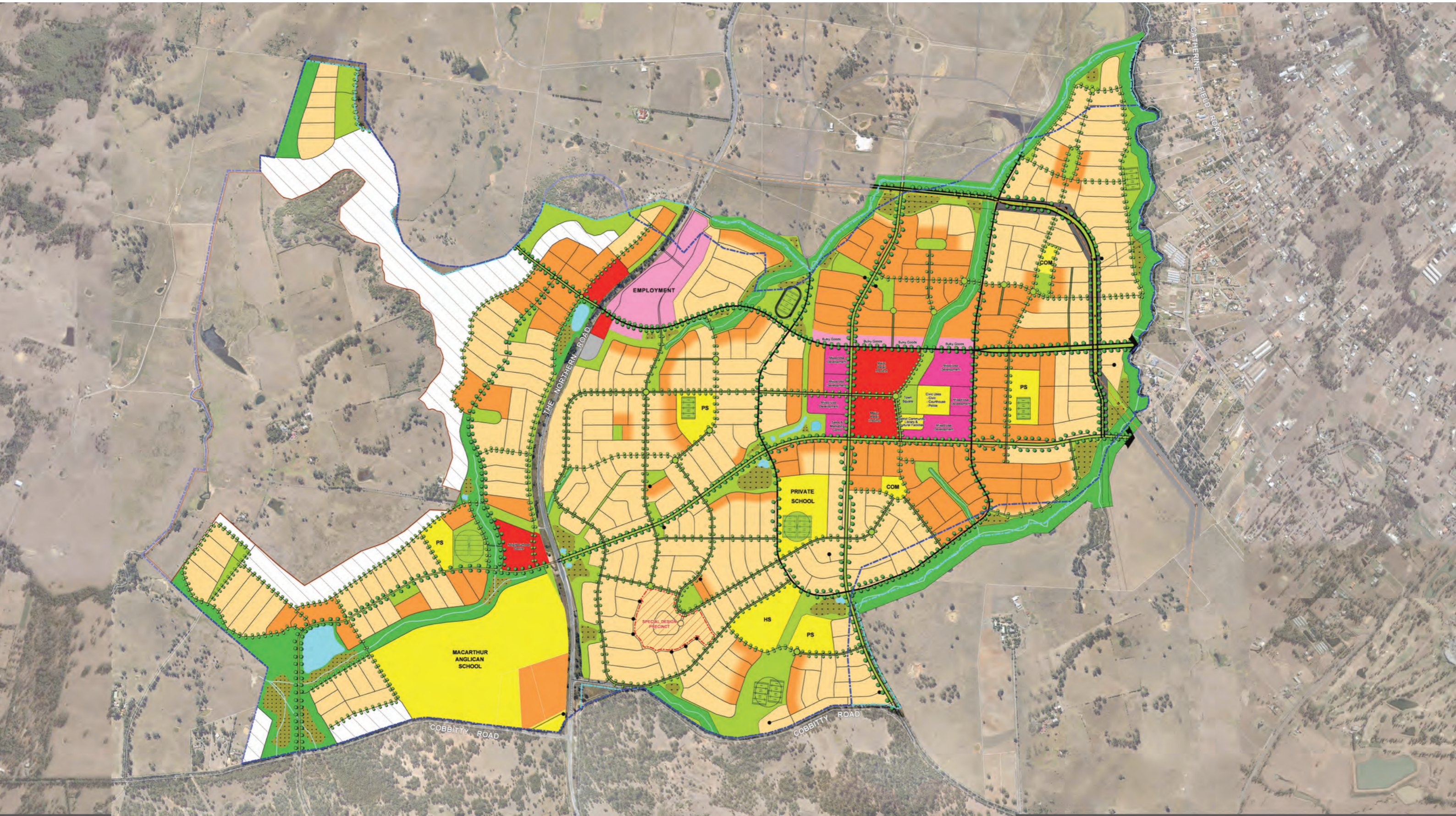


Precinct Planning Report

Oran Park Precinct, Camden

May 2007





Prepared by
JBA Urban Planning Consultants
for the Growth Centres Commission

JBA Urban Planning Consultants Pty Ltd operates under a Quality Management System. This report has been prepared and reviewed in accordance with that system. If the report is not signed below, it is a preliminary draft.

This report has been prepared by: Vivienne Goldschmidt

Signature Date 09/05/07

This report has been reviewed by: Lesley Bull

Signature Date 09/05/07

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- 2 Special Infrastructure Contribution Report
- 3 Oran Park Precinct - Next Steps

Appendices

- A Visual Assessment Study
HASELL Ltd
- B Land Capability and Contamination Assessment
Douglas Partners
- C Historical Review and Preliminary Investigation for Munitions
Contamination Milsearch
- D Stormwater Quantity Management & Flooding
Brown Consulting
- E Water Sensitive Urban Design Strategy
Ecological Engineering Pty Ltd
- F Ecological Assessment
Eco Logical Australia Pty Ltd
- G Bushfire Study
Eco Logical Australia Pty Ltd
- H Aboriginal Cultural Heritage Assessment
Jo McDonald Cultural Heritage Management Pty Ltd
- I Heritage Assessment
Godden Mackay Logan
- J Noise Impact Assessment
Renzo Tonin and Associates
- K Level 1 Odour Impact Assessment
Benbow Environmental
- L Transport Assessment
Maunsell Australia
- M Community Facilities and Open Space Assessment
Elton Consulting
- N Employment Land Study
Macroplan Australia

1.0 Background

1.1 Introduction

In 2005 the NSW government launched the Metropolitan Strategy - *City of Cities – a Plan for Sydney’s Future*. The Plan positions Sydney for the next 25 years of growth and targets the provision of nearly 400,000 new dwellings and over 200,000 jobs in Western Sydney by 2031. As part of the Metropolitan Strategy the government released in June 2005 *Managing Sydney’s Growth Centres*. The Growth Centres Plans set out the direction and context for new communities in Sydney’s South West and North West that together will provide over 180,000 new houses. Of this, approximately 110,000 new dwellings will be delivered in the South West Growth Centre (SWGCC) over the next 25 to 30 years, at a rate of 3,500 to 4,000 per year.

In June 2006 the NSW government announced the first Precincts to be released for urban development in the North West and South West Growth Centres. The Oran Park and Turner Road Precincts, both located in the Camden local government area (LGA) and amongst the first for release in the South West, were formally declared released for detailed precinct planning on 5 January 2007 (see **Figure 1**). These areas were selected because of their access to existing water and sewer services, their proximity to services at Narellan and Camden, and proposed major road upgrades in the locality. Overall, the 1145 hectare Oran Park Precinct was expected to contribute up to 8,000 new houses towards the target for the South West and a Town Centre with 25,000-35,000 square metres of retail floor space.

This Precinct Planning Report for the Oran Park Precinct has been prepared by JBA Urban Planning Consultants Pty Ltd (JBA) for the Growth Centres Commission (GCC). The GCC’s role is to prepare land use and infrastructure plans, recommend the sequencing of land release, and coordinate infrastructure delivery and funding in the North West and South West Growth Centres. The GCC has primary responsibility for overseeing, coordinating and driving precinct planning and is working closely with Camden Council in facilitating the process for Oran Park and Turner Road.

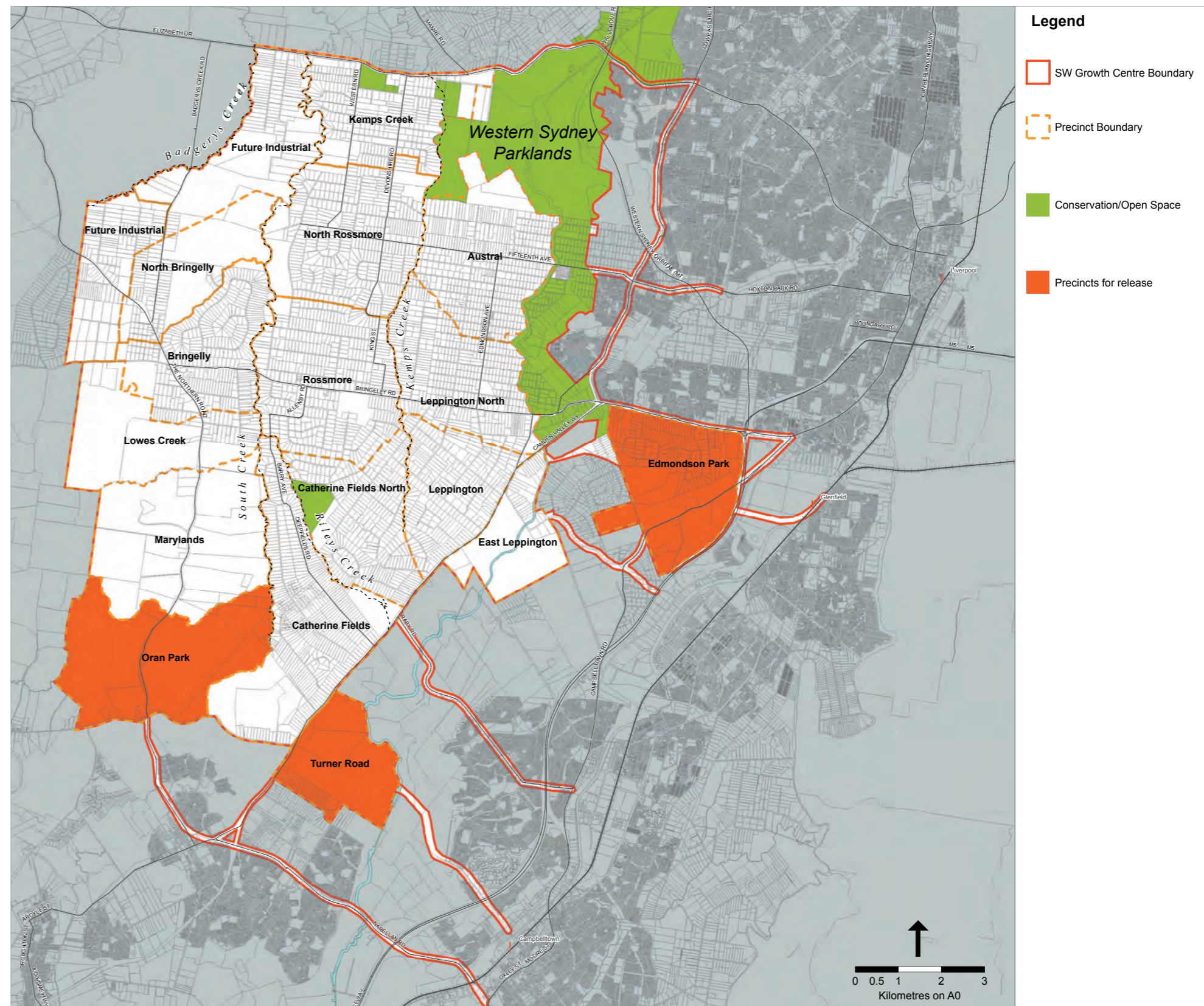


Figure 1 – Location of the Oran Park Precinct within the South West Growth Centre

Source: Growth Centres Commission

1.2 Purpose of the report

The purpose of the Precinct Planning Report (PPR) is to support the precinct planning process by documenting and integrating the environmental analysis undertaken in support of the Indicative Layout Plan (ILP) and summarising the proposed approach to development. Specifically, the PPR demonstrates how the Oran Park precinct planning process has addressed the requirements of the South West Structure Plan, the Growth Centres Development Code (GCDC), *State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (Growth Centres SEPP), and *Environmental Planning and Assessment Amendment (Sydney Region Growth Centres) Regulation 2006* (Regulation).

This report is designed to demonstrate the integrated manner in which investigations were undertaken and constraints and opportunities identified and addressed. It also reflects the attention given to the management of key environmental issues, including:

- riparian corridors;
- biodiversity;
- land capability;
- water;
- Aboriginal and non-indigenous heritage;
- traffic and transport;
- housing choice and density;
- location, size and hierarchy of centres;
- noise attenuation;
- provision of open space and community facilities; and
- the interface with the Denbigh heritage curtilage.

1.3 The precinct planning process

The Growth Centres Development Code incorporates guidelines for undertaking the precinct planning process in the Growth Centres and sets out the process that will result in rezoning of the land. The process adopted for Oran Park was generally consistent with the GCDC as set out below:

- **Step 1:** Minister announced the precinct for release (29 June 2006); release declaration gazetted on 5 January 2007
- **Step 2:** Precinct Project Control Group (PCG) established by GCC to oversee precinct planning; a Working Group set up to undertake detailed planning and design
- **Step 3:** Draft Indicative Layout Plan (ILP) prepared supported by environmental studies and urban form analysis. Consultation undertaken with all land owners within the precinct and State Agencies
- **Step 4:** Draft Indicative Layout Plan supported by PCG and State agencies
- **Step 5:** Draft statutory provisions prepared including land use zones, zoning map and draft Section 94 plan for Precinct
- **Step 6:** Draft Precinct Development Control Plan (DCP) prepared with detailed development controls for precinct
- **Step 7:** Exhibition (*we are now here*):
 - Precinct Planning Report
 - Draft Statutory Controls (SEPP amendment)
 - Draft Precinct DCP
 - Draft Section 94 Plan
- **Step 8:** Post Exhibition
 - SEPP, DCP and Section 94 Plan reviewed as a result of submissions
 - Final plans form the basis of State Agencies approvals

- **Step 9:** Minister approves the SEPP (or amends or not approves)
 - Precinct DCP adopted by Director-General of Planning
- **Step 10:** Camden Council approves Section 94 Contributions Plan
- **Step 11:** Growth Centres SEPP amended.

1.4 Stakeholder involvement

The preparation of the Oran Park Precinct Plan was characterised by ongoing active involvement of all relevant stakeholders - land owners, Camden Council and relevant State government agencies, as described below.

1.4.1 Public authorities

Camden Council supported, co-ordinated and project managed the precinct planning process in conjunction with the GCC.

A fundamental principle in the precinct planning process was that all stakeholders, including State agencies, participate in the process and support the outcomes reached. The process for State agency involvement in a traditional rezoning process as set out in the *Environmental Planning and Assessment Act 1979* (eg. Sections 62 and 65) does not apply to precinct planning for the Growth Centres. However, in accordance with the GCDC, processes were established to ensure all agencies maintained a role in the precinct planning process, working towards the granting of various approvals required under separate legislation (such as Part 3A permits under the *Rivers and Foreshores Improvement Act*). The principal means of State Agency involvement was the establishment of a Government Agency Reference Panel. The role of the Government Agency Reference Panel was to provide advice and input into the development of precinct plans so that issues could be resolved and sign-off achieved prior to gazettal.



Figure 2 – View of Precinct looking north from Cobbity Road (west)

Source: JBA

This was achieved via the establishment of small panels of government agencies grouped around common themes - transport, environment and human services- which met in late November 2006 and in late January 2007 to be updated on progress and to be given opportunities to comment on the draft ILP. At other times, specific issues were discussed and resolved through separate meetings with individual agencies, including site inspections.

It should be noted that the environmental analysis undertaken in preparing the draft ILP was influenced by the statutory requirements of State agencies, and that during precinct planning the GCC sought support from State agencies at a precinct level in relation to matters within their jurisdiction under other legislation such as the *Threatened Species Conservation Act* and the *Rivers and Foreshores Improvement Act*.

In accordance with the GCDC the following state agencies were consulted and provided comment on the draft ILP:

Human services agencies

- **Department of Education** Primary and high schools (including Catholic education)
- **Department of Health and Area Health Service** Community health centre
- **Department of Community Services** Family support services
- **Department of Sport and Recreation** Structured and unstructured sports; regional facilities
- **Police** Community safety and crime prevention
- **Department of Housing** Provision of public housing

Environmental agencies

- **Department of Environment and Conservation** Biodiversity; Aboriginal heritage
- **Department of Natural Resources** Riparian corridors; stream classification; biodiversity; stormwater; salinity; flood risk management
- **Department of Primary Industries** Fish habitats
- **Rural Fire Service** Bushfire and Asset Protection Zones
- **NSW Heritage Office** Cultural heritage management

Transport agencies

- **Roads and Traffic Authority** Traffic noise; pedestrian and cycle links; route strategies; new intersections
- **Ministry of Transport** Route strategies; bus corridors and local bus routes
- **Rail Corp** South West Rail Link extension

Sydney Water, Alinta and Integral Energy were also consulted regarding the provision of services in the Precinct.

1.5 Project management and team

A Project Control Group (PCG) consisting of representatives of the GCC and Camden Council has overseen the precinct planning process.

The role of the PCG was to oversee, review and set the strategic direction for the precinct planning process, as well as to co-ordinate State agency input into the process. The PCG approved the draft ILP and reported this decision to the GCC Board and Camden Council. It was also the role of the PCG to resolve any disputes between stakeholders not resolved by the Working Group.

Reporting to the PCG was the Oran Park Working Group, which had carriage for detailed planning and design. Day-to-day project management was undertaken by Camden Council. Development of the draft ILP, detailed investigations and environmental assessment, and preparation of the PPR, SEPP amendment and DCP was undertaken by a team of specialist contractors, listed below:

- **Aboriginal Heritage** Jo McDonald Cultural Heritage Management Pty Ltd
- **Community Facilities & Open Space** Elton Consulting
- **Cultural Heritage** Godden Mackay Logan Pty Ltd
- **Biodiversity & Bushfire** Eco Logical Australia Pty Ltd
- **Economics & Employment** Macroplan Australia Pty Ltd
- **Landscape and Visual Analysis** Hassell Ltd
- **Land Capability & Contamination** Douglas Partners Pty Ltd
- **Noise** Renzo Tonin & Associates Pty Ltd
- **Odour** Benbow Environmental
- **Planning** JBA Urban Planning Consultants
- **Transport** Maunsell Australia Pty Ltd

- **Urban Design** Inspire Urban Design and Planning Development Planning Strategies (NSW) Pty Ltd
- **Water Cycle Management** Ecological Engineering Pty Ltd & Brown Consulting Pty Ltd
- **Project Management** APP Corporation Pty Ltd
- **Graphics** Jackson Teece
JBA Urban Planning Consultants

The specialist contractors’ final reports are contained in Appendices A to N. It should be noted that these studies were, by necessity, completed prior to the finalisation of this PPR and the final ILP. The specialist consultant reports will therefore include diagrams that contain some inconsistencies with the figures in this PPR. For example, the specialist consultant reports are based upon earlier versions of the ILP, which has since been modified partly in response to the recommendations contained in these reports. Earlier versions of the ILP used by the specialists also resulted in differences in expected dwelling yield, compared to that reported in this PPR.

These inconsistencies have been reviewed and are not considered significant with respect to the land use planning pattern or the environmental, social and economic outcomes. Other differences between the specialist consultant reports and this PPR which were considered relatively significant have all been addressed throughout this PPR.



Figure 3 – Vegetation along The Northern Road

Source: Hassell

2.0 Site context

This chapter briefly describes the land that makes up the Oran Park Precinct. Further detail is provided in the sections describing different elements of the existing environment.

2.1 Location

The Oran Park Precinct is 1145 hectares in area and located in the Camden LGA, 6 kilometres north-east of the town of Camden, 3.5 kilometres north of the Narellan Town Centre and 7 kilometres north-west of Campbelltown (see **Figure 4**).

The Precinct is generally bounded by Cobbitty Road to the south; South Creek and its tributaries and the curtilage of Oran Park House to the east; 330kV power lines, creek lines and ridgelines to the north; and the boundary to the McIntosh property to the west. The Northern Road bisects the Precinct north south.

The Precinct is generally surrounded by rural land uses to the west and north, and rural living along South Creek. Harrington Park Stage 2 – a residential development with environmental protection areas – is located immediately to the south across Cobbitty Road - outside the Growth Centre.

The Growth Centre Precincts of Marylands and Catherine Fields lie to the north and west of the Oran Park Precinct respectively.

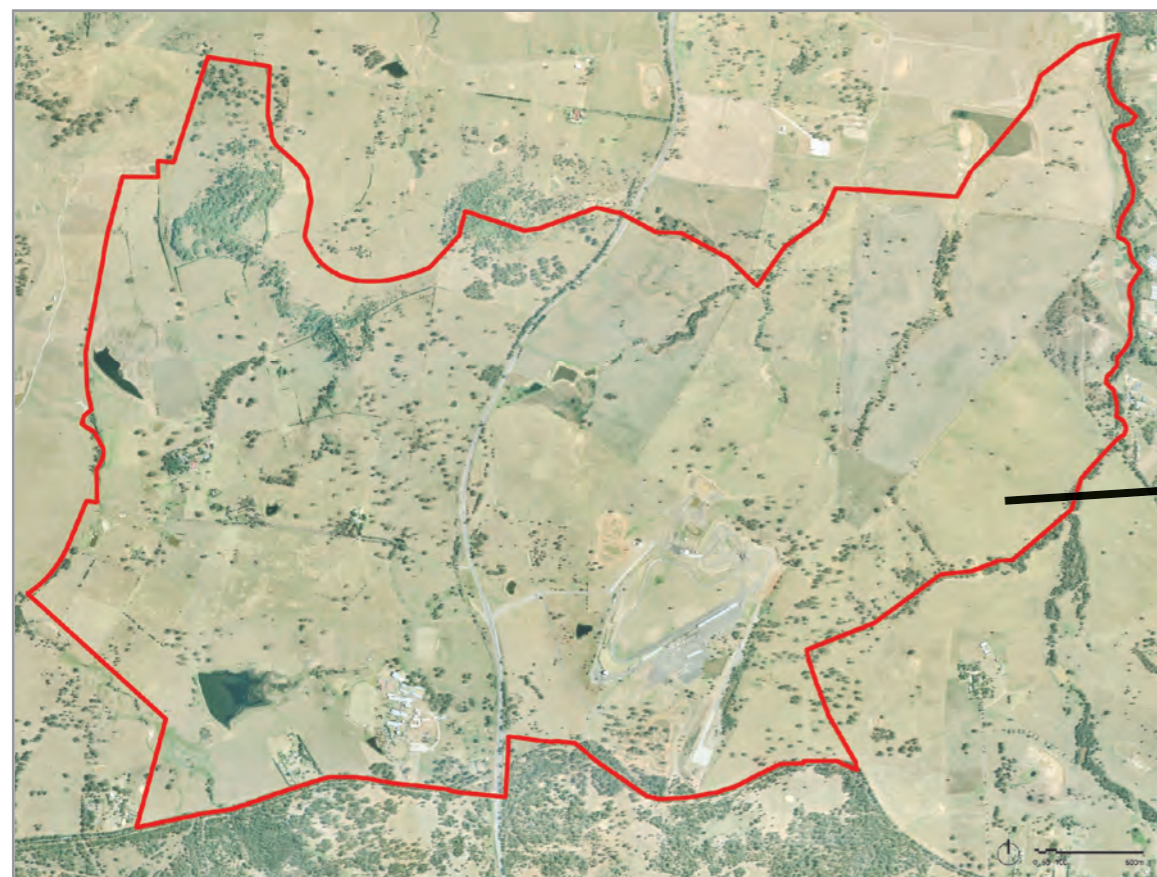
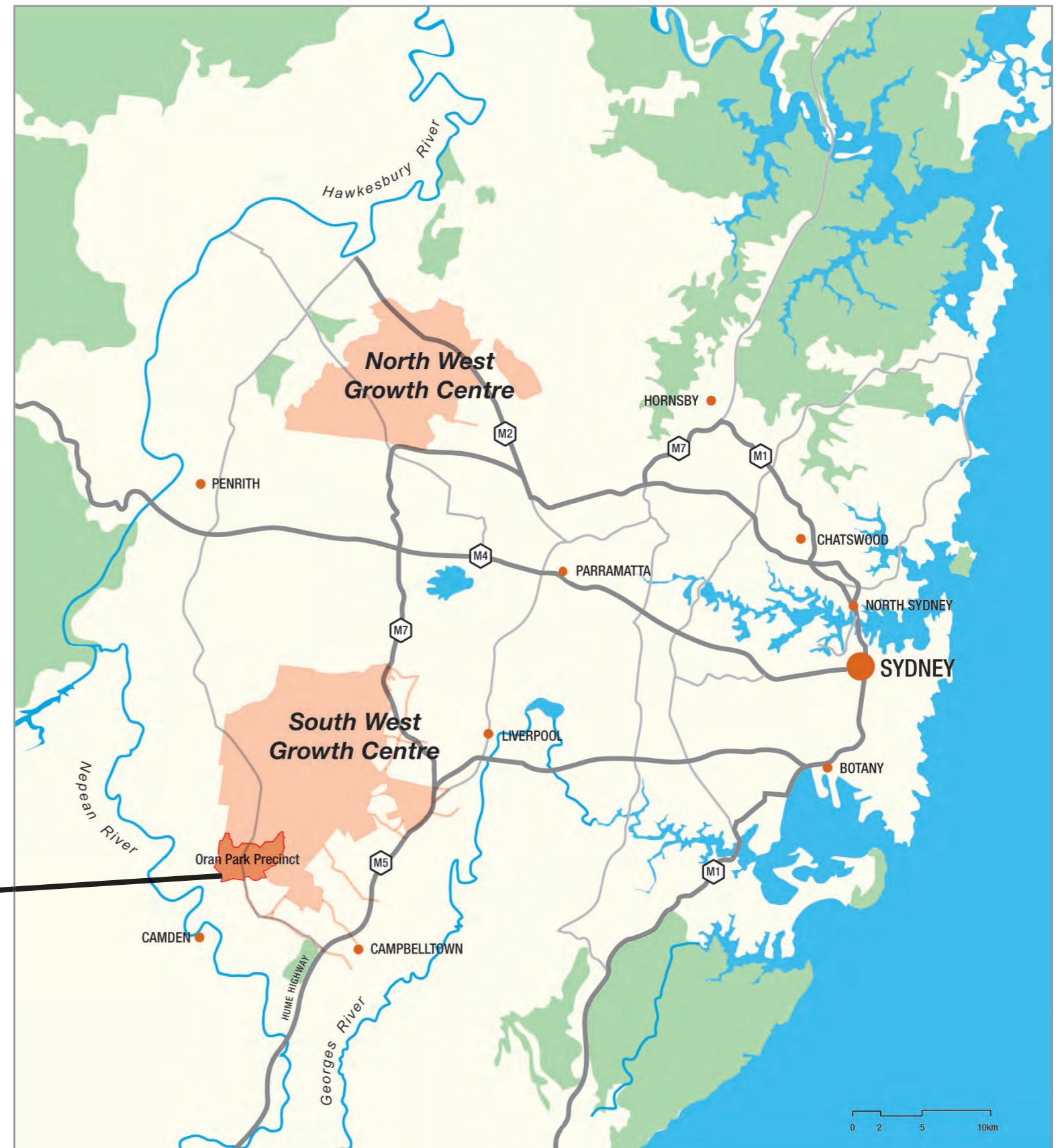


Figure 4 – Location of the Oran Park Precinct



Source: Jackson Teece and JBA

2.2 Site description

The Precinct is generally cleared, cultivated grazing land with scattered small clumps of remnant vegetation, particularly along the South Creek riparian corridor and on hill tops on the western side of The Northern Road. On the eastern side of the Precinct the vegetation is primarily confined to South Creek, although smaller patches are also found along unnamed ephemeral creek lines. On the western side of the Precinct, dense thickets of African Olive are located along the ridgeline and a small regenerating remnant of Cumberland Plain Woodland is located west of Northern Road. Several pockets of paddock trees are also dispersed throughout the site.

The Precinct is immediately downstream of the headwaters of South Creek, a major tributary of the Hawkesbury-Nepean system. Several tributaries of South Creek – typically ephemeral streams – cross the site. Farm dams of varying size are dotted along these creeks and drainage lines. A short section of Cobbitty Creek, which drains west to the Nepean River catchment, and associated flood prone land is located in the south west corner of the Precinct.

Topography is generally undulating, rising to 150m AHD in the north-west. All land falls to the south-west. The dominant ridges have multiple highpoints, some with sweeping views over the surrounding countryside and onward to the distant Blue Mountains (see **Figure 5**).

The Precinct contains a large homestead (Denbigh), several houses, sheds, barns, fencing, farm roads and structures associated with the Oran Park Raceway. There are no significant structures on the small lots on the western side of South Creek – all houses being on the eastern side. The historic Denbigh homestead, within a designated heritage curtilage, is located to the west of The Northern Road along with the associated dwellings of Bangor and Cluny Hill. The 202.6 hectare curtilage is defined by a distinctive ridgeline which forms a bowl around the Denbigh estate and shields it from external view. Another historic homestead, Oran Park House, lies just outside the Precinct to the south-east but its heritage curtilage extends into the eastern part of the Precinct. The final curtilage for the Oran Park House will be subject to a detailed heritage study.

Oran Park Raceway – an internationally recognised car racing circuit - is situated in the south-east of the Precinct on the eastern side of The Northern Road, and is accessed from Cobbitty Road.

The 44.5 hectares of land associated with the Macarthur Anglican School at the junction of Cobbitty Road and The Northern Road contains various school buildings, sports ovals and the like.

Camden has a sub-tropical climate with rainfall occurring predominantly in late summer and autumn. February is the wettest month. Summers are warm to hot with the mean maximum temperature for January being 29.2 degrees celsius, while winters are mild to cold with July the coldest month with a mean minimum temperature of 2.9 degrees celsius.

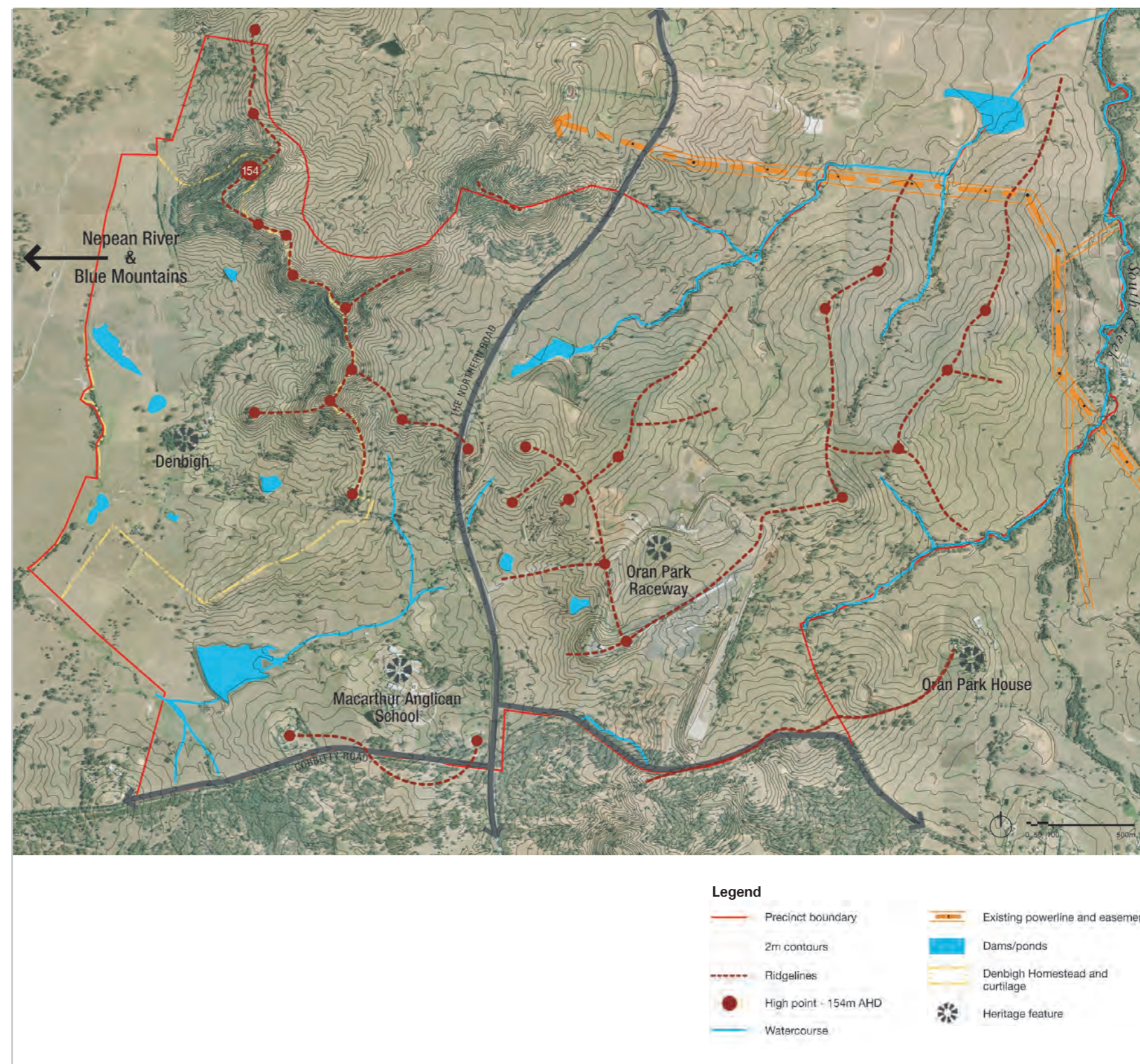


Figure 5 – Site analysis

Source: Jackson Teece and JBA

2.3 Land use and zoning

Most of the land in the Oran Park Precinct is zoned Rural 1(a) under Camden Local Environmental Plan 48, except for The Northern Road which is Special Uses 5(b) Arterial Road.

Historically, the Precinct has been used for grazing and cropping. For the past 30 years or so the majority of the eastern side has been utilised as a dairy farm and since the 1960s the Oran Park Raceway has occupied the south-eastern corner. The land uses along the eastern boundary of the Precinct are generally rural residential lots, some used for market gardening.

The Macarthur Anglican School occupies a significant piece of land fronting Cobbitty Road.

The majority of the land to the west of The Northern Road has been used for grazing since the early 1800s and continues as such today as part of the Denbigh Estate.

2.4 Land ownership

There are two major landowners and 12 small ones in the Precinct. The majority of the land to the west of The Northern Road is part of a larger 500 hectare holding extending into the Marylands precinct to the north. The other major landowner owns approximately 1300 hectares in the Oran Park, Catherine Fields, Marylands and Lowes Creek Precincts.

The Precinct therefore benefits from having very low levels of land fragmentation. This helps to promote the coordination of infrastructure and reduces the costs associated with consolidating and managing multiple ownerships.

Through participation in the Working Group, draft ILP design workshops and landowner information sessions, the landowners have been actively involved in the development of the draft ILP and the overall precinct planning process.

Table 1 – Legal property description

Property Description		
Lots 4 & 5 DP 253184	Lot 1 DP 1101108	Lot 2 DP 599327
Lot 2 DP 738249	Lot 3 DP 738249	Lot 4 DP 738249
Lot 5 DP 738249	Lots C & D DP 420694	Lots 1 & 4 DP 252897
Lot 1 DP 354258	Lot 2 DP 1066809	Lot 4 DP 594238
Lot 26 DP 215520	Lot 2521 DP 861221	Lot 2522 DP 861221
Lot 2 DP 1014583	Lot 1 DP 1014583	Lot 100 DP 1050999
Lot 1 DP 599327		

2.5 Previous planning

The work undertaken by the Department of Planning (DoP) in preparing the Structure Plan for the South West Growth Centre in general and the Oran Park local area in particular, has set the planning framework, principles and objectives, and Structure Plan outcomes for the Precinct - summarised in Section 2.6. In addition, the GCDC sets precinct development parameters in relation to housing density and lot sizes; employment and retail; and thresholds for provision of social infrastructure.

The holdings of the two large landowners extend beyond the Oran Park Precinct. Both landowners have been active for some time in preliminary investigation and analysis. This preliminary work provided a solid foundation for the detailed work undertaken as part of the precinct planning process.



Figure 6 – View north towards the Denbigh Homestead

Source: GML

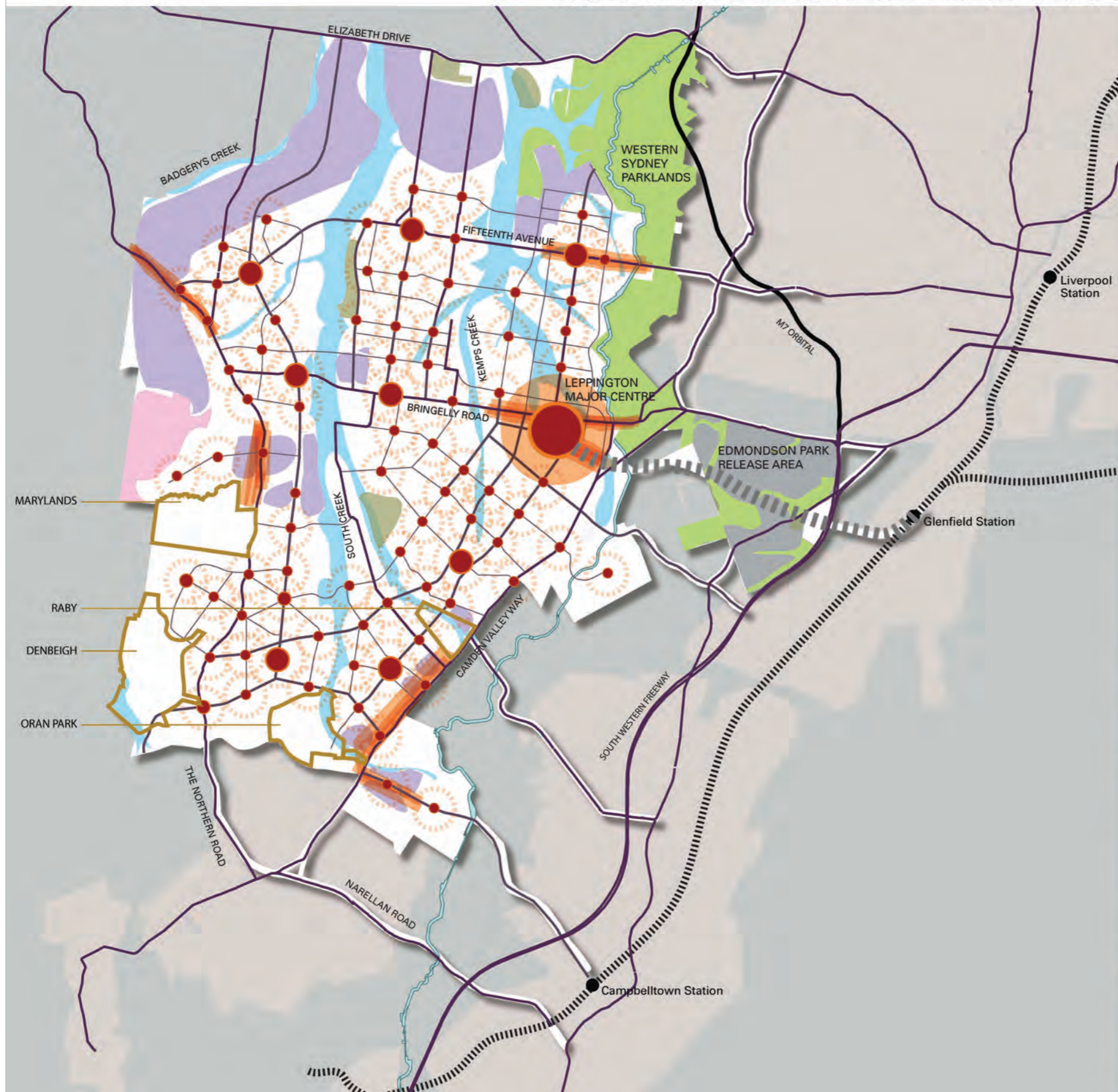
2.6 Precinct planning outcomes

The key precinct planning features and outcomes relevant to the Oran Park Precinct are set out below. Variances from these outcomes are discussed in Section 4.4. The Structure Plan is shown in Figure 7.

Dwellings & population (over 15 year development horizon)	<ul style="list-style-type: none"> 8,000 dwellings (increased to 8500 by the GCC) 22,000 people Mix of housing types
Town Centre	<ul style="list-style-type: none"> One mixed use town centre fed by major east-west roads and the north-south spine road 25,000-35,000 square metres retail floor space At least two supermarkets and one discount department store
Neighbourhood Centres	<ul style="list-style-type: none"> 6-7 neighbourhood centres Within 400 metres of edge of walkable neighbourhoods each around 50 hectares in area
Major roads and public transport	<ul style="list-style-type: none"> Connections to Leppington, M5, Liverpool and Campbelltown Provision for local and regional bus services Routed through Town Centre and neighbourhood centres
Heritage and archaeology	<ul style="list-style-type: none"> Curtilage around Denbigh to protect heritage significance and rural landscape amenity Curtilage around Oran Park Homestead to protect heritage significance
Vegetation and habitat	<ul style="list-style-type: none"> Areas of high ecological and landscape value to be protected

The above parameters provided a starting point for the planning of the Precinct. Specialist studies and detailed urban design were undertaken to verify whether the targets could be achieved or where variations to the Structure Plan were warranted. As mentioned above, variations are discussed in Section 4.4.

SOUTH WEST STRUCTURE PLAN



LEGEND

MAJOR CENTRES

TOWN & VILLAGE CENTRES

WALKABLE NEIGHBOURHOODS

A key element of the urban form is the walkable neighbourhood which is the area within a 400 metre radius from a local shop (or group of shops) or from another community focus (eg a community centre with a bus stop). Walkable neighbourhoods are clustered around mixed use main street retail centres shown as red on the plan. These centres include housing, community facilities, shops for daily convenience etc.

SOUTH WEST RAIL LINK

As part of Government's commitment to deliver better, sustainable new communities it announced that a new rail line would be constructed to serve the new communities. As part of the early planning for this project, the Government will investigate route alignment options.

EDMONDSON PARK RELEASE AREA

The Edmondson Park Release Area Local Environmental Plan is currently being finalised. The land use outcomes from the Local Environmental Planning process will form part of the new Growth Centres SEPP for the Edmondson Park Precinct.

FLOOD LIABLE LAND & MAJOR CREEKS

CONSERVATION / OPEN SPACE

HERITAGE CURTILAGES

TRANSITIONAL LANDS

INDUSTRIAL / EMPLOYMENT LANDS

MIXED USE EMPLOYMENT CORRIDORS

DISCLAIMER: The Draft Structure Plan is an indicative regional land use plan that will guide the detailed planning for Precincts when they are released.

NEW SOUTH WALES GOVERNMENT Department of Planning

NEW SOUTH WALES GOVERNMENT metropolitan STRATEGY

Figure 7 – South West Structure Plan

Source: NSW Department of Planning

3.0 Strategic and statutory framework

This chapter outlines the strategic and statutory planning framework within which the development and conservation outcomes for the Oran Park Precinct have been considered. **Attachment 1** provides an assessment of the draft ILP against the objectives of the Growth Centres SEPP and the Growth Centres Development Code.

3.1 State and regional strategic framework

3.1.1 Metropolitan Strategy

With the release in December 2005 of the Metropolitan Strategy – City of Cities, the New South Wales Government set the broad strategic framework to manage and promote growth in the Sydney region over the next 25 years. The strategy is the foundation for achieving region-wide outcomes in relation to:

- the economy and employment;
- centres and corridors;
- housing;
- transport;
- environment and resources;
- parks and public places; and
- implementation and governance.

The objectives in relation to these strategies relevant to the Oran Park Precinct are outlined below.

Economy and employment

The Strategy sets an employment target for the South West subregion of approximately 80,000 jobs by 2031. Accordingly, the Oran Park Precinct needs to provide sufficient land and infrastructure to meet employment land targets.

Centres and corridors

Centres need to provide places and locations for all types of economic activity and employment. The Oran Park Precinct needs to increase densities in centres whilst improving liveability, and concentrate activities near public transport.

Housing

In accordance with the Strategy, the Oran Park Precinct needs to ensure that an adequate supply of land and sites for residential development is provided to contribute to the 30-40% target for new housing in release areas.

The Precinct also needs to contain a mix of housing types, transport and services with residential development focused around town and neighbourhood centres. Housing affordability and the quality of new development needs to be improved.

Transport

In keeping with the Strategy, the Precinct needs to provide bus routes to serve new growth and improve transport between Sydney's centres. The design of the Precinct needs to encourage more sustainable travel and influence travel behaviour.

Environment and resources

In accordance with the Strategy, the Oran Park Precinct needs to protect Sydney's natural environment by improving the health of waterways and air quality, and protecting ecological diversity and Aboriginal cultural heritage. The Precinct must also conserve natural resources through sustainable use of water and by minimising waste.

Household exposure to unacceptable noise levels needs to be minimised.

Parks and public places

In keeping with the Strategy, access to quality parks and public places including waterways, bushland, parks and centres needs to be increased. Accordingly, the Precinct needs to include a diverse mix of parks, public places and local open space.



Figure 8 - View west across Denbigh curtilage area

Source: Hassell

3.1.2 South West Sydney Sub-Regional Plan

One of the strategies identified in the Metropolitan Strategy is the development of sub-regional plans. The Department of Planning has been working with the four local Councils in the South West Sydney Region (Liverpool, Campbelltown, Camden and Wollondilly) to develop the South West Sydney sub-regional plan. One of the aims of the sub-regional planning process is the establishment of dwelling and job targets for the sub-region.

The plan is nearing completion but is not ready to be released to inform this precinct planning process.

3.1.3 Growth Centre Structure Planning

Released in June 2005, *Managing Sydney's Growth Centres* sets out the direction and context for growth in Sydney's South West and North West. Over 110,000 new dwellings will be delivered in the South West Growth Centre over the next 25 to 30 years.

The Structure Plan for the South West Growth Centre (June 2006) provides the blueprint for the detailed planning of individual precincts, by integrating land uses and transport within interconnected street networks, walkable neighbourhoods and town centres, promoting access to services, employment and transport (while reducing car dependence), and balancing environmental management and protection with urban development.

The Structure Plan is founded on principles and objectives in relation to land use and location; densities and their distribution; the hierarchy of centres (walkable neighbourhoods and town centres); local employment; community development; transport network and the environment).

Because of its sizeable population catchment and location, the Structure Plan identified the Oran Park Precinct as containing a significant town centre. The town centre is intended to accommodate higher-density residential, retail and commercial development.

The town centre was to be intersected by several major transport links, with the major roads providing local and regional bus services linking the walkable neighbourhoods to the town centre.

The other neighbourhoods in the precinct were envisaged as smaller centres potentially providing local services, such as a convenience store, small supermarket, newsagent, ATM, video store, coffee shop, restaurant, medical suites, post office or a community focus such as a park, school, community centre or childcare facilities.

The planning outcomes for the Precinct are summarised in Section 2.6. Variations from the Structure Plan are discussed in Section 4.4 of the report.

3.1.4 The Growth Centres Development Code

The purpose of the GCDC is to set out the approach for, and provide the broad protocols and processes to be followed during, precinct planning. The objectives of the Code are to implement policies at the regional and neighbourhood levels, including, amongst other things, to:

- provide guidance on the precinct planning process;
- promote best practice urban design;
- increase housing choices;
- provide employment for locals;
- provide facilities and services at a local level;
- improve access to public transport;
- maintain the natural environment and visual character of the topography;
- integrate existing infrastructure;
- provide a range of commercial and retail opportunities;
- respect cultural heritage; and
- provide, protect and maintain a range of open space opportunities throughout the entire precinct.

The Development Code also includes policies at the block and lot level to, amongst other things:

- improve the quality of architecture;
- enable buildings to be energy efficient; and
- enable development to accommodate pedestrians and their comfort while also adequately accommodating vehicles.

The GCDC is integral to precinct planning for Oran Park.

3.1.5 Special Infrastructure Contribution

The Special Infrastructure Contribution (SIC), enabled under Sections 94ED to 94EM of the *Environmental Planning & Assessment Act 1979*, will be applied to all development within the North and South West Growth Centres as a means of contributing towards the funding of regional infrastructure in the Growth Centres. The additional infrastructure and services required as a result of the development within the Growth Centres to be funded via the SIC include: new and upgraded regional roads and heavy rail; bus services; educational services; health services; and provision of conservation lands. **Attachment 2** to this report describes the regional and state infrastructure to be funded by the Special Infrastructure Contribution.

3.2 Local strategic framework

The following section provides a summary of the local strategic framework. This is provided as background information only as the SWGC Structure Plan and the GCDC provide the policy context for the planning of the Oran Park Precinct.

3.2.1 Camden Structure Plan

The Camden Structure Plan was prepared in 1999 with the aim of providing a planning framework to facilitate growth while preserving the character of Camden. It did not envisage urban development of the Oran Park Precinct. As a consequence of this inconsistency between the South West Growth Centre Structure Plan and the Camden Structure Plan, Camden Council resolved on 27 February 2006 that Council should commence a formal review of the Camden Structure Plan. This process has yet to commence.

3.2.2 Camden 2025 Strategic Plan

The Camden Strategic Plan, prepared by Camden Council 1999, establishes a 25 year vision to preserve the traditional rural qualities of Camden while accommodating future urban growth. The strategy aims to manage urban growth, enhance accessibility, protect the environment, strengthen the local economy and community, and provide efficient governance. Specifically, the Plan sets out to ensure that:

- landscapes and vistas are protected;
- local communities have access to resources and facilities;
- a range of housing opportunities are provided;

- ecosystems are restored and protected;
- rural activities continue in the area;
- the economic base is increased and diversified;
- local shops and facilities service the immediate needs of the new communities; and
- the community has a role in the future of the area.

3.2.3 Camden Residential Strategy

Camden Council adopted a residential strategy in 1997 to address the rapid urban growth occurring at that time. The objectives of the residential strategy were to:

- maintain and enhance local character and a sense of place;
- achieve sustainable development;
- provide for a wide range of housing aspirations in the community;
- identify lands suitable for higher density/alternative housing development;
- prepare clear and acceptable plans and design guidelines; and
- improve the quality and efficiency of the approval process.

Most of the proposals outlined in the residential strategy have been implemented, and as a result of this and continued rapid urban growth, Camden Council resolved in 2005 to review the residential strategy. This process is underway and is due for completion in July 2007.



Figure 9 – View of Precinct to the south-east

Source: JBA

3.3 Relevant legislation & regulations

This section summarises relevant State and Commonwealth legislation that applies to the planning of the Oran Park Precinct.

3.3.1 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects the environment, particularly matters of National Environmental Significance (NES). Amongst other things, it streamlines national environmental assessment and approvals processes, protects Australian biodiversity and integrates management of important natural and cultural places.

Cumberland Plain Woodland as an endangered ecological community is a matter of NES. However, as there will be no significant impact on this ecological community at Oran Park, referral under the Act is not required.

3.3.2 Environmental Planning and Assessment Act 1979

The *Environmental Planning and Assessment Act 1979* (the EP&A Act) and the 2000 Regulation set out amongst other things the:

- requirements for rezoning land;
- requirements regarding the preparation of a local environmental study as part of the rezoning process;
- matters for consideration when determining a development application; and
- approval permits and/or licences required from other authorities under other legislation.

Ministerial directions under Section 117 of the EP&A Act require Councils to address a range of matters when seeking to rezone land. While not directly relevant to the rezoning process adopted for the Growth Centres, these directions have nevertheless been addressed in planning the Oran Park Precinct. The draft Precinct Plan for Oran Park is consistent with relevant directions as summarised in **Attachment 1**.

The draft ILP for the Oran Park Precinct has been prepared in accordance with the EP&A Act and Regulations. The Precinct will be rezoned via the gazettal of an amendment to the Sydney Region Growth Centres SEPP 2006.

3.3.3 Environmental Planning and Assessment Amendment (Sydney Region Growth Centres) Regulation 2006

The purpose of the Growth Centres Regulation is to support the Growth Centres SEPP. The Regulation makes provision for the release of precincts for residential, employment and other urban development in the North West and South West Growth Centres. In particular, it requires the Minister to prepare a Development Code and Infrastructure Plan to assist with the precinct planning process. In accordance with the Regulation the Minister declared the Oran Park Precinct to be released for urban development in January 2007.

3.3.4 Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* (TSC Act) identifies and protects threatened and endangered species, populations and ecological communities. The objectives of the Act include:

- conserving biological diversity and promoting ecologically sustainable development;
- preventing the extinction and promoting the recovery of threatened species, populations and ecological communities;
- protecting critical habitats; and
- encouraging the conservation of threatened species, populations and ecological communities.

The Act also provides for the biodiversity certification of environmental planning instruments such as the Growth Centres SEPP. A Conservation Plan has been prepared and exhibited by the GCC, which seeks to achieve certification of the Growth Centres SEPP as provided by the TSC Act.

The draft ILP has addressed the requirements of the Act in relation to threatened and endangered species and ecological communities and incorporates measures to restore and protect these species and communities.

3.3.5 Water Management Act 2000

The *Water Management Act 2000* provides for the sustainable and integrated management of water resources of the State. Objectives of the Act relevant to the Oran Park Precinct include:

- applying the principles of ecologically sustainable development;
- protecting, enhancing and restoring water sources, their associated ecosystems, ecological processes and biological diversity and their water quality;
- the classification of water courses;
- fostering the sustainable and efficient use of water; and
- integrating the management of water sources with the management of other aspects of the environment, including land, native vegetation and fauna.

The *Water Management Act* repeals and replaces a number of other pieces of legislation including the *Rivers and Foreshores Improvement Act 1948*. However, in certain circumstances, such as works within 40 metres of a natural or artificial water body, the provisions of the *Rivers and Foreshores Improvement Act 1948* still apply (see below).

Precinct planning for Oran Park has addressed the requirements of the Act and the categorisation and management of riparian corridors is reflected in the draft ILP.

3.3.6 River and Foreshores Improvement Act 1948 (as amended)

The *Rivers and Foreshores Improvement Act 1948* protects natural and artificial water bodies, including the bank, shore or bed of those water bodies and adjacent land within 40 metres of the top of their banks or shores. Under section 22B of the Act, a Part 3A permit is required for any excavation or other works within 40 metres of a water course.

In accordance with the principles established for streamlining development assessment procedures for the Growth Centres, the GCC will be seeking an exemption from approval under Part 3A of the Act for the Oran Park Precinct.



Figure 10 – Dam near South Creek

Source: Hassell

3.3.7 Rural Fires Act 1997

Amongst its objectives, the *Rural Fires Act 1997* (RF Act) seeks to prevent, mitigate and suppress bush and other fires. Under Section 100B of the RF Act, a permit is required from the NSW Rural Fire Service should a development fall within the boundaries of a Bushfire Prone Area. The granting of this permit is dependent upon the development's compliance with standards regarding setbacks, provision of water supply and other matters necessary to protect persons, property or the environment from bushfire danger.

Precinct planning for Oran Park has addressed the requirements of the Act and the management of potential bushfires by way of Asset Protection Zones.

3.3.8 National Parks and Wildlife Act 1974

The *National Parks and Wildlife Act* (NPW Act) provides the primary basis for the legal protection and management of Aboriginal sites and relics within NSW (Section 90 and 84). The Act requires amongst other things:

- consultation with the Department of Environment and Conservation prior to development to determine the existence of items of Aboriginal heritage;
- consultation with local Aboriginal groups; and
- consent to disturb or destroy Aboriginal heritage sites/items.

Precinct planning for Oran Park has addressed the requirements of the Act through consultation with Aboriginal groups and the management of Aboriginal heritage. Land containing Aboriginal cultural heritage impacted by future development will be subject to an application for consent to destroy under Section 90 of the NPW Act.

3.3.9 Heritage Act 1977

The *Heritage Act 1977* includes a range of provisions for identifying and protecting items of environmental heritage. The Act controls development of, or in the vicinity of, a State heritage item. The State Heritage Register (SHR), established under Section 22, lists items which have been assessed as being of 'State' significance.

A heritage curtilage has been established in the draft ILP to protect the heritage significance of the Denbigh Estate which is listed on the SHR. The Denbigh Estate is to be zoned Environmental Living under the SEPP amendment. The zone provides for low-impact residential development in areas with special ecological, scientific or aesthetic values, and seeks to ensure that residential development does not have an adverse effect on those values.

3.4 State and regional statutory framework

This section summarises the relevant state and regional environmental planning instruments and policies that apply to the precinct.

3.4.1 SEPP (Sydney Region Growth Centres) 2006

The Sydney Region Growth Centres SEPP is the primary statutory plan governing the release and rezoning of land in the Sydney Region Growth Centres and establishes the broad planning controls required to oversee the development of the Growth Centres. In particular, the SEPP identifies areas of open space and environment conservation to be protected within the Growth Centres, as well as flood prone areas, major creeks and transitional lands that need to be further addressed in the precinct planning process. Specifically, the aims of the SEPP are to:

- co-ordinate the release of land for residential, employment and other urban development in the North West and South West Growth Centres of the Sydney Region;
- enable the Minister from time to time to designate land in those Growth Centres as ready for release for development;
- provide for comprehensive planning for those Growth Centres;
- enable the establishment of vibrant, sustainable and liveable neighbourhoods that provide for community well-being and high quality local amenity;
- provide controls for the sustainability of land in those Growth Centres that have conservation value;
- provide for the orderly and economic provision of infrastructure in and to those Growth Centres;
- provide development controls in order to protect the health of the waterways in those Growth Centres;
- protect and enhance land with natural and cultural heritage value; and
- provide land use and development controls that will contribute to the conservation of biodiversity.

The outcomes of the precinct planning process will result in an amendment to the SEPP to establish the future zoning and development for Oran Park. Adjustments will be made to the Precinct boundary to reflect detailed characteristics on the ground which were not recognised at the broad strategic planning level (see **Section 4.4.1**).

3.4.2 SEPP 11 – Traffic Generating Developments

SEPP 11 ensures that the Roads and Traffic Authority (RTA) is made aware of traffic generating development and is given the opportunity to provide comment. The RTA is actively involved in the planning process for the Oran Park Precinct in relation to major roads, transport corridors and bus routes. SEPP 11 will continue to apply to future traffic generating development proposals.

3.4.3 SEPP 19 – Bushland in Urban Areas

SEPP 19 aims to protect and preserve bushland within urban areas. Planning for Oran Park involves the conservation and enhancement of bushland. Future development will need to be managed in accordance with the SEPP.

3.4.4 SEPP 55 – Remediation of Land

SEPP 55 aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment. It specifically requires consideration when rezoning land and in determining development applications, and requires that remediation work meets certain standards and notification requirements. The requirements of SEPP 55 have been considered during precinct planning and will be further addressed during detailed design and development.



Figure 11 - View towards South Creek

Source: Hassell

3.4.5 Draft SEPP 66 – Transport and Land Use Integration

Draft SEPP 66 aims to ensure that the urban structure, built forms, land use locations, subdivision and street layouts help achieve the following relevant planning objectives:

- improve accessibility to housing, employment and services by walking, cycling, and public transport;
- improve the choice of transport and reduce dependence solely on cars for travel purposes;
- moderate growth in the demand for travel and the distance travelled, especially by car; and
- support the efficient and viable operation of public transport services.

The objectives of the Draft SEPP are integral to precinct planning for Oran Park.

3.4.6 Sydney Regional Environmental Plan No. 20 – Hawkesbury Nepean River (No. 2 – 1997)

Sydney Regional Environmental Plan No. 20 (SREP 20) seeks to protect the environment of the Hawkesbury-Nepean River system. Development within the catchment is required to consider the general and specific principles and controls listed in the SREP to ensure that the impacts of future land use are considered in a regional context.

South Creek and Cobbitty Creek are tributaries of the Hawkesbury-Nepean River system and therefore precinct planning needs to consider the impacts of the development on the health of the system.

3.5 Local statutory framework

The following sections summarise the local plans and policies that currently apply to the Precinct.

3.5.1 Camden Local Environmental Plan No. 48

Local Environmental Plan (LEP) 48, which was gazetted in 1992, applies to all rural land in the Camden LGA. The LEP aims to:

- consolidate planning controls for rural areas;
- maintain the rural atmosphere;
- maintain the agricultural productivity of the area;
- effectively manage subdivision and development within the rural areas; and
- conserve environmental heritage.

Under the LEP the Oran Park Precinct is zoned Rural 1(a) and Special Uses 5(b) Arterial Road. Once the Oran Park Precinct is rezoned under an amendment to the Growth Centres SEPP this local plan will no longer apply.

The Denbigh Homestead is listed as an heritage item in the LEP and will be listed in the above SEPP.

3.5.2 Draft Camden Local Environmental Plan

Camden Council is currently preparing a principal Local Environmental Plan for the local government area in accordance with the Standard Instrument (Local Environmental Plan) Order 2006. The plan will provide a consistent set of objectives and controls across Camden. The plan, which is still in its formative stages, will respond to the outcomes of the Oran Park Precinct planning process.

3.5.3 Other Plans

Camden Section 94 Contributions Plan and Camden Development Control Plan 2006 currently apply to the Oran Park Precinct. However, as part of the precinct planning process a site specific DCP and site specific contributions plan have been prepared. Once the amendment to the Growth Centres SEPP is gazetted and the site specific Section 94 Plan and DCP are adopted, the Camden Section 94 Contributions Plan and Camden Development Control Plan will no longer apply to the Oran Park Precinct .



Figure 12 – The Northern Road looking south

Source: JBA

4.0 Indicative Layout Plan

This chapter of the report describes the draft ILP and the urban design principles that set the foundation for its structure. Further detail is provided throughout the environmental assessment in the following chapters.

The draft ILP differs in some respects from the Structure Plan for the South West Growth Centre and this chapter describes and explains these variations. The planning provisions for the Oran Park Precinct included in the draft SEPP amendment and draft DCP provide for some changes to the draft ILP where the environmental assessment in the following chapters demonstrates that this is appropriate.

4.1 Urban Design principles

The overarching objectives for the design and planning of the Oran Park Precinct were to:

- incorporate a broad range of housing styles, products and lifestyle opportunities;
- facilitate the early provision of employment opportunities
- respect and respond to the natural environment of the locality;
- ensure a balance between economic, social and environmental outcomes; and
- be commercially sound, responsive to the market and utilise the land efficiently.

The draft ILP enunciates the following main urban design principles:

- Well defined and robust inter-connected neighbourhoods that support and reinforce the Town Centre and neighbourhood centres.
- Inter-connected major roads deliver a framework for housing, shopping, recreation and community activities and employment.
- Residents are generally within a 5 minute walk of bus stops.
- A road structure which connects to district and regional centres such as Leppington, Campbelltown, Narellan and Camden.
- Retail and commercial centres, residential neighbourhoods, employment land and community infrastructure are accessible, attractive, inviting and safe.
- The location of land uses and activities considers environmental, social and economic criteria.
- The Precinct is to be a sustainable community where reliance on private vehicles is reduced through public transport, walking and cycling options.

4.2 Description of the draft ILP

The draft ILP, shown in **Figure 13**, for the 1145 hectare Oran Park Precinct integrates future employment, retail and residential land with the Denbigh Estate curtilage and the riparian corridors of South Creek and its tributaries. Proposed north-south and east-west spine roads bisect the Precinct, as does The Northern Road.

Primarily characterised by a mix of low and medium density residential uses, the draft ILP also contains smaller areas of high density residential, as well as employment, commercial, retail, bulky goods retail, environmental, community and recreation uses. **Table 2** below represents the breakdown of land uses (excluding roads and drainage).

A significant Town Centre and two neighbourhood centres will service the needs of the locality and region. Revegetated riparian corridors and remnant Cumberland Plain Woodland as well as stormwater detention basins are located across the Precinct, while the northeast corner of the Precinct contains an easement for 330kW powerlines.

Existing ridgelines form a visual and physical buffer to mitigate any impacts from urban development on the heritage qualities of the Denbigh Estate and its curtilage. The social significance of the Oran Park Raceway is acknowledged in the design of the street layout in the locality of the Raceway.

Table 2 – Draft ILP land uses

Land Use	Area (ha)
Residential	494.5
Retail/Commercial	28.71
Employment	16.67
Open Space and Recreation	72.4
Riparian Corridors and Buffers	70.1
Community Facilities and Schools	31.95

4.2.1 Residential neighbourhoods

The approximately 495 hectares of residential land shown on the draft ILP provides approximately 7,560 new dwellings with a range of densities to maximise choice and encourage a mix of dwelling occupation. Residential development is located throughout the Precinct, with higher density generally concentrated around the Oran Park Town Centre, the southern neighbourhood centre and other areas of higher amenity such as parks and community facilities. The envisaged approximate distribution of dwelling types is shown at **Table 3**. The transitional land adjoining the Denbigh curtilage will contain large lot residential development sensitive to the heritage significance of the Estate. An aged care facility is proposed on the land to the west of The Northern Road and north of Cobbity Road.

The walkable neighbourhoods, shown in **Figure 14**, are generally focused on neighbourhood parks, shops and community facilities.

Table 3 – Proposed dwelling mix

Dwelling type	Approximate number
Detached	4,451
Attached and semi-attached	2,413
Apartments	696
Total dwellings	7,560

In addition to the existing Macarthur Anglican School, the draft ILP includes one private school, four public primary schools and one public high school, with playing fields located on or adjacent to these sites.

A branch library and large multi-purpose community centre with cultural and performance spaces are proposed to be located in the Town Centre. Two smaller community centres and three childcare facilities co-located with the primary schools are to be located on the eastern side of the Precinct.

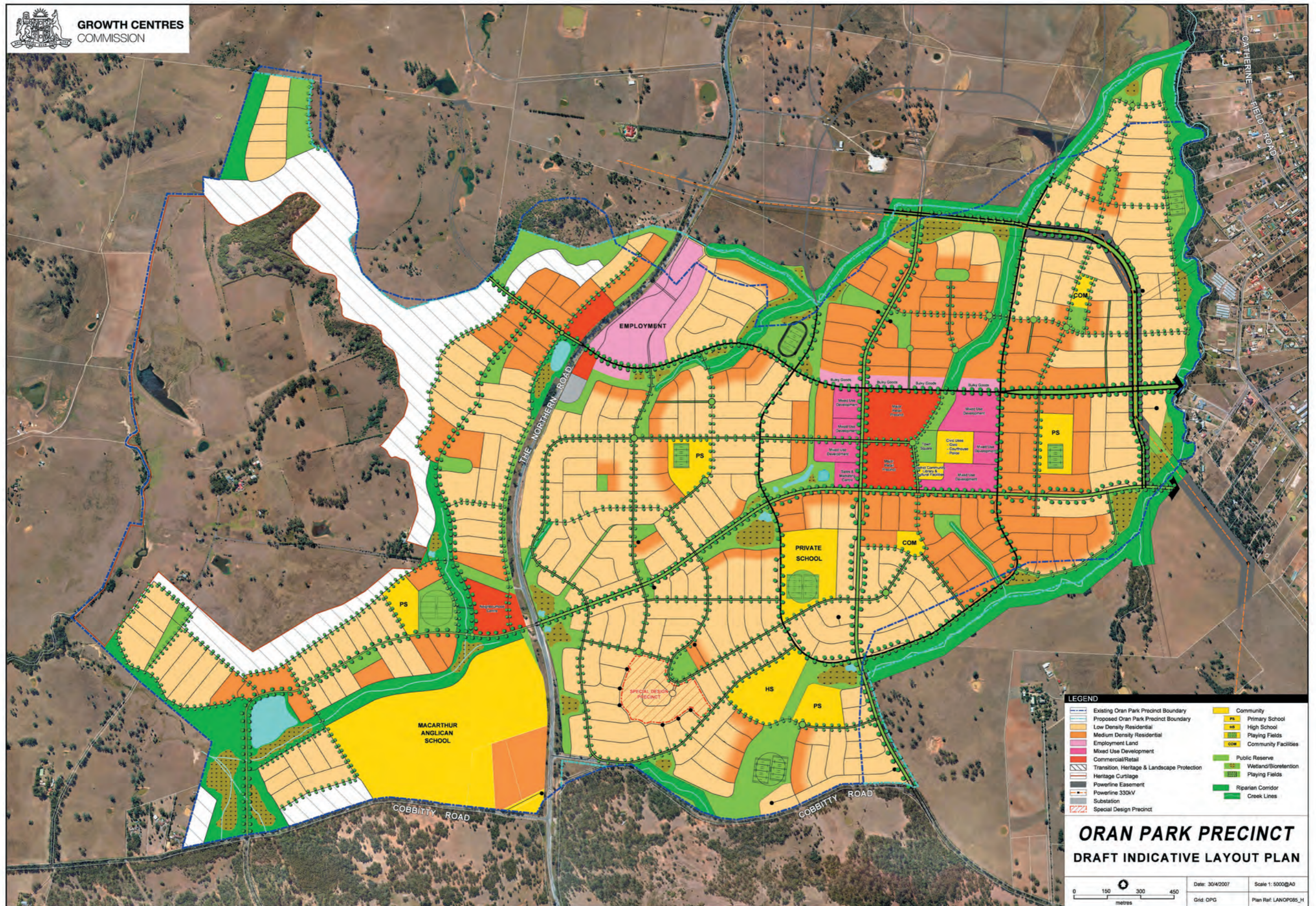


Figure 13 - Oran Park Indicative Layout Plan

Source: Inspire Urban Design and Planning DPS (NSW)

4.2.2 Employment and retail

A large area of employment land - 16.67 hectares - is located on relatively flat land with good exposure and access on the eastern side of the Northern Road.

The 22.5 hectare Oran Park Town Centre is bounded by the the North Spine Road, the Southern Boulevard, North South East Road and East West Road 1. The Centre will be pedestrian friendly with a strong sense of place, containing, amongst other things a town square, civic uses, offices, mixed use development, a mix of retail and community, library and cultural facilities.

A 1.9 hectare neighbourhood centre is located in the north of the Precinct on the western side of The Northern Road. With 5,000 square metres of retail floor space, the highway oriented uses could include service stations, car services, and some local neighbourhood retail.

The 3.46 hectare neighbourhood centre located to the south west of the Precinct comprises 5,000 square metres of neighbourhood retailing, such as a small scale supermarket, to service the neighbourhoods on the western side of The Northern Road. Together with the existing Macarthur Anglican School, new public school, sports fields and a riparian corridor, the centre forms a strong hub and focus for residents on the western side of the Precinct.

4.2.3 Open space

The open space system comprises playing fields, local parks and riparian corridors. Core vegetation along the water courses and remnant Cumberland Plain Woodland are retained and revegetated. Variable riparian corridor widths are designed to protect the biodiversity of South Creek, Cobbitty Creek and other tributaries.

The dam located in the south western corner of the Precinct has been retained, albeit reconstructed, and other wetland areas are provided throughout the Precinct for stormwater detention. A stepping stone biodiversity corridor links the riparian corridor of South Creek and its tributary to habitats south of Cobbitty Road. Employment and residential uses front the riparian corridors to provide casual surveillance and maximise amenity.

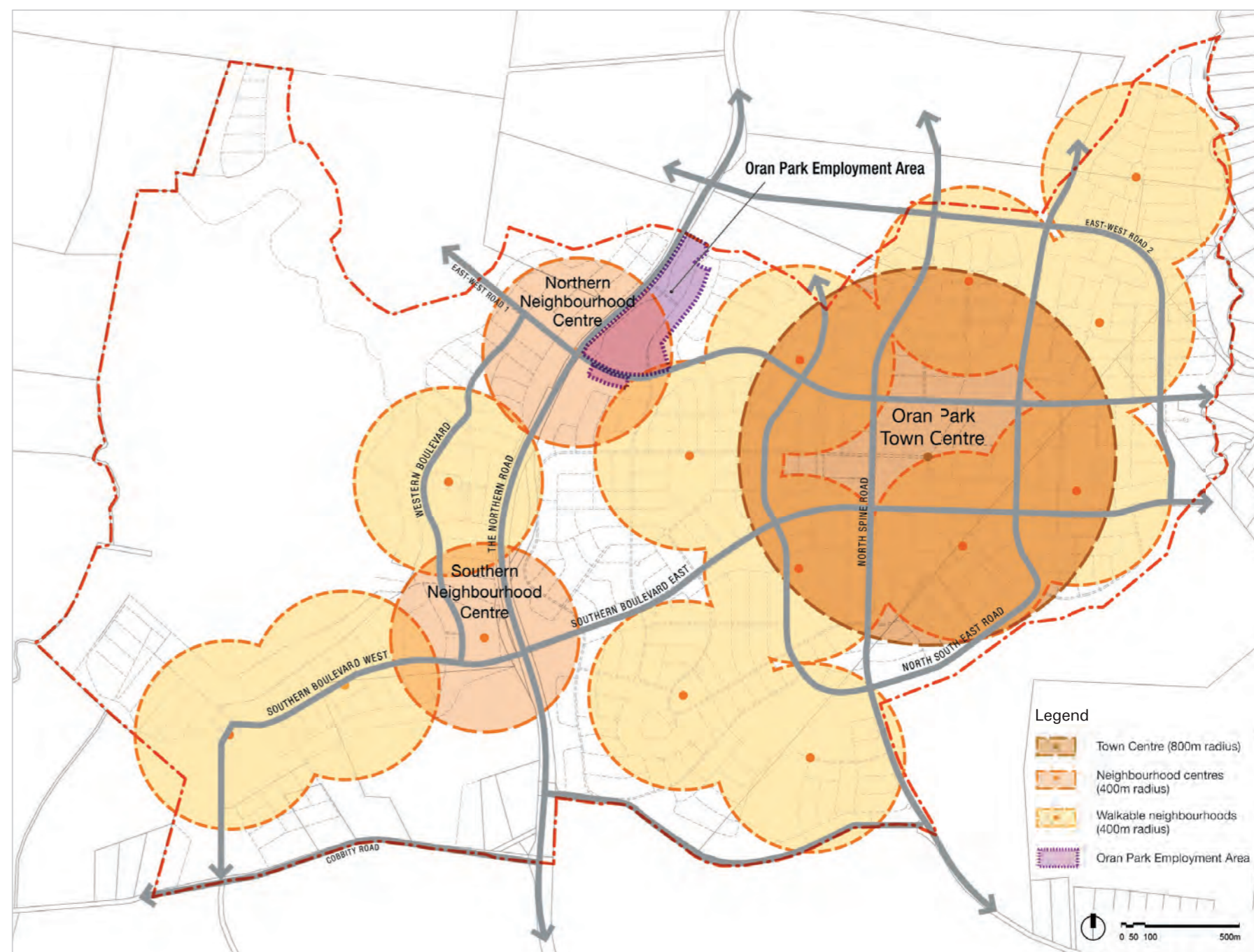


Figure 14 – Walkable neighbourhoods

Source: Jackson Teece

4.2.4 Transport

The design of the Precinct caters for a range of transport modes. The road hierarchy facilitates residential amenity, traffic efficiency and safety. A network of arterial and sub-arterial spine roads run east west and north south throughout the Precinct. The road layout is integrated with natural topography and is characterised by an even distribution of north-south and east-west local streets, providing for walkability and choice of movement. Roads are aligned to maximise views of open space and conservation areas.

Public transport use is encouraged by locating routes and bus stops within walkable distances and a future regional bus route from Leppington to Campbelltown will connect through the Oran Park Town Centre.

All streets are designed to encourage pedestrian and cycle movement, safety and amenity. Off road shared pedestrian/cycle ways are located along riparian corridors and major roads and link to recreation areas, community facilities and the Oran Park Town Centre.

4.3 Infrastructure Provision

The following section briefly summarises the arrangements for key services and infrastructure to the Precinct. On the basis of this information, the first 3000 lots at Oran Park will be able to be serviced by critical infrastructure.

4.3.1 Water and Sewer

A key factor shaping the decision to release the Oran Park and Turner Road Precincts was their comparative advantage in being able to be serviced for water and sewer. The West Camden Sewage Treatment Plant is already being expanded and will be able to cater for the Turner Road Precinct and the first 3,000 lots within the Oran Park Precinct. Water will be supplied from the existing Narellan South Reservoir.

Sydney Water is currently finalising a detailed strategy for the South-West sector and Oran Park and Turner Road are being taken into account in its preparation. The strategy will confirm the precise arrangements for future supply of water and sewerage treatment.

4.3.2 Power

Integral Energy, the electricity supply authority in south-western Sydney, has been closely involved in the planning for both the Oran Park and Turner Road Precincts.

Oran Park will require the construction of a new zone substation which is to be located adjacent to the eastern edge of The Northern Road. This substation is to be serviced by two new 132kV lines, with one connecting from the existing Nepean zone substation to the south and the other connecting from the existing Bringelly zone substation to the north. Alignment options for both 132kV connector lines are currently being considered by Integral Energy. It is likely that a temporary zone substation will be used in the initial phase of development. This would be located on the site of the future permanent zone substation.

4.3.3 Gas and Telecommunications

Both gas and telecommunications are delivered by private sector providers and are generally negotiated at the time of development applications for site infrastructure. Provision of trunk infrastructure is generally undertaken by the respective utility on a commercial basis. The scale of Oran Park makes it highly likely that gas will be a viable commercial proposition and will be provided. Telecommunications are routinely provided in association with new development.

4.4 Variations from the SWGC Structure Plan

The Structure Plan for the SWGC sets out the key planning parameters for the Oran Park Precinct (see **Section 2.6**). As a result of the detailed investigation and design undertaken for precinct planning, the draft ILP for the Oran Park Precinct differs from the Structure Plan in a number of respects.

Described below, none of the proposed departures detract from the intended overall outcome for the SWGC and all facilitate development and enhance the planning outcomes for Oran Park Precinct. The consistency of the draft ILP with the Structure Plan is further summarised in **Attachment 1** of this report.

4.4.1 Boundary changes

The boundaries of the the draft ILP for Oran Park Precinct vary from the Structure Plan in the following ways:

- **Northern edge:** changed to align with streams, 330kV power line, ridgelines, the Denbigh curtilage and property boundaries.
- **South eastern edge:** boundary changed to follow creeklines and the proposed alignment of the main southern entry road, and to follow Cobbitty Road up to The Northern Road.

The detailed studies undertaken for precinct planning have provided a better understanding of the nature of the land. This improved understanding has resulted in the need to refine the precinct boundaries to align more closely with natural catchments and other features of the land, as described above and shown in **Figure 13**.

By re-aligning the Precinct boundary with natural catchments and features, the orderly and economic development of the Precinct is ensured. The change amounts to the incorporation of an additional 37.6 hectares within the Precinct which is considered minimal given the size of the Precinct and the advantages for the planning and delivery of the Precinct.

4.4.2 Cobbitty Road extension

As an alternative main access into the Precinct from Camden Valley Way, the draft ILP shows an extension of Cobbitty Road to link with the Oran Park Town Centre to the north. This replaces, in the medium term, the Oran Park link road which extends into the Catherine Fields Precinct, as shown on the Structure Plan. Given that a section of the Oran Park link road lies outside of the Precinct and is subject to long term decisions and development, the alternative Cobbitty Road access is considered necessary for the provision of an efficient road and public transport network at the time Oran Park is developed.

The Cobbitty Road extension provides direct access for buses and cars to the Oran Park Town Centre and connects with Badgally Road in the Turner Road Precinct which is proposed to be developed at the same time as Oran Park. Overall, this facilitates early provision of public transport - a fundamental objective for the Growth Centre.

4.4.3 Employment lands

The South West Structure Plan did not envisage specific employment land within the Oran Park Precinct. The draft ILP includes 16.67 hectares of employment land.

Available employment land in Camden is being taken up and future land is in short supply, and based on economic forecasts, the quantum of employment land in the Turner Road Precinct (both in the Structure Plan and in the Turner Road draft ILP) will not be sufficient to meet future employment needs.

While recognising that the Oran Park Precinct is short of the GCC's preliminary 8,500 target dwelling yield, it is important that additional employment land be provided – so meeting the fundamental objective of creating local job opportunities early in the development of the SW Sector and reducing car travel. The additional employment land would generate approximately 650 jobs within the Oran Park Precinct, while if it were to be developed for residential uses, it would yield in the order of 250 additional dwellings.

Given the need for local job opportunities, the foreshadowed scarcity of employment land in the Camden area, and that the Turner Road Precinct will achieve its dwelling target, the reduction in residential land at Oran Park is considered justifiable. Additional jobs also contribute to the viability of the Oran Park Town Centre, and will help reduce vehicle trips to work.

4.4.4 Size of the Town Centre

The South West Structure Plan, and the explanatory notes that accompanied it, identified the Oran Park Town Centre as providing between 25,000 and 40,000m² of retail floor space. The draft ILP proposes a larger Town Centre that will support 50,000m² of retail floor space, including a maximum of 10,000m² of bulky goods.

A Town Centre of this size in Oran Park, while larger than envisaged in the Structure Plan, is consistent with the overall hierarchy of retail centres in the South West Growth Centre and will not, on the advice of Macroplan, detract from the viability of the future Leppington Town Centre or other smaller centres envisaged in future surrounding precincts.

The Town Centre is located wholly on land in one ownership, thus providing an opportunity for relatively early delivery of retail, commercial, community and recreational activities at the heart of the community. This in turn facilitates the opportunity for the earlier development of higher densities of housing in close proximity to the Town Centre than would have otherwise occurred from a slowly evolving town centre.

A larger Town Centre in Oran Park, given that it will not detract from the viability of other centres, is considered appropriate and moreover is an opportunity to ensure a vibrant town centre for the future communities that will contain a range of activities and services in a central location with good access to public transport services.

4.4.5 Dwelling yield and population

The Structure Plan nominated a dwelling yield of 8,000 for the Oran Park Precinct – which was subsequently increased to 8,500 by the GCC after preliminary assessment. This target was based on a Growth Centre-wide analysis, and did not factor in the specificities of topography, riparian corridors, wetland/drainage needs, existing land uses (notably the Macarthur Anglican School) and the like. The draft ILP provides for 7,560 dwellings.

Land take to accommodate core riparian zones, vegetation and habitat retention, topography, transitional lands and other environmental protection measures has reduced the amount of land available for residential development, as has the requirement to deliver employment lands that were not envisaged prior to the commencement of the precinct planning process. Consequently, the expected dwelling yield has not been achieved. If the draft ILP was to do so, the quality of residential amenity would be compromised. Moreover, as discussed above, the loss of around 250 dwellings is well compensated by the provision of land that will generate jobs closer to home.

On these grounds, the proposed dwelling yield of approximately 7650 for the Oran Park Precinct is supported.



Figure 15 – Oran Park Raceway

Source: JBA

5.0 Environmental analysis

This chapter of the report draws on the work undertaken by specialist contractors and summarises the existing environment at Oran Park. The purpose is to provide an understanding of how the existing physical conditions and features of the precinct have shaped and informed the draft ILP and how, in turn, precinct planning potentially impacts on these environmental features and conditions. The management response to any issues and impacts identified in the environmental analysis is discussed.

Specifically, in accordance with the GCDC, the Structure Plan and where relevant the SEPP, planning at a local and regional level must improve access to public transport, encourage walking and cycling and reduce dependence on private vehicles; maintain the natural environment and visual character of vegetation, riparian corridors and topography; improve environmental benefits; respect cultural heritage; and protect and maintain open space. A network of transport corridors needs to be provided and existing infrastructure integrated into the draft ILP.

The draft ILP's compliance with the Growth Centres SEPP and Development Code is summarised in **Attachment 1** of this report.

5.1 Landscape and visual character

The Development Code requires that new development within the Growth Centres should be sustainable and integrate with the character of the existing environment. In order to understand the existing landscape characteristics of the Oran Park Precinct, a landscape and visual character assessment was undertaken (see **Appendix A**). The aim was to establish the landscape characteristics of the Precinct and to determine how the development could be successfully integrated into it.

5.1.1 Existing conditions

The Oran Park Precinct is divided east and west by The Northern Road. To the east of The Northern Road the Precinct is characterised by undulating hills and valleys with a dominant ridgeline and a clearly defined, lower lying creek area. The ridge has multiple high points and is partially occupied by the Oran Park Raceway. Much of the eastern side of the precinct has a pastoral, park like quality as most of the native vegetation has been removed and vast grasslands prevail.

To the west of The Northern Road the landscape contains valleys and hills of greater topographic distinction. The highest point of the Precinct is located in the north-west corner at 150m AHD and falls away to the south east and south west. The large dam, along with levee banks, in the south west corner creates a strong, dominating sculptural form in the landscape. Many dirt trails serve the agricultural uses on the land.

There are denser stands of vegetation on top of the ridgeline on the western side of the Precinct as well as in some riparian corridors across the Precinct. Significant vegetation aligns the existing roads creating a strong rural character.

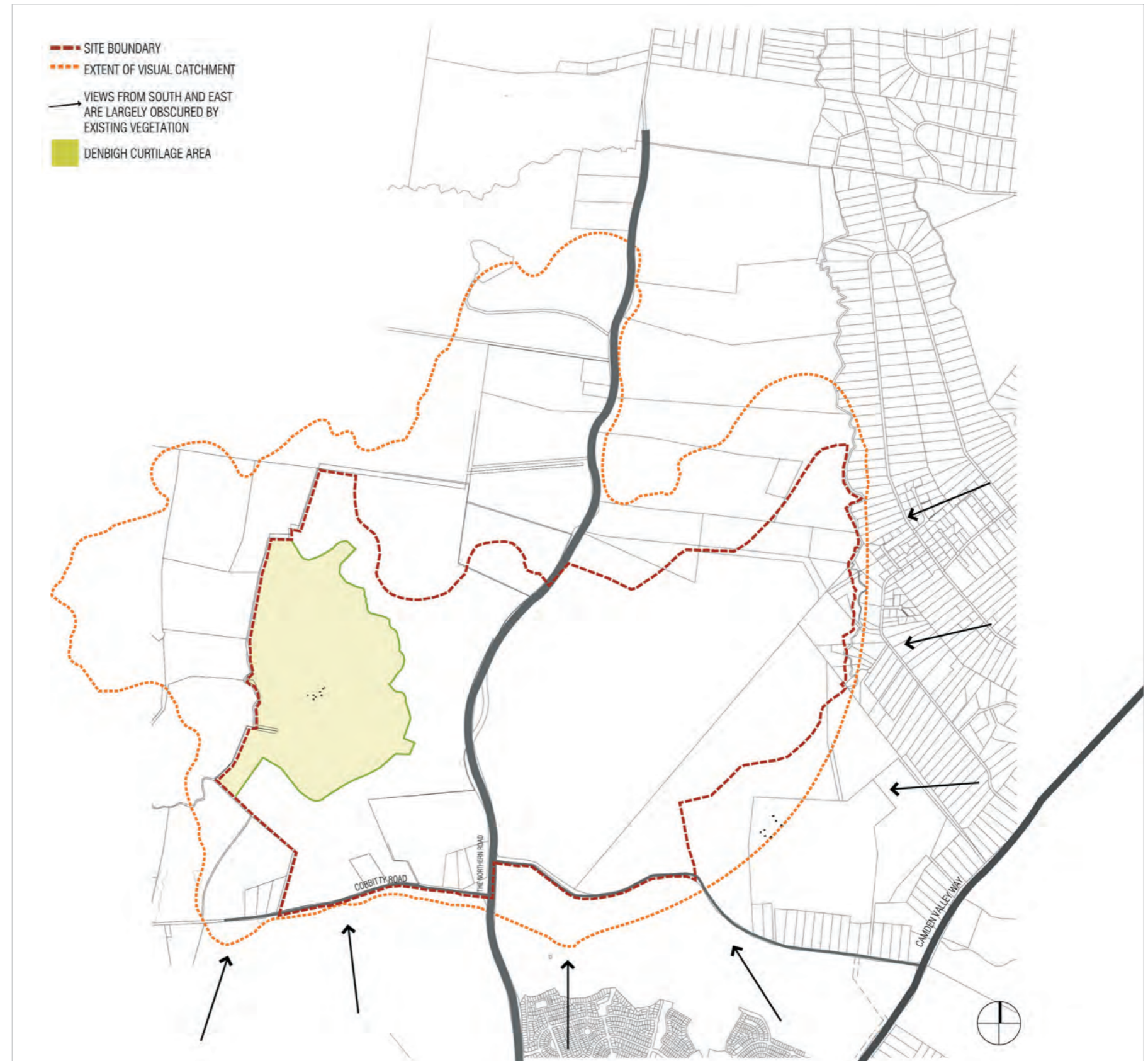


Figure 16 – Visual Catchment

Source: Hassell

The visual catchment of the Oran Park Precinct is largely contained by the topography of the land and by existing vegetation. Riparian vegetation along South Creek screens the site from most eastern vantage points although a local high point further a field at Camden Valley Golf Course affords a distant panoramic vista across the site. Roadside planting along Cobbitty Road also provides substantial screening of the site along the southern boundary.

To the north, the visual catchment is more expansive particularly on the western side of The Northern Road. A finger of creek line vegetation provides the visual definition of the northern boundary of the eastern half of the Precinct, and the prominent Denbigh Estate ridgeline defines the northern edge of the western half. The visual catchment of the site is shown in Figure 16.

In reviewing the draft ILP, Hassell noted that:

- most riparian corridors are retained as open space and the draft ILP provides for the augmentation of core riparian vegetation;
- medium density development is generally located on lower lying land where it will be less visually prominent;
- lower density development is located on more undulating lands, thereby allowing for retention of canopy trees in more prominent locations to screen and buffer views of new housing;
- large rural lots are proposed on the prominent ridge to the east of the Denbigh Estate so retaining the aesthetic value of the homestead by way of low impact development and a significant amount of vegetation; and
- significant roadside tree vegetation north of Cobbitty Road (east) is retained.

However, Hassell also points out that:

- the block and lot layouts and the proposed density will result in a major change to the existing rural landscape, effectively transforming green pastoral landscape to a typically urbanised environment; and
- new development for employment uses will be visually prominent on The Northern Road.

5.1.2 Impacts and assessment

The visual impact of a proposed development is determined by evaluating its visual effect in the context of the visual sensitivity of the surrounding landuse areas from which the proposed development may be visible. Figure 17 shows the vantage points within the Precinct and the surrounding area which Hassell has nominated as being visually important. The potential impact that the proposed development (including both natural and built elements) might have on the environment was then assessed. A summary of the assessment is given in Table 4. There are several areas within the Precinct where future development will be highly visible and therefore require careful planning to ensure it does not have an adverse impact on important view corridors.

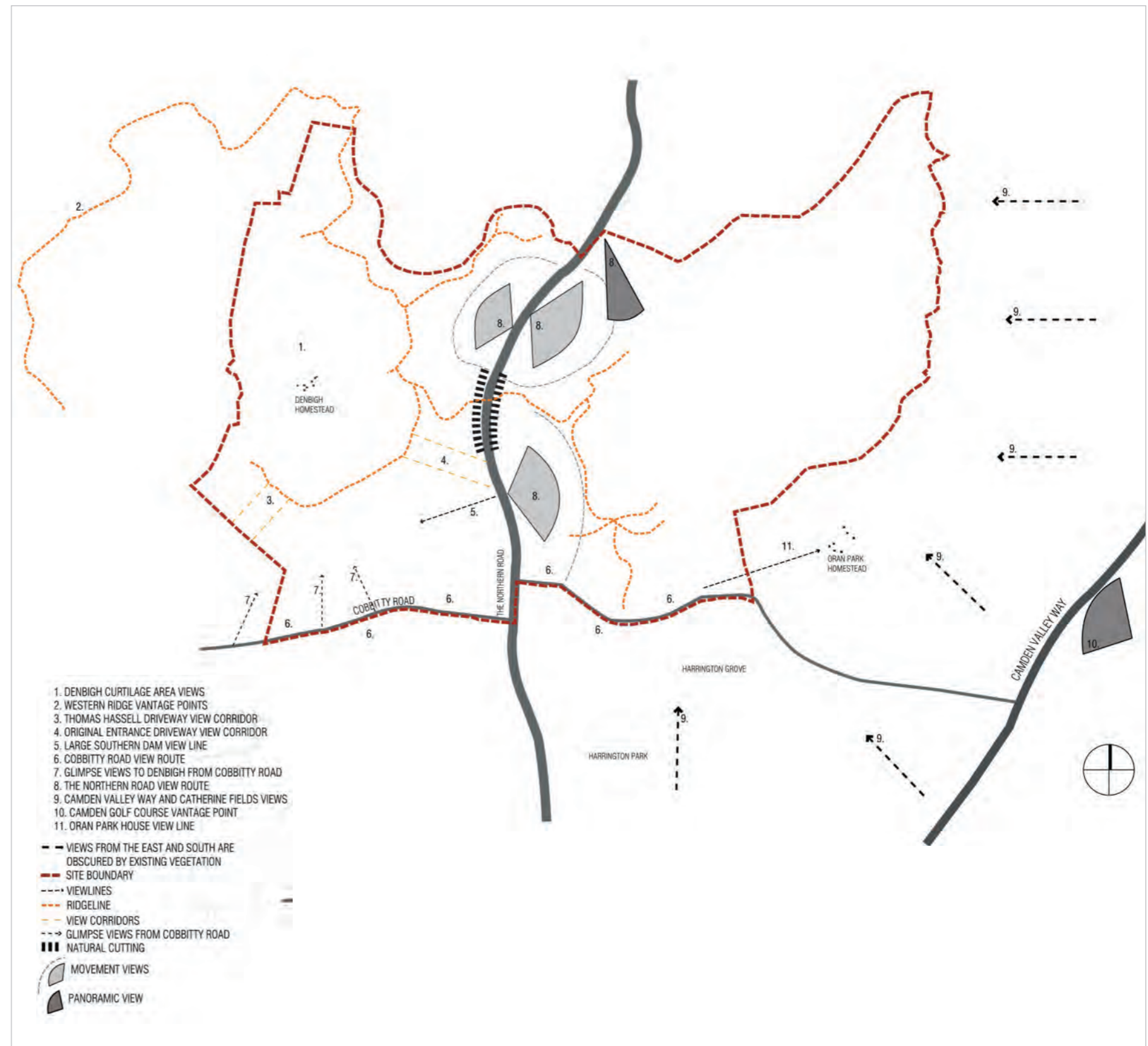


Figure 17 – Views and viewer locations

Source: Hassell

Table 4 – Summary of visual impact assessment

Map reference (see Figure 17)	Vantage Point	Visual Impact Assessment
1A	Denbigh Estate curtilage area (north and east)	LOW - development will be contained outside the view catchment of the Denbigh homestead.
1B	Denbigh Estate curtilage areas (south)	HIGH - new development will be visible from the Denbigh homestead.
2	Western Ridge (prominent ridgeline to the west of the Denbigh Estate)	LOW - development will be contained outside the view catchment of the Denbigh homestead.
3	Former Hassall driveway view corridor (from the south of Denbigh to Cobbitty Road)	HIGH - new development will preclude maintaining visual access along the heritage driveway alignment.
4	Corridor of the original entrance driveway to the Denbigh Estate	MODERATE - although the visual setting of the landscape corridor itself can remain unchanged new built form along both sides of the open space corridor will change the setting of the driveway.
5	Large southern dam	LOW - the draft ILP provides for the preservation of this view corridor.
6A	Cobbitty Road (west)	MODERATE - new land uses proposed along Cobbitty Road under the draft ILP provide the maximum possible long term opportunity to retain and augment the significant rural character of Cobbitty Road.
6B	Cobbitty Road (east)	HIGH - sections of new low density development proposed along Cobbitty Road under the draft ILP are unlikely to allow for the retention of the existing landscape character of Cobbitty Road.
7	Views to Denbigh from Cobbitty Road	MODERATE - glimpse views to the Denbigh Estate will be interrupted by proposed development.
8A	The Northern Road (west)	HIGH - significant land use changes proposed along the Northern Road will have a high visual impact.
8B	The Northern Road (east)	HIGH - significant land use changes proposed along the Northern Road will have a high visual impact.
9	Camden Valley Way and Catherine Fields	LOW - existing natural landscape features obscure views of the proposed development.
10	Camden Valley Golf Course	LOW - new development will have a low impact on panoramic views to the west from this vantage point. The draft ILP largely acknowledges high points within the site by proposing open space, large lot or low density development in these areas to give maximum opportunity to maintain landscape dominance.
11	Oran Park House	LOW – the setting of Oran Park House will be visible with the realignment of Cobbitty Road.
12	Residential areas generally	HIGH - new development will contrast strongly with the existing rural landscape.

5.1.3 Management response

While acknowledging that development of the Growth Centre will change the character of Oran Park from a rural landscape to an urban area, the following management measures, to be incorporated in the DCP, will ensure that development of the Precinct respects the value and significance of the locality's heritage and visual landscapes. These measures are consistent with management of the Precinct's biodiversity and heritage features described in subsequent sections of this report.

- Landscaping, revegetation and detailed design should be in accordance with the Landscape Strategy recommended by Hassell (see **Figure 18**). As described in the figure, this includes:
 - maximising significant canopy vegetation in open space, schools and other community lands;
 - retaining, augmenting and managing significant screen vegetation, particularly along the ridge line around the Denbigh curtilage;
 - minimising medium density development on steeper lands;
 - maximising deep lot development on undulating lands;
 - undertaking a special design for development in the area of the Oran Park Raceway grandstand; and
 - controlling built form and setbacks to development along Cobbitty Road east.
- The Denbigh Estate curtilage area is to be protected by:
 - controlling built form, bulk and scale below the ridgeline and ensuring that existing tree vegetation along the ridgeline is rehabilitated, protected and managed;
 - providing a landscaped corridor along both sides of the alignment of the former Hassall driveway alignment to preserve views from the south;
 - providing a landscape buffer to the original entrance driveway to the Denbigh Estate to reflect its rural character.
- The character of Cobbitty Road is to be managed through built form setbacks and sensitive landscape treatments.
- The visual impact of development in residential areas is to be mitigated through the creation of a significant tree canopy via the planting of large canopy species:
 - on prominent hilltops and ridges; and
 - on all street footpaths and in public spaces.

In addition, the general area of the former main grandstand of the Oran Park Raceway is nominated in the draft ILP as a Special Design Precinct. This means that the DCP will require the locality to be subject to detailed design in the DCP to address issues such as access, pedestrian links, view sharing, the placement of dwellings, public spaces, and views to and from the former main grandstand – a high point in the locality visible from some distance.

5.2 Land capability

The Development Code requires the upfront investigation of land capability to determine whether the land is suitable for, and capable of, urban development. Accordingly, a land capability and contamination assessment (**Appendix B**) was undertaken which investigated, in particular, the following potential constraints on urban development:

- slope instability;
- soil erosion risks;
- soil salinity hazard;
- geotechnical factors; and
- site contamination.

The large dam in the southwest of the Precinct and some private paddocks were excluded from the investigation as access to these areas was not possible.

In addition, a study of unexploded ordinance within the Precinct was also undertaken (see **Appendix C**).

Overall the Precinct is not considered to be significantly constrained by erosion, salinity or contamination, provided that the management recommendations made within this section are implemented. However the north-west corner of the Precinct is constrained by landslip which would require significant works if development were to proceed within this area.

5.2.1 Regional soil landscape, geology and hydrology

The majority of the Precinct is included within the Blacktown Soil Landscape, although significant areas are included within the Luddenham, Picton, South Creek and Richmond Soil Landscapes. Typically, the Blacktown Soil Landscape has low fertility, is moderately reactive and generally has low wet-bearing strength.

Bringelly Shale of the Wianamatta Group of the Triassic Age underlies the Precinct. This typically comprises shale, carbonaceous claystone, laminate and some minor coaly bands. The strata of the Precinct is generally deformed by the Camden Syncline which is aligned approximately north-south through the site near the alignment of The Northern Road.

The shale terrain of much of Western Sydney is known for its saline groundwater, resulting either from the release of connate salt in shales of marine origin or from the accumulation of windblown sea salt. Previous groundwater investigations in the Camden area indicate that the shales have very low intrinsic permeability, hence groundwater flow is likely to be dominated by fracture flow with resultant low yields in bores. The water within the Wianamatta Group is typically brackish to saline and thus unsuitable for livestock or irrigation.

The Precinct generally comprises undulating hills with the exception of prominent ridges in the north-west corner and the highest point rises to 150m AHD.



Figure 18 – Landscape Strategies

Source: Hassell

5.2.2 Geotechnical conditions

Existing conditions

Landslip

The thick residual soil profiles of the Blacktown, Luddenham and Picton Soil Landscapes can be prone to slope instability due to erosion or seepage triggered by slumping and soil creep, particularly on steep south-facing slopes underlain by shale. The high clay content of these soils results in poor drainage and therefore reduced cohesion during periods of high rainfall or where natural drainage has been disturbed by development. Instability due to slumping is typically associated with thick soils and slopes of 11% - 20%.

The Oran Park Precinct was found to be affected by deep-seated hillslope instability (landslip) on the upper slopes of the two highest sections of the ridgeline in the north-west corner. Surficial soil creep and possible shallow ancient slumping of residual soils was also noted in the north-western corner of the Precinct as shown in Figure 19.

Erosion

The soils found within the Oran Park Precinct (i.e. Blacktown, Luddenham and Picton) are typically of moderate erodibility, although soils which are more sodic or saline tend to have a greater level of erodability, thereby increasing the erosion hazard. Within the Precinct, gully erosion locally entrenches the colluvial, residual or alluvial soils within the bases of creeklines as shown in Figure 19.

Impacts and assessment

Landslip

The deep-seated hillslope instability (landslip) affecting the upper slopes of the two highest points of the ridgeline in the north-western corner of the Precinct (within the transition zone) is considered to be a major constraint on development in that location. Development within this area may require normal, and possibly extensive, works including removal of failed materials, site regrading and subsurface drainage.

The presence of soil creep and possible shallow ancient slumping of residual soils is likely to impose only minor to moderate constraints as this issue can be addressed by good engineering practices for hill side development including site specific investigation and engineering of structures.

Erosion

The presence of erosive soils within the precinct should not present significant constraints to development provided that they are well managed during earthworks and site preparation stages. The erosion hazard would be within usually acceptable limits and can be managed by good engineering and land management practices which will also be required to address flood hazard and localised waterlogging limitations of soils along the course of South Creek.

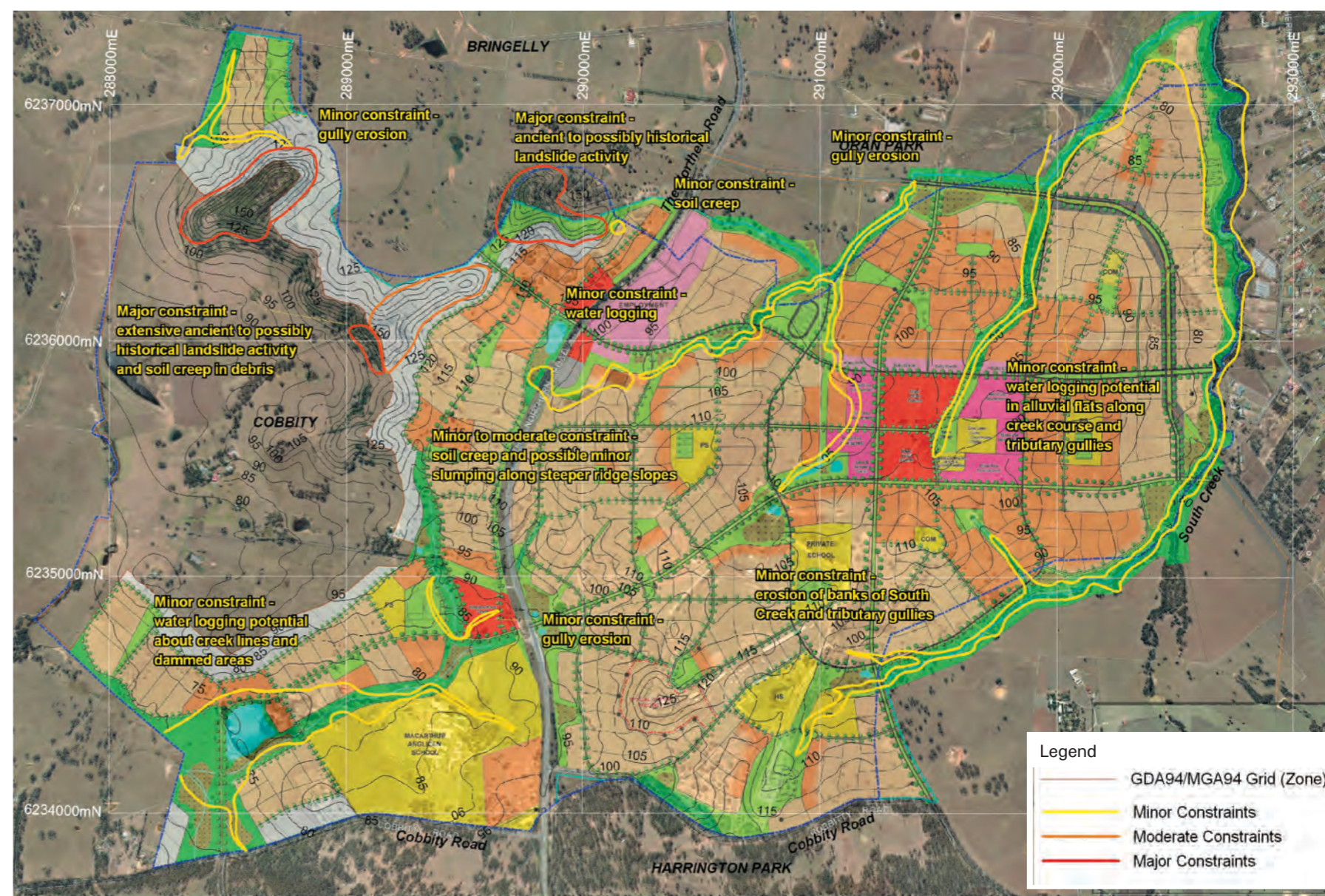


Figure 19 – Geotechnical constraints

Source: Douglas Partners

Management Response

It is recommended that:

- Residential and infrastructure development be restricted in both the current landslip affected areas and bordering areas characterised by equivalent topography and stratigraphy. For initial purposes, the restricted use area should include a downslope buffer at least 50 metres in excess of the greatest identified runout distance of existing debris flow deposits.
- Development be restricted in soil creep areas adjacent to landslip unless site specific investigation is able to ensure that appropriate engineering works (e.g. retaining walls and drainage measures) can provide acceptable levels of risk for the development.
- Development be restricted adjacent to creek and gully banks where erosion and/or soil creep may be present, unless appropriate engineering works (e.g. recontouring or bank support) can be put in place to provide acceptable levels of risk for the development.
- The landslip and soil creep affected areas be revegetated.

In order to reduce potential impacts on development by way of erosion, it is further recommended, as part of an overall site development, that the treatment of existing gullies should include:

- filling using select materials (i.e. non-dispersive or erodible) placed under controlled conditions;
- provision of temporary surface cover (e.g. pegged matting) during valley floor revegetation;
- channel lining in sections of rapid change in gully floor grade;
- piping of flow where appropriate; and
- re-establishing tree cover along gully banks.

As the areas identified as having potential for landslip are located within the transition zone of the Precinct, more detailed controls will be formulated for this area when Part B of the Precinct DCP is prepared. Provisions relating to soil erosion are included in the DCP.

5.2.3 Soil salinity, aggressivity and sodicity

Existing conditions

Salinity

Of the 176 test pits drilled, three revealed areas of highly saline soil in one of the South Creek riparian corridors. **Table 5** shows the different proportions of non-saline soils through to highly saline soils measured in test pits across the site. Moderately saline and very saline soils covered most of the site as shown in **Figure 20**. Overall, the testing shows that salinity does not place a major constraint on development within the Oran Park Precinct.

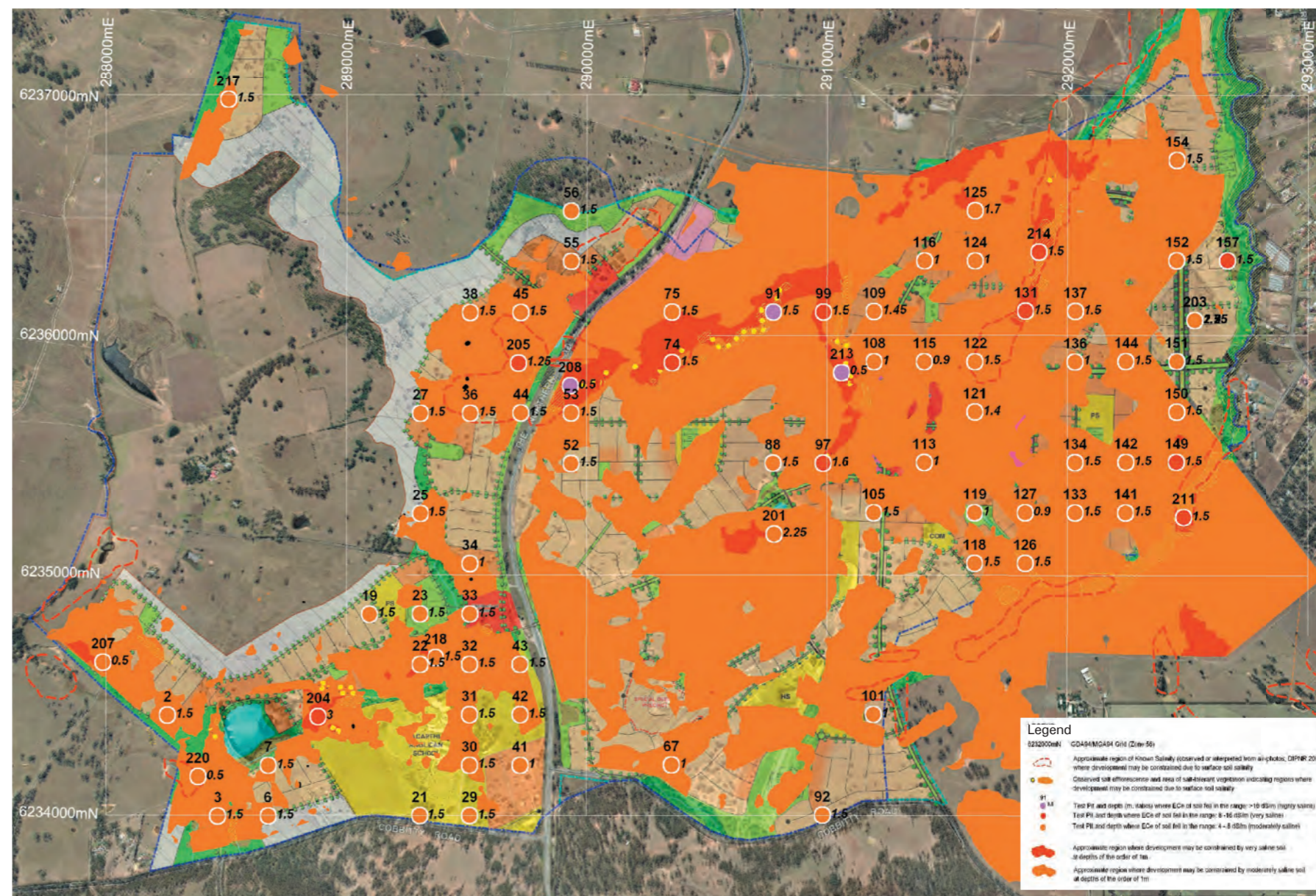


Figure 20– Salinity constraints

Source: Douglas Partners

Table 5 – Distribution of test pit salinities

Class	ECe (dS/m)	% of Measurements
Non Saline	< 2	23
Slightly Saline	2 – 4	27
Moderately Saline	4 – 8	41
Very Saline	8 – 16	8
Highly Saline	> 16	1

Source: Douglas Partners

Aggressivity

Test pits were drilled to identify areas which may be characterised by aggressive soils. Soils identified as being mildly aggressive to concrete are widespread in the Precinct, as shown in **Figure 21**, while only one location was identified as being moderately aggressive, located on the eastern boundary within the South Creek Riparian corridor.

Sodicity

Soil samples were taken from 20 test pits to determine the sodicity of the soil within the Precinct. Laboratory results indicated that most locations are subject to highly sodic soils, however the relatively small number and sparse distribution of test pits from which the measurements were made, prevents the interpretation of detailed sodicity constraint zones. Despite this, it is considered likely that sodic to high sodic conditions exist throughout the Precinct.

Impacts and assessment

Salinity

Areas of very saline soils are generally confined to the riparian corridor of South Creek. It is assumed that the development (represented by the draft ILP) will not impact on the riparian corridors of South Creek and its tributaries and that the very saline and highly saline soils identified in the riparian corridors will not be exposed and hence will not impact on development. Development outside of the riparian corridors will be moderately constrained by saline soils and a management solution is required.

Aggressivity

Although mildly aggressive soils are widespread throughout the Precinct (shown in **Figure 21**), these can be managed using standard practices, such as those detailed in the Piling Code of Australia. The one area identified as being moderately aggressive is located within a riparian corridor and therefore does not affect the development capability of the site.

Sodicity

Highly sodic soils appear widespread and will require management to reduce dispersion and erosion and to improve drainage.

Management Response

In order to ensure that all new development addresses the issues of salinity, aggressivity and sodicity all development applications for subdivision will be required to be accompanied by a Soil Management Plan. A control reflecting this has been incorporated in the DCP.

In general, the provisions included within the DCP specify:

- additional investigation in development areas which are to be excavated deeper than 3 metres or into rock at shallower depths where direct testing of salinity has not been carried out;
- maintaining the natural water balance;
- maintaining good drainage;
- avoiding disturbance or exposure of sensitive soils;
- retaining or increasing appropriate native vegetation in strategic areas; and
- implementing building controls and engineering responses where appropriate.

5.2.4 Mine Subsidence

The Precinct is not underlain by any registered mines and is not within BHP’s current 30 year mining plan. However, there are significant coal resources underlying the site that could be mined at some point in the future. Mining operations could lead to mine subsidence and related damage to buildings and infrastructure.

Accordingly, it is recommended that further investigation and correspondence with the relevant authorities be undertaken by the GCC prior to gazettal of the SEPP amendment.

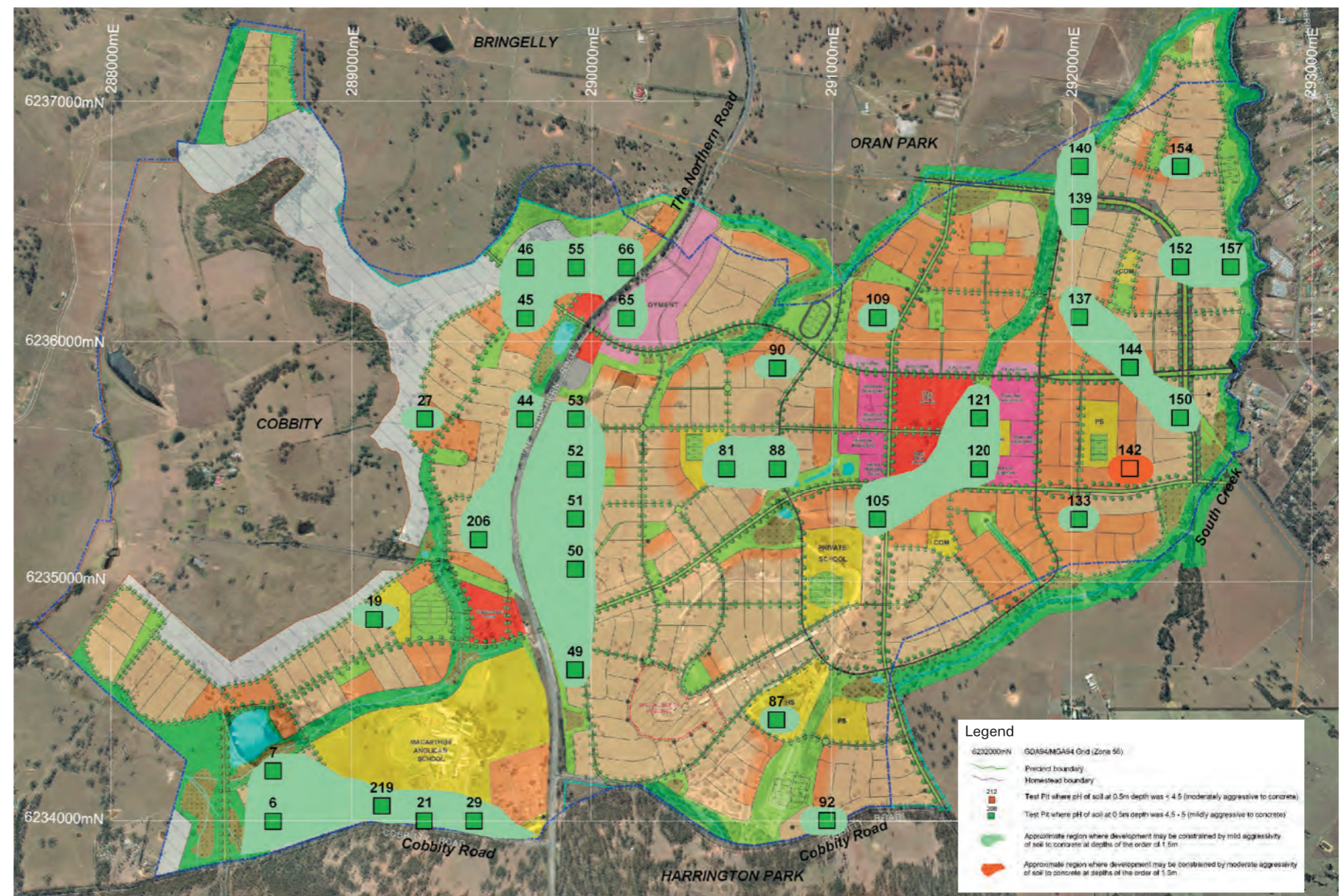


Figure 21 – Aggressivity Constraints at a depth of 1.5m

Source: Douglas Partners

5.2.5 Land contamination

Existing conditions

As a result of a Phase 1 Environmental Site Assessment of the Precinct, Areas of Environmental Concern (AEC) were identified (shown in Figure 22)

Seven groundwater bores were installed at selected locations to test overall catchment contaminant levels. All analytes returned results below the practical quantitation limit of the laboratory, except for some heavy metals which exceed the ANZECC 2000 Guidelines – Trigger Values for freshwater with 95% level of protection.

Impacts and assessment

The overall potential for contamination within the Precinct is considered to be low. However, 27 AECs were identified across the site that will require further investigation at the development application stage to determine whether or not contamination is present and, if so, what remediation measures will be required to make the land suitable for the proposed use.

Chemical contaminants within water samples obtained from the Precinct were generally within the relevant guideline criteria. High levels of copper and zinc were detected within the samples. This, however, is to be expected for waters from the Western Sydney Region with a dominant shale geology. In general, no indication of contamination was found and the results supported the low potential findings of the Phase 1 Environmental Site Assessment.

Management Response

Areas with potential for contamination have been mapped and requirements for Stage 2 investigations in these areas will be incorporated in the Precinct DCP.

5.2.6 Unexploded ordinance

Existing conditions

The Narellan Army Camp was located at the intersection of Cobbitty Road and The Northern Road between 1940 and 1946. The operation of the camp involved production of, and training in, munitions - thereby giving rise to the potential for unexploded ordinance to remain on site.

Two areas of potential munitions contamination have been identified - the 2nd Australian Army Troops Company workshop and former grenade range as shown in Appendix C.

Impacts and assessment

As ammunitions were made and fired within the Precinct, there is the potential for small numbers of unfired live rounds to pose hazard to the future population of the Precinct. Fired blanks are also likely to be unacceptable on aesthetic grounds. Whilst the spread and density of unexploded ammunition is likely to be sparse, precedent on other sites in NSW indicate that DEC would require removal of any appreciable concentrations of fired blank ammunition as a precursor to urban development.

Management recommendations

The following further action prior to development is recommended:

- Establishment of the exact location of the 2nd Australian Army Troops Company workshop and, if development is to occur within this area, that a remedial search be carried out.

- 100% remediation of the confirmed impact areas, utilizing digital geophysical search techniques to provide a high level of confidence that all potential grenades have been removed.

In order to satisfy DEC requirements and audit due diligence, it is also recommended that confirmatory instrumented sampling be conducted in the following areas of the Precinct:

- Camp sites – as potential burial pits may exist close to the built up Camp zones;
- Large areas outside of the camp in the NE of the Precinct and east of the camp site – these may have been used military munitions training areas.

Controls reflecting the above have been incorporated in the Precinct DCP.

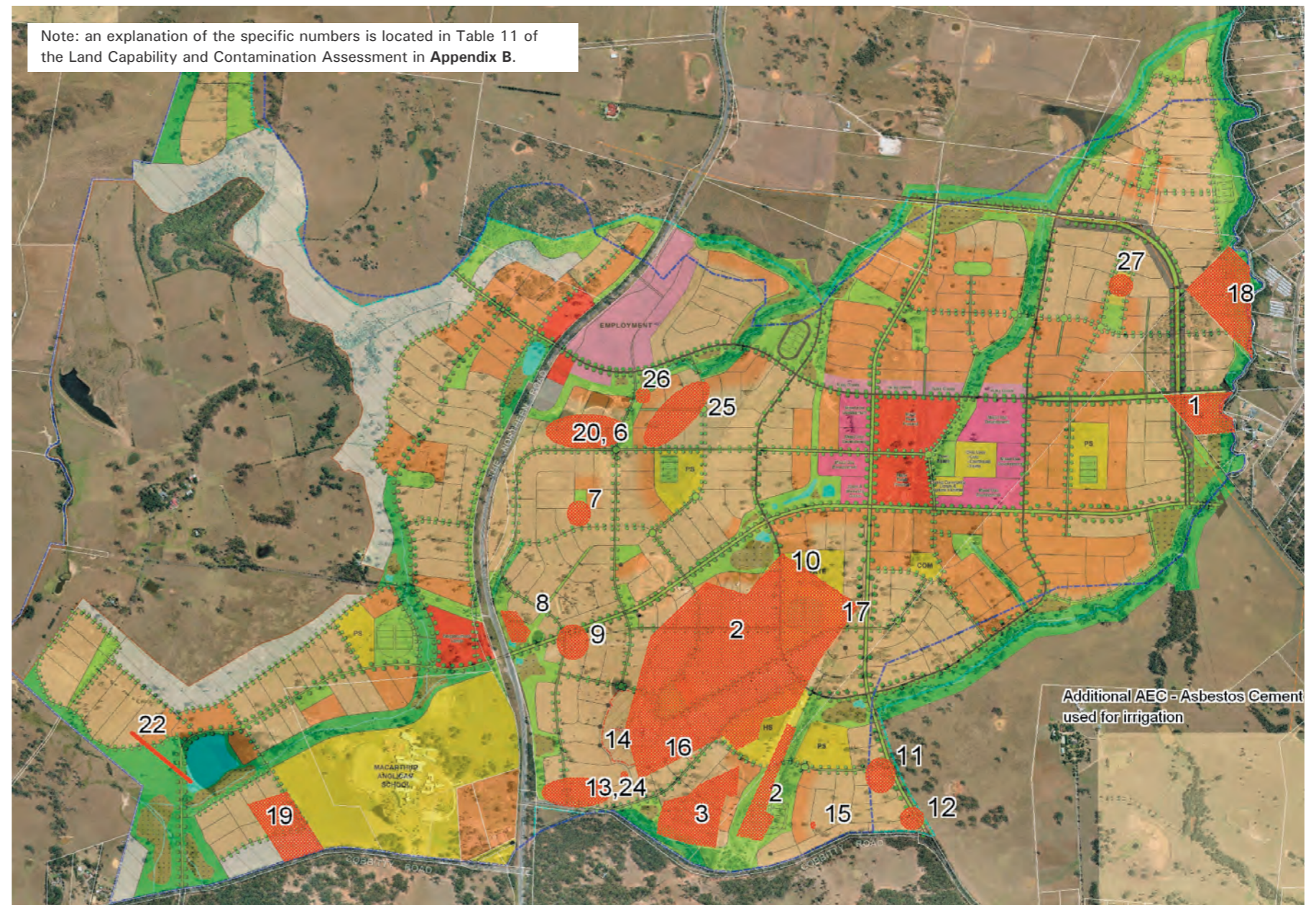


Figure 22– Areas of Environmental Concern

Source: Douglas Partners

5.3 Biodiversity

The South West Growth Centre contains a number of areas that have biodiversity value, including endangered vegetation, threatened species habitats, and wildlife and riparian corridors. The Camden Natural Assets Policy (Camden Council, 2003) further clarifies where ecologically significant and environmentally sensitive land is located in relation to the Oran Park Precinct.

The GCDC articulates a number of objectives in relation to the management of biodiversity in the Growth Centres, including ensuring protection of biodiversity values within areas identified in the Growth Centres SEPP, and retaining and enhancing as much existing vegetation as practicable within development precincts.

To meet the above objectives in the Oran Park Precinct an Ecological Assessment (located in **Appendix F**) was undertaken which sought to locate terrestrial biodiversity, groundwater dependent ecosystems, riparian corridors and aquatic habitats within the Precinct (excluding the heritage curtilage associated with the Denbigh Homestead).

Once the areas of biodiversity value were identified, the draft ILP was assessed in relation to the requirements of Commonwealth, State and local legislation/policy. Recommendations were then made to ensure that precinct planning would comply with these requirements and protect the biodiversity values of the site. The main applicable legislation is the *NSW Threatened Species Conservation Act 1995* (TSC Act) and the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

It is intended that the Growth Centres SEPP 2006 will be granted Biodiversity Certification. This will substantially alter the approach to impact assessment at the development application stage and could exempt developments entirely from assessment under the TSC Act.

5.3.1 Terrestrial biodiversity

Existing conditions

Flora

The site contains two woodland communities listed as Endangered Ecological Communities (EEC) under the TSC Act - Cumberland Plain Woodland (CPW) and Alluvial Woodland. CPW is also a Matter of National Environmental Significance (NES) under the EPBC Act. These communities are generally located within riparian corridors, along Cobbitty Road (east and west of The Northern Road), and in small pockets across the entire Precinct. They are generally isolated, highly modified and degraded except in the northeast corner of the Precinct where there is an area of CPW revegetation.

The field survey identified three other prominent vegetation communities – most the result of regrowth: Olive Thicket, Regenerating Acacia Scrub and Pasture/cleared (exotic dominant). Of importance, however, were numerous large hollow bearing paddock trees located throughout the Precinct that may provide roosting and breeding habitat for birds and bats.

With regard to floral species, the EPBC Act lists one endangered plant species and one vulnerable plant species that could potentially occur within the Precinct. Of the 51 species of flora identified during the field survey, none were endangered or vulnerable.

Most of the Precinct (89%) has been cleared for agricultural purposes and for the purposes of motor racing and as such minimal vegetation remains. Of the native vegetation remaining within the Precinct, the majority was ranked as having either a moderate or high recovery potential. Generally, the areas with high recovery potential had not been subjected to grazing and clearing for some time and therefore have had time to regenerate or the native understorey has remained. They are located along South Creek, along the northern side of Cobbitty Road (east of the Northern Road) and in a patch just west of The Northern Road in the north of the Precinct. **Figure 23** shows the location of vegetation across the Precinct.

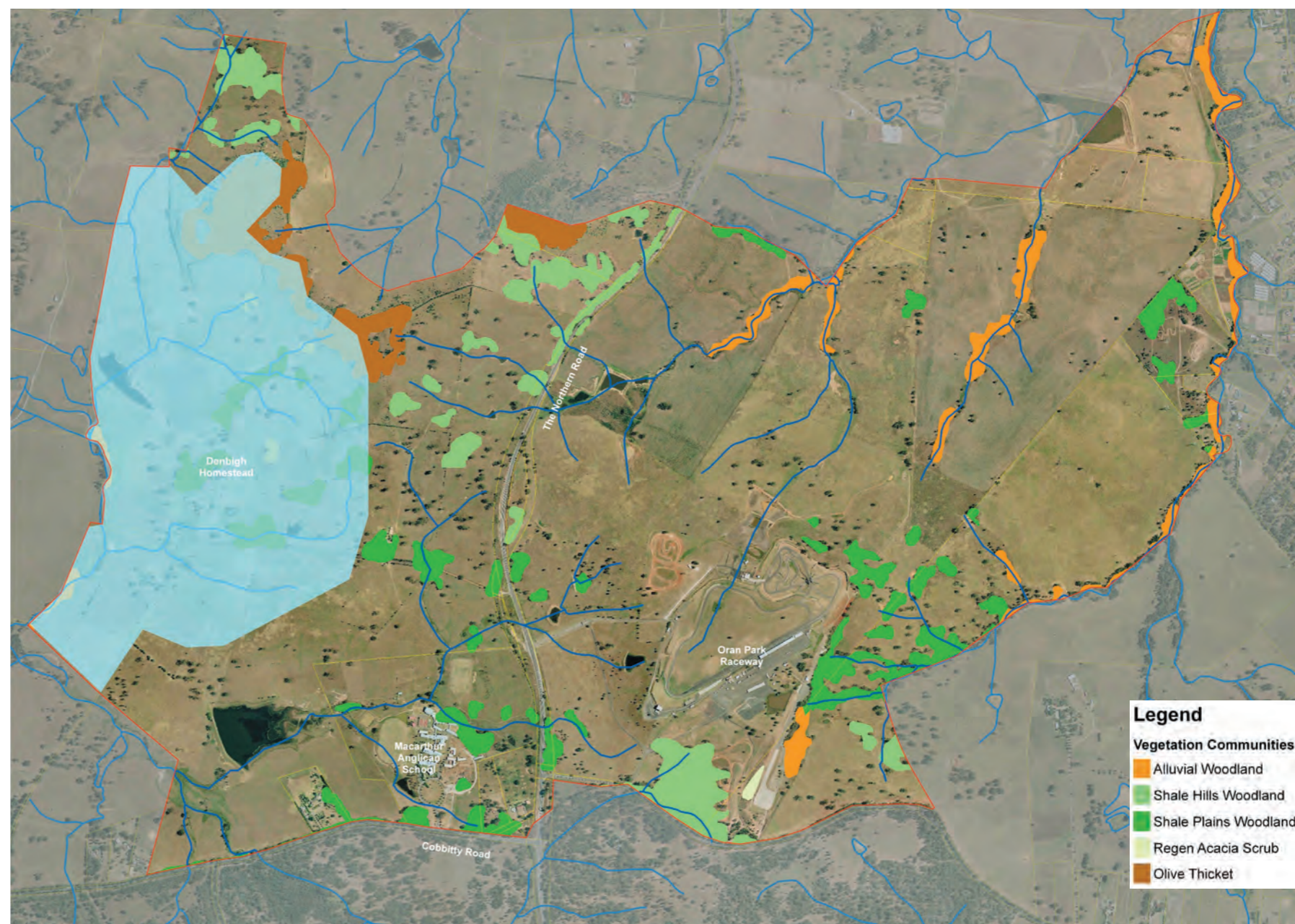


Figure 23 - Vegetation communities

Source: Eco Logical Australia

Fauna

Threatened and migratory fauna listed under the EPBC and TSC Acts have the potential to occur within the Precinct. During the field inspection 28 species of fauna were identified. One of these, the Eastern Freetail Bat (*Mormopterus norfolkensis*) is a threatened species under the TSC Act. While the endangered Cumberland Land Snail (*Meridolum corneovirens*) - listed on the EPBC Act and the TSC Act - may also occur on the site, a positive identification was not made. Four regionally significant species - Stubble Quail (*Coturnix Pectoralis*), White Winged Chough (*Corcorax melanorhamphos*), Common Wallaroo (*Macropus robustus*) and Lace Monitor (*Varanus varius*) were also identified.

Notable fauna habitats were found along South Creek and Cobbitty Road and in the north east corner of the Precinct. In addition, habitat north-east of the intersection of The Northern Road and Cobbitty Road was identified as of high significance as it could potentially accommodate the Cumberland Land Snail (see **Figure 24**). Outside of these areas, fauna habitats were limited due to the degraded state and sparse nature of native vegetation.

Impacts and assessment

Endangered Ecological Communities

Due to the isolated and degraded nature of the vegetation and the small amount to be removed, the draft ILP is unlikely to impact significantly on the two EECs present in the Precinct. The retention and conservation of larger and better quality areas of vegetation within a comprehensive system of parks and reserves will help to minimise any biodiversity losses.

The land to be revegetated within Category 1 and 2 riparian corridors across the precinct is approximately 99.5 hectares, and additional patches of vegetation are to be preserved within pocket parks. The proposed revegetation of the riparian corridors will compensate for the loss of vegetation and will result in an overall increase in the quality of vegetation within the Precinct when compared with the current status.

Threatened Species

Habitat for the majority of threatened species known, or with the potential, to occur within the Precinct is marginal and its removal as a result of development is unlikely to lead to significant adverse impacts for the threatened populations in the study area.

At least one threatened bat – the Eastern Freetail Bat - is known to forage on the site and may utilise hollow bearing trees as a habitat. Accordingly, where possible large hollow bearing trees will need to be protected and retained.

Much of the habitat available within the Precinct is unsuitable for the Cumberland Land Snail and as such the proposal is unlikely to have a significant effect on this endangered species. However, the precautionary principle has been applied, and the area that offers potential habitat for the snail will need to be retained and protected, see **Figure 24**.

In comparison with the majority of vegetation within the Precinct, moderate quality habitat was identified along South Creek and in woodland along Cobbitty Road. These have been marked as priority areas for conservation and their retention will further mitigate potential impacts to flora and fauna within the Precinct.

Management Response

The retention and conservation of the larger and better quality areas of vegetation on site within a comprehensive system of parks and reserves, as shown in the draft ILP, will help to minimise biodiversity losses at the site.

Generally, the draft ILP has been designed to retain key environmental features of the site, namely major riparian corridors and patches of significant remnant vegetation, and no major modifications are required. However, the treatment of the ecological features of the transitional land around the Denbigh curtilage is not shown in the draft ILP.

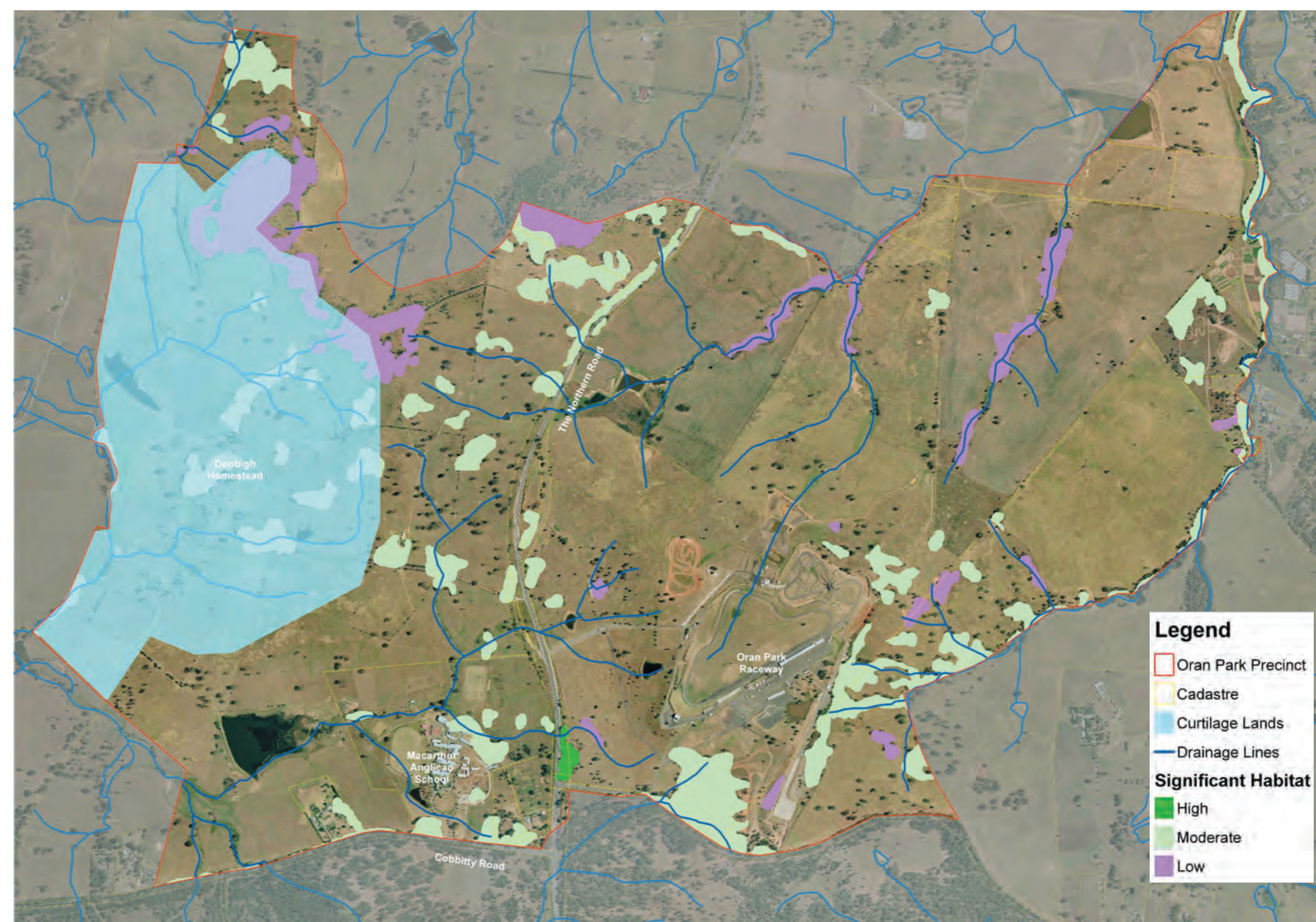


Figure 24 – Significant habitat

Source: Eco Logical Australia

Figure 25 shows the priority areas for conservation across the Precinct. In response to the foregoing assessment, the following management measures will be addressed in the DCP:

- Patches of vegetation (CPW) with high ecological value and recovery potential remaining along South Creek and Cobbitty Road are to be retained and restored.
- Significant remnant trees of CPW in the vicinity of the driver training area and in the Denbigh transition zone are to be retained where possible within residential allotments or open space and linked where possible to stepping stone biodiversity corridors.

- The patch of CPW around the dam in the northwest corner of the Precinct is to be retained as open space and managed for habitat value and floristic biodiversity.
- A detailed tree survey is to be undertaken at the subdivision development application stage to identify the location of specific trees within the Precinct which should be retained. In particular, large hollow bearing Eucalypts, in the north and west of the Precinct and around the Denbigh curtilage should be identified and retained. Where existing trees are found to be of some value and may provide suitable habitat for roosting they should be incorporated into the landscape where possible. This is to be achieved through Tree Preservation Orders, pocket parks and incorporating the Eucalypts into the urban landscape or within large lots.

- The Olive Thicket in the northern part of the Precinct is to be removed and any natural canopy retained. The area will be revegetated using CPW species.
- A stepping stone biodiversity corridor will link the riparian corridor of South Creek to the habitats of Harrington Park 2. This is to contain remnant vegetation, public reserves and stormwater detention and/or treatments ponds.

In addition to the above, a Conservation Management Plan (CMP) is to be prepared for the Precinct providing a detailed framework for the restoration and ongoing management of the conservation areas identified. The CMP will need to be agreed with the Council and DEC and provide the necessary detail on initial restoration costs and annual maintenance costs.

The transitional land around the Denbigh curtilage will require a Part B DCP to be prepared and approved prior to any development of this land.

5.3.2 Groundwater dependent ecosystems

Existing conditions

There are no groundwater dependent ecosystems and no known aquifer or cave systems within the precinct.

There are also no natural wetlands or swamps within or adjacent to the Precinct. However, a number of farm dams provide an artificial form of wetland habitat - the most significant being the large dam located in the southwest of the Precinct.

Impacts and assessment

The large dam in the southwest corner of the site, although artificial, currently provides the most significant wetland habitat within the Precinct and is the only one to be retained. Other water habitats elsewhere on the site outside of riparian zones will be removed. The quality of these habitats is, however, considered to be generally marginal.

A number of new wetlands will be established across the Precinct as part of water quality and flood controls. This is likely to mitigate the removal of the above wetland habitats.

Management Response

To prevent and control rubbish dumping and the establishment of nuisance species such as Ibis and Mosquito Fish, significant management of open wetland areas will be required. The DCP has incorporated provisions for the ongoing management of wetlands.

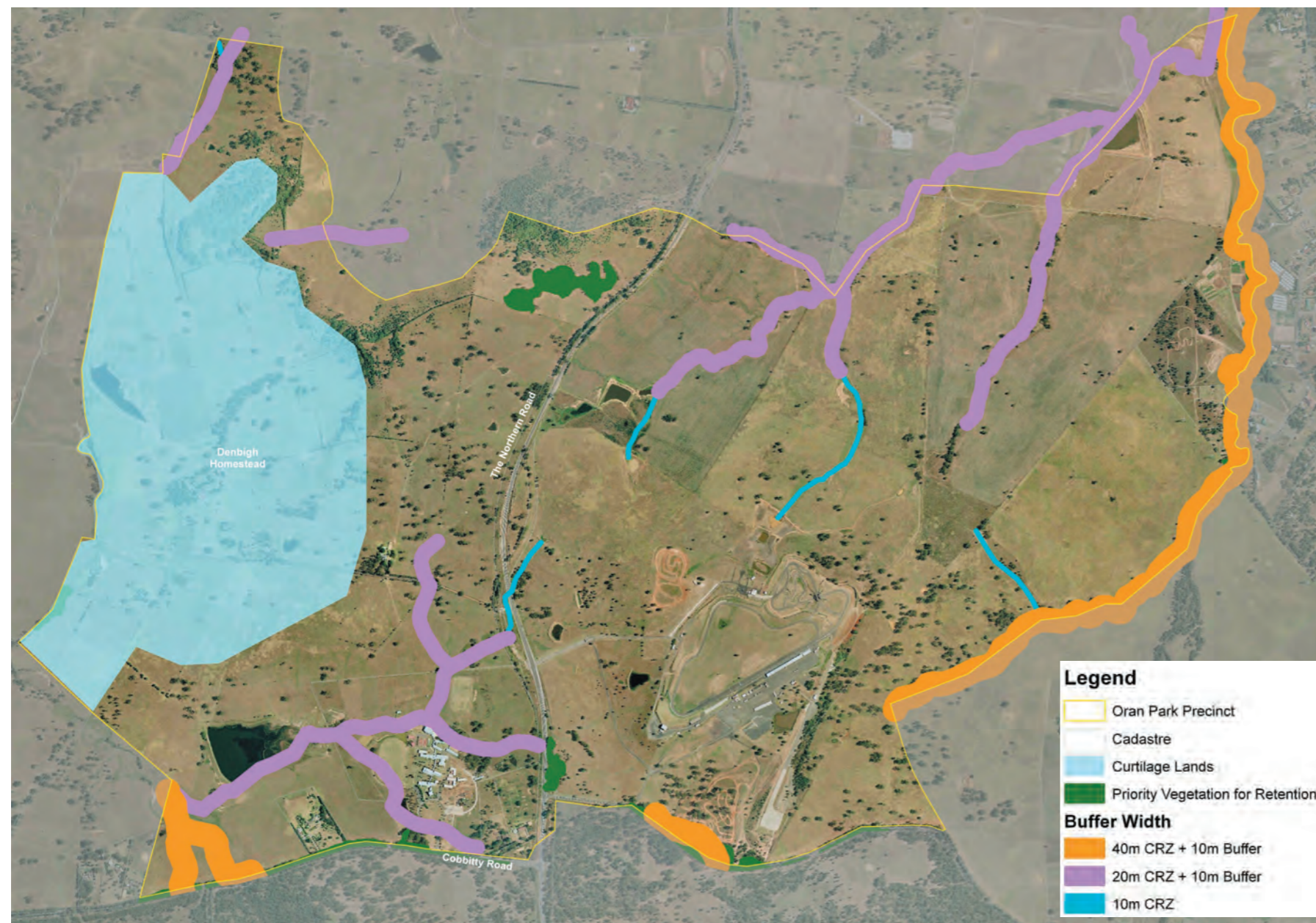


Figure 25 – Priority areas for conservation

Source: Eco Logical Australia

5.3.3 Riparian corridors

Existing conditions

Together with representatives of the (then) Department of Natural Resources (DNR) and the (then) Department of Environment and Conservation the riparian corridors in the Precinct were categorised to ensure that significant riparian habitat was retained in the draft ILP and appropriate riparian buffer zones implemented. Watercourses were categorised based on the following overarching environmental objectives (DNR and GCDC):

- **Category 1: Environmental Corridor** - to provide biodiversity linkages by maintaining connectivity for the movement of aquatic and terrestrial fauna and flora along the riparian corridor and between key destinations.
- **Category 2: Terrestrial and Aquatic Habitat** - to provide basic habitat and preserve and emulate as much as possible a natural functioning watercourse.
- **Category 3: Bank Stability and Water quality** - to prevent accelerated rates of soil erosion and enhance water quality.

As shown in **Figure 26**, South Creek (along the eastern boundary of the Precinct) and the stream located in the south west corner of the Precinct were identified as Category 1 streams. The two streams exiting the site to the north and the stream exiting the site at the southwest corner were rated as Category 2 streams. The four corridors feeding into the Category 2 streams were given a Category 3 rating.

Impacts and assessment

The dimensions of Core Riparian Zones (CRZ) and buffer zones provided in the draft ILP are as follows:

- **Category 1 stream:** 40 metre CRZ and 10 metre additional buffer on each side;
- **Category 2 stream:** 20 metre CRZ and additional 10 metre buffer on each side; and
- **Category 3 stream:** 10 metre buffer on each side.

The assessment reveals that the draft ILP generally conforms with the CRZs and buffer zones for Category 1 and 2 streams across the Precinct, except for the Category 2 stream in the vicinity of the neighbourhood centre on the western side of the Northern Road, which is not retained.

Several Category 3 corridors have been downgraded to 'engineered drainage'. This is appropriate for these streams as they are the upper reaches for their respective waterways and currently perform drainage functions without providing any significant habitat.

The location of flood detention devices and other services outside of CPZs ensures that the high biodiversity value of these areas is not compromised.

Management Response

Categorisation and treatment of various streams is not yet finalised. As such, the riparian corridor mapping and the management response outlined below should be read as indicative at this stage.

The Category 2 stream on the western side of The Northern Road is not retained. This is appropriate as it lies in the location of the proposed neighbourhood centre which is well placed in terms of access and centrality and, together with the surrounding open space and parks, serves to create a hub. The retention and proposed restoration of all Category 1 and 2 streams will off-set this stream being down graded to 'engineered drainage'.

Planning controls for riparian corridors will be incorporated into the DCP for the Precinct. The key objectives will be to:

- provide bed and bank stability;
- protect water quality;
- provide continuity and connectivity;
- integrate with floodplain processes;
- manage edge effects at riparian/urban interface; and
- protection of natural values within channels.

Further detail of the treatment of riparian corridors within the transition lands will be incorporated into the Precinct DCP.

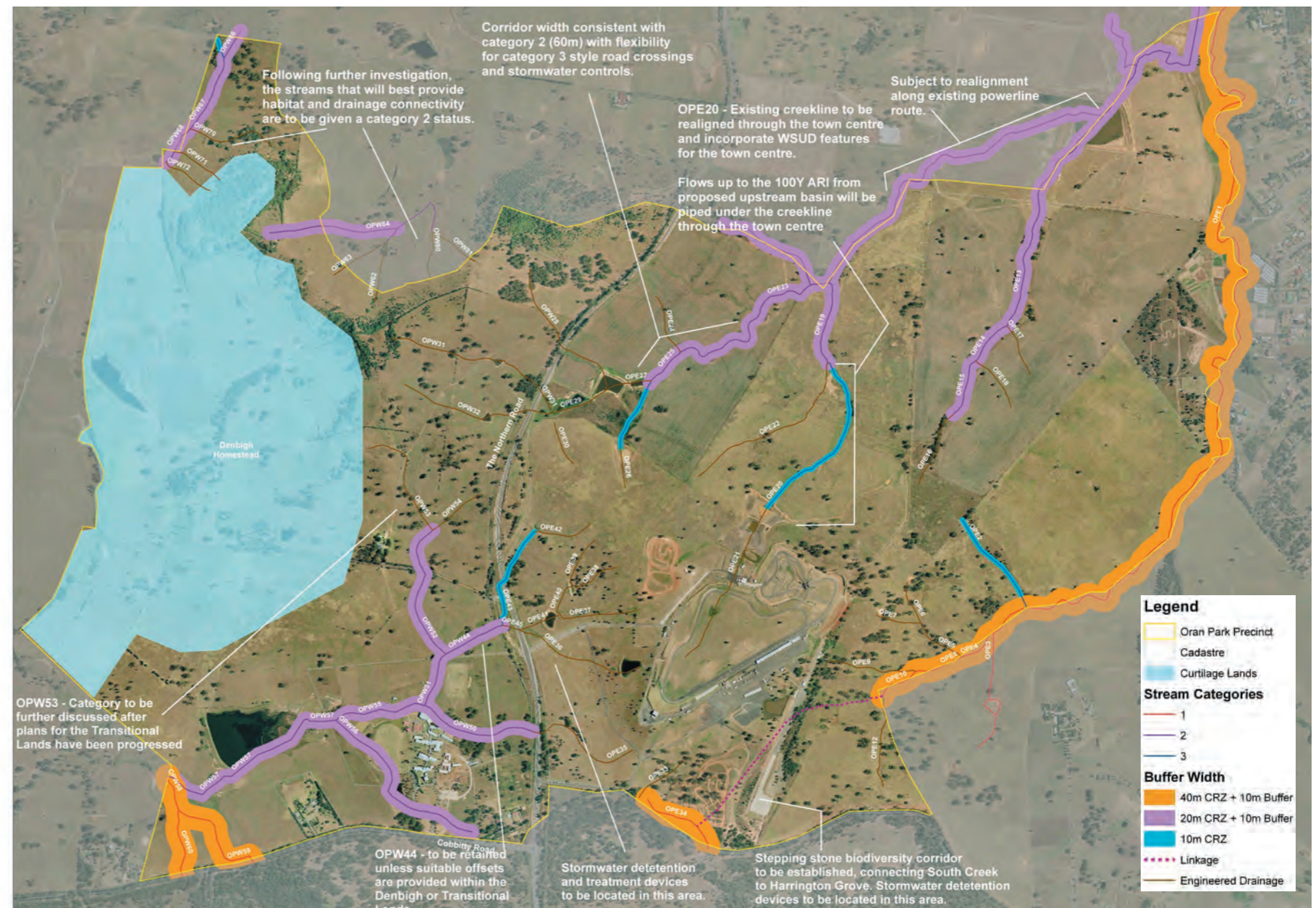


Figure 26 – Riparian corridors

Source: Eco Logical Australia