)	17.0	2.0	19.0
Existing 1% AEP Flowrate (cu.m/s)	5.28	0.62	5.90
Proposed 1% AEP Flowrate (cu.m/s)	7.52	0.89	8.41
Impact (cu.m/s)	+ 2.24	+ 0.27	+ 2.51

5.4.3.1.4 ON-SITE DETENTION

The concept architectural masterplan proposes to increase the zoning density of the site and therefore would result in a higher fraction of paved surfaces compared to the existing conditions (including additional roofs, public roads, driveways and individual lot hardstand surfaces). This leads to increased runoff generated from the site as documented in Table 2, and would require site based stormwater management controls to ensure runoff from the development is limited to existing runoff flowrates up to the 1% AEP storm event. On Site Detention (OSD) is therefore proposed and designed using DRAINS modelling to achieve Council's stormwater quantity management objectives to accommodate up to the 1% AEP stormwater flows. Two options for the OSD design and site stormwater management are proposed as part of the concept civil strategy.

5.4.3.1.5 PROPOSED STORMWATER – OPTION A

As discussed in the proposed catchments, site regrading is to be implemented to allow majority of the site to be captured by a series of road pit / pipes and conveyed into the proposed bioretention swales and OSD system in the northern portion of the site (Figure 14). A series of on grade kerb inlet pits will be used throughout the roads and intersections, with grated surface inlet pits being utilised throughout the pedestrian transport area that runs from east to west indicated by the grey hatching.

The OSD proposed to treat this main catchment (17 Ha) will be in the form of either an underground tank or an open dpepressed basin that stretches along the main greenway up to the northern site boundary as shown in **Figure 15,** subject to further modelling and investigation.

The OSD will act as a sag point for this catchment, with allowance for pipe inlets entering from three directions at approximately RL 82.0. Portions of this main catchment will bypass this OSD tank as indicated by the pink and blue catchment hatches in **Figure 14**, and individual OSD's will be required within the buildings to treat the stormwater within those individual lots. With the provision of a total OSD volume of 4,500 m3, initial results see a peak main catchment Permissible Site Discharge (PSD) of 3.72 cu.m/s, resulting in a 30% decrease in existing flows. Outflows from this tank are to be piped along Fitzpatrick Street and across to existing headwall and swale downstream of Fitzpatrick Street.

The remainder of the site (secondary 2 Ha site catchment) shall be graded towards the southwest corner of the site, with the assistance of retaining walls proposed throughout (and particularly along the western boundary) to shape site levels and guide overland flows into the road and interallotment pit / pipes to the proposed secondary OSD. This OSD is designed as an above-ground landscaped basin and is located in the southwest corner adjacent to Taber Street, making use of the 10m wide strip of between the lots and southern site boundary as shown in Figure 16.

Based on DRAINS modelling, an OSD with volume of 180 m3 can support this 2 Ha catchment and reduce proposed peak PSD flows to 0.58 cu.m/s in the 1% AEP event, resulting in a 10% reduction of existing flowrates. A 525mm outlet pipe is proposed to connect to the existing pit on the other side of Taber Street.

5.4.3.1.6 PROPOSED STORMWATER – OPTION B

Option B has a similar stormwater flow strategy to the concept proposed in Option A, however, the OSD situation differs such that the communal OSD's in Option A are replaced with individual lot / building OSD's (potentially in the form of rainwater tanks for smaller residential dwellings and OSD tanks for larger buildings). Individual OSD sizing would be subject to modelling per each lot at DA phase. The provision of lot-based OSD's would benefit the site by reducing pipe sizes and allowing more a more flexible grading strategy.

5.4.3.1.7 STORMWATER QUALITY

The proposed treatment train has been designed to treat the stormwater flowing through the proposed stormwater system such that they meet the requirements established in Table 4 above. The treatment train consists of a combination of the following to treat the catchments illustrated in Figure 19:

- **Pit Baskets:** EnviroPod proprietary pit basket inserts (or similar) installed within the proposed pits located at the downstream point of the 'Bypass' catchments. These will intercept gross pollutants and some total suspended solids from the site catchment, prior to offsite discharge.
- **Bioretention Swales:** The proposed stormwater plan illustrates a main Boulevard that runs through the centre of the site north towards the proposed OSD tank. Either side of the boulevard, as well as around the edges of the detention, Bioretention swales are to be implemented are a focal point of pollutant treatment. Water is designed to pond temporarily as it travels through the swales to allow the uptake of nutrients through vegetation. These swales will collect flows at the sag and reduce pollutants before eventually entering the proposed OSD. They will be implemented to treat proposed catchments 1A, 1B, 1C and 2.
- **Gross Pollutant Traps:** GPT provide proprietary primary treatment to remove the majority of the bulky pollutants from the initial stormwater runoff. They are the intended as a first line of treatment in WSUD and are proposed to treat catchments 1A, 1B, 1C and 2 prior to the stormwater discharge into the Bioretention swales.

5.4.3.1.8 MODEL RESULTS

The results of the analysis showed the treatment train will partially achieve the water quality targets in compliance with the requirements of Council policies. **Table 10** below displays the effectiveness of the treatment train for the site.

The water quality model created using MUSIC software provides an indication of the pollutant removal rates expected when a treatment train of water quality measures is applied to the proposed layout of the development.

TABLE 10 – MUSIC MODEL RESULTS

Pollutant	Before Treatment	After Treatment	DCP/Stretch % Objective	% Reduction	Compliance
Total Suspended Solids (kg/yr)	24100	2970	80/85	87.7	**Yes**
Total Phosphorus (kg/yr)	48.8	17	45/70	65.2	**Yes (DCP Only)**
Total Nitrogen (kg/yr)	343	162	45/55	52.6	**Yes (DCP Only)**
Gross Pollutants (kg/yr)	3350	22.4	90	99.3	**Yes**

As evident in the results, all pollutant reduction targets are met based upon the council DCP standards. In regard to the stretch compliance targets, Phosphorus and Nitrogen fell short by a factor of 4.8% and 2.4% respectively. It is important to note that the design and modelling is subject to change and further refinement at detailed design phase where the master plan layout is further developed and that individual rainwater retention within the lots can additionally be implemented to assist in further pollutant reduction and work towards the compliance targets.

As discussed in section 2.2 and 4,3, the proposed treatment train is temporary until future regional basins are implemented by council as part of the overall Dahua Menangle Park IWCM Strategy. We therefore consider the concept treatment train design, compliant in accordance with council's DCP targets, with the results having the potential to be further developed once future regional basins are implemented.

5.4.3.2 CONCLUSION

This engineering report has been prepared for the rezoning and stormwater redevelopment of East Village, Menangle Park. It provides a general overview of the civil works required to achieve the masterplan concept strategy, with an in-depth review of stormwater strategy and planning approach to service this redevelopment.

Stormwater provisions are to be implemented in and around the entire site as part of the concept management plan, with consideration to two strategies for OSD management. It is important to note that OSD location and sizing, as well as road and stormwater grading is not final, and subject to change based upon further refinement of the masterplan layout and further modelling.

This strategy, once developed and modelled further, shall comply with Campbelltown Councils approval framework for stormwater and civil development.

5.4.4 SERVICE INFRASTRUCTURE

Existing services, such as electricity and sewer will need to upgraded for the proposal.

5.4.5 HOW HAS THE PLANNING ADEQUATELY ADDRESSED ANY SOCIAL AND ECONOMIC EFFECTS?

In respect of social infrastructure, Urbis have undertaken an assessment at **Appendix E**.

5.4.5.1 EXISTING SOCIAL INFRASTRUCTURE

As part of this assessment, all social infrastructure within a 2km radius of the site was mapped to understand the existing level of provision (see Figure 5 on the following page). Given the existing low density, rural nature of the area, there is little in the way of existing social infrastructure. **Table 11** below summarises the provision of social infrastructure within the 2km radius and the broader region.

TABLE 11 – EXISTING SOCIAL INFRASTRUCTURE

Facility type	2km radius	Provision summary
Open space and recreation	**1**	Within 2km of the site there is one existing local open space. There is no neighbourhood open space or district/regional open spaces. Menangle River Reserve is located 1km south of the Macarthur he site, on the banks of the Nepean River. There are currently no formalised recreation space spaces within 2km of the site. Once complete the Macarthur Regional Recreational Trail will form a 14km shared pedestrian and cyclist route north of the site between Camden town centre, through the Australian Botanic Gardens to Campbelltown railway station.
Community and libraries	**0**	There is currently limited access to community and library facilities from the site. Within Campbelltown Centre there are several community and cultural facilities. This includes HJ Library, which is planned to be upgraded to provide a multi-purpose regional library and community space. There are no hirable community spaces within a 2km radius of the site. The closest community spaces are in the neighbouring suburbs of Ambarvale, Glen Alpine, Rosemeadow and Spring Farm
Education	**1**	Broughton Anglican College is the only school located in the suburb and is within 2km of the site. The college is a kindergarten to year 12 school. As of 2020, there were 1,080 students enrolled at the school (Australian Curriculum, Assessment and Reporting Authority). The closest public primary school, Mary Brooksbank School, is located approximately 3.5km east of the site in Rosemeadow. Ambarvale High School is the closest public secondary institution, located 4.5km east of the site. The closest tertiary institution is Campbelltown TAFE, located approximately 5.5km north east of the site.
Childcare	**1**	Bellbirds Early Learning Centre is the only childcare centre in Menangle Park, located opposite the site. A desktop review shows the centre has enrollment capacity, with places available for children aged 6 weeks through to 36 months from Monday to Friday.
Health	**0**	There is currently limited access to general local health centers. Rosemeadow Community Health Centre is the closest, located approximately 4.5km from the site. Macarthur Square Medical and Dental Centre are also located approximately 5km north east of the site. Campbelltown Hospital and Campbelltown Private Hospital are located 5.5km north east of the site. Campbelltown Hospital is a major healthcare provider to the Macarthur region, providing a range of health services.

5.4.5.2 PROPOSED SOCIAL INFRASTRUCTURE

As outlined in Section 1 of this report, the structure plan proposes 2,179 new dwellings within the East Village site. The social infrastructure planned as part of the proposal consists of public open spaces totalling 10,444sqm in area.

These spaces are proposed to be the:

- **Village Park** in the north eastern corner of the site, adjacent to the location of the town centre as proposed in the DGPP. This park is proposed to be 5,334sqm in area. It will be surrounded to the west and south by apartment buildings of eight storeys in height.
- **Central Park** in the centre north of the site, surrounded by apartment buildings of six storeys in height. This park is proposed to be 5,110sqm in area.

These spaces are connected east-west by an active transport link. A proposed boulevard also runs south from Central Park to Taber Street, through the centre of the site. Communal open spaces for use by residents of apartment buildings are proposed throughout the area.

The following facilities are proposed as part of the DGPP:

- **Education**: a public primary school site with an adjoining 1ha of active open space, available for wider community use
- **Community centre:** a community centre between 1,000sqm and 1,300sqm in size, on a site to be determined
- **Library and cultural space:** a new library and cultural space to be a minimum size of 500sqm as part of the community centre, or contributions towards an off-site library and cultural facility/s
- **Childcare centres:** the proposed zoning within the town centre, neighbourhood centre and residential zones will allow for centre based child-care through private sector provision
- **Health:** the provision of medical facilities and social services is intended to be explored during the detailed design phase.

As detailed in Table 3, approximately 135ha of open space is proposed as part of the DGPP. This includes 23.3ha of local and district parks and 19.8ha of formal or 'active' recreation space.

In addition to this space, there is understood to be a joint proposal from Camden and Campbelltown City Councils for a Macarthur Regional Recreational Trail Network looping south from Spring Farm and Mount Annan, and north of the East Village site.

5.4.5.3 SOCIAL INFRASTRUCTURE NEEDS

Open space and recreation

The East Village concept plan proposes 10,444sqm of open space in the form of a Village Park and Central Park. Based on a NDL of 142,909sqm, this equates to 7.3% of the site being open space.

As noted on the previous page, the proposed guidance released by DPIE for comment in September 2021 recommends 15% of NDL be provided as public open space. The quantity of open space proposed in the East Village concept plan is below this threshold. Additional open space of just under 11,000sqm would need to be included in the proposal to meet the benchmark currently being proposed by DPIE.

In terms of park sizes, Village Park is proposed to be 5,334sqm and Central Park is proposed to be 5,110sqm. The sizes of each park meet DPIE's recent minimum size recommendations for a 'medium' sized park.
They also meet:

- the Draft Greener Places Design Guide recommendation size for parks in high density areas (minimum of 3,000sqm in area)
- Council's recommended sizes for local (2,000 – 10,000sqm and neighbourhood (5,000 – 20,000sqm) open space.

In terms of accessibility, all residents are proposed to be within 400m of at least one of the two parks. This aligns with the direction.

The site is also within 2km of around 43ha of public open space being proposed as part of the DGPP.

Future residents of the site will likely be able to access this open space once approved and delivered, particularly for higher order district and regional level open space needs. A full assessment of the accessibility and usability of this space for residents of the East Village has not been included within the scope of this report.

Community, library and cultural space

There is currently limited access to community, library and cultural facilities from the site. The closest regional level facilities are in Campbelltown, with some other small community spaces in the neighbouring suburbs of Ambarvale, Glen Alpine, Rosemeadow and Spring Farm.

As outlined on page 19, the DHGPP masterplan proposed the delivery of a community centre of 1,000sqm – 1,300sqm. A library and cultural space may be included as part of the community centre, or contributions will be made by Dahua Group for a new off site library or cultural facility.

As part of Campbelltown Council's Reimagining Campbelltown masterplan, a new regional level multi-purpose centre with a library and community centre will be delivered in Campbelltown town centre. It is also proposed to expand and enhance the Campbelltown Arts Centre Based on the community facilities benchmark of 80sqm/1,000 people adopted by a range of Sydney councils (including Blacktown City Council, City of Parramatta, City of Ryde and Hornsby Shire Council) the projected incoming population would generate demand for about 300sqm of community space.

Based on the NSW State Library Population Based Library Calculator, the population is likely to generate demand for around 260sqm of library space.

When combined, there is likely to be demand for around 550sqm of community space. Contemporary planning suggests minimum sizes for community facilities of around 500sqm. It is also preferrable to integrate space within one building or co-locate community spaces and libraries in town centres so they are easily accessible and will be more useable.

It is therefore likely that the need for community, library and cultural space will be met by the facility provided as part of the DGPP, the new regional library and community facility in the Campbelltown city centre and upgrades to the Campbelltown Performing Arts Centre.

Education facilities

As Menangle Park currently has a very small population, there is only one school in the suburb: Broughton Anglican College.

Planning for public schools is undertaken by the Department of Education (DoE), typically looking at demand for schools within a regional catchment. In its Mixed-Use Developments: School Design Requirements – A Guide for the Development sector, School Infrastructure NSW indicates a maximum of 1,000 students for primary schools and 2,000 students for secondary schools.

Based on the indicative age profile on page 15, the incoming population is expected to include around 362 primary school aged children (5 – 11 years) and around 286 high school aged children (12 – 17 years). The incoming population of the site will not in itself generate demand for a primary or secondary school.

To accommodate future growth, the DGPP masterplan includes plans for a new primary school. This is proposed to be located approximately 1km from the site. The demand for primary school space created by the East Village proposal is likely to be met by the delivery of this primary school.

As there are no known plans for a government secondary school in Menangle Park, the incoming population is likely to place some pressure on the availability of secondary school places. It is recommended that consultation is undertaken with DoE to understand future plans for secondary schooling in the area.

Childcare

It is generally not necessary that precise requirements for childcare be identified within a planning proposal. This assessment considers whether there are ways in which the need for childcare can be met within and around the site.

Based on the indicative age profile, it is likely the incoming population will include 305 children aged between 0 and 4 years. This will generate demand for approximately 102 childcare places, which could support a medium sized childcare facility.

As noted on page 16, there is currently one childcare centre located within 2km of the site. A desktop review indicates this facility has current vacancies. The DGPP also indicates that up to five childcare centres could be delivered by the private sector within the permissible zones of the masterplan including the town centre, neighbourhood centre and residential zones.

Demand for childcare is likely to be met through private sector provision in the Menangle Park town centre, or within the residential areas of East Village.

Health

There is currently limited access to local health centres from Menangle Park. Rosemeadow Community Health Centre and Macarthur Square Medical and Dental Centre are the closest centres to the site, and are located around 5km away. Campbelltown Hospital and Campbelltown Private Hospital are also located around 5km from the site.

The national benchmark for general practitioners (GPs) is one per 1,000 people. Contemporary medical centres typically employ a minimum of four GPs. Based on this, the incoming population of the site may support three to four GPs or one new medical centre.

It is likely that the future town centre delivered as part of the DGPP masterplan will include a medical centre. This is likely to support the general health needs of the incoming population of East Village. Higher order health needs are likely to be met facilities within the Campbelltown city centre.

It is therefore recommended that, as part of the detailed planning for the project:

- Further consideration be given to the provision of public open space to meet the local and neighbourhood level open space needs of the incoming population. This may be through direct provision on site, or through developer contributions or a voluntary planning agreement for off site provision.

- The relationships between the public open space proposed in the East Village and DGPP areas be mapped and analysed in more detail. This will assist in understanding the capacity of open space in the DGPP area to meet the needs of community members in the East Village.
- Consultation be undertaken with DoE to understand future plans for secondary school provision in the area.

5.5 SECTION D – STATE AND COMMONWEALTH INTERESTS

5.5.1 IS THERE ADEQUATE PUBLIC INFRASTRUCTURE FOR THE PLANNING PROPOSAL?

Road infrastructure to serve the proposal was addressed above in Section 5.4.2.1; whilst social infrastructure was addressed in Section 5.4.3.1.

5.5.1.1 LOCAL INFRASTRUCTURE

Council approved the Menangle Park Contributions Plan, which became effective on 24 April 2018. Council commenced the process of seeking IPART assessment of the Plan in May 2018 with the view of seeking consideration to contributions exceeding the $20,000 per lot/dwelling cap. The Menangle Park Contribution Plan 2020 was amended following review by IPART.

The EVPPR will require amendments to the adopted Contributions Plan and further revision by IPART. In lieu of this process, the proponents would be prepared to undertake to enter into a Voluntary Planning Agreement (VPA) with Council for the provision of all required infrastructure within their land holdings and to make a contribution towards any relevant external infrastructure.

5.5.1.2 STATE INFRASTRUCTURE

The Department of Planning, Infrastructure and Environment (DPIE) has executed two State Voluntary Planning Agreements (SVPAs) for the Menangle Park Urban Release Area. Clause 6.1 of the Campbelltown Local Environment Plan 2015 provides that the Consent Authority must not grant Development Consent for certain land subdivision in an Urban Release Area unless the Secretary has issued a Satisfactory Arrangements Certificate regarding the provision of Designated State Public Infrastructure.

The proponents would enter into the SVPAs with the Minister to enable a Satisfactory Arrangements certificate to be issued for future development applications, subject to compliance.

5.5.2 WHAT ARE THE VIEWS OF STATE AND COMMONWEALTH PUBLIC AUTHORITIES CONSULTED IN ACCORDANCE WITH THE GATEWAY DETERMINATION?

Formal consultation has not been undertaken at this stage with State or Commonwealth public authorities. The Gateway determination will identify any consultation required with State or Commonwealth Public Authorities. This will include:

- Consultation required in accordance with a Ministerial Direction under section 9.1 of the EP&A Act: and
- Consultation that is required because in the opinion of the Minister (or delegate), a State or Commonwealth public authority will or may be adversely affected by the proposed LEP.

Consultation is required with public authorities under section 3.30 of the EP&A Act 1979, as amended.

6 Mapping

Maps illustrating the current Campbelltown LEP 2015 zoning and height controls where provided at **Appendices G** and **H** respectively. The maps for the proposed amendments are provided.

7 Part 4 – Community Consultation

Community consultation remains an important element of the Plan making process. The companion document "A Guide to Preparing Local Environmental Plans" outlines community consultation parameters. The subject provisions in respect of notification and the exhibition materials to support the consultation will be observed.

Before proceeding to public exhibition, the Director General of Planning (or delegate) must approve the form of the Planning Proposal as being consistent with the "Gateway" determination (EP&A Act 3.34).

It is envisaged that further community consultation would occur through the public exhibition of detailed documents lodged with the development application for the development proposal.

This further consultation will, at a minimum include, advertising in local papers, exhibition material provided at Campbelltown Council administration building and libraries and Campbelltown Council's webpage and the required written notifications that would ordinarily be required.

Once Council is satisfied with the amended Planning Proposal following determination at the Gateway, it is recommended that it will be publicly exhibited for a period of 28 days in accordance with Section 5.5.2 of the Department of Planning and Environment's publication *'A Guide to Preparing Local Environmental Plans'*.

8 Indicative Project Timeline

The following project timeline is advanced in **Table 12** below.

TABLE 12 – PROJECT TIMELINE

Project Detail	Timeframe	Timeline
Lodgement	N/A	December 2021
Council Review/Reporting	3 months	March 2022
Anticipated commencement date (Gateway determination)	2 months from submission to DPIE	May 2022
Anticipated timeframe for the completion of required technical	N/A	N/A

Project Detail	Timeframe	Timeline
information – after specialist study requirements determined		
Amendment of Planning Proposal, if needed	1 month	June 2022
Commencement and completion dates for public exhibition period & government agency consultation – after amending Planning Proposal, if required	2 months	August 2021
Dates for public hearing, if required	Not required	N/A
Timeframe for consideration of submissions	1 month	December 2022
Timeframe for the consideration of proposal post exhibition, including amendments and maps and report to Council	1 month	February 2023
Date of submission to the Department to finalise the LEP (including 6 week period for finalisation)	2 months	April 2023
Anticipated date RPA will make the plan, if delegated	Not applicable	N/A
Anticipated date RPA will forward to the Department for notification	N/A	N/A

9 Conclusion

The preceding commentary has clearly established a case for the limited review the planning provisions as they pertain to the subject lands. Council is accordingly requested to take the necessary steps to commence the process of rezoning the subject lands as detailed in this submission at Section 5.

Council, as the responsible Planning Authority, is requested to support and forward this EVPPR to the Department of Planning and Infrastructure for progressing through the "Gateway" in an expedient manner.

SINCERELY YOURS,

M J BROWN
DIRECTOR
MICHAEL BROWN PLANNING STRATEGIES PTY LTD

Appendix "A"
Vision Report

URBIS

EAST VILLAGE, MENANGLE PARK REZONING

VISION PREPORT

PREPARED FOR

MICHAEL BROWN PLANNING STRATEGIES PTY LTD

AUGUST 2021

CONTENTS

URBIS.COM.AU

INTRODUCTION

PROJECT BACKGROUND

The subject site is a block of land near Menangle Park Station currently zoned as R2 low density residential. In 2018, Dahua Group submitted a planning proposal that suggested to relocate the Menangle Park town centre, next to the subject site. Dahua's planning proposal would bring significant amenities and intensity of development, presenting the site with an opportunity to be redeveloped.

The objectives of this development is to:

- Facilitate additional housing opportunities closer to amenities and employment for a more sustainable city.
- Establish a built outcome that seeks to retain and celebrate the current character and heritage assets in the future urban setting.
- Create a road/development layout that aligns with the current land ownership for the convenience of future redevelopment.

PURPOSE OF THE REPORT

The purpose of this study is to identify a development scheme for the site based on alignment with strategic directions, consideration of recent adjacent planning activities and understanding of site specific conditions. Our approach involved:

- Understanding the site:
  - A review of strategic planning policy and recent nearby planning proposal;
  - Analysis of the urban context considering both existing and future character, as well as site specific opportunities and constraints;
- Vision and structur plan for the subject site; and
- The layered strategies that informed the structure plan.

SITE DESCRIPTION

The subject site is located off the Southern Height Train Line and has an area of approximately 19 ha in total. The site is bound by:

- Fitzpatrick Street along the full extent of the northern boundary,
- Taber Street along the full extent of the southern boundary with dwellings on both sides and significant trees,
- Racecourse Avenue to the west and Cummins Road to the east, both of which further connects to Menangle Road and leads to Macarthur and Campbelltown.

The land consists of 19 parcels and is leagally described as below:

- Lot 1 DP 389348, Lot 56 DP 1102480, Lot 52 & 55 DP 10718, Lot A & B DP 364350 and Lot A DP 341800 No's 12-46 Fitzpatrick Street;
- Lot 40, 41, 47, 48, 49, 50 & 51 DP 10718 No's 182-232 Racecourse avenue;
- Lot 39, 42, 43, 44, 45 and 46 DP 10718 No's 1-41 Taber Street;
- Lot 58 & 57 DP 10718 No's 111 and 121 Cummins Street.

Figure 1 Site Aerial

The site has a gentle slope from the south-east to the north-west. It is low lying within the wider landscape with creek corridors to the north-east and west, and local ridgelines towards the north, south-east and the south-west. It is predominantly rural in character and includes small rural land holdings with residential development of low height and density. Lots are typically large with single dwellings separated by wide open setbacks. The dwellings generally have a large front setback to the street and are predominantly single storey brick buildings with pitched roofs.

A large portion of the site is relatively open and grassed, with scattered trees and groups of established vegetation including; a cluster of mature vegetation on the corner of Cummins Road and Fitzpatrick Street, treed boundary lines separating the lots along the southern edge of the site and a visually significant stand of mature trees towards the centre of the northern boundary separating 12 and 26 Fitzpatrick Street.

Parts of the open space is used for grazing by small hobby farmers, associated open shelters for these animals are present particularly along Fitzpatrick Street.

South-eastern boundary of site

South-east corner of site

View west down Taber Street

South boundary of site towards the north

North-west corner of site

STRATEGIC CONTEXT

This section of the document provides an overview of the Strategic and Site Specific Planning context relevant to the site for the this Planning Proposal.

Relevant documents include:

- Greater Macarthur 2040
- Campbelltown LSPS (2020)
- Campbelltown DCP
- Dahua Planning Proposal

GREATER MACARTHUR 2040

Greater Macarthur 2040 sets out a land use and infrastructure implementation plan for the Greater Macarthur Growth Area. In the light of this strategy:

- Land within Menangle Park was released and rezoned for urban development for around 4,000 new homes.
- East-west running Spring Farm Parkway was introduced. It connects the residential and industrial areas within Greater Macarthur Growth Area and enables direct access to Hume Motorway and Menangle Road.

LEGEND

- Subject Site
- Local Centre
- Indicative East-West Connection
- Indicative Transport Corridor
- Existing Urban Land
- Train Line / Station
- Employment Land

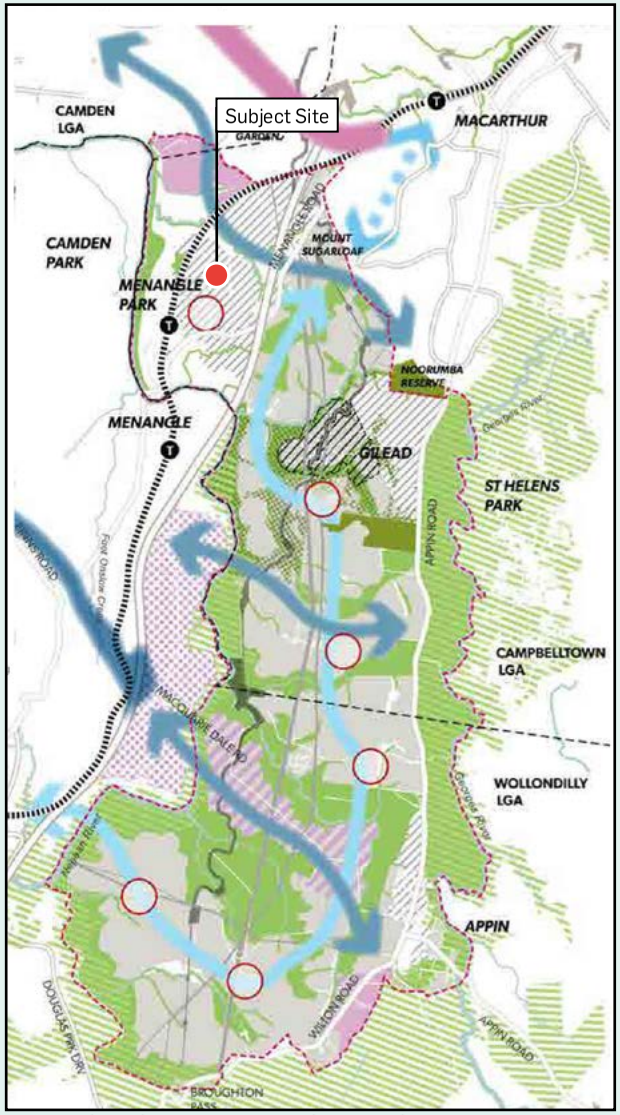


Figure 2 Structure Plan (Source: Greater Macarthur 2040)

CAMPBELLTOWN LSPS

Campbelltown Local Strategic Planning Statement (LSPS) plans for community's social, environmental and economic needs over the next 20 years and sets out planning priorities to ensure the LGA could thrive in the future that aligns with the local context.

The LSPS identifies Menangle Park as a part of Urban Release Area with a potential to provide 20,000-30,000 m² employment floor space.

LEGEND

- Subject Site
- Future Transport Link
- Urban Land
- Proposed Land Release Area

KEY INSIGHTS

- Menangle Park is presented with a unique opportunity for residential and employment as a new local centre.
- Greater connectivity will be provided to other centres within the Greater Macarthur region.

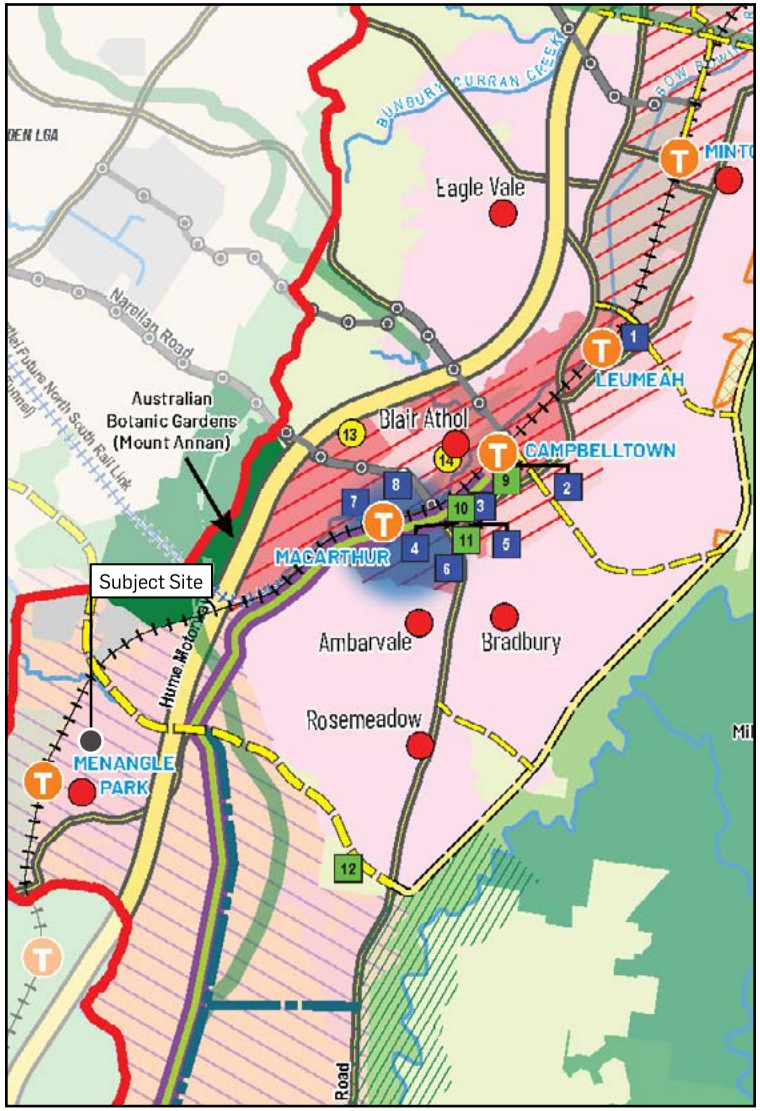


Figure 3 Structure Plan (Source: Campbelltown LSPS 2040)

CAMPBELLTOWN DEVELOPMENT CONTROL PLAN 2009 - MENANGLE PARK

"Menangle Park will be an attractive residential community set against a natural landscape backdrop. Its historic connections to the Menangle Park Paceway, Glenlee Homestead and the Nepean River will provide important cues in establishing the character of the future residential community."

- Campbelltown DCP

Campbelltown Development Control Plan 2009 Volume 2 Part 8 is dedicated to set out controls and visions for land within Menangle Park.

The DCP proposes the following:

- A structure plan that suggests a town centre close to Menangle Park Station station. The town centre is entitled to a maximum commercial floor space of 20,000 m² and maximum building height of 4 storeys.
- Impacts of views to and from Glenlee House are minimised.
- 3,500 new dwellings.
- The subject site is proposed as standard lots with maximum height of 8.5m and FSR of 0.55:1 (Campbelltown LEP).
- Trees at the northeastern corner of the site is identified as Moderate Quality Vegetation

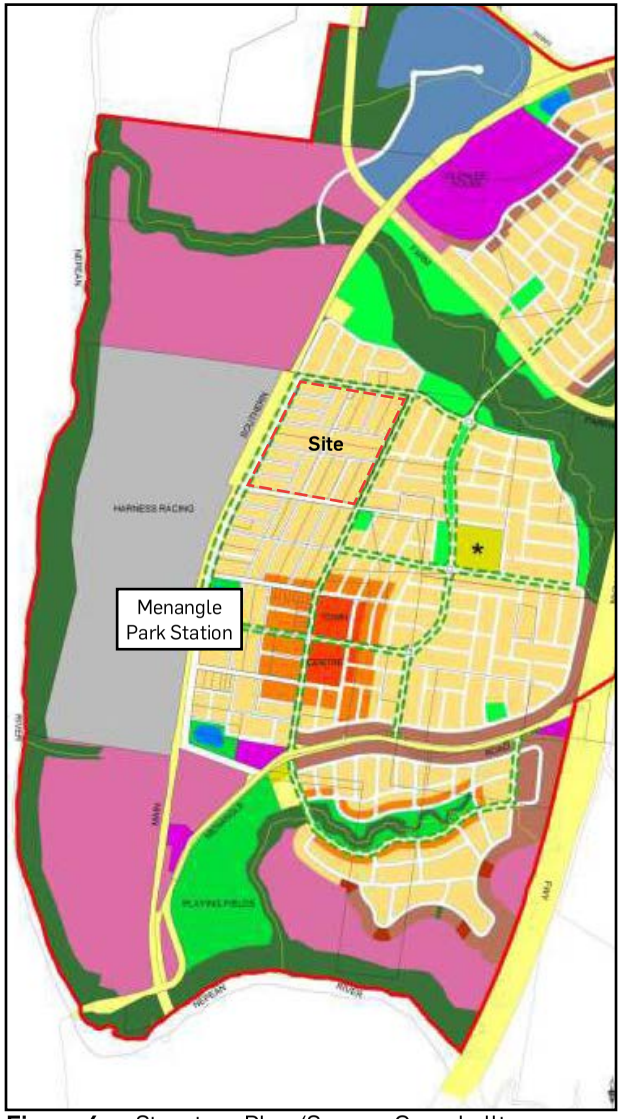


Figure 4 Structure Plan (Source: Campbelltown DCP 2009)

Figure 5 Potential Offset Revegetation Locations (Source: Campbelltown DCP 2009)

LEGEND

- Subject Site
- Standard Lots
- Small Lots
- Town Centre

DAHUA PLANNING PROPOSAL

In 2018, Dahua Group sumbitted a planning proposal that aimed to expand and move the town centre closer to Spring Farm Parkway Link next to the subject site.

The planning proposal proposes:

- Approximately 5,250 dwellings (an increase of 1,850 compared to council's DCP) in various densities.
- 30,000 m² of retail/employment GFA at the newly proposed town centre area.
- A neighbourhood centre and a school at the original town centre location.
- Potential playing fields to the northwestern corner of the site.

The master plan nominates low density development and an open space on the subject site, medium density to the north and town centre to the immediate east. Meanwhile, 'Town Centre Character' has been introduced to all these areas. The southern block was suggested with low density development with primarily 'Station and Horse Racing Character'.

KEY INSIGHTS

- The new town centre will present the subject site with high level amenity and employment opportunities.
- The closer proximaty to the new town centre will bring significant re-development opportunity to the land owners within the subject site.

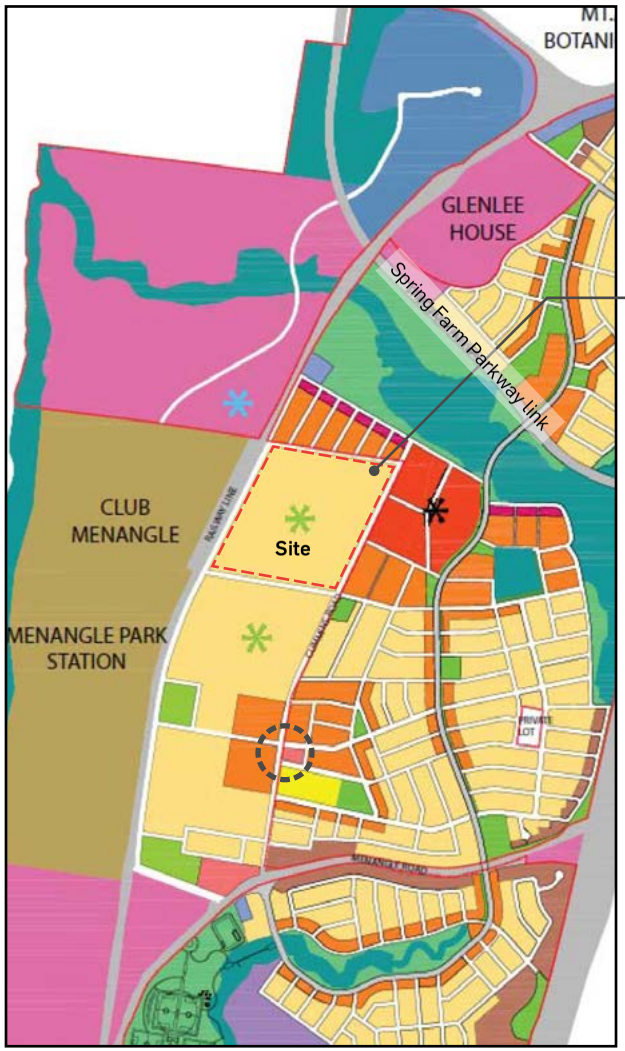


Figure 6 Master Plan (Source: Menangle Park Planning Proposal Dahua Group 2018)

Town Centre Character

Station and Horse Racing Character

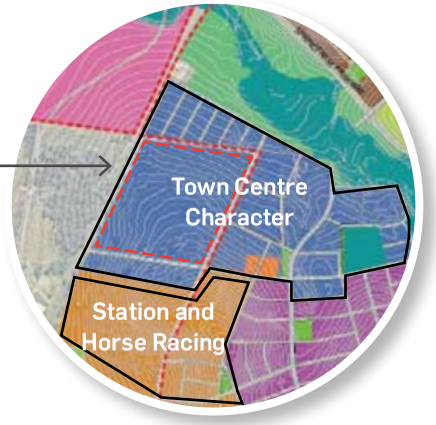


Figure 7 Proposed Character Precincts (Source: Menangle Park Planning Proposal Dahua Group 2018)

LEGEND

- Subject Site
- Future Open Space
- Indicative Open Space/Civic Area
- Additional Two Playing Fields
- Low Density Lots
- Medium Density Lots
- Town Centre
- Rural
- School
- Neighbourhood Centre / Community Centre

URBAN CONTEXT AND SITE ANALYSIS

SITE LOCATION CONTEXT

The subject site is conveniently located 500m away from the Menangle Park Station, however, there is a lack of established amenities and services in its close vicinity.

The closest town centres are:

- Macarthur Town Centre, 10 minutes drive (9.5 km) via Menangle Road, and 5 minutes ride by train to Macarthur Station.
- Campbelltown Town Centre, 15 minutes drive (11.3km) via Menangle Road, and 8 minutes ride by train to Campbelltown Station.
- The Nepean River runs in a north -south alignment to the west of the railway corridor and is marked by distinctive pyramidal canopy of native Allocasuarina species (Sheokes).
- The site has a view to the distant northern Mount Annan.

LEGEND

- Subject Site
- Town Centres
- Highway
- Arterial Roads
- Train Line / Station
- Views To Scenic Features
- Mount Annan

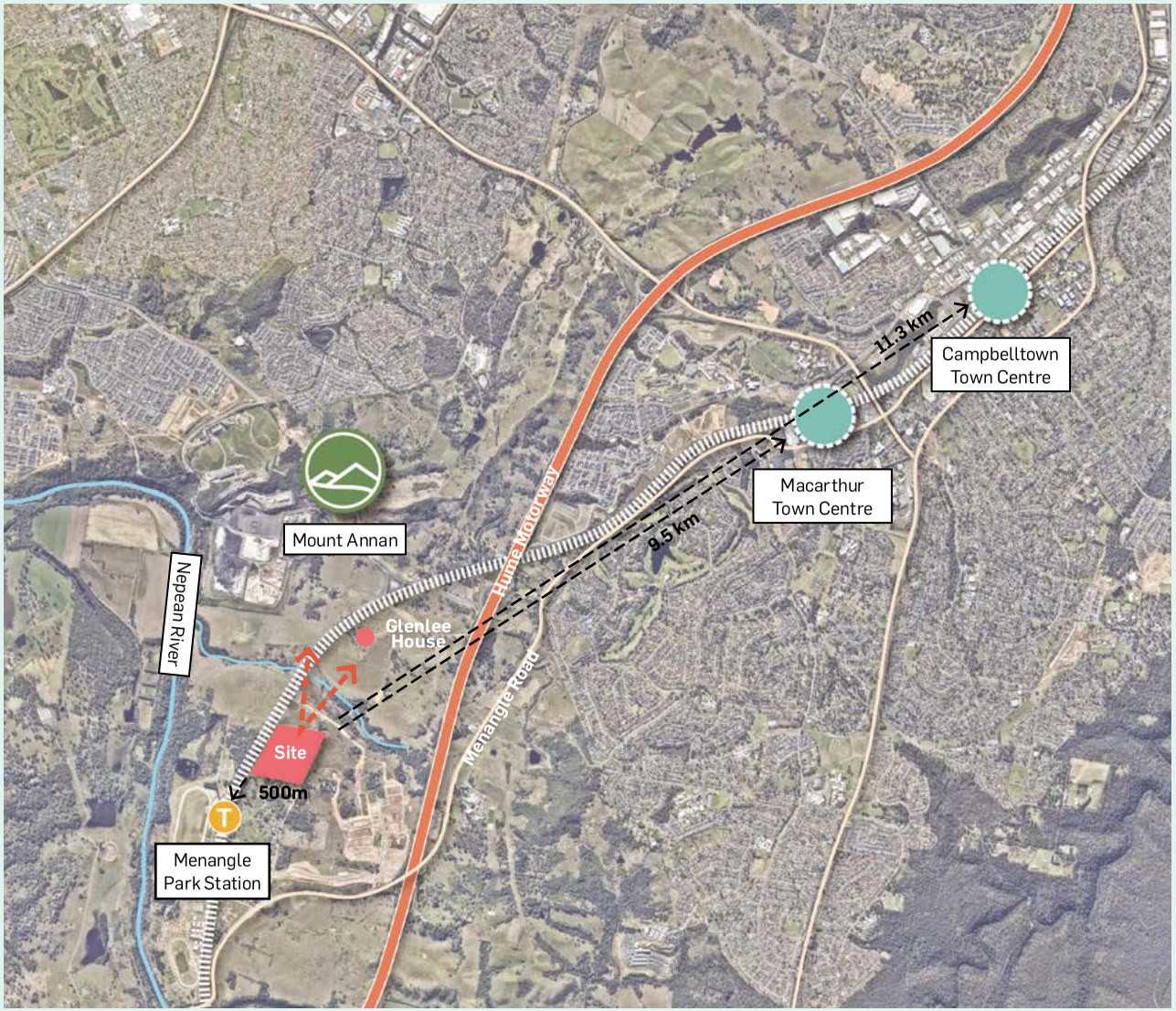


Figure 8 Site Location

VISUAL CHARACTER OF SURROUNDING CONTEXT

The landscape directly surrounding the site is characterised by relatively open rural land and typical features for example, unformed rural road edges and turfed swales, post and wire fences, isolated groups of remnant vegetation, riparian corridors that are identifiable by associate vegetation, hobby farms and shed structures.

A large block of established vegetation that lines Racecourse Avenue and the rail corridor runs parallel to the western boundary of the site. The Blue Mountains are visible in distant views. To the south west is Club Menangle and its adjoining oval shaped horse track.

The block directly to the south of the site is of similar character to the subject site, including large lots with single dwellings and open grassed areas. The eastern portion of the block is significantly treed with less open spaces and built form relative to the subject site.

To the east and south-east open grassed spaces separate the site from the Hume Motorway and a local high point Mount Pleasant is to the south-east. The visual character of land north-east of the site is influenced by a densely vegetated creek corridor and in the distance the wider visual context includes the southern edge of the Scenic Hills.

View north along Racecourse Avenue

View north from north-east corner of site

View from Cummins Road to northern hills

View north from north-east corner of site

CONSTRAINTS

Key site constraints are listed as follows:

- The subject site is currently owned by 14 different land owners. Future development will need to allow for sufficient flexibility for the lands to be redeveloped in stages.
- A patch of trees are identified as moderate quality vegetation by Campbelltown DCP 2009. 20m buffer has been introduced to assist retain the trees.
- The southern site is faced with existing low density dwellings and there are no applicable uplifts in the future. Development within subject site will need to be sympathetic with this interface to minimise negative impacts on lower rise dwellings.

LEGEND

- Site
- Moderate Quality Vegetation (Campbelltown DCP 2009)
- Vegetation Patch Buffer
- Train line
- Low Rise Developments
- Multiple Lots Under One Ownership
- Multiple Lots Under Different Ownership

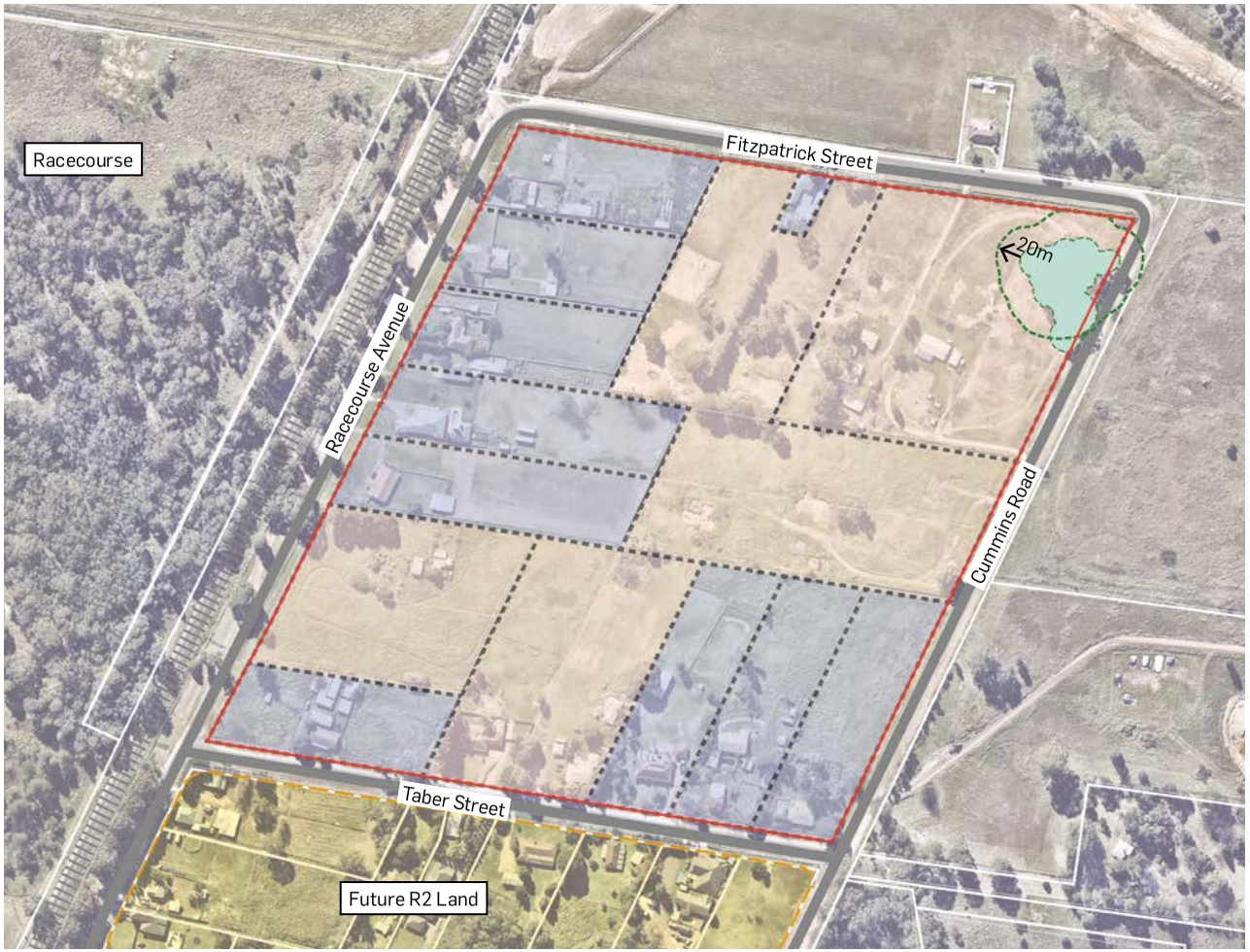


Figure 9 Site Constraints

OPPORTUNITIES

Responses of the design to the scenic resources of the subject site are as follows:

- The visually significant stand of vegetation at the north-east corner of the site is retained and incorporated into the open-space strategy.
- A wide spatial separation between north-south aligned buildings is proposed approximately mid-way along Fitzpatrick Street. This separation creates a potential view corridor through the northern part of the site and allows for access to views of scenic features to the north.
- There is an opportunity for retention of some existing 'rural-character' streetscapes along the southern Taber Street boundary. Also, proposing lower development at this location will provide a better interface with the low density zones within the southern block.
- The town centre proposed by Dahua presents greater development opportunities towards the northeastern corner of the site because of the proximity to amenities and employment.

LEGEND

- Site
- Open Space Opportunities
- Low Rise Developments
- Dahua Proposed Town Centre
- Edge-defining Buildings With Wider Separation Distances
- Opportunity For View Corridor and Central Boulevard
- Opportunity For Vegetation Retention Zone
- Opportunity For Taller Development
- Opportunity For Lower Development For Better Transition

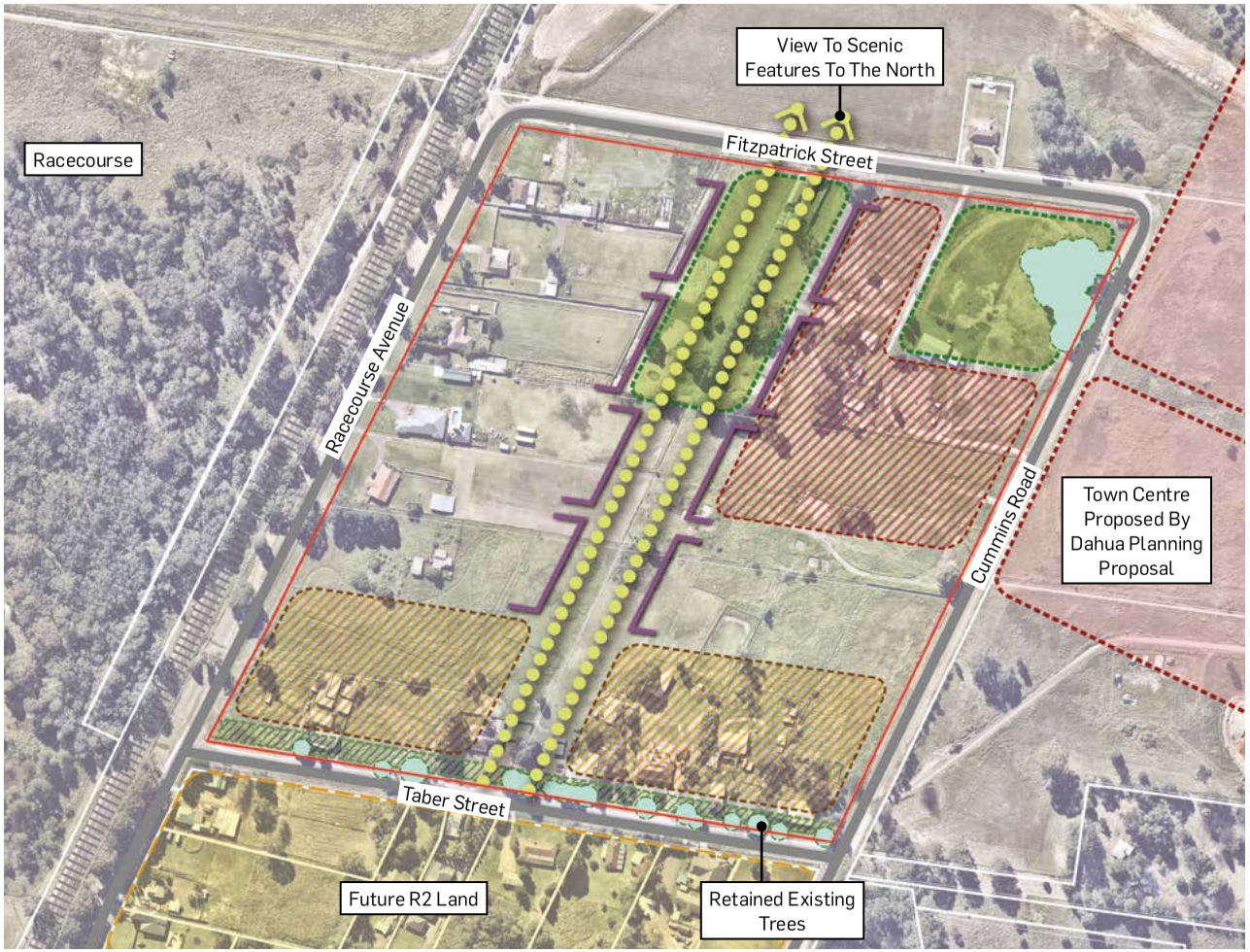


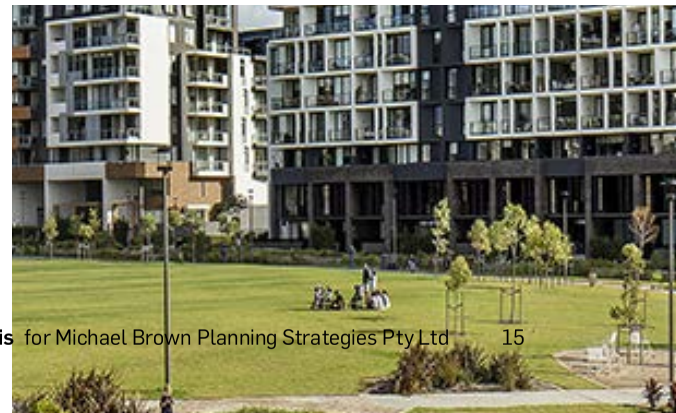
Figure 10 Site Opportunities


VILLAGE
PRECINCT

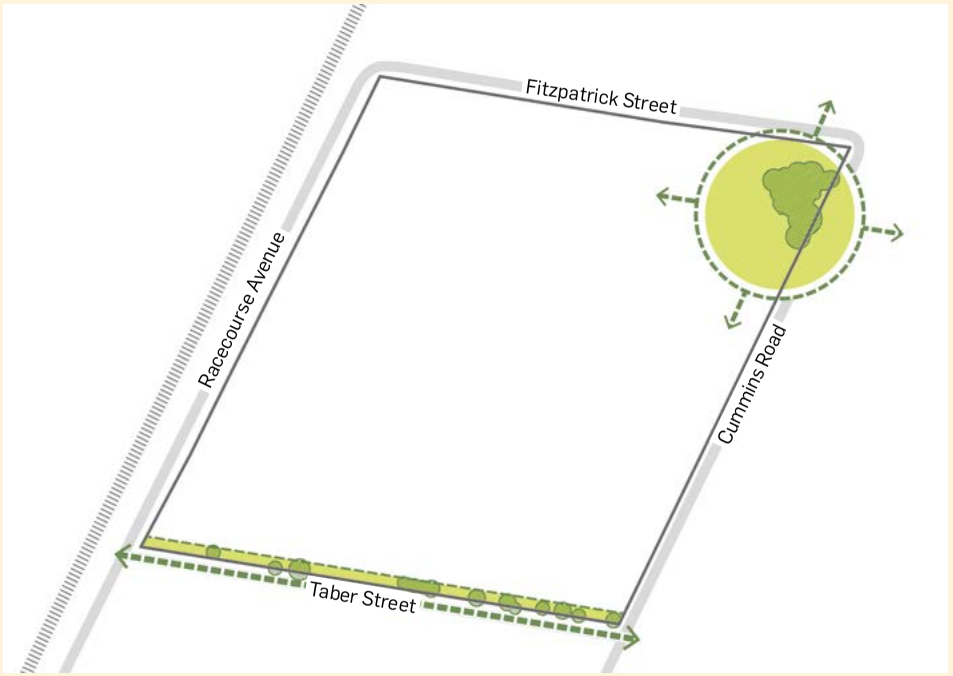
THE VISION

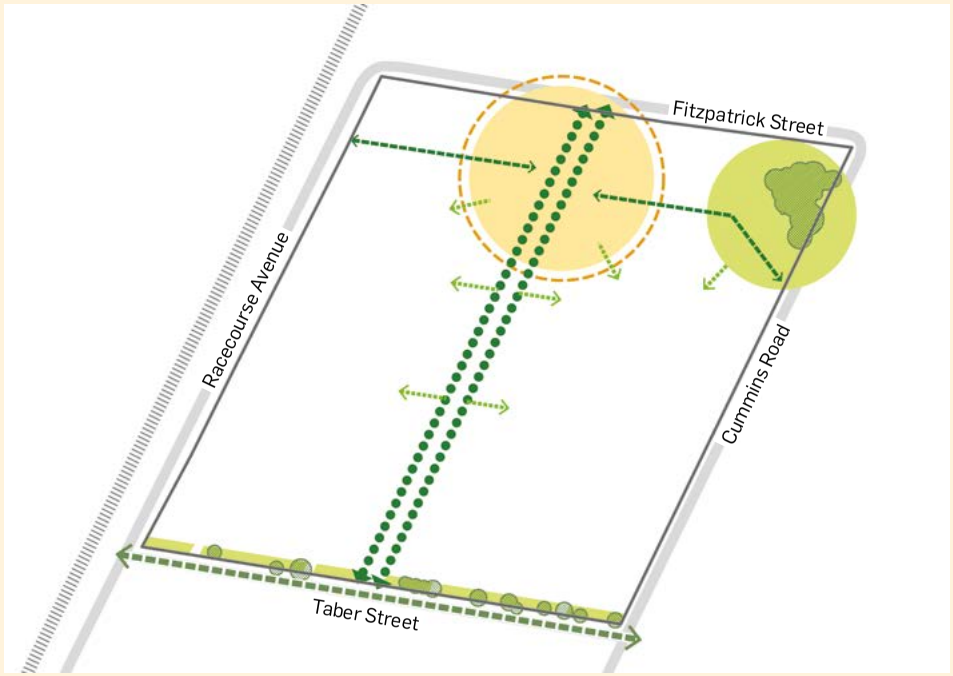
"EAST VILLAGE"

The site is envisaged to be a thriving, sustainable and well-serviced village in close proximity to the new Menangle Park Town Centre, providing a diverse mix of housing opportunities nestled within scenic landscape setting.



'EAST VILLAGE' PLACE PRINCIPLES





CAPITALISING EXISTING LANDSCAPE ASSETS

- Retain and enhance the leafy character along Taber Street and preserve the trees at the northeastern corner of the site.
- Establish a rural-style landscape zone along Taber Street to enhance local streetscape.
- Create an open space at the Fitzpatrick Street and Cummins Road intersection around the retained tree group.

WELL-CONNECTED OPEN SPACE NETWORK

- Create an opening around the mid-way location of Fitzpatrick Street as a place for the community to meet and gather.
- Introduce a wider central north-south running corridor and preserve a view corridor to the further northern scenic features.
- Create active transport network that connects the proposed landscaped features and establish a sense of place.

INTRODUCE BUILT FORMS THAT RESPECTS FUTURE CHARACTER OF THE PRECINCT

- Arrange taller apartment forms close to the future town centre proposed by Dahua's planning proposal at the northeastern corner of the site.
- Locate lower townhouses towards the southern boundary of the site to provide a smoother transition in scale to the proposed future low density zones within the block to the south of the site.
- The landscape strip along Taber Street will contribute to mitigating the impacts brought by the developments within the site.

IMPROVED PERMEABILITY THAT ENABLES BETTER CONNECTIVITY

- The scale of the blocks are determined by the establishment of an urban grain that is permeable to pedestrians and cyclists.
- Additional through-site links within private development lots further augment the permeability of the precinct.
- Align the road with current land ownership to allow the development to occur in stages.

STRUCTURE PLAN

The Structure Plan opens up a private site and transforms it into a public neighbourhood supported by closeby retail, commercial and community uses. A diverse community for all benefited from access to public transport, major arterial roads, jobs and schools.

LEGEND

- Site
- Ownership Boundaries
- Train line
- Communal Open Space
- Building Footprints
- Open Space
- Terraces Lots
- Apartment Lots
- Vegetation Patch 20m Buffer
- Active Transport Link
- Main Boulavard
- Taber Street Landscape Zone

Figure 11 Structure Plan


CENTRAL PARK
MAIN BOULEVARD
TRAIN LINE

LAYERED STRATEGY

OPEN SPACE NETWORK

LEGEND

- Site
- Communal Open Space
- Main Boulevard
- Proposed Green Spaces
- Main View Corridor
- Retained Trees
- Vegetation Patch 20m Buffer
- Active Transport Link
- Taber Street Landscape Zone

Establish a network of open spaces including:

- A Village Park at the northeastern corner of the site for enough buffer space to preserve the retained trees and family activities. A Central Park at the mid-point of Fitzpatrick Street for civic gatherings. Communal Open Spaces within each development lots.
- Landscape Zone along Taber Street to retain and enhance the current streetscape character.
- Wider Main Boulevard preserving view to the northern hills from Taber Street.

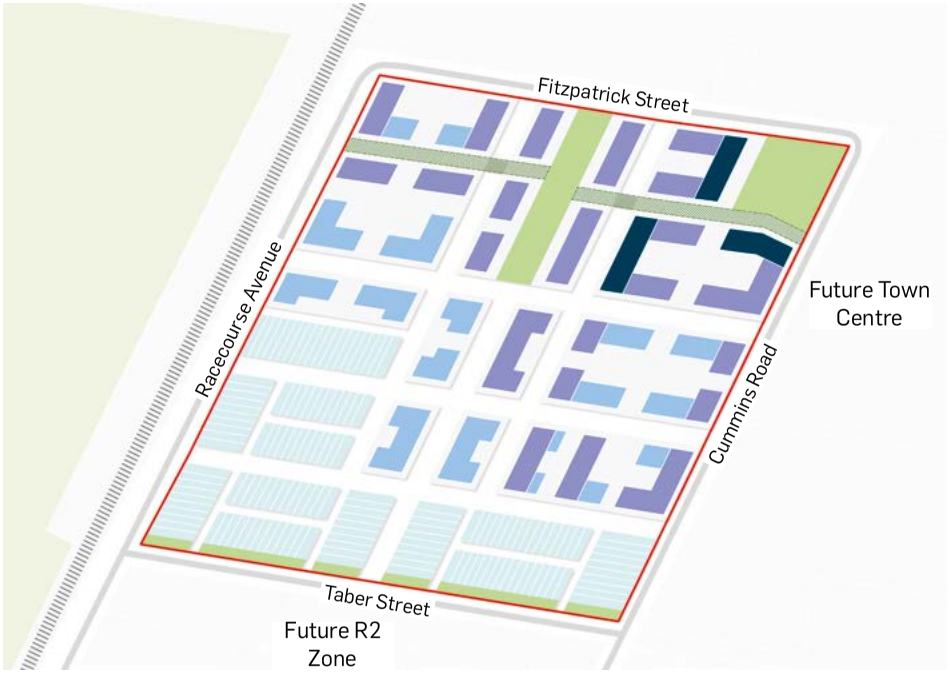
ALIGNMENT WITH OWNERSHIP

LEGEND

- Site
- Open Space
- Ownership Boundaries
- Development Lots
- Building Footprints

Align the proposed development blocks and buildings with current ownership boundaries for the convenience of development to occur in stages.

BUILDING HEIGHT



LEGEND

- Site
- Open Space
- 8 Storey Apartments
- 6 Storey Apartments
- 4 Storey Apartments
- 2-3 Storey Townhouses

Establish built forms that are responsive to the context:

- Locate taller forms closer to the future town centre and lower townhouses facing the future R2 zone.
- Establish edge-defining built forms facing the open spaces and main corridors to enable greater legibility and also maximize view to green spaces.

MOVEMENT

LEGEND

- Site
- Open Space
- Main Boulevard
- Local Streets
- Active Transport Links
- Through-site Links
- Access Laneways

Increase site's permeability with a tier of proposed streets:

- Active Transport network including a primary green Main Boulevard with cycleways connecting Taber Street and the Central Park, active transport links connecting Racecourse Avenue and the Future Town Centre via Village Park and Central Park.
- Distributing vehicular traffic across a grid of local streets for greater connectivity.
- Access Laneways rear lane access within the townhouse zones.
- Through-site connection to further augment the permeability of the developbale blocks.

BUILT FORM PRECEDENTS

4 storey apartment forms

Townhouses nestled in leafy landscape setting

Apartment with direct entry to ground floor terraces

Apartment addressing the public space at lower levels

LANDSCAPE PRECEDENTS

Communal open space

Communal open space

Main Boulevard

Central Park

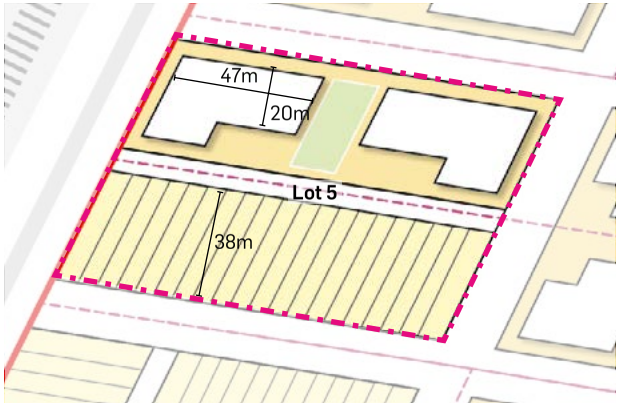
Village Park


VILLAGE PARK
CENTRAL PARK

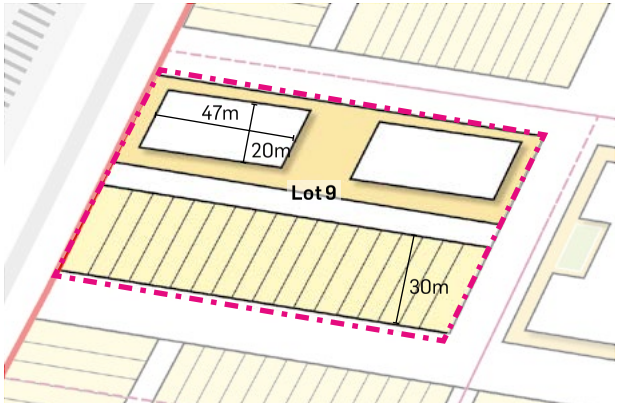
BLOCK TYPOLOGY ANALYSIS

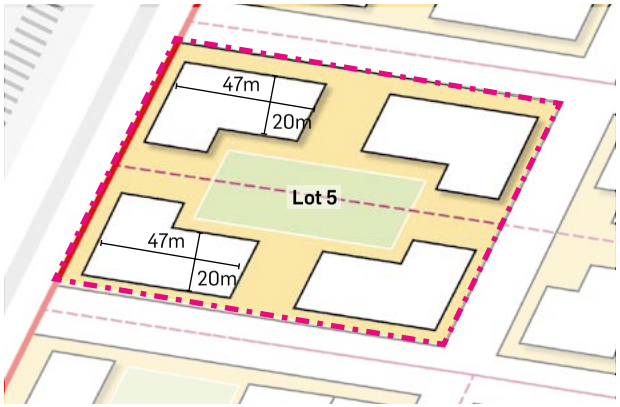
The dimensions of the proposed blocks have left the flexibility for the development to take place in various typologies, subject to the market demand. In the cases of Lot 5 and Lot 8 for example, following scenarios are considered:

- **Scenario 1**: The apartment is located to the north and terraces dwellings to the south.
- **Scenario 2**: Higher density version with apartments across the entire block.
- **Scenario 3**: Lower density version with terraces across the entire block.

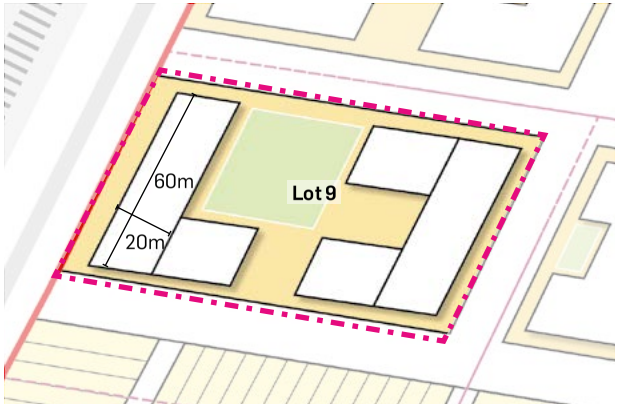


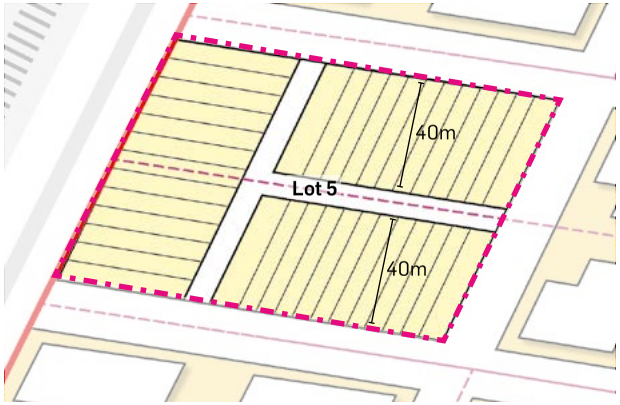
Scenario 1 - Apartments to the north and a row of terraces to the south





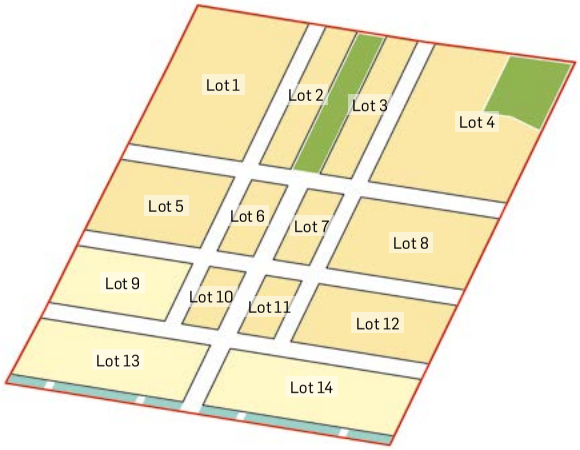
Scenario 2 - Apartments across the entire block





Scenario 3 - Terraces across the entire block

DEVELOPMENT YIELD ANALYSIS BY LOT



LEGEND

- Site
- Apartment Blocks
- Terrace Lots
- Proposed Open Spaces
- Taber Street Landscape Zone

Assumptions	
75%	GFA/GBA Efficiency
85m²	GFA/Dwelling
55%	Site Coverage - Terrace lots (Campbelltown DCP)
2	Terraces Building Height
420 sqm	Average Lot Size Under Zoning (R2)

Table 1 Yield Analysis by Lots

Lot No.	Lot Size (sqm)	Building Type	GFA (sqm)	Terraces	No. of Dwellings
Lot 1	20,713	Apartments	11,888		347
			17,619		
Lot 2	5,968	Apartments	11,197		132
Lot 3	5,957	Apartments	12,308		145
Lot 4	25,658	Apartments	5,115		524
			15,786		
			23,674		
Lot 5	10,944	Apartments	6,881		101
		Terraces	4,084	20	
Lot 6	3,543	Apartments	5,010		59
Lot 7	3,546	Apartments	8,912		105
Lot 8	13,241	Apartments	9,918		249
		Apartments	11,281		
Lot 9	8,988	Terraces	6,409	34	34
Lot 10	2,887	Apartments	4,959		58
Lot 11	2,895	Apartments	4,972		58
Lot 12	10,846	Apartments	3,826		268
		Apartments	18,984		
Lot 13	13,095	Terraces	9,255	46	46
Lot 14	14,630	Terraces	10,429	52	52
Total	**142,909**		**202,507**	**152**	**2,179**

Table 3 Development Capacity Comparison

	No. of Dwellings
Development Capacity Under Current Zoning (R2)	340
Development Capacity Under Proposed Scheme	2,179
Proposed Uplift	**1,838**

Table 2 Open Space Provision

	Area (sqm)
Proposed Open Space	10,444
Taber Street Landscape Zone	3,759
Total	14,203

Table 4 Communal Open Space Provision

	Area (sqm)
Total	23,720*

*This assumes 25% of the apartment lots area as communal open spaces

PROPOSED PLANNING CONTROLS

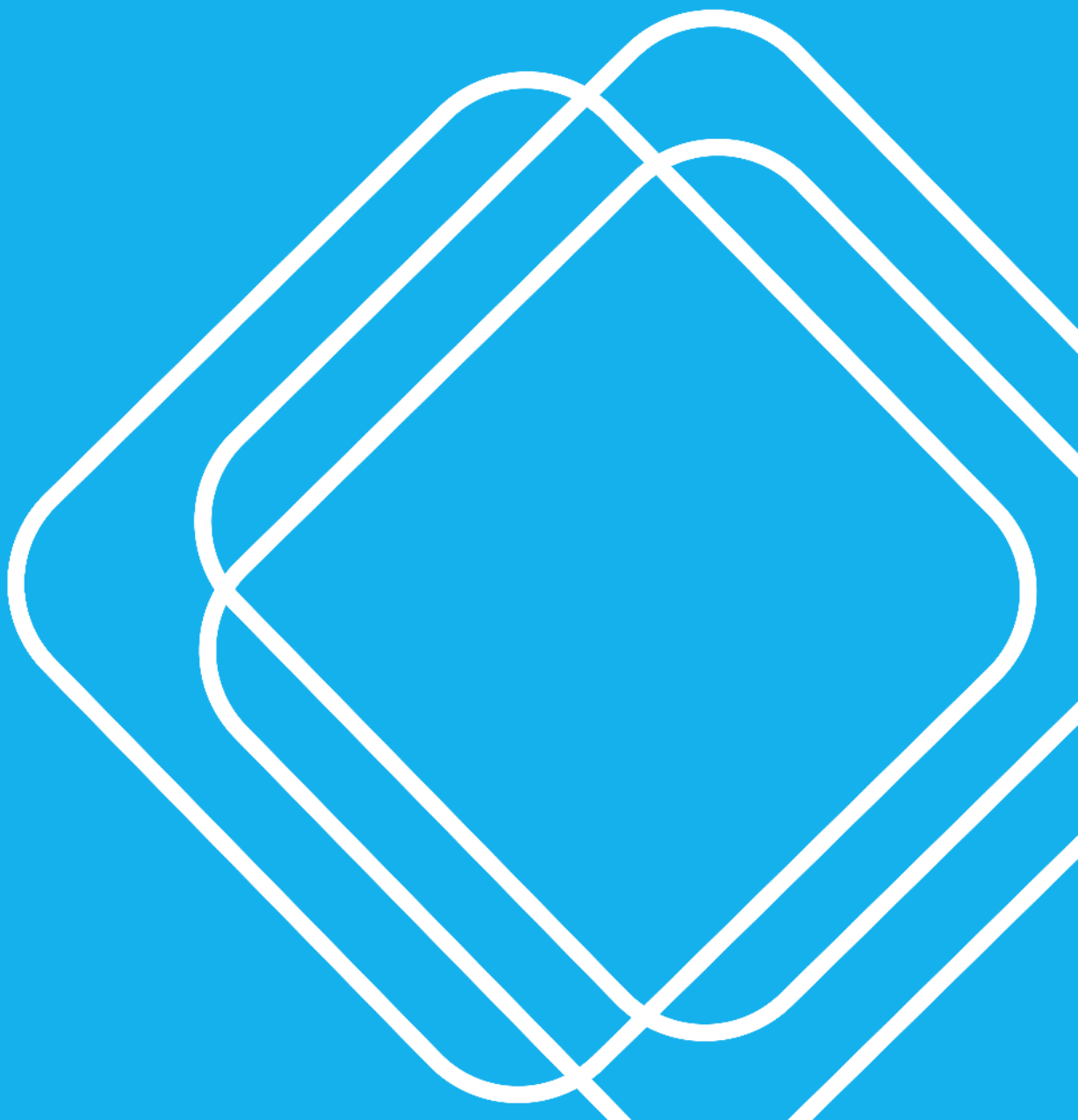
Appendix "B"
Preliminary Traffic Impact Study

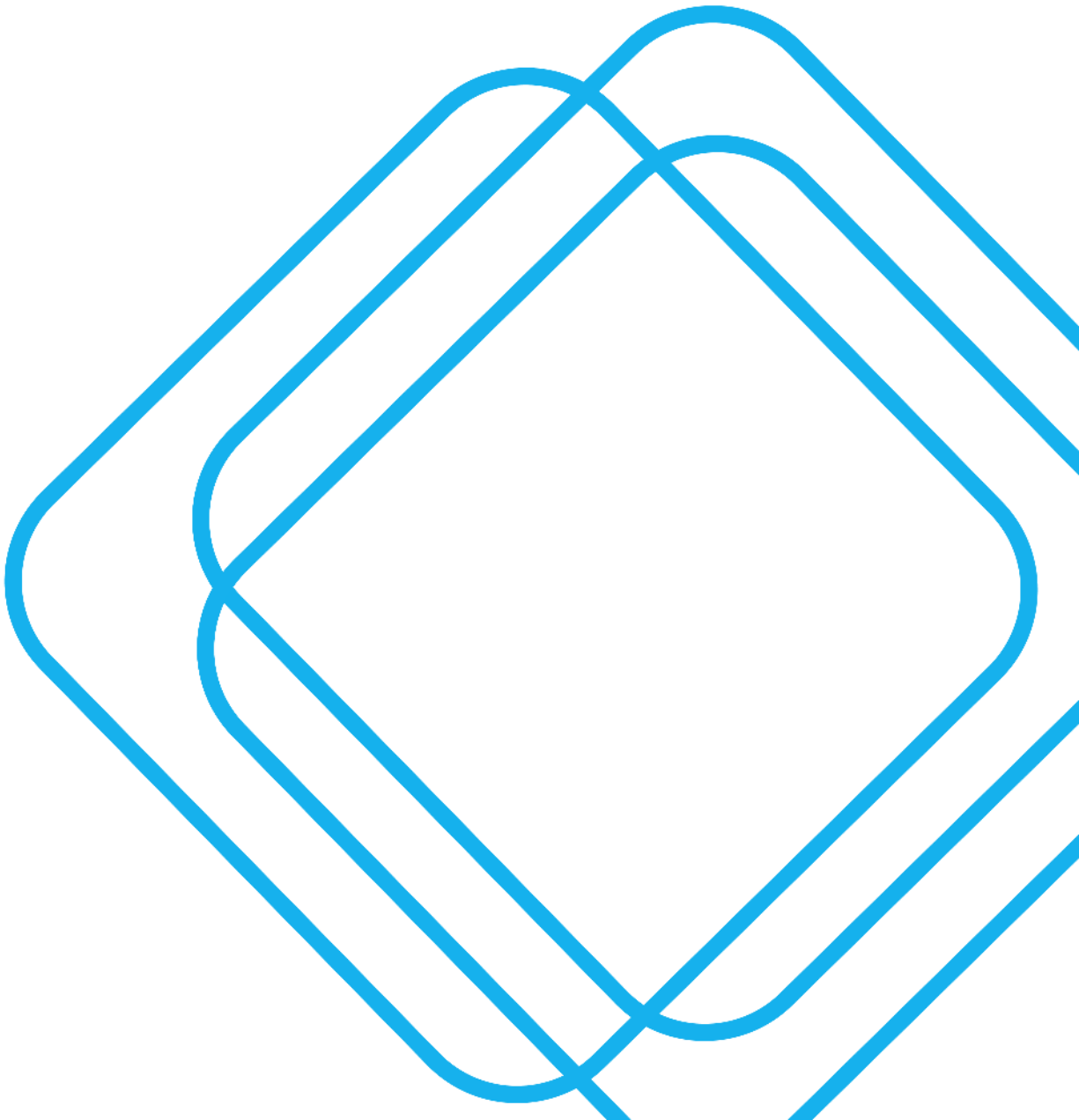
SCT Consulting

MENANGLE PARK EAST VILLAGE PLANNING PROPOSAL

Preliminary Traffic Impact Study

29 OCTOBER 2021





Quality Assurance

Project:	Menangle Park East Village Planning Proposal		
Project Number:	SCT_00283		
Client:	Michael Brown Planning Strategies PTY LTD	**ABN:**	52 162 313 895
Prepared by:	SCT Consulting PTY. LTD. (SCT Consulting)	**ABN:**	53 612 624 058

Quality Information	
Document name:	Menangle Park East Village Planning Proposal
Prepared:	Shawn Cen, Senior Consultant Vincy Cui, Consultant
Reviewed:	Andy Yung, Director
Authorised:	Andy Yung, Director

Revision	Revision Date	Details
1.0	22 October 2021	Draft report
2.0	29 October 2021	Updated draft report

Contents

Appendices

Executive summary

Purpose of this report

SCT Consulting was engaged by Michael Brown Planning Strategies Pty Ltd to carry out a Preliminary Traffic Impact Assessment to support the planning proposal for a site in Menangle Park bounded by Fitzpatrick Street, Racecourse Avenue, Taber Street and Cummins Road in the Campbelltown Local Government Area (LGA).

Future planning context

Greater Macarthur 2040 aims to promote transport-oriented development in both urban renewal and land release precincts and a highly accessible transport corridor connecting Campbelltown-Macarthur, Gilead, Appin and Douglas Park. Three new east-west connections to the Hume Motorway are proposed to support the delivery of the Greater Macarthur Growth Area. The plan encourages walkable neighbourhoods for all age groups and cycle paths connecting neighbourhoods with public transport, jobs, education and open space.

Campbelltown Local Strategic Planning Statement aims to work with the NSW Government to explore the possibility of providing electric train suburban services to Menangle Park. Council will work with the NSW Government to identify an alignment for the new north-south transport corridor proposed for the Greater Macarthur Urban Release Area and the provision of south-facing ramps from the Spring Farm Parkway to the M31 Hume Motorway.

In 2018, Dahua Group submitted a planning proposal for approximately 5,250 dwellings (an increase of 1,850 compared to the Council's DCP) in various densities and to relocate the Menangle Park Town Centre (with 30,000 m^2 of retail/employment gross floor area), next to the subject site. Dahua's planning proposal (which is currently on public exhibition) would bring significant amenities and intensity of development, presenting the site with an opportunity to be redeveloped. The planning proposal confirmed the necessary infrastructure upgrade including the construction of a four-lane Spring Farm Parkway and three intersections as major external access points including Menangle Road/North-South Collector Road (new), Spring Farm Parkway/North-South Collector (new), Menangle Road/Cummins Road (upgraded).

Existing transport conditions

According to the 2016 Method of travel to work data, the study area showed a higher proportion of drivers, 72 per cent, in comparison to the 53 per cent of Greater Sydney. About 14 per cent worked from home and the mode shares for public transport, active transport indicated zero per cent. This reflects poor train and bus service availability in the vicinity of the site.

The site is surrounded by four local roads with a 50 km/h speed limit. The majority of the roads do not have a centre line or road edge markings. Cummins Road connects with Menangle Road via a roundabout while Racecourse Avenue forms a priority intersection with Menangle Road, which both provide access to the local residential area.

Menangle Park Station is within an 800 m walk from the site, which provides Southern Highlands Line service at a frequency of about two services during the PM peak hour. The line covers the destinations of Macarthur and Campbelltown, where T8 City Circle service is available. Bus Route 889 is available at nearby bus stops that provide services between Moreton Park Road (Spaniards Main) and Campbelltown. A thirty-minute public transport coverage map identifies limited public transport accessibility from the site.

Proposed development

The proposal would accommodate a gross floor area of 202,507 m^2 for the residential development and 14,203 m^2 for open space as well. A total of 2,179 dwellings would be proposed which indicates a net increase of 1,838 dwellings from the development capacity under the current zoning. This would rezone the site from R2 low density to R3 and R4 medium and high-density residential. **Figure ES** shows an indicative aerial view of the site.

Figure ES Indicative aerial view of the site

Source: East Village, Menangle Park Rezoning Vision Report, 2021

Transport appraisal

The net increase of vehicular traffic associated with the proposal is estimated to be 766 and 752 vehicles per hour for AM and PM peaks, based on the net increase of 1,838 dwellings from the development capacity under the current zoning.

SIDRA modelling as part of this assessment would follow the same approach as the traffic assessment and modelling used in the *Menangle Park Planning Proposal (GTA, 2018)* including intersection geometry, future year traffic demand (with the Menangle Parking Urban Release Area (URA)) and traffic distributions etc.

With the additional development traffic associated with the subject site, the Spring Farm Parkway/North-South Collector Road intersection is forecast to operate over capacity during the peak hours assessed with a Level of Service (LoS) F in 2026. Given about 75-85 per cent of the additional development traffic would use this intersection during the peak hours, further upgrades of this intersection has been considered at this gateway intersection, that would improve the performance of the intersection to LoS E in the AM peak hour. The PM peak hour would see a reduction of delay by 50 per cent, despite a LoS F.

A sensitivity test aims to divert one-third of the Menangle Park URA traffic (to/from the northeast on Menangle Road) from Spring Farm Parkway/North-South Collector Road intersection to the intersection of Menangle Road/North-South Collector Road. With the reduced traffic volumes by about 400 to 500 cars during the peak hours, traffic modelling confirms that the intersection (with further upgrades proposed) would operate satisfactorily for both peak hours.

The additional development traffic would also worsen the mid-block performance especially on North-South Collector (close to Spring Farm Parkway) during the peak periods. Through the sensitivity test, it is expected the diverted traffic from Menangle Park URA would also result in better LoS for the mid-block performance on the North-South Collector.

An alternative infrastructure upgrade is to consider a flyover for Spring Farm Parkway (through movements only) at the intersection with North-South Collector Road with signals or roundabouts at grade for all other turning movements. This option would remove about 1,500 vehicles from the intersection to facilitate the access of Menangle Park URA and the subject site.

It should be noted that this current traffic study has not considered the full benefits of the additional east-west connections as suggested by *Greater Macarthur 2040.* The additional capacity of the east-west connections could reduce traffic demands along the Spring Farm Parkway and provide additional capacity for turning traffic at the intersection of Spring Farm Parkway/North-South Collector Road.

1.0 Introduction

1.1 Background

SCT Consulting was engaged by Michael Brown Planning Strategies Pty Ltd to carry out a Preliminary Traffic Impact Assessment to support the planning proposal of a site in Menangle Park bounded by Fitzpatrick Street, Racecourse Avenue, Taber Street and Cummins Road in Campbelltown Local Government Area (LGA).

The subject site is located off the Southern Highlands Train Line and has an area of approximately 19 hectares in total. The site consists of 19 parcels:

– Lot 1 DP 389348, Lot 56 DP 1102480, Lot 52 & 55 DP 10718, Lot A & B DP 364350 and Lot A DP 341800 (No's 12-46 Fitzpatrick Street)

– Lot 40, 41, 47, 48, 49, 50 & 51 DP 10718 (No's 182-232 Racecourse Avenue)

– Lot 39, 42, 43, 44, 45 and 46 DP 10718 (No's 1-41 Taber Street)

– Lot 58 & 57 DP 10718 (No's 111 and 121 Cummins Road).

The site is about 530 m from Menangle Park Station and is currently zoned as R2 low-density residential as shown in **Figure 1-1**.

Figure 1-1 Location of the subject site

Source: Six maps, 2021

1.2 Purpose of the report

The purpose of this Preliminary Traffic Impact Assessment is to support the Planning Proposal for the Menangle Park East Village. The document has assessed the impact of the illustrative development concept in terms of the net increase in trips generated, connectivity and access to the surrounding road network, public and active transport requirements and any potential mitigation measures required as a result of the development.

The Preliminary Traffic Impact Assessment has considered:

- Review of relevant background documents and information including relevant state, regional and local planning policies, transport planning documents
- Collate existing travel pattern data including Census, Journey-to-work data, to understand existing traffic and transport conditions
- Undertake a desktop review of existing traffic and transport conditions, including all types of transport modes
- Calculation of future traffic generation based on the Roads and Maritime Services *Guide to Traffic Generating Developments (2002)* and subsequent technical direction
- Determine net increase trip generation of the proposed development (based on the agreed development yield)
- Distribution of the net trip generation to the surrounding road network based on the preferred access strategy and travel pattern
- Undertake SIDRA modelling and determine likely infrastructure upgrades required to cater for the proposed development
- Identify key active transport and public transport routes to/from the development
- Identify public and active transport measures and sustainable travel initiatives for the development.

1.3 Report structure

This report has been structured into the following sections:

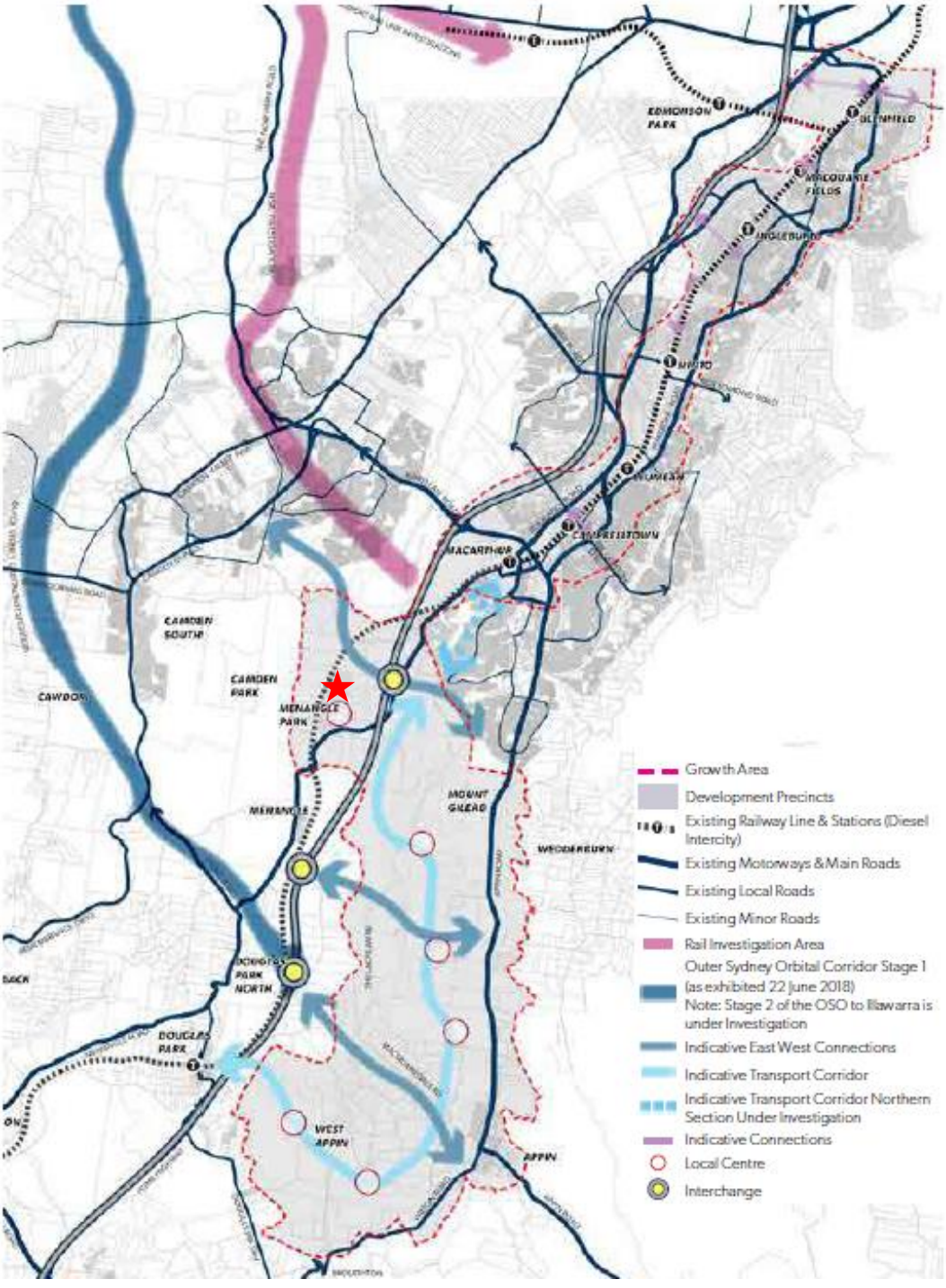
- **Section 2.0** provides a summary of the review of all relevant background documents.
- **Section 3.0** describes the existing transport conditions for all modes of transport.
- **Section 4.0** describes the proposed development, its access strategy and a review of access requirements.
- **Section 5.0** outlines the traffic and transport appraisal which describes the modelling undertaken, the likely trip generation, indicative impact as a result of the proposed development.
- **Section 6.0** summarises the report content and presents the conclusions.

2.0 Strategic context

2.1 Greater Macarthur 2040

Greater Macarthur 2040 is a land use and infrastructure implementation plan to set a vision for the Greater Macarthur Growth Area as it develops and changes. This plan is supported by a strategy for major items of state and local infrastructure, including public transport, roads, schools and green infrastructure. The Greater Macarthur Structure Plan for the land release area is shown in **Figure 2-1**.

Figure 2-1 Greater Macarthur Structure Plan (land release areas) (red star indicates the site location)



Source: Greater Macarthur 2040, 2018

The plan aims to promote:

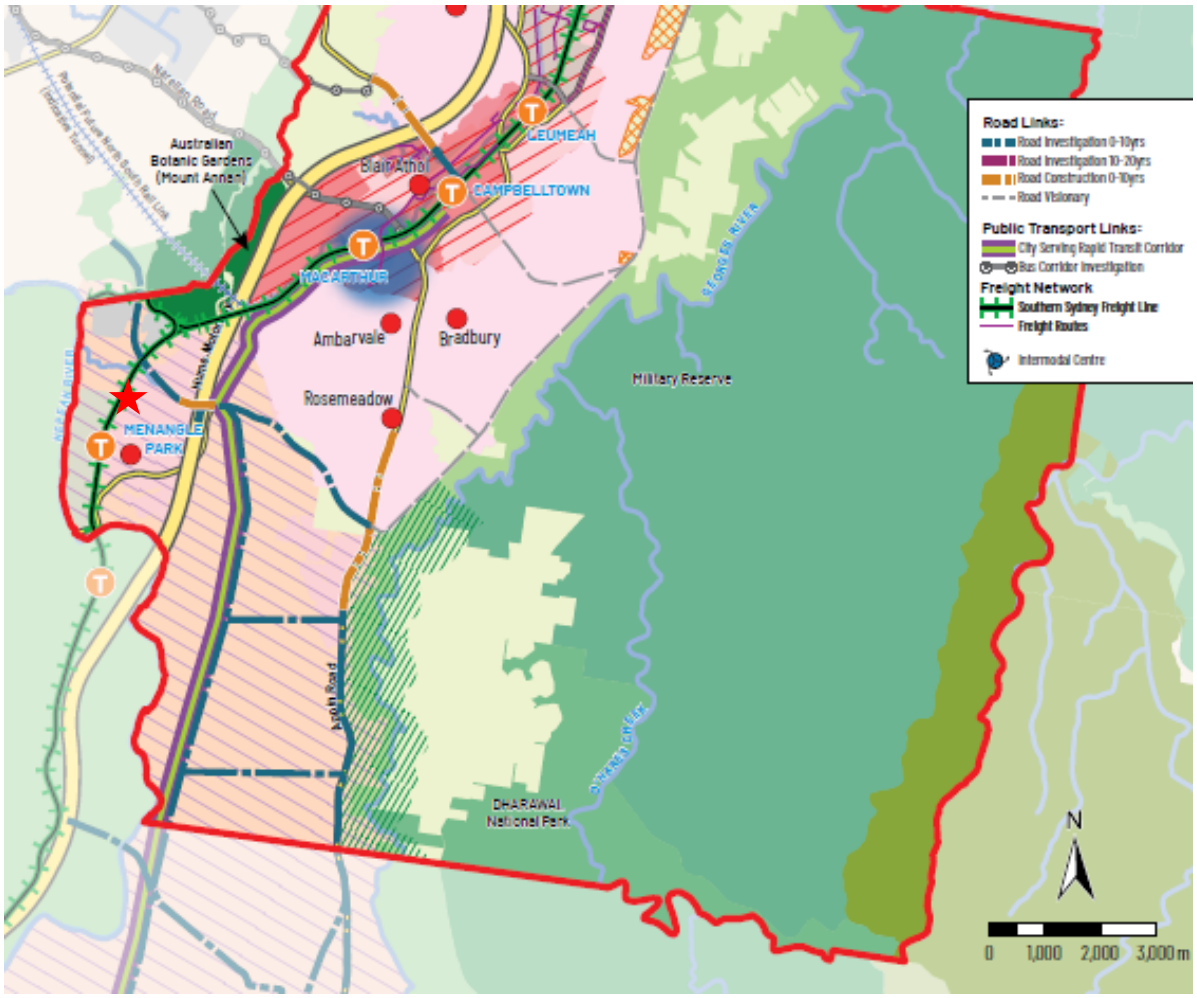
– Transport-oriented development in both urban renewal and land release precincts
– A highly accessible transport corridor connecting Campbelltown-Macarthur, Gilead, Appin and Douglas Park
– Three new east-west connections to the Hume Motorway to support the delivery of the Growth Area in sectors
– Walkable neighbourhoods for all age groups
– Cycle paths connecting neighbourhoods with public transport, jobs, education and open space.

Implications for the site: The site will be developed to house residents who are envisioned to be employed mainly in the surrounding centres and Greater Sydney Metropolitan Area. As part of the vision for a 30-minute commute, the site will benefit from upgrades to roads, public transport, and active transport networks in the region. They include a connection between the Hume Motorway and Appin Road in Rosemeadow (Spring Farm Parkway), a public transport and walking and cycling extension of Menangle Road, a transport corridor running north-south through the land release precincts and connected to the rail line at Douglas Park, and local walking and cycling network facilities.

2.2 Campbelltown Local Strategic Planning Statement

The *Campbelltown Local Strategic Planning Statement* (LSPS) provides context and direction for land use decision making within the Campbelltown LGA. The priorities and actions include infrastructure upgrades for the improvement of transport connectivity for the community and respond to many key strategic documents produced by the Federal and NSW State Governments and by Council. The structured plan is shown in **Figure 2-2**.

Figure 2-2 Campbelltown LSPS transport connectivity (red star indicates the site location)



Source: Campbelltown LSPS, 2020

The plan states that some future developments and redevelopments of existing areas may lend themselves to reduced private car ownership due to their proximity to higher-order public transport options and the mandated provision on-site of rideshare facilities. It aims to discourage the purchase of a second private vehicle by ensuring that public transport is a viable alternative. As an action, the plan aims to plan and implement local infrastructure that enables the growing community to use alternative methods of transport, such as walking and cycling, to connect to public transport and assist in easing traffic congestion. The plan states its vision in continuing to work with the Government for the delivery of transport-related infrastructure that can distribute reliance on various transport modes.

In addition, as part of the planning priorities, the plan aims to work with the NSW Government to explore the possibility of providing electric train suburban services to Menangle Park and areas to the south to relieve future pressure on Campbelltown and Macarthur stations.

Council will work with the NSW Government to identify and protect an alignment for the new north-south transport corridor proposed for the Greater Macarthur Urban Release Area. Council will collaborate with the NSW Government for the provision of south-facing ramps from the Spring Farm Parkway to the M31 Hume Motorway and connections to Liz Kernohan Drive to facilitate the development of employment lands around Glenlee and provide relief to Narellan Road.

Implications for the site: The site will benefit from public transport and road network upgrades associated with delivering a 30-minute city. With the development of adjacent strategic centres and local centres comes employment opportunities and access to health, education and community services. The expansion and integration of the public transport network will further benefit the site's connectivity to the wider region, its communities, and its place.

2.3 Campbelltown Development Control Plan (DCP)

The purpose of *Part 8 Menangle Park* for the DCP is to identify the planning, design and environmental objectives and controls against which Campbelltown City Council will assess future development applications in Menangle Park. This part is intended to promote high-quality urban design outcomes for the release area within the context of environmental, social and economic sustainability.

The master plan has considered an additional street type (Minor Local) to the hierarchy and intended to reinforce the street hierarchy as part of the public domain streetscape strategy. The strengthening of the recognition of the suburb collector road and the entry nodes is of major importance in creating unity and legibility for the area.

Table 2-1 highlights the street characters by different street types that are relevant to the proposal.

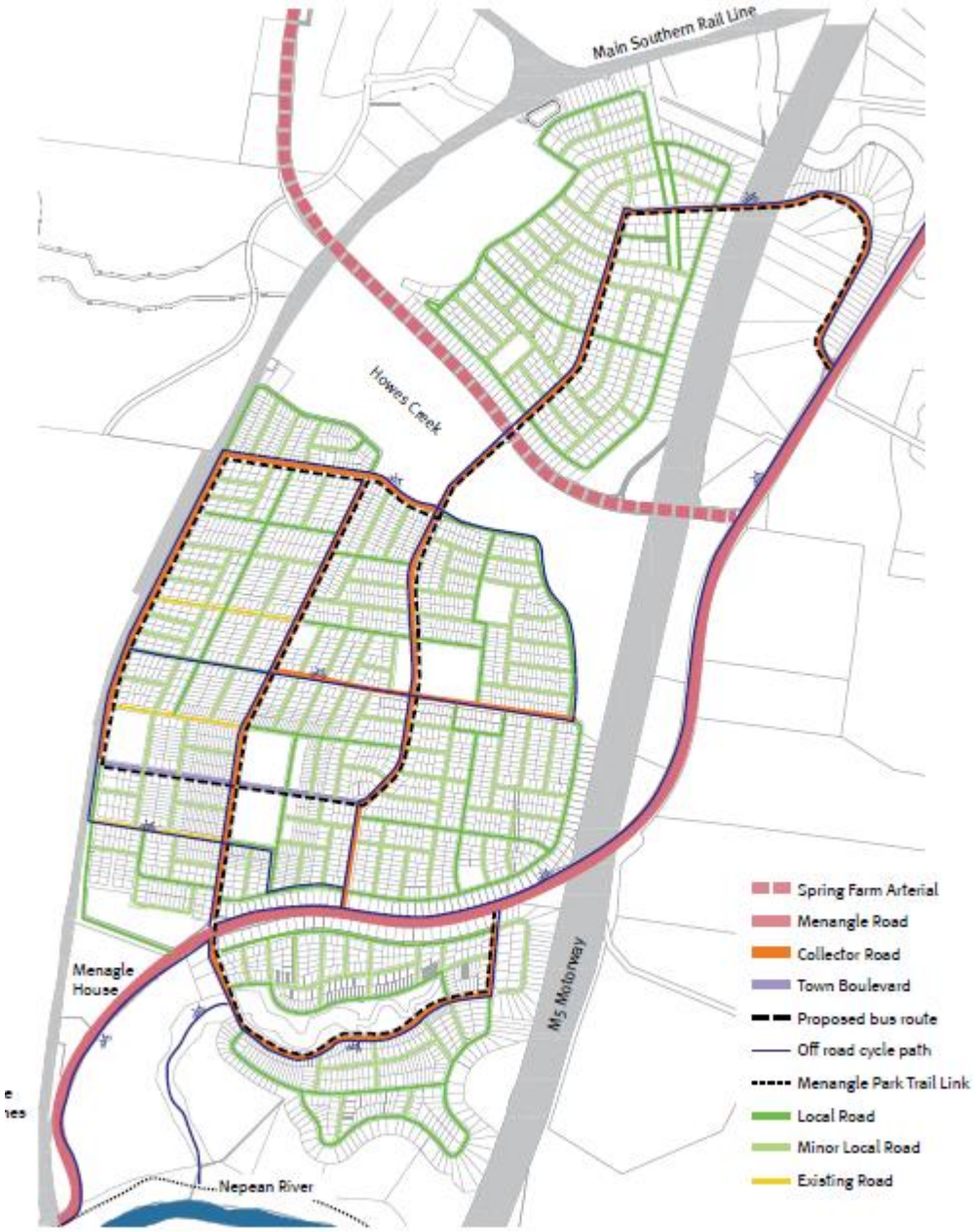
Table 2-1 Streetscape character

Street type	Street character
Collector street	Pedestrian friendly streets, shaded tree canopies, mixture of deciduous and native species
Local street	Intimate character with regular street tree planting, mixture of native and deciduous species, concrete footpaths, minimise impact of driveways.

Source: Campbelltown Development Control Plan (DCP), 2016

Figure 2-3 shows the proposed street typology for Menangle Park where Fitzpatrick Street, Racecourse Avenue and Cummings Road are all collector roads that would accommodate bus routes and off-road cycle paths.

Figure 2-3 Street typology



Source: DCP Part 8 Appendix 1 – Menangle Park Streetscape Master Plan, 2016

2.4 Menangle Park Planning Proposal Traffic Impact Assessment

The *Menangle Park Planning Proposal* is submitted to Campbelltown City Council (Council) in support of an amendment to Campbelltown Local Environmental Plan 2015 (Campbelltown LEP 2015) on behalf of Dahua Group (Aust) Pty Ltd (Dahua). The planning proposal relates to land within the Menangle Park Urban Release Area (URA) which mainly includes:

– 5,250 dwellings (an increase of 1,850 dwellings)

– a new major town centre comprising 30,000m² of retail/employment gross floor area

– a new neighbourhood centre (approximately 3,500m² of employment floor space).

The Traffic Impact Assessment considers the full development of the proposal to 2026 and the key conclusions from the document conducted by GTA Consultants include:

– The proposal would generate 6,000 external trips during a peak hour, approximately 1,600 more trips when compared to the previous Transport Management Assessment Plan (TMAP), noting that the previous TMAP is based on a lower average trip rate per dwelling.
– Based on the proposed infrastructure upgrade, SIDRA modelling confirms that the intersections are expected to operate at acceptable levels of service at Menangle Road/North-South Collector Road, Menangle Road/Cummins Road and Spring Farm Parkway/North-South Collector Road.
– Future mid-block traffic assessment based on the future conditions of Menangle Road and Spring Farm Parkway suggest that they will continue to operate at a satisfactory level in the AM and PM peak periods.
– The north-south collector road is recognised as a key internal link passing through the centre of the site and town centre and its design can accommodate the required traffic volumes.

The proposed infrastructures to the precinct have been listed in **Table 2-2**.

Table 2-2 Proposed infrastructure

Type	Location / name	Description
Road upgrades and new roads	Spring Farm Parkway Stage 1 and 2	Construction of a new four-lane road, linking the Menangle Park subdivision area to Menangle Road, Hume Highway and Camden Bypass New access ramps to the Hume Highway.
Intersections upgrades or new intersections	Menangle Road/North-South Collector Road	As per proposed layouts in SIDRA modelling, which have been adopted for this assessment.
	Menangle Road/Cummins Road	
	Spring Farm Parkway/North-South Collector Road	

Source: Menangle Park Planning Proposal, 2018

3.0 Existing conditions

The purpose of this chapter is to provide an understanding of the current traffic and transport conditions in the vicinity of the site.

3.1 The site

The subject site has an area of approximately 19 hectares, shown in **Figure 3-1.** The site currently accommodates 20 residential lots and is bounded by:

– Fitzpatrick Street for the full extent of the northern boundary

– Taber Street for the full extent of the southern boundary with dwellings on both sides and significant trees

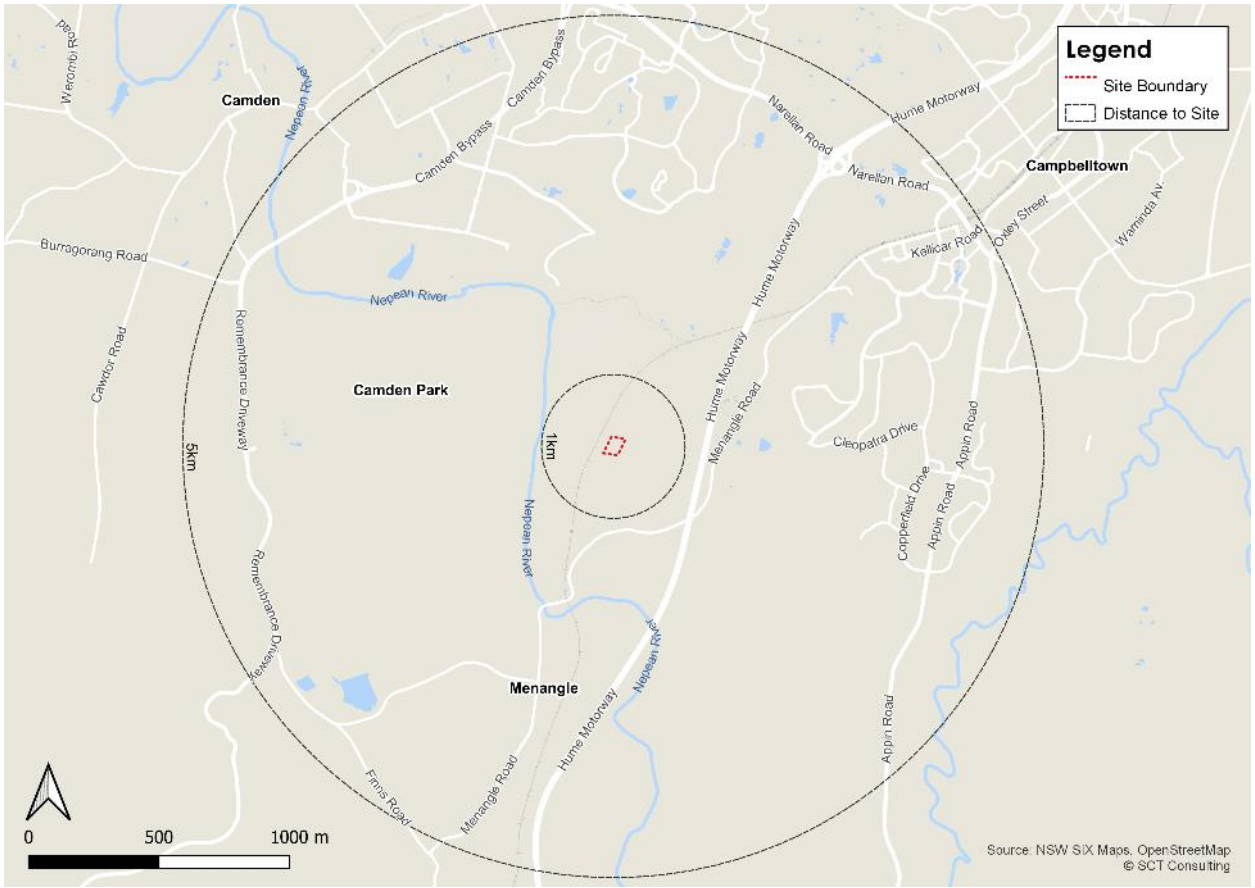
– Racecourse Avenue to the west and Cummins Road to the east, both of which further connect to Menangle.

The closest town centres are located at:

– Macarthur, 10 minutes drive (9.5 km) via Menangle Road, and five minutes ride by train to Macarthur Station.

– Campbelltown, 15 minutes drive (11.3 km) via Menangle Road, and eight minutes ride by train to Campbelltown Station.

Figure 3-1 The subject site in a regional context



3.2 Travel behaviour

3.2.1 Method of Travel to Work data

2016 Method of Journey to Work (JTW) data from relevant statistical area level one (SA1) was analysed to determine the travel behaviour of the existing residents in the vicinity of the site as shown in **Figure 3-2**.

Figure 3-2 Study area for the method of JTW analysis

At the time of the JTW data being collected in 2016, about 86 employed persons were included in the survey for the area. According to the Australian Bureau of Statistics, people in employment are those of working age who, during a short reference period, were engaged in any activity to produce goods or provide services for pay or profit.

The study area showed a higher proportion of drivers, 72 per cent, in comparison to the 53 per cent of Greater Sydney, showing a high dependency on private car use. About 14 per cent worked from home and the mode shares for public transport, active transport indicated zero per cent. This reflects limited train and bus service availability in the vicinity of the site.

Around 34 per cent of the residents worked within Campbelltown LGA followed by Sydney (11 per cent) and Liverpool (11 per cent). Other destinations of work-related trips were all below six per cent across Greater Sydney. Hence, the long commuting distance to major employment is consistent with the fact of high car use, which is relatively convenient and cost-effective in the transport context.

3.2.2 Household Travel Survey

The proposed site sits within the statistical area “Campbelltown (NSW)” as defined by the Australian Bureau of Statistics, 2019/2020 Household Travel Survey (HTS) as shown in **Figure 3-3**. For analysis, it has been assumed that JTW data provides a suitable reflection of the travel characteristics during AM and PM peak hour periods on an average weekday, due to the high proportion of trips during this timeframe associated with JTW trips.

Figure 3-3 Study area for the travel behaviour reference for household travel survey analysis

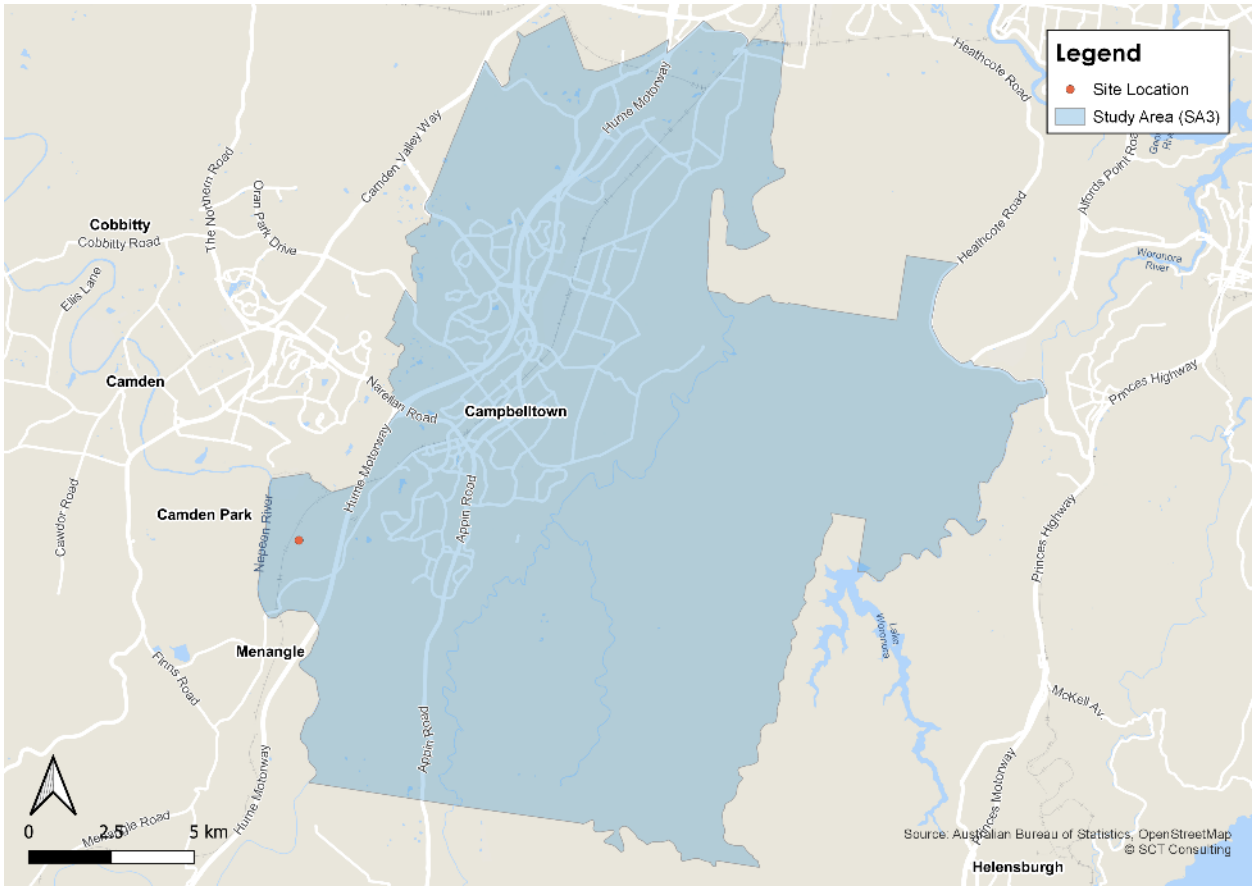


Table 3-1 and **Table 3-2** provides a summary of the overall mode choice and purpose of travel by residents of Campbelltown (NSW) against the Sydney average. The average travel distance for each category was also listed.

Table 3-1 Household travel survey – residents within Campbelltown (NSW), travel by mode

Mode of travel	Campbelltown (NSW)		Greater Sydney	
	Percentage of total trips	Average distance	Percentage of total trips	Average distance
Vehicle Driver	42%	12 km	40%	10 km
Vehicle Passenger	25%	9 km	17%	8 km
Train	8%	30 km	6%	18 km
Bus	3%	6 km	5%	8 km
Walk Only	9%	1 km	15%	1 km
Walk Linked	12%	1 km	16%	1 km
Other	1%	5 km	1%	6 km
Total	**100%**	**-**	**100%**	**-**

Source: https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts, 2021

The study area had more vehicle drivers and vehicle passengers at 42 per cent and 25 per cent compared to Greater Sydney's 40 per cent and 17 per cent. Higher vehicle occupancy was observed in the study area, i.e. eight per cent more vehicle passenger mode share than Greater Sydney. Despite having a longer average distance for trains, the public transport mode share was the same as Greater Sydney's 11 per cent. Comparatively, the percentages of total

trips for active transport modes in Campbelltown were less than the Greater Sydney level as a result of long-distance to activities and relatively low-density development and jobs.

Table 3-2 Household travel survey – residents within Campbelltown (NSW), travel by purpose

Trip purpose	Campbelltown (NSW)		Greater Sydney	
	Percentage of total trips	Average distance	Percentage of total trips	Average distance
Commute	19%	27 km	17%	16 km
Work related business	5%	26 km	6%	16 km
Education/childcare	9%	9 km	10%	6 km
Shopping	16%	9 km	16%	6 km
Personal business	5%	6 km	6%	7 km
Social/recreation	23%	9 km	25%	8 km
Serve passenger	22%	6 km	18%	6 km
Other	1%	7 km	2%	5 km
Total	**100%**	**-**	**100%**	**-**

Source: https://www.transport.nsw.gov.au/data-and-research/passenger-travel/surveys/household-travel-survey-hts, 2021

The trip purposes for Campbelltown were generally consistent with Greater Sydney with a slight difference of up to two per cent except for serve passenger trips. The main trip purpose in Campbelltown was social/recreation at 23 per cent, followed by serve passenger at 22 per cent. The high serve passenger trips percentage indicated poor public transport accessibility due to a higher likelihood of people being dropped off/picked up for public transport.

For Campbelltown, the average distance travelled by all modes of transport and by trip purposes were both around 12 km which were approximately 30 per cent longer than Greater Sydney (nine kilometres). This can be attributed to the area's long distance to Sydney CBD, requiring residents to travel further to reach destinations. The average distance travelled by train was 30 km, making it a less attractive transport mode. Trip purposes such as commute and work-related business showed a further average distance travelled in comparison to Greater Sydney, which is likely related to jobs in Sydney CBD or other strategic centres.

3.3 Road network classification

The major roads in the vicinity of the site include Hume Motorway, Menangle Road, Fitzpatrick Street, Racecourse Avenue, Cummins Road and Taber Street as shown in **Figure 3-4**.

Figure 3-4 Road network around the site

The characteristics of the key road network, surrounding the subject site are:

– **Hume Motorway** has two travel lanes in each direction with a wide median. The signposted speed limit is 110 km/h. The nearest interchange from the site is at Narellan Road, which is about five kilometres to the northeast.

– **Menangle Road** is a northeast-southwest arterial road to the south and east of the site. It has one lane in each direction that connects Macarthur to the northeast and Picton Road to the southwest. The signposted speed limit is 80 km/h. There is no footpath on either side of the road.

– **Cummins Road** is a local road aligned in a north-south direction and forms a roundabout with Menangle Road, south of the proposed development. Cummins Road has a posted speed limit of 50 km/h and provides access to the local residential area. The road is sealed with a 5.5 m wide carriageway and has no centre line or road edge markings.

– **Fitzpatrick Street** is a local road bounding the subject site on the north. It has one lane in each direction and intersects Racecourse Avenue to the west and Cummins Road to the east. There is no signposted speed limit on either side of the road. The sealed carriageway is about 5.5 m wide and has no centre line or road edge markings.

– **Racecourse Avenue** is a north-south local road bounding the west of the side. It has one lane in each direction without any signposted speed limit on either side of the road. The sealed carriageway is about 5.2 m wide and has no centre line or road edge markings.

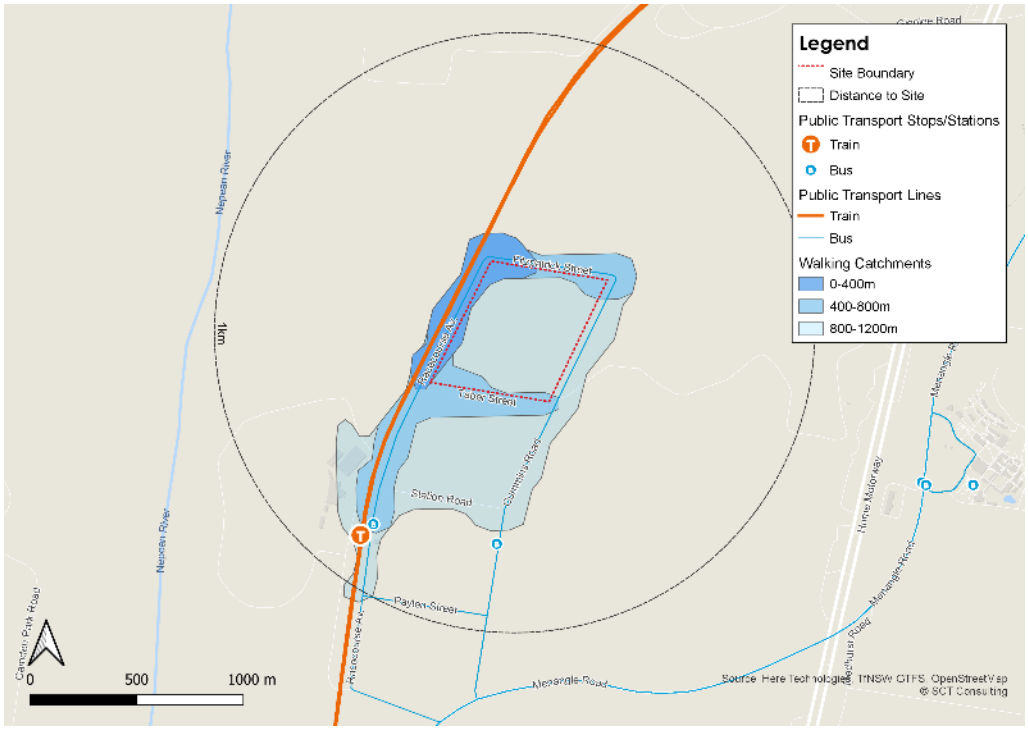
– **Taber Street** is an east-west local road bounding the subject site to the south. It has one lane in each direction without any signposted speed limit on either side of the road. The sealed carriageway is about 3.4 m wide and has no centre line or road edge markings.

3.4 Public transport

3.4.1 Train

Menangle Park Station is within an 800 m walk from the site, which provides Southern Highlands Line service as shown in **Figure 3-5**. It has a frequency of about one service during the AM peak hour and two services during the PM peak hour. The line covers the destinations of Macarthur and Campbelltown, where T8 City Circle service is available.

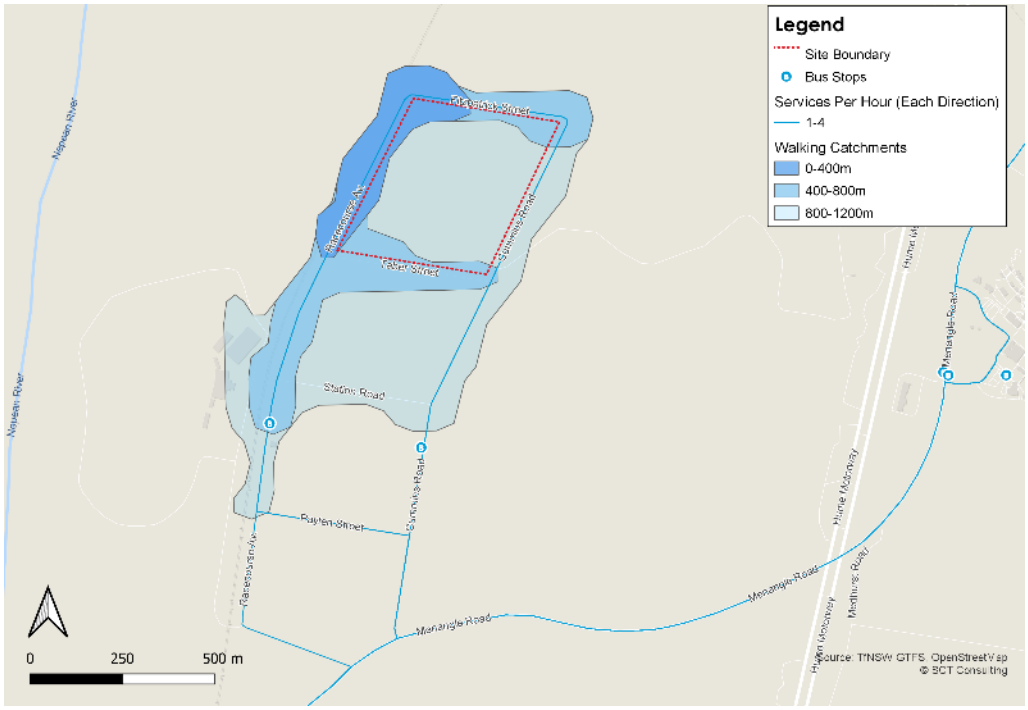
Figure 3-5 Public transport around the site



3.4.2 Bus

Nearby available bus services are provided at bus stops on Racecourse Avenue and Cummins Road, which are both over 400 m from the site. The bus frequency at the nearby bus stops is below four services per hour during a typical weekday peak hour as shown in **Figure 3-6**. Route 889 is available at both bus stops that provide services between Moreton Park Road (Spaniards Main) and Campbelltown.

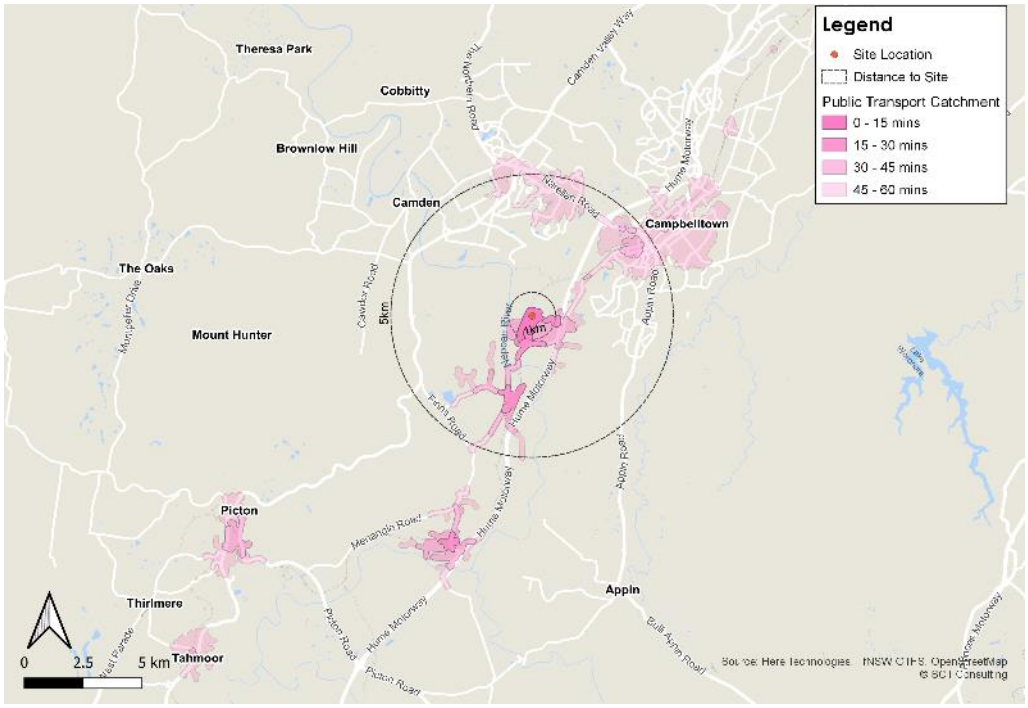
Figure 3-6 Service frequency at bus stop during a typical weekday AM peak



Based on travel behaviour analysis of the study area identified in **Section 3.2** due to relatively long distances to major employment destinations and activities, public transport was not an attractive transport mode at Menangle Park. The modal shift could take place when new development and public transport infrastructure are delivered in the vicinity. However, given Menangle Park Station is not part of the Sydney Train network and people need to transfer at Macarthur or Campbelltown, the vast majority of the residents are expected to choose private transport mode.

A thirty-minute public transport coverage area is shown in **Figure 3-7** indicating that by using public transport, the area that the residents of the site can reach. It is identified that the catchment would include Minto and Ingleburn to the northeast of the site and Douglas Park and Tahmoor Station to the south and southwest, which further reflects the limited public transport coverage from the site.

Figure 3-7 Thirty-minute public transport catchment area

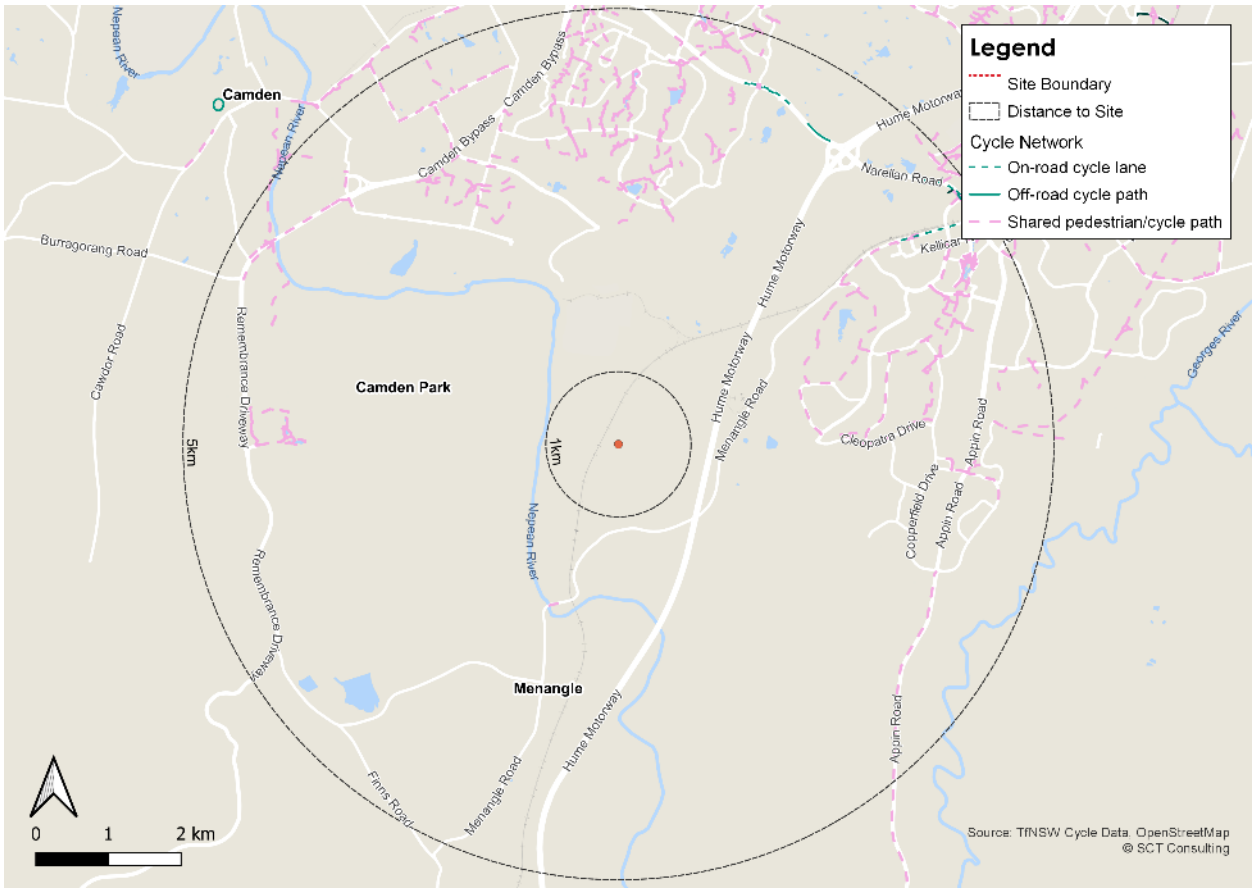


3.5 Active transport

Given the rural nature and lack of urban development in the vicinity of the site, pedestrian and cycling accessibility are generally poor. Cycle infrastructure in the vicinity of the site is lacking, with only disconnected shared paths in those mature residential precincts, as shown in **Figure 3-8**.

The active transport mode share might increase especially for short-distance trips after the delivery of the nearby planning proposals and Menangle Park Town Centre in the future and the connection to a wider cycle path network.

Figure 3-8 Cycle pathway around the site



4.0 Proposed development

4.1 Proposed development

Located about 500 m away from the Menangle Park Station, the subject site is envisaged to be a thriving, sustainable and well-serviced village close to the new Menangle Park Town Centre, providing a diverse mix of housing opportunities nestled within a scenic landscape setting.

The structure plan opens up a private site and transforms it into a public neighbourhood supported by nearby retail, commercial and community uses. A diverse community for all benefited from access to public transport, major arterial roads, jobs and schools (**Figure 4-1**).

Figure 4-1 Proposed structure plan

Source: East Village, Menangle Park Rezoning Vision Report, 2021

4.2 Development yield

The total gross floor area would be 202,507 m^2 for the residential development while there would be an open space of 14,203 m^2 as well. The development capacity under the current zoning and the proposed residential development yield are shown in **Table 4-1** which indicates a net increase of 1,838 dwellings and a rezoning of the land to medium-high density residential.

Table 4-1 Development yield

Residential type	Development capacity under current zoning (R2)	Proposed yield for the site	Net increase
Terraces	-	152 dwellings	-
Apartments	-	2,027 dwellings	-
Low-density house	340 dwellings	-	-
Total	**340 dwellings**	**2,179 dwellings**	**+1,838 dwellings**

Source: East Village, Menangle Park Rezoning Vision Report, 2021

4.3 Road network and hierarchy

The proposed East Village, Menangle Park aims at increasing the site's permeability with a tier of proposed streets considering (**Figure 4-2)**:

– Distributing vehicular traffic across a grid of local streets for greater connectivity

– Access laneways rear lane access within the townhouse zones

– Through-site connection to further augment the permeability of the developable blocks.

– A primary green Main Boulevard with cycleways connecting Taber Street and Central Park

– Active transport links connecting Racecourse Avenue and the Future Town Centre via Village Park and Central Park.

Figure 4-2 Movement strategy

Source: East Village, Menangle Park Rezoning Vision Report, 2021

5.0 Traffic and Transport Impact Appraisal

5.1 Traffic modelling approach and assumptions

It is proposed that SIDRA modelling as part of this assessment would follow the same approach as the traffic assessment and modelling used in the *Menangle Park Planning Proposal Traffic Assessment Report (GTA, 2018)* including the determination of future year and peak hour periods, intersection geometry, future year traffic demand and traffic distributions.

5.1.1 Modelled intersections

The modelled intersections are listed as below which will become major external access points for the site:

– Menangle Road/North-South Collector Road (planned signal intersection)

– Spring Farm Parkway/North-South Collector Road (planned signal intersection)

– Menangle Road/Cummins Road (upgraded to a roundabout).

5.1.2 Modelling scenarios

Modelling was only undertaken for the below three scenarios for 2026 AM peak and PM peak hours:

– **Future year base**: Traffic conditions with background traffic and the full approved and proposed development in the Menangle Park Dahua site (turning movements extracted from *Menangle Park Planning Proposal*)

– **Future year with development**: Additional traffic generation as a result of the proposed rezoning of the subject site

– **Future year with development with infrastructure upgrade:** any additional infrastructure upgrades to mitigate traffic impacts, if required.

5.1.3 Model calibration

The intersection models were calibrated using the vehicle movement data to achieve a similar performance level to those output in *Menangle Park Planning Proposal*. One of the key goals is to calibrate the models such that the degree of saturation of all movements was 1.0 or below. This is a standard procedure to ensure that the models are not over-predicting congestion under current conditions.

5.1.4 Mid-block level of service

Mid-block level of service criteria was set out by the Roads and Maritime *Guide to Traffic Generating Developments* as summarised in **Table 5-1**. The road capacity will be discussed in **Section 5.3.1**.

Table 5-1 Mid-block level of service criteria

Level of Service	Description	Volume to capacity ratio (VCR) range
A	A condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.	0.00 – 0.34
B	In the zone of stable flow and drivers still have the reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is a little less than LoS A.	0.35 – 0.50
C	Also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.	0.51 – 0.74
D	Close to the limit of stable flow and approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.	0.75 – 0.89
E	Occurs when traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause breakdown.	0.90 – 0.99

Source: Roads and Maritime Services (2002), Traffic Modelling Guidelines

5.1.5 Intersection level of service

Intersection Level of Service (LoS) is a typical design tool used by traffic engineers to identify when roads are congested. The Level of Service as defined in TfNSW Traffic Modelling Guidelines is provided in **Table 5-2**.

Table 5-2 Level of Service definitions

Level of Service	Average delay per vehicle (seconds)	Performance explanation
A	Less than 14.5	Good operation
B	14.5 to 28.4	Good with acceptable delays and spare capacity
C	28.5 to 42.4	Satisfactory
D	42.5 to 56.4	Operating near capacity
E	56.5 to 70.4	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.
F	70.5 or greater	At capacity, at signals incidents will cause excessive delays. Roundabouts require other control method.

Source: Roads and Maritime Services (2002), Traffic Modelling Guidelines

In addition, the following measure of performance is included to complement Level of Service:

– **Degree of Saturation (DoS):** a measure of the volume/capacity for the worst turning movement at the intersection. DoS is 1 implies the turning movement is at capacity.

5.2 Trip generation and distribution

Trip generation assumptions used in the *Menangle Park Planning Proposal Traffic Impact Assessment Report*, have been adopted in the preparation of this traffic assessment. **Table 5-3** details the assumptions of trip generation used in this assessment. According to the density definition in the *Menangle Park Planning Proposal Traffic Impact Assessment Report*, high-density dwellings would incorporate small terrace/townhouse products on subject 200m² lots and medium-density would include townhouses and small-lot detached dwellings. Hence, all unit types for the site are categorised as high-density residential.

Table 5-3 Trip generation assumptions

Unit type	AM peak hour (In / Out proportion)	PM peak hour (In / Out proportion)	Yield	AM peak hour	PM peak hour
Residential – high density	0.5 per dwelling (20% / 80%)	0.5 per dwelling (80% / 20%)	+2179 dwellings	+1,089 trips	+1,089 trips

Source: SCT Consulting, 2021

As discussed in **Section 2.4**, future background traffic volumes for Menangle Road and Spring Fram Parkway in 2026 were estimated based on the TMAP. It is assumed that the TMAP modelled 340 low-density residential dwellings for the subject site under the current land use zoning (R2), which would generate 323 and 337 vehicle trips during AM and PM peak hours (assuming 0.95 and 0.99 trips per dwelling for AM and PM peak hour). Hence, the net increase of the proposal would be **766** and **752** vehicle trips for AM and PM peak hours, respectively.

The traffic distributions are shown in **Table 5-4**, which are generally consistent with the *Menangle Park Planning Proposal Traffic Impact Assessment Report*.

Table 5-4 Trip distribution

Directions	Routes	Inbound	Outbound
Northeast	North-south collector - Spring Farm Parkway (e)	50%	65%
Northwest	North-south collector - Spring Farm Parkway (w)	25%	20%
Southwest	Cummins Road – Menangle Road (w)	15%	10%
Southeast	North-south collector - Menangle Road (e)	10%	5%

Source: SCT Consulting based on Menangle Park Planning Proposal (GTA), 2021

5.3 Road network impact

The net increased vehicle trips of the development were assigned to the surrounding road network and intersections based on the calculations in **Section 0**. The impact of the mid-blocks and intersections were analysed as follows.

5.3.1 Mid-block traffic impact

In consistent with the assessment undertaken in the *Menangle Park Planning Proposal Traffic Impact Assessment Report*, the capacity for Menangle Road and Spring Farm Parkway were 1,200 passenger cars while the capacity for collectors such as Cummins Road and North-South Collector was 1,000 passenger cars per hour per lane based on Table 5.1 of *Austroads Guide to Traffic Management – Part 3: Traffic Studies and Analysis*.

Figure 5-1 shows the locations for the mid-block analysis which cover Spring Farm Parkway, Menangle Road, Cummins Road and North-South Collector.

Figure 5-1 Locations for mid-block traffic volume analysis

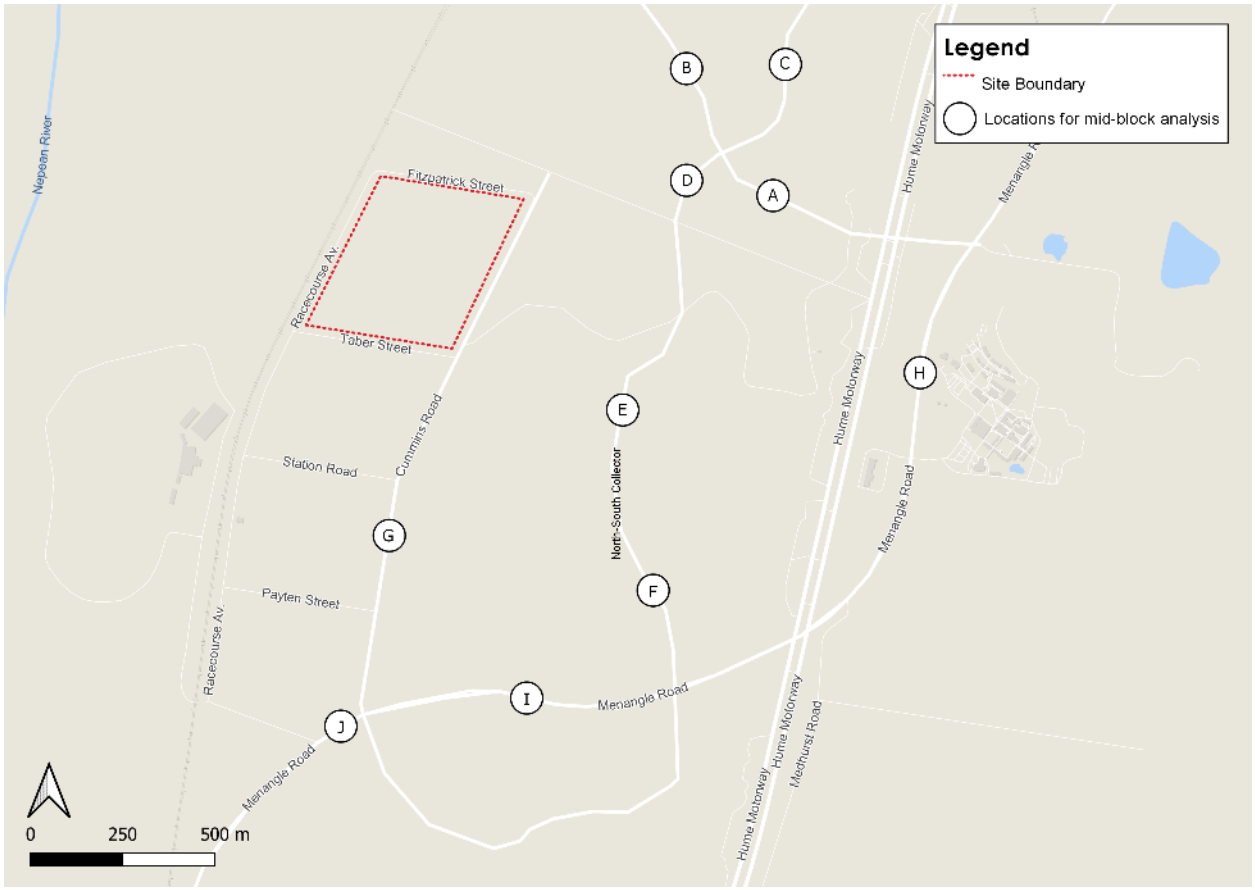


Table 5-5 compares the mid-block traffic volumes without and with the development and summarise the volume to capacity ratios.

Given the intersection of Spring Farm Parkway / North-South Collector Road is the main gateway to Menangle Park connecting with not only Spring Farm Parkway but also the Hume Motorway and Menangle Road, the development traffic would worsen the mid-block performance of North-South Collector (close to Spring Farm Parkway) during the peak periods. It is expected that in reality, some traffic would be diverted to use Menangle Road via North-South Collector where there is spare capacity to deal with the development traffic.

All other mid-block locations considered in this assessment in the vicinity of Menangle Park, have the capacity to cater for the additional traffic.

Table 5-5 Mid-block traffic volumes comparison

No.	Road	Direction	Capacity (car/hr/lane)	Future year base (AM peak)			Future year with development (AM peak)			Future year base (PM peak)			Future year with development (PM peak)		
				Volume	V/C	LoS	Volume	V/C	LoS	Volume	V/C	LoS	Volume	V/C	LoS
A	Spring Farm Parkway	Eastbound	2,400	1,975	0.823	D	2,282	0.951	E	1,799	0.75	C	1,224	0.51	C
		Westbound	2,400	1,043	0.435	B	1,142	0.476	B	1,125	0.469	B	2,100	0.875	D
B	Spring Farm Parkway	Eastbound	2,400	1,293	0.539	C	1,325	0.552	C	1,097	0.457	B	1,798	0.749	C
		Westbound	2,400	1,731	0.721	C	1,884	0.785	D	1,647	0.686	C	1,128	0.47	B
C	North-South Collector	Northbound	2,000	374	0.187	A	375	0.188	A	691	0.346	A	691	0.346	A
		Southbound	2,000	654	0.327	A	655	0.328	A	500	0.25	A	500	0.25	A
D	North-South Collector	Northbound	2,000	1,916	0.958	E	2,376	1.188	-	915	0.458	B	1043	0.521	C
		Southbound	2,000	825	0.413	B	955	0.478	B	1,948	0.974	E	2,398	1.199	-
E	North-South Collector	Northbound	2,000	907	0.454	B	922	0.461	B	460	0.23	A	550	0.275	A
		Southbound	2,000	437	0.219	A	529	0.264	A	1,166	0.583	C	1,181	0.591	C
F	North-South Collector	Northbound	2,000	474	0.237	A	488	0.244	A	525	0.263	A	617	0.309	A
		Southbound	2,000	427	0.214	A	516	0.258	A	463	0.232	A	484	0.242	A
G	Cummins Road	Northbound	1,000	696	0.696	C	286	0.287	A	356	0.356	B	490	0.49	B
		Southbound	1,000	181	0.181	A	470	0.47	B	411	0.411	B	356	0.357	B
H	Menangle Road	Eastbound	2,400	1,674	0.698	C	1,765	0.735	C	549	0.229	A	571	0.238	A
		Westbound	2,400	605	0.252	A	619	0.258	A	1,514	0.631	C	1,604	0.668	C
I	Menangle Road	Eastbound	2,400	1,524	0.635	C	1,574	0.656	C	766	0.319	A	816	0.34	A
		Westbound	2,400	752	0.313	A	801	0.334	A	1,307	0.545	C	1,356	0.565	C
J	Menangle Road	Eastbound	2,400	1,498	0.624	C	1,505	0.627	C	989	0.412	B	1,049	0.437	B
		Westbound	2,400	748	0.312	A	987	0.411	B	1,373	0.572	C	1,380	0.575	C

Source: SCT Consulting, 2021

5.3.2 Intersection traffic impact

Future year base

As discussed in **Section 5.1**, the future year base models were developed based on available information from the *Menangle Park Planning Proposal Traffic Impact Assessment Report* such as geometry, and traffic volumes. It was not possible to find out the exact settings for signal plans and phase times and any other vehicle movement data settings. Hence, the traffic models for this assessment have been calibrated using vehicle movement data to maximise the consistency with the traffic models developed by GTA.

The results for future year base are shown in **Table 5-6** which indicate similar LoS output compared to the GTA models. The three intersections proposed in the *Menangle Park Planning Proposal Traffic Impact Assessment Report,* operate at satisfactory levels in both modelled periods. However, the intersection of Spring Farm/North-South Collector Road would operate close to capacity given the DoS.

Future year with additional development

With the additional development traffic generated by the subject site, the Spring Farm/North-South Collector Road intersection is forecast to operate over capacity during the peak hours assessed with a LoS F in both peak hours. The other two intersections would still operate at acceptable LoS as shown in **Table 5-6**.

Table 5-6 2026 Intersection performance

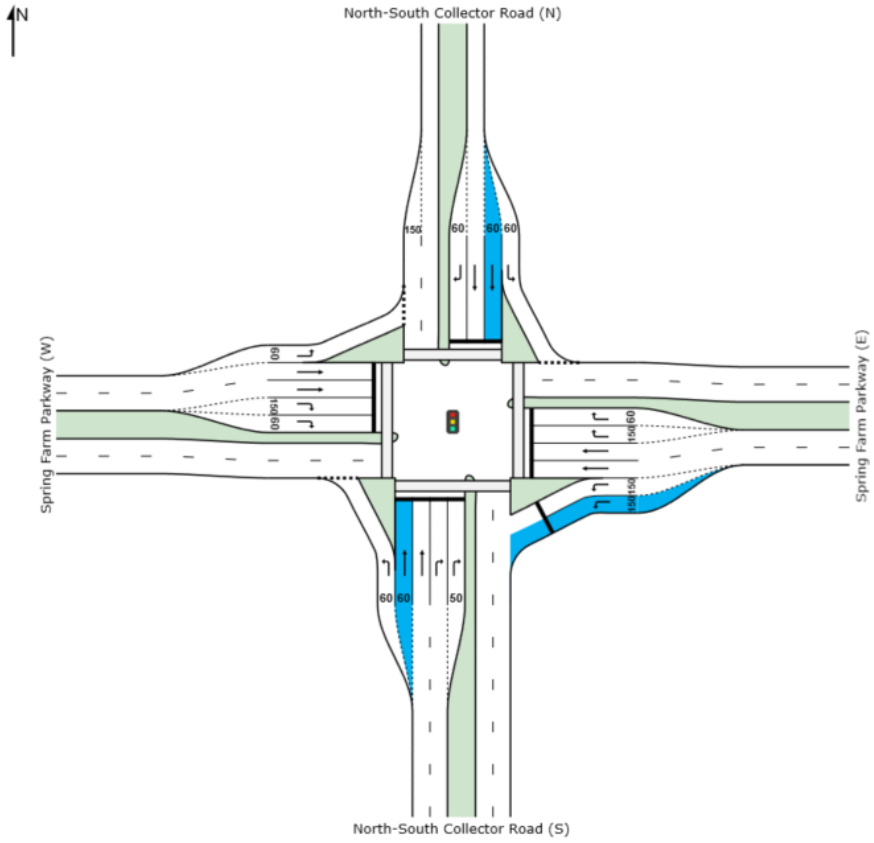
Intersection	Future year base			Future year base with development		
	Delay	LoS	DoS	Delay	LoS	DoS
Weekday AM Peak						
Menangle Road/North-South Collector Road	28s	B	0.89	28.5s	C	0.89
Spring Farm Parkway/North-South Collector Road	56.1s	D	0.94	134.2s	F	1.13
Menangle Road/Cummins Road	17.2s	B	0.51	15.7s	B	0.51
Weekday PM Peak						
Menangle Road/North-South Collector Road	17.8s	B	0.70	18.3s	B	0.74
Spring Farm Parkway/North-South Collector Road	44.4s	D	0.96	158.9s	F	1.37
Menangle Road/Cummins Road	14.7s	B	0.54	14.8s	B	0.54

Source: SCT Consulting, 2021

Future year with additional development and upgraded infrastructure

Further intersection upgrade for Spring Farm Parkway/North-South Collector Road is shown in **Figure 5-2** including an addition of a through lane for the north and south approach and addition of a left-turn slip lane for the east approach (signalised) to improve the capacity and overall level of service. This scope of infrastructure upgrade is considered to be limited given the site constraints surrounded by urban development.

Figure 5-2 Infrastructure upgrade



Note: Blue sections are upgrades needed for development traffic

Given about 75-85 per cent of the additional development traffic, i.e. nearly 600 cars, would use this intersection during the peak hours, the further upgrade would only improve the performance of the intersection to LoS E in the AM peak. The PM peak hour would see a reduction of delay by 50 per cent, despite a LoS F (see **Table 5-7**).

Table 5-7 2026 Intersection performance with upgrade

Intersection	AM peak hour			PM peak hour		
	Delay	LoS	DoS	Delay	LoS	DoS
Spring Farm Parkway/North-South Collector Road	62.1s	E	0.94	79.3s	F	1.09

Source: SCT Consulting, 2021

It is acknowledged that this intersection is the only access point to the north for the entire precinct (including Menangle Park URA and the subject site) where the majority of the traffic would use. It is expected that in reality, some traffic would be diverted to use Menangle Road/North-South Collector intersection where there is spare capacity to deal with the development traffic.

Sensitivity test

A sensitivity test was further carried out for the intersection of Spring Farm Parkway/North-South Collector Road. It is acknowledged that the GTA report does not provide the flow diagram details, which makes it difficult to find out the traffic demand for specific turning movements generated by Menangle Park URA. However, up to 30 per cent of the total trips would travel to/from Menangle Road (northeast) via this intersection. With the long delays at this bottleneck, traffic using Menangle Road would likely reroute to ensure more reliable travel times.

The sensitivity test aims to divert one-third of the Menangle Park URA traffic (to/from the northeast on Menagle Road) from this intersection to the intersection of Menangle Road/North-South Collector Road. There is no change for the traffic using M31. The new routings are:

– Outbound traffic uses the North-South Collector southbound and turns left to Menangle Road instead of travelling along North-South Collector northbound and turning right to Spring Farm Parkway.

– The reversed route applies to the inbound traffic, i.e. traffic from the northeast on Menangle Road turns right at North-South Collector and access to the precinct from the south.

The rerouted traffic demand for Menangle Park URA was calculated based on the trip generation in the *Menangle Park Planning Proposal Traffic Impact Assessment Report* which would be redirected from the intersection of Spring Farm Parkway/North-South Collector Road. It is noted that the reduction of the PM peak hour demand is approaching the vehicle trips generated by the subject site (**Table 5-8**).

Table 5-8 Turning volumes to be removed at Spring Farm Parkway/North-South Collector Road

Peak hours	In	Out	Total
AM peak hour	206 cars (east to south)	178 cars (south to east)	384 cars
PM peak hour	300 cars (east to south)	213 cars (south to east)	513 cars

Source: SCT Consulting, 2021

The performance of the road network under the sensitivity test during the 2026 peak hours is shown in **Table 5-9**. With the reduced traffic volumes by about 400 to 500 cars, traffic modelling confirms that the intersection would operate satisfactorily for both peak hours.

Table 5-9 2026 Intersection performance for sensitivity test

Intersection	AM peak hour			PM peak hour		
	Delay	LoS	DoS	Delay	LoS	DoS
Spring Farm Parkway/North-South Collector Road	56.5s	D	0.96	55.2s	D	1.00

Source: SCT Consulting, 2021

An alternative infrastructure upgrade is to consider a flyover for Spring Farm Parkway (through movements only) at the intersection with North-South Collector Road with signals or roundabouts at grade for all other turning movements. This option would remove about 1,500 vehicles from the intersection to facilitate the access of Menangle Park URA and the subject site. An example for Epping Road/Lane Cove Road intersection is shown in **Figure 5-3**.

It should be noted that this current traffic study has not considered the full benefits of the additional east-west connections as suggested by *Greater Macarthur 2040.* The additional capacity of the east-west connections could reduce traffic demands along the Spring Farm Parkway and provide additional capacity for turning traffic at the intersection of Spring Farm Parkway/North-South Collector Road.

Further modelling of the upgraded intersection is recommended post gateway to confirm the performance and the contribution to a wider road network efficiency.

Figure 5-3 Example of flyover at Epping Road/Lane Cove Road intersection

Source: Nearmap, 2021

5.4 Public transport impact

As stated in **Section 2.3**, a number of key roads to the north, west and east would become bus capable, enabling the site to be covered by bus services. With the proposed relocation of Menangle Park Town Centre to the nearby land parcels between the site and North-South Collector Road, it is expected that the bus frequency and bus route might increase.

The on-demand minibus service would link the users of the development closely with the public transport hub, activity centres and the Greater Macarthur. This would not only facilitate the public transport user group but also encourage mode shift of those car users to sustainable transport. It is envisaged that the minibus passengers would use online booking or mobile applications to ensure access to the service.

As discussed in **Section 2.2**, the extension of electric train suburban services to Menangle Park would improve train accessibility and availability for the site residents such that a wider 30-minute coverage by public transport can be realised.

The public transport network is expected to be able to cope with the additional trips generated by the proposed development given a relatively low net increase of the public transport demand.

5.5 Active transport impact

Active transport can be one of the most convenient modes for short-distance trips given the relocation of the Town Centre. The road network within the site is grid-like in structure, providing numerous crossing opportunities and reducing travel distance between residential areas and the Town Centre.

The roads to the north, west and east are proposed to accommodate off-road cycle paths, which facilitates the site residents to cycle to a wider area.

6.0 Conclusion

The proposal would see an uplift of 1,838 residential dwellings from the development scale permitted zoning under the R2. In summary:

- The rezoning of the site to medium-high density responds to the housing target for the Greater Macarthur Growth Area and the vision for promoting development opportunities close to public transport, local centres and employment.
- The site will benefit from upgrades to roads, public transport, and active transport networks as considered in the *Greater Macarthur 2040*. They include a connection between the Hume Motorway and Appin Road in Rosemeadow (Spring Farm Parkway), a public transport and walking and cycling extension of Menangle Road, a transport corridor running north-south through the land release precincts and connected to the rail line at Douglas Park, and local walking and cycling network facilities.
- *Campbelltown Local Strategic Planning Statement*'s consideration of providing electric train suburban services to Menangle Park and south-facing ramps from the Spring Farm Parkway to the M31 Hume Motorway will further benefit the site's connectivity to the wider region, its communities, and its place.
- The proposed development would generate a net increase of over 750 vehicle trips during AM and PM peak hours respectively, which will have an impact on the surrounding road corridors and precinct access points.
- For future year without development in 2026, the three intersections assessed would operate at satisfactory levels in both peak hours. However, the intersection of Spring Farm/North-South Collector Road would operate close to capacity given the DoS. This is consistent with the findings from the *Menangle Park Planning Proposal Traffic Assessment*.
- With the additional development traffic, the Spring Farm/North-South Collector Road intersection is forecast to operate over capacity during the peak hours assessed with a LoS F for both peak hours.
- Given about 75-85 per cent of the additional development traffic would use this intersection during the peak hours, further upgrades of this intersection has been considered at this gateway intersection, that would improve the performance of the intersection to LoS E in the AM peak hour. The PM peak hour would see a reduction of delay by 50 per cent, despite a LoS F.
- A sensitivity test aims to divert one-third of the Menangle Park URA traffic (to/from the northeast on Menagle Road) from this intersection to the intersection of Menangle Road/North-South Collector Road. With the reduced traffic volumes by about 400 to 500 cars, traffic modelling confirms that the intersection would operate satisfactorily for both peak hours.
- The additional development traffic would also worsen the mid-block performance especially on North-South Collector (close to Spring Farm Parkway) during the peak periods. Through the sensitivity test, it is expected the diverted traffic from Menangle Park URA would also result in better LoS for the mid-block performance on North-South Collector.
- An alternative infrastructure upgrade is to propose a flyover for Spring Farm Parkway (through movements only) at the intersection with North-South Collector Road with signals or roundabouts at grade for all other turning movements.
- It should be noted that this current traffic study has not considered the full benefits of the additional east-west connections as suggested by *Greater Macarthur 2040.* The additional capacity of the east-west connections could reduce traffic demands along the Spring Farm Parkway and provide additional capacity for turning traffic at the intersection of Spring Farm Parkway/North-South Collector Road.
- Further modelling of the upgraded intersection is recommended post gateway to confirm the performance and the contribution to a wider road network efficiency.
- The road network surrounding the site would be bus-capable whereas the internal street network increases permeability and accessibility for active transport, encouraging green transport use for the site.

APPENDIX A

SIDRA output

MOVEMENT SUMMARY

Site: 101 [MEN_NSC_BY_AM]

New Site
Signals - Fixed Time Isolated Cycle Time = 75 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	53	2.0	0.472	27.2	LOS B	8.7	61.9	0.84	0.73	45.8
2	T1	243	2.0	0.472	21.6	LOS B	8.7	61.9	0.84	0.73	43.8
3	R2	249	2.0	0.533	30.8	LOS C	7.9	56.5	0.90	0.81	41.5
Approach		545	2.0	0.533	26.4	LOS B	8.7	61.9	0.87	0.77	42.9
East: Menangle Road (E)											
4	L2	94	2.0	0.309	18.6	LOS B	6.2	44.4	0.62	0.61	53.1
5	T1	496	3.0	0.309	11.6	LOS A	6.4	45.9	0.62	0.56	62.8
6	R2	47	2.0	0.420	44.3	LOS D	1.8	12.8	0.97	0.76	36.8
Approach		637	2.8	0.420	15.1	LOS B	6.4	45.9	0.65	0.59	58.2
North: North-South Collector Road (N)											
7	L2	116	2.0	0.261	26.2	LOS B	4.2	29.7	0.78	0.74	44.5
8	T1	36	2.0	0.261	20.6	LOS B	4.2	29.7	0.78	0.74	42.6
9	R2	296	2.0	0.891	49.9	LOS D	13.4	95.1	1.00	1.05	34.2
Approach		447	2.0	0.891	41.4	LOS C	13.4	95.1	0.93	0.94	37.0
West: Menangle Road (W)											
10	L2	207	2.0	0.887	36.4	LOS C	34.3	252.1	0.97	1.03	42.4
11	T1	1397	7.0	0.887	29.2	LOS C	34.3	252.1	0.94	1.00	48.3
12	R2	53	2.0	0.136	21.4	LOS B	1.2	8.6	0.64	0.73	47.8
Approach		1657	6.2	0.887	29.9	LOS C	34.3	252.1	0.93	1.00	47.5
All Vehicles		3286	4.3	0.891	28.0	LOS B	34.3	252.1	0.87	0.87	46.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	12.9	LOS B	0.1	0.1	0.59	0.59
P2	East Full Crossing	53	26.5	LOS C	0.1	0.1	0.84	0.84
P3	North Full Crossing	53	14.8	LOS B	0.1	0.1	0.63	0.63
P4	West Full Crossing	53	26.5	LOS C	0.1	0.1	0.84	0.84
All Pedestrians		211	20.2	LOS C			0.72	0.72

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

MOVEMENT SUMMARY

Site: 101 [MEN_NSC_BY_PM]

New Site
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	21	2.0	0.182	31.3	LOS C	2.6	18.6	0.82	0.67	43.4
2	T1	63	2.0	0.182	25.7	LOS B	2.6	18.6	0.82	0.67	41.6
3	R2	73	2.0	0.280	39.4	LOS C	2.6	18.7	0.93	0.76	37.9
Approach		157	2.0	0.280	32.8	LOS C	2.6	18.7	0.87	0.71	40.0
East: Menangle Road (E)											
4	L2	338	2.0	0.684	18.6	LOS B	20.0	142.9	0.73	0.74	52.4
5	T1	1104	3.0	0.684	11.1	LOS A	20.0	142.9	0.70	0.66	63.1
6	R2	152	2.0	0.445	22.7	LOS B	4.1	29.3	0.71	0.79	47.1
Approach		1594	2.7	0.684	13.8	LOS A	20.0	142.9	0.70	0.69	58.7
North: North-South Collector Road (N)											
7	L2	46	2.0	0.476	33.7	LOS C	7.5	53.7	0.90	0.76	42.3
8	T1	176	2.0	0.476	28.1	LOS B	7.5	53.7	0.90	0.76	40.6
9	R2	272	2.0	0.695	38.3	LOS C	10.3	73.5	0.97	0.86	38.4
Approach		494	2.0	0.695	34.2	LOS C	10.3	73.5	0.94	0.82	39.5
West: Menangle Road (W)											
10	L2	340	2.0	0.370	16.3	LOS B	8.0	57.5	0.56	0.73	52.0
11	T1	466	7.0	0.370	8.9	LOS A	8.2	61.2	0.55	0.51	66.2
12	R2	53	2.0	0.349	31.1	LOS C	1.7	12.2	0.80	0.77	42.4
Approach		859	4.7	0.370	13.2	LOS A	8.2	61.2	0.57	0.62	57.9
All Vehicles		3103	3.1	0.695	17.8	LOS B	20.0	142.9	0.71	0.69	53.1

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	9.5	LOS A	0.1	0.1	0.49	0.49
P2	East Full Crossing	53	33.4	LOS D	0.1	0.1	0.91	0.91
P3	North Full Crossing	53	11.0	LOS B	0.1	0.1	0.53	0.53
P4	West Full Crossing	53	33.4	LOS D	0.1	0.1	0.91	0.91
All Pedestrians		211	21.8	LOS C			0.71	0.71

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

MOVEMENT SUMMARY

Site: 102 [SFP_NSC_BY_AM]

New Site
Signals - Fixed Time Isolated Cycle Time = 135 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	878	2.0	0.928	50.6	LOS D	52.7	375.0	0.96	1.06	34.2
2	T1	232	2.0	0.812	65.5	LOS E	15.9	113.0	1.00	0.93	29.1
3	R2	907	2.0	0.827	50.1	LOS D	35.2	250.3	0.92	0.90	34.4
Approach		2017	2.0	0.928	52.1	LOS D	52.7	375.0	0.95	0.97	33.6
East: Spring Farm Parkway (E)											
4	L2	344	2.0	0.258	12.1	LOS A	6.5	46.4	0.35	0.70	55.2
5	T1	674	5.0	0.860	64.1	LOS E	23.7	172.9	1.00	0.96	33.4
6	R2	79	2.0	0.532	80.0	LOS F	3.0	21.4	1.00	0.74	27.2
Approach		1097	3.8	0.860	48.9	LOS D	23.7	172.9	0.80	0.86	37.5
North: North-South Collector Road (N)											
7	L2	244	2.0	0.440	44.5	LOS D	12.5	88.7	0.85	0.87	36.2
8	T1	175	2.0	0.645	60.3	LOS E	11.1	79.2	1.00	0.82	30.3
9	R2	271	2.0	0.407	39.9	LOS C	13.2	93.9	0.80	0.79	38.0
Approach		689	2.0	0.645	46.7	LOS D	13.2	93.9	0.87	0.83	35.1
West: Spring Farm Parkway (W)											
10	L2	84	2.0	0.059	10.0	LOS A	1.1	7.6	0.24	0.65	57.1
11	T1	928	5.0	0.942	75.5	LOS F	39.3	286.7	1.00	1.08	30.3
12	R2	349	2.0	0.859	80.3	LOS F	12.6	89.8	1.00	0.92	27.2
Approach		1362	4.0	0.942	72.7	LOS F	39.3	286.7	0.95	1.01	30.3
All Vehicles		5165	2.9	0.942	56.1	LOS D	52.7	375.0	0.91	0.94	33.6

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	55.2	LOS E	0.2	0.2	0.91	0.91
P2	East Full Crossing	53	61.8	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	44.9	LOS E	0.2	0.2	0.82	0.82
P4	West Full Crossing	53	61.8	LOS F	0.2	0.2	0.96	0.96
All Pedestrians		211	55.9	LOS E			0.91	0.91

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

MOVEMENT SUMMARY

Site: 102 [SFP_NSC_BY_PM]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	288	2.0	0.250	9.0	LOS A	2.5	18.1	0.21	0.61	55.7
2	T1	187	2.0	0.541	41.0	LOS C	8.2	58.2	0.92	0.75	36.0
3	R2	487	2.0	0.951	71.0	LOS F	14.8	105.4	1.00	1.07	28.8
Approach		963	2.0	0.951	46.6	LOS D	14.8	105.4	0.75	0.87	35.2
East: Spring Farm Parkway (E)											
4	L2	882	2.0	0.738	8.5	LOS A	5.4	38.7	0.16	0.66	58.5
5	T1	758	5.0	0.955	63.8	LOS E	23.5	171.4	1.00	1.08	33.5
6	R2	254	2.0	0.262	36.2	LOS C	4.6	33.1	0.71	0.76	40.3
Approach		1894	3.2	0.955	34.3	LOS C	23.5	171.4	0.57	0.84	43.1
North: North-South Collector Road (N)											
7	L2	83	2.0	0.064	5.8	LOS A	0.1	0.5	0.02	0.55	58.5
8	T1	334	2.0	0.954	64.0	LOS E	20.3	144.8	1.00	1.13	29.4
9	R2	109	2.0	0.544	53.1	LOS D	5.2	36.9	0.97	0.78	33.4
Approach		526	2.0	0.954	52.5	LOS D	20.3	144.8	0.84	0.96	32.8
West: Spring Farm Parkway (W)											
10	L2	286	2.0	0.238	7.6	LOS A	0.3	2.1	0.03	0.62	59.4
11	T1	615	5.0	0.914	55.9	LOS D	17.5	128.1	1.00	1.01	36.1
12	R2	834	2.0	0.945	63.7	LOS E	23.6	168.3	0.92	0.99	31.1
Approach		1735	3.1	0.945	51.7	LOS D	23.6	168.3	0.80	0.93	35.7
All Vehicles		5118	2.8	0.955	44.4	LOS D	23.6	171.4	0.71	0.89	37.6

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	43.3	LOS E	0.1	0.1	0.93	0.93
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.0	LOS E			0.94	0.94

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

MOVEMENT SUMMARY

Site: 103 [MEN_CUM_BY_AM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cummins Road (S)											
1	L2	49	2.0	0.181	4.2	LOS A	0.8	5.6	0.63	0.66	53.7
2	T1	44	2.0	0.181	3.2	LOS A	0.8	5.6	0.63	0.66	48.6
3	R2	53	2.0	0.181	10.1	LOS A	0.8	5.6	0.63	0.66	55.8
Approach		146	2.0	0.181	6.1	LOS A	0.8	5.6	0.63	0.66	52.7
East: Menangle Road (E)											
4	L2	53	2.0	0.294	3.6	LOS A	2.2	15.9	0.45	0.32	55.8
5	T1	737	7.0	0.294	3.1	LOS A	2.2	15.9	0.46	0.35	57.8
6	R2	54	2.0	0.294	10.5	LOS A	2.0	15.0	0.47	0.40	58.5
Approach		843	6.4	0.294	3.6	LOS A	2.2	15.9	0.46	0.36	57.7
North: Cummins Road (N)											
7	L2	231	2.0	0.258	7.9	LOS A	1.3	9.4	0.73	0.79	55.2
8	T1	12	2.0	0.320	9.4	LOS A	1.5	10.8	0.75	0.93	60.6
9	R2	188	2.0	0.320	17.2	LOS B	1.5	10.8	0.75	0.93	54.3
Approach		431	2.0	0.320	12.0	LOS A	1.5	10.8	0.74	0.85	54.9
West: Menangle Road (W)											
10	L2	196	2.0	0.510	5.7	LOS A	4.3	31.1	0.43	0.47	56.4
11	T1	1374	3.0	0.510	5.8	LOS A	4.3	31.1	0.45	0.48	69.2
12	R2	6	2.0	0.510	13.7	LOS A	4.2	30.3	0.48	0.49	60.7
Approach		1576	2.9	0.510	5.8	LOS A	4.3	31.1	0.45	0.48	67.3
All Vehicles		2996	3.7	0.510	6.1	LOS A	4.3	31.1	0.50	0.51	61.6

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 103 [MEN_CUM_BY_PM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cummins Road (S)											
1	L2	6	2.0	0.128	5.9	LOS A	0.6	4.3	0.77	0.86	51.1
2	T1	12	2.0	0.128	4.9	LOS A	0.6	4.3	0.77	0.86	46.5
3	R2	53	2.0	0.128	11.8	LOS A	0.6	4.3	0.77	0.86	52.9
Approach		71	2.0	0.128	10.1	LOS A	0.6	4.3	0.77	0.86	51.6
East: Menangle Road (E)											
4	L2	53	2.0	0.539	4.6	LOS A	4.8	34.2	0.67	0.42	54.5
5	T1	1181	3.0	0.539	4.1	LOS A	4.8	34.2	0.68	0.48	56.3
6	R2	195	2.0	0.539	11.9	LOS A	4.4	31.7	0.71	0.58	56.5
Approach		1428	2.8	0.539	5.2	LOS A	4.8	34.2	0.69	0.49	56.2
North: Cummins Road (N)											
7	L2	63	2.0	0.090	7.8	LOS A	0.4	2.6	0.60	0.75	55.8
8	T1	46	2.0	0.286	6.9	LOS A	1.4	10.3	0.63	0.81	62.6
9	R2	258	2.0	0.286	14.7	LOS B	1.4	10.3	0.63	0.81	55.8
Approach		367	2.0	0.286	12.6	LOS A	1.4	10.3	0.63	0.80	56.6
West: Menangle Road (W)											
10	L2	246	2.0	0.372	5.9	LOS A	2.8	20.4	0.50	0.52	56.0
11	T1	743	7.0	0.372	6.2	LOS A	2.8	20.4	0.52	0.54	67.3
12	R2	52	2.0	0.372	14.1	LOS A	2.6	19.3	0.54	0.55	59.8
Approach		1041	5.6	0.372	6.5	LOS A	2.8	20.4	0.52	0.53	63.9
All Vehicles		2907	3.7	0.539	6.7	LOS A	4.8	34.2	0.62	0.55	58.6

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [MEN_NSC_FYD_AM]

New Site
Signals - Fixed Time Isolated Cycle Time = 75 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	53	2.0	0.472	27.2	LOS B	8.7	61.9	0.84	0.73	45.8
2	T1	243	2.0	0.472	21.6	LOS B	8.7	61.9	0.84	0.73	43.8
3	R2	249	2.0	0.672	36.0	LOS C	8.8	63.0	0.97	0.85	39.2
Approach		545	2.0	0.672	28.7	LOS C	8.8	63.0	0.90	0.79	41.8
East: Menangle Road (E)											
4	L2	94	2.0	0.309	18.6	LOS B	6.2	44.4	0.62	0.61	53.1
5	T1	496	3.0	0.309	11.6	LOS A	6.4	45.9	0.62	0.56	62.8
6	R2	63	1.5	0.557	45.4	LOS D	2.5	17.4	0.99	0.79	36.4
Approach		653	2.7	0.557	15.9	LOS B	6.4	45.9	0.66	0.59	57.3
North: North-South Collector Road (N)											
7	L2	212	1.1	0.430	27.6	LOS B	7.3	51.4	0.84	0.78	43.6
8	T1	36	2.0	0.430	22.0	LOS B	7.3	51.4	0.84	0.78	41.7
9	R2	296	2.0	0.891	49.9	LOS D	13.4	95.1	1.00	1.05	34.2
Approach		543	1.6	0.891	39.4	LOS C	13.4	95.1	0.93	0.93	37.9
West: Menangle Road (W)											
10	L2	207	2.0	0.887	36.4	LOS C	34.3	252.1	0.97	1.03	42.4
11	T1	1397	7.0	0.887	29.2	LOS C	34.3	252.1	0.94	1.00	48.3
12	R2	53	2.0	0.136	21.4	LOS B	1.2	8.6	0.64	0.73	47.8
Approach		1657	6.2	0.887	29.9	LOS C	34.3	252.1	0.93	1.00	47.5
All Vehicles		3398	4.1	0.891	28.5	LOS C	34.3	252.1	0.87	0.87	46.1

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	12.9	LOS B	0.1	0.1	0.59	0.59
P2	East Full Crossing	53	26.5	LOS C	0.1	0.1	0.84	0.84
P3	North Full Crossing	53	14.8	LOS B	0.1	0.1	0.63	0.63
P4	West Full Crossing	53	26.5	LOS C	0.1	0.1	0.84	0.84
All Pedestrians		211	20.2	LOS C			0.72	0.72

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

MOVEMENT SUMMARY

Site: 101 [MEN_NSC_FYD_PM]

New Site
Signals - Fixed Time Isolated Cycle Time = 80 seconds (Optimum Cycle Time - Minimum Delay)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	21	2.0	0.192	32.2	LOS C	2.7	19.0	0.84	0.68	42.9
2	T1	63	2.0	0.192	26.7	LOS B	2.7	19.0	0.84	0.68	41.1
3	R2	73	2.0	0.325	40.8	LOS C	2.7	19.2	0.94	0.76	37.3
Approach		157	2.0	0.325	34.0	LOS C	2.7	19.2	0.89	0.72	39.5
East: Menangle Road (E)											
4	L2	338	2.0	0.626	17.4	LOS B	17.3	123.9	0.68	0.71	53.2
5	T1	1104	3.0	0.626	10.4	LOS A	17.9	128.5	0.68	0.65	63.9
6	R2	249	1.2	0.708	27.7	LOS B	8.6	61.0	0.83	0.87	44.2
Approach		1691	2.5	0.708	14.4	LOS A	17.9	128.5	0.70	0.69	57.8
North: North-South Collector Road (N)											
7	L2	62	1.5	0.541	35.0	LOS C	8.3	59.3	0.93	0.78	41.6
8	T1	176	2.0	0.541	29.5	LOS C	8.3	59.3	0.93	0.78	39.8
9	R2	272	2.0	0.736	40.3	LOS C	10.7	76.2	0.99	0.89	37.6
Approach		509	1.9	0.736	35.9	LOS C	10.7	76.2	0.96	0.84	38.8
West: Menangle Road (W)											
10	L2	340	2.0	0.362	15.7	LOS B	7.8	55.8	0.55	0.73	52.4
11	T1	466	7.0	0.362	8.3	LOS A	8.0	59.2	0.54	0.50	66.9
12	R2	53	2.0	0.375	33.9	LOS C	1.8	12.8	0.84	0.78	41.2
Approach		859	4.7	0.375	12.8	LOS A	8.0	59.2	0.56	0.61	58.3
All Vehicles		3217	3.0	0.736	18.3	LOS B	17.9	128.5	0.71	0.69	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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	9.0	LOS A	0.1	0.1	0.48	0.48
P2	East Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
P3	North Full Crossing	53	10.5	LOS B	0.1	0.1	0.51	0.51
P4	West Full Crossing	53	34.3	LOS D	0.1	0.1	0.93	0.93
All Pedestrians		211	22.0	LOS C			0.71	0.71

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

MOVEMENT SUMMARY

Site: 102 [SFP_NSC_FYD_AM]

New Site
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	1039	1.7	1.069	120.9	LOS F	101.0	717.6	1.00	1.23	20.7
2	T1	232	2.0	0.488	51.9	LOS D	14.5	103.0	0.91	0.77	32.6
3	R2	1230	1.5	1.127	225.0	LOS F	126.3	895.2	1.00	1.35	13.1
Approach		2500	1.6	1.127	165.7	LOS F	126.3	895.2	0.99	1.25	16.5
East: Spring Farm Parkway (E)											
4	L2	449	1.5	0.332	13.0	LOS A	10.1	71.9	0.37	0.70	54.6
5	T1	674	5.0	1.029	131.8	LOS F	36.0	263.2	1.00	1.21	20.7
6	R2	79	2.0	0.591	89.0	LOS F	3.4	23.9	1.00	0.74	25.5
Approach		1202	3.5	1.029	84.5	LOS F	36.0	263.2	0.76	0.99	27.4
North: North-South Collector Road (N)											
7	L2	244	2.0	0.209	10.9	LOS A	4.9	34.8	0.35	0.66	54.1
8	T1	175	2.0	0.681	68.4	LOS E	12.5	89.0	1.00	0.83	28.4
9	R2	271	2.0	0.492	48.2	LOS D	15.5	110.3	0.84	0.81	35.0
Approach		689	2.0	0.681	40.1	LOS C	15.5	110.3	0.71	0.76	37.5
West: Spring Farm Parkway (W)											
10	L2	84	2.0	0.059	9.7	LOS A	1.0	7.5	0.22	0.65	57.4
11	T1	928	5.0	1.103	188.1	LOS F	62.6	456.7	1.00	1.42	15.7
12	R2	382	1.8	1.041	149.9	LOS F	20.7	146.8	1.00	1.10	18.0
Approach		1394	4.0	1.103	166.9	LOS F	62.6	456.7	0.95	1.29	17.1
All Vehicles		5786	2.6	1.127	134.2	LOS F	126.3	895.2	0.90	1.15	19.6

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	64.5	LOS F	0.2	0.2	0.93	0.93
P2	East Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	53.9	LOS E	0.2	0.2	0.85	0.85
P4	West Full Crossing	53	57.3	LOS E	0.2	0.2	0.88	0.88
All Pedestrians		211	61.3	LOS F			0.90	0.90

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

MOVEMENT SUMMARY

Site: 102 [SFP_NSC_FYD_PM]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	321	1.8	0.276	8.8	LOS A	2.7	19.5	0.21	0.61	55.9
2	T1	187	2.0	0.573	42.2	LOS C	8.3	59.4	0.94	0.77	35.6
3	R2	591	1.6	1.096	158.7	LOS F	29.0	205.7	1.00	1.41	17.1
Approach		1099	1.8	1.096	95.1	LOS F	29.0	205.7	0.76	1.07	24.1
East: Spring Farm Parkway (E)											
4	L2	1199	1.5	1.369	369.0	LOS F	186.9	1324.9	1.00	1.91	8.7
5	T1	758	5.0	1.056	119.1	LOS F	32.2	235.3	1.00	1.32	22.3
6	R2	254	2.0	0.237	33.1	LOS C	4.3	30.8	0.67	0.75	41.7
Approach		2210	2.7	1.369	244.8	LOS F	186.9	1324.9	0.96	1.57	12.4
North: North-South Collector Road (N)											
7	L2	83	2.0	0.059	5.8	LOS A	0.1	0.5	0.02	0.55	58.5
8	T1	334	2.0	1.039	108.2	LOS F	26.6	189.7	1.00	1.35	21.8
9	R2	109	2.0	0.544	53.1	LOS D	5.2	36.9	0.97	0.78	33.4
Approach		526	2.0	1.039	80.6	LOS F	26.6	189.7	0.84	1.11	26.3
West: Spring Farm Parkway (W)											
10	L2	286	2.0	0.241	7.6	LOS A	0.3	2.1	0.03	0.62	59.4
11	T1	615	5.0	1.022	96.8	LOS F	23.3	170.1	1.00	1.21	25.8
12	R2	991	1.7	1.090	162.3	LOS F	47.2	335.4	1.00	1.28	17.0
Approach		1892	2.8	1.090	117.6	LOS F	47.2	335.4	0.85	1.16	21.7
All Vehicles		5728	2.5	1.369	158.9	LOS F	186.9	1324.9	0.88	1.30	17.3

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	44.3	LOS E			0.94	0.94

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

MOVEMENT SUMMARY

Site: 103 [MEN_CUM_FYD_AM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cummins Road (S)											
1	L2	49	2.0	0.190	4.5	LOS A	0.9	6.1	0.65	0.69	53.6
2	T1	44	2.0	0.190	3.5	LOS A	0.9	6.1	0.65	0.69	48.4
3	R2	53	2.0	0.190	10.4	LOS A	0.9	6.1	0.65	0.69	55.6
Approach		146	2.0	0.190	6.3	LOS A	0.9	6.1	0.65	0.69	52.6
East: Menangle Road (E)											
4	L2	53	2.0	0.309	3.8	LOS A	2.3	17.0	0.51	0.35	55.4
5	T1	737	7.0	0.309	3.3	LOS A	2.3	17.0	0.53	0.38	57.4
6	R2	54	2.0	0.309	10.9	LOS A	2.1	15.8	0.54	0.43	58.1
Approach		843	6.4	0.309	3.9	LOS A	2.3	17.0	0.53	0.39	57.3
North: Cummins Road (N)											
7	L2	231	2.0	0.371	9.9	LOS A	1.8	13.2	0.76	0.90	54.2
8	T1	12	2.0	0.296	7.9	LOS A	1.5	10.9	0.75	0.87	61.1
9	R2	252	1.5	0.296	15.7	LOS B	1.5	10.9	0.75	0.87	54.7
Approach		494	1.7	0.371	12.8	LOS A	1.8	13.2	0.75	0.88	54.6
West: Menangle Road (W)											
10	L2	204	1.9	0.513	5.7	LOS A	4.4	31.5	0.44	0.47	56.4
11	T1	1374	3.0	0.513	5.8	LOS A	4.4	31.5	0.46	0.48	69.2
12	R2	6	2.0	0.513	13.7	LOS A	4.3	30.7	0.48	0.49	60.7
Approach		1584	2.9	0.513	5.8	LOS A	4.4	31.5	0.46	0.48	67.2
All Vehicles		3068	3.6	0.513	6.4	LOS A	4.4	31.5	0.53	0.53	61.2

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

MOVEMENT SUMMARY

Site: 103 [MEN_CUM_FYD_PM]

New Site
Roundabout

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Cummins Road (S)											
1	L2	6	2.0	0.129	5.9	LOS A	0.6	4.4	0.77	0.86	51.1
2	T1	12	2.0	0.129	4.9	LOS A	0.6	4.4	0.77	0.86	46.5
3	R2	53	2.0	0.129	11.8	LOS A	0.6	4.4	0.77	0.86	52.9
Approach		71	2.0	0.129	10.2	LOS A	0.6	4.4	0.77	0.86	51.6
East: Menangle Road (E)											
4	L2	53	2.0	0.542	4.6	LOS A	4.8	34.6	0.68	0.43	54.5
5	T1	1181	3.0	0.542	4.2	LOS A	4.8	34.6	0.69	0.48	56.2
6	R2	195	2.0	0.542	12.0	LOS A	4.5	32.5	0.72	0.59	56.4
Approach		1428	2.8	0.542	5.3	LOS A	4.8	34.6	0.70	0.50	56.2
North: Cummins Road (N)											
7	L2	63	2.0	0.091	7.9	LOS A	0.4	2.7	0.60	0.75	55.8
8	T1	46	2.0	0.296	7.0	LOS A	1.5	10.9	0.65	0.81	62.5
9	R2	266	1.9	0.296	14.8	LOS B	1.5	10.9	0.65	0.81	55.8
Approach		376	2.0	0.296	12.7	LOS A	1.5	10.9	0.64	0.80	56.5
West: Menangle Road (W)											
10	L2	309	1.6	0.394	6.0	LOS A	3.0	22.0	0.51	0.53	56.0
11	T1	743	7.0	0.394	6.3	LOS A	3.0	22.0	0.53	0.54	67.2
12	R2	52	2.0	0.394	14.1	LOS A	2.8	21.0	0.55	0.55	59.8
Approach		1104	5.3	0.394	6.5	LOS A	3.0	22.0	0.53	0.54	63.3
All Vehicles		2979	3.6	0.542	6.8	LOS A	4.8	34.6	0.63	0.56	58.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 [SFP_NSC_FYD_AM_U]

New Site
Signals - Fixed Time Isolated Cycle Time = 150 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	1039	1.7	0.936	51.0	LOS D	70.0	497.3	0.99	1.12	34.1
2	T1	232	2.0	0.184	36.0	LOS C	6.2	43.9	0.73	0.60	37.9
3	R2	1230	1.5	0.916	68.0	LOS E	52.7	373.4	0.98	0.98	29.6
Approach		2500	1.6	0.936	58.0	LOS E	70.0	497.3	0.96	1.00	32.0
East: Spring Farm Parkway (E)											
4	L2	449	1.5	0.199	20.7	LOS B	7.1	50.0	0.47	0.73	49.0
5	T1	674	5.0	0.923	82.4	LOS F	28.5	208.4	1.00	1.03	28.7
6	R2	79	2.0	0.585	89.1	LOS F	3.3	23.7	1.00	0.74	25.6
Approach		1202	3.5	0.923	59.8	LOS E	28.5	208.4	0.80	0.90	33.7
North: North-South Collector Road (N)											
7	L2	244	2.0	0.467	49.9	LOS D	14.2	101.3	0.88	0.91	34.4
8	T1	175	2.0	0.340	64.3	LOS E	5.9	41.9	0.95	0.75	29.4
9	R2	271	2.0	0.923	90.3	LOS F	22.9	162.9	1.00	1.00	25.0
Approach		689	2.0	0.923	69.4	LOS E	22.9	162.9	0.94	0.90	28.9
West: Spring Farm Parkway (W)											
10	L2	84	2.0	0.058	8.4	LOS A	0.7	4.9	0.16	0.64	58.5
11	T1	928	5.0	0.901	68.4	LOS E	39.2	285.9	1.00	1.01	32.2
12	R2	382	1.8	0.781	79.7	LOS F	14.3	101.7	1.00	0.87	27.5
Approach		1394	4.0	0.901	67.9	LOS E	39.2	285.9	0.95	0.95	31.6
All Vehicles		5786	2.6	0.936	62.1	LOS E	70.0	497.3	0.92	0.96	31.8

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	63.6	LOS F	0.2	0.2	0.92	0.92
P2	East Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	49.7	LOS E	0.2	0.2	0.82	0.82
P4	West Full Crossing	53	45.0	LOS E	0.2	0.2	0.78	0.78
All Pedestrians		211	56.9	LOS E			0.87	0.87

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

MOVEMENT SUMMARY

Site: 102 [SFP_NSC_FYD_AM_S]

New Site
Signals - Fixed Time Isolated Cycle Time = 150 seconds (User-Given Phase Times)

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	1039	1.7	0.961	64.4	LOS E	75.2	534.0	1.00	1.15	30.3
2	T1	232	2.0	0.266	49.3	LOS D	7.2	51.6	0.85	0.69	33.4
3	R2	1042	1.7	0.812	51.9	LOS D	37.1	263.6	0.94	0.89	34.0
Approach		2313	1.7	0.961	57.2	LOS E	75.2	534.0	0.96	0.99	32.2
East: Spring Farm Parkway (E)											
4	L2	232	3.0	0.101	18.6	LOS B	3.2	23.2	0.41	0.70	50.4
5	T1	674	5.0	0.787	61.4	LOS E	24.0	175.3	1.00	0.90	34.3
6	R2	79	2.0	0.251	76.7	LOS F	3.0	21.3	0.96	0.74	28.0
Approach		985	4.3	0.787	52.6	LOS D	24.0	175.3	0.86	0.84	36.4
North: North-South Collector Road (N)											
7	L2	244	2.0	0.471	44.1	LOS D	14.5	103.1	0.88	0.88	36.4
8	T1	175	2.0	0.756	80.9	LOS F	6.8	48.2	1.00	0.85	26.0
9	R2	271	2.0	0.850	75.8	LOS F	20.6	146.4	1.00	0.93	27.7
Approach		689	2.0	0.850	65.9	LOS E	20.6	146.4	0.96	0.89	29.7
West: Spring Farm Parkway (W)											
10	L2	84	2.0	0.057	8.6	LOS A	0.7	5.2	0.17	0.65	58.4
11	T1	928	5.0	0.806	51.7	LOS D	33.4	243.6	0.97	0.88	37.8
12	R2	382	1.8	0.558	67.4	LOS E	12.8	90.8	0.96	0.82	30.3
Approach		1394	4.0	0.806	53.4	LOS D	33.4	243.6	0.92	0.85	36.1
All Vehicles		5381	2.8	0.961	56.5	LOS D	75.2	534.0	0.93	0.91	33.5

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	59.1	LOS E	0.2	0.2	0.89	0.89
P2	East Full Crossing	53	69.3	LOS F	0.2	0.2	0.96	0.96
P3	North Full Crossing	53	45.7	LOS E	0.2	0.2	0.78	0.78
P4	West Full Crossing	53	58.2	LOS E	0.2	0.2	0.88	0.88
All Pedestrians		211	58.1	LOS E			0.88	0.88

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

MOVEMENT SUMMARY

Site: 102 [SFP_NSC_FYD_PM_U]

New Site
Signals - Fixed Time Coordinated Cycle Time = 100 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	321	1.8	0.278	8.8	LOS A	2.8	19.6	0.21	0.61	55.9
2	T1	187	2.0	0.322	40.8	LOS C	4.2	29.8	0.88	0.69	36.1
3	R2	591	1.6	1.082	146.7	LOS F	27.4	194.5	1.00	1.40	18.2
Approach		1099	1.8	1.082	88.4	LOS F	27.4	194.5	0.75	1.05	25.3
East: Spring Farm Parkway (E)											
4	L2	1199	1.5	0.881	45.0	LOS D	30.1	213.6	0.96	0.94	37.1
5	T1	758	5.0	1.056	119.1	LOS F	32.2	235.3	1.00	1.32	22.4
6	R2	254	2.0	0.502	50.4	LOS D	6.2	44.0	0.93	0.79	35.0
Approach		2210	2.7	1.056	71.0	LOS F	32.2	235.3	0.97	1.05	30.1
North: North-South Collector Road (N)											
7	L2	83	2.0	0.079	5.8	LOS A	0.1	0.4	0.02	0.55	58.6
8	T1	334	2.0	0.510	41.6	LOS C	7.3	52.0	0.92	0.75	35.8
9	R2	109	2.0	0.498	51.8	LOS D	5.1	36.2	0.96	0.78	33.8
Approach		526	2.0	0.510	38.1	LOS C	7.3	52.0	0.79	0.72	37.7
West: Spring Farm Parkway (W)											
10	L2	286	2.0	0.212	7.6	LOS A	0.3	1.9	0.03	0.62	59.4
11	T1	615	5.0	0.493	27.8	LOS B	10.8	78.6	0.76	0.65	49.9
12	R2	991	1.7	1.090	162.4	LOS F	47.2	335.4	1.00	1.30	17.0
Approach		1892	2.8	1.090	95.3	LOS F	47.2	335.4	0.78	0.98	25.1
All Vehicles		5728	2.5	1.090	79.3	LOS F	47.2	335.4	0.85	1.00	27.8

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P2	East Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
P3	North Full Crossing	53	32.9	LOS D	0.1	0.1	0.81	0.81
P4	West Full Crossing	53	44.3	LOS E	0.1	0.1	0.94	0.94
All Pedestrians		211	41.4	LOS E			0.91	0.91

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

MOVEMENT SUMMARY

Site: 102 [SFP_NSC_FYD_PM_S]

New Site
Signals - Fixed Time Coordinated Cycle Time = 110 seconds (Optimum Cycle Time - Minimum Delay)
Variable Sequence Analysis applied. The results are given for the selected output sequence.

Movement Performance - Vehicles

Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: North-South Collector Road (S)											
1	L2	321	1.8	0.270	9.3	LOS A	3.0	21.4	0.20	0.62	55.4
2	T1	187	2.0	0.334	45.4	LOS D	4.6	33.0	0.89	0.70	34.6
3	R2	366	2.7	1.003	97.3	LOS F	13.7	97.8	1.00	1.16	23.9
Approach		873	2.2	1.003	53.9	LOS D	13.7	97.8	0.68	0.86	33.0
East: Spring Farm Parkway (E)											
4	L2	883	2.0	0.737	41.9	LOS C	19.9	142.0	0.89	0.85	38.2
5	T1	758	5.0	1.003	89.4	LOS F	29.2	212.9	1.00	1.17	27.3
6	R2	254	2.0	0.436	51.7	LOS D	6.5	46.0	0.89	0.78	34.6
Approach		1894	3.2	1.003	62.2	LOS E	29.2	212.9	0.93	0.97	32.5
North: North-South Collector Road (N)											
7	L2	83	2.0	0.075	5.8	LOS A	0.1	0.5	0.02	0.55	58.6
8	T1	334	2.0	0.530	46.4	LOS D	8.1	57.7	0.93	0.76	34.3
9	R2	109	2.0	0.822	66.5	LOS E	6.4	45.5	1.00	0.89	29.8
Approach		526	2.0	0.822	44.2	LOS D	8.1	57.7	0.80	0.75	35.5
West: Spring Farm Parkway (W)											
10	L2	286	2.0	0.210	7.6	LOS A	0.3	2.1	0.03	0.62	59.4
11	T1	615	5.0	0.426	24.6	LOS B	10.3	75.1	0.67	0.57	52.2
12	R2	991	1.7	0.994	81.4	LOS F	33.0	234.3	0.80	1.03	27.2
Approach		1892	2.8	0.994	51.7	LOS D	33.0	234.3	0.64	0.82	35.7
All Vehicles		5187	2.8	1.003	55.2	LOS D	33.0	234.3	0.77	0.88	34.0

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.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians

Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped
P1	South Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P2	East Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
P3	North Full Crossing	53	30.6	LOS D	0.1	0.1	0.75	0.75
P4	West Full Crossing	53	49.3	LOS E	0.2	0.2	0.95	0.95
All Pedestrians		211	44.6	LOS E			0.90	0.90

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


SCT
Consulting

Appendix "C"
Stormwater Drainage Assessment

NORTHROP

STORMWATER ENGINEERING REPORT FOR SITE REZONING

East Village, Menangle Park

PREPARED FOR
Michael Brown Planning Strategies

Ref: 213026-CR01
Rev: A
Date: 01/12/21

Stormwater Engineering Report

Revision Schedule

Date	Revision	Issue	Prepared By	Approved By
01/12/2021	A	Issued for Review	M Brown & J.Kane	Danny Liganaris

Northrop Consulting Engineers Pty Ltd

ACN 064 775 088 | ABN 81 094 433 100

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Table of Contents

1. Introduction

Northrop has been engaged by Michael Brown Planning Strategies to prepare a stormwater concept plan for a proposed development on a site in Menangle Park. The proposed East Village is located in the north of Menangle Park and within Campbelltown LGA (Figure **1**).

Figure 1: Site Location

2. Proposed development

Urbis prepared the East Village Menangle Park Rezoning Vision Report in 2021. It proposes the East Village development in the context of site physical and planning matters. It incorporates "place" principles that work well with stormwater planning.

A Structure Plan for the proposed site redevelopment is shown in **Figure 2**. The existing site is to be completely redeveloped and subdivided into individual lots and apartment blocks consisting of residential and recreation areas. Development access points will be located along the eastern, western, and northern boundaries and provide multiple accesses to Cummins Road, Racecourse Avenue and Fitzpatrick Street respectively.

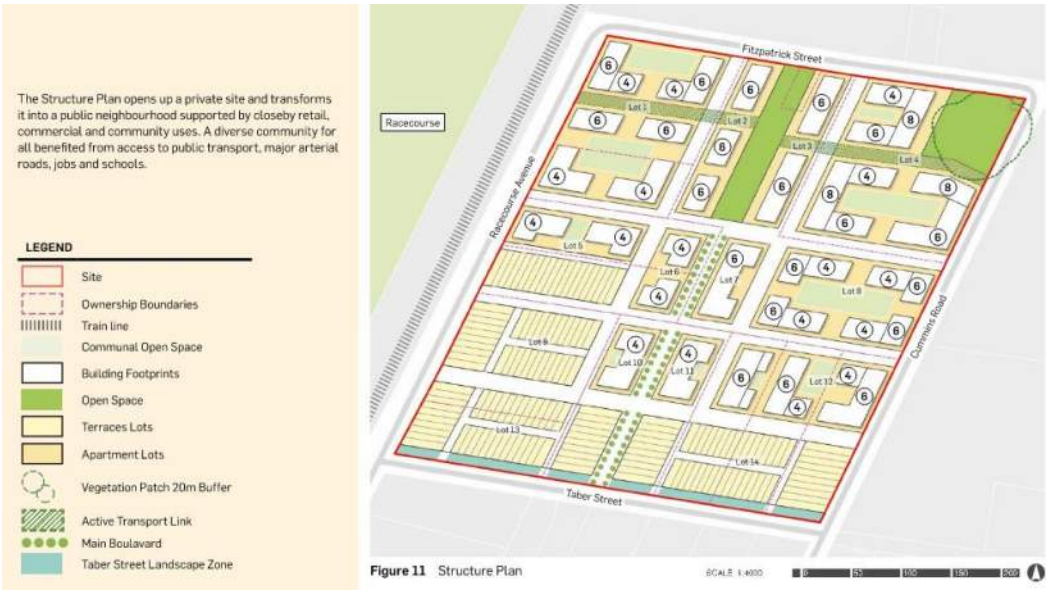

Figure 2: East Village structure Plan

Features of the development include:

- Open space areas in the public domain
- Communal open space in between buildings
- Main boulevard through the centre of the proposed development – running north-south
- Landscaped zone on the Taber Street frontage

A perspective view of the proposed East Village Development is shown in **Figure 3**.

Figure 3: Proposed East Village viewed from north

2.1 Surrounding development

The site sits within the Greater Macarthur Growth Area which is a master planned community north and east of the Nepean River. To the north and east of the proposed East Village is land being developed by Dahua Group. Surrounding master planned land use includes medium density residential and a town centre (**Figure 4**). No development is planned west of the railway line to the Nepean River.

Figure 4: Master Plan for Greater Macarthur Growth Area

2.2 Dahua's Menangle Park IWCM Strategy

APP prepared the *Menangle Park Planning Proposal*, November 2018. Chapter 4 addresses Water Cycle and Flood Management. East Village is relevant to this as it forms part of the assessed catchments. The resulting Strategy is to create end of line basins for detention and water quality treatment. Basin 2 (by Dahua and on their land) will accept flows from the sub-catchment containing the northern part of East Village (**Figure 5**). Basin 7 will accept flows from the sub-catchment containing the southwestern part of East Village (**Figure 5**). Gross pollutant traps will pre-treat flows before entering these basins.

Figure 5: Drainage sub catchments and WSUD elements

3. Site conditions

3.1 Land use

The site is 19.4 Ha in area and is currently zoned as 'R2 – Low Density Residential' land and primarily occupied by single lot residential dwellings and sheds supporting low intensity grazing for pet horses (**Figure 6**). The site is surrounded by public roads and the Southern Railway runs parallel with Racecourse Avenue to the west of the site.

Figure 6: Existing low density rural land use

3.2 Topography

The site has its highest elevation in the southeast at 100m AHD, gently falling to the west and north to 83m AHD (**Figure 7**). Slopes are gentle up to 5%.

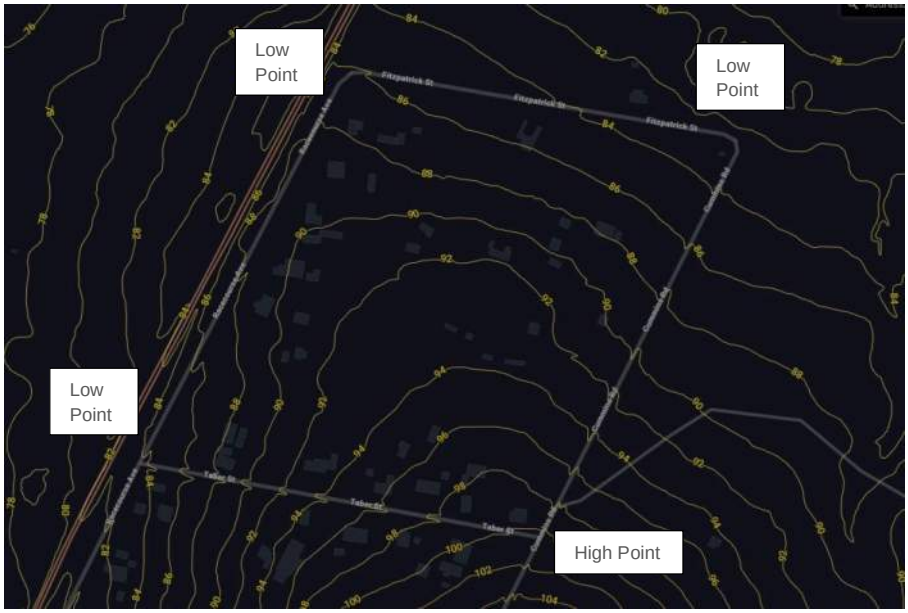

Figure 7: Site topography

3.3 Catchments and flow paths

The site forms its own discreet catchment (**Figure 8**) with three sub-catchments draining to the northeast (orange), southwest (yellow) and northwest (red). A sub-catchment to the south (green) does not flow across the site – it is drained to the west down Taber Street. The conditions at each corner of the site (A, B, C,D) are shown and described in **Figure 8**.

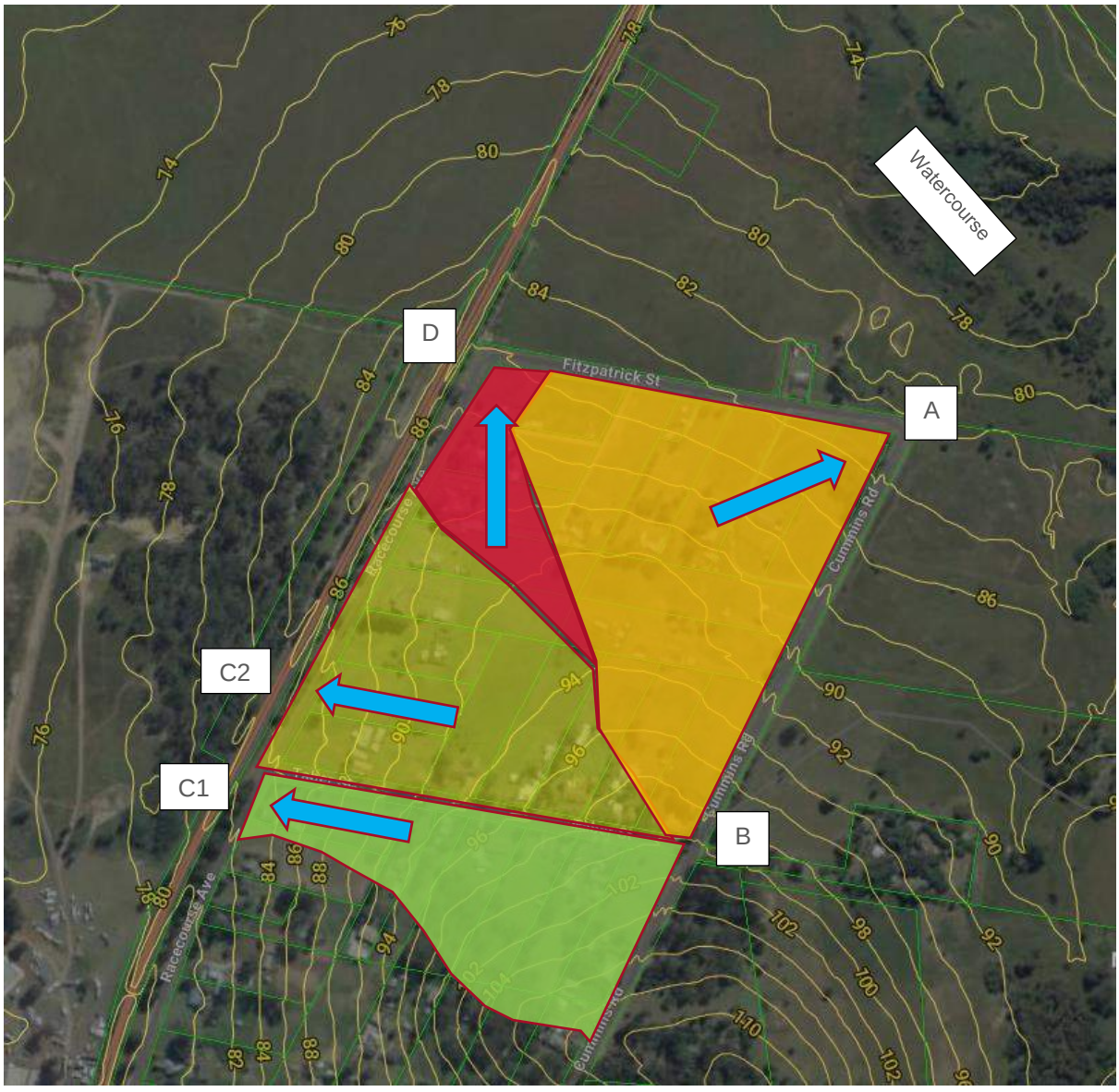

Figure 8: Catchments and flow paths

Receiving waters for each flow path (A,C,D) are as follows:

A – unnamed watercourse to the north of the site

C1 – Council's pit and pipe network2

C2 – across the railway line to the Nepean River

D – northward flowing into unnamed watercourse

A. Flow discharge to Corner of Fitzpatrick St and Cummins Rd

B. Flow discharge to Corner of Cummins Rd and Taber St

C2. Flow discharge to North of Corner of Taber Street and Racecourse Ave

D. Flow discharge to Corner of Racecourse Rd and Fitzpatrick St

Figure 9: Drainage at key points surrounding the site (refer to Figure for photo locations)

3.4 Flooding and riparian lands

The site does not contain, nor is it proximal to any waterways under the NRAR definition. Therefore no Controlled Activity Application would be required.

The site has slight flood affectation in the 1% AEP and PMF flood events, as indicated in **Figure 10** and **Figure 11**. Small areas are flood affected in the west of the site, due to the section of site having a natural depressing grade. Impacts of site earthworks to flooding shall be minimised by designing cut/fill to match to existing levels as much as possible, reducing any impacts on the existing flood storage, as further explained in section 5.2.

Figure 10: 1% AEP flood extents combined with 20% AEP Nepean River flooding on the site (light blue)

Figure 11: PMF Flood extents on the site (light blue)

Note how the PMF extent is shown not to affect the site. This appears to contradict the 1% AEP flood extent as shown in **Figure 10**. This could be explained by the PMF only showing areas with greater than 50mm affectation.

4. Compliance framework

4.1 Council DCP

Part 2 of Council's DCP has Chapter 2.10 Water Cycle Management as relevant to this proposed development.

The requirements at Development Application are as follows:

- Stormwater systems sized to accommodate 1% AEP flood flows
- Water quality control structures are offline
- No Detention storages within riparian areas
- Adjoining developments not to be impacted by overland flow or stormwater
- Safe passage of Probable Maximum Flood for major systems
- Treatment train approach to water quality
- Minor / Major approach taken to drainage
- Stormwater to be discharged under gravity to Council system
- Public safety is a feature of stormwater system design

Water Sensitive Urban Design is to be included in stormwater concept plans.

In relation to water quality targets, the DCP states that "where specific advice cannot be found…adopt 85/45/45% load reductions in Total Suspended Solids, Total Phosphorus and Total Nitrogen" respectively.

4.2 Council's Engineering Guide

This Guide pertains to issuing documentation for Development Application. The requirements are as follows:

- Drainage calculations according to Australian Rainfall and Runoff 1998 with consideration of the impacts of climate change
- Overland flow discharged via a road or pathway system (no easements)

As well as these, external basin plans are to be considered when designing and implementing water quality control parameters.

Detention Basins are required to attenuate flows where the peak flows (due to the development) are in excess of the pre-developed flows. Basins are required to perform in the full range of flood events up to the 100 year ARI.

4.3 Dahua precedent

The Dahua Menangle Park IWCM strategy lists the following objectives:

1. Water quality treatment for stormwater runoff for the 3-month ARI storm event targeting:
   - Total Suspended Solids 85%
   - Total Phosphorus 70%
   - Total Nitrogen 55%
2. Management of flows in natural creek lines to achieve a Stream Erosion Index (SEI) of between 1 and 2 by managing the 1 in 2 year ARI peak discharge.

4.4 Adopted compliance criteria

The timing of the various surrounding developments by others is uncertain. Therefore, it is prudent to proceed with the East Village stormwater planning as a stand-alone development. This will provide

certainty that in a worst case scenario, it can proceed. It also provides the ability to amend the strategy to integrate with other basins by others, e.g. Dahua.

The adopted compliance framework is shown in **Table** 1.

Criteria	Compliance targets
Runoff detention	Detention Basins are required to attenuate flows where the peak flows (due to the development) are in excess of the pre-developed flows. Basins are required to perform in the full range of flood events up to the 100 year ARI.
Stream Erosion Index	Management of flows in natural creek lines to achieve a Stream Erosion Index (SEI) of between 1 and 2 by managing the 1 in 2 year ARI peak discharge
Water Quality	Minimum: 80/45/45% retention of TSS/TP/TN Stretch: 85/70/55% retention of TSS/TP/TN

Table 1: Dahua Criteria & Compliance

5. Stormwater Design

5.1 Existing catchment flow rates

The existing site topography and catchments have been delineated using LiDAR contours (**Figure 12**). The site has a 5.4 Ha upstream catchment conveying overland flows to Taber Street, along the southern boundary of the site. Currently there is a grassed swale on the south side of the Taber Street that drives these flows westward towards the existing pit and pipe system located on the corner of Racecourse Avenue and Taber Street. Further hydraulic analysis is required at detailed design stage to determine existing road drainage capacity of Taber Street and whether any of these flows bypass into the site, if so and identify management options.

The site itself is split into two catchments whereby 12.6 Ha drain towards Fitzpatrick Street and 6.5 ha falls in the direction of Racecourse Avenue. Each of the site catchments eventually drains to an existing drainage point in the road. The Fitzpatrick Street catchment drains to an existing 900x900 grated pit in the northeast corner of the site and pipes flows northward to the creek downstream, while the Racecourse Avenue catchment drains to an existing 900x900mm raised grated pit at the southwest corner of the site and pipes flows south along Racecourse Avenue.

Figure 12: Existing Site Topography and Catchments

A DRAINS model was established to determine existing catchment flowrates. Since the area is currently mostly grassed and has very little paved and roofed area, an imperviousness of 10% was adopted for the existing model. This resulted in an existing peak flowrate of 5.90 cu.m/s for the 19 ha site catchment in the 1% AEP event (100 year storm), and 1.89 cu.m/s for the 5.4 ha upstream catchment.

5.2 Proposed Catchments

As part of the redevelopment strategy, the site is anticipated to be divided into two catchments to imitate the existing topography and natural fall of the area, where majority of the site shall be graded towards Fitzpatrick Street and the southwest portion shall fall to the corner of Racecourse Avenue and Taber Street as shown in **Figure 13**. Cut / fill of levels in the southwest corner of the site shall be minimised and existing levels retained where possible to reduce impacts to existing flood storage in this flood-affected portion of the site.

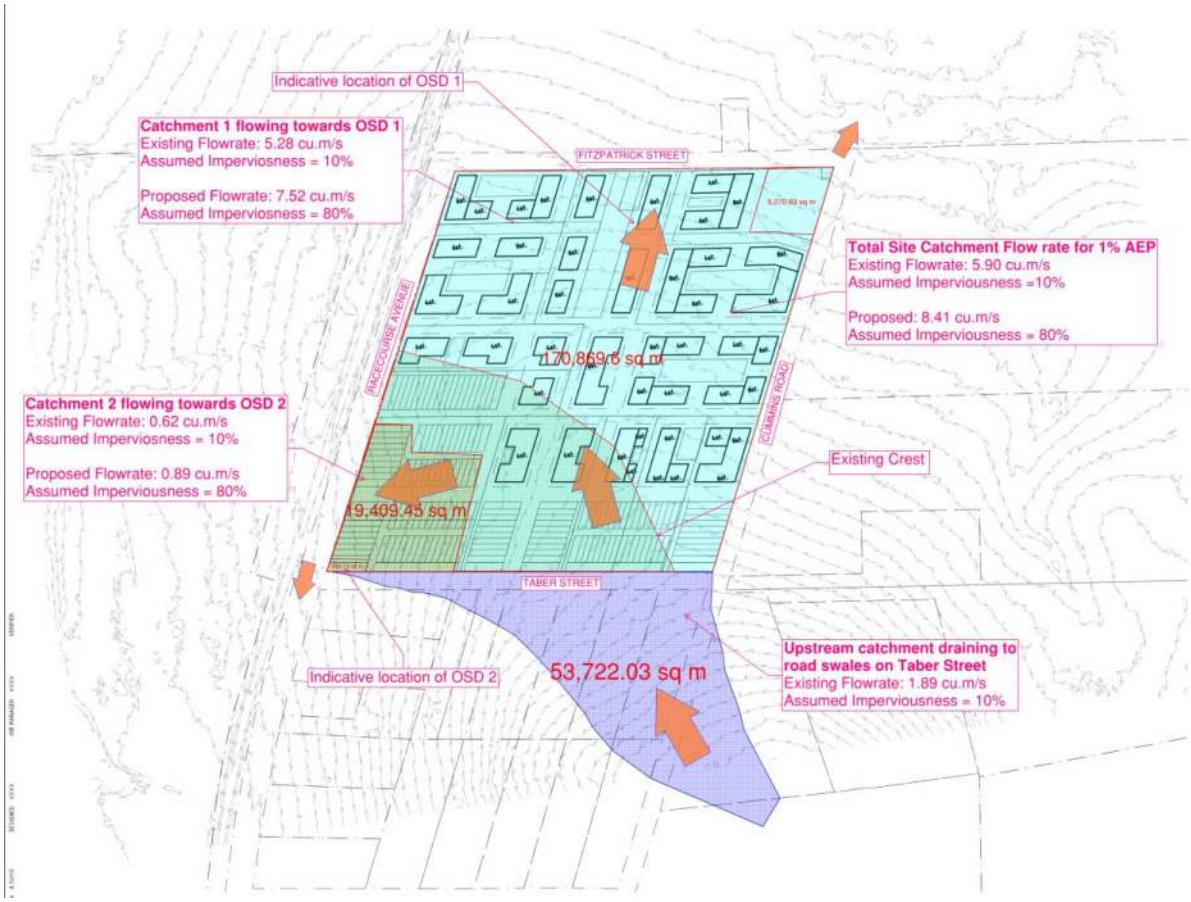

Figure 13: Proposed Site Catchments and Flowrates

5.3 Proposed flow rates

For the proposed concept works, it is expected that the site imperviousness shall be increased to 80% to account for the higher density of residential dwellings, new internal roads, driveways and paved areas throughout the site. This ultimately results in a proposed site peak flow rate of 8.41 cu.m/s in the 1% AEP storm. Proposed catchments and individual catchment flowrates comparison are shown in **Table 2**.

Table 2: Existing and Proposed Catchment Flowrates

	Catchment to Fitzpatrick Street	Catchment to Racecourse Avenue	Total Site Catchment
Area (ha)	17.0	2.0	19.0
Existing 1% AEP Flowrate (cu.m/s)	5.28	0.62	5.90
Proposed 1% AEP Flowrate (cu.m/s)	7.52	0.89	8.41
Impact (cu.m/s)	+ 2.24	+ 0.27	+ 2.51

5.4 On-Site Detention

The concept architectural masterplan proposes to increase the zoning density of the site and therefore would result in a higher fraction of paved surfaces compared to the existing conditions (including additional roofs, public roads, driveways and individual lot hardstand surfaces). This leads to increased runoff generated from the site as documented in **Table 2**, and would require site based stormwater management controls to ensure runoff from the development is limited to existing runoff flowrates up to the 1% AEP storm event. On Site Detention (OSD) is therefore proposed and designed using DRAINS modelling to achieve Council's stormwater quantity management objectives to accommodate up to the 1% AEP stormwater flows.

Two options for the OSD design and site stormwater management are proposed as part of the concept civil strategy.

5.5 Proposed Stormwater – Option A

As discussed in the proposed catchments, site regrading is to be implemented to allow majority of the site to be captured by a series of road pit / pipes and conveyed into the proposed bioretention swales and OSD system in the northern portion of the site (**Figure 14**). A series of on grade kerb inlet pits will be used throughout the roads and intersections, with grated surface inlet pits being utilised throughout the pedestrian transport area that runs from east to west indicated by the grey hatching.

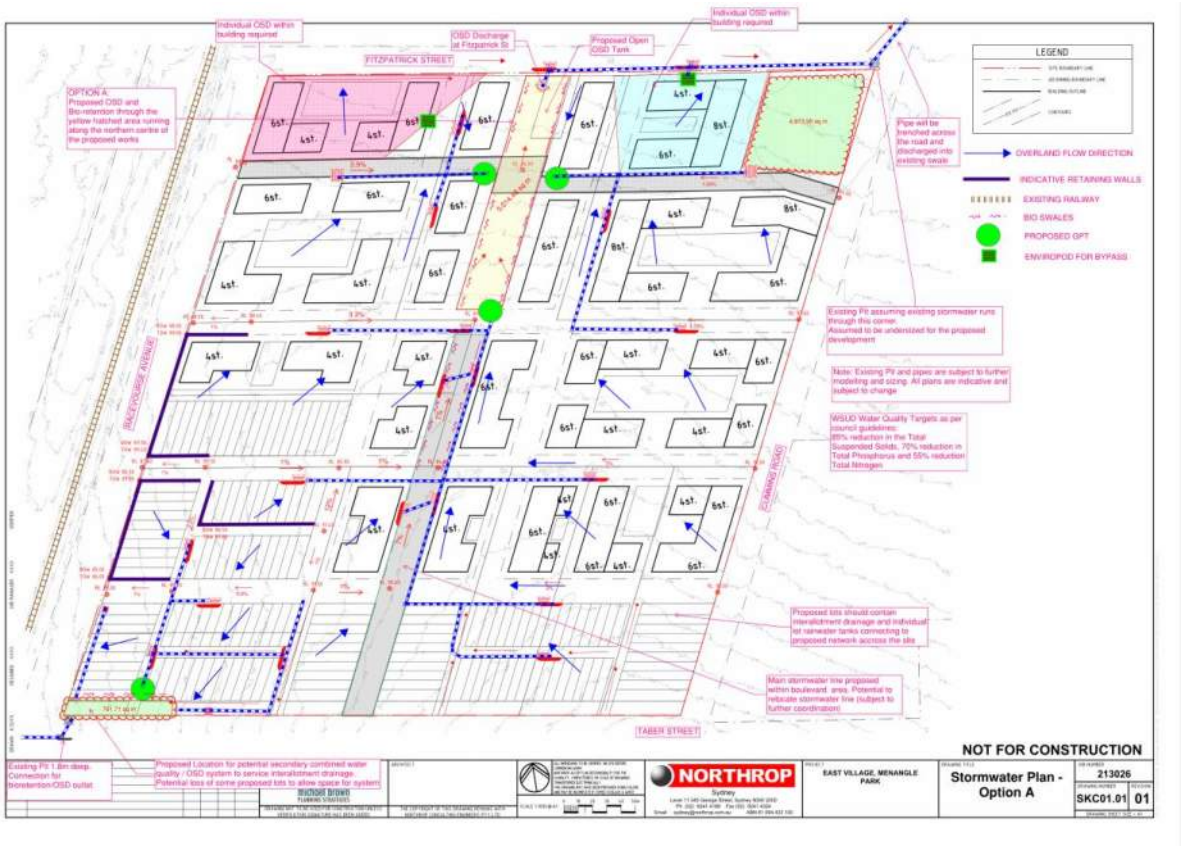

Figure 14: Stormwater Option A

The OSD proposed to treat this main catchment (17 Ha) will be in the form of either an underground tank or an open dpepressed basin that stretches along the main greenway up to the northern site boundary as shown in **Figure 15,** subject to further modelling and investigation.

The OSD will act as a sag point for this catchment, with allowance for pipe inlets entering from three directions at approximately RL 82.0. Portions of this main catchment will bypass this OSD tank as indicated by the pink and blue catchment hatches in **Figure 14**, and individual OSD's will be required within the buildings to treat the stormwater within those individual lots. With the provision of a total OSD volume of 4,500 m^3, initial results see a peak main catchment Permissible Site Discharge (PSD) of 3.72 cu.m/s, resulting in a 30% decrease in existing flows. Outflows from this tank are to be piped along Fitzpatrick Street and across to existing headwall and swale downstream of Fitzpatrick.

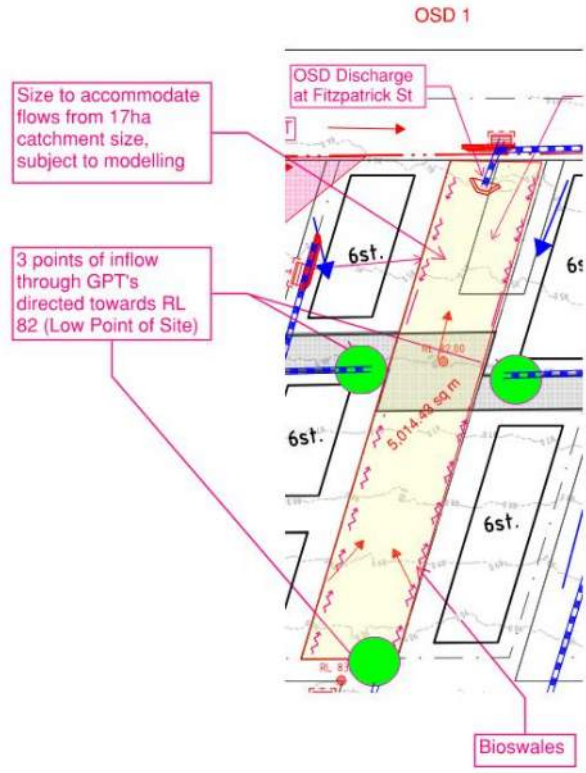

Figure 15: OSD for 17 ha Catchment

The remainder of the site (secondary 2 Ha site catchment) shall be graded towards the southwest corner of the site, with the assistance of retaining walls proposed throughout (and particularly along the western boundary) to shape site levels and guide overland flows into the road and interallotment pit / pipes to the proposed secondary OSD. This OSD is designed as an above-ground landscaped basin and is located in the southwest corner adjacent to Taber street, making use of the 10 m wide strip of between the lots and southern site boundary as shown in **Figure 16**. Based on DRAINS modelling, an OSD with volume of 180 m^3 can support this 2 Ha catchment and reduce proposed peak PSD flows to 0.58 cu.m/s in the 1% AEP event, resulting in a 10% reduction of existing flowrates. A 525 mm outlet pipe is proposed to connect to the existing pit on the other side of Taber Street.

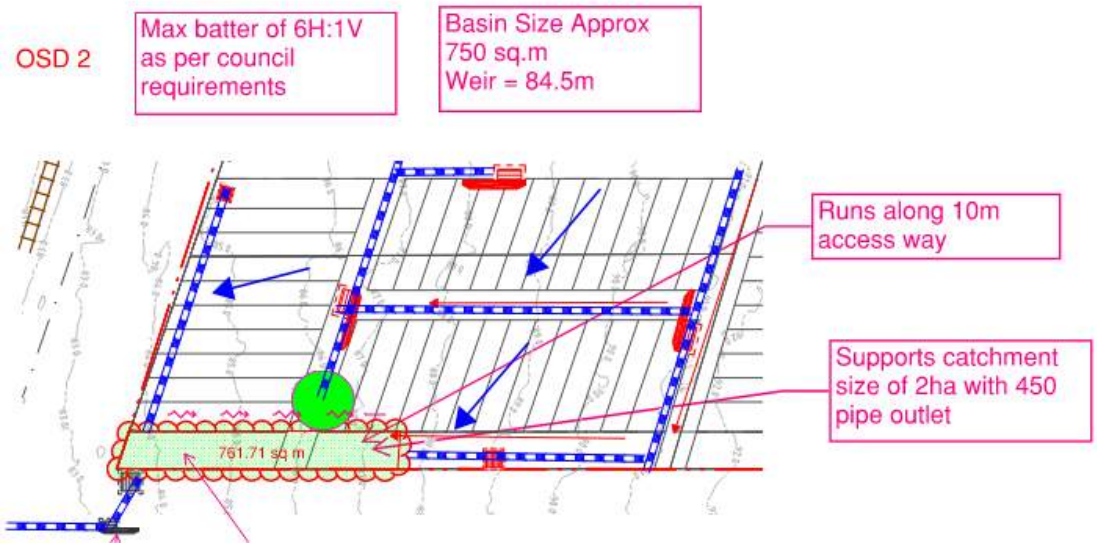

Figure 16: OSD for 2 ha Catchment (show connection to Taber St on other side of the road)

Results of DRAINS modelling for both OSD's are provided in **Table 3**. Calculations are subject to change at detailed design stage, based upon further modelling.

Table 3: Preliminary OSD Sizing

	Catchment to Fitzpatrick Street	Catchment to Racecourse Avenue	Total
Area (ha)	17.0	2.0	19.0
Existing 1% AEP Flowrate (cu.m/s)	5.28	0.62	5.90
Proposed OSD Volume (cu.m)	4,500	180	4,680
Proposed 1% AEP PSD (cu.m/s)	3.72	0.56	4.28
Impact (cu.m/s)	- 1.56 (30%)	- 0.06 (10%)	- 1.62 (27%)

There is evidence that the OSDs can be designed to accommodate all storms up to and including the 1% AEP storm event. Outflows for the smaller storms shall be managed by multi-staged discharge outlet structures (including but not limited to multiple orifice and weir outlets), to ensure the PSD's from the development are less than or equivalent to the existing catchment flowrates.

5.6 Proposed Stormwater – Option B

Option B has a similar stormwater flow strategy to the concept proposed in Option A, however, the OSD situation differs such that the communal OSD's in Option A are replaced with individual lot / building OSD's (potentially in the form of rainwater tanks for smaller residential dwellings and OSD tanks for larger buildings). Individual OSD sizing would be subject to modelling per each lot at DA phase. The provision of lot-based OSD's would benefit the site by reducing pipe sizes and allowing more a more flexible grading strategy.

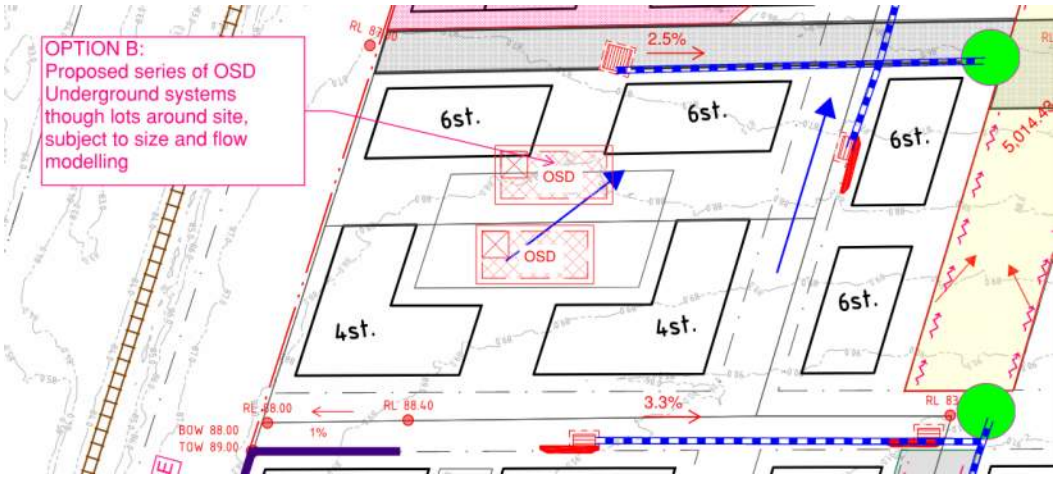

Figure 17: Stormwater Option B

5.7 Stormwater Quality

5.7.1 Adopted Water Quality Objectives

The main objectives for stormwater quality are adopted from section 4.1 and are presented in the table below.

Pollutants	% Reduction Post-Development Average Annual Load Reduction (DCP/Stretch)
Gross Pollutants (GP)	90
Total Suspended Solids (TSS)	80/85
Total Phosphorus (TP)	45/70
Total Nitrogen (TN)	45/55

Table 4: WSUD Pollutant Guidelines

5.7.2 Stormwater Quality Management Scheme

The proposed treatment train has been designed to treat the stormwater flowing through the proposed stormwater system such that they meet the requirements established in **Table 4** above. The treatment train consists of a combination of the following to treat the catchments illustrated in **Figure 19**:

- **Pit Baskets**: EnviroPod proprietary pit basket inserts (or similar) installed within the proposed pits located at the downstream point of the 'Bypass' catchments. These will intercept gross pollutants and some total suspended solids from the site catchment, prior to offsite discharge.
- **Bioretention Swales**: The proposed stormwater plan illustrates a main Boulevard that runs through the centre of the site north towards the proposed OSD tank. Either side of the boulevard, as well as around the edges of the detention, Bioretention swales are to be implemented are a focal point of pollutant treatment. Water is designed to pond temporarily as it travels through the swales to allow the uptake of nutrients through vegetation. These swales will collect flows at the sag and reduce pollutants before eventually entering the proposed OSD. They will be implemented to treat proposed catchments 1A, 1B, 1C and 2.
- **Gross Pollutant Traps**: GPT provide proprietary primary treatment to remove the majority of the bulky pollutants from the initial stormwater runoff. They are the intended as a first line of treatment in WSUD and are proposed to treat catchments 1A, 1B, 1C and 2 prior to the stormwater discharge into the Bioretention swales.

5.7.3 Rainfall Data

For the analysis of the MUSIC modelling, historical rainfall records were obtained from the Bureau of Meteorology for Station No. 067035 at Liverpool. The MUSIC analysis was undertaken using a 6 min time step for years 1967 – 1976 historical data.

5.7.4 Methodology

The water quality modelling software MUSIC v6.3.0 was used to analyse the performance of the treatment train of the overall reference scheme. **Figure 18** below shows the MUSIC node and link diagram used to describe the proposed treatment train. The model has been built to assess the

adequacy of the Stormwater measure proposed and to ensure that the quality of stormwater meets the objectives prior to stormwater runoff leaving the site.

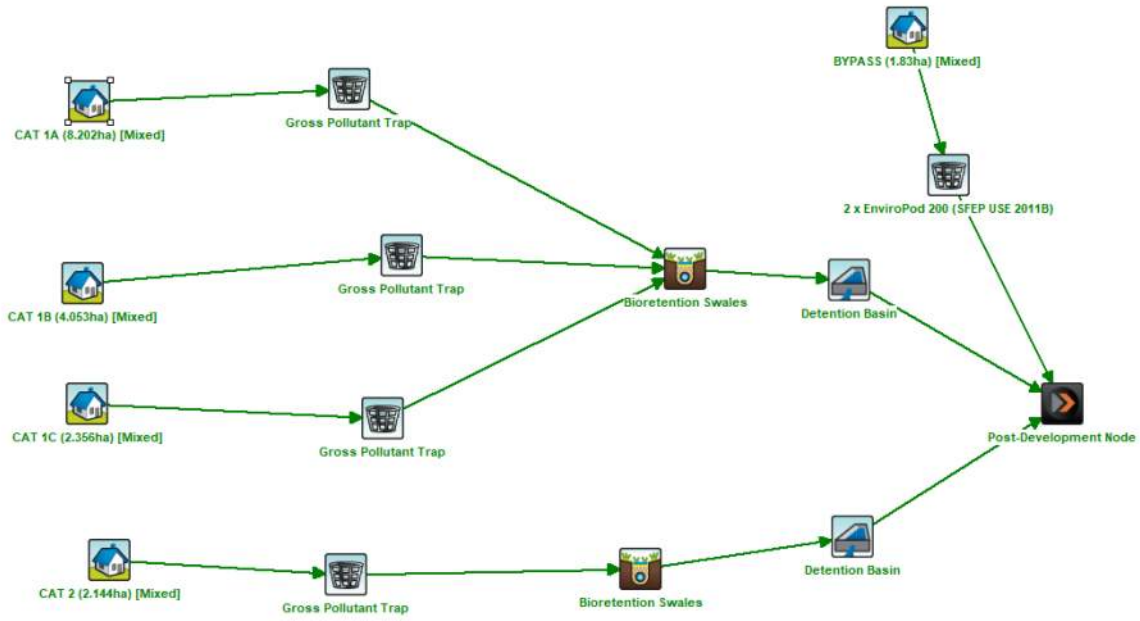

Figure 18: Music Link and Node Diagram

5.7.5 Model Results

The results of the analysis showed the treatment train will partially achieve the water quality targets in compliance with the requirements of Council policies. **Table 5** below displays the effectiveness of the treatment train for the site.

The water quality model created using MUSIC software provides an indication of the pollutant removal rates expected when a treatment train of water quality measures is applied to the proposed layout of the development.

Table 5: Music Model Results

Pollutant	Before Treatment	After Treatment	DCP/Stretch % Objective	% Reduction	Compliance
Total Suspended Solids (kg/yr)	24100	2970	80/85	87.7	**Yes**
Total Phosphorus (kg/yr)	48.8	17	45/70	65.2	**Yes (DCP Only)**
Total Nitrogen (kg/yr)	343	162	45/55	52.6	**Yes (DCP Only)**
Gross Pollutants (kg/yr)	3350	22.4	90	99.3	**Yes**

As evident in the results, all pollutant reduction targets are met based upon the council DCP standards. In regard to the stretch compliance targets, Phosphorus and Nitrogen fell short by a factor of 4.8% and 2.4% respectively. It is important to note that the design and modelling is subject to change and further refinement at detailed design phase where the master plan layout is further developed and that individual rainwater retention within the lots can additionally be implemented to assist in further pollutant reduction and work towards the compliance targets. As discussed in section 2.2 and 4,3, the proposed treatment train is temporary until future regional basins are implemented by council as part of the overall Dahua Menangle Park IWCM Strategy. We therefore consider the concept treatment train design, compliant in accordance with council's DCP targets, with the results having the potential to be further developed once future regional basins are implemented.

It is important to note the size requirements of bio swales through the main boulevard area. If the additional space required on either side of the road proves to be unachievable, storm filter cartridges may be used instead. This however will reduce TN to a value that does not meet council DPC, as per drawing SKC01.07 in Appendix A

5.7.6 WSUD Catchment Plan

Based on the developed MUSIC model, a catchment plan was created as shown below in **Figure 19**. Catchment 1A, 1B, 1C and 2 are subject to treatment from GPT's, Bioretention swales and Onsite Detention, whilst Bypass areas are subject to EnviroPods pit inserts.

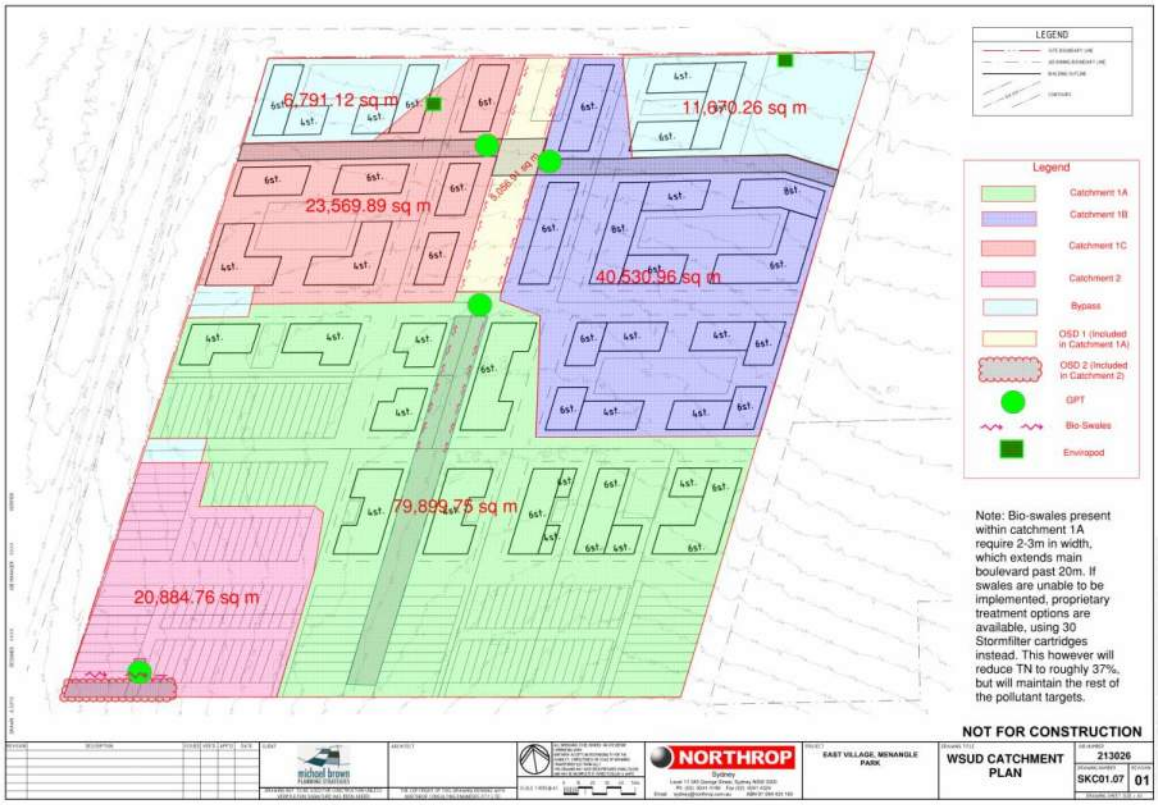

Figure 19: WSUD Catchment Areas

6. Conclusion

This engineering report has been prepared for the rezoning and stormwater redevelopment of East Village, Menangle Park. It provides a general overview of the civil works required to achieve the masterplan concept strategy, with an in depth review of stormwater strategy and planning approach to service this redevelopment.

Stormwater provisions are to be implemented in and around the entire site as part of the concept management plan, with consideration to two strategies for OSD management. It is important to note that OSD location and sizing, as well as road and stormwater grading is not final, and subject to change based upon further refinement of the masterplan layout and further modelling.

This strategy, once developed and modelled further, shall comply with Campbelltown Councils approval framework for stormwater and civil development.

7. Appendix A – Stormwater and WSUD Plans

Individual OSD within building required

OSD Discharge at Fitzpatrick St

Proposed Open OSD Tank

Individual OSD within building required

FITZPATRICK STREET

OPTION A:
Proposed OSD and Bio-retention through the yellow hatched area running along the northern centre of the proposed works

Pipe will be trenched across the road and discharged into existing swale

LEGEND

- SITE BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- BUILDING OUTLINE
- CONTOURS

OVERLAND FLOW DIRECTION

INDICATIVE RETAINING WALLS

EXISTING RAILWAY

BIO SWALES

PROPOSED GPT

ENVIROPOD FOR BYPASS

4,973.95 sq m

5,014.43 sq m

761.71 sq m

RACEVOURSE AVENUE

CUMMINS ROAD

TABER STREET

Existing Pit assuming existing stormwater runs through this corner.
Assumed to be undersized for the proposed development

Note: Existing Pit and pipes are subject to further modelling and sizing. All plans are indicative and subject to change

WSUD Water Quality Targets as per council guidelines:
85% reduction in the Total Suspended Solids, 70% reduction in Total Phosphorus and 55% reduction Total Nitrogen

Proposed lots should contain interallotment drainage and individual lot rainwater tanks connecting to proposed network accross the site

Main stormwater line proposed within boulevard area. Potential to relocate stormwater line (subject to further coordination)

Existing Pit 1.8m deep.
Connection for bioretention/OSD outlet.

Proposed Location for potential secondary combined water quality / OSD system to service interallotment drainage.
Potential loss of some proposed lots to allow space for system

VERIFIER:
JOB MANAGER: XXXX
DESIGNED: XXXX
DRAWN: A.SUYO

NOT FOR CONSTRUCTION

michael brown PLANNING STRATEGIES

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Sydney
Level 11 345 George Street, Sydney NSW 2000
Ph (02) 9241 4188 Fax (02) 9241 4324
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT
EAST VILLAGE, MENANGLE PARK

DRAWING TITLE
Stormwater Plan - Option A

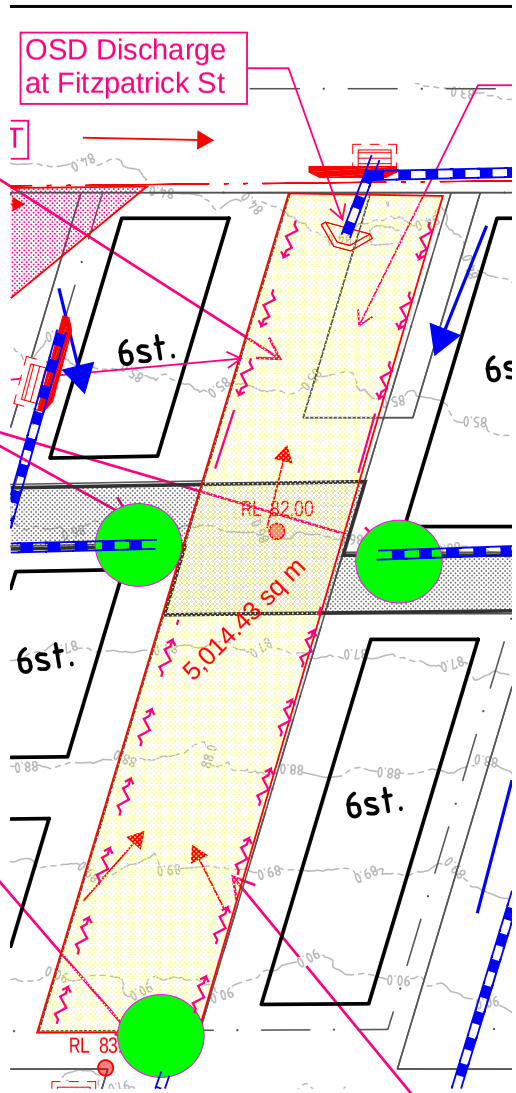
JOB NUMBER 213026
DRAWING NUMBER SKC01.01
REVISION 01
DRAWING SHEET SIZE = A1

OSD DETAILS

OSD 1

Size to accommodate flows from 17ha catchment size, subject to modelling

3 points of inflow through GPT's directed towards RL 82 (Low Point of Site)

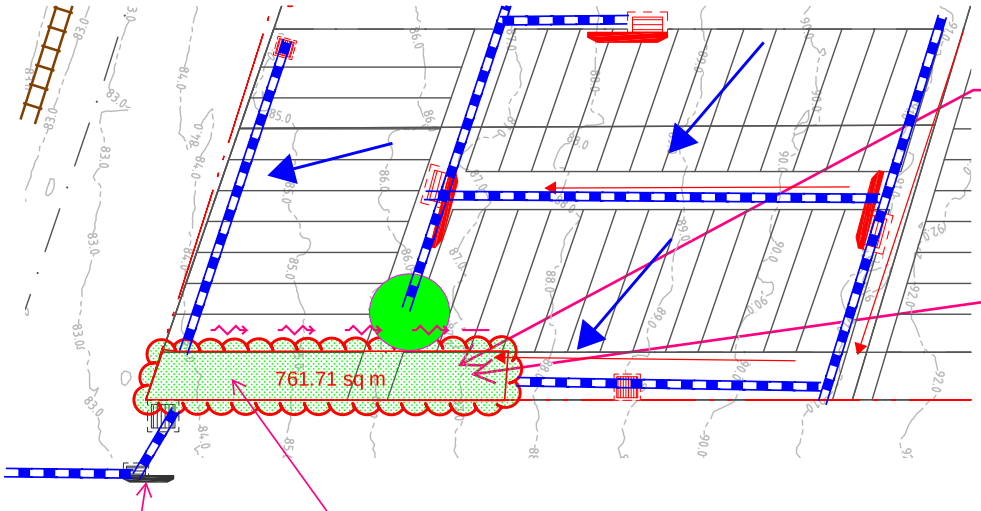


Bioswales

OSD 2

Max batter of 6H:1V as per council requirements

Basin Size Approx 750 sq.m
Weir = 84.5m



Runs along 10m access way

Supports catchment size of 2ha with 450 pipe outlet

DRAWING TITLE

OSD Details

JOB NUMBER 213026

DRAWING NUMBER SKC01.02

REVISION 01

DRAWING SHEET SIZE = A1

Individual OSD within building required

Individual OSD within building required

FITZPATRICK STREET

OPTION B:
Proposed series of OSD Underground systems though lots around site, subject to size and flow modelling

Pipe will be trenched across the road and discharged into existing swale

4,973.95 sq m

5,014.43 sq m

761.71 sq m

RACEVOURSE AVENUE

CUMMINS ROAD

TABER STREET

Existing Pit assuming existing stormwater runs through this corner.
assumed to be undersized for the proposed development

Note: Existing Pit and pipes are subject to further modelling and sizing. All plans are indicative and subject to change

WSUD Water Quality Targets as per council guidelines:
85% reduction in the Total Suspended Solids, 70% reduction in Total Phosphorus and 55% reduction Total Nitrogen

Proposed lots should contain interallotment drainage and individual lot rainwater tanks connecting to proposed network accross the site

Main stormwater line proposed within boulevard area. Potential to relocate stormwater line (subject to further coordination)

Existing Pit 1.8m deep. Connection for bioretention/OSD outlet.

Proposed Location for potential secondary combined water quality / OSD system to service interallotment drainage. Potential loss of some proposed lots to allow space for system

LEGEND

- SITE BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- BUILDING OUTLINE
- CONTOURS
- OVERLAND FLOW DIRECTION
- INDICATIVE RETAINING WALLS
- EXISTING RAILWAY
- BIO SWALES
- PROPOSED GPT
- ENVIROPOD FOR BYPASS

VERIFIER:
JOB MANAGER: XXXX
DESIGNED: XXXX
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PROJECT
EAST VILLAGE, MENANGLE PARK

DRAWING TITLE
Stormwater Plan - Option B

JOB NUMBER 213026
DRAWING NUMBER SKC01.03
REVISION 01
DRAWING SHEET SIZE = A1

LEGEND

- SITE BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- BUILDING OUTLINE
- CONTOURS (XX.XX)

DRAWN: A.SUYO
DESIGNED: XXXX
JOB MANAGER: XXXX
VERIFIER:

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REVISION	DESCRIPTION	ISSUED	VER'D	APP'D	DATE

CLIENT
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PROJECT
EAST VILLAGE, MENANGLE PARK

DRAWING TITLE
AERIAL PLAN VIEW

JOB NUMBER 213026
DRAWING NUMBER SKC01.04
REVISION 01
DRAWING SHEET SIZE = A1

EXISTING 900x900 GRATED
SURFACE INLET PIT

FITZPATRICK STREET

RACEVOURSE AVENUE

CUMMINS ROAD

126,305.1 sq m

64,188.48 sq m

TABER STREET

53,722.03 sq m

EXISTING 900x900 RAISED GRATED
SURFACE INLET PIT (1.1m DEEP)

EXISTING 1.8m LINTEL KERB INLET
PIT (1.8m DEEP)

LEGEND

- SITE BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- BUILDING OUTLINE
- TOURS

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DESIGNED: XXXX
DRAWN: A.SUYO

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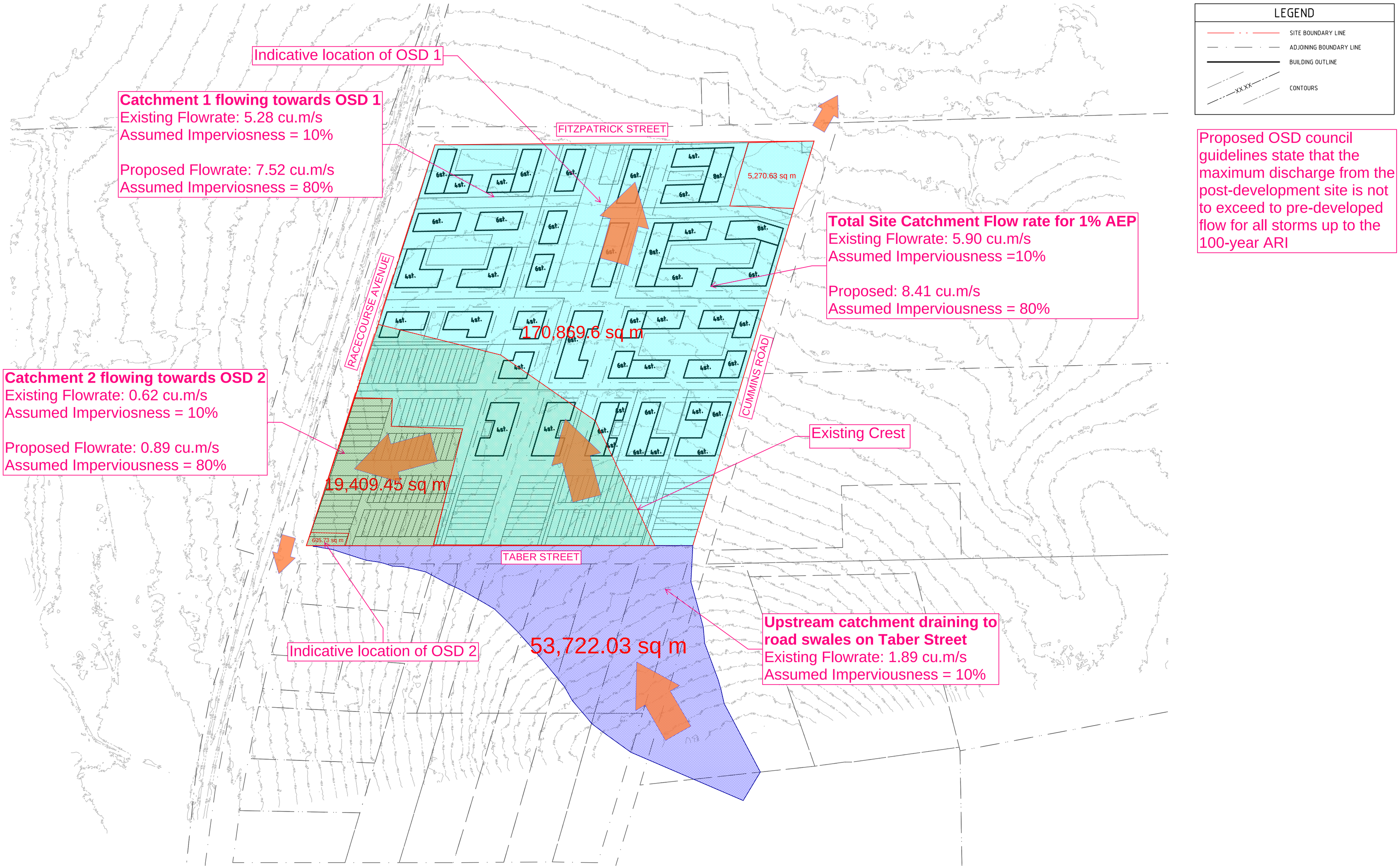
PROJECT
EAST VILLAGE, MENANGLE PARK

DRAWING TITLE
EXISTING CATCHMENT PLAN

JOB NUMBER 213026
DRAWING NUMBER SKC01.05
REVISION 01
DRAWING SHEET SIZE = A1



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PROJECT: **EAST VILLAGE, MENANGLE PARK**

DRAWING TITLE: **PROPOSED CATCHMENT PLAN**

JOB NUMBER: 213026

DRAWING NUMBER: SKC01.06 REVISION: 01

DRAWING SHEET SIZE = A1

LEGEND

- SITE BOUNDARY LINE
- ADJOINING BOUNDARY LINE
- BUILDING OUTLINE
- CONTOURS (XX.XX)

Legend

- Catchment 1A
- Catchment 1B
- Catchment 1C
- Catchment 2
- Bypass
- OSD 1 (Included in Catchment 1A)
- OSD 2 (Included in Catchment 2)
- GPT
- Bio-Swales
- Enviropod

Note: Bio-swales present within catchment 1A require 2-3m in width, which extends main boulevard past 20m. If swales are unable to be implemented, proprietary treatment options are available, using 30 Stormfilter cartridges instead. This however will reduce TN to roughly 37%, but will maintain the rest of the pollutant targets.

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Ph (02) 9241 4188 Fax (02) 9241 4324
Email sydney@northrop.com.au ABN 81 094 433 100

PROJECT: EAST VILLAGE, MENANGLE PARK

DRAWING TITLE: WSUD CATCHMENT PLAN

JOB NUMBER: 213026
DRAWING NUMBER: SKC01.07
REVISION: 01
DRAWING SHEET SIZE = A1

Appendix "D"
Services

POWER LINE DESIGN PTY LTD
MITTAGONG HEAD OFFICE
PO Box 338 Mittagong NSW 2575
p: 02 4872 1920
f: 02 4872 1240

e: admin@powerdesign.com.au

Accredited Level 3 Service Provider No.2486
ABN: 33 107 591 846

Friday 10th December 2021

Mr Chad Ghassibe
Proficient Constructions (Aust) Pty Ltd
PO Box 885
Narellan NSW 2567

Re: ENL4222 – Menangle Park – Electrical Supply

Dear Chad,

Please see attached a copy of Endeavour Energy's response to our capacity enquiry for the proposed development at Menangle Park (Annexure A).

Summary

- Presently Endeavour Energy do not have the capacity to supply the development, however, in early 2022 they will have capacity from their Mobile No.3 Menangle Park Zone Substation.
- New underground Feeders will need to be run from the Mobile No.3 Menangle Park Zone Substation approximately 340m to the North West Corner of the site (see diagram below) and then reticulated throughout the site.
- Endeavour Energy will not reserve capacity for a development until a formal application has been submitted. Copy of application form FPJ6010 is attached.
- New feeders and Cross Feeder ties will be specified at the design stage.

Kind Regards
Power Line Design Pty Ltd

Laurence McKinnon
Managing Director

25 November 2021

Endeavour Energy Ref: ENL4222

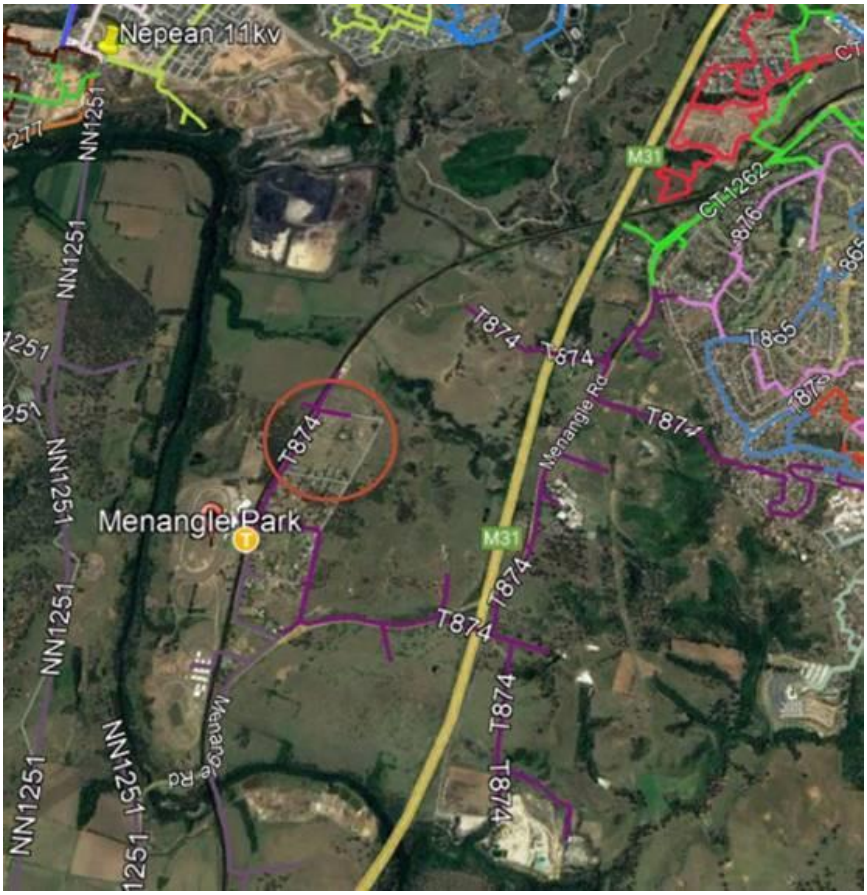
Power Line Design Pty Ltd
PO Box 338
Mittagong NSW 2575

Attention: Laurence McKinnon

ENL4222 – Enquiry for Network Capacity for a proposed load of 13MVA on 12-46 Fitzpatrick Street, 182-232 Racecourse Ave, 1-41 Taber Street and 111 & 121 Cummins Street at Menangle Park NSW 2563

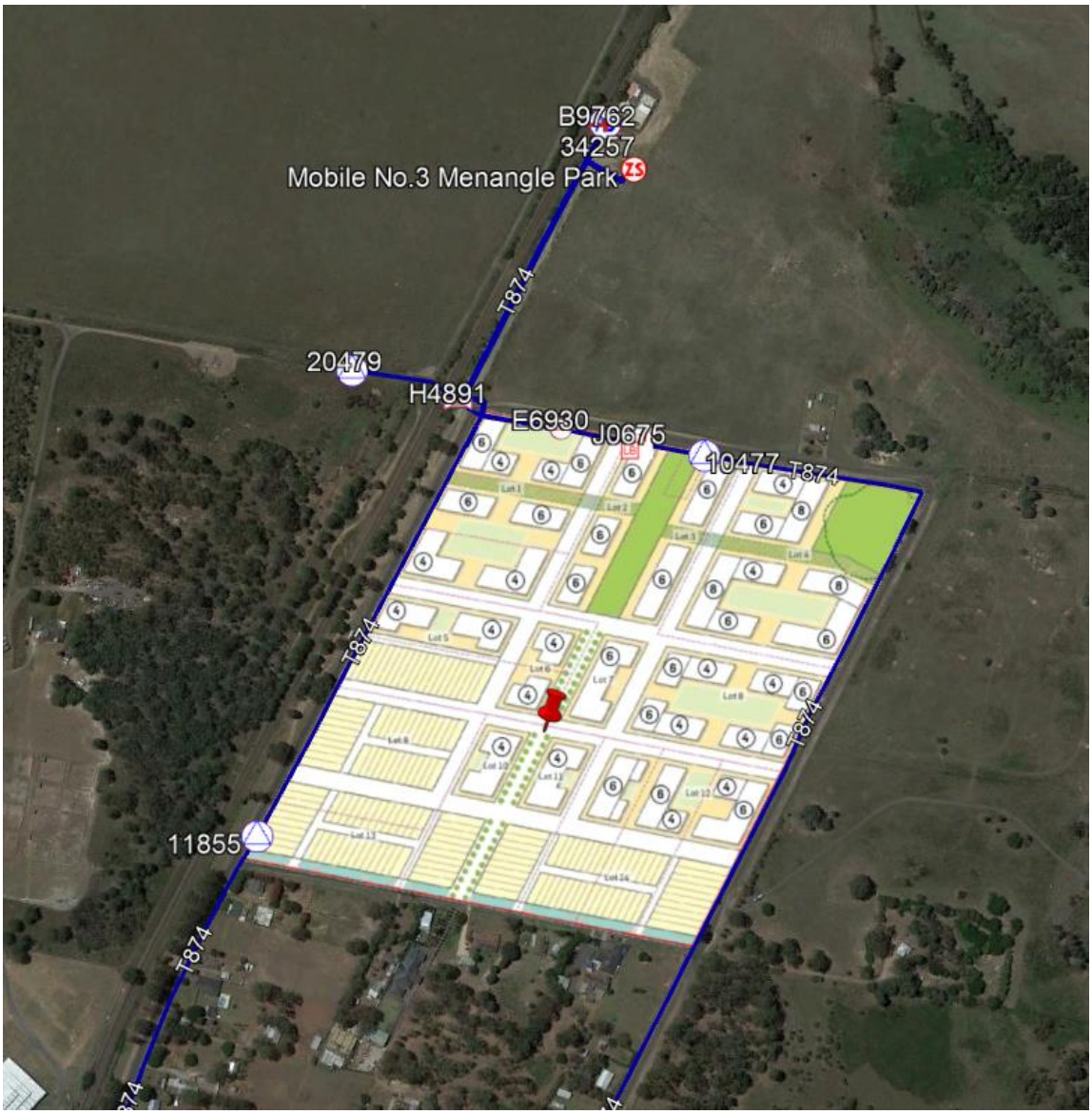
Thank you for your enquiry, your application has been registered under the above reference number. Please quote this reference number on all future correspondence.

It is understood that the customer has requested for a proposed re-zoning project at the above address for a proposed load of approximately 8.8MVA (see below site location).



Based on the information received, Endeavour Energy has assessed the total estimated load for 2026 apartment units and 152 terrace houses to be around 8.8MVA. Endeavour Energy has carried out a desktop assessment and advise that there is insufficient spare capacity on the existing adjacent 11 kV feeders to supply this load. However, there will be spare capacity at Menangle Park Mobile ZS, once commissioned in early 2022, to supply the entire development. The development will require at least two new Feeders from Menangle Park ZS amongst which the load can be shared. These feeders will require a minimum of 3 x cross-

feeder ties plus 1 cross-zone tie (per feeder). Below is an image illustrating the location of the proposed development and Menangle Park ZS.



<u>Note</u>: Capacity on the network is not reserved unless a formal application is submitted to cwadmin@endeavourenergy.com.au . The above is a preliminary advice only and is subject to change based on network conditions at the time of application submission.

Should you have any enquiries regarding your application please contact the undersigned.

Yours faithfully,

Ayman Shahalam
Contestable Works Project Manager
Network Connections
T : 02 9853 7803
M: 0439 351 215
490 Hoxton Park Rd, Hoxton Park
http://www.endeavourenergy.com.au

Appendix "E"
Social Infrastructure Summary Report

URBIS

EAST VILLAGE, MENANGLE PARK

Social Infrastructure Summary Report

Prepared for Michael Brown Planning Strategies
24 November 2021

This report is dated 24 November 2021 and incorporates information and events up to that date only and excludes any information arising, or event occurring, after that date which may affect the validity of Urbis Pty Ltd's (Urbis) opinion in this report. Urbis prepared this report on the instructions, and for the benefit only, of Michael Brown Planning Strategies (Instructing Party) for the purpose of a Social Infrastructure Assessment (Purpose) and not for any other purpose or use. Urbis expressly disclaims any liability to the Instructing Party who relies or purports to rely on this report for any purpose other than the Purpose and to any party other than the Instructing Party who relies or purports to rely on this report for any purpose whatsoever (including the Purpose).

In preparing this report, Urbis was required to make judgements which may be affected by unforeseen future events including wars, civil unrest, economic disruption, financial market disruption, business cycles, industrial disputes, labour difficulties, political action and changes of government or law, the likelihood and effects of which are not capable of precise assessment.

All surveys, forecasts, projections and recommendations contained in or made in relation to or associated with this report are made in good faith and on the basis of information supplied to Urbis at the date of this report. Achievement of the projections and budgets set out in this report will depend, among other things, on the actions of others over which Urbis has no control.

Urbis has made all reasonable inquiries that it believes is necessary in preparing this report but it cannot be certain that all information material to the preparation of this report has been provided to it as there may be information that is not publicly available at the time of its inquiry.

In preparing this report, Urbis may rely on or refer to documents in a language other than English which Urbis will procure the translation of into English. Urbis is not responsible for the accuracy or completeness of such translations and to the extent that the inaccurate or incomplete translation of any document results in any statement or opinion made in this report being inaccurate or incomplete, Urbis expressly disclaims any liability for that inaccuracy or incompleteness.

This report has been prepared with due care and diligence by Urbis and the statements and opinions given by Urbis in this report are given in good faith and in the belief on reasonable grounds that such statements and opinions are correct and not misleading bearing in mind the necessary limitations noted in the previous paragraphs. Further, no responsibility is accepted by Urbis or any of its officers or employees for any errors, including errors in data which is either supplied by the Instructing Party, supplied by a third party to Urbis, or which Urbis is required to estimate, or omissions howsoever arising in the preparation of this report, provided that this will not absolve Urbis from liability arising from an opinion expressed recklessly or in bad faith.

Urbis staff responsible for this report were:

Director	Rachel Trigg
Senior Consultant	Isabelle Kikirekov
Consultant	Hugo Walton

Project code	P0036151
Report number	Final

Urbis acknowledges the important contribution that Aboriginal and Torres Strait Islander people make in creating a strong and vibrant Australian society.

We acknowledge, in each of our offices, the Traditional Owners on whose land we stand.

CONTENTS

01. INTRODUCTION AND SITE CONTEXT

INTRODUCTION

Background and context

This social infrastructure summary report has been prepared by Urbis on behalf of Michael Brown Planning Strategies Pty Ltd to inform the future planning of East Village, Menangle Park. The report will outline the likely social infrastructure requirements to support the incoming population of East Village.

The site is a 19ha land parcel located within the Menangle Park Urban Release Area (MPURA) and adjacent to the Southern Highlands railway line, the main southern railway line between Sydney and Melbourne. It is in the Campbelltown City local government area (LGA), south east of the established centre of Campbelltown.

A planning proposal was submitted by Dahua Group in 2018 for a large land parcel immediately north and east of the site. The Dahua Group Planning Proposal (DGPP) suggested the relocation of the Menangle Park town centre, originally outlined in the MPURA, to an area of land opposite the East Village site. The town centre will provide a range of amenities and intensify the land use patterns. The DGPP masterplan presented an opportunity to plan for redevelopment of the East Village site.

In early 2021, Urbis was engaged to prepare a Vision Report for the site. The final Vision Report includes a structure plan for the site and layered strategies to inform the provision of new apartments and terraces, open space and road and pedestrian networks.

Need for this study

This social infrastructure summary report details the social infrastructure and open space required to best serve the needs of the future population.

The study accompanies a Planning Proposal by providing evidence based recommendations on future demand for social infrastructure and open space in the area.

This document

The key tasks outlined below were undertaken to prepare this report:

Background review

- Review of structure plan documentation and the DGPP
- Desktop review of the land uses surrounding the site

Baseline data review

- Analysis of the demographic profile and population projections
- High level review of relevant government strategy and policy documents
- Audit of existing social infrastructure and open space near the site

Analysis

- Review and analysis of area household occupancy rates in comparison areas to prepare an anticipated incoming population profile
- Benchmarking and qualitative assessment to identify the future demand for social infrastructure and open space
- Recommendations for preferred social infrastructure and open space for the site or off site contributions.

SITE CONTEXT

The site is bounded by Fitzpatrick Street, Taber Street, Racecourse Avenue and Cummins Road, Menangle Park.

Menangle Park is situated in the Greater Macarthur Region within the Campbelltown LGA, approximately 50km south west of Sydney CBD. The region is currently experiencing a period of rapid population growth and transformation, primarily in the form of new greenfield residential developments. Menangle Park is currently characterised by its large rural land holdings with single family dwellings. There is also a cluster of smaller residential lots close to Menangle Park Train Station.

Currently, the subject site consists of 19 land parcels of multiple ownership, all of which are approximately 1ha and zoned R2 – Low Density Residential.

The site is located 500m north of Menangle Park Train Station. The Southern Highlands Train Line and the Hume Motorway provide a direct connection between Menangle Park north-east to Macarthur, Campbelltown and Greater Sydney, and south to the Southern Highlands, Canberra and Melbourne.

As is shown in Figure 4 provided later in this report, immediately west of the Menangle Park Train Station is Club Menangle, a long running harness racing venue. The Nepean River is located further to the west.

Campbelltown and surrounding established suburbs are situated approximately 11.3km north east of the site. A range of social infrastructure and services is located in Campbelltown including Campbelltown Art Centre, Campbelltown Hospital, HJ Daley Library and Gordon Fetterplace Aquatic Centre, as well as multiple education and childcare facilities.

Figure 1 Site Context

Source: Urbis

PROPOSED STRUCTURE PLAN

The structure plan envisioned by the Rezoning Vision Report will see the site transformed into a medium to high density neighbourhood supported by public open space and a new network of public roads and active transport links. As shown in Figure 2, the proposal features a 'Village Park' in the north-eastern corner of the site, a central park, and connecting linear open spaces including a treelined central boulevard.

The proposed structure plan consists of the following uses:

Residential

- 152 terraces
- 2,027 apartments
- 2,179 total dwellings

Non-residential

- 10,444sqm open space including the Village Park and Central Park
- 2,759sqm Taber Street landscape zone
- 23,720sqm communal open space, assuming 25% of the apartment lots are communal open space.

Figure 2 Proposed structure plan

Source: Urbis

02. POLICY AND STRATEGIC CONTEXT

DOCUMENT REVIEW

A high level review of relevant government strategies and plans was undertaken to understand the planning direction for the area and the expected social infrastructure needs of the local community. A summary of each document, as it relates to the proposal, is provided below.

Department of Planning and Environment, Greater Macarthur and Wilton Priority Growth Areas Social Infrastructure Assessment (2017)

The Greater Macarthur and Wilton Priority Growth Areas Social Infrastructure Assessment investigates the provision of social infrastructure in the Menangle Park/Mount Gilead, Appin and Wilton area. This includes indicative rates of provision, an analysis of existing facilities and recommendations based on the development scenario as of 2017 for regional and local social infrastructure. The assessment establishes that further investigation will be required as rezoning occurs, including the preparation of social and recreation needs assessments to accompany rezoning applications, audits of existing facilities, and ongoing engagement with Council and relevant State agencies and service providers.

Department of Planning Industry and Environment, Greater Macarthur 2040 Interim Plan (2018)

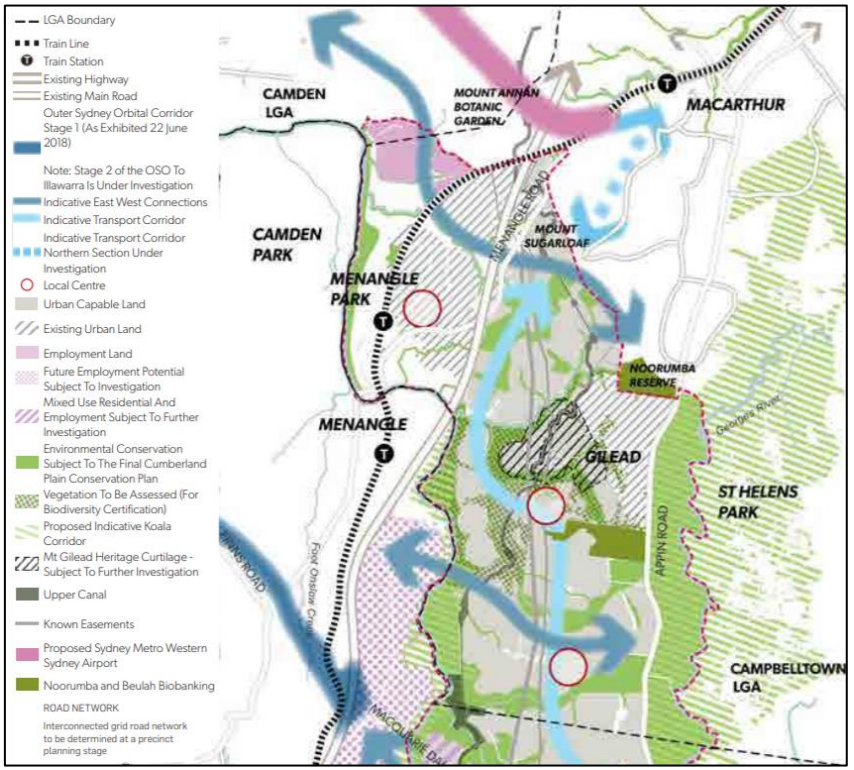
Greater Macarthur 2040 established the land use and infrastructure implementation plan for the Greater Macarthur Growth Area. It includes the following social infrastructure and open space planning principles:

- Create places where a diverse local community can come together.
- Locate critical infrastructure such as health facilities, childcare centres and schools, outside the Probable Maximum flood extent.
- Create high quality open space and parklands.
- Consider how areas of existing vegetation can provide open space and amenity.
- Incorporate development that protects, maintains or restores waterway health aligned with the community's environmental values and use of waterways.
- Integrate Green Plans that identify how a 40% tree canopy cover, green links, tree-lined streets and shaded environments can be achieved.

South Western Sydney Local Health District, Strategic Priorities in Healthcare Delivery to 2021

The Strategic Priorities in Healthcare Delivery to 2021 document establishes a plan for the delivery of health services for the district. This includes the service enhancements, capacity uplift, and infrastructure required to meet the increasing demand created by population growth and ageing. The document summarises the current profile of healthcare facilities (as of 2013) and establishes rates of provision to 2021.

Figure 3 Menangle Park in the context of the Greater Macarthur 2040 Interim Plan



Source: DPIE

DOCUMENT REVIEW

Campbelltown City Council, Local Strategic Planning Statement (2020)

The LSPS identifies Menangle Park as part of an Urban Release Area with potential to provide 20,000-30,000sqm of employment floor space. The LSPS includes the following directions to help guide the provision of social infrastructure:

- Support the creation of walkable neighborhoods to enhance community health and wellbeing
- Ensure open space is well connected via pedestrian and cycle links and is provided where it will experience maximum usage by residents
- Continue to seek social infrastructure solutions that enhance livability for Campbelltown and its residents
- Implement infrastructure that improves community access to key service centres, recreation and employment nodes
- Deliver and implement a master plan to expand Campbelltown Arts Centre to ensure it continues to be a leading source of creativity for the region.

Campbelltown City Council, Open Space Strategic Plan (2018)

The Open Space Strategic Plan provides a framework for the provision of open space across the LGA. This includes define the following the hierarchy, with details including size and location:

- **Local open space** (0.2-1ha): passive recreation and low-key informal play.
- **Neighbourhood open space** (0.5-2ha): parks, bushland or sportsgrounds that are a community focal point, contribute to and reflect neighbourhood character and a place for neighbourhood events.
- **District open space** (2-5ha): parks, bushland or sportsgrounds that are used by visitors across the LGA and provide active and passive recreation and space for significant community events.
- **Regional open space** (>2ha): destinations for regional sporting events and large community events.

The document includes actions to guide future planning of open space. Relevant actions for this assessment include:

- Develop and promote a network of high quality local, neighbourhood and district open space so there is a well distributed network of district parks and reserves, and most residents live within 400m of a local and 1km of a neighbourhood park.
- Recognise that connectivity is important to the utilisation of parks and reserves.
- Strengthen walking and cycling connections.
- Promote ecological corridors, green links and connections along creeks linking open space areas.
- Provide high quality civic spaces to form better links to, and between, existing open space areas.
- Enhance the importance of district parks and do not over-embellish small isolated parks.

Campbelltown City Council, Menangle Park Contributions Plan (2020)

Campbelltown City Council's Contributions Plan provides benchmarks for community facilities for Menangle Park based on the expected demand generated by the incoming future population. The plan identifies a range of facilities and services required and how they can be delivered including a map of specific works (none of which are located on site) and the application of Section 7.11 contributions.

The Plan also identifies future development and population numbers, including average occupancy rates, and indicative age profiles for different residential land uses.

DOCUMENT REVIEW

Campbelltown Council, Reimagining Campbelltown City Centre Masterplan (2020)

The Campbelltown City Centre Master Plan is a framework for decision-making in the City Centre into the future. It is underpinned by a Place Framework comprising six strategic growth pillars and 25 commitments that describe the key outcomes and support decisions made in the city centre. To guide growth over the next 10-20 years, the plan includes a Delivery Framework with 10 City-making moves and 35 actions. The first City-making move is Growing the Engine Room which is the key focus on Campbelltown CBD as the civic and economic heart of the region.

The five year priority plan includes the delivery of five priority projects including the creation of a new city library, amplify the sport and entertainment precinct in Leumeah, transform Bow Bowing Creek and deliver the Campbelltown Billabong Parklands. The new City Library project is envisioned to be a co-located, flexible and future proofed facility that will include co-working spaces, cafes, meeting spaces, library and learning spaces and child-care. This project aligns with the identified need in Council's Contributions Plan to upgrade HJ Daley library to a regional facility. The Reimagining Campbelltown Masterplan also includes plans to expand and enhance the Campbelltown Arts Centre. This also aligns with Council's Contributions Plan which identified the need to expand this facility.

Dahua Group Planning Proposal (DGPP)

In 2018, Dahua Group submitted a planning proposal for a 498ha parcel of land that proposed to expand MPURA town centre and move it closer to Spring Farm Parkway Link. As shown in Figure 4, this is immediately east of the subject site.

The new location of the town centre is intended to provide future Menangle Park residents with amenities and employment close by.

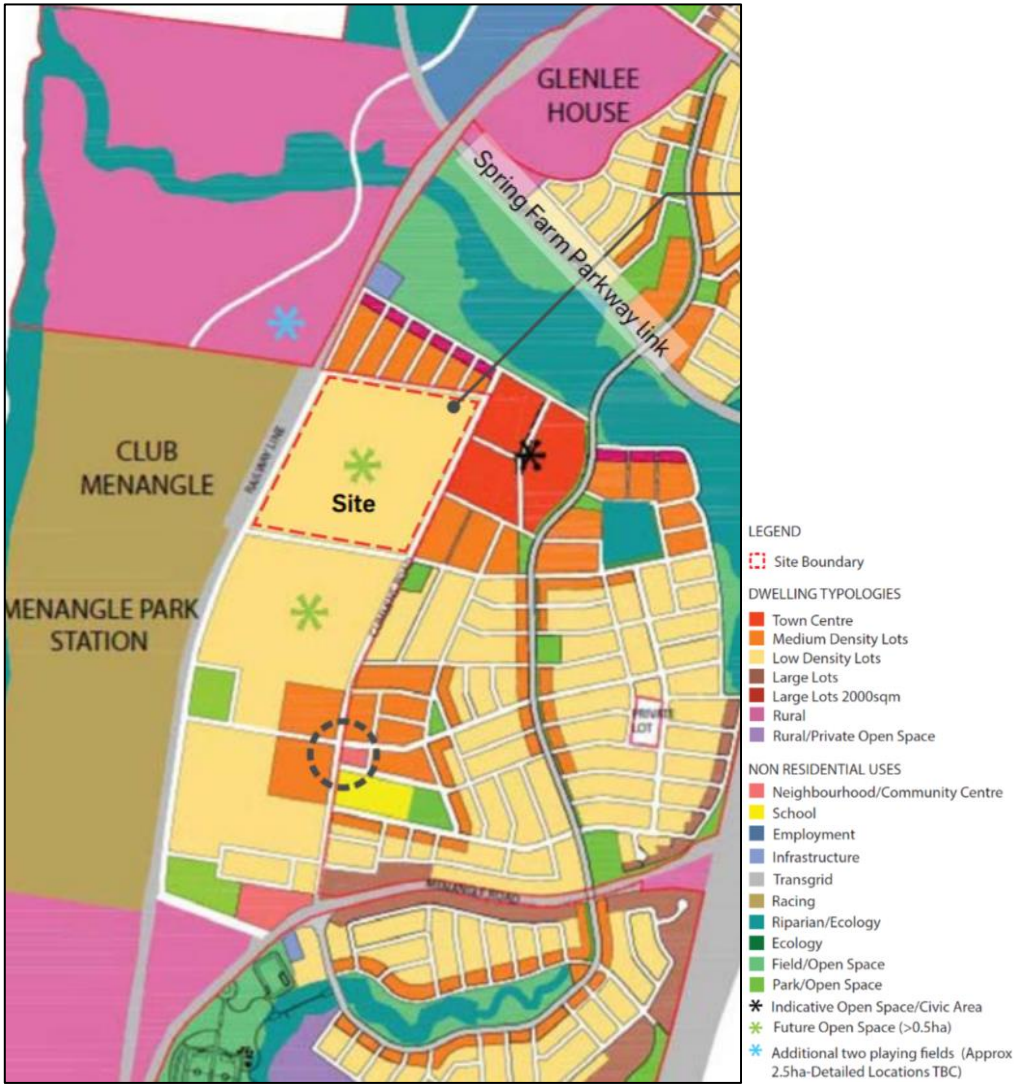
The DGPP proposes:

- Approximately 5,250 dwellings in various densities, with a projected population of 16,300 people
- 30,000sqm of retail/employment space
- 23 areas for open space and recreation, totaling 134.8hain size (detailed further in Section 4 of this report)
- A neighbourhood centre and a school
- Potential playing fields in the northwestern corner of the site.

The DGPP indicates that the East Village site will consist of low density residential development, with some provision of open space over 0.5ha in size.

At the time of writing, the outcome of the DGPP is yet to be determined.

Figure 4 The site in the context of the DGPP masterplan



Source: Dahua Group

03. EXISTING COMMUNITY AND FUTURE POPULATION

INCOMING POPULATION

The proposal

To assess community needs, it is important to understand the number of people a proposal will introduce into an area. The following analysis is based on the dwelling mix set out on page 7 of this report.

Dwelling mix and density

The Contributions Plan establishes the following average occupancy rates of people per dwelling type, relevant to the proposal.

- Town Centre Unit: 1.7 persons per dwelling
- Small Lot (300-419sqm): 2.4 persons per dwelling

As outlined in Section 1 of this report, the proposed structure plan includes a mix of medium and high density dwellings. Approximately 7% of dwellings are proposed to be medium density (terraces), with the remaining 93% to be high density dwellings (apartments).

At this stage, a detailed breakdown of dwellings, including bedroom configurations has not been determined. Applying the average occupancy rates in the to the numbers of proposed dwellings provides an **estimated future residential population of 3,811**.

The East Village development will occur within the context of the broader population growth forecast for Menangle Park and the LGA. This assessment will look specifically at the requirements generated by the population associated with the proposal, however will recognise the cumulative impacts on social infrastructure from broader population growth.

Broader population context

The sections below provide an overview of the projected population in Menangle Park and Campbelltown LGA over the next 10 to 20 years based on data from profile.id and the Department of Planning Industry and Environment.

The **Menangle Park** population is expected to experience annual growth of 18.70%, increasing from 208 people in 2016 to approximately 15,104 people by 2041. This is based on an increase of over 5,143 dwellings during this period, attributed to greenfield and infill development increasing housing supply across the suburb.

Menangle Park

293 people in 2021

+ 5,055%

15,104 people in 2041

Between 2016 and 2041, **Campbelltown LGA** is expected to experience annual growth of 2.11%, increasing from 161,554 people in 2016 to 272,303 people in 2041. This assumes an increase of 17,586 households during this period, most of which are attributed to development in the south of the LGA, including Menangle Park.

Campbelltown

176,151 people in 2021

+ 55%

272,303 people in 2041

INCOMING POPULATION – INDICATIVE AGE PROFILE

For the purpose of benchmarking, a likely age profile has been developed for the projected incoming population. In Western Sydney, many new developments were under construction or still in the planning stages at the time of the last ABS Census in 2016. Therefore there is little available data to accurately reflect the profile of people who are moving into recently built, modern high density communities in Western Sydney.

The table below uses the age break downs in the suburbs of Liverpool and Campbelltown (ie the CBDs) to develop an indicative profile for the East Village. Liverpool was chosen as a benchmark as it is an example of recent significant growth in high density living close to a train station in south western Sydney.

Table 1 Indicative age profile for residents of East Village, based on the proposed structure plan

Age	Liverpool (suburb) 2016	Campbelltown (suburb) 2016	East Village (indicative %)	East Village (indicative number)
0 – 4	9%	7%	8.0%	305
5 – 11	9%	10%	9.5%	362
12 – 17	7%	8%	7.5%	286
18 – 24	9%	10%	9.5%	362
25 – 34	18%	15%	16.5%	629
35 – 49	21%	20%	20.5%	781
50 – 59	11%	13%	12.0%	457
60 – 69	8%	10%	9.0%	343
70+	8%	7%	7.5%	286

Note: Due to the rounding of percentages the total likely population is slightly over 3,811.

INCOMING POPULATION - CHARACTERISTICS

In addition to the likely age profile of the incoming population, it is also important to understand the likely characteristics of the future population. Below is an overview of the key characteristics of the current Menangle Park community. As the proposal will consist mostly of high-density dwellings, the following demographic characteristics of the existing community is unlikely to be representative of the incoming population. An overview of the characteristics of people living in apartments is therefore been provided opposite.

Existing Menangle Park community

According to Australian Bureau of Statistics (ABS), in 2016 the resident population of Menangle Park had:

- An **older population** with a median age of 38 compared with 34 for the Campbelltown LGA
- A **higher proportion of people aged 65+** (16.1%) compared with the Campbelltown LGA (11.8%)
- A **higher proportion of students** (55%) attending an educational institution compared with Campbelltown LGA (31.4%)
- **More family households** (89.0%) compared with the Campbelltown LGA (79.3%)
- Of family households, most are **couple families with children** (41.9%).
- A **higher proportion of people renting** (45.6%) compared with the Campbelltown LGA (32.9%)
- **Higher weekly median rent ($400**) compared with Campbelltown LGA ($350)
- A **higher proportion of people living in separate housing** (100.0%) compared with the Campbelltown LGA (78.7%)
- A **higher rate of motor vehicles per dwelling** (2.3) compared to Campbelltown LGA (1.8)
- **Most residents spoke only English** at home (94.4%) compared to Campbelltown LGA (63.8%).

People living in apartments in Australia

The ABS prepared an overview of the characteristics of people living in apartments in Australia following the 2016 Census. This overview identified key characteristics of people living in apartments in Australia including:

- High proportions of people aged between 25-34.
- High proportions of children aged 0-4, but lower proportions of children aged 5-14 years
- Majority of family households living in apartments were couple families without children
- High proportions of residents born overseas with a particularly high proportion born in North-East Asia (including China and Hong Kong) and Southern and Central Asia (including India). 17% of all the overseas born population live in an apartment compared to 6.7% of Australian born residents.
- High proportions of people renting (59%), with 13% owned outright and 15% owned with a mortgage. In contrast, 34% of separate houses were owned outright, 38% owned with a mortgage, and 21% rented.
- Higher proportions of people having no motor vehicle (21%) compared to less than 5% of those who lived in separate houses, which may reflect the inner city location of some apartments and their close proximity to work, public transport and amenities.

These characteristics suggest that the demographic profile of the incoming population will be different to the existing population of Menangle Park. It will likely include higher proportions of young professionals, couple families without children, and single parent families, as well as higher proportions of people renting.

04. EXISTING AND PROPOSED SOCIAL INFRASTRUCTURE

EXISTING SOCIAL INFRASTRUCTURE

As part of this assessment, all social infrastructure within a 2km radius of the site was mapped to understand the existing level of provision (see Figure 5 on the following page). Given the existing low density, rural nature of the area, there is little in the way of existing social infrastructure. Table 2 below summarises the provision of social infrastructure within the 2km radius and the broader region.

Table 2 Existing provision of social infrastructure within 2km of the site.

Facility type	2km radius	Provision summary
Open space and recreation	**1**	Within 2km of the site there is one existing local open space. There is no neighbourhood open space or district/regional open spaces. Menangle River Reserve is located 1km south of the Macarthur he site, on the banks of the Nepean River. There are currently no formalised recreation space spaces within 2km of the site. Once complete the Macarthur Regional Recreational Trail will form a 14km shared pedestrian and cyclist route north of the site between Camden town centre, through the Australian Botanic Gardens to Campbelltown railway station.
Community and libraries	**0**	There is currently limited access to community and library facilities from the site. Within Campbelltown Centre there are several community and cultural facilities. This includes HJ Library, which is planned to be upgraded to provide a multi-purpose regional library and community space. There are no hirable community spaces within a 2km radius of the site. The closest community spaces are in the neighbouring suburbs of Ambarvale, Glen Alpine, Rosemeadow and Spring Farm
Education	**1**	Broughton Anglican College is the only school located in the suburb and is within 2km of the site. The college is a kindergarten to year 12 school. As of 2020, there were 1,080 students enrolled at the school (Australian Curriculum, Assessment and Reporting Authority). The closest public primary school, Mary Brooksbank School, is located approximately 3.5km east of the site in Rosemeadow. Ambarvale High School is the closest public secondary institution, located 4.5km east of the site. The closest tertiary institution is Campbelltown TAFE, located approximately 5.5km north east of the site.
Childcare	**1**	Bellbirds Early Learning Centre is the only childcare centre in Menangle Park, located opposite the site. A desktop review shows the centre has enrollment capacity, with places available for children aged 6 weeks through to 36 months from Monday to Friday.
Health	**0**	There is currently limited access to general local health centers. Rosemeadow Community Health Centre is the closest, located approximately 4.5km from the site. Macarthur Square Medical and Dental Centre are also located approximately 5km north east of the site. Campbelltown Hospital and Campbelltown Private Hospital are located 5.5km north east of the site. Campbelltown Hospital is a major healthcare provider to the Macarthur region, providing a range of health services.

Figure 5 Existing social infrastructure

PROPOSED SOCIAL INFRASTRUCTURE – EAST VILLAGE

As outlined in Section 1 of this report, the structure plan proposes 2,179 new dwellings within the East Village site. The social infrastructure planned as part of the proposal consists of public open spaces totalling 10,444sqm in area.

These spaces are proposed to be the:

- **Village Park** in the north eastern corner of the site, adjacent to the location of the town centre as proposed in the DGPP. This park is proposed to be 5,334sqm in area. It will be surrounded to the west and south by apartment buildings of eight storeys in height.
- **Central Park** in the centre north of the site, surrounded by apartment buildings of six storeys in height. This park is proposed to be 5,110sqm in area.

These spaces are connected east-west by an active transport link. A proposed boulevard also runs south from Central Park to Taber Street, through the centre of the site. Communal open spaces for use by residents of apartment buildings are proposed throughout the area.

The configuration of these spaces is shown opposite in Figure 7.

Figure 7 Proposed open space network in East Village

PROPOSED SOCIAL INFRASTRUCTURE – DGPP AND ELSEWHERE

The following facilities are proposed as part of the DGPP:

- **Education**: a public primary school site with an adjoining 1ha of active open space, available for wider community use
- **Community centre**: a community centre between 1,000sqm and 1,300sqm in size, on a site to be determined
- **Library and cultural space**: a new library and cultural space to be a minimum size of 500sqm as part of the community centre, or contributions towards an off-site library and cultural facility/s
- **Childcare centres**: the proposed zoning within the town centre, neighbourhood centre and residential zones will allow for centre based child care through private sector provision
- **Health**: the provision of medical facilities and social services is intended to be explored during the detailed design phase.

As detailed opposite in Table 3, approximately 135ha of open space is proposed as part of the DGPP. This includes 23.3ha of local and district parks and 19.8ha of formal or 'active' recreation space.

In addition to this space, there is understood to be a joint proposal from Camden and Campbelltown City Councils for a Macarthur Regional Recreational Trail Network looping south from Spring Farm and Mount Annan, and north of the East Village site.

Table 3 Open space provided in the DGPP by type

Open Space Type		No.	Size (ha)
Informal/passive	Local parks	9	6.4
	District parks	3	16.9
Formal/active	Multipurpose sports hub	1	17.3
	Active recreation space	1	2.5
Natural	Riparian, drainage, ecology and green spine	9	91.7
Total		**24**	**134.8**

05. SUMMARY OF SOCIAL INFRASTRUCTURE REQUIREMENTS

APPROACH TO ASSESSMENT

General approach

This study takes good a good practice approach to identifying social infrastructure requirements for the site including:

- Identifying the demographic characteristics of the current community and the likely demographic characteristics of the future population to understand future needs and demands of social infrastructure
- Understanding the existing and proposed provision of social infrastructure to identify gaps
- Understanding of the site and strategic context of the area that are guiding future planning decisions.
- Considering leading practice principles and benchmarks, and applying these appropriately to the site.

Approach to open space and recreation

Access to open space is critical to the health and wellbeing of a community and is particularly important for people living in high density areas, as access to backyards is limited. Planning for open space falls into two broad categories:

- Passive recreation: spaces that allow for unstructured activities such as walking, running, cycling, playing, meeting friends, walking the dog or relaxing
- Active recreation and organised sport: spaces that enable more structured or organised sporting activities such as courts, fields and aquatic facilities.

This assessment considers demand generated by the proposed structure plan for both categories of space.

Leading practice favours an approach to determining open space based on performance outcomes and taking into consideration things such as accessibility, quality and configuration of spaces.

To determine an appropriate configuration of open space that will provide good community outcomes for the future population, this study uses the performance criteria from the Government Architect of NSW's Draft Greener Places Design Guide (2020).

This study also uses quantitative measures subsequently proposed by the Department in Planning, Industry and Environment (DPIE), which is responsible for finalising the Design Guide. At the time of writing, the proposed measures are the subject of consultation with industry groups. It should be noted that this guidance is not yet NSW Government policy.

The Draft Design Guide incudes recommendations on open space accessibility, quality and size:

- For high density areas, residents should be within a 200m walk of local open space.
- The minimum size of a local park should be 0.3ha.
- Residents should be 2km from a district park of 2-5ha.
- Residents should be within 30 minutes travel time of a regional open space of more than 5ha.

The Draft Design Guide does not provide guidance on the total quantity of open space to be provided.

The proposed guidance released by DPIE for comment to industry groups in September 2021 includes the following recommendations:

- 15% of net developable land (NDL) as public open space
- Small parks to be 0.15 – 0.5ha in size and a 200m walk from dwellings
- Medium parks to be a 0.5 – 5ha in size and a 400m walk from dwellings
- District parks to be 5 – 25ha in size and a 1,600m walk from dwellings.

The guidance notes that "For sites less than 25 hectares some exceptions apply, and provision of as much of the 15% requirement into one open space is advised".

SOCIAL INFRASTRUCTURE NEEDS

Open space and recreation

The East Village concept plan proposes 10,444sqm of open space in the form of a Village Park and Central Park. Based on a NDL of 142,909sqm, this equates to 7.3% of the site being open space.

As noted on the previous page, the proposed guidance released by DPIE for comment in September 2021 recommends 15% of NDL be provided as public open space. The **quantity** of open space proposed in the East Village concept plan is below this threshold. Additional open space of just under 11,000sqm would need to be included in the proposal to meet the benchmark currently being proposed by DPIE.

In terms of **park sizes**, Village Park is proposed to be 5,334sqm and Central Park is proposed to be 5,110sqm. The sizes of each park meet DPIE's recent minimum size recommendations for a 'medium' sized park. They also meet:

- the Draft Greener Places Design Guide recommendation size for parks in high density areas (minimum of 3,000sqm in area)
- Council's recommended sizes for local (2,000 – 10,000sqm and neighbourhood (5,000 – 20,000sqm) open space.

In terms of **accessibility**, all residents are proposed to be within 400m of at least one of the two parks. This aligns with the direction in both the Draft Greener Places Design Guide and Council's Open Space Strategic Plan.

The site is also within 2km of around 43ha of public open space being proposed as part of the DGPP. Future residents of the site will likely be able to access this open space once approved and delivered, particularly for higher order district and regional level open space needs. A full assessment of the accessibility and usability of this space for residents of the East Village has not been included within the scope of this report.

Community, library and cultural space

There is currently limited access to community, library and cultural facilities from the site. The closest regional level facilities are in Campbelltown, with some other small community spaces in the neighboring suburbs of Ambarvale, Glen Alpine, Rosemeadow and Spring Farm.

As outlined on page 19, the DHGPP masterplan proposed the delivery of a community centre of 1,000sqm – 1,300sqm. A library and cultural space may be included as part of the community centre, or contributions will be made by Dahua Group for a new off site library or cultural facility.

As part of Campbelltown Council's Reimagining Campbelltown masterplan, a new regional level multi-purpose centre with a library and community centre will be delivered in Campbelltown town centre. It is also proposed to expand and enhance the Campbelltown Arts Centre

Based on the community facilities benchmark of 80sqm/1,000 people adopted by a range of Sydney councils (including Blacktown City Council, City of Parramatta, City of Ryde and Hornsby Shire Council) the projected incoming population would generate demand for about 300sqm of community space.

Based on the NSW State Library Population Based Library Calculator, the population is likely to generate demand for around 260sqm of library space.

When combined, there is likely to be demand for around 550sqm of community space. Contemporary planning suggests minimum sizes for community facilities of around 500sqm. It is also preferrable to integrate space within one building or co-locate community spaces and libraries in town centres so they are easily accessible and will be more useable.

It is therefore likely that the need for community, library and cultural space will be met by the facility provided as part of the DGPP, the new regional library and community facility in the Campbelltown city centre and upgrades to the Campbelltown Performing Arts Centre.

SOCIAL INFRASTRUCTURE NEEDS

Education facilities

As Menangle Park currently has a very small population, there is only one school in the suburb: Broughton Anglican College. Planning for public schools is undertaken by the Department of Education (DoE), typically looking at demand for schools within a regional catchment. In its Mixed-Use Developments: School Design Requirements – A Guide for the Development sector, School Infrastructure NSW indicates a maximum of 1,000 students for primary schools and 2,000 students for secondary schools.

Based on the indicative age profile on page 15, the incoming population is expected to include around 362 primary school aged children (5 – 11 years) and around 286 high school aged children (12 – 17 years). The incoming population of the site will not in itself generate demand for a primary or secondary school.

To accommodate future growth, the DGPP masterplan includes plans for a new primary school. This is proposed to be located approximately 1km from the site. The demand for primary school space created by the East Village proposal is likely to be met by the delivery of this primary school.

As there are no known plans for a government secondary school in Menangle Park, the incoming population is likely to place some pressure on the availability of secondary school places. It is recommended that consultation is undertaken with DoE to understand future plans for secondary schooling in the area.

Childcare

It is generally not necessary that precise requirements for childcare be identified within a planning proposal. This assessment considers whether there are ways in which the need for childcare can be met within and around the site.

Based on the indicative age profile, it is likely the incoming population will include 305 children aged between 0 and 4 years. This will generate demand for approximately 102 childcare places, which could support a medium sized childcare facility.

As noted on page 16, there is currently one childcare centre located within 2km of the site. A desktop review indicates this facility has current vacancies. The DGPP also indicates that up to five childcare centres could be delivered by the private sector within the permissible zones of the masterplan including the town centre, neighbourhood centre and residential zones.

Demand for childcare is likely to be met through private sector provision in the Menangle Park town centre, or within the residential areas of East Village.

Health

There is currently limited access to local health centers from Menangle Park. Rosemeadow Community Health Centre and Macarthur Square Medical and Dental Centre are the closest centres to the site, and are located around 5km away.

Campbelltown Hospital and Campbelltown Private Hospital are also located around 5km from the site.

The national benchmark for general practitioners (GPs) is one per 1,000 people. Contemporary medical centres typically employ a minimum of four GPs. Based on this, the incoming population of the site may support three to four GPs or one new medical centre.

It is likely that the future town centre delivered as part of the DGPP masterplan will include a medical centre. This is likely to support the general health needs of the incoming population of East Village. Higher order health needs are likely to be met facilities within the Campbelltown city centre.

CONCLUSION AND RECOMMENDATIONS

When complete, the East Village is proposed to provide 2,179 dwellings, with an estimated population of around 3,800 people.

Most of the social infrastructure needs of the incoming population is likely to be met through the planned facilities and services in the DGPP. They are likely to have access to open space, a community space, a primary school, childcare and health services and infrastructure proposed in this area.

Within the concept plan area, future residents will have access to two parks totalling 10,444sqm of open space. This equates to 7.3% of the site's NDL being open space.

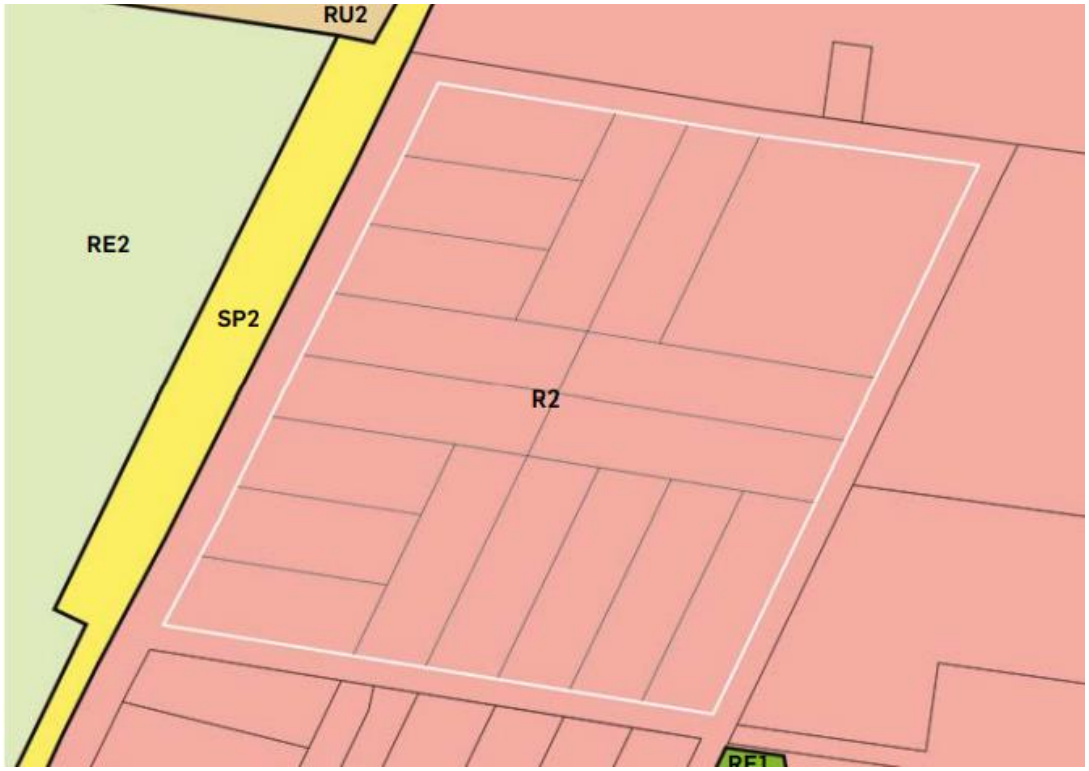
The incoming population of East Village is likely to place some demand on secondary school places. This is due to there being only one government secondary school around 5km from the site in Ambarvale, with no current plans to deliver a secondary school in Menangle Park.

It is therefore recommended that, as part of the detailed planning for the project:

- Further consideration be given to the provision of public open space to meet the local and neighbourhood level open space needs of the incoming population. This may be through direct provision on site, or through developer contributions or a voluntary planning agreement for off site provision.
- The relationships between the public open space proposed in the East Village and DGPP areas be mapped and analysed in more detail. This will assist in understanding the capacity of open space in the DGPP area to meet the needs of community members in the East Village.
- Consultation be undertaken with DoE to understand future plans for secondary school provision in the area.

Appendix "F"
Zone Amendments

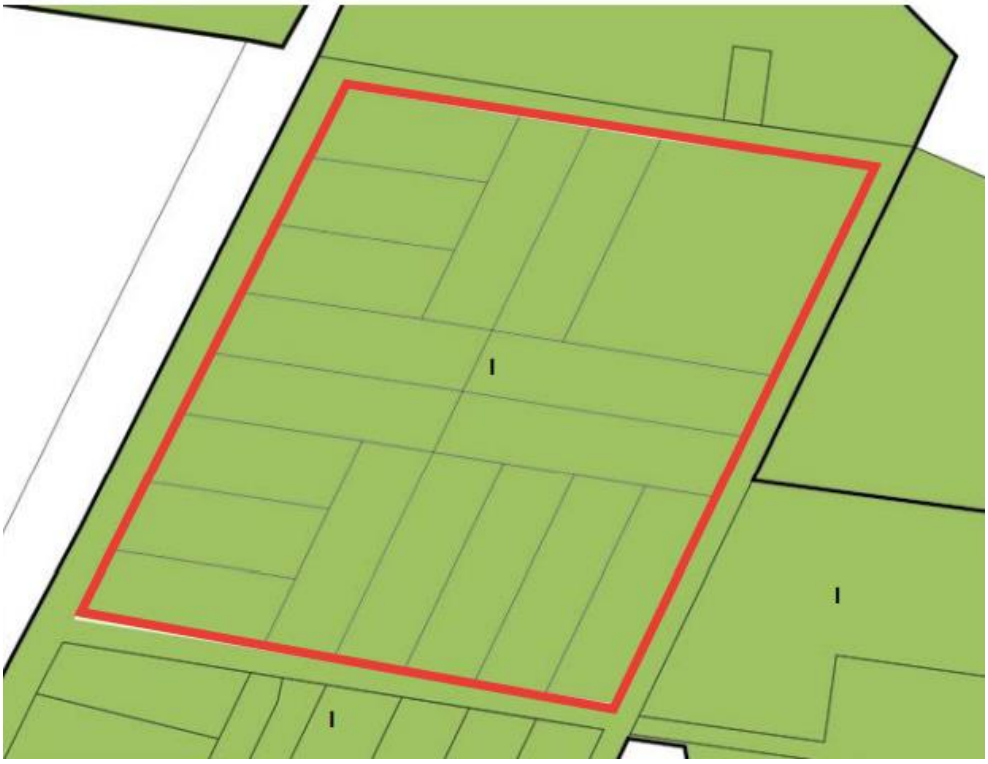
Existing Zoning



Proposed Zone Amendments

Appendix "G"
Heights of Buildings Amendments

Existing Heights



Proposed Height Amendments