

CATHERINE FIELDS (PART) PRECINCT

Public Domain and
Landscape Strategy

October 2013



Planning &
Infrastructure

Catherine Fields Public Domain and Landscape Strategy

Catherine Fields Public Domain and Landscape Strategy

1. Introduction	4
1.1 Purpose of this Strategy	4
1.2 Structure of this Strategy	4
1.3 Documents to be read in conjunction with this Strategy	4
1.4 Strategy Objective	5
1.5 Background	5
1.6 Proposed Precinct layout	7
1.7 Key Precinct Planning Principles	7
1.8 Key Precinct Planning Principles	8
2. Precinct-wide design strategies and guidelines	10
2.1 Desired future landscape character	10
2.2 Key Views to be retained to Oran Park House	10
2.3 Views to Open Space and Riparian Corridors	13
2.4 Existing Vegetation	13
2.5 Streets	13
2.6 Street Trees	14
2.7 Pedestrian and Cycle Links	14
2.8 Precinct Way Finding and Public Art	16
2.9 Neighbourhood Centre	16
2.10 Recreation and Open Space	18
2.11 Riparian Corridors	23
2.12 Water management areas	27
2.13 Engineered Meandering Creekline	27
2.14 Heritage Interpretation	29
3. Oran Park House Heritage Curtilage Design Strategies and Guidelines	30
3.1 Curtilage Definition	30
3.2 Heritage Curtilage Design Guidelines	31
4. Landscape Materials Palette	38
4.1 General Principles	39
4.2 Heritage Precinct Principles	40
4.3 Riparian Corridor / Water Management Area Principles	40
4.4 Recreation and Open Space	41
4.5 Street Principles	41
4.6 Preferred Tree Species	46
5. References	52

1

Introduction

1.1 Purpose of this Strategy

The purpose of this Strategy is to support the Camden Growth Centre Development Control Plan (DCP) Schedule 3 Catherine Fields (Part) Precinct to:

- Expand on the broad design principles established during the Precinct Planning phase into public domain objectives and guidelines;
- Provide another level of detail of public domain, visual and landscape features in the Precinct that are not already covered in the DCP and Landscape and Visual Analysis Report;
- Develop public domain and landscaping strategies and principles for the significant historic and landscape context of the Oran Park House Estate;
- Develop guidelines on the following matters for public domain areas:
 - Optimising views to and from Oran Park House and its surrounds;
 - A planting program that respects the existing and historic plantings;
 - Interpretation and management of the historic driveways;
 - Pedestrian pathways;

- Interpretive signage and play equipment;
- Character of parks and playgrounds;
- Street furniture and lighting;
- Public art; and
- Acknowledgement of environmental and Indigenous cultural heritage values.

1.2 Structure of this Strategy

The structure of this strategy consists of:

- Part 1: Introduction - covering the background leading to this Strategy
- Part 2: Precinct-wide strategies and guidelines - covering key strategies applying to the entire precinct
- Part 3: Oran Park House Heritage Curtilage Design Strategies and Guidelines - covering strategies applicable to areas within the Heritage Curtilage.

1.3 Documents to be read in conjunction with this Strategy

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The following documents should be read in conjunction with this Strategy:

- Catherine Fields Precinct Master Planning: Landscape and Visual Analysis Report (AECOM 2012)
- Catherine Fields (Part) Precinct: Interpretation Strategy Report (Godden Mackay Logan 2013)

1.4 Strategy Objective

The objective of this Strategy is to ensure that the special landscape and historic qualities that make this place are retained and interpreted as part of the future development of the Catherine Fields (Part) Precinct.

1.5 Background

The Catherine Fields (Part) Precinct (the Precinct) is located in Camden Local Government Area and is within the South West Growth Centre.

Location

The Precinct consists of approximately 320 hectares and is bounded by Camden Valley Way to the south east, and Oran Park Drive to the south west. The Oran Park Precinct forms the western boundary. The suburb of Harrington Grove lies to the south of the Precinct and the remainder of the Catherine Fields Precinct to the north east is largely rural in nature (refer Figure 1).

Existing Site Character

The land is predominantly characterised by cleared grazed land, rural lifestyle homes and farm dams. Oran Park House is situated in the centre of the

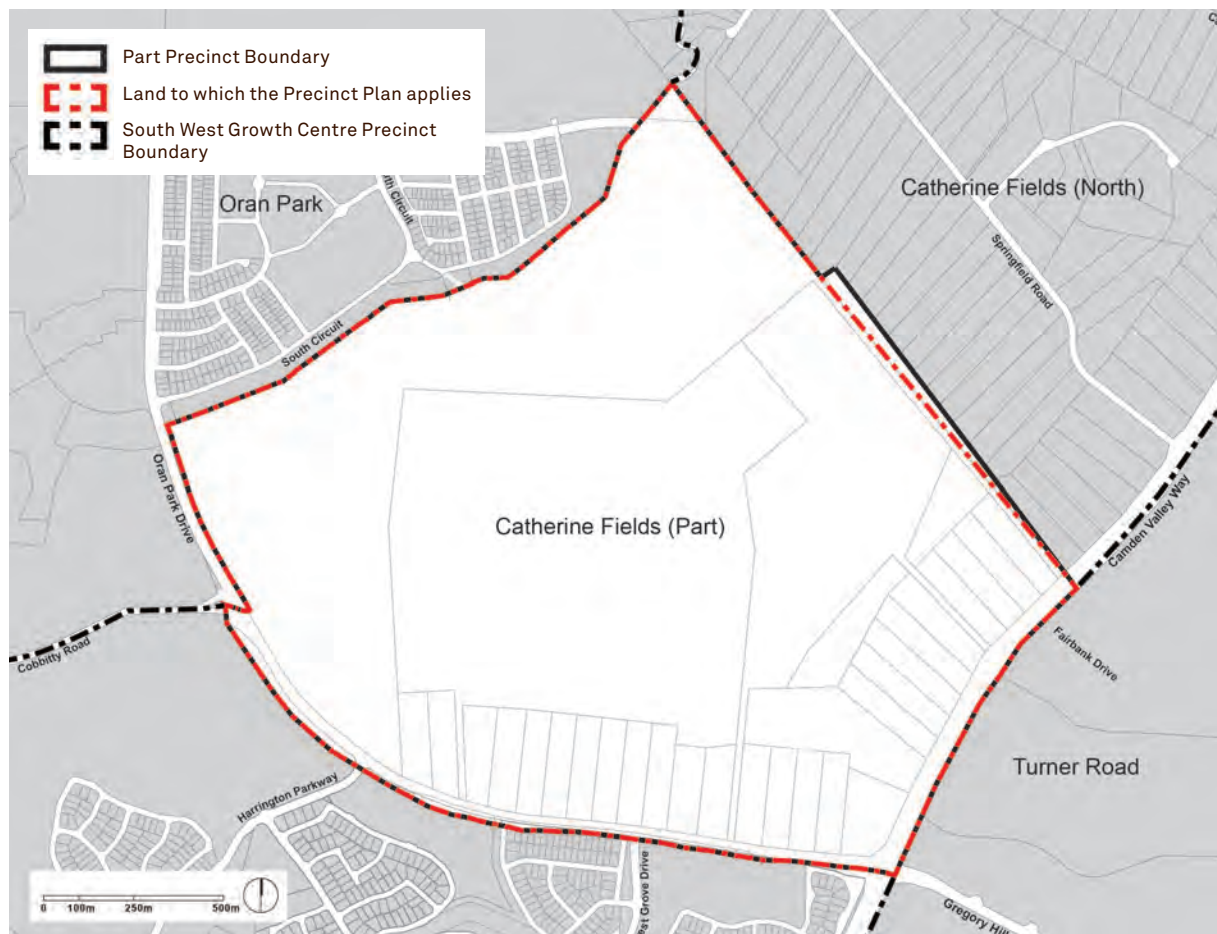


Figure 1. Site Location

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Figure 2. Existing site character images

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Precinct and has significant heritage value. The Precinct also contains patches of existing native vegetation and flood prone land along South Creek, flowing east to west through the middle of the Precinct (refer Figure 2).

1.6 Proposed Precinct layout

The Precinct is defined by the location of Oran Park House and the South Creek corridor, adjoining development areas and major road network. The Precinct structure comprises a series of walkable residential neighbourhood areas of varying size. Each neighbourhood is focused around an activity centre, such as a local park.

The majority of the Precinct is identified for low density residential development, predominantly single dwellings typical of urban growth areas in other parts of Sydney. A small amount of low-medium density development will front Camden Valley Way and be concentrated around the new neighbourhood centre and public parks. Larger lot sizes are proposed close to the historically significant Oran Park House and within a small Environmental Living zone in response to natural constraints such as vegetation retention, flooding and topography.

The street and open space networks within the Precinct respond to the site's historic landscape context, topography, regional and local views, existing watercourses and vegetation.

The open space and recreation network comprises local parks, two local sports field parks, the riparian corridor, and a series of water management areas adjacent to the riparian corridor (see Figure 3).

1.5 Precinct Planning Vision

The DCP defines the Vision for the Precinct as follows:

The vision for the Catherine Fields (Part) Precinct is that a range of housing types will develop to meet the needs of a well-connected and diverse residential community, supported by local services, amenities, parks and infrastructure, in a manner that responds to the unique characteristics of the Precinct, including the historically significant Oran Park House

and the waterways and landform associated with South Creek.

The landscape setting of Oran Park House and Garden, its associated outbuildings, the Silo and Coach House, and historic driveways, will be respected and interpreted within the development layout. The 'Coach House' Neighbourhood Centre will reinforce this quarter as the main community focus, offering opportunities for small-scale retail and social infrastructure to meet local needs.

South Creek will be an important green corridor that integrates biodiversity, flooding, water management and passive recreational values and will present a considerable amenity resource for the incoming community.

The Precinct will be an integral component of the local area, linking the surrounding suburbs and housing estates, and providing public transport connections to Oran Park Town Centre and the future Leppington Town Centre.

1.7 Key Precinct Planning Principles

Key precinct planning principles relevant to the Strategy include:

Public Domain and the Natural Environment

- A public domain framework of streets and open space that creates a connected network linking places within the site, particularly to South Creek, the Oran Park House Precinct and associated neighbourhood centre, and places adjoining the site including Oran Park Town Centre and future Leppington Town Centre.
- Local and neighbourhood parks take advantage of and retain the key landscape and environmental features of the Precinct, including view corridors, high points, the riparian corridor and existing vegetation.
- The South Creek corridor will be integrated with the drainage and open space network to create a spine of amenity and passive recreational value.
- Areas of biodiversity value are protected within the riparian corridor and flood prone land.

Catherine Fields Public Domain and Landscape Strategy

- Some areas of moderate Aboriginal cultural heritage importance are also protected within the environmental corridor and open space network.

Transport and Access

- The street and open space networks respond to the site's historic landscape context, topography, regional and local views, existing watercourses and vegetation and links to Leppington and Oran Park centres.
- The layout promotes walking and cycling generally with convenient and safe connections throughout the local area and to open space and activity centres.
- Local streets have been located adjacent to the main open space and water management lands to provide activity and surveillance, and to take advantage of the amenity these areas will provide.

Land Use

- The Oran Park House Precinct, including the new neighbourhood centre focused on the Coach House, will be the activity hub for the Precinct, providing recreational and community uses, and some convenience retail.
- Low density residential character, with some small lot, attached and semi-detached housing located around activity nodes and public transport routes, and larger lots adjoining areas of heritage and environmental importance, such as Oran Park House.

Oran Park House Precinct

The key elements of the design response to the Oran Park House Precinct include:

- The protection of Oran Park House, garden and Silo sufficient to incorporate a surrounding landscape buffer, maintaining a rural landscape character.
- The incorporation of the Coach House into the neighbourhood centre allowing opportunities for adaptive reuse of the building to ensure its conservation in perpetuity.
- Retention of a visual connection between Oran Park House and the Coach House by way of a local park.

- Conservation and interpretation of the historic driveways within the pedestrian and road network, promoting the prominence of Oran Park House in the landscape.
- Measures to respond to the key historic view corridors to and from Oran Park House (i.e. aligning local streets with retained view corridors and positioning parks in important locations such as the local park south of Oran Park House and Eastern Knoll park).
- The Dawson-Damer Drive design incorporates the existing historic driveway as a shared pedestrian and cyclist path, including the existing trees on the eastern side.
- The Moore's Prospect historic driveway will be retained as a shared pedestrian and cyclist path within the park south of Oran Park House, a widened road reserve and the outer riparian zone.

1.8 Key Precinct Planning Principles

This Strategy supports the following provisions in the SEPP Amendment and DCP Schedule:

- building height
- lot sizes and setbacks
- quarter concept
- materials / finishes
- ILP layout
- E2 zoning

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- | | | | |
|---|---|---|---------------------------------------|
|  | Part Precinct Boundary |  | Electricity Substation |
|  | Land to which the Precinct Plan applies |  | Drainage |
|  | Low to Medium Density Residential |  | Riparian Corridor |
|  | Low Density Residential |  | Major Road |
|  | Very Low Density Residential |  | Key Local Road |
|  | Environmental Living |  | Potential Local Road Network |
|  | Indicative School Location |  | Historic Driveway |
|  | Neighbourhood Centre |  | Transmission Easement |
|  | Parks |  | Transmission Line to be Undergrounded |
|  | Sporting Fields |  | Oran Park House, Silo & Coach House |
|  | Environmental Conservation |  | Creek (Existing Top of Bank) |

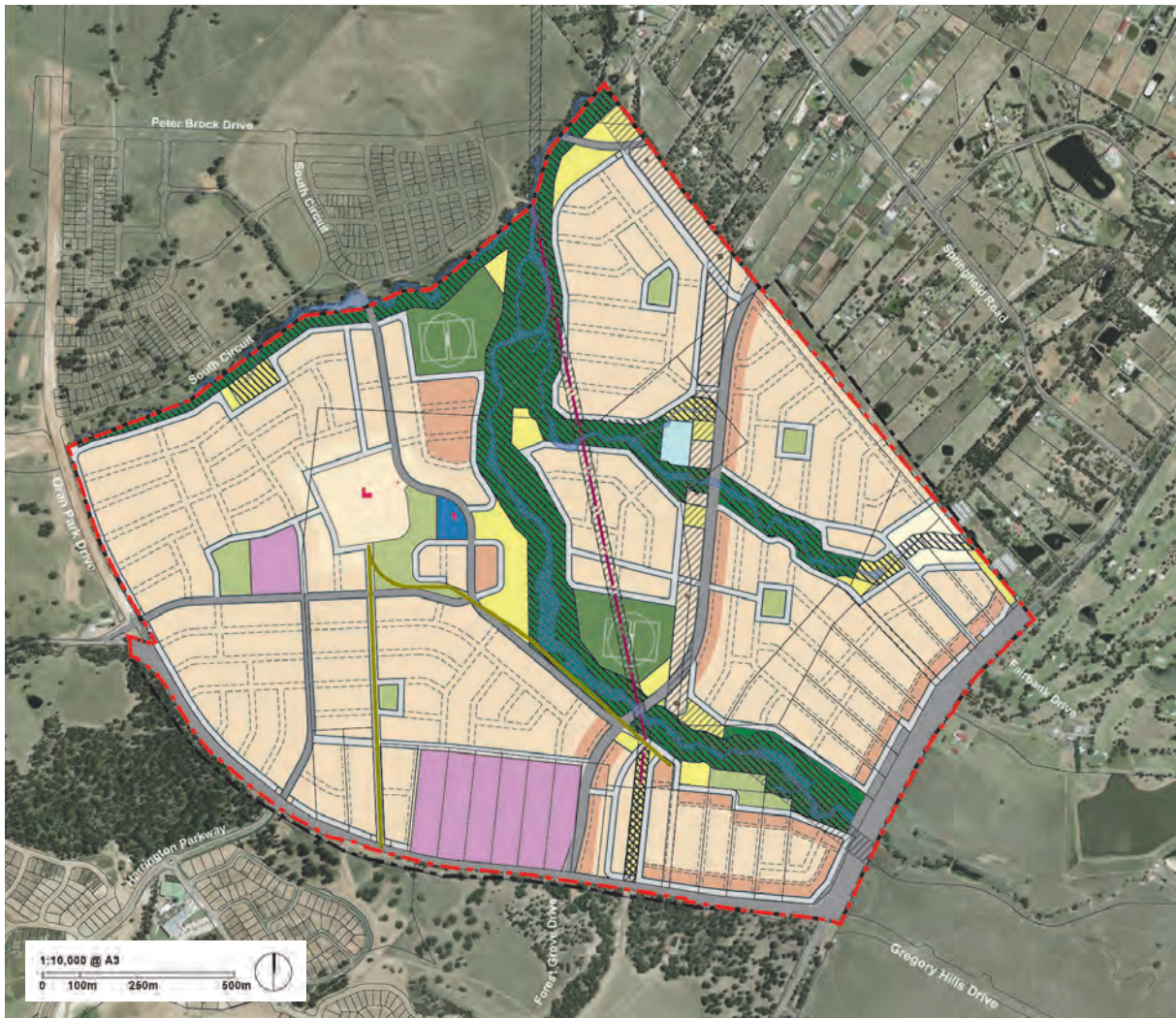


Figure 3. Catherine Fields (Part) Precinct Indicative Layout Plan (Source: DCP)

2

Precinct- wide design strategies and guidelines

2.1 Desired future landscape character

The desired future landscape character for the precinct is a contemporary design response that is sensitive and inclusive of the special qualities of the place, especially the rural landscape character of the site and region and significant stands of existing native vegetation on the South Creek Corridor.

2.2 Key Views to be retained to Oran Park House

The below listed view lines have been carefully planned to enable the continued visual prominence of Oran Park House and associated grounds.

Retain / facilitate the following view corridors to / from Oran Park House (refer Figure 4):

- Springfield Road knoll;
- Coach House;
- South Creek riparian corridor;
- Eastern knoll park;

Catherine Fields Public Domain and Landscape Strategy

- Badgally Hill;
- Moore's Prospect, particularly to that section of the drive that is lined with the paired avenue planting south of the House;
- Dawson-Damer Drive;
- Western knoll; and
- A local road to the north of Oran Park House.

The following public domain measures contribute to the preservation of views and the visual and landscape setting of the Oran Park House and associated grounds:

- Parks adjacent to Oran Park House conserve its landscape setting as a hilltop residence and retain the visual connection to the Coach House and riparian corridor;
- A park on the knoll in the eastern portion of the site takes advantage of vistas to and from Oran Park House and the adjoining local street is aligned to facilitate this view line;
- The riparian corridor will be restored and revegetated, which will conserve the relationship with Oran Park House;
- A pedestrian / cycleway is incorporated into the park within the Oran Park House Precinct, and connects with the two historic driveways; and
- A range of controls have been developed to conserve and interpret both of the historic driveways, Dawson-Damer and Moore's Prospect, including detailed cross-sections in the DCP.

Key Design Guidelines to ensure Retention of Heritage Curtilage Key Views

Local park adjacent to Oran Park House

The local park immediately east and south of Oran Park House (refer Figure 6) facilitates views between the house and the Coach House, to a portion of Moore's Prospect, and to Badgally Hill.

- There should be limited planting between the Coach House and Oran Park House in order to retain views and the rural character.
- Plant with endemic tree species commonly found on the site such as Forest Red Gum (*Eucalyptus tereticornis*) and/or the historically significant Broad-leaved Apple (*Angophora subvelutina*) to

reflect the previous rural character of the Oran Park farm.

- The playground for this area should consider public art and interpretation opportunities as detailed within the Heritage Interpretation Strategy (GML, Sep 2013). Materials and colours for the equipment should be sympathetic to the heritage context of the site. All equipment should be located away from designated view lines.

Neighbourhood centre

The Coach House is proposed to be adaptively reused and integrated into a small neighbourhood centre.

- Landscape treatments for this area should reflect the adjoining local park planting palette, with tree location designed to facilitate the required view corridor between the House, the Coach House, the riparian corridor and the eastern knoll park.
- The architectural / urban design of the space should ensure that the Coach House is clearly identifiable as a separate and distinctly recognisable entity when viewed from the house.
- Tree planting within the Neighbourhood Centre should reflect the previous rural character of the site.

Water management area

The water management area between the Coach House and the South Creek riparian corridor will comprise an integral part of the historically important Coach House / riparian corridor view from Oran Park House.

- The northern part of the water management area (i.e. within the heritage view corridor) should visually reflect an open pasture landscape / open water (e.g. farm dams) transitional edge to the riparian corridor.
- Planting within those parts of the larger water management area adjoining the riparian corridor should substantially visually reflect that of the riparian corridor.

Boundary screening

The majority of the north-western boundary of the site is open to views of the Springfield Road hill

Catherine Fields Public Domain and Landscape Strategy

behind, which is proposed for future urban development, being within the South West Growth Centre.

In order to screen future development on the Springfield Road hillside from elevated areas within the site use tall eucalypt species drawn from the Cumberland Plain Woodland association as street trees within proximity of this boundary.

Eastern knoll park

- Avenue planting to the road aligned between Oran Park House and the eastern knoll park needs to ensure unrestricted views between these two elements when the avenue planting reaches maturity, without the need for periodic pruning.
- The planting of this road should allow for a clear view of both the house and its garden setting from the park between / over the mature canopies.
- In order to avoid the impact of trees higher the 18 metres (e.g. tall eucalypts) impeding the view

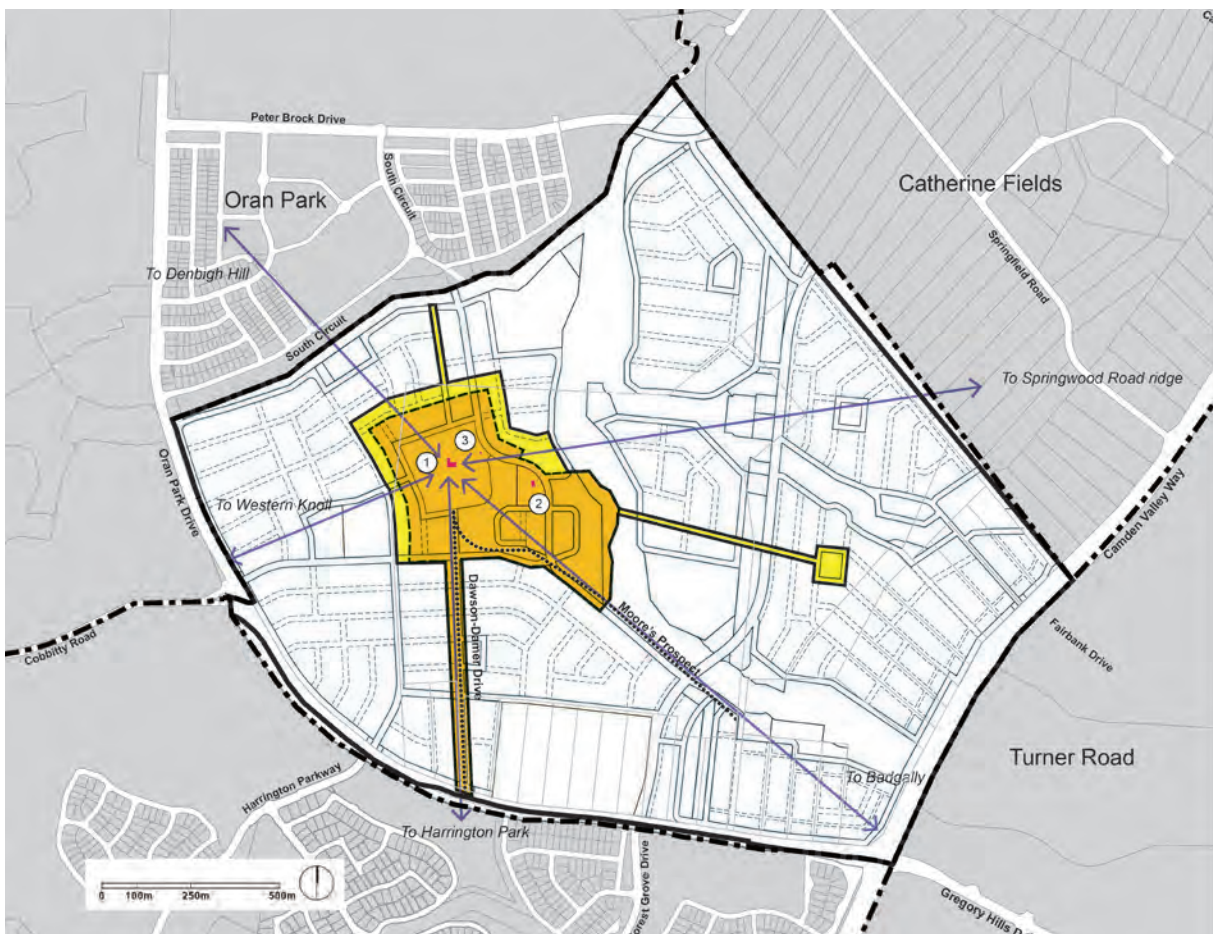
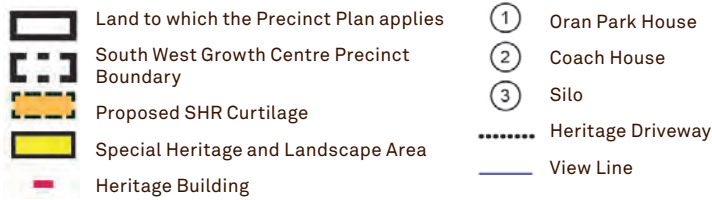


Figure 4. Heritage Curtilage and Special Landscape Area (Source: DCP)

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towards Oran Park House, it is recommended that a minimal number of taller trees are planted within the riparian corridor, within a distance of 30m either side of the centre line of this view.

- Tree cover within the riparian corridor should predominantly comprise of casuarinas that have an approximate height range of between 8 and 12m. This height will allow to be viewed over between the park and the house.
- The amount of tall tree cover permitted within the riparian corridor should be sufficient to tie in with the character of the corridor upstream and downstream of this point, without unduly impacting upon the view to the house.

Local road north of Oran Park House

A local road to the north of Oran Park House has been aligned to provide views to the house from the riparian corridor. Avenue planting for this road should meet the same requirements as those above for the eastern knoll park.

2.3 Views to Open Space and Riparian Corridors

Streets that are aligned perpendicular to the riparian corridor and/or front the riparian corridor and local parks should maintain the views into these areas and avoid low, dense planting that would obscure views.

2.4 Existing Vegetation

Key areas of native vegetation, serving ecological, visual amenity and landscape functions, are located along creek lines and flood prone land. The majority of this vegetation is retained and conserved through an Environmental Conservation zoning and other provision.

The site also contains three very old specimens of the large endemic tree, Broad-leaved Apple (*Angophora subvelutina*). These specimens should be retained where possible. The Oran Park House Conservation Management Plan (CMP) identifies this species as typically having been retained on early colonial farms due to the form of the tree being reminiscent of an European Oak. Good specimens of these trees were often retained at locations within the property that would enable

them to act as a picturesque frame for views back to manor house. These trees were also sometimes retained within proximity to farm dams, to provide a view through the trees and across open water to the manor house, as another permutation of this landscape framing device. The CMP suggests that given the age of the three remaining specimens on the site, they may have been retained for this purpose, and as such comprise important elements of the site (refer AECOM 2012 – Figure 12 for locations of the trees).

2.5 Streets

The hierarchy of roads, streets and paths collectively creates an overall circulation system for both vehicular and pedestrian traffic that serves both the Precinct and its regional surrounding. The planned road network, and hierarchy of roads is illustrated in the DCP.

The design of streets needs to consider the multiple objectives that these serve including:

- vehicular access, circulation and parking;
- pleasant and safe pedestrian environment;
- access to public transport;
- cycle access, circulation and parking;
- quality of social spaces;
- safety and perceptions of safety;
- provision for people with sight and mobility impairments;
- visual amenity;
- drainage function and opportunities for Water Sensitive Urban Design (WSUD);
- cultural significance - places for social interaction and public art; and
- maintenance requirements.

Design Guidelines

- All streets conducive to walking and cycling should have adequate shade, footpaths, cycling facilities and Safety in Design measures.
- WSUD swales are appropriate on streets within the range of 1%-4% longitudinal slopes (without the need for stepping). Most streets (including the majority of east-west oriented streets that drain towards South Creek) are within this range.

Catherine Fields Public Domain and Landscape Strategy

- North-south and northeast-southwest orientated streets benefit from solar protection in summer from hot afternoon sun. Tree species, height, spread and spacing should be designed to provide effective shade to the road and footpaths and to reduce the heat island effect during summer months.
- East-west and northwest-southeast orientated streets benefit from solar access in winter solstice to the southern side of the street. Tree spacing, height and use of deciduous species should be designed to provide sufficient solar access to the street during winter months.
- Potential water sensitive urban design integration into tree pit design for passive watering.

Public Domain Guidelines

- The planting palette should reflect the historic and natural layering of the site in a simplified, contemporary manner.
- Public domain planting should maintain and frame key views.
- Planting throughout the South Creek corridor (environmental conservation area) should enhance the indigenous riparian plant community throughout the corridor and provide support for the Australasian Bittern habitats.
- Use deciduous trees only where greater solar access in winter is required (e.g. adjacent northern aspect of buildings, on east-west streets and in plazas).
- Use evergreen trees where visual-buffers are required.
- Street trees have a shorter lifespan than park trees, and their ongoing maintenance and replacement should be planned to ensure continued canopy cover.
- Street tree planting need not be symmetrical. Different species can be planted on opposite sides of the street to perform different microclimatic functions.
- Layout needs to coordinate required clear-zones from street corners and setbacks from street kerbs.

2.6 Street Trees

Public Domain Objectives

Street trees provide essential visual, character, climatic and habitat amenity. Street trees provide shade in summer months, reduce the heat island effect, slow down run-off from rainfall and provide habitat linkages from open space areas and the Riparian Corridor. Ensuring the compatibility of street trees within the design of the streets will ensure their successful establishment and longevity.

The selection of street trees species should have regard to the following functional considerations:

- Utilities (power/gas/water/sewer/cable lines).
- Street lights.
- Pruning and shaping resilience.
- Infrastructure & easements.
- Driveways & bus stops.
- Pedestrian crossings.
- House frontages & set backs.
- Lateral spreading habits.
- Road verge & nature strip widths.
- Waste service collections.
- Vehicle vision lines.
- Cultural and heritage amenity.
- Above ground services.
- Minimum setbacks from concrete structures.
- Road authority requirements for street trees to meet road safety objectives.

Tree Spacing should generally be:

- 12-15m on east-west and northwest-southeast streets to allow greater solar access in winter.
- 10-12m on north-south and northeast-southwest streets to provide greater protection from summer western sun.
- Larger tree canopies will require wider spacing to match canopy width.

2.7 Pedestrian and Cycle Links

A grid pattern local street network will maximise accessibility for pedestrians, cyclists and public transport. The major pedestrian and bicycle routes within the Precinct are located along the major

Catherine Fields Public Domain and Landscape Strategy

roads and adjacent to or within the South Creek corridor (refer Figure 5).

Off-road shared paths for pedestrians and cyclists are proposed along the major roads (i.e. transit boulevards and collector roads) and streets that run alongside open spaces, riparian corridors and transmission line easements. These will provide for safe pedestrian and cyclist movement (separate to road traffic) linking the major destinations in the Precinct and surrounding residential areas.

There is also provision for a number of pedestrian / cyclist crossings over South Creek and associated tributaries, allowing good connections between the eastern and western catchments in particular.

Design Guidelines

- Pedestrian and cycle routes will be direct, continuous and well lit.
- Cycle routes will be linked to those outside the site.

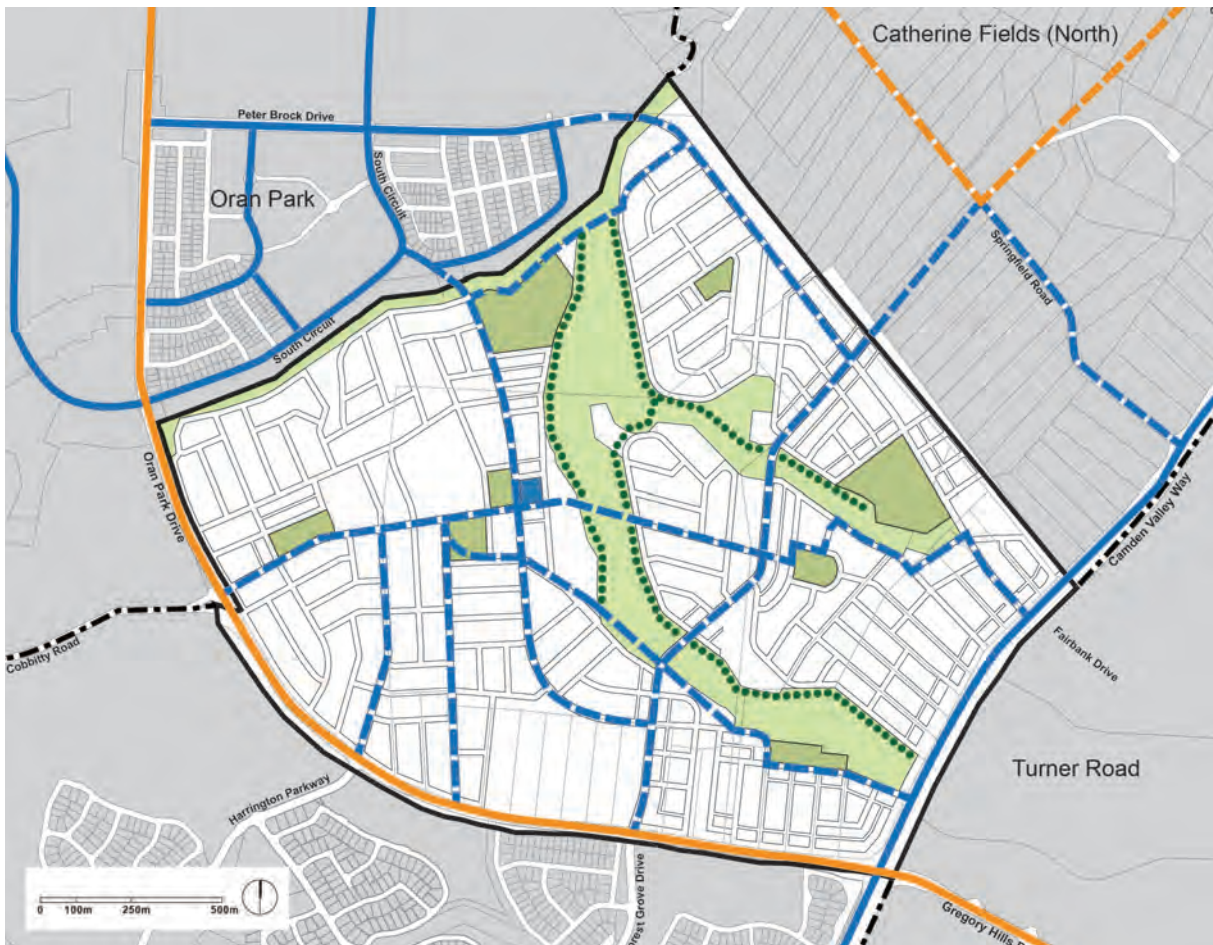
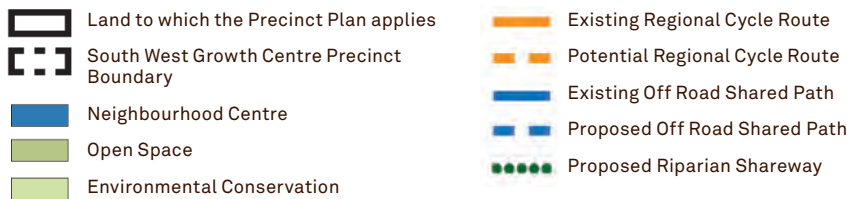


Figure 5. Cycle Link Key Plan (source: DCP)

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- Grid-like street network pattern will facilitate walking and cycling.
- Limit use of cul-de-sacs (they should be used only where other more permeable options are not available).
- Clearly delineated routes are provided for pedestrian, bicycles and vehicles.
- “Recreational trails” will connect public open space using on or off road routes.

2.8 Precinct Way Finding and Public Art

Pedestrian Way Finding

- Provide pedestrian way finding directional signage and maps at key entry locations within the Neighbourhood Centre, to and from adjacent bus stops, and public car parks.
- Provide directional signage in parks along shared path locations at key decision points for change in direction.
- Locations need to be carefully coordinated with pedestrian desire lines, trees, light poles, furniture, etc.

Vehicular Way Finding

- Vehicular way finding is to consider key entry locations to the Precinct and provide directions to off-street parking facilities and other key public facilities such as the Neighbourhood Centre and Parkland Facilities.

Public Art

- New public art opportunities should be focused on key pedestrian routes, linking the neighbourhood centre, through to the South Creek Corridor and other public open space areas.

2.9 Neighbourhood Centre

The Neighbourhood Centre responds to the heritage context of Oran Park House by integrating the historic Coach House as a key functional element. The visual connection and views between Oran Park House and the Coach House are achieved by providing a neighbourhood park between the Oran Park House and the Neighbourhood Centre.

The Neighbourhood Centre is located close to the junction of two collector roads, along the main

movement route and within walking distance of medium density housing. This location provides a good pedestrian catchment and passing trade opportunities and enables bus stops to be integrated with the Neighbourhood Centre.

The Neighbourhood Centre is located on flat terrain and benefits from a natural setting between a water management area and South Creek to the east and a neighbourhood park to the west.

The Neighbourhood Centre caters for the needs of the local community by providing retail and community related functions. It will provide for retail and commercial uses and features a central civic courtyard capable of accommodating al-fresco dining or community gatherings. It is envisaged that the Neighbourhood Centre will provide convenient shopping, cafés and restaurants to service the local community. Refer to Figure 6 for an indicative layout of the Neighbourhood Centre.

Design Guidelines

Active retail frontage

- Focus active retail on north-facing frontages to facilitate outdoor dining and good microclimate during winter months (refer Figure 6).

Through-site link

- Provide through-site link crossing centred on the view axis to Oran Park House.
- Ensure the through-site link is publicly accessible 24/7.
- Provide additional building setbacks at entrances to accommodate on-street trading and cafes.
- Pedestrian through-site links pavement to withstand vehicular loading for emergency vehicle access. All pavement to withstand vehicle loading to cater for events.

Car park

- Provide an off-street car park that can serve both the neighbourhood centre and adjoining local neighbourhood park.
- Ensure the car park is well shaded with street trees and is pedestrian friendly.
- Provide a pedestrian-priority footpath linking the neighbourhood centre to the local neighbourhood park on the view axis to Oran Park House.

Catherine Fields Public Domain and Landscape Strategy

Lighting

- In addition to street lighting, provide pedestrian lighting to plazas, marked and signalised pedestrian crossings, cycle lanes and through site links.
- Provide pedestrian lighting to all shared paths within open space areas.
- Provide appropriate feature lighting in the Neighbourhood Centre especially highlighting the historic Coach House.

Bicycle parking

- Provide capacity for bicycle hoop parking at the Neighbourhood Centre.
- Consider mounting hoops on light poles to reduce clutter.

Public art

- Provide opportunities for public art at through site link locations.

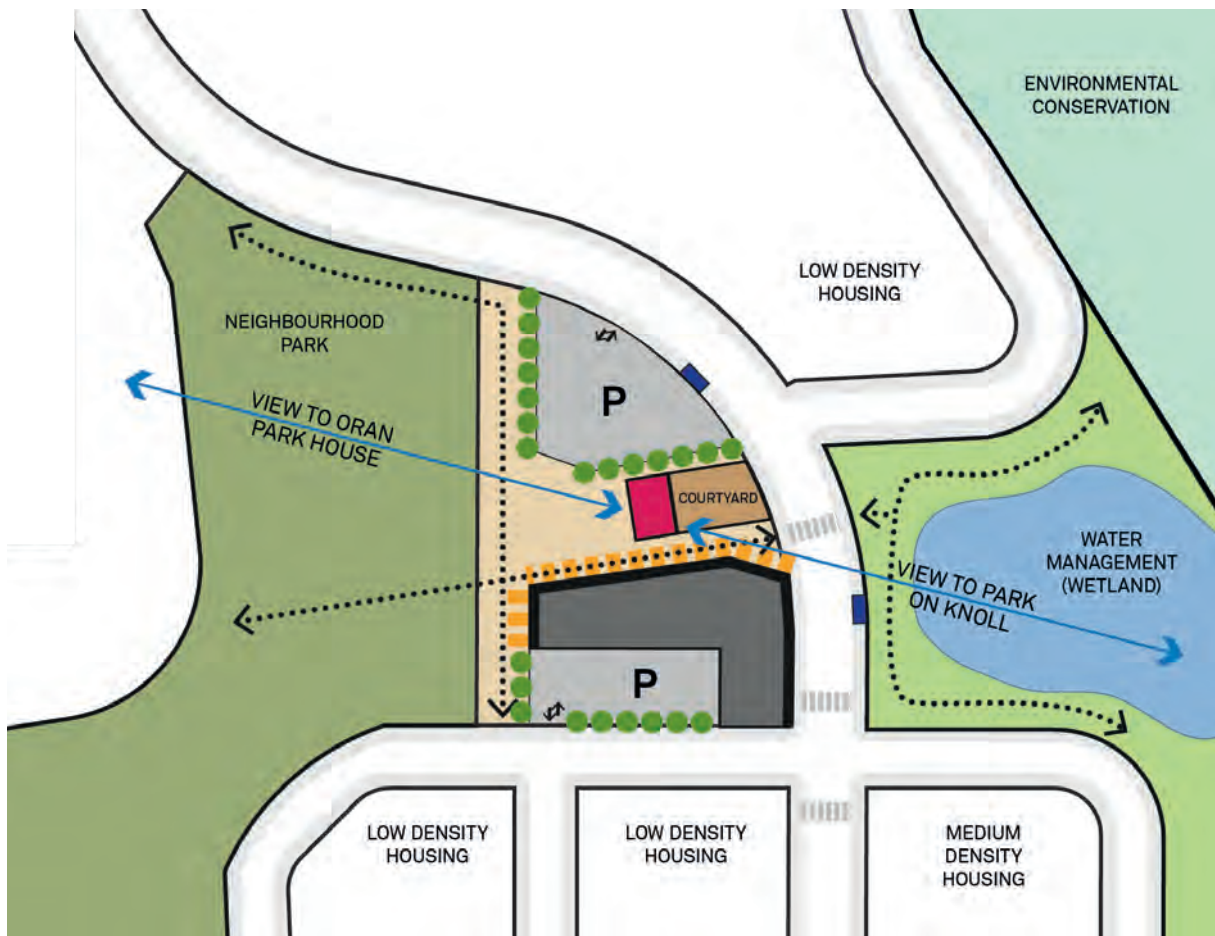
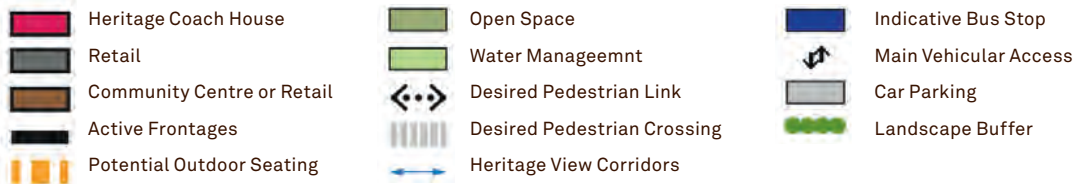


Figure 6. Neighbourhood Centre indicative plan (Source: DCP)

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2.10 Recreation and Open Space

The South Creek corridor and its tributaries create opportunities to serve important drainage, amenity, open space and pedestrian connectivity functions. Multiple uses of these creek corridors is considered a preferred long-term outcome.

The proposed open space network comprises:

- Active open space provided as two double sporting fields in the central and western catchments of the Precinct and adjoining low-lying flood prone and riparian land. A number of hard courts may be co-located with the sporting fields.
- Neighbourhood parks distributed throughout the Precinct to ensure every resident is within walking distance of open space.
- Land associated with environmental corridors and multi-use drainage land is to be utilised as passive open space including embellishment for pedestrian and cycle paths (refer Figure 7).

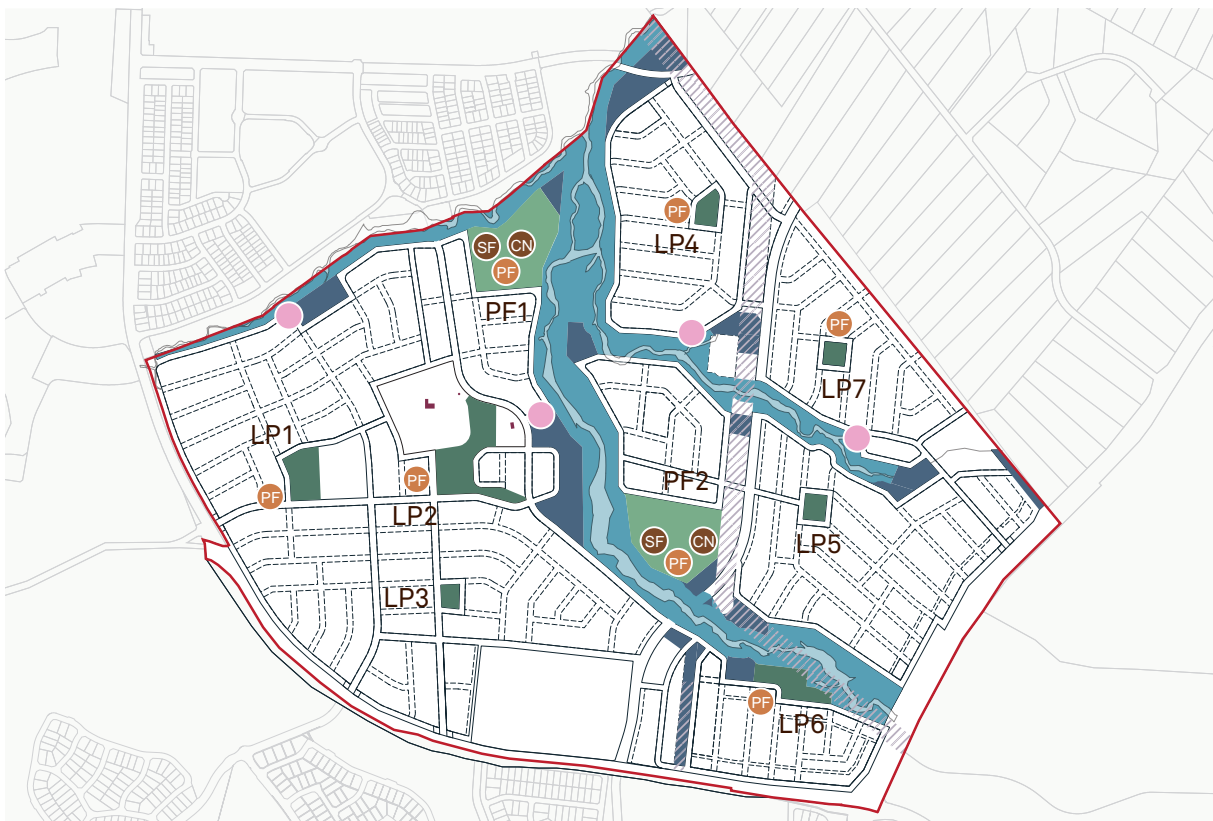


Figure 7. Open Space Key Plan

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The neighbourhood parks range in size and can accommodate children's playgrounds, public art and interpretive media, picnic and BBQ areas, stands of vegetation and / or small play areas.

The design of local parks should consider the following objectives:

- Local parks provide amenity to local residents, opportunities for social interaction, passive recreation and are important in establishing a sense of place and orientation within the neighbourhood.
- Local parks are located to take advantage of significant or prominent landscape features, such as views, high points and areas of natural and cultural heritage significance.
- The local park located immediately east and south of Oran Park House promotes community engagement and retains view corridors towards the House, reinforcing its role as a community focal point and prominent landscape feature. Refer to Section 3.0 Oran Park House Heritage Curtilage Strategy for design guidelines within this area.
- Local Park 1 is proposed to partially service the public primary school. A balanced outcome between the school and general public use is required.

Design Guidelines

The following is a list of typical local park design principles:

- Provide a design response for open spaces that reinforces the local character of the site, retains significant stands of existing vegetation and integrates usable open space and recreational facilities with the riparian corridor and local residential areas.
- Integrate open space stormwater management with the inclusion of vegetated swales and passive irrigation.
- Optimise ecological functionality through planting of endemic species and fully structured vegetation communities.
- Investigate the potential to retain any of the three Broad-leaved Apple specimens on the site and provide interpretation.

- Consider the incorporation of specimens of Broad-leaved Apple within parks that have views back towards Oran Park House, in order to reflect and interpret the historical use of these elements to frame picturesque views to the house.
- Vegetation to include the following:
 - Endemic tree planting;
 - Additional tree planting to provide shade for play facility and seating areas, and to add seasonal interest;
 - Native grasses and small-medium shrubs as understory;
 - Character tree planting reflecting the historic and cultural significance of the site; and
 - Locate playground on south side of park to maximise winter solar access.

Local park eastern knoll

The local park on the knoll in the eastern portion of the site (LP5) takes advantage of vistas to and from Oran Park House. The adjoining local street is aligned to facilitate this view line.

The park is located on land of moderate indigenous archaeological significance, which should be interpreted as part of the park design.

The following is a list of key design guidelines for this local park:

- Use interpretive sculpture, planting, and/or signage to highlight the topography and frame views to and from Oran Park House, maintaining the natural site topography where possible.
- Materials and detailing to reflect the cultural heritage of Oran Park House in a simplified, contemporary manner.

Sporting field parks

There are two sporting field parks within the precinct and they are located adjacent the riparian corridor. They contain formal playing fields and one of each of the following facilities (refer to Figures 8 and 9 for indicative layout):

- Multi-use playing field (cricket and x2 rugby).
- Local playground.

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- ① Shared path
- ② Shade tree planting
- ③ Amenities building
- ④ Playing field
- ⑤ Local playground
- ⑥ Cricket nets
- ⑦ Off street car parking
- ⑧ Adjacent water management area
- ⑨ Sport field maintenance edge
- ⑩ Adjacent riparian corridor



Figure 8. Indicative sporting field park 1 layout



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- ① Shared path
- ② Shade tree planting
- ③ Amenities building
- ④ Playing field
- ⑤ Local playground
- ⑥ Cricket nets
- ⑦ Off street car parking
- ⑧ Adjacent water management area
- ⑨ Sport field maintenance edge
- ⑩ Adjacent riparian corridor
- ⑪ Transmission easement

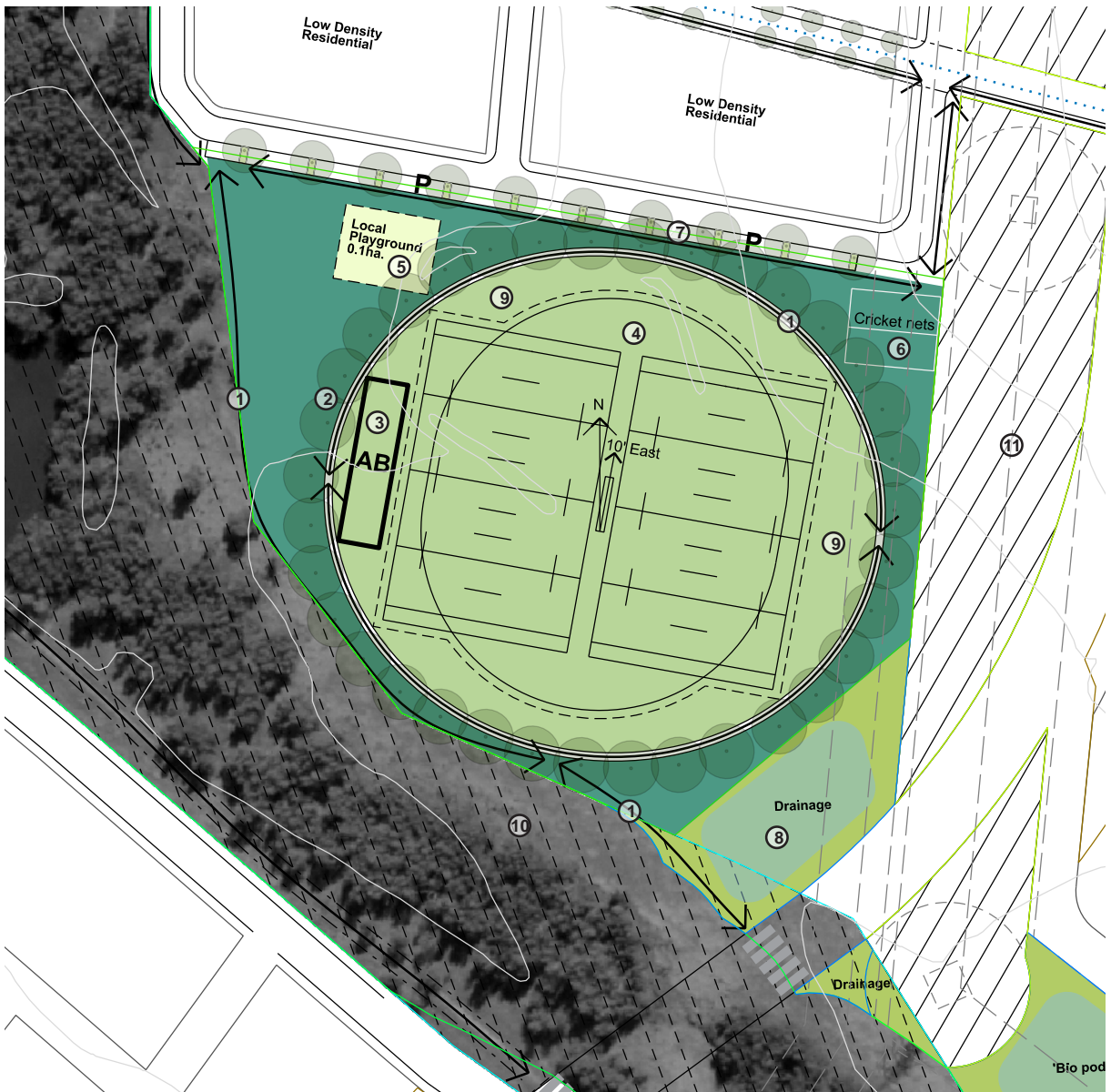


Figure 9. Indicative sporting field park 2 layout



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- Cricket nets.
- Amenities building.
- Pedestrian and cycle links.
- Preference for 90 degree on-street car parking.
- Shade tree planting.

The following are design guidelines related to the playing field parks:

- Orientate playing field to a northerly aspect.
Adjust the orientation to align the sports fields to adjacent roads to maximise land use efficiency.
- Earthworks to provide uniform symmetrical embankments.
- Provide a 3m circuit path and shade tree planting around the sports field.
- Locate amenities building on the western side of the sports field.
- Provide 90 degree parking adjoining street reserve near sports field.
- Provide shade tree planting generally to the north and west of pedestrian paths.
- Provide greater setback for street trees into the open space corridor to enable larger root growing areas.

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2.11 Riparian Corridors

The location of the South Creek corridor and its tributaries relative to proposed land uses creates opportunities for natural corridors to also serve important drainage, amenity, open space and pedestrian connectivity functions. Multiple uses of the creek corridors is considered a preferred long-term outcome and is therefore a key element of the overall structure of the Precinct (refer Figure 10).

The proposed multi-function nature of the riparian corridors will comprise:

- Natural settings – along South Creek and its tributaries, to protect land primarily for its biodiversity, riparian and flooding functions, whilst taking advantage of the significant amenity and passive open space values the corridor presents.
- Drainage lands - including water quality bioretention areas and stormwater detention basins, to treat and detain water flowing from the

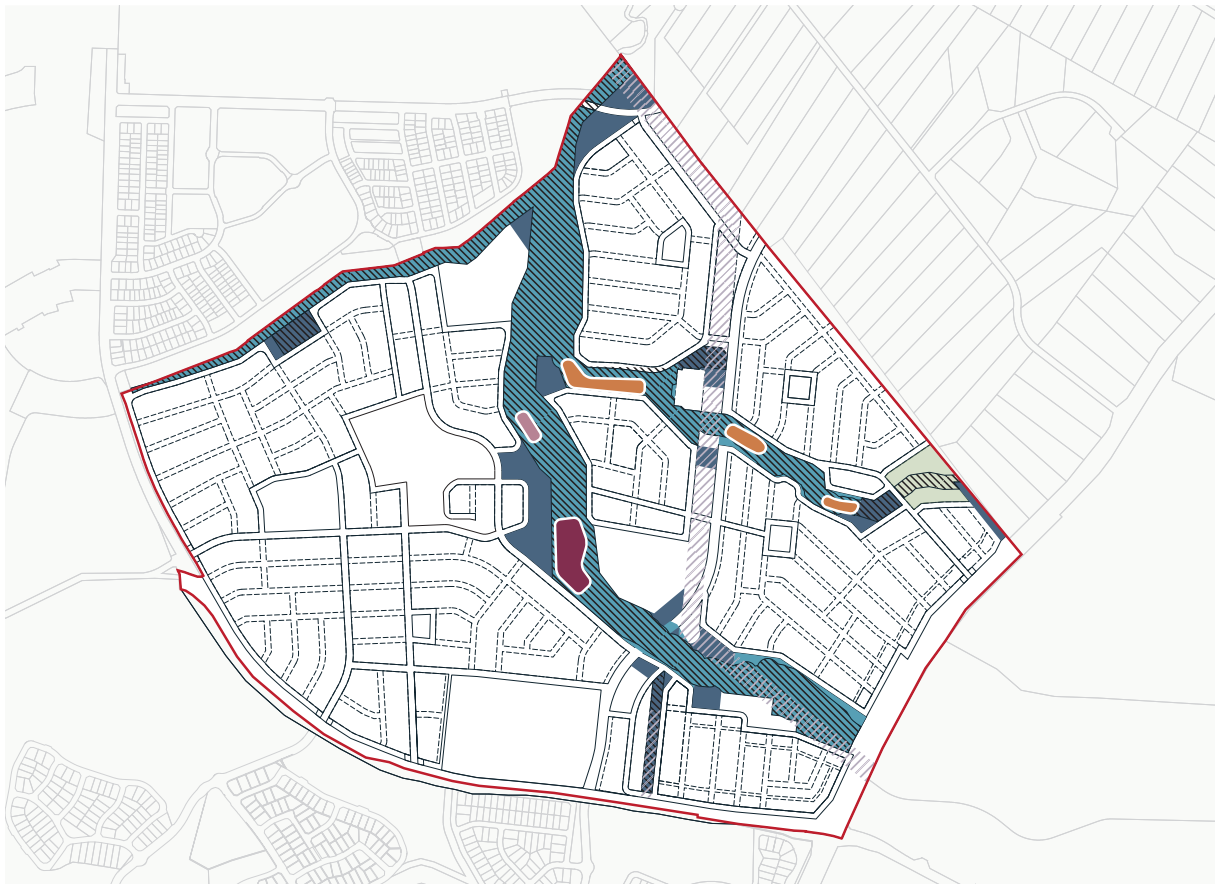


Figure 10. Plan showing the riparian corridor and existing Bittern habitat

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urban parts of the Precinct before being discharged into creeks.

A continuous riparian corridor along South Creek and its tributaries is identified on the ILP, including connections to the corridors within the Turner Road and Oran Park Precincts and Harrington Park. The corridors are to be restored, revegetated and managed as a natural creek ecosystem, as well as providing a regional habitat function, passive recreation resource and scenic outlook within the Precinct. The majority of native remnant vegetation existing within the riparian corridors and flood prone land will be retained and regenerated within Environmental Conservation and Environmental Living zones.

The design of the riparian corridor lands needs to consider the following:

- Water quality and flood management.
- Visual amenity.
- Passive open space function.
- District recreation links via a shared path system.
- Creek Crossings and viewing platforms.
- Pedestrian connections for residents to the Neighbourhood Centre.
- Cultural significance - places for social interaction and public art as well as heritage / environmental interpretation .
- Ecological function.
- Bushfire management and setbacks.
- Maintenance requirements.
- Habitat for the Australasian Bittern.

Design Guidelines

- Riparian corridors are to be restored and managed as species rich communities characteristic of the pre-European communities, that are effectively self-regenerating, using bushland management techniques.
- All bushland areas are to have a management edge such as a pathway or roadway that reduces weed incursion opportunities from adjoining landscaped areas.
- Landscape development of the riparian corridor edges is to be reflective of the previous rural character of the site, using a predominance of endemic species, and providing open water and

open grassed areas reflective of the previous pastoral setting, e.g. dams and pasture.

- Pedestrian / cycle paths are proposed along the edge of the corridor and links to other areas of open space with the key roads and focal points.
- Street tree planting on riparian corridor perimeter roads should use native tree species reflective of the previous rural character of the site, and that visually reinforce the extent / character of the riparian corridors.
- Where power line easements cross over, or travel alongside and within designated riparian corridors:
 - Ground planting should be restricted to ground, shrub layer and (potentially) small trees only, and be managed by a bush regenerator as required to maintain required heights.
 - Minimum required clear zones should be negotiated with the electricity supplier (refer Figure 11).
- A Plan of Management should be prepared for all riparian corridors and associated natural areas. The Plan should be integrated and consistent with all proposed non-indigenous and indigenous cultural heritage recommendations, e.g. conservation and interpretation of the Moores Prospect historic driveway.
- Ensure that riparian corridor revegetation types shall be consistent with those upstream and downstream of the site.
- Ensure that development of the South Creek riparian corridor where it crosses Camden Valley Way and where it leaves the site downstream, makes provision for open space beside the vegetated riparian corridor to facilitate natural corridor views upstream and downstream of the site, and provide a future shareway link to new adjoining development.
- Include recreation activity nodes at the edge of the riparian corridor to activate its edges and improve its function as a passive recreation resource.
- Road crossings of riparian corridors should make provision for public access over them to facilitate minimal interruption of walking trails along these corridors, both within and beyond the site, including:
 - South Creek crossing of Camden Valley Way.

Catherine Fields Public Domain and Landscape Strategy

- Riparian corridor crossings of Oran Park Drive near the junction with Camden Valley Way and at the western corner of the site.

Shared paths

- Locate shared paths strategically so that they may be used by maintenance vehicles to access revegetation areas and public facilities and infrastructure.
- Provide pedestrian lighting to all shared path locations that minimise light spill into the corridor.
- Avoid paths through existing native vegetation rehabilitation areas.
- Footpaths should preferably be set above the 1 in 20 yr ARI.
- Design shared paths to clearly define and separate different maintenance regimes, including separating riparian vegetation from urban planting treatments, e.g. turf and Asset Protection Zones.

Creek crossing points and viewing platforms

- Ensure good sight-lines to the crossing point.
- Where viewing platforms are provided, integrate the design with a bridge crossing location.
- Provide pedestrian lighting at crossing points that minimises light spill into the corridor.

- Provide bridge abutments that integrate well with adjacent finished ground levels.
- Provide trafficable surface suitable for pedestrians and cyclists (e.g. timber boardwalk deck boards should be perpendicular to path of travel).
- For drops greater than 0.5m, provide balustrade with top rail. Provide balusters that have low visual impact (e.g. use stainless steel cable for balusters).
- For areas that require disabled access, provide handrails.
- Provide kick rail for wheelchairs and prams.
- Avoid blocking views of bridge crossing points and other areas where high visual surveillance is required, e.g. with planting.

Recreation activity nodes / exercise pods

- To assist in activating the Riparian corridor, locate a series of recreation nodes at approximately 400m apart along the corridor. These are to include a concentration of recreation facilities including elements such as exercise equipment, bubblers, bins, way finding, shade, seating, community gardens, playground and picnic facilities.
- Located at the edge of the riparian corridor. Ensure adequate unconstrained recreation space is available.

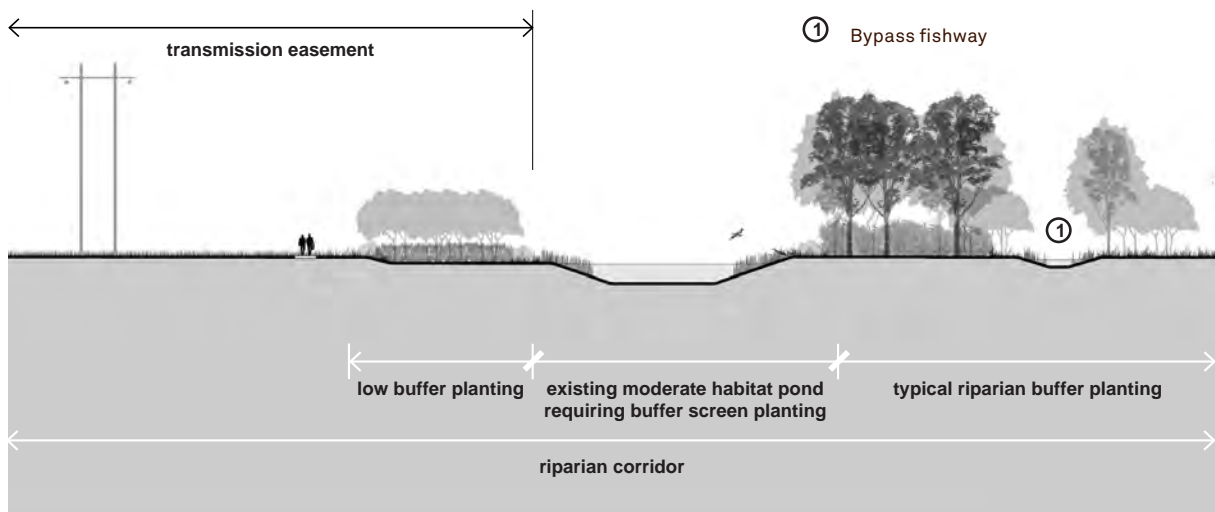


Figure 11. Typical section through existing moderate Australasian Bittern habitat pond near the South Creek inflow point requiring low habitat buffer screening where the buffer falls within a transmission easement.

Catherine Fields Public Domain and Landscape Strategy

Street verge

- Integrate street verge design into the adjoining open space, including bushland APZ treatment.
- Allow pedestrian paths and cycle paths to meander and follow the contours along the length of the riparian corridor.
- Consider use of endemic eucalypt, angophora, and melaleuca species including *Eucalyptus tereticornis*, *Eucalyptus amplifolia*, *Angophora subvelutina*, *Melaleuca decora*, and *Melaleuca stypheloides*, for use as street tree planting and within parking planting bays.
- Consider use of WSUD / water harvesting, street tree planting bays with streets adjoining to riparian corridors.
- Provide greater setback for street trees into the open space corridor to enable larger root growing areas.
- Coordinate location of street verge footpaths with on-street parking (e.g. provide path abutting back of kerb).

Planting design

- Integrate planting design with desired view corridors and shared path locations.
- Avoid blocking views in areas where high visual surveillance is required.
- Use locally indigenous plant species typically found in Western Sydney.

Recreation activities

The types of compatible activities that are expected within or at the edge of the riparian corridor include:

- Walking and cycle tracks.
- Dog exercise areas.
- Picnic areas.
- Child play areas.
- Community gardens.
- Exercise pods.

The design of these activities should seek to integrate the natural and passive open space elements of the corridor.

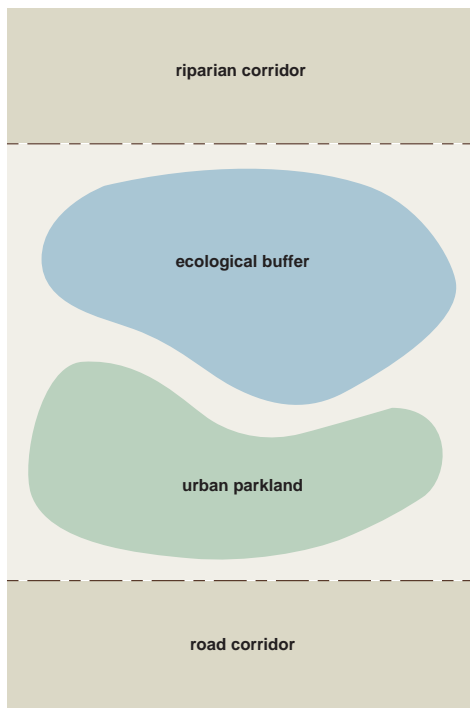


Figure 12. Typical Water Management Area composition of typologies



Figure 13. Illustration of an urban parkland edge to a riparian corridor

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2.12 Water Management Areas

The water cycle management strategy developed for the precinct adopts a trunk stormwater management approach. Water management areas are generally located at the lowest points in the catchment adjacent the riparian corridor / flood prone land, with some drainage basins being provided within the corridor where appropriate. Stormwater will be managed through dry detention basins incorporating a bioretention raingarden sized to achieve the nutrient reduction targets.

Water management areas comprise flood detention basins with water treatment devices (either bioretention systems or wetlands) to treat stormwater before releasing it into creeks. Most of these areas are also planted with fully structured riparian corridor vegetation, and in substantial manner, perform riparian corridor functions including habitat provision and visual amenity.

The design of water management should:

- Integrate the design of water management areas into the adjoining riparian corridor and adjacent residential areas.
- Ensure the complete range of open space, ecological, drainage and recreation functions are accommodated in the design of water management areas.

Design Guidelines

Two different typologies of water management areas are envisaged to provide a suitable response to the various functions these areas serve (refer Figure 12).

- Urban parkland.
- Ecological buffer.

Urban parkland

Water management areas located in areas of basins adjacent to road corridor and open space / residential areas should be developed to maintain an open, urban parkland character (refer Figures 12 and 13).

Ecological buffer

The ecological buffer is located within basins that adjoin the riparian corridor (refer Figure 14), with

'bioretention pods' recommended to contain a saturated zone. This zone increases nitrogen reduction, but also importantly provides a reservoir for dense plantings of small trees such as melaleucas, that are suited to a bioretention function in addition to providing a buffer function to the riparian corridor, and refuge for small birds.

Basin walls can be subject to dense endemic grass and shrub planting, and include tree planting where the wall is in cut.

Australasian Bittern buffer habitat

The water management area located immediately east of the neighbourhood centre is proposed to incorporate an open water body.

The open water is proposed to incorporate supplementary habitat for the Australasian Bittern as follows:

- Benched edges densely fringed with macrophytes consistent with the Eco Logical Australia (2013) report, to provide forage at dawn and dusk feeding times.
- Shallow inundated island planted with macrophytes to provide protection from predators (e.g. cats, foxes, dogs), deter roosting of ibis, and provide supplementary forage opportunities.
- Dense low tree buffer planting (melaleuca species) where the pond adjoins the riparian corridor (refer Figure 14 and 15).

2.13 Engineered Meandering Creekline

An engineered meandering creekline will be constructed along the line of overhead transmission lines between Oran Park Drive and the upstream end of South Creek (refer Figure 3). The creekline will comprise two elements:

- A fully structured riparian corridor re-creation to the area which is not impacted by overhead powerlines.
- A 'low closed forest' community of melaleuca species to the section which will be impacted by overhead powerlines.

Suitable habitat for the 'low closed forest' community will be facilitated by low, flat banded areas that are designed to be inundated in very

Catherine Fields Public Domain and Landscape Strategy

- ① Basin safety fencing if required
- ② Maximum 1 in 4 slope
- ③ Maximum 1 in 3 slope
- ④ 1 in 100 year flood level

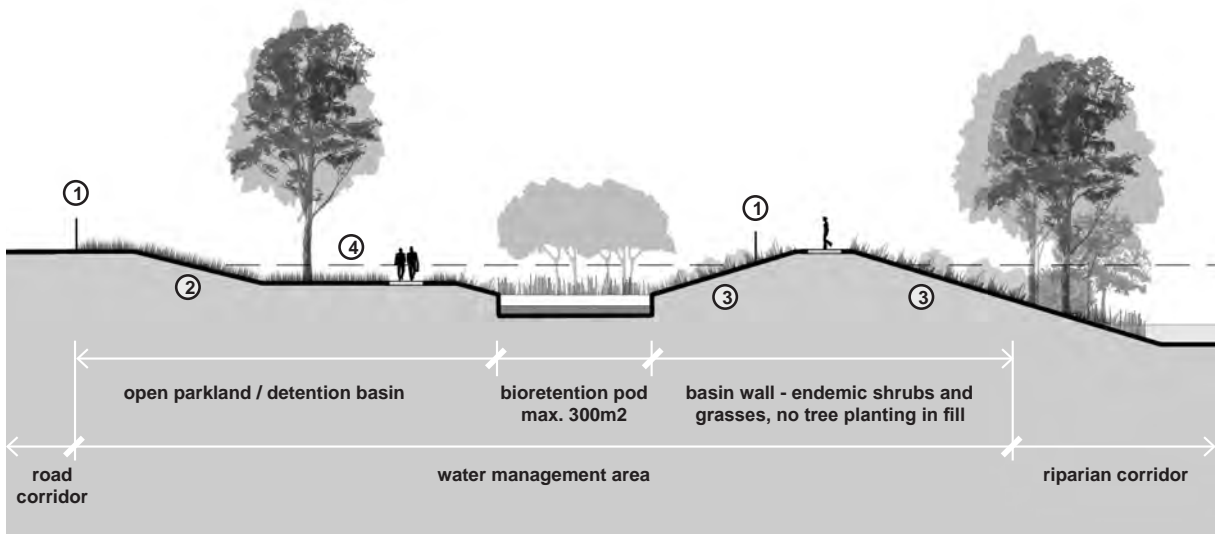


Figure 14. Typical section showing bioretention pod adjacent to the riparian corridor

- ① Basin safety fencing if required
- ② 1 in 100 yr flood level
- ③ High water level
- ④ Normal water level

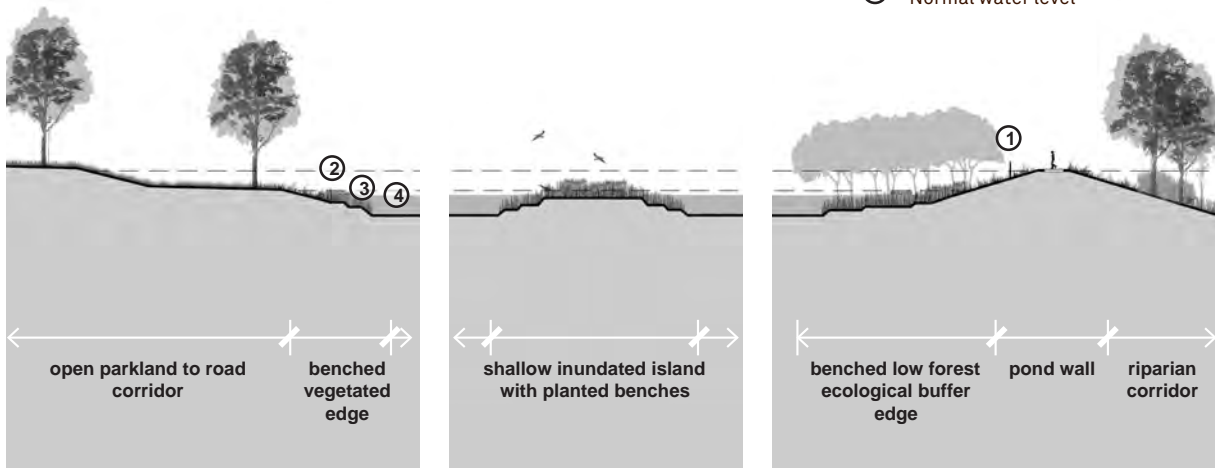


Figure 15. Section showing typical treatment to water management area open water body located on view line between Oran Park House and Local Park 5

Catherine Fields Public Domain and Landscape Strategy

frequent storms, but to detain open water for a period less than that required to facilitate the lifecycle of mosquito larvae, e.g. less than 3 days. The aim of this approach is to provide a relatively low maintenance riparian habitat that is inherently suited to being located under powerlines.

2.14 Heritage Interpretation

The following guidelines apply to the whole precinct:

Aboriginal Heritage

- Involve Aboriginal people in developing heritage interpretation strategies and guidelines.
- Provide Aboriginal heritage interpretation within the South Creek watercourse regarding the value of the waterway to the pre-European settlement Aboriginal, rural and contemporary communities.
- Where possible, confirmed sites of significant artefacts within open spaces are to be conserved.

Cultural Heritage

- Illustrate the prominence of Oran Park House as a local landmark, crowning the hilltop of the new residential Precinct.
- Reflect the cultural history of Oran Park House Estate with a public domain materials palette that deploys site referential materials and detailing in a simple, contemporary manner.
- Refer to Section 3.0 Oran Park House Heritage Curtilage Strategy for design guidelines within the curtilage.

3

Oran Park House Heritage Curtilage Design Strategies and Guidelines

3.1 Curtilage Definition

The proposed 'heritage curtilage' (i.e. State Heritage Register listing boundary) is defined in the DCP and includes Oran Park House and garden, adjoining roads, open space and associated heritage buildings.

The design of the Catherine Fields (Part) Precinct conserves and responds to Oran Park House and its associated outbuildings, the Silo and Coach House, as well as the two historic driveways, Dawson-Damer Drive and Moore's Prospect. Precinct planning has aimed to encourage the revitalisation of these elements and to allow for their adaptive

Catherine Fields Public Domain and Landscape Strategy

re-use within the fabric of the proposed urban area. The Precinct Plan retains the important historic elements of the site, conserving the visual prominence of Oran Park House within the landscape, and as a focal point for the community.

Key elements of the design response to Oran Park House and associated grounds include:

- The protection of Oran Park House, garden and Silo within a proposed 4.7 hectare lot sufficient to incorporate a privacy landscape buffer.
- The incorporation of the Coach House into the Neighbourhood Centre zone, allowing opportunities for adaptive reuse of the building to ensure its conservation in perpetuity.
- Retention of a visual connection between Oran Park House, the Coach House and South Creek by way of a local park and water management area.
- Conservation and interpretation of the historic driveways within the pedestrian and road network, promoting the prominence of Oran Park House in the landscape.
- Measures to respond to the key historic view corridors to and from Oran Park House (e.g. aligning local streets to facilitate long views to the House, and positioning open space and housing types to facilitate view to Badgally Hill).

3.2 Heritage Curtilage Design Guidelines

Heritage curtilage design guidelines are:

- Conserve the prominence of Oran Park House as a local landmark.
- Reflect the cultural landscape of the site, and particularly the open pastoral nature where practical.
- Maintain historic views and linkages to / from Oran Park House (refer to Figure 4).
- Interpret the heritage of the site with reference to the prepared Interpretation Strategy (Godden Mackay Logan, Sep 2013).
- Consider the potential for non-indigenous and indigenous historical archaeological material to be present within identified heritage areas. Public domain and landscape design needs to conserve the existing fabric of heritage items, e.g. the

central crown and drainage channels of Dawson-Damer Drive and Moore's Prospect.

- The design of new elements within the heritage curtilage should not mimic historic styles, and should be of contemporary design that is reflective of the significance of the heritage elements.
- Street trees within the view corridor between Oran Park House and the Coach House, and between the Coach House and the riparian corridor should be limited to trees of low height, and be spaced such that they readily facilitate the required views.
- Parks within the precinct are to utilise endemic tree species common to the site, such as Forest Red Gum (*Eucalyptus tereticornis*) and Broad-leaved Apple (*Angophora subvelutina*). These trees should be well positioned to facilitate views to and from the Oran Park House.

Fencing

Key design guidelines include:

- Streetscape development adjoining Oran Park House and Dawson-Damer Drive is to reflect elements of the rural character and historic setting appropriate to the historic estate.
- Fencing between the Oran Park House allotment and local park and the road perimeter, should comprise materials such as timber and wire, and should be of a scale and highly visually permeable form that is visually recessive within the context of the heritage setting.
- Fencing is to be of a visually open nature that facilitates a sense of openness within the streetscape, and space around the heritage items:
 - Fencing is to be a contemporary design that does not mimic any previous architectural periods, e.g. Federation, Victorian, or any boundary fencing to Oran Park House.
 - Fencing design is to use visually recessive colours to blend in with the surrounding landscape.

Catherine Fields Public Domain and Landscape Strategy

Oran Park House allotment

Key design guidelines include (refer to Figure 17):

- The outer edge of the Oran Park House allotment is to reflect the cultural open pastoral landscape, including use of an open swale to the road perimeter (refer to Figure 16).
- The landscape between Oran Park House and the public open space needs to address both privacy and security issues (Note: It is likely that landscape privacy screening will likely be put in place within the house allotment).
- Provide a fence to the boundary between the house allotment and the public park in accordance with the above design principles.
- Incorporate tall spire-like tree plantings within the House allotment, located such that they visually accentuate the prominence of the House and knoll within the broader landscape, while not blocking important views to and from the house.
- Street trees to roads that front onto the house allotment are to be drawn from a contemporary planting palette that is in contrast to that of Oran Park House, to be of low height, and to be limited to the residential lot side.
- Tree planting within the front gardens that face the allotment are to be limited to small trees, drawn from a contemporary palette, and not using

species that are conspicuously visible within the Oran Park House garden.

Neighbourhood Park adjacent Neighbourhood Centre and Oran Park House Allotment

Key design guidelines are (refer to Figure 17):

- Reflect the open pastoral landscape character while integrating with neighbourhood centre uses.
- Shared path using Moore’s Prospect driveway alignment. No excavation to create suitable footpath surface.
- Higher-intensity park uses, such as the playground to be located adjacent to the Neighbourhood Centre and away from view lines.
- Use existing stand of trees to provide a partial screen between the playground and Oran Park House.
- Retain sight-lines to Oran Park House on key view corridors.
- Park shade tree planting (large specimens) in strategic locations to provide shade in summer months.
- Use endemic tree species common to the site, such as Forest Red Gum (*Eucalyptus tereticornis*) and Broad-leaved Apple (*Angophora subvelutina*). These trees should be well positioned to facilitate views to and from the Oran Park House.

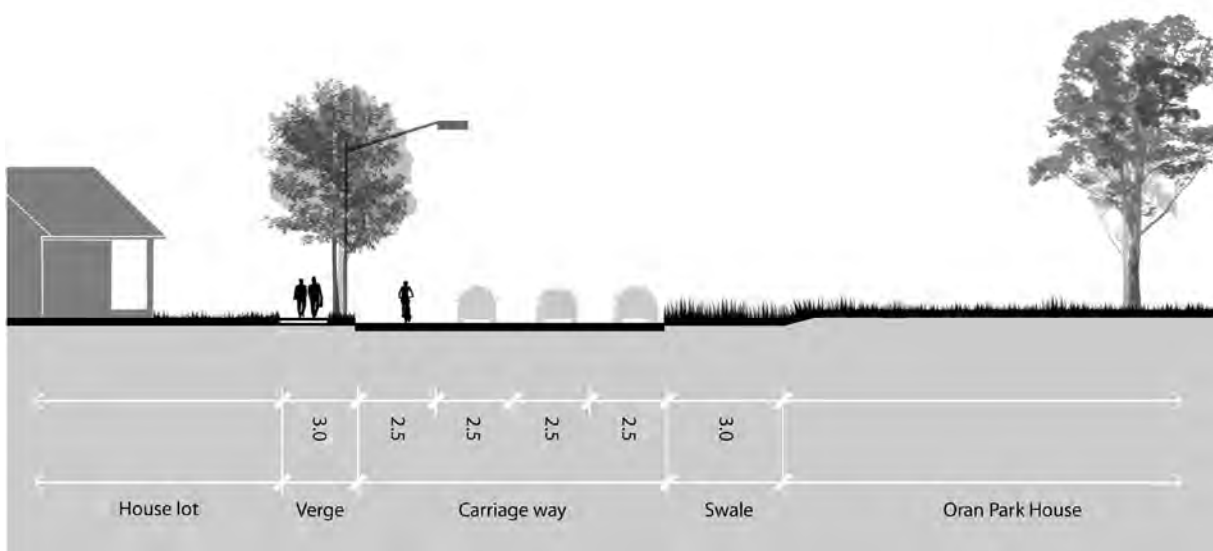


Figure 16. Oran Park House perimeter road typical section (source: DCP)

Catherine Fields Public Domain and Landscape Strategy



Figure 17. Oran Park House illustrative plan (source: DCP)

Catherine Fields Public Domain and Landscape Strategy

- Park to be evidently public in nature to encourage use by all members of the community.
- Enhance a sense of safety and security through application of CPTED principles to promote passive surveillance.

Coach House / Neighbourhood Centre

Design guidelines specific to the Coach House neighbourhood centre are as follows (refer Figure 17):

- Ensure that the centre develops as a distinctive and vibrant place that provides a range of local retail, commercial and community related uses that serve the population of the Precinct.
- Create a sense of place through the relationship of Oran Park House, the surrounding parklands, water management areas and South Creek.
- Integrate the centre with the historic Coach House and promote its adaptive reuse for retail or community uses.
- Ensure that the detailed design of the centre is undertaken in a coordinated manner to achieve a high quality urban design outcome, and that the centre is accessible and well connected.
- Facilitate a 10m setback around the Coach House.
- Ensure tree planting within the Neighbourhood Centre reflects the previous rural character of the site.

Dawson-Damer Drive

Dawson-Damer Drive runs south to north from Oran Park Drive terminating at the carriage loop in front of the House, at the end of the driveway axis.

Dawson-Damer Drive is to be conserved within the following framework:

- The existing drive and adjoining line of trees is to be retained as a pedestrian / cycle way (refer Figure 18).
- The design for the existing entry drive and adjoining roads is to reflect the historical pastoral character of the site, and to maintain and enhance the strong axial view to Oran Park House.
- The view line to the House needs to be as wide as practicable, with the aim of encompassing the full width of the house façade, and a significant part of the garden extending to either side of the house, when viewed from the low point in the drive.
- The ground formation of the existing entry drive is to be retained intact as far as practicable, including the ground formation of the centre crown and adjoining drains either side, in order to maintain the archaeological integrity, proportions, scale and character of the drive. This does not exclude re-surfacing of the drive.

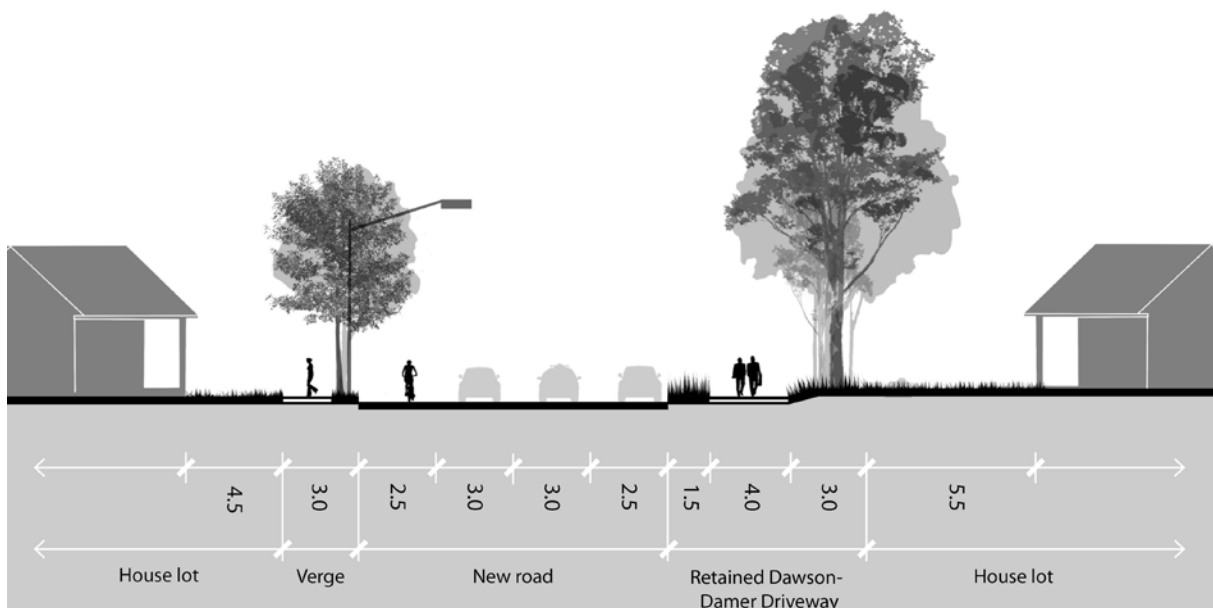


Figure 18. Typical section showing retention of Dawson-Damer Drive adjacent to a local road (source: DCP)

Catherine Fields Public Domain and Landscape Strategy

- Re-surfacing materials should reflect the historic rural setting where practicable, e.g. stabilised gravel or decomposed granite. A surface such as bitumen may also be considered.
- Any works associated with the drive are in principle to build up on the existing heritage item rather than excavating, to minimise disturbance.
- The line of eucalypts within the heritage corridor is to be supplemented as required to reinstate as far as practicable the intent of the planting design.
- The existing entry fence on Oran Park Drive is to be retained, and to act as a pedestrian / cycle access way from Oran Park Drive.
- Prepare a Safe Useful Life Expectancy (SULE) assessment for all trees, to inform design decisions such as with regard to the placement of cross-roads or driveway crossing points, or required setbacks for the undertaking of works. Demonstrate consideration of the long-term health of the trees.

The following design considerations should be considered for the new entry roads proposed to adjoin the existing Dawson-Damer Driveway:

- Design considerations for adjoining roads should include provision for setbacks sufficient to conserve the eucalypts (as informed by the above arboricultural assessment), and design for porous

pavement and / or stormwater harvesting from the adjoining roads.

- Street trees are to be provided to the verges of adjoining roads furthest from the historic driveway as shown in Figure 18, and to comprise small to medium size trees that visually contrast with the existing line of eucalypts. The eastern side of the drive is to be planted to a low planting that provides visual / physical separation between the retained entry drive and a new road to the west.
- Small trees may be considered for planting within the parking lane/s adjoining the existing drive, e.g. as part of a WSUD / parking bay strategy, as long as these trees do not visually compete with the eucalypts or impede views along the entry drive to Oran Park House.
- Where roads and driveways cross the conserved driveway / line of trees, measures are to be taken with street elements such as signage, street lighting, traffic lights, traffic calming devices, etc. to ensure that the traditional, uninterrupted view along the entry road to Oran Park House is not impeded.

Moore's Prospect

Moore's Prospect driveway formed part of a direct historic route between Oran Park House and Badgally House.



Figure 19. Typical section showing the relationship of Moore's Prospect to the riparian corridor (source: DCP)

Catherine Fields Public Domain and Landscape Strategy

Moore's Prospect is to be conserved within the following framework:

- The existing drive is to be conserved and retained as a pedestrian / cycle path. This may replace the footpath on the side of the collector road abutting Moore's Prospect.
- The design for Moore's Prospect is to reflect the historical pastoral character of the site, and the intimate relationship to the South Creek riparian corridor.
- Maintain as far as practicable views to Oran Park House along the driveway.
- The ground formation of the existing entry drive is to be retained intact as far as practicable, including the ground formation of the centre crown and adjoining drains either side, in order to maximise the archaeological integrity, and maintain the proportions, scale and character of the drive. This does not exclude resurfacing of the drive.
- Entry drive resurfacing materials should reflect the historic rural setting, e.g. stabilised gravel or decomposed granite to areas that are not subject to frequent flood inundation. To areas that are subject to frequent flood inundation (e.g. within close proximity to South Creek), utilise a surface treatment that respects the archaeological integrity of the drive, and is capable of withstanding periodic flood inundation from South Creek.
- The height of the adjoining road should not detract from or impede the view lines established along the driveway.
- The width of the heritage corridor is to be variable, as follows (refer DCP for widths):
 - The section of the drive closest to the house, and defined by the area currently subject to the paired avenue plantings.
 - The next section of the drive is defined by the area that runs beside South Creek and a water management area. This section is to have the detention basin edge planted to low ground and shrub layer planting, using species from the riparian community, as shown in Figure 19. The shared driveway should be at similar elevation with the adjoining road
- The design and construction of the adjoining road should not impact the integrity of the driveway.
- The existing alternating planting of Outeniqua Yellowwood (*Podocarpus falcatus*) and White Cypress Pine (*Callitris glaucophylla*) is to be conserved and supplemented to the extent currently in place, replacing both failed specimens, and later planted specimens of Willow Myrtle (*Agonis flexuosa*), Monterey Cypress (*Cupressus macrocarpa*) and Peppercorn Tree (*Schinus areira*).

Catherine Fields Public Domain and Landscape Strategy

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4

Landscape Materials Palette

The strategic materials and finishes palette is described below and has been prepared to reflect the design intent of the Public Domain Strategy and the Development Control Plan (DCP). The palette sets the broad principles and provides precedent images to assist in the materials selection during the detailed design phase. The objective of the materials and finishes palette is to provide a site specific, legible public domain that can be maintained and managed to a good standard for the life of the project.

The palette describes the general principles to be applied in the selection of all materials and also provides further detail on each of the following

landscape character zones: heritage precinct; riparian corridors / water management areas; recreation and open space areas, and streets.

Catherine Fields Public Domain and Landscape Strategy

4.1 General Principles

Materials

- Materials selection will complement the character and heritage elements of the site.
- All materials will be selected for functionality, durability, ease of maintenance and replacement.
- Consistency in the use of materials and finishes will provide legibility across the site.
- The Environmentally Sustainable Design (ESD) qualities of each material is to be considered.
- The use of recycled materials is appropriate e.g.: hardwood timbers, sandstock bricks, stone.
- Ethical supply and purchasing of materials.
- All items must be selected and installed with a view to minimising opportunities for vandalism.
- The use of high grade components e.g.: stainless steel is to be minimised to special areas of focus.
- Cycle paths will be constructed of concrete (broom finish) or asphalt with the exception of the heritage driveways; primary pedestrian paths will be constructed from concrete (broom finish), unit paving or similar and secondary paths may be constructed of either concrete broom finish) or softer materials e.g.: decomposed granite, stabilised crushed rock depending on the location and the amount of traffic.
- Tree species should be selected specific to the landscape area types listed below.

Finishes

- Colours should generally be recessive, unless they have a specific function within the landscape that requires use of brighter colours.
- All finishes should be non-toxic e.g.: paint.
- Paint finishes should be for external use and selected to minimise fading.
- Anti-graffiti coating should be avoided and alternative finishes or materials used to minimise the potential for graffiti.
- Pedestrian pathways will meet slip resistance requirements of the relevant Australian Standards.

Design

- Generally, simple and robust design detailing is preferred over unnecessary embellishments unless there is a particular requirement for special treatment areas e.g.: public art.
- Agree maintenance access routes and requirements with the Council prior to detailed design.
- In principle, the design of primary pedestrian routes, as a minimum, should meet the Accessibility requirements of the Australian Standard (AS1428).
- Crime Prevention Through Environmental Design (CPTED) principles are to be considered e.g.: retain sightlines at corner of streets and parks by careful planting design or placement of street furniture.
- Clearly defined edge treatments between different landscape areas are encouraged to delineate maintenance and management zones.
- Pedestrian connections should have a clear hierarchy throughout the site e.g.: 3m wide for cycleways, 1.8m wide for primary pedestrian routes and 1.5m wide for secondary routes.
- Planting design should consider the re-use of site materials for soil and mulch and minimise the reliance on permanent irrigation systems.
- Pedestrian lighting to Australian Standards is to be provided along primary pedestrian routes and other locations as agreed with the Council. Feature lighting to special areas or items e.g.: public art is to be minimised.

Catherine Fields Public Domain and Landscape Strategy

4.2 Heritage Precinct Principles

Materials and finishes will complement the character of Oran Park House Precinct which includes materials such as: brick, stone, native hardwood timbers, and soft surfaces for pathways and driveways.

Precedent examples of the intended character are provided in Figure 20 and Design Guidelines are provided in Section 3.2. In addition, the following considerations should be given when selecting the materials and finishes during the detail design phase:

Pedestrian Pathways / Shareways: The use of soft materials e.g.: decomposed granite, crushed sandstone, stabilised gravel or compacted earth should be considered and may be used in conjunction with other materials such as concrete or unit paving in high traffic areas. The use of different materials may be considered as a means of defining the pedestrian pathway hierarchy.

Playground: The playground should reference the historic setting, and be visually subservient in this regard. Consider the use of natural materials such as timber.

Fencing: Fencing that reflects a rural style is preferred. Refer Section 3.2 for further details.

Planting: Should generally reflect the existing rural landscape setting of trees and open grassland. Special focus areas, e.g. around the Neighbourhood Centre and playground may have a more detailed planting design.

4.3 Riparian Corridor / Water Management Area Principles

Materials and finishes will be consistent with the overall selection for the site in that they will complement the Cumberland Plain setting, however, areas that are not accessible or highly visible may have a lower level of intervention.

Precedent examples of the intended character are provided in Figure 21 and Design Guidelines are provided in Section 2.12. In addition, the following considerations should be given when selecting the materials and finishes during the detail design phase:

Pedestrian Pathways / Shareways: Pedestrian access through riparian areas will be controlled by formalised pedestrian pathways to minimise impact on vegetation.

Pedestrian Bridges: Bridges should generally be located at the shortest distance between banks to minimise the span and depth of the structure. Confirmation of maintenance vehicle access over bridges is to be sought and agreed with the council prior to detailed design.

Erosion and Sediment Control: Devices to stabilise the ground should be natural in appearance and possibly integrated with a longer term planting strategy that allows for some temporary or biodegradable controls to be used, e.g. at bridge abutments and stormwater outlet points.

Edge Treatments: Consider edge treatments where perimeter pathways provide management edges between riparian corridor planting and Asset Protection Zones (APZ) and the incorporation of CPTED principles adjacent to pedestrian pathways, including a bush managed treatment of lower growing species along the riparian corridor edge.

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4.4 Recreation and Open Space

Materials and finishes will be consistent with the overall selection for the site in that they complement the heritage and Cumberland Plain setting.

Precedent examples of the intended character are provided in Figure 22 and Design Guidelines are provided in Section 2.10. In addition, the following considerations should be given when selecting the materials and finishes during the detail design phase:

Surfaces: Sportsfield surfaces are to be agreed with the Council prior to detailed design. Designs should reflect the method of drainage and irrigation to be applied. Surfaces below play equipment should meet the relevant Australian Standard. Consider the inclusion of natural material or colour to compliment the site-wide approach to materials and finishes.

Pedestrian Pathways: Intersections of different pathway types (cycleway, primary or secondary routes) should be clearly identified and integrated with any wayfinding signage.

Play Equipment: Should meet relevant Australian Standards and consider the integration of public art and environmental and heritage interpretation. Shade is to be provided either through tree planting or structures.

Lighting: Sportfield lighting standards are to be agreed prior to detailed design e.g.: training or competition standard.

Furniture: Use of natural timber and or steel finishes are preferred to reflect the heritage and riparian corridor setting of the site. Where possible integrate items such as seating with walls and or terraces to minimise long term maintenance and replacement costs.

4.5 Street Principles

Materials and finishes will be consistent with the overall selection for the site. Precedent examples of the intended character are provided in Figure 23 and Design Guidelines for street planting are provided in Section 2.6. In addition, the following considerations should be given when selecting the materials and finishes during the detail design phase:

Pedestrian Pathways: Intersections of different pathway types (cycleway, primary or secondary routes) should be clearly identified and integrated with any wayfinding signage.

Planting: Groundcover and shrub planting associated with street tree planting should be hardy and generally selected from a native, contemporary palette.

Entry Features: The design of Moore's Prospect will be sensitive to the heritage context and function of the driveway and this consideration could be reflected in the adjoining roadway to enhance the heritage character. Design, materials and finishes will be simple and robust in nature.

Fencing: Any fencing required in street settings will be designed to meet their function. Where possible, rural style fencing is preferred and where more utilitarian or vehicular controls are required the materials could be selected from: concrete or hardwood timber bollards, galvanised steel or wire rope barriers adjacent to riparian areas (if necessary).

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Heritage



Figure 20. Precedent example imagery for Heritage Precinct

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Riparian Corridors / Water Management Areas

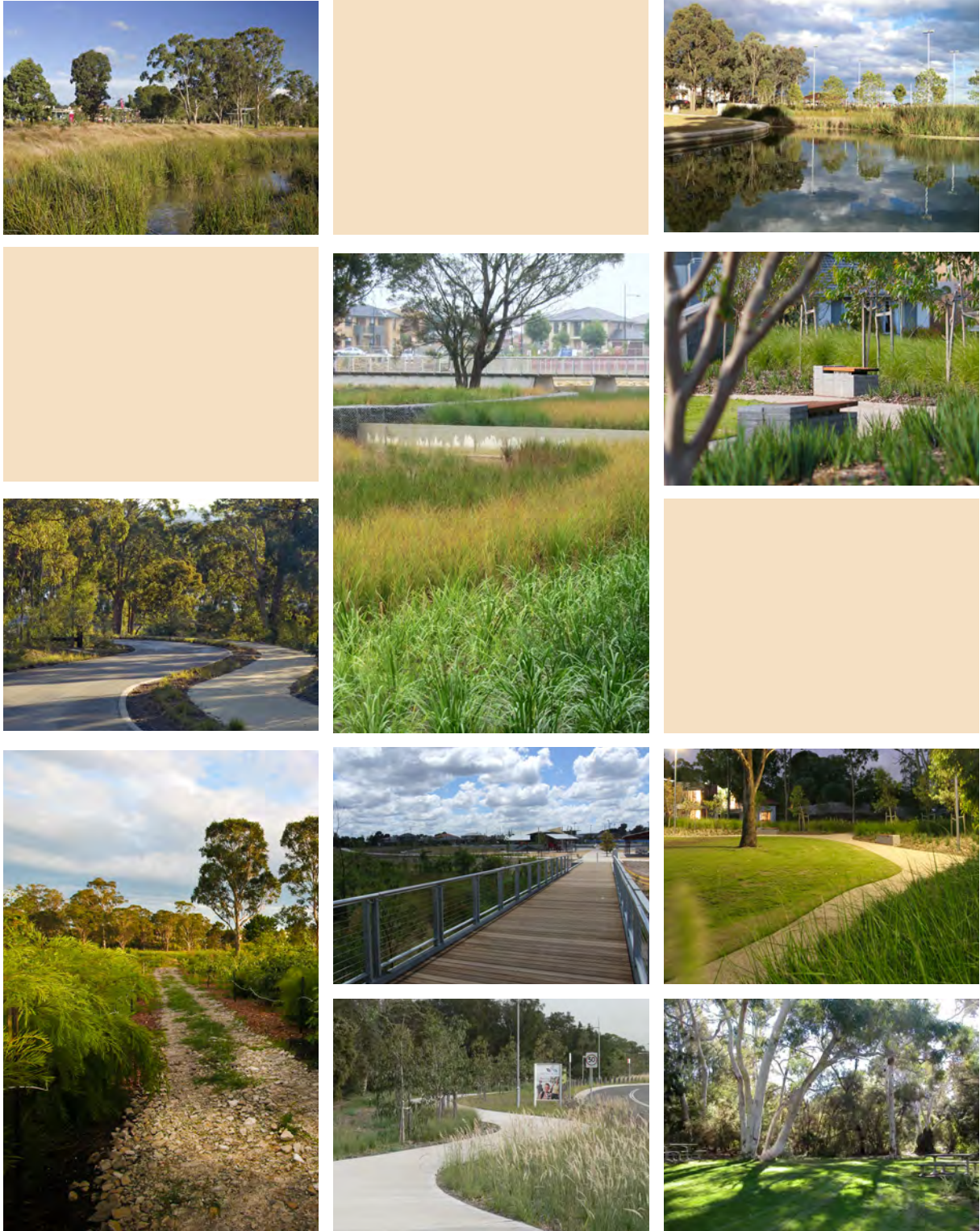


Figure 21. Precedent example imagery for Riparian Corridor / Water Management Areas

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Recreation and Open Space

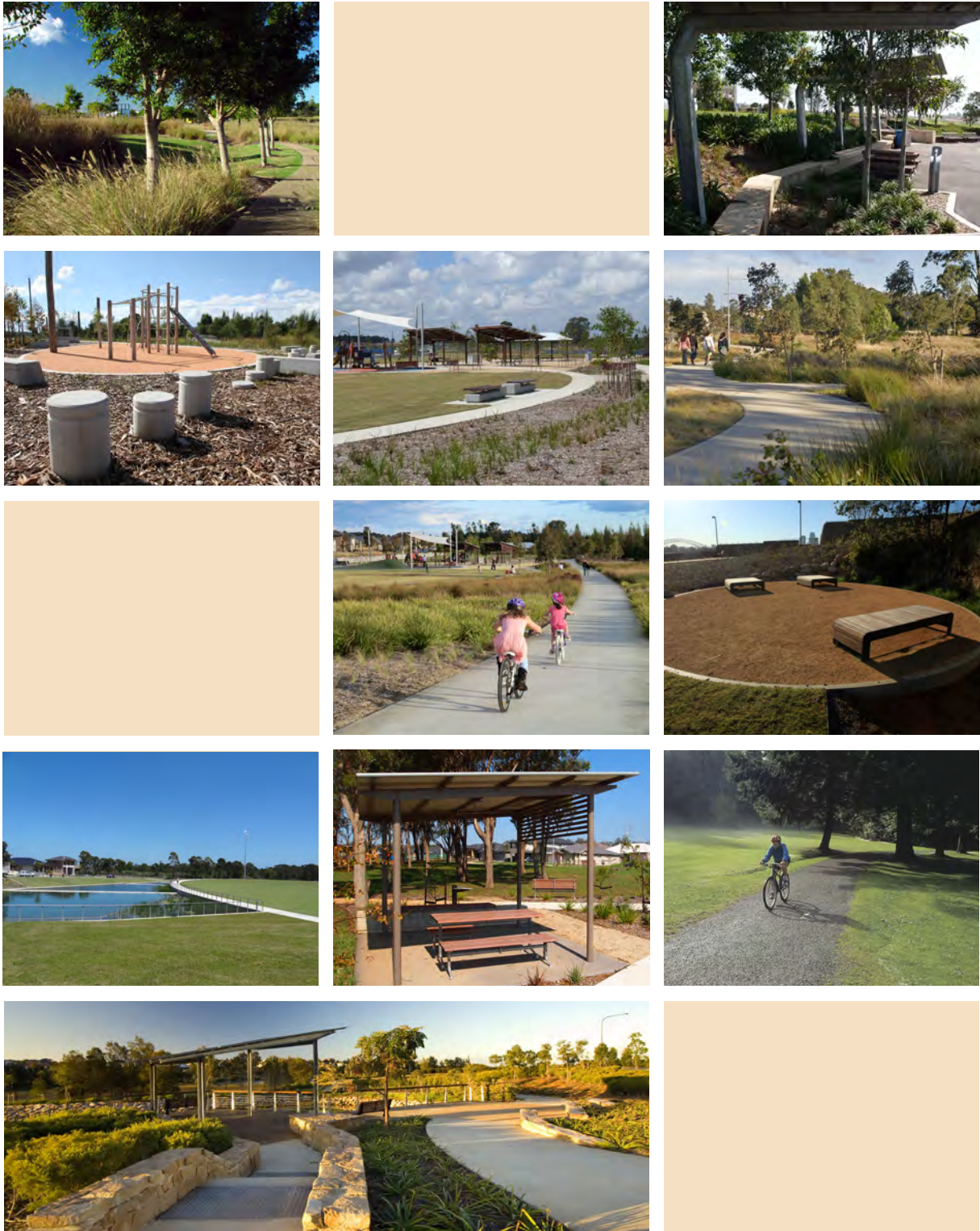


Figure 22. Precedent example imagery for Recreation and Open Space Areas

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Streets



Figure 23. Precedent example imagery for Streetscapes

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4.6 Preferred Tree Species

Heritage Area

Trees are to be no higher than 5-6m and should be in contrast to planting within the Oran Park House allotment. Evergreen tree species are preferred over deciduous trees, unless required for solar access purposes or as an accent / feature tree.

Oran Park House Perimeter Road and Dawson-Damer Drive

Scientific Name	Common Name	Mature Height	Mature Spread	Native	Evergreen or Deciduous
<i>Acer palmatum</i> 'Senkaki'	Coral Bark Maple	4m	3m	N	D
<i>Agonis flexuosa</i>	Willow Myrtle	5m	4m	Y	E
<i>Cercis occidentalis</i>	Californian Redbud	5m	2m	N	D
<i>Cereus grandiflorus</i>	Night Blooming Cereus	5m	2m	N	D
<i>Corymbia ficifolia</i> (grafted dwarf varieties)	e.g. Wild Fire	3-5m	3-4m	Y	E
<i>Cupaniopsis anacardioides</i>	Tuckeroo	6m	3m	Y	E
<i>Cussonia paniculata</i> ssp. <i>paniculata</i>	Mountain Cabbage Tree	4m	2m	N	E
<i>Fraxinus griffithii</i>	Evergreen Ash	6m	4m	N	E
<i>Gordonia axillaris</i>	Fried Egg Tree	5m	3m	N	E
<i>Koelreuteria paniculata</i>	Golden Rain Tree	5m	3m	N	D
<i>Lagerstroemia</i> spp.	Crepe Myrtle	4m - 5m	3m	N	D
<i>Magnolia grandifolia</i> 'Exmouth'	Exmouth Magnolia	6m	4m	N	E
<i>Magnolia grandifolia</i> 'Kay Parris'	Kay Parris Magnolia	6m	3m	N	E
<i>Magnolia grandiflora</i> 'Teddy Bear'	Teddy Bear Magnolia	4m	3m	N	E
<i>Melaleuca decora</i>	White Cloud Tree	5m	2m	Y	E
<i>Malus</i> spp.	Ornamental Apple tree varieties	4-5m	3-4m	N	D
<i>Prunus</i> spp.	Ornamental Fruit Tree varieties	4-5m	3-4m	N	D
<i>Tristaniopsis laurina</i> 'Luscious'	Luscious Water Gum	6m	4m	Y	E

A number of tree species have been included in this list that in their natural environment would grow taller than 5-6m. However, taking into consideration the environmental conditions and soils found within the Precinct it is highly likely that many of the tree species will not achieve their natural height, size and form. This list provides likely upper tree mature heights and spreads within this context.

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Moore’s Prospect

The historic Moore’s Prospect driveway and avenue planting shall be partially retained and interpreted within the development layout as a shared pedestrian / cycleway. The existing planting of alternating Outeniqua Yellowwood (*Podocarpus falcatus*) and White Cypress Pine (*Callitris glaucophylla*) shall be conserved and supplemented. The existing specimens of Willow Myrtle, Monterey Cypress and Peppercorn Tree within the avenue shall be replaced with specimens of a suitable age and quality of Outeniqua Yellowwood and White Cypress Pine following the existing alternating order.

Scientific Name	Common Name	Mature Height	Mature Spread	Native	Evergreen or Deciduous
<i>Callitris glaucophylla</i>	Cypress Pine			Y	E
<i>Podocarpus falcatus</i>	Oyteniqua Yellowwood	5m	4m	N	E

Park and Neighbourhood Centre

These trees shall be positioned to retain views to and from Oran Park House. The preferred dominant species to be selected are *Angophora subvelutina* (Broad Leaved Apple) and *Eucalyptus tereticornis* (Forest Red Gum)

Scientific Name	Common Name	Mature Height	Mature Spread	Native	Evergreen or Deciduous
<i>Angophora subvelutina</i>	Broad Leaved Apple	18m	6m	Y	E
<i>Eucalyptus crebra</i>	Narrow leaf Red Iron Bark	25m	8m	Y	E
<i>Eucalyptus fibrosa</i>	Broad leaf Red Iron Bark	23m	8m	Y	E
<i>Eucalyptus tereticornis</i>	Forest Red Gum	28m	8m	Y	E

Catherine Fields Public Domain and Landscape Strategy

Recreation, Open Space and Water Management Areas

The following tree species are suitable for use within recreation / open space areas across the Precinct (with the exception of the park between Oran Park House and the Neighbourhood Centre), and within water management areas subject to parkland treatments (refer s.2.12 Water Management Areas).

Scientific Name	Common Name	Mature Height	Mature Spread	Native	Evergreen or Deciduous
<i>Angophora costata</i>	Sydney Red Gum	23m	8m	Y	E
<i>Angophora floribunda</i>	Rough Barked Apple	18m	6m	Y	E
<i>Angophora subvelutina</i>	Broad Leaved Apple	18m	6m	Y	E
<i>Casuarina cunninghamiana</i>	River Oak	18m	4m	Y	E
<i>Casuarina glauca</i>	Swamp Oak	18m	5m	Y	E
<i>Eucalyptus amplifolia</i>	Cabbage Gum	20m	8m	Y	E
<i>Eucalyptus bauerana</i>	Blue Box	25m	4m	Y	E
<i>Eucalyptus benthamii</i>	Camden White Gum	28m	8m	Y	E
<i>Eucalyptus crebra</i>	Narrow leaf Red Iron Bark	25m	8m	Y	E
<i>Eucalyptus fibrosa</i>	Broad leaf Red Iron Bark	23m	8m	Y	E
<i>Eucalyptus moluccana</i>	Grey Box	20m	7m	Y	E
<i>Eucalyptus tereticornis</i>	Forest Red Gum	28m	8m	Y	E
<i>Eucalyptus viminalis</i>	Manna Ribbon Gum	30m	7m	Y	E
<i>Ficus rubiginosa</i>	Port Jackson Fig	18m	6m	Y	E
<i>Flindersia australis</i>	Australian Teak	23m	5m	Y	E
<i>Jacaranda mimosifolia</i>	Blue Haze Tree	15m	10m	N	D
<i>Lagerstroemia species</i>					
<i>Liriodendron tulipifera</i>	Tulip Tree	30m	8m	N	D
<i>Melaleuca decora</i>	White Cloud Tree	6m-10m	4m	Y	E
<i>Melaleuca linariifolia</i>	Snow in Summer	5m-7m	3m	Y	E
<i>Melaleuca styphelioides</i>	Prickley Paperbark	6m	4m	Y	E
<i>Podocarpus elatus</i>	Illawarra Pine	23m	7m	Y	E
<i>Pyrus calleryana</i> 'Bradford'	Bradford's Ornamental Pear	10m	6m	N	D

Catherine Fields Public Domain and Landscape Strategy

Scientific Name	Common Name	Mature Height	Mature Spread	Native	Evergreen or Deciduous
<i>Pyrus calleryana</i> 'Chanticleer'	Chanticleer Ornamental Pear	12m	6m	N	D
<i>Pyrus calleryana</i> 'Capital'	Capital Ornamental Pear	8m	5m	N	D
<i>Sapium sebiferum</i>	Chinese Tallowwood	18m	7m	N	D
<i>Tristaniopsis laurina</i> 'Luscious'	Luscious Water Gum	5m	4m	Y	E
<i>Quercus palustris</i>	Pin Oak	18m	5m	N	D
<i>Ulmus parvifolia</i>	Chinese Elm	12m	7m	N	D

Streets

The following tree species are suitable for use as street trees throughout the site (with the exception of the heritage related streets nominated in the above schedules).

Scientific Name	Common Name	Mature Height	Mature Spread	Native	Evergreen or Deciduous
<i>Angophora floribunda</i>	Rough Barked Apple	18m	6m	Y	E
<i>Casuarina cunninghamiana</i>	River Oak	18m	4m	Y	E
<i>Casuarina glauca</i>	Swamp Oak	18m	5m	Y	E
<i>Corymbia maculata</i>	Spotted Gum	20m	10m	Y	E
<i>Cupaniopsis anacardioides</i>	Tuckeroo	5m	3m	Y	E
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	10m	4m	Y	E
<i>Eucalyptus crebra</i>	Narrow leaf Red Iron Bark	25m	8m	Y	E
<i>Eucalyptus fibrosa</i>	Broad leaf Red Iron Bark	23m	8m	Y	E
<i>Eucalyptus moluccana</i>	Grey Box	20m	7m	Y	E
<i>Eucalyptus sideroxylon</i>	Red Ironbark	12m	5m	Y	E
<i>Ficus microcarpa</i> var. <i>hillii</i>	Hill's Fig	15m	9m	Y	E
<i>Ficus rubiginosa</i>	Port Jackson Fig	15m	6m	Y	E
<i>Flindersia australis</i>	Australian Teak	23m	5m	Y	E
<i>Lophostemon confertus</i>	Brush Box	12m	8m	Y	E
<i>Magnolia grandifolia</i> 'Exmouth'	Exmouth Magnolia	5m	4m	N	E

Catherine Fields Public Domain and Landscape Strategy

Scientific Name	Common Name	Mature Height	Mature Spread	Native	Evergreen or Deciduous
<i>Malus spp.</i>	Ornamental Apple tree varieties	4-5m	3-4m	N	D
<i>Metrosideros excelsa</i>	New Zealand Christmas Bush	7m	4m	N	E
<i>Podocarpus elatus</i>	Illawarra Pine	23m	7m	Y	E
<i>Pyrus calleryana</i> 'Bradford'	Bradford's Ornamental Pear	10m	6m	N	D
<i>Pyrus calleryana</i> 'Chanticleer'	Chanticleer Ornamental Pear	12m	6m	N	D
<i>Pyrus calleryana</i> 'Capital'	Capital Ornamental Pear	8m	5m	N	D
<i>Pyrus ussuriensis</i>	Manchurian Pear	10m	5m	N	D
<i>Sapium sebiferum</i>	Chinese Tallowwood	18m	7m	N	D
<i>Tristaniopsis laurina</i> 'Luscious'	Luscious Water Gum	5m	4m	Y	E
<i>Quercus palustris</i>	Pin Oak	18m	5m	N	D
<i>Zelkova serrata</i>	Japanese Zelkova	14m	7m	N	D

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