

Precinct Plan and Development Control Strategy Amendment No. 2



Central Precinct

St Marys

Submitted to Penrith City Council
On Behalf of Maryland Development Company

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1.0 Part 1 – Introduction

This Plan is known as the Central Precinct Plan.

It has been prepared by JBA Urban Planning Consultants Pty Ltd on behalf of Maryland Development Company Pty Ltd in accordance with the requirements of Sydney Regional Environmental Plan 30 - St Marys (SREP 30) and the St Marys Environmental Planning Strategy 2000 (the St Marys EPS).

The Precinct Plan applies to all land within the Central Precinct, St Marys. It is a key part of the planning process established by the NSW Government for the St Marys site.

This Plan amends the Central Precinct Plan adopted by Penrith City Council on 23 March 2009.

The site is owned by St Marys Land Limited and is being jointly developed by ComLand Limited and Lend Lease Development Pty Limited through their joint venture company, Maryland Development Company.

The St Marys site is located approximately 45km west of the Sydney CBD, 5km north-east of the Penrith City Centre and 12km west of the Blacktown City Centre. The main western railway line is located approximately 2.5km south of the site. The Great Western Highway is located another 1 km south and the M4 Motorway a further 1.5km south. Refer to Figure 1 below.

The St Marys site has an area of 1,545 ha and stretches approximately 7km from west to east and 2km from north to south. It is bounded by Forrester Road and Palmyra Avenue in the east, The Northern Road in the west, Ninth Avenue and Palmyra Avenue in the north and the Dunheved Industrial Area, Dunheved Golf Club and the suburbs of Cambridge Gardens, Werrington Gardens and Werrington County in the south.

The overall site, which has been rezoned for a variety of uses, comprises six development “precincts”, namely the Western Precinct, Central Precinct, North Dunheved Precinct, South Dunheved Precinct, Ropes Creek Precinct and Eastern Precinct. The boundaries of the precincts within the St Marys site are shown in Figure 2 below.

The current status of all precincts is as follows:

- Eastern Precinct:
 - Declared a release area by the Minister Assisting the Minister for Infrastructure and Planning on 16 June 2003;
 - Precinct Plan adopted by Blacktown City Council (BCC) on 4 February 2004;
 - Being developed.
- North and South Dunheved Precincts:
 - Declared a release area by the Minister Assisting the Minister for Infrastructure and Planning on 16 June 2003;
 - Precinct Plan adopted by Penrith City Council (PCC) on 11 December 2006 and by BCC on 12 January 2007;
 - First DAs approved by BCC and PCC;
 - Development to commence shortly.

- Ropes Creek Precinct:
 - Declared a release area by the Minister for Planning on 29 September 2006;
 - Precinct Plan lodged with BCC.
- Central Precinct:
 - Declared a release area by the Minister for Planning on 29 September 2006.
 - Precinct Plan adopted by PCC on 23 March 2009.
- Western Precinct:
 - Declared a release area by the Minister for Planning on 29 September 2006.
 - Precinct Plan adopted by PCC on 23 March 2009.
 - Being developed.

1.1 Amendments

This Plan amendment represents the first review of the Precinct Plan in eight years, and updates the Plan to reflect the changes that have occurred as the planning, design and development of the Precinct has evolved. At the time of Amendment No. 1, the following development has been approved to commence within the Precinct:

- Demolition of Existing Structures, Roads and Hard Surfaces and Remediation of Land within the Central Precinct, St Marys;
- Demolition of Hoop Antenna and Surrounding Hard Stand Area (Former Naval Radar Calibration Range);
- Construction of a Temporary Haulage Road and Associated Infrastructure upgrades to Facilitate the Movement of Trucks Associated with Future Works within the Central Precinct, St Marys;
- Bulk Earth Works, Interim Stormwater Infrastructure, Landscaping, Tree Removal, and Environmental Management Works Including Realignment of an Existing Riparian Corridor;
- Subdivision of One Allotment into Five Allotments for the Future Regional Park, Central Precinct and Residue Lots;
- Demolition of the Connector Road between Jordan Springs and Central Precinct and Contamination Investigations, St Marys;
- Landscaping of the Connector Road between Jordan Springs and Central Precinct;
- Stage 1 Subdivision, the subdivision of Lot 1037 in DP1149525 to create 380 residential lots in 10 sub-stages and associated civil works and landscaping;
- Stage 2 Subdivision, the subdivision of the Central Precinct for the creation of 278 residential lots, four residue lots and associated road construction, drainage and earthworks, landscape works and bus only connection;
- Stage 3A Subdivision, the subdivision of the Central Precinct for the creation of 79 residential lots, one residue lots and associated road construction and infrastructure works;
- Stage 3B1 Subdivision, creation of 53 x Torrens Title Residential Lots and Associated Landscape and Civil Works;
- Stage 4A & 4B Subdivision, creation of 142 x Torrens Title Residential Lots, 2 x Residue Lots and Associated Road Construction & Infrastructure Works;

- Stage 5A Subdivision, creation of 114 Torrens Title Residential lots, 1 x Drainage Lot and Public Roads; and
- Landscaping works between Wianamatta Regional Park and Stage 1 and 2.

1.2 The Central Precinct

The Central Precinct is bounded by existing residential development in the suburbs of Werrington County and Werrington Downs to the south, land zoned for Regional Open Space to the east and land zoned for Regional Park to the north and west. There is also an area zoned for Drainage that adjoins the northern boundary of the precinct. The precinct has a total area of 133.1 ha.

The Central Precinct is zoned part Urban (94.7 ha) and part Employment (38.4 ha). Land zoned Urban is intended to accommodate primarily residential uses, with limited non-residential uses such as local retail and commercial uses. Land zoned Employment is intended to accommodate primarily employment generating land uses which are compatible with surrounding development and which will complement established employment areas and retail and commercial centres in the Blacktown and Penrith Local Government Areas.

Following the gazettal of Amendment No. 2 of SREP30 in February 2009, a larger, consolidated Employment zone in the Central Precinct was created through the relocation and integration of land zoned Employment from the Western Precinct (28 ha) and the Ropes Creek Precinct (7 ha) with the previous 3.4 ha zone Employment in the Central Precinct.

1.3 Proposed Development

The proposed development of the Central Precinct entails:

- Employment and related uses in the northern part of the precinct;
- A Village Centre Character Area, comprising a mix of retail, commercial, community, open space and residential uses, in the central part of the precinct;
- Predominantly residential development in the remainder of the precinct;
- Construction of roads, including external connections to both the west and east, and stormwater infrastructure; and
- Provision of local open space, riparian corridors, and stormwater basins.

It is anticipated that the Central Precinct will accommodate approximately 1,400-1,600 dwellings and a residential population in the order of between 3,800 and 4,300. Overall, about 760 jobs incorporating a range of skill levels in light industrial and light manufacturing sectors are anticipated to be created as a result of the development.

The proposed development is described in detail in Part 4 of this Plan.

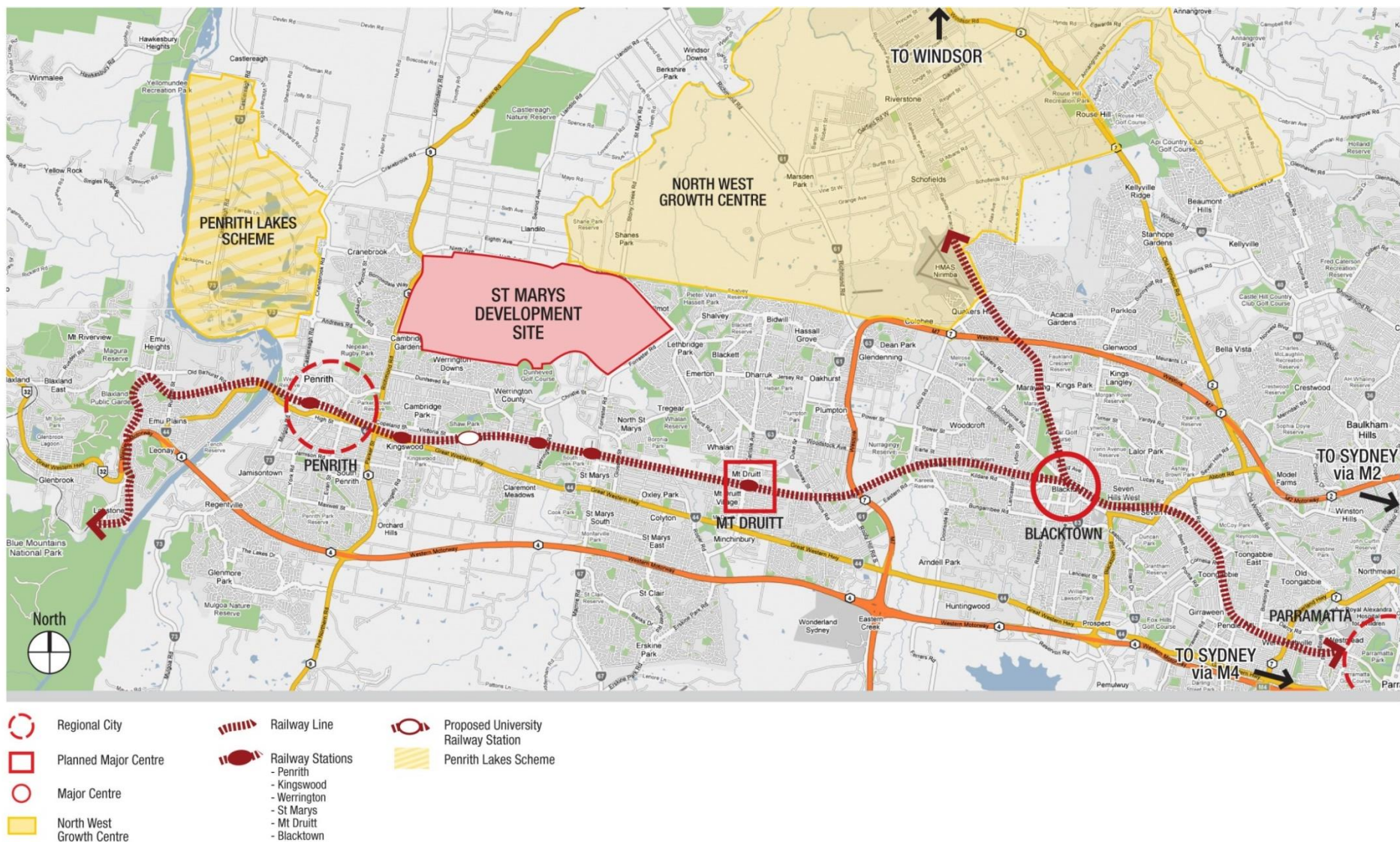


Figure 1 – St Marys location plan



Figure 2 – St Marys Site and Precincts

1.4 Purpose and Aims

The purpose of the Precinct Plan is to establish planning strategies and proposals, development principles and development controls to be administered by Penrith City Council (PCC) to guide the future development of all land within the Central Precinct in an integrated manner. It will form part of the regulatory planning framework for Council to assess and make decisions about the development of the Central Precinct, including requirements for physical infrastructure, public domain and buildings, and environmental management.

The Precinct Plan provides a vision and framework for the future development of the land and identifies how development can occur in a sustainable and environmentally responsible manner. It will ensure that future development within the Central Precinct achieves the aims, objectives and requirements of SREP 30, the St Marys EPS and the St Marys Employment Development Strategy (EDS).

Parts 3, 4 and 5 of the Precinct Plan include proposals for and provide information about the following for the Central Precinct:

- Distribution of major land uses and phasing of development;
- Access for public transport, pedestrians, bicycles and vehicles;
- An indicative subdivision road layout;
- Location and function of public facilities and open space;
- Analysis and management of potential impacts on the physical and environmental characteristics of the land, including significant native flora and fauna habitat and soil characteristics;
- Analysis and management of potential impacts on adjoining land within the Regional Park zone;
- Identification and management of Aboriginal and non-Aboriginal heritage;
- Identification and management of remnant contamination risk, drainage and flooding issues;
- Infrastructure requirements;
- Identification of design principles developed from an analysis of the site's characteristics; and
- Guidelines for the design, siting and construction of buildings.

A key focus of the Precinct Plan is the promotion of innovative development that ensures environmental, social and economic sustainability. This approach affects all levels of planning and design and will shape the growth of this new precinct.

The Precinct Plan aims to ensure the efficient, effective and flexible delivery of future development as an integral component of this overall development approach.

Part 5 of the Precinct Plan is referred to as the Central Precinct Development Control Strategy (DCS), which sets out site specific development guidelines and controls for the Central Precinct.

1.5 A Plan for Growing Sydney

Penrith is identified as a Strategic Centre under the NSW Department of Planning and Environment's A Plan for Growing Sydney. Strategic centres are locations that currently or are planned to have at least 10,000 jobs, and are priority locations for employment, retail, housing, services and mixed uses. Penrith is also a major focal point for jobs and services for outer suburban communities.

The West Subregion of the Plan for Growing Sydney identifies significant growth for the subregion, including 111,850 more residents and 50,950 more dwellings needed to 2031. Overall the Penrith LGA is expected to continue to grow as a regional city centre.

1.6 Vision for the City of Penrith

PCC's vision for the City of Penrith is¹:

"...one of a sustainable and prosperous region with a harmony of urban and rural qualities and a strong commitment to environment protection and enhancement. It would offer both the cosmopolitan and cultural lifestyles of a mature city and the casual character of a rural community. In pursuing this vision, Council has a long term goal to ensure new areas provide well planned, serviced and cohesive living and working environments".

PCC's Sustainability Blueprint for Urban Release Areas June 2005 incorporates 10 key principles for sustainable design. These key principles have been considered in the preparation of the Precinct Plan:

- **Principle 1:** Value the Site Attributes – preserve ecosystems, protect biodiversity, air, water, and conserve heritage;
- **Principle 2:** Create Localised Landscapes and Quality Public Domains – based on the indigenous landscape attributes;
- **Principle 3:** Create Communities – not just housing estates;
- **Principle 4:** Create Employment – promote the economic growth of the City and minimise the need for commuting;
- **Principle 5:** Save Water – Water Sensitive Urban Design;
- **Principle 6:** Save Energy and Greenhouse Gases – 'smart-lot' design;
- **Principle 7:** Maximise Liveability & Longevity – design for durability and adaptability;
- **Principle 8:** Reduce Resource Consumption – energy, land, water and materials;
- **Principle 9:** Minimise Waste – return, reuse, recycle;
- **Principle 10:** Build-in Community Safety & Crime Prevention Measures – thoughtful design of the public domain.

1.7 Central Precinct Development Vision

The vision for the Central Precinct is intended to shape the planning, design, and management of the future development.

¹ Penrith City Council Sustainability Blueprint for Urban Release Areas June 2005

PCC and Maryland Development Company Pty Ltd have developed the following shared vision for the development of the Central Precinct:

The St Marys Development will be a cohesive community that meets the needs and aspirations of all stakeholders. It will be an integrated, thriving and vibrant place centred on the core elements of learning, community interaction and engagement, housing diversity, enterprise and sustainability. It will capitalise on connections with nature and open space, respecting the natural and rural qualities of the region.

Key elements

The key elements driving the shared vision are:

- Learning – access to whole of life learning;
- Diversity – mixture of uses and housing;
- People Focused – safe, accessible, community centric, lifestyle driven;
- Employment – employment for local residents providing 21st Century jobs, enterprise capability;
- Innovation – creative, distinctive, functional and responsive;
- Collaboration – partnership and integration;
- Sustainability – a holistic approach to social, economic and environmental outcomes, consistent with Council's 'Sustainability Blueprint for Urban Release Areas';
- Delivery – timely delivery of facilities to meet the needs of the community; and
- Design – provision of safe, well-designed and high quality urban environments that foster a cohesive community.

Value and Place Attributes

The value and place attributes for the Central Precinct development are:

- A real place where you feel you belong and can contribute to the life of the community;
- A planned community that features places and spaces for today and tomorrow's needs;
- A walkable place where you can walk or cycle safely to school, work and other destinations – a place that caters for personal mobility choice, regardless of age or level of ability;
- A place where people of all ages and abilities can gather and access community facilities;
- A vibrant place with a village heart that engenders community spirit;
- A place that integrates with, and builds links to surrounding communities;
- A natural place where quality parklands maximise opportunities for usable green space;
- A healthy and active community where there is access to quality facilities for social interaction and active and passive recreation for all people with diverse abilities;
- A learning place for people of all ages where the community can grow and prosper;

- A place that offers real housing choice incorporating high quality urban design to meet market needs;
- A place where enterprise activity adds value to the workers and residents;
- A place connected by contemporary telecommunication infrastructure; and
- A place that respects the natural environment and encourages community participation in its upkeep and maintenance.

1.8 Land to which the Precinct Plan applies

This Precinct Plan applies to all the land in the St Marys Central Precinct as identified in SREP 30.

The Central Precinct has an area of approximately 133.1 hectares and is located within the City of Penrith. The boundaries of the Precinct are shown in Figure 2. Whilst the Precinct Plan deals specifically with land in the Central Precinct, planning for this area has also taken into account:

- The relationship of the future development to the adjoining Regional Park and Regional Open Space;
- Opportunities and constraints presented by the other precincts; and
- Future integration of the Central Precinct with the balance of the St Marys site and existing surrounding development, including Werrington County and Werrington Downs.

It is noted that any future development within the Regional Park (i.e. outside the boundaries of the Central Precinct) is subject to determination through the Regional Park Plan of Management which has been prepared by the Office of Environment and Heritage (OEH). OEH has been consulted in the preparation of this Precinct Plan.

1.9 Land Ownership

The land to which the Precinct Plan applies is owned by St Marys Land Limited and is being jointly developed by ComLand Limited and Lend Lease Development Pty Limited through their Joint Venture company, Maryland Development Company.

1.10 Date of Adoption

The Central Precinct Plan was adopted by Penrith City Council on 23 March 2009. The Precinct Plan Amendment No.1 was adopted on 14 September 2018. Amendment No.2 will be adopted in due course and notified by gazette.

1.11 How to use the Precinct Plan

The Precinct Plan comprises 2 Volumes consisting of written information, maps and diagrams containing provisions illustrating a proposed pattern of development and development controls for the land within the Precinct.

Volume 1

Volume 1 of the Precinct Plan is divided into 5 main parts:

Part 1: Introduction: contains background information and provides an overview of the structure of the document.

Part 2: Planning Framework: provides an overview of the statutory planning context for the preparation and adoption of the Precinct Plan, and for the future development of the Central Precinct.

Part 3: Site Characteristics: identifies the key planning issues, opportunities and constraints that have informed preparation of the Precinct Plan and development of the Precinct Framework Plan.

Part 4: Framework Plan & Environmental Management Strategies: describes the Framework Plan for the Central Precinct. The Framework Plan conceptually illustrates how the proposed development of the Central Precinct will respond to the development principles identified within this Part.

This Part comprises a series of plans and proposals for, and accompanying explanatory notes relating to, the following matters:

- Framework Plan;
- Urban Structure and Major Land Uses;
- Future character areas;
- Subdivision Layout Principles;
- Phasing of development;
- Access and Movement;
- Conservation of Natural Values;
- Landscape and Open Space Network;
- Bushfire measures;
- Water cycle and soils;
- Efficient Resource Use Strategy;
- Cultural Heritage;
- Infrastructure and Services; and
- Community Facilities and Services.

This part also incorporates key recommended outcomes, performance objectives, management measures and planning provisions contained within the management plans and strategies that have been prepared to provide the framework for the long term management of the site's environmental issues. The detailed management plans and strategies, which will be used to guide future development, are contained in Volume 2 of the Precinct Plan.

Part 5: Development Control Strategy: contains specific objectives and development guidelines/controls for subdivision design, the design, layout and siting of buildings, and environmental management.

The DCS is the section that will ultimately be used by PCC as the basis against which to assess all future Development Applications (DAs) within the Central Precinct. It is divided into 3 sub-sections:

- A Urban Structure and Subdivision;
- B Built Form Housing; and
- C Non Residential Built Form.

The DCS will be reviewed by Maryland Development Company in conjunction with PCC at minimum five year intervals.

Appendix A of the Precinct Plan:

- Identifies Council development control plans (DCPs) which are relevant to land uses or activities which are permitted under SREP 30 within the precinct;
- Indicates relevant development controls contained within the DCPs; and
- Indicates and justifies any proposed departures from the relevant development controls.

DA Checklists are included at Appendix B of the Precinct Plan. These Checklists are designed for use by applicants seeking to lodge DAs for land contained within the Central Precinct.

Appendix C of the Precinct Plan contains figures that relate to the various street typologies, Appendix D contains figures that relate to the various dwelling types, and Appendix E contains figures that relate to the Employment Zone building typologies.

Volume 2

The detailed studies, management plans and strategies that form part of the Precinct Plan are included in Volume 2 over 3 parts. These management plans and strategies, have been prepared in consultation with relevant local and State government authorities, and include:

- Central Precinct Open Space and Landscape Master Plan dated July 2008 prepared by Environmental Partnership;
- Landscape and Open Space Master Plan Addendum dated May 2016, prepared by Environmental Partnership;
- Landscape Masterplan dated August 2015, prepared by JMD;
- Jordan Springs Open Space Assessment Report dated February 2017, prepared by Clouston Associates
- Central Precinct Landscape Maintenance and Handover Plan dated March 2009 prepared by Environmental Partnership;
- Central Precinct Biodiversity Assessment dated May 2009 prepared by Cumberland Ecology;
- Central Precinct Weed Management Plan dated July 2008 prepared by Cumberland Ecology;
- Central Precinct Feral and Domestic Animal Management Strategy dated July 2008 prepared by Cumberland Ecology;
- Bushfire Protection Assessment – Western and Central Precincts dated April 2009 prepared by Bushfire and Environmental Services;
- Central Precinct Community Plan dated July 2008 prepared by Elton Consulting;
- Community Planning Update Report Central Precinct dated April 2016, prepared by Elton Consulting;
- Archaeological Assessment - Central Precinct, St Marys, NSW, dated July 2008 prepared by Casey & Lowe;
- Archaeological assessment of Indigenous Heritage values in the Central Precinct, dated April 2009 prepared by Jo McDonald Cultural Heritage Management Pty Ltd;

- Contamination Management Plan Central Precinct Development Phase dated July 2008 prepared by URS;
- Contamination Management Plan Central Precinct dated March 2015 prepared by JBS&G
- Sampling Analysis and Quality Plan dated November 2015 prepared by JBS&G;
- Conceptual Remedial Strategy Stages 1 and 2 dated March 2015 prepared by JBS&G;
- Conceptual Remedial Strategy Stages 3 to 5 dated April 2015 prepared by JBS&G;
- Central Precinct Plan Water, Soils & Infrastructure Report dated May 2009 prepared by SKM;
- Central Precinct Stormwater Quality Management Report dated January 2017, prepared by Cardno;
- Stormwater Detention Strategy dated January 2017 prepared by Cardno;
- Operation and Maintenance Manual Stormwater Treatment Devices dated October 2016 prepared by Cardno; and
- Central Precinct Plan Traffic and Transport Report dated May 2009 prepared by SKM;
- Central Precinct Traffic Memorandum prepared by WSP Parsons Brinckerhoff; and
- Tree Survey and Tree Schedule dated June 2008 prepared by Whelans Insite Surveyors.

1.12 Consultations

The draft Precinct Plan and DCS have been prepared in consultation with PCC. The abovementioned supporting studies, plans, and strategies have been prepared in consultation with numerous stakeholders including PCC, state agencies, the Infrastructure Coordination Group and the EDS Committee as required by SREP 30.

The Deerubbin Local Aboriginal Land Council, Darug Tribal Aboriginal Corporation, the Darug Custodian Aboriginal Corporation and Darug Aboriginal Cultural Heritage Assessments were also consulted in the preparation of the Archaeological Assessment of Indigenous Heritage Values.

The consultation process for the preparation of the Precinct Plan has involved:

- A Community Information and Feedback Session;
- Newsletters;
- Website and telephone responses; and
- Press advertisements.

The purpose of the community consultation has been to provide information to the surrounding community on the proposed development of the Central Precinct, as well as to provide an opportunity for the community to give feedback on the draft Precinct Plan, prior to its finalisation and submission to PCC.

The Precinct Plan and DCS were publicly exhibited in accordance with the statutory public consultation and exhibition requirements of SREP 30 and all

agency and community submissions received were considered during the finalisation of the documents.

1.13 Submission of Applications

In accordance with SREP 30, DAs must be lodged for all development in the Central Precinct (other than for exempt or complying development). PCC is the consent authority for all DAs relating to land within the Central Precinct.

Applicants are encouraged to discuss their development with Council officers prior to lodging a DA. This will help to ensure that issues are resolved before the DA is lodged and that the DA contains all necessary information.

In addition to the Precinct Plan and DCS and to the approvals process already required by Council, a system of design guidelines will be administered by Maryland Development Company during development. The guidelines will set out design requirements for dwelling construction. Purchasers will be required to comply with the guidelines and obtain design approval from Maryland Development Company for their development prior to lodging their plans with Council.

Where proposed development is complying development and does not require a DA through Council, proponents will still be required to comply with the design guidelines and obtain design approval from Maryland Development Company for their development prior to approval of their plans by a Principal Certifying Authority.

2.0 Part 2 – Planning Framework

2.1 Introduction

The St Marys site, which has been rezoned for a variety of uses, comprises 6 development “precincts”, namely the Western Precinct, Central Precinct, North Dunheved Precinct, South Dunheved Precinct, Ropes Creek Precinct and Eastern Precinct. These precincts relate to areas within the St Marys site that are suitable for development.

The boundaries of the precincts within the St Marys site are shown in Figure 2. Because the St Marys site straddles the boundary between two local government areas (i.e. Blacktown and Penrith), the State Government decided that a Regional Environmental Plan should be prepared to guide and control future development of the land.

Technical investigations into the environmental values and development capability of the land were commenced in 1994, and SREP 30 was subsequently gazetted in January 2001.

SREP 30 is the main statutory planning framework document for the St Marys site. It contains planning principles, objectives and provisions to control development. The overarching aim of SREP 30 is to provide a framework for the sustainable development and management of the St Marys site. The original precinct and zone boundaries of SREP 30 were altered by the gazettal of Amendment No 1 in April 2006.

SREP 30 is accompanied by the St Marys EPS which identifies the aims for the future use and management of the site and sets out specific performance objectives and strategies to address key planning issues, including: conservation, cultural heritage, water and soils, transport, urban form, energy and waste, human services, employment, and remnant contamination risk.

The St Marys EPS identifies actions to be undertaken by local and State governments, as well as the obligations of developers. A Development Agreement was entered into in December 2002 between the Joint Venture developer and the NSW Government setting out the developer’s and State Government’s responsibilities in providing services and infrastructure.

The St Marys Penrith Planning Agreement was entered into by Penrith City Council, Lendlease and St Marys Land Limited in December 2006 and amended in May 2009. This Planning Agreement prescribes the development contributions and infrastructure required to support the development of the South Dunheved Precinct as well as the Central and Western Precincts. Negotiations between Penrith City Council and Lendlease are ongoing regarding the regional traffic contributions associated with increased yields.

SREP 30 requires the development control strategies contained within the St Marys EPS to be taken into account in any development proposals for the St Marys site. It also requires that a Precinct Plan be adopted by Council prior to any development taking place within the relevant precinct. Planning for any precinct is to address all of the relevant issues in SREP 30 and the St Marys EPS, including preparation of management plans for a range of key issues.

Under SREP 30 the St Marys site is zoned for a combination of “Urban”, “Employment”, “Regional open space”, “Regional park”, “Drainage”, “Deferred matter” and “Road and road widening” uses. See Figure 3.

The pattern of the Employment and Urban zones in the Western, Central and

Ropes Creek Precincts was altered by the gazettal of Amendment No. 2 on 27 February 2009, resulting in the creation of a larger, consolidated Employment zone in the Central Precinct.

The SREP also includes a number of key planning provisions to guide future development and is supported by a “Structure Plan” which identifies indicative locations for retail centres, drainage basins, designated road corridors through regional park areas, and areas in which land filling is potentially permitted.

The SREP 30 Structure Plan for the Central Precinct is shown at Figure 4.

2.2 SREP 30 Provisions – Central Precinct

The Central Precinct is zoned part Urban (94.7 ha) and part Employment (38.4 ha). Land zoned Urban is intended to accommodate primarily residential uses, with limited non-residential uses such as local retail and commercial uses. The land zoned Employment is intended to accommodate primarily employment generating land uses which are compatible with surrounding development and which will complement established employment areas and retail and commercial centres.

Following the gazettal of Amendment No. 2 of SREP 30 in February 2009, a larger, consolidated Employment zone in the Central Precinct was created through the relocation and integration of land zoned Employment from the Western Precinct (28 ha) and the Ropes Creek Precinct (7 ha) with the previous 3.4 ha zone Employment in the Central Precinct.

Key SREP 30 Structure Plan provisions for the Central Precinct are shown on Figure 4 and include:

- The designated road corridor providing access to the Regional Park and the Western Precinct to the west and North and South Dunheved, Ropes Creek and Eastern Precincts to the east;
- The identification of two indicative drainage basins within the precinct and to the immediate north of the precinct in the Drainage zone;
- The identification of the 1:100-year Flood Line and Probable Maximum Flood Line;
- The indicative location of a future retail centre within the precinct;
- The identification of the majority of the Precinct as a Potential Fill Area; and
- The identification of a Proposed Location of Transmission Line to the immediate east of the Precinct (note: as stated elsewhere in this report, Maryland Development Company does not currently propose to relocate the transmission lines that currently traverse the Central Precinct).

The SREP 30 Heritage Map (see Figure 5) identifies 1 item of environmental heritage within the Central Precinct, being Site 3 – Elizabeth Farm.

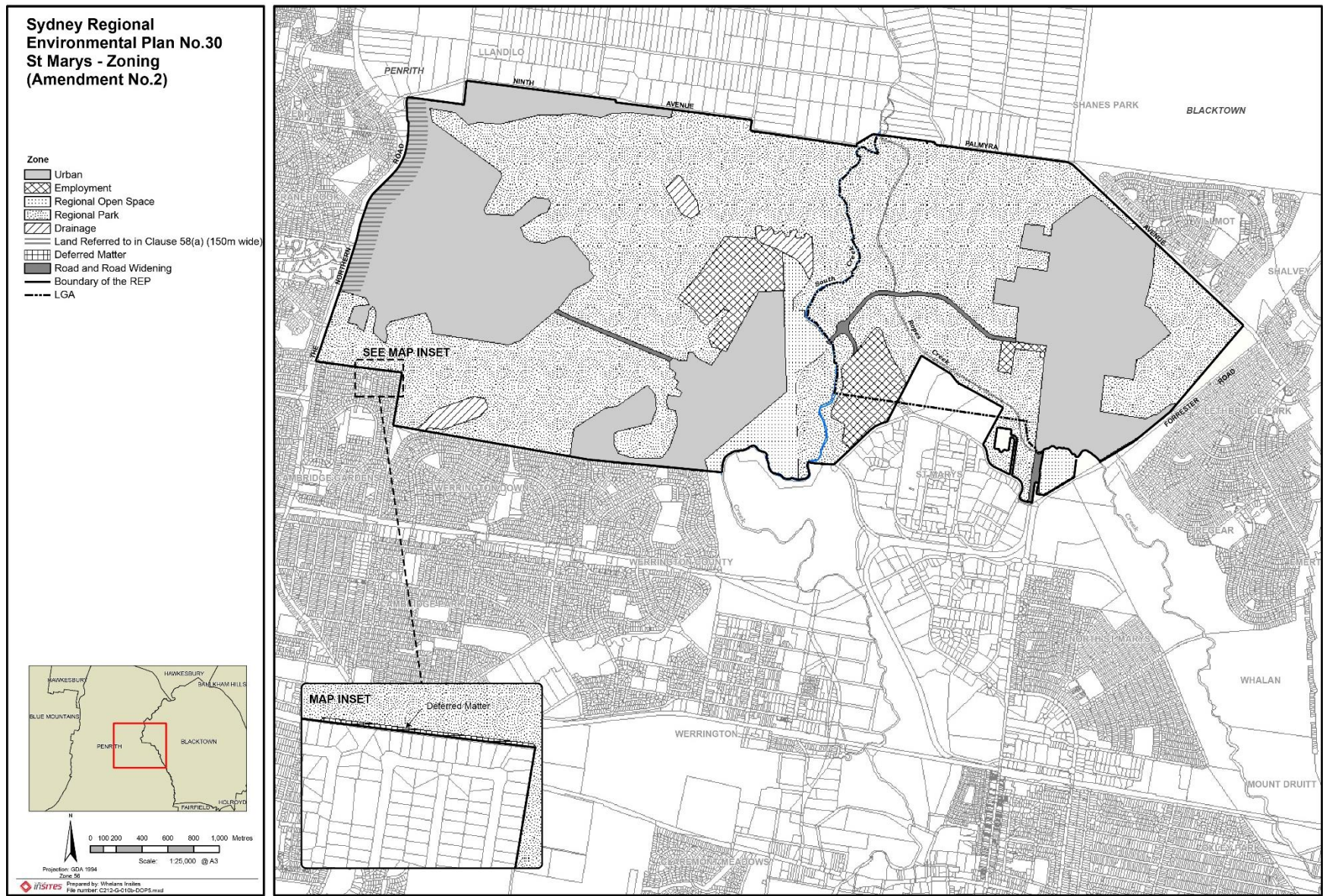


Figure 3 – Central Precinct SREP 30 Zoning

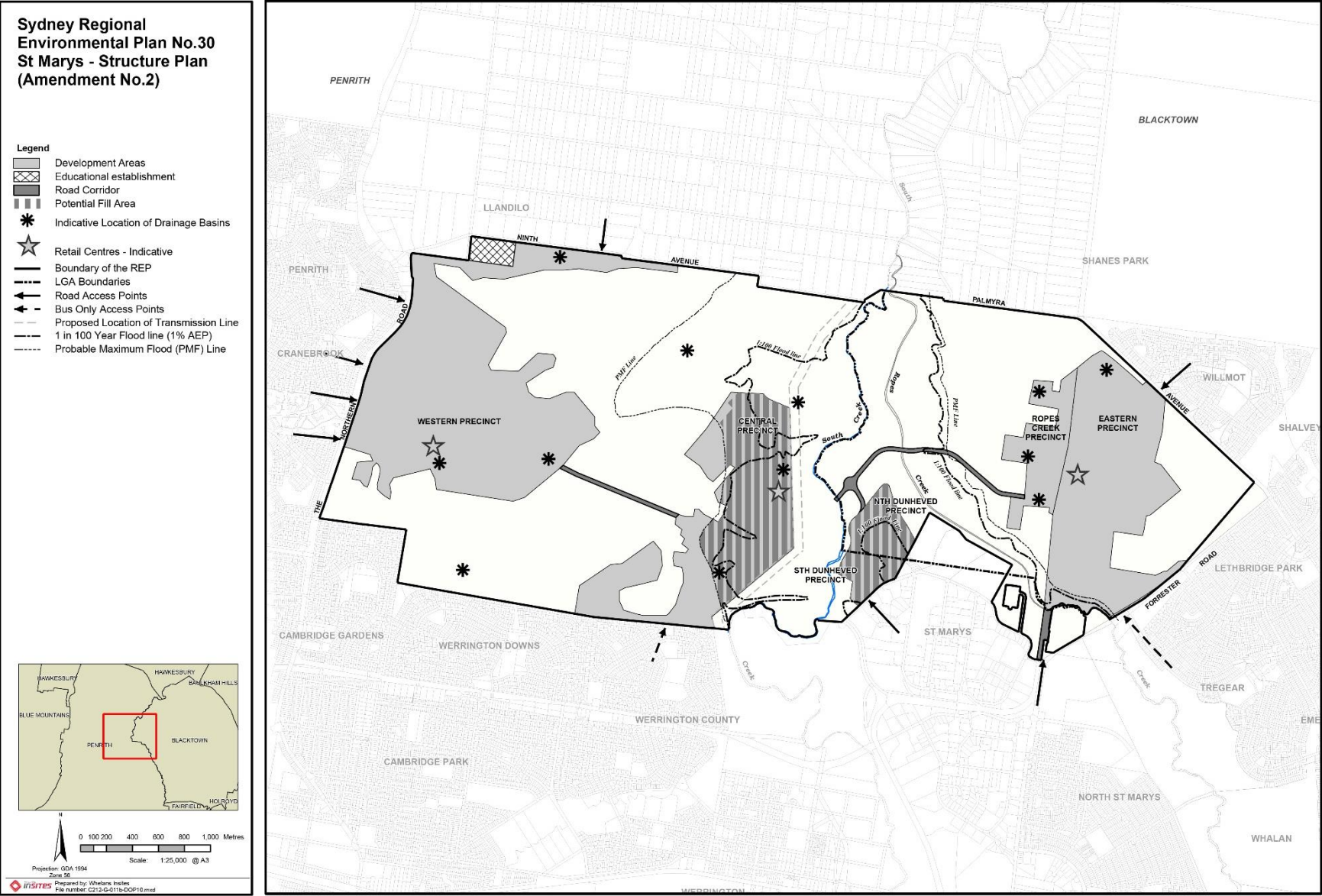


Figure 4 – Central SREP 30 Structure Plan

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2.3 St Marys Employment Development Strategy

The future development of the Central Precinct for residential and employment generating land uses is a key component in the implementation of the St Marys Development Employment Development Strategy (EDS).

Prepared with input from local Councils, State Government agencies and business organisations, and endorsed by the Employment Development Strategy Committee, the St Marys EDS identifies the actions and initiatives to be implemented to meet the employment and business development performance objectives for the St Marys site set out in SREP 30.

The St Marys EPS requires that:

“The total number of jobs generated by development ... (including jobs generated on the surrounding land) is to approximate the number of workers who will be resident on the land ... after the development has been carried out.”

This principle is designed to ensure that development of the site will not add to the existing employment deficit within the region and will contribute to greater employment containment in the region, and thereby contribute to a reduction in the proportion of people commuting long distances to work.

The St Marys EDS includes strategies and an action plan for the following:

- Facilitation of a targeted 5,300 ongoing jobs (both on site and off site), equating to one job for every resident worker;
- Generation of an anticipated additional 8,600 jobs during the construction phase;
- Establishment of a range of capacity building initiatives to provide opportunities for skilling and training, and to build a platform for long term skill development and knowledge generation within the new and established communities;
- Development of partnerships with regional employers and employment and training service providers to deliver a range of employment initiatives for the benefit of the new residents and the surrounding community;
- Facilitate business growth initiatives for firms located on and around the site to promote business prosperity, growth, employment generation and local economic benefit; and
- Deliver Fibre to the Premises (FttP) broadband capability to:
 - attract and support higher order home-based-business activity;
 - provide capacity for residents to work from home; and
 - cater for changing technologies associated with firms in the employment zone

The development of the Central Precinct for employment uses to facilitate a targeted 760 local jobs is fundamental to the achievement of these outcomes. As stated above, there is a 38.4 ha Employment Zone in the Central Precinct. This represents approximately 55% of the total developable employment lands within the St Marys Site.

Opportunities

Based on the precinct's site characteristics, its locational context and previous economic investigations the following opportunities have been identified in taking forward employment development within the Central Precinct:

- There is a large labour pool within the region which is forecast to increase;
- There is a strong intermediate and low skills employment population base, but under representation of high skills;
- The costs of labour in the region are relatively low;
- The presence of University of Western Sydney (UWS) and Western Sydney Institute of TAFE in the region;
- The presence of numerous business support services and infrastructure in the area;
- There will be a wide range of housing types at competitive prices located in the same precinct area;
- The consolidation of the Employment zones in the Central Precinct will reduce current fragmentation of smaller Employment zones on the St Marys site and create a larger and more contained employment precinct;
- The consolidation of Employment Zones in the Central Precinct assist in the clustering of activities, greater market flexibility through provision of larger lots, and the minimisation of potential land use conflicts (particularly through reducing the extent of areas abutting residential uses); and
- The consolidation has the added benefits of enhancing the site's ability to better meet the EDS job targets as well as Metropolitan Strategy and Sub-Regional Strategy job targets.

Constraints

The constraints upon development of employment land within the precinct include:

- The prohibition of certain types of uses, including limitations on commercial activity under SREP 30, thereby limiting the type of development that may be undertaken in the precinct;
- The distance of the site from an international airport;
- The lack of direct access from the site to the motorway network (although it is relatively close to the M4 and M7); and
- Potential land use conflicts between employment lands and adjoining residential areas within the precinct, possibly requiring interface areas.

2.4 Macrofauna Management

As also required by the St Marys EPS, a Macro Fauna Management Plan for the St Marys site was submitted to the then Department of Environment and Conservation (DEC, and also known as the DECC now OEH) in late 2003. The Macro Fauna Management Plan outlines mechanisms to manage the displacement of macrofauna (including kangaroos and emus) from development of the site.

The Director General of the then DECC assessed and endorsed the Macrofauna Management Plan on 3 March 2004. The then DECC also confirmed that the Macrofauna Management Plan satisfies the requirements of the EPS subject to the conditions imposed by the then DECC as part of the process of finalising the Plan. The implementation of the Macrofauna Management Plan is being progressed by the developer in conjunction with the OEH, BCC and PCC.

2.5 Commonwealth Approvals

The Commonwealth environmental assessment of the development of the St Marys site has been completed under the provisions of the *Environment Protection (Impact of Proposals) Act 1974*, with certification provided under the *Environmental Reform (Consequential Provisions) Act 1999*.

In addition, the development of the St Marys site has been assessed by the Australian Heritage Commission pursuant to the requirements of the *Australian Heritage Commission Act 1975*.

3.0 Part 3 – Site Characteristics

3.1 Introduction

This section of the Precinct Plan identifies the site characteristics of the Central Precinct, thereby establishing the key planning issues, opportunities and constraints that have informed preparation of the Precinct Plan. Existing site characteristics are shown in Figure 6 below.

3.2 Key Opportunities and Constraints

The key development opportunities and constraints associated with the site, as identified below, are illustrated in Figure 7 and are further discussed in the relevant sections of this Part of the Precinct Plan.

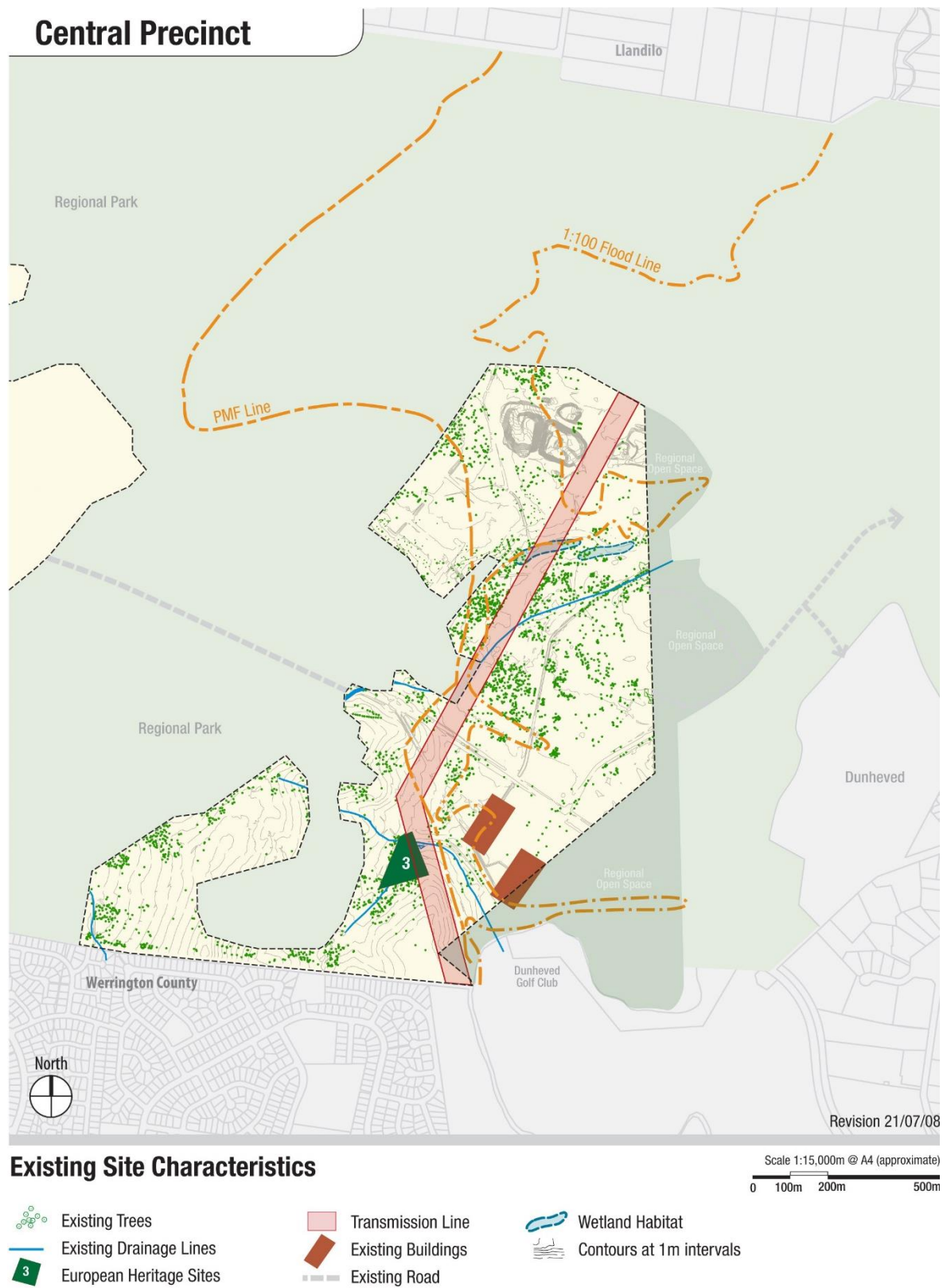
Opportunities

- Zoned road corridors providing connection to the Western Precinct to the west and the North and South Dunheved, Ropes Creek and Eastern Precincts to the east;
- Pedestrian and cycle connections and possible future bus connection to Werrington County to the south;
- Land has been heavily disturbed through past site activities and comprises mainly grassland with limited areas of remnant and regrowth woodland and forest that is generally highly degraded;
- Some remnant and regrowth native vegetation that, where appropriate, can be retained for future public domain areas;
- Existing drainage lines offer opportunity to rehabilitate riparian habitat and provide open space linkages;
- Flat to mildly undulating topography;
- Creation of a responsive and well-designed Regional Park interface, particularly through a strong visual enclosure;
- Surrounding established urban areas provide opportunities to improve access to services and facilities for the broader community;
- Appropriate and well-designed integration to existing urban areas to the south;
- SREP 30 listed European Heritage Items – Site 3 – provides opportunity for interpretation of local area heritage.
- Planned delivery of approximately 40 ha of sporting and recreation facilities in the adjacent Regional Open Space zone; and
- Making use of existing services and infrastructure in proximity to the site with spare capacity and ability for augmentation.

Constraints

- Large portion of the Precinct is affected by the 1:100 year ARI flood line and Probable Maximum Flood (PMF) level;
- Precinct traversed north-south by the existing 70m wide Eraring-Kemps Creek 500kv transmission line easement;
- SREP 30 listed European Heritage Item requires specialised assessment as part of the development process;

- Potential Aboriginal archaeology (refer to Figure 9);
- Two existing warehouse buildings (that have now been demolished); and
- Scattered patches of regenerating woodland and freshwater wetlands artificially created through past site activities.



Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 6 – Existing site characteristics

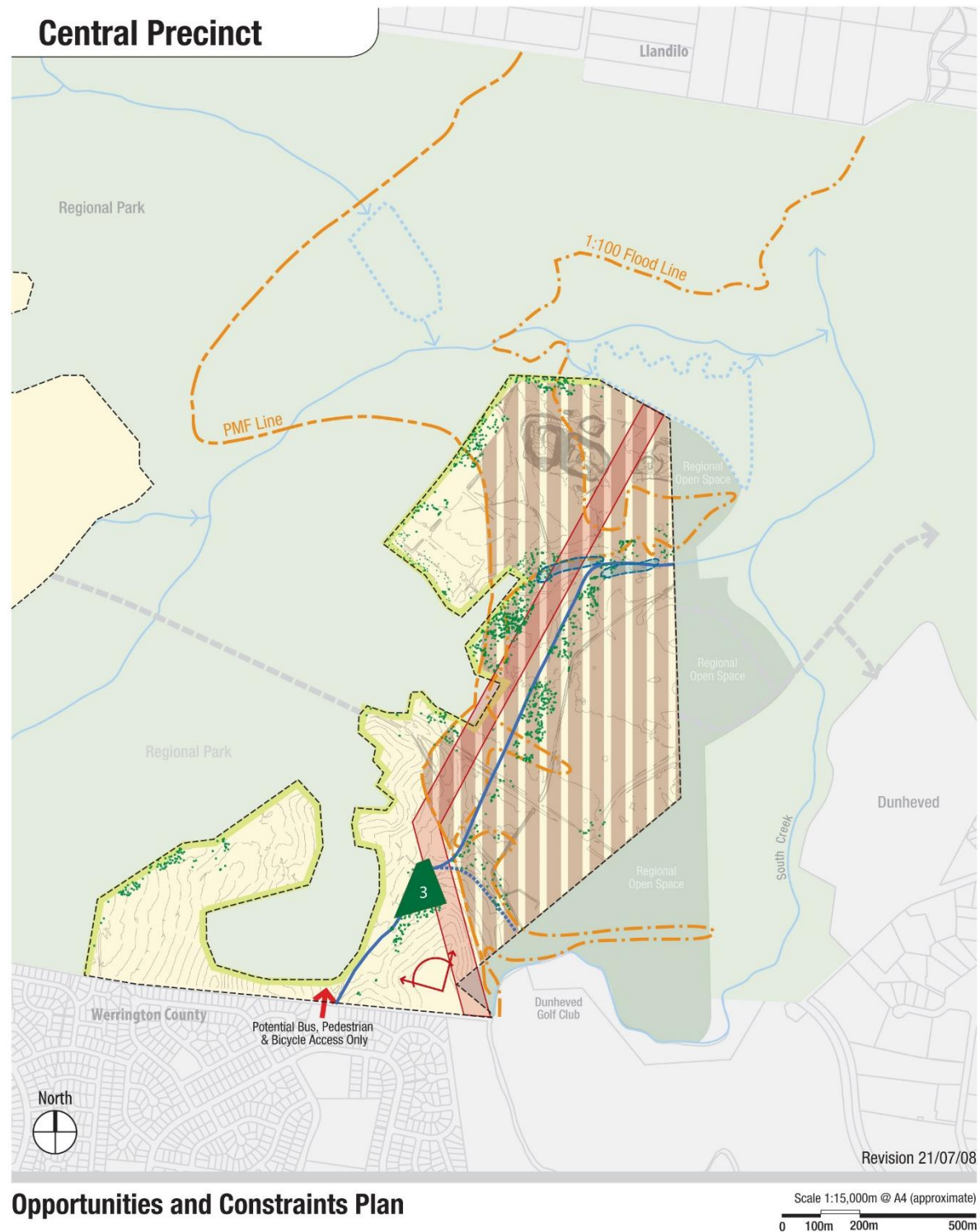


Figure 7 – Opportunities and Constraints Plan

3.3 Water, Soils and Drainage

A detailed analysis of the existing water, drainage and soil characteristics of the site is contained within the Water, Soils & Infrastructure Report prepared by SKM (see Appendix F). Since the original Precinct Plan was prepared in 2009, the design outcomes for the development have evolved, resulting in the need to update the findings of the SKM report. This has occurred with the preparation of addendum Stormwater Quality Management, Detention Strategy and Operational Maintenance reports prepared by Cardno. These later reports address the changes to the overall masterplan for the site, and the obligation to confirm the developments capacity for complying with the water management requirements under SREP 30.

A summary of relevant key issues, opportunities and constraints follows.

The Precinct is generally flat with elevations varying from between 29m AHD to 40m AHD. It lies to the west of South Creek and a portion of the site is currently below the 100 year ARI event in South Creek and a concurrent 20 year ARI flood in the Hawkesbury Nepean River. The Precinct is also affected by the PMF level.

The site generally drains via some minor drainage lines to South Creek which lies to the east of the Precinct.

The prevailing soil landscape of the Precinct is Luddenham and South Creek Soil types. Both of these soils types are clays and are generally prone to waterlogging or poor drainage characteristics. Shallow saline water tables are common under these soil types.

Two groundwater-bearing systems are present within the St Marys site. These are a shallow (regolith soil) aquifer and a deep (fractured shale bedrock) aquifer. These two systems are not true aquifers due to their various characteristics. Both systems comprise a complex of scattered and discontinuous sub-aquifers of limited area and volume.

3.4 Vegetation and Biodiversity

Detailed information relating to the site's vegetation and biodiversity is provided in the following documents:

- Central Precinct Biodiversity Assessment dated August 2008 prepared by Cumberland Ecology (Appendix I);
- Tree Survey and Tree Schedule dated June 2008 prepared by Whelans Insite Surveyors (Appendix J);
- Central Precinct Feral and Domestic Animal Management Strategy dated July 2008 prepared by Cumberland Ecology (Appendix K); and
- Central Precinct Weed Management Plan dated July 2008 prepared by Cumberland Ecology (Appendix L).

The Biodiversity Assessment identifies the flora and fauna that is present or has the potential to occur within the Central Precinct, and maps the vegetation communities, occurrences of threatened or migratory species and endangered ecological communities (as listed within Schedules of the *NSW Threatened Species Conservation Act 1995*, *NSW Fisheries Management Act 1994* and the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*). It also predicts the potential impacts of development upon these and provides measures to mitigate these impacts.

The Tree Survey located and mapped trees with a trunk diameter of 200mm and greater within the Central Precinct. It records the approximate trunk diameter,

canopy spread, height and number of trunks. Existing trees within the Central Precinct are shown in Figure 6.

Flora

The Central Precinct comprises mainly grassland created by previous clearing of natural woodland and open forest. These are mapped at Figure 8 below as cleared land due to the land being clear of the original native vegetation cover and to assist in distinguishing the grassland from other communities due to the fine mosaic in which they occur.

Subsequent pasture improvement and weed invasion had resulted in the establishment of variable amounts of introduced species. There are areas of highly degraded regrowth woodland and forest with the majority of vegetation occurring in small fragments of scattered tree cover with a high proportion of introduced species in the understorey or narrow sections of regrowth woodland or forest with a high edge to area ratio.

The five main vegetation communities recorded within the precinct were:

- **Swamp Oak Floodplain Forest / River-flat Eucalypt Forest**
 - Swamp Oak Floodplain Forest and River-flat Eucalypt Forest are both similar forms of Alluvial Woodland and occur in the low-lying areas in the middle section of the Precinct. Areas of each community have been ground-truthed within the Precinct but are both included in the areas mapped as Alluvial Woodland across other parts of the St Marys site (see Figure 10). Much of these communities have been cleared many years previously. In some of these cleared areas, the vegetation has regenerated as Freshwater Wetlands as the soil is waterlogged and ephemerally inundated. The current vegetation is a mixture of scattered old trees with extensive regeneration of an estimated 1-20 years' age. Stands of forest and woodland are generally separated by native grassland.
 - This community is a variant of the EECs listed under the TSC Act being Swamp oak floodplain forest of the NSW North Coast, Sydney Basin and South East Corner bioregions and RFEF on coastal floodplains on the NSW North Coast, Sydney Basin and South East Corner bioregions.
 - The community is highly fragmented and some sections contain high concentrations of exotic ground cover species. It is likely to be viable in the long-term even though the presence of exotics diminish its conservation significance.
- **Cumberland Plain Woodland**
 - This community was the most common within the Central Precinct with *Eucalyptus moluccana* (Grey Box) and *E. tereticornis* (Forest Red Gum) being the dominant tree species. Cumberland Plain Woodland is mapped as Shale Plains Woodland in Figure 10 below. *Angophora floribunda* is also common in the northern section of the Precinct.
 - This community and the dominant tree species generally comprises and occurs in remnant and regrowth open forest and low woodland with individual scattered mature remnant trees in mixed exotic and indigenous grassland. Cumberland Plain Woodland is an EEC listed under the TSC Act and the EPBC Act. There is also a preliminary determination to list Cumberland Plain Woodland as a critically endangered ecological community under the TSC Act. Most of this community has been heavily cleared and in various stages of regrowth.
- **Native Grassland**
 - Grassland dominated by native species occurs throughout the precinct. Native grassland is a highly modified variant of Cumberland Plain Woodland where most of the tree and shrub cover has been removed. Most areas of

this community contain high proportions of exotic ground cover species that would possibly threaten its long-term viability and usefulness for conservation purposes.

- Exotic Grassland

- The grassland in the Central Precinct comprises a mixture and mosaic of introduced and indigenous species. Areas containing exotic are considered to have no conservation significance. However, areas of exotic grassland mixed with native grassland, including regenerating native woodland, has some conservation significance.

- Freshwater Wetlands

- Several patches of Freshwater Wetlands occur in the precinct. The largest area is located within and adjacent to the transmission line easement with a smaller area within the easement. Some other smaller patches of wetlands form a mosaic with Swamp Oak Floodplain Forest and River-flat Eucalypt Forest. These are likely to have been created when the original forest vegetation was removed and the soil was disturbed, creating depressions that are ephemerally inundated and allowing wetland species to colonise.
- The occurrence of sedgeland in the Central Precinct is considered to be a variant of the EEC Freshwater wetlands listed under the TSC Act. They appear to have been artificially created and are considered a degraded variant of the EEC. Smaller areas of sedgeland in the Central Precinct formed in scrapes in the soil have minimal conservation value. The location of these communities is shown in Figure 8.

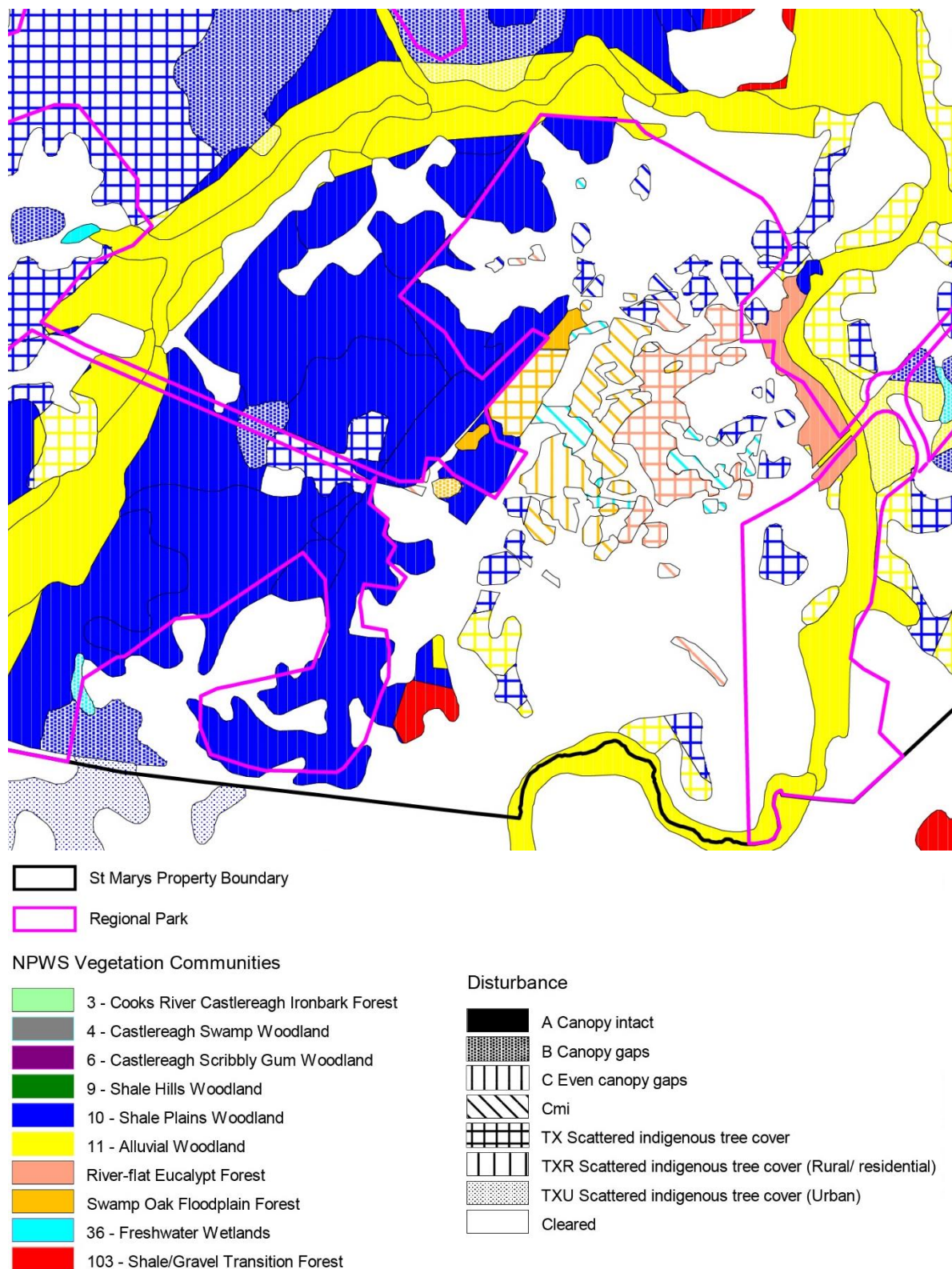


Figure 8 – Location of existing Endangered Ecological Communities

The examples of these communities that occur in the Central Precinct are highly degraded given they lack understorey, and are susceptible to edge effects and display low resilience. They are typically fragmented and relatively juvenile and consist of sparse native tree regrowth. Due to their highly modified condition, the conservation value of these communities in the Central Precinct has been seriously compromised and this vegetation is not considered to be significant in terms of conservation. The endangered ecological communities most commonly occur along the common boundaries to the Regional Park at the northern and western edges, with others in isolated clumps in the middle of the precinct.

Large areas of these communities are present within the Regional Park, which contains larger areas of undisturbed vegetation communities.

The threatened flora species *Grevillea juniperina* subsp. *juniperina* (listed as vulnerable) occurs in the Precinct whilst the endangered flora population *Marsdenia viridiflora* subsp. *viridiflora* occurs adjacent the Precinct. A survey of the *Grevillea juniperina* subsp. *juniperina* estimated that about 530 individuals of the species occurs within the precinct, which is negligible when compared to the number of these species within the Regional Park (estimated at more than 250,000).

The Weed Management Plan prepared for the project has identified a number of weeds of national significance occurring both on the St Marys site and within the Central Precinct. These include Bridal Creeper, Blackberry, and Lantana. The occurrence and distribution of these and other weeds (some 41 species in total) is strongly influenced by past use of the site and areas of disturbance. Within the precinct, weeds generally occur in dense pockets in areas of disturbance and to a lesser degree in existing bushland.

Measures to control weed growth are detailed in Section 4 of this report and at Appendix J.

Fauna

Due to the extent of disturbance, expanse of grasslands, and large proportion of regrowth woodland (less than 50 years of age) within the Central Precinct, there is little nesting and roosting habitat for arboreal fauna, nor habitat to support a wide range of species. There is a relatively large area of aquatic habitat (wetland) and a man-made drainage line within the precinct. This is likely to provide a habitat for various aquatic animals particularly birds such as ducks, ibis, herons and one migratory species - Latham's Snipe.

Habitats of value generally occur along the common border with the Regional Park, and within the Regional Park itself outside of the Precinct.

The Eastern Grey Kangaroo (*Macropus giganteus*) and the Red Kangaroo (*Macropus rufus*) are the most common mammals found across the St Marys site. The numbers of these animals is now regulated under the Macrofauna Management Plan (Cumberland Ecology 2004) implemented and commenced in 2005. Emus are also found at the site. There are no known or recorded sightings of koalas on the site or Central Precinct.

Exotic fauna species (including either feral, pest or domestic animals) recorded on the site include the European Fox, cats, dogs, rabbits, brown hares, black rats, and house mice.

Threatened species (under either the TSC Act and/or EPBC Act) found and recorded on the wider site and with the (limited) potential to be found within (or directly adjacent) the Central Precinct include:

- Large Footed Myotis (*Myotis adversus*)

- Greater Broad-nosed Bat (*Scoteanax rueppellii*)
- Eastern Freetail Bat (*Mormopterus norfolkensis*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Latham's Snipe (*Gallinago hardwickii*) – migratory bird species recorded in wetland habitat adjacent to the transmission line easement in the Central Precinct
- Swift Parrot (*Lathamus discolor*)
- The Speckled Warbler (*Pyrrholaemus sagittata*)
- The Black Bittern

Other bird species listed as Vulnerable under the TSC Act have been recorded in the locality or the wider St Marys site, but are unlikely to be found in the Central Precinct, due to the relative immaturity of the woodlands and the lack of diversity and complexity of habitat in the precinct. Similarly, listed reptiles and amphibians are unlikely to be found within the precinct due to various habitat conditions. Whilst the Cumberland Land Snail, which is listed as endangered under the TSC Act, is found on the St Marys site, it is unlikely to be found in the Central Precinct as only patches of its habitat of a disturbed nature are within the Precinct.

Specific management and mitigation measures for flora and fauna are contained within Section 4.7 below and at Appendix I.

3.5 Bushfire Prone Land

The Bushfire Assessment prepared by Bushfire and Environmental Services (Appendix M), consistent with the measures required under 'Planning for Bushfire Protection (2006)', has sought to identify necessary bushfire planning requirements for the development, subdivision, and future DAs.

The precinct will be subject to subdivision principally for residential and employment purposes and the assessment identifies that at the precinct's internal boundaries the Central Precinct is largely classified as Bushfire Prone Land due to the proximity of large areas of unmanaged bushland within the adjacent Regional Park.

Specific bushfire management, protection and mitigation strategies are detailed below in Section 4 and contained within the report at Appendix M.

3.6 Traffic and Transport

The information in this section is based upon the Central Precinct Traffic Report dated July 2008 prepared by SKM (see Appendix N).

A series of detailed transport, road planning and public transport investigations have been previously conducted to examine the most appropriate methods of providing quality transport services to the St Marys site. These investigations resulted in the formulation of site access and transport strategy elements that were incorporated into SREP 30, and which are being implemented through the Development Agreements.

At present the Central Precinct is accessed by road only via the Western, Eastern or Dunheved Precincts with no external access to traffic. A zoned sealed road running in an east-west direction traverses the Precinct connecting it to the Western Precinct. Further, a network of unsealed roads allows access within the Precinct. The impacts of increased development from the Central Precinct are currently being assessed by Penrith City Council and Lendlease to renegotiate the

existing planning agreement. An update to the existing traffic model is currently being undertaken.

The closest railway stations to the precinct are St Marys Station some 2km to the south and Mt Druitt about 5km to the south east. The site is not presently serviced by public transport, but bus routes will ultimately connect the Central Precinct to other transport options at Penrith and St Marys Stations.

3.7 Cultural Heritage

Aboriginal Heritage

The information in this section is based on the Archaeological assessment of Indigenous Heritage Values in the Central Precinct in the former ADI Site, St Marys (Jo McDonald, 2008) – see Appendix P.

Detailed work undertaken in relation to the archaeological resources of the overall 1,545 hectare St Marys site has targeted a conservation outcome for Indigenous cultural heritage across the site, whilst at the same time facilitating the orderly management of archaeological resources in the resultant developable land.

The early work undertaken on the overall St Marys site was known as the “Strategic Management Model” (SMM), which identified previous land use disturbance and applied the use of a predictive model (SMM: McDonald and Mitchell 1994, Jo McDonald CHM 1997a). The overriding aim of the archaeological SMM was the preservation of a representative sample of intact landscapes across the overall site. Four zones within the overall site were identified, each zone having a different designated management outcome.

The identified zones are:

- Zone 1: Very high potential for intact archaeological evidence – potential conservation zone.
- Zone 2: High potential for intact archaeological evidence.
- Zone 3: Moderate potential for intact archaeological evidence.
- Zone 4: Low - no potential for archaeological evidence - no further work required.

The recent surveys undertaken by Jo McDonald Cultural Heritage Management Pty Ltd identified a high proportion of high conservation value and archaeological sensitivity is generally to be found outside of the Central Precinct and within the Regional Park adjacent the Precinct. Within the Precinct, about 93 ha of land has been identified as having archaeological sensitivity (being Zones 1, 2 and 3). However, there is only 2.4 ha of Zone 1 land.

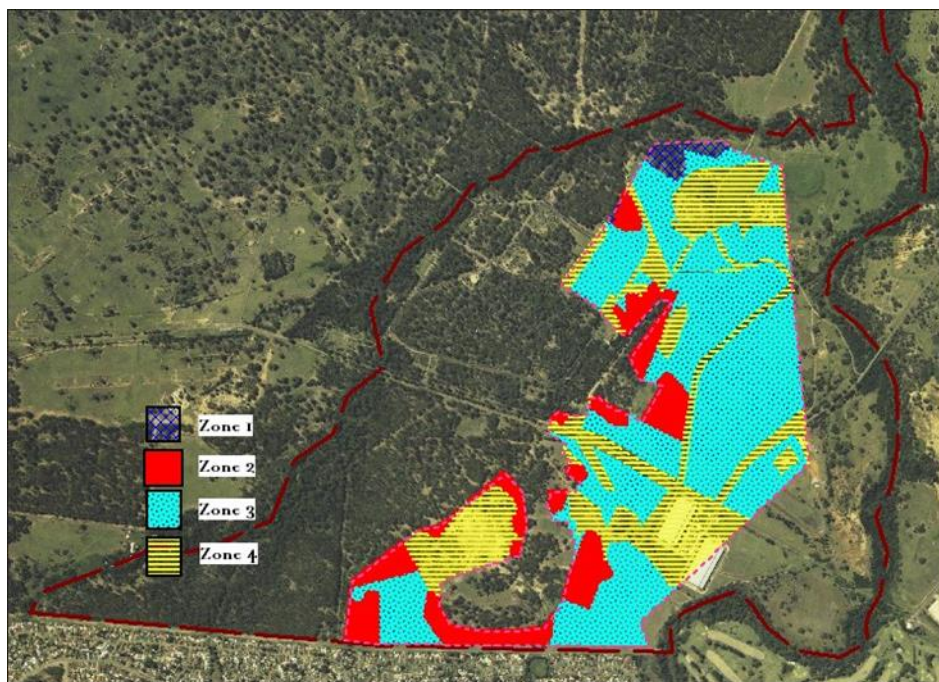


Figure 9 – Aboriginal Archaeological Zones

The development of the Central Precinct will, therefore, only impact on about 2.4ha of land which has conservation potential (Zone 1). The development will also impact upon about 91ha of land with archaeological sensitivity (Zones 2 and 3). However, overall, there is a significant conservation outcome as a result of more than 51% of the total land area and almost 97% of the land with high archaeological sensitivity being excluded from the developable lands within the Central Precinct.

The archaeological assessment has identified five salvage locations within the Central Precinct. These salvage locations are generally at the edges of the precinct, with two to the south, two to the north and one centrally located.

Salvage of these locations will add fundamentally to the understanding of Aboriginal occupation of this area. The salvage excavation process is further discussed in Section 4.12

European Heritage

SREP 30 identifies 1 item of environmental heritage within the Central Precinct, being Site 3 – Elizabeth Farm. This item is shown in Figure 10.

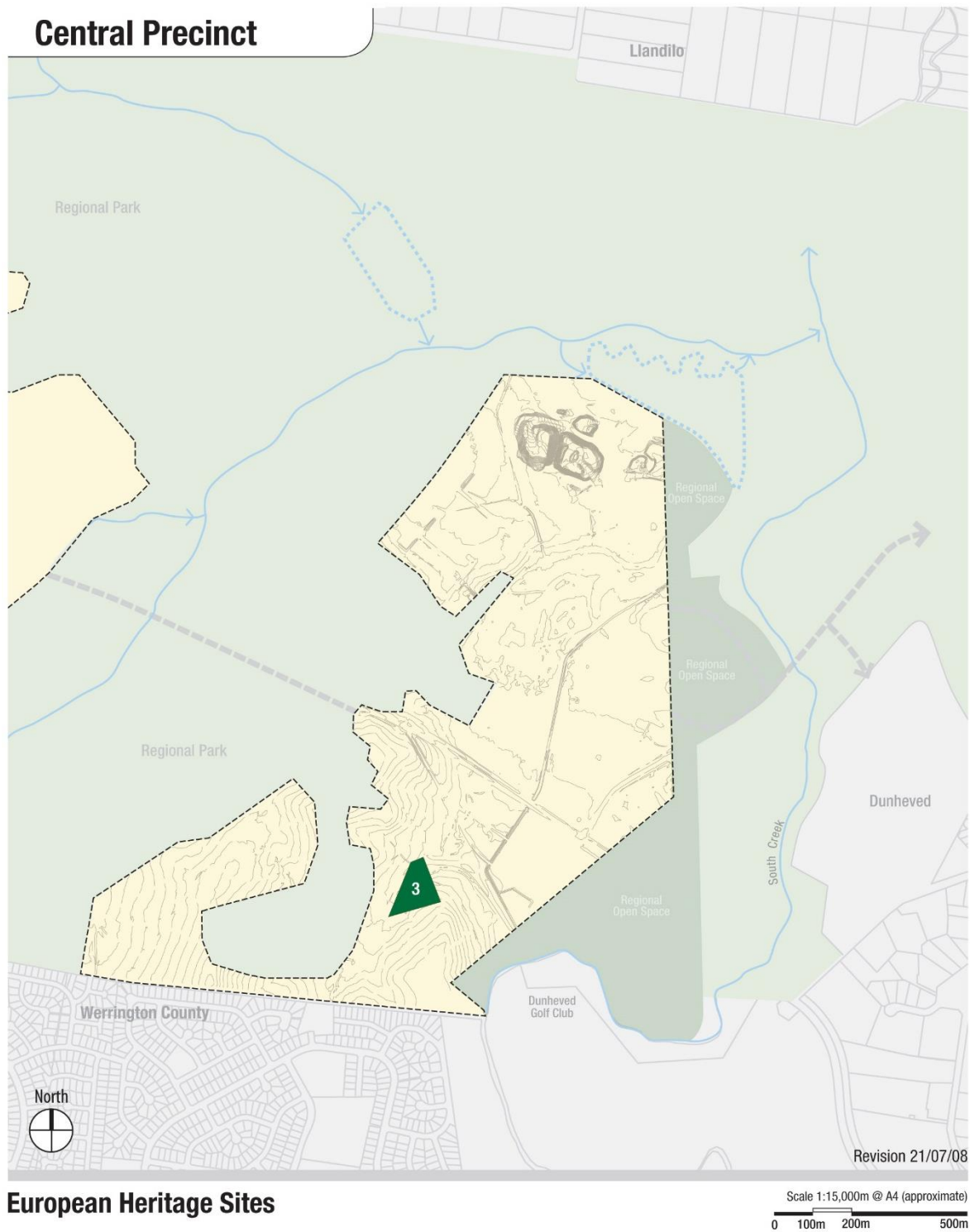
Casey & Lowe Pty Ltd provided an archaeological assessment of the Central Precinct (see Appendix Q). Site 3 is described below.

Site 3 – Elizabeth Farm is located in the southern portion of the Central Precinct. Site 3 is a brickmaking area associated with the building and development of the Dunheved homestead. It appears to have been used intermittently from circa 1807 to the 1860s for brickmaking.

Site 3 contains some visible and buried remains of at least two brick clamp kiln as well as some buried and obscured remains of early nineteenth century brickmaking which represent the range of activities undertaken at a typical early nineteenth century brickmaking site: a hacking ground, moulding area, pug mill or tempering area, clay pits and clamp kilns.

The remains of brickmaking at the site are one of the few surviving elements of the Dunheved homestead outside of the original house site. It does not have the

same range of archaeological significance as the State significant Dunheved homestead with its potential to contain evidence of numerous buildings and activities. It is a rare surviving example of brickmaking technology dating between c1807 and 1860s created as part of the development of a significant colonial estate. None of the other possible outlying Dunheved sites are known to survive. It therefore shares similar levels of significance as the main homestead site and it is therefore part of its State significance albeit only as an aspect of the Dunheved site.



European Heritage Sites

- 3 European Sites
- 3 - Elizabeth Farm

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 10 – SREP 30 Heritage Items

3.8 Human Services

Elton Consulting has prepared a Community Plan for the Central Precinct (see Appendix R). This report was prepared after consultation with various stakeholders including state agencies and PCC through the St Marys Infrastructure Coordination Group, (including the People and Place Working Group) established under SREP 30 and the St Marys Human Services Consortium.

Community planning for the residential component of the Central Precinct considered the social context of the Precinct, in terms of the characteristics of the surrounding and anticipated population and the existing services and identified needs of the future population.

The existing demographic structure surrounding the Precinct can be generally described as:

- Diverse pattern of residential development consistent with its era of development – smaller higher density single dwelling subdivisions of the 1970s and 1980s to the south and south-west (Werrington County and Werrington Downs, respectively);
- A higher proportion of families with children or single parent households;
- A young median aged population;
- A higher proportion of children relative to Penrith LGA and Sydney generally;
- Low cultural or linguistic diversity, with the exception of Werrington which has a high proportion of overseas-born people;
- Low median household incomes;
- Low school retention rates and high proportion of trade and clerical training and employment; and
- High proportion of separate single dwellings with a high degree of housing stress.

In terms of existing services, the area surrounding the Central Precinct is generally well serviced by (with some capacity in part) and proximate to:

- State and Private primary and secondary schools;
- Local retail and commercial services;
- Neighbourhood community centres;
- Community development projects;
- Council and Private childcare centres;
- Health, welfare, and support services;
- Libraries;
- Emergency services; and
- Recreation and cultural facilities.

In general, the new Central Precinct population will in part require the augmentation or creation of some new services. This is considered in Part 4 of this report.

3.9 Contamination

The St Marys Central Precinct has been the subject of extensive investigation, and where necessary, remediation through the 1990s. The EPA (now part of the Department of Planning and Environment) has been involved throughout the

process, and subsequently a NSW EPA accredited Site Auditor issued Site Audit Statements for the St Marys site.

The objectives of the investigation and remediation program were to assess the nature and degree of chemical contamination and/or identify any potentially explosive ordnance to allow the remediation of the site to a level where it was suitable for redevelopment for a variety of uses. For the purposes of remediation and validation, the St Marys site was divided into nine sectors. The Central Precinct includes the following sectors and associated Site Audit Statements (SASs):

- Southern West Sector covered by SASs CHK001/1 and 001/6;
- Central West Sector covered by SASs CHK001/1, 001/6, and 001/7; and
- North Western Sector covered by SASs CHK001/1, 001/6, and 001/7.

The information presented in the remediation and validation reports for these sectors has been used to develop a Contamination Management Plan for the Central Precinct (see Appendix S). The majority of the Precinct has been assessed by the site auditor to pose a negligible risk to the public or the environment with regard to chemical contamination or explosive ordnance. Areas under retained roads and building footprints which have not yet been addressed by the SASs, will require future investigation and assessment. Several updated contamination documents have been approved as part of various development applications and include a Contamination Management Plan (43352/61064 Rev B) (Appendix T), Sampling Analysis and Quality Plan (43352-57348 Rev 4) (Appendix U) and a Conceptual Remedial Strategy Stages 1 and 2 (50539-60934 Rev 1) (Appendix V) and Stages 3 to 5 (50539-100238 Rev 0) (Appendix W) prepared by JBS&G.

Additionally, whilst not strictly contamination, the former uses on the Precinct have also resulted in the stockpiling of bricks, concrete, and soil in the northern portion of the Precinct.

3.10 Site Services

An analysis of the existing services and infrastructure of the site is contained within the Water, Soils & Infrastructure Report prepared by SKM (see Appendix F). In general, there is existing infrastructure in and around the Precinct (generally with spare capacity or with the ability to be upgraded, augmented or amplified) in close proximity, including trunk components such as:

- Water reservoirs (Orchard Hills drinking water supply system and Cranebrook reservoir);
- Sewerage treatment plants, carriers and pumping stations (St Marys Sewerage Treatment Plant, the “Werrington Downs Carrier”, and pumping station SPS366); and
- Zone substations (Cambridge Gardens Zone Substation).

Gas and underground communications services (including optical fibre and copper cables) also exist in the area.

3.11 Transmission Lines

The Eraring-Kemps Creek 500 kV transmission line traverses the Central Precinct in a north-south direction. The transmission line and towers are contained within a 70-metre-wide easement, in favour of TransGrid, which will continue to be in force following development of the Precinct. Refer **Figure 6**.

4.0 Part 4 – Framework Plan and Environmental Management Strategies

4.1 Framework Plan

This part of the Precinct Plan describes the Framework Plan for the Central Precinct. It identifies the planning provisions contained within the management plans and studies, which provide the principles for the development and long-term management of the site.

The Framework Plan conceptually illustrates how the proposed development of the Central Precinct will respond to the key development principles, having regard to land form, environmental site conditions, the surrounding local street network, and relationship with adjoining areas. The Central Precinct provides the opportunity to create a community which is designed around 'best practice' principles in sustainable urban design. This will be achieved by:

1. **Connecting with nature:** the new community will have a strong connection with the Regional Park and Regional Open Space adjacent to South Creek, drawing on the sense of space and natural beauty;
2. **Establishing a vibrant village centre:** the design will incorporate a Village Centre Character Area and Regional Open Space Hub at the heart of the community serving residential and employment uses as well as visitors to district sports facilities;
3. **Delivering parks and wide open spaces:** a range of parklands for recreation and play;
4. **Providing diversity, choice and lifestyle:** providing housing choice and options to cater for a range of active and healthy lifestyles, housing for life (adaptable housing) and seniors living;
5. **Opportunities for business and enterprise:** for a range of business activities that will generate jobs, supporting the community and surrounding region; and
6. **Achieving a sustainable future:** building social capacity, viable enterprise and environmentally responsive communities.

The Framework Plan for the Central Precinct is illustrated in Figure 11. The main elements of the Framework Plan are described in the following sections.

4.2 Urban Structure and Major Land Uses

The Central Precinct Framework Plan conceptually illustrates the urban structure for the planning and future development of the site. The principle land uses within the Central Precinct will be residential and employment, with some retail and commercial use in the Village Centre Character Area.

It is estimated that there will be approximately 1,400-1,600 dwellings in total in the Central Precinct, with an anticipated resident population of between 3,800 and 4,300. It is expected that the majority of dwellings (80-90%) will be detached dwellings.

The Yield Plan at **Figure 12** shows the approximate dwelling yield in each sub-precinct or village.



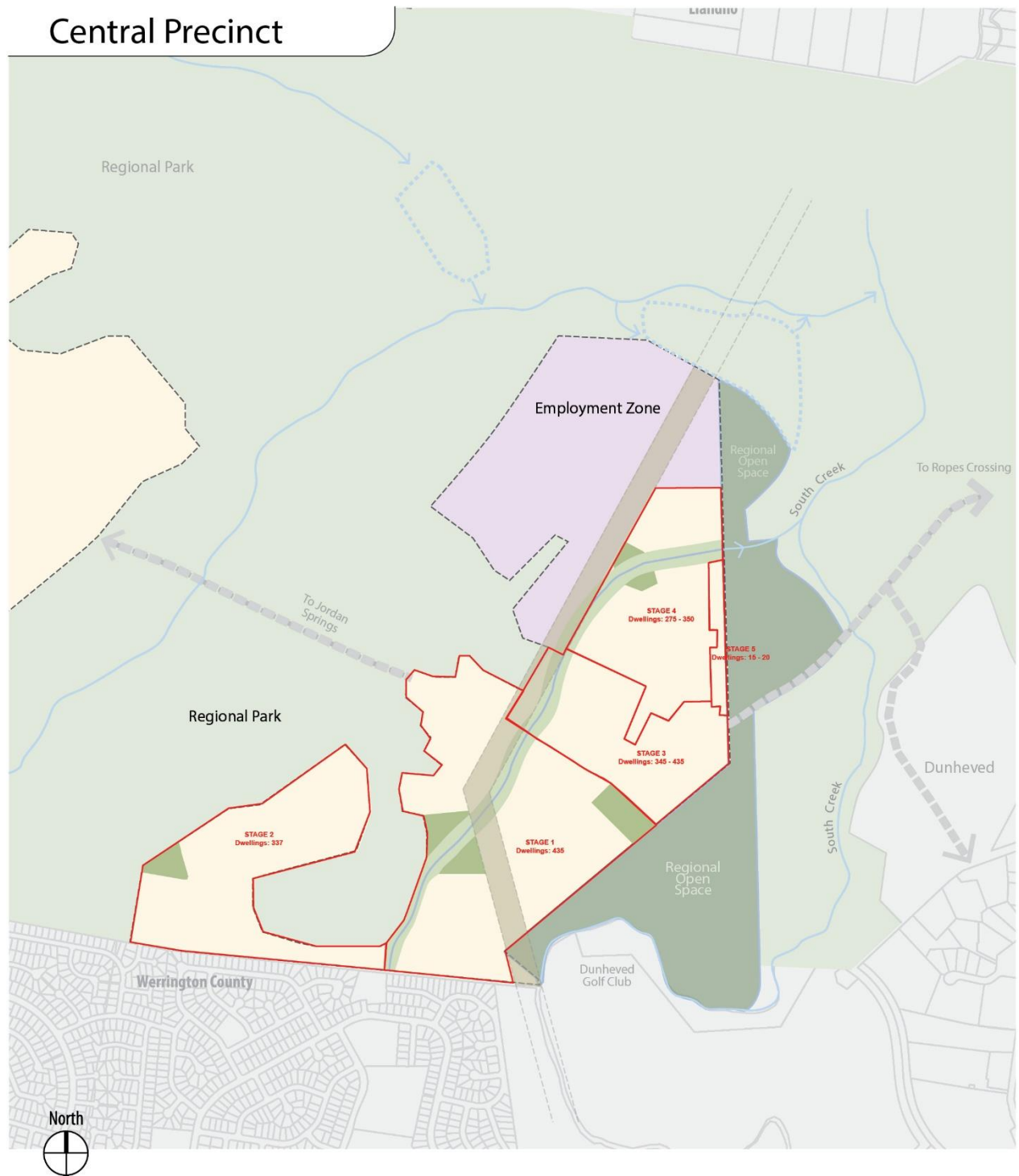
Framework Plan

Scale: NTS

----- Precinct Boundary	----- Zoned Drainage Basins	----- Collector Roads	----- Urban Zone
▨ Village Centre Character Area	----- Riparian Corridor & Drainage Reserve	----- Local Streets	----- Employment Zone
* Village Centre	----- Neighbourhood Parks	----- Road Connection to Existing Network	
* Water Quality Basin	----- Transmission Easements	----- Employment Collector Road	

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 11 – Central Precinct Framework Plan



Dwelling Yield Plan

Scale: NTS

- | | |
|-------------------------|--|
| ----- Precinct Boundary | --- Zoned Drainage Basins |
| --- Stage Boundary | --- Riparian Corridor & Drainage Reserve |
| Urban Zone | --- Neighbourhood Parks |
| Employment Zone | --- Transmission Easements |

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 12 – Yield Plan

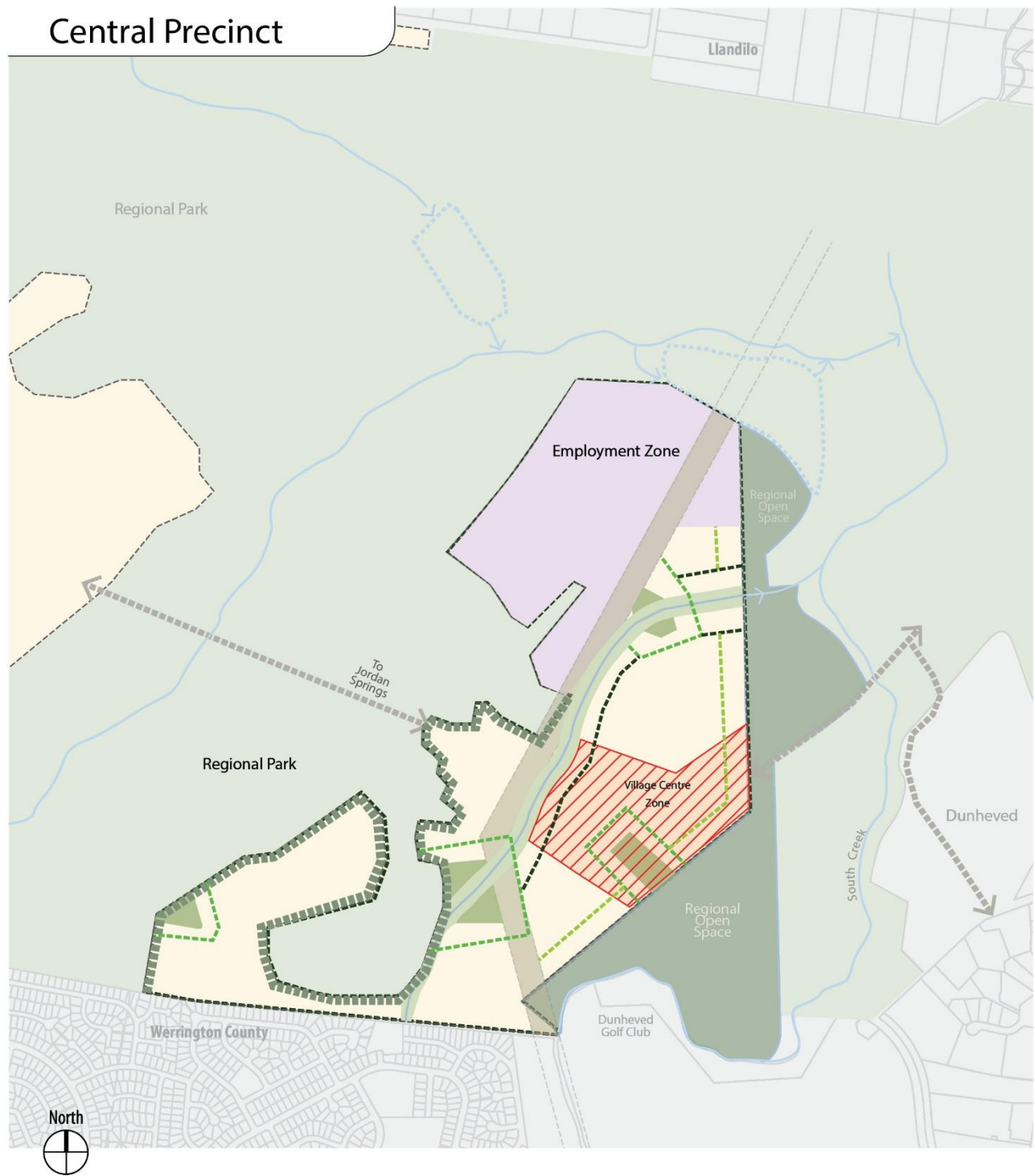
The estimated number of jobs in the Employment zone is 760, incorporating a range of skill levels in light industrial and light manufacturing sectors.

The urban structure outlined by the Framework Plan:

- Identifies **residential and employment development** as the principal land uses;
- Allows for future subdivision within the precinct to **create varying block sizes** to accommodate a variety of land uses;
- Allows for **flexible employment allotments** accommodating predominantly light industrial and light manufacturing uses;
- Identifies the **Open space hierarchy**;
- Provides an indicative **Village Centre Character Area and Regional Open Space hub as a focal point** for the community; and
- Accommodates **housing options and choice to assist in the creation of a diverse community** while meeting the needs of the market.

The Framework Plan has been developed to also accommodate the following:

- Creation of a **network of hike and bike trails** throughout the Central Precinct linking parks, riparian corridors, Regional Open Space, Regional Park and surrounding areas;
- Provision of a **well-connected modified grid street network**, allowing for high levels of permeability for pedestrians, cyclists and motorists. Residents and businesses will be within a short walk of a bus stop;
- Incorporation of **pedestrian and cycle friendly street design** including high quality landscaping and street tree planting to help create the sense of place while providing shade and amenity;
- 3% of all Residential Allotments developed will be provided for the purpose of Affordable Housing which will be dispersed throughout the development area and not be able to be differentiated from other dwellings;
- Creation of an appropriate **interface with the Regional Park and Regional Open Space** via the establishment of asset protection zones and the establishment of uses fronting Regional Park and Regional Open Space areas;
- Integration of built form, street and parkland design to encourage passive surveillance ensuring **safe and usable public areas** where people can meet and interact;
- Provide for the integration of the transmission line with surrounding development through appropriate subdivision design, landscaping, and through potential low-intensity uses, such as pedestrian / cycle paths, access roads and, in the Employment Zone, car parking and outdoor storage areas;
- Promotion of **best practice techniques** for built form and public domain in **conserving the use of energy and water**;
- Incorporation of **design controls for streets, parks, buildings and vehicular access**, to ensure the creation of a high quality urban environment; and
- Integration of **Water Sensitive Urban Design (WSUD)** measures throughout the development as a response to site constraints, detention requirements and water quality.



Character Areas

Scale: NTS

----- Precinct Boundary	----- Zoned Drainage Basins	----- Bushland Edge
▨ Village Centre Character Area	▨ Riparian Corridor & Drainage Reserve	----- Parkland Node
▨ Urban Zone	▨ Neighbourhood Parks	----- Riparian Corridor Edge
▨ Employment Zone	▨ Transmission Easement	----- Regional Open Space Edge

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 13 – Central Precinct Character Areas & Typical Dwelling Types

4.3 Future Character Areas

Detailed built form controls contained within Part 5 (Development Control Strategy) of this Precinct Plan aim to generate buildings that are of an appropriate scale, height, and architectural quality and that address and activate streets within the precinct. This will help create an environment which encourages walking, the use of public transport and passive surveillance of streets and open spaces.

As an overlay to the development controls in Part 5, character areas have been developed as a response to the structure of the Framework Plan. These character areas highlight particular nodes or areas and their desired future character which may require a particular design response to the immediate context. Important character elements and performance criteria are then identified for each character area. The character areas proposed for the site are illustrated in Figure 13, and are as follows:

- Urban Area / Neighbourhood Character;
- Village Centre Character Area;
- Parkland Node;
- Bushland Edge; and
- Employment Zone.

Urban Area/Neighbourhood Character

The Urban Area will have the characteristics of a well-designed residential neighbourhood based on the traditional neighbourhood structure of a public space or neighbourhood park at its heart. The quality of the public realm with tree lined streets and a diverse range of housing types will also help define the characteristics of the Urban Area. This character will respond to the natural attributes of the site and in particular, through the layout of streets and parks, will have a strong connection to the Regional Park.

The street structure will be a modified grid form with a clear hierarchy expressed through street and verge widths, landscaping and the level of pedestrian amenity. Indigenous and cultural tree planting will be a key characteristic in streets and parks while links (physical and visual) to riparian corridors and the Regional Park will ensure the landscape characteristics of the site are drawn into the neighbourhoods.

The Urban Area will be developed according to the following design principles:

- Housing diversity and mix will support choice, affordability and adaptability;
- A variety of lot sizes will be made available on most streets, encouraging a housing mix that will assist with the creation of dynamic and diverse streetscapes;
- Predominant housing types will be detached housing;
- Building design should relate to setbacks and articulation in order to generate a positive relationship to the street, and create outlook and passive surveillance;
- Porches and other elements integrated with the façade of the building will help articulate the built form and build a stronger relationship to the street; and
- Houses will be built at an appropriate scale to the size of the lot on which they sit, with attention to setbacks, private open space, height, and overall floor area.

Village Centre Character Area

The Village Centre Character Area forms the heart of the Central Precinct and will provide a small-scale, vibrant mixed-use village centre within easy access of the surrounding residential neighbourhoods and the Employment zone. The focus of the village centre will be a main street containing a mix of retail, commercial, community and education facilities serving the local resident population and workforce. There is anticipated to be approximately 5,000m² of commercial floor space area provided. The ground floor may accommodate shops, offices, markets, restaurants, cafes and community uses to create a lively pedestrian oriented urban environment, with upper level residential, office and community uses housed in 2 to 4 storey (up to 6 storey apartments) buildings oriented to the street. Education and employment uses will also be a key element in the fabric of the village centre.

Residential opportunities within the village centre will be varied with apartments, attached houses, warehouse housing, shop top housing and some semi-detached and detached housing proposed to serve a broad spectrum of the community. The design of the village centre will encourage a high degree of social interaction and activity in the public domain.

Public spaces of appropriate scale will promote casual social interaction and informal gathering, as well as allow for outdoor civic and cultural activities. These spaces will have active edges, which enhance casual surveillance and create a sense of passive ownership, promoting safety and security. They will also be designed to meet the needs of all segments of the population. In particular, the public domain will provide safe spaces for social interaction and expression.

The village centre will have a strong relationship with the adjoining active recreation facilities planned in the Regional Open Space in order to promote the concentration of activity and accessibility to these facilities, while linking users of these facilities with local amenities and services.

The village centre is to be developed according to the following design principles:

- A walkable pedestrian-friendly environment is to be established with generous footpaths fronted with active ground level uses. Most residents in the Central Precinct will be within a short walk (5-10 minutes) of the village centre.
- Accessibility is to be encouraged through design for all people to ground level uses where possible.
- A main street is to be established, framed with 2 to 4 storey buildings.
- Main street parking is to be maximised, additional parking is to be located primarily in small, shared parking areas located at the rear of buildings and on public streets.
- Public transport is proposed to service the village centre and connect with the existing regional public transport network, and surrounding residential and employment neighbourhoods.
- Mixed-use development is to be a key element of the village centre and should focus on the main street area, and transition to residential uses at the edge of the Village Centre Character Area.
- Upper level building uses may be established on certain specific sites, including residential, education, community, restaurant, and office uses.
- Upper level setbacks are to be provided in building design in appropriate locations to provide for varied streetscapes and to allow for solar access.
- Corner design elements which accentuate key street junctions and nodes are encouraged.
- Civic Spaces are to be the focus for activities in the precinct, with strong interaction with the adjacent active recreation facilities planned for the Regional Open Space. This may include a civic interface with the main street and

opportunities for the sharing of the active recreation facilities by a range of users including sporting groups, schools and the general community.

- Landscaping is to be robust and contribute to the identity of the Village Centre Character Area.
- High-quality street trees are to be used to provide shade and further enhance the use, enjoyment and character of streets in the village centre.
- Species selection for landscaping is to consider potential soil salinity issues/conditions.

A concept plan setting out proposals for the development of the Village Centre is required to be lodged with the first subdivision application relating to the Village Centre. The concept plan shall incorporate the above design principles and shall outline:

- Proposed urban structure and public domain elements, including proposed land uses and proposed relationship with the Employment zone and the Regional Open Space.
- Proposed dwelling yield and types.
- Proposed road network and car parking arrangements.
- Proposed pedestrian and cycle network.
- Proposed staging of development.

Parkland Nodes

Parkland Nodes are areas within the Urban/Neighbourhood Areas which are focused on neighbourhood parks and within close proximity to the public transport system. They cover the area within approximately 75 metres of the edge of a District Park, Neighbourhood Park, Local Park, Pocket Park or Corridor Open Space. These nodes will provide the opportunity for higher density of housing due to the proximity to, and amenity of, a neighbourhood park, or a bus stop. Nodes will have a residential focus, with a mix of all housing types.

The Parkland Nodes are to be developed according to the following design principles:

- Fronting uses (i.e. uses that face onto the public domain) are required for all parcels overlooking nodal areas. This will enhance the security and passive surveillance of neighbourhood parks and bus stops. The design of fronting uses is to ensure that the amenity of any adjoining open spaces is appropriately protected in terms of solar access. Canyon building effects adjacent to open space are to be avoided.
- Connectivity between nodes will be encouraged to enhance the legibility of the precinct for pedestrians, cyclists and motorists. The connectivity will be in the form of pedestrian links along local streets including pedestrian priority streets and collector streets, and will form part of the street hierarchy. This connectivity will be emphasised by a formal approach to street tree planting along these streets. This connectivity should also link these nodes with the village centre.

Bushland Edge

The Bushland Edge area refers to areas fronting the Regional Park with residential characteristics which respond to the bushland setting and interface. Residential detached housing of 1-2 storeys will characterise the built form in this area. This area is also characterised by easy access to the Regional Parkland and generally a five-minute walk to local/neighbourhood parks. It is intended to provide a suitable

residential built form adjacent to the natural landscape provided by the Regional Park.

The Bushland Edge is to be developed according to the following design principles:

- Dwellings will be required to meet any asset protection zone requirements and setbacks for built form.
- Dwellings will be designed to address the street and activate parkland edges enhancing passive surveillance and views across parkland.
- The Regional Park interface will be emphasised and incorporated within neighbourhood design.
- Perimeter streets will front the Regional Park where possible, allowing houses to face onto the Park.

Employment Zone

The Employment Zone will accommodate a range of building types including light industrial/manufacturing factory strata units, warehouses/workshops and ancillary showrooms and offices. Detailed built form controls contained within the DCS at Part 5 of this Precinct Plan aim to generate buildings that accommodate a variety of industry types and provide a high quality built form. Flexible sizes of allotments will focus on medium to light industry. A diverse range of building types will be developed, with lots ranging from 1,000sqm for Torrens Title development and 150sqm for Strata Title development. Buildings will be designed to address and activate streets.

The street structure will be a modified grid form with a high level of pedestrian amenity. This will create an environment which encourages walking, the use of public transport and passive surveillance of streets and open spaces.

The Employment Zone is to be developed according to the following design principles:

- Streetscape activation will be achieved through the provision of continuous fronting uses at street level, minimising the impact of car parking, loading and storage areas;
- Buildings will be built at an appropriate scale to the size of the lot on which they sit, with attention to setbacks, height, and servicing;
- The variety of built forms and uses will assist with the creation of diverse streetscapes;
- The unique setting offered by the employment precinct “within” a Regional Park will be emphasised;
- Access to the services and facilities offered by the adjacent to the Village Centre Character Area will be provided;
- Industries will be of appropriate employment densities to be environmentally, economically and socially sustainable; and
- Provide for appropriate integration of the transmission line easement with surrounding employment uses, through possible low intensity uses such as access roads, car parking, and storage areas Subdivision Layout Principles.

4.4 Subdivision Layout Principles

Urban Zone

The subdivision layout for the Urban Zone within Central Precinct will be based on design principles which aim to:

- Establish a permeable modified grid street system promoting connectivity and ease of movement for pedestrians, bicycles and vehicles;
- Overlay a clear and simple hike and bike network for recreation and to provide links throughout the neighbourhoods;
- Ensure a safe environment by promoting crime prevention through urban design;
- Create a legible street hierarchy through the use of appropriate types of streets responding to intended use and scale, designed to calm traffic and help identify character areas;
- Ensure that vehicle accessibility to the Employment zone is maximised, with particular emphasis on the connectivity with the nearby North and South Dunheved Precincts and the existing Dunheved employment area;
- Minimise potential land use conflicts between the Employment and Urban zones;
- Provide an appropriate interface to the transmission line easement through road design and lot orientation and additional buffering to the existing 70 m wide easement through landscape outcomes such as appropriate street tree planting, the proposed north-south riparian corridor and local open space areas;
- Provide views of and links to the Regional Park and Regional Open Space particularly for pedestrian access integrated with the Plan of Management for the Regional Park;
- Promote ease of movement and walkability including short block lengths to reduce vehicle speed and minimise walking distance;
- Promote connections and permeability between villages, to the village centre and other nodes via for a clear and simple trail and path network;
- Provide opportunities for suitable residential interface with existing residential suburbs to the south;
- Provide an appropriate interface between neighbourhoods and the Regional Park and activate parkland edges and building frontages to promote passive surveillance and safer communities; and
- Establish housing diversity and mix within neighbourhoods and provide a variety of block sizes, enhancing permeability.

Landscape design principles include:

- Strengthen the visual recognition of the street hierarchy through landscape treatments;
- Provide appropriate and equitable distribution of neighbourhood open space;
- Reinforce neighbourhood identity through the placement of highly visible parks, and the creation of strong pedestrian links between key neighbourhood elements;
- Provide green links between riparian corridors and regional parkland;
- Provide space for street trees and landscape treatment while accommodating paths and trails; and
- Ensure landscape character dominates the street and trees define the space providing shade and amenity.

Employment Zone

The subdivision layout for the Employment Zone in the Central Precinct is to demonstrate the following design characteristics:

- Ensure a safe environment by promoting crime prevention through urban design;
- Encourage a high quality built form by encouraging activity on elevations fronting streets, ensuring buildings address streets;
- Ensure that built form establishes a strong relationship to the Regional Open Space and Regional Park areas;
- Provide convenient access to services and facilities in the adjacent Village Centre Character Area;
- Ensure development contributes to cohesive streetscapes and desirable pedestrian environments;
- Maximise the separation of traffic generated by employment related land uses from traffic generated by residential uses in the Urban zone;
- Minimise potential amenity impacts from employment related land uses on residential development in the Urban zone;
- Facilitate collector road access to existing and planned Employment areas to the south-east;
- Encourage pedestrian use of streets to enhance pedestrian safety and security;
- Promote energy efficient building orientation and envelopes;
- Avoid street views of long building elevations not screened by landscaping or that display monotonous building forms and design; and
- Encourage the provision of a range of distinctive building forms that promote the identity of each use.

4.5 Dwelling Density

Dwelling density is expressed in SREP 30 as a performance objective relating to transport. Specifically, clause 30(6) of the SREP states:

*“Urban form is to maximise the potential for public transport, walking and cycling to replace car travel, with an **overall net neighbourhood density target** of at least 15 dwellings per hectare.” (Emphasis added)*

Accordingly, the applicable target dwelling density of 15 dwellings per hectare is to be considered in the broader context of all relevant opportunities and initiatives to replace car travel with public transport, walking and cycling. That is, dwelling density is to be considered in conjunction with factors such as:

- The appropriate location of land uses within the precinct, such as retail, community and open space, that maximises accessibility through walking, cycling and proximity to public transport routes.
- An appropriately designed street network that promotes permeability and accessibility for pedestrians, cyclists and public transport users.
- Provision of a safe and useable network of pedestrian and cycle paths.
- Developer contributions, through both State and local level agreements, towards public transport initiatives and improvements.

Another important consideration is how dwelling density is defined and applied during the on-going implementation of the development. Based on the description of dwelling density in clause 30(6) of SREP 30, it is to be applied on the basis of:

- a) the overall St Marys development, i.e. dwelling density is measured across all areas zoned Urban under SREP 30 rather than individual precincts;
- b) the net density achieved, i.e. measured according to net developable area² rather than gross developable area; and
- c) the density being clearly expressed as a target, rather than a fixed requirement.

Each residential subdivision DA shall indicate the total number of dwellings proposed in the subject subdivision, the cumulative dwelling yield of all proposed and approved subdivisions, and the proposed dwelling density for the subject subdivision.

4.6 Phasing of Development

The development of the Central Precinct is to be carried out in stages. The indicative staging of the development of the Precinct is shown at **Figure 14**.

It is envisaged that development will commence in the central portion of the Precinct to enable collector road connections to both the east and west. Development will then progressively proceed to the southern residential neighbourhoods, before moving north to include the Village Centre and the Employment zone. All infrastructure and services, including public transportation, will be provided at the relevant stages of development where and as necessary. As the site is progressively developed, more than one phase may be under construction at any particular time. Filling works will be undertaken in the initial phases of the development of the precinct. Subdivision works are currently forecast to commence in around 2016 and continue over an eight to ten-year period.

4.7 Access and Movement

The 2009 version of this Precinct Plan was supported by a Traffic and Transport Report prepared by SKM for the precinct (see Appendix N). Given the detailed earlier studies and reports on the traffic and transport for the wider St Marys site, including the St Marys Development Revised Transport Management Plan Traffic Study (Sims Varley 2004) and the St Marys Development Revised Transport Management Study (SKM 2007), that report's primary purpose was to further detail the relationship of future development of the precinct with adjoining land and precincts and future integration of transport for the balance of the site and existing surrounding neighbourhoods. Updated traffic modelling is currently being prepared by WSP Parsons Brinckerhoff with a summary provided in the memorandum at Appendix O.

This Amendment No. 2 to the Precinct Plan results in no material changes to the Central Precinct's connection points to the external road network, and traffic movement increases and modifications within the development will be supported through updated traffic modelling (to be finalised).³

² Net developable area is defined as "the land occupied by development, including internal streets plus half the width of any adjoining access roads that provide vehicular access, but excluding public open space and other non-residential land."

³ In response to the Penrith City Council's Policy Review Committee resolution of 9 May 2016, Penrith City Council, Lendlease and St Marys Land Limited are continuing discussions regarding the renegotiation of part of the St Marys Penrith Planning Agreement relating to the timing, triggers

The Central Precinct is planned to provide high accessibility by buses, pedestrians, cyclists and general traffic, and to ensure effective links to surrounding regional road and public transport networks. The planning of the precinct focuses on securing a transport network that effectively caters for all modes of transport, promotes sustainability, and reduces car dependence. The proposed transport system will achieve the performance objectives of SREP 30 and the EPS.

The development principles that have been adopted for the Central Precinct transport system are:

- Ensure that the street system for the Central Precinct establishes a hierarchy;
- Ensure that the road network for the Central Precinct effectively connects to the external road network via collector road linkages to the Western Precinct to the west and the North and South Dunheved Precinct and Ropes Crossing to the east;
- Design road linkages to provide routes for traffic generated by the Employment zone that avoid residential areas, minimising the potential impacts on the locality;
- Concentrate employment land-related traffic to the east towards the North and South Dunheved Precincts;
- Provide for future potential bus-only access to Werrington County to the south;
- Ensure that the system of public streets within the Precinct is designed to balance the needs of pedestrians, cyclists, motorists and buses;
- Ensure that the vehicle movement network allows the opportunity for multiple routes to destinations;
- Ensure that road and pedestrian linkages with the surrounding areas provide access to employment opportunities for neighbouring residential areas;
- Design the road hierarchy to provide flexibility as to the future lot sizes, to suit a wide range of future employment and urban uses;
- Establish good public transport links at the early stages of development, and ensure public transport is efficient, safe and reliable to increase patronage and reduce car use; and
- Allow for the future integration of the cycle network with the cycleways proposed within the Regional Park (subject to the Regional Park Plan of Management prepared by OEH).

Site Access

Vehicular access for the Central Precinct is via the existing zoned road corridor (to both the east and west) which will provide access to and from the neighbouring Precincts within the St Marys Project.

In addition to this, an external bus only access point, at the south of the Central Precinct, connecting it with the Werrington Downs residential area at Leichhardt Avenue, is identified in the SREP 30 Structure Plan. Appropriate measures would be undertaken preventing private vehicular access via this entrance.

and delivery of the traffic and transport infrastructure required to the extent necessary to support the St Marys Release Area as required by section 17.2 of the St Marys Penrith Planning Agreement. An amendment to the St Marys Penrith Planning Agreement and/or other satisfactory arrangements that reflect the terms reached as an outcome of renegotiation will be executed prior to Council's endorsement of Amendment No. 1 to the Central Precinct Plan. Prior to endorsement, further changes may be made to the Central Precinct Plan to reflect those terms reached as an outcome of the renegotiation, as required and as agreed by the parties.

Internal Street System

The objectives for the Central Precinct street system are:

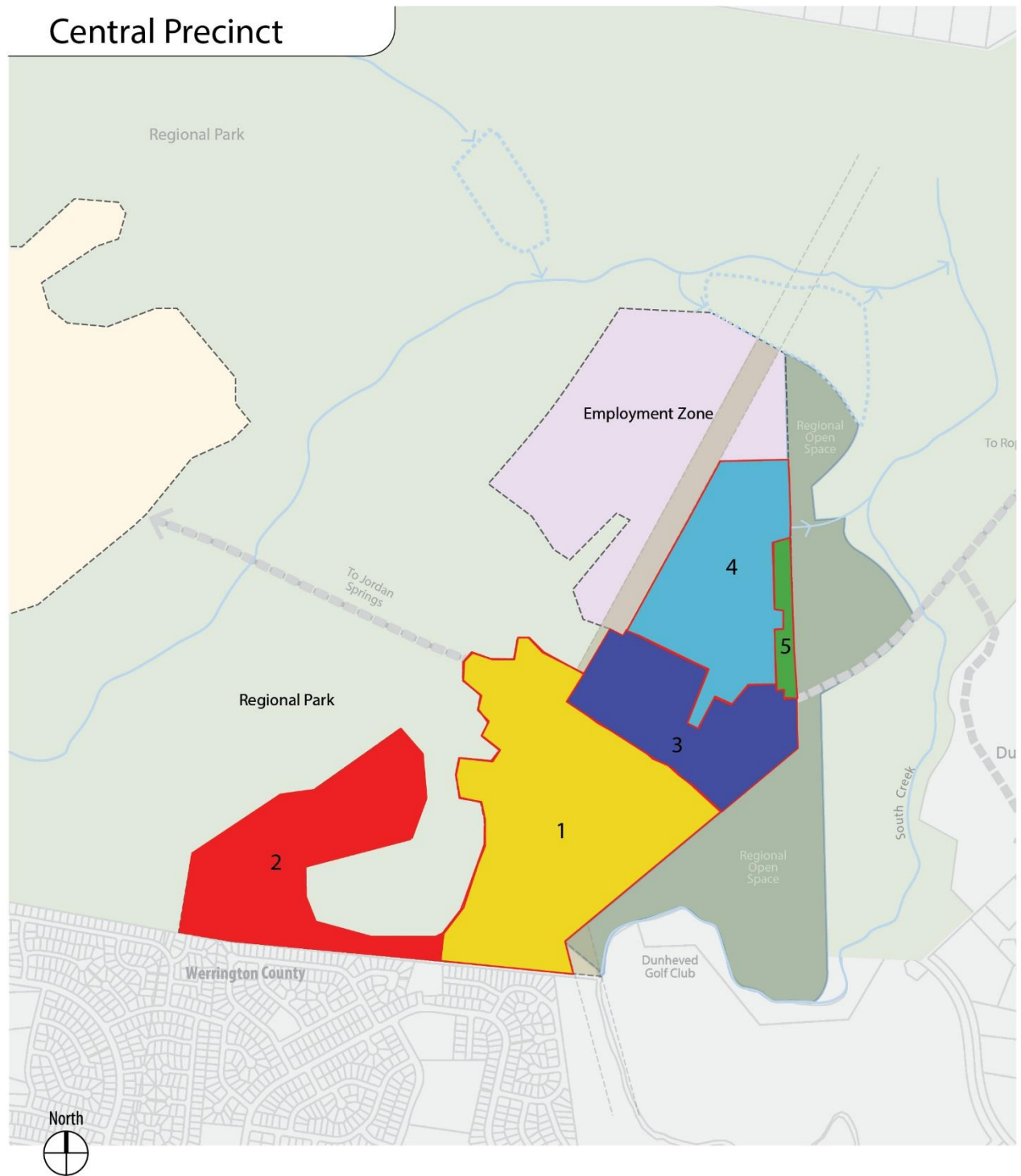
- To establish a modified grid form street layout allowing for a high level of permeability and that supports the creation of a highly connected urban fabric;
- To ensure that the system of public streets within the Central Precinct balances the needs of pedestrians, cyclists, motorists and buses;
- To ensure that the movement network allows the opportunity for multiple routes to destinations, whilst generally orienting traffic to progressively higher order streets within the hierarchy;
- To ensure that the future street hierarchy clearly reflects the specific role of each street in the urban fabric of the Central Precinct;
- To ensure that the hierarchy of the streets is clearly discernible through sensitive management of the carriageway width, on-street parking, driveway access, building setbacks, pedestrian amenities and landscape character;
- To ensure that the street layout developed for the Central Precinct minimises potential impacts on other neighbourhoods in the locality;
- To ensure that the layout of streets allows for development to front streets, parks and natural areas, and encourages surveillance around local parks and other public spaces;
- To establish street orientation that maximises potential solar access to individual lots; and
- To allow for street block sizes to be designed to achieve maximum permeability.

The design standards for the collector road and local street typologies are provided in Part 5 and Appendix C.

Street Hierarchy

An indicative street hierarchy for the Central Precinct is shown in Figure 15, which shows:

- Collector Roads;
- Local Streets;
- Accessways;
- Employment Streets (local – within the employment area); and
- Employment Street (collector – for access to the employment area).



Development Phasing

----- Precinct Boundary	Transmission Easement	Stage 4
Employment Zone	Stage 1	Stage 5
Zoned Drainage Basins	Stage 2	
Riparian Corridor & Drainage Reserve	Stage 3	

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 14 – Phasing of Development

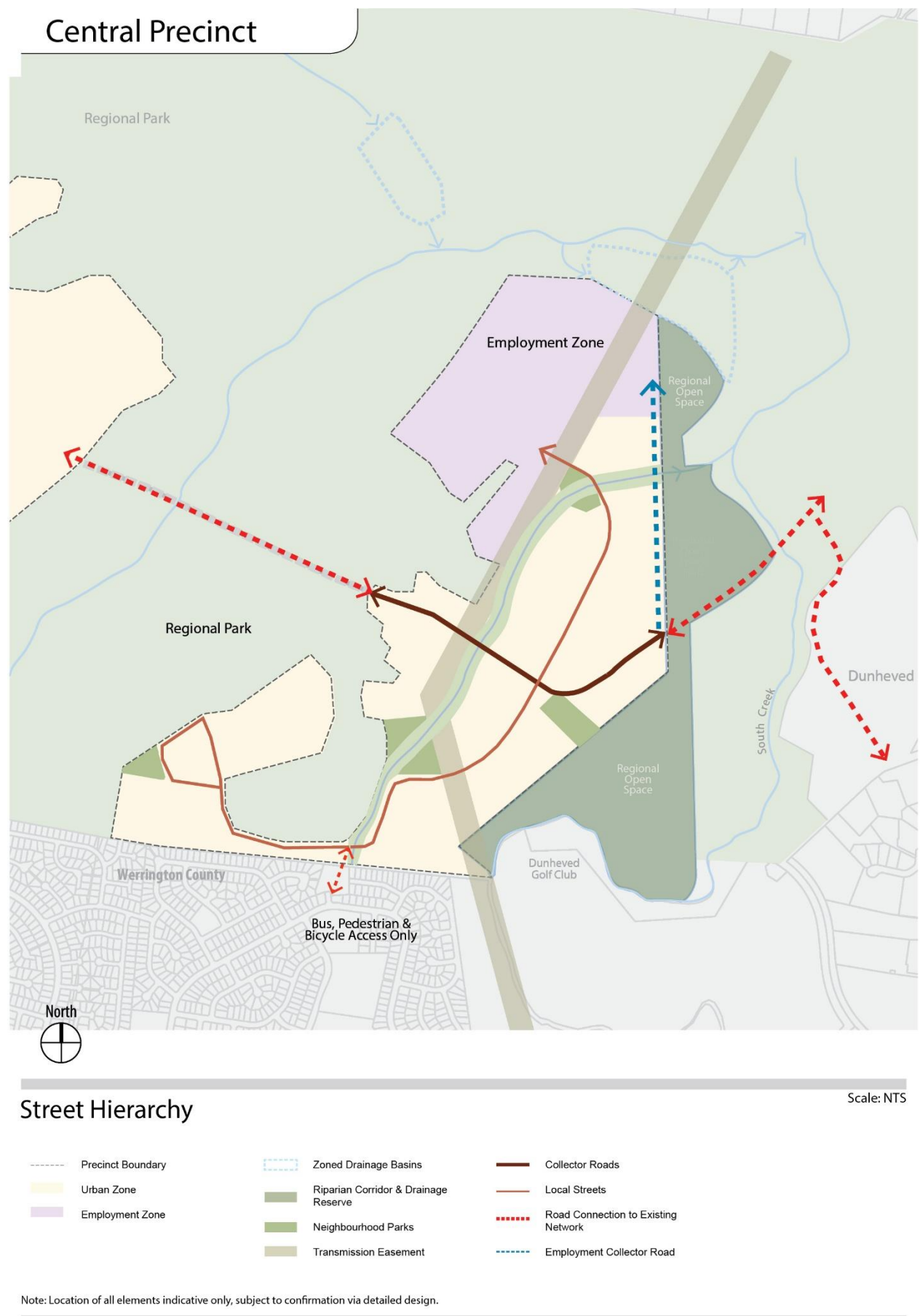


Figure 15 – Central Precinct Street Hierarchy

As indicated on the Street Hierarchy Plan above, access from the west is via a primary road system formed by a main road with a spur to the southern residential area (and the bus only access point). Access from the east is proposed to be split into two collector roads that would distribute the traffic between the internal site access points and different sub areas within the Precinct. Traffic generated by the Employment zone would generally use the northern collector road, while other traffic would generally use the southern collector road adjacent to the Village Centre Character Area.

The predicted traffic volumes on the proposed collector roads on the site could be accommodated by a single carriageway in both directions. Figure 15 identifies the initial “collector” and “local” roads. The alignment is indicative and subject to change during detailed design. The road cross sections are included in the Central Precinct Plan DCS at Part 5.

Traffic Flows

To examine traffic flows on the internal primary road system, traffic travelling to/from five sub areas within the Central Precinct was assessed by SKM for the 2009 Precinct Plan which addressed the impacts of the original vision for the Central Precinct. That assessment found that peak hourly traffic volumes at representative locations on the primary internal road network would generate between 270 and 660 vehicles (two way AM peak hour flow) based on the originally envisaged population of the Central Precinct. An updated traffic model by WSP Parsons Brinckerhoff (refer to Appendix O) has been prepared.

It is noted that Roads and Maritime Services (RMS, previously the RTA) guidelines suggest that in general collector roads should carry between about 200 and 1000 vehicles per hour. For collector roads with significant residential frontage, the guidelines suggest the following limits to protect residential amenity:

- 300 vph to achieve the environmental goal and 500 vph as the environmental limit.

These values are not considered as absolute limits and in some circumstances it may be necessary for traffic flows on collector roads to exceed these volumes.

Residential areas fronting collector roads would have traffic volumes below the RMS environmental limit. The traffic volumes on the collector roads would also be below the RMS' guideline functional limit of 1000 vehicles per hour.

Internal Intersections

In order to provide sufficient capacity, and control traffic speeds, it is proposed that roundabouts be provided at the key intersections on the road network. These will be determined as the plan evolves through the DA process.

Initial analysis indicates that such roundabouts would operate well within capacity (Level of Service A to C). Other intersections would be priority controlled through measures such as a Stop or Give Way sign, or tee-intersection rule controlled. Similarly, traffic signals can be considered where appropriate, such as within the Village Centre environment where justified under the applicable RMS warrants for signalisation.

Speed Control and Traffic Management Strategies

Possible measures to minimise the potential for “rat-running” or shortcut routes through the Central Precinct include roundabouts, appropriate speed limits and raised “wombat” type pedestrian crossings at appropriate locations.

Traffic speeds can be managed through techniques such as limited street lengths, incorporation of street bends and slow points including mountable roundabouts, central islands, road narrowings, parking embayment with kerb blisters.

Such measures will be determined as more detailed planning evolves through the DA process.

Pedestrian and Cycle Network

Detailed site planning will promote walking and cycling within the Central Precinct and complement connections to the local and regional transport systems. The development of the pedestrian and cycle network is an important component of the ongoing planning for the site.

The routes will be enhanced by providing effective and safe access, good quality materials, visual amenity and clarity in route identification. The indicative pedestrian and cycle plan network shown in Figure 16 allows for:

- Pedestrian priority streets with footpaths on both sides, increased verge widths and additional landscaping and street tree planting with the aim of providing enhanced amenity;
- A shared pedestrian and cycle network linking with key community facilities, services, parkland, and the village centre; and
- Links to commuter cycle networks beyond the site and employment lands within and beyond the site, including existing suburbs to the south.

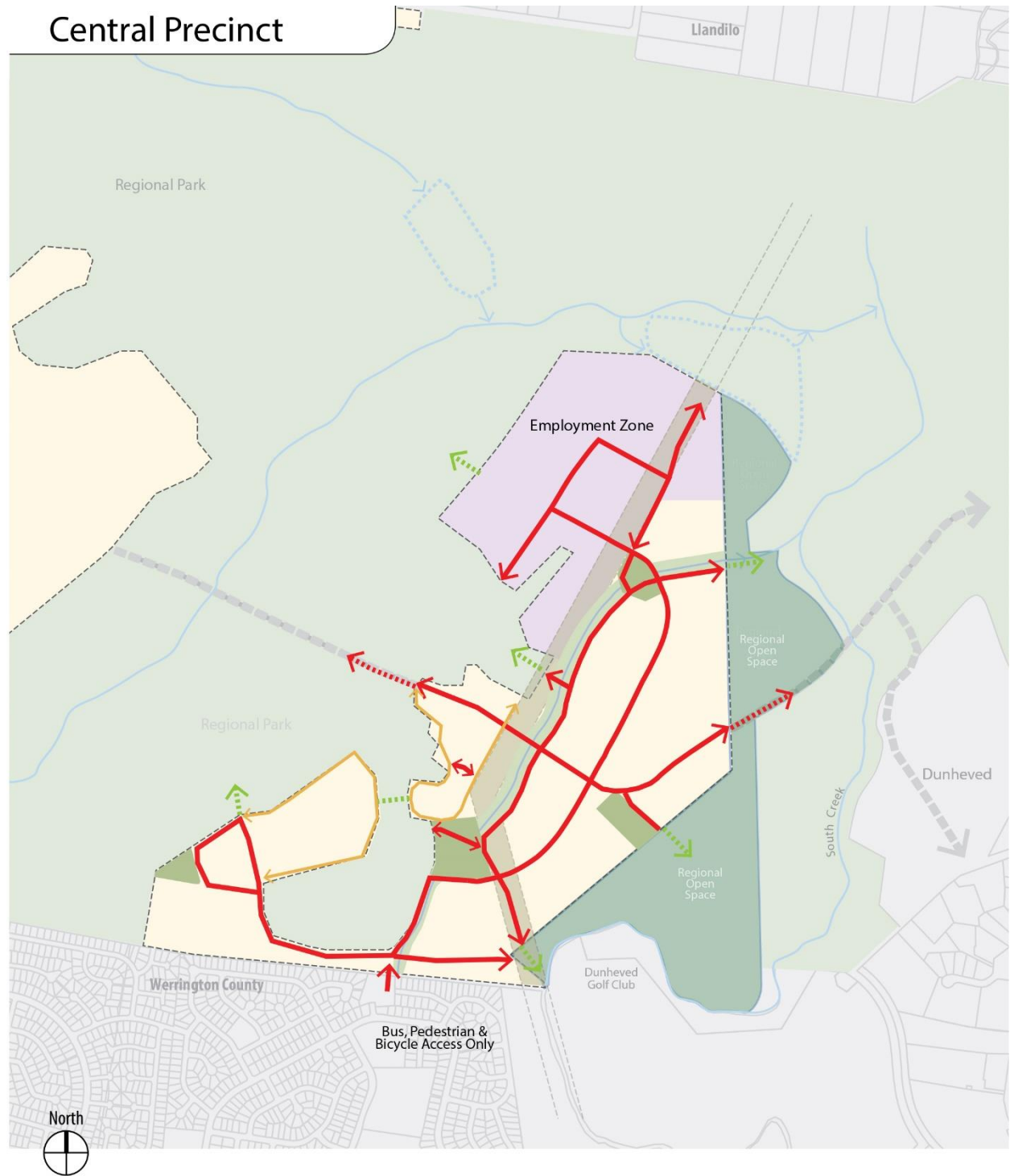
The pedestrian and cycle network is generally consistent with the Wianamatta Regional Park Masterplan in terms of access the Central Precinct and the Regional Park.

Public Transport

Transport management studies have concluded that bus services will be the most effective form of public transport for the St Marys site. To encourage the use of public transport the proposed street hierarchy is designed to accommodate the extension of bus services from Ropes Crossing and planned services through the North and Dunheved Precincts to the east and from the Western Precinct to the west. There is also the potential for a future bus connection from the Central Precinct to Werrington County to the south, as per the SREP 30 Structure Plan. The provision of services via this linkage is subject to further discussions with PCC (regarding connection through existing open space adjacent the Precinct's boundary) and local bus service providers.

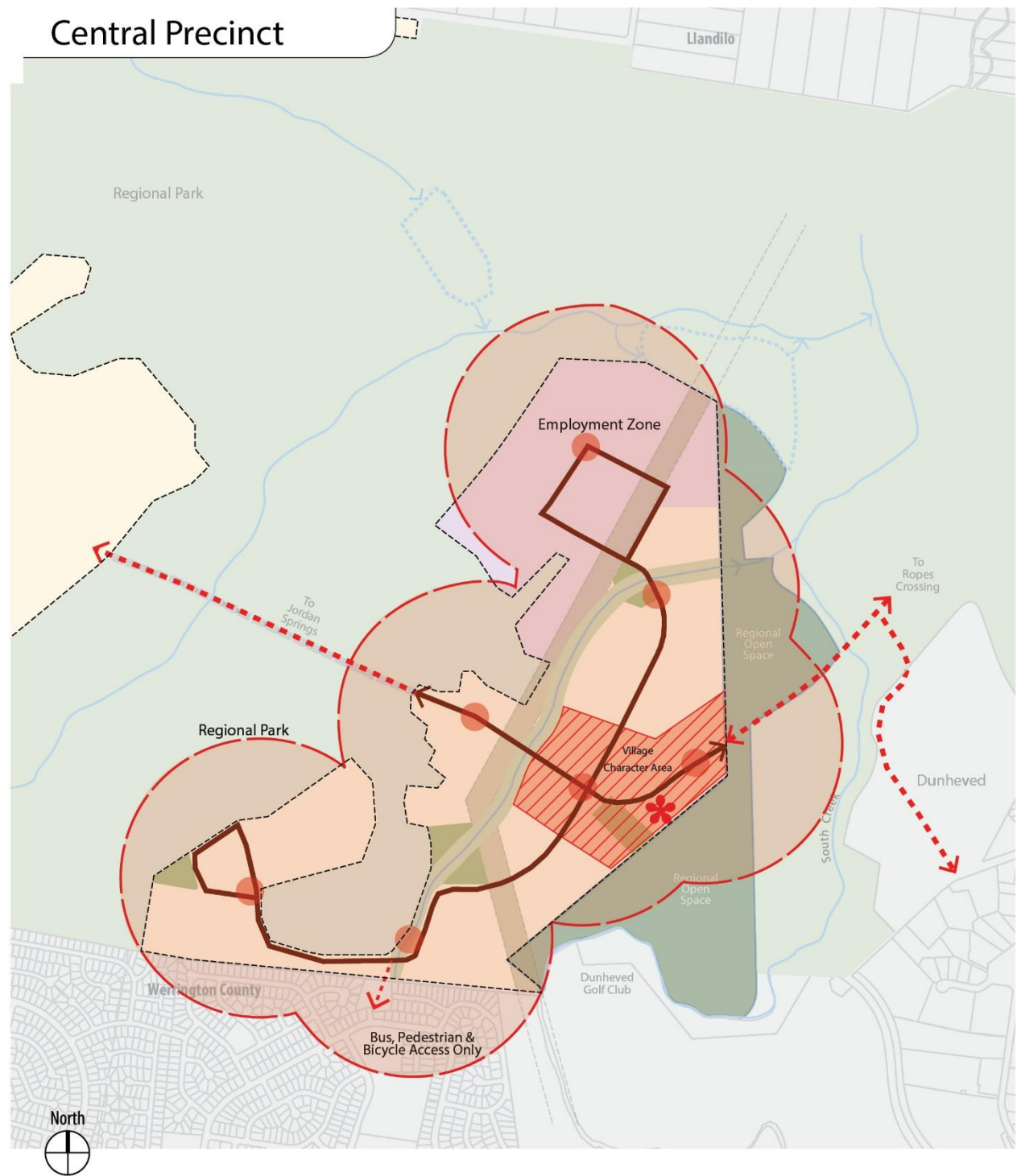
The provision of public transport services will ensure the connectivity of the precinct with surrounding neighbourhoods and to the established transport systems serving the greater metropolitan area, enhancing access to jobs, shops, services and opportunities in the wider region.

The potential location of bus stops within the Central Precinct is shown in Figure 17. These are located with the objective of the majority of future residents, workers and visitors being within a 5-minute walk (approximately 400 metres) of these bus stops.



Pedestrian and Cycle Network

Figure 16 – Indicative Pedestrian and Cycle Network



Transport Network

Scale: NTS

- | | | |
|---------------------------------|--|---|
| ----- Precinct Boundary | ----- Zoned Drainage Basins | Road Connection to Existing Network |
| ▨ Village Centre Character Area | ▨ Riparian Corridor & Drainage Reserve | — Potential Bus Route |
| * Village Centre | ▨ Neighbourhood Parks | ● Potential Bus Stops |
| ▨ Urban Zone | ▨ Transmission Easements | ● 400m Walking Distance |
| ▨ Employment Zone | | |

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 17 – Central Precinct Transport Network

4.8 Conservation of Natural Values

The development of the St Marys site has been planned so as to support the goal of ecologically sustainable development. The proposed landscape design recognises and responds to the existing natural character of the Central Precinct. Existing significant trees are to be retained where possible where they are appropriately located within areas of open space. These potential tree preservation areas are indicatively shown in Figure 7 – Constraints and Opportunities.

A representative and significant proportion of the natural values of the overall St Marys site will be protected within the Regional Park that is to be dedicated to the State Government.

The establishment of the Regional Park is the foremost conservation measure that accompanies development within the overall St Marys site. The Regional Park will protect the major occurrences of endangered woodland and forest communities as well as the habitats of threatened and regionally significant species.

The Regional Park is to be managed by the NSW National Parks and Wildlife Service (NSW NPWS) in accordance with a Plan of Management that will address the provision of appropriate recreational facilities and the protection of conservation values. The transfer of the Regional Park has commenced, and will occur progressively over time.

The development of the Central Precinct may result in the removal or disturbance of several EECs, including, Cumberland Plain Woodland, Swamp Oak Floodplain Forest, River flat Eucalypt Forest, Shale-Gravel Transition Forest, and Freshwater Wetlands. The examples of these communities within the Central Precinct are highly degraded and consist mainly of sparse regrowth (in the large proportion of cases younger than 50 years of age). The conservation value of these communities (where they occur) has been seriously compromised and the loss of this vegetation would not constitute a significant loss in the context of the wider conservation through the establishment of the Regional Park.

Significantly larger areas of these communities are present and will be conserved within the Regional Park.

The CPW in the Central Precinct is under threat from edge effects whereas the CPW in the Regional Park is more secure and will be adequately managed to reduce such threats, particularly where the CPW is contained in large blocks with a small edge to area ratio. Therefore, the loss of low quality CPW from the precinct is not considered to significantly impact on the local occurrence of the community because high quality CPW is conserved in the Regional Park. If a final determination was made to list CPW as a CEEC, the further field studies that are to be undertaken for the flora and fauna assessments for each development application in the Central Precinct would ensure ongoing assessment of the critically endangered ecological community in terms of the seven part test.

Threatened species (under either the TSC Act and/or EPBC Act) found and recorded on the wider St Marys site and with the limited potential to be found within the Central Precinct include:

- Large Footed Myotis (*Myotis adversus*)
- Greater Broad-nosed Bat (*Scoteanax rueppellii*)
- Eastern Freetail Bat (*Mormopterus norfolkensis*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)
- Latham's Snipe (*Gallinago hardwickii*) – migratory bird species recorded in wetland habitat adjacent to the transmission line easement in the Central Precinct
- Swift Parrot (*Lathamus discolor*)

- The Speckled Warbler (*Pyrrholaemus sagittata*)
- The Black Bittern

The potential impact on these species is unlikely to be significant given the existing habitat is severely degraded, immature or fragmented. It is most likely that threatened or other species would be most commonly found within the Regional Park, given the quality of habitat.

The foremost mitigation measure for threatened species and ecological communities is the establishment of the 900 ha Regional Park. Additional mitigation measures and development principles that have been adopted for vegetation and biodiversity within the Central Precinct are:

- Retention of stands of trees and vegetation where possible and retention of significant stands of trees and vegetation, where practicable, in development areas, and inclusion in open space to provide habitat for native fauna species;
- Weed control;
- Use of clean fill;
- Habitat regeneration where possible;
- Control of feral and over-abundant native animals through planning during construction phase;
- Control of domestic animal access;
- Local native plant species and species of conservation significance (including threatened species) be included in the landscape design for the Precinct, including endemic species as road trees and landscaping of public places; and
- Infrastructure is to be designed and located to minimise potential adverse impacts on the conservation values of the land.

Domestic and Feral Animal Management

Cumberland Ecology has prepared a Feral and Domestic Animal Management Strategy to address these potential impacts. This report is at Appendix K.

The objective for management of domestic and feral animals is:

- To minimise the potential for domestic animals within the Central Precinct to impact on native flora and fauna values;
- To ensure that development of the Central Precinct does not directly or indirectly increase populations of, or improve habitats for, feral/exotic pest animals and over-abundant native species;
- To minimise the potential for feral/exotic pest, over-abundant native and domestic animals to impinge on the conservation values of the adjoining Regional Park; and
- To ensure that development of the Central Precinct does not exacerbate any “Key Threatening Process” under the *Threatened Species Conservation Act 1995* or the *Environmental Biodiversity & Conservation Act 1999*, including predation or grazing by feral animals.

The strategies proposed to ensure these objectives can be met and to control feral, exotic and pest animals are included at Appendix K. These include:

- Minimising the dispersal of the Plague Minnow into created water bodies;
- Preventing access to rubbish during the construction and occupation phases;
- Avoid landscaping with hybrid *Grevillea* and *Callistemon*;

- Destroying rabbit warrens;
- Restraining pets in yards, indoors, in designated fenced pet exercise areas or on leashes so that they cannot access native wildlife; and
- Community education on pet ownership and the proliferation of feral animals.

Development in the Central Precinct is to implement the relevant measures specified in Cumberland Ecology's Domestic and Feral Animal Management Plan.

Weed Management

Cumberland Ecology has prepared a Weed Management Plan (included at Appendix L) which addresses weed control measures such as preventing weed spread and establishment, weed suppression, control and management, and education, as well as follow-up work and monitoring.

The objectives of controlling weeds are to:

- To prevent the spread of weeds from the Central Precinct to the adjacent Regional Park;
- To control the spread and intensification of existing weed species within the Central Precinct;
- To prevent the introduction of new weed species to the Central Precinct; and
- To reduce the existing weed populations within the Central Precinct.

To achieve the above, development in the Central Precinct should implement the relevant measures specified in Cumberland Ecology's Weed Management Plan.

This includes the following controls:

- Land is to be revegetated after disturbance or construction activities to reduce the likelihood of weed species growing on-site;
- Landscaping in accordance with an approved landscape plan must be established as soon as practicable following completion of construction to prevent weeds from infesting disturbed ground;
- All mulch and topsoil utilised in landscaping must be certified weed free by the material supplier or landscaper; and
- Any plant species identified as a noxious weed within the *Noxious Weeds Act 1993* should not be used in any landscaping scheme.

A vital component of the weed control strategy for the Central Precinct is follow-up work and monitoring.

Monitoring will help to identify and address non-conformance and allow the implementation of corrective actions within an appropriate time frame. It will also assist in determining cost effectiveness of weed control measures and allow for the refinement of weed control budgets.

The recommended short term monitoring program includes:

- Short term monitoring as a "follow-up" after weed control operations to ensure that weeds present in targeted areas have actually been sprayed or removed, and to re-spray if necessary;
- Once weeds have been initially reduced in densities due to control activities, they need to be regularly monitored so that any outbreak or spread of weeds can be quickly suppressed; and

- This type of monitoring is essential for grassy weeds, which could remain hidden amongst the non-target vegetation during the initial control activities.

The recommended long term monitoring program includes:

- Providing sufficient feedback on the overall success of the weed control strategies including suppression and prevention of weed spread and establishment;
- Providing information about the successful regeneration of native vegetation communities that contained weed species;
- Conducting qualitative weed surveys and mapping every year in the appropriate season for five years to coincide with the implementation schedule; and
- Comparison of annual maps to indicate whether the distribution and abundance of weeds has increased or decreased over the year, and allow future weed control measures to be tailored to specific objectives.

4.9 Landscape and Open Space Network

4.9.1 Open Space Masterplan

The Open Space and Landscape Masterplan by JMD Design (see Appendix X) sets the direction for the landscaping of public domain areas of the Central Precinct. This report is supported by an Open Space Assessment prepared by Clouston Associates (Appendix Z). The Open Space Assessment provides additional detail in terms of calculating open space requirements.

The Open Space Masterplan addresses the following objectives for the Precinct:

- Recognition of natural values;
- Recognition of cultural values;
- Network connectivity;
- Multi-use facilities;
- Responsiveness to needs; and
- Recognition of specific opportunities provided by the St Marys site.

PCC's baseline open space provision is contained in its 2007 Open Space Action Plan. The baseline ratios establish a guideline provision only and a baseline reference for development of an open space plan for the site. The application of the baseline ratios to the projected population of the Central Precinct (anticipated to be 3,718) are:

▪ Active Open Space @	1.4 ha/1000 =	5.21 ha
▪ Passive Open Space @	1.64 ha/1000 =	6.09 ha
▪ Total @	3.04 ha/1000 =	11.30 ha

Pre-existing standards for the provision of open space require 2.83ha per 1000 population in any given locality, with a division of 60% Passive Open Space and 40% Active Open Space. Based on the anticipated population of 3,718, this results in a requirement for 10.52ha of open space, with 6.312ha of Passive Open Space and 4.208ha of Active Open Space. However, current best practice open space planning has moved away from amounts of open space towards accessibility metric (refer to the Open Space Assessment at Appendix Z).

The Central Precinct site presents a range of site specific characteristics and opportunities that have been considered in establishing the most effective open space provision and distribution framework. These include:

- The Central Precinct is bounded by the 900 ha Regional Park for much of its perimeter. General access and recreation opportunities, consistent with the St Marys Development Agreement and the Wianamatta Regional Park Plan of Management and Masterplan will be available. Discussions with the former Department of Environment and Climate Change, now OEH, have identified the “boot shaped” area and area adjacent to the Jordan Springs Connector Road of Regional Park (with an approximate area of 40ha) projecting into the Central Precinct as Zone 3, are areas to be pursued for a Recreation Focus that may have a defined specific use and interpretational theme. As such these areas could play a role in the local open space network as Bushland type parkland.
- In close proximity to the Central Precinct is 30.78 ha of land dedicated as Regional Open Space. PCC’s 2007 Open Space Action Plan, District Open Space Contributions Plan, and the St Marys Penrith Planning Agreement identify the provision of a range of district level sporting facilities and recreation facilities on the Regional Open Space land.
- The development of riparian and vegetation corridors through the precinct provide potential for recreational and open space provision. It is proposed to construct several open space corridors (serving dual riparian and recreation function) and stormwater basins (also dual detention and recreation function) within the Central Precinct.

The proposed Local Open Space as part of the development of Central Precinct includes a range of local parks, pocket parks and open space areas, with 3.5ha of Active Local Open Space, and 15.26ha of Passive Local Open Space (inclusive of 0.4ha of paths to open space corridors and 9.9ha of transmission easement), for a total of 18.76ha of Local Open Space. These areas of open space do not include any area of fenced off riparian corridor or water areas.

This indicates a shortfall in Active Local Open Space of 1.71 ha, with a surplus of Passive Local Open Space of 9.17 ha, which results in a total surplus of 7.46 ha.

It is considered that active recreation uses are now occurring within areas of passive open space, with such activities including trail walking/running, cycling, mountain biking and fitness classes. Additionally, the adjacent Regional Open Space, although catering to the wider region, in practical terms will provide ample ‘active open space’ opportunities for residents of the Central Precinct. The proposed Regional Open Space comprises of 19.24ha of Passive Recreation Open Space, and 11.54ha (excluding the 3.5ha area of the Central Precinct Oval) of Active Recreation Open Space, for a total of 30.78ha as stated above

Proposed Open Space Masterplan

The Open Space Master Plan developed for the Central Precinct is shown in Figures 18 and 19 and described in Table 1. It provides an open space distribution and quantum that meets the needs of the new community for quality, accessible and sustainable open space and takes into account site specific open space opportunities.

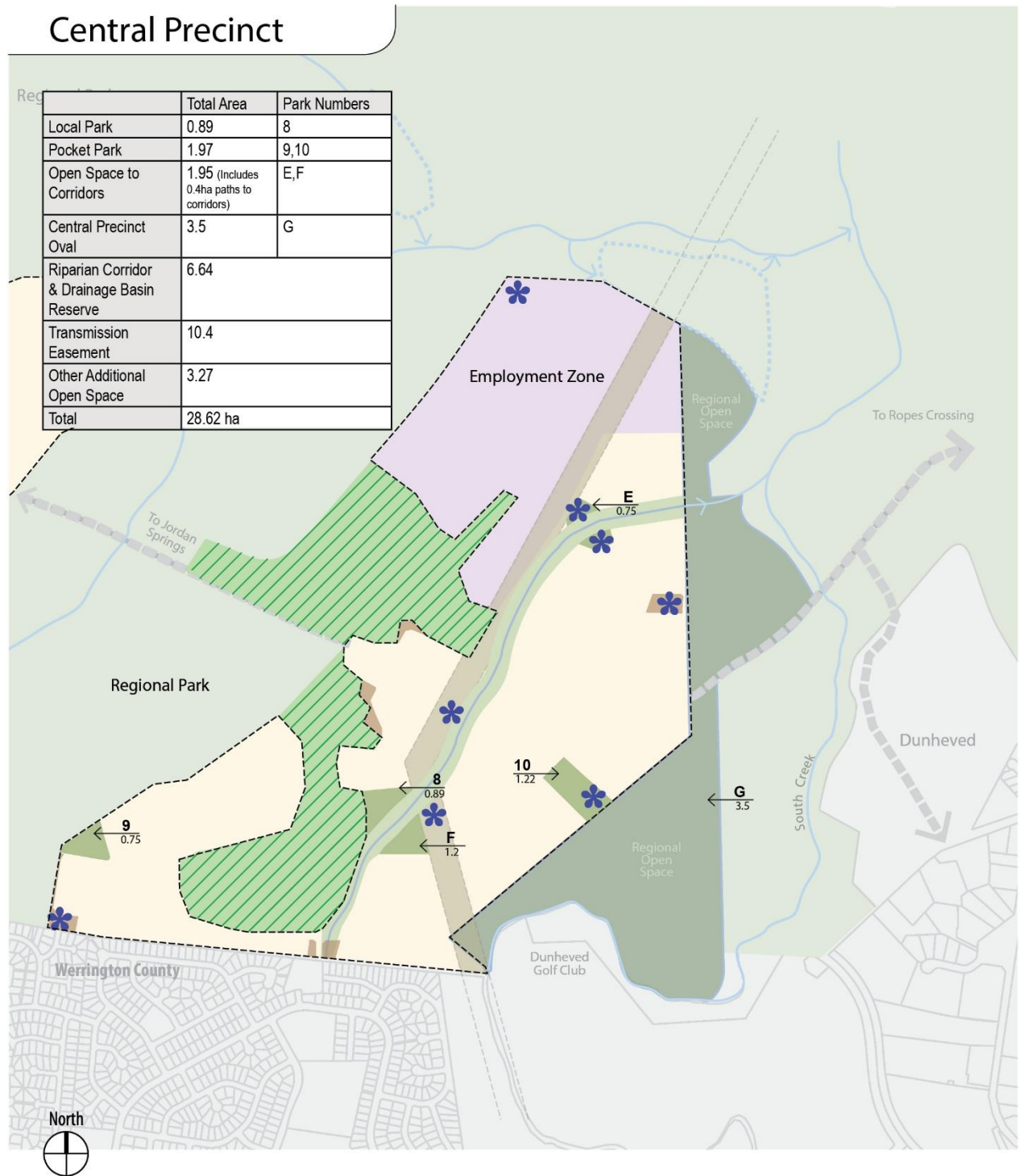
The total local open space contribution of 18.76ha equates to 5.05 ha/ 1000 population, based on the population estimate for the Central Precinct of 3,718. This comprises 3.5ha of local active open space and a total of 15.26ha of local passive open space. Including the adjacent Regional Open Space areas of 19.24ha of Passive Recreation Open Space, and 11.54ha of Active Recreation Open Space, results in a total of 35.47ha of Passive Open Space and 15.04ha of Active Open Space available to the future community. This provides a total open space provision of 50.51ha across the Central Precinct, a surplus of 39.21ha above the

11.30ha required at the existing standard of 3.04ha per 1,000 population, and a provision of open space at a rate of 13.59ha per 1,000 population.

The proposed quantum recognises the following factors:

- Distribution of open space adequately addresses the minimum target for accessibility to residences of 5 minutes' walk generally;
- The Regional Open Space accessible to the Central Precinct, and the Wianamatta Regional Park areas suitable for use as passive open space (40ha) as endorsed in the Wianamatta Regional Park Plan of Management and Masterplan supplement local open space in providing a "quantum" of space for recreational use;
- Under the provisions of the St Marys Penrith Planning Agreement, Maryland Development Company is obligated to deliver works in kind for district level active recreation facilities in the Regional Open Space area.
- Maryland Development Company has separate contractual arrangements with the Commonwealth Government in relation to the provision of active recreation facilities in the Regional Open Space. Consultation will continue with potential user groups and relevant authorities, including PCC, in relation to the exact facilities required to satisfy community demands. Therefore, in addition to the 3.5 ha of active open space identified in the Open Space Masterplan, a range of additional active recreation facilities are planned for the other areas of the Regional Open Space.
- The Regional Open Space will also provide passive recreational amenity that will supplement the passive use of local and pocket parks as described above;
- Open space embellishment will provide a high level of landscape amenity that promotes "quality" of open space and recreational experiences;
- The capacity of Council to effectively and sustainably maintain open space area must be considered - oversupply of poor quality open space is not a good or sustainable community outcome; and
- The proposed open space masterplan reflects the needs based and qualitative approach as recommended in Council's PLANS strategy.

The inclusion of the additional 40ha of Wianamatta Regional Park with potential for use as passive open space would increase the total overall open space provision for the Central Precinct to 90.51ha, 79.21ha over the baseline requirement at a rate of 21.30ha per 1,000 people.



Open Space Masterplan

Scale: NTS

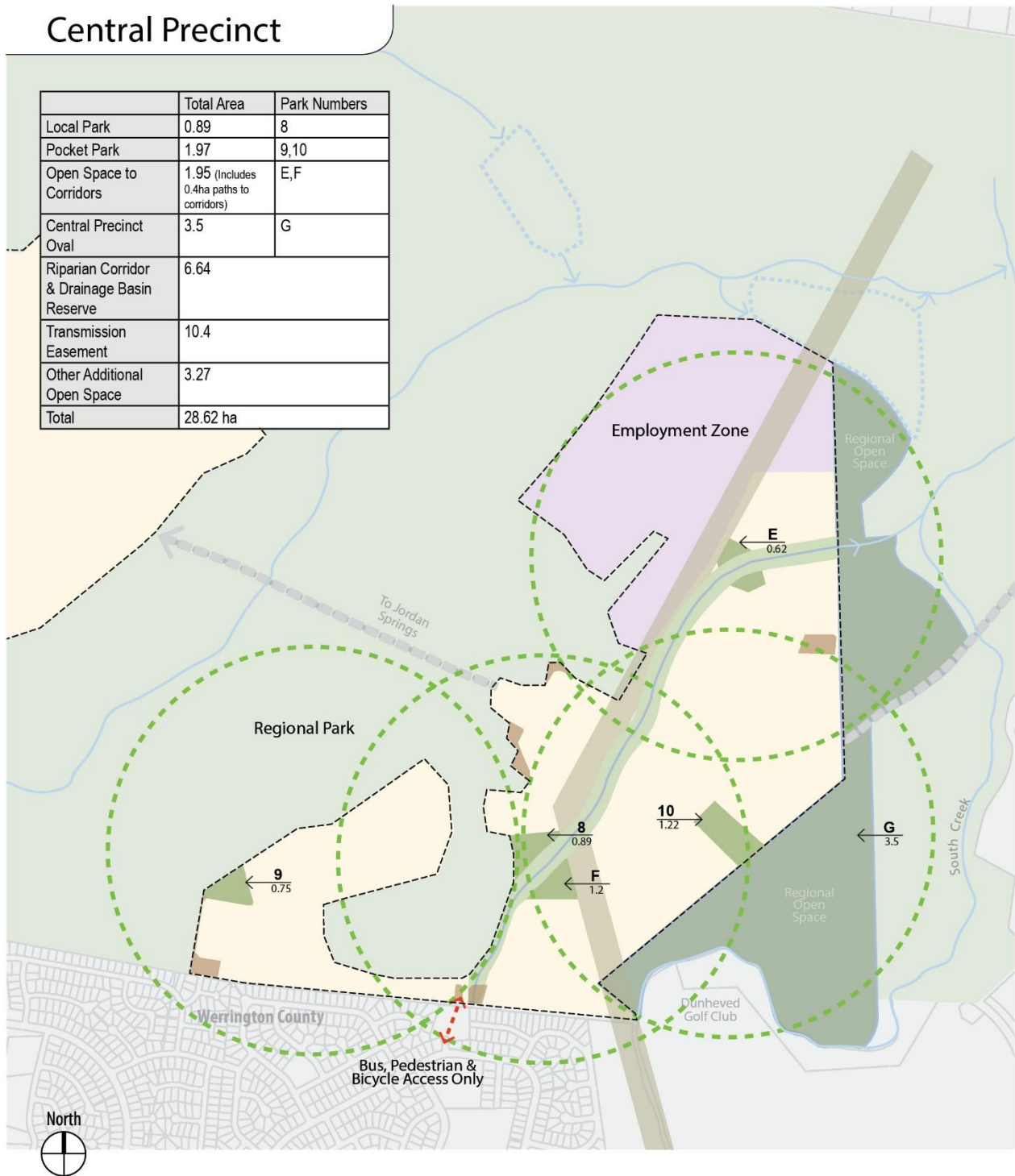
- | | | |
|---|--|--|
| ----- Precinct Boundary | Riparian Corridor & Drainage Reserve | Regional Open Space Active Recreation Zone |
| Urban Zone | Passive Local Open Space | Other Additional Open Space |
| Employment Zone | Transmission Easements | Regional Park recreation Zone (46ha) |
| ✿ Water Quality Basin | Zoned Drainage Basins | |

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 18 – Central Precinct Open Space Network

Central Precinct

	Total Area	Park Numbers
Local Park	0.89	8
Pocket Park	1.97	9,10
Open Space to Corridors	1.95 (Includes 0.4ha paths to corridors)	E,F
Central Precinct Oval	3.5	G
Riparian Corridor & Drainage Basin Reserve	6.64	
Transmission Easement	10.4	
Other Additional Open Space	3.27	
Total	28.62 ha	



Access Masterplan

Scale: NTS

- Precinct Boundary
- Urban Zone
- Employment Zone
- Water Quality Basin
- Riparian Corridor & Drainage Reserve
- Passive Local Open Space
- Transmission Easements
- Zoned Drainage Basins
- Regional Open Space Active Recreation Zone
- Other Additional Open Space
- 500m Walking Distance

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 19 – Central Precinct Open Space Access

Table 1 – Open Space Hierarchy / Master Plan

Item	No.	Average Area	Total Area Cent Prec
District Open Space			
District Park		In Western Precinct	
Neighbourhood Park (>5 ha)		In Regional Open Space	
Facilities to ROS	G	3.5ha	3.5ha
Sub total			3.5ha
Sub total active open space (PCC baseline active O/S – 5.43ha)			3.5ha
Local Park (0.5-3ha)			
	8	0.89ha	0.89ha
Sub total			0.89ha
Pocket Park (0.25-1ha)			
	9	0.75ha	0.75ha
	10*	1.22ha*	1.22ha*
Sub total			1.97ha
Open Space to corridors			
	E	0.75ha^	0.75ha^
	F	1.2ha^	1.2ha^
Paths to corridors (nominal 2.5m width x 1615 lin/m)	<i>paths</i>	<i>0.4ha</i>	<i>0.4ha</i>
Sub total			1.95ha
Sub total passive open space (PCC baseline passive O/S – 6.36ha)			4.81ha
Riparian Corridor and Drainage Basin Reserve			6.64ha
Transmission Easement			10.40ha
Other Additional Open Space (excluding fenced off riparian and water areas)			3.27ha
Total local open space – Central Precinct			28.62ha
Other Open Space Resources			
Regional Park areas with potential for use as passive open space		40ha	40ha
PCC baseline open space requirement		11.79ha	11.79ha
Reference Total – Overall Open Space Resources (inclusive of Regional Open Space Active and Passive Recreation)		68.99ha	68.62ha

*Park 10 has been increased in size due to an anticipated higher population. No re-classification of this park has occurred as it is still considered a 'pocket park'.

^Inclusive of the 0.4ha paths to corridors

Locational Principles

Key locational principles for each of the identified open space areas are described in below.

- Central Precinct Oval (G)
 - It is proposed that as an offset to the 3.5ha of active open space which would nominally be required in the precinct through PCC's baseline standards, that equivalent facilities are provided through the development of the adjoining 46ha Regional Open Space.
 - The proposed location of the Regional Open Space hub, where the major facilities would be provided, is located adjacent to the Village Centre in order to optimise its accessibility and relationship to adjoining facilities.
 - Residents in both the Western and Central Precincts will have access to the high quality facilities to be provided in the 46ha Regional Open Space.
- Cultural Heritage Local Park (8)
 - Located to incorporate a significant European Heritage Item (Site 3 - brickworks associated with Elizabeth Farm) in order to conserve the heritage fabric and provide opportunities for interpretation.
 - Heritage themes can provide an identity for landscape enhancement and an added focus for use and recreational experiences.
- The space also potentially integrates with the Regional Park boundary and the drainage / vegetation corridor running north south through the Central Precinct.
- Edge Pocket Park (9)
 - Adjoins the Regional Park optimising landscape character and amenity.
- The park is located to provide optimum accessibility and function to adjoining neighbourhood area. Central Pocket Park (10)
- Located centrally to the adjoining residential neighbourhood to provide optimum accessibility and function. Central Precinct North Corridor Park (E)
 - Provided as a node in the northern arm of the north south drainage / vegetation corridor to compliment local and pocket parks in serving the adjoining neighbourhoods.
 - Integration with corridor will optimise the landscape and visual amenity of the space and provide good connectivity via the corridor shared access path.
- Central Precinct South Corridor Park (F)
 - Provided as a node in the southern arm of the north south drainage / vegetation corridor to compliment local and pocket parks in serving the adjoining neighbourhoods.
 - Space will be located to the eastern side of the corridor and will function with the Cultural Heritage Park open space (park no. 8) adjoining the western side of the corridor in forming a consolidated recreational space and entry point from adjoining neighbourhoods.
 - Integration with corridor will optimise the landscape and visual amenity of the space and provide good connectivity via the corridor shared access path.
- Corridors
 - Corridors primarily relate to site drainage lines identified as suitable for rehabilitation for riparian and recreational purposes;
 - All corridors provide potential for off road cycle/pedestrian linkages.
 - The transmission line easement will also play a role in cycle / pedestrian access provision in the precinct, along with contributing to landscape amenity through appropriate landscape embellishment in compliance with authority requirements.

- The easement is intersected by a variety of open space typologies, enabling generation integration of continuous green links throughout the Central Precinct.

4.9.2 Landscape Maintenance and Handover Plan

Ongoing management and maintenance requirements for open space and landscape treatments are outlined in the Landscape Maintenance and Handover Plan at Appendix Z.

4.10 Bushfire Measures

The Bushfire Assessment prepared by Bushfire and Environmental Services (BES) (see Appendix M), consistent with the measures required under SREP 30 and 'Planning for Bushfire Protection (2006)' (PBP), details the bushfire protection measures recommended for future development within the Central Precinct as required within the Acceptable Solutions of PBP. These measures include APZs, building construction standards, access, and services.

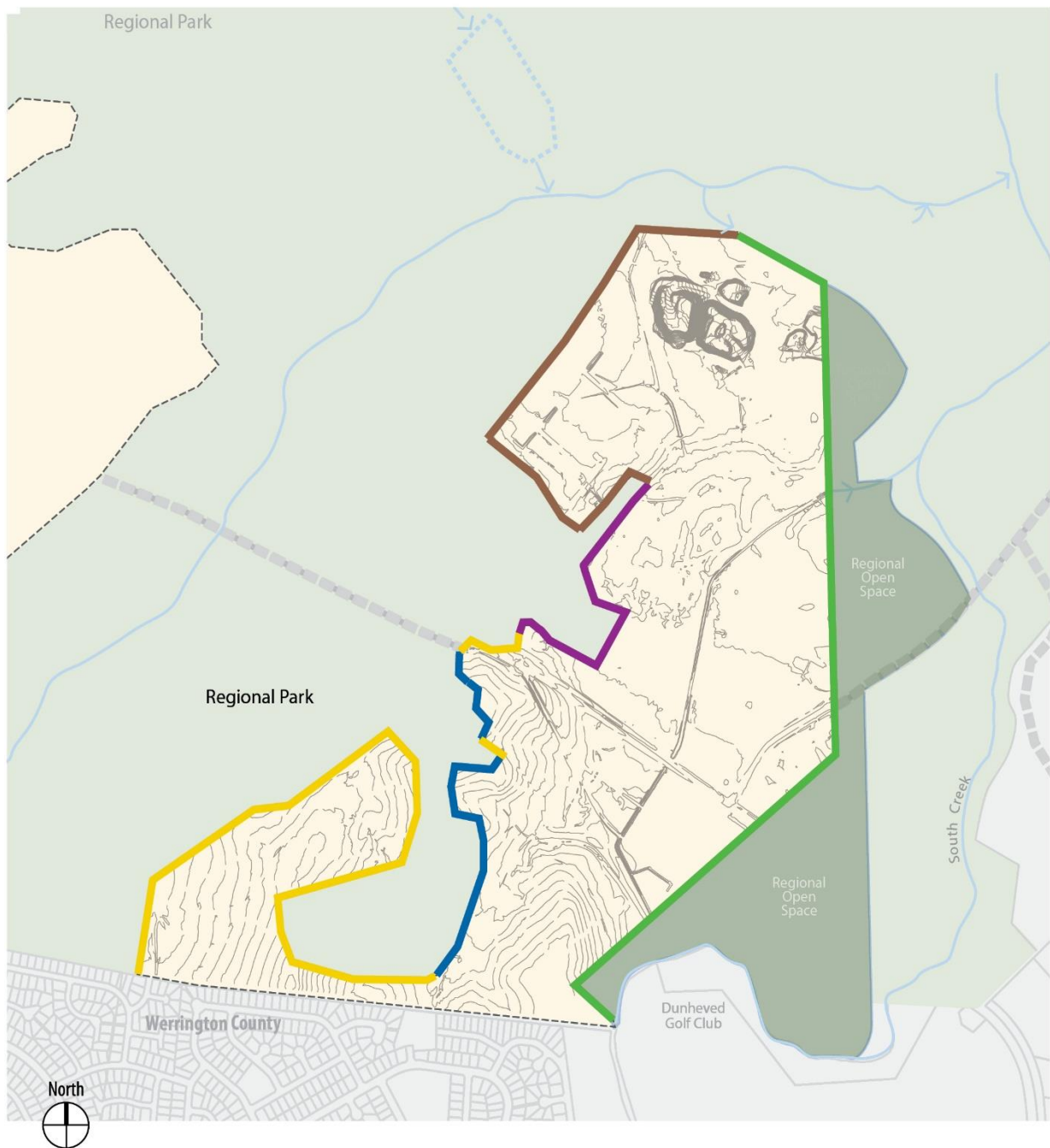
The Central Precinct is identified as bushfire prone land and will be subject to subdivision for a mix of both residential and employment purposes. A Bushfire Safety Authority from the NSW Rural Fire Service is required for approval for residential subdivision and this authority is to be provided based on the details of a Bushfire Protection Assessment.

Although a Bushfire Safety Authority is not required for planning at the precinct level, the Bushfire Protection Assessment provides the necessary detail to guide future subdivision applications with the Central Precinct.

Future development for non-residential uses (where relevant) is to be assessed by Council under the provision of Section 79BA of the Environmental Planning and Assessment Act 1979, which includes the consideration of the NSW Rural Fire Service Guidelines, Planning for Bushfire Protection 2006.

Therefore, bushfire risk and matters including APZs, building construction standards, access and services will be further addressed at the DA stage and, depending on the type of DA, in accordance with the requirements to obtain Rural Fire Service approval or to consult with the Rural Fire Service. This will include further consideration of the APZ widths identified in this precinct plan.

Central Precinct



Asset Protection Zone (APZ)

Scale: NTS

- No APZ Required
- 10m APZ
- 10m APZ Defendable space
- 15m APZ
- 20m APZ

Note: Location of all elements indicative only, subject to confirmation via detailed design.

Figure 20 – Asset Protection Zone locations and dimensions

Based on the recommendations of the Bushfire Protection Assessment, the following development principles have been adopted for management of bushfire risk in the Central Precinct:

- A variable APZ for residential development, which is predominantly 10 to 15 metres wide (with a shorter section of 20m width), is required. A 10 m APZ defensible space is required for the Employment zone's boundary with the Regional Park. No APZ is required for full extent of the precinct's boundary with the Regional Open Space. These APZs are shown at Figure 20.
- Special Fire Protection Purpose (SFFP) development as outlined in the bushfire Protection Assessment, require a higher standard of bushfire protection due to the vulnerability of the occupants and the potential need for assisted evacuation. A minimum APZ ranging from 40 metres to 70 metres is required for any SFFP development adjoining the Regional Park boundary, depending on vegetation type and slope.
- APZs can contain managed vegetation and can be utilised as areas of public open space, recreational areas such as sportsgrounds, access ways such as roads, and ancillary parts of development such as yards and car parks.
- All bushland/development interface areas within the precinct are to be accessible by a perimeter access road linked to the internal road network at regular intervals. Some shorter sections of the interface may adjoin the bushland within the Regional Park without a public perimeter road in between, but these areas are to be limited where possible, and short in distance (e.g. a maximum 140 m in length between possible hydrant locations in the public road network at either end).
- The building construction standard for future dwellings in the precinct (as per Table A3.3 within PBP, reproduced at Appendix 1 of the Bushfire Protection Assessment, shall be determined at the relevant DA stage.
- Public roads within 100 metres of the Regional Park boundary, collector and main roads servicing those parts of the precinct within 100 metres of the Regional Park boundary and perimeter fire trails are recommended to meet the accepted solutions within PBP, as listed in Tables 3 and 4 of the Bushfire Protection Assessment.
- All water, electricity, and gas supply services shall be provided and maintained in accordance with relevant standards and specifications.

4.11 Water Cycle and Soils

4.11.1 Water Cycle Management, Drainage Management and Groundwater and Salinity

Based on the site characteristics of the Central Precinct, SKM has developed a detailed Catchment Management Strategy and a Soils, Groundwater and Salinity Management Strategy for the Precinct (see Water, Soils and Infrastructure Report at Appendix F). An addendum to this Strategy has been prepared by Cardno (Appendix G) which deals with Stormwater Quality Management, and a Stormwater Detention Strategy (Appendix H). An Operation and Maintenance Manual has also been prepared by Cardno (Appendix BB).

Water Cycle Management

The Catchment Management Strategy is underpinned by the following objectives:

- Ensure peak flow rates do not increase for all storms up to the 100 year ARI event;
- Maximise source controls for runoff quantity and quality;

- Achieve a no net increase in the annual pollutant load exported from the site; and
- Achieve efficient use of water and minimise demand for potable water.

To implement these, measures that could be incorporated into the development include:

- Rainwater tanks on residential lots for private irrigation reuse;
- Recycled water (treated effluent) for toilet flushing, irrigation and other activities, such as car washing;
- Water saving fixtures within the buildings;
- Bioretention vegetated areas in open space areas;
- Gross Pollutant Traps;
- Constructed stormwater wetlands or dry infiltration bioretention basins; and
- Detention storage integrated into the wetlands or dry infiltration basin areas.

On the basis of past assessments and the proposed development of the Western and Central Precincts, SKM estimated the volumes and areas for detention and water quality purposes within each precinct. Following consultation with PCC, it has been agreed that the approach to water cycle management should be similar to past assessments, that is:

- Water quality is assessed for the Western and Central Precincts together at the discharge point situated at South Creek; and
- Water quantity is assessed for the Western and Central Precincts separately.

The following components would make up the drainage system:

- Pit and pipe system able to carry flows up to the 10 year ARI storm;
- Overland flow paths able to carry flows up to the 100 year ARI storm;
- Open channels able to carry flows up to the 100 year ARI storm; and
- Combined detention/wetland basins able to provide the necessary quality and quantity controls, while also coping safely with the 100 year ARI flow.

The original Soils, Water and Infrastructure Report prepared by SKM recommended two detention basins (D and E) be proposed for the Central Precinct for peak flow mitigation for 2 year to 100 year ARI storm events. Basin D is located towards the centre of the precinct, whilst Basin E is located towards the south. These basins are shown at Figure 4.1 of the SKM report.

Further design development of the Central Precinct has resulted in an increase in the number of water quality basins to seven, but an overall reduction in the proposed land area required for basins compared to the original assessment. This is summarised in the Stormwater Quality Management Report at Appendix G. The increase in water quality basins is attributed to the grading constraints of the site. The proposed basins are shown in Figure 11. The basins are to be maintained for a period of three years following completion of construction works prior to handover to Penrith City Council.

These detention basins will be integrated into wetlands and dry infiltration basin areas which will supplement the treatment of stormwater provided by source controls and Gross Pollutant Traps. Three zoned basins outside the precinct ("I", "C2" and "B" as shown on Figure 2.1 of the Cardno report) are required to achieve the project water quality objectives and would be progressively constructed during the development. Rainwater tanks on all residential lots, and a vegetated Riparian Corridor from south to north throughout the Central Precinct

contribute to the achievement of the water quality objectives as required under SREP30. Each lot within the Employment Zone is required to provide on-site stormwater treatment for all industrial and commercial use.

The estimated detention volume requirements and minimum land take requirements for water quality requirements for each basin within the precinct will be refined at the detailed design stage and subject to appropriate approval processes.

Salinity and Groundwater

The Soils, Groundwater and Salinity Management Strategy addresses the need to ensure that there is no significant rise in the water table or in groundwater salinity as a result of the development.

The objective of the Groundwater and Salinity Management Strategy is:

- To satisfy the requirements of SREP 30 and EPS with respect to groundwater and land salinity issues at the site;
- To assess the existing salinity conditions in soil and groundwater at the site;
- To predict the potential impact of urban development of the site's landscape, especially the potential to increase surface runoff salt load and rising water table which might bring saline groundwater to the surface; and
- To provide mitigation and management measures to ameliorate potential salinity impacts in the proposed urban development.

Measures proposed for groundwater and salinity management (as recommended by SKM at Appendix F and consistent with the DIPNR (2003) Western Sydney Salinity Code Practice) to ensure this (in tandem with the raising of ground levels by filling) and continued low salinity include (amongst other things) include:

- The design and installation of catchment wide 'salt safe' stormwater plans prior to the development of individual sub-divisions within the catchment. Such a system will have to demonstrably move salt emanating from home gardens, other irrigated areas and potentially existing saline hotspots to a safe discharge point- preferably the brackish waters of an existing creek system;
- Shaping the filled landform as a cambered embankment to shed water rapidly and directing this runoff into graded natural watercourses, while avoiding detention in natural and artificial ponds so far as possible;
- Constructing the base of the embankment of free-draining rock fill and providing subsoil drains (to South Creek) where necessary, to prevent water accumulating on the fill / former land surface interface;
- Making maximum use of paving, especially of car parks and storage areas, to reduce the ground area available for rainwater infiltration. It is assumed that most of the Precinct will be built over in any case;
- Collection of stormwater from paved areas and roofs and directing it through sealed drains to approved discharge points along natural drainage lines;
- Lining of basins and swales with an impermeable liner to prevent infiltration into groundwater; and
- In relation to house construction and landscaping:
 - encourage residents to use water and nitrogenous fertilisers sparingly in garden irrigation, especially where slightly saline recycled water is being applied
 - encourage planting of drought and salt tolerant native species and, where possible, deep rooted trees

- fit buried pipes with leak proof junctions to accommodate shrink and swell movements in clay soils
- link downpipes to sealed stormwater drains or storage tanks and minimise unlined surface ponding

Salinity management for individual dwellings will be addressed through salinity assessment at subdivision DA stage and requirements such as s88B restrictions.

Filling of Land

The Central Precinct is presently subject to flooding from the South Creek catchment and from backwater flooding from major events in the Hawkesbury-Nepean River. A large portion of the site is located under both the 100 year ARI flood level and the Probable Maximum Flood (PMF) level.

In order to counter the effects of flooding on the site and surrounding lands, filling is required and proposed to a level above the 100 year ARI to enable the development. The filling of parts of the Precinct is consistent with the provisions of SREP 30.

Flood modelling for the filling of the North and South Dunheved Precincts and the Central Precinct was undertaken by SKM as part of the North and South Dunheved Precinct Plan in 2006. Mitigation measures identified in this modelling included removal of the approach embankment for the old munitions bridge and raising the bridge deck of both the South Creek and Ropes crossings.

This modelling determined that the filling of these precincts would result in a small increase in flood levels in the 100 year ARI event outside of the site. These flood impacts were reviewed and accepted by both BCC and PCC through the adoption of the North and South Dunheved Precinct Plan.

Further modelling undertaken as part of the North and South Dunheved Precincts Development Application/Environmental Impact Statement in 2007 resulted in similar flood levels to those reported in the North and South Dunheved Precinct Plan. This further modelling was also reviewed and accepted by both Councils through the respective approvals of this Development Application.

The Central Precinct fill area has now been refined through more detailed precinct development planning, including the preparation of an Environmental Impact Statement for the filling of Central Precinct approved in 2016. As part of this approval process, SKM updated the hydraulic modelling to incorporate the filling of the Central Precinct (detailed in Section 7 of the SKM report at Appendix F). All assumptions of previous modelling, including mitigation measures, were adopted.

This current modelling investigated the impact of flooding for a 100 year ARI flood in South Creek and a concurrent 20 year ARI flood in the Hawkesbury- Nepean River, as well as a PMF in South Creek and a concurrent 100 year ARI flood in the Hawkesbury-Nepean River on the combined developments of the Central and Dunheved Precincts. The flood modelling results indicate:

- A minor increase in flood levels upstream (south) of the St Marys project site in the 100 year ARI event. The maximum upstream increment in flood level would be 7 mm (at CH 31.778). This upstream impact is limited to within the Dunheved Golf Course;
- There would be no increase in flood levels downstream (north) of the St Marys project site at CH 34.778 in a 100 year ARI event; and
- In the South Creek PMF event, there would be a minor increase in flood levels upstream of the St Marys project site. The maximum increment in flood level would be 9 mm (at CH 31.778) and, again, would be substantially limited to the Dunheved Golf Course. The largest increase in flood level would be 22mm

immediately upstream of the South Creek Bridge. There would be a slight reduction downstream of the site for the PMF event.

These results indicate that the upstream impact would be limited to the site and to within the Dunheved Golf Course.

Flood Evacuation

Based on the site characteristics of the Central Precinct (a portion of the Precinct being subject to the Probable Maximum Flood (PMF) event, i.e. greater than the 100 year ARI event), SKM has developed a Flood Evacuation Strategy for the Precinct (see Water, Soils and Infrastructure Report at Appendix F).

The overall flood evacuation objectives in the development are:

- To provide safe conveyance of local runoff;
- To bring ground levels on the developed lots on site are to least 500mm above the 100 year ARI flood level; and
- To conform to the requirements of the NSW Government Floodplain Management Manual.

The site is in the Sydney Western Division of the State Emergency Service (SES) and within the Penrith Local Government Area. The existing regional flood plan and local flood plans relevant to the site are the Sydney Western Division Flood Plan and the Penrith Local Flood Plan. The flood evacuation plan for the proposed development would be consistent with these regional and local plans.

Evacuation is necessary in events larger than the 100 year ARI event. In a PMF event, a portion of the Central Precinct would become inundated by regional flooding, preventing local runoff from flowing away from the site.

The proposed flood evacuation strategy is described in detail in the SKM report and is based on the SES evacuation model. The preferred strategy for residents and workers is to evacuate by car. The general process is:

- Decision to evacuate;
- Mobilisation of SES personnel;
- Communicating the need to evacuate the site to workers and residents; and
- Overseeing traffic as it leaves the site.

The strategy is based on two evacuation routes: one via the zoned road corridor to the west and one to the east via the zoned road corridor over both South Creek and Ropes Creek. There is also a third route available via the proposed “bus only” access at Leichhardt Avenue to the south. However, this route was not included in the evacuation strategy.

SKM’s analysis concludes that there is a required warning time of 12.8 hours, with an available warning time of 25 hours. Accordingly, there is sufficient warning time for vehicular evacuation of the site for the Probable Maximum Flood.

Soil and Water Management

Based on the site characteristics of the Central Precinct, SKM has developed a detailed Soil and Water Management Strategy for the Precinct (see Water, Soils and Infrastructure Report in Appendix F) during the construction phase of the development.

This strategy is underpinned by an extensive set of objectives and management measures, which are to:

- Provide an overall erosion and sediment control concept for the proposed development;
- Control the erosion of soil from disturbed areas of the site;
- Limit the area of disturbance that is necessary;
- Protect downstream water quality; and
- Prevent any sediment-laden water from entering South Creek.

In addition to the measures within the Soil and Water Management Strategy, an Erosion and Sediment Control Plan will, at DA stage, address the relevant requirements of PCC and the Landcom “Blue Book” for Soils and Construction.

Further, during the construction phase it is proposed that detention basins/ ponds be utilised for temporary erosion and sediment control, with runoff appropriately treated prior to discharge.

In order to control sediment and erosion during construction and to minimise any adverse impacts from filling operations, the following controls would be implemented:

- Stabilised entry and exit point;
- Sediment filter fences;
- Weed-free straw bales;
- Barrier Fences;
- Diversion drain banks and channels;
- Check dams;
- Temporary sedimentation basins; and
- Top soil stockpiles.

Further detail is contained within the SKM report at Appendix F.

Riparian Corridors

Riparian corridors will be established along existing drainage lines identified in consultation with the Department of Water and Energy (now the Department of Primary Industries: Water, DPI Water) (refer to **Figure 13**). The environmental outcomes for riparian corridor land are:

- Drainage lines are to be constructed and vegetated so that they approximate a natural state. Any modification of existing drainage lines should be done in a manner which has regard to the conservation of indigenous flora in and around the drainage lines.
- A continuous, viable riparian corridor which consists of:
 - The channel which comprises the bed and banks of the watercourse (to the highest bank); and
 - A Vegetated Riparian Zone (VRZ) that emulates the native vegetation communities in the area, provides for the movement of flora and fauna species and facilitates the stability of the watercourse shall be provided, while protecting the environmental integrity of the riparian channel from weed invasion, micro-climate changes, litter, trampling and pollution by emulating the native vegetation communities in the area.

- There is to be no net impact upon the water quality in South Creek and Hawkesbury-Nepean Catchments.

Development within identified riparian corridors shall generally be limited to:

- Works relating to the creation of the riparian corridor.
- Environmental protection works.
- Drainage works. Detention basins and related works shall generally be located outside of the riparian corridors. However, such works can be located within the riparian corridor with the agreement of Council and the DPI Water.
- Crossings for roads, services and pathways:
 - Pedestrian and cycle paths should generally be located beyond the riparian corridor. However, consideration can be given to these works within the riparian corridor if it can be demonstrated to the satisfaction of Council and DPI Water that the environmental outcomes outlined above are achieved.
 - Indicative road crossings of the riparian corridors shown in the Framework Plan are to be constructed with no less than a box culvert design with adequate capacity for both water and fauna movements and have naturalized bases. The design of any additional road crossings will be subject to the agreement of DPI Water and PCC.
- APZs shall be located beyond the riparian corridor.

4.12 Efficient Resource Use Strategy

The St Marys EPS requires that this Precinct Plan incorporate an efficient resource use strategy (Section 9.4 of the EPS). The development of the Central Precinct is to be undertaken in a manner to ensure that the principles of ecologically sustainable development (ESD) will be achieved. The Framework Plan and Development Control Strategy are designed to ensure that development of the Precinct is focussed on energy efficiency, waste management and air quality in the following manner:

- Facilitating orientation of lots that can ensure optimal solar access;
- Locating traffic generating land uses close to public transit corridors;
- Locating related land uses centrally to maximise the opportunity for multipurpose trips; and
- Assigning priority to energy efficient transport modes, such as public transport, cycling and walking by providing more direct routes for these modes.

The Framework Plan for the Central Precinct is designed to reduce distances travelled by private vehicles by:

- Providing for a grid-based street network with a high level of connectivity and permeability;
- Locating bus stops within 5 minutes walking distance of the majority of dwellings;
- Connecting public transport corridors to key local destinations, including retail and employment centres, educational and community facilities, and recreational and sporting facilities, as well as with the wider public transport system, including St Marys and Mt Druitt rail stations;
- Providing an interconnected network of pedestrian priority streets and open space corridors to encourage walking between residences and facilities; and
- Providing a system of on-street and off-street cycleways to encourage bicycle usage.

At the detailed planning phase of the new neighbourhoods, the aspect, shape, topography and slope of the site will be taken into account to achieve energy efficiency objectives.

An education program will ensure that the future land owners and tenants are aware of the need for, and benefits of, energy efficiency and how to practically apply concepts such as the following:

- The use in buildings, wherever possible, of measures for minimising heat loss and the absorption of heat from outside, such as:
 - providing insulation for walls and roofs;
 - the use of appropriate building materials; and
 - providing fewer and smaller windows on the eastern and western facades of buildings.
- Waste reduction and management.
- Alternatives to car use, such as public transport, walking and cycling.
- The use of building designs that allow for cross ventilation as a means of removing stale air without resorting to air conditioners, cross ventilation can be achieved by:
 - positioning windows and doors opposite each other in rooms; and
 - providing fans and other forms of mechanical ventilation.

The following planning and design principles have been incorporated into the Central Precinct Development Control Strategy or will be encouraged during development to ensure that future development efficiently utilises resources:

- Building designs are to maximise solar access and minimise overshadowing.
- The use of shading devices on windows facing east or west, i.e. the orientations which are most intensely affected by sun.
- The use of building materials and construction methods which have low energy inputs into their production, i.e. a low 'embodied' energy.
- Integration of land use and transport planning.
- The selection of energy and water efficient building services, equipment and appliances, e.g. solar powered water heating.
- The use of mechanical and electrical systems that are designed and constructed to achieve the maximum energy efficiency achievable with current technology and best practice.

4.13 Cultural Heritage

Aboriginal Heritage

As outlined in Section 3.7, there is a significant conservation outcome for indigenous archaeological cultural heritage in the central portion of the St Marys site, with the majority of land with high conservation value (Zone 1) falling within the Regional Park. In accordance with the SMM, it is proposed to investigate a representative set of landscapes from the Central Precinct to assist in the interpretation and management of archaeological resources.

Five salvage areas within the Central Precinct have been identified (as well as a further three locations outside of the precinct and generally to north-east and south-east), as shown on Figure 21 below.

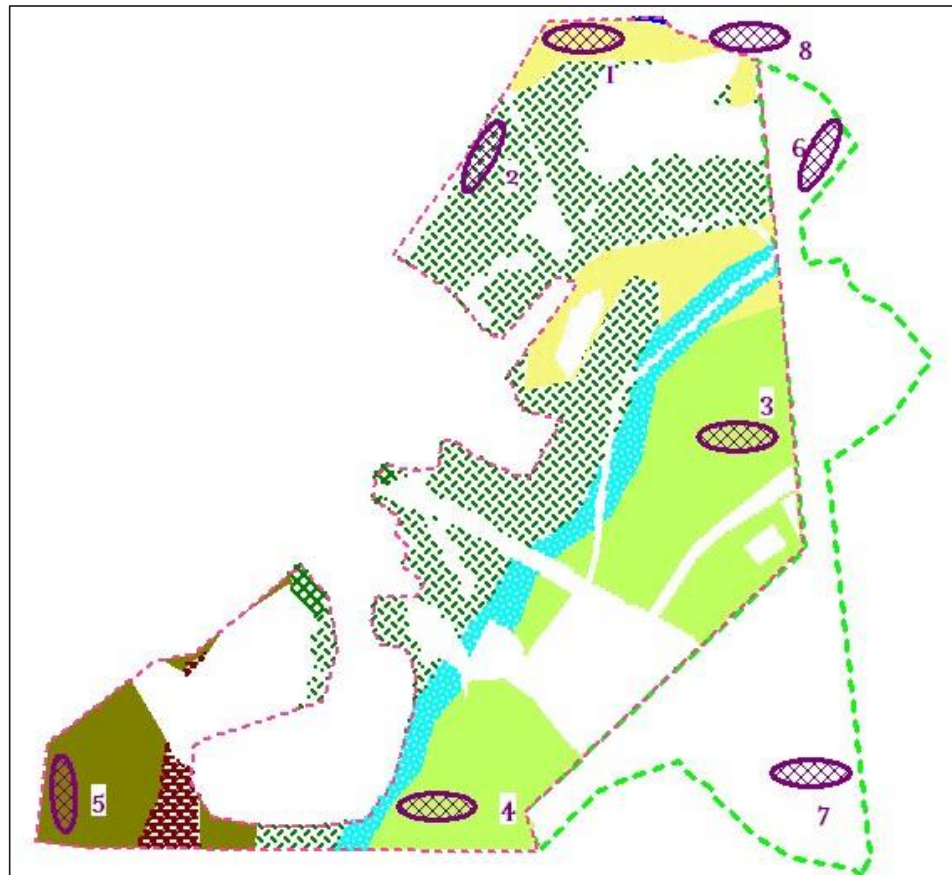


Figure 21 – Aboriginal Archaeological salvage areas

Jo Macdonald Cultural Heritage Management has therefore recommended that, depending on the timing of the proposed works programme, an application should be made to OEH for a section 87 and section 90 Consent to Destroy with salvage to undertake the works for the Central Precinct development. This, in either case, should direct the nature and scope of the archaeological excavations to be undertaken.

Upon the consent being granted, fieldwork for the sub-surface investigation of the salvage locations will be undertaken with the involvement of representatives of the four relevant Aboriginal groups.

European (Non-Indigenous) Archaeology

The Central Precinct contains one non-indigenous sites identified in SREP 30, being Site 3 – Elizabeth Farm. Casey & Lowe has advised that Site 3 is a rare type of archaeological item surviving on the Cumberland Plain and has been identified as being part of the State significance of the Dunheved Homestead Site.

Casey & Lowe has recommended that for Site 3:

- Any disturbance of archaeological remains will require an approval from the NSW Heritage Office and Penrith City Council under SREP 30;
- The management of the archaeological resource as part of the design process for the Heritage Park requires a detailed survey as a basic requirement. This needs to be undertaken in consultation with Casey & Lowe. Identification of other brickmaking activities may be made during the survey;
- The design for the park that coincides with the location of Site 3 may require a Statement of Heritage Impact to be prepared identifying the proposed impacts and archaeological and statutory requirements;

- It may be necessary to record and remove some remains at the site so that the main concentration of brickmaking activity can be left relatively undisturbed. Any such proposals would require a Statement of Heritage Impact and then an application to the Heritage Branch – Department of Planning;
- The brickmaking activity will need to be interpreted within the future park. It should discuss the various staging of brickmaking, the role it played in the Dunheved estate, how brickmaking on site was once part of most colonial estates and interpret the site within its landscape context; and
- The results from any recording program should be incorporated into an overall interpretation strategy for the Central Precinct and the Regional Park, as relevant.

In response to the significance of Site 3, the site is proposed to be incorporated into a local park in order to provide opportunities for conservation and interpretation. This park is described in the Open Space Masterplan in Section 4.8.

4.14 Infrastructure and Services

The SKM report at Appendix F articulates and details consultations undertaken and advice received from the relevant utilities and services providers regarding the proposed servicing of development of the Precinct.

Sydney Water and Integral Energy have indicated that they are able to service the Central Precinct with extensions to their existing networks. Water supply will be available from the existing Cranebrook reservoir adjacent to the site. Sewer can be transferred to the existing St Marys Sewage Treatment Plant via pumping stations, rising mains and carriers. Electricity can be extended from the existing zone substation at Cambridge Gardens to the south of the site. These proposed measures all achieve the SREP 30 objectives related to services infrastructure strategy.

Recycled water supply will be subject to negotiations with Sydney Water, while delivery of Fibre to the Premises (FttP) broadband will also be subject to negotiations with service providers.

A further technical assessment of the Werrington Downs Carrier and a defined zone of influence will be undertaken by a suitably qualified expert at the time of the first relevant development application to assist the consent authority in determining the DA.

4.15 Community Facilities and Services

The Community Plan by Elton Consulting (at Appendix R) has identified that the future population of the Central Precinct will require social infrastructure and services beyond that presently provided to the existing surrounding population. The provision of these services will help ensure that a socially sustainable community and social integration with existing neighbouring communities is achieved. This is consistent with both the St Marys EPS and Council's Sustainability Blueprint.

The Community Plan states that proposed strategies for the provision of human services, community facilities, open space and community development processes are based on the following social sustainability objectives:

- Provision of a range of facilities, services and programs that meet the learning, social, cultural, health and recreational needs of the community and help build its resources. It is recognised that these need to be provided from the outset of settlement and be flexible to adapt to changing needs;

- Encouragement of innovation, initiative and resourcefulness that will strengthen the capacity of the community to function in a sustainable and resilient way;
- Convenient and equitable access to schools and social and recreational facilities at the local level in the wider region;
- Encouragement for lifelong learning, through local provision of a range of learning opportunities and resources;
- Efficiency in the development and use of community resources;
- Opportunities for all age groups and sections of the population to become involved in the life of the community, to develop community networks and connections with other residents and a sense of belonging;
- Opportunities to participate in the on-going planning and development of the community and to develop stewardship over its resources; and
- Contribution to the amenity of the region by providing cultural and recreational resources which are accessible for all.

The proposed approach to the planning of social infrastructure aims to provide sufficient certainty about requirements to inform the Planning Agreement process, while allowing for innovation and flexibility in the provision of social infrastructure through on-going negotiation through the St Marys Human Services Consortium.

Given the relatively small size of the Central Precinct, it will not sustain a wide range of facilities and services for that population alone and therefore some of the needs will be met by facilities and services to be located in the Western Precinct.

On this basis, the proposed baseline facilities and services to be provided for the Central Precinct are:

- Community activity centre;
- Temporary neighbourhood centre;
- Youth contribution;
- Aged and disability contribution;
- Library contribution;
- Cultural facilities;
- Public art levy;
- Resident Information Package;
- Community initiatives fund;
- Community facilities studies; and
- Community Development Worker.

These facilities and services, and preliminary costing information provided in Table 11 of the Community Plan, will form the basis of the relevant Planning Agreement contributions to be negotiated with PCC.

5.0 Part 5 – Development Control Strategy

5.1 Introduction

This part of the Precinct Plan contains guidance in relation to specific development standards for urban design, built form and environmental management for proponents proposing to carry out development to which the Precinct Plan applies, and to the consent authority for any such development. These standards are designed to ensure that the development principles and key elements of the framework plan and environmental strategies identified in the preceding sections of the Precinct Plan are implemented.

The Precinct Plan is not a statutory instrument and has the same status of a Development Control Plan. It should therefore be considered as guidance only. Specifically, in accordance with Section 4.15 of the Environmental Planning and Assessment Act 1979, in considering the development standards set out in this section of the Precinct Plan, the consent authority:

- Should not require more onerous standards than those set in the Precinct Plan for any aspect of the development; and
- Should be flexible in applying the standards that cannot be complied with by allowing reasonable alternative solutions that achieve the objects of those standards for dealing with that aspect of the development.

5A Urban Structure & Subdivision

5.2 Street Types

The Central Precinct street network is to be developed in accordance with the requirements of SREP 30 and the EPS, namely establishment of a permeable grid and legible street hierarchy that reinforces the neighbourhood structure. The design principles for the road hierarchy are contained in Section 4.6.

The future street hierarchy in the Central Precinct reflects the street typologies developed in collaboration with Penrith City Council. The location of external road connection points and internal roads, as shown in the Framework Plan (see Figure 11) serve as an indication of the urban structure of the site. Detailed design and placement of these roads will need to take into consideration the drainage regime of the site and the configuration and layout of lots to promote flexibility at DA stage.

Table 2 outlines the street types to be provided in the Central Precinct. This table also refers to relevant street sections included in Appendix C which illustrate how these controls are to be implemented.

Table 2 – Street Types to be provided in the Central Precinct

Street Type		Carriageway				Verge			
Collector Road		Travel Lanes	Median	On-street Cycle Lane No.	Parking	Carriageway Width	Verge Width	Total Reserve	Footpath
C1	Collector with parking both sides	7 (3.5+3.5m)	0	0	5 (2.5+2.5m)	12	8 (4m each side)	20m	3 (1.5+1.5m)
C2	Collector with median and parking both sides	7 (3.5+3.5m)	4	0	5 (2.5+2.5m)	16	8 (4m each side)	24m	4 (1.5+2.5m)
C3	Collector Main Street with parking and cycle lanes	7 (3.5+3.5m)	0	2	5 (2.5+2.5m)	14	12 (6m each side)	26m	8 (4+4m)
C4	Collector Main Street with angle parking and median	7.4 (3.7+3.7m)	4	0	11.2 (5.6m each side for 45 degree)	22.6	12 (6m each side)	34.6m	8 (4+4m)

Tree pits may be incorporated into the carriageway width to delineate parking and define pedestrian priority zones and crossing points or other nodes along the main street. When this occurs, the kerb will be brought out and around the tree to integrate the planting with the verge.

Street Type		Carriageway				Verge			
Local Street		Travel Lanes	Median	On-street Cycle Lane No.	Parking	Carriageway Width	Verge Width	Total Reserve	Footpath
L1	Minor Local Street with parking both sides	3	0	0	5 (2.5+2.5m)	8	7.6 (3.8+3.8m)	15.6m	3 (1.5+1.5m)
L2	Pedestrian Priority Local Street with parking both sides (inc. tree pits, defined pkg, dish drain and double tree planting)	3	0	0	5 (2.5+2.5m)	8	8.6 (4.8+3.8m)	16.6m	4 (2.5+1.5m)
L3	Local Street possible bus route with parking both sides	6	0	0	5 (2.5+2.5m)	11	8.6 (4.8+3.8m)	19.6m	4 (2.5+1.5m)
L4	Pedestrian Priority Local Street	6 (3.0+3.0m)	0	0	5.0 (2.5+2.5m)	11.0	7.6-8.4 (3.8-5.0m)	18.6-19.8m	3 (1.5/2.5m)

This is the predominant street type, allowing for a range of use patterns, and fostering pedestrian priority. These streets connect Collector Roads with open spaces through the residential neighbourhoods. On some roads, tree pits will be incorporated into the carriageway width. This will also help to soften the character of the street. When this occurs, the kerb will be brought out and around the tree to integrate the planting with the verge.

Street Type		Carriageway				Verge			
Accessway		Travel Lanes	Median	On-street Cycle Lane No.	Parking	Carriageway Width	Verge Width	Total Reserve	Footpath
A1	Accessway (rear loaded no parking)	3.5	0	0	0	3.5	5 (2.5+2.5m)	8.5m	0
A2	Accessway parking one side (parkland)	3.5	0	0	2.5	6	3.5 (2.5+1m)	9.5m	0

Accessways provide rear access to allotments along roads with limitations on front driveway access

Street Type		Carriageway				Verge			
Employment		Travel Lanes	Median	On-street Cycle Lane No.	Parking	Carriageway Width	Verge Width	Total Reserve	Footpath
E1	Employment Street with parking both sides	8 (4+4m)	0	0	5 (2.5+2.5m)	13	7.6 (3.8+3.8m)	20.6m	3 (1.5+1.5m)

General Notes:

- 1) Cyclepaths are to be provided as per the Pedestrian and Cycle Network Plan in the Precinct Plan, and may be on street or off road. On street cycle lane 1m wide each direction. Off road share hike and bike trail 2.5m wide and adds 1m to road reserve total width.
- 2) Median adds 4m to road reserve and allows central tree planting.
- 3) Angle parking can be used for high intensity activity areas such as the Village Centre, Regional Open Space and Regional Park access points.
- 4) Option for 1 sided footpath on local streets.
- 5) Local Street one sided parking reduces pavement width by 1.5m.
- 6) Upright kerb to be used, higher kerb to be used along parkland edges.

5.3 Public Domain

This section details the proposed landscape characters, landscape presentations, and public domain materials and treatments.

5.3.1 Landscape Characters

The landscape character of the open space areas within the Central Precinct as identified in the Open Space Masterplan in Section 4.8 and is to reflect one of the following landscape characters:

- Bushland;
- Woodland;
- Parkland;
- Open Space Water; and
- Urban Plazas / Squares.

Bushland Character

The Bushland character is the key landscape theme for open spaces within the Precinct due to its context surrounding by the Regional Park. This will provide a direct visual and ecological link to the plant communities of the Regional Park, and its deployment through the development open space will provide green corridor linkages of flora and fauna habitat, and fauna movement. This will be the dominant landscape character through the public realm in the Central Precinct.

The Bushland character will generally be associated with low levels of recreational use, pedestrian cycle access paths being the key use other than interpretive / educational access. The bushland environments will generally be self-sustaining in terms of maintenance (other than weed monitoring and bushfire management).

Woodland Character

The Woodland character provides a transition from Bushland areas to Parkland character. Woodland generally retains a strong visual context to the native bushland of the Regional Park through its retention and enhancement of native tree canopy. The Woodland areas will focus on understorey regimes incorporating trees in native grass and groundcover understorey. This is aimed at maintaining sightlines for safety and security and reducing understorey level fuels for bushfire risk.

Built form may be incorporated through the use of structures and awnings to provide shade and shelter, along with high quality paving, street furniture, lighting, signage, public art and water elements.

Parkland Character

The Parkland character will vary between open spaces based on existing features, their context within the urban development, and usage. The essential elements of the Parkland character will be trees in maintained grass, predominantly native canopy to further reflect the indigenous bushland context of the Regional Park. Non-native trees may be used in select locations such as parks within denser urban areas to provide winter solar access. Parkland character will involve recurrent maintenance of recreational grassed areas. Sports fields may also be irrigated.

Built form may be incorporated in these areas and may include change rooms, public amenities, structures and awnings to provide shade and shelter, along with high quality paving street furniture, lighting, signage, and public art.

Open Space Water

A variety of water bodies and elements are proposed as part of the open space network as part of Water Sensitive Urban Design, landscape and stormwater management measures. The Open Space Water character will be located adjacent to other landscape character abutting open space water bodies. The designs of Open Space Water will vary to include both soft and hard edge designs. The selection of options will be based on habitat corridors, maintenance requirements and salinity constraints.

Urban Plazas / Squares

The Urban Plazas / Squares character aims to complement the village centre by providing urban spaces for the relevant density of built form and range of uses and will seek to provide a focus for community gatherings and events and may be developed as an integrated public access with commercial sites.

The maintenance of these structured landscapes will be inherently higher commensurate with their higher intensity of usage.

Deciduous trees may be used in select locations (such as civic spaces) to provide winter solar access.

5.3.2 Landscape Presentation

The landscape presentation reflects the level of landscape detail that is proposed to embellish open space areas. The presentation is typically linked to landscape character. There are three landscape presentations proposed, Urban Presentation, Suburban Presentation, and Natural Presentation. The presentation and maintenance standards for these are detailed in the separate Landscape Maintenance and Handover Plan at **Appendix R**.

Urban Presentation

The Urban Presentation is proposed in the Parkland, Plazas/Squares, and Open Space Water Landscape Characters, or a combination of these.

The Urban Presentation will apply to those open space areas within the Precinct that lie within the denser development zones, and which serve a higher intensity and recurrence of community use.

The levels of presentation are higher than other spaces to meet the usage demands and to compliment the urban character of their locations. Parks within the Precinct that would fall within the urban presentation category include:

- Selected area of Park E at the Village Centre interface.

Suburban Presentation

The Suburban Presentation is proposed in the Woodland, Parkland and Open Space Water Landscape Characters, or a combination of these.

It will apply in to active and passive recreational use spaces catering for moderate levels of usage including family use, social gatherings, fitness and exercise activities, and playgrounds. The level of presentation will be dependent upon the character type and level of usage it receives.

It will also apply to Bushfire Protection Zones where recurrent maintenance is required to address fuel management requirements.

Open Space / Parks within the Precinct that would fall within the suburban presentation category include:

- Neighbourhood Parks generally; and

- Local and Pocket Parks not adjoining vegetation corridors or the Regional Park (eg Park 10).

Natural Presentation

The Natural Presentation is proposed in the Bushland, Woodland and Open Space Water Landscape Characters, or a combination of these.

It applies to low level and intensity of use spaces that incorporate and adjoin natural systems. Green corridors and interface areas adjoining parks fall into this category. Retention of existing vegetation and revegetation (where applicable) with indigenous species will provide a generally self-sustaining landscape with low recurrent maintenance demands.

Open space within the Precinct that would include (but generally not solely comprise) the natural presentation category include:

- Selected areas of Local and Pocket Parks adjoining vegetation corridors of the Regional park (eg Parks 8, 9, E and F)

5.3.3 Public Domain Materials and Treatments

Objectives

- Enhance the visual and functional elements of public domain areas through the appropriate provision of street furniture.
- Enhance the character, identity and appearance of the public domain whilst minimising ongoing maintenance requirements for public domain materials and treatments.
- Enhance the identity and character of the public domain and landscape through the integration of public art.

Controls

- Provide street furniture items, including seats, bins, and picnic tables at locations where users are most likely to require them, including open space areas identified in the Central Precinct Open Space Masterplan.
- Signage, street furniture and lighting is to be:
 - designed to reinforce the distinct identity of the development;
 - coordinated in design and style; and
 - located so as to minimise visual clutter and obstruction of the public domain.
- Footpath and cycle path paving should provide a hard wearing, cost effective and maintainable surface. The range of materials should be limited to make maintenance, renewal and extension works cost effective. Potential paving materials include quality stone, asphalt and exposed aggregate.
- Opportunities for integration of public art into the public domain should be identified through on-going design at the relevant DA stage.

5.3.4 Street Tree Planting

Objectives

- To reinforce the street hierarchy with appropriate native and cultural street tree planting considering scale, form, arrangement and amenity.

- To ensure landscape treatments reflect the civic and visual importance of collector streets and their role in the street hierarchy.

Controls

- Landscape treatment of streets is to:
 - be consistently used to distinguish between public and private spaces and between different street types within the road hierarchy.
 - minimise risk to utilities and services.
 - be durable and suited to the road environment and, wherever practicable, include endemic native species.
 - maintain adequate lines of sight for vehicles and pedestrians, especially around driveways and street corners.
- Collector streets should incorporate a strong/formal avenue planting of a larger, evergreen tree species that reinforce the higher order of these streets in the hierarchy and that provide visual continuity and legibility of the route throughout the development.
- Local streets should incorporate native tree species that are of an height and form that reinforce the lower order of these streets in the hierarchy.
- The landscape treatment should provide a continuous street tree canopy located within the road reserve between the footpath and the kerb.
- Ground surfaces to verges and medians are to vary from maintained native grasses (adjoining the Regional Park) to maintained garden bed, pavement or turf. Soft landscape treatments, where provided, should be kept simple to reduce recurrent maintenance needs.
- Design features such as blisters and neck downs can be used to provide additional space for landscaping and tree planting, where appropriate.

5.3.5 Lighting

Objectives

- Provide adequate lighting to streets to ensure pedestrian and traffic safety.
- To ensure a high quality, functional, safe and attractive public domain reinforced with appropriate lighting.

Controls

- Vehicular street lighting is to meet relevant RMS and Austroads standards.
- Pedestrian lighting should be provided close to footpath lighting, typically 3.5 to 4.5 metres at 20 metre intervals, to provide optimum illumination.
- Pedestrian lighting is to be pole mounted to meet relevant Australian Standards.
- Major cycle routes and pedestrian access paths are to be lit for night time usage.

5.4 Character Areas

Future Character Areas are shown in **Figure 13** and outlined in Section 4.3:

- Village Centre Character; and
- Urban Area/Neighbourhood Character.

The Urban Area/Neighbourhood Character is further defined by Location Criteria, which is land defined as:

- Adjoining land identified for Public Recreation or land that is separated from land identified for Public Recreation only by a public road; or
- Adjoining land identified for special infrastructure and is set aside for Drainage and Riparian Corridor or educational purposes, or land that is separated from land identified for special infrastructure and is set aside for Drainage and Riparian Corridor or educational purposes only by a public road, and in either instance within 400m of land approved for a neighbourhood centre, local centre or village centre; or
- Adjoining land identified for a neighbourhood centre, local centre, village centre or mixed use or land that is separated from land identified for neighbourhood centre, local centre, village centre or mixed use only by a public road.
- Within 400m of a public transport connection such as bus stop.

Land within the Central Precinct that meets this Location Criteria is indicatively identified in **Figure 13** as:

- Parkland Node;
- Riparian Corridor Edge; and
- Regional Open Space Edge.

Table 3 outlines the Planning and Design Principles for each Character Area.

Table 3 – Planning and Design Principles for Urban Character

	Village Centre	Urban Area / Neighbourhood Character
		Location Criteria Areas (LC)
Character	Urban scale, higher density and diverse built form resulting from pattern of use.	Residential scale and character. LC: Residential scale and character with the ability to provide higher densities to take advantage of adjacent amenity in areas with Location Criteria as defined below.
Predominant Land Uses	Mixed use with residential, commercial, retail, community and educational use.	Residential.
Typical Built Form Typology and Design	Range of attached and detached dwellings, multi-dwelling housing, manor homes and strata studios, shop-top, warehouse and urban sleeve dwellings, apartments, retail and commercial shops, education and community buildings. Building frontages to address public space and promote passive surveillance and active streets.	Range of attached to detached dwellings. Dwellings to be designed to address the public domain including: streets, parks and open space to enhance passive surveillance. LC: Range of attached to detached dwellings including compact housing (with a minimum lot size of 225m ² and dwelling plans), multi-dwelling housing, manor homes and strata studios Dwellings to be designed to address the public domain including: streets, parks and open space to enhance passive surveillance.
Typical Building Heights	Up to 8 storeys	1-2 storeys LC: 1-3 storeys
Open Space	Regional Open Space adjacent to the village centre	Local / neighbourhood parks generally within 5min walk. LC: Adjacent to local / neighbourhood parks, regional parkland and central regional open space.
Public Transport	Generally within 400m walking distance of a bus stop.	Generally within 400m walking distance of a bus stop.

5.5 Concept Plans

A concept plan showing the indicative urban structure of the Precinct is required to be submitted with the first subdivision DA for the Precinct. The concept plan shall demonstrate indicative information relating to:

- Road layout and subdivision pattern.
- Pedestrian and cycle network.
- Open space network.
- Location and type of non-residential uses.
- Development staging.

The concept plan shall be revised, as required, and lodged with subsequent relevant subdivision DAs as agreed with Council.

5.6 Subdivision and Integrated Housing

Applications for subdivision should demonstrate that the building form controls set out in Section 5B are able to be achieved. **Table 4** sets out the development approval pathways for different types of subdivision, including when a subdivision application should be supported by a Building Envelope Plan or combined with dwelling plans. For this Precinct Plan a single development application that comprises both subdivision and dwelling plans is defined as 'Integrated Housing'.

Integrated Housing is to be applied for all attached dwellings, semi-detached dwellings and detached dwellings on lots less than 225m². These Integrated Housing types provide smaller lot products that deliver greater housing choice and contribute to more affordable housing stock.

Given their smaller lots, integrated housing products are intended to be predominantly located in the Village Centre and Parkland Node Character Areas, where higher densities and a more urban scale are envisaged.

However, integrated housing could also be considered in other character areas. Where proposed in other areas, consideration should be given to the following locational and design criteria:

- Integrated housing is most suitable for corner lots in order to create a built form that positively addresses both street frontages;
- Integrated housing is most suitable for lots oriented north-south on an east-west street to maximise solar access to living areas and private open space;
- There should be consistency in architectural language between the dwellings, however, identical repetition of elevations is to be avoided; and
- All frontages to the street should be articulated with a variety of design elements such as windows, balconies and verandahs, and adequate landscape treatment provided.

Table 4 – Subdivision Approval Process

Approval Pathway	DA for Subdivision	DA for Integrated Housing (Integrated assessment with subdivision prior to construction of dwellings)	DA for Integrated Housing
	A1 Pathway	B1 Pathway	B2 Pathway
Preferred Character Areas	<ul style="list-style-type: none"> Urban Areas Urban Areas with Location Criteria Village Centre 	<ul style="list-style-type: none"> Urban Areas with Location Criteria Village Centre 	<ul style="list-style-type: none"> Urban Areas with Location Criteria Village Centre
Application	Lots equal to or greater than 270m ² (existing DCS)	Dwelling construction involving detached or abutting dwellings on: Lots less than 225m ² , or Lots with a frontage width less than 9m	Dwelling construction involving common walls (ie. attached dwellings) on: Lots less than 225m ² , or Lots with a frontage width less than 9m
Dwelling Plan Required	As part of future DA or CDC	Yes, as part of subdivision application	Yes, as part of subdivision application
Dwelling Design 88B restriction required	No	Yes, only approved dwelling can be built	Yes, only approved dwelling can be built
Timing of Subdivision (release of linen plan)	Pre-construction of dwellings	Prior to the issue of the Construction Certificate	Post-construction of dwelling slab, subject to survey

5B Built Form Housing

Housing diversity is a key element of a vibrant and sustainable urban neighbourhood. A broad mix of housing types can be developed through the provision of a range of lot sizes and flexible development standards and by providing, where appropriate, the opportunity for some higher density housing types.

Flexible development standards enable responsive to evolving market demands, thereby facilitating housing supply and choice. Housing choice builds into the community the opportunity for various levels of affordability, house size and family structure to be accommodated. Allowing for a range of housing and building types also facilitates the creation of a well-integrated and cohesive community tuned to appropriate Character Areas.

Under the land use definitions of SREP 30 housing comprises all of the below listed dwelling types, including:

- detached dwellings;
- dual occupancy development (as defined by the SREP 30); and
 - a component of both detached and semi-detached dwelling types.
- multi-unit housing (under the SREP 30).
 - comprising all other housing typologies.

To achieve these outcomes the Central Precinct will provide a mixture of the following dwelling types:

- Detached dwellings (front and rear access);
- Semi-detached dwellings (front and rear access);
- Attached dwellings (front and rear access);
- Multi-dwelling housing;
- Urban sleeve dwellings;
- Shop-top dwellings;
- Live/Work dwellings;
- Apartments; and
- Studio Units.

The applicable controls for these dwelling types are outlined in **Table 5**, which details the requirements for a range of lot sizes, frontages and dimensions, private open space requirements, setbacks, height and car parking. This table should be read in conjunction with the information provided below regarding each typology. The figures appended in **Appendix D** illustrate how these controls may be applied relevant to each dwelling type.

Further design guidelines for all home typologies are provided in **Section 5.8**, covering such issues as materials, landscaping, privacy, fences and walls, garages, safety, solar access, energy efficiency, servicing and adaptability.

Table 5 – Development Controls by Character Area

Housing Type	A1 Pathway		B1/B2 Pathway: Integrated Housing ^(b)			B1/B2 Pathway: Integrated Housing ^(b) in Village Centre Character Area			
	Detached (Standard)	Detached (Large Lot)	Detached	Semi-detached (Zero Lot)	Attached (LC only)	Urban Sleeve / Urban Lofts	Shop Top	Live / Work	Apartment
Typical Lot Characteristics									
Minimum Lot Size (m ²)	270-499m ²	500m ² +	150-269m ²	450m ² (225m ² each lot)	125m ²	80m ²	120m ²	150m ²	N/A
Minimum Frontage (m)	9 +	16 +	7 +	9 +, LC: 8.5 +	4.5 +	5 +	6 +	5 +	N/A
Depth (m)	25 +	25 +	14 +	15 +	25 +	8 +	20 +	20 +	N/A
Setbacks									
Front Setback (m)	4.5m	4.5m	3m	4.5m, LC: 3m	3m	0	0	0	2
Articulation Zone (m)	3.5m	3.5m	2m	3.5m, LC: 2m	2m	N/A	-1.5	N/A	1
Articulation Setback (m)	1m	1m	1m	1m	1m	N/A	0	N/A	1
Garages									
Street Setback (m)	5.5	5.5	5.5	5.5	5.5	0.5	0.5	0.5	2.5
Setback to dwelling (m)	1	1	1	1	1	0	0	0	0
Setback to Secondary Street (m)	2	2	2.5	2	2	0.5	0.5	0.5	2.5
Setback to Rear Lane (m)	0.5	N/A	0.9	0.5	0.5	0.5	0.5	0.5	0.5
Rear Setbacks (m)	3	3	3	3	3	0	N/A	0	0.9
Secondary Street Setback (m)	1	1	1.5	1	1	0	0	0	2
Minimum Side Setbacks (m)	0/0.9	0.9/1.5	0/0.9	0	0	0	0	0	0
Zero Lot Length (m)	13	13	13m	N/A, LC: 13m	15m (ex. rear loaded garage)	N/A	N/A	N/A	N/A
Max Height (storeys)	2	2	2	2, LC: up to 3 storeys	2 (up to 3 storeys)	4	8	2 (3)	8
Open Space									
PPOS (m ² or % of site) ^(d)	20	20	15%	15	15	15%	10%	10%	10
Min. width (m)	3	3	3	3	3	2.5	2.5	2.5	2.5
Parking (spaces)^(e)	1 to 2	2	1 to 2	1 to 2	1 to 2	1 per 1 and 2 beds, 2 per 3 beds	1 per 1 and 2 beds, 2 per 3 beds	2	1 per 1 and 2 beds, 2 per 3 beds, 1 visitor per 5 dwellings
Typical Character Areas ^(a)									
Urban Area/Neighbourhood	✓	✓					X	X	X
Village Centre ^(c)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Parkland Node	✓	✓	✓	✓	✓				
Bushland Edge	✓	✓							
Indicative Plans (Appendix D)	D9-D11	D12-D14	D26-D28	D5, D6, D23, D24	D1-D4, D7, D8, D19, D22, D25	D16	D18	D17	D15

LC = Location Criteria as described in Section 5.4

a) 'Typical Character Areas' refer to character areas in which each dwelling type would generally occur. This provision does not override the permissible development provisions in the Urban zone, as per cl. 40 of SREP 30.

b) Integrated housing means dwellings and lots subject to a single DA

c) No building setback required for retail/commercial buildings in the Village Centre Character Area

d) Private Open Space % can be made up of several individual open spaces so long as the minimum dimension is achieved. This may include open space in the front setback where appropriate screening or privacy and a connection to internal living spaces can be achieved or a balcony for integrated developments

e) Car ports or other structures are not permitted forward of garages provided on-site

5.7 Dwelling Types

5.7.1 Detached Dwellings

The detached housing typology includes a wide range of residential types and configurations, known within the market as loft type housing, villas and courtyard homes. The lot sizes suitable for this dwelling type range from 270 square metres to 1,000+ square metres and may include houses with zero lot line setbacks on single side boundaries to houses with dual frontages with garages as part of the rear entry to the property. The broad range of lot sizes and associated development standards are aimed at providing the flexibility that permits the development of houses with varying degrees of affordability able to suit a range of family types.

Detached dwellings with rear access are to incorporate a primary pedestrian access from the street, where visitor parking may be located, and secondary access from the rear access way or driveway. Zero lot line dwellings may require maintenance easements, to be controlled through s.88B covenants. Detached dwellings are suitable for all Character Areas.

Typical configuration and building footprints for detached dwellings are shown in in Appendix D.



Detached Dual Occupancy

Detached dwelling typologies may also include dual occupancy dwellings, which comprise 2 individual residential dwellings on a single larger corner site (generally greater than 500 sqm) within the subdivision development pattern, and areas of increased density such as the Village Centre and Parkland Node Character Areas.

Detached dual occupancy dwellings have distinct entries for each dwelling which may be located on different street frontages, creating a better consistent streetscape on both frontages. The garage for each dwelling may also be accessed from different sides of the building, such as a primary and secondary street or can be rear loaded. Detached dual occupancy dwellings with rear access are to incorporate a primary pedestrian access from the street, where visitor parking may be located, and secondary access from the rear access way, lane or driveway.

Detached dual occupancy dwellings are suitable for all Character Areas, but both dwellings should be included as part of a single development application. Detached dual occupancy lots are intended to provide two dwellings on a single allotment which may not be further subdivided.

Typical configuration and building footprints for detached dual occupancy dwellings are shown in Appendix D.

5.7.2 Semi-Detached Dwellings

Semi-Detached dwellings comprise 2 individual dwellings which share a common wall, providing an affordable alternative to traditional detached dwelling options. This form of housing is well suited to all areas of the Central Precinct but is particularly well suited to (but not limited to) corner sites within the development pattern and areas of increased density such as the Village Centre and Parkland Node Character Areas. Semi-detached dwellings have distinct entries for each dwelling which may be located on different street frontages.

The garage for each dwelling may also be accessed from different sides of the building, such as a primary and secondary street or can be rear loaded. Semi-detached dwellings with rear access are to incorporate a primary pedestrian access from the street, where visitor parking may be located, and secondary access from the rear access way, lane or driveway. Semi-detached dwellings are suitable for all Character Areas. Semi-detached dwellings will be Integrated Housing to be combined with the subdivision of the lot subject to a single DA.

Typical configuration and building footprints for semi-detached dwellings are shown in Appendix D.

Semi-Detached Dual Occupancy

Semi-detached dual occupancy lots comprise 2 individual semi-attached residential dwellings on mid-block sites within the subdivision development pattern, and areas of increased density such as the Village Centre and Parkland Node Character Areas. Semi-detached dual occupancy dwellings have distinct entries for each dwelling with at least one entry fronting the street. The second dwelling entry may be obscured from street view or accessed from the rear where the site is rear loaded. Similarly, the garage for each dwelling may be accessed from the same street or from different streets when the site is rear loaded. Semi-detached dual occupancy dwellings with rear access may incorporate a primary pedestrian access from the street, where visitor parking may be located, and secondary access from the rear access way, lane or driveway.

Semi-detached dual occupancy dwellings are suitable for all Character Areas, but both dwellings should be included as part of a single development application. Semi-detached dual occupancy lots may be further subdivided.

Typical configuration and building footprints for semi-detached dual occupancy dwellings are shown in Appendix D.

5.7.3 Attached Dwellings

Attached housing includes traditional row houses, multi-dwelling housing, urban sleeve/loft homes, terrace homes (front and rear loaded), dwellings with ground

floor home business uses, and shop-house style housing with ground floor retail/commercial uses.

Attached dwellings are characterised by buildings built to a zero-lot line on both side boundaries and may provide for parking with a rear loaded garage accessed from a mews, street, parking court or a driveway. Attached dwellings with rear access are to incorporate a primary pedestrian access from the street, where visitor parking may be located, and where possible a secondary access from the rear access way, lane or driveway. Attached dwellings with front access may be provided as an opportunity to increase densities without always requiring a rear access lane, to enable the integration of private open space with living areas, and to provide the opportunity to deliver housing choice and affordability.

Attached housing may be provided in groups of 2 or more dwellings if such groups are the subject of a single DA. Where a zero-lot line is created for attached housing adjacent to another lot, a maintenance easement may be required on the affected property to be controlled through s.88B covenants.

Attached housing is suitable for all Character Areas but is particularly well suited to areas of increased density such as the Village Centre and Parkland Nodes. Typical configuration and building footprints for attached housing are shown in Appendix D.



Multi Dwelling Housing (MDH)

Multi-dwelling housing means three or more strata subdivided dwellings on one lot of land (but not an individual lot in a strata plan or community title scheme) but does not include a residential flat building. Each dwelling has access at the ground level with individual garages usually accessed from a rear lane. The main example currently used within the market is the “Manor Home”.

- **Manor Home:** This form of Multi-Dwelling Housing contains three or four dwellings in a two-storey building. These are best suited to a corner lot where frontages can be to either street front. Access to each dwelling is on the ground floor. Provision of no more than 3 separate garages on site and these are typically accessed from a rear lane. Manor Homes are typically found on lots with sizes of approximately 600m².



5.7.4 Urban Sleeve Dwellings

The Urban Sleeve dwellings will generally be located in the Village Centre Character Area adjacent to or in close proximity to non-residential built form, shielding inactive frontages from areas of public access including streets, lanes and parking lots with the intention of activating these frontages and creating a more diverse village centre. These building typologies will also provide opportunities for local business and enterprise.

Urban sleeve dwellings provide additional options for occupants to live and work within the same dwelling with a larger, more formalised work space on the ground level and private uses on upper levels. In some instances, urban sleeve dwellings will have dual frontages, and if so garages will be located on the secondary frontage. Private open space may be located on terraces above street level with a minimum dimension of 2.5m.

Groups of Urban Sleeve dwellings will be the subject of a single DA. Subdivision of groups of Urban Sleeve Dwellings is to be approved as part of the single DA. Typical configuration and building footprints for urban sleeve dwellings are shown in Appendix D.

5.7.5 Shop Top Dwellings

The shop top dwelling typology will:

- Be provided above retail and other commercial uses in the Village Centre Character Area to add to the activity and vitality within this area.
- Have a range of dwelling sizes to cater for a variety of households and opportunity for affordable housing options.
- Have a distinct and clear entry for the dwellings, located on the primary street frontage wherever possible to add to the activity in the locality.
- Locate Private Open Space on terraces and balconies above street level and in locations that can add to the passive surveillance of the locality.

Articulation of building frontages over the public footway may be permitted subject to there being a suitable agreement with Council. Building articulation and street tree placement would be coordinated to remove potential conflict



5.7.6 Live/Work Dwellings

Live/Work Dwellings will:

- Be appropriately located, generally within the Village Centre Character Area with the intention of supporting functional, liveable, and safe live/work environment.
- Encourage building design that emphasizes the pedestrian realm and interface with the street through reduced front setbacks and well-articulated frontages.
- Be urban in character and add to the diversity and mix of allotments, creating variety and interest in the streetscape and increasing housing choice to a broad range of families.
- Encourage flexibility of use which will accommodate either residential or business uses.

Live/work dwellings are proposed to accommodate a wide array of uses. Uses that could affect the amenity of surrounding residential areas with noise, vibration or odour are strongly discouraged. Potential amenity impacts are to be considered during the assessment of any development application for a live/work dwelling.

Typical configuration and building footprints for live/work dwellings are shown in Appendix D.

5.7.7 Apartments

Apartments are appropriate in the Village Centre Character Area on sites where a greater density is appropriate and desirable for the creation of a more balanced and vibrant community. Apartments are suited to areas of higher amenity and locations in proximity to parks, bus stops, amenities and services.

The provision of apartments allows the creation of housing options for people looking for a low maintenance, urban, and potentially more affordable housing alternatives to traditional detached house forms. Apartments can be provided in a range of sizes from one-bedroom apartments up to three plus bedroom family apartments.

The scale of apartment buildings is to be compatible with the mass and character of adjacent building types. Articulation of facades is required to mitigate the bulk and mass of apartment buildings.

Apartments are to be designed to accommodate parking on site, including underground where appropriate. Typical configuration and building footprints for apartments are shown in Appendix D.



5.7.8 Studio Units

Detached, semi-detached and attached dwellings with rear access may also incorporate a studio unit above the ground level garage at the rear of the lot in appropriate locations in order to provide additional housing diversity. They also provide the opportunity to increase passive surveillance opportunities of streets.

Studio units should:

- Provide a varied elevation where attached;
- Have a minimum size of 45m², but contain no more than 1 bedroom;
- Have 8m² of private open space;
- Provide 1 car space;
- Be a maximum of 1 floor above garage;
- Meet BCA standards.

5.8 General Housing Siting and Design Controls

General planning and design controls for residential dwellings are provided in the following sections. These controls are relevant to all residential development in the Central Precinct.

5.8.1 External Built Form and Materials – Private Domain

Dwelling facades should display a variety of materials, colours and shading structures, with garages integrated into the overall architectural form and design.

The Design Guidelines to be administered by the Joint Venture developer will address material and finishes for use for such items as fences, walls, garages, paving, planting, roofs and building colour schemes. The Building and Siting Guidelines will be enforced under the developer covenants, and details of external materials and finishes are to be submitted with a DA. Further detail on specific elements is also provided in the following sections.

5.8.2 Landscaping

Objectives

- Landscaping is to contribute to effective management of stormwater, biodiversity, energy efficiency and to improve visual amenity.
- Encourage the use of native species of flora and low maintenance landscaping.
- Retain and integrate existing landscape elements such as vegetation and topographic features, where appropriate, in the design of new development.

Controls

- Trees planted on the north side of private open space areas and habitable rooms are encouraged to be deciduous.
- A minimum of one tree is to be provided where possible within the front setback area of every residential allotment. This may include existing trees that are to be retained within the front setback area.
- Planting of vegetation at the front of higher density development must consider the need for passive surveillance. Excessively dense vegetation that creates a visual barrier should be avoided.
- A Landscape Plan is to be lodged with all DAs for dwellings, and is to provide the following details:
 - the location of any existing trees on the property, specifying those to be retained and those to be removed.
 - the position of each shrub and tree species proposed to be planted.

Each plant is to be identified by a code referring to a plant schedule on the plan.

5.8.3 Visual and Acoustic Privacy

Objectives

- Ensure buildings are designed to achieve acceptable levels of visual and acoustic privacy.

- Protect visual privacy by minimising direct overlooking of habitable rooms and private open space.
- Contain noise within dwellings and minimise noise from outdoor areas.

Controls

- Direct overlooking of main habitable areas and private open space should be minimised through building layout, window and balcony location and design, and the use of screening devices, including landscaping.
- As far as practicable the windows of habitable rooms shall be screened or adequately separated from walkways, footpaths, communal areas, driveways, windows of other dwellings and balconies above. Courtyard walls, walls of the building, screen walls and the like are an acceptable method of screening of windows.
- Where overlooking of habitable rooms and private open space cannot be avoided, additional visual privacy may be achieved by:
 - offsetting adjacent windows;
 - fixed window screens;
 - providing sill heights of at least 1.5 m above floor level; or
 - providing fixed obscure glazing.
- The design of attached dwellings must minimise the opportunity for sound transmission through the building structure, with particular attention given to protecting bedrooms and living areas.
- Living areas and service equipment must be located away from bedrooms of neighbouring dwellings.
- In attached dwellings, bedrooms of one dwelling are not to share walls with living spaces or garages of adjoining dwellings, unless it is demonstrated that the shared walls and floors meet the noise transmission and insulation requirements of the Building Code of Australia.
- Noise sensitive areas are to be located away from noise emitting sources.

5.8.4 Fences and walls

Objectives

- To ensure fences and walls improve amenity for existing and new residents and contribute positively to streetscape and adjacent buildings.
- To ensure boundary fences and walls between allotments provide visual privacy without affecting the amenity of those allotments in terms of views, sunlight and air movement.
- To ensure materials used in fences and walls are in keeping with the existing streetscape character and character of the dwelling type.
- To ensure fences and walls are sympathetic to the topography.

Controls

- Front fences and walls must not be higher than 1.5 metres.
- The design and materials of front fences and walls is to be compatible with the desired character of the streetscape.
- Side and back fences and walls can be built up to 1.8 metres in height to achieve privacy for the rear yard.

5.8.5 Garages

Objective

- Design of garages must not dominate the frontage of the house.

Controls

- Double garages are permitted on lots having minimum width of 10m or greater. However, no more than two 10m frontage lots with double garages are permitted side by side, and a maximum of 4 homes with 10m wide lots and double garages are permitted on any one side of a street. Double garages are to have a maximum width of 6m.
- Dwelling design for lots with double garages between 10-11m in width must be 2 storeys to enable the garage frontage to be recessed under a balcony to reduce garage dominance, and a habitable room above garage is required. Double garages are to have a maximum width of 6m.
- Dwelling design for lots of 11m or greater in width can be single storey and provide a double garage. Double garages are to have a maximum width of 6m.
- Materials and colours should blend the garage doors into the main building.
- Garages are to be limited to a maximum capacity of two cars, with tandem garages permitted.
- Garages are to be set back behind the front most element of the house and fully integrated into the front facade.
- No car ports or structures are permitted forward of garages.

5.8.6 Safety

Objectives

- To ensure that the siting and design of buildings and spaces contributes to the actual and perceived personal and property safety of residents, workers and visitors and decreases the opportunities for committing crime in an area.
- To ensure development encourages people to use and interact in streets, parks and other public places without fear or personal risk.
- To increase the perception of safety in public and semi-public space including streets and parks.
- To maximise actual and perceived safety within the community.
- To encourage the incorporation of principles of crime prevention through urban design and landscaping into all developments.

Controls

- Dwellings should be designed to overlook streets and other public or communal areas to provide casual surveillance. Living areas, windows, access ways and balconies should be arranged to overlook recreation areas and other public areas.
- For residential dwellings, roller shutters are not be used on doors and windows facing the street. Security railings must be designed to complement the architecture of the building.
- Pedestrian and communal areas are to have sufficient lighting to ensure a high level of safety. These areas must be designed to minimise opportunities for concealment.

- All developments are to incorporate the principles of Crime Prevention Through Environmental Design, in accordance with Penrith City DCP 2006. When assessing applications, Council must give consideration to Planning NSW guidelines for Crime Prevention and the Assessment of Development Applications.
- Avoid the creation of areas for concealment and blank walls facing the street.

5.8.7 Bushfire and Asset Protection

Objective

- Dwellings should be constructed to meet the minimum bushfire protection standards

Controls

- Asset protection zones are to vary between 14m and 100m (the latter being a temporary APZ) depending on the lot location in relation to the subdivision boundary.
- No tree or tree canopy is to occur within 2 m of future dwelling rooflines.
- The presence of a few trees in the APZ is acceptable provided that they are well spread out and do not form a continuous canopy whereby single trees, or clumps of trees forming one canopy are separated by 2 to 5 m depending on the canopy size.
- Shrubs are to be limited to select and well managed garden beds that are located far enough away from future buildings so that they will not ignite the buildings by direct flame contact or radiant heat emission.
- A minimal ground fuel is to be maintained to include less than 4 tonnes per hectare of fine fuel (*fine fuel* means ANY dead or living vegetation of < 6 mm in diameter *e.g.* twigs less than a pencil in thickness. 4 t/ha is equivalent to a 1 cm thick layer of leaf litter).
- Access controls are to be implemented using the identified performance criteria in the approved Bushfire Protection Assessment Report
- Water supply is to use a ring main system for areas with perimeter roads. Fire hydrant spacing, sizing and pressures are to comply with AS2419.1-2005, or provision of a test report to the RFS, with no hydrants to be located within a road carriageway.
- All above ground water and gas services pipes external to a building are metal, including and up to any taps.
- Electricity supply should be underground wherever practicable. Where overhead transmission lines are installed, they are to use short pole spacing, unless crossing gullies, and no part of a tree should be closer to a power line than the specified distance in 'Guideline for managing vegetation near power lines' issued by the Department of Energy, Utilities and Sustainability in 2005.
- Gas services are to be installed and maintained in accordance with AS/NZS 1596:2008.

5.8.8 Solar Access

Objective

- Dwellings should be designed to maximise solar access.

Controls

- At least 40% of the area of private outdoor space should receive at least 3 hours of sunlight between 9am and 3pm at the winter solstice.
- Dwellings should also be designed to avoid overshadowing of adjacent properties and to protect sunlight access to any habitable room or at least 40% of the area of private open space of adjacent buildings to less than 4 hours between 9am and 3pm at the winter solstice (21 June).
- For integrated developments dwellings are to achieve solar access of:
 - 4 hours of sunlight to living zones (i.e. areas other than bedrooms, bathrooms, kitchen and laundry) between 9am and 3pm on the winter solstice; and
 - a minimum of 3 hours sunlight to 40% of the private open spaces of the dwelling (balconies with a minimum dimension of 2.5m linked to habitable rooms are considered to be private open space for integrated dwellings), between 9am and 3pm on 21 June.

5.8.9 Energy and Water Efficiency

Objectives

- To ensure ecologically sustainable development.
- To incorporate best practice energy management and implement energy efficient principles to fulfil several objectives:
 - to maximise the benefits of passive solar design;
 - to improve the energy efficiency of dwellings;
 - to minimise the need for mechanical heating and cooling appliances;
 - to promote the installation of greenhouse responsive hot water systems and other energy efficient appliances; and
 - to maximise the use of natural light and limit energy use for interior lighting.
- To minimise unnecessary water production during design and construction.
- To recycle, reuse and reprocess waste locally.
- To minimise adverse impacts on air quality.

Controls

- BASIX Certificate is to accompany DAs for new dwellings.
- The design of dwellings should minimise heat loss and the absorption of heat through measures such as the use of insulation in walls and roofs.
- The design of dwellings should minimise heat loss and the absorption of heat by limiting the size of windows on the western facades of buildings.
- Dwellings should be designed to allow cross ventilation, where appropriate, by positioning windows and doors opposite each other within rooms and providing fans and alternative forms of mechanical ventilation (other than air conditioners).
- Dwellings should be designed to face living spaces to the north, sleeping areas to the east or south, and utility areas to the west or south.
- Dwellings should be designed with north facing windows.

- Dwelling design should consider shading of north, east and west facing windows through use of elements such as shading devices, including eaves, verandas, and pergolas.
- Dwellings should utilise energy efficient fixtures such as solar hot water systems or star rated appliances.
- Dwellings should utilise water efficient fixtures to ensure compliance with BASIX requirements.
- Dwellings should be designed so that:
 - hot water systems are located as close as possible to wet areas;
 - wet areas are clustered to minimise pipe runs;
 - external clothes drying areas are provided, with access to sunlight and breezes; and
 - reflective or light-coloured materials are used and/or dwellings are painted in light colours.
- Rainwater tanks are to be provided on lots greater than 400 square metres, subject to agreement being reached with the Department of Planning that the provision of recycled water to the Precinct obviates the need for the installation of rainwater tanks

5.8.10 Servicing

Objectives

- To ensure that adequate provision is made for site facilities.
- To ensure that site facilities are functional and accessible to all residents and are easy to maintain.
- To ensure that site facilities are thoughtfully integrated into development and are unobtrusive.

Controls

- Development must demonstrate that the design takes into account waste storage and collection without reducing the amenity of the dwelling or neighbouring lots.

5.8.11 Adaptability

Objective

- To provide practical and flexible housing and urban spaces that are designed and constructed to ensure durable and long-term adaptability to maximise access and liveability, consistent with AS 4299.

Controls

- Residential dwellings shall be designed with key design features that may achieve:
 - direct access;
 - spaces for car parking;
 - adequate access and circulation widths; and
 - main facilities at ground floor level.

5C Non Residential Built Form

5.9 Non Residential Buildings (Village Centre)

Non-residential built form in the Village Centre Character Area will include a variety of uses including retail, commercial, mixed use, and community and education buildings. Where such development takes place a number of principles will be observed in order to enhance the urban design outcomes in the village centre. These principles are listed below.

Mix of Uses

A range of uses including office, community, educational, residential and recreational uses may be considered within a mixed use building. Mixed uses can be arranged horizontally, vertically or in a combination. Horizontal mixed-use development in the Village Centre will locate retail and commercial uses along street frontages with residential use to the rear or along secondary streets and accessways. Vertical mixed-use development will locate retail and commercial uses at street level, so as to maximise street activation, with commercial and residential uses located on upper levels.

Conflict between uses will be minimised through appropriate siting or via the application of appropriate building materials to eliminate noise transmission and other conflicts. Loading bays, site storage and access points for waste collection will be located away from public spaces, streets and residential areas to minimise amenity issues associated with cooking exhausts, waste, plant rooms and service vehicles.

Street Frontages/Entrances

Non-residential uses will be located on the street with ground floor uses and upper floor windows facing the street to activate these edges and provide passive surveillance. Primary entrances will generally be provided off the main street. Access points will be compatible with the overall façade of the building but will be clearly defined and identifiable for vehicles and pedestrians.

Retail buildings will be designed to address the street to ensure high quality pedestrian connectivity between all uses in the Village Centre. Larger stores may be sleeved by smaller specialty shops and offices with frontages to surrounding streets. Vehicle access will be provided away from the main street frontage. Parking and passenger drop off will be located adjacent to building entrances. Car parking will be shared and co-located where possible to minimise land take and enhance walkability and maximise pedestrian connections.

Building Form

Buildings will be designed to face the street with particular attention paid to the rear of the building and its relationship to accessways and adjacent buildings. Built form should relate to the public domain and its form and scale. Façade treatment should avoid the use of blank walls and should break up excessive bulk and scale. The façade of large buildings will be articulated in terms of volume and surface treatments, to reflect the existing scale of the street and adjacent development.

Building Depth

Building depth should be adequate in order to maximise natural light, ventilation and circulation unless specific building use requires otherwise. This depth will allow optimum circulation and room layout while minimising artificial lighting at the building core.

5.10 Employment Zone Buildings

It is anticipated that the Employment Zone will provide a range of building types accommodating light industrial and manufacturing uses. Typical building types include warehouses/workshops and strata units.

The applicable controls for these building types are outlined in **Table 5**, which details the requirements for minimum lot sizes, frontages and dimensions, open space requirements, setbacks, height and car parking. The figures appended in **Appendix E** illustrate how these controls may be applied relevant to each building type.

Further design guidelines for Employment Zone buildings are provided in **Section 5.10**, covering such issues as building envelope and design, site access and parking, landscaping, signage, fences and walls, energy efficiency, and environmental management.

Table 6 – Employment Zone Development Controls

Allotment Type		Employment
Min. Allotment Size (m ²)		1000sqm Torrens Title and 150sqm Strata Title
Typical Frontage (m)		20m+
Typical Depth (m)		30m+
Setbacks		
Primary	Building Frontage	5m setback for up to 8.5m high and 7.5m setback for up to 12m high
	Articulation Setback	4/6.5m
Secondary	Building Frontage	4m
Side	Internal	0
Rear	Building	5m
Landscaping		
	Private	Min. 3.5m front and 2.5m secondary
Height		
	Max Wall Height	8.5m
	Max Total Height	12m
Parking (spaces)		Warehouse: 1 space/100 sqm GFA Factory Units: 1 space/75sqm GFA Office Component: 1 space per 40sqm GFA Ancillary Showroom: 1 space/45sqm GFA Daily Convenience Shop: 1 space per 30sqm GFA.

a) Non-residential developments including mixed-use developments with a construction cost of \$1 million or more are to demonstrate a commitment to achieving no less than 4 stars under the relevant Green Star and 4.5 stars under the Australian Building Greenhouse Rating (if applicable).

5.11 General Employment Building Siting and Design Controls

5.11.1 Building Envelope and Design

Objectives

- To ensure the creation of a high quality streetscape character and hierarchy of streets.
- To ensure that building forms are of an appropriate scale for an employment area.

- To mitigate the visual impact of any large scale employment.
- To ensure that built form establishes a strong relationship to the Regional Open Space and Regional Park areas.
- To provide adequate distance between, buildings and street alignments for landscaping and vehicle manoeuvring.
- To provide adequate sight distance for safe traffic movement.
- To create a strong street presence, encouraging pedestrian activity and slower traffic speeds.
- To encourage passive surveillance of the street.
- To encourage a high standard of architectural design for employment buildings.
- To allow for the efficient use of land.
- To encourage attractive and visually coherent streetscapes.
- To encourage the use of building materials which are durable and which maintain a high standard of appearance over time.
- To promote energy efficient building orientation and envelopes.

Controls

- Building facades visible from street are to be of high visual quality (have colour and material variations, windows and articulation on walls to all street frontages). All facades should be articulated using architectural elements such as external structures, protrusions and penetrations, decorative features, textures and colours, with a variety of materials and finishes including brick, glass, steel, concrete, textured block work and pre-cast exposed aggregate panels.
- The office component of any development shall be incorporated into the overall design of the building, and located generally along the primary street frontage.
- Where zero lot should occur, adjoining buildings are to consider appropriate alignment, materials, finishes and selection, and proportion of facade to assist articulation and visual interest.
- Building form shall be articulated and where possible use roofs with eaves that project beyond external walls, dividing long walls into a series of forms, and emphasising pedestrian entry points.
- Minor encroachments, including projecting eaves and flagpoles, may project beyond maximum building height.
- Buildings shall address the primary street frontage of an allotment with a clear and well lit pedestrian entry.
- Where an allotment has frontage to more than one street, the building setback to the secondary street frontage(s) is to ensure that the building presents a satisfactory relationship to the street with good design and landscaping elements.
- Sun shading devices, such as awnings, shall be provided over all openings (other than loading docks).
- Rooftop structures (including plant rooms, air conditioning and ventilation systems) shall be incorporated into the design of the building.

5.11.2 Site Access & Parking

Objectives

- To ensure that adequate provision is made on each development site for parking.
- To improve the visual appearance of car parking areas.
- To separate truck and small vehicle traffic to create safe paths of travel for all vehicles.
- To provide for bicycle parking areas.

Controls

- Access routes to car parking areas are to be clearly identified.
- Car parking should generally be located at the side or rear of an allotment.
- Where located at the side or rear of an allotment with more than one street frontage, car parking areas should accommodate high quality landscaping along the secondary street frontage(s).
- Vehicular access, manoeuvring and loading areas should be separated from car parking areas on torrens title allotments, in order to separate pedestrian movement and heavy vehicles.
- Visitor parking is to be clearly marked and easily identifiable and be located to be closest to the building's main entry.
- On-grade parking should be within a landscaped setting.
- All car-parking spaces should be adequately drained, marked and designated upon the site.
- A dedicated area for bicycle parking shall be provided within the car park and should include bicycle racks for similar.

5.11.3 Loading & Servicing

Objectives

- To encourage the optimum efficiency of land use through the provision of shared parking, turning and access routes between neighbouring sites.
- To maximise the area available for landscaping.
- To ensure that adequate provision is made on each development site for access by cars and trucks and for the loading and unloading of materials and goods.
- To ensure that site facilities are functional and accessible and are easy to maintain.
- To ensure that site facilities are thoughtfully integrated into development and are unobtrusive.
- To ensure trucks and cars are separated to maximise on site safety.
- To allow for shared loading arrangements between neighbouring allotments.

Controls

- Vehicular access, manoeuvring and loading areas are to be separated from car parking areas on torrens title allotments.

- A minimum on-site driveway width of 8 metres is required for loading and servicing access. Cross-over widths should comply with the relevant Australian Standard.
- Where 2 battle axe handles adjoin, a shared driveway may be provided with reciprocal rights of access. The minimum width of the driveway should be 10m.
- Loading docks, loading areas and external storage areas should be appropriately located and/or screened so as to not be visible from the street and/or the Regional Park.

5.11.4 External Industrial Activities

Objective

- To mitigate the environmental and visual impact of external processing and storage of materials.

Controls

- External industrial processes and/or the storage of materials will not be permitted along a road frontage and must be separated or visually screened.
- Outdoor storage areas should be screened from public view through appropriate screening or a landscape buffer.
- Outdoor storage areas should not be located in front of primary building façade.
- Loading zone should be located in areas of low visibility such as side and rear of buildings.

5.11.5 Recycling & Waste Management

Objectives

- To reduce the amount of waste going to landfill.
- To encourage the recycling of industrial waste.

Controls

- Waste separation, recycling and reuse facilities should be provided on site.
- Waste facilities should be fully integrated with the design of the building and/or landscaping.

5.11.6 Landscaping

Objectives

- To mitigate the visual impact of employment buildings and hard stand areas through the use of landscaping.
- To create a strong landscape setting to the street frontage.
- To encourage the use of native flora and low maintenance landscaping.
- To assist in the management of salinity.
- To establish landscaped boundaries to employment sites.
- To enhance visual integration of urban development with the Regional Park bushland context.

Controls

- Landscaping on individual allotments is required within the front building line setback and contribute to effective management of stormwater, biodiversity, and energy efficiency; and improve visual amenity.
- Landscaping is required in the side and rear setbacks (where provided) if visible from a public place. In addition, the perimeter of open storage areas is to be landscaped as necessary to provide appropriate screening from public view.
- Car parking areas should be landscaped to provide shade and to soften the visual impact of parking facilities.
- Low water demand drought resistant vegetation should be used in landscaping areas, including native salt tolerant trees.
- Street tree planting, including endemic species, shall be provided to enhance the appearance of the street and pedestrian environment, including providing protection from the sun.
- Planting of vegetation should consider the need for passive surveillance.
- Excessively dense vegetation that creates a visual barrier must be avoided.

5.11.7 Signage

Objective

- To accommodate the need to identify and promote employment development whilst preventing the unnecessary proliferation of advertising signs or structures.
- To ensure that signage is designed to be sympathetic to the architectural treatment of the building and surrounding streetscape.
- To ensure signage does not detract from the visual appeal of the Ropes Creek Precinct.

Controls

- All advertising signage is to be:
 - Constructed of high quality, durable materials;
 - Considered in conjunction with the design and construction of buildings;
 - Restricted, generally, to one sign identifying the name of the occupants and/or products manufactured or produced on the site; and
 - Contained wholly within the site.
- In the case of multiple occupancy buildings:
 - Freestanding signage shall be limited to a single structure directory board listing each tenancy, located at the entry to the site from a public road, along the road frontage; and
 - One business identification sign not exceeding 2m by 0.6 m is permitted on each unit. Such signs are to be a uniform shape, size and design.
- Directional signage for car parking areas, loading docks, delivery areas and the like should be designed in an attractive manner and should be located at a convenient point close to the main access to the site.
- Roof signs are generally not permitted. In exceptional circumstances, a roof sign may be erected where it forms an integral part of the architecture of the building.

5.11.8 Fences and Walls

Objectives

- To provide security for property owners.
- To contribute to the amenity of the Central Precinct.
- To ensure fences and walls improve amenity for employees of existing and new development and that they contribute positively to adjacent buildings.
- To encourage pedestrian access to businesses from the street.
- To ensure boundary fences and walls between allotments provide security.
- To ensure materials used in fences and walls are of a high quality and in keeping with the character of the precinct.
- To ensure fences and walls are sympathetic to the topography of the precinct.

Controls

- The use, design and materials of fences and walls are to be compatible with attractive fences and walls in the streetscape.
- Side and rear fences and walls can be built to a maximum height of 1.8m to screen the rear of the allotment from adjacent sites.

5.11.9 Safety

Objectives

- To ensure that the siting and design of buildings and spaces contributes to the actual and perceived personal and property safety of residents, workers and visitors and decreases the opportunities for committing crime in an area.
- To ensure development encourages people to use and interact in streets, parks and other public places without fear or personal risk.
- To increase the perception of safety in public and semi-public space including streets, car parks and parks.
- To encourage the incorporation of principles of crime prevention through urban design and landscaping into all developments.

Controls

- Pedestrian and communal areas are to have sufficient lighting to ensure a high level of safety. These areas must be designed to minimise opportunities for concealment.
- All developments are to incorporate the principles of crime prevention through environmental design.
- The creation of areas for concealment and blank walls facing the street is to be avoided.

5.11.10 Energy Efficiency

Objectives

- To promote energy efficient building envelopes.
- To minimise the energy required for heating cooling and lighting.

Controls

- Natural lighting (e.g. translucent roof panels) shall be provided wherever possible.
- Buildings shall provide effective sun shading for windows, wall surfaces and building entries (other than loading docks) by the use of design elements such as overhanging eaves and awnings, undercrofts, colonnades and external sun shading devices including screens.
- Appropriate building insulation shall be incorporated so as to minimise heat loss.
- White or light beige roof colours should be used.
- Walls exposed to afternoon sun should either be shaded, or should be the lightest acceptable colour.
- East and west facing windows should be minimised due to the hot, low summer sun and should be fitted with shading devices, including blade walls, and thick vegetation.
- Consideration should be given to the use of clear polycarbonate panels in selected north facing walls to increase passive heat gains.
- Consideration should be given to installation of solar water heating systems wherever possible.
- Hot water tanks and hot water pipes should be insulated.

5.11.11 Water Use

Objective

- To minimise the use of potable water.

Controls

- Allotments shall be provided with a separate piped supply of treated effluent, subject to continuing negotiations with Sydney Water, and other appropriate measures such as rainwater tanks.
- Water saving devices should be used where possible including:
 - Use of 6 litre/3 litre dual flush toilets;
 - All staff amenity appliances to have water efficiency ratings of at least AA according to the rating issued by Water Services Association Australia;
 - Separate hot and cold water taps over basins and sinks in staff amenity areas; and
 - Aerators are fitted to hot and cold water taps over basins and sinks in staff amenity areas.

5.11.12 Air Quality

Objective

- To minimise adverse impacts on air quality through the implementation of appropriate measures.

Controls

- Any development application for a use that may have the potential for significant adverse impact on air quality, including odour, should include an air quality impact assessment report.
- Applicants must demonstrate that the most efficient means of minimising emissions are being used.
- All potentially airborne materials such as sand, soil, cement or the like should be stored, screened and contained to minimize any potential effects of airborne pollution.

5.11.13 Noise and Vibration

Objective

- To minimise the potential impacts of noise and vibration on surrounding land uses.

Controls

- Development applications are to consider the potential noise and vibration impacts of a proposed use, including the proposed hours of operation, and should reflect the relevant standards and guidelines.
- Plant and machinery should be installed on site to ensure that no vibration is transmitted outside the limits of the site.
- Any development application for a use that may have the potential for significant adverse impact through noise and vibration, should include a noise and vibration impact assessment report.