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Report Number	FINAL

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FINAL (5 May 2021) + AMENDMENT 1 (1 October 2026)



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ENDORSEMENT PAGE

This Precinct Structure Plan is prepared under the provisions of Wanneroo District Planning Scheme No. 2

IT IS CERTIFIED THAT AMENDMENT NO. 1 TO EGLINTON DISTRICT CENTRE PRECINCT STRUCTURE PLAN No. 104 WAS APPROVED BY RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION ON:

07 OCTOBER 2026

Signed for and on behalf of the Western Australian Planning Commission:



an officer of the Commission duly authorised by the Commission pursuant to section 24 of the *Planning and Development Act 2005* for that purpose.

TABLE OF AMENDMENTS

Amendment No.	Summary of the Amendment	Amendment Type	Date Approved by WAPC
1	To identify the movement network, spatial land use arrangements, residential density and desired built form outcomes for Precinct 6 – Future Planning Precinct (P6) via an amendment to the Precinct Structure Plan mapping and documentation accordingly, including modifying the reference to be “Precinct 6 Residential East Precinct”.	Major	07 October 2026

EXECUTIVE SUMMARY

The Eglinton district centre Precinct Structure Plan (PSP) will facilitate the development of a district centre for the growing and anticipated Eglinton community and surrounding suburbs. The new Eglinton passenger train station proposed within the PSP will provide a critical catalyst for development of the town centre in the short term.

Bound by Pipidinny Road to the north, the future Eglinton Drive to the south, future Mitchell Freeway extension to the east and Marmion Avenue to the west, the PSP covers an area of 69.48ha. The centre has been contemplated in a range of planning instruments including State Planning Policy No.4.2 – Activity Centres for Perth and Peel (as an 'emerging centre'), the Alkimos Eglinton District Structure Plan No.18 (DSP 18) and Eglinton Agreed Structure Plan No.82 (ASP 82).

This PSP is made pursuant to the City of Wanneroo District Planning Scheme No.2 (DPS 2), including the deemed provisions for local planning schemes of the *Planning and Development (Local Planning Schemes) Regulations 2015* (the deemed provisions).

The planning for this activity centre has been led by Woodsome Management, representing Eglinton Estates Pty Ltd as the landowner, in consultation with the Department of Planning, Lands and Heritage/WA Planning Commission (DPLH/WAPC), METRONET/Public Transport Authority (PTA) and the City of Wanneroo (the City).

The PSP provides for:

- A new passenger train station and associated public transport infrastructure including a bus interchange and commuter 'park and ride' carparking areas.
- A shopping centre that could ultimately grow to approximately 20,000sq.m shop/retail floorspace by 2030, accommodating supermarkets and a discount department store, with associated speciality stores and mini majors. Other uses envisaged include a bulky goods precinct and a range of entertainment and community uses.
- Consolidated carparking areas, with flexibility to change configuration over time as demand for retail and other floorspace increases.
- A pedestrian focused main street connected to the train station, with highly active uses accommodating retail, food and beverage and commercial.
- A diversity of residential development, including provision for townhouse and apartment product closer to the train station and main street.
- Highly legible, well-designed pedestrian linkages to connect all parts of the activity centre, as well as with surrounding residential areas within the activity centre and beyond.
- Suitable provisions to allow flexibility for the centre to transition over time, as well as to surrounding residential areas.

The applicable district structure plan and agreed local structure plan have already planned for the delivery of relevant services, infrastructure and roads that will support the activity centre and broader area.

The activity centre will be developed over several stages, with stage 1 to occur within two to five years of the opening of the Eglinton train station in late-2023.

An overview of the key characteristics of the PSP is provided in **Table 1**.

Table 1 – Precinct Structure Plan Overview

Item	Data
Precinct structure plan area	69.48ha.
Precinct areas	• P1 Main Street: 3.51ha • P2 Shopping: 9.70ha • P3 Residential: 14.91ha • P4 Business: 3.88ha • P5 Station and PTA Infrastructure: 9.02ha • P6 Residential East: 26.26ha (excludes PTA land).
Land use areas	• Residential: 24.05ha • Commercial (including mixed use): 11.74ha • Mixed use: 2.19ha • Business (bulky goods): 3.23ha • PTA: 9.63ha • POS drainage: 2.275ha • Eglinton Drive: 1.43ha.
Total estimated lot yield	Approximately 827 green title lots, 1 retirement lot, 3 mixed-use (R100) lots,1 multiple unit lot.
Target residential dwellings	1,372 (minimum) to 1,698 (desirable) dwellings.
Estimated residential site density	23.5 dwellings per gross hectare based upon a gross area of 58.26 hectares (excludes precincts 5).
Estimated population	3842 people, based on 2.8 persons average household.
Number of high schools	Nil.
Number of primary schools	Nil.
Estimated commercial floor space	20,000sq.m NLA and 4,600sq.m NLA retail floor space and bulky goods floorspace respectively to 2030. *Note: Additional floorspace for retail use and bulky goods will be subject to review.*
Estimated area and percentage of public open space	2.089ha public open space and drainage (excluding drainage reserves).

PART 1 - IMPLEMENTATION

1. IMPLEMENTATION

1.1. PRECINCT STRUCTURE PLAN

This Precinct Structure Plan (PSP) applies to the Eglinton activity centre, bounded by Pipidinny Road to the north, future Eglinton Drive to the south, Mitchell Freeway to the east and Marmion Avenue to the west, in Eglinton, Western Australia. The PSP totals 69.48ha in area.

The PSP applies to all areas within the boundary identified on the PSP map, refer **Plan 1** – Eglinton District Centre Precinct Structure Plan Map (Part 1).

1.2. OPERATION

This PSP comes into effect on the day it is approved by the WA Planning Commission, the date of which is outlined on the endorsement page. As per the deemed provisions of the *Planning and Development (Local Planning Schemes) Regulations 2015*, from the date of endorsement this PSP is to have effect for a period of 10 years, unless otherwise determined by the WA Planning Commission.

Unless otherwise specified, the words and expressions used in this PSP shall have the respective meanings given to them in the City of Wanneroo District Planning Scheme No.2 (DPS 2).

Nothing in this PSP is to be interpreted as limiting clause 4.2 of DPS 2 which allows for variations to site and development standards and requirements. Nothing in this PSP is to be interpreted as limiting clause 43 of the deemed provisions that outlines that a decision-maker for an application for development approval or subdivision approval in an area that is covered by an PSP is to have due regard to, but is not bound by, the PSP, when determining the application.

1.3. ACTIVITY CENTRE VISION AND OBJECTIVES

The vision for the Eglinton town centre is as follows:

> *'The Eglinton town centre is an urban community which is convenient, connected and provides diversity in both people and housing choices. The Eglinton train station facilitates a central core of activity that will flow through to a vibrant high street and shopping centre catering for a variety of needs, together with high quality parks, plazas and other meeting places and amenities.*
>
> *It is the largest and most vibrant centre in Eglinton and the main focus of community life during the day time and extending into the evening. It contributes to a strong sense of community and identity that is uniquely Eglinton.*
>
> *The residential precinct to the east will establish an integrated community delivering a range of medium to high density housing and opportunities for mixed use next to the station, responsive to public transport, open space and key movement corridors. The unique landscape will be enhanced through the identification of key view lines, a public plaza, a connected central open space, and streets landscaped with local species will promote an active transport network to enhance walkability, residential amenity and sense of place.'*

The development of this PSP will be supported by a new passenger train station located centrally within the PSP which forms part of the broader Yanchep Rail Extension with stations also proposed at Alkimos and Yanchep. This significant public transport infrastructure proposal, led by METRONET, will provide a critical catalyst for development of the town centre.

Development in the PSP area shall align with the following objectives:

- The district centre will be a distinctive town centre that is uniquely Eglinton reflected through land use, built form and public realm, setting itself apart from other centres in the corridor.
- To provide an activated focal point and mix of uses leveraging the Eglinton train station as a key entry point.
- To deliver a main street along Carphin Drive between the train station and mid-way to Marmion Avenue. It will be the focus of activity in the centre and will be treated with high quality landscaping and activated frontages.
- To deliver a functional shopping centre which provides for the convenience needs of the local and visiting population.
- To promote inclusiveness through the creation of a centre that facilitates diversity in people, spaces and housing choice.
- To promote active and alternative forms of transport while providing a convenient centre.
- To promote activation of the centre both in the day and evening through an inviting dining precinct and community meeting spaces.
- To ensure appropriate staging of centre development and provide for flexibility and responsive design and commercial outcomes.
- To promote local employment opportunities in a diversity of sectors.

PIPIDINNY ROAD

PIPIDINNY ROAD

FUTURE STATION CARPARK

400m

P5

R

R80

P1

R100

CARPHIN DRIVE

S

P6

P2

FUTURE STATION CARPARK

P3

MU

R80

P4

MARMION AVENUE

WALCOTT AVENUE

EGLINTON BOULEVARD

EGLINTON BOULEVARD

R40 R50 R60 R80 R100

NOTES

1. PIPIDINNY ROAD EASTERN CONNECTION TO BE DEVIATED TO CONNECT TO EGLINTON BOULEVARD
2. CONNECTION OF RAILWAY CORRIDOR PSP TO EGLINTON BOULEVARD PSP
3. FINAL LOCATION OF THE SHARED PATH FROM CARPHIN DRIVE TO PIPIDINNY ROAD THROUGH THE PTA CARPARK TO BE DETERMINED IN CONSULTATION WITH PTA AND WAPC (BEING THE OWNER OF THE LAND)
4. INDICATIVE INTERSECTION LOCATION SUBJECT TO DETAILED DESIGN

LEGEND

- STRUCTURE PLAN BOUNDARY

ZONES

- RESIDENTIAL R40
- RESIDENTIAL R50
- RESIDENTIAL R60 *Minimum 2 Storey (East of Rail Only)
- RESIDENTIAL R60 *Book Ends
- RESIDENTIAL R80
- MU — RESIDENTIAL R80 MULTIPLE DWELLING
- R — RETIREMENT
- MIXED USE (R100)
- COMMERCIAL
- BUSINESS

RESERVES

- PUBLIC OPEN SPACE & DRAINAGE
- DRAINAGE RESERVE
- INTEGRATOR ROAD A
- INTEGRATOR ROAD B
- NEIGHBOURHOOD CONNECTOR ROAD
- MAJOR ACCESS ROAD
- LOCAL ACCESS STREET
- LANEWAY
- RAILWAY RESERVE
- PTA INFRASTRUCTURE, TRANSFER STATION AND PARK & RIDE FACILITIES

OTHERS

- S — RAILWAY STATION
- WALKABLE CATCHMENT 400m
- PRINCIPAL SHARED PATH
- SHARED PATH
- MID-BLOCK ACCESS
- PUBLIC ACCESS WAY
- STATION SQUARE
- PLAZA
- PUBLIC DRAINAGE LOCATIONS
- PRECINCT BOUNDARY
- P1 MAIN STREET PRECINCT
- P2 SHOPPING PRECINCT
- P3 RESIDENTIAL PRECINCT
- P4 BUSINESS PRECINCT
- P5 STATION PRECINCT
- P6 RESIDENTIAL PRECINCT
- SIGNALISED INTERSECTION
- LEFT IN/LEFT OUT
- PARK & RIDE VEHICLE ACCESS
- DEDICATED BUS ACCESS
- PROPOSED BUS ROUTES
- B — INDICATIVE BUS STOP LOCATIONS
- PROPOSED 132kV TRANSMISSION LINE
- SPECIAL DEVELOPMENT CONTROLS APPLY (REFER SECTION 2.6.4)

NORTH

Scale: 1:4000 @ A3

0 40 80 120m

Date: 13/07/2026 Plan: EGLEG-5-006B

EGLINTON DISTRICT CENTRE

Plan 1 - Precinct Structure Plan

2. PRECINCTS – SUBDIVISION AND DEVELOPMENT REQUIREMENTS

The PSP is divided into precincts as identified on the PSP Map. The following sections identify the vision, objectives, and land use and development requirements of the precincts.

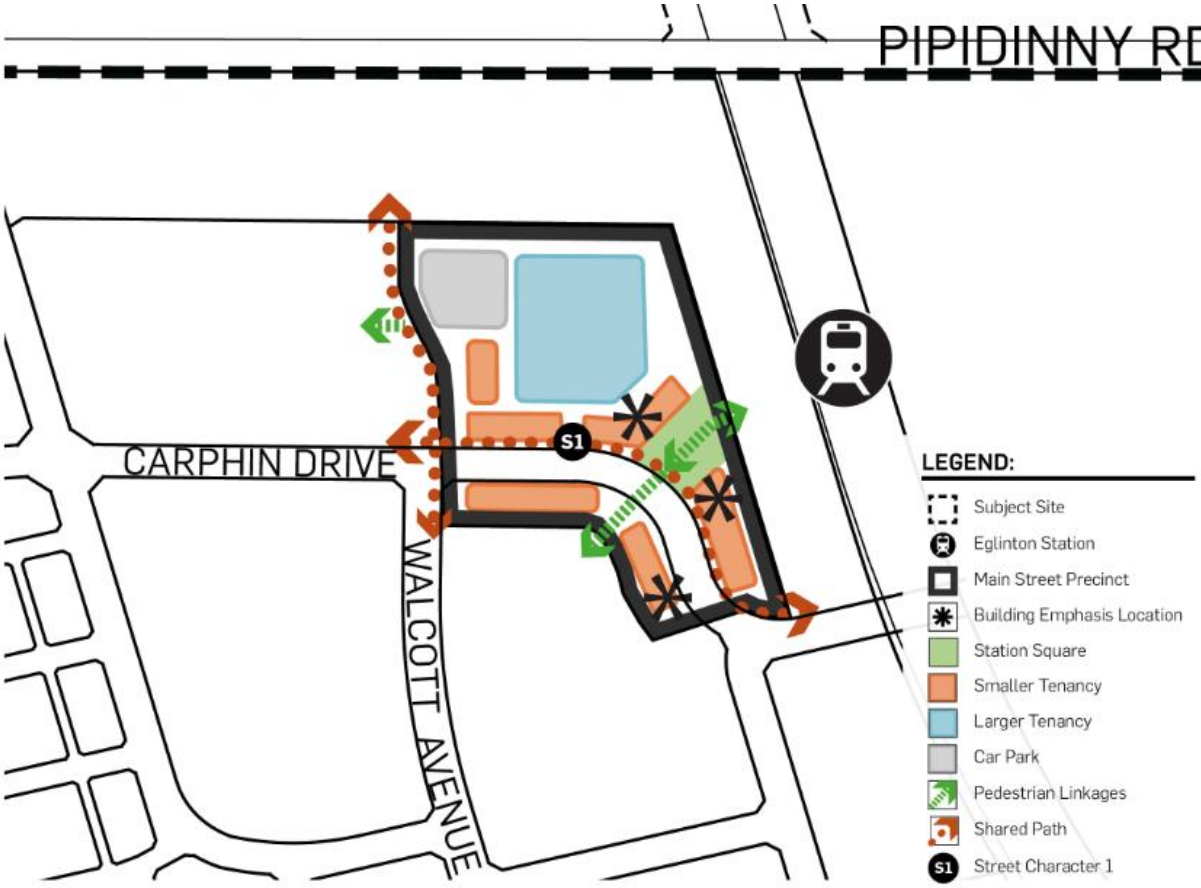
The requirements focus on the public-private interface and are supported by associated diagrams and character images. The design intent is illustrated on the Precinct Principles Maps. The development requirements are to be read in conjunction with DPS and State Planning Policy 7.3 (R-Codes) volumes 1 and 2.

The precinct boundaries are not intended to be rigid and are subject to detailed design refinement at development application stage.

2.1. PRECINCT 1 - MAIN STREET PRECINCT (P1)

The Main Street Precinct is in the heart of the Eglinton activity centre adjacent to the proposed train station. This precinct will comprise the main retail and community hub including a public square as an interface to the Station. It will accommodate most of the shop-retail activity, with a mix of commercial and hospitality buildings fronting both sides of the main street on Carphin Drive, refer **Figure 2.**

Figure 2 – Precinct 1 – Main Street Precinct Principles (P1)



2.1.1. Precinct Objectives

The objectives of the Main Street Precinct are to:

- Provide for a mix of complementary retail, commercial and community uses that activate the Carphin Drive street frontage.
- Focus high intensity and active uses adjoining the public square.
- Provide for convenient, safe and pleasant access between the train station and other parts of the district centre.
- Provide safe and pleasant connections to the residential areas.
- Provide an amenable interface to surrounding development, both in the short and long term.
- Provide for residential development at R-AC3 as per the PSP and SPP 7.3 Volume 2 Apartments, maximising the potential for residential development within the 400m catchment of the train station within mixed use building formats.
- Provide safe and active interface with PTA infrastructure.
- Ensure initial development stages do not to compromise ultimate development.

2.1.2. Land Use

- Uses to be generally consistent with the Commercial zone of DPS2.
- Preferred uses along Carphin Drive include a mix of speciality retail shops, small bars, cafes, restaurants, convenience stores, pharmacies at ground level, and commercial uses such as professional services and small businesses, or shop top housing on upper levels.
- The mix of uses is to ensure pedestrian activation of the main street throughout the day and evening, and car based uses are generally not supported.
- Smaller tenancies are preferred along Carphin Drive, and larger tenancies for retail and commercial preferred behind Carphin Drive abutting the station car park to the north.
- Larger format retail uses, such as showrooms and drive through uses, including fast food outlets and petrol stations, are not supported in the precinct which is focused on pedestrian movement and amenity.

2.1.3. Building Typology

2.1.3.1. Built Form Description

- Carphin Drive: Mixed use two or three storey buildings that orientate to Carphin Drive to create activity at the street front. Generally a narrow continuous building format is to be provided at the ground floor to maximise tenancy opportunities and mix of uses. Upper floors contain mix of commercial and business services, or shop top residential development.
- Contemplate single storey retail (with a two-storey facade) in the first instance that does not compromise ultimate development.
- Larger, two storey or single level commercial/retail buildings in the remainder of the precinct that orientate to the street or laneway frontage, and car parking to be provided to the rear of the buildings.

Figure 3 - Multi Storey Mixed Use Building



Figure 4 - Two storey commercial/retail

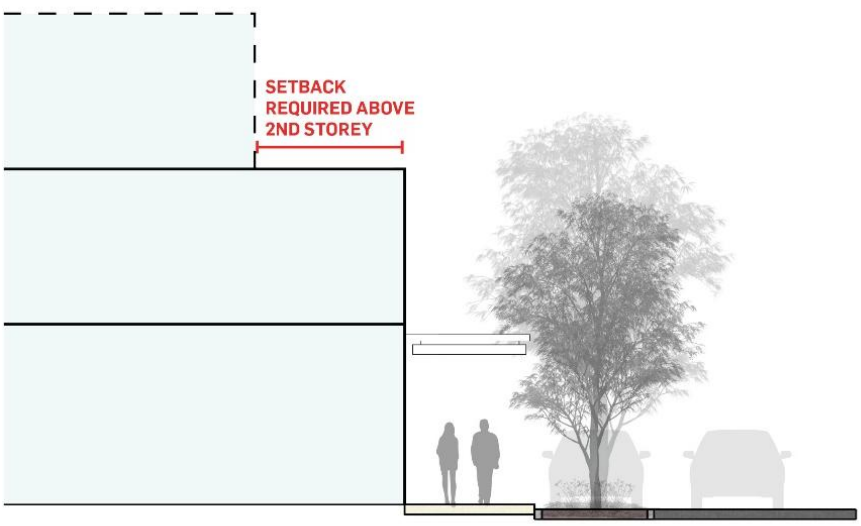


2.1.4. Development Requirements

2.1.4.1. Setbacks

- Default nil building street setback. Building setbacks may be supported where desirable to provide alfresco dining or similar activities that promote interaction between the internal use and public realm.
- Provide boundary to boundary development to maintain a consistent attached built form character along Carphin Drive.
- Rear setbacks to be considered based on the requirement for car parking and delivery services.
- Any level above 2 storeys is required to be set back 5.0 metres from the Carphin Drive boundary and 3 metres from Walcott Avenue boundary and the pedestrian link to the PTA carpark.

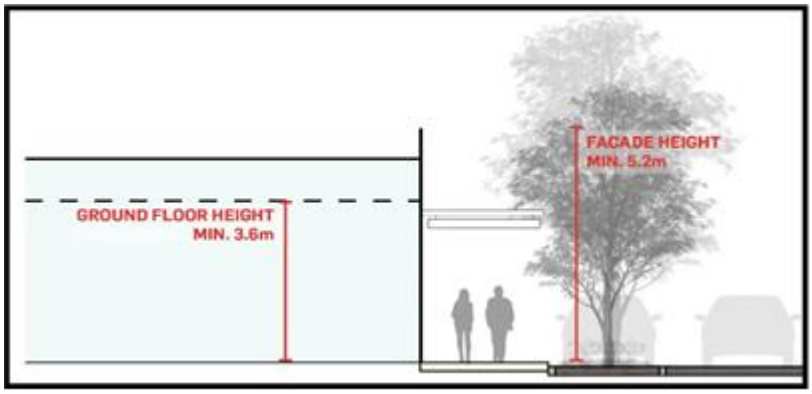
Figure 5 3rd Storey Setback



2.1.4.2. Building height

- Maximum building height shall be at the discretion of the Council and commensurate with a three storey building height.
- A building emphasis feature designed to reinforce the street corner, may exceed the maximum allowable height at the discretion of Council.
- Minimum ground floor to ceiling height of 3.6 metres.
- Minimum façade height of 5.2 metres to create a sense of enclosure for the pedestrian environment.

Figure 6 Ground Floor and Facade Heights



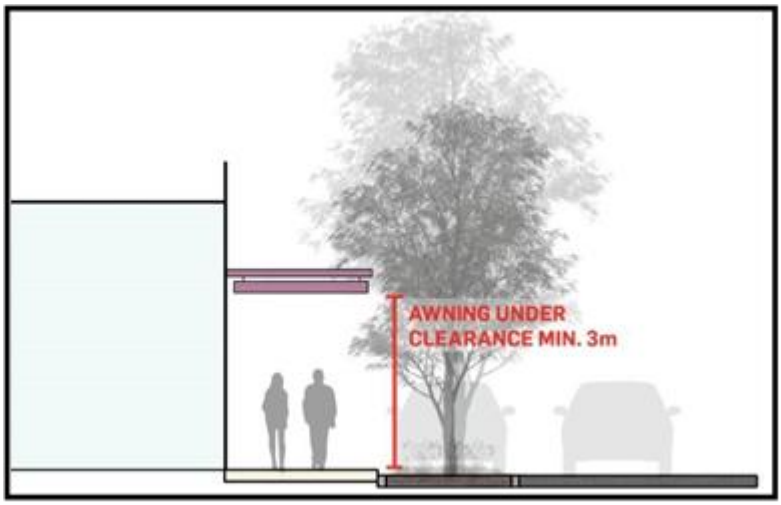
2.1.4.3. Building façades

- At least 80% of the building façade at street level to be maintained as an entry or window with clear glazing.

2.1.4.4. Awnings

- Provided along at least 80% of each building frontage facing a public street or the station square.
- Awnings to have minimum 3m under clearance and be wide enough to provide shelter to pedestrians without impeding surveillance.

Figure 7 Awning Clearance



2.1.5. Public Realm

2.1.5.1. Building Emphasis

- A building emphasis (architectural element) should be applied at the entrance to the main street (Carphin Drive) from the train station. This may be in the form of an architectural structure, public art or landscaped plaza.
- Provide an entrance to the Eglinton PSP area that connects the train station to the Main Street precinct that promotes movement and use of the space.
- A development application for the building emphasis is to be accompanied by a concept plan, architectural drawings, interfaces, address the visual landscape and demonstrate linkages with the train station, station square and the Main Street Precinct.

2.1.5.2. Station Square

- A public square is to be provided between the main access point to the station and the main street.
- The square shall have a minimum width of 25 metres and a minimum length of 30 metres.
- An active edge shall be provided along the northern and southern perimeter of the square to provide for activation and surveillance of the space.
- Abutting tenancies shall provide their primary pedestrian entrance from the square.
- Tenancies abutting both the square and main street may provide its primary entrance from the main street provided alfresco facilities and a secondary entry are provided along the square.
- Direct pedestrian connections across the square shall be provided between the station and Carphin Drive as well as pedestrian connections around the perimeter to provide a choice of route and optimise activation.
- Grade differences may be incorporated within the square subject to universal access being provided and level differences forming an integral part of the landscape design.
- Trees and landscaping shall be key elements within the square and utilised to provide a sense of enclosure around the square.
- Shade and shelter shall be provided through the placement of trees or other shade structures.
- A development application for the Station Square is to be accompanied by a concept plan, architectural drawings, landscaping treatments, and demonstrate how it meets the above points and the details outlined in Section 7, Part 2 of this document.

2.1.5.3. Station Interface

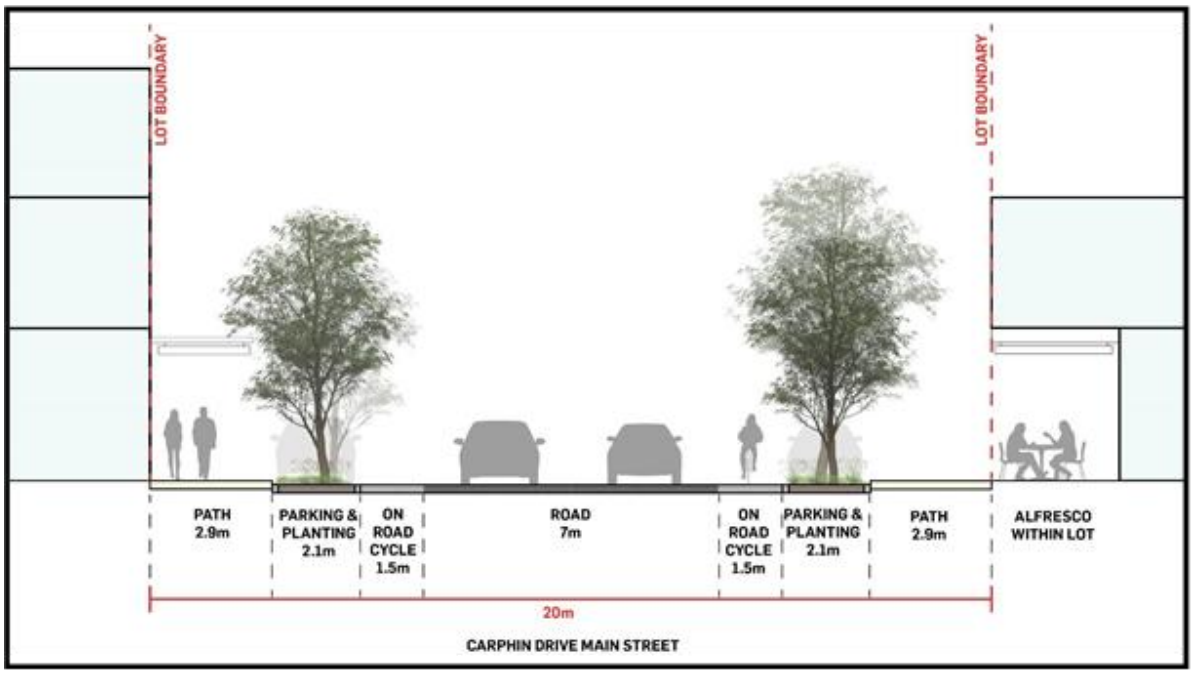
- All buildings and shop frontages are to orientate to the train station and surrounding streets (via a primary and secondary entry).
- Built form to address the station and surrounding streets to create visual interest and provide surveillance of the public realm.
- All roads, intersection, car parking and footpath treatments to be integrated and visually connected to the station infrastructure through colour, texture, and materials.
- High quality landscaping to provide amenity, weather protection and way-finding between the station and PSP.
- Public furniture and art is to be provided to create interest and unique sense of place.

2.1.6. Street Character and design

2.1.6.1. Carphin Drive

- Neighbourhood Connector A – accommodating, busses, dedicated on-street cycle lanes and parking
- Bus stops are normally in travel lane against kerb extensions in parking lane.
- Alfresco areas accommodated within private lot.

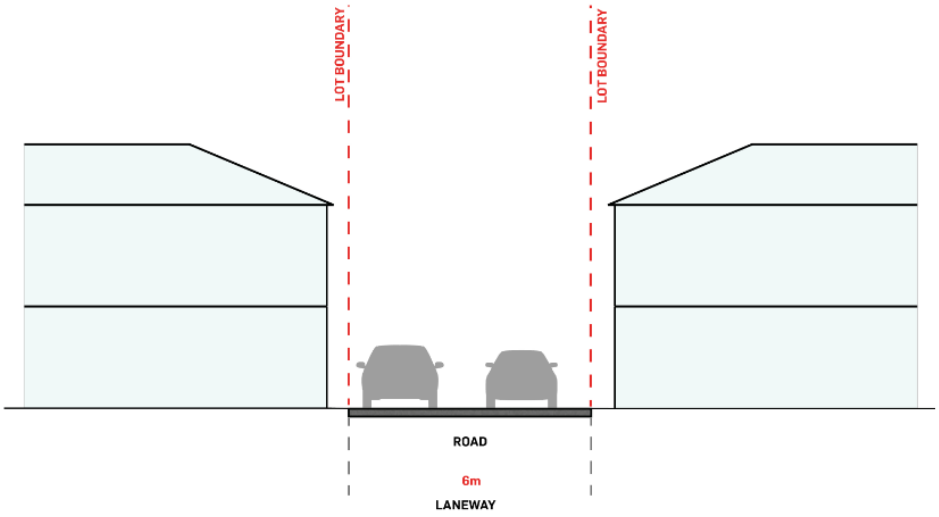
Figure 8 S1 Main Street Cross Section



2.1.6.2. Laneway at the Rear of Carphin Drive

- Laneway with a reserve width of 6.0m for two-way vehicle movement. Normally no parking with central-invert drainage.
- Laneway access to the rear of the tenancies facing Carphin Drive for delivery and staff access.

Figure 9 Laneway cross section (Laneway as per Neighbourhood Connector, Element 2, Page 18, LN 2009)



2.1.6.3. Accessway from Carphin Drive to PTA Carpark

- The public accessway linking Carphin Drive to the PTA carpark forms part of the Social/Pedestrian/Cycle Linkage system as identified in Agreed Structure Plan No.82. As outlined in ASP82, these connectors form a part of the overall green network and pedestrian/cycle movement network, accordingly this connection should be a minimum with of 10m.
- Where there is abutting built form, this is required to include continuous cover for pedestrians, or where no built form is proposed, planting should occur on both sides of the shared path.

Figure 10 Cross Section Including Abutting Built Form

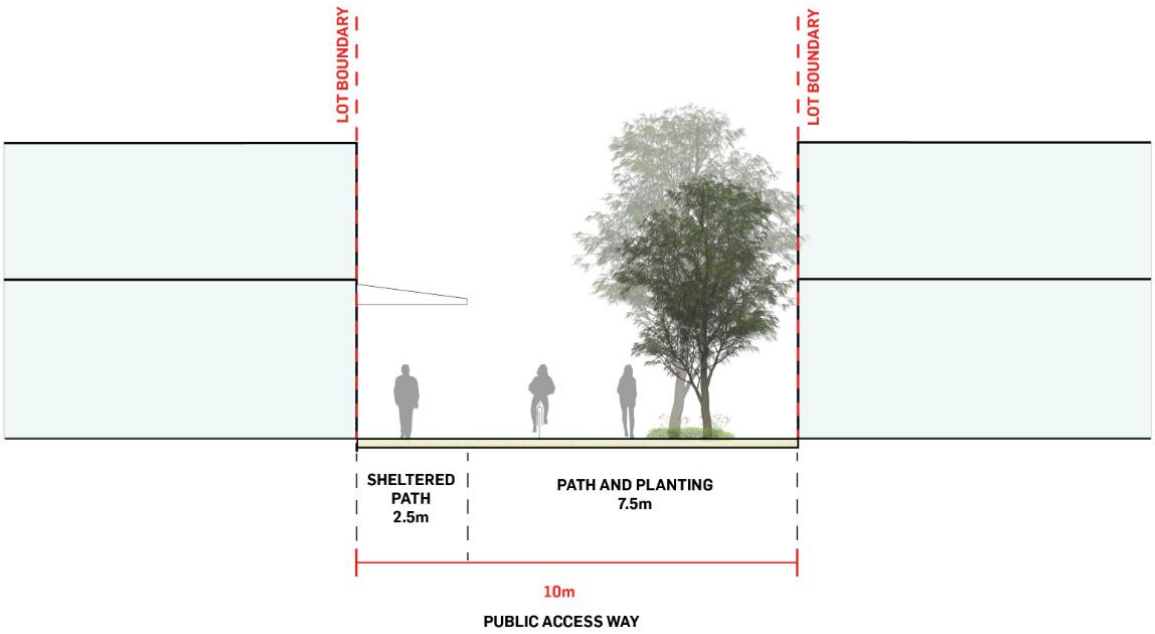
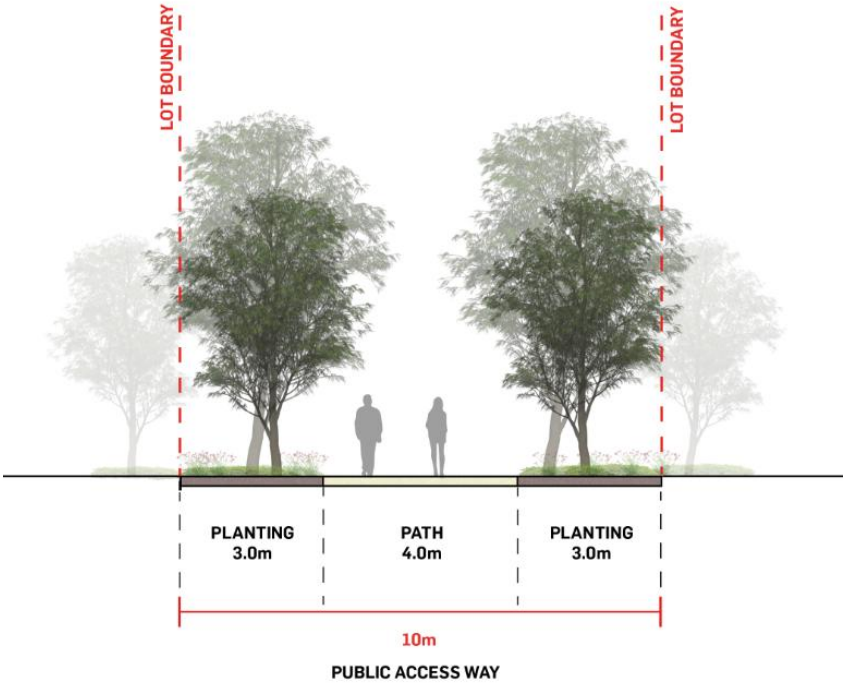


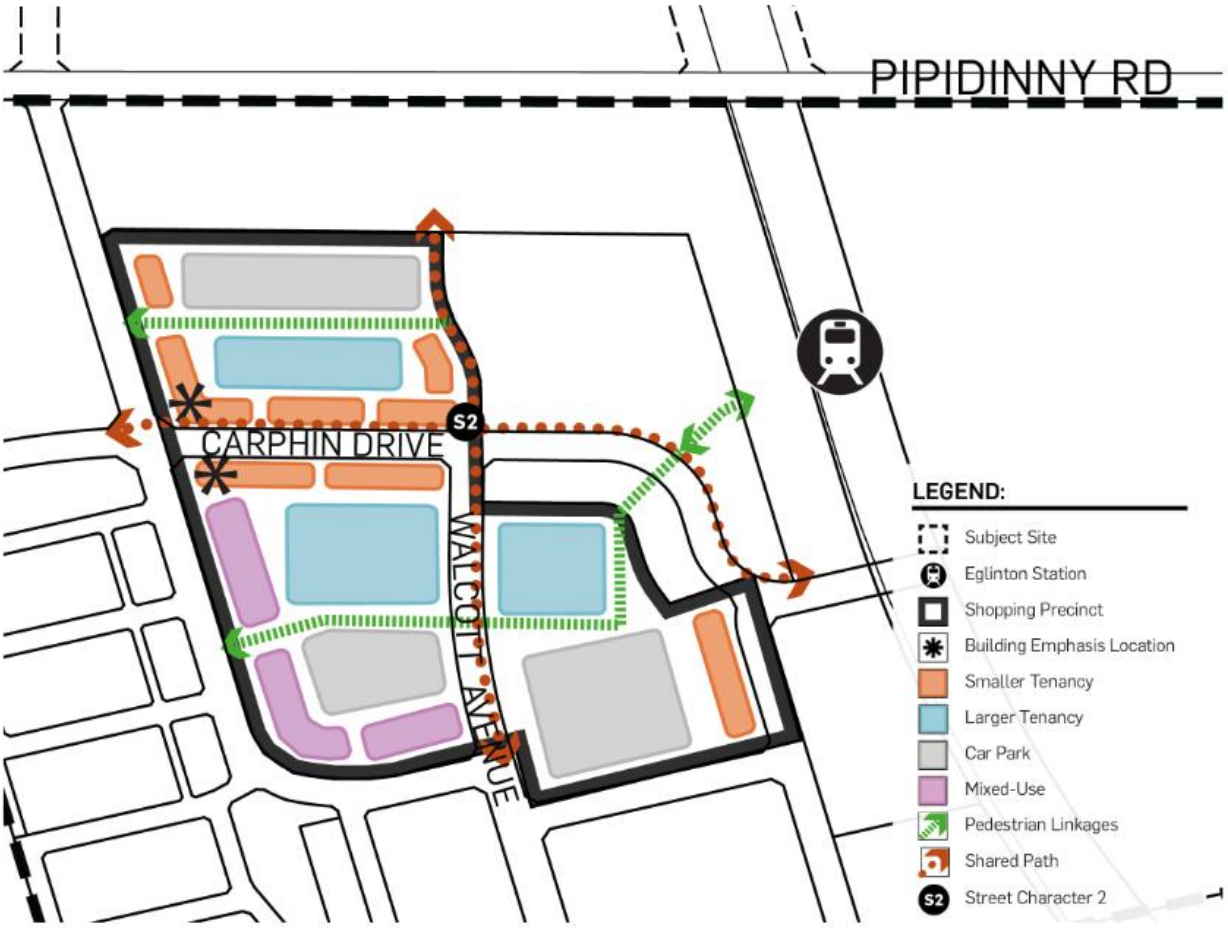
Figure 11 Cross Section with Landscape Treatment



2.2. PRECINCT 2 – SHOPPING PRECINCT (P2)

The shopping precinct adjoins the Main Street Precinct and will accommodate a mix of retail and commercial uses in a shopping centre environment.

Figure 12 – Precinct 2 – Shopping Precinct Principles (P2)



2.2.1. Precinct Objectives

The objectives of the Shopping Precinct are to:

- Provide a convenient district shopping centre environment.
- Provide for development which activates Carphin Drive.
- Provide safe and pleasant connections to the Business and Residential precincts.
- Facilitate residential development to maximise density within 400m of the train station. Land Use
- Uses to be generally consistent with the Commercial zone of DPS2.
- Preferred uses along Carphin Drive include a mix of speciality retail shops, small bars, cafes, restaurants, convenience stores, pharmacies at ground level, and commercial use such as professional services and small businesses, or shop top housing on upper levels.
- The mix of uses to ensure pedestrian activation of Carphin Drive throughout the day and evening, and car based uses are generally not supported.
- Smaller tenancies preferred along Carphin Drive, and larger tenancies for retail and commercial preferred behind Carphin Drive.
- Residential land uses should not be supported or encouraged at ground floor when directly fronting Carphin Drive.

- Residential ground floor uses permitted within the remainder of the Shopping Precinct provided such units can be retrofitted to commercial uses in the future.
- Mixed use development is encouraged with commercial at ground floor and residential above. Residential development should generally be undertaken at a density of R100 as per the PSP.

2.2.2. Building Typology

- Two to three storey mixed use buildings to be provided to Carphin Drive to create an active street frontage. Narrow continuous building format is to be provided at the ground floor to maximise tenancy opportunities and mix of uses. Upper floors to contain a mix of commercial and business services, or top shop residential development.
- Single storey retail (with a two storey façade) may be provided in the interim provided it does not compromise the envisaged ultimate development outcomes.
- Larger, two storey or single level commercial/retail buildings can be provided in the remainder of the precinct. Buildings to be oriented to the street or laneway, with carparking areas provided at the rear of the buildings.



2.2.3. Development Requirements

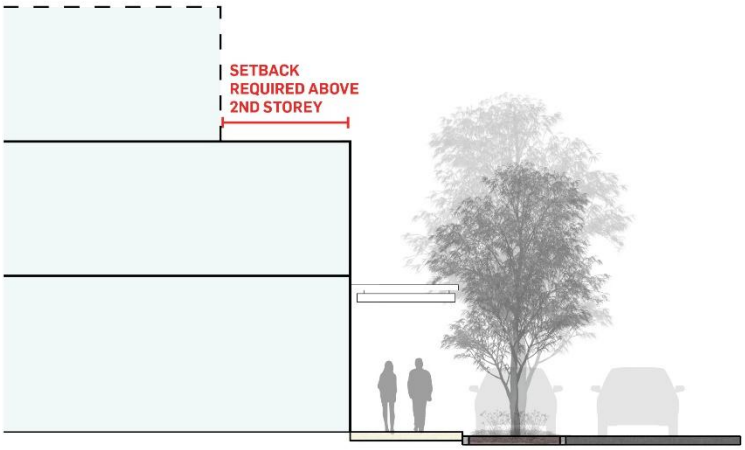
2.2.3.1. Setbacks

- Default nil building street setback. Building setbacks may be supported where desirable to provide alfresco dining or similar activities that promote interaction between the internal use and public realm.
- Provide boundary to boundary development to maintain a consistent attached built form character along Carphin Drive.
- Rear setback to be considered based on the requirement for car parking and delivery services.
- Any level above 2 storeys is required to be set back 5.0 metres from the Carphin Drive boundary and 3.0 metres from Walcott Avenue boundary and the pedestrian link to the PTA carpark.

2.2.3.2. Building Height

- Building height shall be at the discretion of the Council. Heights shall be subject to considerations such as overshadowing, landmark or gateway status and the impact on important views and view corridors.
- Minimum ground floor to ceiling height of 3.6 metres. Minimum façade height of 5.2 metres to create a sense of enclosure for the pedestrian environment.
- Maximum building height of two storeys at the street interface. Additional storeys may be supported where setback further to create a clear separation of building forms and to not detract from pedestrian scaled street environment, solar access and view lines.
- Mixed use is intended to be developed with commercial at the ground floor and 2-3 storeys of apartment development

Figure 13- Upper floor setbacks



2.2.3.3. Building facades

Carphin Drive

- Building façades to maximise building articulation, including 70% glazing (with at least 50% of glazed area unobscured) at ground floor and entrances directly accessible and visible from the street or public realm.
- Building frontages to be continuous where possible. Exceptions include where desirable to provide for access or other public spaces and facilities.

Non Carphin Drive

- Building façades to maximise building articulation, including 60% glazing (with at least 40% of glazed area unobscured) at ground floor and entrances directly accessible and visible from the street or public realm.
- Building frontages to be continuous where possible. Exceptions include where desirable to provide for access or other public spaces and facilities.

2.2.3.4. Awnings

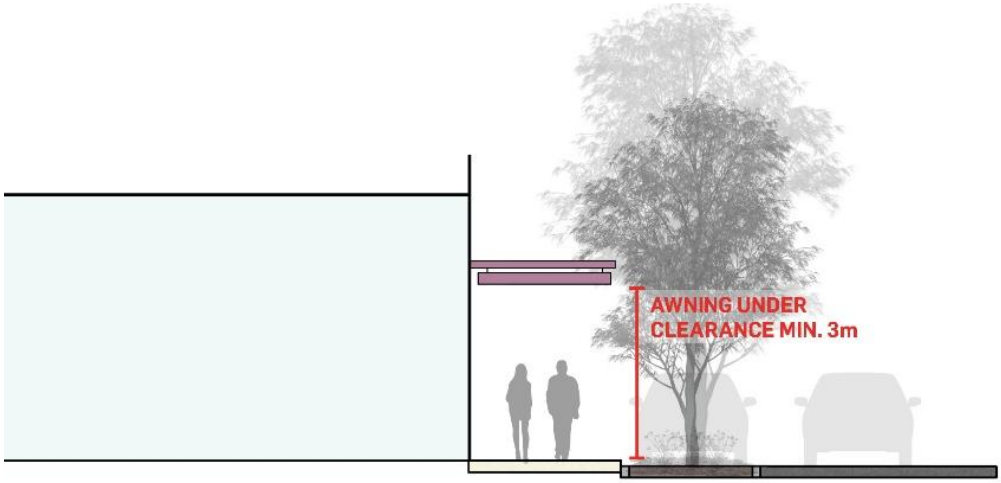
Carphin Drive

- Awnings provided along at least 80% of each building frontage facing Carphin Drive
- Awnings to have minimum 3m under clearance and be wide enough to provide shelter to pedestrians without impeding surveillance.

Non Carphin Drive

- Awnings provided along at least 60% of each building frontage.

Figure 14 - Awning Clearance



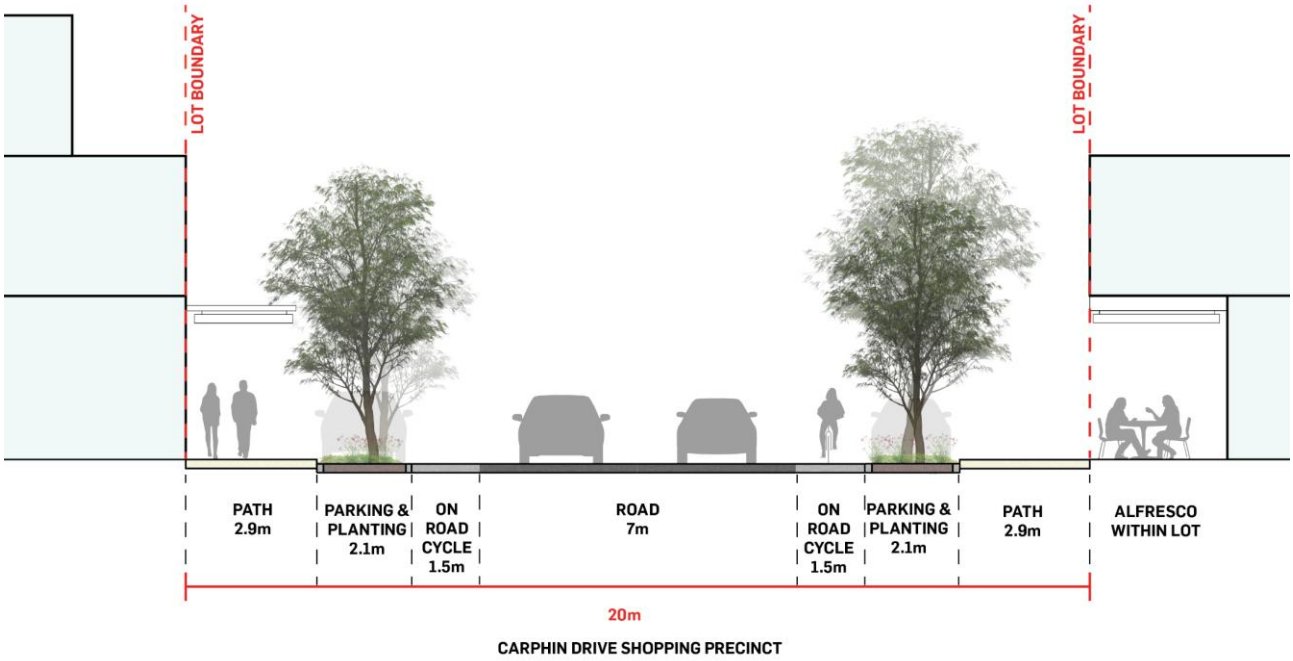
Building Emphasis

- A building emphasis (architectural element) should be applied at the western entrance to the Shopping Precinct on Carphin Drive. This may be in the form of an architectural structure or public art.

2.2.4. Street Character and Design

Carphin Drive within the Shopping Precinct will be an extension of the main street with commercial buildings fronting both sides of the street. Mixed-use will accommodate commercial and residential uses within an urban street environment and centre core will accommodate a wide range of commercial uses as well as carparking areas.

Figure 15 Street Character – Carphin Drive Shopping Precinct



2.3. PRECINCT 3 – RESIDENTIAL PRECINCT (P3)

This precinct will be primarily for residential purposes, with a mix of single and grouped dwellings.

Figure 16 – Precinct 3 – Residential Precinct Principles (P3)



2.3.1. Precinct Objectives

The objectives of the Residential Precinct are to;

- Provide for a diverse range of residential development, designed in accordance with the Residential Design Codes, DesignWA, and City of Wanneroo Local Planning Policies.
- Higher densities of R60 and R80 to be provided in areas of high amenity, including within 800 metres of the train station and around public open space.
- Provision of a site for retirement living.
- The built form will present an appropriate interface to Marmion Avenue and Eglinton Drive, considering acoustic treatment and will overlook public open space to increase amenity and passive surveillance.

2.3.2. Land Use

Uses to be generally consistent with the Residential zone of DPS2.

2.3.3. Building Typology

Consistent with the density range proposed, a variety of building typologies are intended to be developed within the PSP.



- Single Residential - The R40 coded lots are proposed to be primarily developed as conventional single residential front loaded lots with an average lot size of 220sq.m where lots could range from 8.5m x 27.5m and 12.5m x 20m.
- Terrace Housing R60 – The R60 coded lots are intended to be developed with terrace housing on lots with an average size of 150sq.m with access either from a laneway or front loaded. Where laneway access is provided lots may be developed as narrow frontage lots 6m x 25m, or when front loaded a wider frontage of 7.5m x 20m is required to accommodate a double garage. Front loaded terrace housing of 6.0m will require tandem garages. It is intended that the terrace housing will be 2-3 storeys in height.
- Terrace Housing R80 – The R80 coded site directly abutting the open space is intended to be developed with front loaded terrace housing with an average lot size of 120sq.m and lots in the order of 6.0m x 20.0m or 7.5m x 15m. Front loaded terrace housing of 6.0m will require tandem garages and are intended to be 2-3 storeys in height.
- Apartments R80 – The multi-unit apartment site located on Walcott Avenue is intended to be developed with a 3-4 storey apartment development accommodating in the order of 70-80 apartments.
- Residential Retirement Living – The retirement living site is coded R80 and it intended to be developed with approximately 280-290 independent living units.

2.3.4. Development Requirements

All residential development is to be in accordance with SPP7.3 Residential Design Codes.

2.3.5. Retirement Living

- Prior to any subdivision and/or development further planning is undertaken consistent with the WAPC's Draft Position Statement Residential Aged Care and is to address the following:
  - compatibility and integration with the streetscape, interface with Precinct 2, and
  - noise mitigation relative to regional roads.
- Built form is to address building height, bulk and scale, setbacks, open space, access, parking, landscaping, servicing and drainage, visual privacy, solar access and other relevant development requirements
- Residential development should be oriented external to the site, including fronting Marmion Avenue and Eglinton Drive to provide passive surveillance to street edges.

2.3.6. Public Realm

- Landscaping is required along Marmion Avenue and Eglinton Drive, and noise walls are not permitted.
- Residential development adjacent to open space shall be oriented to provide passive surveillance.
- All fencing to internal streets should be at least 50% permeable to enable passive surveillance. Exceptions may be made where significant headlight penetration from passing vehicles may be encountered.
- Bin storage shall be contained and screened to minimise visual impact on adjacent properties and internal streets.
- Detailed Acoustic Assessments shall be undertaken for any residential development fronting Marmion Avenue, Eglinton Drive and Pipidinny Road (if required) at the development application stage (consistent with the Acoustic Assessment at Appendix F), and the determination conditioned accordingly, noting that noise walls or noise bunding are not permitted.

2.3.7. Street Character and Design

Given the range of density of development proposed within the Eglinton PSP, together with the range of land use interface, a number of Street Character cross sections have been prepared for the Residential precinct.

Figure 17 Street Character S3 – Retirement Living and Commercial Interface

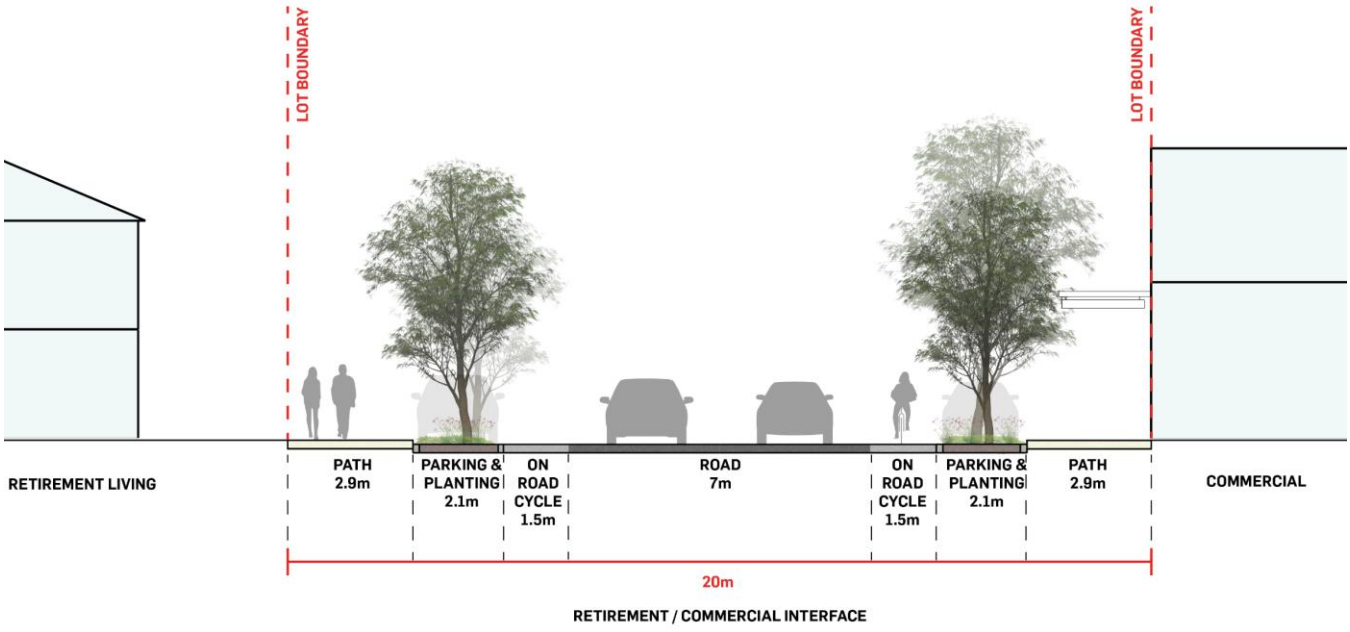


Figure 18 Street Character S4 – Retirement Living Entry at Carphin Drive with Open Space

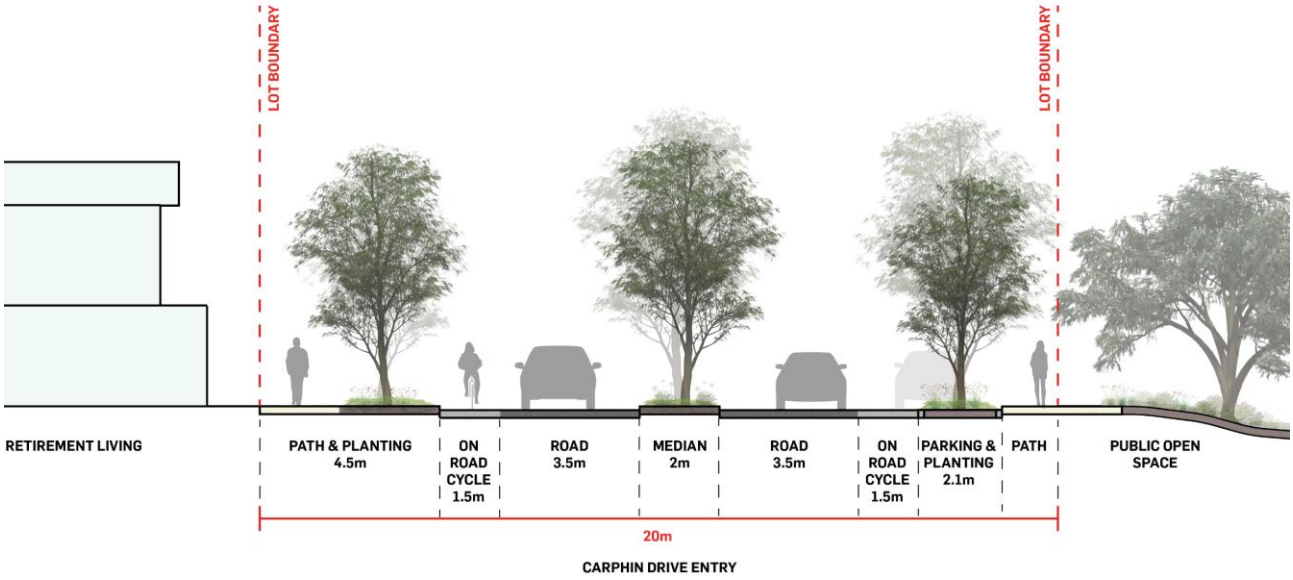


Figure 19 Street Character S5 – Residential R60 with Mixed Use Interface

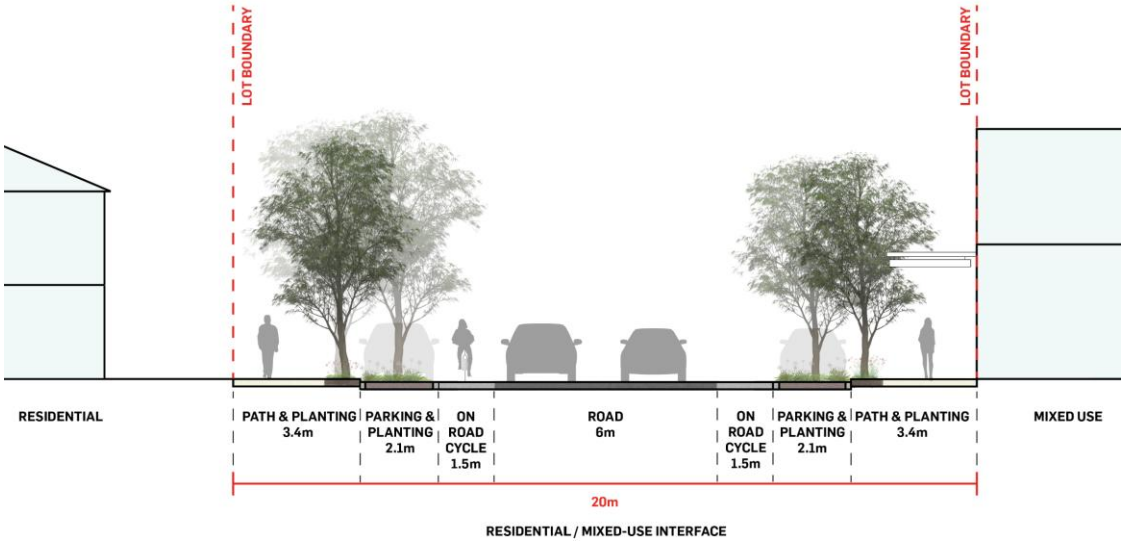


Figure 20 Street Character S6 – Residential to Residential Interface

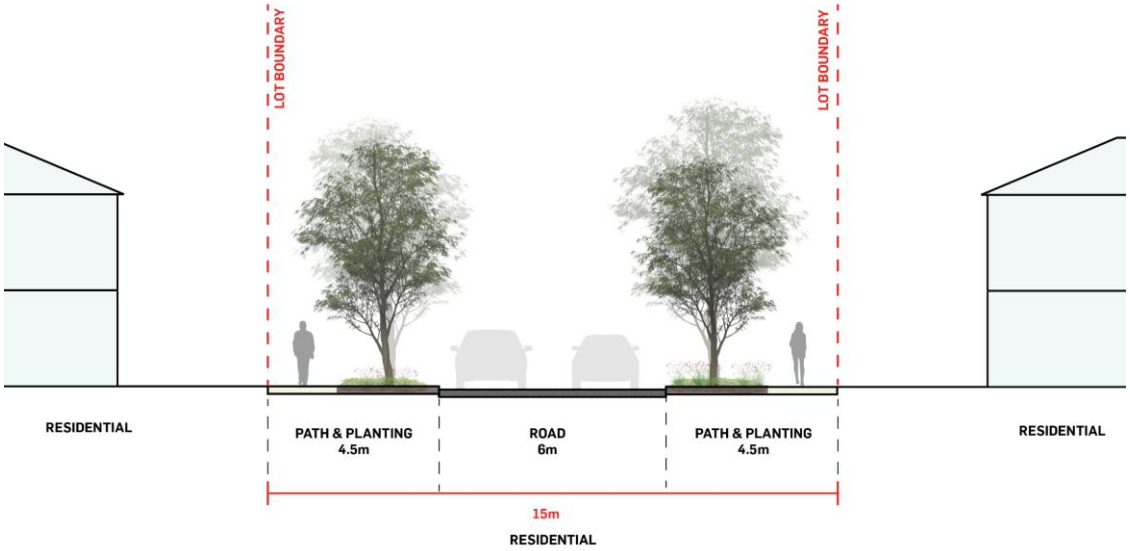
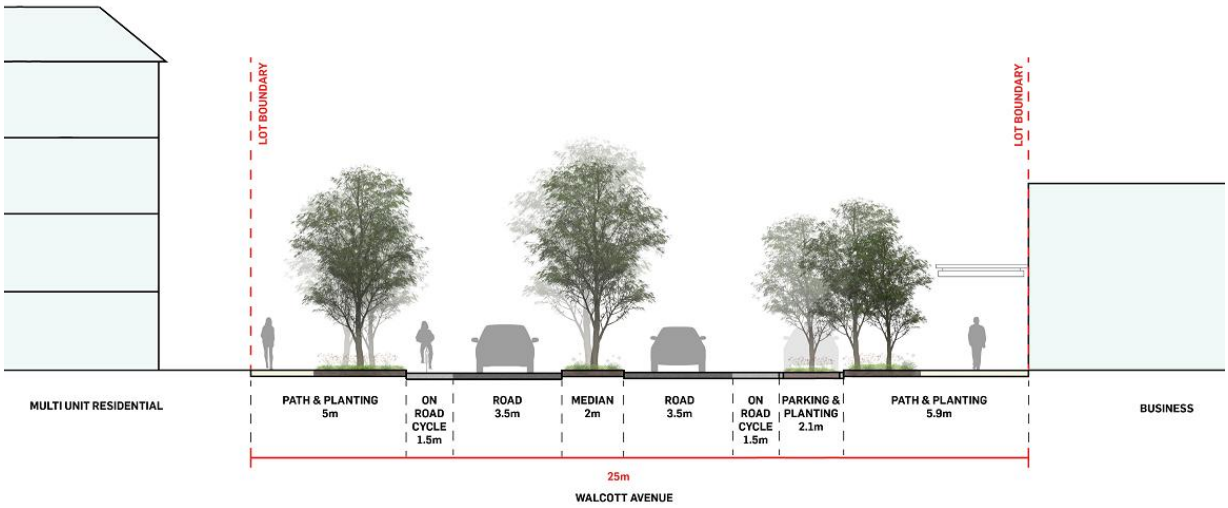


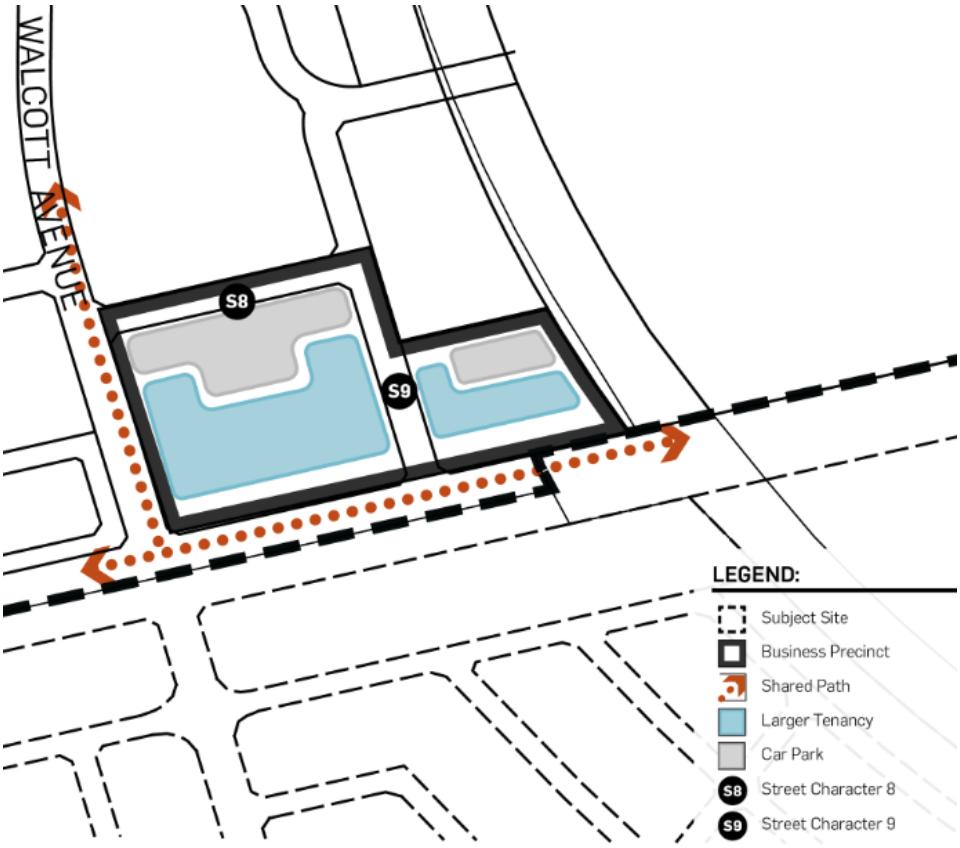
Figure 21 Street Character S7 – Walcott Avenue Multi Unit Residential and Business Interface



2.4. PRECINCT 4 – BUSINESS PRECINCT (P4)

This precinct will predominantly accommodate a mix of car-based retail uses and carparking, drawing such uses away from the main street environment.

Figure 22 – Precinct 4 – Business Precinct Principles (P4)



2.4.1. Precinct Objectives

The objectives of the Business Precinct are to:

- Provide for car-based uses away from the main street.
- Provide development that is attractive to Eglinton Drive.
- Provide for development that is also accessible for pedestrians and linked to the Shopping Precinct.
- Ensure land uses are appropriately located to reduce the potential for land use conflict, in particular the interface with the Residential Precinct.
- The built form will provide appropriate presentation to the 'high speed' environment of Eglinton Drive. Some non-retail commercial uses may also be accommodated in this precinct.

2.4.2. Land Use

Land Use within the Business Precinct to be generally in accordance with the Commercial Zone.

2.4.3. Building Typology

- The Business Precinct allows the retention of large lots in single ownership together with the diversity of land uses while demand for higher density residential development is limited.
- In the longer term, there is the opportunity for the Business Precinct to be redeveloped for mixed use development including additional residential development within the 400m catchment of the train station.

2.4.4. Development Requirements

2.4.4.1. Setbacks

- Nil building street/reserve setback is permitted. Vehicle access and parking may be sited between the street and built form where adequately screened from view, or landscaped, so as to complement the amenities of adjacent streets and surrounding development.
- For development fronting Eglinton Drive building setbacks up to 10 metres may be permitted for the purposes of providing landscaping, vehicle access, circulation and queuing areas, but not vehicle parking. Vehicle access, queuing and parking areas shall otherwise be sleeved behind buildings and designed so as not to visually dominate street frontages or other public spaces.

2.4.4.2. Building Height

- Building height shall be at the discretion of the City of Wanneroo.
- For development fronting Eglinton Drive Maximum building heights to achieve visibility from passing trade on integrator roads while maintaining solar access, and view lines that do not detract from the amenities of surrounding development.

2.4.4.3. Building facades

- Building façades to incorporate variations in depth, height, colour, texture and/or materials as well as openings (windows and doors) where practicable to create interest and surveillance and avoid visual monotony and blank walls to the public realm.
- External fixtures (eg. utilities, plant, equipment, infrastructure) are to be a similar colour to the building to which they are affixed and adequately screened so as not to be visually obtrusive when viewed from the road reserve or public realm.
- Building façades, including entries, glazing and signage, to incorporate building articulation and be oriented toward and clearly visible from the street where practicable to create interest and surveillance and avoid blank walls and inactivity to the public realm.

2.4.5. Street Character and Design

Figure 23 Street Character S8 Business Precinct interface with Shopping Precinct

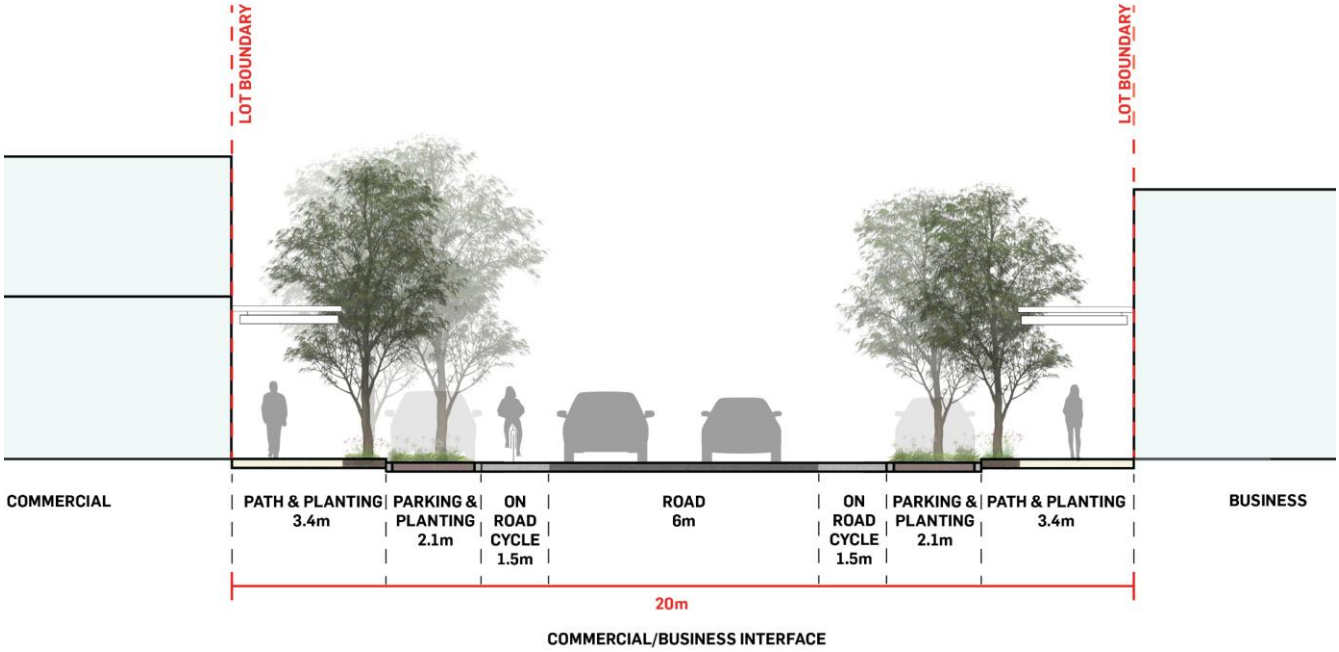
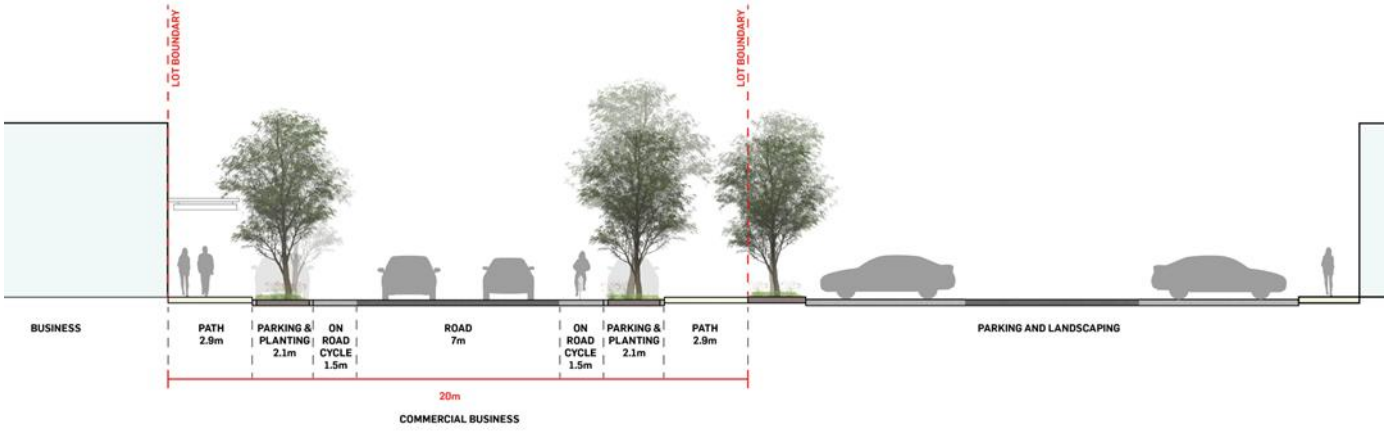


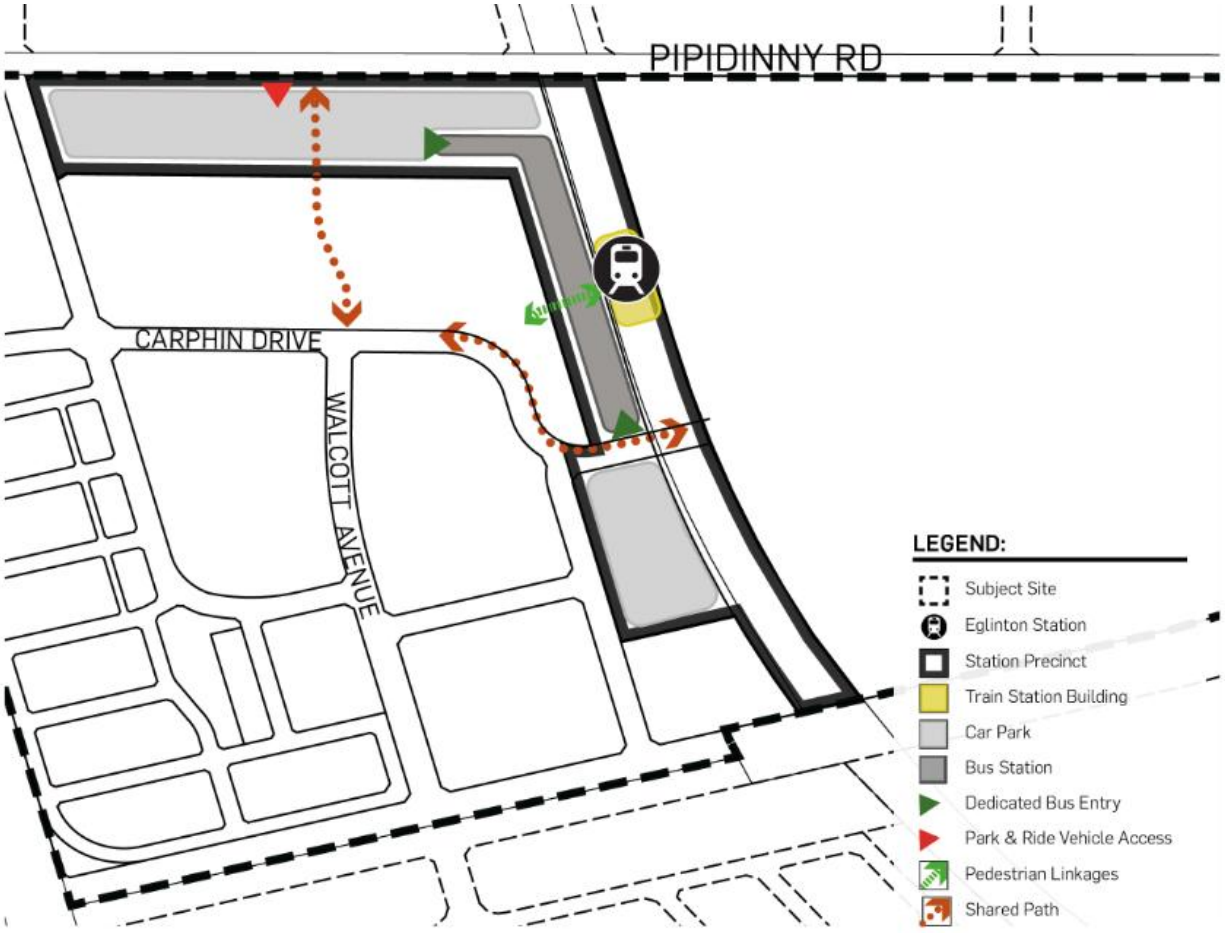
Figure 24 Street Character S9 Business Precinct interface with Business Precinct



2.5. PRECINCT 5 - STATION PRECINCT (P5)

The Station Precinct designates an area to be set aside for public transport infrastructure associated with the Eglinton train station.

Figure 25 – Precinct 5 – Station Precinct Principles (P5)



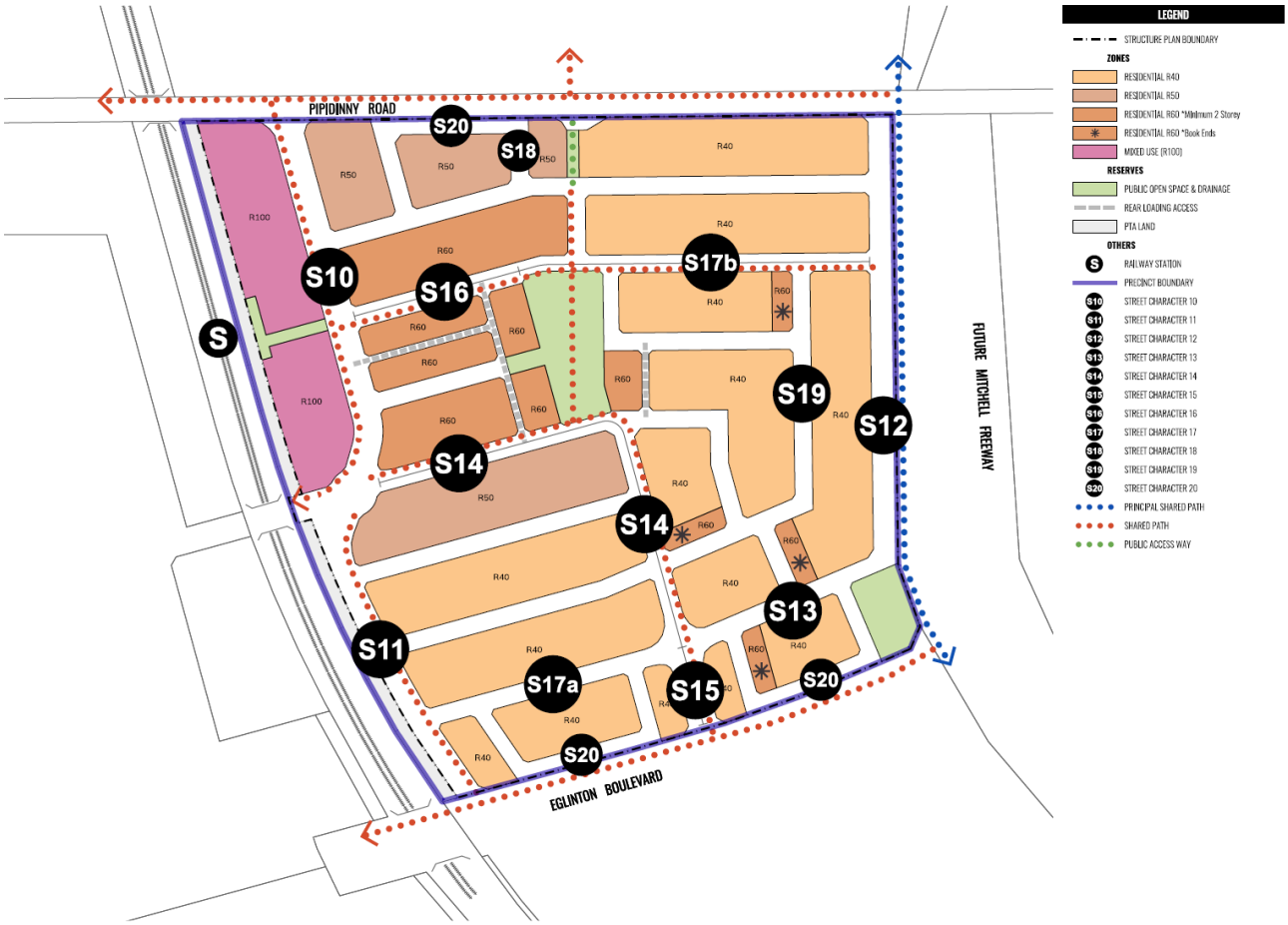
The Station Precinct Principles Plan reflects the detailed plan PTA has prepared in conjunction with METRONET. Specifically, the area includes:

- A bus interchange orientated north south, located directly adjoining the train station.
- A kiss and ride facility.
- Park and ride facilities – with 400 bays provided as part of the initial stage (located to the north of the PSP) and an additional 600 bays, totalling 1,000, as part of the ultimate stage, located to the south adjoining the Railway reserve.
- Shared path and pedestrian linkages both north south and east west to the train station.

2.6. PRECINCT 6 –RESIDENTIAL EAST PRECINCT (P6)

This precinct will be primarily for residential purposes, with a mix of single, grouped and multiple dwellings and opportunities for non-residential uses next to the station.

Figure 26 – Precinct 6 – Residential East Precinct Principles (P6)



2.6.1. Precinct 6 Objectives

The objectives of the Residential Precinct P6 are to:

- Provide for a diverse range of residential development, designed in accordance with the Residential Design Codes, State Planning Policy 7.2 Precinct Design, and City of Wanneroo Local Planning Policies.
- R100 mixed use development to be provided in areas close to the railway station.
- Densities of R50 and R60 to be provided in the core of the precinct with proximity to the railway station.
- All other areas are nominated with a R40 density with some R60 areas being nominated on specific “book ends”.
- A mix of building typologies is to be provided, including 1 and 2 storey single homes, terrace and row homes, and 3–4 storey multiple dwellings.
- To provide a legible, connected and “green” movement network connecting the precinct to public open spaces, the railway station and the commercial and residential precincts west of the railway.
- The built form will present an appropriate interface to Eglinton Boulevard and Pipidinny Road, considering acoustic treatment, traffic volumes and landscaping, and interface to public open spaces and the plaza to increase amenity and passive surveillance.

- Development is to take advantage of key views, sight lines and public spaces to emphasise the precincts character.

2.6.2. Land Use

Uses to be generally consistent with the Residential zone of DPS2, except for the Mixed Use zone.

2.6.2.1. Mixed Use Zone

Preferred non-residential land uses for the Mixed Use zone include:

- Convenience store
- Lunch Bar
- Restaurant/Café (small)
- Small bar
- Shop
- Office
- Consulting room

Non-residential uses are to provide services and amenities to the local community, complementing the retail and commercial land uses intended to be developed within the Eglinton District Activity Centre core west of the railway.

Where provided, non-residential uses are to be located as close as practicable to the railway station and plaza. Non-residential uses are to provide a primary orientation to the plaza, including a pedestrian entrance to and from the plaza, and an active frontage that supports passive surveillance. Residential buildings with no active uses on the ground floor can be contemplated further away from the station and plaza.

2.6.3. Building Typology

- R100/Mixed Use - The built form is to be a mix 3 – 4 storey multiple dwelling buildings. 2 storeys multiple dwellings can also be contemplated subject to the development aligning with the applicable built form typology, and further away from the station and plaza. Activation on the ground floor is encouraged with uses other than residential to provide opportunities close to the station.



- R60 - The built form is intended to be a minimum 2 storey terrace housing with an urban aesthetic on both sides of the central green link, abutting the bus route and where directly abutting public open space. Alternatively, low rise apartment buildings may be provided. Single storey-built form can be contemplated in the R60 “book ends” locations only.



- R50 - The built form is intended to be a mix of 1-2 storey single residential front or rear loaded dwellings on various lot sizes and frontages, including terrace housing, with an urban aesthetic. Dwellings abutting the pedestrian access way are to be 2-storey when required to provide passive surveillance from window openings and living spaces.



2.6.4. Subdivision and Development Requirements

2.6.4.1. General

- All residential development is to be in accordance with the Residential Design Codes Volume 1 and 2 and in accordance with the building typologies in this PSP.
- Subdivision must accord with the R-Code designations and dwelling targets.
- Subdivision is to deliver the cumulative dwelling target of 892 dwellings across the whole eastern precinct, to be progressively achieved through delivery of the dwelling targets of each sub-precinct set out in the PSP (refer to Part Two Explanatory Section, Section 5.3).

2.6.4.2. Special Development Controls

Mixed Use

- The net lettable area of any individual non-residential tenancy should not exceed 300sqm.
- The provisions in the PSP take primacy over the local planning framework and where
- inconsistencies arise; the PSP prevails.

R60 lots

- A minimum two-storey built form is required.

Dual frontage lots

The below provisions apply to dual road frontage lots and seek to ensure the layout and orientation of dwellings are designed to have a physical and visual relationship with both the primary and secondary street.

- Vehicular access, including garages to be from the lower order road, and pedestrian access to be from the higher order road;
- Fencing to the higher order road frontage is permitted to incorporate solid fencing to a height of 1.2 metres but must be visually permeable between 1.2 - 1.8 metres and/or incorporate visually permeable elements;
- Dwelling orientation is to address both the primary and secondary street, with windows, doors and landscaping to address both frontages;
- Building form and height, rooflines, materials, articulation and colour palette to provide
- a visual interest and frame the streetscape;
- Verges and setback areas (where applicable) to both road frontages will incorporate quality soft landscaping and be provided with one street tree per dwelling to ensure a high quality streetscape outcome; and
- Verges to Eglinton Boulevard to be landscaped by the developer to present as an entry statement, define the arrival and sense of place for the area and soften the interface between the residential dwelling and Eglinton Boulevard.



Lots abutting POS/PAW

The below provisions apply to lots directly abutting Public Open Space and the Pedestrian Access Way and seek to ensure the layout and orientation of dwellings are designed to have a physical and visual relationship with the public realm.

- A minimum two-storey built form is to apply where required to provide passive surveillance from window openings and living spaces and to avoid thoroughfares being dominated by garage doors.
- Dwellings with rear laneway access will have their primary orientation towards the PAW/POS, however is to address both frontages and provide passive surveillance;
- Fencing to the POS/PAW frontage is permitted to incorporate solid fencing to a height of
- 1.2 metres but must be visually permeable between 1.2-1.8 metres;
- Building form and height, rooflines, materials, articulation and colour palette to provide
- a visual interest and frame the interface to the POS/PAW; and
- Verges and setback areas to road frontages (excluding laneways) will incorporate quality soft landscaping and be provided with one street tree per dwelling to ensure a high quality streetscape outcome.



Local Development Plans

Subdivision in areas subject to an R60 density and/or special development controls as shown on the Precinct Structure Plan Map requires a Local Development Plan to refine the above-mentioned provisions in order to deliver the desired built form outcomes and respond appropriately to the specific lot products proposed. A Local Development Plan will form a requirement under a condition of subdivision approval to ensure the built form outcomes for specified locations and specific lot typologies can be delivered for single houses/grouped houses.

2.6.5. Public Realm

2.6.5.1. Plaza

- A public plaza open space area is to be provided between the main access point to the station and Precinct 6, generally as provided for on the PSP Map (Plan 1).
- Built form along the northern and southern perimeter of the plaza is to provide for passive surveillance of the space and is encouraged to include a pedestrian entrance to/from the plaza.
- Strong pedestrian connections across the plaza to be provided between the station and the eastern boundary of the plaza.
- Trees and landscaping to be key elements within the plaza and utilised to provide shade
- and a sense of place. Other shade structures can also be provided.

Figure 27 – Plaza Landscape Concept



2.6.5.2. Public Open Space / Pedestrian Access Way

- Development adjoining public open space and pedestrian access way is to be in accordance with the provisions in section 2.6.4.
- The design of public open space and the pedestrian access way is to be in accordance with the Landscape Plan and the further refined plans (Landscape Master Plan and Street Tree Plan) at subdivision stage.

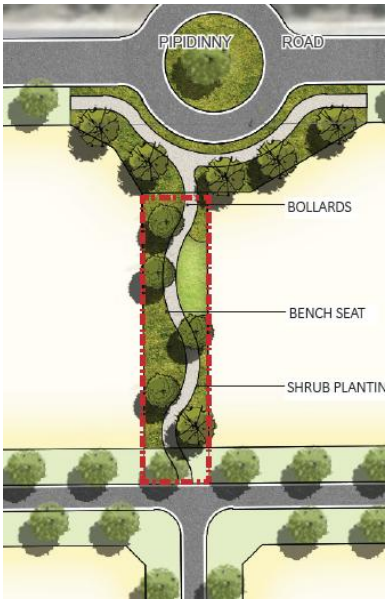
Figure 28 – Central POS Landscape Concept



Figure 29 – South Eastern POS Landscape Concept



Figure 30 – Pedestrian Access Way Landscape Concept



2.6.5.3. Interfaces requiring specific landscape treatments

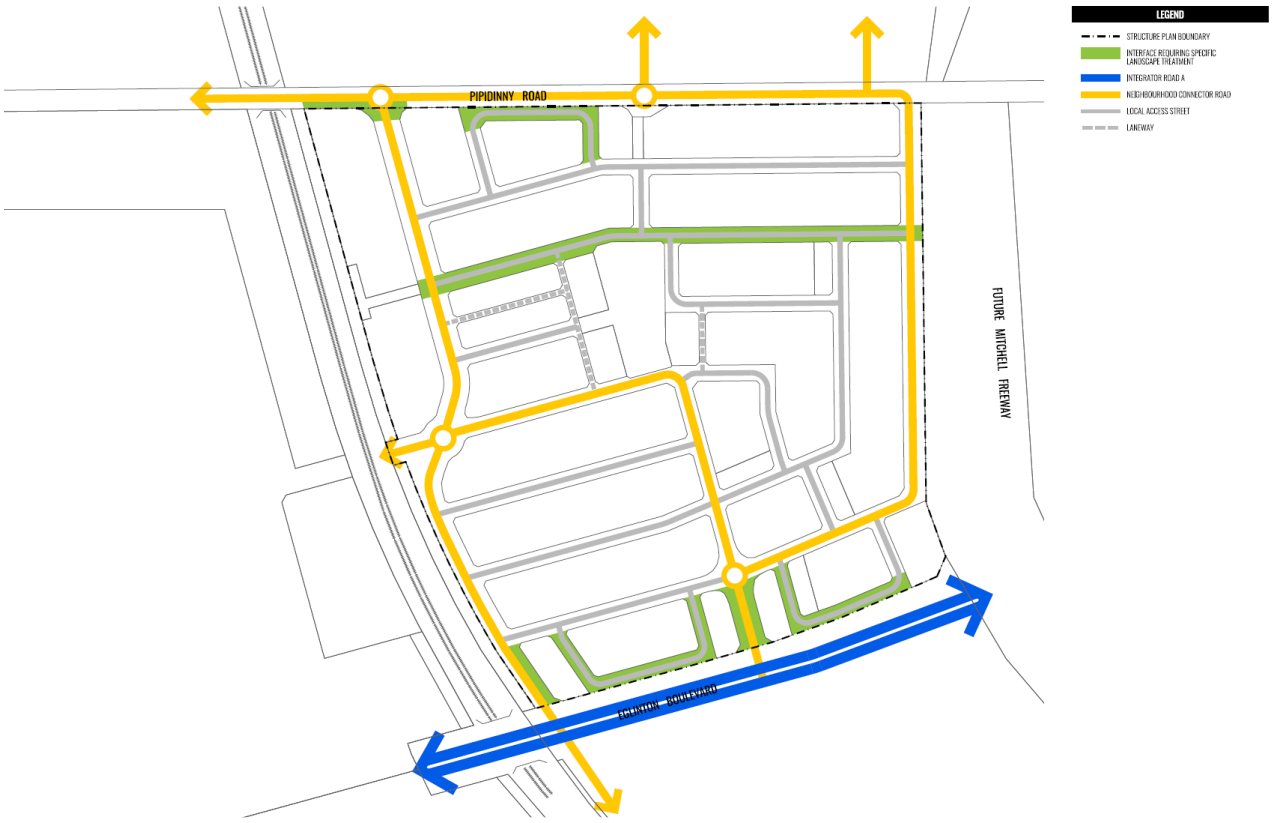
Interfaces to Eglinton Boulevard and Pipidinny Road (as shown on Figure 31) are to be landscaped to present as an entry statement, define the arrival and sense of place for the area and soften the interface between the residential dwelling and Eglinton Boulevard.

Interfaces for dual frontage lots and lots abutting POS/the PAW are to landscaped to ensure a high quality streetscape outcome. Refer to Section 2.6.4.

The central green street is to be landscaped to promote walkability and ensure a high quality streetscape outcome.

Cross sections and indicative imagery have been provided in Section 2.6.6 below.

Figure 31: Precinct 6 Landscape Interfaces



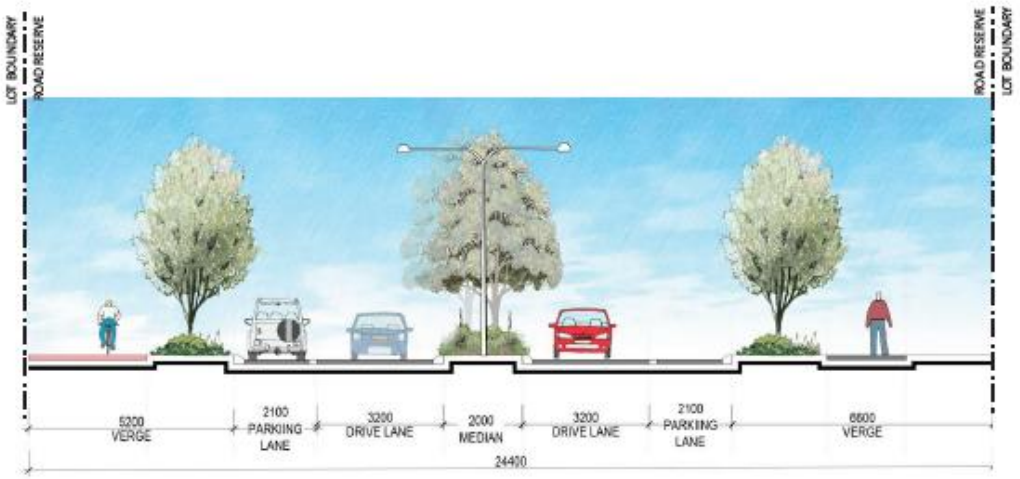
2.6.6. Street Character and Design

Given the range of densities and built form typologies proposed within Precinct 6, a number of street character cross sections have been prepared for key roads within the Residential East Precinct P6.

Street Character S10 – North Western North-South Neighbourhood Connector

- Neighbourhood Connector A at 24.4m in width

Figure 32 – Street Character S10 North Western North-South Neighbourhood Connector



Street Character S11 – South Western North-South Neighbourhood Connector

- Neighbourhood Connector A at 20m in width
- On-street parking will not be required allowing the road reserve to be reduced from that required by Liveable Neighbourhoods.

Figure 33 – Street Character S11 South Western North-South Neighbourhood Connector



Street Character S12 – Eastern North-South Neighbourhood Connector

- Neighbourhood Connector B at 20.5m in width.
- Widened eastern verge is provided to contain a portion of a future 20 metre wide Western Power easement relating to a future 132kV transmission line running parallel to the future Mitchell Freeway.

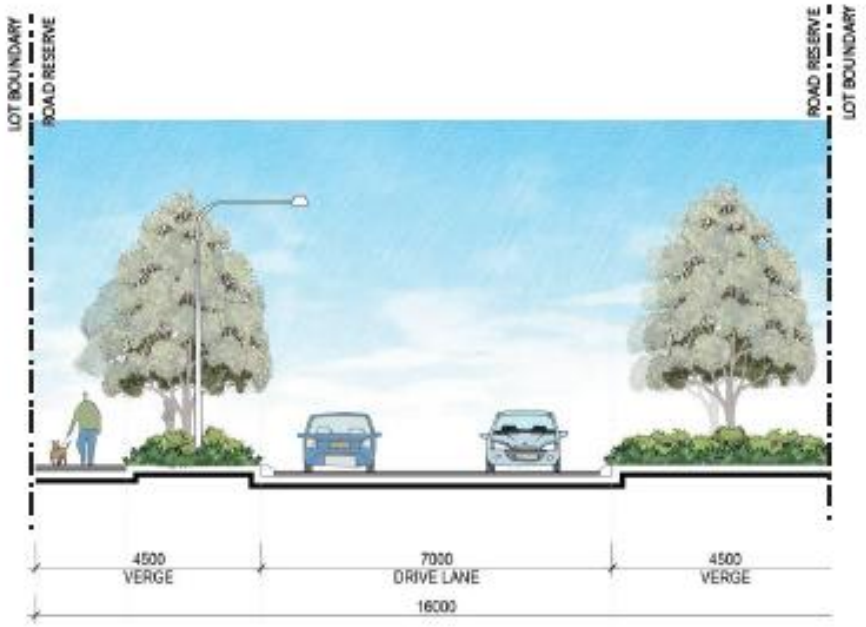
Figure 34 – Street Character S12 Eastern North-South Neighbourhood Connector



Street Character S13 – South Eastern East-West Neighbourhood Connector

- Neighbourhood Connector B at 16m in width, with no on-street parking

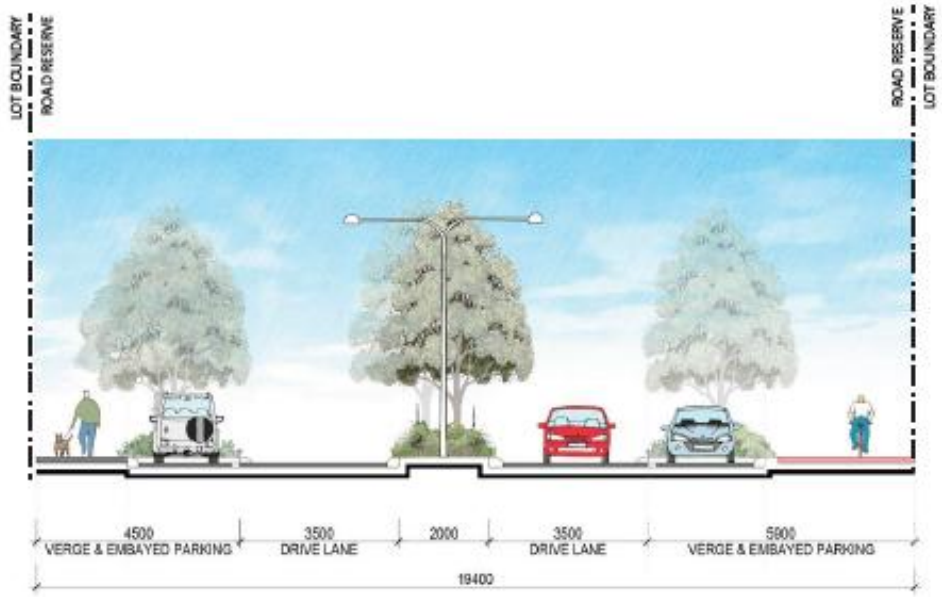
Figure 35 – Street Character S13 South Eastern East-West Neighbourhood Connector



Street Character S14 – Central Neighbourhood Connector

- Neighbourhood Connector B at 19.4m in width.

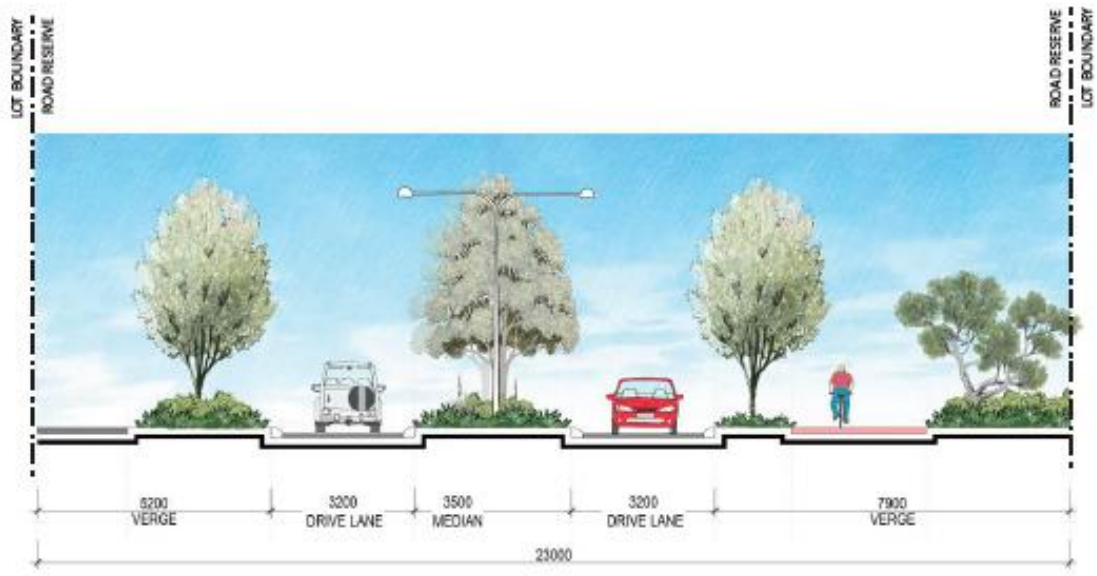
Figure 36 – Street Character S14 Central Neighbourhood Connector



Street Character S15 – South Central Neighbourhood Connector

- Neighbourhood Connector A at 23m in width.

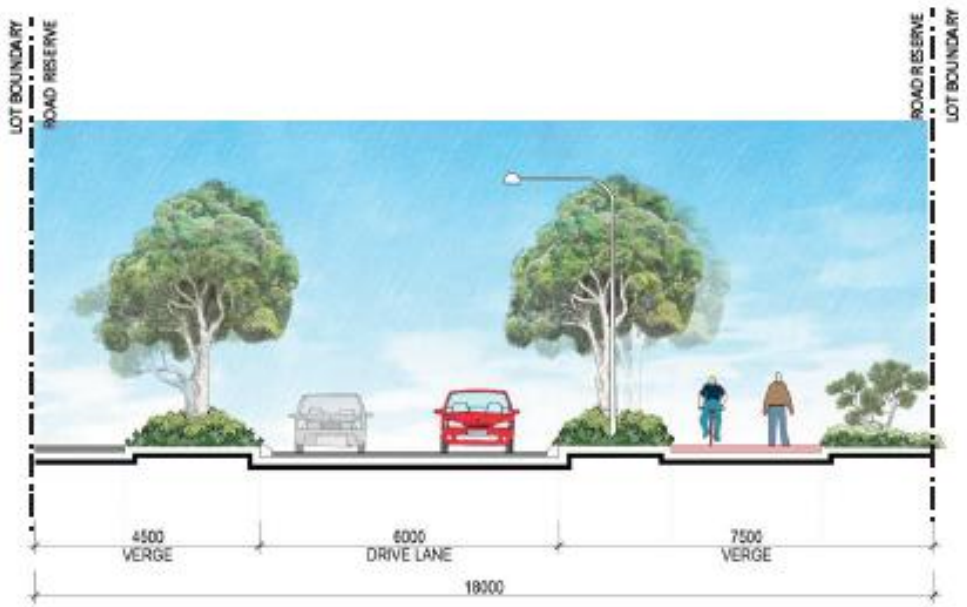
Figure 37 – Street Character S15 South Central Neighbourhood Connector



Street Character S16 – Freeway to Plaza East-West Access Street

- Access Street D at 18m in width.
- Wider southern verge is provided to accommodate a pedestrian and cyclist linkage between the Plaza and the central POS. This Street Character may be extended further east subject to development of the future principle shared path within the Freeway reserve.

Figure 38 – Street Character S16 Freeway to Plaza East-West Access Street



Street Character S17a – South Western East-West Access Street C

- Access Street C at 16m in width.

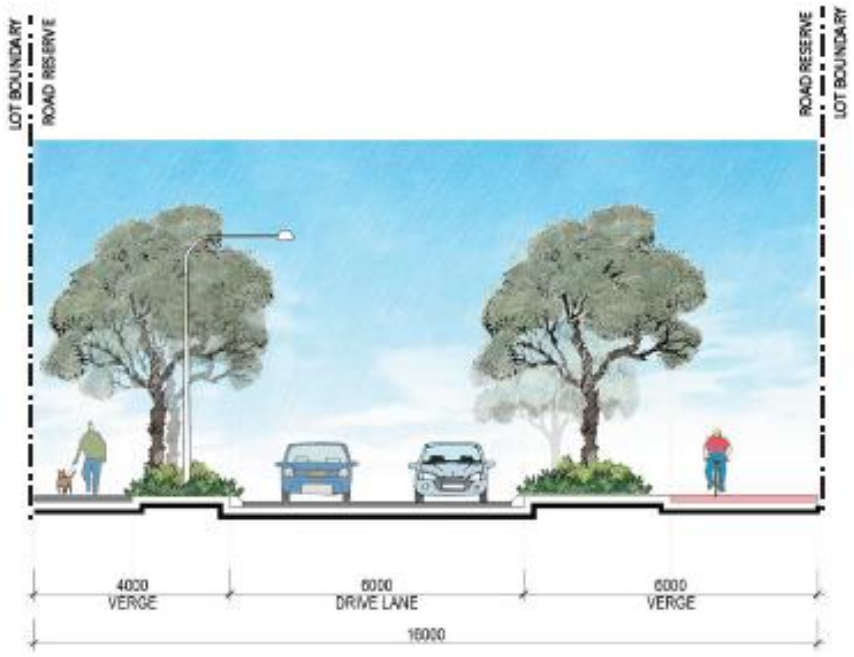
Figure 39 – Street Character S17a South Western East-West Access Street C



Street Character S17b – North Eastern East-West Access Street C

- Access Street C at 16m in width.

Figure 40 – Street Character S17b North Eastern East-West Access Street C



Street Character S18 – Central North North-South Access Street

- Access Street at 15m in width.
- To incorporate a wider eastern verge to accommodate a double row of tree planting and footpath.

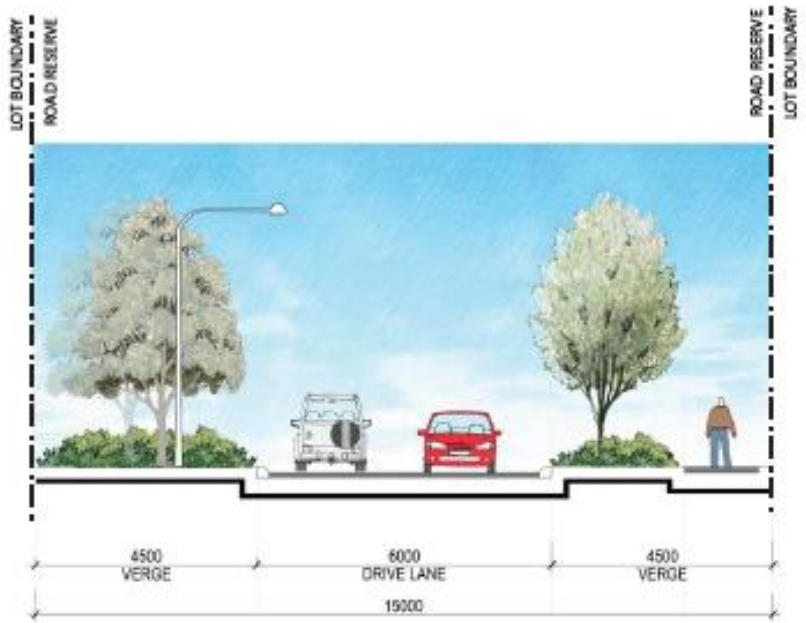
Figure 41 – Street Character S18 Central North North-South Access Street



Street Character S19 – Standard Access Street

- Access Street at 15m in width.

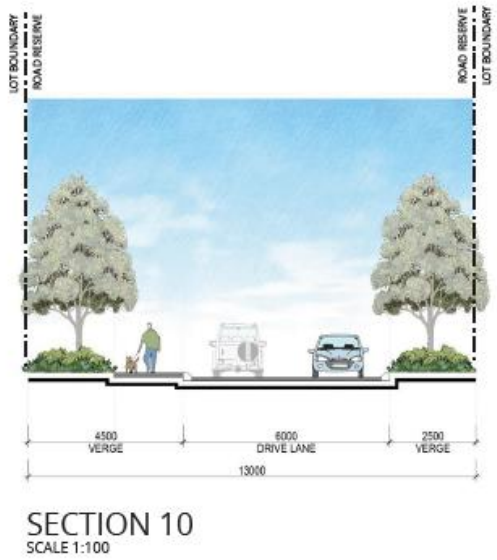
Figure 42 – Street Character S19 Standard Access Street



Street Character S20 – Standard Access Street with Specific Landscape Treatment

- Access Street at 15m in width.

Figure 43 – Street Character S20 Standard Access Street with Specific Landscape Treatment



Indicative Imagery – Specific Landscape Treatments







2.7. GENERAL DEVELOPMENT STANDARDS

In addition, to the precinct development requirements the following general development standards apply.

Table 2 - General Development Standards

Element	Requirement
1) Vehicle Access	• Major vehicle access points should be in the general location and function as outlined on the PSP map. • Access within the site should maximise connectivity, legibility, a slow and safe traffic environment and a comfortable, convenient and safe pedestrian environment. • All major site access arrangements are subject to a Transport Impact Assessment at subdivision stage.
2) Pedestrian Paths	• All road verges (except laneways) shall be provided with a pedestrian path with a minimum width of 2 metres. • Pedestrian paths in road verges shall connect with major building entries. • Dual use paths shall be designed to give priority to pedestrians and cyclists at vehicle access points to the activity centre.
3) Pedestrian Linkages (including Public Access Ways, Shared Paths and Mid-block access ways)	• Pedestrian linkages through the PSP area are to be provided generally where indicated on the PSP map. • The Social/Pedestrian/Cycle Linkage system identified in ASP82, which forms a part of the overall green network of the LSP area, is identified as a Public Access Way on the PSP map connecting Carphin Drive to the train station carpark. This connection should be a minimum width of 10m, as outlined in 2.1.6.3 • Designated shared paths are to provide direct connections through the precinct structure plan area, and should be designed generally in accordance with the following: – Be continuously sheltered and/or tree lined. – Be of a typical minimum width of 3 metres. – Be of a grade and treatment so that they are able to be utilised by all sectors of the community. – Provide wayfinding signage at appropriate points to direct users of the town centre. – Be well lit and provide seating at appropriate intervals. – Connect with major building entries. • Mid-block access ways provide a secondary pedestrian network linking the train station to the residential zone, and should be designed generally in accordance with the following: – Be of a typical minimum width of 2.5 metres – Be of a grade and treatment so that they are able to be utilised by all sectors of the community – Be well lit to provide pedestrian safety
4) Urban Form	• Internally facing shopping malls/centres are not contemplated in the PSP.
5) Building Emphasis	• Buildings located on corner sites shall emphasise the prominence of the street corner via: – Architectural roof features that protrude above the normal roof line; – Increased parapet heights with additional detail, colour and textures; – Inclusion of public art; and/or – Provision of an additional storey at the street corner.

Element	Requirement
6) Landscaping	• All landscaped areas, including car parking areas, pedestrian links, and the main street, should demonstrate the implementation of high-water efficiency design, including though the use of waterwise plans and trees as identified by the Water Corporation Plants Directory, and be protected from damage by vehicles.
7) Car Parking	• All car parking is to be in accordance with the Eglinton PSP Car Parking Strategy, which coordinates parking for the centre, maximises on-street parking and delivers public parking facilities integrated with built form, to service the centre as a whole, at strategic locations. • Car parking for all non-residential land uses shall be provided at a rate of 5 car spaces per 100sq.m of NLA, with the exception of office and showroom which shall be provided at a rate of 2 car spaces per 100sq.m of NLA. Car parking for the centre is to be supplied in the form of off-street reciprocal and shared parking facilities and on-street or other public parking wherever possible. • Bays are to be designed to the Australian Standard. • Car parking for all residential uses is to be provided as per the R-Codes. • Small car bays (to the specifications of AS2890.1) are permitted off-street to a maximum of 25% of the non-residential off-street car parking provided. • At-grade car parking shall include a minimum 2 metre landscaping strip in the lot along all street boundaries. • At-grade car parking shall be provided with one tree for every 6 car parking bays. • Off-street car parking shall be located either to the rear or side of buildings, and not within the street setback area except where permitted, so as not to visually dominate or disrupt the continuity of building frontages.
8) Bicycle Parking and End of Trip Facilities	• Residential development: in accordance with the R-codes. • Non-residential development less than 500sq.m NLA: Minimum 2 bicycle parking rack spaces for occupants or visitors. • For building occupants: – Secure bicycle storage bays at a rate of 1 bay per 500sq.m NLA. – End of trip facilities are required where 10 or more secure bicycle bays are required, with a minimum of 1 locker per bay, and a minimum of 2 showers (1 male, 1 female) for each block of 10 bays, to a maximum of 10 total showers. – End of trip facilities are to be secure and conveniently located. • For visitors: – Bicycle parking rack spaces are to be provided at a rate of 1 per 750sq.m NLA and shall be located near building entrances.
9) Signage	• Signage is to be designed in accordance with the City's Signs Local Planning Policy (LPP 4.6). A signage strategy will be required at the DA stage.
10) Street Cross Sections	• A cross-section of Pipidinny Road and associated intersections is required, in consultation with the City of Wanneroo and Main Roads WA, prior to any subdivision or development abutting Pipidinny Road, to inform future road upgrades.
11) Service Vehicle Access	• Service vehicle routes and access points should be located away from areas with high pedestrian footfall and designed with consideration for safety, visual and acoustic amenity for adjoining uses. • Service vehicle access from active frontages, including Carphin Drive and Walcott Avenue, should be avoided. • Service areas are to be appropriately visually screened where visible from the public street to minimise their impact.
12) Other Requirements	• The provision of services and infrastructure is to be in accordance with the development contribution scheme prepared for DSP 18 (for Alkimos Eglinton) enforced through the powers of DPS 2.

2.8. ADDITIONAL INFORMATION

The table below outlines information required to be prepared in addition to the lodgement requirements of DPS 2.

Table 3 – Additional Information Requirements

Additional Information	Purpose	Approval Stage	Consultation Required
Landscape and Public Open Space Management Plan	To detail the ongoing management and maintenance arrangements of landscaping and public open space areas. It shall include details of the main street, town square and any pedestrian linkages and landscaped edges.	Prior to development approval of Stage 1 in the Main Street Precinct.	City of Wanneroo.
Transport Impact Assessments	To undertake the traffic analysis associated with individual development proposals. To be in accordance with WAPC guidelines.	Subdivision application.	City of Wanneroo, Main Roads WA (where abutting Marmion Av or Eglinton Drive).
Traffic Management Plan	To provide technical specifications relating to the subdivision and development of the land, and construction management arrangements.	Lodged prior to building permit stage as a condition of subdivision/development approval.	City of Wanneroo.
Bushfire Management Plan	To demonstrate Emergency Evacuation Plan and Risk Management Plan, prepared in accordance with State Planning Policy 3.7.	Subdivision and development application stage for vulnerable and high-risk land uses.	DFES and City of Wanneroo.
Parking and Servicing Strategy	A Car Parking Strategy for the entire PSP area is to be provided which considers the requirements of SPP 4.2 and Liveable Neighbourhoods to address matters including: use allocation, design, the provision of short-stay and/or paid parking, upper parking limits, the provision of adaptable parking structures, consideration of street management and parking policies, and the provision of dedicated taxi and ride-share pick up and set down areas.	To accompany the first subdivision or development proposal.	City of Wanneroo and the DPLH.
Acoustic/Vibration Report	To demonstrate compliance with SPP 5.4 – Road and Rail Noise.	Subdivision and/or development application.	DWER and City of Wanneroo.

Additional Information	Purpose	Approval Stage	Consultation Required
Geotechnical Report	Detailing the specific design and construction recommendations and requirements.	Lodged prior to development application or building permit stage (whichever comes first), managed as a condition of subdivision approval.	City of Wanneroo.
Signage Strategy	To demonstrate compliance with City of Wanneroo Signage Policy (Local Planning Policy 4.6)	Development application.	City of Wanneroo.
Urban Water Management Strategy	Detailing the specific drainage requirements for future development	Development application or as a condition of subdivision approval.	City of Wanneroo.
Local Development Plans	To deliver the built form outcomes for specified locations, specific lot typologies and a 2 storey product.	As a condition of subdivision approval for lots subject to Special development controls. (Precinct 6 only)	City of Wanneroo
Dwellings target statement	To compare the proposed dwelling yield with the estimated dwelling yield targets set out in the PSP per sub-precinct (refer to Part Two Explanatory Section, Section 5.3), relative to the subdivision area.	To be lodged as part of a subdivision application (Precinct 6 only)	City of Wanneroo / DPLH
Vegetation and fauna management plan	Ensures the best practice management is employed during the land clearing stage of development. This involves minimising damage to vegetation retention areas and appropriately trapping and relocating fauna discovered during clearing.	As a condition of subdivision approval (Precinct 6 only)	City of Wanneroo
Landscape Master Plan and Street Tree Plan	To provide for the delivery of landscaping, as set out in the PSP.	To be lodged as part of a subdivision application and implemented as a condition of subdivision approval. (Precinct 6 only)	DPLH City of Wanneroo

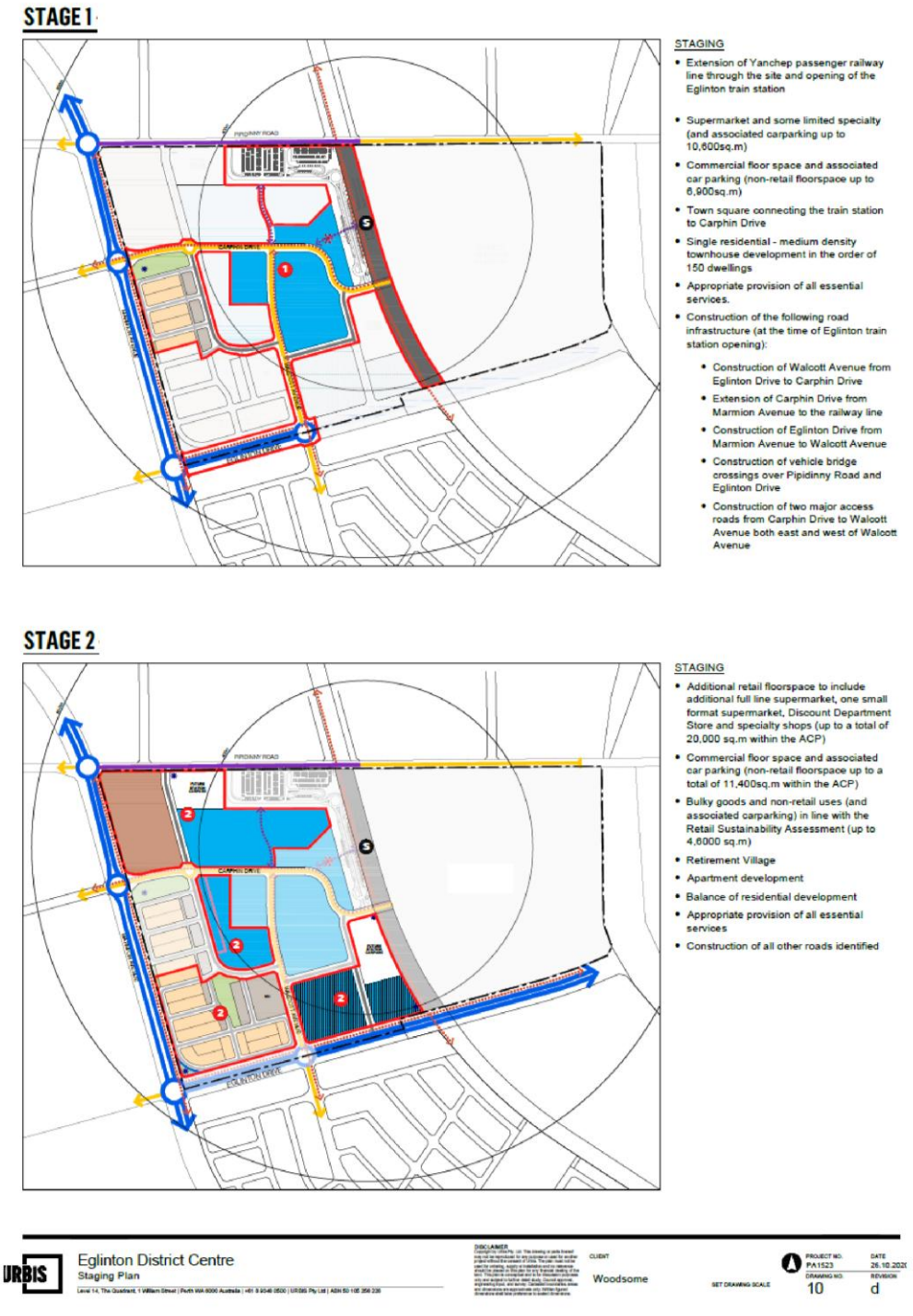
3. IMPLEMENTATION

The Eglinton activity centre is expected to develop over a period of 20 years. West of the railway this is expected to be as follows:

- Stage 1: beginning 2026
- Stage 2: beginning 2028

The development stages are illustrated in Figure 43.

Figure 43 Staging



The residential precinct of the activity centre located east of the railway will develop in line with market uptake. The indicative development stages are illustrated on Figure 44.

Figure 44 – Residential East Precinct Staging



PART TWO – EXPLANATORY REPORT

4. LAND DESCRIPTION

4.1. LOCATION

The Eglinton district centre comprises a 69.48ha land parcel located 43km north-west of the Perth CBD in Perth's north-west growth corridor. Nearby features include:

- The site is located 5km south of the Yanchep city centre.
- The site is located 5.5km north of the Alkimos town centre.
- The Indian Ocean is located 2.1km to the west.
- The most immediate estates are Allara (Satterley/LandCorp) to the north, Amberton (Stockland/Eglinton Developments), Shorehaven (Peet), Trinity (LWP) and East of the Beach (Urban Quarter).

The greenfield and emerging character of the locality, together with the future train station, will influence the urban outcomes able to be achieved in the activity centre.

4.2. REGIONAL AND LOCAL CONTEXT

Eglinton is located in Perth's fast-growing north-west growth corridor. A district structure planning process commenced more than a decade ago and identified the need for a mix of activity centres to accommodate future population growth planned in the Alkimos and Eglinton area.

The north-west corridor has historically been home to a large number of master planned land estates which have supported strong population growth. In the current major growth area of Alkimos and Eglinton, residential development activity has historically been dominated by Amberton, Shorehaven, Alkimos Beach and Trinity at Alkimos. Estates south of Alkimos are largely developed apart from Jindalee and Eden Beach.

Several new developments recently commenced or progressed planning in the corridor such as Alkimos Vista, East of the Beach, Allara directly to the north and Eglinton Hill to the south. Longer term, several larger land holdings will likely start to offer lots to the market over the next decade such as Alkimos Coastal Node, Alkimos City Centre and urban zoned land holdings by Eglinton Estates Pty Ltd and DevelopmentWA to the western side of Marmion Avenue in Eglinton.

Further, the State Government METRONET project is being implemented and includes construction of the Butler to Yanchep rail extension. As part of this project, a train station within the Eglinton district centre is expected to be completed in 2023.

A regional context plan and aerial plan is shown at **Figures 1** and **2.**

4.3. LEGAL DESCRIPTION AND OWNERSHIP

The centre is comprised of the following lots and reserves.

Table 1 – Lot Detail

Lot/Plan	Proprietor	Description
Lot 9101 on Plan 425787	Eglinton Estates Pty Ltd	Western side of railway
Part Lot 802 on Plan 404604	WA Planning Commission	Railway reserve
Lot 804 on Plan 418141	WA Planning Commission	Railways/PTA uses
Part Lot 9102 on Plan 425787	Eglinton Estates Pty Ltd	Eastern side of railway
Total 69.48ha		

A cadastral plan is included at **Figure 3.**

Figure 1 – Regional Context Plan



Source: Urbis

Figure 2 – Aerial Plan

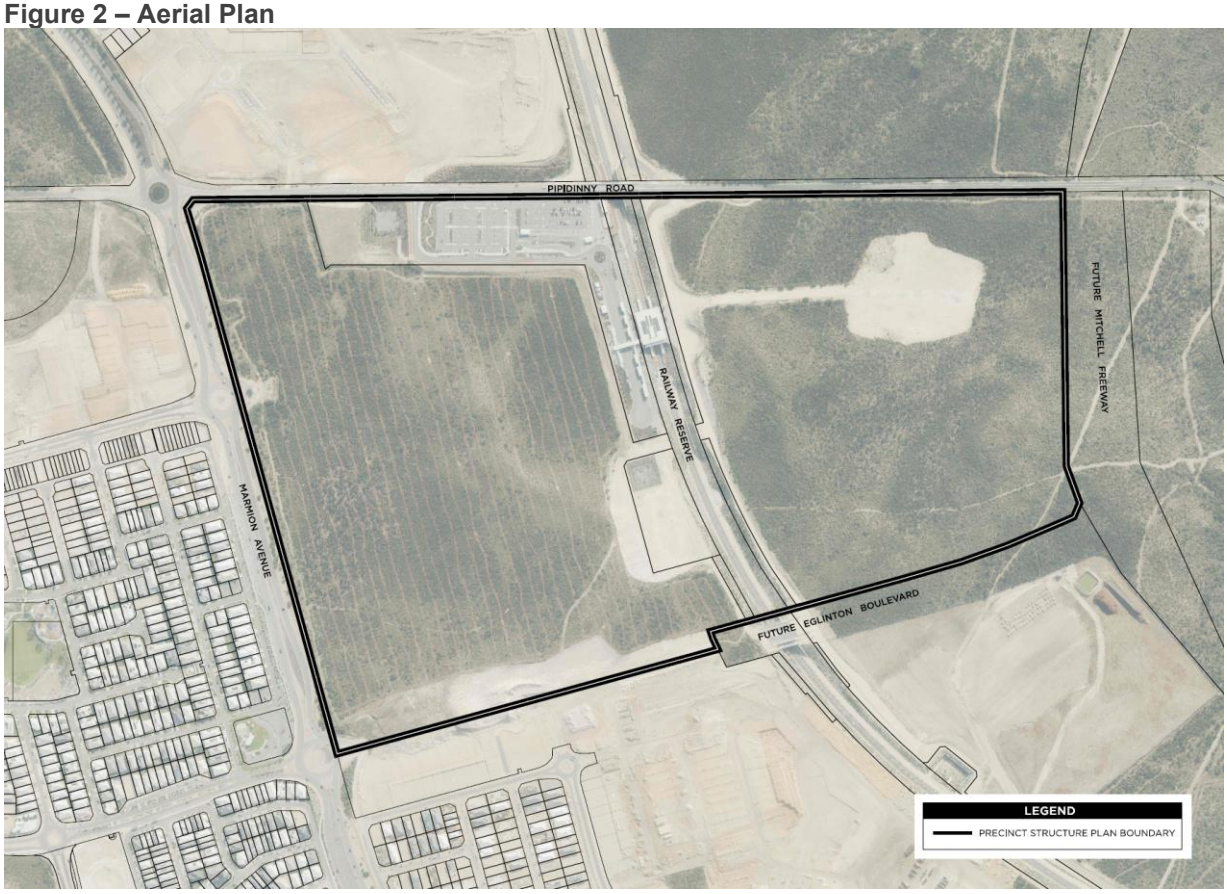
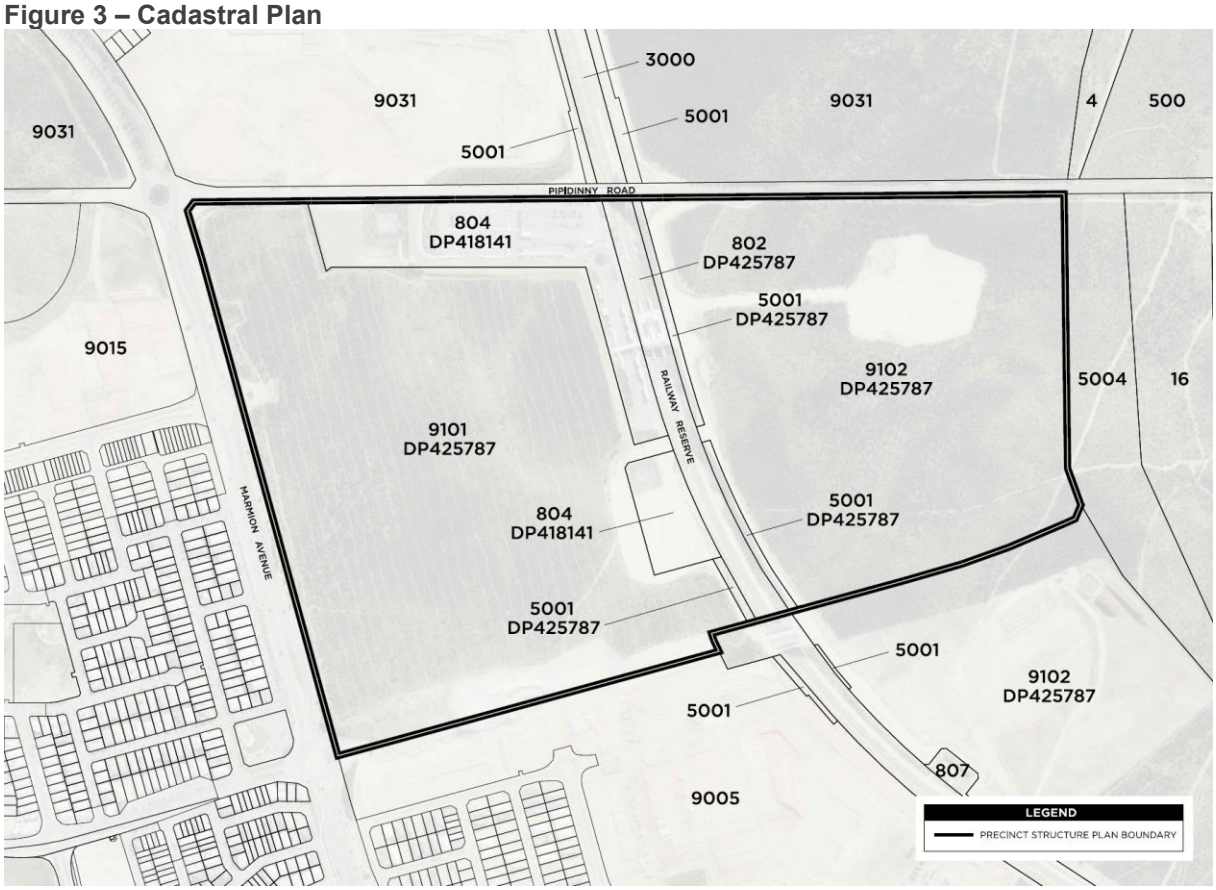


Figure 3 – Cadastral Plan



4.4. SITE AND CONTEXT ANALYSIS

The Eglinton PSP site characteristics include:

- The site ranges from 27m AHD to 53m AHD with a north-westerly aspect.
- Soils of the site are characterized as Safety Bay Sands and Tamala Limestone. This is consistent with regional landform mapping which describes the site as being representative of the Quindalup Formation with undulating dunal landforms.
- **T**here are no surface water features or classified geomorphic wetlands located within the site. This is due to the presence of highly permeable sands and significant depth to groundwater.
- Groundwater levels on site are approximately 1m AHD.
- The site is located within the Quindalup Complex for vegetation.
- The site is largely covered with remnant vegetation, with the exception of a number of firebreaks and access tracks

The Eglinton PSP has been subject to environmental assessment under the State Environmental Protection Act 1986 (EP Act) and the Commonwealth Environment, Protection and Biodiversity Conservation Act 2000 (EPBC Act). Environmental approval to develop the land areas has been granted under both State and Commonwealth legislation.

A Level 2 Fauna Survey was undertaken in 2005 by ATA Environmental (2007b) for the entire Alkimos Eglinton District Structure Plan area. There are small sections of the area that are degraded or have a high weed infestation. The increased grass and weed species have resulted in these areas having a low fauna habitat value. However, the areas that remain vegetated provide fauna habitat representative of what would be expected in the area, broadly described as consisting of Banksia woodlands and Dryandra (now Banksia) shrubland on limestone.

In accordance with the EPBC 2010/5777 and approval with Ministerial Statement 722 no conservation POS is required within the Eglinton PSP. Notwithstanding this, it is the developer's responsibility to obtain all necessary approvals, licenses and permits required under any other law prior to development.

5. PLANNING BACKGROUND

5.1. INTRODUCTION AND PURPOSE

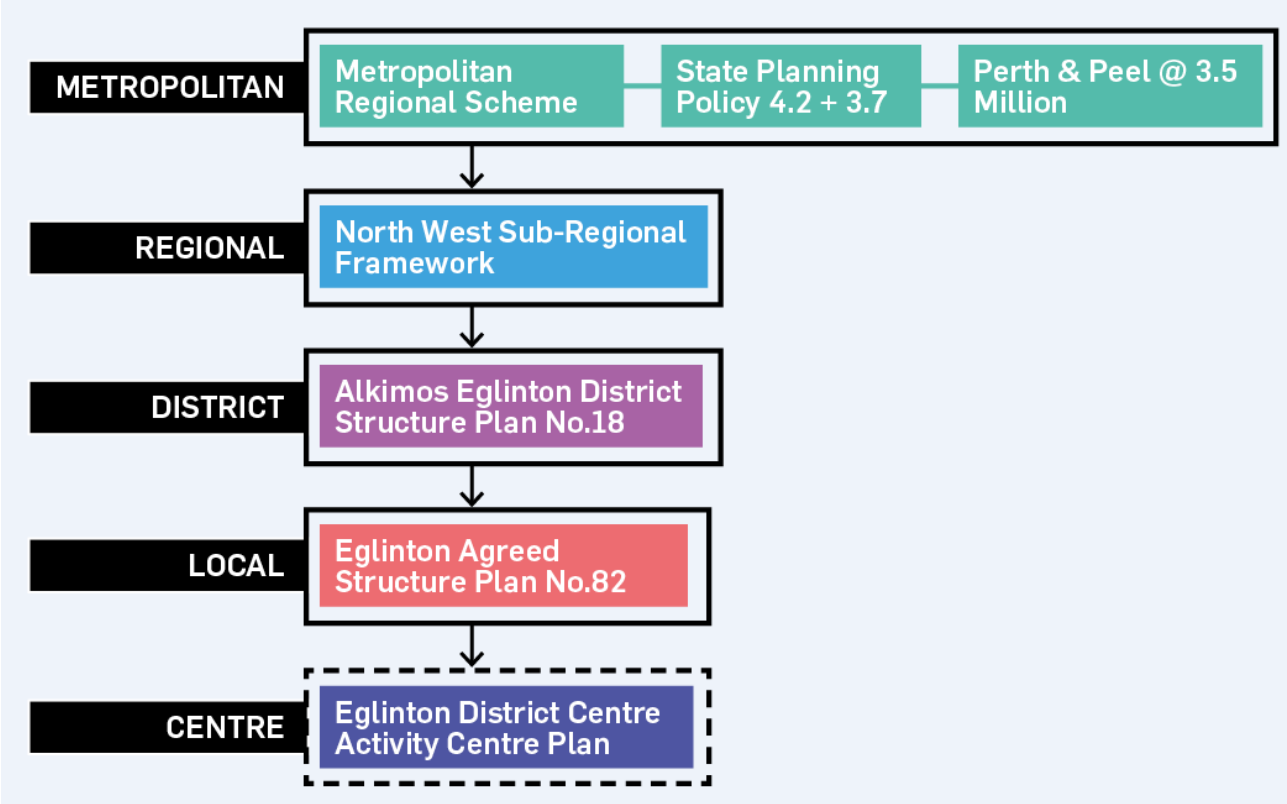
The purpose of the Eglinton PSP is to facilitate the development of a district activity centre in Eglinton, as contemplated and planned for in a variety of State and local planning documents.

The PSP is made pursuant to the requirements of Agreed Structure Plan No.82, SPP 4.2, and the deemed provisions contained within the *Planning and Development (Local Planning Schemes) Regulations 2015*.

The centre will provide for a mix of land uses and provide a focal point for the emerging surrounding residential estates.

Figure 4 outlines the key planning documents relevant to the activity centre.

Figure 4 – Key Planning Documents



5.2. PLANNING FRAMEWORK

The documents outlined in the table below provide the basis for the proposed development of the PSP and should be read in conjunction with **Figures 5** to **8.**

Table 2 – Key Planning Documents

Document	Zones, Controls and Relevant Provisions
Metropolitan Region Scheme	The site is primarily zoned Urban under the MRS, with the inclusion of a Railway reserve which transects the site to accommodate the future proposed Yanchep passenger rail line extension and Eglinton station (refer **Figure 6**). Marmion Avenue and Eglinton Drive are both Other Regional Roads and the Mitchell Freeway is a Primary Regional Road. The development of a district centre is consistent with the Urban zoning. Both Marmion Avenue and Eglinton Drive will be delivered to a standard so that they can operate as Other Regional Roads, consistent with the Transport Assessment (**Appendix B**). The Railway reserve has been preserved through the PSP in addition to PTA's broader requirements for the bus interchange and carparking.
City of Wanneroo DPS 2	The site is zoned 'Urban Development' under DPS 2 (refer **Figure 7)**, which requires a structure plan to be prepared prior to subdivision and development, consistent with the deemed provisions of the Planning Regulations. This resulting requirement has guided the establishment of the Alkimos-Eglinton District Structure Plan No. 18 (DSP) and subsequent Agreed Structure Plan No.82 (ASP) which seek to facilitate and guide the development of the area. DPS 2 sets out the general development requirements for all development within the City of Wanneroo, this is inclusive of matters pertaining to residential, non-residential and environmental considerations. The zones depicted on the PSP map (Part 1) reflect those zoned provided for under DPS 2.
Alkimos Eglinton District Structure Plan No.18	The site is identified within the DSP 18 area (refer **Figure 8)**. The DSP was formally adopted by Council in 2008 and approved by the WAPC in 2010 and has been amended over time. DSP 18 has been prepared to facilitate the extensive coastal development to provide for the logical growth of the north-west corridor, addressing vital land supply demand and employment creation. DSP 18 outlines the broad urban framework upon which future planning will be based including the indicative location of activity centres and coastal nodes. DSP 18 provides the general basis for the preparation of local structure plans. This has resulted in the provision of the ASP which provides a more detailed level of planning necessary to facilitate development over the site.

Document	Zones, Controls and Relevant Provisions
Eglinton Agreed Structure Plan No.82	This ASP identifies a district centre over the site (refer **Figure 9**). The district centre comprises Precinct 5 of the structure plan which aims to create a 'strong sense of place, created by its memorable setting, its distinctive landscape and the structure of its built elements. It also responds to the structure plan and specifically the character and land use strategies for Precinct 5 as follows: • A true town centre focused around a main street incorporating a wide range of uses including major retail, civic, entertainment, office, commercial and education uses along with a diverse range of higher density residential. • Activated public streets with a focus on high quality public realm where development addresses the street. • The main focus for community life in Eglinton. Such places, including the Station Square, Civic Precinct and town park are focused around a strong east-west axis (main street). • Architecture of the buildings to be a contemporary interpretation of traditional WA coastal towns in its detailing and choice of materials. The ASP also guides the location of access points into the site, particularly from Eglinton Drive and Marmion Avenue. The PSP maintains the general location of these access points, albeit provides for roundabouts (consistent with MRWA's current policy position) in lieu of signalised intersections as shown on the ASP. Further, the alignment of the main entry into the town centre (main street) from Marmion Avenue, Carphin Drive, has been reconfigured to respond to a range of detailed factors including topography and the location of the PTA infrastructure. From a residential density perspective, it is noted that the ASP designates a density code of R60-R160. While density closer to the train station (core of the centre) has been maintained at R100 and the eastern residential area closest to the train station has been provided at R50 – R60 densities, the residential area adjoining Marmion Avenue is proposed as R40-R80 to respond to the outcomes of the Residential Market Analysis prepared to support the PSP. Similarly, the residential area further east towards the future Mitchell Freeway has been nominated at predominantly R40 as it is furthest away for the core activity area of the centre.
Local Planning Policy (LPP) 2.1 – Residential Development	This Policy applies to applications for development approval under the Design Principles of the Residential Design Codes (R-Codes). This Policy prescribes standards the City considers acceptable in addition to the deemed-to-comply provisions of the R-Codes. When applying this Policy, the City will consider these standards in conjunction with relevant standards in conjunction with relevant 'design principles' and objectives stated in the R-Codes. The PSP has considered the key objectives of the Policy, with future subdivision and development applications to consider these requirements in further detail.

Document	Zones, Controls and Relevant Provisions
LPP 3.2 – Activity Centres	This policy provides additional guidance on the implementation of SPP 4.2. It recognises the Eglinton district centre and its intended function. The PSP is consistent with this policy in that it: • Is consistent with the applicable DSP and ASP. • Includes an Employment Strategy which is consistent with the modelled floorspace volumes. • Includes a main street as the focus of energy in the centre. • Provides a legible and interconnected street network that can adapt over time as the centre evolves. • Incorporates a town square and public spaces in close proximity to the main street and train station. • Provides for an integrated and coordinated parking provision both in the short and ultimate term.
LPP 3.6 – Employment Policy	This policy established a framework to encourage and retain local employment in the City and north-west corridor. In response, a Local Employment Strategy has been prepared (at **Appendix D**). The strategy provides the direction for the district centre to become a vibrant hub that attracts and retains skilled and professional workers in the Alkimos Eglinton area. It establishes an action plan outlining potential initiatives, objectives and responsibilities of stakeholders to contribute towards the local economy. Examples include industry diversification and attraction, business support and workplace development (such as co-working hubs and youth employment programmes) and considering employment location through adaptive buildings and employment clusters.
LPP 3.8 – Marmion Avenue Arterial Road Access	This policy prescribes acceptable standards for the type and location of vehicular access points, provisional standards for cycling infrastructure, and operational procedures for all new planning proposals. The Policy identifies signalised intersections at Pipidinny Road, Carphin Drive and Eglinton Drive. Left in, left out intersections intersperse these signalised intersections. The same arrangement applies along Eglinton Drive through to the railway alignment. The PSP reflects the general locations of the intersections shown in this Policy however instead provides for roundabouts consistent with Main Roads current policy position.
LPP 4.3 – Public Open Space	The policy articulates Council's position on the planning, provision, location, design, development and interim maintenance of public open space. Section 8.0 articulates the landscape and public open space strategy for the PSP including the preparation of two concept plans for Carphin Park and the residential public open space area.

Document	Zones, Controls and Relevant Provisions
LPP 4.4 – Urban Water Management	The purpose of this Policy is to ensure planning and development within the City of Wanneroo optimises the use and management of urban water resources (including rainwater, stormwater, groundwater, drinking water and wastewater) consistent with State Planning Policy 2.9: Water Resources (SPP 2.9) and the Western Australian Planning Commission's (WAPC) Better Urban Water Management (BUWM). The LWMS Addendum which accompanies this PSP (**Appendix E**) has had due regard to these documents and has been prepared in close consultation with the City of Wanneroo Officers.
LPP 4.8 – Tree Preservation	This Policy provides a mechanism to protect significant trees of the City. Subdivision design shall carefully locate future public open space areas to accommodate significant groups of trees. Wherever possible and practicable, significant individual trees shall be preserved on private lots and retained appropriately within proposed road reserves, public open space reserves and within car parks. Given the extensive earthworks that are to be associated with the PSP area (described at Section 8.0), a large amount of clearing is required. However, the trees introduced back into the public realm shall augment the planting associated with the public open space areas in terms of windbreak, erosion control, and shade provision. In addition, the trees would provide vegetative cover in the longer term in order to address offsetting the removal of existing cover and wildlife corridors.
LPP 4.18 – Earthworks and Sand Drift	The purpose of this Policy is to provide guidance for the assessment of development applications for earthworks, and to provide guidance on dust management measures to be employed during earthworks on-site as part of a development approval or subdivision approval. The earthworks strategy for the PSP area is outlined at Section 12.
LPP 4.19 – Medium Density Housing	This Policy replaces the R-Code provisions for medium density housing within development zones and applies where the approved structure plan identifies that the R-MD standards apply (ie. R25-R40). This policy will apply to those portions of land within the Residential zone, and for residential development in other precincts where they fall within the R-MD coded area.

Figure 5 – Metropolitan Region Scheme

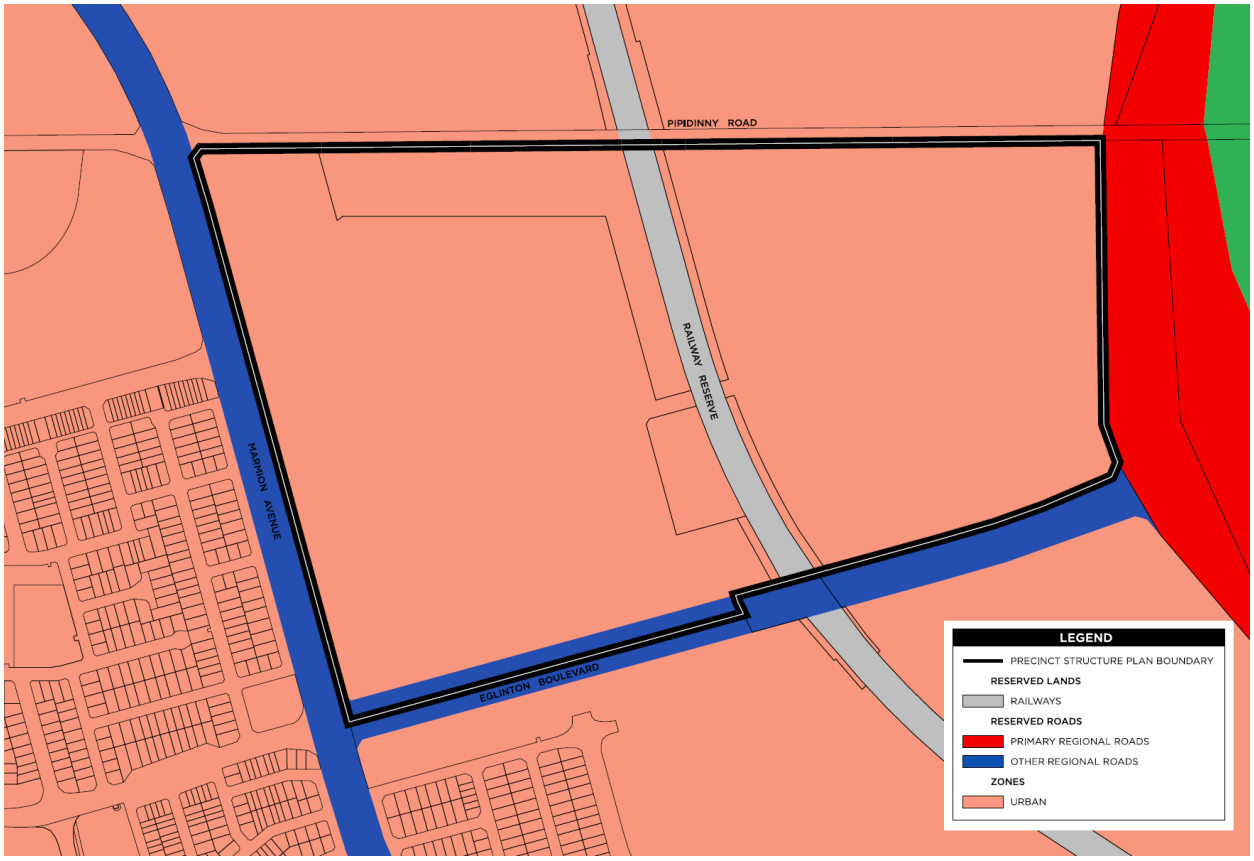


Figure 6 – District Planning Scheme Extract

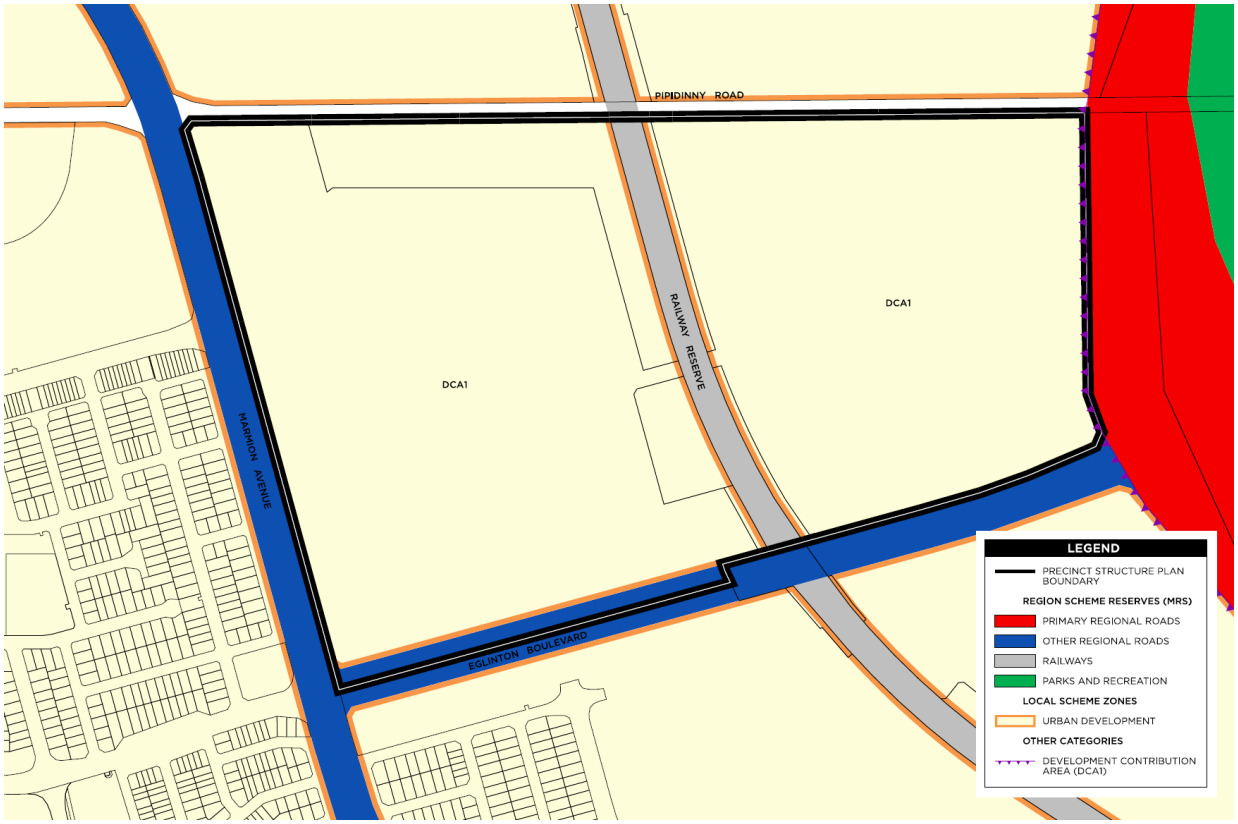


Figure 7 – Alkimos Eglinton District Structure Plan No.82

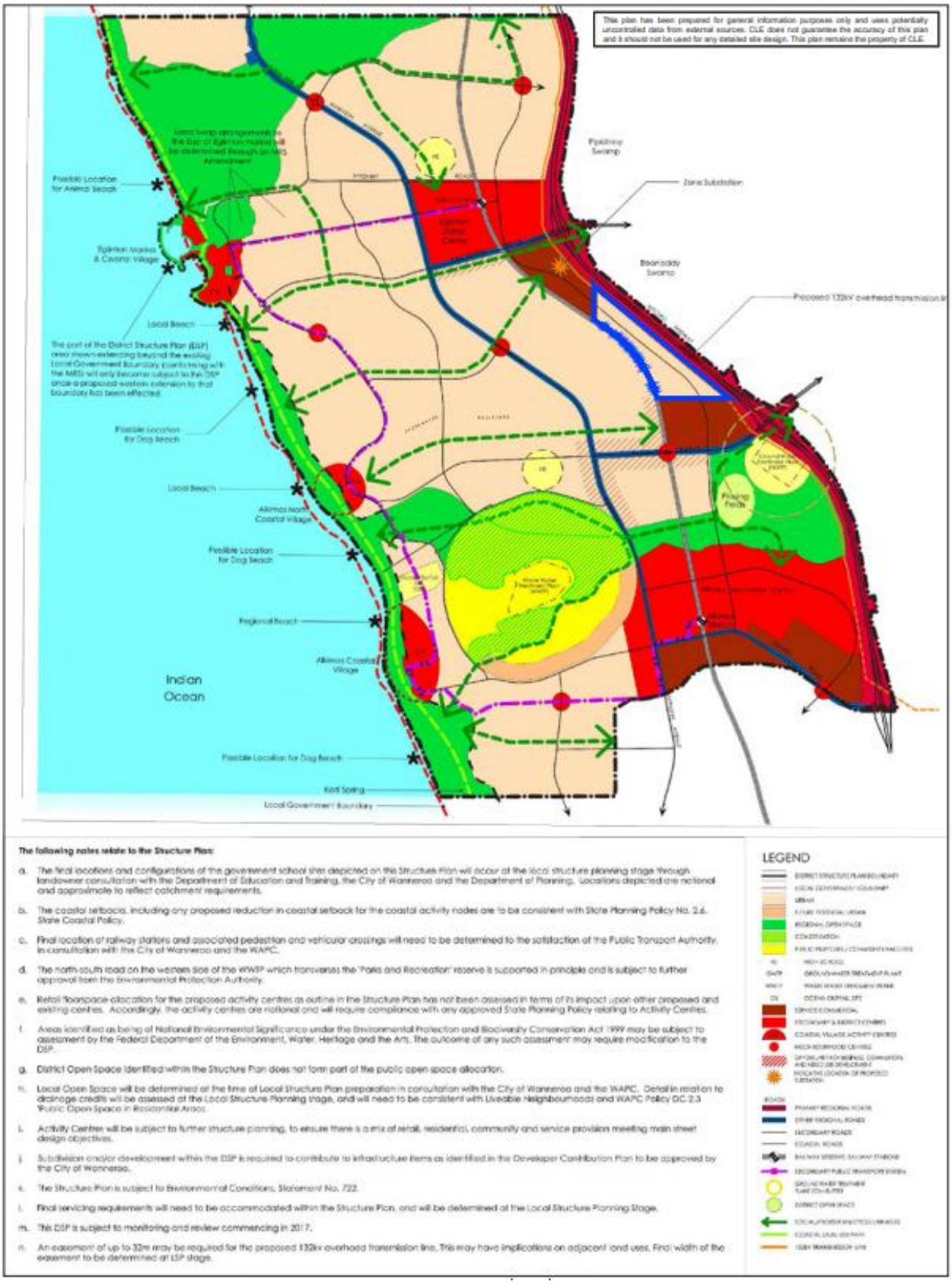
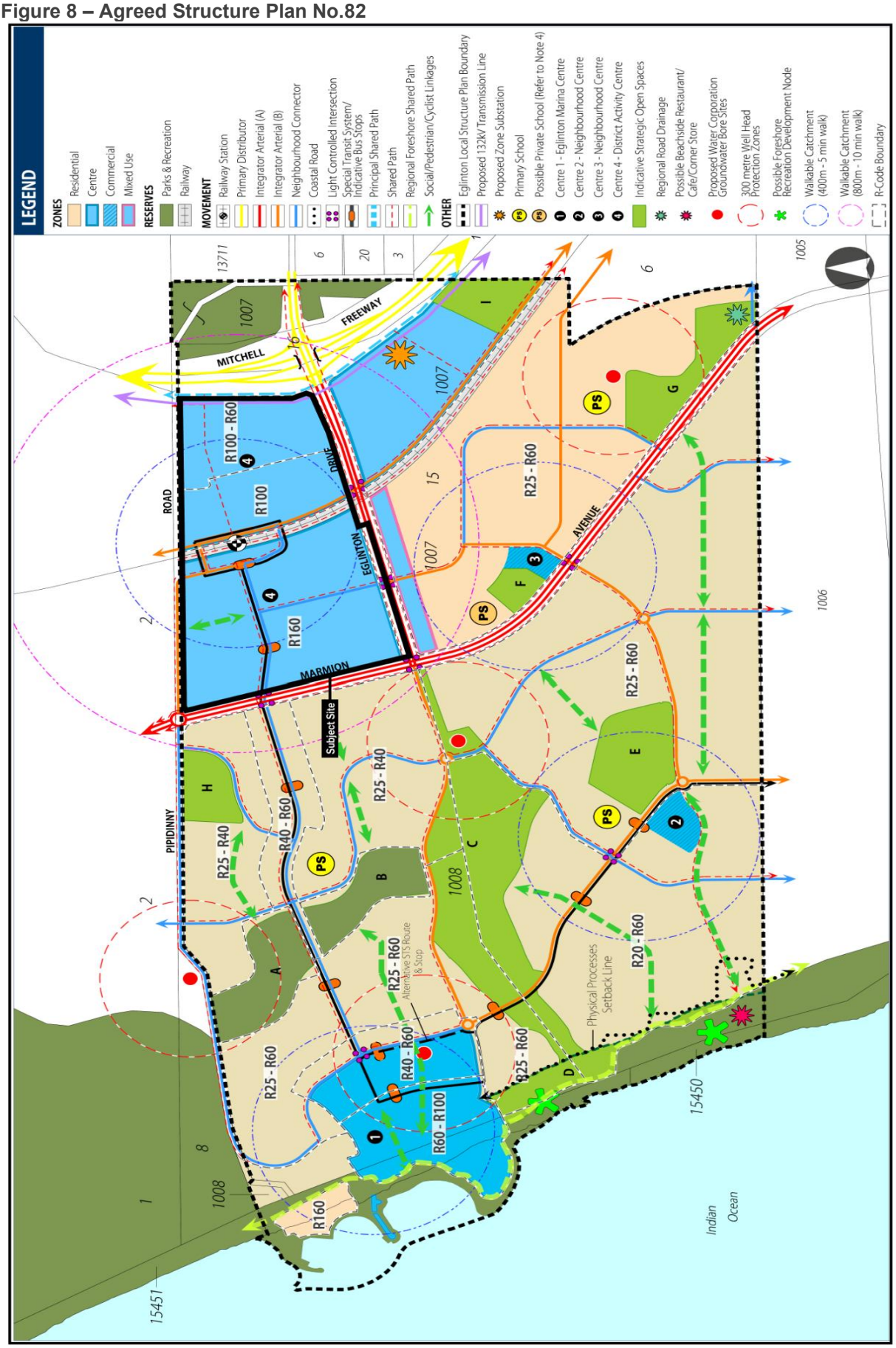


Figure 8 – Agreed Structure Plan No.82



5.3. SPP 4.2 - ACTIVITY CENTRES FOR PERTH AND PEEL

The following table summarises how the PSP responds to the key provision of SPP 4.2.

Table 4 – Assessment against SPP 4.2

Provision/s	Note
An emerging district centre is identified in Eglinton	The PSP facilitates the delivery of a district centre in Eglinton and fulfils the requirement for an PSP for district centres prior to major development.
Typical Characteristics	This PSP aims to achieve the typical characteristics of a district centre as follows:
• Greater focus on servicing the daily and weekly needs of residents. They are to have a greater local community focus the provide services, facilities and jobs that reflect the needs of their catchment	The PSP will facilitate a convenience-based centre with retail, community and service offerings targeted towards the local community and commuters.
• Contain discount departments stores, supermarkets, comparison shopping, personal shopping and speciality shops	As part of the ultimate development of the centre, all of these retail types are anticipated consistent with the RSA (**Appendix A**), subject to market demand.
• Should be a focal point for the bus network	A new passenger train station will be delivered at Eglinton which together with bus facilities, will provide exceptionally high public transport service and amenity to residents and visitors to the centre. Park and ride services will also be incorporated, accessible via Pipidinny Road.
• Should have district level office development and local professional services	The PSP allows for office development, with the retail core and main street conducive to accommodating local professional services.
• Should cater for 20,000-50,000 persons	The accompanying RSA (**Appendix A**) bases its analysis on an ultimate trade area population of 42,130 by the year 2040.
• Should accommodate a minimum 20 dwellings per gross hectare residential density within a 400m walkable catchment, and a desirable 30 dwellings per gross hectare	The activity centre is capable of meeting this residential density target. This is outlined in further detail in other sections.
• Should accommodate a 30% mix of land uses where there is more than 20,000sq.m NLA of shop retail floorspace	The PSP meets the 30% diversity target, with 11,400sq.m of non-retail floor space of a total of 36,000sq.m of floor space, refer Table 10.
Retail sustainability/needs assessments are required prior to major development in activity centres	The PSP will facilitate development greater than 10,000sq.m of shop/retail floorspace, and therefore an RSA has been prepared to support the PSP. The assessment concludes that the trade area can sustain further major development at the Eglinton district centre, and that any impacts of the development will not unduly impact other activity centres.

Provision/s	Note
SPP4.2 outlines a range of matters that are to be addressed in precinct structure plan, under the headings of centre context, movement, activity, urban form, resource conversation and implementation.	All of these matters are addressed throughout the PSP.

5.4. SPP 3.7 – BUSH FIRE RISK MANAGEMENT

Bushfire Management Plans (BMP) have been prepared by Strategen Environmental and JBS&G consistent with SPP 3.7 and the Guidelines for Planning in Bushfire Prone Areas to accompany the Eglinton PSP (refer **Appendix C**). The BMPs concludes that the associated bushfire risks are readily manageable through standard implementation responses outlined in the Guidelines and AS 3959.

Future BMP's prepared for subsequent subdivision and development applications are to meet the relevant commitments outlined in this strategic level BMP as well as address the broader requirements of SPP 3.7 and demonstrate in detail how the proposed development will incorporate the acceptable solutions or meet the performance requirements of the Guidelines.

5.5. PRE-LODGEMENT CONSULTATION

A range of consultation activities have taken place to inform the development of this precinct structure plan, including:

- An initial workshop with the City of Wanneroo, Department of Planning, Lands and Heritage and METRONET in mid-2018 to discuss the vision for the activity centre, the impact and opportunities afforded by the proposed new train station and the planning process.
- Ongoing discussions with both the agencies above in relation to specific matters relating to the PSP.
- Issuing the draft PSP plan, Retail Sustainability Assessment and approach for the Local Water Management Strategy to the City of Wanneroo and Department of Planning, Lands and Heritage in late-2018 to provide an opportunity to comment prior to the finalisation of the documents.
- Ongoing liaison with METRONET and the Public Transport Authority in relation to the location and form of public transport infrastructure within the centre and its impact on the centre development.
- Liaison with relevant Government authorities including Main Roads WA regarding traffic and access matters and relevant servicing authorities to inform technical reporting.
- Engagement with the adjoining landowners, in particular DevelopmentWA and Satterly Property Group as joint venture owners of Allara Estate to the north. The need to provide access to the station from the north was raised and agreed with these landowners.

The preparation of this PSP has been undertaken with appropriate levels of consultation between the applicant and relevant stakeholders prior to lodgement.

6. ECONOMIC ASSESSMENT

6.1. RETAIL SUSTAINABILITY ASSESSMENT

Urbis has prepared a Retail Sustainability Assessment (refer **Appendix A**) in accordance with SPP 4.2 - Activity Centres for Perth and Peel, in order to assess the sustainable future provision of floorspace. The key requirements of the research and advice were to:

- Determine the potential scale, mix and timing of development (retail and ancillary non -residential uses) within the Eglinton district centre; and
- Advise on the appropriate location of the potential range of uses, layout of the town centre and required land area to accommodate these uses.

The study was complemented by a Local Employment Strategy which determines the potential employment contribution of the centre and strategies to enhance employment and diversity outcomes.

Through the process of the preparation of the Eglinton PSP, it has been determined that the retail floorspace should be allocated through to the life of the PSP at 2030 in accordance with **Table 5** below.

Table 5 Eglinton PSP Retail and Non Retail Floor space allocation

Land use category	**Estimated Floorspace NLA (2030)**
Non-Retail Health/welfare/community services; government and non-government activities that provide services such as hospitals, schools, community services and hotels Office/business; administrative, clerical, professional and medical offices	11,400sq.m
Bulky goods retail/showroom	4,600sq.m
Shop-retail	20,00sq.m
TOTAL	**36,000sq.m**

The analysis indicates that at 2030 the centre can sustain around 20,000sq.m of shopping centre floorspace. This floorspace would be based around one discount department store and three supermarket anchors.

A further 16,000sq.m could be sustained in bulky goods and other non-retail uses.

Any further floor space allocation to 2040 may be contemplated but would be subject to an PSP modification.

Urbis has prepared a Local Employment Strategy in conjunction with the RSA (refer **Appendix D**). This Strategy is the outcome of engagement and analytical understanding of the region. In particular the analysis focussed on understanding:

- The expected development potential throughout the district centre and the attributes and market factors which impact on the ability of the centre to attract investment;
- How the district centre can complement other centres to maximise employment and optimise the distribution of land use and floorspace in the region; and
- What potential investment attraction and innovative urban renewal strategies and actions stakeholders should adopt and champion.

In summary, the activity centre is expected to support approximately 1395 jobs by 2030, as shown in the table 6 below.

Table 6 – Employment Estimates

EMPLOYMENT ESTIMATES

	2025	2030
DDS	0	0
Supermarket	175	300
Mini Majors	17	33
Specialty Shops	100	133
External	115	192
Total Retail	***582***	***959***
Bulky Goods	33	55
Church/Community	4	6
Library	2	4
Pub/Tavern	10	20
Sporting Facilities	6	9
Medical Centre	33	53
Gyms	10	16
Cinemas/Other Entertainment	4	7
Child Care	10	17
Motor Vehicle Services	15	22
Real Estate / Finance / Insurance	54	79
Retail / Trade Services	21	36
Private School	40	80
Aged Care	0	0
Total Activity Centre Floorspace	***822***	***1,365***
Home-Based / Co-Working Hub	10	30
TOTAL	**832**	**1,395**

It is expected that population-serving industries will dominate early employment generation, responding to the growth of the retail catchments and associated expenditure levels and service demand. However, as the district centre develops, its exposure to visitation and the provision of co-working spaces will support a more diversified industry base.

This ESS varies across the development profile and staging, reflecting the evolution of the local economy over time and changes in the composition of economic activity. ESS estimates until 2030 are shown in Table 7 below.

Table 7 – Employment Self Sufficiency Estimates

EMPLOYMENT SELF-SUFFICIENCY ESTIMATES

	2025	2030
Labour Force	200	600
Employment	832	1,395
Employment Self Sufficiency	416%	233%
Contribution to DSP Target (16,000 jobs)	5.2%	8.7%

6.2. PRELIMINARY RESIDENTIAL MARKET ANALYSIS

Urbis prepared a Preliminary Residential Market Analysis to develop the evidence base required to identify and interrogate the likely residential development within the district centre. The analysis identifies the following matters which will impact the residential market within the PSP area:

- Given an observed limited diversity of buyer types in Eglinton, land and dwelling values, and considerable competing supply for medium density product, the ability for the district centre to accommodate apartment and townhouse/terrace product will be limited in the short to medium term (0-5 years).
- The market depth for apartment products will likely be limited over a 15-year period.
- The market depth for terrace/townhouse products is currently untested in Eglinton however many developments are incorporating a mix of terrace and lots under 100sq.m within developments. The market depth is likely to be limited to 20-40 dwellings per annum over a 15-year period.
- Detached housing is the strongest market in the area and varies between estates from approximately 50 to 250 sales per annum, dependent on market conditions.
- Dependent on the development timeframe, Urbis recommends consideration of the following development mixes.

Table 8 – Potential Market Depth and Mix Considerations, 2021-36

MARKET DEPTH AND MIX CONSIDERATIONS

Dwelling Type	Market Depth (per annum)	Recommended Dwellings	Indicative Land Area (ha)
Detached House	50+	-	-
Semi-Detached Dwelling	20-40	300-600	6-11
Apartment/Flat/Unit	5-10	75-150	1-1.5

7. CENTRE VISION AND FORM

'The Eglinton town centre is an urban community which is convenient, connected and provides diversity in both people and housing choices. The Eglinton train station facilitates a central core of activity that will flow through to a vibrant high street and shopping centre catering for a variety of needs, together with high quality parks, plazas and other meeting places and amenities.

It is the largest and most vibrant centre in Eglinton and the main focus of community life during the day time and extending into the evening. It contributes to a strong sense of community and identity that is uniquely Eglinton.

The residential precinct to the east will establish an integrated community delivering a range of medium to high density housing and opportunities for mixed use next to the station, responsive to public transport, open space and key movement corridors. The unique landscape will be enhanced through the identification of key view lines, a public plaza, a connected central open space, and streets landscaped with local species will promote an active transport network to enhance walkability, residential amenity and sense of place'.

The development of this PSP will support the passenger rail station located centrally within the PSP which forms part of the broader Yanchep Rail Extension with stations also delivered at Alkimos and Yanchep. This significant public transport infrastructure proposal, led by METRONET, will provide a critical catalyst for development of the town centre.

Development shall align with the following objectives:

- The district centre will be a distinctive town centre that is uniquely Eglinton reflected through land use, built form and public realm, setting itself apart from other centres in the corridor.
- To provide an activated focal point and mix of uses leveraging the Eglinton train station as a key entry point.
- To deliver a main street along Carphin Drive between the train station and mid-way to Marmion Avenue. It will be the focus of activity in the centre and will be treated with high quality landscaping and activated frontages.
- To deliver a functional shopping centre which provides for the convenience needs of the local and visiting population.
- To promote inclusiveness through the creation of a centre that facilitates diversity in people, spaces and housing choice.
- To promote active and alternative forms of transport while providing a convenient centre.
- To promote activation of the centre both in the day and evening through an inviting dining precinct and community meeting spaces.
- To ensure appropriate staging of centre development and provide for flexibility and responsive design and commercial outcomes.
- To promote local employment opportunities in a diversity of sectors.

The PSP Part I Plan and provisions in Section 2.0 of Part I provide comprehensive provisions to guide the future subdivision and development of the Eglinton Activity Centre. **Figure 9** is a copy of the Part I Plan 1.

PIPIDINNY ROAD

PIPIDINNY ROAD

FUTURE STATION CARPARK

400m

P5

R

R80

P1

R100

CARPHIN DRIVE

S

P6

P2

FUTURE STATION CARPARK

P3

MU

R80

P4

MARMION AVENUE

WALCOTT AVENUE

EGLINTON BOULEVARD

EGLINTON BOULEVARD

R40 R50 R60 R80 R100

NOTES

1. PIPIDINNY ROAD EASTERN CONNECTION TO BE DEVIATED TO CONNECT TO EGLINTON BOULEVARD
2. CONNECTION OF RAILWAY CORRIDOR PSP TO EGLINTON BOULEVARD PSP
3. FINAL LOCATION OF THE SHARED PATH FROM CARPHIN DRIVE TO PIPIDINNY ROAD THROUGH THE PTA CARPARK TO BE DETERMINED IN CONSULTATION WITH PTA AND WAPC (BEING THE OWNER OF THE LAND)
4. INDICATIVE INTERSECTION LOCATION SUBJECT TO DETAILED DESIGN

LEGEND

- STRUCTURE PLAN BOUNDARY

ZONES

- RESIDENTIAL R40
- RESIDENTIAL R50
- RESIDENTIAL R60 *Minimum 2 Storey (East of Rail Only)
- RESIDENTIAL R60 *Book Ends
- RESIDENTIAL R80
- MU — RESIDENTIAL R80 MULTIPLE DWELLING
- R — RETIREMENT
- MIXED USE (R100)
- COMMERCIAL
- BUSINESS

RESERVES

- PUBLIC OPEN SPACE & DRAINAGE
- DRAINAGE RESERVE
- INTEGRATOR ROAD A
- INTEGRATOR ROAD B
- NEIGHBOURHOOD CONNECTOR ROAD
- MAJOR ACCESS ROAD
- LOCAL ACCESS STREET
- LANEWAY
- RAILWAY RESERVE
- PTA INFRASTRUCTURE, TRANSFER STATION AND PARK & RIDE FACILITIES

OTHERS

- S — RAILWAY STATION
- WALKABLE CATCHMENT 400m
- PRINCIPAL SHARED PATH
- SHARED PATH
- MID-BLOCK ACCESS
- PUBLIC ACCESS WAY
- STATION SQUARE
- PLAZA
- PUBLIC DRAINAGE LOCATIONS
- PRECINCT BOUNDARY
- P1 MAIN STREET PRECINCT
- P2 SHOPPING PRECINCT
- P3 RESIDENTIAL PRECINCT
- P4 BUSINESS PRECINCT
- P5 STATION PRECINCT
- P6 RESIDENTIAL PRECINCT
- SIGNALISED INTERSECTION
- LEFT IN/LEFT OUT
- PARK & RIDE VEHICLE ACCESS
- DEDICATED BUS ACCESS
- PROPOSED BUS ROUTES
- B — INDICATIVE BUS STOP LOCATIONS
- PROPOSED 132kV TRANSMISSION LINE
- SPECIAL DEVELOPMENT CONTROLS APPLY (REFER SECTION 2.6.4)

NORTH

Scale: 1:4000 @ A3

0 40 80 120m

Date: 13/07/2026 Plan: EGLEG-5-006B

EGLINTON DISTRICT CENTRE

Plan 1 - Precinct Structure Plan

7.1. ACTIVITY CENTRE PRECINCTS

The Eglinton district centre will offer a convenience centre that is retail focussed with complementary commercial, community and residential uses. The retail core and activity of the centre will be focused around a new train station which will provide active day and night uses for locals and commuters.

The activity centre is divided into six precincts that are intended to have distinct urban forms and functions. These precincts clarify the legibility of the centre and concentrates activity to ensure the main street and core will thrive.

The various precincts are illustrated on the PSP Map, **Figure 10** and described in the table below. The development controls for each Precinct are contained in Part I of the Eglinton PSP Section 2.0.

Table 9 – Activity Centre Precincts

Precinct		Precinct Description
	**Main Street Precinct** Area: 3.5ha	This precinct will comprise the main retail and community hub including Station Square. It will accommodate the majority of shop-retail activity, with a mix of commercial and hospitality buildings fronting both sides of the main street on Carphin Drive, as identified on the PSP map.
	**Shopping Precinct** Area: 9.7ha	This precinct will accommodate a mix of retail and commercial land uses in a shopping centre environment, and a consolidated area for car parking in the southern and western portion of the precinct
	**Business Precinct** Area: 3.88 ha	This precinct will predominantly accommodate a mix of car-based retail uses and carparking, drawing such uses away from the main street environment. The built form will provide appropriate presentation to the 'high speed' environment of Eglinton Drive. Some non-retail commercial uses may also be accommodated in this precinct.
	**Residential Precinct** Area: 14.9ha	This precinct will be residential, with a mix of density and aged housing opportunities. The built form will present an appropriate interface to Marmion Avenue and Eglinton Drive, considering acoustic treatment and will overlook public open space to increase amenity and passive surveillance.
	**Station Precinct** 9.02ha	The Station Precinct designates an area to be set aside for public transport infrastructure associated with the Eglinton train station. The area shown on the PSP for PTA infrastructure reflects the detailed plan PTA has prepared in conjunction with METRONET.
	**Residential East Precinct** 26.26.03ha	Located east of the railway, the Residential East Precinct provides for predominantly residential land uses to support the significant retail, commercial and non-residential land uses provided for west of the railway in the activity centre core. This Precinct will deliver a range of densities, a highly connected road and pedestrian movement system, accessible area of POS and a plaza open space area connecting to the train station.

7.2. ROLE IN HIERARCHY, SIZE AND USE

The Eglinton activity centre has been designed to operate as a district centre. This is consistent with all higher-level planning documentation including SPP 4.2. The development of the activity centre will be retail-led with a likely initial stage of 10,600sq.m NLA of shop-retail (in 2025), growing to 20,000sq.m shop-retail NLA at (2030). Any further increase in retail floorspace will be subject to review.

The proposed development staging and timing of the district centre was assessed in the context of the balance of demand available to other activity centres in the region, such as Alkimos and Yanchep.

Importantly, sales in competing centres will not be impacted by greater than 10% as a result of the development of the Eglinton district centre. 10% or less is the industry accepted impact standard, and therefore, the development of Eglinton will not disrupt the established and proposed centre hierarchy within the trade area.

The estimated mix of land uses to be achieved in the activity centre is outlined in the table below.

Table 10 – Estimated Mix of Land Uses (at 2030)

Land use category	**Estimated Floorspace NLA**	**%**
Non-Retail Health/welfare/community services; government and non-government activities that provide services such as hospitals, schools, community services and hotels Office/business; administrative, clerical, professional and medical offices	11,400sq.m	32%
Bulky goods retail/showroom	4,600sq.m	13%
Shop-retail	20,00sq.m	55%
TOTAL	**36,000sq.m**	**100%**

7.3. URBAN FORM

The activity centre is in an emerging greenfield residential area, and the intensity, scale and form of the centre will reflect its context. As a result, the centre will generally be of a medium intensity, in lower-scale buildings that integrate with the surrounding predominantly single storey residential environment.

The presence of a train station lends the urban form to being of greater intensity near the station and centre core, to encourage commuters to access a range of both dining, entertainment and convenience services either before or after their commute to work (or leisure).

As outlined in the 7.0 Vision and Overview above, the urban form across the precinct will differ according to the precincts, each with distinct roles and intended land uses.

Traditional urban form will be concentrated along and surrounding the main street, with car-based uses concentrated to the south along Eglinton Drive and north into the site on Walcott Avenue.

The desired urban form will be driven by a number of features and provisions including:

- Street frontage standards.
- Key public spaces and features.
- Requirements for residential density.
- Landscaping.

7.4. KEY SPACES AND FEATURES

Building on the vision for the Eglinton activity centre, a number of key spaces and features have been identified as critical to the delivery of Eglinton as a true and unique town centre. This includes:

- Station Square – a scaleable and defined town square adjoining the train station will provide a civic focus of energy for the centre. The space may be retained in private ownership to allow for it to be programmed and well maintained to a high standard including high-specification landscaping, flexible event spaces and recognisable features, with the potential for it to be designed to allow for its closure for markets and other community events.
- Main Street – the central portion of Carphin Drive will be an extension to the Station Square and will serve as the main street with a focus for pedestrian activity. It may include custom pavement and similar to the Station Square, will promote high-specification landscaping and pedestrian friendly features to encourage people to walk, linger and feel safe.
- Shopping Precinct – in addition to traditional retailing, the shopping precinct will provide opportunities for the community to meet in hospitality outlets. It will provide for the main convenience and comparison retail shopping and will provide access to a range of daily and weekly services such as bank, medical and other consulting and office uses.
- Pedestrian Linkages – numerous pedestrian linkages have been identified in the PSP, linking the train station with the main street, north to the park and ride facility and south to the shopping centre and the Eglinton Hill estate south of Eglinton Drive. A strong east-west pedestrian and cyclist linkage that connects to the Eglinton Train Station is proposed through the Residential East Precinct. This will connect the central POS and Eglinton Train Station via a shared path and high-quality landscaping. It may extend east subject to the development of a future Principal Shared Path within the Freeway reserve.
- Eastern Plaza – a plaza style open space area is provided for within the Residential East Precinct as the main pedestrian and cyclist access point to the railway station. High density and mixed use development is proposed to adjoin the plaza to provide for activation, built form framing and passive surveillance. The plaza will function as a key pedestrian connection to the station from the Residential East Precinct and will be delivered with strong combination of hard and soft landscape elements that provide canopy, shelter and a identifiable send of place.

7.5. RESIDENTIAL DENSITY

7.5.1. Precincts 1 - 5

As per SPP 4.2 at the time that the Activity Centre Plan for Precincts 1 – 5 was endorsed (May 2021), district centres had a performance target of achieving 20 (minimum) residential dwellings per gross hectare within a 400m walkable catchment. With the area west of the railway (Precincts 1 – 5), based on a gross area of 14.9ha for Residential and 0.5ha for Mixed Use, the minimum and desirable yield targets for the area of the PSP includes:

- Minimum – 480 dwellings.
- Desirable – 640 dwellings.

A breakdown of the estimated residential yield is provided in the table below.

Table11 – Estimated Residential Density Key Numbers: Precincts 1- 5

Item	Figure	Note
Total activity centre area	69.8ha	Land within the activity centre boundary only
Total activity centre area identified as residential	14.9ha	Residential East Precinct not included in this calculation
Total number of single-lot product	236 dwellings	Comprises 176 dwellings at R40 (220sq.m average lots size), 39 dwellings R60 (150sq.m average) and 21 dwellings at R80 (120sq.m average lot size)
Total number of multiple dwelling product	100-124 dwellings	Assumes development of 64 multiple dwellings (120sq.m average apartment size) and 39 dwellings within the Residential Mixed Use area on the PSP Map (Part 2)
Estimated number of retirement living dwellings	285 dwellings	
Total	**640** (desirable) dwellings	

7.5.2. Precinct 6

With the exception of the two mixed use sites which provide opportunities for non-residential land uses that complement the commercial core of the western side of the railway line, there are no retail or commercial land uses proposed in Precinct 6 on the basis that these land uses are adequately provided for in the area west of the railway as per ACP 104. However, Precinct 6 is within the District Activity Centre and within 400 metres of the now delivered Eglinton Train Station. Thus, it is intended that the residential densities proposed aim to align with the objectives of SPP 4.2, as modified since the endorsement of the Activity Centre Plan for Precincts 1 – 5.

SPP 4.2 aims for medium and high density housing in activity centre cores, frame areas and walkable catchments. Targets for average residential density are outlined by SPP 4.2 and proposal should aim to achieve these or demonstrate that the targets can be met in the future. As there is an existing train station within 400m of the District Activity Centre (including Precinct 6) the average residential density within the walkable catchment (800 – 1200m) should target 35+ dwellings per gross Urban Zone hectare pursuant to SPP 4.2. This walkable catchment (800-1200m) includes Precinct 6.

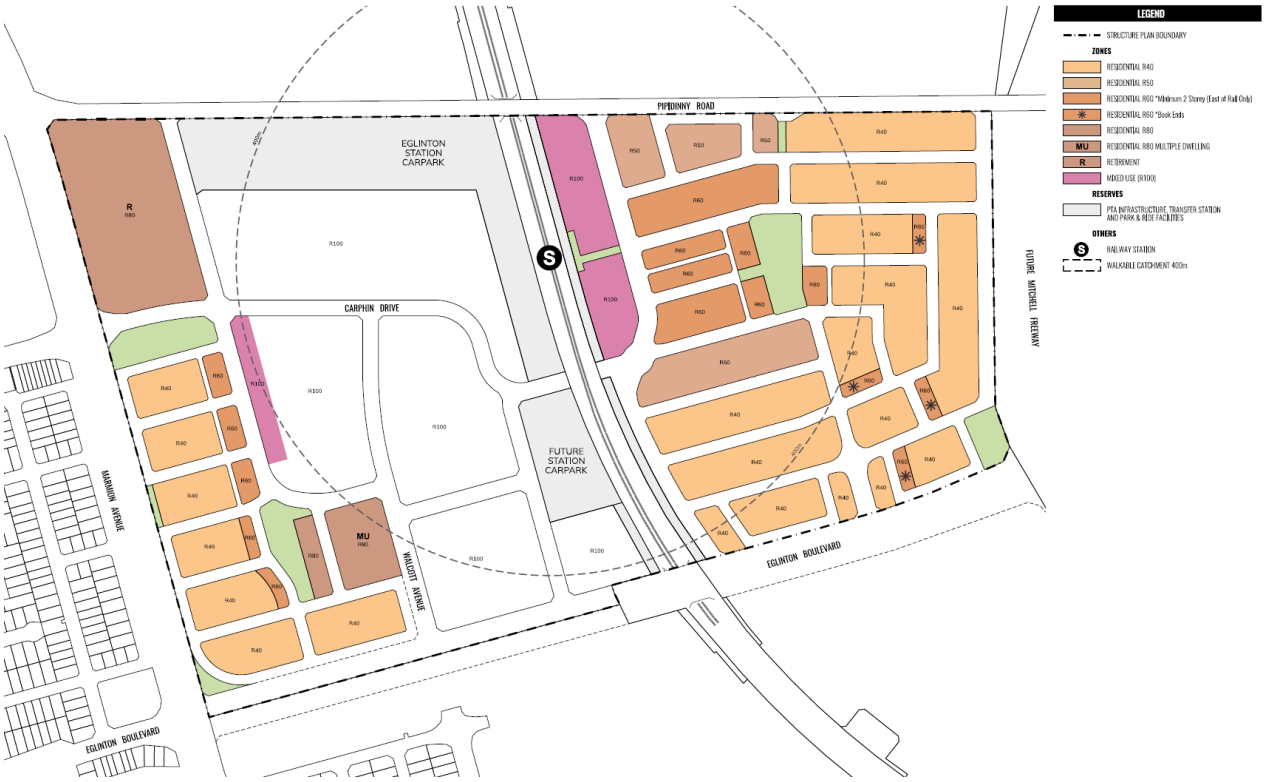
Accordingly, a dwelling yield target of 892 dwellings has been established for Precinct 6. This equates to 34 dwellings per gross Urban zone hectare within Precinct 6. This dwelling yield has been broken down into a target for three (3) sub-precincts within Precinct 6 as listed below and shown in Figure 10.

- Sub Precinct A = 253 dwellings
- Sub Precinct B= 160 dwellings
- Sub Precinct C = 479 dwellings

Figure 10 – Residential East Precinct Dwelling Yield Targets



Figure 11 – Residential Density Plan



7.6. SUSTAINABILITY

The sustainability of the Eglinton activity centre will be driven by its efficient urban design and complementary mixture of land uses, resulting in more effective use of land and encouraging efficient means of transportation. Innovation on an ongoing basis will provide opportunities for reducing waste and using resources more efficiently.

8. LANDSCAPE AND PUBLIC REALM

The key landscape and public realm elements of the PSP are identified as follows:

8.1.1. Station Square

To be developed in accordance with Part I, Main Street Precinct – Precinct 1 Part I Section 2.

8.1.2. Public Open Spaces

The PSP area contains five spaces of unrestricted POS that have been considered in line with the City Local Planning Policy 4.3 (LPP 4.3) and in tandem with the drainage catchment and treatment/infiltration basins to the centre, refer **Figure 12 – 16**. These public open space areas perform a number of functions as part of the network of spaces for the PSP area. In addition to community benefit, the spaces perform drainage functions incorporating water sensitive urban design principles, areas for neighbourhood amenity (including landmark sites visible from a number of streets), and future nature spaces.

The sites identified for public open space will be subject to an extensive earthwork strategy over the entire PSP area and therefore retaining existing vegetation is impractical. Both of these areas will therefore be replanted as part of the creation of nature spaces. The five key public open space areas are described below.

Indicative designs have been prepared for these five parks, with the ultimate detailed design to be in accordance with the City's requirements set out in LPP 4.3.

Carphin Park (West of Railway)

Carphin Park is the northern POS located at the entrance to the development off Marmion Avenue and includes the following key characteristics;

- Carphin Park is greater than 5,000sq.m and complies with LPP 4.3. It will provide drainage in the form of a surface basin (1,195sq.m) and subsurface storage/infiltration.
- It is proposed that the area be grassed for approximately half of the site as part of the recreation provision including play equipment based on nature play.
- This area will provide an attractive entrance to the town centre and will provide a buffer between the entry road off Marmion Avenue and the southern residential areas.

Figure 12 – Carphin Park (West of Railway)

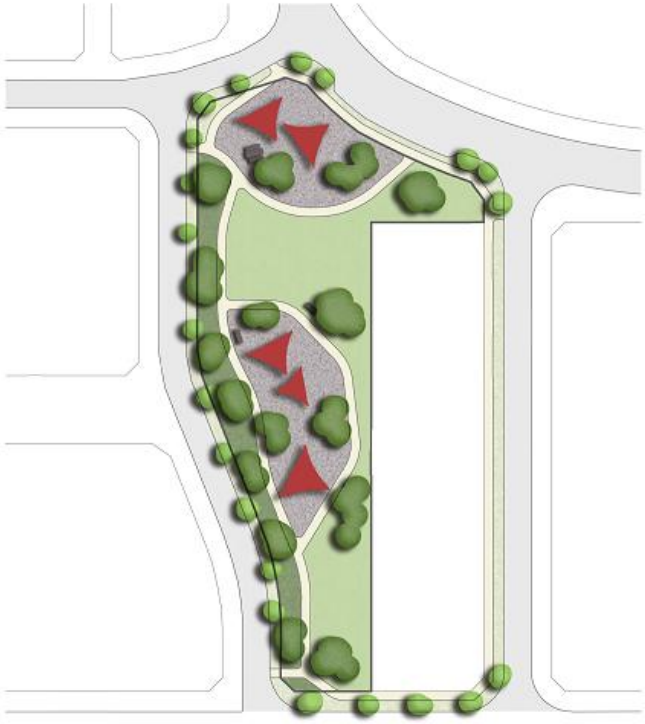


Southern Park (West of Railway)

Southern Park will provide amenity for the abutting higher density development proposed between R60-80 and includes the following characteristics.

- Southern Park is proposed to be recreation in function with the drainage component to address the immediate area only. This area will contain two high quality shaded grassed areas within circular tree lined pathways. The site is less than 5,000sq.m and the provision of inventory requirements will be reflected accordingly.
- For those lots that directly abut Southern Park, consideration will be given to built form orientation, uniform fencing and surveillance with window openings from habitable rooms to overlook the park.

Figure 13 Southern POS (West of Railway)



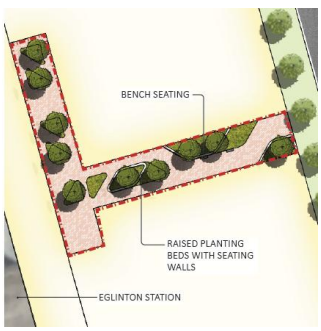
Plaza POS (East of Railway)

A public plaza open space area is proposed at the main access point to the railway station. The plaza will have an area of approximately 980m2.

High density built form abutting the plaza will provide for passive surveillance of the space and will be encouraged to include a pedestrian entrance to/from the plaza.

The plaza will function as a strong pedestrian connection to the station combined with key landscaping to provide shade and a sense of place. No drainage will be accommodated within the plaza space.

Figure 14 – Plaza POS (East of Railway)



Central Park (East of Railway)

The Central Park is located at the centre of Precinct 6 and aligns with the east-west road connecting the future Freeway to the railway station and is nestled at the edge of the higher density residential area to provide amenity, relief and pedestrian connections through this area. It also aligns with the Pedestrian Access Way connecting to Pipidinny Road to the north. The park has the following key characteristics:

- Central Park has an area of 7,132m2.
- It will accommodate drainage in the form of a surface basin.
- The park will accommodate grassed areas for outdoor activities, children's playground, path connections, informal lawn areas, shelter and seating and landscaped vegetation areas.

Figure 15 – Central Park (East of Railway)



South Eastern Park (East of Railway)

The Southern Park will provide amenity for the south eastern area of Precinct 6 and provide an appropriate buffer between the proposed residential development and the future intersection of Eglinton Boulevard and the Mitchell Freeway at this location. This park has the following key characteristics:

- Southern Park has an area of 2,739m2.
- It will accommodate drainage in the form of a surface basin.
- The park will accommodate path connections, informal lawn areas, seating and landscaped vegetation areas.

Figure 16 – SE Park (East of Railway)



8.1.3. Public Open Space Schedule

Agreed Structure Plan 82 requires the provision of 1.58ha of POS within the Eglinton PSP, in accordance with the table below.

Table 12 ASP82 POS Provision

Eglinton ASP 82 POS provision			
POS NR	**Creditable Open Space**	**Drainage**	**Total**
40	**0.35ha**	**Nil**	**0.35ha**
41	**0.29ha**	**Nil**	**0.29ha**
42	**0.94ha**	**Nil**	**0.94ha**
Total	**1.58ha**	**Nil**	**1.58ha**

The public open space schedule provided in Table 13 calculates that the PSP provides approximately 1.622ha of credited open space, this being surplus to the 1.58ha required by ASP 82.

Table 13 - Public Open Space Schedule

TOTAL POS & DRAINAGE PROVISION							
POS Reference	Type	Gross Area	Bioretention Area (First 15mm)[5]	Flood Storage Area (First 15mm to 20% AEP)	Flood Storage Area (1% AEP inclusive)	Flood Storage Area (1:5yr to 1:100yr)	Unrestricted POS Area (excl. 1:5y to 1:100y FSA)
1	Carphin	0.460	0.122	0.000	0.000	0.000	0.339
2	Residential	0.450	0.000	0.000	0.000	0.000	0.450
3	Station Square	0.080	0.000	0.000	0.000	0.000	0.080
4	SE POS	0.287	0.145	0.074	0.275	0.074	0.012
5	Central POS	0.713	0.098	0.062	0.207	0.062	0.507
6	Plaza	0.099	0.000	0.000	0.000	0.000	0.099
Total		**2.089**	**0.364**	**0.136**	**0.000**	**0.000**	**1.486**
Restricted Use Public Open Space							
Flood Storage Area (First 15mm to 1:5yr)[5]				0.136			
Total				**0.136**			
Unrestricted Use Public Open Space							
Unrestricted Public Open Space (excluding 1:5y to 1:100y FSA)				1.486			
Flood Storage Area (1:5y to 1:100y FSA)				0.000			
Total				**1.486**			
Public Open Space Contribution							
Restricted Use Public Open Space				0.136			
Unrestricted Use Public Open Space				1.486			
Total POS Contribution				**1.622**			
POS Requirement (as per Eglinton ASP82)					**1.580**		
POS Surplus (to requirement of ASP82)					**0.041**		

All areas are in hectares.

8.1.4. Trees

The PSP area lies over the Quindalup Dune system typically characterised as having a limited number of natural trees of stature. In keeping with the City Street Tree Policy and the preference for locally occurring native species, the majority of the street trees would be drawn from a palette of species that are known to perform in such environments.

A number of the species that would be considered could also include local species not directly associated with Quindalup sand but that can be seen to be also characteristic of those environments, such as some of the Casuarinas and Eucalypts. It is considered that trees that are clearly exotic be restricted to the Main Street Precinct where the specific qualities such as seasonal shade, size, and form may be seen to be of advantage and where marker trees may signal key nodal/landmark locations.

Given the extensive earthworks that are to be associated with the PSP area, the street trees shall augment the planting associated with the public open space areas in terms of windbreak, erosion control, and shade provision. In addition, the trees would provide vegetative cover in the longer term in order to address offsetting the removal of existing cover and wildlife corridors.

In addition, the collection of as many Grass Trees (*Xanthorrhoea preissii*) and Zamia Palms (*Macrozamia riedle*i) as practicable will be undertaken prior to clearing and used for landscaping within the POS areas as well as road reserves where possible and practical.

Figure 17 – Public Open Space and Drainage Plan



9. MOVEMENT NETWORK

The surrounding road network has been planned to accommodate an activity centre in the location proposed, including the construction of Eglinton Drive. The activity centre benefits from the future train station and a legible residential street network that feeds into the activity centre, and surrounding roads that have been designed and/or built to accommodate anticipated traffic volumes.

Transport Assessments are included at **Appendix B,** including relevant addendums. This outlines the anticipated traffic volumes on the surrounding road network, with the conclusions being that the layout is consistent with Liveable Neighbourhoods and that the proposed network will operate satisfactorily and within capacity. The Assessment does however indicate that the intersections on Marmion Avenue are showing early signs of capacity issues, with the possible expansion of park and ride bays from 400 to 1,000 exacerbating the issues on the external road network. This matter is addressed in Addendum 1. The proposed road network is illustrated in **Figure 18.**

The table below summarises the intended movement network features and principles of the activity centre.

Table 14 – Movement Network Features and Principles

Mode/Issue	Features and Principles
Public Transport 	The centre will be serviced by the train station at Eglinton located centrally within the PSP. The provision of a station at the heart of the centre means that bus services will be in place early within the development staging. The bus routes and proposed bus stop locations are included in **Figure 16**.
Walking and Cycling 	Active transport has been resolved to a high level of detail including provision for cycling and pedestrians. Carphin Drive and Walcott Avenue will be key active transport links in the centre with shared paths leading to the main street. The northern end of Walcott Avenue is also proposed to be a shared street for cyclists. There is provision for a shared path along the western side of the rail alignment providing north-south connectivity around the centre. Pedestrian connectivity between Pipidinny Road and Carphin Drive is proposed via the proposed Pedestrian Access Way. Eglinton Station is also connected by a pedestrian link from the main street through the Station Square to the west and through the Plaza to the east, **refer Figure 16**. Walking and cycling networks have been resolved to a high level of detail in the Residential East Precinct, including key east-west pedestrian to the railway station and the core of the District Activity Centre. The east west access street linking the Future Freeway to the Plaza is proposed as a key active transport connection. This is proposed to be achieved via the delivery of shared paths and landscaped verge.
Cars and Parking 	Being an emerging greenfield residential area away from urban centres, it is expected that the highest proportion of trips to and from the Eglinton district centre will be via private car. Carparking associated with the train station (park and ride) is concentrated to the north on Pipidinny Road as part of the initial stage, with allowance for expansion south of the train station. In the short term, 400 park and ride bays are required, with allowance for up to 1,000 bays in the long (ultimate) term.

Mode/Issue	Features and Principles
	Carparking for the shopping centre will be provided at-grade (at least the short to medium term) however will be configured away from the Station Square and main street to ensure activity and finer grain land uses are located close to the train station. Consideration of how this at-grade parking could evolve to a decked structure has been considered as part of the design. To encourage alternative modes of transport to the centre, the minimum car parking rate for non-residential land uses is set at 5 spaces per 100sq.m of NLA, and at a lower rate for uses such as Showroom, Office and Community Purposes. This is within SPP 4.2 guidance and is a relatively low rate given the activity centre's context. The lower rate will reduce the extent of car parking across the activity centre and allow for more intense development around the main street. At the development application stage, specific traffic advice will inform the configuration and extent of access points and car parking required for the relevant developments.
Servicing 	It is a reality of commercial development, particularly shopping centres, that loading, and service areas are required to meet the needs of tenants, and the efficient operation of any centre. The key driver of planning should therefore to be to minimise the visual, acoustic and spatial impact of these facilities. Guidance is provided in Part 1 of the PSP to ensure that service areas appropriately screened from view, and their amenity impacts minimised.

Figure 18 – Movement Network

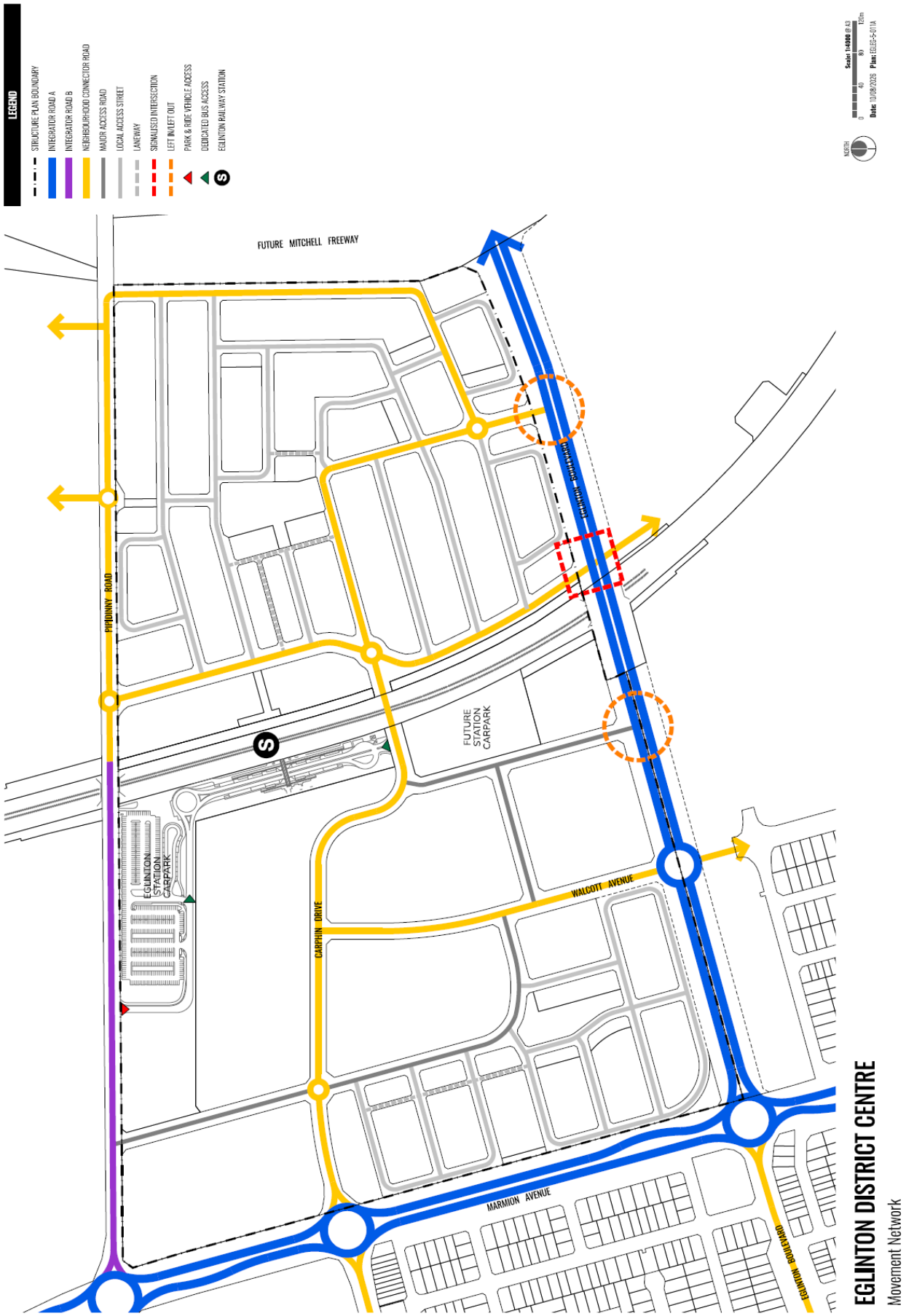
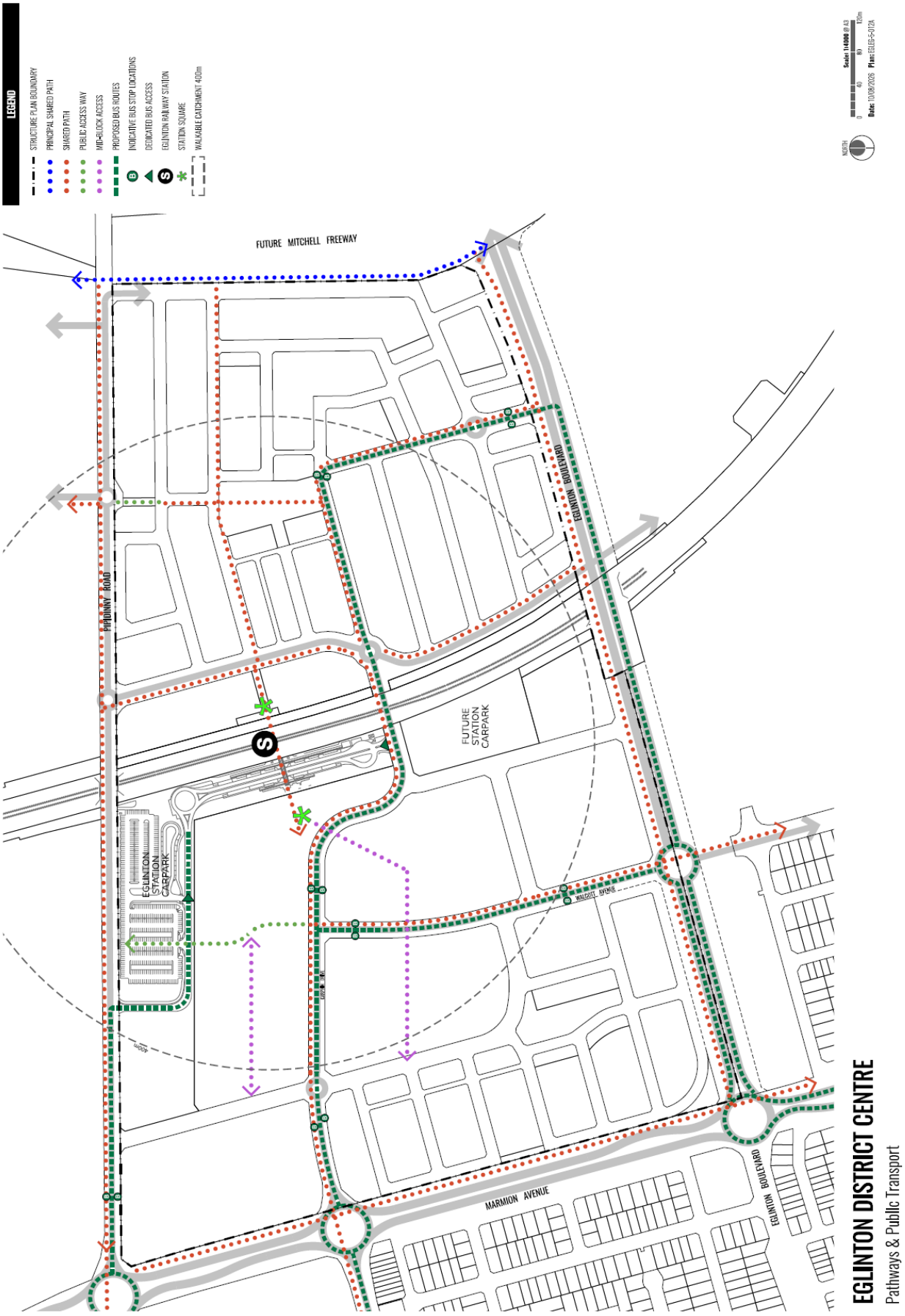


Figure 19 – Public Transport and Pedestrian/Cyclist Movement



10. STORMWATER MANAGEMENT

The first step in applying integrated water cycle management to the site is to establish agreed environmental values for receiving waters and their ecosystems. Key characteristics of the site that inform water management include:

- Undulating topography reflecting the dunal system on which the site sits.
- Highly permeable sandy soils resulting in at source infiltration of stormwater runoff with no discharge of flows from site in a major event.
- Significant clearance to groundwater (>26m)
- Existing vegetation across the site.

The overall objective for integrated water cycle management for the site is to maintain the existing hydrological regime and minimise pollution.

The LWMS addendums prepared to support this PSP (included at **Appendix E**) are provided as addendums to the previously approved Eglinton Local Structure Plan Area LWMS (Coffey 2011) in order to ensure the water management objectives and principles proposed reflect current policy, and City of Wanneroo and DWER expectations.

The LWMS addendums design objectives seek to deliver best practice outcomes using a water sensitive urban design (WSUD) approach, including management approaches for water conservation, flood mitigation, stormwater quality management and groundwater management.

The criteria proposed within the LWMS addendums are based on consultation with key stakeholders, the characteristics of the existing environment and a contemporary best-practice approach to integrated water cycle management.

The overall approach to water conservation is to reduce the amount of scheme water required within the development at both a lot and estate scale. Within the lot, potable water consumption will be reduced by promoting water efficient fixtures and appliances (WEFA) and water wise gardening (WWG) principles within lot gardens. On an estate scale, groundwater will be utilised for irrigation of landscaped areas within POS which will also utilise WWG principles.

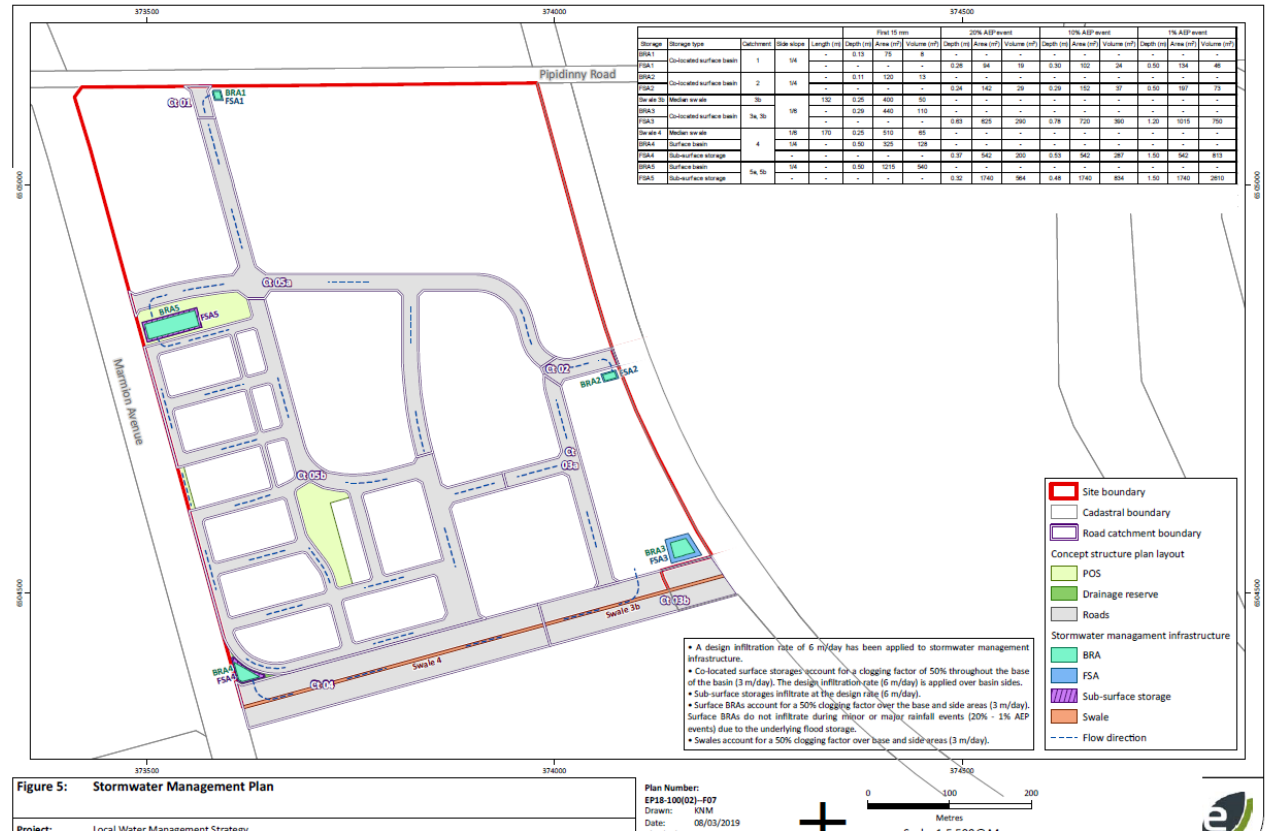
The stormwater management strategies for the site (included at **Figure 20)** aim to maintain the existing hydrology by retaining flows up to the major rainfall event on site. Retention will be provided through the use of lot soakwells, median swales, bio-retention areas, flood storage areas and sub-surface storage.

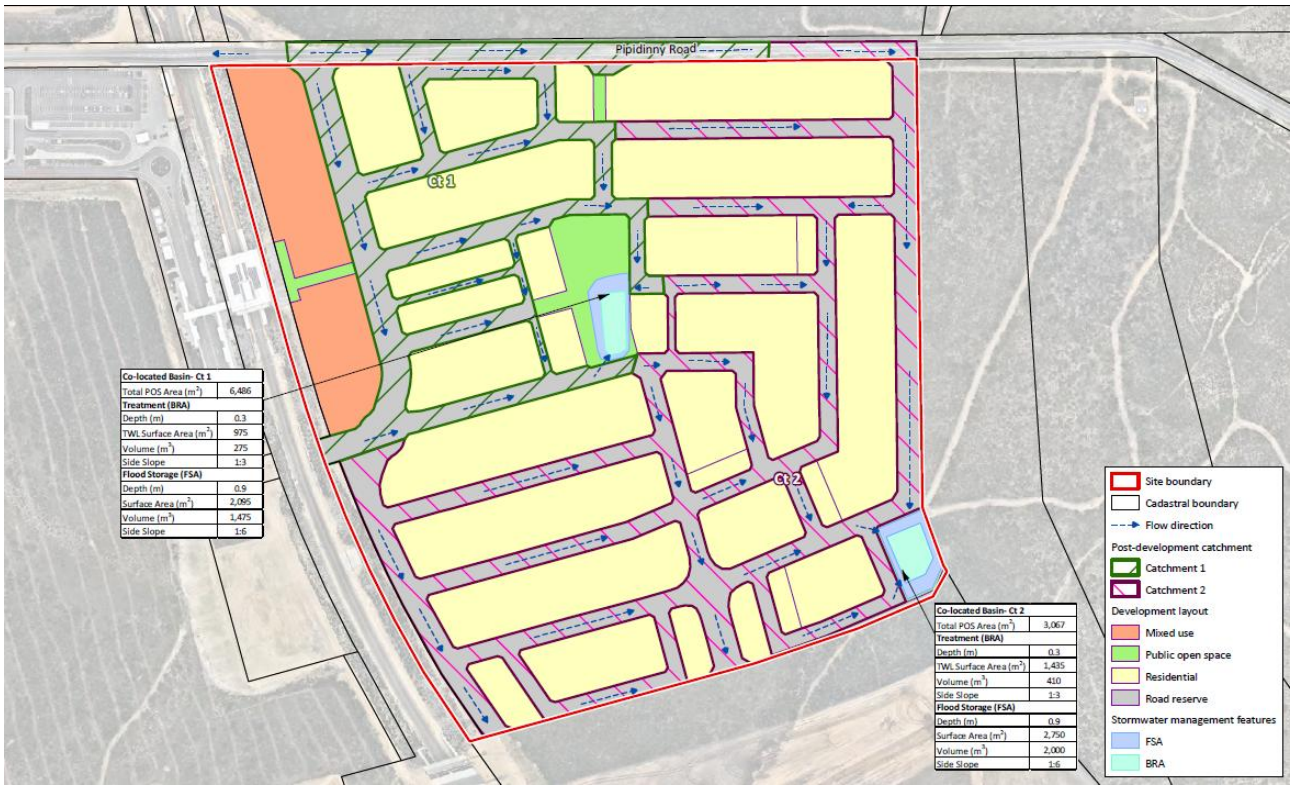
Treatment of small event runoff will be provided through the retention of runoff in vegetated treatment structures including median swales and bio-retention areas. Additional treatment structures including tree pits, verge swales and raingardens can also be considered.

Surface runoff modelling has been used to inform the concept design of surface water management infrastructure and understand the spatial implications of drainage requirements across the site, shown in Figure EP18-100(02)-F07. The location of assets has been determined based on existing topography and natural low points as well as in consideration of the overall requirements of the development in relation to the mixture of residential and commercial and appropriate functionality of open space areas. A combination of POS and drainage reserves will be utilised to incorporate efficient drainage design and higher amenity outcomes.

The significant clearance to groundwater across the site means that direct groundwater management is not required, and groundwater quality will be maintained through appropriate treatment of surface water runoff before infiltrating to groundwater.

Figure 20 – Stormwater Management Strategy Plans





11. ACOUSTIC MANAGEMENT

Acoustic Assessments have been prepared by Herring Storer and are included at **Appendix F.** The assessments were undertaken with respect to State Planning Policy No.5.4 – Road and Rail Transport Noise and Freight Considerations (SPP 5.4) and specifically associated with vehicles travelling along the future Freeway, Marmion Avenue,Eglinton Drive and the railway line.

The results of the assessment indicate that noise received at the ground floor of residences located adjacent to Marmion Avenue and Eglinton Drive would exceed the noise limit and therefore a Notification on Title and 'quiet house design' would be required.

For residences adjacent to Marmion Avenue, a noise wall is not permitted, therefore where possible, minor access streets should be located between Marmion Avenue and residential premises. This will allow the front of residences to face the major roads and ensure that the residences provide a barrier to an outdoor living area at the rear of the residence.

Modelling of noise from the future Mitchell Freeway shows that, even without a noise wall, the traffic noise received at the Residential East Precinct complies with the Noise Target Criteria of SPP 5.4. Due to the road interface proposed with the future Freeway, there would only be a very few number of lots, if any at all, that may require Quiet House Design to Package A. The implementation of a noise wall would further decrease the noise to significantly below the Noise Target Criteria and there would be no requirement for Quiet House Design to any lots.

Noise modelling indicates that noise received at the closest residences for the Passenger Railway Line would slightly exceed the Noise Target Criteria. This would be addressed by Quiet House Design at the level of Package A.

Specific acoustic measures will be explored in greater detail as part of future subdivision applications.

12. EARTHWORKS DESIGN AND STRATEGY

The proposed recontouring over the PSP area provides a balanced earthworks design to avoid any import or export of material to and from the site.

The earthworks design is generally based on retaining the nominal landform however undertaking earthworks to achieve acceptable grades (nominally <5%) over the full site to present a developable landform and minimise subsequent site costs for lot purchasers.

Slope analysis for the Residential East Precinct demonstrates the requirement for extensive earthworks and retaining walls. Due to the steep slopes, bulk earthworks will be required to provide acceptable lot levels and grades for roads whilst trying to accommodate the natural landform. Bulk earthworks will also be necessary to accommodate the existing levels of the Mitchell Freeway road reserve, Pipidinny Road, the current rail line and train station and the future levels of Eglinton Boulevard.

At the time of undertaking bulk earthworks, appropriate management will be undertaken in accordance with the City of Wanneroo Local Planning Policy addressing dust, amenity and environmental management.

13. TECHNICAL STUDIES AND APPENDICES INDEX

This PSP incorporates the following technical studies and appendices:

Table 15 – Technical Studies and Appendices Index

Appendix	Title	Date and Author
A	Retail Sustainability Assessment	Urbis, 2018
B	Transport Assessments	Arup, February 2019 PJA August 2026 (Precinct 6)
C	Bushfire Management Plans	Strategen, March 2019 JBS&G, December 2024 (Precinct 6)
D	Local Employment Strategy	Urbis, 2018
E	Local Water Management Strategy Addendums	Emerge, March 2019 Emerge, December 2024 (Precinct 6)
F	Acoustic Assessments	Herring Storer, March 2019 Herring Storer, August 2026 (Precinct 6)
G	Landscape Masterplan – Precinct 6	Emerge, August 2026

APPENDIX A RETAIL SUSTAINABILITY ASSESSMENT

APPENDIX B TRANSPORT ASSESSMENTS (INCLUDING ADDENDUM 1, ADDENDUM 2 AND PRECINCT 6 TRAFFIC IMPACT ASSESSMENT)

Woodsome Management

Eglinton District Centre Activity Centre Plan Amendment

Transport Impact Assessment

August 2026

Project Code: 08336

Document Reference: TP_RP_0001

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Version Control and Approval

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A – Draft	14 November 2024	MW/CY	RD	TJ
B – Final Address client comments	22 November 2024	RD	RD	TJ
C – Final Address client comments	11 December 2024	RD	RD	TJ
D – Final Update to include Schedule of Mods	31 July 2026	RD	RD	SD
E – Final Update PSP Map backgrounds	11 August 2026	RD	RD	RD

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1 Introduction

1.1 Background

1.1.1 PJA has been commissioned by Woodsome Management to undertake and prepare a Transport Impact Assessment for a site at Eglinton which is proposed to be an amendment to the currently permitted Eglinton District Centre Activity Centre Plan as part of the Eglinton Activity Centre.

1.1.2 This report has been prepared in line with the Western Australian Planning Commission (WAPC) Transport Impact Assessment Guidelines Volume 2 – Structure Plans (2016).

1.2 Purpose of the Report

1.2.1 Western Australian Planning Commission Transport Assessment Guidelines (WAPC Guidelines) provide direction on the level of assessment which is necessary to be carried out with respect to the likely traffic impact of a development proposal. Typically, any development which is expected to have a 'high' traffic impact, that is, generating more than 100 trips in the peak hour is satisfied by a Traffic Impact Assessment (TIA) of which this document provides the assessment of the amendment site at Eglinton.

1.2.2 In accordance with the WAPC Guidelines, this TIA outlines:

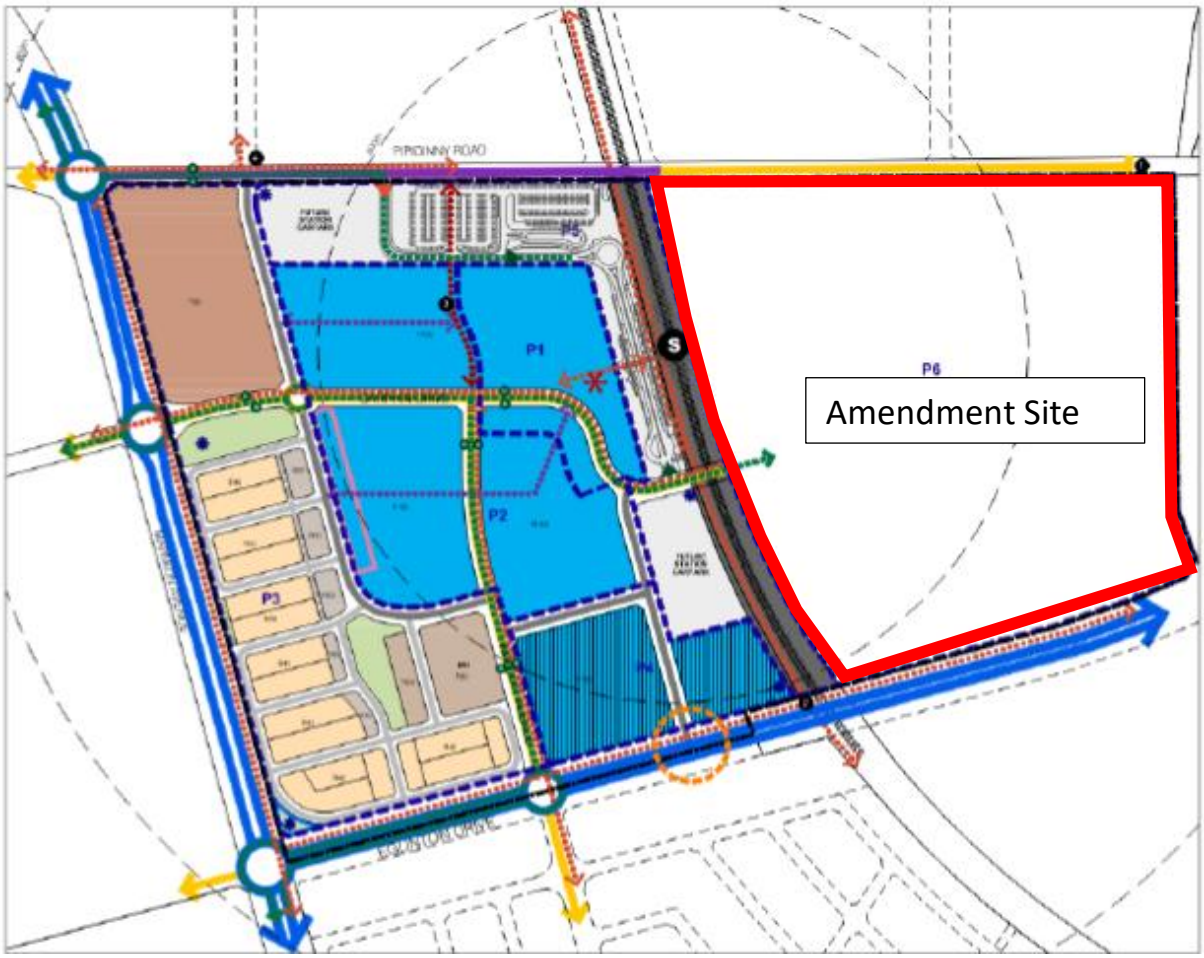
- The site context and its proximity to adjacent sites.
- Existing transport conditions proximate to the site.
- The proposed site – internal road network, connections and changes to the external road network.
- Analysis of the internal road network and connections to the external road network.
- Safety.
- Summary and conclusions.

2 Site Context

2.1 Proposed Eglinton Activity Centre Amendment Site

2.1.1 The proposed amendment site to the Eglinton Activity Centre is located south off Pipidinny Road and is shown in Figure 2-1. The proposed site lies east of the Eglinton Activity Centre site and south of the North Eglinton Local Structure Plan area.

Figure 2-1: Eglinton District Centre Activity Centre Plan and Amendment Site

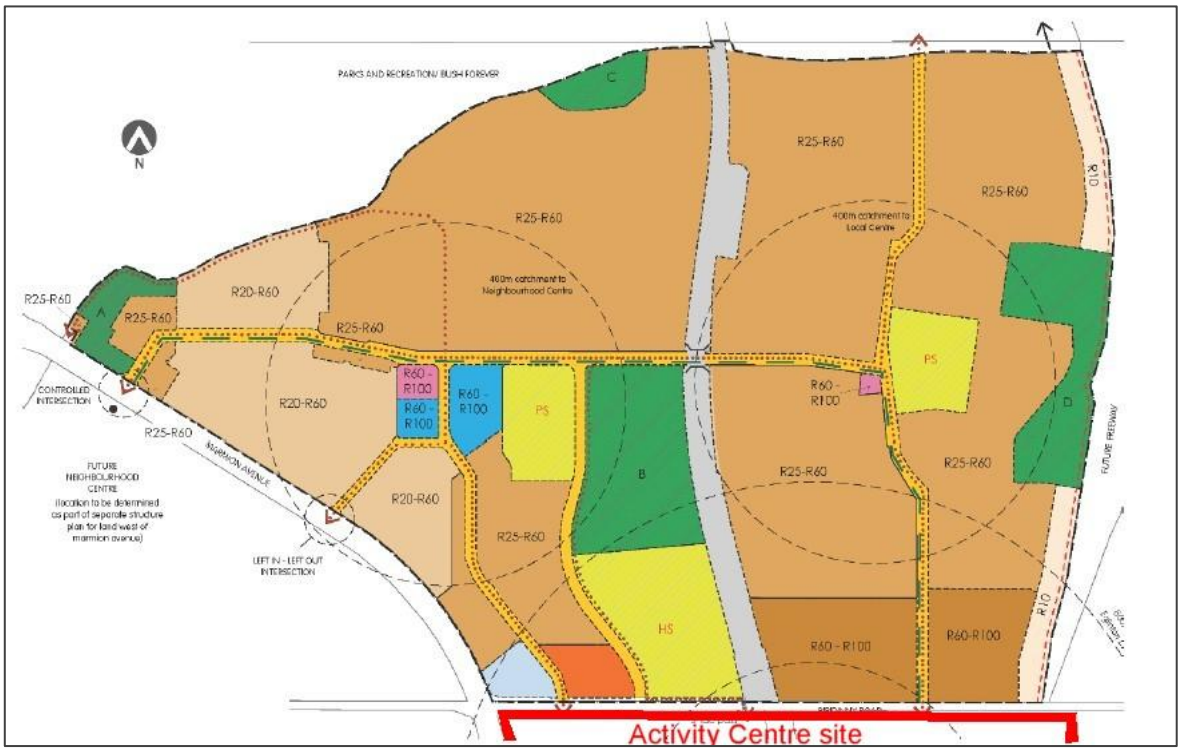


2.1.2 The first part of the proposed Eglinton Activity Centre plan was the District Centre Subdivision (DCS) site shown in Figure 2-1, which was granted permission in 2021 for the proposed mixed development of commercial, residential and retail located around the newly opened Eglinton Rail station on the Yanchep Line. The whole site was granted subdivision approval in 2023. The Eglinton DCS site also includes a Park and Ride facility adjacent to the station car park with provision of 428 spaces.

2.2 North Eglinton Local Structure Plan (LSP)

2.2.1 The North Eglinton Local Structure Plan lies north of the amendment site, to the north of Pipidinny Road. The North Eglinton LSP site is shown in Figure 2-2 below in relation to the Activity Centre Site, including the amendment site.

Figure 2-2: North Eglinton Local Structure Plan Site



2.3 Mitchell Freeway Extension

2.3.1 To the east of the amendment site is land secured to deliver the planned extension to the Mitchell Freeway which will run between Romeo Road to the south of the site and Yanchep to the north.

3 Existing Situation

3.1 Subject Site & Surrounds

3.1.1 The subject site is located to the east of the Yanchep railway line and is bounded by Pipidinny Road to the north, bushland to the east and south. The site is currently bushland with trails transecting the site.

Figure 3-1: Subject Site & Current Surrounds



Source: Google Maps

3.2 Existing Land Use and Access Arrangements

3.2.1 The site is currently unoccupied bushland and is private property with no public access.

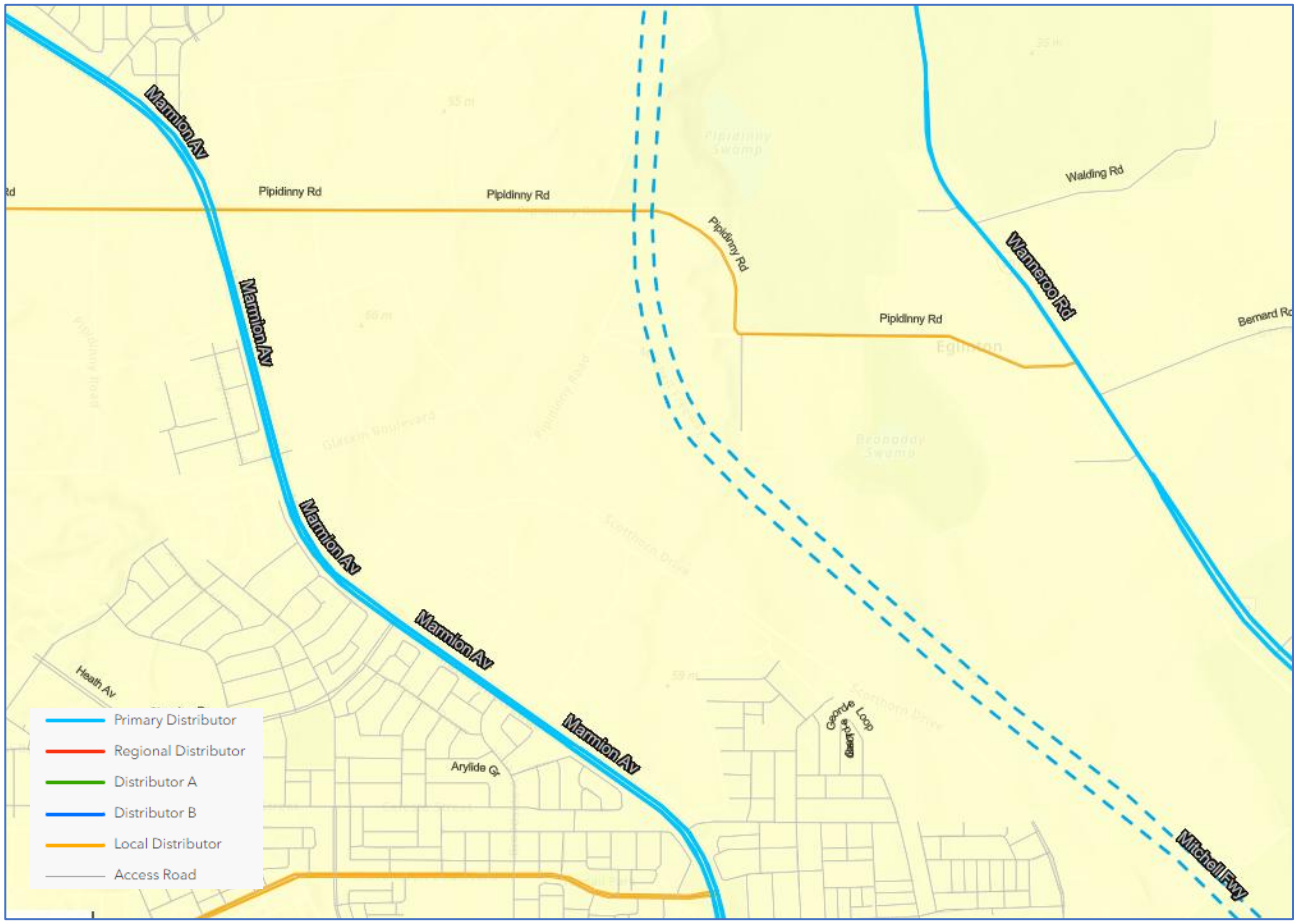
3.3 Existing Road Network

3.3.1 A summary of the road classifications and speed limits on the surrounding road network is provided in Table 3-1 overleaf with Figure 3-2 showing the road hierarchy network.

Table 3-1: Existing Road Network Classification and PSL Summary

Road Name	Network Type	Road Classification	Posted Speed Limit
Pipidinny Road	Local Road	Local Distributor	80 km/hr (east of Marmion Ave) 50k m/hr (west of Marmion Ave)
Marmion Avenue	State Road	Primary Distributor	80 km/hr
Mitchell Freeway (proposed)	State Road	Primary Distributor	TBA
Wanneroo Road	State Road	Primary Distributor	90 km/hr

Figure 3-2: Existing Road Network



Source: Main Roads Information Mapping System

Pipidinny Road

3.3.2 Pipidinny Road is a one-lane two-way road, classified as local distributor road under the Main Roads WA functional road hierarchy and subject to a 50km/h speed limit west of Marmion Avenue and 80km/hr east of Marion Avenue. It is approximately 6m wide with no footpaths adjacent to the site. Once the Mitchell Freeway is developed, Pipidinny Road will be a cul-de-sac on both sides of the freeway, i.e. no access will be provided through to Wanneroo Road.

Marmion Avenue

3.3.3 Marmion Avenue is a two-lane dual carriageway, classified as a Primary Distributor Road under the Main Roads WA functional road hierarchy and subject to the speed limit of 80km/h. It is a line marked and sealed road with a carriageway of approximately 10m wide in each direction.

Wanneroo Road

3.3.4 Wanneroo Road is a two-lane dual carriageway, linking Joondanna and Yokine in the south with Wanneroo and Yanchep in the north. It is classified as a Primary Distributor Road under the Main Roads WA functional road hierarchy and is subject to a speed limit of 70km/h. It is a line marked and sealed road with a carriageway of approximately 10m wide in each direction.

Mitchell Freeway Extension

3.3.5 The proposed Mitchell Freeway extension will run north-south on safeguarded land to the east of the amendment site. The freeway will be a Primary Distributor with two lanes in both directions.

3.4 Traffic Volumes

3.4.1 Existing traffic volumes have been obtained from Main Roads (WA) and this shows there were approximately 13,785vpd (with 10.7% heavy vehicles) on Marmion Avenue in the vicinity of Pipidinny Road.

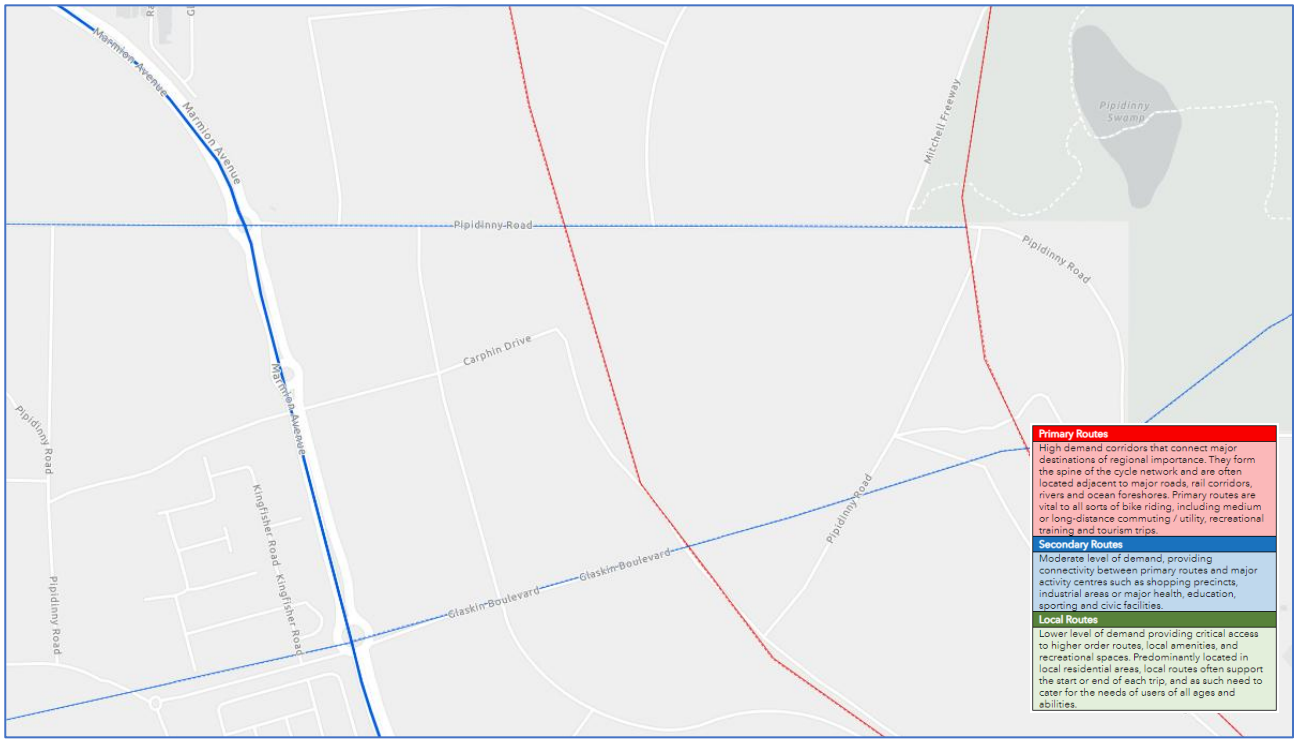
3.5 Existing Cycle Network

3.5.1 There are cycling facilities within the vicinity of the site as per the Perth and Peel Long-Term Cycle Network (LTCN) which are shown on Figure 3-3 and are described as follows:

- Secondary Route along Marmion Avenue connecting towards Yanchep in the north, and towards Alkimos in the south.
- Secondary route along Pipidinny Road running between Marmion Avenue to the west and the future Mitchell Freeway to the east.
- Secondary route running between Marmion Avenue to the west and the future Mitchell Freeway to the east along the southern border of the Activity Centre site.

It should be noted the Primary Route shown along the alignment of the Yanchep rail line is indicative only as the Principal Shared Path within the rail corridor terminates at Alkimos and does not extend further northwards. The intent is for cyclist to find alternate routes or a developer to offer alternatives.

Figure 3-3: Cycle Facilities



Source: Department of Transport LTCN for Perth and Peel
(https://dot-wa.maps.arcgis.com/apps/webappviewer/index.html?id=1e739953bbee461f81ffe3a8157894b5)

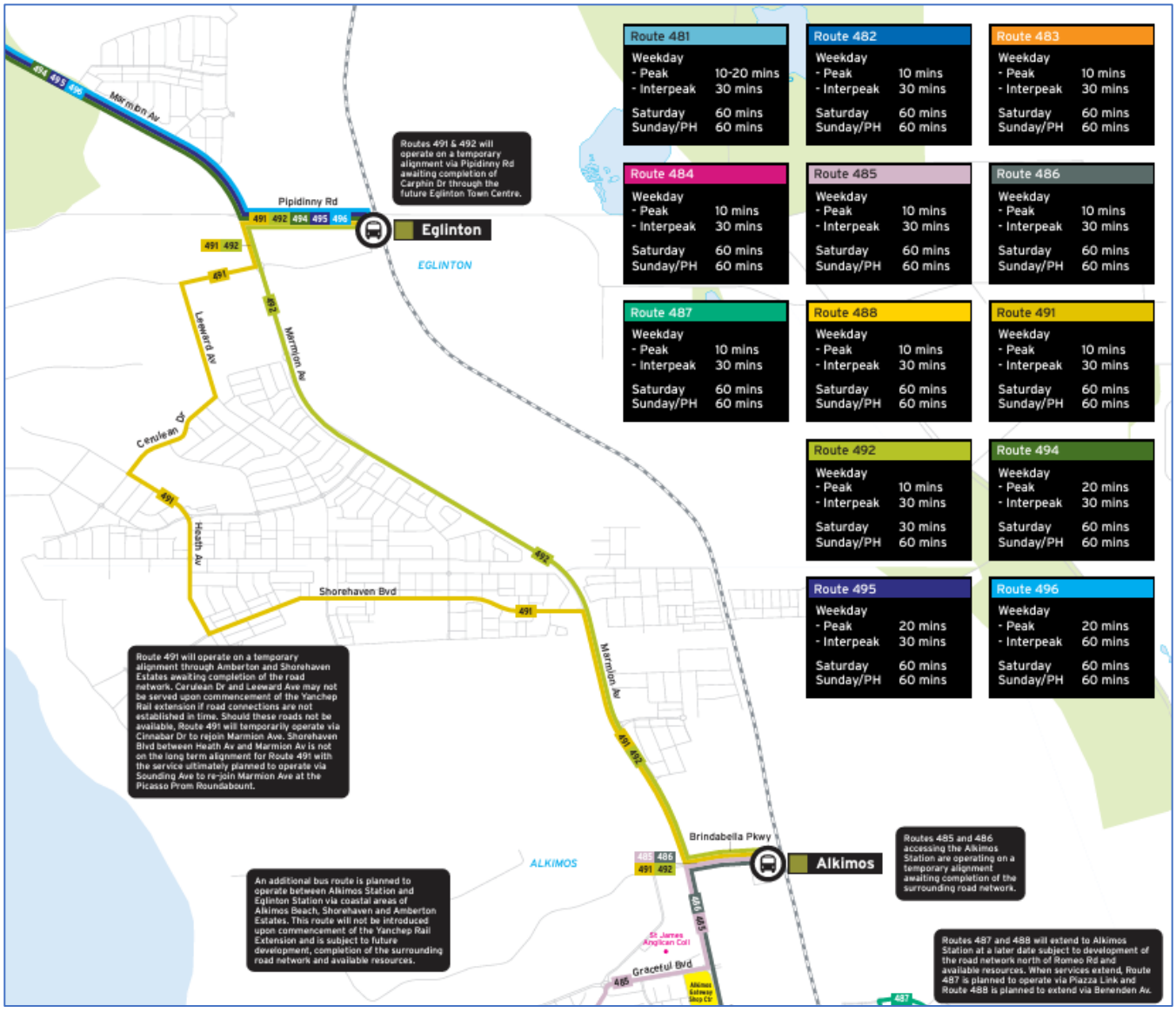
3.6 Existing Public Transport Access

Eglinton Station

3.6.1 The newly opened Eglinton Station provides rail journeys to Yanchep to the north and Alkimos/Perth to the south. The station has provision for 428 car parking spaces and is also served by the bus service 491 and 492 which provide 10-minute frequencies within the peak hour and travel along Marmion Avenue between Alkimos Station and Eglinton Station.

3.6.2 The local bus network is shown in Figure 3-4 below, the network shows the frequency and connectivity between Eglinton and Alkimos stations with connectivity to Yanchep to the north.

Figure 3-4: Local Bus Routes between Eglinton and Alkimos Stations



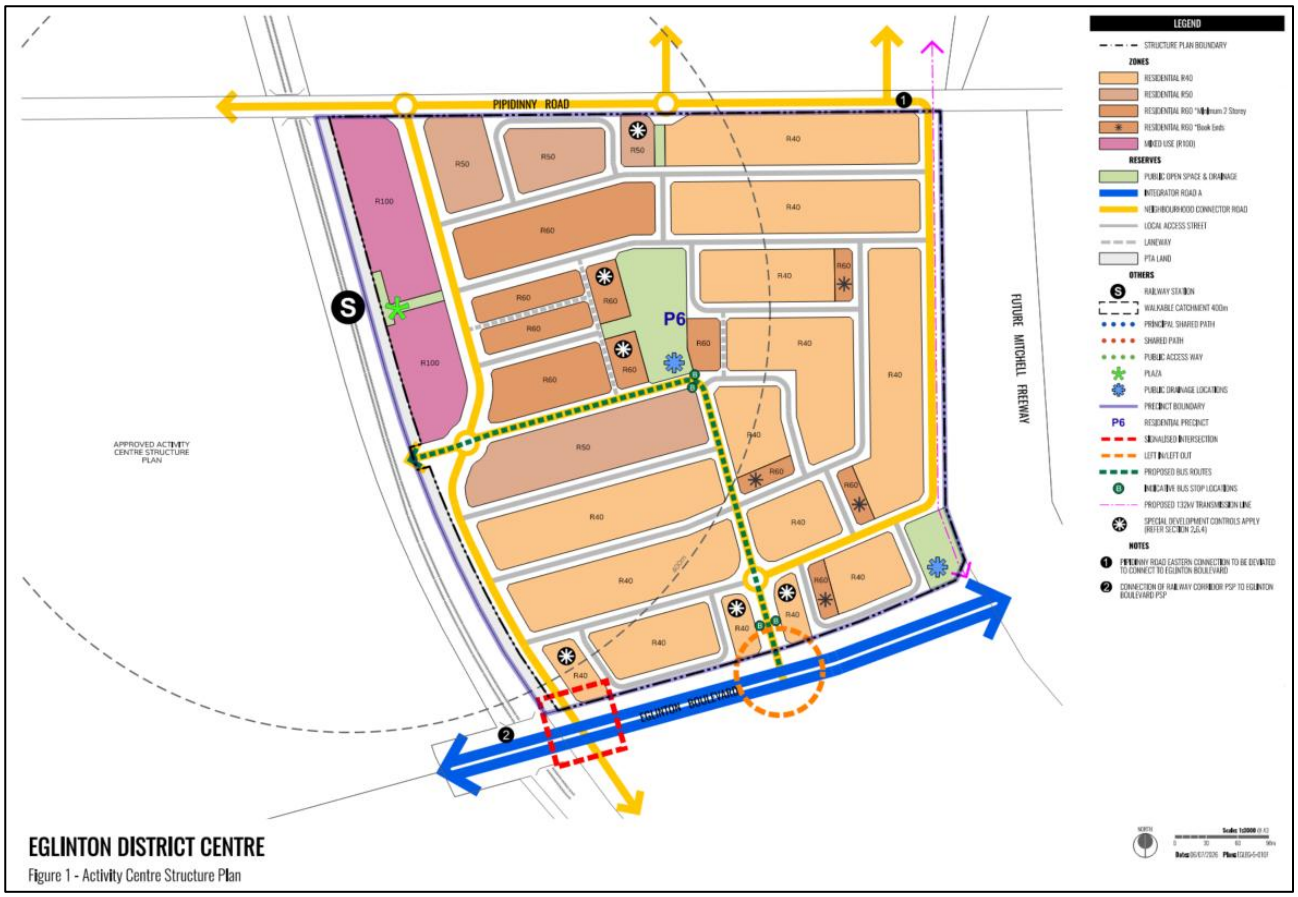
Source: www.mysaytransport.wa.gov.au

4 Proposed Development

4.1 Overview

4.1.1 The proposed amendment site development is shown in Figure 4-1 below and is comprised of 26.263ha of residential development comprising differing densities as well as allowance for public open space.

Figure 4-1: Proposed Amendment Site Plan



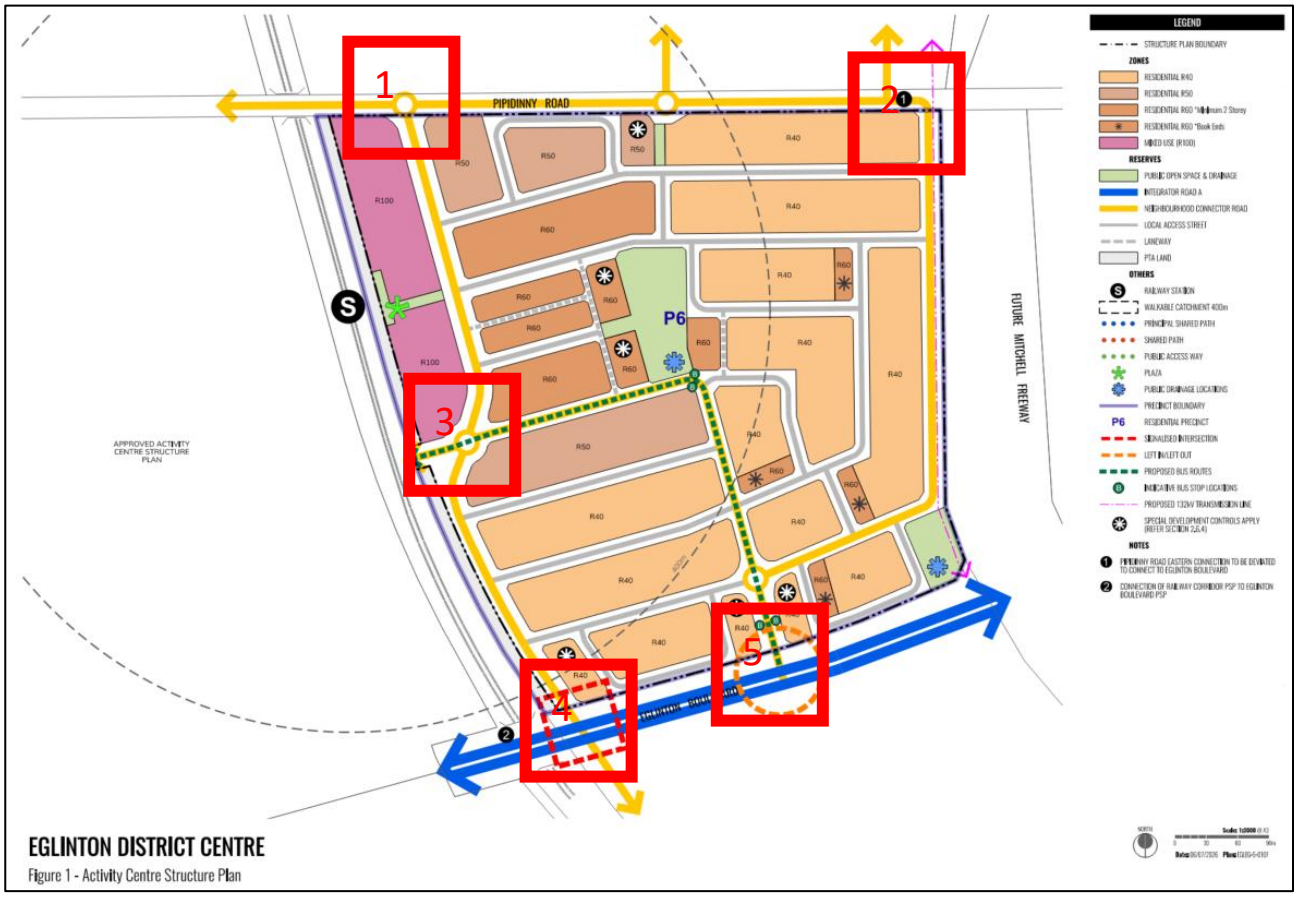
4.2 Access Arrangements

4.2.1 Access arrangements for the proposed development will be provided in five locations, two from Pipidinny Road, one from the adjacent Eglinton Activity Centre and two from the future Eglinton Drive. The form and function of the proposed access points and intersections are listed in Table 4-1 below and shown in Figure 4-2.

Table 4-1: Proposed Access Points and Junction Types

No.	Access Point	Junction Type	Connecting Road	No. of Lanes
1	Northwest	Roundabout	Pipidinny Road	2
2	Northeast	Right angle bend	Pipidinny Road	2
3	West	Straight connection with Carphin Drive	Activity Centre	2
4	Southwest	Traffic signal	Eglinton Drive	4
5	South	Left in/left out	Eglinton Drive	4

Figure 4-2: Site Access Arrangements



4.2.2 The provision of traffic signals at the intersection of Pipidinny Road and the NS road (Intersection 1) would ultimately be subject to assessment by Main Roads as part of a TSAP application. The roundabout will prove the best traffic flows at this intersection. It should be noted that Pipidinny Road will have a median, and pedestrians will be able to cross in two separate movements with the median providing centre of road storage. The traffic volumes will fall below a level that would otherwise require signalisation, in this case 2,800 vehicles per hour or about 25,000 to 30,000 vehicles per day, this as noted in Table 2, WAPC Transport Impact Assessment Guidelines Volume 2, Planning Schemes, Structure Plans & Activity Centres.

4.3 Parking

4.3.1 The Eglinton Activity Centre amendment site has been resolved to a high level of detail and further planning will be required in order to resolve details regarding on and off-street parking and servicing for the centre. This will be applicable to portions west of the railway line as the proposed amendment site will be residential development with some on-street parking required and likely to be provided around POS for example.

4.3.2 The DSP established principles for Urban Design and Open Space Design. This included a principle to create improved accessibility through:

> *A well-designed place is more walkable, is safe for pedestrians, is compatible with public transit, reduces need for cars and parking, is a more efficient use of time and money for residents and visitors and has a greater connection between uses.*

Source: Alkimos Eglinton District Structure Plan March 2016 (Part 2, Explanatory Section).

4.4 Active Transport Network

4.4.1 The proposed amendment site will have a comprehensive active transport network throughout the site connecting it to existing provision through Carphin Drive and to future provision along Pipidinny Road and Eglinton Boulevard. The active travel network will permeate the site and provide good connections from the residential blocks to retail/commercial blocks and the train station.

4.4.2 There are ground level details that will preclude the location and utility of a path on the south side of the road Pipidinny Road. Lots on that side of the road will likely be at a great level difference to the road level and there may be practicalities in providing lot access to a footpath on the south side of the road with these lots likely to front internally. However, this detail can be looked at the next subdivision stage.

4.4.3 There is proposed to be a main east to west connection across the site connecting the railway station to the future PSP path proposed within the future Mitchell Freeway on the eastern side of the site.

4.4.4 There is also proposed to be a NS connection through the centre of the structure plan area using sections of road reserve and POS. Whilst this is detail beyond structure planning, the path is provided in the road network to encourage safe cycling and connectivity through the precinct.

4.4.5 The designs for these streets adopt current best practice, including NOT having unprotected bikes lanes within the roadway and having traffic lanes at 3.2m width to avoid squeezing of bikes should they ride within the roadway and this approach is endorsed by DTMI. 3.2m wide lanes are accepted by the PTA.

4.5 Public Transport

4.5.1 The proximity of Eglinton Station provides the site with a public transport system that is accessible by walking from the development and will likely be utilised by future residents in favour of their car. Furthermore, bus services that run to the station provide routes to adjacent districts such as Alkimos and Yanchep.

4.5.2 The current bus routes to and from the Eglinton Station are on a temporary alignment along Pipidinny Road as noted in Figure 3-4. Once the Eglington ACP western precinct is developed, these routes are proposed to access the station along Carphin Drive. The proposed street network of the amendment site comprises three Neighbourhood Connector streets and these streets will facilitate any future expansion of the bus services into or through the amendment site with wider 3.5m traffic lanes.

4.5.3 The bus routes through the amendment area will likely only ever be connector/feeder services for the train station using the amendment area roads to traverse to and from Eglinton Drive. The estate is within an 800m/10-min catchment in accordance with Liveable Neighbourhood requirements. The bus route would add only complementary service for people who may not want to walk to the station.

4.5.4 Details as to how bus stops will be positioned along Neighbourhood Connector streets and located in proximity to crossovers can be provided in the subdivision drawings. It is standard practice that bus stops can be provided on Neighbourhood Connector streets in the form of nibs with buses stopping in the traffic lane as per Liveable Neighbourhoods. Neighbour Connector B roads (NCB) allow for buses in this manner.

4.6 Traffic Management

4.6.1 The level of detail required to demonstrate the specific traffic calming measures and road design treatments necessary to achieve the target operating speeds identified in Table 6 of *Liveable Neighbourhoods* is not considered appropriate at the structure planning stage.

4.6.2 The Structure Plan establishes the overall movement network and urban structure, with detailed road design, intersection treatments, speed management measures and traffic calming devices to be developed and assessed during subsequent subdivision and engineering design stages. These later stages will provide the necessary level of detail to demonstrate compliance with the applicable *Liveable Neighbourhoods* operating speed requirements.

4.6.3 With respect to the suggestion of implementing a 40km/h speed zone throughout the structure plan area, the appropriateness of speed zoning will be determined through detailed traffic engineering assessment and in consultation with the relevant road authorities during future planning and design stages. The proposed movement network has been designed to support a highly walkable and cyclable environment, particularly given the site's proximity to the station, however the establishment of statutory speed limits falls outside the scope of the Structure Plan.

5 Daily Traffic Volumes and Traffic Impact

5.1 Forecast Daily Volumes

5.1.1 Traffic volumes have been based on the extracted information from the Eglinton Activity Centre Plan Transport Assessment (ARUP 2019). Peak hour generated trips for the ACP Amendment are estimated at approximately 650 trips in each of the AM and PM peak period with daily trips of 8 trips for about 650 single residential lots and 4 for about 350 apartments for the approximate 1,000 dwellings with the mix of single residential lots and apartments. The approved ACP has a 1,200 student school on this site, which is no longer included in the ACP, and this was assessed as generating 1,200 trips in the AM peak and 800 in the PM peak period.

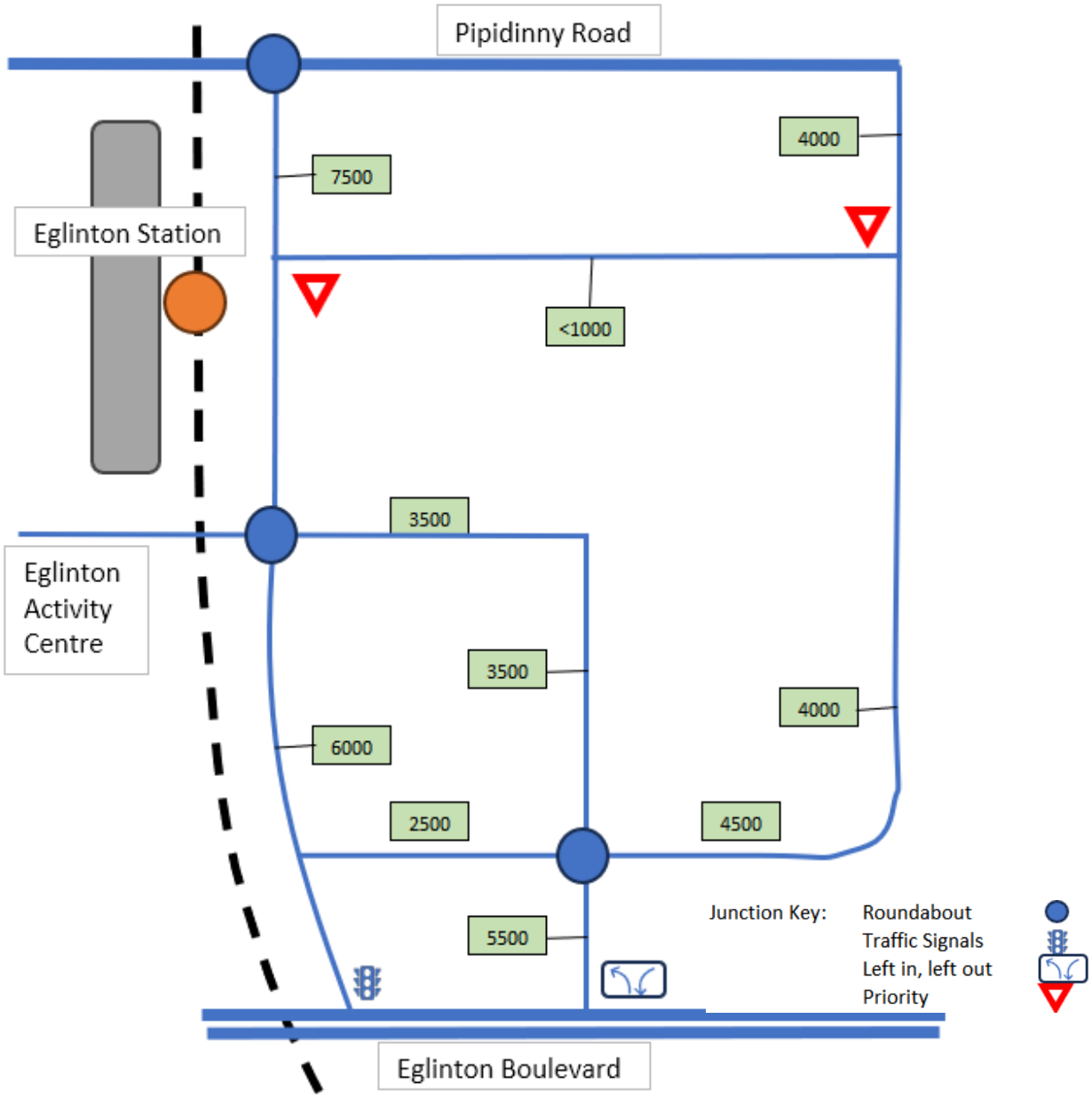
5.1.2 With the removal of the school, the ACP Amendment area is expected to have 45% less generated trips compared with the previously modelled school on the site in the AM peak and 20% less in the PM peak, this is a significant less traffic flow for the Amendment site and will only improve the performance of the local and wider network.

5.1.3 Overall the Eglinton ACP Amendment is expected to generate approximately 19% less trips in the AM peak and 3% less in the PM peak compared to the previously approved ACP.

5.1.4 Modelling (ARUP 2019) for the approved ACP was set at a 2031 time horizon. This same horizon model was used for the assessment of the first stage Eglinton District Centre Subdivision (ARUP 2023). Thus the same model has been used as the basis for the amendment assessment to maintain consistency across previous assessments and approvals.

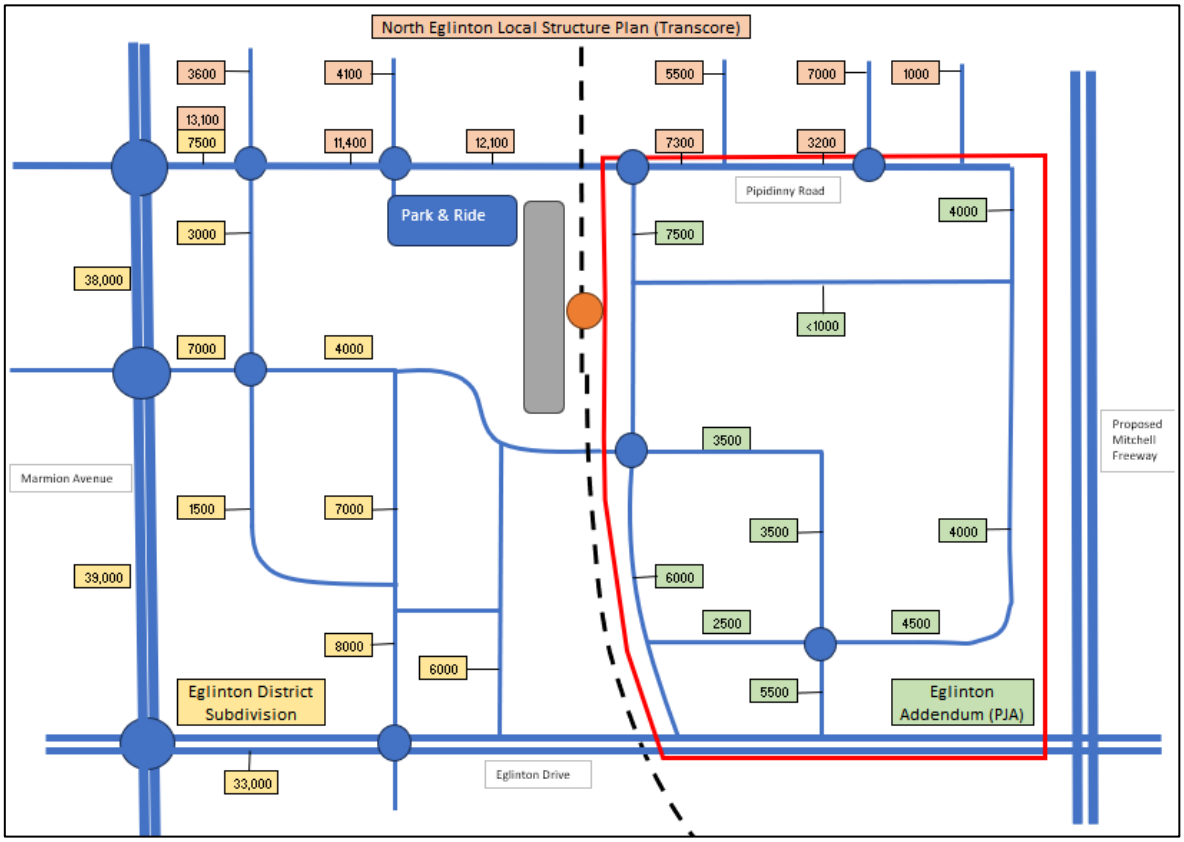
5.1.5 Daily traffic volumes for the proposed site at full build out have been calculated based on the proposed residential densities through the site and TIA analysis for adjacent sites submitted as part of their assessments. Figure 5-1 below shows the forecast daily flows on the major links through the site. Note, local streets with traffic volumes of less than 1,000vpd are generally not shown.

Figure 5-1: Forecast Daily Volumes



5.1.6 The forecast daily volumes are presented in Figure 5-2 below in relation to the two adjacent developments of the Eglinton Activity Centre and the proposed North Eglinton Local Structure Plan. Note, local streets with traffic volumes of less than 1,000vpd are generally not shown.

Figure 5-2: Forecast daily volumes with adjacent sites predicted daily volumes



Source: Eglinton Activity Centre Plan Transport Assessment (Arup) and North Eglinton Local Structure Plan TIA (Transcore).

5.2 Road Typologies and Daily Traffic Per Road Type

5.2.1 The table below sets out the proposed road typologies for the amendment site and includes the likely vehicles per day estimates for each of those road types. The cross sections are available within the landscaping design drawings. Please refer to them for details.

Table 5-1: Road Typologies and Vehicles Per Day

Road Name	LN Road Type	Forecast VPD	LN indicative max vpd	Proposed indicative Road Reserve Width	LN indicative road reserve width	Reason for Difference
Eglinton Boulevard	Integrator A	33,000	35,000	53.0m	52.6m	Previously agreed
Pipidinny Road near freeway	Neighbourhood Connector B	3,200	3,000	20.0m	19.4m	Retains current reserve width
Pipidinny Road near railway	Neighbourhood Connector A	7,300	7,000	23.0m	24.4m	Verge width each side with indented parking as permitted under LN
New Road 1 (north) adjacent to railway (north-south)	Neighbourhood Connector A	7,500	7,000	24.4m	24.4m	No change to LN
New Road 1 (south) adjacent to railway (north-south)	Neighbourhood Connector A	6,000	7,000	20.0m	24.4m	No embayed parking provided as no properties will front this section of Road 1
New Road 2 adjacent to freeway (north-south)	Neighbourhood Connector B	4,000	3,000	20.5m	19.4m	No parking provided plus easement on eastern side
New Road 2 (east-west)	Neighbourhood Connector B	4,500	3,000	16.0m	19.4m	No parking provided and reduced verge plus easement on eastern side
New Road 3/Carphin Drive extension	Neighbourhood Connector B	3,500	3,500	19.4m	19.4m	No Change to LN
New Road 3/Carphin Drive extension near Eglinton Drive	Neighbourhood Connector A	5,500	7,000	23.0m	24.4m	Verge width reduced each side with indented parking as permitted under LN
New Road 4 from station to freeway (east-west)	Access Street D	<1,000	1,000	18.0m	14.2m	Increased verge width for shared path and landscaping.
New Road 5 Extension of Road 2 between Road 1 and Road 3	Access Street C	2,000	3,000	16.0m	15.4m	To allow for wider paths and verges
All other New Roads	Access Street D	<1,000	1,000	15.0m	14.2m	To allow for wider paths in verges
All other New Laneways	Laneways	<200	300	6.0m	6.0m	No change to LN

5.2.2 Road classification and cross sections are not strictly dictated by traffic volumes but also the end function and parking demands of the street. The traffic volumes indicated in Liveable Neighbourhoods are indicative maximums only and the predicted traffic flow is not significantly more that the noted 7,000vpd indicative maximum. In the case of Pipidinny Road with consideration of the traffic flow, form and function of the street it is considered acceptable for a Neighbourhood Connector A . It should be noted that an Integrator B (Centres) and Neighbourhood Connector A have the same median width (2m) with only the parking bays slightly wider (2.5m v 2.1m). As the southern side of Pipidinny Road will likely not allow direct property frontage,there will likely be no parking bays. The function of the road is also connecting to a neighbourhood and not a through route through neighbourhoods, which integrators will typically provide as a function.

5.2.3 Road classification and cross sections are not strictly dictated by traffic volumes but also the end function and parking demands of the street. The traffic volumes indicated in Liveable Neighbourhoods are indicative maximums only and the predicted traffic flow is not significantly more that the noted 7,000vpd indicative maximum. In the case of the NS road parallel to the railway the traffic flow, form and function of the street with low turnover of parking either side of the street through this residential area, a Neighbourhood Connector A is considered acceptable. The function of the road is also connecting to a neighbourhood and not a through route through neighbourhoods, which integrators will typically provide as a function.

5.2.4 The traffic flows for the Neighbourhood Connector B parallel to the freeway is considered acceptable as there will be development with direct access only on the western side of the road. There will be no interruption to traffic flows as southbound traffic will likely not be interrupted by cars stopping to turn right into direct fronting properties, as most traffic will be accessing these properties from the south, on the western side and the northbound traffic flow will have no interruption as there would be no cars stopped to turn right. As such, the Neighbourhood Connector B as proposed will be cater for more than the 3,000vpd indicative maximum noted in LNs and the 4,000vpd expected is considered to be a reasonable traffic flow in this instance.

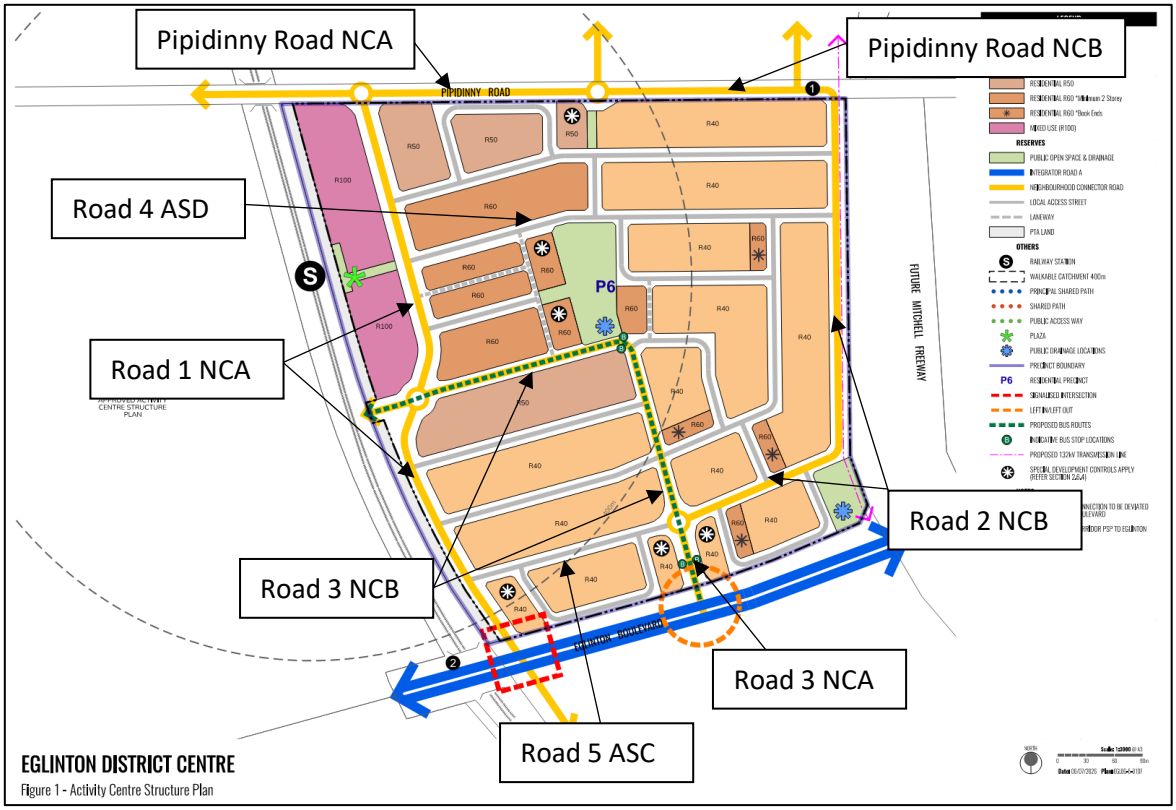
5.2.5 Table 4 from LN infers that Neighbourhood Connector B streets can carry traffic flows of more than 3,000vpd. It should be noted that current best practice is not to have unprotected on-street bike lanes but fully protected bike facilities, typically provided off-street.

5.2.6 The expected traffic flows for the Carphin Drive extension are not significantly more than the “indicative maximum” flow for a Neighbourhood Connector B and as such the cross section is considered appropriate. It is noted that Table 4 from LN infers that Neighbourhood Connector B streets can carry traffic flows of more than 3,000vpd. It should be noted that current best practice is not to have unprotected on-street bike lanes but fully protected bike facilities, typically provided off-street.

5.2.7 The likely traffic volumes shown above present complementary traffic levels that have been predicted for the activity centre site and northern extension site, this provides an excellent comparative analysis for the site.

5.2.8 The hierarchy of the proposed road network is shown below in Figure 5-3.

Figure 5-3: Proposed Road Hierarchy



5.3 Intersection Performance

5.3.1 Given the significant 45% reduction in traffic flows in the AM and 20% in PM peak periods for the amendment area (and 19% AM/3% PM reduction for the whole Eglinton ACP) with the removal of the school site and replacement with residential lots, this will only improve the previously approved performance for the intersections on Marmion Avenue in the AM peak with previous assessed performance in the PM peak being similar to assessed in the original Eginton ACP.

5.3.2 There was no requirement for the Eglinton DSP ACP assessment (ARUP 2019) to assess the future access with the Mitchell Freeway extension, so there is likewise no need for such an assessment required as part of this amendment.

5.3.3 The amendment will have less peak hour traffic generated and thus less impact than the previously assessed and approved ACP, so there is considered to be little benefit undertaking this assessment.

5.3.4 No baseline assessment was undertaken as part of the original Eglinton ACP and the results of any assessment undertaken now would only serve to show that with less traffic generated by the ACP amendment the performance would be an improvement compared to the originally approved Eglinton ACP, if that had been assessed at that time.

6 Active Transport

6.1 Overview

6.1.1 Active travel within the amendment site will complement the provision proposed for the activity centre site and northern extension. Active travel will also provide direct links from the amendment site to the Eglinton rail station and adjacent planned long-distance routes.

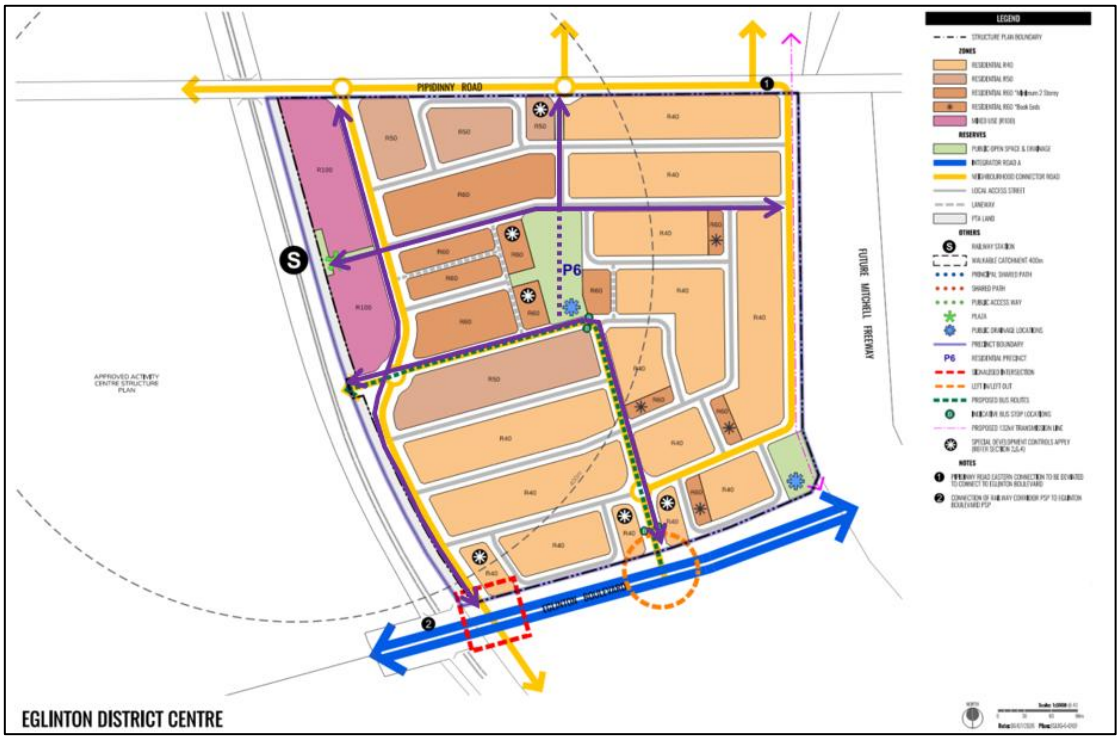
6.2 Pedestrian Access/Facilities

6.2.1 Pedestrian infrastructure will be provided throughout the amendment site with footpath connections linking residential areas to the station and adjacent commercial areas. Informal and formal crossings will be provided where there is a desire line or intersection. Figure 6-1 below shows the proposed cycle links for the site which will also include pedestrian footpaths along these lines as well.

6.3 Cycle Access/Facilities

6.3.1 The proposed cycle infrastructure will take the form of shared cycle/pedestrian footpath with consideration of segregation in areas of higher densities of dwellings. Figure 6-1 below shows the main cycle routes that will connect the amendment site to the rail station, the future planned cycleway adjacent to the Mitchell Freeway and to the future Eglinton Boulevard.

Figure 6-1: Proposed Cycleway Links through the site (PURPLE Lines)

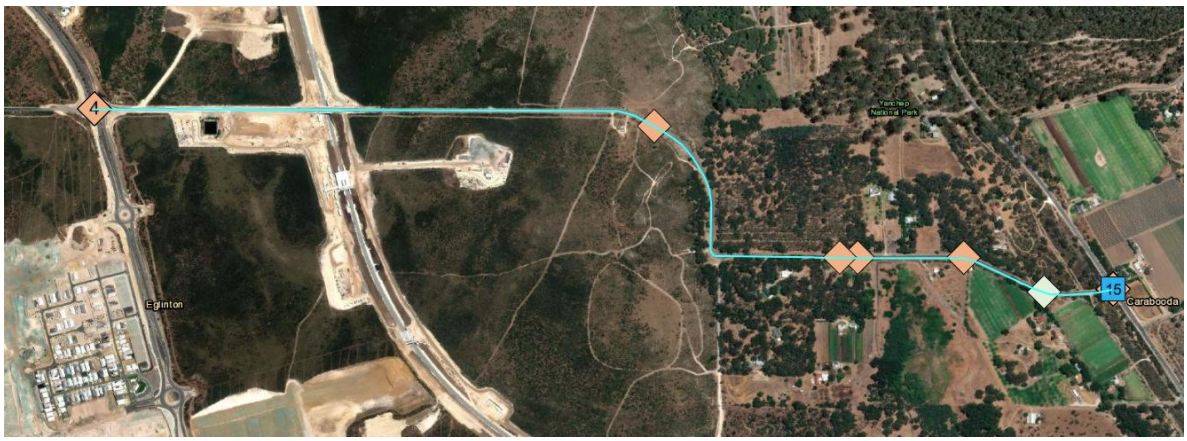


7 Safety Issues

7.1.1 The road network is yet to be truly developed in the vicinity of the site with all roads being new, with the exception of Pipidinny Road. This road will remain with a cul-de-sac head on both sides of Mitchell Freeway, although in a modified format as it becomes more of an urban street compared to its current rural road format.

7.1.2 On the section of Pipidinny Road north of the amendment site, there have been no recorded crashes in the 5 years to the end of 2023. Refer to Figure 7-1 below.

Figure 7-1: Crash Locations 2019-2023



7.1.3 At the intersection of Pipidinny Road there have been four recorded crashes all being property damage only and all as a result of rear end or loss of control.

7.1.4 At the intersection of Wanneroo Road there have been 15 recorded crashes with 10 involving right turn movements from Pipidinny Road onto Wanneroo Road. There were two crashes requiring medical attention and one resulted in hospitalisation. The layout of the intersection with a left turn lane on the southern approach may be a contributing factor to these crashes.

7.1.5 Ultimately when the Mitchell Freeway is extended, traffic will travel to and from either Marmion Avenue and/or the new Mitchell Freeway, with Pipidinny Road a cul-de-sac either side of Mitchell Freeway. Traffic flows on Wanneroo Road should also decrease significantly with through traffic redistributed to Mitchell Freeway, resulting in a decrease in exposure and likely drop in crashes at this intersection.

8 Summary and Conclusions

8.1.1 PJA have prepared this TIA addendum for the Eglinton Amendment site which outlines the proposed road layout, access points, active travel provisions and likely traffic levels for the site. The proposed amendment site complements the activity centre site providing a built environment around the rail station and providing residential development to complement the retail and commercial offerings.

8.1.2 The likely traffic volumes expected on the amendment site are akin to the levels of traffic that have been predicted for the activity centre site and northern extension site, this provides an excellent comparative analysis for the site.

8.1.3 Planning for the amendment site will see active travel provision throughout the site connecting residential areas to the station and local footpaths/cycleways for people walking and people riding.

8.1.4 Subsequent detailed planning of the amendment site will be undertaken to establish further details of the movement network within the site, including street cross sections, pedestrian crossings, car parking both on-street and off, servicing and vehicular access.

APPENDIX C BUSHFIRE MANAGEMENT PLANS

Bushfire management plan / statement addressing the bushfire protection criteria coversheet

Site address: Lot 9012 Pipidinny Road, Eglinton

Site visit: Yes ✓ No

Date of site visit (if applicable): Day 15 Month August Year 2024

Report author or reviewer: Louisa Robertson

WA BPAD accreditation level (please circle):

Not accredited | Level 1 BAL assessor | Level 2 practitioner | Level 3 practitioner ✓

If accredited please provide the following.

BPAD accreditation number: 36748 Accreditation expiry: Month February Year 2025

Bushfire management plan version number: Rev 0

Bushfire management plan date: Day 05 Month December Year 2024

If one or more of the following are selected, then these should be automatically referred to DFES	YES	NO
Strategic planning is required to address SPP 3.7 and the Guidelines	✓	
The application is a vulnerable land use		

None of the Above

If one or more of the following are selected, and the decision-maker requires input form DFES, then the application can be referred.	YES	NO
The BAL rating has been calculated by a method other than Method 1 as prescribed by AS 3959		
An outcomes-based approach has been submitted to demonstrate compliance with the bushfire protection criteria		

None of the Above ✓

Note: If a subdivision or development application meets all the acceptable solutions and does not otherwise trigger a referral as listed above, seeking advice from DFES on SPP 3.7 or other matters is at the discretion of the decision-maker.

The information provided within this bushfire management plan to the best of my knowledge is true and correct:

Signature of report author or reviewer: LM Roberton

Date: 05/12/2024.

Eglinton District Centre East– Activity Centre Plan Amendment

Eglinton Estates Pty Ltd

Bushfire Management Plan (Strategic Planning Application)

JBS&G 67513 | 163,664

5 December 2024

BPAD Bushfire Planning & Design Accredited Practitioner Level 3

We acknowledge the Traditional Custodians of Country throughout Australia and their connections to land, sea and community.

We pay respect to Elders past and present and in the spirit of reconciliation, we commit to working together for our shared future.



Caring for Country The Journey of JBS&G
Artist: Patrick Caruso, Eastern Arrernte

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Appendices

Appendix A **Concept Landscape Plan**

Appendix B **Photos of vegetation plots**

Appendix C **City of Wanneroo fire mitigation notice 2024-2025**

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Abbreviations

Term	Definition
AHD	Australian Height Datum
AS	Acceptable Solution
AS 3959	*Australian Standard 3959-2018 Construction of buildings in bushfire-prone areas* (SA 2018)
APZ	Asset Protection Zone
BAL	Bushfire Attack Level
BEP	Bushfire Evacuation Plan
BMP	Bushfire Management Plan
BPAD	Bushfire Planning and Design
DBCA	Department of Biodiversity Conservation and Attractions
DFES	Department of Fire and Emergency Services
DPIRD	Department of Primary Industries and Regional Development
EP Act	*Environmental Protection Act 1986*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESA	Environmentally Sensitive Area
F/US	Flat/upslope
FDI	Fire Danger Index
Guidelines	*Planning for Bushfire Guidelines* (WAPC 2024)
ha	Hectare
km	Kilometer
m^2	Square metre
m	Metre
N/A	Not applicable
POS	Public Open Space
SA	Standards Australia
SPP 3.7	*State Planning Policy 3.7 Bushfire* (WAPC 2024)
TEC	Threatened Ecological Community
UFID	Unique feature identifier
WAPC	Western Australian Planning Commission

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1. Proposal details

1.1 Background

Eglinton Estates are proposing and amendment to the Eglinton District Centre Activity Centre Plan (ACP) to incorporate the area of land within Lot 9012 Pipidinny Road, Eglinton to the east of the rail corridor (District Centre – East; the project area) which was previously identified as being subject to future planning. The project area is located within the municipality of the City of Wanneroo. The Structure Plan (Figure 1-1) identifies:

- Proposed residential cells with densities of R25-40, R50-60 and R80-100.
- Proposed internal road layout with:
    - two connections to Pipidinny Road, to the north;
    - two connection to the approved subdivision area to the west (District Centre – West), over the rail corridor; and
    - two connections to the future Eglinton Boulevard, to the south.
- Three proposed Public Open Space (POS) and drainage reserves and a Pedestrian Access Way (PAW) to Pipidinny Road.

1.2 Site description

The project area comprises approximately 26.25 ha within Lot 9012 and is currently vegetated with coastal shrub vegetation which be fully cleared to facilitate construction of the proposed residential development.

The project area is surrounded by (see Figure 1-2):

- To the west:
    - The Yanchep rail extension and Eglinton Station are located immediately to the west of the project area.
    - The approved Eglinton District Centre – West subdivision is located to the west of the rail corridor and will be sequentially cleared to facilitate urban development.
    - Marmion Avenue is located to the west and provides a major arterial linkage with land to the north and south of the project area. Land to the west of Marmion Avenue is currently undergoing staged clearing and construction as part of the Elavale Estate and Amberton Estate developments.
- To the north:
    - Pipidinny Road abuts the northern project area boundary. Allara Estate, which is undergoing staged subdivision, is located to the northwest of Pipidinny Road. Future stages of Allara Estate (yet to be approved) are located to the northeast, on the eastern side of the rail corridor.
- To the south:
    - The balance of Lot 9102 is located immediately to the south and is anticipated to be developed for residential purposes by the proponent at a later time.
    - The future Eglinton Boulevard is located within the balance land to the south of the project area and a bridge has recently been constructed over rail corridor in anticipation of future construction of the road.

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- The East of the Beach Central Precinct and Western Precinct, and Eglinton Village residential Estate which are currently undergoing staged subdivision, are located further to the south.

- To the east:
  - The road reserve for future extension of the Mitchell Freeway is located immediately to the east of the project area.
  - Bush Forever Site 22 is located further east of the freeway reserve and contains vegetation hazards that will be retained in perpetuity.

1.2.1 Existing land uses

The site is currently vegetated with coastal scrub. A Public Transport Authority (PTA) stockpile area is located within the central portion of the site. An unsealed road has been constructed by PTA along the eastern side of the rail to facilitate construction of the rail corridor, and provides a linkage (not publicly available) between Pipidinny Road in the north and Buchanan Road in the south.

The wider landscape surrounding the project area is largely vegetated with coastal scrub, however extensive development (and future planned development), are resulting in significant clearing of bushfire hazards within the local area.

1.2.2 Existing vehicular access

The project area is currently directly accessible from Pipidinny Road (which abuts the cadastral boundary) in the north.

1.2.3 Existing water supply

The project area is not currently provided with an existing reticulated water supply, however this will be extended into the project area during development.

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1.3 Bushfire prone designation

The project area is designated as a Bush Fire Prone Area 2 on the *Map of Bush Fire Prone Areas* (see Plate 1-1).

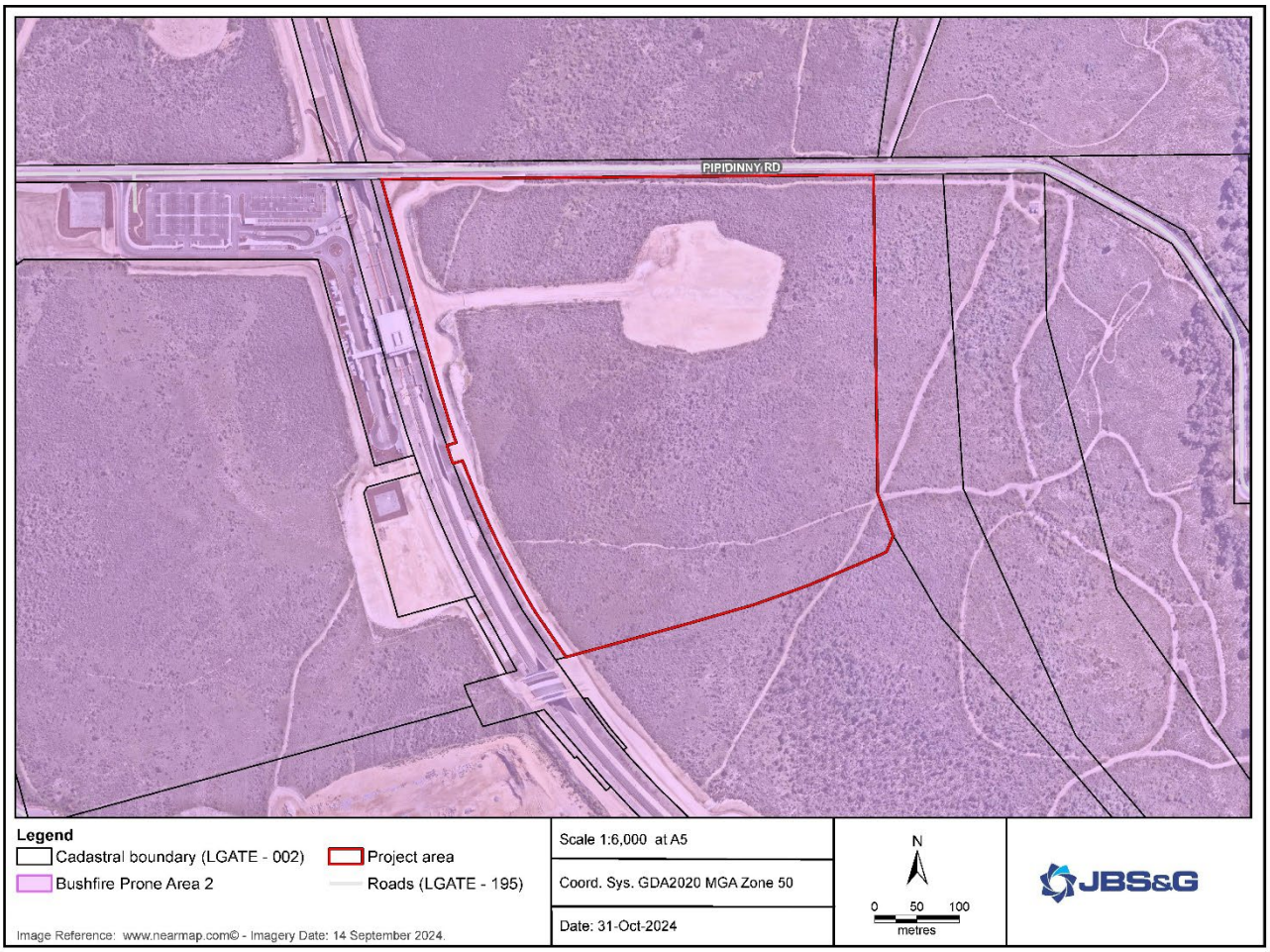


Plate 1-1: Bushfire prone designation (ORBM 2024)

1.4 Purpose of this report

This Bushfire Management Plan (BMP) has been prepared to address requirements under Policy Measure 7.1 (General measures) of *State Planning Policy 3.7 Bushfire* (SPP 3.7; WAPC 2024) and *Planning for Bushfire Guidelines* (the Guidelines; WAPC 2024) and in accordance with *AS 3959-2018 Construction of buildings in bushfire prone areas* (AS 3959; SA 2018).

This report provides an assessment of the proposed development, bushfire risk context, and required bushfire mitigation measures and includes:

- Identification of environmental, biodiversity or conservation values that may be impacted by the proposed development or proposed bushfire risk mitigation measures.
- A review of existing and post-development vegetation class and slope within the project area and surrounds.
- The results of a Bushfire Hazard Level (BHL) contour assessment to determine the applicable BHLs across the project area and adjoining land.
- Details of any bushfire hazard issues relevant to the site and proposed development.

- A compliance assessment to demonstrate the proposed development can comply with Bushfire Protection Criteria 4 (Strategic planning) of the Guidelines.
- A list of stakeholder responsibilities for implementing the bushfire measures set out within this BMP.

1.5 Other plans/reports

Relevant reports known to have been prepared for the project area include:

- BMP prepared to support an amendment to Eglinton Local Structure Plan (LSP) No. 82 (Strategen [now JBS&G] 2016).
- BMP prepared to support the Activity Centre Structure Plan for the Eglinton District Centre (Strategen [now JBS&G] 2019) (includes a portion of the current project area).
- Environmental Assessment Report prepared to support an amendment to Eglinton Local Structure Plan No. 82 (PGV Environmental, 2016).

Relevant reports known to have been prepared on adjoining landholdings include:

- Eglinton District Centre Subdivision BMP (62405 R01, Rev 0), JBS&G 2023 (Subdivision stage BMP for land to the west of the rail corridor).
- BMP prepared to support the development application for development of Eglinton Station (on behalf of NEWest Alliance), JBS&G 2024.

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PIPIDINNY ROAD

EGLINTON BOULEVARD

FUTURE MITCHELL FREEWAY

APPROVED ACTIVITY CENTRE STRUCTURE PLAN

R80-100

R50-60

R25-40

P6

400m

LEGEND

- STRUCTURE PLAN BOUNDARY

ZONES

- RESIDENTIAL R25-40
- RESIDENTIAL R50-60
- RESIDENTIAL R80-100

RESERVES

- PUBLIC OPEN SPACE & DRAINAGE
- INTEGRATOR ROAD A
- NEIGHBOURHOOD CONNECTOR ROAD
- LOCAL ACCESS STREET
- LANEWAY
- PTA LAND

OTHERS

- RAILWAY STATION
- WALKABLE CATCHMENT 400m
- SHARED PATH
- PUBLIC ACCESS WAY
- STATION SQUARE
- PUBLIC DRAINAGE LOCATIONS
- PRECINCT BOUNDARY
- RESIDENTIAL PRECINCT
- SIGNALISED INTERSECTION
- LEFT IN/LEFT OUT
- PROPOSED BUS ROUTES
- INDICATIVE BUS STOP LOCATIONS
- PROPOSED 132kV TRANSMISSION LINE

NOTES

1. PIPIDINNY ROAD EASTERN CONNECTION TO BE DEVIATED TO CONNECT TO EGLINTON BOULEVARD
2. CONNECTION OF RAILWAY CORRIDOR PSP TO EGLINTON BOULEVARD PSP

NORTH

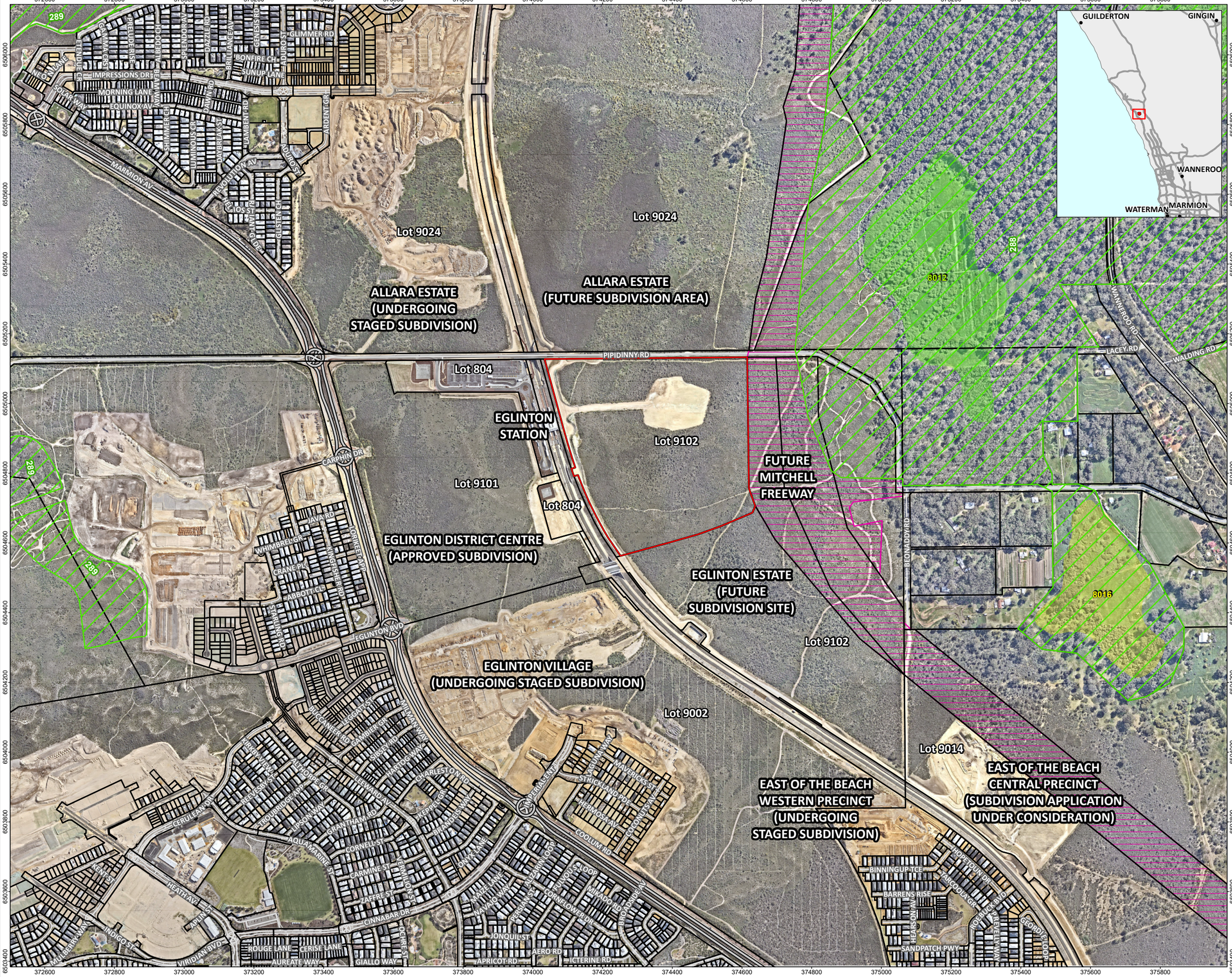
Scale: 1:3000 @ A3

0 30 60 90m

Date: 20/11/2024 **Plan:** EGLEG-5-010

EGLINTON DISTRICT CENTRE

Figure 1 - Activity Centre Structure Plan



Legend

- Project area
- Cadastral boundary (LGATE - 002)
- Proposed primary regional road (DPLH - 023)
- Bush Forever site (DPLH - 022)

Geomorphic wetlands (DBCA - 019)

- Conservation
- Resource Enhancement

Roads (LGATE - 195)

- Highway
- Minor road

JBS&G

Job No: 67513	
Client: Eglinton Estates	
Version: A	Date: 31-Oct-2024
Drawn By: dmills	Checked By: LR

Scale 1:10,000 at A3

0 100 200
metres

Coord. Sys. GDA2020 MGA Zone 50

Lot 9102 (East of Rail), Eglinton WA

SITE OVERVIEW

FIGURE 1-2

File Name: C:\Users\dmills\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Eglinton Estates\67513 Eglinton District Centre\GIS\02_MapProjects\67513 Eglinton_M01.aprx
Image Reference: www.nearmap.com© - Imagery Date: 14 September 2024.

2. Environmental considerations

2.1 Environmental values

A search of publicly available environmental databases is summarised in Table 2-1 to provide an overview of the environmental values associated with the project area and proposed development.

Table 2-1: Summary of environmental values

Environmental value	Present within or adjacent to the project area	Description
Environmentally Sensitive Area (ESA)	Within and adjacent	The project area and a large portion of land within the City of Wanneroo is located within an Environmentally Sensitive Area. This is associated with Yanchep National Park.
Swan Bioplan Regionally Significant Natural Area	N/A	N/A
Ecological linkages	No (but within the local area)	• The project area will be fully cleared and will not provide ecological linkages post-development. • Adjacent to the west of the future Mitchell Freeway extension is a Regional Ecological Linkage (Link Id: 1).
Wetlands	No (but within the local area)	A Conservation Category Wetland (Pipidinny Swamp; UFID: 8,012) is located approximately 450 m northeast of the project area, and a Resource Enhancement Wetland (Beonaddy Swamp; UFID: 8,016) is approximately 870 m to the east.
Waterways	N/A	N/A
Threatened Ecological Communities listed under the EPBC Act	Potentially within and adjacent	During preparation of the BMP to support the ACP, it was noted that the endangered Banksia Woodlands of the Swan Coastal Plain TEC is mapped as having potential to occur within project area. As discussed below, JBS&G understands that the necessary approvals have been sought in relation to clearing of native vegetation.
Threatened and priority flora	Potentially within and adjacent	The EPBC Protected Matters of National Environmental Significance report indicates there endangered and vulnerable priority species potentially occurring within the project area. As discussed below, JBS&G understands that the necessary approvals have been sought in relation to clearing of native vegetation.
Fauna habitat listed under the EPBC Act	Potentially within and adjacent	The project area is mapped as being a confirmed Carnaby's Black Cockatoo breeding area and roosting site. A portion of the project area is mapped as being potential feeding habitat. The EPBC Protected Matters of National Environmental Significance report indicates there are endangered and vulnerable priority fauna habitat possibly occurring within the project area. As discussed below, JBS&G understands that the necessary approvals have been sought in relation to clearing of fauna habitat.
Threatened and priority fauna	Potentially within and adjacent	There are confirmed endangered and vulnerable priority fauna species mapped as possibly occurring within the project site.
Bush Forever site	No (but within the local area)	Bush Forever Site 288 is located approximately 130 m to the east of the project area, and Bush Forever Site 289 is located approximately 1.3 km to the west of the project area.

Environmental value	Present within or adjacent to the project area	Description
DBCA managed lands and waters (includes legislated lands and waters and lands of interest)	No (but within the local area)	Yanchep National Park is located approximately 140 m to the northeast of the project area.
Conservation covenants	N/A	None known.
Heritage	No (but within the local area)	Aboriginal Cultural Heritage Register Place 17451 is located at Pipidinny Swamp approximately 430 m to the northeast.

2.2 Native vegetation – modification and clearing

The majority of the project area contains remnant native vegetation which will be cleared as part of the proposal. JBS&G understands that all environmental approvals under the *Environmental Protection Act 1986* and *Environment Protection and Biodiversity Conservation Act 1999* have been sought/obtained as part of the Eglinton Local Structure Plan No. 82 approval process.

2.3 Revegetation / landscape plans

A Concept Landscape Plan has been prepared for the four proposed areas of POS and drainage (see Appendix A). A summary of the landscaping treatments and classification (or exclusion) under AS 3959 are included in Table 2-2.

Table 2-2: Summary of concept landscaping treatments and AS 3959 classification

POS	Location	Concept landscaping treatments	Indicative AS 3959 classification
POS 01	Central POS	• Open park area with turf, playground, paths and garden beds. • Drainage basin with drainage vegetation species.	Low threat exclusions 2.2.3.2 [b], [e], [f]
POS 02	POS in southeast corner	• Drainage basin with drainage vegetation species. • Shrubland planting. • Small area of open turf.	• Drainage and shrubland planting – Class C Shrubland/Class D Scrub. • Open turf area - Low threat exclusions 2.2.3.2 [e], [f]. *Vegetation may be fully excludable as low threat vegetation once Eglinton Boulevard and Mitchell Freeway are cleared.*
POS 03	Pedestrian Access Way (PAW) connecting to Pipidinny Road, in the north	Linear corridor with turf, path and shrub planting.	Low threat exclusions 2.2.3.2 [e], [f]
POS 04	Plaza adjacent to Eglinton Station	• Paving. • Raised planning beds with seating walls.	Low threat exclusions 2.2.3.2 [e], [f].

3. Bushfire assessment results

3.1 Broader Landscape Assessment

The project area has been assessed against *SPP 3.7 (2015)* and *Guidelines for Planning in Bushfire Prone Areas* (2015) at a previous planning stage of planning through preparation of a BMP to support an amendment to Eglinton LSP No. 82 (Strategen 2016). Therefore, in accordance with Section 1.3.1 of the Guidelines, the current strategic planning application is not required to demonstrate compliance with Element 1 by undertaking a Broader Landscape Assessment.

3.2 Bushfire Hazard Level Assessment

3.2.1 Methodology

A Bushfire Hazard Level (BHL) assessment has been undertaken in accordance with Appendix A.2 of the Guidelines. The assessment methodology categorises land as having a as Low, Moderate, or Extreme BHL based on the AS 3959 vegetation classification and effective slope. Bushfire Hazard Levels provide an indication of the potential intensity of a bushfire event associated with vegetation within and adjacent to the project area.

lists the three BHLs and their associated characteristics. Bushfire Hazard Levels have been applied to land within the project area and adjoining 150 m (the assessment area) to assess current (pre-development) bushfire hazard conditions, as well as the anticipated post-development bushfire hazard conditions.

Table 3-1: Bushfire hazard levels and vegetation classification (as per AS 3959) and characteristics

Bushfire hazard level	Classification/characteristics*
Extreme	• Class A Forest • Class B Woodland • Class D Scrub • Any classified vegetation with a greater than 10-degree slope.
Moderate	• Class C Shrubland • Class E Mallee/Mulga • Class G Grassland, including sown pasture and crops • Vegetation that has a low hazard level but is within 100 metres of vegetation classified as a moderate or extreme hazard, is to adopt a moderate hazard level.
Low	• Low threat vegetation, which may include mangroves and other saline wetlands, areas of maintained lawns, golf courses (such as playing areas and fairways), maintained public reserves and parklands, sporting fields, vineyards, orchards, banana plantations, market gardens (and other non-curing crops), cultivated gardens, commercial nurseries, nature strips and windbreaks. • Managed grassland in a minimal fuel condition, meaning there is insufficient fuel available to significantly increase the severity of the bushfire attack, for example, short-cropped grass to a nominal height of 100 millimetres. • Non-vegetated areas, waterways, exposed beaches, roads, footpaths, buildings or rock outcrops.

*Vegetation classifications from AS 3959-2018 Table 2.3.

3.2.2 Assessment inputs

3.2.2.1 Vegetation classification

Classified vegetation and exclusions were assessed within the project area and adjoining 150 m (the assessment area) through on-ground verification on 15 August 2024 in accordance with AS 3959 and the *Visual Guide for Bushfire Risk Assessment in Western Australia* (DoP 2016). The site inspection was supplemented by a prior inspection by JBS&G over the surrounding area on 2 October 2023.

Georeferenced site photos and a description of the vegetation classifications and exclusions are contained in Appendix B.

Pre-development vegetation was assessed based on the current extent of vegetation and slope within the assessment area.

Post-development vegetation takes into consideration anticipated clearing and modification of vegetation to a low threat state which will occur during subdivision works, along with future landscaping and revegetation works.

Rail reserve

The rail reserve is currently in a non-vegetated condition and future revegetation by the Public Transport Authority (PTA) is expected to comprise locally occurring scrub type vegetation limited to a narrow corridor (approximately 10 – 12 m) on either side of the train line, which is consistent with landscaping further down the line in Butler. In the context of a highly built-up landscape, this is not considered to represent a significant bushfire threat to surrounding development, as once the surrounding land has been cleared, the rail vegetation will be largely isolated from any substantial areas of bushfire prone vegetation.

Exclusion of the rail corridor is a consistent precedent within BMPs prepared for the surrounding area, including the East of the Beach Western Precinct and Central Precinct, and within the suburbs of Alkimos and Butler. Review of the OBRM Map of Bush Fire Prone Areas shows that the rail reserve south of the project area (south of Romeo Road in Alkimos) is consistently not classified as being bushfire prone vegetation, therefore there is existing recognition of the limited risk associated with the rail reserve.

Bushfire prone areas within the portion of rail reserve adjoining the project area (see Plate 1-1) largely respond to land that has either recently been cleared for construction of the Eglinton train station or land set to be cleared for construction of future stages of the Eglinton District Centre to the east and west of the railway corridor. It is anticipated that on build out of these two subdivision sites that the bushfire prone designation will largely be removed from the rail reserve (and eventually the project area as surrounding future subdivisions are developed).

3.2.2.2 Effective slope

Effective slope under classified vegetation was assessed within the assessment area through on-ground verification on 15 August 2024 in accordance with AS 3959. Results were cross-referenced with DPIRD 2m contour data.

The assessment area has a gently undulating dunal system typical amongst Perth's coastal regions. Effective slope within the project area varies from downslope between 0° and 5°, up to 10° under coastal scrub vegetation. Effective slope has been assigned to vegetation plots within the project area based on a worst-case scenario given the effective slope relevant to each future lot will differ depending on the elevation of the vegetation it is exposed to.

Land adjoining the project area is similarly undulating with effective slope ranging from flat/upslope (0°) to downslope 10°.

Detailed slope analysis will be carried out at each subsequent stage of subdivision to confirm post-development vegetation conditions, effective slope and relevant Asset Protection Zone (APZ) widths.

3.2.2.3 Pre-development inputs

A summary of the pre-development classified vegetation, exclusions and effective slope within the assessment area are listed in Table 3-2 and illustrated in Figure 3-1.

Table 3-2: Pre-development vegetation classifications/exclusions and effective slope

Vegetation Plot	Vegetation classification/ exclusion	Effective slope under the classified vegetation	Comments
1	Class D Scrub	Flat/upslope (0°)	Coastal scrub vegetation 2–6 m in height to the north of Pipidinny Road and to the southwest of the project area
2	Class D Scrub	Downslope >0–5°	Coastal scrub vegetation 2–6 m in height being the predominant vegetation and slope within the project area and to the east, south and west
3	Class D Scrub	Downslope >5–10°	Coastal scrub vegetation 2–6 m in height to the northeast and southeast of the Pipidinny Road/railway corridor, and to the southeastern portion of the project area
4	Class C Shrubland	Downslope >0–5°	Coastal shrubland vegetation less than 2 m in height within and adjacent to the south of the project area and adjacent to the east and northeast
5	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Includes the existing public road network and associated streetscaping, the Eglinton Station and car parks, rail corridor and residential development on adjoining estates

3.2.2.4 Post-development inputs

A summary of the anticipated post-development classified vegetation, exclusions and effective slope within the assessment area are listed in Table 3-3 and illustrated in Figure 3-2. Assumptions made to inform the post-development assessment are outlined below.

Table 3-3: Post-development vegetation classifications/exclusions and effective slope

Vegetation plot	Vegetation classification/ exclusion	Effective slope under the classified vegetation	Comments
1	Class D Scrub	Flat/upslope (0°)	Coastal scrub vegetation 2–6 m in height to the north of Pipidinny Road and to the southwest of the project area
2	Class D Scrub	Downslope >0–5°	Coastal scrub vegetation 2–6 m in height being the predominant vegetation and slope to the east, south and west of the project area. Conservatively includes POS 2 due to connectivity to external vegetation hazards, which may be cleared at a later stage.
3	Class D Scrub	Downslope >5–10°	Coastal scrub vegetation 2–6 m in height to the northwest of Pipidinny Road/railway corridor, and to the south, east and northeast
4	Class C Shrubland	Downslope >0–5°	Coastal shrubland vegetation less than 2 m in height within and adjacent to the south of the project area and adjacent to the east and northeast

Vegetation plot	Vegetation classification/ exclusion	Effective slope under the classified vegetation	Comments
5	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])	N/A	Includes the existing public road network and associated streetscaping, the Eglinton Station and car parks, rail corridor and residential development on adjoining estates
6	Modified to non-vegetated and/or low threat (Clauses 2.2.3.2 [e] and/or [f])	N/A	Area to be modified to non-vegetated and/or low threat state to facilitate construction works within the project area.



Legend

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary (LGATE - 002)

Vegetation classification

- Class C Shrubland
- Class D Scrub
- Clause 2.2.3.2 (e) & (f)

- Photo point directions
- Topographic contours in m AHD (DPIRD - 072)

Roads (LGATE - 195)

- Minor road

JBS&G

Job No: 67513	
Client: Eglinton Estates	
Version: A	Date: 28-Nov-2024
Drawn By: dmills	Checked By: MG
Scale 1:3,300 at A3	

0 50 100
metres

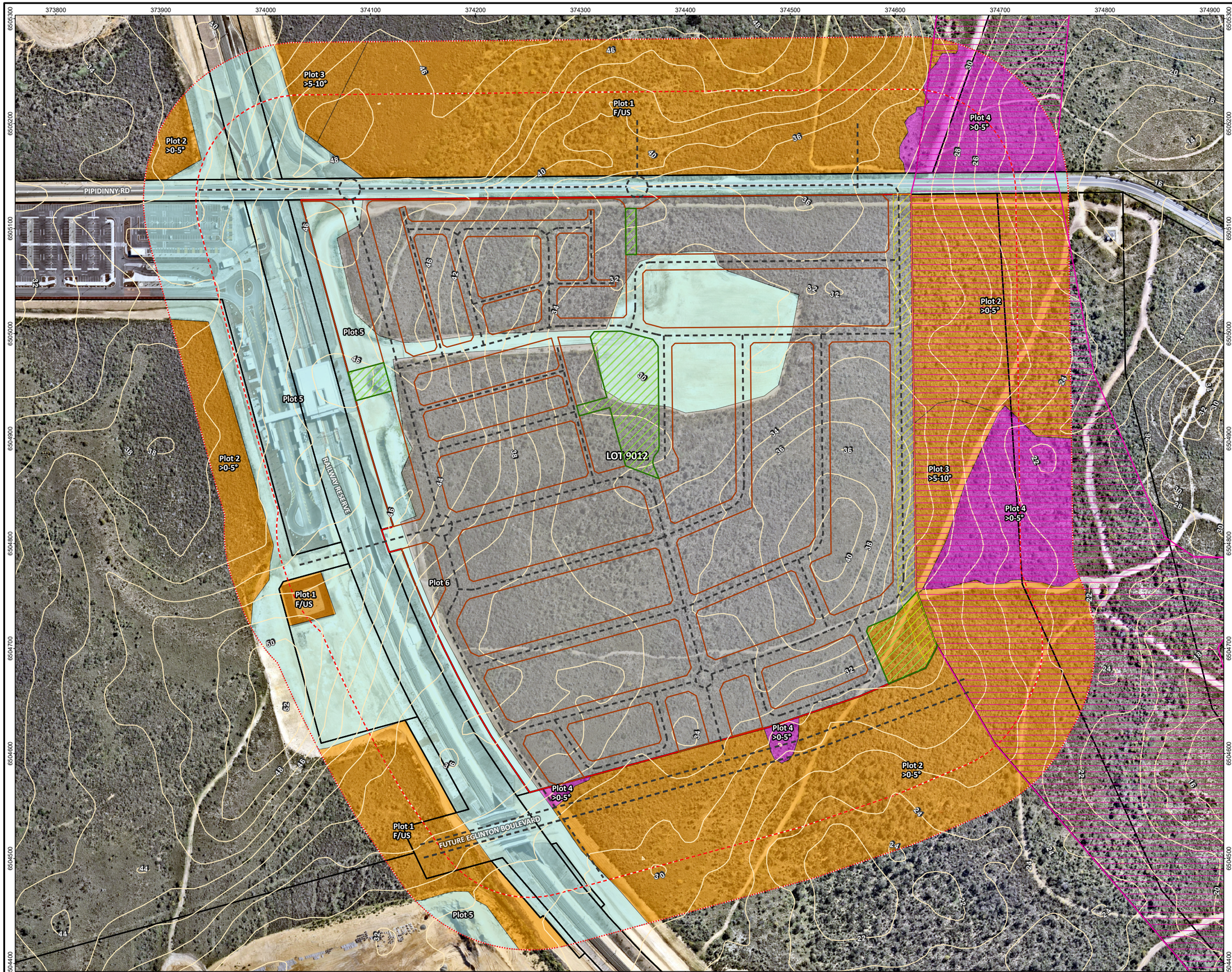
Coord. Sys. GDA2020 MGA Zone 50

Lot 9102 (East of Rail), Eglinton WA

PRE-DEVELOPMENT VEGETATION CLASSIFICATION AND EFFECTIVE SLOPE

FIGURE 3-1

File Name: C:\Users\dmills\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Eglinton Estates\67513 Eglinton District Centre\GIS\02_MapProjects\67513 Eglinton_M01.aprx
Image Reference: www.nearmap.com© - Imagery Date: 14. September 2024.



Legend

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary (LGATE - 002)
- Proposed cell layout
- 20m powerline easement
- POS and drainage

Proposed primary regional road (DPLH - 023)

- Future Mitchell Freeway

Vegetation classification

- Class C Shrubland
- Class D Scrub
- Clause 2.2.3.2 (e) & (f)
- Area to be modified to non-vegetated and low threat state
- Topographic contours in m AHD (DPIRD - 072)
- Proposed road

Roads (LGATE - 195)

- Minor road

JBS&G

Job No: 67513

Client: Eglinton Estates

Version: A	Date: 28-Nov-2024
Drawn By: dmills	Checked By: MG

Scale 1:3,300 at A3

0 50 100
metres

Coord. Sys. GDA2020 MGA Zone 50

Lot 9102 (East of Rail), Eglinton WA

POST-DEVELOPMENT VEGETATION CLASSIFICATION AND EFFECTIVE SLOPE

FIGURE 3-2

File Name: C:\Users\dmills\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Eglinton Estates\67513 Eglinton District Centre\GIS\02_MapProjects\67513 Eglinton_M01.aprx
Image Reference: www.nearmap.com© - Imagery Date: 14. September 2024.

3.2.3 Assessment outputs

3.2.3.1 Bushfire Hazard Level assessment results

Pre-development results

The pre-development bushfire hazard levels have been mapped within the assessment area on the basis of the pre-development vegetation discussed in Section 3.2.2.3 and depicted in Figure 3-3. It demonstrates that existing land within the assessment area comprises **Moderate** and **Extreme** bushfire hazard levels.

Land with an Extreme BHL is not suitable for development and the Structure Plan provides a design response to the manage the bushfire hazards and ensure no development occurs within these areas, as outlined below.

Post-development results

The post-development bushfire hazard levels have been mapped within the assessment area on the basis of the anticipated post-development vegetation discussed in Section 3.2.2.4 and depicted in Figure 3-4.

The post-development BHL assessment map (Figure 3-4) demonstrates that all proposed development areas will be located on land with either a **Low** or **Moderate** bushfire hazard level.

3.2.3.2 Asset Protection Zones

The Asset Protection Zone (APZ) widths required between future habitable development and post-development classified vegetation to achieve BAL-29 have been determined based on the vegetation classifications and effective slope assigned during the BHL assessment and in accordance with AS 3959 Method 1. The BAL-29 APZs widths applicable each vegetation plot are listed in Table 3-4.

Table 3-4: Asset Protection Zone requirements from post-development classified vegetation

Vegetation Plot	Vegetation classification/ exclusion	Effective slope under the classified vegetation	APZ to achieve BAL-29
Plot 1	Class D Scrub	Flat/upslope (0°)	13 m
Plot 2	Class D Scrub	Downslope >0–5°	15 m
Plot 3	Class D Scrub	Downslope >5–10°	17 m
Plot 4	Class C Shrubland	Downslope >0–5°	10 m



Legend

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary (LGATE - 002)

Bushfire hazard level

- Extreme
- Moderate

Roads (LGATE - 195)

- Minor road

JBS&G

Job No: 67513	
Client: Eglinton Estates	
Version: A	Date: 28-Nov-2024
Drawn By: dmills	Checked By: MG

Scale 1:3,300 at A3

0 50 100
metres

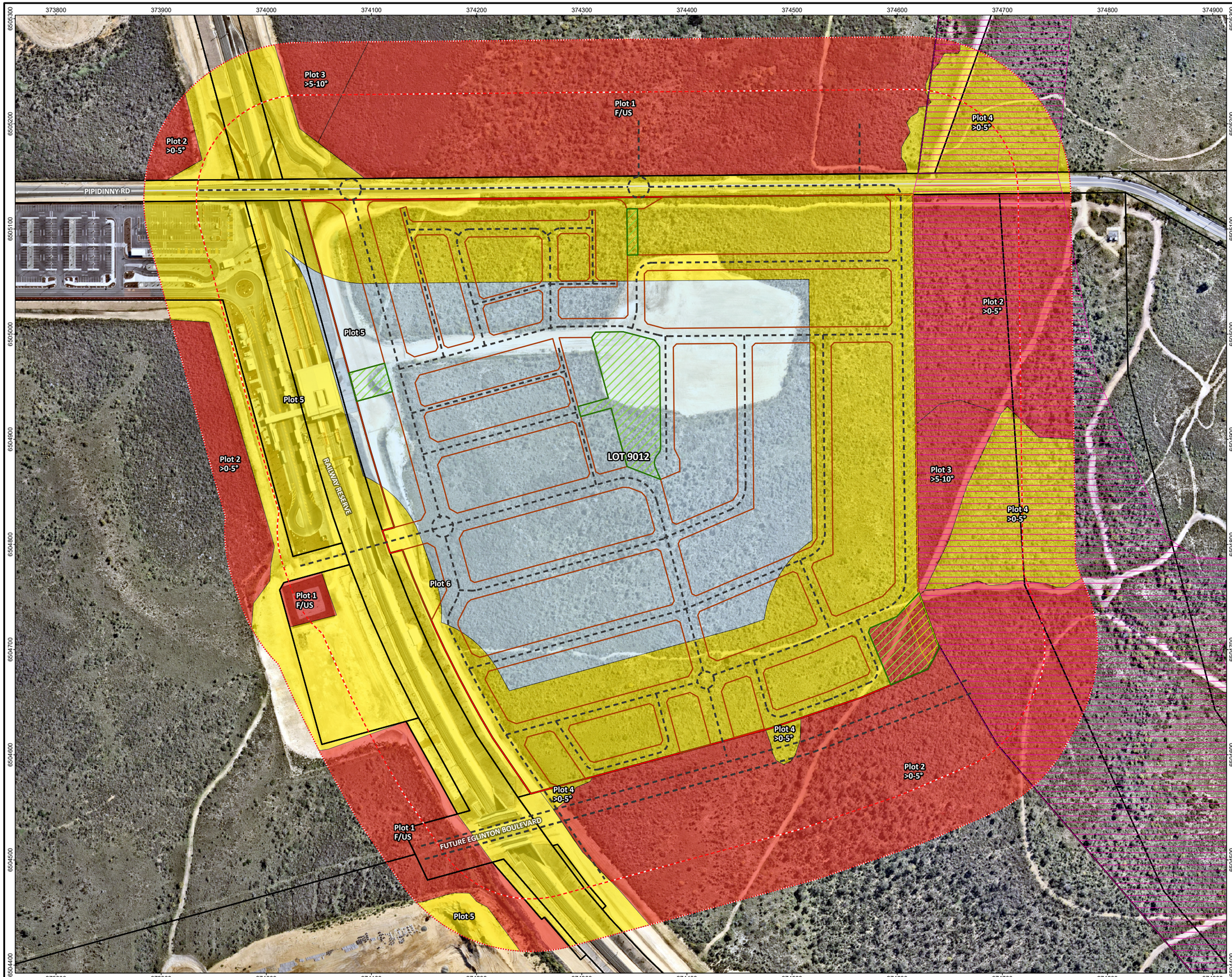
Coord. Sys. GDA2020 MGA Zone 50

Lot 9102 (East of Rail), Eglinton WA

PRE-DEVELOPMENT BUSHFIRE HAZARD LEVELS

FIGURE 3-3

File Name: C:\Users\dmills\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Eglinton Estates\67513 Eglinton District Centre\GIS\02_MapProjects\67513 Eglinton_M01.aprx
Image Reference: www.nearmap.com© - Imagery Date: 14. September 2024.



Legend

- Project area
- 100m assessment area
- 150m assessment area
- Cadastral boundary (LGATE - 002)
- Proposed cell layout
- 20m powerline easement
- POS and drainage

Proposed primary regional road (DPLH - 023)

- Future Mitchell Freeway

Bushfire hazard level

- Extreme
- Moderate
- Low
- Proposed road

Roads (LGATE - 195)

- Minor road

JBS&G

Job No: 67513	
Client: Eglinton Estates	
Version: A	Date: 28-Nov-2024
Drawn By: dmills	Checked By: MG

Scale 1:3,300 at A3

0 50 100
metres

Coord. Sys. GDA2020 MGA Zone 50

Lot 9102 (East of Rail), Eglinton WA

POST-DEVELOPMENT BUSHFIRE HAZARD LEVELS

FIGURE 3-4

File Name: C:\Users\dmills\JBS&G Australia\JBS&G - DCS - Internal - Documents\Projects\Eglinton Estates\67513 Eglinton District Centre\GIS\02_MapProjects\67513 Eglinton_M01.aprx
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4. Identification of bushfire hazard issues

Examination of strategic development design in accordance with the Structure Plan, and pre-development and post-development bushfire hazard levels has identified the following bushfire hazard issues to be considered at future planning stages. The identified bushfire hazards and mitigation measures proposed to address these hazards are outlined below.

Land with an Extreme BHL

The project area contains Extreme bushfire hazard level areas not suitable for habitable development. However, the post-development BHL assessment demonstrates that on completion of development, all habitable development areas will be located on land with a Low or Moderate bushfire hazard level. A BAL contour assessment will be commissioned at future planning stages (i.e. subdivision) to demonstrate at a more detailed level that all development will be located within areas of BAL-29 or below.

Post-development on-site vegetation

The Landscape Concept Plan (Appendix A) indicates that the majority of POS areas will be established in accordance with the low threat criteria outlined in AS 3959 Clause 2.2.3.2. POS 2, which is situated in the southeast corner of the project area is the only portion of the site which has potential to contain classified vegetation post-development. On construction of the Structure Plan however, if substantial separation between POS 2 and external vegetation hazards within the future Eglinton Boulevard reserve and future Mitchell Freeway reserve have been cleared permanently, then the POS cell may be able to meet the Clause 2.2.3.2 exclusion criteria. This will be clarified at subdivision clearance stage.

Should the drainage vegetation within POS 2 constitute classified vegetation, subdivision design will need to ensure that there is sufficient separation between this vegetation and future habitable development for BAL-29 or lower to be achieved.

Habitable building setbacks

The applicable habitable building setbacks (APZs) from internal and external bushfire prone vegetation required to achieve BAL-29 are to be confirmed through detailed BAL Contour map analysis at future planning stages. The separation distances to achieve BAL-29 are listed in Table 3-3.

Vegetation within the future Eglinton Boulevard reserve

The future Eglinton Boulevard reservation currently contains coastal scrub vegetation that will eventually be cleared to facilitate construction of the road. It is expected that Eglinton Boulevard will be constructed during the early stages of development of the project area to facilitate extension of services to the site from west of the rail corridor.

In the event that Eglinton Boulevard is not permanently cleared prior to construction of the southern development area, there may be a requirement to:

- preclude the affected lots from title issuance until the bushfire hazards have been permanently removed, and/or
- apply mandatory building setbacks on the affected lots to ensure future habitable development is located in BAL-29 or below, and or,
- revise the subdivision layout if vegetation hazards are permanent or will not be removed in a timeline that is suitable to enable development of the lots.

There should also be consideration of potential revegetation within the Eglinton Boulevard reserve to ensure the BALs calculated at the subdivision stage of planning accurately reflect future bushfire hazards.

Access to this vegetation is discussed below.

Implications of staged development

Development of the project area is expected to occur in stages. The design of development staging is to ensure that publicly available vehicular access is provided in at least two different directions to two different destinations. This may require provision of temporary staging measures such as temporary compliant no-through roads and/or Emergency Access Ways (EAWs) to deliver compliant access outcomes for individual stages. Temporary fire service access routes (FSARs) may also be required during staged development to ensure firefighters are able to gain access to the stage perimeter prior to future subdivision roads being constructed.

As the project area currently contains areas of bushfire prone vegetation, staged construction at the subdivision stage of planning is to consider the BAL impacts from adjacent future stages that have not yet been developed. Low threat staging buffers may need to be implemented around the current stage of development to ensure there is no residual impact from vegetation that has not yet been cleared or landscaped to achieve a low threat state.

Perimeter roads

The existing and ultimate future roads within and adjoining the project area will provide perimeter access at all hazard interfaces. The timing of clearing and construction of future Eglinton Boulevard will need to be considered during development of the southern portion of the project area to ensure lots proposed to have a direct interface with this road are provided with temporary access to the temporary hazards within the road reserve via a temporary fire service access route (FSAR).

Fire water supply

The project area will need to be provided with a firefighting water supply that is suitable for the scale of the development. The local area is currently provided with a reticulated hydrant system that will be extended around the development in accordance with the proposed road network and Water Corporation design standards.

Ability to manage the bushfire hazards

JBS&G considers the bushfire hazards within and adjacent to the project area and the associated bushfire risks are manageable through management responses outlined in the Guidelines and AS 3959 and the strategic level bushfire management strategies to be implemented at future planning stages outlined in this BMP. These responses will be factored in to proposed development early in the planning process to ensure a suitable, compliant and effective bushfire management outcome is achieved for protection of future life and property assets.

5. Assessment against the Bushfire Protection Criteria

5.1 Compliance table

Compliance with Elements 1 – 4 of Bushfire Protection Criteria (BPC) 4: Strategic planning is demonstrated by meeting the acceptable solutions, as detailed in **Table 5-1**.

Table 5-1 Compliance with BPC 4: Strategic planning

Outcomes	Acceptable solutions	Method of compliance	Statement of development compliance	Compliance can be achieved at future planning stages
Element 1: Location				
O1 – Avoid broader landscapes that present an unacceptable bushfire risk to life, property and infrastructure.	**A1.1b Broader Landscape Type A** The subject site is located in an area that is a Broader Landscape Type A. This location satisfies the policy outcome for Element 1: Location and no additional consideration is required.	N/A	The project area has been assessed against *SPP 3.7 (2015)* and *Guidelines for Planning in Bushfire Prone Areas* (2015) at a previous planning stage through preparation of a BMP to support an amendment to Eglinton LSP No. 82. Therefore, in accordance with Section 1.3.1 of the Guidelines, the current Structure Plan application is not required to demonstrate compliance with Element 1 by undertaking a Broader Landscape Assessment.	N/A
	A1.1b Broader Landscape Type B The subject site is located in an area that is a Broader Landscape Type B which presents an unacceptable bushfire risk of a landscape-scale bushfire resulting in impacts to people, property and infrastructure. This location does not satisfy the acceptable solution for Element 1: Location. Where the practitioner considers that further analysis could demonstrate to the decision-maker that the risks can be appropriately managed, and/or mitigated, an outcomes-based approach should be prepared, in accordance with policy measure 7.5 of SPP 3.7. Further explanatory notes are provided in Appendix B.1 of the Guidelines.			
Element 2: Siting and design				
O2 – Ensure siting and design solutions: • manage or mitigate the bushfire risk to people, property and infrastructure; and • avoid, or where unavoidable, minimises the clearing of native vegetation.	**A2.1 Siting and design** The areas of the subject site(s) identified for intensification and/or the future development site(s) achieve a pre- or post-development bushfire hazard level of moderate or low	Acceptable solution	The post-development BHL assessment (see Section 3.2.3.1) indicates that all proposed development areas can achieve a BHL of Moderate or Low.	✓
	A2.2 Clearing of native vegetation The strategic planning proposal avoids, or where unavoidable, minimises the clearing of native vegetation.	Acceptable solution	The majority of the project area contains remnant native vegetation which will be cleared as part of the proposal. JBS&G understands that all environmental approvals under the *Environmental Protection Act 1986* and *Environment Protection and Biodiversity Conservation Act 1999* have been sought/obtained as part of the Eglinton Local Structure Plan No. 82 approval process. In this regard, the level of vegetation clearing has been previously assessed and endorsed.	✓
Element 3: Vehicular access				
O3 – Ensure the design and capacity of vehicular access and egress provide: • for efficient and effective evacuation to a suitable destination(s) and/or • as a contingency measure for vulnerable land uses, an on-site	**A3.1 Public roads** Public roads, including perimeter roads should meet the technical requirements in Appendix B.3, Table 10.	Acceptable solution	All public roads are to be constructed to the relevant technical requirements of the Guidelines.	✓
	Public road access should be provided in two different directions, to two different suitable destinations; and with an all-weather surface.	Acceptable solution	The project area will be provided with access routes in multiple directions, leading to multiple suitable destinations on completion of development as follows:	✓

Outcomes	Acceptable solutions	Method of compliance	Statement of development compliance	Compliance can be achieved at future planning stages
shelter, where demonstrated appropriate, as a last resort option.			• Two road connections are proposed to Pipidinny Road, which leads to Marmion Avenue in the west and Wanneroo Road in the east. • One road connection is proposed to approved subdivision (District Centre – West) to the west via a future bridge across the rail corridor. The future public road network will facilitate access west to Marmion Avenue and south through the future Eglinton Village residential development. • Two road connections are proposed to the future Eglinton Boulevard which abuts the southern site boundary. Once constructed, this road will provide access west to Marmion Avenue via a new bridge that has recently been constructed across the rail. This route will also eventually provide access east to an interchange with the future Mitchell Freeway, providing access in a multitude of directions.	
	A3.3a No-through roads If the public road access to the subject site is via a no-through road which cannot be avoided due to demonstrated site constraints, the public road access is to be a maximum of 200 metres from the proposed lot(s) boundary to an intersection where two-way access is provided. The no-through road may exceed 200 metres if it is demonstrated that an alternative access, including an emergency access way, cannot be provided due to site constraints and the following requirements are met: • the no-through road travels towards a suitable destination; and • the balance of the no-through road that is greater than 200 metres from the subject site is wholly within BAL-Low or is within a residential built-out area is within Area 1 (Figure 29).	Acceptable solution	All proposed public roads will be through roads, however there may be two minor (compliant) temporary no-through roads created at the southern development interface if constructed in advance of the future Eglinton Boulevard.	✓
	A3.3b No-through roads requirements A no-through road is to meet all the following requirements: • requirements of a public road (Appendix B.3, Table 10, Column 2); and • turn-around area/head (Figure 30).	Acceptable solution	All proposed public roads will be through roads on ultimate construction of the project area. Any temporary no-through roads created through staged subdivision are to be constructed to the relevant technical requirements of the Guidelines.	✓
Element 4: Water supply				
O4 – Ensure that sufficient water is available and accessible for emergency services, to enable people, property and infrastructure to be defended from bushfire.	**A4.1 Water supply** Evidence that a sufficient and accessible reticulated or non-reticulated water supply for bushfire firefighting can be provided at the subdivision and/or development application stage, in accordance with the specifications of the relevant water supply authority or the requirements in Appendix B4: Water Supply dedicated for bushfire firefighting.	Acceptable solution	The proposed development will be connected to a reticulated water supply in accordance with Water Corporation Design Standard 63 requirements.	✓

6. Responsibilities for implementation and management of the bushfire measures

6.1 Assessments, information and bushfire mitigation measures to be considered at future planning stages

This BMP has been prepared as a strategic guide to demonstrate how development compliance will be delivered at future planning stages in accordance with the Guidelines.

Future BMPs prepared for subsequent planning applications are to meet the relevant commitments outlined in this strategic level BMP, address the relevant requirements of SPP 3.7 (2024) and demonstrate in detail how the proposed development will incorporate the relevant acceptable solutions or meet the policy outcomes of the bushfire protection criteria. Future BMPs are to include the following detailed information:

- Proposed lot layout, including any public open space (POS) and drainage areas.
- Detailed landscaping design in regard to POS and drainage.
- Post-development classified vegetation extent, effective slope and separation distances.
- BAL contour mapping which demonstrates that proposed development areas will achieve a rating of BAL–29 or lower.
- Width and alignment of compliant APZs, including any APZ setback requirements into lots.
- Confirmation of how bushfire management will be addressed regarding temporary bushfire hazards on adjacent future development stages, including low threat staging buffers or temporary quarantining of lots where required.
- Proposed approach to fuel management or AS 3959 application in response to on-site POS or easements (if and where required).
- Vehicular access provisions including multiple access routes where required; public roads and perimeter roads; permanent and temporary EAWs and FSARs; and private internal roads, driveways and battle-axes.
- Future requirements for any vulnerable Class 9 and tourism land uses, including preparation of a Bushfire Emergency Plan (BEP).
- Consideration of the storage of hazardous, flammable and/or combustible materials for any commercial, industrial and vulnerable land uses.
- Provisions for notification on Title for any future lots with a rating of BAL-12.5 or greater as a condition of subdivision.
- Compliance requirements with the annual City firebreak notices.
- Assessment against the relevant bushfire protection criteria of the Guidelines
- Proposed implementation and audit program outlining all measures requiring implementation and the appropriate timing and responsibilities for implementation.

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6.2 Responsibilities for future and ongoing bushfire management

6.2.1 Developer

There are no specific items for the developer to implement, enforce or review at this strategic stage of the planning process. The developer is, however, responsible for ongoing compliance with the local government firebreak notice (refer to **Error! Reference source not found.**).

The developer is responsible for the preparation of future BMPs to accompany future, subdivision and/or development applications where appropriate.

At future planning stages, key responsibilities outlined within future BMPs may include:

- Construction of public roads and reticulated water supply to the standards detailed in future BMPs.
- Construction of temporary EAWs and FSARs during staged subdivision to the standards detailed in future BMPs.
- Establishment of APZs and low threat staging buffers to ensure future habitable development can achieve BAL-29 or lower.
- Installation of community fire water tanks to provide a strategic bushfire water supply to the development.
- Preparation of detailed landscaping design to inform the future BAL contour assessment
- Preparation of a BMP compliance report to ensure the development delivers compliance with future BMPs, and to facilitate the subdivision clearance process.
- Ongoing maintenance of roads and verges, EAWs, FSARs, APZs, staging buffers and POS until handover to the local government.
- Compliance with the local government firebreak notice.

6.2.2 Future landowners

Future landowners may be responsible for:

- Maintenance of subject lot and any APZs in a low threat state (for inner urban areas).
- Where required, preparation of a BMP to support development applications, including preparation of a Bushfire Emergency Plan (BEP) for any vulnerable land uses.
- Implementation of an endorsed DA stage BMP, including construction of a compliant APZ, private driveway and bushfire water supply.
- Construction of buildings in accordance with AS 3959, where required.
- Compliance with the local government firebreak notice.

6.2.3 Local government

The local government may be responsible for maintenance of POS, EAWs/FSARs, community bushfire water supply tanks, roads and verges following handover from the developer.

6.2.4 Water Corporation

The Water Corporation is responsible for ongoing maintenance of the reticulated water supply and hydrants.

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7. Concluding statement

On the basis of the information contained within this BMP, JBS&G considers the bushfire hazards within and adjacent to the project area and the associated bushfire risks are manageable through application of acceptable solutions outlined in the Guidelines, which will be implemented as required throughout future planning stages. JBS&G considers that on implementation of the proposed management measures, the site will be able to be developed with a manageable level of bushfire risk whilst maintaining full compliance with the Guidelines.

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8. Limitations

Scope of services

This report ("the report") has been prepared by JBS&G in accordance with the scope of services set out in the contract, or as otherwise agreed, between the Client and JBS&G. In some circumstances, a range of factors such as time, budget, access and/or site disturbance constraints may have limited the scope of services. This report is strictly limited to the matters stated in it and is not to be read as extending, by implication, to any other matter in connection with the matters addressed in it.

Reliance on data

In preparing the report, JBS&G has relied upon data and other information provided by the Client and other individuals and organisations, most of which are referred to in the report ("the data"). Except as otherwise expressly stated in the report, JBS&G has not verified the accuracy or completeness of the data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in the report ("conclusions") are based in whole or part on the data, those conclusions are contingent upon the accuracy and completeness of the data. JBS&G has also not attempted to determine whether any material matter has been omitted from the data. JBS&G will not be liable in relation to incorrect conclusions should any data, information or condition be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to JBS&G. The making of any assumption does not imply that JBS&G has made any enquiry to verify the correctness of that assumption.

The report is based on conditions encountered and information received at the time of preparation of this report or the time that site investigations were carried out. JBS&G disclaims responsibility for any changes that may have occurred after this time. This report and any legal issues arising from it are governed by and construed in accordance with the law as at the date of this report.

Environmental conclusions

Within the limitations imposed by the scope of services, the preparation of this report has been undertaken and performed in a professional manner, in accordance with generally accepted environmental consulting practices. No other warranty, whether express or implied, is made, including to any third parties, and no liability will be accepted for use or interpretation of this report by any third party.

The advice herein relates only to this project and all results conclusions and recommendations made should be reviewed by a competent person with experience in environmental investigations, before being used for any other purpose.

JBS&G accepts no liability for use or interpretation by any person or body other than the client who commissioned the works. This report should not be reproduced without prior approval by the client, or amended in any way without prior approval by JBS&G or reproduced other than in full, including all attachments as originally provided to the client by JBS&G.

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Appendix A Concept Landscape Plan

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LEGEND

- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES
- SPECIFIC LANDSCAPE TREATMENTS

AMENITIES

- OPEN TURF
- BASIN & SWALES
- PLAYGROUND
- PARK SHELTER
- DRINK FOUNTAIN
- BENCH SEAT

EGLINTON DISTRICT CENTRE EAST, WANNEROO

LANDSCAPE MASTERPLAN

DWG **EGL-01- 01**
REV **G**
DATE **09.09.2026**

0 15 30 45 60 75 m

SCALE **1 : 1500 @ A1**

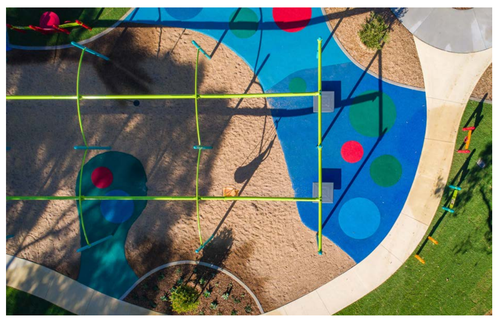
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POS & DRAINAGE PROVISION 01

FIRST 15mm DETAILS

First 15mm area:	975 m²
20% AEP TWL area:	1,445m²
1% AEP TWL area:	2,065m²

POS TYPOLOGY
- Park Avenue
- Drainage Basins

SIZE
- 7,131 m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators
- Playground to provide activity space
- Drainage basin as per LWMS

FUNCTIONS / MATERIALS
- Open turf area for outdoor activity
- Playground for kids
- Connected path to open space
- Informal lawn areas for passive use
- Provide pedestrian link through the estate and connecting POS from the road.

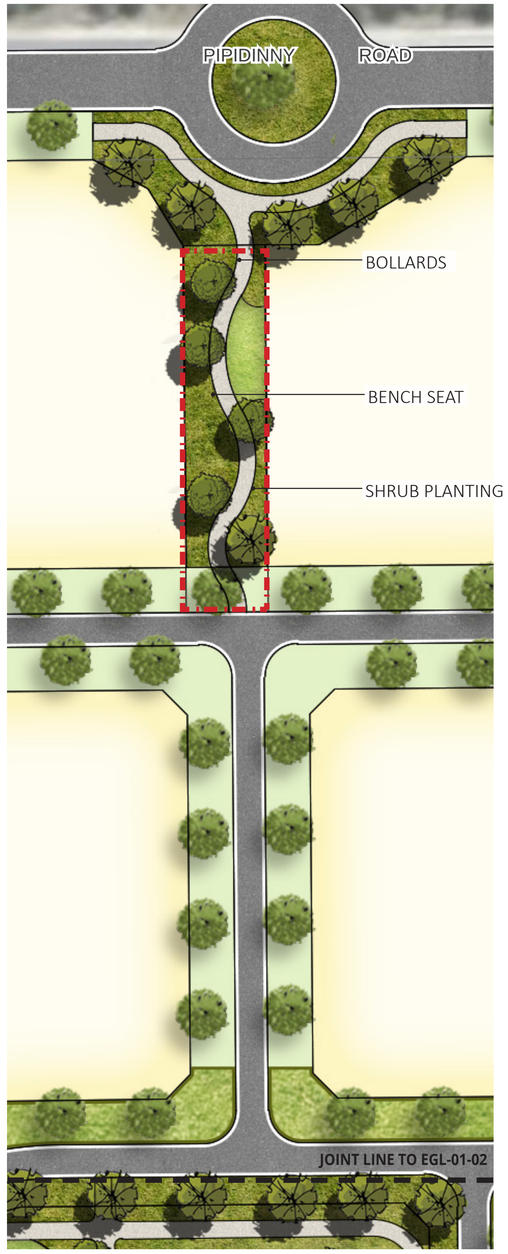
ENVIRONMENTAL CONSIDERATIONS
- Water-wise native planting and planting
- Source local materials where possible to minimise transport requirements and provide local employment.
- Consider long-term maintenance requirements.
- Provide a buffer to the adjacent road

PAW

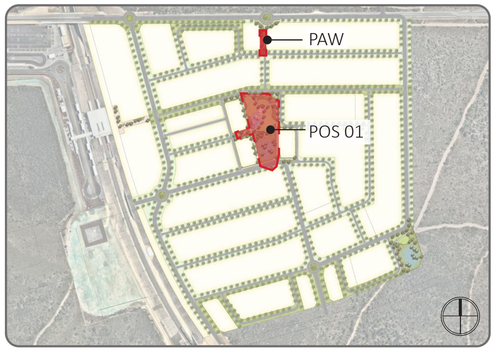
POS TYPOLOGY
- Pedestrian Access Way

SIZE
- 394m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators







LOCATION PLAN

LEGEND
- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES

DRAINAGE LEGEND
- 15MM TWL
- 1 IN 5 YEARS EVENT
- 1 IN 100 YEARS EVENT

EGLINTON DISTRICT CENTRE EAST, WANNEROO
POS & DRAINAGE 01 & PAW - LANDSCAPE CONCEPT

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REV **G**
DATE **09.09.2026**
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POS & DRAINAGE PROVISION 02

FIRST 15mm DETAILS

First 15mm area:	1,445m²
20% AEP TWL area:	2,015m²
1% AEP TWL area:	2,750m²

POS TYPOLOGY
- Drainage Basins

SIZE
- 2,827 m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators
- Playground to provide activity space
- Drainage basin as per LWMS

FUNCTIONS / MATERIALS
- Connected path to open space
- Informal lawn areas for passive use
- Provide outdoor fitness equipment
- Provide pedestrian link through the estate and connecting POS from the road.

ENVIRONMENTAL CONSIDERATIONS
- Water-wise native planting and planting
- Source local materials where possible to minimise transport requirements and provide local employment.
- Consider long-term maintenance requirements.
- Provide a buffer to the adjacent road

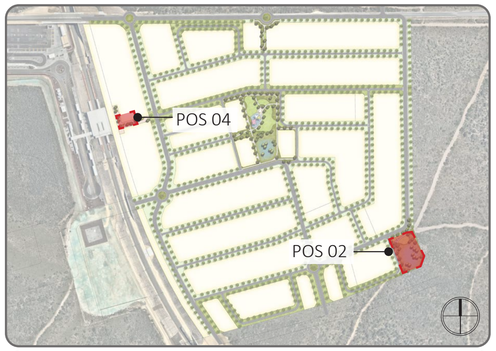
POS 04 - PLAZA

POS TYPOLOGY
- Station Plaza

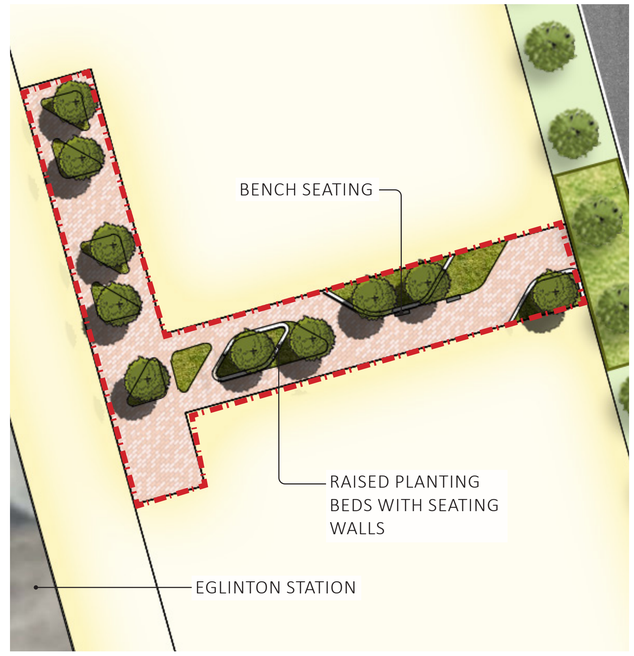
SIZE
- 986m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators





LOCATION PLAN



LEGEND
- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES

DRAINAGE LEGEND
- 15MM TWL
- 1 IN 5 YEARS EVENT
- 1 IN 100 YEARS EVENT

EGLINTON DISTRICT CENTRE EAST, WANNEROO
POS & DRAINAGE 02 & POS 04 (PLAZA) - LANDSCAPE CONCEPT

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REV **G**
DATE **09.09.2026**

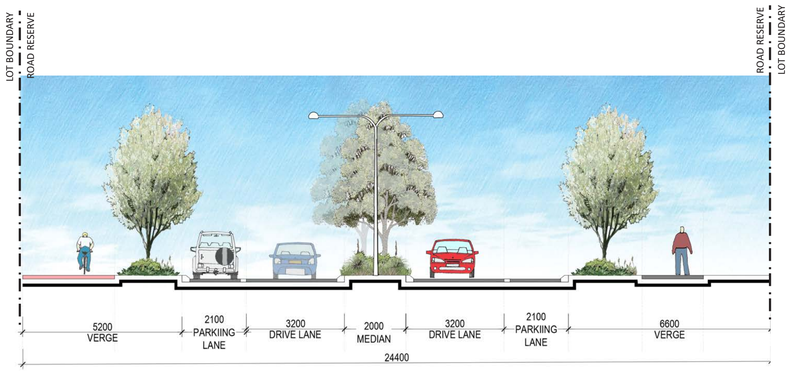
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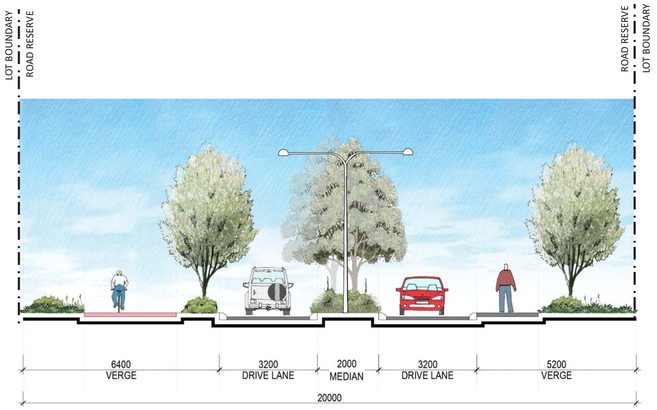
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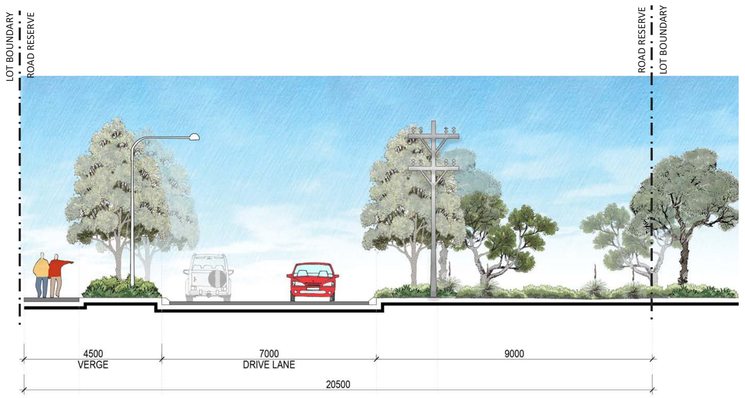
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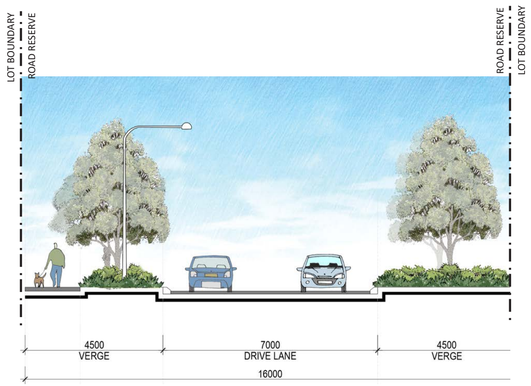
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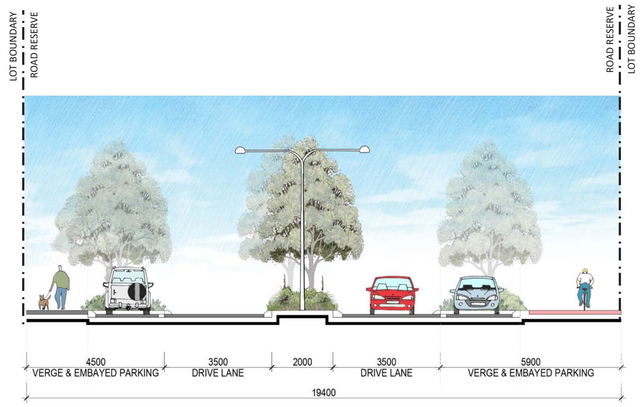
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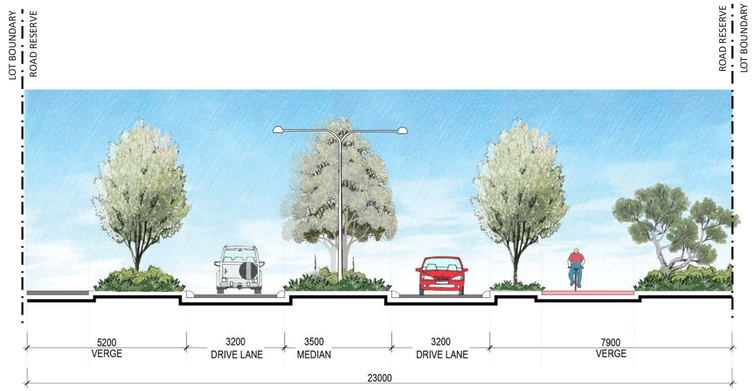
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SECTION 5
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SECTION 6
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LOCATION PLAN



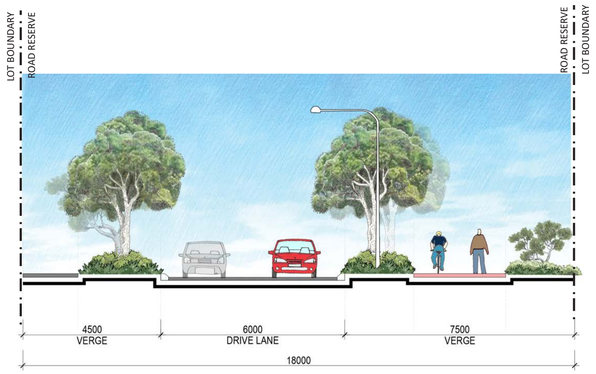
SPECIFIC LANDSCAPE TREATMENT IMAGERY

EGLINTON DISTRICT CENTRE EAST, WANNEROO
ROAD RESERVE SECTION

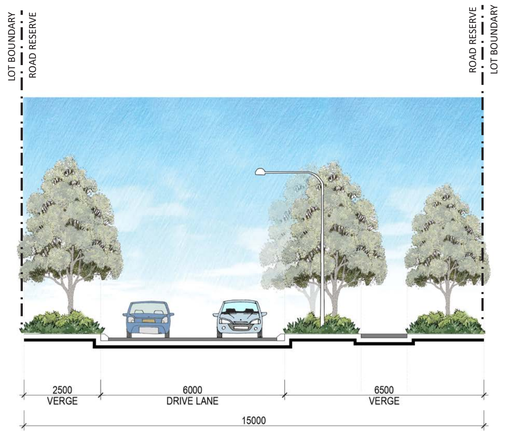
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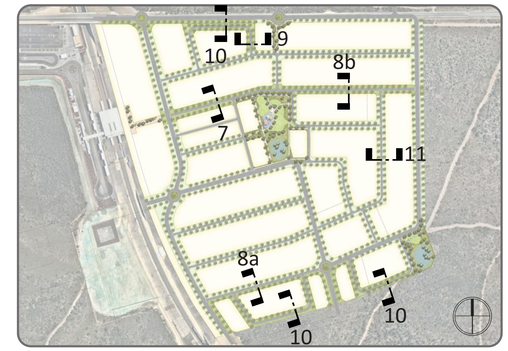
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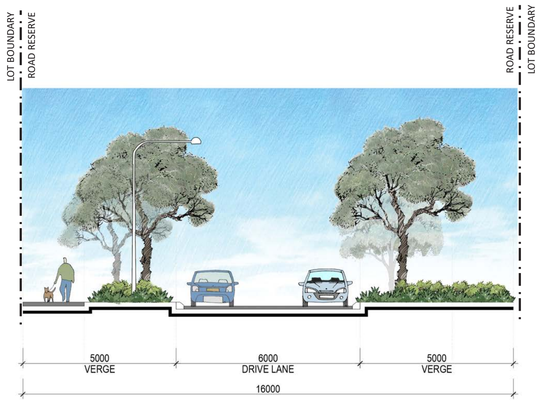
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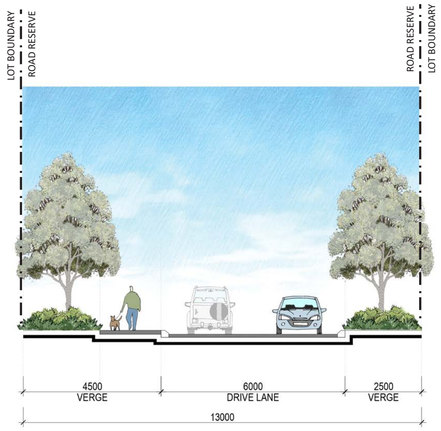
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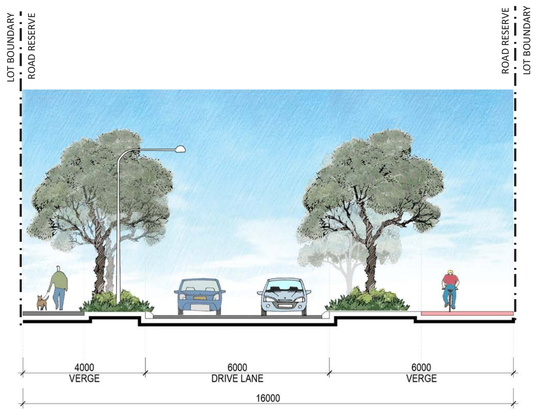
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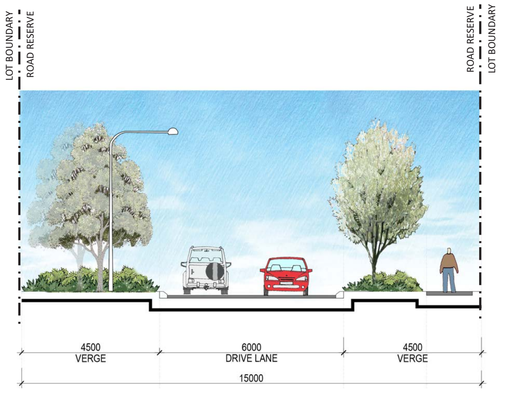
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SECTION 10
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SECTION 8b
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SECTION 11
SCALE 1:100

EGLINTON DISTRICT CENTRE EAST, WANNEROO
ROAD RESERVE SECTION

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Appendix B Photos of vegetation plots

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Plot 1		
Vegetation classification	**Pre-development**	Class D Scrub (Flat/Upslope (0°))
	Post-development	Class D Scrub (Flat/Upslope (0°))

Description / justification

Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity. Contains areas of low shrubland classified as Class D Scrub as a precautionary measure.



Photo ID: 1a



Photo ID: 1b



Photo ID: 1c



Photo ID: 1d



Photo ID: 1e



Photo ID: 1f

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Plot 2		
Vegetation classification	**Pre-development**	Class D Scrub (Downslope >0–5°)
	Post-development	Class D Scrub (Downslope >0–5°) external to the project area and modified to non-vegetated and/or low threat (Clauses 2.2.3.2 [e] and/or[f]) within the project area)

Description / justification

Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity. Contains areas of low shrubland classified as Class D Scrub as a precautionary measure.



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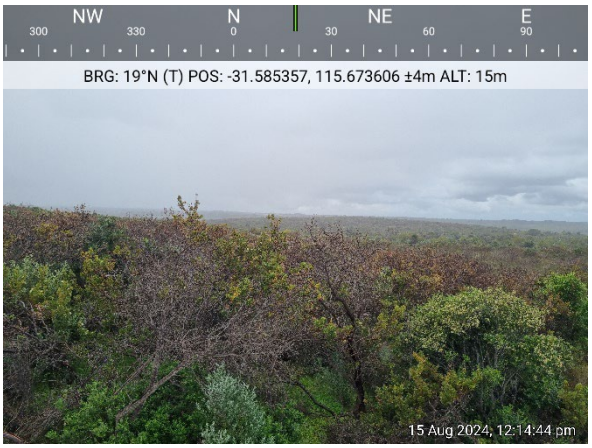


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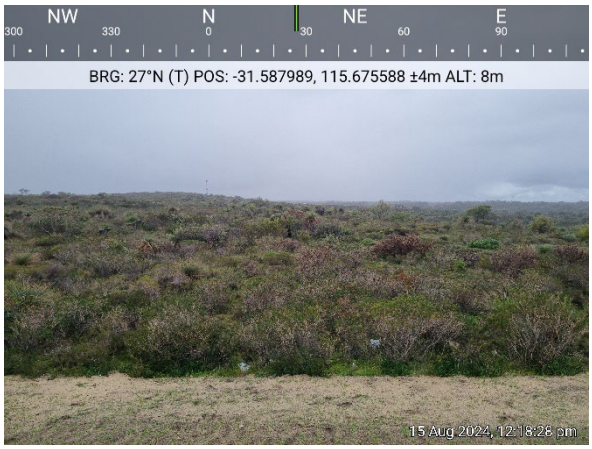


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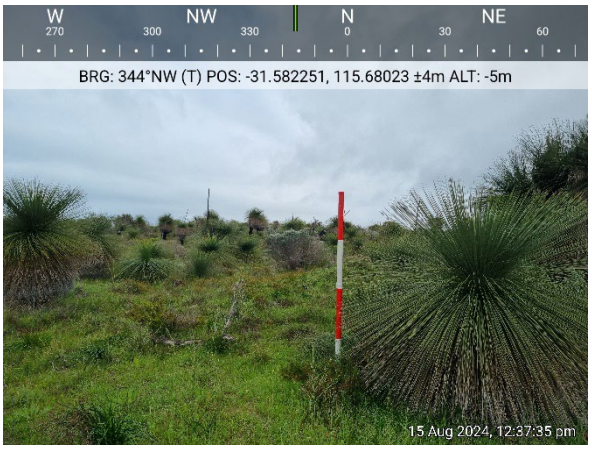


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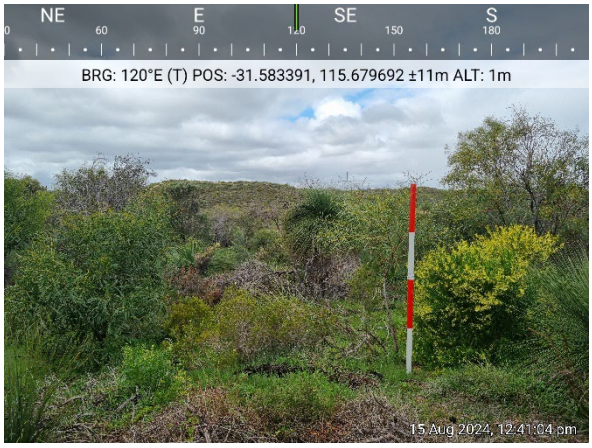


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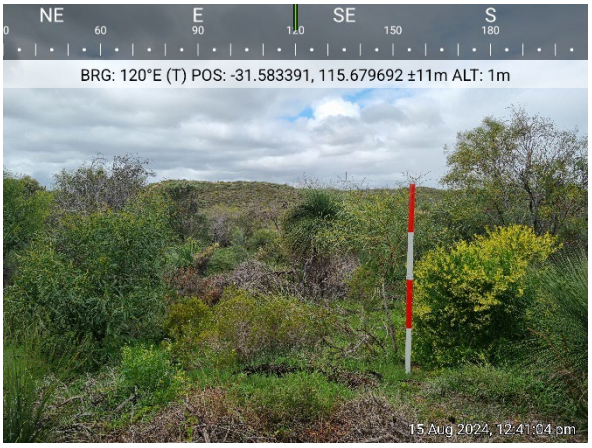


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Plot 2

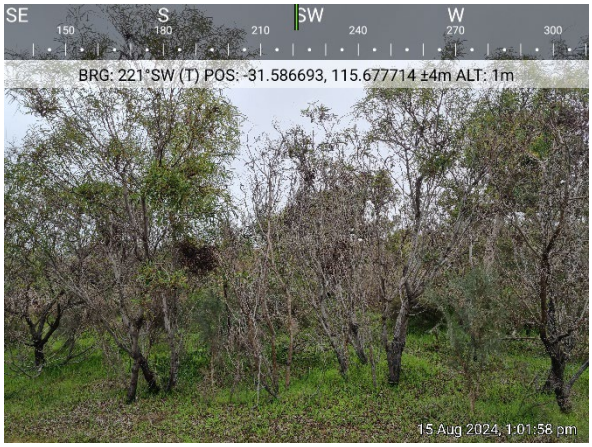


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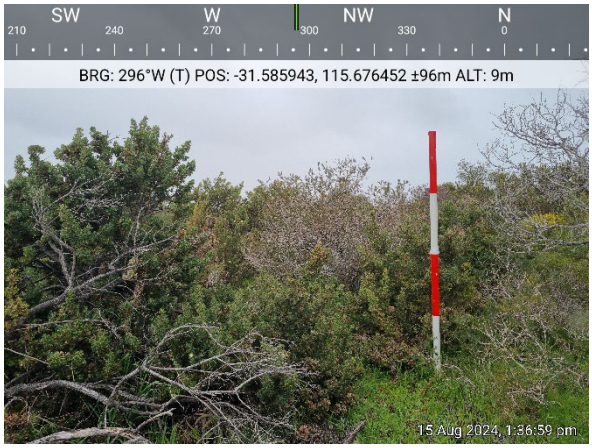


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Plot 2



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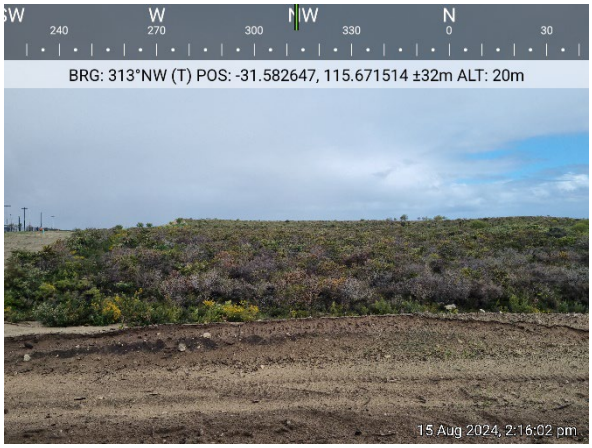


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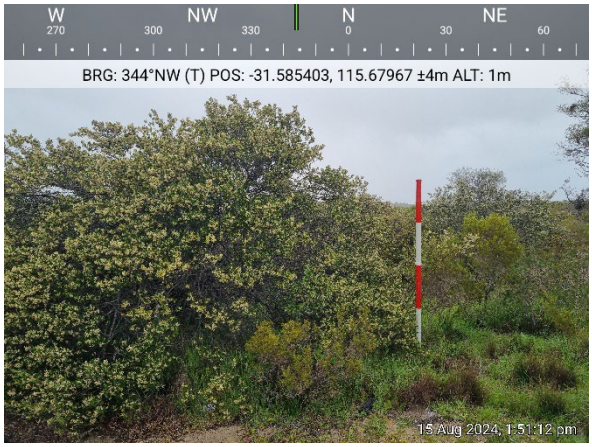


Photo ID: 2q

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Plot 3		
Vegetation classification	**Pre-development**	Class D Scrub (Downslope >5–10°)
	Post-development	Class D Scrub (Downslope >5–10°) external to the project area and modified to non-vegetated and/or low threat (Clauses 2.2.3.2 [e] and/or[f]) within the project area

Description / justification

Vegetation with a continuous horizontal and vertical structure, greater than 2 m high at maturity. Contains areas of low shrubland classified as Class D Scrub as a precautionary measure.



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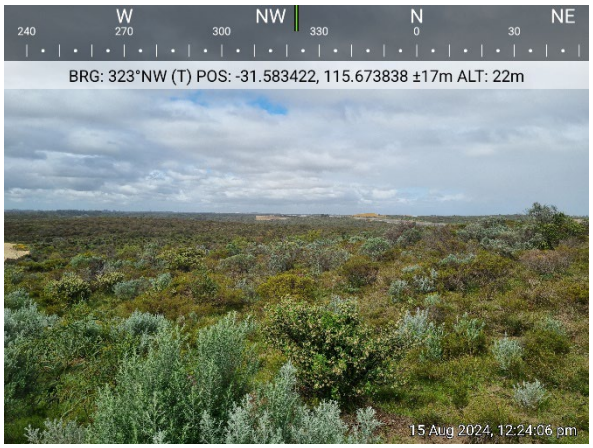


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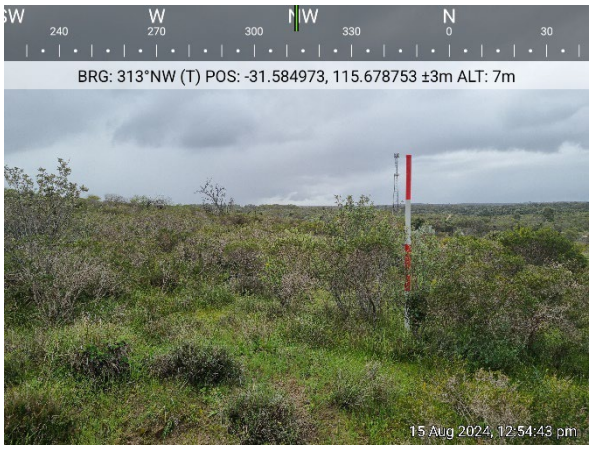


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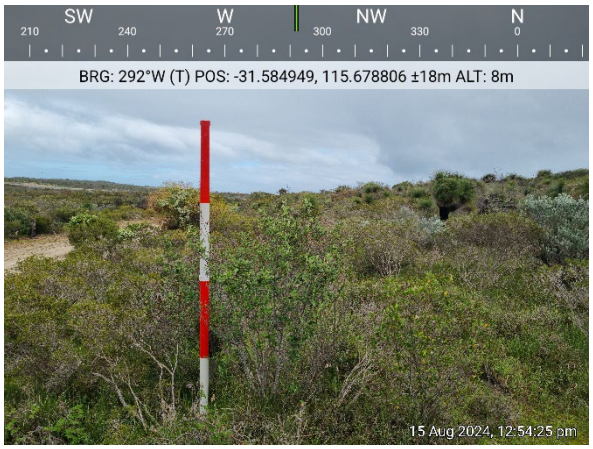


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Plot 4		
Vegetation classification	**Pre-development**	Class C Shrubland (Downslope >0–5°)
	Post-development	Class C Shrubland (Downslope >0–5°) external to the project area and modified to non-vegetated and/or low threat (Clauses 2.2.3.2 [e] and/or[f]) within the project area

Description / justification

Shrub vegetation less than 2 m high at maturity.

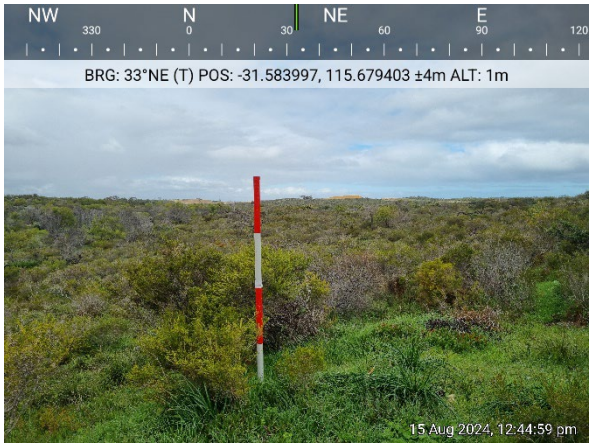


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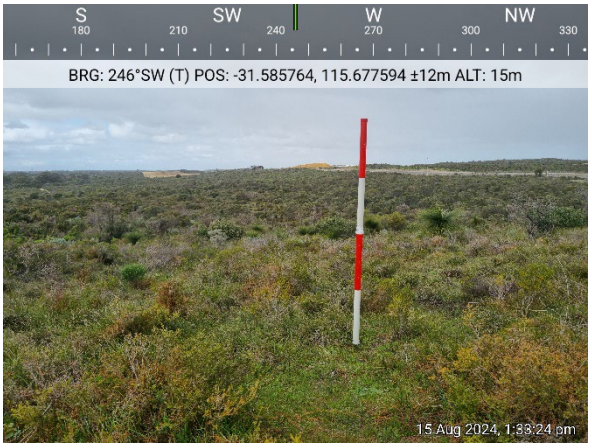


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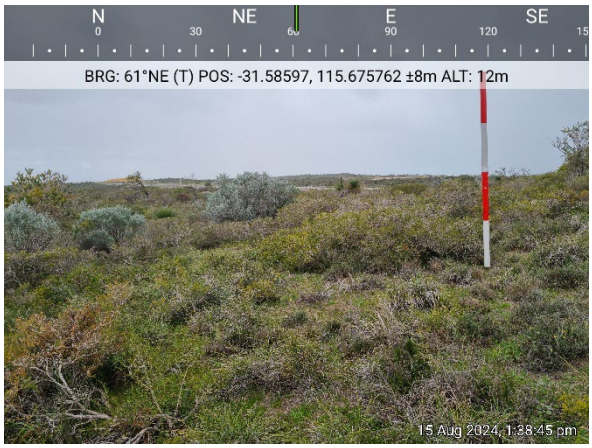


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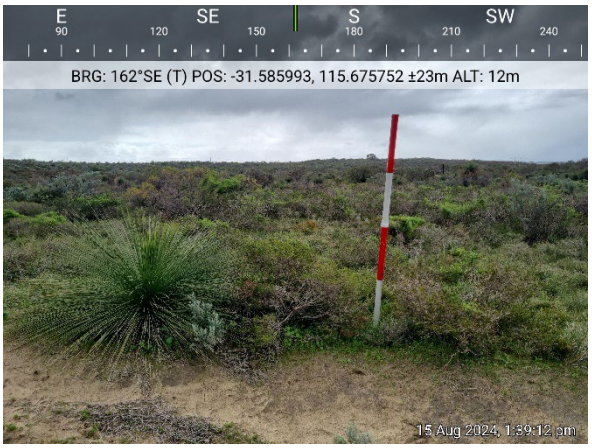


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Photo ID: 4e



Photo ID: 4f

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Plot 5		
Vegetation classification	**Pre-development**	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])
	Post-development	Excluded – Non-vegetated and Low threat (Clause 2.2.3.2 [e] and [f])

Description / justification

Low threat and non-vegetated areas including roads, railway lines, car parks, buildings, cleared land and managed landscaping



Photo ID: 5a



Photo ID: 5b



Photo ID: 5c



Photo ID: 5d



Photo ID: 5e



Photo ID: 5f

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Plot 5



Photo ID: 5g

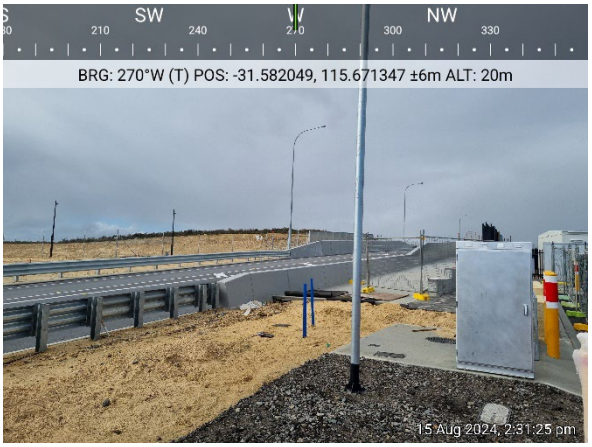


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Photo ID: 5i

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Appendix C City of Wanneroo fire mitigation notice 2024-2025

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City of Wanneroo

IMPORTANT
Fire Mitigation Notice

Fire mitigation measures must be in place by 1 NOVEMBER and maintained until 30 APRIL EACH YEAR.

This is a requirement under the Bush Fires Act 1954 Section 33.

Failure to comply with this notice may incur penalties of up to $5,000 and the works required by this notice will be carried out at the expense of the owner/occupier.

Fire management requirements for land LESS than 4000sqm

- Maintain grasses and inflammable materials with the exception of living trees on the entire property to a height of no more than 50 millimetres. The entire property is required to be maintained below 50 millimetres from 1 November each year until 30 April the following year.

  OR

- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
  - If it is not possible to install the firebreak adjacent to the external boundary of the property due to naturally occurring obstacles, it is acceptable to install the firebreak around the obstacle. If this requires the firebreak to be greater than 5 metres away from the external boundary, a firebreak variation is required.
  - Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to enable vehicles to drive along the firebreaks without access being obstructed.
- Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements outlined within that plan.
- Additional mitigation work may be required by a Fire Control Officer to maintain a 20 metre asset protection zone around buildings.

Fire management requirements for land GREATER than 4000sqm

- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
  - If it is not possible to install the firebreak adjacent to the external boundary of the property due to naturally occurring obstacles, it is acceptable to install the firebreak around the obstacle. If this requires the firebreak to be greater than 5 metres away from the external boundary, a firebreak variation is required.
  - Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to enable vehicles to drive along the firebreaks without access being obstructed.
- Install and maintain a 20 metre bare earth area around all hay stacks and/or fuel storage.
- Where a property is affected by an approved bushfire management plan, property owners must still comply with all requirements in this notice and with any additional requirements outlined within that plan.
- Additional mitigation work may be required by a Fire Control Officer to maintain a 20 metre asset protection zone around buildings.

IMPORTANT Fire Mitigation Notice

City of Wanneroo

All vacant land GREATER than 4000sqm

- A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.
- Ensure a minimum vertical clearance of 4 metres is maintained along the firebreaks to ensure vehicles can drive along the firebreaks without being impeded by tree branches.
- For pastoral and grassed properties in rural and semi-rural areas, if the land is an area of 50,000sqm (5 hectares) or greater, the grass must be maintained on the land to a height of no greater than 50 millimetres for a distance of 10 metres from any firebreak.

Frequently asked questions

I live in a residential area, does this notice apply to me?

Yes. All City of Wanneroo property owners must comply with the Bush Fires Act 1954.

Please refer overleaf for fire management requirements to be in place by 1 November to ensure your property is compliant.

Most properties under 1000sqm will automatically comply if gardens are maintained.

How will inspections be carried out?

Inspections will be carried out by trained Fire Control Officers who are authorised to enter a property by foot, vehicle, quad bike and /or drone.

Do I need a Bushfire Survival Plan?

If you live in, on or near bushland, you are at risk from a bushfire and developing a bushfire survival plan is critical.

Visit the Department of Fire and Emergency Services website for information on how to develop a plan for your property **dfes.wa.gov.au**

I am concerned my neighbour's property is not compliant, what can I do?

All properties are required to be compliant by 1 November.

If you think your neighbour's property does not comply with the requirements as outlined in this notice, please contact the Community Safety and Emergency Management team on **9405 5000**.

I own a vacant lot, do I need a firebreak?

Yes. A 3 metre wide trafficable firebreak as close as possible to all external boundaries of the property must be installed by 1 November each year and maintained until 30 April the following year.

I am unable to meet the requirements outlined, what should I do?

If it is considered impracticable for any reason to implement any of the requirements of this notice, an application for a firebreak variation must be made to the City of Wanneroo by no later than 18 October of each year.

If permission is not granted, the requirements of this notice must be complied with.

Visit the City's website **wanneroo.wa.gov.au/firebreakvariation** to apply for a variation.

Where can I learn more about this notice and bushfire prevention?

Visit the City's website **wanneroo.wa.gov.au/fireandemergencymanagement** to learn more.

Please note, in addition to the requirements of this notice, if a City of Wanneroo Fire Control Officer considers further works are necessary to reduce the risk of bushfire, landowners will be notified via letter to the address shown on the City of Wanneroo rates record for the relevant land.

The City strongly recommends creating a 20 metre asset protection zone around buildings.

For further information call the City of Wanneroo Community Safety and Emergency Management Team on **9405 5000** or visit **wanneroo.wa.gov.au/fireandemergencymanagement**

TO REPORT ALL FIRES
CALL 000

000 EMERGENCY

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Document status

Rev No.	Purpose	Author	Reviewed and approved for Issue	
			Name	Date
Rev A	For client review	Michelle Gellender/ Louisa Robertson (BPAD 36748, Level 3)	Louisa Robertson (BPAD 36748, Level 3)	28 November 2024
Rev 0	**Final report to accompany the Structure Plan Amendment submission**	**Michelle Gellender/ Louisa Robertson (BPAD 36748, Level 3)**	**Louisa Robertson (BPAD 36748, Level 3)**	**5 December 2024**

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18 National Circuit Barton, ACT 2600
T: 02 6198 3278

Darwin
Larrakia Country | Suite G1, Level 1,
48-50 Smith Street, Darwin NT 0800
T: 08 8943 0600

Hobart
Muwununa/Nuenon Country | L2, 137
Liverpool Street, Hobart TAS 7000
T: 03 6208 3700

Melbourne
Wurundjeri Country | Level 19,
31 Queen Street, Melbourne VIC 3000
T: 03 9642 0599

Newcastle
Awabakal/Worimi Country | 61 / 63
Parry Street Newcastle West, NSW 2302
T: 02 8245 0300

Perth
Whadjuk Country | Allendale Square,
Level 9, 77 St Georges Terrace, WA 6000
T: 08 9380 3100

Sydney
Gadigal Country | Level 1,
50 Margaret Street, Sydney, NSW 2000
T: 02 8245 0300

Wollongong
Dharawal Country | Suite 1A, 280 - 286
Keira Street, Wollongong, NSW 2500
T: 02 4225 2647

APPENDIX D LOCAL EMPLOYMENT STRATEGY

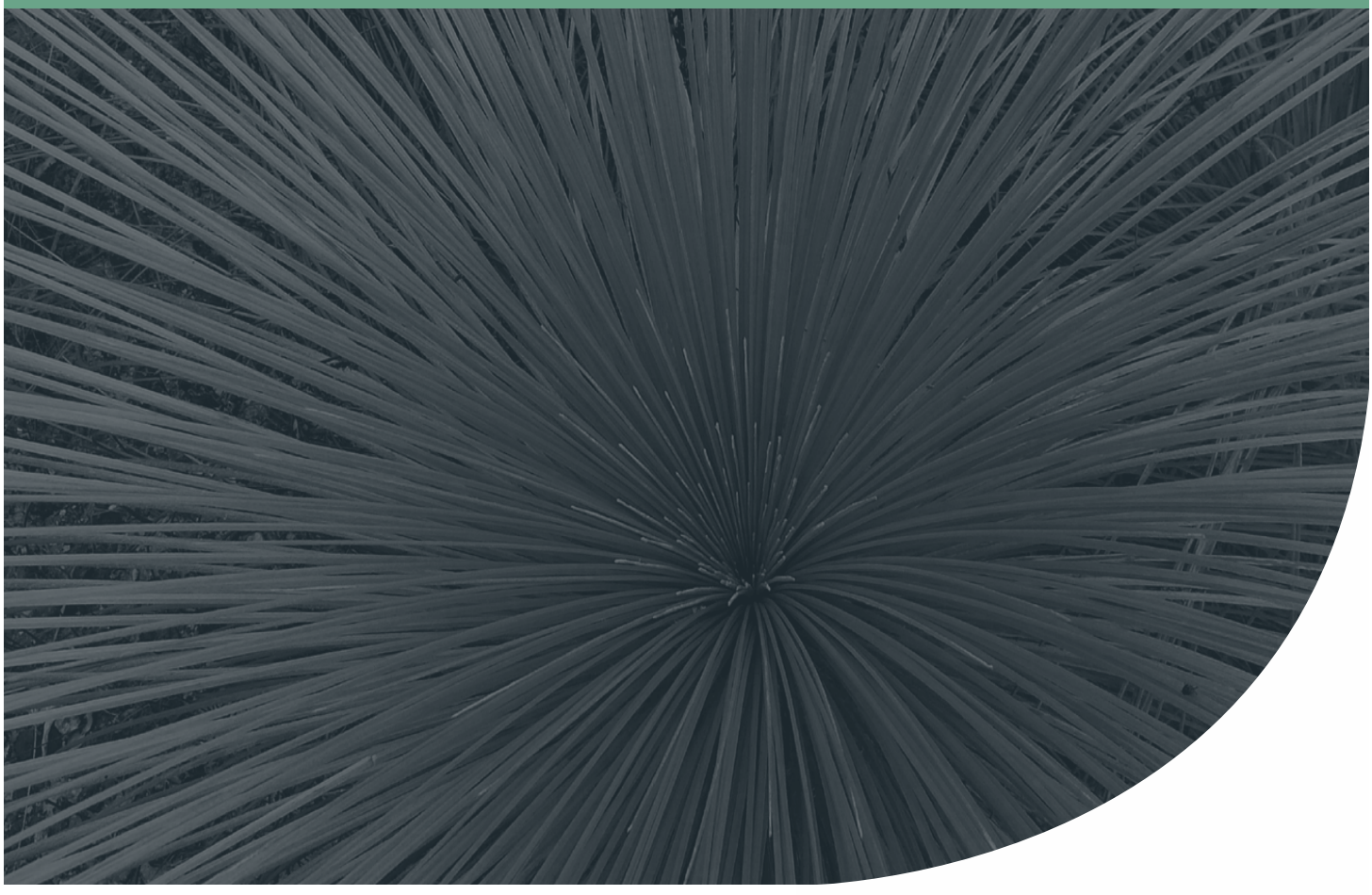
APPENDIX E LOCAL WATER MANAGEMENT STRATEGY ADDENDUM & PRECINCT 6 LOCAL WATER MANAGEMENT STRATEGY

Local Water Management Strategy Addendum

Eglinton District Centre (East) - Activity Centre Plan

Project No: EP18-100(09)

Prepared for Eglinton Estates Pty Ltd
September 2026



Document Control

Doc name:	Local Water Management Strategy Addendum Eglinton District Centre (East) - Activity Centre Plan				
Doc no.:	**EP18-100(09)--012 PK**				
Version	**Date**	**Author**		**Reviewer**	
1	November 2024	Parmod Kumar	PK	Ben Brash	BPB
	For submission to the project team				
A	December 2024	Parmod Kumar	PK	Ben Brash	BPB
	Updated to address project team feedback				
B	August 2026	Parmod Kumar	PK	Ben Brash	BPB
	Updated to include latest landscape masterplan				
C	September 2026	Parmod Kumar	PK	Ben Brash	BPB
	Updated to include updated LSP layout				

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Executive Summary

Eglinton Estates Pty Ltd (the 'proponent') proposes an amendment to the Eglinton District Centre (East) Activity Centre Plan (ACP) located east of the rail corridor within Lot 9102 on plan 425787 (herein referred to as 'the site') for residential purposes. The site is situated 15 km north of Joondalup and 45 km northwest of Perth central business district. The site has an area of approximately 27 ha and is bounded by Pipidinny Road to the north, undeveloped land to the south, future freeway to the east and a rail corridor to the west. The site is zoned 'Urban' under the *CoW Town Planning Scheme No. 2* (DPLH 2001).

A previous development layout was prepared for the District Centre East area, inclusive of the site, which was supported by a local water management strategy (LWMS) addendum. As part of this layout a school site was proposed but not progressed with approval received for lands to the west of the rail corridor. Further details to support the development of the land to the east of the rail corridor were expected at a later date. This document presents this information for a residential development that includes the land adjacent to Pipidinny Road to the north that was not previously assessed. An addendum to the existing LWMS is required to demonstrate the residential development continues to meet the requirements of *Better Urban Water Management* (BUWM) (WAPC 2008). This LWMS addendum, in conjunction with the *Eglinton Local Structure Plan LWMS* (Coffey 2011) and *LWMS addendum Eglinton District Centre* (Emerge Associates 2019) details an integrated water cycle management approach to support the development of the site and is intended to satisfy the requirement of BUWM and address the expectations of the Department of Water and Environmental Management (DWER) and the City of Wanneroo (CoW).

The first step in applying integrated water cycle management in urban catchments is to establish agreed environmental values for receiving waters and their ecosystems. Characteristics of both the existing and past environment within the site have been investigated and indicate that:

- The site receives an average of 634 mm of rainfall with the majority falling during winter.
- The site topography ranges from 30 m AHD to 48 m AHD with a southeasterly aspect.
- Soils of the site are characterised as Safety Bay Sands and Tamala Limestone. This is consistent with regional landform mapping which describes the site as being representative of the Quindalup Formation with undulating dunal landforms.
- Regional ASS risk mapping indicates that the site has no known risk of ASS occurring within 3 m of the natural soil surface.
- There are no surface water features or classified geomorphic wetlands located within the site.
- Groundwater levels on site are approximately 1 m AHD. Groundwater underlying the site flows westward towards the Indian Ocean.
- The site is located within a Priority 3 (P3) public drinking water source area (PDWSA) and includes a well head protection zone (WHPZ).
- The site is within the Quindalup Complex for vegetation.
- The site is largely covered with remnant vegetation, with the exception of a number of firebreaks, access tracks and works area.

The overall objective for integrated water cycle management for the site is to maintain the existing hydrological regime and minimise pollution. The design objectives of this LWMS seek to deliver best practice outcomes using a water sensitive urban design (WSUD) approach, including management approaches for:

- Water conservation
- Stormwater quantity and quality management
- Flood mitigation
- Groundwater management.

The overall objective for integrated water cycle management for the site is to maintain the existing hydrological regime and minimise pollution. The LWMS design objectives seek to deliver best practice outcomes using a WSUD approach, including management approaches for water conservation, flood mitigation, stormwater quality management and groundwater management.

The criteria proposed within this LWMS are based on consultation with key stakeholders, the characteristics of the existing environment and a contemporary best-practice approach to integrated water cycle management.

The overall approach to water conservation is to reduce the amount of scheme water required within the development at both a lot and estate scale. Within the lot, potable water consumption will be reduced by promoting water efficient fixtures and appliances (WEFA) and waterwise gardens (WWG) principles. On an estate scale, groundwater will be utilised for irrigation of landscaped areas within POS which will also utilise WWG approaches, including the retention and use of native vegetation where possible.

The stormwater management strategy for the site aims to maintain the existing hydrology by retaining flows up to the major rainfall event on site. Retention will be provided through the use of lot soakwells, tree pits, and co-located bio-retention areas (BRAs) and flood storage areas (FSAs) in public open space (POS). Stormwater quality will be addressed using a treatment train approach. The first 15 mm of rainfall will be retained as close to source as practicably possible. Lots will retain up to the major rainfall event in soakwells and on lot permeable area. Runoff from the road network will be conveyed to downstream co-located basin located within POS.

Groundwater level management focuses on protecting properties from flooding due to inundation by groundwater. The depth to groundwater within the site is over 30 m below ground level (BGL) hence, no groundwater level management is proposed. The objective of the management of groundwater quality is to maintain or improve the existing groundwater quality. This will be achieved by reducing total nutrient loads originating from the development and treating surface water runoff as close to source as possible.

The proposed criteria and the manner in which they are proposed to be achieved are presented in **Table E 1**. This table provides a readily auditable summary of the required outcomes which can be used in the future detailed design stage to demonstrate that the agreed objectives for water management at the site have actually been achieved. This LWMS demonstrates that the site is capable of being developed by following the recommendations detailed in this document.

Table E 1 Water Management criteria and compliance

Management Element	Criteria number	Criteria description	Manner in which compliance has been achieved	Responsibility for implementation	When implemented
Water conservation	WC1	Consumption target for water of 100 kL/person/year, including not more than 40-60 kL/person/year of scheme water	Provide advice to residents on water conservation measures	Proponent	Point of sale
			Promotion of rainwater tanks (RWT) within lots	Proponent	Point of sale
			Promotion of waterwise gardening principles (WWG) in lots	Proponent	Point of sale
			Use of WWG principles in lots	Lot owner	Post-house construction
			Use of WWG principles in public open space (POS)	Proponent	Landscape design
			Promotion of water efficient appliances	Proponent	Point of sale
			Use of water efficient appliances	Lot owner	Post-house construction
			Use of water efficient fixtures and fittings	Lot owner	Building construction
	WC2	Maintain an average irrigation rate of 6,750 kL/ha/year in POS	Use of WWG principles in POS	Proponent	Landscape design and maintenance
Stormwater management	SW1	All runoff up to the major rainfall event to be retained on site	Residential lots to retain the major rainfall event on lot in soakwells and pervious garden areas	Lot owner / developer	Building construction
			Road runoff will be managed by bio-retention areas (BRAs), and flood storage areas (FSAs) within POS	Proponent	Detailed drainage design
	SW2	Finished floor levels to have a minimum of 300 mm clearance above the major rainfall event flood level in road reserves and 500 mm clearance from major rainfall event flood levels in surface storage areas	Lots adjacent to BRAs and FSAs are provided a minimum of 500 mm clearance from the major rainfall event top water level (TWL)	Proponent	Detailed drainage design
			Lots are provided a minimum of 300 mm clearance above the major rainfall event TWL in adjacent road reserves	Proponent	Detailed drainage design
	SW3	Ensure minor roads remain passable in the minor rainfall event	The pipe network is designed to convey the minor rainfall event to ensure roads remain passable in this event	Proponent	Detailed drainage design

Table E 1 Water Management criteria and compliance (continued)

Management Element	Criteria number	Criteria description	Manner in which compliance has been achieved	Responsibility for implementation	When implemented
Stormwater management (continued)	SW4	Retain and treat the small event (first 15mm) of rainfall as close to source as possible	Residential lots to retain the small rainfall event on lot in soakwells and pervious garden areas	Lot owner / developer	Building construction
			Road runoff will be retained within tree pits in road verge and BRAs within POS	Proponent	Detailed design stage
	SW5	Reduce nutrient loads by applying appropriate non-structural measures	Minimise use of fertilisers within POS and road verges	Landscape contractor	Landscape implementation
			Use of drought tolerant turf species	Landscape contractor	Landscape implementation
			Maintenance of POS and drainage areas	Maintenance contractor	2 years following construction
			Education of residents regarding responsible nutrient application	Proponent	Point of sale
	SW6	Size surface treatment areas to (at least) 2% of the connected impervious area	BRAs are sized to be greater than 2% of the connected impervious area	Proponent	Detailed drainage design
Groundwater management	GW1	Maintain groundwater quality leaving the site	Treat surface water runoff prior to infiltration to groundwater in vegetated BRAs	Proponent	Detailed drainage design
			Minimise fertiliser use to establish and maintain POS and road verges	Landscape contractor	Landscape implementation
			Use of drought tolerant species that require minimal water and nutrients	Landscape contractor	Landscape implementation
			Education of residents regarding fertiliser use and vegetation species within lots	Proponent	Point of sale
	GW2	Use water sensitive design approaches to recharge the superficial aquifer	Retain and infiltrate all runoff up to the major rainfall event in soakwells, BRAs, FSAs on site	Proponent	Detailed drainage design

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Appendices

Appendix A

Activity Centre Concept Structure Plan

Appendix B

Eglinton Local Structure Plan Area LWMS Figure 7a and 7b

Appendix C

Landscape Concepts

Appendix D

Civil Concepts

Appendix E

Modelling Assumptions Report

Abbreviation Tables

Table A1: Abbreviations – general terms

General terms	
ACP	Activity centre plan
AEP	Annual exceedance probability
ARI	Average recurrence interval
ASS	Acid sulfate soils
BRA	Bio-retention area
BUWM	Better Urban Water Management
DWMS	District water management strategy
DSP	District Structure Plan
FSA	Flood Storage Area
IWSS	Integrated water supply scheme
LSP	Local Structure Plan
LWMS	Local water management strategy
NDW	Non drinking water
NWGC	North West Growth Corridor
NWQMS	National Water Quality Management Strategy
POS	Public open space
UWMP	Urban water management plan
TWL	Top water level
WEFA	Water efficient fixtures and appliances
WSUD	Water sensitive urban design
WWG	Waterwise gardens
WWTP	Wastewater treatment plant

Table A2: Abbreviations – organisations

Organisations	
ABS	Australian Bureau of Statistics
ANZECC	Australian and New Zealand Environment and Conservation Council
BoM	Bureau of Meteorology
CoW	City of Wanneroo
DBCA	Department of Biodiversity, Conservation and Attractions
DPLH	Department of Planning, Land and Heritage
DoW	Department of Water (now DWER)
DWER	Department of Water and Environmental Regulation
WAPC	Western Australian Planning Commission

Table A3: Abbreviations – units of measurement

Units of measurement	
^{0}C	Degrees celcius
ha	Hectare
kL	Kilolitres
km	Kilometre
m	Metre
m^2	Square metre
m^3	Cubic metre
m AHD	Metres in relation to the Australian height datum
mm	Millimetre

Table A4: Rainfall events conversion chart

Rainfall event	Annual exceedance probability (AEP)	Equivalent average recurrence interval (ARI)
Small (first 15 mm)	1 exceedance year (EY) event	1 in 1 year ARI event
Minor (residential purposes)	20% AEP event	1 in 5 year ARI event
Minor (commercial/industrial purposes)	10% AEP event	1 in 10 year ARI event
Major	1% AEP event	1 in 100 year ARI event

1 Introduction

1.1 Background

Eglinton Estates Pty Ltd (the 'proponent') proposes an amendment to the Eglinton District Centre (East) Activity Centre Plan (ACP) located east of the rail corridor within Lot 9102 on plan 425787 (herein referred to as 'the site') for residential purposes. The site is situated 15 km north of Joondalup and 45 km northwest of Perth central business district. The site has an area of approximately 27 ha and is bounded by Pipidinny Road to the north, undeveloped land to the south, future freeway to the east and a rail corridor to the west. The location of the site is shown on **Figure 1**.

1.2 Town planning context

The Eglinton District Centre (East) ACP was included within the Alkimos-Eglinton District Structure Plan (DSP), which was approved by the City of Wanneroo (CoW) in July 2008 and the West Australian Planning Commission (WAPC) in June 2010. It is proposed that the Eglinton District Centre (East) ACP will be developed for residential purposes.

The site is zoned 'Urban' under the Metropolitan Redevelopment Scheme (MRS) and 'Urban development' under the *CoW Town Planning Scheme No. 2* (DPLH 2001).

1.3 Purpose of this report

A previous development layout was prepared for the District Centre East area, inclusive of the site, which was supported by a local water management strategy (LWMS) addendum. As part of this layout a school site was proposed but not progressed with approval received for lands to the west of the rail corridor. Further details to support the development of the land to the east of the rail corridor were expected at a later date. This document presents this information for a residential development that includes the land adjacent to Pipidinny Road to the north that was not previously assessed. An addendum to the existing LWMS is required to demonstrate the residential development continues to meet the requirements of BUWM. This LWMS addendum is being prepared to support the development of the site. This LWMS addendum, in conjunction with the *Eglinton Local Structure Plan LWMS* (Coffey 2011) and *LWMS addendum Eglinton District Centre* (Emerge Associates 2019) details the water management approach to support the development of the site and is intended to satisfy the requirement to prepare a LWMS in accordance with *Better Urban Water Management* (BUWM) (WAPC 2008).

1.4 Policy framework

There are several State and Local Government policies of relevance to the site. These policies include:

- *State Water Strategy* (Government of WA 2003b)
- *State Planning Policy 2.9: Water Resources* (WAPC 2006a)
- *Draft State Planning Policy 2.9 Planning for Water Guidelines* (DPLH 2021)
- *Statement of Planning Policy No. 3: Urban Growth and Settlement* (WAPC 2006b)
- *State Water Plan* (Government of WA 2007)
- *Liveable Neighbourhoods (4th Edition)* (WAPC 2009, 2015)
- *Guidance Statement No. 33: Environmental Guidance for Planning and Development* (EPA 2008).

In addition to the above policies, there are several published guidelines and standards available that provide direction regarding the water discharge characteristics that urban developments should aim to achieve. There are key inputs that relate either directly or indirectly to the site and include:

- *Australian Rainfall and Runoff* (Ball J *et al.* 2019)
- *Australian Runoff Quality* (Engineers Australia 2006)
- *Better Urban Water Management Strategy* (WAPC 2008)
- *Developing a Local Water Management Strategy* (DoW 2008a)
- *Decision Process for Stormwater Management in Western Australia* (DWER 2017)
- *National Water Quality Management Strategy (NWQMS)* (Australian Government 2018)
- *Stormwater Management Manual for Western Australia* (DWER 2022)
- *District Planning Scheme No. 2* (CoW 2023)
- *Local Planning Policy 4.3: Public Open Spaces* (CoW 2021)
- *Local Planning Policy 4.4: Urban Water Management* (CoW 2020)
- *Development Design Specifications WD5: Stormwater drainage design* (CoW 2019).

1.5 Previous documentation

1.5.1 Alkimos-Eglinton District Structure Plan

The *Alkimos-Eglinton District Structure Plan* (DSP) was prepared by the CoW (2007). A district water management strategy (DWMS) was not prepared as part of the DSP; however, a sustainability strategy including an integrated water cycle management strategy was produced by GHD and was appended to the DSP (GHD Australia 2006). In 2011 a DWMS was prepared to outline the total water cycle management approach for development within the area (GHD Australia 2011). The integrated water management strategy proposed in the DWMS included:

- Efficient use of water inside buildings and for irrigation.
- Restricted supply of potable water for drinking and associated uses.
- Supply of a separate fit-for-purpose water service for non-drinking water uses.
- Best practice stormwater and groundwater management.

1.5.2 Eglinton Local Structure Plan Area LWMS

The *Eglinton Local Structure Plan Area LWMS* (Coffey 2011) was prepared to support structure planning of the Eglinton estate landholdings. The key principles proposed in the LWMS are consistent with integrated water cycle management principles and include:

1.5.2.1 Maximise water use efficiency

- Optimise the use and reuse of rainwater.
- Minimise use of scheme water at a lot scale to 100 kL/person/year.
- Minimise use of water at an estate scale.

1.5.2.2 Protect life and property from flooding

- Retain the 100 year average recurrence interval (ARI) event within downstream POS infiltration areas.
- Provide minimum 500 mm clearance to 100 year ARI storage levels.
- Provide minimum 300 mm clearance from dynamic 100 year ARI flood levels.
- Minor roads must remain passable during the 5 year ARI event.
- Provide stormwater flow pathway for 100 year ARI event runoff.
- Provide adequate lot clearance to trapped low points.
- Provide storage to accommodate extreme events.
- Design infiltration areas to avoid creating mosquito habitat.

1.5.2.3 Protect groundwater quality

- Treat stormwater runoff before discharging to groundwater.
- Use water sensitive design approaches to recharge the superficial aquifer.

These key principles have been used to determine the water management objectives identified in this LWMS.

1.5.3 LWMS Addendum Eglinton District Centre

The *LWMS addendum Eglinton District Centre* (Emerge Associates 2019) was prepared to support the Eglinton District Centre ACP as required in accordance with BUWM, CoW guidelines and expectations, and incorporates the objectives indicated in the overarching LWMS (detailed in **Section 1.5.2**).

1.6 LWMS addendum objectives

The manner in which stormwater runoff from the site with latest development layout is to be managed to avoid flooding and protect the environment are clearly documented in this LWMS. This will provide the framework for actions and measures to achieve the desired outcomes at subdivision stage.

This LWMS addendum details the water management approach to support the updated development proposal for the site as required in accordance with BUWM, CoW and DWER guidelines and expectations, incorporating the objectives indicated in the overarching LWMS (detailed in **Section 1.5.2**).

2 Proposed Development

The site covers an area of approximately 27 ha. The proposed land uses include:

- Residential lots
- Public open space (POS)
- Road network.

The Eglinton District Centre ACP and concept structure plan are provided in **Appendix A**.

The stormwater approach for the site focuses on optimising the location and amenity provided by POS through appropriate inclusion and configuration of drainage across the development. This has been achieved through the integration of water sensitive urban design (WSUD) measures within road reserves where possible, and by minimising the footprint of stormwater infrastructure through the use of spatially efficient storage (detailed in **Section 6**).

3 Pre-development Environment

3.1 Sources of information

The following sources of information were used to provide a broad regional environment context to the site:

- *Climate Data Online* (BoM 2024)
- *Perth Groundwater Map* (DWER 2024b)
- *Water Information Reporting* (DWER 2024d)
- *Geology and Landforms of the Perth Region* (Gozzard 2007)
- *Geological Survey of Western Australia* (Geological Survey of Western Australia 1999)
- *Acid Sulfate Soil – Swan Coastal Plain (DWER 2024a)*
- *Water Register* (DWER 2024e)
- *Public drink water source area mapping tool* (DWER 2024c)
- *National Water Quality Management Strategy* (NWQMS) (Australian Government 2018).

The above studies have been reviewed to determine any existing hydrological constraints. This is important, as it can have implications for the stormwater management measures and the extent of earthworks that may be required to facilitate development.

3.2 Current and historical land uses

The site is undeveloped and consists of native bushland, with some firebreaks and access tracks. A works area, presumed to support the construction of the rail corridor, is located within the northern portion of the site.

3.3 Climate

The site experiences a mediterranean climate which includes hot dry summers and cool wet winters. Long term climate averages indicate that the average maximum temperature ranges from 18.4°C in July through to 33.3°C in January, while the average minimum temperatures range from 6.6°C in July through to 17.1°C in February (BoM 2024). Average rainfall at the site is 634 mm, with the majority of rainfall occurring between June and August. An average 73.8 days of rainfall occurs annually (BoM 2024).

3.4 Geotechnical conditions

3.4.1 Topography

The site is a roughly undulating dune landscape overlain by well-defined vegetated dunes. The site has a minimum elevation of 30 m Australian height datum (AHD) in south-eastern corner of the site, and a maximum elevation of 48 m AHD in the north-western corner of the site. There is a low point

of 31 m in the north-eastern region of the site. The site has a generally southeasterly aspect. The topographic contours are shown on **Figure 2**.

3.4.2 Geology

The two geological units most evident at the site are the Safety Bay Sand and Tamala Limestone. Safety Bay Sand is white, fine to medium grained sand of Aeolian origin. Tamala limestone is a light yellowish-brown fine to coarse grained Aeolian calcarenite and is often overlain by Safety Bay Sand.

This is consistent with regional landform mapping which describes the site as being representative of the Quindalup Formation with undulating dunal landforms. A review of the *Perth Metropolitan Region 1:50 000 Environmental Geology Series* (Gozzard 2007) and *Geological Survey of Western Australia* (1999) indicates that the site is underlain by the following:

- (LS1) Light yellowish-brown, fine to coarse grained sub-angular to well-rounded quartz, trace feldspar, shell debris, variable lithified, surface kankar of Aeolian origin. This soil type is moderately permeable, has a moderate-high slope stability, and is suitable for construction of roads and urbanisation.
- (S7) Sand-pale and olive yellow, medium to coarse grained, sub-angular quartz with traces of feldspar, moderately sorted, of residual origin. This soil type is moderately permeable, has a low-moderate slope stability, and is suitable for construction of roads and urbanisation.

The mapped extent of the geological units across the site is shown on **Figure 3**.

3.4.3 Acid sulfate soils

The *Acid Sulfate Soil (ASS) Swan Coastal Plain* database (DWER 2024a) classifies the site as having no known risk of ASS occurring within 3 m of natural soil surface.

3.5 Hydrology

3.5.1 Surface water

A review of the *Geomorphic Wetlands, Swan Coastal Plain* dataset indicates that there are no geomorphic wetlands within or adjacent to the site (DBCA 2024).

No surface water bodies or channels are observed within the site. As discussed in **Section 3.4**, the site is characterised by highly permeable underlying sand. Consequently, no information is available regarding surface water quality.

3.5.2 Groundwater levels

The *Perth Groundwater Map* (DWER 2024b) indicates that groundwater flows in a westerly direction towards the coast. The maximum groundwater level to the east of the site is approximately 1 m AHD and thus depth to groundwater is between 29 m below ground level (BGL) and 47 m BGL.

There are no groundwater monitoring bores within the site, however there is a nearby DWER bore approximately 500 m east of the site which is screened into the superficial aquifer. This location is identified as site 61610581 on *Water Information Reporting* (DWER 2024d). The maximum groundwater elevations at this location (as recorded by DWER during 2014-2024) is approximately 2.2 m AHD.

Groundwater contours in the vicinity of the site are shown on **Figure 2**.

3.5.3 Public drinking water source areas

The entire site is within a Priority 3 (P3) public drinking water source area (PDWSA) (DWER 2024c) and there is one wellhead protection zones (WHPZ) within the site as shown on **Figure 4**. The proposed land use (i.e. residential) complies with the requirements of a P3 PDWSA permitted land use (DWER 2021).

3.5.4 Groundwater quality

There is no recent groundwater quality data available for the site.

3.6 Flora

The site is within the Quindalup Complex (Heddle *et al.* 1980). The vegetation associations found in the site are shown and described in Figure 7a and 7b of the overarching *Eglinton Local Structure Plan Area (LSP) LWMS* (Coffey 2011), provided in **Appendix B**.

3.7 Summary of existing environment

In summary, the environmental investigations conducted to date indicate that:

- The site receives an average of 634 mm of rainfall with the majority falling during winter.
- The site topography ranges from 30 m AHD to 48 m AHD with a southeasterly aspect.
- Soils of the site are characterised as Safety Bay Sands and Tamala Limestone. This is consistent with regional landform mapping which describes the site as being representative of the Quindalup Formation with undulating dunal landforms.
- Regional ASS risk mapping indicates that the site has no known risk of ASS occurring within 3 m of the natural soil surface.
- There are no surface water features or classified geomorphic wetlands located within the site.
- This is due to the presence of highly permeable sands and significant depth to groundwater.
- Groundwater levels on site are approximately 1 m AHD. Groundwater underlying the site flows westward towards the Indian Ocean.
- The site is located within a Priority 3 public drinking water source area (P3-PDWSA) and well head protection zone (WHPZ).
- The site is within the Quindalup Complex for vegetation.
- The site is largely covered with remnant vegetation, with the exception of a number of firebreaks, access tracks and works area.

4 Design Criteria and Objectives

This section outlines the objectives and design criteria that this LWMS addendum and future urban water management plans (UWMP) must achieve.

4.1 Integrated water cycle management

The *State Water Strategy* (Government of WA 2003a) and BUWM (WAPC 2008) endorses the promotion of integrated water cycle management and application of WSUD principles to provide improvements in the management of stormwater, and to increase the efficient use of other existing water supplies. The key principles of integrated water cycle management include:

- Considering all water sources, including wastewater, stormwater and groundwater.
- Integrating water and land use planning.
- Allocating and using water sustainably and equitably.
- Integrating water use with natural water processes.
- Adopting a whole of catchment integration of natural resource use and management.

Integrated water cycle management addresses not only physical and environmental aspects of water resource use and planning, but also integrates other social and economic concerns. Stormwater management design objectives should therefore seek to deliver better outcomes in terms of:

- Water conservation
- Stormwater quality management
- Flood mitigation
- Groundwater management.

The design criteria discussed in the following sections are based on the assessment of the existing environment within the development site, and with the aim of achieving the integrated water cycle outcomes discussed above.

4.2 Water conservation

Water conservation design criteria have been determined in line with the guidelines presented in BUWM and previous documentation. This LWMS proposes the following water conservation criteria:

Criteria WC1 Consumption target of 100 kL/person/year.

Criteria WC2 Maintain an average irrigation rate of 6,750 kL/ha/year in POS areas.

The manner in which these objectives will be achieved is further detailed in **Section 5.**

4.3 Stormwater management

The principle behind stormwater management at the site is to mimic the pre-development hydrological conditions. The stormwater management criteria include:

Criteria SW1 All runoff up to the major rainfall event (1% AEP) is to be retained on site.

Criteria SW2 Finished floor levels must have a minimum of 300 mm clearance above the major rainfall event flood levels in road reserves and 500 mm clearance from the major rainfall event flood levels in surface storage areas.

Criteria SW3 Ensure minor roads remain passable in a minor (20% AEP) storm event.

Criteria SW4 Retain and treat the small rainfall event (first 15 mm) as close to source as possible.

Criteria SW5 Reduce nutrient loads by applying appropriate non-structural measures.

Criteria SW6 Size surface treatment areas to be (at least) 2% of the total connected impervious area.

The manner in which these objectives will be achieved is further detailed in **Section 6**.

4.4 Groundwater management

The principle behind the groundwater management strategy is to maintain the existing groundwater hydrology. The groundwater management criteria include:

Criteria GW1 Maintain groundwater quality leaving the site.

Criteria GW2 Use WSUD approaches to recharge the superficial aquifer.

The manner in which this objective will be achieved is further detailed in **Section 7**.

5 Water Supply and Conservation

5.1 Fit-for-purpose water use

Conservation of water through fit-for-purpose use and best management practices is encouraged so that scheme water is not wasted. Fit-for-purpose describes the use of water that is of a quality suitable for the required use of the water. Fit-for-purpose principles have been utilised in the water conservation strategy for the site and will achieve **Criteria WC1**.

5.1.1 Scheme water

The site is proposed to be connected to the Water Corporations Integrated Water Supply Scheme (IWSS).

5.1.2 Groundwater supply

The *Water Register* (DWER 2024e) indicates that the site is located in the Perth groundwater area and the Eglinton groundwater sub-area. Groundwater can be used for irrigation of POS areas and establishment of landscaped areas (including road verges) instead of utilising scheme water.

The site is subject to the requirements of the *North West Corridor Water Supply Strategy* (NWCWSS) (DoW 2014) and supporting licencing schedule and calculation methodology (DoW 2013) which determines the groundwater allocation available for the development based on the provisions within the site.

Two groundwater licences are held by the proponent to support the irrigation requirements of the site, including:

- GWL206444 – establishment irrigation use up to 28,424 kL/year.
- GWL206447 – permanent irrigation use up to 4,658 kL/year.

5.1.3 Waste water reuse

Within the DWMS (GHD Australia 2011) provision of a non-drinking water (NDW) supply through a dual reticulation (third pipe) network was proposed. The NDW supply was proposed for irrigation uses in the initial stages of development (up to 2015) with the intention of expanding its use to non-potable in-house water uses in the future.

Alternative water sources to supply the NDW network included groundwater, stormwater harvesting and treated wastewater from the Alkimos WWTP.

The network required the agreement and input of a number of stakeholders across the Alkimos-Eglinton DSP area, including the local government and identification of a long-term service provider.

As of October 2024, a recycled effluent scheme capable of supplying a third pipe system to dwellings and commercial premises has not been agreed upon.

5.1.4 Rainwater tanks

Collection of runoff from roof surfaces can be undertaken, with this water stored within rainwater tanks (RWT) for later use. Stored rainwater may be used for some irrigation requirements however this will need to be supplemented with scheme water during the lower rainfall months. During the higher rainfall months the majority of the stored rainwater can be used to supplement internal building non-potable uses. The water efficiency strategy recommends that rainwater is used in washing machines, toilets and hot water systems.

The use of rainwater tanks as described in the following sections will not be mandated within the Eglinton District Centre. An average uptake rate for RWT of 9% has been identified by the Australian Bureau of Statistics (ABS) (2014).

The above measures will assist in achieving **Criteria WC1**.

5.2 Water conservation measures

The development will utilise groundwater for POS irrigation, active POS irrigation management, RWT, water wise garden (WWG) principles for lot scale gardens and within estate landscaping, and water efficient fixtures and appliances (WEFA) to ensure that the development minimises the use of water. These measures are further discussed in the following sections.

5.2.1 Water efficient fixtures and appliances

Significant reductions in in-house water uses can be achieved with the use of WEFA. The water use rates of water efficient appliances with typical uptake rates (ABS 2014, 2022) have been used in the water use analysis. The water conservation approach proposed by this LWMS is that all dwellings use WEFA. Water efficient fittings are mandated as part of the building approvals process, while uptake of water efficient appliances will be encouraged by the proponent at point of sale.

The above measures will assist in achieving **Criteria WC1**.

5.2.2 Water wise gardens

Reductions in water use for irrigation by employing water efficiency measures can significantly reduce the total water usage (WC 2003). The development will undertake a variety of measure to limit the water use into the future within POS and road verges, and the private residential landscape works under the control of the proponent.

A variety of methods and approaches will be considered including any or all of the following:

- The adoption of water wise species, with a focus on using local native water wise species or, if necessary, species from regions with similar climates.
- Where required, existing site soil may be improved with soil conditioner certified to Australian Standard AS 4454 to a minimum depth of 150 mm where turf is to be planted and a minimum depth of 300 mm for garden beds.

- The irrigation system is proposed to be designed and installed according to best water efficient practices including consideration of hydro zone design solutions.
- Garden beds will be mulched to 75 mm with a product certified to Australian Standard AS 4454.
- The design will cater for efficient water requirements during POS maintenance. This will be achieved by implementing an appropriate management and maintenance program for POS areas that will be further detailed at the UWMP stage.
- Community awareness of water conservation will be promoted at the point of sale and during the project sales lifespan.

WWG principles will be carried out within all POS areas and road reserves and will be promoted to purchasers on sale of lots.

The above measures will assist in achieving **Criteria WC1** and **WC2.**

5.3 Lot scale water usage

A water use analysis has been undertaken to demonstrate the effectiveness of the water conservation strategy proposed. The analysis considers realistic uptakes of non-mandatory water conservation measures and full uptake of mandated measures as detailed in **Section 5.2**.

The water use analysis has been based on the rates and calculation methodology presented in the Water Corporation Spreadsheet *AltWaterSupply_Water_Use_Model.xls* (WC 2011). Uptake rates and population assumptions are calculated using data from the ABS (ABS 2014, 2022). The water use analysis assumes an average of 1.8 people per lot, for lots zoned R80-100, and 2.6 people per lot for all other residential zoning (ABS 2022). The results of the water use analysis indicate that on average, if households in the development adopt the proposed water conservation measures at typical uptake rates, they will use 42 kL/person/year of scheme water. If non-mandatory water conservation measures are not taken up, usage will be 71 kL/person/year.

This achieves the state water consumption target of no more than 100 kL/year/person and satisfies **Criteria WC1**.

5.4 Estate scale water use

The water use at an estate scale is determined by the amount of POS provided that requires irrigation, the amount of road verge that will require irrigation and the rates at which these are irrigated. Not all of the POS areas will be irrigated at the same rates as some areas will utilise native vegetation, while others will utilise turf to provide active recreation areas. Irrigation water for POS and road verges will be supplied by groundwater (discussed in **Section 5.1.2**) with only turf areas requiring ongoing irrigation.

Within the proposed POS for the site, there is one main area of active grass that will require permanent irrigation. The area of lawns and planting beds requiring establishment irrigation is

approximately 0.85 ha out of which lawns area requiring permanent irrigation is approximately 0.36 ha (as indicated in the landscape concept plans provided in **Appendix C**).

The irrigation requirement for these areas at the rate of 6,750 kL/ha/year, equates to 5,755 kL/year during establishment phase and 2,430 kL/year as ongoing irrigation requirement. This is within the groundwater allocation for the site (discussed in **Section 5.1.2**) and meets **Criteria WC2**.

More detailed irrigation requirements will be provided at the landscape design phase and detailed within future UWMPs.

5.5 Water conservation criteria compliance summary

A summary of compliance of the water conservation criteria is provided in **Table 1.**

Table 1: Water conservation criteria compliance summary

Criteria number	Criteria description	Manner in which compliance has been achieved
WC1	Consumption target for water of 100 kL/person/year, including not more than 40-60 kL/person/year of scheme water	Provide advice to residents on water conservation measures
		Promotion of rainwater tanks (RWT) within lots
		Promotion of waterwise gardening principles (WWG) in lots
		Use of WWG principles in lots
		Use of WWG principles in public open space (POS)
		Promotion of water efficient appliances
		Use of water efficient appliances
		Use of water efficient fixtures and fittings
WC2	Maintain an average irrigation rate of 6,750 kL/ha/year in POS	Use of WWG principles in POS

6 Stormwater Management Strategy

The principle behind the stormwater management strategy for the site is to maintain the existing hydrology and infiltrating stormwater runoff as close to source as possible. The development drainage system has been designed to achieve the objectives and criteria stated in **Section 4.3** and has been informed by the concept drainage and earthworks plan (see **Appendix D**).

WSUD measures that will be utilised to manage stormwater runoff from the site include:

- Soakwells
- Tree pits
- BRAs
- FSAs.

The conceptual locations for the WSUD features adopted are shown on **Figure 5** with the modelling assumption report (MAR) presented in **Appendix E** and the landscape concepts contained in **Appendix C**. Detailed civil designs, including the designs for the BRAs and FSAs, will be completed as part of future UWMPs. The utilisation of various WSUD strategies within the development drainage system will achieve the design criteria stated in **Section 4**.

6.1 Residential lot drainage

All lots will fully retain the major rainfall event runoff on lot in soakwells, infiltration in pervious areas and other detention measures.

The implementation of soakwells will assist in achieving **Criteria SW1**.

6.2 Non-residential lot drainage

6.2.1 Rail reserve

The rail reserve areas along the western boundary of the site is assumed to fully retain runoff from the major rainfall event within the reserve and will not contribute to the site.

The above measures will assist in achieving **Criteria SW1**.

6.3 Development drainage system

The storm water runoff from the small rainfall event will be retained as close to source as practicably possible. There will be no runoff from the development during a small rainfall event. This is consistent with the pre-development environment and the design criteria (see **Section 4.3**).

The retention storage will be provided via tree pits in road verge and BRAs in POS. The vegetation and the infiltration process within the soil column will remove contaminants (nutrients, gross pollutants, suspended sediments, etc.) within the stormwater runoff.

Rainfall events greater than the small rainfall event will be conveyed by overland flow or a pipe network to FSAs. The size of the FSAs will be minimised due to the retention storage provided higher up in the catchment and within lots. The stormwater management plan for the site (including nominal locations for BRAs and FSAs) is shown on **Figure 5**.

6.3.1 Tree pits

Tree pits are typically small, recessed areas immediately adjacent to road pavement and surrounding individual trees. They can be co-located with side entry pits or within car park areas and provide minor amounts of runoff storage in the surface void space around the base of the tree. Additional storage can potentially be provided by incorporating subsurface storage cells. The location of tree pits requires consideration of the root ball from the proposed species, and these will usually require some measure of control and location selection to avoid impacting subsurface services. Location of tree pits within carparks can assist with increasing tree canopy coverage over the surface which can reduce the heat island effect at these locations.

Tree pits treat stormwater runoff from frequent rainfall events through retention, filtration, and some biological nutrient update by the tree (though it is not unusual for the capacity of individual tree pits to be less than the first 15 mm from the local catchment). Surface runoff that is larger than the capacity of the tree pit will overtop and be conveyed towards downstream stormwater assets.

6.3.2 Bio-retention areas

Runoff from the small rainfall event from road reserves that is not retained higher in the catchment (i.e. within tree pits) is proposed to be retained within vegetated BRAs located in downstream POS. The location of the proposed BRAs is shown on **Figure 5**.

The BRAs will be planted with vegetation species suitable for nutrient uptake, consistent with the *Vegetation guidelines for stormwater biofilters in the south-west of Western Australia* (Monash University 2014). The BRAs will be co-located with FSAs and are sized to retain the first 15 mm.

The infiltration rates used within the hydrological modelling have been based on measurements recorded within soils in the local area and CoW drainage design guidelines. An infiltration rate of 10 m/day has been adopted in the design of storage infiltration structures, with a 50% clogging factor applied for BRAs.

The sizes and spatial requirements for BRAs are further discussed in **Section 6.4.1**. The exact location and configuration of BRAs is subject to confirmation at detailed design stage with any changes made to the assumptions detailed in this LWMS addendum to be indicated in future UWMPs.

The use of BRAs will assist in achieving **Criteria SW1**, **SW5**, **SW6**, **GW1** and **GW2**.

6.3.3 Flood storage areas

FSAs will be utilised to infiltrate major event runoff in order to maintain the pre-development hydrological regime. FSAs will be co-located with BRAs so that any flows exceeding the small rainfall

event will automatically continue to fill into the respective FSAs. The FSAs are not designed to be permanently wet.

An infiltration rate of 10 m/day has been adopted in the design of FSAs. The design of FSAs will be such that maximum top water levels (TWL) within basins will remain at least 500 mm below finished floor levels of adjacent lots to ensure protection from flooding during extreme rainfall events. The sizes and spatial requirements for FSAs are further discussed in **Section 6.4.2**.

The use of FSAs will achieve **Criteria SW1**, while the design of the FSAs will ensure that **Criteria SW2** and **SW6** are achieved.

6.4 Drainage design assessment

As described in **Section 6.3**, this LWMS proposes to utilise soakwells, tree pits, BRAs and FSAs to manage runoff up to the major rainfall event onsite. The sizing of these retention areas is best achieved via a computational model. The post-development modelling methodology and parameters are detailed in the MAR provided in **Appendix E**. Drainage catchments and stormwater management infrastructure is shown on **Figure 5** with concept landscape plans provided in **Appendix C**.

6.4.1 Small rainfall event modelling results

The design volume and inundated areas of the treatment structures are shown in **Table 2**.

Table 2: Small rainfall event storage

Structure	Maximum depth	Side slopes	Top water level surface area (m^2)	Volume (m^3)
BRA – Ct 1	0.3	1:3	975	275
BRA – Ct 2	0.3	1:3	1,435	410
34 tree pits	Variable	-	-	17

Note: Tree pits assumed to provide 0.5 m^3 of storage.

The total size of the bio-retention system, achieved through at-source retention storage provided by BRAs, is equal to 3.2% and 2.7% of the connected impervious area within Catchment 1 (Ct 1) and Catchment 2 (Ct 2) respectively, which achieves **Criteria SW6**.

The location and inundated area within the site for the small rainfall event is shown on **Figure 6**.

6.4.2 Minor and major rainfall event modelling results

The site aims to retain runoff from events up to the major rainfall event, as required under **Criteria SW1**. This is achieved by the use of at-source retention and infiltration storage within soakwells, co-located FSAs. The modelled inundated depths and TWL areas for the FSAs are provided within **Table 3**.

Table 3: Minor and major rainfall event storage

Structure	Minor rainfall event (20% AEP)			Major rainfall event (1% AEP)		
	Depth (m)	Top water level surface area (m^2)	Volume (m^3)	Depth (m)	Top water level surface area (m^2)	Volume (m^3)
FSA1	0.86	1,445	609	1.2	2,065	1,475
FSA2	0.88	2,015	918	1.2	2,750	2,000

The minor rainfall event inundation areas are shown on **Figure 7**. The major rainfall event inundation areas and flow paths are shown on **Figure 8**.

Note that the number of tree pits, BRAs and FSAs can be modified at the detailed design stage, provided the assumed storages detailed in **Table 2** and **Table 3** are maintained.

The above measures will help to achieve **Criteria SW1** and **SW6**.

6.5 Non-structural water quality measures

The structural measures proposed provide both a storage and treatment function to stormwater runoff, as detailed in **Section 6.3**.

A number of non-structural measures will also be implemented across the site to help reduce nutrient loads within stormwater runoff including:

- Minimising fertiliser use to establish and maintain vegetation within POS areas and road verges.
- Drought tolerant turf species that require minimal water and nutrients will be used.
- Maintenance of treatment areas to remove accumulated sediments and gross pollutants.
- Education of residents regarding fertiliser use and low nutrient requirement vegetation species within lots.

The above measures will assist in achieving **Criteria GW1**.

6.6 Stormwater management criteria compliance summary

A summary of compliance of the stormwater management criteria is provided in **Table 4.**

Table 4: Stormwater management criteria compliance summary

Criteria number	Criteria description	Manner in which compliance has been achieved
SW1	All runoff up to the major rainfall event to be retained on site	Residential lots to retain the major rainfall event on lot in soakwells and pervious garden areas
		Road runoff will be retained within BRAs and FSAs within POS
SW2	Finished floor levels to have a minimum of 300 mm clearance above the major rainfall event flood level in road reserves and 500 mm clearance from major rainfall event flood levels in surface storage areas	Lots adjacent to BRAs and FSAs are provided a minimum of 500 mm clearance from the major rainfall event top water level (TWL)
		Lots are provided a minimum of 300 mm clearance above the major rainfall event TWL in adjacent road reserves
SW3	Ensure minor roads remain passable in the minor rainfall event	The pipe network is designed to convey the minor rainfall event to ensure roads remain passable in this event
SW4	Retain and treat the small event (first 15mm) of rainfall as close to source as possible	Residential lots to retain the small rainfall event on lot in soakwells and pervious garden areas
		Road runoff will be retained within tree pits in road verge and BRAs within POS
SW5	Reduce nutrient loads by applying appropriate non-structural measures	Minimise use of fertilisers within POS and road verges
		Use of drought tolerant turf species
		Maintenance of POS and drainage areas
		Education of residents regarding responsible nutrient application
SW6	Size surface treatment areas to (at least) 2% of the connected impervious area	BRAs are sized to be greater than 2% of the connected impervious area

7 Groundwater Management Strategy

The development drainage system has been designed to achieve the objectives and criteria stated in **Section 4.4**.

7.1 Groundwater level management

As discussed in **Section 3.5.2**, depth to groundwater varies between 29 m BGL and 47 m BGL. Groundwater level management measures for the site are therefore not required.

7.2 Groundwater quality management

The main objective for the management of groundwater quality is to maintain or improve the existing groundwater quality. This can be achieved by treating surface runoff prior to infiltration via application of appropriate WSUD measures, thereby reducing the total nutrient load into the groundwater that originates from the development.

The reduction of nutrient load to the groundwater will be achieved by:

- Directing stormwater to tree pits, vegetated (with native wetland species) BRA (detailed further in **Section 6.3**).
- Fertiliser use to establish and maintain vegetation within POS areas and road verges will be minimised.
- Drought tolerant turf species that require minimal water and nutrients will be used.
- Roll-on turf will be used within the POS areas to prevent the high nutrient input requirement during establishment of the turf.
- Garden beds should not be immediately adjacent to the co-located basins to reduce nutrient transportation into these infiltration areas.

The above measures will improve the quality of the water prior to infiltration into the underlying groundwater, and will assist in achieving **Criteria GW1** and **GW2**.

7.3 Groundwater management criteria compliance summary

A summary of compliance of the groundwater management criteria is provided in **Table 5.**

Table 5: Groundwater management criteria compliance summary

Criteria number	Criteria description	Manner in which compliance has been achieved
GW1	Maintain groundwater quality leaving the site	Treat surface water runoff prior to infiltration to groundwater in vegetated BRAs
		Minimise fertiliser use to establish and maintain POS and road verges
		Use of drought tolerant species that require minimal water and nutrients
		Education of residents regarding fertiliser use and vegetation species within lots
GW2	Use water sensitive design approaches to recharge the superficial aquifer	Retain and infiltrate all runoff up to the major rainfall event in soakwells, BRAs, and FSAs on site

8 Subdivision and Urban Water Management Plans

The requirement to undertake preparation of more detailed water management plans to support subdivision is generally imposed as a condition of subdivision. The development of any future UWMP should follow the guidance provided in *Urban Water Management Plans: Guidelines for Preparing Plans and for Complying with Subdivision Conditions* (DoW 2008b).

While strategies have been provided within this LWMS that address planning for water management within the site, it is a logical progression that future subdivision designs and the supportive UWMP will clarify details not provided within the LWMS. The main areas that will require further clarification within future UWMPs include:

- Drainage calculations
- Implementation of water conservation strategies
- Non-structural water quality improvement measures
- Management and maintenance requirements
- Construction period management strategy
- Monitoring and evaluation program
- Status of groundwater abstraction license
- Infiltration assumptions.

These are further detailed in the following sections.

8.1 Drainage calculations

It is acknowledged that the drainage strategies documented in this LWMS are based upon broad-scale assumptions and regional data. These assumptions are considered adequate for development of the proposed drainage strategy and are of an appropriate level of detail. However, verification of proposed subdivision drainage designs within the site area will be undertaken once the specific basin designs are confirmed.

8.2 Implementation of water conservation strategies

A number of potential measures to conserve water have been presented within this LWMS. These water conservation strategies will be incorporated into the design and the ongoing maintenance of all POS areas. Landscape design measures that will be incorporated into the water conservation strategy will be further detailed within the future UWMPs produced for the development. The manner in which the proponent intends to promote water conservation measures discussed in this LWMS to future lot owners will also be discussed within the future UWMPs.

8.3 Non-structural water quality improvement measures

Guidance for the development and implementation of non-structural water quality improvement measures is provided within the *Stormwater Management Manual for Western Australia* (DWER 2022). Some measures will be more appropriately implemented at a local government level, such as street sweeping, however many can be implemented relatively easily within the design and maintenance of the subdivision and the POS areas.

It is expected that the future UWMP will provide reference to measures such as public education (through measures such as signage that may be implemented to raise awareness).

8.4 Management and maintenance requirements

The management measures to be implemented to address surface water quality, such as the use of vegetation within tree pits, BRAs and FSAs will require ongoing maintenance. It is therefore expected that the future UWMP will detail management and maintenance procedures that will set out required maintenance actions (e.g. gross pollutant removal), timing (e.g. how often it will occur), locations (e.g. exactly where it will occur) and responsibilities (e.g. who will be responsible for carrying out the actions). Given that approval from the CoW and DWER will be sought for the proposed measures, it is anticipated that consultation with these agencies will be undertaken and referral to guiding policies and documents will be made.

8.5 Construction period management strategy

It is anticipated that the construction stage will require some management of various aspects (e.g. dust, surface runoff, noise, traffic, etc.). The management measures undertaken for construction management will be addressed either in the future UWMP or a separate Construction Management Plan (CMP).

8.6 Monitoring and evaluation program

It will be necessary to confirm that the management measures that are implemented are able to fulfil their intended management purpose, and are in a satisfactory condition at a point of management hand-over to the CoW. A post-development monitoring program will be developed to provide this confirmation, and it will include details of objectives of monitoring, relevant issues and information, proposed methodology, monitoring frequency and reporting obligations. These monitoring programs are discussed in **Section 9** of this LWMS and will be further detailed at the UWMP stage.

8.7 Groundwater licence status

There are a number of current groundwater licences for the Eglinton Estates. It is expected that future UWMPs will demonstrate that the landscape designs and irrigation requirements are consistent with the approved allocations available at the time of preparation.

8.8 Infiltration assumptions

The infiltration rates used within the hydrological modelling have been based previous investigations undertaken within the local area and CoW design guidelines. A detailed geotechnical study, including measurement of site-specific infiltration rates, is required to inform further modelling for future UWMPs. Assumed infiltration rates to be used for detailed design of all infiltration basins (BRAs and FSAs) should be based on site-specific measurements plus an allowance for clogging, to be agreed with the CoW.

9 Monitoring

9.1 Condition monitoring

It is proposed that the overall condition of the development will be monitored on a bi-annual basis. This monitoring will be implemented after the completion of the civil and landscaping works and will continue for a period of two years.

A visual assessment will be undertaken to monitor the overall condition of the development, with the aim to ascertain that the maintenance activities are achieving the overall management objectives for the development. The parameters that will be monitored include:

- Gross pollutants
- Terrestrial weeds
- Irrigation
- Vegetation density
- Paths, benches, walkways and other infrastructure.

The management and maintenance objectives will be detailed within future UWMPs along with details of the corresponding monitoring program.

9.2 Water monitoring

Given that there will be no surface water discharge from the site it will be very difficult to collect a water quality samples for treated surface runoff. Post-development surface water monitoring is therefore not proposed.

Due to the significant depth to groundwater across the site, groundwater quality is not representative of the management practices of the site above. Groundwater monitoring would provide an indication of quality and management of the wider area and not the site specifically. As such, post-development groundwater monitoring is not proposed.

9.3 Infiltration testing

Ongoing infiltration testing may be required post construction and prior to handover. The manner and location of the testing will be detailed within future UWMPs.

9.4 Reporting

A post-development monitoring report will be prepared on conclusion of the two year monitoring period, and will be provided to CoW and DWER. Interim results (spreadsheet) can be provided to either CoW or DWER on request during the monitoring program.

10 Implementation

10.1 Roles and responsibility

The LWMS provides a framework that the proponent can utilise to assist in establishing stormwater management methods that have been based upon site-specific investigations, are consistent with relevant state and local government policies and have been endorsed by DWER and CoW. The responsibility for working within the framework established within the LWMS rests with the proponent, although it is anticipated that future UWMPs will be developed in consultation with DWER and CoW and in consideration of other relevant policies and documents.

10.2 Funding

The site is owned by Eglinton Estates Pty Ltd and so all costs will be funded by the proponent, with the exception of within lot drainage infrastructure which will be the responsibility of future lot owners.

10.3 Review

It is not anticipated that this LWMS will be reviewed unless the Eglinton District Centre (East) ACP undergoes significant change post-lodgement of the LWMS. If the Eglinton District Centre (East) ACP is substantially modified, the surface runoff calculations undertaken for this LWMS may need to be reviewed and the criteria revised to ensure that all are still appropriate.

The next stage of water management is UWMP preparation. The UWMP is largely an extension of the LWMS, as it should provide detail to the designs proposed within this LWMS and will demonstrate compliance with the criteria proposed in **Section 4**.

The next stage of development following the UWMP is single lot or multiple dwelling developments. It is recognised that certain elements of the LWMS and the UWMP will not be implemented until this late stage, and that there is little or no statutory control that can be applied to ensure the implementation of any remaining measures. While the remaining measures are unlikely to be enforced at this stage their implementation could be encouraged by the CoW through policy (or modification of these where necessary), building licence or awareness programs (such as the Water Corporation Waterwise program).

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11.2 Online references

Table R 1 Access dates for online references

Reference	Date accessed	Website or dataset name
(ABS 2014)	02 Nov 2024	Environmental Issues: Water use and Conservation
(ABS 2022)	20 Oct 2024	Housing Occupancy and Costs
(BoM 2024)	20 Oct 2024	Climate Data Online
(DWER 2024a)	02 Nov 2024	Acid Sulfate Soils (dataset)
(DWER 2024b)	10 Nov 2024	Water Register
(DWER 2024d)	10 Nov 2024	Water Information Reporting Tool (webpage)

Figures

Figure 1: Site location

Figure 2: Topography and groundwater contours

Figure 3: Geology and soils

Figure 4: Public drinking water source areas

Figure 5: Stormwater management plan

Figure 6: Small rainfall event (first 15 mm) inundation areas

Figure 7: Minor rainfall event (20% AEP) inundation areas

Figure 8: Major rainfall event (1% AEP) inundation areas and flow paths

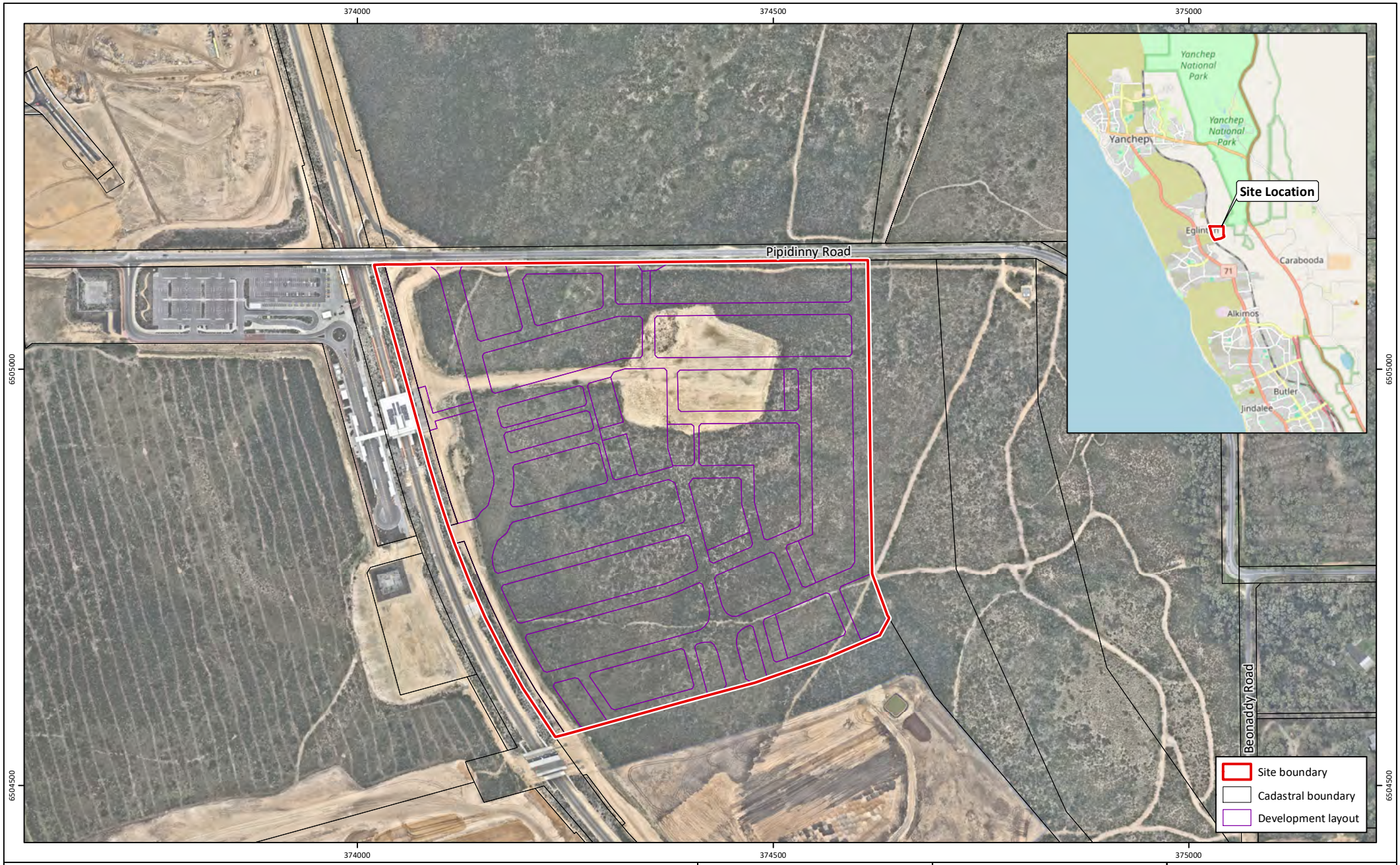


Figure 1: Site Location

Project:	Local Water Management Strategy - Addendum Eglinton ACP
Client:	Eglinton Estates Pty Ltd

Plan Number:
EP18-100(09)--F11a

Drawn:	WJC
Date:	02/09/2026
Checked:	MZ
Approved:	BPB
Date:	03/09/2026

N

0 100 200
Metres

Scale: 1:6,000@A4

GDA 1994 MGA Zone 50

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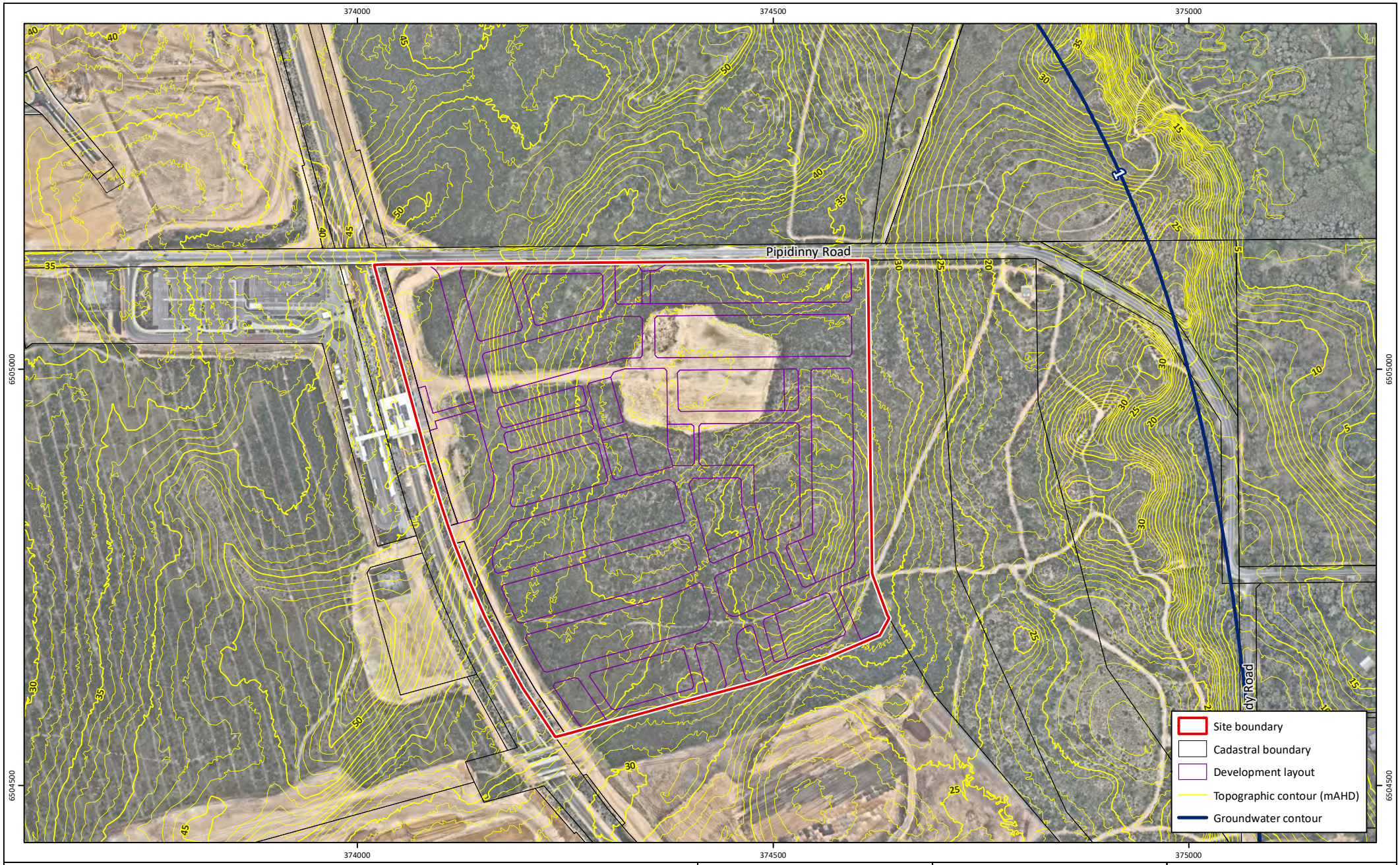


Figure 2: Topographical and Groundwater Contours

Project:	Local Water Management Strategy - Addendum Eglinton ACP
Client:	Eglinton Estates Pty Ltd

Plan Number:
EP18-100(09)--F12a

Drawn:	WJC
Date:	02/09/2026
Checked:	MZ
Approved:	BPB
Date:	03/09/2026

N

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Metres

Scale: 1:6,000@A4

GDA 1994 MGA Zone 50

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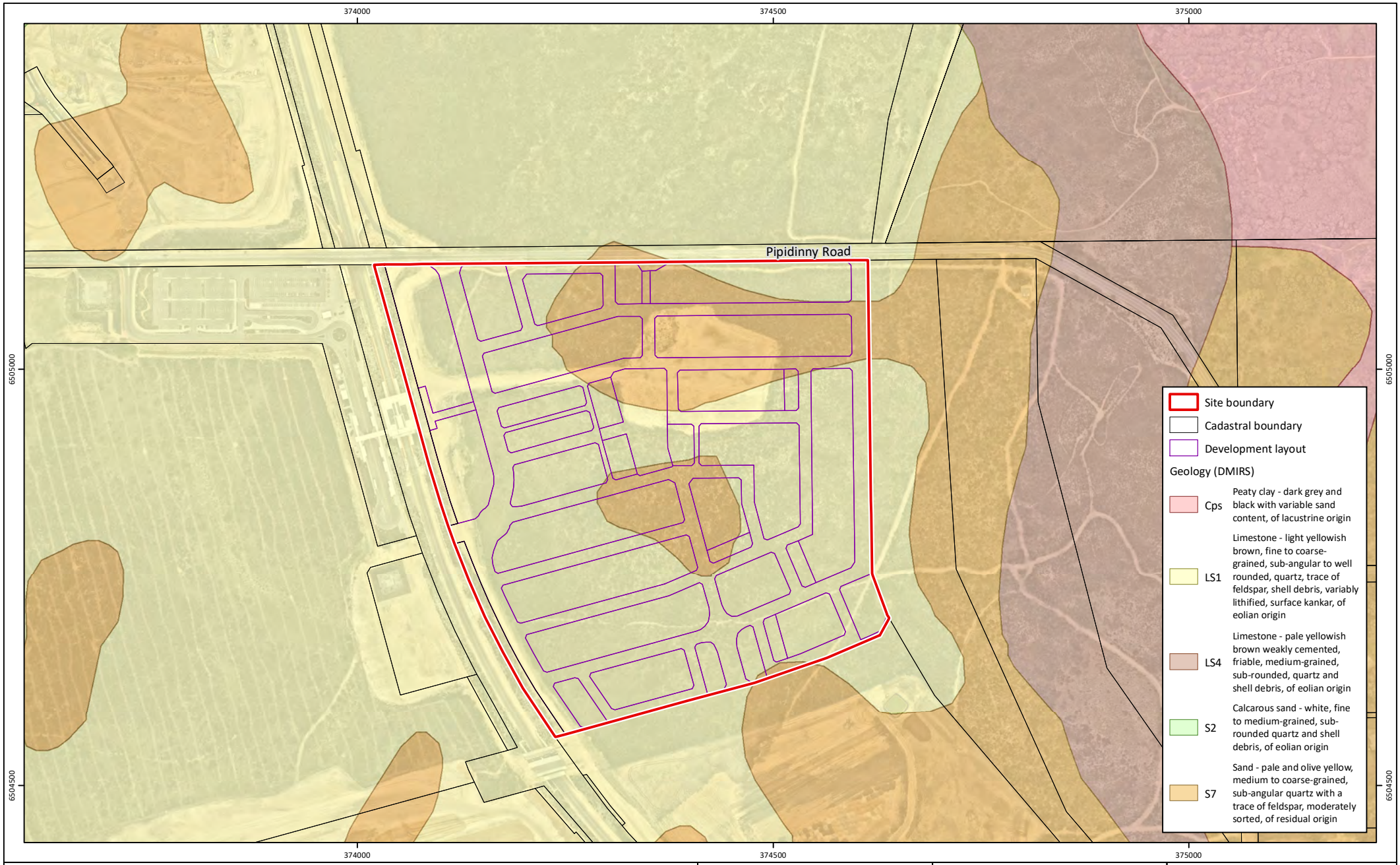


Figure 3: Geology and Soils

Project: Local Water Management Strategy - Addendum
Eglinton ACP
Client: Eglinton Estates Pty Ltd

Plan Number:
EP18-100(09)--F13a
Drawn: WJC
Date: 02/09/2026
Checked: MZ
Approved: BPB
Date: 03/09/2026

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Metres
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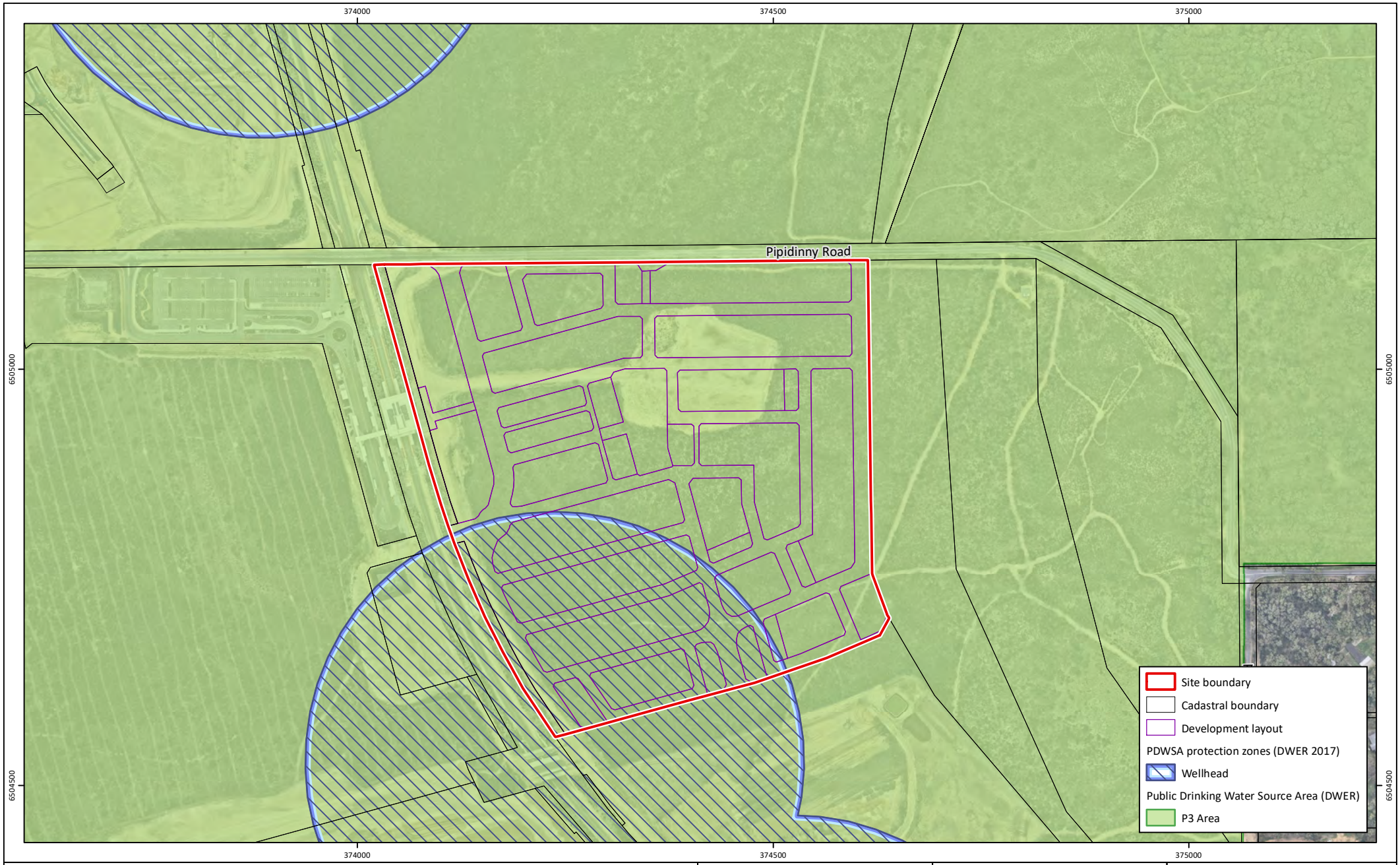


Figure 4: Public Drinking Water Source Areas

Project:	Local Water Management Strategy - Addendum Eglinton ACP
Client:	Eglinton Estates Pty Ltd

Plan Number:
EP18-100(09)--F14a

Drawn:	WJC
Date:	02/09/2026
Checked:	MZ
Approved:	BPB
Date:	03/09/2026

N

0 100 200
Metres

Scale: 1:6,000@A4

GDA 1994 MGA Zone 50

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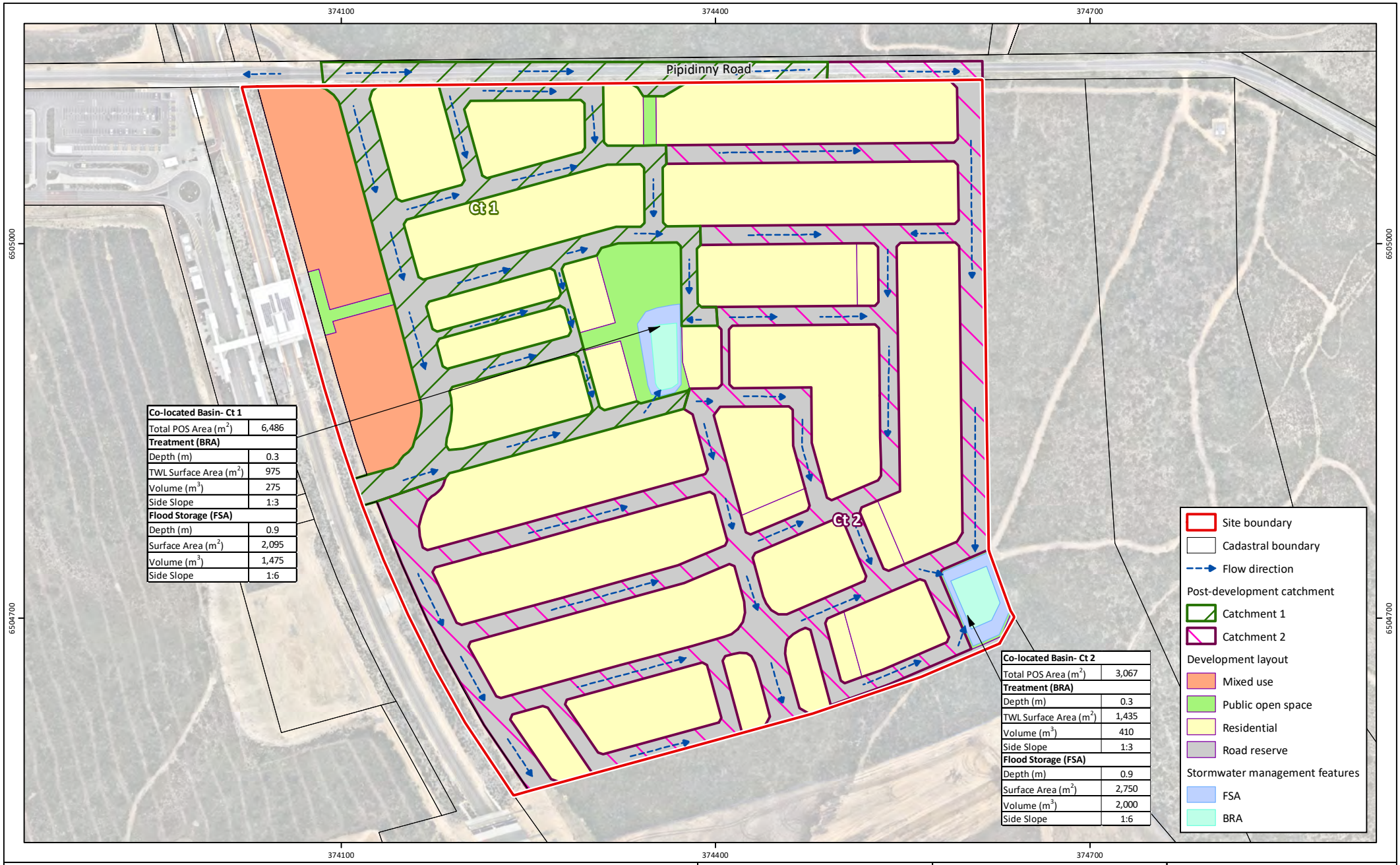


Figure 5: Stormwater Management Plan

Project: Local Water Management Strategy - Addendum
Eglinton ACP
Client: Eglinton Estates Pty Ltd

Plan Number:
EP18-100(09)--F15a
Drawn: WJC
Date: 02/09/2026
Checked: MZ
Approved: BPB
Date: 03/09/2026

N

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Metres
Scale: 1:4,000@A4
GDA 1994 MGA Zone 50

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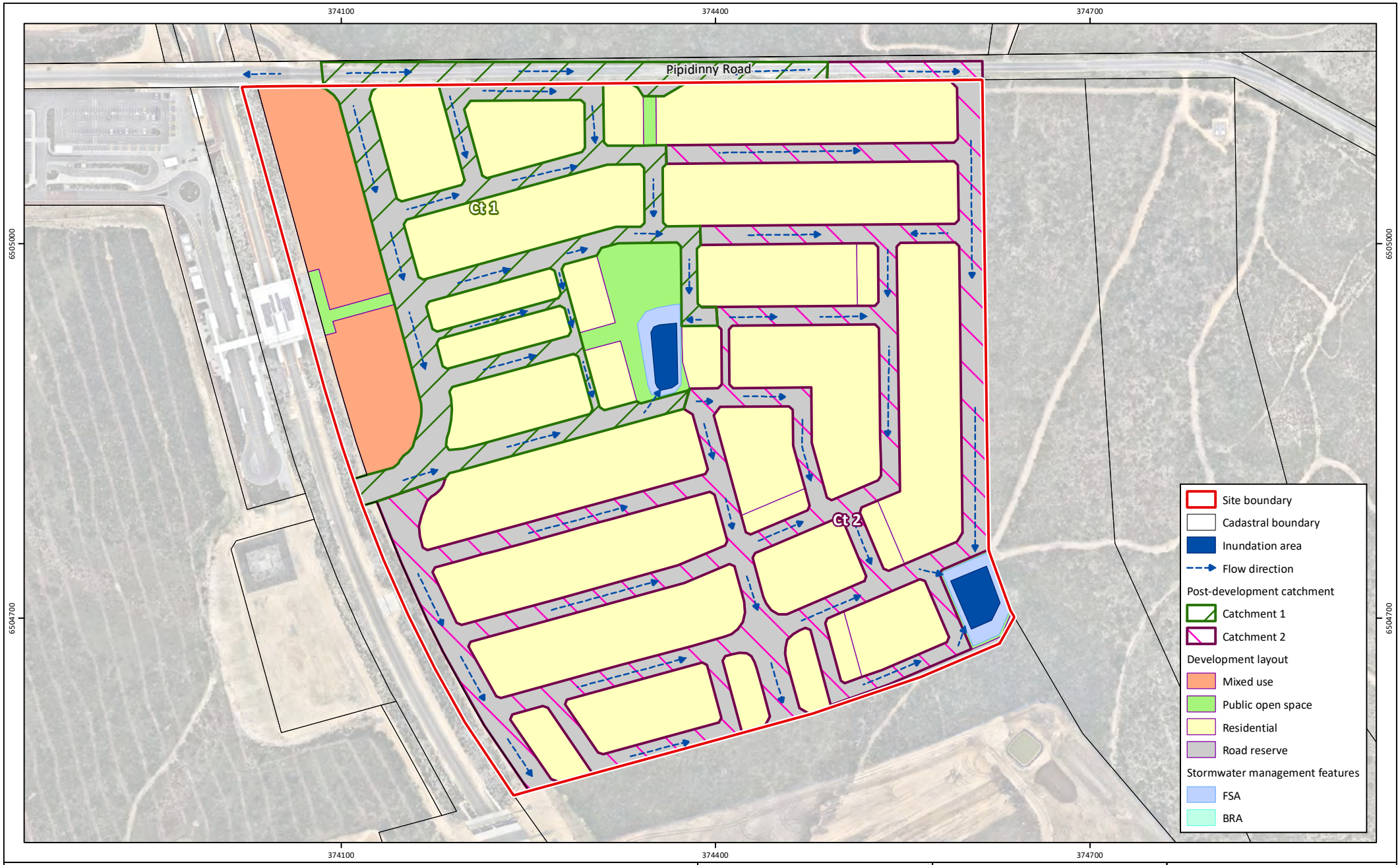


Figure 6: Inundation Area - First 15 mm

Project: Local Water Management Strategy - Addendum
Eglinton ACP
Client: Eglinton Estates Pty Ltd

Plan Number:
EP18-100(09)--F16a
Drawn: WJC
Date: 02/09/2026
Checked: MZ
Approved: BPB
Date: 03/09/2026

N

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Metres
Scale: 1:4,000@A4
GDA 1994 MGA Zone 50

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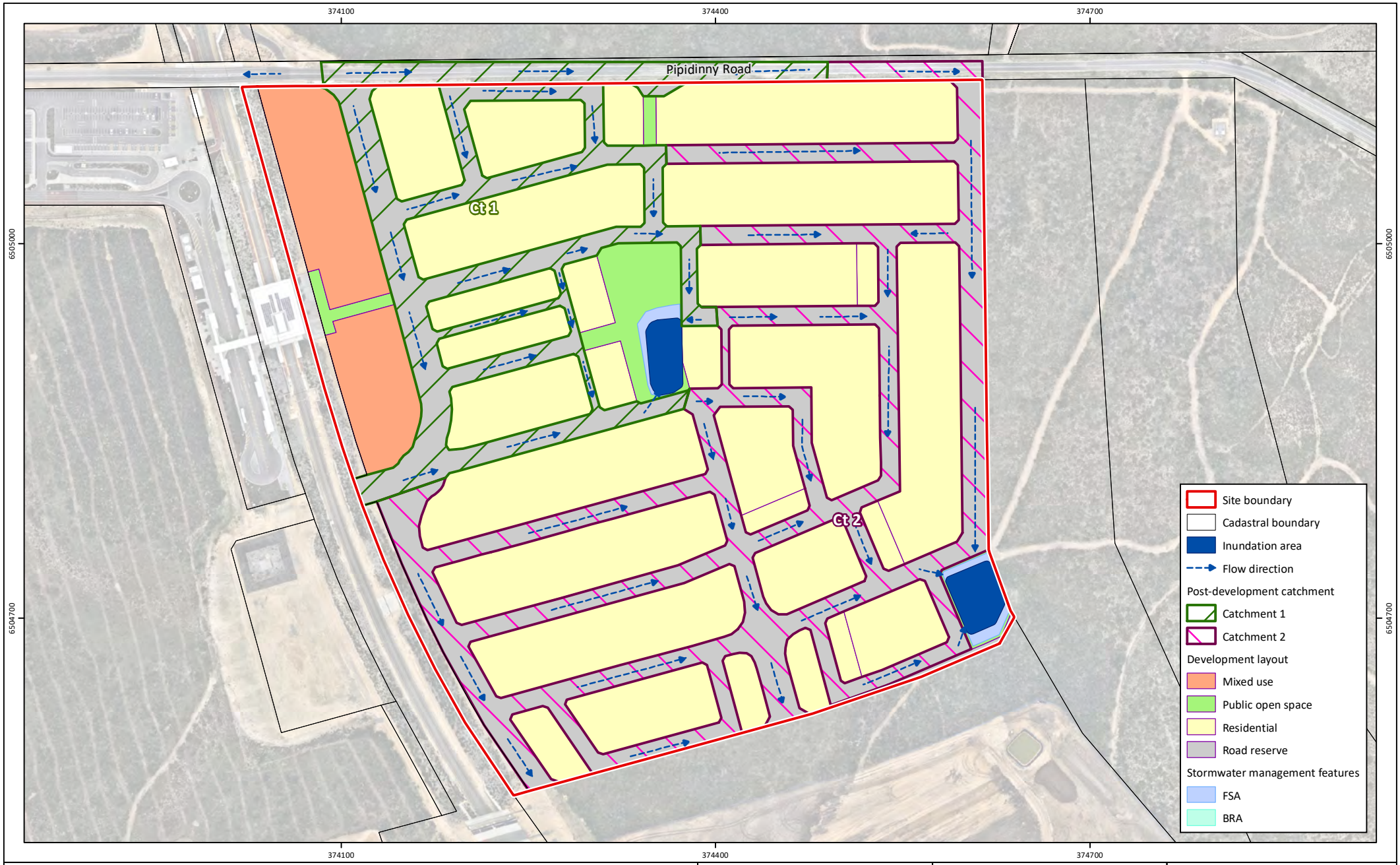


Figure 7: Inundation Area - 20% AEP

Project: Local Water Management Strategy - Addendum
Eglinton ACP
Client: Eglinton Estates Pty Ltd

Plan Number:
EP18-100(09)--F17a

Drawn:	WJC
Date:	02/09/2026
Checked:	MZ
Approved:	BPB
Date:	03/09/2026

N

0 50 100 150
Metres
Scale: 1:4,000@A4
GDA 1994 MGA Zone 50

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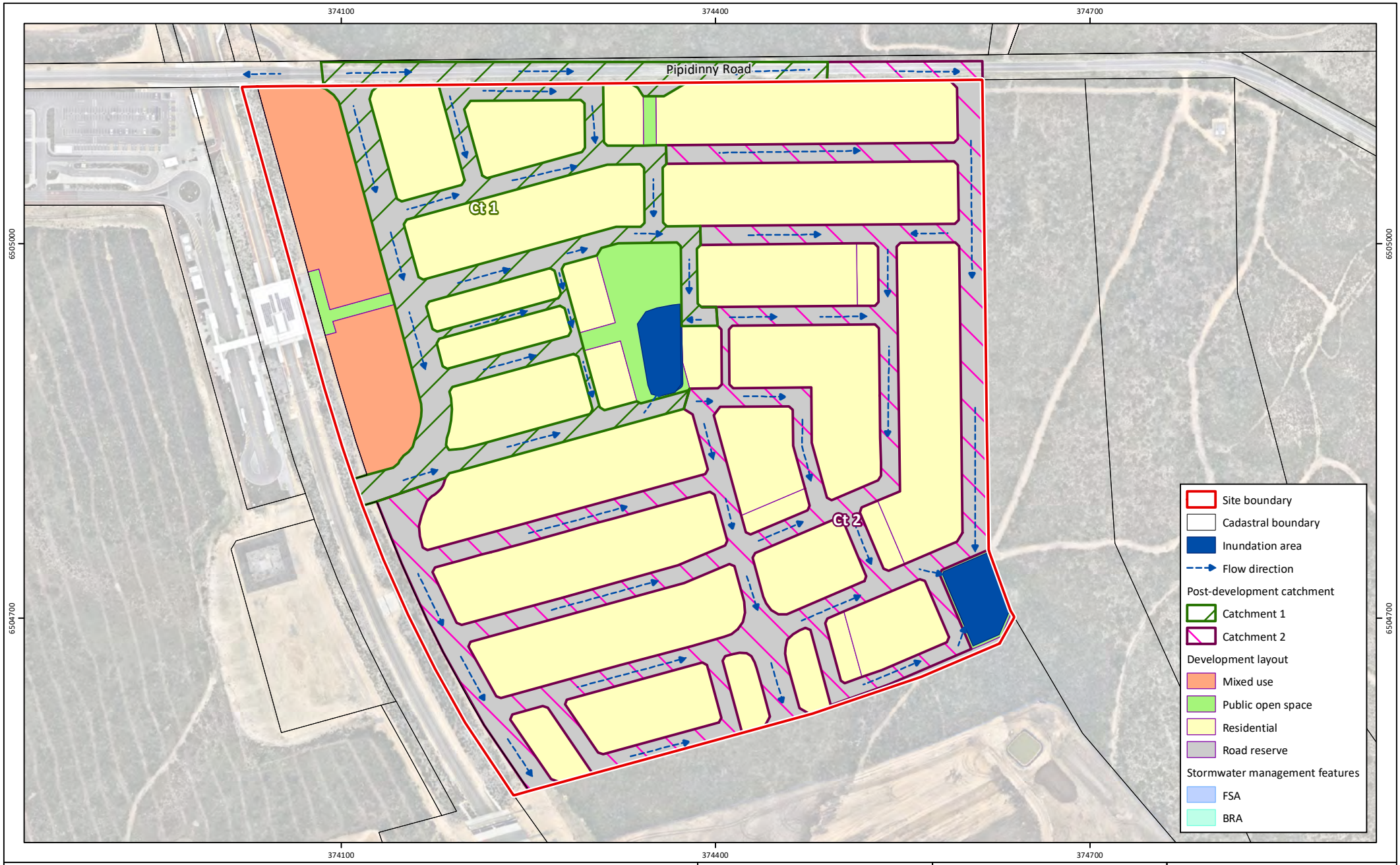


Figure 8: Inundation Area - 1% AEP

Project: Local Water Management Strategy - Addendum
Eglinton ACP
Client: Eglinton Estates Pty Ltd

Plan Number:
EP18-100(09)--F18a
Drawn: WJC
Date: 02/09/2026
Checked: MZ
Approved: BPB
Date: 03/09/2026

N

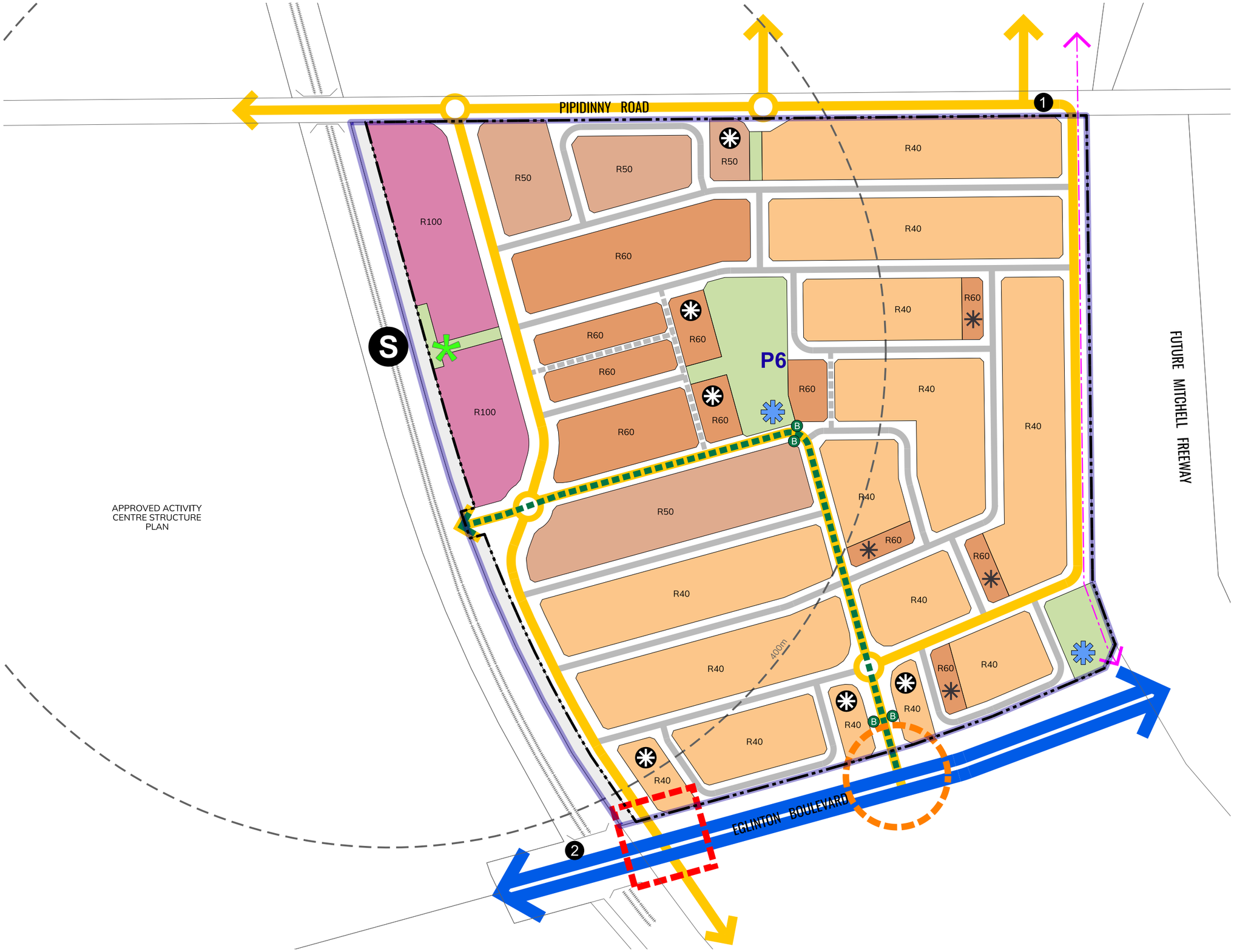
0 50 100 150
Metres
Scale: 1:4,000@A4
GDA 1994 MGA Zone 50

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Appendix A

Activity Centre Concept Structure Plan



LEGEND

- STRUCTURE PLAN BOUNDARY

ZONES

- RESIDENTIAL R40
- RESIDENTIAL R50
- RESIDENTIAL R60 *Minimum 2 Storey
- RESIDENTIAL R60 *Book Ends
- MIXED USE (R100)

RESERVES

- PUBLIC OPEN SPACE & DRAINAGE
- INTEGRATOR ROAD A
- NEIGHBOURHOOD CONNECTOR ROAD
- LOCAL ACCESS STREET
- LANEWAY
- PTA LAND

OTHERS

- RAILWAY STATION
- WALKABLE CATCHMENT 400m
- PRINCIPAL SHARED PATH
- SHARED PATH
- PUBLIC ACCESS WAY
- PLAZA
- PUBLIC DRAINAGE LOCATIONS
- PRECINCT BOUNDARY
- P6 RESIDENTIAL PRECINCT
- SIGNALISED INTERSECTION
- LEFT IN/LEFT OUT
- PROPOSED BUS ROUTES
- INDICATIVE BUS STOP LOCATIONS
- PROPOSED 132kV TRANSMISSION LINE
- SPECIAL DEVELOPMENT CONTROLS APPLY (REFER SECTION 2.6.4)

NOTES

1. PIPIDINNY ROAD EASTERN CONNECTION TO BE DEVIATED TO CONNECT TO EGLINTON BOULEVARD
2. CONNECTION OF RAILWAY CORRIDOR PSP TO EGLINTON BOULEVARD PSP

EGLINTON DISTRICT CENTRE

Figure 1 - Activity Centre Structure Plan

NORTH

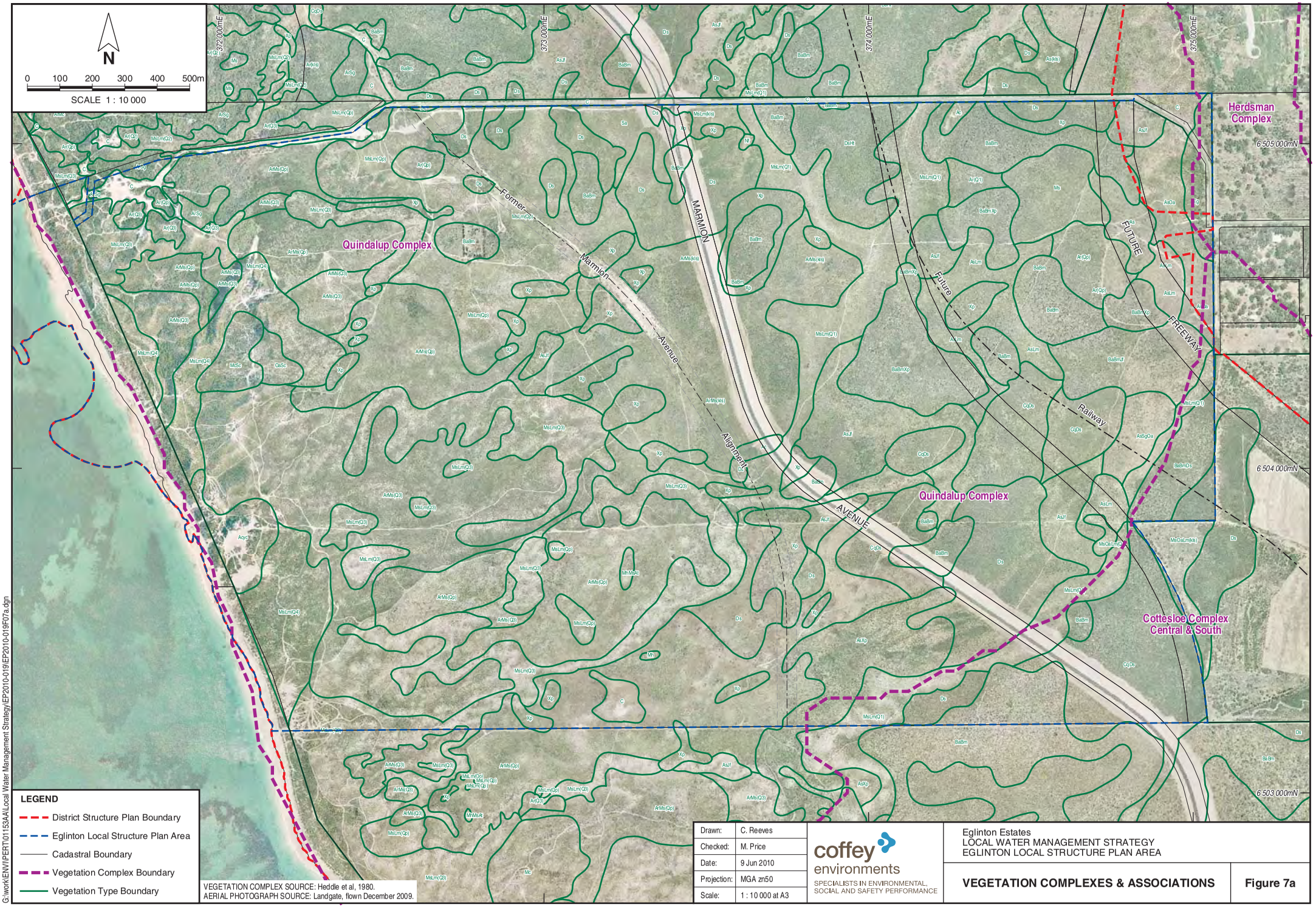
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0 30 60 90m

Date: 06/07/2026 **Plan:** EGLEG-5-010F

Appendix B

Eglinton Local Structure Plan Area LWMS Figure 7a and 7b


N
0 100 200 300 400 500m
SCALE 1 : 10 000
372 000mE
373 000mE
374 000mE
375 000mE
6 505 000mN
6 504 000mN
6 503 000mN
Herdsman Complex
Quindalup Complex
Quindalup Complex
Cottesloe Complex Central & South
Former Marmion Avenue
MARMION AVENUE
Future FREEWAY
Railway
Alignment
LEGEND
District Structure Plan Boundary
Eglinton Local Structure Plan Area
Cadastral Boundary
Vegetation Complex Boundary
Vegetation Type Boundary
VEGETATION COMPLEX SOURCE: Heddle et al, 1980.
AERIAL PHOTOGRAPH SOURCE: Landgate, flown December 2009.
Drawn: C. Reeves
Checked: M. Price
Date: 9 Jun 2010
Projection: MGA zn50
Scale: 1 : 10 000 at A3
coffey environments
SPECIALISTS IN ENVIRONMENTAL, SOCIAL AND SAFETY PERFORMANCE
Eglinton Estates
LOCAL WATER MANAGEMENT STRATEGY
EGLINTON LOCAL STRUCTURE PLAN AREA
VEGETATION COMPLEXES & ASSOCIATIONS
Figure 7a
G:\work\ENV\PERT\01153AA\Local Water Management Strategy\EP2010-019\EP2010-019F07a.dgn

ATA Environmental VEGETATION ASSOCIATIONS LEGEND

QUINDALUP DUNES

S	Vegetation of the Strand

Vegetation of the Q4 Age Quindalup Dunes

ScAt	*Scaevola crassifolia, Acacia truncata* Low Open Heath
ScOa	*Scaevola crassifolia, Olearia axillaris* Open to Closed Heath
SnOa	*Scaevola nitida, Olearia axillaris* Dense Low Heath
MiSg	*Myoporum insulare, Spyridium globulosum* Shrubland
SgMsLm	*Spyridium globulosum, Melaleuca systena, Lomandra maritima* Low Open Heath*
Sg	*Spyridium globulosum* Shrubland
SgSc	*Spyridium globulosum, Scaevola crassifolia* Shrubland
Lm	*Lomandra maritima* Herbland with *Acacia truncata, Olearia axillaris* Low Heath
Lg	*Lepidosperma gladiatum* Sedgeland*

Vegetation of the Q4 Age Stabilised Blowout

Sn	*Scaevola nitida* Low Closed Heath to Closed Heath
Al	*Acacia truncata, Acrotriche cordata, Melaleuca systena, Pimelea ferruginea* Low Open Shrubland to Low Shrubland
Ap	*Acanthocarpus preissii, Hemiandra pungens* Low Open Heath

Vegetation of the Q1, Q2 and Q3 Age Quindalup Dunes

OaSn	*Olearia axillaris, Scaevola nitida* Open Shrubland
SnAt	*Scaevola nitida, Acacia truncata* Closed Heath'
Ar	*Acacia rostellifera* Closed Scrub/Heath
ArSg	*Acacia rostellifera/Spyridium globulosum* Closed Scrub
ArMs	*Acacia rostellifera, Melaleuca systena* Low Open Heath
AcAr	*Acacia cochlearis, Acacia rostellifera* Low Open Heath
AcLm	*Acacia cochlearis, Lomandra maritima* Low Open Heath
AcMsLm	*Acacia cochlearis, Melaleuca systena, Lomandra maritima* Low Open Heath
Ms	*Melaleuca systena* Low Shrubland to Shrubland
MsLc	*Melaleuca systena, Lysinema ciliatum* Low Closed Heath'
MsLm	*Melaleuca systena, Lomandra maritima* Low Open Heath'
MsOaLm	*Melaleuca systena, Olearia axillaris, Lomandra maritima* Low Open Heath
BpMsLm	*Brachyloma preissii, Melaleuca systena, Lomandra maritima* Low Open Heath*
AlMs	*Allocasuarina lehmanniana, Melaleuca systena* Closed Heath'
Al	*Allocasuarina lehmanniana* Closed Heath*
Lm	*Lomandra maritima* Herbland
Ac	*Acacia cochlearis* Closed Heath*
AcOaMs	*Acacia cochlearis, Olearia axillaris, Melaleuca systena* Open Heath*
Acyc	*Acacia cyclops* Shrubland
AlSn	*Acacia lasiocarpa, Scaevola nitida* Low Heath with *Lomandra maritima*
Sa	*Santalum acuminatum* Heath
Ta	*Trymalium albicans, Acacia lasiocarpa, Nemcia reticultum, Melaleuca systena* Low Open Heath
Nf	*Nuytsia floribunda* Low Woodland
AsLm	*Acacia saligna, Lomandra maritima* Shrubland
AsMs	*Acacia saligna, Melaleuca systena Shrubland*
AsOa	*Acacia saligna, Olearia axillaris* Shrubland
AsSg	*Acacia saligna, Spyridium globulosum* Heath
AsSgOa	*Acacia saligna, Spyridium globulosum, Olearia axillaris* Heath

SPEARWOOD DUNES

Sand Surface of the Spearwood Dunes

BaBm	*Banksia attenuata, B. menziesii* Low Woodland
BaBmAs	*Banksia attenuata, B. menziesii, Acacia saligna* Low Woodland
BaBmCq	*Banksia attenuata, B. menziesii* Low Woodland over *Calothamnus quadrifidus*
BaBmDs	*Banksia attenuata, B. menziesii* Low Woodland over *Dryandra sessilis*
BaBmXp	*Banksia attenuata, B. menziesii* Low Woodland over *Xanthorrhoea preissii*
BaBmJf	*Banksia attenuata, B. menziesii* Low Woodland over *Jacksonia furcellata*
Ba	*Banksia attenuata* Low Woodland
BaXp	*Banksia attenuata* Low Woodland over *Xanthorrhoea preissii*
BaAfJs	*Banksia attenuata, Allocasuarina fraseriana* Low Open Forest over *Jacksonia sternbergiana* High Shrubland
EtBaBm	*Eucalyptus todtiana, Banksia attenuata, B. menziesii* Low Open Woodland
EmBAfJs	*Eucalyptus marginata, Banksia attenuata, B. menziesii, Allocasuarina fraseriana* Low Woodland over *Jacksonia sternbergiana* High Shrubland*
Ar	*Acacia rostellifera* Low Closed Forest
Af	*Allocasuarina fraseriana, Banksia spp., E. todtiana* Low Open Forest to Open forest
Eg	*Eucalyptus gomphocephala* (Tuart) Open Woodland to Woodland over *Banksia attenuata, Acacia saligna* and *Xanthorrhoea preissii.*
Eg(m)	*Eucalyptus gomphocephala* (Tuart)(Mallee form)
BaBmEgEt	*Banksia attenuata, Banksia menziesii, Eucalyptus todtiana* Low Open Woodland with emergent *Eucalyptus gomphocephala.*
EgMs	*Eucalyptus gomphocephala* (Tuart) Open Woodland to Woodland over *Melaleuca systena* Heath
ArBa	*Acacia rostellifera* Low Closed Woodland includes a small admixture of *Banksia attenuata, Hardenbergia comptoniana* with a very open understorey.
Lm	*Lomandra maritima* Low Heath
ArAs	*Acacia rostellifera/Acacia saligna* Open Shrubland
ArJf	*Acacia rostellifera/Jacksonia furcellata* Open Shrubland
As(2)	*Acacia saligna* Scrub
AsXp	*Acacia saligna, Xanthorrhoea preissii* Shrubland

Limestone Surface of the Spearwood Dunes

Ds	*Dryandra sessilis* Open to Closed Heath
DsHt	*Dryandra sessilis, Hakea trifurcata* Open to Closed Heath*
DsMhAt	*Dryandra sessilis with Melaleuca huegelii or Acacia truncata* Closed Heath
DsCqAp	*Dryandra sessilis/Calothamnus quadrifidus/Acacia pulchella* Closed Heath
DsCqMs	*Dryandra sessilis/Calothamnus quadrifidus/Melaleuca systena* Closed Heath
DsXp	*Dryandra sessilis/Xanthorrhoea preissii* Closed Heath
MhAt	*Melaleuca huegelii, Acacia truncata, Trymalium albicans* Low Open Heath*
MhAtMc	*Melaleuca huegelii, Acacia truncata, Melaleuca cardiophylla* Low Open Heath to Low Closed Heath*
MhMsAt	*Melaleuca heugelii, Melaleuca systena, Acacia truncata* Low Open Heath*
MhTa	*Melaleuca huegelii, Trymalium albicans, Brachyloma preissii* Low Open Heath*
MhDs	*Melaleuca huegelii, Dryandra sessilis* Open Heath to Heath
Ht	*Hakea trifurcata* Open to Closed Heath
HtDs	*Hakea trifurcata, Dryandra sessilis* Open Heath to Closed Heath*
Cq	*Calothamrus quadrifidus* Open Heath to Closed Heath
CqDs	*Calothamrus quadrifidus, Dryandra sessilis* Open Heath to Closed Heath*
Mc	*Melaleuca cardiophylla* Closed Heath
McSc	*Melaleuca cardiophylla/Scaevola crassifolia* Closed Heath
McDs	*Melaleuca cardiophylla/Dryandra sessilis* Closed Heath
McDsAt	*Melaleuca cardiophylla/Dryandra sessilis/Acacia truncata* Low Closed Heath
ArMc	*Acacia rostellifera, Melaleuca cardiophylla* Closed Heath*
AsJf	*Acacia saligna and Jacksonia furcellata* Open Scrub
SnAt	*Scaevola nitida, Acacia truncata* Open to Closed Heath
Xp	*Xanthorrhoea preissii* Shrubland
XpDsHt	*Xanthorrhoea preissii, Dryandra sessilis, Hakea trifurcata* Closed Heath*
XpHh	*Xanthorrhoea preissii, Hibbertia hypericoides* Open Heath*
TlMs	*Trymalium ledifolium, Melaleuca systena* Open Heath
Soak	Karli Spring wetland
C	Cleared

Note: * indicates vegetation types not previously identified by Trudgen (1990)

(Q1)	Vegetation on Q1 landform
(Q2)	Vegetation on Q2 landform
(Q3)	Vegetation on Q3 landform
(Q4)	Vegetation on Q4 landform
(Qp)	Vegetation on Qp landform
(Qs)	Vegetation on Qs landform
(Kls)	Vegetation on Kls landform
(Ky)	Vegetation on Ky landform

Landform Source: McArthur and Bartle, 1980.

RPS Vegetation Units

ArSg	*Acacia rostellifera* and *Spyridium globulosum* Tall Open Scrub over *Melaleuca systena* Low Open Shrubland over a mixed Open Herbland/Grassland
MsAl	*Melaleuca systena* and *Acacia lasiocarpa* var. *lasiocarpa* Open Low Heath over *Lomandra maritima, Desmocladus asper* and *Lepidosperma pubisquameum* Herbland
ArOa	*Acacia rostellifera* and *Olearia axillaris* Shrubland over *Melaleuca systena* Low Open Shrubland over *Lomandra martima* Very Open Herbland
SnAp	*Scaevola nitida, Acanthocarpus preissii* and *Melaleuca systena* Low Open Heath over mixed Very Open Grassland with *Desmocladus asper* Very Open Sedgeland
ArMs	*Acacia rostellifera, Melaleuca systena* Open Low Heath over *Lomandra maritima, Desmocladus asper* and *Lepidosperma pubisquameum* Herbland
MsSg	*Melaleuca systena* and *Scaevola globulifera* Open Heath over *Lomandra maritima* and *Lepidosperma pubisquameum* Herbland
OaSg	Scattered *Olearia axillaris* over *Scaevola globulifera* and *Melaleuca systena* Low Open Shrubland over *Lomandra maritima, Poa porphyroclados* and *Austrostipa flavescens* Very Open Grassland/ Herbland
ArMO	*Acacia rostellifera* Open Shrubland with *Melaleuca systena* and *Scaevola globulifera* Open Heath over *Lomandra maritima* and *Lepidosperma pubisquameum* Herbland
#ArOS	*Olearia axillaris* and *Acacia rostellifera* Open Shrubland with *Scaevola globulifera* and *Melaleuca systena* Low Open Shrubland over *Lomandra maritima, Poa porphyroclados* and *Austrostipa flavescens* Very Open Grassland/ Herbland
#Acyc	*Acacia cyclops* Shrubland
#Xp	*Xanthorrhoea preissii* Shrubland

Vegetation units obtained from Bennett (2004) survey as presented in ATA Environment (2005)

SOURCE: RPS, Dwg No. L0729, 26.03.08.

Drawn:	C. Reeves
Checked:	M. Price
Date:	30 Jun 2010
Projection:	N/A
Scale:	A3

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Eglinton Estates and Oceanscape Alliance
EGLINTON DRAFT LOCAL STRUCTURE PLAN
LOCAL WATER MANAGEMENT STRATEGY

VEGETATION AND FLORA

Figure 7b

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Appendix C

Landscape Concepts



LEGEND

- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES

AMENITIES

- OPEN TURF
- BASIN & SWALES
- PLAYGROUND
- PARK SHELTER
- DRINK FOUNTAIN
- BENCH SEAT

EGLINTON DISTRICT CENTRE EAST, WANNEROO

LANDSCAPE MASTERPLAN

DWG **EGL-01- 01**
REV **F**
DATE **06.08.2026**

0 15 30 45 60 75 m

SCALE **1 : 1500 @ A1**

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POS & DRAINAGE PROVISION 01

FIRST 15mm DETAILS

First 15mm area:	975 m^2
20% AEP TWL area:	1,445m^2
1% AEP TWL area:	2,065m^2

POS TYPOLOGY
- Park Avenue
- Drainage Basins

SIZE
- 7,131 m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators
- Playground to provide activity space
- Drainage basin as per LWMS

FUNCTIONS / MATERIALS
- Open turf area for outdoor activity
- Playground for kids
- Connected path to open space
- Informal lawn areas for passive use
- Provide pedestrian link through the estate and connecting POS from the road.

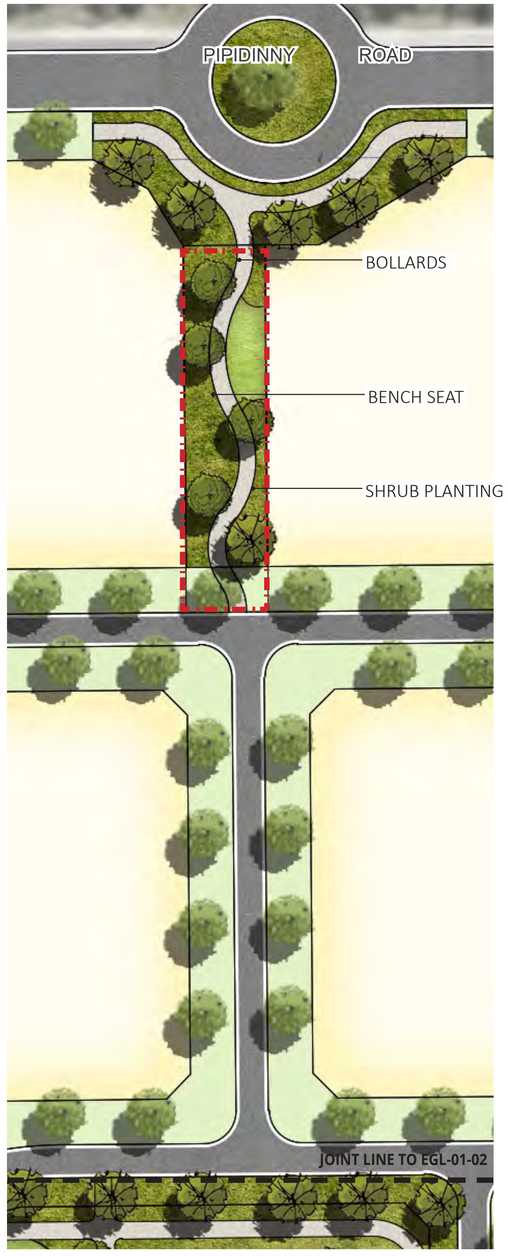
ENVIRONMENTAL CONSIDERATIONS
- Water-wise native planting and planting
- Source local materials where possible to minimise transport requirements and provide local employment.
- Consider long-term maintenance requirements.
- Provide a buffer to the adjacent road

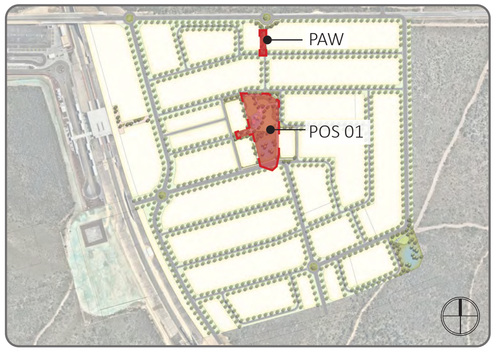
PAW

POS TYPOLOGY
- Pedestrian Access Way

SIZE
- 394m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators



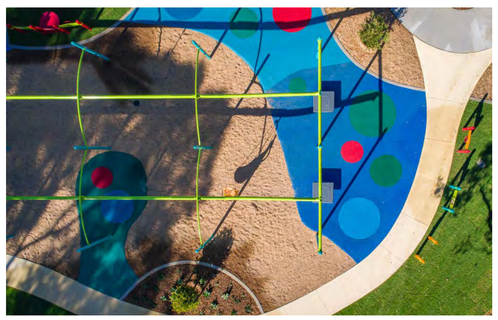


LOCATION PLAN

LEGEND
- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES

DRAINAGE LEGEND
- 15MM TWL
- 1 IN 5 YEARS EVENT
- 1 IN 100 YEARS EVENT







EGLINTON DISTRICT CENTRE EAST, WANNEROO

POS & DRAINAGE 01 & PAW - LANDSCAPE CONCEPT

DWG **EGL-01- 02**
REV **F**
DATE **06.08.2026**
SCALE **1 : 250 @ A1**

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POS & DRAINAGE PROVISION 02

FIRST 15mm DETAILS

First 15mm area:	1,445m²
20% AEP TWL area:	2,015m²
1% AEP TWL area:	2,750m²

POS TYPOLOGY
- Drainage Basins

SIZE
- 2,827 m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators
- Playground to provide activity space
- Drainage basin as per LWMS

FUNCTIONS / MATERIALS
- Connected path to open space
- Informal lawn areas for passive use
- Provide outdoor fitness equipment
- Provide pedestrian link through the estate and connecting POS from the road.

ENVIRONMENTAL CONSIDERATIONS
- Water-wise native planting and planting
- Source local materials where possible to minimise transport requirements and provide local employment.
- Consider long-term maintenance requirements.
- Provide a buffer to the adjacent road

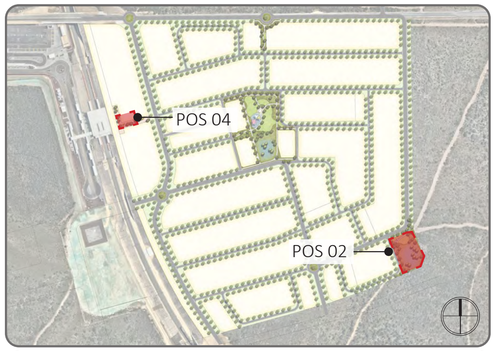
POS 04 - PLAZA

POS TYPOLOGY
- Station Plaza

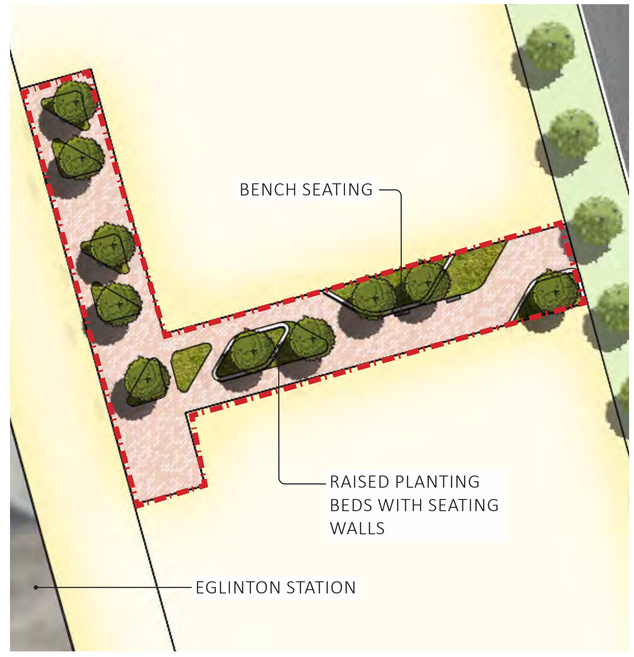
SIZE
- 986m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators





LOCATION PLAN



LEGEND
- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES

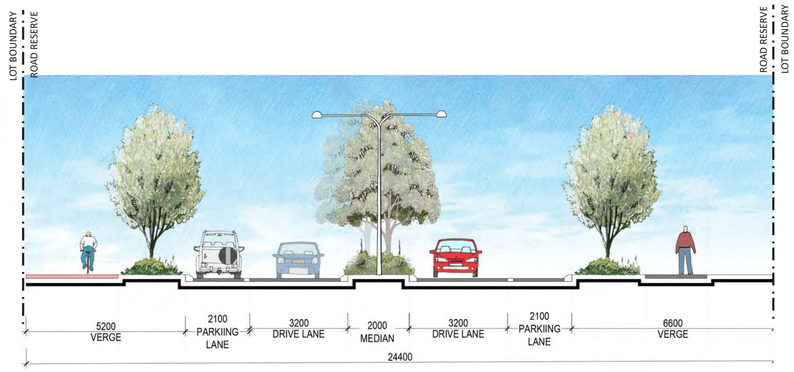
DRAINAGE LEGEND
- 15MM TWL
- 1 IN 5 YEARS EVENT
- 1 IN 100 YEARS EVENT

EGLINTON DISTRICT CENTRE EAST, WANNEROO
POS & DRAINAGE 02 & POS 04 (PLAZA) - LANDSCAPE CONCEPT

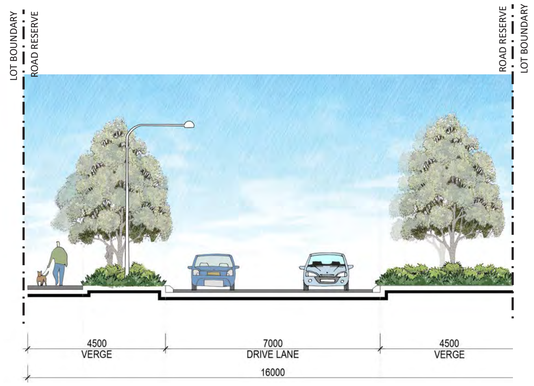
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REV **F**
DATE **06.08.2026**
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SCALE **1 : 250 @ A1**

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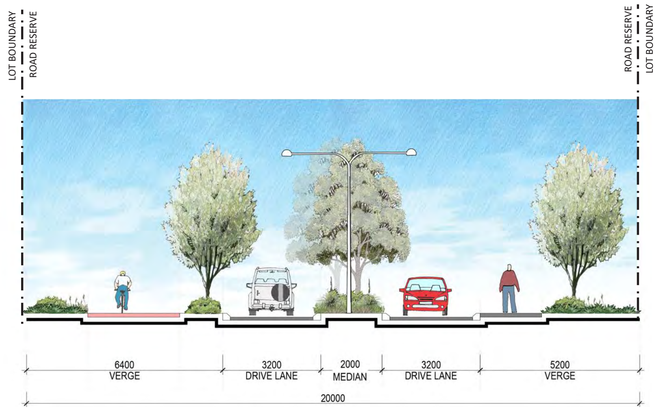
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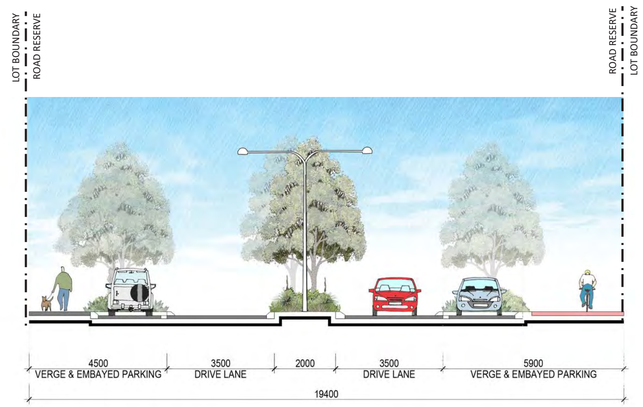
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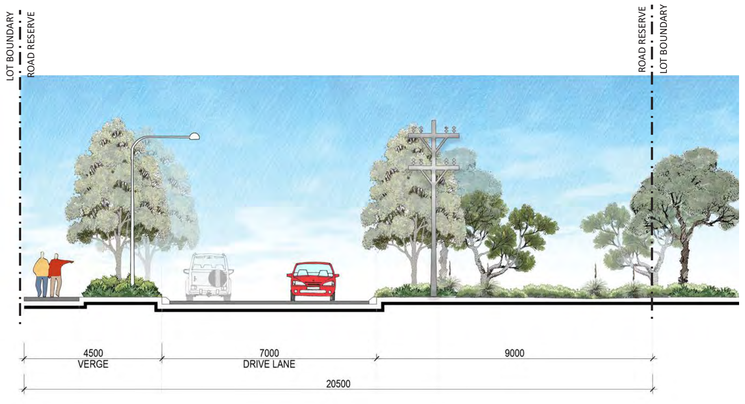
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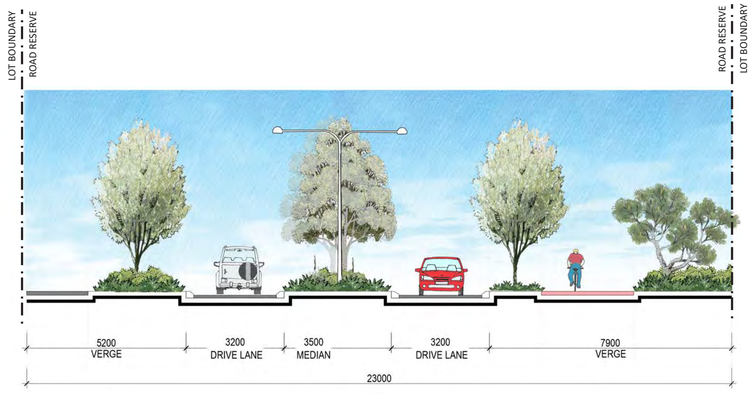
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SECTION 5
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SECTION 3
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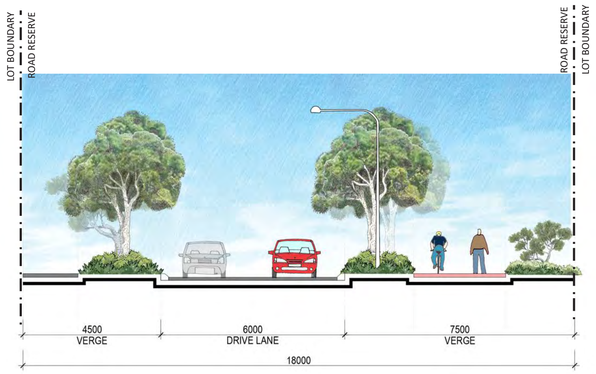
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EGLINTON DISTRICT CENTRE EAST, WANNEROO
ROAD RESERVE SECTION

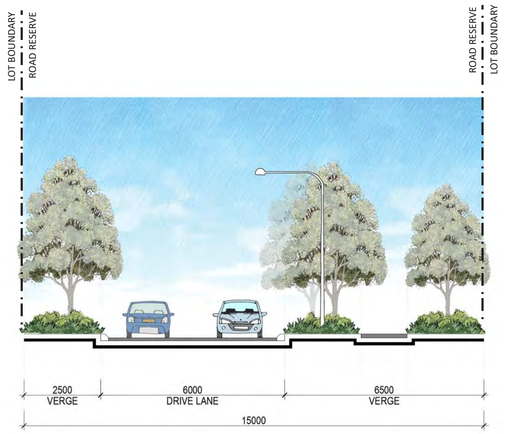
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REV **F**
DATE **06.08.2026**

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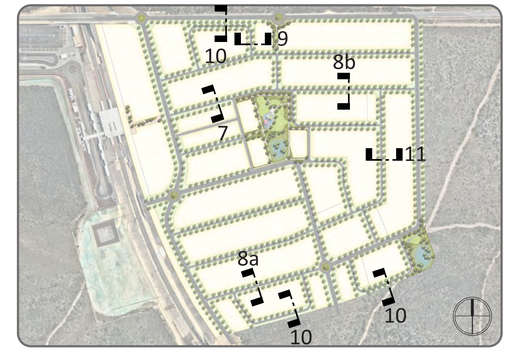
emerge ASSOCIATES



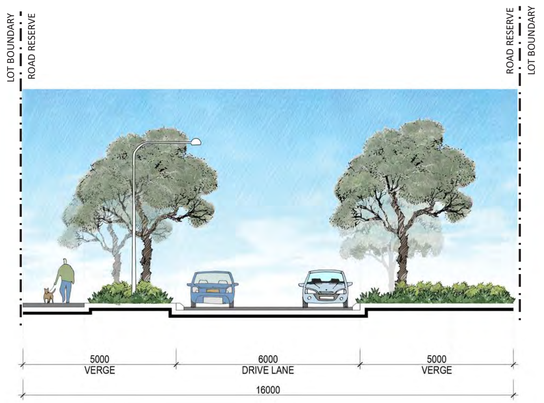
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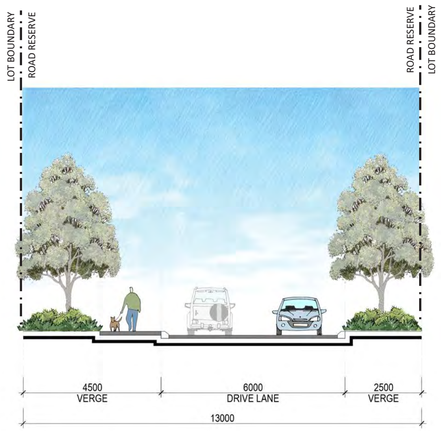
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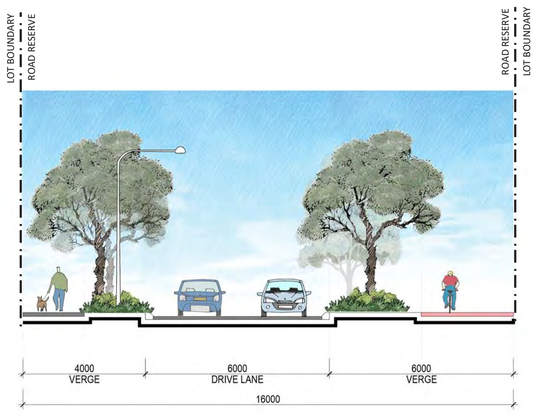
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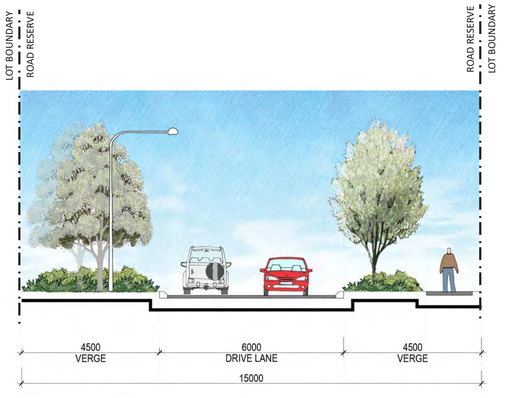
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SCALE 1:100



SECTION 10
SCALE 1:100



SECTION 8b
SCALE 1:100



SECTION 11
SCALE 1:100

EGLINTON DISTRICT CENTRE EAST, WANNEROO
ROAD RESERVE SECTION

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LEGEND

- EXTENT OF PRECINCT D NORTH-WEST
- BOULEVARD
- NATIVE
- FEATURE STREET

NOTE

- STREET TREE DENSITIES TO BE APPROX. 1 PER LOT AND 3 PER CORNER LOTS

BOULEVARD TREES



BANKSIA ATTENUATA



EUCALYPTUS MARGINATA

NATIVE NEIGHBOURHOOD TREES



EUCALYPTUS TODTIANA



BANKSIA PRIONOTES



HAKEA LAURINA



ALLOCASUARINA FRASERIANA

FEATURE STREET



BANKSIA GRANDIS



CORYMBIA CALOPHYLLA

EGLINTON DISTRICT CENTRE EAST, WANNEROO

STREET TREES LANDSCAPE MASTERPLAN

DWG **EGL-01- 06**
REV **F**
DATE **06.08.2026**

0 15 30 45 60 75 m

SCALE **1 : 1500 @ A1**

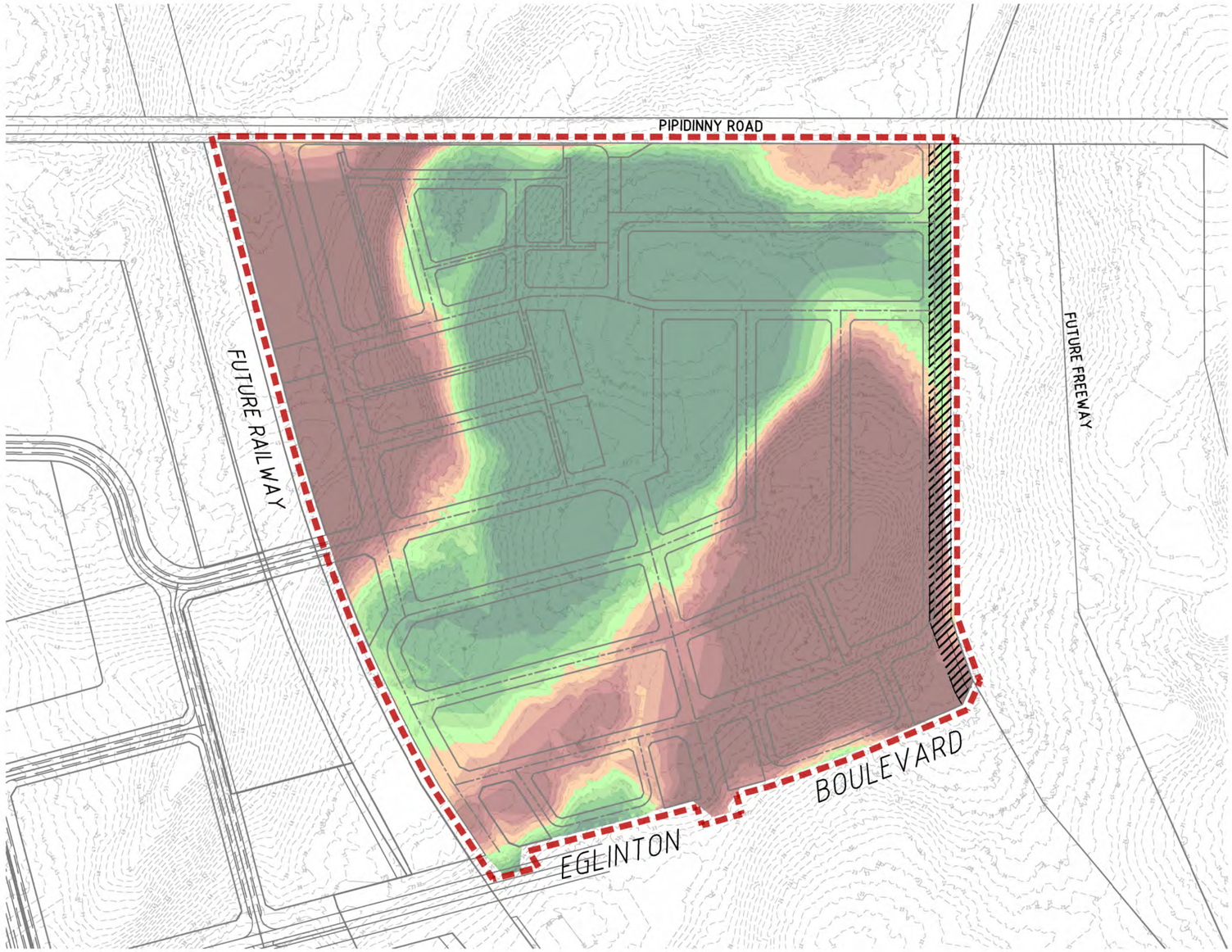
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\\MNLA.LOCAL\Emerge\Projects\CURRENT PROJECTS\Eglinton District Centre East\02 Concept & Reports\SP Amendment\Indd Templates\Eglinton Distric Centre East_ SP.indd

Appendix D

Civil Concepts



PLAN
1:2000

Fill 2.0m & above
Fill 1.5 - 2.0m
Fill 1.0 - 1.5m
Fill 0.5 - 1.0m
Fill 0 - 0.5m
Cut 0 - 0.5m
Cut 0.5 - 1.0m
Cut 1.0 - 1.5m
Cut 1.5 - 2.0m
Cut 2.0m & below

NORTHERN HALF OF EGLINTON BOULEVARD AND PORTION OF DISTRICT CENTRE TO ACHIEVE REQUIRED EXCESS CUT

CUT	-420,299m³
FILL	+346,796m³
x1.20	+416,155m³
BALANCE	-4,144m³

EGLINTON DISTRICT CENTRE EAST

EGLINTON DISTRICT CENTRE EAST WORKS AREA CUT / FILL PLAN

DRAWING NUMBER 2389-SK-009
ISSUE C

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TABEC PTY LTD ACN 090 796 204
Level 2, 54-58 Havelock Street, West Perth WA 6005
t 08 9425 5900 e info@tabec.com.au
www.tabec.com.au

SCALE 1:2000 0 40 80 120
A1

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PLAN
1:2000

LEGEND

- EXTENT OF CONTRACT
- 10 EXISTING SURFACE CONTOUR
- 5.5 PROPOSED SURFACE CONTOUR (0.5m)
- PROPOSED SURFACE CONTOUR (0.1m)

NORTHERN HALF OF EGLINTON BOULEVARD AND PORTION OF DISTRICT CENTRE TO ACHIEVE REQUIRED EXCESS CUT

CUT	-420,299m³
FILL	+346,796m³
x1.20	+416,155m³
BALANCE	-4,144m³

EGLINTON EAST

PLANNING EARTHWORKS

DRAWING NUMBER 2389-SK-010

ISSUE D

SCALE 1:2000 — 0 40 80 120

A1

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PLAN
1:2000

LEGEND

- EXTENT OF CONTRACT
- 10 — EXISTING SURFACE CONTOUR
- 5.5 — PROPOSED SURFACE CONTOUR (0.5m)
- PROPOSED SURFACE CONTOUR (0.1m)
- PROPOSED DRAINAGE
- EXISTING DRAINAGE
- FUTURE DRAINAGE
- 1 / 0.0929ha — DRAINAGE PIT NUMBER / CATCHMENT AREA (MINOR EVENT)
- CATCHMENT BOUNDARY (MAJOR EVENT)
- SUB-CATCHMENT BOUNDARY (MINOR EVENT)
- CATCHMENT BOUNDARY (MINOR EVENT)
- OUTLET / FLOW PATH

DRAINAGE CATCHMENT PLAN

EGLINTON DISTRICT CENTRE EAST

DRAWING NUMBER 2389-SK-011

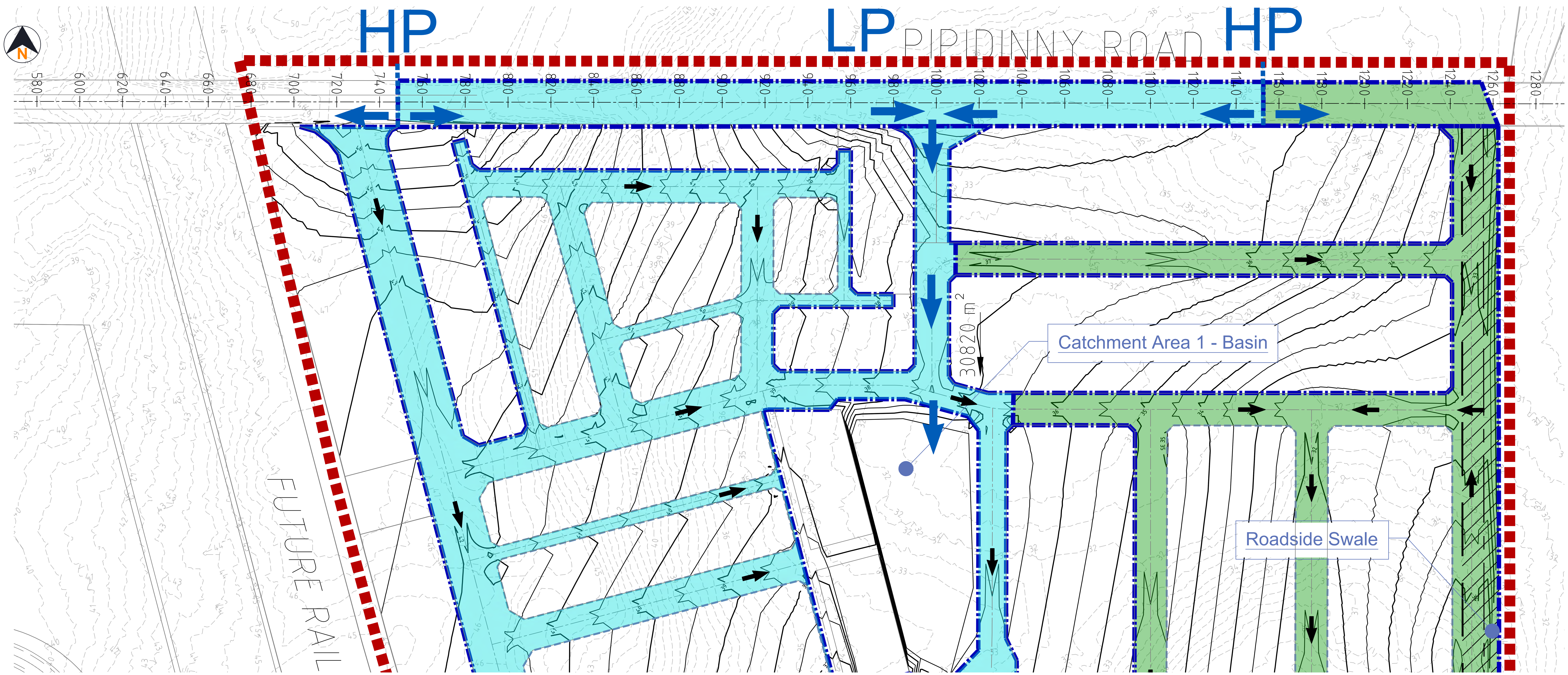
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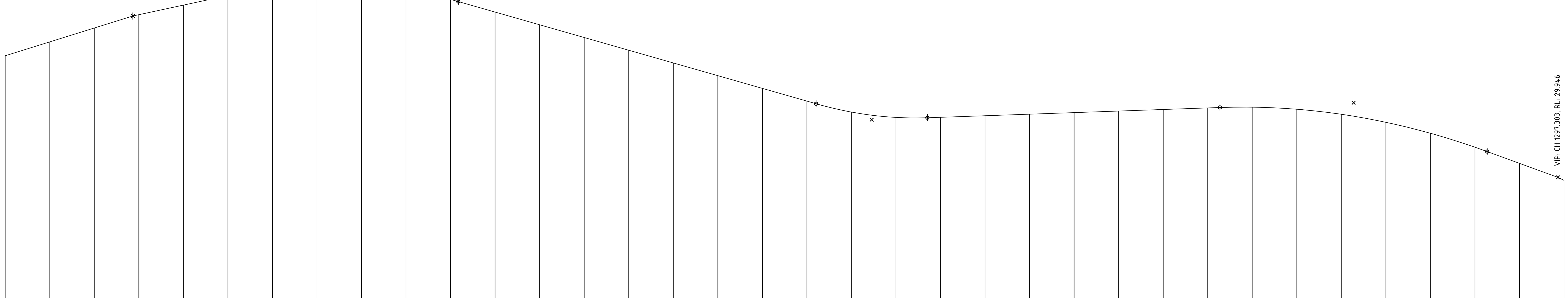
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PLAN
1:2000



DATUM R.L.19.0

CENTRELINE DESIGN LEVEL	40.9	42.1	43.4	44.6	45.4	46.3	47.0	47.3	47.3	46.8	45.9	44.8	43.7	42.5	41.4	40.2	39.1	37.9	36.8	35.8	35.3	35.3	35.5	35.6	35.8	35.9	36.0	36.2	36.3	36.1	35.6	34.9	33.9	32.7	31.2	29.7
CENTRELINE CHAINAGE	600	620	640	660	680	700	720	740	760	780	800	820	840	860	880	900	920	940	960	980	1000	1020	1040	1060	1080	1100	1120	1140	1160	1180	1200	1220	1240	1260	1280	1300

PIPIDINNY ROAD
SCALE - H: 1:1000
V: 1:200

PIPIDINNY ROAD LONGSECTION

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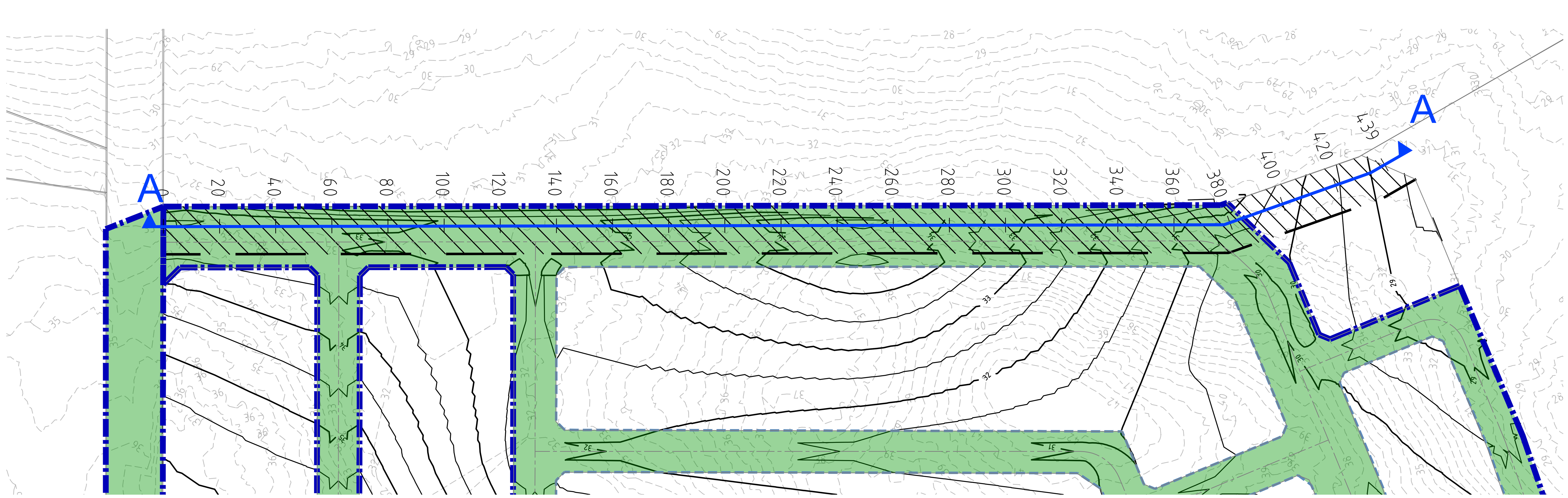
EGLINTON DISTRICT CENTRE EAST

DRAWING NUMBER
2389-SK-012

ISSUE
C

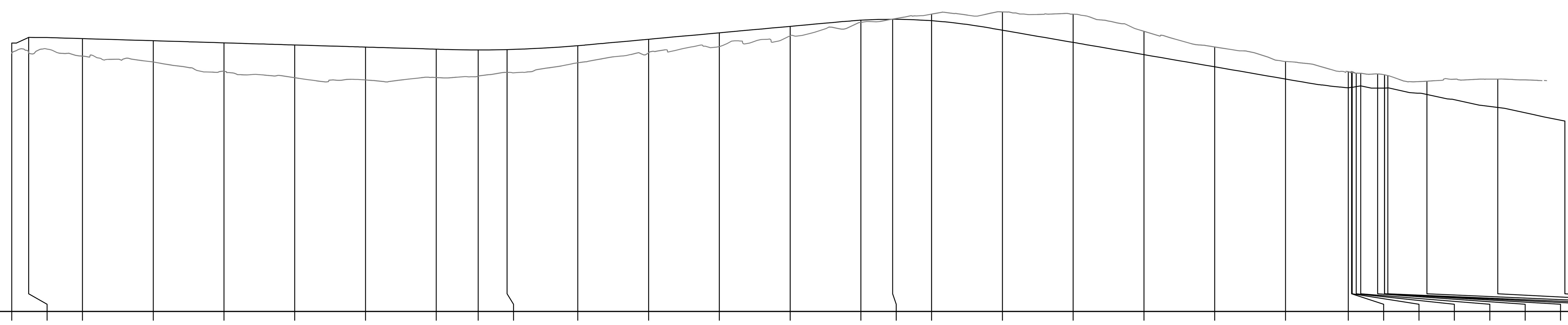
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Plotted By: dnorth Plot Date: 29/11/24 - 14:13 Cad File: C:\12dS\data\TB-12D\2389 - Eglinton Town Centre_27\CADD\CAD\2389-SK\2389-SK-012 Pipidinny Longsection.dwg



PLAN

1:2000



DATUM R.L.18.0

VERTICAL GRADE / LVC/K VALUE: -0.60% | 1.82% | -3.45% | -4.48%

CENTRELINE CHAINAGE	CENTRELINE DESIGN LEVEL	EXIST LEVEL AT FWY RESERVE
0	33.18	33.18
4.78	33.50	32.65
20	33.43	32.44
40	33.31	32.11
60	33.19	31.58
80	33.07	31.22
100	32.95	31.12
		31.09
120	32.83	31.23
131.83	32.79	
140	32.81	31.52
160	33.03	32.06
180	33.39	32.62
		32.63
200	33.76	32.97
220	34.12	33.59
240	34.47	34.35
248.98	34.52	
260	34.44	34.82
280	33.91	34.94
300	33.22	34.81
320	32.52	33.85
340	31.83	32.96
360	31.14	32.14
377.74	30.65	31.51
378.68	30.68	
378.86	30.67	
380	30.71	
381.27	30.76	
386.06	30.63	
387.98	30.63	
387.98	30.63	
388.93	30.64	
400	30.27	
420	29.54	
438.96	28.77	

SECTION A

SCALE - H: 1:1000
V: 1:200

PROPOSED SWALE LOCATION LONGSECTION

EGLINTON DISTRICT CENTRE EAST

DRAWING NUMBER 2389-SK-013

ISSUE B

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www.tabec.com.au

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A1

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Appendix E

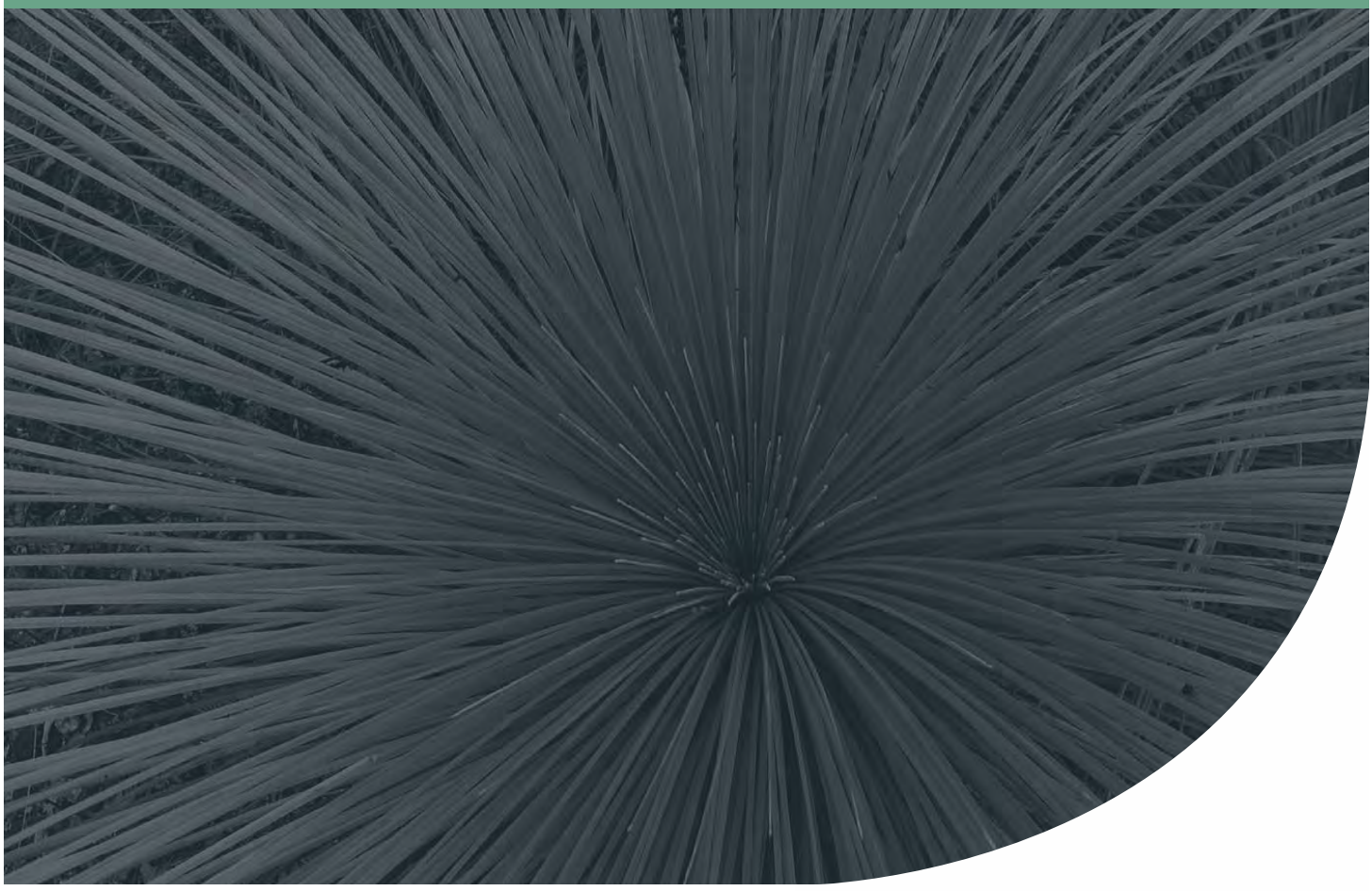
Modelling Assumptions Report

Eglinton District Centre (East) Activity Centre Plan

Modelling Assumptions Report

Project No: EP18-100(09)

Prepared for Eglinton Estates Pty Ltd
November 2024



Document Control

Doc name:	Eglinton District Centre (East) Activity Centre Plan Modelling Assumptions Report				
Doc no.:	**EP18-100(09)--014 PK**				
Version	**Date**	**Author**		**Reviewer**	
1	November 2024	Parmod Kumar	PK	Ben Brash	BPB
	For inclusion in LWMS addendum				

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Table 2 Post-development catchment areas 3

1 Modelling Assumptions

XPSWMM hydrologic and hydraulic modelling software (v21.3) was used to calculate the surface water runoff volumes associated with the Eglington District Centre (East) Activity Centre Plan (ACP) development located east of the rail corridor within Lot 9102 on plan 425787. The hydrologic component of the software uses the Laurenson non-linear runoff-routing method to simulate runoff from design storm events. Key assumptions regarding the hydrologic model include:

- Runoff is proportional to slope, area, infiltration and percentage of imperviousness of a catchment.
- Sub-catchment areas and slopes are determined from available topographical data and earthworks plans.
- Infiltration rates and percentage imperviousness have been selected based on experience with model preparation for similar soil conditions and land use.

Runoff from each sub-catchment is routed through the catchment using the hydraulic component of XPSWMM. Generally, assumptions associated with the hydraulic component of the model include:

- Virtual links (i.e. purely for model construction, not equivalent to flow path onsite) between nodes within a sub-catchment are given the length of 10 m and slope of 0.05 to minimise the lag time of conveying the water from a sub-catchment node to a 'storage' node, a 'dummy intermediate' node or a conduit/link.
- Links between sub-catchment storages act as conveyance channels (e.g. sheet flow within roads in a 1% annual exceedance probability (AEP)). These links are given lengths and slopes that are representative of the site conditions and actual pathway lengths between catchments.
- All channels are designed with a width of 5 m, roughness of 0.014 (Manning's n) and are trapezoidal in shape. This allows for easy conveyance and represents concrete pipes and road surfaces within the model.
- Where relevant, median swales, bio-retention areas (BRAs), and flood storage areas (FSAs) are modelled as nodal-reservoirs with infiltration depth-rating curves to account for differential infiltration rates with changing depth.

1.1 Critical duration analysis

The intensity of rainfall events were derived from the intensity, frequency and duration (IFD) charts produced by the Bureau of Meteorology (BOM). The ensemble temporal patterns obtained from the AR&R Data Hub (AR&R 2019) were used for the analysis.

Eleven durations ranging between 1 hour and 72 hours were tested, with the peak flood elevation being assessed as the determining result. Following the process suggested by AR&R (Ball J *et al.* 2019) the highest mean duration was selected as the critical duration for every catchment. AR&R also recommends that when it is not practical to run the entire ensemble array, the ensemble that produces the result closest to the mean (for the critical duration) should be adopted. Based on the results of the critical duration analysis (CDA) the following events were identified for the site:

- 20% AEP: 3 hour duration ensemble 8
- 10% AEP: 1 hour duration ensemble 1

- 1% AEP: 1 hour duration ensemble 1.

2 Post-development Model

2.1 Post development catchments

The post-development model uses an "initial loss - continual loss" infiltration model. The post-development catchment area and land types within the site were informed by the preliminary earthworks contours provided by civil engineers and the concept plan, shown in **Appendix D** of the *Eglinton District Centre (East) Activity Centre Plan Local Water Management Strategy Addendum* (Emerge Associates 2024). **Table 1** provides the loss parameters used within the post-development model.

Table 1 Post-development loss assumption and roughness parameters

Land type	Initial loss (mm)	Continual loss (mm)	Roughness
Road surface	1	0.1	0.02
Road verge	9	1.5	0.05

A summary of post-development catchment information is provided in **Table 2**, with the catchments and basin locations shown in **Figure 5** of the LWMS Addendum.

Table 2 Post-development catchment areas

Catchment	Slope	Area (ha)				
		Total area	Road reserve	Road pavement	Road verge	POS
Ct 1	0.050	3.906	2.474	0.619	0.028	0.813
Ct 2	0.050	5.779	5.456	4.365	1.091	0.323
Ct P1 (West Pipidinny road)	0.050	0.849	0.849	0.509	0.340	-
Ct P2 (East Pipidinny Road)	0.050	0.189	0.189	0.113	0.076	-
Total		10.723	9.587	7.462	2.125	1.136

An average gradient of 5% is assumed for all catchments based on preliminary earthworks contours.

2.2 Infiltration loss assumptions

The infiltration rates used were predominantly based upon the following assumptions:

- Lot assumptions
  - All lots will fully retain the 1% AEP event runoff on lot in soakwells, infiltration in pervious areas and other retention measures.
- Road reserve assumptions
  - There will be no infiltration on roads, pavements and driveways. There will however be some minor absorption storage loss which is accounted for in the initial and continuing loss values.

  - Road reserve within the site contains 20% pervious verge and 80% impervious bitumen areas.
  - Pipidinny road reserve contains 40% pervious verge and 60% impervious bitumen areas.
- Basin catchments assumptions
  - Basin catchment areas (basin footprint and contributing open space) are assumed to be 100% pervious.
  - Basin catchment areas will likely contain landscaped or remnant vegetation.
  - For the reasons above, basin catchment areas are assumed to negligibly contribute to stormwater runoff.
- Storage assumptions
  - FSAs retain runoff from events up to and including the 1% AEP event.
  - BRAs retain runoff from events up to and including the small event (i.e. first 15 mm).
  - Co-located BRA/FSAs have between 1 in 3 and 1 in 6 side slopes with depths between 300 mm and 1.2 m.
- Storage infiltration assumptions
  - Design infiltration rate of 10 m/day.
  - BRA (including those co-located with FSAs) bases are to be vegetated and used for treatment, therefore a 50% clogging factor is accounted for in the base of the basin (negligible clogging on side slopes).
  - Infiltration through base area and side slopes of the basins are considered in the overall infiltration rating curve for these areas.
- Volumes leaving the system through evapotranspiration were assumed to be negligible when compared to the total runoff volume and since the duration of the model run was comparatively short. XPSWMM default evapotranspiration assumptions are therefore used.

3 References

3.1 General references

Emerge Associates 2024, *Eglinton District Centre Activity Centre Plan (ACP) Local Water Management Strategy Addendum*, EP18-100(09)--012.

3.2 Online Reference

Australian Rainfall and Runoff (AR&R) 2019, *ARR Data Hub*, viewed 22 February 2024 , Available from: <https://data.arr-software.org/>.

APPENDIX F ACOUSTIC ASSESSMENTS

HERRING STORER ACOUSTICS

WOODSOME MANAGEMENT Pty Ltd

EGLINTON DISTRICT CENTRE EAST SUBDIVISION

ROAD AND RAIL TRAFFIC (SPP 5.4) NOISE MANAGEMENT PLAN

SEPTEMBER 2024

OUR REFERENCE: 33346-5-24319

Rochdale Holdings Pty Ltd A.B.N. 85 009 049 067 trading as:
HERRING STORER ACOUSTICS
P.O. Box 219, Como, W.A. 6952
(08) 9367 6200
hsa@hsacoustics.com.au

DOCUMENT CONTROL PAGE

SPP 5.4 NOISE MANAGEMENT PLAN
EGLINTON DISTRICT CENTRE EAST– SUBDIVISION

Job No: 24319

Document Reference: 24319-5-24319

FOR

WOODSOME MANAGEMENT Pty Ltd

DOCUMENT INFORMATION			
Author:	Paul Daly	**Checked By:**	Tim Reynolds
Date of Issue:	11 September 2024		

REVISION HISTORY

Revision	Description	Date	Author	Checked
1	Eglinton Road Inclusion	16/10/2024	PLD	
2	Updated Plan	9/12/2024	PLD	
3	DPLH's schedule of modifications	03/08/2026	PLD	
4	Updated to reflect above changes	29/09/2026	PLD	

DOCUMENT DISTRIBUTION

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APPENDICES

A Subdivision Concept Plan

B Noise Contour Plots

C "Quiet House" Design – General Information

D MRWA Traffic Data

EXECUTIVE SUMMARY

Herring Storer Acoustics were commissioned by Woodsome Management on behalf of Eglinton Estates Pty Ltd to carry out an acoustical assessment of noise received within the Eglinton District Centre East.

Under the Western Australian Planning Commission (WAPC) Planning Policy 5.4 "Road and Rail Noise" (SPP 5.4), the appropriate criteria for assessment for this development are:

EXTERNAL

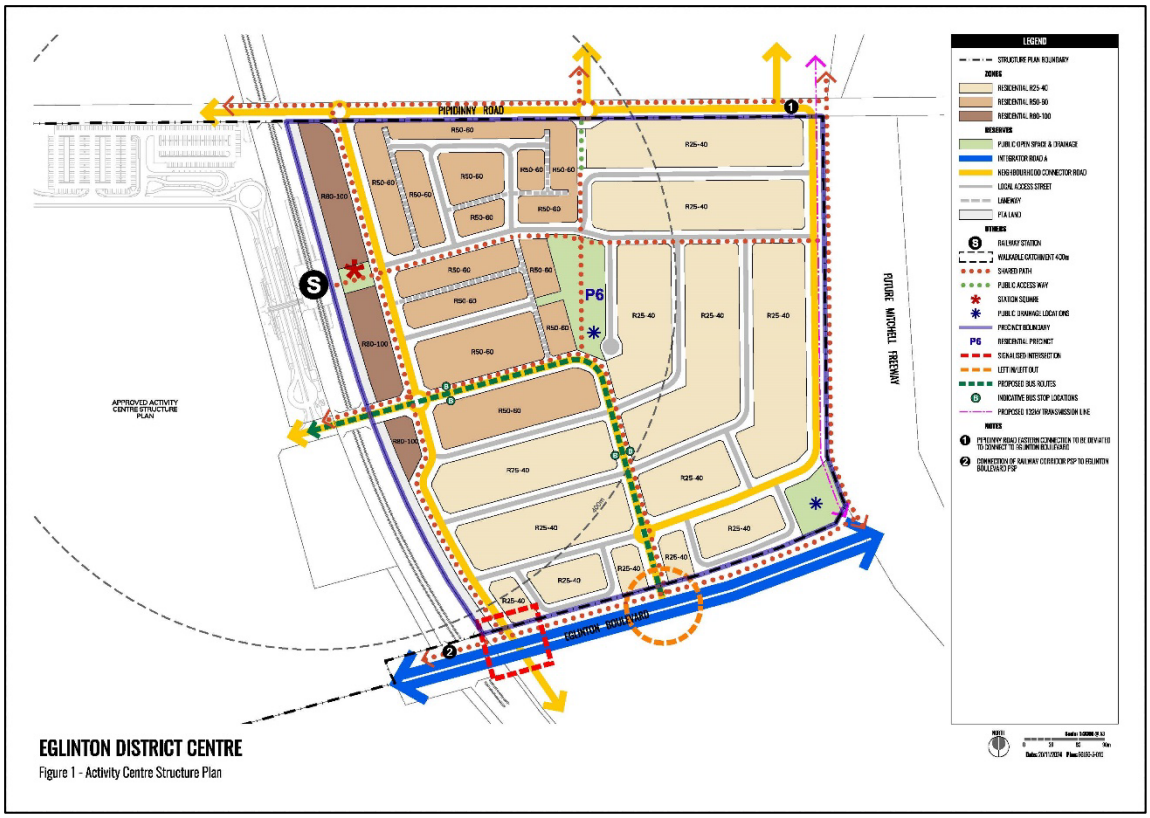
$L_{Aeq(Day)}$ of 55 dB(A);
$L_{Aeq(Night)}$ of 50 dB(A).

INTERNAL

$L_{Aeq(Day)}$ of 40 dB(A) in living and work areas; and
$L_{Aeq(Night)}$ of 35 dB(A) in bedrooms.

Additional to the above, noise received at an outdoor living area should also be reduced as far as practicable, with an aim of achieving an L_{Aeq} of 50 dB(A) during the night period.

As per the plan below, the subdivision is at the concept stage with super Lots / areas being considered. The acoustic advice is based on this concept plan, with more detail for individual Lots to be provided once a final design has been established.



Noise impact assessment has been undertaken for the proposed Future Mitchell Freeway and Eglinton Road source, and the Perth to Yanchep passenger rail line.

In regard to the Mitchell Freeway, final design and alignment in unknown. Therefore, three options have been provided in this report, being:

- Future Mitchell Freeway – No Noise Control
- Future Mitchell Freeway - Noise Control incorporated into the development (Walls at the development boundary)
- Future Mitchell Freeway - Noise Control incorporated into the design (Walls at the road reserve)

In regard to the Perth to Yanchep passenger rail, measurement of the existing has been undertaken to calibrate the predictive noise model.

Finally, Eglinton Road has been based on the concept alignment with a future traffic volume forecast at 30,000 vpd.

Road Traffic Assessment

From the modelling undertaken for the future Kwinana Freeway, noise received at the development would exceed the above criteria, if no noise control in the form of noise walls were included. The level of exceedance for this scenario would be around 6 dB which would require the implementation of Quiet House Design, in the form of Package B.

Further to the above, two additional scenarios were calculated where noise walls were included at the boundary of the development and incorporated into the design of the future Freeway. Noise levels for both these scenarios were similar, with noise levels slightly exceeding the target noise levels criteria by 1 -2 dB. Therefore, with the inclusion of noise walls at either the development boundary, or the road reserve, the implementation of Quite House Design would still be required, however, it would be in the lightest form, being package A.

Modelling allowed for the noise wall at the development boundary to be 3.0m high and 4.0m high at the road reserve. The noise wall would be a minimum surface density of 15kg/m^2.

Appendix C contains the deemed to satisfy construction methods.

We note that alternative constructions as to those listed in Appendix C, are acceptable, provided they are supported by an assessment undertaken by a suitably qualified acoustic consultant.

Due to the orientation of the lots, the outdoor living area is situated behind the house, away from the Freeway, therefore providing a barrier to noise level, hence compliance is achieved with the L_{Aeq} (night) of 50 dB(A).

Passenger Rail Assessment

Noise modelling indicates that noise received at the closest residences for the Passenger Railway Line would comply with the above criteria. Therefore, no acoustic amelioration, or notifications are required for those residential lots located adjacent to the Railway Line.

1. INTRODUCTION

Herring Storer Acoustics was commissioned by Woodsome Management Pty Ltd to undertake a revised road traffic and passenger rail noise assessment for the proposed development of the Eglinton District Centre East.

The purpose of this assessment was to assess noise received within the development from vehicles travelling along the Mitchell Freeway, and the Yanchep Passenger Rail Line for the future.

As part of the study, the following was carried out:

- Measure current passenger rail movements associated with the recently opened Yanchep Railway line.
- Determine by noise modelling the noise levels that would be received at residences within the development from vehicles travelling on the future road and rail system.
- Assess the predicted noise levels received at residence for compliance with the requirements of the WAPC State Planning Policy 5.4 *"Road and Rail Noise"* (SPP 5.4).
- If exceedances are predicted, comment on possible noise amelioration options for compliance with the appropriate criteria.

For this assessment three options have been provided, with and without noise walls for noise control on the western side of the development (Freeway).

The traffic noise assessment has been carried out in accordance with the WAPC State Planning Policy 5.4 *"Road and Rail Noise"*.

For information, the development plan is attached in Appendix A.

2. ACOUSTIC CRITERIA

2.1 ROAD AND RAIL TRAFFIC NOISE

The Western Australian Planning Commission (WAPC) released on 6th September 2019 State Planning Policy 5.4 *"Road and Rail Noise".* The requirements of State Planning Policy 5.4 are outlined below.

POLICY APPLICATION (Section 4)

When and where it applies (Section 4.1)

SPP 5.4 applies to the preparation and assessment of planning instruments, including region and local planning schemes; planning strategies, structure plans; subdivision and development proposals in Western Australia, where there is proposed:

*a) noise-sensitive land-use within the policy's trigger distance of a transport corridor as specified in **Table 1**;*

*b) New or major upgrades of roads as specified in **Table 1** and maps **(Schedule 1,2 and 3);** or*

*c) New railways or major upgrades of railways as specified in maps (**Schedule 1, 2 and 3);** or any other works that increase capacity for rail vehicle storage or movement and will result in an increased level of noise.*

Policy trigger distances (Section 4.1.2)

***Table 1** identifies the State's transport corridors and the trigger distances to which the policy applies.*

*The designation of land within the trigger distances outlined in **Table 1** should not be interpreted to imply that land is affected by noise and/or that areas outside the trigger distances are un-affected by noise.*

*Where any part of the lot is within the specified trigger distance, an assessment against the policy is required to determine the likely level of transport noise and management/ mitigation required. An initial screening assessment (**guidelines: Table 2: noise exposure forecast**) will determine if the lot is affected and to what extent."*

TABLE 1: TRANSPORT CORRIDOR CLASSIFICATION AND TRIGGER DISTANCES

Transport corridor classification	Trigger distance	Distance measured from
Roads		
Strategic freight and major traffic routes Roads as defined by Perth and Peel Planning Frameworks and/or roads with either 500 or more Class 7 to 12 Austroads vehicles per day, and/or 50,000 per day traffic volume	300 metres	Road carriageway edge
Other significant freight/traffic routes These are generally any State administered road and/or local government road identified as being a future State administered road (red road) and other roads that meet the criteria of either >=23,000 daily traffic count (averaged equivalent to 25,000 vehicles passenger car units under region schemes)	200 metres	Road carriageway edge
Passenger railways		
	100 metres	Centreline of the closest track
Freight railways		
	200 metres	Centreline of the closest track

Proponents are advised to consult with the decision making authority as site specific conditions (significant differences in ground levels, extreme noise levels) may influence the noise mitigation measures required, that may extend beyond the trigger distance.

POLICY MEASURES (Section 6)

The policy applies a performance-based approach to the management and mitigation of transport noise. The policy measures and resultant noise mitigation will be influenced by the function of the transport corridor and the type and intensity of the land-use proposed. Where there is risk of future land-use conflict in close proximity to strategic freight routes, a precautionary approach should be applied. Planning should also consider other broader planning policies. This is to ensure a balanced approach takes into consideration reasonable and practical considerations.

Noise Targets (Section 6.1)

***Table 2** sets out noise targets that are to be achieved by proposals under which the policy applies. Where exceeded, an assessment is required to determine the likely level of transport noise and management/mitigation required.*

In the application of the noise targets the objective is to achieve:

- *indoor noise levels as specified in **Table 2** in noise sensitive areas (for example, bedrooms and living rooms of houses, and school classrooms); and*

- *a reasonable degree of acoustic amenity for outdoor living areas on each residential lot. For non-residential noise-sensitive developments, for example schools and child care centres the design of outdoor areas should take into consideration the noise target.*

It is recognised that in some instances, it may not be reasonable and/or practicable to meet the outdoor noise targets. Where transport noise is above the noise targets, measures are expected to be implemented that balance reasonable and practicable considerations with the need to achieve acceptable noise protection outcomes.

TABLE 2: NOISE TARGETS

Proposals	***New/Upgrade***	***Noise Targets***		
		Outdoor		***Indoor***
		Day (L_{Aeq}(Day) dB) (6 am-10 pm)	***Night (L_{Aeq}(Night) dB) (10 pm-6 am)***	***(L_{Aeq} dB)***
Noise-sensitive land-use and/or development	*New noise sensitive land use and/or development within the trigger distance of an existing/proposed transport corridor*	*55*	*50*	*L_{Aeq} (Day) 40(Living and work areas)* *L_{Aeq} (Night) 35 (bedrooms)*
Roads	*New*	*55*	*50*	*N/A*
	Upgrade	*60*	*55*	*N/A*
Railways	*New*	*55*	*50*	*N/A*
	Upgrade	*60*	*55*	*N/A*

Notes:

- *The noise target is to be measured at one metre from the most exposed, habitable façade of the proposed building, which has the greatest exposure to the noise-source. A habitable room has the same meaning as defined in State Planning Policy 3.1 Residential Design Codes.*

- *For all noise-sensitive land-use and/or development, indoor noise targets for other room usages may be reasonably drawn from Table 1 of Australian Standard/New Zealand Standard AS/NZS 2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors (as amended) for each relevant time period.*

- *The 5dB difference in the criteria between new and upgrade infrastructure proposals acknowledges the challenges in achieving noise level reduction where existing infrastructure is surrounded by existing noise-sensitive development.*

- *Outdoor targets are to be met at all outdoor areas as far as is reasonable and practical to do so using the various noise mitigation measures outlined in the guidelines. For example, it is likely unreasonable for a transport infrastructure provider to achieve the outdoor targets at more than 1 or 2 floors of an adjacent development with direct line of sight to the traffic.*

Noise Exposure Forecast (Section 6.2)

When it is determined that SPP 5.4 applies to a planning proposal as outlined in Section 4, proponents and/or decision makers are required to undertake a preliminary assessment using ***Table 2****: noise exposure forecast in the guidelines. This will provide an estimate of the potential noise impacts on noise-sensitive land-use and/ or development within the trigger distance of a specified transport corridor. The outcomes of the initial assessment will determine whether:*

- *no further measures is required;*
- *noise-sensitive land-use and/or development is acceptable subject to deemed-to- comply mitigation measures; or*
- *noise-sensitive land-use and/or development is not recommended. Any noise-sensitive land-use and/ or development is subject to mitigation measures outlined in a noise management plan."*

2.2 AS/NZS 2107:2000

Passenger train noise received at a sensitive premise needs to comply with the requirements of State Planning Policy 5.4 "*Road and Rail Transport Noise*". Under this policy, for non-residential noise sensitive premises, such as school, the internal noise levels should meet the design sound levels as listed in Table 1 of AS/NZ 2107:2000 "Acoustics – Recommended design sound levels and reverberation times for building interiors". Under AS 2107, the internal criteria would be as listed in Appendix C.

3. NOISE MONITORING

Noise monitoring of the Freeway is not possible due to it not being constructed.

Measurement of passenger rail is discussed further in Section 4.2.

4. MODELLING

4.1 ROAD TRAFFIC NOISE

Modelling of noise received within the development from the Mitchell Freeway and Eglinton Boulevard was carried out using SoundPlan, using the Calculation of Road Traffic Noise (CoRTN) algorithms.

The road traffic volumes have been used from the current and future data for the Freeway to the south (Neerabup). For the road traffic volume for Eglinton Blvd information was supplied by the MRWA ROM department. The input data for the model included the parameters detailed in Table 4.1.

TABLE 4.1 - SUMMARY OF TRAFFIC DATA

Parameter	Mitchell Freeway	Eglinton Blvd
Current 2021 Traffic Flow (vpd) MRWA ROM model	45,600	-
Current 2021 Traffic Flow (vpd) Counted	61,968	-
Future 2041 Traffic Flow (vpd) MRWA ROM model	128,500	-
Future 2044 Traffic Flow (vpd) Calculated using MRWA ROM model	138,380	30,000
Surface	Asphalt Open Graded	Asphalt Dense Graded
Percentage Heavy Vehicles (%)	3%	4%
Speed (km/hr)	100	70
Façade Reflection	+2.5 dB	+2.5 dB

As the criteria have a day target of $L_{Aeq16hr}$ of 55 dB(A), and the night criteria is L_{Aeq8hr} 50 dB(A), if the difference is greater than 5 dB, then the day becomes the critical period for compliance.

As there is no Freeway to monitor for this area, reference to previous monitoring and assessments is made, where the night period drops off in noise levels to be greater than 5 dB from the day period.

Additionally, reference is also made to the DEFRA 2006 road noise mapping methodology for the typical diurnal traffic patterns. This has a comparison of day to night difference typically between 7 to 10 dB(A).\

We note that with the difference between the $L_{Aeq,8hr}$ and the $L_{Aeq,16hr}$ being greater than 5 dB(A), achieving compliance with the day period criteria will also achieve compliance with the night period criteria. Therefore, noise modelling was only undertaken for the day period and the results are shown graphically in Appendix B.

The future road traffic volumes were based on information provided by the MRWA ROM department (shown in Appendix F) and the traffic maps.

Other input data for the model included:

- Traffic data from MRWA (https://mrapps.mainroads.wa.gov.au/TrafficMap/)
- Traffic as provided by the MRWA ROM Department, as attached in Appendix F. Note, MRWA ROM modelling provided 2041 traffic forecasts. As SPP 5.4 requires 20-year future, the annual percentage increase between the MRWA provided 2021 and 2041 volumes has been used for the increase to 2043. For this road system it is a 2.5% annual increase.
- Noise source heights for the three road source strings (Passenger Vehicles, Heavy Vehicles Engine and Heavy Vehicle Exhausts) are +0.5, +1.5 and +3.6m, with a noise correction of -0.8 and -8.0 applied to the heavy vehicle's engine and exhaust noise sources.
- Topographical data, with the ground level within the development based on natural ground levels as per surveys conducted.
- A +2.5 dB adjustment to allow for façade reflection.
- Development receiver heights at 1.4m above ground level.

- Future buildings located on the boundary Lots of the development (assumed to be present for future road traffic volumes).
- Calculations based on CoRTN algorithms.
- Other parameter listed in SPP 5.4 as to guidance for modelling road traffic noise / assessment.

Noise modelling for road noise was undertaken for the following scenarios:

S1 Future Mitchell Freeway – No Noise Control.

S2 Future Mitchell Freeway - Noise Control incorporated into the development (Walls at the development boundary).

S3 Future Mitchell Freeway - Noise Control incorporated into the design (Walls at the road reserve).

S4 Future Eglinton Boulevard – No Noise Control.

For the noise modelling of future traffic, it has been assumed that the percentage of future heavy vehicles remains the same as for the current traffic flows. In this case, we believe that this is a conservative approach, as we believe that the percentage of heavy vehicles would fall over time.

4.2 PASSENGER TRAIN NOISE

To differentiate the noise associated with only passenger rail from the overall noise levels influenced by vehicles on the road network, analysis of individual train evens has undertaken.

Measurements of the current passenger rail system have been conducted. Noise level measurements of individual train pass-by events were conducted on the Yanchep to Perth line for the 130km/hr 6 carriage B-Series trains.

Using the measured levels of the train as a basis for calibration, predictive noise modelling using Soundplan has been carried out. Predictive noise levels for the rail line which is at grade have been calculated. Nord2000 railway algorithms have been used.

Utilising this detailed data, noise levels for each train pass-by event were analysed with the resultant levels detailed in Table 4.2. For the purpose of limiting the amount of data, only a sample of train pass by events have been noted.

TABLE 4.2 - SUMMARY OF MEASURED TRAIN NOISE LEVELS

Measurement	Distance from Rail Line	Train	Direction	Speed (km/hr)	Time for Pass (s)	LAeq Average
1	40m	6 Car Train (144m long)	S	130	47	62.2
2	40m	6 Car Train (144m long)	N	Unknown	38	61.3
3	40m	6 Car Train (144m long)	N	132	35	61.7
4	40m	6 Car Train (144m long)	S	129	35	62.7
5	40m	6 Car Train (144m long)	S	128	30	61.2
6	40m	6 Car Train (144m long)	N	127	33	60.7
7	40m	6 Car Train (144m long)	S	124	29	61.4
8	40m	6 Car Train (144m long)	N	130	40	62.2
9	40m	6 Car Train (144m long)	Both	128	39	63.6
Average				128	36	62

Based on analysis of the measured noise levels, at the 15m monitoring point, train noise is present for an average of 36 seconds. The average L_{Aeq} of the train pass-by events, being a noise level of $L_{Aeq(36seconds)}$) 62 dB(A) has been considered as the calibration point of 40m from the rail line for the current passenger rail use.

The above individual train pass noise level can be used to calculate the $L_{Aeq(16hour)}$ Day, and the $L_{Aeq(8hour)}$ Night noise levels. This is based on the quantity of trains for each period, referencing the passenger rail timetable. Hence, Table 4.32 contains the details used for the calculations.

TABLE 4.3 – RELATIONSHIP BETWEEN MEASURED NOISE LEVELS AND TRAIN VOLUMES

Description	Value
Train Qty per 16 hours Day	195
Distance of receiver (metres)	40
$L_{Aeq(36second)}$ at receiver (Train pass by event)	62
Time train noise is present (Seconds)	36
Total time noise present (Minutes) Day	117
$L_{Aeq(16hour)}$ Day period @40m	**52.9**

Based on the above monitoring results, for this project, the difference between the $L_{Aeq,8hr}$ and the $L_{Aeq,16hr}$ has been taken to be those listed in Table 4.3. It was assumed that these differences would apply in the future.

We note that with the difference between the $L_{Aeq,8hr}$ and the $L_{Aeq,16hr}$ being greater than 5 dB(A), achieving compliance with the day period criteria will also achieve compliance with the night period criteria. Thus, only noise contour plots for the day period have been shown.

To calibrate the noise model, the existing traffic volumes and current layout were modelled in Soundplan. The resultant noise level at the monitoring locations was compared to the calculated results and an adjustment made in the model to calibrate to the same result.

Noise modelling for the future passenger train was carried out based on the number of train movements as summarised in Table 4.4.

TABLE 4.4 – TRAIN MOVEMENTS

Parameter	Train Movements (per hour)		Speed
	Day	Night	Km/hour
North Bound			
6 Car Set (144 metres long)	5.9	0.75	130
South Bound			
6 Car Set (144 metres long)	6.3	0.9	130

Based on the above number of train movements, once again if compliance is achieved with the day period criteria, compliance will also be achieved with the night period criteria. Therefore, noise modelling was only undertaken for the day period.

Noise modelling for rail was undertaken for the following scenario:

S1 Noise emissions from Yanchep to Perth passenger railway, without noise amelioration.

5. RESULTS

Based on the previously outlined modelling methodology, both single point and overall noise contour plots have been calculated for each scenario.

As the subdivision is at the concept stage and individual Lots are not known, single point calculates were made for the facades of the areas, where potential dwelling would be located. Figure 5.1 shows the points used based on the concept design.

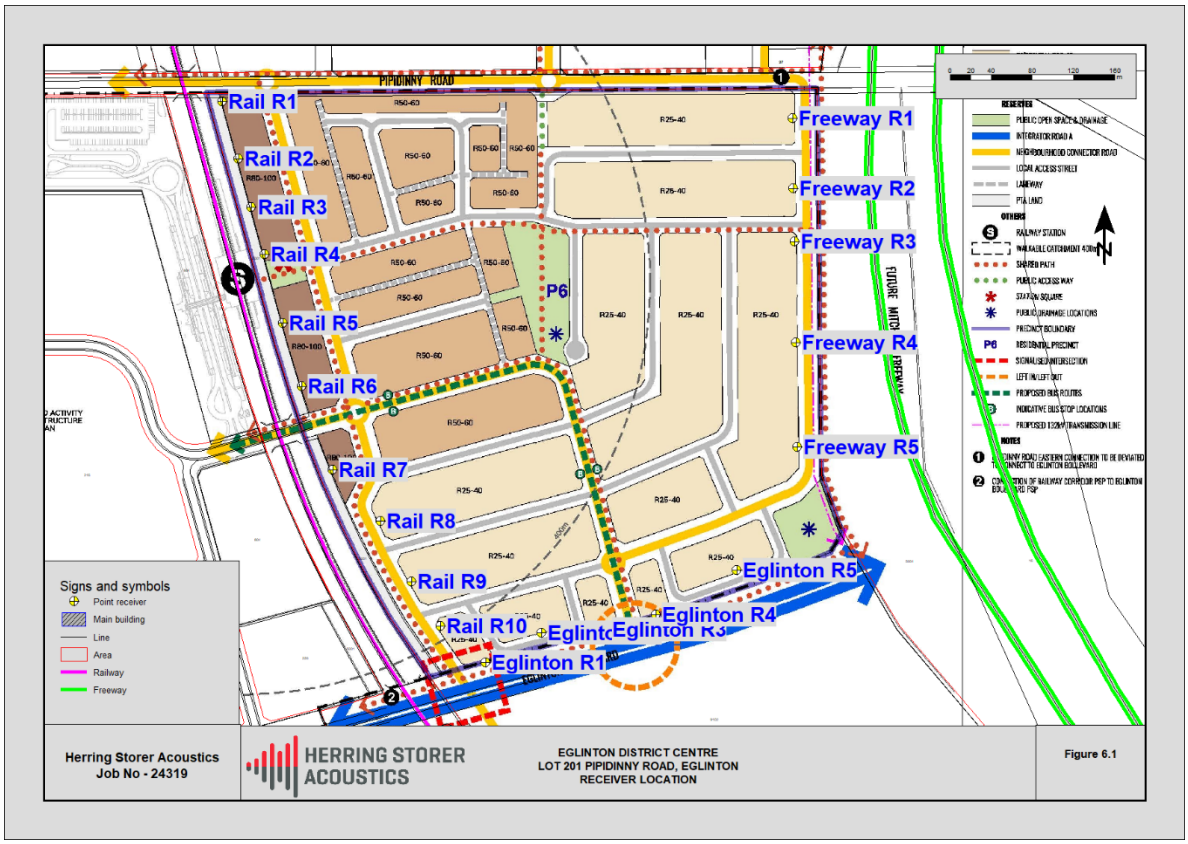


FIGURE 5.1 – CONCEPT SUBDIVISION RECEIVER LOCATION

5.1 ROAD TRAFFIC RESULTS

For the three Freeway scenarios considered, the resultant noise levels are contained in Table 5.1, with the noise contour plots shown in Appendix B.

TABLE 5.1 – FREEWAY NOISE LEVEL RESULTS

Location	Modelling Scenario Noise Levels $L_{Aeq16hour}$ (Day)		
	S1 – Future Freeway – No Noise Control	S2 – Future Mitchell Freeway - Noise Control incorporated into the development (Walls at the development boundary)	S3 – Future Mitchell Freeway - Noise Control incorporated into the design (Walls at the road reserve)
Freeway R1	59	55	53
Freeway R2	59	54	52
Freeway R3	59	54	53
Freeway R4	60	55	56
Freeway R5	59	57	56

Note the above values include a +2.5 dB allowance for façade reflection

For the Eglinton Blvd Future scenario, the resultant noise levels are contained in Table 5.2, with the noise contour plots shown in Appendix B.

TABLE 5.2 – EGLINTON BLVD NOISE LEVEL RESULTS

Location	Noise Levels $L_{Aeq16hour}$ (Day)
Eglinton R1	65
Eglinton R2	63
Eglinton R3	65
Eglinton R4	65
Eglinton R5	62

5.2 PASSENGER RAIL RESULTS

For the Passenger Rail scenario considered, the resultant noise levels are contained in Table 5.3, with the noise contour plots shown in Appendix B.

TABLE 5.3 – PASSENGER RAIL NOISE LEVEL RESULTS

Location	Noise Levels $L_{Aeq16hour}$ (Day)
Rail R1	55
Rail R2	58
Rail R3	58
Rail R4	53
Rail R5	57
Rail R6	58
Rail R7	58
Rail R8	48
Rail R9	48
Rail R10	49

Note the above values include a +2.5 dB allowance for façade reflection

6. ASSESSMENT

In accordance with the WAPC Planning Policy 5.4, an assessment of the noise that would be received within the development located at Eglinton District Centre from vehicles travelling on the Mitchel Freeway and passenger rail associated with the Yanchep to Perth railway line has been undertaken.

In accordance with the Policy, the following would be the acoustic criteria applicable to this project:

External

Day	Maximum of 55 dB(A) L_{Aeq}
Night	Maximum of 50 dB(A) L_{Aeq}
Outdoor Living Areas (Night)	Maximum of 50 dB(A) L_{Aeq}

Internal

Sleeping Areas	35 dB(A) $L_{Aeq(night)}$
Living Areas	40 dB(A) $L_{Aeq(day)}$

Noise received at an outdoor area should also be reduced as far as practicable with an aim of achieving an $L_{Aeq\ (night)}$ of 50 dB(A).

6.1 ROAD TRAFFIC ASSESSMENT

FREEWAY FUTURE

From the modelling undertaken for the future Kwinana Freeway, noise received at the development would exceed the above criteria if no noise control in the form of noise walls was included. The level of exceedance for this scenario would be around 5 dB which would require the implementation of Quiet House Design, in the form of Package B.

Further to the above, two additional scenarios were calculated where noise walls were included at the boundary of the development and incorporated into the design of the future Freeway. Noise levels for both these scenarios were similar, with noise levels slightly exceeding the target noise levels criteria by 1 -2 dB. Therefore, with the inclusion of noise walls at either the development boundary, or the road reserve, the implementation of Quite House Design would still be required, however, it would be in the lightest form, being package A.

Modelling allowed for the noise wall at the development boundary to be 3.0m high and 4.0m high at the road reserve. The noise wall would be a minimum surface density of 15kg/m^2.

Appendix C contains the deemed to satisfy construction methods.

We note that alternative constructions as to those listed in Appendix C, are acceptable, provided they are supported by an assessment undertaken by a suitably qualified acoustic consultant.

Due to the orientation of the lots, the outdoor living area is situated behind the house, away from the Freeway, therefore providing a barrier to noise level, hence compliance is achieved with the L_{Aeq} (night) of 50 dB(A).

EGLINTON BLVD FUTURE

From the modelling undertaken for the future Eglinton Boulevard, noise received at the development would exceed the above criteria if no noise control in the form of noise walls was included. The level of exceedance for this scenario would be around 7 to 10 dB which would require the implementation of Quiet House Design, in the form of Package C.

Appendix C contains the deemed to satisfy construction methods.

We note that alternative constructions as to those listed in Appendix C, are acceptable, provided they are supported by an assessment undertaken by a suitably qualified acoustic consultant.

Due to the orientation of the lots, the outdoor living area is situated behind the house, away from the Eglinton Blvd, therefore providing a barrier to noise level, hence compliance is achieved with the L_{Aeq} (night) of 50 dB(A).

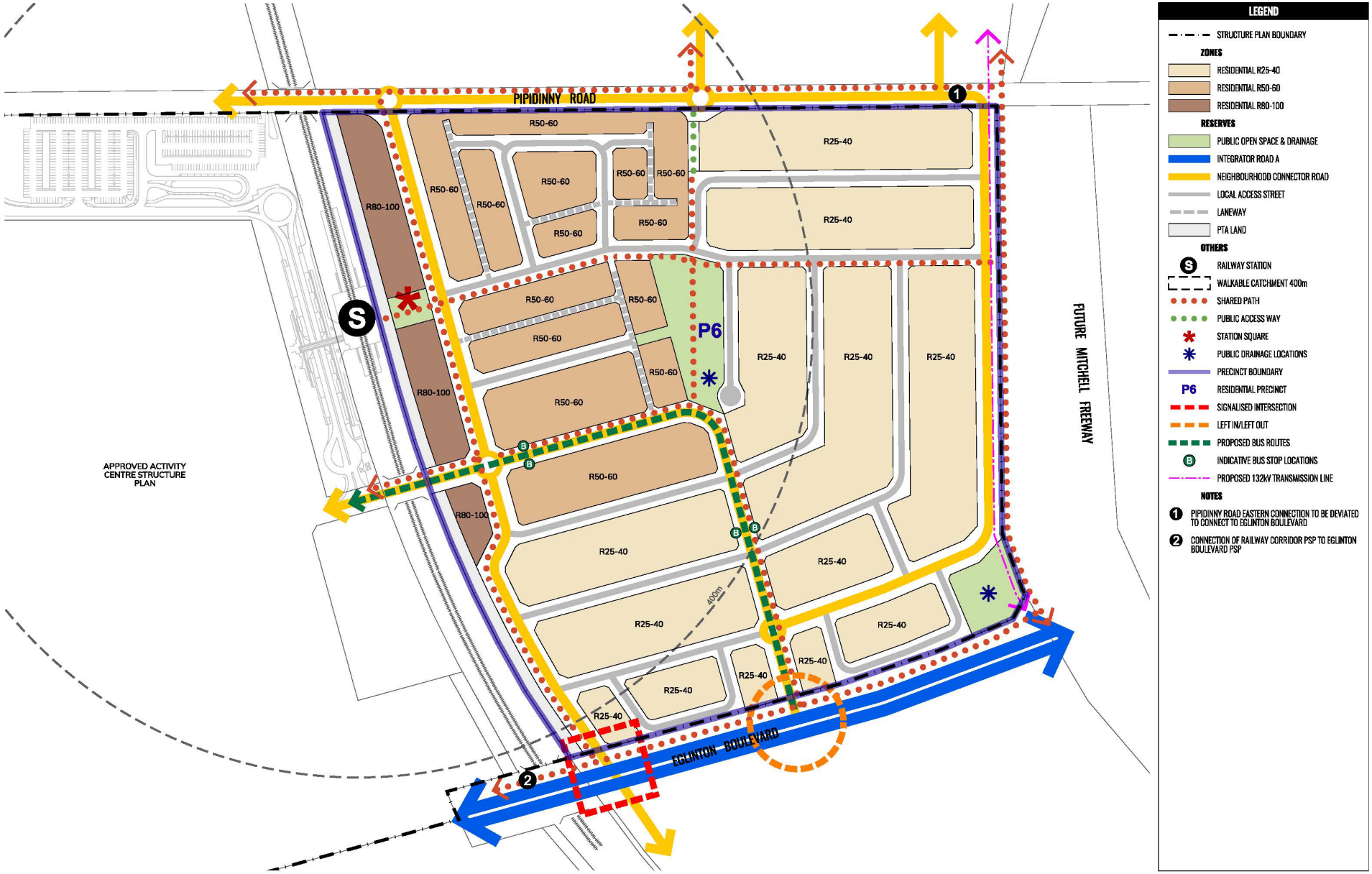
6.2 PASSENGER RAIL ASSESSMENT

Noise modelling indicates that noise received at the closest residences for the Passenger Railway Line at the development would exceed the above criteria if no noise control in the form of noise walls was included. The level of exceedance for this scenario would be around 3 dB which would require the implementation of Quiet House Design, in the form of Package A.

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APPENDIX A

DEVELOPMENT CONCEPT PLAN

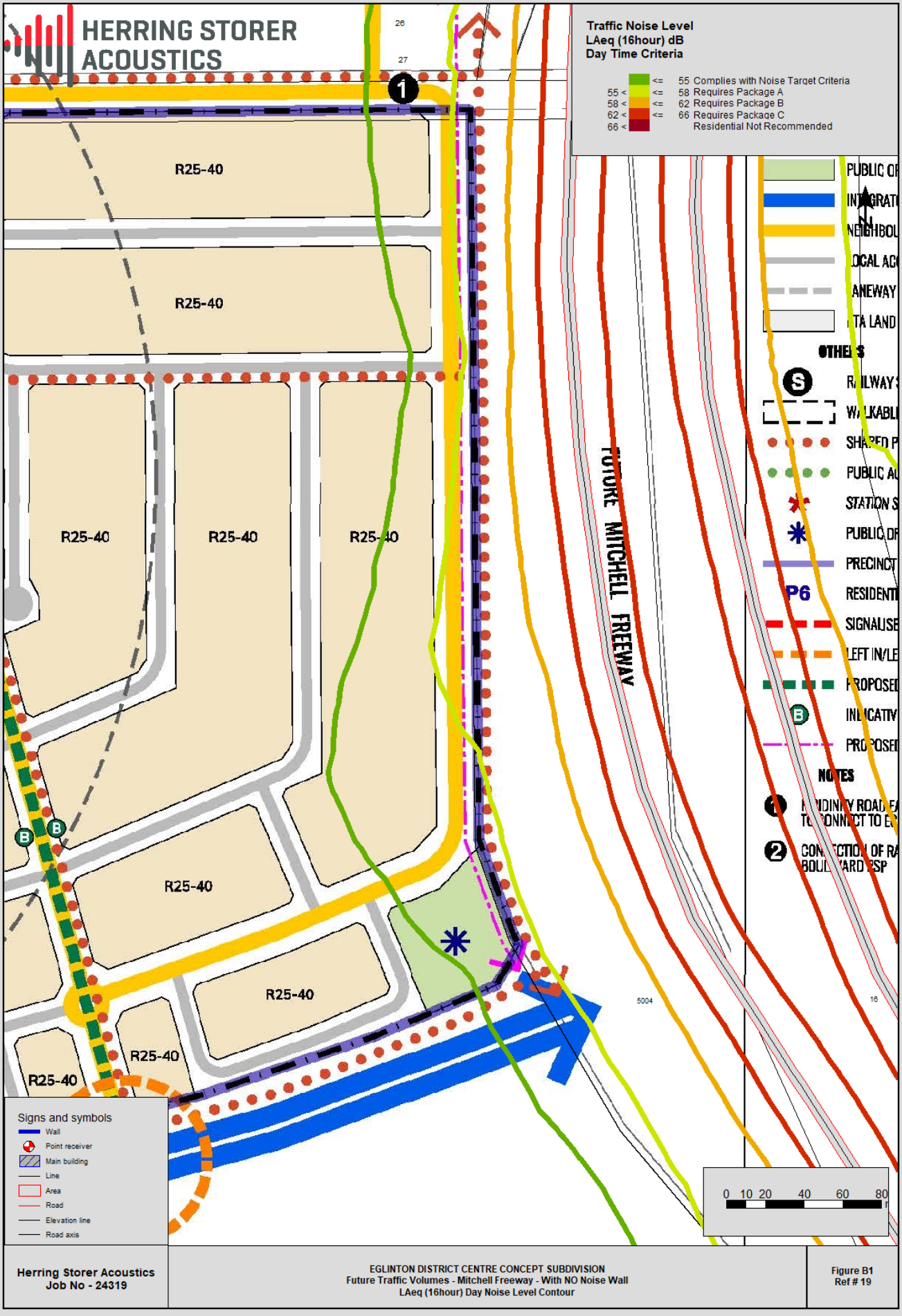


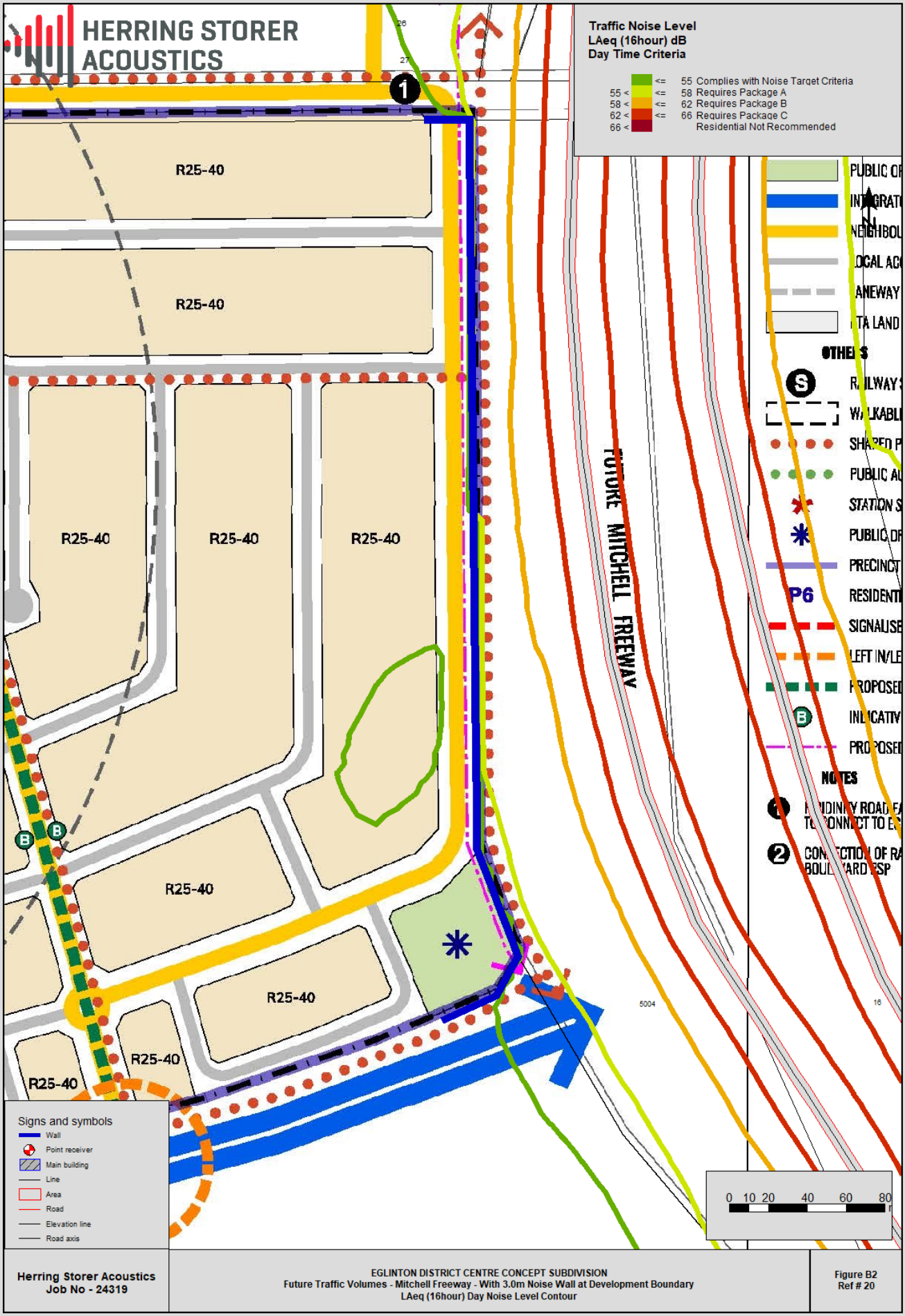
EGLINTON DISTRICT CENTRE

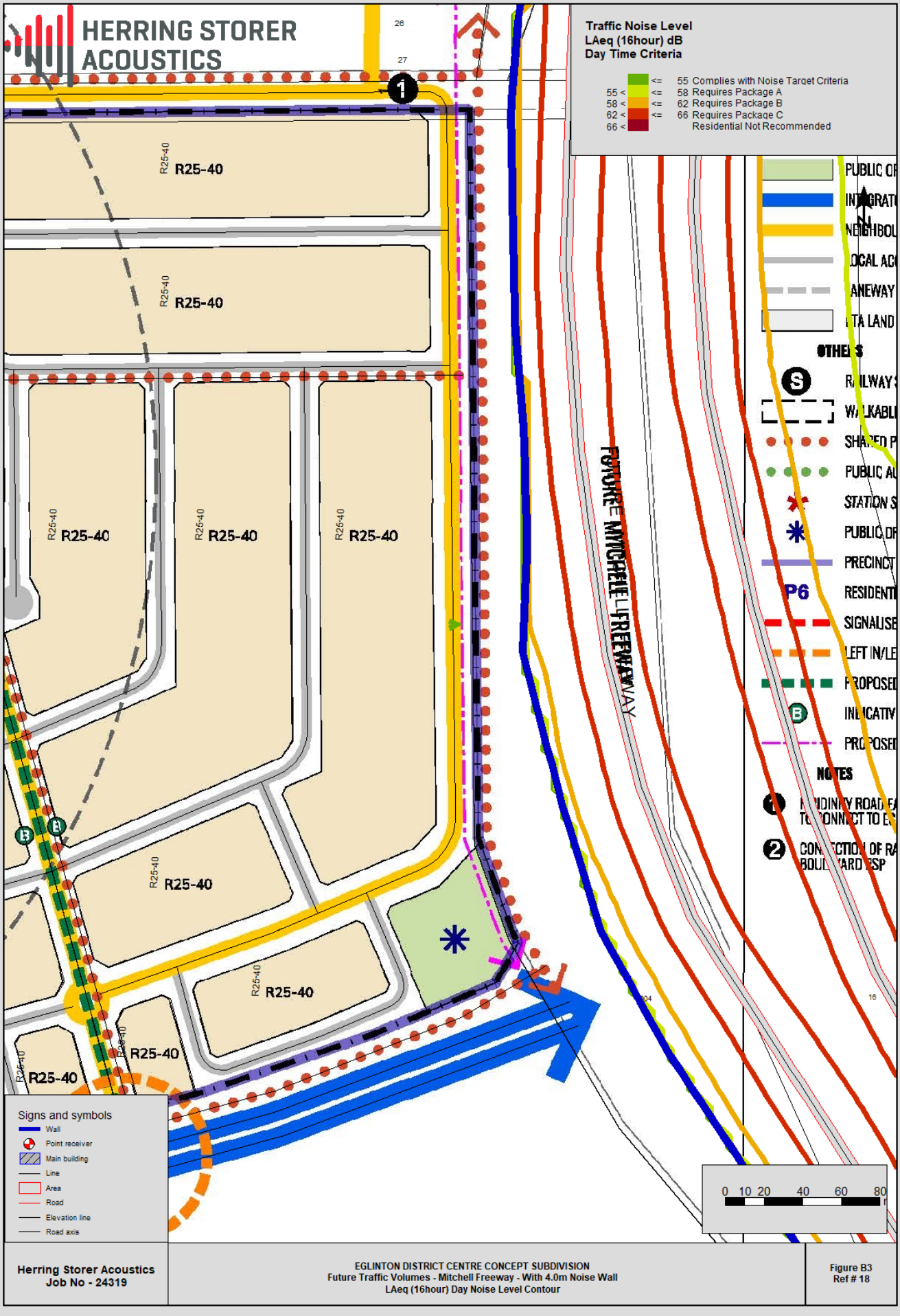
Figure 1 - Activity Centre Structure Plan

APPENDIX B

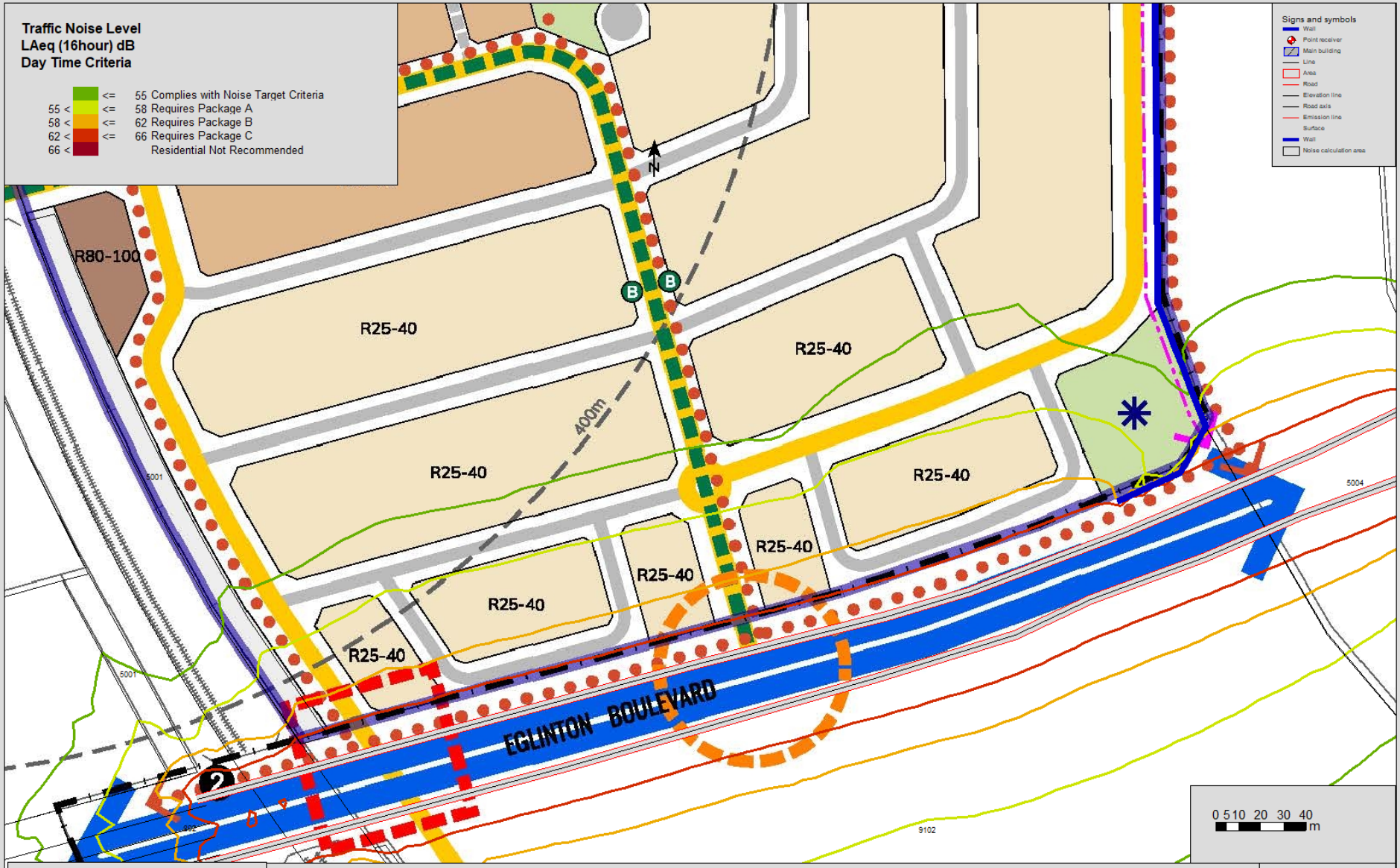
NOISE CONTOUR PLOT


HERRING STORER ACOUSTICS
Traffic Noise Level
LAeq (16hour) dB
Day Time Criteria
<= 55 Complies with Noise Target Criteria
55 < <= 58 Requires Package A
58 < <= 62 Requires Package B
62 < <= 66 Requires Package C
66 < Residential Not Recommended
R25-40
FUTURE MITCHELL FREEWAY
OTHERS
NOTES
Signs and symbols
Wall
Point receiver
Main building
Line
Area
Road
Elevation line
Road axis
0 10 20 40 60 80
Herring Storer Acoustics
Job No - 24319
EGLINTON DISTRICT CENTRE CONCEPT SUBDIVISION
Future Traffic Volumes - Mitchell Freeway - With NO Noise Wall
LAeq (16hour) Day Noise Level Contour
Figure B1
Ref # 19


HERRING STORER ACOUSTICS
Traffic Noise Level
LAeq (16hour) dB
Day Time Criteria
<= 55 Complies with Noise Target Criteria
55 < <= 58 Requires Package A
58 < <= 62 Requires Package B
62 < <= 66 Requires Package C
66 < Residential Not Recommended
R25-40
FUTURE MITCHELL FREEWAY
NOTES
Signs and symbols
Wall
Point receiver
Main building
Line
Area
Road
Elevation line
Road axis
0 10 20 40 60 80
Herring Storer Acoustics
Job No - 24319
EGLINTON DISTRICT CENTRE CONCEPT SUBDIVISION
Future Traffic Volumes - Mitchell Freeway - With 3.0m Noise Wall at Development Boundary
LAeq (16hour) Day Noise Level Contour
Figure B2
Ref # 20


HERRING STORER ACOUSTICS
Traffic Noise Level
LAeq (16hour) dB
Day Time Criteria
<= 55 Complies with Noise Target Criteria
55 < <= 58 Requires Package A
58 < <= 62 Requires Package B
62 < <= 66 Requires Package C
66 < Residential Not Recommended
R25-40
FUTURE MITCHELL FREEWAY
NOTES
Signs and symbols
Wall
Point receiver
Main building
Line
Area
Road
Elevation line
Road axis
0 10 20 40 60 80
Herring Storer Acoustics
Job No - 24319
EGLINTON DISTRICT CENTRE CONCEPT SUBDIVISION
Future Traffic Volumes - Mitchell Freeway - With 4.0m Noise Wall
LAeq (16hour) Day Noise Level Contour
Figure B3
Ref # 18


HERRING STORER ACOUSTICS
Traffic Noise Level
LAeq (16hour) dB
Day Time Criteria
<= 55 Complies with Noise Target Criteria
55 < <= 58 Requires Package A
58 < <= 62 Requires Package B
62 < <= 66 Requires Package C
66 < Residential Not Recommended
PIPIDINNY
EGLINTON BOULEVARD
R50-60
R25-40
P6
N
400m
Signs and symbols
Wall
Point receiver
Main building
Line
Area
Road
Elevation line
Road axis
0 10 20 40 60 80 m
Herring Storer Acoustics
Job No - 24319
EGLINTON DISTRICT CENTRE CONCEPT SUBDIVISION
Future Traffic Volumes - Passenger Rail
LAeq (16hour) Day Noise Level Contour
Figure B2
Ref # 2018



Herring Storer Acoustics
Job No - 24319

HERRING STORER ACOUSTICS

EGLINTON DISTRICT CENTRE CONCEPT SUBDIVISION
Future Traffic Volumes - Eglinton Boulevard
LAeq (16hour) Day Noise Level Contour

Figure B5
Ref # 17

APPENDIX C

QUIET HOUSE DESIGN GUIDELINES

Road Traffic and Passenger Rail - Quiet House Requirements
(*Based on Table 3 of State Planning Policy 5.4 2019*)

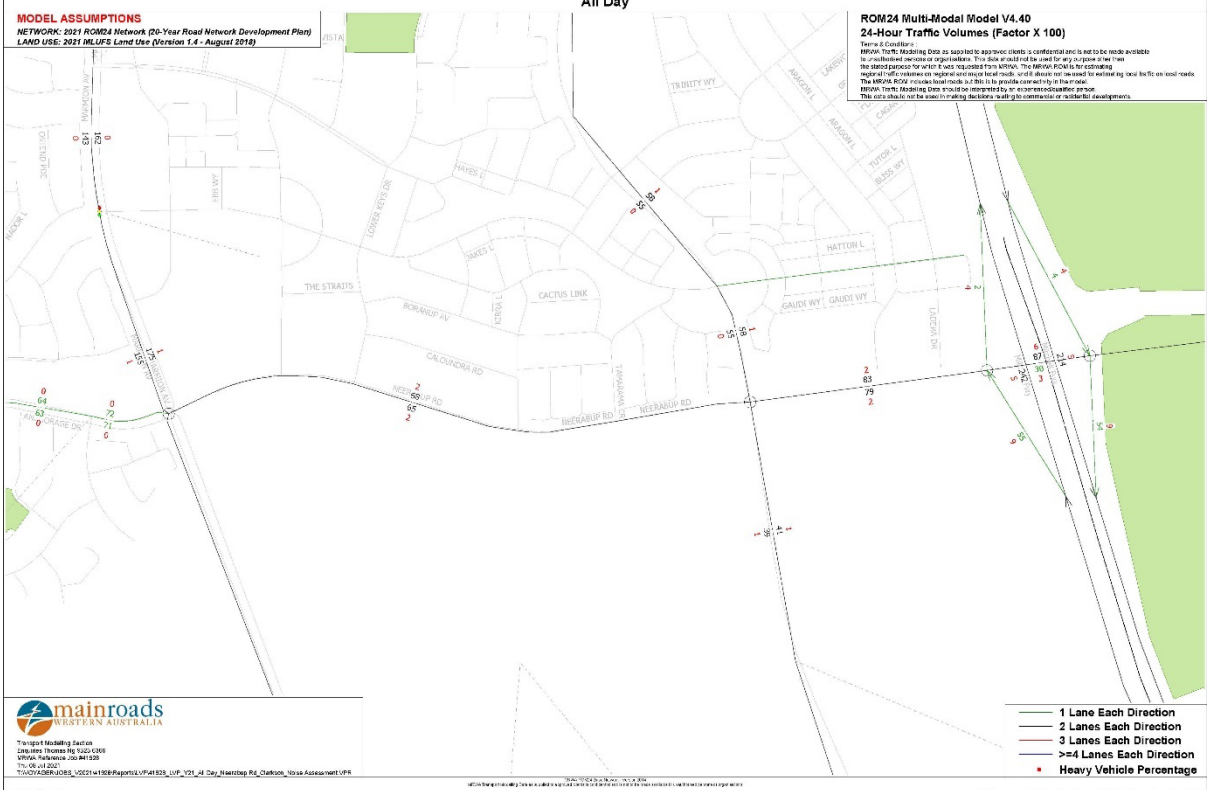
Exposure Category	Orientation to corridor	Acoustic ratings					Mechanical ventilation/air conditioning considerations
		Walls	**External doors**	**Windows**	**Roofs and ceilings of highest floors**	**Outdoor Living areas**	
A **Quiet House A**	**Facing**	**Bedroom and Indoor Living and work areas** ➢ Rw + Ctr 45dB	**Bedrooms**: ➢ R_w+C_{tr} 28dB **Indoor Living and work areas:** ➢ R_w+C_{tr} 25dB	**Bedrooms**: Window size dependant ➢ **Minimum** R_w+C_{tr} 28 dB **Indoor Living and work areas** Window size dependant ➢ **Minimum** R_w+C_{tr} 25 dB	➢ R_w+C_{tr} 35dB	➢ At least one outdoor living area located on the opposite side of the building from the transport corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum **2 metres** height above ground level	➢ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of **Rw 40dB** into sensitive spaces
	Side On		**Bedrooms**: ➢ R_w+C_{tr} 25dB **Indoor Living and work areas:** ➢ R_w+C_{tr} 22dB	**Bedrooms**: Window size dependant ➢ **Minimum** R_w+C_{tr} 25 dB **Indoor Living and work areas** Window size dependant ➢ **Minimum** R_w+C_{tr} 22 dB			
	Opposite		No specific requirements	No specific requirements			
B **Quiet House B**	**Facing**	**Bedroom and indoor living and work areas** ➢ R_w+C_{tr} 50dB	**Bedrooms** ➢ R_w+C_{tr} 31dB **Indoor Living and work areas:** ➢ R_w+C_{tr} 28dB	**Bedrooms**: Window size dependant ➢ **Minimum** R_w+C_{tr} 31 dB **Indoor Living and work areas** Window size dependant ➢ **Minimum** R_w+C_{tr} 28 dB	➢ **R_w+C_{tr} 35dB**	➢ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum **2.4 metres** height above ground level	➢ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of **Rw 40dB** into sensitive spaces
	Side-On		**Bedrooms** ➢ R_w+C_{tr} 28dB **Indoor Living and work areas:** ➢ R_w+C_{tr} 28dB	**Bedrooms**: Window size dependant ➢ **Minimum** R_w+C_{tr} 28 dB **Indoor Living and work areas** Window size dependant ➢ **Minimum** R_w+C_{tr} 25 dB			
	Opposite		**Bedrooms** ➢ R_w+C_{tr} 25dB **Indoor Living and work areas:** ➢ R_w+C_{tr} 25dB	**Bedrooms**: Window size dependant ➢ **Minimum** R_w+C_{tr} 25 dB **Indoor Living and work areas** Window size dependant ➢ **Minimum** R_w+C_{tr} 22 dB			
C **Quiet House C**	**Facing**	**Bedroom and indoor living and work areas** ➢ R_w+C_{tr} 50dB	**Bedrooms** ➢ No External doors to bedrooms facing the corridor **Indoor Living and work areas** ➢ Rw+Ctr 31dB	**Bedrooms**: Window size dependant ➢ **Minimum** R_w+C_{tr} 31dB) **Indoor Living and work areas** Window size dependant ➢ **Minimum** R_w+C_{tr} 31dB	➢ **R_w+C_{tr} 40dB**	➢ At least one outdoor living area located on the opposite side of the building from the corridor and/or at least one ground level outdoor living area screened using a solid continuous fence or other structure of minimum **2.4 metres** height above ground level	➢ Acoustically rated openings and ductwork to provide a minimum sound reduction performance of Rw 40dB into sensitive spaces.
	Side-on		**Bedrooms** ➢ R_w+C_{tr} 31dB **Indoor Living and work areas** ➢ R_w+C_{tr} 28dB	**Bedrooms**: Window size dependant ➢ **Minimum** R_w+C_{tr} 31 dB **Indoor Living and work areas** Window size dependant ➢ **Minimum** R_w+C_{tr} 28 dB			
	Opposite		**Bedrooms**: ➢ R_w+C_{tr} 28dB **Indoor Living and work areas:** ➢ R_w+C_{tr} 28dB	**Bedrooms**: Window size dependant ➢ **Minimum** R_w+C_{tr} 28 dB **Indoor Living and work areas** Window size dependant ➢ **Minimum** R_w+C_{tr} 25 dB			

Note: The above treatments are a deemed to satisfy construction. Alternative designs are acceptable, provided they are certified by a suitable qualified acoustic consultant.

APPENDIX D

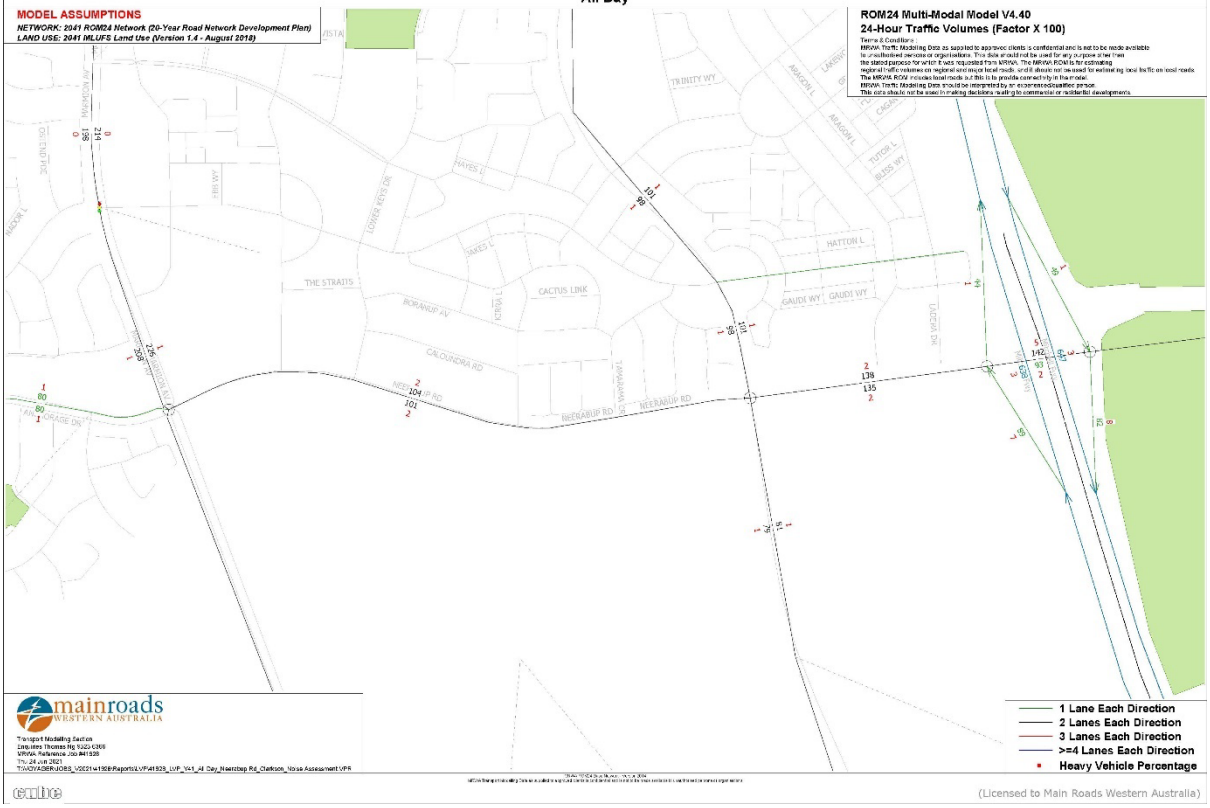
MRWA TRAFFIC DATA

2021 ROM24 Scenario - Link Volume Plot for Neerabup Rd, Clarkson Noise Assessment
LAND USE SCENARIO: MLUFS Version 1.4
All Day



(Licensed to Main Roads Western Australia)

2041 ROM24 Scenario - Link Volume Plot for Neerabup Rd, Clarkson Noise Assessment
LAND USE SCENARIO: MLUFS Version 1.4
All Day



(Licensed to Main Roads Western Australia)

Surface Type Sampe

Surface Detail

Road	Start SLK	End SLK	CWY	Start True Dist	End True Dist	Inv Type	XSP	Width (m)	Year	Type	Aggregate Material	Aggregate Size	Adhesion Agent	Bitumen Class	Asphalt Depth (mm)	Enrich Year
H016	27.98	28.33	L	27.98	28.33	SUSH	R	1.5	2020	Asphalt Open Graded	Granite				30	
						SULA	L1	3.5	2020	Asphalt Open Graded	Granite				30	
						SULA	L2	3.5	2020	Asphalt Open Graded	Granite				30	
						SULA	ER	5.0	2020	Asphalt Open Graded	Granite				30	
						SUSH	L	3.0	2008	Asphalt Open Graded	Laterite			170	30	
	28.33	28.85	L	28.33	28.85	SUSH	R	1.5	2020	Asphalt Open Graded	Granite				30	
						SULA	L1	3.5	2020	Asphalt Open Graded	Granite				30	
						SULA	L2	3.5	2020	Asphalt Open Graded	Granite				30	
						SUSH	L	3.0	2008	Asphalt Open Graded	Laterite			170	30	
	28.85	28.94	L	28.85	28.94	SUSH	R	1.5	2008	Asphalt Open Graded	Granite			170	30	
						SULA	L1	3.5	2008	Asphalt Open Graded	Granite			170	30	
						SULA	L2	3.5	2008	Asphalt Open Graded	Granite			170	30	
						SUSH	L	3.0	2008	Asphalt Open Graded	Laterite			170	30	
	28.94	28.96	L	28.94	28.96	SUSH	R	1.5	2008	Asphalt Open Graded	Granite			170	30	
						SULA	L1	3.5	2008	Asphalt Open Graded	Granite			170	30	
						SULA	L2	3.5	2008	Asphalt Open Graded	Granite			170	30	
						SUSH	L	1.5	2008	Asphalt Open Graded	Laterite			170	30	
	28.96	29.05	L	28.96	29.05	SUSH	R	1.0	2017	Asphalt Dense Graded	Granite			320	30	
						SULA	L1	3.5	2017	Asphalt Open Graded	Granite			320	30	
						SULA	L2	3.5	2017	Asphalt Open Graded	Granite			320	30	
						SUSH	L	3.0	2017	Asphalt Dense Graded	Granite			320	30	
	29.05	29.22	L	29.05	29.22	SUSH	R	1.0	2017	Asphalt Dense Graded	Granite			320	30	
						SULA	L1	3.5	2017	Asphalt Open Graded	Granite			320	30	
						SULA	L2	3.5	2017	Asphalt Open Graded	Granite			320	30	
						SULA	ER	5.6	2017	Asphalt Open Graded	Granite			320	30	
						SUSH	L	3.0	2017	Asphalt Dense Graded	Granite			320	30	
	29.22	29.29	L	29.22	29.29	SUSH	R	7.5	2017	Asphalt Dense Graded	Granite				30	
						SULA	L1	3.5	2017	Asphalt Open Graded on Dense Graded	Granite			320	60	
						SULA	L2	3.5	2017	Asphalt Open Graded on Dense Graded	Granite			320	60	
						SULA	ER	5.6	2017	Asphalt Open Graded	Granite			320	30	
						SUSH	L	3.0	2017	Asphalt Open Graded on Dense Graded	Granite			320	60	

APPENDIX G PRECINCT 6 LANDSCAPE MASTERPLAN



LEGEND

- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES
- SPECIFIC LANDSCAPE TREATMENTS

AMENITIES

- OPEN TURF
- BASIN & SWALES
- PLAYGROUND
- PARK SHELTER
- DRINK FOUNTAIN
- BENCH SEAT

EGLINTON DISTRICT CENTRE EAST, WANNEROO

LANDSCAPE MASTERPLAN

DWG **EGL-01- 01**
REV **G**
DATE **09.09.2026**

0 15 30 45 60 75 m

SCALE **1 : 1500 @ A1**

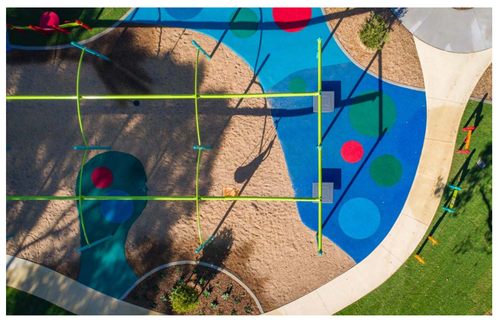
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POS & DRAINAGE PROVISION 01

FIRST 15mm DETAILS

First 15mm area:	975 m²
20% AEP TWL area:	1,445m²
1% AEP TWL area:	2,065m²

POS TYPOLOGY
- Park Avenue
- Drainage Basins

SIZE
- 7,131 m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators
- Playground to provide activity space
- Drainage basin as per LWMS

FUNCTIONS / MATERIALS
- Open turf area for outdoor activity
- Playground for kids
- Connected path to open space
- Informal lawn areas for passive use
- Provide pedestrian link through the estate and connecting POS from the road.

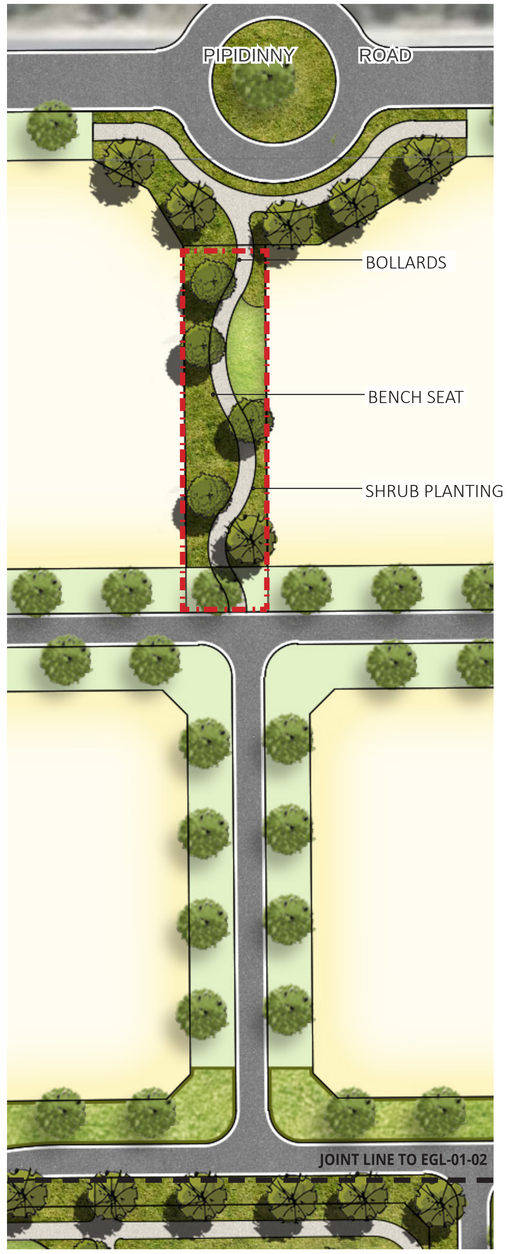
ENVIRONMENTAL CONSIDERATIONS
- Water-wise native planting and planting
- Source local materials where possible to minimise transport requirements and provide local employment.
- Consider long-term maintenance requirements.
- Provide a buffer to the adjacent road

PAW

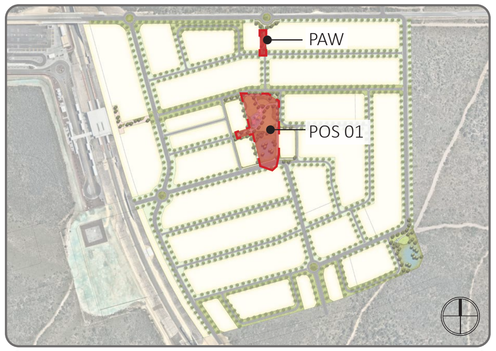
POS TYPOLOGY
- Pedestrian Access Way

SIZE
- 394m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators







LOCATION PLAN

LEGEND
- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES

DRAINAGE LEGEND
- 15MM TWL
- 1 IN 5 YEARS EVENT
- 1 IN 100 YEARS EVENT

EGLINTON DISTRICT CENTRE EAST, WANNEROO
POS & DRAINAGE 01 & PAW - LANDSCAPE CONCEPT

DWG **EGL-01- 02**
REV **G**
DATE **09.09.2026**
SCALE **1 : 250 @ A1**
0 2 4 6 8 10 m

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POS & DRAINAGE PROVISION 02

FIRST 15mm DETAILS

First 15mm area:	1,445m²
20% AEP TWL area:	2,015m²
1% AEP TWL area:	2,750m²

POS TYPOLOGY
- Drainage Basins

SIZE
- 2,827 m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators
- Playground to provide activity space
- Drainage basin as per LWMS

FUNCTIONS / MATERIALS
- Connected path to open space
- Informal lawn areas for passive use
- Provide outdoor fitness equipment
- Provide pedestrian link through the estate and connecting POS from the road.

ENVIRONMENTAL CONSIDERATIONS
- Water-wise native planting and planting
- Source local materials where possible to minimise transport requirements and provide local employment.
- Consider long-term maintenance requirements.
- Provide a buffer to the adjacent road

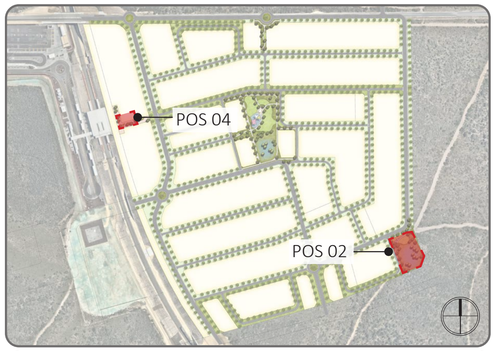
POS 04 - PLAZA

POS TYPOLOGY
- Station Plaza

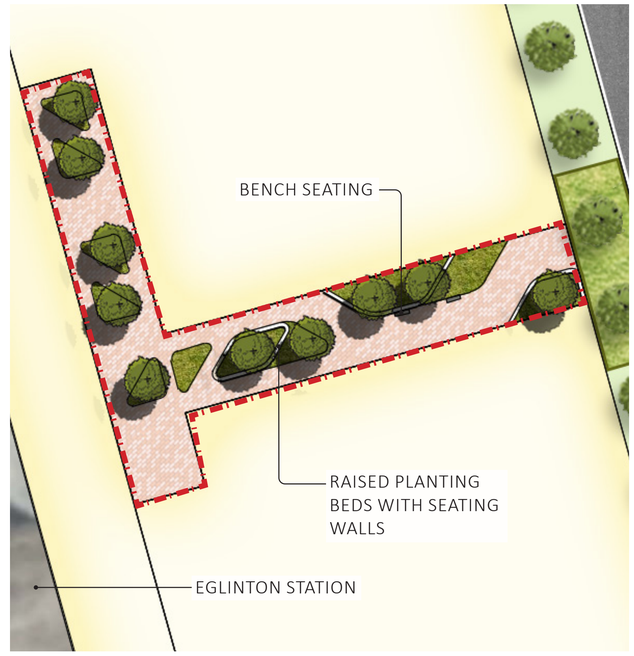
SIZE
- 986m2 + Verge

CONCEPT
- Concrete footpath to provide connection to road integrators





LOCATION PLAN



LEGEND
- EXTENT OF DISTRICT CENTRE EAST
- PROPOSED LOTS
- CONCRETE FOOTPATH
- RUBBER SOFTFALL
- TURF
- PROPOSED BASINS
- SHRUB PLANTING
- VERGE TREATMENT
- PROPOSED TREES
- STREET TREES

DRAINAGE LEGEND
- 15MM TWL
- 1 IN 5 YEARS EVENT
- 1 IN 100 YEARS EVENT

EGLINTON DISTRICT CENTRE EAST, WANNEROO
POS & DRAINAGE 02 & POS 04 (PLAZA) - LANDSCAPE CONCEPT

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REV **G**
DATE **09.09.2026**

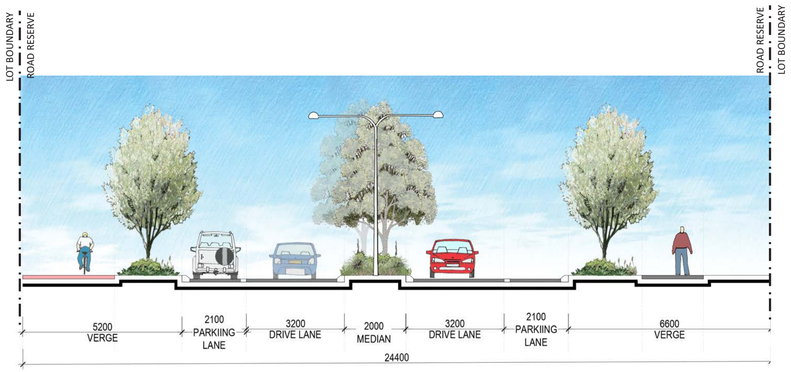
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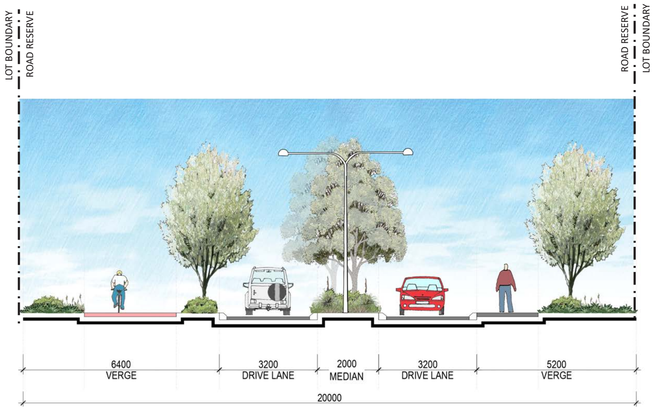
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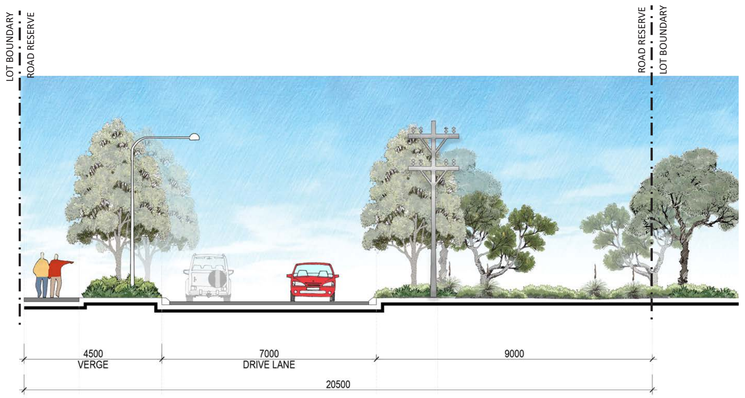
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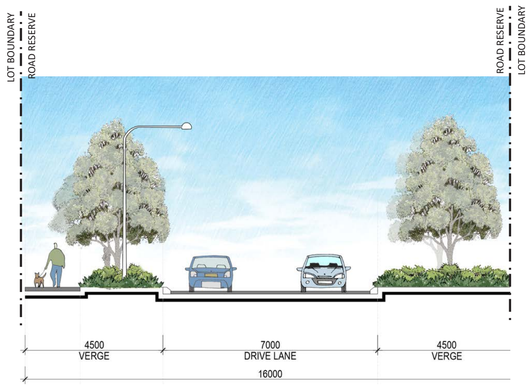
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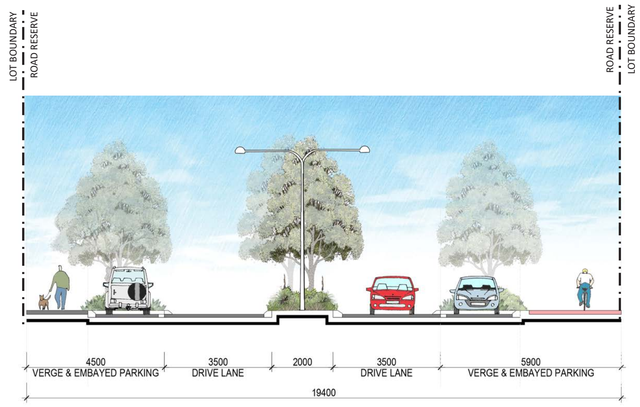
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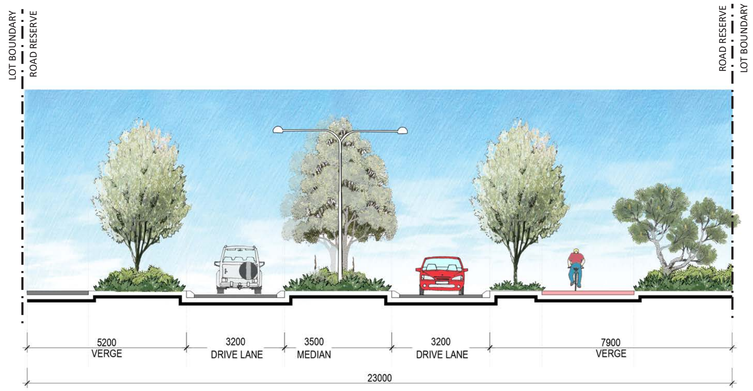
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SECTION 4
SCALE 1:100



SECTION 5
SCALE 1:100



SECTION 6
SCALE 1:100



LOCATION PLAN



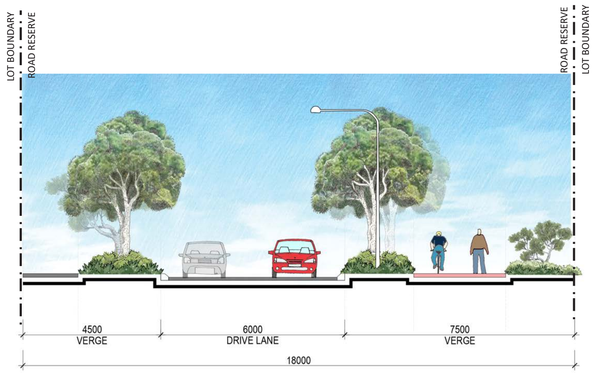
SPECIFIC LANDSCAPE TREATMENT IMAGERY

EGLINTON DISTRICT CENTRE EAST, WANNEROO
ROAD RESERVE SECTION

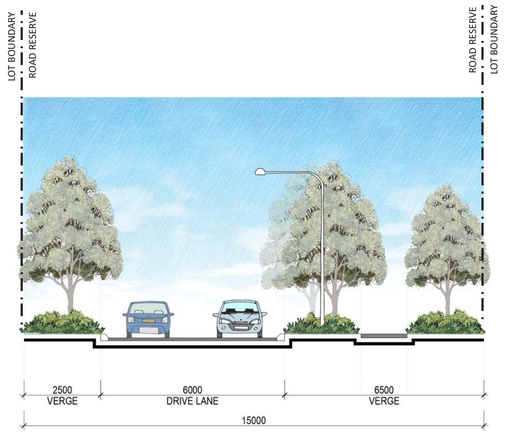
DWG **EGL-01- 04**
REV **G**
DATE **09.09.2026**

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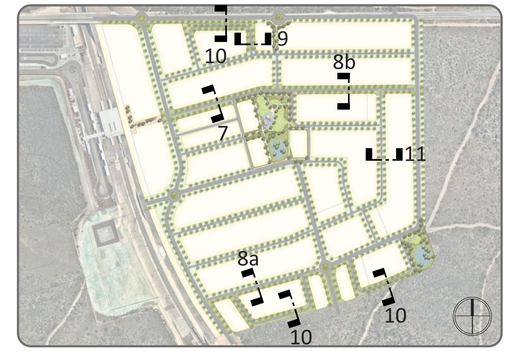
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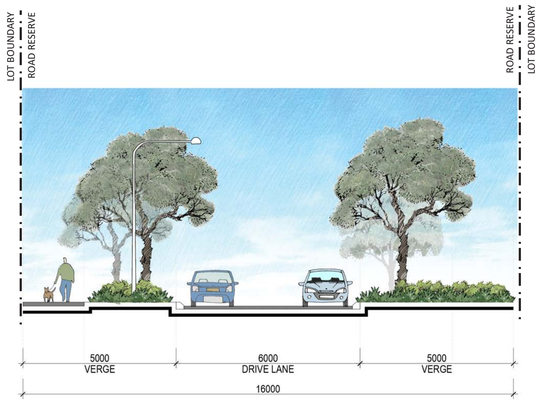
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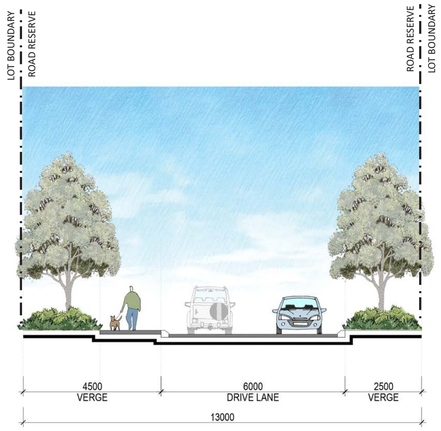
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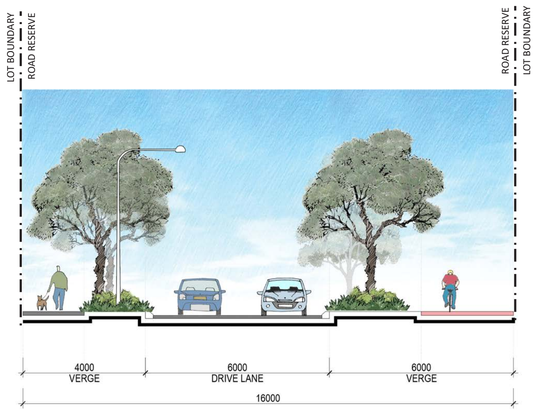
LOCATION PLAN



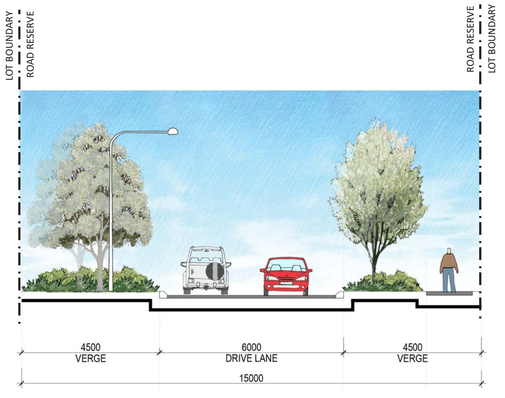
SECTION 8a
SCALE 1:100



SECTION 10
SCALE 1:100



SECTION 8b
SCALE 1:100



SECTION 11
SCALE 1:100

EGLINTON DISTRICT CENTRE EAST, WANNEROO
ROAD RESERVE SECTION

DWG **EGL-01- 05**
REV **G**
DATE **09.09.2026**

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LEGEND

- EXTENT OF PRECINCT D NORTH-WEST
- BOULEVARD
- NATIVE
- FEATURE STREET

NOTE

- STREET TREE DENSITIES TO BE APPROX. 1 PER LOT AND 3 PER CORNER LOTS

BOULEVARD TREES

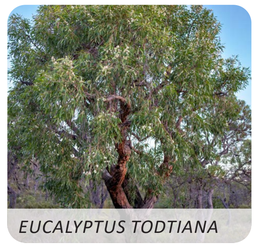


BANKSIA ATTENUATA



EUCALYPTUS MARGINATA

NATIVE NEIGHBOURHOOD TREES



EUCALYPTUS TODTIANA



BANKSIA PRIONOTES



HAKEA LAURINA



ALLOCASUARINA FRASERIANA

FEATURE STREET



BANKSIA GRANDIS



CORYMBIA CALOPHYLLA

EGLINTON DISTRICT CENTRE EAST, WANNEROO

STREET TREES LANDSCAPE MASTERPLAN

DWG **EGL-01- 06**
REV **G**
DATE **09.09.2026**

0 15 30 45 60 75 m

SCALE **1 : 1500 @ A1**

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