

PLANNING PROPOSAL - ROWAN VILLAGE

7066 HOLBROOK ROAD, ROWAN

LANDSCAPE MASTER PLAN REPORT

PREPARED FOR

DEVCORE PROPERTY GROUP PTY LTD

APRIL 2022

EXECUTIVE SUMMARY

PROJECT BACKGROUND

Rowan Village (the site) is located in Springvale and Rowan, small outer suburbs of Wagga Wagga, 11km from the Wagga Wagga City Centre.

The site is located 14km south of the Special Activation Precinct, directly accessible off Holbrook Road. It is well connected to the major industry clusters and activity centres within Waga Wagga LGA through sub-arterial roads and major transport networks.

From a strategic perspective, being located within close proximity to major job hubs and social infrastructure within 15 minute city catchment, the site could potentially become a future growth area, continuing the expansion of low density greenfield developments to the south and contribute to Council's vision for Wagga Wagga's population growth by 2038 (Source Wagga Wagga LSPS)

The site is unfragmented, relatively free of major hazards and presents as an ideal land supply opportunity to provide the necessary housing to alleviate the pressures faced by migration to the regions. The proposed redevelopment of the site will provide for a vibrant new residential and

A COLLABORATIVE APPROACH TO PRECINCT PLANNING

DevCore Property Group Pty Ltd engaged Urbis and a group of technical consultants in November 2021 to prepare a planning proposal in support of a proposed amendment to the Wagga Wagga Local Environmental Plan 2010 as it relates to land at 7066 Holbrook Road, Rowan, NSW 2650.

DevCore and the project development team has worked closely with Wagga Wagga Council to prepare a Master Plan¹ for Rowan Village (the subject site), informed by a collective vision and design strategies, ensuring a healthy environment is created within the subject landholding and that the future community is not exposed to natural hazards.

Below is the list of technical consultants were involved in this process:

- Urban Design Report and Master Plan by Urbis
- Survey Plan by Wagga Surveyors
- Aboriginal Cultural Heritage Assessment and Cultural Value Assessment by Urbis and Kate Waters

- Heritage Impact Statement by Urbis
- Ecological Assessment by Ecological Australia
- Strategic Bushfire Assessment by Ecological Australia
- Site stormwater Management Strategy by WMA
- Preliminary Site Investigation (contamination) and Desktop Geotechnical Assessment by Douglas Partners
- Services Infrastructure Assessment by GHD
- Residential and Rural Market Demand Assessment by Urbis
- Social Infrastructure Assessment by Urbis
- Transport Impact Assessment by Urbis
- Draft DCP by Urbis

The proposal is accompanied by a draft DCP including objectives and provisions to ensure resilient and sustainably designed developments are delivered on site in the future.

1. For the purpose of this report the term Master Plan equates with ILP.

AN OVERVIEW OF THE VISION AND OVERARCHING LANDSCAPE DESIGN PRINCIPLES

ROWAN VILLAGE WILL OFFER A DIVERSITY OF HIGH QUALITY OPEN SPACE EXPERIENCES, FOR ALL, THAT WILL PROMOTE A HEALTHY LIVEABLE COMMUNITY THROUGH AN EXTENSIVE NETWORK OF CONNECTED SPACE THAT CONSERVES AND REFLECTS THE LOCAL LANDSCAPE CHARACTER

- The Landscape Master Plan is guided by the following four design principles:
- Protect Environmental Quality
Create a resilience environment that responds to the natural Landscape setting
 - Space for Everyone
Form clusters of community around the open spaces to strengthen the sense of belonging for future communities.
 - A Green Heart
Provide a diverse mix of open spaces to enable flexibility in meeting varied needs and the changing demand of a future community
 - Active Lifestyles
Enhancing distinctiveness of the place through the blue and green grids, whilst promoting a healthier, liveable, and sustainable environments for future communities.

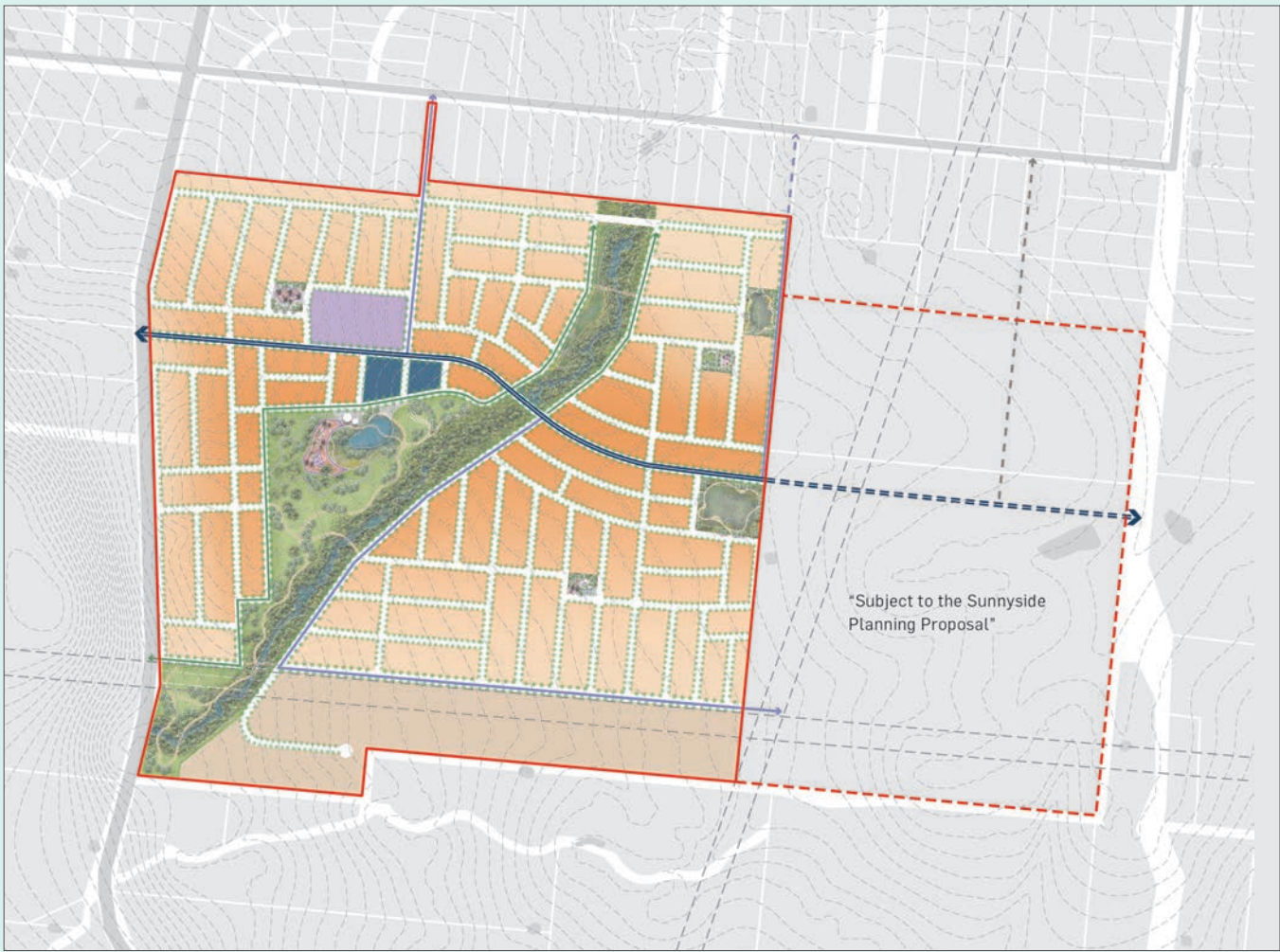


Figure 1 Rowan Village Indicative Master Plan

ACKNOWLEDGEMENT TO COUNTRY

Urbis acknowledges the traditional country of the Wiradjuri people. We recognise and respect their cultural heritage, beliefs and continuing relationship with the land, and that they are the proud survivors of more than two hundred years of dispossession.

We reiterate our commitment to addressing disadvantages and attaining justice for Aboriginal and Torres Strait Islander peoples of this community.

ISSUE AUTHORISATION

Document Title: Wagga Wagga South Planning Proposal
Document No.: Urbis LA_001
Project No.: P0037645
Prepared for: DevCore
Date: 22nd March 2022
Prepared: Georgia Ashdown
Reviewed: Phil James

Rev	Date	Purpose	Prepared	Reviewed
01	22.03.2022	Planning Proposal	GA	PJ
02	01.04.2022	Planning Proposal	GA	PJ

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Title: Connecting Land
Artists: Tarris King and Sarita King
Clan: Gurindji

Connecting Land is an expression of the beauty of the Australia Landscape. People's connection to the country and the lessons that caring for the land can teach us. Respect for the lands of Australia and creating a positive impact for people is at the centre of shaping great Australian cities and communities

INTRODUCTION

DevCore Property Group Pty Ltd engaged Urbis and a group of technical consultants in November 2021 to prepare a planning proposal in support of a proposed amendment to the Wagga Wagga Local Environmental Plan 2010 as it relates to land at 7066 Holbrook Road, Rowan, NSW 2650 (Rowan Village).

DevCore and the project development team has worked closely with Wagga Wagga Council to prepare a Master Plan for Rowan Village (the subject site), informed by a collective vision and design strategies.

The Master Plan informs the amendments to the Wagga Wagga Local Environmental Plan, and the preparation of a precinct-specific Development Control Plan.

PURPOSE OF THIS REPORT

The purpose of this report is to provide a Landscape Master plan for Wagga Wagga South Precinct.

The Landscape Master plan proposes will articulate the design direction, principles and objectives to inform and deliver a connected network of quality open space across the Wagga Wagga South project.

This document will be used to support the detailed design development of open space areas. This document should be use as a guide and does not replace the requirements of the relevant planning process.

The proposed outcome is response to the strategic planning context, technical studies, and inputs from stakeholders including the different land owners.

The report responds to the ILP and the associated technical investigations that include the following:

- Roads and public transport;
- Landform and topography;

- Biodiversity and riparian corridors;
- Flooding and water cycle management;
- Indigenous and European heritage;
- Social infrastructure and open spaces;

For ease of understanding, the report is divided into three parts:

Part A: Landscape and Visual Character (Site Opportunities and Constraints)

Collates the key findings from the visual character study and into a series of site opportunities and constraints' maps, with the aim to identify key open space areas that maximise existing landscape features.

Part B: Open Space Strategy

Provides an overview of the vision and key principles of the Landscape master plan and a series of strategy plans, including Street Tree Strategy and Open Space Strategy

Part C: Landscape Master plan

Provides an overview of the proposed Master plan and detailed areas with look and feel imagery to support the spaces.

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PART A: LANDSCAPE CONTEXT

KEY LANDSCAPE MAPPING

1.1 PRECINCT DESCRIPTION

SITE DESCRIPTION

Rowan Village (the subject site) is located at 7066 Holbrook Road, Rowan, within south Wagga Wagga of the Wagga Wagga City Local Government Area (LGA) and is approximately 11km from the Wagga Wagga City Centre.

The site comprises of the following nine (9) amalgamated allotments:

- Lot 18 DP 1054800
- Lot 24, 26, 43, 65 and 66 DP 757246
- Lot 23 DP 1063399
- Lot 1 and 2 DP 1171894.

The site has an irregular configuration and an area of 225.02 hectares (as measured on the site survey).

The key features of the site are summarised below:

Easements and Restrictions:

- Easement for electricity purposes within Lot 43 in DP 757246 and Lot 24 in DP 757246
- Easement for drainage of sewage 2 wide in Lot 1 DP 1171894

Site topography:

- The site grades downward in a south-western to a north-eastern direction.

Vegetation:

- The native vegetation has been mostly cleared for agricultural purposes with the exception of trees along roads and drainage lines, and minor remnant stands of vegetation within the landholding.
- One modified ring tree is located along the south-western boundary of the site.

LAND FORM CHARACTERISTICS

The site has historically been used for agricultural activities and contains vast grazing lands and livestock. Current improvements on the site consists of a single storey storage shed along the western side of the site.

The site is clear of native vegetation, in a location, characterised by significant environmental assets, mainly the White-Box Yellow Box - Blakely's Red Gum Grassy Woodland (listed as critically endangered community under the Biodiversity Conservation Act 2016 and Environment Protection and Biodiversity Conservation Act 1999). Large areas of exotic pasture and wheat crops are also present on site.

The site occupies a prominent location on the corner of Holbrook Road and Rowan Road. The site has the following frontages:

Southern frontage: to Rowan Road, an unsealed rural road unsuitable for urban traffic in its present condition, and connected to Plumpton Road to the east and Holbrook Road to the west.

Western frontage: to Holbrook Road, a two-way road containing moderate speed traffic, and providing access to the Wagga Wagga CBD towards the north and O'Brien Creek Road towards the south.

ZONING

The majority of site is zoned RU1 Primary Production. The small portion of the site on the northern boundary (the access handle form Llyod Road) is zoned R5 Large Lot Residential in accordance with the LEP.



Figure 2 Land Use Zoning (WLEP 2010)

LEGEND:

- SITE BOUNDARY
- 2M CONTOURS
- EASEMENT
- ADJACENT SITE BOUNDARY (SUNNYSIDE)

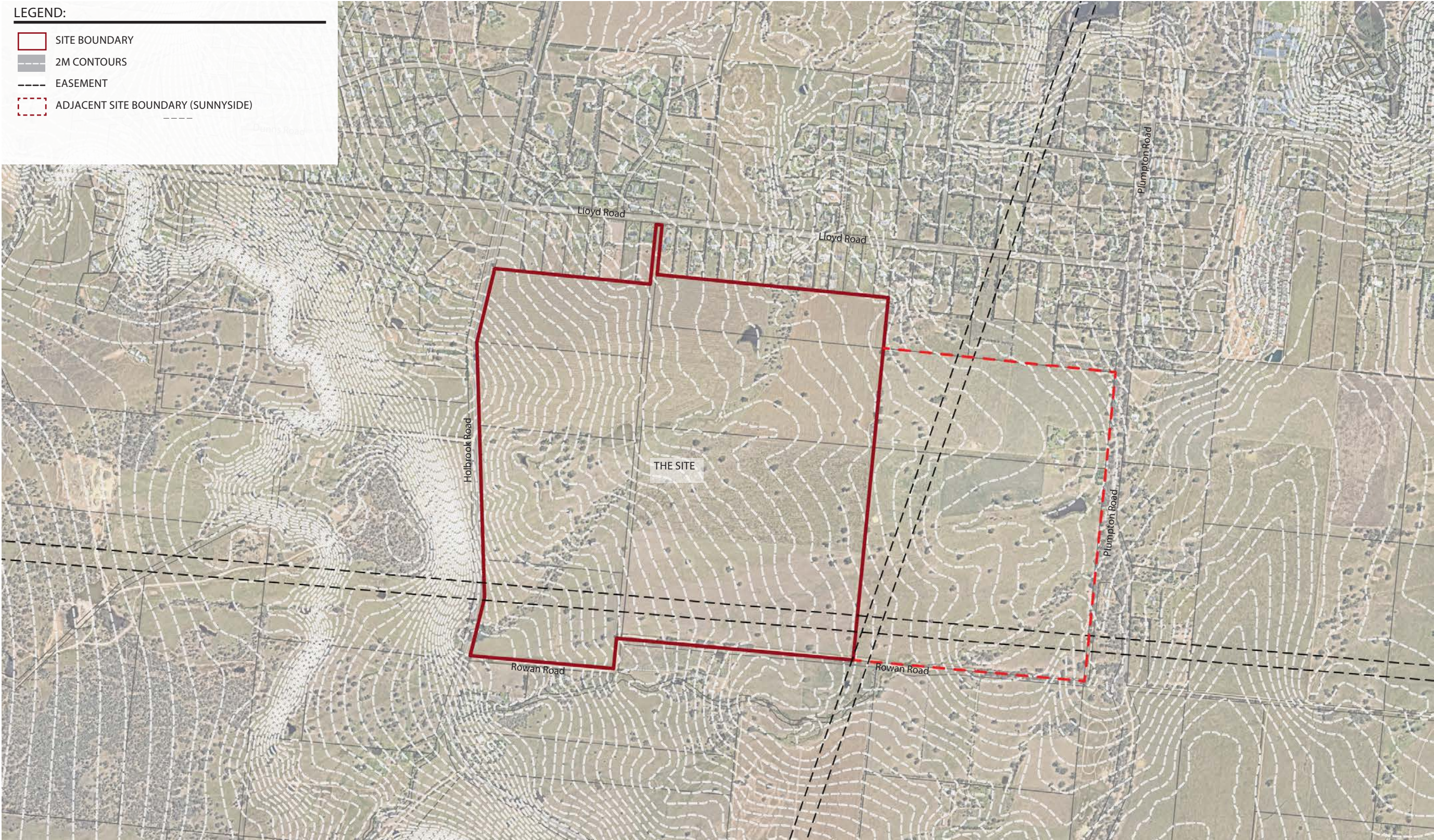


Figure 3 Existing site conditions

1.2 LANDSCAPE CONTEXT MAPPING - SOIL TYPES

This precinct is made up of a 4 different soil profiles, Solodic soils, Soloths soils, lithosols soils and non calcic brown soils with the other half of the site soil profiles not assessed or mapped. These soils types are generally found in regional NSW and are common to these farming and pastoral sites.



1.3 LANDSCAPE CONTEXT MAPPING - HYDROLOGY & WATER

Wagga Wagga South Precinct existing flood conditions review allows an understanding of the availability of developable land and identification of regional storm water constraints associated with the development of the site. The Flood and Storm water Assessment Report provided by WMA Water shows that two (2) storm water flow paths, entering the site from the west boundary, that convey storm water generated in the upper catchment. The existing waterway channel is the primary flow path for storm water runoff generated within the upper catchment. This waterway will be largely reserved to catering the external flow through the site. The secondary flow path enters the site about midway along the west boundary. This inflow will need to be catered for within the developed drainage system to facilitate conveyance back to the main channel alignment. The new development on the site needs to consider locating detention basins to appropriately control and manage the any potential flood and storm water conditions of the site.

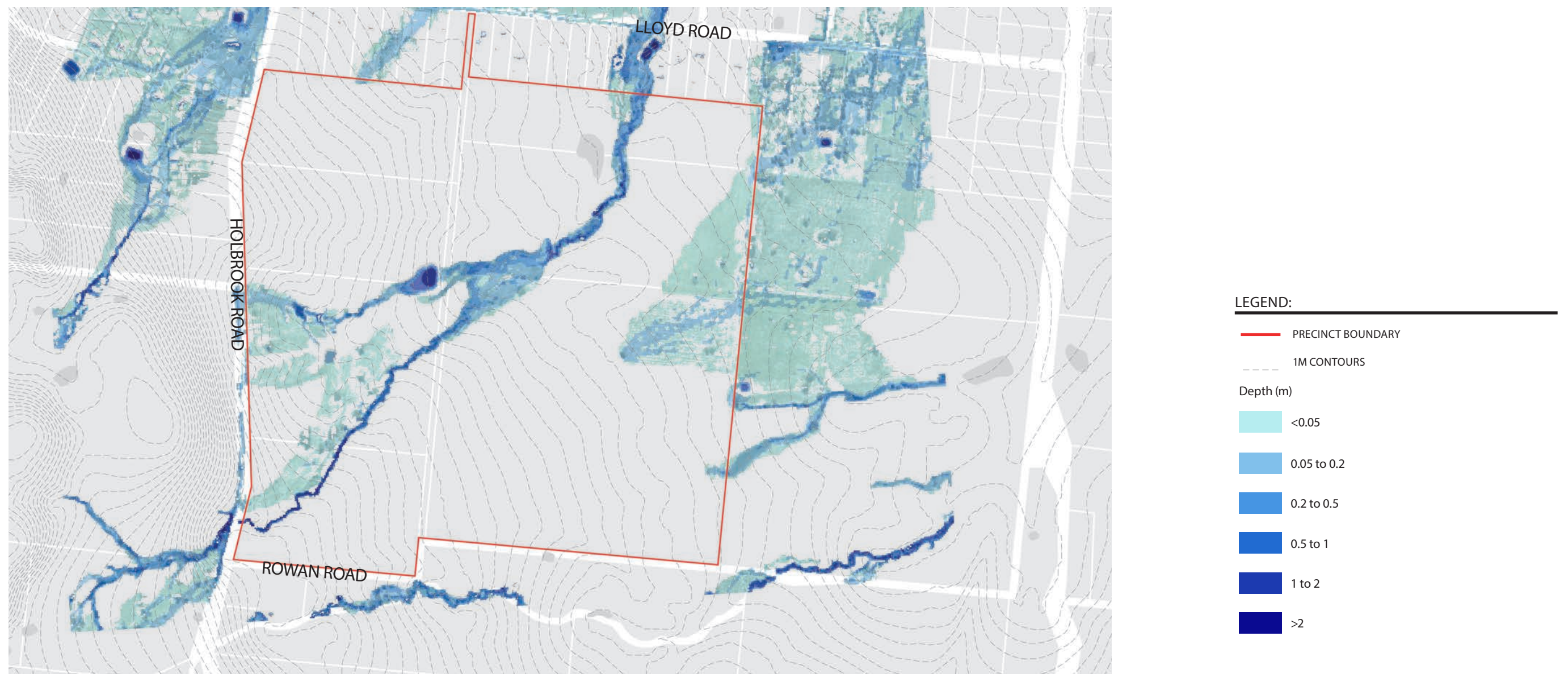


Figure 5 Wagga Wagga South
Hydrology & Water

1.4 LANDSCAPE CONTEXT MAPPING - VEGETATION COMMUNITIES

The Ecological Assessment Report by ELA describes that one Plant Community Type (PCT) was identified in the study area: PCT 277 Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes bioregion which corresponds to the threatened ecological community White-Box Yellow –Box - Blakely's Red Gum Grassy Woodland. This community is listed as critically endangered under the BC Act and EPBC Act. This community occurred in numerous patches across the study area and occurred in three condition states: poor, moderate and derived native grassland condition.

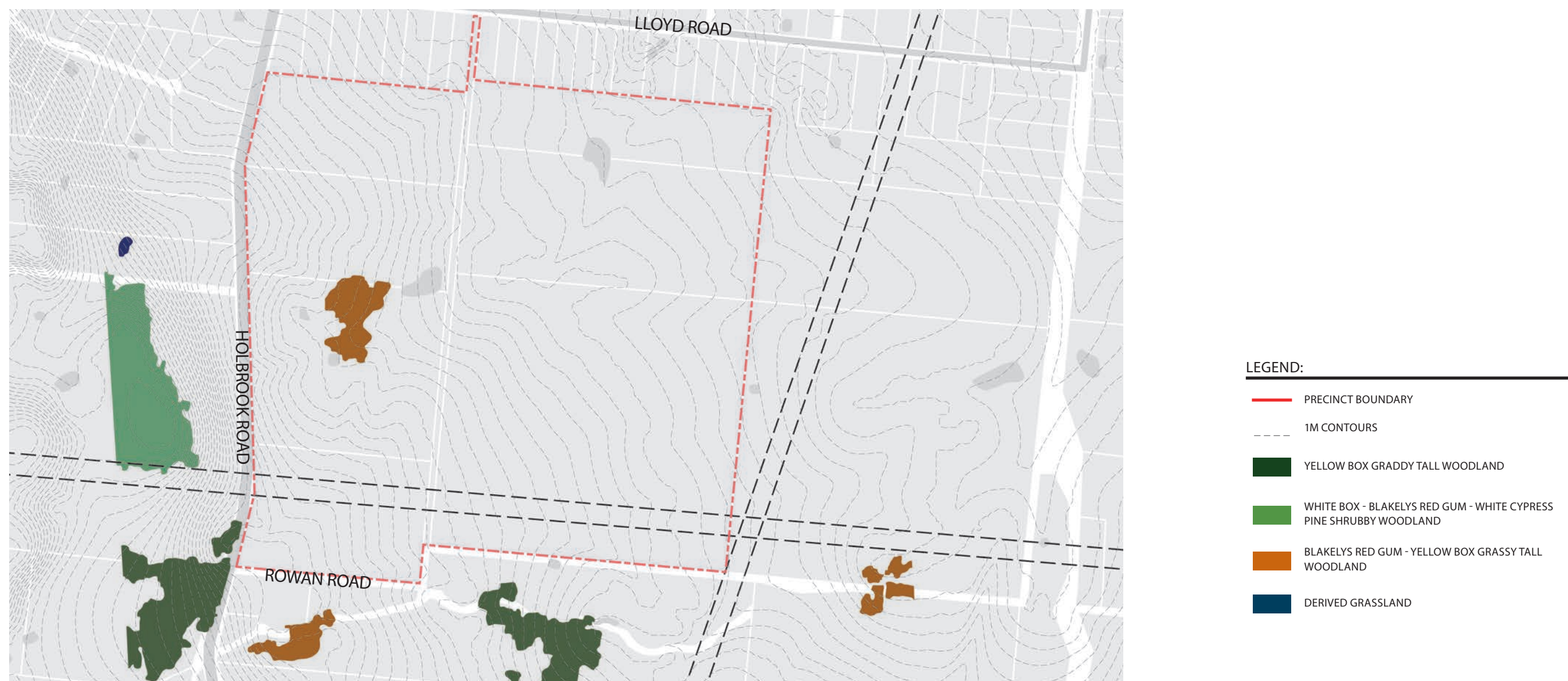


Figure 6 Wagga Wagga South
Vegetation Communities

1.5 LANDSCAPE CONTEXT MAPPING - EXISTING VEGETATION, BIO DIVERSITY AND RIPARIAN

The Ecological Assessment Report by ELA describes the ecological values present within the study area, provides an assessment of threatened flora and fauna species likely to occur and outlines the requirements for additional survey and reporting at the development application stage. The assessment concluded that the majority of the area proposed for rezoning was highly modified and predominantly cleared of native vegetation. One Plant Community Type (PCT) was identified in the study area: PCT 277 Blakely's Red Gum – Yellow Box grassy tall woodland of the NSW South Western Slopes bioregion which corresponds to the threatened ecological community White-Box Yellow –Box - Blakely's Red Gum Grassy Woodland. This community is listed as critically endangered under the BC Act and EPBC Act. This community occurred in numerous patches across the study area and occurred in three condition states: poor, moderate and derived native grassland condition. Large areas of exotic pasture and recently harvested wheat crops were also present in the study area.

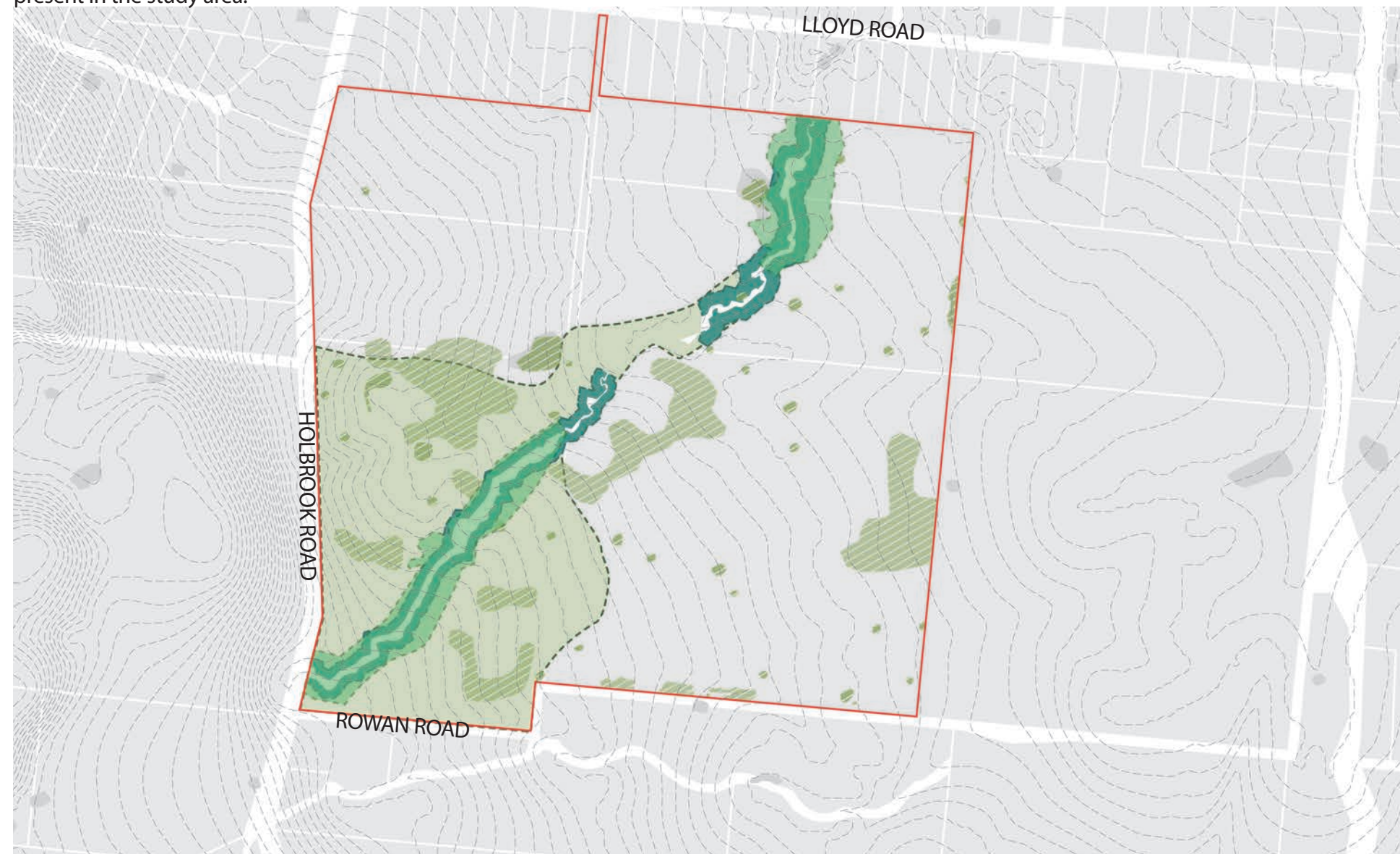


Figure 7 Wagga Wagga South
Existing Vegetation

The report summarises that:

- No threatened flora or fauna species were identified during survey.
- No threatened flora species are considered likely to occur due to the high level of ongoing disturbance throughout the study area.
- There is a requirement for maintaining and enhancing the riparian vegetation within certain distances of top of the bank based on its hierarchy. A 30m setback on both sides of the creek Stream Order 3 and 20m setbacks on both sides of the creek Stream Order 2 is recommended by this report.
- Any future development would need to consider the requirements of section 7.9 of the BC Act. Should the Biodiversity Offsets Scheme (BOS) be triggered, a Biodiversity Development Assessment Report (BDAR) would need to be prepared, consistent with the NSW Biodiversity Assessment Method 2020.

LEGEND:

- PRECINCT BOUNDARY
- 1M CONTOURS
- CREEK LINE
- RIPARIAN CORRIDOR VEGETATION TO BE RETAINED/REPRODUCED
- PCT 277 - LOW
- PCT 277 - MODERATE
- DNG POTENTIAL - PCT 277 - MODERATE

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1.6 LANDSCAPE CONTEXT MAPPING - LANDSCAPE CHARACTER

Wagga Wagga South Precinct current landscape character is mostly a regional pastoral landscape. The Ecological Assessment Report by ELA describes the North - Western part of the site currently exotic pasture land and the North - East and South - East part of the site is currently harvested wheat crop land. Between these two areas of the site there is an existing creek line running from North to South - West of the site. Along this creek link there is scattered existing vegetation and on the West side of the creek there are 4 existing water bodies on the site. As described in The Ecological Assessment Report by ELA describes there was no flowing water observed on the site but the water bodies to the West of the creek were observed as being over three quaters full.

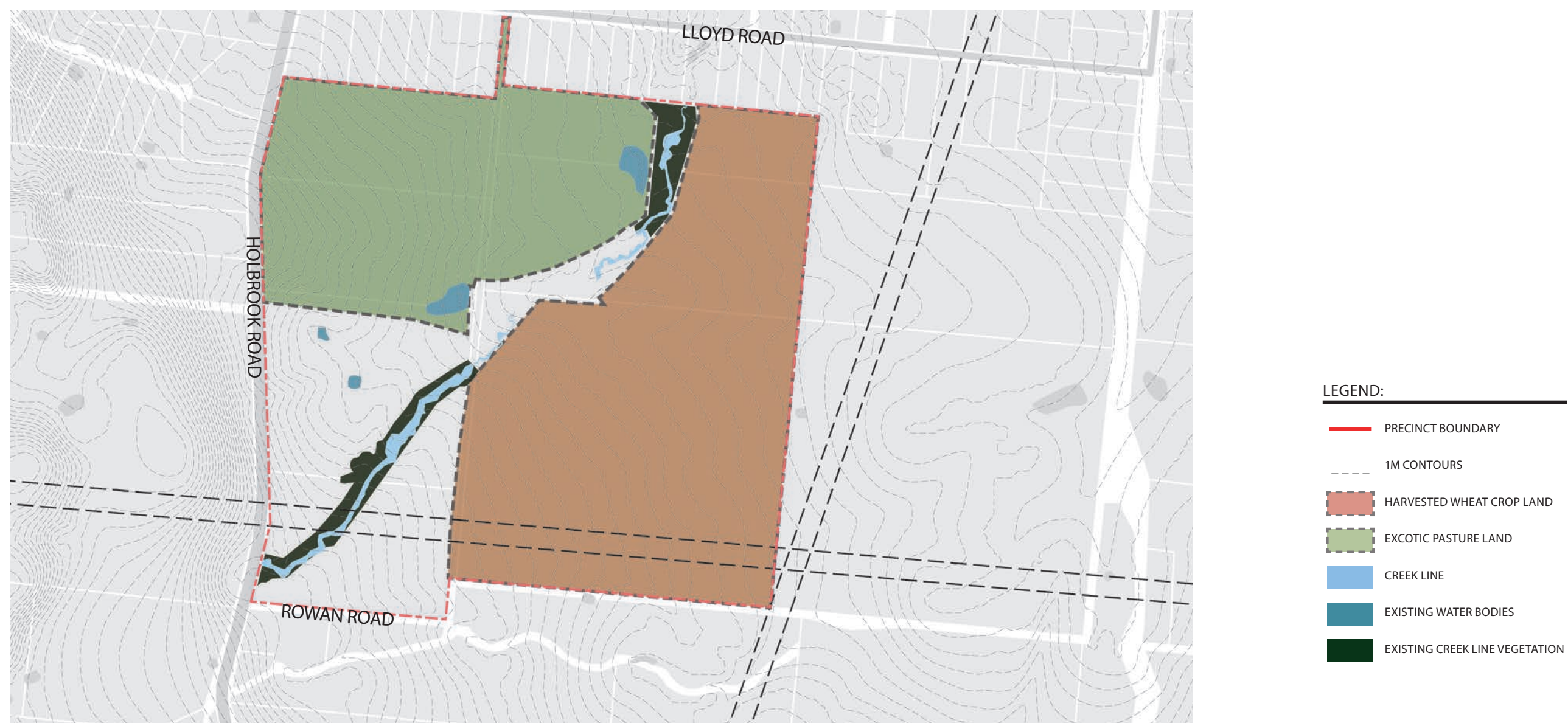


Figure 8 Wagga Wagga South
Landscape Character

1.7 LANDSCAPE CONTEXT MAPPING - LANDSCAPE FEATURES

Key features of the Wagga Wagga South Precinct 2 include: Topography: The site is a gradual downward slope towards the north-east and east boundaries, there are two key high points one within the site and just outside the site on the Western boundary. These are not key locations for look out over the wagga region but more localised view points that are the highest in the area and allow you to view across the site. Watercourses and Farm dams: As described in The Ecological Assessment Report by ELA describes there was no flowing water observed on the site but the water bodies to the West of the creek were observed as being over three quaters full. Riparian and Vegetation: There is a requirement for maintaining and enhancing the riparian vegetation within certain distances of top of the bank based on its hierarchy. While different ecological vegetation communities have been identified across the site there are opportunities to retain and protect these communities.



Figure 9 Wagga Wagga South
Landscape features

1.8 LANDSCAPE CONTEXT MAPPING - TOPOGRAPHY AND VIEWS

Wagga Wagga South Precinct features a gentle topography with a gradual downward slope towards the north-east and east boundaries. The site contains riparian corridors (as tributary to Stringybark Creek) running along the north-east to southern-west through the centre of the site. The sloping topography of the site varies by 25m across the site, from the lowest point at the north-east (RL 225) to the highest point at the south-west corner (RL 250). Due to the gentle topography of the site and the surrounding context characteristics, there is an open extended view from the site to the surrounding hills, particularly to the north and south.

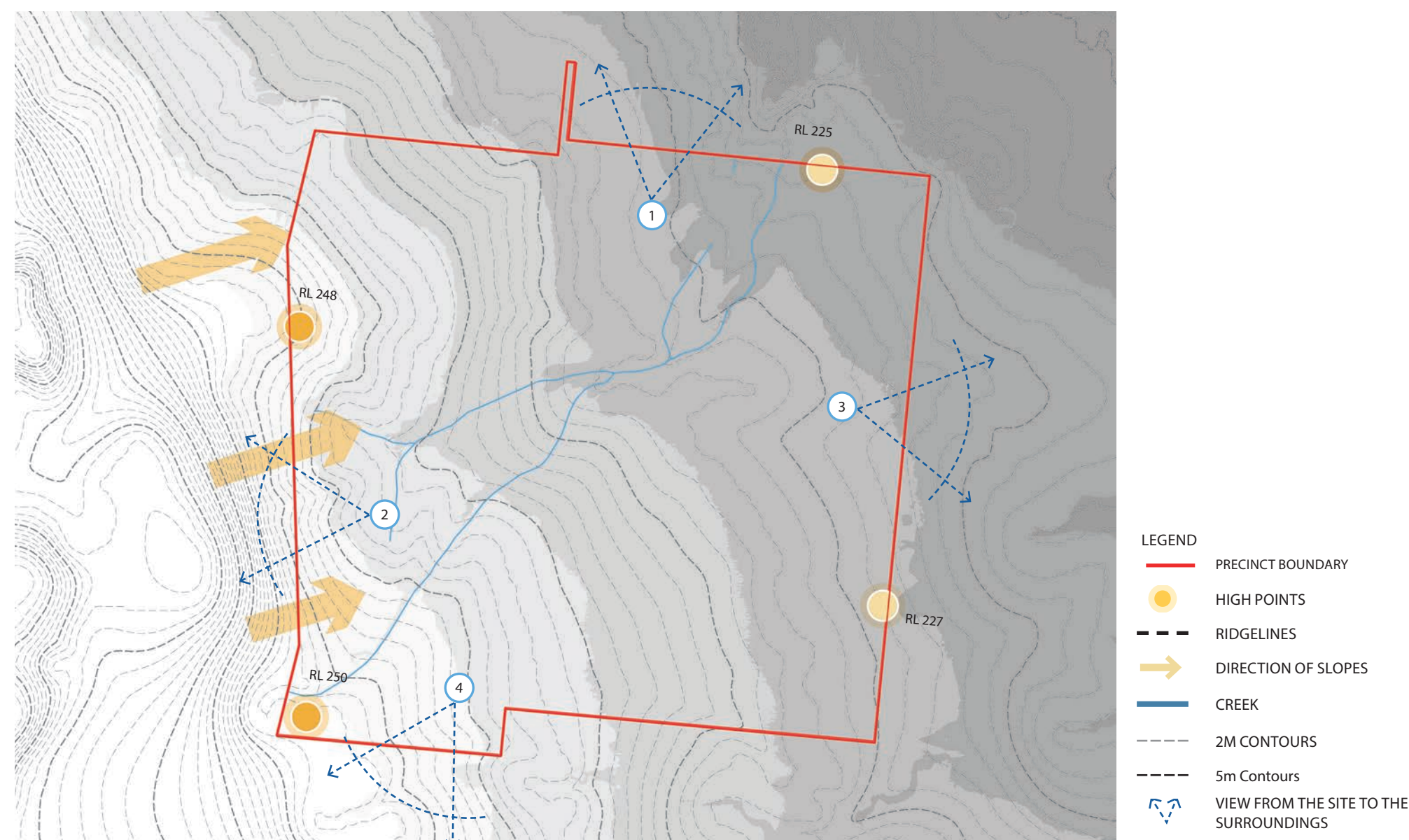


Figure 10 Wagga Wagga South
Landscape features



1.9 LANDSCAPE AND OPEN SPACE OPPORTUNITIES

The identified opportunities build upon the unique character of the area by responding to the natural features of the landscape including the topography, watercourses, riparian areas, native vegetation, natural constraints. Landscape character of the Precinct provides multiple opportunities for interpretation, adaptive reuse, and integration of land uses. Landscape features including high quality existing vegetation communities and the Creeks existing riparian corridors would contribute positively to the aesthetic landscape and visual character of the site, while also building upon the riparian corridor and enhancing and improving the riparian corridor. It is a key design intention to co-locate water bodies across the site to ensure the drainage of the site was simplified once developed. The location of wetlands and local parks across the precinct are important to incorporate, as well as active pedestrian, cycle and vehicular links to these green spaces, through the site and beyond.

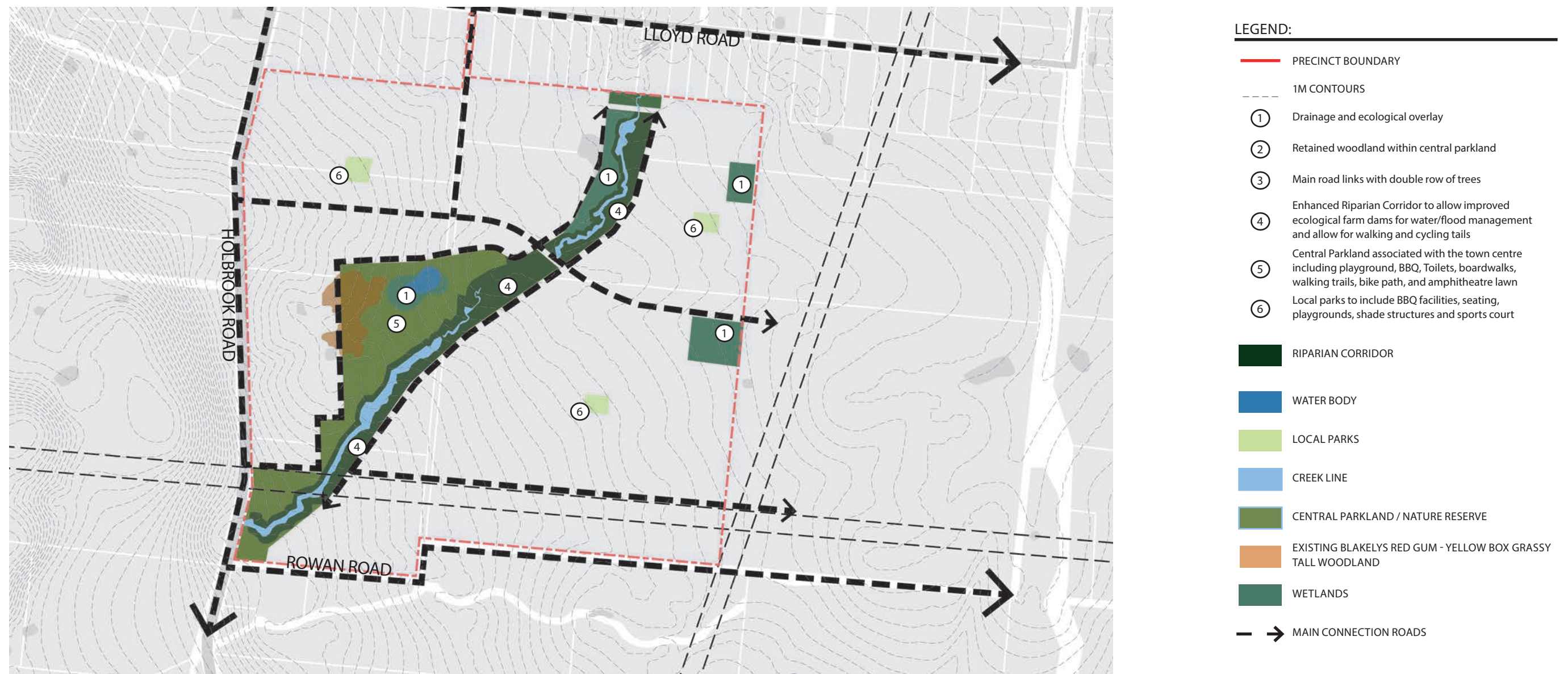


Figure 11 Wagga Wagga South
Landscape features

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PART B: OPEN SPACE STRATEGY

KEY PRINCIPLES AND STRATEGY

LANDSCAPE VISION STATEMENT

OPEN SPACE VISION - THE OPEN SPACE WILL BE PLANNED TO PROMOTE A HEALTHY LIVEABLE COMMUNITY. AN EXTENSIVE NETWORK OF CONNECTED OPEN SPACE THAT CONSERVES AND REFLECTS THE LANDSCAPE CHARACTER AND BIODIVERSITY OF WAGGA WAGGA SOUTH, OFFERS A DIVERSITY OF HIGH QUALITY OPEN SPACE OPPORTUNITIES AND EXPERIENCES FOR ALL, BUILDS ON THE RICH NATURAL AND CULTURAL HERITAGE AND IS CELEBRATED AS A HIGHLY VALUED COMMUNITY ASSET CONTRIBUTING TO THE DISTINCTIVE CHARACTER AND LIVEABILITY OF WAGGA WAGGA SOUTH.

1.10 VISION AND DESIGN PRINCIPLES



PROTECT ENVIRONMENTAL QUALITY

Create a resilience environment that responds to the natural setting of Wagga Wagga South

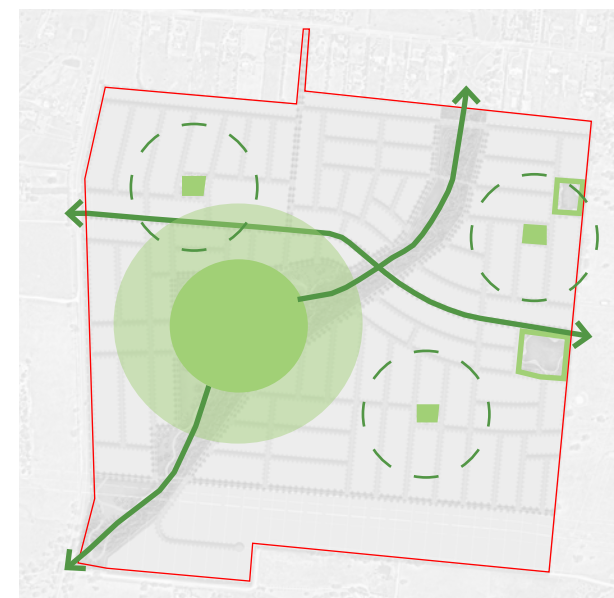
- Protect places with ecological value
- Regenerate and reconstruct natural environments
- Allow community access and interaction
- Manage use and limit dog access in vulnerable ecological areas
- Harness the effects of flooding for the benefit of the environment



SPACE FOR EVERYONE

Form clusters of community around the open spaces to strengthen the sense of belonging.

- Provide opportunities for diverse recreational participation
- Provide recreation for arrange of ages and abilities
- Create places of interest and delight
- Create places for relaxation, viewing, contemplation and socialising
- Create places for all year round use - hot and inclement weather



A GREEN HEART

Provide a diverse mix of open spaces to enable flexibility in meeting varied needs and the changing demand of a future community

- Create a public realm that is flexible, inclusive and accessible
- Green street and open space to promote WSUD and biodiversity
- Adopt Safety by Design (CPTED) principles to ensure that users are safe and also feel safe when in all open space
- Allow safe access to the Creek and drainage areas
- Mitigate the effects of flooding with dual use open spaces
- Encourage high levels of use to promote the sense of safety for users



ACTIVE LIFESTYLES

- A clearly defined green network provided for cyclist and pedestrians connecting open space

- Connect to the broader active transport network
- A hierarchy of access for cohesiveness and legibility
- An inclusive path system to provide opportunities for a range of users in terms of ages and abilities
- Dynamic passive recreational corridor linking facilities and features.
- Opportunity for heritage, environmental or art trail
- Reinforce open space connections by providing a sense of arrival and destination
- Promote health and fitness within the local area with various routes

1.11 OPEN SPACE STRATEGY

The proposed master plan proposes 39.6 hectares of open space, with approximately 17.5 hectares (7.8%) as passive open space.

Considering the fact that 50% of the riparian corridor and approximately 20-35% of the drainage basins are publicly accessible and usable for leisure and recreational purposes, the proposed usable open space area will be approximately 26ha which is consistent with Council's requirement.

The proposed master plan adopts a 400m-catchment rule in locating open spaces. This helps to create a series of interconnected local parks across the site, whilst enriching the leisure and recreational experience.

OPEN SPACE CATEGORIES	TOTAL AREA (HA)	%
Passive Open Space (Parks)	17.5	7.8
Local Parks	Counted as passive open space	
Riparian Corridors	15.17	6.7
Drainage Basins	6.93	3.1
Total	39.6	17.6

Wagga Wagga South Precinct Open Space Provision

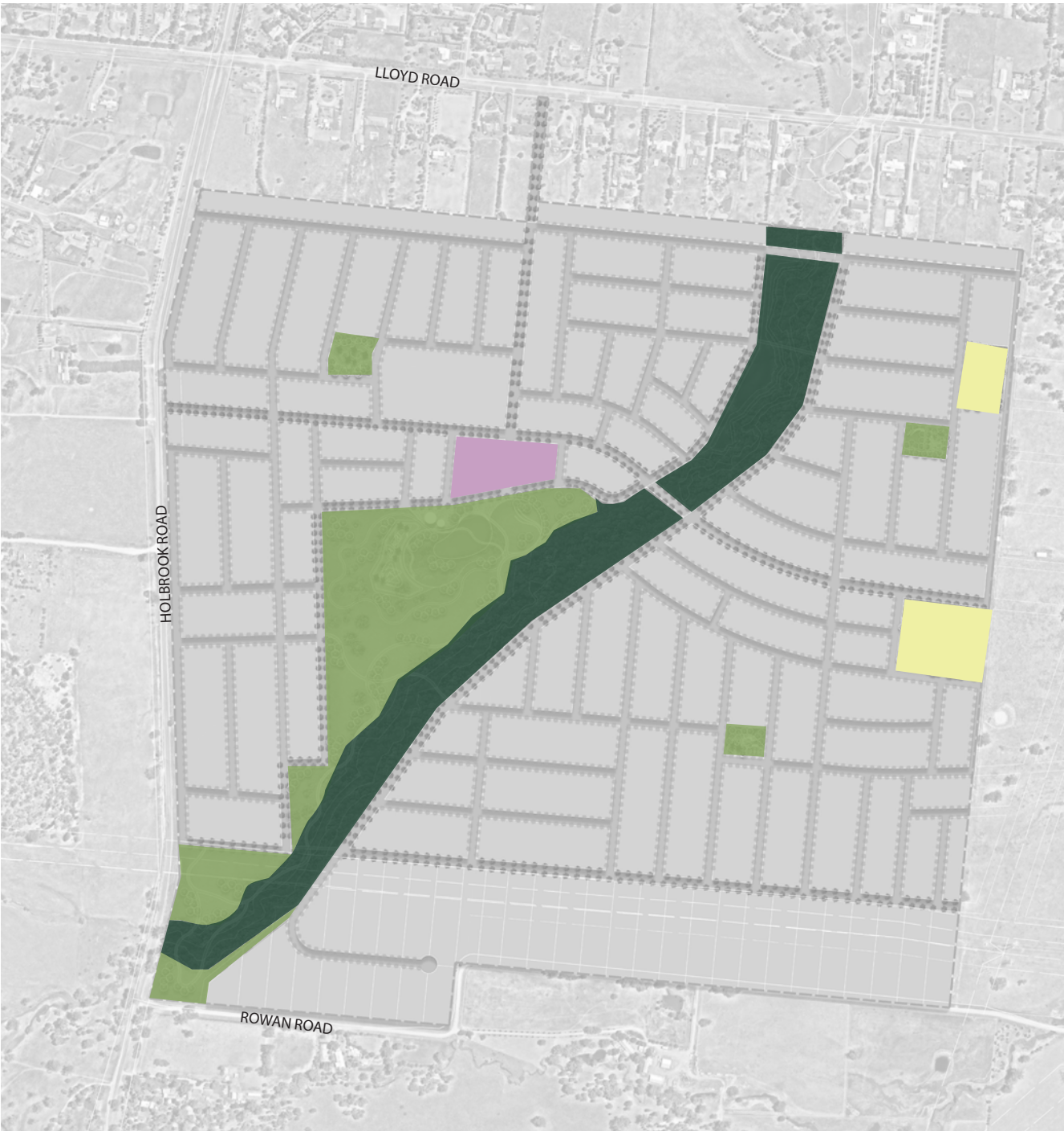
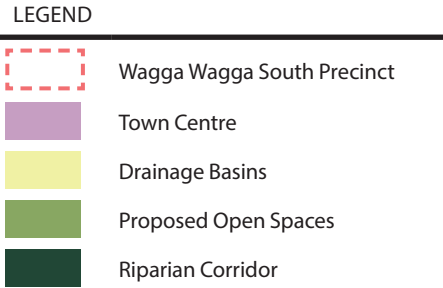


Figure 12 Wagga Wagga South Open Space Provision



1.12 OPEN SPACE PRECINCTS

A key component of the site is a specific open space network that implements a comprehensive and robust pedestrian and cycle network providing comprehensive access to all open spaces with increased numbers of street trees for shade, comfort and passive amenity across Wagga Wagga South Precinct 2.

Open Space precincts are identified as;

Ridgeline Nature Reserve - Retaining and enhancing an existing woodland copse that connects to a larger regional reserve opportunity to the west.

Neighbourhood Parks - A series of open spaces that offer a varied set of amenities across the Precinct. The proposed catchment and accessibility configuration for Local Parks has been designed to maximise accessibility from surrounding residential areas and provide safe and equitable access.

Wagga Wagga South Creek Parklands
ACTIVE - The Parklands will provide a continuous open space spine across the site with cycle paths, shared paths that join neighbourhood parks
PASSIVE - An extensive network of riparian corridor that's re-vegetated, generally consisting of hydrophilic planting, extended with an environmental buffer either side to support nature trails in rich habitat setting.
 Riparian Corridor
 Nature reserve

LEGEND

	Nature Reserve
	Central Parklands - Active
	Central Parklands - Passive
	Local Park (Active + Passive)
	Nature Amenities - Passive Use



Figure 13 Wagga Wagga South
Landscape features



1.13 STREET TREE MASTER PLAN

An indicative layout of street trees and landscaping which helps to provide shade, comfort, and amenity, particularly for pedestrians and to create visual order for the streetscapes. It will use appropriately scaled native species which can grow within the constraints imposed by an urban environment and respond to ESD Principles consistent with the level of maintenance.

Plant selection will take into account the following: – species that complement remnant native vegetation, – level of on-going maintenance, – potential impacts on road and footpath pavements, – focus on hardy, drought tolerant, easily maintained species, – scale in relation to the function of the area, and – contribution to the character of the local centre.

Street trees and open space planting is to provide generous shade for pedestrians in summer and allow for sunlight penetration to street level in winter.

Collector / Primary: species selection to respond to the east / west orientation of the street and its corresponding usage by: limiting shade and maximising sun penetration for trees on the northern side of the street; providing medium to large trees on the southern side, capable of delivering appropriate scale to Main Street and at the same time allowing a dappled shade effect throughout the year.

North / South Street as ATL, major pedestrian and cycle path, tree species should: reflect local

character in species selection; provide a scale appropriate to a wide avenue; provide a density of canopy which is capable of significantly modifying hot conditions.

Village: the plan indicates the following performance requirements for: a dense tree stand of medium to large deciduous trees whose purpose is to provide seasonal amenity for pedestrians in the vicinity of the Village centre; large scale trees on the northern and southern perimeters capable of providing primary enclosure.

North / South oriented streets: use wide close canopy evergreen species in order to modify the effects of the western sun.

East / West oriented streets: medium open canopied species which will allow partial sun penetration throughout the year.

LEGEND:

- Collector Road - LARGE OPEN CANOPY EVERGREEN
- Primary Road - MEDIUM OPEN CANOPY EVERGREEN
- Park Streets - LARGE CLOSED CANOPY EVERGREEN
- Local Streets - MEDIUM CLOSED CANOPY EVERGREEN
- BOUNDARY



Figure 14 Wagga Wagga South Landscape features



1.14 WATER SENSITIVE URBAN DESIGN (WSUD)

The results of the existing conditions flood modelling provide flood intelligence information to inform the design, including external inflows to be conveyed and the natural flood way to be reserved in the proposed development.

The site stormwater quantity objectives can be achieved through the proposed end-of-line management facilities.

The wetlands and detention basins were designed with the assumption that the entire contributing catchment can be drained to each end-of-line facility.

Five (5) wetlands with inlet ponds (200 m³, 100 m³, 550 m³, 255 m³, 650 m³) and macrophyte zones (3,700 m², 1,450 m², 10,000 m², 5,100 m², 12,200 m²), have been designed to mitigated contaminant loads within stormwater runoff.

The site stormwater quantity objectives can be achieved using five (5) detention basins on top of the wetlands with footprints of 4,212 m², 1,754 m², 11,387 m², 5,624 m² and 13,884 m², respectively, including freeboard.

As part of the site landscape design, basins 1 and 2 are integrated with the existing water body within the centre of the riparian corridor

Basins	Wetland Area (m ²)	1% AEP Water Top (m ²)	Freeboard Top (m ²)	Total with 4m Track (m ²)
Basin 1	4,212	5,075	5,587	6,794
Basin 2	1,754	2,508	2,871	3,749
Basin 3	11,387	14,577	15,578	17,869
Basin 4	5,624	7,701	8,321	9,770
Basin 5	13,884	18,110	19,359	22,211

LEGEND





-  Site Boundary
-  Sunnyside Boundary
-  Open Space
-  Drainage Basins (total area including 4m track)



Figure 15 Water Sensitive Urban design Principles

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1.15 WSUD MASTER PLAN OPPORTUNITES

For the pre-application phase of this project a centralised strategy has been developed. However, Rowan Village could adopt, a decentralised or distributed solution that allows the management of stormwater runoff closer to the source. This allows for smaller and more integrated facilities to be adopted which can be multi-dimensional in purpose.

Distributed systems allow the adoption of Integrated Water Cycle Management (IWCM) and Water Sensitive Urban Design (WSUD) approaches to achieve the stormwater objectives and promote more sustainable and resilient settlements.

The central premise of IWCM is the need for a whole-of-system approach to manage the natural, built and service aspects of the urban water cycle to achieve multiple community and environmental outcomes. A key component of IWCM is WSUD, which integrates water cycle management measures into urban planning and design.

IWCM and WSUD strategies look to integrate the following opportunities (or combinations thereof)

- Retention, rather than rapid conveyance, of stormwater
- Capture and use of rainwater and stormwater as an alternative or supplementary source of water to minimise reliance on centralised supplies drawn from remote

catchments

- Use of vegetation for filtering purposes
- Utilisation of water efficient landscaping
- Protection of water related environmental, recreation and cultural values
- Decentralised water harvesting for various applications
- Decentralised wastewater treatment and reuse.

These approaches offer the potential to reduce - the size and cost of infrastructure, loss of

developable land, impermeable surfaces, heat island effect, runoff volumes, potable water

demand, etc, whilst treating runoff closer to the source.

The adjacent diagram and following sections show an integrated solution to the typical road typologies which include WSUD elements –

- Sediment basins
- Bioretention swales
- Bioretention basins
- Sand filters
- Swale and buffer systems
- Infiltration systems/passive irrigation

Refer to the Stormwater Management Strategy by WMA Water that details the modelling and optimisation of a traditional end-of-line stormwater management strategy, and also suggests a more decentralised strategy with more WSUD considerations can be further assessed in the next stages as required.

LEGEND:

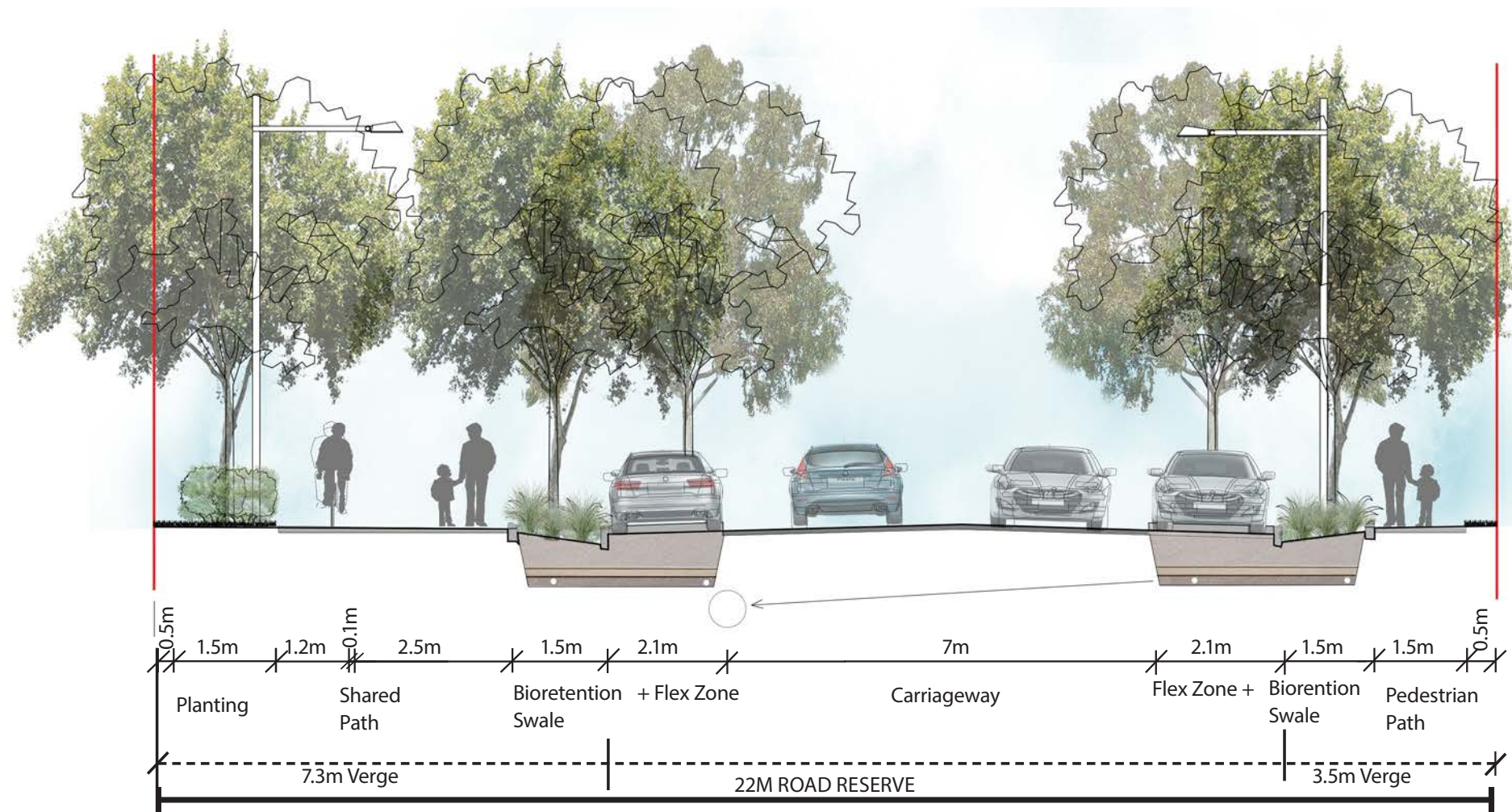
- WSUD COLLECTOR ROAD
- WSUD PRIMARY LOCAL ROAD
- WSUD LOCAL ROAD
- LOCAL STREET
- BOUNDARY



Figure 16 WSUD opportunities for intergration into streetscapes

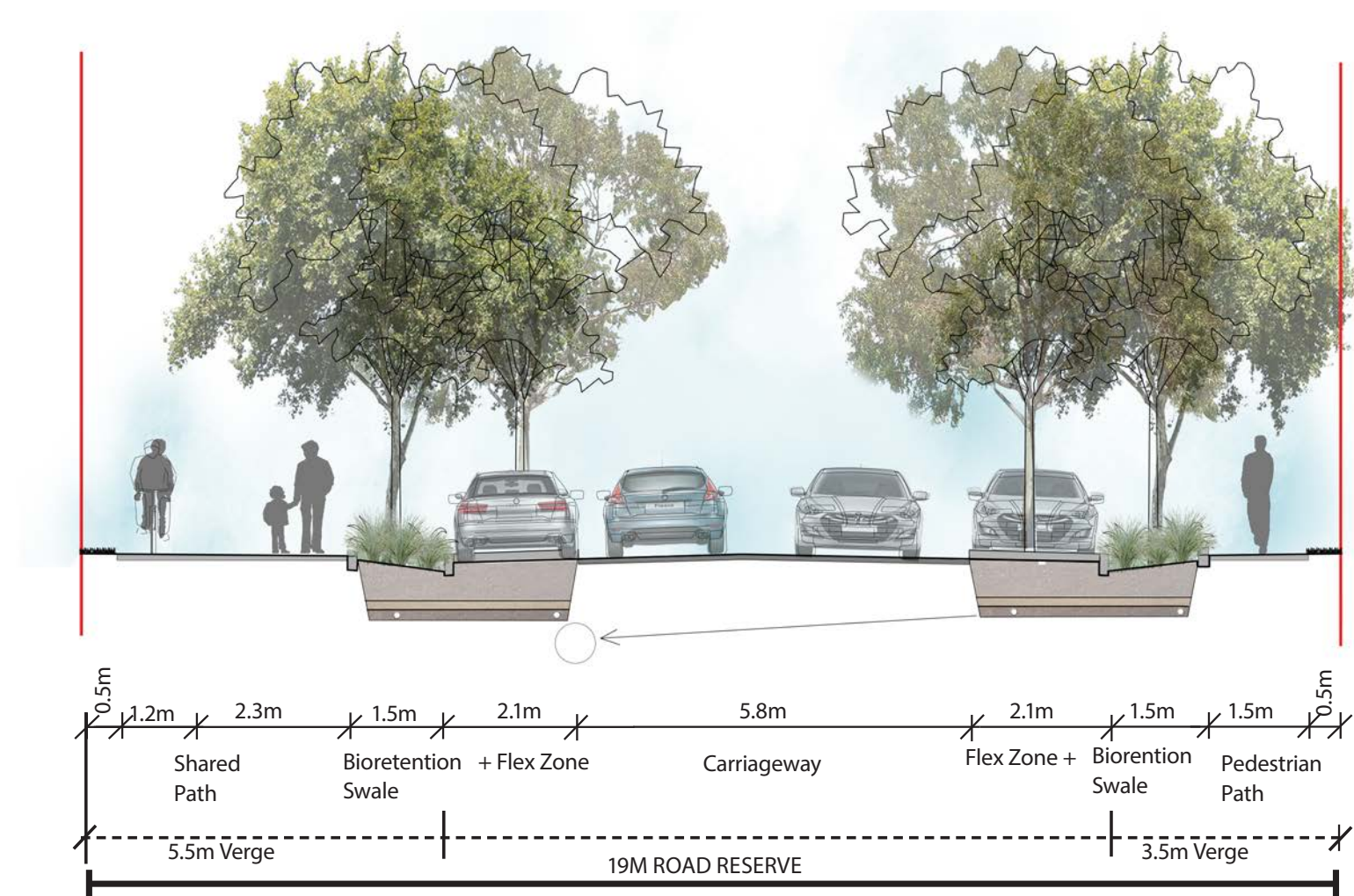


1.16 COLLECTOR ROAD

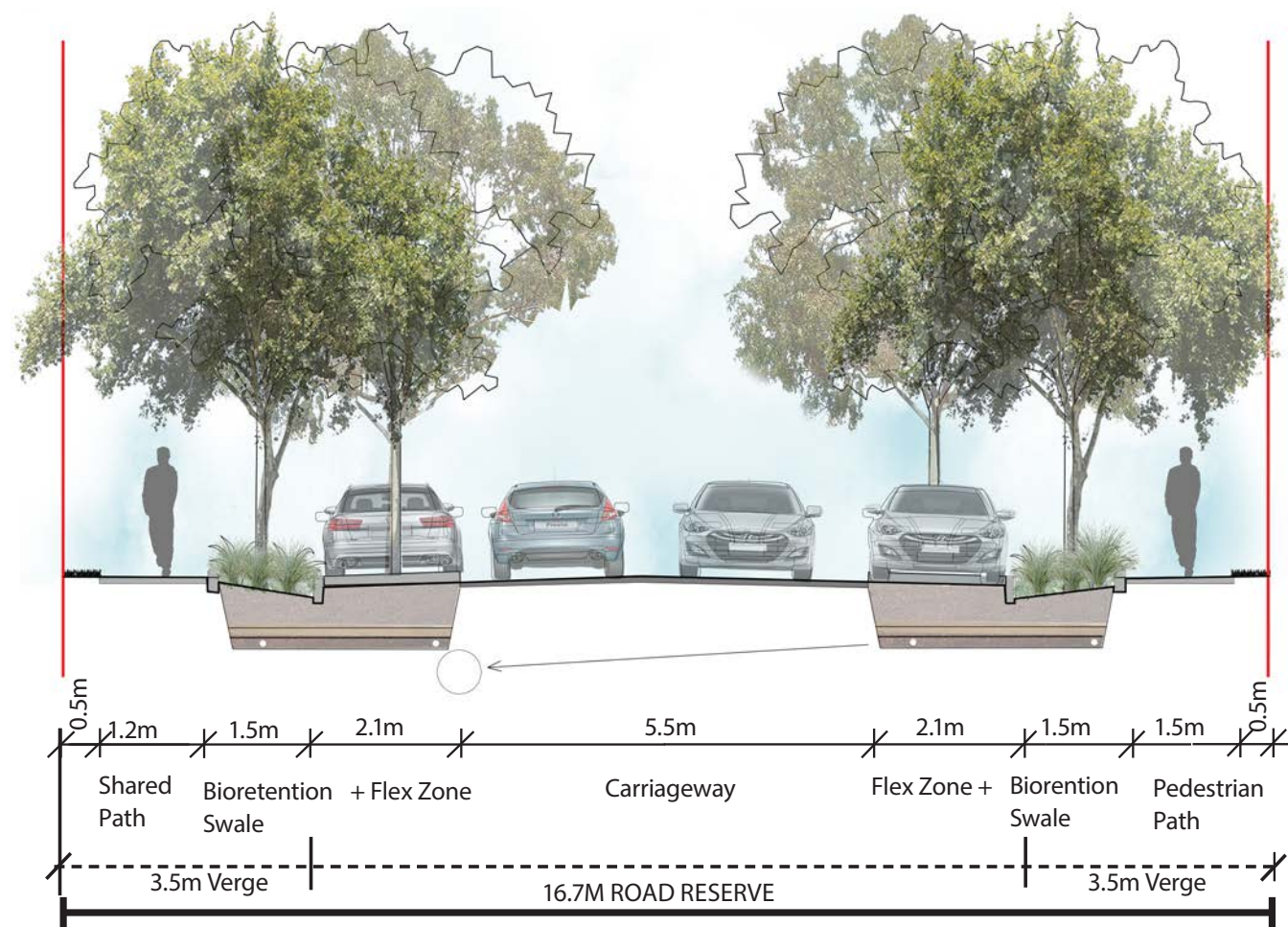


1.17

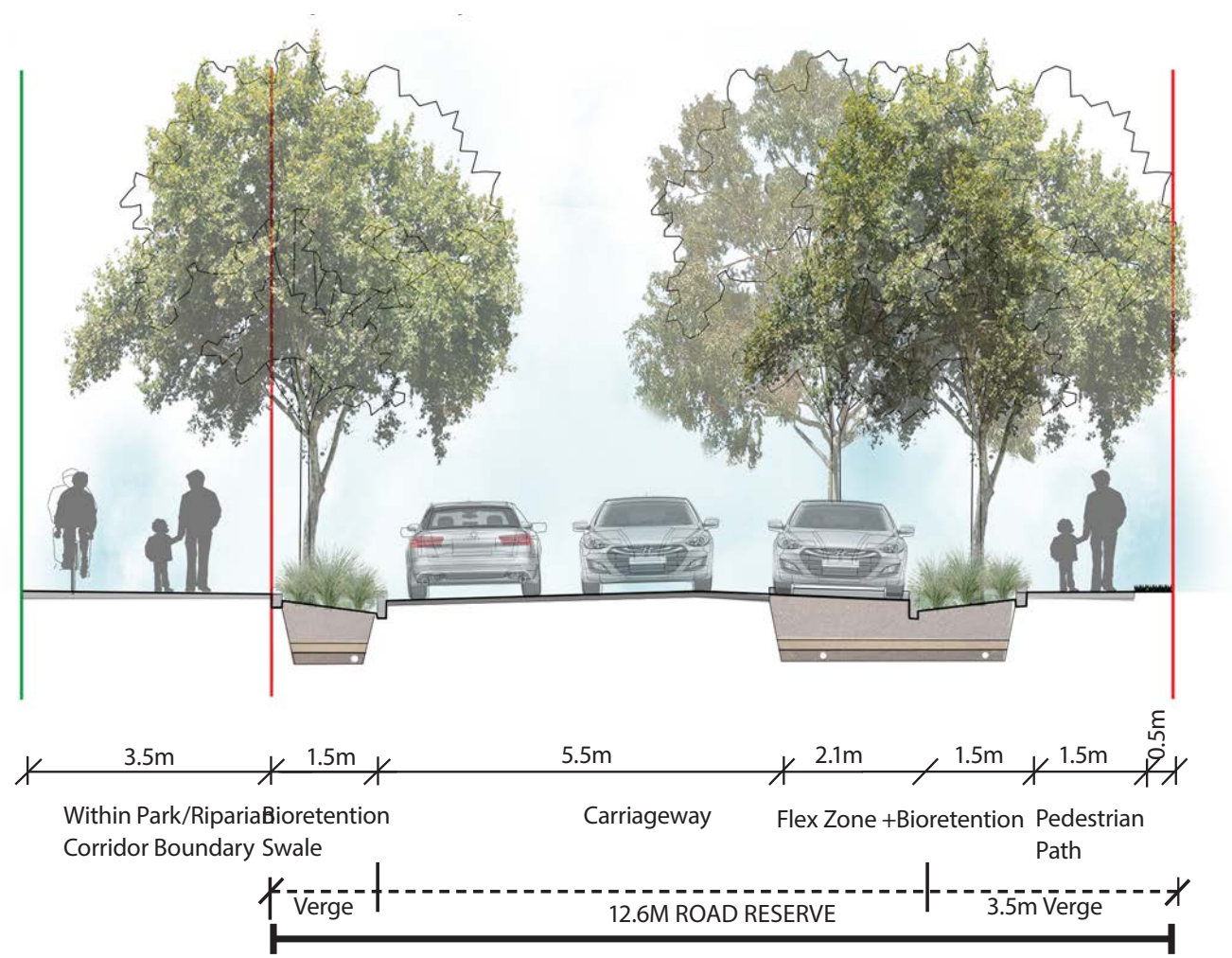
PRIMARY LOCAL ROAD



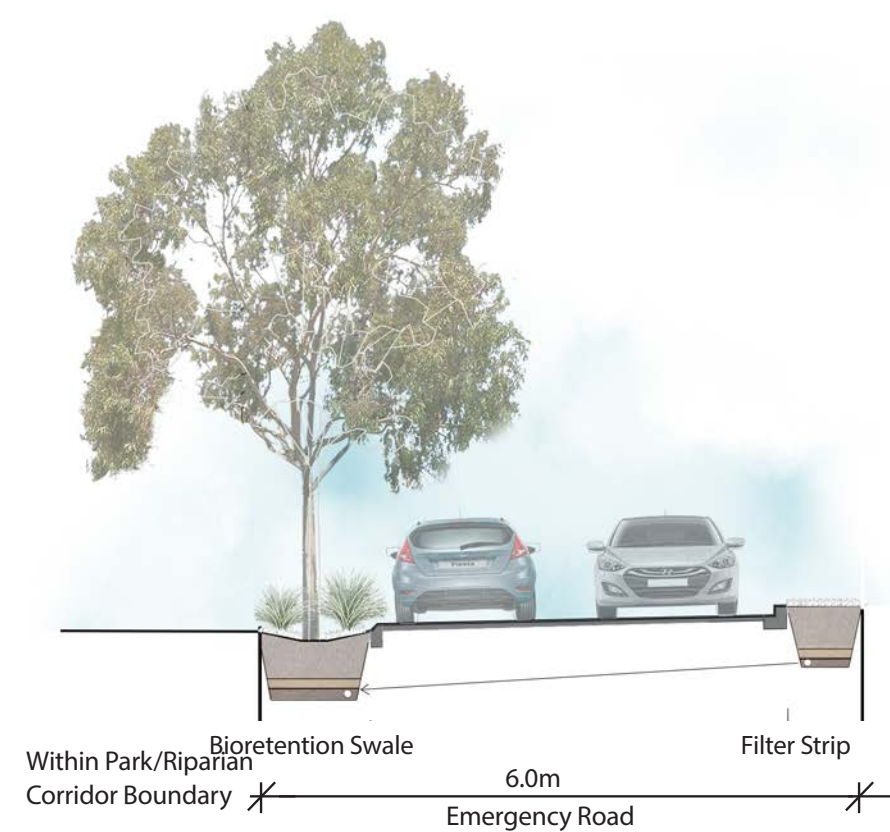
1.18 LOCAL ROAD



1.19 PARK STREET



1.20 EMERGENCY ROAD



PART C: LANDSCAPE MASTER PLAN



1.21 LANDSCAPE MASTER PLAN

The defining element of the public realm is the Central Parkland, a combination of passive and active open spaces that are seamlessly integrated with an enhanced riparian corridor, providing a central green node which extends the open space outlook and provides for multi-functional open spaces.

The open space will support a broad spectrum of activities and interactions between people and nature and sustains environmental functions for the health of communities. Along with other community infrastructure and services, open spaces are significant public assets that contribute to the development of liveable and sustainable communities which can be easily activated by a wide range of uses across a broad range of experiences throughout all times of the day and year.

The open space master plan establishes a hierarchy of both active & passive open space ranging from recreation parks such as the Central Parklands, and the Local Parks #1, 2 and 3. The hierarchy ensures that a diverse network of programmed open spaces will be created to cater for the health and recreation of the local community and have positive impact on local flora and fauna, celebrate the history of the site and positively contribute to the identity of the development.

LEGEND

- 1 Biofiltration Drainage Basin
- 2 Local Park #1
- 3 Local Park #2 - Active Park
- 4 Local Park #3 - Community Gardens
- 5 Town Centre
- 6 Riparian Corridor
- 7 Central Plaza Wetland
- 8 Central Parkland
- 9 Creek Parklands
- 10 Nature Reserve Parkland
- 11 Green Streets (Main Open Space Links)



1.22 OPEN SPACE AMENITY

A wide range of sport and recreation facilities have been captured in the master plan. A range of formal sport and play facilities that caters for a many different activities, purposes and demographics have been integrated into the master plan.

Total of public amenities are listed below and located opposite;

- 4 Playgrounds
- 7 Exercise Stations
- - 1 Multi - Court



1.23 LOCAL PARK #1

The Local Park #1 delivers small open spaces, informal spaces, which encourages activity, fitness and play with shade sails. This park will feature a large central playground and exercise stations/equipment, and BBQ and dining facilities for the community, catering for a wide growing demographic.

The Local Park #1 will deliver:

- 1 Playground with shade sails
- 7 Exercise Stations
- BBQ and dining facilities
- Parkland seating



Exercise Stations



Flexible Playground



Planters and seating



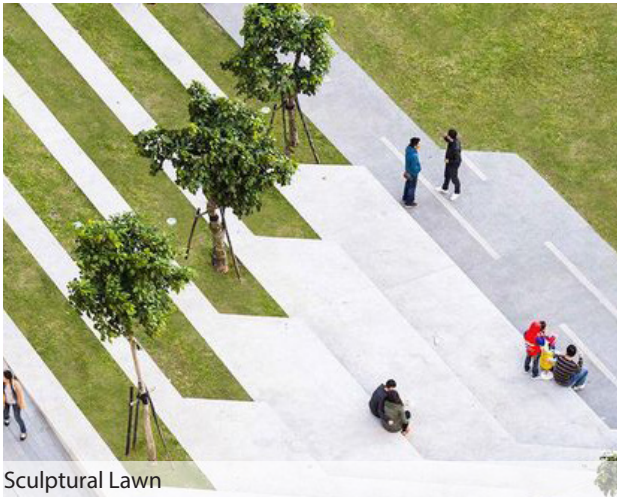
Green Buffer to Local Parks



1.24 LOCAL PARK #2

The Local Park #2 will provide access to large and open, informal and formal spaces, which encourages activity, fitness and play. This is achieved by providing a small childrens playground, BBQ and dining facilities with adjacent shade structures, a sculptural events lawn surrounded by native shade trees and parkland seating areas, catering for a wide growing demographic.

- The park will provide:
- 1 Childrens Playground
 - BBQ and dining Facilities with shade arbours
 - Sculptural event lawn
 - Native shade trees
 - Parkland seating



1.25 LOCAL PARK #3

The Local Park #3 will provide access to large and open, informal and formal spaces, which encourages activity, fitness and play. This is achieved by providing a small childrens playground, BBQ and dining facilities with adjacent shade arbour, an active zone with 1 multi-court and shade arbour surrounded by shade trees and parkland seating areas, catering for a wide growing and active demographic.

- The park will provide:
- 1 Childrens Playground with shade sails
 - 1 Multi - Court
 - BBQ and dining Pavilion
 - Native shade trees
 - Parkland seating



Multi - Court



Children's Playground



BBQ and dining area



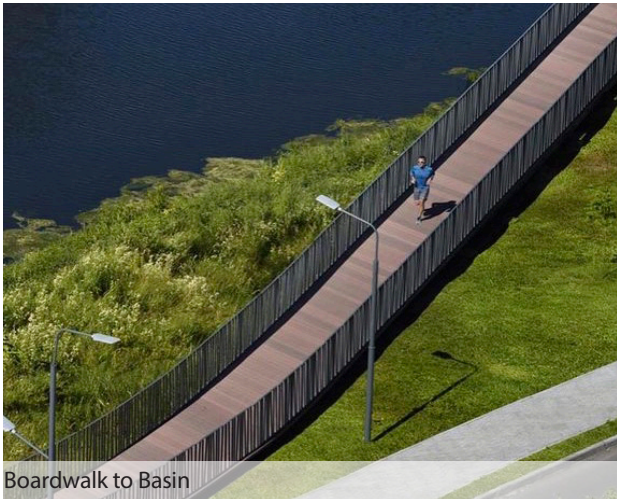
Green buffer planting



1.26 WETLAND / BASIN #1

The Wetland / Basin #1 provides an activated ecological environment for the community to walk through, observe and take in their surroundings. This wetland area has connected boardwalks that take you from the public domain, over and through the wetland area, while providing viewing platforms at key vantage points. This area allows for water management on the site while also providing the community a green oasis on their walk through the wetland area.

- The wetland will deliver:
- Boardwalks to the basin
 - Viewing platforms with seating
 - Wetland planting
 - Habitat creation
 - Water treatment
 - Environmental planting
 - Education Opportunities



Boardwalk to Basin



Viewing Platform



Wetland Planting



Boardwalk and Wetland Planting

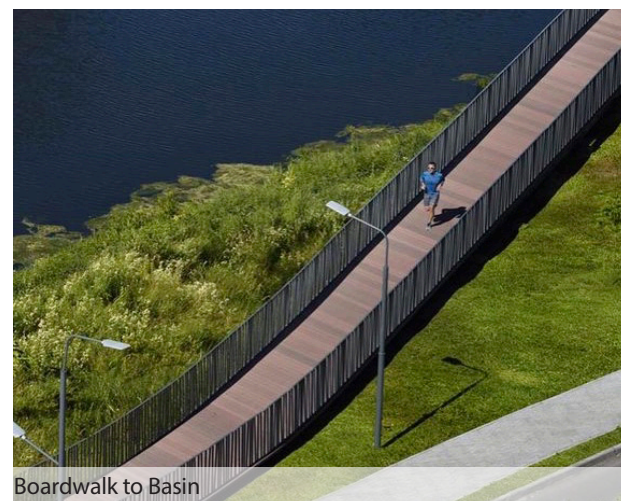


1.27 WETLAND / BASIN #2

The Wetland / Basin #2 is a larger wetland area that provides an activated ecological environment for the community to walk through, observe and take in their surroundings. This wetland area has connected boardwalks that take you from the public domain, over and through the wetland area, while providing viewing platforms at key vantage points. This area allows for water management on the site while also providing the community a green oasis on their walk through the wetland area.

The wetland will deliver:

- Boardwalks to the basin
- Viewing platforms with seating
- Wetland planting
- Habitat creation
- Water treatment
- Environmental planting
- Education Opportunities



Boardwalk to Basin



Viewing Platform



Wetland Planting



Boardwalk and Wetland Planting



1.28 CENTRAL PARKLAND

The Central Parkland is the "green heart" of the site. This area sits adjacent to the town centre providing the community with a number of open space activities. This Central Parkland will provide the community with a main arrival plaza to the park which is connected and adjacent to the town centre, this area provides, BBQ and dining pavilions with toilet facilities. Adjacent to this is a large sized childrens playground with multiple areas of activity and fun. Connected to this playground is a childrens bike track that takes you in a loop around the central parkland and basin area. The parkland also provides the community with a central basin with wetland planting that the community can engage with, for example multiple boardwalks a provided over and around the basin, also with sandstone steps down to the waters edge. Connected to the basin is also a central sculptural lawn for passive lunch time activities or for larger entertainment events. This parkland also provides a connected pedestrian and cycle path network through the park connecting to key areas. Finally an abundance of existing trees to the back of the playground area being retained as well as replenished to ensure enough shade has been provided.

The Central Parkland will deliver:

- 1 Large childrens playground
- A children bike track
- Central basin with sandstone steps to the water sedge
- Arrival plaza with BBQ and toilet facilities
- Large sculptural entertainment lawn
- Wetland and ecological planting to the basin
- Boardwalks to the basin and creek
- A re-vegetated 30m riparian zone
- Cycle and pedestrian pathway links through the parklands



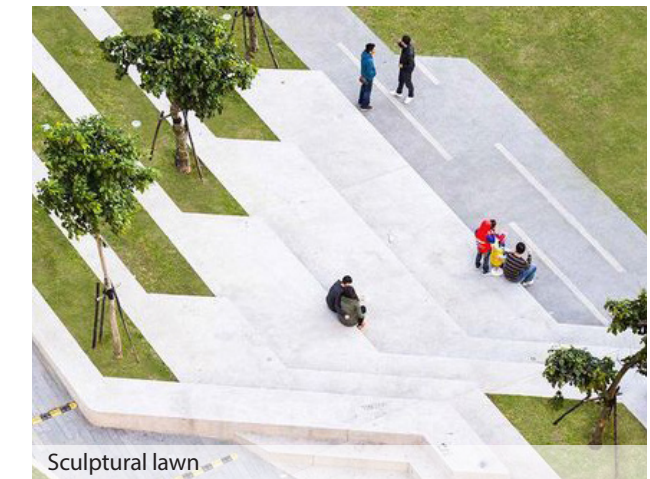
Boardwalks to Wetlands



Large Children's Playground



BBQ Facilities



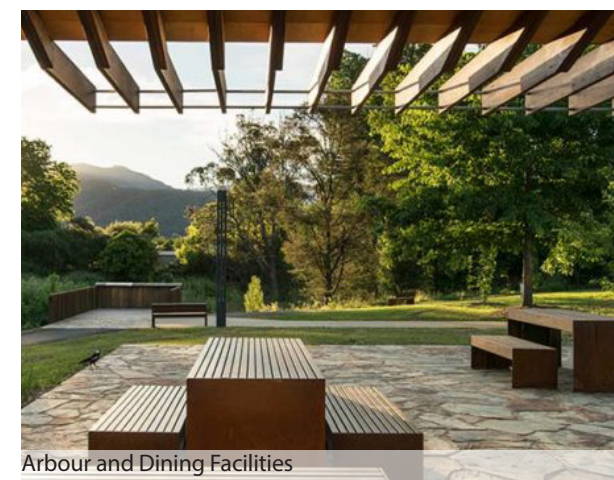
Sculptural lawn



Childrens Bike Track



Wetland and Basin Boardwalks



Arbour and Dining Facilities



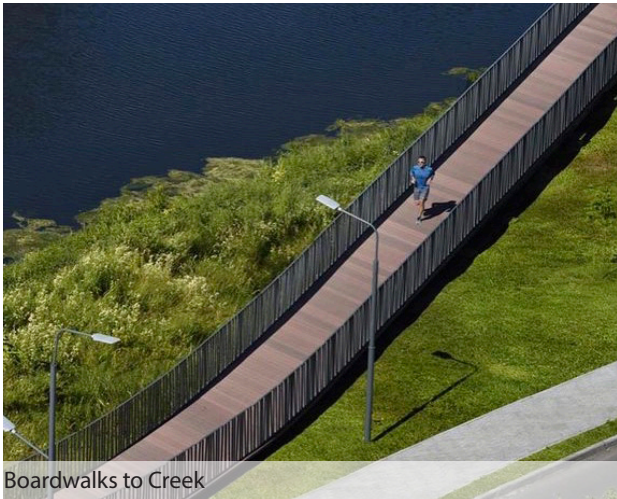
Cycle and pedestrian link through parklands



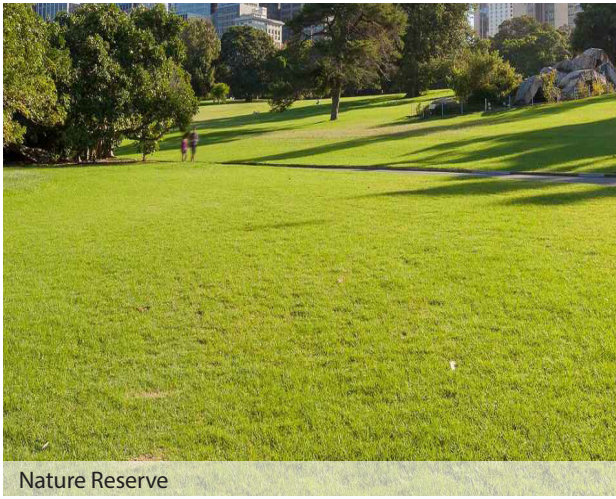
1.29 NATURE RESERVE

This Nature Reserve provides the community a well connected passive parkland. The reserve provides connected pedestrian and cycle pathways through the reserve and riparian/ creek areas, large open lawn areas with native shade trees and connected boardwalks across the existing creek.

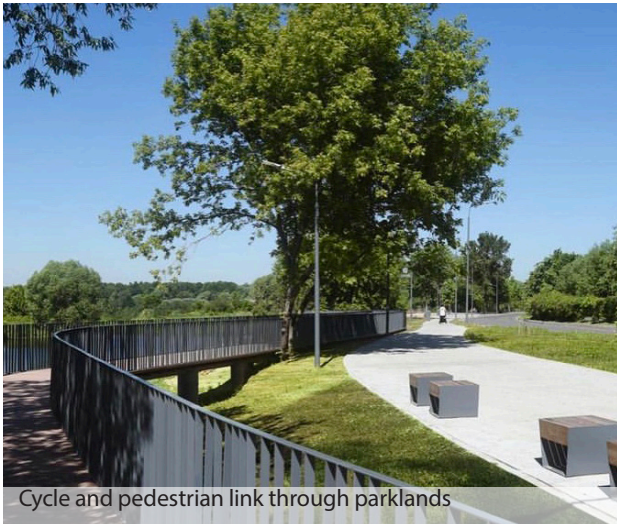
- The nature reserve will deliver:
- Native vegetation planting
 - Boardwalks to creek
 - Pedestrian and cycle pathways through the parklands
 - Open passive parkland areas
 - Riparian corridor planting



Boardwalks to Creek



Nature Reserve



Cycle and pedestrian link through parklands



Riparian Corridor with pedestrian and cycle pathways

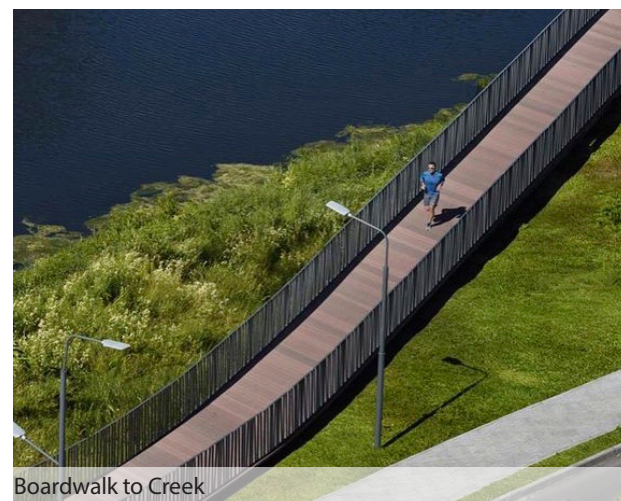


1.30 RIPARIAN ZONE

The riparian zone is dedicated mainly to nature in this area. This area has provided a connected pedestrian and cycle boardwalks across the creek, riparian and basin area, a 30m re-vegetated riparian zone to the existing creek and 1 basin with wetland planting for water management across the site.

The riparian zone will deliver:

- Connected boardwalk across the creek and riparian zone
- Re-vegetated 30m riparian zone to the existing creek
- 1 Basin with wetland planting



Boardwalk to Creek



Boardwalk to Basin



Wetland Planting



Boardwalk and Wetland Planting



